

# ARCHITECTURAL RECORD



Project Diary: Renzo Piano Transforms Fiat Landmark

Casino Mania and Architecture

Theming vs. Design: The Retail Debate

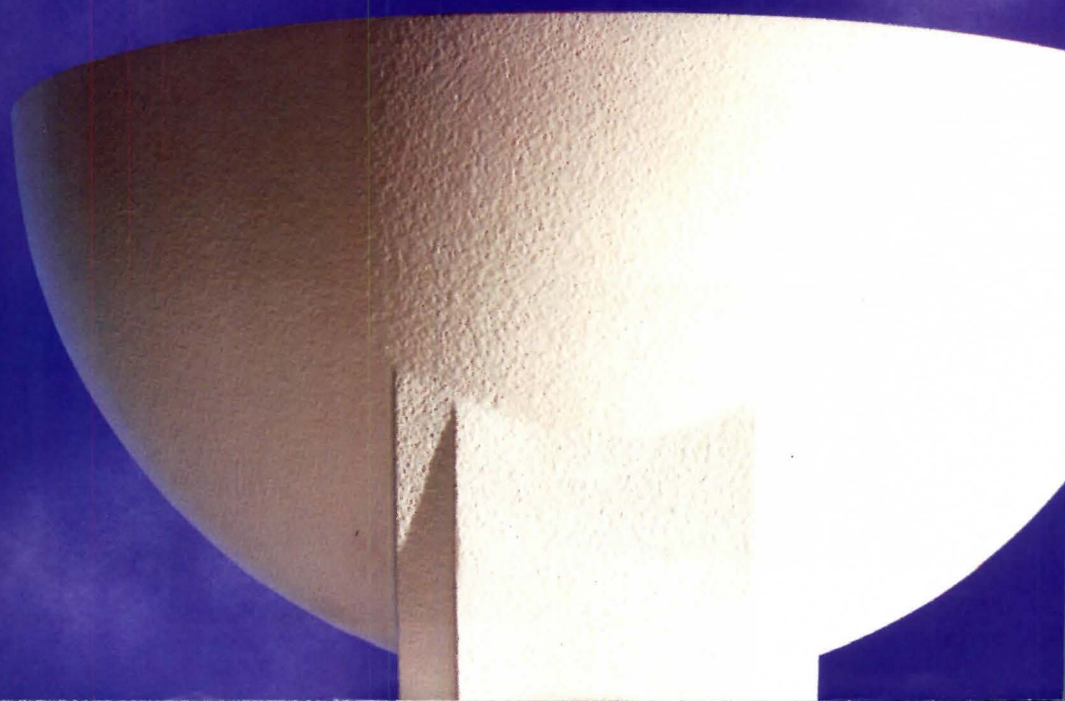
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## EDITORIAL:

# Words Count

BY ROBERT A. IVY, FAIA

**S**ome people say that architects don't read, but I don't agree. Like most generalizations, this cliché may sound accurate, but probe and you will find that architects read what they care about. Architects simply read in different ways, from a variety of media: print publications, drawings, models, photographs, and 3-D/computer imagery are among their information sources. Although members of the profession are cognizant of contemporary issues and often fiercely committed to ideas, their time available for reading is limited. In order to gain their attention, the words placed before them must count.

Writing and architecture have dominated my own adult life. As a child reared in Columbus, Mississippi, Tennessee Williams's hometown, a community that cradled an architectural treasury, my own, twin passions were clearly set—architecture and writing. The connections between the two disciplines are rare, but urgent: language crystallizes, as architecture manifests, thought. Both literature and architecture can be as compelling as the minds that produce them; each must inform the other. As good architecture is worth exploring and understanding, good writers are worth reading. Where would we architects be without Vitruvius, John Ruskin, Lewis Mumford, or Jane Jacobs?

My own challenge, in assuming the editorship of ARCHITECTURAL RECORD, will be to weave a more fully rounded portrait of this messy, glorious enterprise called architecture, enlisting the best minds available to cast a cold eye on both contemporary issues and actual work to provoke our collective thought. Good writers can do that.

In this issue, we are proud to announce new arrivals to our roster of contributing editors. Architect, educator, and author Michael Sorkin, who attracted a wide following as architecture critic of *The Village Voice* for ten years, will analyze architecture and urban issues at least four times per year. Letters of appreciation for Michael's contributions have already arrived.

If you read the article on Cabrini-Green in our February issue [pages 84-89], you were introduced to Blair Kamin, the distinguished architecture critic of the *Chicago Tribune*. He will continue to follow that critical public housing development, among other projects, in the coming months.

Few writers on architecture have covered as broad a range of concerns as has Andrea Oppenheimer Dean. Fellow of the American Academy at Rome, former executive editor of *Architecture* magazine, and currently editor at large of *Preservation* magazine, Andrea will bring a wealth of experience to any subject she tackles.

Perhaps no American journalist knows more about the state of architectural education in the United States than Lee Mitgang, a senior fellow with the Carnegie Foundation and award-winning journalist. It was Lee who co-authored the 1996 Carnegie Foundation report on architectural education with the late Dr. Ernest Boyer. Lee will cover what he knows best.

In addition to our own talented staff, this magazine is blessed with a list of strong, regular writers who attract readers. Included in their number are contributing editors like Boston critic and Pulitzer prize-winner Robert Campbell, as well as a distinguished list of international correspondents, from Tokyo to Madrid.

The list is growing. Next month, we will announce three more names who are joining what will become an unparalleled community of writers about architecture. Words count, and this magazine will offer only the best, because architecture and writing lie at the core of ARCHITECTURAL RECORD.



## LETTERS

**The New Urbanism**

Thank you for Beth Dunlop's fine article [RECORD, January 1997, pages 132-145], which makes clear that the New Urbanism is a movement with a young generation of real skill and commitment. Absent from the piece is a number of established firms. The offices of Cooper Robertson, Robert A. M. Stern, and Ray Gindroz are superb practitioners, and have been working in parallel with the first generation. Also, several large old-line firms are now capable of doing first-rate New Urbanist work, including CHK, Sasaki Associates, ROMA, JJR, and RTKL. There are also many medium-sized firms formed around New Urbanist principles, a list too long to give you now.

The New Urbanism is a locus of social equity, environmental responsibility, and economic reality. It is the basis for the comprehensive civil architecture, which will surely emerge when the last turn of fashion finally devours itself by its own tail.

Andres M. Duany, FAIA  
Andres Duany and Elizabeth Plater-Zyberk, Architects  
Miami, Fla.

**Reinventing public housing**

First of all, my sincere congratulations on your new format and on Mr. Ivy's first issues at the helm. Early signs are positive. I look forward to what promises to be an interesting and scholarly ARCHITECTURAL RECORD. February's question—Can New Urbanist planning and design principles be applied successfully to inner city-public housing? [Pages 84-89]—is of great interest to me. Both in my practice and in my design-studio teaching, I have confronted the issue of inner-city public housing and so I speak with some experience.

In short, I do not really think this is an issue of New Urbanism or Old Urbanism. To let ourselves get distracted by engaging in a debate

of the New Urbanism for public housing is to miss the point entirely. We are a country without a housing policy. That is the point.

Our society has turned its back on the issues of the inner city—housing, education, public health, transportation, economic development, and so on. What is the sense of discussing architectural or planning styles when HUD has virtually no ability to maintain what it has already built? Are we now going to spend millions of dollars on townhouses and white picket fences that line streets with re-zoned turning radii and actually think we are making a difference?

Why do we insist on mainly seeing the issue in such a formalist and predictably architectural manner? To allow the discussion to focus on HUD's latest hastily concocted formula for urban revitalization is to become as banal and shallow minded as those government bureaucrats who think that New Urbanism is a solution to public housing.

The New Hope VI initiative, upon which most of the New Urbanist/HUD love affair is based, is reminiscent of the "slum clearance" programs of the 1960s. Does HUD really have a well thought-out relocation strategy for tenants who are displaced? No. In fact it appears no one remembers what happened 30 years ago when buildings were taken down, residents displaced, and social and familial networks destroyed, all in the name of progress.

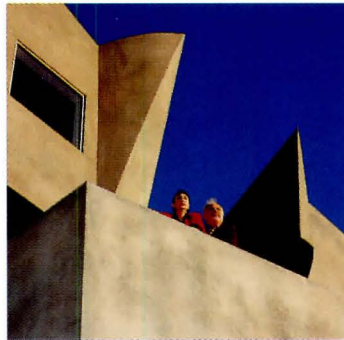
HUD suggests that the voucher program will provide displaced tenants with easy access to housing in "communities of their choice." Does anyone who knows anything about urban sociology really believe this? It is nonsense. Worse, it is immoral.

So let's not allow ourselves and our profession to become engaged in yet another stylistic debate. Let's put our effort and brainpower into something that really goes a little deeper than the cosmetic notions of New Urbanism.

Next month's question should

provoke the design community to suggest a meaningful series of responses to inner-city public housing.

Leland D. Cott, FAIA  
Principal, Bruner/Cott & Associates  
Critic in Urban Design, Harvard  
Graduate School of Urban Design  
Cambridge, Mass.

**Samitaur without plans**

I am so disappointed. You devote 12 pages to Eric Owen Moss' Samitaur Building [RECORD, February 1997, pages 52-63], and do not publish a single floor plan. Ms. Stephen's lucid and eloquent commentary *deserves* a detailed and annotated plan. With best wishes for success.

Arthur Rosenblatt, FAIA  
RKK&G  
New York City

**The New RECORD**

Just want to say that the new look of ARCHITECTURAL RECORD is great. I was impressed and pleased with it from the day it arrived. I especially like the short bits of information in RECORD News, the Architectural Press Roundup, and the expanded space you have given to viewpoints. Also the Project Diary is a great idea that helps me as an architectural student start to get an idea about how architects really work. Great job and thank you.

William Hurd

With the arrival of the two surviving periodicals on my desk in January, I couldn't help but feel that everyone has won in the recent shakeout of contenders. *P/A* was getting more and more boring as it got smaller

and smaller. ARCHITECTURE seemed undecided and conservative over the past year and RECORD was just plain getting stale. If January is indeed a faithful promise and not just a first-month lure, then we can look forward to some commendable support material that is heartily welcome in our profession. I'll be keeping both subscriptions.

In fact, my first issue of RECORD was so popular in my office that it came back to me with a burst binding. If that is my only criticism of your efforts, you should consider your work well done.  
Joseph Lengeling, AIA  
New York City

Since the new year brought the new ARCHITECTURAL RECORD, congratulations have been in order for the great work in producing a quality book. When I received the February issue, a great follow-up to a new beginning, I just wanted to let you know that I truly enjoyed it.

I have always viewed your book as a great source of ideas for my current college projects because now is the time when I feel I can be most creative. The new format has made it a more valuable resource by ensuring a professional level that is easy to understand, enticing, and knowledgeable. The sophisticated use of color in your headlines complements the photography as well as the layout of the text, which is consistent with a great new cover. This gives me something new to look for on my desk each month.

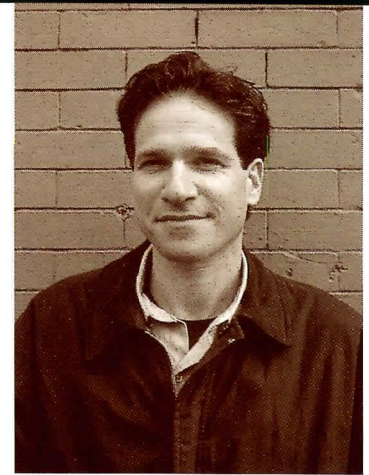
Currently, I am studying for a degree in architecture and, having a background in graphic design, I can appreciate when the visual design that complements the editorial. For this reason, among many others, I find RECORD a most important reference tool for study. Your publication provides its readers with the extremes in architecture today and you again succeed. As professionals or students, we are in a position to shape and mold our surroundings. And in helping us with

(continued on page 162)



# SPEAK OUT: The case for kindergarten— a call for another look at Friedrich Froebel's amazing invention.

BY NORMAN BROSTERMAN



Architect Norman Brosterman's book *Inventing Kindergarten* (Harry N. Abrams), is being published this month. "Froebel's Gifts: Educating Children Through Design," an exhibition of Brosterman's collection of turn-of-the-century kindergarten material, will be at the Arthur Ross Gallery, Buell Hall, Columbia University, New York City, from April 2 - May 2.

"I wanted to go to work for the great moderns, Adler and Sullivan; and finally I went... equipped, in fact armed, with the Froebel-kindergarten education I had received as a child from my mother.... Along with the gifts was the system, as a basis for design and the elementary geometry behind all natural birth of Form."

—Frank Lloyd Wright, *A Testament*, New York 1957, Horizon Press.

German educator Friedrich Froebel invented kindergarten in the 1840's as a method to teach the very young how nature designs. Intended to show four- to seven-year-olds the fundamental geometry of crystals and beehives, seashells and flowers, Froebel's system was the foundation for Frank Lloyd Wright's "organic architecture," and the reason all the separate parts of Wright's buildings sing in such radiant harmony. According to Wright, before he was 10, the seed for his mature approach to design had been planted within him by his kindergarten teachers.

Recent research points to direct links between infant experiences and physical brain development. Music and rhythm exercises at the age of two result in advanced puzzle-solving abilities at age four. Languages are easily assimilated by little children because neural circuitry is relatively fluid in the first years of life. Kindergarten's formal language—three and two-dimensional elements including cubes, grids, triangles, sticks, and rings—

paraphrased nature's own elemental language of growth. It was promulgated by Froebel as a means to gain access to the logic underlying the ebb and flow of creation, and an introduction into the basic structure of learning itself. It was also, in a straightforward way, the most sophisticated system ever devised for teaching the young about design, tectonics, mathematics, and the natural world.

With art and music classes already at the bottom of most primary school agendas, it seems unlikely that something as superficially esoteric as design for children will catch on anytime soon. But what would happen if pupils were trained to see with as much rigor as they're taught the three R's? If small children were exposed to a primary course in basic design that theoretically clarifies nature's essence, would it heighten their interest and respect for the environment as Froebel hoped? Would it slow the replacement of wetlands and virgin desert by strip malls and careless housing developments? Would children thus trained grow up and demand more from developers, architects, and themselves?

Wright was impressed enough with kindergarten to espouse its importance repeatedly in his writing and lectures. Less recognized is the fact that most of the generation that created the salient forms of the early 20th century, including Le Corbusier, Piet Mondrian, Wassily Kandinsky, Josef Albers, and most of the other Bauhaus masters, were also kindergarten graduates like Wright, and they too were touched

by Froebel's methods in youth. The pure kindergarten that trained this illustrious group was abandoned in most countries shortly after the 20th century began, losing out to the scourge of tested knowledge for the very reasons that recommend kindergarten's revival today—open-endedness, structured freedom, universality, and an emphasis on learning to learn before focusing on specific skills.

This is not a call for a new design utopia and I don't imagine children will ever choose Aalto furniture over "Tickle Me Elmo." But after years of research into Froebel's theories and methods, I think he may have been onto something truly revolutionary that could be adopted in some way again. As we approach the third millennium, the educational system invented and named kindergarten by Friedrich Froebel 150 years ago ought to be reinvestigated for its potential relevance to the future of design and society in general.

#### Contributions:

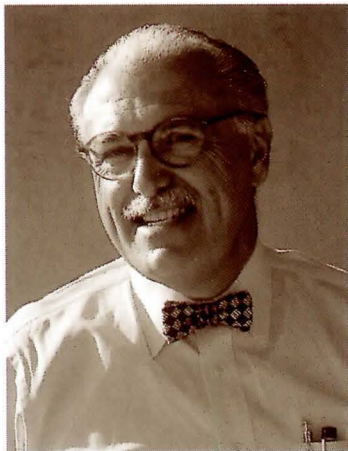
If you would like to express your opinion in this column, send submissions by mail (with a disk, if possible) to *Speak Out*, ARCHITECTURAL RECORD, 1221 Avenue of the Americas, New York, N.Y. 10020; fax 212/5124256; mail: rivy@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.



# MENTORS: A Navy architect about to retire seeks employment advice, and an intern wants to know about raises.

*Jack DeBartolo, Jr., FAIA, is a principal of DeBartolo/architects in Phoenix, Ariz., and the chancellor, College of Fellows, American Institute of Architects. He specializes in campus planning and high-tech research laboratory, educational, and healthcare facilities.*

*Ken L. Ross, Jr., AIA, is a principal of Watkins Carter Hamilton Architects of Bellaire, Texas, president-elect of AIA Houston, and chairman of the Committee on Architecture for Health of the Texas Society of Architects.*



**I am retiring from the U.S. Navy next month after 15 years on active duty in the Civil Engineer Corps. I am 41 years old, and a registered architect. I hold graduate degrees in architecture and urban planning. I have extensive experience in facilities planning, maintenance and construction management, general administration, and environmental compliance. While I am not interested in joining a traditional architecture firm, I would like to work with architects at the management level in a large development organization. All of the developers that I have contacted, however, seem to be looking for business school graduates. Should I risk overqualifying myself by getting a third graduate degree in business administration? Where else should I be looking for employment?**

—Scott P. Calisti  
Meridian, Miss.

*Jack De Bartolo, Jr., FAIA responds:* Before you rush off to get your MBA or lock down another position, take time out to evaluate your professional direction. At this point in your career, good experience must be joined with a clear "vision" of what you want for your future. Now is a perfect opportunity to seek "significance" in your career objectives. Start by looking at your experience inventory in detail. Most people do best if they first evaluate what they love; the deep-rooted passion that drives them.

As for a graduate degree or

selected courses of study in business, either would assist you in assessing your experience and establishing your professional value. Further, we must never forget that architects render services to the client in a "business environment."

Based on your experience, you will likely find that you are considered most valuable to institutions, municipalities, or quasi-governmental organizations. Universities, cities, and towns own or manage large numbers of buildings and are constantly working with architects and engineers.

Don't quickly overlook the "traditional" architectural firm, however; numerous firms are establishing new paradigms for practice in the 21st century. Your experience in the past 15 years may be captivating to an employer when defined in terms of vision and state of the art techniques of project delivery. Go for significance.

**I am an architectural intern with 3 1/2 years experience. In March, I will start taking the A.R.E. At the moment an intern transforms into a registered architect is it standard practice to receive an increase in pay? My annual salary is in the low \$30,000s, and I have been with my current employer for just 14 months. During those months, I have received two raises, the first an 11 percent increase and the second a 7 percent increase. What sort of increase should I expect/request when I become registered? Most of my peers are at the same point I am and**

**are asking the same question. —An intern in Boston**

*Ken L. Ross, Jr., AIA, responds:* It has been my experience as an intern, practitioner, and employer, that there are no automatic pay increases upon passing the exam. Typically, there is also no immediate increase in project responsibilities.

Professional and compensation growth are dependent on many factors that are not part of the exam, such as: productivity level for the project assignments available; perception of your loyalty to the firm; your tenure with the firm; your interpersonal skills; your potential for leadership; your ability and willingness to accept responsibility to mentor and nurture the professional growth of less experienced employees; and your contribution to a positive work environment.

Passing the exam is an important milestone that will draw attention to your accomplishments, but not an event that instantaneously increases your value in the firm. However, based on the compensation increases mentioned in your question, it appears your current employer values you now.

**Questions:** *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design and construction, send submissions: by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax 212/512-4256; or e-mail: rivy@mcgraw-hill.com. Submissions may be edited for space and clarity.*

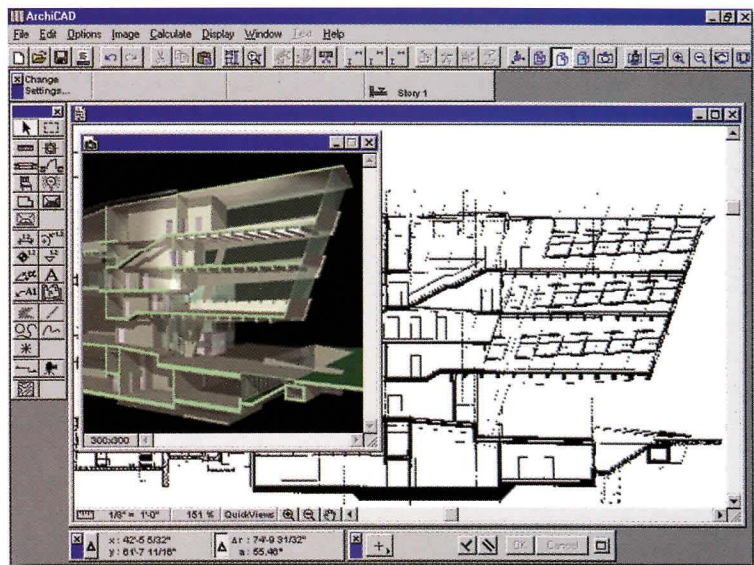


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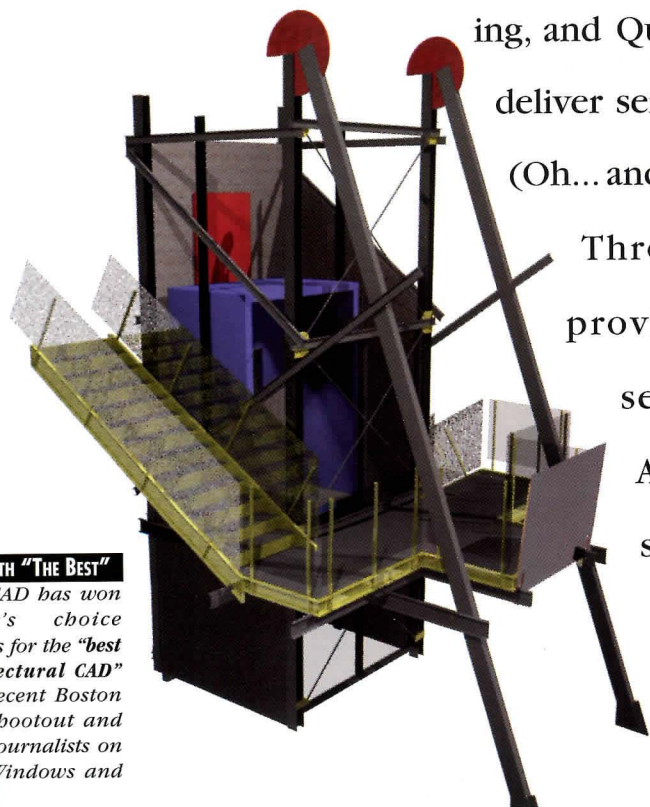
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# PULSE: Readers were asked: Can New Urbanist planning and design principles be applied successfully to inner-city public housing?

**Yes:** "A primary goal of the New Urbanism is to create a sense of neighborhood. New Urbanism is more than just physical design, it addresses social, cultural, and economic issues as well—factors not often mentioned by critics. It is the policy of the City of San Diego, where we're trying to integrate low-rise public housing with available services, schools, management, everything. The goal is that public housing is totally integrated so it doesn't look like public housing. And it doesn't."

—Michael Stepner, FAIA, AICP, City Urban Design Coordinator, San Diego, California

**Yes:** "New Urbanism can succeed only if it is applied as a catalyst and not as a grand plan scheme akin to Pruitt-Igoe-style Modernist urban renewal. By 'catalyst,' I mean a

small-scale application. If it succeeds and is profitable on a small-scale, developers will emulate it. I've seen small projects have an amazing cascading effect. It takes time, but it's the only way."

—Gregory Wharton, architect, Demetriou & Associates, Kirkland, Washington

**Yes:** "I believe that the principles of human scale, buildings that are friendly to the pedestrian, and neighborhoods that promote a sense of community can and definitely should be applied to inner-city housing. But I question why everything in New Urbanism is traditional design. We can use the principles, but design in a Modern aesthetic."

—Mary Ellen Commisso, architect, 11C Architecture, Rexdale, Ontario

**No:** "I don't think that New Urbanist principles will work any better than anything else we've tried on public housing. Most of what the New Urbanists promote is unreal, Disneyland-type planning that assumes today's problems in our built environment can be solved with the organizing principles of our 18th and 19th century settlements. The idea that we can get our fellow

citizens out of their cars and into mass transit is Pollyannish; it isn't going to happen. For too long, we've suffered the plans of planners—first with exclusionary zoning, then planning by mathematics, and now this."

—Dick Bundy, FAIA, Architects Bundy & Thompson, San Diego, California

**No:** "New Urbanism is founded on the principle of mixed-use development. The term public housing

means only housing is present, and it is a term associated with the destructive nature of zoning. I do, however, believe cities can be saved by eliminating zoning regulations and establishing mixed-use regulations. This is our only hope."

—Nathan Isley, AIA, Isley Architects, Inc., Durham, North Carolina

**No:** "What better way to complete the alienation of the (primarily African-American) poor than to impose a Colonial town grid into their neighborhoods? What more apt symbol is there of a group trying to colonize their own citizens; to wipe them clean of identity, of meaning, like the site Seaside was built on."

—Elliot Taub, architectural intern, John Ciardullo Associates, New York, New York

**This Month's Question:**

## Is themed retail architecture real architecture?

The New York-New York casino-hotel in Las Vegas is "to architecture as telephone sex is to sex," says one critic. Managing Senior Editor James Russell writes, "Naysayers claim themed architecture is the end of architecture as we know it—Mickey Mouse at the controls of a bulldozer..." Others, however, see the niche as a unique design culture and a bonanza for the profession.

**Do you think themed retail architecture is real architecture?**

Yes  No

Copy and fax to: 212-512-4256, or E-mail to rivy@mcgraw-hill.com.

**Let us know your opinion:**

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**May an editor contact you for further comments?**  Yes  No

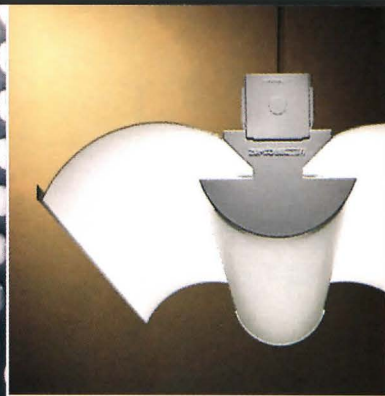
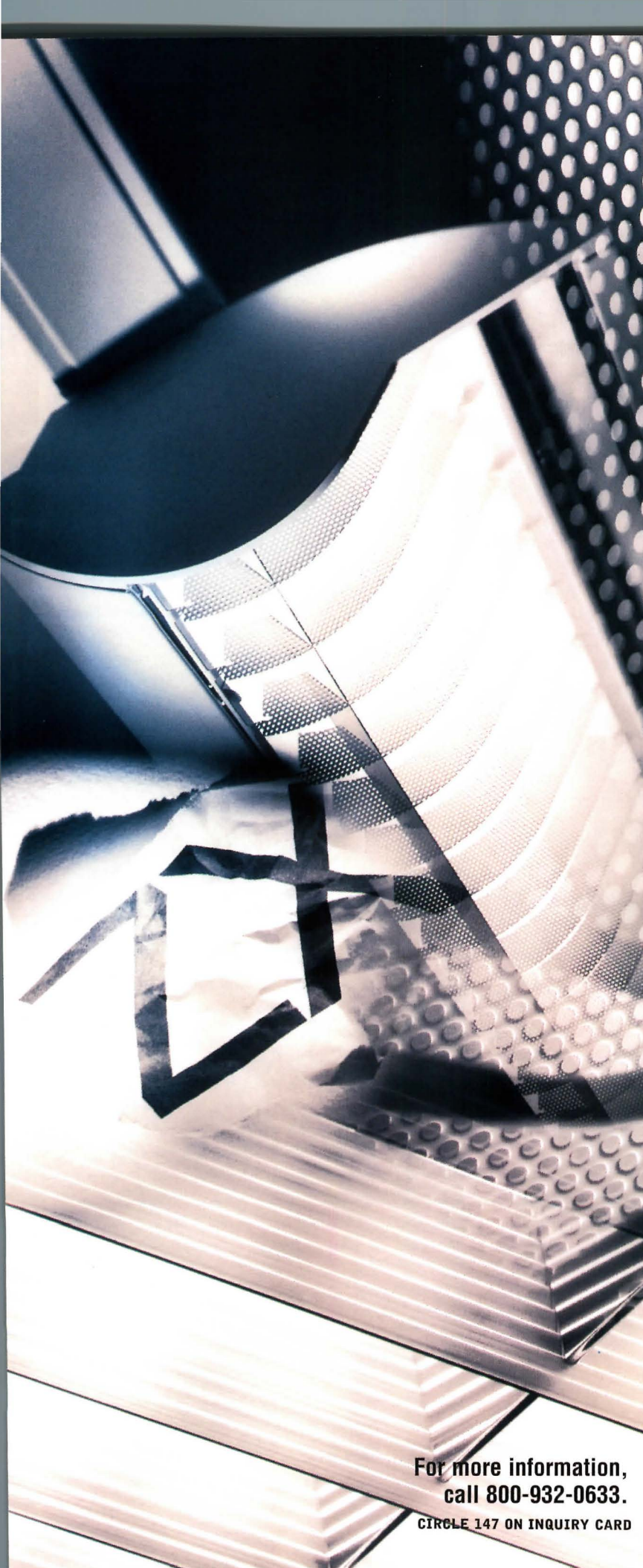
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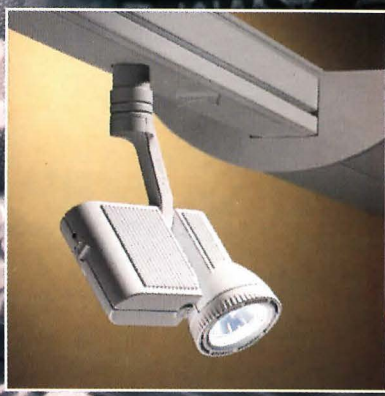
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# RECORD NEWS

## SALARIES ARE UP ACROSS THE BOARD IN NEW AIA COMPENSATION SURVEY

Architectural firms are doing a better job of keeping their salaries competitive and offering more benefits, according to the AIA's just-released report, "Compensation at U.S. Architectural Firms."

"We were pleasantly surprised to see salaries keep up with the broader professional services area...and architectural firms not losing ground," said AIA Chief

stagnant" salaries increased on average 2 percent a year, according to the report. But beginning in 1994, salaries have been increasing close to 5 percent a year.

Salary gains for more senior firm members have been even higher since 1990. Associates' salaries went up on average 4 percent a year, while increasing only 2 percent for Architect I positions.

rather than later in this period, when inflation was higher.

Salary gaps between regions and between large and small firms have been steadily shrinking over the 1990-1996 period. "Some improvement in the market is lifting all of the boat," said Baker, enabling regions and firms to "catch up."

### Regional differences

Salaries are highest in the Pacific Southwest, including Los Angeles and San Francisco, exceeding the national average by 4 percent (down from 6 percent in 1990), and lowest in the West South Central region (Arkansas, Louisiana, Oklahoma, Texas), where salaries in 1996 were 7 percent behind the national average. In 1990, the East South Central region had the lowest salaries—almost 10 percent below the national average.

### Small firms

Salaries at small firms increased at almost twice the pace of salaries at large firms from 1990 to 1996, according to the AIA compensation survey. While 1990 salaries at firms with fewer than five employees were on average 36 percent below those at firms with 20 or more employees, by 1996 this gap had narrowed to 20 percent.

### Principals

Principal and partner average compensation is closely tied to firm size, the survey showed. The majority (58 percent) at firms with fewer than five employees make under \$75,000. At firms with 50 or more employees, 72 percent report making \$100,000 or more.

### Entry level

Entry-level salaries are more consistent, 5-6 percent above or below the national average from region to region. Entry-level candidates in 1996 were paid a 5-10 percent premium by 30 percent of the firms. Salaries of employees other than architects have increased 20-25 percent since 1990, or at about the same pace. These include engineers, landscape architects, interior designers, and drafters.

### Benefits

The type and amount of benefits are improving. In general, the larger the firm and the higher the salaries, the greater are the benefits, the survey revealed. A full 90 percent of firms provide medical insurance; a majority provide life insurance and profit sharing/ bonuses; almost half offer a retirement plan; and a third provide dental insurance and long-term disability coverage. *Carol Reed*

### ARCHITECT SALARIES ON THE RISE

POSITION	AVERAGE SALARY			TOTAL % CHANGE IN SALARY		
	1990	1993	1996	1990-93	1993-96	1990-96
ASSOCIATE	\$47,600	\$50,500	\$58,900	6%	17%	24%
MANAGER	43,400	45,300	53,100	4	17	22
ARCHITECT III	38,000	38,600	45,400	2	18	20
ARCHITECT II	33,800	34,300	38,900	1	13	15
ARCHITECT I	30,000	30,000	33,200	0	11	11
INTERN	24,200	24,700	27,200	2	10	12
ALL ARCHITECTS*	34,400	36,500	41,900	6	15	22

\* EXCLUDES PRINCIPALS AND PARTNERS

Economist Kermit Baker, who prepared the report, the first of its kind produced by the AIA in six years.

The survey found that salaries for staff architects and interns have increased 22 percent since 1990, or slightly less than 3.5 percent a year on a compound basis. From 1990-1993, when the construction industry was in recession, "largely

Gains have been nearly identical to those for the U.S. Labor Department's "business services" category, which includes architects and other professionals like lawyers and accountants. The category showed a 3.5 percent annual increase over the same six-year period. However, the bulk of "business services" gains came earlier,

### REGIONAL SALARY DIFFERENCES

REGION	AVERAGE SALARY		TOTAL INCREASE 1990-96	AVG. ANNUAL INCREASE 1990-96
	1990	1996		
NEW ENGLAND	\$35,200	\$42,100	20%	3.0%
MID-ATLANTIC	36,200	43,000	19	2.9
EAST NORTH CENTRAL	34,000	43,100	27	4.0
WEST NORTH CENTRAL	32,100	42,900	34	5.0
SOUTH ATLANTIC	33,800	40,300	19	3.0
EAST SOUTH CENTRAL	31,000	40,000	29	4.3
WEST SOUTH CENTRAL	31,500	38,800	23	3.5
PACIFIC NORTHWEST	31,300	40,700	30	4.5
PACIFIC SOUTHWEST	36,400	43,400	19	3.0
U.S. AVERAGES	34,400	41,900	22	3.4

### DETROIT'S AFRICAN-AMERICAN MUSEUM TO BE LARGEST OF ITS KIND IN WORLD

The Museum of African American History in Detroit has launched a major expansion that will make it the largest black historical museum in the world. The new facility, which will quadruple the museum's current space when it opens in April, is designed by Sims-Varner Architects, Inc., a Detroit-based African-American firm.

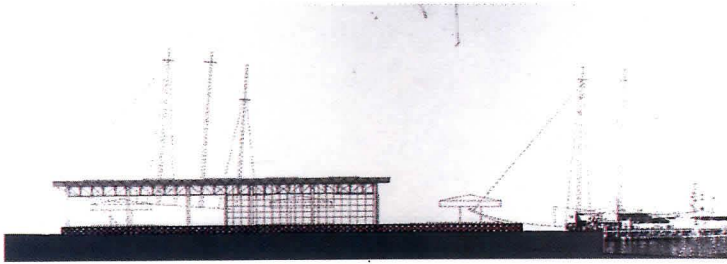
The building expression was conceived as "contemporary American yet expressing antecedents leading back to Africa," said Harold Varner, president of Sims-Varner. "The building's sculptural columns are based on a traditional African rope motif. Feature stones around the entire perimeter are sculpted in traditional African forms. Most of the major interior spaces have carved wooden doors and surrounds based on African art," he said.



The \$38.4 million project will house three galleries, a domed lobby and rotunda floor, classrooms, a museum shop, 317-seat theater, amphitheater, and restaurant.



## A SMALL-TOWN DESIGN COMPETITION CAUSES BIG-TIME CONTROVERSY



The jury's choice (top)  
and residents' choice.

The Long Island, New York, village of Greenport may be small (2,000 year-round residents) and its waterfront development project may be modest (\$3 million would be pushing it), but that didn't stop 800 people from as far away as Teheran, Tokyo, and Istanbul from paying \$50 to enter a design competition for the prime 3.4-acre site.

The controversy surrounding the competition, on the other hand, was Manhattan-sized. The jury chose the entry by Philadelphia landscape architect James Corner, who submitted only an ink-lined scheme, presented in *plan and section*, and lacking the three-dimensional models or lush perspectives of other entries. Some Greenporters were put off by Corner's industrial esthetic; others sought a commercial approach.

The jury chose Corner's scheme because they felt it resolved an urban and ecological tension endemic to the highly urbanized site on an ecologically fragile bay. "We looked for entries

that combined humility and optimism tied to buildability," commented juror Billie Tsien of Tod Williams, Billie Tsien and Associates at a recent panel, sponsored by the Architectural League of New York and the Van Alen Institute, held to discuss the competition. The jury, which also included Erik Kiviat, an environmentalist, sculptor Mary Miss, Sandro Marpillero, a Columbia University urban design professor, architect James Stewart Polshek, and landscape architect Nicholas Quennell of Quennell-Rothschild Associates, liked the winning entry in part because it didn't design every square inch of the site but created a strong armature that could be filled by residents.

The residents' wishes, however, may lie more with the third-place choice, by Christopher Sharples of Sharples Design in New York City, which offered a more conventional vision of beach and boardwalk. This design was the choice of a 30-member committee, appointed by Mayor David Kappell to represent the town's diverse population following widespread dissatisfaction with the first choice. *James S. Russell*

## ARCHITECTURAL PRESS ROUNDUP

### 100 BEST DESIGNS

*METROPOLITAN HOME*, March/April, 1997 Among the hodgepodge of people, products, and ideas deemed "essential for a new age," the magazine's editors selected a handful of architectural projects, most notably Renzo Piano's Cy Twombly Gallery in Houston [RECORD, May, 1995, pages 78-83], Tod Williams and Billie Tsien's Phoenix Art Museum [RECORD, January, 1997, pages 84-97], and Steven Holl's Makuhari Housing complex on the outskirts of Tokyo [RECORD, January, 1997, pages 64-77]. Also cited are Gianfranco Monacelli, publisher of Monacelli Press for his "prestigious line of architectural monographs," and architect Samuel Mockbee of Auburn University whose Rural Studio lets students do hands-on-work in poor communities [RECORD, March, 1996, pages 74-77].

### STANDING UP FOR THE PROFESSION

*New York Times*, February 11, 1997 Mary Ellen Comisso, R.A., of Long Island City, N.Y., is in a fit about the news the paper's real estate section deems to print. "When is the *New York Times* going to stop discrediting the profession of architecture such as it has in 'the last year with feature articles such as 'A Mouse in the House? Click Here' and 'A Connecticut Couple Build Their Dream House.' Comisso claims that the "mouse" article "positively encourages" people to avoid paying architects by designing their own homes with home design software packages. "One of the biggest problems with American building today is that everyone thinks they can replace the architect," she scolds. "Have you looked around your neighborhood lately? Or your city?"

### BRITISH CRITIC GETS NASTY WITH SAFDIE

*The Architectural Review*, January, 1997 Peter Davey, editor of the British monthly, overdoes it with his lashing of Moshe Safdie's public library in Vancouver, B.C. "Why, when building an institution devoted to civilization and learning, choose as a model the Coliseum—a place devoted to bloody destruction and the gratification of humanity's basest instincts?... It almost seems as if Safdie decided that those hicks in British Columbia deserved a little culture but that he could not quite find the energy or budget to bring Rome to the Northwest Pacific."

### THE GREAT LIBRARY DEBATE

*Los Angeles Times*, February 1, 1997 San Francisco's New Main Library has divided that city's residents, resulting in the firing of the chief librarian. Although library use has increased significantly and some people are thrilled with the building, some others, including many Bay Area writers, see it as a "betrayal." The reasons, they say: too much technology, too few books, and "irrelevant design." A *Times* editorial gloats about how much better L.A.'s library turned out. The *Times* quotes the chief architect on the San Francisco building James Ingo Freed as saying, "Old libraries told stories of power. But great tombs are no longer our forte. We needed a place for communities to celebrate their own essences." Refuting that statement, the *Times* says, "Freed is posing a false dilemma. Buildings steeped in the past can certainly prove empowering in the present. For proof, Freed need only have looked at Los Angeles's own Central Library..."



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## NEW MASTERPLAN FOR FLORENCE AIMS TO INTEGRATE NEW WITH OLD

Still regarded as a beacon of Renaissance beauty, Florence has nonetheless succumbed to the urban crush and suburban sprawl plaguing most European cities. But Florence's city fathers are fighting back with its first masterplan in three decades. Begun in 1993 by Roman urban planning professor Marcello Vittorini, the plan is intended to create, according to Vittorini, an "integrated," modern city for Florence's 400,000 inhabitants and to maintain its artistic heritage despite the heavy toll exacted by seven million tourists a year.

Vittorini said the masterplan tries to breathe life into monotonous industrial areas and to address the problems of congestion and pollution with a complex system of large parks, "alternative" inner-city transportation, and five new administrative "boroughs." There is a "possibility," he said, the plan will actually be implemented, but "it will take a long time."

A major target of redevelopment is the post-war Castello industrial area, which Florence's councilor for urban planning, Enrico Bougleux, wants to transform into a thriving mixed-use development. A framework plan will be executed by

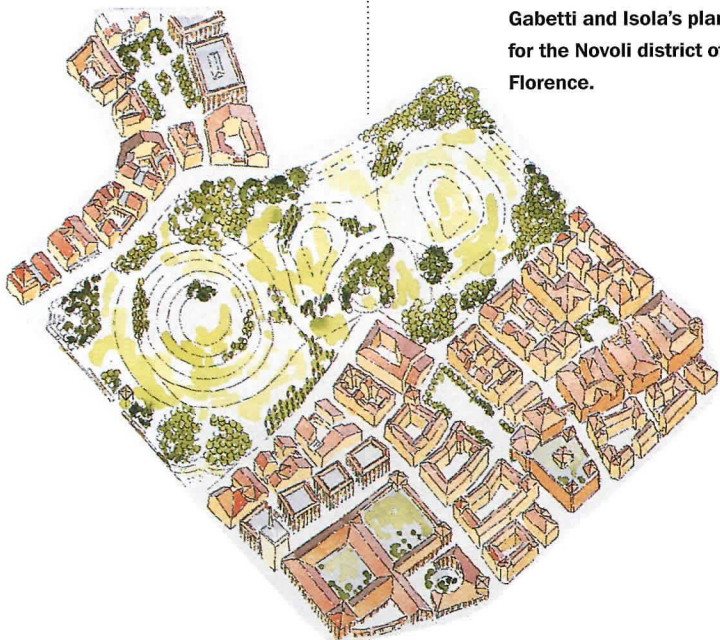
Renzo Piano and Richard Rogers, who worked on Castello plans and designs a decade ago when a former leftist city council was in power.

Also, the recently elected city council commissioned Roman architecture professor and urban planner Leonardo Benevolo to research a new framework plan to find uses for about 3,650,000 sq ft of deserted 19th-century industrial areas in the greater metropolitan area.

For the 1960s-era district of Novoli, an industrial wasteland of high-rise blocks in northwest Florence, a framework plan by Leon Krier suggests creating 14 neighborhoods, each with modest residential and commercial premises built of traditional materials.

The plan, endowed with what Vittorini calls "a touch of genius," also calls for dismantling and moving to another area a large Fiat spare parts factory and redeveloping the site into a 30-acre park surrounded by 90 acres of new residential and commercial buildings, a courthouse, and two university faculties. An international team of architects, supervised by the team of Roberto Gabetti and Aimaro Isola, is attempting to realize Krier's vision. *Cristina Donati*

**Gabetti and Isola's plan for the Novoli district of Florence.**



## STERN'S LIST OF LANDMARKS CREATES A STIR IN NEW YORK CITY

Robert A.M. Stern has raised a few eyebrows and a few hackles with his recommendations for designating 35 Modernist buildings in New York City as landmarks. The buildings, built between 1932 and 1967, are, he admitted, not necessarily beautiful or popular, or what people typically consider to be landmark caliber. "But they may be very important technologically, historically, or culturally," he argues. "They are transitional buildings which represent the reaction of Classicist architects to the Modernist ideals,"

and therefore deserve to be protected from demolition or alteration. The buildings on the list include skyscrapers, such as the U. N. Headquarters, and the Socony-Mobil Building (above left); civic buildings, including the Main Brooklyn Public Library and the George Washington Bridge Bus Station; and facilities for the arts such as Lincoln Center; parks, apartment complexes (240 Central Park South, above right), and industrial buildings like the Knickerbocker Laundry in Queens.

**MODERNISTS VIE TO DESIGN NEW IIT CENTER** One of the major architectural events of the year is taking place in Chicago: an international design competition for a new campus center at the Illinois Institute of Technology. The building would provide a new focal point for a campus planned by master Modernist Mies van der Rohe.

As currently envisioned, the competition will be by invitation only and is expected to be limited to designers whose work fits in the category of Modern architecture. The objective is "to make the building more manageable and affordable and still remain true to the heritage of Mies," according to Donna Robertson, the new dean of IIT's College of Architecture. About 40 architects from around the world are expected to participate.

Robertson stressed that the university's list would include more than the "usual suspects," with young, relatively unknown firms being asked to compete with more established firms. It is also expected that the competition will involve different types of Modernism—ranging from the high-tech designs of Britain's Norman Foster and Chicago's Helmut Jahn to the low-tech efforts of those concerned with issues such as environmental sustainability. Invitations will be issued by April, with a jury to winnow the list to five finalists by June. A winner would be selected by early fall, with completion set for 1999 or 2000. *Blair Kamin*



## FIRST TOTALLY SELF-SUSTAINING HOUSE IS BUILT IN TORONTO

North America's first totally self-sustaining house—there are no municipal water, hydroelectric, sewage, or natural gas connections—has been built in downtown Toronto, Ont.

Canada Mortgage and Housing Corporation (CMHC), a federal agency and principal sponsor of the "Toronto Healthy House," expects 40,000 visitors to tour the 1,700-sq-ft, semi-detached house in the next four months.

The three-bedroom, urban-infill house takes its name from a 1992 CMHC healthy house design competition won by Toronto architects Martin Liebheffer and Myrna Moore. Builder Rolf Paloheimo, who built the house, purchased it and is living there with his family. The other half of the semi-detached structure, presently for sale, is identical, except for a hydro-electric connection (for that house only) in case of an emergency.

According to CMHC literature, the healthy house is able to "harvest its own energy, collect rainfall and purify it for drinking, and biologically treat its own wastes." Environmental sensitivity is emphasized in the insulation, indoor-air quality, water/energy conservation, recycling, and waste-management aspects of its design.

The major features of the house include:

- Wood-frame construction and hol-



low blocks of compressed, lightweight cellulose fibers filled with concrete that improve the wall insulation and facilitate installation, from the foundation up. Plaster, rather than drywall, was applied inside.

- Twelve rooftop solar panels produce electricity that is stored in batteries in the basement. Appliances are energy-efficient (the refrigerator uses about one-fifth the power of a conventional model). If the sun isn't bright enough to

charge the solar panels for several days, an ethanol-fueled auxiliary generator kicks in.

- Water captured from rain and melted snow is stored in a 20,000-litre cistern, enough for a four-

extremely cold temperatures, the solar heating can be reinforced by warm water circulated through pipes within the floors. Cooking is by electric convection oven.

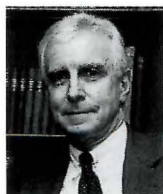
- Heat gain during hot weather is controlled by window shading, moderated air flow, and evaporative cooling through a heat exchanger. There is no air conditioning in the house, but openable skylights at the back of the sloping roof allow air to circulate inside.

Greg Allen, an aeronautical and environmental engineer, and partner in Allen Associates Ltd., Toronto, who designed the alternative systems in the house, says: "All the devices in the house and the building envelope are very efficient...from insulation levels of triple, low-E, gas-filled windows to an electrical load that is about 10 percent of a typical house, to heat recovery ventilators...we have virtually no heating load."

Debra Wright, a senior CMHC advisor who has been monitoring the progress on the house since its completion, estimates annual operating costs at under \$100 for back-up fuel, filters, and ultra-violet bulbs used for water purification and other maintenance needs.

The healthy house will use about 3,600 kwh a year. A normal house its size, with three or four occupants, would consume about 8,000 kwh a year. *Albert Warson*

## HOW DOES IT FEEL TO BE AIA FIRM OF THE YEAR?



Weeks after winning the AIA's 1997 Architecture Firm Award, husband-and-wife team Robert Michael Kliment and Frances Halsband still feel "completely surprised because the award has rarely been given to such a small firm.

"We're amazed they found us out there." R.M. Kliment & Frances Halsband Architects is a 22-person firm located in New York City.

The award, which will be presented at the May AIA national convention in New Orleans, is presented annually to a practice that has produced distinguished architecture consistently for at least a 10 year period.

Past winners include I.M. Pei & Partners, Venturi & Scott Brown, and Polshek and Partners.



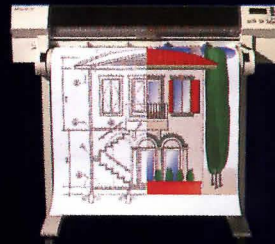
The firm is well known for the entrance pavilion for the Long Island Railroad at Penn Station.

In support of the firm's nomination, Cesar Pelli, 1995 AIA Gold Medal recipient and principal, Cesar Pelli & Associates, said: "Kliment and Halsband design innovative, sensitive, responsible, and beautiful buildings. They are great models for the kind of architecture our cities desperately need."

Although Kliment and Halsband have done a broad range of work in the areas of buildings, planning, interiors, and preservation, the firm is best known for the new entrance pavilion for the Long Island Railroad at Penn Station, New York City.



