



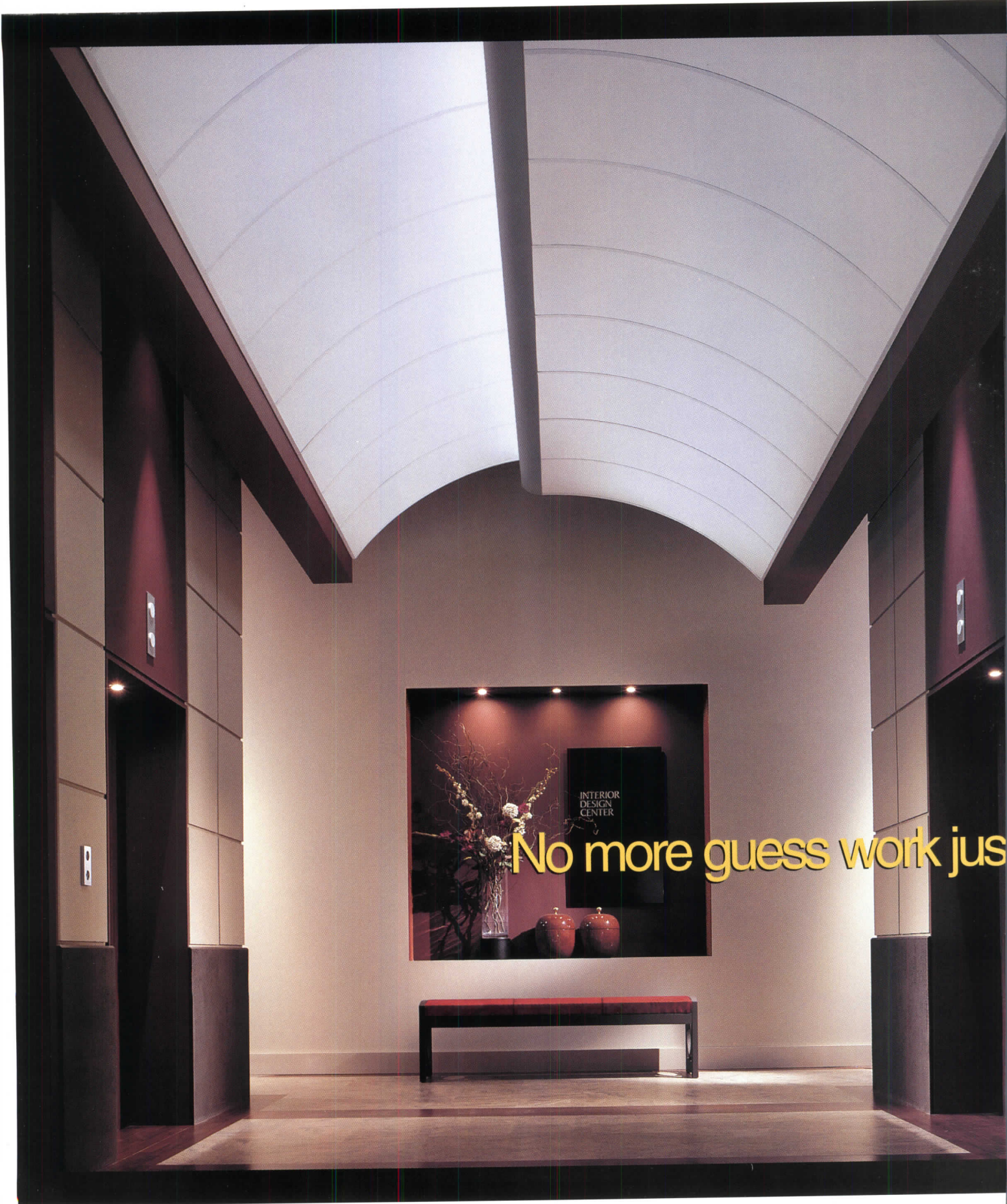
# ARCHITECTURAL RECORD

## Design Power for Commerce

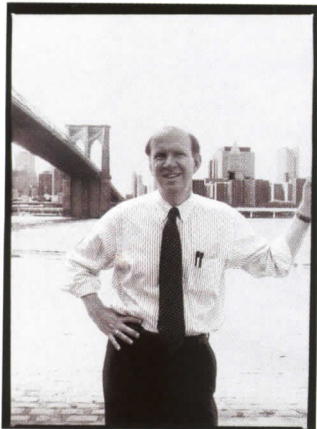
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## EDITORIAL

## Lost in Space

BY ROBERT A. IVY, FAIA

**G**raduation from architecture school can feel like launching into space from the mother ship. Suddenly jettisoned from the warmth of a familiar support system, you feel keenly alone, free floating toward a profession and a new life while the next landmark lies three years away, beyond the visible horizon. You bear the new name “intern” uneasily; moreover, the guideposts shift along the way. The intern’s and the young architect’s plight is reminiscent of Mel Brooks’ 1977 classic *High Anxiety*.

It’s no joke. New graduates face a bewildering array of choices armed with too little information and support. Like the spacemaker, their connections to the profession are tenuous, leading them to feel alienated and disaffected from architecture itself—an unacceptable situation, all the more ironic in a prosperous economy. When the profession requires the talents of every available architect, we need to ask, “What is going wrong?”

Schools of architecture should take some of the heat. Recently, our own straw poll reiterated a disjunction between academia and the workplace [“Back to School,” page 112, September 1999]. We found that 53 percent of respondents agreed that schools failed to prepare them well for real work. While most architects cherish the critical freedom that lies at the heart of architectural education, somehow students do not grasp the distinctions between design studio and the workplace until very late in their training. AIAS President Melissa Mileff explains, “You’re not trained to be an intern.”

The gap widens. Increasingly, graduates find jobs outside traditional practice as model makers, cyber-designers, or builders. Who explains the options to these vocational pioneers? Very few schools offer extensive work/study programs, like the University of Cincinnati does, or active job placement, as the University of Nebraska does. Realistic expectations about what they face would mitigate the graduate’s disillusionment.

Practicing architects don’t get off the hook. Too many practitioners are out of sync with the culture at architecture schools and, therefore, with

the labor force. Desperate for workers, principals gobble up young computer jockeys before they’ve framed their diplomas: The kids may lack information or experience in how buildings go together, but they can draw like demons.

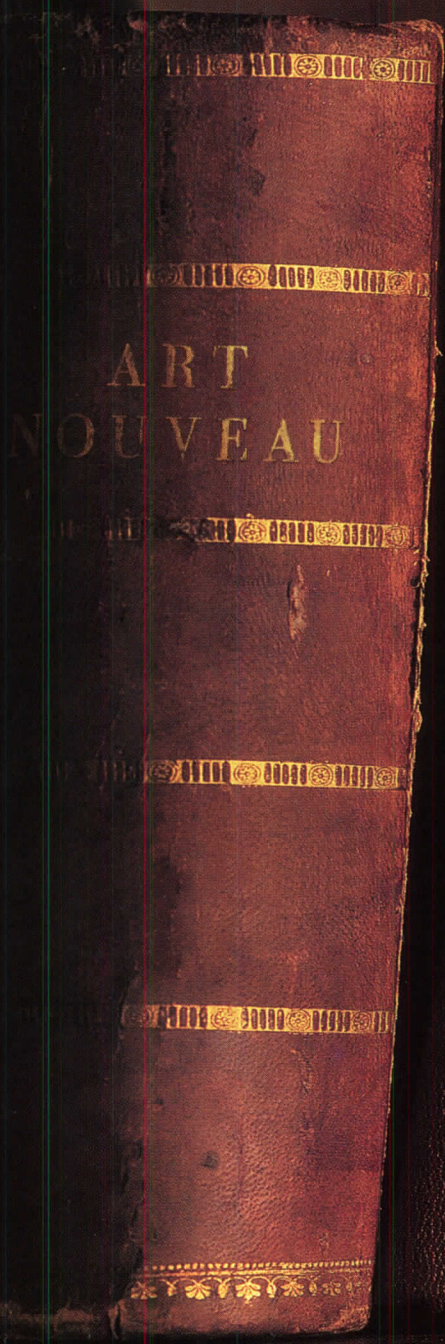
The Intern Development Program (IDP), which promised so much, seems to be floundering. Despite the idealism with which it was founded and the many volunteer hours devoted to the program, author Lee Mitgang reported in our July issue that architects in training sometimes cheat when filling out training reports, sometimes with the “complicity of their employers.” This shocking and cynical state of affairs demands careful investigation and correction, but it offers strong commentary on interns’ attitudes. Some obviously consider IDP criteria a hindrance rather than a help.

NCARB has already called for a task force to deal with the issues raised at the April 1999 Internship Summit held in Louisville. The summit, which engaged leaders and new graduates from the American and Canadian architectural communities, should be a foretaste of broader dialogue, as we all work to unravel the knots in the system.

It may sound hopeless, but the situation for interns and young architects contains good news, including a backlog of ample work. Enlightened firms like Gresham Smith and Partners of Nashville are looking beyond the quick fix and are investing in internal training, with firm principals leading sessions on leadership and other topics for new recruits. The volume of national debate on the internship dilemma is increasing as well.

While the heat is up among individuals, firms, and institutions, we are far from resolution. The stakes are too high for carping or backbiting among the stakeholders where the future of architecture is concerned. Interns and young architects are free-falling, when they deserve a lifeline.

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## LETTERS

**Unpolitically correct?**

It seems that Robert Benson [Critique, September, page 49] feels the architecture profession is “calously” failing in its obligation to promote his socialist political agenda.

Fortunately, he has a three-part solution for this problem: “change the way we teach design,” “demand critics ask penetrating questions,” and “seat incisive boards . . . and commissions.” In short, indoctrination, vilification, and regulation.

This condescending imposition of radical political philosophy on an entire profession is an affront to all independent thinking people, and I reject it out of hand. Further, Dr. Benson’s proposal to gain control of public institutions such as education, the press, and government in advance of his private political agenda is in direct opposition to all architects’ right to develop and articulate their design philosophy based upon their own values and client needs.

—Kurt A. Flechtner, AIA  
Hanbury Evans Newill Vlattas & Co.  
Norfolk, Va.

**Inside-out, and round and round**

A comment on the interior-architecture related issues raised in your September issue. Based on my experience as a student, there is very little emphasis on interior images and how, if at all, they can inform a building’s outward character. My studio conversations primarily address functional and pragmatic issues, such as spatial relationships and inside/outside dialogue. We rarely discuss the material quality of interiors in our designs, and I wonder if this is really the best way to conceive a building, especially at the conceptual level. After all, the arrival sequence is only one portion of experiencing a building and the overall impact it has on its users.

That said, it also a fact that the early stages of developing design skills at school are challenging

enough. The gentle prodding to respect basic mechanical necessities and structural logic can at times be all a student can handle.

—Michael Hyatt  
Collingswood, N.J.

**The only game in town**

It was with great regret but no surprise that I read in your July issue about interns falsifying IDP records so they could get a shot at the exam before they retire [News, page 55].

Not that I think interns as a group are dishonest or that I condone what they are doing. I don’t. But, if the game is rigged and it is the only game in town, it should not come as a surprise if the players cheat.

IDP is a good idea and was started with good intentions. However, a funny thing happened on the way to the exam. NCARB got its grubby hands on a good thing and promptly made a mess of it. They took what was supposed to help interns toward registration and turned it into a minefield and a roadblock. Thanks to their bureaucratic ineptitude they have erected an obstacle course of requirements that is unrealistic, unnecessarily detailed, and practically impossible.

When is the profession going to wake up and admit NCARB is a big monkey on architects’ backs—with its hand in their pockets?

—George S. Stuart  
Atlanta

**Sounding off**

Is there someone out there who can define for me exactly what is meant by the term “limitless growth”?

For instance: The islands of Hawaii are still being developed (houses and office buildings, etc.), but they have long since passed the point where they could feed the people if shipping were to stop. Consider our planet and its continents to be like those islands: Where will our food come from then? (Not to mention the problem of water!) Is this where we’re heading with limitless growth?

On public transportation: Until architects and urban transportation

planners get out of their cars and use public transportation for at least one year, they will not have a clue as to what the problems really are. Building new systems will not get rid of the filth, as I have personally seen in San Francisco’s BART system. I have been using public transportation for many years and that is only one of the problems.

Thank you for letting me sound off on these issues. I hope that I’m not the only one who cares about them.

—Yvonne Vail, AIA  
Santa Cruz, Calif.

**Keeping the faith**

This is to congratulate you and to tell you how much your editorial, “Time for a Change,” [June, page 15] meant to me as an individual and as editor of *Faith and Form* journal.

You write of the breakthroughs in science and philosophy and the emergence and development of new forms. You also wrote of new perceptions of time and space, and of architects and theoreticians who are grappling with them.

I agree that the spiritual dimension denies easy definition, but . . . I received a seminary degree from Chicago Theological Seminary at the time of Robert Maynard Hutchins. Many conservative denominations thought of the university as a hotbed of liberalism because theology was undergoing the same struggle for new forms that you describe architecture to be going through. Not long out of the seminary, my husband and I (a congregation clergyman) were challenged to form a new congregation in a developing community outside of St. Louis. Realizing (sadly) that seminaries gave us little education in art and architecture, we set about to learn as much as we could. The congregation wanted to build a traditional New England colonial church, but together, we worked our way to one of more contemporary design, more befitting the midwestern psyche. It was IFRAA and *Faith and Form* that gave us the courage of our convictions.

Just as most architects do not work on the cusp of change, neither do most congregations think in terms of cosmic theologies of time and space, but they are influenced and are more aware of the complexity of an intelligent faith. A theological skeptic myself, I am more secure in my own faith on a changing intuitive and aesthetic level than on a permanent rational level.

—Betty H. Meyer  
Editor, *Faith & Form*  
Auburndale, Mass.

**Faith no more**

Robert Ivy’s June editorial [page 15] searches to find a connection between architecture and modern physics. Such a premise is breathtaking, but it ignores both history and social reality.

Despite the efforts of Gehry, Eisenman, Koolhaas, and Hadid, the realization of architecture’s time dimension—not just the search—is hardly new. Richly contrasting spatial effects, only experienced in time, distinguished Roman buildings. The same can be said of the Renaissance and certainly the baroque. Sixteenth-century Fatehpur Sikri and the stepwells of India are gorgeous and provocative examples of architecture that is focused, not on itself, but on mankind. Elegantly, time distinguishes architecture from both painting and sculpture.

Furthermore, Ivy ignores the social role of architecture and makes a distinction between the “form givers” and “most architects.” Corbu, Mies, and Kahn developed ideas you could take to the local school board, with effect. Can the same be said of our current “stars”?

It’s time to forego metaphysics and restore an ethical attitude and craftsmanship to building. Let us launch the new millennium with a clear mind about the beauties and excitement of building, but also its challenges—remember, Palladio was forced to build cheaply and,

probably, on a budget.  
—James A. Gresham, FAIA  
Tucson

**Not crying out for Guadalajara**

While I can't match your breathless praise, I too had my breath taken away by your June issue's "Bold New Town" for Guadalajara [JVC Center, page 120]. How could this be called a town? While the buildings themselves may be skillfully wrought, the (sub)urban design is but a cartoon of a town: 10 pods and 2 collector roads. We've all seen this "town" before. It's called sprawl—the ruthless separation of life's components into single-use zones.

Indeed, it was surprising to see that the "dream team" of architects had been convinced to sit together for a group photo. Their buildings seem hell-bent against intermingling—as if the slightest integration might damage their artistic integrity. Sprawl has many causes, but it seems that we can add one more: the cult of the star architect. To properly display each individual's prowess, the city has been reduced to a mere chessboard, on which each player gets his own

square. In this case, it is clear who the real pawns are. Happily, whatever the fate of Nueva Guadalajara's citizens, the authors of this noble experiment are now safely back home, enjoying their lives in traditionally organized cities.

—Jeff B. Speck  
Miami, Fla.

**Aging with grace**

A note regarding your July Future column by Rita Catinella [page 194]. Please do everyone a tremendous service and mention an option that would enable a great many individuals to age in place: blocking. Survey after survey, study after study indicates that the most beneficial item that most elderly individuals request is a grab bar. Most homes in this country, old and new, are not built to support grab bars unless the owner is willing to tear out a wall.

If blocking of the wet areas were standard operating procedure, the potential to age in place and

age at home would be extended dramatically. Blocking would allow anyone to add grab bars at any time, should they want them or have to have them.

Not a new thought but one that I believe needs repeating all too often.

—Mark Treitel  
via the Internet

*Rita Catinella responds: Thank you for your comments. Although not high tech, grab bars can be a simple, affordable solution to help the aging stay at home more safely.*

**Clarification**

NBBJ would like to clarify its design intentions for its recent project for Vulcan Northwest [News, August, page 57], also known as 505 Union Station. Vulcan Northwest encouraged NBBJ to design a building that reflected the cutting edge character of its business, but which was also reflective of the two historic districts

which surround the site. NBBJ feels that 505 Union Station respects the site and its neighboring buildings, while its design gives a new identity to the area.

**Corrections**

The San Francisco and Venice, Calif., offices of Ellerbe Becket Architects worked on the pedestrian bridge in Costa Mesa, Calif., not the Seattle office [August, page 62]. In our July News item on the Nikken headquarters designed by Gensler [page 66], we neglected to include a credit for the rendering by Douglas E. Jamieson. Also in our July issue [Doernbecher Children's Hospital, page 128] Anshen + Allen's senior principal Derek Parker's name was misspelled. We regret the errors. ■

*Letters may be E-mailed by visiting our Web site at [www.archrecord.com](http://www.archrecord.com) and clicking on News/Features/Dialogue. RECORD may edit letters for grammar, style, and length.*



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# SPEAK OUT Strong building designs are often diluted by a lack of sensitivity to setting. Landscape architecture must be given its due.

BY WILLIAM CALLAWAY

*William Callaway is president of the SWA Group, an international land planning and landscape architecture firm based in Sausalito, Calif.*

America's cities abound with brilliant buildings, but these structures are often marred by the creation of unsuccessful places—for instance, the many lifeless, even forbidding office building plazas blighting downtowns across the country. Why does this happen? When many architects, developers, and corporations design and construct a new project, they often think about the building as a stand-alone artistic and functional entity, ignoring its role in the surrounding urban or suburban fabric. Landscape architecture is not given its due.

Historically, placemaking was a key objective that created French chateaux set in the midst of lavish gardens, towering European and Latin American cathedrals fronting landscaped plazas, and stately U.S. courthouses filling one side of a town square. At the turn of the century, placemaking was a fundamental principle of the City Beautiful movement. Even after World War II, partnerships between architects and landscape architects—including teams such as Belushi-Sasaki, Pei-Kiley, and Moore-Halprin—created well known and enduring places such as the Weyerhaeuser Headquarters in Tacoma by SOM and SWA and Boston's Christian Science Center by Pei and Sasaki.

Unfortunately, the creation of places by teams of architects and landscape architects has been the exception and not the rule in recent decades. This stems from several ingrained problems. In planning a project, for example,

developers and corporations constructing their own facilities often consider placemaking an unimportant element—even a costly and unnecessary frill—compared to the design of the actual building.

### The significance of setting

The truth is that place not only creates welcome beauty and open-space amenities, but it also can generate tremendous marketability and long-term value. Look at Manhattan's Rockefeller Center. Its innovative master plan and landscape design created a distinctive marketplace identity that has attracted high-profile tenants and solidified the property's value over the last 60 years.

But many architects cling to the stereotype of landscape architects as planters of trees and flower beds. They do not recognize that the work of today's landscape architects encompasses the land and buildings, hard and soft infrastructure, surrounding uses, and particularly how these components can work together to best benefit the client, the community, and the site. Landscape architects bring placemaking skills to the larger design team.

We need to broaden the design focus from buildings to places. At the university level, architecture and landscape architecture departments must establish joint studio programs that present students with problems which require multifaceted solutions. An ideal joint studio would cover architecture, landscape architecture, economic and development issues, social concerns, and environmental issues.

Practicing architects must give site and building orientation a high priority. This is a key element of the "green building" movement; following these principles, architects and their larger design teams start with site planning and site design issues, sun orientation, building placement, and other big-picture place issues before they plan exterior and interior elements. They look at the entire project—site, building, and surroundings—as pieces of a greater whole.

The benefits of placemaking are all around us: from Pete Walker's work with Helmut Jahn on the Hotel Kempinski at Stuttgart Airport in Germany, to Kiley's work with Richard Meier on the Getty Center in Los Angeles. The American public—and many architectural clients—no longer want or accept development as usual. They want a built environment of beautiful, inviting places where they feel part of the larger community.

We can create those places. We must design those places. But we must adjust our attitudes toward landscape architecture and the concept of place before we can achieve these gains. ■

**Contributions:** *If you would like to express your opinion in this column, please send submissions by mail (with a disk) to Speak Out, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting [www.archrecord.com](http://www.archrecord.com) and clicking on News/Features/Dialogue. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive text approval.*





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CIRCLE 14 ON INQUIRY CARD

# MENTORS Marketing is easier than you think.

## A few simple techniques will help you connect with clients and snag commissions.

*Kenneth Caldwell is a communications consultant for architects and interior designers. He can be reached at [KRCaldwell@aol.com](mailto:KRCaldwell@aol.com).*

Too many architects see marketing as a foreign concept, or worse, a dirty word. Many still resort to cold-calling potential clients and think of it as a marketing ploy. But the fact is that most architects win commissions not by making cold calls, but by communicating a consistent and appropriate message to their target audience. The key is to manage a process that is already happening. A busy economy is the right time to work on publicity, direct mail, Web sites, and photography. These are all pieces of a marketing strategy that architects can devise and implement.

### Creating the image

Every employee who comes into contact with a client, consultant, leasing agent, facility manager, or vendor communicates a message about his or her firm. In effect, every employee is marketing. Clients base decisions on brochures, phone calls, interviews, and previous commissions; if these elements add up to a consistent message, it is more likely that a "connect" will occur and a commission will result. It is essential that an architecture firm's employees all be on the same page, because if the evidence is contradictory (e.g., a handsome brochure followed by a disorganized interview), the client experiences a "disconnect" and looks elsewhere.

Most architects begin their practices with a vision. Translate that vision into a message that sets you apart. First, list your major competitors and your impression of those firms. What is each firm's message? Recent monographs can give you some ideas. Then, think of a possible

message that describes your own work and purpose. Check for consistency. A disconnect will occur if you are laboratory architects of the future using Gothic typeface, or a landscape architect without any living plants in your office. A focused message—expressed in proposals, interviews, speeches, photography, Web sites, and even the way the receptionist answers the phone—helps a firm sharpen communication efforts. After honing your message, periodically trace the source of major leads and commissions to reveal patterns and chart a course of communication.

Almost every building type has a correlating professional group interested in your expertise. Communicating your firm's message to these groups can result in leads. It doesn't hurt to attend functions of allied professionals, as well. Non-professional networks, such as volunteer groups and even kids' soccer games, offer opportunities to establish contacts. Once people meet you, they want to know what you do.

The traditional lunch also remains a valid means of marketing. Each year, determine the key contacts with whom a social lunch would permit you to exchange valuable information and build a relationship.

Many architects dream of being featured in a national design magazine. Opportunities also exist in local and regional publications. Publicity like this is extremely useful if it reaches your target audience and if the reprints support your collateral and direct-mail programs. Direct mail might also include announcements about awards, promotions, and project openings, as well as a

holiday card. A clever design and high-quality images will convey your message and help you stand out.

### Your future is now

A Web presence is the Yellow Pages listing of the future. It is not a brochure. The goal is to get a potential client to call and connect. Find a Web designer who understands how to generate hits and—this is essential—links to your clients' Web sites. Architects are also permitting clients to use their Web sites for furniture research, interactive drawing, and sending documents.

Most of these strategies present architects an opportunity to initiate interviews, during which they will rely on their ability to communicate verbally and use visual media to demonstrate expertise. Excellent photography may be the architect's most important (and expensive, admittedly) marketing tool. Cultivate relationships with photographers who understand your work, and attend the shoots to be sure your message is captured.

A healthy economy is the time to market yourself. With a focused message and the right venues, you can develop relationships for the future—when your practice may not be so busy. ■

**Questions:** *If you have comments about your career, professional ethics, the law, or any other facet of architecture, design and construction, send submissions: by mail to Mentors, Architectural Record, Two Penn Plaza, Ninth Floor, New York, NY 10121; fax 212/904-4256; or by E-mail to [rivy@mcgraw-hill.com](mailto:rivy@mcgraw-hill.com). Submissions may be edited for space and clarity.*



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CIRCLE 15 ON INQUIRY CARD

# PULSE RECORD readers were asked:

## Interior architecture: is it architecture's neglected stepchild?

**Yes.** Firms, even large corporate firms, have only one or two employees that deal with interiors. These over-worked designers have projects simply thrown at them when the architect has completed the core design. Much too often the interior department is not even notified until the project is completely designed elsewhere. There is no connection made between the departments, which results in poor, unsuccessful architecture.

Designers must realize that the normal occupant of a structure doesn't stand outside and look at the building from afar. One really becomes aware of how successful the place is by living and working in that environment.

—Deborah E. Boal  
Einhorn Yaffee Prescott  
Washington, D.C.

**Yes.** "Interior architecture" is a term made up after the neglect of the interior became a significant situation. Architecture should encompass the entire scope of all forces that participate in the design process, including the interior architecture.

—Johannes Woestenborg  
Seattle

### More answers to: Should architects be more political?

**Yes.** Given the complexities and obstacles often encountered in physically realizing designs, I'd say that it is a definite must.

The very nature of the work calls for it. The architect is not just artist but civil servant and needs to have the political persuasiveness to

incite the real policy makers to adopt solutions—for the good of the community—that may not be obvious to ordinary laypersons.

—Scruces  
via E-mail

**Yes.** A resounding YES! As a whole, architects continue to quietly design and construct buildings based on rules set by people who are not designers. Who sets these rules? Local politicians and community leaders who are not design professionals. The time has come for architects to throw their hat into the political ring and speak out. Architects can help put into perspective issues that become muddied by opposing special interest groups. This is what we were trained for!

—Jeremy Fletcher  
Shady Side, Md.

**Yes.** The entire thing is tied together. If the government is putting together policy that supports business and construction, we all gain.

—Anthony Adesso  
New York City

**Yes.** Ideally, it would be nice to have activist architects. However, I believe that most architects refrain from expressing political opinions in public for the sake of not offending past, present, or future clients.

—Mig Halpine  
Cesar Pelli & Associates  
New Haven

**Yes.** Definitely. Influencing politicians is critical if progress is to be made toward improving the legal environment for practicing architect-

ture. More important, architects need to strip away the mentality that political office is beneath their dignity or station. In political office, one can truly affect the making of laws, establishment of policies, and emphasis on a profession. Key staff positions for facility management and development held by architects in government should be an objective as well. Lack of involvement and apathy should be a crime.

—Michael A. Fitts, FAIA  
State Architect  
Nashville

**Yes.** We owe it to ourselves and our art to become better politicians. As a group, we pitifully take for granted that we aren't players and contribute only marginally while other professions aggressively shape this world. I wonder how architects show up to work if they are not convinced of their value, the way surgeons are.

If we fail to persuade a collective consciousness that we as a profession make all the difference and that the built world's health depends on us, then our clients will become less and less willing to respect our expertise.

We know how to be political—as a group, we're clever and have good intuition. What good are our talents and principles if we have no voice?

—Laura Marks  
Room 4  
El Paso, Tex.

**No.** Long after political theories have come and gone buildings still stand. Why? Politics are based on achieving short-term results for the greater good of an individual, while architects think of sustainability, not self-glorification or short-term stop-gaps.

—David J. Noble  
Dublin Institute of Technology  
Dublin, Ireland

### This Month's Question

#### Have architectural fees kept pace with the increasing costs of personnel and technology?

During the 1950s and early 1960s, when most architects charged according to fee schedules, they made 6 percent from an average job. At the same time, costs for personnel and overhead rose faster than the cost of construction, and architects lost money on one job out of four. In the most recent construction boom, have your fees kept pace with the costs of personnel and computer equipment required to produce the work? Turn to page 110, "The Fee Dilemma Part I," for the history of fees. Then give us your opinion.

**Fax your response to ARCHITECTURAL RECORD, 212/904-4256, or visit [www.archrecord.com](http://www.archrecord.com) and click on News/Features/Dialogue to voice your opinion by E-mail.**

**Note:** Pulse reflects individual responses to each month's question and is not meant to be construed as formal research.

# CRITIQUE Despite the desire for hype and attention, a museum addition should complement the art collection, not overwhelm it.

BY J. CARTER BROWN

Museum additions are all over the news. Last year, the Museum of Modern Art in New York City chose Yoshi Tanaguchi as its next architect after much suspense; Rafael Moneo's new building for the Houston Museum of Fine Arts nears completion; the Getty is giving birth to an addition by Rodolfo Machado, ASSOC. AIA, and Jorge Silvetti, ASSOC. AIA, in Malibu; the Corcoran in Washington, D.C., has selected Frank Gehry, FAIA, for its addition; Renzo Piano will design a large addition to the Art Institute of Chicago; Lord Norman Foster, HON. FAIA, was chosen to extend the Boston Museum of Fine Arts; and the Nelson-Atkins Museum in Kansas City, after a very intense selection process for its expansion, has announced the winner of its sketch-book competition: Steven Holl, AIA.

## Exhibition space as icon

Adding to an art museum presents all the usual problems of expanding a preexisting building, as well as some very specific ones resulting from the roles that museums must play. As Paul Spencer Byard, FAIA, posits in his brilliant book *The Architecture of Additions*, a building is both what it says and what it does. Art museums, as civic icons and vessels of enduring values, become loved for what they say, making any change from the familiar—always a public risk—par-

*J. Carter Brown, HON. AIA, was director of the National Gallery of Art from 1969–92. He has been chairman of the U.S. Commission of Fine Arts since 1971 and of the Pritzker Architecture Prize Jury since its inception in 1978.*

ticularly sensitive. Because museums are public institutions, their roles in the urban fabric is especially visible. Unlike exhibits that a visitor can choose to see or ignore, a museum's exterior becomes an unavoidable

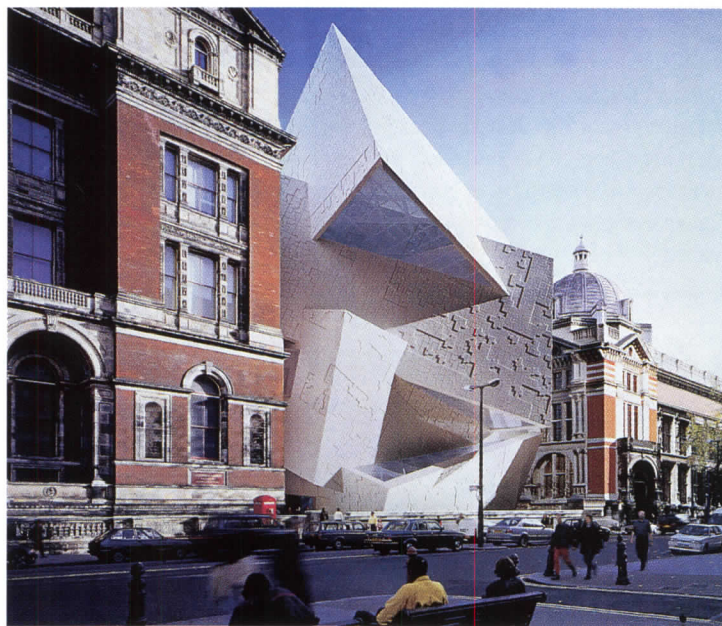
the self-contained original building of 1933 visually untouched and in charge by exploiting the uniqueness of the museum's bermed sculpture garden to the south. I. M. Pei, FAIA, has always insisted that his addition

that we may end up learning from Las Vegas too well. Architecture at its best should be more than outdoor advertising. The current trend is partly a matter of zeitgeist, which will change with the pendulum's next swing. But to an age dominated by television violence and extravagant 30-second ads, less is a bore, as witnessed by the "Sensation" exhibition, mounted at the Royal Academy of Art in 1997 and now at the Brooklyn Museum of Art until January 2000.

Luckily, it is not the style or the manifesto that counts; it is the talent of the practitioner. The art school that Gehry appended to the serenely classical Toledo Museum of Art, for example, is so beautiful that the question of style becomes secondary. His Guggenheim in Bilbao, perhaps already the most famous piece of modern architecture in the world, is so powerful as a civic statement and city rescuer that there is danger that lesser talents, using the same computer technology, will create Gehry-wannabe buildings that disrupt our cities.

## The nature of the beast

Beyond what it says, the power of a museum addition lies, as in all architecture, in what it does. An art museum's internal functions are highly complex. Increasingly, museums are asked to be people places that provide restaurants, publications and museum shops, auditoria, lecture rooms, and (sufficient!) bathrooms. In addition, there is this pesky art-presentation function, which is so often scanted in favor of everything else the building is asked to do.



**Daniel Libeskind's proposed addition to London's Victoria and Albert Museum is slated for completion in 2004.**

presence. Moreover, as institutions, museums stand for design excellence and heightened visual awareness, so it is incumbent on additions to embody the same messages.

In my view, the best additions complement the original buildings without overwhelming them. (It is too early to tell whether Daniel Libeskind's proposed infill structure for the Victoria and Albert in London would contradict this view.) At the Nelson-Atkins, Holl came up with an ingenious solution, different from the other five proposals, that left

to the National Gallery in Washington be called the East Building, not the East Wing, and that it not be seen as upsetting the symmetry and wall planes of John Russell Pope's structure. He must have been doing something right—a 1986 poll of the AIA membership named the East Building as one of the 10 best American buildings.

## Overdoing the institution

Recently, the perceived need to call attention to a museum through its architecture has become so intense

First comes the unglamorous responsibility of ensuring that fragile, geriatric objects are passed intact to future generations, which means providing security, temperature and humidity control, and protection from the damaging effects of light. This last is a shame for the experience both of the architecture and the art,

**The theater is not the show**  
Bernard Berenson once remarked that some of the best pictures speak with a still, small voice. The client has to understand that some architects may not be predisposed to see it that way. As Robert A. M. Stern said in Ken Burns' documentary on Frank Lloyd Wright, "After the

## EXTENDED VIEWS FROM THE EXHIBITION ROOMS ATTACK PERIPHERAL VISION AND DRAIN ENERGY AWAY FROM THE ART.

because many spaces—and most objects—look better with more light, preferably from our favorite source, the sun. Beyond keeping enough light off the objects (which vary in fragility by medium and age), there is the question of how to optimize the visitor's experience of the works of art. The building should be beautiful on the outside and exciting to enter. Once the visitor is in the spaces devoted primarily to objects of art, the architect must yield to the visual statements of different artists.

Guggenheim, who cares about all the art in the museum if the building itself isn't thrilling?" If one is given a theater to design, it is important to manage the progression of spaces, the lobby, the "house" in which the audience sits awaiting the performance. But from then on, the house lights dim, and the viewer should forget the architecture. One would not expect the architect to have provided a single set to accommodate every possible production that might appear on that stage.

Art looks best in rooms. Victoria Newhouse, in her articulate and thorough *Toward a New Museum*, tends to favor gymnastically titillating spaces for showing art—an approach that may set back successful design rather than fulfill the museum's primary responsibility. Mies did a lot of damage with his vision of a Museum for a Small City. The ceiling plane is uninterrupted by interior walls, and there are only freestanding partitions for hanging the art that helps decorate the Miesian glass box.

Scale is crucial. In galleries devoted to the display of art, objects look best if the spaces do not provide more volume than the object can dominate. Art has little impact when displayed on shelflike mezzanines, where walls are missing, and visitors' attention is constantly drawn to the architecture and activity beyond. Our peripheral vision is more sensitive to movement and light than our central vision. It is important psychologically to have some sense of the exterior context,

but in general, extended views out of exhibition rooms attack the visitor's peripheral vision and drain energy away from the art. If light enters from above, it is vital that the upper part of the wall not be brighter than the part where the object is exhibited. Similarly, with luminous ceilings, often the middle of the floor is most intensely lit. Also, exhibits usually change. Flexibility is the most demanding requirement an architect must meet. The problem is that most architects would prefer to leave their stamp on a space for all time.

All these criteria contribute to making the design of a museum addition one of the most difficult challenges an architect can face. Both for what it is and what it does, the task demands a two-fold collaboration: first, with the existing building, to achieve a *gesamtkunstwerk*, where the whole somehow is greater than its parts, and second, with each visual artist whose creation is displayed. ■

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# DIGITAL ARCHITECT Two architects demonstrate how object-oriented CAD, the technology du jour, will change the way design work is done.

BY B. J. NOVITSKI

As computer software develops, its ability to support the way architects work and think constantly improves. While early CAD systems simply drew a line between two numerically defined points, the latest versions work with objects that embody specific architectural information. The term *object*, in this context, actually comes from computer-science jargon.

In an object-based system, a wall, for example, is more than two parallel lines on the computer screen. Instead, the graphic correlates with a database of characteristics, such as height, thickness, materials, finish, sound-transmission class, and fire rating.

Autodesk's new Architectural Desktop Release 2 incorporates within the software the long-awaited Industry Foundation Classes (IFCs), standardized computer definitions of objects and their behaviors. IFCs were developed by the International Alliance for Interoperability (IAI), an organization dedicated to developing software standards to facilitate compatibility between programs.

James J. Balding, AIA, and Larry Rocha, ASSOC. AIA, the chief information officer of the Newport Beach, Calif., office of Wimberly Allison Tong & Goo (WAT&G), are experimenting with Architectural Desktop to determine whether to use the program throughout the firm. WAT&G specializes in hotels, resorts, and theme parks and has been innovative in adopting information technologies. The firm has a long-standing relationship with, and an investment in Autodesk

products, training, and customization. Here's what the architects have found:

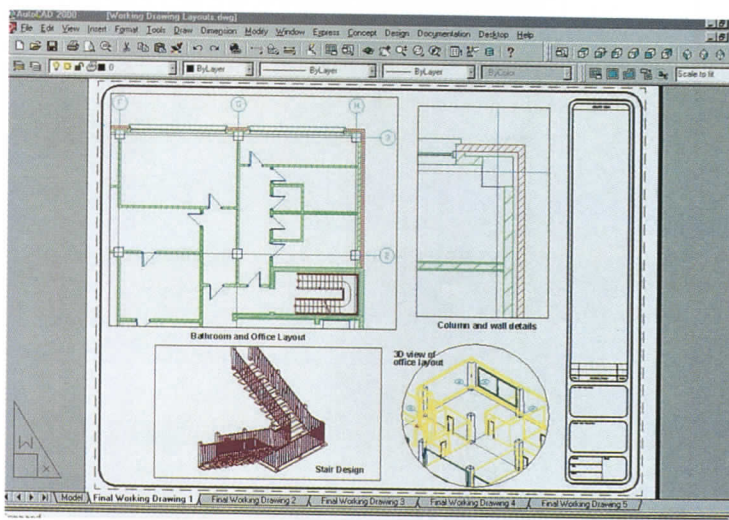
## The wonders of objects

"The first breakthrough you have when working with object-oriented software," Balding says, "is when you suddenly realize that you're no longer just drafting but building a model. This is exciting: a revolutionary mindset."

