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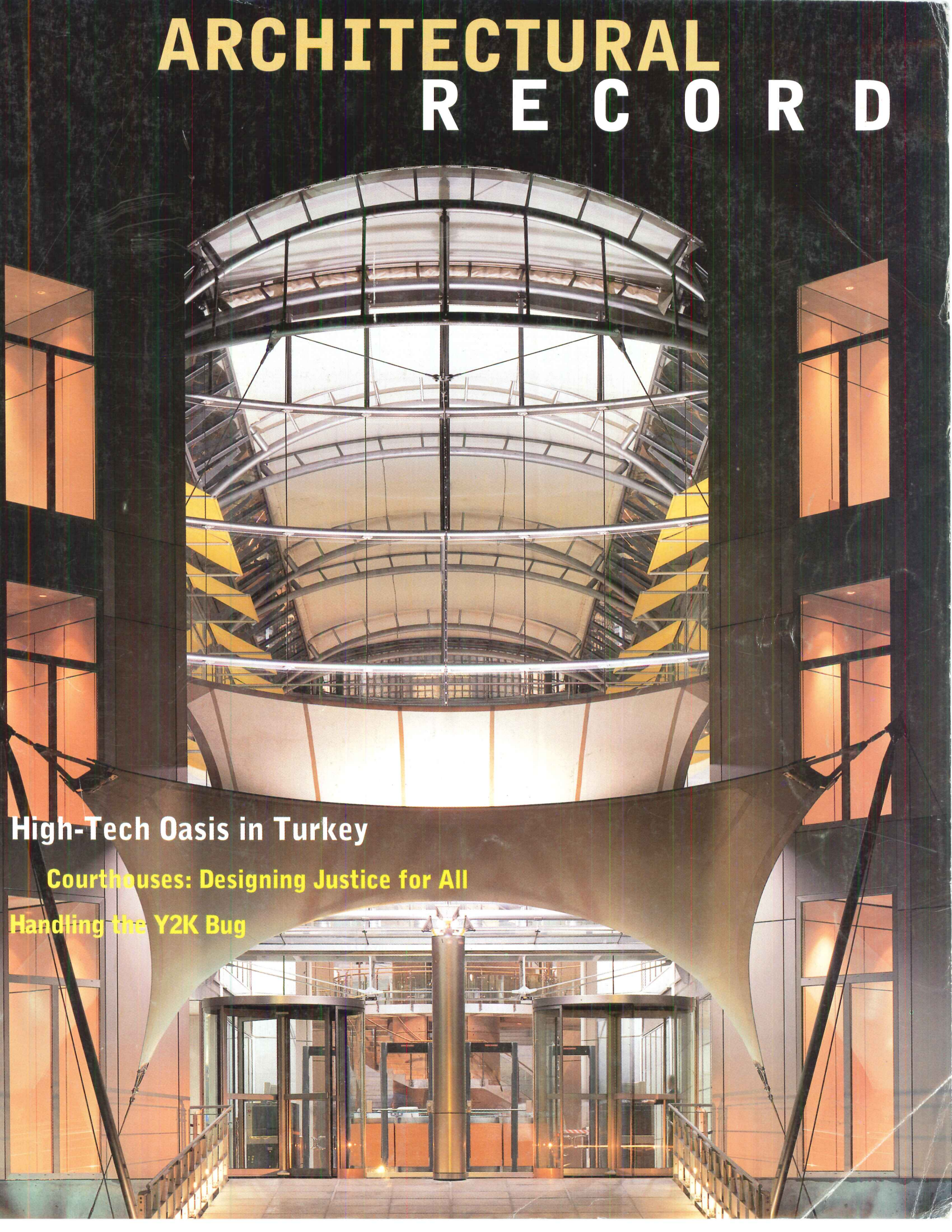

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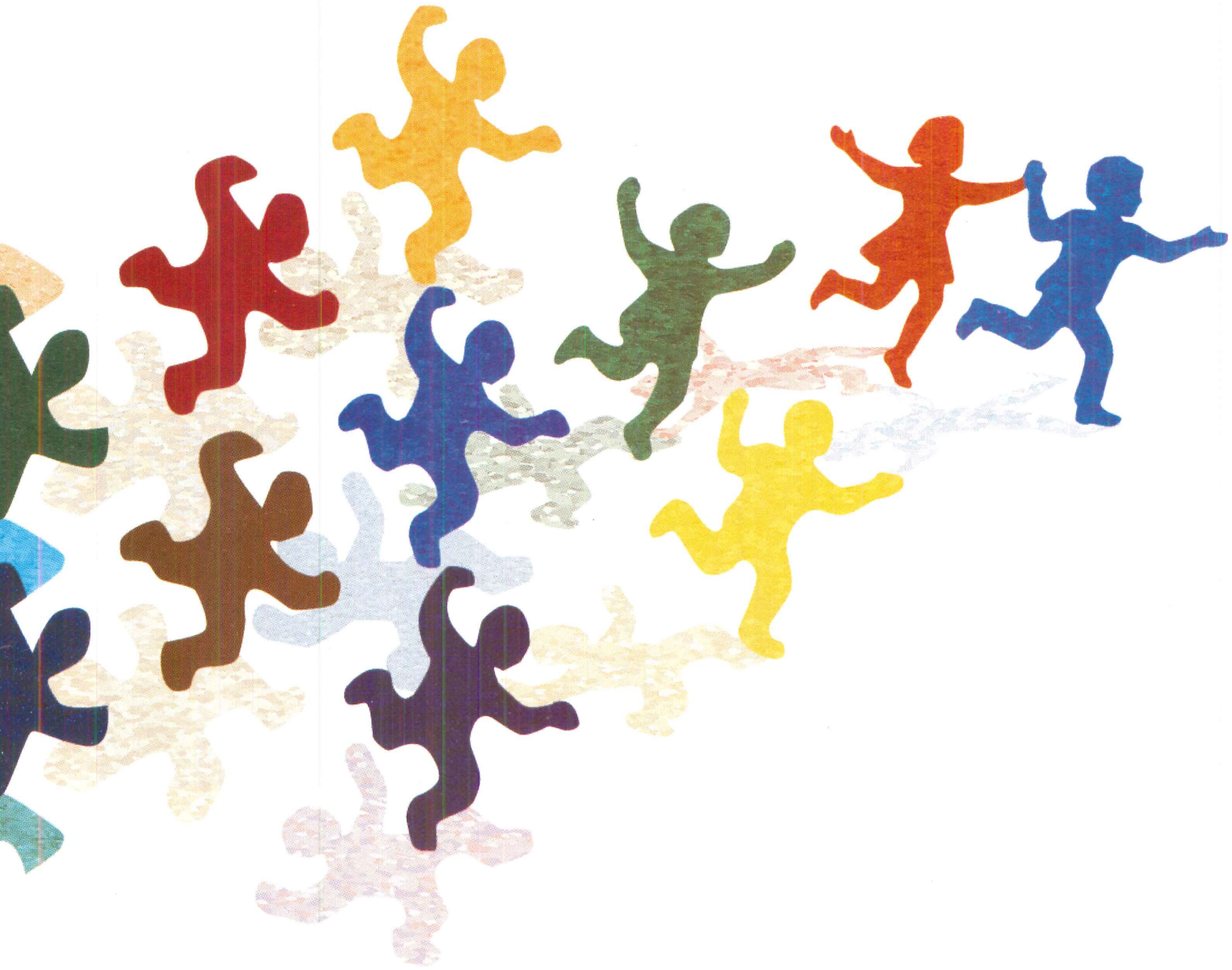

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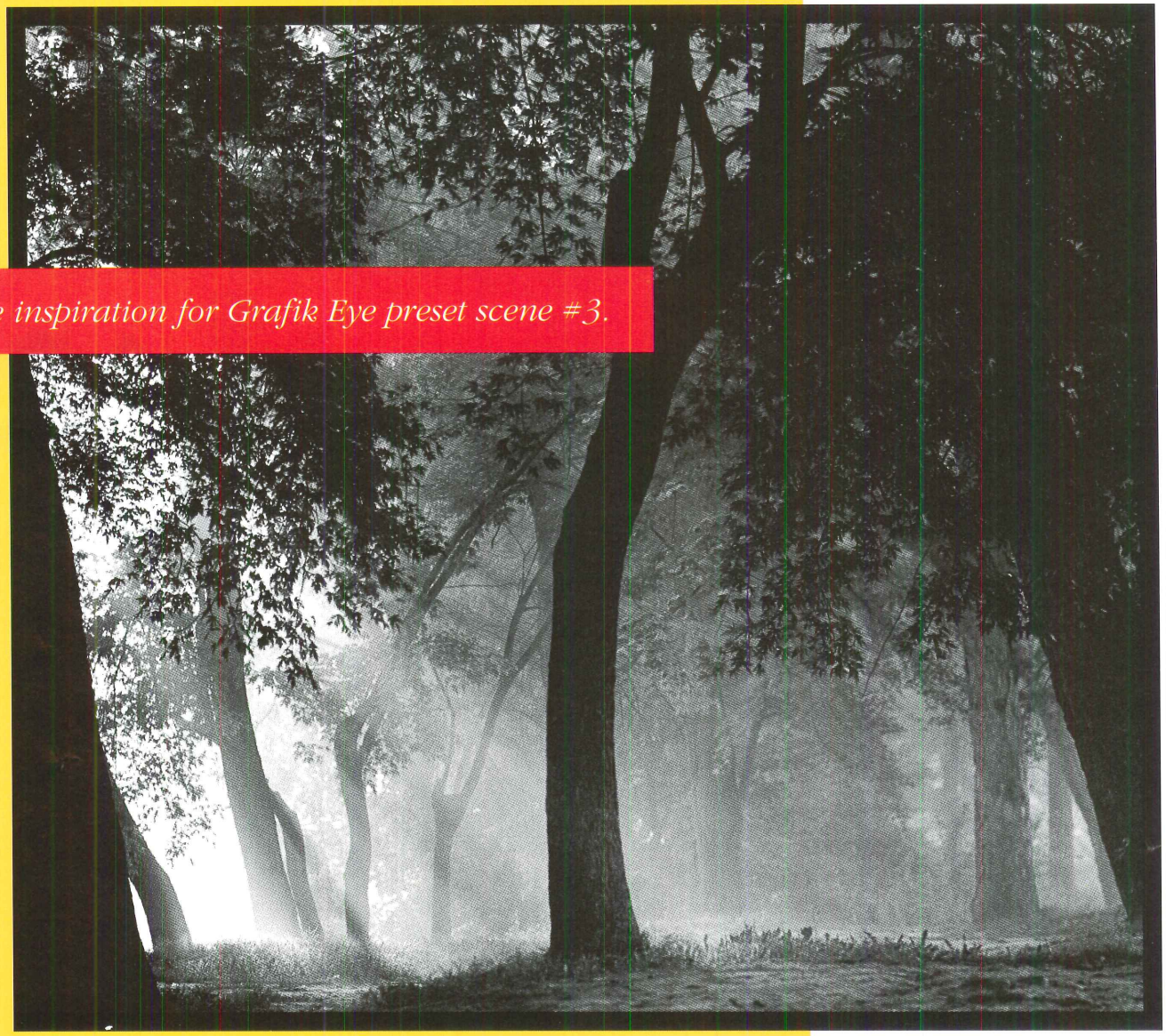

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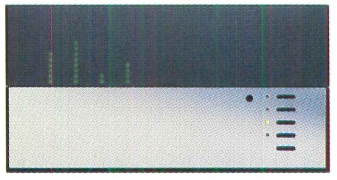

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Cover: *Yapi Kredi Operations Center, Gebze, Turkey. John McAslan & Partners. Photograph © Peter Cook.*
Above: *Dutra-Brown Building, Little Italy Neighborhood Development. Public, architect. Photograph © David Hewitt/Anne Garrison.*

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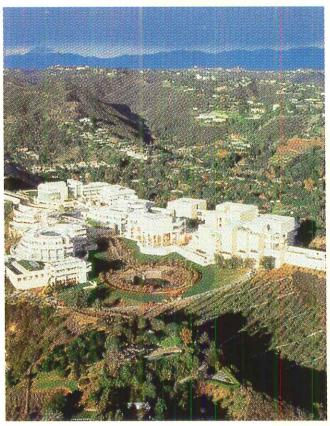

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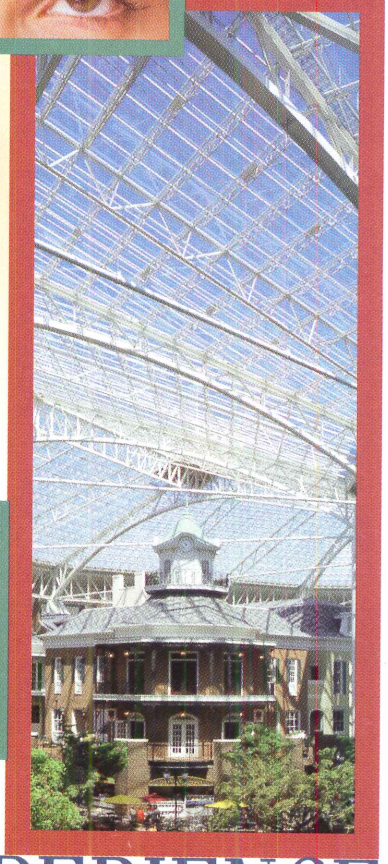

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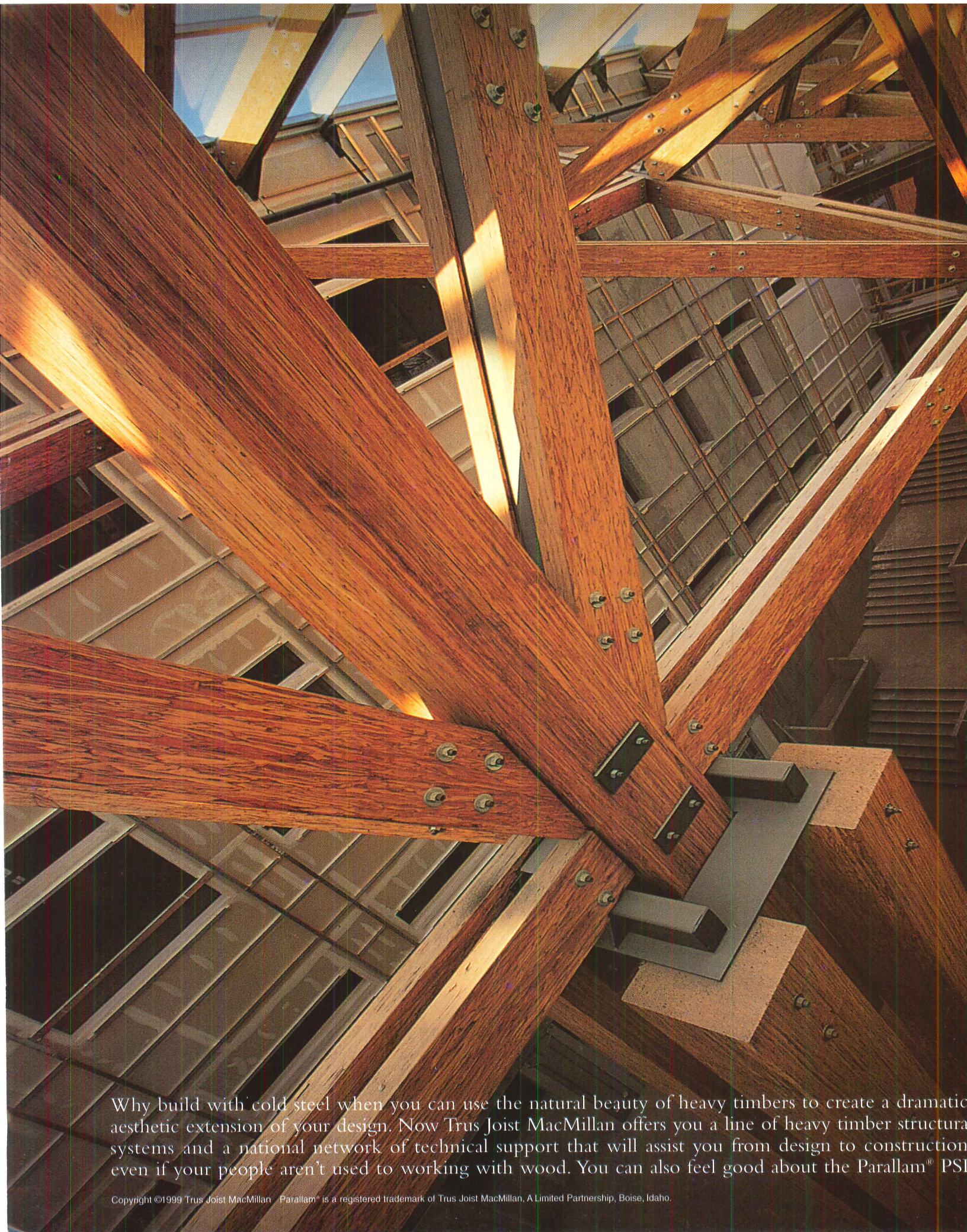

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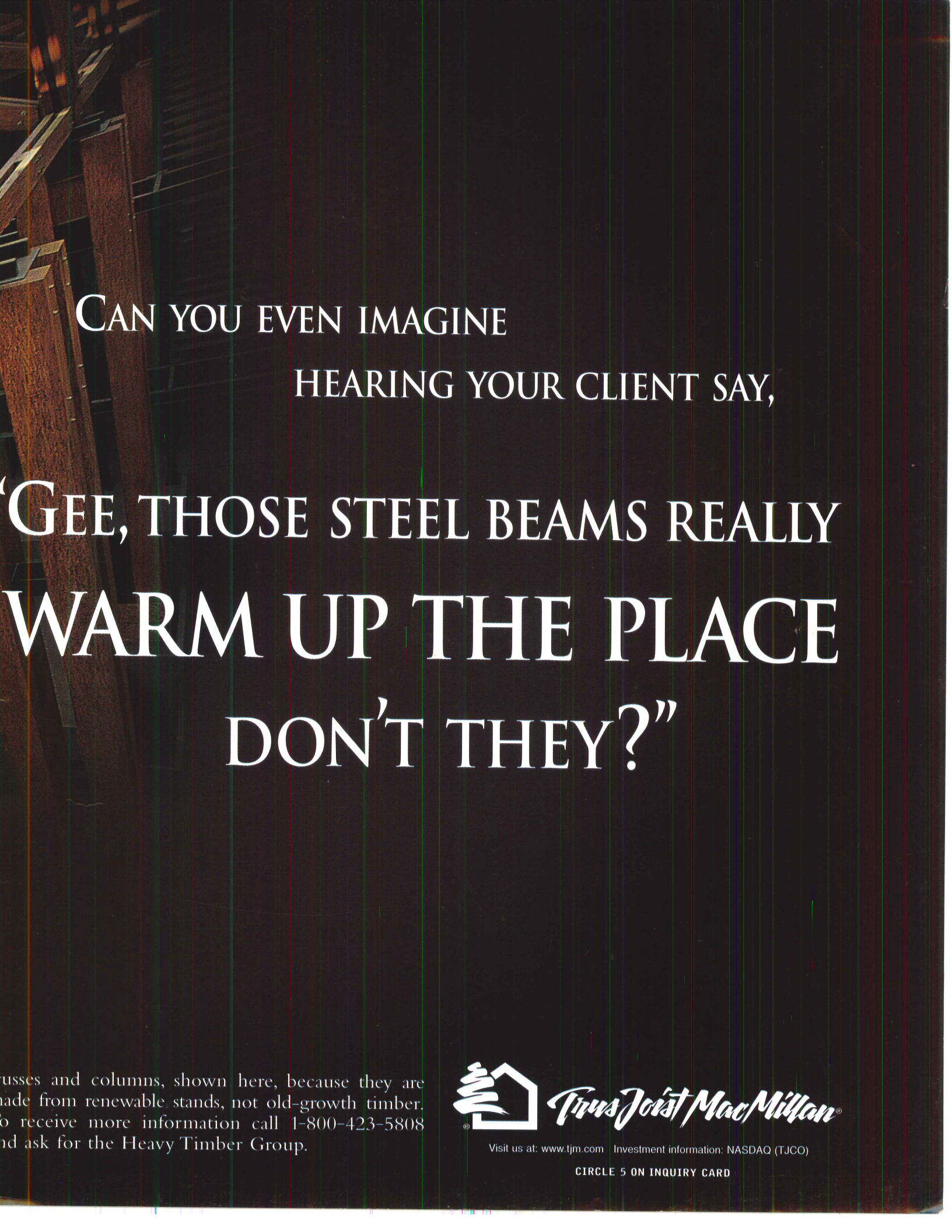
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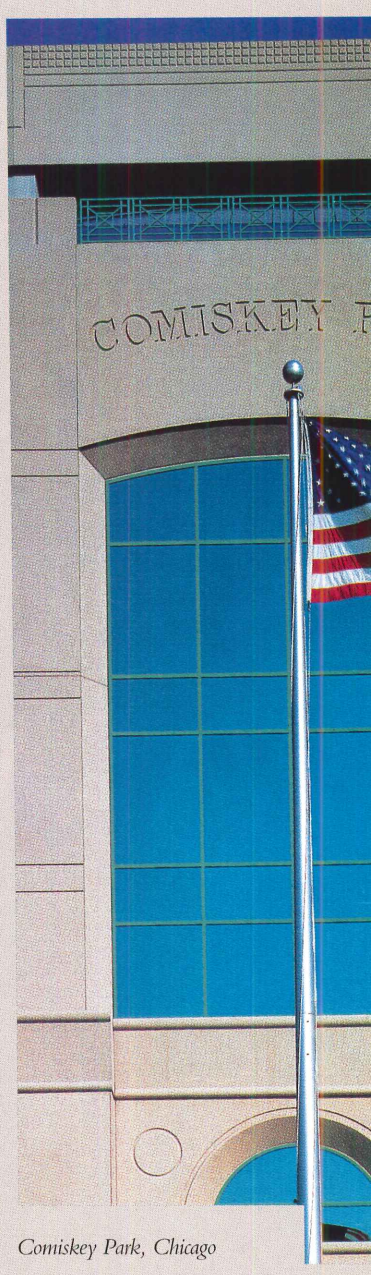

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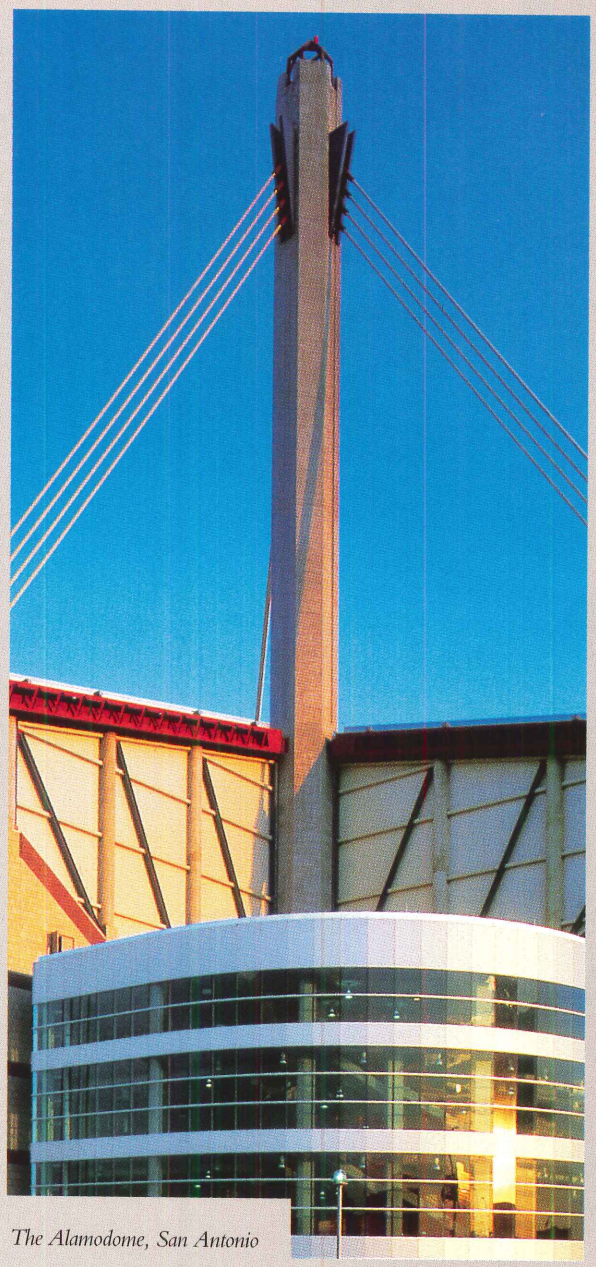

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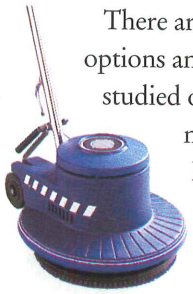

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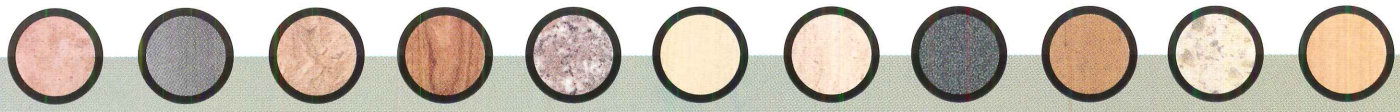

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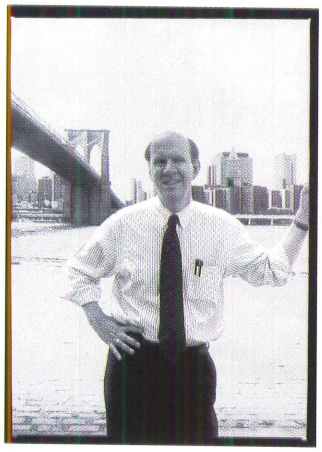


EDITORIAL

The British Are Coming!

BY ROBERT IVY, FAIA

Britain is flowering. Not only are the willows greening up, but a bold architecture is erupting—one that springs from the ancient soil—with positive implications for world architecture. It is an expression of British culture at a moment when the encumbrances of empire, the dead weight of all that dreary responsibility, have been swept away, replaced by lively new hegemonies of language, Anglo-American commerce, and architectural cool.

You find examples of energetic new design in the oddest places: a large shed in a railyard, glimpsed from a speeding train; a new corporate tower, around the corner from an 18th-century club; sleek airports set into cattle-strewn meadowland; an unexpected tube stop, scooping up onto the sidewalk like a vermiform skin in the movie Dune. Counterpoised against the familiar stones of town and countryside, these arresting new buildings create striking disparities. What force is shaking up the sceptered isle?

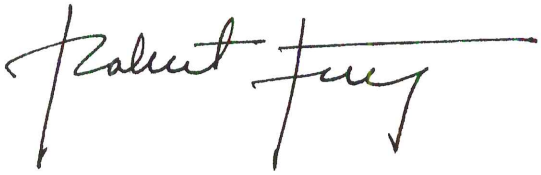
Call it a techno-modern revolution. You've seen the early examples of the first wave, even if you can't recall all the names—Norman Foster, Richard Rogers, Michael Hopkins, and all their progeny, the influential generation whose individual members dared to conceive the Lloyds of London tower, the Hongkong and Shanghai Bank, and a brace of other structures that still challenge the status quo: prickly monuments to flash and flush times and unbridled optimism.

The next wave, perhaps tempered by the vagaries of the marketplace and chastened by the realities of maintaining overly complicated pipes and struts on their earlier technologically driven designs, has been producing innovative contemporary work on its own, work that builds on the earlier masters' legacy. Architects like Chris Wilkinson, Nicholas Grimshaw, John McAslan (featured in this issue, page 94), and Ian Ritchie are building new structures, both at home and abroad, that push the limits of materials, particularly glass and steel. They ask the universal questions: What are the unique qualities of glass (its transparency or opacity or chroma)? How can steel, a tensile material, stretch to support it? Their work is sometimes experimental, often innovative.

Engineers' hands are all over the work. They have collaborated with and inspired the current generation of architects, encouraging free-ranging structures with unapologetic wide spans and cantilevered stairs and minimally supported, heroic glazed membranes. The result is an architecture of carefully detailed solutions, not irony; design that is not precious, but honed. And despite the employment of energy-intensive construction materials, most techno projects reflect the larger European culture's concern for energy conservation.

What can American architects learn from their Anglo brothers and sisters? The Illinois Institute of Technology will explore this new wave at an international symposium, purported to be the first of its type, entitled "Architecture with Technology," on April 8–10 in Chicago. As the conference organizers, professor Peter Land and dean of the college of architecture Donna Robertson, point out, universities and architectural firms in the United States have served as a training ground for key participants (both Foster and Rogers studied under Paul Rudolph at Yale); moreover, in the 1950s this country was home to architects like Buckminster Fuller who were seminal to the movement.

Back to the future? Perhaps. But rather than merely react to the past, the British are currently producing an exciting architecture that takes a strong position. For American architects in 1999 looking for new sources of energy and ideas, contemporary British architecture may shake us up and encourage us to design with equal conviction, lending fresh appreciation to the cry, "The British are coming! The British are coming!"



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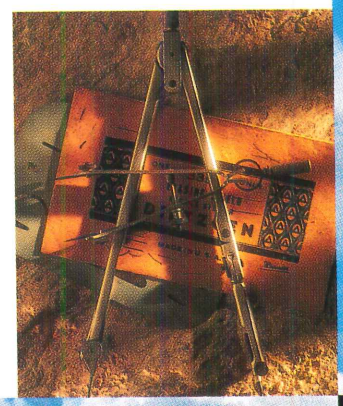

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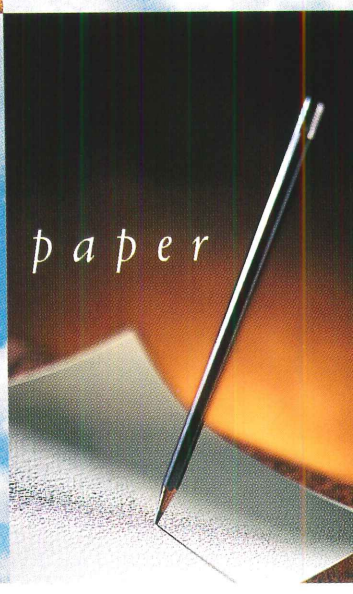

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CIRCLE 11 ON INQUIRY CARD

LETTERS

Production housing

I have to take exception to Mitchell Rouda's recent article, "Production Housing: Houses as Products" [January, page 115]. Having spent most of my career designing "affordable custom" houses for single clients and for the last 15 years teaching a summer course at the Harvard Graduate School of Design on the same topic, I think I can speak with some authority on the matter—at least from the architect's point of view.

Without exception, I've never met an architect who hasn't wanted to enter the production housing market. But that leap is not as easy as Mr. Rouda proposes. The old adage that it takes a good client to make good architecture is even truer in the production housing arena. It is simply naive to anticipate the day when "buyers browse through home styles on a computer" and "manipulate each house in a hundred ways." We deserve what we get in the single-family home, not because of architects but because design is not taken seriously in our educational system and money is the bottom line in the marketplace.

—Jeremiah Eck, FAIA
Jeremiah Eck Architects, Inc.
Boston

The truth about HVAC

In "Building Comfort with Less HVAC" [December, page 131], the statement that the Inland Revenue Centre's "prefabricated concrete floor panels provide 'cathedral effect' radiant cooling" is in error. All the floors in this building are carpeted and raised, with pop-out lightweight panels to provide access to services. Thus, they contribute little to radiant cooling. It is the heavyweight concrete ceiling that is the basis of radiant comfort. And heating is more of an issue than cooling in the Nottingham climate, especially for this building program of an open plan with separate environmental controls for sets of work stations. Indeed, the integration of ventilation with comfort is a much more demanding performance requirement than cooling.

Unfortunately, recognition of climate seems absent from this article. Nottingham has an ideal climate for low energy displacement ventilation—the critical concept not described. Site climate has more impact and is more inclusive than "solar load." Similarly, the variable impacts of building type and user patterns are largely ignored.

Yes, the routine practice of oversizing cooling plants in the U.S.A. is a serious professional irresponsibility. But an article presented for AIA Continuing Education should be more accurate and balanced.

—Jeffrey Cook, AIA
Regents' Professor
College of Architecture and Environmental Design
Arizona State University
Tempe, Arizona

A solution to sprawl

In response to Robert Ivy's January editorial ["Standing Up to Sprawl," page 15], one solution to urban sprawl is to join the Forum on Small Town Economic Renewal. As an individual, you can support important measures that will take the pressure off the big cities and help small towns. This way the economy can grow at a 3 percent annual growth rate (if the government allows) and still make a bigger impact for smart growth. The big cities will prosper too because the small towns need their expertise and manpower—and capital. There will be less stress on people and the environment if we work together from the beginning.

In small towns, fewer obstacles to smart growth are in place. The infrastructure is not there yet. The land owners, usually farmers and ranchers, need new ways to improve their economy. Today, many businesses can be located almost anywhere—it's just a matter of choice.

But rather than beg New Yorkers to go someplace they may not be happy, I would propose teaching small town residents and their kids new skills to start their own businesses. Then make the small community a world-class place that people can dream about. That's where architects come in: they can help make these communities desirable for talented people who might want to move there, as well as for existing families who might stay put instead of moving to the big city.

Let's work together on a long-term plan that will benefit everyone. If America grows faster and smarter, the rest of the world's economic problems will be eased.

—Jeff Baston
via E-mail

Misunderstanding Montreal

My elation at finding a report on Montreal in your December issue (Correspondent's File, page 31) waned after I encountered several misunderstandings concerning my dear French Canadian city.

Contrary to Beth Kapusta's account, Montreal architects *have* in fact had it unimaginably bad in the last decade. It is precisely the lack of large-scale civic contracts that forced many—including myself—to find work elsewhere, as well as to reflect on things a little, facilitating the development of a mature Modernist ethic, which is now proliferating here.

It is an all too obvious proposition to attempt to link the inconspicuous nature of these architectural interventions with an uncertain political climate; however, this remains an unsubstantiated thesis, indicative of a general media hype surrounding the province of Quebec. In spite of everything, Montreal presents an intriguing scene for those who appreciate not being hit over the head—an oeuvre of which I am not defensive but, rather, proud.

—Eric Majer
via E-mail

Credits/Corrections

Landry & Bogan, Theatre Consultants, were responsible for the stagehouse, auditorium house lighting, and acoustic gallery design of Royce Hall (November, page 82).

Architect Gyo Obata's name was misspelled in a January news story on the Japanese American National Museum (page 50).

Usman Haque was part of the team working with Claire Weisz Architect + Mark Yoes on the Visitors Center for the Museum of Jewish Heritage in New York (January, page 105).

Arthur Rosenblatt, FAIA, was the first director of the U.S. Holocaust Memorial Museum, not Shaike Weinberg, as stated in the January story on the Jewish Museum (page 76).

The team working on Dewan Filharmonik Petronas (above), part of Petronas Towers (January, page 92), included acoustic consultant Kirkegaard and Associates, theater design consultant Theatre Projects Consultants Inc., and lighting consultant Howard Brandston & Partners. The pipe organ was fabricated by Orgelbau Klais Bonn.

In the caption on page 41 of the January issue, both Elkus/Manfredi Architects and NBBJ should have received credit for the design of Pacific Place.

The top photograph on page 100 of the February issue was misidentified. It looks toward the entrance lobby of Tadao Ando's TOTO Seminar House from a lounge at the base of the main stair.

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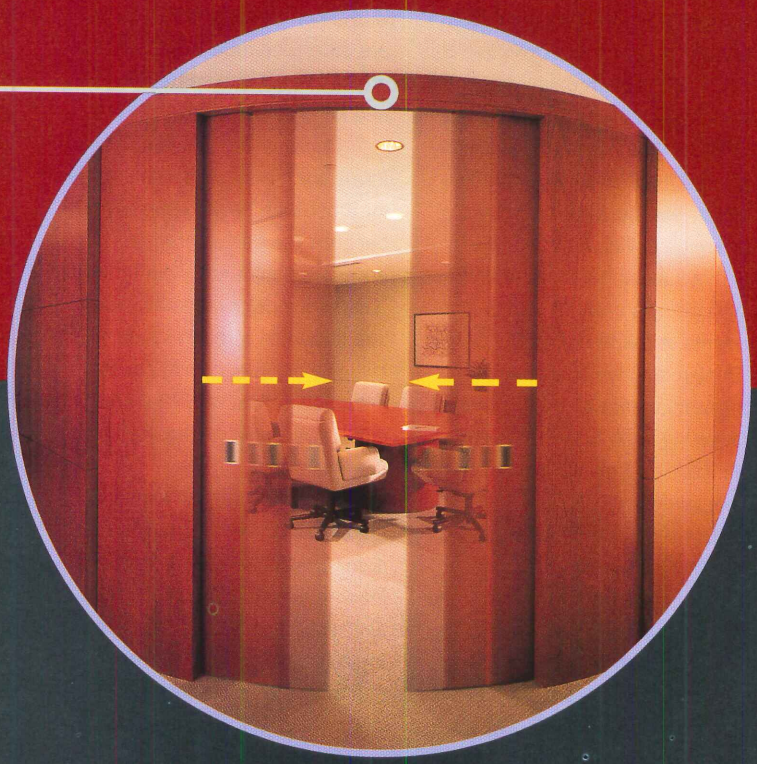

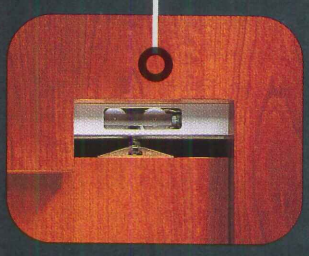

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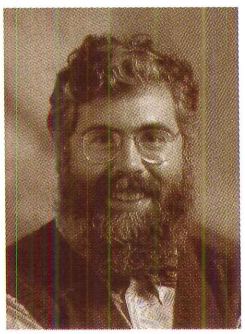
CIRCLE 12 ON INQUIRY CARD

SPEAK OUT Designing for accessibility doesn't have to be expensive or complex. It can be easily accomplished right now.

MICHAEL J. CROSBIE AND PETER A. STRATTON

Michael J. Crosbie and Peter A. Stratton are associates at Steven Winter Associates, an architectural research and consulting firm in Norwalk, Connecticut. Stratton is also executive director of the Association for Safe and Accessible Products (ASAP).



As architects who research accessible design (or what we prefer to call universal design), we were invigorated recently by an exhibition at the Cooper-Hewitt National Design Museum in New York. "Unlimited By Design" (on view through March 21) brings together a range of everyday objects for home and work specifically designed for people with disabilities—particularly impairments that limit mobility, sight, and hearing. It includes a futuristic kitchen, produced by a team of faculty and students at the Rhode Island School of Design, that was meticulously designed for ease of use by everyone, young and old, no matter what their abilities. That's the essence of universal design.

But the kitchen—as well as the exhibition in general—also communicates notions to designers and to the public that oppose the goals of universal design, although we're sure this wasn't the intention of the curators. These misperceptions are widely held, and clarification is needed.

One faulty assumption is that universal design is experimental. Many of the specialty products exhibited have a "Jetsons" feel to them, which lulls viewers into the comfortable notion that this is not an issue we need to deal with right now. "Someday," you may catch yourself thinking, "all kitchens will be accessible." But the truth is that all kitchens could be accessible today.

A plethora of simple products already on the market, if used intelligently, could dramatically enhance the accessibility of many projects. For example, standard countertops can be installed lower than the usual 36-inch height. Lower counters without base cabinets provide a roll-under work surface for people who use wheelchairs, for users who are otherwise mobility impaired and prefer to work in a seated position, and for children.

Dishwashers installed on platforms are more comfortable to use for those with back impairments because the bending required for access is minimized. Counters with contrasting color edges provide a cue to people with low vision. Open shelving or glass doorfronts are helpful to people with cognitive difficulties who tend to forget where they put things.

Another troubling aspect of the exhibition is that many of the items, particularly in the kitchen, look expensive. It is a myth that accessibility is a budget buster—a myth that home builders routinely use to ignore the accessibility provisions of the Fair Housing Act.

The Americans With Disabilities Act (ADA) requires that public buildings meet certain standards for accessibility. Its enactment in 1990 caused fears that costs would rise quickly. But a few years ago, a study undertaken by our firm for the Department of Housing and Urban Development to calculate the added cost of accessibility found that accessible design and construction added very little to the cost of housing projects (only about 0.5 percent in many cases). Universal design is not a couture branch of architecture.

In universal design, context is everything. Choosing the right equipment is only part of the solution. The most common errors made in architects' plans result from their belief that all you need to do is provide an accessible fixture—problem solved. But how that fixture exists in relation to the walls, the floor around it, and other fixtures determines whether it is truly accessible or not.

For instance, there are recommended clearances for the areas surrounding toilets, sinks, and tubs to allow access by people with physical disabilities. Just providing a toilet with an adjustable-height seat, for example, does not ensure that a person using a wheelchair will be able to enter the bathroom and to approach and use the accessible fixture. Among other considerations, doors must be wide enough for easy entry and door swings shouldn't infringe on clear floor space.

We commend the exhibition curators and the museum for publicizing the issue of accessibility. But remember: universal design does not belong to tomorrow. It is something that architects can and should be accomplishing today. ■

Contributions: *If you would like to express your opinion in this column, please send submissions by mail (with a disk) to Speak Out, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. 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 text approval.*

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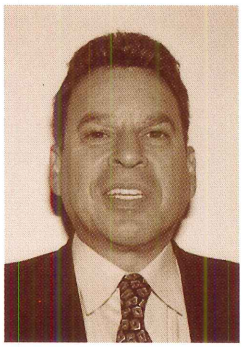
CIRCLE 13 ON INQUIRY CARD

MENTORS Distance learning is a viable option for architects looking to broaden their education while continuing to work.

Paul Saltman is president of Kennedy-Western University in Cheyenne, Wyoming. The distance-learning school is licensed by the State of Wyoming Department of Education.



The Internet is a now a standard tool of architectural practice. Cyberspace can also be utilized for continuing education—though most architects aren't fully aware of the opportunities. RECORD asked Paul Saltman of Kennedy-Western University to offer a primer for those interested in taking part in "distance learning."

A recent survey of architects by the AIA determined that 90 percent of firms with 10 or more employees are connected to the Internet. Practitioners are setting up project Web sites and using E-mail to transmit drawings. And, increasingly, architects are looking to the Internet to fulfill their continuing education needs.

Typically, those architects exploring the World Wide Web have quite specific course interests, such as construction contract administration or project administration, or are seeking updates on new and sensitive issues, such as sustainability. Many of these courses are readily accessible through the AIA Online Network.

But beyond that, the growing phenomenon of distance learning offers an educational venue—one that entails full course loads, not just specific-issue updates—that many architects haven't latched onto. Distance learning is conducted by a virtual school—no campus and no classroom time. Students typically interact with professors via the Internet or by phone and fax, allowing them to more easily balance their careers with a continuing education program.

Many prestigious, traditional schools—such as Harvard University and New York University—offer distance learning for selected courses. However, the day when a student can obtain a bachelor's degree in architecture from a virtual university is still in the future.

Nevertheless, some practical needs—most significantly, an MBA to enhance one's management credentials—can be met by a number of "distance schools"; degree-granting distance-learning options are not hard to find. The place to start looking, fittingly, is the Internet. Go to any major search engine on the Web, type in "distance learning," and the potential choices will cascade into view.

A big step was taken in January, when the newGraduate School of Architecture opened its virtual doors. This institution (found at www.newgraduate.org) offers holders of accredited architecture degrees a way to earn nonprofessional master of architecture degrees over the Internet for the first time (see RECORD, December 1998, page 36).

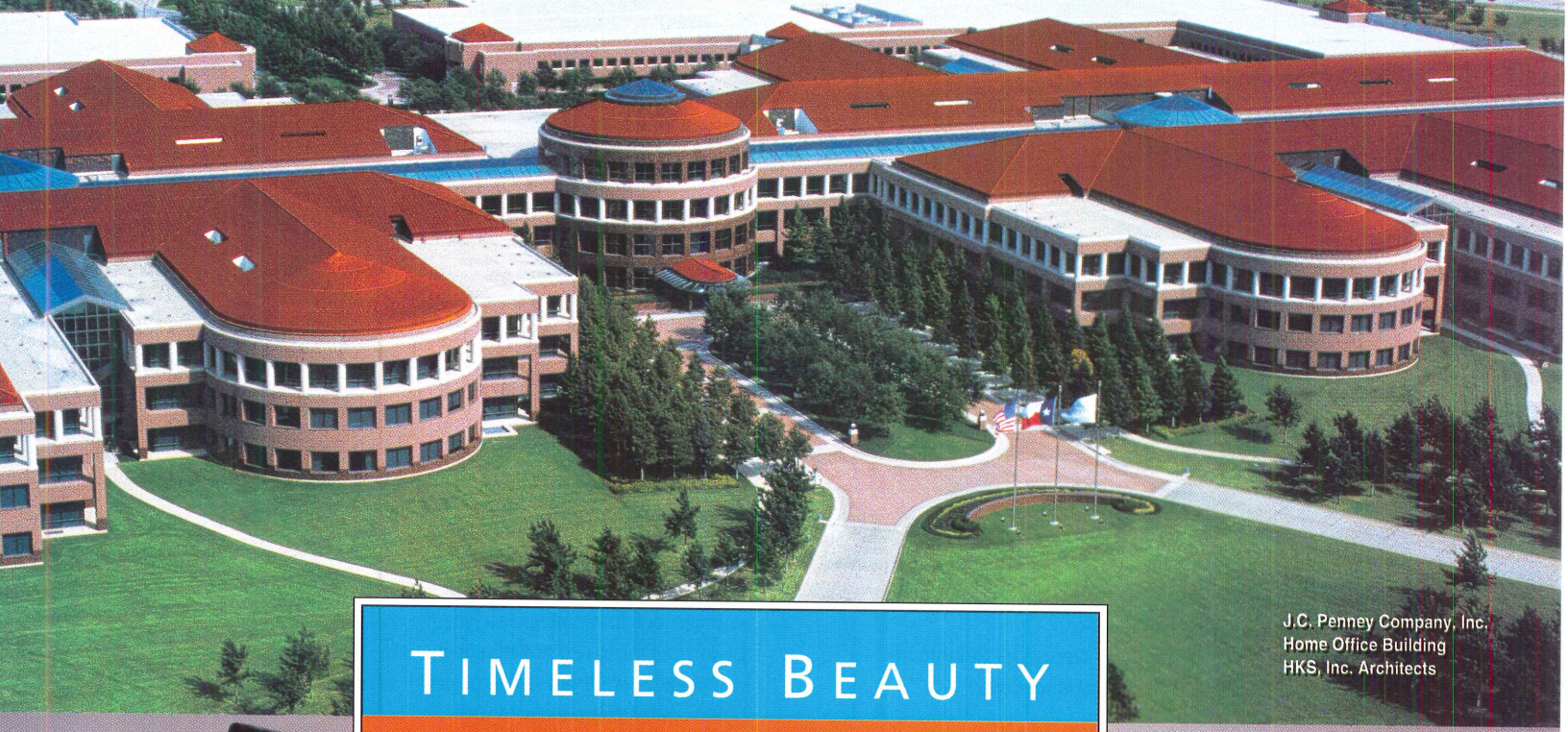
If earning a degree over the Internet intrigues you, start by finding out whether a particular school that catches your eye is sanctioned by a reputable third party. Although less common than accredited traditional universities, there are a number of distance schools that have been state-licensed or accredited by one of the nation's six regional accrediting bodies. If a distance-learning institution can't claim one or the other of these qualifications, keep looking.

Choosing a distance-learning center then comes down to the basic issues of the curricula offered and the quality of the academic staff. Check the credentials and the résumés of the faculty in your chosen course area. As for curricula, does the virtual school in question offer up-to-date and meaningful courses? Are they relevant to your career? Check to see whether the university offers more than a few token choices in your field of interest. The opinions of your peers are essential, so ask to talk to former students in your degree area.

A self-paced or self-structured environment can also be beneficial. The self-paced approach—as opposed to the typically strict schedule of a traditional school—often works best for those whose time is limited, because it presents the option of accelerating or decelerating the rate of study and completion of a degree. The time it takes to get a degree can range from 18 months to as long as five years. Tuitions are equally diverse.

Considering the many options, the most important thing about enrolling in a virtual university is doing a lot of homework first. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Submissions may be edited for space and clarity.*



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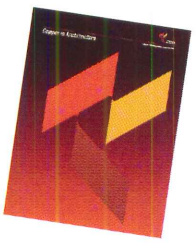

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CIRCLE 14 ON INQUIRY CARD

PULSE RECORD readers were asked: What do you think of Daniel Libeskind's new Jewish Museum in Berlin?

I toured the building last summer, and you must see it to appreciate it. The interior is alarming and disturbing, an important experience for non-Jews. The exterior is designed as if cut by a large chain saw. It will be a challenge for exhibits. The tower and garden are impressive and powerful. It's a must-see for architects.
—Robert Varnes, AIA
Robert L. Varnes & Associates
Naperville, Ill.

It is a highly sensitive design that delivers a strong social message and relates in scale to its urban environment. The exterior glazed wall openings, like prominent wounds, are incised tracery that echo the zigzag floor plan.

Although the Libeskind scheme evokes strong emotions about the derangement of man in historical events, it nevertheless should create great interest in Jewish history for casual observer and scholar alike.
—George W. Sinnott, AIA
Oakland, Calif.

After touring the museum this past summer, I have been in awe. I can't get the feeling of inspiration from experiencing such a magnificent space out of my mind. In my opinion, that's what architecture is all about.
—Mariah Young
David Milling & Associates
Ann Arbor, Mich.

The Jewish Museum represents what I call architecture of the moment. With its massive form and diagonal penetrations, it is striking, to say the least. However, I question its appropriateness to a subject that will haunt mankind for an eternity. Libeskind's attempt to incorporate historical elements such as the Star of David look fascinating as a diagram, but I fail to see how the user can identify with them when they are hidden within these skewed walls.
—Doug Pearl
Hardy Holzman Pfeiffer Associates
New York City

I don't understand it. Its purpose may be more clear when exhibits are installed.
—Leah Karpen
Asheville, N.C.

The Jewish Museum is a testament to the mysteries of the human soul. It is resolutely, breathtakingly, insistently forceful in design and in relationship to the place and the community. So eloquent is Libeskind's vision that visitors must inevitably experience the museum as the architect intended, rather than as administrators, curators, or critics might imagine or desire.
—Carole Rifkind
Author, A Field Guide to Contemporary American Architecture
New York City

I will try to keep an open mind until I visit, but this type of architecture frightens me. It seems to bludgeon the visitor with a single idea. If the conceptual narrative drops away, does the architecture have anything to say? If you "get it" or have been properly indoctrinated, the architect is relieved of the need for architectural skills to convey an idea and the visitors are relieved of the need to think for themselves.
—Stephen Varenhorst
Stephen Varenhorst Architects
Conshohocken, Pa.

This Month's Question

Can architecture's power to affect human behavior be quantified?

Environmental psychology is proving statistically what architects have understood intuitively. In "How Places Affect People" (February, page 74), Winifred Gallagher writes that good architecture can improve our mood as well as our creativity and productivity; conversely, bad environments can act as depressants. She goes so far as to assert the following: "Just as [architects] have thought of themselves as artists and builders . . . they now have the option of seeing themselves as healers of a kind, who prescribe design rather than drugs."

Can architecture's power to affect human behavior be quantified? ☐ Yes ☐ No

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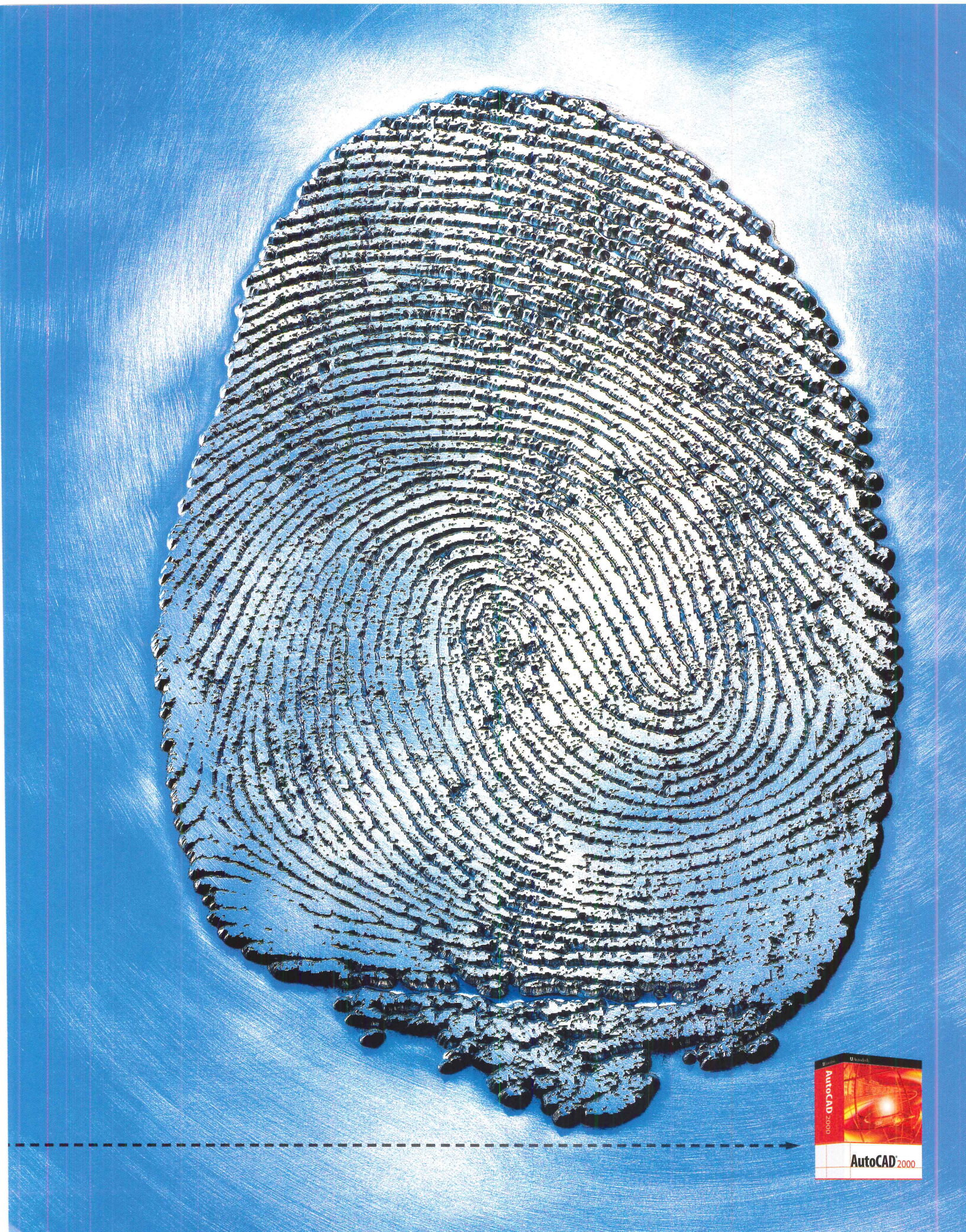
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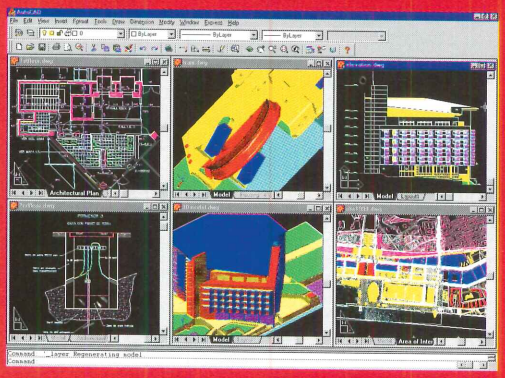

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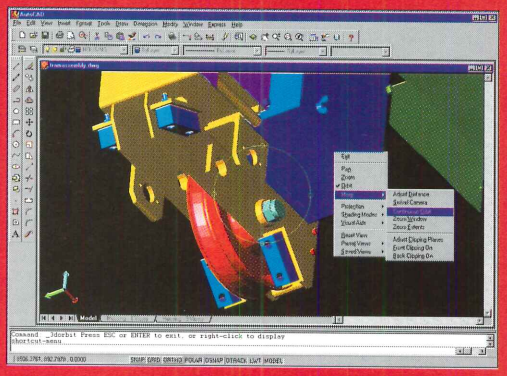

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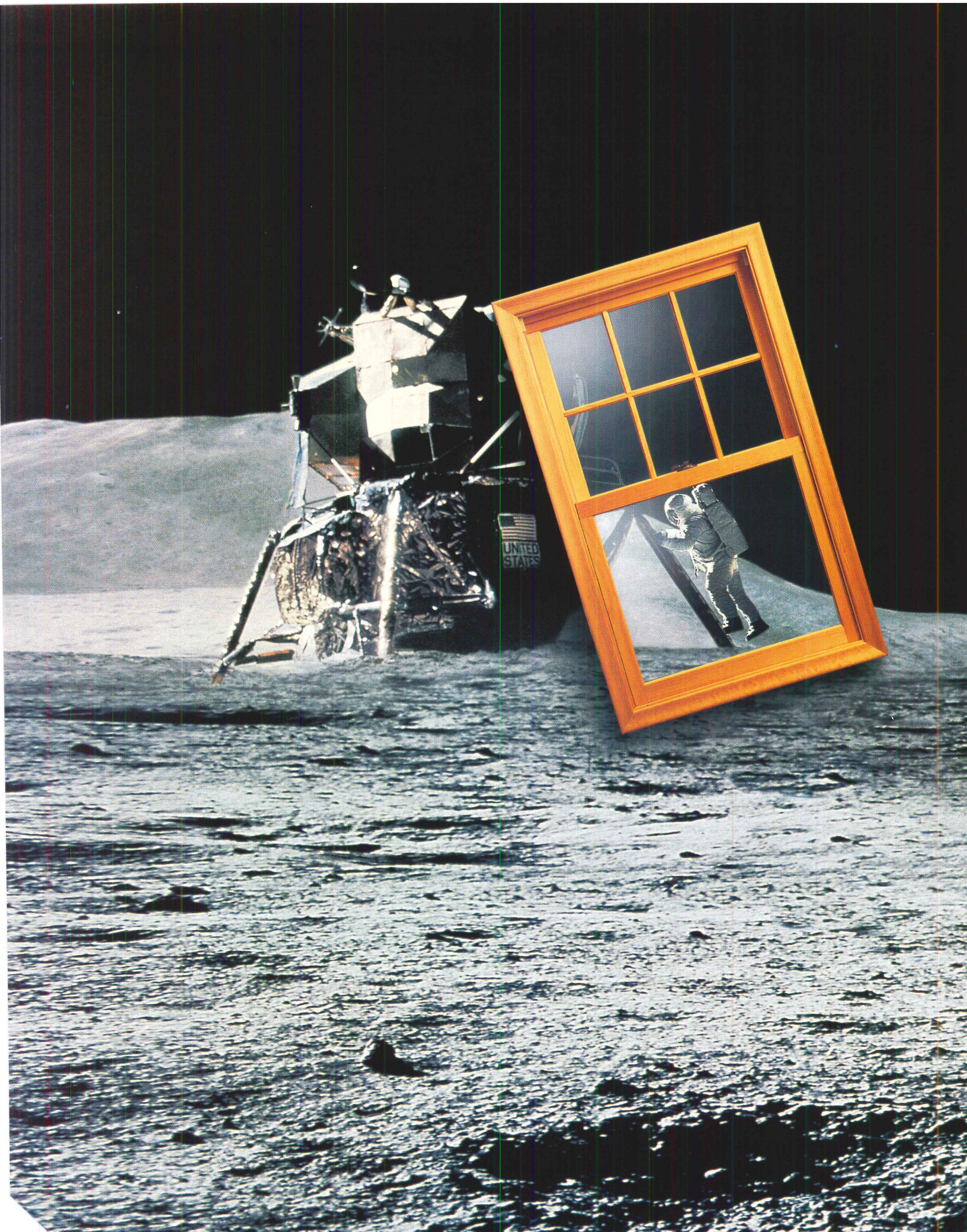
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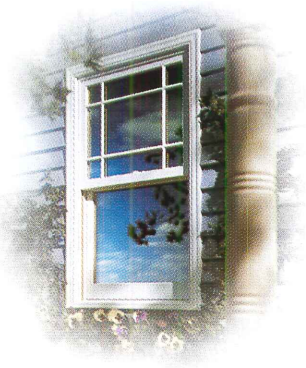

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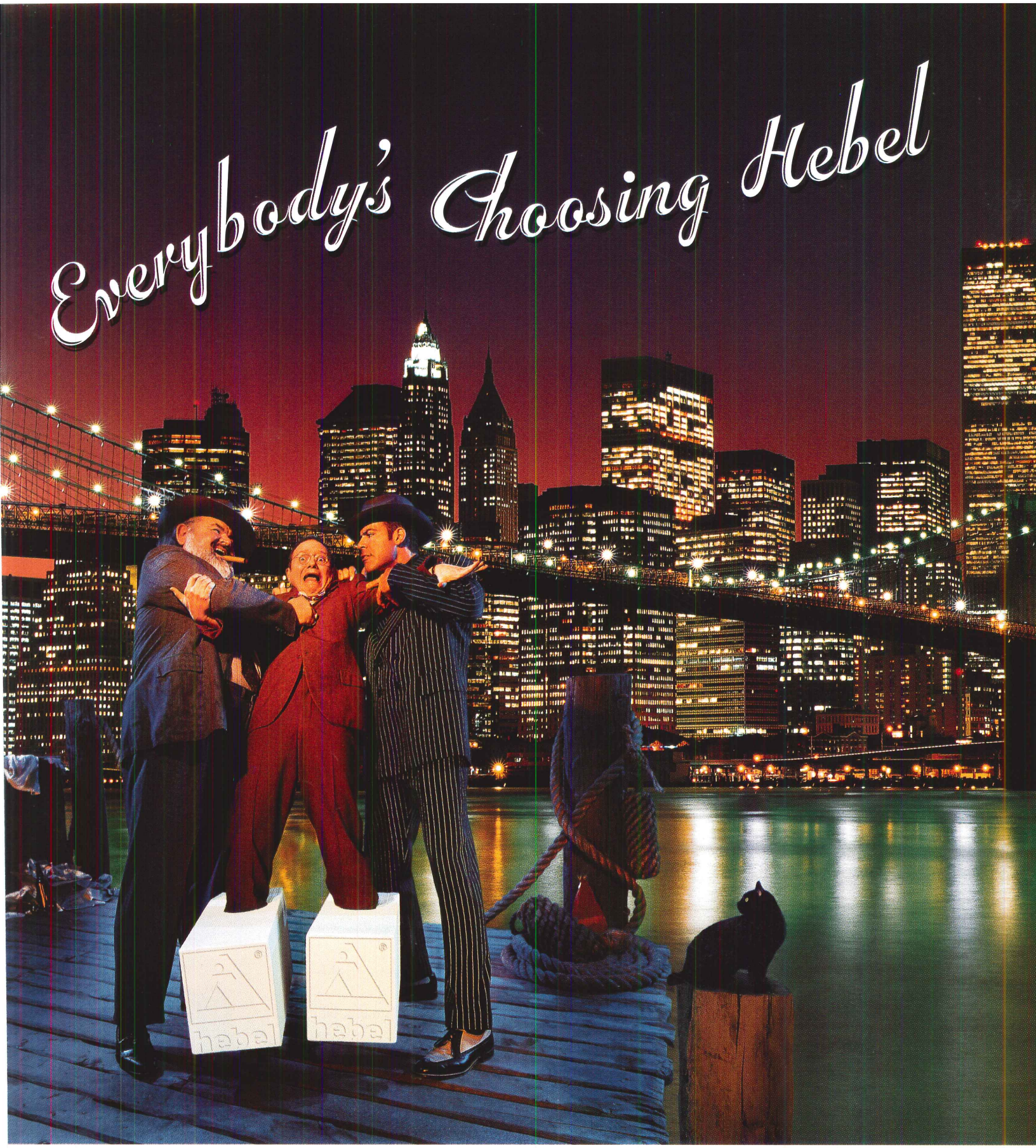

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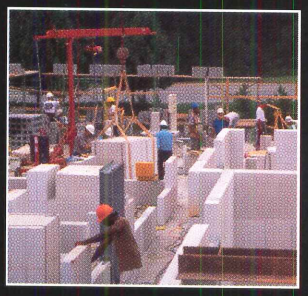

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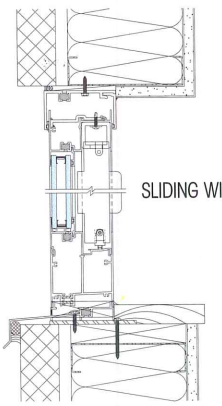

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CRITIQUE The Era of the E-topia: the right reactions to the digital revolution can produce lean and green cities.

BY WILLIAM J. MITCHELL

Technology is changing the way we live and work, and the changes are as momentous for architects as for clients in business and government. Digital advances have already altered the way buildings function and look and the way designers practice their profession; the exact architectural forms that will result from further developments are hard to pin down, even for the near future. But as William Mitchell suggests in the following essay, the explosion of on-line shopping, banking, and schooling, along with telecommuting, will continue to profoundly affect the details of design and the shape of our communities.
—Andrea Oppenheimer Dean

Sustainable cities? Of course! Who could seriously argue for the alternative? But the shopworn strategies of moralistic exhortation, endless regulation, bicycle fetishization, and well-intentioned tinkering with material choices and energy systems will not get us there. We must be more radical. We must create e-topias: lean, green, electronically serviced, globally connected cities that work smarter, not harder.

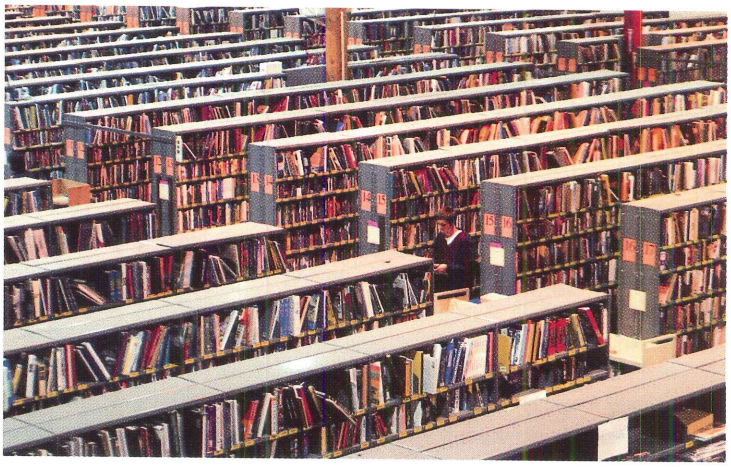
Today's inexpensive and ubiquitous digital telecommunication and computation systems provide the key. If we use them cleverly, they will help us to do far more with much less. The new electronic systems will allow us to extend the definitions of architecture and urban design to include virtual places as well as physical ones, software in addition to hardware, and interconnection by means of telecommunication links as well as physical proximity and transportation systems. And we must recognize that the fundamental web of relationships among homes, workplaces, and sources of everyday supplies and services—the very glue that holds cities together—may now be formed in new and unorthodox ways.

