

# ARCHITECTURAL RECORD



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## EDITORIAL

From Infatuation  
to Commitment

BY ROBERT A. IVY, FAIA



**A**sk a school superintendent or a CEO how architects spend most of their time, and their likely answer is “designing buildings and preparing construction documents.” These two activities are highly valued because they invest projects with intellectual equity; they are also where architects earn the majority of their fees. In the popular consciousness, even among enlightened clients, the image of the architect is irrevocably linked to design, with its late hours, caffeine, and the pursuit of the grand idea, all to produce a real building—a hefty product for the dollar—as opposed to a service.

But not all architects’ efforts result in tangible objects. Some brainpower is applied to planning and problem solving. Today architects derive approximately 20 percent of their revenues from activities outside the design/construction base: according to a recent survey, 15 percent comes from work that occurs before any formal design begins; post-construction services account for another 4 percent. Architects’ total offerings constitute a smorgasbord of services, including site selection, programming, feasibility studies, master planning, and facility management.

That 20 percent may grow. If architects can ally themselves with clients, developing long-term relationships that emphasize client service rather than individual buildings, their opportunities for continual employment expand exponentially. Clients will always turn to trusted advisers when faced with capital improvements. In this scenario, a school district could provide a lifetime’s work; an established hospital campus, whose buildings may be designed over a period of 100 years, could benefit from a constant hand during its evolution. All are opportunities for the architect.

Long-term professional relationships do not happen automatically. They require effort and are in many ways contrary to the traditional model of an architect-client relationship, which is a bit like falling in love. The pattern is familiar: early infatuation and mutual discovery yield, over time, to self-absorption, increasing aloofness, and divorce or separation just as the

project ends. Millions of dollars at stake only compound the anxiety, and lawyers don’t help. By dedication day the architect is consigned to the status of former partner, free to think about tomorrow’s presentation for another job.

Long-term relationships demand a cultural shift, adjusting practice to meet contemporary needs. If architects want to assist with facility management, then they will have to provide documents that can easily be updated and accessed by owners, engineers, and other consultants. If they offer feasibility or financial studies, they need tools. Technology can help.

Architectural education will need to be adjusted to prepare architects for what one group has labeled a continuum of services. Individuals should plan careers that engage a variety of talents and interests, not just design. Training in business, financial, and legal disciplines grows more important in the new model.

The American Institute of Architects has already embraced this vision, altering its contract documents with a range of offerings and de-emphasizing the term “extended services,” which implied that certain segments of work lay outside the architect’s ken. Their Practice and Prosperity initiative began a discussion that reflected both hope and a new reality of practice.

The pragmatic new breed of architects will still seek to design and construct new buildings. But they will be less eager to fall in love with their clients than to build mature relationships, less intent on giving a client a building than on hearing what a client really needs. Ultimately, their efforts can sustain the practice of architecture for the years to come—for themselves, their companies, and the public they serve.



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## LETTERS

**"Cultural imperialism" in Bilbao**

The day after I read your review of Frank Gehry's Guggenheim Museum in Bilbao [October, pages 74–87], my local newspaper published an account of separatist demonstrations in that city that were organized to protest the "cultural imperialism" of the museum.

The protesters' criticism is directed as much toward the Guggenheim Museum and Bilbao's civic administration as it is toward the building. Nonetheless, such an outcry puts into question the social and cultural relevance of the building. Gehry, like Antoni Gaudi, may finally be judged a courageous "genius," to quote your article; but, like Gaudi, he may also be judged a historic oddity whose buildings had little influence on the evolution of an appropriate and practical architecture for his time.

—James A. Gresham, FAIA  
Tucson, Ariz.

**Pedestrian malls can work**

The failure of many main street pedestrian malls, including the one in Kalamazoo, Michigan, which was recently returned to vehicular use [October, page 40], stems from the failure to follow through with the original vision. Successful planning requires more than brick pavers, kiosks, benches, fountains, and trees. Residential development on the upper floors of main street buildings is paramount. The mall in downtown Charlottesville, Virginia, for example, is employing this strategy quite successfully; pedestrians on the mall include residents and patrons. Not everyone wants to rely on a car and live in a vinyl box in suburbia.

—Gary Scott Henley, AIA  
GSH Design  
Richmond, Va.

**Traveler's diary**

Having flown to and from the new terminal at Washington's National Airport [October, pages 88–95] at

least a dozen times since its opening, I have concluded that many features of the building by Cesar Pelli sacrifice function for style.

The building is beautiful. I know, because I usually find myself walking through much of it to reach my flight. The length of the building does not support visiting the shops and restaurants scattered throughout the complex. The installation of mechanical devices, such as people movers, does not seem possible without covering the artwork in the floor.

For a design team that spent two years visiting airports, it is hard to believe that the security clearance areas at National were modeled on the best of the lot. They are cramped, congested, and inadequately planned for the inspection of computers and other electronic equipment. Security clearances at each concourse further discourage the use of the main hall. Everyone who enters the airport must pass through the security station.

The restrooms are another example of poor planning. The entryways, which are shaped like a rectangular U, are so narrow that two people cannot pass while carrying luggage.

It is disappointing to see \$350 million spent on a facility in which the design team, in my opinion, did not give adequate thought to basic planning issues. I am not an architect, but I do understand the importance of knowing the customer and paying attention to the details.

—David Taylor  
Nashville, Tenn.

**Rudolph opened eyes**

I enjoyed Robert Ivy's editorial on Paul Rudolph and architectural myopia [October, page 17]. I was one of the young architects who fought my way into Rudolph's New York office. After graduating from Auburn University in 1973, it was the ultimate post-graduate experience.

Rudolph's architectural genius was far-reaching, but it was his ability to continually teach, no matter how large or small the project, that

shaped my career. My primary role in his office was to sharpen the colored pencils with which he sketched his astounding drawings. From blank tracing paper appeared architectural spaces that one might dream about. The knowledge I acquired from my time in Rudolph's office is with me even today. I will always be grateful for his largesse.

—Preston T. Phillips, Architect  
Bridgehampton, N.Y.

**Getting wired**

Thank you for the kind words about our office in "Collaboration by Wire" [September, pages 131–37]. I want to clarify one misconception with respect to the use of an "old-fashioned" network. The network in question was not owned or operated by Moore Ruble Yudell and the firm was not responsible for the poor performance of the network. It was, in fact, a commercial network used by the entire design team. Our decision to use America Online was not in any way a reflection of dissatisfaction with Moore Ruble Yudell. We have enjoyed an excellent working relationship with them for years and expect to continue to work with the firm for many years.

—David A. Mintz  
David A. Mintz, Inc., Lighting  
Consultants  
New York City

**Managed care for wood**

Architects, builders, and developers need to be better informed regarding the use and availability of certified wood products. We are criticized constantly because we use old-growth timbers and/or contribute to the loss of ecosystems in the process of building. It is important to remember that wood is a renewable resource. The problem lies not in the use of forest wood products, but in how timberlands are managed. Wood certification programs and facilitators have developed sustainability criteria for the proper management of timberlands. The "chain of custody" of certification begins with the forest land owner and ends with the man-

ufacturer. Consumers can purchase wood from a certified source and be assured that it was harvested in an ecologically responsible manner.

Certification programs have gained support from several organizations, including the Rainforest Alliance and the American Forest and Paper Association. With such programs in place, shouldn't it be part of our job as architects to specify certified wood products? For a directory of such products, call the Forest Products Buyers Group and Good Wood Alliance, two groups that have recently joined forces, at 503/590-6600.

—Lauren R. Broder  
Conger Fuller Architects  
Aspen, Colo.

**Corrections**

Space limitations in the October story on the Business Week/Architectural Record Awards did not allow for the inclusion of complete project credits. For Gemini Consulting's offices (page 59), Baron + Hammer Architects served as the owner's representative. The vice-president of Shawmut Construction, the construction manager for the project, is Thomas Goemaat. For the Nortel Brampton Center (page 64), the team for Hellmuth, Obata + Kassabaum included senior project designer Kathrin Brunner. The team for Bregman+ Harmann Architects, the architect of record, included Paul Tan de Bibiana, Yvonne Yip-Campbell, and Wanda H. Barrett.

Space limitations prevented the publication of full identification of the retail interior that appeared on page 139 of the October issue. The photograph was of Sparky's on City Walk, in Universal City, California. The architect was Choy Associates, with Barton Choy, AIA, principal in charge.

*RECORD may edit letters for grammar, style, and space availability, taking care not to change the author's meaning. Letters sent by post or electronic mail must include the sender's address.*



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# SPEAK OUT “Invisible architects” are all around us.

STEVEN WINTER, FAIA



*Steven Winter, FAIA, is president of Steven Winter Associates, a building systems research and consulting firm with offices in Norwalk, Connecticut, and Washington, D.C.*

Get a group of architects talking about the profession and sooner or later the notion of “diminishing influence” will arise. Construction managers, general contractors, plus a growing assortment of players in areas like acoustics, lighting, roofing, curtain walls, glazing, and specifications, are knocking architects out of the action, you will hear.

True, the traditional role of the architect may have been stunted lately, but architects with nontraditional practices are increasingly involved in the industry in ways that are as yet unsung.

A new breed of professionals specializing in energy performance, sustainable buildings, accessibility, and CAD are showing how architects can have an impact on the built environment, albeit from behind the scenes. These “invisible architects” are involved in residential, commercial, and institutional design for a variety of clients.

Take, for example, buildings and energy. In the early 1970s, architects were leading the field in making buildings more energy-efficient, showing clients that buildings did not have to be energy hogs to function comfortably.

Today the profession is less dominant in the energy field, but the work of architects is still important and needed. One way to exert influence is to work directly with utility companies, finding ways to cut energy loads in new buildings so that consumption demands remain manageable.

Architects can provide valuable counsel by reviewing designs on behalf of utility companies in

advance of new construction, and suggesting cost-effective ways to make new buildings more efficient. It may not be glamorous work, but by improving the performance of new structures architects can help utilities avoid constructing new plants.

As the “green architecture” movement continues to attract attention, practitioners of traditional design are increasingly interested in making their buildings environmentally sound. Clients are asking for better-performing buildings, with an eye toward lowering life-cycle costs. (See Technology story, page 135.) This presents more opportunities for invisible architects to work with design architects both to improve energy performance and to lessen environmental impact. Such work should happen early in the design phase to avoid the cost of undoing bad decisions later on.

Local, state, and national officials are looking to architects to formulate and direct research that can have an impact on energy use. As an example, the “Building America Initiative,” a multimillion-dollar research program sponsored by the United States Department of Energy and the National Renewable Energy Laboratory, is finding ways to improve the construction quality and energy performance of conventional, mass-market homes. Architects involved in this initiative are working directly with home-building giants like Ryan Homes, Del Webb Corp., and Beazer Homes to research, design, and construct energy-saving prototype units to achieve better energy performance

in different climates across the country.

The federal government is the architectural profession’s largest single client. The General Services Administration (GSA) wants to educate its own project managers to be more aware of building-energy use. The people at GSA are responsible for hundreds of millions of dollars in construction each year. Invisible architects can run workshops for federal project managers, showing them how to design and construct new government facilities to be more energy-efficient.

Work like this may not land you on the cover of an architectural journal, and your name may not even appear on the building credits. But by pursuing such nontraditional practices, architects from varied backgrounds are working with all kinds of clients throughout the profession, making a difference in large and small ways.

Look up and you will see that architects are having a bigger impact on the built environment now than ever before. Invisible architects are all around us. ■

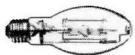
**Contributions:** *If you would like to express your opinion in this column, please send submissions by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to ellen\_popper@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*



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**CIRCLE 10 ON INQUIRY CARD**



# MENTORS Two questions for an electronic age: bridging the CAD generation gap and ownership of digital documents

*Jerry A. Laiserin, AIA, is an architect and a strategic technology consultant. He helps architects, engineers, and facilities managers combine new technologies with traditional business and practice strategies.*



**I am a principal in a mid-sized firm. The associates are computer-literate, but I am not. We used to have “desk crits,” but that doesn’t work on the PC screen. I’m increasingly uncomfortable managing and reviewing drawings and details that exist only on computer, while the younger folks are getting frustrated with plotting out the work for me to mark up on paper. How can we bridge this gap?**

—unsigned

*Jerry A. Laiserin, AIA, responds:* The “technology generation gap” you describe is a growing chasm that neither side seems able to bridge. Yet what seem to be technology issues frequently relate instead to practice concerns, firm culture, and organizational dynamics.

First, distinguish computer literacy from computer fluency. Unless you are a regular hands-on user, no one expects you to be fluent in any software, but a principal whose name and seal appear on the work should know how to locate and open files, navigate on-screen drawings, and plot. Because some principals fear losing authority if they reveal their lesser computer skills, many training centers now offer CAD “overview” classes that build competence and confidence.

Next, separate technical problems from practice issues. Screen size and resolution are still inadequate for checking large-format drawings, so it is common practice to plot check sets on fast, inexpensive 11-by-17-in. printers or C-size plotters. Although computer-gener-

ated drawings can be tweaked to emulate the satisfying line weights and nostalgic lettering of the most skilled hand, guard against over-drawing that can sap the very efficiency that the computer was intended to achieve. While some practitioners bemoan the loss of hand-eye coordination in many CAD programs, others revel in the improved coordination and accuracy that is now possible.

Finally, be patient. Computer tools were first applied to construction documents, and have migrated to earlier phases of the design process. As the tools become more sophisticated, some also become easier to use. Many of the sketching, massing, and annotating capabilities that were lost in the first transition from drafting boards to silicon are now reemerging in the newest generation of architectural design software.

**Our clients have begun to ask for our CAD files by modem. We want to satisfy their requests, but we are unsure about what is appropriate. Are our clients entitled to these files? Can we charge them an extra fee for this service? How can we control the use and reuse of our work while still offering digital deliverables in an expanded service?**

—unsigned

*Mr. Laiserin responds:* An architect’s drawings and specifications and the designs they describe—whether on paper or in electronic format—are copyright-protected property. When buying architectural services, clients

reasonably expect to receive copies of these “instruments of service.” Digital transmission does not alter these rights or expectations, but it may raise concerns about ease of duplication and reuse, detectability of alterations, and other software issues.

Therefore, when documents are delivered in electronic form, all parties must understand the uses intended by the client and permitted by the architect. These issues are best covered in a “digital deliverables specification” negotiated into the Owner-Architect Agreement. This is the place to distinguish between “basic” and “expanded” computer services and fees. For example, prototypes for chain store franchises may include terms for site adaptation and reuse of digital “originals.” Similarly, because documents intended for construction are rarely well suited to facilities management, electronic customization should be contracted for in advance. The latest AIA form B-141 provides a framework for negotiating scope of services and deliverables. However, practitioners should always consult with counsel when negotiating contracts. ■

**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, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to ellen\_popper@mcgraw-hill.com. Submissions may be edited for space and clarity.*



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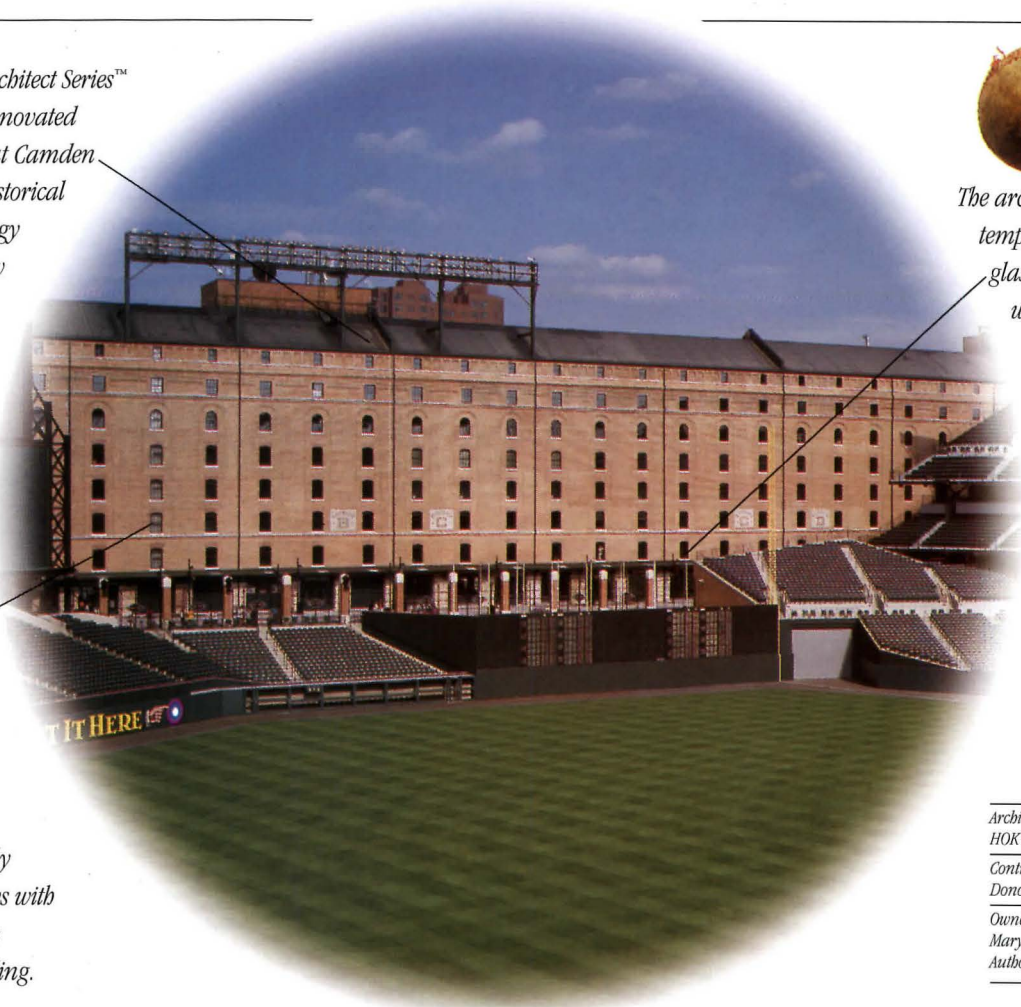
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CIRCLE 22 ON INQUIRY CARD



# PULSE RECORD readers were asked:

## Is \$980 a fair price to pay for the computerized Architect Registration Exam?

**YES: 10%**

**NO: 90%**

**Yes:** After recently completing the computerized exam process, I have come to the conclusion that the price is fair. The exam can be taken at any time, in any order, and does not have to be completed within a single week. Testers can also reschedule within a few days of the exam. In my opinion, you get what you pay for: convenience and a better chance to pass the exam the first time around.  
—Scott Russell  
Washington, D.C.

**Yes:** The \$980 represents both the cost of developing the exam and its delivery to testers. At least one state (New York) had a total cost for the paper-and-pencil exam that was more than \$1,000.  
The ability to take the exam at more convenient times and, in some cases, more convenient locations

has a price. Testers no longer have to study for all sections of the exam at one time.  
Furthermore, the facts included in this month's question are inaccurate. NCARB's fee for the exam was lowered, not raised. It is the delivery fee that was increased in some states and lowered in at least one state.  
—Charles A. Spitz  
West Long Beach, N.J.

**Yes:** Who says life is fair? If you want to be a registered architect, study hard, get a job, pay the exam fee, pass the test, and stop whining. If you do not want to make a few sacrifices in either your personal or professional life, perhaps you should rethink your career choice.  
—David J. Dell'Agnese, Associate  
Eppstein Uhen Architects Inc.  
Milwaukee, Wis.

**No:** Why does better technology routinely come at a greater cost than the technology it replaces? If the new computerized format were truly better, should it not be more convenient, conserve resources, and cost less? Rising professional costs and shrinking inter-level salaries will do little to help the profession.  
—Douglas Sharp  
Seattle, Wash.

**No:** In 1975 the cost of the exam was \$165. Over the following 20 years, the cost rose roughly \$23 per year. In 1996 a candidate in my office paid \$650 for the exam. One year later, the cost has jumped to \$980. What is the justification for this outrageous increase?  
I had been looking forward to carrying my books, pencils, trace, and drawing board to the exam site.

But someone had a better idea: computerize the test and, in the process, remove from it any sense of nostalgia or personal style. For all this, pay an extra \$330 over last year's fees. I do not wish to foot the bill for the cost of test development, administration, or implementation of the new exam.  
This debate has gone on long enough. It is time for NCARB to answer for what it has done. It is also time for the AIA to get involved.  
—Harry Zawada, Assoc. AIA  
Nutley, N.J.

**No:** The \$980 is outrageously high, given the well-known facts of architects' compensation. Furthermore, NCARB's description of the grading guidelines lists "aesthetics" as a criterion by which designs are to be graded. How can aesthetics be graded by (continued on page 151)

### This Month's Question

Are today's critics in touch with the issues affecting architects and architecture?

Architectural criticism is an embattled discipline. Architects and other readers often accuse critics of being "out of touch"—playing favorites or promoting esoteric agendas that lack relevance to contemporary society. At the same time, surveys tell us that readers seek analysis and strong points of view expressed by the press.

Are today's critics in touch with the issues affecting architects and architecture?

Yes  No

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# BOOKS Some new books on urbanism express architects' continuing frustration with the way cities are being built.

BY PHILIP LANGDON

*Philip Langdon is a former senior editor of Progressive Architecture and the author of A Better Place to Live: Reshaping the American Suburb, which has been released in paperback by the University of Massachusetts Press.*

**The City After the Automobile,** by Moshe Safdie with Wendy Kohn. New York: Basic Books/New

Republic, 1997, 187 pages, \$24.

**Cities in Our Future,** edited by Robert Geddes. Washington, D.C.: Island Press, 1997, 200 pages, \$23.

**The Fractured Metropolis,** by Jonathan Barnett. New York: Harper Collins, 1996, 250 pages, \$25 (paper).

**The City: Los Angeles and Urban Theory at the End of the Twentieth Century,** edited by Allen J. Scott and Edward W. Soja. Berkeley: University of California Press, 1997, 495 pages, \$40.

**City of the Century: The Epic of Chicago and the Making of America,** by Donald L. Miller. New York: Touchstone, 1997, 704 pages, \$17 (paper).

**Architectural Associations: The Idea of the City,** edited by Robin Middleton. Cambridge: MIT Press, 1996, 240 pages, \$30 (paper).

**CyberCities: Visual Perception in the Age of Electronic Communication,** by M. Christine Boyer. New York: Princeton Architectural Press, 1996, 248 pages, \$35.

There's a vast chasm between what's taking place in cities and what architects and urban designers would like to see occur there. Moshe Safdie draws attention to this rift in *The City After the Automobile*, observing, "During the 1960s, we architects felt we could make a difference. We could influence the character of urban development, revitalize downtowns, stabilize suburban sprawl." Once that hope proved overoptimistic, frustration ensued, and this continuing disenchantment forms a powerful undercurrent in writings on cities today.

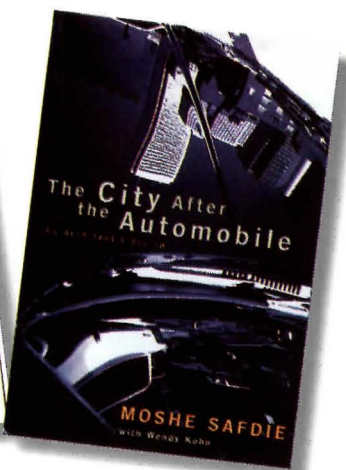
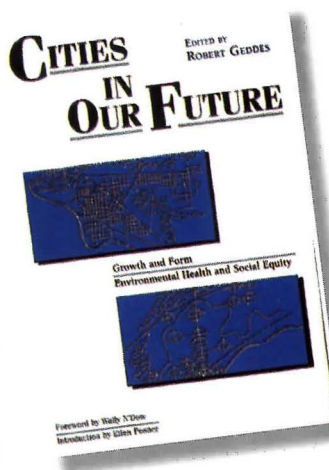
Of the books reviewed here, Safdie's is especially heartfelt in its sentiment and graceful in its writing. Yet it is also annoying, refusing to imagine a satisfactory urban future that might realistically be attained in the United States. It is as if, having failed to win widespread adoption of the ideas he pioneered in his Habitat housing complex 30 years ago, Safdie has decided it's more fun to toy—in his writing, anyway—with farfetched notions than to grapple with the real difficulties facing

American urban planning. This may seem a harsh view of such a highly talented architect, but what else is a reader to make of the sharp imbalance between Safdie's thoughtful, impressively detailed analysis of how cities got into their present predicament and his abrupt, unpersuasive presentation of what is to be done?

He sets forth a vision of future metropolitan transportation in which buses, light rail, and other mass forms of mobility would be supplemented by hordes of tiny, electric utility cars—"U-cars," which people would rent and return at a multitude of locations, thus, in his opinion, dramatically reducing the space and expense now lavished on driveways, parking lots, and other elements of the auto-oriented cityscape. "The U-car would be stacked like the airport luggage cart and stored compactly on a continuous belt," he fantasizes.

To encourage "spontaneous, unplanned, physical interaction," which Safdie believes makes for "a better and richer society" and helps dissipate conflict and suspicion, he advocates that linear multipurpose centers perhaps a mile long be established where critical elements of the transportation system intersect. Each center—Safdie dubs his proposed prototype "New Cardo"—would act as a focal point for public life in its part of the urban region, and might contain office space for 20,000 to 40,000 workers, low- and highrise housing, a million or more sq ft of shopping and entertainment, and institutions such as an art school or a community college.

This sounds like an Edge City, but immensely better coordinated





and programmed than any Edge City has been in the past or is likely to be in the future. Unfortunately, there is no blueprint for how to achieve this World's Fairytale.

*Cities in Our Future*, edited by Robert Geddes, is far more down to earth, looking at the possibilities for fostering more equitable and effectively organized regions by presenting case studies of five North American metropolitan areas: New York, Mexico City, Los Angeles, Toronto, and "Cascadia" (an amalgam of Portland, Seattle, and Vancouver, British Columbia). The five studies, compiled for the 1996 United Nations Conference on Human Settlements, blend a useful overview of each region's development with an examination of recent attempts to improve the region's social equity and urban form.

Of the five regions, Toronto is, on the whole, the most successful, maintains Geddes. Not only do its inhabitants—including no fewer than 66 ethnic groups that speak

more than 100 languages—coexist peaceably; the downtown remains strong, slums are nonexistent, and, according to authors Gardner Church, Kenneth Greenberg, and Marilou McPhedran, class segregation is minimal. Nonetheless, difficulties have continued to emerge as the population has expanded to five million, spread across five regional municipalities.

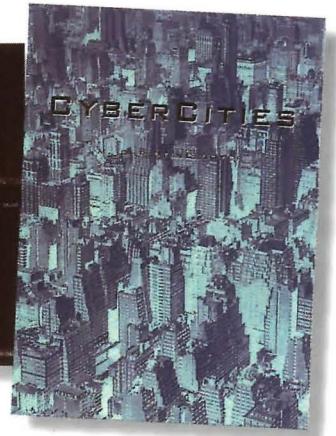
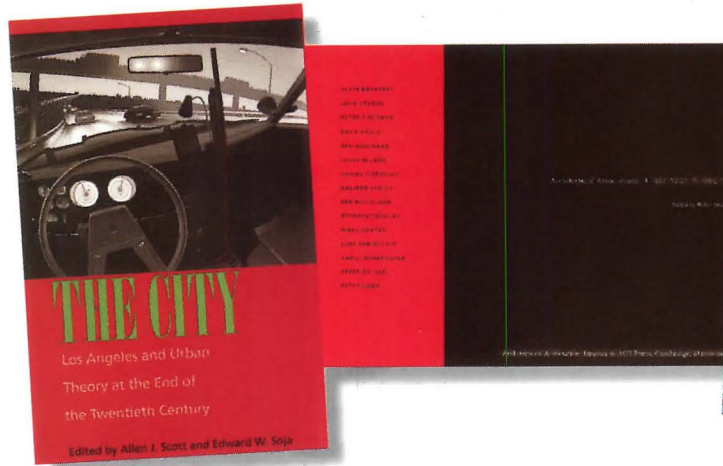
Jonathan Barnett's 1995 book, *The Fractured Metropolis*, now in

paperback, nicely complements Geddes's collection, presenting numerous New Urbanist approaches to the problems of old urban areas, newly developing communities, and entire regions. Though Barnett, who has been an urban design consultant to several American cities, does not provide surprising insights, he delivers a solid overview of techniques being applied across the U.S.

For the comprehensiveness of its treatment of an urban area, none

of the books on this list surpasses *The City*, a collection of 14 essays that Edward Soja and Allen Scott, both UCLA professors, have edited on Los Angeles—now the sixth or seventh largest of the world's "megacities," encompassing 160 municipalities and 15 million people.

USC geography professor Michael Dear supplies a valuable (despite puffed-up academic terminology) history of L.A.'s urban design, concluding that "land use



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to explain the benefits  
of solar energy.



Solar Energy (by BP)



planning, as it has been practiced for most of this century, is now defunct." Mike Davis, one of the most captivating left-wing social critics in California, vividly recounts the subjugation of the region's landscape, reporting, for example, that around mid-century 1,000 citrus trees were bulldozed and burned every day for a decade. And Charles Jencks is at his wittiest in his essay on the "L.A. School" of Gehry, Moss, Morphosis, and the rest—arguing that like Los Angeles itself, the inventive, unexpected architecture of chain-link and cheap materials "mixes a sunshine gregariousness, an openness to new experience, with a tough, sadistic streak."

What makes *The City* extraordinary is that its incisive writing on the built environment is part of a majestic whole: a 500-page analysis of the L.A. of leading manufacturing enterprises, Latino and black experiences, a declining WASP influence, Hollywood, homelessness, congested but indispensable freeways,

and one of America's most influential design cultures, affecting everything from apparel to furniture to housing. L.A. has produced a dizzying array of innovations that have exerted an influence worldwide. Yet for all that, the region's urban design and social divisions are deeply troubling. This book deserves broad readership because L.A. is more than a major population center; it's the model for many other metropolises in the U.S. and abroad.

For solid narrative history, a good choice is Donald Miller's *City of the Century*, which traces the development of Chicago from its raw beginnings to just after the World's Columbian Exposition of 1893. The era in which this book ends is precisely when Chicago starts to be fascinating, from an architectural point of view. So Miller, who wrote a fine biography of Lewis Mumford, cuts himself off from Chicago's most engrossing design material.

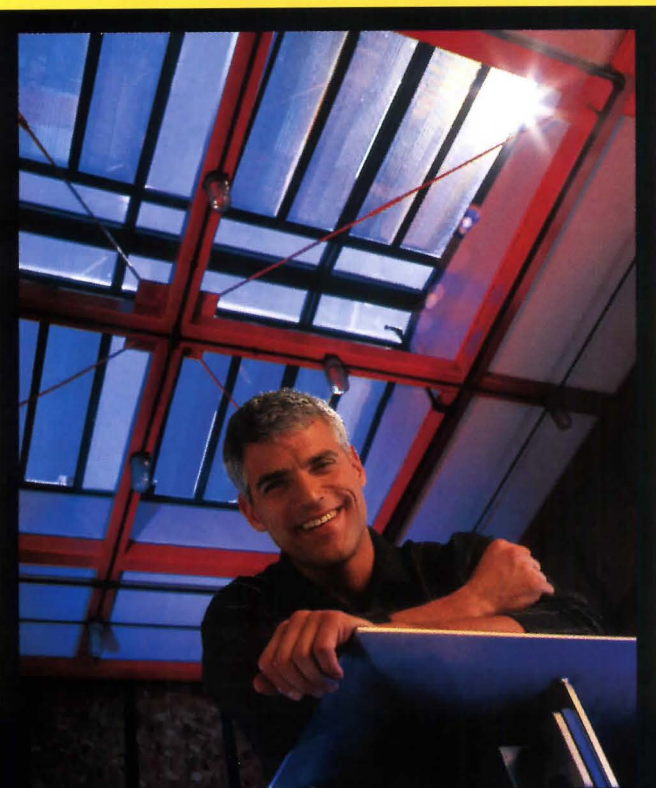
Chicago was a compelling interest of Alvin Boyarsky, chairman

of the Architectural Association School of Architecture in London from 1971 until his death in 1990. In tribute to Boyarsky, Robin Middleton has edited a series of essays and interviews, *Architectural Associations: The Idea of the City*, prefacing them with Boyarsky's entertaining ramblings about Chicago, effectively illustrated mainly with old postcards. If only the rest of the essays were as lively as Boyarsky's. True, Rem Koolhaas's keen observations on Atlanta are worth reading, and an interview with Zaha Hadid is to the point. But some of the other pieces, like several pages of mystifying gibberish by Daniel Libeskind, are simply not worth trying to decipher.

Finally, M. Christine Boyer, a professor of architecture at Princeton, has written *CyberCities*, an analysis of cyberspace, virtual reality, cyborgs, and other aspects of computerized culture. Arguing that the computer is to contemporary society what the machine was to Modernism, Boyer wrestles with

urban metaphors in a mushy, pretentious way that relies on inflated terms like "metaspace" and "logocentrism." Deeply escapist in its pedantic fashion, this book seems to promise an exploration of some elements of cities (otherwise why the rendering of a skyline packed with stepped-back 1930s-style skyscrapers on the front jacket?), yet it rarely brings issues into sharp focus.

Perhaps such academic evasiveness is yet another result of the difficulties that architects and urban designers have encountered in an urban world where politics, bureaucracy, real estate economics, and other forces have stymied designers' idealism—the idealism that architects like Moshe Safdie once thought would lead to the humanistic refashioning of cities and regions. When the going gets tough, the tenured retreat to faculty clubhouse terminology. This withdrawal of a segment of the educated class from forthright discussion is one more obstacle to the revival of cities. ■



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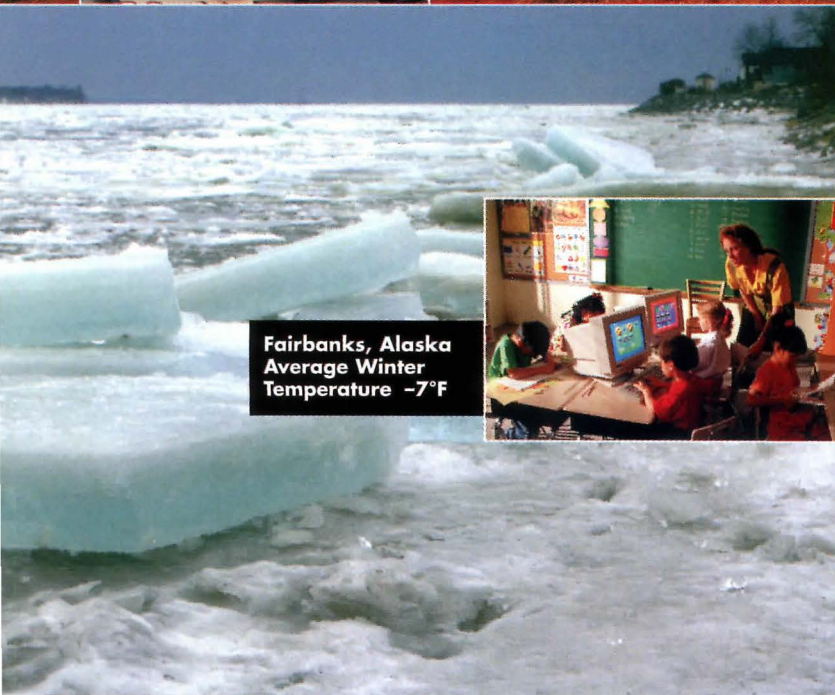
# When The Great Outdoors Makes Life Challenging...



Phoenix, Arizona  
Average Summer  
Temperature 91°F



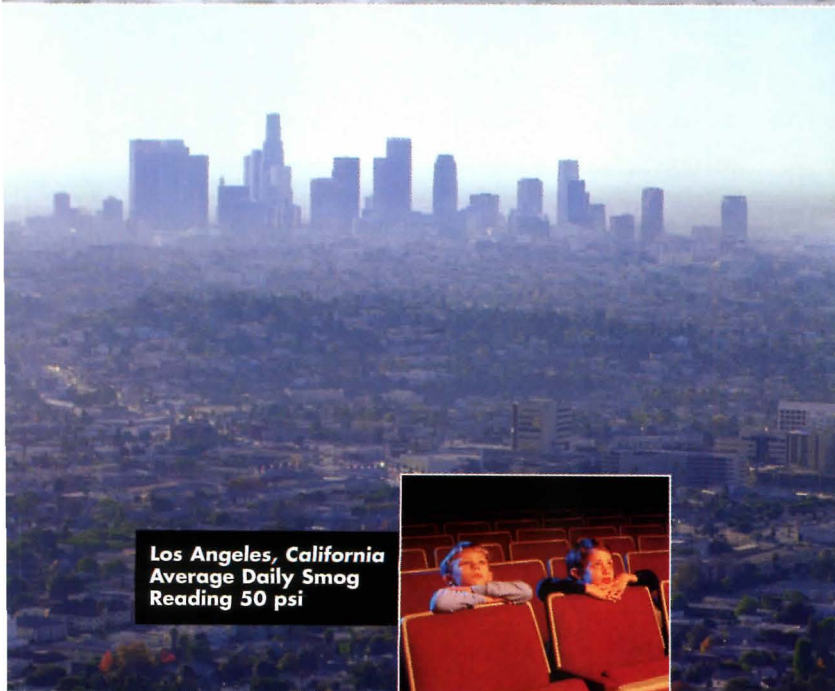
Buffalo, New York  
Average Annual  
Snowfall 91"



Fairbanks, Alaska  
Average Winter  
Temperature -7°F



New York, New York  
Average Daily Decibel  
Rating 45



Los Angeles, California  
Average Daily Smog  
Reading 50 psi



Chicago, Illinois  
Ground Wind Speeds  
up to 58 mph





## FROM MANSION TO STUDENT CENTER: NEW USE FOR A GRAND OLD LADY

Nearly 80 years after it was first published in ARCHITECTURAL RECORD, the former Wise house, designed by William Lawrence Bottomley, was reopened as the Jepson Alumni Center at the University of Richmond, Virginia. An architectural symposium studying Bottomley, Ralph Adams Cram, and landscape architect Charles Gillette, who together designed the original campus, coincided with the opening.

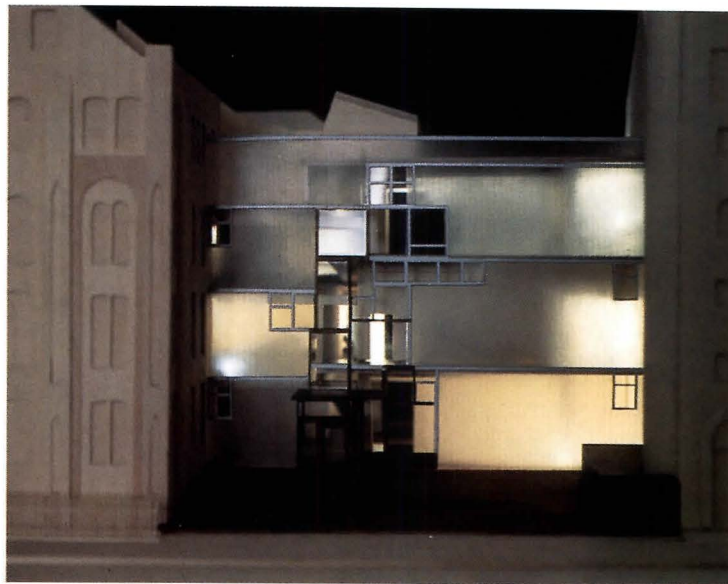
The elegant neo-Georgian house, with its balanced symmetry, detailed quoins, and bracketed windowsills, forms the heart of the new center, named for alumnus and benefactor Robert S. Jepson, Jr. It sits atop a hill overlooking a bucolic residential area. Commissioned in

1915 by Colonel Jennings C. Wise, the house originally overlooked the James River. It was later purchased by William H. Goodwin, Jr., who donated it to the university and moved it to its current location.

Marcellus, Wright, Cox & Smith, Architects, of Richmond, completed the restoration and added 22,000 sq ft. Edward A. Smith III, AIA, tried to envision how Bottomley might have expanded the building. Keeping a residential appearance was key, along with softening the Georgian style and linking it to the Gothic Revival architecture that dominates the rest of the campus. The project won a 1997 Award of Merit from the Association of University Architects. *Sally Brown*



**MULTI-USE PROJECT TO RISE IN SAN FRANCISCO** A multi-faceted project will rise on the site of the former International Hotel at the nexus of San Francisco's Chinatown, North Beach, and financial districts. The site gained notoriety in the mid-1970s when demonstrators protested the demolition of the International, a residential hotel that was an integral part of the Filipino community. The building was razed, and the site has lain dormant since. Now Gordon H. Chong & Partners, in association with Herman Stoller Coliver Architects, Tai Associates/Architects, and Rojas Associates, all of San Francisco, are designing a \$27 million, 206,000-sq-ft project comprising a 15-story tower with 104 units of affordable senior housing; a church, a school, a community center, and a soup kitchen serving 400 for St. Mary's Chinese Schools and Center; and a 150-space underground garage. The program includes a Filipino museum and resource center. A 19-by-21-ft mural honoring the Filipino community will grace the tower's western facade. Construction is scheduled to begin in March 1998. *Ellen Kirschner Popper*



## FOR PRATT, A BOLD ADDITION TO A LANDMARK BUILDING

From the ashes of a devastating fire an invigorated school of architecture will rise on the Brooklyn, N.Y., campus of Pratt Institute. Steven Holl Architects will use charred red bricks reclaimed from the burned-out Romanesque Revival building to construct a plinth where a glass-enclosed center hall will stand.

In July 1996 fire destroyed the central section of the building, which is H-shaped in plan. The north wing was also damaged, but the exteriors of the north and south wings remained intact. The challenge for Steven Holl, AIA, was to create a link between the surviving wings—the floors of which do not align—to house a gallery, a lecture hall, a workshop, and design studios.

The original building, known as Higgins Hall, was built in stages during the late 1800s for Adelphi Academy, a private boys' school. Pratt acquired the building in the 1960s, and in 1978 it was included in the Fort Greene Historic District by the New York City Landmarks Preservation Commission.

Holl's solution, described as "brilliant" and "very brave" by members of the commission, employs economical, industrial materials. Translucent structural panels of insulated glass enclose a concrete

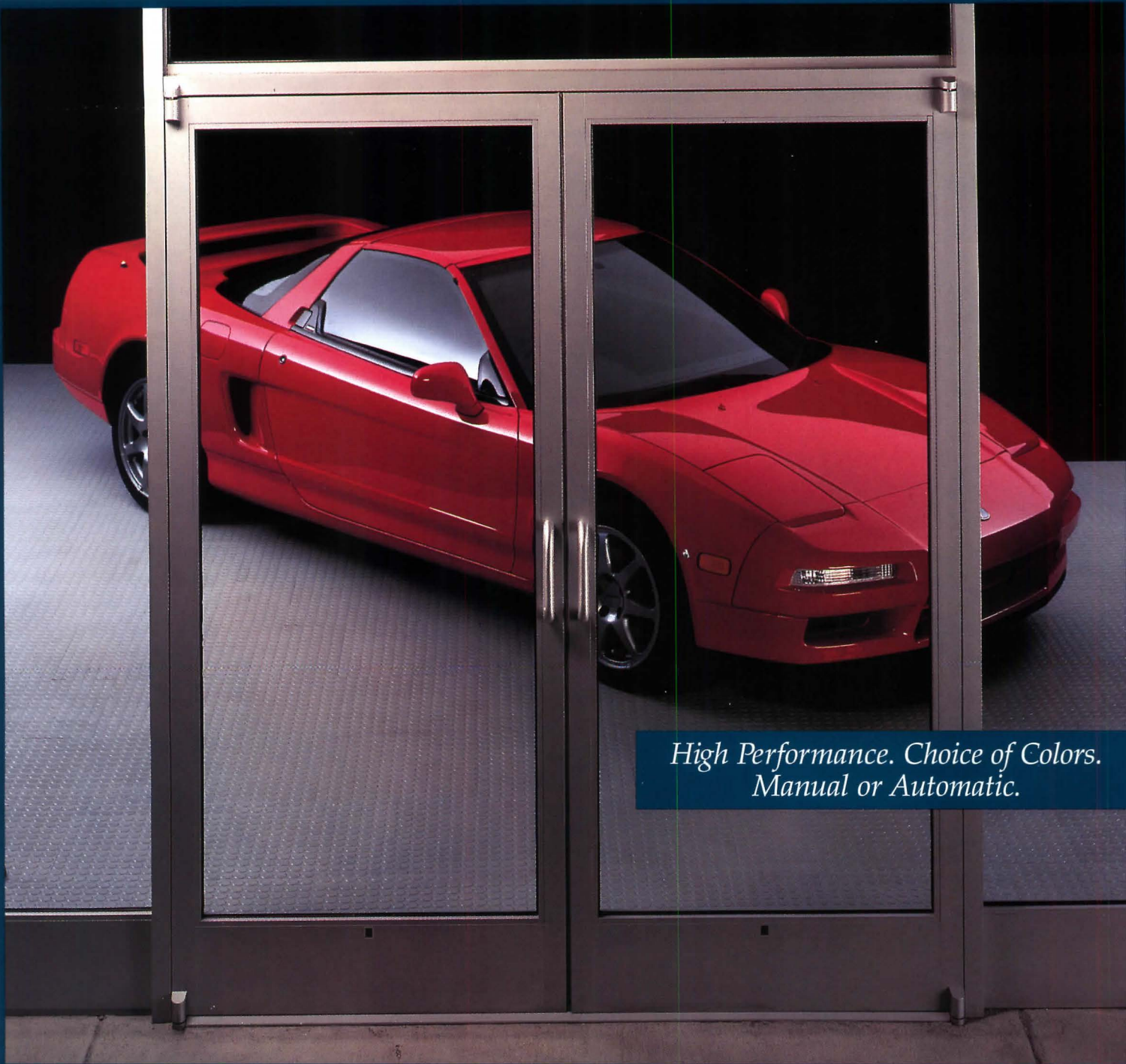
column-and-slab structure. The panels will allow light to enter the studios during the day. At night the glazing will glow with electric light from within "because architecture students always work into the night," said Holl. Clear glass will highlight a new entry and mark the dissonance in floor levels between the wings, a problem whose solution became the organizing principle of the design. The roof, added Holl, will be "a dirty zone, a place to go to spray models and smoke cigarettes."

"The bold solution shows how far we have come in our understanding of historic preservation," said Denis G. Kuhn, FAIA, a principal of Ehrenkrantz Eckstut & Kuhn Architects, who are restoring the damaged wings. "Five years ago the Landmarks Preservation Commission might not have accepted such an evident new insertion into a historic building."

"The leadership of Tom Schutte, president of the Institute, made it possible to create opportunity out of a tragedy," said Thomas G. Hanrahan, AIA, dean of the architecture school.

The budget for the project will be determined in part by an insurance settlement for the fire damage. Rogers Marvel Architects is the architect-of-record.





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## HISTORIC LOOP OFFICE BUILDING TO HOUSE ART INSTITUTE STUDENTS

A novel conversion has given life to a run-down, aged Chicago landmark. The 1905 Chicago Building, designed by Holabird & Roche, has been transformed by architects Booth/Hansen & Associates with builder and developer Wooton Construction from a dilapidated, under-used commercial building to a bustling dormitory occupied by students of the School of the Art Institute of Chicago.

Over the years, the building has defied developers, planners, and architects to find a viable use for it. Its small floor plate, center light well, and antique mechanical and electrical systems made it impossible to update as commercial space, despite its location at the

heart of the Loop business district. Because of its derelict condition, the building was ordered demolished in 1987 by a municipal court. That order was stayed when the Chicago Building was named a city landmark, a designation that protected it from destruction but did nothing to improve its condition. Occupancy above the second story was forbidden, and the building was wrapped with metal straps to prevent the terra cotta cladding from falling.

Even in these reduced circumstances, the beauty of the building has been poignantly evident. Vertical piers make the narrow State Street facade appear taller than its 15 stories, and graceful bays projecting above Madison Street draw sun into the north side of the building.