Rocha adds: "While there is a lot of focus on the 3-D graphical representation of objects, the biggest advantage of objects is in the nongraphic data that is attached to them."

Rocha is referring to the architect's ability, with Architectural Desktop, to input and modify an object's attributes with specialized on-screen dialogue boxes. A door, for example, is characterized by its material makeup and its association with a wall. If the architect places the door in the middle of a room, the program automatically snaps it to the nearest wall. If the wall is moved or deleted, the door will move or disappear with it. If the door's specifications place it six inches from a corner, it retains that offset even if the adjoining wall is moved.

"Eventually manufacturers will provide objects with complete specifications, including costs, attached to them," Rocha says. "We'll be able to extract this information with a simple search." He believes this development will not only automate material takeoffs and door and window schedules, but also will ensure their consis-



**In Autodesk's Architectural Desktop Release 2, designers can lay out rectilinear and angular grids and use them for placing columns, walls,**

**and other building components. When a grid is modified, the associated columns automatically change as well.**

tency because they come from the same database as the drawings.

Intelligent objects are wonderful in theory, but they can also be difficult to create because of their complex behavior. "A wall is not really a single object but a system of objects," Rocha says. "At WAT&G, we're studying the idea that there may be several levels of intelligent entities. These include basic components such as screws or nails; objects that are combinations of components, such as a knob or a hinge; assemblies that exhibit complex behaviors and attributes, such as a wall or roof; and building systems, such as a structural or mechanical system." Viewed from this perspective, the complexity of defining objects and their behaviors is even more apparent.

## New on the menu

In addition to the normal AutoCAD pull-down menus, Architectural Desktop has three new menus: Concept, Design, and Documentation, which contain tools for each phase of design. For example, the Concept menu lists functions that support the creation of massing models. By saving different massing combinations, the designer can compare and contrast a variety of schemes. "We find ourselves using this to communicate ideas to each other and to clients and consultants," says Balding. "These models clarify the three-dimensional space, proportions, design intent, and project scope."

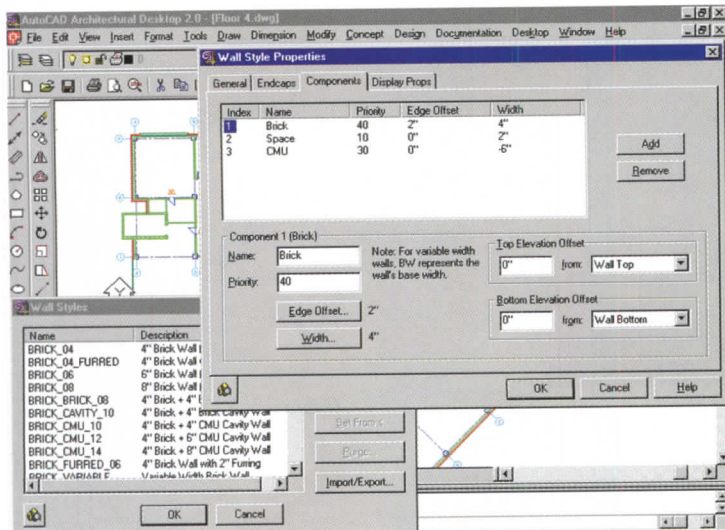
WAT&G architects have been particularly impressed with the conceptual space-planning tools, also on the Concept menu. A

designer can develop preliminary schemes conforming to specific area requirements without interrupting the design process to recalculate areas. With the digital equivalent of bubble-diagram manipulation, the architect can specify a space's floor area with one plan dimension; the computer will calculate the other dimension and provide a rectangle of the

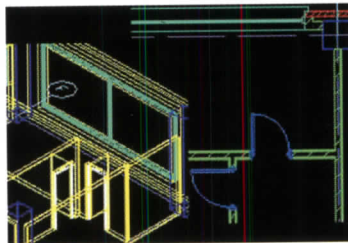
production drawing, but also ensures accuracy.

### Customizing the software

Out of the box, Architectural Desktop includes many generic objects, which most firms will want to customize to conform to their own standards and practices. WAT&G has already begun to build wall types, doors, and fixtures that they will test in designs.



A library of styles can include all of a firm's standard construction types (top). After building such a library, applying the styles to a model is simple. Intelligent objects can be viewed from any angle (right). The software adjusts the display depending on scale and angle.



proper size, which can be moved in relation to other area rectangles.

The Design menu's customized objects provide the tools for producing and placing in the model walls, doors, windows, roofs, stairs, and other design elements. This menu is expected to get the most exercise at WAT&G.

The Documentation menu helps the architect annotate 2-D representations of the model. Some of the symbols are more intelligent than their AutoCAD equivalents. For example, each door tag is associated with a particular door, so when the door height changes, the tag updates automatically without manual editing. This feature not only speeds

Customizing objects does not require special programming, but simple editing of values in the associated dialogue boxes. In the process of specifying a wall object, for instance, the thickness of each layer of material within the wall is defined in terms of its distance from a baseline, such as the face of a stud.

Typically, a firm would establish a set of styles to correspond to the wall types likely for a given project. This painstaking process should be conducted by an experienced architect familiar with the firm's construction standards. After the various styles are established, however, it will be far easier for the rest of the staff to apply the styles without worrying about technical details. An

object from the menu will automatically contain the necessary data. This will not guarantee error-free design, however, because it's always possible that an inexperienced designer will pick an inappropriate wall type.

Productivity suffers when CAD forces designers to become too specific about materials too early in the design process. "To resolve this, all walls are initially specified as five, six, or eight inches thick," Balding says. "Then, when all the walls have been laid out to an acceptable level, the designer can go back and assign them a more specifically defined style, such as a six-inch stud with two layers of gypsum board on each side. The wall in the underlying database is then appropriately updated. The change is instantaneously reflected in each displayed view. The same can be done for doors, windows, and most other objects." Later, when dimensions are applied, they refer to the revised configuration.

Using the Design menu, architects can also project elevations, sections, and perspectives. These alternate views do not contain the level of detail normally associated with design development and construction drawings but can serve as templates on which to add more detail. For example, a wall in a section might initially show only a few vertical lines representing the stud and layers of gypsum board, but symbols for headers and insulation would have to be added with conventional computer-aided-drafting techniques.

Although these 2-D additions are not part of the intelligent 3-D model, they remain visible in the section drawing. An anchor to move such graphic elements with the associated model components when there are design modifications would be an improvement.

In the distant future, every detail of a building will be modeled as an intelligent object. Until then, design and production drawings will necessarily be hybrids of projections from the model with ordinary drafted elements. This means that automated material takeoffs will

operate only on the true objects, and architects will need to manually change the drafted elements when the associated objects are moved or modified.

### Tapping the knowledge base

DesignCenter, the centralized symbol repository in AutoCAD 2000, is structured as a nested hierarchy of folders. This folder structure is an index to firm-specific object libraries. By opening these folders in Architectural Desktop, designers find thumbnail, wire-frame versions of 3-D objects. These miniatures can be rotated in real time and dragged into the working model. Eventually, DesignCenter will provide the means for architects to archive object-based product information transmitted via the Internet.

Manipulating forms and objects within Architectural Desktop is intuitive and easy to learn for those used to AutoCAD; the interfaces for both are similar, Balding says. Familiar point-and-click and drag-and-drop techniques enable designers to do graphic editing. Nongraphic editing requires selecting data windows from a menu and typing in appropriate data fields.

Both Balding and Rocha look forward to the day when a single model embodies all of the information, graphic and nongraphic, about a building. The promise of the IAI has been that such a model would become a receptacle for design input from all disciplines, throughout every phase of a building's life cycle.

There are still major hurdles to overcome before this becomes a reality, however. According to Balding, architects need greater computing speed and power, reliable operating systems, better Internet-based file management, and more of the building defined in terms of IFCs. Architectural Desktop Release 2, he says, is a step in the right direction. ■

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# EXHIBITIONS Realizing that “everything connects,” Charles and Ray Eames pioneered a new kind of design practice that’s still fresh today.

BY THOMAS HINE

“*The Work of Charles and Ray Eames: A Legacy of Invention*” opens at the Cooper-Hewitt National Design Museum in New York City on October 12. (The exhibit’s first U.S. stop was at the Library of Congress in Washington, D.C., last summer.) It will be at the St. Louis Museum of Art from February 19 to May 14 and at the Los Angeles County Museum of Art from June 25 to September 11.

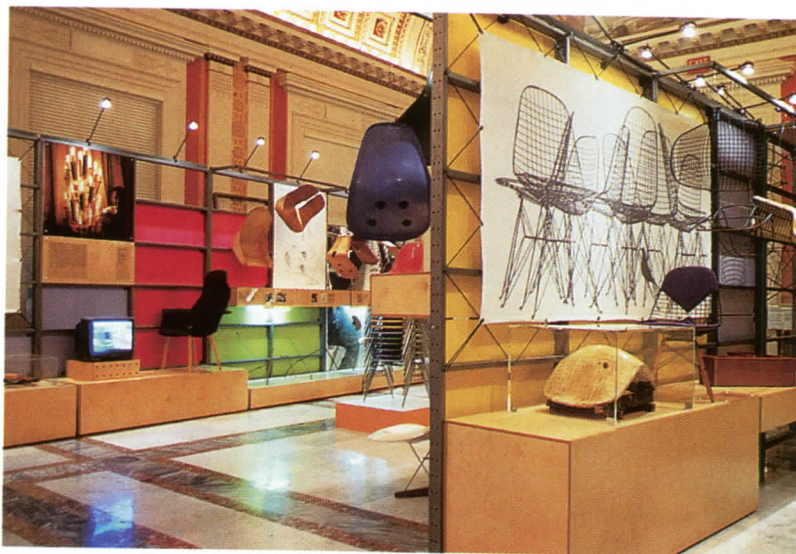
One of Charles and Ray Eames’ first films, *Blacktop* (1952), begins with a close look at suds being pushed across a patch of asphalt by an unseen hose. As the scene continues, the suds coalesce into dynamic blobs, shapes reminiscent of the work of Wassily Kandinsky and Alexander Calder, Joan Miro and Jean Arp. Their constantly morphing patterns invite us to delight in flux, dynamism, and the exhilaration and promise of modern life and of Modernist art and design.

The idea that you can be an action painter while washing the car is extremely seductive. Indeed, you might even be so charmed that you accept the film’s implication that a particular kind of visual abstraction results from physical principles at work—though the notion is questionable. Making art seem natural was an Eames specialty.

### Examining the commonplace

Still, *Blacktop* is quite literally a marvelous thing. Only the Eameses would have tried to prove the inevitability of Modernism by examining something as commonplace as soapsuds. Moreover, because they were educators, but rarely explainers, their little Modernist manifesto contains not a single word.

“Everything Connects” says a quotation from Charles Eames that dominates the installation of “The Work of Charles and Ray Eames: A Legacy of Invention,” an exhibition organized by the Library of Congress



and the Vitra Design Museum in Germany (where it started before traveling to England and Denmark). This declaration doesn’t directly contradict the dictum “Less is more,” which so dominated the world of high design in the middle of the century. The Eameses weren’t confrontational. But by suggesting that everything is worth thinking about, that everything is interesting, they imply that less might not be enough.

Charles and Ray Eames practiced an inductive kind of design, not a deductive or reductive one. After accepting a commission to design an aquarium, they filled their office with tanks of sea creatures. (Charles formed a personal bond with a squid which would swim over, according to some reports, to say hello to him.) The project didn’t produce a building, but it did inspire an exquisite little

When installed at the Library of Congress in Washington, D.C., the Eames exhibition offered a Modernist contrast to the building’s Neoclassical architecture (above and below). Designed by Hodgetts + Fung, the exhibition highlights the Eameses’ great range, from buildings to furniture to films.



Thomas Hine is the author of *The Rise and Fall of the American Teenager*, published in September by Avon/Bard. *Populuxe*, his book on postwar American life and design, was recently reissued.



**The Eames House, then (above) and now (right). Fifty years old, the house carries on its original purposes as a residence for an Eames daughter and the base for the Eames Office, now run by grandson Eames Demetrios. Much of the seemingly casual arrangement of furnishings and "artful things" has remained the same over the past five decades.**



film, a few minutes of close observation of a tiny, almost transparent jellyfishlike creature. It leaves you awestruck at the beauty and strangeness of life, even in this most minimal form.

The exhibition, directed by Donald Albrecht and designed by Hodgetts + Fung, and its catalog do not dwell on the Eameses' iconic chairs and other furniture. Instead, they concentrate on how two different but complementary people created both a way of practicing design and a new kind of practice that incorporates the design of furniture, exhibitions, and film.

#### **Ahead of their time**

They were passionate optimists, who seemed never to doubt that almost any problem could be solved joyfully. And although they had a real desire to change the world, they didn't bully anyone or make grand

pronouncements. They convinced others by example and implication. In retrospect, it is apparent that they were experimenting with multimedia before there was a word for it, they were performance artists before the concept existed, and they were multiculturalists not out of guilt but because they hungered for the colors, forms, and ideas of people from all over the world.

Charles and Ray Eames each possessed that ineffable attribute known as "a great eye." In fact, the exhibition's videotaped reminiscences by staff members and Joseph Giovannini's discussion in the catalog of Charles' and Ray's backgrounds suggest that they had two distinct sorts of visual sensibility. Charles, who was trained and practiced as an architect, saw things best through a camera lens. Photography forced him to isolate the details, detach himself from

them, and, usually, to evaluate them objectively. (Some staff members recall, though, that he was sometimes hardheaded.)

Ray Eames' had been part of Hans Hofmann's circle of abstract painters in New York in the 1930s. She added a sensibility shaped by European Modernism to Charles' machine-shop pragmatism, and he depended on her judgment of the overall form and composition of their designs.

Together, they practiced a highly disciplined spontaneity in

from already available building parts. It was the first and, in its down-to-earth, matter-of-fact way, most radical of America's three mid-century glass houses. While Philip Johnson's Glass House and Mies van der Rohe's Farnsworth House functioned as weekend villas for the wealthy, the Eameses' house was intended as a prototype for postwar middle-class living.

They filled it with stuff, "all kinds of small, artful things" scattered, meticulously, everywhere. Photographs show that while some of these seemingly casual arrangements were refined and replaced over time, others budged barely a millimeter in a decade.

#### **An ordered multiplicity**

Thus while one wants to place Charles and Ray Eames in the pantheon of great post-World War II American improvisers, along with Jackson Pollock and Charlie Parker, much of what people love about the work comes from the sense of care lavished on its creation. The Eameses probably had less in common with the pioneers of bebop than with that other master of orderly multiplicity, Johann Sebastian Bach.

At the beginning of their film *Two Baroque Churches in Germany* (1955), the audience is asked to admire in the architecture it is about to see its "precision, delight, calculation, and emotion." This interesting series, in which each word seems to contradict the one before it, places all terms in apposition to the featured churches and the Eameses' work as well.

Calculation is the climactic word. It is a near synonym for precision, of course, but it also suggests that there are varying methods to produce delight or whatever response one wishes to evoke.

The final word, though, is emotion. In the churches shown, calculation produces something transcendent. Perhaps it's because those who built the churches really believed in what they were doing. And so did the Eameses. ■

design. However, that apparent freshness grew from enormous research and preparation and reached a high level of finish through their own hard work and that of their dedicated, multidisciplinary staff. They celebrated inspiration, but practiced obsession.

#### **A radical prototype**

The Eameses' house in Pacific Palisades, Calif., 50 years old this year, is a case in point. Charles had designed a house for the site that was published and praised, and the steel and glass to make it had been ordered. Then, from these same parts (and recent scholarship suggests, a few others), they constructed a very different house and studio, on a different part of the site. This was a powerful statement of the designer's (and homeowner's) freedom, an affirmation that future architecture could be assembled

# CORRESPONDENT'S FILE The Mile-High City, trying to overcome sprawl and stubborn traditionalists, embraces a recent burst of architecture.

BY DAVID HILL

"Imagine a great city." That's what former Denver mayor Federico Peña used to say in the mid- to late-1980s, when the Mile-High City was in the throes of a deep recession. Back then, you needed a good imagination to see beyond all the boarded up businesses scattered around town. The unemployment rate was nearly 10 percent, and office vacancies were at an all-time high. Denver's three tallest skyscrapers were built early in the decade, when times were good; later they stood virtually empty, victims of boom-and-bust economics.

What a difference a decade makes. Denver is now flourishing. If it isn't yet a great city, it's looking better. The city has a number of well-designed structures—some old, some new—and more than 3,000 residents now live downtown. But two obstacles continue to stand in the way of adding truly innovative architecture to the skyline: suburban sprawl and a conservative aesthetic that favors traditionalism over contemporary design.

Sprawl has never been more pervasive and more apparent. Since 1990, Denver's population has grown from 467,610 to just over 500,000. During that same time, however, the surrounding counties have grown from about 1.4 million to about 1.7 million. Huge, bland housing developments cover the prairie in once-rural sections. Traffic congestion has reached epic proportions. Mayor Wellington Webb is keenly aware that Denver's renaissance could be threatened by regional sprawl. For now,

*David Hill, a frequent contributor to RECORD, lives in Denver.*

however, the mayor is basking in the city's revival, and he's counting on taxpayers to help fund some big-ticket projects. In the inaugural address for his third and final term, Webb pledged \$22 million to finance a full-scale renovation of Red Rocks Amphitheater, the city-owned performance venue designed in 1941 by Burnham F. Hoyt. Later, he endorsed November ballot proposals that could raise \$268 million to expand the convention center, \$62 million to renovate the Denver Zoo, and \$63 million for an addition to the Denver Art Museum.

## Traditional tastes

The art museum, built in 1971 and designed by Italian modernist Gio Ponti with James Sudler Associates, has long been one of Denver's most controversial buildings. In his guidebook *Buildings of Colorado*, critic Thomas Noel praised the museum's interior galleries but condemned its "slabby exterior walls" made of gray Corning glass tiles "which give it the look of a fortress protecting its loot from the hordes." Lewis Sharp, the museum's director, wants the addition to be "a signature building designed by an international architect," and he plans to hold an open competition to make sure that happens. But don't expect a Gehry or Foster to win—when it comes to architecture, Denverites play it safe.

Consider what happened recently when Denver architect Ron Mason, FAIA, of Anderson Mason



**A joint venture called Odyssea designed the new Ocean Journey aquarium (above, fronting the downtown skyline); ELS/Elbasani & Logan Architects' Denver Pavilion is expected to revitalize the upper downtown area.**



Dale recruited Swiss modernist Mario Botta to design a "millennium marker" in front of the city's 1912 Beaux Arts Union Station in the Lower Downtown National Historic District, known as LoDo. Botta flew to Denver and presented his decidedly nontraditional plan, which features two large stone slabs tilted toward each other with a pool of water in between.

Intermittent beams of laser lights would connect the stone anchors, forming a sort of arch. City council member Susan Barnes-Gelt praised Botta's concept as "the most exciting project the city has had in decades."

But the critics howled. "The pro-

posed design looks like acoustic ceiling tiles," cried the *Denver Post*. "Garish and clunky," opined the *Denver Rocky Mountain News*. Mason suddenly found himself on the defensive. "The millennium marker is about vision," he wrote in a letter to the *Post*. He now says, "There are some people who are

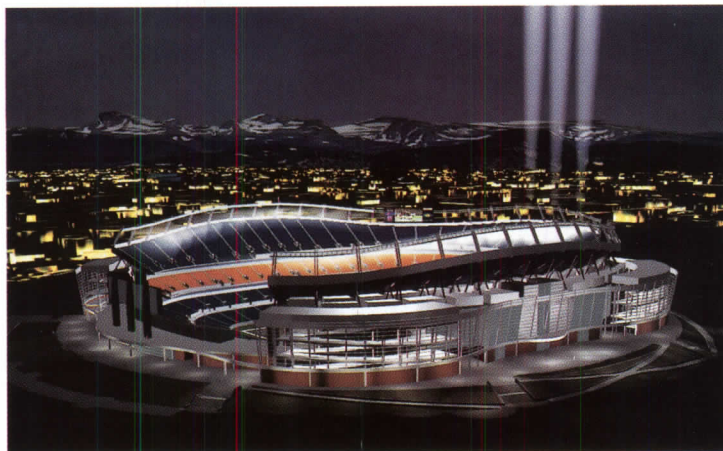
just dead set against it. Whenever you do something that is really challenging, some people are going to get upset. But I want to feel like it's been given a fair chance."

While Mason battles on, others have had little trouble finding work in LoDo. At one end of the neighborhood sits Coors Field, the red-brick, old-style baseball stadium designed by

HOK Sport of Kansas City, Mo. Since it opened in 1995, many of LoDo's 19th-century commercial buildings have been converted into high-priced lofts, and people flock to the area's restaurants, bars, and art galleries. Three new office buildings are under construction in LoDo, including one designed by a team of Hartman-Cox of Washington, D.C.; Quinlivan Pierik & Krause of Syracuse, N.Y.; and David Owen Tryba Architects of Denver. Called 16 Market Square, the eight-story, mixed-use structure employs historical design elements and building materials to fit in.

**Shopping spree**

Even the city's upper downtown area, which used to be practically deserted after dark, is showing signs of life, thanks in part to a new shopping center on two long-vacant blocks facing the 16th Street pedestrian mall. Designed by ELS/Elbasani & Logan Architects of Berkeley, Calif., the 350,000-square-foot Denver Pavilions complex contains a restau-



The new football stadium, by HNTB, will be something of a departure for Denver.

rant, movie theater, and bookstore, among other retailers. Made up of four separate three-story buildings linked by bridges, escalators, and elevators, the Postmodern complex is open to the elements, unusual for cold-but-sunny Denver. The scale is in keeping with most of the surrounding buildings, some of which are more than 100 years old. But the effect is cheapened by a gigantic sign, 147

feet wide by 35 feet tall, that spells out DENVER in thin red letters. It's eye-catching in a Las Vegas sort of way but, because of its location, is impossible to read unless you're directly in front of it.

City officials want the center to spark a revival of the once-thriving commercial strip, which was turned into a pedestrian mall by I.M. Pei & Partners in 1982. And developer W.

Scott Moore still hopes to build his Trango Tower, an 86-story, mixed-use building designed by Los Angeles architect Richard Keating, FAIA. Named after a 20,469-foot-tall granite dagger in Pakistan, the wedge-shaped tower will resemble a knife blade piercing the sky—if it gets built. Some critics have deemed it "simply too radical" and "too tall" for Denver's skyline.

Sandwiched between the downtown area and Interstate 25 is a huge parcel of mostly privately-owned land known as the Central Platte Valley. The city of Denver was founded here in 1858, after gold specks were discovered in the river. Now the site, sliced in two by the South Platte River, is the scene of Denver's hottest urban infill project, the result of a comprehensive plan by Webb to revive the area.

Several years ago, Elitch Gardens Amusement Park relocated to the area. Eventually, the valley will contain an entirely new neighborhood, with 2,000 high-density,

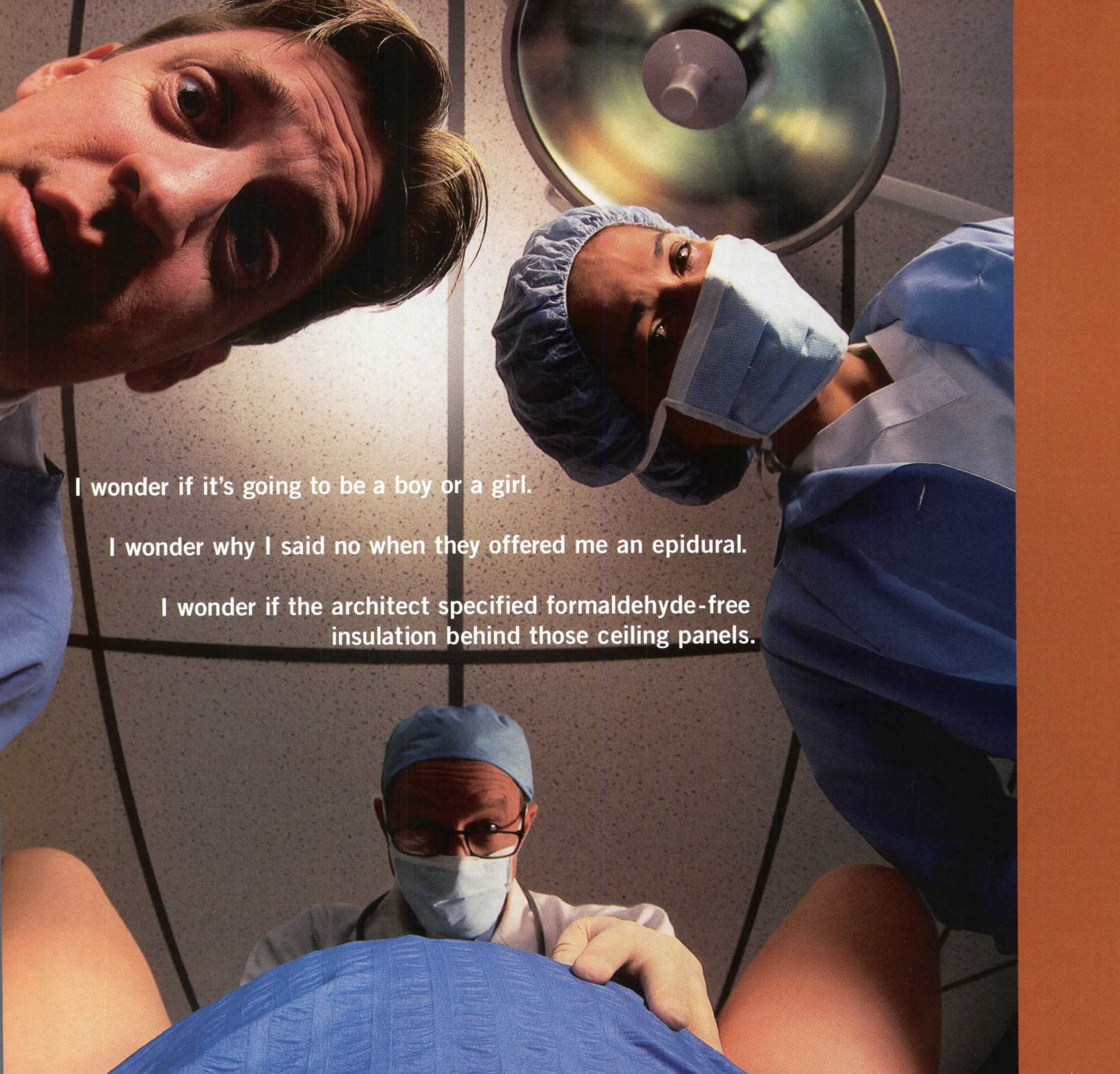
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**JM Johns Manville**

CIRCLE 28 ON INQUIRY CARD

multifamily housing units, offices, shops, and hotels. The area will be connected to the rest of downtown by a 125-foot-long asymmetrical single-masted cable-stayed bridge, designed by ArchitectureDenver, that will carry pedestrians over the railroad tracks. The Central Platte Valley's first residents in nearly a century live in a converted flour mill, a seven-story brick and concrete structure with three silos on one end. A decrepit eyesore since the mid-1970s, the mill was converted into 17 luxury lofts by Denver's grande dame of historic preservation, developer Dana Crawford.

Other pieces are falling into place in the Platte Valley. Colorado's Ocean Journey, an aquarium overlooking the river, opened in June to huge crowds. Designed by Odyssey, a joint venture of two Denver firms, Anderson Mason Dale and RNL Design, the \$93 million facility is a red-brick box wrapped on two sides by a rolling wave of glass, which forms a striking facade and interior

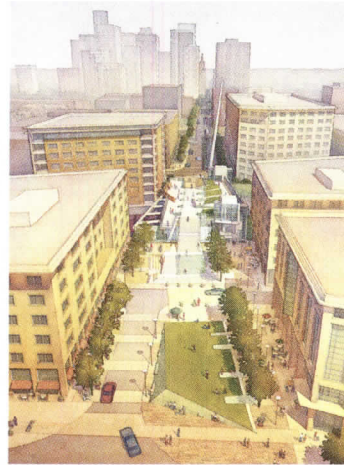
atrium. (RNL has also completed a design for the 74,000-square-foot Cable Center on the University of Denver Campus, which will serve as a telecommunications hub and museum when it opens in 2001.)

Near the aquarium, the mammoth 1901 Denver Tramway Powerhouse Building, a transportation museum since 1969, is being transformed into Recreational Equipment's (REI) flagship store, with Seattle's Mithun Partners doing the design. The interior has been gutted to make way for 80,000 square feet of retail space, while the neoclassical red-brick exterior, with its roundel windows and corbeled arches, will be left mostly intact.

#### **Vision: mile high or myopic**

Nearing completion is the Pepsi Center, future home of the Denver Nuggets and the Colorado Avalanche. The 20,000-seat arena, also by HOK Sport, is an oval-shaped container with angular glass wings that jut off to form entrances.

It will replace obsolete McNichols Arena, which in turn will be torn down to make room for a new football stadium to replace the rusting



#### **ArchitectureDenver's proposal for a downtown pedestrian bridge.**

Mile High Stadium. Designed by HNTB Sports Architecture in conjunction with Fentress Bradburn Architects and Bertram A. Bruton and Associates, the football facility

will be something of a departure for Denver, where red brick and pink sandstone are ubiquitous; the horseshoe-shaped complex will have curvy lines and a smooth, aluminum skin (though a token amount of bricks will be used on the base).

Meanwhile, an even larger infill project—4,700 acres—is slowly taking shape at Denver's old Stapleton International Airport, closed since 1995. Over 30 years, the site will be transformed into a mixed-use extension of the city, with New Urbanist-style homes, schools, and businesses, as well as parks and open space. Webb touts the project, along with several smaller ones, as an antidote to unbridled growth.

Amid all the cranes, Mario Botta is scheduled to return to Denver to present a lecture at the Denver Art Museum and, no doubt, to defend his controversial millennium marker. But it remains to be seen whether Denver, which has broken free from recession, will also shed its knee-jerk architectural traditionalism. ■

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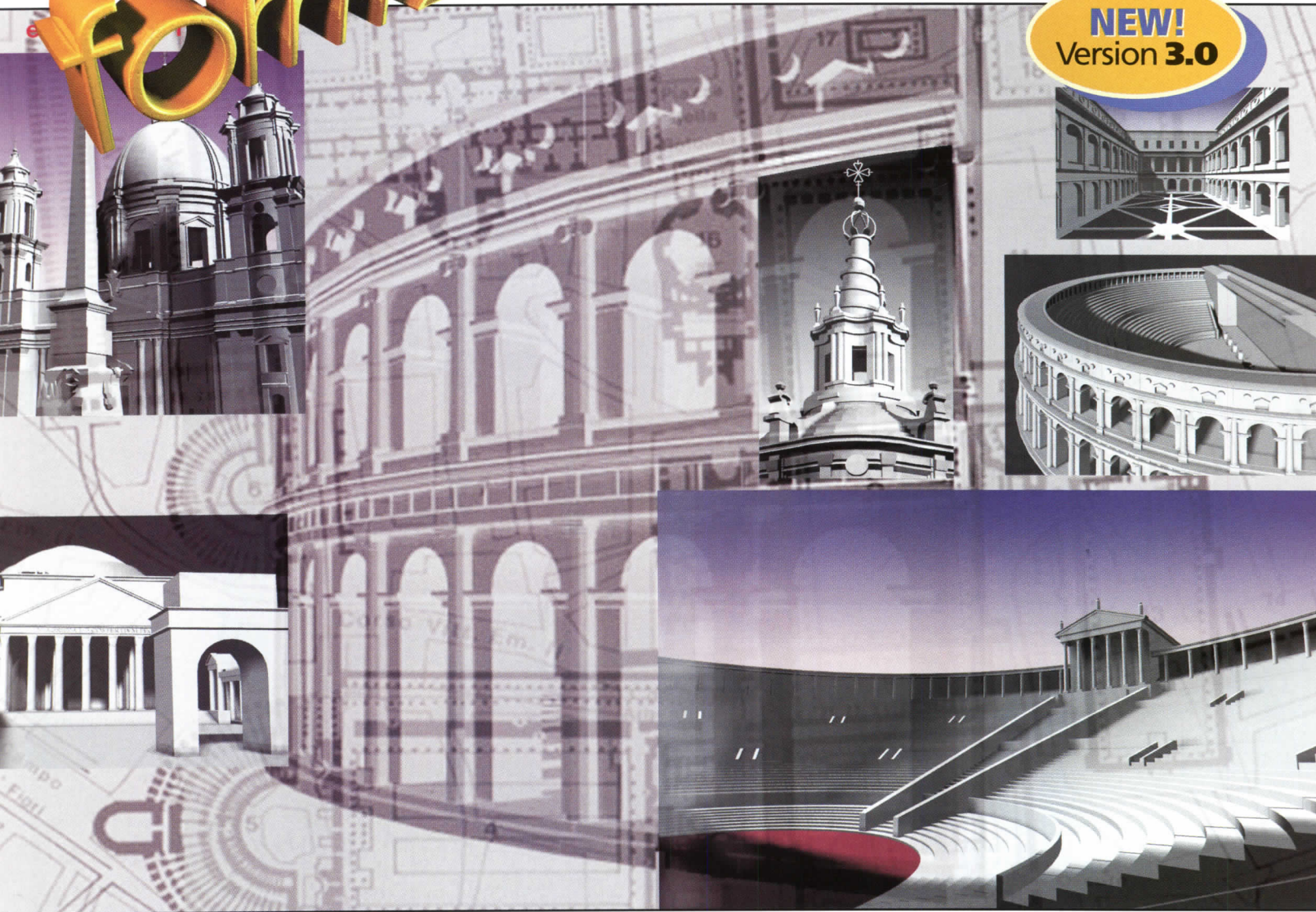
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CIRCLE 30 ON INQUIRY CARD

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surprise, then, that the corporate headquarters development team from Retail Planning Associates chose the burned-out shell of the Smith Brothers Hardware Building as RPA's new home. Using acute creative vision, RPA looked past shattered interior spaces to see the handsome structural bones, limber floor plan and untapped potential concealed beneath.

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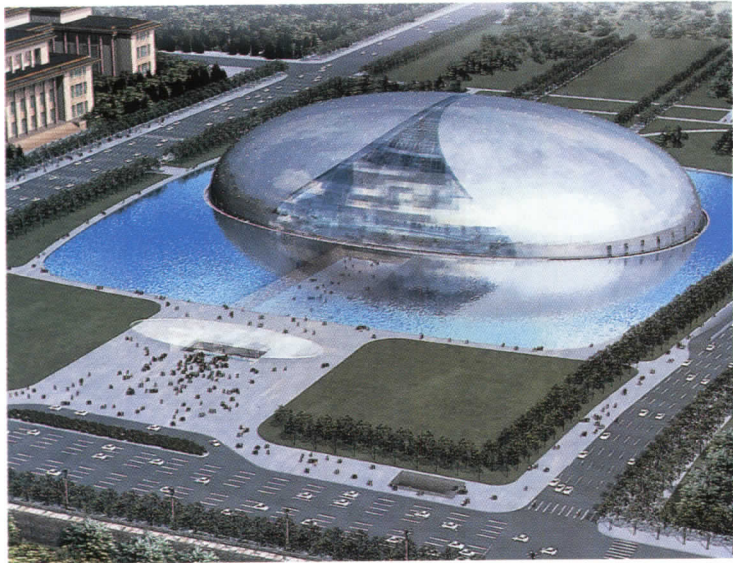
Location - RPA World Headquarters / Columbus, OH

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CIRCLE 31 ON INQUIRY CARD





## SURPRISE! CHINA PICKS FRENCHMAN TO DESIGN ITS NATIONAL THEATER

The Chinese government has picked a winner after undertaking a year-and-a-half-long competition to design a new national theater complex in Beijing, and the architect is—a Frenchman.

Paul Andreu, director of architecture at Aeroports de Paris (ADP), was chosen in August to design the \$300 million-plus National Grand Theater, which is slated to open in 2002. His concept was selected over dozens of entries, about half of which came from Chinese architects. The government's plan to build an opera-house complex was revived in 1997, after plans dating to the 1950s were aborted. The government then organized the invitation-only international design contest in 1998.

Andreu—who has designed major airports around the world, including Roissy-Charles de Gaulle in Paris and the forthcoming airport in Shanghai—has developed a scheme with a huge, oval titanium outer shell housing a central glass structure in the shape of a curtain. The building will sit like an island in the middle of an artificial lake that will be surrounded by landscaped parks. The main entry is via an underpass below the lake. The com-

plex will include a 2,500-seat opera house and three other performance auditoria, with seating capacities ranging from 500 to 2,000 persons.

As startling as the choice of a European designer will be the design's impact on its context. The facility will sit in the heart of Beijing's historic center, next to Tiananmen Square and near the Qing facade of the Forbidden City. As the first example of contemporary Western architecture to be built in the neighborhood, the theater will add a strikingly different presence to the area.

According to reports, Chinese architects initially feared the government's choice of design would be too conservative—but now there is fear that the proposed project is too radical for its surroundings. In addition, the choice of a Western architect was highly unexpected. But the theater is also symbolic of how China is becoming modernized.

Andreu is working on the project with a team of ADP architects and engineers, along with the French design firm SETEC. The Centre Scientifique et Technique du Batiment will work on the acoustics and Rioualec is involved in the theater design. *Soren Larson*

## EISENMAN TO DESIGN CULTURAL COMPLEX IN SPANISH PILGRIMAGE CITY

Fresh off winning a competition to propose rejuvenation schemes for a section of Manhattan's West Side, New York City architect Peter Eisenman, FAIA, has been selected to design a vast new cultural complex in the ancient pilgrimage town of Santiago de Compostela, Spain. And unlike the New York undertaking, which was sponsored by the Canadian Centre for Architecture to spur original ideas about urban design, the Spanish project has government backing and looks likely to reach fruition.

An international jury unanimously chose Eisenman Architects to design the \$120 million "City of Culture" in Santiago de Compostela, which is being sponsored by the regional government of Galicia. Eisenman was picked from a group of 12 finalists, including Spanish architects Manuel Gallego, Cesar Portela, Ricardo Bofill, Juan Navarro, and Santiago Calatrava, as well as Steven Holl, AIA, Annette Gigon and Mike Guyer, Rem Koolhaas, Daniel Libeskind, Jean Nouvel, and Dominique Perrault.

The Galician government hopes to begin construction on the project next year, although financing

from various public and private sources is still being finalized.

### Pilgrim's progress

The new 600,000-square-foot complex, including two museums, an auditorium, opera house, library, lecture hall, media center and archives, will be constructed along the top of a wooded hill—one of seven ringing the city—on a 173-acre site. Eisenman's undulating, half-buried design (below) is inspired by both the ribbed, fan-shaped shells that are a traditional symbol of the city and its religious pilgrims and by the city's dense historic core, which the architect also compares to a shell.