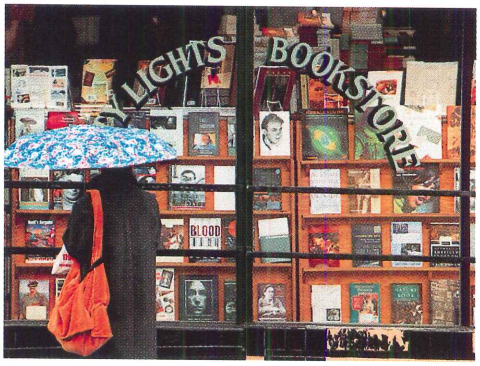
Here, then, are five starting points for a cyber-sustainable architecture:

1. *Dematerialization.* When a virtual facility, such as an electronic home banking system, replaces a physical one, such as a branch bank, there is a net dematerialization effect. We no longer have a need for so much physical construction, and we no longer have to heat and cool it.

There are analogous benefits when we separate information from its traditional material substrates. For example, an E-mail message does not consume paper. Furthermore, if you replace a material artifact, such as a message on paper, with a dematerialized equivalent like an E-mail, you are left with no waste to be managed. A used bit is not a pollutant.

If you want a glimpse into the cyber-sustainable future, imagine the growing competition between the material and the virtual being played out by resourceful protagonists who are aware of their comparative advantages. The local bookstore versus Amazon.com? The supermarket versus Internet grocery shopping and home delivery? Dilbert cubicle-farms versus telework from home offices? Princeton University versus a distance-learning center? Lining up at the Department of Motor Vehicles versus renewing your driver's license on-line? The outcomes, of course, will vary. But we will increasingly find ourselves asking the fundamental questions: "Is this building really necessary? Can we wholly or partially substitute electronic systems instead?"





Traditional building types—for example, bookstores like San Francisco's City Lights (left)—might wane as electronically based businesses like Amazon.com (warehouse above) take over the retail landscape.

2. *Demobilization.* We also conserve resources whenever we wholly or partially substitute telecommunication for transportation. In general, moving bits is far more efficient than moving people and goods. The savings show up in reduced fuel consumption, pollution, vehicle manufacture and maintenance, land lost to transportation infrastructure, and time lost to commuting.

We should not, however, look for simple, direct substitutions; the interactions between telecommunication and travel are too complex and subtle. Instead, we should take advantage of advanced telecommunications to help create new, more

William J. Mitchell is professor of architecture, media arts and sciences and dean of the school of architecture and planning at MIT. His latest book, E-Topia: Urban Life, Jim—But Not As We Know It, *will be published by MIT Press this year.*

compact urban settlement patterns that reduce travel distances and encourage more pedestrian and bicycle movement and significantly less automobile transportation. Specifically, if the industrial-era separation of home and workplace produced the long, wasteful commute, then neighborhoods of wired live/work dwellings promise to shorten or even eliminate it. And while centralized services required travel to obtain access, electronic distribution does not: downloading a movie, for example, makes a trip to the video store unnecessary.

One promising strategy, then, is to develop polycentric cities composed of compact, multifunctional, pedestrian-scale neighborhoods interconnected by efficient transportation and telecommunication systems. By once again linking homes, workplaces, and service facilities in this way, we can effectively pursue a sustainable balance of local pedestrian movement, node-to-node mechanized travel, and global telecommunication.

3. *Mass customization.* The dumb machines of the industrial era gave us economies of standardization, repetition, and mass production, but the smart machines of the computer era can provide economies of intelligent adaptation and mass customization. We can employ silicon and software on a massive scale to custom-deliver only what is required in particular contexts, and no more.

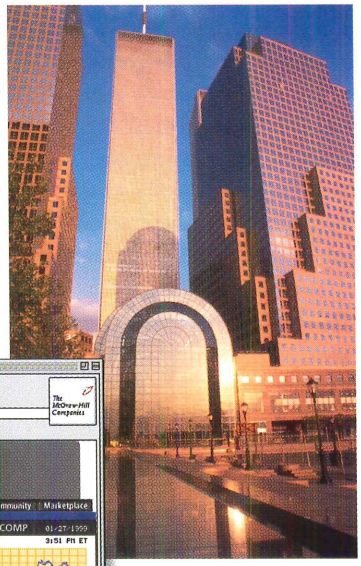
On any given morning, for example, you are unlikely to read all the pages of your newspaper. An electronically delivered, home-printed, personalized newspaper system can use a profile of your interests to select and print only those articles and advertisements that you are likely to want to read. This strategy gobbles fewer trees and produces less waste.

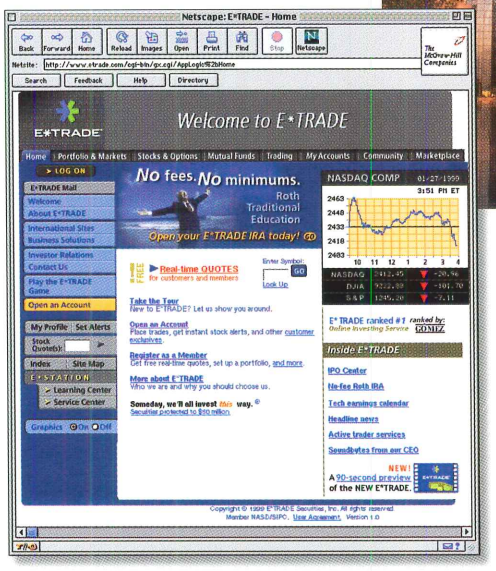
Similarly, most of the time your car just sits in garages and parking lots, tying up valuable space and resources. By contrast, an electronically managed car rental and distribution service could provide just the type of vehicle you want, wherever and whenever you need it. Better management of such vehicle fleets may be more useful than trying to build ever more efficient standard-issue automobiles and imposing increasingly stringent parking restrictions.

4. *Intelligent operation.* Much the same goes for those consumable resources that flow through pipes and wires—water, fuel, and electric power. By putting more intelligence into devices and systems that consume these resources, we can minimize waste and introduce pricing strategies that effectively manage demand and encourage thrift.

A standard, "dumb" irrigation system, for example, relies on human gardeners to turn on the faucet and point the hose in the right direction. A rudimentary automated system may be driven by a clock, so that it sprays water at regular intervals—even when rain is falling. A smarter system may be controlled by sensors, so that it dispenses water only when necessary. But a really smart system should monitor both its environment and water availability levels and learn to predict and automatically satisfy irrigation needs without wasting water or making heavy demands when the supply is restricted.

Similarly, an elementary electrical system allows the lights and appliances in a house to be switched on and off. Slightly more sophisticated systems put some of the switches on timers. With the addition of simple sensors you can create a system that conserves energy by switching off the lights in unoccupied rooms. For maximum efficiency, though, you need a system that learns how you live, learns patterns of varying electricity pricing, and operates your heating and air conditioning, lighting, and appliances according to a predictive, lifestyle-based model that it maintains and continually updates.





"Cathedrals of commerce" (above, the World Trade Center and the World Financial Center in New York) may become less necessary in the wake of on-line banking and investment sites like E-Trade.

This sort of advanced automation is not about labor-saving—the sales slogan for early domestic appliances—nor is it motivated by fantasies of being served hand-and-foot by compliant machines. The goal is to create highly efficient, responsive markets for those scarce, consumable resources upon which all human settlements depend. In these markets, both the sellers and the buyers are intelligent machines. Users of buildings have better things to do than trade energy resources in these markets, so they will leave it to their smart silicon surrogates—which will do better at it anyway.

5. *Soft transformation.* In the 21st century's hot spots of new development, there will undoubtedly be opportunities to create new neighborhoods, and even whole new cities, that are organized to take advantage of emerging methods for dematerialization, demobilization, destandardization, and intelligent control. In most developed areas, though, the primary task will be to adapt existing building stock, public spaces, and transportation infrastructure to meet new requirements.

Fortunately, cyber-sustainable changes need not wreak havoc on cities to the same degree the industrial revolution did. New transportation infrastructure consumes large amounts of space, frequently devastates areas of natural and historic value, and increases noise and pollution; new telecommunications infrastructure is far gentler and less intrusive in its physical effects. It will not need a Robert Moses, because it can often be inserted almost invisibly.

Furthermore, electronically serviced space for information work does not have to be concentrated in large contiguous chunks, like the commercial and industrial zones of today's cities. It can be accommodated within the small-scale spaces that characterize older cities, which opens up promising opportunities for preservation, reuse, and revitalization.

In the 21st century, then, architects and urban designers must gracefully integrate the emerging activity patterns created by pervasive digital telecommunication into the urban forms and textures inherited from the past. The path from our present systems to those of the future need not be one of cataclysmic change; it can be one of mostly soft, subtle, incremental transformation. ■

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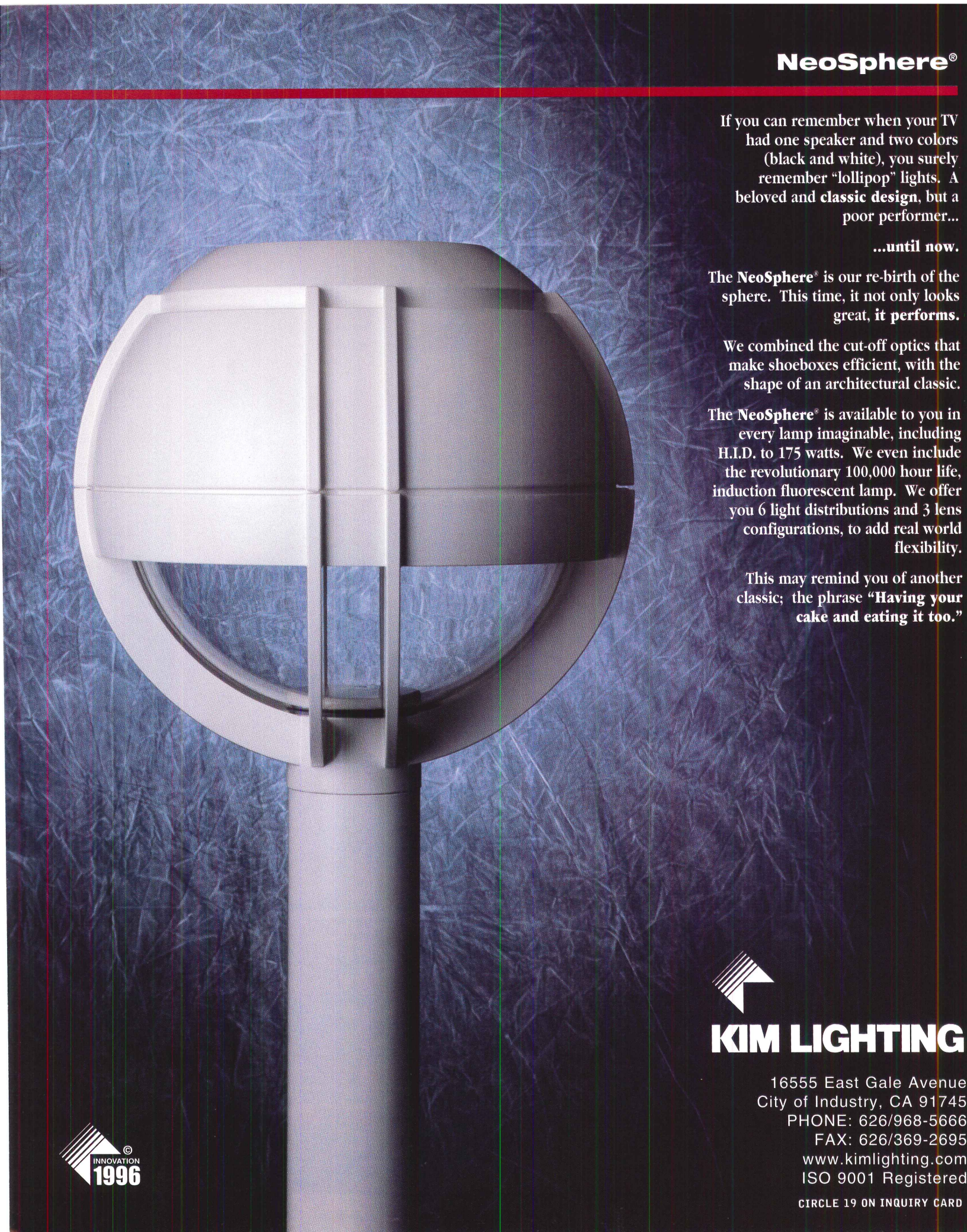

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CIRCLE 19 ON INQUIRY CARD

DIGITAL ARCHITECT Computer intranets move firms closer to the seemingly elusive goal of a well-connected practice.

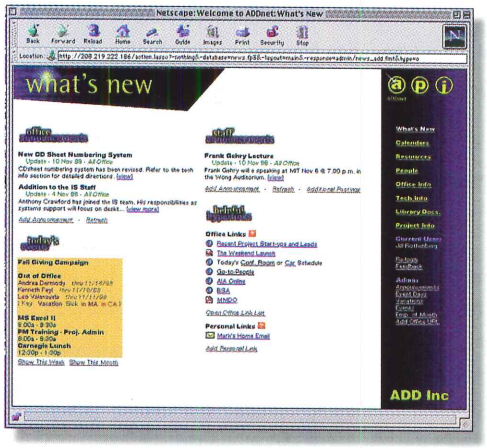
BY JERRY LAISERIN, AIA

When architects began automating their offices in the 1980s, they substituted word processers for typewriters, time and billing software for adding machines, and computer-aided design (CAD) for drafting pens. While the instruments of production changed, the actual output remained much the same: discrete correspondence, financial reports, and drawings. But computers also translated the words, numbers, and graphics of those traditional documents into digital information that could be moved and managed in radically new ways.

Today, database management systems, like electronic glue, bind together disparate data types for presentation and study in a variety of useful permutations. Universal interfaces, such as Web browsers, allow architects easier, more centralized electronic access to office and project files. By combining database-linked software applications and Web browser–based file access with a new kind of software "lens," called middleware, cutting-edge design firms are focusing on internal Webs, or intranets, to link their practices.

What's an intranet?

The word "intranet," coined in 1993 by the Amdahl Corporation in Sunnyvale, California, refers to a firm's use of Web browser software



An intranet homepage, similar to one found on the Internet, from ADD Inc.

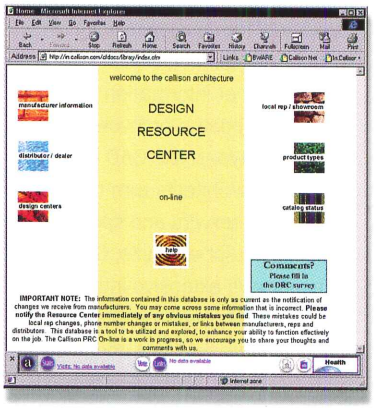
to search internally through its own files. Browsers, like Microsoft's Internet Explorer or Netscape Navigator, originally were developed to explore external World Wide Web files on the public Internet and to navigate the links among them. But nearly 87 percent of businesses responding to a recent *InternetWeek* survey have already adapted their browsers to intranet usage. This figure is expected to rise to 98 percent this year.

An intranet consists of more than just a Web browser "front end." Typically, there is also a database management system (DBMS) "back end" and Web server middleware that arranges data for presentation to the browser. This tripartite division is often called a three-tier "architecture," which describes the logical organization of computer software components into an overall system.

Intranet users rely on the Web browser as the software equivalent of a viewfinder, framing virtual snapshots of internal files. The browser, in turn, looks through a software lens provided by middleware. The latter focuses and filters views of one or more databases to provide shared connections among a firm's disparate programs and file types.

Among the design firms that already have an intranet, the range of online content is remarkably uniform. Opening screens often resemble home pages of public Internet sites, but with internal links to firm information, such as employee directories; calendars; schedules; personnel policies and office manuals; project, resource, and image detail libraries; CAD standards; help files; and databases of current and prospective clients.

Notably missing from most intranets, however, are project Web sites, or extranets. These sites contain project-specific information accessible to the appropriate client, consultants, and contractors. Ken Sanders, AIA, partner at Zimmer Gunsul Frasca Partnership (ZGF), observes that general office intranets and project Web sites each "need different layers of openness and accessibility," depending on how they are used.



Callison's resource library includes manufacturer information, distributors/dealers, design centers, local representatives, and product types.

Building an intranet

For most firms, the choice of intranet software tools is governed by compatibility with the software they already have installed on their local area network. If a firm already uses a Web browser for Internet access, it is likely to apply the same browser as the front end of its intranet.

The advantage, according to Sanders, "is that the browser becomes the universal viewing device for external and internal information." Smaller firms, and those using Macintosh computers, seem to prefer Netscape's browser software. Larger firms, like the 350-person ZGF, lean toward Microsoft's Internet Explorer as their intranet front end, especially if they use Microsoft WindowsNT as their operating software.

Similarly, a centralized DBMS is usually the logical choice for the intranet back end. ZGF had Microsoft's SQL Server DBMS in place even before launching an intranet. Firms that do not have a centralized DBMS, or are looking to upgrade one they already have, generally choose systems that comply with the software standard known as

Jerry Laiserin, AIA, consults, lectures, and writes about the impact of information technology on the practice of architecture. He is an editor of ACADIA, *the journal of the Association for Computer-Aided Design in Architecture.*

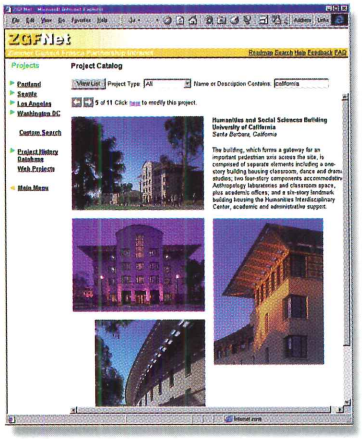
open database connectivity (ODBC). This standard assures that DBMS tools can read each other's files. A majority of currently popular databases, from the richest offerings of Oracle Corporation to the newest version of FileMaker software's plain-vanilla FileMaker Pro, are ODBC-compliant.

A single intranet can, and often does, work with multiple databases. Some of a firm's existing software may store data in DBMS formats. At Hardy Holzman Pfeiffer Associates (HHPA) in New York City, the main DBMS for existing applications is SQL Server, but James Brogan, AIA, the firm's director of technology, prefers to develop new intranet-specific applications in FileMaker Pro. "It's easy, fast, and very Web-compatible, so it's perfect for our contact lists, project directories, and interiors resources," he says.

Other firms, like Cambridge, Massachusetts–based ADD Inc., choose FileMaker Pro "because it works equally well on our Windows and Macintosh platforms," says Jill Rothenberg, the information services director at the 140-person firm.

The most critical component of an intranet is middleware, a term properly limited to Web servers, like Microsoft's Internet Information Server (IIS). Frequently, that category is stretched to include software development tools, like Microsoft's Visual InterDev, for creating custom intranet applications; and also page-layout tools, like Microsoft's FrontPage, that craft Web documents the same way desktop publishing crafts printed documents.

Many firms choose IIS as a Web server, in part because it is included with their WindowsNT software. Alternatively, firms that use both Macintosh and Windows computers choose "cross-platform" middleware tools like Lasso 3 from Blue World Communications. The ability to easily blend multiple databases, like SQL Server and FileMaker Pro, appealed to Bob Roberts, director of computer services at the 60-person MBT Architecture, with



This project catalog is used by ZGF to house images and descriptions of the firm's past projects. The catalog can be searched by company employees according to project type, name, or description.

offices in San Francisco and Seattle, to select Pervasive Software's Tango 3.5 as the firm's middleware.

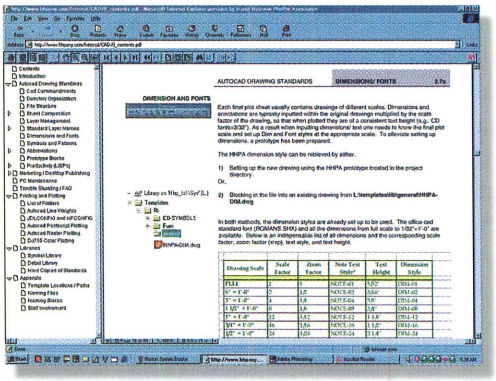
Development and page-layout tools in middleware packages offer a range of mix-and-match choices with each other and with various Web servers. ZGF's Sanders uses IIS as a Web server, with Visual InterDev 6.0 for application development. At the 450-person firm Callison Architecture, based in Seattle, Michael Medina, director of technology services, and Brian Ware, applications manager, use Allaire's ColdFusion 4.0 development tool because of its ease of use and its cost-effectiveness. Brogan at HHPA relies on an IIS Web server plus Microsoft's FrontPage page-layout tool for developing his firm's intranet pages.

If intranet information must be frequently updated or involves specialized file types, like CAD or image files, some architects turn to automated Web servers and specialized middleware. For example, Callison Architecture's extensive intranet requires regular updates to thousands of time-sensitive documents, such as project schedules or product catalogs. It would be time-consuming for users to post these updates one by one. Instead, Callison automates intranet publishing and updating of all non-CAD files via Allegis Corporation's Net-It Central Web server, and serves up CAD files to the intranet via Bentley Systems' ModelServer Publisher.

Linking to an intranet

As architects add more complex software to their practices, "people need to know a dozen different applications to do any useful work," Sanders says. One solution to this problem is for software vendors to make the input and output functions of their products directly accessible via browser software. This Web- or browser-enabled feature spares users from learning multiple distinct program interfaces. Instead, the browser becomes the common control panel for many programs, as well as the common viewfinder for multiple file types.

For example, SOTA Software



HHPA's CAD standards are available on the firm's intranet to ensure consistency in the style of drawings. Labeling, fonts, layer management, dimensions, and symbols are all universalized.

Systems' AegisWeb is the first fully intranet-compatible accounting software for architects and engineers. At giant firms such as HLM, Spillis Candela & Partners, and Callison, project managers access AegisWeb via a browser and generate project reports without intervention by accounting or information systems staff. This puts timely project control information directly into the hands of those who need to act on it. Advantage, from Deltek Systems' Harper and Shuman division, includes browser-enabled Timekeeper and Expensekeeper modules to accelerate timesheet entry at major firms like Gensler, Hellmuth, Obata + Kassabaum, and ZGF.

Some project management software programs are also adding intranet functionality. Webster, from Primavera Systems, is a browser-based viewer for Primavera's Project Planner and for Expedition, a program for tracking submittal logs and other construction-phase paperwork. Meridian Project Systems recently released Prolog WebSite, a Web-enabled add-on to Prolog Manager 5.0, another scheduling, logging, and tracking tool.

Challenges and benefits

The consensus among users and software vendors is that all programs will be intranet-ready within a year or two. However, Brogan notes, "The real challenge of intranet technology is not the software itself, but getting the culture of the office to tap into it." In-house education is needed to overcome what Brogan describes as "an age gap in people's comfort level with the technology, which occurs somewhere around those in their early 30s." And the intranet must be made easy for all staff to contribute to, not just the information systems staff.

Intranet users are almost unanimous in citing the advantages of the new technology: centralized files, coordinated procedures, firm-wide access to all information, and ease of distributing and updating information. Ultimately, though, the benefits of an intranet are more about people than about programs. "Intranets provide a resource to leverage good ideas anywhere that they occur in the firm," concludes Sanders. Easier communication means that these ideas can flow more smoothly among company personnel. ■

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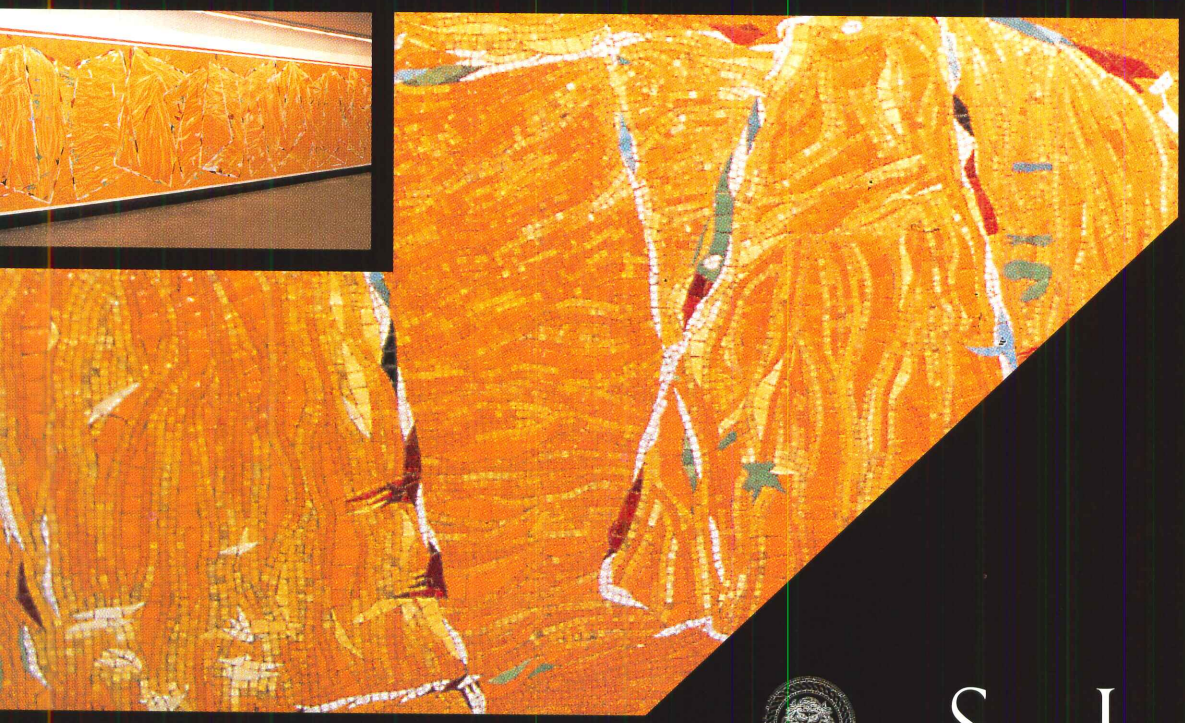

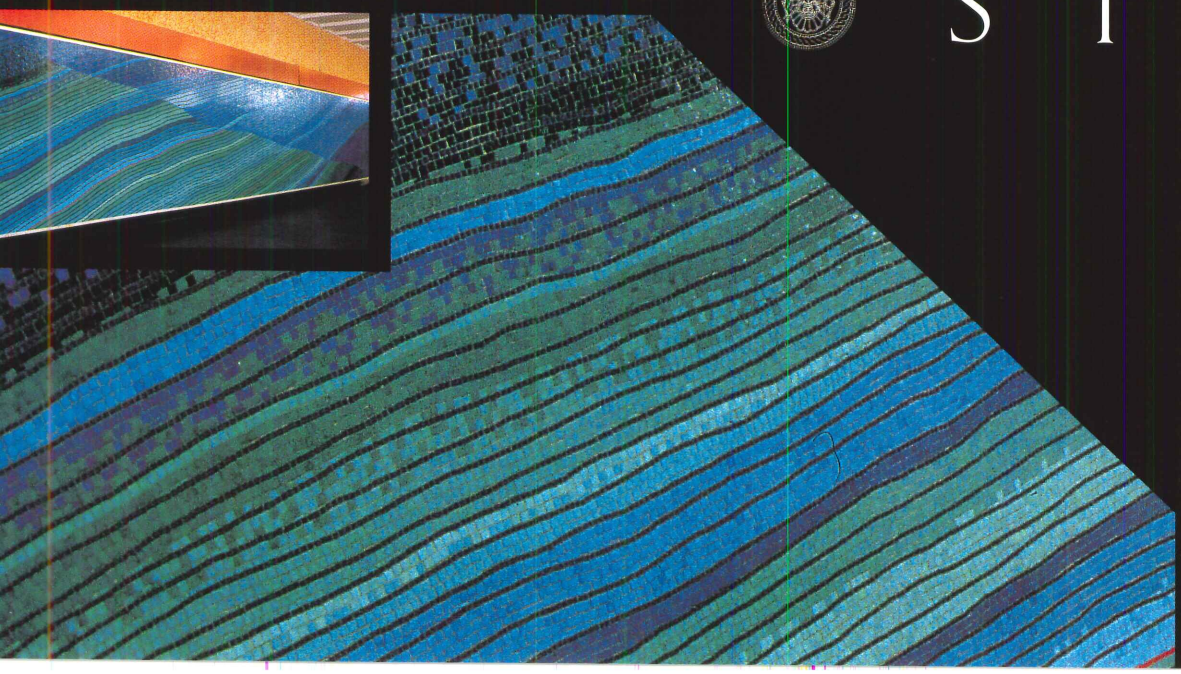

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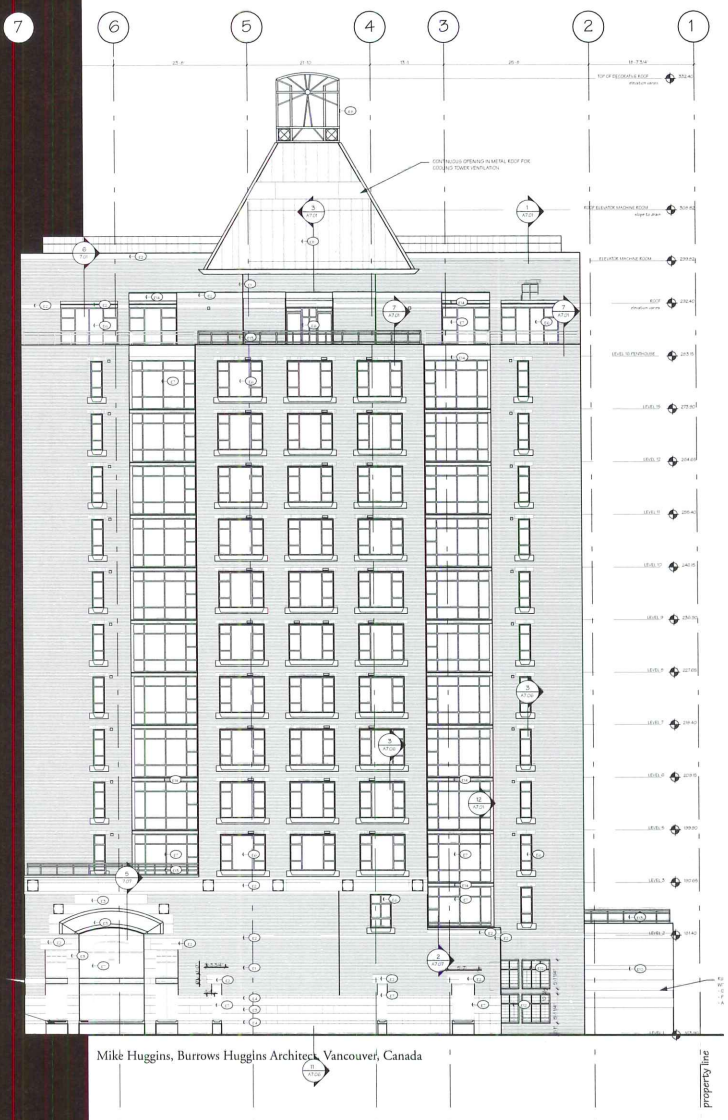

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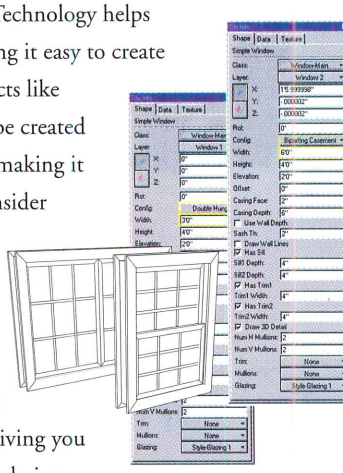

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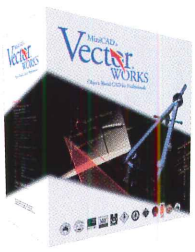

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CIRCLE 21 ON INQUIRY CARD

CORRESPONDENT'S FILE As Havana crumbles, Castro's agencies struggle to preserve a rich legacy while controlling new development.

BY JAMES S. RUSSELL, AIA

James S. Russell, AIA, is RECORD's *editor at large.*

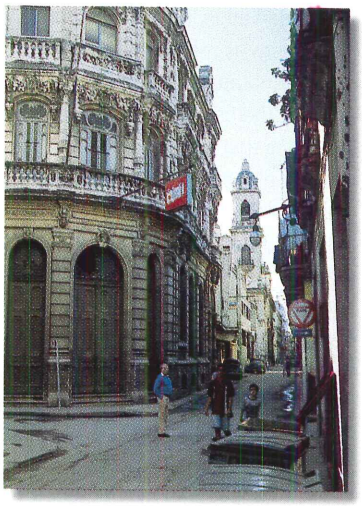
Eusebio Leal Spengler is quickly guiding visitors through the streets of old Havana. A group of Americans, organized by the Preservation League of New York and the Bethesda, Maryland–based International Policy Institute, is examining the work his Office of the City Historian has done to restore the 1828 monument to the city's founding. But Leal (like other Cubans, he goes by his middle name) has already moved across a plaza to the 17th-century Palace of the Nobles, which has been turned into a hotel. Leal moves fast because he has much to show.

He is, for now, one of the primary hopes for this city teetering on the brink. Leal's efforts represent some of the most successful steps taken by the Castro regime in its effort to balance socialist values with a desperate need to generate hard currency. In 1994, the Office of the City Historian was given the power to restore buildings and turn them into primarily tourist-oriented hotels, restaurants, and retail outlets; the proceeds are reinvested in subsequent projects. For example, starting with just $1 million, Leal has completed 4 hotels and has 17 more in construction. His operations now bring in $4 million a month, which is reinvested in a rapidly growing panoply of new projects that increasingly involve foreign investors.

Still, buildings collapse regularly in Havana. Visitors encounter piles of rubble in otherwise neatly swept and largely empty streets. (Resources are too meager to dispose of the remains.) Cuba's status as the most radical Communist state in the western hemisphere has preserved, by poverty as much as intention, a pre-automobile city with an architectural wealth ranging from 16th-century fortresses and 17th-century palaces to 19th-century villas and 20th-century boomerang-modern suburbs. But historic preservation partisans worldwide have Cuba on a death watch: it is poised between the Scylla of spiraling decline under its current bureaucratic structure and the Charybdis of new, cash-generating but insensitive development (RECORD, February 1997, page 90).

The Castro regime has vested extraordinary power in the normally peripheral figure of City Historian. Leal has become akin to a planner, real estate investor, and mayor rolled into one. His office employs 100 architects and engineers, 20 archaeologists, and 40 historians. He has created a school that teaches restoration of iron, stone, brick, and wood. He produces a magazine and television shows. In one hotel, he will install a boutique cigar factory, and for a restored apothecary, he has organized the manufacture of homeopathic soaps and medicines.

Some of the historic residences in Old Havana are undergoing restoration and renovation.



A typically impressive—yet run-down—view of Old Havana.

Leal's office installed a library behind a historic palace facade in what was once the American Embassy, restored a prenatal clinic, created a program to help older people attend church, and is turning an Art Deco cinema into a history museum. It's not surprising that he is greeted wherever he goes by store proprietors and neighborhood residents.

However, preservationists have criticized the quality of Leal's restorations. Although he admits that some historic fabric is now lost that might have been saved by a wealthier city, Leal points to the damage decades of neglect have inflicted. He explains that, for Havana's

architecture, either there is little detail left to restore (especially in interiors) or the materials research is too costly. And he stresses that he spent years being thwarted in his attempts to get anything of substance accomplished before he took a path that was more entrepreneurial and more political than academics usually choose.

The fate of Victor Marin Crespo, director of the conservation department of Cuba's National Center of Conservation, Restoration and Museology, is more closely tied to the deteriorating fortunes of the regime. The center he heads researches and manages the conservation of buildings, furniture, decorative arts, and landscapes. Although UNESCO and the United Nations Development Program help by providing modern materials-restoration laboratories, "budgets are going down," says Marin.

He is headquartered in a cloister complex built in the 17th and 18th centuries that made the World Monument Fund's most endangered landmark list in 1996. Marin has restored the earliest two cloisters, but he could afford to do so only by cannibalizing a third. Only about half the exterior walls of the third cloister remain, propped by timbers.

Cooperative relationships with other conservation groups in the Caribbean and with universities in Latin America, Europe, and the United States generate some income for the center. (American research is allowed under the U.S. embargo.) Marin has so far eschewed the entrepreneurial path Leal has followed: "We wouldn't be able to teach and research enough." But he recognizes the deepening crisis of Havana's building stock. "I have to find new funds and increase our capacity to respond," he says.

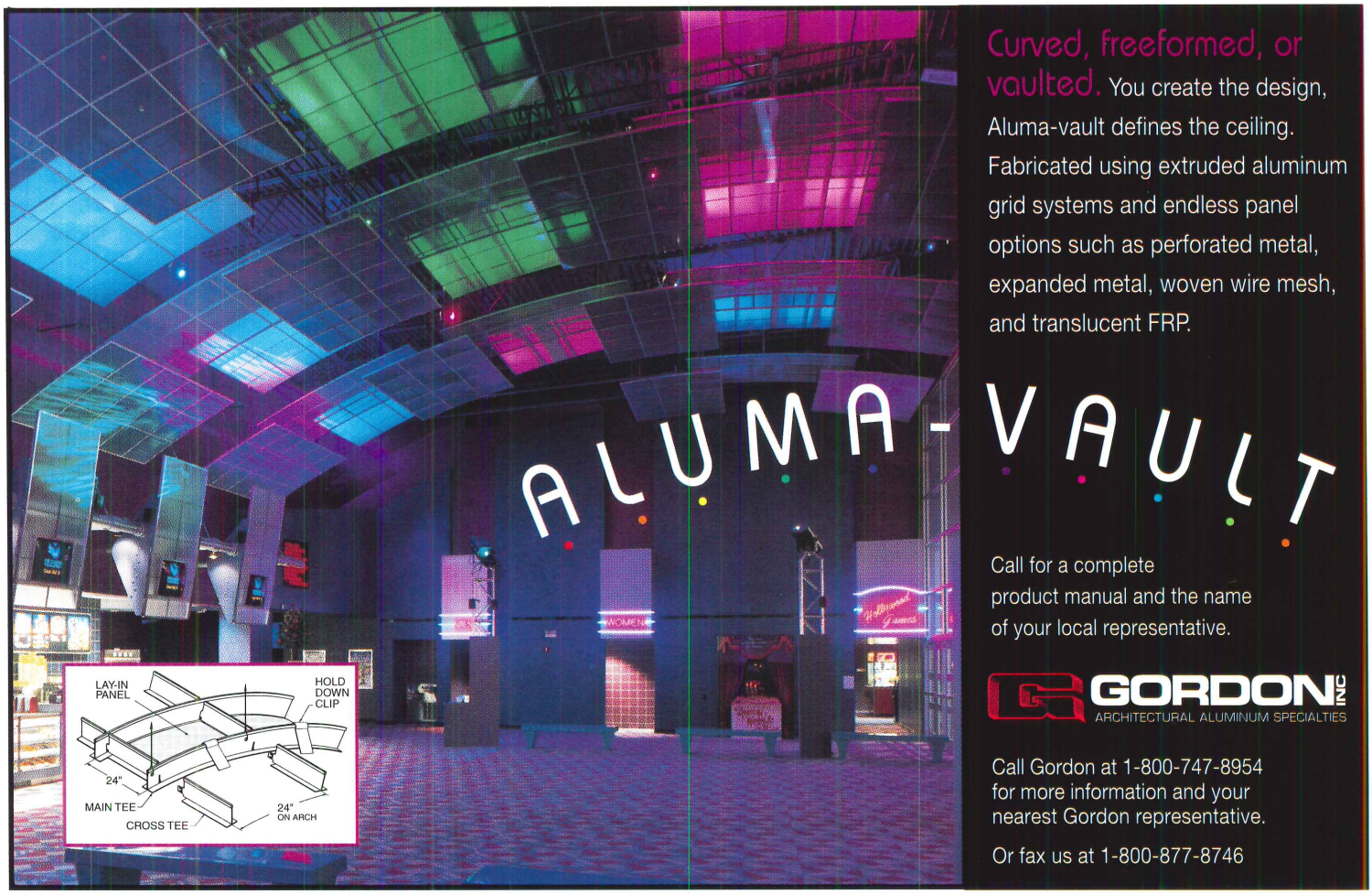
A ride down Calzado del Cerro, one of the central arteries of Havana's 19th-century growth, offers an inkling not only of the vastness of the city's tragic beauty, but the enormous effort needed to make it viable again. The dozens of blocks on this two-mile-plus trip are lined with arcades—some elegantly austere, others exuberantly ornate. Only a few of the hundreds of storefronts actually sell anything. Once the store-lined backbone for a dozen neighborhoods, the street is today an exhibition of the myriad ways a city can rot away.

In Miramar, recent development blocks ocean views.

Across town, in Miramar, amid the streamlined modern villas and Neutra-style houses of the pre-Castro elite, sits a steel-trussed pavilion housing a 75-foot-long model of Havana. This is the chief tool of Mario Coyula Cowley, the city's planning director, who uses it to shape development as Havana draws more foreign investment.

Coyula doesn't hesitate to point out recent failures—for example, a complex of high-rise hotels and office buildings, only a few blocks from his city model, overwhelm the neighborhood scale and block public access and views to the ocean (left). Worse, such complexes function as suburbanized foreign enclaves, entered primarily by car and disassociated from the surrounding neighborhoods and historic centers of commerce.

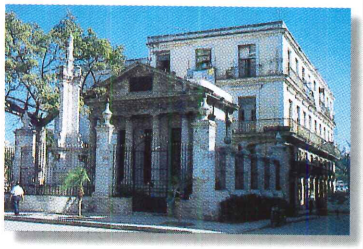
Coyula says the regime is only beginning to recognize it is possible to ameliorate the worst aspects of outside development while also boosting Cuba's identity. "We don't have to sell hamburgers to tourists,"

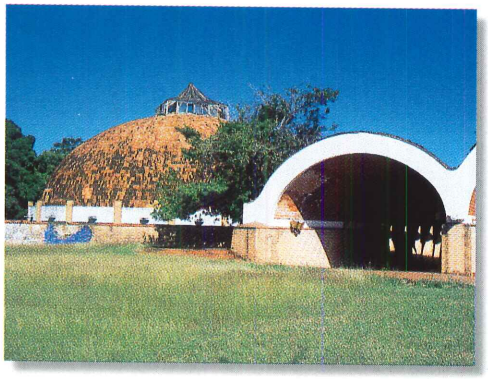


CIRCLE 22 ON INQUIRY CARD

he says. "People love things that are uniquely Cuban, like our [style of] sandwiches and our milkshakes."

Aspects of the Cuban identity are also being exported. One of the most intriguing designs of the Castro era—the National Arts Schools—was the subject of a symposium at Columbia University in February and is the focus of an exhibition at the MAK Center in Los Angeles and at Columbia through May. But the school is an exception. Declining incomes and imploding government subsidies are causing officials to lose control of development, says Coyula. "It's hard to enforce architectural integrity when a little cafeteria attached to a house, though illegal, allows family members to eat." The fact that starvation is a real risk suggests the kind of Herculean efforts needed to restore Havana's crumbling legacy. Though professionals like Leal, Coyula, and Marin remain loyal to the regime and its goals, officially regulated incomes are so low that





The 1828 monument to the founding of Havana (above); the National Arts Schools, built under Castro (right).

the tourist economy, the black market, and Miami lure Cuba's best and brightest.

Castro's attitude toward outside investment remains too pugnacious to draw dollars on the scale needed. In January, the U.S. loosened minor aspects of its embargo; however, the changes probably won't hasten Castro's exit, observers note, or arrest the country's economic meltdown. Indeed, the decline may deprive the country of the intellectual infrastructure that can guide investment in socially, culturally, and environmentally sustainable directions. Critics say the embargo forces Castro to seek development that generates fast cash and is often insensitive to its surroundings. The single-minded focus on tourism development falls far short of the effort needed to revitalize more than just a few of Havana's most beautiful districts. This was, after all, once a bustling business and banking capital, not merely a beachgoer's playground.

Also at risk is Cuba's diverse ecology. Most tourists want beaches, which Havana doesn't have—so resort complexes have sprouted on once little-disturbed coastlines. The government has preserved some important areas, but others have been lost. One new project, in a group of keys called Sabana Camaguey, will link conservation and development, says Antonio Perera Puga, director of Cuba's National Center for Protected Areas.

A visitor cannot help but be torn by Havana's current condition. Drawn to the tragic beauty in the city's aged facades, one is also repelled by the sordid living spaces they enclose. Malecón, the spectacular waterfront boulevard that wraps around the city, is traversed these days only by a sparse, eerie array of bicycles, Eastern-bloc Fiats, and the occasional tailfinned 1950s DeSoto or Cadillac. Havana feels suspended in a moment—one that, for better or worse, will not last. ■

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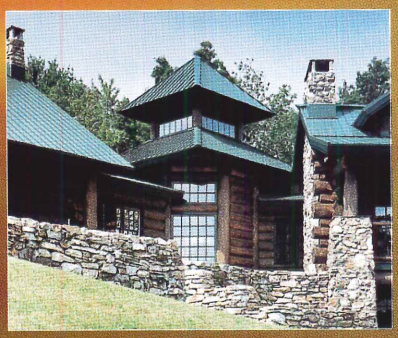

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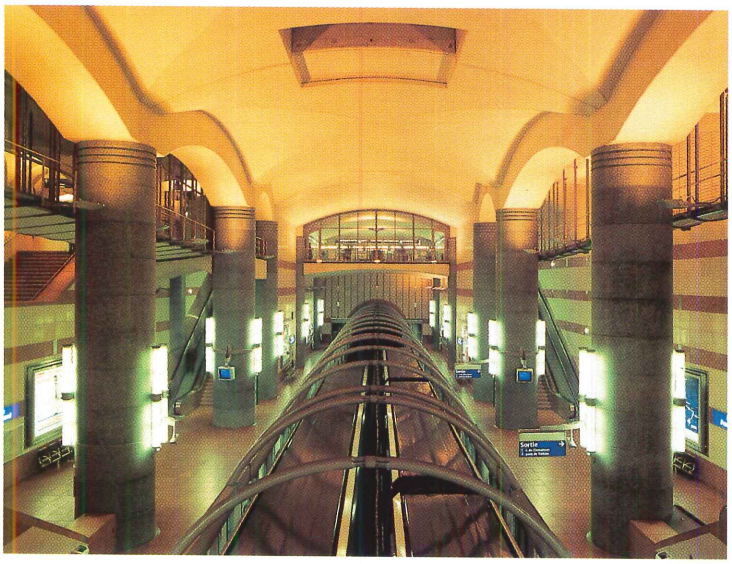
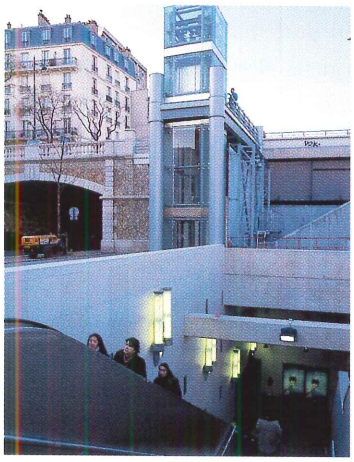


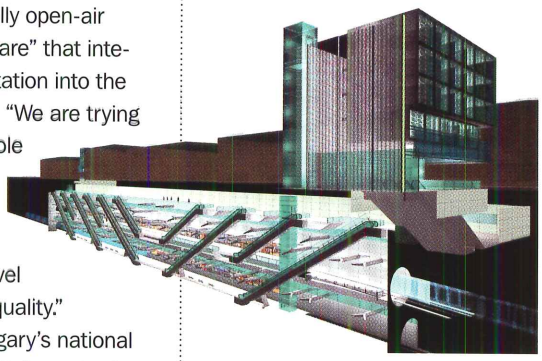
While the new Jubilee metro line in London is garnering much attention for its designs by big-name architects like Sir Norman Foster (look for coverage in the July RECORD), major subway work is also being done in Paris, Amsterdam, and Budapest.

In Paris, the new Météor line—fully automated, with no human drivers needed—was inaugurated by President Chirac in late fall. Bernard Kohn & Associés won a limited competition in 1991 to design six of the line's 10 stations and to act as a consultant for the master planning of the project; the firm created designs based on clearly defined, self-explanatory functions and central axes (above). Indirect lighting, a sophisticated acoustic design, and high-tech elevators and entrance doors complete the layout. For the above-ground portions (below), Kohn set stairways inside glazed, lighted shafts, creating what he calls "urban signals."



In Amsterdam, construction will begin this year on the city's second metro line. It will extend from Amsterdam North, under the Ij River, through the heart of the city at depths of as much as 107 feet, and on to transit links between Amsterdam's World Trade Center and the airport, and through the growing South Axis commercial complex. The 5.9-mile North-South Line and its eight stations are expected to cost slightly more than $1 billion and accommodate 215,000 riders a day.

For the metro stop at Amsterdam's Central Station (above right), Jan Benthem of the firm Benthem Crouwel has designed a three-layer transit terminal that attempts to restore order to a chaotic intersection of rail, bus, tram, and metro lines. For several of the other stations, Benthem's associate André Staalenhoef has discarded the traditional above-ground entrance to an underground chamber, opting instead for a partially open-air "sunken public square" that integrates the metro station into the surrounding space. "We are trying to redesign the whole public surface," says Staalenhoef, "so that the public spaces at street level really gain a lot in quality."



Although Hungary's national government has withdrawn its financial support for a new 4.5-mile metro line in Budapest, the city is going ahead with the $618 million project. The government walked away in November after its candidate for mayor of Budapest was defeated by the opposition party. But Laszlo Gulyas, managing director of DBR Metro, which was formed by the Budapest municipal transportation authority to manage the project, is unfazed. "Route investigations have been completed, and design work, site preparation, and land acquisition are continuing," he says. Gulyas claims the municipality "has the money to go ahead." He added that a loan contract and government guarantee, signed with the European Investment Bank, are still in effect, despite the national government's withdrawal.

The two-track line, laid in separate tunnels, will link the Keleti Railway Station in downtown Pest with the Kelenfold Railway Station across the Danube River in south Buda, the fastest-growing section of the city. There will be 10 stations, equipped with lifts for disabled commuters. It's been estimated that the new metro, Budapest's fourth, will carry some 400,000 commuters daily and significantly reduce downtown traffic congestion. *Soren Larson, Jim Wake, and Carl Kovac*

ARCHITECTURE'S STARRY NIGHT **Whoever said that architecture has lost its stars? They were out in full in Washington, D.C., on February 9, gathered from California and Chicago, even from Europe—a constellation of prominent architects, clients, and afficionados—for the American Architectural Foundation's gala, Accent on Architecture. In the space of a few feet, Michael Graves brushed past the Spanish Ambassador, Antonio de Oyarbazal, while Paul Goldberger chatted with Peter Eisenman and critic Cynthia Davidson. Hans Hollein, Charles Gwathmey, Thom Mayne, Eric Moss, and myriad others mingled together in the Great Hall of the National Building Museum.**

National Public Radio's Susan Stamberg presided over an awards ceremony that singled out Chicago—three times. The Windy City figured in three categories: the Keystone Award of the American Architectural Foundation, whose inaugural recipient was Mayor Richard M. Daley; the 25 Year Award of the AIA, garnered by the broad-shouldered John Hancock Center; and the Architecture Firm Award, captured by the prodigious, consistently excellent Perkins and Will (for more AIA honors, see page 58).

A hush fell over the immense interior hall when Frank Gehry took center stage. He stood quietly as AIA President Michael Stanton eulogized his accomplishments. Gehry then reported his awe at being part of an event that linked him with Jefferson, Wright, and Kahn, and said that now he would have to "go back and earn it." While he recognized a full roster of collaborators and partners, the evening reached a poignant climax as he singled out "Uncle Philip" Johnson for his special contributions in fostering new generations of talent. It was a modest and affecting response to glory, a coda to an evening that bubbled like champagne. ***Robert Ivy***

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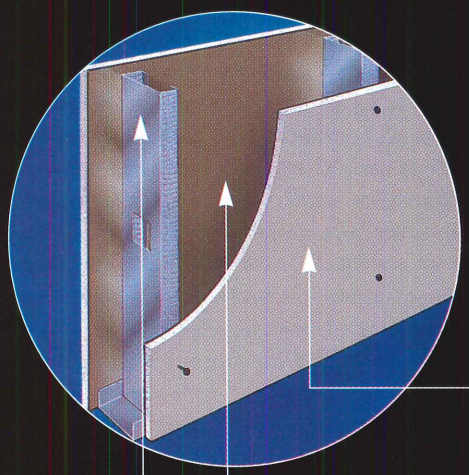

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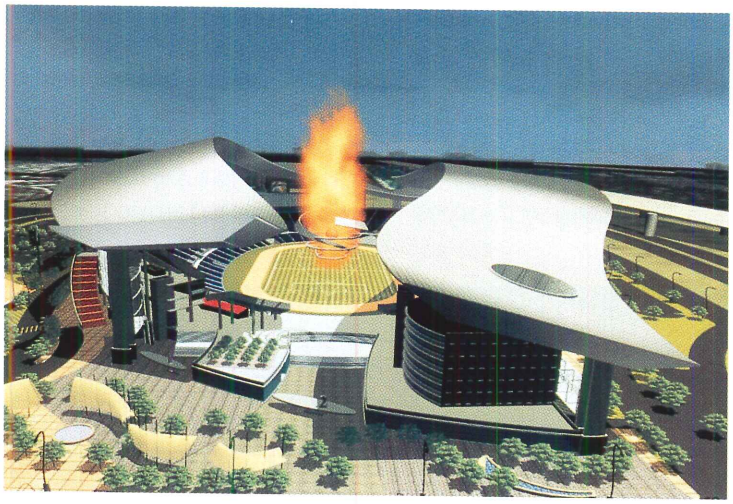


AMERICAN STADIUM DESIGNERS TRYING THEIR HAND IN CHINA

After a competition among eight invited firms (five of them foreign), the People's Republic of China has selected the NEB Design Group to construct the 80,000-seat Guangdong Olympic Stadium in the city of Guangzhou, about 100 miles north of Hong Kong. The project is the centerpiece of a 10 million-square-foot Olympic center that will encompass retail, restaurant, hotel, and additional athletic facilities. Groundbreaking for the $119 million stadium was in December, with an accelerated construction phase slated to complete the venue in time for the country's Ninth National Games in fall 2001. The complex will serve as a community center and is meant to spark further economic development in the area.

NEB is a design consortium composed of Kansas City-based Ellerbe Becket (design architect), Oklahoma City-based Nixon & Nixon (project architect), and the local Architectural Design and Research Institute of South China University of Technology (architect of record). Nixon & Nixon also has offices in Hong Kong and Guangzhou.

The stadium was designed to relate to the physical environment and history of the 2,000-year-old city, says Michael Sabatini, senior project designer at Ellerbe Becket. Guangzhou (formerly known as Canton) is called the Flower City, and its climate is balmy year-round. The stadium bowl's curtain-wall facade of colored glass will rise from the ground toward a sculpted upper edge, like the petals of a flower.

The building will feature an array of ribbon imagery—meant to evoke Olympic pageantry as well as the Pearl River, which winds through the city—including a long-span steel-and-glass roof undulating over the seats. An apparatus to create an Olympic-style flame, suspended by cables and accompanied by sculptural ribbons of metal, will hang between the parted sections of the stadium's roof.

A circular, seven-story hotel will rise at the north end of the site; at night, light projected from an opening in the hotel's roof will create a signature beacon, which will be visible from miles away. *William Weathersby, Jr.*

NEW PRODUCTION COMPLEX TO BE DOWNTOWN L.A.'S FIRST FULL STUDIO

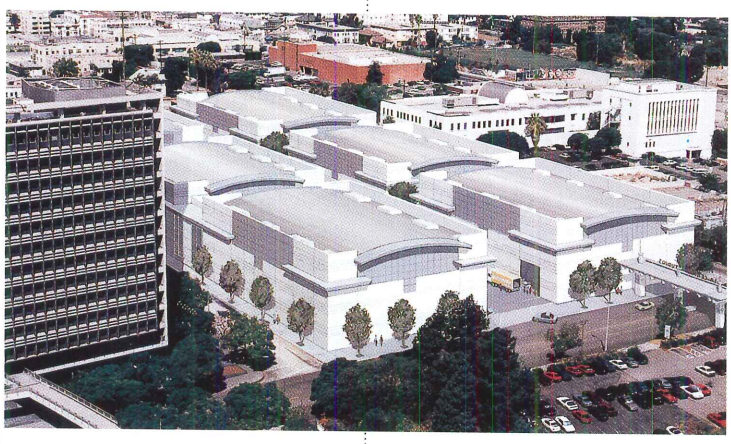
Frank Gehry's Disney Hall and Rafael Moneo's Cathedral of St. Vibiana are not the only projects fueling a downtown renaissance in Los Angeles. Hollywood is moving in.

Bastien and Associates of Irvine, California, has designed Los Angeles Center Studios, a production complex to be located on the site of Unocal Company's old headquarters. The $105 million development, the first of its type downtown, is scheduled for completion in July.

The project includes six new 18,000-square-feet soundstages and ancillary support facilities, as well as the renovation of several existing buildings. Given the growing demand for elaborate sets, spectacular special effects, and complicated stunt work, contemporary soundstage design has become a specialized operation. The new soundstages at Los Angeles Center Studios will vary from 35 to 45 feet in height, measured to the bottom of hefty bowstring trusses strong enough to hang a bus, and will contain highly sophisticated audiovisual and mechanical equipment.

In addition, following a precedent set by Bastien with its 1994 soundstage design for CBS Studios, the stages will be constructed of tilt-up concrete. This method differs from traditional double-stud wall soundstage design in that the construction cost is cut almost in half, and the required level of sound absorption is easily reached without complicated insulation materials and techniques.

While the studios' simple, functional forms might not be as visually stimulating as other upcoming buildings nearby, the energy emanating from these silent boxes will remind locals of what makes the city unique. *Alice Y. Kimm*



THE CORCORAN'S CHOICES **Frank Gehry, Daniel Libeskind, and Santiago Calatrava are the finalists in a competition to design an addition to the Corcoran Gallery of Art in Washington, D.C. The three were chosen from an initial field of invited architects that also included Cesar Pelli, Tadao Ando, Sir Norman Foster, SITE, Peter Rose, and James Stewart Polshek. Architecture critic Paul Goldberger has been acting as an adviser to the museum trustees.**

Though other institutions like it exist, the Corcoran, which overlooks the White House grounds, is unusual in that it is both a museum and an accredited school of art. Trustees have long sought to renovate the Beaux Arts building, designed in 1897 by Ernest Flagg, as well as enlarge the facility by expanding onto an adjacent lot acquired years ago. Various pro bono studies have been done in the last 10 years; in an additional, recent effort, the Corcoran paid local firm MSKM Architects to produce both an evaluation of existing conditions and a program document, from which Gehry, Libeskind, and Calatrava will work.

Recommendations include recovering galleries that had been converted into administrative offices, as well as transforming huge copper-and-glass lightwells into studio space. The proposed addition will increase gallery space and consolidate studio space from another location in nearby Georgetown. Whichever finalist wins the commission, the results should be an exciting departure for a conservative capital. ***Ellen Sands***

AS MORE TOWERS SPROUT IN NEW YORK, MAJOR ARCHITECTS ENTER THE FIELD

"We are leaving the period of banal, formulaic residential building design in Manhattan," says Robert A.M. Stern. One of several prominent architects currently designing new apartment high-rises, Stern predicts more variety and greater individuality for New York's future skyline.

These recent projects signal a positive change in public attitude toward contemporary residential architecture, long a developer-driven domain where design was seen as an expensive frivolity. Developers are beginning to cash in on the market value of celebrity architects and promote an interest in design.

Intended to attract the city's fresh influx of affluent settlers, these luxury towers are concentrated largely on the Upper East Side. In Yorkville, a heterogeneous neighborhood of Italianate brownstones adjacent to boxy white-brick behemoths, Hartman-Cox Architects, a Washington, D.C.–based firm, has designed Wellington Towers and the nearby Empire (Schuman Lichtenstein Claman Efron Architects is architect of record for both buildings).

The Empire, due for completion in 2000, is a 31-story neoclassical tripartite tower capped by a metal gabled roof. Curved balconies line the brick and faux-limestone facades. Wellington Towers, also under construction, is a historicist structure featuring a series of masonry bays on the facade, trimmed with Art Deco–inspired precast concrete.

A first for Graves

Right around the corner, Michael Graves has designed his first high-rise in Manhattan. In collaboration with H. Thomas O'Hara Architects (the associate architect), the Impala (far right) is a 24-story tower above a seven-story base. The facade is a play on an aspect of the domestic house, capitalizing on the window as a symbol of home. Double-height precast frames exaggerate the windows, differentiating this skyscraper from an office tower. A half-mile north, O'Hara is the designer for Century Tower, where Graves is designing the interior public spaces.

Graves sees developers' recent interest in design as a positive step for residential projects in Manhattan: "Hopefully, the bar will now be raised a bit and the domino effect will occur—much like the improvement of office buildings 30 years ago after developers became interested in better architecture."

Luxury is the priority at Zeckendorf Realty's 515 Park Avenue, due for completion in December. The design, by Frank Williams, includes huge duplexes on the top floors, individual wine cellars, and a private gym and caterer. The 43-floor tower, intended to evoke 1920s design, is clad in limestone and beige brick, with deep-set rectangular windows.

Robert A.M. Stern Architects is designing three residential buildings in Manhattan, two of which—the Chatham (right) and the Seville—are on the Upper East Side. Both refer to earlier New York luxury apartment dwellings. The brick-and-limestone facade of the Chatham (under construction, with completion slated for 2001), is detailed at the base with townhouse-scale French balconies and bay windows, and it culminates in a campanile. The Seville is a 31-story tower inspired by buildings of the 1920s and 1930s.

Trevor Davis, a partner in RFR/Davis, developer of several of the projects, sums up what architects have known all along: "It is as easy to build high-rises that are good architecture as it is to build high-rises that are bad architecture." *Susanna Sirefman*

MALL MELEE **The city of Coral Gables was founded in the 1920s with a Mediterranean theme and a near-utopian vision. Since then, the ideas of its founder—poet-turned-developer George Merrick—has been the city's guiding spirit. But a mall named after Merrick and approved by the city commission last year has polarized the community, pitting architect against architect and citizen against citizen. It has provoked lawsuits, gag orders, and even a land-use referendum, which mall proponents won.**

The mall is planned by the Rouse Company to be a $275 million extravaganza, with a Neiman Marcus at one end, a Nordstrom at the other, and a design by Spillis Candela & Partners that includes a small freshwater lake. From the start, however, the Village of Merrick Park has had opponents. Merchants from Coral Gables' existing main street, Miracle Mile, feared the new mall would put them out of business. Local residents feared traffic and commotion. Architects and preservationists argued that the mall was not in keeping with Coral Gables' original plan or design intent. Prominent among the critics was historian Vincent Scully, who lives part time in Coral Gables (he holds a chair at the University of Miami School of Architecture). Scully has been active in protests, but he also put his opinions in print as a lengthy footnote in the book *Coral Gables: An American Garden City.* Scully wrote that the new mall would "flood the area with traffic" and "destabilize, degrade, and probably destroy Miracle Mile [and] drastically alter the character of the city." The mayor, Raul Valdes-Fauli, called this "unabashed classical sour grapes," and the city then refused to buy the 1,250 copies of the book it had agreed to purchase.

Though Coral Gables and Rouse are forging ahead after winning the referendum, the protests are not exhausted. Still to come is a regional review of the project's developmental impact, looking at environmental and urban planning issues and questions of congestion. ***Beth Dunlop***

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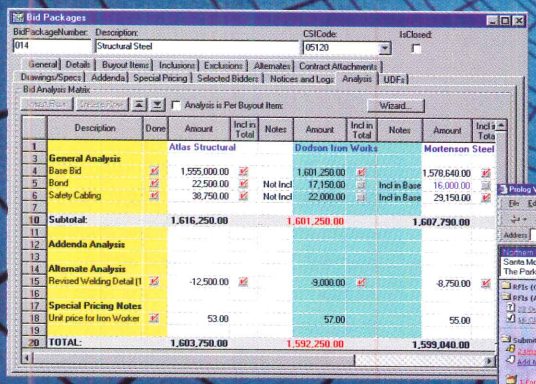

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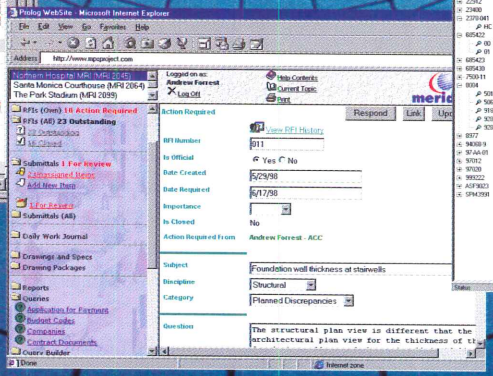

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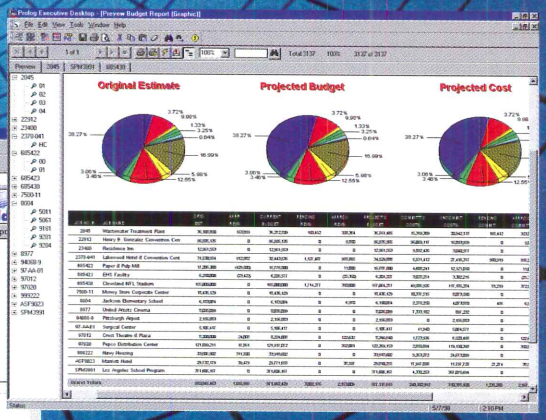

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CIRCLE 26 ON INQUIRY CARD

NEW PROJECTS CONTINUE TO RISE FOR CUMMINS ARCHITECTURE PROGRAM

Strong work continues to be produced under the unique Cummins Foundation building program in Columbus, Indiana. Started more than 50 years ago by the locally headquartered Cummins Engine Company to promote high-quality, innovative architecture, the program pays the commissions of top architects for area projects. Over the years, the many contributing names have included Gunnar Birkerts, Richard Meier, Roche & Dinkeloo, Cesar Pelli, Eliel Saarinen, Robert Venturi, and I. M. Pei.