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## CLINTON'S 1998 BUDGET CALLS FOR REDUCED FEDERAL BUILDING

President Clinton's fiscal 1998 budget proposal draws a gloomy picture for federal buildings. The most dramatic item: The General Services Administration is seeking no funds for its new construction account in 1998. Other key agencies' budget requests also are down sharply from 1997 levels.

The Clinton administration feels "there just isn't much discretionary spending money available," said Robert A. Peck, commissioner of GSA's Public Buildings Service. And with a big building effort already underway at GSA, officials felt the agency could sustain a pause on new construction. The hiatus on GSA spending is expected to last just one year.

Peck also noted that projects funded in 1997 and earlier years will continue. This year's allotment for new GSA construction is \$658 million, most of it for courthouses. "I

think people will see a number of selections of architects and a number of construction awards in fiscal 1998 with money that was set up in previous years," Peck said.

Clinton's budget is just a starting point. It will be up to congressional appropriators to determine how much federal buildings and other programs receive for 1998. Lawmakers are just beginning what will be months of discussion and debate on spending priorities. But John A. Sporidis, senior vice president and director of federal programs for architect HDR Inc., thinks Congress may not increase Clinton's recommended levels substantially. "I don't think there's much room to add anything of substance," he says.

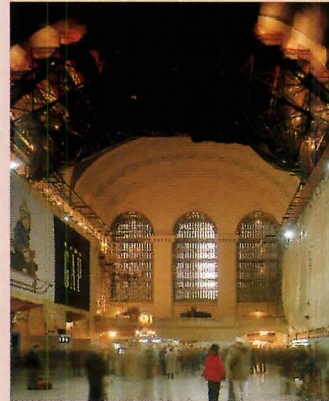
The news isn't much better at other agencies. The facilities budget for the Federal Bureau of Prisons would be sliced 36 percent, to \$253

million under Clinton's plan.

The Department of Veterans Affairs' major construction account would plummet 68 percent, to \$80 million. The Department of Housing and Urban Development wants

\$524 million, just five percent less than this year, for its continuing effort to demolish old high-rise public housing projects and build new low-rise units. *Tom Ichniowski*

**GRAND CENTRAL REDUX** The top-to-bottom, \$175 million renovation of Grand Central Terminal in New York City has moved from Phase One to Phase Two. Headed by Beyer Blinder Belle, the three-year project includes work on the main terminal, passageways to the streets and subways, and 123 tracks covering 76 acres. Phase One of the renovation, currently in its last stages, involves the landmarked Main Concourse and infrastructure improvements. Phase Two involves the restoration of the



cerulean blue Constellation Ceiling 125 feet above the Main Concourse, with specialized crews working from a custom-designed scaffold. Non-landmarked circulation areas will be remodeled in Phase Three to include new heating and cooling systems. A monumental staircase planned in 1913 by the Terminal's original architects, Warren & Wetmore but never built, will also be constructed.

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Friedrich St. Florian in Washington. His winning memorial above.



## W.W. II MEMORIAL DESIGN WINNER TELLS OF CHALLENGE AND TRIUMPH

It was no easy task coming up with the winning design for the first national World War II Memorial which will be built on the Mall in Washington, D.C. Architect Friedrich St. Florian, who won the competition, explained that the challenge came "not just because of project's prominence or significance," but because of two restrictions: No element of the memorial could obstruct the open view between the Washington Monument and the Lincoln Memorial, and the historical plan of

the Mall could not be altered.

St. Florian's solution was to place the memorial plaza in a sunken area 15 feet below ground level which, he said, "created a space with autonomy without disturbing the open vista."

Bordering this sunken plaza are two earthen embankments that flank the north and south ends. The berms, covered by white roses—representing innocence and peace—are anchored by two half-circles of 25 descending columns.

"By being free-standing, each column represents the autonomy of each of the 50 states, but their joining in a half-circle, like children holding hands, signifies the collective will of the American people to stand up for ideals and principles," explained St. Florian, the former dean of the Rhode Island School of Design.

The architect also struggled with reconciling the sheer grandeur of a memorial with the brutality of armed conflict. "World War II is, in a sense a glorious war—a triumph of democracy over totalitarianism," he said. "But at the same time, wars must be remembered but not glorified, because even with a war that has such noble intentions there is also incredible suffering on both sides. So rather than impart a sort of imperial splendor, the design is meant to convey modesty."

The project, slated to cost \$100 million, will be funded through private donations, with a dedication projected for Veteran's Day, 2000.

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## WHO WILL BE CHOSEN TO CREATE NEW YORK'S MOMA OF THE FUTURE?

When New York City's Museum of Modern Art (MoMA) announced it had purchased the adjacent Dorset Hotel in February 1996, the implications were far-reaching. The acquisition wasn't just for another expansion, said Terence Riley, MoMA's chief curator of architecture and design, but as part of a reconceptualization of the "new" Museum of Modern Art, including a redesign of "the entire ensemble of buildings" on the museum campus.

A lot more is at stake than which firm will be awarded one of the decade's highest-profile architectural projects. Museum officials are keenly aware that the redesign will not only define the concept of the modern museum of the future but will influence the direction of Modernist architecture as well.

Who will be chosen to create the modern museum of the future will be determined this fall, but who-

ever it is won't be one of Modern architecture's likely suspects. After a year-long selection process, museum trustees deliberately skipped over so-called superstar architects like Peter Eisenman, Norman Foster, Richard Meier, Frank Gehry, and Charles Gwathmey in pursuit of "innovation and surprise," Riley said. "This will be the first major museum to be completed in the 21st century," he explained, "so there was a deliberate attempt to seek out the leading architects of the next century."

The list includes two architects from the Netherlands, Wiel Arets and Rem Koolhaas; two from Japan, Toyo Ito and Yoshio Taniguchi; one from France, Dominique Perrault; one firm from Switzerland, Jacques Herzog and Pierre de Meuron; and four from New York, Steven Holl, Bernard Tschumi, Rafael Vinoly, and the team of Tod Williams and Billie

**CHICAGO BOARD OF TRADE'S NEW FLOOR COULD HOUSE A BOEING 747** There is an unavoidable comparison between Chicago as the city of broad shoulders and the Chicago Board of Trade's (CBOT) cavernous new financial trading facility which opened last month. Billed as "the largest futures and options trading center in the world," the 65,000 sq-ft, 62-ft-high trading floor—large enough to accommodate a Boeing 747—is linked to the CBOT's existing 23-story facility, making a vast contiguous trading floor of 95,000 sq



ft, again the world's largest. The building floor has a sophisticated electronic-order routing system, wall displays with twice as many characters as before, 27,000 miles of LVC cable, and concurrent use of 20,000 electronic devices.

Tsien. All have handled major commissions and all have won acclaim, and this group is considered by the trustees to be on the rise.

"Overall, the reaction to the decision to go with this group of architects has been very positive," Riley claimed. "Our position from day one was to support Modern architecture, and we're now in a unique position to redemonstrate it,"

he said. "We wanted to challenge conventional choices."

The list will be narrowed to three by May. Following evaluation for budget and program compliance and design quality, the selection committee expects to announce the award by 1998, Riley said. Museum officials are hoping that the work will be completed by the turn of the century. *Julie Moline*

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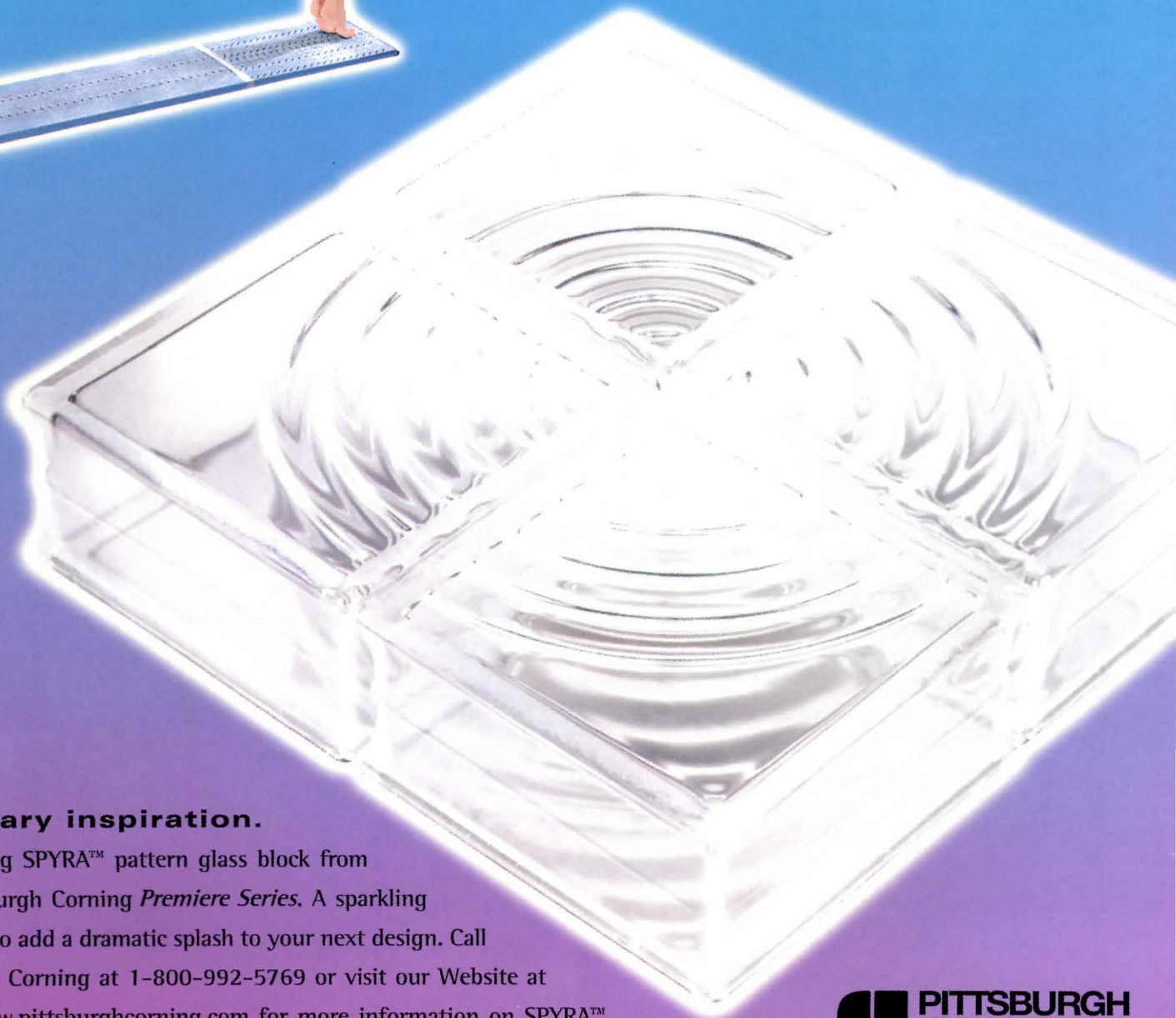
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## NEWS BRIEFS

**U.S. Architect may design U.K.'s Hall of History** Joel Levinson Associates of Philadelphia has received preliminary approval from the Millennium Commission in the United Kingdom to create a \$120 million complex called the Avenue of British History to be opened in 2001 as part of that country's millennium celebration. The project, to be financed by a lottery fund, calls for the start of a new tradition in the form of a Hall of History that will be constructed every 25 years capturing the events of that period in permanent exhibits.

**Wolf Foundation \$100,000 winners** Two pioneers of Modern European architecture have been named Wolf Prize laureates in Arts and Architecture for 1997. Aldo van Eyck of Amsterdam who founded the School of Structural Rationalism in the Netherlands, and Professor Frei Otto of Saxony, Germany, who designed two unprecedented, large



cable-suspended roofs at the Olympic Stadium in Munich and for the German Pavilion at the Montreal Expo in 1967. The two architects will share the Israeli-based Wolf Foundation award to be presented April 6 by President Ezer Weizman at the Knesset in Jerusalem.

**AIA plans big TV campaign** A \$2.5 million TV ad campaign is being planned by the AIA "to promote the value of AIA-member architects to millions of U.S. households."

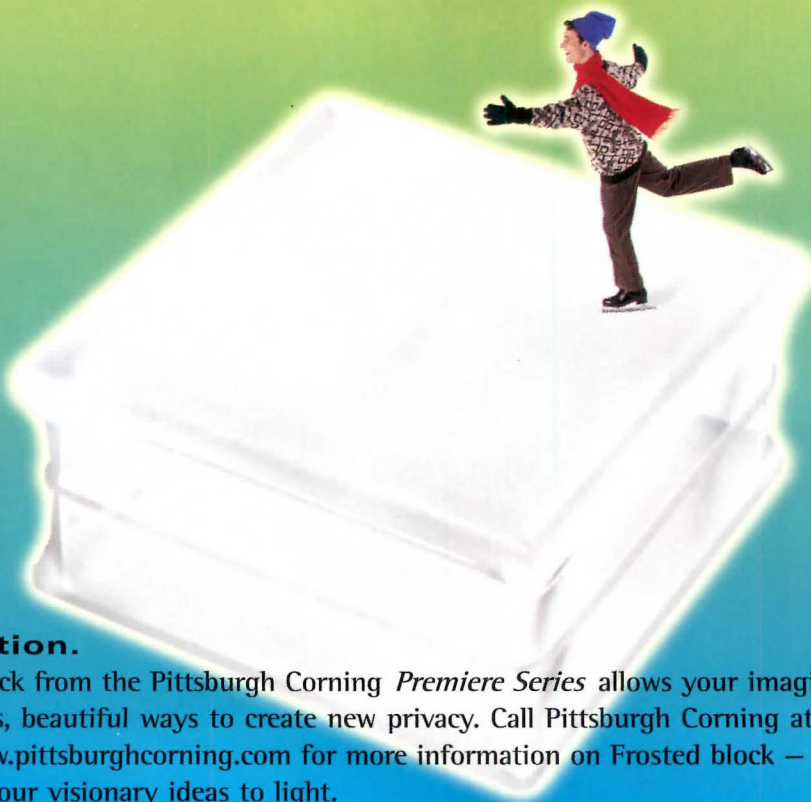
**Tenderloin Community School in San Francisco.**

The plan calls for commercials to run nationally starting in March, 1998 on such programs as "Good Morning America," "Today," and "Larry King Live." The AIA plans to raise money for the TV campaign by asking the membership to approve new funding at its May national convention. Members will be asked to contribute \$50 per year for three years.

**New inner-city school for San Francisco** Architects Joseph Esherick and Jennifer Devlin of Esherick Homsey Dodge & Davis, in association with architects Barcelon & Jang, the San Francisco Unified School District, and grass roots community group Bay Area Women's and Children's Center, have designed the \$11.6 million 66,800-sq-ft Tenderloin Community School, the first elementary school and community center in San Francisco's inner-city Tenderloin district. The facility will serve 540 elementary school students and include a day care center, medical and dental facilities, counseling rooms, an adult education center, and a parking garage on a tight urban site. Playgrounds and a community garden are placed on several roof areas.

**AIA Young Architect Citation Winners** The AIA Young Architect Citation recipients for 1997 are William J. Carpenter of Marietta, Ga.,

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an associate professor at Southern Polytechnic State University; Michael A. Fischer of Duluth, Minn., project/manager/design with LHJB Engineers & Architects; Robert S. Rothman, Minneapolis, senior project designer, architect, and senior associate at Hammel Green and Abrahamson, Inc.; and Brad Simmons of St. Louis, a principal at Sverdrup Facilities, Inc. The award is given to individuals who in the first 10 years of their career show exceptional leadership in design, education, and service to the profession of architecture.

**New Performing Arts Complex for Columbus, Ga.** Hardy Holzman Pfeiffer Associates of New York City has completed plans for the \$42 million Columbus Performing Arts Complex, which will house the Columbus Symphony, the civic chorale, youth orchestra, boys choir and, at the same time, be home to Columbus State University's performing arts program. The 200,000-

sq-ft project is scheduled to be completed in 1999.

#### Russians interested in U.S. Awards

The Russian Society of Architects has cabled the AIA to submit entries to the *Business Week/Architectural Record* Awards competition. The awards, sponsored by AIA, recognize the collaboration between architects and clients who utilize good design in achieving business objectives. For information, call toll-free 888-242-4240.

#### Southern Cal. Institute's practice/research center

The Southern California Institute of Architecture (SCI-Arc) has formed the City Practice+Research Center (CPR) to seek and review community programs and implement them as part of the SCI-Arc curriculum. CPR curriculum projects include People With AIDS Housing and a healing garden at the Veterans Administration hospital in West Los Angeles.

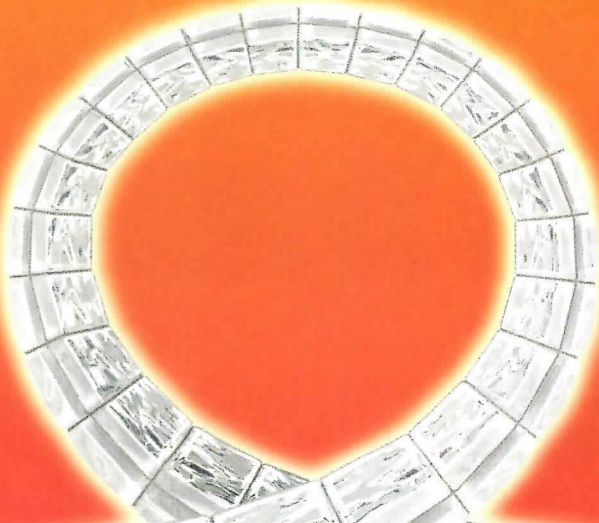


**TWA Terminal, JFK Airport,**  
photo by Ezra Stoller

**Ezra Stoller's Show, March 12-April 12, 1997** Trained as an architect, Ezra Stoller began taking pictures to earn money while attending New York University. He went on to photograph most of the major works of Modern architecture in America. Art historian William Saunders praised his work's "clarity, sobriety, simplicity, and sharpness." The show at the James Danziger Studio, 130 Prince St., New York City, will feature 30 photographs. Stoller, 82 and now retired, will attend the opening.

**Minneapolis wins community awards competition** Minneapolis, working with the AIA, won the \$10,000 grand prize awarded by the National Organization on Disability/United Parcel Service Community Awards competition which recognizes outstanding local initiatives and actions that expand the participation of citizens with disabilities. Alan Reich, president of N.O.D said, "...the citizens of Minneapolis carried out an exemplary program of cooperation with the American Institute of Architects that is a model for other cities and counties nationwide."

## Suddenly, glass block takes an unexpected twist.



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# PROJECT DIARY: How Renzo Piano turned Fiat's **LINGOTTO FACTORY**, a Modern industrial icon, into the embodiment of changing times.



*Le Corbusier sang its praises in his 1923 Modernist manifesto Vers une Architecture, showing photographs of sports cars zipping around its roof-top test track. Generations of architects around the world, weaned on Corbu, saw it as an icon of industrial Modernism. In Turin, it was a different kind of symbol. The embodiment of Fiat, the biggest employer in town, it elicited conflicting emotions toward the industrial workplace—depending on whether you labored on its giant assembly lines or reaped the profits of such labor. But from the moment it was completed and even after it was closed as a factory, the Lingotto complex has been much more than just a set of buildings. Converting the 1,673-ft-long main structure into something very different from a factory, while respecting the character of the original architecture and perhaps creating a symbol for a new era, was the great challenge of this project. Not surprisingly, this transformation was long and complex. In fact, it is still underway.*

**HISTORY** Between 1917 and 1920, civil engineer Giacomo Mattè Trucco designed and supervised construction of Lingotto, Fiat's first large car factory. Taking its name from the area on the outskirts of Turin in which it was built, the giant project featured a main building that was five stories high, ran 1,673 ft long and 80 ft wide, and wrapped around four courtyards. The design of the factory was inspired by the early multistoried plants that Albert Kahn designed for Ford in Detroit, which Fiat's founder V.G. Agnelli saw on a trip to the United States in 1912. Lingotto wedded the horizontality of the assembly line to a vertical process of manufacturing: Each major step in the construction of a car took place on a progressively higher floor until the finished product was tested on the roof track and then driven down one of two ramps to the ground.

by Clifford Pearson

An office building, the palazzina, was erected in front of the factory and ancillary buildings were added to the complex over the years. Running along the factory's west facade was the railroad. On the east side, residential neighborhoods developed over time, bringing the city of Turin to its doorsteps. At its peak, 12,000 people worked at Lingotto.

In the 1950's, Fiat built factories in the Mirafiori area of Turin, making Lingotto an ancillary facility. About the same time, Fiat moved its executive offices from the palazzina at Lingotto to downtown Turin.

By 1982, new robotic technology and team approaches to manufacturing made the long assembly lines of Lingotto obsolete, forcing it to close. The last car to come off the factory's floor was a Lancia Delta.

**1982-88** Fiat invites 20 prominent architects to propose new uses and conversion strategies for Lingotto. The list of architects includes Aldo Rossi, James Stirling, Richard Meier, Hans Hollein, Cesar Pelli, Gaetano Pesce, Gae Aulenti, Lawrence Halprin, Ettore Sottsass, Gottfried Bohm, and Renzo Piano. Most of the architects propose single uses for the 2.7-million-sq-ft building, such as an automobile museum, railway station, or hotel.

Piano's proposal stands out for its vision of a multi-use, public-oriented complex where tensile roofs float above courtyard gardens. "The metaphor I use is of a city," says Piano. "There is a mix of functions. We added streets and a piazza. And like the best cities, we tried to create surprises," explains the architect. "We wanted to create a city within a city" that would include shops, offices, a hotel, a university, incubator space for start-up companies, exhibit space for trade fairs, and public parks, says Shunji Ishida, one of Piano's senior associates for the past 25 years. The architects also want to integrate Lingotto with the rest of Turin, by creat-

**Project:** *Lingotto Factory Rehabilitation, Turin, Italy*  
**Architect:** *Renzo Piano Building Workshop—Renzo Piano, principal-in-charge; S. Ishida, associate architect; M. Carroll, architect-in-charge (bubble); M. Varratta, architect-in-charge (concert hall); M. Cattaneo, S. Scarabicchi, R.V. Truffelli, D. Magnano, D. Piano, design team*

**Engineers:** *Ove Arup & Partners (structural and M/E, concept design); A. I. Engineering and Fiat Engineering (structural, final design)*  
**Consultants:** *Müller Bbm (acoustics); Arup Acoustics (acoustics); Techplan (theater); Studio Vittone (concert hall foundations); P. Castiglioni (lighting); P.L. Cerri (graphics)*  
**Builders:** *Del Favero, Maltauro, Aster*



ing uses that would attract residents to visit on a regular basis.

All 20 proposals are exhibited in spring 1984 and in an unofficial vote a majority of visitors favor Piano's plan. One of the big question marks hanging over the project, though, is whether a revamped Lingotto can, in fact, become an integrated part of Turin, after so many decades of being a fortress of work isolated by rail yards and industrial grit. "It's not easy changing the image of a place as big as this," says Venanzio Truffelli, a Piano associate who worked on Lingotto for many years.

In 1986 Fiat asks Piano to work with an economist and a sociologist to develop a feasibility study for the project. The study endorses Piano's original mixed-use approach, focusing on the trade fair and conference components as two of the first to be built.

Starting in 1986, the project moves through a labyrinthian approval process to change the building from manufacturing to multi-purpose use. Finally, in 1988 Fiat gets the okay and organizes the Lingotto Society, a public-private partnership that will take over the direction of the complex. The Society includes Fiat, the city of Turin, Italian Railways, three major banks, and two insurance companies.

**1988-92** Even as Piano's office moves forward on design development, debate continues on the project's future. How to proceed, how fast to proceed, and how much money would be needed are all issues under discussion. According to one source, there are times when the project's future is in doubt.

"What pushed the project forward was the realization that this was just too important," explains Andrea Raghieri, a public relations official with Expo 2000 Spa, the company that runs the trade fair and conference components of Lingotto today, and a spokesperson for Fiat during much of Lingotto's development. "Lingotto was just too important to Fiat's history and too important to the city of Turin as an economic development project," says Raghieri.

There is also the realization that not going forward with Lingotto, especially its trade fair component, would have its costs, too. The Turin

One of the great ramps of Lingotto being built between 1917 and 1920 (below left). Factory functions took place between the four bays of the poured-concrete structure (below right).

Book Fair and the annual automobile show have outgrown the city's existing exhibit center and might leave if a larger facility isn't built.

Finally, there is the realization that Lingotto is a rare opportunity to create a new symbol for Turin—one that pushes the city into the 21st century, says Raghieri.

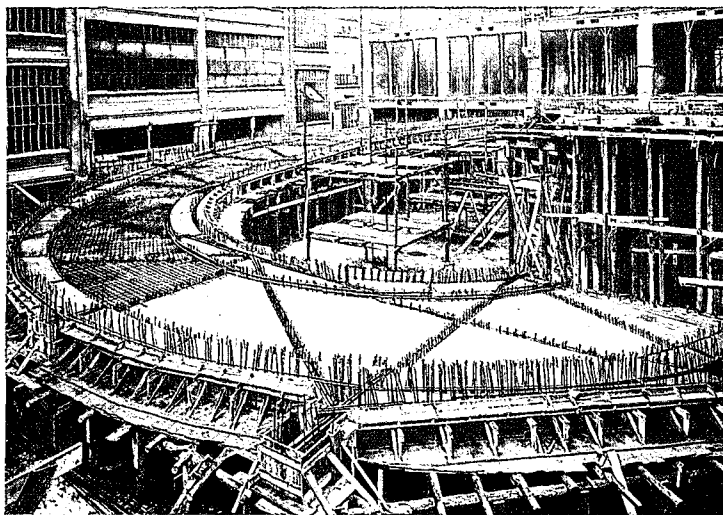
"The sense of emptiness in the building was terrifying at first," recalls Truffelli. "The most difficult aspect was conquering the scale," adds Daniele Piano, Renzo's son and an architect who has worked on the project. "So we took a pragmatic approach, one piece at a time."

During Lingotto's long history as a factory, a host of ancillary sheds had been added to it, obscuring parts of the main building. To increase the building's presence and its impact as an object in the city, Piano and his Building Workshop decide to tear down many of these small structures, explains Ishida. And by removing the abandoned rail line that once supplied the factory, the architects create the opportunity to practically surround the complex with public open space. Rather than denying or trying to break the monumental scale of the main building (as some other architects had proposed), Piano wants to glorify it. "The dimensions of the building are part of its character and identity," says Truffelli. "We decided to respect that."

The original idea is to create a large public park that would stretch from one side of the site to the other, filtering through the four courtyards within the building. As the design develops, the architects impart different identities to the long open space on the east side and the one on the west—keeping the landscaped park on the west where trains once ran and designing a piazza linking the project to the city on the east.

Festooned with tent roofs and a floating elephant, Piano's first scheme for the courtyards and open space at Lingotto recalls the Pop designs of the Archigram group, writes Peter Buchanan in a 1995 monograph on Piano. During design development, these whimsical elements disappear as it becomes clear they don't fit the character of the building.

"Renzo decided early on that we wouldn't do a Beaubourg here," says Truffelli, referring to the Pompidou Centre in Paris that Piano designed with Richard Rogers. "We wanted to respect the fabric of the old building and do a low-key conversion." As Piano himself explains, "Because the old building is so formally simple, you must have a light







While the building's concrete-frame structure was still in excellent condition when it closed as a factory (left), its stucco surfacing was crumbling in places. Renzo Piano's Building Workshop researched the old type of stucco used, which has a higher sand content and is more textured than today's stucco,

and recreated it. The old building's rhythmic 20-by-20-foot structural grid was extended outdoors to organize the landscaping of a new park on the west side of the complex (below). Parking for 3,500 cars is below. Italian Railways has hired Piano to devise a scheme for a swath of land that it owns adjacent to this park.



touch. If you try anything extravagant, you might kill the building.”

Lingotto's poured-concrete frame—based on a cube that is 6 meters (19.8 ft) in length, 6 meters in width, and 5 meters (16.5 ft) in height—is still in excellent condition, but its stucco surface is crumbling in many places. So the architects research the old-fashioned stucco and rediscover how to create and apply it.

Using and extending the building's grid is another key element in Piano's design. New openings in the building's fabric—such as entries for the convention and shopping areas and an outdoor corridor wrapping around the courtyards—reveal the grid by carving away portions of it. West of the building, Piano's landscaping brings the grid outdoors, using it as a matrix for planting new trees. “The advantage of working at Lingotto,” says Piano, “is you have the discipline: the structure, the grid.”

The first public event—an art exhibit entitled “Russian and Soviet Art 1890–1930”—opens at Lingotto in June 1989, offering a hint of things to come. Located in the part of the building that will later be used for trade fairs, the exhibit, which is designed by Piano's office and runs for five months, shows how space in the building can be used. The exhibit is a small, but important, down payment on the complex's future.

The most obvious changes to the building are in its fenestration. Although the windows fit into the old openings, they are clearly new elements with aluminum frames and sun shades stored in bright green rolls. The distinctive green shows up all over the project—in railings, window trim, and other details. “We use the green only in small pieces,” says Truffelli. “We want people to remember the color and associate it with the new facility, but we don't want it to be too strong.” Creating a certain amount of tension between old and new is one of the architect's goals. But

“you must be very subtle,” warns Piano. So even the new double-glazed windows are arranged in grids that allude to their predecessors.

To stiffen the large expanses of curtain wall on the ground floor (where the floor-to-floor height is nearly 25 feet), the architects at the Building Workshop design an elegant aluminum column with circular holes running up its length. Set in long galleries in the trade fair area and the hotel, the columns are another carefully detailed element that is even more impressive when it is repeated over and over. “We wanted to keep the spirit of obsessive repetition found in the old building,” states Piano.

As Piano and his associates work on the fine points of the architectural vocabulary to be used at Lingotto, they must also grapple with a program that is often in flux. One day cinemas are in; the next day they're out. Years later they return in a different location. The client would like to have the Faculty of Science of the University of Turin anchor one of the four courtyards, but negotiations go on and on. Such uncertainties reinforce the architect's decision to design a repetitive system, an architectural framework flexible enough to accommodate a broad range of uses.

The largest component of the program—the trade exhibition area—is never in doubt. After surveying the sheds at the south end of the main building, the architects decide to remove most of them and build a new 562,000-sq-ft hall. Adjacent to this, a new conference center will be inserted into the old Lingotto building. Underground parking for 3,500 cars will be built on the western part of the site with the park above it.

The highlight of the conference center is a 2,000-seat conference hall that Piano plans to bury under a courtyard. Because Lingotto has no basement, nearly 50 feet of earth needs to be excavated to insert the hall where the architects want it. Although expensive, this (*text continues*)





On the east side of the factory, Piano and his associates tore down some low-rise buildings to create a grand piazza (above) that serves as a welcoming

space facing the city. On the west (below), the architects designed a park. Both elevations combine new glazing within the renovated fabric of the old

building. To date, the cost of the Lingotto project has been about \$450 million, \$32 million over the original budget.







## THE CLIENT

partnership sounds like every architect's nightmare client. And while disagreements did indeed arise during the process of creating the new Lingotto, what's more remarkable on such a complex project is the degree of agreement between architect and client. In fact, Renzo Piano got along so well with Alberto Giordano, the chief executive officer of the Lingotto Society, that he hired him in 1993 to work for his firm.

What also helped was the support of Giovanni Agnelli, the powerful chairman of Fiat, who saw the project as an opportunity to shape a new forward-looking image for his company and his hometown. Although Agnelli wasn't involved in day-to-day decisions, he was totally committed to the project and could usually be depended on to throw his

considerable influence behind decisions that enhanced quality—even if that sometimes meant spending more money. The task of staying close to the project's budget was made easier by corruption scandals in the 1990s that cleaned up the construction industry in Italy and made it more competitive.

Several key decisions by Fiat and the Lingotto Society set the direction the project would take, says Andrea Ranghieri, an executive of Expo 2000 Spa, the company that manages the trade fair portion of the project, and a former spokesman for Fiat. "The first decision was to maintain not just the building itself but the spirit of the old building," states Ranghieri. Next came the decision "not to treat the building as a mausoleum," but to

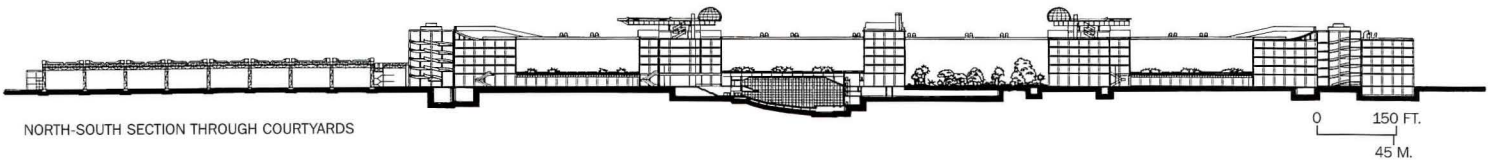
bring new functions to it. The third key point, says Ranghieri, was to take a multi-functional approach—injecting many different activities into the old factory.

Now that much of the work has been done on the old factory building, Fiat is moving its executive headquarters back to the palazzina at Lingotto (photo left)—a show of faith in the project by its largest shareholder.

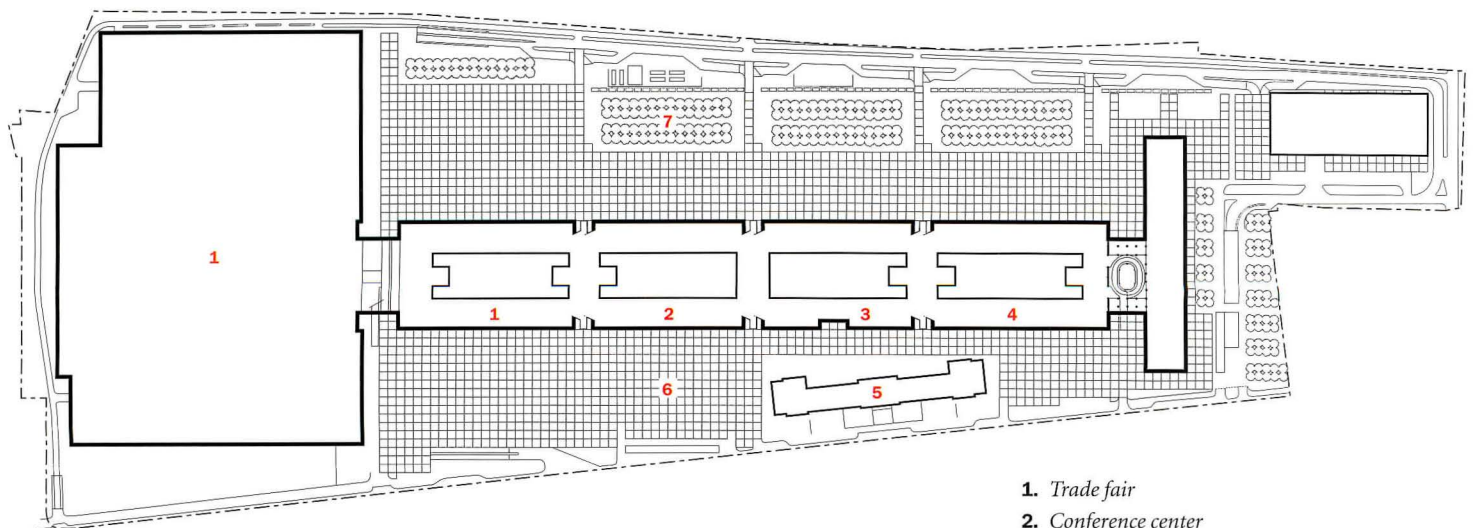
For a long time, many people were skeptical of the project. "Not everyone in Turin believed it would happen," admits Ranghieri. Now the task is to change local residents' image of the building—from being a factory to being a destination of choice. Connecting Lingotto to the surrounding city is still a work in progress.

Initiated by Fiat in 1982, the Lingotto conversion became a joint effort in 1988 when the public-private Lingotto Society was given control of the project. Lingotto shareholders include Fiat, the city of Turin, Italian Railways, three banks, and two insurance companies.

A multi-headed, public-private



NORTH-SOUTH SECTION THROUGH COURTYARDS



SITE PLAN → N

1. Trade fair
2. Conference center
3. Hotel
4. Unfinished
5. Palazzina
6. Piazza
7. Park





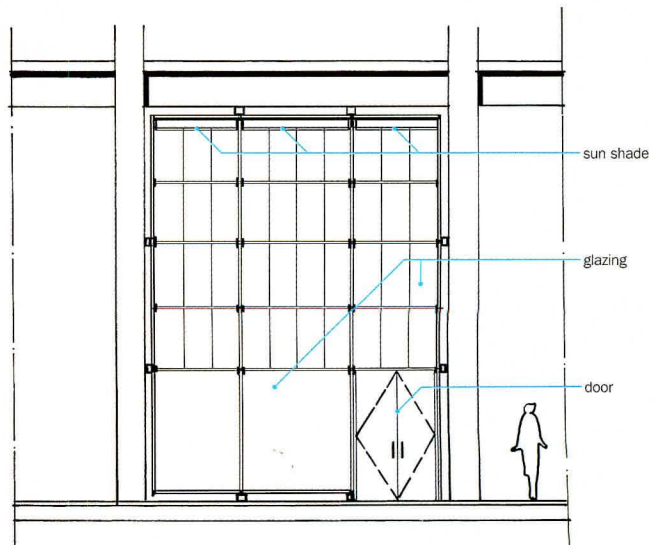
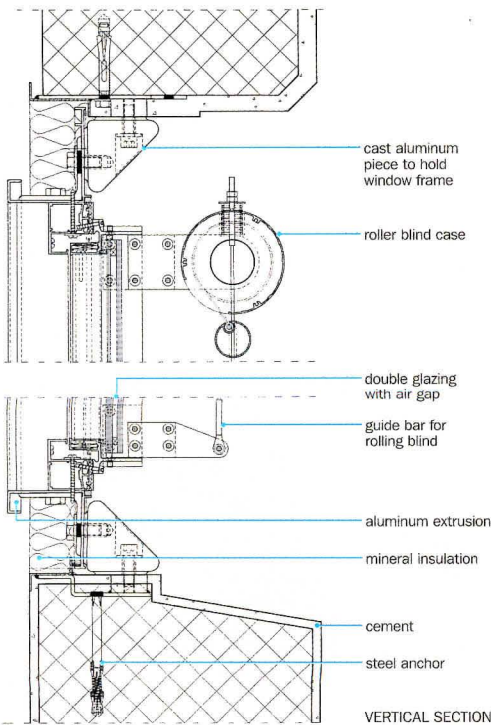
**UP CLOSE**

New glazing recalls the old building's grid (left). In the trade fair area (right), it echoes the "obsessive repetition" of the old factory.

Other than the new piazza in front of the building and the park behind it, the most important changes made to the exterior of Lingotto involved its fenestration. Replacing the old windows with aluminum-frame casement ones, the architects created a new skin inserted just inside the old fabric of the building.

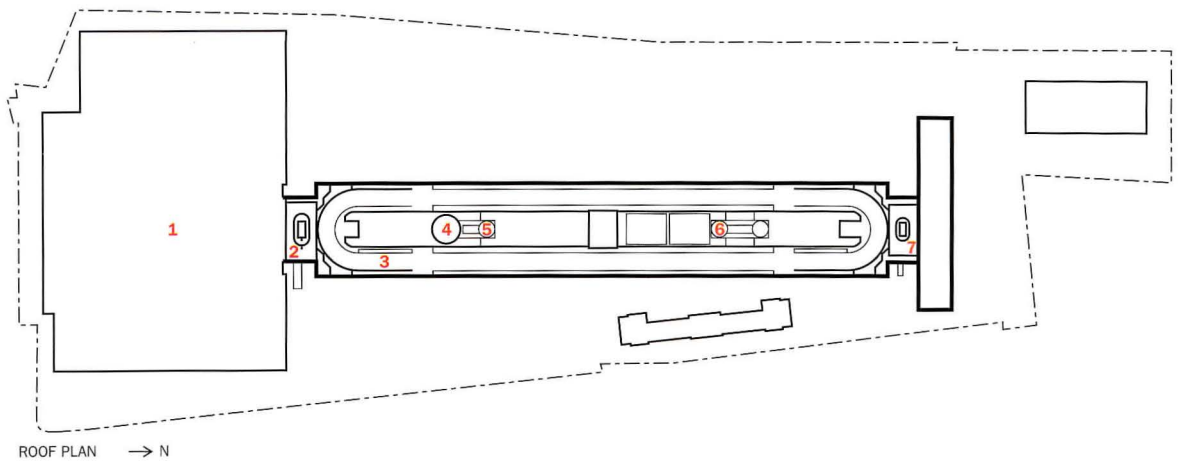
Because the original building is very simple in form and in the expression of its grid, "you have to be very careful," warns Renzo Piano. "If you want to be strong, you need a light touch," he explains. To open the building to the outside and show what's going on inside, Piano kept the glazing clear. For sun protection, he and his associates designed canvas shades stored in bright green rolls at the top of each window (above and drawings below).

On upper levels, the floor-to-floor height is 16.5 ft, while the ground floor is nearly 25 ft high. To brace the large expanses of glazing on the lower floor, the Building Workshop designed cast-aluminum columns lightened with punched-out holes (right). "The idea was to use simple elements that are subtle from a distance, but can be appreciated as you get closer," says Venanzio Truffelli, one of Piano's associates who worked on the project. While Piano's fenestration is clearly new, it alludes to the old in its grid. In another nod to the past, the architect restored the original windows on one portion of the building—one of the towers crossing the interior courtyard. Not everyone will notice this gesture, but it acts as a subtle link between old and new.

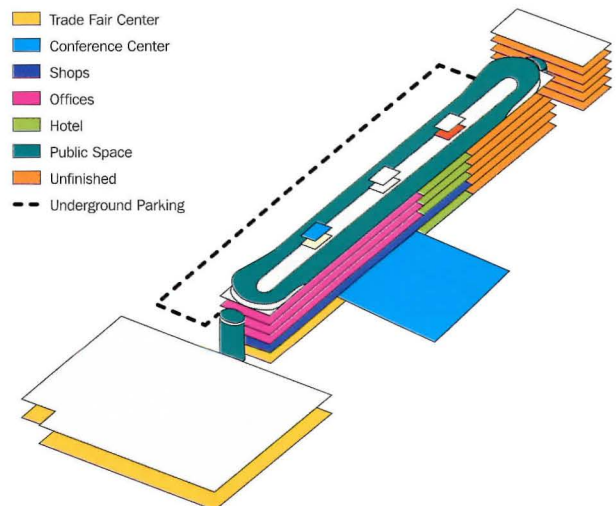
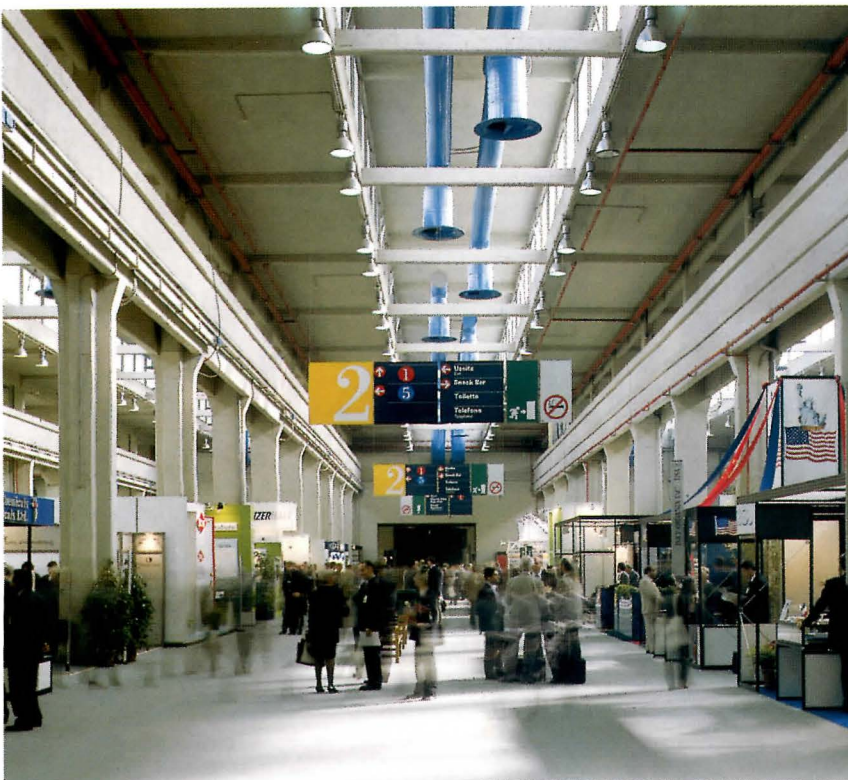
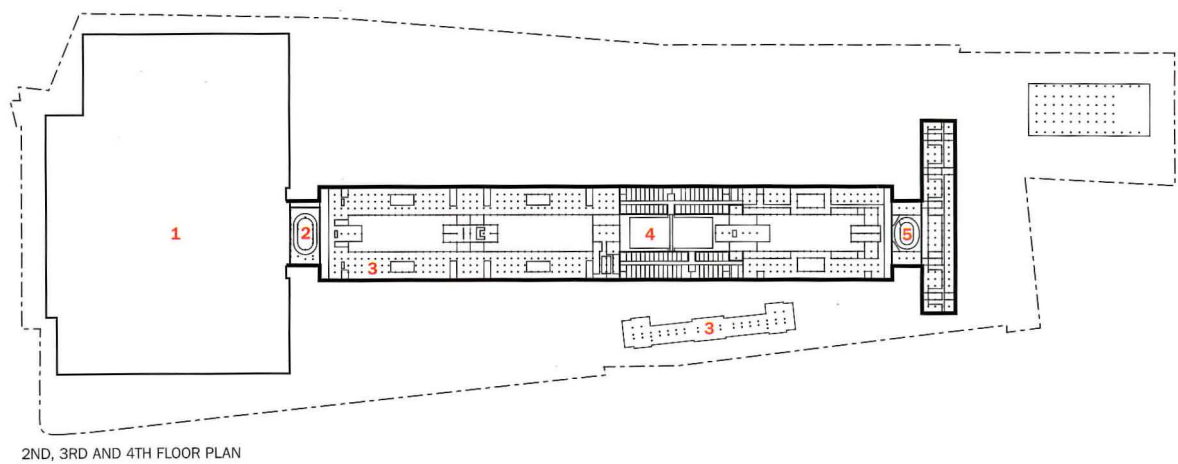




1. Trade fair (below)
2. South ramp
3. Test track
4. Helipad
5. Conference (bubble)
6. North bubble (unbuilt)
7. North ramp



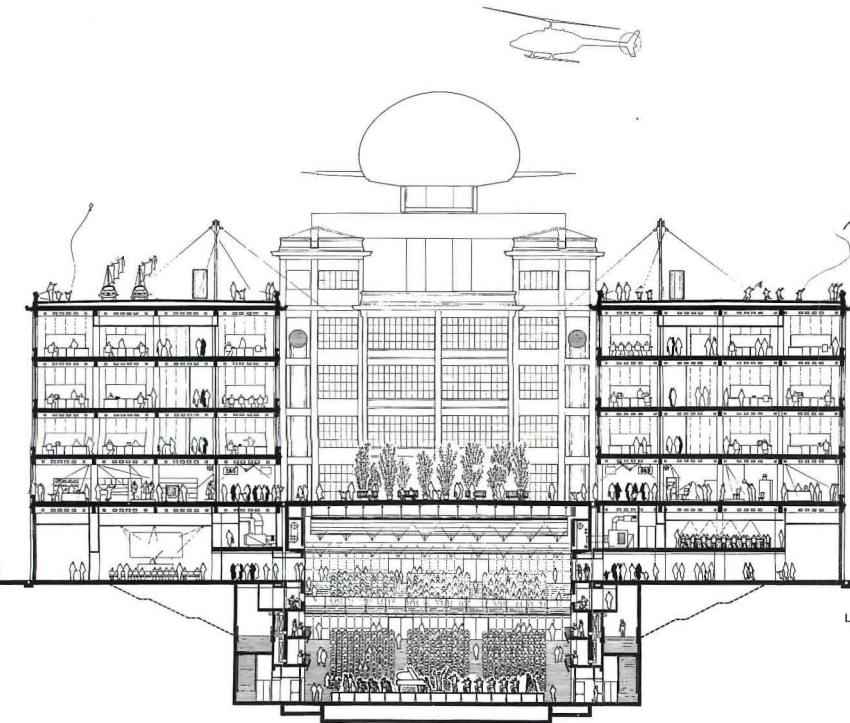
1. Trade fair (below)
2. South ramp
3. Office
4. Hotel
5. North ramp



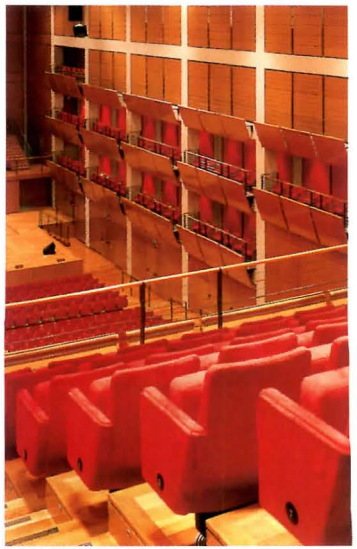
The trade fair area (left) is one of many components inserted into and added onto the old factory (diagram above). Since the uses changed often

during development, the architects designed a building system that could accommodate many functions.





Buried below a courtyard, the 2,000-seat concert/congress hall evokes the factory's grid in the new structural members on its two long sides (above). When curved ceiling panels are lowered for concerts, the volume of the room is reduced and the balcony is closed off. Wood panels in the hall are cherry.