Santiago de Compostela is the final destination of the Way of St. James, an ancient Christian pilgrimage route; the Abbey at Roncesvalles in France, starting point for the journey, was built by Charlemagne. In medieval times about 500,000 pilgrims passed through the city each year, and tens of thousands still do—mainly during the summer, though the parade never stops. Now, the religiously devout might be joined by architectural pilgrims seeking out the latest in modern design. *S.L.*





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CIRCLE 34 ON INQUIRY CARD



## CANADIAN TO PROVIDE DESIGN OF NEW MONTEVIDEO AIRPORT

The MVD Consortium, led by airport management firm Vancouver Airport Services, is headed for South America. The group submitted the winning bid and has secured a \$180 million contract to design and build the new Carrasco International Airport in Montevideo, Uruguay, as well as operate it for the next 25 years. Assuming construction commences at the end of 2001, the building will be completed by the end of 2003.

The designer of the new airport is Vancouver-based Architectura, the lone architecture firm in the consortium. Architectura prepared for the

project by spending time in Uruguay to learn firsthand about the country's topography and culture. As a result, the design incorporates much Uruguayan art and sculpture, with the terminal designed to provide a showcase for the work of local artists and sculptors.

According to the architects, the passenger terminal's design borrows from the rolling topography of the Pampas—the rippling forms of Uruguay's grassy plains and sand dunes—to create roof forms that sweep up to a high vault that encloses a suspension bridge and a mezzanine observation platform. *Soren Larson*

## BOVINE BRIGADE INVADERS CHICAGO IN A WINDY CITY FUND-RAISER

Chicago is back to being a cowtown. In an event called Cows on Parade presented by the Chicago Department of Cultural Affairs, more than 300 life-size fiberglass cows are pawing the cityscape through the end of this month. Some of the bovines were painted by local artists, while others are the work of local architects. Other unpainted cows were purchased for \$2,500 by patrons and then decorated. The exhibition concludes with a cattle auction, with proceeds going to charity.

Architect Stanley Tigerman, FAIA, contributed Cow(ed), a sliced-up, reclining cow reminiscent of Chicago's stockyards. Helmut Jahn, FAIA's cow is painted midnight blue with fluorescent lines that glow at night. Skidmore, Owings & Merrill held a competition for its Chicago employees; the winning design superimposes a map of Chicago on the cow with SOM's

projects highlighted in red. Krueck & Sexton laced cut segments together with stainless steel "to suggest movement," creating the glittery "Cutting Edge Cow" (below).

As architect Mark Sexton points out, "The cows get people walking, noticing their environment and their urban surroundings." *Susanna Sirefman*



**SCIENCE MUSEUM OF MINNESOTA SET TO BE REINCARNATED** Five years of planning, design, and construction will culminate in December when the Science Museum of Minnesota opens a new facility on the Mississippi River bluffs in downtown St. Paul. Designed by Ellerbe Becket, the building enables the 93-year-old institution to expand its stated mission of bringing science alive for visitors.

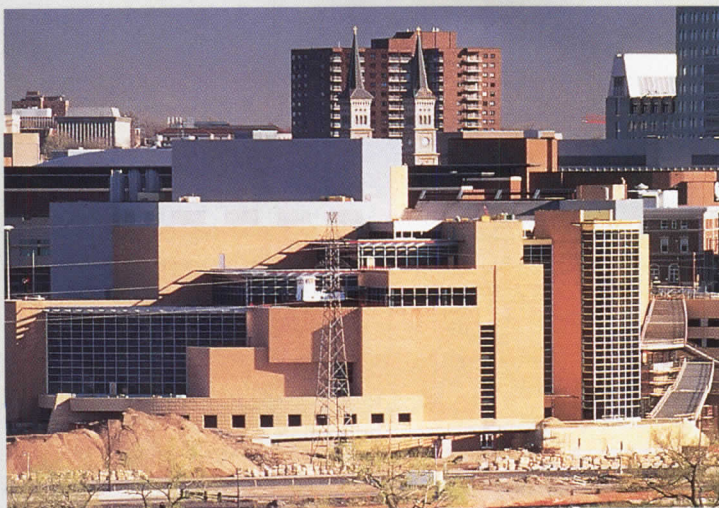
And visitors it has. Serving 1 million people a year in spaces designed for half that number, the museum had vastly outgrown its downtown location. At 370,000 square feet—almost doubling the size of the old—the new museum building's diverse programs will be better represented in a wider array of galleries, theaters, and other amenities.

The museum is also renowned for its film and exhibit

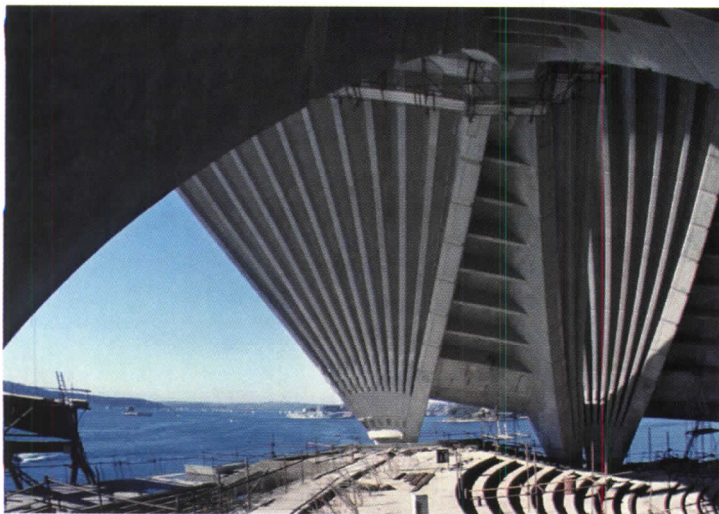
production, and the new facility will finally offer a setting to fully showcase the museum's own work.

The Science Museum complements a new convention center and hockey arena in the neighborhood, alongside other riverfront development initiatives. The new museum's glass lobby will face the downtown area, and with river valley views beyond, city and river are joined—a primary design goal. Museum terraces and 10 acres of outdoor parks and exhibit spaces will become public pathways, linking downtown and its surrounding neighborhoods with the river.

The Mississippi has long inspired literature and song (see related story, page 59), and now the river basin's new museum is poised to foster exploration and imagination in the scientific arts. *Todd Willmert*



## ARCHITECT OF SYDNEY OPERA HOUSE TAKING CARE OF UNFINISHED BUSINESS



The giant ribs as they looked under construction in 1969 (above); an aerial view of Sydney harbor, with the opera house in the foreground.

A series of subtle alterations to the Sydney Opera House over the next decade will move the building closer to the original, thwarted vision of its architect, Jorn Utzon.

In a long-awaited breakthrough, the 81-year-old Dane—who left Sydney midway through the building's construction in 1966, never to return—has agreed to draw up a statement of design principles for its future, as well as identify which of the hundreds of archival drawings are the most definitive. Utzon departed when only the famous white shells were com-

plete, following a falling-out with the New South Wales government.

According to the chairman of the Opera House Trust, Joe Skrzynski, the statement of design principles—to be published around Christmas—will become a blueprint to set the context for all future work. On an immediate level, it will be the framework within which Richard Johnson, a partner in the firm Denton Corker Marshall, will work to correct the shortcomings that have become apparent in the building's first 25 years.

### An array of troubles

Few, if any, of these are attributable to Utzon, because the interiors were done by other architects who took over after his departure. Other problems, says Skrzynski, have to do with the passage of time and changing acoustical standards and demands. Among these are the discomfort of the orchestra pit in the Opera Theatre; faulty acoustics of both the Opera Theatre and the Symphony Hall (the chief conductor of the Sydney Symphony Orchestra, Edo de Waart, has commented that the acoustics are the greatest constraint on the orchestra's development); and inadequate lighting and handicapped access.

Johnson recently spent two

intense days talking to Utzon in his Majorca home and says that improving the acoustics could provide an opportunity to change the shape of the theaters and open up an internal vista of the shells, as Utzon had planned. At present, the view into the vault is blocked.

Lighting might be used to reinforce the entry as Utzon had intended, via the grand steps and platforms, instead of leading people toward a secondary entrance under the building, as tends to occur now.

Still, it is unlikely that changes will be exactly in accordance with what Utzon would have done 25

years ago. Says Johnson: "I doubt that the design ideas would have changed, because they're all fundamental—but if [Utzon] were developing the detail design proposals, I'm quite confident he would not be implementing those in use 25 years ago.

"At the time he was developing that building," Johnson continues, "he was way ahead of anybody else in the world in terms of ideas, in terms of technology. He would be using materials now that are ahead of their time, and developing new technologies."

Anne Susskind

### MINNESOTA MILL TO BE RECAST FOR HISTORICAL SOCIETY

Introducing an edition of *Huckleberry Finn*, T. S. Eliot wrote: "At what point in its course does the Mississippi become what the Mississippi means?" The redevelopment of Minneapolis' historic mill quarter—recapturing the river heritage on the Mississippi's only waterfalls—addresses Eliot's quandary.


The Mississippi's renown begins at St. Anthony Falls, whose waterpower spawned Minneapolis' early industries. Sawmills defined the early city; as timber resources were depleted, flour mills replaced them. Minneapolis was the world's flour capital at the century's turn, a status held until decentralized power, such as electricity, dispersed milling operations. The mill district faced a precipitous decline in the following decades.

This trend has only recently reversed as Minneapolitans rediscover riverfront assets. A key redevelopment component is the Washburn Crosby "A" Mill's adaptive reuse to house the Minnesota Historical Society's St. Anthony Falls Interpretive Center. Mill Ruins Park, riverside excavations of mill channels, will complement the center, as well as other district mills' transformations into lofts and offices.

While designated a National Historic Landmark in 1976, the "A" Mill's floor plates were too deep for ready rehabilitation as housing or commercial space, limiting prospective uses. A 1991 fire that turned the historic building into a stone shell of jagged walls had the unlikely consequence of galvanizing options: the fire created an "atrium" space in the mill, wrapped by massive masonry walls.

The new center will celebrate the milling process, with a broader goal of addressing the falls that powered growth in the entire upper Midwest, as well as its people and industries. Now in initial design stages, the center will feature the atrium as an entry and performance/gathering space. The multiple mill appendages, such as the wheelhouse and flour tower, will be left intact.

The Historic Society and its architects, Meyer, Scherer & Rockcastle, envision a center where new construction complements the mill's wood, masonry, and steel. Such a strategy—preserving the existing structure through juxtaposition—is especially appropriate in the "A" Mill case. Not only is there beauty in its utilitarian roughness and material, but also the complex is essentially a grave to dozens of workers—a testament to the dangerous mill explosions. Maintaining and reinforcing its essence speaks to this history. *Todd Willmert*



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**PARKER'S SEOUL POWER** The Leonard Parker Associates of Minneapolis, in association with Korean firm Kun Won Architects, has won a competition to design a luxury project in Seoul that will be the tallest housing complex in Korea. The goal of the firm's design for the Hyundai SamSung Dong apartments was to create a residential oasis within the bustling core of the city.

The 1.5 million-square-foot, \$85 million project will consist of 350 high-priced condominiums in three 48-story towers. The site boasts views of the Han River and will be elaborately landscaped with trees, terraces, and gardens. Also included: underground parking, retail outlets, a health center, and public gathering areas. Completion is scheduled for December 2002. *Soren Larson*

## A VANCOUVER TOWER UNDERGOES THE GREENHOUSE EFFECT

Busby & Associates Architects of Vancouver is transforming one of its hometown's buildings into an ultra-modern, "green" structure. The firm is placing a new double-glazed, aluminum curtain wall about three feet away from the original wall of the 1940s, eight-story building, effectively creating a greenhouse—as well as the first triple-skin building in North America, say the architects.

The new double-glazed skin—the primary feature of an \$8 million renovation of the 127,000-square-foot BCT Telus Communications operations building—employs technology pioneered in Germany, according to principal Peter Busby. The original brick veneer, which was mainly decorative, is being stripped from the existing building and the ultimate treatment of the remaining concrete surface has not yet been decided.

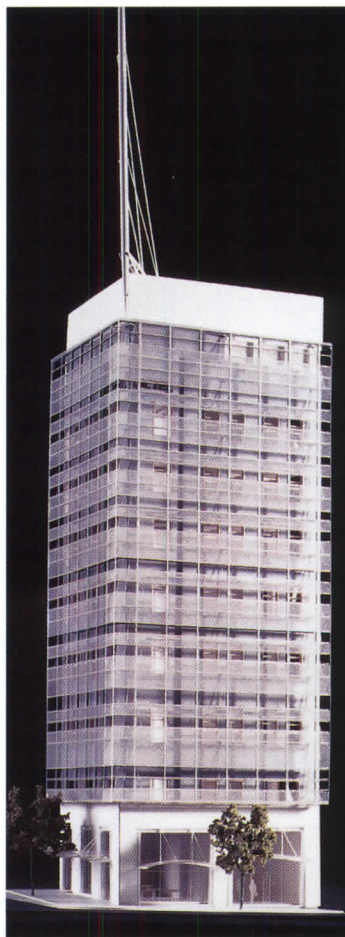
### Windows that actually open

Busby does plan to return the original single-hung windows to working condition. The repaired windows in the existing building will be manually

operable, and the windows in the new external skin will be individually operable by push button.

"The space between the new and old envelopes will act as a greenhouse, storing heat in the winter, providing shade and diverting heat from the existing windows in the summer. Vents at the top and bottom will allow for air to be flushed out as well," explains Busby. He claims the completed structure will be "the most energy efficient building in Canada, with energy consumption expected to be 47 percent of comparable buildings." Busby's firm is becoming known for its environmentally responsible, energy-efficient design, including the award-winning Revenue Canada office building near Vancouver.

The project should be completed by December 2000, and Busby promises it will be moisture proof, which is critical, considering the city's climate: "We couldn't have a leak. Almost every telephone line in Vancouver goes through the building." *Albert Warson*



## SHELL COMBINES ITS LONDON HOMES

Shell International, the multinational oil company, has hired the Canadian firm Zeidler Roberts to plan a \$100 million to \$150 million transformation of the Shell Centre, one of its three Thames-side London headquarters, into revamped offices and an urban entertainment complex. The oil company recently sold its downstream offices to a residential developer, and it is looking to sell its highest profile north bank headquarters, Shell Mex House, which will leave the Shell Centre as the company's main base.

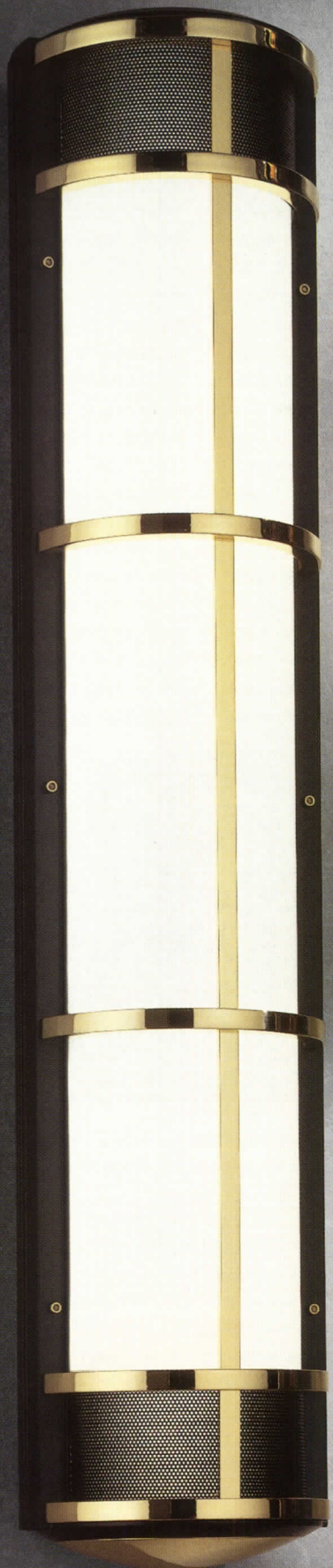
The Shell Centre building, designed by Howard Robertson in the 1960s, provides 40 acres of floor space on 7.5 acres of land. When it was built, it was criticized for what Carl Mortished of the *London Times* described as "symbolizing a culture of corporate arrogance and secrecy and for presenting a bleak, unfriendly front."

In addition, since it's on the South Bank site of the postwar Festival of Britain—which spawned a new generation of inspirational modern buildings including the Dome of Discovery and the Skylon Tower—this was considered to be doubly disappointing.

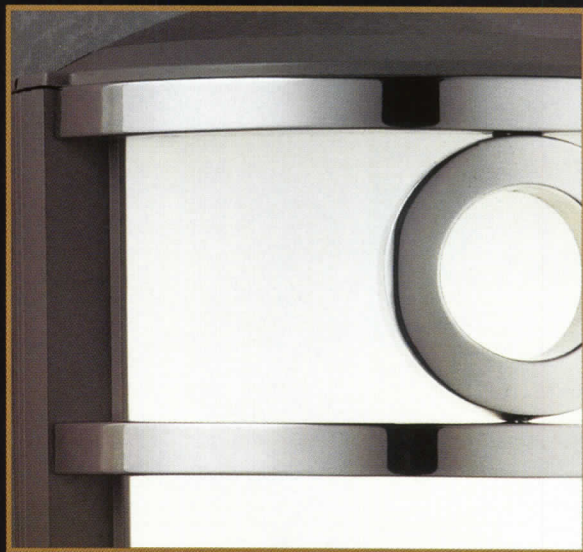
Shell is keen to emphasize that its new plans for the Shell Centre are in keeping with the lively cultural spirit of the South Bank. The focus is on transparency, introducing glass frontages to the ground floor which, along with the extensive basement areas, will be open to the public.

Although Shell employees will retain 550,000 square feet of office space, they will lose their private gym and health club. Plans for the 350,000-square-foot ground floor, basement, and sub-basement entertainment complex have not been finalized, but a combination of facilities, such as a multiplex cinema, a health and fitness club, a range of cultural and entertainment facilities, restaurants, and other retail outlets, are being considered. *Katherine MacInnes*

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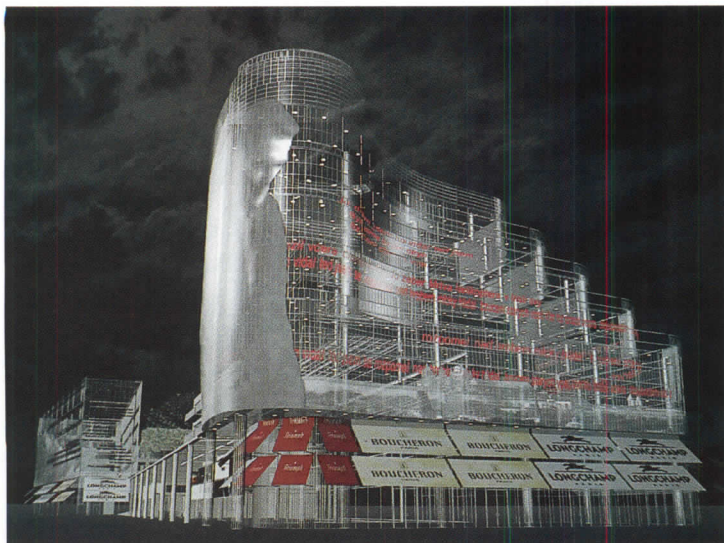
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## ENDURING OBSTACLES AND ANGST, NOUVEL'S PRAGUE PLAN PROGRESSES



Jean Nouvel's Golden Angel office tower in Prague is now scheduled to open in November 2000, but it has already weathered both official and unofficial local criticism for more than 10 years.

The building is a prelude to Nouvel's more ambitious Angel City plan for Prague, which when completed will encompass 650,000 square feet of office space, nearly 100,000 square feet of retail space, and more than 105,000 square feet of apartments and accompanying recreational areas.

Criticism of Golden Angel, which has primarily come from local architects, has focused on its scale, materials, and—perhaps most intently—imagery. Golden Angel,

actually four linked buildings, will feature a white-and-gray concrete frame visible beneath the 106-foot-high glass outer wall of the main facade. The building varies from five to seven stories and is linked by covered walkways and passages.

### An unexpected angel

What has stirred some drama is that Nouvel has incorporated the image of a guardian angel on the facade of the tower, which faces the Vltava River and the 10th-century ruins of Vysehrad on the opposite bank. The proposed "angel," controversially, is a still of Bruno Ganz, the actor-angel from Wim Wenders' 1987 film *Wings of Desire*. The wraparound glass facade will also

feature images of clouds drifting across the glass curtain wall and snippets of Czech poetry on the subject of angels.

Golden Angel is sited on a main thoroughfare in Smichov—an aging 500-acre industrial sector of the city—and sits above the Andel (Angel) subway station that serves upwards of 20,000 passengers a day. The structure will include 140,000 square feet of office space and 75,000 square feet of retail. Scheduled retail components include a department store, a Dutch supermarket franchise, numerous small shops, and a 224-space parking garage.

### Transforming a neighborhood

Funded by the Dutch-Swiss financial services consortium ING, the same firm that brought Prague the controversial Frank Gehry-Vlado Milunich Dancing Building (aka the Fred and

Ginger building), Golden Angel is expected to cost between \$27 million and \$28 million. It will be the first step toward transforming Smichov into an alternative city center, less for the 12 million tourists that descend on Prague each year than for besieged locals.

Nouvel's 1985 planning study for Smichov adheres to the architect's theory of "spot intervention," or strategic insertions meant to release latent urban energy ("urban acupuncture"). Nouvel's Angel City, immediately behind Golden Angel, will include a multiplex cinema, restaurants, small shops, a bowling alley, and apartments.

A third non-Nouvel component, New Smichov, yet to be fully funded, is also planned. Construction is ready to start, given the immense hole in the ground at the site of a former Tatra car-parts factory.

Gavin Keeney



Jean Nouvel's Golden Angel office tower is causing a stir among Prague architects (top left); the Golden Angel site in Prague's city plan (above).

**DEPARTMENT OF TRANSPORTATION TO ENGAGE ARCHITECTS** To highlight superior design linked to moving people and goods, the U.S. Department of Transportation (DOT) is seeking applicants for a new awards program. Eligible entries could range widely, including plans, signs, art, roads, bridges, airport terminals, and rail stations. Eligible projects must have been completed and in use in the U.S. or its possessions between March 1, 1995, and June 1, 1999. Applications are due November 1, and the awards ceremony is scheduled for May 16, 2000.

According to DOT Secretary Rodney E. Slater, "Good design enables us to get where we need to go more safely, efficiently, and economically, while it enhances livability by adding beauty to our lives and enriching our communities."

There are six award categories: 1) architecture, which includes terminals, stations, ports and other facilities; 2) engineering, energy conservation, technology, and systems, which encompasses highways, bridges, tunnels, over-

passes, vehicles, and equipment, as well as information, control and navigation systems; 3) art and graphic design; 4) historic preservation and adaptive use; 5) urban design, planning, and landscape architecture; and 6) "special emphasis," defined as "entries that enhance livability and accessibility of communities and regions through measurable improvements in the quality of life."

In addition, the DOT says projects must meet at least one of its goals—to promote safety, mobility, national security, economic growth and trade and to protect and enhance communities and the environment. The projects must show innovation, aesthetic sensitivity, effectiveness and efficiency, and "reasonable costs in relation to benefits."

A 1995–96 DOT design competition drew 306 entries; if the new program is as successful as the last, the DOT hopes to repeat it about every five years, says Bob Stein, a senior policy analyst at the department and one of the officials administering the program. Application forms and guidelines are available on the Internet at <http://ostpxweb.dot.gov/>. Tom Ichniowski





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## COMPLEX SECURITY ISSUES AFFECT MURRAH REPLACEMENT

Chicago's Ross Barney + Jankowski met with the peer review panel of the General Services Administration's (GSA) Design Excellence Program last month to examine the firm's latest design for Federal Campus, the replacement facility for Oklahoma City's Alfred P. Murrah Federal Building. While security issues are key, the goal, according to GSA chief architect Ed Feiner, FAIA, is to avoid creating a fortresslike impression.

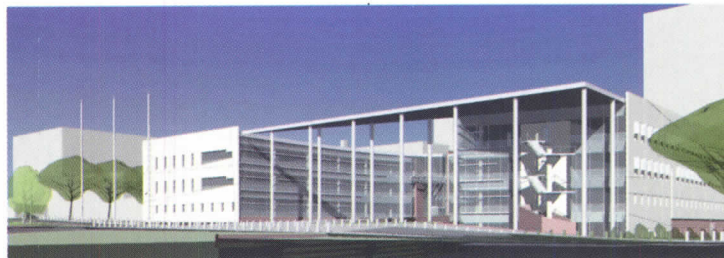
"The structures have been totally rethought," he says, "so that we would not have a recurrence of

the kind of collapses that occurred in Oklahoma City and at the barracks in Saudi Arabia. But generally, the goal is that these are not bunkers; these are public buildings and they are to express to the public that they are public buildings."

Discussing her design (right), Carol Ross Barney, FAIA, explained, "The idea of stand-off, especially for automobile traffic is important, so we spent time looking at different ways of providing a vehicle barrier while keeping the site open. Some of the solutions we've come up with include landscaping and street furni-

ture, in addition to plain old bollards. And we're also looking at collapsible grades. The other thing, and this is sort of a novel notion here in the Midwest where we don't deal with hurricanes and earthquakes, is to resist progressive collapse."

States Feiner, "The most important thing is that the security enhancements are transparent to the general public. If we can't build buildings that the public feels are theirs in their own country, then we have a problem. Ultimately, you could stick things underground—who wants that?" *Thomas Connors*



## AMERICAN TEAM TO DEVELOP NEW UNIVERSITY CAMPUS IN EGYPT



The 80-year-old American University in Cairo (AUC) is embarking on a \$200 million project to create an entirely new campus that weaves together both Egyptian and American design attributes.

An independent jury hired by the university has chosen two Cambridge, Mass.-based companies—architecture firm Boston Design Collaborative (BDC), in partnership with landscape architecture firm Carol R. Johnson Associates—to develop a master plan for the new campus. Once the plan is

established, it will enable AUC to relocate most of its operations from its old location in Cairo's city center to a 260-acre site in New Cairo within six to eight years. New Cairo is a planned development that is transforming an expanse of unpopulated desert east of Cairo into a hub that will reach 2 million residents or more.

AUC was founded in 1919 by a group of U.S. citizens. The nonprofit and self-proclaimed "apolitical, non-sectarian" institution has a faculty of both Egyptians and Americans and a current enrollment of 4,500 full-time students. AUC's new campus will comprise around 2 million square feet and has a construction budget of about \$200 million.

BDC and Carol R. Johnson—already working together on the campus of Koc University in Istanbul—will emphasize creating interrelated and interconnected outdoor and indoor spaces. *Soren Larson*

## COPENHAGEN MINES A "BLACK DIAMOND" ON PRIME LOCATION

A long-awaited extension to the Royal Library of Denmark, a black-granite mass already nicknamed the Black Diamond, opened its doors last month on Copenhagen's waterfront. The seven-story building, which commands a strong presence on the city's relatively low-lying skyline, doubles the Royal Library's size to a total of over 120,000 square feet. The design is by the Danish firm Schmidt, Hammer & Lassen, which won an international competition for the \$71.5 million project in 1993.

The new building's facade—a striking contrast to the library's other buildings, which date to 1906—is covered with reflective black-granite tiles mined in Zimbabwe, cut in Portugal, and polished in Italy. The exterior walls slant sharply forward toward the water.

Apart from housing 200,000 books, the Black Diamond will feature a bookshop, a restaurant with a harbor-front view, six reading rooms, a courtyard for exhibitions, and a 600-person hall for concerts and meetings. The city also plans to build a new square next to the library with steps down to the water—a new public space for the Danes. *S.L.*



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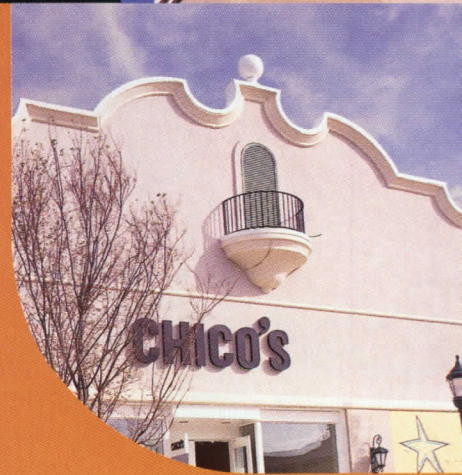
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## THE NEA'S MARK ROBBINS: SPURRING THE DESIGN DIALOGUE

Seven months after becoming director of design at the National Endowment for the Arts (NEA), Mark Robbins is toiling away on a group of new programs he thinks can make a positive impact on the country's built environment. Now, he's on tour: Robbins will be making stops around the country for the rest of the year to tout his four "leadership initiatives."

In the first initiative, *New Public Works*, the NEA will sponsor a series of design competitions for a range of projects, from public buildings to master plans to graphic, landscape, and industrial design projects. Starting next year, up to 10 projects will receive grants of up to \$50,000 each. The second initiative, *Redressing the Mall*, will focus on failed, older suburban malls for which the NEA hopes to generate alternative development models. A third initiative, the *Mayors' Institute for City Design*, will

bring mayors together with design professionals. The final initiative is called *Your Town* and will build on an NEA/National Trust program that works with rural groups—starting with African American and Native American communities—on design issues such as growth and suburban sprawl, historic preservation, land use, and housing.

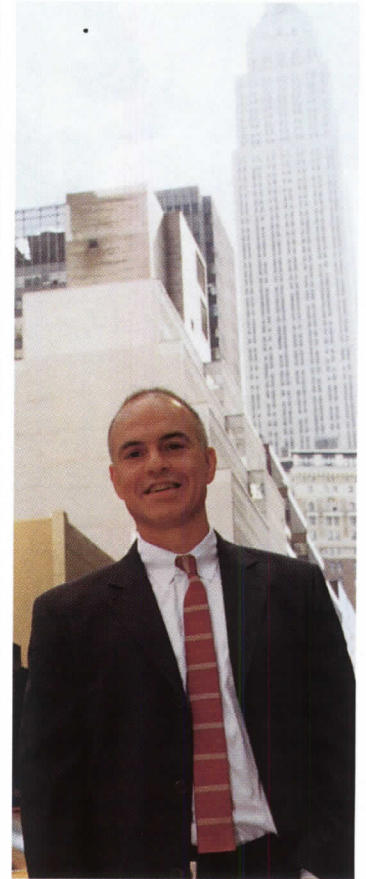
Before jetting off to present his initiatives in California, Robbins—an architect, artist, and professor who was curator of architecture at Cincinnati's Wexner Center for the Arts before joining the NEA—stopped by RECORD's offices for an interview, of which excerpts follow.

**RECORD:** To start with, why should the government be involved in design and architecture?

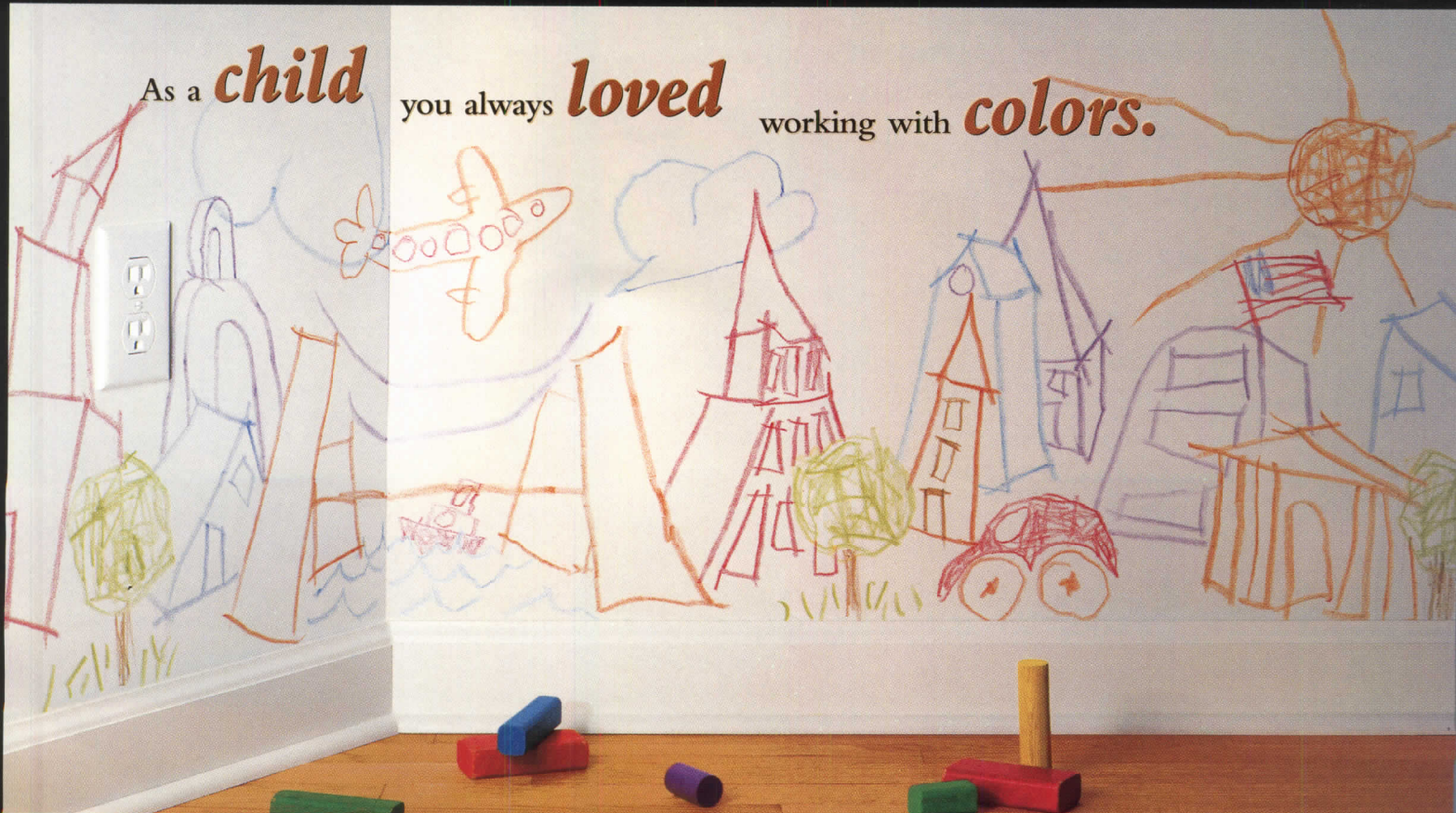
**Robbins:** That's a fundamental question. Obviously, I think it should. We're the wealthiest country in the

world, but I look at the quality of our public spaces and our public buildings, and I compare that to the quality of work that we see in Europe, and it falls short. In Barcelona, for instance, there are fantastic blocks of new housing that were originally built as part of their Olympics celebration. They thought about redesigning whole quarters of the city and then turning those over to public or semipublic usages. It's hard for me to think of any similar models in the U.S.

Our government has taken a much more hands-off attitude, and we've left most development to market forces. This isn't to say that using market forces as an engine is a bad idea. But a market is involved with increasing its own profits—that's what it does. The government can provide for the public good in a way that's not the mission of the market. It seems to me wholly appropriate that a government



As a **child** you always **loved** working with **colors**.



agency thinks about the design and quality of the public sphere, which is about how we design our buildings, how we design our plazas, how we zone our spaces.

Take sprawl as an example. If we continue to build where the market is wont to build—where land is cheapest, generally at the periphery—we expand the infrastructure further from the city center. There's a downside in terms of our general health and welfare: increased pollution, increased use of gas and energy. At some point, you need to make a decision about whether that's an appropriate development model, and our programs can help people understand their design and planning options and act on them.

**RECORD:** What specifically is the NEA looking to accomplish? What effect can you have?

**Robbins:** First, I want to develop a greater public awareness of the influence of design—it's something we live with but I think most people who aren't involved with the design

professions aren't so conscious of. Second, I want to provide service to the design disciplines themselves. There are certain needs that aren't funded by the market that we can act as a catalyst for, say, thinking about landscaping and how it can have an impact on the built environment and the culture in a broader sense.

The third way is to partner with other governmental agencies. We can look at natural partnerships, certainly with the General Services Administration, which has been interested in improving the quality of the design of buildings and thinking about the impact of projects on their surroundings. It's not just looking at the object and making sure it's a swell piece of architecture, but making sure it's integrated in a positive way with the urban context.

There are natural partners, like the GSA, like HUD, but then there are less expected partnerships, like with the EPA. We're working on some programs with the EPA to

think about the ways that designers can work to reclaim superfund sites.

**RECORD:** What can the NEA do to help architects, and how can they get involved in the programs?

**Robbins:** Some of the benefits are indirect. The NEA funds exhibitions about cities, about urban design, about individual architects . . . many of these have a public education component. Whenever you have an informed public, you have a better, informed client. This helps architects strategize with the client as to how to make a good piece of work.

We're bringing mayors together with architects and city planners and zoning practitioners. This helps mayors who don't have [an urban-planning] background figure out how design can be part of their mission in redeveloping their cities. It will help when a mayor begins to structure an urban design plan for the downtown or thinks about selecting a designer for a public plaza, because you'll have a mayor who's been exposed to what design can do.

Individual architects can't apply directly. But if, say, some architects came in for a grant to look at models for affordable housing—and this consortium came in through a city design center or regional housing authority—we would help fund the investigation into how design could make better spaces in their community. Ultimately, the benefit is for all of us in the public sphere.

**RECORD:** Is there a particular aesthetic you look for, or one that you frown on and want to discourage?

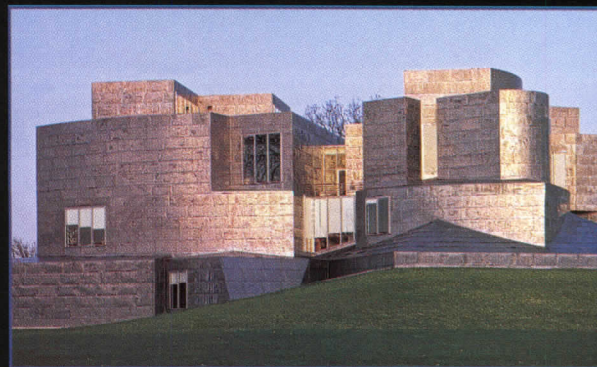
**Robbins:** I would like to see the NEA as ideologically unaligned. I think what's significant is the end goal: what we would like to see is an improvement in quality of community life, whether it's in a rural setting or an urban setting or in suburbia. Design is such a subjective thing. So, the government is not here to be an arbiter of taste. What I'd like to do is encourage the best of what design can do, which is help create more livable communities.