Among the latest Cummins projects are two basic building types: a library and a fire station. Late last year, William Rawn Associates of Boston completed Fire Station #6 in Columbus (top), the first building to go up during the tenure of Mayor Fred Armstrong.

According to William Rawn, FAIA, the mayor encouraged the firm to engage in a charrette with the fire station personnel before the design process in order to delineate the employees' specific needs. The resulting design is a Modernist building with extensive glazing on each end, infusing it with light. During the day, the appearance of the glass blends with the adjacent stone block to create a coherent volume. At night, the ends become luminescent, highlighting a stretch of Highway 450 South.

Just outside Columbus, in a town called Hope, New York–based Deborah Berke Architect has created the Hope Library, a 6,000-square-foot branch library (above). Berke stayed true to the building's context by using brick walls and steel windows, which appear in many of the neighboring structures. Large windows and high ceilings provide daylight for an asymmetrical reading room.

The result is an unassuming yet modern structure that, according to the architect, has served as an after-school gathering center in the small town since it opened last year. *Soren Larson*

AFTER ASSAILING CURRENT DESIGN, KUNSTLER JUST DOES IT HIMSELF

In his 1993 book, *The Geography of Nowhere,* James Howard Kunstler took aim at sprawl, bad architecture, and the sorry state of the contemporary built environment. In *Home from Nowhere,* published in 1996, he looked to traditional forms and New Urbanism as solutions to the problems he had explored. Late last year, Kunstler put some of his own advice into practice, designing his first building, adjacent to a summer cottage in upstate New York. He discusses its significance in the following interview.

RECORD: What is it that you've built?

Kunstler: A 10-foot-by-12-foot guest bunkhouse adjacent to a one-bedroom cottage on Schroon Lake in the Adirondack region of New York. It is, in effect, a freestanding extra room. I have always wanted to have a lakeside retreat like this, an unelectrified rustic aerie. The property is accessible by boat only, on a side of the lake where there are no roads.

RECORD: What inspired you to make it?

Kunstler: The need for guest accommodations. [My wife and I] wanted our guests to have some privacy, a bit more comfort than camping out, and a thrill. We originally conceived of a tent platform for a spacious wall tent—the kind that you can get, for instance, from the Cabela's Hunting Catalog. In the 19th century, this form of camp housing was common. Once we got the floor platform built, we just said, "What the hell, let's put on walls and a roof, too."

RECORD: How was it built?

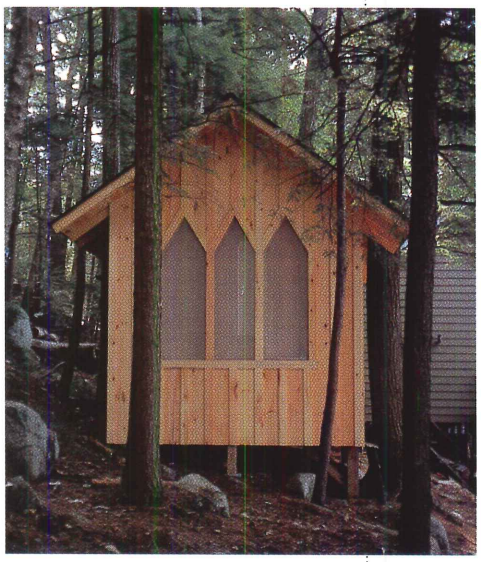
Kunstler: Two men worked on the place: a head carpenter, Ed Lowman, of Saratoga Springs, and me. We built it without power tools. No plywood was used. All boards were sawn by hand. The building was framed with two-by-fours and clad with rough-sawn pine in vertical board-and-batten fashion. The window openings were designed to be "gothic," i.e., pointy on top.

The inside is left unfinished to give it the feeling of a summer camp bunk. Besides, the framing makes a good place to put stuff. The project cost $2,000 in labor and about $1,500 in materials. It took about three weeks to construct altogether.

The bunkhouse is both snug and exposed to "nature." The windows virtually wrap around two sides, with a view through the pine boughs to the lake. The rear wall has no windows and affords a secure feeling of shelter. The south wall has one very slender pointy window, conferring a chapel appearance.

RECORD: What does your house "prove?"

Kunstler: I have written a lot about the failures of contemporary architecture, especially its imperious insistence on dogmatic "purity." The house proves that one can solve a problem of domestic logistics—where to stash company—inexpensively and elegantly. It proves also that even the most modest building deserves to be beautiful. *David E. Brown*



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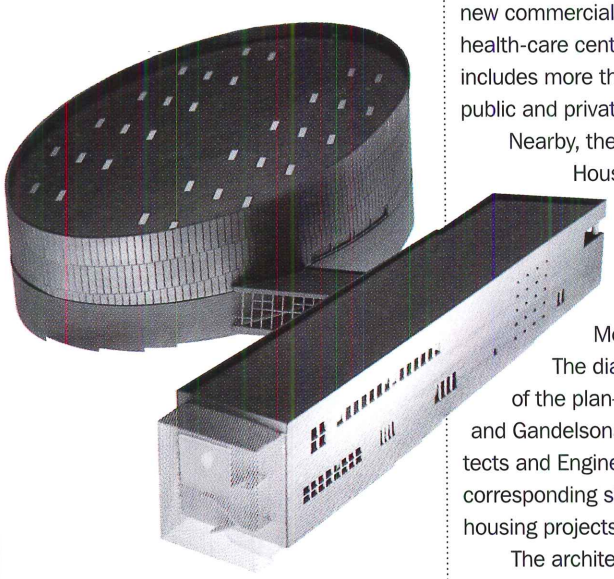
CIRCLE 27 ON INQUIRY CARD

NEW DESIGNS COULD BRING HOPE TO STRUGGLING BRONX NEIGHBORHOODS

The much-maligned Bronx has been on a self-improvement kick of late. In one South Bronx area, community members have banded together to prevent their own displacement and are creating new housing and commercial spaces. Meanwhile, close by, the Bronx South Classic Center—a community center geared to teenagers—is on the rise.

A citizens' group called We Stay/Nos Quedamos was formed in the Melrose neighborhood in 1993 to oppose an urban renewal plan that threatened to raze a 35-square-block section and move out its 6,000 residents. Nos Quedamos hired Larsen Shein Ginsberg Magnusson Architects to create an alternative plan; the first fruit of the collaboration is Plaza de Los Angeles (top), a cluster of three-family homes that broke ground last fall. The design, under the leadership of partner-in-charge Magnus Magnusson, AIA, uses a small scale to retain a neighborhood feel. The facades of the houses are multicolored masonry cladding, with a light cast-stone base and two shades of red brick.



Plaza de Los Angeles is the first project in a plan that involves building more than 2,000 new housing units in the area, along with new commercial, community, and health-care centers. The budget includes more than $500 million in public and private investment.

Nearby, the New York City Housing Authority is building a community center to serve the Jackson, Melrose, and Morrisania Houses. The diagonal orientation of the plan—created by Agrest and Gandelsonas with Wasa Architects and Engineers—refers to the corresponding sites of the various housing projects.

The architects have designed an elliptical gymnasium building, connected to a horizontal bar enclosing offices, classrooms, and other facilities (left). According to the designers, transparent effects—such as the glazing along the length of the bar—were used to avoid a fortresslike effect. Construction of the 20,000-square-foot center should be completed in January 2000. *Soren Larson*

BIG IDEAS FOR SMALL SPACES: THE POWDERHORN PARK PROJECT

In the heart of Minneapolis, a neighborhood of vintage homes from 1900 to 1930 surrounds the 65-acre Powderhorn Park, a hilly landscape circling a shimmering lake. Like other aging urban neighborhoods, the area suffers from too many narrow lots, which are divided into smaller side lots or left vacant because they are considered unbuildable.

In view of the national shortage of affordable housing and the need to increase urban density, the Powderhorn Park Neighborhood Association addressed the situation when it launched the national "Little/Lots" design competition last fall, inviting American architects to submit ideas. The challenge: to design an affordable house with three or four bedrooms on a narrow lot less than 40 feet wide, with a budget of $125,000.

More than 360 entries poured in from all but four states, proving that architects are eager to tackle such problems. As top criteria, the jury—made up of architects and consultants from around the country—stipulated the need for privacy, daylighting, proper context, and above all a good design that could be built on budget.

The $10,000 first prize winner, announced in January, was Scott C. Meland of Meland Hepper Architects in Grand Forks, North Dakota. The jurors pronounced the Meland house, with an eyebrow dormer and gabled roof sheltering four bedrooms and two baths, to be "a great little building with a sense of humor." Second prize and $5,000 went to Bauer Associates of Nashville, Tennessee, whose entry created lively discussion. The design, featuring a long, narrow building along one side of the lot with a walled-in garden along the other edge, was deemed by jurors to be conceptually the best solution—but it was too costly to build. Third prize and $2,500 went to Mark O'Matz of Perkins Eastman in Pittsburgh.

The winner will be awarded a commission to design at least one home in Powderhorn Park; the design will then be released to the community, so that others can follow suit. *Bette Hammel*

PRITZKER, LUCKMAN DIE **Jay Pritzker, head of the family that funds one of architecture's most prestigious prizes, died in January of a heart attack. He was 76. Pritzker, the scion of a billionaire family with businesses ranging from the Hyatt Hotel chain to more than 60 manufacturing and service firms, served as CEO of Hyatt and was viewed as the family dealmaker. The Pritzker family created the annual $100,000 Pritzker Architecture Prize in 1979; the most recent winners were Renzo Piano, Sverre Fehn, Rafael Moneo, and Tadao Ando. Pritzker also contributed extensively to charitable causes in Chicago, including the city's library system, universities, hospitals, and zoo.**

Architect and industrialist Charles Luckman also died in January; he was 89. Luckman's firm is perhaps best known for its 1968 design for Madison Square Garden in New York. He also had a role in creating Boston's Prudential Center, Florida's Cape Canaveral Space Center, Houston's Johnson Space Center, Hawaii's Aloha Stadium, and several Los Angeles landmarks.

Born in Kansas City, Luckman trained as an architect but by age 30 was president of Pepsodent Co.; seven years later he became president of Lever Bros., where he influenced the design of Lever House, the company's famed headquarters on Park Avenue. In 1950 he returned to architecture, establishing a firm in Los Angeles, which designed Los Angeles International Airport's original control tower and Luckman's namesake $22 million arts complex at California State University, Los Angeles. ***S.L.***

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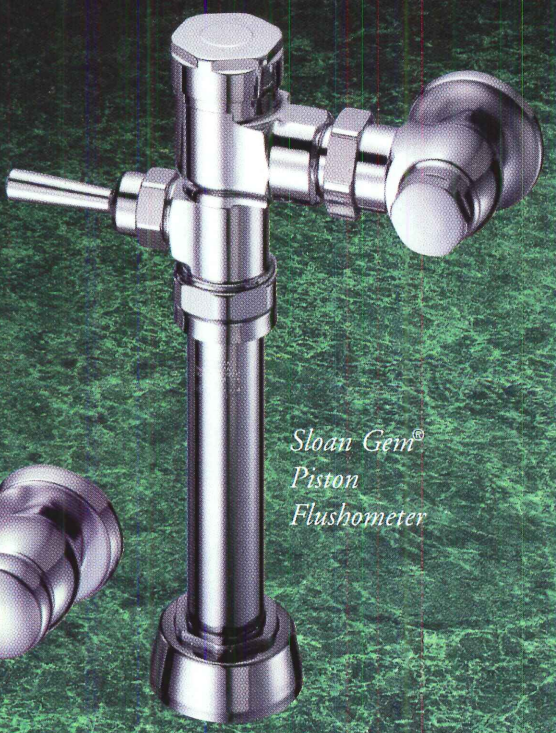

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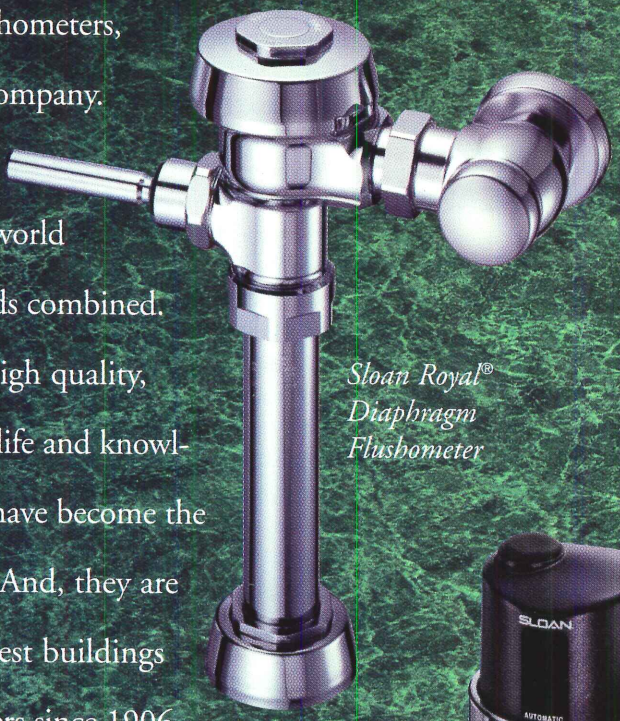

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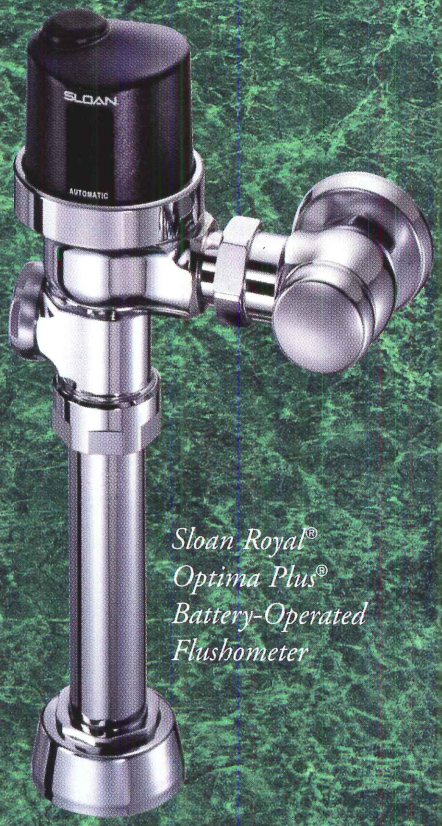

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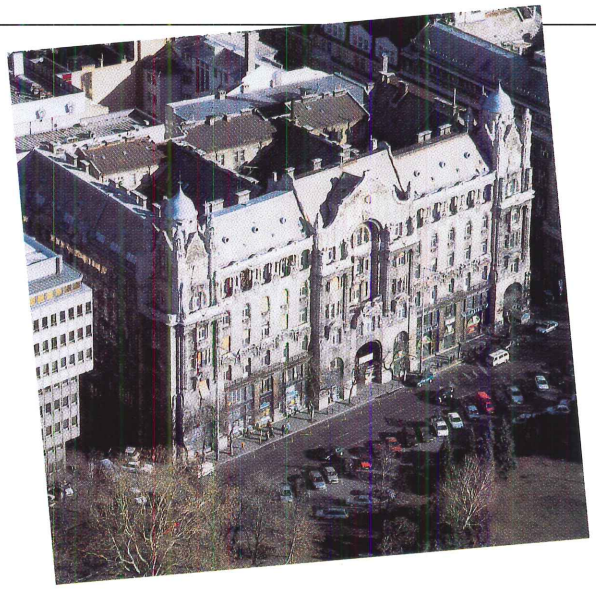


A TALE OF POST-COMMUNIST BUDAPEST: PALACE WILL BECOME A FOUR SEASONS

The Gresham Palace, a time-worn former palatial residence in downtown Budapest, will soon become the city's leading hotel and one of the most luxurious in Europe, developers say.

An international consortium of investors, including the Toronto-based Four Seasons Hotels and Resorts, a number of pension funds, principally from Canada, and India's Oberoi Associated Hotels Ltd., will sink some $85 million into restoring the venerable structure to its former grandeur by creating a 155-room, five-star hotel. Construction on the Four Seasons Hotel Gresham Palace is slated to get under way this summer and be completed within two years.

A team of architects from the U.S. is already at work on the design. Because the 92-year-old Secessionist-style building is a protected monument, the exterior, main entrance, windows, inner courtyards, ironwork, and public spaces will not be changed. "We will use the same materials as were used in the original construction," says architect Laszlo Vito, project manager, who joined the enterprise from NBBJ. "The Monument Protection Authority requires that we restore the exterior," adds design chief Patrick Fejer, who also came from NBBJ. "Inside, it will be quite different. In the guest rooms, ballrooms, lounge, and lobby, we'll use Secessionist language mediated by contemporary design."

Notes Adam Omansky, who left Machado and Silvetti Associates in Boston to join the design team: "We want a social attraction, with shops and restaurants, as well as a hotel."

The five-story structure, overlooking the Danube near the city's Chain Bridge, was built by insurance magnate Lord William Gresham as a residence for visiting royalty—including members of the Windsor, Hapsburg, and Romanov families—and important clients. The building continued to be a residence for the well-to-do until World War II, when it began to fall into disrepair. At one point, it served as headquarters for Soviet occupation troops; now, capitalism is set to return. *Carl Kovac*

SCIENCE MUSEUM IN MICHIGAN GETS A COLORFUL EXPANSION

The Ann Arbor Hands-On Museum is quadrupling its size and plans a new exterior design that is as playful and fun as the exhibits inside. A splash of rainbow colors provides a backdrop for the three-dimensional rotating gears, oversize chemistry flask, and moving hot air balloon that greet visitors to this interactive science and technology museum.

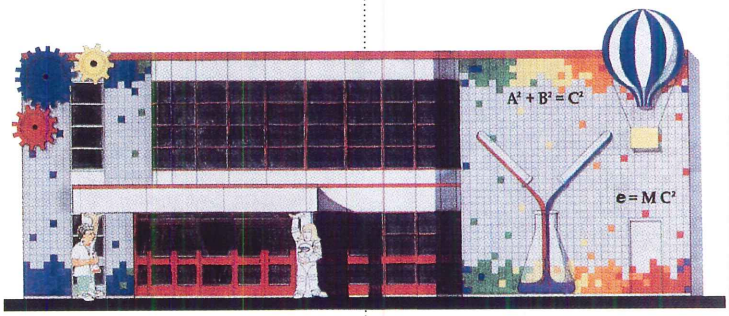
"The intention was first of all just to make the north facade bright and colorful to attract attention," says David Esau, AIA, vice president of Cornerstone Design in Ann Arbor, architects for the expansion.

With more than 150,000 visitors a year, the Hands-On Museum had gotten too big for its original home. As a result, plans call for a new 31,000-square-foot building to be attached to the 1882 firehouse that has been the museum's home for 17 years. All told, the two buildings will contain 350 exhibits.

Cynthia Yao, the museum's executive director, says a goal of raising $5 million to cover the new building and its 100 exhibits has nearly been reached. Work has begun and the facilities will open in October.

The new building's south entrance will feature a brick facade and peak that match the look of the existing firehouse and other local buildings. The brighter and more fanciful north facade sets a theme that carries over to the two-story-high lobby, floor design, carpet, and accent paints. (Innerspace Design Inc. in Ann Arbor is the interior design firm.)

A small outdoor science park, with giant floor games, an interactive water sculpture, and a maze, leads to the north entrance. Inside, a two-story gallery will house exhibits that are too big for the existing museum. Other highlights include a science theater, a television studio where kids can produce shows, and a telecommunications gallery with exhibits on virtual reality and other technology. The mechanical systems in the galleries are exposed, allowing children to see how buildings work. *Susan R. Bleznick*



ON THE AIR **It took a year of wrangling and a referendum to convince members that the money deserved to be spent. Now, the AIA's new advertising campaign—paid for by a $50 increase in dues voted in at the national convention last May—is hitting the airwaves. The campaign, according to the AIA, is directed at people likely to have a need for architectural services: local government officials and businesspeople, institutional boards, and homeowners. The goal is to increase general public understanding of what architects do and how their skills are valuable; to do so, the AIA will spend $3.5 million per year (excluding production costs) through 2001.**

The TV spots begin airing this month on national networks. They will continue through May, and then return for another run in September, October, and November. Meanwhile, a new run of radio advertising will begun airing March 8 on NPR, while print ads will appear in upcoming issues of *Business Week, Forbes,* and *Newsweek.* Though the focus may change later, the current campaign centers on schools, workplaces, and residences—from the point of view of clients. One school official praises a building where "boredom can't happen." A business client describes an office as "our secret weapon . . . where people escape to work, not from it." To complement the campaign, the AIA has set up a consumer Web site, featuring an architect locator for use by potential clients. ***Soren Larson***

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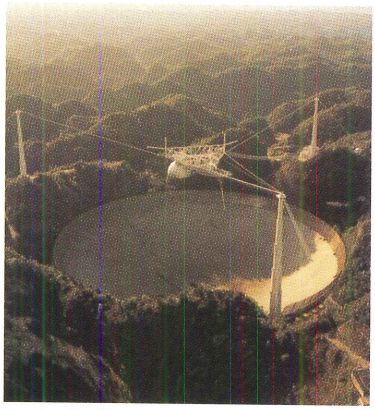
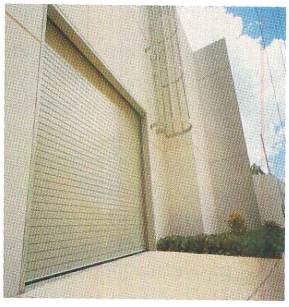


The Arecibo Observatory, located in Puerto Rico.



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CIRCLE 29 ON INQUIRY CARD

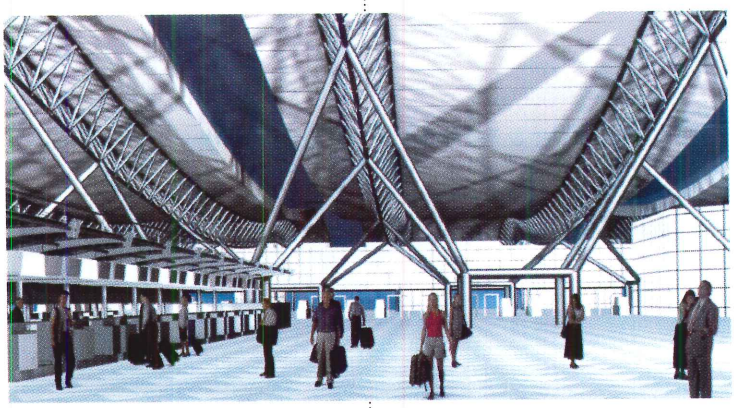
NEWS BRIEFS

This year's list The AIA's 1999 Honor Awards span a broad range of building types, from a rest area, museums, and a health-care center to the Thomas Jefferson Building of the Library of Congress. Nine of the 29 projects involve some form of historic preservation or adaptive reuse. The awards—divided into architecture, interior architecture, and regional and urban design categories—will be presented in May at the AIA's annual convention in Dallas.

New lodgings London architect David Chipperfield is undertaking two projects for trendy hotelier Brian McNally. Work has started on the Miami Shore Club, part renovation and part new construction, with completion expected late this year. Chipperfield is also overseeing the adaptive reuse of New York's landmarked American Radiator Building, designed by Raymond Hood in 1924. It is expected to open as the Bryant Park Hotel early next year.

Rethinking New York The Canadian Centre for Architecture has selected five firms to submit proposals for the first of its series of competitions to encourage unique urban design (RECORD, January, page 54). The firms, which will create ideas for the development of a 16-block area in midtown Manhattan, are Van Berkel & Bos UN Studio of Amsterdam; Eisenman Architects of New York; Morphosis of Santa Monica, California; Cedric Price Architects of London; and Reiser & Umemoto RUR Architecture of New York. The competition offers a $100,000 prize.

Launching pad American Airlines plans to pour $1 billion into a new terminal at New York's John F. Kennedy International Airport. When the 1.9 million-square-foot facility is completed in 2006, it will be the largest and most technically advanced terminal at JFK and will feature a passenger check-in area large enough to hold Giants Stadium. The design—by TAMS Consultants in association with Silvester Tafuro Design—features three concourses, two extending from a central terminal area (above) and a third linked by a 760-foot tunnel with moving walkways.



American Airlines is spending $1 billion on a new terminal.

Outlandish offices London may be the hot town of the moment, but it's no longer the most expensive. According to a survey by CB Richard Ellis, the cost of renting office space in Tokyo's Inner Central district jumped 27 percent in the six months through January, reaching $137.53 a square foot per annum—making it the costliest location in the world. London took second place, followed by Bombay, Hong Kong, and Paris. Mid-Manhattan, the most expensive U.S. office market, came in 13th.

Space race Architects have designed houses for all types of people. Now the client list is

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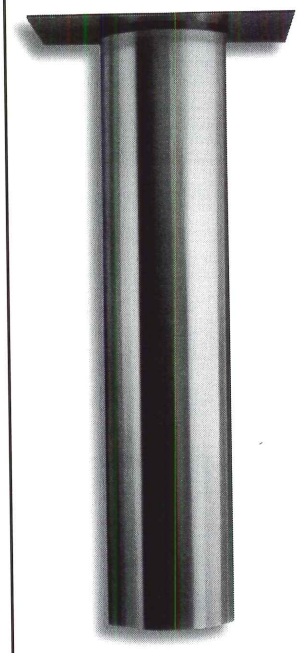
CIRCLE 30 ON INQUIRY CARD



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CIRCLE 31 ON INQUIRY CARD

expanding. A group of artists and architects dubbed the Court of Architecture has launched an ideas competition to design housing for Roswell, New Mexico—known for a supposed UFO crash there in 1947. Participants align themselves with the "advocates" (described as pro-alien) or the "critics" (pro-human), and then create a housing program tailored to the appropriate species. While there is no offer of a building commission, entrants may travel to Roswell in July for the judging.

Modern Maderno To celebrate the Jubilee of the Year 2000 in Rome, the Knights of Columbus are funding a restoration of the vast Maderno Atrium of St. Peter's Basilica. The atrium, named for its architect, Carlo Maderno (1556–1629), was created by extending the nave of St. Peter's and erecting an outside facade. The work being financed by the Knights includes cleaning the travertine and marble stonework; restoring the plasterwork and replacing missing

The look of the Wharton's School's new academic center.

sections; and touching up gilded plasterwork.

Upper management The University of Pennsylvania's Wharton School plans to build a 300,000-square-foot, $120 million academic center (above) that it claims will be the world's most advanced facility for management education when it opens in 2002. The building—designed by Kohn Pedersen Fox Associates—will feature 57 group study rooms offering a wide array of technologies and services, such as distance learning, video production, and editing, and will house lounges, an auditorium, and cafeterias.

Nordic connection Denmark and Sweden are teaming up to build the Oresund Fixed Link, a 10-mile bridge and tunnel linking the two countries across the Oresund Sound. The project is meant to act as a catalyst for three cities—Copenhagen in Denmark and Malmo and Lund in Sweden—to join together as a leading economic and cultural center in Europe. It will open in July 2000.

Car talk General Motors has chosen two San Francisco firms—Kaplan McLaughlin Diaz Architects and Planners and Ove Arup & Partners Consulting Engineers—to collaborate on the master plan for its new $880 million facility outside Detroit. Hargreaves Associates will contribute landscape design, Parsons Brinckerhoff will be program manager, and Gensler will create interior designs for the Warren Technical Center, which will include a 1.8 million-square-foot engineering center. In addition, Building Conservation Associates is overseeing the restoration of Eero Saarinen's nearby GM buildings.

Big men on campus The University of Chicago, which has a predominantly English Gothic look, has called on Cesar Pelli and Ricardo Legorreta to design two new structures. Pelli will work on the new Gerald Ratner Athletics Center, which will serve as a recreation center and student gathering place. Plans call for completion in 2002. Legorreta's efforts will go toward construction of new residence halls, slated to open in 2001 near the school's library. ■

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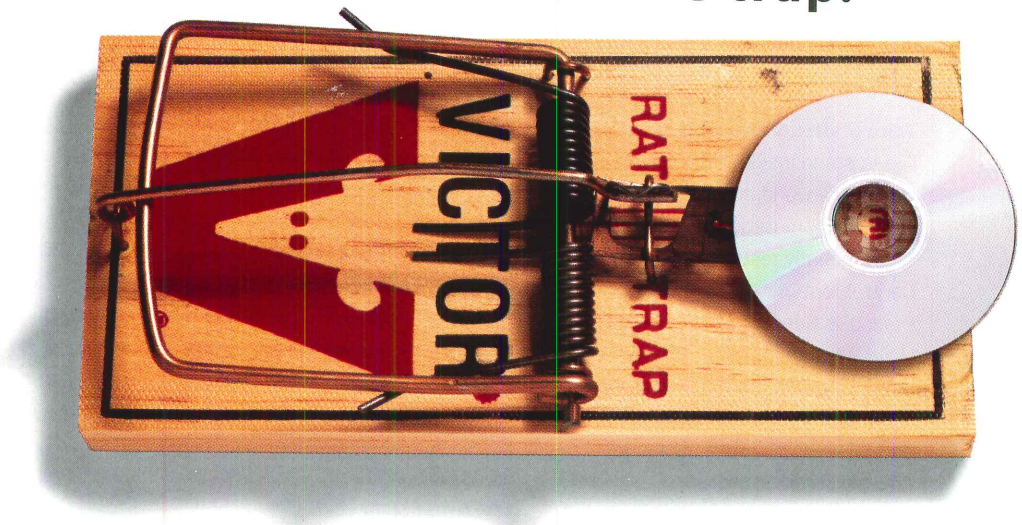

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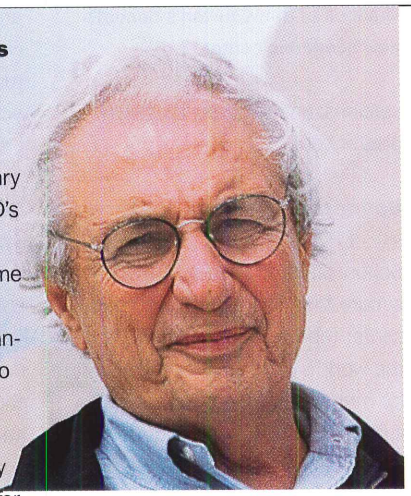
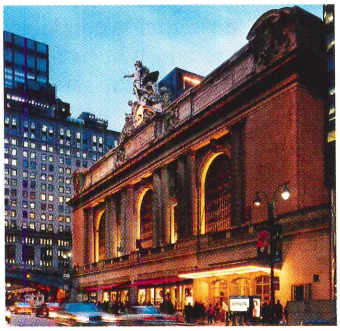
RECORD's exclusive interviews with Frank Gehry, Sir Norman Foster, and others "I think of myself as an outsider," confided AIA Gold Medal recipient Frank Gehry over lunch with Robert Ivy, RECORD's editor-in-chief. "I kind of like to hide out," he added. "I [feel] most at home with artists . . . I'm intellectually intrigued with their process, their language, their attitudes, their ability to make things with their own hands." Gehry's artistic bent shows in the way he develops his work. "We play in blocks, and very neutral blocks, for a long time until we get the organization on the site and the scale right," he said. "The shapes have to be clearly related to what is going on inside [the building]. That is a misconception about my work—that I just make shapes." RECORD's comprehensive and exclusive interview with Gehry, and an upcoming visit with Sir Norman Foster, are part of our ongoing Web site series on contemporary architects.



Take a virtual tour See what it's like to stand inside the tallest buildings in the world, the Petronas Towers. Roam through New York City's recently restored Grand Central Terminal (below), Antoine Predock's Spencer Theater, Frank Lloyd Wright's Monona Terrace, and more. Listen to the architects as they describe the design details, and take a look at the extensive drawings of each project.



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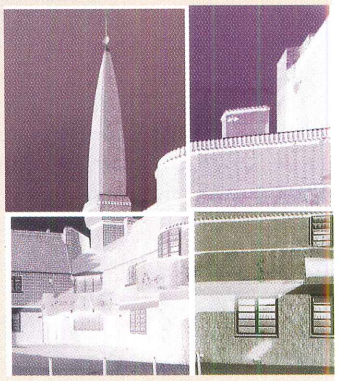
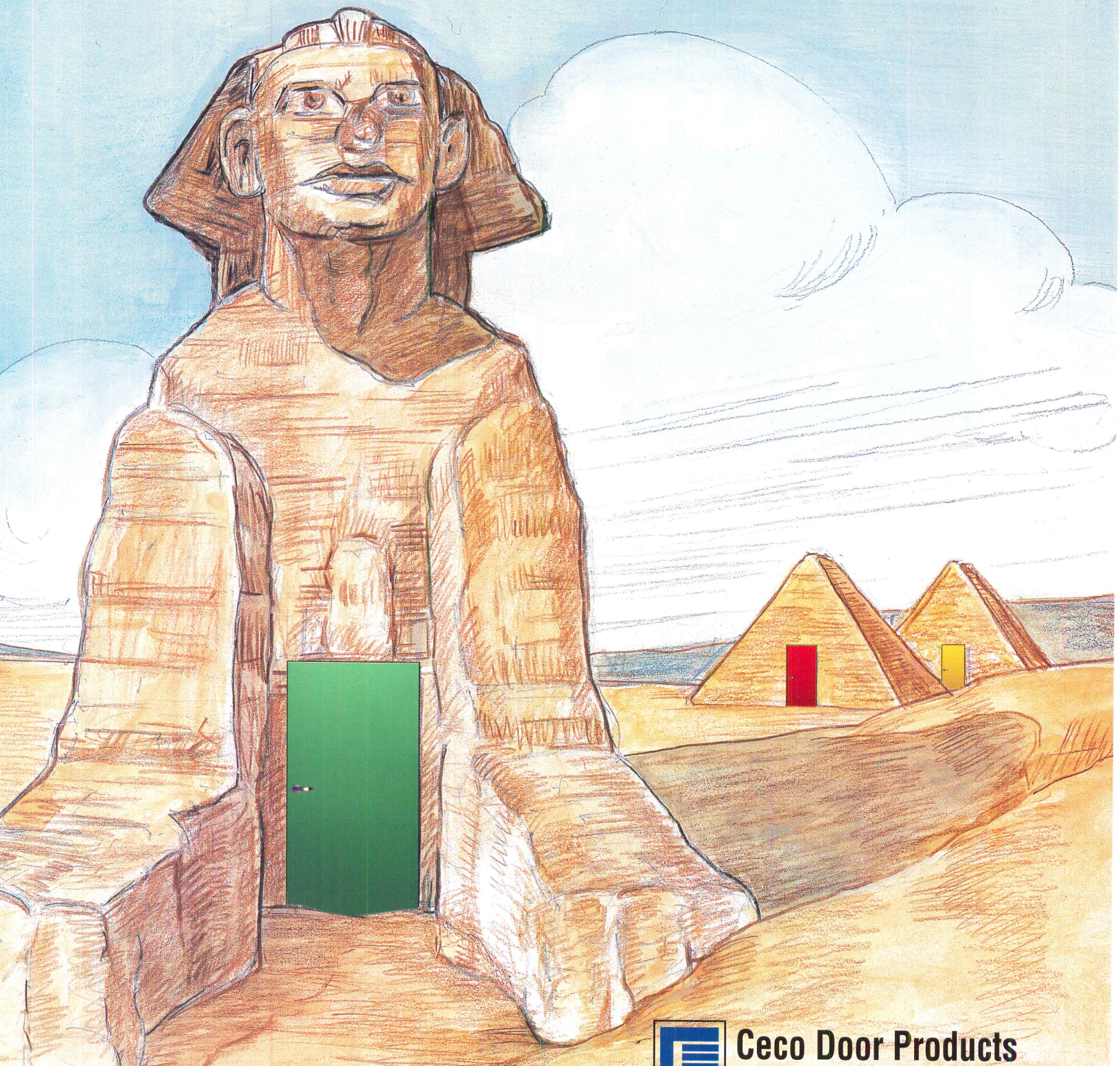
The Cathedral of Cefalu

SOLUTIONS The building pictured in the #2-99 "What in the World?" is the subway entrance at 72nd Street and Broadway in New York City, designed by Heins & LaFarge in 1904. The #1-99 solution is the Romanesque Cathedral of Cefalu, built by Ruggero II at the base of Monte Kafe in Sicily. Visit our Web site for more details on each.

WHAT IN THE WORLD? What is this building? Who designed it? Where is it located? When was it completed? Test your knowledge of exotic structures, significant buildings, and architectural history. Answer these questions and others to win our newest "What in the World?" architectural challenge. One winner each month will receive a free one-year subscription to ARCHITECTURAL RECORD.



Recent excavations confirm the genius of ancient architects.



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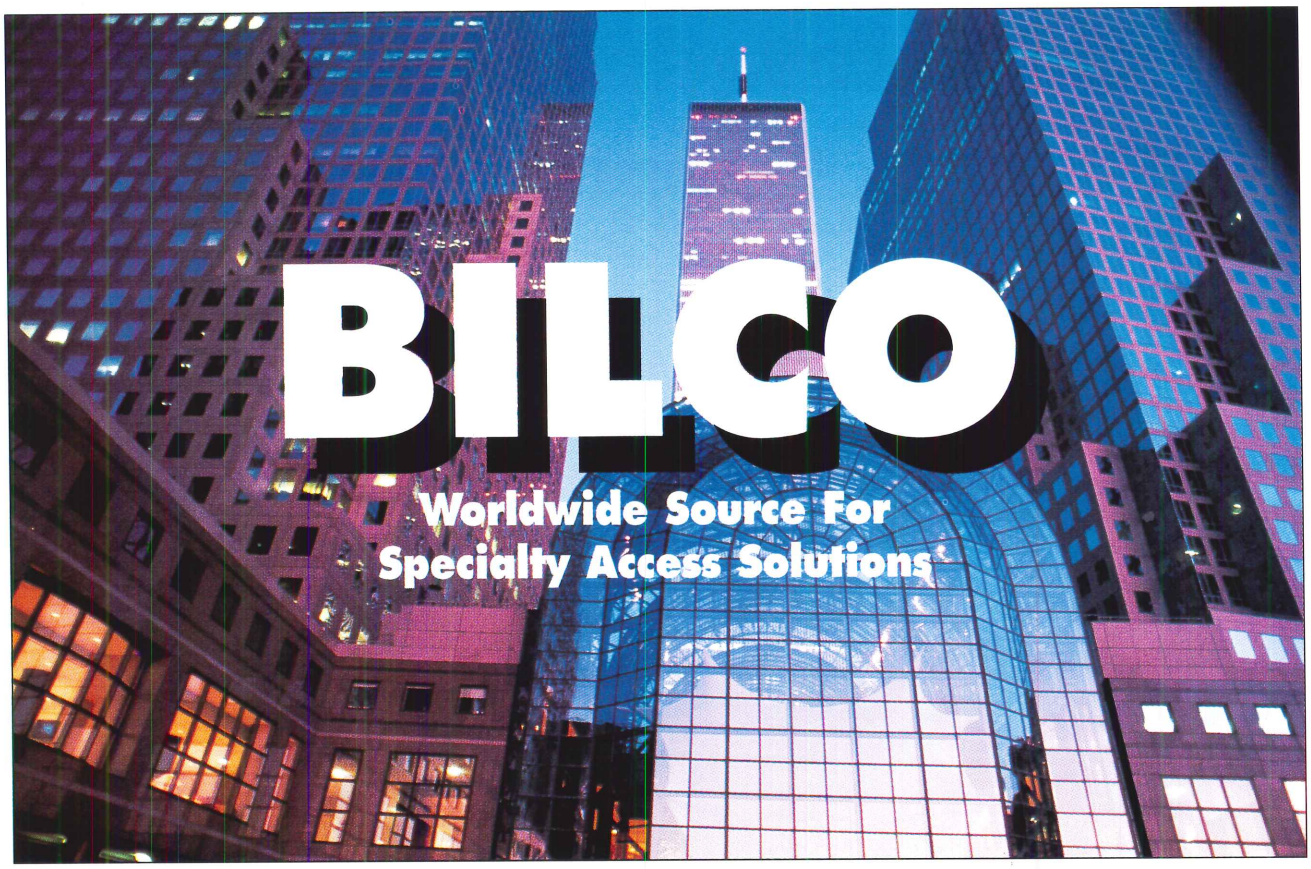

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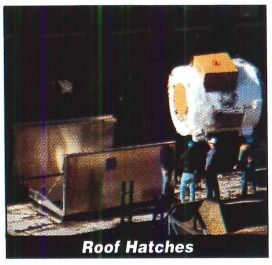
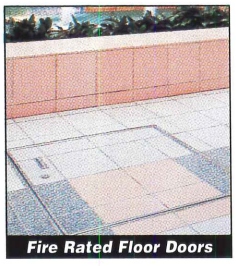

Roof Hatches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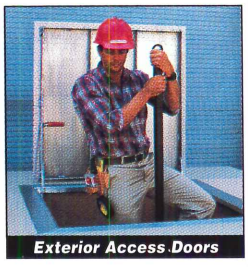
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CIRCLE 33 ON INQUIRY CARD

DATESEVENTS

Calendar

Unlimited by Design
New York City
Through March 21
An exhibition of products, services, and environments designed to meet the needs of people throughout their life spans, from toddlers to the elderly, demonstrates the effect design can have on the quality of life. Cooper-Hewitt National Design Museum. 212/849-8300.

Forgotten Gateway: The Abandoned Buildings of Ellis Island
Washington, D.C.
Through March 28
A photographic exhibition documenting the deterioration of the historic hospital complex on Ellis Island, which was untouched by the renovation that transformed the north side of the island. National Building Museum. 202/272-2448.

The Little Apple: Souvenir Buildings
New York City
Through March 28
On display is a collection of 125 miniature New York buildings, with the oldest souvenir dating from 1800. Museum of the City of New York. 212/534-1672.

Zigzags and Speed Stripes: The Art Deco Style
Pittsburgh
Through March 28
An exhibition surveying the impact of the Art Deco style on architecture and design, tracing the interwar phenomenon from zigzag moderne to streamlined moderne. Carnegie Museum of Art. 412/622-3131.

Building the Empire State
New York City
Through March 31
A documentary look at the design and construction of Shreve, Lamb & Harmon's 1931 Empire State Building. Skyscraper Museum. 212/968-1961.

Architectural Transitions in Prints and Photographs
New York City
Through April 3
Through prints and photographs, this exhibition documents the life cycles of built structures and the constant change of the manmade environment. New York Public Library. 212/869-8089.

Architecture on the Rise: Renderings by Hughson Hawley
New York City
Through April 4
Watercolor drawings from 1880 to 1931 by a master renderer who offered a vision of the developing city. Museum of the City of New York. 212/534-1672.

Unfinished History
Chicago
Through April 4
The work of 23 artists, including architects Lars Spukbroek, Kazuyo Sejima, and Ryue Nishizawa, who are contending with the realities and ambiguities of the late 20th century. Museum of Contemporary Art. 312/280-2660.

Photography and Transformations: Venezia–Marghera
Montreal
Through April 25
The work of 15 Italian photographers who explore the relationship between historic Venice and the modern, industrialized, and polluted mainland port of Marghera nearby. Canadian Centre for Architecture. 514/939-7000.

Marion Mahony and Walter Burley Griffin
Sydney, Australia
Through May 2
This exhibition explores the professional and spiritual journey of architects Mahony and Griffin, from their years in Wright's office around 1900 through their work in Australia and India in the 1920s and '30s. Powerhouse Museum. 011/61/2/217-0111.

Designing in the Wright Style
Lexington, Mass.
Through September 6
This exhibition surveys the collaborative work of Frank Lloyd Wright and George Mann Niedecken, who designed furniture and interiors together during Wright's Prairie Style years. Museum of Our National Heritage. 781/861-6559.

NeoCon South
Miami Beach
March 1–2
NeoCon West
Los Angeles
March 11–12
Two exhibitions showcasing products and services related to interior design and facilities management. Miami Beach Convention Center and Los Angeles Convention Center. For more information, visit www.designfestneoconsouth.com and www.neoconwest.com, or call 800/677-6278.

Concept House 1999
London
March 3–April 10
Entries in the 1999 Concept House competition, including the winning design, Pierre d'Avoine's Slim House–Model Terrace. All of the submissions were designed to provide an environmentally sustainable model for the mass-produced contemporary house. RIBA Architecture Gallery. 44/0171/580/5533.

Encounters: The Vernacular Paradox of Israeli Architecture
New York City
March 19–April 21
An exhibition highlighting Israel's architecture as a product of its society's immigrant roots. Pratt Manhattan Gallery. 718/636-3517.

Archigram: Experimental Architecture, 1961–1974
San Francisco
March 19–June 15
The conceptual work of the celebrated British architectural collaborative, including hundreds of photographs, drawings, models, and installations. San Francisco Museum of Modern Art. 415/357-4000.

Coverings '99
Orlando
March 23–26
The largest trade show in the western hemisphere devoted to ceramic tile and stone products for walls and floors. Orange County Convention Center. Call 800/881-9400, E-mail info@coverings.com, or visit www.coverings.com.

Bauhaus on the Carmel: Modern Architecture in Haifa
Chicago
March 23–May 31
Photographs of residential, commercial, and civic buildings in Haifa, Israel, designed in the Bauhaus style from 1918 to 1948. Chicago Architecture Foundation Atrium Gallery. 312/922-3432.

Hospitality Design '99
Las Vegas
April 8–10
A conference and exhibition of products for professionals in hospitality design. There will be more than 500 exhibitors and 18 educational sessions. Sands Expo and Conference Center. Call 888/200-8498 or visit www.hdexpo.com.

Thinking about Landscape: Interdisciplinary Contributions
Cambridge, Mass.
April 9–10
This symposium will examine a range of landscape architecture, from 17th-century French gardens to contemporary designs, relating it to such fields as literature, geology, environmental history, and sociology. Piper Auditorium, Harvard University Graduate School of Design. 617/496-8728.

American Institute of Architects National Convention
Dallas
May 6–9
The theme of this year's AIA convention, expected to draw as many as 14,000 people, is "Think Big, Make It Happen: Leadership in the

New Millennium." Architects can earn all 36 Learning Units needed for AIA accreditation by attending seminars and exhibitor education sessions. Dallas Convention Center. For information on exhibiting, contact Hill, Holliday Exhibition Services at 617/572-3553.

Competitions

Business Week/Architectural Record Awards

Submission package order deadline: March 15
Submission deadline: April 16

To honor architectural solutions that build the bottom line, the McGraw-Hill Companies' *Business Week* and ARCHITECTURAL RECORD magazines have organized the third annual "Good Design Is Good Business" awards. Submissions must be made jointly by client and architect and may reflect commercial, industrial, or institutional enterprises. For information or to receive a submission package, call 888/242-4240 or 202/682-3205 (outside the U.S.).

Presidential Design Awards 2000

Entry and nomination deadline: April 8

The Presidential Awards for Design Excellence recognize works that have been sponsored, authorized, or commissioned by the U.S. government and have been completed or in use between January 1, 1989 and January 1, 1999. No entry fee; nominations are requested. Nominations are also requested for the Presidential Millennium Design Awards, which honor federal design projects completed in the 20th century that have made a significant contribution to the environment and quality of life in the U.S. Contact Thomas Grooms at the General Services Administration at 202/501-1888 or thomas.grooms@gsa.gov.

Envisioning California's Great Central Valley: Housing the Next 10 Million

Submission deadline: May 1

This ideas competition, to design less-land-intensive housing models and support urban planning implementation tools, will help local decision-makers deal more effectively with the projected growth of California's Central Valley. Open to students and professionals. Contact William Liskamm, AIA California Council, 916/448-9082, or visit www.aiacc.org.

Van Alen Institute Dinkeloo Fellowship

Submission deadline: May 7

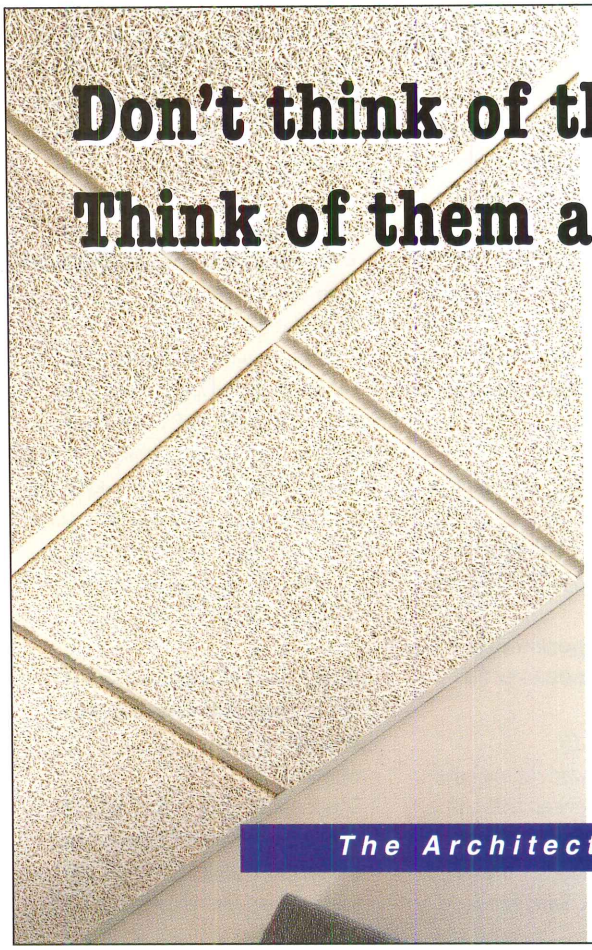
A two-month stay at the American Academy in Rome will be awarded for the submission that best demonstrates how architecture and technology can be environmentally conscious. Open only to those who have graduated, or will graduate, from U.S. architecture degree programs between May 1990 and September 1999. For a competition packet, contact the Van Alen Institute at 212/924-7000, E-mail vanalen@vanalen.org, or write 30 West 22nd Street, New York, N.Y. 10010.

1999 James Marston Fitch Charitable Foundation Mid-Career Grant Awards

Application deadline: September 1

A $20,000 research grant will be awarded to a mid-career professional with an advanced or professional degree and at least 10 years experience in one of the following fields: historic preservation, architecture, landscape architecture, urban design, environmental planning, law, engineering, archaeology, architectural history, or the decorative arts. The grants are to support original research and creative design that advances the practice of preservation in the U.S. Call Margaret Evans at the offices of Beyer Blinder Belle, 212/777-7800.

Please submit information for events and competitions at least six weeks prior to the magazine's publication date (April 15 for the June issue).



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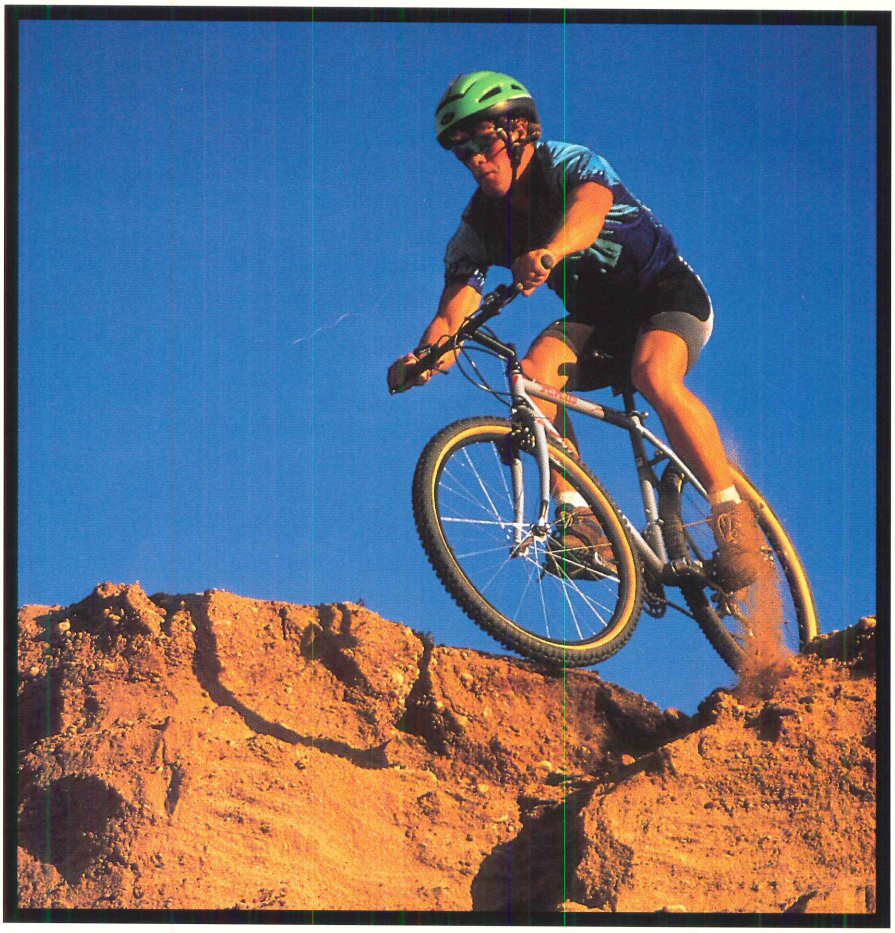

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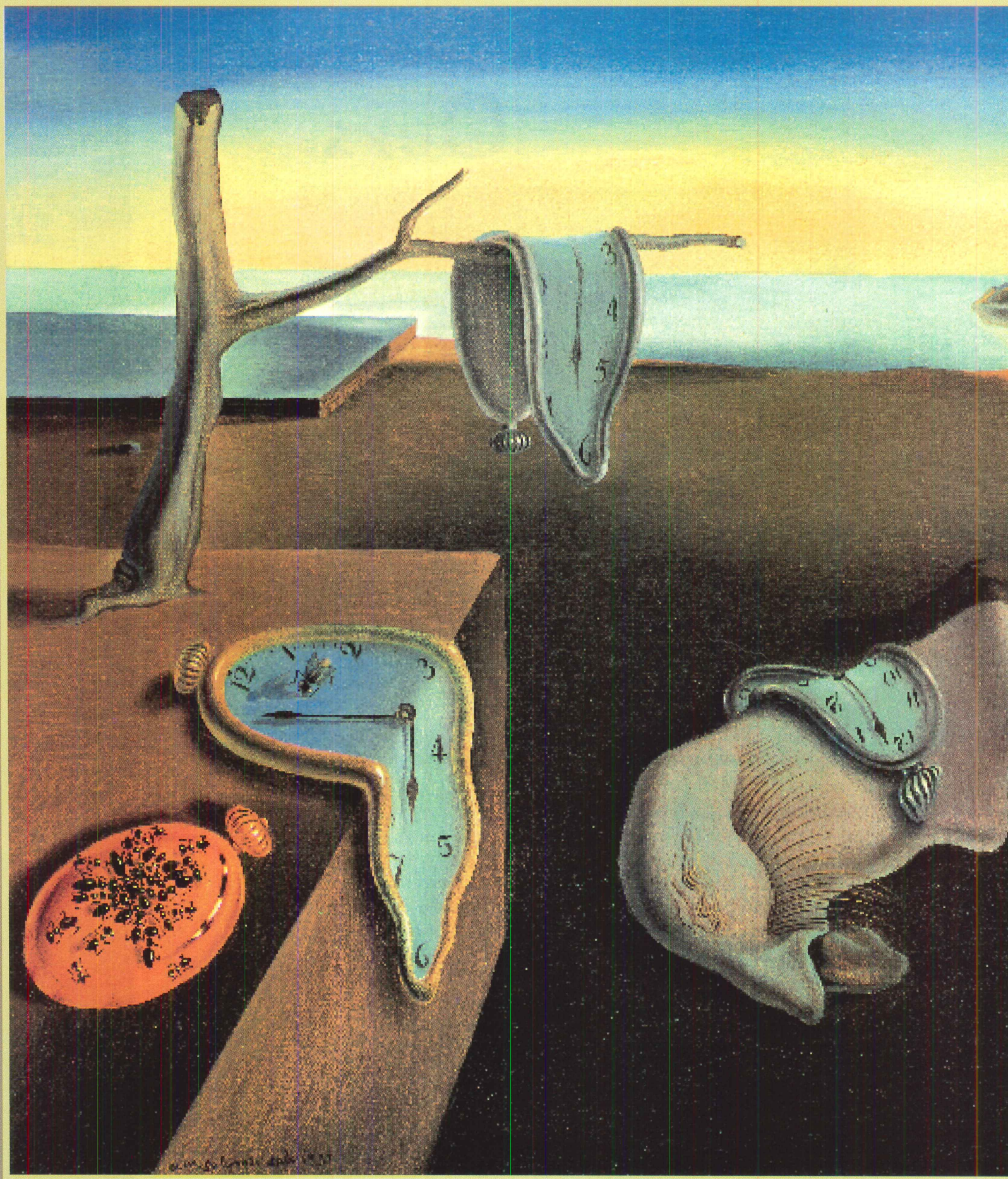

Salvador Dali, *The Persistence of Memory*, 1931. Oil on canvas, 9½ by 13 inches. The Museum of Modern Art, New York. Given anonymously. Photograph 1998 © The Museum of Modern Art, New York.

TIME FOR THE MILLENNIUM

THE CLOCK IS RUNNING. TAKE TECHNICAL AND LEGAL STEPS NOW TO LESSEN THE IMPACT OF THE YEAR 2000 COMPUTER CRISIS.

by B. J. Novitski

The press has been inundated with reports of the millennium bug, the computer programming glitch that threatens to wreak havoc with electronic systems—from the national power grid to telephone, banking, and air traffic control systems—beginning at midnight on December 31, 1999. But how will this insidious year 2000 (Y2K) bug affect the practice of architecture?

Simply upgrading computer hardware and software is a major hurdle. But architects should also consider and prepare for the legal implications of possible building-systems failures.

The problem derives from the programming practice of allocating two digits instead of four to the year portion of a date. Many systems will interpret 00 as 1900 rather than 2000, resulting in a variety of scheduling and calculation errors. Older computers with internal clocks may simply cease functioning in 2000. In addition, computer programmers who ignored the first two digits of the year were unaware of one of the more obscure aspects of determining leap years: although generally speaking, a year that is divisible by 100 does not have an extra day, the exception to this rule are those years divisible by 400. On February 29, 2000, some control systems will slide off schedule by one day.

Trouble for architects

Architects may experience any number of problems with their own internal functions and with external transactions. In-house project management systems may create scheduling errors, and accounting software may incorrectly calculate overdue dates. Even a firm that is completely Y2K-ready could be adversely affected by the problems of their clients, consultants, or suppliers.

Yet, worse for those in the construction industry is the fact that building systems themselves may fail. The practice of formatting years as two digits was hard-coded into the electronic chips embedded in many automated building systems. On January 1, an elevator may "think" that it has not been serviced for 99 years and shut itself off for safety reasons. Elevator manufacturers, for their part, cannot guarantee against failures if their equipment is

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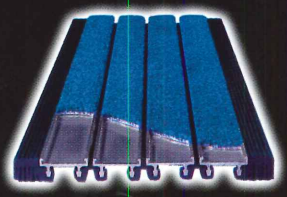

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g controls made by other manufacturers. Some of
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Building Owners and Managers Association (BOMA) is
ucate facilities managers about bringing buildings into Y2K
Though nearly everyone agrees that it is the responsibility of
roducts manufacturers to ensure that their equipment will operate correctly, architects may be named in lawsuits stemming from building-system failures in 2000.

Compliance liability

Most architects have little knowledge of—let alone control over—the chips embedded in the equipment they specify. Yet according to architect and attorney Gregory Hancks, AIA, of the Kansas City, Missouri, office of the law firm Kutak Rock, an architect's liability is no different than with a more common failure, such as a leaking roof. "If architects and engineers specify equipment with embedded chips, they may be held responsible for the owner having purchased the equipment," he says. "So if it fails, the owner can bring a lawsuit for negligence, breach of contract, breach of warranty, and breach of fiduciary duty."

IF ARCHITECTS SPECIFY EQUIPMENT WITH EMBEDDED CHIPS, THEY MAY BE HELD RESPONSIBLE IF THE EQUIPMENT FAILS.

Last October, President Clinton signed the Year 2000 Information and Readiness Disclosure Act, which is intended to encourage the exchange of information about computer processing problems, solutions, test practices and test results, and related matters, in connection with the transition to the year 2000. With certain exceptions (such as statements made in Securities and Exchange Commission filings), the act protects a statement made in good faith and labeled "Year 2000 Readiness Disclosure" from being used as evidence in civil court actions. Presumably this act encourages everyone to share information freely and thus improve the likelihood of readiness by December 31. However, the act notably excludes from protection any liability for actual failures, such as in building systems. In other words, while architects, manufacturers, and building owners are encouraged to swap information on Y2K readiness, doing so does not mean any of the parties are safe from litigation if a system fails.

According to attorney Gerald Weisbach, FAIA, of the San Francisco law firm Long & Levit, architects should automatically include a note defining their Y2K compatibility requirements in the general conditions of their specifications. "Some of our architect clients have included a requirement for certification by suppliers of any automated equipment that might be sensitive to the problem, such as elevators and security and control equipment," Weisbach says. Furthermore, any supplier who sells a piece of equipment today that is incompatible with Y2K may very well be found negligent. However, it is ill advised for an architect or engineer to warrant the compliance of a piece of equipment, he adds. Doing so changes the standard of care. As a result, architects and engineers will most likely not be insured under their professional liability policies for that kind of guarantee.

In addition, architects should refrain from signing letters composed by clients which state that the architecture firm or the project is Y2K-compliant. This is an increasingly common request. Such a guarantee by an architect would be dangerous as well as untruthful since no one can be completely certain about their own equipment, much less that of others with whom they share data.

Victor O. Schinnerer, an underwriting manager of professional liability insurance programs based in Chevy Chase, Maryland, weighs the pros and cons of responding to client requests for assurance about the firm's compliance in an article, "Approaching the Millennium," on the company's Web site. In the article Schinnerer says, "In the absence of a clear contractual obligation, a design firm may be under no legal duty to respond to a Y2K inquiry from a client, a lender, a consultant, or other party about the design firm's readiness. When faced with an incoming inquiry, a design firm should consider whether a response is legally mandatory and whether a nonresponse has adverse business consequences." If such a response is unavoidable, it should be as narrowly stated as possible. For example, a firm may choose to describe its steps toward preparation but refrain from claiming complete compliance.

What about systems embedded in existing buildings? Can architects limit their liability by warning past clients about potential dangers? Members of the legal community disagree on this question. No clear answer may emerge until the courts weigh in—after the damage is done. But Weisbach urges caution. Such a warning may imply that the architect or engineer knows more than the client or the public-at-large regarding the Y2K bug. "If you notify your client and there isn't time to fix the problems, were you negligent in not notifying them sooner? Did you acknowledge or assume some notion of responsibility that you don't have?" he says. These kinds of sticky questions make it difficult for architects to be forthcoming and responsive to their clients while avoiding legal confrontations.

Attorney Alan Buchalter, AIA, of Eugene, Oregon, says a timely, carefully crafted letter to the owners of buildings with potentially susceptible systems might be in order. He suggests that architects tell the owners to contact the elevator manufacturer, for example, to inquire whether the programming of the elevator controls may be susceptible to Y2K problems. The architects should note clearly that, in writing the letter, they are not accepting or admitting any liability for potential problems but rather doing this solely as a courtesy. Buchalter notes that courts may favor a good faith effort to warn clients over a head-in-the-sand approach.

The most important reason for architects to notify clients is not merely to avoid liability when a failure occurs but to reduce the likelihood of problems—which can be dangerous to occupants and building users—by motivating the clients to take corrective actions, Hancks says. That may mean contacting manufacturers to see if they have any upgraded software or equipment that can be installed.

However, the cost of these upgrades, or of replacing equipment altogether, can be expensive—in the billions of dollars nationally, according to BOMA. As a result, even before 2000 there may be lawsuits over who is responsible for paying these costs.

Insuring against the worst case

If disaster occurs, will the insurance companies be there to back up the architect? Few insurance companies that cover design-professional liability are now making exclusions for Y2K problems. That's good news. But architects should examine their policies carefully and work with their brokers to make sure such an exclusion is not inserted in

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the future. Ironically, this means that if design professionals are insured and their clients are not, the architects will have the deeper pockets and therefore will be more vulnerable when building owners look for someone to pay for damages.

Some companies that insure building owners are excluding such coverage. A standard Lloyds of London–approved electronic-date-recognition exclusion states that the policy does not cover any loss or damage, whether direct or indirect, relating to the change to the year 2000 or any computer system relating to the year 2000, according to the Schinnerer article.

Most reasonable people would agree that architects are not at fault for potential systems failures due to Y2K-faulty chips. But will that protect them from being dragged into court? Attorney Weisbach expects that the judicial system will bring some equilibrium to the situation if the number of lawsuits gets out of hand. Otherwise, not only will the Y2K-related systems fall apart, but the court system also.

Despite these grim scenarios, some observers are finding silver linings. Richard W. Hobbs, FAIA, professional practice vice president of the AIA, suggests that architects should consider the coming challenge as a potential business opportunity. Many clients, he says, seek a more integrated process for managing a building's entire life cycle. "I think the architect could be the one to coordinate that process. If we now had clear information about each of the vulnerable building systems, we could serve the client by assessing their facilities and identifying which ones needed to be corrected," he says.

This role of project information coordinator wouldn't require architects to take responsibility for the systems, only to define who among a building's consultants and contractors should get involved in solutions. To architects with the foresight and technical savvy to have their own Y2K situation under control, such a leadership role may already offer an attractive opportunity.

Computer surprises

Architectural firms that haven't begun to prepare their own computer systems for Y2K should move immediately into triage mode, prioritizing those projects that carry the greatest risk and are achievable by year's end.

Remediation will be expensive. Knowledgeable programmers and consultants are becoming harder to find and commanding higher fees. Upgrading or buying new hardware and software may mean extra training time and costs. Also, retraining the firm's staff may temporarily lower productivity.

Even simply replacing all internal hardware and software won't solve every problem. New software could still create errors when processing old data that is in the two-digit format. Moreover, unexpected things may happen when the data is combined, says architect Robert Ritger, director of CAD operations for The Hillier Group in Princeton, New Jersey. "I suspect that certain untested combinations of software and operating systems are going to throw us a few unanticipated surprises," he says.