EAST-WEST SECTION THROUGH CONCERT HALL/CONFERENCE CENTER



approach accommodates the size of the hall and the need for good acoustics.

Piano proposes that the hall be adaptable for both conferences and concerts and devises a scheme in which curved ceiling panels suspended on cables are lowered or raised depending on the function to be accommodated. It is considered a brilliant but expensive design. Some members of the client team resist. But Piano argues that while Italy has a number of world-class opera houses, it has only a few great concert halls. He also believes that the more functions Lingotto can offer, the more it will resemble a true city. Piano finds an ally in Alberto Giordano, the Lingotto Society ceo, and the two of them go about convincing the others.

While the basic thrust of Piano's designs is to defer to the fabric of the old building, he knows the project needs a high-profile element to serve as a symbol of the new Lingotto. His idea is to have this element rest gently on the old building, barely touching it. From this line of thought comes a pair of glass "bubbles" hovering above the famous roof-top test track. Each bubble houses a single conference room and one is coupled with a circular helipad. The spherical geometry and the high-tech materials provide a clear break with the rest of Lingotto. Although the bubbles will be expensive to build and maintain, Fiat chairman Giovanni Agnelli recognizes their value as icons of change. The bubbles are approved.

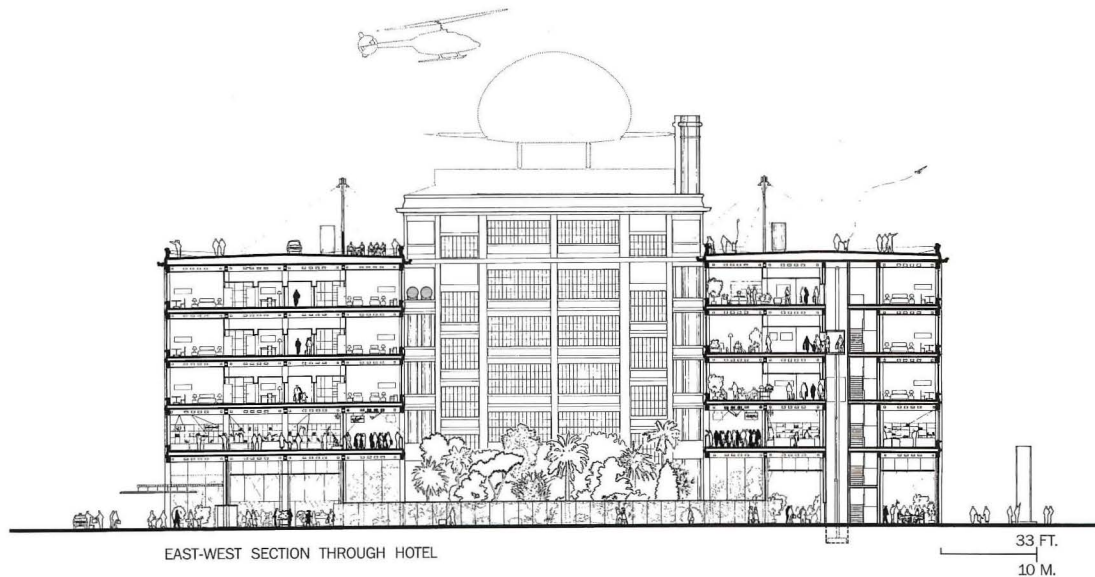
Working with engineer Peter Rice from the London office of

Ove Arup & Partners, Piano designs the bubbles so they rest on new towers independent of the old building. Piano and Rice are close friends who have collaborated on projects for nearly 25 years. But at age 57, Rice has cancer and in 1992 he dies. At about this time, Piano takes a new approach to the structures supporting the bubbles. Instead of inserting new towers into the complex, he decides to rest the new elements directly on the old building. (Or what seems to be the old building, since the towers would have to be almost totally rebuilt to carry the extra load.)

**1992-97** The trade fair part of the project opens in April of 1992 and quickly becomes a success. By 1997, the facility is booking 37 trade shows a year. The book and automobile shows stay in Turin and new ones are attracted.

In May 1994, the convention center and concert hall open. The adjustable ceiling panels and the boxy shape that brings all seats close to the stage please both audiences and performers. One musician says "it's like playing inside a violin." The quality of the facility is a factor in the Italian National Broadcast Symphony's decision to use Turin as its home.

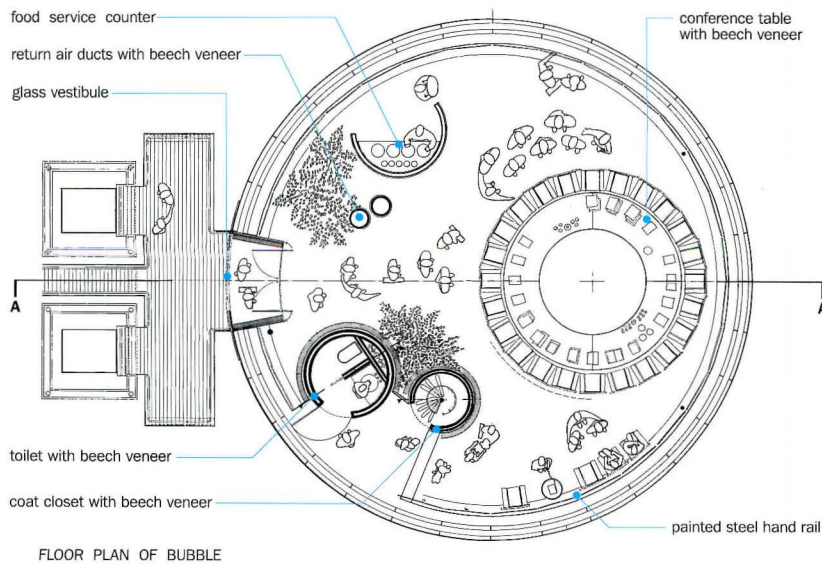
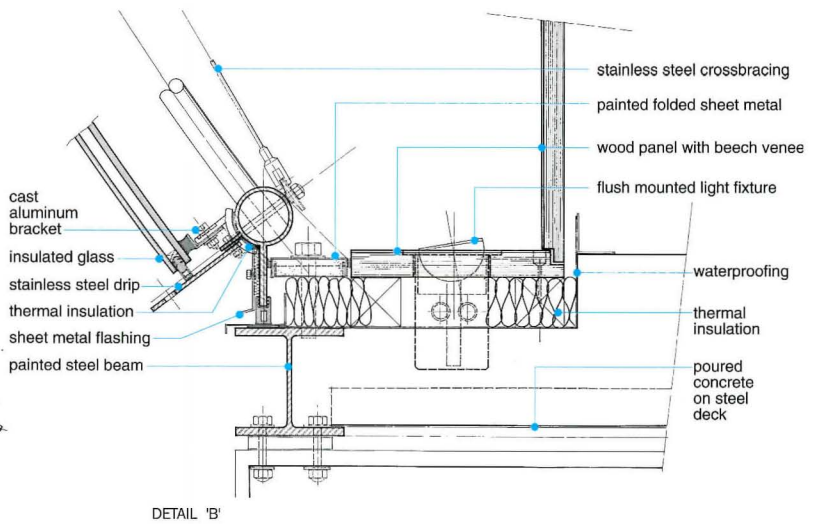
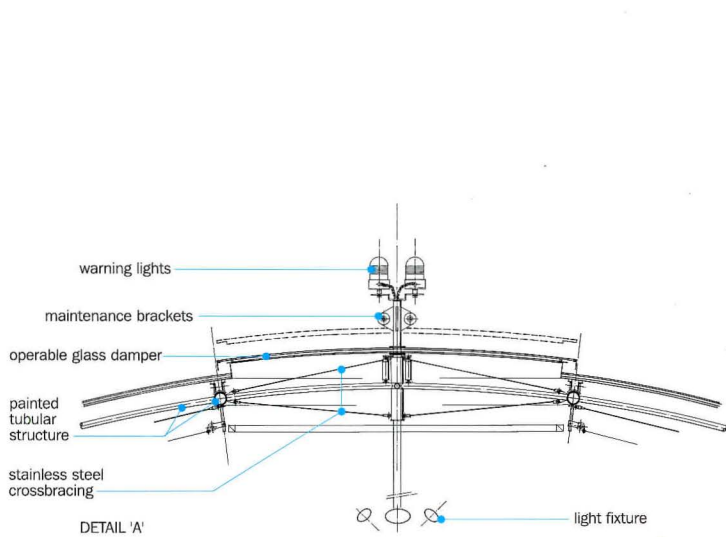
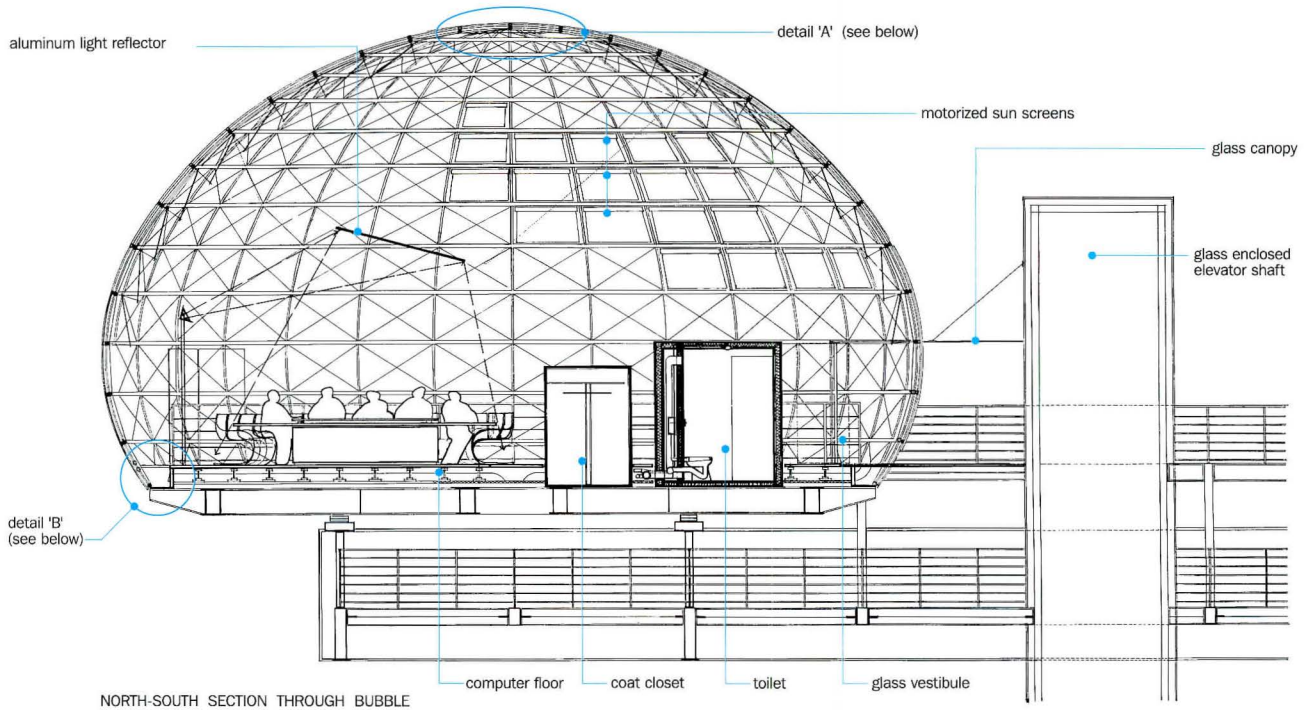
A business center opens in the tower below the roof-top bubble, providing office space for businesses associated with the conference center. A hotel, wrapping around a courtyard landscaped by Piano as a lush tropical garden, welcomes its first guests in 1994.



The hotel occupies its own courtyard, which has been landscaped as its own microclimate with a jungle of tropical flora (section left). Slicing through the center of the courtyard and connecting the two sides of the hotel is a glass-enclosed corridor (far left) that provides an elegant contrast between the natural and the man-made. The hotel lobby (left) has 25-ft-high ceilings and is decorated with the original drawings executed in 1982 by the 20 architects asked by Fiat to propose new uses for the Lingotto factory.







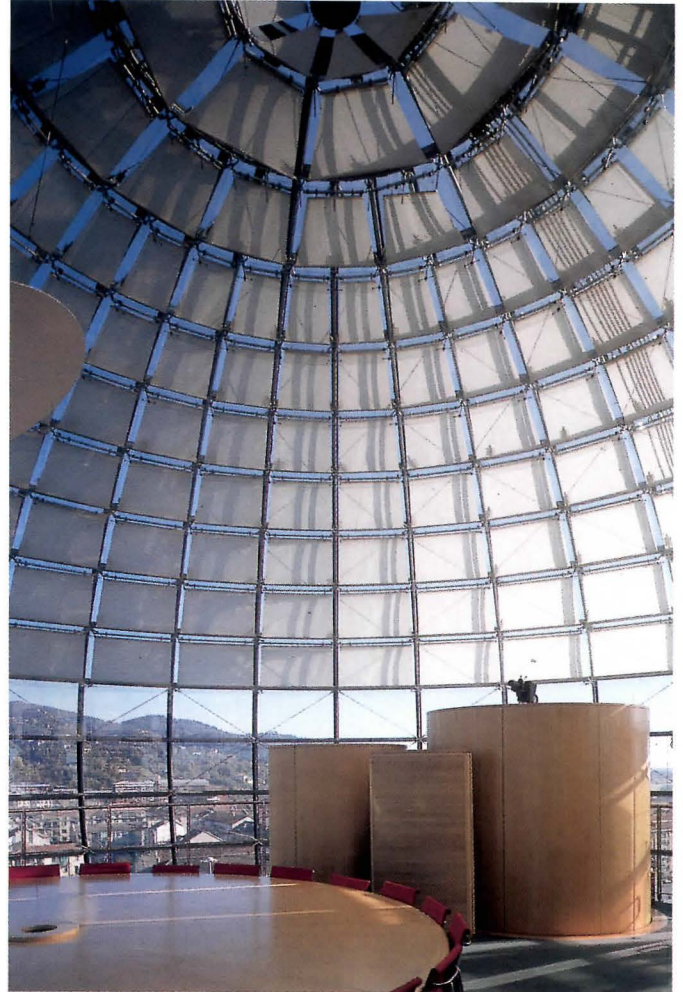
According to Piano, he devised the shape of the conference-room bubble after considering wind loads and the capabilities of structural glass. By keeping structural glass members less than 1.9 in. (48 mm) thick, the architects and engineer Peter Rice created a metal "lace" holding glass panels in place.

The panels are insulated units made of an exterior layer of heat-treated glass and an interior layer of laminated low-E glass. Each panel has a double curvature. Motorized screens protect panels facing the primary directions of the sun.





Just as the roof-top test track was the symbol of the old Lingotto, the bubble and helipad are the identifying icons for the reborn building (above). A sculpture by Susumu Shingu, who has worked with Piano on many projects, animates a courtyard (left). A restroom, a coat room, and a food-service counter are tucked behind beech-veneer cylinders in the conference room (right).



In March 1996, the first bubble opens as a high-tech conference room. (Plans for the second bubble are put on hold.) A European summit attended by heads of state comes to Lingotto and takes advantage of the bubble for photo opportunities. As Fiat's Agnelli had hoped, Lingotto and its glass-and-steel bubble are being used "as Turin's gateway to the world." So far, the project has cost \$450 million, \$32 million over budget, which considering the size of the project is considered reasonable.

By the fall of 1996, the shopping arcade opens to the public and helps bring alive Piano's original idea of creating "a city within the city." Like ancient Roman cities, this one starts with a simple grid, explains Piano. "You penetrate the mass of the building and then you find unexpected things—the concert hall, the bubble, a shopping street, piazzas."

Right now, the critical mass to make Lingotto a thriving city is not yet in place. The portion of the building around the northern-most courtyard is still empty. The University of Turin will not occupy this space as originally hoped, but a multiplex cinema is likely to move in. Although 60 percent of the office space, 50 of the 80 shops, and 2 million of the total 2.7 million sq ft are occupied, an emptiness still echoes through the

vast complex. Less than 3,000 of the targeted population of 12,000 are currently working in the building. That will change. Fiat has decided to return its executive offices to Lingotto's palazzina, after being away for five decades, and will move in this spring. There are also plans to open a restaurant on the top of the building and open the test track to the public. You may not be allowed to test out your new Fiat on the roof, but you will be able take a spin around the track on your bicycle or rollerblades. ■

*Manufacturers' Sources*

**Stage & movable ceiling (concert hall):** SAM

**Parquet floor (concert hall):** Frigo Srl

**Acoustic timbers (concert hall):**

*Gabella Pascal*

**Handrails, parapets, fittings**

**(concert hall):** Gruppo Bodino

**Seats (concert hall):** B&B

**Audio facilities (concert hall):** Euphon

**Lighting (concert hall):** i Guzzini

**Steel structure (heliport):** De Valle, Maeg

**Steel structure, glazing system, fittings (bubble):** Gruppo Bodino

**Insulated glass (bubble):** Hardglass

**Lighting (bubble):** i Guzzini

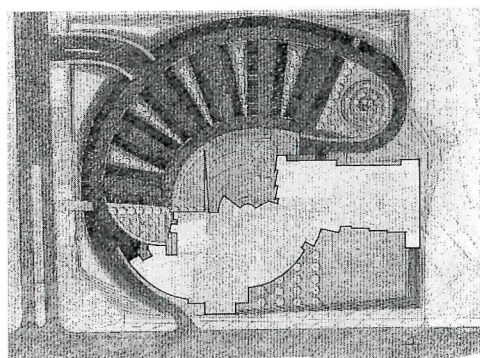


The main entrance to the museum is on the north side of the building, not visible from the street, nestled between the curved form of the "grotto" room and the more linear block of the library wing. The light colored gray cement stucco is intended to act as a foil to the architecture of Las Vegas's Strip.





# Meyer, Scherer & Rockcastle's SAHARA WEST LIBRARY AND FINE ARTS MUSEUM is a world apart from the Las Vegas Strip.



From the street, the Sahara West Library and Fine Arts Museum appears as a series of telescoping volumes (above). Parking is hidden from public view at the back. Rock gardens between parking lanes provide additional camouflage (site plan).

Las Vegas is booming on and off the Strip. While a new crop of attention-grabbing hotels and casinos that feature mock volcanic eruptions, roller-coaster rides, and facsimiles of Egyptian pyramids and the Manhattan skyline dominate tourist images of Las Vegas, another kind of architecture is emerging behind the scenes, where people live. It's a parallel universe of more soft-spoken civic mindedness.

To respond to the region's tremendous population growth—presently, some 3,000 new people take up residence in Las Vegas each month—the city launched an ambitious program to enlarge its fledgling library system in the early 1970s. The first step of the initiative was the 1971 installation of a new director, Charles Hunsberger, who brought with him the lessons of his previous post in Bloomington, Ind., about 25 miles from Indiana's architecturally rich town of Columbus. It's in Columbus that he “got interested in libraries and architecture and in putting them together,” he recalls.

Hunsberger's masterplan for Las Vegas called for merging the one existing city library and one existing county library into a single system, the Las Vegas/Clark County (LVCC) library district. According to his

by Karen Stein

plan, the two buildings would be gradually supplemented by a series of architecturally distinct satellite facilities that would serve as the focus for the communities sprouting up around them. In addition to providing traditional library services—book lending and research—many of these facilities would also provide a cultural component by including exhibition or performance space.

Now numbering 23 branches, including instant architectural landmarks like the Las Vegas Library and Discovery Museum by Antoine Predock, FAIA [RECORD, October 1990, pages 68-75], today the LVCC library district is much as Hunsberger planned it would be. Hunsberger, however, has left the scene, having quit his job in 1993, a year prior to his scheduled retirement, amid mounting backlash to his agenda. While the expanded role of the system was praised by other library districts around the country as visionary, in recent years the hybrid of library and museum caused an uproar in the local community for losing sight of its primary objective. “I did what I planned to do,” responds Hunsberger to allegations surrounding his premature departure.

With over \$120 million of bond-allocated money spent on its facilities in an 11-year period, what is clear is that city coffers are now empty for libraries. The 23rd branch, the Sahara West Library and Fine Arts Museum, by Meyer, Scherer & Rockcastle, which replaced a small

*Sahara West Library and Fine Arts Museum, Las Vegas, Nevada*

**Owner:** Las Vegas-Clark County Library District

**Design Architect:** Meyer, Scherer & Rockcastle—Jeff Scherer, AIA, partner-in-charge, library; Garth Rockcastle, AIA, partner-in-charge, museum; Jack Poling, project architect; Douglass Lundman, Rhys MacPherson, Rick Lundin, Ali Heshmati, Paul Neuhaus, David Foley, design project team; Lynn Barnhouse, Dawn Buffington, Meriwether Felt, interiors project team

**Executive Architect:** Tate & Snyder Architects—John G. Treston, AIA, project manager; Sheldon Colen, job

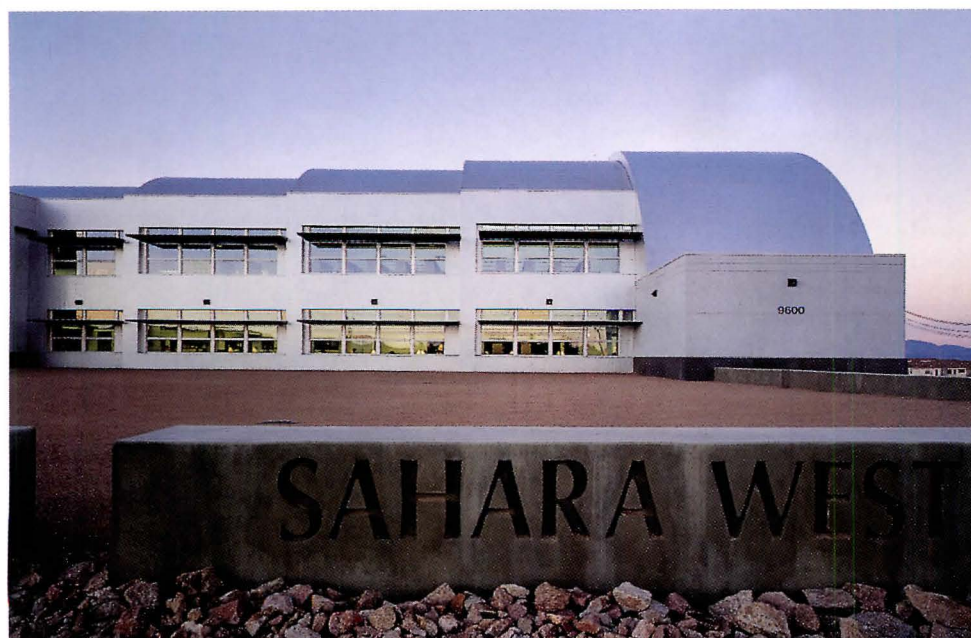
captain; Jerry Cool, Wayne Ficklin, Mike Andersen, Patti Wills, Toni Alvarado, Mary Tenerelli, Sharon Carson, Paige Plautz, Jerry Vielma, Steve Foster, project team

**Engineers:** Martin-Peltyn, Inc. (structural)—Dave Peterson, project manager; JBA Consulting Engineers (M/E/P)—Don Koch, Dave Magderfrau, project managers; Poggemeyer Design Group (civil)—Jehrome Duran, project manager

**Landscape Architects:** Julie Bargmann (design); J.W. Zunino & Associates (construction documents)

**General Contractor:** Sletten Construction



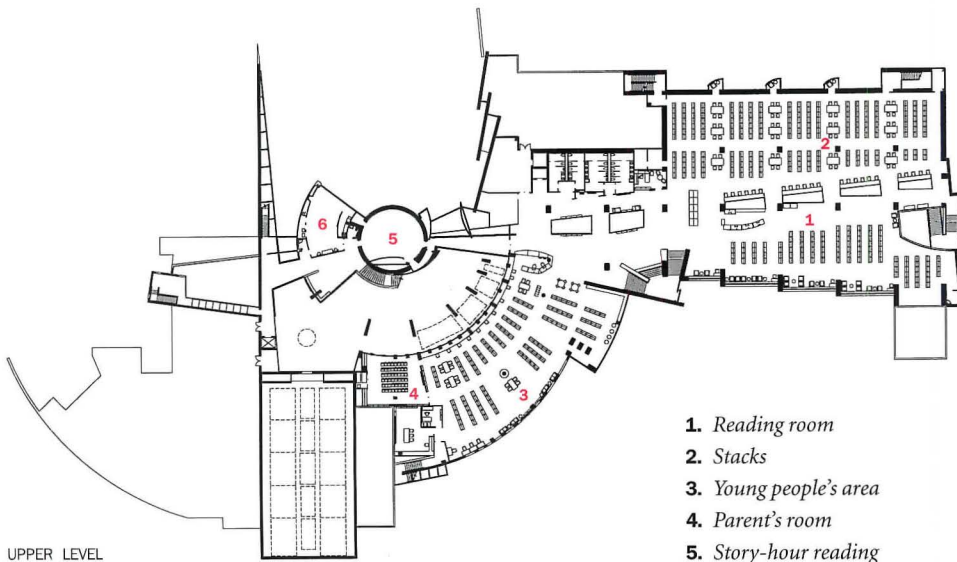


A wedge-shaped plaza provides the transition from the parking lot to the building's interior (top left). The main entrance is located at the juncture of "library" and "museum" (middle left) to encourage wandering between the two, while the secondary entrance (opposite), which is located opposite the gallery spaces, can be used for visiting artists and museum staff. The periodical reading room and additional library seating areas overlook the site of a future sculpture garden on a raised plinth to the south. Canopies provide shading and protect from excessive heat gain (bottom left).



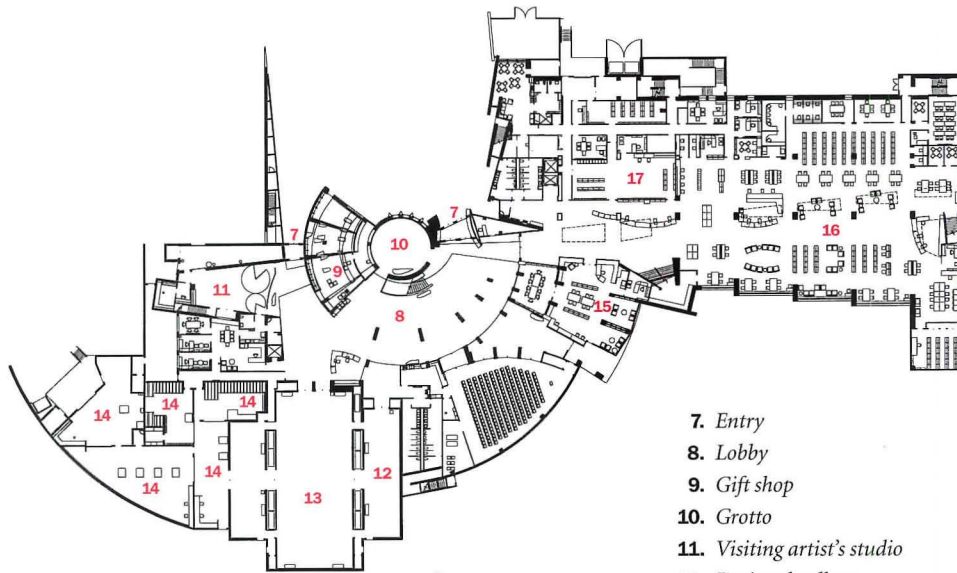
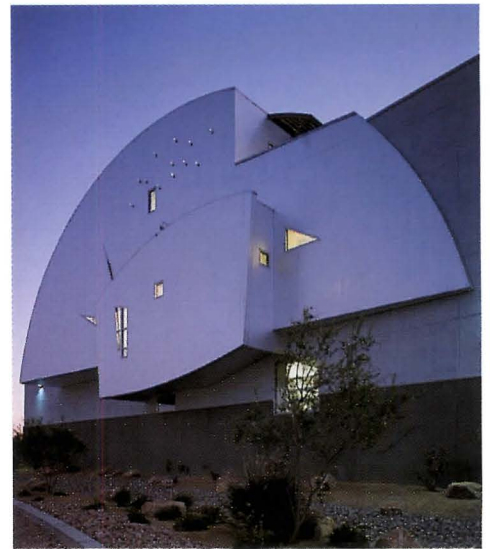




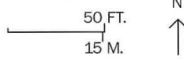


UPPER LEVEL

1. Reading room
2. Stacks
3. Young people's area
4. Parent's room
5. Story-hour reading room
6. Board room



LOWER LEVEL

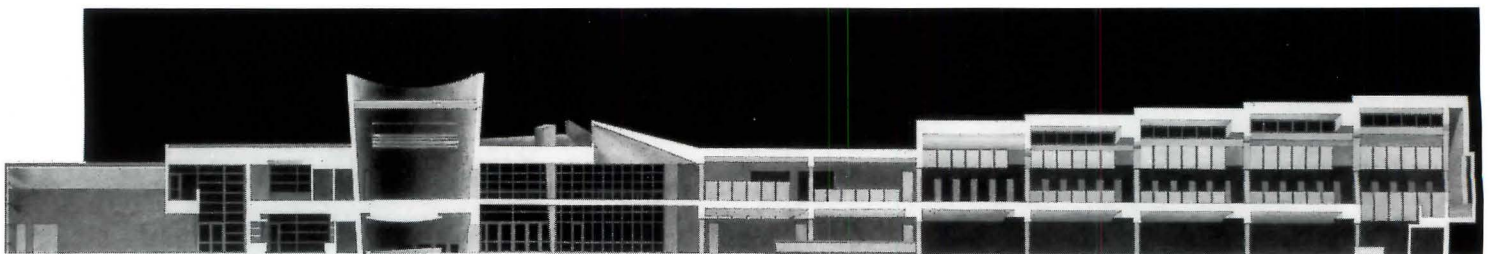


7. Entry
8. Lobby
9. Gift shop
10. Grotto
11. Visiting artist's studio
12. Regional gallery
13. Main gallery
14. Preparation, storage, workshop, loading
15. Fine arts library



Irregularly placed and shaped windows in the "celestial wall" of the east-facing facade are meant to catch the azimuth of winter and summer sun and

reflect it inside (top and opposite). A metal grid pierces the gallery building. The grid will eventually be covered by vines.



East-west section





## PROCESS

*In an essay entitled "The Politics and Practices of Culture in Architecture in Las Vegas," Garth Rockcastle of the Sahara West Library and Fine Arts Museum's Minneapolis-based design architect Meyer, Scherer & Rockcastle explores, among other themes, his assessment of the site and its influence on the design. The essay is part of a collection of writings that will be published by the University of Virginia Press later this year.*

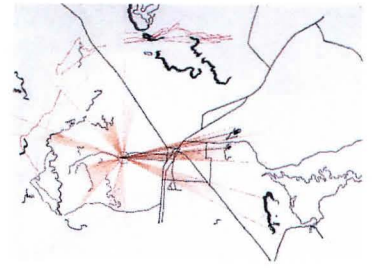
"The project design was actually influenced by several external fac-

tors, including a unique regional history, a harsh climate, and the city's architectural and siting conventions. In opposition to the city's front lot norm for commercial property parking, we hollowed a segmented, radiating lot out of the rear of the site to help camouflage the sea of cars and hide views of some of the adjacent [gated residential community] properties. This allowed us to create an effective narrative landscape while focusing clear pedestrian access to the building entrances, across a shared courtyard. This exterior space also participates with the interior courtyard in a dynamic spiral around a central building mass. The front of the site is thereby preserved to become a sculpture garden along the boulevard, on a raised plinth with the building itself....

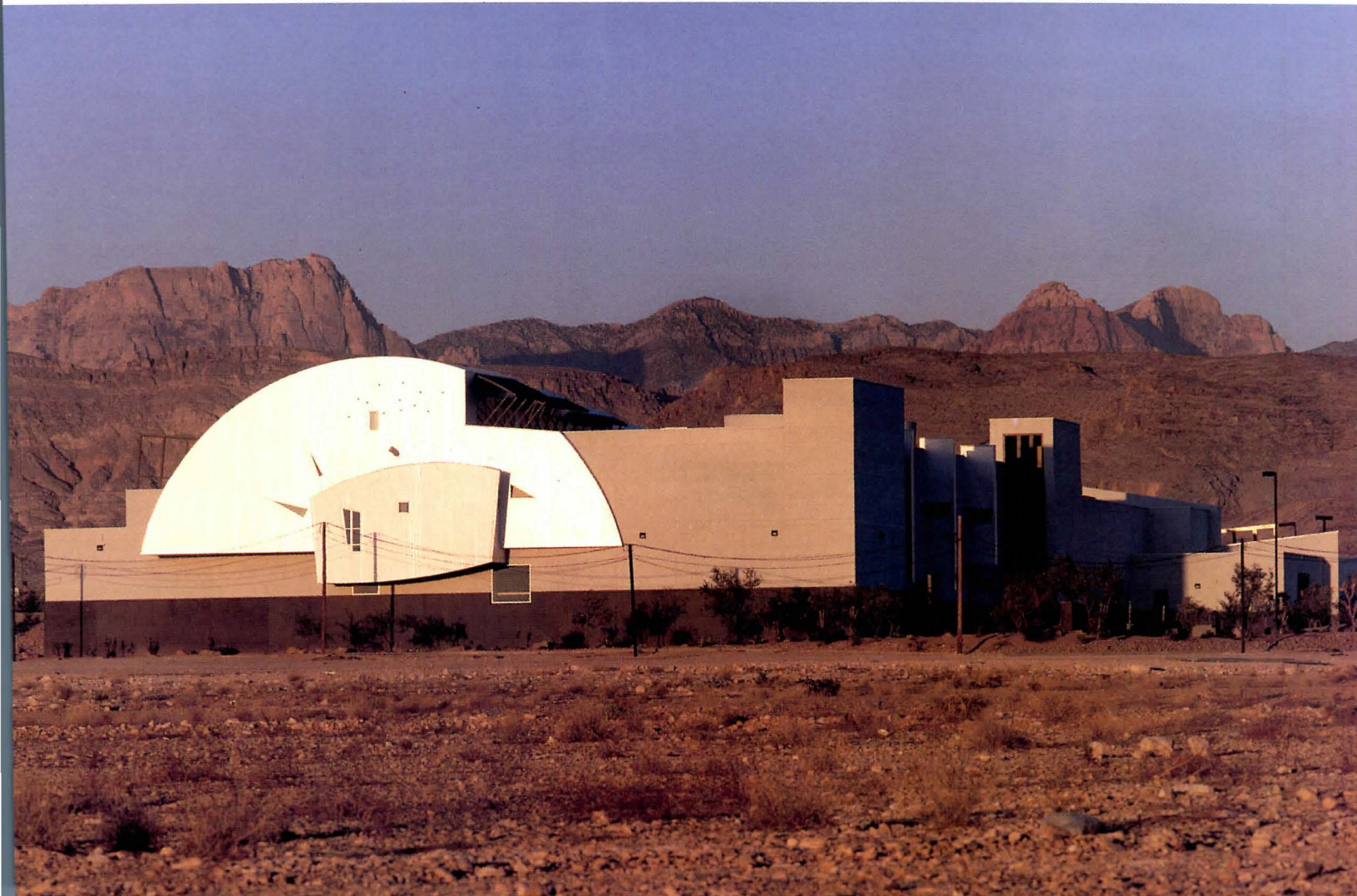
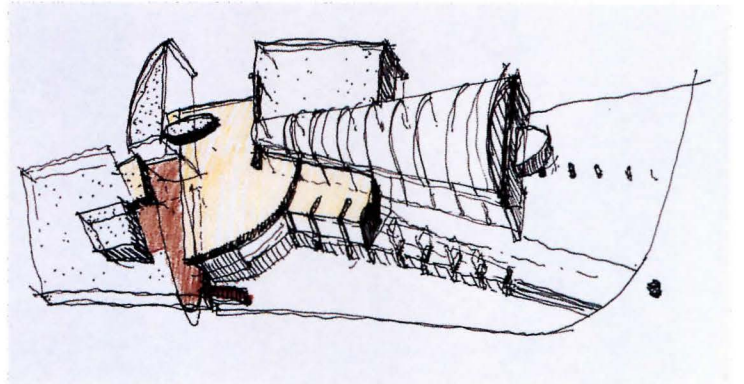
"The two institutions (museum and library) radiate outward from [the] center, each designed to be unique revelatory embodiments of

their distinct cultural forms....

"The material choices for the project were selected and employed to maintain their more natural state (black granite, clear-seal hardwoods, clear-anodized aluminum, and cement-gray stucco) as a contrast to the highly animated and painted surfaces typical of Las Vegas's commercial architecture. It was also an important inverse to the building's strong abstract forms and a more neutral background for the dynamic, programmatic life of the building."



"Before" (left). Concept sketches include a site/valley assessment (above) and a massing strategy (below).









The lobby (opposite top, left) joins library and museum. Suspended from the ceiling of the main gallery is a metal lighting grid that adjust between 10-35 ft (opposite, top right). Baffles shield direct sunlight in library reading areas. (opposite).

and successful storefront operation when it opened to the public in January, is the last of its generation. Current library district director Darrell Batson concurs: "This is it."

Garth Rockcastle, AIA, of Minneapolis-based Meyer, Scherer & Rockcastle (MS&R), the project's design architect, suppressed the split personality of the program on the exterior. Rather than make the building the amalgam of two distinct functions and parts, he and MS&R library specialist Jeff Scherer, AIA, conceived a 122,000-sq-ft whole that responds to site conditions

such as views of downtown to the east and mountains to the west with an attempt to mitigate the effects of the harsh Nevada climate.

The strategy came in part from a desire to reinforce his vision of the building as a place of discovery, and in part from the fact that while the requirements of the library were highly specific, the exhibition component (and, more specifically, its operator) remained undefined even through construction. (Planned by Hunsberger as a venue "for the best [museum] traveling shows," it instead now holds a two-year lease with the Las Vegas Art Museum.) A generously sized foyer with book shop, museum store, board room, and visiting artist studio, binds the parts together on the inside. The main box of the library centers on a double-height rectangular reading room—traditional in scale and shape. "The interiors are almost Eastern," observes Batson, who notes that many of Las Vegas's newest citizens have migrated from the East Coast. "There's the reassurance of the library they left at home," he adds. Study carrels, meeting rooms, and reading niches line the perimeter. Says Batson of the overall plan, "It works."

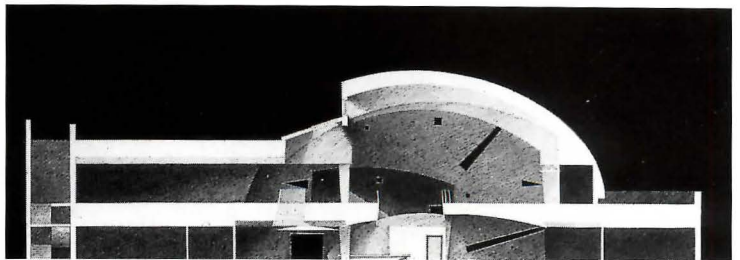
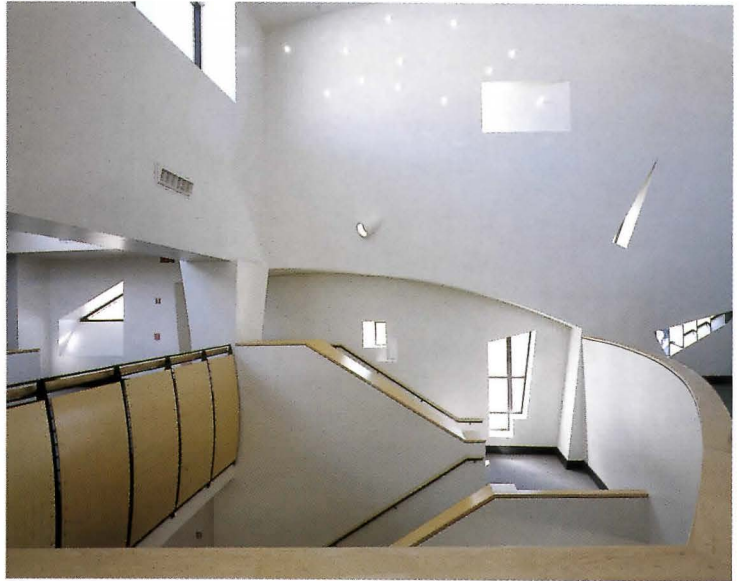
Like Predock before him, Rockcastle was eager to distinguish his building from popularized images of Las Vegas. "It's an offset to the Strip," explains the architect. "It's meant to stand in vigorous contrast." While a nighttime drive down the Strip has the effect of passing a tray of surreal, glittering objects, Rockcastle sees the Sahara West Library and Fine Arts Museum not as another monument, but as "a framing device," something to work in, wander through, and, eventually, to look out from with a sense of wonder.

As if to further his claim, tiny glass rods pierce the building's shell, admitting day or moonlight inside, and casting beguiling shadows behind the grand stair between library floors (photo, middle right) and on the walls of the ground-floor story and exhibition "grotto" (top right). The glow, evocative but more subtle than the neon halo of downtown, is the message of the project. "Details are things you discover," says Rockcastle. "They grow in value, like books." ■

*Manufacturers' Sources*

**Block:** Marnell Masonry  
**Curtain walls, aluminum windows:** Kawneer Company  
**Granite panels at building's base:** Cold Springs Granite  
**Single-ply roofing:** JPS Elastomerics  
**Safety glazed skylights:** Viracon, Inc.  
**Glass rods:** LOF  
**Laminated colored glazing:** Monsanto

**Glass:** LOF and PPG Industries  
**Ceiling lighting:** Lithonia, Kirlin  
**Desk lighting, hall sconces:** Leucos  
**Wood interior doors:** Weyerhaeuser Co.  
**Fire-control doors:** Won-Dor, Inc.  
**Acoustical ceilings, suspension grids:** USG Interiors  
**Plastic laminate on casework:** Nevamar  
**Water fountains:** Elkay

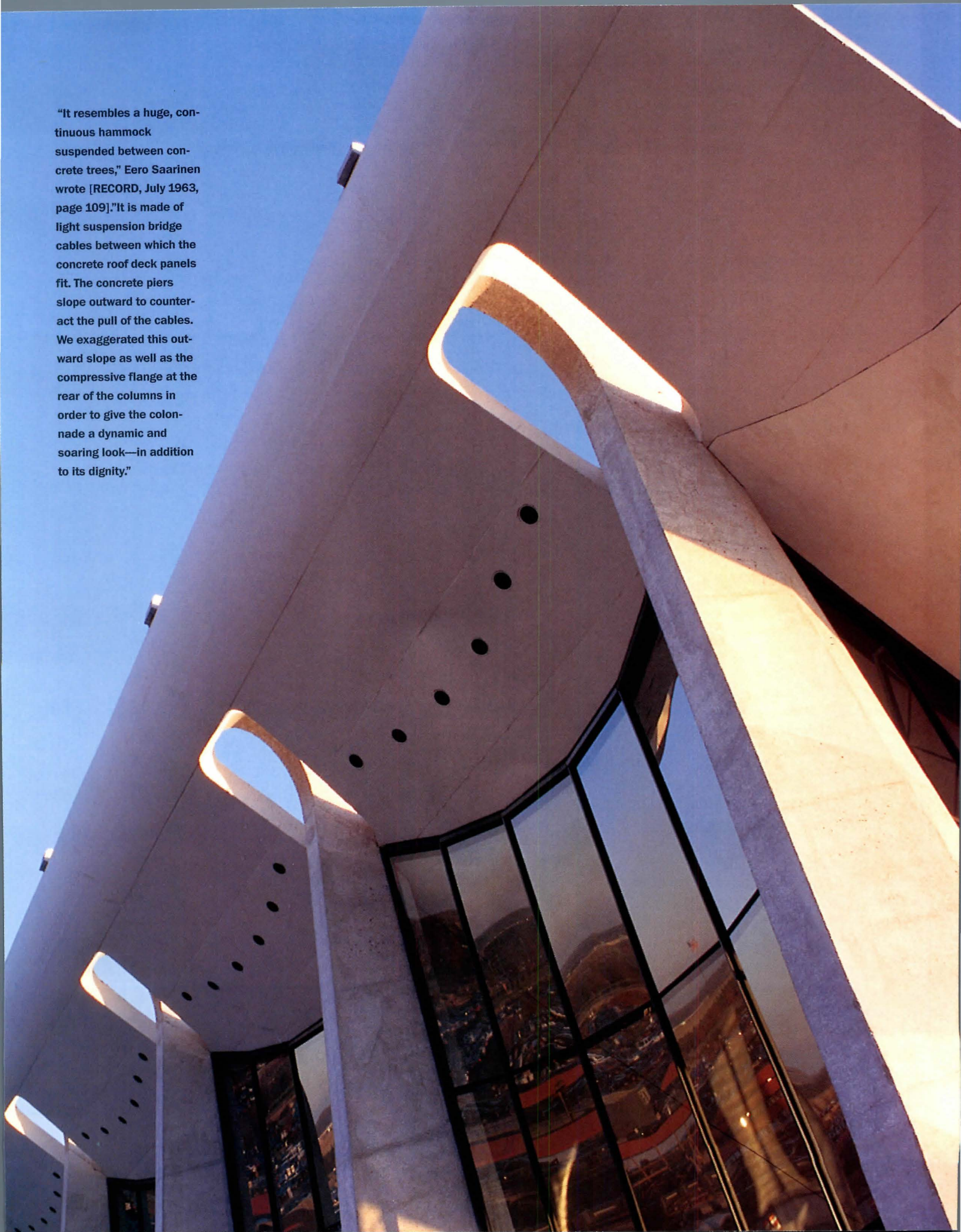


North-south section

Glass rods pierce walls of the ground floor grotto (at left in top photo) and the "celestial wall" (middle). A north-south section shows stacks and study areas around the double-height reading room (bottom).



"It resembles a huge, continuous hammock suspended between concrete trees," Eero Saarinen wrote [RECORD, July 1963, page 109]. "It is made of light suspension bridge cables between which the concrete roof deck panels fit. The concrete piers slope outward to counteract the pull of the cables. We exaggerated this outward slope as well as the compressive flange at the rear of the columns in order to give the colonnade a dynamic and soaring look—in addition to its dignity."





# SOM's Addition to DULLES INTERNATIONAL AIRPORT Respects Eero Saarinen's "Modern Masterpiece"



by Allen Freeman

**I** think this airport is the best thing I have done," Eero Saarinen said more than once during the spring and summer of 1961, referring to Dulles International Airport, which opened the following year in Chantilly, Va. But Saarinen never saw the completed building; an unpredicted brain tumor took his life in September of that year at age 51. The 600-ft-long terminal, a "continuous hammock suspended between concrete trees," was almost instantly regarded as a Modern masterpiece, and its status has not diminished over the years. During America's bicentennial year, a poll of prominent architects and critics named Dulles America's most admired recent building. Only a year later, however, preservationists were defending it against unsympathetic tamperings.

Dulles, Washington, D.C.'s second airport and the first anywhere to be designed for jetliner service, like other terminals of its era fell victim to technological change, enormous air-travel growth, and heightened security. The airport has expanded and Saarinen's terminal has been altered, each time igniting preservationists' concerns. Today the New York City office of Skidmore, Owings & Merrill is building a multiphase expansion, one that has doubled the length of the previously little-touched catenary terminal.

## What was at stake

The SOM team acquired a heightened appreciation for their predecessor's work while analyzing Dulles's design and construction. SOM project manager Tony Vacchione praises the careful sequencing of passenger arrival, orchestrated by Saarinen and landscape architect Dan Kiley along the Dulles approach road, ultimately revealing the terminal as a "giant lantern on the landscape." And SOM design partner Marilyn Taylor values

Allen Freeman is a senior editor for *PRESERVATION* magazine.

the relationship between the low terminal and the airport's tall control tower rising on the field side. "I never realized how complex it was to pull off a simple result," she says.

Taylor, a former Washingtonian who recalls a childhood visit to Dulles when it first opened, had grown concerned that the image she carried in her head since 1962 would radically change. "A year or so into the project," she says, "when we began looking at computer renderings of the building that extended its length to 1,200 ft, we realized that it isn't [primarily] an exercise in proportion but rather an extrudable section, one that would be richer, more commanding when extended." (The addition of 300 ft on both ends was indeed envisioned by Saarinen's team—including partners Joseph Lacy and John Dinkeloo, chief designer Kevin Roche, and engineers Ammann & Whitney). The terminal now seems less of a lantern and more an inevitable part of the forested Virginia plain that sweeps westward from Washington to the Blue Ridge Mountains.

While appreciating the building's importance, the client was well aware of its shortcomings. "Here [is] a building that we are all intensely proud of, that has a very, very identifiable architectural image," observes Jim Wilding, general manager and CEO of the Metropolitan Washington Airports Authority (spun off from the FAA several years ago). "The through-put [passenger processing] capacity of the extended building needed to be several orders of magnitude beyond the original expectation."