Wooton replaced a full third of the historic terra cotta facade and reanchored the tiles, which were cleaned and tuck pointed. All mechanical systems were replaced. Booth/Hansen, working under a turnkey contract, laid out the interiors, creating 117 compact suites, each furnished with a full bath and a kitchenette. Said Tony Jones, president of the School of the Art Institute, "We saved a very distinguished building, and now that it's in the hands of the Art Institute it's safe forever." *Cheryl Kent*



## FOR NEW CAMPUS BUILDINGS, COLORADO COLLEGE REACHES FOR STARS

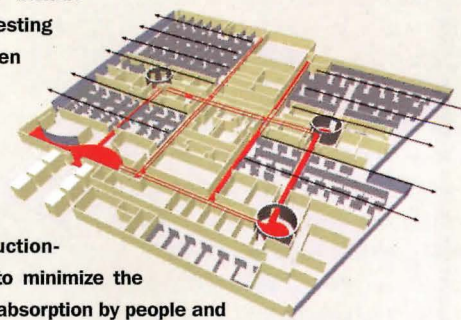
For Dallas businessman Charles Price, patronizing good architects is a family tradition. His grandfather, Harold Price Sr., hired Frank Lloyd Wright to design two buildings, including the Price Tower in Bartlesville, Oklahoma, considered one of Wright's finest achievements. His father, Harold Price Jr., commissioned Wright to build another house in Bartlesville, while his uncle, Joe Price, became a champion of maverick architect Bruce Goff. Charles Price and his wife, Jessie, live in a home designed by Steven Holl, AIA.

Now Price is hoping to promote good architecture at his alma mater, Colorado College. Located in Colorado Springs, the school offers students and faculty members a stunning view of Pikes Peak, but its buildings are less than inspired. The college plans to build a new science building and a new arts complex, and Price would like to give the commissions to world-class architects. To get the ball rolling, Price, along with Elaine Freed, the school's

associate vice president of development, invited five firms—Carlos Jimenez Studio, Antoine Predock Architect, Tod Williams Billie Tsien and Associates, Eric Owen Moss Architects, and William P. Bruder Architect, Ltd.—to participate in a lecture series on modern architecture. The architects toured the campus, met with students and faculty, and discussed ways to improve the school's overall design. "It was a chance for us to get to know the architects," Freed said, "but it was also an educational opportunity for our students and faculty members."

Price, who helped pay for the lecture series, insists that he does not want a building named after him. "I'm interested in seeing good architects have their work built," he said. Ultimately, the college's board of trustees will decide whether to hire a nationally renowned architect. One board member, however, is sure to go along with the idea: Charles Price's father, Harold Price Jr. "He supports it," the younger Price said, laughing. *David Hill*

**EPA UPDATE** One thousand employees of the Environmental Protection Agency (EPA) have moved into new quarters designed by Gruzen Samton/Croton Collaborative in the Ronald Reagan Building. The space represents a small portion of the 1.3 million sq ft that the agency will occupy in its relocation to the Federal Triangle complex in downtown Washington, D.C. Working closely with EPA scientists, Croton Collaborative developed new "green" quality and performance guidelines for the project. These include a new protocol for testing furniture that has been incorporated into the General Services Administration's furniture procurement process, and the formulation of construction-sequencing guidelines to minimize the release into the air and absorption by people and materials of volatile organic compounds and airborne particulates. Window assemblies on existing buildings were field-tested to establish criteria for energy analysis and cost/benefit design strategies. Other concerns were orientation to daylight, "wayfinding" interior plazas, and the use of community-scaled work groupings to give the vast floor plates a more human scale. *E.K.P.*





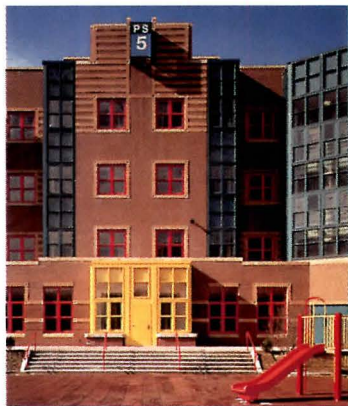


## FROM SAWS TO SKYSCRAPERS AT NATIONAL BUILDING MUSEUM

Exhibitions at the National Building Museum in Washington, D. C., range in scale from works of art that find inspiration in the common saw to the history of Washington's plan and recent public architecture in New York City.

"Tools as Art III: All Saws" (on view through April 19) is the third in a series of exhibitions from the art collection of John Hechinger, a leader in the hardware industry. The show explores the possibilities of the common saw when put in the hands of artists. Some works explore saws as instruments of construction and destruction. Others use saws to question notions of domestic harmony; painted scenes on saws recall the heyday of hand labor in rural America.

At the opposite end of the scale, the show "Planning Washington's Monumental Core: L'Enfant to Legacy" (through June 30) traces the development of Washington from Charles Pierre L'Enfant's 1791 design, through the Senate Park Commission Plan of 1902, which created the National Mall, to today. "Civics Lessons: Recent New York Public Architecture" (December 5–May 11) highlights projects initiated by public agencies, from a comfort station in a park to a major waterfront plan.



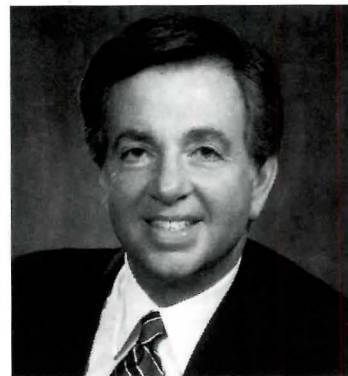
**Grand Central Terminal revitalization** by Beyer Blinder Belle (top) and **Public School 5** by Gruzen Samton (above), from the exhibition "Civics Lessons."

## EXPANDING ARCHITECTS' INFLUENCE IS GOAL OF NEW AIA CHIEF

After an extensive search, the AIA selected a new executive vice president and chief executive officer. He is Mark W. Hurwitz, Ph.D. For close to ten years, Hurwitz has led the Building Owners and Managers Association (BOMA), the oldest and largest trade association representing the commercial office building industry. As he prepares to shift gears and take the helm of the 59,000-member professional society that represents the majority of the nation's architects, RECORD asked him to discuss his role. Following are excerpts from his comments:

"My goal is to make the AIA a more effective advocate for the profession: to expand its respect in the public policy arena, and to strengthen AIA's advocacy role both on Capitol Hill and at the agency level. I also see AIA as an advocate for professional education, helping to provide the public with professionals prepared to meet their obligations to the community. This is an important time for architects. The profession is redefining itself in a most positive way. As the economy continues to strengthen, the construction industry has thrived and architects are reaping the benefits. At the same time, architects are assuming greater responsibility in

the design and building process, getting involved very early on in planning issues and in many cases staying involved after the project is completed. Architects are moving from a project orientation to a relationship orientation with clients and



**Mark W. Hurwitz has been named executive vice president of the AIA.**

communities that extends well beyond a single building project.

"We have a strong message that is starting to resonate with the public, and it's a message I want to continue to stress: that good design is good business; that architects are trained to see the big picture; and that it is their ability to solve problems and to pay attention to the bottom line that they are being valued for, now more than ever."

*E.K.P.*

**YEAR-END LEGISLATIVE UPDATE** As the 105th Congress neared the end of its first session, lawmakers passed a bill to prevent a financial crisis in the Housing and Urban Development (HUD) Department's Section 8 public housing program. But architects will have to wait until next year for action on other key issues.

HUD's 1998 appropriations, which President Clinton signed into law on October 27, increase aid for expiring Section 8 contract renewals by \$4.6 billion. In addition, subsidies to landlords will be pegged to local market rents. Under the old system, periodic inflation adjustments drove subsidies so high that they threatened to burst the federal pocketbook.

The National Association of Home Builders (NAHB), and other developers who favor enhanced rights for landowners in cases of eminent domain, scored a victory on October 22, when the House made it easier to bypass local courts and bring cases directly to federal courts. But governors and mayors oppose the bill, saying it undermines their authority. Administration officials agree with regional and local governments and recommend a veto. The Senate has not acted.

Federal highway and transit programs will be extended through the spring under legislation now heading for approval. The bill provides \$5.5 billion in new highway aid and \$2.5 billion for mass transit.

In state legislation, Nebraska has tightened architectural and engineering licensing. For the first time, designers there will need accredited degrees. The mandate takes effect for architects in 2004 and for engineers in 2006. The law has teeth: violators face fines of up to \$10,000. *Tom Ichniowski*

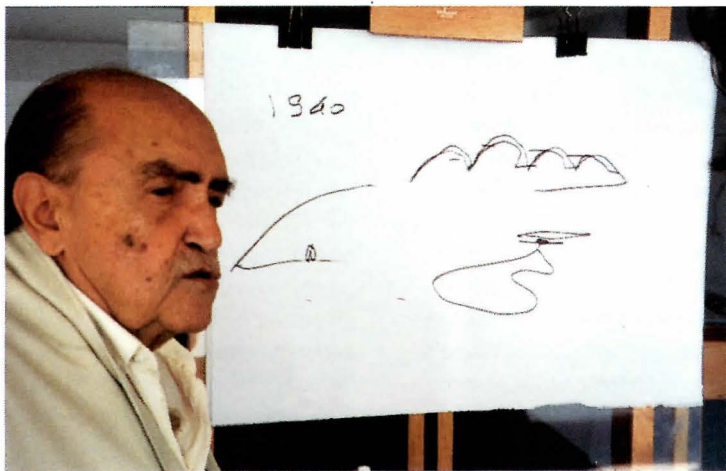


## “FORM FOLLOWS FEMININE”: NIEMEYER, 90, IS STILL GOING STRONG

Brazil's architect of the century, Oscar Niemeyer, celebrates his 90th birthday this month. He still receives visitors in his penthouse studio overlooking the beach of Rio de Janeiro's Copacabana. He stands at a wooden easel drawing plans once and future with black marker on large sheets of tracing paper. He has shrunk with age but is as debonair as ever: the combed-back hair, artistically long,

museum of modern art, one of the increasingly grandiloquent gestures of his long career.

The plasticity of Niemeyer's architecture is largely a result of the miracle material that became widespread as he was coming into the profession: reinforced concrete. He soon realized that it made possible fluid lines, curves, and amazing spans, providing the architect with an unprecedented freedom of form.



still hangs over the turned-up collar of his jacket.

The work of Oscar Riberio de Almeida de Niemeyer Soares (b. 1907) has been known internationally since the 1930s, when in cooperation with Le Corbusier he designed Brazil's first Modernist building for the Ministry of Education in Rio. His magnum opus was the new capital of Brasilia in the late 1950s. Since then he has built houses, schools, hotels, government buildings, and monuments in Brazil, Europe, and the United States. Lately he has reduced the size of his office to two or three close associates and family members, who are working on commissions for a museum and for an expansion of the Supreme Court in Brasilia. The self-professed Communist recently designed a 36-ft-tall monument for Havana, protesting the American economic blockade. On the coast in Niteroi, near Rio, stands his new flying saucer-like

His best work combines a tropical organic aesthetic with the transparency and clarity of Modernism. Inspired by the spirit of European Modernism, he invented for post-colonial Brazil an architecture all its own—one with which his country could, ironically enough, distance itself from European domination.

Niemeyer has waged a continuing struggle against the chill orthodoxy of the right angle and the straight line: they did not suit the voluptuousness of Brazil. Spreading his arms wide he declaims, "L'architecture, c'est la beauté, c'est le surprise! The Modernists acted as if architecture consists only of rational processes and straight lines. My work is not about 'form follows function,' but 'form follows beauty' or, even better, 'form follows feminine.'" To the charge that his art served the powerful he replies, "I cannot undo all the wrong in the world. I can only counter it with an experience of beauty." *Tracy Metz*

## ARCHITECTURAL PRESS ROUNDUP

by Ellen Kirschner Popper

### LEVITTOWN TURNS FIFTY

*Newsday, October 20 & 26, 1997* Levittown kicked off a year-long celebration of its 50th anniversary, and Long Island's only daily newspaper gave it lots of ink. Forty original residents led a parade of "school bands and sports clubs, bowling leagues and Scouting troops, church organizations and cheerleaders." A float bearing scale models of Levitt houses and a 10-ft-high birthday cake were featured. But not everyone shared in the "unreserved sentimentalism." At week's end, columnist Les Payne reminded readers that Levittown had opened with a restrictive covenant in all mortgages that excluded "any person other than members of the Caucasian race."

### SMALL IS BEAUTIFUL

*Ski Magazine, November 1997* New Urbanists can now look to ski resorts to see their design principles realized. For landscape architect Eldon Beck, "the most important aspect of a ski village is at eye level, where pedestrians walk." Beck is designing base-area villages in Colorado, Utah, British Columbia, and Quebec for Intrawest, a ski consortium based in Vancouver. To Beck, "the pedestrian system is the structure of the village." His goal: to create environments that delight. His means: authenticity, diversity, and small scale.

### STILL LEARNING FROM LAS VEGAS

*Las Vegas Sun, October 20, 1997* While ever more outrageous themed casinos are grabbing headlines and drawing tourists to this famed desert resort, local designers, educators, and critics are grappling with the needs of a burgeoning year-round community. Assembled to celebrate the state's first "Architecture Week" (October 19–24), professionals said that new civic buildings like "the Predock Library," as it is locally known, signaled "the beginnings of a Las Vegas architectural style." Still, they lamented the city's fragmentation and disconnection, and acknowledged that the casinos were still the town's best design contribution. Said one critic, "the surrounding areas certainly could learn something from the Strip."

### A BASKET OR A DECORATED SHED?

*The Wall Street Journal, October 15, 1997* A seven-story structure that replicates a woven basket has been built at a cost of \$30 million as headquarters for the Longaberger Co. of Newark, Ohio. No surprise to learn that Longaberger manufactures baskets that have "near cult-like status in the Midwest." The *Journal* called the building "one of the more inventive architectural designs to hit corporate America in recent years." We can't help but wonder what Robert Venturi and Denise Scott-Brown would think.

### AND WHILE WE'RE ON THE SUBJECT...

*The New York Times, November 1, 1997* In a story about ideas whose time may have come and gone, University of Virginia philosopher Richard Rorty rated post-modernism the "Most Overrated Idea." "It's one of these terms that has been used so much that nobody has the foggiest idea what it means," he said. "It means one thing in philosophy, another thing in architecture and nothing in literature. It would be nice to get rid of it."





## COLUMBIA UNIVERSITY CENTENNIAL CELEBRATES MCKIM'S PLAN

New York's Columbia University is celebrating the centennial of its campus by exploring social, political, and architectural history through an exhibition, "Mastering McKim's Plan: Columbia's First Century on Morningside Heights."

On view through January 17 at the 116th Street campus, the exhibition traces the evolution of the 1894 master plan by Charles Follen McKim, of McKim, Mead & White, as it transformed four (later six) Manhattan city blocks into a planned metropolitan campus, providing an urban oasis amid New York's dense apartment houses and commercial streets.

"Other than Rockefeller Center and Columbia, New York City has few major coherent urban master plans," said Bernard Tschumi, AIA, dean of the Columbia University Graduate School of Architecture, Planning, and Preservation. Tschumi and associated architects Gruzen Samton recently designed a \$70

**Rendering of Columbia University campus by McKim, Mead & White (above). Low Library, shortly after construction in 1897 (below).**



million new student center, Alfred Lerner Hall, scheduled for 1999 completion. The design includes a four-story glass atrium that will stand in stark contrast to the classical campus.

Today, the legacy of McKim's early vision forms a framework for development that was unforeseen a century ago. The display of work designed for Columbia after World War II, both built and unbuilt, illustrates the controversies that it has suffered over Modernism, urban renewal, and preservation. Models and drawings from the 1960s through the 1990s reflect conflicts with the school's need for increased research space, community concerns, and escalating real estate values.

A second exhibition, "Constructing Low Memorial Library: A Chronicle of a Monumental Enterprise," documents McKim's first campus building with an impressive collection of 1890s construction photographs.

Low Library, completed in 1897, with its monumental stairs, green spaces, and terraces, still dominates and defines the campus in ways that neither McKim nor his client, former Columbia President and later New York City Mayor (1902-3) Seth Low, could ever have imagined, providing a landmark gathering spot for students.

The exhibitions come as Columbia University kicks off a new round of development. *Barbara A. Nadel, AIA*

## NEW RESIDENCE HALL TO BE BUILT AT YALE UNIVERSITY

Herbert S. Newman and Partners of New Haven, Connecticut, have designed the first new residence hall to be built on the campus of Yale University in 35 years. The building is scheduled for occupancy in the fall of 1998.

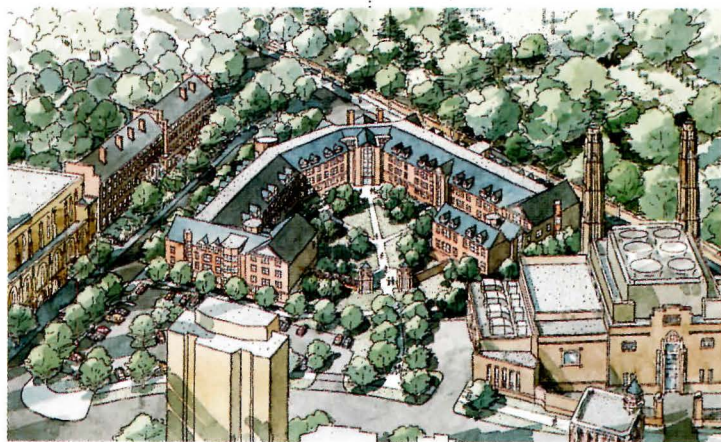
The university has been renovating its residential colleges and needed a dormitory where students could live while their primary college was under construction. Located at the corner of Ashmun Street and York Square Place, the new hall will house 108 two-bedroom suites, each with its own living room, bathroom, and kitchenette. There will also be student activity spaces, lounges, and offices.

In an apartment building-style layout, the suites are arranged along central corridors on four floors. This plan will assure gender privacy within a coeducational setting and provide attractive accom-

modations for students and faculty members participating in summer programs.

The new design follows the Yale residential college tradition of low structures combined with towers to define courtyards and views. In keeping with other campus buildings, the hall will be brick with a tile roof. The mass will be differentiated with gables, chimneys, bay windows, and dormers, creating a harmonious silhouette. A central courtyard filled with American elms will provide an "outdoor living room" with informal paths, terraces, and seating areas.

Robert Godshall, a partner at Herbert S. Newman, is working with Yale University's project representatives: Archibald Currie III, director of project management, and Pamela Delphenich, university planner. The project will be completed under a design-build arrangement with the Fusco Corporation.



**GOOD DEEDS MEET GOOD DESIGN** Good deeds and good design coincided as the Washington Architectural Foundation announced the winners of its Pro Bono Publico Awards. Now in its second year, the competition is sponsored by AEC Solutions, Baltimore, an architectural software company. The winners included a mixed-use redevelopment plan for an industrial neighborhood along the Potomac north of Old Town Alexandria, Virginia, by Lee Quill, AIA; a shelter, education, and training facility for 35 homeless people in a rehabilitated four-story brick building in downtown Washington by Ann Congdon, AIA; the interior design of a homeless shelter with administrative, medical, dental, and counseling facilities by Rebecca Hubler, ASID; and a library housing publications and tapes for the blind by Community Design Services, a group of architects who teamed up for the project. They were led by Robert Nichols, Assoc. AIA, and Michael Schwartzman. *Ellen Sands*





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CIRCLE 18 ON INQUIRY CARD



## WINNER ANNOUNCED IN COMPETITION FOR NEW CAMPUS IN SAN FRANCISCO

After more than twenty years of stops and starts, the proposed redevelopment plan for San Francisco's Mission Bay has taken a step closer to becoming reality. On November 3 the Bay Area Life Sciences Association (BALSA) named the winners of an international competition for the plan's centerpiece, a new research campus for the University of California at San Francisco. They were Machado & Silvetti in association with Gordon H. Chong & Partners and the Olin Partnership with Ove Arup & Partners (engineers), and Research Facilities Design (laboratory consultants).

As the linchpin of the Mission Bay plan, competition for the campus commission was fierce. Teams led by Steven Holl Architects with Hargreaves Associates; Sasaki Associates/Shin Takematsu Archi-

tect & Associates; Daniel Solomon/Michael Dennis Associated Architects; and STUDIOS Architecture in association with the SWA Group were each given a \$50,000 honorarium to develop design proposals.

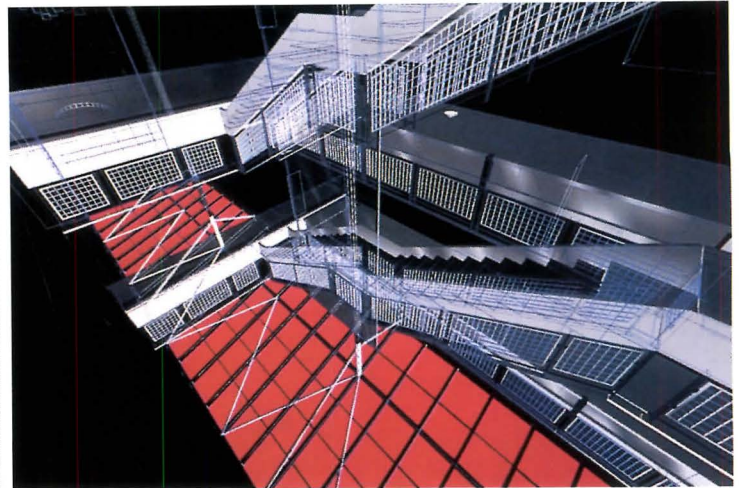
At a time when traditional forms of higher education are threatened with being replaced by information technology providing on-line courses and a "virtual university," UCSF's program stressed the historical importance of urban density and propinquity to its scientific culture.

The campus, which will be built over a 20- to 30-year period, will ultimately include 2.65 million sq ft of biomedical teaching and research laboratories on a 43-acre site in the proposed district.

BALSA representatives praised the winning team for having the "best long view" for the campus, and will recommend them to the University of California Regents both as master planners and as architects of a "signature building" for the first phase of construction.

BALSA is a nonprofit development group spearheaded by Donald Fisher, chairman of The Gap, and William Rutter, co-founder of the Chiron Corporation. It was established in late 1996 to help UCSF locate an additional campus in San Francisco. The group is now negotiating to play a role in the development of future campus buildings.

*Eric C.Y. Fang*



## BUILDING A NEW FRONTIER: CORPORATE DESIGN ON THE PRAIRIE

Two new corporate headquarters on the midwestern prairie will challenge the stereotype of suburban corporate design. David A. Hansen, AIA, of Perkins & Will, designed the projects, one for W. W. Grainger, Inc. in Lake County, Illinois, and the other for a research/manufacturing client in Chicago's western suburbs.

The headquarters for W. W. Grainger was conceived as a multi-phased complex, and the first stage includes two office buildings linked by an atrium. The splayed geometry of the plan will provide a framework to accommodate future additions. Each new phase will add an atrium between building wings, in a fanlike composition. Infused with natural light, the atria will provide focal points and inject the space with movement, according to Hansen. The taut structure of metal and glass will be finished with granite

and limestone spandrels and a granite-clad fin-wall that anchors the composition in the landscape.

The headquarters facility for an international research and manufacturing client will consolidate several satellite offices into a single building. The organizing element of the plan is a passageway illuminated by skylights that will link the office laboratory and manufacturing functions. A flexible design responds to the client's need to move offices and, sometimes, whole departments. Project architect Randy Guillot, AIA, said that the project will combine off-the-shelf building components with standard materials to create a cost-conscious, modern design. An exterior skin of foam-filled white steel panels, typically used in an industrial context, will form a dramatic silhouette against the natural hues of the prairie.



**LIONS IN HARD HATS** Normally blasé New Yorkers were surprised to see the lions that flank the New York Public Library's landmark building at Fifth Avenue and 42nd Street wearing 50-lb hard hats. The construction gear signals the interior restoration of the main reading room, originally designed by Carrère and Hastings. Architects Davis Brody Bond, Ltd. are refurbishing the grand, wood-paneled room, restoring the ceiling and other architectural details that have suffered through nine decades of wear. Black paint that was applied to the huge west-facing windows during World War II will be removed so that the room will once again be filled with daylight. Mechanical systems that deliver books from the stacks will be rehabilitated. Seating capacity will be increased, and accommodations will be made for electronic work stations and readers' laptop computers. The hard hats were created by Carol Held at American Direct Mail and funded privately. The lions, Fortitude and Patience, will sport their hard hats through the holiday season. *Ellen Kirschner Popper*





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CIRCLE 19 ON INQUIRY CARD



## NEWS BRIEFS

**Law center to use courthouse as lab**

While most law schools pride themselves on their intimidating atmosphere, the proposed Touro Law Center is intended to provide real-life experience within a supportive environment. Designed by Spector Group of North Hills, New York, the new 150,000-sq-ft law school in Islip, New York, will stand adjacent to the new United States Courthouse and Federal Building, planned by the team of Spector Group and Richard Meier & Partners. "This proximity will allow Touro's students and professors to use the courthouse as a laboratory," said Michael Harris Spector, FAIA.

**Look for new CSI documents at AIA convention**

The Construction Specifications Institute (CSI) has released its new Uniform Drawing System (UDS). The package will be offered for continuing education credits at the next AIA convention.



**Rendering of the "Endowment House," Lake Tahoe, California.**

UDS provides a system for preparing construction drawings grouped into modules that are organized by drawing type (plan, elevation, section, and details), disciplines (architectural, engineering, and mechanical), production data, and schedules. The information is available now both in hard copy and on CD-ROM. To order, call CSI at 800/689-2900.

**Architects donate services in novel fund raiser**

In a new twist on fund raising, Architects Faulkner + Ryan of Truckee, California, are joining the Tahoe Truckee Excellence in Education Foundation to build and sell a custom home. The profits will benefit local education programs. The Endowment House, as it is known, will be built in the Lake Tahoe vernacular with donated design and construction management services, labor, materials, and

land. When complete, it will be sold for about \$675,000. Proceeds will boost the foundation's endowment to more than \$1 million. The idea evolved when a major ski resort, Northstar-at-Tahoe, donated half the value of a development lot, worth about \$75,000, to the foundation.

**Chemical-free clinic opens in New York**

A specially constructed, chemical-free medical center for the treatment of disorders caused by environmental sensitivities has opened in the Architects & Designers Building in midtown Manhattan. Run by Adrienne Buffaloe, M.D., Health Care for the 21st Century (HC/21) was built with low- or no-toxicity materials. It includes an on-site diagnostic laboratory and a heat detoxification unit to remove dangerous chemicals from the body. "Indoor air pollution now exceeds outdoor air pollution as a serious medical concern, and has a negative impact on our immune system," Dr. Buffaloe said.

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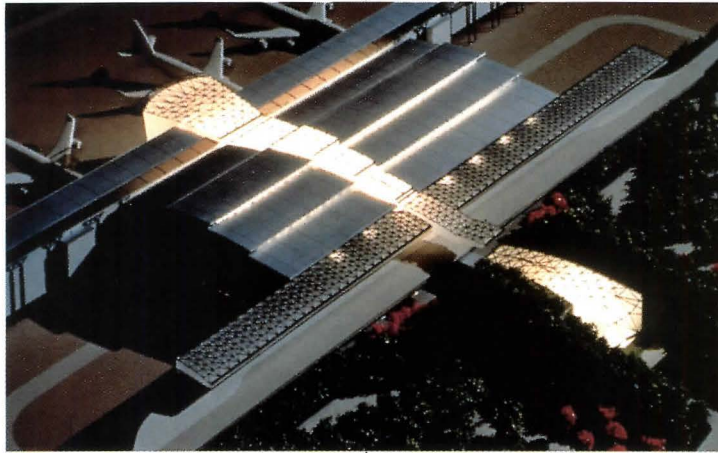


**New insurance designed to minimize litigation**

CNA Commercial Insurance of Chicago is offering a liability policy to match the revised A201 document. The new policy, Project Management Protective Liability Insurance, consolidates previously separate third-party liability policies for owners, architects, and general contractors into a single instrument of coverage. "By bringing everyone together under one umbrella, this new form of insurance will take away the incentive for parties to sue one another over who was responsible for a construction injury," said AIA contracts director Dale Ellickson, FAIA. "They can stop trying to find fault and concentrate instead on solving the problem."

**Green Building Conference links practice with place**

Austin, Texas, hosted the Sixth Annual Green Building Conference at the Austin Convention Center last month. This year's theme was

**Model of Fukuoka International Airport's "Gateway to Asia" terminal.**

"Linking Practice with Place: How to Do the Best Where You Are." The conference featured a trade show with over 200 exhibitors, and a tour of green homes and businesses in the Austin area. An award for the best "green," low-income home was presented by the Austin chapter of the AIA to Susan Pendergrast, AIA, for a 1,600 sq-ft-strawbale house.

A new "Gateway to Asia" HOK and partner Azusa Sekkei of Japan, along with Mishima Architects and MHS Planners, designed a new \$280 million passenger terminal for the Fukuoka International Airport, Japan. The 650,000-sq-ft design uses lightweight, simple-span structures and north-facing clerestories to provide spectacular views of nearby mountains. A gently curved roof is divided into five shells that hover above the main departure

level. Like wings of an airplane taking off, the leading edges lift outward, capturing north light and providing glimpses of the sky to passengers waiting in ticketing areas on the departure level.

**Canada celebrates the work of John Hejduk**

The Canadian Centre for Architecture is honoring John Hejduk with the first retrospective of his work, on view through February 1. The exhibition includes five decades of models, prints, and drawings by Hejduk, dean of the Irwin S. Chanin School of Architecture at The Cooper Union. Through his teaching and his intricate theoretical explorations, Hejduk has influenced two generations of architects. His work continually reinforces the notion that architecture is not defined solely by whether or not it is built. "When an architect is thinking, he's thinking architecture, and his work is always architecture, no matter what form it appears in," Hejduk said. ■

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# DATES EVENTS BOOKS

## Calendar

December 5–May 11, 1998

**National Building Museum  
Washington, D.C.**

“Civics Lessons: Recent New York Public Architecture” takes a look at 79 projects in New York City that were initiated by public agencies working with architects between 1985 and 1995. Organized by the AIA New York Chapter in conjunction with the New York Foundation for Architecture, the show emphasizes the fundamental link between public investment in architecture and the economic, social, and aesthetic quality of the city. Call 202/272-2448.

December 9–January 17, 1998

**Storefront for Art and Architecture  
New York City**

“RUSS: Residual Urban Site Strategies” is an exhibition of projects by architect Gordon Kipping, who works with revitalizing existing structures on New York’s Lower East Side. Call 212/431-5795.

December 11–February 8, 1998

**Municipal Art Society  
New York City**

“The Bronx Community Paper Company: Designing Industrial Ecology” chronicles the design evolution of a state-of-the-art recycling plant and paper mill by New York architect Maya Lin. Call 212/935-3960.

December 12–January 24, 1998

**Architectural League, Urban Center  
New York City**

The work of 20th-century modernist Charlotte Perriand, who began her career working in collaboration with Le Corbusier and Pierre Jeanneret on interiors and furniture, is the focus of a retrospective exhibition. Furniture, lighting, and photographs are on display. Call 212/753-1722.

December 15–April 5, 1998

**Frick Collection  
New York City**

An exhibition of the work of architect Robert Adam (1728–1792), considered the father of the Classical Revival in Britain, includes 65 drawings, models, objects, and books on loan from the Sir John Soane Museum in England. Call 212/288-0700.

December 19–March 10, 1998

**San Francisco Museum of Modern Art  
San Francisco**

“Zaha Hadid: Painted Projects” is the first solo museum presentation of the work of the Iraqi-born British architect. The exhibition includes two dozen of the architect’s paintings, which depict cities and buildings in assemblages of exploded lines and planes. Her competition-winning designs for The Peak Club in Hong Kong and the controversial first-place scheme for the Cardiff Opera House in Wales are among the works on view. Call 415/357-4000.

Through December 19

**Van Alen Institute  
New York City**

“Designing Islands: The Public Future of New York’s Archipelago” offers the first New York showing of entries from “Ideas Afloat,” an international competition for the design of Davids Island (off New Rochelle). It also places the entries in the context of design initiatives for New York’s other islands, including projects for Governors Island and Randall’s Island. Call 212/924-7000.

Through December 28

**Orange County Museum of Art  
Newport Beach, California**

“Frank Lloyd Wright: Designs for an American Landscape” explores five little-known visionary projects by the architect. More than 150 drawings from the Frank Lloyd Wright Foundation and the Library of Congress are included. Call 714/759-1122.

Through December 31

**Baltimore Museum of Art  
Baltimore**

Paintings and decorative arts objects by Baltimore artists, silversmiths, and cabinetmakers completed between 1790 and 1820 are on view in “Celebrating Baltimore’s Birthday.” The exhibition honors the 200th anniversary of the incorporation of the City of Baltimore and inaugurates the reopening of the museum’s John Russell Pope building. Call 410/396-7100.

Through January 4, 1998

**Fogg Art Museum, Harvard University  
Cambridge, Massachusetts**

“Rome and New York: A Continuity of Cities,” an exhibition of prints from Piranesi to the 20th century, examines Rome’s image as an ancient

center of power and religion and New York’s as the epitome of the modern city. It also demonstrates how each city has at times embodied the qualities associated with the other. Call 617/495-2397.

Through January 4, 1998

**Katonah Museum of Art  
Katonah, New York**

“Toying with Architecture: The Building Toy in the Arena of Play” features 200 historical and contemporary architectural construction toys, including Erector Sets, Lincoln Logs, and Tinkertoys. Call 914/232-9555.

Through January 4, 1998

**Vitra Design Museum  
Well-am-Rhein, Germany**

“The Work of Charles and Ray Eames: A Legacy of Invention” is a major retrospective documenting the work of the renowned modernists. The exhibition will travel to the United States in 1998. Call 49/7621/702-3200.

Through January 6, 1998

**Museum of Modern Art  
New York City**

“Achille Castiglioni: Design!” features displays of the Italian architect and designer’s furniture, lighting, and domestic objects, as well as reconstructions of interiors he designed for exhibitions in 1957, 1965, and 1984. Call 212/708-9400.

Through January 11, 1998

**Cooper-Hewitt Museum  
New York City**

“Design for Life: A Centennial Celebration” takes a look at “the central role design plays in our lives.” The exhibition includes 200 objects from the museum’s collection, ranging from examples of industrial and graphic design to textiles and wall coverings. Call 212/849-8420.

Through January 17, 1998

**Columbia University  
New York City**

Columbia University is presenting two exhibitions to celebrate the 100th anniversary of its Morningside Heights campus in Manhattan: “Mastering McKim’s Plan: Columbia’s First Century on Morningside Heights” (at the Miriam and Ira D. Wallach Art Gallery in Schermerhorn Hall) and “Constructing Low Memorial Library: A Chronicle of a Monumental Enterprise” (in the library’s rotunda). Call 212/854-2877.

(continued on page 153)





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CIRCLE 26 ON INQUIRY CARD



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# Making the Renaissance Work

IN THE 15TH CENTURY, ART AND TECHNOLOGY WERE ONE

by Clifford Pearson



**E**ver wonder what it would be like to operate a mobile siege bridge or a three-speed hoist capable of lifting one-ton loads to the top of the dome of Florence's cathedral, Santa Maria del Fiore? Well, if you visit "Mechanical Marvels: Invention in the Age of Leonardo," an exhibition on view at the Liberty Street Gallery at New York's World Financial Center until March 1, you'll get your chance. Full-scale working models of 50 machines from the Renaissance

show how the roles of artist, engineer, and architect were inseparable 500 years ago.

Built by art restorers in 20th-century Florence using only materials dating from the 15th century, the models are windows onto the minds of the men who took construction out of the Middle Ages and brought it into the Renaissance. While you won't be allowed to try out the full-scale model of Leonardo's 35-ft-long flying machine or a 13-ft-tall column lifter, you will be able to play with smaller versions made of modern materials or computer-animation programs that show these amazing contraptions in context and action.

The exhibition begins with Filippo Brunelleschi and his dome for Florence's cathedral, then examines the work of two Siennese engineers (Mariano di Iacopo and Francesco di Giorgio) who designed waterworks and wrote illustrated treatises. The show ends with Leonardo's contributions to mechanical drawing and the design of machinery.

Before Brunelleschi, architects and engineers were anonymous craftsmen. By the time Leonardo died—supposedly in the arms of his patron, King Francis I of France—architects had become intellectuals, wooed to royal courts for their brilliance and the practical application of their ideas. Conversations on natural philosophy at night, designs for revolving cranes and war machines during the day.

Walking through the exhibition, modern architects can "understand where they come from," says Paolo Galluzzi, director of the Institute

and Museum of the History of Science in Florence and the organizer of the show. Back in the 15th century people like Leonardo worked toward "a total integration of philosophy, art, and technics," explains Galluzzi. Not until the end of the 18th century, with the establishment of the Ecole Polytechnique in Paris in 1794, would engineers be educated separately from architects. The split between art and technics has grown ever since.

The working models included in the show may attract the most attention, but the drawings of machines represent a critical turning point for the architectural profession, says Galluzzi. Brunelleschi and medieval designers before him used drawings in the course of their work but saw them as secret tools of the trade. As a result, no architectural drawings from this period have been passed down to us.

But the Siennese engineers used drawings to communicate their ideas to their colleagues and their rich patrons. Indeed, Francesco di Giorgio is credited with writing the first modern technical treatise, merging text with illustrations. Applying his great artistic skills, Leonardo made architectural drawing a powerful means of communication. Much of "the visual grammar of the architectural profession," says Galluzzi, was created during the fertile century from 1418, when work began on the dome of Florence cathedral, to 1519, when Leonardo died. ■



A wood model of Brunelleschi's dome of Florence Cathedral, the largest ever built

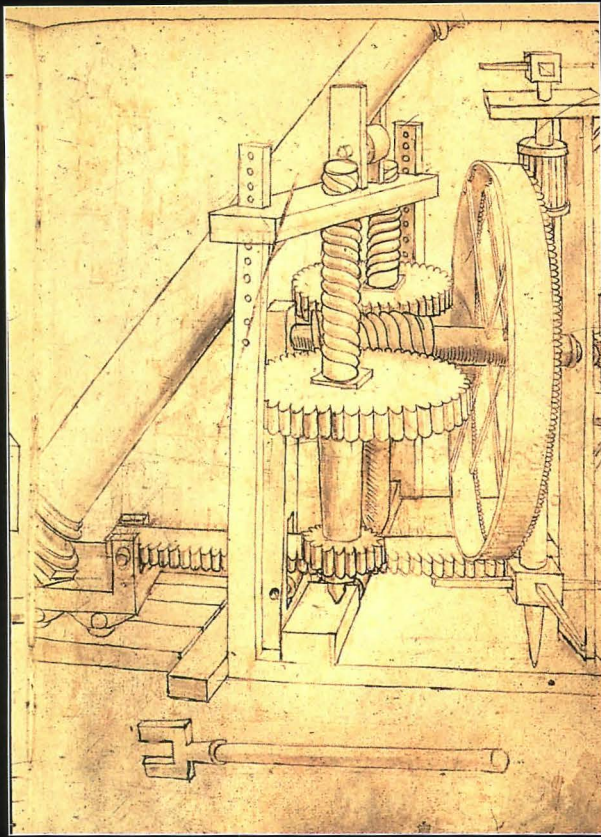
without using wooden centering (top). A mud extractor designed by Siennese engineer

Francesco di Giorgio, used to clear gravel and mud from ports (above and opposite).

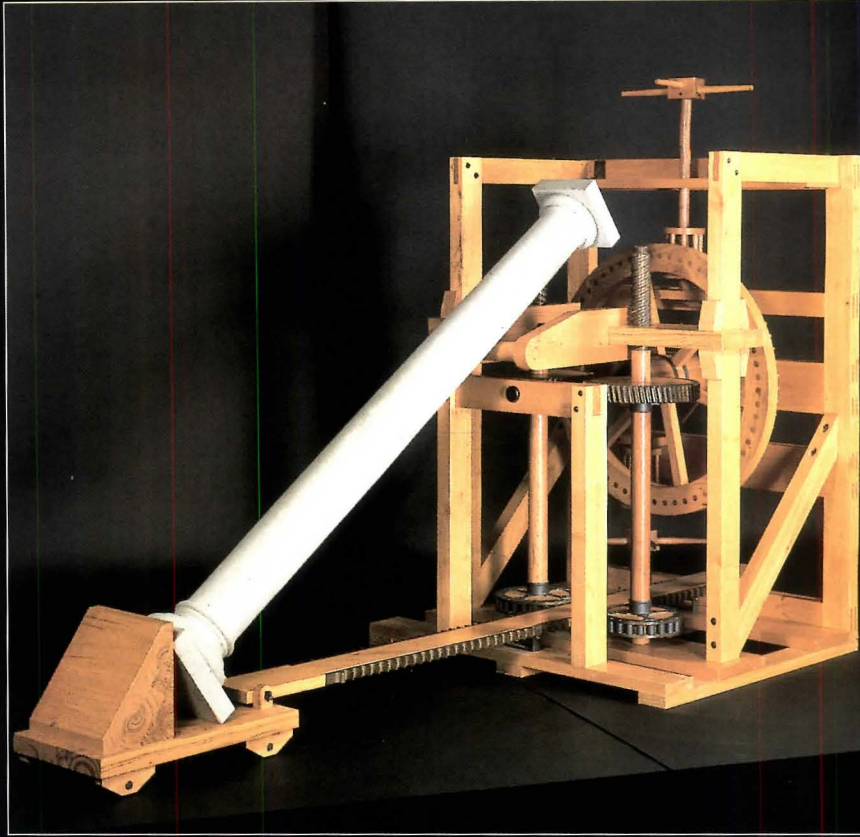




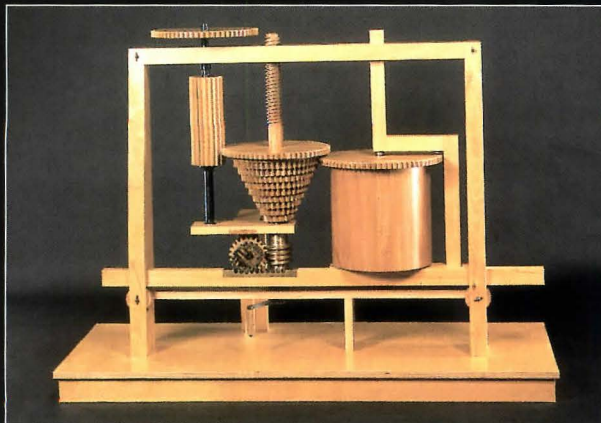
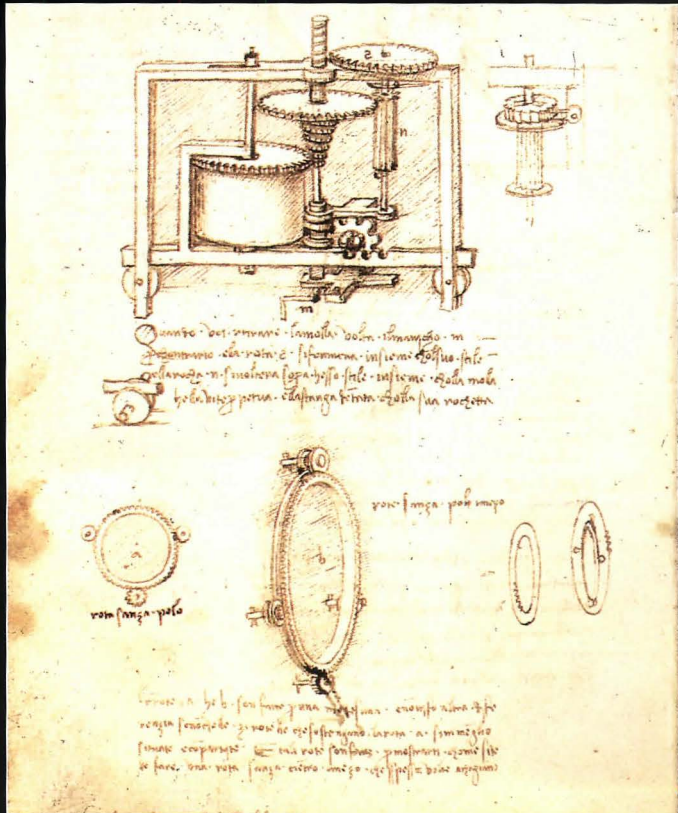




A column lifter designed by Francesco di Giorgio is operated by hand and employs toothed wheels, a pinion, and worm screws to pull a wheeled platform on which the column base rests.

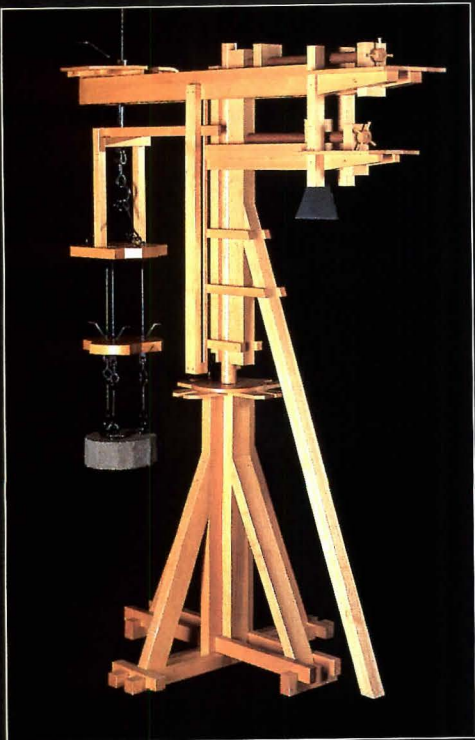
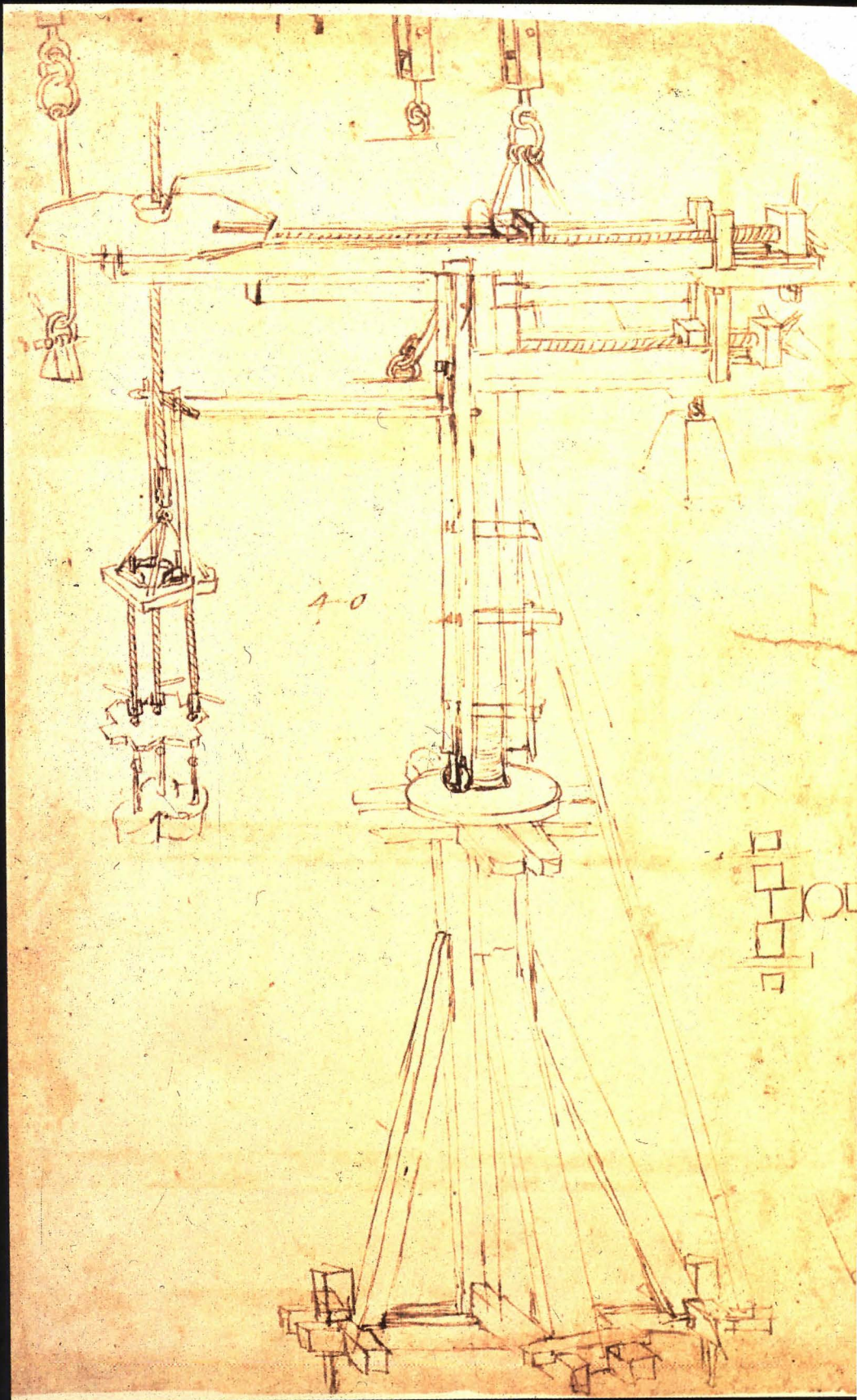


A spring motor by Leonardo da Vinci is a device for regulating the force of a spring concealed in a drum. Sketches show the system of imparting motion to the rack (left in drawing) and the top of the spindle driven by the winding cone-shaped gear (below).