Ritger has been diligent about anticipating Y2K issues and solutions. His firm has already tested and developed replacement plans for all of the firm's hardware. He also has plugged in Y2K-compliant software releases for the firm's major systems. In general, he is confident about The Hillier Group's future operations, though, he says, "I don't expect a perfectly smooth ride into the new millennium."

To mitigate the effects of unexpected problems, it is wise to develop a contingency plan for failures such as power outages, system crashes, bad data, and loss of communications. *(continued on page 168)*

YEAR 2000 RESOURCES ON THE WORLD WIDE WEB

The news is filled with reports of problems that the millennium bug will cause—everything from nuclear disasters to botched operations. While these problems may be overestimated, it's worthwhile for architects and others involved in the building industry to be as familiar with the problem as possible.

There are plenty of books, CD-ROMs, and videos available on the subject, but for the most up-to-date information on the Y2K bug, turn to these Web sites.

American Institute of Architects *The AIA provides specific information for architects regarding the year 2000, with links to related sites.*
http://www.e-architect.com/pia/y2k/y2kissue.htm

Building Owners and Managers Association *BOMA provides guides for property professionals about assessing potential problems and preparing buildings for the year 2000.*
http://www.boma.org/year2000/

CNA Financial Corporation *CNA, a design-profession insurer, gives a compliance review list, testing criteria, and sources for vendor information.*
http://www.cna.com/cna/html/y2k1.html

CNET *CNET, a producer of Web sites and TV programming about computers, the Internet, and digital technologies, offers tips on testing and fixing hardware and software, plus links to sites about the effects of Y2K on the government and the economy.*
http://www.cnet.com/Content/Reports/Special/Y2K/

CIO Magazine *This publication for corporate chief information officers offers advice and resources for guiding a firm through its systems conversions.*
http://www.cio.com/forums/y2k/

DPIC Companies *DPIC, a trade group of professional liability insurance companies, issues a policyholder alert and a checklist for preparedness, and explains rights and liabilities.*
http://www.dpic.com/Y2kweb.html

Information Technology Association of America *The ITAA offers a summary of Y2K-related state and federal legislative proposals and lawsuits.*
http://www.itaa.org/Y2Klaw.htm

The MITRE Corporation *MITRE, which performs research and development in systems engineering and integration for the Department of Defense and the Federal Aviation Administration, provides links to Y2K tools, services, and statements of compliance from commercial software and hardware vendors. The site also describes steps to take, certification processes, testing procedures, and contingency planning.*
http://www.mitre.org/research/y2k

PlanetAEC *This resource guide sponsored by Schinnerer and CNA reprints an article from the September 1997 issue of* Mechanical Engineering *that dramatizes the effects of embedded bugs on mechanical systems in buildings and manufacturing.*
http://www.planetaec.com/contractors/feature/mayhem.html

Victor O. Schinnerer *Schinnerer, the underwriting manager of professional liability insurance and risk management programs, describes your risks, costs, and responsibilities in the article "Approaching the Millennium."*
http://www.schinnerer.com/millennGUIDE.htm

The Tenagra Corporation *Tenagra, an Internet marketing and consulting firm, provides news and articles about the millennium bug and an extensive list of Y2K-related consultants and software vendors.*
http://www.year2000.com

U.S. Small Business Administration *The SBA describes the problem from the perspective of small business owners, including steps to take and self-assessment guidelines, and provides links to related sites.*
http://www.sba.gov/y2k/

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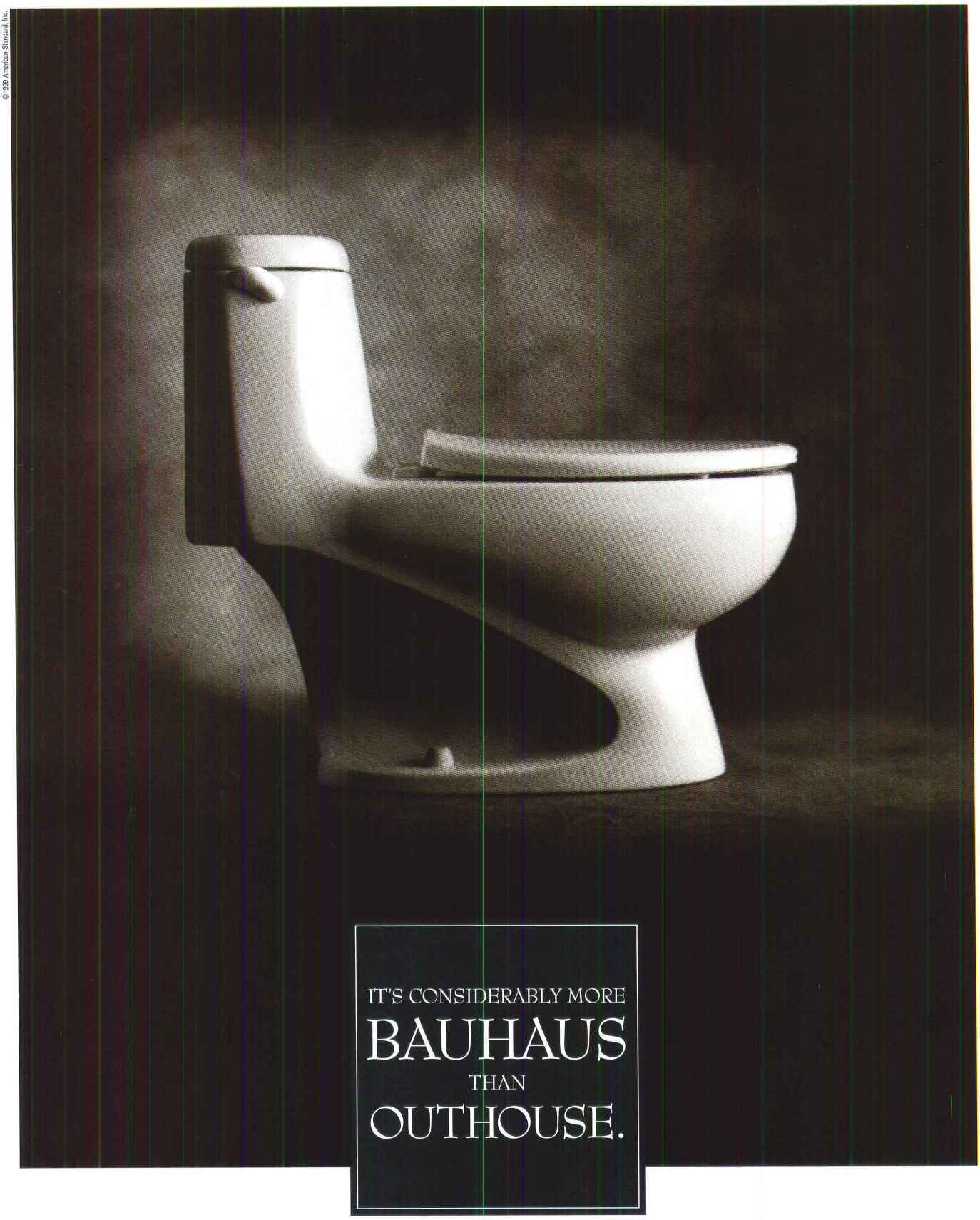

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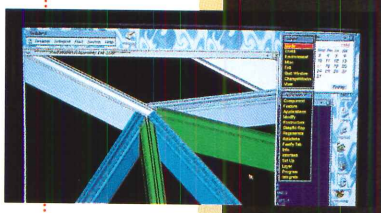

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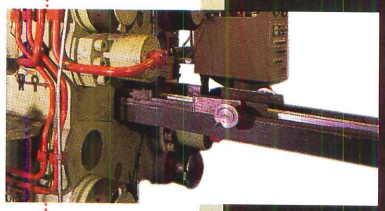

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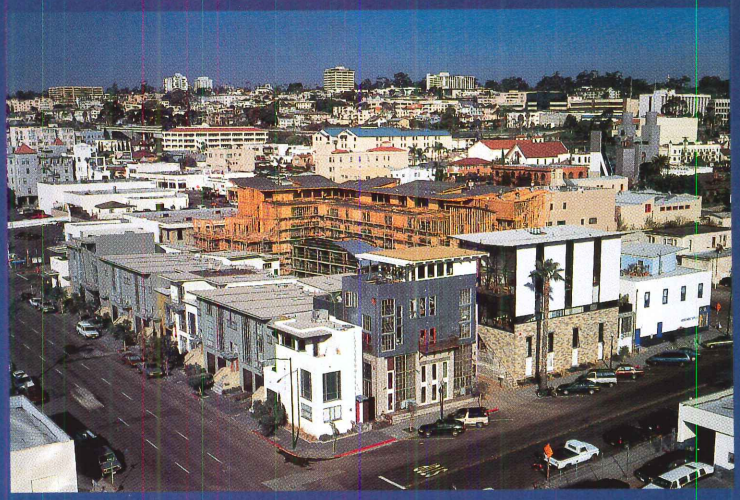
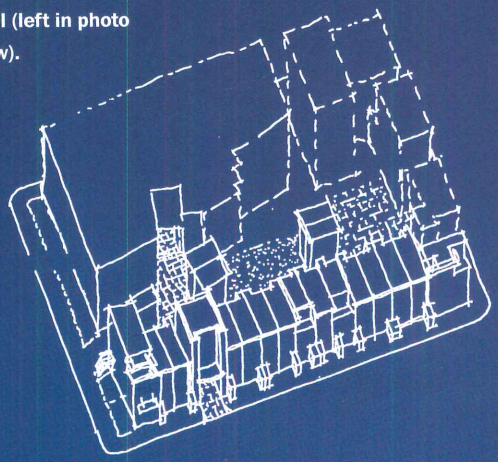


The development includes buildings by Rob Wellington Quigley (opposite, and under construction in photo left), Smith & Others (right in photo below), Public (center in photo below), and Jonathan Segal (left in photo below).



At the LITTLE ITALY NEIGHBORHOOD DEVELOPMENT a group of San Diego architects-turned-developers push the housing envelope.

by Clifford A. Pearson

This is the story of a group of architects who put their money and sweat where their mouths were. Instead of bemoaning how formula-driven most housing design had become, they took on new roles such as developer and contractor. Their hope was to create a project that offered alternatives to the cookie-cutter apartments and townhouses that dominate the market. The focus of their attention was a full city block in the Little Italy neighborhood of downtown San Diego, which the architects divided up among themselves and set about building in their own quirky ways. Much of their work is now done: two parts of the block are completed, a third will be finished this spring, and a fourth will be occupied next year. Already the project is showing there is demand for nontraditional housing downtown and attracting a more diverse set of residents to a once-marginal neighborhood.

The story began in the early 1990s with a handful of designers in San Diego who were exploring alternative housing types: projects with flexible spaces, or loft spaces, or separate lofts that shared workspaces. The market for these kinds of innovative residences was not huge, but it was growing as more young professionals began working from home. Large developers weren't interested in such niche markets, so architects began developing projects themselves. By keeping the scope small and doing much of the contracting, such architect-developers reduced their risks and proved that these approaches could attract buyers and renters.

When the Centre City Development Corporation (CCDC)—a public, nonprofit agency created by the city of San Diego to implement downtown redevelopment activities—requested proposals in February 1995 to develop an entire city block in Little Italy, some of these architect-developers were excited by the opportunity. But the 200-by-300-foot block was too big for any one of these players to handle alone. In response, a group of them banded together as the Little Italy Neighborhood Developers (LIND) and put together a comprehensive proposal that allowed each designer to work on an individual parcel.

One of the design goals included in the request for proposals was "to avoid the appearance of large, full-block development and to instead create the appearance of a series of smaller individual projects varying in size, character, and scale." According to Pamela Hamilton, senior vice president of the CCDC, and Janice Weinrick, vice president of real estate operations for the CCDC, the LIND proposal did the best job of meeting this goal. And LIND participants such as Rob Wellington Quigley, FAIA, Ted Smith, Jonathan Segal, AIA, and James Brown had long been active in projects downtown and were well regarded by Little Italy residents. "LIND was the neighborhood favorite," states Hamilton; the CCDC selected LIND as the site's developers later that year.

Breaking away from formulas

Rather than build the usual—four floors of apartments over one floor of parking, or the equally common townhouses over parking—the LIND proposal offered a range of housing types, such as Segal's "convertible" townhouses, whose spaces can double as home offices or separate apartments; buildings by Smith & Others and Public (Brown and James Gates) that feature three floors of residential lofts over one level of commercial or residential space; and a 37-unit apartment building by Quigley. The development also included renovating the existing Harbor Marine building, a simple two-story structure, for industrial space on the ground floor and apartments above, and building a small mixed-use structure next to Quigley's family-oriented apartment building.

AS THEY DIVIDED THE SITE AMONG THEMSELVES, THE ARCHITECTS ENGAGED IN "MILITARY CAMPAIGNS" FOR LAND.

All of the projects within the block, except for Quigley's, feature flexible numbers of dwelling units. Convertible spaces are a key ingredient in Kettner Row, Segal's townhouse project. In Brown and Gates's building, the first floor is equipped with multiple bathrooms and kitchens, although it is currently being used as one large loft. And the Merrimac Building, designed by Smith and Lloyd Russell, offers unusual lofts that

can share work spaces while retaining separate entrances, sleeping areas, and bathrooms.

The city sold land for the rental housing parcels for a dollar each, since these projects would include units for low- and moderate-income residents. However, the land for Segal's townhouse development, which consists of units for sale, was sold by the city at market value. Although most of the architects acted as their own developers, Quigley, who had the largest project, brought in an established company, Barone Galasso. Kathleen McCormick also worked with them on a retail/commercial/residential building set to start construction soon.

The master plan for the entire block was developed by Smith and Russell, with input from all of the participants. In fact, the process of dividing up the site was anything but simple. To accommodate the various parking, vehicular access, and fire egress needs of each piece of the development puzzle, the architects provided a series of easements from one parcel to another. As individual designs were refined, property lines were adjusted. "We wanted to protect each other's views, light, and access," explains Brown, "so the pieces on the board kept moving. It was a fun process, but it drove the CCDC people crazy."

Master planning is war

Describing the give-and-take planning process, Smith enjoys referring to it as "a military campaign" in which one architect would attack another's parcel and steal a little land, then watch as his neighbor invaded a third person's property. Segal recalls some tough negotiating between architects, but he also paints a positive picture: "We're all strong-willed people and we went back and forth quite a bit. But I don't think we ever blew up or lost it. We all enjoyed it."

The CCDC had worked with multiple developers in the past, but only on large urban renewal projects. As it turned out, the multiple personalities behind the project were both its strength and its weakness. Everyone likes how the block resembles a series of pieces that grew over time. "The project really looks good," comments Weinrick. "And it provides very different kinds of housing on one block: rental, for-sale, live-work, family housing—all kinds of options. It's a microcosm of what we want to achieve in downtown as a whole." The variety of housing types makes it possible for people to stay on the same block even as their needs change over time. For example, a person just starting a career could rent one of the granny flats at Kettner Row or one of the small lofts at the Dutra-Brown Building, then, as needs and income grow, buy a townhouse or rent a large loft. If the person wanted to set up a business at home, the lofts and convertible townhouses could provide space for that too.

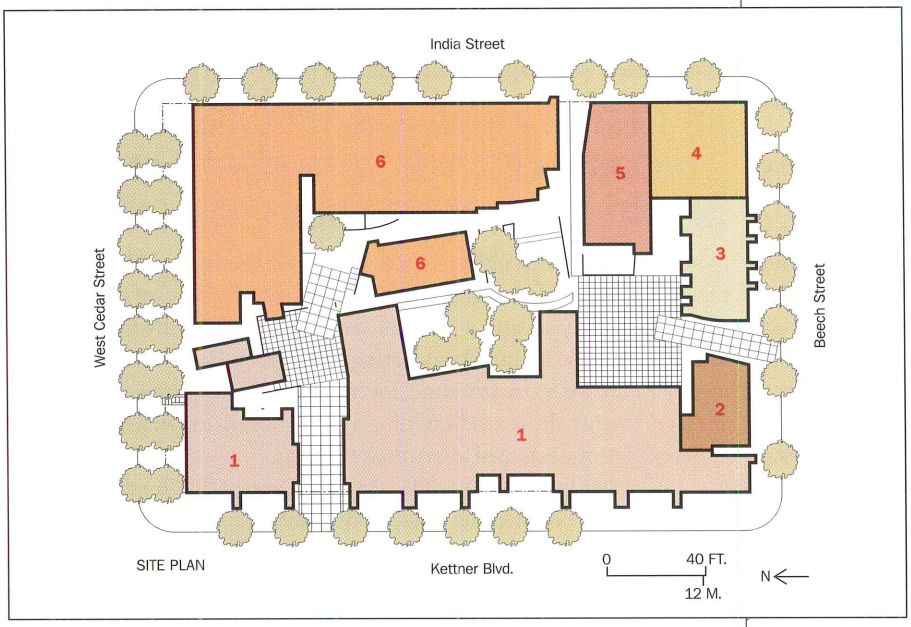
The architects and the CCDC agree that all the property easements made the project more complicated than it had to be. "It's like a plate of spaghetti with reciprocal easements all over the place," states Hamilton. Smith concurs, saying that in the future he would give each player a part of the site and stay away from easements.

"IT'S A PLATE OF SPAGHETTI WITH EASEMENTS ALL OVER THE PLACE," SAYS ONE OFFICIAL. NEXT TIME THEY'LL SIMPLIFY PROPERTY LINES.

The city and the architects knew from the beginning that this would be a model project and that innovations are difficult. "We saw this block as a showcase," recalls Weinrick. "We wanted to show how urban infill could work downtown." The project's density is slightly less than 48 dwelling units to the acre, about a third less than what the CCDC would like to achieve in downtown overall, says Weinrick. She points out that the two courtyards in the center of the block and the generous amount of private outdoor space for the townhouses are welcome amenities for the residents. But to meet the CCDC's goal of attracting 30,000 more residents downtown in the next 20 years, future projects will have to achieve a higher density.

While the project fulfills the city's requirement of half a parking space per dwelling unit, the CCDC would have preferred more parking, since some townhouse owners are renting part of their property to other people (an arrangement that is allowed in this area). A single developer for the entire block might have been able to fit more parking on the site, says Weinrick.

There is little doubt, though, that the project is a success. A year after Segal's townhouses opened, they have already appreciated significantly, going from a range of $190,000 to $250,000 to a new plateau of $260,000 to $320,000, says the architect-developer. Urbanistically, the project has started to change the image of its surrounding neighborhood. "It's a very good billboard for downtown," remarks Weinrick. "The message it sends is that downtown is where things are happening. Everybody knows about it. That's just what we want." ■



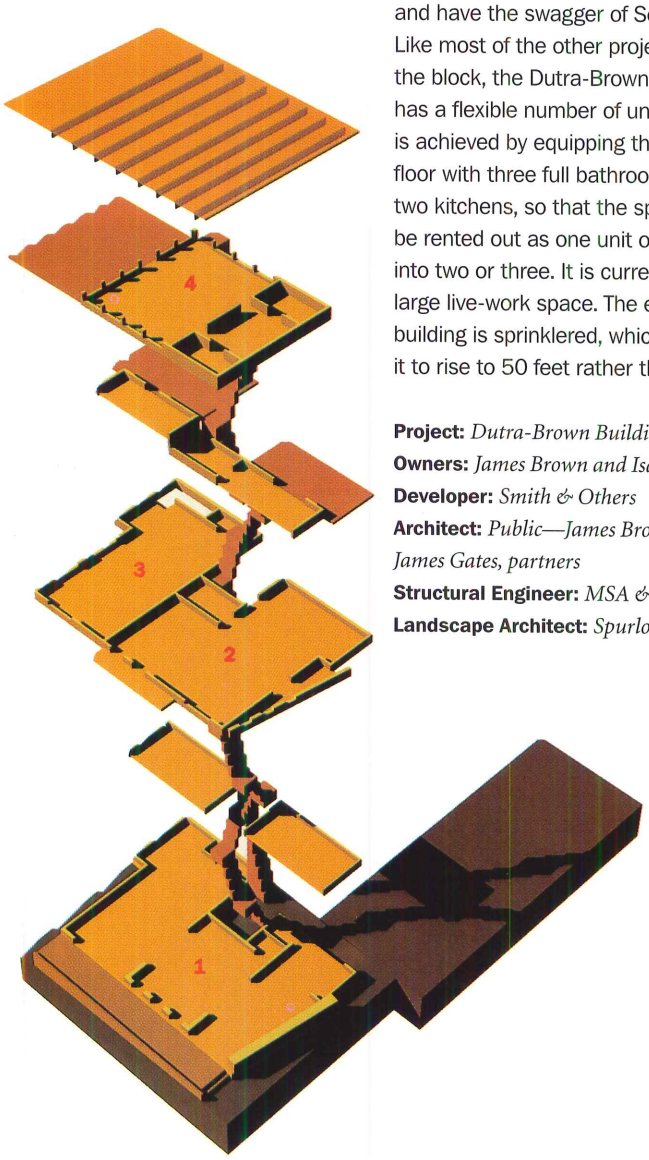
1. **Kettner Row** *(Jonathan Segal, architect and developer)*
2. **Dutra-Brown Building** *(Public, architect; Smith & Others, developer)*
3. **Merrimac Building** *(Ted Smith/Lloyd Russell, architect; Smith & Others, developer)*
4. **Harbor Marine renovation** *(Robin Brisebois, architect; Smith & Others, developer)*
5. **Little Italy mixed-use building** *(Kathleen McCormick, Smith & Others, architect; Barone Galasso, developer)*
6. **Little Italy Family Housing** *(Rob Wellington Quigley, architect; Barone Galasso, developer)*

THE DUTRA-BROWN BUILDING PACKS SMALL LOFTS WITH BIG VOLUMES ONTO A TIGHT SITE

Working with the smallest parcel on the block (just 3,160 square feet), James Brown and James Gates designed a rugged hybrid that changes structure and character as it rises from street to roof. From a 20-foot-high base of exposed concrete block, the building morphs into a wood-frame, galvanized-metal-clad enclosure and then into a painted-wood penthouse.

Inside, the individual living units expand vertically, rising 19 feet 4 inches on the ground floor and 20 feet on the second. Although relatively small (from 500 to 1,150 square feet), the residences feel big and have the swagger of SoHo lofts. Like most of the other projects on the block, the Dutra-Brown Building has a flexible number of units. This is achieved by equipping the ground floor with three full bathrooms and two kitchens, so that the space can be rented out as one unit or divided into two or three. It is currently one large live-work space. The entire building is sprinklered, which allows it to rise to 50 feet rather than 40.

Project: *Dutra-Brown Building*
Owners: *James Brown and Isabel Dutra*
Developer: *Smith & Others*
Architect: *Public—James Brown and James Gates, partners*
Structural Engineer: *MSA & Associates*
Landscape Architect: *Spurlock Poirier*



The architects used industrial materials such as concrete block, poured concrete, galvanized metal cladding, and old steel windows rescued from a Navy warehouse that was being demolished. Parking is provided on the street and behind the building.

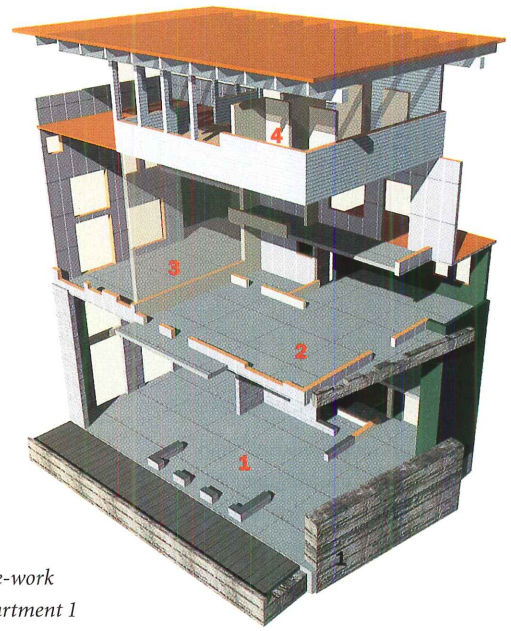
Brown and Gates, who call their design firm Public, always work as general contractors on their projects and usually do much of the building themselves. In addition to architecture, they also design and sometimes build furniture. In the Dutra-Brown Building their hands-on approach can be seen in the way they embedded pieces of industrial detritus such as metal gears in concrete and incorporated salvaged building components such as rusting metal door fronts and windows from a U.S. Navy warehouse in the construction. "We like being in touch with the materials," explains Brown.

Thanks to the floor-to-floor height, there is room for a mezzanine level or sleeping loft in every unit. Each residence also has at least one outdoor space, ranging from a 140-square-foot deck off an apartment on the second floor to a 325-square-foot roof deck adjacent to the small penthouse unit. One of the second-floor apartments has both a balcony on the front of the building and a deck on the back.

Providing access to all levels, including the mezzanines, an outdoor stair on the back of the building rises within a structure of six-by-six pressure-treated timbers. Rolled-steel railings and dark green asphalt shingles complete the palette of industrial materials here.

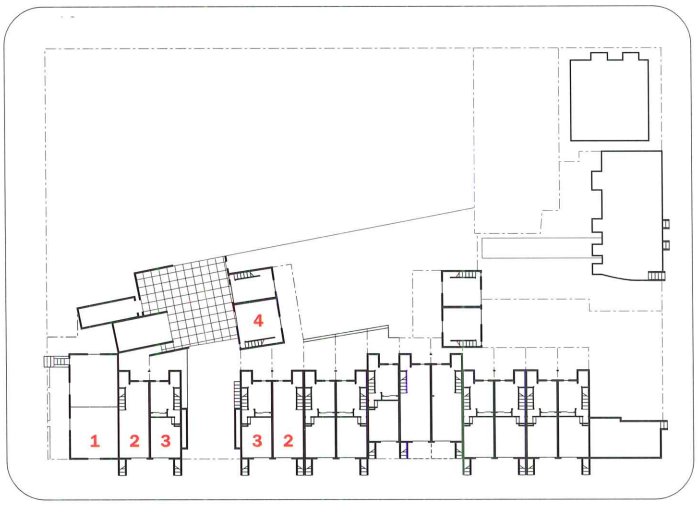
Brown and Gates had never worked as developers before and were brought into the Little Italy block by Ted Smith. "It was stressful worrying if we had enough money to build the project," admits Brown. "But I absolutely would do it again." *C.A.P.*

Sources
Galvanized metal siding: *Simmons Sheet Metal Fabricators*
Roof decking: *Spaeth Deck*
Painted casement windows: *Woodmaster Windows*
Aluminum casement windows: *Milgard*
Metal doors and balconies: *DeForm*
Cabinets: *AW Design and Woodwork*
Hardware: *Schlage*
Fire doors: *Timely*



1. *Live-work*
2. *Apartment 1*
3. *Apartment 2*
4. *Penthouse*

Each unit has a mezzanine reached by ladder (left). The ground floor, currently being used as one space, has three entrances and bathrooms so it can be divided in several ways (below). Developing the project themselves allowed the architects to experiment with materials, such as surfacing indoor floors with a latex-modified concrete normally used outdoors (opposite bottom).



SITE PLAN

N ← 0 40 FT. 12 M.

1. *Triplex*
2. *Convertible rowhouse*
3. *Standard rowhouse*
4. *Granny flat*

Rowhouses face the street with front stoops (above and opposite top). The one triplex (left in photo, opposite bottom) anchors the row. An auto court provides access to garages and two granny flats (right).

KETTNER ROW OFFERS CONVERTIBLE SPACES FOR YOUNG PROFESSIONALS

Jonathan Segal, AIA, knew his market well: young professionals in their 20s and 30s who want a house with traditional proportions but modern flair. His design for Kettner Row, a set of 16 for-sale townhouses, strikes some familiar chords: front stoops and straightforward elevations that are clearly organized into base, middle, and top. But it also has a few hip features—clean lines inspired by early 20th-century Vienna Seccessionist buildings and two-story-high living spaces inside.

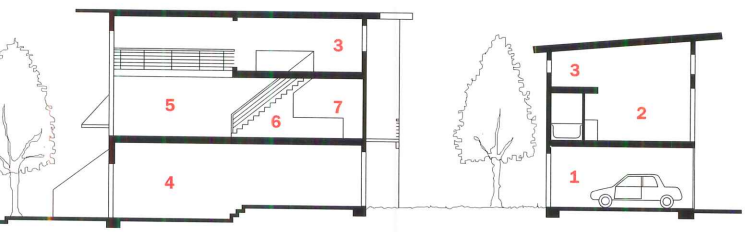
Segal also knew that some of the people who would like the rowhouses would need help making the mortgage payments. So he designed some of the units as "convertible" townhouses with ground-floor spaces that can be rented out as small apartments or used as offices. Five of the townhouses also have granny flats above garages that can be rented out. The extra income from these apartments can make all the difference to a young homeowner. "It's a way of dealing with the high cost of housing in California," says Segal. The convertible nature of the townhouses also means that people can grow into their homes, taking over the rental units when their incomes expand and even setting up their own businesses in ground-floor office spaces.

Set on 15-by-80-foot lots, the rowhouses have small backyards. "Most places downtown don't have any outdoor space, so a backyard is a real amenity," says Segal. There are four basic types of houses in the project: standard rowhouses, convertible rowhouses, granny flats over garages, and triplexes. Because many of the 16 properties have rentable units, as many as 26 different dwellings may be accommodated.

Each of the standard rowhouses has a single garage off the street, while the convertible units have either garages or parking spots in the rear. By making the garages 10 feet high, the architect provided enough space for people to install car lifts that allow two cars to be parked, one on top of the other.

Townhouses range from 1,250

Project: *Kettner Row*
Developer: *Jonathan Segal*
Architect: *Jonathan Segal, AIA—Jonathan Segal, Hussien Monaim, Chris Fassler, Brett Farrow, Wendy Segal, Rebecca Golden, project team*
Structural Engineer: *Dodd and Associates*
Landscape Architect: *Spurlock Poirier*
Color consultant: *Kathleen McCormick*
General Contractor: *Zieman Shields*



ECTION - ROWHOUSE

SECTION - GRANNY FLAT

1. *Garage*
2. *Granny flat*
3. *Sleeping loft*
4. *Office or apartment*
5. *Living*
6. *Dining*
7. *Kitchen*

to 1,850 square feet; the one triplex on the northeast corner of the site has 2,200 square feet.

Because the units are sold as fee-simple transactions, not condominiums, they don't require sprinklers and have less stringent requirements for accessibility and fire egress. To further reduce costs, Segal used concrete for all floors and kept parking on grade. By working as both developer and architect, Segal could make adjustments on site without incurring big costs. "I can change drawings a lot cheaper than a typical developer can," he says.

On the inside, though, the architect provided some luxurious touches, including granite counters and living spaces that soar to two stories (between 17 and 19 feet high).

Construction is simple: wood framing (two-by-fours and two-by-sixes) on concrete slab with stucco exteriors. "Originally we were going to do the exteriors in all white," recalls Segal. "Then we brought Kathy McCormick in and she helped us work on some colors." The resulting palette ranges from whites to greens and helps break down the long Kettner Boulevard elevation into various pieces.

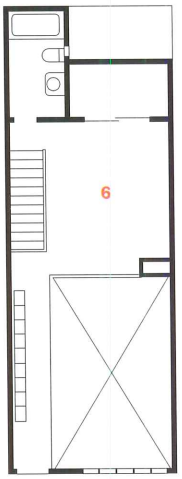
A savvy businessperson, Segal is now working on a handful of projects, all of which he is developing. *C.A.P.*

Sources

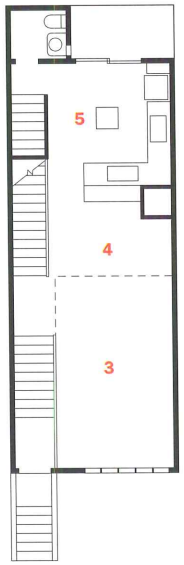
Aluminum windows and curtain wall: *U.S. Aluminum*
Built-up roofing: *Mansville*
Locksets: *Schlage*
Custom wood cabinetwork: *AIA Design*
Enamel paint: *Frazee Paints*
Indoor ambient lights: *Cooper Lighting (Halo)*

The project has four basic types of units: convertible rowhouses (floor plans above), standard rowhouses, granny flats, and a triplex (photos this page and opposite).

1. *Garage or office*
2. *Office or apartment*
3. *Living*
4. *Dining*
5. *Kitchen*
6. *Bedroom*



THIRD FLOOR



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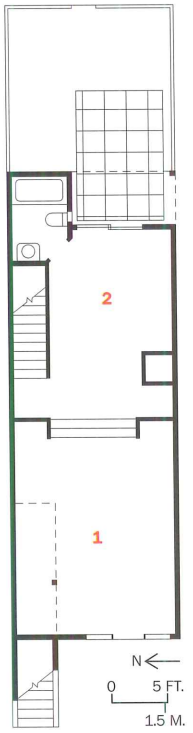
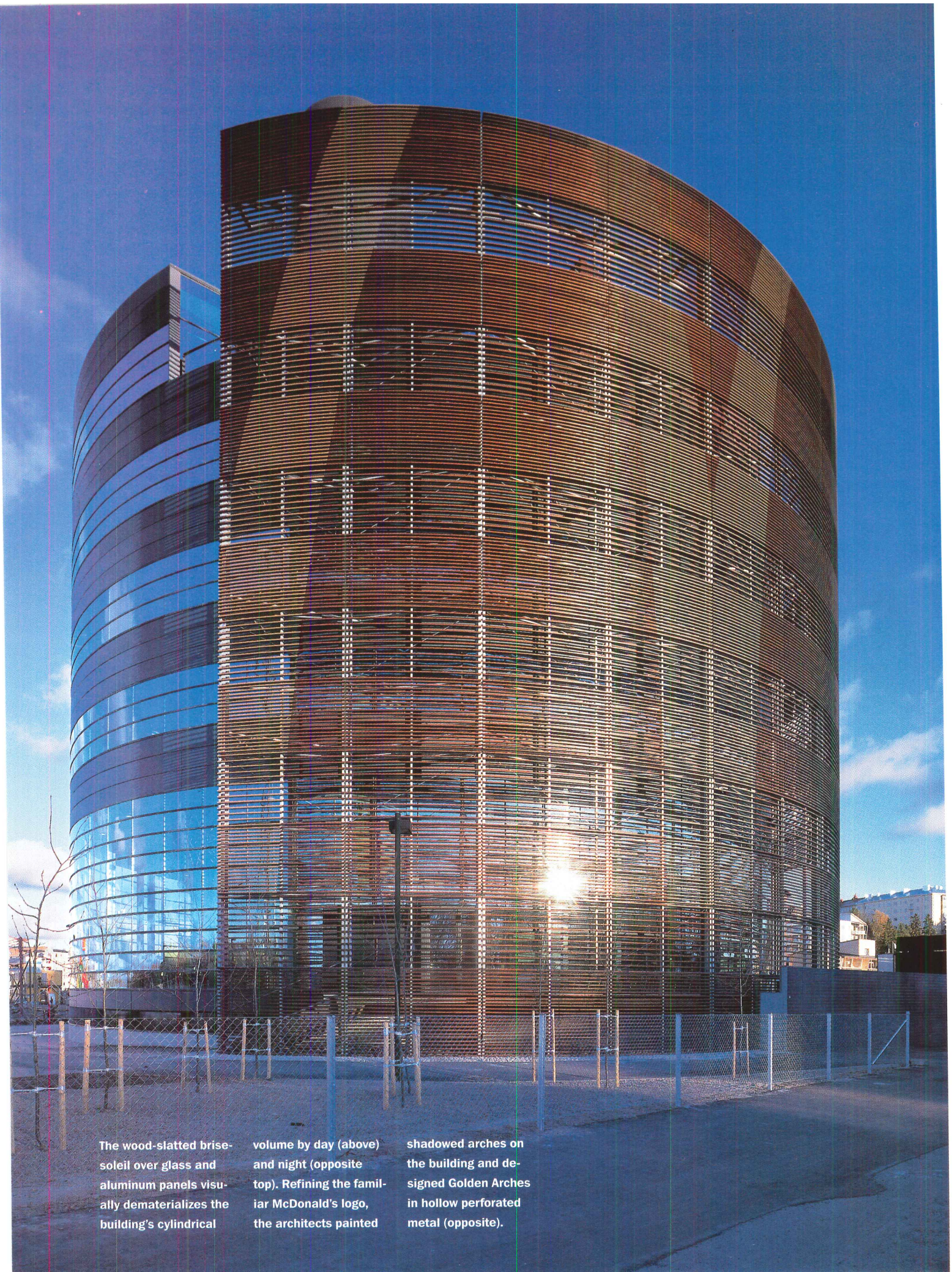


FIRST FLOOR

Living spaces that rise as high as 19 feet and multiple exposures provide natural ventilation. Although the units have air-conditioning, one resident says he rarely needs to turn it on.



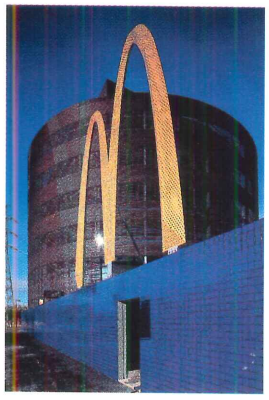
The wood-slatted brise-soleil over glass and aluminum panels visually dematerializes the building's cylindrical volume by day (above) and night (opposite top). Refining the familiar McDonald's logo, the architects painted shadowed arches on the building and designed Golden Arches in hollow perforated metal (opposite).

Heikkinen-Komonen's McDONALD'S FINLAND HEADQUARTERS seasons the burger empire's image with architectural finesse.

by Peter MacKeith

We have a remarkable building," McDonald's Finland president Kim Hanslin says with pride, "a building that has created a new image for McDonald's in Finland." In corporate culture, such appreciation is hard to come by—but can architecture really enhance McDonald's? The simple answer is yes, at least in business terms and in the skillful hands of Finnish architects Mikko Heikkinen and Markku Komonen. McDonald's worldwide has not emphasized a unique or contemporary quality in its buildings, but the shimmering, cylindrical Helsinki headquarters is exceptional.

Lying at the western edge of the city center, where the dense urban fabric meets the Helsinki peninsula's coastline, the site is bound to the south by an arterial boulevard, to the east by housing complexes (which some critics have labeled "an outrage"), and to the north and west by an inland bay. While views across the bay reveal pastel-toned housing, the immediate wooded surroundings—and views south toward the Gulf of Finland—provided inspiration.



In choosing Heikkinen-Komonen Architects for the commission, Hanslin considered the firm's Finnish Chancery in Washington, D.C., decisive. Hanslin admired the elegant restraint of the design and the way the landscape enters the luminous interior. With an inventive economy of means, the chancery's strict boxlike volume, articulated by a legible structural frame and a limited palette of carefully detailed materials, establishes a strong relationship to its site. The sheer tactile force of the materials—polished granite, pale green glass, and patinaed copper and bronze—charges the austere environment. A tendency to create more with less characterizes the architects' work, and brought their firm the McDonald's commission.

"Our interest is in making good buildings," Komonen asserts, "and at McDonald's, we were asked to produce a good working environment, not simply sharpen the company's profile in Finland." The architects were drawn to many aspects of the project: the urban site, the idea of creating a commercial building with a public character, and the opportunity to play with one of the best-known logos in the universe. "But," adds Komonen, "we were given free hands: no McStyle was told to us."

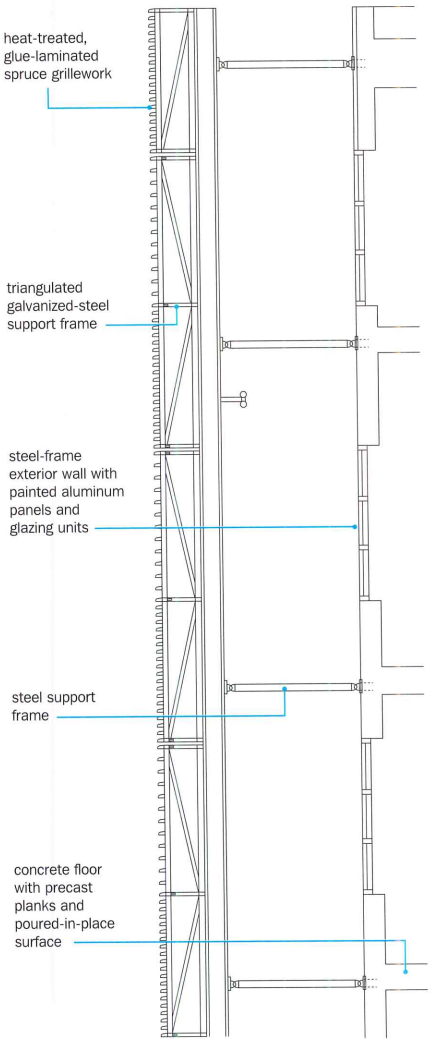
For the architects, the site—not the corporate image—dictated many design choices, leading them to build a singular monolith: a Platonic presence, calculated for its catalytic effect on the surroundings. "The cylindrical form," says Heikkinen, "resulted from the site's exceptional character. We perceived the city structure as an unfinished urban wall, requiring a terminus." The building is a focal point for views from 360 degrees around, while its curving wall opens the interior to panoramas.

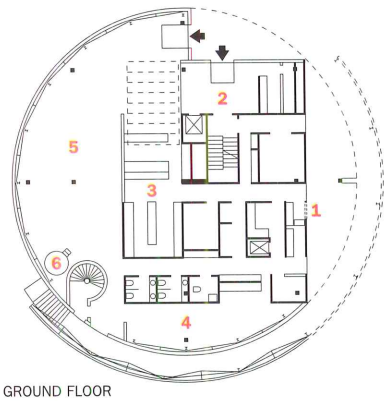
To link the cylinder's surrounding ground plane with the waterfront, landscape architect Gretel Hemgård planted an allée of trees with grassy, wavelike knolls to create a forced perspective and line of movement toward the water's edge. A border of wooden docks is expected to draw boaters and ice-fishers to the headquarters' McDonald's restaurant.

In this building, as in the Washington chancery, the architects devised a subtle combination of complex geometries, structural grids, and distinctive materials. They overlaid the six-story cylinder with a grid of concrete-filled steel columns. Within this composition, five levels of administration above the restaurant were designed with sensitivity to functional and sectional relationships—notably the restaurant-

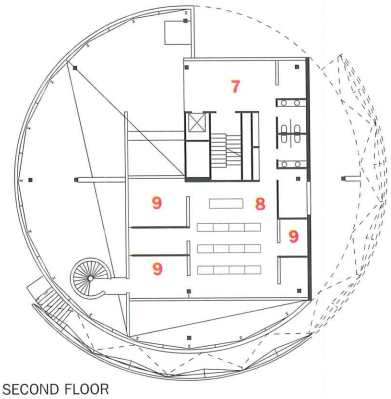
Peter MacKeith directs the international architecture Master Program at Helsinki University of Technology.

Project: *McDonald's Finland Headquarters, Helsinki*
Architect: *Heikkinen-Komonen Architects—Mikko Heikkinen and Markku Komonen, principals*
Engineers: *Magnus Malmberg / HN-Suunnittelu (structural); Vesi-Projectus Team (mechanical/electrical/plumbing)*
General Contractor: *Skanska Etelä-Suomi*

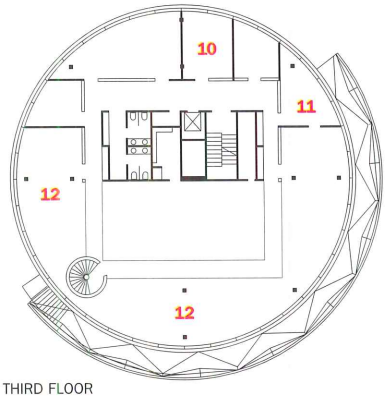




GROUND FLOOR



SECOND FLOOR

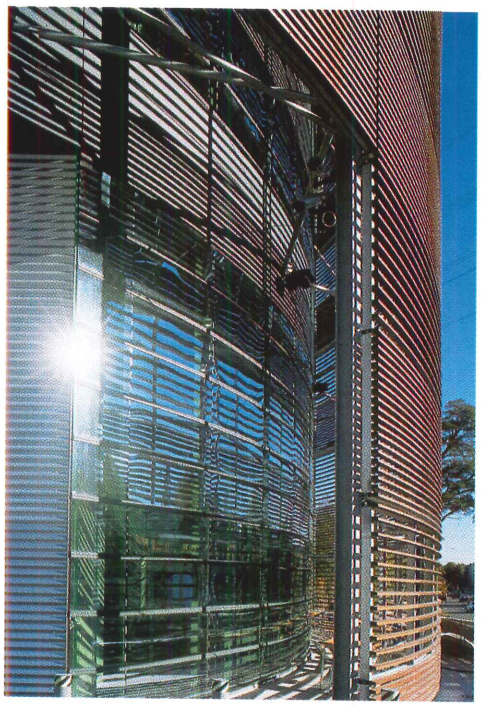


THIRD FLOOR

0 50 FT.
15 M.

N

1. *Drive-through lane*
2. *Office lobby*
3. *Restaurant kitchen*
4. *Staff dining/party room*
5. *Restaurant*
6. *Children's play area*
7. *Management-training lobby*
8. *Lecture hall*
9. *Group work rooms*
10. *Conference*
11. *Offices*
12. *Open work stations*



Hardly a typical McDonald's, the curving, light-filled restaurant has panoramic views partly filtered through a wooden brise-soleil (left). In homage to Stanley Meston's early McDonald's design (below), Heikkinen and Komonen's restaurant features a whimsical, rhythmic mobile that incorporates the frames of 1950s "bat" chairs (above).

management-training area's overlook onto the double-height restaurant.

Elevators, restrooms, and mechanical shafts are tightly held in the cylinder's orthogonal core, with its stack culminating in a caplike mechanical room hovering above a roof terrace. While public and workspaces are concentrated toward the curving outer wall, the structural grid is skillfully expressed at each level. At grade, for instance, the dominant arc cuts back along the grid to create a glassed entry for the restaurant and offices. Glazed walls between conference areas and offices also follow the orthogonal system, clearly and decisively integrating the two geometries.

The tower's horizontally articulated green aluminum-panel-and-glass skin is partially wrapped by a brise-soleil of laminated wooden strips on a triangulated steel frame. Heikkinen and Komonen's facades rarely incorporate standardized framing systems, but here the architects fastened standard-profile components with open joints over a waterproof barrier. The effect is a delicate structure with a taut surface.

The wooden brise-soleil commands the most attention. Its glue-laminated, heat-treated spruce was kiln-dried by a method developed at the Finnish State Technical Research Center. The heat removes moisture from the softwood's cells, increasing its weather resistance to the level of a tropical species without impregnating agents. McDonald's showcases the first large-scale commercial use of this technique, in a manner transcending function. Filtering direct views of the landscape, the sun-break produces a complex dialogue between inside and outside. The layering of aluminum and glass with wood softens the perimeter of the idealized volume, causing it to shimmer and visually dematerialize.

The facade's predominant transparency opens the entire interior to sunlight and views. While Finnish building codes mandate a natural light source for all employees, the open plan and glass partitions render this workplace especially luminous and airy. An unscreened, double-height glass wall illuminates the restaurant. Serving and dining areas have the gleam and bustle of a typical McDonald's, but the soaring ceiling height, deftly redesigned graphics, and frank expression of structure and materials make this restaurant singular. Office-level interiors, by contrast, have a calm and purposeful atmosphere, enhanced by the clarity of open plans, crisp detailing, and simple, custom-designed furniture.

The Big Mac sells well at at 60 degrees north latitude. McDonald's Finland plans to open its 100th restaurant this year—an event to be marked by a Finnish replica of Stanley Meston's 1950s design for the first McDonald's. A mural of Meston's building borders the seating area.

For all his emphasis on the company's good name, Hanslin initially resisted the bold placement of McDonald's Golden Arches on the building: "Too much of the trademark and it would have jumped at you," he says, "but finally I felt the logo should go on the building in a shadowed way." Heikkinen and Komonen reveal it with characteristic irony and skill: a gray-painted superscale "shadow" of the great arches hovers across the building's grilled surface while, facing the boulevard, a pair of hollow yellow perforated-metal arches stands atop a blue clinker-tile acoustic wall—adding a refined touch of roadside "pop." ■

Sources

Curtain wall: *Teräselementti*
Glass: *Saint-Gobain*
Elevator: *Kone*
Doors: *Impera (metal); Alavuden Puunjalostustehdas (wooden); Nordic Aluminum (sliding)*
Locksets: *Abloy*

John McAslan creates a concrete-and-glass caravansary for the YAPI KREDI OPERATIONS CENTER near Istanbul.

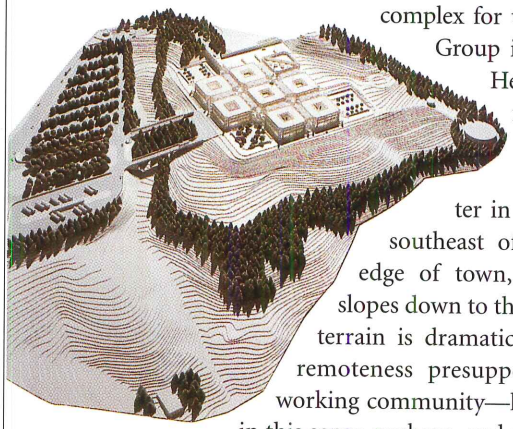
by Hugh Pearman

If the office workforce is a "family," as current thinking goes, then what should the family "home" be like? Homes are generally all about interiors, where, except for some famously extroverted cases, the plan and section are more important than the elevation. Since the Yapi Kredi Operations Center in Gebze, Turkey, is all about plan and section, one could argue that its fundamental organizing principle is that of a house—but it is a very large house. Designed by the London-based architectural firm John McAslan & Partners for a leading Turkish financial institution, the complex provides a spacious, 538,000-square-foot, back-office facility for 1,500 employees and the bank's main computer data-processing and storage equipment.

Indeed, as with other pioneering people-oriented office buildings such as Herman Hertzberger's Centraal Beheer headquarters in Apeldoorn, Netherlands (1968–72), or Niels Torp's British Airways headquarters in London (1996–98), the Yapi Kredi building looks almost as if the exterior elevations were an afterthought. They are functionalist in the truly modernist sense, expressing exactly what is happening inside. Few grace notes occur on the outside, except for the odd spiraling escape stair or tensile-fabric entrance canopy.

John McAslan has had little time for rhetorical gestures in his design. One of the most successful young architects to emerge in Britain in the 1980s, at first in partnership with Jamie Troughton, then on his own after 1996, McAslan is too serious and committed a modernist for such flourishes. Having worked for Cambridge Seven in Boston in the late 1970s, and then for Richard Rogers, McAslan never gave a moment's thought to the postmodern fad that engulfed Great Britain in the 1980s. He is clearly influenced by the architecture of Louis Kahn and has a healthy regard for that old romantic Frank Lloyd Wright, whose buildings at Florida Southern College in Lakeland he is restoring. Of his generation of British architects, he has perhaps the most international practice: apart from his American work, he has built St. Catherine's College, Oxford, in Kobe, Japan, and is undertaking a large headquarters complex for the Max Mara Fashion Group in Reggio Emilia, Italy. He has also designed the front office building for Yapi Kredi in Istanbul.

Office blocks (above) step down a hilly 57-acre site (phase one model, below). Spiral stairs (opposite) animate the south facade.

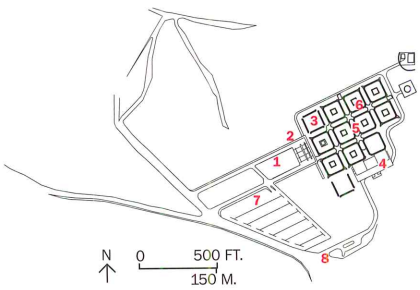


The operations center in Gebze, some 30 miles southeast of Istanbul, sits at the edge of town, sited on a hill that slopes down to the Sea of Marmara. The terrain is dramatic and arid; its relative remoteness presupposes a self-contained working community—less like a family home in this sense, perhaps, and more like a monastery.

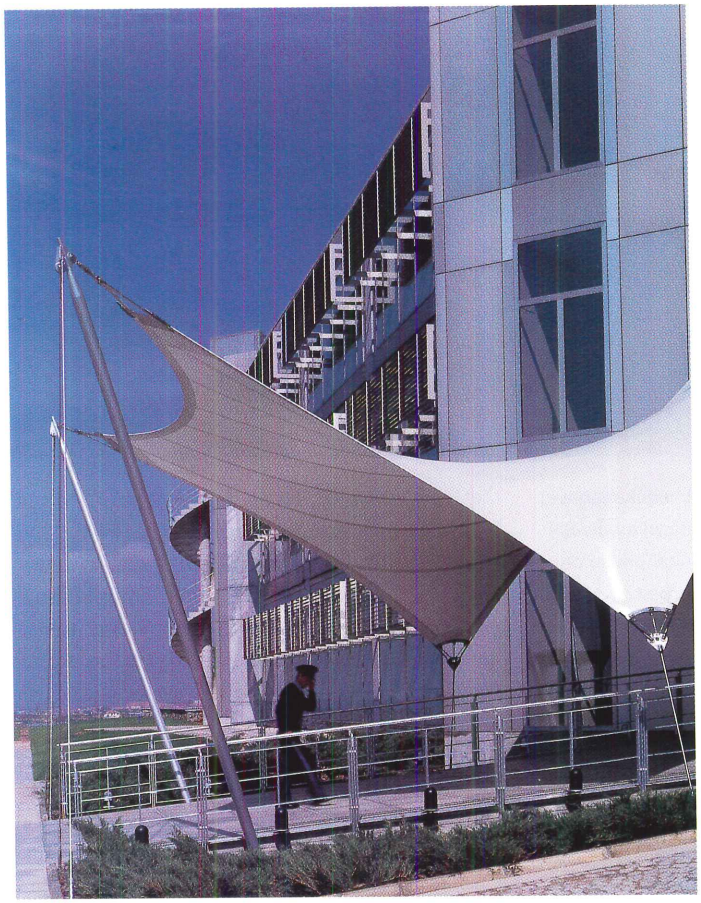
McAslan found various pressing reasons to adopt an inward focus. The first is that the interiorized approach, seen in the covered

Hugh Pearman is the architecture and design critic of The Sunday Times, *London. His latest book,* Contemporary World Architecture, *is published by Phaidon.*

Project: *Yapi Kredi Operations Center, Gebze, Turkey*
Owner: *Yapi Kredi Bank*
Architect: *John McAslan & Partners—Hiro Aso, Adrian Friend, Nick Eldridge, Andrew Hapgood, Kevin Lloyd, Catherine Martin, John McAslan, Aiden Potter, Judith Quartson, Piers Smerin, Jamie Troughton, Raj Rooprai, Roger Wu, design team*
Architectural consultant: *Godfrey Goodwin* *(continued on last page of story)*



1. *Access bridge*
2. *Entrance plaza*
3. *External courtyard*
4. *Service yard*
5. *Fabric roof*
6. *Typical office block with interior court*
7. *Car park*
8. *Service access*



courtyard, the souk, and the *han* (or caravansary), has evolved over centuries as a pragmatic response to the climate of the Eastern Mediterranean, with its extremes in hot and cold temperatures. To this tradition McAslan brought a flexible, modular building arrangement that achieves similar effects with current-day technology. The freestanding linked pavilions, 115 feet square and each with a central courtyard, are pulled slightly apart on the grid, creating a second internal world. This climate-controlled streetscape, glazed and covered with fabric canopies, provides areas where the office community can spill out into cafés, gardens, and meeting places. The overall impression of the building is created by the in-between spaces of the intersecting grid of streets.

The urban-grid-like quality of the complex's interior means that this inside-out architecture is the opposite of, say, a dressed-to-kill speculative midtown office building where the fancy facade hides standard layouts. What might be a secondary element in a conventional building assumes a primary importance here. Cylindrical concrete elevator cores wrapped by precast-concrete stairs with glass balustrades, and steel land-

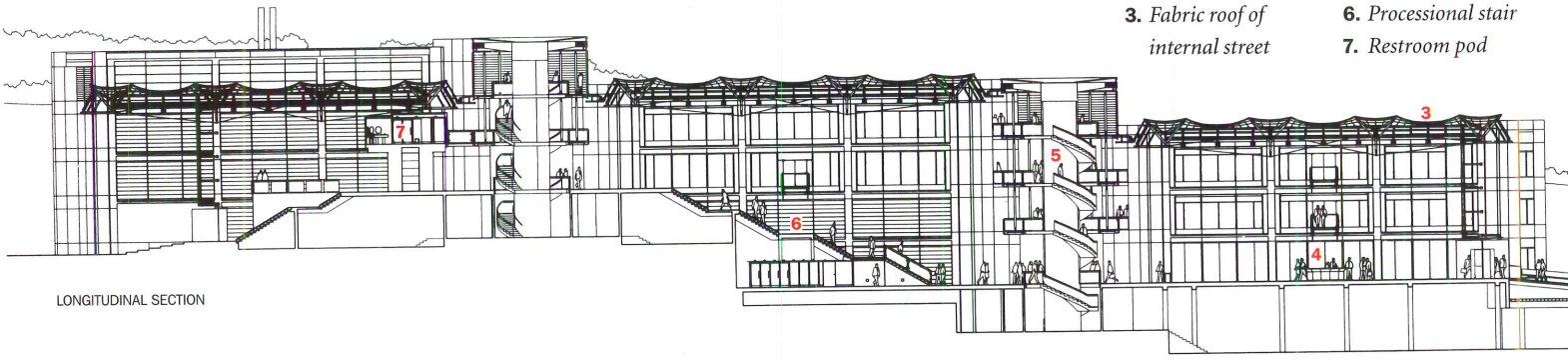
THIS INSIDE-OUT ARCHITECTURE IS THE OPPOSITE OF A DRESSED-TO-KILL SPECULATIVE OFFICE BUILDING.

ings with glass floors, form key nodes at the intersection points of the pavilions. Additional spiral stairs activate the corners on the perimeter of the complex. These freestanding cylinders at the nodes create genuine architectonic drama, in which the circular, spiraling lines soften the intensity of the orthogonal grid as they draw the eye up and around the corners of the blocks.

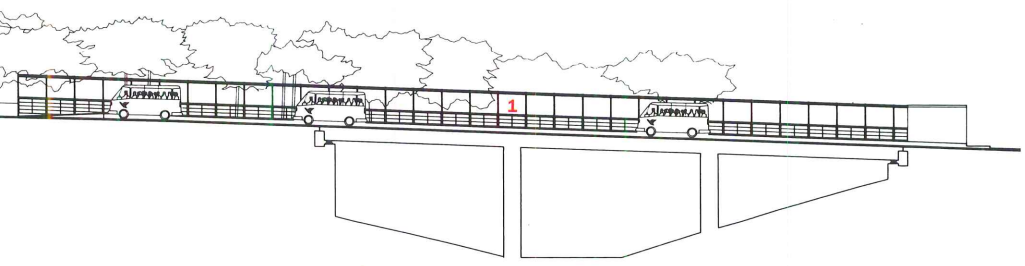
The cylinders vary in form: some are open spirals, some are enclosed in translucent glass bricks, and often they are attached to hemispherical stacks of restrooms. These "servant" spaces are vital to the composition of the whole, particularly where these robotic objects with their outstretched bridgelike arms are approached by the wide processional stairs dictated by the slope of the site.

Pragmatism determined much of the form, not only for engineering reasons, but also for sociological and climatic ones. The structure was developed as a series of independent elements by engineers Ove Arup & Partners, who brought McAslan into the project. In an earthquake zone a vast, monolithic structure is simply not an option. Each piece is low—three stories—and massively framed in concrete. All the

1. *Access bridge*
2. *Entrance plaza*
3. *Fabric roof of internal street*
4. *Reception area*
5. *Stair tower*
6. *Processional stair*
7. *Restroom pod*

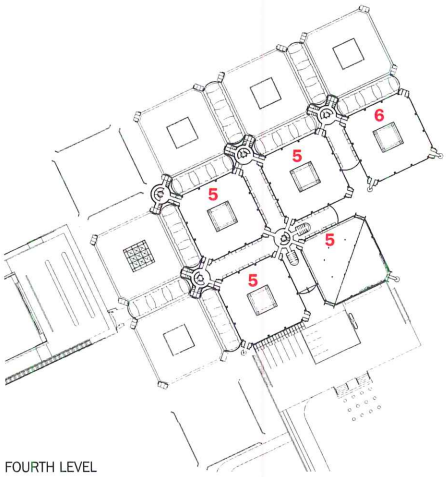


LONGITUDINAL SECTION

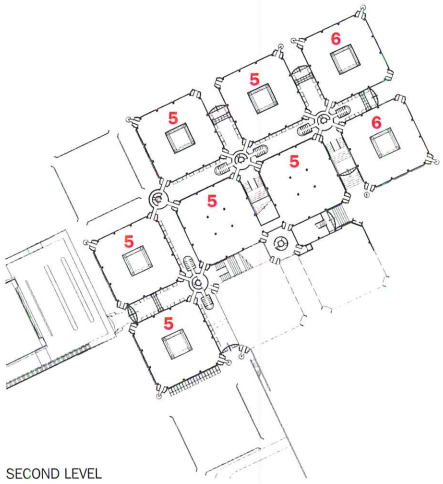


The main entrance ramp (opposite) is marked by a tensile fabric canopy; inside, a grid of streets is punctuated by five bold circulation towers that add a Piranesian dynamic to the complex. The streets' canopies, glazing, and awnings (above) help maintain an energy-efficient climate.

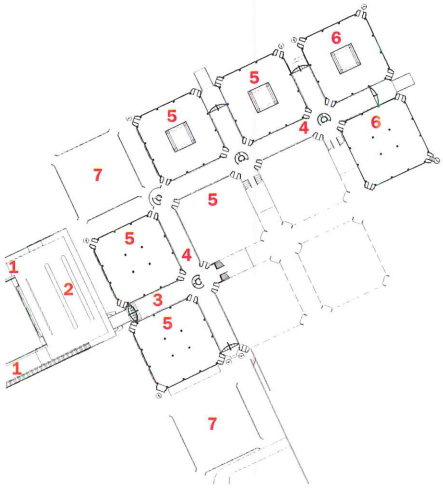
1. *Bridge over ravine to car park*
2. *Forecourt*
3. *Entrance*
4. *Internal street*
5. *Offices*
6. *Phase two*
7. *Courtyard*



FOURTH LEVEL



SECOND LEVEL

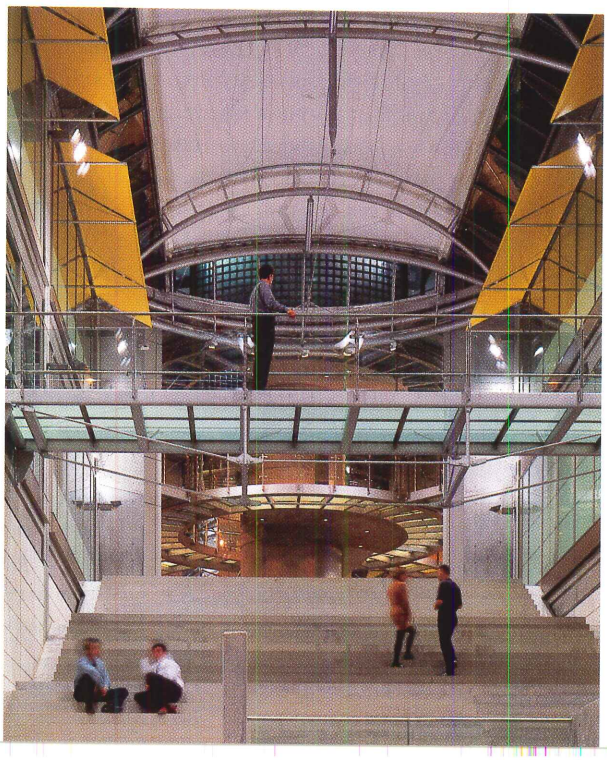


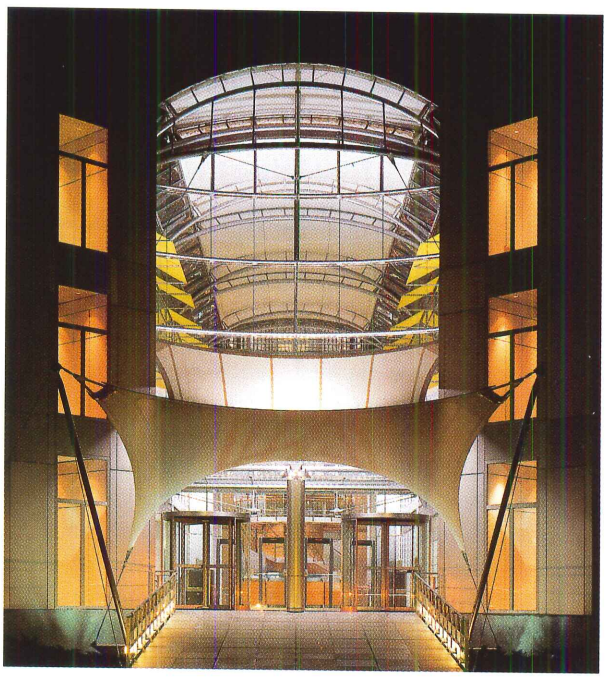
ENTRANCE LEVEL

0 100 FT.
30 M.

N

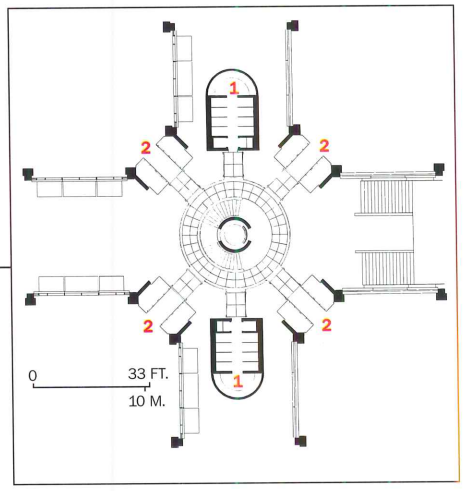
The naturally cooled and convection-heated interior streets are landscaped (right). Concrete cores containing glass elevators are wrapped by precast stairs with glass and steel landings. The cores are open in some places and encased in glass block in others (opposite). One of three grand stairways (below left) follows the contour of the site to the next node. Glazed end walls (entrance, below right) and an aluminum tubular frame diminish the sense of mass.





1. *Restroom pod*
2. *Entrance to office block*

Limestone panels clad the walls of the stairs (above) and retaining walls (left). The curved reception desk (opposite) marks the entry.



infill panels are, in contrast, of lightweight aluminum, translucent glass, or in some cases limestone cladding.