Soren Larson

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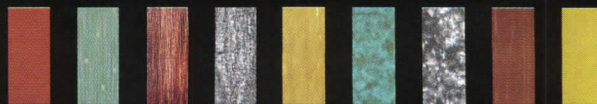
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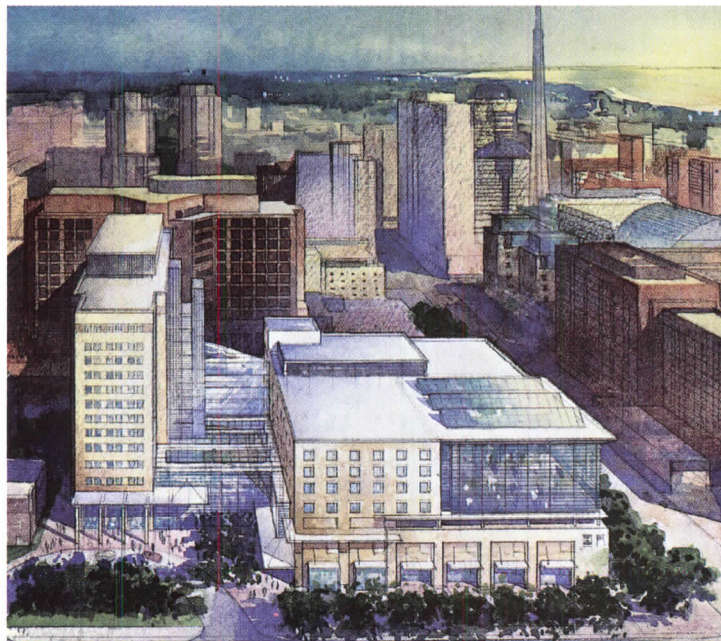
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## NEWS BRIEFS

**Scully takes the prize** The National Building Museum in Washington, D.C., has created the Vincent Scully Prize, which will recognize exemplary practice, scholarship, or criticism in architecture, landscape architecture, preservation, or city planning. The inaugural prize will be bestowed on November 12, and the winner is . . . Vincent Scully, who has been teaching since 1947 and now divides time between Yale and the University of Miami. The museum intends to raise a \$500,000 endowment and will award annual cash prizes of \$25,000. The award's inaugural committee included Frank Gehry, FAIA, Richard Meier, FAIA, I.M. Pei, FAIA, and a lengthy list of other design notables.

**Noting the needy** The 2000 World Monuments Watch List of 100 Most Endangered Sites, compiled by the World Monuments Fund, was



HOK's Toronto design is said to be North America's largest health-care project.

announced last month. The listed structures, man-made landscapes, city centers, and archaeological sites are endangered by war, neglect, natural phenomena, sprawl,

or governmental policies. Among the more well-known sites are Machu Picchu in Peru and Teotihuacán in Mexico. A total of 9 are in Africa, 21 in Asia, 8 in the Middle East, 13 in

Western Europe, 24 in Eastern Europe, 10 in North America, and 15 in South America and the Caribbean. Perhaps the most unlikely is the 117-year-old Seventh Regiment Armory, which sits on New York City's posh Upper East Side.

**A healthier Toronto** The New York office of Hellmuth, Obata + Kassabaum (HOK) is designing what it says is the largest health-care project in North America. The design (left) is for 2.5 million square feet worth of additions to and renovations of University Health Network's Toronto General Hospital, which will encompass 14 structures and over 3.6 million square feet when the work is done in 2003.

**Miami comeback** The Miami Design District, an 18-square-block area north of downtown that was a mecca for furnishings and interior design in the 1970s, is making a comeback after a period of crime and neglect. A new urban plan by

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Elizabeth Plater-Zyberk, FAIA, is in effect, and developer Craig Robins has hired architects Walter Chatham and Alison Spear to undertake a revitalization of a number of the site's historic buildings.

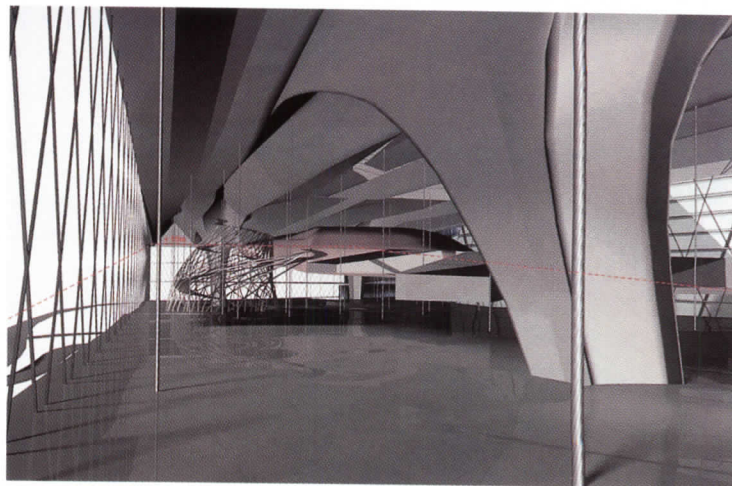
**Washington's next** The Japanese-American Memorial Foundation will break ground October 22 on a new memorial near the U.S. Capitol to honor Japanese-American patriotism in World War II and to commemorate those held in internment camps during the war. The memorial, designed by David Buckley, AIA, with assistance from Japanese-American architects and artists, will feature a granite wall with inscriptions describing early Japanese immigration to America and a centerpiece of two Japanese cranes entwined in barbed wire.

**Chrysler's choice** The seventh annual Daimler Chrysler award (called the Chrysler award until the companies merged last year) will be

presented to six design leaders late this month, including architects Jesse Reiser, AIA, and Nanako Umemoto. The duo was cited for its use of new media and technology that enable modeling of complex, unusual spatial concepts. In addition, Billie Tsien, AIA, and Tod Williams, FAIA—who were honored last year—have redesigned the award itself, which carries a prize of \$10,000.

**Help for Havana** Italy is helping Cuba to ease the danger of building collapses in decaying Old Havana and to rebuild a provincial hospital damaged by a hurricane. About \$600,000 will go to reinforce old buildings and to purchase devices to help rescue workers in case of collapses. About 15 to 20 buildings, holding roughly 200 homes, collapse each year in the colonial-era heart of the Cuban capital.

**They reign in Spain** The Fifth Biennial of Spanish Architecture has announced its selected projects and



An inside look at Reiser + Umemoto's design for the Kansai Library.

top-prize winner for 1999. Josep Llinas' Terrassa Library in Barcelona was awarded the Manuel de la Dehesa Prize, besting two runners-up: a housing project in Valencia by Eduardo de Miguel and the Nanclares Civic Center in Navarra by Roberto Ercilla and Miguel Angel Campo. Other projects cited included Alberto Campo Baeza's

office center in Palma de Mallorca; the conversion of a convent into a museum in Mahon, Minorca, by Elias Torres & Jose A. Martinez-Lapena; and the conversion of a gas deposit tank into an unusual cultural center in Santa Cruz de Tenerife, the Canary islands, by the team of Felipe Artengo, Fernando Menis, and Jose Maria Pastrana. ■

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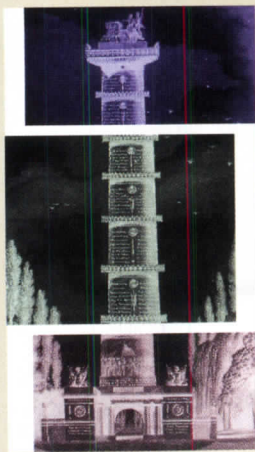
The Green Architect also presents a closer look at newly built structures designed specifically to respect and enhance the environment. The section also highlights more than 50 green products, chosen by our editors for their

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**WHAT IN THE WORLD?** This monumental structure, designed by a close friend of a former president, commemorates a different president. What is it? Who designed it? Where is it located? When was it completed?

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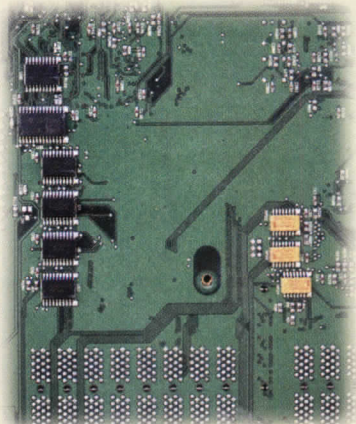
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If you missed it in the magazine, you'll find full coverage of our recent "Listening to Computer Experts" roundtable [August, page 74] on Digital Architect, including Web-only segments that reveal some of the most current thinking on computer issues as they relate



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# DATESEVENTS

## Calendar

### **Breaking Through: The Creative Engineer** Miami, Fla.

*October 1–December 31*

A look at the role and process of creativity in the field of engineering. Miami Museum of Science and Space Transit Planetarium. 305/854-4247.

### **The Lamps of Tiffany: Highlights from the Egon and Hildegard Neustadt Collection** Wilmington, Del.

*October 8–January 2, 2000*

More than 45 objects provide an overview of the achievements in glass by the Corona, N.Y., workshops of the Tiffany Glass and Decorating Co. Delaware Art Museum. 302/571-9590.

### **The Work of Charles and Ray Eames** New York City

*October 12–January 9, 2000*

A retrospective of the work of these midcentury pioneers of design. Cooper-Hewitt, National Design Museum. 212/849-8400.

### **The Corner Store** Washington, D.C.

*Through March 6, 2000*

An exhibit tracing the history and cultural impact of a vanishing American typology: the local grocery. National Building Museum. 202/272-2448.

### **Elemental Constructs: Jim Agard** Washington, D.C.

*Through October 29*

On display are the artist's perception-bending wall structures. The Octagon. 202/638-3105.

### **56th Annual Sheet Metal and Air Conditioning Contractors' Convention** Palm Desert, Calif.

*October 10–14*

A wide variety of educational, motivational, and self-developmental sessions presented by industry experts who provide solutions to contractors' problems. Marriott's Desert Springs Resort and Spa. 703/995-4035.

### **METALCON International '99** Chicago

*October 12–14*

Annual conference and exhibition focusing on the use of metal in design and construction. Rosemont Convention Center. 617/965-0055.

### **Design-Build: Reaching for the Leading Edge**

Dallas

*October 13–15*

The three-day event will feature 85 speakers and panelists and showcase products and services that support the design-build industry. Cosponsored by the National Society of Professional Engineers. Adams Mark Hotel. 202/682-0110.

### **Modern Times** Glendale, Calif.

*October 16–17*

A wide range of work from the 1920s to the 1970s by American and European industrial and interior designers will be at the 13th annual fall Modern Times 20th Century Design Show & Sale. Glendale Civic Auditorium. 310/455-2894.

### **Celebration of Design: World Class '99** Dallas

*October 27–29*

Decorative Center Dallas is holding its second annual Celebration of Design. Three days of activities include showroom seminars, keynote speakers, panel discussions, and the presentation of the first annual Design Achievement Award. Decorative Center Dallas. 214/698-1350.

### **1999 Remodelers Show** Philadelphia

*November 5–7*

Industry experts in remodeling, custom building, and seniors housing will participate in educational programs and demonstrations at the National Association of Home Builders joint remodelers, custom builders, and seniors housing show. Philadelphia Convention Center. 202/822-8861.

### **Restoration & Renovation** Charleston, S.C.

*November 7–9*

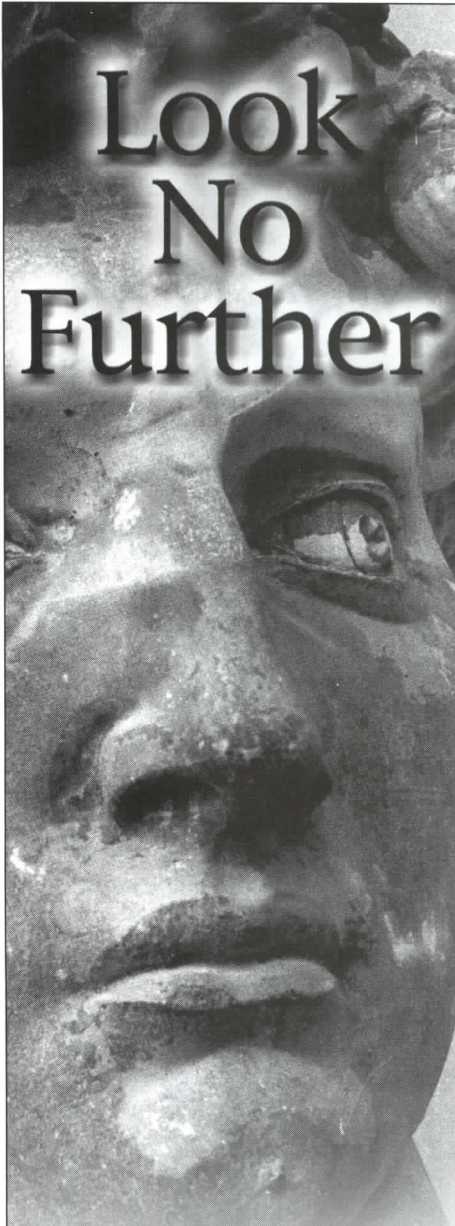
A tradeshow and conference dedicated to architectural rehabilitation, cultural landscape preservation, collections care, and historically inspired new construction. Westin Francis Marion Hotel. 978/664-6455 x0.

### **The Sense of the City: Louis Kahn's Design for an Office Building in Kansas City, 1966–73**

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### Build Boston

#### Boston

*November 16–18*

America's largest AIA chapter holds its annual convention and trade-show for the building industry. World Trade Center Boston. Call 800/544-1898 or register online at [www.buildboston.com](http://www.buildboston.com).

### At Home in Chicago, Part II

#### Chicago

*Through November 28*

An exhibition of different types of housing designed by Chicago architects. The Art Institute of Chicago. 312/443-3600.

### Atelier van Lieshout

#### North Miami, Fla.

*Through December 5*

Visitors to this exhibition of the work of the Dutch collaborative—designers of mutant mobile homes and sensory deprivation units—get to enter a few of the firm's creations. Museum of Contemporary Art. 305/893-6211.

### Big Buildings

#### New York City

*October 1–December 31*

This exhibition explores a dimension of the skyscraper just as impressive as its height: sheer volume. The Skyscraper Museum. 212/968-1961.

### 1999 National Preservation Conference

#### Washington, D.C.

*October 19–24*

This year's conference gives special attention to the preservation of historic places owned or operated by federal agencies. National Trust for Historic Preservation. 800/944-6847.

### School Architecture of Perkins & Will

#### Chicago

*October 20–December 5*

An exhibition of school designs by the

Chicago-based firm. Chicago Architecture Foundation. 312/922-3432.

### AIAS Annual Convention: Forum '99

#### Toronto

*November 24–28*

This year's convention of the American Institute of Architecture Students—the first to meet outside the U.S.—features speakers Michael Graves and Moshe Safdie, as well as the Career and School Fair. Royal York Hotel. 202/626-7472.

### The Work of Daniel Libeskind

#### New Haven

*October 25–November 20*

An installation featuring the design and construction processes of the Jewish Museum in Berlin and other new projects. Yale Art & Architecture Building. 203/432-2292.

### Two Views of Venice

#### New York City

*October 26–December 19*

An exhibition of rare etchings of Venice by Canaletto, an 18th-century Venetian, and Mortimer Menpes, a 19th-century Australo-Briton. Cooper Hewitt, National Design Museum. 212/849-8400.

### IBHS Congress

#### Memphis

*October 26–28*

This year's congress of the Institute for Business and Home Safety focuses on planning for natural disasters. Peabody Hotel. 617/292-2003.

### Chicago Design Show

#### Chicago

*November 4–7*

An exhibition and sale of contemporary furnishings, colocated with the Italian Design Furniture Show. Merchandise Mart. 800/677-6278.

### Building Virginia '99

#### Richmond

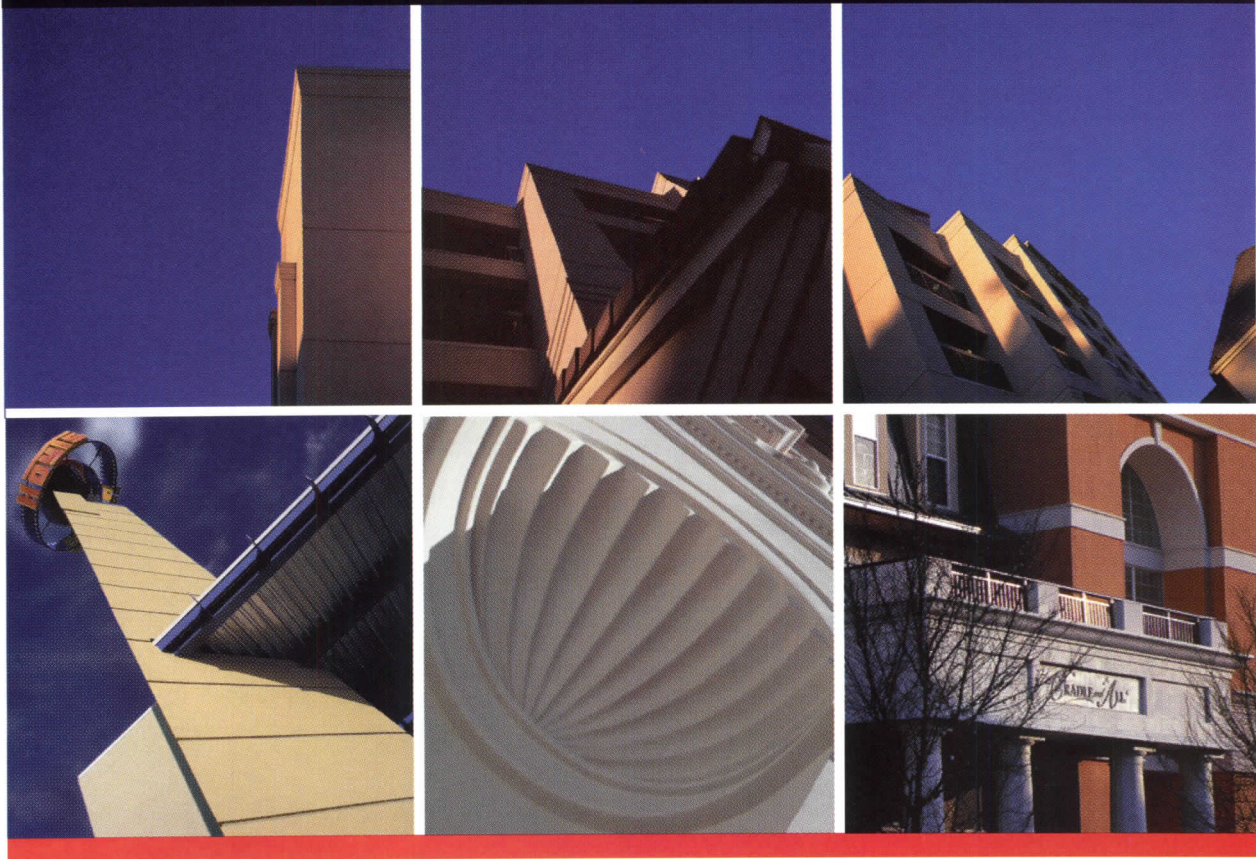
*November 4–5*

The annual regional conference and expo for design professionals sponsored by the Virginia AIA. Richmond Centre. 804/644-3041.

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CIRCLE 45 ON INQUIRY CARD

**Seniors Housing Show**

**Philadelphia**

November 5-7

The first tradeshow to focus exclusively on the housing for active, independent-living seniors. Held concurrently with the remodelers' and custom builders' shows. Pennsylvania Convention Center. 800/368-5242 x197.

**ITS World Congress**

**Toronto**

November 8-12

The annual congress and expo for professionals in the field of intelligent transport systems. Metro Toronto Convention Centre. 416/588-5051.

**Alvar Aalto's Private Residences**

**Albuquerque**

November 1-30

An exhibition of the legendary Modernist's residential work, photographed by Jari Jetsonen. University of New Mexico. 505/260-0433.

**Constant's New Babylon**

**New York City**

November 2-December 30

The first major U.S. exhibition of Dutch artist/architect Constant Nieuwenhuys' magnum

opus, an urban utopia the artist imagined through models, paintings, films, and sound projects. The Drawing Center. 212/219-2166.

**Competitions**

**The Dryvit International Design Competition**

*Submission deadline: December 1*

Dryvit Systems Inc., a manufacturer of exterior insulation and finish systems, is seeking entries in the annual Dryvit International Design Competition. A \$5,000 first prize will be awarded to the architect whose work best reflects the design freedom Dryvit provides in the building process. The winning design will also be featured in a two-page spread that will appear in the February 2001 issue of ARCHITECTURAL RECORD. 1/800/4DRYVIT.

**Milano 2001**

*Entry form deadline: October 30*

*Submission deadline: December 30*

The Milan City Council is sponsoring an international competition for the preliminary design of a structure for one of the city's public spaces, a "luminous sign" to mark the beginning of the Third Millennium. The competition tender is pub-

lished online at [www.arcadata.it](http://www.arcadata.it), [www.aem.it](http://www.aem.it), [www.partners.it](http://www.partners.it), and [www.milanoprogetti.org](http://www.milanoprogetti.org). Entry fee is \$120.

**Our Lady of Guadalupe Church Competition**

*Submission deadline: December 1999*

In celebration of the Jubilee year, the Roman Catholic Diocese of Fort Wayne-South Bend, Indiana, is sponsoring a competition for the design of a new church in Milford for a rural Hispanic parish. Call 219/483-3661 to receive a program package, which includes a video of Milford community life.

**CRSI Design Awards**

*Submission deadline: October 22*

Sponsored by the Concrete Reinforcing Steel Institute, this program recognizes predominately site-cast, conventionally reinforced concrete structures completed since January 1997 in Canada, Mexico, and the U.S. or its territories. Contact Dawn Svab at 847/517-1200 x18, or E-mail her at [dawn@crsi.org](mailto:dawn@crsi.org). ■

*Please submit information for the calendar at least six weeks prior to the magazine's publication date (October 15 for the December issue).*

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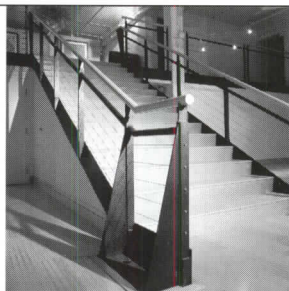
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CIRCLE 46 ON INQUIRY CARD

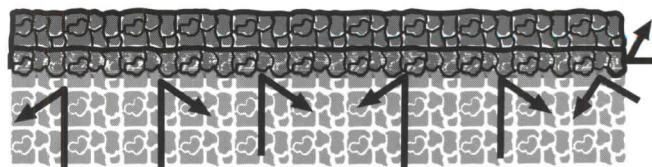
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CIRCLE 47 ON INQUIRY CARD

**“A project that brilliantly solved a problem would win over something that was exquisite but didn’t solve the problems.” — Rafael Pelli**

What marked many of the submissions and the winners was **the chances they took in their neighborhoods**. Many became crown jewels. (Thurm) All of the winners dealt in some way with **difficult, constrained, or compromised sites**. Some of them wanted to make a statement and drive development forward around themselves. Sometimes they simply believed in their community. This was successful in terms of the business plan, but it also made the design more important. (Oakley) This is a way architects can lead in the community. Not enough leadership occurs. (Swett) ■ We were all curious about the condition that explains **the higher quality of building in some of the European countries**. We commented frequently that very few buildings in the U.S. are designed on the basis of life-cycle analysis. There’s still a heavy first-cost mentality.

(Rittelman) The Swiss very clearly articulate that a high quality building brings in more revenue and



**“It was fairly easy to get down to 20 or 30 semifinalists. So many people are afraid to use design to be different.” — Alfred P. West**

pays back. In each case, not only has the building increased in value, but the surrounding areas have increased dramatically in value. (Pedersen) ■ We do need to change the mindset in America that **architecture is perceived as a consumer of the bottom line, not something that adds to it**. It brings value to the employees; it helps retain employees. (Snow) The Howard Roarkian idea of the architect [as iconoclast form-giver] is slowly giving way

to the architect as facilitator and mediator and, ultimately, the definer of the combined vision of client and architect. (Swett) ■ Businesses do need to **beware of mediocrity in any form**. CEOs should say, let’s use architecture to make a statement to our people and our clients about who we are, what we stand for, and what differentiates us. (Tieger) ■ Clients ask us about the specific **relationship between the physical environment and human productivity**. It is hard to establish, because humans defy precise measurement. The winners seemed to understand inferentially that probably this design is good business even if they can’t prove it by basic, measured research. (Rittelman) What characterized the winners was a **strong client lead**. Frequently, you have a hydra-headed client in a large building process, and when those don’t come together, we see less thought-through buildings. (Rittelman) Working with the head of physical facilities

in most firms is not going to get the job down right. (Tieger) I don’t know if you would get the level of collaboration we found in the winners if it were just one client voice. If there’s collaboration *without anyone* with a sense of vision, however, it gets messy. (Thurm) ■ It’s a risk, but architects must question whether the proposed direction really works. Then, they can **make a good client better**. (West) ■

## ALCOA CORPORATE CENTER

When the going gets tough, Wall Street analysts tend to frown on companies that build costly new headquarters. But CEO Paul O'Neill, who is credited with streamlining Alcoa over several years even as aluminum prices have plunged, felt that the company's dramatically revamped structure could only be a long-term success with a new building.

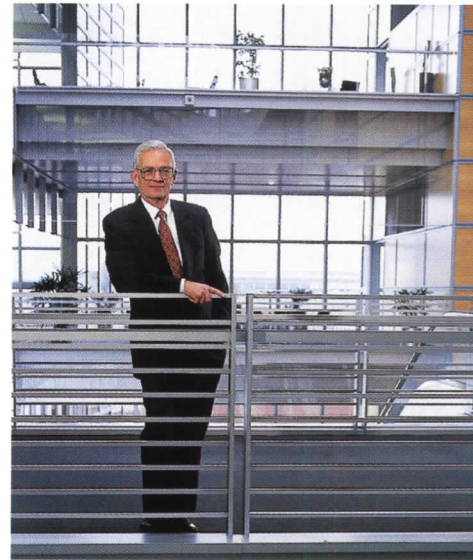
"We started with business ideas, not architectural ideas," O'Neill says, but the company sought architectural means to realize those ideas from Alcoa's architect, the Design Alliance. The business goal of "creating a people focus" was answered by limiting to 45 feet the distance from any open-plan workstation to the riverside facade and its spectacular views of downtown Pittsburgh. Out went private offices for high-level managers—they reinforce hierarchy the company wanted to eliminate. In went highly flexible, low-partitioned workstations—even for

O'Neill. Though workers gave up privacy, they gained amenity: a workplace flooded with natural light—aided by a ceiling height of more than 11 feet. And they gain flexibility: workstations are easily reconfigured because supply air and cables for electricity, telephones, and data are all accessible in a raised access floor.

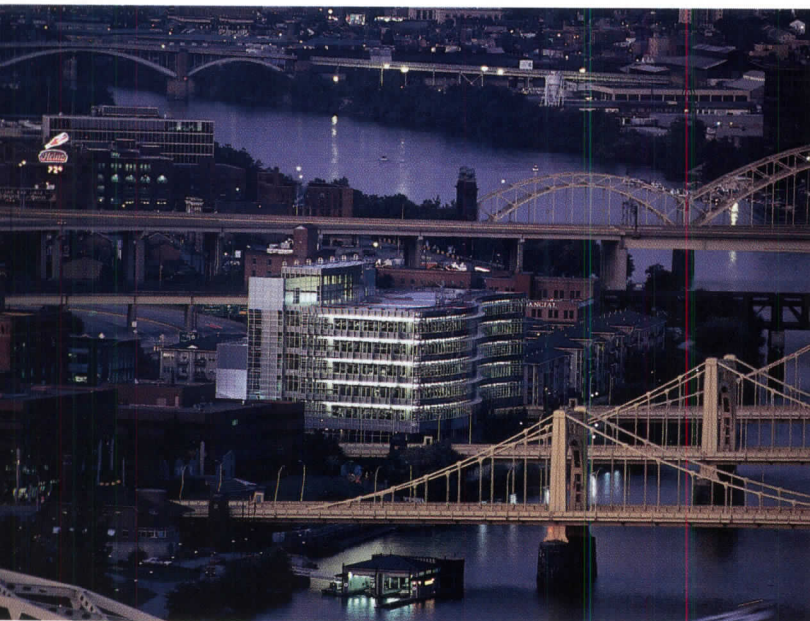
**"WE STARTED WITH BUSINESS IDEAS, NOT ARCHITECTURAL IDEAS."** —Paul O'Neill

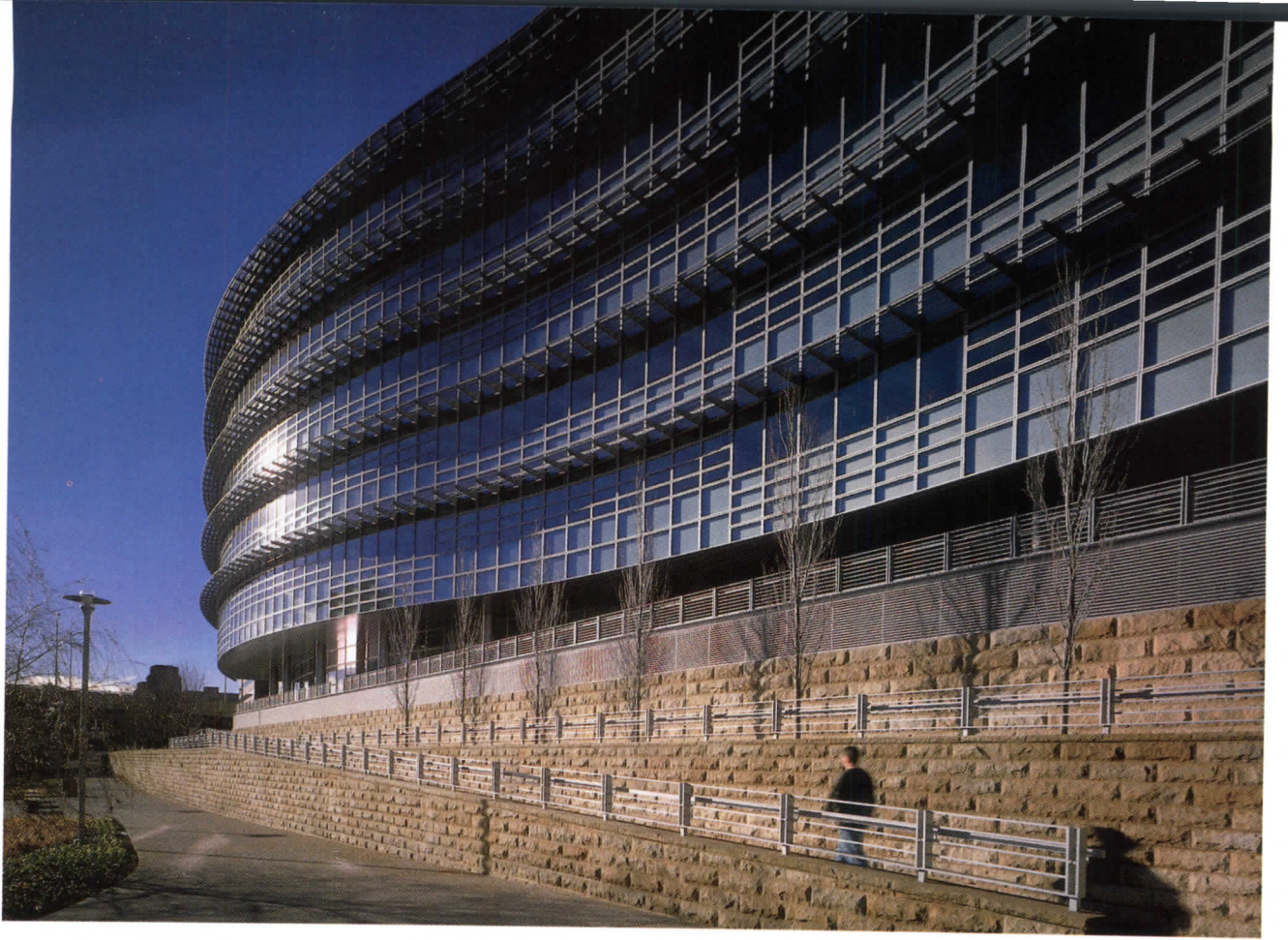
The company says these amenities and the overall design quality have aided recruitment and contributed to the consensus among analysts that the company is among America's most agile and well managed. *J.S.R.*

**Key Players:** Alcoa—Paul O'Neill (in photo right), several hundred Alcoa employees working in teams; The Design Alliance Architects—Martin E. Powell, AIA, David L. Ross, Mary Ann Mozelewski; Rusli Associates (design consultant)



Sunshades temper light entering the Allegheny River side (opposite). The entrance (below) is scaled to the neighborhood.





"The CEO forged the connection between architecture and his vision for the corporation. The new building is a tangible tool. But the building is not what's important, it's what it represents that's important."

—David Tieger

"There was a very long period of design and a very deliberate construction process. They did mock-ups of their designs, so they could try out new relationships."

—Julie Snow



TYPICAL FLOOR PLAN

1. Atrium
2. Bridge/Gathering area
3. Open office
4. Kitchen
5. Video conference
6. Meeting
7. Learning center



The building's key unifying space is the light-bathed atrium (below opposite), in which people readily encounter each other. Left: cafeteria.





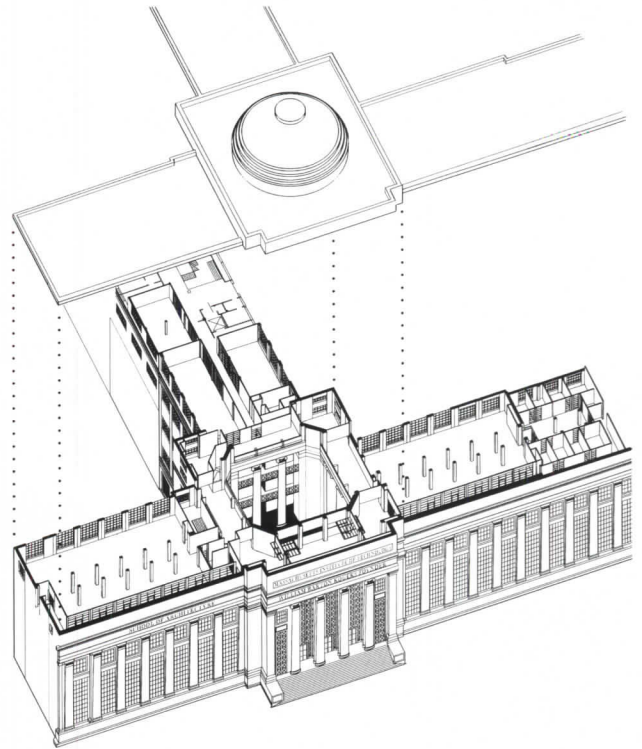




## MIT SCHOOL OF ARCHITECTURE AND PLANNING

Architecture schools are often the poor stepchildren in the academic pecking order. MIT architecture school dean William Mitchell decided to change the equation, moving the school, spread out among 12 structures on the campus' periphery, to a central location where it could take a more prominent role in university life and where it could make com-

key social spaces and jury rooms around the building's dome (opposite top). Partner Jane Weinzapfel, FAIA, created clear circulation within the sprawling square footage (opposite bottom). Overhead-acting garage-style doors (as in the student-review photo above) introduce flexibility. The new studio spaces are fully wired for computers and sophisticated telecommunications equipment.



**“WONDERFULLY RESTRAINED. CAN YOU IMAGINE A MORE DIFFICULT CLIENT?”** —Julie Snow

mon cause with related fields, such as mechanical engineering.

The selected site was prominent all right—the upper levels of the institute's vast, iconic main building—and problematic. But architect Leers Weinzapfel, Boston, rose to the occasion, wrapping the

Involving the heads of the four departments of the school, as well as university physical plant and planning representatives, the design came about through an unusually collaborative process. It was also built in stages, when school was not in session. *J.S.R.*

**Key Players:** MIT—William Mitchell, Diane McLaughlin, Susan Personette, AIA, Stanford Anderson, Bish Sanyal; Leers Weinzapfel Architects—Jane Weinzapfel, FAIA, Andrea P. Leers, FAIA, Mark Armstrong, AIA, Alex Adkins, AIA, Karen Swett, AIA





“MIT said we’ll place ourselves in a more constrained building, because it’s important to be closer to the center of campus and related disciplines. It’s very hard to put a number to that benefit, but it’s part of the vision that makes for excellent projects.”

—David Thurm

“Much of what was important about this were things you couldn’t see. Only after walking around with Jane Weinzapfel and seeing all the junk she had to clear out, did I understand how careful it really was.”

—Rafael Pelli



## ABB POWER GENERATION LTD.

American architects are often frustrated because the kinds of innovative technologies that are becoming common in northern Europe rarely “pencil out” in the States. This Swiss industrial company was able to use its building to convey its quality-driven engineering culture, while actually reducing occupancy costs. A highly innovative financing scheme [page 97], reveals what worked for ABB and why Europe is such a fertile ground for building innovation.

With the power-generation business becoming increasingly competitive, the company decided to bring together departments located in 29 separate facilities so that people could more readily collaborate and the company could change the size and composition of teams to follow its markets.

Architect Theo Hotz, of Zurich, built a single new structure for 2,100 employees on a large industrial site ABB owned in Baden. Six-story wings containing most of the office space extend from a narrow nine-story section (below), where shared spaces are located. The restaurant, cafeteria, conference spaces, training areas, and foyer are located in the lower levels of the main wing, with duplex communication and meeting rooms set at the top. A glazed, full-height atrium unites these areas, all of which are accessed by appealing spiral stairs (opposite top).