A drawing by Leonardo of Brunelleschi's revolving crane used in building the Florence Cathedral dome, and a photograph of the new working model of the device. The crane, which was at least 65 feet high, could rotate 360 degrees and set heavy stone blocks in place.





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## BUILDINGS FOR COMMUNITIES

## Creating the Ripple Effect

THE BEST COMMUNITY BUILDINGS ARE THOSE THAT IMPROVE THE SELF-IMAGE OF THE INDIVIDUAL USER AND OF THE LARGER SOCIETY IN TURN.

by Charles Linn, AIA



**1** Sioux City, Iowa

Architect Randy Brown's renovation allowed the Boys Club to expand programs and raise funds.

**2** San Diego, California

The M. W. Steele Group's passively cooled, daylit library gives its patrons lessons that go beyond the books.

**3** New Orleans, Louisiana

A Salvation Army shelter for the homeless by Errol Barron/Michael Toups allows people to reside in dignity.

**4** Bronx, New York

Urban Architectural Initiatives' recreation center for young people has spurred a neighborhood renaissance.

**5** Indianapolis, Indiana

BDMD's new theater at the world's largest children's museum reaches for a wider audience.

**6** Overland Park, Kansas

Recycling a discount house into a library let Gould Evans Goodman save taxpayers millions of dollars.

One of the greatest challenges architects face is to make environments that create a positive change in people. A good project can cause a ripple effect that influences other projects for the good, which is what buildings that serve communities should do. But it isn't as easy to establish how well a building contributes to a community as it is to determine how other types of buildings perform their jobs.

An office building should have an intelligently designed floor plan, of course, but more important, it should help make a statement about the corporation that resides in it. A clothing store should project the image of the garments sold inside well enough to tell us if their styling is suitable for reinforcing our own self-images.

Following this logic did provide a certain direction for choosing projects for this Building Types Study. The best buildings for communities are those whose design is forceful enough to help people redefine their images of themselves.

The better projects do this on more than one plane. Both of the libraries being featured in this issue, for instance, are cornerstones for learning in their affluent communities, but both also have a "green" component that can teach lessons about using natural resources wisely. One is a building recycled from an abandoned concrete discount store; the other is daylit, and passively ventilated and cooled.

Several buildings included here are used for social programs. The Salvation Army homeless shelter provides a refuge for transient people, as well as a long-term shelter for battered women trying to start new lives and families who have lost their homes. Because the building is located in a middle-class neighborhood, those who stay there aren't forced to live in a poor part of town in order to get help, and they can face the immediate future with dignity.

The Boys Club provides activities for at-risk boys in a renovated armory that the club has occupied for many years. Since it was remodeled—on a shoestring budget—the club's increased success in fund-raising has helped expand its programs to include more youths for the first time in years. The Boys Club is possibly the most thoughtfully designed environment its users have ever been in.

Perhaps in some way the pride that users take in such special places will lead them to become more thoughtful members of their communities. When architecture influences people this positively, the ripple effect has begun. ■



1

# Boys Club Sioux City, Iowa

**A RENOVATION ON A SHOESTRING BUDGET PROVIDES A SAFE HAVEN FOR AT-RISK BOYS AND A SURPRISING BONUS: EXTRA INCOME.**

by **Linda Hallam**

**Project:** *Boys Club of Sioux City, Sioux City, Iowa*

**Architect:** *Randy Brown Architect—Randy Brown, AIA, principal; Christian Petrick, Jason Winterboer, collaborators*

**Client:** *Boys Club of Sioux City, United Way—Roger Friesen, director; Bill Felges, board member in charge of renovation*

**Contractor:** *W. A. Klinger Inc. Constructors—John Gleesen, president, Steve Koza, project manager*

#### *Project Statistics*

**Renovation cost:** \$350,000

**Size:** 40,000 sq ft

#### *Sources*

**Glazing:** *Insulite Glass, Polygal*

**Windows:** *Kawneer*

**Cabinet hardware:** *Forms + Surfaces, Julius Blum*

**Paint:** *Sherwin Williams*

**Carpet:** *Shaw*

**Resilient flooring:** *Azrock*

**File cabinets:** *Steelcase*

**Light fixtures:** *Snake Lights, Halo, Metalux*

**Plumbing fixtures:** *Elkay, American Standard*

**Ceramic tile:** *Crossville Ceramics*

*Linda Hallam edits shelter books for Meredith Corp., Des Moines, Iowa. She was formerly the editor of the homes section of Southern Living magazine.*

The rehabilitation of the Sioux City, Iowa, Boys Club building dispels any doubts about how architecture can engage children, provide a place for them to play—and even improve the income of a nonprofit organization. The club, which is open after school, on weekends, and in the summer, targets at-risk boys starting at age seven. Working with a strict budget, architect Randy Brown, AIA, rehabbed the club's turn-of-the-century converted brick armory for \$350,000.

Since the 15-month rehabilitation, membership has increased 46 percent to 900 boys, and the club is now offering its first teen program in 20 years. The rehabilitation project has also contributed to increased financial support for the club, says director Roger Friesen. Bingo games for adults, held at night in the same facility, fund the club. "We have had a 40 percent increase in people playing since the rehab," he says.

"At first," says Brown, "the idea was just to paint and carpet again, as had been done over the years." But one of the board members, Bill Felges, wanted to do more, and he pushed for an architect. "When we met with the boys," continues Brown, "they wanted more, too. We brainstormed with them in groups. They wanted windows, a basketball court, and a treehouse or a boat."

Using the boys' ideas, Brown says he looked for safe and eco-

nomical ways to translate their energy into the design. "We couldn't have things the boys could climb," he explains, "so we abstracted the ship metaphor into the games room counter and storage wall." The architect used faceted surfaces throughout to make the interior spatially dynamic. "We wanted to put a lot of interest in the wall forms, so they would climb with their eyes and minds." The idea was to create movement and to stimulate.

To meet the program and the budget, Brown worked with durable yet inexpensive materials, and with as much of the original turn-of-the-century building as possible. "We used oriented-strand board [OSB], corrugated fiberglass, sheet metal, and ceramic tile," he says. New windows were inserted into previously boarded-up openings.

With the help of the boys, the general contractor stripped the spaces back to their original materials. Maple flooring and plaster ceilings were restored, and brick walls were exposed.

Though the goal was to reuse and recycle, some spaces stand out as new and improved. "We designed the entry to be a transformation space, so when the boys come in from the outside they are ready for the experience," says Brown. Gray tiles on the floor and walls angle to create a forced perspective. The original plaster ceiling is painted a

dynamic cobalt blue. A white ceiling plane hangs from cables.

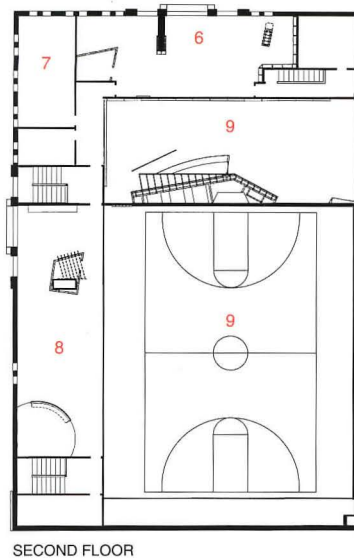
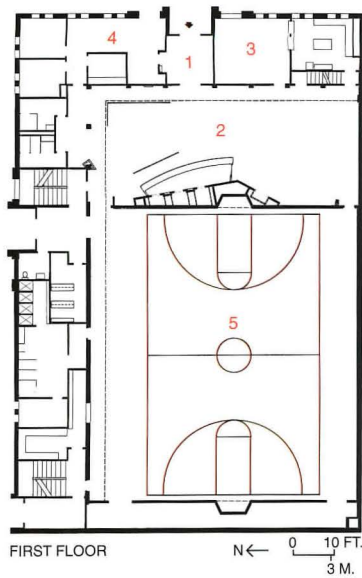
Materials are likewise combined in the games room, in the building's central core. "This room was designed to have a theatrical feeling, a contrast to other rooms that are filled with light," notes Brown. The design adds snake-type lights, and the existing fluorescents were covered with spiral ductwork and slotted to emit light.

A favorite space is the "stuff" room. "It's a clubhouse within the club for the boys," Brown says. Designed as a freestanding object, the stuff room has an entry of green-painted OSB and sides of clear fiberglass and two-by-fours.

The renewed club has proved to be a popular spot for many boys. "Boys are proud they belong, and they want to be here," says Friesen. ■



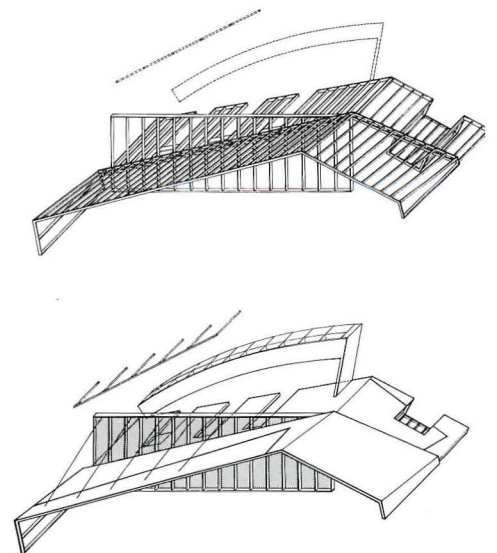




- 1. Entry
- 2. Games room
- 3. Dining room
- 4. Offices
- 5. Basketball court
- 6. Learning center
- 7. Discussion room
- 8. Teen room
- 9. Open to below

Constructed of OSB, the games counter (below right, drawings bottom right) has a niche for a television (opposite) and a check-out for toys that are to be used in the room. A favorite place in the

teen room is a free-standing, inner room with fiberglass walls, illuminated by snake lights. Called the "stuff" room (below left), the space is used by older boys as an inner sanctum.





# 2 Carmel Mountain Ranch Library San Diego, California

AN ARCHITECTURE-ENGINEERING TEAM TAKES ADVANTAGE OF SAN DIEGO'S TEMPERATE CLIMATE IN THE DESIGN OF A SUBURBAN BRANCH LIBRARY.

by Eric C.Y. Fang, AIA

**Project:** Carmel Mountain Ranch Library, San Diego, California

**Owner:** City of San Diego

**Architect:** M.W. Steele Group—Mark W. Steele, AIA, principal-in-charge; J. Randel Hanna, AIA, project architect; Matthew Wells, AIA, James Gabriel AIA, Ken Bierly, project team

**Consultants:** Environments, Michelle Needel (interiors); Ove Arup & Partners California (structural, mechanical, electrical); Lundstrom & Associates (civil); Spurlock-Poirier (landscape)

**General Contractor:** M. A. Mortenson

#### Project Statistics

**Construction costs:** \$2.25 million

**Furnishings, land, and soft costs:** \$454,000

**Size:** 13,000 sq ft

With its wide streets, ample parking, and centrally located golf course, Carmel Mountain Ranch is the kind of planned community frowned upon by New Urbanist designers but favored by the middle-class professionals who live there. As the development approached its target of 5,200 homes, and had a commercial center, schools, and a fire station in place, the developer, the Presley Companies, asked the M. W. Steele Group to design Carmel Mountain Ranch's first civic buildings. These included a community swimming pool and fitness center, completed in 1996, and a 13,000-sq-ft structure to be built as a turnkey project for the San Diego Public Library.

Mark W. Steele, AIA, studied the problem: creating a public space on a site he described as "not particularly civic." Steele, along with Marty Poirier of the landscape

architecture firm Spurlock-Poirier, approached the site critically. Noting that the neighboring shopping center and golf course faced the street with berms and parking lots, Poirier felt strongly that "the library, as a civic building, should break this pattern." Steele and Poirier resolved the ever-present suburban planning conflict between street and parking lot by pushing the building to the street, locating the parking at the rear, and providing entrances on both the street and parking lot sides of the building. This also created a landscaped plaza. Wherever possible, Poirier distinguished design interventions from the natural condition of the site. Rather than grading the site—suburban style—to form a level "pad," Spurlock-Poirier re-created the original grades, which drop about 10 ft across the site. This put the west-side entrances on grade

with the sidewalk, while the east side, enclosed by a garden wall, was built up on a plinth covered with riprap. The siting emphasizes the building and its dramatic butterfly roof.

Steele wanted to take full advantage of San Diego's famously temperate climate so that library users could feel free to go outside to read or gather for study. While this goal might not seem extraordinary given the region, Steele found that heavily air-conditioned interiors, in addition to librarians' security concerns, prevented most library courtyards from being used. To address these constraints, the architects placed the building in a walled garden—a decision, Steele says, that set them "down the path of doing a glass building."

Working closely with engineers Ove Arup & Partners, the architects developed a strategy founded on



Eric C.Y. Fang, AIA, is an architect and urban designer with Skidmore, Owings, & Merrill, San Francisco.





A wall around the courtyard (opposite and above) allows patrons to enjoy the out-of-doors without

breaching security. The steel moment frame (below) carries light shelves and sunshades.







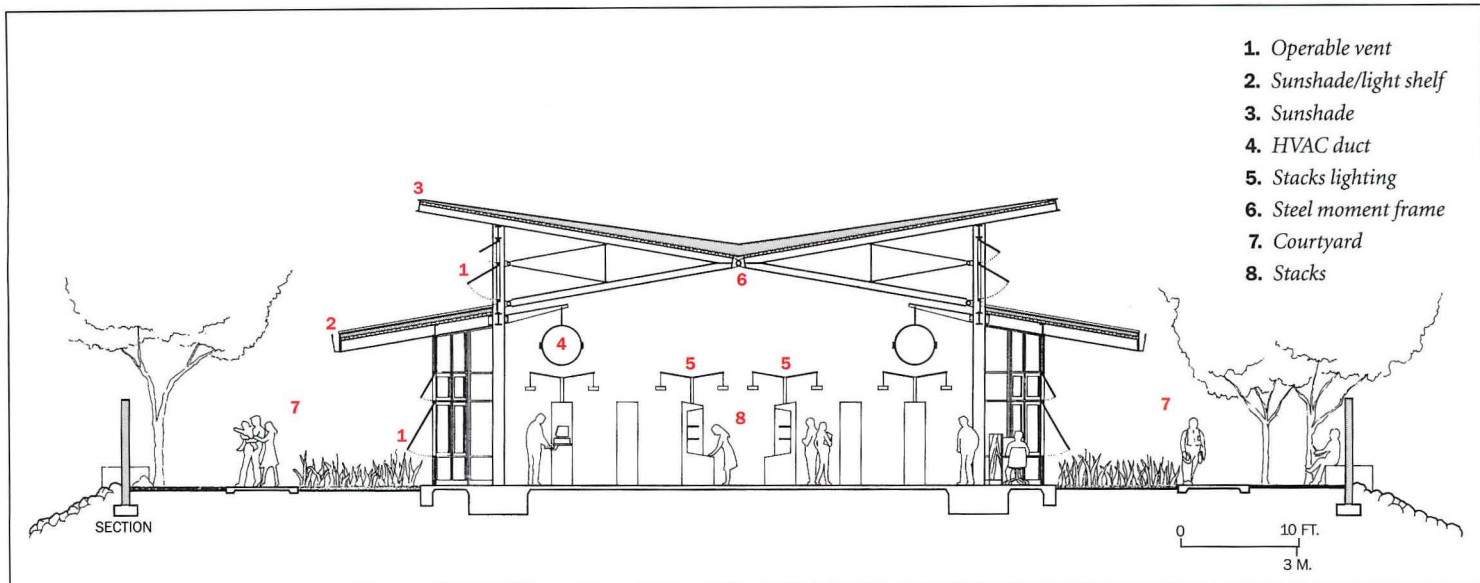


Details of the moment frame (opposite and photos above) show how it is integrated with the building interior and sunshades. Although it is possible to rely on passive ventilation (right) because

of the region's temperate climate, building operators must have a better understanding of how to make the interior comfortable than they might in a conventional, sealed, air-conditioned structure.







basic passive-solar and natural-ventilation principles with decidedly low-tech systems. Convection draws fresh air in through operable windows at user level and exhausts hot air through the clerestory. Steele and Ove Arup principal Alan Locke employed several other mainstays of passive-solar design such as high-density, heat-absorbing concrete masonry walls; seven-ft overhangs and vertical sunshades on the south side; and lower-level roofs used as light shelves. Spurlock-Poirier complemented these techniques by locating evergreen and shade trees on the south side and smaller trees to the north.

As a result of these measures, Arup sized the HVAC system only for "peak-trimming," on those few days when inside temperatures exceed 78 degrees. Chuck Angyal of San Diego Gas & Electric, which provided pro bono technical consulting under the utility's incentive program, predicts that the building's energy consumption should be half that of San Diego's typical branch library.

The interior, with its exposed moment frame and latticed roof trusses, imparts the feeling of a pavilion in a garden. The steel detailing, which is particularly conspicuous because the glazing is in the same plane as the structure, owes its success in part to the craftsmanship of the general contractors.

Awareness of the garden and

the mountains beyond is heightened by the taper of the reading areas on either side of the main stack area, the spatial and formal continuity between inside and outside, and the profusion of indirect daylighting.

The daylighting is so effective, according to Steele, that it exceeds the library's minimum footcandle requirements. But the energy savings are undercut by an automated lighting control system that is installed as standard equipment in City of San Diego buildings. It keeps the lights on all day whether they are needed or not. Steele is working to have the controls reset. He stresses that people have to be taught to use buildings that rely on "passive" means for environmental control, and that these buildings may, paradoxically, demand more interaction from those who are responsible for operating them. ■

*Sources*

**Metal curtain wall and windows:**

*Kawneer*

**Sun-control laminated glass:**

*Northwestern Industries*

**Metal roofing:** *ASC Pacific*

**Hardware:** *Schlage, Hager, Von*

*Duprin, Forms + Surfaces*

**Plastic laminate:** *Formica*

**Ceramic floor tile:** *Dal-Tile*

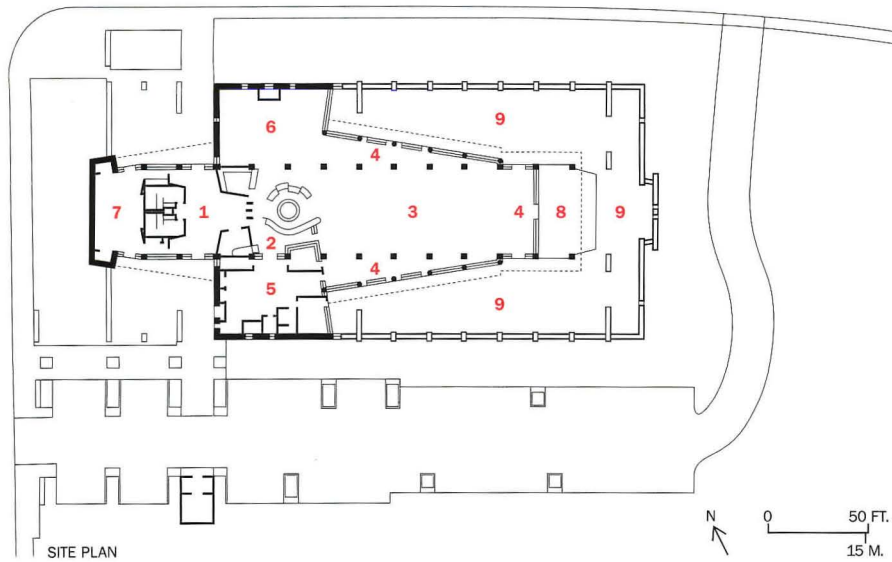
**Carpeting:** *Shaw Commercial*

**Lighting:** *Lightolier, Louis Poulsen,*

*Capri, Taos, Bega, Lithonia*

**Plumbing fixtures:** *Kohler*





- 1. Entry
- 2. Circulation
- 3. Book stacks
- 4. Reading
- 5. Staff
- 6. Children's stacks
- 7. Community room
- 8. Porch
- 9. Courtyard

The system of light shelves is efficient enough that natural light can satisfy most of the library's requirements during the day (photo opposite). Supplemental fluorescent

lighting is used between bookcases in the stacks (below). Once the building's energy controls are fine-tuned, electric lighting will operate only when needed.





## 3

# Salvation Army Center of Hope New Orleans, Louisiana

**A NEW FACILITY DRAWS ON AN ARK METAPHOR, GIVING THE HOMELESS A REFUGE IN THEIR STORMY TIMES.**

by Charles Linn, AIA

**Project:** Salvation Army Center of Hope, New Orleans, Louisiana

**Owner:** The Salvation Army

**Architect:** Errol Barron/Michael Toups Architects—Errol Barron, FAIA, Michael Toups, Steve Olson, Cindy Garbutt, design team; Steve Olson, project architect

**Consultants:** Zehner & Bouchon (structural); Huseman Wang (mechanical/electrical)

**General Contractor:** Gibbs Construction

#### Project Statistics

**Construction cost:** \$3,694,000

**Size:** 37,000 sq ft

#### Sources

**EIFS:** Senergy

**Metal curtain wall:** Kawneer

**Metal roofing:** Berridge, Atlas Aluminum

**Windows and entry doors:** Kawneer

**Glass:** PPG

**Wood doors:** Benton

**Hardware:** Yale, Hager

**Acoustical ceilings and suspension system:** Armstrong

**Paints and stains:** Glidden, Devco

**Plastic laminate:** Formica, Wilsonart

**Ceramic floor tile:** Dal-Tile

**Resilient tile:** Azrock

**Carpeting:** Cambridge

**Lighting:** Lithonia, Kim, Sternberg

**Elevator:** Otis

**Plumbing fixtures:** Kohler

Bringing the Salvation Army's new Center of Hope into a zone of residential and medical buildings in New Orleans naturally raised eyebrows among the neighbors. But the facility defies the usual expectations. Rather than being patched together in an economically deprived part of town, the new building is in a middle-class neighborhood and it relates well in scale and materials to an adjacent medical complex.

"One of the big shifts we made in the process of design," says architect Errol Barron, FAIA, "was metaphorical." Originally the architects had conceived the building, which serves individuals, displaced families, and the victims of domestic violence, as a big house, made entirely of brick with lots of dormers, nooks, and crannies.

But the early plan was expensive, and after making a trip to see other Salvation Army facilities, "we stripped the building down considerably," says Barron, "and shifted the paradigm from a house to an ark. We thought of it less as a home and a bit more as a vessel, or sanctuary, where people could go and make a retreat from the 'troubled waters' around them."

The architects and the Salvation Army participated in public meetings to assuage community concerns. One concern was that lines of people would form around the building at the end of the after-



noon, because the Army requires that people staying there leave from 9:00 a.m. to 5:00 p.m. to look for work, only allowing them to return in the evening. Barron addressed this issue through the building's orientation. "The way the facility is set up," he says, "the lines form on the interior of the block, and there are no lines on the street."

By using institutional materials, and calling the building the Center of Hope, the Salvation Army aligns itself with the medical community nearby. Because of this connection, the center's users can be understood as people needing food, clothing, shelter, and medicine, just as patients in a hospital would.

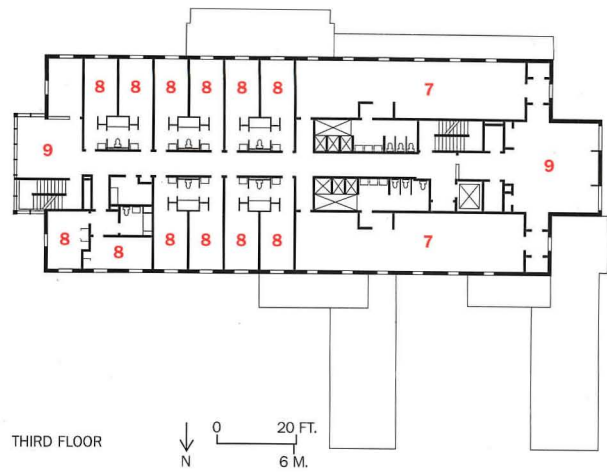
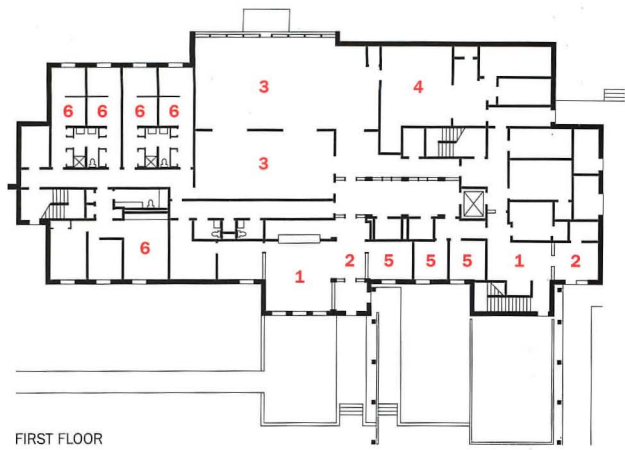
Users of the center gather outside under a pair of covered

walkways, one for women and one for men. For security reasons, women enter at the main lobby and men have a separate entrance and lobby. Inside the building, men and women use separate circulation paths and are not allowed to mix except in the dining room.

About 260 people can be cared for each night in the facility, and each floor of the center is dedicated to the needs of at least one group. The first floor has offices for the staff and counselors, a staff apartment, a laundry, a kitchen, and a dining room, as well as outdoor smoking courts for each sex. Storage lockers are also provided on the first floor.

The second floor, for the men, is accessible by a dedicated stair. A





- |                   |                    |                      |
|-------------------|--------------------|----------------------|
| 1. Lobby          | 4. Kitchen         | 7. Women's dormitory |
| 2. Foyer          | 5. Office          | 8. Bedroom           |
| 3. Dining/meeting | 6. Staff apartment | 9. Library/lounge    |

corridor running the length of the building is anchored at each end by a daylit lounge. On each side of the corridor is a dormitory that accommodates 46 beds, as well as toilets, sinks, and showers. A separate pair of dormitories and toilet facilities is provided for men in the Harbor Lighters, an intensive 90-day drug, alcohol, counseling, and work-therapy program.

Women are housed on the third floor, which has a corridor running down the middle, a lounge at one end, and a library and lounge at the other. There are two dormitories, each with its own toilet facilities, and 12 bedrooms and a small kitchen for women and their children recovering from domestic abuse. Each pair of bedrooms has a bathroom. The third floor is accessible from an elevator that does not open on the second floor.

Ten fourth-floor apartments are used as transitional housing for families who have been displaced from their homes. The Army works with these families for up to six months to help them prepare to return to permanent housing.

"One of the most important things about the facility is that it gives our clients pride in themselves," says Major Robert Hopper, area commander of the Salvation Army in New Orleans. "People don't feel good about themselves sleeping on the streets." ■



The Center of Hope has the appearance of an ark (opposite), a place where the homeless can take refuge from seas of trouble. For security reasons, men and women are given separate smoking lounges (above) and lobbies (left).



## 4

# Mary Mitchell Family and Youth Center Bronx, New York

**A RECREATION CENTER DESIGNED BY URBAN ARCHITECTURAL INITIATIVES HAS BEEN A CATALYST FOR COMMUNITY DEVELOPMENT.**

by Clifford Pearson

**Project:** *Mary Mitchell Family and Youth Center, Bronx, New York*

**Owner:** *City of New York*

**Architect:** *Urban Architectural Initiatives—David L. Hirsch, design partner in charge; Michael Weiner, project architect; Koko Uyo, Jonathan Pearlstein, project team*

**Engineers:** *Albert Kung & Associates (structural); Electro Mechanical Technical Group (mechanical)*

**Consultants:** *Electro Mechanical Technical Group (lighting); Ray Firmin (cost estimating)*

**General Contractor:** *Interior Construction Corp.*

#### Project Statistics

**Size:** *8,000 sq ft*

**Cost:** *\$2.5 million*

Like the woman it is named for, the Mary Mitchell Family and Youth Center in the Crotona section of the Bronx is a catalyst for change in a tough neighborhood. A mix of Dominican, Puerto Rican, and West Indian enclaves, Crotona has long been passed over politically and economically. So a new public building like the Mitchell Center is an important sign of change.

For many years until her death in 1979, Mitchell—who worked at a local hospital and lived in the neighborhood—would close Mapes Avenue from 178th to 179th Street and open an old building on the block each afternoon so kids in the area would have a supervised place to play. Her efforts, all as a volunteer, provided a caring place for children and in the process helped bring a neighborhood together.

The old building, damaged by

fire a few years ago, has been replaced by a new facility designed by Urban Architectural Initiatives (UAI), a Manhattan firm headed by David Hirsch. Now there's no need to rope off Mapes Avenue and have ball games in the street. A proper playground and a two-story building accommodate a broad range of activities.

UAI got the commission for the project after submitting its qualifications to the city and waiting for the computer to match it to a job. While the city's department of design and construction was the client, much of the funding and impetus for the project came from the office of Bronx Borough President Fernando Ferrer.

To stay within a tight \$2.5 million budget, UAI decided to keep the structure simple (load-bearing masonry walls with a standing-seam metal roof) and then provide visual excitement with a steel-and-glass circulation spine and colorful trim and infill panels.

"We kept the building to just a floor and a half on the front to help it fit in with the neighborhood," explains Hirsch. In the back, the playground cuts into the site, turning the building into a two-story structure on this side. The front entrance to the building is at a mid level, so visitors climb half a flight to the main floor where a reception counter and offices are on one side of the hall and a multipurpose room

is on the other side.

Because it is just 8,000 sq ft in size, the building could include exposed steel members on the interior of the angled circulation spine and still meet fire codes. Terrazzo floors and sunlight coming in from clerestory windows make this space a lively place for people to gather.

"Every neighborhood should have a building like this," says Astin Jacobo, president of the Crotona Community Coalition. Jacobo is the person who picked up the torch from Mary Mitchell and has fought for many years to get the building approved, funded, and built. Talking of the role of the Mitchell Center, Jacobo explains, "We get the kids together. We use the kids to bring the whole community together."

The strategy seems to be working. "When we started this project," says Hirsch, "there were empty lots all around. Now the area is filling up with lowrise housing." ■

#### Sources

**Brick:** *Belden Stark (velour gray)*

**Modified bitumen roofing:** *Johns-Manville*

**Standing-seam sloped roof:** *MBCI*

**Aluminum windows:** *Winco*

**Glass block:** *Pittsburgh Corning*

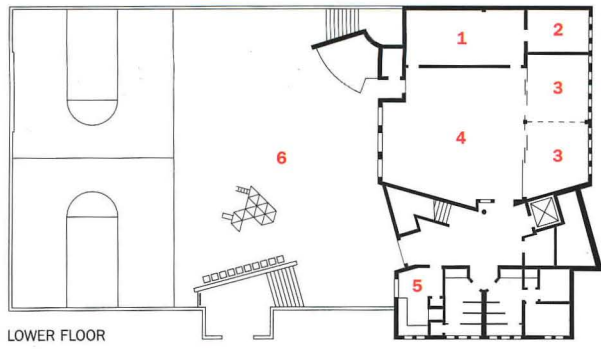
**Insulated aluminum fascia panels:** *Columbia Architectural Products*

**Acoustical ceilings:** *Armstrong*

**Movable interior partition:** *Modernfold/Styles Inc.*

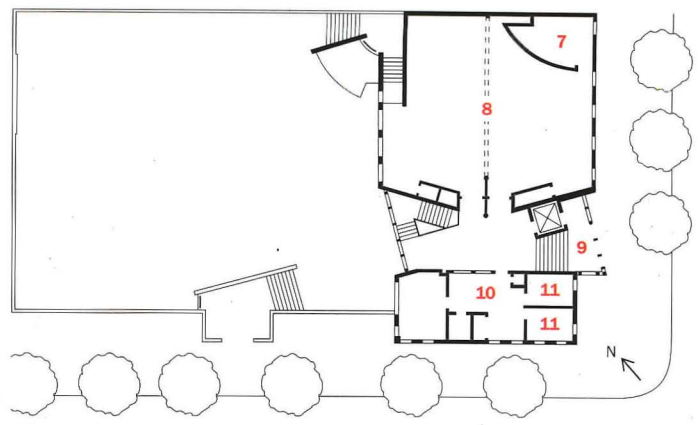




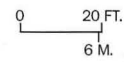


LOWER FLOOR

- 1. Workshop
- 2. Mechanical
- 3. Classroom
- 4. Recreation
- 5. Staff
- 6. Playground
- 9. Entry
- 10. Administrative
- 11. Counseling



UPPER FLOOR



The street facade of the center (below) is just one-and-a-half stories high. In the back, the building helps define a playground (bottom).





## 5

# CineDome Indianapolis, Indiana

**A LARGE-SCREEN THEATER BY BROWNING DAY MULLINS DIERDORF HELPS UPDATE THE IMAGE OF THE INDIANAPOLIS CHILDREN'S MUSEUM.**

by Clifford Pearson

**Project:** *The CineDome at the Children's Museum, Indianapolis, Indiana*

**Owner:** *The Children's Museum of Indianapolis*

**Architect:** *Browning Day Mullins Dierdorf Inc.—Jonathan R. Hess, partner-in-charge; William N. Bernard, project manager; Thomas A. Rourke, project architect; Somsri Bond, Scott Travis, project team; Jeff Bolinger, project director, landscaping*

**Engineers:** *Charlier, Clark & Linard (civil); McComas Engineering (structural); Merrick & Company (M/E/P)*

**Consultants:** *Fisher Marantz Renfro Stone (lighting); Merrick & Company (acoustical and large-format theater)*

**Construction Manager:** *F. A. Wilhelm*

**Size:** *35,000 sq ft (building); 15,000 sq ft (theater)*

**Construction cost:** *\$14 million (including landscaping and rehabilitation of part of existing museum)*

Since 1925, growing up in Indiana's capital city has invariably meant trips to the Children's Museum of Indianapolis. So adding onto and changing this local landmark was a risky endeavor, one that could easily have run up against nearly every resident's cherished childhood memories.

The museum itself has grown up quite a bit, and with 300,000 sq ft of space on a 17-acre site, it is now the largest children's museum in the world, receiving 1.3 million visitors a year. Under the direction of president Peter Sterling for the past 15 years, the museum has been expanding its reach by trying to attract older children and those from the surrounding inner-city neighborhoods. (In the past, most kids running around the building were under eight and from outlying parts of town.)

A new CineDome Theater, which shows movies projected onto a giant hemisphere-shaped screen, plays an important part in Sterling's strategy. Designed by Browning Day Mullins Dierdorf (BDMD), an architecture and planning firm in Indianapolis, the CineDome presents a whole new image for a museum that had erected some rather staid buildings in the 1970s and 1980s.

Located at the main entrance to the museum on Illinois Street, the project includes not just the new

theater but also a "festival park" in front of the existing museum and some recladding of the old buildings. BDMD attracted Sterling's attention after completing work on the Eiteljorg Museum of American Indian and Western Art in Indianapolis [RECORD, May 1991, pages 104–9].

BDMD's first task was helping the museum with strategic planning, which led to work on a new master plan for the complex. "We wanted more than just a theater. We wanted a building that helps define a campus," explains Sterling.

"The museum was interested in expanding its demographics," says Jonathan Hess, the partner in charge for BDMD and the designer of the Eiteljorg. "They wanted to understand what impact new programs would have on facilities, and how expanded services would impact programs."

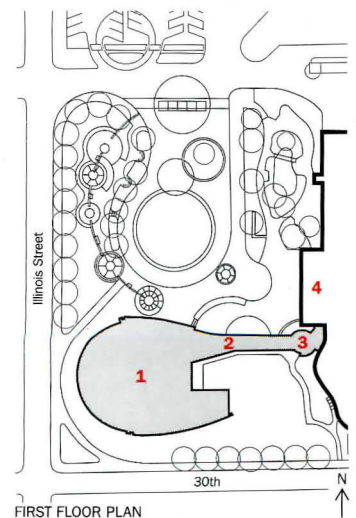
The CineDome is one way the museum is reaching out to older kids and trying to increase the amount of time visitors spend at the institution. "Our audience got taller as a result of this project," says the museum's Sterling. "They wanted the theater to present a new, dynamic image for the museum," explains Hess.

One of the challenges facing the architects, explains Hess, was the internal focus of the theater's activities. "You have a building with

no windows and little sense of scale. How do you make it work as part of a larger institution, especially one aimed at children?" As Sterling explains it, "We asked kids what they wanted from the theater and they said a place that's bright, colorful, and inviting. But a theater is by nature a dark place."

Hess and his associates decided it was important for the building to offer visitors a peek of what's going on inside. So the theater's dome emerges from a brick-and-precast-concrete cone that's tipped at five degrees and sliced off at the top.

Diamond-patterned brickwork



FIRST FLOOR PLAN

1. CineDome
2. Connector
3. Night entry
4. Museum (existing)

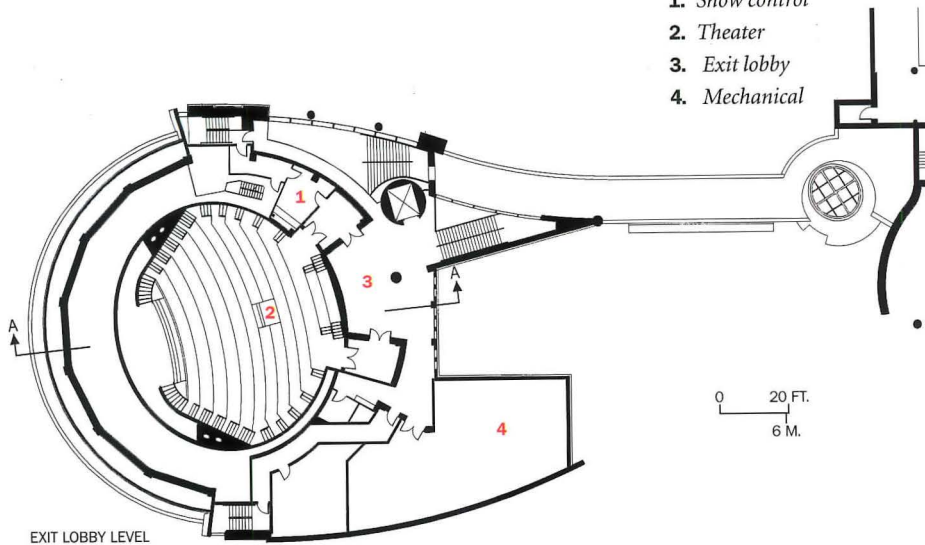




The \$16 million project included the theater existing museum (left in photo above), and a connector (below), recladding part of the



1. Show control
2. Theater
3. Exit lobby
4. Mechanical



#### Section

1. Upper media room
2. Exit lobby
3. Projection room
4. Entrance lobby

Public spaces, such as the theater lobby (bottom), the stairs (opposite bottom), and the connector between the theater and the

museum (below) are bright and colorful. Both the seats and the hemisphere-shaped screen are angled (opposite top).



and precast panels set an energetic tone for the project, one that is carried over to the boldly striped EIFS surface added to the 1970s portion of the museum. The lively surface treatment “helps us create some movement around the building,” explains Hess.

A different kind of movement is critical to the success of the interiors. Because more than 300 people leave the theater at the same time that another 300 are entering, the architects provided separate means of access and egress. Visitors enter the theater on the lower level, where movie-projection equipment and machinery is on display, and then leave from the upper level of the sharply raked, two-and-a-half-story-high theater. A curving 12-ft-wide corridor glazed on both of its long sides connects the theater to the rest of the museum.

Because sound is an important part of the CineDome experience, acoustics were a key concern in designing the building. Not only is the large-format movie theater “an acoustically demanding environment,” says Hess, but the site is near a busy street, close to a fire station, and in line with flight patterns from the local airport.

“We needed a solid exterior for the shell of the building with virtually no sound penetration.” As completed, the building has a six-in. precast-concrete shell on the out-

side with a three-ft air space behind it and then two ft of sound-attenuating wall with layers of gypsum board, battens across steel studs, and acoustic blankets.

Inside the theater, movies are projected onto a perforated-aluminum hemisphere that is hung from a geodesic space frame. The space frame sits on a compression ring tilted at a 30-degree angle, the same as the viewers’ seats. Speakers are installed behind the projection screen.

Air-handling was another tricky issue. Noise from air circulation was a major concern. As a result, the theater is equipped with 60-in. ducts that move air slowly and quietly. Positive air pressure is maintained to minimize dust that could interfere with the movie projection.

The 35,000-sq-ft building with its 15,000-sq-ft theater was constructed on a fast-track schedule and cost \$14 million (including landscaping and rehabilitation of part of the old museum exterior). ■

#### Sources

**Curtain wall and aluminum windows:** Kawneer

**Metal panels:** Aluisse Composites (Alucobond)

**Roofing:** Firestone Building Products

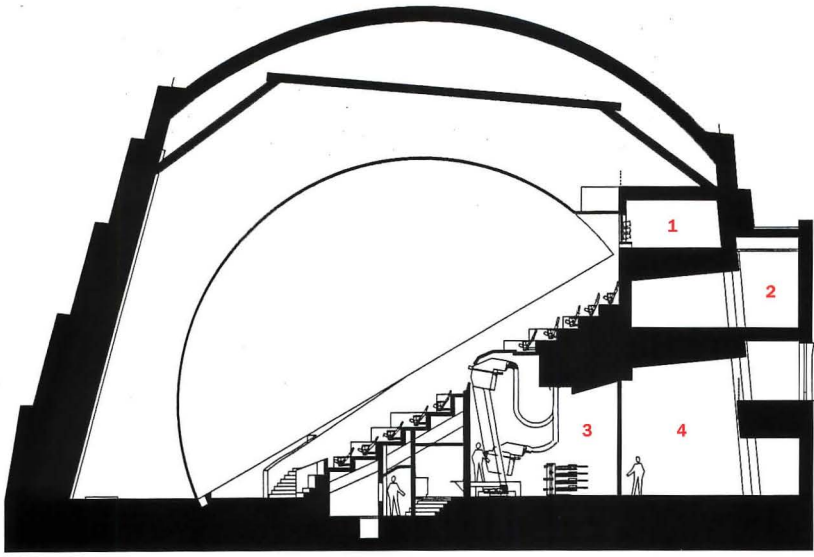
**Ceramic wall tile:** American Olean

**VCT flooring:** Armstrong

**Theater seating:** American Seating

**Carpet:** Collins and Aikman/Durkan



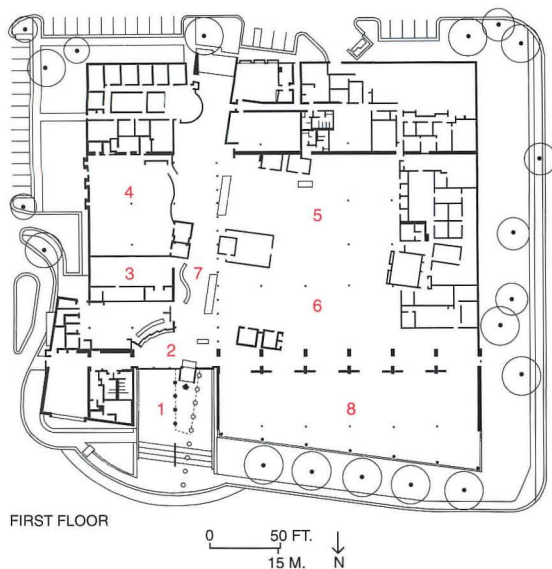


SECTION A-A

0 10 FT.  
3 M.







1. Entry plaza
2. Forum (checkout)
3. Public computers
4. Youth services
5. General reference
6. Business research
7. Periodicals
8. General collection

An arched ceiling covers a street used to define circulation. Skylights (below) were punched into the roof over a reading room. Books are checked out (bottom) in the forum.



road that carries a high volume of traffic. Large windows on the front elevation of the addition allow daylight into the north stacks area and a meeting room.

The forum, the library's reception area, acts as a town square in its prominent location just inside the front doors. It is in the form of a half-cylinder, with the top sliced off at an angle, and is covered with glass to create a welcoming, daylit space.

A void has been carved out of the building at the entry to form an entry plaza with a small garden, and a canopy provides shelter for visitors. Within the stacks and meeting rooms at the front of the building, fluorescent lamps covered with blue gels are tucked into covers over the windows. At night they add a ribbon of color that is visible through the windows at the front of the building.

Where the structure was left intact, every other precast tee has had a window punched through it, and the tees have had three rows of aluminum sections fastened to them parallel to the ground. Cable has been stretched between the sections to support wisteria in the future.

Under-floor wiring installed when the building was renovated can be accessed easily enough to respond to the library system's changing needs. The central resource library has dedicated ter-

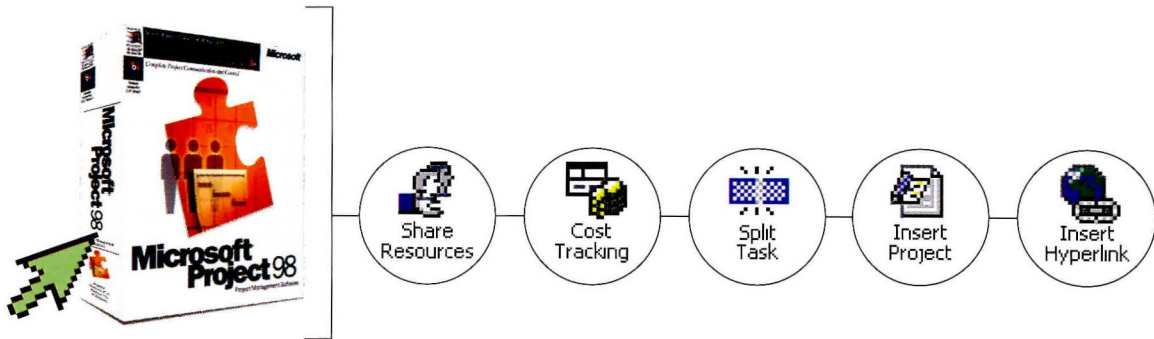
minals that can access the card catalog, as well as personal computers for business research, business applications, and access to the Internet. Terminals located in the library system's 10 smaller branches can also dial into the system and access information.

"In the future we will be moving rapidly toward a client-server environment," says Jim King, the library's computer systems specialist. There will be few, if any, terminals dedicated to one use, like searching the card catalog, and more terminals that demand more connections and wiring. In the two years since the library opened, the number of personal computers has increased from 67 to more than 85.