The air-conditioned office floors are straightforward enough, with high-quality furniture and partitioning. But most social interaction takes place in the circulation areas outside, which act as climatic buffers to reduce the overall energy load. Ventilation in the streets is achieved through a stack effect, in which the service towers draw hot air out the top of the building. Retractable fabric awnings provide additional shading from the sun. On the exterior facades, fixed solar louvers perform the same function, acting as delicate foils to the unadorned concrete-and-glass facades.

Each street is planted differently to help orient the complex's occupants. Here and outside the building, the landscaping was designed by Peter Walker, a Berkeley-based landscape architect. Walker has begun gradually to reforest the denuded valley below the site, which is very visible from the double bridge leading across a ravine to the new complex. Landscaped courtyards at the periphery—open squares on the grid—allow for future expansion. In fact, two extra pavilions were commissioned virtually as the first eight were completed. This desire for flexibility in growth is one reason the exterior facades have been kept so understated: they may not be outside for long.

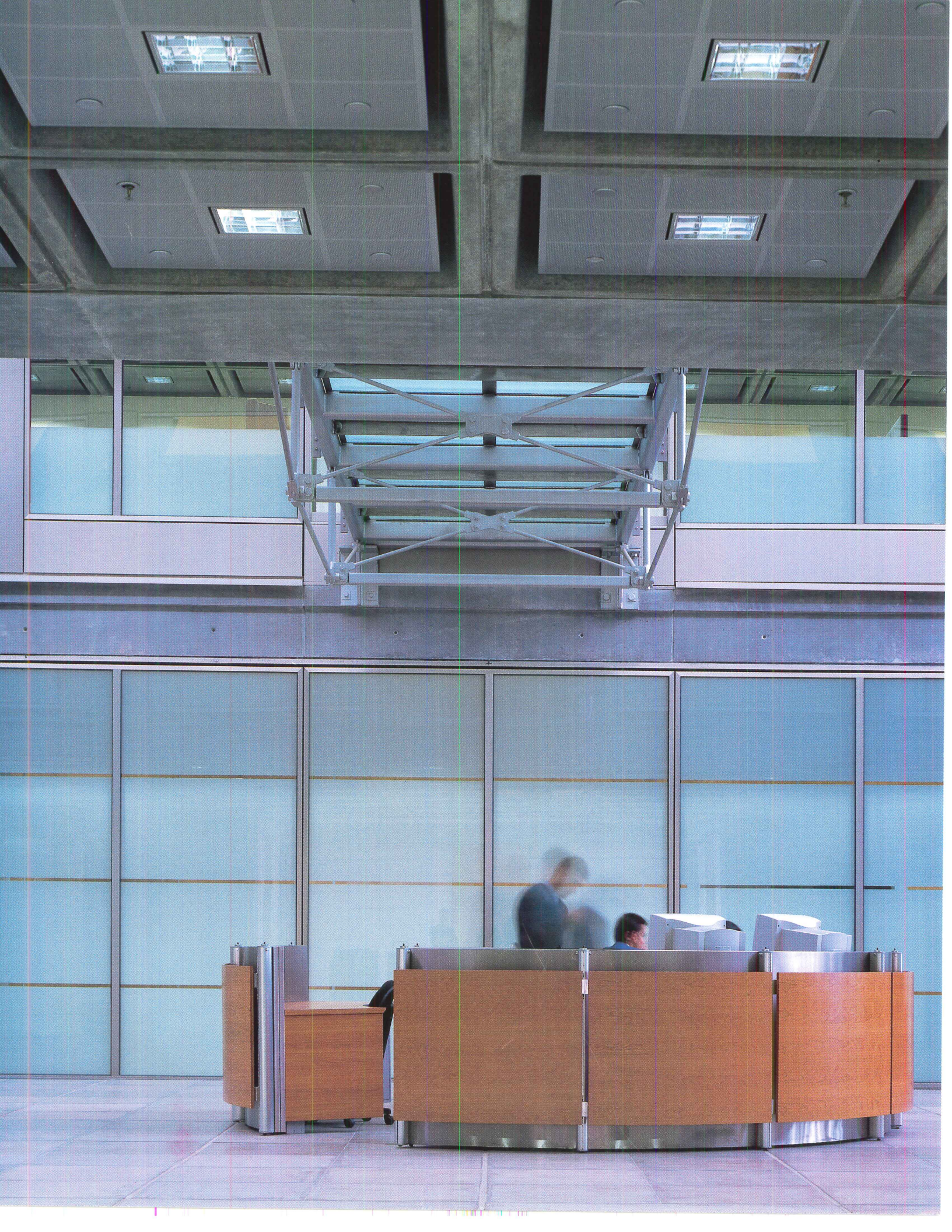
THE DESIGN DOES NOT PILFER LOCAL MOTIFS OR ASSUME A FAKE VERNACULAR.

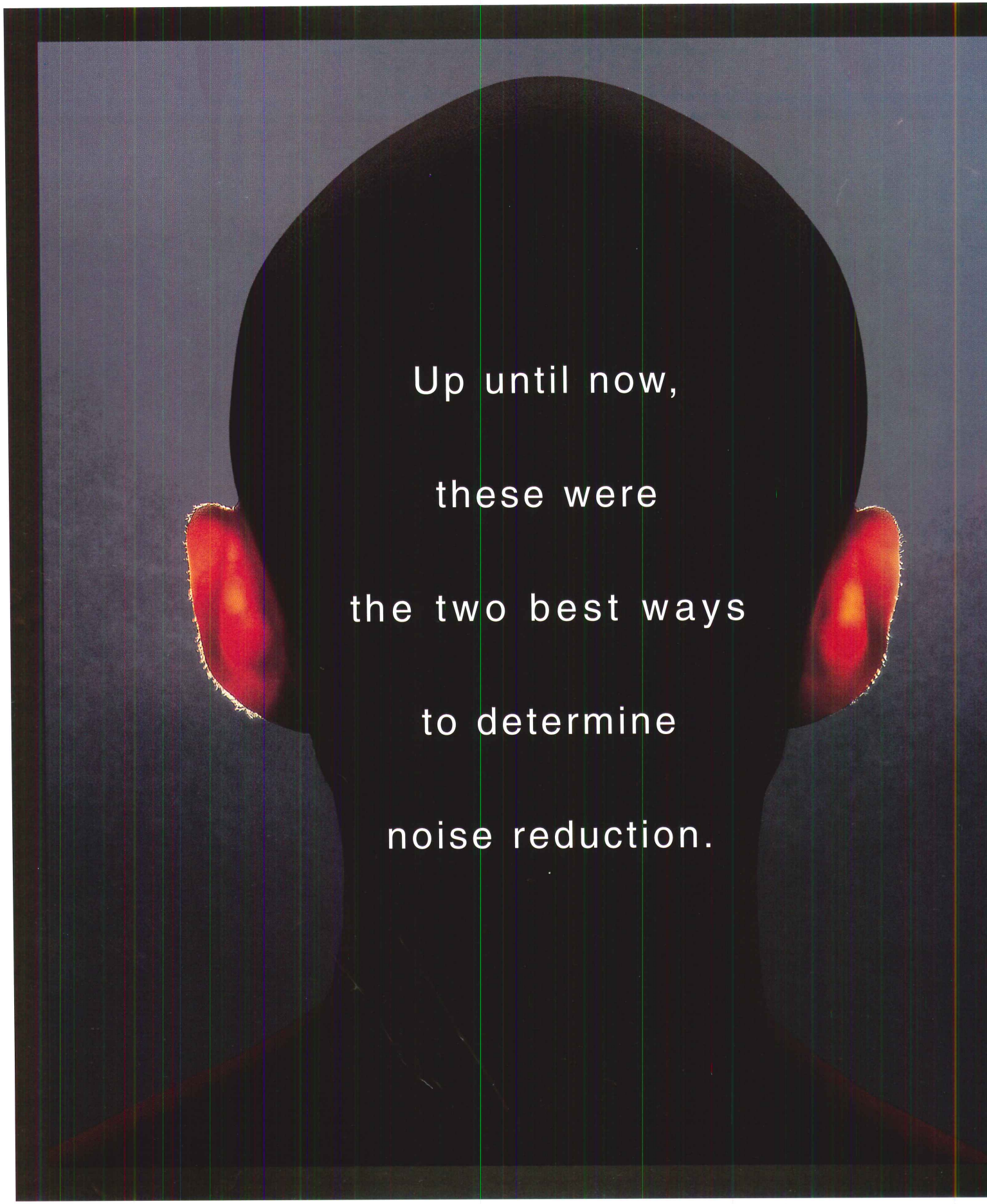
In this part of Asia, one must work with the available technology. Many an architect used to the more sophisticated building practices of northern Europe, North America, and the Far East encounters difficulties in adapting to the Mediterranean regions. Here, however, exploiting the ubiquitous Olive Belt technology of poured concrete for the basic structure was appropriate in terms of both earthquake-conscious engineering and the nature of the site. The irregular grid of buildings and their clearly distinguishable massive frames appear carved out of the topography. The complex carries echoes of hilltop settlements throughout history, whether military, domestic, or religious in purpose. A little raw at first, as all such places are, it is developing as an acropolis, melding with the landscape while bleaching gradually in the sun.

Perhaps the greatest compliment Yapi Kredi pays to its host country, however, is not to be condescending. The design does not pilfer local motifs or assume a fake vernacular or a needless grandiosity. Instead, it honors, with modesty, certain traditional responses to conditions in that part of the world that the modern architect would be wise to learn. The house of the family of Yapi Kredi is a harmonious one. ■

Project credits (continued)
Associate Architect: *Metex—Sinan Kafadar, Aysegul Kapisiz, Cavit Sarloglu*
Engineering design, project management: *Ove Arup & Partners—Simon Barden, Fred Brenchley, Simon Brimble, Philip Ellis, Ian Fowler, Anne Sophie Grandguillaume, John Haddon, John Hopkinson, Martin Long, Tony Marriot, Simon Murray, Alan Ogden, Colin Pierce, Jim Read, Rob Saunders, Richard Terry, Bob Venning, Winston Riby William Elliot Wishlade; and Arup MMLS*
Engineers: *Arup Facade Engineering (facades); Turgut Tufecki (electrical)*
Landscape consultant: *Peter Walker and Partners*

Sources
Fabric roof membrane: *Koch-Hightex*
Street roof structure: *Temsan*
Bursa limestone cladding: *Interstone*
Aluminum cladding: *Cuhadaroglu*

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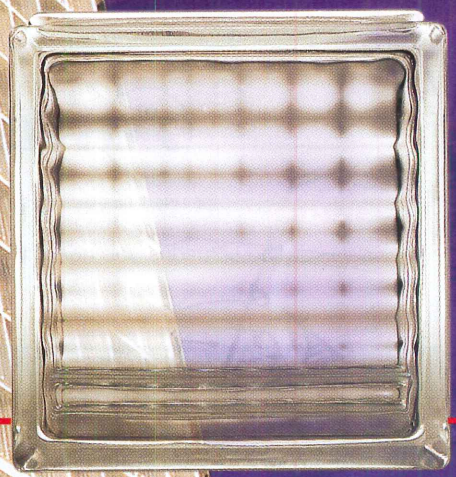
CONTINUING EDUCATION AIA

North Hollywood Police Station
North Hollywood, California.
Firm: Meyer & Allen Associates.
Architect: Clifton Allen



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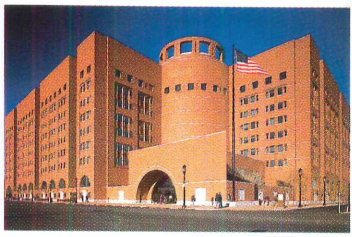
CIRCLE 44 ON INQUIRY CARD

COURTHOUSE BUILDINGS

Designing Justice for All

COMPUTER TECHNOLOGY, SECURITY, AND ACCESSIBILITY HAVE BECOME THE DRIVING FACTORS IN THE DESIGN OF THE NEW COURTHOUSES THAT ARE POPPING UP EVERYWHERE.

by Todd S. Phillips, AIA



1

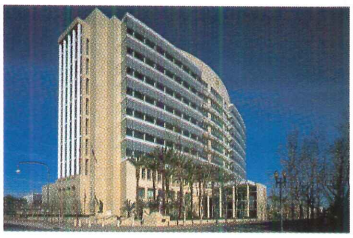
Boston

Pei Cobb Freed & Partners' new courthouse tries to visually unite an old warehouse district with Boston's new skyscrapers.

2

Queens, New York

Challenged by a tight site and a tall order, Perkins Eastman Architects created a new civil courthouse that is user-friendly.



3

Santa Ana, California

The second tallest building in Orange County, this federal courthouse was designed by Gruen Associates/Zimmer Gunsul Frasca Partnership.

4

Concord, New Hampshire

This formal, traditional courthouse includes eight courtrooms and is built with a palette of stone, stainless steel, and cherry wood.

5

La Crosse, Wisconsin

The La Crosse County Law Enforcement Center incorporates offices, a jail, and five courtrooms, all located at the edge of a historic city.

Key words in the lexicon of courthouse design include "solemnity," "dignity," "integrity," "orderliness," and "civic presence." These words appear in the current version of the United States Courts Design Guide, a book produced by the security and facilities committee of the Judicial Conference of the United States. This august group, made up of current federal judges, wrote this set of guidelines (preceded by three earlier editions) to apply to federal courts facilities. But the same words may be used for courthouses at the state and local level.

No other secular building type is so richly laden with symbolism, or so burdened with the stewardship of constitutional principles. Lacking the power of the purse or the sword, the courts' authority rests on a moral plane. So the courts' reason for being—to provide places where justice is administered and affirmed—must be architecturally legible. But how do architects and designers translate abstract words and their underlying meaning into buildings? The following Building Types Study proves that there is no ready formula, no easy answer to this question.

Courthouse design must consciously evoke the transcendent values of this country's rich, culturally diverse, and increasingly complex society. "Courthouses should enable all citizens to see themselves reflected in a human attempt to bring justice to everyone, whatever their cultural background," says Conrad L. Rushing, a superior court judge in Santa Clara County, California.

Rushing works in a part of the country where there are citizens from an unusually wide range of ethnic backgrounds; approximately 224 different languages are spoken in Santa Clara County. He fears that good courthouse design has been lost, replaced by overscaled, multi-occupant complexes that intimidate people, particularly those who are new to the United States and who are not conversant or familiar with the court system. "Courthouse design," he says, "must stay rooted in what it means to dispense justice thoughtfully, in a comprehensible space, one person at a time." That, after all, is the cornerstone of the American justice system.

Todd S. Phillips, AIA, formerly staff director of the Committee on Architecture for Justice, is now the director of the Center for Advanced Technology Facilities Design for the AIA.

A New Deal for courthouses

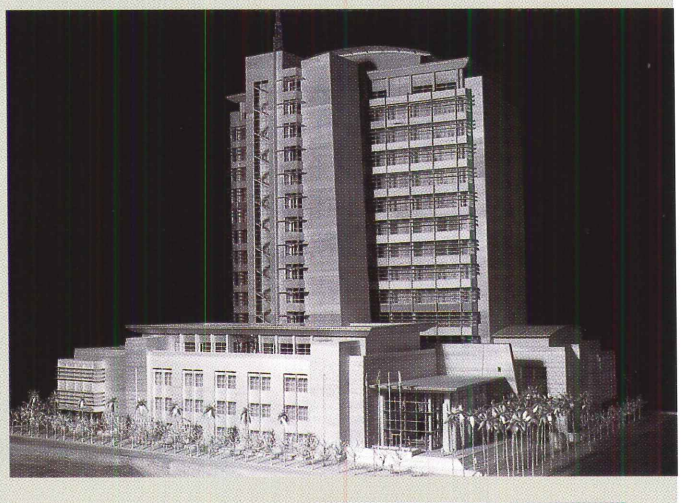
In 1991, the federal government launched a major building initiative to create new federal courthouses. The program has been compared to the federal construction efforts of Roosevelt's New Deal. "Approximately half of the nation's 370 federal courthouses were slated for replacement over a 10- to 15-year period at a total cost of between $7 billion and $8 billion," says P. Gerald Thacker, formerly with the United Stated Administrative Office of the Courts (USAOC), a group that administers and supports the federal courts, from developing space standards to training programs. To date, 54 projects have been fully funded, including the United States Courthouse in Boston and the Ronald Reagan Federal Building and Courthouse in Santa Ana, California. Another 20 projects are in the works, including Richard Meier & Partners' Federal Courthouse in Islip, New York, scheduled for completion late this fall, with an additional 70 courthouses expected to be built after 2004.

The impetus behind the program, according to Supreme Court Justice William H. Rehnquist, was the recognition that "both the federal and state court systems were faced with a litigation explosion" that has placed enormous stress on the existing facilities. The scale of this commitment in dollars and time, and an awareness that these new buildings would have a tremendous impact on the towns and cities in which they were located, carried with them the need to create a high level of architectural quality.

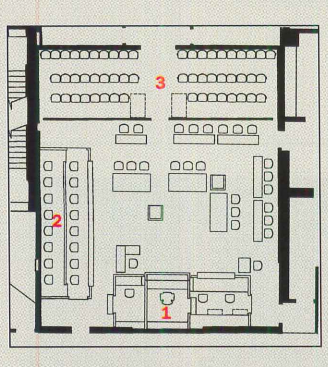
"Our design sensibilities seem to have gone off base for a short period, primarily from the 1950s into the early 1970s," says Edward A. Feiner, FAIA, chief architect for the General Services Administration (GSA). "But one of our objectives is to try to recapture tradition." Judge Rushing agrees: "Some cultural sensitivity is needed now to mend the vandalism committed by the International Style court buildings of a generation ago. Their effect was to wipe away the very symbols of justice."

An important step in this process was the creation in 1993 of the GSA's Design Excellence program, which made the quality of an architecture firm's design ability the primary determinant in the selection process. Previously, the choice of architect was predicated on the mountain of forms and qualification statements submitted by the firm. As a result, only large firms with document-processing departments could qualify; design ability and experience were secondary.

At the same time, the AIA's Committee on Architecture for Justice, a long-established professional interest group for those who specialize in justice facilities, launched the International Courthouse Design Conference series, held in 1992, 1995, and 1998. These gatherings brought together courts designers, judges, and courts administrators in the spirit of understanding one another's roles and missions.



The Regional Justice Center in Las Vegas, designed by Tate & Snyder in association with HDR Architecture, will include municipal, district, and supreme courts, district attorney offices, and a marriage-license bureau.

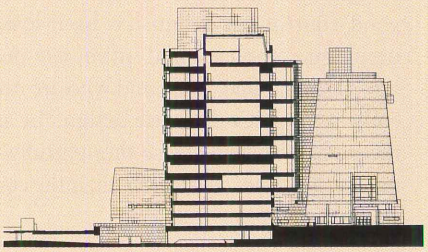


PROTOTYPICAL COURTROOM

Initial design discussions centered around not only the appearance of the courthouse but also the geometry and image of the courtroom itself. For example, what is the best way to configure the basic elements within the courtroom—the bench, jury box, the box in which testimony is delivered, and the spectator's seating area? Are there advantages to a diagonally positioned judge's bench? Is the symbolic power of a centrally positioned bench better? How will courtroom design reckon with the implications of the Americans with Disabilities Act (ADA)? Will it entail ramps or lifts at the witness and jury box? Real-time transcription for the hearing-impaired?

By 1995, these concerns were addressed in a revised edition of the Courts Design Guide, this version enriched by Federal District Judge Douglas Woodlock, who collaborated closely with Pei Cobb Freed &

The 11-story Federal Courthouse in Islip, New York, designed by Richard Meier & Partners, will contain 23 courtrooms, with space for an additional 16.



DISTRICT COURT SECTION

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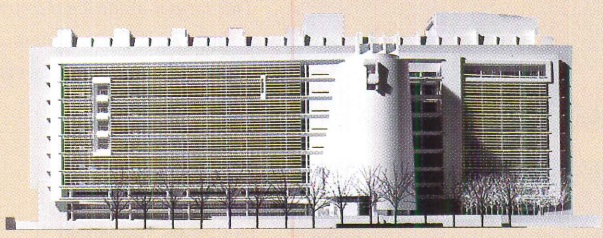


Partners on the design of the United States Courthouse in Boston. In this version of the guidelines, Woodlock reminds architects that they should capture the very best of the culture and legal history of the community and express it in the building, rather than "hide the courtroom function—however elegantly you do it—inside a box." Doing so underscores this country's constitutional mission to deliver equal justice under law. "This is a moment in the country in which we can either devastate our public realm or we can enrich it," he adds.

Designing fortresses

Then, in April 1995, the Alfred P. Murrah Federal Office Building in Oklahoma City was bombed, and the implications and meaning of building security suddenly changed in all types of buildings (see RECORD, March 1998, page 145). In courthouses, security instantly became a priority that was to reach far beyond metal detectors and surveillance cameras alone. Architects, particularly those involved in federal projects, began to realize that designing for building security means anticipating targets, potential threats, and means of attack, and recognizing that everything from site selection to construction materials may be crucial to saving lives and preventing damage.

Within a month of the Oklahoma City blast, the Justice Department initiated a formal assessment of the vulnerability of federal facilities. Personal and building security was always something of a priority in courthouses, much of it focused on spontaneous acts of violence by litigants in corridors and courtrooms. But the 800-pound explosive device parked at the curbside in Oklahoma City underscored the reality of politically motivated terrorism.

It also made people aware that security threats and attacks come from many sources. While ballistic missiles, vehicle bombs, chemical and biological threats, and other acts of violence continue to be vital concerns, "cyber-terrorism" and preserving the integrity of electronics-based information systems will grow in importance as courts become more dependent on digital systems used for displaying evidence, conducting research, transmitting and recording testimony, and other applications, says Frank Dozier, head of computer security for the USAOC.

Ironically, the quest for ways to protect a facility from explosives and other potential threats intensified at the very moment that accessibility—one in five Americans has a physical disability of some kind—demanded greater openness. Reconciling these two competing mandates, security and accessibility, is an acute problem for designers who seek to design anything other than a friendly fortress. Bollards, detection devices, heavy doors, locked entries, and other security measures all make navigating a building more of a problem for those who are already limited by physical impairments.

"We try to strike a balance to make sure that people approaching the courthouse have the feeling that the judicial process taking place inside is open and fair," says David Hobstetter, AIA, a principal at Kaplan McLaughlin Diaz Architects in San Francisco, designers of the Klamath County Courthouse in Klamath Falls, Oregon. The problems involved in creating secure facilities can be turned into an advantage. "One of the key security strategies—deep setbacks from the perimeter of the property or the road—can sometimes be turned into a powerful tool for creating plaza and park spaces for the public. These help to restore the courthouse as the inviting centerpiece of a large open site."

Technology on trial

The trial of O. J. Simpson at the Los Angeles County Superior Court in 1995 illustrated what many courts designers were already discovering: trial support technology was becoming the most important new dynamic in courts design. Courtrooms were becoming, in the words of one judge, "electronically enhanced crucibles."

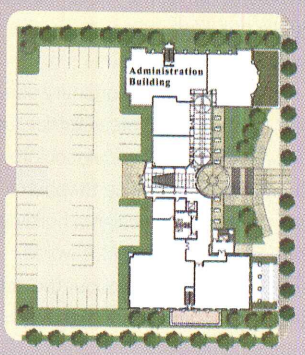
A guide to electronics in courtroom design, issued that year by the federal judiciary, identified the four main areas most affected by technology: presentation of testimony via audiovisual conferencing; presentation of evidence using electronic imaging and retrieval, computer animation and simulation, and annotation and highlighting of video evidence; recording of testimony with real-time court reporting and in-court transcript annotation; and access to ancillary information, including an increased reliance by lawyers and judges on computer-assisted legal research and court databases.

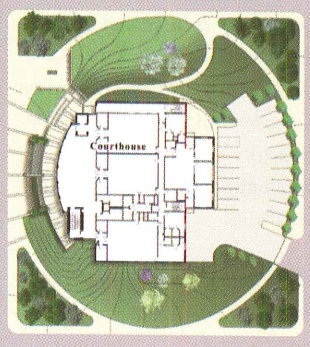
TECHNOLOGY MUST BE AS TRANSPARENT AS POSSIBLE; COURTROOMS MUST IN NO WAY RESEMBLE VIDEO ARCADES WITH PANELING.

Architects were suddenly confronted with a tangled mix of technical problems. It was as if courts design had been ambushed by something unanticipated the decade before. Familiar courtroom design issues, such as optimal sightlines, acquired new meaning when, for example, large-screen evidence-display systems were introduced. A few of the new questions being raised: "What's the optimal layout of technology on the judge's bench top?" and "How can jury-box millwork accommodate chunky monitors?"

Judges at the AIA's second International Courthouse Design Conference in 1995 made it clear that these new *(continued on page 164)*

The Klamath County Courthouse complex in Klamath Falls, Oregon, designed by Kaplan McLaughlin Diaz, includes two buildings: a courthouse (below) with six courtrooms, and an administrative facility.





1 United States Courthouse Boston

A SOLEMN BRICK FRONT FACADE GIVES WAY TO A SWEEPING CURVE OF GLASS AND A PANORAMIC VIEW OF THE BOSTON HARBOR.

by David Dillon

Project: *United States Courthouse, Boston*
Owner: *General Services Administration*
Design Architect: *Pei Cobb Freed & Partners Architects, LLP—Henry N. Cobb, FAIA, partner-in-charge; Michael D. Flynn, AIA, George H. Miller, AIA, partners; Ian Bader, AIA, Dennis Egan, associate partners; Deborah Campbell, AIA, Richard Cutter, John Neary, Richard Smith, Harry Toung, Bruce White, AIA, senior associates; Andrzej Morawski, AIA, Gianni Neri, Eric Schiller, AIA, Robin Taff, AIA, Jacqueline Thompson, AIA, Deborah Young, AIA, associates*
Associate Architect: *Jung/Brannen Associates, Inc.—Yu Sing Jung, FAIA, principal-in-charge; Axel Kaufmann, AIA, project manager; Norman Adams, AIA, Crawley Cooper, AIA, principals; Joseph Gloski, AIA, Mariana Vaida, AIA, Evan Layne, AIA, Michael Breau, AIA, Joslin Stewart, AIA*
Engineers: *LeMessurier Consultants (structural); Cosentini Associates (mechanical, electrical)*
Consultants: *Gruzen Samton—Jordan Gruzen, FAIA, Scott Keller, AIA, partners; Michael Kazen, AIA, principal (courts); Parsons Brinckerhoff Construction Services (construction quality); Olin Partnership, Carol R. Johnson Associates (landscape); Ellsworth Kelly (project artist)*
General Contractor: *Clark Construction Group, Inc.*

Cost: *$163 million*
Size: *$760,000 square feet*

The United States Courthouse in Boston is simultaneously formal and welcoming, dense and transparent, detached and connected—a three-dimensional representation of the law itself. At a time when many buildings are inspired only by an amortization schedule, this one derives from powerful ideas about citizenship and public service. Although not all of these ideas are fully or persuasively expressed, the courthouse presents a forceful challenge to the conventional view of the judicial system as authoritarian, abstract, and alienating.

Designed by Henry N. Cobb, FAIA, of Pei Cobb Freed & Partners, the massive L-shaped courthouse stands at the tip of Boston's historic Fan Pier, where railroad tracks once literally "fanned out" to meet arriving cargo ships. The choice of such a prominent site angered some Bostonians, who wanted it reserved for housing or perhaps a waterfront park. A century ago such a debate would never have occurred; it was understood that the most important public buildings belonged on the most important sites.

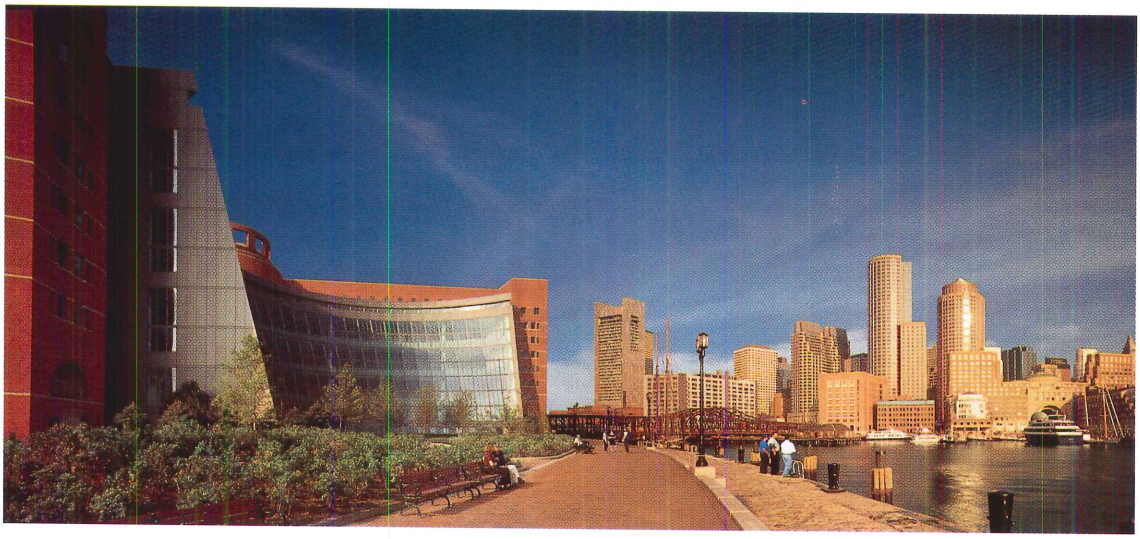
Cobb, with extraordinary support from United States District Judge Douglas Woodlock and Associate Supreme Court Justice Stephen Breyer, set out to design a building that, in Judge Woodlock's words, "would teach people about the courts and the law, and encourage them to engage in meaningful civic life once again." It would be a grand public building in the tradition of Sullivan, Richardson, and McKim, Mead and White. And it would provide an anchor for waterfront development. "It was our intention to make a building that shapes space instead of merely occupying it," Cobb says.

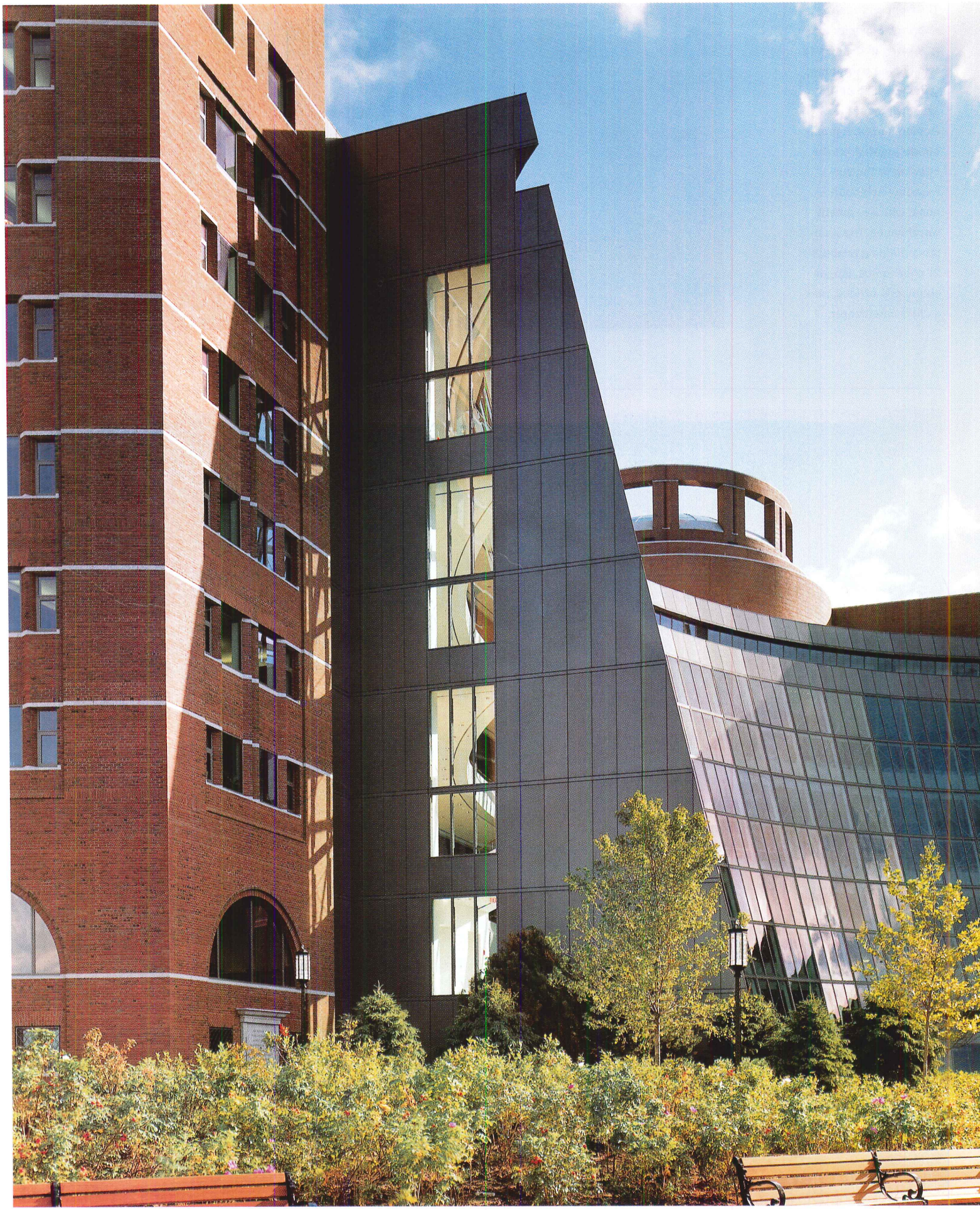
The local and the universal

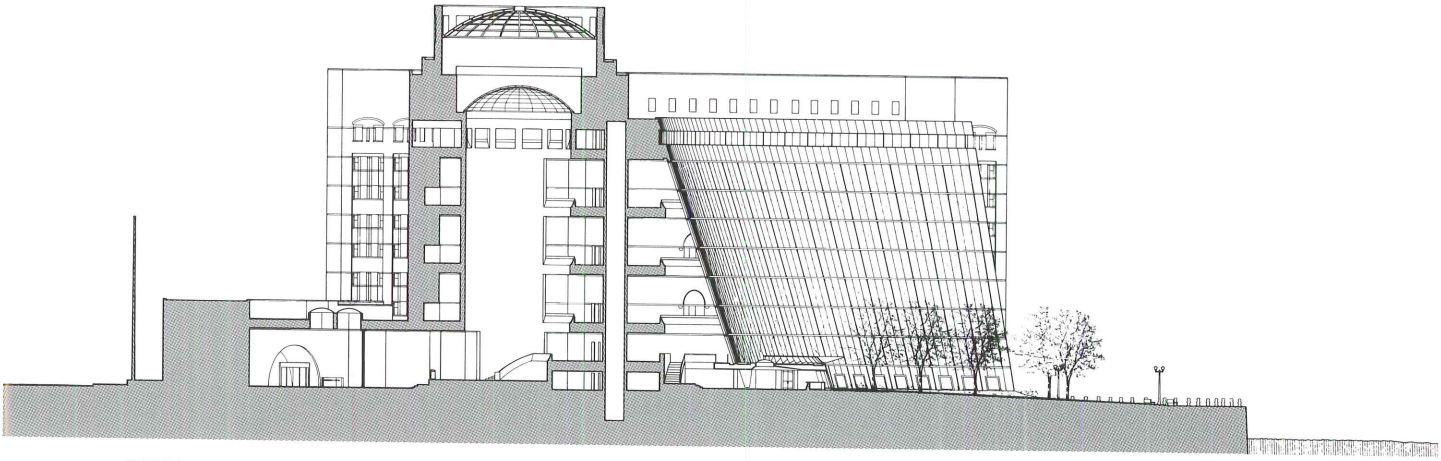
The courthouse has an exterior of red brick and Deer Isle granite, venerable New England materials that appear on hundreds of Boston buildings. Yet on the harbor side, the local vernacular is abandoned for an intricate steel-and-glass window wall shaped like an off-center ice cream cone. At 372 feet in length and 88 feet in height, the conoid window frames spectacular views of the harbor and the skyline. This union of the local and the universal epitomizes the architects' goal of creating a building that is of its place yet slightly ahead of its time.

In composing the facade, the architects abstracted and synthesized details from nearby warehouses—everything from the brick coursing to the deep shadow lines, which are expressed by stacks of bay windows. The main entrance is a collage of round arches and flat planes leading to a dramatic nine-story rotunda in the center of the building. The Great Hall, defined by the sweeping window, symbolizes

The front entrance's sobriety (opposite top) gives way to the curved back of the courthouse (below), which offers grand views of the Boston harbor. A promenade (right) links the building to the surrounding neighborhood, which is mostly warehouses. The nine-story building includes 27 courtrooms, judges' chambers, offices, and a child-care center.







SECTION

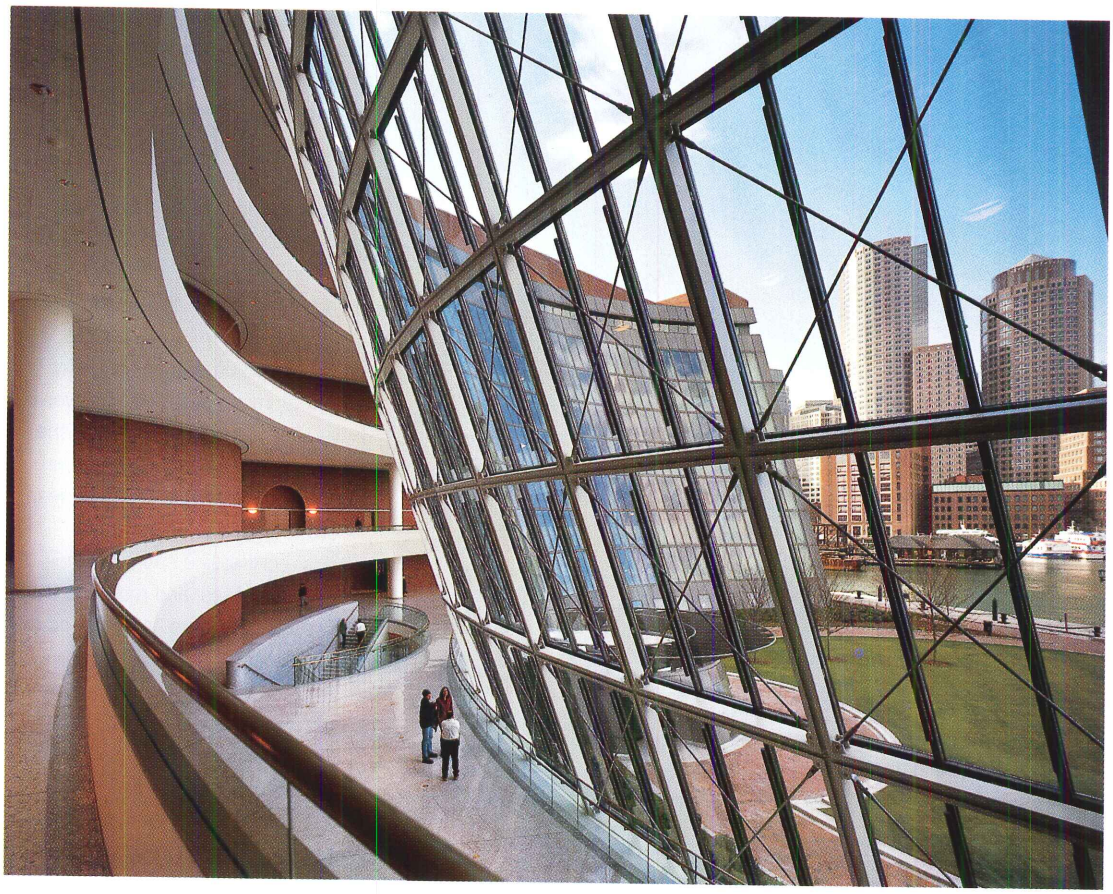
the openness and accessibility that distinguish this courthouse from its contemporaries. The window connects court and city, placing the law at the center of the public realm. Even the jury rooms have views.

Where judges sit

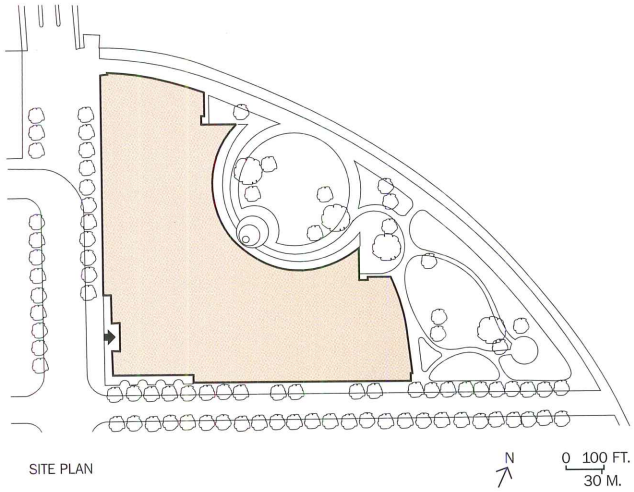
Twenty-seven courtrooms are placed along three semicircular galleries, with two floors of offices for every floor of courts. This arrangement allowed the courtrooms to be large but made the offices and judges' chambers modest. To compensate, the judges' chambers were located at the ends of corridors, providing them with views of the harbor and the skyline.

Each courtroom is identified by a small beehive entrance that Cobb affectionately borrowed from a one-room courthouse in Wiscasset, Maine. The simple brick dome of the Maine courthouse gives an otherwise ordinary building extraordinary dignity; in Boston the effect is somewhat diminished by 27 repetitions, but it is still compelling.

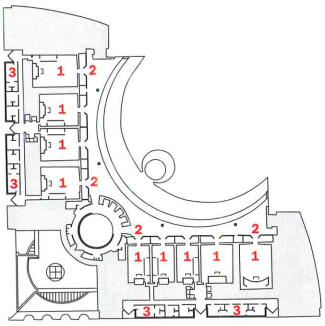
The courtrooms are spacious and comfortable without seeming like throne rooms. Judge, jury, defendants, and spectators are all framed by identical round arches, signifying that in a court of law no one person is more important than another. The unadorned deacon's benches and the simple stenciling on the walls, emblems of New



Curved galleries maximize views of the city and the harbor (above), allowing spectators, judges, jurors, and defendants to see the building's place within the urban realm. While security was an important consideration during the design process, the courthouse is surprisingly open and accessible to the public—a model for the judicial processes that take place inside. An arcade (left) and landscaped plazas (opposite) relate the building to the site and connect it to the neighborhood.

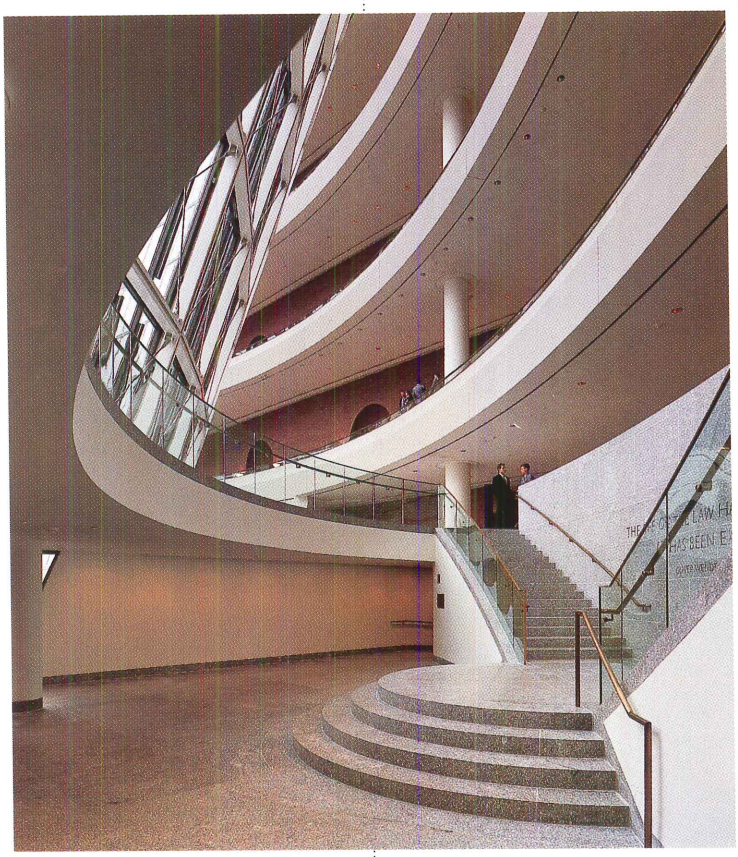


SITE PLAN



7TH FLOOR

1. *Courtroom*
2. *Judge's chambers*
3. *Jury deliberation and lounge area*



England restraint and rectitude, underscore this point.

A restaurant and café occupy a portion of the Great Hall, facing a linear waterfront park. Designed by the Olin Partnership, with Carol R. Johnson Associates, the park is complete with a promenade and a boat dock. Exhibition spaces and a day-care center were also included as part of the courthouse.

The extent of public access to the courthouse is particularly remarkable in the aftermath of the Oklahoma City bombing, which turned many federal buildings, including the White House, into bunkers. According to Judge Woodlock, the bombing caused minor operational changes to the Boston courthouse, but none that affected the architecture. "The jury system is one of the last bastions of direct democracy in America. If you don't have a building that expresses those values, you subvert one of its primary roles," he says.

In another break with convention, the courthouse is devoid of traditional iconography, except for carved inscriptions on the exterior walls. Instead of blindfolded Justitia with her scales, or a mural of King Solomon settling a child-custody suit with his sword, there are 21 bold monochromatic paintings by American minimalist artist Ellsworth Kelly. Nine are suspended from the walls of the rotunda; the others are located at the ends of the galleries, where they talk to one another across a crystalline space. In their clarity, directness, and restraint, the Kelly paintings serve as emblems of justice and the law.

Controversy abounds

The new Boston courthouse has raised expectations as well as hackles. Its design is intended to inspire a new generation of courthouses that will renew enthusiasm for public architecture, and the City of Boston hopes it will spark the redevelopment of a derelict stretch of waterfront. In early drawings the courthouse is the centerpiece of a new low-rise residential and commercial district. Regardless of what eventually develops along the Fan Pier, the courthouse will be its gateway and focal point.

By any standard, the Boston courthouse, with 760,000 square feet built at a cost of $163 million, is a massive and expensive building. Critics argue that such courthouses are anachronisms at a time when many believe serious crime will diminish and disputes will increasingly be settled by arbitration.

The counterargument heard frequently from judges is that the administration of justice ultimately takes place in the courtroom, and that the mood, setting, and symbolism of that space are essential to people feeling that they have been fairly represented.

The new Boston courthouse belongs to the older order of didactic and hortatory buildings that convey basic lessons about citizenship and public life. The building is emblematic of the importance and weightiness of the process of administering justice. ■

Sources
Steel frame: *Bethlehem (fabricated by Cives)*
Deck: *BORIS*
Curtain walls: *Flour City*
Conoid wall structure: *Advanced Structures, Inc.*
Glazing: *Viracon*
Skylights: *Architectural Skylight Company*
Hollow metal doors: *Bilt Rite*
Wood doors: *Benly & Buell*
Bronze pulls: *Forms + Surfaces*
Window blinds: *Hunter Douglass*

The layers of curved galleries are visible from the courthouse's back entrance (opposite). The beehived brick entry to each of the courtrooms (right) pays tribute to a one-room courthouse in rural Maine. The understated, symmetrical courtrooms (below), with their stenciled decoration and simple wooden benches, are characteristic of New England. Judge, jury, and defendant sit beneath equally sized arches, a symbolic gesture showing that all are equal under the law.

2 Queens Civil Courthouse Queens, New York

A USER-FRIENDLY COURTHOUSE WITH A SIMPLE, INFORMATIVE PLAN AND PLENTY OF DAYLIGHT LENDS CLARITY TO THE JUDICIAL PROCESS.

by Virginia Kent Dorris

Project: *Queens Civil Courthouse, Queens, New York*
Architect: *Perkins Eastman Architects—Mary-Jean Eastman, FAIA, Jonathan N. Stark, AIA, principals-in-charge; L. Bradford Perkins, FAIA; Douglas P. King, AIA; Meena G. Singh, project architect; Diana M. Sung, AIA, Ty Kaul, AIA, Kate Hanenberg, Esther Slubski, Herb Dizon, Rebecca Doyle, Reter Hughes, Polly D. Stone, Celia Baruchin, Lashford Lowe, Alexander Vajda, Lucian Andrei, Cono Dezio, Hideaki Ariizumi, Ed Weinberg, Carlos Panfilo, Kiyokazo Sho, Jacob Buxbaum, Gary Turton, Paul Sheehan, Benny Chan, Carlos Concepcion*
Consulting Architect: *Edward I. Mills, FAIA*
Engineers: *Cosentini Associates (mechanical/electrical); Cantor Seinuk Group Inc. (structural); Environmental Design Associates (landscape); Ann Kale Associates (lighting); Cerami and Associates, Inc. (acoustical)*
Consultants: *URS/Greiner Consultants (construction manager); Eric Hansell (exterior consultant); DTM Consulting (elevator); Electronic Systems Associates (security); Glezen Fisher (hardware); Smith Meeker Engineering (audiovisual); Lebowitz/Gould Design Inc. (signage); Ed Carpenter (atrium artist); Anna Valentina Murch (courtyard artist)*
General Contractor: *Petracca and Sons*

Cost: *$61.5 million*
Size: *315,000 square feet*

For many people, the call to jury duty or involvement in a small civil action is their first experience with the court system, particularly in this part of New York City, where a substantial percentage of residents are recent immigrants. For this reason, creating a building that is easy to find one's way around in was the paramount objective of Perkins Eastman Architects in the design of the Queens Civil Courthouse in Queens, New York.

"We wanted to make finding where to go as simple and direct as possible," says Mary-Jean Eastman, FAIA. "The building should be inviting, not intimidating. Many people who use the building are new to the country and do not speak English fluently."

To create a user-friendly building, the architects designed a clear, informative plan. They selected two forms to contain the building's distinct functions: a four-story cube for jury selection and waiting facilities, and a five-story rectangular wing for courtrooms, court clerks' offices, and judges' chambers.

The cube and the rectangle are linked by a glass-walled atrium lobby that provides a transparent and immediately decipherable entrance for the building. The entire front of the jury assembly room is also built of glass and overlooks a public plaza, giving the jurors a sense of connection with the outside community. Maximizing daylight was a priority, says Jonathan Stark, AIA, a principal with Perkins Eastman. "We wanted the jurors' space to be as comfortable as possible," he says.

Virginia Kent Dorris, based in Brooklyn, New York, writes about architecture and architectural technology.

Time to build

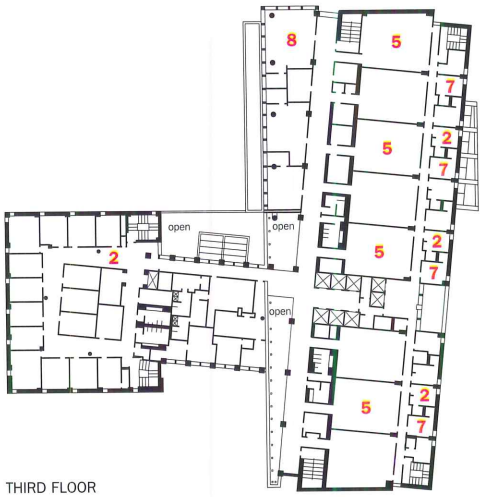
The new building, completed in the fall of 1997, occupies a difficult spot. Directly to the south is the imposing, eight-story limestone Civil Supreme Court, built during the 1930s. To the west, directly in front of the Queens courthouse, are a series of small, low-rise commercial structures. The northeast corner of the site is occupied by a six-story brick apartment building, with a row of three-story, single-family houses directly behind it.

Relating the design of the courthouse to its surroundings was a concern from the start. "We knew that zoning rules, as well as the needs of the neighbors, would limit the height of the new building," Eastman recalls. "We also knew we didn't want to compete with the massiveness of the imposing Supreme Court building." To ensure that the courthouse paid respect

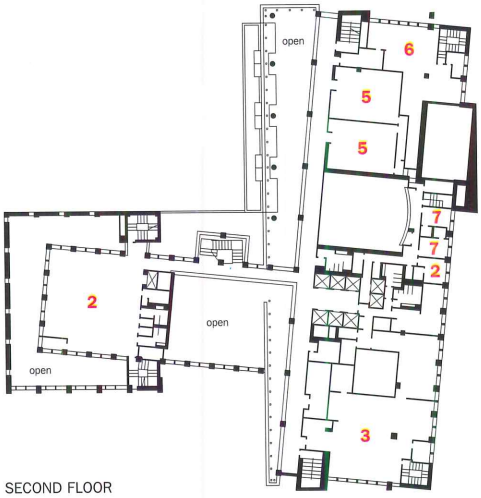
The atrium entry provides clear direction to visitors, many of whom are new to the court process.

The Queens courthouse was built in response to a master plan that assessed the existing facilities and needs for courtroom space in New York City. The courthouse is wedged in among apartment buildings, houses, low-rise retail businesses, and a 1930s Civil Supreme Court. To reconcile the various setbacks and harmonize with the many different types of neighboring buildings, the architects used open spaces (opposite) and sympathetic materials, including limestone and granite (left). They also angled the building's elements to blend with the surroundings (below).

Daylight and clean surfaces (above) make this courthouse less intimidating than many of the more classical courthouse buildings.



THIRD FLOOR

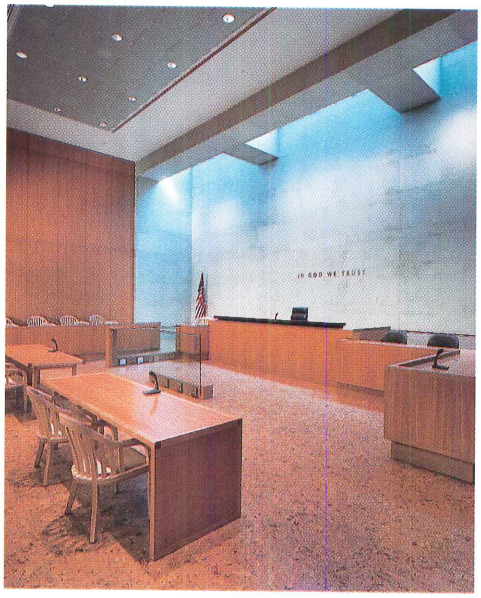


SECOND FLOOR

FIRST FLOOR

0 50 FT.
12 M.
N

1. *Lobby*
2. *Jury area*
3. *Court clerk's office*
4. *Landlord/tenant court*
5. *Courtroom*
6. *Small claims office*
7. *Judge's area*
8. *Judgment and appeals*



A sculpture garden (far left) at the back of the building buffers it from nearby apartments and provides pleasant views. Courtrooms (left) are simple and clean, like the rest of the building. Cork floors absorb sound and keep the courtrooms quiet.

to its neighbors, the architects chose small, low building forms and arranged them to complement the existing pattern of nearby buildings.

The project was part of a 1989 master plan for courthouse construction and rehabilitation in the City of New York mandated by the state, which was trying to assess the existing stock of court facilities and prepare for future construction projects.

The Queens site had been slated for courthouse construction long before the master plan. An earlier design for the site, created by another firm, was scuttled during New York City's 1973 fiscal crisis. That design could not be revived for current construction because it did not meet program and accessibility requirements, says Prakash Yerawadekar, chief architect for the court system of the State of New York. The new courthouse was constructed and will be maintained by the City of New York.

Rather than consulting directly with the judges—the facility's actual users—Perkins Eastman worked with Yerawadekar and the architects in his office during design development. Because the judges serve limited terms in office and their schedules are often full, their consistent participation in the design process would have been very difficult to manage, according to the architects.

Clear components

To integrate the courthouse with its diverse neighbors—including houses, apartment buildings, and low-rise retail businesses—Perkins Eastman aligned the rectangular block of courtrooms, located at the north end of the site, with the adjacent side street. The jury portion of the building was aligned with the Supreme Court building. The resulting setback allowed the architects to extend the public plaza in front of the Supreme Court across to the entrance of the new courthouse.

The jury and courtroom blocks intersect at the south edge of the building lobby in a glass-enclosed, wedge-shaped atrium, which contains a large corridor. Providing public access to courtrooms and offices, this multistory corridor doubles as a public waiting area.

The building's limestone and granite exterior visually links it to the neighborhood and the Supreme Court building. Interior public spaces include terrazzo floors and stone walls. The courtrooms have traditional wood paneling and cork floors, which are especially quiet.

The building contains 20 courtrooms, grouped together on four floors in one wing and served by a central public elevator bank. One of the courtrooms is a landlord/tenant court, which doubles as the small claims court during nighttime proceedings. The fifth floor is devoted exclusively to the judges' chambers, conference rooms, and a law library. Small robing rooms and jury deliberation rooms are still located behind individual courtrooms to accommodate private meetings.

A departure from the traditional practice of locating chambers directly behind individual courtrooms, this arrangement allows for a more efficient separation of public and private functions and a more economical building footprint. Similar arrangements of public and private spaces are now becoming common in the design of large state courthouses, according to Yerawadekar.

The jury facilities, which are used to impanel jurors for the civil court as well as the Supreme Court, includes a 230-seat auditorium area surrounded by a 4,000-square-foot lounge.

Designing for security

In addition to designing a building that was easy to navigate, the architects needed to make the courthouse secure. Though not as important an issue in a civil court building as it is in a federal courthouse, security was a major consideration in the Queens building.

During the design phase, for example, Perkins Eastman removed a sculptural, cylindrical stairway and a reception area from the building's main lobby when court security guards said it would block their sightlines and provide a hiding place for criminals. Instead, the lobby was left open and clear, except for security detection equipment.

The staircase was relocated to the back of the building, where it protrudes into a small sculpture garden separating the courthouse from the existing apartment building. Because of zoning limitations, the architects were restricted in how far back they could extend the building. Installing the garden provided a transitional space, while the sculpture fulfilled the city's public art requirement. The sculptures create a peaceful vista from the glass-enclosed stairs and the hall at the back of the lobby. ■

Sources

Granite: *Lacroix et Fils Granite*
Curtain wall: *H. H. Robertson/Texas Wall Systems*
Built-up roofing: *GAF*
Glass: *Viracon*
Skylights: *Fisher*
Entrance doors: *EFCO*
Wood doors: *Eagle Plywood Co.*
Fire control doors: *McKeon*
Locksets: *Schlage*
Hinges: *McKinney*
Closers: *Rixson*
Panic devices: *Von Duprin*
Security devices: *Simplex*
Paints and stains: *Zolatone, Benjamin Moore*
Plastic laminate: *WilsonArt*

3 Ronald Reagan Federal Building and Courthouse Santa Ana, California

DESIGNED TO ACCOMMODATE THE COUNTY'S NEEDS FOR THE NEXT 25 YEARS, THIS COURTHOUSE INCORPORATES TECHNOLOGY AND TRADITION.

by Dana Holbrook

Project: *Ronald Reagan Federal Building and United States Courthouse, Santa Ana, California*
Owner: *General Services Administration*
Architect of Record: *Gruen Associates—Michael Enomoto, AIA, partner-in-charge; Debra Gerod, AIA, project manager; Tim McCormack, ALSA, landscape architect; Merv Burtnett, senior construction coordinator*
Design Architect: *Zimmer Gunsul Frasca Partnership—Robert Frasca, FAIA, design partner; R. Doss Mabe, AIA, principal-in-charge; Kelly Davis, AIA, project manager; Dave Gonrowski, project architect; Brooks Gunsul, Paul Engels, Allyn Stellmacher, Dusty Rhoads, Bob Furusho, Logan Cravens, Sharoon van der Meulen, Debbie Munson, design team*
Engineers: *Martin & Huang International, Inc. (structural); FBA Engineering (electrical); Tsuchiyama & Kaino Consulting (mechanical); Fuscoe Engineering, Inc. (civil); Law/Crandall, Inc. (geotechnical)*
Consultants: *Gruen Associates (landscape); Frances Krahe & Associates Inc. (lighting); McKay Conant Brook (acoustical, audiovisual); Rolf Jensen Associates (codes); ANC/Specifications (specifications); Heitmann & Associates Inc. (curtain wall); Lerch Bates North America (vertical transportation); Follis Design (graphics)*
Contractor: *Ray Wilson Company*

Cost: *$123 million*
Size: *603,750 square feet*

"Laws and institutions must go hand in hand with the progress of the human mind." This Thomas Jefferson quote, one of four inscriptions on the travertine facade of the Ronald Reagan Federal Building and United States Courthouse in Santa Ana, California, speaks as much to current thinking on courthouse design as it once did to societal evolution.

This courthouse, by the architectural team of Gruen Associates/Zimmer Gunsul Frasca Partnership, was "a preamble to the [General Services Administration's] Design Excellence Program in 1991 in which quality of design became our focus," says Abdee Gharavi, property development director of the General Services Administration (GSA). Although what Gharavi terms "the old style" of courthouse design, marked by poor space planning and rigid design, was not formally denounced, the GSA program "shifted toward a different kind of architecture that accommodates new technologies and matches the dignity of the court," he says.

It was this dual mandate that established the project as a case study for the GSA, suggests Robert Frasca, FAIA. "There is probably no building type more layered with tradition than the American courthouse, and no one who takes that tradition more seriously than those who occupy the Federal bench," he says. "We needed to give them symbols of the past in a modern setting. They wanted a 19th-century environment with state-of-the-art functionality and security."

Dana Holbrook writes about architecture and architectural technology. She lives in Westport, Connecticut.

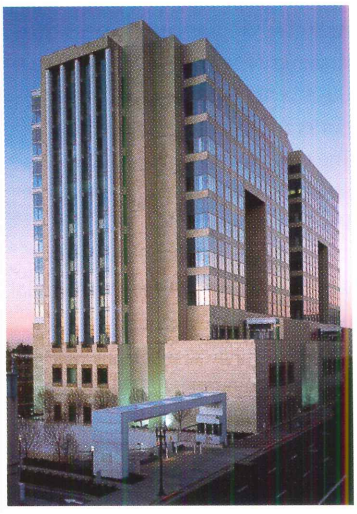
The $123 million structure, which at 10 stories is the second tallest in Orange County, stands on a 3.9-acre site in Santa Ana. It straddles two distinct urban areas: the old downtown, which features early-1900s low-rise retail buildings, and a civic center complex built in the 1960s.

The building gestures at classicism—the rows of columns flanking the entry pavilion are a symbolic detail and the pair of bronze nudes on the plaza honor the custom of allegorical civic sculpture—but the architects resisted arching backwards. "Santa Ana is a 21st-century city," Frasca says. "Making a postmodern building would have been an insult to the whole idea of moving ahead."

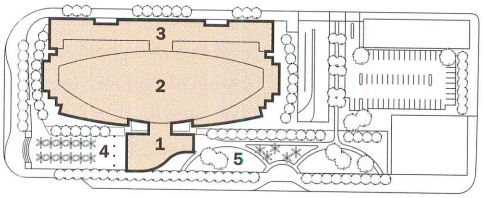
The tower, clad mostly in glass, rests atop a two-story podium. A projecting, travertine-clad entrance pavilion provides street identity. The tower houses four courtrooms on each floor. It is composed of three vertical layers: public galleries facing south, courtrooms at the center, and judges' chambers to the north. The south face of the tower is a horizontal grid of green glass and aluminum sunscreens.

To mitigate its 240-foot height and put it more in scale with surrounding structures, the building is set back from the road with a shallow plaza. Courtyard landscaping, including palm trees, smooths the connections among the courthouse, the neighboring civic center, and the adjacent open spaces.

The piano-shaped entry pavilion appeases the linear site, though "more programming than is visible was attached to it," says Debra Gerod, AIA, project manager for Gruen Associates. Adds Mary Filippini of the GSA, "In each of our new



The podium and tower are 10 stories, making the courthouse one of the tallest buildings in Orange County.

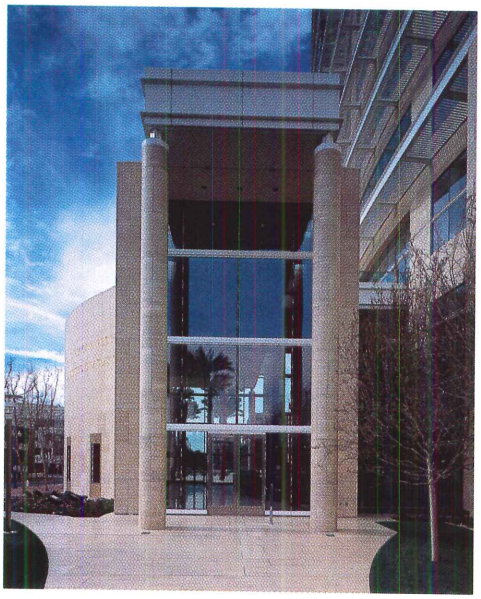


SITE PLAN

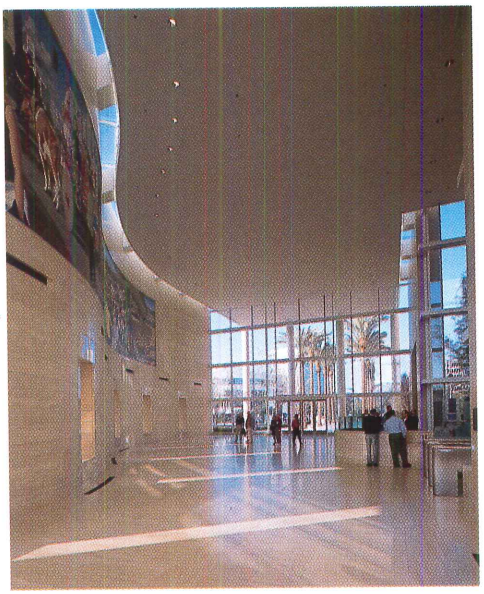
N 0 200 FT.
60 M.

1. *Entrance pavilion*
2. *Tower*
3. *Podium*
4. *Plaza*
5. *Park*

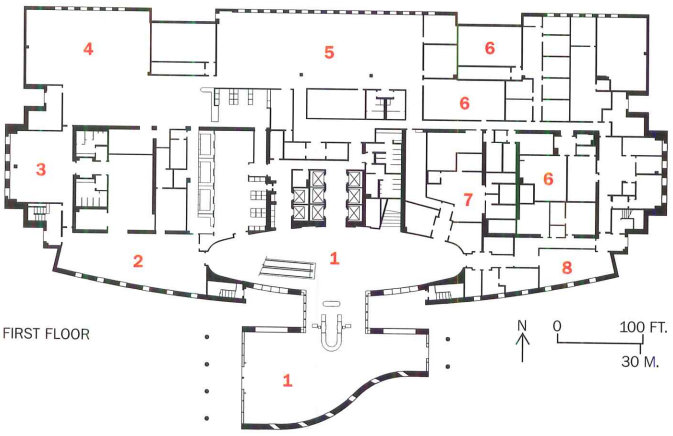
A shallow plaza offsets the building from the street. Careful planning went into the two-story entry pavilion, which nods to the courthouse's solemnity but also to the vital city around it.