For his day, however, Saarinen had thoroughly researched the problems likely to be encountered by jet setters. He sent out teams with counters and stopwatches to study travelers, noting how (*text continues*)

**Project:** Washington Dulles International Airport, Washington D.C.

**Client:** Metropolitan Washington Airports Authority

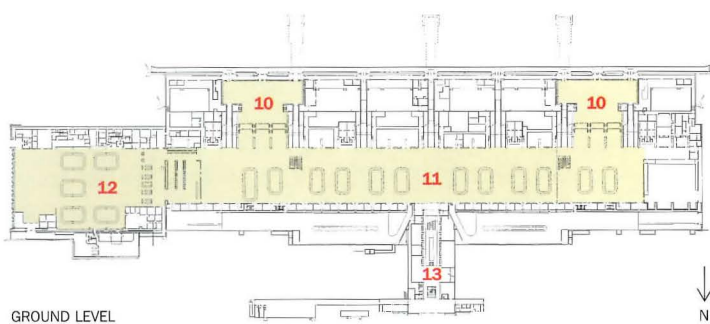
**Architect, Planning, and Interior**

**Design:** Skidmore Owings & Merrill—David Childs and Michael McCarthy, design partners; Marilyn Jordan Taylor, airport design partner; Anthony Vacchione, project manager; Robert Chicas, deputy project manager; Peter Ruggiero, senior designer; Kevin Peters,

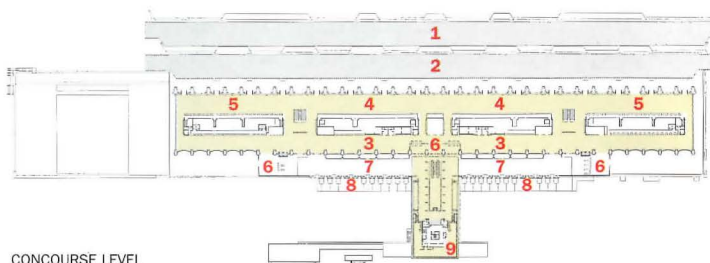
Joseph Blanchfield, senior technical coordinators; Mark Igoe, technical coordinator

**Consultants:** Ammann & Whitney (structural); H.C. Yu and Associates (M/E/P); Wiles Mensch Corporation (civil); Vitteta Group/Studio Four (historic preservation); Breier Neidle Patrone Associates (baggage); Chermayeff & Geismar Associates (signage); Hanscomb Associates (cost estimating); Ancentech Inc. (acoustics)



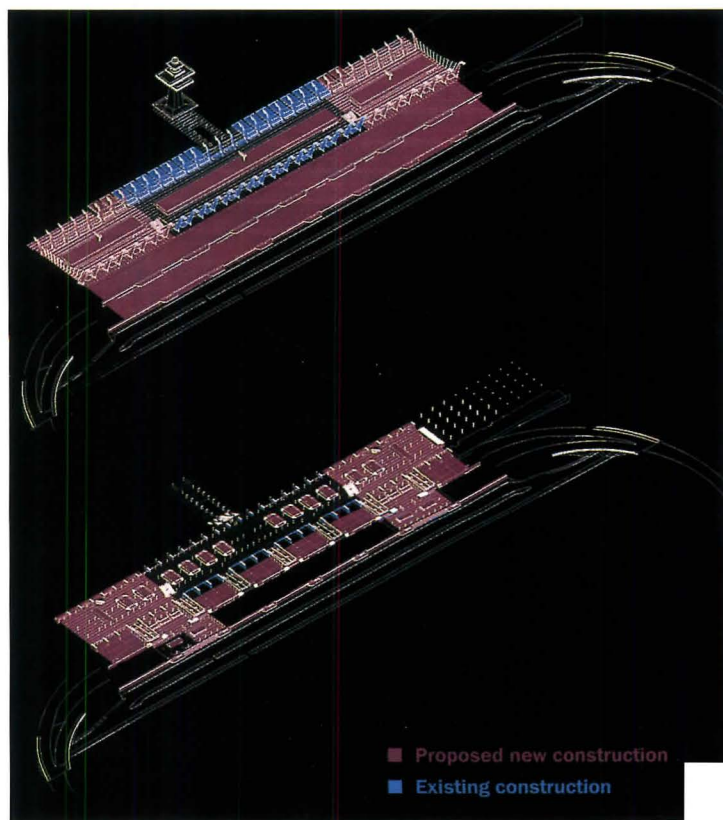


GROUND LEVEL



CONCOURSE LEVEL

- |                             |                       |                   |
|-----------------------------|-----------------------|-------------------|
| 1. Arriving passenger road  | 5. New ticketing      | 11. Baggage claim |
| 2. Departing passenger road | 6. Security           | 12. Customs       |
| 3. Concessions              | 7. 1980 Concourse     | 13. Offices       |
| 4. Existing ticketing       | 8. Mobile lounge port |                   |
|                             | 9. Restaurant         |                   |
|                             | 10. New arrival       |                   |



■ Proposed new construction  
■ Existing construction



At the beginning of the design process, there was some concern about how adding to each end of the original terminal, as Saarinen had originally planned, would affect the proportions of the building. But after computer renderings were

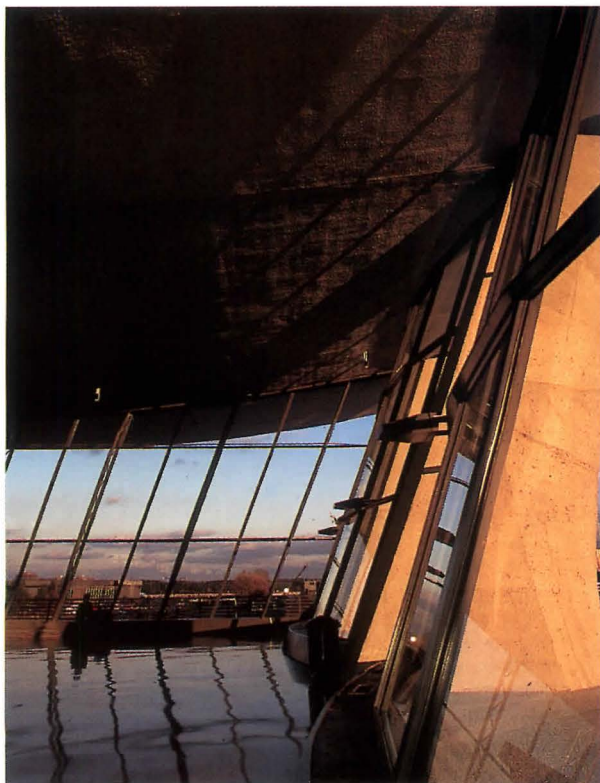
completed, extruding the terminal's section made its appearance become "richer and more commanding," according to SOM's design partner Marilyn Taylor.



Aside from altering the terminal's suspension cables and connections to make the roof-load capacity comply with building code requirements (left), most of the innovative structural system recreated for the terminal additions (below) was unchanged from Saarinen and Ammann & Whitney's original design.



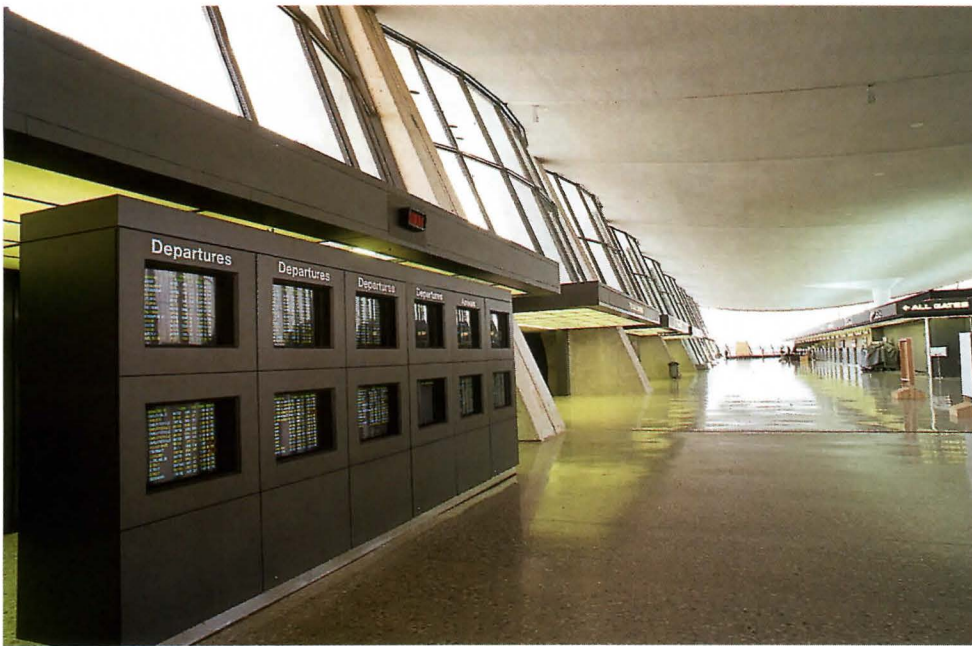




Curtainwall for the new addition replicated the original, with the exception of the use of modern gaskets; the original zipper gaskets had had a tendency to fail. The curtainwall in the existing part of the terminal will be updated as part of a future modernization project.







To accommodate more queuing space, new ticket counters (left and above) have been built 20 ft closer to the air-side of the terminal (and in the existing portion of the terminal will be relocated to

match). The luminous ceilings, terrazzo floors, signage typeface, and rosewood paneling at the ticket counters replicate the original Saarinen designs.

far they walked, what they did, peak loading conditions, baggage handling, economics, and other problems associated with flying that worsened as jet travel became more common. The team's resulting concept for easing these difficulties was a brilliant one for the elite few that then chose costly air travel. Departing passengers had only to walk the short 150-ft width of the terminal, where they boarded mobile lounges and were conveyed to planes. To convince the reluctant airlines, Saarinen recruited his long-time colleague, Charles Eames, to produce a short movie as a selling tool. But as jets ballooned in size and passenger travel soared, the lounges became an annoyingly inadequate anachronism. Air-safety concerns mandated the closing of the mobile-lounge doors that plugged into the air-side bays between the soaring columns in favor of a single entrance that funneled passengers through a narrow X-ray-screening throat.

To smooth passenger flow, in 1980, Hellmuth, Obata & Kassabaum added a low, skylighted, 50-ft-wide corridor that extends the length of the terminal on the field side. A later addition, the International Arrivals Building by SOM, is even less obtrusive, rising only to the height of the plinth. When completed in 1989, it hunkered out of sight 300 feet west of the terminal; it now abuts the extended terminal's base. Mobile lounges now serve only a temporary-looking midfield terminal.

#### How to add to a masterpiece

SOM's job has been to execute the originally proposed expansion under stricter building codes mandating, for example, a stronger concrete mix and safety glazing. The team also had to unobtrusively add new space—especially at baggage and arrivals, anticipate a future underground rail connection to existing and planned mid-field terminals, and reprogram the existing space. Most importantly, they had to seamlessly reconcile the building's old and new parts.

To accommodate growth, the Saarinen team had the foresight to stretch out the circuit road, terrace the plinth and punch blank portals into it. But the arrival and departure roads and attendant curbside areas have proved too narrow to handle today's mass air-travel market. Carefully preserving sightlines, SOM is demolishing the road structure in phases (permitting continuous operation) and rebuilding it significantly widened. The architect is also increasing the number of portals in the

plinth from eight to 14, spacing them closer to one another while closely replicating the Saarinen portal design. SOM has reconfigured the lower-level baggage claim, routing bag-delivery devices around existing structure, and excavating basements under the additions to expand and automate baggage handling.

Despite changes in technology, SOM found the most straightforward way of building the additions was to replicate the original scheme of draping concrete panels over catenary cables, tensioned by the outward slanting piers (photos previous pages). To make the addition appear seamless, the architect matched concrete finish, window profiles (the safety-glass color is slightly different), and terrazzo floors. Replication extended to the custom typeface of signage and the luminous ceilings and rosewood paneling at the ticket counters. There are subtle alterations. Glazing has replaced mobile-lounge portals and the low ticketing and concession structure is being shifted in stages 20 ft closer to the air side to allow more queuing space for ticketing. The inadequate air-lock function of the entrances has also been improved.

Still to be completed are replacement of the original grimy, asbestos-bearing, catenary-roof ceiling and completion of the new auto-carriageway plinth. While several additions to the airport are still in construction or planned, come November, Saarinen's long-range vision of "the best thing I have done," will be a reality.

What would he say? He might like the improved view unveiled when the ticketing structure was moved. And he would appreciate the respect accorded his design by SOM. He himself might have been incapable of the same approach—think of the earlier bravura of the TWA terminal at New York City's JFK Airport. But as the Airports Authority's Wildings observes, "It was an extremely tricky assignment, and probably particularly so for a firm like SOM that has such a strong design reputation. They clearly subordinated their esthetic design talents [and] let Mr. Saarinen call the tune." ■

#### Manufacturers' Sources

**Curtain walls:** Harmon Contract WSA  
**Glass:** Hehr International  
**Terrazzo floors:** Corradini/Grazzini  
**Signage contractor:** King Products

**Elevators/escalators:** Montgomery Elevator  
**Baggage handling system:** G&T Conveyor Co.





**Every brilliant design  
deserves the right support.**





Due to concerns for trespassing on the ownership of images, the buildings comprising the NY-NY facade (left) are from before 1940. The 47-story project adds 2,034 hotel rooms to a town where 12,000 rooms have been built over the last five years and 5,000 are currently under construction. Inside, the casino floor is laid out to recall the streets of New York (below).



for suburban and urban development across the country [see Building Types Study, page 90]. From Times Square to urbanizing suburbs like Irvine, California, cities, developers and architects are struggling to create successful public spaces and buildings. Entertainment rules, whether it is in the form of a 24-screen cineplex at the core of a new development, or themed restaurants and shops, or sports arenas. Even traditional cultural bastions like museums must today answer the same questions: How to attract people, keep them happy, and keep them coming back?

Over 50 years, the Las Vegas Strip has learned—largely by experiment—how to attract, please, and deal with masses of people. Gambling

is only a part of the equation; it is also the environment, the variety, the entertainment, the sights that keeps the masses returning. Each resort is, in effect, a miniature city with all the problems of congestion, safety, maintenance, and traffic. About 1,500 employees work at NY-NY at any one time, caring for 100,000 customers per day. Not only has Las Vegas evolved a sophisticated use of popular themed imagery, but it has learned how to use those themed environments to create real, workable three-dimensional public spaces. Whether glimpsed from a plane landing at McCarran Airport, or at the scale of a hungry gambler dining in the streets of the faux-Greenwich Village food court, NY-NY's theme writes the latest chapter in the Strip's post-industrial urban-design guidebook.

Robert Venturi, Denise Scott Brown, and Steven Izenour codified some of those rules a quarter-century ago in *Learning From Las Vegas*. Many of its lessons still hold true. Signs are still critical—though NY-NY has pushed the art to the point where the entire highrise has become the sign. Symbol still shapes space on the Strip as effectively as ever—though on a larger scale and with even greater complexity, inside and out. Popular taste creates our monuments—leaving a lot of high-art architecture looking emotionally emaciated in comparison. Impermanence is still a governing principle; MGM Grand's \$1 billion hotel-casino opened only three years ago and is now in the process of a major remodeling.

The Las Vegas Strip has never stopped changing. But now, with suburban areas growing denser and more varied, with entertainment venues growing in importance, with theming emerging as a multifaceted approach to architecture, and with gambling a national industry, the rest of the country is finally catching up with Las Vegas.

Caesars Palace introduced the modern tradition of themed environments to Las Vegas in 1966. Its single idea—evoke the decadent opulence of Imperial Rome in a modern-day casino—governed its architecture, its site planning, even its waitress uniforms. NY-NY also started with a single idea; its architecture is largely the result of fleshing out that



idea within the restraints of a complex public-entertainment venue.

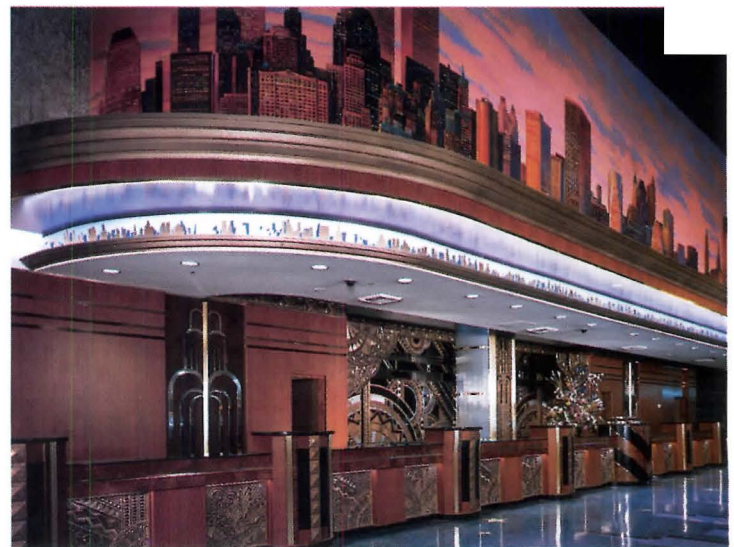
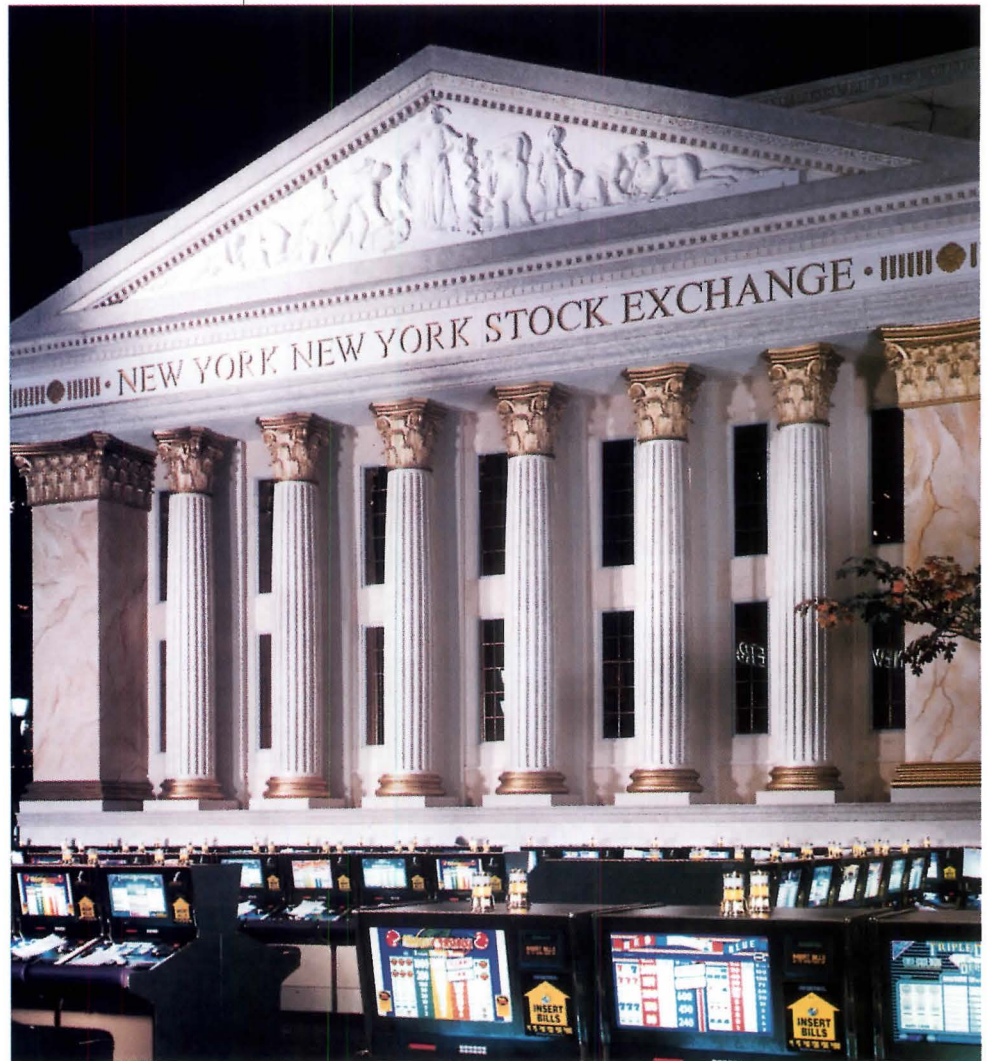
Primadonna Resorts, Inc., and MGM Grand, Inc., partners in the NY-NY project, gave Las Vegas architect-engineers Gaskin & Bezanski and interior designers Yates-Silverman a concept drawing which showed the skyline of New York. Architect Neal Gaskin, working alongside Yates-Silverman, developed the sketch by selecting specific New York buildings and arranging them as a plausible 1.5 million-sq-ft, 2,034-room hotel—a tower of skyscraper icons dominated by the Empire State and Chrysler buildings.

In the interiors, the depiction of New York is straightforward, which is not to say that it goes out of its way to be authentic. It is a “purple, twilight, 1930s-1940s Art Deco” New York, says Joyce Orias, AIA, project manager and designer for Yates-Silverman. Decoded, that means it is safely in the time before New York City became a dangerous place for the middle class, the retirees, and the yuppies who constitute NY-NY’s target market. It is the New York of “Wonderful Town,” with smiling sailors dating pretty girls and falling in love riding the subway while “doin’ the town.” It hopes to be the New York of Moderne nightclubs depicted in Astaire-Rogers movies, of tuxedos and evening gowns, and Art Deco sophistication—though such glamour has not worked in Las Vegas since Howard Hughes left town. The cinematic experience shapes this architecture as much as the invention of perspective influenced Alberti and Brunelleschi in the 15th century.

The result is New York, but of course it isn’t New York. The adaptations, reportioning, and inflections necessary to transform the famous Manhattan skyline into a 1.5 million sq-ft, concrete-frame high-rise hotel with an 84,000 sq-ft, steel-frame casino on the ground floor constitute the real architecture of the building. What makes the hotel tower read as a skyline is the dimension given to the individual New York buildings. Four of the towers rise above the rest—and contain the elevator towers that weave together a complex zoned system of vertical circulation.

Even more daring is the zigzagging edge of the concrete-framed, post-tensioned floor plates. Steel-frame construction would have been too slow for the fast-tracked construction schedule. Concrete produced a dynamic facade, alternately convex and concave, that contradicts the conventional construction logic dictating regular, flat-edged floorplates. The design required 25 percent more concrete structural columns to accommodate the bends and shifts—but neither client nor contractor Marnell Corrao Associates seriously questioned that it was the right decision, says architect Gaskin. The image of clustered skyscrapers was too powerful to tamper with. In the land of theming, form follows fantasy.

Sheathed in synthetic stucco and about one-third the size of the originals, NY-NY’s skyscrapers would fool no architect familiar with the originals. And yet there is art in the design. The selection, proportioning, and massing of the buildings convincingly suggests the cinematic close-

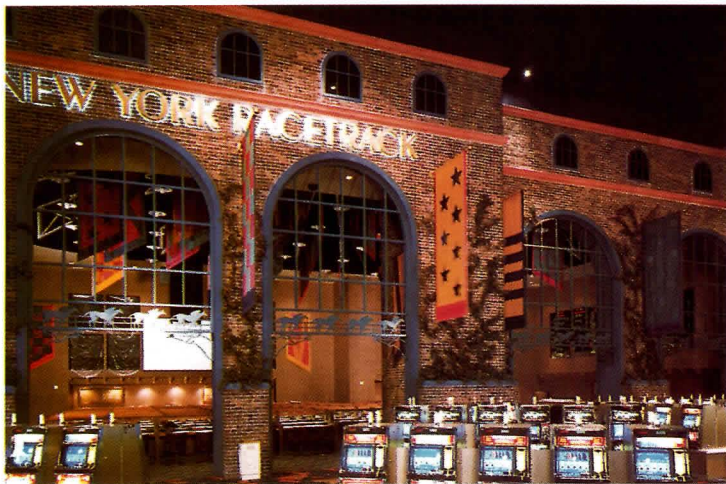


The cage, where much cash is stored, is placed at the center of the casino floor and is slyly dressed as the NY-NY Stock Exchange

(top). Art Deco New York is evoked in the styling of the hotel’s reception area (above).



In the 84,000-sq-ft, single-level casino, gamblers are kept busy with 2,400 slot machines (below).



ups and tightly framed long shots of a walk through Manhattan.

The interplay of theming and a practical mega-hotel is seen in the way NY-NY—following recent Las Vegas trends—handles pedestrian and auto traffic on, around and off the site. NY-NY's neighbors on the corner of Tropicana and Las Vegas Boulevard (the Strip) include the Tropicana, MGM Grand, and Excalibur casino-hotels. Chronically congested, it is one of the busiest corners in the state.

A secondary private street system circles the hotel, adding an entry off the Strip side as well as the main porte cochere off Tropicana. It links the hotel to the 10-story parking structure for 3,800 cars, employee parking, and a separate entry for tour buses. NY-NY's roller coaster, adding another elevated lane of specialty traffic, is just a highly kinetic version of the intricacies of traffic circulation at these mini-city resorts.

More innovative is the balance struck between car and pedestrian traffic. The Strip, the ultimate car-oriented commercial street, had no sidewalks for many years. But about 15 years ago, foot traffic between hotels began to increase as new hotels filled in vacant land. It is a turn of

mines the design of the entry. From the second level, the panorama of NY-NY's casino echoes the view of Grand Central from its mezzanine.

The views at NY-NY are a conflation of Manhattan. A stand of faux trees masses in the distance, like a glimpse of Central Park. Distant views of the skyline are painted murals, amended by three-dimensional building fragments awkwardly sliced off at the third story by the acoustic-tile ceiling. The New York theme orders all of the interior spaces.

Yet the trappings of today's Las Vegas casino overwhelm the themed elements, especially indoors. These are huge, formless warehouse spaces filled with slot machines, gaming tables, bars, and lounges. The chatter, clink, chirp and flash of video poker and video slots dominate—Big Apple ambiance notwithstanding.

The interiors are based on a gambling plan, provided to Yates-Silverman by the owners, that dictates such factors as the number and layout of poker tables, 2,400 slot machines, roulette tables, high- and low-stakes games. Yates-Silverman then laid out the required games on the casino floor, organizing them with pathways. Delineated by different colors in the carpet, or lines of color in the terrazzo floors, they connect the entries, hotel registration, restaurants, showroom, and elevator lobbies.

One example of creating fairly convincing real spaces in a themed environment is the Greenwich Village/Little Italy section, NY-NY's food court. Narrow pedestrian streets wind through alleys and small squares; neon-lit Times Square is glimpsed at odd angles at the end of winding roads. Greenwich Village buildings are turned into a doll's town of toy-like scale on the upper floors. But on the ground level, they are effectively grungy with real door buzzers and graffiti-covered *New York Times* news boxes. It may be a movie set, but it's one built to be convincing—and enjoyable, not just for a one-minute scene, but in three dimensions, with real people strolling through it.

Greenwich Village's level of grunge is noticeably avoided on the exterior of NY-NY, where polyester colors and too-neat faux-stonework on the famous facades that ring the casino level of the building betray the thinness of the materials—and hamper the enjoyment of the fantasy. It pointedly contrasts with the convincing patina of the pirate village at the Treasure Island hotel-casino on the Strip.

Las Vegas has evolved a range of themed environments wide enough to allow us to begin to make critical comparisons. How easily does it convince us to suspend disbelief? How well is its narrative told?

## TODAY ENTERTAINMENT ARCHITECTURE IS AN ENGINE FOR SUBURBAN AND URBAN DEVELOPMENT.

affairs no one predicted as this spread-out suburbia turned urban. This sidewalk life produced such pedestrian attractions as the Mirage volcano and the Treasure Island pirate battle—three-dimensional action shows that have largely superseded the animated neon signs of the past.

To accommodate this unprophesied turn of events, Clark County built four pedestrian overpasses at the Tropicana corner three years ago. As the first new mega-resort to be built on the corner since then, NY-NY takes full advantage of the bridges by tying its two main pedestrian entries to the second-level pedestrian bridge system.

On the Strip side, the entry is through an abbreviated facade of Grand Central Station; on the Tropicana side, through the Soldiers and Sailors Monument. The entries open onto a spacious area echoing the stone-clad concourses of Grand Central. Thus the New York theme deter-

Does it work at both the urban and the human scale? Has it learned from the long tradition of commercial vernacular design and does it push those lessons any further? What is the quality of its sidewalk life?

At one time, world's fairs provided the public with images of a better city. For better or worse, the Las Vegas Strip provides a new model for public places. New York City was the 19th century's urban prototype. Despite NY-NY's Manhattan theme, the Las Vegas Strip owes little to that model. Each resort on the Strip is a miniature, self-contained city, sitting in a district of a score of other self-contained mini-cities.

Gambling attracts the millions of people and underwrites the enormous budgets that make today's Las Vegas casino-hotels possible. But the physical form of these places is about more than gambling. It is about creating public places and public faces.



# Restoring Wright's Wingspread

**BOATBUILDING TECHNIQUES AND AIRCRAFT MATERIALS  
RESCUE THE DANGEROUSLY WEAKENED ROOF OF A MASTERPIECE.**

by B.J. Novitski

For nearly 60 years, the ingenious roof held its own. Finally age, weather, and other factors led to a potentially disastrous structural failure of one of Frank Lloyd Wright's masterpieces. Now, the roof of Wingspread, a National Historic Landmark in Racine, Wisconsin, is being restored, thanks to some equally ingenious teamwork and the bold use of high-tech materials. While respecting the historic qualities of this 1937 house and Wright's design intent, The Hillier Group of Princeton, N.J., and firm's consultants have nearly invisibly repaired a damaging and potentially dangerous roof failure. What began as a structural stabilization project expanded into an adventure, marrying historic architecture with modern methods and materials.

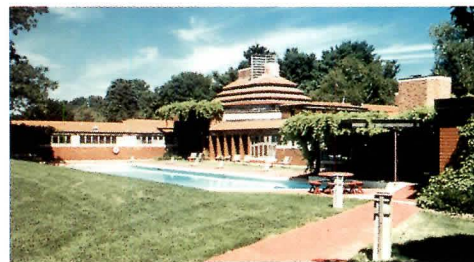
Wingspread was originally designed as a private residence for Herbert F. Johnson of the Johnson Wax family. The house features a central "great hall" from which four wings extend in a pinwheel formation. Wright and his client fashioned this configuration to offer contrasting public and private spaces to the large Johnson family. In 1959, the family moved out and the Johnson Foundation was given the house for hosting conferences. These conferences, selected for their potential contribution to the public good, have been remarkably successful in inspiring important and creative ideas. National Public Radio, for example, was an idea conceived at Wingspread.

Instrumental in stirring awe and intellectual creativity is the 30-ft-high great hall with its huge central fireplace and 132 skylights arrayed in an elongated octagonal form. The hall's roof is in three sections. The upper roof is supported by steel beams cantilevered from the massive chimney. The lower roof is supported by brick piers that encircle the entire hall and a compression ring made of steel channels at its top. Between the upper and lower roofs are the staggered skylights, their framing zigzag-shaped in section. The lightness of the skylights within the structural schema is central to Wingspread's magic—and the restorers'

**Continuing Education** This month's installment of the ARCHITECTURAL RECORD/AIA continuing-education series examines the use of innovative materials to stabilize a historic structure. Use the following learning objectives to focus your study. After reading this article, complete the questions (pages 186) and check your answers (page 188). AIA members may fill out the self-report form and send it in for two AIA Learning Units—Mark Scher, director, AIA Continuing Education Programs and Products.

**Learning Objectives:** After reading *Wingspread* and answering the following questions, you will be able to:

1. Explain the preservation philosophy and the compromises that led to the project's ingenious methods.
2. Describe at least three innovative solutions to roof-loading problems.
3. List three areas of focus of a recognized preservation programming tool explored by the project architects.



The existing great hall and East Wing of Wingspread as it appeared prior to restoration (top). Temporary shoring was installed so use of the building could continue while a solution to structural problems was devised (middle). The temporary enclosure (bottom) was erected around the hall to provide protection during the restoration.



greatest challenge. In contrast to the brick and steel supports, the filigree of light-framed skylights is, however, the weak link in the system. Wright may have expected the scantily-nailed two-by-fours to support no loads, but ultimately, they pulled apart.

This failure may have been due, in part, to the accumulated weakening of the wood after decades of expansion and contraction; it may have been exacerbated by a recent glazing retrofit [RECORD, April 1994, page 29], which meant the snow and ice loads were no longer being quickly melted by the replaced heat-leaking, single-paned skylights. It was certainly brought on by the record-breaking snowfall during the hard winter of 1993-94. In any case, the loads finally overwhelmed the seat-of-the-pants structural design that Wright had counted on. An overnight deflection of two inches alarmed the Johnson Foundation staff enough to seek professional advice on how to proceed with repairs.

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## Merging with preservation ideals

A local firm suggested a repair strategy that would require tearing out the historic interior plaster and woodwork. The Foundation called for a second opinion from Alan Chimacoff, FAIA, and Stephen Diehl, AIA, of The Hillier Group. Together with New York City structural engineer Robert Silman and Princeton-based historic preservation consultant Annabelle Radcliffe-Trenner, they agreed on the importance of preserving those materials. Because the clay roof tiles were recent—expendable in preservation terms—it made more sense to work from the outside in and protect the original interior finishes. The question was how.

Chimacoff recalls that the team referred to Wright's own writings to understand his design intent. In his autobiography, Wright refers to Wingspread's roof as a "wigwam." Chimacoff points out: "It doesn't really look like one, so we tried to understand what he might have meant. The essence of a wigwam is that it has two kinds of structure: the stick structure and the membrane. The sticks give it its primary strength, and the membrane is a secondary structure that stretches and encloses."

In a brainstorming session, Chimacoff, Diehl, and Silman realized that they would need to reinforce the membrane (wood sheathing) stretched across the sticks (wood framing) of the lower roof. Diehl, who regrettably did not live to see the restoration completed, came up with the revolutionary idea of creating a reinforcement system without adding substantially to the roof's thickness. His solution was to create a hard fiberglass shell, like those common in boat building. Chimacoff notes that this extension of the sticks-and-membrane metaphor is consistent with Wright's conception of the building. The idea was relatively simple, but its implementation proved enormously complex. Part of the solution meant literally employing boat builders.

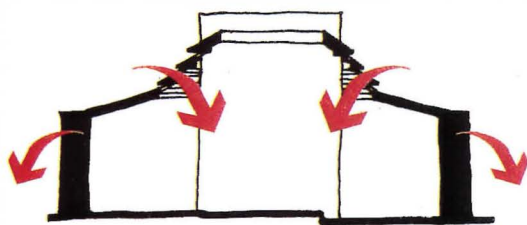
Contrary to traditional preservation ideals, bonding fiberglass to the existing wood sheathing would conceal that historic wood irreversibly. When Radcliffe-Trenner joined the team, she realized that whether such a strategy would be acceptable would depend on the Johnson Foundation's preservation philosophy. With her assistance,



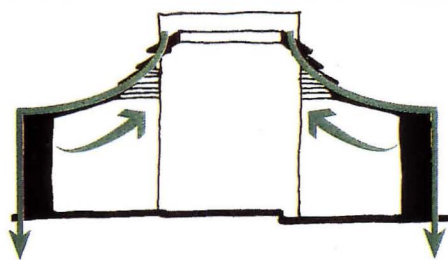
The shaped framing members that support the three rows of skylights were subject to unusual loading conditions and had begun to sag. Saving the skylights as well as delicate interior plaster of the signature great room was part of the challenge.

Foundation representatives engaged in analysis using the United Nations' World Heritage Site evaluation system. This system places emphasis on economics and current values as well as historic ones.

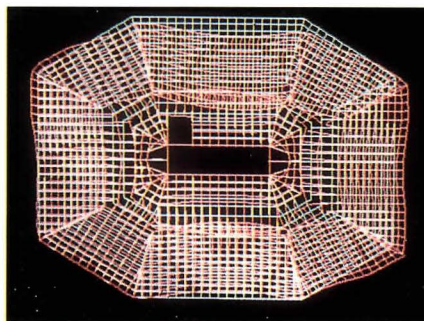
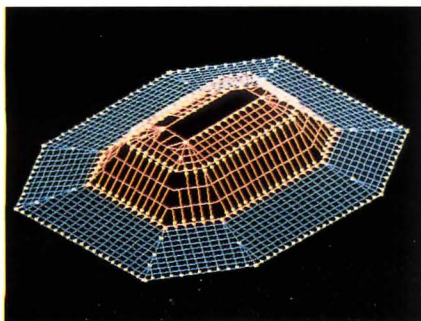
The Foundation arrived at four preservation priorities: to maintain Wingspread as a conference center; to ensure the safety of guests and staff; to protect historic structure, fabric, and design intent; and to maximize efficient use of energy and Foundation resources. These parameters helped the architects decide to work from the outside in; they would sacrifice the newer roof tile and concealed roof sheathing in order to reinforce the building's structure and preserve the interior finishes. They would forego a purist's approach to material selection in their use of high-tech materials. This plan was reviewed by Charles Montooth, of Taliesin Architects, who once worked with Wright. He concluded that Wright would have used such innovative materials himself if they had been available. "This was important," recalls Radcliffe-Trenner, "because



The building as designed put stress on piers and skylights.



After redesign, stresses were properly distributed.



The three-dimensional computer diagram (near left) shows Wingspread's upper and lower roof, joined by step beams. Before being repaired, the red lines (far left) outline the actual deformed roof shape against the blue lines of the Wingspread roof as designed by Wright.



we were able to use materials that were contemporary and fiscally responsible. We were able to find a balance between the building's historic value and the Foundation's current needs."

### Building a boat Inside a box

Carbon-reinforced fiberglass was chosen to stiffen the failing lower roof of the great hall. The carbon fabric is custom-woven with the proportion of strands in each direction specified by the engineer to accommodate the computed loads. To install it, the boat builders cut the fabric into pieces to conform to the irregular roof shape and dipped them in an epoxy bath. They laid the wet fabric down in staggered layers and used rollers to press out air bubbles. The 14 layers are only 1/2-in. thick but the composite forms a strong, stiff shell that bonds to and stiffens the original wood sheathing. Finally, for curing, the shell was surrounded by an insulated tent and subjected to a temperature of 140F for 48 hours. This technology was tested successfully on the roof of Wingspread's less prominent east wing before work began on the great hall's roof.

Because this shell is impermeable, conventional roof-tile nailing is difficult. So the architects adopted a California earthquake-resistant strap-tie technology to minimize nailing. Although the technology is not new, it was unknown in Wisconsin, adding one more kink to the already unconventional construction process. The impermeability of the shell has also raised concerns about trapping moisture in sheathing and framing. A moisture monitor is now permanently installed to warn against the dangers inherent in bonding a vapor barrier to the roof structure. The idiosyncratic zigzag-shaped skylight frame called for a very different solution. Wright may have tried to make the upper and lower roofs work structurally independently, without transferring any load to the skylight mullions. Although the skylights were eventually where the failure occurred, engineer Silman insists that Wright deserves a great deal of credit for his intuitive design. Silman's analysis, which Wright could not have performed, showed that Wright had probably misunderstood the nature loads of the two roof sections. The shallow slope of the lower roof

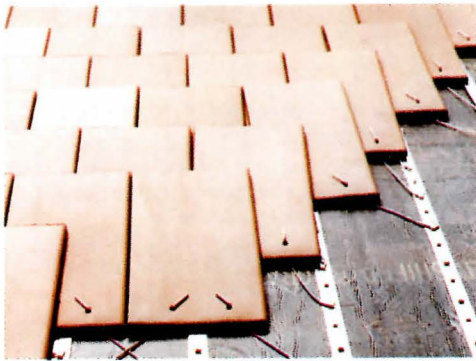


Temporary continuous bracing (left) was installed at the west end of the great hall, where the connections of some of the original stepped beams were so badly sheared that there was no framing supporting the skylights. The continuous brace was chosen to avoid point loading that had the potential to damage the original interior finishes.

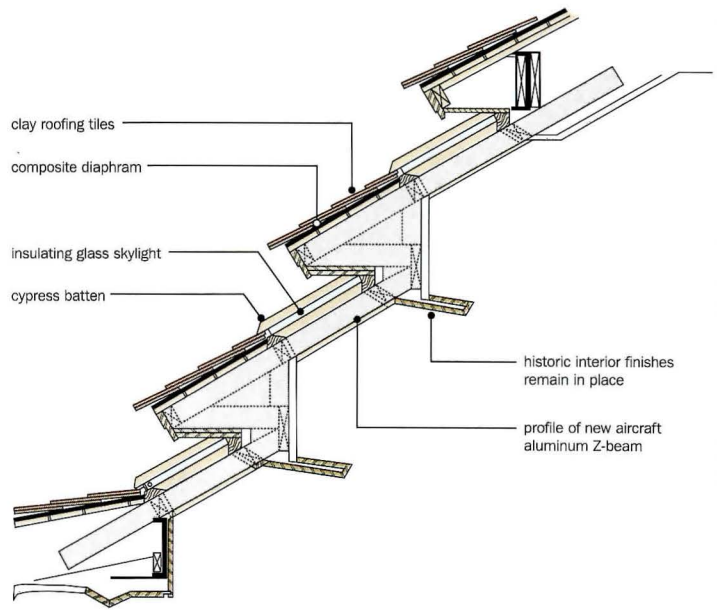


After a long search for the proper material, light, high-strength aircraft aluminum (above) was substituted for the nominal 2-in. beams that had previously supported the skylights. The temporary enclosure built around the great hall shows the extent to which the structure was protected from wind and snow. Once weather protection was complete, temporary shoring was removed (left).





Stepped layers of fiberglass fabric (left) are applied with their strands oriented so that the strength of the material is maximized. Because the hard composite material is impossible to nail through, roofing tiles were installed using a strap system (below left). This also minimizes penetrations through the composite shell.



ROOF SECTION

created an unexpected thrust on the brick piers and had tilted them out of plumb. Silman used a finite-element-analysis computer program to understand all the stresses in three dimensions. He explains: "Our mathematical determination was that the upper and lower roofs had to be tied together if we were going to leave the interior finishes intact. The only way to make that work was to add some support for the ring of channels at the base of the skylight." In other words, new replacement mullions needed to be devised that could carry the actual loads.

To replace the existing nominal 2-in.-wide zigzag framing, which was originally triangulated only by nailed tongue-and-groove sheathing, Silman tested numerous alternatives, including carbon-reinforced laminated-veneer lumber. This was strong enough in a few areas, but not at the points of highest stress. Steel would be strong enough, but was not sufficiently malleable to allow fabricators to match the shape of the now-deformed roof. Industry-standard aluminum would be more workable but couldn't carry the design loads. After much testing and investigation, Silman found a high-strength aluminum alloy that is commonly used in the aircraft industry but probably never applied to retrofit a historic wood structure. This material was rough-cut in a shop in the zigzag shape. Then it was modified in the field with ordinary carpenter's power tools and installed in place of the slim 2-by members that had made up Wright's original structure.

#### New technologies challenge construction coordination skills

Aircraft-strength aluminum and boat-building fiberglass technologies make a unique combination of trades on a building site. It was a monumental task to coordinate this effort. Meeting the challenge of making it all work was Johnson's construction coordinator Scott Weas and construction administrator Kirsten Kingsley of the Chicago-based historic-preservation consultant Vinci Hamp Architects. The delicate removal of the eight zigzag beams designated for replacement, for example, was first studied in detail. The team built mock-ups of the existing structure and prepared detailed, step-by-step instructions for the removal process. They wrote out the dozens of steps required, specifying

which hand tools and/or power tools were permissible at each stage. Each step was double-checked and triple-checked before every surgically precise architect-supervised removal. The construction crew learned to respect the inviolability of the historic materials and did virtually no damage through construction.

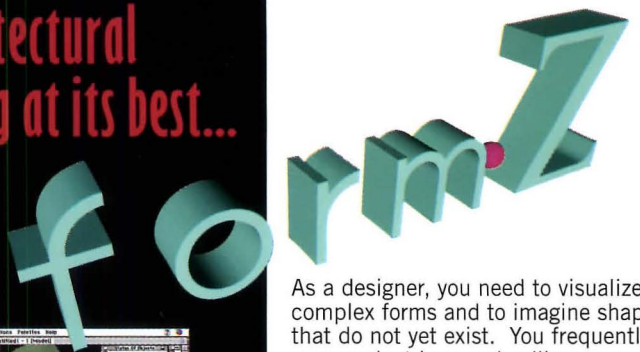
Some of the original plaster was removed, however, for investigative purposes. The plaster has been chemically analyzed and is being reproduced for patching. A stumbling block to repairs is that the original plaster, made with chalk from Wright's own quarry at Taliesin, was evidently never completely slaked. The resulting impurities, when exposed to moisture, might create spalling and further destruction to the finish coat. At this writing, the architects are investigating methods for patching the original plaster without letting it come into contact with moisture from the new plaster.

When the work is complete, Wingspread will not be restored precisely to its original condition. Deflection is part of the history of the building and will be forever visible from inside the great hall in the form of small gaps between some of the wood ceiling panels. However the team will have met its goal of making Wingspread a safe and usable building that is a product of 1930s genius and 1990s ingenuity. Johnson Foundation president Charles Bray, who has witnessed countless conferences in the great hall, concludes: "In all of life, place matters. What has struck me over the years is the degree to which that statement is specifically true of Wingspread and its effect on individuals who come together here. The building is an inspiration. About once a month, a conference participant will literally use these words: 'this place has charisma.'" The team is understandably proud of their accomplishment. And they know Wright would have approved. ■





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 Panambi Office Park, Sao Paulo, Brazil;  
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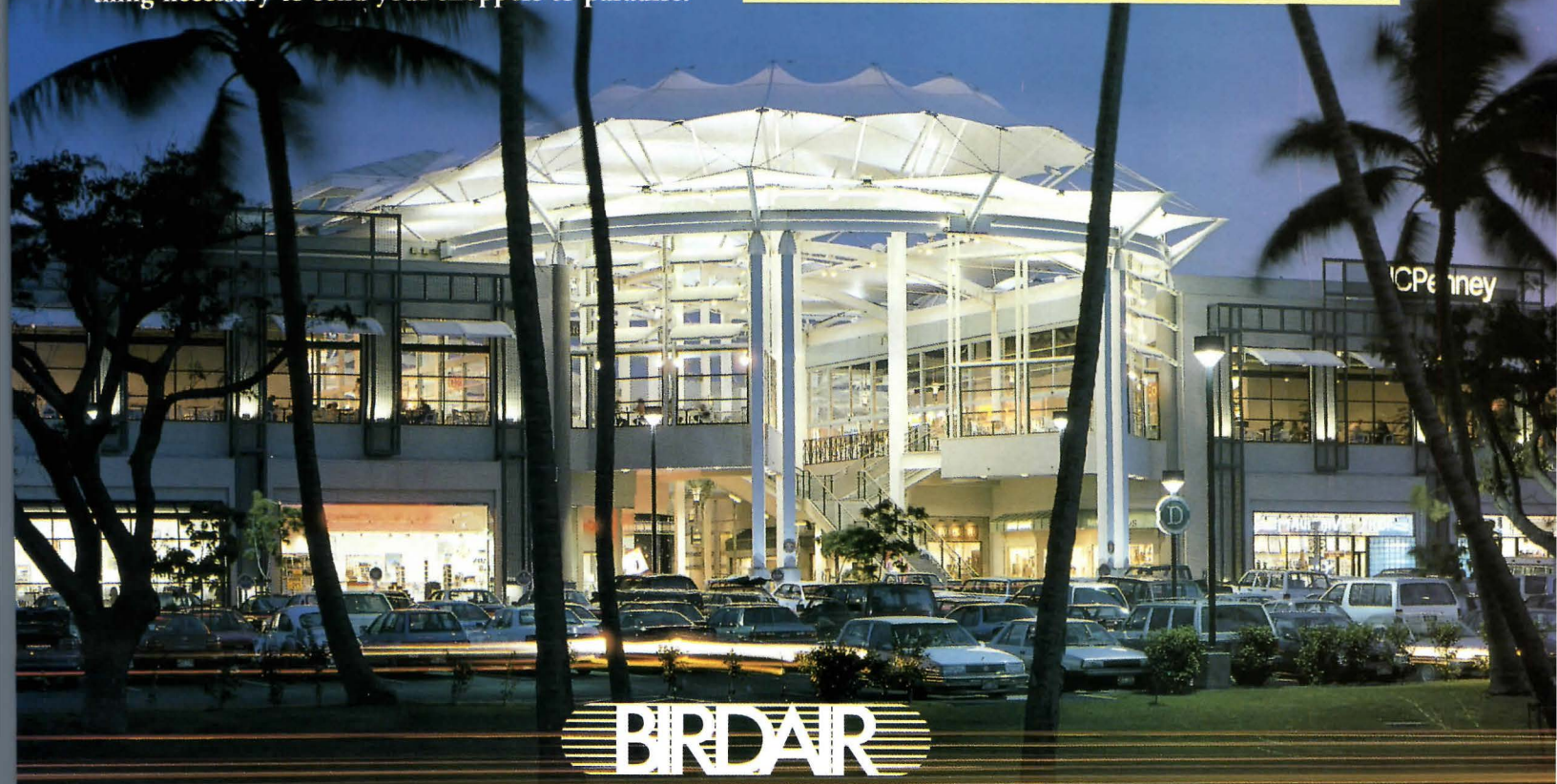




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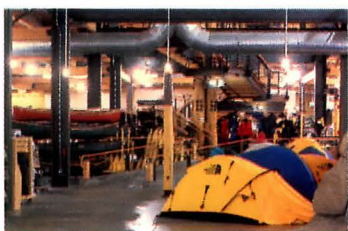


## ENTERTAINMENT RETAIL

## Theming vs. Design

FANTASY ARCHITECTURE HAS A DISTINGUISHED HISTORY, BUT MARKETING-DRIVEN, ESCAPIST EXPECTATIONS MAY BE CORRODING ARCHITECTURE'S PUBLIC ROLE.

by James S. Russell, AIA



1

**Seattle**

*A 65-ft-high climbing rock beckons commuters to shop at Recreational Equipment Inc.'s downtown shrine to wilderness sports.*



2

**New York City**

*A dramatic multimedia-garlanded atrium distinguishes Nike's flagship store from its fantasy-driven brethren on the 57th Street entertainment-retail belt.*



3

**Fukuoka, Japan**

*Nature is the theme, but the Jerde Partnership International's gargantuan Canal City Hakata complex orchestrates an urban kind of theater.*



4

**Uncasville, Connecticut**

*Stage-set devices build a distinctly architectural experience in the Rockwell Group's Mohegan Sun Casino.*

Call it the Letterman effect. Not long after late-night talk show host David Letterman began dropping watermelons and television sets onto New York City's West 53rd Street, swarms of tourists appeared. They hungered for a new kind of experience, not only to see for themselves the shops where Letterman had mugged with immigrant-turned-celebrity owners, but to partake in a television version of big-city glitter that has all but disappeared elsewhere. Just as Sixtus V overlaid an itinerary that routed pilgrims from church to church through the chaos of Medieval Rome, so NikeTown now anchors East 57th Street for this new kind of visitor, and stores for Warner Brothers, Disney, and Coca Cola mark the Fifth Avenue crossing. To the west, Planet Hollywood and the Motown Cafe beckon. High-tech signage of unprecedented extravagance lures crowds into a spruced-up Times Square, the Piazza San Pietro of a new economy. Here a phalanx of new stores, theaters, and restaurants is all but pushing out the old triple-X-rated diversions.