The architects anticipated the addition of more computers onto the library's network by installing an extensive under-floor system of ducts served by a U-shaped main duct that parallels the north, west, and south walls. "The duct system," says King, "can be accessed every five feet, and the ducts are big enough to carry both power and data lines."

Recycling the building saved an impressive amount of embedded energy and materials that would have been lost if the structure had been demolished, including 555 tons of coal, 501,402 cubic yards of natural gas, 82.5 tons of steel, and 1,500 cubic yards of concrete. ■





-----  
From: [New Microsoft Project 98](#)

Date: Wednesday, 10:45 a.m.

To: Project Manager

Re: One more little thing...

-----  
If we could download what you know about project management to the rest of your company, we'd do it. Instead, we did the next best thing: we designed the new [Microsoft<sup>®</sup> Project 98](#). So now, no matter how complex the project, no matter how many projects are going on, Microsoft Project 98 is all over the details. Managing [every project](#) in your company. Charting all the [resources](#) you have at your disposal. [Tracking every task](#) on every job in every project. With [multiple views](#) that let you look at every project from every angle. With the [drill-down detail](#) that tells you instantly what's wrong, whose beeper gets beeped, and when you'll be back on track. So on the outside, Microsoft Project 98 may look like the [easiest project management software](#) ever developed. But on the inside, it'll build the Panama Canal. For the details, check out our Web site at [www.microsoft.com/project/](http://www.microsoft.com/project/).

Project are the critical  
**struggling**  
**to be seen.**

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Where do you want to go today?® [www.microsoft.com/project/](http://www.microsoft.com/project/)



Architect







# PRODUCT REPORTS...

For more than 20 years ARCHITECTURAL RECORD has featured Product Reports in the December issue. Last year we initiated a new way to select the products that are most likely to interest our readers: we appointed a panel of architects to act as a review board. In 1996 panel members were drawn from firms based in New York City; this year the board was made up of prominent Chicago architects.

To obtain the widest possible view of the industry, RECORD asked manufacturers to submit

*The 1997 Product Reports review board, left to right: Mark Sexton, AIA, Krueck & Sexton Architects, whose Brick and Glass House appeared in RECORD Houses, April 1997.*

*David Woodhouse, AIA, principal, David Woodhouse Architects, whose Chapel of the Word was featured in the September 1997 RECORD.*

*Carol Ross Barney, FAIA, principal, Ross Barney + Jankowski Architects, a firm with expertise in educational and transportation facilities.*

*Randolph Guillot, AIA, Senior Designer with Perkins & Will Chicago and formerly with Ellerbe Becket, Inc.*

*Andrew Tobisch, Vice President—Design of the McClier Corporation.*

information—both text and illustrations—on “new and useful building products to be available to the architect, specifier, and designer in 1998.” Unlike other product-design “contests” that involve stiff entry fees, ours required none. The review board conscientiously examined each of more than 600 submissions, sent in by hundreds of manufacturers.

The panelists reviewed each entry to identify the new products that meet the requirements of today’s marketplace,

from wiring-distribution solutions for outdated office spaces to hurricane-resistant glazing for high-rise condominiums. They reviewers also looked for new products that offer real improvements or innovations in performance, appearance, and value. Their mission was to ferret out products that they felt their fellow architects would see as newsworthy.

Among the qualities valued by the panel, simplicity ranked high. A luminaire that brought attention to the light instead of the fixture, for instance, and a radiant-heat panel that was sleek but not over-engineered won kudos. Also valued was technology that has evolved from custom-order-only to off-the-shelf, such as an energy-efficient ice-storage air-conditioning system that is now affordable for school districts, not just for high-end corporations. The panel maintained a healthy skepticism toward manufacturers’ unsupported claims of innovation. “Very nice, compared with what’s on the market” was high praise indeed.

Some apparent trends noted in the 1997 product submissions were new ways to insert data and power cabling into existing facilities, or to upgrade elevators, or to meet new fire-code requirements by modifying existing doors. Several new architectural-glass products were submitted, as well as thermally efficient and hurricane-resistant framing systems. And a product the panel would like to see? Pull-out, accessible drinking fountains that can fold down for use and be stored out of the way in a niche when not needed.

RECORD thanks all those manufacturers who took the time to submit products, and we look forward to reviewing even more in our 1998 Product Reports.—Joan Blatterman

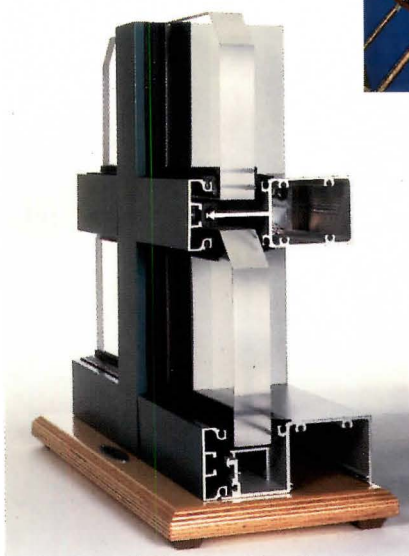
**91** Computers  
**95** Site Furnishings  
**101** Materials  
**104** Thermal & Moisture  
**109** Doors & Hardware  
**113** Windows & Glazing

**119** Finishes  
**120** Specialties & Equipment  
**123** Furnishings  
**126** Special Construction  
**128** Mechanical  
**130** Lighting



# READERS' CHOICE Awards 1997

Inaugurated in 1996, the Readers' Choice Awards Program is ARCHITECTURAL RECORD's way of recognizing manufacturers of building products, systems, and materials who make a meaningful contribution to successful architectural projects in this country. In order to identify the firms that architects rely on to furnish superior products for incorporation in a facility design or interior scheme, we asked our readers. A survey, circulated in the August 1997 issue, requested information about preferred building products—those that design professionals work with, design for, and specify to meet real-world project needs, performance criteria, and budget restraints. We sought nominations in 25 different categories, from computer tools like CAD software to interior light fixtures. For each of these categories, readers listed a single manufacturer whose product best represented—in their opinion—an optimal combination of design, cost, value and service life for that type. The firms that received the most votes within each category are our winners. In acknowledgment of the significant contribution made by building product manufacturers to architectural practice, we congratulate the winners of ARCHITECTURAL RECORD's Readers' Choice Awards for 1997.



#### **Andersen Corporation**

100 4th Avenue, North Bayport, MN  
55003; 800/426-7691;  
[www.andersenwindows.com](http://www.andersenwindows.com)

#### **Autodesk, Inc.**

111 McInnis Parkway, San Rafael, CA  
94903; 415/507-5000;  
[www.autodesk.com](http://www.autodesk.com)

#### **Alusuisse Composites, Inc.**

77 W. Port Plaza, St. Louis, MO 63146;  
800/382-6445; [www.alusuisse-comp.com](http://www.alusuisse-comp.com)

#### **Armstrong World Industries**

POB 3001, Lancaster, PA 17604;  
800/448-1405; [www.armstrong.com](http://www.armstrong.com)

#### **Belden Brick**

POB 20910, Canton, OH 44701;  
330/456-0031; [www.beldenbrick.com](http://www.beldenbrick.com)

#### **Julius Blum & Co.**

POB 292, Carlstadt, NJ 07062;  
800/526-6293; [www.juliusblum.com](http://www.juliusblum.com)

#### **Carlisle SynTec Systems**

POB 7000, Carlisle, PA 17013;  
800/4-SYNTEC; [www.carlisle.syntec.com](http://www.carlisle.syntec.com)

#### **Gateway 2000**

POB 2000, 610 Gateway Drive N.,  
Sioux City, SD 57049; 800/846-4875;  
[www.gw2k.com](http://www.gw2k.com)

#### **Hewlett Packard Co.**

16399 W. Bernardo Drive Bldg. 8,  
San Diego, CA 92127; 800/851-1170;  
[www.hp.com/info/2198](http://www.hp.com/info/2198)

#### **Interface Americas Carpet Brands**

POB 1503, LaGrange, GA 30241;  
800/336-0225; [www.IFSIA.com](http://www.IFSIA.com)

#### **Kawneer Co., Inc.**

555 Guthridge Court, Norcross, GA  
30092; 770/449-5555

#### **Kim Lighting**

POB 1275, City of Industry, CA 91749;  
818/968-5666; [www.kimlighting.com](http://www.kimlighting.com)

#### **Kohler Co.**

444 Highland Drive, Kohler, WI 53044;  
888/361-8000; [www.kohlerco.com](http://www.kohlerco.com)

#### **Lightolier, Inc.**

631 Airport Road, Fall River, MA 02720;  
800/215-1068; [www.lightolier.com](http://www.lightolier.com)

#### **Microsoft Corporation**

1 Microsoft Way, Richmond, WA 98052;  
425/882-8080; [www.microsoft.com](http://www.microsoft.com)

#### **Pella Corporation**

100 Main Street, Pella, IA 50219;  
800/54-PELLA; [www.pella.com](http://www.pella.com)

#### **PPG Industries, Glass Group**

1 PPG Place—38 W., Pittsburgh, PA  
15272; 412/434-2329; [www.ppg.com](http://www.ppg.com)

#### **Schlage Lock Co.**

2401 Bayshore Boulevard, San  
Francisco, CA 94134; 800/847-1864;  
[www.schlagelock.com](http://www.schlagelock.com)

#### **Smith & Hawken**

117 E. Strawberry Drive, Mill Valley,  
CA 94941; 415/389-8300;  
[www.smith-hawken.com](http://www.smith-hawken.com)

#### **Trus Joist MacMillan**

POB 60, Boise, ID 83707;  
800/628-3997; [www.TJM.com](http://www.TJM.com)

#### **USG Corporation**

125 S. Franklin Street, Chicago, IL  
60606; 800/950-3839;  
[www.usgaction.com](http://www.usgaction.com)

#### **Weyerhaeuser Co., Door Division**

1004 E. 4th Street, Marshfield, WI  
54449; 800/869-3667;  
[www.doors.wy.com](http://www.doors.wy.com)

#### **Wolverine Vinyl Siding**

17199 Laurel Park Drive N. #201,  
Livonia, MI 48152; 800/521-9020;  
[www.vinylsiding.com](http://www.vinylsiding.com)



**Architectural Metalwork**

**Architectural Glazing**

**CAD Software**

**Commercial Carpet**

**Commercial Ceiling Treatment**

**Commercial Window System**

**Computer Hardware**

**Computer Peripheral**

**Door Hardware**

**Engineered-Wood Product**

**Entrance System/commercial**

**Exterior Cladding/highrise**

**Exterior Cladding/residential**

**Exterior Lighting**

**Interior Door/commercial**

**Interior Finish**

**Interior Light Fixture**

**Plumbing Fitting or Fixture**

**Practice Software**

**Residential Door**

**Residential Window**

**Resilient Flooring**

**Roofing System**

**Site Furniture**

**Unit Masonry**

**Julius Blum & Co.**

**PPG Industries, Glass Group**

**Autodesk, Inc.**

**Interface Americas**

**Armstrong World Industries**

**Kawneer Co., Inc.**

**Gateway 2000**

**Hewlett Packard Co.**

**Schlage Lock Co.**

**Trus Joist MacMillan**

**Kawneer Co., Inc.**

**Alusuisse Composites, Inc.**

**Wolverine Vinyl Siding**

**Kim Lighting**

**Weyerhaeuser Co., Door Division**

**USG Corporation**

**Lightolier, Inc.**

**Kohler Co.**

**Microsoft Corporation**

**Pella Corporation**

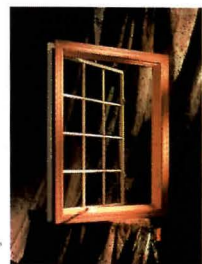
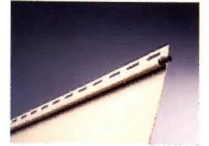
**Andersen Corporation**

**Armstrong World Industries**

**Carlisle SynTec Systems**

**Smith & Hawken**

**Belden Brick**



**Winners**



# THE BEST REPS

The final question on the 1997 Readers' Choice survey asked, "Who has the best rep? Name the individual who consistently makes critical contributions to projects, who helps solve a technical or site problem, or who often helps you with technical and design information." Many readers who responded to the survey answered this question, citing a manufacturer's representative or technical support person on whose advice they rely; a few reps were mentioned more than once.

Considering the substantial investment this trained sales force represents, we're delighted to recognize these individuals, and we thank them for a job well done. The representatives cited by RECORD readers are listed in alphabetical order by manufacturer.

## Manufacturer/Representative

### Acme Brick

Don Hesser

### A/D Firefilm

Gerald M. Dinerman (PSI Acoustical)

### AFM Corporation

Chris Jekel

### Mark Allen Associates

Jeff McCarthy

### Amcon Block

Jeanne Blonigen

### Andersen Windows

Ken Biachi

Peggy Bray

Bill Caldwell

Mike Cosgrove

Angelo Dinardo

Mary Grooters

Larry Lontz

### Apple Computer

Entire support staff

### APA/Engineered Wood Assn.

Bob Appenzeller

### Armstrong World Industries

Lee Baggett

Bernard Baskerville

Bill Burgwald

Ed Sheridan

Ray Wheeler

### Arrowall

Bill Morris

### Autodesk

Pam Cox

### Baldinger Architectural Lighting

Isabelle Paez

### Barrett Co.

Dave Honza

### Basalite

Gary Indiano

### Bentley Mills, Inc.

Alicia P. Keehn

Brian Little

Mike Smith

Janet Sweeney

### Brick & Block Specialties

Steve Sanilio

Tom Underhill

### CertainTeed Corp./Roofing

Mike Anusbigan

### Cold Spring Granite

Dale Schleppenbach

### Collins & Aikman Floor Covering

Max Cavelli

### Columbia Brick

Ron Spurain

### Columbia Lighting

Herman Spear

### Corbin Russwin Arch. Hardware

Charlie Chentum (Bird Sales)

### C/S Group

George Ehnesser

### Dal-Tile Corporation

Fred Davis

Paulette Newman

### Dover Elevator

Robert Grunnald

Doug Thompson

### Dryvit Systems, Inc.

J. Kiernan Dowell

Bill Marler

Shirley Williams

### Dunn Edwards Paint

Larry Lu

### EI Rey

Jim Whitfield

### EFCO

Mark Lods (Shaffner Hecney Assoc.)

### Forbo Industries, Inc.

Mimi O'Keefe

### Fuller-O'Brien

Jarrod Anderson

### Franklin Brick

Jimmy Jones

### The Garland Co.

Allen Orlacchio

Greg Rose

Gordon Rossi

### Gasser Bush Lighting

Lance Barnes

### Georgia-Pacific Corp.

Paul Corrad

### Glidden Paints/ICI

Orv Johnson

### W. R. Grace & Co.

Bob Plastridge

### Graham Architectural Products

Dave Whitfield

### W. P. Hickman Co.

Matt Skipper

### Hill Rom

June Ole

### Harbinger Carpet

Mona Toubar Murphy

### Hope's Architectural Products

Higgins & Higgins

### Huls America, Inc.

Bob Sallec

### Inland Buildings

Joe Potter

### Intermountain Concrete

Kelly Harmon

### Kalwall Corp.

John Kabana

Milec Powers

Mark Thomas

### Karastan-Bigelow

Jill Cain

### Kawneer Co., Inc.

Greg Carlisle

Robert Huffman

### KETIV Technologies

Jim Dunn

### Kimball International

Susan Saibara

### King School Equipment

Joanne Vance

### Kohler Co.

Philip Kenyon

### Kolbe & Kolbe

Peter Zemlock

### Labequipco

Joe Clark

### LCN Closers, Div. Ingersoll-Rand

Jeff Loss

### Lightolier, Inc.

Kara Rockefeller

Joe Bokelman

Al Gunderson

### Loadmaster Systems, Inc.

Lori Long

### Lone Star Plywood & Door

Trisha Laimo

### Lozvel Windows & Doors

Eric Ridder

### Lusco Brick & Stone

Bruce Gilkeson

### Lutron Electronics Co., Inc.

Craig Luckwood

### Marlite Corporation

Cameron Clements

Rob Wales (Graphic Insights, Inc.)

### Herman Miller

Greg Bertovich

Karen Kawalski (Milcare)

Melissa Nelson

### Mohawk Tile

Ed Kungus

### Monarch Paint

John Perry

### Monterey Mills Carpet

Jeff Ortman

### Johns Manville Corp.

Brad Burdick

Richard McAvoy

### Marvin Windows & Doors

Larry Hamby

Andrew Herman

Julie Obidowski

(continued on page 161)



# COMPUTERS

CAD Software • Rendering Programs • Hardware

## Faster and friendlier

Developed by architects specifically for the creation, production, and management of architecture, Arris 7 2D drafting and 3D modeling software offers 150 new features, including customizable menu icons, shortcut commands, and productivity boosters such as dynamic viewports and programmable mouse buttons. 888/990-0900. Sigma Design International, Alexandria, La. **CIRCLE 155**

## Cross-platform CAD software

Low-cost (\$595) MiniCAD 7 now offers true 3D Boolean solid modeling, auto wall framing, QuickDraw 3D modeling, a Light Creation tool, and other enhancements to the stand-alone design, presentation, and estimating program for Macintosh and Windows 95/NT. 800/MiniCAD. Diehl Graphsoft, Inc., Columbia, Md. **CIRCLE 156**

## Better for bigger buildings

MicroStation TriForma, a modeling and construction-documentation product, can now handle the largest buildings in the world, due to improvements in the program's performance on large data sets and more efficient storage. A complete section of a 30-floor building can be generated in 4 minutes. www.bentley.com. Bentley Systems, Inc., Exton, Pa. **CIRCLE 157**

## "Intuitive" set of tools

Designed by architects for the Power Mac, DenebaCAD integrates 2D drafting, interactive 3D modeling, and photorealistic rendering in a single, \$799 application. The software uses fast, generic, design-oriented tool technology for precise control. 305/596-5644. Deneba Software, Miami. **CIRCLE 158**

## Built for compatibility

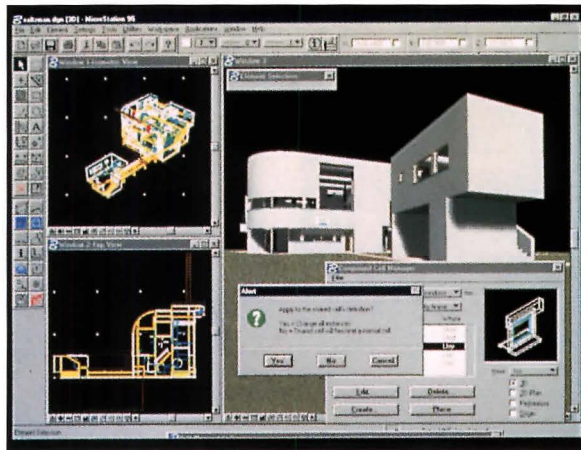
AutoCAD LT 97, a 2D program fully compatible with AutoCAD 14 and 13, is described as a low-cost, easy-to-learn CAD tool that helps designers and drafters share drawings and related data with all levels of users over the Internet. 800/225-1076. Autodesk, Inc., San Rafael, Calif. **CIRCLE 159**

## Collaboration software

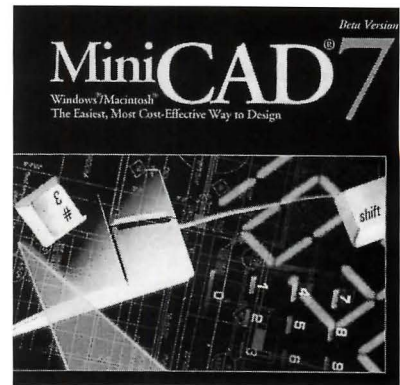
ArchiCAD for TeamWork, offered for both Windows 95/NT and Macintosh, is a "dramatic" way to share the work of designing and drafting on a single building. It is described as ideal for large-scale projects with tight deadlines. 800/344-3468. Graphisoft, San Francisco. **CIRCLE 160**



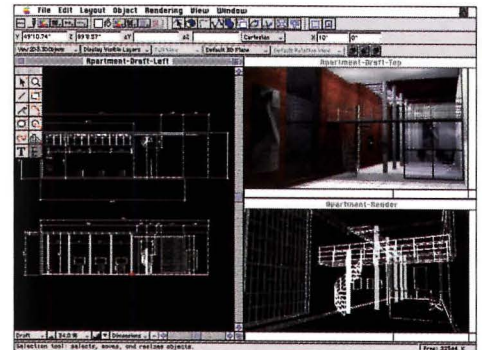
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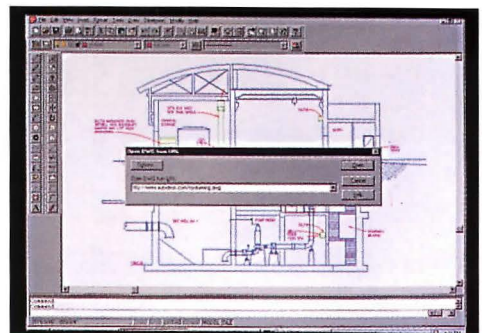
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156



158



159



160



continued

# COMPUTERS

CAD Software • Rendering Programs • Hardware

## AutoCAD en suite

Now in Release 2.0, Autodesk's AEC Professional Suite provides a "powerful" design solution sold as a cost-saving package that includes AutoCAD 14, AEC AutoCAD utilities, WalkThrough animation, and DesignBlocks building-product details. Autodesk View lets firms share design information and get feedback from managers and clients who don't know CAD. 800/964-6432. Autodesk, Inc., San Rafael, Calif. **CIRCLE 161**

## Speedier workstations

Intergraph's TDZ units, Windows 95/NT-based 3D graphics workstations powered by dual Pentium II processors, start at a competitive \$6,995. New features include a desktop management system and Real3m 3D graphics accelerator. 800/763-0242. Intergraph Corp., Huntsville, Ala. **CIRCLE 162**

## Organic 3D modeling

Described as easy to use, Form.Z RenderZone 2.9, for Macintosh and Windows 95/NT, is said to produce photorealistic images at "impressive" speeds, with shading technology capable of seven levels of advanced rendering effects. 614/488-8838. Auto.des.sys, Inc., Columbus, Ohio. **CIRCLE 163**

## AutoCAD 14 plug-ins

The first of new architectural add-ons for AutoCAD 14, the freeform modeler interfaces with ObjectARX object-intelligence to produce massing studies, conceptual modeling, and schematic and component design. Its price is a plus: \$99 when downloaded from [www.arch14.com](http://www.arch14.com) (Web site). Nemetschek Systems, Inc., Mill Valley, Calif. **CIRCLE 164**

## Short-form specifications

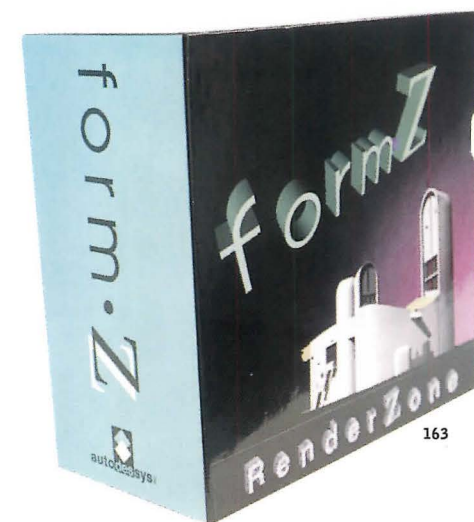
An abbreviated version of Masterspec, Small Project is a software library with 160 brief sections geared toward simple residential, renovation, tenant fit-out, FM, and light-commercial projects. 800/424-5080. ARCOM Master Systems, Salt Lake City. **CIRCLE 165**

## Estimating software

Windows-based CostLink 1.5 works from early budgeting through final costing; users can incorporate unit prices from Means or other databases. Reports can be generated in English dimensions, metric, or both. 800/875-0047. Building Systems Design, Inc., Atlanta. **CIRCLE 166**



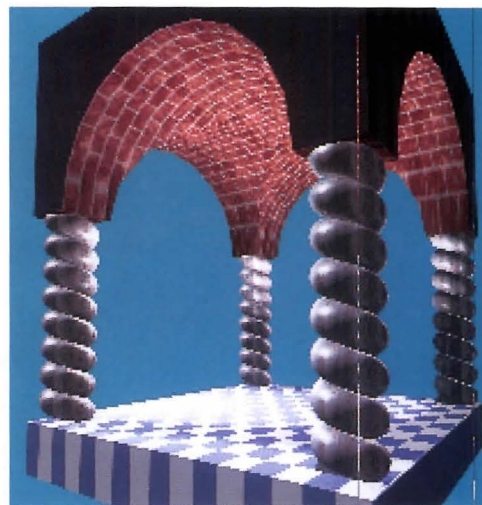
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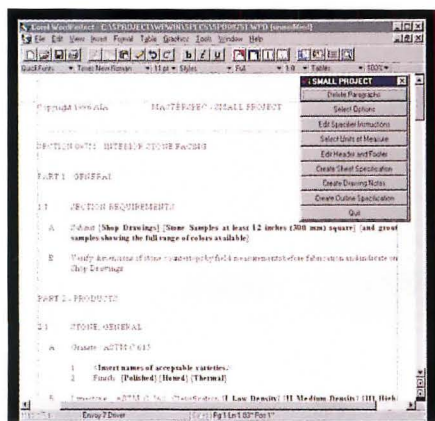
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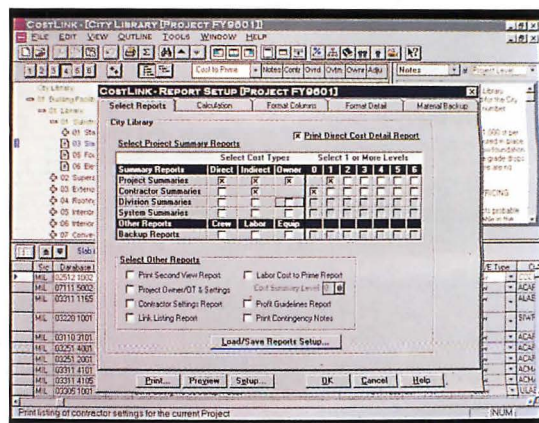
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164



165



166

PRODUCTS



# MATERIALS

Wood • Metal • Lumber • Laminates • Concrete • Masonry • Railings

## Redwood siding

Finger jointing improves the yield and reduces waste from sustainably grown California redwood lumber. Made into smooth lengths of clapboarding, finger-jointed redwood is an economical and rot-resistant material for siding, trim, and fascia. A grade chart is offered. 415/382-0662. California Redwood Association, Novato, Calif. **CIRCLE 179**



179

## Lightweight-concrete tables

A precast, colorful concrete, Syndecrete is available made into round tabletops for interior or exterior use, as well as custom-made counters, sinks, tubs, and tiles. 310/829-9932. Syndesis, Inc., Santa Monica, Calif. **CIRCLE 180**



180

## Rock-face masonry units

The new Ultra Bold Face Renaissance block pattern is produced by a finishing technique that achieves a unique rocked face for each unit: no two pieces are identical. Colors include white, buff, rust, gray, paprika, bluegrass, sage, and olive. Computerized design software is available. 800/265-8123. Arriscraft International, Inc., Cambridge, Ont. **CIRCLE 181**



181

## Stainless-steel laminate

A less costly option for architectural spaces requiring stainless steel or other metals as an interior finish on walls, cabinets, or furniture, DecoMetal is a high-pressure laminate with the decorative surface qualities of real metal. A sample program is available. 800/FORMICA. Formica Corp., Cincinnati. **CIRCLE 182**



182

## Device keeps weeps clear

Mortar Net is now available in a more compressible version that makes it easily adaptable to variations in cavity-wall construction. Both original and soft Mortar Nets are designed to be placed on top of flashing, behind brick veneer, to catch and permanently hold mortar droppings away from weep holes, preventing deterioration, staining, and efflorescence due to trapped moisture. 800/664-6638. Mortar Net USA, Ltd., Highland, Ind. **CIRCLE 183**



183

## Wood and nylon railings

Hewi's newest railing system combines solid-wood rails with colorful nylon connectors, supports, and mounting bases. Hand rails are a grippable 1 9/16-in. diameter. 717/293-1313. HEWI, Inc., Lancaster, Pa. **CIRCLE 184**



184



continued

# MATERIALS

Wood • Metal • Lumber • Laminates • Concrete • Masonry • Railings

## High-wind block walls

A 150-ft-high tower on Miami's South Beach was designed by Bermello Ajamil Associates, architects, using Solar White aluminum/glass-block panels. Panels weigh about 20 lbs psf. An inverted-T shape on the interior face stiffens the wall sufficiently to meet high wind-load requirements. 800/358-3888. Circle Redmont, Melbourne, Fla. **CIRCLE 185**



185

## Architectural ornaments

Rosettes, moldings, and decorative friezes are made of weatherproof Sculpt-Stone exposed-aggregate material. Stock designs come in sizes from 8 to 48 in.; custom elements can incorporate logos, city seals, or other motifs. 800/771-4595. Pineapple Grove Designs, Delray Beach, Fla. **CIRCLE 186**



186

## "American Country" laminate

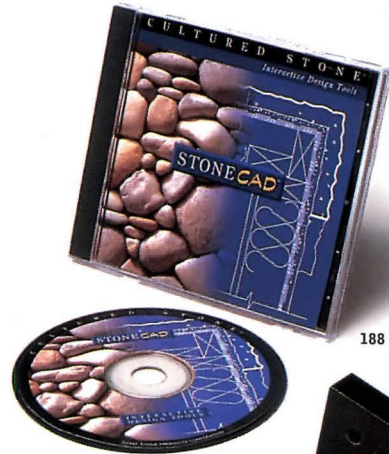
Pionite's newest patterns include four variations of Fresco, described as a rag-rolled effect "evoking the muted shades of the American Country look." 800/746-6483. Pionite, Auburn, Maine. **CIRCLE 187**



187

## Guide to manufactured stone

An interactive design tool, StoneCAD lets users visualize, select, and specify Cultured Stone. Made from Portland cement, rock aggregates, and iron-oxide colorants, Cultured Stone comes in patterns such as LedgeStone, River Rock, Cobblefield, and Fieldstone. Architectural details are included in AutoCAD, DXF, and PlotMaker formats. Free to design professionals. 800/255-1727. Stone Products Corp., Napa, Calif. **CIRCLE 188**



188

## New timber from old

This mill specializes in reclaiming structural timbers from old sites such as warehouses and railroad trestles, and fixing them up by plugging holes, patching gaps, and removing fasteners. Timbers are composite glued to create custom-sized structurals for new construction where a wood aesthetic is important. 360/384-2800. The G. R. Plume Co., Ferndale, Wash. **CIRCLE 189**



189

## Engineered-wood system

All of Willamette's engineered wood, such as laminated-veneer lumber, I-joists, and rim board, is designed to work together as an integrated E-Z Frame System. I-joists are included in PRI-400, a new span standard. 541/926-7771. Willamette Industries, Albany, Ore. **CIRCLE 190**



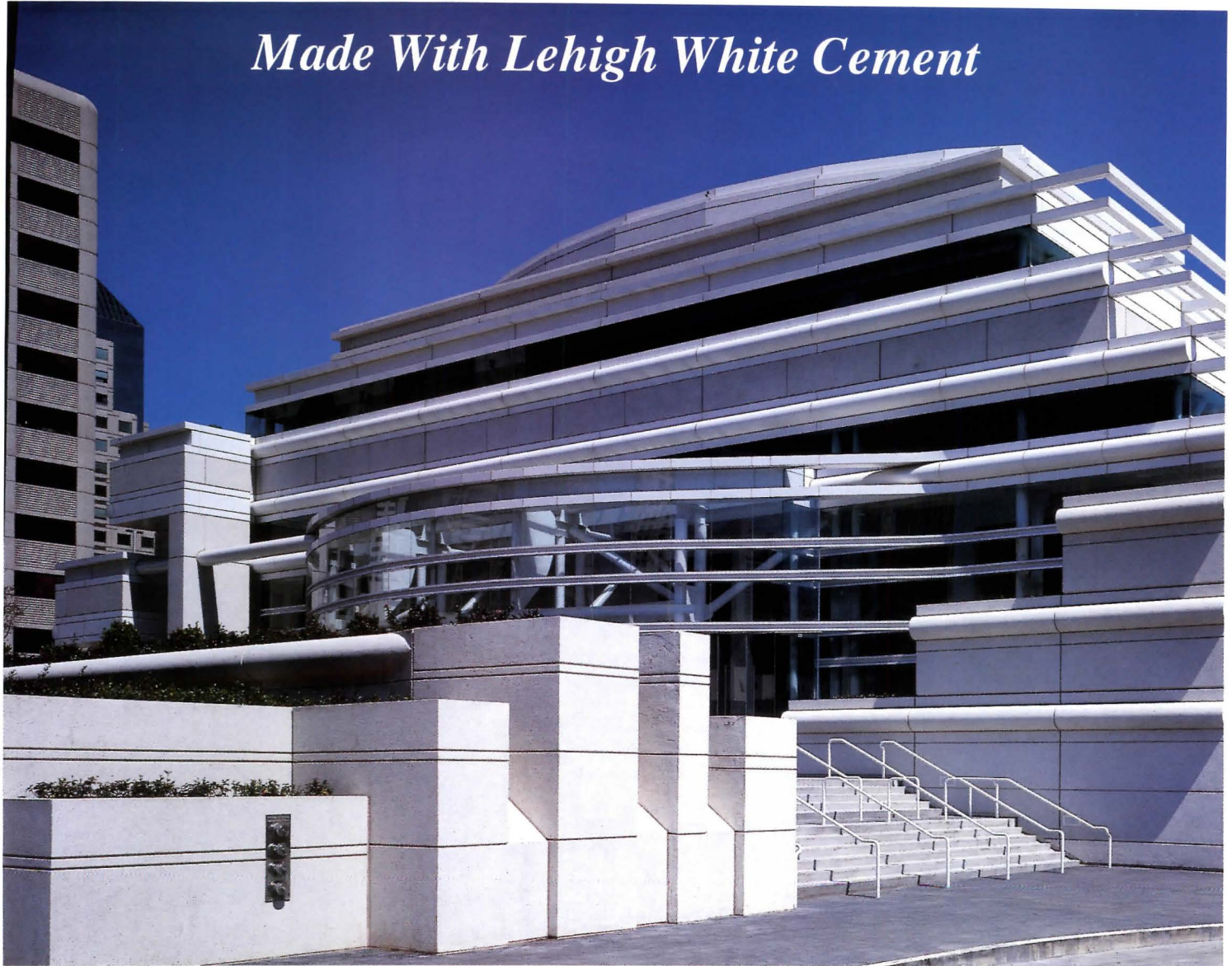
190

PRODUCTS



# Architectural Precast Concrete

*Made With Lehigh White Cement*



Architect: Gingselar & Associates, San Francisco, CA • Precaster: Dura Art Stone, Hayward, CA • Contractor: Amarosa, Foster City, CA

Architects attending AIA Expo '98 in San Francisco will have the opportunity to experience first hand the results of choosing Lehigh White Cement for the construction of the Moscone Convention Center. The precast concrete construction required the selection of the highest quality materials which were transformed by the craftsmanship of Dura Art Stone to produce the architectural components envisioned by the Architect, Gingselar & Associates.

Precast concrete construction with Lehigh White Cement offers the architect unlimited freedom for creating sophisticated designs with functional advantages and construction economies. Architects can choose from an unlimited range of color, texture, shape, size and pattern to accommodate a multitude of applications. With Lehigh's help, you can turn ideas into reality, and dreams into designs of distinction. From specification to

project completion, Lehigh offers you the technical support and service, as well as the finest products available, to ensure you the best results. Come discover more about the versatility of Lehigh White Cement - visit us at Booth No. 2514 at AIA Expo '98.

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CIRCLE 38 ON INQUIRY CARD





# THERMAL & MOISTURE

Cladding • Roofing • Insulation • Siding

## Lowering the cost of clay tile

Classic tile such as Interlocking and straight-barrel Mission shapes are now offered in a larger, 18-in. size. While the aesthetic may be somewhat different with the larger size, fewer tiles are needed for the same coverage, lowering both the cost and the weight of a tile roof. For tile specs: [www.ludowici.com](http://www.ludowici.com) (Web page); 800/945-8453. Ludowici Roof Tile, New Lexington, Ohio. **CIRCLE 191**

## Rugged metal-shingle roof

Folded, not embossed, to create an individual shingle effect, Riva roof panels come in Kynar-coated Galvalume and solid-copper versions. Panels interlock to create a wind- and moisture-resistant hem; metal withstands hail and falling ice. 970/949-1078. Vail Metal Systems, Vail, Colo. **CIRCLE 192**

## Rot-resistant clapboard

Preprimed SmartLap engineered-wood siding has a moisture-resistant edge coating, and is treated against insects and fungal decay. Planks are made in 16-ft lengths, 6 or 8 in. wide, ready for painting. 800/648-6893. Louisiana-Pacific Corp., Portland, Ore. **CIRCLE 193**

## Mineral-composite cladding

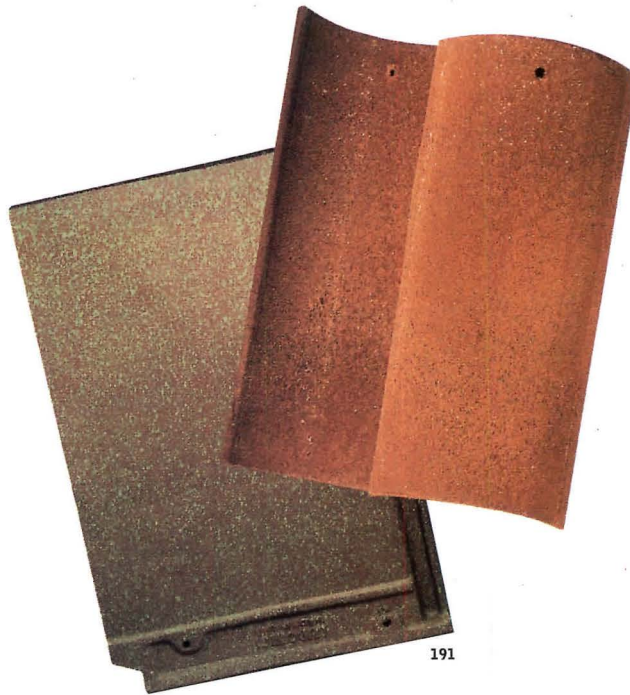
Carea is a dry joint (rainscreen) stone-look panel priced at \$10 per sq ft installed. The autoclaved mineral-based material is nonporous and integrally colored. 888/40-CAREA. Exterior Technologies Group, Zeeland, Mich. **CIRCLE 194**

## Vinyl-coated Galvalume siding

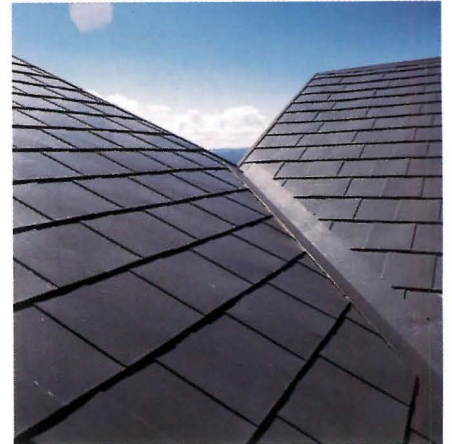
From a maker of metal roofing, Classic Seamless steel siding is formed on-site with a portable roll former to the exact lengths needed; siding sections can go from corner to corner without a seam. Floating attachment clips allow for thermal and settling movement. 800/610-1975. Englert, Inc., Perth Amboy, N.J. **CIRCLE 195**

## Time-saving roofing

A manufacturing improvement allows Carlisle to provide EPDM roofing that doesn't need talc to prevent sheets from sticking together before installation. The Pre-Kleened membrane does not have to be cleaned prior to splicing, producing labor savings and a better sheet bond. 800/4-SYNTEC. Carlisle SynTec, Inc., Carlisle, Pa. **CIRCLE 196**



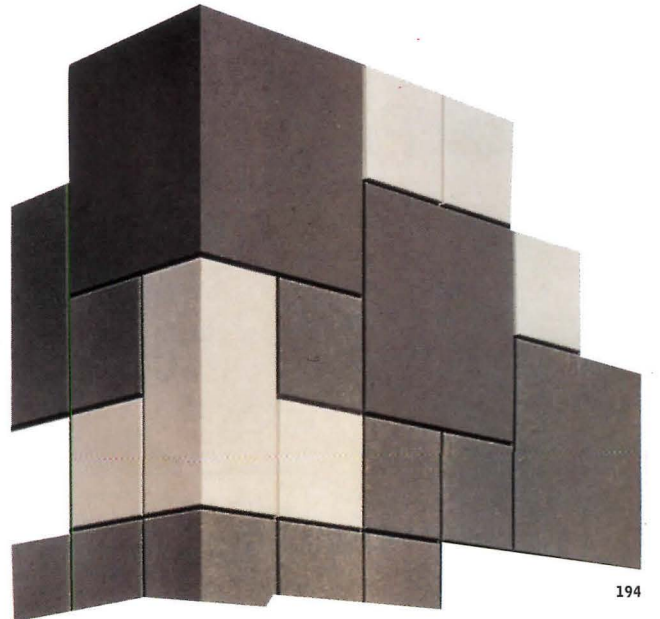
191



192



193



194



195



196

PRODUCTS



**Custom-curved metal**

Expanded fabrication capabilities allow more profiles, such as 3-in.-deep standing seams, and permit curving acoustical decking for use beneath domes and vaults. The service allows the architect to source panels from the manufacturer of choice for contoured roofs, walls, fascias, and decking. 888/998-0311. Curveline, Inc., Ontario, Calif. **CIRCLE 197**



197

**Prefinished SBP**

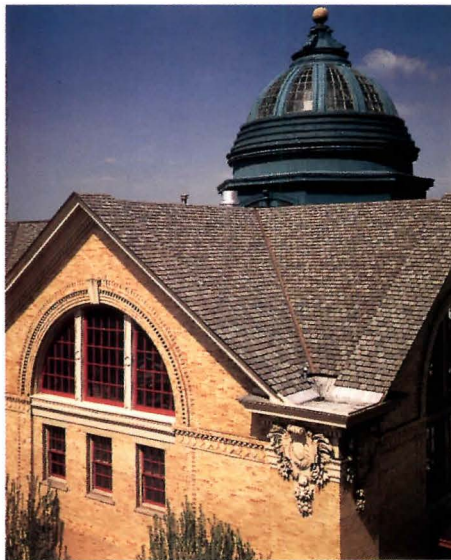
The new Firefinish option produces a structural building panel with a fire-resistant thermal barrier directly applied to the interior OSB surface, ready to paint or texture, eliminating the need for gypsum board. Panels come in sizes up to 8 by 24 ft. 800/255-0176. AFM Corp., Excelsior, Minn. **CIRCLE 198**



198

**Historic slate-look shingle**

Grand Manor "shingles" can be an approved, cost-effective alternative when historic construction materials are no longer available or are prohibitively expensive. The restoration of the 1898 East Liberty Market in Pittsburgh used Stonegate Gray to replicate the original natural slate. 800/782-8777. Certain-Teed Corp., Valley Forge, Pa. **CIRCLE 199**



199

**High-wind roofing**

Snap-Clad aluminum roofing panels, installed 16 in. on center over a solid substrate, have achieved UL-90 ratings, permitting the use of corrosion-resistant, wider aluminum panels in high-wind-code areas. 800/PAC-CLAD. Petersen Aluminum Corp., Elk Grove, Ill. **CIRCLE 200**



200

**Decorative roofing sheet**

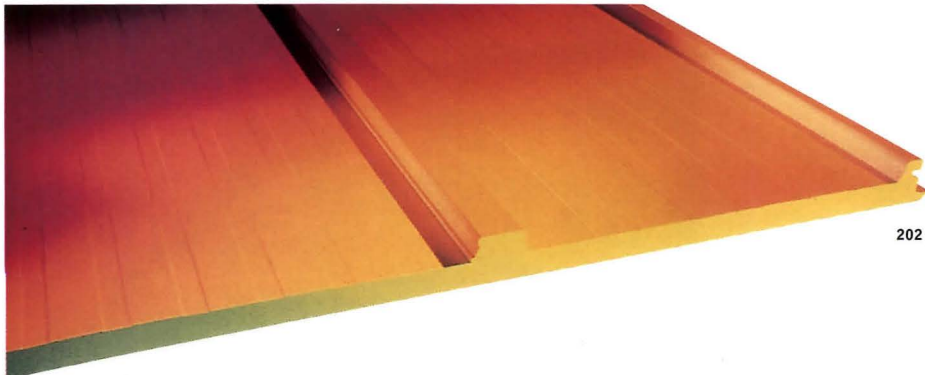
Mineral Design, a modified-bitumen granule-surface cap sheet, comes in eight designs, including strip slates, camouflage, ovals, and squares, and 13 colors; the brick pattern is shown. 800/535-8597. BiTec, Morrilton, Ark. **CIRCLE 201**



201

**All-in-one roof**

The Integrity structural roof combines all components—deck, vapor barrier, insulation, and weatherproofing—into a factory-made, foam-filled panel. Steel is galvanized, painted in any of 20 colors on the exterior, and finished white on the interior surface. Installation savings are said to make the composite panel cost competitive with BUR or single-ply systems. 888/265-4084. Centria Roof Systems, Moon Township, Pa. **CIRCLE 202**



202



continued

# THERMAL & MOISTURE

Cladding • Roofing • Insulation • Siding

## Labor-saving duct wrap

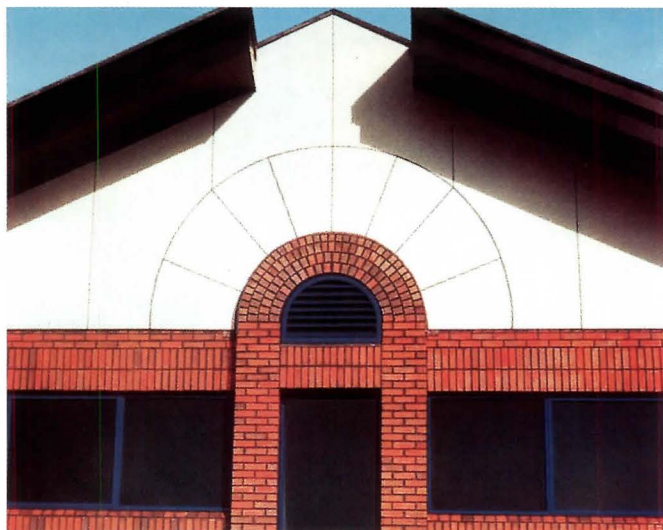
Fiberglass insulation for HVAC ductwork offers a QuikSeal feature: foil-faced blankets have an extended edge that forms an overlapping, peel-and-stick tab, so sections of wrap can be joined without cutting tape, reducing installation time by 25 percent. CertainTeed Corp., Insulation Group, Valley Forge, Pa. **CIRCLE 203**



203

## Colorfast cladding option

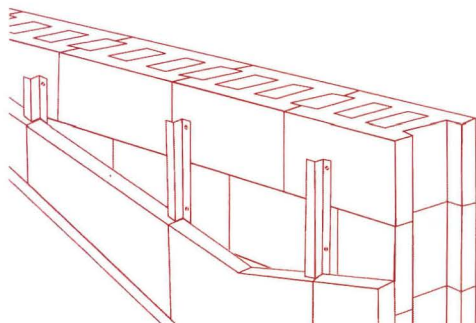
Used in Europe and the U.K. for over 20 years, SurfaceMaster cladding is now marketed in North America. A lightweight thermoset-resin composite impervious to moisture, it comes in sheets up to 5 by 12 ft for facades, fascias, and similar applications. Over 100 patterns and colors are available. 416/661-2351. Forbo Industries, Inc., Concord, Ont. **CIRCLE 204**