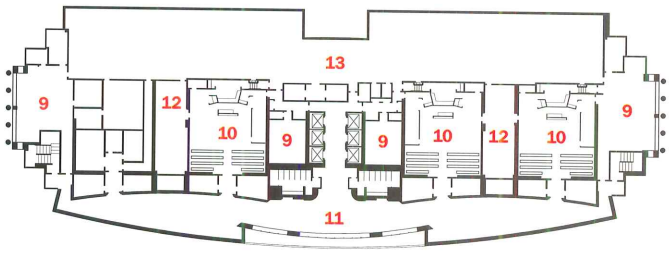
Each floor of the tower holds public galleries, four courtrooms, and judges' chambers. The windows allow mountain views.



The curving wall of the entry pavilion holds a 15-by-70-foot mural by John Valadez (far left and below). The light-colored stone and wood interiors of the public areas represent a typically Californian palette. The wood louvers (left) prevent glare and help keep the public spaces cool; windows are tinted to prevent solar gain. The courtrooms (opposite) are traditional, aside from the domed ceilings.



FIRST FLOOR



NINTH FLOOR

1. *Lobby*
2. *Jury assembly*
3. *Jury orientation*
4. *Jury waiting area*
5. *District court clerk*
6. *Conference*
7. *Press area*
8. *GSA field office*
9. *Jury room*
10. *Courtroom*
11. *Public gallery*
12. *U.S. marshal area*
13. *Judge's chamber*

courthouse buildings, there's a dramatic entry. These help in addressing the neighborhood and giving the courthouse stature."

The north side of the podium, faced with a honey-colored travertine that the architects deemed compatible with Santa Ana's Mediterranean climate, is capped by a roof garden for the judges. Below-grade building services and parking are also accessed from this side.

Disasters happen

The Santa Ana courthouse went through a number of changes before it was completed. In 1993, it was reduced from the original size of 730,000 square feet to 603,750 square feet. The initial construction budget, slashed by $45 million during congressional cutbacks, cost the planners one floor and two subterranean levels for additional parking and storage. Construction took nearly four years.

The building was in design development when the 1994 Northridge earthquake occurred. By the time the federal building in Oklahoma City was bombed in 1995, the new courthouse had been approved by Congress. But both events proved instructional in the way the building was engineered and constructed.

"A terrorist blast from the ground does almost the same thing" as an earthquake, project manager Gerod says. "These horrible events happened in good time for our engineers, because the floor slab was just anchored to the foundation and not secured on top. After these disasters, we made some structural changes."

The building centralizes federal operations in the county, with six courtrooms each for district and bankruptcy courts, two for federal magistrates, and one appeals court. A 3,000-square-foot special sessions courtroom is large enough for trials involving up to 20 plaintiffs and defendants. Designed to house the growth of the courts through 2021, the building can accommodate up to 29 courtrooms.

Courtrooms are entered from public galleries. Sheathed in glass, the walls of the upper-level galleries allow distant ocean views. The light and, to some extent, the interior temperature within the galleries are modulated by wood sunscreens. Within the courtrooms, materials change from a blond wood-and-stone palette to the more somber and traditional cherry wood. The jury boxes, attorney tables, and lectern are fashioned in the same cherry as the paneling and have a California Arts and Crafts sensibility. To the delight of the judges, each of the courtrooms is topped by a 20-foot-high modified dome.

The technology inside the courtrooms couldn't "contradict the preeminence of the bench," Frasca says. United States District Court Judge Gary L. Taylor, who provided design guidance, agrees: "Too much technology in a courtroom can be bad. Things get tied up, go wrong, need fixing—all the glitches and delays are counterproductive to what we're there to do."

In the case of the Reagan Courthouse, between the time congress approved the project and the program was written and funded, there were significant changes in technology. These changes, as well as the need to save space for innovations to come, had to be factored into the design. At present, the floors are honeycombed with ducts for audio/visual cables and computer wires. The debate continues over when television cameras and access to the Internet may be allowed, though the cabling and other provisions are now in place, ready for this eventuality. ■

Sources

Built-up roofing: *Firestone*
Metal roofing: *Atlas*
Aluminum windows: *Kawneer*
Glass: *Viracon*
Skylights: *Fisher*
Wood doors: *Weyerhaeuser*
Locksets: *Schlage*
Exit devices: *Von Duprin*
Security devices: *Folger Adams*
Cabinet hardware: *Hafele*
Acoustical ceilings: *Armstrong*
Paints and stains: *Benjamin Moore*
Plastic laminate: *Nevamar*

4 Warren B. Rudman United States Courthouse Concord, New Hampshire

WITH A SYMMETRICAL LAYOUT AND A LIMITED PALETTE OF MATERIALS, A NEW COURTHOUSE RECALLS TRADITIONAL CIVIC STRUCTURES.

by Virginia Kent Dorris

Project: *Warren B. Rudman United States Courthouse, Concord, New Hampshire*
Architect: *Shepley Bulfinch Richardson and Abbott/PMR Joint Venture Architects*
Shepley Bulfinch Richardson and Abbott, Architects— Richard M. Potter, AIA, partner-in-charge; Jean Paul Carlhian, FAIA, design partner; Kevin Triplett, AIA, Vivian Fung, AIA, project designers
PMR Architects—David Page, AIA, partner-in-charge; Cliff Stockman, AIA, project architect; Gary Goudreau, AIA, Paul Hemmerich, AIA, job captains
Engineers: *LeMessurier Consultants (structural); Thompson Consultants (mechanical/electrical/plumbing)*
Consultants: *William Hoffman (landscape); Peter Coxe (lighting); Cambridge Acoustical Associates (acoustical)*
General Contractor: *Beacon Procon Joint Venture*

Cost: *$32.8 million*
Size: *187,200 square feet*

There is no mistaking the Warren B. Rudman United States Courthouse in Concord, New Hampshire, for anything other than what it is. The formal, symmetrical granite-and-limestone facade recalls the monumental American civic structures of the late 19th century. The fact that the new building conveys seriousness and solemnity is no accident.

"Justice is a serious business," says Jean Paul Carlhian, FAIA, partner-in-charge of the project for Boston-based Shepley Bulfinch Richardson and Abbott, Architects, who worked in a joint venture with Nashua, New Hampshire–based PMR Architects. "A courthouse has a different purpose than an office building, school, or house. We wanted people to recognize instantly that they were entering a court of law."

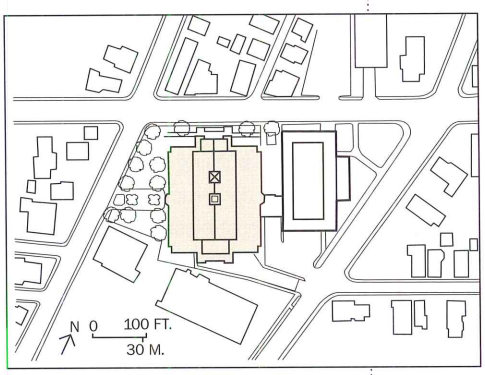
The $32.8 million courthouse is also formal and symmetrical within, from the geometric stone flooring to the regularly spaced skylights. Carlhian created a plan based on a structured progression of public spaces; it would be a difficult building for a visitor to get lost in. The main level includes a lobby, courtrooms, jury-assembly space, and what many consider the most important space of all: the office of clerk of the court, where scheduling and planning for the entire operation take place. The second level is a secure floor closed to the public and largely occupied by facilities for the United States marshals and a holding block for prisoners.

Most of the building's eight courtrooms are located on the third level, which is accessible by means of a granite-and-stainless-steel staircase that rises from the main lobby. Although public elevators are nearby, most visitors opt for the graceful stairway. The fourth floor consists of the judges' chambers and the court library.

A stainless-steel sculpture, depicting Justice with her arms raised to tie a scarf over her eyes, stands in the lobby. The work was commissioned under the General Services Administration's Art in Architecture program, whose goal is to place the works of American artists in prominent buildings.

Judicial process

Norman H. Stahl, the court's chief judge, worked closely with Shepley Bulfinch on the building program. Judge Stahl, chairman of the federal courts' security and facilities committee, part of the Judicial Conference of the United States—which makes recommendations about building operation policies—toured several courthouses completed as part of the GSA's courthouse construction initiative.

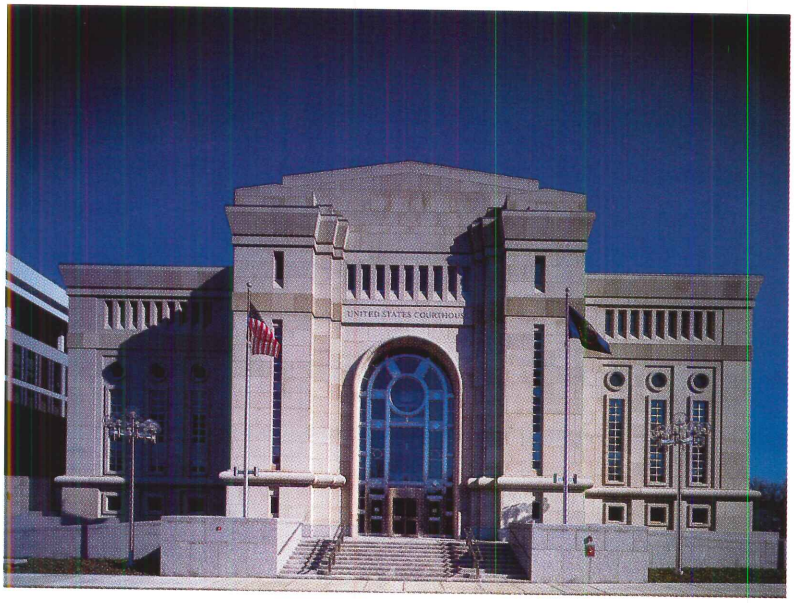


The new courthouse was constructed on a tight site three blocks south of the granite-clad state capital complex and three blocks west of the city's central business district. The courthouse sits adjacent to the James C. Cleveland Federal Building, a 1960s structure that houses the federal courts, along with postal service facilities. A hallway at ground level connects the two structures and serves as a single entry point to the two-building complex. Three bankruptcy courtrooms remain housed in the original building; the rest are housed in the new structure.

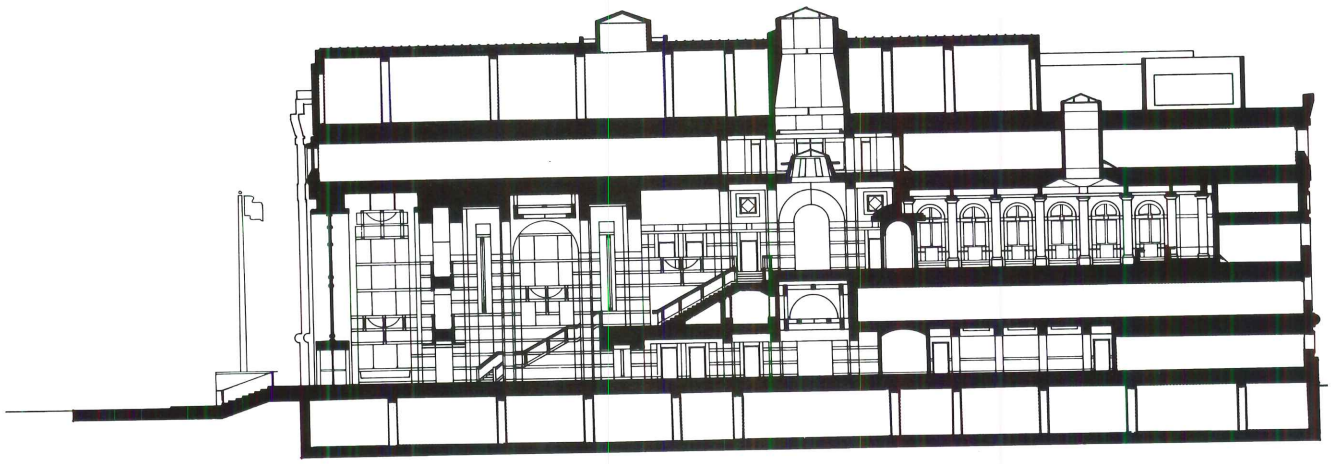
Because Concord is one of the nation's 13 original district courts, the architects were mindful of the look and durability of the new building's materials. They chose a limited palette of stone, cherry wood, and stainless steel to convey a sense of longevity and durability as well as dignity for the building.

Judge Stahl felt

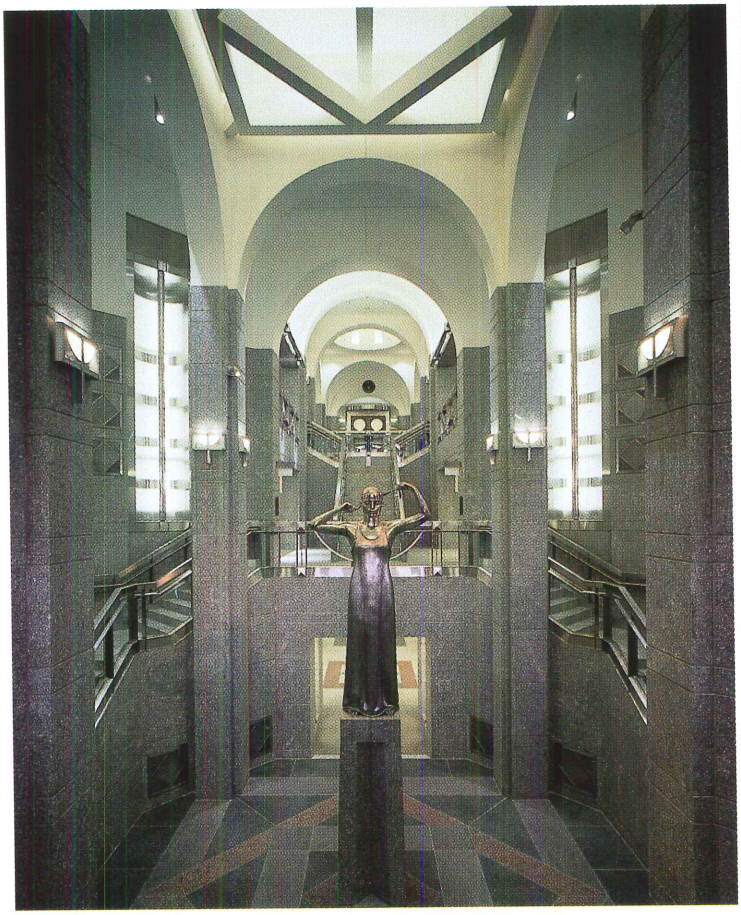
PHOTOGRAPHY: © WHEELER PHOTOGRAPHICS



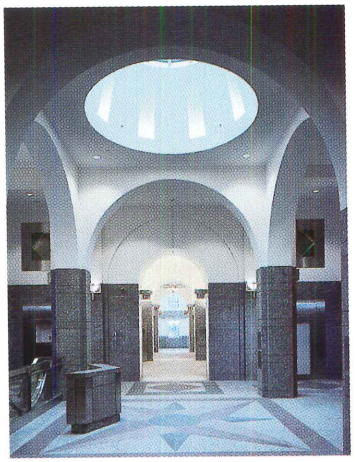
The classical details and symmetrical proportions of the Rudman Courthouse recall major civic buildings of the late 1800s. The facade materials—limestone and granite—express the enduring qualities a courthouse should embody, according to federal design standards.



SECTION THROUGH MAIN CIRCULATION



The courthouse lobby is presided over by a stainless-steel sculpture of Justice (above).



Daylight from skylights (right) and windows permeates the space and keeps visitors connected to "the real world," as a consulting judge pointed out.

that every courtroom should have a view to the outside. When people cannot see outdoors, he says, they "become disassociated from the real world"; maintaining that connection is important in order for individuals to be fair and realistic in adjudication proceedings. To accommodate Judge Stahl's request, Shepley Bulfinch arranged the courtrooms around the perimeter of the building, using classically inspired vertical and round windows with bulletproof glass for security.

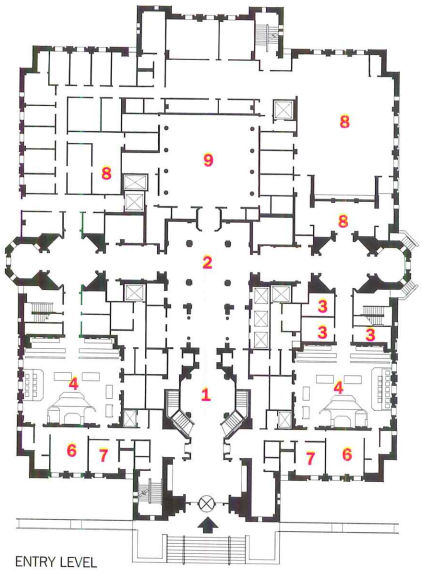
Other security measures include three separate circulation systems—one for the public, another for judges and staff, and a third for prisoners—and 11 separate elevators. This prevents jurors from running into prisoners in hallways and judges from overhearing lawyers talk in elevators. Visitors pass through a security checkpoint at the building's main entrance, and prisoners are brought through a secure vehicular entrance in the basement. Closed-circuit cameras let marshals monitor activity throughout the building.

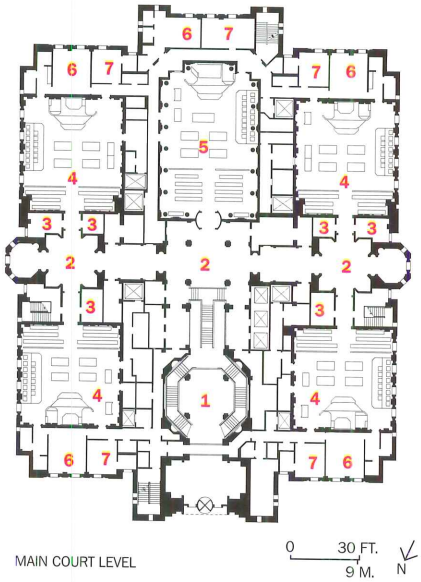
The placement of the courtrooms was made possible by the judges' willingness to have their private chambers and a shared legal library located on the top floor of the building, separate from the courtrooms. Typically, federal judges, who are appointed for life, prefer to have their chambers, personal legal libraries, and offices for their clerks adjacent to a courtroom that essentially becomes their judicial fiefdom. Concord's congenial arrangement, Judge Stahl says, was acceptable to the judges because they understood it would allow for more flexible and sophisticated courtrooms.

Use of the individual courtrooms is now scheduled according to the technical or spatial needs of specific legal cases and does not hinge on a judge's ownership of any particular space. "The judges go where we fit them, and it works very well," explains James R. Starr, court clerk.

Latest technology

The largest courtroom accommodates up to 300 people. Custom-designed wood tables can be moved around the room as needed,





1. *Stair hall*
2. *Lobby*
3. *Conference*
4. *Courtroom*
5. *Special proceedings courtroom*
6. *Jury room*
7. *Robing room*
8. *Clerk of courts offices*
9. *Jury assembly*

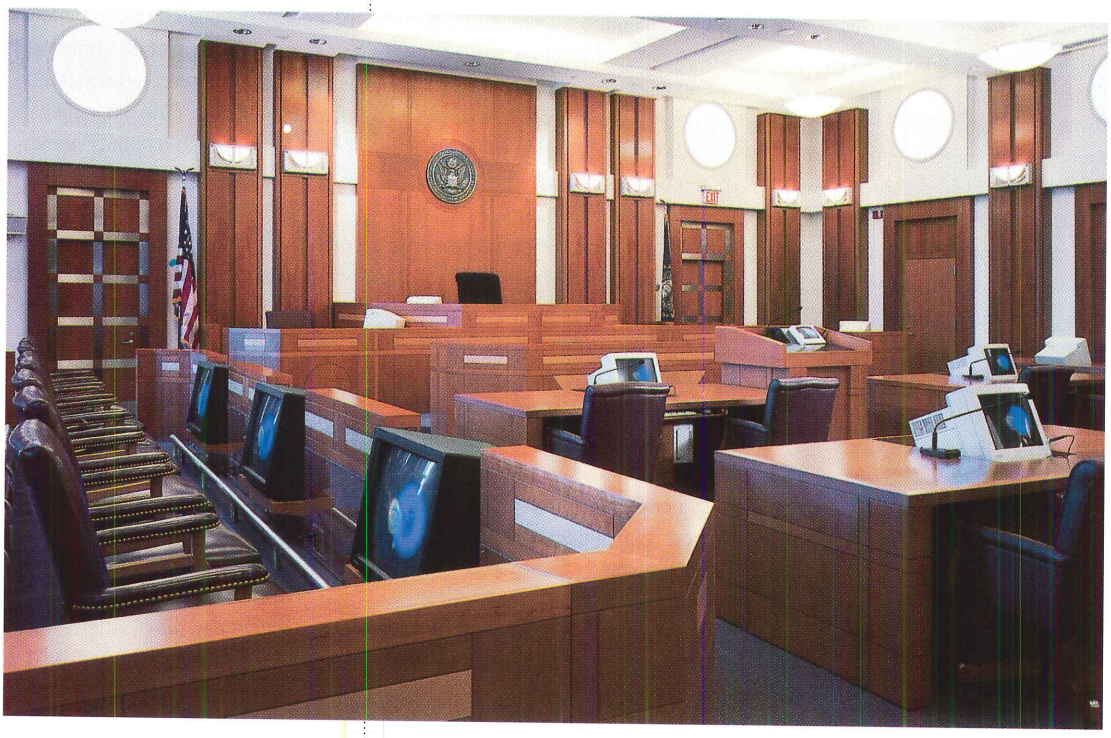
and the judge's bench can be converted to accommodate three judges. Custom furniture and woodworking details, including handrails and moldings, were used throughout the building.

Each of the courtrooms has a jury box equipped with removable 36-inch video screens on which the jurors can view evidence electronically during trials. The incorporation of this new technology, as well as other devices such as sophisticated courtroom-reporting equipment, helps save time in the trial process. Presenting jurors with exhibits on a video screen rather than paper can cut the duration of a trial by 20 percent, according to Judge Stahl.

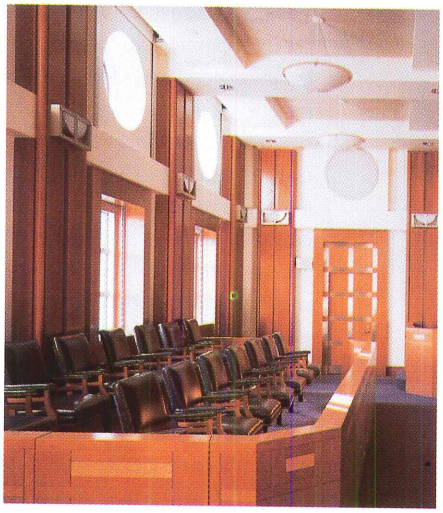
Several courtrooms contain devices similar to overhead projectors that transmit images from paper to the jurors' video-display units. One courtroom is wired so the lawyers can transmit information from personal computers to participants. (The judge, however, ultimately controls all the information that is disseminated from a master control system.) Using a CD-ROM, one lawyer recently culled a few pages from a lengthy users' manual and presented them to the jury electronically. The process was more expeditious than in the past, when jurors would have been presented with evidence on paper.

An additional advantage to the new technologies is that the court clerk can look and listen in on the proceedings in any courtroom via a computer in his office.

The architects also left room for the future expansion of cabling and connections. Technological advances in the legal process, Carlhian admits, are just beginning. ■



Sources
Built-up roofing: *Firestone*
Metal roofing: *Atlas*
Aluminum windows: *Kawneer*
Glazing: *Viracon*
Skylights: *Fisher*
Wood doors: *Weyerhaeuser*



Elegantly finished custom cherry woodwork throughout the courtrooms belies the sophisticated technology it contains. Monitors for evidence display, computer connections, and security measures, all built in, help expedite the adjudication process.

5 La Crosse County Courthouse La Crosse, Wisconsin

A NEW COUNTY COURTHOUSE CONSOLIDATES LAW ENFORCEMENT, INCARCERATION, AND COURT PROCESSES WITHIN ONE BUILDING.

by John E. Czarnecki

Project: *La Crosse County Courthouse and Law Enforcement Center, La Crosse, Wisconsin*
Owner: *La Crosse County*
Architect: *DLR Group—Jim Conley, AIA, partner in charge; Matt Johnson, project architect; Bruce Omtvedt, AIA, project manager; Dick Bast, engineering; Keith Stockman, construction management; Joe Haines, AIA, criminal justice programmer*
General Contractor: *Macket and Johnson, Inc.*

Cost: *$18.5 million*
Size: *169,000 square feet*

Six years before moving into their own courthouse in late 1997, a group of judges, staff, and at least 20 county supervisors from La Crosse County, Wisconsin, took a bus trip to tour newly constructed courthouses in the state. Along the way, they learned what worked best and what could be improved in facilities located in other counties. With the county's leadership gathered together and with one topic to discuss, they turned the ride back to La Crosse into a five-hour discussion about the county's hopes for a new courthouse. That ride proved important in initiating dialogue among elected officials and court personnel.

"It really was a fantastic discussion," says Steve Steadman, district court administrator for the seventh judicial district of Wisconsin, which includes La Crosse. "We developed a good cooperative atmosphere, a common need to do the right thing for citizens of this county."

County officials had initially explored the possibility of constructing only a new jail to relieve overcrowding at the existing jail and courts complex in La Crosse, which was built in the early 1960s. But after taking a more comprehensive look at law enforcement needs, representatives decided to completely replace the jail and courts building with a new structure, to be located across the street. (The old facility was later turned into county administrative offices.)

Their plans centered on a prominent site along a major highway leading into La Crosse's historic downtown, where many of the surrounding buildings are more than 100 years old, including a few Richardsonian Romanesque gems. The pedestrian-friendly streets are lined with mostly brick and stone buildings two stories or taller with storefronts on the ground level.

Separating the downtown from the courthouse is a square block of surface parking—the former site of La Crosse's third courthouse, built in 1903 and torn down in 1965. In a fit of modern exuberance, a grand old post office nearby was also demolished around the same time to make way for a new one that was nearly windowless.

Today, the new law enforcement center sits amid a civic campus of large government structures built within the past 40 years, including the former jail and courts building, offices of health and human services, La Crosse City Hall, and the main post office. The campus, clustered with buildings that have little relationship to each other and are surrounded by surface parking, sits in stark contrast to the fine-grain downtown area.

The fifth courthouse in La Crosse County's history, the new 169,000-square-foot building was designed by DLR Group, based in Omaha, Nebraska. The $18.5 million project includes five courtrooms; a jail with 172 beds housed in eight pods that range from minimum to maximum security; and offices for the court staff, the district attorney, the clerk of courts, the sheriff's department, and 911 emergency dispatch.

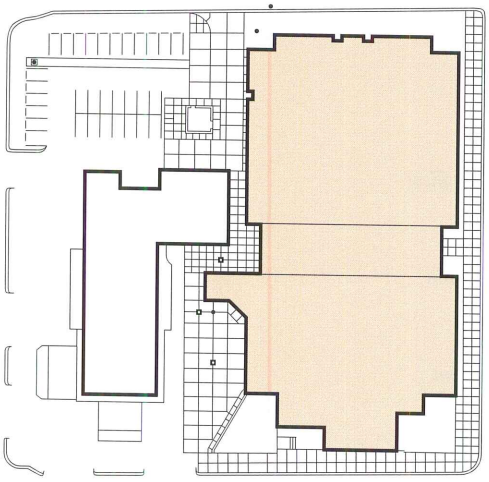
Taking responsibility

By providing both architectural and construction management services on this project, DLR Group helped La Crosse County realize cost savings by managing multiple prime contracts. The firm prepared separate bid packages for various building components. The owner, in turn, purchased materials directly and saved sales tax. By taking on greater responsibility, the architect was able to create a building that cost $110 per square foot.

"For a long time, architects have steered away from taking responsibility for the construction," says Bruce Omtvedt, AIA, who served as project manager. "The more we can get that back, the better the projects are going to be and the more control we have over the outcome of the project."

The constrained, 1.7-acre site,

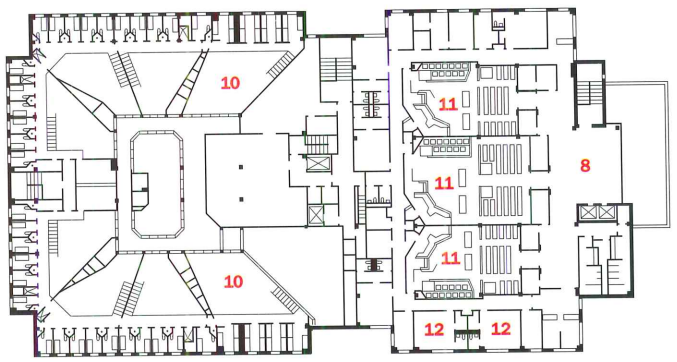
John E. Czarnecki is a former editor of Crit, *the journal of the American Institute of Architecture Students.*



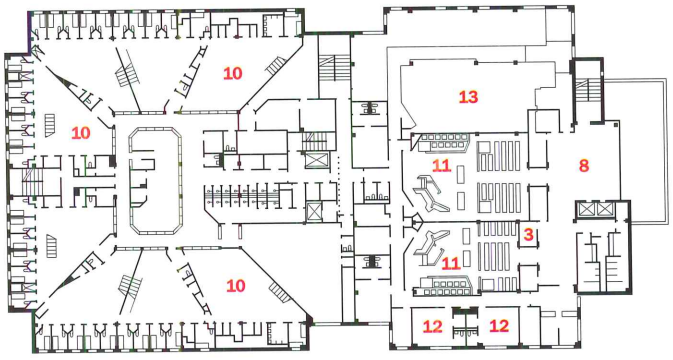
SITE PLAN

N

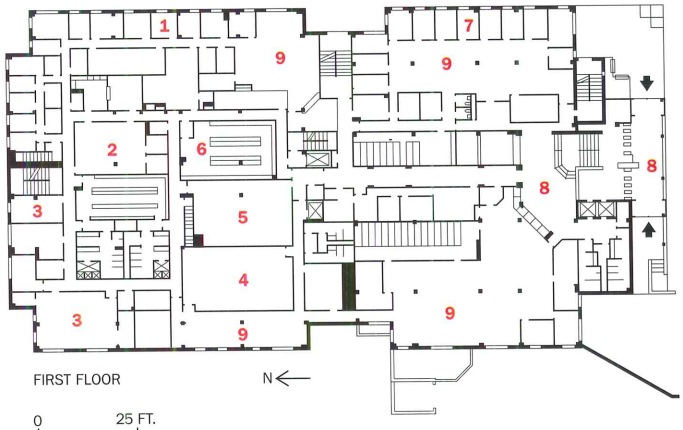
The fifth courthouse in La Crosse County history, the new center arose from the need for more jail cells and a decision to incorporate court functions within the same building. DLR Group created a unified brick and glass facade.



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

0 25 FT.
7.6 M.

1. *Police offices*
2. *Squad room*
3. *Conference*
4. *Jury assembly*
5. *Law library*
6. *Evidence*
7. *District attorney offices*
8. *Lobby*
9. *Open offices*
10. *Inmate cell/dayroom*
11. *Courtroom*
12. *Judge's chambers*
13. *Future development*

To have greater control over the complicated program and to save money, the architects took substantial control of the construction process by preparing separate bid packages for the various building components, including the 172-bed jail, the sheriff's department, and 911 emergency dispatch.

with its juxtaposition of adjacent new and old buildings, provided a challenge for DLR. The architects were charged with designing a new building—part courthouse, part police office, and part jail—that relates to its surroundings and is welcoming to the public yet conveys an image of law and order.

"It was a definite intent to have a building that would reinforce a sense of justice," Omtvedt says. "While we didn't hide the fact that it is a jail, the focus is on the public courthouse entrance of the building. The goals of the building design were staff efficiency and flexibility first."

The four-story building is similar in scale and color to the surrounding modern civic structures. Creating something "old looking" to harmonize with the buildings downtown would have made the building out of character with its immediate neighbors. And, as the conversations on the bus that day pointed out, the need for increased jail cells and security is a new problem, not a historic one.

Ribbon windows and bands of brown brick on the tan facade emphasize the building's horizontality. Tempered reflective glass on the courthouse side of the building and a glass-clad reflective polycarbonate on the jail side communicate an image of law enforcement and serve a functional purpose, visually separating the building's occupants from outside observers.

Balancing security and service

Inside the courthouse, the architects had to strike a balance, creating a secure environment that was also user-friendly. Once visitors pass a security checkpoint with metal detectors at the front door, they face few other obvious security mechanisms. "We didn't want to repel people and scare them with overt security measures," Steadman says. "All of the security and intrusiveness is at the front door."

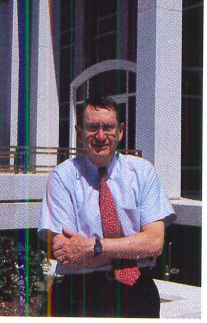
A clear hierarchy is evident in the building's plan, with service functions for the jail on the ground floor, offices that serve the public on the first floor, and the courts above. The public can access the offices of the district attorney, court clerk, and register in probate at easily identifiable counters on the first floor.

Three courtrooms are located on the second floor and two on the third. Waiting areas for both floors, located directly above the building's main entrance, have dramatic floor-to-ceiling views of downtown and the river bluffs. An unfinished shell space, where a sixth courtroom could be added, is on the third floor. The shell space demonstrates the foresightedness of a county that has added a judge every 15 years or so. To finish the shell space today would cost approximately $300,000, substantially less than new construction.

Each of the courtrooms include a sound system with individually controlled microphones, wiring for videoconferencing, modem connections for personal computers, assistive listening devices for the hearing-impaired, and an alarm system in case of emergency.

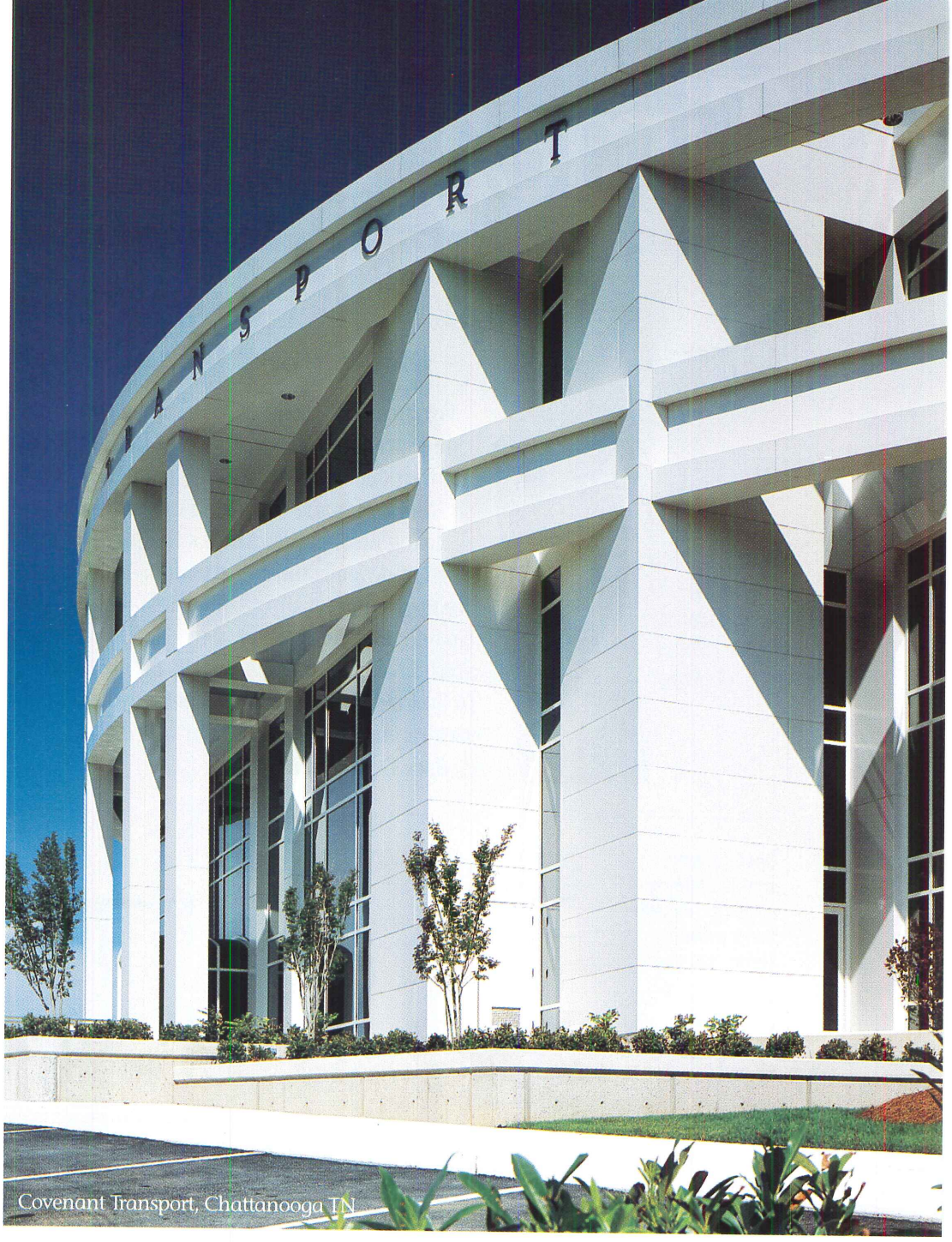
A combination of materials and fixtures in the courtrooms, including carpeting and acoustical ceilings, help reduce noise. "The quietness of the courtrooms influences the conduct of the people who come in them," Steadman says. "The building gives the message that we're up to something important, and please behave accordingly." ■

Sources
Curtain wall: *Kawneer*
Precast concrete: *Crest*
Manufactured wall panels: *Robertson Co.*
Elastomeric roofing: *Firestone*
Glass: *Viracon*
Entry doors: *Kawneer*
Security grilles: *Cornell Iron Works*
Locksets: *Sargent*
Hinges: *McKinney*

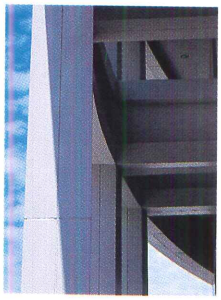


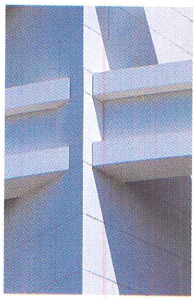
"You Really Can Afford To Be Versatile."

Alan Derthick, Architect



Covenant Transport, Chattanooga TN





So says architect Alan Derthick of Derthick, Henley & Wilkerson talking about his choice of Alucobond® Material for the Covenant Transport building just outside of Chattanooga, Tennessee.

"The building really stands out. And the things we did with Alucobond Material would be extremely difficult to do with anything else. It gave us the ability to create a curving facade with lots of 3-D. It's the one material that lets you shape to fit your needs. Plus, we did it on a very tight time schedule."

Alan was surprised by Alucobond Material's affordable price, too. In fact, average installed costs have been coming in around $15-$25 per square foot. "It's perceived to be high-priced but the final cost actually came in far less than we were expecting. So you see, you really can afford to be versatile."

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CIRCLE 46 ON INQUIRY CARD

Building a Gold Medal Pool

BECAUSE OF ITS MANY COMPLEX DETAILS, THE GOODWILL GAMES POOL IN EAST MEADOW, NEW YORK, IS CONSIDERED BY SOME SWIMMERS TO BE THE BEST POOL IN THE COUNTRY.

by Charles Linn, AIA

If you could design the perfect swimmer's body, it wouldn't be that different from the perfect building to house a swimming pool. Both would have a high strength-to-weight ratio. Both would minimize surface area—in the case of the swimmer, to reduce drag; in the case of the building, to lower heat loss and gain. Both would efficiently consume the resources put into them. And both would be flexible.

A new natatorium in New York State embodies these ideals. The Goodwill Games Swimming and Diving Complex at Eisenhower Park in East Meadow, New York, was designed by the office of Richard Dattner Architect for the 1998 games. (Today, the pool is used for recreational swimming, training, and swim meets.) To make the opening of the games, it was imperative that the building be constructed in 18 months; the budget was set at $26 million. Although the building was designed to seat 4,000, it was unlikely that the venue would play host to such a large audience very often. "We decided that rather than overbuild to achieve such capacity," says Richard Dattner, FAIA, "we would devise a way to a open up the building to increase seating capacity only when it was necessary." The construction budget would be invested, Dattner adds, in "systems that would diminish the long-term costs of operations and maintenance—things like stainless-steel ductwork—and incorporating the most up-to-date competition pool features."

The complex had the potential to overwhelm the relatively undeveloped Eisenhower Park landscape. Architect Richard Dattner half-buried the building's semicylindrical shape to diminish its scale.

Structural system and building envelope

The swimming and diving complex was built on a gently sloping site, a grade change that naturally rendered the building handicap-accessible at both the pool and spectator levels and allowed much of the structure to be built into the earth, decreasing its apparent mass.

The profile of the building is also made less daunting by its semicylindrical shape, formed by a steel-arch structural system, designed by Dattner and engineer Ed DePaola of Severud Associates, that has several advantages over standard post-and-truss construction. While it reduces the building's exterior exposed roof area to minimize heat loss and gain, it still allows for the height required for competitive diving; the highest point on the lower chord of the truss is located almost exactly

Project: *Goodwill Games Swimming and Diving Complex, Eisenhower Park, East Meadow, New York*
Owner: *Nassau County Department of Recreation and Parks*
Architect: *Richard Dattner Architect—Richard Dattner, FAIA, partner-in-charge; Joseph Coppola, AIA, Beth Greenberg, AIA, project managers; Perry Hall, Jacob Tukuru, Paritosh Kumar, Hernando Quijano, Robert Axton, Mike Notaro, Paul Bauer, project staff*
Engineers: *Severud Associates (structural); Mariano D. Molina (mechanical); A. James de Bruin & Sons (civil)*
Consultants: *Abel, Bainnson, Butz (landscape); Counsilman/Hunsaker and Associates (natatorium); Federman Design & Construction Corp. (cost estimating); Robert Schwartz & Associates (specifications); Domingo Gonzales Design (lighting); Peter George Associates (acoustical); Pentagram (graphics)*
Construction Manager: *Tishman Construction Corporation*

CONTINUING EDUCATION

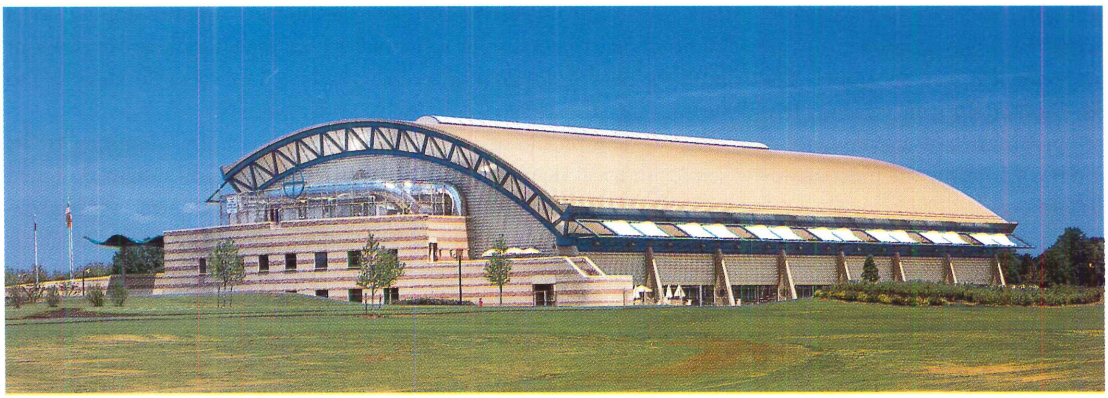
CONTINUING EDUCATION AIA

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 138 and follow the instructions.

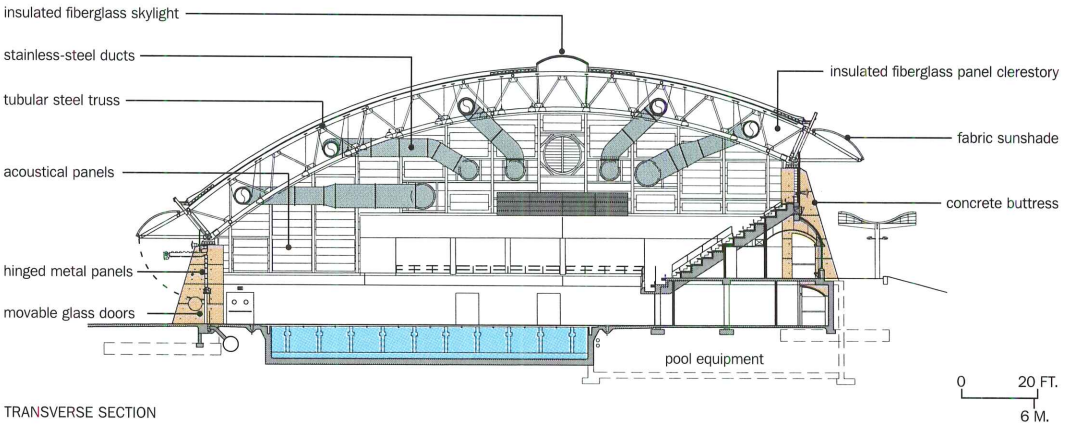
LEARNING OBJECTIVES

After reading "Building a Gold Medal Pool," you should be able to:

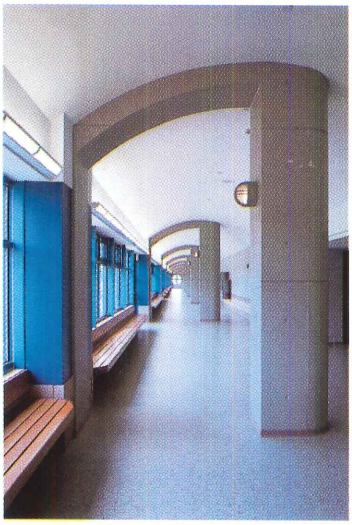
1. *List the desirable criteria for a swimming pool design.*
2. *Describe how to minimize the problems caused by humidity in a swimming pool.*
3. *Describe ways of reducing costs in pool construction.*
4. *Explain how to design a pool for faster swimming speed.*



The pool level is on grade with the building's south elevation (above and left). To open up this level for extra seating, the glass doors next to the patio can slide to one side and the metal paneled wall above can pivot up and away from the building until it is horizontal. The north side of the building (below left) is at the same level as the spectator seating. Stretched fabric sunshades protect both sides of the building from direct sunlight during the summer.



TRANSVERSE SECTION



Massive concrete buttresses (far left) support tubular steel roof trusses. Steel outriggers that support the fabric shades are anchored to the roof trusses but thermally isolated from them with structural rubber pads to prevent icing. Openings inside the cast-concrete buttresses create a corridor parallel to the permanent spectator seating (left).

over the 10-meter diving platform. There are no columns to obscure spectators' sightlines. A cast-in-place concrete buttress supports the horizontal thrust and deadweight load at both ends of the trusses, which are triangular in section, with the apex pointing down. Long-span metal decking crosses the trusses' top chords and between the trusses themselves without intermediate structural support. Round steel sections used for the trusses also help prevent condensation (which leads to corrosion) by creating better ventilation than the flat surfaces of steel angles and I-sections would, and by discouraging the settling of dust, which attracts and holds moisture.

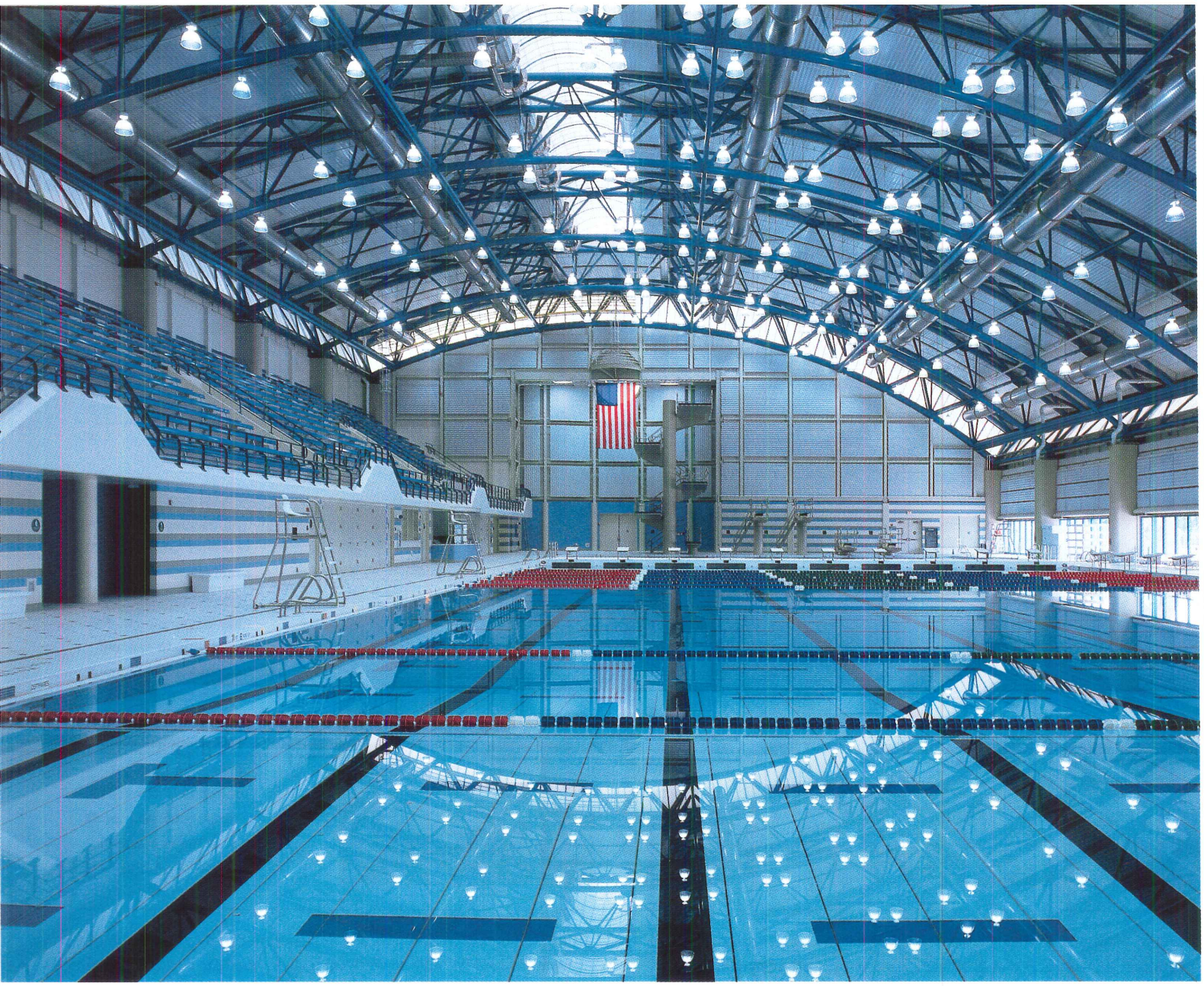
ROOF TRUSSES WERE FABRICATED IN SECTIONS SO THEY COULD BE TRUCKED IN, RAISED, AND BOLTED TOGETHER.

The eight trusses that form the roof of the building were prefabricated in three sections, so they could be trucked to the site on flatbed trailers. Construction could not have been simpler: the truss sections on each end were raised and secured to the buttresses; the middle section was hoisted between the end trusses and bolted into place; and intermediate trusses were placed between the arches for lateral stability. The construction manager, Tishman Construction Corporation, helped the architects design a falsework that rolled along the bottom chord of the intermediate trusses, allowing work on ducts, lighting and electrical systems, roofing, and piping to take place above while construction on the pool proceeded below. Says Dattner, "We had to work on both to keep the construction on schedule, and because it is just too dangerous to have one crew working over another, we constructed the falsework."

The base of the building is masonry, laid in alternating bands of light and dark tan. Light-colored prefabricated insulated metal panels were installed above the masonry, with an insulated metal roof over the trusses. Inside, most of the end walls and the exposed ceiling between the trusses are covered by perforated metal panels filled with noise-dampening material that is enclosed in moisture-proof material; any water that might become trapped inside would reduce the panels' effectiveness in absorbing sound.

Most of the rooms throughout the building feature energy-saving fluorescent lighting. In the pool area, metal-halide lamps are housed in open-bottomed glass shades, which provide a direct-indirect light distribution. Most of the light is reflected down to the pool, and the remainder is refracted up onto the ceiling. At the top of the exterior walls in the pool area, a narrow band of translucent, insulated fiberglass panels is used to admit daylight; a narrow barrel vault of the material was installed at the roof's highest point to bring daylight into the center of the building.

To avoid building for maximum capacity, the architects devised a method of opening up the building to accommodate temporary seating. Between each pair of buttresses on the south side of the pool, where there



is no permanent seating, walls made of glass doors can slide to one side. Metal wall panels above the doors can then be pivoted upward until they are horizontal, creating an opening 30 feet wide by 19 feet high where bleachers can be installed. Permanent stretched-fabric sunshades protect spectators.

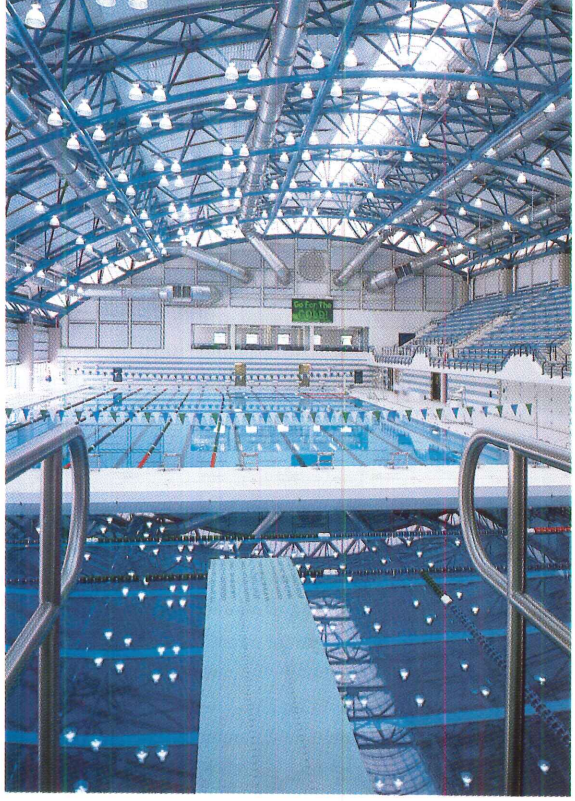
The swimming pool structure was made of gunite—concrete sprayed at high pressure directly onto the earth over a reinforcing steel cage, with little or no extra framework. Pools can also be made with formed-in-place concrete or with braced, heavy steel walls installed around the perimeter of a concrete floor slab. "Gunite was possible here because the soil on the site had a high concentration of naturally compacted sand," says Dattner. "It was economical, since the contractor was able to dig a cavity for the pool and the accompanying trenching for utilities with a great deal of accuracy, spraying the concrete without the expense of constructing formwork." The 12-inch-thick walls were then trowel-finished with a cementitious waterproofing material and covered with ceramic tile.

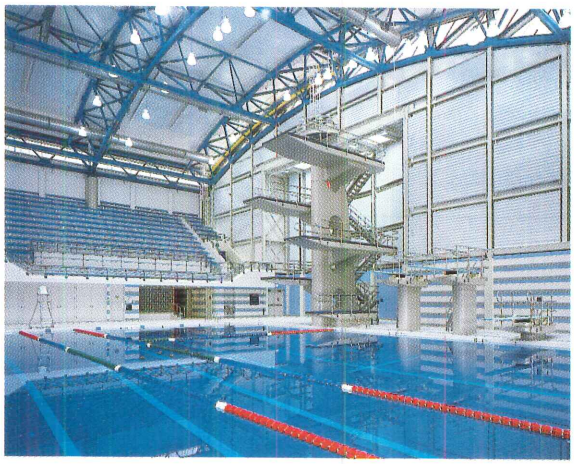
Pool mechanical systems

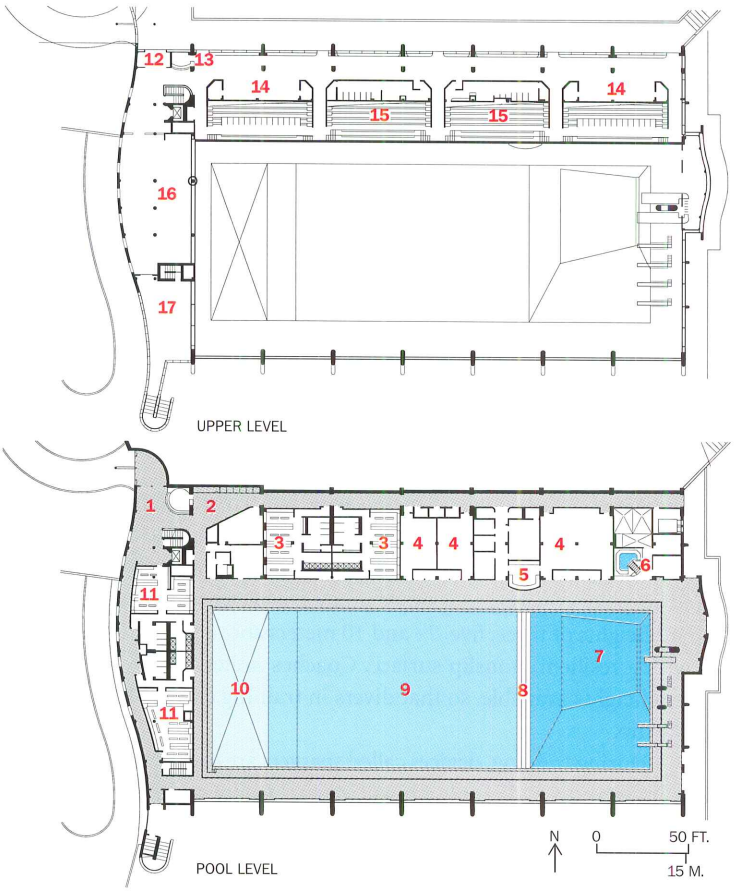
Swimming pool buildings are notoriously difficult to air-condition because they are saturated with humidity. Water can condense on any cold surface—ducts, windows and curtain-wall systems, roof decking—causing drips, corrosion, and, in the winter, falling ice. For the Goodwill Games complex the architect used a system designed especially for swimming pool buildings to reduce humidity and recover energy from heated air. Water condenses in units located near the ceiling of the building; the heat recovered during the condensation process is circulated to the basement and run through a heat exchanger to preheat the pool water. Air inside the building is constantly circulated not only to ensure that moist air reaches the condensers but also to avoid the build-up of chlorine fumes.

Water flows into gutters around the pool perimeter, where trash is caught by cover grates, and continues on to a primary filter made of stainless-steel mesh that collects any other large matter. It is then run under high pressure through tanks filled with sand and treated with chlorine tablets the size of hockey pucks before being returned to the pool. (Tablets are easier to handle than liquid chlorine, which also has a limited shelf life.)

The racing section of the pool is 25 meters wide by 53 meters long and can be divided into any number of configurations for different programs. To divide the pool, three one-by-25-meter movable







The diving platforms (opposite and left) are cast-in-place concrete. Floating movable bulkheads divide the pool (visible in middle of photo above).

1. *Lobby*
2. *Vending*
3. *Locker room*
4. *Training room*
5. *Timing and sound*
6. *Spa*
7. *Diving*
8. *Movable bulkheads*
9. *Racing*
10. *Movable floor*
11. *Locker room*
12. *Vestibule*
13. *Security*
14. *Concessions*
15. *Permanent seating*
16. *Multipurpose*
17. *Roof deck*

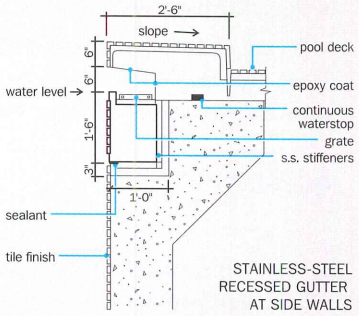
HOW SWIMMING POOL CONSTRUCTION CAN GIVE RACERS THE EDGE

"I remember canoeing on a lake in Canada where the water was so still that the surface was like a mirror, and there was almost no resistance to the boat," says Joe Hunsaker, of Counsilman/Hunsaker and Associates, a St. Louis architectural firm that specializes in swimming pool design. "If you could reproduce these conditions in a pool, it would be perfect for racing."

Unfortunately, racers create waves and underwater turbulence, extra movement that takes precious fractions of seconds off their competition times. To create a "fast" pool, Hunsaker offers a few rules of thumb and construction tips.

A racing pool should have wide lanes to minimize interference from adjacent swimmers' waves. The pool should be a minimum of two meters deep—the depth necessary to prevent turbulence from the bottom of the pool. At the Goodwill Games facility, a grid of water inlets at the bottom injects water into the pool under pressure, diffusing it equally in all directions. This creates a slight upward current that prevents turbulent interaction between the bottom of the pool and the swimmer and reduces waves on the surface.

The design of the pool's gutters is of great importance as well. When water splashes out of the gutter into the pool, it will slow down swimmers, especially those in the end lanes. Shallow gutters can fill up quickly as water is displaced when racers dive in and begin to swim. The bottoms of these gutters are 18 inches below water level (see detail right), which gives them great capacity. The grates that cover the gutters, made of parallel vertical slats oriented perpendicular to the length of the pool, also minimize backsplash. Water is quickly drained from the gutters, cleaned, and stored in surge tanks; from there it is reintroduced into the bottom of the pool.



Although these and other innovations in pool design that allow racers to go faster may seem extreme, "a half-inch wave may cost a swimmer 1/100th of a second," notes architect Richard Dattner. "That lost time could be the price of a medal."

bulkheads—made of large metal and fiberglass tanks that span the pool and rest on the gutters—can be towed into place by two people using ropes on each end.

The shallow end of the pool is covered by a nine-by-25-meter fiberglass platform. Scissor jacks beneath the floor can raise or lower this end of the pool in a matter of minutes, using a shaft fitted with worm gear and driven by two synchronized motors inside the pool equipment room. The floor can be used in many ways; people in submersible wheelchairs, for example, can enter the pool at one height and then be lowered to another level for their activities. For safety's sake, the changing depth of this portion of the pool is indicated by an electronic display board mounted on a nearby wall.

Complete diving facilities

The diving end of the pool is 25 meters wide by 20 meters long, with diving platforms cantilevered off a pylon. Similar in appearance to the buttresses supporting the roof trusses, the pylon was constructed of poured-in-place concrete in a single pour. The platforms, located at the standard heights of three, five, 7½ and 10 meters above the water, are covered with a resilient, nonslip surface. Coaches prefer to have all of the platform heights available, so that divers in training can gradually work their way up.

During training, devices called spargers are turned on under the diving platform to add highly pressurized air to the water entering the pool. The effect is to disturb the water's surface, making it easier for divers to judge their distance from the pool. In addition, the air helps create a cushion at the pool's surface, lessening the possibility of injuries from missed maneuvers. Although spargers are not used during competition, divers still need to gauge the distance from the platform to the surface of the pool. To accomplish this effect, tiny jets located at the pool's edge disrupt the water just enough to keep it from taking on a mirrorlike appearance.

The success of the Goodwill Games Swimming and Diving Complex should be measured by not only its popularity with competing swimmers but also its acceptance by the general public. According to Nassau County Recreation and Parks Commissioner John B. Kernan, three times as many annual memberships as originally expected have been purchased since the pool opened to the public. ■

Sources

Long-span roof trusses: *Metropolitan Steel, Canam Manac*
Miscellaneous metal: *Aztec*
Curtain wall: *Efco, Kawneer*
Metal panels: *Centria/Ken Herman*
Elastomeric roofing: *American Hydrotech*
Metal roofing: *Merchant & Evans/ Ken Herman*
Aluminum windows: *Efco*
Glass and glass block: *PPG, Fluoroglass*
Insulated plastic glazing: *C.P.I.*
Entrance and sliding doors: *Kawneer*
Metal doors: *Acme*
Special upswinging doors: *Aztec*
Locksets: *Best*
Hinges, closers, exit devices: *Sargent*
Acoustical ceilings and suspension grid: *Armstrong*
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Wall tile: *American Olean*
Pool tile: *Dal-Tile*
Resilient flooring: *Nora*
Lighting: *Edison Price, Hubbell, Legion, Zumtobel, Columbia, Illumination Concepts and Engineering, Kim*
Elevators: *Payton*
Pool: *Norberto & Sons*
Bulkheads: *Norberto & Sons, Avanti*
Movable floors: *K.B.E.*

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INSTRUCTIONS

- Read the article "Building a Gold Medal Pool," using the learning objectives provided.
- Complete the questions below, then check your answers (page 166).
- Fill out and submit the AIA/CES education reporting form (page 166) or file the form on ARCHITECTURAL RECORD's Web site at www.archrecord.com to receive two AIA Learning Units.