Welcome to the brave new world of entertainment retail. This merging of a selling environment with an entertainment venue through a themed or fantasy experience has energized the real-estate community like nothing since the festival marketplaces of the 1980s. Chains are building ever-more enticing stores in a Darwinian struggle to maintain market share. Since growth in retail square footage has for several years outstripped growth in consumer spending, someone's got to lose, and each chain hopes it's the other guy. Retailers also see more entertaining environments as luring shoppers who might otherwise choose home shopping by mail, television, and computer.

For architects able to adapt to its unique design culture, entertainment retail is a bonanza. But it is the design process that is the rub. Naysayers claim it is the end of Architecture As We Know It—Mickey Mouse at the controls of a bulldozer paving over that which is authentic with a tawdry asphalt of sanitized story lines. Champions see new opportunities for architects, since these clients want high-quality design talent to realize highly sophisticated projects. Also, investors and local officials see such projects as salvation for dying malls and sick downtowns. Critics too readily condemn the architecture of fantasy. Yet this trend does challenge orthodoxies held dear by architects, ones that exist for good reasons.

**A trend juggernaut is born**

Once a blip on the retail radar screen, confined to a couple of big cities and major visitor destinations, entertainment retail looks poised to grow



rapidly. According to Michael Rubin of MRA International, Philadelphia, which consults and does venture development in entertainment retail, "themed and theatrical dining represents one or two percent of restaurants, and will go to maybe 10 percent by early next century." Important for designers, such projects come in at relatively high costs per square foot and entail intense design effort.

Entertainment promises a new lure for troubled older malls chock-a-block with lookalike chains offering indistinguishable merchandise. Multiscreen cinemas, pumped up by exotic sound, giant screens, even motion-simulation technology, have replaced department stores as malls' anchor tenants (overleaf). Sega, Dreamworks, and MCA will fill empty store space with a new generation of video-arcade technology.

Then there is "bundled retail," a term Rubin has trademarked. It means uniting outlets from several categories with a themed glue of entertainment. You might assemble a Rainforest Cafe, a Dive!, and a Wildhorse Saloon to give patrons a choice of ecology, tropical fish, or country-western themes. CityWalk has succeeded as a kind of stage-set urban street connected to Universal's studios in Burbank; the Forum Shops, added to Las Vegas' Caesars' Palace casino, has become a Hadrian's Villa of retailing. Certain destinations can support pure-entertainment malls: a second CityWalk will appear in Orlando.

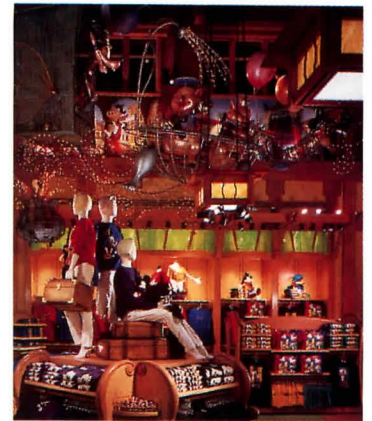
Of malls, strip centers, and urban projects, entertainment-oriented ones, says Rubin, "are probably 10 percent and will grow to 20 percent." The explosion of themed outlets in Times Square has convinced other cities that entertainment retail means salvation for downtown. Thus, Earl Swensson, Architect, is ushering in the Kansas City Power & Light Urban Entertainment Center. In Baltimore's Inner Harbor, Disney Imagineering will build a marine-biology exposition; an urban-entertainment center will replace a failed retail mall in a restored power plant.

### The making of a mini-vacation

Players see powerful forces at work, particularly a growing public appetite for fantasy and escape from life's increasingly mundane reality. The 1980s shopping-as-leisure trend has evaporated in a decade of static incomes and long work hours put in by two-income and single-parent families. Now it is harder to find time to shop, and it is harder to mesh parents' and children's schedules to manage the traditional summer trip or winter



**Architect Elkus/Manfredi provided the architectural container and Disney Imagineering orchestrated the characters' "story" in the Orlando World of Disney store.**



vacation. So patrons combine shopping and leisure. "A meal at a Wildhorse Saloon or Hard Rock Cafe is a six- or seven-hour mini vacation," observes Ron Lustig, senior designer at Earl Swensson, the firm responsible for Opryland (below) and some Wildhorse outlets. Faced with too little time and too much choice, consumers are increasingly choosing brand names that have a reputation for quality, a trend not lost on marketers. Brand mavens have discovered that stores, uniquely, could immerse patrons in an experience—one that offers a powerful means to imprint a brand name in the consumer's mind. And the only way to lure patrons into the experience is to amuse as well as sell.

On the one hand, you could invent a brand connected to a widely desired experience (Planet Hollywood, which offers dining in the presence of paraphernalia actually used in popular movies). Or, you could extend the "equity" (marketing jargon) of an existing well-regarded brand name to a selling venue, as Coca Cola and Levi's have. "It's to immerse people in the product itself and how it relates to values and lifestyle," explains Rubin. He has enumerated client categories, among them entertainment (Warner Brothers, Sony, Disney), sports (NikeTown, All-Star Cafe), and lifestyle (Harley Davidson, Rainforest Cafe).

As urban life becomes more stressful, even treacherous, the

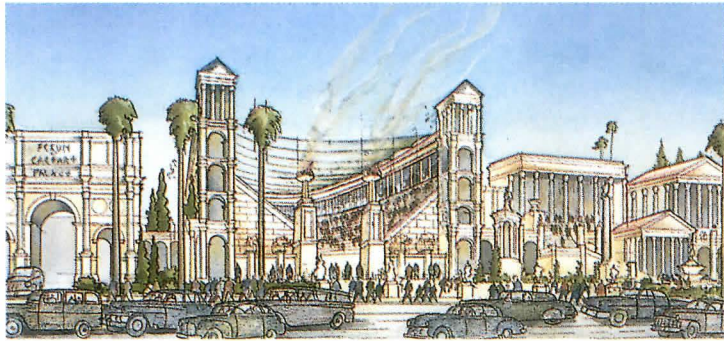
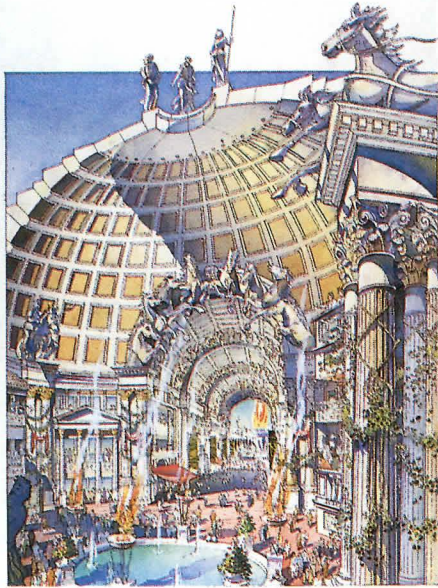


**Earl Swensson, Architect, has repeatedly expanded Opryland, a themed convention hotel connected to the famed performance complex in Nashville, Tenn. Analysts talk about a hunger for unique, even indigenous experiences, but target consumers appear not**

**to want too much adventure. Thus, a mansion from down-at-the-heels Natchez, Miss., may not see as many visitors as a replica in this mall-like environment (left). The latest Opryland addition includes restaurants featuring a Southern theme.**



The spectacle designed into Caesars Maximus in Las Vegas by the Rockwell Group is typical of such all-entertainment destinations. Rockwell will also add 20 acres of entertainment retail to Disney's Pleasure Island in Orlando and has prepared a 1-million-sq-ft mixed-use concept for London's Battersea Power Station.



branded experience also succeeds by promising consumers a predictable and secure experience. The House of Blues in the upscale mall has none of the risks—real or perceived—of an inner-city juke joint. The Wildhorse Saloon offers what the country-western honky-tonk doesn't: a price, quality, and crowd that is known.

### Architecture and the seductive experience

Critics have made much of the inauthentic “authentic” experience; the “indigenous” character that denotes locality without being it. This is not the stuff of which architecture is made, right? Answers are not easy. David Rockwell, whose firm, the Rockwell Group, is a leader in entertainment and themed design, unapologetically borrows techniques from movies and stage-set design, but says the work is fundamentally architecture. “We’re building a series of spaces that craft a movement through a project,” he explains. “It’s a spatial experience and an architectural experience and it involves interacting with other people.” The same “stone” wall may contain both the real thing and a fiber-reinforced plastic version, but Rockwell nevertheless compares the spatial drama he creates to that of a Luís Barragán or a Louis Kahn. “Look at the compression and expansion of space Edmund Bacon documented in *Design of Cities*. It’s seduction, a way of teasing someone around a corner.”

Indeed, fantasy design has a history, one in which architects have played an important part. At the turn of the century, big-city restaurateurs attracted the carriage trade with lobster palaces. In New York City at Louis Martin’s, dining was theater, and the elaborate menus could barely compete with decor that was compared to the Hanging Gardens of Nebuchadnezzar. Later, pleasure gardens and summer rooftop restaurants

bloomed with faux shrubbery and rustic thatched huts. One sprouted atop Stanford White’s Madison Square Garden; Midway Gardens was Frank Lloyd Wright’s dizzyingly inventive version. Later, vaudeville and movie palaces—here Moorish, there Egyptian—infatuated America with a sweep of gilded stair or a ceiling covered with projected stars.

Many prominent architects have been involved in the current wave of theming. Tigerman McCurry did an early Hard Rock; Jon Jerde brought fantasy to San Diego’s Horton Plaza; and Michael Graves invented the Dolphin and Swan for Disney.

Today, however, a store, restaurant, or amusement may be only one campaign in a vast product-launching invasion. The big corporate players now follow a formula developed by Disney. The company introduces new characters into the marketplace through an animated film. A theme-park attraction follows; then characters become products, “so that people can take away a piece of the story,” as Wing Chao, senior vice president at Disney Imagineering, explains. The retail outlet is simply the last link in this orgy of synergy. The store or restaurant must toe the larger marketing line, which leaves little room for idiosyncrasy or local flavor.

### Design for brand extension

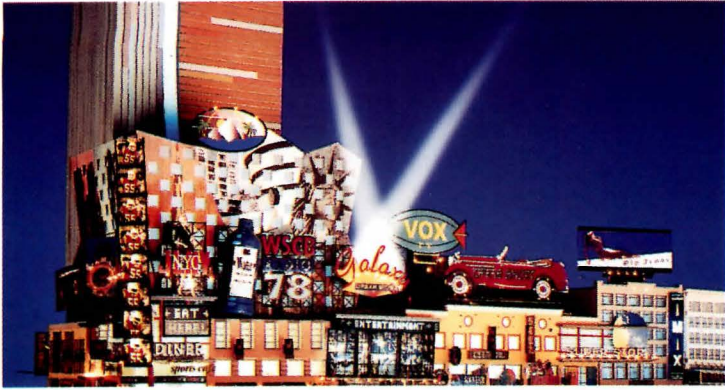
Entertainment retail is not only a unique kind of design product, it calls for a different design method. Rather than consign programming and design to the architect, the owner usually adds the architect to a team that may include owner’s representatives, theatrical lighting designers, real-estate consultants, audio/visual technologists, food-service concessionaires, fantasy-character gurus, and amusement-ride engineers. The design “story” may be “scripted” or “story-boarded,” meshing it with the program. In Disney stores, characters “film a movie.” This works “beautifully” in the 2,000- to 3,000-sq-ft boutiques built in malls, says Disney’s Chao. When the company extended the idea to department-store scale at the 50,000-sq-ft World of Disney, the design team decided that Mickey and his entourage should embark on a world tour. Patrons don’t

**Anchoring entertainment-oriented venues, multiplex cinemas get upscale styling. The Rockwell Group designed this 20-screen Sony Star Theatre prototype for Southfield, Mich.**

necessarily “read” the storyline, says Chao, but “a story helps us unify the store.” A Captain Hook figure conjures “booty” to boost jewelry sales. Tinkerbell beckons patrons to a girls’ clothing area. “We’re taking the wonderful Disney stories and adapting them architecturally,” explains David Manfredi, partner at Elkus/Manfredi Architects, Boston. The firm planned, sited, and designed the base building as well as fixtures and many finishes for the







**Tishman Realty's E Walk is among projects that jump-started New York's dying 42nd Street. A 13-screen entertainment/dining complex (D'Agostino Izzo Quirk, architect) fronts Arquitectonica's hotel tower.**

"World" store at the Disney Village Marketplace outside the company's Orlando theme park (previous page). Elkus/Manfredi added to the story development, but only Disney's Imagineering team decides characters' roles. They are high priests of a sort, guarding mysteries within the Citadel of the Brand.

One reason for architects' subsidiary role is that design energy is expended more to realize the project's marketing and brand-extension goals than to solve such architectural issues as flow, form, and well-executed detail. While architects derive satisfaction from innovation—from being bold, unique, adventuresome—entertainment-retail projects lure traffic by projecting familiar and comfortable images; they surprise in unchallenging ways.

#### Marketing expectations consume the public realm

Architects can play by these rules, and many do, successfully. But, as pundits have long warned us, the gathering ubiquity of themed environments is infecting the public realm with marketing-driven expectations. Public institutions with a role to educate already recognize that they are competing with entertainment companies for patrons' leisure time and dollar. Museums (that is, those that can afford to) are installing more elaborate crowd-pleasing exhibits and interactive devices. In such circumstances, commercial messages risk subsuming educational ones. The educational "story" of Disney's Epcot has always been but a veneer laid over a brazen product sell. Now the Bronx Zoo—known not only for its extensive research and conservation activities, but for the powerful conservation message it delivers to patrons—has hired the Rockwell Group to add excitement to concessions and graphics. Will parrots push pretzels? And Disney, moving this "edutainment" trend one step further, will build its own zoo.

Those who work on public projects frequently criticize the lack of public patience with innovation (whether esthetic or functional) and unfamiliarity. Indeed, if escapist experiences are what it takes to lure people away from TV sitcoms and computer games, nurturing literacy for architecture entailing values that are not specifically commercial becomes a Sisyphean feat. The architect's skill as maker of place-specific solutions becomes no longer useful. As critic Michael Sorkin noted (in *Variations on a Theme Park*, his 1992 collection of essays), "The loosening of ties to any specific space" already marks today's city. "The new city replaces the

anomaly and delight of [traditional ones] with a universal particular, a generic urbanism inflected only by applique."

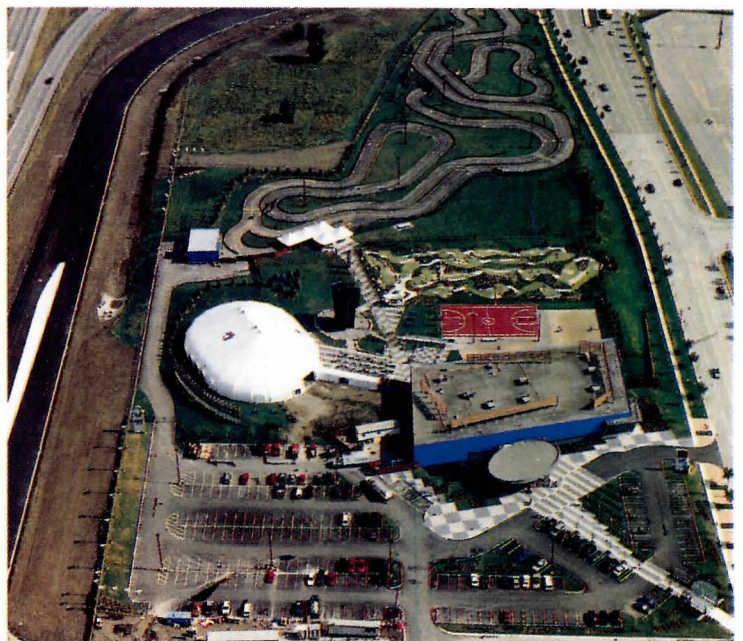
A fickle public easily satiated by yesterday's sensation creates imperatives that pull design back to territory more familiar to architects, however. "There is a constant challenge to entertain at a higher level and in a more exciting way," says Disney's Chao. The so-called location-based entertainment trend trades on urban places that are identifiably fun. Thus Times Square becomes a kind of brand, a "bright lights" armature to which retail is attached. In San Francisco, Sony is building a retail, cinema, and restaurant complex that takes advantage of the traffic generated by the museums and performing arts facilities at Yerba Buena Gardens. Baltimore is adding museums to its Inner Harbor mix.

Why is entertainment retail moving into the cities? MRA's Rubin theorizes that people flock to these places because suburbanization erased distinctly communal urban places. The crowds are part of the appeal. If you two-step at a Wildhorse Saloon, you might be seen on the Nashville Network (both owned by Gaylord Entertainment, naturally). Your exploits at Sega's Playdium (below) can be appreciated by onlookers on big video screens. The instinct to see and be seen seems to be reasserting itself, the making of a kind of public performance out of eating or shopping that is at base the poetic of the city. "We need places of connection and identity," Rubin observes. "Today, the sense of regional or place identity is pretty much limited to a sports franchise."

It's clear that architects can steer some traditional architectural and urban values into entertainment-retail venues. Thus NikeTown (pages 100-103) distinguishes itself by eschewing fantasy characters and narrative for spatial contrasts, harder-edged "urban" materials, and screening devices that alter the play of light and views. Canal City Hakata makes urban theater its centerpiece (pages 110-115). Architects can take perverse pride in Las Vegas' New York-New York casino hotel (pages 76-79) since it is but an amalgam of the real place's most distinguished buildings. The Guggenheim is missing because the Taliesin Foundation, guardians of the Frank Lloyd Wright brand, wouldn't let it be copied. ■

**Kuwabara Payne McKenna Blumberg sculpted Sega City @**

**Playdium, a Mississauga, Ont., dining, video-game, and amusement complex.**





# Recreational Equipment, Inc., Seattle, Washington

## REI'S SEATTLE FLAGSHIP STORE EMPHASIZES CUSTOMER PARTICIPATION AND COMPANY HERITAGE.

by Douglas Gantenbein

**Project:** *Recreational Equipment, Inc. Seattle, Washington*

**Owner:** *Recreational Equipment, Inc.*

**Architect and interior designers:**

*The Mithun Partners—Thomas Emrich, AIA, project manager; Bert Gregory, AIA, project designer; Rob Deering, AIA, project architect; Hao Casey Huang, Ken Boyd, architects*  
**Consultants:** *RSP/EQE (structural); McKinney & Associates; Madsen Electric/Cross Engineers (electrical); McDonald-Miller (mechanical); KPFF (civil); The Berger Partnership (landscape); Candela (lighting)*

If there is any doubt that retail survival entails offering a higher-visibility and more involving purchasing experience, Recreational Equipment Inc. (REI), proves the case. It didn't build this 98,860-sq-ft, \$30-million store to please stockholders or private owners. It has neither. It did recognize that the retailing environment required a radical departure for this seller of outdoor equipment known for its no-frills, even geeky selling style.

More importantly, this new Seattle flagship store is designed around the idea that prospective selections should be tried before purchase. So rock-climbing shoes can be tested on a 65-ft climbing pinnacle, boots and mountain bikes on a 470-ft outdoor trail; rain gear in a glass-enclosed stall that mimics—often superfluously—Seattle's infamously wet weather; and camp stoves under a laboratory-like vented hood. All this in a big, welcoming building that tries to straddle the history, present, and future of one of the more unusual retailers in the United States.

### A cooperative

REI is unusual in that it is a cooperative, not a publicly or privately

*Douglas Gantenbein is the Seattle correspondent for the ECONOMIST magazine and frequently writes about architecture. He has been a REI member for 23 years.*

owned enterprise. Many of its 4 million member/customers take a proprietary interest in the company, voting on a board of directors and eagerly anticipating an annual dividend equal to about 10 percent of their purchases.

While REI has no competition for the wide range of outdoor merchandise it offers, it feared becoming road kill on the category-killer superhighway. In the past it dabbled in the kind of lifestyle outdoor wear that another famous Seattle-based retailer, Eddie Bauer, has made its focus. REI has decided to stick with "muscle-driven" outdoor sports, but still fears that mail order or an incipient climbing-gear chain or bicycle-shop chain could nibble away at its constituency.

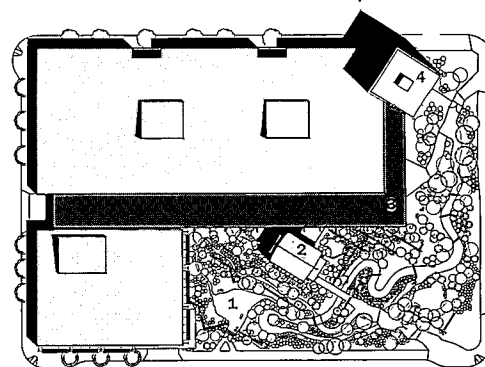
REI's architectural roots hardly predict the spectacle it has now built. Until the mid-1970s its only store was a rambling, 37,000-sq-ft structure on Seattle's Capitol Hill

that had grown by burrowing a warren of corridors, ramps, and staircases through a collection of warehouses. In 1938, REI got its start from the back of a gas station when a handful of Seattle mountaineers bought direct from Europe climbing equipment that wasn't available locally. Now, with 46 stores, REI has annual sales of \$500 million.

### Re-imagining a retailer

While not wanting to leave its humble roots behind, Coop executives asked architects from Seattle-based Mithun Partners (several of whom were REI members) to rethink many aspects of the way the coop had done business when planning began in 1993.

Because REI's wares often are complex, the coop wanted to introduce interactive ("edutainment" is the preferred moniker) displays to help customers understand features and



1. Courtyard
2. Entry stair tower
3. Terrace under roof
4. Climbing tower





The warehouse-like eastern facade (above), with its clerestory windows and oversized signage, takes a Robert Venturi-like, billboard approach to attracting commuters on busy I-5. The southern and southwest

ends of the building's exterior (below) are robust and energetic, evoking a forest, and bring a strong, almost Classical rhythm to the facade.







The austere west wing of the building (left) houses administrative offices on the lower floor and retail on the upper floors, and is in keeping with the mixed-use character of the neighborhood. The climbing tower (right) housing the world's largest freestanding climbing rock, greets customers exiting Interstate 5 for the store. The climbing and entry towers (opposite) are off-axis to the rest of the store, acknowledging that the store is sited where the orientation of the street grid shifts from one that parallels the south-west-facing waterfront to a north-south grid. The terrace (below) gives customers what they love: the outdoors.

performance. The coop asked for more parking (the Capitol Hill store had only 33 spaces) and asked the architects to make the building's construction and design reflect the coop's environmental goals. The building also was proposed as a merchandising "laboratory," where selling concepts could be tried, then moved out to other stores if successful. The architect agreed to help foster REI's environmental goals in both construction and final product. Finally, the coop asked for a warm and comfortable space that would become an involving destination—"a clubhouse for the membership," as REI president and chief executive Wally Smith puts it.

The 2.1-acre site backs up to the freeway at the edge of downtown making this location seem somewhat antithetical to being "outdoors." It made sense, though, for its visible, central location is easily accessed by car and bus and not far from the city's retail core. Mithun partners took advantage of the site by making the freeway side a billboard, with an 85-ft, glass-enclosed tower that houses REI's climbing pinnacle, the building's visual pivot, beckoning passing motorists.

On the north and west, the entrance to the parking garage, loading dock, equipment-rental entrance, and other elements reflect the character of the surrounding mixed-use neighborhood.

REI's goals for the store begin to reveal themselves through the path customers take after parking in the 580-space, below-grade garage. Psychologically separating customers from their cars, the circulation path takes patrons outside, on either a series of stairs, or an elevator to a walkway overlooking a landscaped garden, where a waterfall adds a wilderness reminder and effectively drowns out freeway noise.

Visitors next enter a large vestibule that terminates visually in the spectacle of customers (belayed by REI employees) scaling the climbing pinnacle, the world's largest free-standing artificial climbing rock. The vestibule is canted in plan, aligned with a shift of street grids that takes place at the site. In this vestibule, members retrace REI's history in displays of photographs and artifacts, including REI equipment used by the first American expedition to conquer Mount Everest in 1963.

#### Emphasis on specialty shops

This first floor is organized to reflect REI's evolving emphasis on five "specialty" shops: camping, mountaineering, skiing, kayaking and canoeing, and bicycling. Ramps reminiscent of those that connected the meandering Capitol Hill store carry customers from shop to shop. Stairways that climb around groves

of vertical pine logs (culled during regular thinning, not clear-cut) lead up through an atrium to the second floor and footwear, apparel and children's clothing departments.

For all its size and elaboration, REI had a strict budget for the building to ensure that members did not pay for it through lower dividends. Mithun parlayed a limited palette of concrete, rough wooden and steel beams, and corrugated steel into a building that is visually rich and physically tactile. "The structure is the character of the building," says

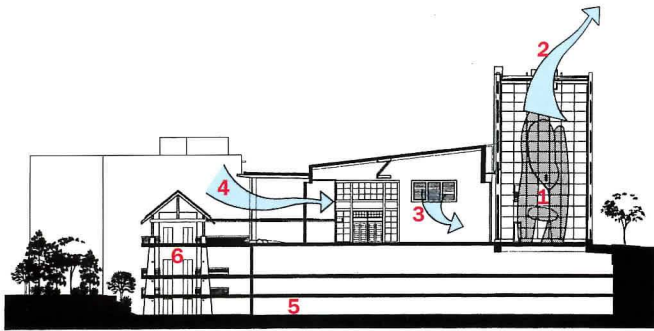
Bert Gregory, AIA, managing principal for Mithun, "like the climbing equipment REI sells that is very functional but has real beauty too."

Exposed beams with carefully detailed support cables and turn-buckles add visual variety. This effect is heightened with evocative details: ice axes are bolted to doors as handles, while metal hooks used by rock climbers serve as clothing hangers in changing rooms.

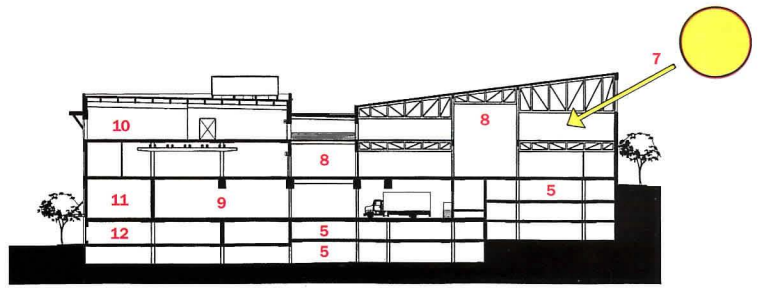
REI customers also find an ample dose of what they find most appealing in the first place—the







STACK EFFECT IN UNCONDITIONED SPACE



SOLAR PREHEAT

40 FT.  
12 M.

- |  |                          |                    |
|--|--------------------------|--------------------|
| 1. Climbing rock                       | 5. Parking               | 9. Loading dock    |
| 2. Hot air exhaust                     | 6. Entry                 | 10. Meeting room   |
| 3. Recycled air from conditioned space | 7. Early morning preheat | 11. Rental         |
| 4. Cool air intake                     | 8. Retail                | 12. Administrative |





The store emphasizes "edutainment," allowing customers to try out the goods before they buy them. Possibly the best example of this is the climbing rock (below), where a climber might test boots or other gear. Another display (right) illustrates the history of REI.



1. Landscaped court yard
2. Entry stair tower
3. Reception
4. Climbing rock
5. Fireplace
6. Camping
7. Skiing
8. Paddling
9. Biking
10. Checkout
11. Open to below
12. Viewing balcony
13. Apparel
14. Cafe

outdoors. A second-floor restaurant and 200-seat meeting room adjacent to it have a sweeping view not only of the Seattle skyline and Space Needle, but also of the Olympic mountains and Puget Sound.

#### Keeping it green

In keeping with REI's green goals, about 75 percent of the demolition debris was either re-used in the new building, recycled, or sold for salvage. Other environmentally friendly touches matched REI's desire for simplicity, including leaving steel unpainted, and choosing industrial-grade engineered-wood beams sourced from second-growth forests. Retail-area countertops were made of recycled newspaper and soy bean composite; bathroom countertops of waste wood composite.

To meet energy-consumption considerations, the interior temperature, for instance, is permitted to vary by as much as five degrees throughout the store (most retailers seek a one-degree variance). The stack effect draws excess heat out the top of the building; both techniques allowed a lower-capacity hvac system. The clerestory windows are clear glass, rather than low-emissivity glass, to help with morning warm-up; shades cut heat gain during sunny days. And the entry vestibule is thermally isolated

from the main interior to reduce the building volume that requires heating or cooling. The success of the energy-conservation program has qualified the building for several Washington state rebates.

#### Meeting retail objectives

There was some grumbling that the

store has departed too far from REI's spartan roots or that its evocation of the not-too-distant outdoors is ersatz and that the try-before-you-buy devices are gimmicky rather than useful. But the new flagship has been a stunning success for REI. Sales are close to double that of the old main

store, says Jerry Chevassus, retailing manager for REI, and customer traffic has been so great that 50 percent more staff are employed than originally anticipated. That the store has become a tourist attraction on a par with the Pike Place Market suggests that REI has fulfilled its goal of reaching a broader customer base and competing with niche retailers of outdoor equipment. And its 80,000 sq ft of selling space has enabled REI to offer the kind of stock its members could previously only dream about.

The cooperative is already planning to duplicate the Seattle store's size and features in other major markets: Minneapolis, Chicago, Atlanta, and San Francisco are other prospective locations. Although the Seattle store is a major departure from REI's past, it does appear to reflect its customers changing tastes. Climbers, who once prided themselves on the number and remoteness of peaks they'd scaled, have now made climbing gyms a local fad. ■



#### Manufacturers' sources

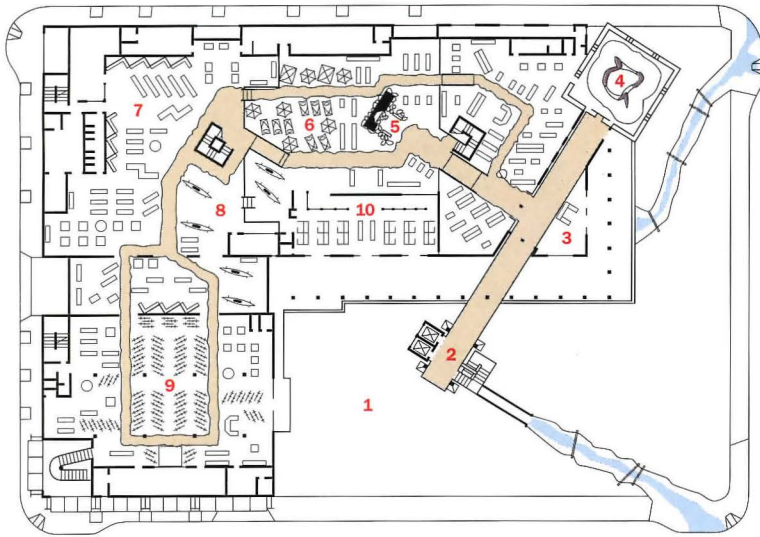
**Curtainwalls, doors, and windows:** Vistawall

**Metal roofing and cladding:** BHP  
**Glazing:** PPG

**Lighting:** Staff, LiteControl, Kim, USI  
Columbia, GE

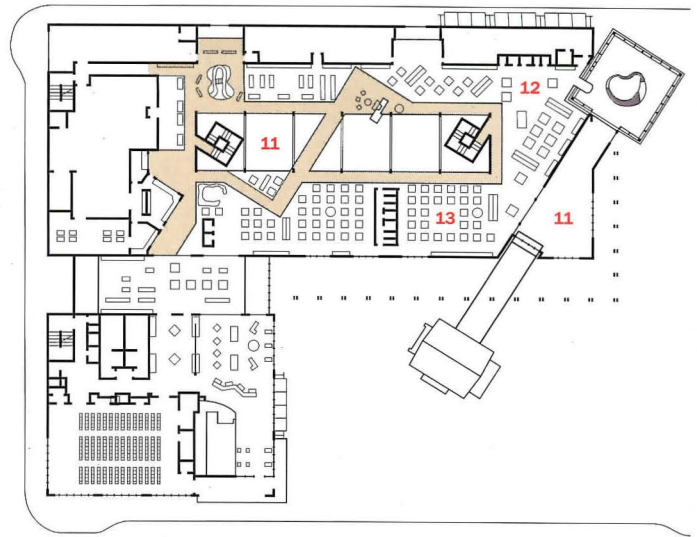
**Laminates:** Nevamar; Wilson Art  
**Paints and stains:** Sherwin-Williams



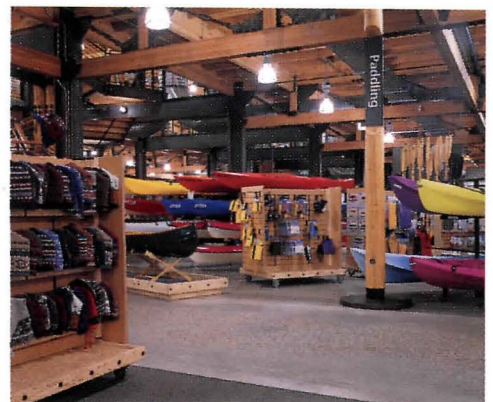
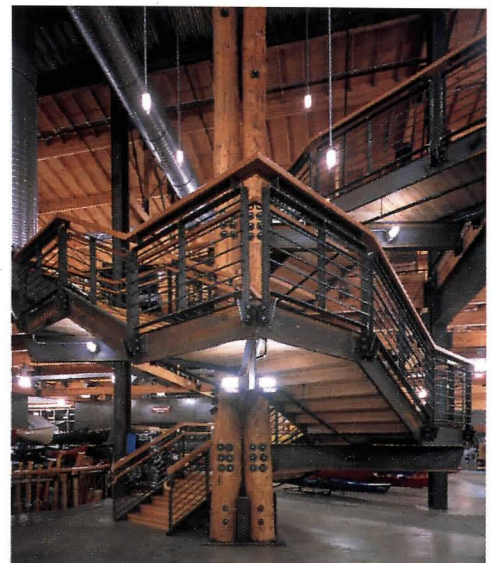


FIRST FLOOR PLAN

N ← 0 40 FT.  
12 M.



SECOND FLOOR PLAN



Just inside the front door (left), customers are greeted by the warmth of a massive fireplace. The rugged palette of materials—weathered steel,

second growth pine, and boulders—extends inside from the exterior. The paddling area (above) is one of five specialty shops in the store.



# NikeTown New York City

**NIKE'S FLAGSHIP STORE INTEGRATES ARCHITECTURE INTO AN ALL-ENCOMPASSING BRAND-REINFORCING EXPERIENCE.**

by Virginia Kent Dorris

**Project:** NikeTown, New York City

**Client:** Nike, Inc.

**Architectural, Media, and Conceptual**

**Design:** Nike Design Team—Gordon Thompson, vice president, design; John Hoke, creative director, image design; David Poremba, media design director; Mark Mullen, retail media director; Val Taylor Smith, image design director

**Architects:** Brian McFarland, Michael LeClere (New York City); BOORA Architects (Portland, Ore.)

**Engineers:** Thornton-Tomasetti (structural); Edwards and Zuck (mechanical/electrical)

**Project Manager:** Bennis & Reissman

**General Contractor:** F.J. Sciamè Construction Co.

If selling sneakers can be elevated to an art form, Nike has done it with the creation of its new flagship store on East 57th Street in New York City. The athletic footwear giant has erected its latest NikeTown, a simultaneously nostalgic and high-tech retail monument to sports and sports equipment, near Fifth Avenue in one of the world's toniest and most expensive shopping districts.

Eight years in the planning, the NikeTown building was constructed on a site formerly occupied by the Bonwit Teller department store. Nike razed the original structure to start fresh. "We looked at tons of other sites, but the first four floors of a skyscraper would never say what we wanted to say," explains Gordon Thompson, Nike vice president of research, design and development, who headed the store's in-house design team.

## Architecture as marketing tool

The NikeTown building is puzzling as a piece of architecture at first glance, but makes sense when considered in the light of its purpose: to demonstrate Nike's prominent place in the world of sports, and to generously display the breadth of Nike products. To help create a connec-

*Virginia Kent Dorris is a freelance writer who lives in Brooklyn, New York and writes frequently about architecture and engineering.*



tion to New York City's architectural sports history, Nike designers modeled the building's facade and exterior shell on the image of a pre-war, New York City high school

gymnasium. The NikeTown building—with its artificially aged wood floors, exposed-brick walls, gym-mat-covered interior columns, and multi-story arched windows protected by wire-mesh—is a light-hearted assemblage of bygone schoolhouse details.

Superimposed within this nostalgic shell, though, is a futuristic glass-and-steel structure that bridges the "old" to showcase the latest Nike sports technology and equipment. A five-story, skylit central atrium (opposite) dominates the space. Meant to evoke a stadium or arena, the atrium is darkened every 20 minutes to broadcast short Nike-related sports films on a three-story-high video screen.

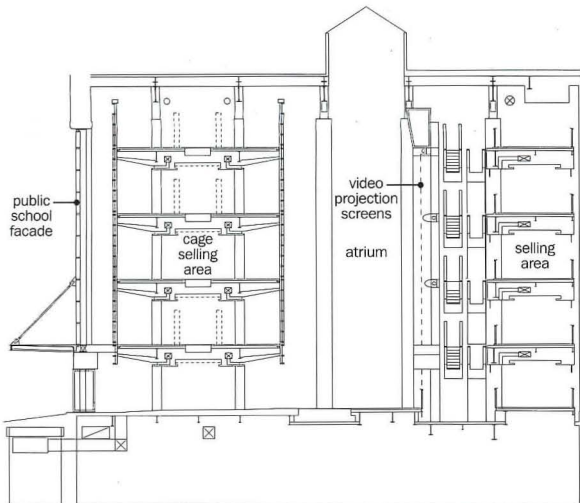
**Glass-block-enclosed changing rooms (above) invoke both school gyms and high-tech athletic-wear design. Nike broadcasts an image-building film on a three-story screen (right) that unfurls from the top of the building's central atrium. Skybox-like windows on the atrium (facing page) open automatically during film showings to increase a feeling of participation.**



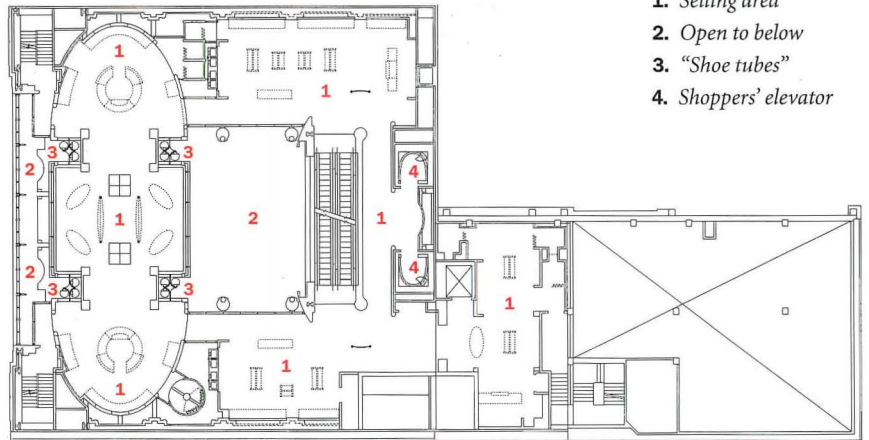






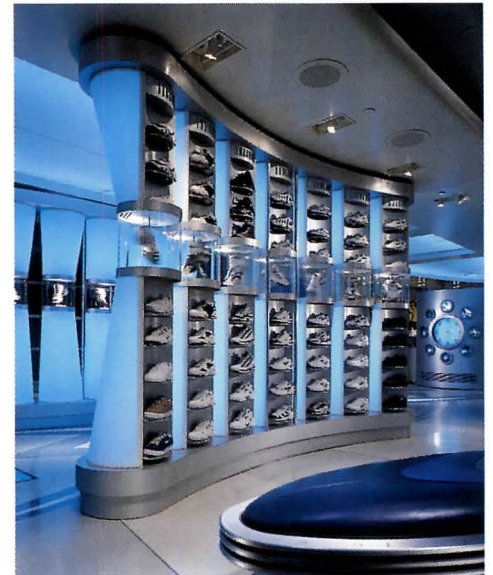


NORTH-SOUTH SECTION



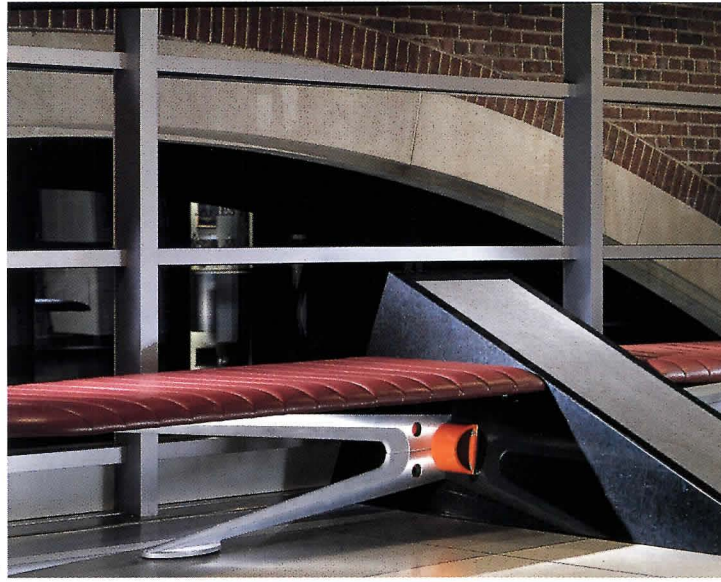
FLOOR 2-5

1. Selling area
2. Open to below
3. "Shoe tubes"
4. Shoppers' elevator



Technology that supports Nike's line of women's shoes (above) is highlighted by in-floor educational exhibits (left). New shoe models revolve in futuristic, columnar display cases.





New Nike-developed measuring device (far left) analyzes a customer's foot to determine the optimal shoe size and style. High-tech bench and shoe-fitting area on NikeTown's top floor (left) contrasts with aged brick wall and arched window of gymnasium-style building shell beyond.

Nike claims to have jump-started the trend of using an immersing retail environment to tell a brand's story in 1991 with the opening of its first NikeTown store in the company's home town of Portland, Ore. Rather than simply serve as a container for the company's message and product, the building itself is an integral part of the message. "We're using architecture as a communication device for a brand," says Thompson.

#### Reliance on in-house design

Considering that the store uses such architectural gestures as procession, compression and expansion of space, and plays of space and light, the architects, iron-

ically, played a secondary role. Because the accurate telling of the brand story was the prime goal, the decision to design the building in-house was almost automatic. Indeed, Nike's team, supervised by Thompson, is involved not just in architecture, but in every aspect of Nike design, from footwear to graphics. The design team also included John Hoke, Nike's image-design creative director, whose work extends to trade shows and multi-media presentations. Though both men were trained as architects, neither is registered; local architects and Portland-based BOORA executed the project.

Unlike most retail stores, where merchandise-display space

is maximized, telling the company story is the top priority at NikeTown. Only half of the 66,520-sq-ft of retail space is occupied by for-sale items. The rest is filled with exhibits developed to reinforce the notion of Nike's solidarity with winners—including a trophy case housing Carl Lewis' nine Olympic gold medals—and interactive exhibits touting Nike technology. One display showcases 20 types of airbags from the soles of Nike shoes, and a companion display blows "Nike air" at the consumer (implying shoe-borne flight). "We need NikeTown stores to carry the Nike story," says Thompson. "If the customer buys a product at the NikeTown store or goes down the street to buy it at Foot Locker, either way, we win."

#### Marketing, with a wink

Ubiquitous clocks, stopwatches, and the company's "swoosh" logo attest to a kind of obsessiveness about the message, carried over even to tongue-in-cheek gestures. P.S. 6453, the number of the fictitious New York City "school," corresponds to the word "Nike" on a telephone keypad. The school's fictitious home team is the Knights (the "team" scoreboard was placed at the rear of the store), a reference to Nike founder and CEO Philip K. Knight.

Most visitors spend about 45 minutes touring NikeTown, according to a company spokesperson.

Customers obviously are drawn, in part, by the store's entertainment value, though Thompson downplays its role. "Entertainment as an end-all, be-all, in a store is pretty dumb," he says, stressing that entertainment in a retail setting must be coupled with strong products and service in order to succeed. At NikeTown, in addition to the big-screen presentations, customers can watch live broadcasts of sports events on a series of video screens, spin a roulette-type device to learn about sports heroes, hit a punching bag, or look through an old-style viewfinder at the trip of a mountain-bike rider. Nike plans to change these displays several times a year to maintain their novelty.

But even without changing the exhibits, Thompson and Hoke hope that the building's design, focused inward on the atrium and the virtual and actual activity taking place within, will help maintain a sense of excitement. When the store is crowded, people huddle together to watch the big screen, sharing a noisy, collective experience. "You come to feel a part of something, scripted or unscripted," says Thompson. "It's something like going to a sports event." ■

*Manufacturers' Sources*

**Display fabrication:** Exhibit Group

**Millwork:** NJS

**Terrazzo:** Magnum Inc.

A vertical shoe tube (at rear of photo) that brings shoes up to customers from basement storage areas, lends a high-tech touch to a shoe fitting area.





# Mohegan Sun Casino Uncasville, Connecticut

**USING NARRATIVE THEMES BASED ON NATIVE MOTIFS, A DESIGN TEAM ORCHESTRATES A RULE-BREAKING ARCHITECTURAL EXPERIENCE.**

**by Mark Alden Branch**

**Project:** Mohegan Sun Casino  
Uncasville, Connecticut

**Client:** Mohegan Sun

**Concept and Interior Architect:**

Rockwell Group—David Rockwell, principal; Jay Valgora, director of design; Paul Vega, David Fritzingler, Suzanne Couture, Masako Fukuoka, Linda Laucirica, Julia Roth, Eve-Lynn Schoenstein, Jeanne Valdez, Alice Yiu, interior design; Carl D'Alvia, Robert Ashton, Ehab Azmy, Alex Brown, Howard Chang, Rosa Maria Colina, Eric Epstein, Masako Fukuoka, Maria Teresa Genoni-Alvarez, Niels Guldager, Chin Lee, David Lefkowitz, Alex Li, David Mexico, Tom Pedrazzi, Chris Pollard, Joe Richvalsky, Robert Robinowitz, Alex Ross, Sally Ross, Michelle Segre, Paul Shurtleff, Michael Silver, Nina Stern, Cathy Taylor, Raymond Tom, Sam Trimble, David Wilbourne, Lorrin Wong, staff

**Architect:** Brennan Beer Gorman/Architects—Hank Brennan, AIA, partner-in-charge; Mario LaGuardia, AIA; Marc Gordon, Alan Infante, Nick Baratto, Greg Galford, Ernie Acosta, Sarge Gardiner, Louis DiFusco, Marlon Fernandez, Tony Layco, Ed Descalzo, Katie Brennan Smith, team

**Engineer:** DeSimone, Chaplin & Dobrin (structural); Lehr Associates (mechanical, electrical, plumbing)

**Consultants:** Mohegan Tribe (tribal); EDSA (landscape); Focus Lighting (lighting); David Jacobson Associates (Casino)

**Construction Manager:** Morse Diesel

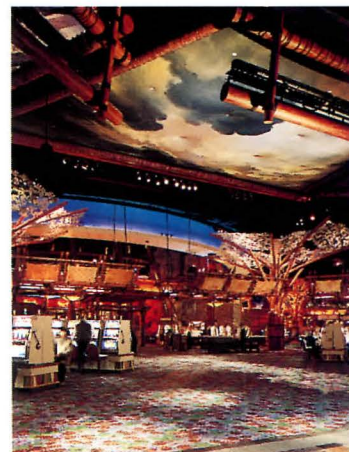
Short of changing the odds, the only way casinos can compete with one another today is to provide more exotic venues in which their customers can lose money. This explains the new phenomenon of casino as fantasy environment—owing more to Walt Disney than to Damon Runyon. The trend is tailor-made for New York City architect David Rockwell, whose Rockwell Group, best known for themed restaurant interiors, designed the Mohegan Sun Casino (their first) along with architect Brennan Beer Gorman, also of New York.

The Mohegan Sun got its start when London-based entertainment magnate Sol Kerzner, whose Sun

Mark Alden Branch is a senior editor at I.D. magazine.

International owns such properties as South Africa's flamboyant themed resort island of the Lost City, helped organize the descendants of the Mohegans, a largely defunct tribe of woodland Indians in southeast Connecticut. Together they built a casino to compete with Connecticut's other casino, built in nearby Ledyard five years ago by the Mohegans' old rivals, the Mashantucket Pequots.