204

## Insulating sheathing

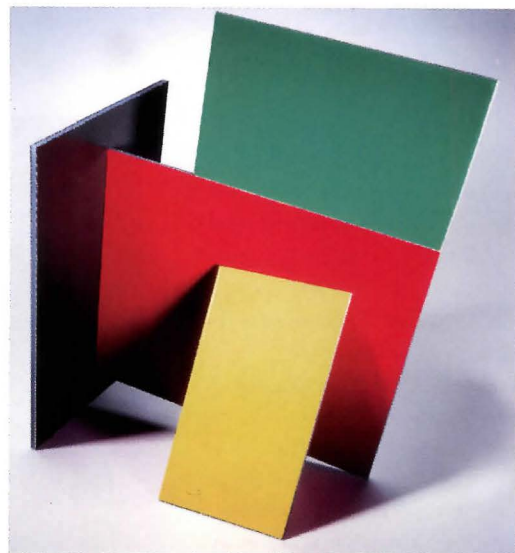
The Hatton Batten is a high R-value (12 and 16) foil-faced foam board with a kerf cut into one side to accept the Z furring used to attach drywall to masonry walls. These metal strips can "short circuit" insulation and telegraph shadow lines to the interior finish; the precut board prevents this by creating a continuous layer of insulation over the furring. 800/CELO-TEX. Celotex Corp., Tampa. **CIRCLE 205**



205

## Versatile aluminum composite

Reynobond has applications in elevator cabs, on walls, and as column covers, as well as cladding. Project-specific coating systems can be ordered in new colors like platinum, blue, and parchment. Available with a fire-rated core, the material has City of Los Angeles approval. 804/281-3939. Reynolds Metals Co., Richmond, Va. **CIRCLE 206**



206

## The roof that moves

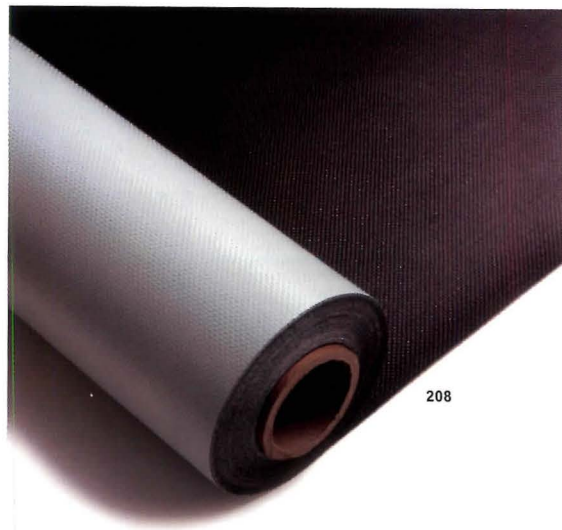
Custom glazed roofs and large skylights retract to vent heat and open interiors to sunlight and fresh air; units can function as automatic smoke vents even without electric power. 800/345-7392. Rollmatic Roofs, Inc., San Francisco. **CIRCLE 207**



207

## A lighter shade of black

Cool Black, a new thermoplastic polyolefin (TPO) sheet, offers some of the energy savings of heat-reflecting white or light-colored roofs at a lower cost. Under summer sun, it stays about 35 degrees cooler than other black membranes. 800/860-3491, x1079. Stevens Roofing Systems, Holyoke, Mass. **CIRCLE 208**



208



# DOORS & HARDWARE

Doors • Entrance Systems • Door and Cabinet Hardware

## Composite-construction slider

New sliding patio doors, an introduction in the Integrity line, are made with a weatherproof Ultrex fiber/resin composite exterior and an interior frame of solid natural pine. An integral screen is top hung to prevent binding. The removable grilles are pine. 800/346-5128. Integrity from Marvin, Warroad, Minn. **CIRCLE 209**



209

## Fire-rated wood door pairs

Double-egress doors do not need any metal edges or astragals to obtain a 90-minute rating in sizes as tall as 8 ft. Approval covers both wood-veneer and laminate doors. Shown with Adams Rite 3900 concealed exit. 800/827-1615. VT Industries, Inc., Holstein, Iowa. **CIRCLE 210**



210

## Circular sliding entrance

An alternative to standard automatic door systems, Tajima's Circle Door provides a breakaway mechanism for emergency egress. The entrance can be ordered in monumental bronze or stainless steel, as shown; doors can have a radius as small as 4 ft. 818/547-4595. Tajima Corp., Glendale, Calif. **CIRCLE 211**



211

## Maximum clearance exit

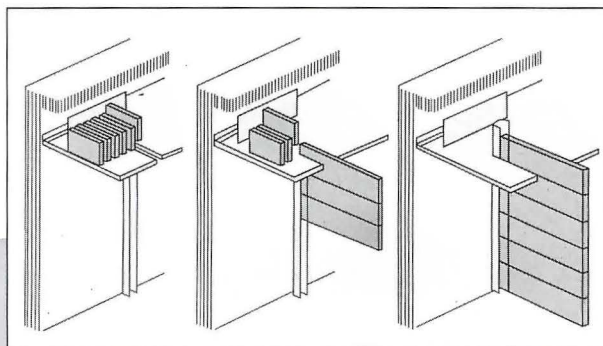
Von Duprin's new recessed device provides the largest possible opening clearance in cross-corridor fire-door applications: a 44-in. clear width per door. Protruding only 1 5/16-in. from the face, the exit will be UL listed as Fire Exit Hardware for 3-hour door pairs. 317/897-9944. Von Duprin Division, Ingersoll-Rand, Indianapolis, Ind. **CIRCLE 212**



212

## Operable all-glass partition

Modernfold's Cascadia glass wall system got an enthusiastic reception from RECORD's panel. A motorized divider for commercial and retail space, the system is attractive, simple to operate, and inconspicuous when not in use. The laminated-glass panels that make up the wall are stored in a compact, ceiling-mounted housing. When the door is activated, these panels slowly descend in single file, guided by two vertical guide rails that move with them. When deactivated, the panels ascend and stack vertically inside the housing. The panels weigh 7 pounds per sq ft and are described as very sturdy. Once the "solid" glass wall is formed, it can't be levered up by force. 800/869-9685. Modernfold, Inc., New Castle, Ind. **CIRCLE 213**



213



continued

# DOORS & HARDWARE

Doors • Entrance Systems • Door and Cabinet Hardware

## Positive-pressure gasketing

Allseal Series 9000 products, an integrated series of perimeter gaskets, permit door assemblies to pass the new positive-pressure fire test, UL-10C. The line includes a silicone compound that resists high heat and weather exposure and a soft-puff intumescent material; all pass NFPA 105 smoke-seal requirements. 800/647-7874. National Guard Products, Inc., Memphis, Tenn. **CIRCLE 214**

## Fire-rated glazed doors

Maiman offers a 20-minute full-light door, as well as 90-minute doors with two and three vision lights. An expanded product line includes bullet-resistant stile-and-rail doors and 16-ft-high wood windows. 800/641-4320. The Maiman Company, Springfield, Mo. **CIRCLE 215**

## Stainless-steel spring hinge

Hinges made of 304-grade stainless can withstand corrosive coastal and industrial environments. The 2060R three-knuckle hinge has particular application in corridors, entrances, and stairways as an economical alternative to overhead closers on apartment and hotel doors. 800/445-5723. Stanley Hardware, New Britain, Conn. **CIRCLE 216**

## Bar-stock lever handle

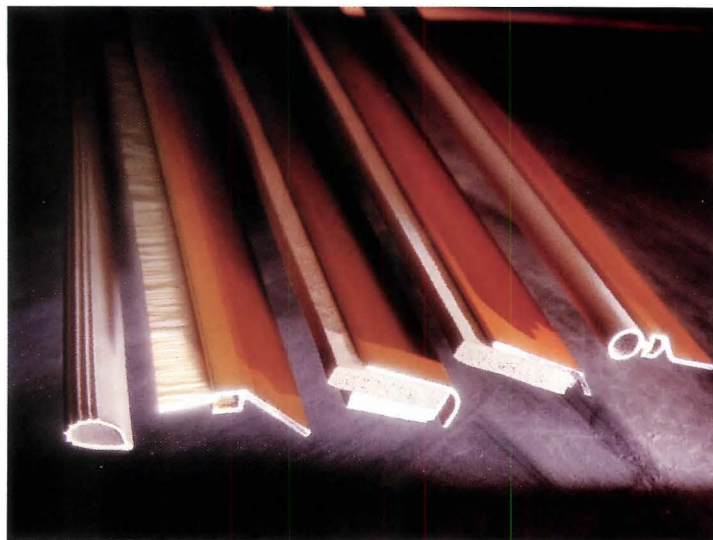
A Grade 1 trim with no exposed fasteners, 93 levers are bent and machined from 3/4-in.-dia. solid brass, bronze, or stainless-steel bars, giving them a strength and weight close to those of forged levers at a much lower cost. 800/847-1864. Schlage Commercial Lock, San Francisco. **CIRCLE 217**

## Retrofit doors to meet code

FS820 Kerf and FS 850 Dado systems, described as practical and economical upgrades, allow existing 20-minute wood doors to pass positive-pressure standards for 20-minute smoke and draft-control doors, per UBC 7-2 1997, using standard hardware. 800/635-5335. Zero International, Bronx, N.Y. **CIRCLE 218**

## Sliding/stacking door hardware

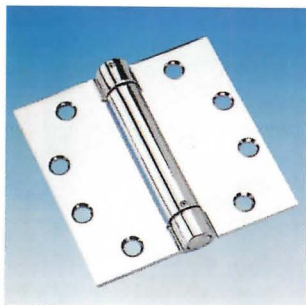
HAWA Variotec door hardware uses aluminum track with curved segments said to assure smooth, quiet running of the nylon rollers. For glass, wood, and metal doors, the track system comes in modules that allow on-site size adjustment. 888/437-7477. Häfele Architectural Products, Arlington Heights, Ill. **CIRCLE 219**



214



215



216



217



218



219

PRODUCTS



# WINDOWS & GLAZING

Residential Windows • Commercial Windows  
Curtain Wall • Glazing Materials

## Architectural laminated glass

GlassFresco can replicate almost any possible concept. Continuous-tone color imaging, achieved by a new dye-transfer printing process, means designers can work with photographs, digital data files, or original artwork to create graphics in opaque, transparent, or translucent glass laminations. Pictured are two of 18 stock patterns. GlassFresco can be used as spandrels, cladding, partitions, and skylights. 800/275-7272. Cesar Color, Inc., Burlingame, Calif. **CIRCLE 220**



220

## Windows-to-order

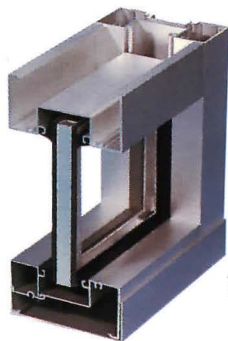
Formerly made in Western Red cedar only, custom windows and doors are now available in any wood the architect requires, as well as any size, shape, or glazing option specified. 800/240-4365. Cedar Windows & Doors by Bergerson, Hammond, Ore. **CIRCLE 221**



221

## Lower-cost storefront

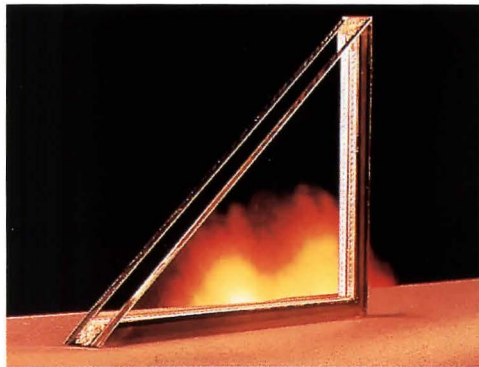
Series 14000 flush-glazed framing for low-rise applications is said to reduce costs by cutting the number of pieces required for installing a typical wall; the design is compatible with this maker's standard entrances. Text and detail information at [www.tubeliteinc.com](http://www.tubeliteinc.com) (Web page). 616/832-2211. Tubelite, Inc., Reed City, Mich. **CIRCLE 222**



222

## Fire-rated IGU

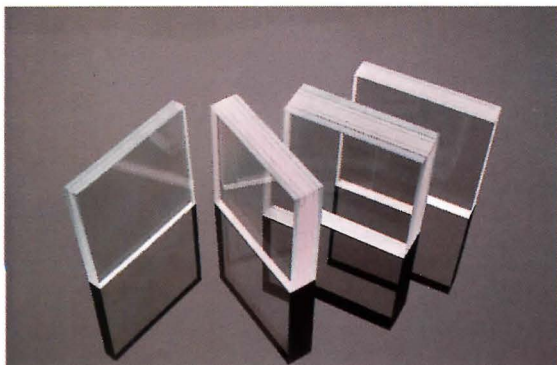
FireLite Plus, an impact-rated version of glass-ceramic FireLite, passes CPSC 16C FR1201 (400 fpi impact) and hose-stream tests. Can be specified in insulating units; fits in standard frames. Available in large sizes. 800/426-0279. Technical Glass Products, Kirkland, Wash. **CIRCLE 223**



223

## High-security glazing

Four new makeups are offered to meet UL bullet-resistance levels for high-powered rifles, now required for many government facilities, courthouses, and corporations. The line includes Vira-Guard LAC-1250, a lighter-weight, all-polycarbonate laminate. 800/533-2080. Viracon, Owatonna, Minn. **CIRCLE 224**



224

## Curtain wall CD-ROM

Both volumes of EFCO's architectural manual, covering a full line of curtain wall, storefronts, entrances, and windows, are now offered as a free CD-ROM, including a QuickTime segment with the manufacturer's capabilities video. 800/221-4169. EFCO Corp., Monett, Mo. **CIRCLE 225**



225



continued

# WINDOWS & GLAZING

Residential Windows • Commercial Windows  
Curtain Wall • Glazing Materials

## Tread the light fantastic

Austrian glass manufacturer Eckelt makes the Litefloor with a customizable nonslip coating said to supply a "superior" coefficient of friction. Stair treads and floor sections can be supported on four sides or span between two points. 914/683-1390. Euroglass Corp., White Plains, N.Y. **CIRCLE 226**

## Solar-control retrofit

Professionally applied to the interior side of windows and storefronts, Solis neither darkens nor colors the appearance of the glass. By the makers of Heat Mirror spectrally selective film, the Solis product blocks heat, UV, and glare while transmitting a high percentage of visible light. It can be cleaned with a squeegee, and will hold glass together if broken. 800/786-2468. Solis Div., Southwall Technologies, Palo Alto, Calif. **CIRCLE 227**

## Hurricane-resistant framing

The ProTek YHC300 curtain wall has been listed as compliant with South Florida's impact- and pressure-cycle tests, and is certified to 20 psf by ASTM's E331 water-penetration test. 800/955-9551. YKK AP, Atlanta. **CIRCLE 228**

## Light-diffusing panel

Kalwall's fiberglass-faced translucent panel can now be specified as a thermally broken curtain wall that prevents condensation. Architects Bechtel Frank Erickson chose a crystal exterior face and a white interior for large glazed walls that flood the rebuilt Malden Mills factory with natural light. 800/258-9777. Kalwall Corp., Manchester, N.H. **CIRCLE 229**

## Architectural art glass

Nature-inspired leaf and grass patterns are among the new FossilGlas textured glass designs. Similar in appearance to kiln-formed glass, FossilGlas is less expensive and is made in a broader range of sizes. A proprietary sealant makes large expanses of etched glass practical, even in high-traffic applications. 888/278-4660. Skyline Design, Chicago. **CIRCLE 230**

## Zero sightline venting unit

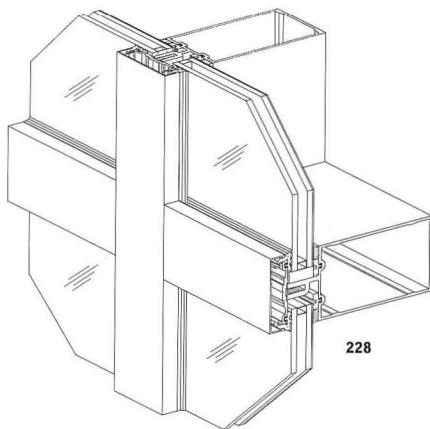
The zsWindow architectural ventilator lets fresh air into a storefront system without the obtrusive paning of a conventional insert. Said to be easy to install, the unit comes in sizes up to 60 by 36 in. 972/551-6100. Vistawall Architectural Products, Terrell, Tex. **CIRCLE 231**



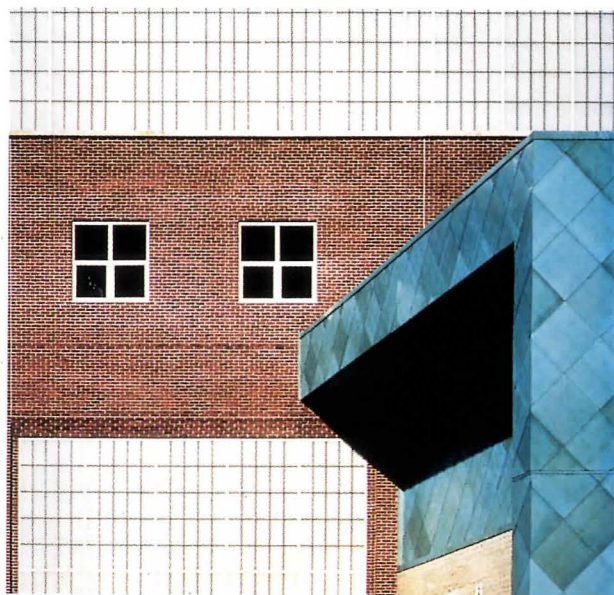
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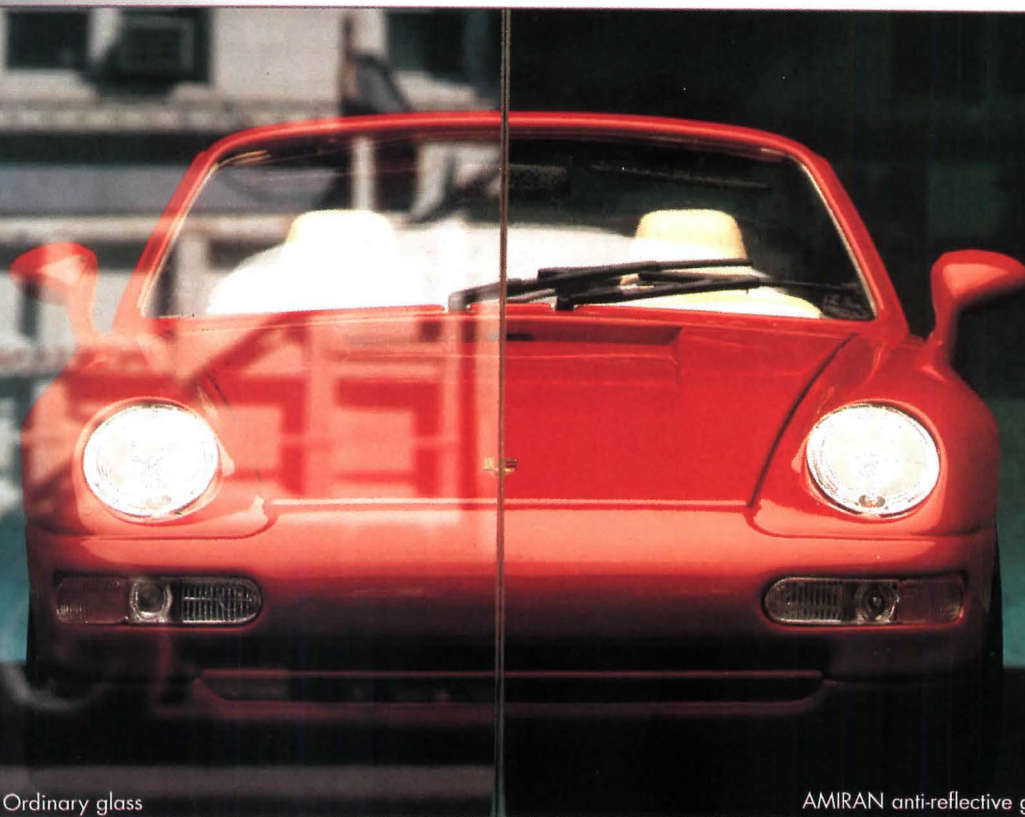
230



231



**YOU'RE LOOKING AT ONE OF THE MOST  
EXTRAORDINARY BREAKTHROUGHS  
IN 20TH CENTURY GERMAN ENGINEERING.**



Ordinary glass

AMIRAN anti-reflective glass

**(THE CAR IS NICE TOO.)**

**AMIRAN® anti-reflective architectural glass** — so clear, it's like it's not even there. No offense to the German automotive industry, but the real story here is the glass panel shown on the right. Created in Germany by Schott's leading team of glass engineers, Amiran anti-reflective glass reduces architectural window glare from 8% to as little as 1%. But the benefits go beyond just clarity. Since more light passes through the glass, Amiran also helps reduce lighting fixture and energy costs. It even cuts cooling costs because of less heat build-up. Amiran is ideal for storefronts, restaurants, zoos, museums — any place where high visibility is a must. And it's readily available for delivery throughout the U.S. It's no wonder architects and retailers are so revved up. For more information, glass samples, or to see if you qualify for our special subsidized installation offer, contact Schott Corporation, 3 Odell Plaza, Yonkers, NY 10701, or call (914) 378-3839. And visit Schott's website at [www.schott-group.com](http://www.schott-group.com).



continued

# WINDOWS & GLAZING

Residential Windows • Commercial Windows  
Curtain Wall • Glazing Materials

## Unobstructed casements

French-style casements in a new design open wide, with no central mullion to block the view. Both sides operate on one crank handle and lock with a single lever. Wood frames are available in maple, oak, mahogany, cherry, or pine. 800/477-6808. Weather Shield Windows & Doors, Medford, Wis. **CIRCLE 232**

## Hurricane-resistant glazing

Tested to the impact and cyclic wind-pressure standards of the South Florida Building Code, new P380 and L916 glazings protect structures and building contents from storm damage as well as from smash-and-grab theft attempts. 800/323-8776. Globe Amerada Glass Co., Elk Grove Village, Ill. **CIRCLE 233**

## Curved translucent panels

TransCurve panels are built on an aluminum grid, with an exterior FRP face offered in translucent colors. Panels can be walls or skylights; a daylighting product manual gives architectural details and technical data. 888/SKYCOST. Major Industries, Inc., Wausau, Wis. **CIRCLE 234**

## Dry-glazed thermal storefront

EnCore, a new mullion design, eliminates metal-to-metal contact between frame halves, improving the glazing system's energy efficiency and water-infiltration performance while providing positive internal drainage. Sight lines are narrow; fasteners are concealed. 770/449-5555. Kawneer Co., Inc., Norcross, Ga. **CIRCLE 235**

## Anti-reflective glass

Amiran, at left in photo, was installed in an Atlanta Braves skybox to prevent glare from stadium lights bothering the ballplayers below. The antireflective glass is now available in a tempered safety version, which meets wind-load restrictions and is suitable for doors and curtain walls. 914/378-3839. Schott Corporation, Yonkers, N.Y. **CIRCLE 236**

## New in 1925; new again

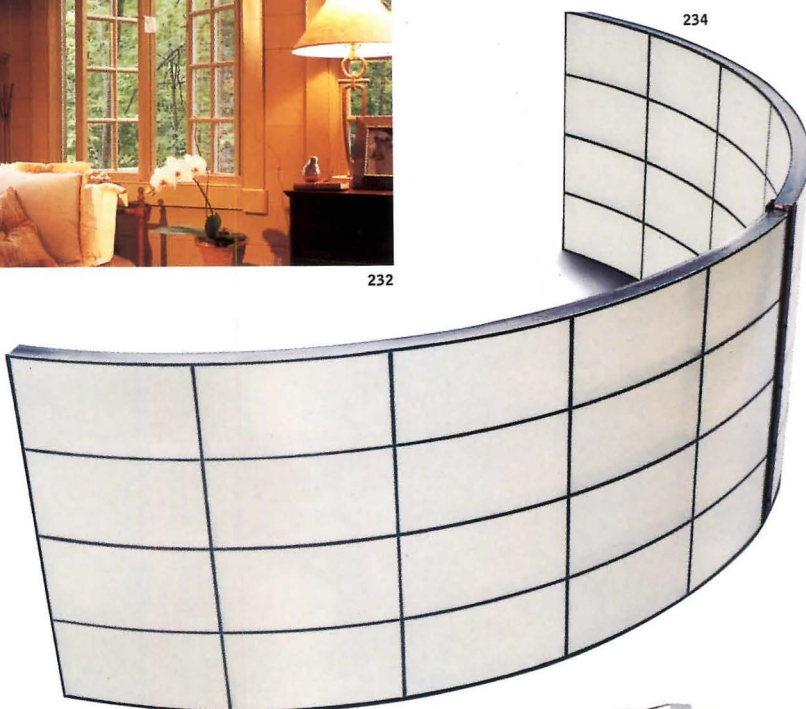
Pella's Rolscreen option has been placed inside a new, finished-wood housing at the top of the casement. The black fiberglass screen pulls down like a window shade, locking into the sill. When the screen is not in use, the window allows a clear view and 40 percent more light than a fixed insect screen admits. The screen-holding channel is prefinished. 800/54-PELLA. Pella Corp., Pella, Iowa. **CIRCLE 237**



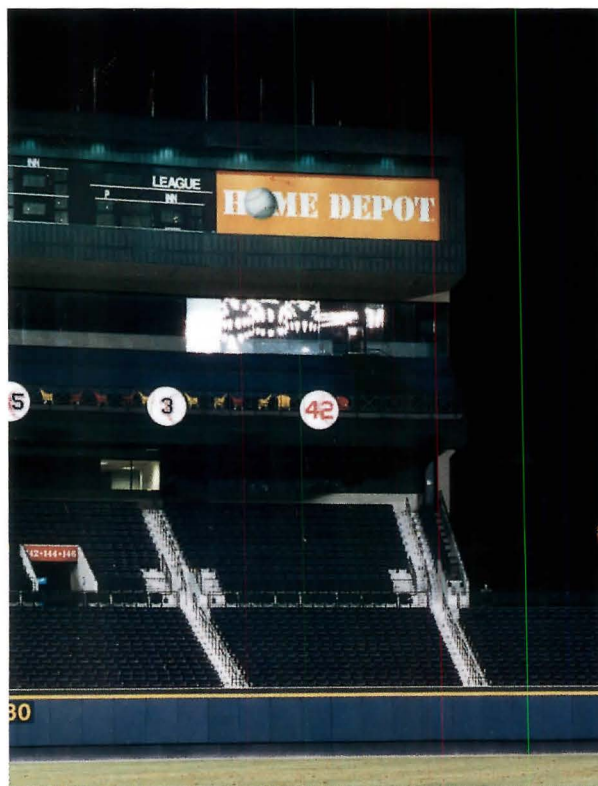
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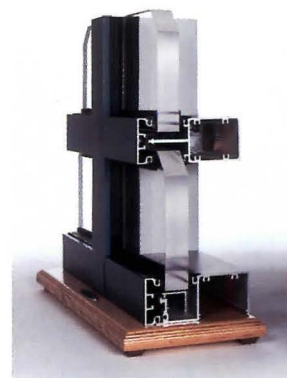
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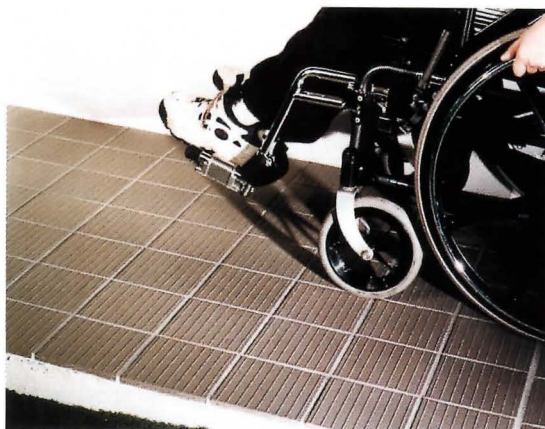


# FINISHES

Tile • Flooring • Ceiling Systems • Carpeting

## Treaded quarry tile

To be installed in demanding indoor and outdoor locations such as ramps and kitchen floors, Metro-tread tile has ridges across the traffic surface to provide long-term slip resistance. The units are oriented to form either checkerboard or linear patterns, depending on the direction of traffic. 800/325-3945. Metropolitan Ceramics, Canton, Ohio. **CIRCLE 238**



238

## Aluminum sound absorption

Almute sintered-aluminum panels now come in Intaglio, Crosshatch, and Weave finish options. The particulate-metal material is 40 percent air space by volume, attenuating sound in the gap between panel and wall. 800/433-7337. Peer, Inc., Wheeling, Ill. **CIRCLE 239**



239

## Modular sports surface

A solid-top version of Matéflex interlocking polypropylene flooring is said to provide "all the benefits of wood flooring without the headaches." For indoor roller hockey, basketball, and other sports, the shock-absorbent surface goes directly on a subfloor or concrete slab. 800/926-3539. Matéflex, Utica, N.Y. **CIRCLE 240**



240

## Carpet-on-call

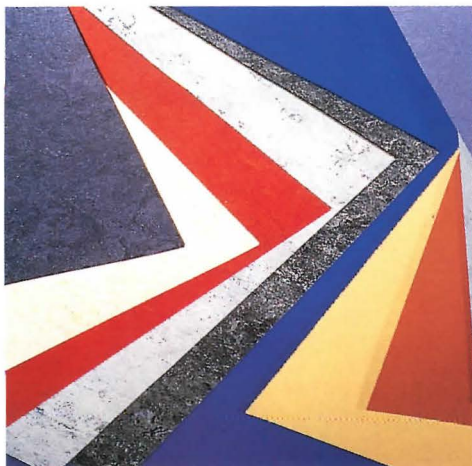
Made of Monsanto solution-dyed yarns, the PS Series broadloom fits the styling, maintenance, and budget requirements of commercial, healthcare, and education markets. Also new: Easy Street, a collection of 63 coordinating carpets in stock for immediate shipment. No minimum yardage. 800/221-3684. Prince Street, Cartersville, Ga. **CIRCLE 241**



241

## Linoleum sheet

Marmoleum, made of linseed oil, rosins, and cork or wood fibers, is available in vivid new colors. The Real line offers 36 colors; Fresco comes in 12; and Walton has 12 solid colors. Described as environmentally friendly, the linoleum can be installed without solvent-based adhesives. 800/342-0604. Forbo Industries, Hazleton, Pa. **CIRCLE 242**



242

## Painted grid for open ceilings

Prelude XL 360<sup>o</sup> offers painted suspension systems in over 180 colors, for open plenums that need to coordinate with other interior finishes. Heavy enough to carry signage and fixtures, the grid is made entirely of hot-dipped galvanized steel. 800/448-1405. Armstrong World Industries, Inc., Lancaster, Pa. **CIRCLE 243**



243

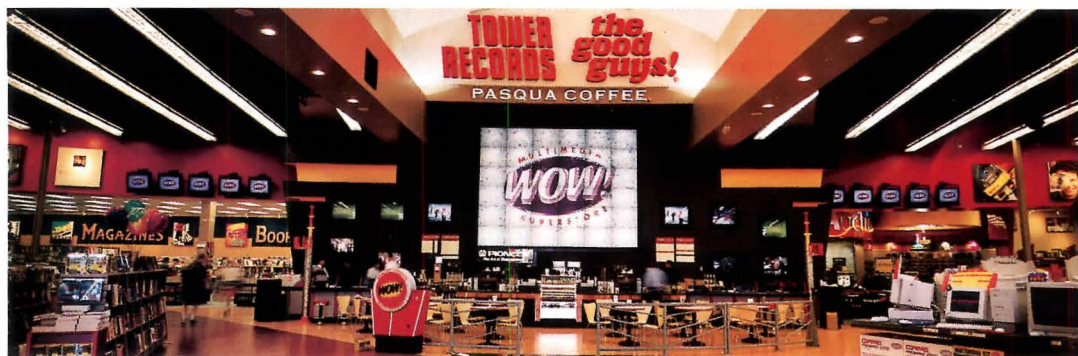


# SPECIALTIES & EQUIPMENT

Conference • Kitchen Cabinets • Access Flooring  
Louvers and Vents • Signage • Exhibit and Display

## Video-display wall

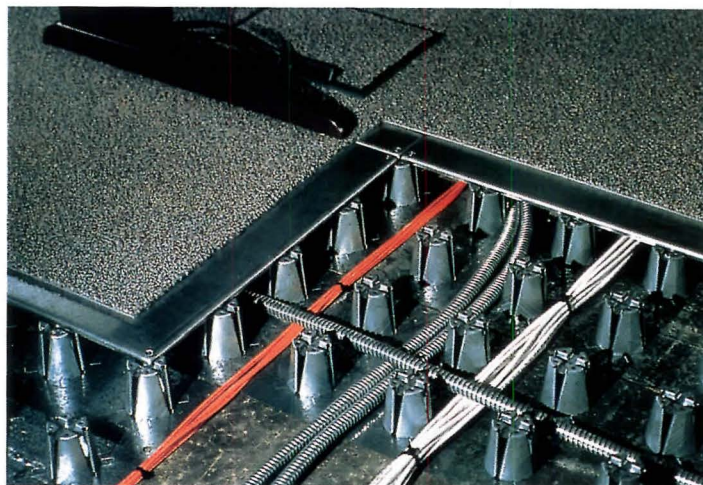
Dynamic, large-scale electronic display walls are fully automated for continuous, unattended operation. One application is this 17-ft music-video wall at a big Tower Record store; others include museum, corporate, and trade-show visuals. The software allows random, nonrepetitive programming of news, promotions, or PC-generated graphics. 201/366-5550. ImTech, Denville, N.J. **CIRCLE 245**



245

## Ultra-low raised floor

One of several under-floor wire-distribution systems from Interface, the Intercell supports noise-dampened steel flooring plates in only 3 in. of space. Pedestals come in steel or plastic, and can be adjusted to fit odd shapes and angles. 616/243-2211. Interface Architectural Resources, Grand Rapids, Mich. **CIRCLE 246**



246

## Slim projection screen

The Silhouette screen is unobtrusive whether it is up or down or mounted on ceiling or wall. The bottom dowel disappears into the case when the screen is raised; all brackets and wiring are concealed. Electric or manual operation may be specified. 765/987-7999. Draper, Spiceland, Ind. **CIRCLE 247**

## Architectural signage

A new style for ADA-compliant interiors, Pacific signs have a contoured silhouette for a contemporary appearance. Signs can be wall-hung, suspended, or free-standing; message panels are interchangeable. 800/ASI-SPEC. ASI Sign Systems, Inc. Dallas. **CIRCLE 248**



248

## Big and sleek

Minimalist English architect John Pawson's cabinetry for Belgian manufacturer Obumex has a "rigorous geometry" of smooth surfaces, concealed hinges and fittings, and large volumes that interlock along a wall or as an island. Only the water spout sticks up. Countertops may be lavastone, walnut, or marble. 212/758-4046. B&B Italia, USA, New York City. **CIRCLE 249**



249

## Interactive directory kiosk

A sleek, freestanding display for continuous, 24-hour use, the touch-screen Link Plynth can be used as a corporate directory, an office hoteling guide, or a wayfinding tool. 905/625-1111. King Products, Inc., Etobicoke, Ont. **CIRCLE 250**



250



247

PRODUCTS



**Demountable partition**

An updated version of a full-height system popular 50 years ago, the 238 wall lets the designer switch between two post widths in a single section. Skidmore, Owings & Merrill specified clear, patterned, and crinkle glass within this 238 installation. 212/334-3190. Acme Architectural Walls, New York City. **CIRCLE 251**



251

**No-sneak-peek compartment**

A multicam stainless-steel toilet-compartment hinge provides privacy, emergency access, and automatic closure: out-swing doors return to a closed position; in-swing versions stay closed or partially open. It is made of 16-gauge steel for heavy use. 516/333-2600. Metpar Corp., Westbury, N.Y. **CIRCLE 252**



252

**Protective outlets**

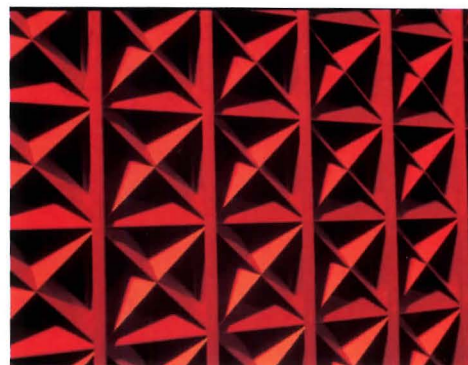
Receptacles incorporate continuous surge suppression in a standard-size duplex outlet, providing point-of-use protection for sensitive electronic equipment. Indicator lights display the active status of the device. Color choices: orange (isolated ground circuits), blue, ivory, and gray. 800/621-0049. The Wiremold Co., Bristol, Conn. **CIRCLE 253**



253

**Storm-resistance to order**

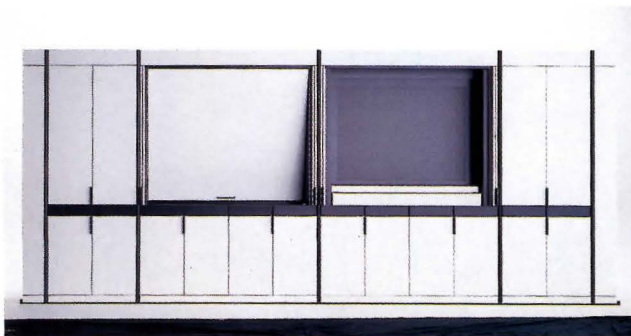
A new concept, Location Smart ventilation louvers work from a climate database that calculates the optimal configuration for a specific building in a particular geographic location. The frame is designed to channel anticipated rainfall away from the louver face; exteriors can be ordered in a number of ornamental patterns. 888/640-5566. C/S Group, Lebanon, N.J. **CIRCLE 254**



254

**Multimedia conference system**

Sleek, fold-out controls fit into Media Walls that meet a client's individual conference/communication needs with combinations of rear- and front-projection screens, monitors, flip charts, and writing boards. Bifold doors conceal all equipment. 630/876-1830. Windel International/Weyel, West Chicago, Ill. **CIRCLE 255**



255

**Retrofit access floor**

Engineered as a cable-management system that can go into an existing facility, the current version of the Cablefloor features minimal, 2 1/2-in.-high, 24-in.-sq cementitious floor panels and a cut-to-fit support grid. 800/999-3567. Flexspace, Inc., Seattle, Wash. **CIRCLE 256**



256





**Jack Culley**

**Worries about construction delays (50% chance of rain), falling debris and what effect instability in Asia may have on his Pacific Rim Mutual Fund.**

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# FURNISHINGS

Window Treatments • Sun Control • Reception Furniture  
Office Systems • Fabrics • Seating

## No-show-through blinds

The Riviera aluminum window blind may be specified with a new LightMaster feature, where each overlapping slat completely covers the cord hole of the slat below it. This greatly improves the room-darkening performance of the shade. 800/826-8021. Levolor Home Fashions, High Point, N.C. **CIRCLE 257**



257

## Sustainable panel fabric

Aptly named *Play it Again Sam*, DesignTex's new textured basket-weave is made of Fortrel Ecospun, a yarn produced completely from recycled plastic containers such as PET soda bottles. The material is UL listed, comes in nine "Armani-like" soft, neutral colors, and is priced at \$18 per yard. 800/221-1540. DesignTex, Inc., New York City. **CIRCLE 258**



258

## Comfort at the airport

Fully upholstered for ergonomically sound seating during long stopovers, the GateOne line is built on a steel-beam frame to withstand high-traffic, 24-hour-a-day use. The company describes its design as having "the aesthetic of a Concorde for the price of a Kiwi." 920/468-2162. KI, Green Bay, Wis. **CIRCLE 259**



259

## Inspired by a master

Antonio Citterio named his new seating Charles for its inspiration, Charles Eames. Interchangeable, single-backed sections have identical slants to arms and backs, so individual units fit together "seamlessly" to become a sofa, a day-bed, an ottoman, or a chaise longue. Loose pillows match the units. B&B Italia, New York City. **CIRCLE 260**



260

## Affordable ergonomic seating

Introduced by Turnstone at a mid-market price, Springboard office, task, and manager chairs have movable arms and high, contoured backs for good lumbar support. The adjustment mechanism is intuitive for ease of use. 800/784-0358. Steelcase, Grand Rapids, Mich. **CIRCLE 261**



261

## Built for change

The Platform office supplies a stackable framework that can be easily adapted to organizational change, whether in computer technology and wire management or in reconfigured personnel teams. Storage can be readily customized and makes good use of scarce floor space. 905/836-7676, x313. Office Specialty, Holland Landing, Ont. **CIRCLE 262**



262



continued

# FURNISHINGS

Window Treatments • Sun Control • Reception Furniture  
Office Systems • Fabrics • Seating

## Open-ended office solution

Designed and first marketed in France, the Nomade office by Jean-Louis Berthet and Denis Vasset meets new organization modes with a changeable yet cost-effective product. Colorful work surfaces are mobile, height-adjustable, and reversible. 800/344-2600. Haworth, Inc., Holland, Mich. **CIRCLE 263**

## Solution-dyed upholstery

Carnegie's first collection of solution-dyed nylon fabrics, Balancing Act is highly abrasion-resistant and easy to maintain with healthcare-caliber cleansers. Designed by Laura Guido-Clark and Beverly Thome. 800/727-6770. Carnegie, New York City. **CIRCLE 264**

## Cost-effective casements

Made of a fire-retardant Trevira said to have a "wool-like" hand, the geometric-pattern Corinthian/3 is washable, durable, and priced from \$12.70/yard. 800/645-3943. Maharam, New York City. **CIRCLE 265**

## Lightly scaled seating

Bikini, by Studio DDL, comes as an armchair, a stool, and a sidechair—all stackable. The seat and back are flexible thermoplastic; all color options are shown. 401/724-4470. Zero U.S. Corp., Lincoln, R.I. **CIRCLE 266**

## For seating and panels

Original-design contract upholsteries and panel fabrics by Jane Eschbach include cotton chenille Briquete, matte striped Classic Lines, and nubby-textured Wavelengths. All pass the most stringent abrasion tests. 800/444-8812. Geiger Brickel, Atlanta. **CIRCLE 267**

## Thinner shadecloth

EuroVeil is a fire-retardant woven vinyl with good see-through characteristics. Color affects in-use performance: darker colors reduce glare better; lighter colors reflect more heat and keep light levels higher. Easy to maintain, the fabric is suitable for healthcare and public spaces. 800/899-8081. MechoShade Systems, Long Island City, N.Y. **CIRCLE 268**

## Cheaper power

Described as affordable, Duette's Power Rise option needs no cords or wiring. A battery-operated motor in the headrail responds to up-or-down commands from a hand-held remote. 800/327-8953. Hunter Douglas Window Fashions, Broomfield, Colo. **CIRCLE 269**



263



264



265



266



267



268



269

PRODUCTS



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# SPECIAL CONSTRUCTION & CONVEYANCE

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PRODUCTS

## See-through noise barrier

Designed to reduce both transmitted and reflected sound from highways, airports, industrial sites, and similar sources, the Quilite barrier is a factory-made panel of polycarbonate blocks held in noise-trapping bezels, mounted in a steel frame. Audible incident noise through the panels is cut by over 80 percent. A corrugated surface eliminates reflected glare; lightweight modules can be made up to 20 ft high. 310/641-7701. Quilite International, Los Angeles. **CIRCLE 270**

## Escalator for outdoors

The 9300 escalator is rugged enough for the heaviest traffic of public-transit facilities. Inclined balustrades with stainless-steel infill resist vandalism; all mechanical components are designed for a high degree of reliability, regardless of environmental conditions. Available in two-, three-, and four-flat-step configurations to meet safety and design requirements. 973/397-6500. Schindler Elevator Corp., Morristown, N.J. **CIRCLE 271**

## Traffic-flow enhancement

A new control system uses artificial-intelligence algorithms to respond to changes in building traffic. Controls are able to reduce both passenger wait time and travel time, optimizing elevator performance. The equipment can be retrofit onto other elevators. 800/956-KONE. Montgomery KONE, Moline, Ill. **CIRCLE 272**

## Zone cabling strategy

Wire management in open-office facilities is made easier by a common approach for all cabling moves that includes devices like the Pypeline, a Category 5 UTP cabling system specifically engineered for modular furniture applications. 800/835-7240. AMP, Inc., Harrisburg, Pa. **CIRCLE 273**

## Double-deck exhibit system

Modular Dexz maximizes costly space while minimizing exhibit costs. Exhibit-group/Giltspur, Edison, N.J. **CIRCLE 274**

## Horizontal elevator arrives

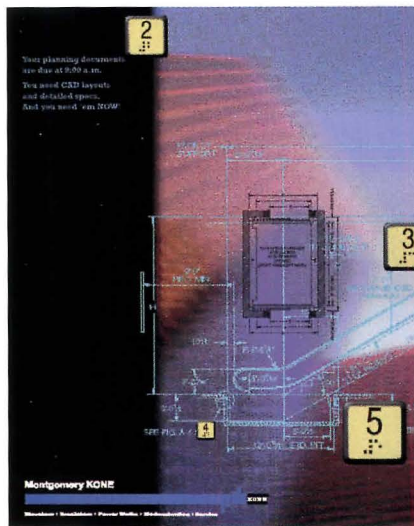
A working model of the Odyssey demonstrates the unique system's ability to combine horizontal and vertical travel in a single car. Next stop: the tallest (or the widest) building in the world. See it in action at [www.otis.com](http://www.otis.com) (Web page) or on disk: 860/676-6000. Otis Elevator Co., Farmington, Conn. **CIRCLE 275**



270



271



272



273



274



275





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# MECHANICAL

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## Hydronic radiant heating

Pre-assembled panels up to 16 ft long can cross a ceiling wall-to-wall in commercial and institutional spaces, saving installation labor and floor space. System uses 5/8-in. copper tubing and standard fittings. Also available: modular units for T-bar grids and 10-ft secure panels for correctional facilities. 413/564-5535. Sterling, Westfield, Mass. **CIRCLE 276**



276

## Stone-look coolers

SoftSides wall-mount fountains are now available in a composite polymer in colors like emerald green (shown), black, and gray granite. Curved edges prevent injuries; most models are ADA-compliant. 630/574-8484. Elkay Manufacturing Co., Oak Brook, Ill. **CIRCLE 277**



277

## Off-peak air conditioning

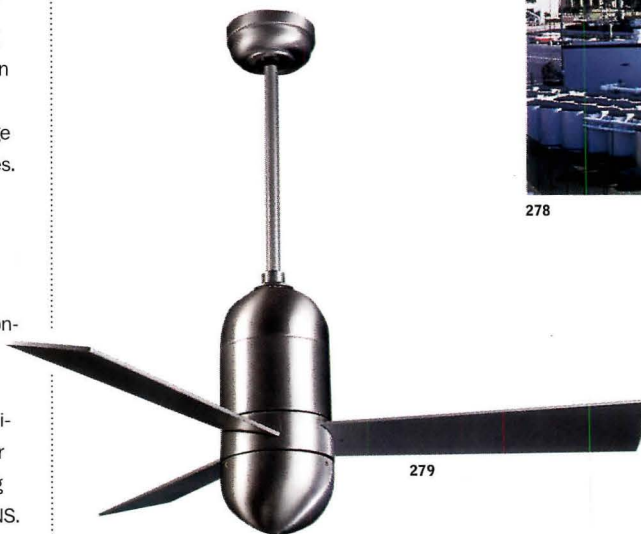
Ice Bank stored cooling can shift or level electrical loads, reducing both total power draw and premium-demand charges. The equipment makes ice during off-peak times, and uses it to lower a building's air-conditioning load during the daytime. Properly sized systems can mean conditioning larger spaces using existing chillers, or reducing the tonnage and expense required for new structures. 201/569-0420. Calmac Mfg. Corp., Englewood, N.J. **CIRCLE 278**



278

## 21st-century ceiling fan

A Ron Rezek design, the Cirrus has no bulge for the motor: all equipment is concealed by the fan's cylindrical housing. Blades can be molded acrylic with a bend at the ends, or square-edged laminate. The fan comes without a stem, for low ceilings, or with the "short" housing shown, for higher spaces. 888/588FANS. Modern Fan Co., Ashland, Ore. **CIRCLE 279**



279

## Water-saving toilets

The "next generation" of pressure-assist flushing systems are quieter in use, better able to resist aggressive water, and smaller, for a lower tank profile. Units permit a larger trapway, preventing stoppages. 800/875-9116. Sloan Flushmate Division, Franklin Park, Ill. **CIRCLE 280**



280

## Rugged and high-tech

A new line for Acorn, Meridian Curvalinear stainless-steel washbasins come in single, double, triple (pictured), and quad configurations. All meet ADA guidelines. 800/488-8999. Acorn Engineering, City of Industry, Calif. **CIRCLE 281**



281



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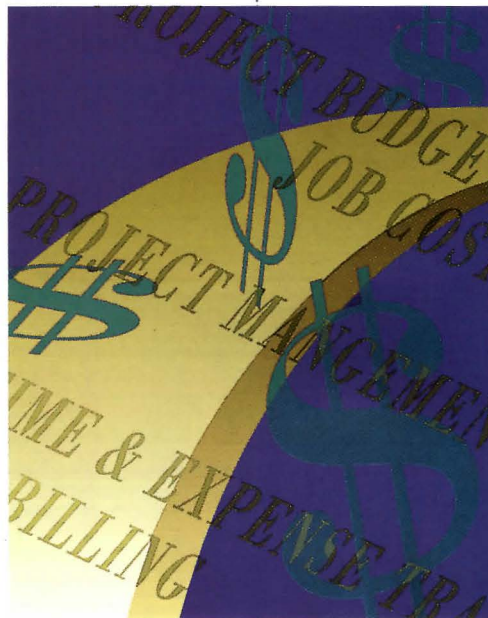


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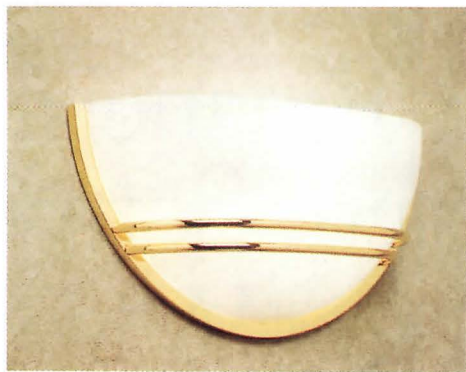


# LIGHTING

Ambient Lighting • Task Lights • Exterior Luminaires • Sources • Accent Lighting

## Sconce

SPI says its Phaces fixture is the first ADA-compliant sconce to take both metal-halide and compact-fluorescent lamps, providing the architect with a lumen package to implement a range of decorative and ambient lighting effects. 414/242-1420. SPI Lighting, Inc., Mequon, Wis. **CIRCLE 282**



282

## Blacklight spot

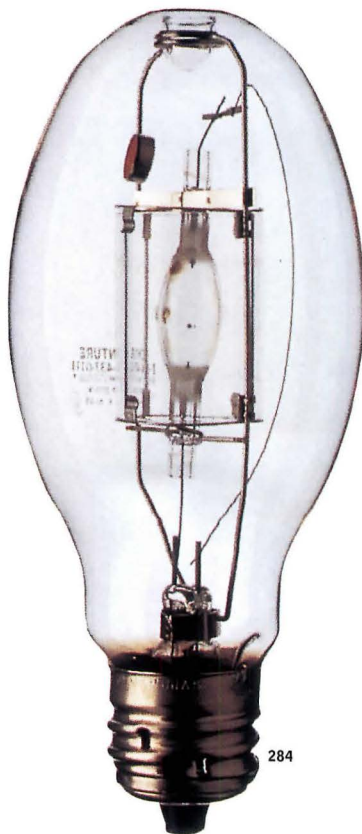
The BL38 track fixture is designed to produce high-intensity, focused ultra-violet-A light to illuminate materials that fluoresce in applications such as retail display, entertainment lighting, and exhibits. 800/999-9574. Lighting Services, Inc., Stony Point, N.Y. **CIRCLE 283**



283

## UV-blocking light

Venture's new metal-halide lamp is made with UVGuard, intended to shield ultra-violet light enough to prevent the yellowing of plastic fixture lenses and extend the high-output life of the lamp itself. 440/248-3510. Venture Lighting International, Solon, Ohio. **CIRCLE 284**



284

## Wireless home lighting control

The Radio RA radio-frequency device reduces the cost of a whole-home lighting-control system. Up to 12 controls can operate 32 dimmers and switches each. No hard wiring is needed. 800/523-9466. Lutron Electronics Co., Coopersburg, Pa. **CIRCLE 285**



285

## CIRCLE 285

## "Seamless" wallwashers

Neo-Ray says its fluorescent PentaFlex system (79PF is shown) appears pleasantly luminous and distributes light uniformly without socket shadows.