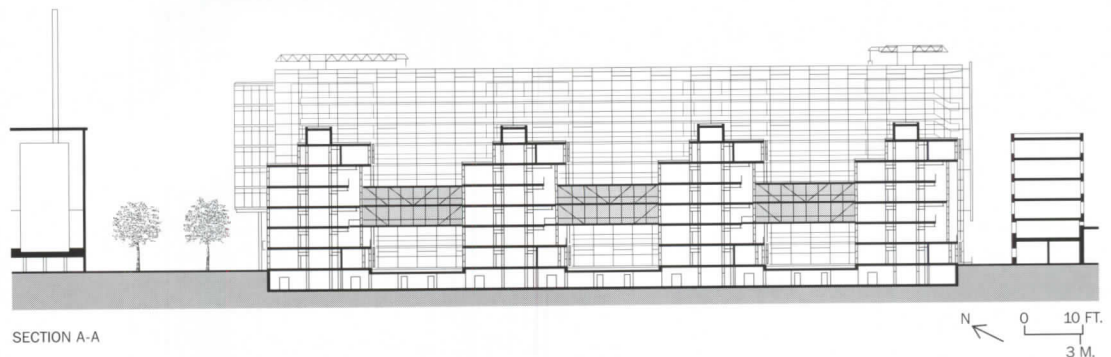
The energy-reducing design says to clients that ABB won't waste their energy either. The narrow, fingerlike wings offer daylight and

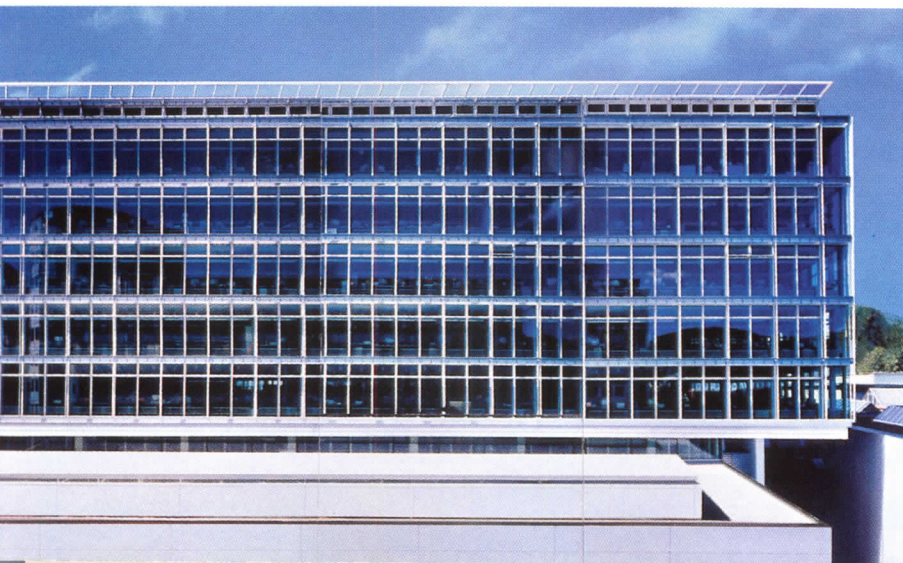
natural ventilation to all. Glazed passages connect the wings at the third and fourth floors, facilitating access among teams. The company compares the flexible, collaborative culture the building has fostered to that of a friendly small town.

A shading system, with external automated blinds, protects the operable curtain wall, minimizing air conditioning, even with the high percentage of perimeter wall. Lobby and atrium spaces in the main wing are only minimally heated and

cooled, thermally buffering occupied spaces. The building mass absorbs excess heat generated during the day, exhausting it or reradiating it at night, as needed. J.S.R.

**“THEY SHOW THEY CARE ABOUT THEIR PRODUCT, ENERGY, BY NOT WASTING IT.” —Alfred P. West**





**Key Players:** ABB Power Generation Ltd., ABB Immobilien (real estate division)—Armin Meyer, PhD (opposite top), Hermann Suter, Renzo Fagetti; Theo Hotz AG Architekten + Planer—Theo Hotz, Stefan Adler, Martina Köberle, Heinz Moser, Roland Steinemann



## NEW JERSEY HOUSING AND MORTGAGE FINANCE AGENCY

An innovative partnership among the client, Tri-Berman Development Company, and the joint venture architects adapted a landmark building in a struggling neighborhood as this agency's new headquarters.

The agency had restructured itself to coordinate once separate

the closed areas to tie together the open-office areas. Much of the space opens upward to the lofty metal trusswork of the roof. Restored monitors bathe the space with light.

The agency has so successfully met its new mandates that it has been given additional responsibilities. The state's new commitment to the

**"IF A STATE AGENCY CAN DO THIS, ANYONE CAN DO IT."** —David Tieger

efforts to increase affordable housing and foster urban redevelopment partnerships. It wanted its new home to reflect its new mission.

Rejecting the standard government-office solution of dropped ceilings and ranks of cubicles, the client and its architect designed conference rooms as defining architectural gathering places for each department (top and bottom right). Broad "avenues" penetrate

neighborhood primed it for further development: senior housing, a new shopping center, an arts center and cafe, among others. *J.S.R.*

**Key Players:** NJHMFA—Ira Oskowsky (far left in photo top), Ann Merlino (fourth from left), Michael Floyd (standing); Ford Farewell Mills and Gatsch/Johnson Jones—James A. Gatsch, AIA, Catherine Counts, AIA, Michael Farewell, FAIA, Harry LaBold

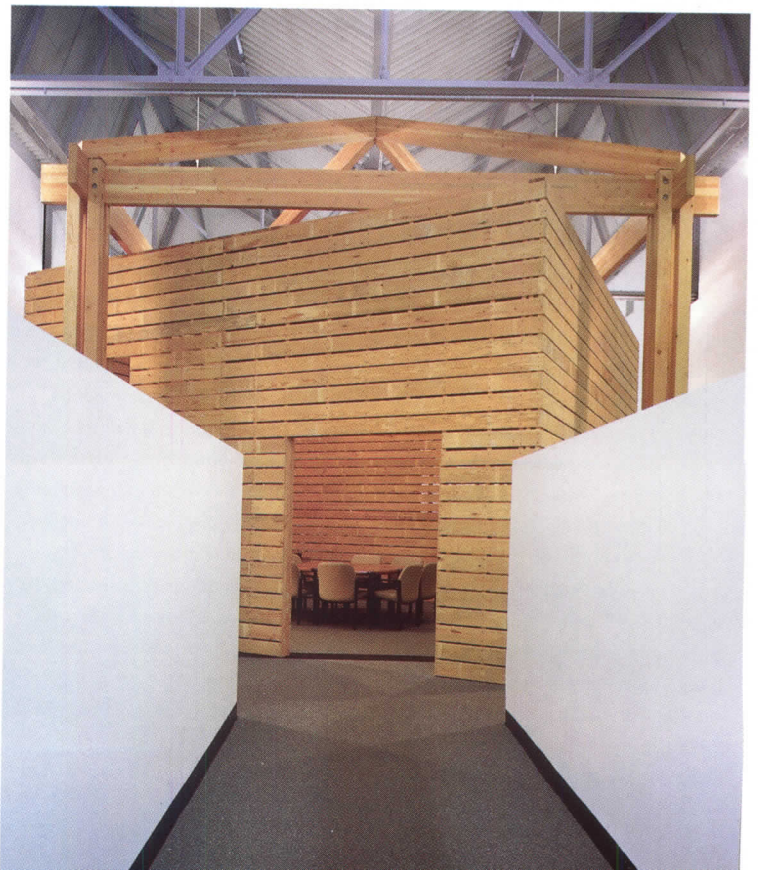


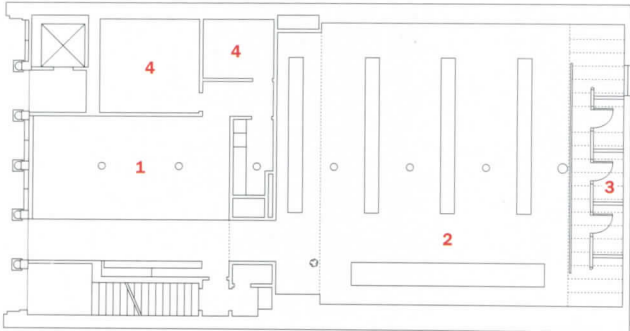
**"This was such a great mold breaker."**

—Duke Oakley

**"This is a very effective and inexpensive way of giving people in a large organization a genuine sense of place."**

—Richard Swett





PLAN

1. Reception
2. Sales area
3. Changing
4. Office/Storage

## HELMUT LANG BOUTIQUE

Is it a gallery or a retail store? At Helmut Lang, you have to stroll inside, past the zipper-sign column by artist Jenny Holzer, to be sure. In New York City's Soho district, home to galleries and fashion boutiques, a

and image-saturated market. The architect's minimalist aesthetic emulates the art-viewing experience: the serene reception space enables the patron to focus fully on the merchandise, which is pre-

**"THEY TURNED CONVENTIONS OF RETAIL ON THEIR HEAD."** —*William Pedersen*

store that blurs the line between the two is not necessarily out of place. Nor is it surprising that the store looks the way it does, considering it was designed by Gluckman Mayner, architect of numerous gallery spaces and museums.

The store's apparent inversion of retail norms (in which merchandise plays second fiddle to the surroundings) came about because of this high-end fashion house's desire to create a unique image in a crowded

sented within large, slablike cabinets (below).

The store has proved a sales success and established the company's presence in the New York market, spurring imitators, even winning a place in guidebooks. *J.S.R.*

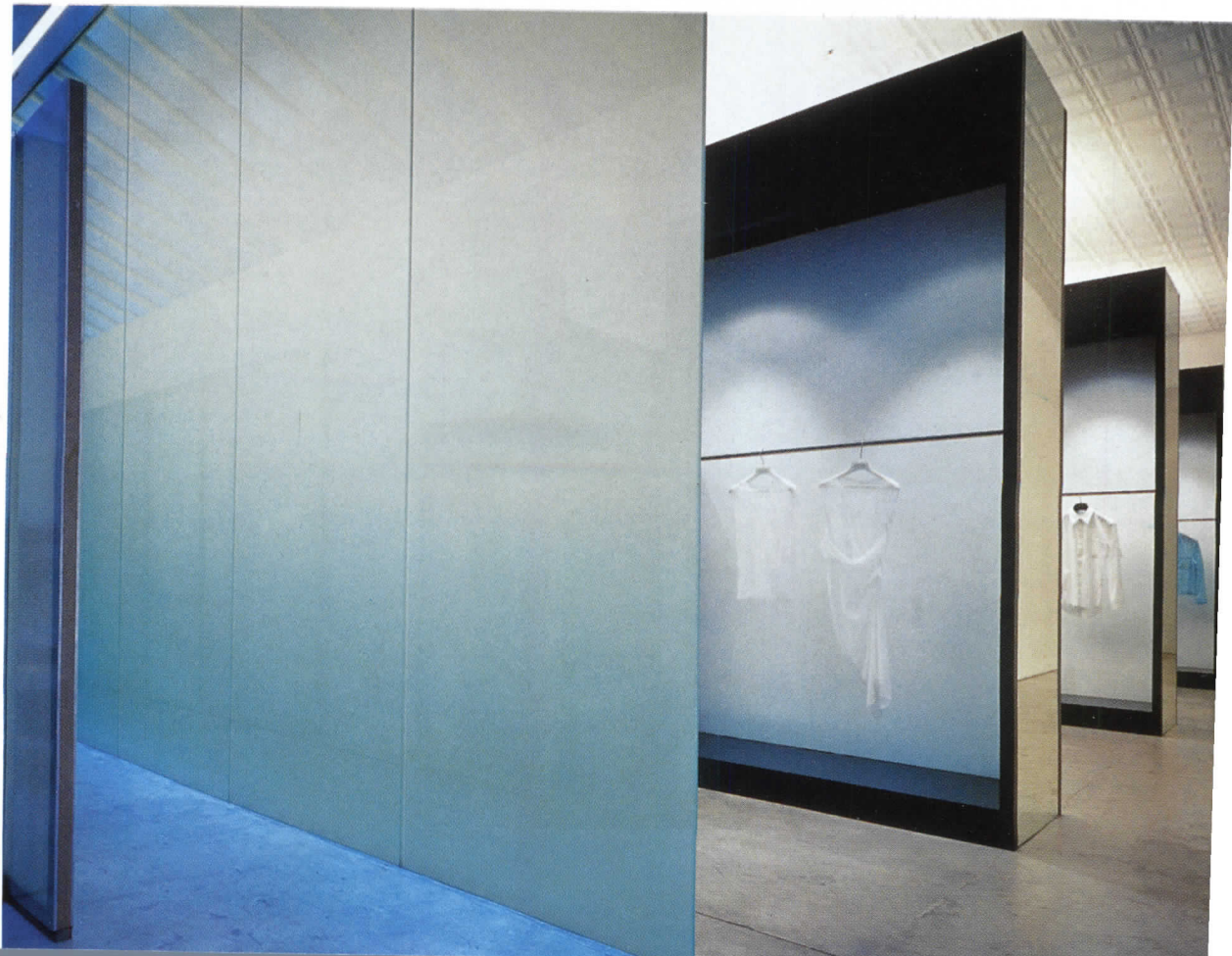
**Key Players:** *Helmut Lang—Helmut Lang; Gluckman Mayner Architects—Richard Gluckman, FAIA, Melissa Cicetti, Perry Whidden, Eric Chang, Bobby Han*

**"He concealed the product, then elevated the retail environment to this ethereal level, where the product benefits from the scrutiny that you might give a work of art. Fortunately the clothes can stand up to it."**

—*Julie Snow*

**"They built a piece of installation art as a way of saying 'buy our clothes and you become art.'"**

—*David Tieger*





**Key Players:** Republic Inc.—Rich Gillman, Ron Spielman (left to right in photo), Andrzej Palcowski, Deborah Brougham, Amy Cusentino; Booth Hansen Associates—Laurence O. Booth, FAIA; William Ketcham, AIA; David Mann, AIA; Kerl Lajeune; Hendler Design (interiors); Wooton Construction—Bill Smith



**“IT’S VERY MUCH ABOUT ENHANCING A NEIGHBORHOOD.”** —William Pedersen

## REPUBLIC WINDOWS AND DOORS

The simple provision of clerestories sets this window-production space apart from most American industrial construction. But it is only one of many innovations that won the combined manufacturing and headquarters an award. The family-owned Republic Inc. wanted a building representing “a paradigm

centers and a subsidized cafeteria. It also offers continuing-education and vocational classes in a training center. Product-display and training areas ease communication between production-line staff and managers.

The 40-foot-square column grid in the production area balances cost with production-line-layout flexibility. One reengineered line increased productivity by 45 percent in a 40 percent smaller footprint.

In plan, the building is a 650-foot-by-450-foot rectangle, a single-floor production space fronted by three stories of offices. The architect created an elegant statement from this typical layout by sloping up the roof over the office space, culminating in a trellised sunshade. Horizontal, ribbed metal cladding runs behind external structural columns, which highlights the building’s structure.

Aside from increasing productivity overall, the central location and distinctive architecture have raised the profile of the company with customers and helped retain and attract valued staff. J.S.R.

shift” and received, from Chicago’s Booth Hansen Associates, a structure that is not only elegant, but is also the fruit of an intense collaboration among management and production staff.

Though it could have moved outside the city or to another state, the company chose a site on Goose Island, a redeveloping industrial zone near the center of Chicago. By staying in Chicago, Republic was able to retain valued staff, as most lived within an eight-mile radius.

The new facility houses staff-oriented amenities such as fitness





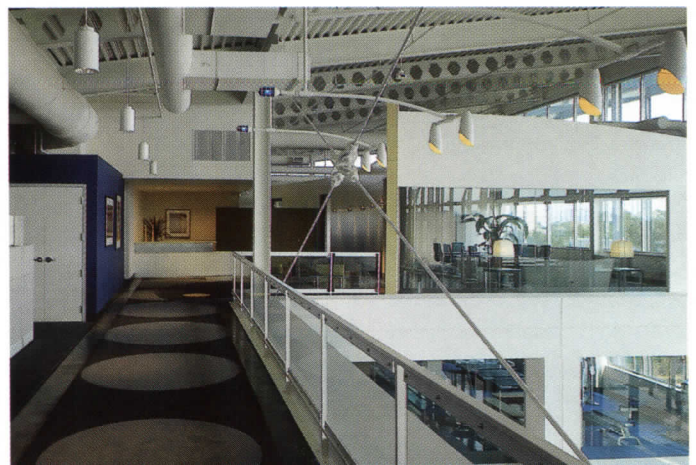


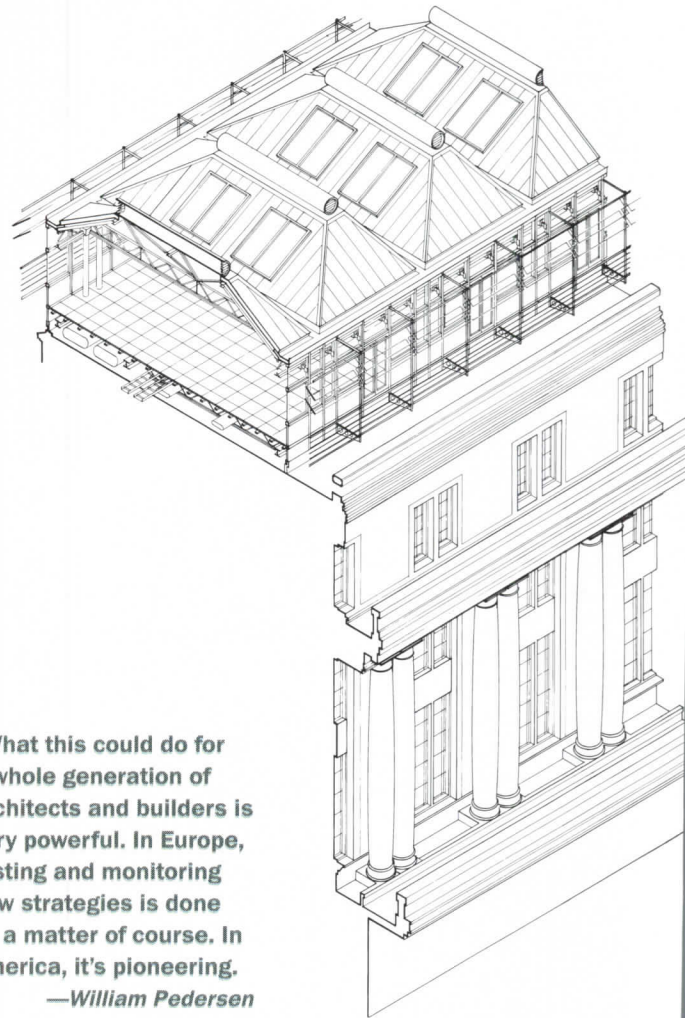
“They clearly decided not just to stay in the community where most workers lived, but to engage them and make a real addition to the community.”

—David Thurm

“The elegance of the architecture gives a welcoming front. It makes it a real neighbor.”

—Rafael Pelli





## ROBERT L. PREGER INTELLIGENT WORKPLACE

Volker Hartkopf “designed” a consortium of 42 building-industry partners (The Advanced Building Systems Integration Consortium), who not only made this project at Carnegie Mellon University in Pittsburgh possible, but who also benefit from this facility for evaluating new construction tech-

reduces energy use. A raised access floor accommodates innovative wiring solutions. Even the building’s erection scheme reduced the facility’s impact on the landmark Margaret Morrison Hall.

The project has attracted international attention, enhanced

**“What this could do for a whole generation of architects and builders is very powerful. In Europe, testing and monitoring new strategies is done as a matter of course. In America, it’s pioneering.**

—William Pedersen

**“IT’S A MARKETING TOOL FOR STUDENTS AND FACULTY.”** —David Tieger

nologies [June 1998, page 148]. Among the center’s innovations are computerized sensors that drive motorized sunshades (top), balancing daylighting with heat-gain reduction.

Inside, a floor-level displacement-air system dramatically

interest in the perpetually underfunded area of construction research, and boosted applicants. *J.S.R.*

**“The very goal of the project was to align architecture in support of business. So, to me, this was an obvious winner.”**

—Julie Snow

**Key Players:** *The Center for Building Performance and Diagnostics—Volker Hartkopf, PhD, Stephen Lee; Bohlin Cywinski Jackson—Jon C. Jackson, AIA, Peter Q. Bohlin, FAIA, Gregory R. Mottola, AIA; Pierre Zoelly Architect—Pierre Zoelly, AIA (conceptual design); Josef Gartner & Co. (exterior wall system)*





## LA MARINA PRESCHOOL

Because of a state-mandated ratio of outdoor play space to indoor program areas, land costs alone should have precluded this preschool's construction in Manhattan Beach, Calif.

operating costs. The state licensed the facility for 90 children, 10 more than first requested, offering comfort to lenders, whose participation was essential to the feasibility of

**“THEY MET STATE MANDATES BY HARD WORK AND CLEVERNESS.”** —*Rafael Pelli*

In an act of creative planning, the architect, Studio 9one2, of Hermosa Beach, negotiated a design with the California Department of Health Services that permitted the preschool to build on an undersized lot.

this for-profit facility. Full enrollment was reached in six months, and there is a long waiting list. *J.S.R.*

**Key Players:** *La Marina Preschool—Kimberly Ritchie, Isabel Currie, Janis Weaver (left to right in photo above); Studio 9one2—Patrick J. Killen, AIA, Howard G. Crabtree, Daryl Olesinski, Robert Treman, Marie Linden*

**“They could not have used that piece of property if they had not been thinking way outside the box.”**

—*Duke Oakley*

**“Having seven children of my own, I can see that the child was regarded as important a client as the people operating the building.”**

—*Richard Swett*

**“It supports the children’s experiences without being childish or pandering. It’s very carefully assembled.”**

—*Julie Snow*

The architect set the squarish concrete-block-faced building low in its site. Children scramble up grassy terraces and a ramp to the rooftop, where most of the play area wraps a pyramidal skylight. Classrooms surround a central reading space (right) under the skylight. A separate set of external ramps lead through a tiny amphitheater (left) to the entrance. Sensitive use of cutouts in the masonry walls, as well as a mix of materials (below) opens the structure to its neighborhood.

The design passed rigorous scrutiny by local planners and neighbors as well as the state. The limited above-ground exterior wall reduces cooling loads, lowering



## ASTRA FRANCE HEADQUARTERS

Removing barriers to communication has become a chestnut of management theory, but companies still find it difficult to accomplish. Too often they overlook *architectural* opportunities to foster interaction or wonder if it only works for those who commit to a radical architectural solution. This corporate headquarters for a pharmaceutical company in Rueil Malmaison, France, was able to evolve its culture without architectural chest thumping.

Architect Jean Paul Viguier SA d'Architecture, of Paris, arranged a narrow rectangular volume and a stepped volume around an atrium daylighted at the top and end (axonometric and opposite, top). The

has been dubbed the Agora. Employees go to the top floor to find the cafeteria and outdoor dining (opposite bottom).

The company has documented the correlation between improved internal communication and the ease with which people move throughout the building and the staff's approval of the environment. The Agora has become an important meeting place, used for formal presentations and spontaneously arranged conclaves. Clients and vendors request meetings at the headquarters because they find it so appealing, consequently reducing the number of off-site trips employees must make.

The headquarters has become a local landmark, with community

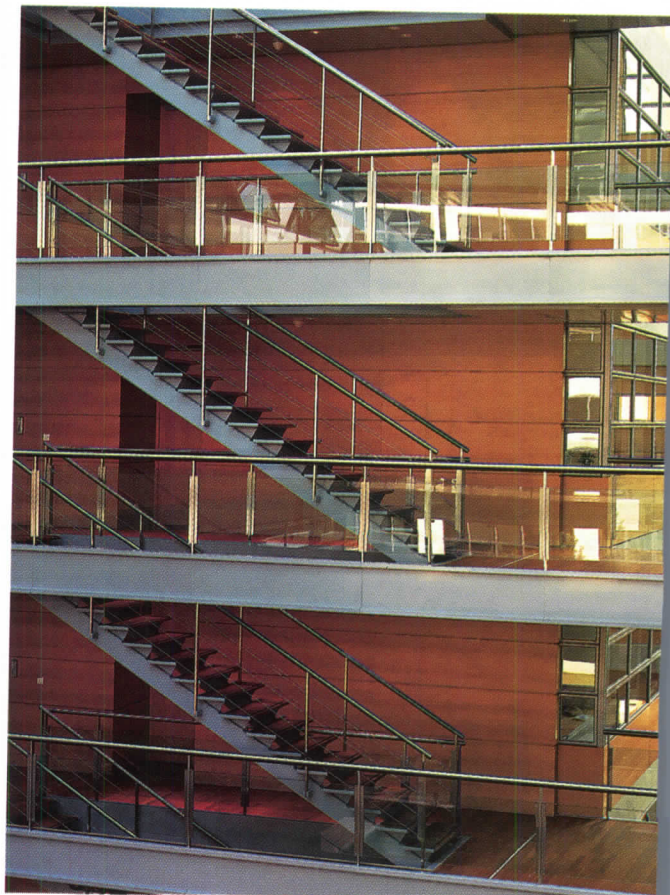
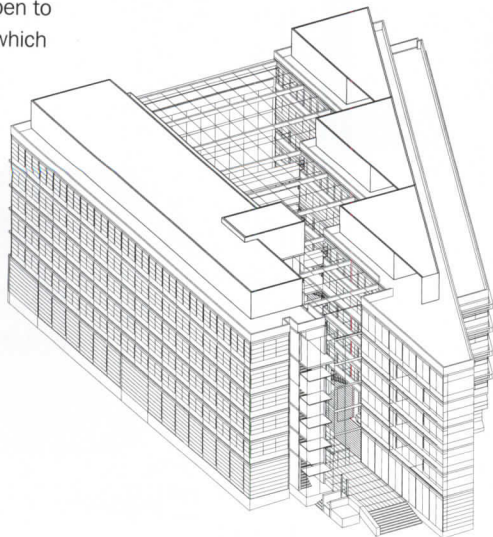
**"EUROPEANS SEE QUALITY ENVIRONMENTS AS ADDING TO PRODUCTIVITY."** —Richard Swett

resulting building form, while compact, places workstations close to windows. Bridges and convenience stairs (bottom right) cross this space, greatly easing communication among departments and encouraging casual meetings.

The workings of various departments also become more transparent because the arrangement of appealing communal spaces urges people to move upward and downward through the building. Training areas and an auditorium on the ground floor open to the atrium gathering space, which

groups requesting use of the space. Even ad agencies shoot commercials there for the lightness and warmth the building presents. *J.S.R.*

**Key Players:** *Astra France Holding—Jean-Pierre Cassan, Stig Tallqvist, Philippe Thoumyre; Jean Paul Viguier SA d'Architecture—Jean Paul Viguier, ASSOC. AIA, Vincent Cortes; Beaulieu Ingenierie (structural engineering); Trouvin (mechanical engineer); Jacobs Serete (contractor)*



"The company seems to have had a well-established, efficient culture, which the building sustained rather than transformed. It was successful because it captured the business purpose and furthered it."

—David Thurm

"The architect paid meticulous attention to detail. It's a very comfortable environment—where nature plays an important role—one that seems more human than almost any of the corporate headquarters we saw."

—William Pedersen



## SOURCES

**ABB Power Generation**

**Artificial stone staircases:** K. Studer  
**Steel staircases:** Bernard Sottas SA  
**Steelwork:** Bernard Sottas SA, Baltensperger  
**Office facade:** Schmidlin  
**Glass facade:** H. Fischer GmbH, Hirsch  
**Internal facade:** Aeppli & Co.  
**Sun shading:** Schenker  
**Flat roof coverings:** Isomat-Bau, Schoop+Co.  
**Mastic pointing:** Isotech  
**Lighting fittings:** Fluora, Zumtobel  
**Illuminated signs:** Speckert+Klein  
**Smoke detectors:** Mayer  
**Audio/video systems:** Zihlmann  
**Building management system:** ABB-CMC  
**Heating:** Lehmann, Pumilia  
**Ventilation and air-conditioning:** Luwa, J. Muller, Lippuner  
**Sanitary installation:** F. Heusser, Rothmayr  
**Sprinklers:** Walter  
**Elevators:** Schindler  
**Facade-cleaning equipment:** K pfer Brothers  
**Plasterwork:** W. Sp ni  
**Internal glazing:** H. Wetter, Weber, Ziltener, Laichli, Kempf  
**Doors:** Ego Kiefer, RWD Schlatter, P. Bucher  
**Handrailings:** H. Wetter  
**Partitions:** Reppisch-Work, Interfinish, H ppe Form, Ita Sons  
**Subflooring:** Cosimo B. Graf  
**Jointless flooring:** Amarit, Steinit  
**Textile flooring:** Kistler, M bel Pfister  
**Artificial stone floors:** K. Studer  
**Double floors:** Sicap, Debea  
**Baseboards:** Spiller  
**Floor and wall tiling:** G. Fehlmann, Achilles Karrer  
**Ceilings:** EMG GmbH, LBS, FK, Mensch, Isolag  
**Internal painting:** Wernli, Nax Schweizer, Z nd  
**Signs:** Speckert+Klein  
**Stone plinth:** Kohler  
**Natural-stone paving:** Stebler, K. Studer, O.M.G. SPA  
**External works:** W. Bertschinger  
**Kitchen fittings:** Franke, Meiko (Suisse), Buob Roschach, Baumgartner, H. Foster

**Alcoa Corporate Center**

**Masonry:** Briar Hill Quarry (sandstone)  
**Metal/glass curtainwall:** Benson Custom  
**Wood:** Bacon Veneers Co.  
**Built-up roofing:** Siplast  
**Glass:** PPG  
**Skylights:** Supersky  
**Entrances:** Benson (storefronts, exterior), EPI (interior)  
**Metal doors:** Steel Craft  
**Wood doors:** Weyerhaeuser  
**Locksets:** Sargeant  
**Cabinet hardware:** Hafele America  
**Acoustical ceilings:** Armstrong  
**Suspension grid:** Armstrong  
**Demountable partitions:** Herman Miller  
**Paints and stains:** Pittsburgh Paints, Polymyx, Zolaton  
**Wallcoverings:** Fine art on commission, Knoll Textiles  
**Paneling:** Bacon Veneer Co.  
**Plastic laminate:** Pionite, Formica, Nevamar  
**Special surfacing:** Fountainhead, Gibraltar, Avonite  
**Resilient flooring:** Endura  
**Carpet and tile:** Collins & Aikman (tile), Broadloom, Prince Street and Karastan

**Raised flooring:** CTEC  
**Office furniture:** Herman Miller  
**Reception furniture:** Herman Miller  
**Chairs:** Bruceton, Dauphin, Davis, Design Link, Gregson, Haworth, HBF, Herman Miller, Knoll, Leland, Steelcase, Thonet  
**Tables:** Falcon (restaurant), AGI, Davis, Design Link, Geiger, Herman Miller, Hale, Knoll, Versteel  
**Upholstery:** Spinneybeck (leather), Sina Pearson, Design Tex, Maharam, Herman Miller, Unik Vaev, Knoll (workstation fabric), Architex, Deepa, ArcCom  
**Other furniture:** Mobilia (audiovisual unit)  
**Interior ambient lighting:** Columbia  
**Downlights:** Lithonia, Prescolite  
**Task lighting:** Herman Miller  
**Exterior:** Hydra, Kim  
**Controls:** Lutron, General Electric  
**Elevators/Escalators:** Schindler  
**Faucets:** Kroin  
**Toilets/Sinks:** American Standard  
**Drinking Fountains:** Oasis  
**Shower Units:** Aqua Glass

**ASTRA France**

**Structural system:** SAEP Equipment  
**Metal/glass curtain wall:** Alusuisse (metal), St-Gobain (glass)  
**Concrete:** SAEP Equipment  
**Built-up roofing:** SPAPA (asphalt)  
**Aluminum:** Harmon CFEM  
**Glazing:** St-Gobain  
**Skylights:** Harmon CFEM  
**Insulated-panel or plastic glazing:** Harmon CFEM  
**Entrances:** Stanley  
**Wood doors:** Brard  
**Fire-control doors, security grilles:** Gubri  
**Upswinging doors:** Nomafia  
**Locksets:** Bezault  
**Acoustical ceilings:** Plafometal-Placoplatre  
**Demountable partitions:** Huppe  
**Cabinetnetwork and custom woodwork:** Brard  
**Paints and stains:** La Seigneurie  
**Paneling:** Brard  
**Resilient flooring:** Briatte (wood), Sarlino  
**Carpet:** Heuga  
**Raised flooring:** Intercell  
**Office furniture:** EFG  
**Reception furniture:** EFG  
**Fixed seating:** EFG  
**Chairs:** EFG  
**Interior ambient lighting:** Cegelec  
**Controls:** Amdi  
**Elevators/Escalators:** Otis  
**Accessibility provision:** Otis  
**Plumbing:** Balas-Mahey

**Helmut Lang Boutique**

**Glass-fiber reinforced concrete:** Essex Works  
**Cabinetry:** American Woods & Veneer Work  
**Dressing rooms:** Eurostruct Inc; Norcore by Norfield; Lumasite by American Acrylic  
**Lighting:** Edison Price (downlights); Leviton (porcelain sockets); CJ Lighting (fluorescent lights)  
**Glass:** Floral Glass

**La Marina Preschool**

**Structural system:** Metalco.  
**Masonry:** Orco Block  
**Metal/glass curtain wall:** Metal Window Corp.  
**Built-up roofing:** Manville Roofing  
**Elastomeric:** Dex-O-Tex

**Metal:** Berridge Metal, Robertson Decking  
**Aluminum windows:** Metal Window Corp.  
**Glazing:** Downey Glass  
**Skylights:** Kalwall  
**Insulated-panel or plastic glazing:** Kalwall  
**Entrances:** Metal Window Corp.  
**Metal doors:** Timely Doors  
**Wood doors:** T.M. Cobb  
**Sliding doors:** Hufcor Airwall  
**Fire-control doors, security grilles:** Charles Hardy Co.  
**Locksets:** Schlage  
**Hinges:** Metal Window Corp.  
**Closers:** Hoppe  
**Exit devices:** Von Duprin  
**Pulls:** Hoppe  
**Security devices:** Von Duprin  
**Cabinet hardware:** Blum  
**Demountable partitions:** Hufcor Airwall  
**Cabinetnetwork and custom woodwork:** Wells Cabinet Concepts  
**Paints and stains:** Hammerite (for metal), Frazee (stucco and drywall)  
**Plastic laminate:** Abet Laminati  
**Floor and wall tile:** Dal-Tile (bathrooms)  
**Resilient flooring:** Armstrong  
**Carpet:** Bentley Carpets  
**Other furniture:** Wells Cabinet Concepts  
**Interior ambient lighting:** Studio 9one2  
**Downlights:** Halo  
**Task lighting:** Studio 9one2  
**Exterior:** Louis Poulson  
**Controls:** Lutron  
**Water fountains:** Haws  
**Sinks and toilets:** American Standard

**Massachusetts Institute of Technology School of Architecture and Planning**

**Steel:** Hope's Steel/Glass Entrances, Jamestown Series  
**Aluminum:** Custom Window  
**Glass:** Temp Glass  
**Skylights:** Sunglo  
**Upswinging doors:** Raynor Overhead Doors  
**Locksets:** Schlage  
**Hinges:** Stanley  
**Closers:** Norton  
**Pulls:** Rockwood  
**Cabinet hardware:** Stanley  
**Acoustical ceilings:** Eckel  
**Cabinetnetwork and custom woodwork:** Galluzzo, Gordon Merrick, Commercial Casework  
**Paneling:** Homasote  
**Plastic laminate:** Neramar  
**Special surfacing:** Dex-o-tex (terrazzo)  
**Floor and wall tile:** American Olean (bathrooms)  
**Carpet:** Bigelow  
**Office furniture:** Herman Miller  
**Reception furniture:** Gehry by Knoll  
**Chairs:** KI Versa Chairs  
**Tables:** Langley (in the studio)  
**Interior ambient lighting:** Lite Control  
**Downlights:** Staff  
**Lighting controls:** Lutron

**New Jersey Housing & Mortgage Finance Agency**

**Aluminum:** Kawneer  
**Glazing:** Pittsburgh Corning Corporation (glass block); AFG Industries (pattern glass)  
**Entrances:** Kawneer  
**Metal doors:** Steelcraft  
**Wood doors:** Mohawk  
**Locksets:** Arrow  
**Hinges:** Stanley

**Closers:** Norton  
**Exit devices:** Von Duprin  
**Acoustical ceilings:** Armstrong (panels), Chicago Metallic (metal grid), Armstrong (suspension grid)  
**Paints and stains:** Conlux/Sherwin Williams  
**Wallcoverings:** Essex  
**Floor and wall tile:** American Olean  
**Resilient flooring:** Azrock, Johnsonite Bases  
**Carpet:** Bigelow/Karastan, Gulistan Stevens Carpet  
**Office furniture:** Haworth  
**Chairs:** Steelcase  
**Tables:** Johnson Industries (conference table)  
**Interior ambient lighting:** Paralux, Prismglo, Louis Poulson  
**Downlights:** Halo  
**Track lighting:** Halo

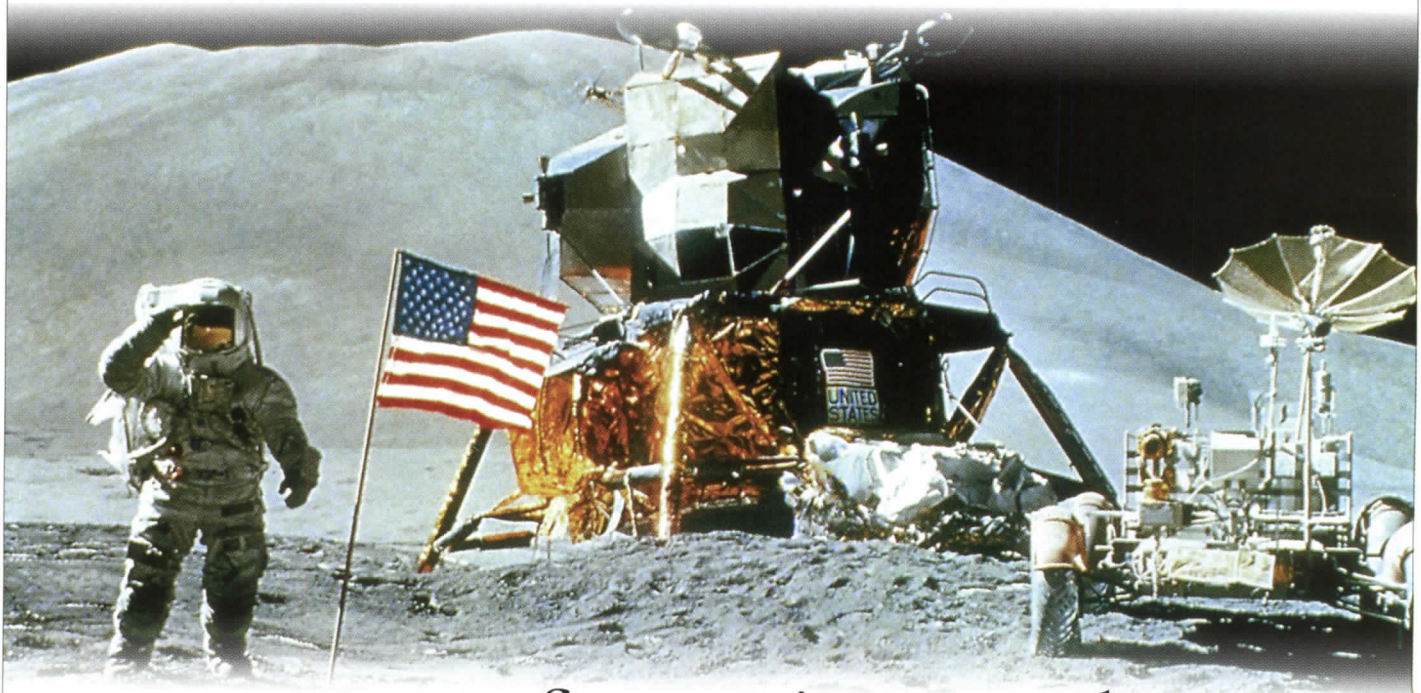
**Republic Windows & Doors Inc.**

**Structural system:** Castelite (castellated beams)  
**Curtain wall:** Fabral (metal), Efc0 (ribbon windows)  
**Built-up roofing:** Schuller  
**Windows:** Republic Windows & Doors (vinyl windows), Efc0 (aluminum)  
**Glazing:** Republic Windows & Doors  
**Entrances:** Crane  
**Overhead dock doors:** Pierini Iron Works  
**Elevators:** Dover

**The Robert L. Preger Intelligent Workplace**

**Structural system:** Nucor-Yamato, Littel Steel  
**Masonry:** Franco Masonry  
**Metal/glass curtain wall:** Josef Gartner & Co.  
**Built-up roofing:** Versico  
**Metal:** Alumashield  
**Steel:** Nucor-Yamato  
**Glass:** Viracon, PPG Pilkington  
**Skylights:** Viracon, WASCO  
**Insulated panel or plastic glazing:** Bayer USA, Extex  
**Entrances:** Josef Gartner & Co.  
**Metal doors:** Steelcraft, Josef Gartner & Co.  
**Fire-control doors, security grilles, etc.:** Von Duprin, Joseph Gartner & Co.  
**Locksets:** Josef Gartner & Co.  
**Hinges:** Josef Gartner & Co.  
**Acoustical ceilings:** Armstrong World Industries  
**Demountable partitions:** AMP  
**Cabinetnetwork and custom woodwork:** Giffen Interior & Fixture  
**Paints and stains:** Porter Paints  
**Resilient flooring:** Johnsonite, Armstrong World Industries  
**Carpet:** Interface  
**Raised flooring:** MAHLE, GmbH  
**Office furniture:** Steelcase, Grahl Industries  
**Fixed seating:** Steelcase, Grahl Industries  
**Interior ambient lighting:** Zumtobel Staff  
**Controls:** Siemens Energy and Automation, Zumtobel Staff Lighting  
**Accessibility provision (lifts, ramps, etc.):** Garavanta (chairlift)  
**Security systems:** Johnson Controls, Honeywell  
**HVAC units:** Engelhard/ICC, LTG Lufttechnische GmbH  
**HVAC control devices:** Johnson Controls  
**IAQ devices:** Siemens, LTG Lufttechnische GmbH, Englehard/ICC  
**Cable trays:** OBO Bettermann

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# Why Architects

1866-1907

1908-1970

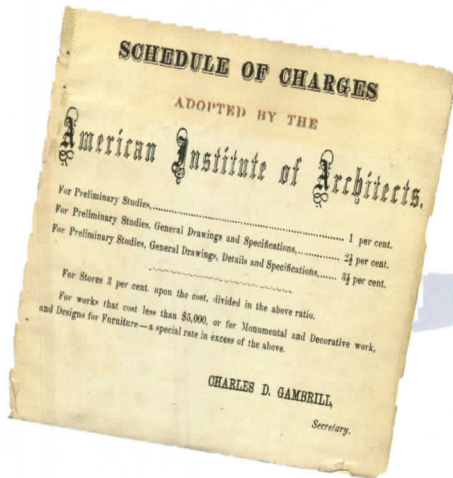


## 1866

Richard Morris Hunt's lawsuit against a client who refuses to pay HELPS ESTABLISH 5 PERCENT OF THE FINISHED COST OF CONSTRUCTION AS A STANDARD fee for architectural work.