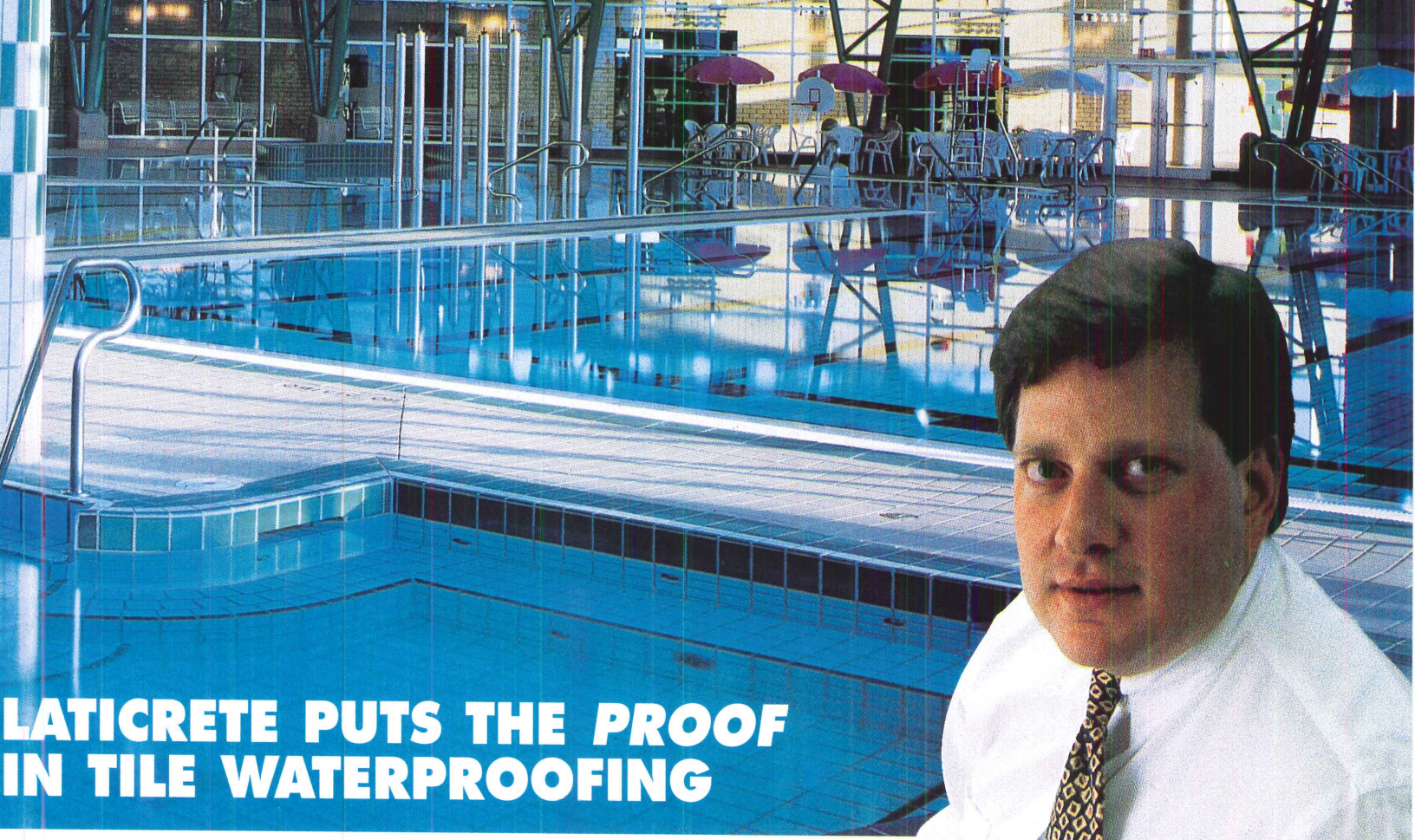
QUESTIONS

1. How can condensation be reduced in a swimming pool building and used to heat pool water?

2. What design factors may affect the swimming speed in a pool?

3. How can gunite be used to reduce construction costs?

4. How did the design accommodate flexible seating capacity?



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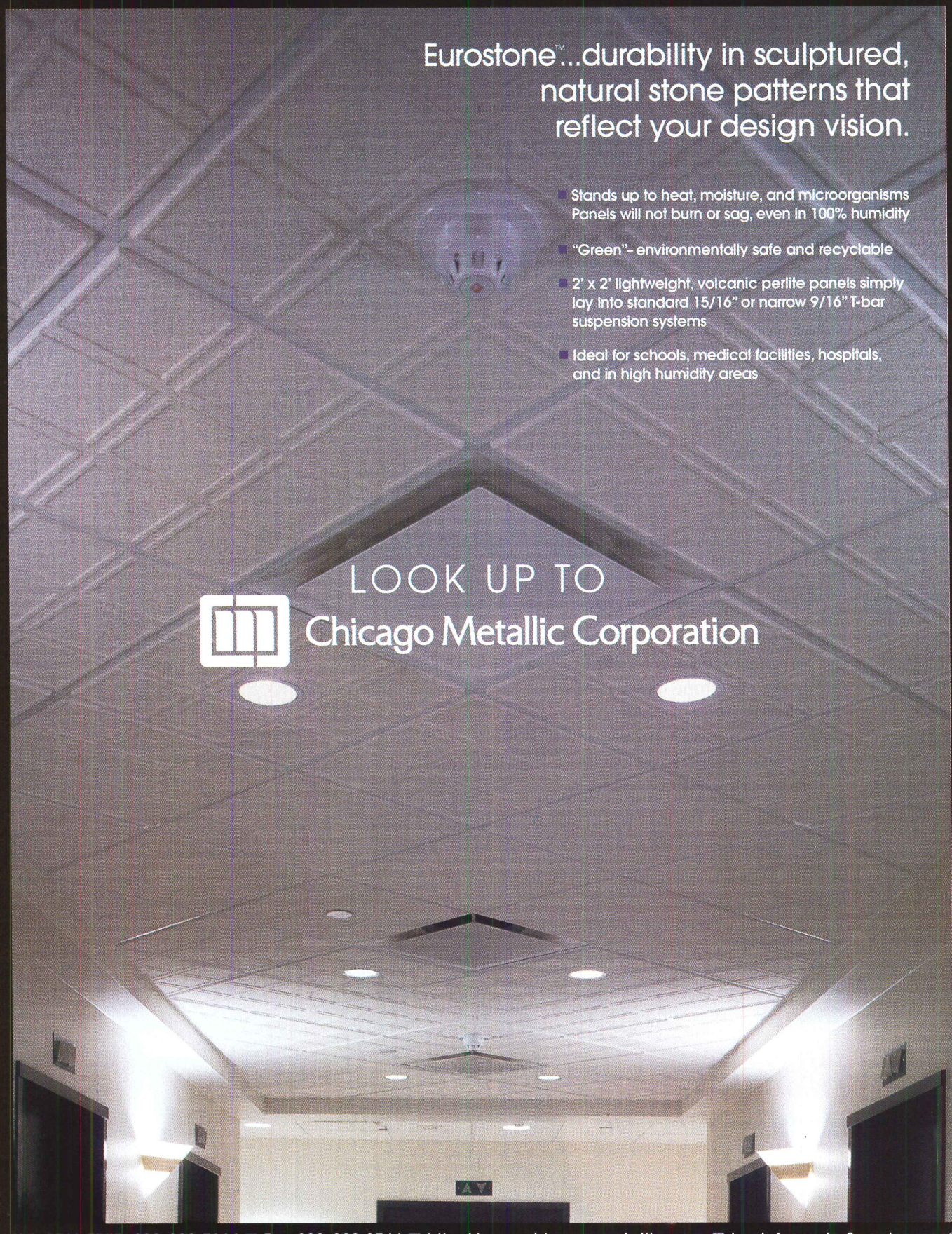

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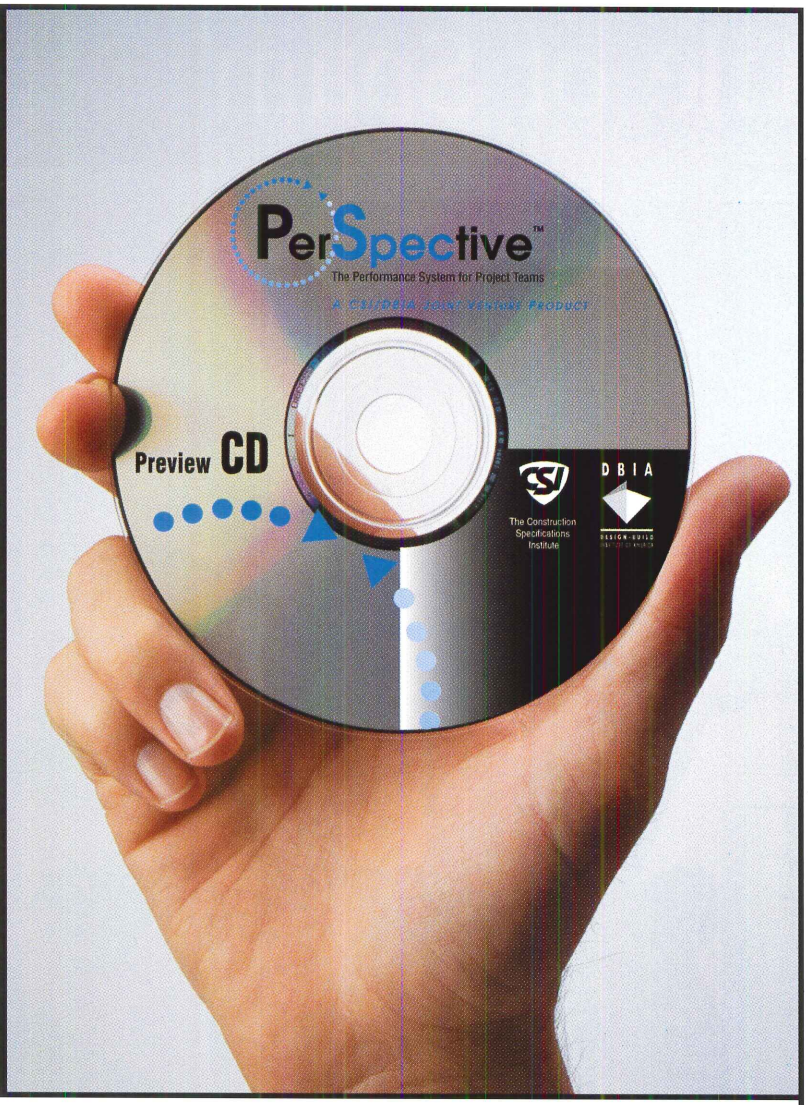

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When a Facade Needs a Thick Skin

DESPITE THE POPULARITY OF THIN-VENEER STONE CLADDING, ARCHITECTS CONTINUE TO USE TRADITIONAL THICK VENEER TO TAKE FULL ADVANTAGE OF THE MATERIAL'S QUALITIES.

by Charles D. Linn, AIA

These days architects can finish buildings with almost any material—EIFS, metal panels, cast stone, glass-and-aluminum curtain wall, masonry, tile. Since the 1960s, though, one of the most popular forms of cladding for large commercial buildings has been thin-veneer, prefabricated stone panel systems. Developed at a time when, for stylistic as well as economic reasons, many architects sought to eliminate ornamentation from their buildings, thin-veneer systems have many advantages. Not the least of these is the fact that they can cost considerably less than traditional thick-stone veneer and classical detailing methods.

The large, lightweight panels (which can be as little as three centimeters thick) are factory manufactured and attached to support armatures of steel frame, precast concrete, or even glass fiber–reinforced cement. In the carefully controlled environment of a fabricating plant, the assembly process can be executed with a high degree of dimensional accuracy. The panels are then shipped to the site, quickly hoisted into place, and secured to the building's frame.

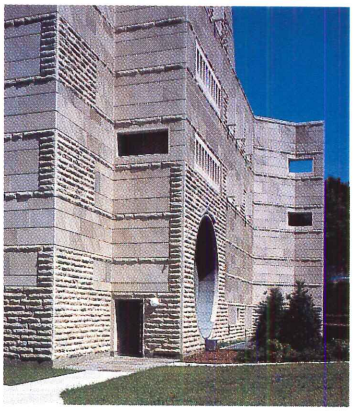
Thin-veneer cladding works best in applications where many large, duplicate pieces are required, such as in the curtain-wall systems used in so many of the high-rise office buildings of the last 30 years. "It is relatively costly to set up the production of panels, so you have to do a lot of them to make the operation pay off," says Chuck Jones, of Jones, Kuehn, Imhoff Engineers, whose firm specializes in designing natural-material cladding systems.

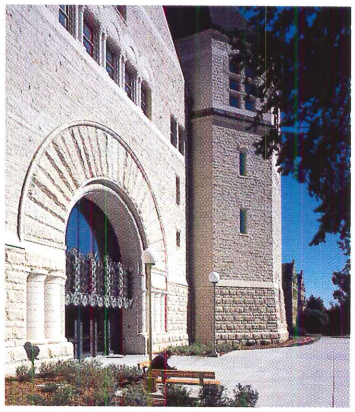
ARCHITECTS STILL DETAIL STONE IN TRADITIONAL WAYS FOR GOOD REASONS.

Thin-veneer systems aren't ideal for every situation. Running bond, for example, could be simulated on large, thin panels, but the vertical joints would give away the fact that the stone had been panelized. And in markets where skilled labor is readily available, thin-stone veneer may not have a substantial economic edge over thick veneer .

"We're seeing fewer [thin-veneer panels] than we did before," says Jones. "It isn't that there's anything wrong with them. On the right job, they're very practical." He says such systems may be less common nowadays because of the type of rock being specified. "Panels work best with harder stones, like granite or slate," he explains. "It is possible to cut a material like limestone just as thin, but you don't have enough left to keep the stone from breaking around anchors under load. If architects are using more limestone at a particular time, there will be fewer thin-panel systems."

But the most important reason for the decline in popularity of thin-stone cladding is that flat, sawn, and polished panels can't take full advantage of the material's natural attributes: the interesting shapes, color, and grain that are revealed when stone is fractured, for example. The architectural qualities of stone—recognized for centuries by architects, builders, and masons—are being rediscovered by contemporary practitioners. Rather than using less expressive thin veneer, architects are choosing to detail stone in traditional ways, using three- to five-inch-thick veneer, laid by hand and intermittently supported on shelf angles.

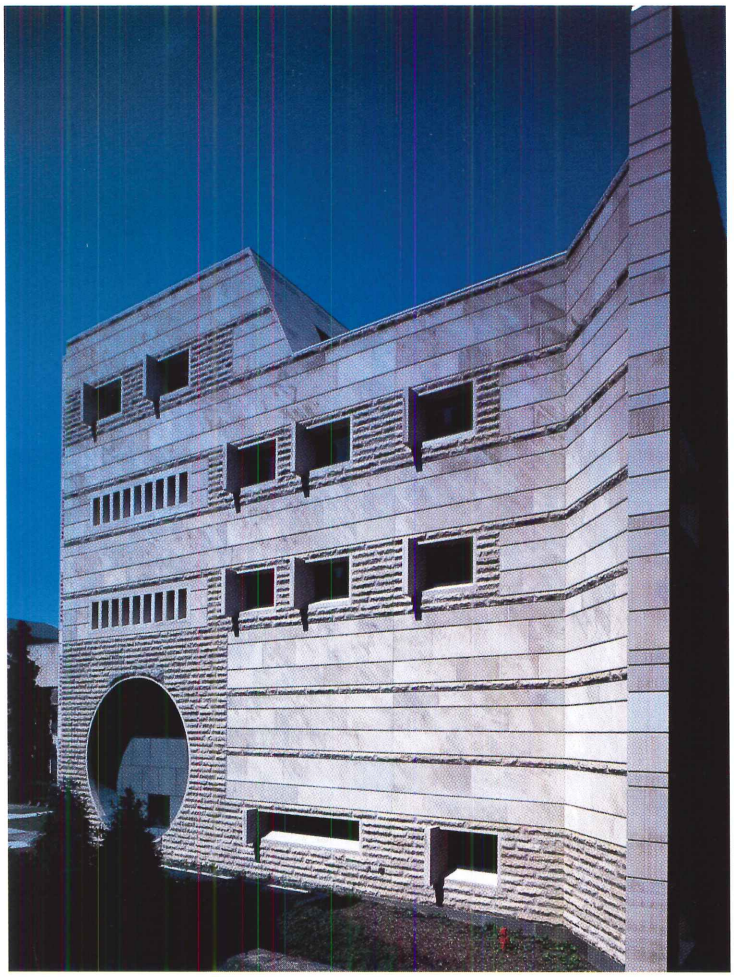


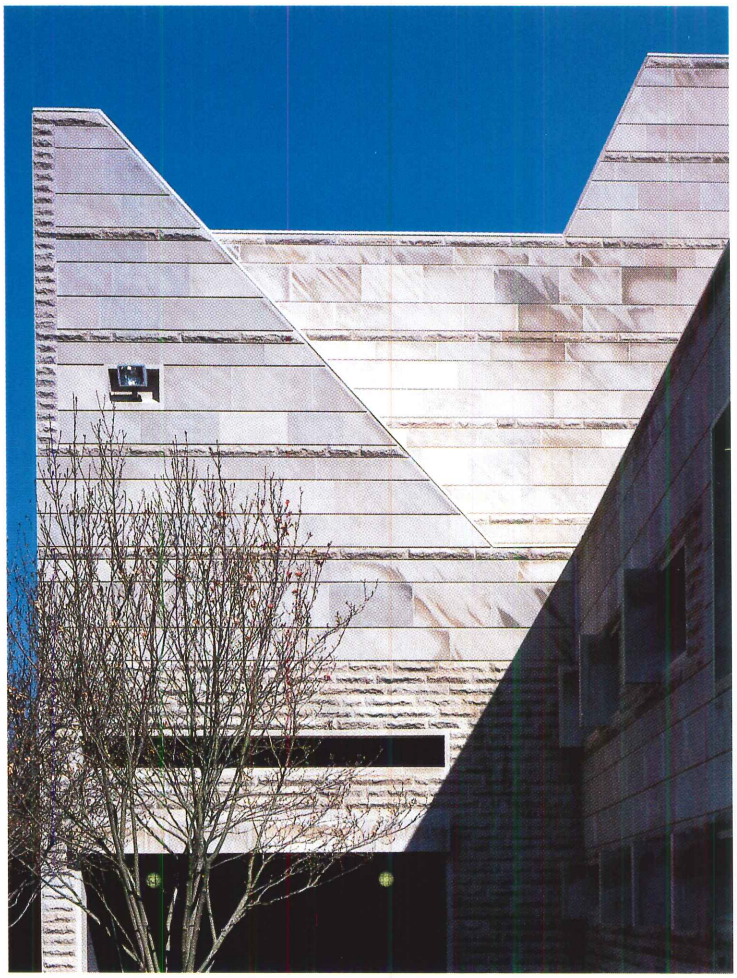


The School of Industrial and Labor Relations at Cornell University, Ithaca, New York, by Herbert Beckhard Frank Richlan & Associates (left) and Hale Library at Kansas State University, Manhattan, Kansas, by Brent Bowman and Associates with Hammond Beeby Rupert Ainge (right). The architects of both buildings designed facades with thick stone veneers to achieve the appearance of mass and depth.

According to Jim Owens, executive director of the Indiana Limestone Institute of America, thick-veneer stone is "frequently used on buildings that are intended to project the image of longevity: university and governmental buildings and, especially in the last few years, high-end residential projects." Two recent buildings—the School of Industrial and Labor Relations at Cornell University (above left, see page 144) and Hale Library at Kansas State University (above right, see page 146)—offer fine examples of this type of cladding and stone detailing. Battering, the deep rustication of joints, the heavy hewing or pitching of the stone face, even simulated arches—all featured on these buildings—could be attempted with thin veneer, but the effects would be difficult to achieve and would result in excessively heavy prefabricated panels.

Like many advances in architectural technology, the development of thin-veneer stone cladding was driven by the architect's desire to make structures lighter, easier, and faster to build—which this construction method helped accomplish. But we must remind ourselves that sometimes traditional methods, such as thick-stone veneer and fine detailing, can produce buildings that make the best use of materials and most engage the user.





SCHOOL OF INDUSTRIAL AND LABOR RELATIONS, CORNELL UNIVERSITY

In describing his inspiration for the design of New York State's School of Industrial and Labor Relations at Cornell University, in Ithaca, New York, architect Herbert Beckhard, FAIA, is specific about who has influenced his work. "You're influenced by things you see and things you like," says Beckhard, who was a design partner of Marcel Breuer. "I like Breuer, of course, and Aalto, Kahn, Corbusier. So no one should be startled at some of the things I do."

As for his selection of materials for the Cornell building, Beckhard explains, "I started my career in architecture with Breuer, and we had a great deal of interest in using natural materials, especially in our residential work. Given this, I have always taken the opportunity to try and use a natural material like stone."

The School of Industrial and Labor Relations is clad with honed and hewn Indiana limestone laid in running bond; special features made of honed greenstone imported from Germany; and a base course of thermally finished granite. "I've spent a lifetime avoiding polished materials," he says. "What makes limestone work on an old classical building is using it to create ornate detailing. But my buildings have no ornate detailing, so I try to generate interest with the material itself."

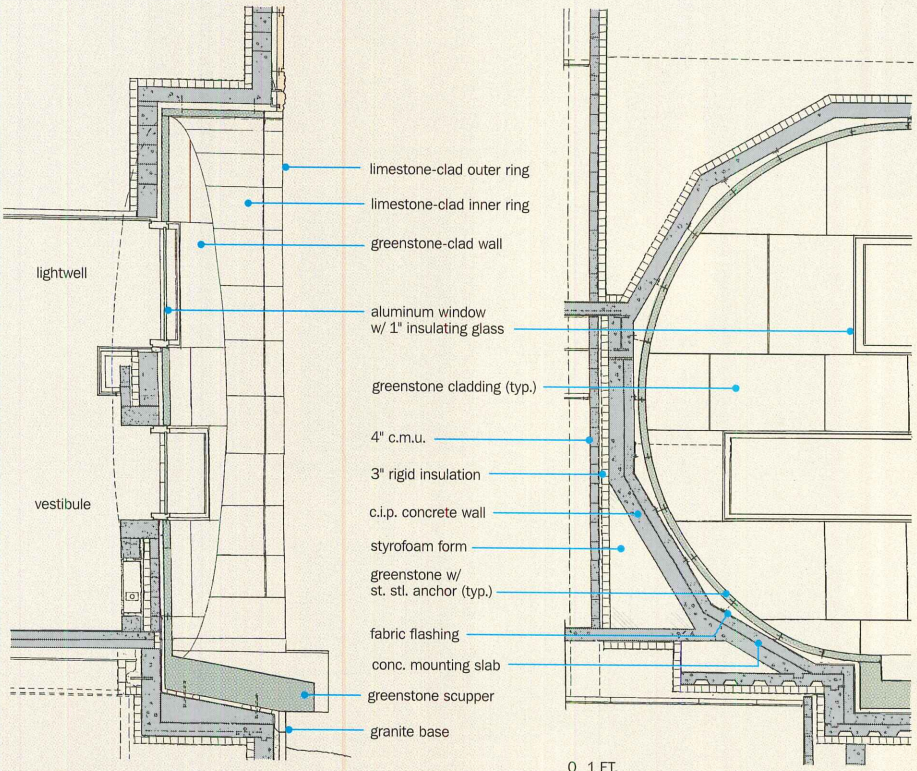
"I don't like to decorate my buildings," Beckhard continues. "I think giving them interest using form is better. Decoration has a brief period of acceptance, and I like to think that the buildings I design will feel good 30 or 40 years from now."

To maximize the natural qualities of the stone, Beckhard had the honed limestone veneer cut so that its striations run at an angle to the ground, aligning with the building's sloped parapet walls. He also placed vertical stone projections, which he calls fins, next to windows set back from the wall plane. "I like to give a facade a dimensional quality," Beckhard says, "but you have to somehow develop reasons for doing that. People often ask if the fins are for sunshading. I say, 'No, those are my Corinthian columns.' "

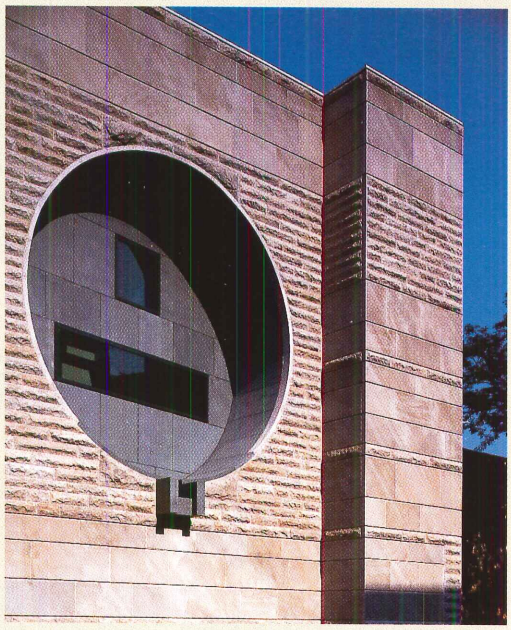
Other forms that create interest on the facade without superfluous ornament are the greenstone-lined cylindrical insets with monumental scuppers cut into the facade. Inside each is a pair of windows that allow daylight into the building's auditorium vestibules. Speculating on whether these might be seen as references to Louis Kahn's work, Beckhard chuckles, saying, "I never mind if someone says something I designed refers to Kahn. He was a good guy. And the glorification of the scupper is not a new idea. Look what Corbusier did with it at Ronchamps. We both like a bold expression of how the water is going to be taken care of."

Beckhard indicates that in the absence of ornamentation, even the way stone is joined can be an expression of the material's strength. "There are a lot of terrible things done to stone," he says. "One of the worst is the mitered joint. To me, that's a weak transition. I don't use mitered joints for anything. Not even wood."

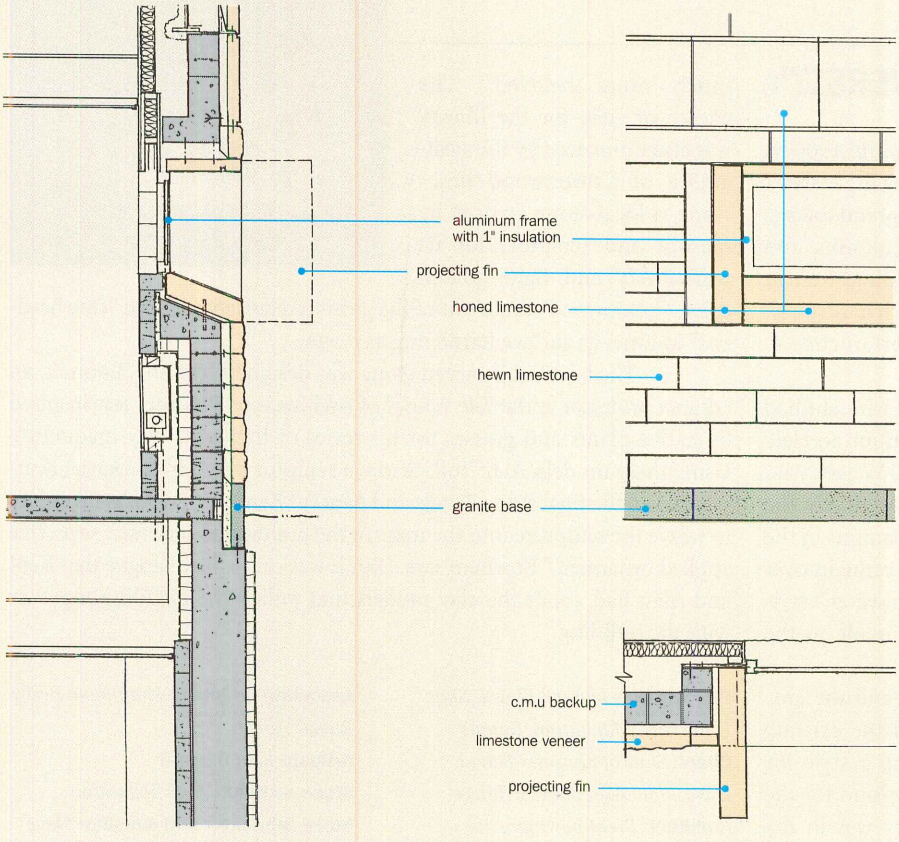
Project: *School of Industrial and Labor Relations, Cornell University, Ithaca, New York*
Architect: *Herbert Beckhard Frank Richlan & Associates*
Limestone supplier: *Indiana Limestone Co.*
Greenstone supplier: *Carl Schilling Stoneworks*
Stone installer: *Cleveland Marble Co.*



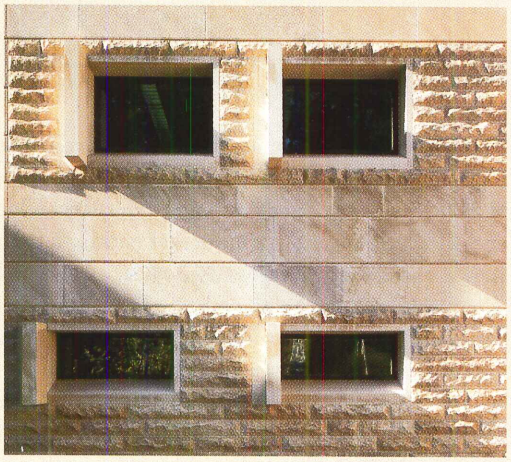
WALL SECTIONS AT AUDITORIUM VESTIBULE



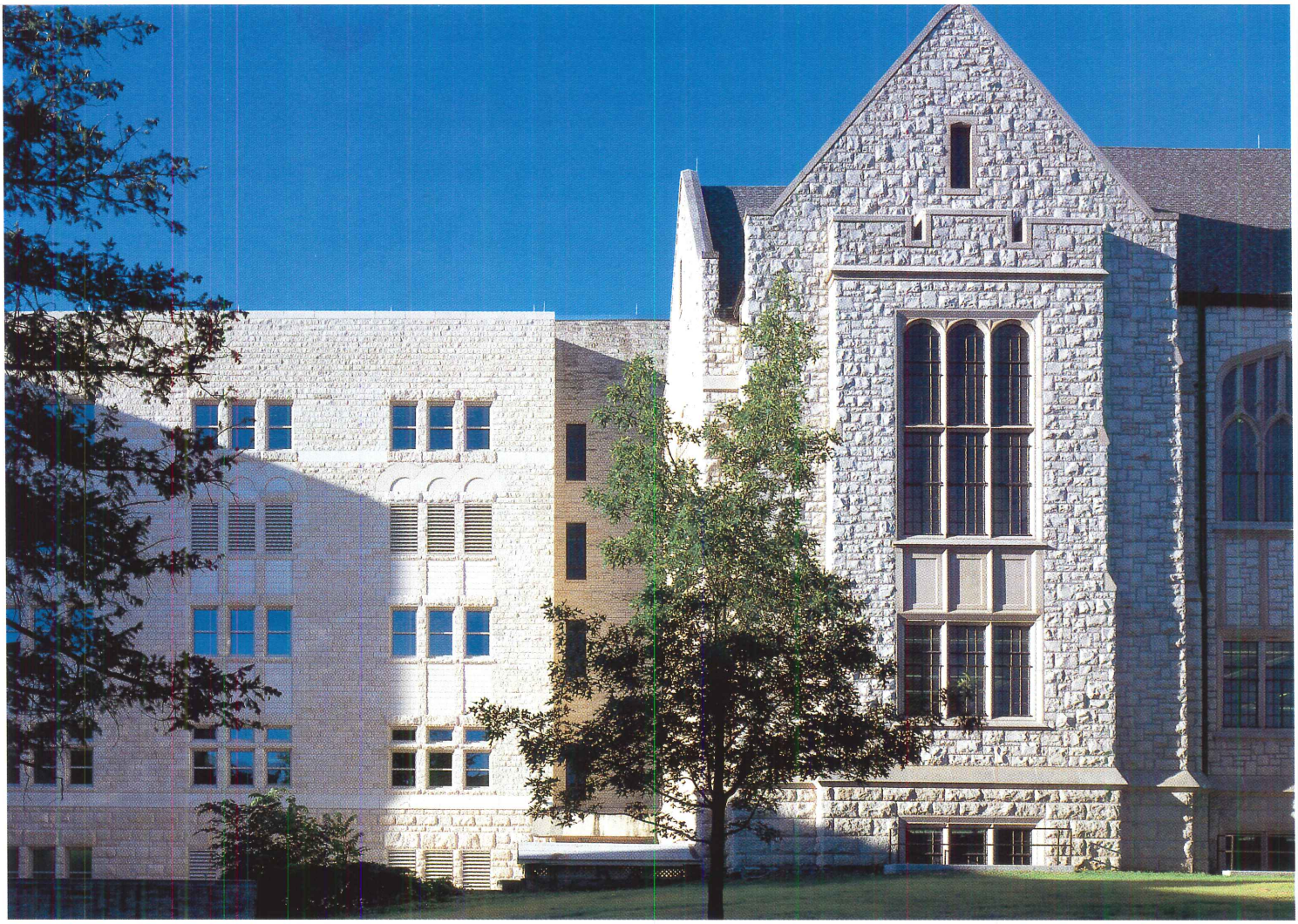
A cylindrical surround of greenstone highlights windows in the school building's vestibule. To create the cylinder's wall, the architect pinned segments of honed stone to an octagonally shaped backing of poured concrete with stainless-steel hardware.



DETAILS OF WINDOWS WITH PROJECTING FINS



Vertical projecting slabs of stone, which Beckhard calls his "Corinthian columns," are placed next to deeply inset windows to add interest to an otherwise unornamented facade. Courses of hewn stone, as well as honed blocks cut at an angle so that the natural striations run diagonal to the ground plane, add variety to what could have been a simple, flat wall.



HALE LIBRARY, KANSAS STATE UNIVERSITY

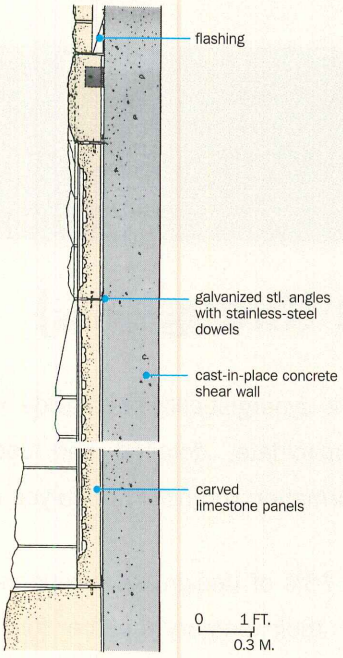
Several Kansas State University buildings were designed around 1900 by Topeka architect J. C. Holland, who was deeply influenced by the work of H. H. Richardson. These limestone university buildings had grand towers, arched windows, and monumental entries supported by columns, and were detailed with carvings based on local flora. "These buildings were in some ways quite simplified, even crude, compared with Richardson's," says architect Brent Bowman, AIA. "But that reflects the sort of conservatism you would have found on the prairie then."

Bowman and associate architect Thomas Beeby, FAIA, studied Holland's style while they were preparing to design an addition to Hale Library, a 1927 Collegiate Revival building designed by Paul Weigel, who taught at Kansas State University's school of architecture. Originally, the library—which could have stood on almost any American campus in the 1920s—was to have two wings attached by a loggia. But it came in over budget, and only one wing was built. Other additions, which weren't stylistically compatible with anything else on campus, were made to the library in 1955 and 1970.

Given the space required for the library's needs and the area available on the site, wrapping new construction around the existing additions was the only sensible way to expand. Choosing a style for the addition was not so easy. "We wanted to do something kind for the campus," Bowman says. "Even though the existing library was in the Collegiate Gothic style, the Prairie Romanesque campus buildings were much more beloved." The choice of style for the library was also influenced by the availability of Cottonwood limestone, a local stone favored by masons and sculptors for its workability and light golden color. Cottonwood comes out of the ground relatively soft, but "case hardens" in time, its surface hardening as it ages.

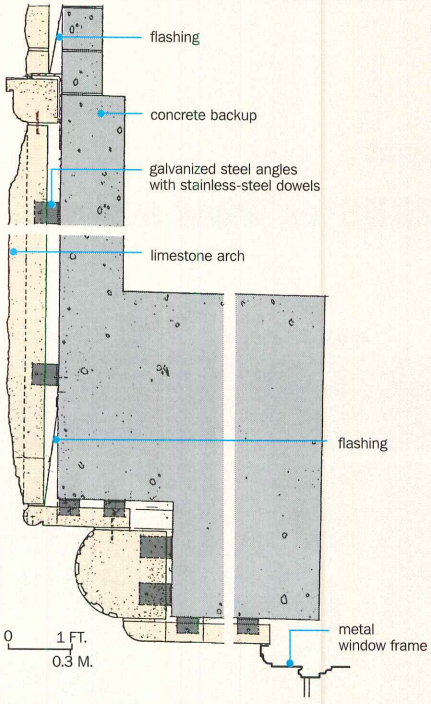
The building's carved stone was designed by Kent Bloomer, an adjunct professor at the Yale School of Architecture. Bloomer was inspired by native plants and grasses for his series of half-scale clay maquettes. Using these models, Alan Tollackson, a sculptor based in Emporia, Kansas, carved the final stone details and panels. "Kent has a wonderful ability to weave the sculpture into the mass of the building so it doesn't seem like applied ornament," Bowman says. "But it was really the dialogue that Kent and Alan had about the clay models that pulled the detailing together with the building."

Project: *Hale Library, Kansas State University, Manhattan, Kansas*
Client: *State of Kansas—David Debusman, AIA, State Architect*
Architect: *Brent Bowman and Associates, Architects*
Associate Architect: *Hammond Beeby Rupert Ainge*
Artisan: *Kent Bloomer*
Stone sculptor: *Alan Tollackson*
Stone fabricator and supplier: *Dave Born, Born Stone*

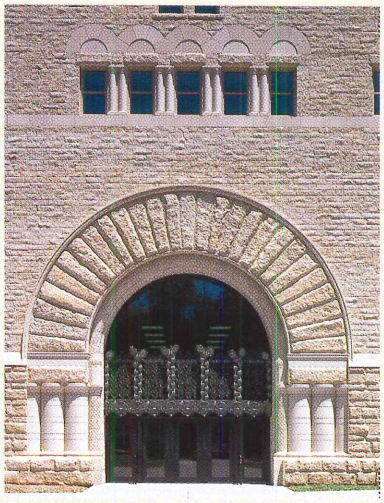


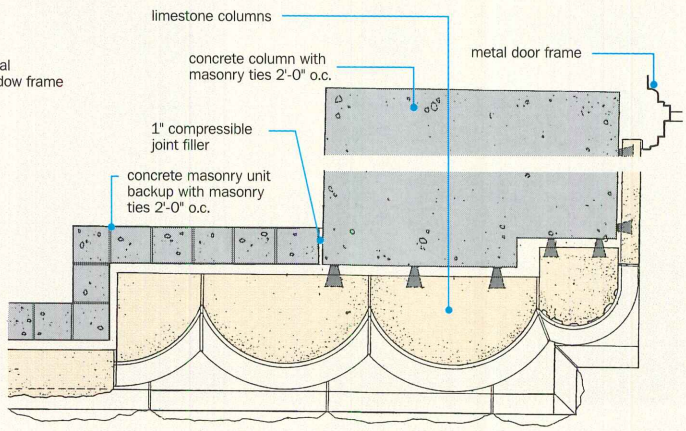
WALL SECTION AT CARVED PANELS

A stone panel, carved by sculptor Alan Tollackson, was based on Kent Bloomer's maquette of prairie plants. As the shadow line (photo left) and section (far left) indicate, the panel's lower two-thirds are set into a battered veneer wall. What appear to be blocked-up arched openings never actually contained windows: they were constructed on the building's exterior to maintain the rhythm of a series of real openings when structural loading of a wall prevented cutting a window.



SECTION THROTUGH HEAD OF MAIN ARCH





PLAN SECTION THROUGH COLUMNS AT MAIN ARCH

H. H. Richardson might have disapproved, but the massive-looking stone arches and walls of Hale Library are hand-laid stone veneer anchored to poured-in-place concrete backup walls. Kent Bloomer's maquettes were used by Alan Tollackson in hand-carving the trim for the building's stone arches. Bloomer also designed and fabricated the metal screen that spans the arch.

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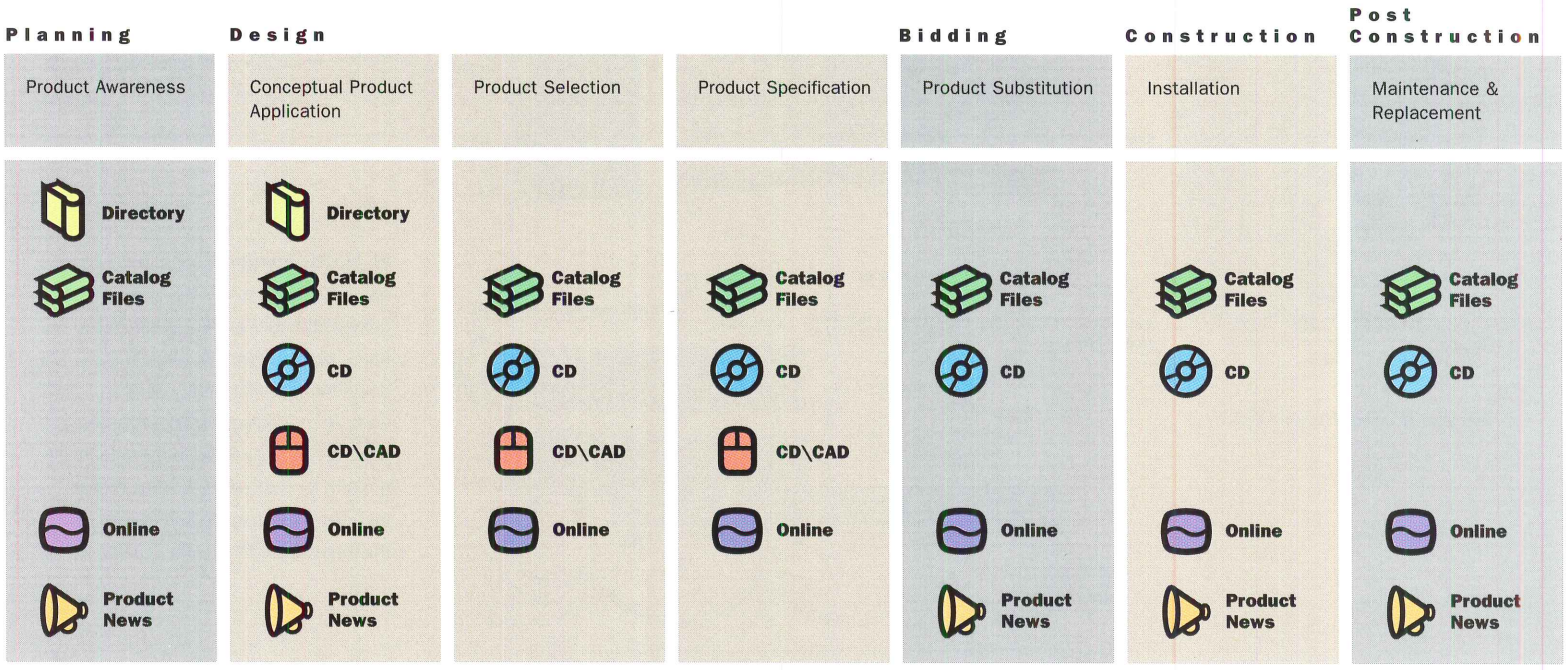

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*Source: Rose Research, 1998

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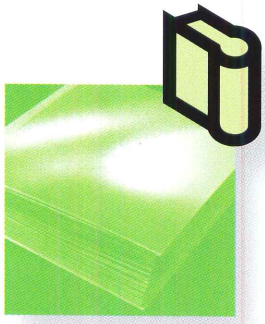

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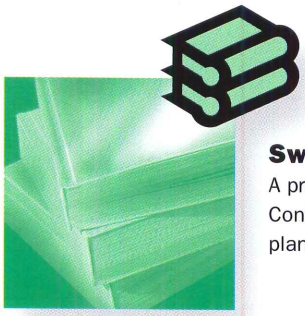

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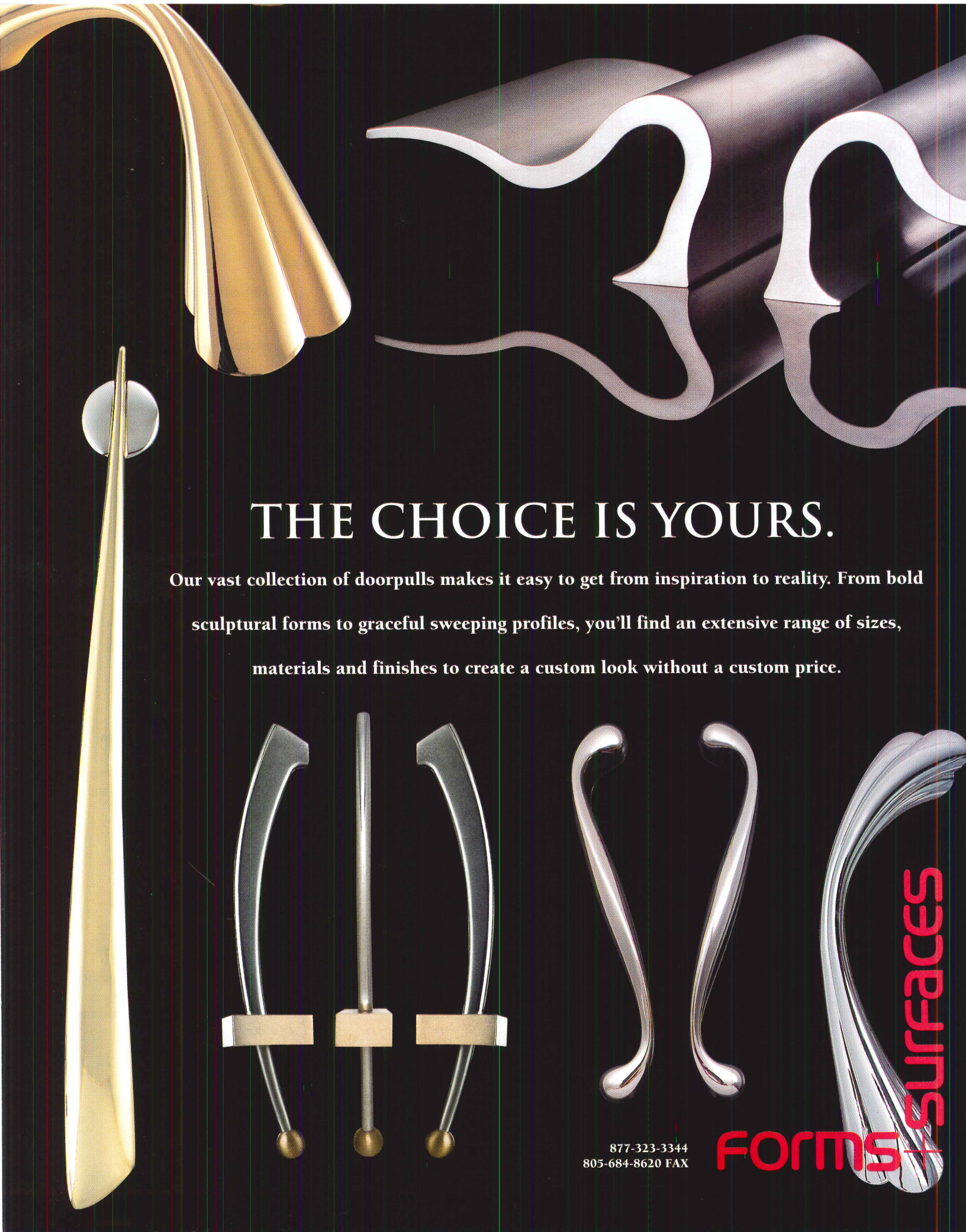
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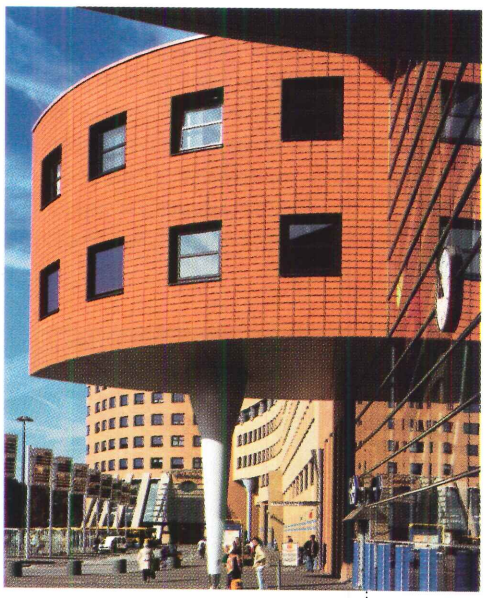
NEW PRODUCTS

From Miami to Montreal, a building's exterior cladding will be exposed to some of the most extreme conditions of any building system (with the possible exception of lockers in a high school gym after football practice). American builders and architects are becoming more interested in using ceramic tile as exterior cladding. Perhaps taking their cue from the European projects featured below, which used terra-cotta and porcelain, American designers are discovering that ceramic cladding offers frost resistance, high breaking strength, and shock resistance in addition to its more obvious aesthetic qualities. —*Rita F. Catinella, Products Editor*

WITH LIGHTWEIGHT CLAY-TILE CLADDING, NEW STATION SEEMS TO FLOAT ON AIR



Dating back to 1901, the old railway station in Amersfoort, Netherlands, was a small, inconspicuous building that was both inconvenient and outdated. It therefore came as no surprise to commuters when the center of Amersfoort was transformed not only by the construction of a new station building but also by the development of an entirely new oval-shaped plaza, surrounded by new buildings and space for cyclists, cars, buses, and taxis to approach and park.

What may have surprised commuters, though, was the design. Bold shapes projecting from the glass front announce the new station and make it the focal point of the new square. Seemingly weightless and supported only by pylons, the two-story office sections located above the shops on both sides of the central hall jut out far into the square. The railway tracks and platforms at the rear of the building are accessible via the high central hall and a passageway spanning the tracks below.

The architects, Arcadis Bouw/Infra BV, of Amersfoort, used steel, clay-tile panels, and glass as the dominant materials in the distinctive new station. All of the massive building elements are hidden behind an Argeton clay-tile facade, which conveys an impression of lightness. The arch-shaped design of the facade lining was made possible by the small size of the panels. Patented in Germany in 1984 by Möding, Argeton was introduced in the United States last September exclusively through Shildan U.S.A. Inc. Available polished, unpolished, and brushed, the tiles are fitted to aluminum or wooden support structures using fastening elements in stainless steel or aluminum. The heat insulation consists of mineral-fiber material; all materials used are nonfading and resistant to frost, corrosion, salt water, and aggressive substances.

Lightweight and replaceable

"The advantage of any dry-joint system is that if you have a problem with one brick you can move it out and install another one," says Moshe Steinmetz, president of Shildan USA. "We believe these will be the bricks of the future."

Because of its low weight per unit of area, particularly where low weight was an important prerequisite, and its high noise-absorption capacity, the Argeton system met all requirements with respect to design, construction, and structural stability. Moreover, the matte surface texture of the natural red, polished clay-tile panels—in conjunction with the light coming in from all sides—underlines the open feeling of the new station.

516/549-4592. Shildan USA Inc., Huntington, N.Y. **CIRCLE 200**

PORCELAIN AND TECHNOLOGY USED IN CLADDING NEW IMOLA HEADQUARTERS

When architect Enea Nannini needed to find a specialist in exterior cladding for the new factory headquarters for Cooperativa Ceramica d'Imola (CCDI) in Imola, Italy, he didn't have to look far. That's because Imola Engineering, the technical division of CCDI, uses computerized graphic systems to assist designers with the application of large slabs of fine porcelain stoneware.

For the building's facade, Nannini used three-by-three-foot polished porcelain slabs that were mechanically fastened to the substructure of the facade. The slabs, from Imola's Top 9200L line, make up approximately 15,000 square feet of the facade. While ceramic tile generally provides building exteriors with a fire-resistant surface that is virtually maintenance-free, porcelain's low water absorption makes it ideal for outdoor use in climates subject to frost.

"The only alternative to [porcelain] would be a good-quality granite," explains Arturo Mastelli, president of Imola Marketing & Services, Inc., a subsidiary of CCDI, "and in this case it is difficult to find granite with the warm color of porcelain."

Not only is porcelain color-fast, notes Mastelli, but it's very close to the coloration of the materials used in the buildings in the surrounding area. Also, in order to achieve the same mechanical resistance from granite slabs for the mechanical attachments used, they would need to be two inches thicker than the ½-inch-thick porcelain slabs, greatly increasing costs.

Energy-conservation issues

But aesthetics and product costs weren't the only reasons why porcelain tile was chosen for the project's exterior cladding. Systems for preventing energy waste are becoming increasingly important, particularly in Italy, and therefore buildings must be better insulated. Because insulating materials work best in the absence of humidity, they must be properly protected by an exterior facing. Cladding with porcelain tile effectively protects the insulation while also providing an attractive facade.

"In Europe, energy conservation is a major issue due to high cost and environmental concerns," says Mastelli. "With this system they are achieving an estimated 20 to 25 percent savings in oil and energy costs."

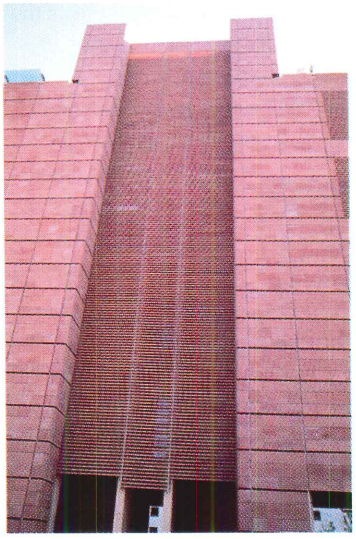
305/445-6433. Imola Marketing & Services, Coral Gables, Fla. **CIRCLE 201**

CERAMIC: TILES AND BEYOND

Featuring a hard, color-fast, and impermeable surface, ceramic offers timeless qualities that make it as appropriate for the design of new projects as for the renovation of older buildings. Easy to maintain and reliable, ceramic can be used in its traditional applications, such as floor tiles, as well in more untraditional ones, such as shading systems.

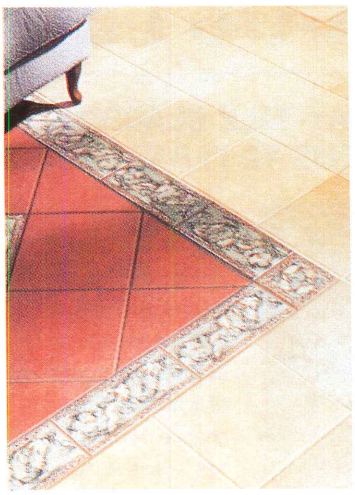
▲ Warming up cold feet

Hidden beneath the tiles, the Warm Tiles electric floor-warming system from Easy Heat uses a network of heating cable to gently warm ceramic, slate, and marble floors to the desired temperature. The system features a one-piece length of flexible warming cable evenly spaced in the mortar beneath the tiles, eliminating the need for electrical connection on the floor. 800/537-4732. Easy Heat, New Carlisle, Ind. **CIRCLE 202**



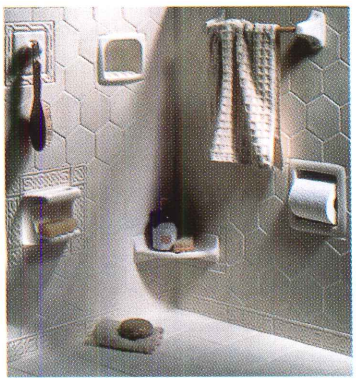
► Ceramics for work or play

American Marazzi Tile introduces two new colors, Cavaliere (almond) and Barone (beige), which round out the distressed-stone appearance of the Castello line. All colors are available in a 12-by-12-inch size complemented by six-by-six-inch and six-by-12-inch modulars. The Castello line's Class 4+ durability rating, ADA suggested .60 COF rating, hand-finished decos, and multiple trim options (including cove bases) make it appropriate for commercial or residential settings. 972/226-0110. American Marazzi Tile, Sunnyvale, Tex. **CIRCLE 205**



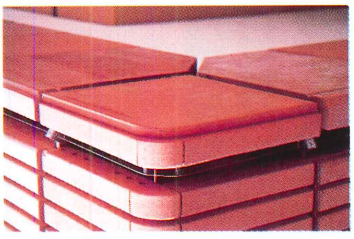
▼ Ceramic accessories

The Ann Sacks Collection of ceramic knobs, pulls, and bath accessories are now available as coordinates to the company's tile lines. Bath accessories, including a robe hook, towel bar, corner shelf, tissue holder, and two soap dishes, have been introduced in four designs and a variety of color glazes. 503/281-7751. Ann Sacks, Portland, Ore. **CIRCLE 204**



▼ Ceramic skin

The Banca Popolare di Lodi in Milan, designed by Renzo Piano, features a terra-cotta facing from Il Palagio that Piano used as a "double skin" on the surface of the building. 212/980-1500. Ceramic Tile Department, Italian Trade Commission of New York, New York City. **CIRCLE 203**

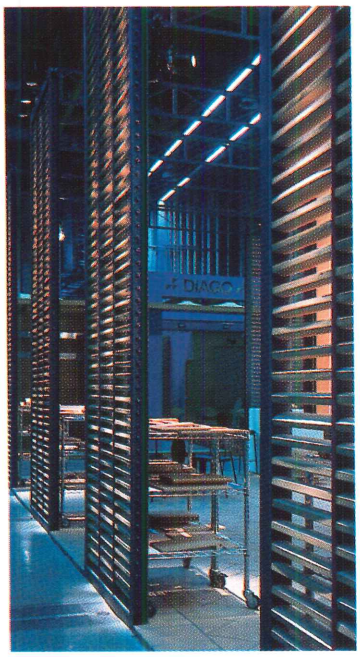


▲ Spain has it covered

Tiles from more than 100 tile manufacturers will be on display at The Pavilion of Spain at Coverings, held this month in Orlando. A large array of porcelain tiles will be shown, including products from Alcalagres and Pamesa (shown above). 305/446-4387. Trade Commission of Spain, Coral Gables, Fla. **CIRCLE 207**

▼ Shading and security

Sannini Impruneta offers terra-cotta louvers that can be used as sunshades, security protection for doors and windows, room dividers, and retail display systems. Louvers are available in two sizes, the standard 7 11/16 by 2¾ inches and 19 11/16 by ¾ inches. Rods can be connected between the terra-cotta panels for added security, and panels can be adjusted to open and close like Venetian blinds. The terra-cotta is made of clay from Sannini's own quarry in Impruneta, Italy. 212/758-2593. EX, New York City. **CIRCLE 206**



▲ Getting domestic

Monarch Ceramic Tile offers the company's first four domestically produced lines. New glaze formulations, body compositions, and application techniques have been combined to create products that feature a full complement of trim options to customize any installation. 800/BUY-TILE. Monarch Ceramic Tile, Inc., Mesquite, Tex. **CIRCLE 208**

He wanted to bring back the magic. But it was obvious he couldn't do it alone.

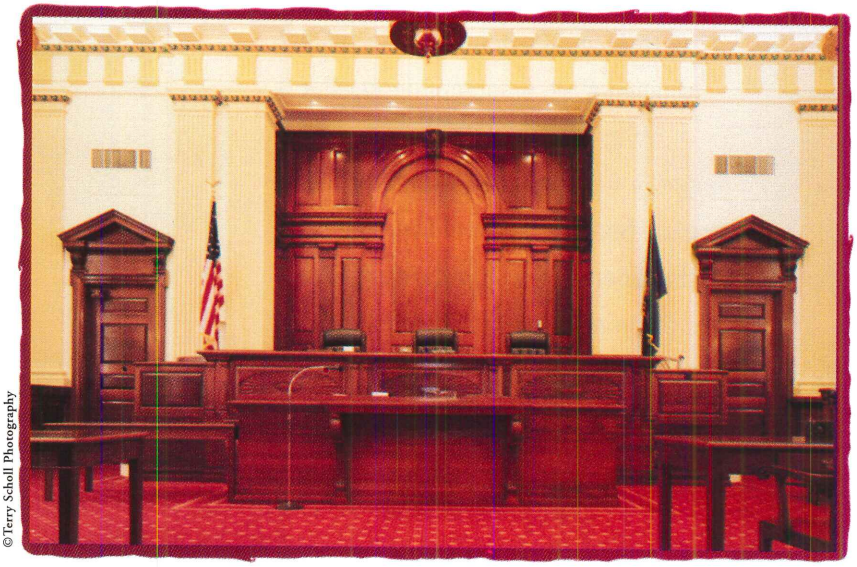
When the owners of Canada Life's executive headquarters decided to renovate their historical building, there was only one place to go: back. Occupying one of Toronto's most renowned landmarks, they wanted every aspect of their restoration to be faithful to its original 1930 Beaux Art style while incorporating the efficiencies and amenities of the 21st century. Facing such stringent guidelines, designer Cliff Atkinson called on Sherwin-Williams' historically-researched and consistently accurate paint colors to turn back the clock and re-capture the feelings this building once evoked.

Interior Design Firm - *Atkinson + Design*
Location - *Canada Life / Toronto - Ontario, Canada*
Project Paint Colors - *Sherwin-Williams ColorAnswers®: Amber Grain SW1348, Wedding White SW1913, Paper Lantern SW1360, Irish Cream SW1115*
Products - *Sherwin-Williams latex and acrylic paint*

"TAKE ME BACK," THEY PLEADED.

Too much time had passed. Yet she believed they still had something worth saving.

After 62 years, it became apparent that the historic Delaware County Courthouse needed order in its eleven period-specific courtrooms. From Georgian to Chippendale to Hepplewhite and Adams, each room represented a different style of architecture which had faded with time and consistent use. Using a scheme of six to eight paint colors per room, successful renovation called for more than 80 historic colors. Turning to Sherwin-Williams' meticulous color matching, architect Sandra Baggot was able to restore the courthouse to its original grandeur and bring justice to light.