718/456-7400. Neo-Ray Lighting Products, Brooklyn, N.Y. **CIRCLE 286**

## Linear lightstrip

Three horizontal rows only 6 in. wide outline the top of a 42-story-high bank with light that is visible 5 miles away. The illumination comes from a light-emitting phosphor layered in a flexible strip that takes very little current and can be made as long as 1,500 ft. 800/356-3030. EL Lighting, Chatsworth, Calif. **CIRCLE 287**



287

## For wall or ceiling

A small-scale exterior light comes in a brushed-stainless trim, cast-aluminum housing, and various wire-guard options. UL-listed for wet locations. 805/684-0533. BEGA, Carpinteria, Calif. **CIRCLE 288**



286

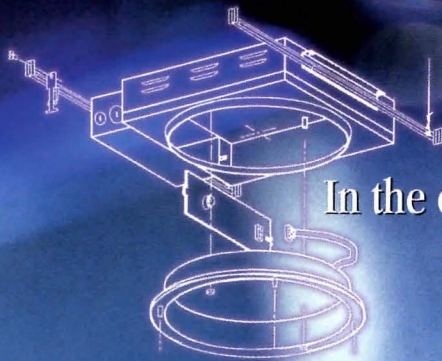


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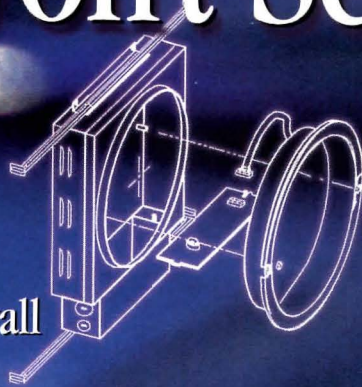
PRODUCTS



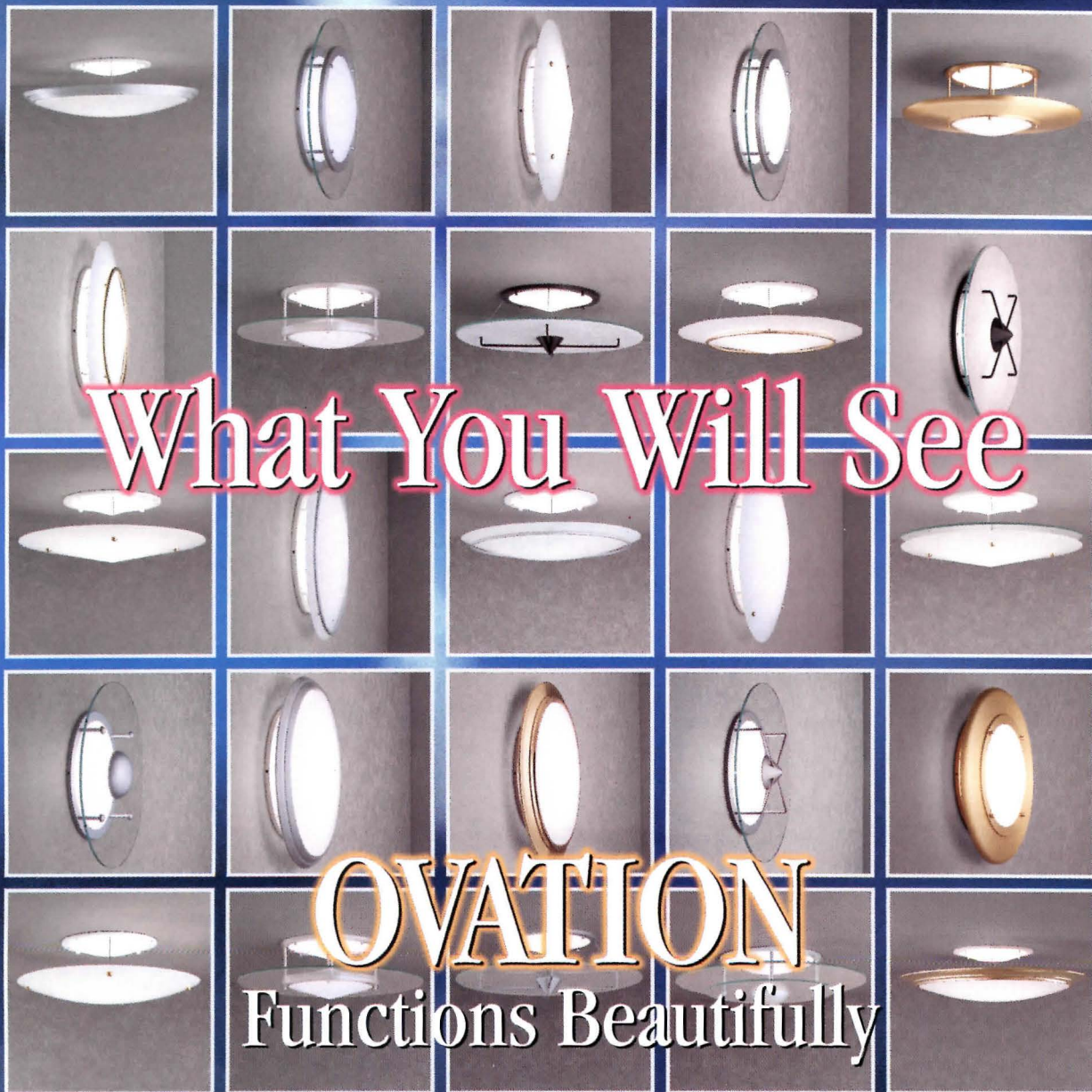
# What You Won't See



In the ceiling



In the wall



## What You Will See

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**LIGHTING**

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**Recessed luminaire**

A new fixture for a new lamp, the Style 204 semirecessed wallwasher is scaled to commercial interiors with walls 8 to 12 ft high. The fixture's asymmetric optics take advantage of new Hex Tube CFLs to distribute the same amount of light as standard sources using only half the number of fixtures. 203/931-4455. Elliptipar, West Haven, Conn. **CIRCLE 289**

**This is a clock. Really.**

Suggested for building lobbies, the Virtual Clock consists of two pinwheel-like arms a yard across, lined with LEDs. Like the blades of a fan, the arms spin fast enough to disappear in a blur, while a microchip tells the LEDs to pulse at the precise position that represents the time. A remote controls different colors and visual effects. 212/473-1125. Electrokinetics, Inc., New York City. **CIRCLE 290**

**Vanity or corridor fixture**

The 606 upright is an ADA-compliant hall light; turned sideways, it can be used above a mirror. Diffusers can be opal, green or etched acrylic, faux alabaster, and mica. Takes triple-tube or quad CFLs as well as incandescent sources. Can be customized to suit specific projects. 510/234-2370. Shaper Lighting, Richmond, Calif. **CIRCLE 291**

**Versatile cove illumination**

The In-Cove has a six-sided housing with three separate mounting planes set 10 degrees apart, a feature that lets the forward-throw optics of each fixture be tuned to suit a particular setting. 604/888-6811. Ledalite Architectural Products, Inc., Langby, B.C. **CIRCLE 292**

**Lamp or modem?**

Designed for hotels that cater to business travelers, the Datalux lamp combines desk or bedside illumination with a data port, power outlet, and phone jack set in its base. 888/281-1233. Microsun Technologies, Cleveland. **CIRCLE 293**

**Back in the office**

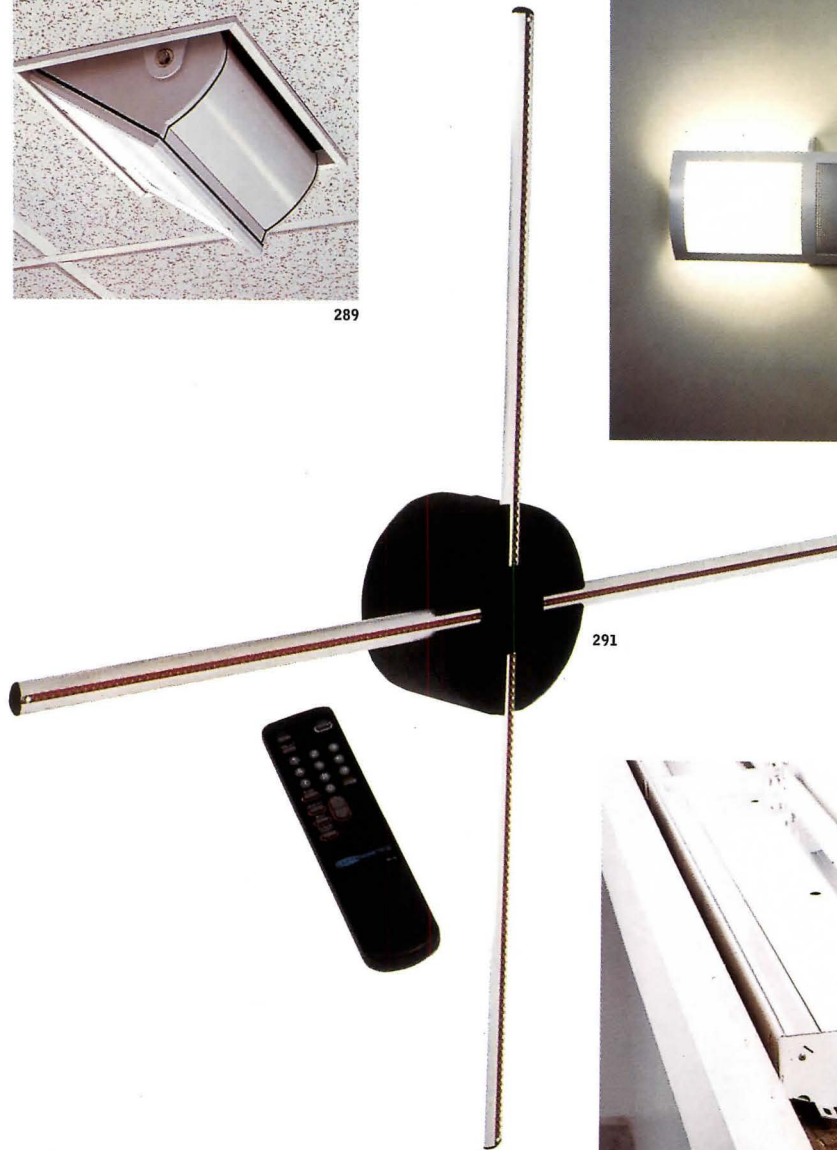
A very adjustable task light, Halogen 4 is particularly suited to panel systems. Throughout its range of motion—up or down, left or right—the lamp head remains parallel to the worksurface, preventing glare on VDT screens. The shade may be ordered in amber, blue, green, purple, or black. 914/658-8393. Luxo Corp., Port Chester, N.Y. **CIRCLE 294**



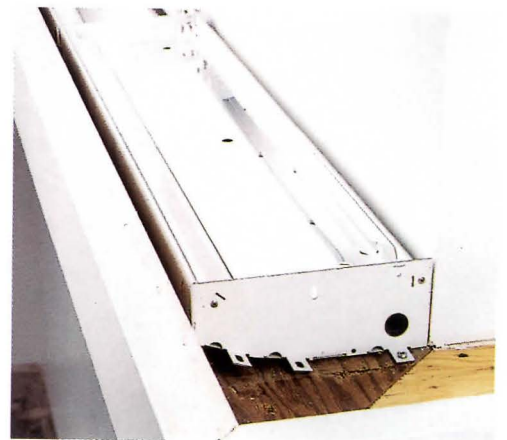
289



290



291



292



293



294

PRODUCTS



**Minimalist track lighting**

A track-light extension of the RTX ambient luminaire line lets architects simplify a ceiling plane by mounting louver-lensed fluorescents, line-voltage PAR lampholders, and low-voltage monopoint spots on a single, pared-down system. Designed by Charles Keller, RTX works as a single luminaire or as a continuous-row assembly. Fixtures may be specified in new titan (silver) finish, as shown. 800/932-0633. Zumtobel Staff Lighting, Inc., Highland, N.Y. **CIRCLE 295**



295

**CFL bollard**

Designed by King & Miranda specifically for compact fluorescents, Borealis has a botanical appearance said to work well with both contemporary and period landscapes. The luminaire may be ordered with a clear polycarbonate shade, as pictured, or with an opal diffuser. 954/349-2525. Poulsen Lighting, Inc., Ft. Lauderdale, Fla. **CIRCLE 296**



296

**Perimeter indirect**

Wall Xa-56, with its simple, eased-arc shape, can illuminate smaller rooms on its own or supplement pendant fixtures, brightening walls in larger areas. Its reflector gets a wide distribution from either T8s or CFL lamps. 781/294-0100. Litecontrol, Hanson, Mass. **CIRCLE 297**



297



298

**Table/task light**

Ula-Op is part of a family of table, floor, wall, and pendant lights made with Murano glass shades in any of five colors, a curved wood stem, and a nickel-plated base. Illuminating Experiences, Highland Park, N.J. **CIRCLE 298**

**Experience the light**

A work of art as much as a luminaire, Metamorfosi is an apparatus based on four halogen lamps lensed in white, blue, red, and green—the primary colors of light—controlled by a single remote. Any of 54 color scenes bloom at the touch of a button, from fiery volcano to earliest dawn. Unique housings include the Esperia table fixture by Ernesto Gismondi. 800/359-7040. Artemide, Inc., Farmingdale, N.Y. **CIRCLE 299**



299

**Interior luminaire family**

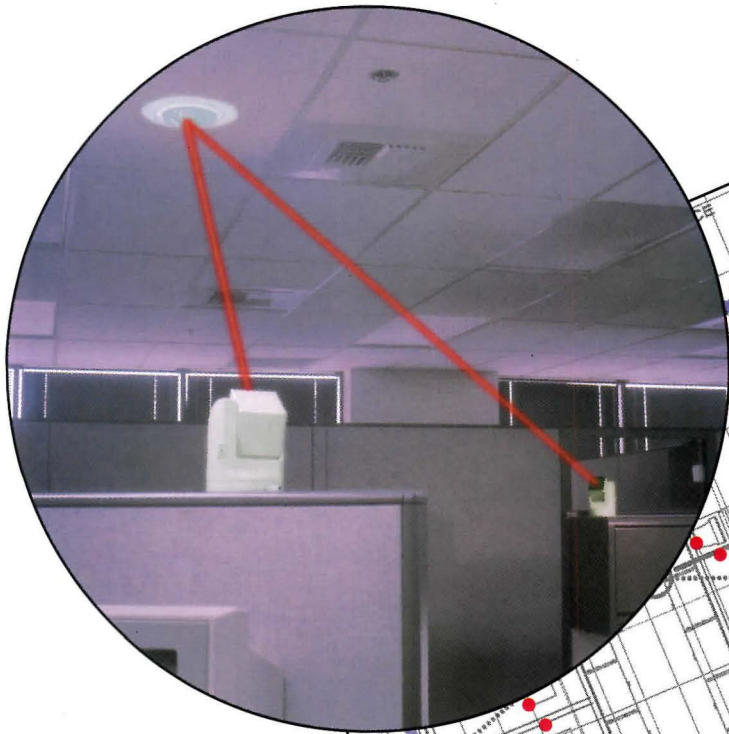
Orchestra is a recessed lighting system of square and rectangular housings: symmetrical forms that distribute an asymmetrical light from either ceiling or wall. Luceplan USA, New York City. **CIRCLE 300**



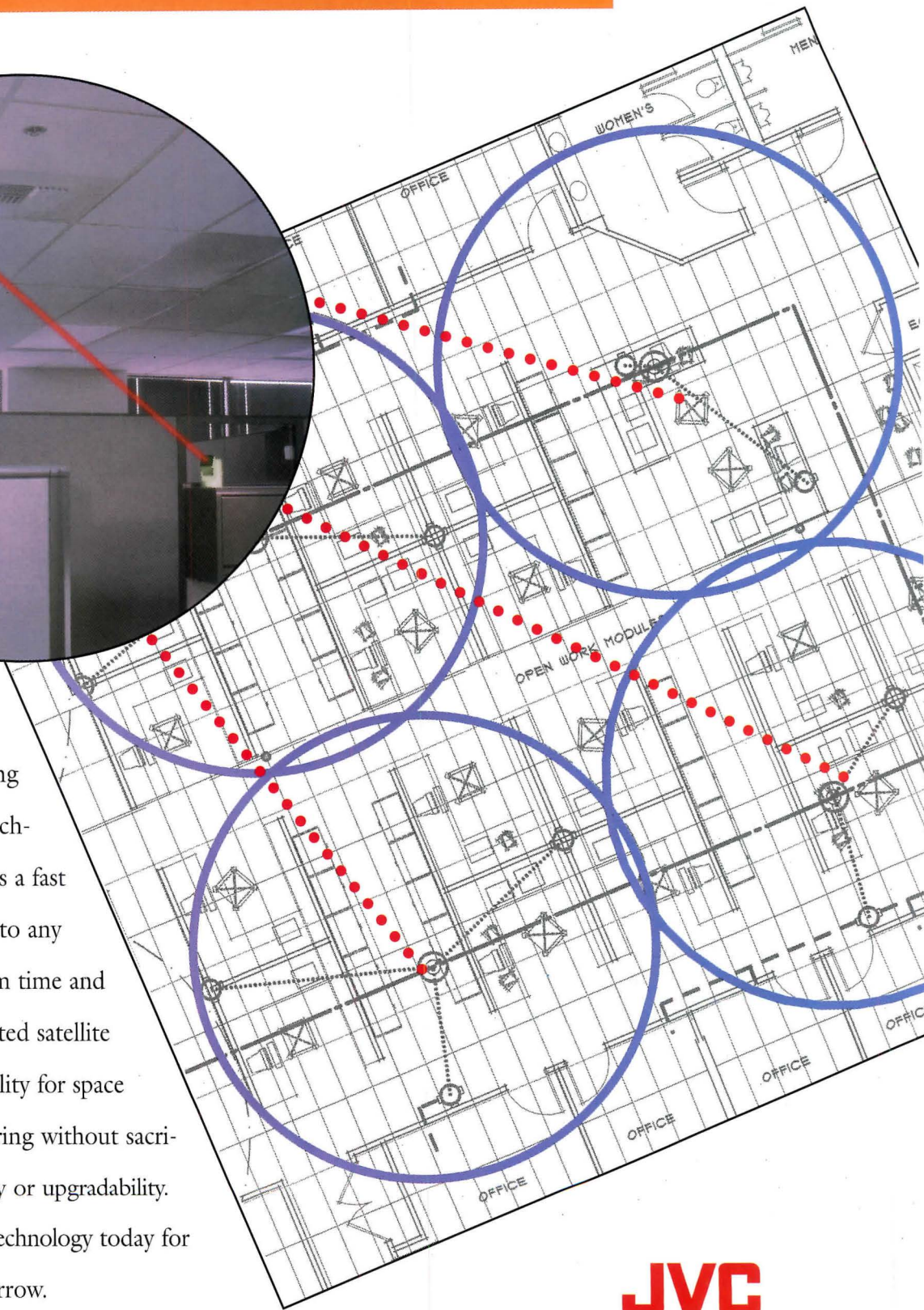
300



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# How Long Should Buildings Last?

**BUILDING LONGEVITY MAY FALL VICTIM TO COST PRESSURES AND LOW-REDUNDANCY TECHNOLOGIES, BUT MORE OBJECTIVE STANDARDS FOR DURABILITY MAY HELP RAISE PERFORMANCE.**

by Virginia Kent Dorris

The value of using durable materials to create long-lasting buildings is, in concept, as indisputable as Mom, apple pie, and the flag. But selecting and specifying suitably durable materials can be challenging. There is the sheer number of competing products on the market and the abundance of claims about them. In promoting what they presume to be more durable materials and assemblies, architects too often have little objective evidence they can present to clients. Many architects also feel squeezed by those clients who budget for low-first-cost residential and light-commercial technologies without reckoning that wear levels, maintenance, or replacement cycles may exact unacceptable costs down the line. (The architect may then be blamed for the peeling paint, leaky sills, or prematurely fogged windows.) Without objective information, it can be difficult to justify systems or products that are judged to be better but are also more expensive.

Both client attitudes and the dearth of information may be changing, however. On the one hand, the cost to a building owner in loss-of-use brought on by what would otherwise be a minor failure can be astronomical. Further, standards-setting organizations are putting together new procedures that offer more objective means of defining, measuring, and evaluating the cost tradeoffs for various systems.

## Permanence is relative

Durability is defined as the ability of a building or a building component to perform its required function over time in spite of degrading forces that act upon it. These forces can be natural or man-made, and include water, ice, wind, pollution, animals, and insects, as well as expected ordinary wear-and-tear and extraordinary abuse by occupants. A building's durability is usually discussed in terms of its service life: the time period that begins when the completed structure is handed over to the owner

Virginia Kent Dorris, based in Brooklyn, N.Y., writes on architecture and engineering.

**Continuing Education** This month's installment of the ARCHITECTURAL RECORD/AIA Continuing Education series looks at design for durability. After reading the article, complete the questions (page 146) and check your answers (page 148). AIA members may fill out the self-report form (page 148) and send it in for two AIA Learning Units.—Mark Scher, AIA Director Professional Education Products and Services

### Learning Objectives:

After reading this article, you will be able to:

1. List three kinds of building failure.
2. Identify four research methods, techniques, or tools and construct a seven-point checklist for improving durability in design and specification.
3. Explain how the move toward light factory assemblies in today's construction process may affect long-term building durability.



**Buildings may fail catastrophically (like this one did in Florida's**

**Hurricane Andrew). Others fail in terms of serviceability (like**

**leaks). Some become so unattractive that they simply "ugly out."**

and ends when an excessive amount of money is required to operate, maintain, or repair the building or component. Service life does not simply refer to functionality. An assembly—anything from carpeting to cladding—can “ugly out,” that is, become so streaked, cracked, chipped, soiled, faded, or otherwise unsightly that it can no longer be tolerated.

Architects can dream of buildings that last centuries, but few have not felt the heat from owners who want buildings faster for less. It

**“THERE IS A VERY LARGE COST TO SOCIETY OF PREMATURE FAILURE OF OUR BUILT ENVIRONMENT.”**

is conventional wisdom that the service life of much low-end speculative construction barely exceeds the mortgage or initial-lease term. One architect practicing in a major Washington, D.C., firm describes his situation: “It doesn't matter if I do the most extensive life-cycle cost analysis in the world and prove that using more durable materials will save money over time. If it costs more money now, the client doesn't want to hear about it.”

It's not just the cost-driven who fail to consider the long term: “The military's number-one priority is space,” says Terrell Emmons, chief architect and associate director for design for Naval Facilities Engineering Command (NavFac) in Washington, D.C. “They would rather have more space than a better utility system or a better roof system.” NavFac oversees the design and construction of facilities worth about \$5 billion a year for the Navy, Marines, and Air Force. In response to agency-wide concerns about the high cost of operating and maintaining facilities, Emmons wrote a report published in April called “Life-Cycle Cost Considerations



## EFFECTS OF FAILURE

CATEGORY	EFFECT	EXAMPLE
A	DANGER TO LIFE OR OF INJURY	SUDDEN COLLAPSE OF STRUCTURE
B	RISK OF INJURY	LOOSE STAIR NOSING
C	DANGER TO HEALTH	SERIOUS DAMP PENETRATION
D	COSTLY REPAIR	EXTENSIVE SCAFFOLDING REQUIRED
E	COSTLY BECAUSE REPEATED	WINDOW FASTENING REPLACEMENT
F	INTERRUPTION OF BUILDING USE	HEATING FAILURE
G	SECURITY COMPROMISED	BROKEN DOOR LATCH
H	NO EXCEPTIONAL PROBLEMS	REPLACEMENT OF LIGHT FITTINGS

NOTE: INDIVIDUAL FAILURES CAN BE IN TWO OR MORE CATEGORIES.

SOURCES: © BRITISH STANDARDS INSTITUTE

in Projects," in which he studied the regulations in place that mandate or encourage life-cycle cost analysis on projects. Although there was an awareness and an emphasis on durable construction throughout the agency's design-related regulations, he discovered that the lowest first cost usually took precedence in practice.

Many clients have learned the hard way that short-term savings can lead to long-term expenses, however. The developer of a 30-story California condominium saved money up front by cladding the building with an exterior insulation and finish system (EIFS) unsuited to the project. The cost of replacing the failed cladding several years later with a metal panel system was higher than the total initial cost of the building. Similarly, an owner's decision to substitute a less durable polyvinyl-chloride (PVC) flashing for the metal through-wall flashing originally specified for an exterior masonry wall in a Baltimore highrise saved \$7,000—and played a major role in deterioration that led to a recladding that cost more than the original building. Other failures are less spectac-

ular, more common, yet still costly (see chart, left). What does it cost a hospital when a leak puts an emergency room out of service? How do you account for the lost productivity when a cheap HVAC installation can't handle temperature swings or becomes a home to mold growth?

There are other hard-to-quantify costs. A generation ago, empty, obsolete factories spawned disinvestment in older cities. Today, crumbling strip centers and teetering shopping malls in older suburbs threaten a new wave of abandonment. "We know there is a very large cost to society of premature failure of our built environment in terms of actual dollars," says Richard N. Wright, director of the Building and Fire Research Laboratory at the National Institute for Standards and Technology (NIST) in Gaithersburg, Maryland. Wright points out that there is also a social cost to unchecked deterioration. "People have a sense of disgust when the paint on their houses is peeling off, or when the appearance of their office building goes quicker than they thought they had a right to expect."

### Predicting performance

One reason owners often don't choose presumably longer-lived products and assemblies is that there is little objective knowledge that an architect can draw on to bolster the case for one assembly over another—especially if the cost differences are significant. Most architects rely primarily on product comparison and personal experience. Service-life prediction, however, is an inexact science, because it depends on a range of variables. In addition to the physical and chemical properties of the individual building elements, expected service life depends on environmental conditions, the quality of workmanship and installation, and expected maintenance levels (see methodology chart, page 137). The manner in which different construction materials work together in an assembly also impacts durability. Today's fee levels rarely support specialized research, but experts say that architects should be sure their assessments of product durability include incorporating guidance on past problems in the firm's master specifications or providing training; using accelerated-aging tests

### Everyday steps to assure

**durability.** Don't specify a product that does not have a significant **track record.** Ian Chin, vice president and principal with Wiss Janney Elstner Associates, an engineering firm based in Northbrook, Illinois, that investigates building failures, cites the use of unproven products and systems as the most common reason for durability difficulties. "It looks good on paper because it is lighter, thinner, more economical, or easier to construct, but these lighter, thinner systems invariably are not as durable as the heavier systems used in the past," he says. Many architects demand a five-year performance record for new materials.

Make sure that the individual **components** that make up a building assembly have **similar anti-cipated service lives.** Thomas A.

Schwartz, chairman of the American Society for Testing and Materials (ASTM) subcommittee on the performance of exterior walls and president of Simpson Gumpertz & Heger, an engineering firm based in Arlington, Massachusetts, that specializes in analyzing building failures, offers an example. A masonry wall made up of bricks expected to last from 50 to 100 years develops problems after only seven years because it is constructed with unreinforced, thin PVC flashing, with a service life of less than 10 years.

Do as much **materials research** as time and money allow. Timothy Taylor, director of specifications at URS Greiner in Washington, D.C., recommends evaluating materials against a checklist of durability properties, including strength, moisture permeability, dimensional

stability, abrasion and scratch resistance, compatibility and adhesion, resistance to freeze and thaw, and maintainability.

Make sure the building's **flashing details** are properly designed. Water leaking into building walls and interiors causes more damage than any other factor, say forensic engineers. Richard Koziol, an architect specializing in roofing and waterproofing systems with Wiss Janney Elstner Associates, advises designers to look beyond the flashing details in the binders in their offices, and to tailor flashing to the specific situation presented by the project at hand. "If these tasks are relegated to younger, less experienced people in the office, things may begin to fall apart," says Koziol.

Make sure the materials in the building envelope are appropriate

for the **environmental conditions** at the site. Joel Weinstein, a senior vice president of LZA Technology, a New York City-based investigative engineering firm, points to a mismatch between cladding materials and climate as a common cause of problems. A stuccolike finish, successfully used in a warmer climate, had to be replaced when used in a New York City project because its small, decorative, partially embedded stones loosened and fell to the ground as a result of the large temperature fluctuations.

Don't forget what's happening at the **job site.** Creating a durable building is not only a matter of design but of on-site quality assurance and workmanship. It is important to have a knowledgeable field person available to address construction-related questions.—V.K.D.



but recognizing that their value is limited solely to the qualities tested; and constructing mock-ups both to verify performance (leakage, for example) and as a construction-quality assurance measure.

### Defining a suitable level of durability

Standards-setting groups have begun to define procedures for evaluating durability. Whether or not such standards ever get legally adopted, they offer a framework for architects seeking to find the best tradeoff between first cost and long-term performance. They also offer a structured way to get the client involved in the decision-making process. Defining a suitable level of durability means first defining the service life of the building, say 25 years, 60 years, or 100 years. There are no legal standards for this, but there are conventions among building types. Ultimately, it is the owner's call.

This does not mean every building element has to last the same length of time. Canadian facilities researchers have grouped building components into four service-life tiers. The primary tier is the building shell, which usually includes the structural system and building envelope, and is generally designed to last as long as the intended life of the building. The next category includes major building-service systems, such as elevators, furnaces, chillers, and major fans. These systems are usually expected to last at least 20 years. The next tier includes items such as interior partitions, ceilings, and floor finishes. These components usually change when building occupancy changes. The shortest-life category includes furniture and movable objects, which are expected to be changed by building occupants more frequently. Under these guidelines, building elements and systems that need to function for the longest time period are given priority in the allocation of up-front spending. "Architects need to know what service life an owner expects of each of the four main parts, so that the owner can maintain the building in a way that is affordable," explains Gerald Davis, architect and president of the nonprofit International Center for Facilities in Ontario, Canada. Davis also chairs the ASTM committee on performance of buildings and serves on several International Organization for Standardization (ISO) technical committees.

Judgments about the components' service life and maintenance costs may in the short term still be based on the designers' and owners' own assumptions, but a process like the Canadian Standards Association's "Component Design Decision" tables, which the architect fills out in consultation with the owner (see excerpt, page 138), may improve durability simply by focusing all the parties on durability issues because inconsistencies in component choice become apparent. The Canadian standard includes a maintenance guide, which summarizes the maintenance and replacement cycles agreed to for building systems, and helps the owner recognize that the procedures need to be followed to realize the predicted service life.

Davis points to another family of tools that help owners assess and understand performance and durability options. Some ASTM standards issued last year, known as the serviceability scales, consist of two matched sets of multiple-choice questions on more than 100 serviceability topics that correlate the owner's priorities with attributes of the building. The scales are currently being used to evaluate how fully completed buildings satisfy their users' needs, as well as to more clearly establish how user needs can best be satisfied by the proposed building. A computer version of the standards has been recently developed by Serviceability Tools and Methods, a company based in Ottawa, Ontario.

Clients who commission 100-year buildings generally expect the structure and the building skin, with the exception of the windows, to endure more or less indefinitely (public buildings in some European





**EXCERPT FROM MAINTENANCE GUIDE: CONDOMINIUM TOWNHOUSES**  
(DESIGN SERVICE LIFE = 50 YEARS)

BUILDING ELEMENT	MATERIAL(S) OR TYPE	DESIGN LIFE YEARS	FAILURE CATEGORY	MAINTENANCE			ACCESS
				CATEGORY	TYPE	FREQUENCY	
WALLS	BRICK VENEER	50	COST, APPEARANCE	SIGNIFICANT	REPAIR	50 YEARS	OK (STAGE)
	CEDAR SIDING	20	COST, APPEARANCE	SIGNIFICANT	REPLACE	20 YEARS	OK (LADDER)
	BUILDING PAPER ON 1/2" PLYWOOD	50	SAFETY, COST, DISRUPTION	NONE	—	—	REMOVALS (SEE ABOVE)
	R20 BATT INSULATION	50	COST, DISRUPTION	NONE	—	—	REMOVALS
	4 MIL AIR/VAPOR BARRIER	50	COST, DISRUPTION	NONE	—	—	REMOVALS
	1/2" GYPSUM BOARD	50	DISRUPTION	LITTLE	—	—	OK
PARAPETS	FLASHING ON TOP OF BRICKWORK	20	DISRUPTION, APPEARANCE	SIGNIFICANT	REPLACE	20 YEARS (WITH ROOFING)	OK (LADDER TO ROOF)
	RIGID INSUL. AROUND BLOCKWORK	50	COST	NONE	—	—	REMOVALS (CEILING, INSUL.)
ROOF DECK	2x4 CEDAR ON SLEEPERS	15	SAFETY, APPEARANCE	EXTENSIVE	REPAIR/REPLACE	YEARLY/15 YEARS	OK
	6" RIGID INSULATION	50	COST, DISRUPTION	LITTLE	—	—	REMOVE DECK
	WATERPROOFING MEMBRANE	15	COST, DISRUPTION	EXTENSIVE	REPAIR/REPLACE	15 YEARS	REMOVALS (ABOVE)
	PLYWOOD	50	SAFETY, COST	NONE	—	—	REMOVALS (ABOVE)
	DRAIN AND ABS PIPE* TO S. SEWER	15	DISRUPTION	SIGNIFICANT	REPAIR	15 YEARS	REMOVALS (ABOVE OR IN WALL BELOW)

\* THIS FAILED IN 5 YEARS DUE TO ICE FORMATION IN THE UNHEATED GARAGE.

SOURCES: © BRITISH STANDARDS INSTITUTE

countries are expected to last forever). Ed Feiner, chief architect of the General Services Administration, who is currently in the midst of a multi-year, national courthouse construction program, says GSA places its priority on a well-constructed exterior envelope. Feiner admits that his office demands creativity from its architects, because high durability stan-

materials and systems into the design process and details on how to determine the service life of specific materials. Other guidelines will help architects assess how well a completed design meets an owner's durability criteria and will include information on computerizing service-life data to facilitate comparison of materials. Another section under discussion

## AN INTERNATIONAL STANDARDS-WRITING EFFORT PROMISES TO INCREASE KNOWLEDGE OF WHAT CONSTITUTES A DURABLE SYSTEM.

dards must be achieved within a limited budget. "If we are going to cut costs, we will not cut durability. We will choose less expensive but durable materials," explains Feiner. "The architects are in the best position to balance the give and take and the tradeoffs."

### Tools that improve durability decision making

An international standards-writing effort currently being sponsored by ISO intends in part to help architects and clients improve communication and understand the implications of all aspects of durability-related design decisions. That effort is expected to pull together research findings from many sources, including seven international conferences on the subject held in the last 20 years, to create a performance-based decision-making framework. At the conferences, scientists from the United States, Canada, Finland, Japan, Singapore, Sweden, and the United Kingdom have presented research on durability prediction methods and modeling, degradation mechanisms for inorganic and organic materials, service-life testing, maintenance planning, and related topics.

The effort is being directed by Geoffrey Frohnsdorff, chief of the building materials division in the Building and Fire Research Laboratory at NIST. The first section of the standard, entitled "Buildings: Service Life Planning," is expected to be proposed as a draft international standard by year-end. The entire draft standard is expected by the year 2000. It will contain guidance for incorporating service-life planning for building

would delineate what information product manufacturers should provide on service life.

Though the need for the durability standard has long been recognized, Frohnsdorff says, its development has become possible only with advances in computer technology that permit prediction, analysis, and storage of information on the service-life expectancies of individual materials. Frohnsdorff hopes that publication and use of the standard will provide an incentive for manufacturers and materials scientists to increase the flow of reliable information that designers and owners need to make accurate service-life predictions. The end result, he speculates, could be the development of expert systems and electronic databases that could greatly simplify and improve service-life prediction.

### Consideration of consequences

While more objective standards for durability may encourage owners to set the building-longevity bar higher, design and construction industry participants seem almost unanimous in their agreement that durability falls victim not just to cost pressures but to the broad movement in the American construction industry away from tested-by-experience, built-in-the-field technologies (such as multi-wythe masonry) and toward thinner, lighter assemblies of factory-made products. Such newer assemblies present a number of problems. The performance of thin components over time may (*continued on page 162*)



# Editing in Living Color

**YOU MAY WANT TO CONVERT CAD IMAGES TO PIXELS OR INCLUDE PIXEL-BASED IMAGES IN YOUR CAD DRAWINGS. HERE'S WHAT ARCHITECTS ARE DOING—AND HOW THEY'RE DOING IT.**

**A**rchitects are being pushed toward the editing of images beyond traditional CAD software by a number of forces: client expectations, advanced color-inkjet printing technology, and the needs of the Internet. Even if you're CAD literate, you may experience some problems expanding your skill base to include pixel-image editing, because non-CAD images differ in many ways from the drawings created with your CAD software. Image editors such as Adobe Photoshop create files in which the images are built up from individual dots, or pixels. CAD software, in contrast, stores each image element as a unique entity in a database. When you draw a straight line in a pixel-based program, you are creating a line of dots that may appear solid on the screen. If you enlarge the image on screen, you may see the individual dots. Draw a line in a CAD package, on the other hand, and the software stores the fact that it is a straight line, along with the coordinates of the starting and ending points. No matter how much you enlarge it, the line still looks like a line.

Fortunately, there are many packages, at prices that will fit any budget, that allow the pixel-based images to be created and manipulated. The pixel editor that comes with Windows 95 or NT may be all you need for simple tasks. It's called Paint, and it's found in the Accessories group. At the other end of the price range, Photoshop lists for \$895 and will cost you about \$600. Most high-end CAD packages accept pixel-based images, at least in BMP (bitmap) formats (there are several variations of BMP). And most image-editing packages will read and write a wide range of pixel-image formats, almost always with no loss of image quality, although there may be some loss of future image-editing flexibility.

In fact, the technology, combined with opportunities presented by the World Wide Web and cheap color printing, has lead many architectural firms to start imaging divisions—even multimedia operations. "Of course, we're often being paid like architects, while digital producers in other fields get more," says Kristin Johnson. She has been studying architecture and fine arts at the master's level and works for Mallea, Sheppard, McKay. The New York City firm, known as MSM, specializes in producing construction documentation for other architects.

Terry Beaubois, president of Terry Beaubois and Associates in Palo Alto, California, says his firm has been successful enough at doing multimedia work to set up a separate entity, RDC Interactive Media, Inc. He has also been experimenting with pixel-based tools, especially Adobe Photoshop, to enhance client interaction.

"Clients will bring in a picture of a house they like," says Beaubois, "or perhaps pictures of the roof or the windows." He uses a scanner to pull the pictures into Photoshop. Switching to CAD software (he uses several packages, but likes MiniCAD on the Macintosh best), he'll work with clients to do rough bubble diagrams, plans, and elevations. "As we develop an elevation," he says, "I paste the screen image from CAD

by Steven S. Ross



**A picture of the Gateway Arch in St. Louis**

**was altered using the watercolor effect from**

**Micrografx Picture Publisher.**

into Photoshop and convert to RGB color." That trick works with most Mac and Windows software. You copy the screen image to the clipboard, then paste the image from the clipboard to a pixel package. The pasted image of the elevation will not contain any of the "vector" intelligence of CAD. But it will be compatible with the images scanned earlier.

Beaubois then combines pieces of the scanned photos with the elevation he's brought in from CAD. "There's a stamping [cloning] tool in Photoshop that lets me copy from one part of the bitmap into another, and from one bitmap to another bitmap," says Beaubois. He uses texture and parts of architectural features from the scanned images to "decorate" the elevation. Beaubois demonstrated this method at a remodeling conference and says that "people were out of their chairs."

He loves the interactive nature of the process, he says. "I want to get architects back to a pleasurable use of their time with clients, like conceptualizing or coming up with sketches." Even though the product is a two-dimensional vignette, he explains, "you can put in shadows as layers of a Photoshop image. I did this for the first time just recently. All of a sudden, the clients were evaluating it architecturally, like a blueprint. The next thing I did was to take pictures of the site and put the Photoshop-generated elevation image into the scene. "It doesn't have to be perfect."

Beaubois has started building up a library of textures to use with this client and others. "I started with a design using traditional materials like clay tile roof," he says, "and they suggested a metal standing-seam



A high-resolution (3072 by 2048 pixels) image (inset) was scanned by Kodak onto a PhotoCD disk. At this resolution, lines hold their contrast fairly well. A closeup of the tower (left) shows how far resolution can be taken when enlarging. This shot has much less detail than a similar shot taken with a telephoto lens (right).



roof. The guy's father had been a sheet-metal contractor. I went around looking for catalogs, things like European zinc-coated building materials, scanned some brochure material into Photoshop, stretched it to get the proper perspective, and laid it into their house. It looked great because it had this 'shadow' quality." Beaubois is also experimenting with using pictures to build up 3D scenes the client can walk around in, utilizing Quicktime VR and other tools.

Kristin Johnson of MSM warns, however, that stretching a pixel image to cure keystone or other perspective problems can produce horrible results. "The image is not made of vectors, so stretching adds and subtracts pixels," she says. "The way the image gets distorted is sometimes so drastic, even when making minor alterations." Photoshop and Corel Photo-Paint have been somewhat improved to handle multiple distortions better.

In a CAD package, the image quality would not be affected, because changing perspective or stretching simply changes the endpoint

for several years but began using the technology in earnest only in 1997. One of the biggest problems he's faced in architectural photography, he says, is "the odd color balance of new lighting systems." He says it's "hard to get it right" on slide film, which is sensitive to changes in light's color balance. Now, however, he uses Fuji NPS color negative film and scans it into a Picture Publisher file from which he can have a large transparency made.

Jim Karo, of Visual Impacts, sells what he calls "computer imaging design software" based on Micrografx Picture Publisher. Their Earthscapes package for landscapes allows prospective clients to review proposed solutions quickly and easily. There are vector-based packages—some of which even show plants growing—but they are much slower and therefore much less interactive. And they produce results that are not as finely detailed.

The basic \$500 package includes Picture Publisher, on-screen high-resolution image libraries, and 30,000 clip-art objects and photos. Another \$300 buys a site-plan package and estimator software. Picture

## CLIENT DEMANDS, COLOR-INKJET PRINTING TECHNOLOGY, AND THE NEEDS OF THE INTERNET ARE FORCING ARCHITECTS TO LEARN PIXEL-BASED SOFTWARE.

coordinates of the various vectors that make up the CAD drawing. Architects will have the most problems with such matters when they try to produce fancy finished graphics for brochures or Web sites. But for interaction with clients, speed counts more than perfection.

Alan Goldstein, a Maryland-based architectural photographer, uses Micrografx Picture Publisher to "clean up" photos, perhaps removing foreground objects or changing the views out the windows, especially when he must photograph the site before construction is completed. "We never change the building itself, however," he says.

"We do not change the building," agrees Johnson. "We're getting together a portfolio package that adequately shows what we can do," she says. "A lot of projects are outstanding but difficult to photograph. So we take out the telephone poles and blurry autos in Photoshop. We do the layouts in Quark XPress."