## 1866

The American Institute of Architects published the FIRST SCHEDULE OF FEES, which set 5 percent as a customary charge.



## 1888

THE INSTITUTE ISSUES THE FIRST STANDARD FORM OF AGREEMENT between owner and contractor, making the architect the agent of the owner.

## 1888

IN HUBERT V. AITKENS, a judge finds that the architect is responsible for any errors in design and for keeping abreast of changes in technology.



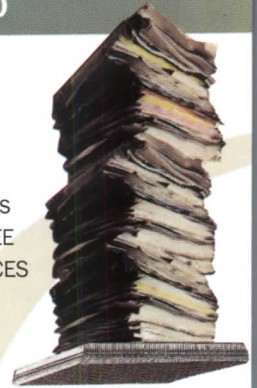
## 1897

The state of Illinois enacts the FIRST ARCHITECTS' LICENSING LAW in the U.S.



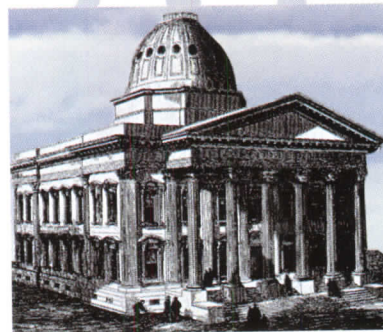
## 1909

The Institute adopts the first PRINCIPLES OF PRACTICE AND CODE OF PROFESSIONAL ETHICS. Architects are forbidden by the code to compete with each other on the basis of compensation.



## 1870-1929

UNPRECEDENTED WEALTH, combined with new materials and rapid technological advances, means that buildings are becoming increasingly complex.



by Elizabeth Harrison Kubany and Charles D. Linn, AIA

Architects are looking for the holy grail, the secret of what to charge clients. Our profession's attitude toward fees has rendered this the single most confusing topic for architects, when making money should be a natural reward for hard work, ideas, talent, and knowledge. But to understand why architects have such a problematic attitude toward fees, we have to comprehend the problem.

There are reasons why the topic of fees is shrouded by fear and mystery. Architects did not arrive at their current state of financial anxiety overnight. The question of how to charge clients for value received has plagued them from the early days of the profession. The saga includes a gradual but ever increasing responsibility without commensurate compensation, two Justice Department lawsuits, and a profession whose complexity has grown exponentially over the years.

This month, ARCHITECTURAL RECORD looks back at the history of our profession to see how this issue became so complex. Next month, we will suggest some possible solutions by introducing the reader to strategies—ranging from conventional wisdom to more progressive approaches—for improving architectural fees.

### The profession emerges

A dispute over fees led to the emergence of the modern notion of architecture as a profession. In 1861, Richard Morris Hunt sued a client who refused to pay his fee. During the trial, several architects testified that their customary charge was 5 percent of the project's cost, and the jury agreed, setting 5 percent as the standard accepted minimum compensation. The litigation launched a new era, setting an important precedent for the recognition of architects as professionals—no longer



# Don't Charge Enough

1971 to PRESENT

## 1940s

The responsibility for CREATING FEE SCHEDULES SHIFTS TO INDIVIDUAL CHAPTERS, though the 1951 *Handbook* still recommends their use.



## 1971

THE AIA SIGNS A CONSENT DECREE WITH THE U.S. JUSTICE DEPARTMENT and agrees to remove any clauses from its code of ethics that would forbid architects from “submitting price quotations for architectural services.”

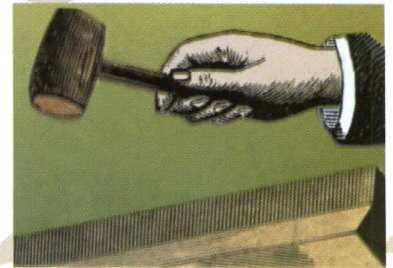


## 1975

To make up for the absence of fee schedules, the AIA issues its COMPENSATION MANAGEMENT GUIDELINES FOR ARCHITECTURAL SERVICES: A MANUAL ON COST-BASED COMPENSATION.

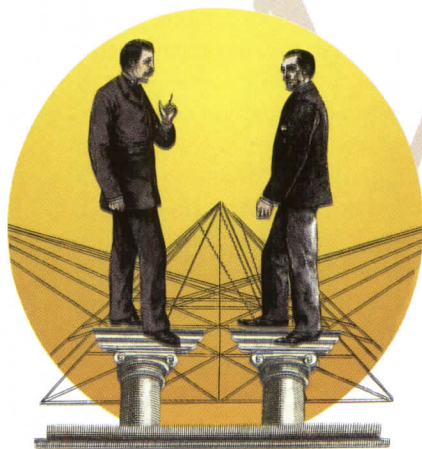
## 1985–90

The Justice Department conducts a Grand Jury investigation into whether a violation indeed existed. Late in 1989, THE JUSTICE DEPARTMENT THREATENS CRIMINAL INDICTMENTS, and the Institute engages in negotiations to avoid them. A new consent decree is signed in 1990, which added that the offering of free or discounted services could not be considered unethical.



## 1966

The AIA's Standards of Professional Practice continue to forbid architects to compete on the basis of fees. Architecture firms are surveyed by Case and Company for the AIA. The survey shows that ARCHITECTS ARE LOSING MONEY ON ONE OUT OF FOUR JOBS.



## 1985

After conducting a survey on fees and compensation, the CHICAGO CHAPTER OF THE AIA ISSUED ITS COMPENSATION AND FEE POLICY STATEMENT. The CCAIA rescinded the statement after review by the AIA's general counsel, who determined that this document violated the 1971 consent decree.



merely building designers engaged in construction trades—who are entitled to a fee for design.

Within a few years, on June 4, 1866, the fledgling American Institute of Architects issued its first document, a “Schedule of Charges,” which further confirmed 5 percent as the proper charge for architectural services, including preliminary studies, construction documents, and site visits.

The primary accomplishment of the first schedule was to set a fee for a whole service, rather than itemize charges by the drawing or by the hour. This innovation set architects apart from members of the building trades and unions—a distinction the profession was anxious to make. “It was an easy way to calculate compensation,” says Tony Wrenn, HON. AIA, who recently retired as the Institute’s archivist. “But the point was really to establish what an architect provided, and what clients were going

to get for their money. Without that, there was no rationale for hiring an architect.” The document’s main flaw was that it did not establish how the involvement of architects could produce better buildings than contractors working alone.

## The all-knowing architect

As the 19th century progressed, the growing complexity of building technology vastly increased the knowledge required for architects, but fees did not keep up. Taller structures emerged in response to rising land values and new building materials. The advent of systems such as electricity, indoor plumbing, centralized steam heating, and ventilation made daunting the range of information that an architect had to master.

In a landmark 1888 New York case, *Hubert v. Aitken*, the courts ruled that technical knowledge is a reasonable requirement of an archi-



**n Architect should be high minded, not arrogant but faithful, just, and easy to deal with; without avarice. Let him not be mercenary nor let his mind be preoccupied with his remuneration. At the request of others, not at his own, should he undertake a task.**

—Vitruvius, Roman architect and engineer in the reign of Augustus Caesar, 1st Century B.C.

tect. In that case, the architect had improperly sized a boiler chimney but insisted that the error should have been caught and corrected by the plumber. The judge wrote: “No one would contend that at this day an architect could shelter himself behind the plumber and excuse his ignorance of the ordinary appliances of sanitary ventilation by saying that he is not an expert in the trade of plumbing . . . why should not the architect be expected to possess the technical learning that is exacted of him with respect to the other and older branches of his professional studies?” No mention was made of compensating architects for this technical acumen.

As time passed, the increasing need for more detailed construction documents and on-site supervision made the architect’s role even more burdensome. In another 1888 landmark decision, the AIA issued its first standard form of agreement between owner and contractor, the forerunner of the AIA’s Document A201, which increased the architect’s liability even more by making him the owner’s agent.

A year later, in 1889, another case, *Coombs v. Beede*, decided the architect’s professional status and consequent duties. The court listed the architect’s “skills, ability, taste, and judgment” as his hallmarks. In addition to the technical learning cited in Hubert, the architect had to possess the aesthetic sense and capacity to make decisions on the client’s behalf—a role analogous to that of lawyers and doctors. Again: no mention of money.

Looking back, it is difficult to understand why the AIA’s 1888 constitution and bylaws included a 5 percent fee schedule very similar to the one it had published in 1866, despite the increasing scope of the architect’s work. More imperatives lay ahead, however.

## Licenses, 6 percent, and a code of ethics

In 1897, the architect—or, more precisely, the person hoping to become an architect—took on yet another requirement when, after years of debate, Illinois became the first state to enact a licensing law. Although more than 600 architects entered the profession under a grandfather clause, the others could receive licenses only after presenting a diploma from a school of architecture or passing a comprehensive three-day examination that covered construction, strength of materials, sanitary codes, and a one-day sketch problem. Other states soon followed. Finally, after decades of steady changes, architects made one small leap forward in gaining compensation: in 1908, the AIA raised its fee schedule to 6 percent.

This schedule was not mandatory, however. Even then, open competition made firms fight for certain jobs; some firms undercut competitors based on fees, what some might call *bottom feeding*, today. In his 1918 essay “How Should an Architect be Paid?” Charles Harris Whitaker, then the editor of the *Journal of the American Institute of Architects*, explained that competition developed “among those who practiced architecture, whether as professionals or as amateur builders. This led to a

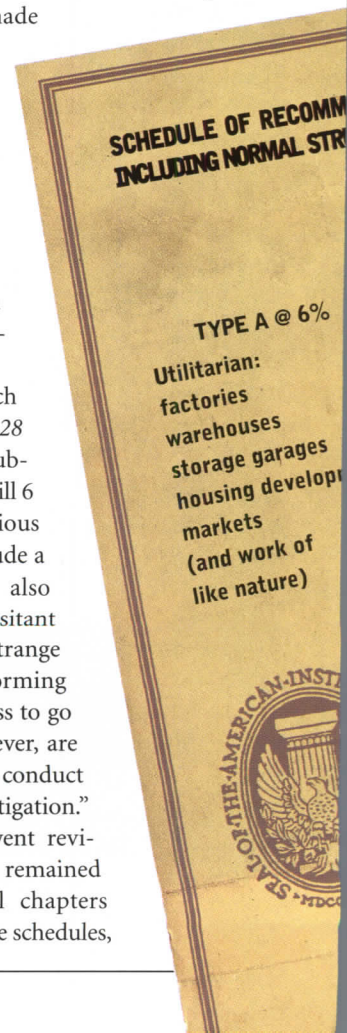
reduction in the fee charged as a method of obtaining business.”

To combat such competitive bidding, the AIA tried to regulate its members. In 1909, after much discussion, the AIA issued its first *Circular of Advice Relative to the Principles of Professional Practice and Canons of Ethics*, which imposed rules of conduct on its members. It stipulated the following: members could not advertise, engage in the building trades, offer free services, or compete for work on the basis of professional charges. In short, architects had to answer to a higher authority.

An inherent conflict existed between the AIA’s schedule of fees and its code of ethics. On one hand, the fee schedule was advisory, not mandatory; on the other, the code of ethics deemed competition between architects on the basis of fees unprofessional. So architects were pricing their services according to a general average, not individual merit, creating the impression that all architects were entitled to the same fee for services rendered. According to Whitaker, this set up several problematic conditions: first, it “made it possible for the incompetent to creep into the public esteem while demanding equal remuneration; second, it placed a great handicap before the young man who desires to enter the profession by forcing him either to ask a fee to which he is not entitled, (and seldom can obtain) . . . or by treating him as a renegade because in order to establish himself in practice, he works for less [compensation] than established men.”

While some things changed, much remained the same. By the time the 1928 *Handbook of Architectural Practice* was published, the schedule of proper charges was still 6 percent. The AIA had amended the various means for compensating architects to include a fee-plus-cost method. The *Handbook* also acknowledged that architects were often hesitant to enumerate their fees, stating, “The strange timidity that Architects display in informing clients of their charges and their willingness to go forward without any understanding whatever, are disreputable to them as men of affairs. Such conduct leads to misunderstandings, disputes, and litigation.”

Although the *Handbook* underwent revisions over the next 30 years, the concept remained constant. By the 1951 *Handbook*, local chapters assumed the responsibility for developing fee schedules,



and most came up with complicated multitiered charts that showed what firms should charge for different kinds of work.

The *Handbook* still advised its members to follow these fee schedules, and there was very little regard for firms that did not. AIA members Clinton Harriman Cowgill and Ben John Small wrote in their 1949 book, *Architectural Practice*, "If any firm wishes to go on record as charging less than the others, it should do so . . . the service of some firms is undoubtedly worth less than that of others . . . When fees are cut beyond a certain point, the only way to avoid loss is to reduce the quality of the service, or to resort to dishonest practices. Either of these is distasteful and reprehensible . . . Rather than resort to the latter, it would be more admirable to engage in a bolder, outright criminal career."

Despite the fact that a majority of firms did adhere to the fee-schedule recommendations, the profession was sliding into economic trouble. In 1966, the AIA commissioned a study, *The Economics of Architectural Practice*, from Case and Company, a San Francisco management consultant, to examine the actual profits and costs of running architectural practices. Case and Company visited and conducted interviews with 223 firms in 47 states. Among the conclusions, the consultant determined that "most firms do not understand the significance of costs . . . nor maintain adequate time and cost records." Furthermore, "the average architect loses money on one job out of four."

The report showed that four-fifths of the firms used the percent-of-construction-cost method

## ACCORDING TO CARL SAPERS, "THE ACTIONS OF THE JUSTICE DEPARTMENT IN THE 1960S AND 70S HAD A DEPLORABLE AND TERRIFYING EFFECT ON PROFESSIONAL LIFE IN AMERICA AND TODAY WE ARE REAPING THE HARVEST OF THE POISONOUS SEED THAT WAS PLANTED."

for setting fees (averaging \$6,820 profit per project). Between 1960 and 1966, costs for outside consulting and technical and support staff had soared in comparison to building costs between 1960 and 1966, so architects using this method saw diminishing profit margins (see chart). The average salary for principals in firms billing more than \$2 million per year was \$29,629. The Case study offered a valuable glimpse under the microscope for the profession. In retrospect, it highlights the fact that a fee schedule, based on a percentage of construction cost, was not a panacea.

The percentage method had two major shortcomings. First, there was an ethical issue. Although the architect stood to make more money as building costs rose, as the owner's agent, the architect would try to keep the costs low, but was not compensated for extra work required to do so. Second, there was a distorted equality dilemma. In theory, using the percentage-of-construction-cost method, the fee for a project would be the same no matter which firm was hired to do the work. But each architecture firm provides different levels and kinds of service, as well as radically different results.

### The end of fee schedules

Despite clear signs of economic troubles, the profession clung to the belief that architecture was not a product to be priced according to comparative cost. In the July 1966 revisions of AIA Document J330, the Standards of Professional Practice, the Institute still held fast to the notion that architects could not compete with each other based on fees. In the fall of 1970, the AIA reinforced this notion when it adopted new ethical standards stating that the architect should discuss scope and compensation with clients only after they had been selected on the basis of professional qualifications.

Around the same time, government attitudes toward antitrust laws were shifting. Before the late 1960s, Congress took the position that professions were exempt from the Sherman Antitrust Act because they were not involved in trade or commerce. But, the Justice Department began to investigate the ethical standards of many professionals, including lawyers, doctors, accountants, and engineers, on the grounds that their standards incorporated thinly dis-

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(and work of like nature)

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500,000	5.50	6.50	7.50	9.50
1,000,000	5.25	6.25	7.25	9.25
2,000,000	5.00	6.00	7.00	9.00
4,000,000	4.75	5.75	6.75	8.75
5,000,000	4.50	5.50	6.50	8.50

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guised violations of the Sherman Act. The professions continued to maintain that the antitrust laws did not apply to them.

And so it came as no surprise when the Department of Justice advised the AIA's attorneys, on December 7, 1971, of its plans to file suit against the Institute because its ethical standards placed limitations on the Institute's members and amounted to a restraint of trade. Six months later, by the 1972 convention, negotiations resulted in a consent decree, a voluntary agreement accepted in lieu of litigation, which restricted the Institute from imposing any standard or policy prohibiting members from submitting price quotations for architectural services. Delegates on the convention floor voted that the AIA should accept the terms of the consent decree rather than continue to fight the Justice Department.

The consent decree struck fear in the hearts of many architects, who worried that once the floodgates of competitive bidding opened, bidding wars for architectural services would erupt and design quality would erode. The profession's high standards were at stake. The minority opinion asserted that the status quo—fee schedules and ethical standards—should be maintained to prevent this scenario.

The minority opinion—which called for the AIA to fight the Justice Department in court rather than sign the decree—was most eloquently expressed by Walter Wagner Jr., then editor in chief of ARCHITECTURAL RECORD, in his May 1972 editorial: “The whole idea of early emphasis on price takes on the aspects of competitive bidding by architects with very different skills, staffs, and experience—in the absence of identical documents for an identical end product, which is what con-

### **“THIS PROFESSION SHOULD THANK THE JUSTICE DEPARTMENT,” SAYS JAMES SCHEELER OF THE AIA.**

tractors bid on the basis of . . . and that equates professional architectural services with buying a used car.”

But the majority argued that it had become increasingly difficult for architects to avoid discussion of compensation prior to their selection for a particular project. On June 19, 1972, the AIA settled this lawsuit with the Department of Justice by signing the consent decree. At the time, those holding the minority opinion considered this the beginning of the end of the profession. But, as John Morris Dixon, FAIA, editor in chief of *Progressive Architecture* from 1972–95, points out, the AIA had little choice but to settle the lawsuit: “The Justice Department had unlimited money and unlimited staff. Going to court would probably have been a losing proposition.”

### **A move to cost-based compensation**

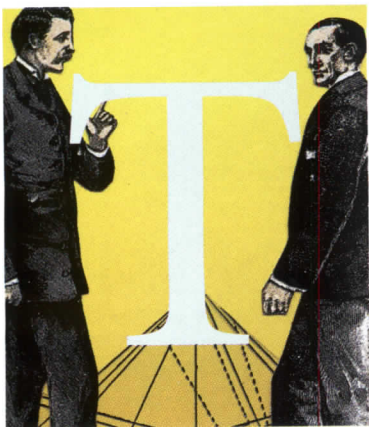
Although the 1972 consent decree did not directly address the fee-schedule issue, a subsequent case against the Virginia Bar Association determined that such schedules were a form of price fixing. In response to this decision, the AIA asked the states to rescind their fee schedules and subsequently issued a series of publications dealing with service-delivery management. One of these documents, *Compensation Management Guidelines for Architectural Services: A Manual on Cost-Based Compensation* (February 1975), outlined the ideas and methods behind cost-based compensation. The concept was simple: architects would establish what it would cost in labor and overhead to complete a project. They could then increase this figure to allow for profit. The introduction of this new methodology for calculating compensation was an important step forward for the profession, although it also had the unfortunate consequence of reinforcing the notion that what architects have to sell is their time.

### **A second consent decree**

In subsequent years, the American economy sank into recession and the profession struggled economically. In 1984, to help its members deal with their financial difficulties, the AIA's Chicago Chapter issued a compensation and fee policy statement. The AIA's general counsel immediately asked the Chicago Chapter to rescind the statement after distribution, because it violated the 1972 decree. But it was too late. In 1986, the Chicago Chapter was notified that the Justice Department's Antitrust Division was investigating alleged violations of the decree. According to Dixon, “during this second investigation, the Justice Department essentially terrorized the AIA. Documents were confiscated and members were subpoenaed and required to testify before a grand jury. There was a threat of criminal prosecution.”

From December 1989 to June 1990, the AIA conducted settlement discussions with the Justice Department to work out an agreement on a civil, rather than a criminal, basis. Their dialogue resulted in a new consent decree, the most salient point of which established that the AIA and all its chapters would “refrain from adopting any policies, rules, bylaws, or resolutions, or issuing official statements, that would restrain AIA members from a) submitting competitive bids or price quotations, including cases where price is the principal consideration in choosing an architect; b) providing discounts; and c) providing free services.”

The consent decree expires in October 2000. While the AIA will no longer be required to follow the decree's compliance requirements,



**he earlier practice of architecture in this country was very frequently shaped by men whose independent wealth allowed them to indulge in a fashionable occupation, without much regard for profit. Their highly inefficient *technic in office* management and production engendered many of the deplorable habits that harrow the less affluent practitioners of today.**

—Royal Barry Wills, *The Business of Architecture*, 1941



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such as holding annual programs on antitrust laws and providing written certification of compliance, the “substantive requirements of decree that are specifically identified as being prohibited, remain as conduct that the AIA and its components should not engage in,” according to David Perdue, HON. AIA, the AIA’s associate general counsel.

### For better or worse?

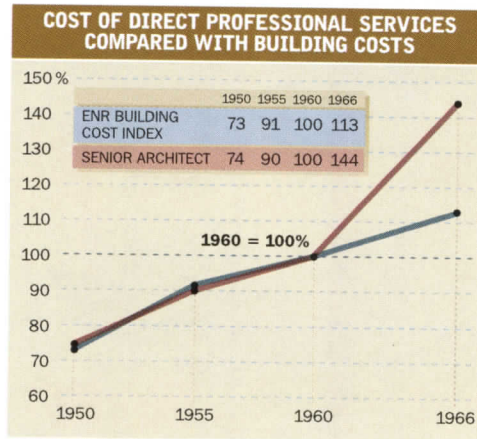
The original code of ethics reflected a prevailing attitude that architects were engaged in a profession, not a business, and intended to protect the dignity of the practice of architecture. This stringent ethical code was a source of pride among architects because it affirmed that the architect’s role in society transcended purely mercenary goals. Seen through the eyes of nonarchitects, however, the fee schedules and ethical prohibitions that the Institute imposed on its members before the consent decrees seemed to protect only the architect while doing nothing to benefit the public and clients.

Beyond the immediate disappearance of fee schedules and a new need for architects to negotiate for projects based on price, the consent decrees have had a far more profound effect: As attorney Carl Sapers says, “As a lawyer, I seriously doubt the AIA could have fought the Justice Department and won. But the consent decrees have weakened the standing of architects enormously. The actions of the Justice Department in the late 1960s and early 1970s had a deplorable and terrifying effect on professional life in America and today we are reaping the harvest of the poisonous seed that was planted. These professions [architecture, medicine, and law] have come to look much more like trades. I have to ask, even if fee schedules and codes of ethics meant that people were paying more for professional services, was that more important than maintaining the integrity of professions in America?”

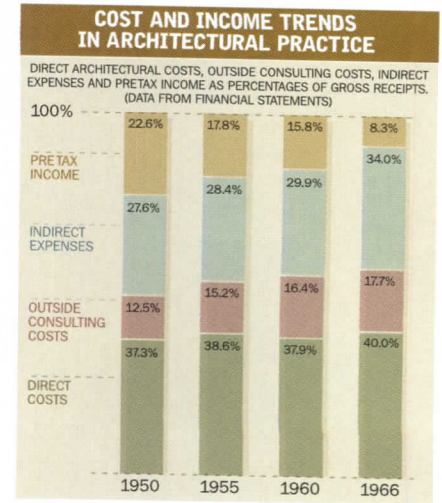
James Scheeler, FAIA, a former CEO of the AIA and a current resident fellow for international relations, takes the opposite view. “This profession should thank the Justice Department,” he said. “As a result of the consent decrees, we have had to learn to deal with competitive fees and the business aspects of architecture. American architects have been highly successful and competitive in foreign markets, in part because the understanding of the business of delivering professional services is finely tuned. If we still had fee schedules, we would not have been forced to learn these things.”

In the context of the contemporary business environment, where competition for new work is fiercer than ever, architects have sometimes romanticized fee schedules as shielding them from competitive environments and allowing them to concentrate on their larger

**With the percentage-of-construction fee basis, architects lose money when construction costs rise more slowly than the cost of running a practice.**



SOURCE: ENGINEERING NEWS RECORD



responsibilities. But, as is now clear, architects competed on the basis of fees even when fee schedules existed. Today, people decry the bottom-feeding phenomenon, but most firms, including

those that do not regularly cut fees to undermine the competition, have probably done so at one time or another.

### Different means, same end

There is strange comfort in the fact that—in terms of fees matching the scope of work—the profession is really no worse off financially today than when the schedules and the code of ethics were in force. In March 1999, *AIArchitect* reported that “over a quarter of firms indicated that only about half the time do fees reflect the actual amount of work actually expended”—almost the same finding that Case and Company made in 1966. *AIArchitect* also said that “one in six firms indicated that this is the case only occasionally or almost never.”

The method of calculating fees has had remarkably little effect. In 1966, according to the Case Study, 80 percent of firms used the percentage-of-construction-cost basis to set fees (a method whose problems we have already shown). Today, the fixed-fee method is the most common. The *1997 AIA Firm Survey Report* found that nearly half of all firm billings were based on fixed fees while a percentage of construction costs accounted for only about 20 percent of industry billings.

### Sacrificing profit

Architects’ inability or unwillingness to obtain good fees must have other causes. Michael Strogoff, AIA, a Mill Valley, Calif.-based negotiations consultant, suggests three primary reasons: First, within our



**urs is a profession of inherent pitfalls. We often accept fees that are inadequate. We tend to forget costs in our unending drive to achieve better structures. We spend too much time in study and research. Our endless quest for perfection robs us of our justifiable profits.**

—Morris Lapidus, *Architecture: A Profession and a Business*, 1967

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*Gaudí*





professional culture we share an unwillingness to walk away from a great commission, no matter what the cost. Architects knowingly accept low fees for fear of losing jobs or creating adversarial relationships. Second, sometimes architects fail to obtain fair fees simply because they lack business training, negotiating skills, or an understanding of their real costs. Finally, architects have had difficulty explaining the value of what they have to offer.

## THESE ARE GOOD TIMES FOR ARCHITECTS. YET FLUSH TIMES HAVE NOT RESOLVED ARCHITECTS' PERSISTENT FINANCIAL COMPLAINTS.

The hesitancy to turn down great commissions pervades our profession and causes a disconnect between the quality of a firm's work and its business activity. In the unending drive to achieve better structures, architects tend to forget their costs. The egoism that drives some people to become architects in the first place also plays a role; we see projects as occasions for self-expression, and so the emotional opportunity is divorced from the business reality. But a more pragmatic rationale is also sometimes cited. As Janis Reuters, AIA, of Design Management Corporation in Natick, Mass., says, "If our fee doesn't match the scope of services on a project, it is probably because we need that job." Many firms sacrifice justifiable profit when business is slow and they need the work.

According to Michael Tardif, ASSOC. AIA, director, professional practice, at the AIA, this cycle can be stopped: "If architects were rigorous about understanding their costs when preparing fee proposals, they would be less willing to negotiate their fee away without cutting scope," he says. But the growing complexity of the business of architecture has made an understanding of costs ever more elusive. As Strogoff says, "Firms are busier than ever. They are reporting more profit, as they should in an economy like this one, but the percentage increase doesn't compare to the recent growth in construction. Overhead is the reason."

By all admissions, these are good times for firms. Yet flush times have not resolved architects' persistent financial complaints. One source of current trouble is payroll. Because firms are so busy, employees are in high demand across the country. The 1997 AIA report, *Compensation at U.S. Architecture Firms*, found that the average salaries for all architects (excluding principals and partners) went up 22 percent between 1990 and 1996. Today, by some estimates, this number is closer to 30 or 40 percent. There has been no comparable rise in what architects charge. As George Heery, principal of the Brookwood Group, puts it, "The law of supply and demand has taken effect on the salary

level, but not at the fee level."

Architects' salaries are not the only overhead costs that have increased. As Tardif says, "over the last 25 years architecture firms of all sizes have evolved from professional practices into businesses with all the attendant complexity and specialization of management expertise in finance, human resources, technology, and strategic planning." According to the *1997 AIA Firm Survey Report*, marketing expenses amounted to 8 percent of net billings in 1996, up from 6 percent in 1990; 91 percent of firms were covered by professional liability insurance, up from 81 percent in 1990; and technology spending accounted for 7 percent of billings in 1996, a record high. In addition, accounting, human resources, public relations, and other nonarchitectural personnel—all generating overhead expenses—are becoming more prevalent in architecture firms.

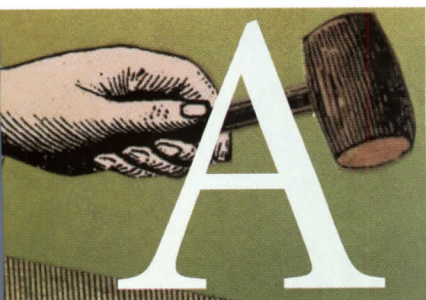
Overhead demands differ radically from firm to firm—depending on size, location, and the nature of the practice. But in general, architects have not done a good job of computing their real costs. As William F. Fanning, director of research for the *Professional Services Management Journal* says, "In other industries, future projections are used to determine prices. Architecture is the opposite. We use last year's cost model to determine next year's prices."

### A light at the end of the tunnel

More significant, architects do not understand how to place value on their services. Roger Brady, AIA, an architectural consultant from Salinas, Calif., believes that architects price their services in a backward manner, almost as if they were marking up retail goods. "A facelift costs thousands of dollars, but you are only under the knife for 30 minutes. In this case there is no relationship between the time the doctor spends performing the operation and its value to the patient. Architects, on the other hand, have been taught that their time is what they have to sell, when it is their service and expertise that are valuable."

No matter what the problems are, it is time to get back on track. Architects have struggled with this issue for too long. And the price has been very high. Some architects have been forced to settle for inadequate fees and a resulting poor lifestyle and low self-esteem. Or they have compromised the quality of their work to make their fees achievable. Either the architect pays when fees are too low or else the built environment—and, therefore, the image of the entire profession—suffers.

There is a light at the end of the tunnel. We have heard a resounding yes, that it is possible to make money as an architect while still creating great buildings. Next month, we will introduce several methods—from visionary ideas to conventional wisdom—that architects are using to boost their fees. These are architects who, rather than trying to slice the same pie in different ways, are learning to design a bigger pie. Stay tuned. ■



**basic principle of our profession is that the worth of architectural service must be measured by many factors other than price. We believe that the consent decree threatens this principle, is wrong and should be resisted.**

**—Funding Professional Commitment, Pennsylvania and California Regions, 1972**



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# Form Follows Information

WHETHER CELEBRATED OR CONCEALED, COMPUTER TECHNOLOGY INFRASTRUCTURE IS A DESIGN FORCE THAT ARCHITECTS ARE ADDRESSING IN INNOVATIVE WAYS.

by Jerry Laiserin, AIA

**T**he technologies of information processing and communication are pervasive, shaping the ways that people interact, shop, make friends, and manage their finances. The amount of electronic mail sent over the Internet recently surpassed the amount of paper mail sent through the post office. It's not surprising, then, that the same technology that's reshaping lives is reshaping buildings.

Computer technology renders some building programs obsolete, as when automatic teller machines replaced most of the functions of full-service banks. Technology may enable elements of disparate building programs to merge—for example, the computerized, self-service business centers in hotels and airports—in what William J. Mitchell, dean of architecture and planning at MIT, calls “recombinant architecture.” Meanwhile, new building types, like university computer science centers, arise in response to technology-driven requirements.

Computers and communications may alter the building program in more subtle ways. Back office or behind-the-counter functions, once reserved for employees, move out front to customer-accessible information kiosks in places like bookstores or museums. Computerized filing systems and reconfigurable voice and data networks transform business and educational environments by allowing occupants to plug in, work, and collaborate anywhere within an office or school. Remote locations are also easily linked, creating what Mitchell calls “artificial adjacency.”

## New opportunities

Designing the infrastructure for the digital data streams that support these new building programs is a new discipline called information engineering. “While mechanical, electrical, and plumbing engineers address HVAC, power, and water, information engineers treat everything from wireless antennae to wired risers, shafts, chases, and access points for information. It's as if information were a fourth utility,” says Herb Hauser, president of Barnes Wentworth, an information engineering firm in New York City.

While information distribution systems are not as bulky as ducts and piping, the need to provide access to cabling and to allow room

for future changes and additions greatly increases the space allocated to cable risers, wiring closets, and computer rooms. Under-floor distribution systems often require increases in floor-to-floor heights. And high-speed network cables cannot be bent to tight radii or sharp angles without crimping their information-carrying capacity, a limitation that translates to broad, space-consuming sweeps for cable trays and raceways.

With the need for information access to be everywhere in a building, the density of connections or ports can run as high as one access point for every 10 square feet of space. Such a requirement not only strains the distribution capacity of access floors and cable trays, but also makes demands on other building systems. For example, the mechanical

## INFORMATION ENGINEERING HAS BECOME A FOURTH UTILITY.

system must be able to dissipate the additional heat, or plug load, thrown by the hardware. The electrical system must have greater capacity and reliability—and often a backup power system—to support sensitive electronic gear. And lighting from both natural and artificial sources must be moderated to eliminate glare from monitors and other displays.

## Celebrating technology

Some architects are very direct in expressing information technology within a space—not the flashy pseudo information employed in some buildings, where technology is blown out of scale like a giant video game, but thoughtful and honest ways to demonstrate that technology should be accessible and supportive of everyday interactions. The buildings that employ these tactics are, logically enough, those whose occupants heavily rely on high information content, such as schools, museums, and financial institutions.

In the future, information technology is likely to exert an even stronger influence over an even wider range of buildings. Environments already identified as high tech will continue to evolve to accommodate interactive technologies. Furthermore, seemingly low-information-content building types, like stores, restaurants, and houses, will gradually incorporate more technology to satisfy the demands of their occupants for access to information. At the height of the Industrial Age, Le Corbusier famously decreed the house “a machine for living in.” Someday soon, a Corbusier of the Information Age will be designing information-driven “machines for thinking in.” ■

*Contributing Editor Jerry Laiserin, AIA, consults, lectures, and writes about the impact of information technology on the practice of architecture.*

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## MORGAN STANLEY DEAN WITTER BRANCH

In the same way that branch offices of banks succumbed to ATMs, full-service stock-broker branch offices are threatened by online trading.

Dean Witter, the retail brokerage arm of Morgan Stanley Dean Witter, represents a new hybrid of full-service brokerage and digitally savvy self-service. Brennan Beer Gorman Monk (BBGM) Interiors of New York City designed a prototypical neighborhood branch in New York City's Times Square that gives form to these dual functions.

The 6,000-square-foot space, which occupies a through-block, ground-floor location, was not suitable for a brokerage at all before the advent of networked technology. The plan resembles a dog bone, with a windowless shank running north to south and ending in a glass-fronted room on each side street. In the room at the north end, customers have access to research and account information via freestanding computer kiosks. Workstations are in the rest of the space.

BBGM installed a raised flooring system to accommodate the information infrastructure linking the front and back offices. To express this flow of information, as if revealing the digital pulses within the under-floor cabling, the designers set a zigzagging illuminated stock ticker under glass, flush with the floor. This echoes the multiple stock tickers that span the Broadway facade. To lure customers, BBGM suspended a giant cube of computer monitors displaying financial news just inside the main entrance.

William Whistler, AIA, a principal at BBGM, reports that the easy accessibility of both information and service in the design has made this branch office, completed in 1998, one of the client's most heavily trafficked nationwide. *J.L.*



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## TECH MUSEUM OF INNOVATION

Computer technology is shaking museums out of their dusty past. Glass cases of artifacts are giving way to interactive, multimedia displays, especially when technology itself is the "artifact," as it is at the Tech Museum of Innovation in San Jose, Calif.

"The client wanted to celebrate technology in general and display it as a friendly, integrated part of everyday life," says William L. Williams, AIA, of the Steinberg Group in San Jose. The firm served as executive architect for the museum, with Ricardo Legorreta of Mexico City serving as design consultant.

Completed in 1998, the 112,500-square-foot museum is divided into three levels, two above grade and one below. The street

level functions as an extension of the city sidewalk. Pedestrians slip around the curve of the theater enclosure into the lobby, which provides access to the museum cafe and store. The sound and projection gear for the museum's IMAX theater is gleamingly displayed through a curved glass wall in the main lobby. Multistory atria afford glimpses of technology exhibits that include communications satellites and antennae.