©Terry Scholl Photography

Interior Design Firm - *Baggot & Bak, Ltd.*
Location - *Delaware County Courthouse / Media, Pa.*
Project Paint Colors - *custom colors*
Products - *ProMar® 200 latex flat and semi-gloss*

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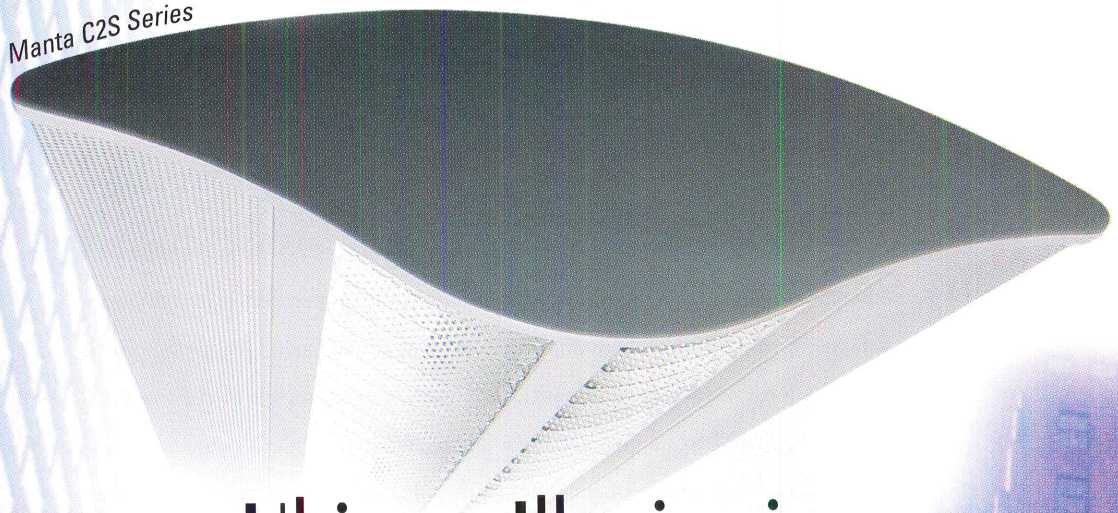

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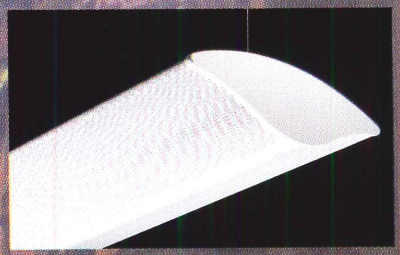

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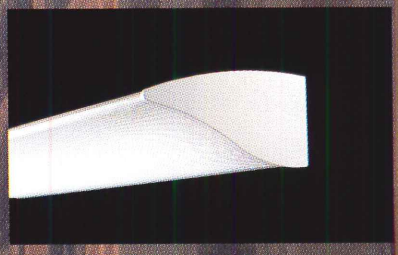

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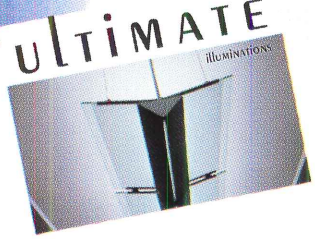

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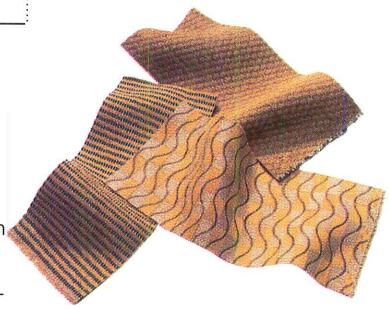


The William McDonough Collection II is the first commercial upholstery fabric to fully disclose its contents and the production process involved. The fabric's dyestuffs and process chemicals contain no substance known to be carcinogenic, mutagenic, or bioaccumulative, or to disrupt human/animal endocrine systems. The material's wool and ramie are organic, natural materials, and when its useful life as upholstery is over, the product can be composted with no negative environmental impact. The collection consists of three styles available in 45 colorways. 212/886-8141. DesignTex, New York City. **CIRCLE 209**

► Lavatory set

Manufactured of solid brass, Concinnity's new Savoy lavatory set is available in seven finishes: polished and satin brass, polished and satin chrome, polished and satin nickel, and polished 24K gold. According to the company, the Savoy set features ceramic cartridge construction for trouble-free, no-drip operation. Savoy is available with coordinating tub and shower sets and a complete line of wall-mounted accessories. 516/293-7272. I. W. Industries, Melville, N.Y. **CIRCLE 210**

▼ Sheer shading

The light-filtering quality of SheerWeave interior shading fabrics from Phifer Wire Products helps reduce the fading of furnishings while providing daytime privacy and minimizing annoying glare. The flame-resistant fabrics filter out heat, helping to conserve energy and save money in commercial and residential projects by lowering interior temperatures. 800/847-3007. Phifer Wire Products, Inc., Tuscaloosa, Ala. **CIRCLE 211**

▼ Solid surfacing for walls

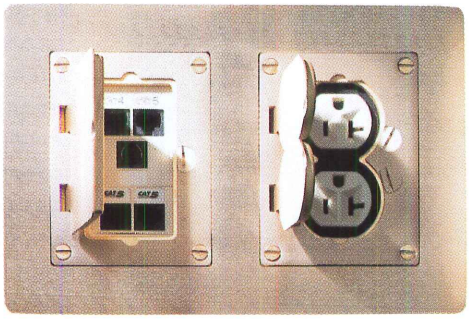
Chicago's Field Museum of Natural History remodeled 11 public restrooms, using wall panels made of Swanstone reinforced solid surfacing. Sections of ¼-inch-thick Swanstone, up to 10 feet tall, are mounted throughout the restrooms in contrasting colors. Swanstone's ease of maintenance makes it appropriate for wainscotting and elevator paneling in high-traffic applications, countertop panels, and furniture tops. 314/231-8148. The Swan Corporation, St. Louis. **CIRCLE 212**

▼ Aluminum makes the grade

After more than four years in service, the Alucobond Material selected for Chaska High School, in Chaska, Minnesota, remains a focal point for the school. Alucobond Material is an aluminum composite consisting of two sheets of .020-inch aluminum bonded to a thermaplastic core. The 4mm Alucobond Material was used for fascia, soffit, and column covers and was applied with a rout-and-return clip system. 314/878-2303. Alusuisse Composites, Inc., St. Louis. **CIRCLE 213**

► Underfloor duct system

The Walkerduct Pro Series underfloor duct system from The Wiremold Company has been redesigned to provide space for fiber loop storage within the preset and to accommodate the gradual cable bend radius recommended by cable manufacturers. The Pro Series is the only underfloor system to offer more than one meter of cable loop storage in the preset. 800/621-0049. The Wiremold Company, Bristol, Conn. **CIRCLE 214**



PRODUCTBRIEFS

▼ Good walls=good neighbors

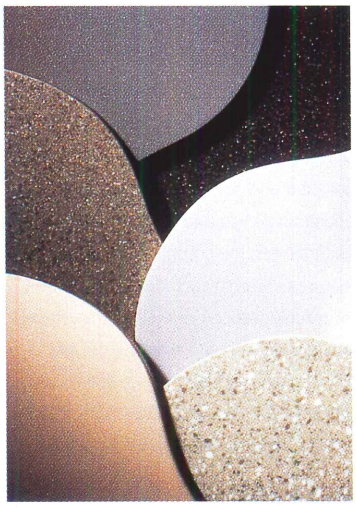
Anchor Diamond retaining wall blocks, from Anchor Wall Systems, are available in straight face and beveled three-way face styles for use in residential and commercial landscaping projects. Anchor Diamond blocks are suitable for walls up to 3½ feet high, allowing easy design of straight or curved retaining walls and terraces. 800/473-4452. Anchor Wall Systems, Minnetonka, Minn. **CIRCLE 215**

▼ Draining deck boards

Over the years, ordinary deck boards tend to cup and hold water, promoting twisting and warping. Supreme Decking boards are made by remilling flat two-by-six boards with a smooth ⅛-inch crown that naturally drains water from the surface. The decking features relief cuts on the bottom to minimize cupping and warping. 800/532-1323. Supreme Decking, Herndon, Va. **CIRCLE 217**

▲ Portable storage

Crossings Project Tubs, from Haworth, enhance associative memory by allowing users to organize their work by project or topic in the same type of storage media. A handy tote, the Crossings tub gives the added benefit of portability. 800/344-2600. Haworth, Inc., Holland, Mich. **CIRCLE 220**



▲ New solid surfacing colors

DuPont Corian's Lustra Collection of solid surfacing material features four earthy new colors. Lustra's shimmer comes from millions of mirrorlike, micro-thin flakes within the translucent acrylic polymer. In addition, two new colors have been added to the Magna and Summit color families. 800/4CORIAN. DuPont Corian, Wilmington, Del. **CIRCLE 221**

▼ Recycled vinyl flooring

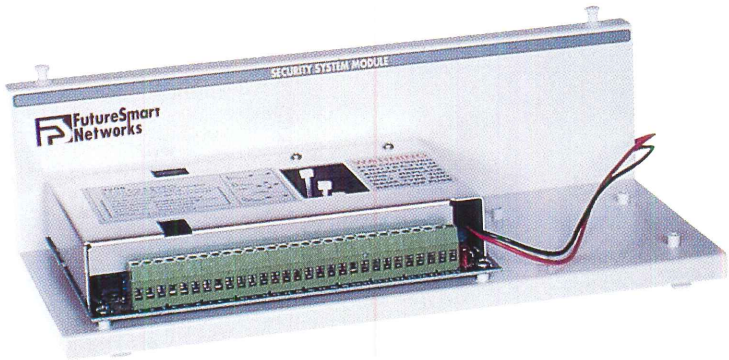
Bonar Floors introduces Polyflor Resola, a recycled vinyl flooring product that features a high vinyl content and closed surface that provides a good resistance to scratching in health-care and educational facilities. The flooring features nondirectional styling in 10 colorways and can be welded at the seams to create continuous, impervious surfaces. 800/852-8292. Polyflor, Newnan, Ga. **CIRCLE 216**

▼ New nylon fabrics

Three new fabrics from Pollack & Associates—Cutting Corners, Line Up, and Tilt-A-Whirl—are woven of BASF Zeftron 200 solution dyed nylon. Appropriate for contract installations, especially health care and hospitality, all three fabrics are offered in six coordinating colorways. 212/627-7766. Pollack & Associates, New York City. **CIRCLE 218**

► Safe and sound

IES introduces a new security system that comes with an eight-zone controller, an LCD or LED keypad, contacts, a siren, a seven-hour battery, and a motion detector. The system provides a common installation point for pulling telephone, coax, and security wires as well as providing one panel that handles all low-voltage and security needs. 801/263-1300. IES, Inc., Murray, Utah. **CIRCLE 219**



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PRODUCTBRIEFS

► Protection from above

The exterior face sheets from Skywall Translucent Systems feature the surface protection of Tedlar from DuPont. Tedlar protects Skywall products from weather damage, adds extra protection against discoloration, offers resistance to UV degradation, and resists greases, oils, acid rain, and mildew. Most airborne dirt does not adhere to the surface. 800/259-7941. Skywall Translucent Systems, Terrell, Tex. **CIRCLE 222**

◄ Smooth sailing

The 2000 Handrail, from IPC Door and Wall Protection Systems, addresses the needs of both wheelchair users and people with arthritic hands. The wide, oval-shaped 2000 Handrail provides superior graspability, a comfortable gripping surface, and forearm support. The ergonomically inspired surface of the 2000 Handrail increases mobility and independence. 800/222-5556. InPro Corporation, Muskegon, Wis. **CIRCLE 223**

▲ Colorants for faux finishes

Arabesque, a wall and furniture faux finisher in Southern Pines, North Carolina, was the first to launch a line of furniture featuring the unusual Unipearl colorants from Creanova. While in the past designers had to purchase the desired materials from an art store and mix them on their own, they now have the option of incorporating Unipearl into paint, offering an endless color spectrum. Unipearl colorants are appropriate for residential and commercial applications, including spas, hotels, restaurants, and offices. 732/560-6979. Creanova, Inc., Somerset, N.J. **CIRCLE 224**

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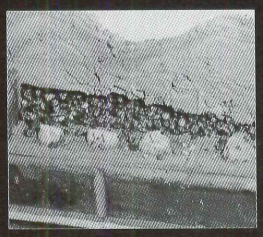

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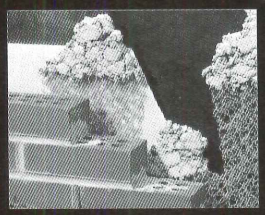

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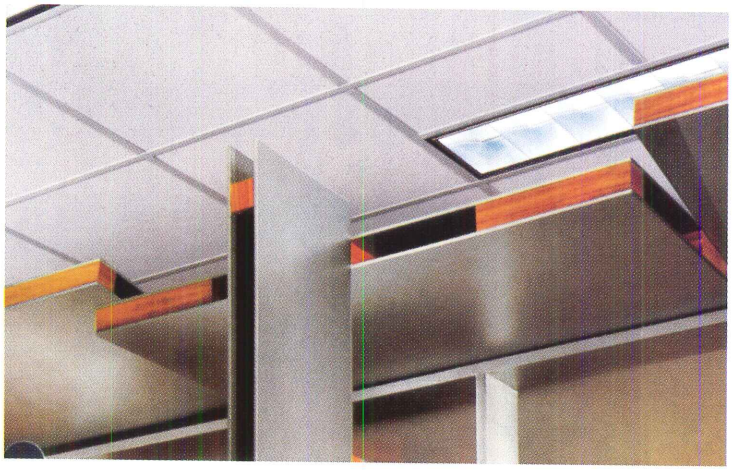
PRODUCTBRIEFS

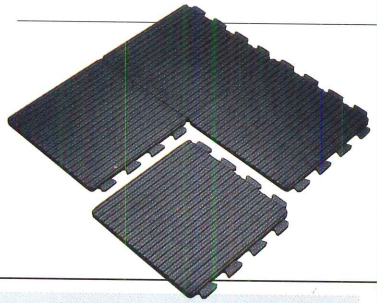
▼ Colorful bricks

Robinson Brick Company has introduced a line of paving bricks that complement the company's Designer Classics and New Traditions colors of face brick. Robinson Pavers are available in full garden size, measuring 7⅝ by 3¹³⁄₁₆ by 2¼ inches. A variety of patterns can be created with the pavers, which can also be tumbled together for a reclaimed brick look. Colors include a brilliant red, a deep red, and a deep plum. 303/783-3000. Robinson Brick Company, Denver. **CIRCLE 225**



▲ Ceiling panels

Radar ClimaPlus Ceiling Panels, from USG Interiors, feature a nondirectional pattern and nonsag technology. The panels are available in a variety of sizes and designs. A 15-year warranty is offered when the panels are used in conjunction with USG's Donn Suspension System. 800/USG-4YOU. USG Interiors Inc., Chicago. **CIRCLE 226**



◄ Interlocking floor mats

The Pawling Corporation's EM-205 Modular Hi-Rib interlocking rubber floor mats provide slip resistance and easy clean-up for a range of building entryway applications. 914/658-8393. Pawling Corp., Wassaic, N.Y. **CIRCLE 227**

▼ Modular kitchen system

Mobilo, a new furniture system from Becker Zeyko Kitchens, is available in varying heights, widths, and depths. Mobilo's cabinet boxes are crafted from solid wood with a lacquered beech-veneer finish. A variety of front panel styles can be specified. 510/865-1616. Becker Zeyko, Alameda, Calif. **CIRCLE 228**

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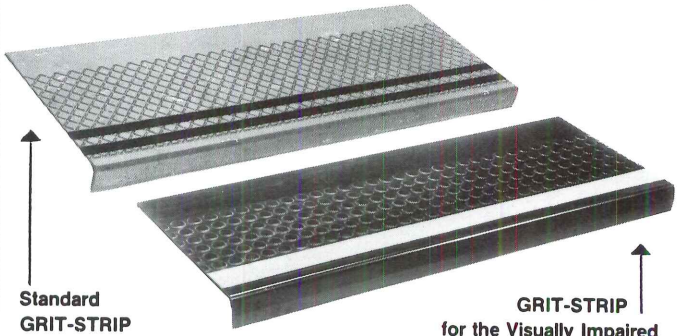

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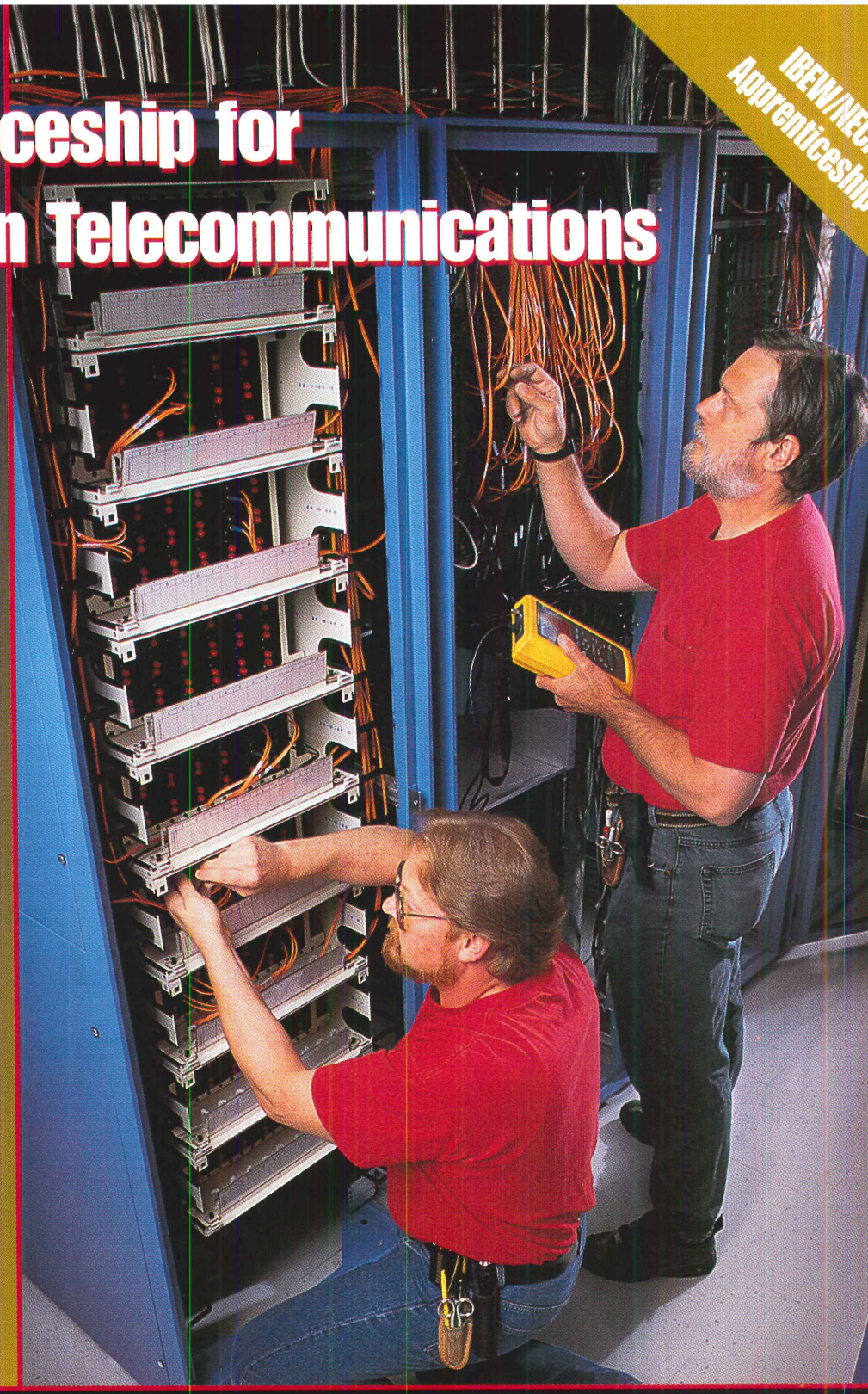

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PRODUCT LITERATURE

B.S.A. handbook

The Residential and Small Commercial Project Handbook helps home and small business owners select an architect and understand the design and construction process. 617/951-1433, x221. Boston Society of Architects, Boston. **CIRCLE 229**

Door and wall protection

IPC Door and Wall Protection Systems' new catalog features the company's complete line of products in a variety of colors and patterns. 800/222-5556. IPC Door and Wall Protection Systems, Muskegon, Wis. **CIRCLE 230**

Universal design

Leviton's Universal Design Series brochure features products that enhance accessibility, convenience, and home security for all ages and abilities. 800/323-8920. Leviton Manufacturing Co., Inc., Little Neck, N.Y. **CIRCLE 231**

Engineered wood

"How to Build a Storybook Ending into the House of Your Dreams" explains the advantages of using engineered wood systems in home construction. 503/721-2769. Willamette Industries, Inc., Portland, Ore. **CIRCLE 232**

Aluminum recycling

The newly revised Aluminum Recycling Casebook offers information on the history, markets, processes, regulations, and technical issues related to the material's recycling. 202/862-5160. The Aluminum Association, Washington, D.C. **CIRCLE 233**

Air filtration

Farr Company's fully updated products catalog provides an overview of the company's air-filtration systems and equipment. 800/333-7320. Farr Company, El Segundo, Calif. **CIRCLE 234**

Outdoor lighting

The SPJ Lighting Inc. catalog features classic solid brass outdoor lighting, including landscape lighting and custom designs. 800/469-3637. SPJ Lighting Inc., Northbridge, Calif. **CIRCLE 235**

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PRODUCT LITERATURE

Windows and doors

The 1999 Residential Product Guide for Professionals, from Andersen, focuses on technical details about the company's doors and windows for both the residential new construction and remodeling markets. 800/426-4261. The Andersen Corporation, Bayport, Minn. **CIRCLE 236**

Architectural titanium

TIMET's new brochure features representative photographs and information about the attributes of architectural titanium. 785/842-2299. TIMET, Lawrence, Kans. **CIRCLE 237**

Ceramic tile

The new 1999 United States Ceramic Tile Company catalog features a quick reference guide to industry associations, new installation photographs, and new product introductions. 330/866-5531. United States Ceramic Tile Company, East Sparta, Ohio. **CIRCLE 238**

Track lighting

Hubbell Lighting's new brochure presents designers with information and tools to produce an effective lighting layout with one- or two-circuit tracks. 800/270-3737. Hubbell Lighting, Inc., Orange, Conn. **CIRCLE 239**

Kitchen ranges

Thermador Corporation's newest catalog of kitchen ranges features recently introduced products, the existing line, and the latest specifications. 714/901-6600. Thermador Corporation, Huntington Beach, Calif. **CIRCLE 240**

Elevator directory

The Elevator World Source is the only international directory of industry manufacturers, suppliers, consultants, associations, and publications. 800/730-5093. Elevator World, Inc., Mobile, Ala. **CIRCLE 241**

Handrails and railings

Robern, Inc. offers new four-color literature for its architectural ornamental handrails and railings. 215/826-9800. Robern Inc., Bristol, Pa. **CIRCLE 242**

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JUSTICE FOR ALL *continued from page 107*

technologies were to be as unobtrusive and transparent as possible. Courtrooms, they said, must in no way resemble video arcades with paneling. James M. Rosenbaum, Minneapolis's federal district court judge, said that "any technology-driven attempt to make the courtroom look like something other than a courtroom" would be avoided by him and his colleagues.

While there are constitutional deterrents to what is otherwise technologically possible, there's no doubt that technology is a thorny design issue. "In five years, the use of video-conferencing, video-arraignment, and remote depositions will be widely accepted in the court. The use of sophisticated evidence display will be commonplace," predicts Michael A. Griebel, senior court planner for HLM, Inc., in Charlotte, North Carolina. "For architects, this will mean more stringent lighting and acoustical requirements, new concerns about sightlines and viewing, and the proliferation of electrical, telecommunication, and audio/video system requirements."

Meanwhile, technology is flooding into other portions of the court building. Case management and scheduling systems, electronic document imaging and records handling, legal research, personal productivity tools—all these are calling more attention to office and administrative support spaces that were, in the past, treated like architectural afterthoughts.

The court clerk's office, for instance, was routinely located in a readily accessible, high-traffic area for the convenience of the public. But treating that space as a high-performance, technology-intensive office environment now means that it must be appropriately wired and designed to accommodate video displays and other digital technologies. This requirement is made more complex by the fact that while the architecture may last for decades, the technology is likely to change every 18 months.

Looking ahead

The immediate future of federal courthouses lies in a long list of approved new construction projects in the pipeline. But the real action in the courts-design arena will be at the state level—fertile ground for new thinking and new work. In California, for example, a comprehensive assessment of the inventory of buildings, all 397 of them, that comprise the physical infrastructure of the state courts system is under way. The results will determine what to rehabilitate, upgrade, or replace altogether.

Architects are still in the early stages of learning how emerging technologies integrated within traditional floor plans will affect staffing and space needs. This spring, the USAOC is expected to issue a court technology manual, which will address courtroom technology issues more completely.

The future also holds new design questions. For example, how will the mounting volume and complexity of caseloads affect courts design? And what of the trend toward integrated justice systems, such as the La Crosse County Law Enforcement Center, where police, emergency, and correctional functions are consolidated within the same building? Courts designers can anticipate more intensely collaborative work with allied professionals, especially the engineering community and specialty consultants, as well as with justice system professionals. The familiar issues of "solemnity," "dignity," and "civic presence" will endure, but they will require a synthesis of expertise. ■

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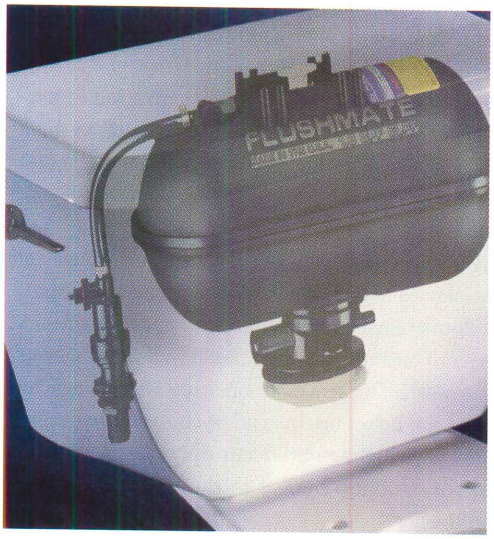
A Tale of Two Water Closet Technologies



by Joseph M. Smaul, P.E.

It was while working as the head of plumbing engineering and overseeing the HVAC for hotels on the East Coast that I became involved with pressurized water closets. We just finished a 600-room facility and we were preparing to go to work on the next 400-room project, when a letter crossed my desk from the major fixture manufacturer for the new project. This fixture manufacturer — who was different from the one we used on the 600-room hotel — suggested that we do not use gravity-flushing closets in the hotel we were engineering. Instead, the manufacturer recommended his line of pressure-assist water closets for a variety of reasons.

The question immediately arose in my mind: why? If pressure-assist is the standard for hotels, why didn't the other manufacturer for the 600-room hotel recommend it?

I was assigned the task by the principals of my company to find out what this was all about, so I called the head of maintenance engineering at the 600-room hotel where we had specified and had 1.6 gravity-flush water closets installed. I asked him how these gravity units were working out.

I still recall how matter-of-fact he was when he calmly said, "I'm really glad you called. We get about 75 to 100 calls a week to unclog these toilets. It has become pretty routine now. I think ever since they limited the water usage to 1.6 gallons per flush, that's when the problems started. We leave plungers right in the rooms now, so we don't have to be carrying them down the halls in front of the guests. I guess there isn't much we can do about it!"

I was looking at the other manufacturer's letter that recommended pressure toilets on my new project as I listened to his comments. He continued, saying, "We are experiencing tremendous guest dissatisfaction over this clogging, double flushing, and poor performance. But say, I've heard of something that might be worth investigating as long as I have you on the phone. I think they call it pressure toilets. Can you find out if there's anything to this? I've called the fixture manufacturer, too, and they said they are looking into the situation for us. There might not be anything we can do except live with it."

I said I would see what I could do, and hung up the phone. I then called the original manufacturer we used at the 600-room hotel. It turned out that he was already well aware of the clogging problems at the hotel...that he was in the process of re-engineering his fixture, and that he would step up and resolve the situation for the maintenance engineer's and my own satisfaction.

I decided I needed more information before I made our final recommendation between gravity and pressure-assist, so I researched further by calling maintenance engineers around Las Vegas hotels. I found out that they were either installing pressure-assist, or replacing gravity with pressure-assist. One of the casinos actually took out ALL of their gravity toilets and replaced them with pressure-assist! Since they started using pressure, they were able to reduce their service factor on toilets to zero.

I asked around some more, and I heard from people who bought new homes that were disgusted with the 1.6 gravity because of flushing two or three times. Then I remembered that my own relative had a closet off the den with 1.6 gravity that even the kids were not allowed to use because of performance problems. They actually have to go upstairs to the second level toilets.

Well, all of this made our decision easy, and we recommended pressure-assist toilets.

But I also came upon something from my study that was truly amazing: it didn't matter which fixture manufacturer was specified for pressure-assist toilets. All the manufacturers were using the same pressure-assist technology in their pressure-assist fixtures. That technology? Sloan's *FLUSHMATE*® pressure-assist operating system.

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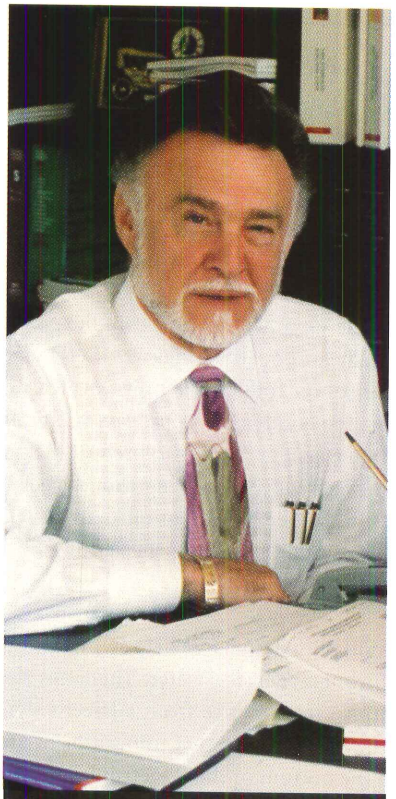
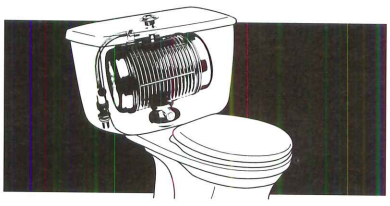


About Joseph Smaul, P.E.

With 44 years of experience, including the first 13 as a pipefitter, Joe Smaul has done it all — from running his own mechanical design contracting company for 16 years to doing consulting engineering for some of the most well-known engineering firms. He has patented energy conservation systems in office systems, and is a member of and frequent speaker at major trade associations in the United States. He is currently doing engineering work at Marvin Waxmam Consulting Engineers in Glenside, PA. To contact, or for more information on Sloan FLUSHMATE, call: 1-800-875-9116.



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ANSWERS

Questions appear on page 138. To receive CES credits, fill in the education reporting form below or at our Web site (www.archrecord.com).

1. At the Goodwill Games complex, a high-efficiency system designed especially for pool buildings was used to reduce humidity. Water in the air condenses on coils inside units located near the ceiling. Heat recovered during the condensation process is circulated to the basement and run through a heat exchanger to preheat the pool water. In addition, condensation was reduced by using round steel sections for building elements. These allow better ventilation than the flat surfaces of steel angles and I sections and discourage the settling of dust, which attracts and holds moisture.

2. Good pool design can help swimmers achieve more speed by decreasing turbulence in the water. The lanes should be as wide as possible to minimize interference from adjacent swimmers' waves. A pool should also be relatively deep, a minimum of two meters, to keep turbulence from the bottom of the pool from slowing swimmers down. In addition, the design should allow for water to be injected from the bottom of the pool and dispersed equally in all directions to prevent excessive wave action. Gutters should be designed so that water will not splash back into the pool and slow the swimmers, especially those who are in the end lanes. Gutters that are deep enough to accommodate the volume of water displaced when racers dive into the pool will also help decrease turbulence.

3. Pools can be made with braced, heavy steel walls installed around the perimeter of a concrete floor slab; with formed-in-place concrete; or with gunite. The latter material—which consists of concrete sprayed at high pressure directly onto the earth over a reinforcing steel cage—requires little formwork. In the Goodwill Games building, gunite was economical because the soil on the site had a high concentration of naturally compacted sand. This condition allowed the contractor to dig a cavity for the pool and the accompanying utility trenches with great accuracy and to spray the concrete directly onto the earthen walls.

4. To allow more seating capacity for competitions and other special events, the building was designed to be opened up for the installation of temporary seating. Glass doors between the concrete support buttresses slide to one side, and a series of custom-designed metal wall panels above the doors can be pivoted upward. This leaves an opening 30 feet wide by 19 feet high where bleachers can be set up. Instead of choosing to design the complex for full capacity—which would occur only occasionally—the architect invested the construction budget in the most up-to-date swimming and diving facilities.

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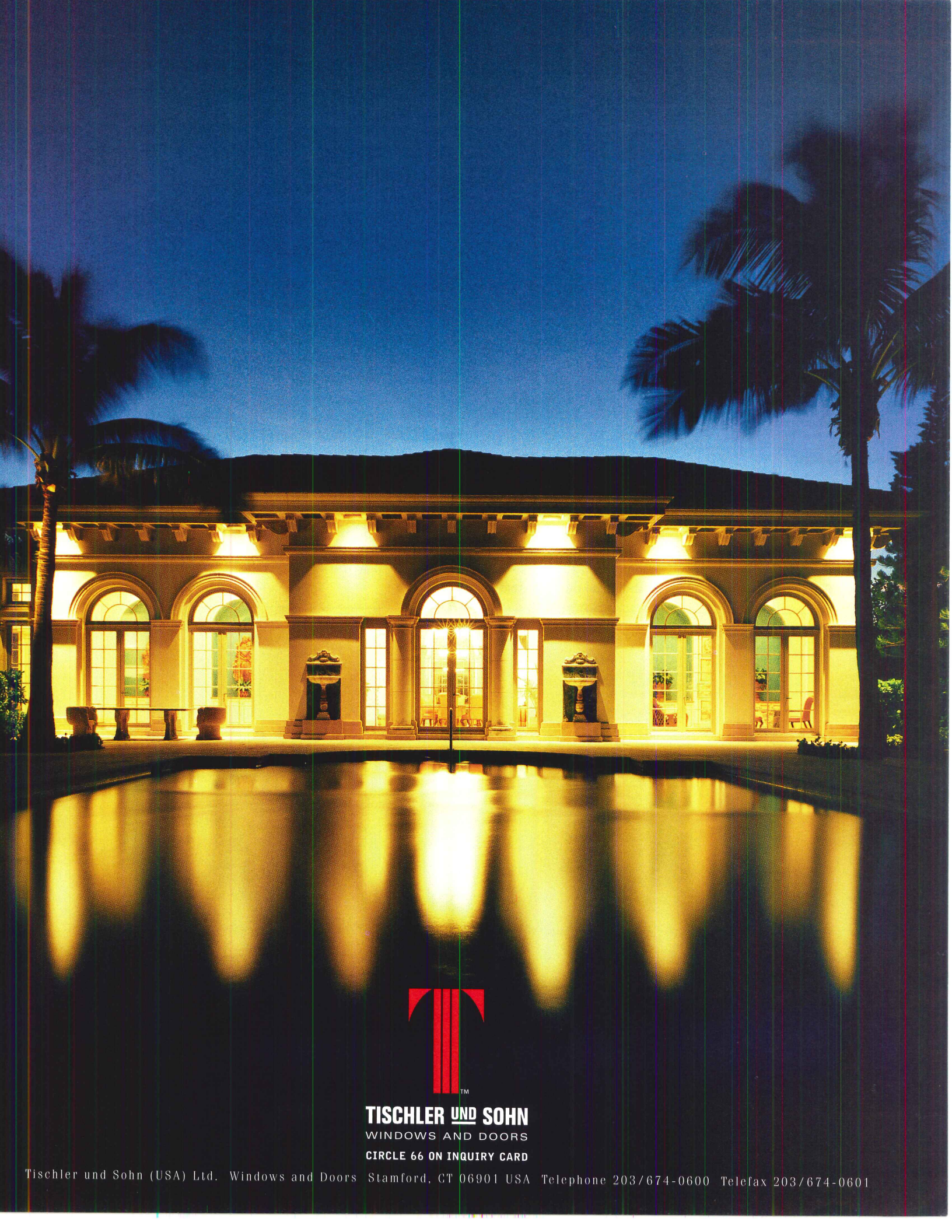

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TIME FOR THE MILLENNIUM *continued from page 77*

The MITRE Corporation, a nonprofit firm that does research and development for several federal agencies, has outlined an extensive plan for developing alternative strategies in case of system failures. Some of these contingencies include having good old-fashioned paper copies of key data on hand and making manual methods of accounting, drawing, and record-keeping available.

Stocking up on noncomputer necessities is also prudent. Ritger is advising his firm to order ordinary office supplies, business accessories, and even new furniture well before December 1999. "I don't want to count on some vendor's computer-based inventory system to be Y2K-compliant," he says.

FIRMS THAT HAVEN'T STARTED TO PREPARE FOR Y2K SHOULD MOVE IMMEDIATELY INTO TRIAGE MODE AND DEVELOP A CONTINGENCY PLAN FOR FAILURES, SUCH AS SYSTEM CRASHES AND BAD DATA.

How to prepare

The DPIC Companies, a trade group of professional liability insurance companies based in Monterey, California, offers a checklist of preparation steps. But first, architects must recognize that the Y2K bug should not be construed as a technical problem to be handled by low-level staff. It is a management problem capable of affecting the entire business and, therefore, requires commitment, attention, and funding from the top. Once that is understood, the architect should do the following:

Assess internal risk. Both hardware and software systems must be evaluated. Even late-model PCs may have a problem, though Macintoshes will not because their internal clocks treat years as four-digit numbers. Any system that computes dates, such as database and financial systems, will be vulnerable. Particular attention should be paid to custom-designed software and home-grown spreadsheets.

Assess external risk. Will everyone with whom the firm exchanges data, including clients, consultants, business partners, and public agencies, be Y2K-ready? Organize a plan for remediation. This extra work may lower firm productivity for months or even years.

Implement the plan. Most hardware and software vendors are developing upgrades or patches that can be installed now. Nonetheless, firms should test, upgrade, and retest all their hardware, operating systems, network systems, and application software. Document the testing processes so that you will be able to demonstrate diligence if called upon to do so.

Discuss the problem with business partners. Explain the firm's strategy toward Y2K compliance and inquire about theirs.

Incorporate Y2K into client agreements. Consult with legal counsel regarding statements to the client limiting the firm's Y2K-related liability. ■

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The editors of ARCHITECTURAL RECORD *announce the 30th 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 $50 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 8½-by-11-inch folder—and be postmarked no later than April 30, 1999. Winning entries will be featured in the 1999* 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.*

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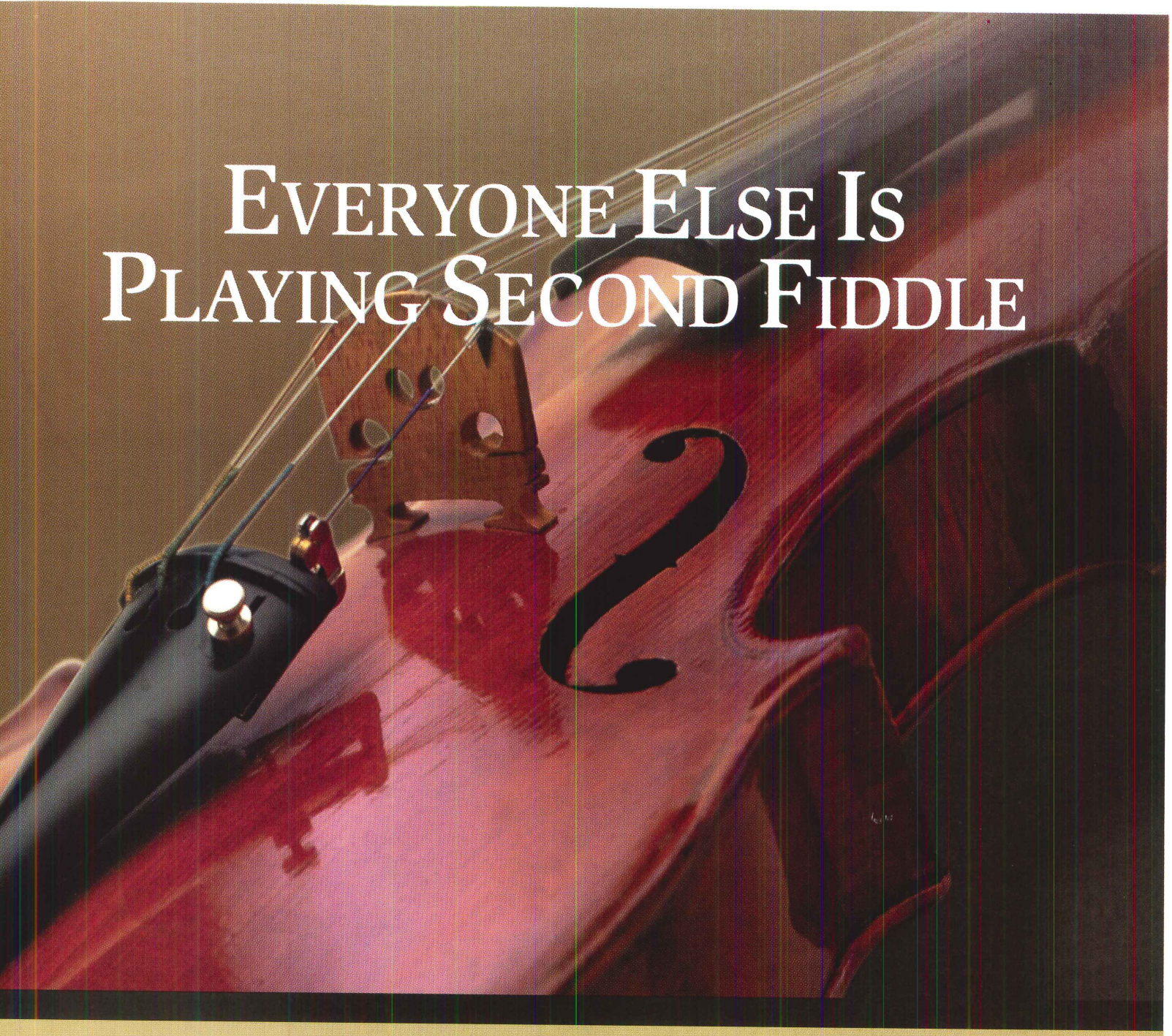

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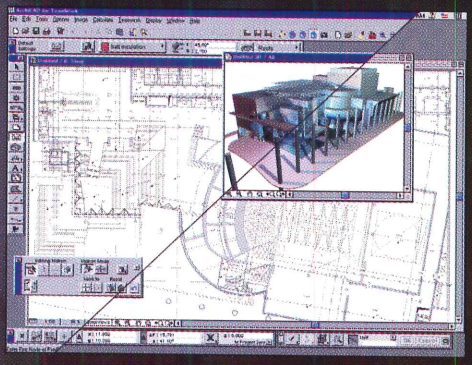

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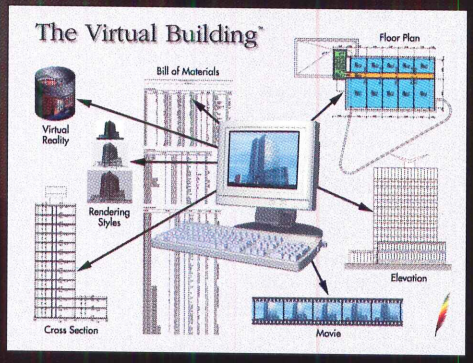

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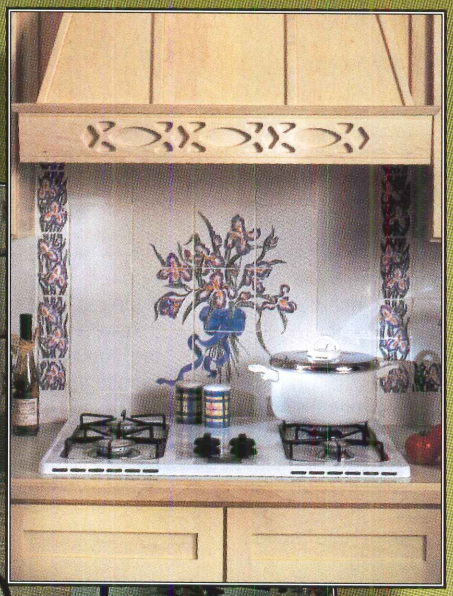

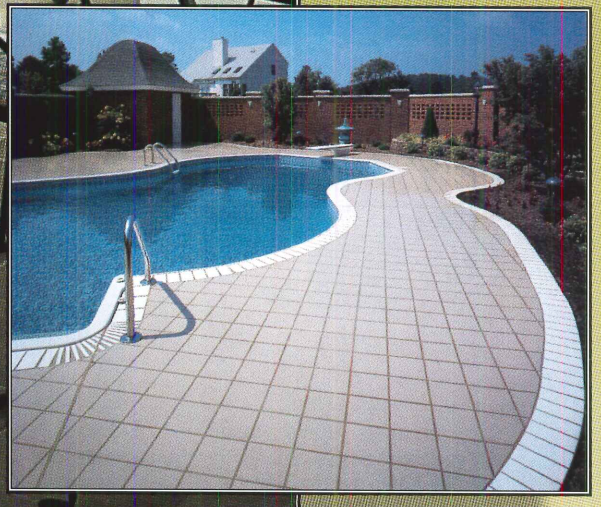

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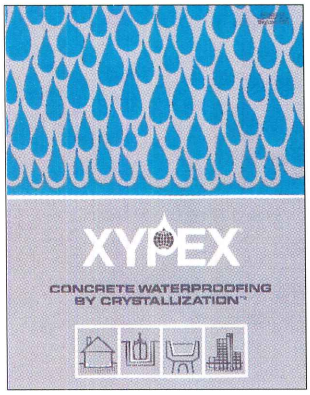
Total Door® is a fire rated door assembly that includes all hardware. Pairs do not require coordinators, vertical rods, astragals, flush bolts, or floor strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics. For more information call 1-800-852-6660.

Openings®

CIRCLE 150 ON INQUIRY CARD

Concrete Waterproofing by Crystallization

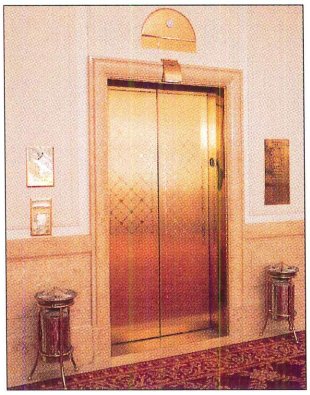


Applied as a slurry coating Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that "plugs" the pores of the structure preventing water seepage. Xypex is ideal for use on the "inside" of wet underground structures.

Xypex Chemical Co.

CIRCLE 151 ON INQUIRY CARD

Custom Metal Graphics



These bronze elevator door facings were manufactured by Surface Design + Technology. Through the innovative use of metal finishes, there is virtually no limit to the types of patterns that can be created by combining multi-dir. satin brushing, electroplating of gold, copper or nickel. For more information call tel: 877-626-2591 or fax: 305-856-1287. To help you specify and design with decorated metal visit us at www.sdtmarketing.com.

Surface Design

CIRCLE 152 ON INQUIRY CARD

Accessible Lavatory Insulation

A full color catalog will explain the different Handy-Shield safety covers offered for the new or retrofit projects that need to comply with the American Disabilities Act. The specific use, sample specifications, drawings and color choice are all summarized in this easy to understand catalog. (800) 475-8629.

Plumberex

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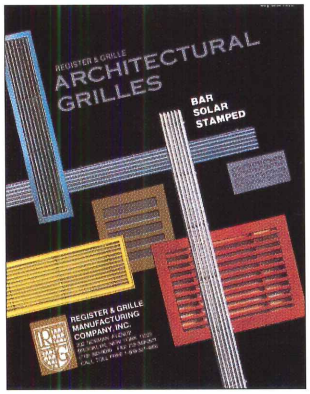
New Fireplace Tested as a Wall Furnace

Our products have taken direct-vent technology & incorporated it into a new high performance fireplace. Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) & has an AFUE (Annual Fuel Utilization Efficiency) rating of 63%. The 6000 Supreme is standard with a variable regulator to adjust the flame & BTU input with the turn of a dial. Heat-N-Glo, 6665 West Hwy 13, Savage, MN 55378, 1-800-669-HEAT.

Heat-N-Glo

CIRCLE 154 ON INQUIRY CARD

Decorative Grilles

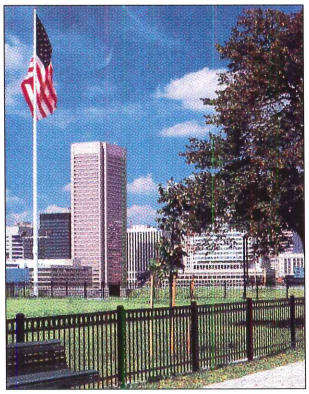


Unusual visual effects emerge when our grilles are designed for area effects. Versatility is the theme. R&G offers architects and interior designers many ways to express the changing forms of metal with the integrity of R&G's architectural grilles. Custom or standard finishes are available plus any grille can be made in matching color to blend with your deco. 202 Norman Ave., Bklyn, NY 11222. 800-521-4895, Fax: 718-349-2611.

Register & Grille Mfg., Co

CIRCLE 155 ON INQUIRY CARD

Ornamental Picket Fence with a Purpose

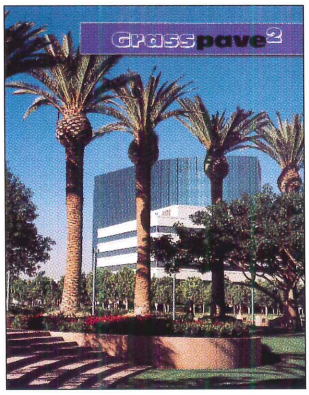


We have given special attention to each & every component of our fence. Every item is designed for strength, durability and low maintenance. No other company builds a complete fence - rail, rivets, brackets, pickets and posts, that are stronger, more durable, have more security or lower maintenance costs than our fences. Monumental Iron Works, 6500 Eastern Ave., Baltimore, MD 21224. Tel: (410) 633-6500, Fax: (800) 239-2963.

Monumental Iron Works

CIRCLE 156 ON INQUIRY CARD

New 20-Page Grasspave² Brochure



"We want the rolls" contractors say! Grasspave² by Invisible Structures, 9 large rolls, 108 sf - 1346 sf ea (10 m^2 - 125 m^2) for fast, easy installation of reinforced grass firelanes and parking areas. 16 years of experience, repeat customers make Grasspave² a dependable, smart choice. Call 800-233-1510 for CD-Rom disks with over 60 details or visit our photo-filled web at www.invisiblestructures.com.

Invisible Structures, Inc.

CIRCLE 157 ON INQUIRY CARD

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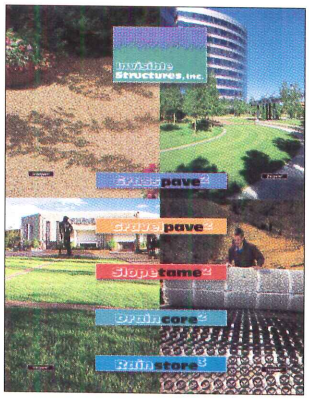
New Invisible Products Roll Out



3 new invisible products have been added to the family of Grasspave2 & Gravelpave2 - Slopetame2, Draincore2, & Rainstore3. For 16 years we have provided grass paving ring structures with 92% void area for root development. Now we're applying this technology to erosion control, drainage, & water storage with easy installation in 9 roll sizes. Call our knowledgeable staff for CADD details, specs, & product specs at (800) 233-1510. Web Site: http//:wwwinvisiblestructures.com

Invisible Structures, Inc.

CIRCLE 158 ON INQUIRY CARD

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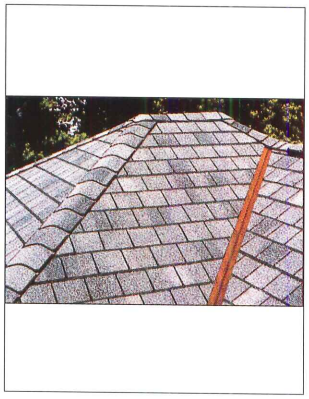
Superbly crafted mosaics of Murano glass, polished or tumbled marble are available from Sicis Italy. They will also manufacture your exclusive designs. Suitable for hotel lobbies, spas, decorative murals or as wall veneer. Mosaics are premounted for simple installation. For information and free catalogs Call (212) 829-8341 or Fax: (212) 829-8326.

SICIS USA, Inc.

CIRCLE 159 ON INQUIRY CARD

Hatteras®



An oversized 18" x 36" fiber glass asphalt shingle designed to withstand hurricane force winds. Features a dramatic eight-inch exposure; deep one-inch shadow lines; seven colors; and a 40-year limited warranty, including 10-year warranty coverage against winds up to 110 miles per hour, the highest of any fiber glass asphalt shingle on the market today. UL certified to meet ASTM D3462 performance standards; Miami-Dade approved; algae resistant.

CertainTeed Corporation

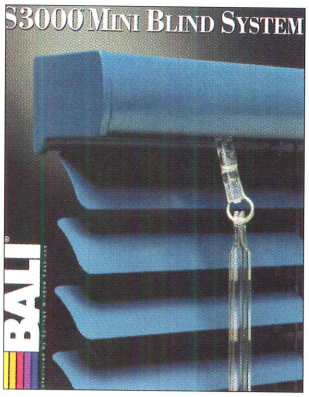
CIRCLE 160 ON INQUIRY CARD

NANZ®

The No 2006 is a Bauhaus handle based on a Walter Gropius design. Nanz manufactures this and a wide range of other levers, knobs, locks, hinges and cabinetry hardware. Fax a request for our free Product Selection Guide or our $20 catalogue featuring this and over seventy other handles. phone 212 367 7000, fax 212 367 7375

Nanz Custom Hardware Inc

Commercial Window Treatments



Springs Window Fashions provides the best value in commercial mini blinds with their Bali S3000. Premium features include curved headrail face, rear light blocking lip, aluminum slats with anti-static paint finish, hidden brackets, clutch tilter, all at standard cost. Privacy slat option provides enhanced light control with hidden cord holes. Springs also manufacturers Graber and Nanik brand products. Call SpecFax for information at 800-327-9798. See us at CSI in LA booth 805.

Springs Window Fashions

CIRCLE 161 ON INQUIRY CARD

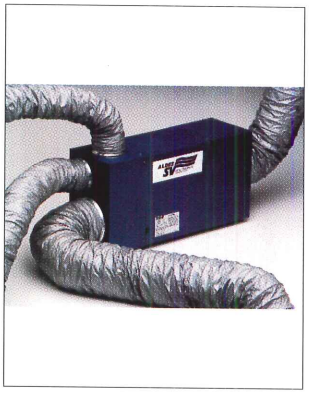
Reclaimed. Remilled. Remarkable.

Vintage Lumber has been manufacturing exceptional antique wood flooring since 1973. Available in 16 species and grades, solid and engineered, for residential or commercial construction. Our extensive selection and consistent quality and service is unequaled in the industry. For more information call 800-499-7859 or email woodfloors@vintagelumber.com PO Box 104, Woodsboro, MD 21798 www.vintagelumber.com.

Vintage Lumber

CIRCLE 162 ON INQUIRY CARD

American ALDES



Finally a versatile fan that addresses today's larger bathrooms - ALDES'SV160 Bathroom Suite Exhaust fan vents three areas; two at 40 cfm & one at 80 cfm. Quiet enough to be installed within living space. Std. Pkg. includes sleeves with backdraft dampers & adjustable grilles. Unique manifold ends rotate for various orientations. Powerful & durable external rotor motor. 1-800-255-7749 http://www.americanaldes.com

American ALDES

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New Granite

Announcing the reopening of our Snow White quarry. The granite from this quarry is promoted commercially as Arctic White, & is uniform in color & absent of any black knots. GRANICOR is also excited about the potential for Acajou Red & Peribonka Black (Canadian Black). GRANICOR also offers greens, pinks, browns & mahogany granites. Samples available. Also available for architectural firms are Sample Books, Architectural Handbooks, & assistance with Budgeting & Details.

GRANICOR

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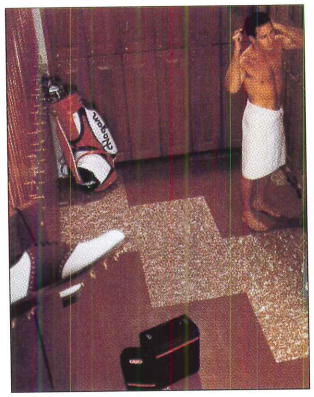
Long-Lasting Solutions



Tuflex rubber flooring is available in 23 colors, is easy to maintain, and exceeds OSHA and ADA standards for excellent traction. Tuflex flooring is excellent for weight rooms, locker rooms, hockey/ice arenas and golf pro shops. For color samples and brochures, call 1-800-543-0390. e-mail: tuflex1@gte.net. Website: www.tuflex.com.

Tuflex Rubber Flooring

CIRCLE 165 ON INQUIRY CARD

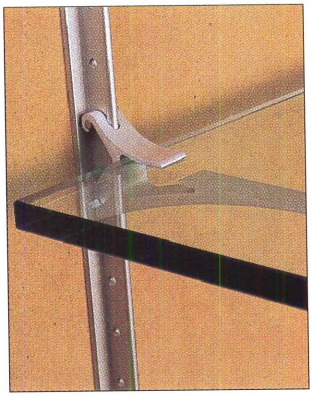
FireGlaze™ for Larger Vision Lites

Pemko Mfg. Co. introduces FireGlaze™ (FG3000), a specially formulated high performance glazing compound. This revolutionary product allows for the use of much larger vision lites, side lites, borrowed lites, and glass transoms in 20, 45 and 90 minute doors and screens. The "wall of glass" pictured here passed a 45 minute fire test! Expand your vision.

Pemko

CIRCLE 166 ON INQUIRY CARD

Parallel Design Partnership Limited



"ellen's brackets", an anodized-aluminum shelving system designed by M Ali Tayar, provides an elegant alternative to existing bracket-and-track systems. Cantilevered brackets come in two sizes, for shelves 3/4 or 3/8-in. thick and 10-in. deep. Wall-mounted tracks permit 1 1/2-in. adjustment of wood, glass or plexiglass shelves. For more info phone Parallel Design Tel: 212/989-4959 Fax: 212/989-4977.

Parallel Design

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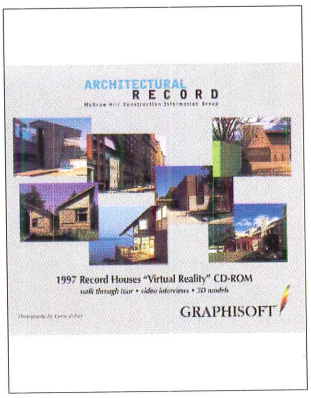
Keystone Ridge Designs, Inc. is the architect's choice for premier site amenities. Offering a full line of steel furnishings, we pride ourselves on exclusive designs and our patented powder coat finish, KEYSHIELD™, that is unparalleled in the industry. Quality, craftsmanship, and dedication to your creative vision are the hallmarks of Keystone Ridge Designs. For more information please call 1.800.284.8208 or e-mail KeystonRdg@aol.com. www.keystoneridgedesigns.com

Keystone Ridge Designs

CIRCLE 168 ON INQUIRY CARD

Record Houses "Virtual Reality" CD-ROM

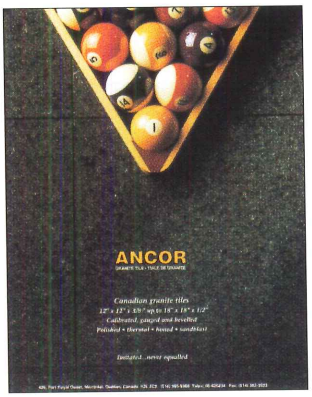


A room-by-room tour, with architects discussing their creative and product decisions. Click and zoom and move around objects via QuickTime©VR. Architectural Record worked closely with Graphisoft©, using ArchiCad©, to produce an interactive CD-ROM house tour that includes photos and excerpts from the articles from the April '97 issue. For Windows and Mac. $24.95. Record Houses CD-ROM, Two Penn Plaza, NY, NY 10121-2298.

Record Houses

CIRCLE 169 ON INQUIRY CARD

Ancor Granite Tile



Ancor produces over fifty No. American and Imported granites in a full range of colors and finishes for residential, commercial and institutional use. Standard format is 12 x 12 x 3/8"; other sizes up to 18 x 18 x 1/2" available. Honed finish tile is particularly suitable for high traffic commercial areas, 435 Port Royal West, Montreal, Quebec, H3L2C3, Canada. Ph# (514) 385-9366, Fax# (514) 382-3533.

Ancor Granite

CIRCLE 170 ON INQUIRY CARD

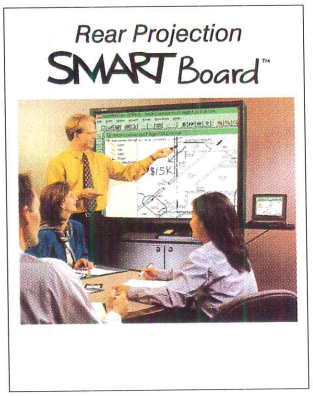
Decorative, Thin-Film Intumescent Fireproofing

Improved spray characteristics and ratings up to 3 hours! A/D FIREFILM®II permits designers to use the appearance of exposed steel with the steel protected from fire. The product is applied as a thin-film coating 0.4 to 3.3 mm (16 to 130 mils) thick. When exposed to fire it expands to form a meringue-like insulating layer up to 4 in. thick. A/D COLORCOAT topcoat is available in a wide range of colours. Call 1-800-263-4087 or 416-263-4087. Internet: www.adfire.com. See us in Sweets.

A/D Fire Protection

CIRCLE 171 ON INQUIRY CARD

Interactive Whiteboard



The Rear Projection SMART Board™ is an interactive whiteboard that allows you to control projected Windows® or Macintosh® applications and other multimedia by pressing on the Board's large, touch-sensitive surface. Write over top of applications and your notes are saved for future reference and distribution. Architects and facility designers can request the SMART Product Kit by calling 1-888-427-6278 or by visiting www.smarttech.com/productkit.

SMART Technologies Inc.

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Space Cannon

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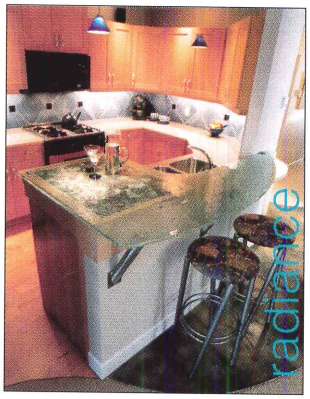
Altro Safety Floors 1999 Product Catalog

Altro Floors' 1999 catalog unveils new flooring products, color selections and product warranties. Altro created the original safety flooring over fifty years ago. Request a copy of our new catalog to see what safety flooring looks like today. Call 1-800-565-4658 or visit our web site at www.altrofloors.com.

Altro Safety Floors

CIRCLE 174 ON INQUIRY CARD

Nathan Allan Creates Glass Art



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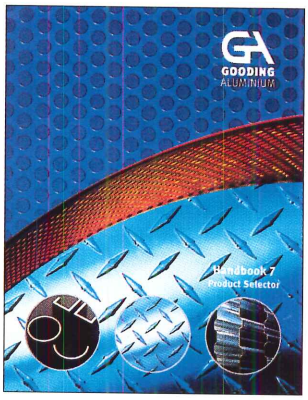
Nathan Allan Glass Studios

CIRCLE 175 ON INQUIRY CARD

Exclusively Aluminum

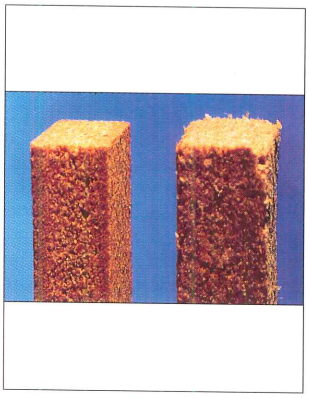


Compiled to assist the architectural professional, the new and exciting 150 page GA Handbook covers the whole aluminum specification process, from design to on-site supply. Our extensive and unique range of perforated and patterned aluminum panels and accessory trims provide outstanding design solutions. Details are also included for the GA self-select samples service. For your free GA Handbook fax 011 44 181 694 2004. www.goodingalum.com

Gooding Aluminum

CIRCLE 176 ON INQUIRY CARD

Moisture-Resistant Particleboard

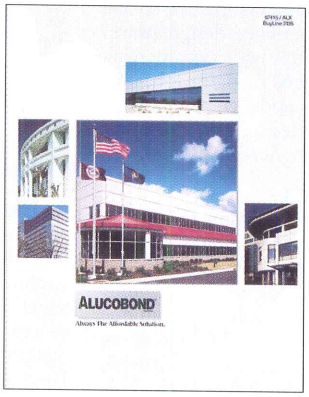


Duraflake MR moisture-resistant particleboard absorbs less moisture & exhibits minimal thickness swell compared to standard particleboard. For interior applications where exposure to high humidity & intermittent contact with water is common. It has a fine surface for laminating & exceptional strength. Applications include bathroom & kitchen cabinets & counters, casework, display fixtures, entryways & other moisture-prone areas. To request information call 1-800-887-0748 ext. 300.

Duraflake

CIRCLE 177 ON INQUIRY CARD

New Alucobond® Material Brochure



New Alucobond® Material brochure in dramatic new format features the use of Alucobond Material in a variety of innovative architectural applications. Also included is technical information. Since its introduction, approximately 250 million square feet of Alucobond Material has been installed on more than 50,000 building worldwide. For more information, call 1-800-382-6445 or visit www.alusuisse-comp.com.

Alusuisse Composites, Inc.

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Melton Classics, Inc.

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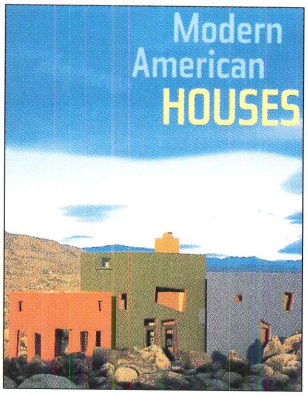
Modern American Houses



This 230-page book is packed with color photographs of more than 75 houses featured in Record Houses since 1956. New essays explore the evolution of home design decade by decade–Thomas Hines on the '50s, Robert Campbell on the '60s, Suzanne Stephens on the '70s, Charles Gandee on the '80s and '90s. $49.50. To order please call (212) 904-4635.

Record Houses

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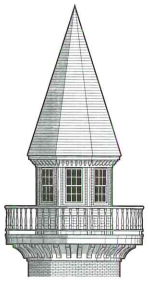

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THE FUTURE The economics of outdoor advertising and a new printing technology may change how buildings make money.

BY DAVID E. BROWN

When asked to imagine an urban distopia, many people will immediately think of *Blade Runner.* Indeed, the 1982 film has become a touchstone of millennial fears, depicting a future that is crowded, dank, and dangerous.

In watching the film today, a few things stand out. It's always raining. Pan Am still exists. Los Angeles has finally become dense. But one of the most memorable aspects of the cityscape is the advertising. It covers huge expanses, from the skins of low-flying blimps to entire sides of buildings—in fact, ads *are* the sides of buildings (photo right).

While most of *Blade Runner*'s imagined city is nowhere to be seen, the film's predictions of an advertised future were too conservative. In the past few years, advertisements both big and small have exploded into all corners of our world. From the back of supermarket receipts to buses to, yes, sides of buildings, every kind of space seems to be sponsored.

Times Square is a special case, of course, but it provides a glimpse of the economics of architecture-as-advertising today. One Times Square, the skyscraper once home to the New York Times, has been vacant for most of the last two decades. In 1997, though, it was sold for $110 million, a price that reflects not its rentable space (only the bottom floors are considered usable) but its value as what architect Bruce Fowle calls "an armature for signage": the building pulls in at least $7 million a year in rent for ads on its north side alone.

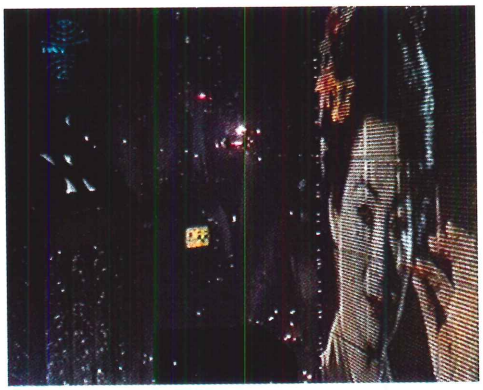
Rising on either side of this building-turned-billboard are visions of the future relationship between ads and architecture: 3 and 4 Times Square, two towers designed by Fowle's firm, Fox & Fowle Architects.

Four Times Square, nearing completion, incorporates advertising both superficially and structurally. Its base, Fowle notes, makes "a fairly subtle distinction between signage and architecture." Traditional, flat signs comprise most of its western facade, which meets the north side in a cylindrical structure meant to be a three-dimensional billboard; the cylinder will soon carry a sign for Nasdaq. At the top of the building, the four sides of its roof truss will be covered with 60-foot-square ads.

At 3 Times Square, Fowle says, ad space was even more important. "We had to really integrate [advertising] into the whole process." Signage takes up a similar amount of space at the base, and again there are ads on the roof. Most striking, though, are the swaths of the building's western exposure given over to ads (top). "What you'd think of as prime views," Fowle continues, "are covered with signs."

Not all of this is new, of course; painted ads on buildings go back to the 1800s. And Times Square has been covered with static and moving ads for the better part of the century. What is different now is the amount of space and money devoted to ads, as well as the technologies being bent to their service. In SoHo and other New York neighborhoods, ads printed on huge vinyl sheets have gone up on the sides of buildings—cheaper than real billboards, they can qualify as temporary signs for zoning regulations.

More exciting is an entirely new technology that promises to change not only advertising but perhaps printing itself. "Electronic ink," developed by MIT researcher Joe Jacobson and marketed by Cambridge, Massachusetts–based E Ink, was imagined as a replacement for printer's ink in books, magazines, and newspapers—realizing a two-decade-old dream of the "electronic book." One sheet of "electronic paper" could change repeatedly, keyed to signals broadcast or sent over the Internet, to contain a whole magazine or newspaper. And the pixels need not remain static; though refresh rates are slow now, full-motion video should be possible in the near future.



Electronic ink consists of many small, pigmented spheres, which, when exposed to an electrical field, change from dark to light or light to dark. It's a bit like an LCD display, but with important differences: the spheres are contained in a liquid carrier medium that can be applied with traditional printing processes to almost any material (paper, plastic, metal, glass), and it requires very little power to create an image and none to maintain it. A small microprocessor controls the image, which can, in turn, receive commands via a simple pager.

The first application of electronic ink will be (you guessed it) in advertising, not literature. By the end of the year, signage using E Ink technology should appear in retail stores such as JCPenney. Though the signs are just poster-sized for now, Lisa Merriam, the firm's marketing director, says "there's no technical limitations on how big they can get."

Which is to say, in-store signage is just the tip of a very big iceberg. In *Wired,* science writer Charles Platt has mused about E Ink's possibilities: "Taken to an extreme, you could paper an entire room with moving images." But why stop there? Taken to an extreme, you could paper a billboard, a wall, an entire building. A whole city block of moving images.

As lucrative as renting prime (and previously unprofitable) surfaces on building exteriors may be, the seemingly unstoppable force of advertising may have limits. In Times Square, Bruce Fowle says, signs are reaching "a saturation point. You really can't look at them, there's too much visual chaos." Chaos that will only increase when ads everywhere start to move. ■

David E. Brown is a freelance writer living in Brooklyn.