While Beaubois has found new uses for pixel editors at the start of the design process, Johnson's organization uses Photoshop images at the end as well. "We'll do realistic mock-ups of designs [for instance, using drawings of buildings against photos of original settings] and fax them to Paris or Milan so people can sign off on them," she says. "The communication is more efficient, more accurate."

Photographer Goldstein had been playing with digital imaging

Publisher offers infinite levels of undo; perspective and skew features to match photos of buildings and land features with possible planting solutions; and a clone tool that easily "paints over" the old landscape in the base photograph. This makes it easy to work with clients interactively, changing things on the fly. Until now, Karo says, "architects have been the hardest sell—contractors and nurseries got it first. But the ability to edit the drawings, make changes, is what's winning architects over."

### Equipment and memory requirements

Pixel-editing software, with some exceptions, places roughly the same strain on a computer system as does CAD software. As with CAD, editing large pixel images can require lots of memory. In fact, graphic artists often have 128MB or more of RAM installed in their machines. But don't let that scare you. Architects often work with fairly small image files. A bitmap of a 1024-by-768 screen, for instance, will be under 2MB at 256 colors and 6MB at 16.7 million colors. With Photoshop or Picture Publisher, that means 32MB of random-access memory is comfortable.

Graphic artists usually work on a Macintosh, however, and architects are much more likely to be using PCs running Windows NT. Also, CAD workstations usually have graphics cards that are optimized for 3D images. Your computer will manipulate pixel images differently for



**Digital cameras catch pixels on the fly.** Ever wish you could document a site problem with a photo and immediately transmit the image to the client's office or to a consulting expert? Take a few photos of a project for inclusion in a quick brochure? You can do that and more with the new digital cameras. Prices are dropping rapidly; expect to pay \$700 to \$900 for a complete architect-ready outfit now, and maybe a few hundred dollars less by January. (A year ago the price for cameras of this quality was \$5,000.) But you must choose carefully. The marketplace is still evolving, with different cameras at wildly different prices, and your needs as an architect may differ from those of the general public. Here are the key points to consider.

The standard snapshot digital, with 640-by-480-pixel resolution, will probably not be quite good enough. The images on this page were taken with a Kodak DC-120, which is advertised as 1280 by 960 pixels. The actual "optical" pixel count is 984 by 850; the camera interpolates to get the higher count. As you can see here, image quality is acceptable for most purposes. At press time, the street price for this camera was about \$600—probably the least expensive model you will find suitable.

The usual color depth is 24 bits

**An underexposed image (left) can sometimes be corrected using pixel editing software. Photoshop was used to correct this interior (right).**

per pixel. That gives 16.7 million colors—enough to get accurate color representation. But 30 bits per pixel is better. The extra bits go into extending the gray scale, which improves resolution in the shadows and gives you more tolerance for weird lighting. At 24 bits, you may be able to cure most problems by using pixel-image editing software like Photoshop or by adjusting exposure, but these take time and expertise. Macro focusing is important for closeups of details in workmanship, like a faucet or a light fixture. The cameras mentioned here can all focus well within one ft.

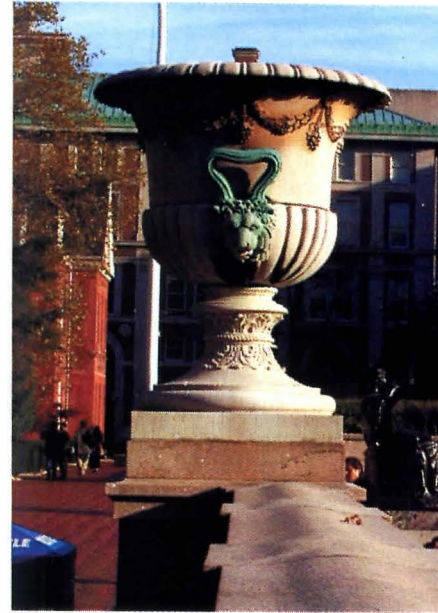
Most of the cameras of the resolution you should be considering have zoom lenses. The image-capturing area (the area of the CCD cell that senses the light) is smaller than a normal negative, so if you're used to a 35mm camera the focal lengths will seem odd. The Kodak DC-120, for instance, has a zoom lens with a 7-to-21mm range. That's about the same as a 35mm camera with a 38-to-114mm zoom.

Getting your images out of the camera and into your computer can be tricky. Check to see whether the camera comes with software for your computer—Macintosh or PC. Most cameras can be connected to a computer's serial port for downloading. Most also allow you to move the camera's memory card, where the images are stored, to a computer equipped with a PC-card slot. Almost all laptops have such a slot. PC-card slots can be added to other computers for about \$100.

There are two incompatible standards for the memory cards themselves. The most popular by far is called CompactFlash by its inventor, SanDisk. The cards themselves are often postage-stamp size but fit into an adaptor that allows them to be used in standard laptop-type credit-card-size PC-card slots. Their internal logic allows them to be recognized by your system as a hard drive. The software drivers for that are built into Windows NT and 95. Intel has been pushing its "linear memory" miniature cards as a standard. They use different software than the CompactFlash. Considering its normal success in setting standards, Intel has not been getting its way; most cameras use CompactFlash, although each camera maker has its own name for it. The price is about \$20 per megabyte and dropping fast.

A megabyte typically holds two or three high-resolution images. A 2MB card usually comes with the camera. You'll want a 10MB card unless you expect to keep your laptop handy for frequent transfers. Rechargeable batteries are a good investment, since these cameras eat a lot of power. All the models with high resolution have viewing screens built in, but they typically measure fewer than two in. on the diagonal, which is too small for serious work.

The range of cameras is expanding quickly, and several models in addition to the Kodak DC-120 caught our eye. Agfa's ePhoto 1280, which has an optical resolution of



**Digital cameras capture site details in pixel form so they can be loaded into a PC and edited instantly.**

1024 by 768 and 30-bit color depth, had a street price of \$800 at press time. Its compression technology does not seem quite as good as the Kodak's, leaving some jagged edges on sharp diagonals. But the shadow detail is excellent. Epson Photo offers the PC 600, also with 1024-by-768 optical resolution, with 24-bit color and a fixed-focal-length lens. There's a panoramic mode (1024 by 384) to save memory. The street price was \$700 at press time. The Kodak DC-210 has the highest optical resolution available for the price (\$800 at press time)—1152 by 864—but it is equipped with only a two-power zoom lens and has no Macintosh software.

The images here are displayed approximately full-frame. To achieve that without creating printing problems, we aimed for 266 dots per inch in the image, the same dpi at which photographs in this magazine are printed. A color printer attached directly to a computer usually provides an excellent-quality, full-frame printed image 5 by 7 in. wide at 200 dpi. Higher magnifications may also produce good results, especially with high-contrast images. We reduced color saturation slightly for reproduction purposes.—S.S.R.





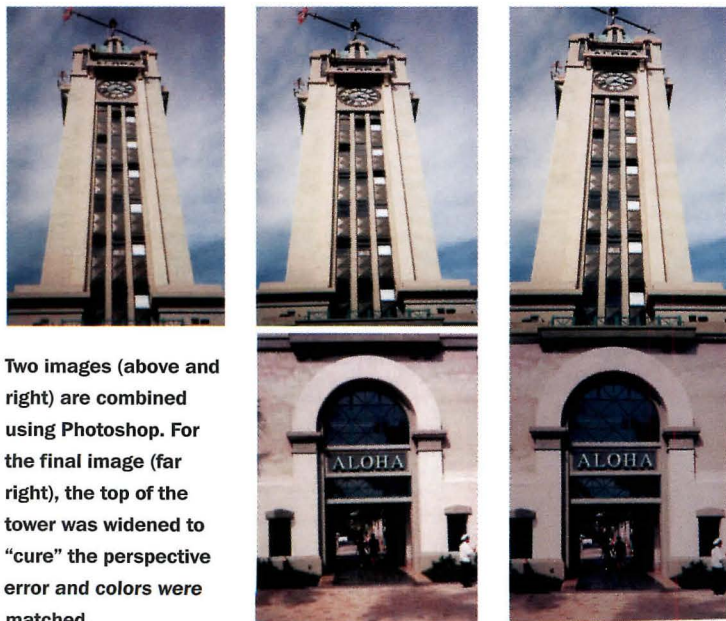
the screen. Thus, you may not be able to edit a large pixel image as quickly as you might expect on a workstation that's tuned for CAD software. Nevertheless, the difference probably won't be critical unless you handle many, many large pixel images every day.

Converting transparencies, negatives, and prints to a form the computer can understand can be done by many photo stores and copy shops. You can also get your images on high-resolution Kodak PhotoCD disks. (The standard disk's highest resolution is 3072 by 2048 pixels and "professional" quality can be 8000 by 6000; that's more than most amateur equipment can provide.) But because of delays getting images back on disk, you will almost certainly want to purchase a scanner—at least for emergency work. One type handles slides and negatives; look for at least 1800 dots per inch (dpi) actual (optical) resolution. The other type handles reflective art—photos or brochure pages; they can all produce scans of at least 300 dpi optical resolution, which is usually enough for working with clients. Expect to pay \$200 to \$600 for a flatbed scanner and \$1,000 or more for a transparency/negative scanner.

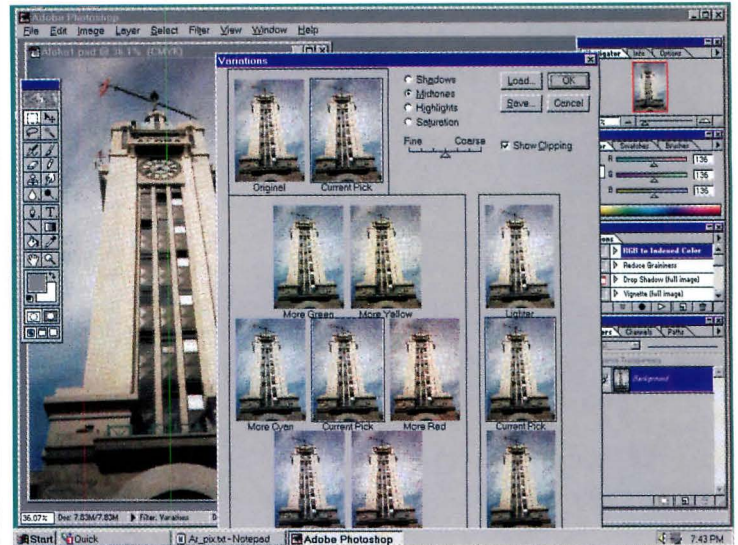
Most scanners are small computer serial interface (SCSI) devices. They attach to a SCSI card or use SCSI software to convert a printer port. A few slow scanners use serial connections. Scanners that use the new faster and easier-to-configure USB port are due soon. (USB stands for "universal serial bus," a technology that is completely different from the old serial ports to which your modem or plotter may currently be attached.)

A good compromise is to use moderately priced scanners for most work to preserve deadline flexibility, and to do critical work on the outside. Digital cameras are improving quickly, too, and can help you meet a deadline (see sidebar on page 143).

The Macintosh has many small advantages over Windows computers for pixel-based images; that's why so many graphic artists prefer the Mac. The in-monitor color balance is more constant, for instance, and the default display is always 72 dots per inch. This allows you to quickly grasp the image's true size. Photoshop is available on both platforms, but it has more features on the Mac than on the PC. Although Corel has supported Macintosh in the past, its latest package is for Windows only. Micrografx Picture Publisher is also Windows-only. All the newer packages are "32-bit," which refers to the operating



Two images (above and right) are combined using Photoshop. For the final image (far right), the top of the tower was widened to "cure" the perspective error and colors were matched.



Adobe Photoshop's color controls are unparalleled. Here, you can preview a wide range of color modifications at once.

system, not the number of bits per pixel. You'll want 32-bit software; it runs faster than the older 16-bit packages and is generally more resistant to system crashes.

### The big four software producers

There are four main software producers for pixel-image editing:

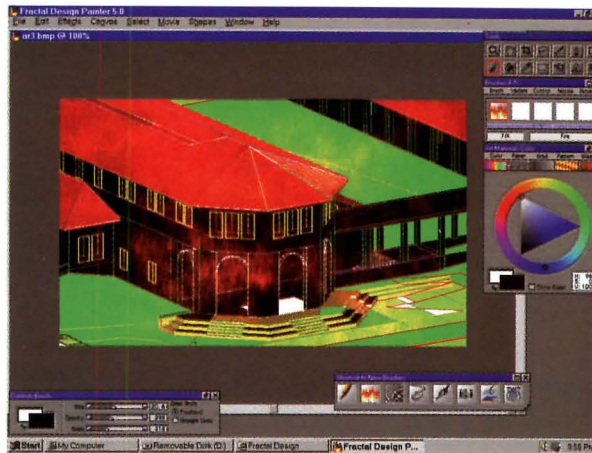
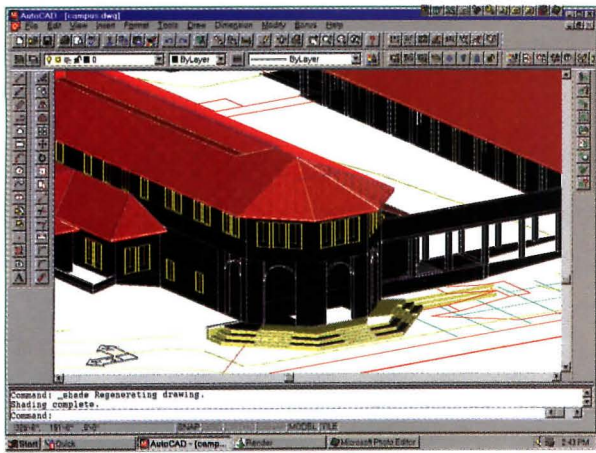
*Adobe* ([www.adobe.com](http://www.adobe.com)) offers Photoshop, by far the most widely used package among graphic designers. There are versions for the Macintosh and for Windows NT and 95. Adobe, as befits the industry leader, does not feel it necessary to offer Photoshop with its other graphics products (such as Adobe Illustrator, a vector-based package) in a bargain-priced graphics "suite."

*Corel* ([www.corel.com](http://www.corel.com)) has an illustration program called CorelDRAW that has been extremely popular with architects, but the company offers a pixel editor (Photo-Paint) as well. You can get them together in a feature-rich graphics suite that includes 3D modeling. Corel packages the product with a particularly wide range of import and export filters, allowing great flexibility in image-file formats.

*Micrografx* ([www.micrografx.com](http://www.micrografx.com)) offers Picture Publisher for Windows NT and 95 and also sells an attractively priced suite that includes 3D. Picture Publisher has always been appealing because of its interface (it is the most intuitive of the vendors' offerings). Some architectural photographers, however, told us they liked 6.0's album feature better than 7.0's media catalog, for keeping track of multiple images. The 7.0 upgrade was released this past June; 8.0 is expected in early 1998. Micrografx's Designer Technical has won a following among architects in recent years, probably displacing CorelDRAW in popularity.

*MetaCreations* ([www.metacreations.com](http://www.metacreations.com)) markets Painter 5.0 (formerly Fractal Design Painter, before Meta Tools and Fractal merged last year to form MetaCreations), which has a rich set of drawing tools that mimic watercolors, pastels, and other techniques. Those tools tend to be better than their counterparts in the "pure" pixel editing programs. But Painter 5.0's pure editing features are not quite as good. The price is \$299 list and about \$200 on the street. MetaCreations also sells Kai's Power Tools, which plug into any of the other programs, improving their editing features.





A drawing built in AutoCAD 14 (left) can be captured during a client session by pressing the PRINT SCREEN key. The image can then be rendered in another program, such as Painter 5.0 (right).

Microsoft itself packages a straightforward pixel editor, Photo Editor, with Office 97.

All of these packages allow export to file formats supported by Web browsers (GIF and JPEG). Photoshop also supports the Portable Network Graphic (PNG) standard that adjusts color balance according to whether the image is displayed on a Mac or a PC.

#### A closer look at the packages.

*Adobe Photoshop 4.0.* This package is the clear choice of professional graphic artists, most of whom, as we already noted, use it on a Macintosh computer. The latest version, 4.0, has been on the market for about a year and has an interface that is much changed from older versions. Nevertheless, if you intend to use “outside” contract help for your pixel editing chores, this is the software with which the people you hire will be most familiar.

Photoshop 4.0 makes it particularly easy to combine multiple images; each new section you add now goes into its own layer by default, making editing by relative novices more flexible. You can still adjust colors in all the layers at once through an “adjustment layer” that modifies whatever layers are below it.

You can scan an object from a catalog and use Photoshop to

### WHEN AN IMAGE IS ALTERED, PIXELS ARE ADDED AND SUBTRACTED, EFFECTIVELY DEGRADING THE IMAGE.

easily skew the scanned material to fit into your image. Photoshop lets you perform multiple skewing actions—deforming, rotating, and so forth—and then apply all the actions at once to the image. This greatly improves the quality of the final image, compared to applying one action at a time. (Remember, each action requires the addition and subtraction of pixels; the cumulative effect of multiple actions will be to degrade the image quality.)

Adobe has highlighted its new macro command (“actions”) feature in its literature to allow batch processing. That’s been of more use to graphic artists who want to produce or modify dozens of images at the same time. But architects will find it useful for such tasks as acquiring groups of digital images all at once from a digital camera.

*Corel Photo-Paint 7.* We reviewed Photo-Paint 7 as part of the larger CorelDRAW 7 suite. Corel has always emphasized CorelDRAW, its vector-based drawing tool, despite heavy competition from Adobe Illustrator and Micrografx Designer, among others. But Photo-Paint has matured into a top-line product as well. Like Photoshop, it has a new

skew/distort/perspective tool that saves up all your actions and applies them simultaneously, greatly improving image quality.

Architects will love the Image Sprayer tool—which can paint leaves and other objects onto the base photograph—and the lighting-effects tools. The program offers better memory management than earlier versions, so larger images can be handled with greater speed and less chance of crashing.

Photo-Paint alone is \$350. The overall suite has a list price of \$695 but is usually seen discounted to around half that; a liberal upgrade policy for users of older versions, or of Corel Ventura or Office Professional, gets you the suite for \$249. For the money you also get CorelDRAW, Corel DREAM 3D for 3D modeling, rendering, and animated scene creation, compatibility with Digimarc Corporation’s digital watermark (Photoshop has it, too), scanner control, a multimedia file manager, 1,400 fonts, more than 30,000 clip art images, an amazing range of import/export file-conversion filters, and lots of other utilities, especially for Web publishing. It also comes with “light” versions of Kai’s Power Tools and other plug-ins. The package has been shipping since late 1996 and has gone through many minor revisions since then. It requires Windows 95 or NT 4.0. CorelDRAW’s latest version is not available for the Macintosh.

*Micrografx Picture Publisher 7.0.* With this package, you get much of the power of Photoshop at about a sixth of the price—less than \$100. A suite, with 3D and draw programs, is \$350. Photoshop is faster on large images and has more features, but those advantages are generally of greater importance to commercial artists than to architects. Picture Publisher allows multiple undos of image edits and even allows the reordering and selection of specific actions in the stack of commands that could be “undone.” That’s a nice feature when working with clients.

Perhaps the best example of differences in design philosophy between Picture Publisher and Photoshop is in the “transformation” system for skewing and rotating images. Photoshop gives better quality by collecting all the actions you apply to an image and performing them at once. Picture Publisher’s multiple-undo feature (which works even after files have been saved) gives you better control over editing each step in a multiple transformation and allows for more interactivity when you’re dealing with clients—but the final image quality will probably not be as good as with Photoshop.

All three of the packages described above, along with Painter 5.0 and many other pixel programs, will accept plug-in filters. The most popular family of filters, the Kai’s series, comes from MetaCreations. Kai’s Power Tools 3.0 has a street price of less than \$130. ■





**AIA / ARCHITECTURAL RECORD  
CONTINUING EDUCATION**

**INSTRUCTIONS**

- ◆ Read the article "How Long Should Buildings Last?" (pages 135–38) using the learning objectives provided to focus your study.
  - ◆ Complete the questions below, then check your answers (top of page 148).
  - ◆ Fill out the self-report form on page 148 and submit it to receive two AIA Learning Units.
- Mark Scher, AIA Director Professional Education Products and Services

**Questions**

1. Explain when an assembly's service life might be considered over.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
2. Compare the bases architects usually use to determine durability. What are the advantages and limitations of more sophisticated techniques?  
\_\_\_\_\_  
\_\_\_\_\_  
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3. How might emerging durability standards help architects and owners define and achieve desired levels of durability?  
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4. How can architects use tools such as the ASTM serviceability scales?  
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\_\_\_\_\_
  
5. What is an important construction trend and its implications affecting assembly durability?  
\_\_\_\_\_  
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6. Using the article's suggestions and examples, construct a short checklist for improving product durability decisions.  
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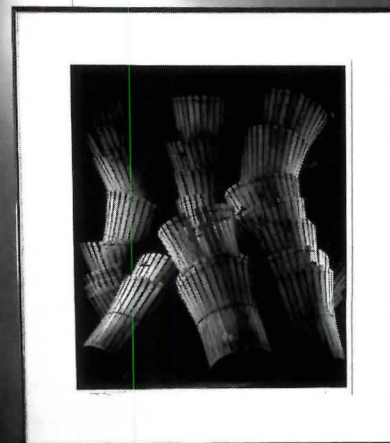
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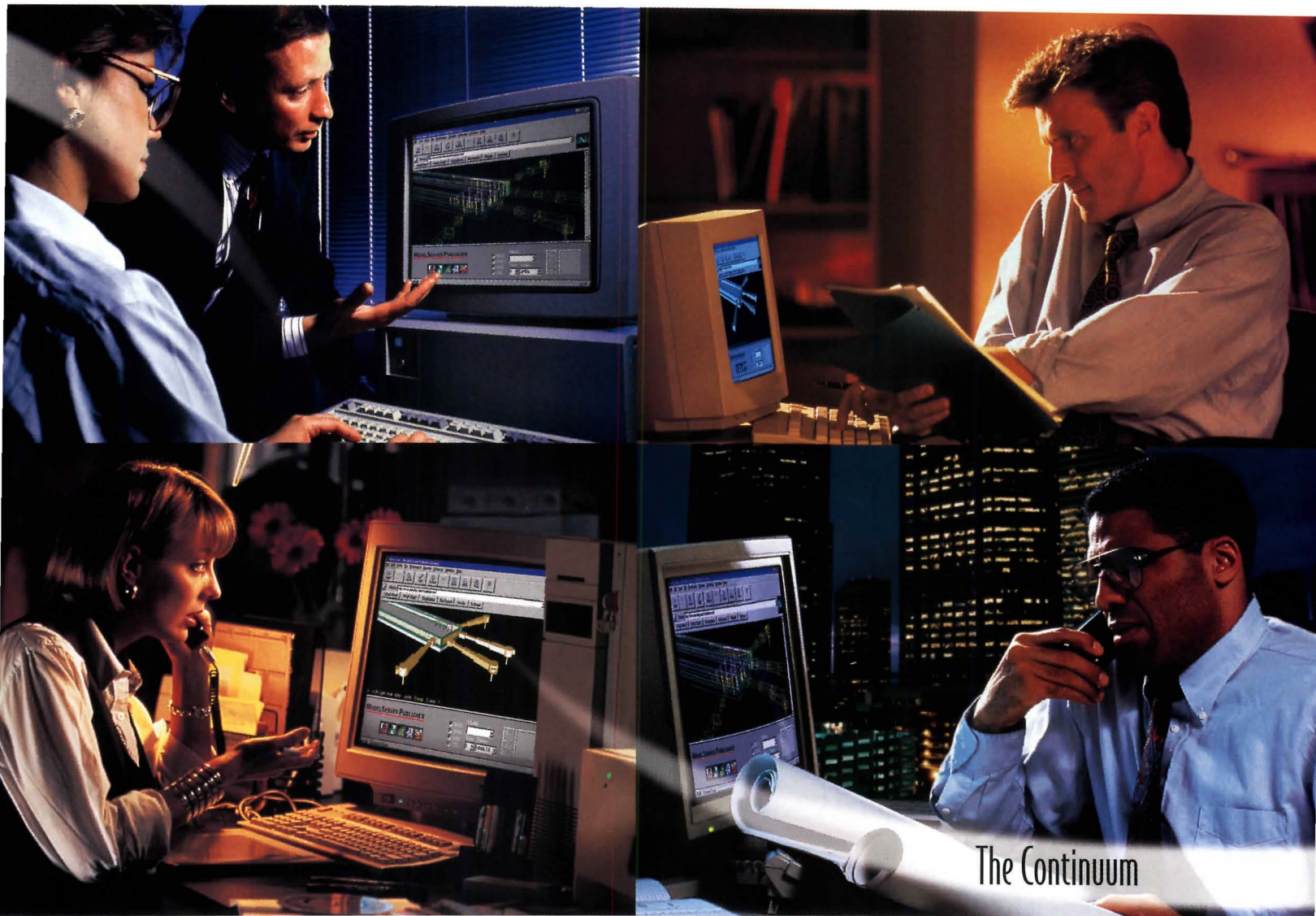


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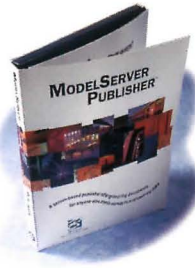
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## AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

### ANSWERS

Answers refer to the article "How Long Buildings Should Last?" (pages 135–38). The questions appear on page 146. To receive CES credits, fill in the self-report form below.

1. A building's service life is effectively finished when an excessive amount of money is required to operate, maintain, or repair the building or when a building becomes so unsightly that it can no longer be tolerated. (Though not stated in the article, it is also finished if the building has to be demolished for other purposes.)
2. Architects at minimum rely on product research and on their past experience with materials. Service-life prediction depends on a range of variables, including the physical and chemical properties of the individual building elements, environmental conditions, the quality of workmanship and installation, and expected maintenance levels. More sophisticated materials analysis might be undertaken by a specialized research, technology, or testing division, but fees might not support such an effort.
3. Architects and owners may define the service life of the building. Assessments of individual systems and components may uncover inconsistencies. Summarizing the maintenance and replacement cycles agreed to for building systems helps the owner recognize that the

procedures need to be followed to realize the predicted service life.

4. The serviceability scales can act as a communication and needs-analysis tool to help an architect work with an owner to assess building performance and durability requirements. Such questionnaires and more objective standards can aid in defining and/or refining programs as well as evaluating eventual user satisfaction.
5. The construction industry is adopting thinner, lighter assemblies of factory-made products. The long-term performance of thin components, which may have less designed-in redundancy, are not fully understood. Components may be used in ways a manufacturer may not have anticipated. The craftsmanship and engineering quality of new technologies will need to be improved to insure long-term performance. Field installers will need to have an understanding of how components work and interact.
6. a) Specify products with significant track records. b) Make sure that the individual components that make up a building assembly have similar anticipated service lives. c) Research materials as much as possible with emphasis on strength, moisture permeability, dimensional stability, abrasion and scratch resistance, compatibility and adhesion, resistance to freeze and/or thaw, and maintainability. d) Recommend construction of assembly mock-up and wind tunnel tests to accumulate additional information whenever possible. e) Make sure the building's flashing details are properly designed. f) Match cladding materials and climate. g) Have a knowledgeable person available to address construction-related questions.



## AIA / CES SELF-REPORT FORM

(Use to report learning units earned for Architectural Record only.)

### Member Information:

Last Name \_\_\_\_\_ First Name \_\_\_\_\_ Middle Initial or Name \_\_\_\_\_

AIA ID Number \_\_\_\_\_

### Program/project title: Architectural Record (12.97)

"How Long Should Buildings Last?" (pages 135–38)

Completion date (M/D/Y): \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

**Quality Level (QL) of this program:** Each article will earn you a total of 2 LUs at Quality Level 2. (fill in:) \_\_\_\_\_ total LUs.

### Quality Level for this article is 2. Completing the section earns a total of 2. Material resources used:

Journal article. This program addresses issues concerning the health, safety, or welfare of the public.

**I hereby certify that the above information is true and accurate to the best of my knowledge and that I have complied with the AIA Continuing Education Guidelines for the reported period.**

Signature \_\_\_\_\_ Date \_\_\_\_\_

Send completed form to: University of Oklahoma, Continuing Education, AIA/CES, Room B-4, 1700 Asp Avenue, Norman, OK 73072-6400. Fax 405/325-6965. For additional information, call 800/605-8229.



**PULSE** continued from page 22  
a computer? There were problems with the pencil-and-paper exam format, but it seems to me that the computer-graded A.R.E. will only promote more of the minimal technical competency that has given us so many technically correct strip malls and parking lots of the kind that make this city a bland, disorienting, unhealthy, and energy-inefficient place.

Let NCARB address this problem—and maybe a \$980 fee could be justified on moral grounds. Otherwise, the organization is marginal to the practice of architecture and should not figure so large in the profession.

—Robert Kleyn  
Southfield, Mich.

**No:** I recently finished all nine segments of the computerized exam and do not feel the higher fees are being well spent. I have encountered multiple layers of private contractors of dubious competence who seem to be the prime beneficiaries of these fees.

I waited six months for these contractors to reach agreement with the State of Maryland; discovered that my authorized files—along with those of a dozen other testers—were lost for more than a month without anyone noticing; and have waited more than five weeks for the results, which were to be delivered within two to three weeks of the exam's completion.

This is outsourcing at its worst: padding the pockets of opportunistic contractors, creating inefficiency, and decreasing the quality of service.

—Christine Malecki West  
Washington, D.C.

**No:** Like low salaries, the increased cost of the exam reaffirms architecture's status as a gentleman's profession.

—Phillip W. Neuberg  
West Hartford, Conn.

**No:** The massive increase in the exam fees is not only too steep but

will likely perpetuate a major crisis within the profession. Many practitioners do not feel the need to become registered architects, much less members of the AIA. The increased exam fees will doubtless limit those who are qualified to take the exam from doing so.

When large bureaucratic costs—the exam, as well as hefty NCARB and AIA dues—dissuade qualified people from joining ranks with other professionals, it dilutes and diminishes the potential influence of a larger, more active membership. Most damaging, it reduces the credibility of the profession.

—C. Carl Westerman  
Washington, D.C.

**No:** The Bar exam costs approximately \$300; the starting salary for a lawyer is \$70,000. The CPA exam is roughly \$500; the starting salary for accountants is \$45,000. The Architect Registration Exam is \$980; the starting salary for architects is poor. Does this equation make sense?

—Kathy Washburn  
Lombard, Ill.

**No:** Computers are meant to save time and money. The new exam doesn't accomplish either one.

—Jeanine Russell  
Greensburg, Pa.

**No:** The high price of the exam is aimed at those members of the profession who can least afford it: interns and recent graduates. This does not seem to be a good move for a profession traditionally criticized for being elitist and financially out of reach of many because of longer, more expensive educational requirements and low-paying internships. The price of the exam will further contribute to this problem; one of the main qualifications to become a registered architect will be if you can afford it.

It is too bad that the profession has seemingly ignored the needs of its younger members.

—Lisa Chronister Gray, Assoc. AIA  
Oklahoma City, Okla.



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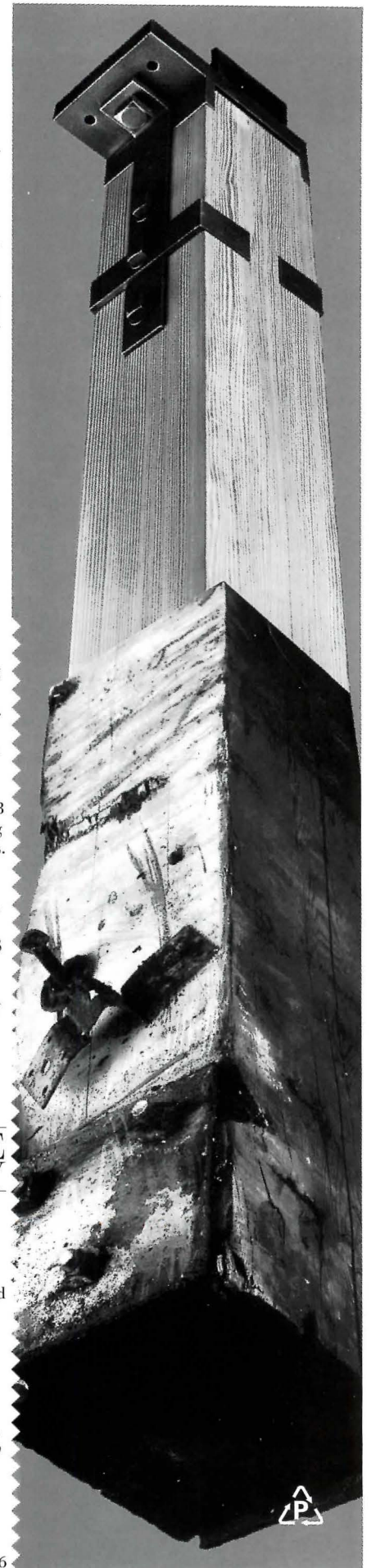
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**CALENDAR** *continued from page 44*

Through January 18, 1998

**MAK Center****West Hollywood, California**

Eight "architectural sculptures" produced from 1971 to 1977 by Gordon Matta-Clark, the late artist (and architect by training), are documented in "Architecture-Works by Gordon Matta-Clark." Call 213/651-1510.

Through January 18, 1998

**American Craft Museum****New York City**

"Four Acts in Glass: Installations by Chihuly, Morris, Powers, and Vallien" presents the work of four artists who have moved beyond the making of glass objects to examine the medium in larger spatial, architectural, and theatrical settings. Call 212/956-3535.

Through January 18, 1998

**Walker Art Center****Minneapolis**

"The Architecture of Reassurance," a traveling exhibition, includes 350 plans, drawings, and models from the archives of Walt Disney Imagineering. Call 612/375-7622.

Through January 31, 1998

**Chicago Architecture Foundation****Chicago, Illinois**

"Harry Weese: The First 50 Years" is a photographic retrospective of the Chicago firm's work. Also on view is "Chicago Union Station: After the Rush," showcasing the 1926 railroad terminal (January 6-31, 1998). Call 312/922-3432.

Through February 1, 1998

**Canadian Centre for Architecture****Montreal**

"Other Soundings: Selected Work by John Hejduk, 1953-1997" is the first retrospective of this major architect and thinker. The exhibition gathers together some 500 examples of his work, including drawings, models, books, and photographs. Call 514/939-7000.

Through March 1, 1998

**Philadelphia Museum of Art****Philadelphia**

"Philippe Starck Designs/Reinventing the American Hotel" provides a sampling of the French designer's objects and interiors, featuring everything from furniture to utensils. Also on view will be elements from a guest room at the Paramount Hotel. Call 215/763-8100.

Through March 8, 1998

**New-York Historical Society****New York City**

The development of technology and imagery in Times Square advertising is traced in "Signs and Wonders: The Lights of Times Square." Actual signs and photographic records are displayed in the exhibition, the first to seriously examine this iconic feature of New York history. Call 212/873-3400.

Through May 31, 1998

**Canadian Centre for Architecture****Montreal**

An exhibition of architectural toys, "Toy Town," explores how village, town, and city have been represented by toys from several cultures over more than two centuries—ranging from early 19th-century German wooden villages to recent CD-ROMs. The exhibition comprises 26 toy towns from the CCA's collection. Call 514/939-7000.

Through June 30, 1998

**National Building Museum****Washington, D.C.**

"Planning Washington's Monumental Core" examines the history of urban planning in the nation's capital, from L'Enfant's design of 1791 to the Senate Park Commission plan of 1902 to the National Capital Planning Commission's Legacy plan, which was unveiled last year. Historic and contemporary photographs, as well as civic Web sites and interactive videos, are presented. Call 202/272-2448.

## Competitions

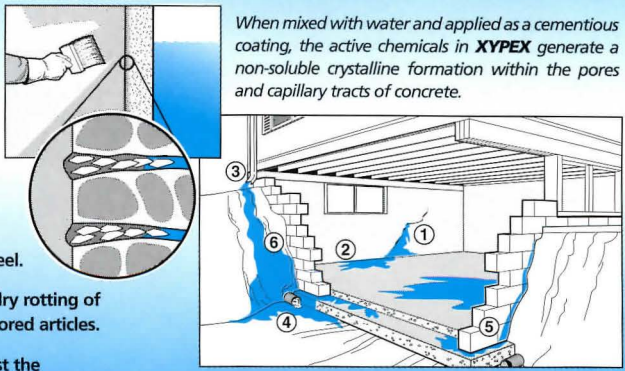
The Architectural History Foundation announces the **Vincent Scully Research Grant**, a \$10,000 biannual award to facilitate the publication of a monograph on American architecture. Preference for the grant will be given to projects that are substantially complete and/or under active consideration for publication. The deadline for applications—which must include a

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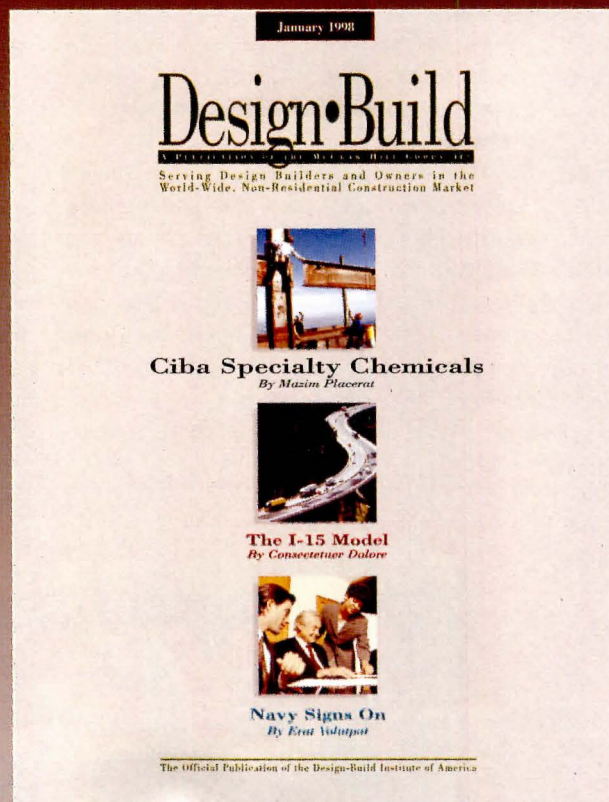
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book proposal, an outline of how the award will be utilized, and other materials—is February 2, 1998. For further information about application, write the Architectural History Foundation, 350 Madison Avenue, New York, N.Y. 10017, or fax 516/944-5961.

The American Society of Architectural Perspectivists (ASAP) invites entries to its 13th annual **International Competition and Exhibition of Architectural Illustration**. Entries in two categories—formal and sketch—must be in the form of 35mm slides of original work (including computer renderings), representing proposed buildings, interiors, or architectural environments. Winning entries will be presented in a traveling exhibition that will open in Atlanta in 1998 in conjunction with the ASAP's national convention. Entry deadline is January 16, 1998. For more information on the competition or ASAP membership (a requirement of entry), write Architecture in Perspective 13, Alexandra Lee, Executive Director, American Society of Architectural Perspectivists, 52 Broad Street, Boston, Mass. 02109; call 617/951-1433 x225; or fax 617/951-0845.

“Positions” is the theme of the **1997-98 Young Architects Forum** sponsored by the Architectural League of New York. Architects and designers who have been out of undergraduate or graduate school for 10 years or fewer may enter. The entry deadline is January 27, 1998. Winners will be invited to exhibit their work at the Urban Center and present lectures in the spring. The jury will include Walter Chatham, Stan Allen, Steven Holl, and Billie Tsien. For further information or to receive an entry form, call 212/753-1722.

The Tile Promotion Board's **Spectrum International Ceramic Tile Design Competition** honors creative excellence in residential and commercial ceramic tile design. Architects, interior designers, contractors, builders, retailers, manufacturers, distributors, and others who have influenced the specification or installation of ceramic tile may enter projects completed between January 1996 and December 1997. The submission deadline is January 31, 1998. Winners will be announced during the International Tile and Stone Exposition's All-Industry Awards in Orlando, Florida, in April 1998. For more information, call the Tile Promotion Board at 800/495-5900 or 561/743-3150; or fax 561/743-3160.

Upcoming deadlines for the **1998 AIA Honors**

and Awards program are as follows: Architecture Firm Award, Henry Bacon Medal for Memorial Architecture, Institute Honors, Thomas Jefferson Awards for Public Architecture, and ACSA/AIA Topaz Medallion for Excellence in Architectural Education, submissions due December 12; Honorary Memberships (nomination by national board member required), nominations due December 19; and AIA/NCMA Design Awards of Excellence, entries due January 16, 1998, submissions due February 20. For more information, call Robin Lee at the AIA at 202/626-7390.

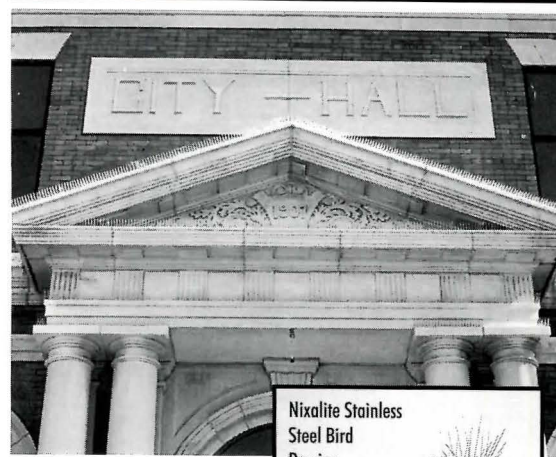
Assopiastrelle, the Association of Italian Ceramic Tile and Refractory Manufacturers, announces its **1998 Assopiastrelle Design Award**. The \$5,000 prize recognizes designers or architects who have created innovative settings using Italian ceramic tiles. Projects must be completed by February 28, 1998, and submissions must be received by March 15. Write Abbate Communications, 222A Sixth Avenue, 2nd floor, Brooklyn, N.Y. 11215; or call 718/783-3160.

The **1998 DuPont Benedictus Awards for Innovation in Architectural Laminated Glass**, sponsored by DuPont and the AIA with the support of the International Union of Architects, recognizes outstanding or significant commercial and residential architecture that uses laminated glass. Entries must be submitted on or before March 9, 1998, and winners will be announced at the AIA national conference in May. A student ideas competition for the design of a courthouse is also being held. Write Stephanie Vierra at the AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006; call 202/626-7446; or E-mail vierras@aiaemail.aia.org.

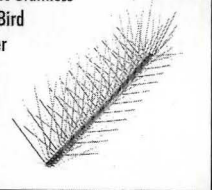
Categories for the **Boston Society of Architects' 1998 design awards program** are healthcare, housing (single- and multifamily), and interiors. The first category is open to New England architects and architects with projects in the region; the second and third are open to Massachusetts architects and architects who have designed projects in the state. The interiors category is also open to interior designers. Submissions are due February 2, 1998, for healthcare and March 1 for housing and interiors. Contact the Boston Society of Architects at 617/951-1433 x221; fax 617/951-0845; or E-mail bsarch@architects.org. ■

*Please submit information for exhibitions, conferences, and competitions at least six weeks prior to publication date.*

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## ADVERTISERS INDEX

**Bold:** indicates page number.

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PAGE NUMBER	READER SERVICE NUMBER	
<b>150</b>		Accent on Architecture
<b>37</b>	18	Altro Floors
<b>150</b>		AIA/Expo '98
<b>152</b>		American Soc. for Healthcare Eng.
<b>146</b>	50	APA
<b>56-57</b>	25	Andersen Commercial Group
<b>146</b>	51	Arakawa Hanging Systems Int'l
<b>139-140</b>		Architect's Book Club
<b>cov2-1</b>	1	Armstrong World Industries
<b>cov3</b>	61	ARRIS
<b>4-5</b>		Autodesk LT
<b>42-43</b>		Autodesk R14
<b>23</b>	12	BAGH Technologies
<b>14-15</b>		Bentley
<b>147</b>		Bentley
<b>26-27</b>	14	BP Solar
<b>12</b>	7	Buick
<b>111</b>	40	Ceco Door Products
<b>79</b>	60	Cesar Color Inc.
<b>46-47</b>	23	Clopay Building Products
<b>154</b>		Design Build
<b>93</b>	34	Diehl Graphsoft
<b>50-51</b>	26	Dryvit Systems
<b>48-49</b>	24	DuPont Antron
<b>161</b>	55	Edison Price Lighting
<b>32</b>	27	EFCO Corp.
<b>100</b>	37	Follansbee Steel
<b>17</b>	9	Forms & Surfaces
<b>94</b>	35	Forms & Surfaces
<b>151</b>	59	G.R. Plume Co./Haskell Corp.
<b>2</b>	2	Gateway 2000
<b>90</b>	33	Graphisoft
<b>118</b>	45	Hartco

PAGE NUMBER	READER SERVICE NUMBER	
<b>45</b>		Hewlett Packard
<b>138a-b</b>		International Masonry Institute
<b>89</b>	32	Johns Manville
<b>134</b>	49	JVC Professional
<b>112</b>	44	Kawneer
<b>39</b>	19	Kim Lighting
<b>103</b>	38	Lehigh Portland Cement
<b>84</b>	31	Lutron
<b>163-172</b>		Manufacturers' Spotlight
<b>152</b>		Masterspec
<b>40-41</b>	20	Metal Building Manuf. Assoc.
<b>30</b>	16	Metpar
<b>80-81</b>		Microsoft
<b>149</b>	52	National Gypsum Company
<b>155</b>	63	Nixalite
<b>125</b>	47	Office Specialty
<b>19</b>	10	Osram Sylvania
<b>28-29</b>	5	Owens Corning
<b>21</b>	22	Pella Windows & Doors
<b>6-7</b>	4	Pergo Publiq
<b>107</b>	39	Petersen Aluminum
<b>127</b>	46	Plumberex
<b>108</b>	41	Raco Altura
<b>117</b>	42	Saflex
<b>115</b>	43	Schott
<b>161</b>	54	Seiho International
<b>58</b>	17	Solutia
<b>24</b>	13	spex +
<b>82-83</b>	30	Sweets Group
<b>97-99</b>	36	Sweets Group
<b>162</b>	56	Tectum
<b>8-9</b>	21	United States Aluminum
<b>cov4</b>	62	USG Interiors
<b>131</b>	48	Visa Lighting
<b>10-11</b>	15	Weather Shield
<b>129</b>	53	Wind2
<b>153</b>	57	Xypex Chemical Corp.

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**BEST REPS** continued from page 88

**McKinney Concrete Products**

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**BUILDING LONGEVITY** *continued from page 138*

not be fully understood, and they too often have less designed-in redundancy. Carrara marble, used for centuries, proved disastrous when sliced thin for application on curtain walls, for example. The manufacturer's intentions for a component may not have anticipated the uses to which that component is put. This is especially the case with roof or wall assemblies of many individual components that may be put together by mechanics in the field who have little understanding of what is required to make the entire assembly work. Consider gypsum board, an interior finish material pressed into service as part of thin-brick-and-metal-stud assemblies and EIFS. Until manufacturers developed more sophisticated sheathing materials and waterproofing techniques, wetted gypsum board was frequently implicated in failures.

The efficacy of technologies shorn of traditional safety factors relies heavily on the caliber of craftsmanship and the quality of engineering to insure long-term performance, says Joe Chadwick, an architect in contract administration for the Department of Facilities at Yale University and a member of the ISO technical committee on the design life of buildings. Because Yale requires that its new buildings be constructed in keeping with the character of its 300-year-old campus, Chadwick says the university avoids what he calls "developer" building systems, like EIFS and brick-on-metal-stud walls, because they are not proven to be as durable as he requires.

Chadwick points to Yale's Mellon Center for British Art, designed by Louis I. Kahn and completed in 1975, as a contemporary building that embodies the best philosophical and practical aspects of durable design and construction. Chadwick recalls that when the building's insulated glass units needed to be replaced three years ago (after

enduring longer than their expected service life), he had the opportunity to re-examine the building's working drawings and construction. He was impressed, he says, by the inherent logic of the details, the way the materials fit together, and the order of the assembly.