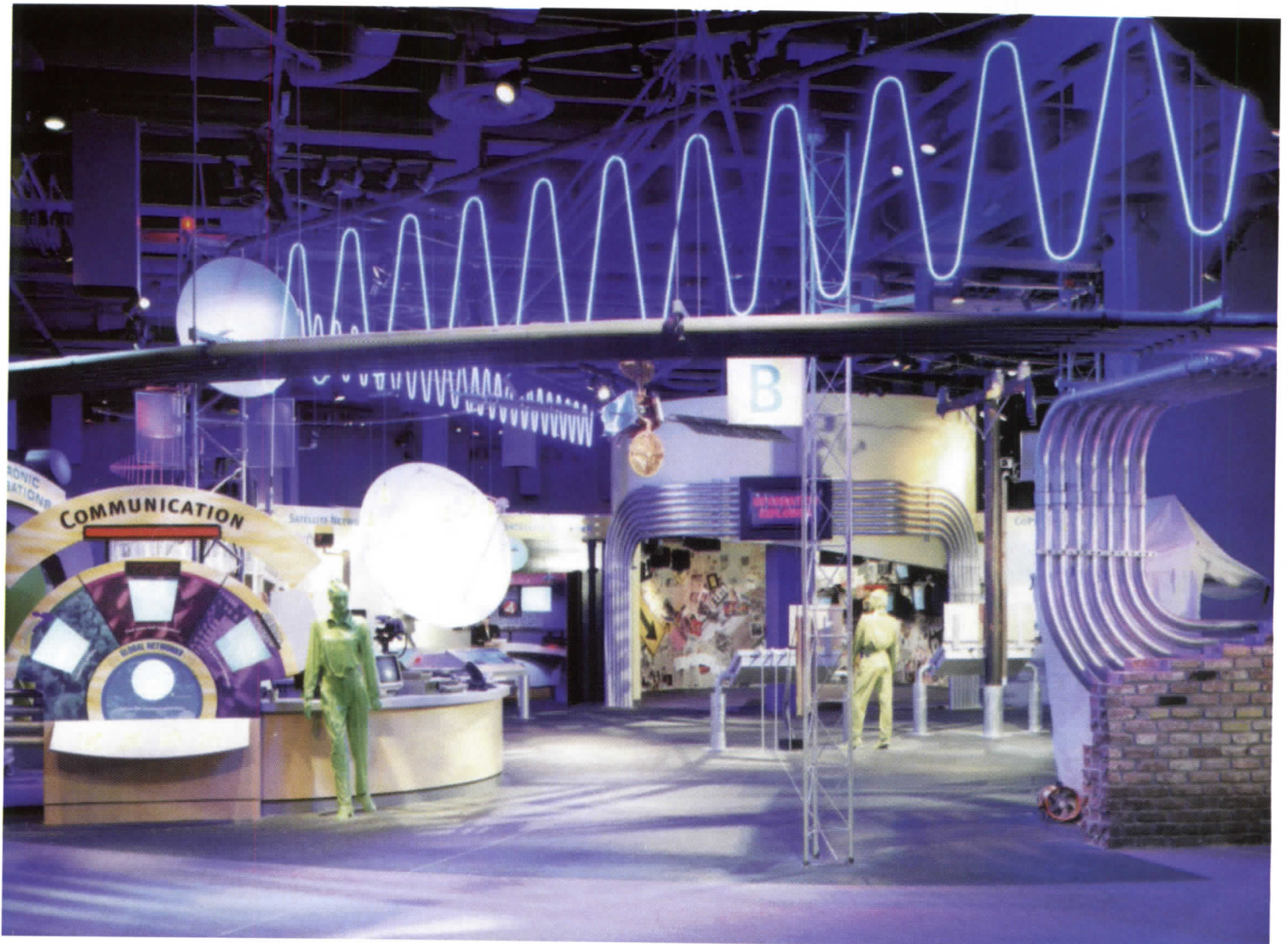
The designers laid out large, flexible, loftlike areas, instead of formal rooms, to reflect the interconnectedness of the technologies on display and to accommodate frequent changes in exhibits. Because so many of the exhibits depend on computer-display



kiosks, lighting was an important consideration. Says Williams: "We chose to open the building not only to the street but also to natural light from above," consistent with the programmatic requirement of making technology seem friendly. Shade controls installed in windows and skylights minimize glare, and computer-display kiosks were carefully placed with regard to light sources, also to avoid glare.

The curators sometimes

choose to divide larger galleries into smaller rooms when mounting an exhibit, necessitating flexibility in lighting, power, and information distribution. This is handled by exposed lighting grids, open cable trays, and catwalks within the ample clear space made possible by the building's floor-to-floor height of 22 feet. Rather than obscure this infrastructure by painting it a neutral tone, the architects chose to celebrate it with vivid purple. *J.L.*



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CIRCLE 62 ON INQUIRY CARD



## SMITH ACADEMIC TECHNOLOGY CENTER

Business schools, responding to the growing emphasis on information technology in the corporate realm, are integrating computers into their curricula. Now under construction at Bentley Business College in Waltham, Mass., the Smith Academic Technology Center is planned as a computing focal point for the college, housing offices for the computer and information science faculty, and 31 high-tech classrooms—all served by the college's largest concentration of computer equipment.

The center incorporates some of the latest concepts in business school facilities. A 3,300-square-foot simulated Wall Street trading floor (top right), for example, allows students to experience the kind of technology environment in which they may work after graduation.

The project's biggest challenge was its site, which included a steep hill that separates Bentley's lower residential campus from its upper academic area. Roger Goldstein, FAIA, of Goody Clancy & Associates in Boston, chose to exploit the site's

potential by creating a pedestrian passageway up and down the hill. He designed the 78,000-square-foot facility as a four-story cascade of steel-framed volumes that links the academic plaza and the residential area. A broad circulation spine, dubbed as Main Street (right), unifies the building's levels.

Although the social and teaching functions of the space are paramount, Goldstein emphasizes the importance of visible technology as a more subtle teaching tool. For instance, several seminar and conference spaces open directly onto Main Street, providing views via glass walls. And the computer-filled trading room is visible from several vantage points.

The information distribution infrastructure radiates to every student seat and faculty office in the building from two computer rooms stacked above one another on the first and second floors. Two distance-learning rooms with associated rear-projection video systems contain the broadband, or high-capacity, connections neces-



sary for live transmission. Tiered interactive classrooms on three floors have hard-wired network connections routed through the risers to every student workstation.

Student seats in the non-tiered classrooms access power and network connections via perimeter

raceways and floor-mounted access boxes in the center of each room. Interactive stations are even built into the seating clusters along Main Street to support impromptu collaborations. In total, the system includes more than 1,500 data ports. J.L.

### Technology concealed

Many of the architects who design high-tech buildings strive to express the digital technology that is within them, making it obvious to occupants and passersby. But, there are cases in which "the facility acts chiefly as a container of technology—a different kind of architectural idea where a deliberate decision has been made to conceal the facility's contents," says Todd S. Phillips, AIA, director of the AIA Center for Advanced Technology Facility Design.

The William Gates Computer Science Building at Stanford University, designed by Robert A. M. Stern Architects of New York City, in association with Fong & Chan Architects in San Francisco, is a good example of technology disguised. The building program called for the most advanced computing and communications technologies to be universally distributed and accessible to faculty and students. The various set-

tings, however, evoke a kind of Cantabrigian collegiality in which even a good old touchtone telephone can seem obtrusive.

The 141,000-square-foot building reflects "a strong need for socialization among members of the computer science faculty," according to Graham Wyatt, AIA. "The clients specifically

asked for the design to support collegiality." That's partly because this building pulls together components of the computer science department that were previously spread among seven buildings. Also, the building was meant to respect the campus' Neo-Romanesque context and afford the computer-intensive occupants a place

to socialize away from their monitors and keyboards.

The building's buff limestone exterior walls offer no hint of their sophisticated contents. Faculty and graduate student offices surround and conceal a central core of computer labs. Full-blown multimedia distance-learning classrooms and the largest labs are relegated to windowless below-grade space. The classrooms themselves offer up-to-date learning technologies; there's no shortage of monitors, video capabilities, Internet hookups, and teleconferencing facilities.

A clublike library and common areas for informal meetings contribute to the nondigital atmosphere. The top-floor lunch room and adjoining terrace are so successful that they now rival the most posh restaurants of downtown Palo Alto as high-tech meeting and recruiting venues with nary a cable tray or power pole in sight. J.L.



The Gates building has a lunchroom (right) where the computer-focused occupants take a break from their high-tech classrooms (above).

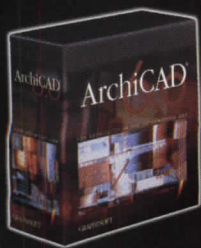
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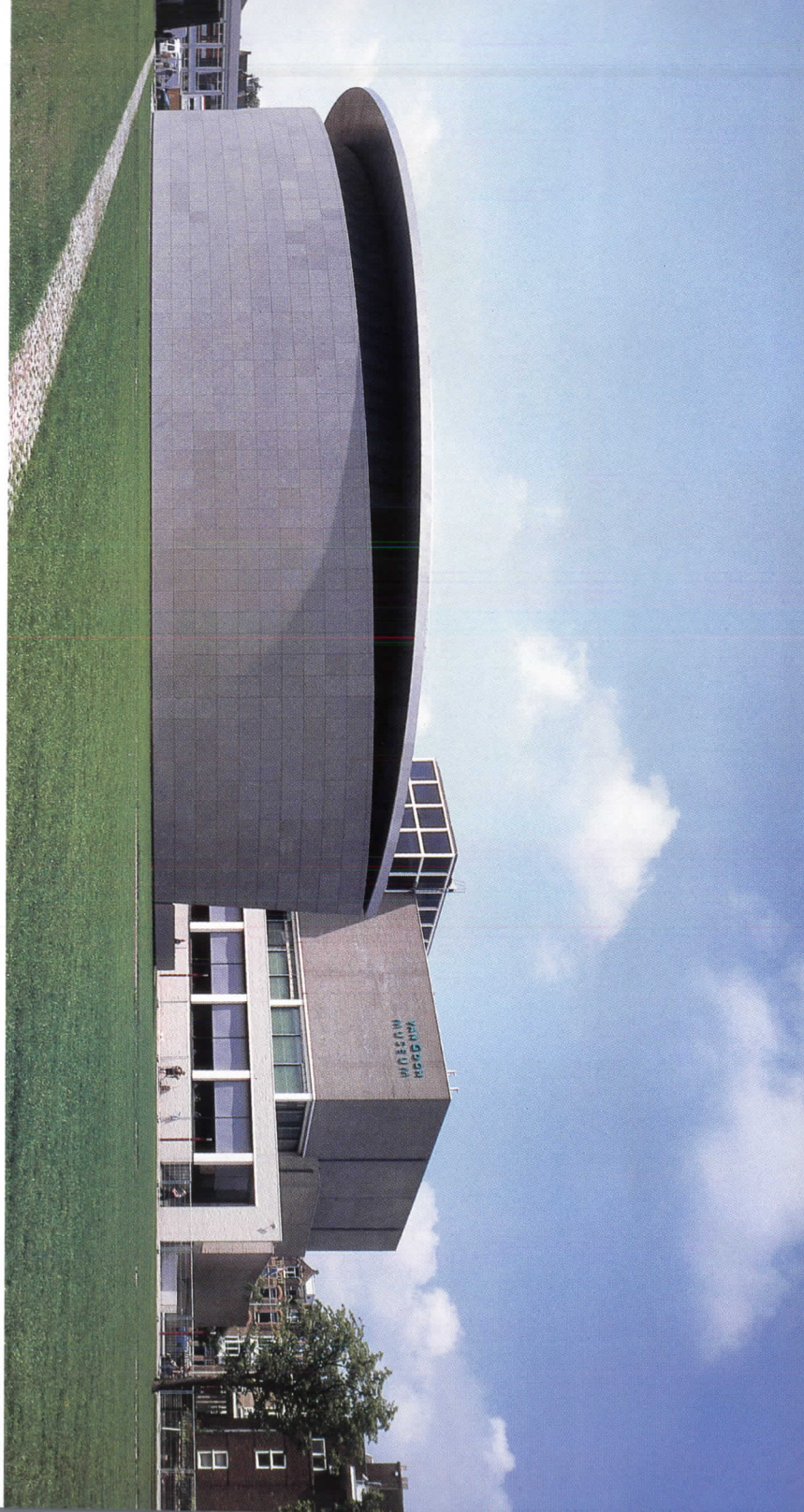
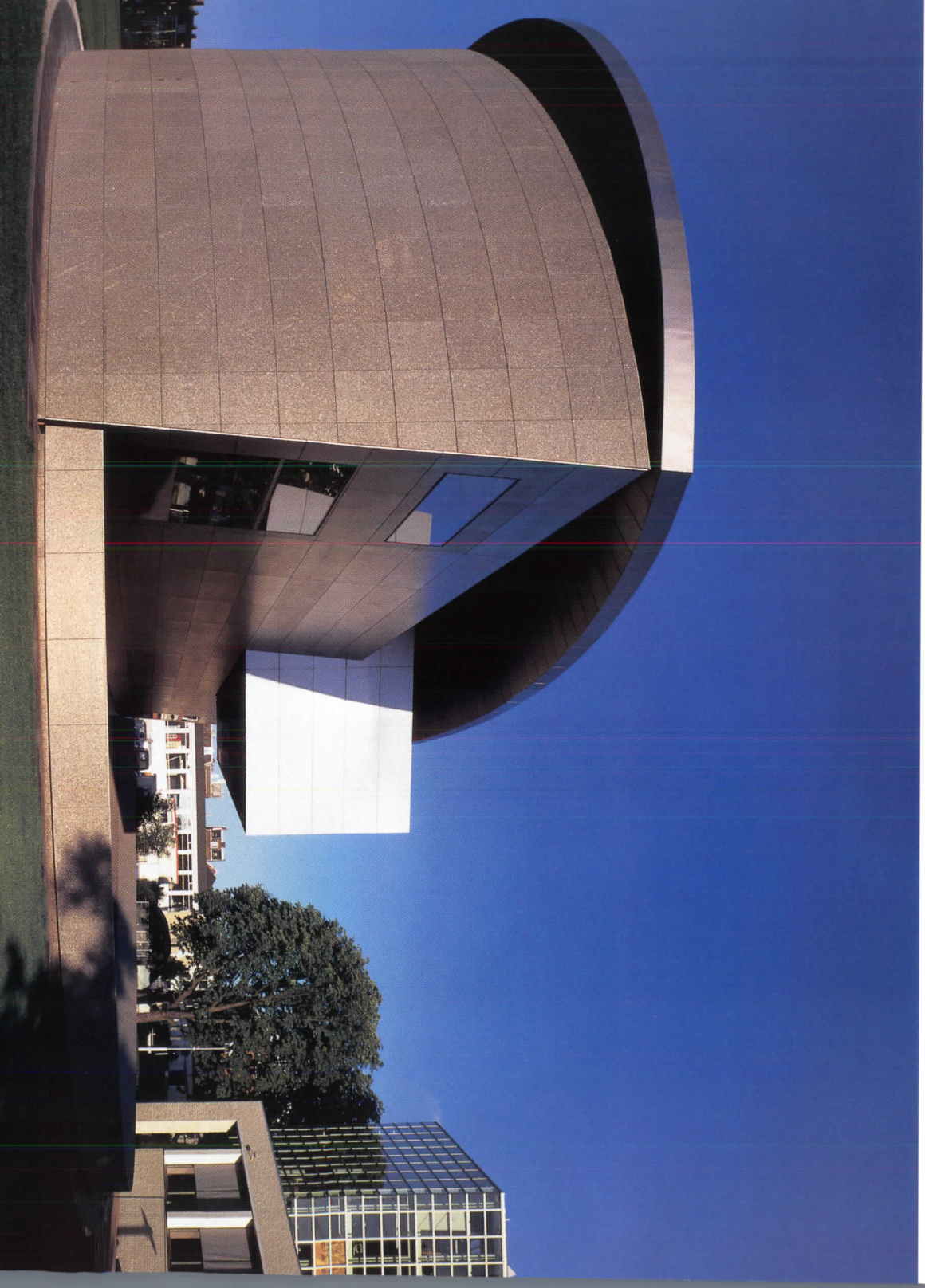
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# Kisho Kurokawa's new wing for the VAN GOGH MUSEUM makes geometric and subterranean connections to its neighbors.

by Tracy Metz

**T**hroughout his four-decade-long career, Kisho Kurokawa, HON. FAIA, has used abstract forms to create an architecture in which opposites—old and new, East and West—are held together as if in tension. This approach, which he calls “symbiosis,” is on full display in his addition to the Van Gogh Museum in Amsterdam, which opened in June.

Located on the spacious Museumplein (Museum Square) between the Rijksmuseum (home of Rembrandt's *Nightwatch*) and the Stedelijk Museum of Modern Art, the Van Gogh Museum was designed—or rather, sketched—in 1973 by architect Gerrit Rietveld. Executed posthumously, the building has never been regarded as one of Rietveld's greatest works. But that hasn't kept the crowds away. Whereas the architect had some 60,000 visitors a year in mind when he worked on the project, the museum ended up handling over a million people annually. The strain on the building was evident, as was the need for a major renovation and expansion. When Japanese businessman Yasuo Goto—whose Van Gogh collection includes the famous *Sunflowers* painting—donated \$16 million for a new wing in 1991, work on the project got going.

From the beginning, the museum's board of trustees decided that Van Gogh's paintings would remain in the original building, while the new wing would house galleries for changing exhibitions and a room for prints. The old and new buildings would be connected underground, but from the street they would appear to be freestanding structures.

During the design process, Kurokawa found himself caught between a proverbial rock—the orthogonal Rietveld building—and a hard place—the drastic redesign of Museum Square, in progress at the time. (Danish landscape architect Sven-Ingvar Andersson designed the master plan for Museum Square, which includes an addition to the Stedelijk Museum by another internationally renowned architect, Alvaro Siza.) Plans for the square forced Kurokawa to push his 55,000-square-foot new wing closer to the 71,000-square-foot existing museum and to squeeze his original circular design into an elliptical one. As it turned out, the changes strengthened the relationship between Kurokawa's monumental ellipse and Rietveld's composition of squares.

As the Kurokawa wing progressed, so did the renovation of the Rietveld building by Dutch architect Martien van Goor of Greiner and



The new wing sits in Museum Square with the Stedelijk Museum in the background (above). It faces Rietveld's 1973 Van Gogh Museum and its new cubic tower (right in photos opposite).

designed a new gridded-glass cube that rises from the southwest corner of the Rietveld building and houses offices and restoration studios.

Kurokawa acknowledged his admiration for Rietveld by keeping the new wing lower than the original building. To do this, he put 70 percent of the floor space underground, including storage areas and workshops hidden under Museum Square. Seemingly simple and clear in

Van Goor. Originally set at just \$6 million, the renovation budget grew to \$19 million, as it became increasingly obvious that the existing building would look shabby next to the new one. Key elements of van Goor's design include enlarging the old building's main entry and shifting facilities such as a cloakroom, toilets, and a shop to one side, thereby reinstating the stone-paved main hall as the dramatic three-story space it was meant to be. Van Goor also

**Project:** *New Wing, Van Gogh Museum Amsterdam, the Netherlands*

**Architect:** *Kisho Kurokawa Architect & Associates—Kisho Kurokawa, Hon. FAIA, principal; N. Ueki, director; H. Cheriex, managing director; S. Hashimoto, architect; B. Peeters, project architect*

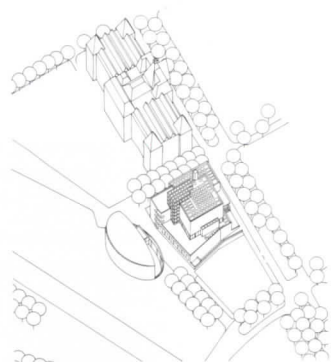
**Associate architects:** *Bureau Bouwkunde; PKB (project management)*

**Engineer:** *D3BN (structural)*

**Consultants:** *G. Bernes (lighting); Van Dorsser Engineers (acoustical)*

**General contractor:** *J.P. Van Eesteren B.V.*

Tracy Metz, RECORD's Amsterdam-based correspondent, is a journalist at the Dutch newspaper NRC Handelsblad and writes on architecture, urbanism, and landscape.



**A sunken pool (right) separates the new wing from the old museum. To enter the new wing, visitors take a curving corridor around the pool. From street level, visitors can look down into the pool (above).**

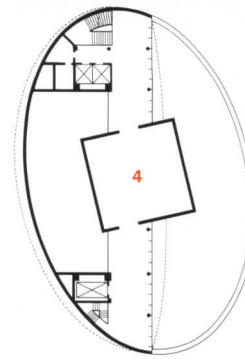
**Kisho Kurokawa remains busy** around the world. Active projects in his office include a master plan for a new capital of the Central-Asian republic of Kazakhstan; an office for the government of Osaka, Japan; a system of public spaces in Shenzhen, China; the Osaka International Convention Center; and Central Station in Kuala Lumpur, Malaysia. Tracy Metz recently interviewed Kurokawa for ARCHITECTURAL RECORD.

**AR:** How does the Van Gogh project relate to your previous work?

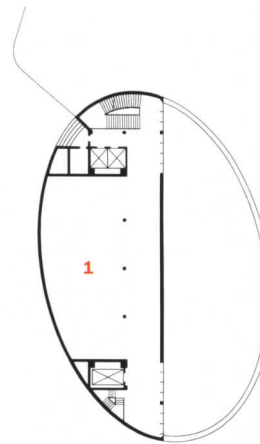
**KK:** The idea of identity and abstract symbolism in architecture has been the basic expression of my work for 40 years. For example, at Kuala Lumpur International Airport, I used abstract geometrical forms to evoke Islamic domes, and at the Museum of Modern Art in Wakayama, I adapted traditional symbols from a historical castle roof.

**AR:** How does the Van Gogh wing relate to the Museumplein?

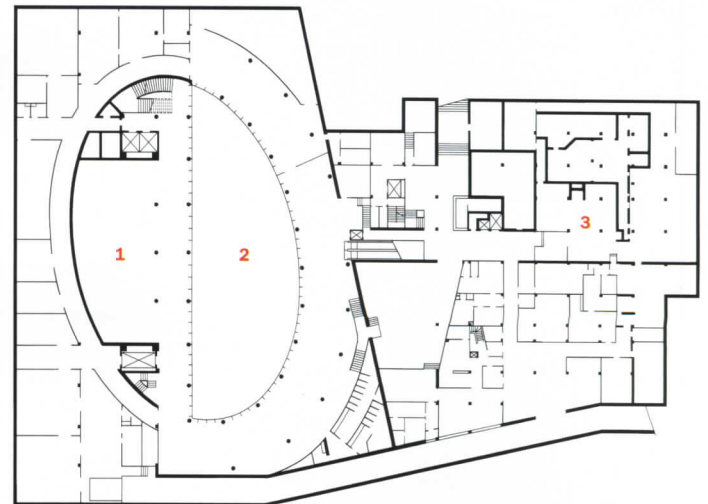
**KK:** The new wing shares with Rietveld's building the same spirit of abstraction—his using straight lines, mine using circles and ellipses. [The new wing's] wall facing the main building is subtly off axis, as is the square [print room]. This asymmetry is in the spirit of Japanese culture, which is different from the symmetry of European Neoclassical architecture. ■



TOP FLOOR



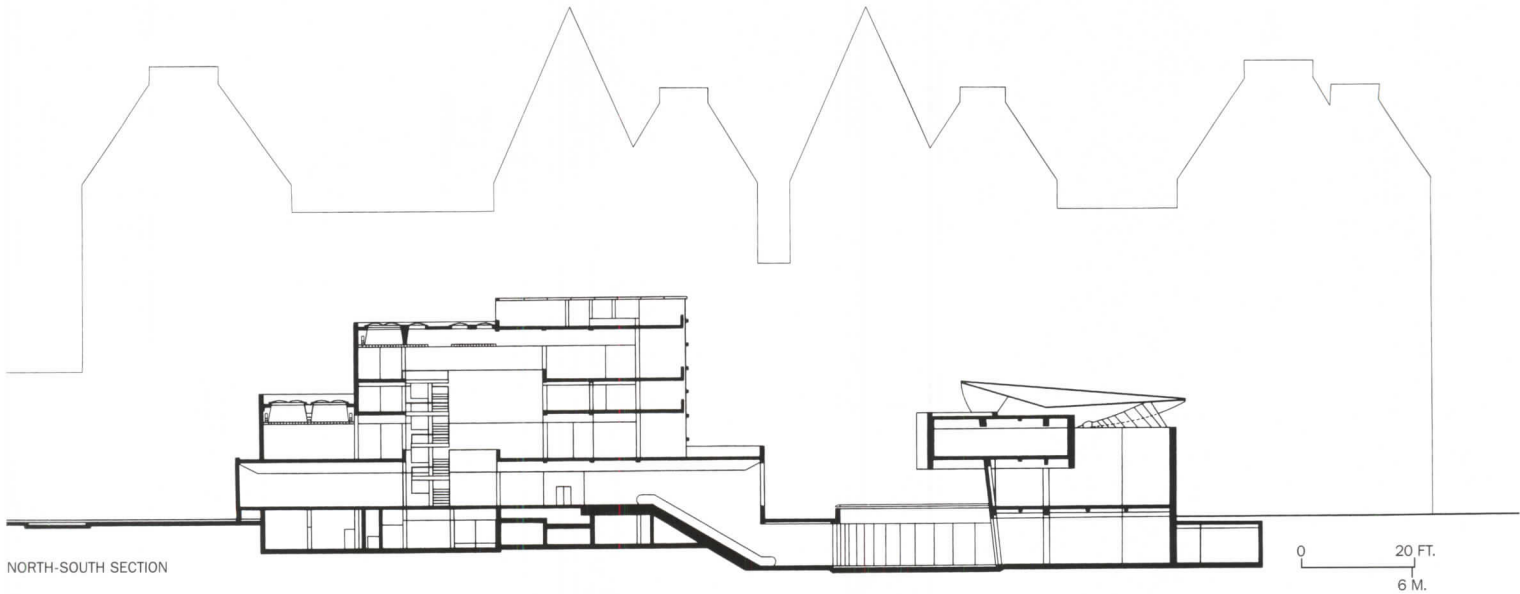
FIRST FLOOR



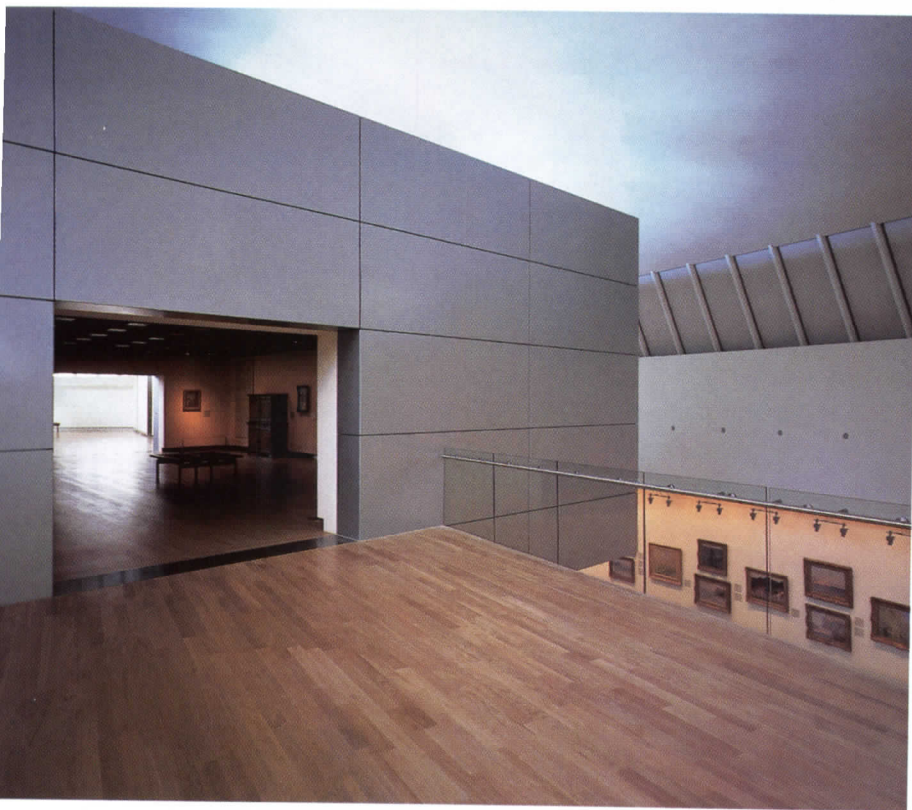
LOWER FLOOR



- 1. Exhibition
- 2. Sunken garden
- 3. Existing museum
- 4. Print room







**The print room (left) sits on a third level that overlooks exhibition space (above) on one side and the sunken plaza on the other**

**(section, opposite). The main stair (opposite) is a sculptural element that anchors the southwest quadrant of the museum.**

form, Kurokawa's stone and titanium wing is actually all ambivalence and subtle asymmetry: The facade facing the existing building leans slightly forward; the clerestory windows, which play an important role in supporting the roof, lean backward. The aluminum-covered box housing the print room juts at an angle from the titanium facade. And the ellipse of the plan is bisected into two almost equal parts along a line rotated slightly in relation to the axis.

A reflecting pool sunk 15 feet below street level separates the old and new buildings and forms a void that can be seen but not entered. The surface of the pool slopes slightly, keeping the thin layer of water running

## THE BUILDINGS BY RIETVELD AND KUROKAWA ARE COUNTERPARTS.

over the gray flagstones always in motion. Visitors often stand at the rim of this sunken void seeking calm and contemplation, and when the sun reflects off the water, the effect is stunning. For some locals, unfortunately, the association is of wet pavement on a typical rainy Dutch day. The pool is surrounded at street level by a beautiful, cut-stone wall, but the museum has asked the architect to devise some sort of railing after a dog chasing a ball took a flying leap and fell into the hole, breaking its leg.

Visitors must enter the new wing from the original museum. An escalator or a glass-enclosed elevator takes people from the main floor of Rietveld's building down to a curving corridor whose glass wall affords views of the reflecting pool at its sunken level. The program for the new wing is simple: two floors of gallery space for temporary exhibitions and a third floor for showing prints.

The stair connecting the lower and middle levels is an intriguing sculptural element, painstakingly detailed and tucked neatly against the elliptical form of the new building. Its sharp point pushes forward like a ship's bow, while a grid of small squares on the curving wall creates the illusion of daylight. Next to all this movement and grace, the straight wall

of the bank of elevators is somewhat less poetic, less sensual.

Upstairs, the double-height gallery receives daylight reflected off the underbelly of the titanium roof and in through the slanting clerestory windows. But all too often, light sensors register danger and sunscreens automatically zoom shut.

For the sweeping south facade of his pavilion, Kurokawa chose a brownish-gray granite, quarried in Canada and cut in Italy to the exact curve of the ellipse. The roof and the north facade above the pool are clad in titanium, while the print room is dressed in aluminum. The architect's choice of materials reflects his love of the subtle variations of gray and his approach to design. In Kurokawa's architecture, curves and grids, new and old, Japan and Holland establish symbiotic relationships—complementing without denying each other. He rejects the rationalist Western approach to the art of building in favor of an Eastern one in which intermediary zones and unresolved contradictions form an architectural twilight zone. And, no surprise, his favorite time of day for the contemplating the shallow pool is twilight.

The buildings by Rietveld and Kurokawa are counterparts. The monumentality of Rietveld's design reveals itself only on the inside, whereas Kurokawa's has its strongest sculptural presence on the outside. Similarly, the two sides of Kurokawa's structure play off each other: one reflecting and responding to its older neighbor, the other offering a solid stone wall to Museum Square. Connected on one side, the new wing is, for better or worse, closed on the other. ■

### Sources

**Titanium curtain wall:** TIMET, Combined Engineering

**Aluminum curtain wall:** Alucobond

**Deer-brown Canadian granite:** Dekker Natuursteen

**Glazing:** St-Gobain

**Acoustical ceiling:** Kruppe-Bomatex

**Movable partitions:** Dekker Interieur

**Paints and stains:** Sigma

**Plastic laminate:** Perstorp BV

**Resilient flooring:** ADO

**Interior ambient and downlights:**

ERCO

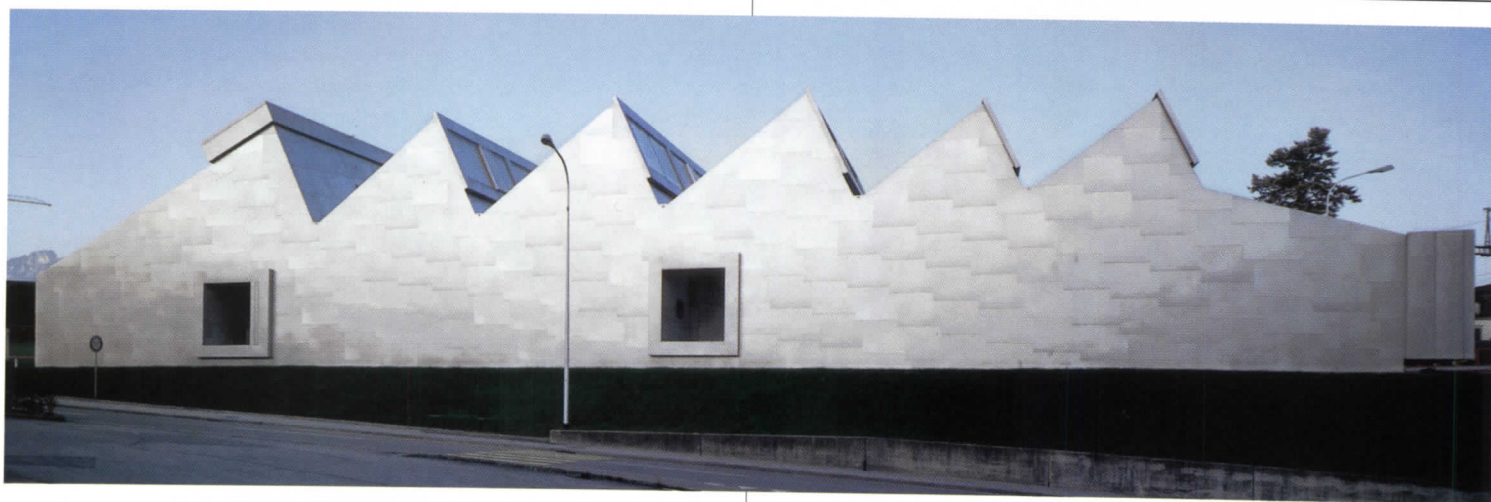
The museum's steel shingles—blasted with glass pearls—have subtle variations that animate the surface (this page and opposite). Sited a few feet from a sweeping curve in the road (opposite), the

building has its entry at the rear—its quieter side (this page). A path from the road and parking lot hooks around, past the reception area's broad rectangular window, to the main door (this page).



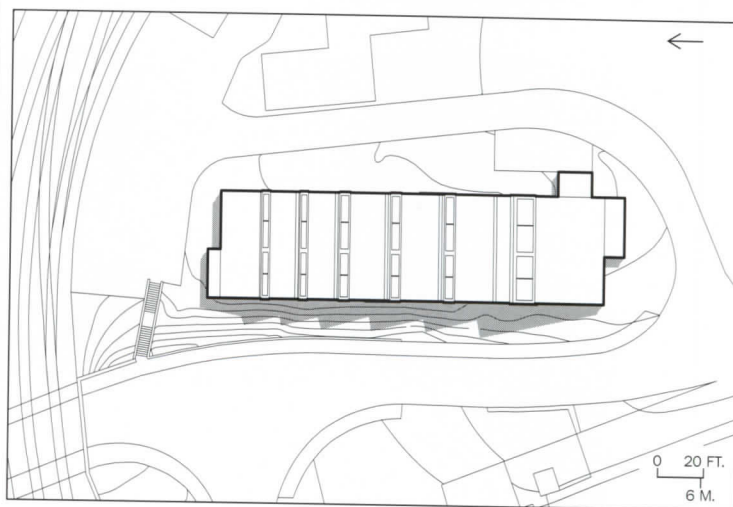
# Gigon/Guyer's steel-shingled LINER MUSEUM glimmers against the sloping farmlands of Appenzell, Switzerland.

by Sarah Amelar



**W**ith scaly, silvery skin, a long, low body, and a great spiked crest, the Liner Museum in Appenzell, Switzerland, lies like a gentle dragon between railroad tracks and a curving road. “The form is meant to have many different meanings and associations,” says its architect, Annette Gigon of Annette Gigon/Mike Guyer Architects in Zurich. Among the influences, she cites the profile of mountain peaks rising behind the museum; the region’s farmhouses, entirely clad from ground to roofseam in weathered wooden shingles; the local tradition of forming zig-zag rooflines over adjoining gabled farm sheds; and the area’s simple sawtooth factory structures. One might even read trainlike features into this trackside building. For all its evocative qualities, Gigon/Guyer’s design also manages to solve practical problems in remarkably simple, yet elegant ways.

The project’s beginnings sound like a quaint small-town tale. In a rural village, 60 miles east of Zurich, a retired plumbing manufacturer envisioned creating an entire museum to exhibit the art of his brother-in-law, Carl Walter Liner (1914–97), and his brother-in-law’s father, Carl August Liner (1871–1946). For this project, he hired Gigon, who, like the Liners, came from Appenzell. Though the two Carl Liners had been competent painters of portraits and landscapes, they could scarcely command the following of, say, Picasso or van Gogh or many others honored with single-artist museums. The modestly scaled museum (17,000 square feet) would not be expected to transform the entire local economy and tourist trade à la Frank Gehry’s Bilbao Guggenheim, but the building itself would



**Project:** Liner Museum

**Owner:** Carl Liner Father and Son Foundation

**Architect:** Gigon/Guyer—Annette Gigon and Mike Guyer, principals; Urs Birchmeier and Daniel Kaufmann

**Engineer:** Aerni + Aerni

#### Sources

**Glazing, built-up roofing, and steel shingles, doors, and windows:** Tuchschnied

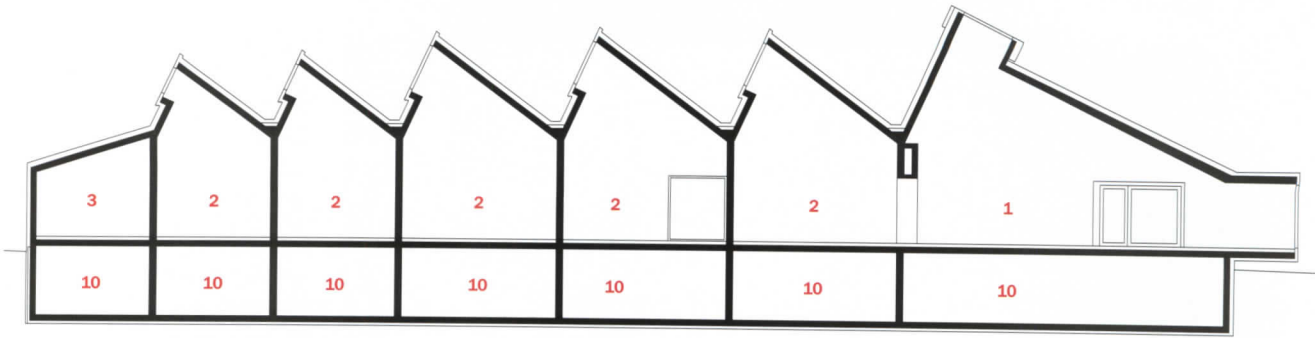
**Concrete and masonry:** Gollino Gebr.