The Mohegan Sun's 240-acre site included a 400,000-sq-ft building, which in its former life was a nuclear-research facility. After a false start with one architecture firm, Sun hired Brennan Beer Gorman as building architect in spring of 1995. They held a limited competition for the interiors and theming of the casino, which then



was conceived as a full-scale resort, with entertainment venues and a hotel. The Rockwell Group was invited to compete.

## Native motifs scaled up

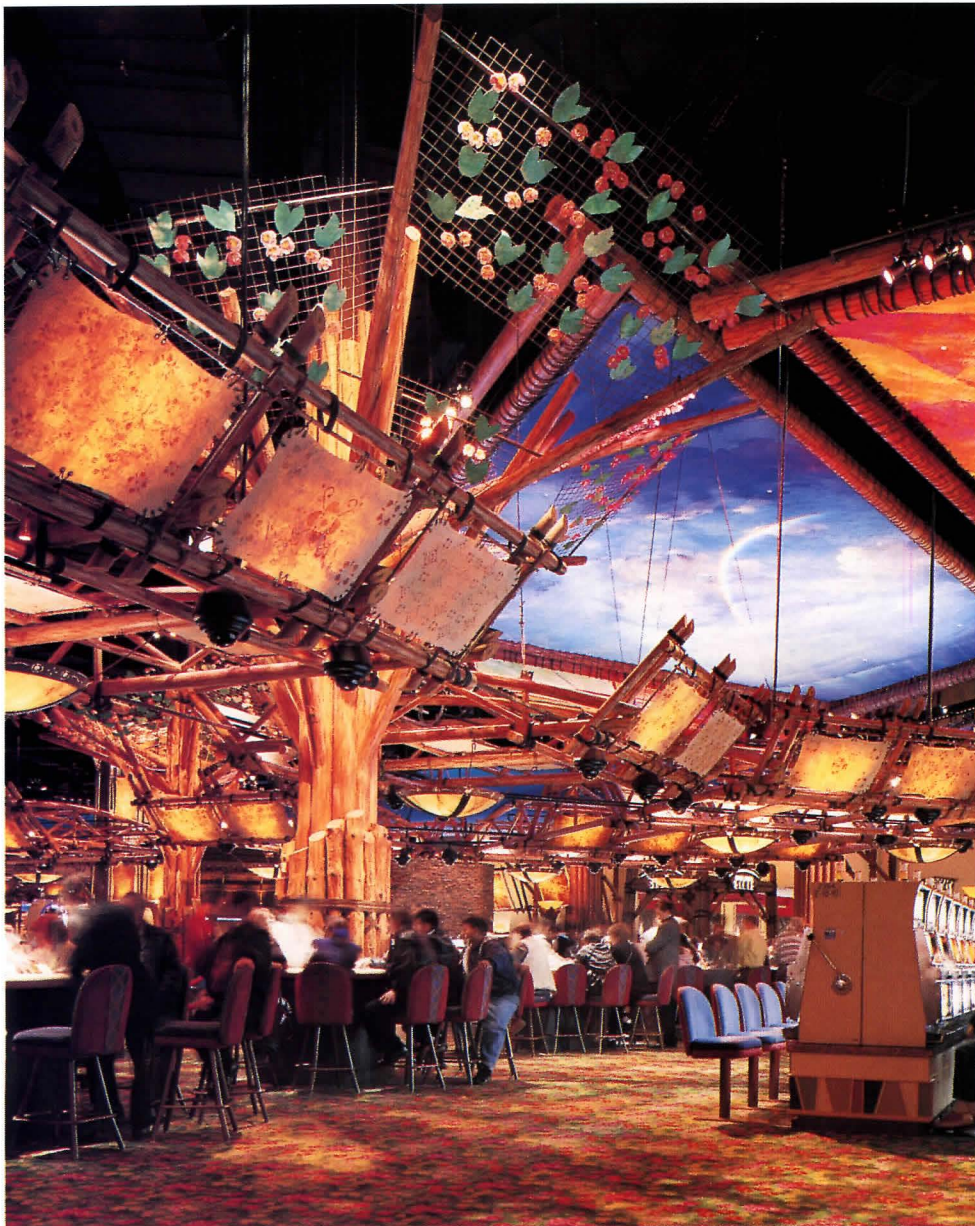
Rockwell's design modus operandi is to develop a "narrative" or theme for a project that will shape its design. For the casino competition, they took a crash course in Mohegan history and culture, talking to tribal historians and poring over the few existing tribal records. Mohegan architecture consisted of small structures such as wigwams and long houses, which the firm quickly decided could not be translated effectively to the scale of a 200,000-sq-ft casino.

Designers turned instead to more symbolic elements, identifying three recurring visual themes: a circular medallion-like form divided





Though sunk into its sloping site, the casino's planting does not yet evoke the original idea of entering through a berm. Design attention is focused on entrances.

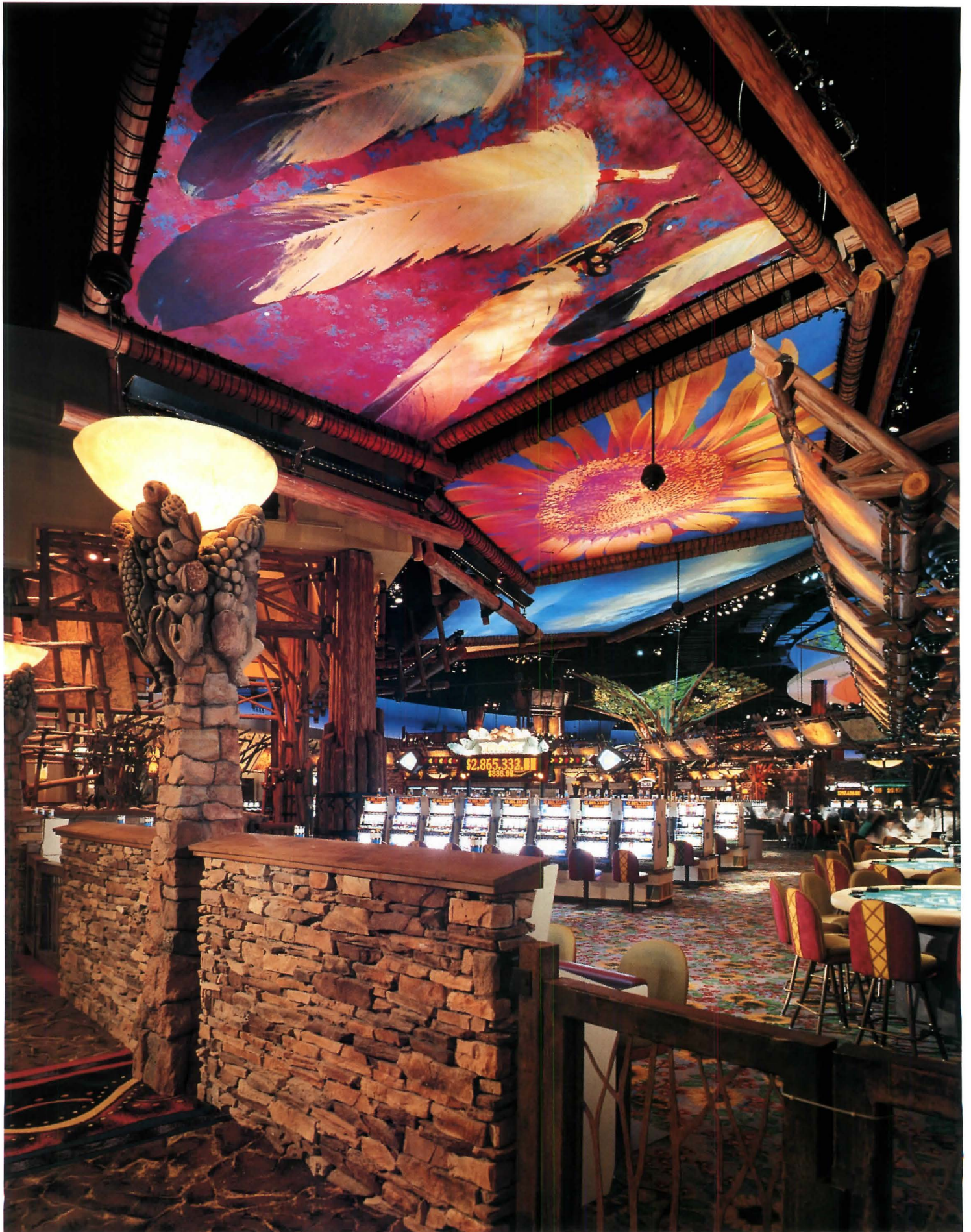


Though thematic elements are deployed using stage-set techniques, they help patrons orient themselves. Lashed totemic structures mark entrances and filter light from skylights (opposite bottom). Murals painted on fabric and cast-glass

"leaves" on wood and fiberglass "trees" define seasonally named casinos. Trellises hover over table-gaming areas, while a curving drywall fascia and skin-like panels draw patrons to the central live-entertainment area (opposite top).











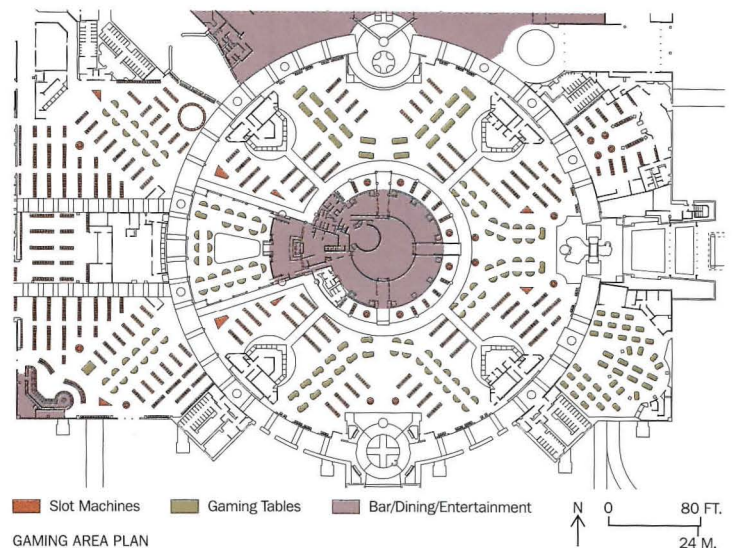
into quadrants, a linear “life trail,” and a number of legends involving trees. Rockwell wove these elements into the plan, which consisted of a half-mile diameter circle with a path on its periphery and the resort functions attached to either side. Their elaborate presentation to Sun and the Mohegans—with materials boards and drawings that filled an entire van—was convincing, and in late 1995, Sun chose Rockwell Group for the job, but decided only to build the casino as a first phase.

### 13-month construction

Sun was eager to have the casino up and running by the 1996 holiday season, so the firms had to move quickly. Sun and Brennan Beer Gorman had already decided to keep the existing L-shaped building for use as back-of-house space, and square off the L with new construction for the casino. This way, work could begin on the existing structure much sooner. Rockwell’s office took on extra staff and created six teams to work on various aspects of the project simultaneously. Their assignment was to design “everything the public sees,” according to the firm’s director of design, Jay Valgora. Brennan Beer Gorman was responsible for the shell and for coordinating the project and overseeing its 18 consultants.

To adapt the plan to the smaller program, the architects retained the basic form of the competition entry but reduced it in scale, using the circle form to create a 350-ft diameter path to define the main casino space. As a way of breaking down the unusually large gaming area, the circle was divided into four quadrants that would function as separate casinos (although the boundaries between them are almost undetectable). They surround a tent-like central entertainment area. The designers also decided early on to break with convention and give the main space a 45-ft ceiling—15 ft is a gaming-industry standard. This decision, more than any other, shaped the distinctive features of the Mohegan Sun, permitting a variety of spatial experiences.

Although the firm worked with a gaming consultant who tutored in the functional requirements of slot machines and table games, Rockwell says that the gaming layout that was eventually used was theirs, one that is unusually figural and integrated into the design. The table games were laid out first, with low trellis-like structures suspended overhead (disguising lighting, security cameras, and other utilities) to preserve a sense of intimacy. The slots were arranged between them—“almost as poché,” Valgora says. The resulting plan is also



Fronds wave over high-limit tables (top left). The Wolf Den is the central entertainment space (top right). Stone wall (opposite) is real; a stone-like sconce is fiberglass. A towerlike element (left) beckons players to cashiers.





To maintain the consistency of the theme within the casinos, a transitional bar was created (left) that leads patrons into a series of restaurants, each with a decor reflecting its cuisine. At the Mohegan Territory coffee shop (opposite top left), cracked tile rivulets interrupt custom-plaster mesas. Spaghetti-like bamboo-sail fabric filters light in the Bamboo Forest (Asian

cuisine—opposite top right). The evocation of Venice (opposite bottom left) is carried from the stenciled stars to the table settings in Pompeii & Caesar. Custom-metal light fixtures, an entablature of antlers (scavenged, says Rockwell), and woven twig screens create atmosphere at the Longhorn Cafe.

1. Winter casino
2. Spring casino
3. Summer casino
4. Autumn casino
5. Entertainment lounge
6. High-limit tables
7. High-limit slots
8. Poker room
9. Main cage
10. Bingo hall
11. Restaurant
12. Food court
13. Bus waiting room
14. "Back of house"

unusual in that it does not attempt to dislocate the patron, as much casino design does; indeed, it is all about orientation, emphasizing the four cardinal directions. Further, skylights at each of the four entrances let in natural light, allowing patrons an awareness of real time (another no-no in conventional gaming wisdom).

Engineer Vince DeSimone, of DeSimone, Chaplin & Dobrin, devised a structural system based on a 60-ft grid, and came up with a floor of double precast concrete tees that would support rolling carts, or "mules," weighed down by quarters and dollar coins.

Meanwhile, Rockwell's team developed richly themed and decorated finishes for the largely undivided interiors, creating custom carpet, fabric, and wall-treatment patterns. Craft teams were imported to build stone partitions and Adirondack-style wood structures. Though the faux mixes with the real, natural materials prevail where they can be touched.

The \$180-million casino opened—with a few odds and ends left undone—in October 1996, just 13 months after the beginning of design. How did the team get it done so fast? Valgora credits Sun's Sol Kerzner for pushing the job along with prompt approvals of design decisions, and he credits his own firm's enthusiasm for and dedi-

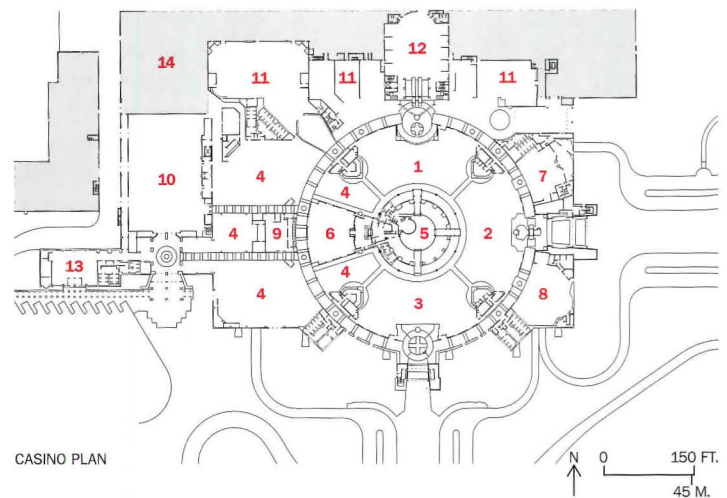
cation to the project. Rockwell's office had at least four people working on-site during construction; Brennan Beer Gorman had 10, turning out construction documents one step ahead of the contractor. Partner Hank Brennan says using precast floors and foundation walls, and reusing the existing building, helped avoid what would have been maddening delays during the unusually white winter of 1996.

The exterior is more revealing of the building's high-speed execution. Its blank masonry exterior and off-the-shelf parking structure look like afterthoughts, which in a way they are: Rockwell's original concept was to berm up the exterior so that patrons would "pass through the earth" to enter. As built, only faux-log structures at the four entrances hint at something special within.

#### Another world

The trellises, theatrical lighting, and lashed-log structures draw the visitor to the high-ceilinged center of the space. The underside of the roof is exposed but painted black, creating a feeling of height that is suggested, rather than defined.

If you are uninterested in gambling and unusually diligent, you will find in the fabrics, wall-coverings, and carpet an iconography that rivals Gothic cathedrals. Along the circular path that surrounds the main casino space, 13 medallions



are set into the floor (some terrazzo, some carpet). These depict the 13 moons of the Mohegan year, which have poetic names like "moon of the wading snow." Each entrance has murals and freestanding wood structures representing one of the four seasons, corresponding to the seasonal themes of the four casinos within, amplified by a series of "tree" column covers.

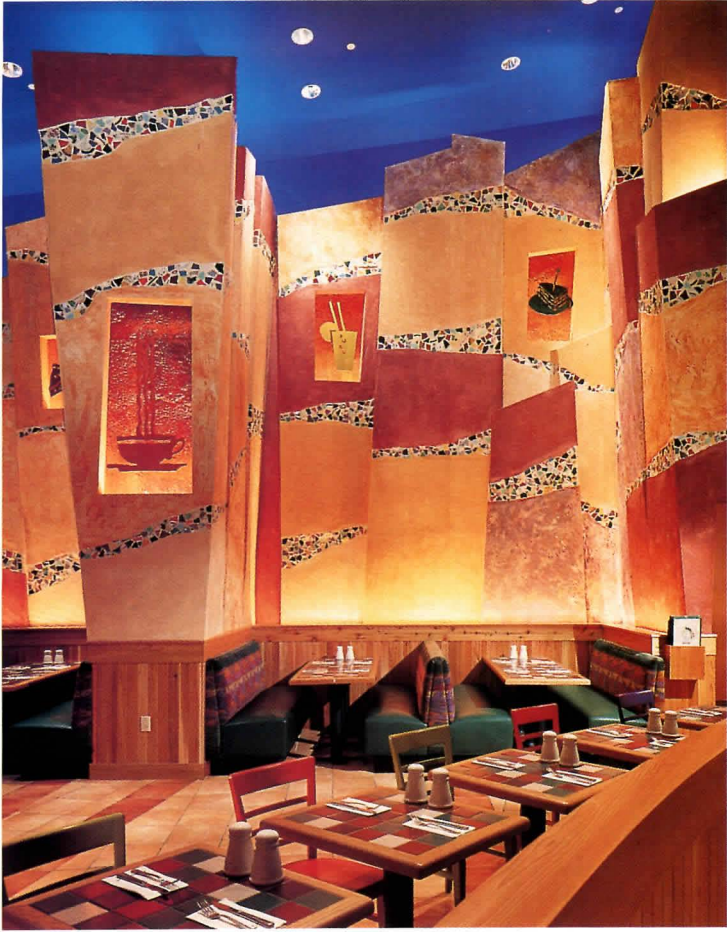
While Mohegan Sun relies heavily on illusion, it is not about replicating a specific place or kind of place. Rockwell's work is not as literal as that of Disney's Imagineers nor is it as abstract as the fantasies that Michael Graves devised for that company. At the Mohegan Sun, you're not necessarily supposed to be in an Adirondack great camp or a Mohegan settlement, although

you might think about such places. Instead, Rockwell's approach acknowledges the artifice involved, but without labored irony, creating a stage set that people can actually enter. That feeling, more than anything else, is what the gambler gets in exchange for the likely sacrifice of their money. And judging by the crowds, a lot of people consider it a pretty good bargain. ■

#### Manufacturers' Sources

- Plaster:** *Visions In Plaster*
- Lighting:** *Sanchez Nitzberg; International Iron Works; Leucos*
- Tile:** *A Refined Selection; Serpen-tile*
- Special themed elements:** *Rock & Waterscape; MJM*
- Chairs, barstools:** *Shelby Williams*
- Carpet:** *Couristan*
- Wood flooring:** *Permagrain Products*







# Canal City Hakata Fukuoka, Japan

**JON JERDE TAKES HIS BRAND OF “EXPERIENTIAL ENVIRONMENTS” ABROAD TO CREATE THE LARGEST PRIVATELY DEVELOPED PROJECT IN JAPAN.**

by Karen Stein

**Project:** Canal City Hakata, Fukuoka, Japan

**Owners:** Fukuoka Jisho Co., Sumitomo Life Insurance Co., Fukuoka Japan Urban Design & Development Co.

**Developers:** Fukuoka Jisho Co., Fukuoka Japan Urban Design & Development Co., Organization for Promoting Urban Development

**Design Architect:** The Jerde Partnership International—Jon Jerde, FAIA, principal/designer; Eddie Wong, AIA, principal/management; Brian Honda and David Moreno, project designers; John Leggitt, tenant design; Duncan Paterson, Mike Hong, Ed Borrego, Ralf Konietzko, senior designers; Kiharu Tsuge, Charles Pigg, Wasa Sakamoto, Bob Cloud, John Simones, Tammy McKerrow, David Green, Hank Hockenberger, project team

**Architect of Record:** Fukuoka Japan Urban Design & Development Co.

**Landscape Architect:** EDAW, Inc.

**Environmental Merchandise**

**Designer:** Clifford Selbert Design Collaborative

**Water Features Designer:** WET Design

**Lighting Designer:** Joe Kaplan Architectural Lighting

**General Contractors:** The Zenitaka Corp., Shimizu Corp., Obayashi Corp., Fujita Corp.



If there was any lingering doubt that the merging of entertainment and other commercial uses was a transnational trend, it is dispelled by the completion of Canal City Hakata, a 2.5-million sq ft, \$1.4-billion megacomplex that fills nine acres of riverfront property in Fukuoka, Japan.

Canal City Hakata was designed by the Jerde Partnership International (JPI), the firm that invented the retail-office-entertainment behemoth that has become standard fare for revitalizing urban centers and developing suburban greenfield sites in the last decade. Or, at least, JPI re-invented the type in 1985, with the completion of Horton Plaza in downtown San Diego, a \$40-million shopping district described variously as a “pastel-swathed, stucco-and-tile catalog of archetypal urban components and stylistic allusions” or “Post-modernism gone amok” [RECORD, March 1986, pages 128-135]. Jon Jerde, FAIA, himself described it as savior to the central city’s previously desolate business district.

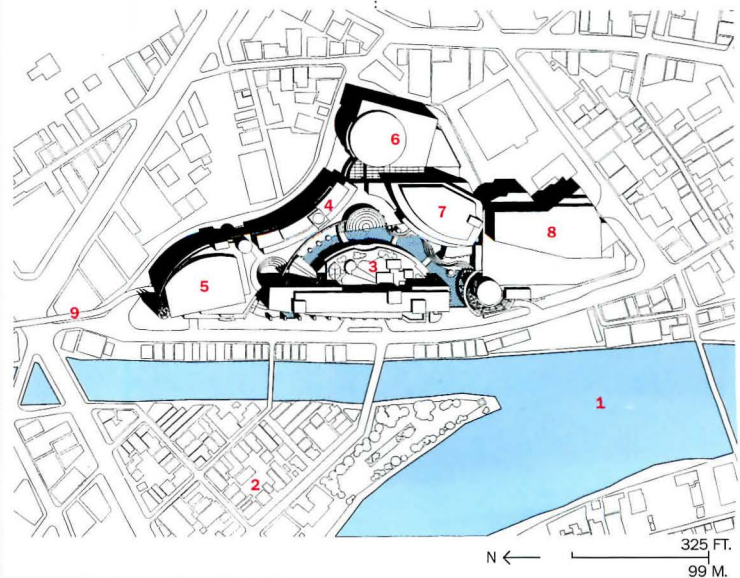
## Success at home

“The regional shopping center is the last vestige of the communal scene in America,” says Jerde of his attempt to create a sense of place for a failing community and, not incidentally, a source of profit for his clients. In his view, he does not just design shopping centers; he also, along with colleagues at his 140-person firm, practices a new architectural discipline, which JPI calls “experiential design and place-making.”

The impressive 25 million annual visitors to San Diego’s Horton Plaza (nearly three times initial predictions) made Jerde, in his words, America’s “fair-haired boy of retail,” attracting clients and inspiring projects across the United

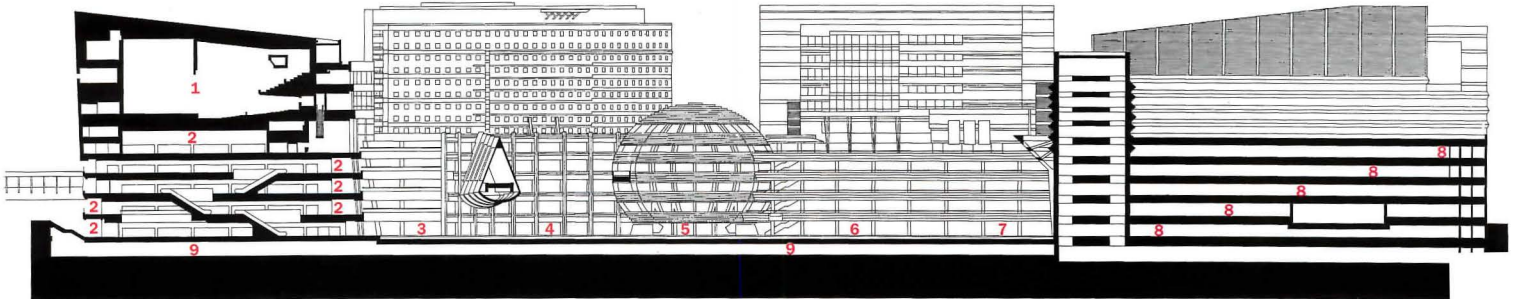
States. It even led to the country’s largest theme park-like retail outlet, the \$625-million Mall of America, located outside of Minneapolis in Bloomington, Minneapolis, in which JPI also played a role. It was only a matter of time before Jerde started exporting his expertise in retail design abroad.

1. Naka River
2. Nakasu district
3. Grand hotel
4. Business hotel
5. Performing arts center
6. Office building
7. Cineplex
8. Parking (located above department store)
9. Pedestrian bridge (leading to metro station)

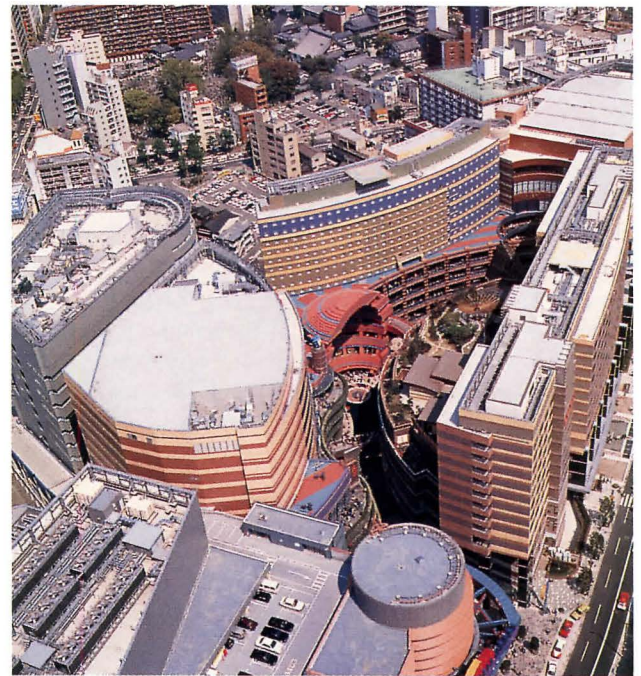




- 1. Theater
- 2. Retail
- 3. Star Court
- 4. Moon Walk
- 5. Sun Plaza
- 6. Earth Walk
- 7. Sea Life Playground
- 8. Department store
- 9. Parking



NORTH-SOUTH SECTION

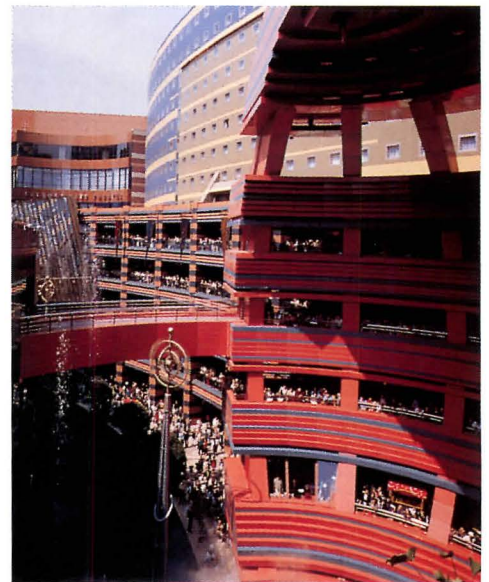


An aerial view of Canal City Hakata shows the nine-acre development alongside Fukuoka's Naka River (above). Buildings, including the business hotel, are clad in contrasting stripes to resemble a family of zebras, according to Jon Jerde (right). A view from the Star Court toward the city of Fukuoka (left).





Identifying elements of the Jerde design include a tower and the vine-covered “wobble wall” (near right), and the hollowed sphere of the red Sun Plaza (far right). A performance at the Sun Plaza amphitheater draws crowds; some 20 million people are expected to visit in the first year. Bridges connect to shops and hotels (below).



### Taking it on the road

His first completed project outside American borders is Canal City Hakata. Thanks to a small but deep-pocketed group of enlightened developers, the bustling port city of Fukuoka in southern Japan already has had its share of international architectural star turns since the late 1980s, including Aldo Rossi's monumental Il Palazzo Hotel [Record, May 1990, pages 70-75].

JPI, however, was engaged on a much larger scale than Rossi or others like Rem Koolhaas, Michael Graves, and Steven Holl who have all completed projects in Fukuoka. JPI was to masterplan the largest privately-developed project in Japan's history. Work on the complex began in 1988 and the project survived several starts and seemingly complete stops—influenced by dramatic fluctuations in the Japanese economy—to open to the public some eight years later, on April 20, 1996.

The initial design concept, developed early in the process, also survived what JPI principal and one of Canal City Hakata's project designers, David Moreno recalls as “three major redesigns and 12 minor redesigns” along the way. According to the project's concept statement, written by Moreno, Canal City Hakata is “an environment of experience based on

natural patterns, effects, mysteries, and life forms affecting our world.”

### Making it unique to Fukuoka

Toward that end, the architectural team conceived a masterplan around the central natural feature of the site, the Naka River, “diverting” its path so it would bisect the site and provide for a 700-ft long pedestrian promenade along its banks. (Ultimately, changing the course of the ocean-fed river proved too complicated and too costly, so a separate canal was made.)

The meandering arc of water is the armature of the design—the project's proverbial main street—connecting the five themed outdoor environments of the stars, moon, sun, earth, and sea, which are symbolically rendered in contrasting geometrical forms. Four destinations anchor the concept: the Fukuoka City Theater, Daiei's Mega Vandle department store, a Grand Hyatt Hotel, and the Canal City Business Center.

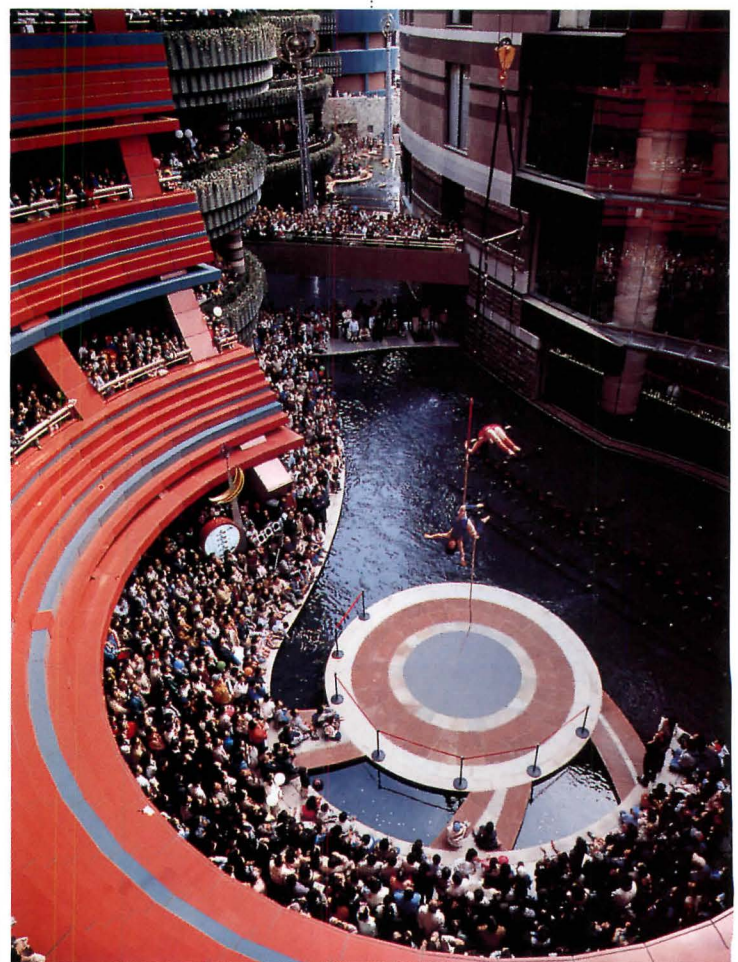
But JPI's simple environmental theme had to withstand major challenges over the years. The ordering and coherence of the spaces was threatened as prospective tenants made demands as conditions of signing on—then dropped out for a variety of reasons. The mix of retail, business, hotel, and entertainment components of the development

program seemed perpetually in flux, explains JPI principal and one of Canal City Hakata project designers Brian Honda. Rather than specific buildings for specific tenants, during the first few years of the design process, “We were designing ‘place holders.’ It was about spirit rather

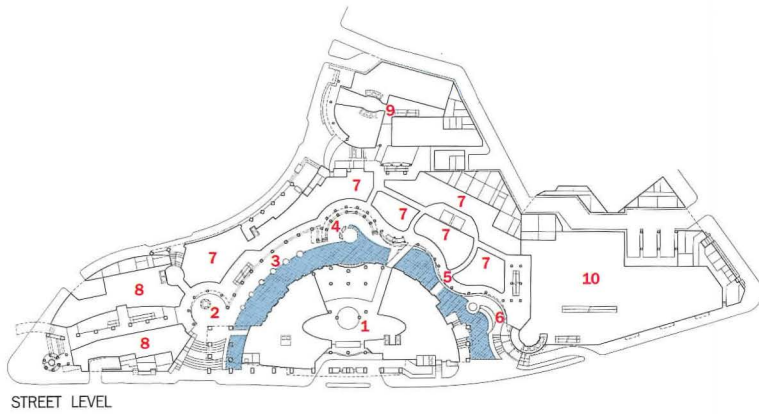
than character,” recalls Honda of the process.

### Communal design process

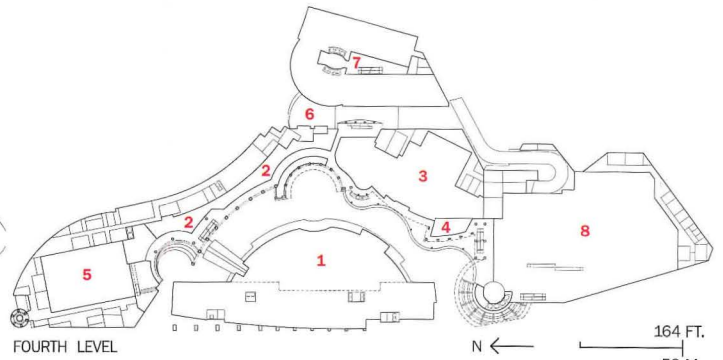
Design development was also influenced by JPI's method of working, called “co-creativity.” According to this premise, the Venice, Calif.-based







STREET LEVEL



FOURTH LEVEL

N ←  
164 FT.  
50 M.

- 1. Lobby
- 2. Star Court
- 3. Moon Walk
- 4. Sun Plaza
- 5. Earth Walk
- 6. Sea Life Playground
- 7. Retail
- 8. Restaurant
- 9. Showroom
- 10. Department store

- 1. Hotel banquet functions
- 2. Retail
- 3. Amusement center
- 4. Cinema
- 5. Restaurant
- 6. Office atrium
- 7. Showroom
- 8. Department store

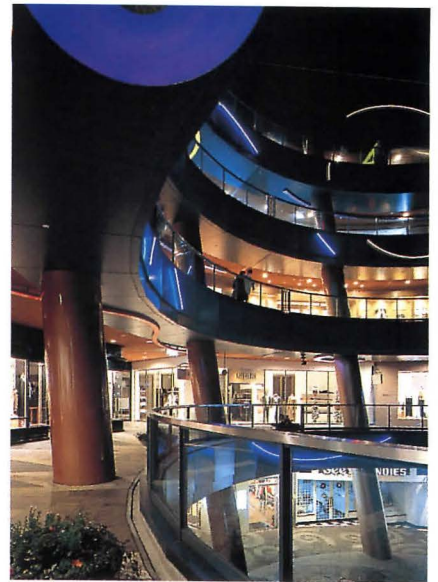








Signage, banners, and sculpture are by the Clifford Selbert Design Collaborative. Restaurants overlook the Star Court (opposite). Joe Kaplan Architectural Lighting did neon curves to echo the canal's arc (near right). Interior spaces are brightly colored to maintain excitement levels, says Jerde (below).



JPI team members worked closely with outside designers and consultants—in this case landscape architects EDAW of Irvine, Calif.; environmental-merchandise designer Clifford Selbert Design Collaborative of Santa Monica; and water features designer WET Design of Universal City—as if all were participants in a seamless, virtual studio. The result is that all the elements—from signage to site sculpture to lighting—reinforce the central image.

#### A herd of buildings

In order to distinguish the various buildings within the complex while maintaining a sense of unity, JPI envisioned them as members of a family of zebras, each with slightly different stripes. The zebra-herd metaphor was also meant to echo the overall theme of the masterplan: nature. “The architecture makes a reference to time and nature,” writes Moreno in Hakata Canal City’s concept statement. The building bases are stone, and their vertical faces rise from a canal, a reference to how a river over centuries erodes the land, forming a canyon.

“In the process, layers of varying stone are exposed, thus the design of the horizontal banding. Upper building layers become more refined, lighter and modern. Japan, because of its long appreciation and

respect for nature, its ancient history and far-reaching image of the future, is a prime location for this idea. Fukuoka specifically, with its history as an original gateway to civilization and its desire to become one of the world’s great modern cities, would be an ideal place for this Biosphere of man’s natural world.”

While the theme of nature was intended to give some specificity to the project, to relate it to the existing environment and the specific landscape features of Fukuoka, it also draws on universal themes of light, space, scale, and color—issues that Jerde is now exporting throughout Asia in new projects that he and his colleagues are currently developing for sites in Tokyo, Jakarta, Taipei, Manila, Shanghai, Beijing, and Seoul.

In Fukuoka, JPI discovered it knew more about retailing than its client consortium, providing the opportunity for a larger role for the firm. Says Honda: “We expanded our services. We could provide things beyond design, like marketing, leasing strategies, promotion.”

Jerde’s Japanese clients came to rely on him as a guru of the retail industry, and Jerde is happy to forecast the future. His prognosis: “This [Canal City Hakata] is visionary stuff. Seventy-five years from now this is what Fifth Avenue [in New York City] will be like.” ■

#### Manufacturers’ Sources

**Open mall area reinforced concrete with tiles:** *Toto*

**Mall area fire-control steel doors with security grilles:** *Sanwa shutter*

**Mall area lockets, hinges, pulls:** *Miwa Lock*

**Mall area aluminum chairs:** *Nititsu*

**Mall area aluminum tables:**

*Yamazaki Sangyo*

**Mall area exterior lighting pole:**

*Koizumi*

**Business center concrete:** *Toto*

**Business center sheet glass:**

*Tanatyoh*

**Business center aluminum, steel:**

*Okuju*





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**CIRCLE 164 ON INQUIRY CARD**





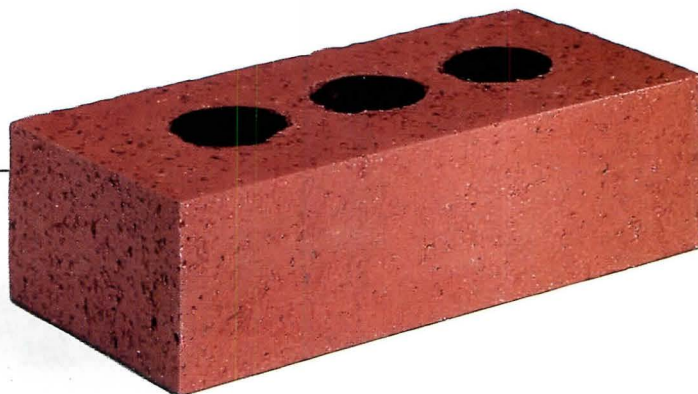
# Sixty second guide to Belden Brick:

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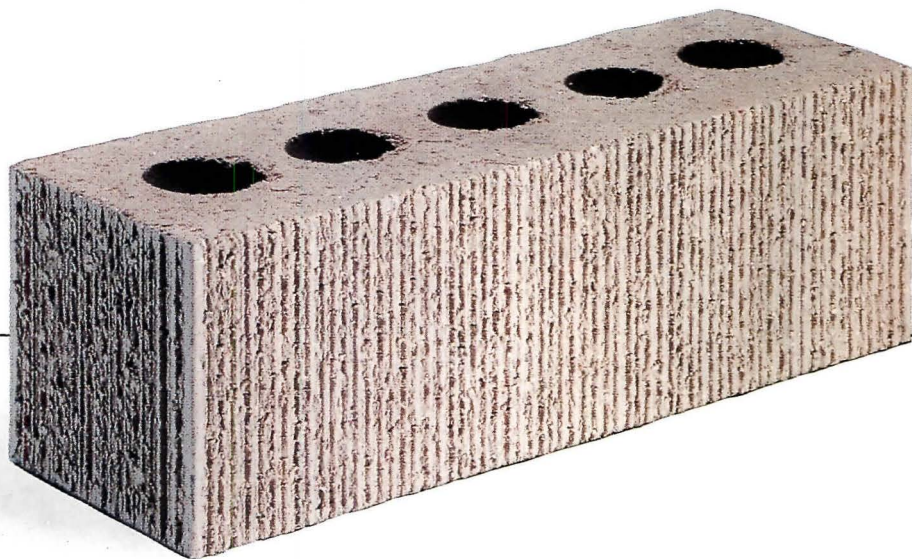
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# Notes from a Consultant: Making Exterior Stone Succeed

THE SECRETS LIE IN ASKING THE RIGHT QUESTIONS, GETTING COST ESTIMATES, VISITING QUARRIES AND FABRICATORS, AND TAKING NOTHING FOR GRANTED.

by Malcolm Swenson

Natural stone can be a wonderful material for buildings. It offers the architect a wide palette of colors and finishes; many kinds are extremely durable, and it can be cut or carved into an infinite variety of shapes. Stone can also be the source of budget and performance woes—even finding a source of the stone that is desired can cause problems. The purpose of this article is to help architects who wish to use stone in their buildings and to suggest some ways of dealing with problems that arise.

The essential problem with the use of stone is that there is not enough knowledge about it throughout the design and construction industry, even within the stone industry itself. All of these professionals are expected—or assumed—to have far greater knowledge than is reasonable. The variety of stone and its many applications are so great that in working with stone over my lifetime it has seemed that when one question was answered, there was already another waiting to be asked. It is because of this dearth of knowledge where much expertise might be assumed that architects should be very cautious, questioning and questioning again any suggestions about detailing, installation, or part of working with which stone they may be uncomfortable. In an environment where great quantities of material are being bought or sold, people may lay claim to more knowledge than they really have.

Construction managers (CMs) are often put in this role. Of course, there are many competent people in construction management. But it is the construction management process itself, particularly in its reliance on vendors for information, that does not provide CMs with enough specific knowledge to deal with every technical problem that arises. For example, recently our firm was retained to consult on the replacement of the granite plaza in front of an architecturally significant building in a northern climate. The granite pavers had been supplied in 3/4-in. thickness, on the strong recommendation of the CM and the vendor, not the architect. Not surprisingly, the plaza's too-thin pavers cracked and had to be replaced by 1 1/2-in. granite.

On another job, the CM recommended panelized stone for the exterior of a building because he felt it was more economical than hand-setting. However, the joint size preferred by the architect could not be achieved with a panelized system. Given the building's low height, and the use of uniformly sized stone, we believed that hand-setting would be less expensive than panelization. After analyzing the cost of each installation method, the hand-set approach was used, and the fine jointing achieved. But our analysis of the problem probably wasn't as important as the architect's questioning of the CM's recommendation. The architect prob-



ably could have reached the same conclusion that we did by obtaining cost information from a contractor who specialized in hand-setting.

Stone setters provide good information on installation. However, most rely on their material suppliers for quarry and processing information, and don't have enough knowledge to avoid quarry problems. Setters make money by managing their jobsites well. This does not leave much time for quarry visits.

In one case, which occurred when our firm was still actively involved in the stone-setting business, ours was one of two being interviewed for the stone-work on a major high-rise. The uniformity of the granite banding was vital to the building design. The owner commented

**The smallest mismatch of the grain or color in stone is noticeable, so dry layouts at the fabricators' are crucial. Above, Federal Office Building, New York City, HOK Architects.**

*Malcolm Swenson is president of Swenson Stone Consultants, of Hanover, N.H. He managed stone operations for the Turner Corporation in several countries before establishing his stone consulting business for architects and building owners in 1987.*





An aerial view of Kohn Pedersen Fox's Goldman Sachs Building in London (left) and of reestablished Peterborough Square (below) shows how well stone allows new buildings to fit into an older urban context.



Stone was also a natural choice for establishing an appropriate context at street level for Goldman Sachs, which abuts the London Daily Telegraph building on Fleet Street (above).

that both firms gave identical answers to all his questions except one. Our competitor said that the granite would vary in color from panel to panel. We promised to provide granite that was absolutely uniform in color. We could do so because we had visited the quarry and arranged to obtain all the project's rough blocks from an enormous but uniformly colored boulder. Our competitor's blocks would come from several different quarries, with different color tones, and would be combined and mixed.

#### Realizing design goals in stone

The process begins with sourcing. Even in a large market, like New York City, realistically only a small percentage of the stones from around the world are available. There are a number of sources for information on what is available, however, including local stone company representatives, and various trade associations such as the Marble Institute of America, the Indiana Limestone Institute, and the Building Stone Institute. During the sourcing process, the owner or construction manager may object to a particular stone on the basis of its presumed cost. Be prepared with your own cost information from a consultant, supplier, or installer. In our experience, stone is rarely as expensive as it is initially perceived to be by an owner or CM.

From initial budgeting on, a stone design can benefit from direct contact between the potential stone fabricators and the architect. In this way, the architect can obtain separate supply pricing, even if the final

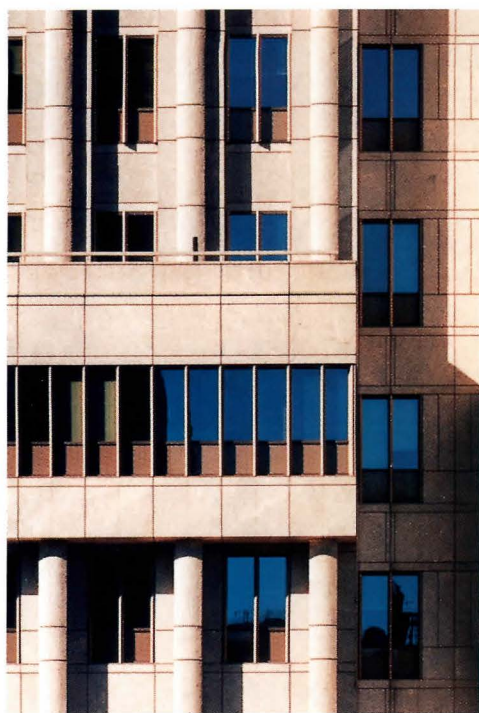
supply-and-install contract is given to a contractor. This also brings the architect in direct contact with knowledgeable people who will be largely responsible for what the building will look like. When the fabricator understands what the architect wants to achieve, the fabricator can work toward that result from an extensive base of experience and knowledge. And in working directly with the fabricator, the architect can ensure that a dry layout of the stone panels at the factory is included in the pricing. Such dry layouts cost little and are absolutely essential when blending certain types of stone. They also speed installation, and reduce the possibility that there will be rejections at the site.

#### Color and finish

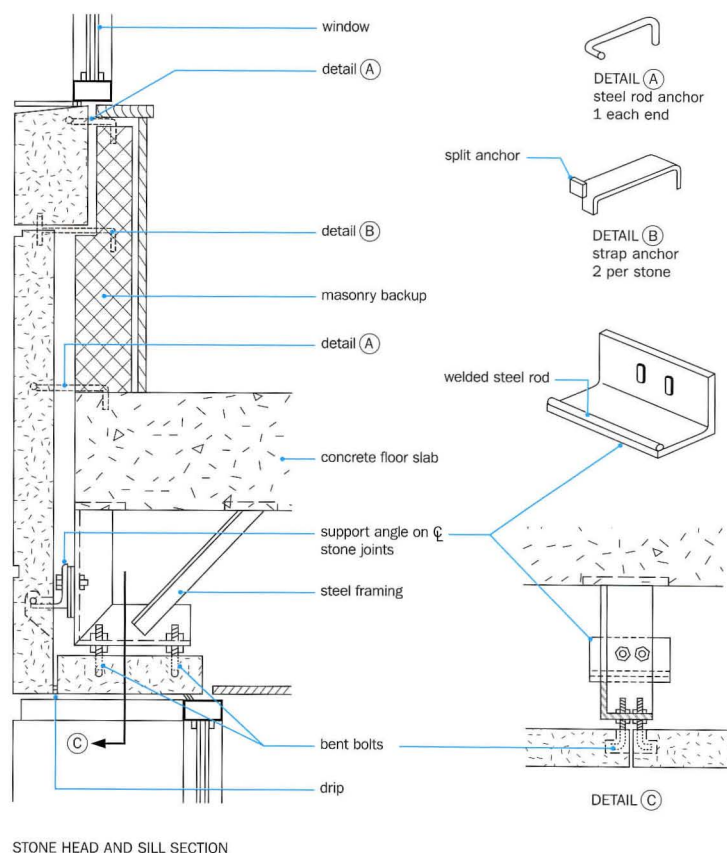
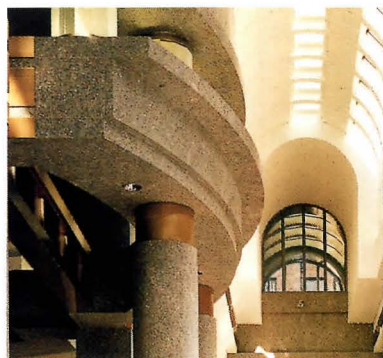
Architects should also visit quarries to view the actual appearance of the stone currently being quarried, and to verify whether the quarry can produce enough stone to complete the job. Visiting existing installations will help the architect evaluate the characteristics of the stone with regard to its reaction to moisture and staining. To get the right stone, the architect should name the quarry and its location in the specifications, as many varieties of stone are offered under common trade names.