Kahn's design included a stainless-steel channel at the base of windows inside the building that both served as a shadow detail and protected the wood finish element below from possible water damage due to incidental condensation on the glass. "The break-formed sections have a very specific hierarchy and a very specific purpose" says Chadwick. Kahn went so far as to specify marine-grade plywood as blocking material. That plywood, says Chadwick, serves as a stiffener, as a substrate for attachment, and as a thermal break that will last at least as long as the building. "You can see the thought process, the understanding and respect for the materials, the willingness to do the right thing," says Chadwick.

**Further information**

ASTM, Conshohocken, Pa., 610/832-9585, offers serviceability standards as well as "New Stone Technology, Design, and Construction for Exterior Wall Systems STP 996" (1988, Barry Donaldson, ed.) and "Water in Exterior Building Walls, Problems and Solutions STP 1107" (1992, Thomas A. Schwartz, ed.).

Other durability standards include "Guideline on Durability in Buildings" (Canadian Standards Association S478; 416/747-4000) and "Durability of Buildings and Building Elements, Products and Components" (British Standards Institution, London, England, 44/0181/996-7070).

See also D. Kaminetzky, *Design and Construction Failures, Lessons from Forensic Investigations* (New York: McGraw-Hill Inc., 1991). ■



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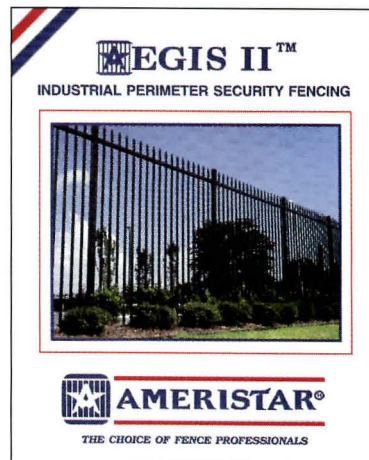


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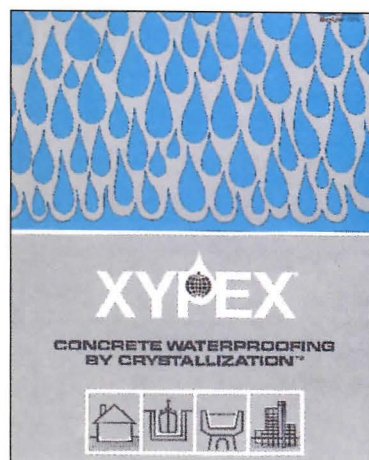


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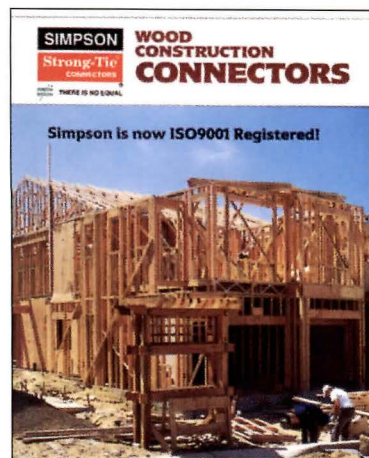


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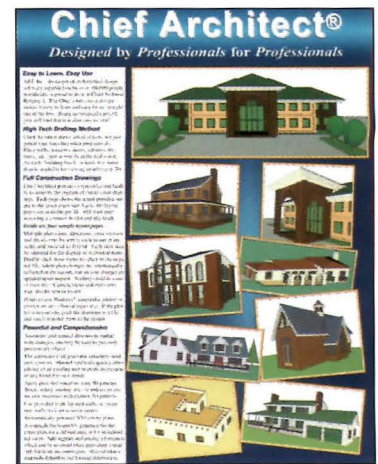


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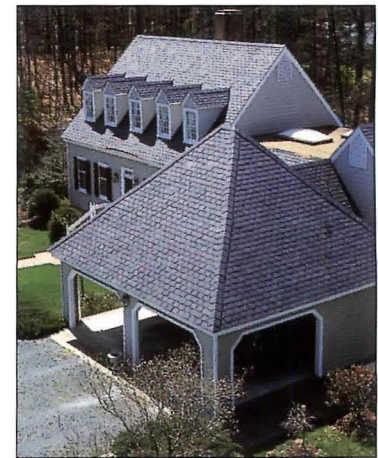


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We have given special attention to each & every component of our fence. Every item is designed for strength, durability and low maintenance. No other company builds a complete fence - rail, rivets, brackets, pickets and posts, that are stronger, more 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.

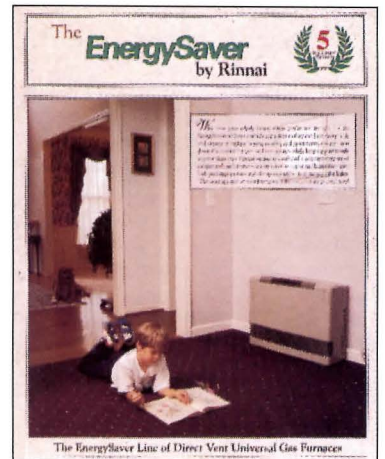


**Monumental Iron Works**

CIRCLE 89 ON INQUIRY CARD

**Universal Gas Furnace**

Rinnai's EnergySaver direct-vent gas-fired universal furnace combines contemporary styling w/ exceptional energy efficiency. Features: cool-to-the-touch cabinetry, quiet twin fans, electronic ignition, no open flame, & humidifier. Energy Saver models 431,556 (shown) & 1001 heat areas up from 1100 to 1700 sq. ft. w/ Natural or LP gas. These Rinnai furnaces also carry the industry leading 5 yr. ltd. warranty. (800) 621-9419.



**Rinnai America**

CIRCLE 90 ON INQUIRY CARD

**Senergy's New Aurora Stone Finish**

The Senergy Division of Harris Specialty Chemicals, Inc. introduces Aurora Stone Finish for EIFS, stucco and masonry. Aurora Stone Finish replicates the appearance of granite or marble, and is available in twelve standard colors. Acrylic-based Aurora Stone Finish is spray-applied, and is also suitable for interior applications.

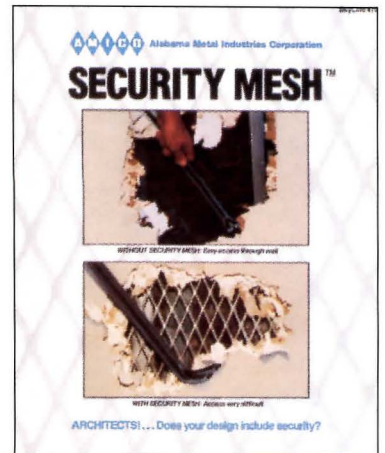


**Senergy**

CIRCLE 91 ON INQUIRY CARD

**Security Mesh**

Security Mesh sheets are steel mesh panels used as a penetration resistance shield behind drywall finishes. Sheets are to be attached to metal studs & track or wood supports designed for use in walls. Uses: Prisons, government offices, stripmalls, storage rooms, computer rooms, courthouses, apartments, condos, pharmacies, mail rooms, airport security, banks, hospitals, police stations & office security.



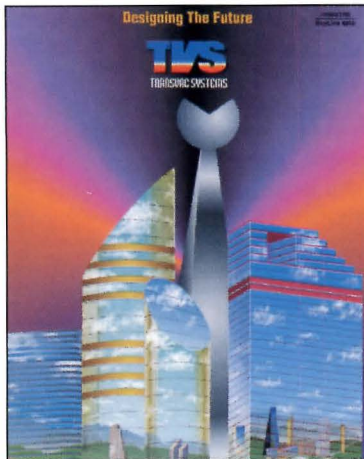
**Amico**

CIRCLE 92 ON INQUIRY CARD



**Automated Vacuum Transport Systems**

Waste and/or soiled linen. Perfect for large hospitals and similar buildings that serve thousands of people. Improve the building environment, management, and maintenance. Full-vacuum and gravity/vacuum technology. Custom design each system to building specifications.

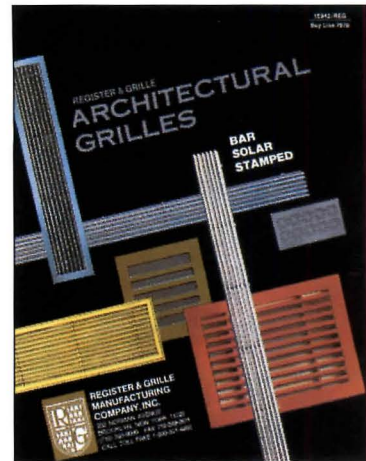


**Transvac System, Inc.**

CIRCLE 93 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 94 ON INQUIRY CARD

**Met-Tile Roofing**

Roofing features an exclusive, environmentally friendly coating for high performance & long life. Tile-look metal panels provide beautiful appearance plus protection against hurricanes (230+ mph wind rating), fires, earthquakes, pest infestation & rot. Weight: 125 lb. per square. Eight designer colors. Phone (800) 899-0311, Fax (909) 947-1510.



**Met-Tile Roofing**

CIRCLE 95 ON INQUIRY CARD

**Curved Roofing & Wall Panels**

Curveline, Inc. can custom-curve over 110 varieties of metal building panels to the desired specs to create single or multi-radiused curves. Specifiers may source panels from manufacturers in 100+ factory locations. Applications include contoured roofs, walls, fascias, canopies, walkway covers, standard and acoustical decking, Quonset Hut skins, etc. Phone (888) 998-0311, Fax (909) 947-1510.

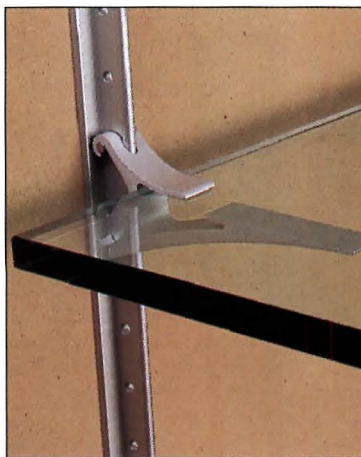


**Curveline**

CIRCLE 96 ON INQUIRY CARD

**Parallel Design Partnership Limited**

"ellen's brackets", and 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.

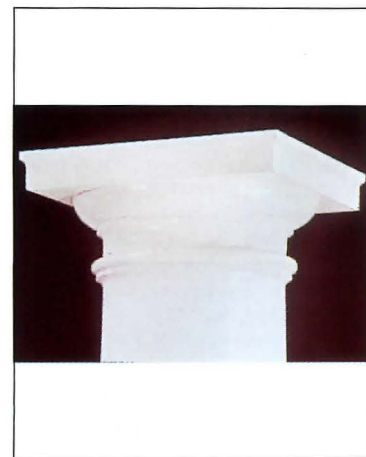


**Parallel Design**

CIRCLE 97 ON INQUIRY CARD

**Columns & Balustrades**

DuraClassic Poly/Marble load bearing columns are affordably priced and backed by a lifetime warranty. Other quality products include authentic architectural wood columns for paint or stain, fiberglass columns and synthetic stone balustrades and columns. For a free catalog call 800-963-3060.



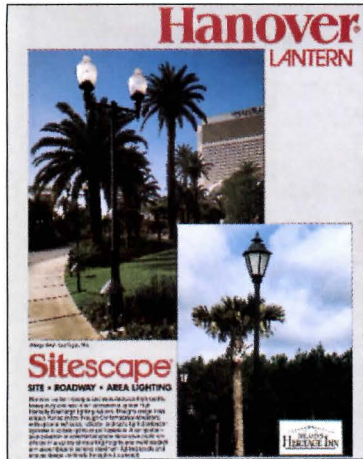
**Melton Classics, Inc.**

CIRCLE 98 ON INQUIRY CARD



**Hanover Lantern  
Commercial Lighting**

Hanover Lantern designs & manufactures high quality heavy duty cast titanium/aluminum commercial grade decorative lighting fixtures, poles & accessories. A selection of design styles, light source options, light distribution systems, mounting options, computer generated photometric data plus a custom design service are available to the architect or engineer. 470 High St., Hanover PA 17331. T: (717) 632-6464 F: (717) 632-5039

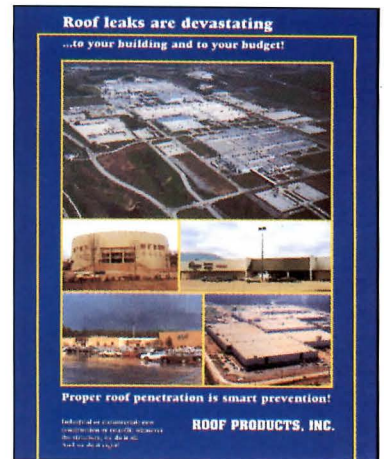


**Hanover Lantern**

CIRCLE 99 ON INQUIRY CARD

**Roof Penetration for  
New & Retrofit**

Before you purchase or specify rooftop equipment, contact Roof Products, Inc. They have the knowledge, experience and the technical staff to analyze the project and determine the best applications for a leak-free, cost-efficient job. RPI will supply the solution and the curbs, adapters, and other accessories to change equipment without disturbing the roof or sub-structure. For brochure 800-262-6669. www.rpicurbs.com / E-mail:rpicurbs@gte.net

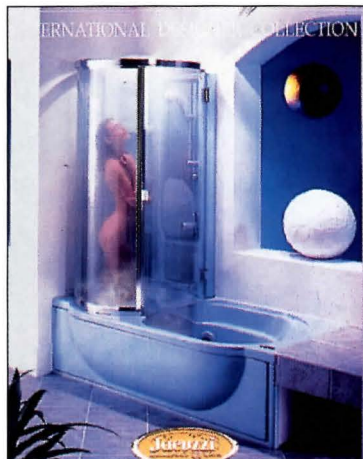


**Roof Products, Inc.**

CIRCLE 100 ON INQUIRY CARD

**Jacuzzi Whirlpool Bath**

Jacuzzi Whirlpool Bath - presents The 1997 International Designer Collection of whirlpool baths, faucetry and The J-Dream™ Family of shower systems. This full-color catalog features beautifully styled products, integrating the most innovative luxury features. For more information please call 1-800-678-6889. Catalog free of charge.

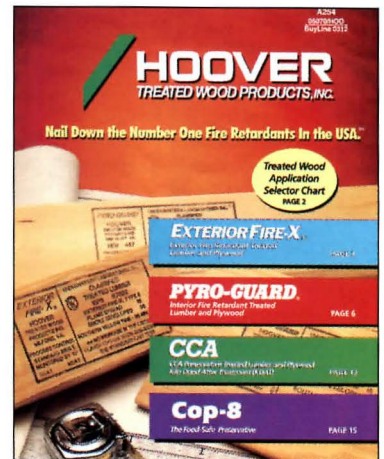


**Jacuzzi**

CIRCLE 101 ON INQUIRY CARD

**Fire Retardants and  
Preservatives**

New 16-page Sweet's catalog features Pyro-Guard® interior type FRT lumber and plywood; Exterior Fire-X® FRT lumber and plywood for exterior uses; CCA/KDAT preservative treated lumber and plywood that's Kiln Dried After Treatment; COP-8® the food-safe preservative; PWF treated wood for Permanent Wood Foundations; and PLYWALL engineered wood noise barriers, from Hoover Treated Wood Products Inc, http://www.frtw.com



**Hoover, Inc.**

CIRCLE 102 ON INQUIRY CARD

**91R Plank Glass  
Stair Treads & Landings**

Structurally engineered steel tee construction with custom patterned or full sandblast Plank Glass creates a dramatic staircase. Other Circle Redmont products include prefabricated Glass Block Panels for installation as windows, walls, skylights, skybridges, sidewalks, and complete structures.

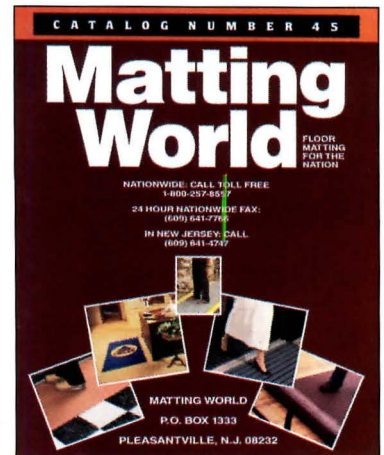


**Circle Redmont, Inc.**

CIRCLE 103 ON INQUIRY CARD

**Floor Matting**

The nation's most complete line of floor matting: Identification Logo Mats, Entrance Mats, Anti Fatigue Mats, Food Service Area Mats, Rubber & Vinyl Long Runners, Carpet Top, Anti Static, Chair Mats, Factory Mats, Deck Matting. A mat for just about every application. For a catalog, Fax (609) 641-7766 or write Matting World, P.O.B. 1333, Pleasantville, N.J. 08232.



**Matting World**

CIRCLE 104 ON INQUIRY CARD



**Duraflake FR Fire-rated Particleboard**

Duraflake FR provides Class A fire protection in wall systems, store fixtures, furniture and case goods. It has a UL flame spread rating of 20 and a smoke developed rating of 25. Its smoothness, machinability and uniformity make it an ideal substrate. It even resists warping and won't leach chemicals. Call (541) 928-3341. Sweet's Catalog 06300/WIL

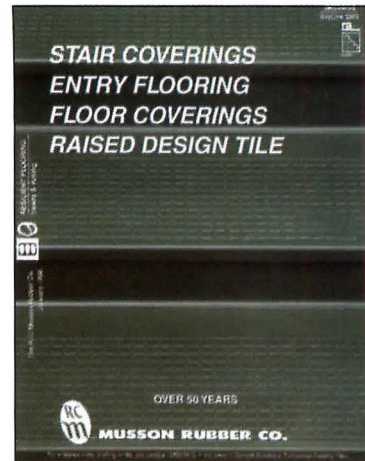


**Duraflake**

CIRCLE 105 ON INQUIRY CARD

**Rubber and Vinyl Stair and Floor Systems**

Choose the best safety application for you stairs and floors. Recent government safety regulations make attractive many of our products such as fire safety, grit strip, visually impaired and glo strip stair systems. Matching entry flooring including disco, low disc, square, diamond, fluff cord and traffic titles are displayed in new colors with related accessories. To request copies, contact Bob Segers, Musson Rubber Co., P.O. Box 7038, Akron, OH 44306. (800) 321-2381. Fax (330) 773-3254.



**Musson Rubber Co.**

CIRCLE 106 ON INQUIRY CARD

**Automatic Door Bottoms w/ Nylon Brush Seals**

Pemko nylon brush conforms extremely well to the contours of any sealing surface, particularly carpet. Nylon filaments penetrate carpet fibers to seal off light, drafts, sound, and insects. These ADB's are fire and smoke labeled, tested for sound, and operate with very low closing force. Full-surface, semi-mortise, and full-mortise models available.

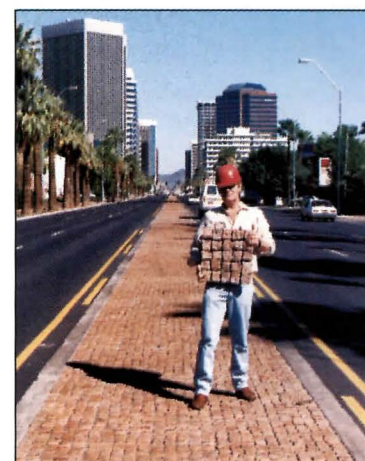


**Pemko**

CIRCLE 107 ON INQUIRY CARD

**Granite Cobblestone in Modules**

An updated catalog features authentic European cobblestone preassembled in modular form. Modules in square, fan, concentric ring, and custom formats arrive at the jobsite ready for a quick and easy installation. Pedestrian or vehicular application. Eurocobble® has supplied the design community with traditional and customized paving solutions for over 15 years. NY (212) 627-5903 or CA (213) 877-5012.

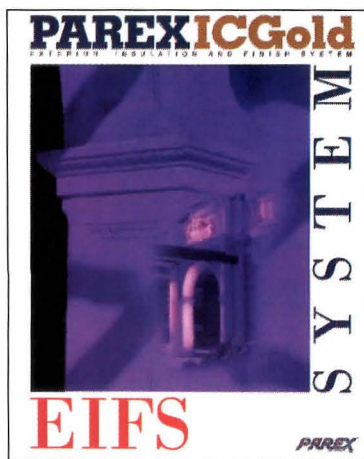


**Eurocobble®**

CIRCLE 108 ON INQUIRY CARD

**Parex Introduces New EIFS Technology**

I-C Gold®, Flexible PM EIFS, combines advantages of PM and PB EIFS. The system's thick self-gauging base coat eliminates control joints, simplifies installation, reduces cost and enhances architectural versatility. Mechanical attachment is ideal for aged substrates whose surfaces are unsuitable for adhesives. P.O. Box 189, Redan, GA 30074. (800) 537-2739.

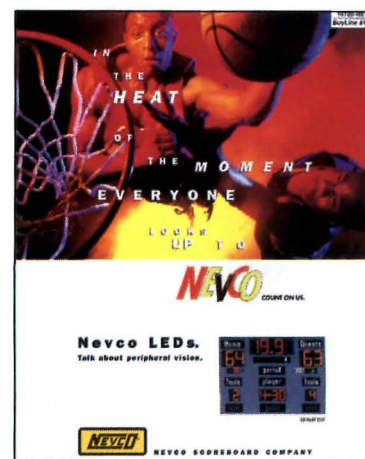


**Parex Inc.**

CIRCLE 109 ON INQUIRY CARD

**Nevco Scoreboard Company**

The latest addition to Nevco Scoreboards are the indoor LED models. Features: excellent visibility from all angles, vibration and shock-resistance, LEDs have a rated life of 100,000 hours and reduced current. All scoreboards are UL Listed, CSA Certified and come with a 5 year guarantee. Call 800-851-4040 or fax (618) 664-0398 for a free catalog.



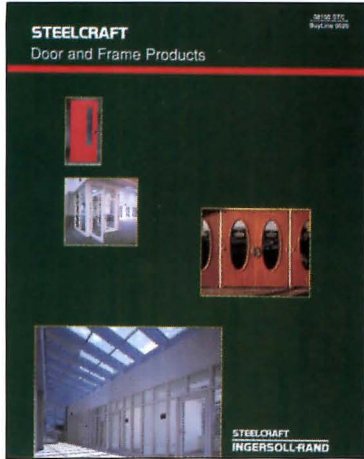
**Nevco Scoreboard Co.**

CIRCLE 110 ON INQUIRY CARD



**SteelCraft Product Guide #613**

The Steelcraft Product Guide is designed with the architect, and design community in mind. Product specifiers can find basic door and frame specifications in a special chart. We have included a "Relative Cost Chart" that shows the cost comparison between various Steelcraft products. We include Steelcraft product specifications; fire label charts; door and frame selection charts; hanging charts; and information service list.

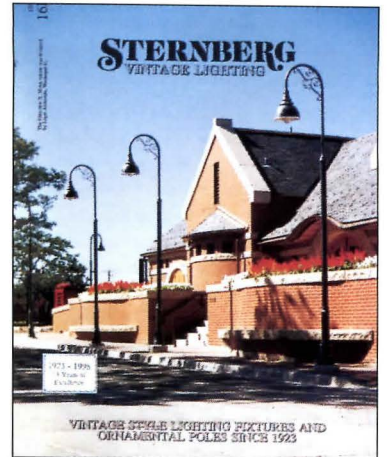


**Steelcraft**

CIRCLE 111 ON INQUIRY CARD

**A New 1998 Catalog From Sternberg Vintage Lighting**

This 80-page full color catalog is packed with about 500 individual product photos and shots of installations of all types. There are new fixtures, ornamental poles, new bollards, a new fitter and more information to help specifiers choose the right product and options for a specific project. Sternberg celebrates their 75th anniversary in 1998. It is an employee owned company with all products manufactured in their Niles IL plant.

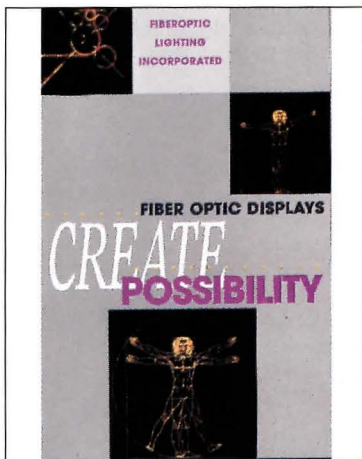


**Sternberg Vintage Lighting**

CIRCLE 112 ON INQUIRY CARD

**Bright Ideas with Fiber Optics**

Paint with light! Fiber optic displays are an ideal medium for use in any environment. These low maintenance displays are used for wall murals, ceilings, indoor or outdoor enhancements, hotels, museums, restaurants, retail, office and health-care facilities. Changing colors and implied motion add to the magic.

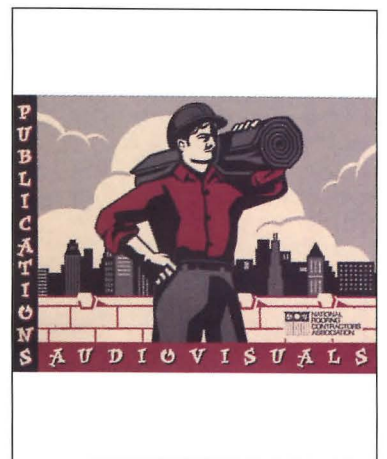


**Fiber Optics**

CIRCLE 113 ON INQUIRY CARD

**Catalog of Roofing Publications & Audiovisuals**

The National Roofing Contractors Association has more than 90 roofing-related products, including the 1,858-page NRCA Roofing and Water-proofing Manual-Fourth Edition and the NRCA Construction Details on CD-ROM in .DWG and .DFX formats. For a free catalog, contact NRCA Marketing Services, 10255 W. Higgins Road, Suite 600, Rosemont, IL 60018, (800) 323-9545.

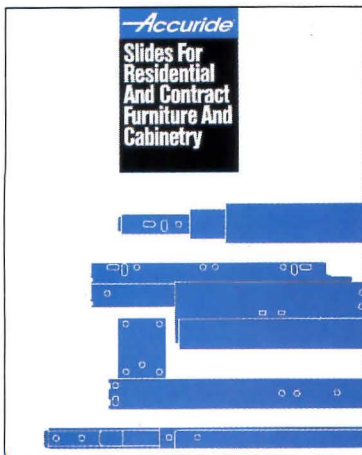


**National Roofing**

CIRCLE 114 ON INQUIRY CARD

**Enhance the Quality of Casework**

Accuride offers a variety of superior slides-perfect for lab casework, residential and office drawers. Architectural support available includes suggested specification wording, specification representatives and a complete binder of slides for drawers, specialty applications and retracting pocket doors. Request your free catalog. For more information: (562) 903-0200.

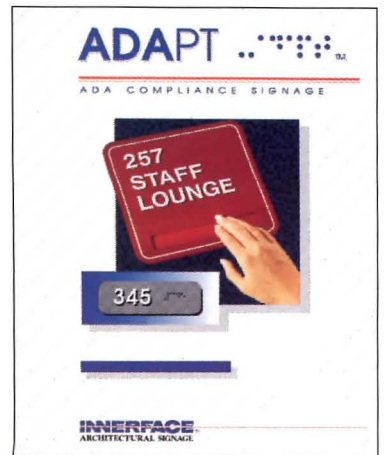


**Accuride**

CIRCLE 115 ON INQUIRY CARD

**ADA Compliance Signage**

Innerface makes it easier for you to meet the Americans With Disabilities Act (ADA) signage standards. Innerface offers (1) A variety of compliance signage, (2) National distribution (3) Solid 27 year history and (4) Economical, attractive, & highly functional interior and exterior signage. Innerface also offers signage planning and wayfinding services. For free literature, please call (800) 445-4796.



**Innerface**

CIRCLE 116 ON INQUIRY CARD



**Rubber Flooring  
for the 21st Century**

Dodge-Regupol Inc. (DRI) emerged as the world leader in recycled rubber products technology while developing a full range of recycled rubber flooring for both commercial and sports applications. DRI's commercial line of rubber flooring, dist. by Gerbert Ltd, delivers exceptional resilience and durability, exceeds ADA requirement for slip-resistance and meets designer's objectives for colorful and aesthetically pleasing interior and exterior surfacing at a lower cost than conventional rubber flooring. 1-888-359-5466.

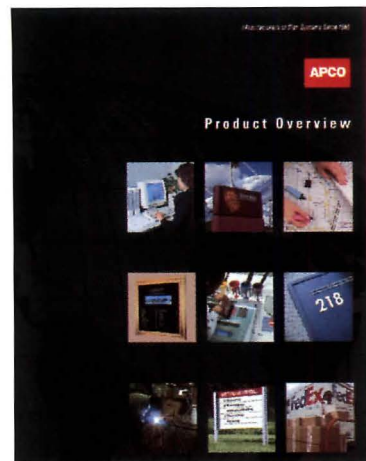


**Dodge Regupol**

CIRCLE 117 ON INQUIRY CARD

**Architectural Signage**

As an industry leader for 31 years, APCO understands the importance of a building's signage in creating a favorable and lasting impression. The company offers a diverse product line designed to meet architects' specific needs — from interior and exterior sign systems to displays, directories, signmaking software, and ADA compliant signs. APCO Graphics, Inc., 388 Grant Street, SE, Atlanta, GA 30312, Phone: (404) 688-9000, Fax: (800) 329-2726.



**APCO**

CIRCLE 118 ON INQUIRY CARD

**Mini-JOMY**

The JOMY Safety Ladder Co. proudly introduces the Mini-JOMY, a scaled down version of the JOMY Safety Ladder, specially designed for residential and light commercial applications. The Mini-JOMY looks like a drainpipe but folds out to a 17" wide ladder with slip resistant rungs constructed of extruded anodized aluminum and stainless steel. The Mini-JOMY is maintenance free and will last the lifetime of any building. Call 800-255-2591 for additional information.



**JOMY Safety Ladder Co.**

CIRCLE 119 ON INQUIRY CARD

**Reclaimed, Remilled.  
Remarkable**

Vintage Lumber Co., Inc. has been manufacturing exceptional antique T&G plank flooring since 1973. Our extensive selection, consistent quality, on time delivery, and technical expertise is unequalled in the industry. For more info call 800-499-7859 or fax 301-845-6475. P.O. Box 104, Woodsboro, MD 21798

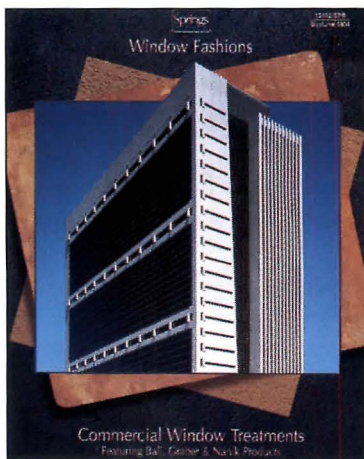


**Vintage Lumber**

CIRCLE 120 ON INQUIRY CARD

**Manufacturer of Bali, Graber  
and Nanik**

Springs Window Fashions manufactures Bali, Graber and Nanik commercial window treatments, including horizontal/vertical blinds, cellular/pleated shades and drapery hardware. Aluminum blinds feature antistatic paint finish to help repel dust. Privacy slats available on S3000 mini blinds. Architects/specification writers, call SpecFax (800) 327-9798 for specification sheets or technical advice.

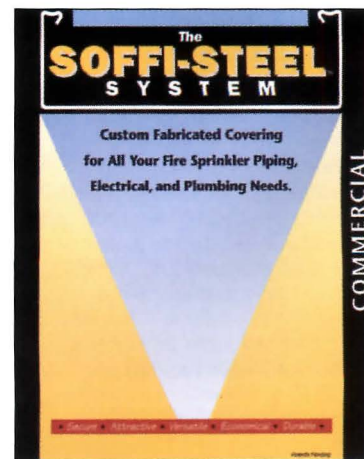


**Springs Window Fashions**

CIRCLE 121 ON INQUIRY CARD

**Soffi-Steel™ System**

The Soffi-Steel™ system is available for commercial and institutional applications. A prefabricated, rugged, snap-on soffit with an attractive and quick, clean installation. Commercial Soffi-Steel for hospitals, dormitories, apartments, etc., and the institutional Soffi-Steel system for jails and prisons. Custom sizes, shapes, and finishes. Grice Engineering, Inc., P.O. Box 8037, Janesville, WI 53547-8037. Toll-free #: 800-800-3213/Fax #: 608-757-1452. E-mail: ge@mindspring.com



**Grice Engineering, Inc.**

CIRCLE 122 ON INQUIRY CARD



**New Nystrom  
Design Catalog**

Nystrom Building Products has released the latest version of its design catalog. The easy to read format makes this the ideal desktop reference for specification information on louvers, access panels, roof hatches and floor hatches. This catalog covers the use of these products in every application you can imagine. For additional information contact Nystrom directly at (800) 781-7850.



**Nystrom Building Products**

CIRCLE 123 ON INQUIRY CARD

**The Opening Glass Wall**

A full line of aluminum and wood framed systems that make large exterior openings possible. Expand space with indoor/outdoor areas. Increase business with large, inviting entrances. Ideal for both residential and commercial applications. An aesthetic, engineered solution offering weather tightness, security, and ease of operation can be provided for almost any conceivable application. Available are folding, paired and individual panel systems. Call (800) 873-5673 or fax (415) 383-0312.



**Nana Wall Systems, Inc.**

CIRCLE 124 ON INQUIRY CARD

**Snakelight**

The flexibility of the Snakelight solves a multitude of lighting problems. Subtle accent lighting or part of a bold design statement, Snakelights are a quick, affordable and elegant solution for both residential and contract installations. Snake-lights come in a variety of mountings, sizes and colors with custom options available. Please call or write for a free brochure. MD Enterprises, Inc., Snakelight, P.O. Box 2554, Vashon Island, WA 98070. Phone (206) 463-9272 or Fax (206) 463-6717.

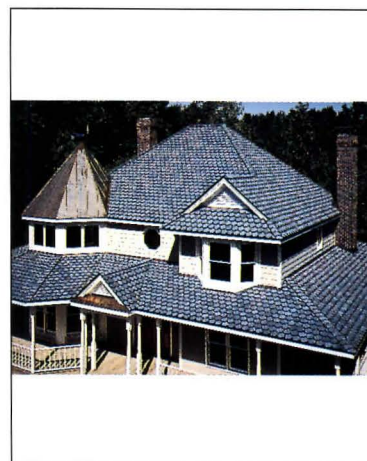


**MD Enterprises, Inc.**

CIRCLE 125 ON INQUIRY CARD

**Carriage House Shangle™**

The Carriage House Shangle™ design utilizes CertainTeed's exclusive Super Shangle® construction with two full-size base shingles, resulting in virtually four layers of shingle protection and 8-inch exposure when applied. This super-heavyweight shingle (355 lb per square) also features a unique chamfered cut for scalloped appearance. Fiber glass composition. UL Class A. Lifetime limited, transferable warranty. Algae-resistant. Meets ASTM 3462 Tear Strength.

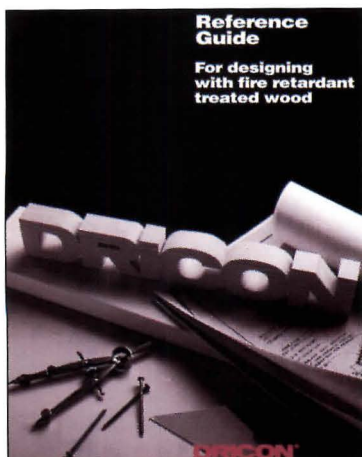


**CertainTeed**

CIRCLE 126 ON INQUIRY CARD

**FRT Wood &  
Building Codes**

"Reference Guide for designing with fire retardant treated wood" outlines codes-compliant applications for FRT wood. This includes the National, Standard, Uniform, and CABO codes. The recently updated guide also covers design properties, test standards, identification, and specification, and describes the Dricon® brand. Hickson Corp., 1955 Lake Park Dr., Suite 250, Smyrna, GA 30080. Tel: 404-362-3970.



**Hickson Corp.**

CIRCLE 127 ON INQUIRY CARD

**Decorative, Thin-Film  
Intumescent Fireproofing**

Certified for beams & columns for ratings up to 3 hrs.! A/D Firefilm permits the designer to use the appearance of exposed steel with the steel fully protected from fire. Applied as a thin-film coating 0.4 to 3 mm (0.02 to 0.12 in.) thick. During a fire it expands to form a meringue-like layer up to 100 mm thick. The topcoat is available in a wide choice of colours. 416-292-2361. (800) 263-4087



**A/D Fire Protection**

CIRCLE 128 ON INQUIRY CARD



**PG Bell  
Porcelain Manufacturer**

Pacific Rim? Eastern Europe? Middle East? If you are a U.S. architect about to work on an overseas project, call PG Bell and ask about the financial, cultural and construction issues you will face. PG Bell is a worldwide manufacturer of exterior/interior porcelain enamel building panels. For a presentation call 1-800-663-8543.

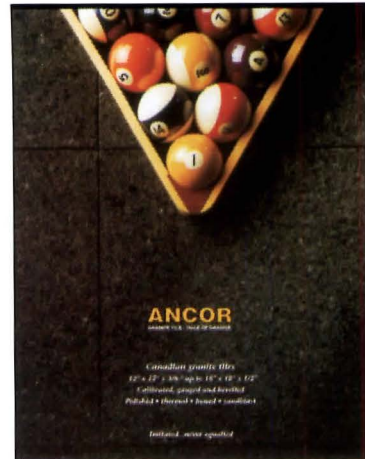


**PG Bell**

CIRCLE 129 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.

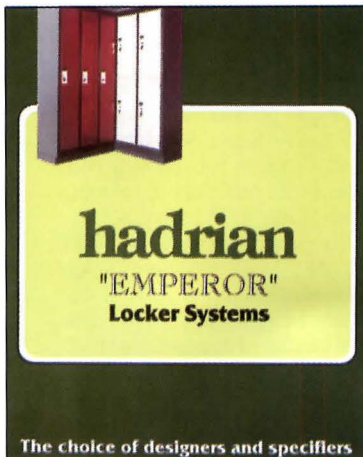


**Ancor Granite**

CIRCLE 130 ON INQUIRY CARD

**Slam Locker Door,  
No Bang!**

Hadrian's smooth faced, double-pan box, honeycomb-cored door, with a full-length "piano" hinge, has surpassed strength and impact resistance... and closes silently! Its recessed, single point positive spring latch reduces maintenance. Unobtrusive ventilation louvers in the frame defy blockage. Eighteen standard colors, multicolors at no up-charge. Call (216) 974-7120. Fax (800) 536-1469.



**Hadrian Inc.**

CIRCLE 131 ON INQUIRY CARD

**Fence Systems**

This new aesthetically appealing Euro-design fence system combines see-thru good looks with strength and durability of 6-gauge galvanized steel mesh. Powder-coated in a large variety of colors to suit any design & enhance the appearance & security of any property it surrounds, this fence system is virtually unclimbable, rugged maintenance-free and easy to install. 1-800-836-6342. [www.mania.com.com/omega.html](http://www.mania.com.com/omega.html)



**Omega Fence Systems**

CIRCLE 132 ON INQUIRY CARD

**Pan-Tech**

manufactures composite building panels in a variety of different face materials and finishes. Aluminum: two, three and four coat Kymar finishes, anodized, colour & brushed. Stainless Steel: 304, 316 grades, #4, #8 finish, coloured stainless and patterned. Zinc: Rheinzink pre-weathered. Porcelain: for Spandrel applications. Copper: pre-patinated.

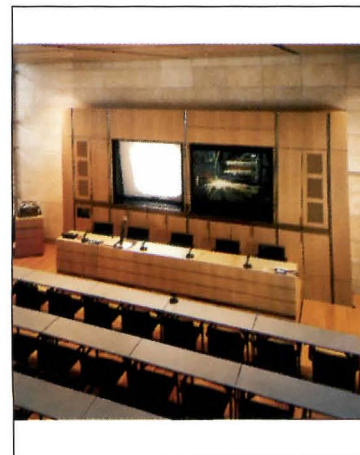


**Pan-Tech, Inc.**

CIRCLE 133 ON INQUIRY CARD

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**QUALIFICATIONS:** Applicants are expected to demonstrate excellence in studio design teaching, as well as a record and/or potential for creative scholarship in one or more of the listed substantive areas. A professional degree in architecture or an advanced degree in a related field is required; a doctoral degree and/or a professional license are desirable.

**APPLICATIONS FOR POSITIONS: COLLEGE OF ARCHITECTURE AND URBAN PLANNING THE UNIVERSITY OF MICHIGAN:** Applications must be post marked no later than 20 January 1998 for the above positions. All positions will be available in September 1998. Applicants should specify the position being applied for and send: 1) letter of interest, 2) curriculum vitae, 3) names, addresses and phone numbers of three references. Mail application materials to Search Committee Chair, College of Architecture + Urban Planning, The University of Michigan, 2000 Bonisteel Blvd. Rm. 2150, Ann Arbor, MI 48109-2069. The University of Michigan is a non-discriminatory, affirmative action employer. Ethnic, minorities and women applicants are strongly encouraged to apply.

THE COLLEGE OF ARCHITECTURE AND URBAN PLANNING ALSO OFFERS THREE ONE-YEAR FELLOWSHIPS: The William Muschenheim Fellowship, the Walter B. Sanders Fellowship and the Willard A. Oberdick Fellowship. Fellowship applications will be reviewed beginning January 2, 1998. Please call (313) 936-0221 for more information.

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The **NATIONAL UNDERGROUND RAILROAD FREEDOM CENTER** seeks expressions of interest from multi disciplinary architect teams for the design of a 125,000 square foot distributive museum and education facility dedicated to the story of the Underground Railroad; its significance in the history and future of the United States. Proposed for a Cincinnati site near the Ohio River, the Freedom Center is planned as a centerpiece in Cincinnati's Central Riverfront development.

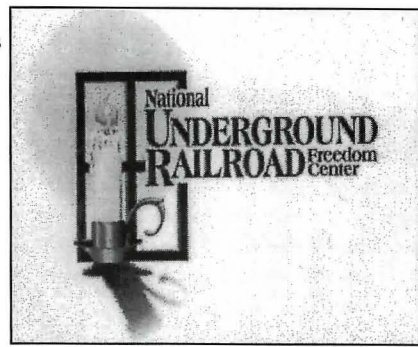
The selection process has two stages. The first stage consists of reviews of the team submissions by a committee. Stage two will engage selected teams in an interview/presentation of work and a design conversation that explores each team's Freedom Center vocabulary and concepts. An appropriate honorarium will be provided to the teams selected for stage two. Letters of interest must be received not later than 20 January, 1998.

Send letters of interest requesting the project prospectus and schedule with a check for \$50.00 to:

**The National Underground Railroad Freedom Center**  
312 Elm Street,  
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Cincinnati, Ohio 45202

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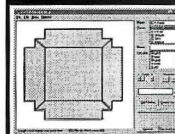
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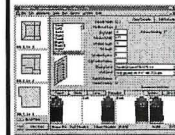
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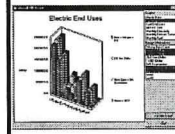
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# THE FUTURE Unconventional geometries: Is composite construction the wave of the future?

BY JOSEPH F. WILKINSON

Is plastic about to become the next best building material? Composites have been around since 1943, when a polymer (plastic) was reinforced with fiberglass to make the fuselage of Navy training planes, and they've been used so far in automobile bodies, boats, skis, bearing piles, golf clubs, freight cars, utility poles, bombers, sewer pipes, sewing machines, prosthetic limbs, and railroad ties—but not as key elements in many buildings.

William Kreysler, whose Penn-grove, California, company is a leading producer of composite decorative elements, predicts that composites will soon be accepted as structural material and will change our concepts of buildings.

"Composites got their foot in the construction door by pretending to be something else, mimicking other materials," says Kreysler. "This is unfortunate, because composites are so unique and so versatile and can open the doors to so many new opportunities.

"Composites can take us out of our orthographic rut. These polymers are strong and light and they don't require the same structural system that conventional materials do. Frank Gehry is designing shapes that are ideal for composite elements because they have compound curves. Most architects think a compound curve is expensive to do, and it is—with conventional material. But a compound curve is

cheaper to produce in composites than an orthographic shape. You could build an entire building with composites without a structural steel frame."

Composites such as beam sections (above right) have made inroads in infrastructure construction because they have a high strength-to-weight ratio, they are resistant to corrosion and rot, and they are light in weight. They aren't cheap, but they promise low life-cycle and maintenance costs in applications such as pedestrian overpasses, small vehicular bridges, and traffic decking.

Because they're transparent to radio waves, composite sections are used to build decorative towers and turrets to enclose communication equipment atop office buildings. Clinics use composite structures to house magnetic-resonance imaging (MRI) apparatus. Many hospitals want rooftop helicopter pads, and plastics make landing pads for roofs that can't take the weight of concrete. Immune to de-icing salts, FRP reinforcing bars and prestressing tendons are now specified for concrete parking decks.

Today, architects most commonly use composites for pre-formed bathtub/shower units and counter surfaces. The next most popular application for polymer building material is as decorative elements such as cupolas, pediments, railings, friezes, and steeples

that never rot and don't need painting. An example of the architectural potential of composites is the 147-ft-high, 180-ft-diameter dome built for a Reno, Nevada, casino (below). Made of 1,996 fire-resistant composite panels, the structure cost 20 percent less than a metal geodesic dome and weighs half as much.

"We're saying and proving that composites can be used to replace primary structures," says James Irwin, president of Ratech Industries, Inc., the Sparks, Nevada, designer and builder of the dome. The firm specializes in unconventional structures that require spherical, non-spherical, or compound-curve shapes, and is currently working on another huge dome, for a 3-D IMAX theater in Seattle.

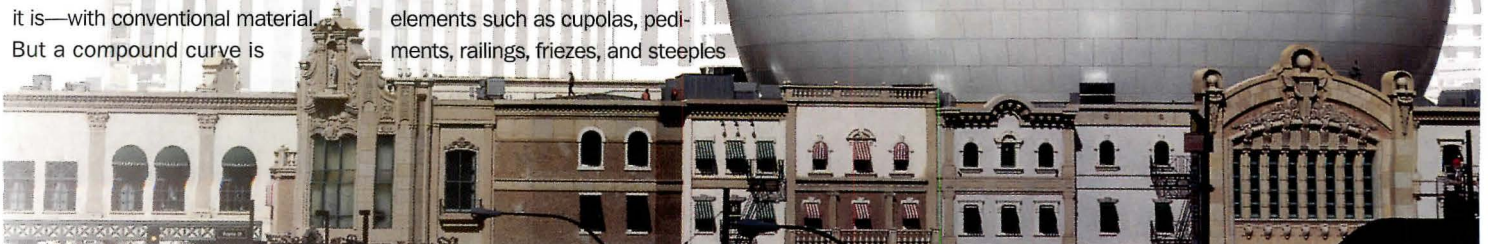
"Composite construction is the wave of the future," says Irwin.

"Architects nowadays are looking to do unconventional things. Historically, people have done the best they could with steel and conventional materials, but these limit design to conventional geometry. Composites will give people the opportunity to work in a nonangular dimension.

"Using composites, you could build a home using only half the time and half the materials. You can, literally, mold homes and make them modular in nature and assemble them on site. Building things of sticks and nails is pretty archaic."

But while composites offer the allure of the unconventional, they also carry the burden of the new, without the track record or predictable standards of steel, concrete, and wood. Only when national criteria are established will architects and clients find composites more attractive. ■

*Joseph Wilkinson is a former managing editor of Engineering News-Record and writes frequently on construction.*





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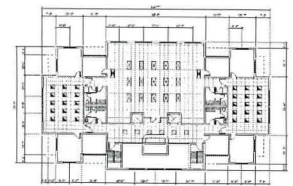
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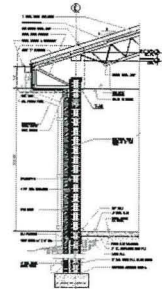
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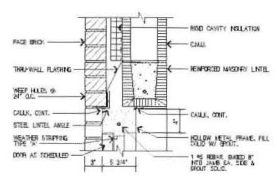
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