New types of stone are continually being introduced, which makes testing for weathering and potential performance problems important. For example, in the U.S., the introduction of foreign limestones has broadened architects' choices, but while the properties of domestic lime-





Countless variations on details such as those at the far right allow stone veneer to be anchored in almost any position. Federal Office Building, New York, City (above and right), HOK Architects.



stones are well known, some foreign varieties are stronger and some weaker. A good way to begin to understand what you're dealing with is to compare specification information about their physical properties.

#### Proceeding with design, shop drawings, and approvals

As design proceeds, it is important to obtain information on detailing from consultants, the stone industry, or both. The stone-veneer detail shown above is fairly typical, although there are countless variations. Where stone veneer is concerned, it must be both supported and restrained. There are several design manuals available, and the Indiana Limestone Institute's is probably the best single one. The use of relatively thin veneer has been common for years, and there is nothing inherently wrong with its use. However, if price-pressure plays an inordinate role in determining the thickness of the stone and this results in veneer that is too thin, problems will eventually result.

After the selection of the stone, it is important that the shop drawing process progress quickly—no final fabrication can begin until shop drawings are approved. On some projects, we have even recommended that shop drawings begin before the awarding of the stone contract. It is also critical that prior to the beginning of installation that the proposed sealants are tested and approved for compatibility with the specific stone being used.

During the fabrication and installation process, it is important

that specification requirements regarding storage, handling, and shipping are observed in order to avoid staining and damage to the stone. A standard specification like the one published by the National Building Granite Quarries Association is useful.

Although working with stone can seem mysterious and complex compared to other building materials, the results can be extraordinarily beautiful. It is most important that architects be aware of the pitfalls of designing with this material, and especially the challenges that are presented when stone is being procured through the traditional construction management process. Architects should be ready to question decisions and suggestions that might compromise their designs, and to take a proactive stance, visiting the quarry, fabricators, and setters, so that these tradespeople understand the architect's design intent. ■

#### For further information:

- *The Building Stone Institute, P.O. Box 5047, White Plains, N. Y., 10602-5047. 914/232-5725*
- *Indiana Limestone Institute of America, Stone City Bank Building No. 400, Bedford, Ind. 47421. 812/275-4426*
- *Marble Institute of America, 33505 State Street, Farmington, Mich. 48335. 313/476-5558*
- *The National Building Granite Quarries Association, P.O. Box 482, Barre, Vt. 05641. 800/557-2848*



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# KITCHEN & BATH PORTFOLIO

This is RECORD's third annual Kitchen and Bath Portfolio: a snapshot of the design sensibility architects bring to these domestic spaces. Many of the projects shown on the following pages have been selected from recent residential work submitted as part of our 40-year-old RECORD HOUSES award program. Once editors had selected those projects to be published in the April issue as the RECORD HOUSES of 1997, the remaining entries were reviewed specifically for the caliber of the design of their

kitchens and baths. Other work was submitted independently. All of the spaces in this portfolio have been done in the context of the design and construction (or renovation) of an entire home, and incorporate the material palette and spatial orientation of the building's architecture. RECORD editors feel that the products and materials chosen by architects set the trends in the home-building industry: the flooring, counter tops, fixtures, and lighting styles you see here will be available in builder homes approximately three years from now. One of these trend-setting, emerging residential materials is concrete. This basic structural product is being used by architects as decorative flooring, cast as cabinet tops to create a rugged work surface, and even made into radiantly heated bathtubs.

—Joan F. Blatterman, *New Products Editor*

## CLEAN AND SPARE ROOMS ABOVE THE BIG WOOD RIVER



The owners of this California residence, a new full-time home for a family with four children, wanted a kitchen that could function farmhouse style. A large space centered on a commodious table where children could do homework, or six people enjoy a family meal without the decorative trappings that traditionally signal "country."

What Joan Diengott of Chase/Diengott came up with was a spare but welcoming central room, focused on a custom eat/work table made of medium-density fiberboard with steel inserts. The table, as well as the integrally colored plaster walls and concrete floors, work with a palette inspired by the native woodlands in early spring: the red of bare dogwood branches and the soft yellows and greens of the surrounding aspens. The pendant light hangs from a stained-wood beam that bisects a skylight above it.

Surfaces such as the stainless-steel counters around the custom sink are utilitarian and easily cleaned. Floors throughout the first floor are scored concrete, acid-treated and colored. Cabinets are curly maple finished with a clear urethane; pulls and knobs were designed by the architect and fabricated from cut-and-ground aluminum scrap. Hardware is placed "like musical notes" over the cabinet fronts. High clerestories let light into the essentially windowless space, and capture views of high bluffs across the river to the west.

Walls in both kitchen and bath are finished in cementitious plaster to mimic the effect of stripped formwork. The bathtub is concrete, radiantly heated (as are the floors). Set at the base of the drywall, an aluminum plate visually lifts the partition walls. Hospital cubicle-cloth track and beaded chain hold the shower curtain.



**Architect:** Chase/Diengott, Portola Valley, Calif.; Joan Diengott, project architect; Laura Chase and Leandro Sensibile, project team

**Sources:** Tony Olea Plastering (integrally colored and cement plaster); Paul Bates (custom cabinet hardware); Lockinvar Boilers and Technmark Controls (radiant heat system); Dal-Tile (glass tiles); Kroin (towel loops and faucets); Bega (bath light); Hain (cedar tilt/turn windows); Kitchen-Aid (refrigerator); Omnia (lever-handle hardware); Murano Due (dining area pendant and sconces); Lutron (Graphic Eye lighting controls)



## NEW CALIFORNIA HOME RISES FROM THE ASHES

Replacing a Tudor home destroyed in the 1991 Oakland fire with a new, three-story residence more responsive to the needs of a young family in the 1990s, Mark Horton created this wide-open kitchen. Instead of windows of clear glass that would let the kitchen/family room space get much too hot at its new, south-facing orientation, he filled the room with daylight diffused through the frosted-glass fronts of cabinets that back up to an exterior wall of light-transmitting, insulated fiberglass panels. At night, this translucent wall is illuminated by linear incandescent signlighting fixtures aimed at the panels. Narrow, counter-height windows permit a low-glare view out. The sandblasted, ground-glass cabinet fronts are treated to resist finger marks and smudging.

Light, cost-effective clear maple was used for the cabinets, finished in a flat urethane. Flooring is also maple. Carrarra marble counter tops provide an interesting pattern without clashing with the extensive wood used in the kitchen. The spiral stairs beyond the family-room area lead up to children's bedrooms and down to an indoor play area.

A pre-fabricated fireplace was set into a custom-fabricated stainless-steel surround; the metallic cabinet fronts are a brushed-aluminum laminate. Some "doors" on the fireplace wall conceal storage and a television set; others are dummies set in front of the flue. The subtle curve of the stainless-steel mantel mimics the curve of the new house's barrel-vaulted roof. And

unlike the destroyed Tudor it replaces, the new house in the Berkeley hills has a metal roof and cement-board siding.

**Architect:** Mark Horton Architecture, San Francisco, Calif.

**Sources:** Abet Lamanati (brushed-aluminum laminate); Standard Sheet Metal (stainless-steel fireplace surround); Kalwall Corp. (translucent, insulated wall panels); Marble Unlimited (Statuary White counters); Wolf Range (cooktop); Franke (bar sink); Grohe (bar faucet); Elkay Mfg. Co. (kitchen sink and faucets); Marrone Brothers Cabinets (cabinetry); Best (ventilation hood); Benjamin Moore (paints); Leucos (Golf

pendants); Baldwin (knobs); Sugatsune (glass-door hinges); Milgard (Etchmatte glass cabinet doors); Temko (firebox); Lightolier (Cross Blade fluorescent downlights); Prescolite (MR16s); Leland Design Group (Marquette counter seating)





## COOL BATH UPLIFTS A DEPRESSION-ERA TOWNHOUSE



A partial remodel of a small builder house from 1930s Chicago placed an expanded master bathroom off the reconfigured—but still long and narrow—entry hall. Both to gain floor space and to shield the bath from direct view from the front door, a section of the new room pushes out into the hallway, which angles around to arrive at a new, light-transmitting sliding door of textured fiberglass (see plan).

This hall and some walls of the bathroom are finished in a clear birch paneling. This wood was lightly rubbed with a white oil paint, then wiped and sealed, achieving a slight “pickled” effect which makes the surface more light-reflective.

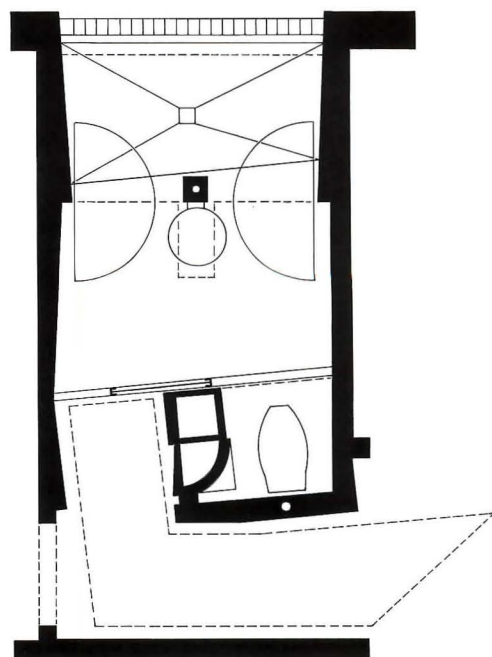
Within the bath, almost everything is tile. The blue, cobalt, and bright yellow mosaics were installed in face-mounted sheets, then grouted. Even the wall switches were recessed to keep the plane smooth. The ceiling kicks down and up to create an entry for the wet column that holds the black enamel basin as well as the shower heads behind it. The architects detailed wood blocking behind the tile on this column to insure a firm mount-

ing for the linear light and mirror—and to make sure the force needed to change the lamp won’t pull the fixture out of the wall. Hinges on the large, tempered-glass shower doors allow each to swing in both directions. The glass-block partition is an exterior wall, which also lets the occasional Chicago sunbeam into the space. Radiant-heating coils under the floor in both bath and shower space make the room cozy. Cooled air is supplied through the narrow slot in the ceiling, and the shower is lit by exterior-grade halogen sources placed in a cove.

The birch cabinets next to the toilet are accessible from the hallway as well as from inside the bath.

**Architect:** *Camburas & Theodore Ltd., Architecture+Interiors, DesPlaines, Ill.; John Bradshaw and Ted Theodore, Jr., associate principals*

**Sources:** *Bizzaza Tile (metallic and glass tile); Krinkleglass (fiberglass door panel); Kroin (sink and faucet); Kohler (Water Guard toilet); Baldwin (hardware); Hewi (cabinet pulls); Osram (linear light source); Pittsburgh-Corning (Essex pattern glass block)*





# Success Breeds Success

**Sloan FLUSHMATE® will make your specification work easier now AND after January 1, 1997.**

On January 1, 1997, the second phase of the Federal Energy Act will take effect. That law will mandate the use of low consumption 1.6 gallons-per-flush toilets in ALL tank-type applications. When that happens, you will have two low-consumption technologies to choose from: gravity or pressure. As you consider your specification choice, we thought you should know about the benefit of pressure technology that has been proving itself superior to gravity in commercial applications for over five years.

**FEWER STOPPAGES.** There's nothing which reflects more poorly on your reputation than a product that doesn't perform to specification. Worse, when a product meets specification and still doesn't meet the user's *expectations*, your reputation will suffer. A low consumption toilet that clogs repeatedly is such a product. Clogging low consumption toilets can become so serious that changeouts are ordered throughout entire buildings!



*San Simeon California converted all 1,198 toilets in the city to toilets with Sloan FLUSHMATE® and reduced water consumption by 39%. Hotels reduced in-room stoppages by an incredible 95%.*

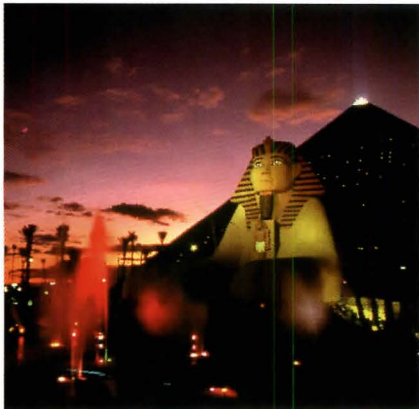
Sloan FLUSHMATE® uses pressure, not gravity, to virtually eliminate any chance of clogging. It is the only true siphon-jet bowl available in tank-type water closets. Not only is the trapway and the water surface area larger compared to gravity-type models, but the force of the flush is 3 times greater (70 gallons per minute versus 25 gallons per minute in a gravity-type toilet).



*Claremont McKenna College in Claremont, California experienced water savings from 26% to 70% in a given month with Sloan FLUSHMATE® type toilets.*

**TRUE WATER SAVINGS.** Specifying a low consumption toilet doesn't mean your clients will automatically use less water. What determines water usage is the *actual* performance of the particular toilet based on the *perceived* performance your clients are willing to "live with." For example, if you specify a low-consumption toilet which people end up double flushing, where is the water savings?

Sloan FLUSHMATE® technology is proven technology that delivers true water savings. The town of San Simeon, California, for example, faced serious water shortages due to drought—despite



*At the Luxor's opening, its 2,526 rooms had Sloan's 1.6 FLUSHMATE® system for its water closets. It had learned through the experiences of other hotels what can happen with using only gravity technology.*

voluntary water rationing. The community leaders made the decision to convert every toilet in the city to toilets that used Sloan FLUSHMATE®. The result: reduced water consumption by 39%! In reported cases, even changing from gravity low-consumption to pressure assist low-consumption will boost water savings an average of 17%. How was this accomplished? FLUSHMATE® eliminated double flushing and leakage.



*Sloan FLUSHMATE® pressure-assist toilets are used at the Chamberlain Chop House in Addison, Texas.*

**SUCCESS BREEDS SUCCESS.** As you ready yourself to meet the upcoming new laws on low consumption toilets, rely on the proven standard for low consumption specification: Sloan FLUSHMATE® technology. Our two-year warranty, superior product design and proven success in healthcare, housing projects and virtually every type of commercial building will make your specification work in low consumption fixtures a success. Call or write for your specifications guidelines, today.



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## CLEVERLY PLACED GLAZINGS FILL A NEW ENGLAND HOME WITH LIGHT

Architect William Grindereng, formerly an associate of Paul Rudolph, describes his house in New Hampshire for a retired couple as Modern—not Postmodern. Light from clerestories, skylights, and

large windows sheltered by deep roof overhangs fills the home even during long New England winters without sacrificing energy efficiency.

In the kitchen (below), illuminated glass-fronted cabinets have

mirrored backs to further brighten the space; the work island is set below a skylight. A refinement: The gas cooktop is recessed into the granite countertop for a flush appearance. High clerestory awning windows are motorized for remote operation. Brushed aluminum panels in the powder room (below right)

reflect light from a concealed narrow skylight. In the master bath (below left), glass-block walls divide the room from an adjacent solarium and enclose the large, steam-equipped shower. The double-basin lavatory spans the space between the tub surround and the shower.



**Architect:** William Grindereng, Boston, Mass.

**Sources:** Kitchen—Impala Black Granite, Northern Marble and Granite (countertops); Caldera Inlaid Gas Elements (recessed cooktop); Elkay (sinks and faucets); Best (Slimline range hood). Master bath—Pittsburgh-Corning (Decora glass block); Emil Ceramica (floor and tub surround tile); Kohler (tub and basin); Dornbrach (tub fittings); Hansgrohe (lavatory faucets); Contemporary Architectural Products by Justin White (shower door assembly); Hewi (drawer pulls); Powder room—Yale (door hardware); Cherry Creek East, Inc. (blue-glass Vitraform lavatory); Vola (faucets); Black Pennsylvania State (floor tiles); IFO (watercloset); Throughout—Marvin Windows (operable and fixed windows); Wasco (skylights); Lightolier (downlighting); Benjamin Moore & Co. (paints)







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## BRUSHED-FINISH NICKEL, HEAVY GLASS, AND MARBLE ANCHOR NEW YORK BATHS



Turning a Greenwich Village carriage house into a residence for a Manhattan art collector and his large-scale objects involved a gut rehab of the interiors while maintaining the landmarked facade. Project principal Brian Connolly decided to treat the bath spaces shown here as fixed, sculptural elements in an otherwise flexible display environment.

Bath vanity counters, made of clear, 1-in.-thick glass set on cantilevered stainless-steel platforms, expose the nickel-plated plumbing, and don't intrude visually on the 8-ft high marble panels that line the walls of all the bath spaces.

This stone is a prominently veined Calacatta from Italy, selected specifically to provide random detail and pattern without many obtrusive joints or breaks. Bath storage cabinets are hidden behind flush-mounted mirrors. Interior doors and panels are a boldly grained oak, set with custom, brushed-nickel hardware.

The powder room is dominated by a custom mirror framed in satin nickel-finished steel (inset).

**Architect:** Zivkovic Associates, Architects, P.C., New York, N.Y.; Brian Connolly, AIA, project principal; Declan Cullen, Howard Duffy, Anne Durkin, Claire Moore, project team

**Sources:** Kohler Co. (lavatory basin); Czech & Speake (faucets); Goldenrod Ironworks (custom vanities, nickel-finished mirror, and door hardware); K+K Marble (Calacatta marble)



## COLORED CONCRETE BECOMES A RICH, REFINED MATERIAL

Artist/builder Fu-Tung Cheng used his firm's acquired expertise in casting, coloring, and forming concrete to good effect in this extensive remodel of a San Francisco Victorian. The defining compound

curve of the monolithic counter that encloses the kitchen and separates it from a breakfast room beyond—prohibitively expensive if done in stone—was cast on site, integrally colored in green with a bit of aqua-



marine. In deference to the unit's weight and the site's seismic potential, steel rods tie the freestanding counter to the floor joists. Concrete work surfaces were done in the shop; an acrylic finish slows the material's potential for staining, but will have to be renewed periodically if a "used" patina isn't wanted. The flooring, a 1-in.-thick concrete topping over the existing wood floor, is tinted light black. The high ceiling was slightly arched to give the kitchen a sense of intimacy and warmth absent from the more austere living and dining spaces. The

stainless-steel counters, sink, and shelving was formed over a rod to produce a clean edge. This bar spans the space between cabinets under the architect-designed range, working as a minimalist shelf. Anigre cabinetry has been stained green to blend with the concrete; other units are natural Douglas fir.

**Designer:** Cheng Design, Berkeley, Calif.; Fu-Tung Cheng, principal; Janet Szalay, Chris Tong, project designers

**Sources:** Wolf Range (cooktop); Harcross (integral concrete colors); Leviton (Decora switchplates); Sub-Zero (refrigerator); Grohe (Ladylux faucet); Nor-Cal Metal Fabricators (custom range hood); Andrus Sheet Metal (stainless-steel fabrication); Cheng Design & Construction (concrete floors and counters); CSL (MR16 spots); Gaggenau (built-in ovens); Metalux (fluorescent uplighting); Forms+Surfaces (pulls)





## HAND-CAST CONCRETE MIMICS STONE IN FARMHOUSE-STYLE KITCHEN



Gary Orr's clients wanted a "contemporary Tuscan farmhouse" that would support their convivial approach to food and its preparation. And as their lot on the edge of California's Napa Valley shared views of wooded parkland and grapevines seen enfilade from the kitchen windows, there was an almost Mediterranean building site. Orr created two work islands of hand-cast concrete, a material which permitted a multilayer buildup of color. The result is an almost perfect replica of time-worn stone with

a matte gloss. The decorative corbels that "support" the sawn Douglas fir trusses are precast distressed concrete, bolted to the wall. The true divided-light aluminum windows have been painted to match the green of the surrounding oak leaves. The concrete floor is sectioned into large squares by maple strips screwed into wood sleepers cast into the concrete. All metal components—light fixtures, truss brackets, and the range hood—are of pre-rusted steel, finished with car wax to retain the warm-brown color.



**Architect/Landscape Architect:** ORR Design Office, Sacramento, Calif.; Gary Orr, principal  
**Sources:** Buddy Rhodes (integrally colored concrete countertops); InFloor (radiant heating); All Weather (windows); Russell (cooktop); Creeda (convection ovens); Grohe (sinks and faucets)

## DESIGN ELEMENTS WORK DOUBLE DUTY IN URBAN/RURAL KITCHEN HYBRID

This pale-green kitchen is a mix of urban and rural: Part of a city loft landed in the midst of a grove of cedars, according to architect James Estes. The clients wanted no extraneous details, so elements work double-duty: Window sills are display shelves, for example, and the sandblasted-block backsplash becomes part of the entrance hall. Detailing is minimal, with quarter-round moldings used as wall base and as window casings. The green color, used throughout the house, is sponge-painted on skim-coat plaster. Engineered-wood beams, chosen for their long-span capacity at a relatively narrow cross section, have been left "natural," just sanded and sealed.

**Architect:** James Estes and Company, Architects, Newport, R.I.  
**Sources:** Pittsburgh-Corning (sandblasted glass block); Fountainhead (countertops); Viking Range (cooktop); General Electric Appliances (oven); Trus-Joist MacMillan (Paralam joists)





A treasure chest overflowing with Spanish tiles on a beach at night. The chest is open, and various tiles with intricate patterns and colors are scattered around it. The background shows palm trees and a dark sky.

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## DECO DETAILS AND SLEEK FITTINGS BOOST THE STYLE OF A GUEST BATH

The owners of a large home set on a dramatic site on the west coast of Florida wanted major space for entertaining. The main floor, raised well above any anticipated maximum storm-water level in a high-wind velocity zone, contains a spacious media room as well as a skylit foyer, living room, and formal dining room. There's also a 10-ft-long, 500 gallon, saltwater aquarium with its own room-sized maintenance closet!

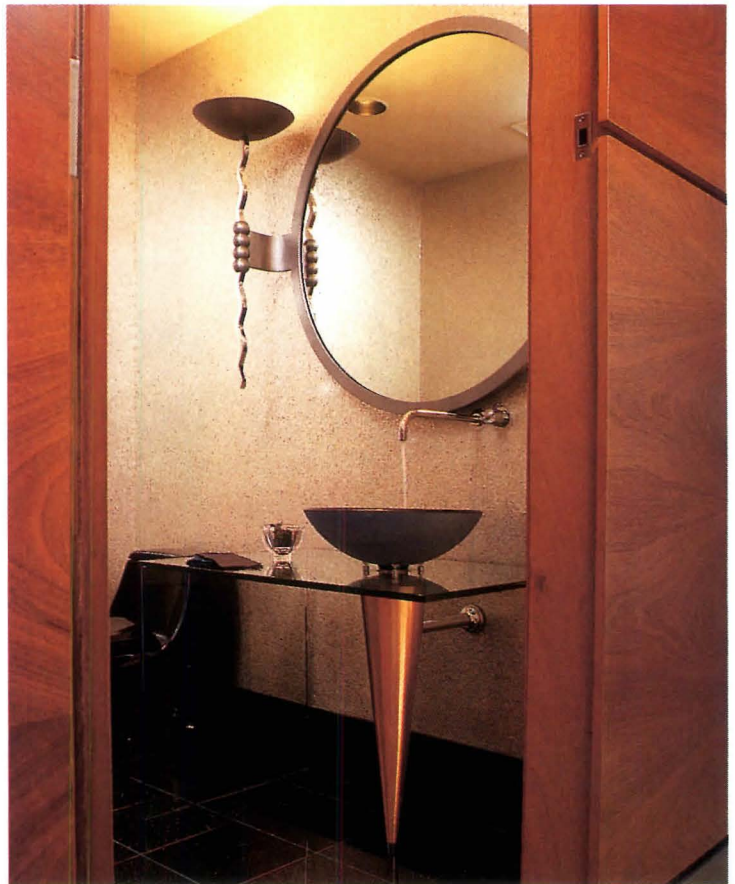
So architect Dale Parks wanted to give the guest powder room some animation and extra impact to help the closet-sized space hold its own. This ancillary room is designed to be invisible from the hallway side, without breaking the flow of the mahogany-veneer paneling that lines the foyer. The door frame is concealed, placed flush with the wall. A top-mounted, self-closing mechanism opens the door at a

push, and automatically closes it as well. The lavatory was chosen for its sculptural effect, with a copper-clad, tapering pedestal that seems to balance the blue-glass bowl on its nose. The brushed-nickle mirror and anthropomorphic torchière recall the torch-bearing arms that appear in Jean Cocteau's 1920s film *Beauty and the Beast*. Wallpaper has light-catching flecks of mica, and the black granite floor tile has copper-like inclusions.

**Architect:** Cardinal+ Parks Architects, Sarasota, Fla.; Dale S. Parks AIA, principal

**Interior design:** Lea Jackson Interiors

**Sources:** Kroin (faucet); Maya Romanoff (Wall-Mica wallcovering); Hastings- Il Bagno Collection (lavatory); Brueton (mirror); Kohler (toilet); Lightolier (recessed lighting)



## HANDCRAFTED TILES ADD COLOR AND STYLE TO A REMODELED BATHROOM



The owner of a vintage 1920s Tudor wanted a bath with the subtle, earth-and-water colorations and crafted appeal of the old Pewabic tiles of her native Detroit. But the bath's sinuous shapes had to fit into the rigid box established by two doors and the small-paned windows. The tiles selected for the renovation, from a small kiln in the Napa valley, have soft, irregular edges that ease the squares and rectangles into

contours that can follow the bath fixtures, and let the tile installer adjust the grout space to suit irregular walls. A walnut bullnose helps the tiles transition into the curves of the tub surround. The custom shower stall has a patinated-copper roof; faucets and shower fittings are nickel-finished. The tile layout was done on full-size templates with Prismacolor markers. The lavatory, set on a lacquered plywood stand, is siliconed to the glass shower wall.



**Architect:** Duo Dickinson, Madison, Conn.

**Sources:** Kohler (tub and basin); DuPont Corian (vanity top); Miroir Brot (mirror); Duschqueen (shower surround); McIntyre (ceramic tile); Harden (faucets); Outwater Plastics (cove lights); Lightolier (downlight); Glasshütte Limburg (shower light); Lucifer (Puck light spots); Wood Design (custom cabinets); Myson (towel warmer); Runtal (radiator)



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5,421,134; 5,426,902; 5,501,056; and D 340,294, and Canadian Pat. 68239 (1991);  
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dream things that never were;  
and I say, "Why not?"

— George Bernard Shaw

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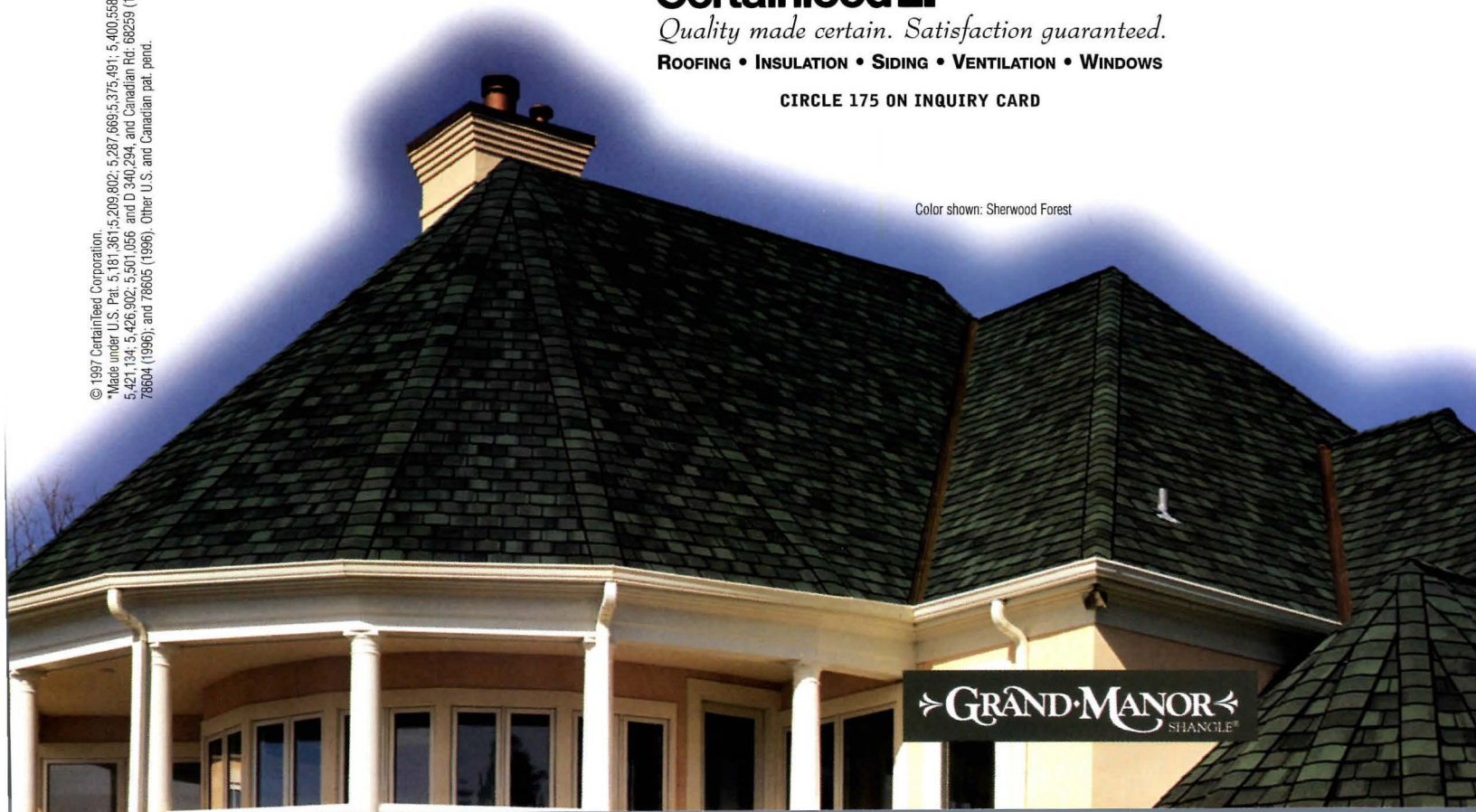
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Color shown: Sherwood Forest



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## BATH SPACES MAKE THE MOST OF LIMITED SQUARE FOOTAGE



This ground-level master bath in a weekend home in Pennsylvania Dutch country uses warm cherry wood cabinetry and edging to take some of the coolness from the stainless-steel counter and basin. Over the vanity counter is a large expanse of mirror, flanked by decorative framing elements of stainless steel (to the left), and colored glass (same view, out of sight to the right). A very contemporary Italian low-voltage track light, normally placed on the ceiling in a display setting, has been mounted vertically against the mirror. Architect Daniel Snyder designed a conveniently positioned stainless-steel element that wraps the front of the counter, becoming a towel bar in front and turning up a bit at the end to hold toilet paper. In the treetop-height guest bath upstairs (right), a small, narrow awning-type window frames a postage-stamp-sized view out. Here the wall of mirror and glass has shrunk to become only a swing-arm mirror, positioned above a white

vanity sink that triples as basin, counter, and towel bar.

**Architect:** Daniel E. Snyder, AIA, Savannah, Ga.

**Sources:** Flos, Inc. (*Flight System light*); American-Olean (*tile*); Baldwin (*cabinet pulls*); Kountry Kraft Kitchens, Inc. (*cherry cabinets*); Port City Metals (*towel bar*); Porcher (*guest sink*); Peachtree (*window*); Lightolier (*linear light*); Kohler (*faucets and toilet*); Samuel Heath & Sons (*soap dishes*)



## HORSE-COUNTRY KITCHEN WORKS WITH A MIX OF WOODS

This kitchen is one corner of a four-square house divided into three parts—eat/cook; live; and sleep/wash—overlooking a pond in Kentucky bluegrass country. Based on vernacular farm buildings and constructed of standard items on a modest budget, the 28- by 42-ft house meets the current needs of its single owner without compromising future resale value.

Architect Scott Guyon used a variety of native Kentucky hardwoods in the kitchen—clear and rock maple, poplar, and oak—to provide color and texture without clashing with the stainless-steel appliances and black countertops. The red oak floor is made of common grade shorts, pieces which vary in color and length, while the cabinets are a clear, blond maple with minimal graining. The glazed doors of the upper cabinets have a semi-obscuring filigree muntins. The

kitchen—in fact, the entire house—is painted in different shades of gray: one set of colors for the north/south walls; a slightly different mix of gray for east/west ones. A shallow wine rack is tucked above the full-height refrigerator.

**Architect:** Guyon Architects Incorporated/The Studio for Architecture, Lexington, Ky.; Scott Guyon, AIA, principal; Paul Swisher, project architect; Mike Meyer, project team

**Sources:** Schlage Lock Co. (*lever-handle hardware*); American-Olean (*ceramic wall tile*); Peerless (*faucet*); Kohler Co. (*kitchen sink*); General Electric Appliances (*Profile refrigerator*); Pittsburgh Paints (*interior paint*); Jenn-Air (*range*); Formica Corp. (*Surell countertops*); Halo (*halogen downlights*); Lightolier (*pendant fixture*); Crate and Barrel (*chairs*)





# NEW PRODUCTS

## SLIMMER, SLEEKER ESCALATOR FITS INTO RENOVATED RETAIL

The Montgomery Elevator company, headquartered in Moline, Illinois, was purchased in 1994 by the KONE group, a large elevator holding company based in Finland and Belgium. The merger made Montgomery part of the third largest elevator/escalator business in the world, behind only Otis and Schindler. (The word escalator was coined by Otis for their moving staircase introduced at the Paris World Fair in 1900, but it soon became the generic term.)

The first new product from the resulting company, Montgomery KONE, Inc., was introduced in 1996 specifically for the American market. An extensive reworking of escalator technology, it has a totally enclosed drive system instead of a chain drive, which can tend to be noisy over time. Called the ES-5000, the new design is a relatively compact escalator particularly suitable for renovation applications. A smaller installation envelope (shorter front to back than other Montgomery escalators) is said to minimize the unit's footprint and

save expensive floor space.

### Passenger safety features

The mechanism and step/skirt interface incorporate several user-safety enhancements that exceed ASME code. For example, the step-guidance system leaves a gap of only 1/16 in. between escalator steps and skirt panels throughout stair travel, where code maximum permits 3/16 of an inch. A supportive axle under each individual tread positions the step firmly, reducing the chance for unnerving side-to-side shimmy. The natural-color aluminum steps are printed with colored edge markings that remind passengers where the safest standing position is. And the escalator approach deck and balustrade trim have no protruding screw heads that might catch shuffling feet or snag clothing.

Components such as the handrail are slimmer to present a less obtrusive profile. The handrail itself travels on a "floating" air bearing between rail and balustrade, an

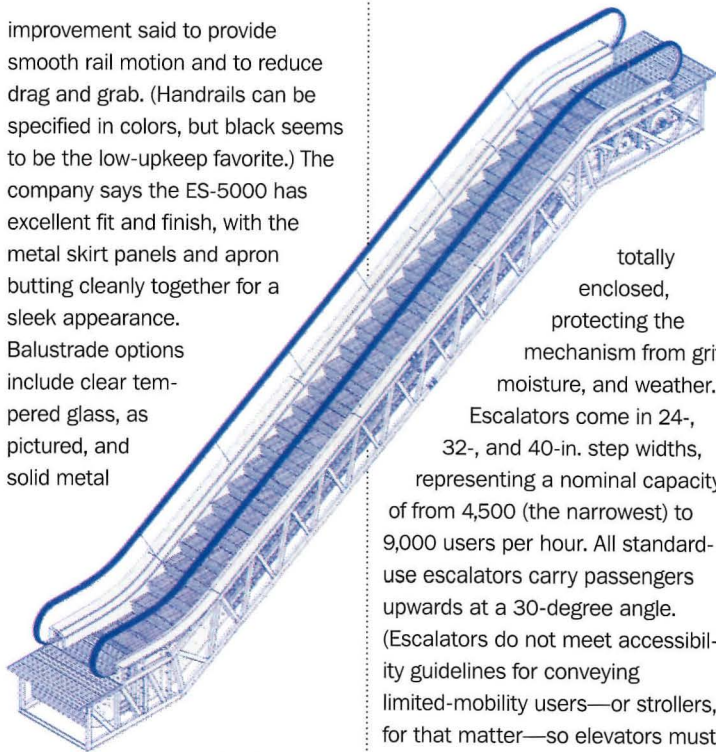
New Products this month introduces an escalator designed to work within a smaller footprint, saving valuable retail floor space while attempting to provide a greater measure of user safety. This concern for safety is particularly necessary in a large-store environment, where small children and less-nimble seniors try to navigate in a press of fast-moving shoppers. Also featured: flooring with specific applications for retail. And the Briefs page highlights some new products for residential kitchens and baths, from flattering mirror lights to gas-burner woks for the feng shui kitchen. — Joan F. Blatterman, *New Products Editor*

improvement said to provide smooth rail motion and to reduce drag and grab. (Handrails can be specified in colors, but black seems to be the low-upkeep favorite.) The company says the ES-5000 has excellent fit and finish, with the metal skirt panels and apron butting cleanly together for a sleek appearance. Balustrade options include clear tempered glass, as pictured, and solid metal

panels of satin- or mirror-finish stainless-steel or bronze.

### Installation and maintenance

The E-Series 5000 is partially assembled in the factory, and shipped to the job site in sub-assemblies that are said to save installation time. The drive system is



totally enclosed, protecting the mechanism from grit, moisture, and weather. Escalators come in 24-, 32-, and 40-in. step widths, representing a nominal capacity of from 4,500 (the narrowest) to 9,000 users per hour. All standard-use escalators carry passengers upwards at a 30-degree angle. (Escalators do not meet accessibility guidelines for conveying limited-mobility users—or strollers, for that matter—so elevators must also be provided for floor-to-floor transportation.) Metal-finish options include #4 or #8 stainless-steel or bronze; the safety-marking step inserts come in yellow, red, or dark gray. Architectural details and loading data are offered in CD-ROM format. 800/956-5663. Montgomery KONE, Moline, Ill. **CIRCLE 250**



A department store installation (far left) shows how glass balustrades minimize the visual impact of the ES-5000. Inset photo details the close fit between steps and skirting; flexible "combs" at the step-landing interface keep objects out of the mechanism.



## FLOORING IN THE MARKETPLACE MUST FIT DIVERSE PROGRAMS

Floor treatments for a selling environment must meet an extremely wide and demanding range of performance and appearance criteria—some of which might contradict each other.

The floor design should contribute to the retail niche or statement desired by the owner, whether the no-frills, price-is-right atmosphere of a big-box outlet, the “excitement” of a themed merchandiser, or the hushed mood and Gucci-clad foot traffic of an upscale boutique. The material selected must anticipate the level of maintenance possible within the store, and respond to slip-and-fall liability concerns. Flooring should look fresh

with a minimal maintenance program until the owner decides to replace it, and should provide walking and standing comfort for customers and sales personnel alike. And, of course, it can't cost too much.

Trade associations in the flooring industry can provide architects with guidance on specific performance issues. For example:

- Carpet & Rug Institute, Dalton, Ga. 800/882-8846
- Tile Council of America, Clemson, S.C. 864/646-8453
- National Wood Flooring Association, St. Louis. 800/422-4556
- Resilient Floor Covering Institute, Rockville, Md. 301/340-8580



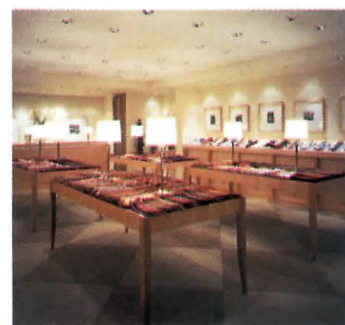
### ◀ Super durable

ImpervaGranite porcelain stoneware addresses the heavy-traffic and minimal-maintenance requirements of large malls, while responding to slip-and-fall concerns with excellent coefficient of friction performance. The tile-making process uses recycled feldspar, and produces a dense surface (a latex-modified setting mortar should be specified). Summitville, Summitville, Tenn.

CIRCLE 252

### ▼ “Red Oak” resilient

Described as a “practical” flooring with the warmth of wood, Lonwood Dakota is commercial-grade sheet vinyl offered in three oak shades and six stain effects, suggested for “dramatic retail interiors.” Seams can be welded for a moisture-proof surface. Samples: 800/832-7111. Lonseal, Carson, Calif. CIRCLE 253



### ▲ Carpet speaks softly

Shown here in a men's specialty store designed by Vanderbyl Design, Bentley Mills' Grande Camden broadloom of Ultron nylon was installed in 3 1/2-ft squares of putty and cream. The carpet created a neutral background for the colorful haberdashery, as well as the unifying, bespoke ambience desired by the retailer. 800/423-4709. Bentley Mills, Inc., City of Industry, Calif.

CIRCLE 255



### ◀ Stained concrete flooring

Architects FRCH Design Worldwide used Bomanite's Patene Arctectura process, introduced last year, to replicate a desired but unavailable slate as an effective retail design element in an Eddie Bauer store. A1 1/2- to 3-in.-thick epoxy-bonded overlay leveled the existing floor, and was imprinted with a slate pattern. The concrete, scored in 12-in. squares to resemble tiles, has been chemically stained in soft yellows and beiges and finished with a clear sealer. 209/673-2411. Bomanite Corp., Madera, Calif. CIRCLE 254



### ▲ Engineered stone tiles

A rugged agglomerate quartz material suitable for heavy-traffic floors, Granirex now comes in a semi-gloss finish said to provide a desirable “shiny” appearance while having a higher level of slip resistance. 773/471-0700. Terrazzo & Marble Supply, Chicago. CIRCLE 256



### ◀ Resinous terrazzo

A granite or terrazzo look at a lower per-square-foot cost, Fritztile has a resilience that permits installation over old flooring, and is said to prevent damage from impact or chipping. Water absorption is less than 0.4 percent; the compressive strength of the polyester resin/stone-chip tile exceeds 3000 psi. Granite Supreme tile comes in 14 colors, gauged to meet different traffic loads. 800/955-1323. Fritz Industries, Dallas. CIRCLE 251





PRODUCT BRIEFS



◀ Edwardian/Swiss

Franke's Manor House gooseneck-style kitchen faucet combines an "Upstairs/Downstairs" look with contemporary, durable valving. Finish options include pewter (shown), NuBrass non-tarnish brass, and chrome. Handles can be specified in colors that match popular solid-surface materials. 215/699-8761. Franke, Inc., North Wales, Pa. **CIRCLE 258**

▼ Mirror illumination

Rated for damp locations, Ron Rezek's Doric mirror light is designed for use in pairs, on either side of a mirror, or singly, across the top. Only 4 1/4-in. wide, the Doric comes in 24 1/4-, 36 1/4-, and 48 1/4- lengths. An asymmetric profile angles the light source towards the mirror, not directly at the user; lamps deliver high-color-rendering 3000K light, said to "enhance the quality of the human reflection." 516/694-9292. Artemide, Inc., Farmingdale, N.Y. **CIRCLE 257**



▲ Custom steel fixtures

Diamond Spas makes tubs, showers, and pedestal sinks in unusual shapes such as triangles and octagons, all in hand-buffed, 16-gauge #304 stainless. 303/665-8303. Diamond Spas, Inc., Broomfield, Colo. **CIRCLE 259**



▲ Italian-design range hoods

Sleek vent hoods make a strong statement, or use glass to minimize visual impact. Italian-made by Best, illuminated hoods come in ceiling- or wall-mount styles; finish options include copper, stainless, brass, and enamel. 800/548-0790. Broan, Hartford, Wis. **CIRCLE 260**



▼ Stainless-steel gas cooktops

Professional Series equipment offers new features such as this 30,000 BTU wok burner, also useful for industrial-size pots, and a continuous grate design for flexible cooking-pot placement. Design guide gives all dimensions and venting options. 800/656-9226, x15 Thermador, Los Angeles. **CIRCLE 261**

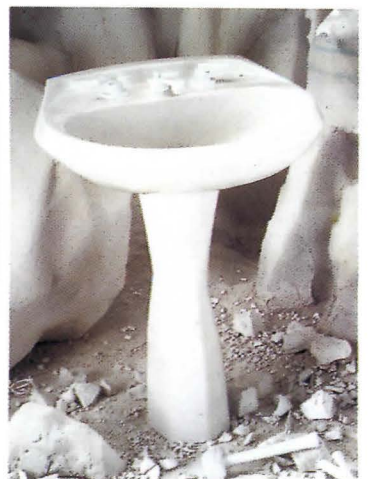


▲ Completely commercial

Rounding out its line of professional-style home-kitchen equipment, Viking now offers refrigerator/freezers, wine coolers, and ice makers in a classic, restaurant stainless-steel finish as well as the firm's blue, deep green, burgundy, plum, and teal color options. Dual-door refrigerator units come in 36-, 42-, and 48-in. widths, in a built-in, 24-in. depth. Stainless handles are standard; brass trim is available. 601/455-1200. Viking Range Corp., Greenwood, Miss. **CIRCLE 263**

▼ Elliptical pedestal sink

A new style, the LaRive pedestal is made of vitreous china in a range of 18 standard Gerber colors, from British Biscuit to Citron Yellow. The sink bowl is generously sized—25-in. wide and over 21-in. front to back: large enough to bathe a baby. Can be specified for either 4- or 8-in. on-center faucets. 847/675-6570. Gerber Plumbing Fixtures Corp., Chicago. **CIRCLE 264**



◀ Shaker-style goes German

Considering food preparation "the theater of the 90s," designers for the German manufacturer Poggenpohl have extended their high-tech approach to the kitchen to include less "Modern" motifs, such as this new Shaker style. Now more widely available in the U.S., today's Poggenpohl cabinetry offers more and brighter colors, flexible modular dimensions, and two levels of ergonomically efficient working surfaces. 310/289-4901. Poggenpohl U.S., Inc., Los Angeles. **CIRCLE 262**



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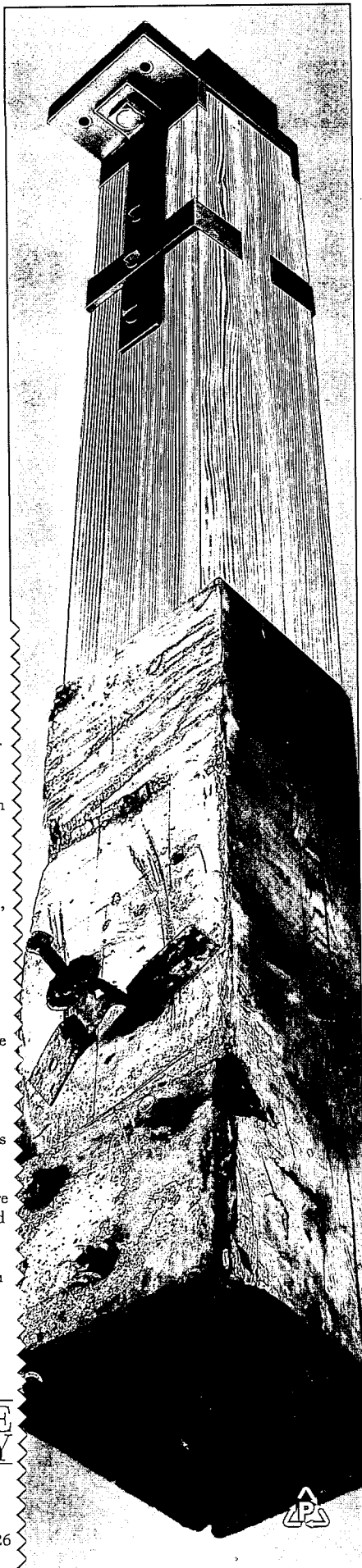
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PRODUCT LITERATURE

**Commercial windows portfolio**

A CD-ROM featuring over 140 commercial projects utilizing Andersen Windows is available free. The disk contains a portfolio of Andersen commercial projects since 1959, and allows users to search for specific window applications among these projects by window, wall, and building type, and view installation notes and details. 800/426-7691. Andersen Corporation, Bayport, Minn. CIRCLE 265

**Engineered wood at home**

The advantages of using engineered wood products in home building are detailed in a new brochure from Willamette Industries. For example, engineered wood joists and boards make strong, quiet floors because these products don't shrink or warp. 542/926-7771. Willamette Industries, Engineered Wood Products Division, Albany, Ore. CIRCLE 266

**Safety floors with style**

New colors are now available from Altro Floors in heavy-duty safety flooring for applications including food processing, pharmaceutical production, and busy office corridors, as well as slip-resistant flooring specifically for use in wet areas. Altro now offers 25 colors of heavy-traffic flooring, including cobalt, jet, and garnet, and 10 colors of textured safety flooring for use in showers and bathrooms in hotels, schools, and hospitals. Both floors meet the current slip resistance/static coefficient of friction

requirements of the Americans with Disabilities Act (ADA) and the Occupational Safety and Health Administration (OSHA). 800/382-0333. Altro Floors, San Francisco. CIRCLE 267

**Colorful concrete countertops**

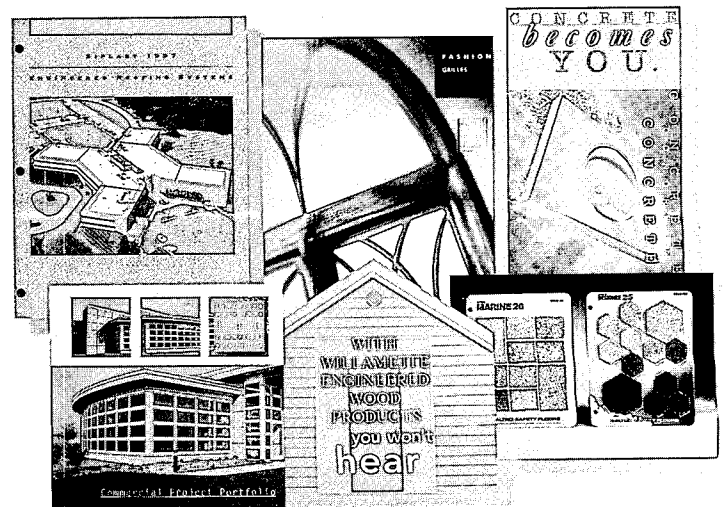
Concrete countertops, sinks, tabletops, mantels, hearths, floor tiles, and architectural details including corbels and bases are available in more than 20 colors from Get Real Surfaces. The company creates custom, precast-concrete items with a variety of surface textures. It is possible to cast objects, such as colored glass or hardware, into the concrete surfaces. 914/452-3988. Get Real Surfaces, Poughkeepsie, N.Y. CIRCLE 268

**Roofing systems reviewed**

New catalogs from Siplast describe lightweight concrete roof insulation systems and bitumen roofing systems in detail. The insulation systems literature offers a comparative analysis of Siplast Roof Insulations to ordinary rigid board, and the bitumen systems catalog describes the Veral Spectra Series and Paratread, the SBS modified bitumen walkpad. 800/922-8800. Siplast, Irving, Texas. CIRCLE 269

**Snap-on window grilles**

A window can be given a different look with a snap-on perimeter grille from Weather Shield. Grilles are available in seven patterns and five woods to match window interior. 800/477-6808. Weather Shield, Medford, Wis. CIRCLE 270







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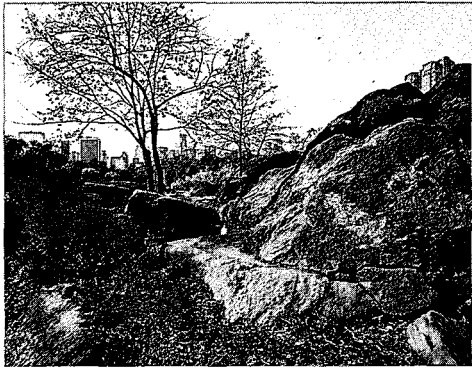
# DATES EVENTS BOOKS

## Calendar

March 14-15

**Harvard University  
Graduate School of Design  
Cambridge, Massachusetts**

Two days of lectures will cover the design, usage, and construction of the Florence Cathedral, including the remarkable engineering of Brunelleschi's dome. Call 617/495-1000.



Through March 15

**The Equitable Building  
New York City**

An exhibition of over 100 photographs taken in a seven-year effort commissioned by the Canadian Centre for Architecture in Montreal, *Viewing Olmsted: Photographs by Robert Burley, Lee Friedlander, and Geoffrey James*, documents the landscape designer's prolific work on parks, estates, and cemeteries across the U.S. Call Nancy Amiel, 212/314-2811.

March 19-20

**Los Angeles Design Center**

WestWeek 97 will celebrate European furniture and interior design with major sponsors and keynote speakers from Italy, France, and Spain. Call Bret Parsons at 310/657-0800, ext.240 or fax 310/652-8576. The event will be followed by tours of Los Angeles architecture on the 21st and 22nd. Call Architours at 213/294-5825.

April 4-6

**Sheraton Palace Hotel  
San Francisco**

A joint AIA conference of the International Markets, and Practice and Interiors Committees will explore the location of current and future markets, the interests of U.S. clients opening facilities abroad, and foreign standards in design work and contracts. Call 800/242-3837.

April 4-6

**The National Solar Energy Society  
Washington, D.C.**

The National Solar Energy Society will present a collaborative conference with several organizations, including the AIA. The program covers sustainability, viability, and the prosperity of renewable and solar-energy technologies. AIA Learning Units can be earned. Contact the AIA at 800/242-3837.

April 4-6

**Asilomar Conference Center  
Pacific Grove, California**

The AIA California Council will hold its 13th Monterey Design Conference, called *1,000 Days: Designing the Future*. An international group will address the issues. Call Traci Bockes at 916/448-9082.

Through April 21

**Washington University  
St. Louis, Missouri**

A series of Monday-night lectures will conclude with Fumihiko Maki speaking on *Image, Figure, and Materiality*. Contact Ann Nicholson at 314/935-5251.

April 23-25

**The University of Kansas, Lawrence**

Commonly used planning for warehouses, factories, and other industrial facilities will be the subject of a three-day course offered by the Continuing Education Department. The cost is \$995. Call Mary Heberling at 913/864-3969 or register by fax at 913/864-5074.

Through May 11

**Los Angeles County Museum of Art**

An exhibition presented by the Society of Architectural Historians, *Exiles and Emigres in Los Angeles Modernist Architecture*, will feature houses designed by Paul Laszlo, R. M. Schindler, Richard Neutra, J. R. Davidson, and Jock Detlof Peters. Tours of the houses will be offered on May 3 and May 10. Contact Alison Cotter at the Society, 213/202-2236.

May 16-18

**Ernest N. Morial Convention Center  
New Orleans**

The annual AIA National Convention and Expo is expected to draw over 10,000 architects, and allied design and construction professionals

to seminars, business sessions, and exhibits. More than 400 companies will offer the latest in products. This year's theme is *Practice and Prosperity: Serving Client and Community*. Architects may earn up to 36 AIA Learning Units. For information or to register, call 617/859-4475.

May 20-July 8

**College of Engineering  
University of Wisconsin, Madison**

The university offers a course in intermediate lighting design from 8:00 a.m. to 10:00 a.m. on Tuesdays via WisView, the University's computer-based audiographics teleconferencing system. Participants completing the course should be prepared to take the Technical Knowledge Exam of the Illuminating Engineering Society of North America. Contact Katie Peterson by phone at 800/462-0876 or E-mail at [custserv@ep.d.engr.wisc.edu](mailto:custserv@ep.d.engr.wisc.edu).

June 1-3

**Lingotto Conference Centre  
Turin, Italy**

The International Facility Management Association will hold its annual meeting. The keynote address will be given by Renzo Piano. Topics will include building systems, the environment, global business strategies, technology, and health, safety, and risk management. The association is currently seeking speaking proposals for its Asian Conference to be held in Hong Kong in November. For information, phone Gina van Dijk, IFMA European Bureau, Brussels, 32-2-743-1542 (fax 32-2-743-1550 or E-mail [100332.670@compuserve.com](mailto:100332.670@compuserve.com)).

June 5-8

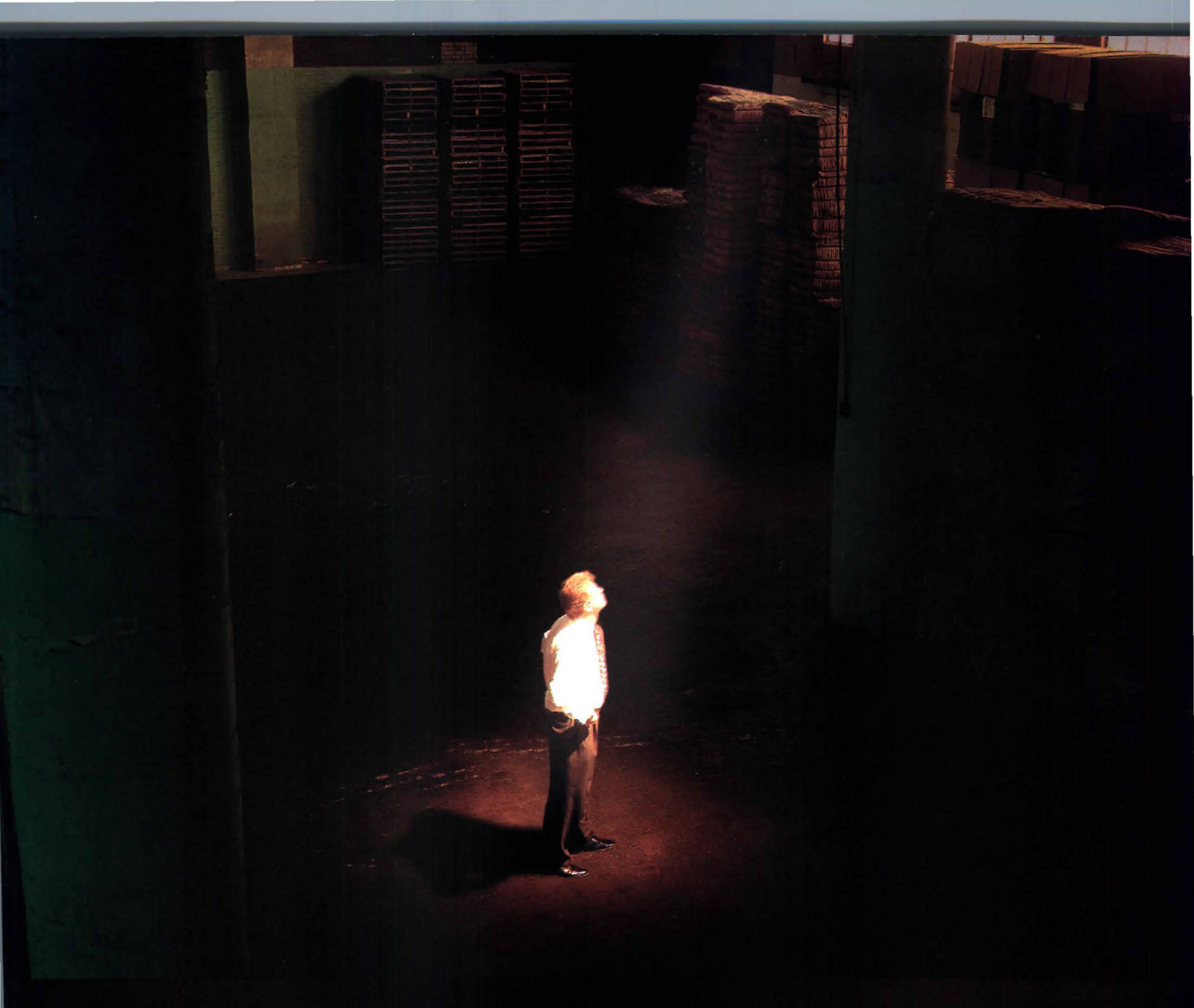
**Downtown DoubleTree Hotel  
Tulsa, Oklahoma**

The AIA Committee on Design will meet to explore the effects of heavy private support for good design in this city, including that of F. L. Wright and Bruce Goff. Call 800/242-3837.

## Competitions

First annual **Business Week/Architectural Record Awards**, sponsored by the AIA, will recognize achievement in creative management practices and design solutions. The deadline for registration is March 17, and for entries, April 18. Categories include design that supports alternative work practices and increased productivity; design that boosts a new corporate image or changing (*continued on page 160*)





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(continued from page 158) corporate culture; and design that supports corporate or institutional innovation, industrial practices, and new work tools. Winners will be featured in both publications. *Business Week* is read by some six million people, many of them potential clients. To enter, call 888/242-4240 or visit the Web site at [www.aia.org](http://www.aia.org). Entries will be received at the AIA in Washington, D. C.

**Forbo Industries** is sponsoring an international design competition for architects, designers, and students to design furniture or objects that predominately use desk-top

linoleum. Winning designs will be exhibited at the Arbitare Il Tempo Furniture Show in Verona, Italy, and the designers will receive an expense-paid round trip. The first-prize winner will also receive ECU 5,000 or approximately \$6,000. The deadline is April 15. Entry packets and information can be obtained by calling 800/233-0475.

AIA/Portland has issued a call for entries in its awards program, **Architecture + Energy: Building Excellence in the Northwest**. Recognition will be given for design excellence in

buildings that integrate energy-efficient technology. The program is open to non-residential buildings in Idaho, Montana, Oregon, and Washington State. Sponsors are Portland General Electric and the Bonneville Power Administration. The deadline is May 30. To request an entry packet, contact AIA/Portland, 315 S.W. Fourth Avenue, Portland, Oregon 97204 or call 503/223-8757.

Entries for the 1997 **DuPont Benedictus Awards** for Innovation in Architectural Laminated Glass are due March 3. The competition is sponsored by DuPont, the AIA, and the Association of Collegiate Schools of Architecture, and is supported by the International Union of Architects. This year's jury is comprised of Hugh Newell Jacobson, FAIA; Patricia Patkau, RAIC; and Christian de Portzamparc. Winners from around the world who demonstrate "significant" uses of laminated glass will be announced at the AIA Convention in New Orleans, May 16-18. For information, write Joanna Hanes-Lahr, 1100 New York Avenue, N.W., Washington, D.C. 20005; call 202/393-5247; or E-mail to [haneslahr@mcimail.com](mailto:haneslahr@mcimail.com).

The Village of Plainfield, Illinois together with Plainfield Partners Commercial, Ltd., and the township Park District are holding a one-stage competition for the design of a new 300-acre **Plainfield Town Center** to be located directly across the DuPage River from the historic downtown. Registration costs \$90 and closes March 30. Entries are due May 1. Prizes are \$10,000, first; \$5,000, second; and \$2,500, third. To register, send check or money order to Plainfield Design Competition, Village of Plainfield, 32145 West Lincoln Highway, Plainfield, Illinois 60544. For information, call 815/436-7093.

Entries are due on April 1 in the one-stage International Design Competition for the **Development of David's Island**, located in Long Island Sound. The sponsor is the College of New Rochelle. Registration before January 15 costs \$35, and \$50 thereafter. Jurors include Diana Agrest, Diana Balmori, Deborah Dietsch, Laurie Hawkinson, Michael Manfredi, and Bradford Perkins. Prizes totaling \$5,000 will be distributed among the winners, whose entries will be exhibited at the New Rochelle Castle Gallery. For a competition brief, call the gallery at 914/654-5423.

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## Reviews

**The Green Imperative**, by Victor Papanek.  
New York: Thames & Hudson, 1995, 256  
pages, \$20 (paper).

**Tomorrow By Design**, by Philip H. Lewis, Jr.  
New York: Wiley, 1996, 258 pages, \$55.

**Towards a Sustainable Architecture**, by  
Brian Edwards. London: Butterworth, 1996, 220  
pages, \$48 (paper).

Reviewed by Susan Massey

With so much talk about "green" or sustainable design, it's not surprising that an entire genre of architecture books has developed to meet demand. The three books reviewed here take different approaches to the subject, but each makes its own contribution to a body of research.

*The Green Imperative* is an eclectic review of environmental issues, starting with a scientific look into the volatility of nature and including an examination of the effect that unsustainable materials, production, and design have on our world. Papanek also addresses esthetics, criticizing the design of nonsustainable products as "self-indulgent." Written more for a general readership, this book urges consumers to buy green.

*Tomorrow By Design* is a proposal for sustainable land use, arguing that economic growth can be coupled with ecologically friendly planning. Geared toward designers and planners, this book includes case studies from projects in Alaska, the Great Lakes basin, and the Mississippi Valley.

*Towards A Sustainable Architecture*, the most technical of the three books, is an intense synthesis of architecture, engineering, and urban planning. A response to the European union's call for "sustainable and non-inflationary growth respecting the environment," the book focuses on European conditions and case studies.

**Construction Failure**, Second Edition by Jacob Feld and Kenneth L. Carper. New York: Wiley, 1997, 512 pages, \$70.

Originally published in 1968, this book was the first of a series of guides to identifying potential construction hazards. The authors use case studies, along with illustrations and photographs, to examine causes and costs of both structural and non-structural failures. The new edition is updated to reflect industry developments and is enhanced by a new chapter on the responsibilities for failure and construction litigation.

**Transit Villages in the 21st Century**, by Michael Bernick and Robert Cervero. New York: McGraw-Hill, 1997, 387 pages, \$43.

In a time of urban sprawl and dependence on the automobile, this book proposes a different kind of development—based on mass-transit nodes and encouraging greater pedestrian activity. The authors, two transportation advisors, support case studies with maps, drawings, and statistics.

**Dictionary of Building Preservation**, edited by Ward Bucher. New York: Wiley, 1996, 560 pages, \$40.

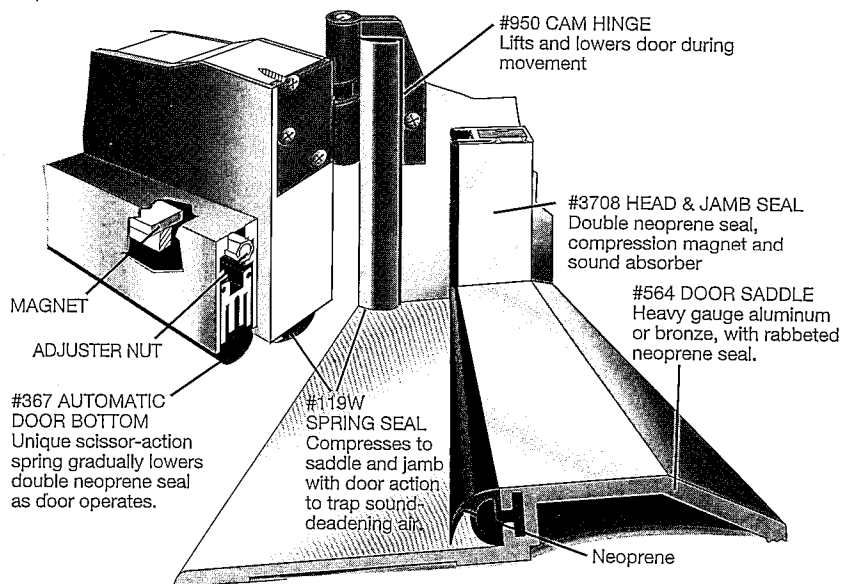
A substantial reference, this specialized dictionary demystifies the terminology of building preservation with straightforward definitions, illustrations, word origins, and cross referencing.

Susan Massey is a student at the University of Virginia.

**Omissions and Corrections**

The editorial index [RECORD, December 1996, page 135] should have included Marmol & Radziner Architecture in credits for Taper Center.

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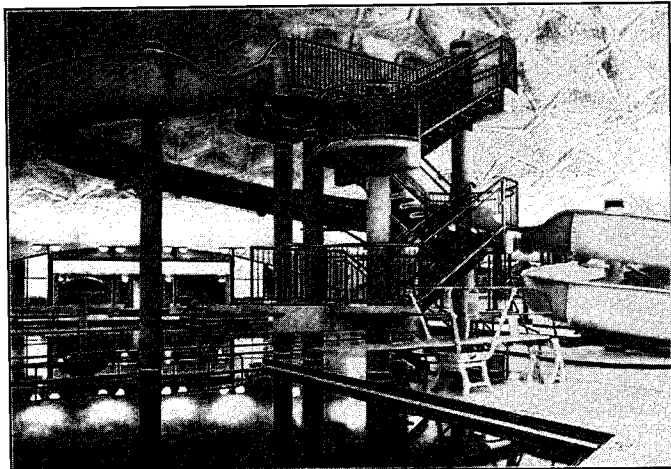


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CIRCLE 192 ON INQUIRY CARD

(Letters, continued from page 14)  
this endeavor, you help us create a better world for ourselves. It's a great new direction and I am looking forward to each new issue.

Harold LaDue  
LaDue Design  
New York City

Congratulations on the new ARCHITECTURAL RECORD and the focus outlined in its editorial.

I especially want to applaud the project descriptions, in which the client's requirements are included along with the what, how, and why of the architect's response. Too often in architectural magazines, project descriptions contain only graphics and descriptions of the building's design solution, without explaining how well it meets the needs of the program. As practitioners of the responsive art, architects have a responsibility to provide answers to both functional and esthetic requirements. And magazines have a responsibility to cover both aspects.

Keep up the good work.  
David R. Dibner, FAIA  
McLean, Va.

#### Expanding on Mentors

Reading the "Tales of Two Architects" in your January issue [page 30], I was struck with how information developed in the past gets lost. The intern working on CAD and seemingly "stuck" is not stuck at all, just not imaginative. He has a third option [in addition to the two offered by Kate Schwensen]: do the learning on his own time. It's his career, his knowledge, so he must get it on his own. I suspect his employer will help such an effort if presented with the intern's goals.

I presented this approach to an intern here in New Mexico who was not getting any structural or estimating experience. As his professional advisor, I advised him to do what I did as an intern, and do "parallel" engineering. That is, getting the engineer's instructions for doing a design at home in tandem with the engineer's. The same can be

done on cost estimating or most other office functions.

As an intern myself, I went out on construction projects after working hours and noted what I saw and questions I would ask. After doing this for a while, my employers took me seriously, and let me go on site visits with them. All employers are faced with the profit motive. But if interns give personal time to further their careers, employers will help.

The reason I say that information gets lost is that my efforts as a mentor were described in the *Intern* published by the AIA years ago. The information is still valid.

I have not read all your magazine yet, but I like what my preliminary review revealed.  
Charles E. Nolan, Jr., AIA  
Nolan & Associates  
Las Cruces, N. M.

#### Fire safety questioned

In an article published in the January issue on handicapped accessibility [pages 116-121], you printed a picture on the last page of a recycling-access door connecting a kitchen directly to a garage. It has been my experience that a one-hour fire separation is required between garages and living spaces. Why would an exception be granted in this particular situation?  
Donald J. Weaks  
Cincinnati, Ohio

Architect Nick Winton replies:  
*You are right about your experience. The access door in question is a one-hour-rated door just like a normal door between a garage and living spaces.*

#### Bad will in Peru in perspective

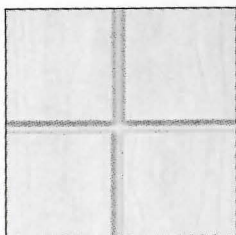
The negative criticism of the new U.S. Embassy in Lima, Peru, by Cynthia Richardson [RECORD, December 1996, page 145] and Rudy Schwarz [January 1997, page 16] suggests neither of these individuals is literate regarding events and conditions in that country. I'm referring of course not only to the

(continued on page 165)



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(Letters, continued from page 162) ongoing hostage crisis in Lima, but also to the kidnappings, assassinations, and robberies, which have made routine use of bodyguards and bulletproof vehicles the norm by even mid-level corporate and government personnel. The new U. S. Embassy is a very satisfactory compromise between esthetics, functionality, and the level of security required by conditions in that country.

I'm sure any American official serving a tour of duty there will be more gratified by the high level of security the new facility provides than concerned about any perceived lack of esthetic value.

*William Bailey*  
Oakton, Va.

### More Boldness Gap Comments

In response to Robert Campbell's essay in the November 1996 issue of ARCHITECTURAL RECORD [pages 76-79] on the state of architecture in America, I offer the following comments and observations:

America has become a society without a collective vision of the future and, without it, we live in memories of the past. Imagining the future requires taking risks and leaving the comfort of the present and known. The risks appear too great and we play it safe.

We have become a society of debtors whose individualism, wealth, and status is most important. We have stopped being a civil society. We have stopped being civil to each other. We no longer see public architecture as important and as a continuing and necessary symbolic inspiration for the future.

Architecture has become an object to consume and brand-name architects, a status symbol. Facility managers, building committees, and competitions are not willing to take risks on "unknown" architects.

In a society of consumers, the shopping mall has replaced the main street and the theme park has replaced distant cities and lands to explore and enjoy. Housing has become an object of investment to

protect rather than shelter to enjoy or celebrate. Civic architecture is replaced by developer architecture.

Our time has come and gone. Europe is in the midst of a renaissance 200 years or so after its zenith as the center of world economic power. Our time was the 19th and 20th century. The Far East is in its ascension and may be the center for the 21st century. Hopefully our time will come again.

*Peter VanDine, principal*  
*Pier Five*  
San Francisco

Architects beware. Our recent visions have included:

- a. Public housing projects that failed miserably.
- b. "Mega-structures" and controlled-environment domed cities, that thankfully were never realized.
- c. High-rise urban centers that require Herculean infrastructures and generate monumental pollution.
- d. Suburban sprawls that isolate their denizens.
- e. "Post-modernism" and "deconstruction" that celebrate nightmares rather than dreams.

Architecture reflects the wishes/needs of those who commission it. Our architecture today is overwhelmed by their technology, economics, and politics, and our nation's architecture reflects that. I find "boldness" an unfortunate, expedient substitute for art in architecture. If you would change America's architecture, first you must change America.

*Robert M. Axt*  
*Axt Mitchell Architects*  
Ukiah, Calif.

*RECORD may edit letters for grammar, style, and space availability, taking care not to change the author's meaning.*



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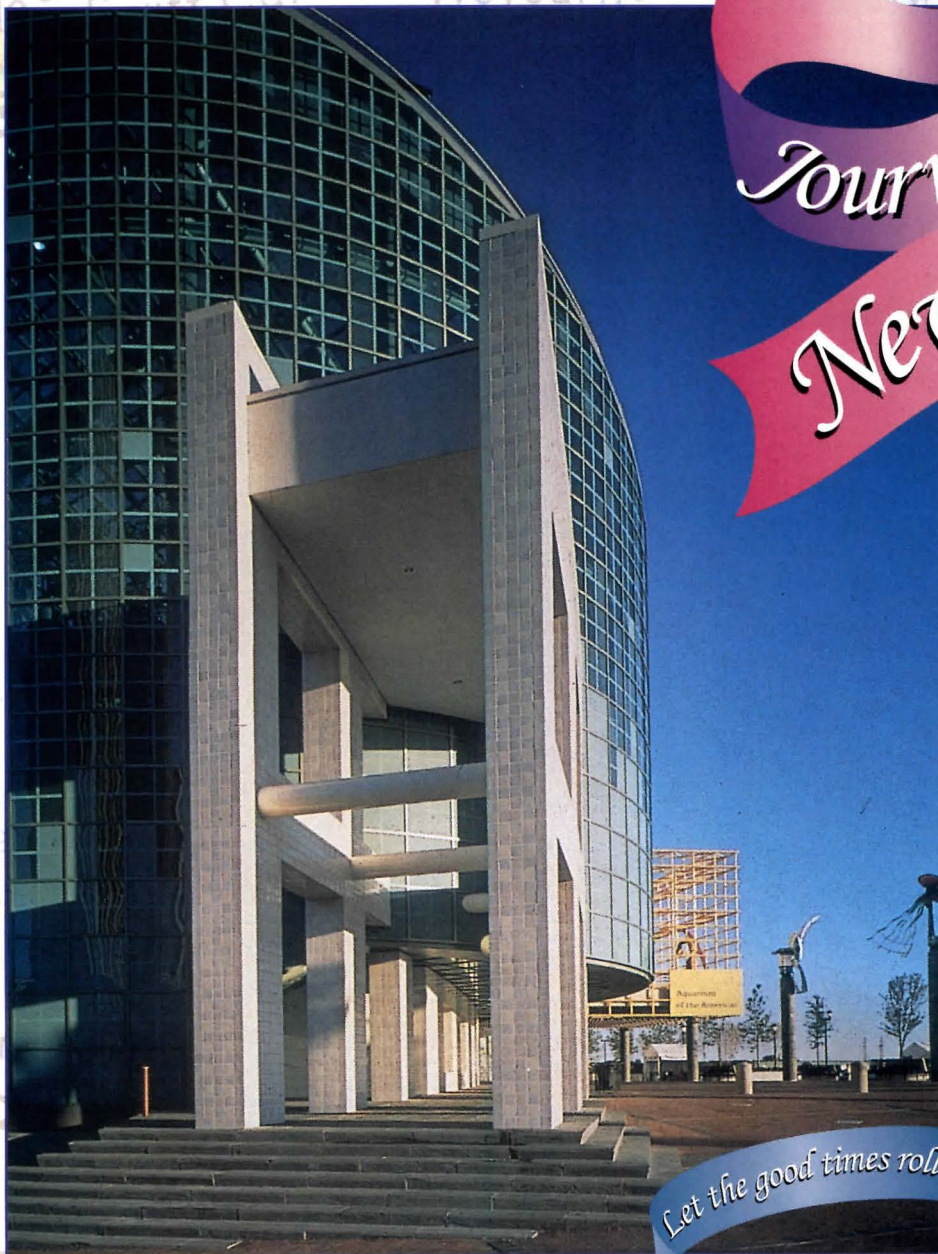
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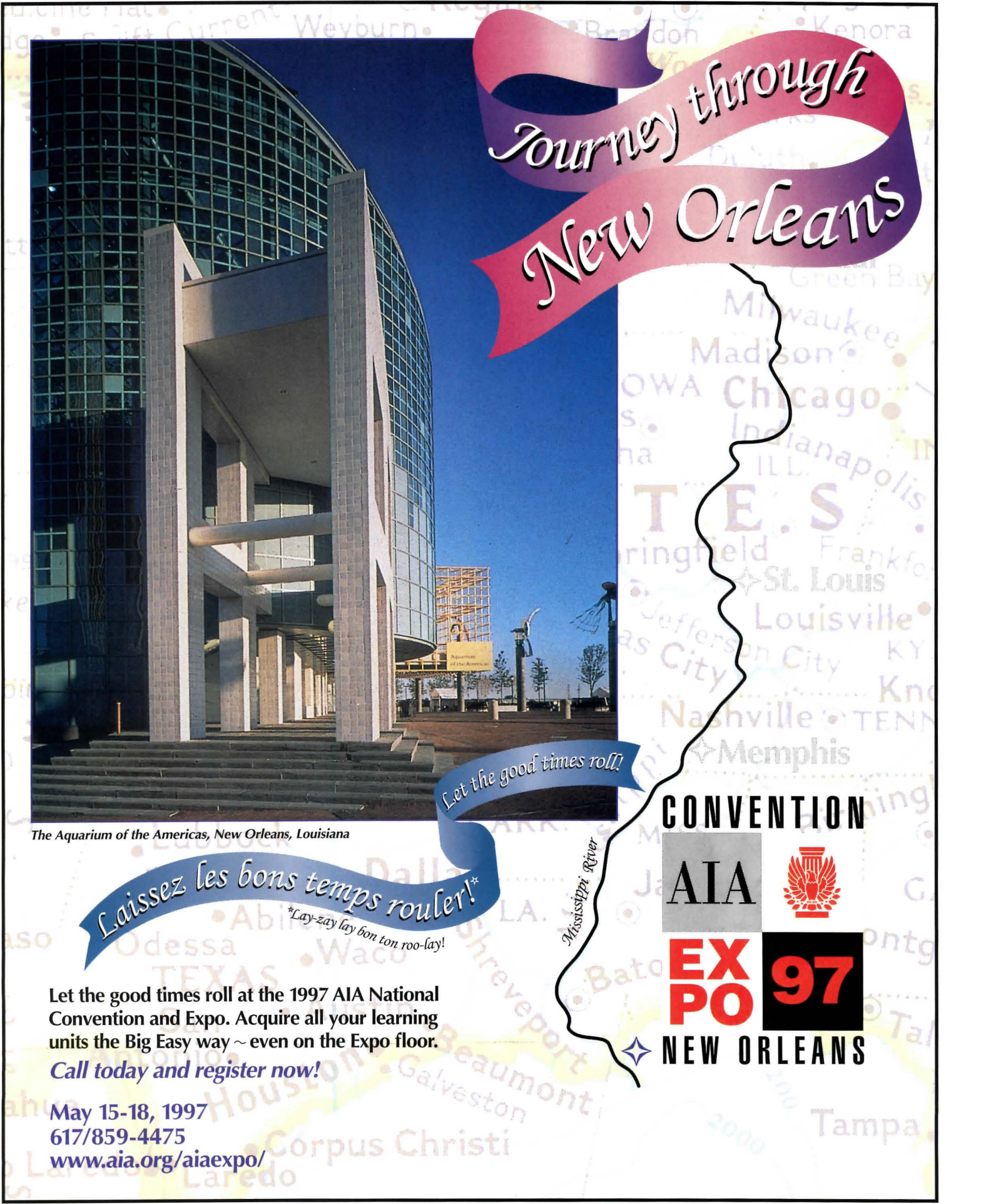
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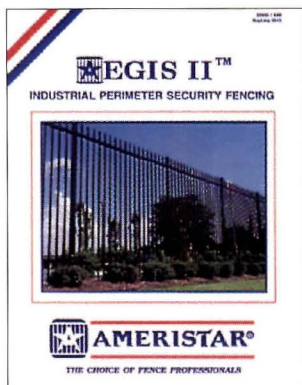


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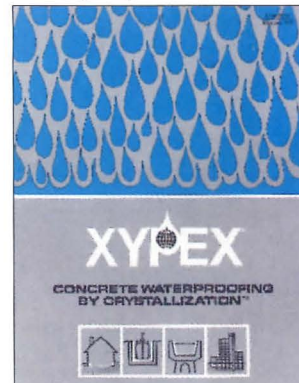


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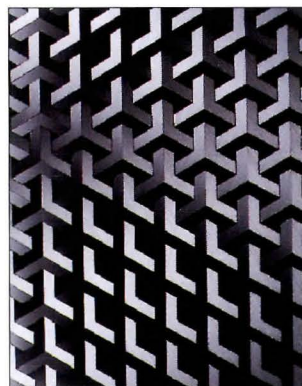


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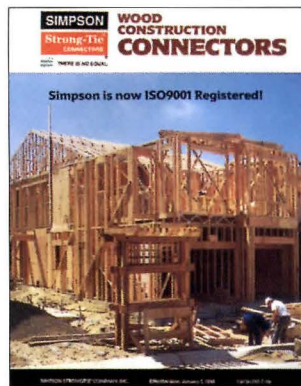


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**Simpson Strong-Tie**

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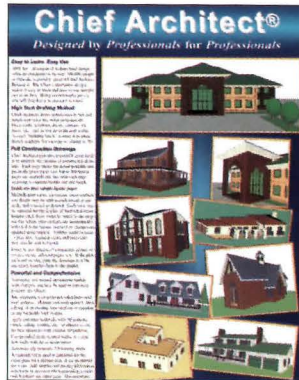


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**Raymond Enkeboll Designs © 1996**

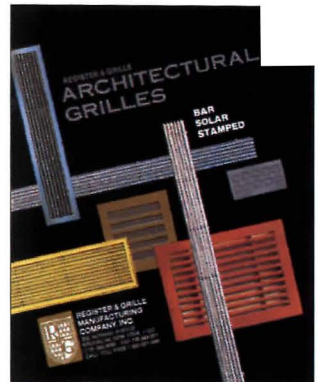


Crafts an extensive array of Architectural Elements carved in solid woods. 104 pg. Catalog, shows a selection of capitals, corbels, moldings, onlays, panels, etc. Stocked in Maple & Red Oak, avail. for immediate delivery. Spiral Bound catalog \$20, Special binder version \$30. Visa & MC welcome. Brochure avail. Raymond Enkeboll Designs 16506 Avalon Blvd. AR37, Carson, CA 90746. P.(310) 532-1400 F.(310) 532-2042.

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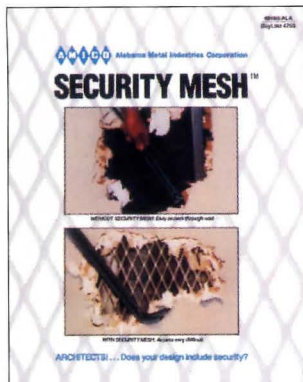
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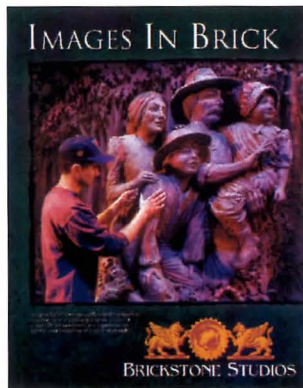


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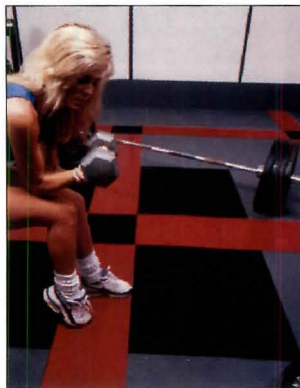


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**Quarry Line, Inc.**

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**1996 Western Woods Use Book**

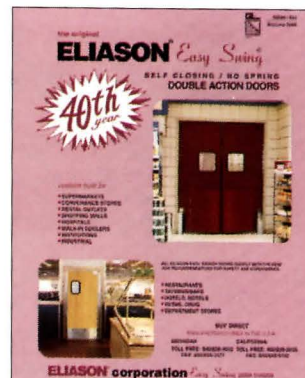


Now you can buy the 1996 Western Woods Use Book for just \$60. It's compatible with all model building codes and comes with software to aid in design of columns and beams. Also incorporates the latest changes in design, has updated column and beam tables and comes in a handy binder that makes future updates easy.

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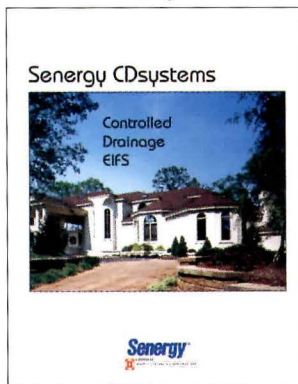


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**Omega Fence Systems**

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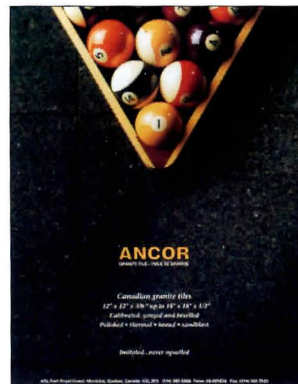


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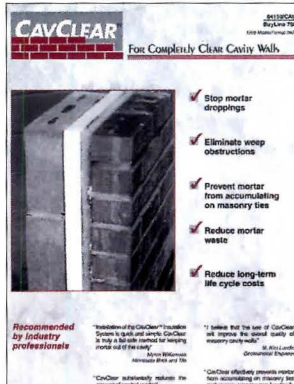


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**INSTRUCTIONS:**

Read the article, "Prudential Healthcare: An Office Lighting Case Study" (ARCHITECTURAL RECORD, February, 1997, pages 154-157). Use the learning objectives to focus your study.

- ◆ Complete the questions below, then check your answers (page 185).
- ◆ Fill out the self-report form and submit it to receive two AIA Learning Units (page 188).

—Mark Scher, AIA Director of Continuing Education Programs and Products

**Questions:**

**1.** What are two sources of workstation lighting problems affecting computer screens and how were they ameliorated in the Prudential building?

**Answer 1.**

---



---

**2.** How were open-plan workstations lighted and what non-lighting factors were found to influence worker perceptions concerning the amount of light in the office?

**Answer 2.**

---



---

**3.** What standard for office lighting was followed in the DELTA case study and list two specifications that follow the guidelines?

**Answer 3.**

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**4.** Describe three examples of energy efficient techniques in the case study and any associated advantages or disadvantages that were identified.

**Answer 4.**

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**5.** Where and to what extent does outside light pose illumination problems in this facility?

**Answer 5.**

---



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**6.** How efficient are the lighting approaches used in the Prudential HealthCare building, in terms of energy, environmental conservation, and cost savings?

**Answer 6.**

---



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## CALL FOR ENTRIES

# RECORD INTERIORS

# 1997

The editors of ARCHITECTURAL RECORD announce the 28th annual RECORD INTERIORS awards program.

This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovative programs, building technologies, and use of materials. There is an entry fee of \$15 per submission; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (transparencies, slides, or

prints), and a brief project description bound firmly in an 8 1/2-by 11-in. folder—and be postmarked no later than April 30, 1997. Winning entries will be featured in the 1997 RECORD INTERIORS. Other submissions will either be returned or scheduled for a future issue. If you would like your entry returned, please include a self-addressed envelope with appropriate postage.

Submissions should be mailed to: **KAREN D. STEIN** ♦ RECORD INTERIORS ♦ ARCHITECTURAL RECORD

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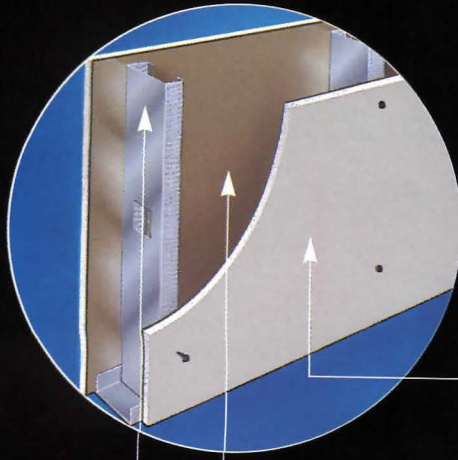
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**AIA/ARCHITECTURAL RECORD  
CONTINUING EDUCATION**

**ANSWERS:**

◆ Answers refer to the article, "Restoring Wright's Wingspread" (pages 80-83) and to questions on page 186.

◆ To receive CES Credits, fill in Self-Report Form below.

1. A recent glazing retrofit reduced heat loss through the skylights and resulted in snow and ice accumulation on the skylight, which pulled supporting 2 x 4s apart.
2. A local firm proposed tearing out the interior plaster and woodwork. Instead, the Hillier Group suggested sacrificing the newer clay roofing tiles and concealed roof sheathing on the outside, to preserve the original historic interior finishes.
3. The United Nations World Heritage Site Evaluation System compares preservation economics, current values, and historic values. The four priorities were to maintain the facility as a conference center, ensure staff and user safety, protect the historic structure, fabric, and design intent, and maximize the efficient use of energy and Johnson Foundation resources.

**4a.** A high-strength aluminum alloy used in the aircraft industry was rough cut in a zigzag shape and modified with carpenter tools at the site to replace Frank Lloyd Wright's two inch zigzag framing. This entailed careful detailing including mock-ups, step-by-step removal instructions for existing zigzag beams, specification of tools to use, and triple checking architect supervision. **b.** Carbon-reinforced fiberglass was fashioned by boat builders to stiffen the falling lower roof. This work was tested on a smaller section of roof. Moisture monitoring was instituted. **c.** The impermeability of the fiberglass shell made nailing roof tiles difficult. An earthquake-resistant strap-tie technology, common to California but unusual in Wisconsin, was used to minimize nailing.

**5.** The fiberglass shell raised questions about the danger of moisture because, in effect, a vapor barrier was bonded to the roof structure.

**6.** The wigwam metaphor refers to sticks supporting a membrane, i.e., wood framing reinforcing wood sheathing. The problem was in the shallow slope of the lower roof creating an unexpected thrust on the brick piers, making them tilt out of plumb. The solution was to add more support at the base of the skylight.



**AIA / CES SELF-REPORT FORM**

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- "Repairing Wright's Wingspread", (pages 80-83)
- "Prudential Healthcare: An Office Lighting Case Study" (ARCHITECTURAL RECORD, 02.97, pages 154-157)

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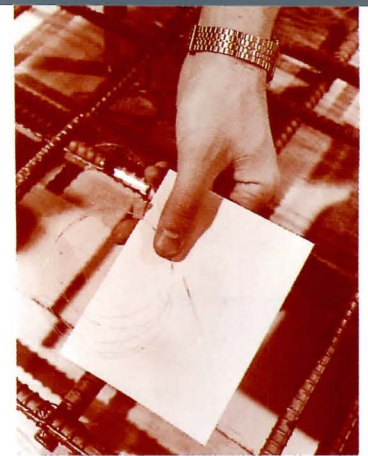
CIRCLE 199 ON INQUIRY CARD



## THE FUTURE:

# Next Century's Structural Sensors: Light-Reflecting Fiber Optics

BY JOAN BLATTERMAN



*If only walls could talk. They might be able to warn of microscopic stresses and fractures in structural steel caused by earthquakes. They could provide an accurate evaluation of the integrity of welds and other connections without any need to dismantle the building.*

If bridge beams could talk, they could warn if rust, ever-so-slowly, has weakened the strength of spans or reduced the reinforcement provided by metal rebar, before deck sections gave way and plunged cars and trucks into rivers. And after a major fire has destroyed the contents of floors in a high rise without producing visible structural damage, we could find out if the buildings were safe to reoccupy by asking the columns.

A brand-new fiber-optic technology soon may let us "listen" to walls for real. Like the monitors in an intensive-care ward, hidden sensors will transmit a constantly changing picture of the structural health of construction, whether bridge or skyscraper.

Currently, these unseen weaknesses and hazards are monitored, after a fashion, by strain gauges linked by cables that relay the behavior to a central computer. But placing the sensing devices—strain gauges, accelerometers, and tilt meters—is difficult. The wires that connect each measuring node have to be hung from the structure, often at great heights or in extremely hard-to-reach crannies. Also, data transmitted over these wires can be disrupted by electromagnetic interference or weather-generated static. As a result, much inspection of

bridges and other critical elements is being done strictly by eyeball.

To improve on this process, structural monitoring is being simplified to eliminate some of the hazards, using systems developed by engineering research laboratories such as the Federal Highway Administration's Turner-Fairbanks Research Center in McLean, Virginia. The current state-of-the-art is a "wireless" bridge inspection technology. While individual sensors still have to be placed in proximity to vital connection points and load-bearing members, they only have to be linked to ruggedized, miniature computers placed nearby. These discrete processing points collect stress information and other critical data and transmit it through the air to a single central computer in a protected, accessible spot on or near the monitored structure. This single unit can analyze the structural-change data from the entire bridge or building, perhaps using proprietary bridge-management or other structural diagnostic software, and can transmit data on command to a remote receiving unit miles away. No more stringing cables like Christmas lights from 350-ft-high arches.

But even this advanced sensing technology keeps the functions of data collection and data transmission separate—and someone still has to climb way up there and install all those gauges.

### Next century's sensors?

Almost leapfrogging today's advanced "semi-wireless" monitoring and diagnostic technology is an

elegant system that combines sensor and data transmission in a single strip of fiber-optic tape. This new "hands off" structural sensing technology is now being implemented by a team at New Mexico State University in Las Cruces, led by Rola Idriss, associate professor of civil engineering. The technique of making the fiber-optic sensors themselves was invented by engineers at the Optical Science Division of the Naval Research Laboratory in Washington, D.C.

The technology, still experimental, is based on the internal light-reflecting characteristics of fiber-optic material, and it puts a sensing device directly within a continuous fiber-optic strand. To create these integral gauges, photosensitive strands are etched with a laser to microscopically alter their light-reflecting properties in selected locations, corresponding with predetermined monitoring spots in the completed structure. This "etching" is the sensor: as minute changes in the beam, deck, or weld occur, the movement will stretch and strain the fiber strands at the site. When a beam of light is introduced through an access port into the fiberoptic strand, light will reflect at a different wave length at that specific place on the strand.

(*Engineering News-Record* thought the fiber-optic sensing technology exciting enough to cite the Idriss team as one of 1996's top newsmakers.)

The full-scale test of this monitoring technology, to be performed with funding allocated by the Federal Highway Administration, will

generate real-time data on a busy bridge that carries federal Route 10 over University Avenue in Las Cruces. The fiber-optic tapes, with sensing spots pre-etched where desired, will be tied to the rebar before the concrete of a new, 100-ft-long section of bridge deck is poured. After the structure is complete, the strands will be constantly monitored. A remote computer, accessed via cell phone, will pinpoint the site of any movement and the nature of the stress (seismic, live loading, thermal movement, etc.). When current data are compared to the original (as built) sequence, loading changes and possible damage can be identified. To establish a baseline control, this full-scale test will be run in tandem with the current monitoring technology using strain gauges and wireless transponders as described above.

The beauty of this fiber-optic status monitoring is that the tapes can be placed deep within the structure, close to critical beams, connections, welds, or reinforcement. It could constantly report and evaluate real-time data on the safety and structural integrity of the building or bridge. Protected by concrete or nestled under fireproofing, the tapes will remain in place, safe from weather, vandals, or other damage, ready to warn of imminent danger. The system may help engineers pinpoint the exact spot where repair is needed—in time to prevent tragedy. ■





# BEST ARCHITECTURAL CAD



ARRIS computer image by A.J. Diamond, Donald Schmitt and Co., Architects and Planners  
Modeled and rendered by Dalibor Cizek and David Hileman

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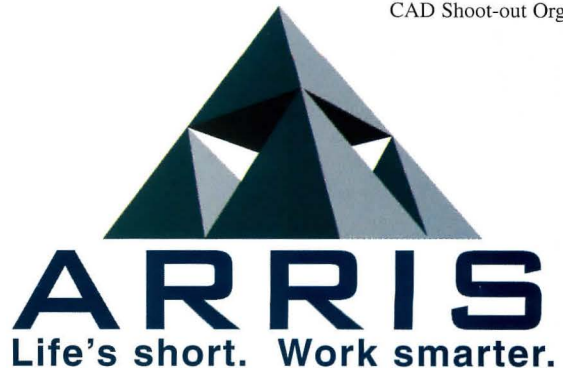
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