**Wooden doors and substructure:** Schreinerei Züricher

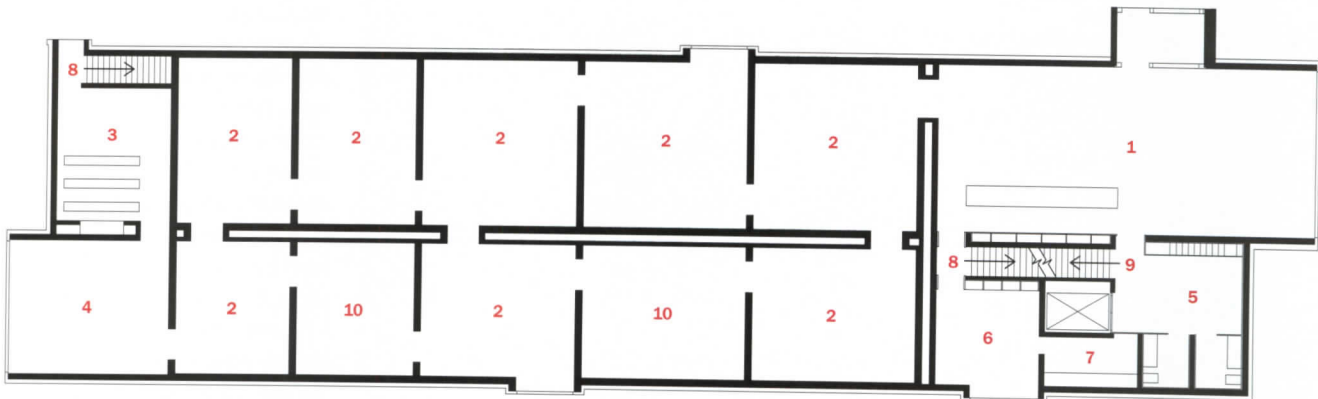


The appearance of the building's scaly wrapping changes with the quality of light (this page). The reception-and-entrance area's large window has a notably different character on the outside, where it projects from the building (below), and on the inside, where it virtually merges the interior and exterior (below opposite). The sizes of the galleries, sawtooth peaks, skylights, and steel shingles gradually diminish as one proceeds northward from the entrance (top and middle, this page and opposite).





SECTION



PLAN

- |                    |                        |
|--------------------|------------------------|
| 1. Entry/Reception | 6. Office              |
| 2. Gallery         | 7. Kitchen             |
| 3. Multimedia      | 8. Down to art storage |
| 4. Reading room    | 9. Up to offices       |
| 5. Coats           | 10. Art storage        |





Intimately scaled galleries accommodate the Liners' typically small paintings (this page and opposite). With soaring pitched ceilings (left), the rooms also suggest equally suitable settings for larger work. Framing rural views, occasional side windows orient visitors within the landscape (this page, top, and opposite). Unlike Gigon/Guyer's Winterthur museum with its many sawtooth skylights, the Liner has a single skylight per room that creates, says Gigon, a "solemn, chapel-like effect."





clearly have to draw visitors. Increasing the challenge, the client specifically asked for a low-tech structure requiring as little maintenance as possible. The cladding would need to be durable, and the climate-control systems would have to run simply, on a limited operating budget.

With high ambitions for accommodating innovative contemporary art in the future, as well as the current father-and-son collection, Gigon/Guyer designed rooms they describe as “more general than specific . . . quiet spaces that neither exaggerate nor compete with the works of art.” Thus, they sought a spatial flexibility that would allow—even

## THE QUIET SPACES NEITHER “EXAGGERATE NOR COMPETE WITH THE ART.”

inspire—the museum’s overseers to expand the scope of the original program. From the reception area, the architects established a linear sequence of 10 intimately scaled galleries in side-by-side pairs. Illuminated by reflected rays filtered evenly through skylights, these concrete-floored, white-walled rooms rise like light chimneys to pitched ceilings that generate much of the building’s exterior configuration.

Wrapped monolithically in overlapping scales of stainless steel, the outside form belies the interior separations. The metal skin—blasted with glass pearls—has an animated, slightly cloudy quality that changes with the light. In selecting cladding, Gigon/Guyer ruled out masonry for its rarity in Appenzeller buildings, wood for its ephemeral qualities, and corrugated metal for its overly industrial look. To avoid colored reflections that might interfere with viewing art, they eschewed copper in favor of the more neutral-colored stainless steel. Self-maintaining, their nonrusting shingles are attached on only two edges to the waterproofed wooden sub-

structure, thus permitting the flow of air and drainage of rainwater.

The architects accentuated the building’s clean lines and formal purity not only with continuous sheathing, but also with their interior detailing. To keep ductwork from interfering with the integrity of the sawtooth ceiling, they created two thick interior partitions—one splitting the paired rooms and the other running perpendicular to it—that cleverly conceal climate-control ducts and electrical conduits, as well as drains for the roof troughs. Even the rarely needed overhead lights are hidden from view, discretely tucked into the skylight forms. With massive exterior walls, the architects minimized the impact of climatic changes: no cooling is necessary, just humidity control. The skylights are oriented to reduce solar heat gain and are operable, occasionally bringing fresh air into crowded galleries and automatically releasing smoke in case of fire.

Transcending the building’s most straightforward qualities, a level of refinement gradually reveals itself. The galleries, for example, may initially appear alike, but they actually vary in size and natural illumination, becoming smaller and dimmer—adapting for such light-sensitive work as drawings—as one proceeds from the entrance. The experience becomes one of tranquility and subtle change, not sameness. Some rooms have side windows, framing paintinglike views that orient visitors within the landscape. And as the spaces diminish in size, so do the roof peaks and proportions of the scales over them, like the skin of a fish or serpent.

So far, the museum, which permits visitors only four days a week, has focused primarily on the Liner collection—and it’s not clear the trustees will ever take the leap to make it a venue for contemporary art. But as a tribute in part to the architects, some 20,000 visitors have streamed in since the Liner Museum opened its shimmering doors a year ago. The place has, as Gigon puts it, become a small “pilgrimage site” in the countryside. ■

# PORTFOLIO: Four visitor centers subtly interpret the landscape, inviting park patrons to become one with the wild.

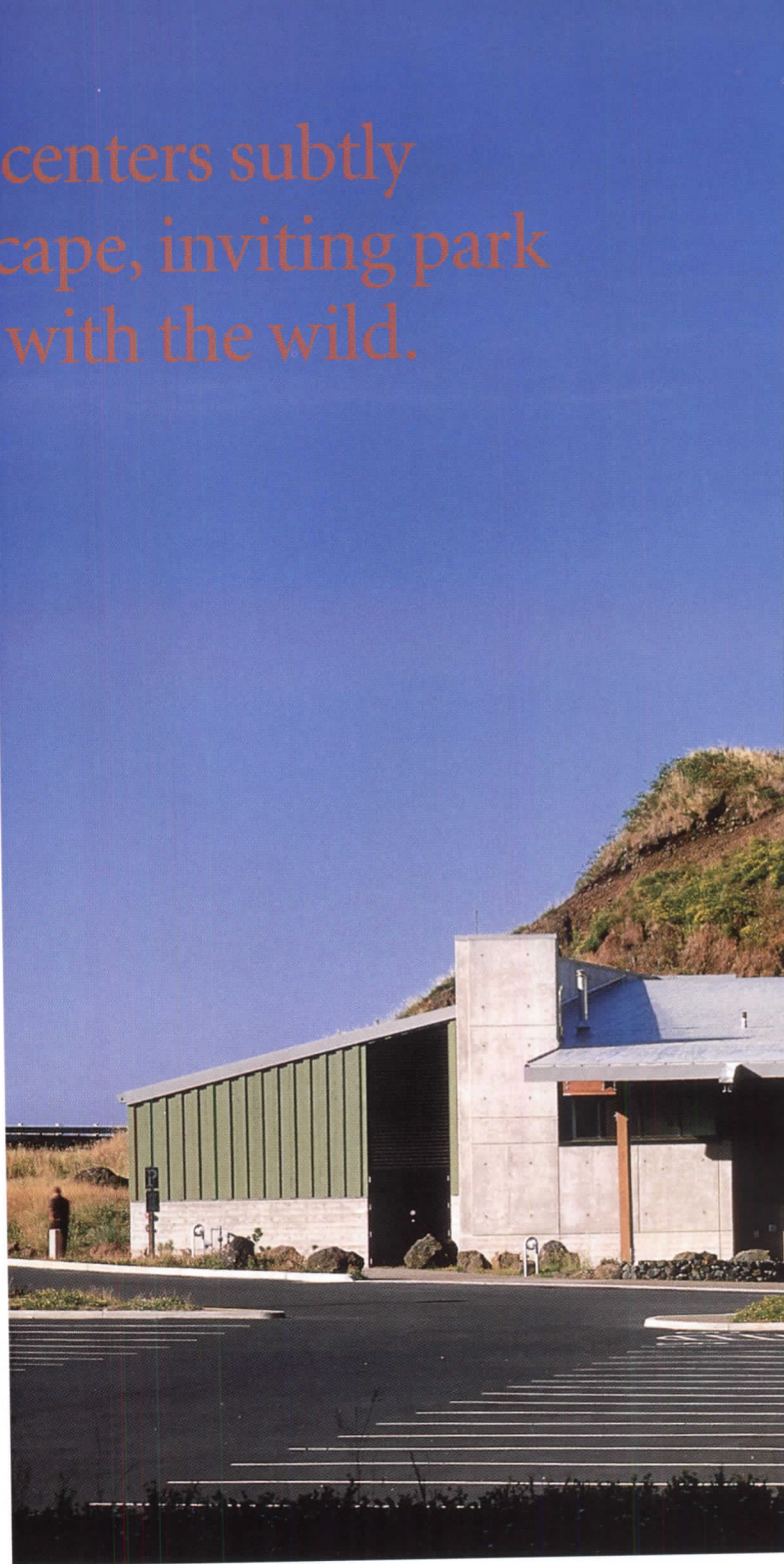
by Jessica Joan Dheere

**W**e're here!" Unable to contain the urge to traipse into the wild any longer, the new arrivals release the latches and slam the car doors. Leftover crumbs from an en-route snack hit the parking-lot asphalt as the adventurers stretch their legs and wonder, "We're where?" In unison, they scan the horizon, halting on the one familiar snag in the landscape that must hold the answer: the visitor center.

These days, it's automatic to look for the visitor center before looking for the woods, but less than 50 years ago, not even the term *visitor center*, much less the building type, existed. That all changed in 1956 when the National Park Service (NPS) initiated Mission 66, a billion-dollar, 10-year program that mandated hundreds of new park facilities, including about 100 visitor centers.

The Mission 66 centers were more than rest stops and bathrooms; they provided much needed places to teach park users to put out their fires, to pack out their trash, and not to carve their initials in tree trunks. To attract attention to the program and the parks, the NPS also prescribed that the architecture of the centers stand apart from the landscape with modern, inorganic forms, such as those explored by Mitchell/Giurgola at Kitty Hawk in North Carolina and Richard Neutra at Gettysburg, Pa. Some visitor centers became icons, evolving into destinations themselves.

The four projects that follow reconsider the destination notion and cast the visitor center—now often called an *interpretive center*—as a gateway, not a terminus, on the visitor's journey from the civilized world to the untamed one. To aid this transition, the architects brought inside typically exterior elements—a porch, a stretch of hiking path, bird-watching perches, and stones and timbers culled from the land—to boost visitors' understanding of the environment before ushering them, almost without pause, to the alien terrain over the threshold. And once there, they will stand ready, at a trailhead or on an observation deck, anointed for the transcendental encounter they have sought from the instant the car turned into the parking lot.




## YAQUINA HEAD GIVES VISITORS THE KEY TO A KINGDOM BY THE SEA

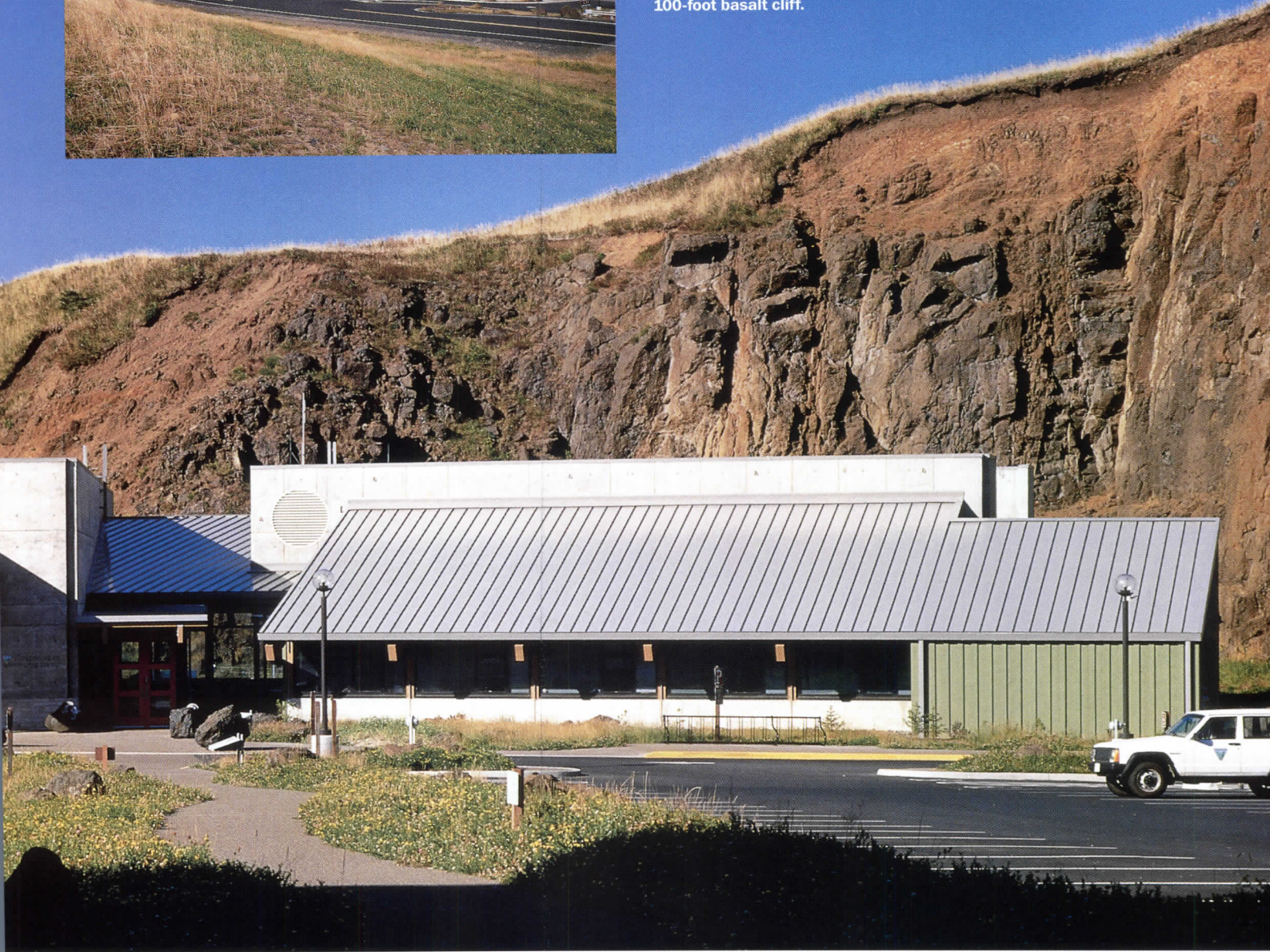
Initially designed to crest a cliff high above the beach and a historic lighthouse near Newport, Ore., the Yaquina Head Interpretive Center was relocated—in response to local residents' objections and with construction documents 75 percent complete—to a reclaimed rock

quarry excavated into the cliff's side. With limited funds and little time for redesign, the building bears puzzling remnants intended for its original location. Windows meant to draw visitors outside onto a grand porch with Pacific views, for example, now face a 100-foot-tall basalt cliff.





A late change in site forced the Yaquina Head interpretive center to move from a prominent position with ocean views across the road to a more modest spot at the base of a 100-foot basalt cliff.



While the architects, The Miller/Hull Partnership, of Seattle, still rue the change in site, their design for Yaquina Head proves remarkably resilient thanks, in part, to its straightforward scheme. Two rectangular volumes—one containing the exhibition space and the other administrative functions—sit at a slight angle to each other. In the space between, a lobby gradu-

ally opens up from the main entrance back toward the porch leading to the trailhead.

The use of concrete also contributed to the building's adaptability. Its sturdiness endures the 80-mile-per-hour winds known to blow on the headland, and, says design lead Robert Hull, FAIA, "concrete expresses a sense of longevity—almost of geologic time—that fits

with the cliffs and shores of the site."

Similarly, once inside, visitors feel as if they still have one foot in the great outdoors owing to the exposed aggregate floors and poured-in-place concrete walls. And even the seemingly awkward view of the cliff—observed across the double-height porch—finds a dual purpose in the scheme as invitation to the trail leading to the ocean and

introduction to the quarry's history as the source of stone for legendary Highway 101.

Adjacent to the porch, a full-scale replica of the lighthouse's lantern signals the location of the interpretive exhibits designed by Aldrich Pears Associates, of Vancouver. In contrast to the clearly articulated structure of the lobby, the 6,000-square-foot black box that

houses the exhibits is an abstract and theatrically lit space that curves slightly and uses softly flickering lighting to add depth to a life-size mural of a gray whale and her calf. "Our goal was to balance content and visual effect," says Ronald Pears, "just as we try to balance the *indoor exhibits* with the real experience of the park." Outdoor exhibits, also created by Aldrich Pears, include universally accessible, man-made tidal pools carved from the quarry, which teem with sea stars, anemones, and crabs.

The success of Yaquina Head lies not only in its resilience, but also in the way in which Miller/Hull has imbued a relatively modest project with a strong visual presence by playing with scale. Oversized two-by-six-inch battens give the

vertical wood siding a large-grain texture against the heavy-timber and concrete construction, while exaggerated roof scuppers create a counterpoint to the taut raised-seam metal roof and closely cropped roof rafters. A continuous vertical reveal at each corner prevents the large concrete boxes from appearing staid.

Overall, the architectural expression is rugged but never heavy handed, giving Yaquina Head a batten-down-the-hatches quality befitting its stormy ocean site.

*Sheri Olson, AIA*

**Project:** Yaquina Head Outstanding Natural Area Interpretive Center  
**Owner:** Bureau of Land Management  
**Architect:** The Miller/Hull Partnership  
**Interpretive design:** Aldrich Pears



The impressively scaled lobby (left) anticipates the grandeur of the cliffs and ocean that await visitors. The glazed porch (above) leads to the main trail. The black-box exhibit area (right) rolls along like waves in the sea.



1. Lobby
2. Interpretive
3. Giftshop
4. Multiuse
5. Administrative

## WITH A WHISPER, TRAPPS GATEWAY COAXES HIKERS TO HIT THE TRAIL

"We were the only architects who promised not to build a building," says Lee H. Skolnick, AIA, about Trapps Gateway, the visitor center his New York City firm designed for Mohonk Preserve in upstate New York. Instead, the architects built what Skolnick calls "an invitation to the land" that summons hikers and climbers to preview what they'll soon experience firsthand.

The architects connected the building to the preserve in several ways. In conjunction with the landscape architect, they selected trees on the heavily wooded preserve to fell for the center's 11 major columns. Similarly, masons culled stones from the land for the facade, structural retaining walls, and built-in interior furniture. And much of the 9,200-square-foot building sits below grade to minimize the impact of what could be an imposing, unnatural mass.

Inside, a two-story vista opposite the entrance draws visitors—as down the nave of a cathedral, says Skolnick—past a large topographical model of the preserve and a "storyline" of didactic exhibits, both of which the firm designed.

Downstairs, a geothermal heating and cooling system uses the earth's underground temperature to maintain a constant climate without using fossil fuels. Originally intended to meet sustainability requirements, the geothermal system, which visitors can observe through glass, is now part of the educational program.

The interplay between the architecture and the interpretive exhibits, say the architects, reinforces the visitor center as a gateway and transforms visitors' perceptions of the land while inspiring them to find their place in it. *J.J.D.*

**Project:** Trapps Gateway Center

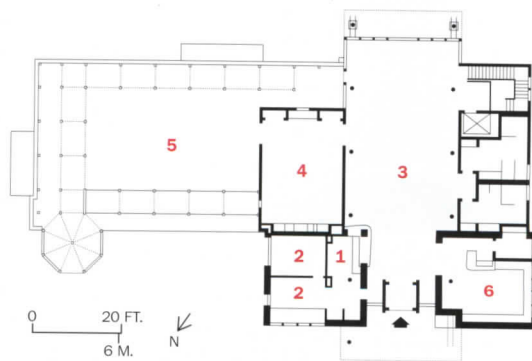
**Owner:** Mohonk Preserve

**Architect:** Lee H. Skolnick Architecture & Design Partnership—Lee H. Skolnick, AIA, principal, Paul S. Alter, principal, Jo Ann Secor, director of museum services

**Landscape:** Hudson & Pacific Designs



For the entrance (above), native stone and timbers, as well as the hidden lower level, reinforce the architect's intent that the building blend with the site. A two-story window (left) and a topographical model (below) draw visitors through the building.



1. Reception
2. Office
3. Exhibit/Orientation
4. Main meeting room
5. Outdoor deck
6. Gift shop



## A CONCRETE OASIS COOLLY COMES TO NATURE'S AID

It's not just the high-desert heat rising that, from a distance, blurs the edges of the Antelope Island Visitor Center into the contour of Ladyfinger Ridge. Designed by Edwards & Daniels Architects, of Salt Lake City, the 5,250-square-foot building, sited on a scar created by a dynamite blast, actually heals the profile of the northern tip of this 18-mile-long island in the southeast corner of Utah's Great Salt Lake.

Similarly, the rough, gray, cast-in-place concrete camouflages the center in what project architect Peggy McDonough-Jan, AIA, compares to a moonscape. And the walls—higher on one end than on the other—appear shifted by a subterranean force, suggesting timeless geology at work, not 20th-century construction. Reclaimed timber framing, however, nods to the island's prior human settlements.

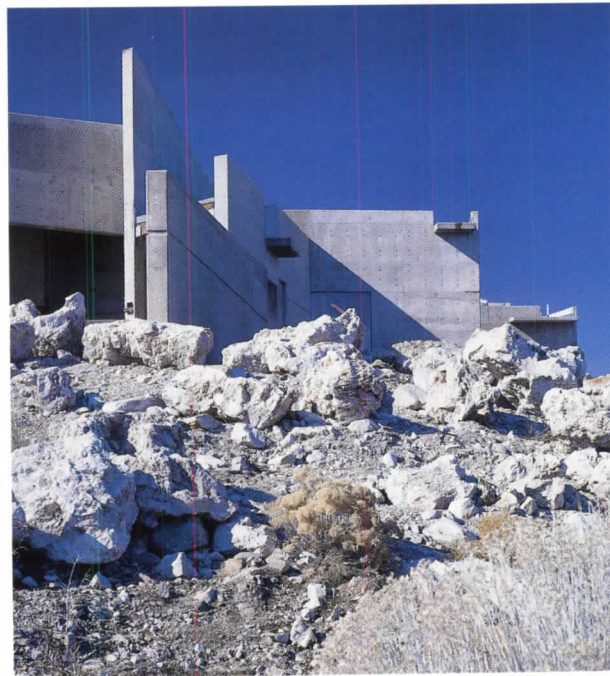
A walkway that starts at the parking lot takes visitors inside. As they move along it, they get glimpses of the vistas they came to see and can branch off into exhibit and multi-use areas. Eventually, the path takes visitors back outdoors to an overlook where they can appreciate endless views and contemplate a seemingly beginningless history. *J.J.D.*

**Project:** Antelope Island State Park Visitor Center

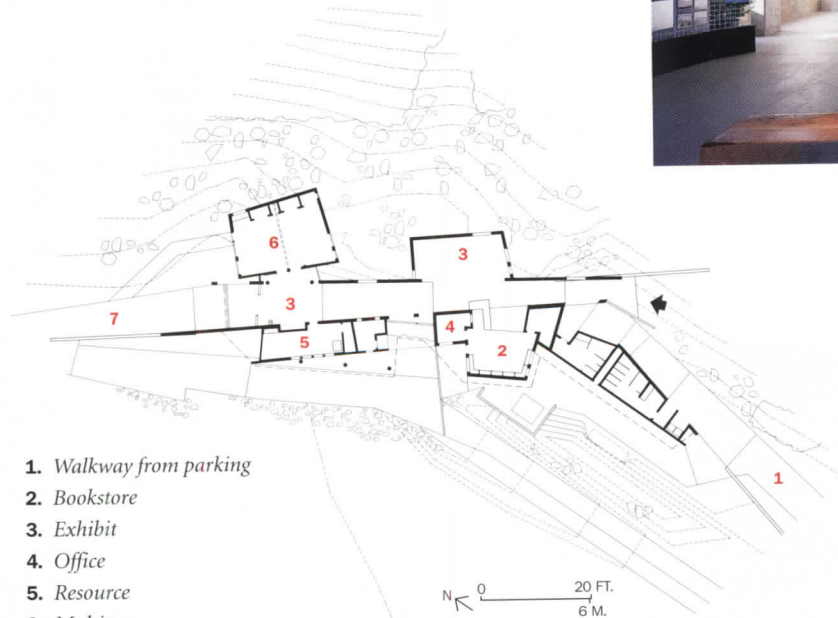
**Owner:** State of Utah

**Architect:** Edwards & Daniels Architects, Inc.—Burke Cartwright, principal-in-charge, Peggy McDonough-Jan, AIA, project architect, Elaine Fung, Michael Pusey

**Consultants:** Landscape Design Inc.—Jan Striefel (landscape); Consortium West (interpretive)



The building completes the profile of Ladyfinger Ridge (top). The gray, cast-in-place concrete walls blend well with the island's indigenous stone (left). Light shines in through clerestories, illuminating exhibits and orienting visitors (below).



1. Walkway from parking
2. Bookstore
3. Exhibit
4. Office
5. Resource
6. Multiuse
7. Walkway to overlook

## IN MANHATTAN'S BACKYARD, NATURE LOVERS FIND A REFUGE AS PRIVATE AND COZY AS THE BACK PORCH

The Greenbrook Nature Sanctuary Visitor's Center, designed by New York City firm Thanhauser & Esterson, provides refuge for bird-watchers much as the 180-acre preserve creates a safe harbor for wild things. Just six miles north of Manhattan on the New Jersey Palisades in Alpine, N.J., the 1,000-square-foot visitor center, accessed by a deck that joins the new construction to an existing, small gable-roofed office, was envisioned by the architects as "a 'built' trail in the woods."

Approaching from the parking lot, visitors encounter the building's primary horizontal component, a wall built from stone found on-site. The wall—intended to be a reminder of the Palisades' 300-foot cliffs—interrupts the view into the forest and marks the boundary between the built and natural environments.

A ramp carries visitors up the deck, and a right turn takes them to

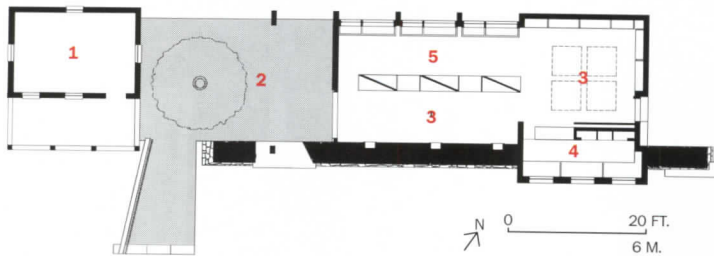
the entrance (a left turn leads to the old building) on the other side of the wall. Inside, an abundance of maple in both ceiling panels and removable exhibit panels, coupled with daylight admitted by skylights, give the interpretive area a warm glow.

A series of windows—each with a stool and a pair of binoculars—lines the rear wall of the building and faces a bird meadow, creating observation niches and imbuing the space with the feel of another man-made escape for sitting, watching, and wondering: the porch.

**Project:** *Greenbrook Nature Sanctuary Visitor's Center*

**Owner:** *Palisades Nature Association*  
**Architect:** *Thanhauser & Esterson—Jack Esterson, Charles Thanhauser, principals-in-charge; Ken Levenson, project architect*

**Interpretive:** *Stephen Saitas (design), Katherine Grover (text)*



1. Existing office
2. New deck
3. Exhibit
4. Research office
5. Bird-watching niches



The new visitor center is behind the horizontal stone wall. Inside, exhibits occupy a linear space (left) by a new deck, whose ramp leads to the main entrance (top)

and bird-watching niches line the rear wall (above).

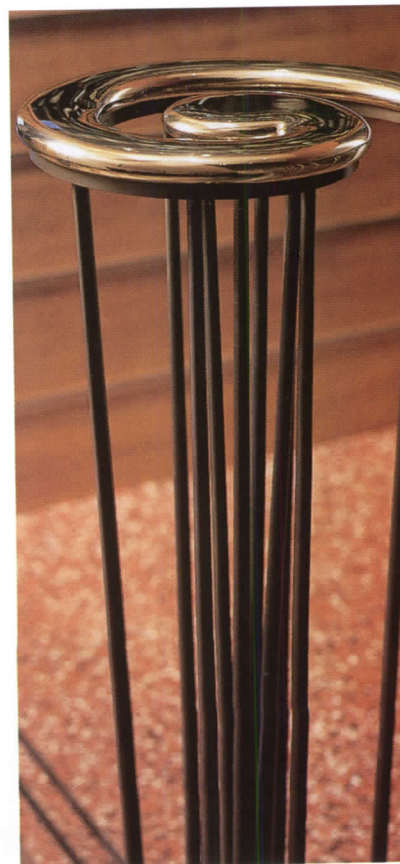
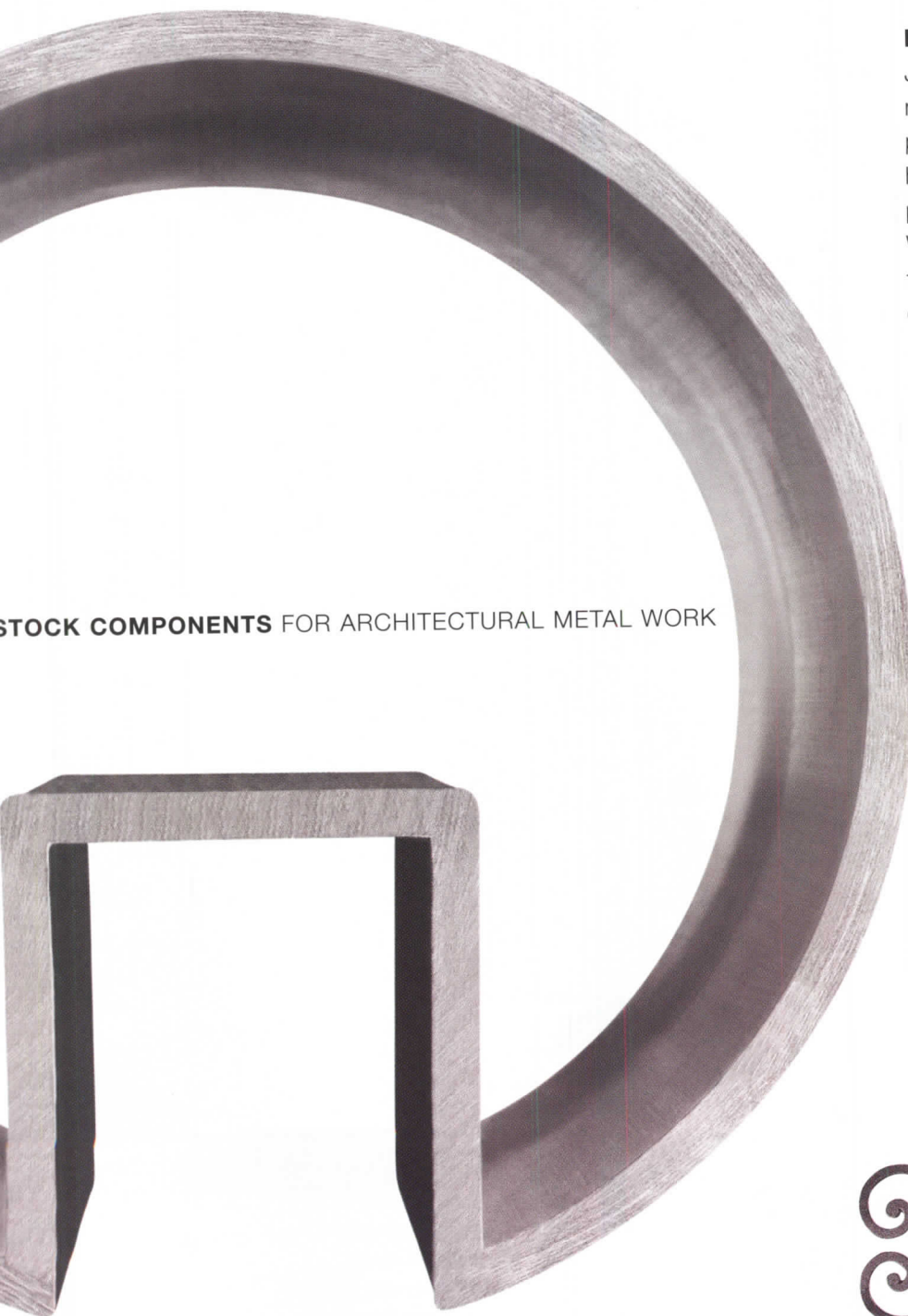
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## ENTERTAINMENT RETAIL

## Reinventing the Mall

WITH SOME SHOPPERS TIRING OF THE SAME OLD SETTINGS AND MANY TURNING TO THE INTERNET, RETAIL DEVELOPERS MUST GIVE PEOPLE A REASON TO COME TO THE MALL.

by Susan Doubilet



1

**San Francisco**

SMWM and Gary E. Handel teamed up to design Metreon, an urban entertainment center that takes technology as its theme.



2

**Las Vegas**

When built in a few years, this expanded shopping mall by Orne + Associates will feature a show-stopping public plaza on the famous Strip.



3

**Beijing**

An outpost of Hollywood vibe, designed by Hodgetts + Fung for Universal Studios, sits within a glitzy Chinese shopping mall.



4

**San Diego**

A 1960s shopping center gets a makeover by Altoon + Porter that involved a cineplex, new restaurants, and some structural gymnastics.

Driven by trends with increasingly short life cycles, the retail industry is betting that the addition of entertainment to the traditional mix of shopping components will serve as a shot in the arm. Also called “experience,” “lifestyle,” or “themed” shopping, entertainment retail incorporates cinemas, full-service restaurants, and high-tech video arcades in new and renovated centers. The goal is to draw a wider range of people than conventional retail and to entice them to spend more time and money on each visit. And developers are adding these new complexes to both downtown and suburban locations.

While 1998 was a record year for retail construction, the forecast for the next few years is less rosy. According to the F.W. Dodge division of the McGraw-Hill Companies, store construction hit a new high of 277 million square feet last year, thanks to a booming residential market that has fed demand for new and expanded shopping centers. But Dodge predicts that store construction will recede by 5 percent this year and will drop to 195 million square feet by 2001. To fight the coming downturn, the industry is rolling out new formats, such as entertainment-enriched shopping centers, says Robert Murray, vice president and director of construction forecasting at Dodge.

The retail industry is currently polarized, explains Stan Laegreid, a principal at Callison Architecture in Seattle. At one end, the warehouse store offers convenience and low prices; at the other, the experience shopping destination supplies a place where people can go for the fun of it. Fearing that shoppers will tire of the usual anchor-department-store-and-boutique format and wary that more and more shoppers will frequent the warehouse store or just stay home and purchase via the Internet, mall developers are adding places where people can come to be entertained—such as full-service restaurants (not just food courts), cinemas, and themed attractions.

**Enticing younger and older shoppers to come to the mall**

And with a strong U.S. economy, the strategy is generally working. Industry experts say the average mall stay is four hours, compared to the 60- to 90-minute stay in pre-entertainment malls. Furthermore, in addition to the traditional mall shoppers—women in their 20s through middle age—younger and older visitors are being drawn to the new

Susan Doubilet's most recent book is *European House Now* (Universe/Rizzoli). She is also the coauthor of *Private Architecture* and *American House Now*.



**Desert Passage, designed by RTKL for the Aladdin Hotel in Las Vegas, will be a 462,000-square-foot complex with themes as thick as thieves. Shoppers will go from a Treasure House to a Music Quarter to a Dome of the Spirits.**

centers. The lucrative teenage-plus group, including formerly mall-resistant young men aged 18 to 25 years, has a new hang-out. And the over-50 crowd, with lots of money and leisure time, has a place to enjoy a meal and a movie.

Entertainment retail is certainly not an entirely new phenomenon. The January issue of *Entertaining Places*, a quarterly supplement to the magazine *Shopping Center World*, lists Riverwalk in San Antonio, dating from 1968, as the first of 12 milestones of the trend. The 1976 Faneuil Hall development in Boston, like Riverwalk an extension of its city's downtown, makes the list. So do Horton Plaza in San Diego (1985); CocoWalk in Miami (1990); the Mall of America in Minneapolis (1992); CityWalk at Universal City, Calif. (1993); and Navy Pier in Chicago (1994). Each introduced "at least one element that became a central component of entertainment retail," such as the cineplex, the festival marketplace, and the open-air mall, states the article. Much of these projects' success stems from designs that were specific to their locations, not generic.

#### **Mixing high- and low-tech attractions to reach a broad market**

In the current generation of entertainment retail projects, a cineplex often acts as a mall anchor, sometimes replacing a department store in an existing shopping center. Gary Karl, retail vice president of Westfield America, reports that his company's shopping center in Enfield, Conn., experienced a 7 to 8 percent increase in sales with the addition of a cineplex. The Irvine Spectrum Center in southern California, for example, is adding 10 cinemas to its current 21, betting heavily on Hollywood's appeal. New forms of software-driven entertainment are appearing, too. High-tech attractions such as Gameworks, a joint venture of Universal Studio, Dreamworks Studio, and Sega, mix virtual and video games along with family restaurants and bars to grab the interest of a broad range of age groups. Disney is competing in the field with its new Disneyquest

urban entertainment centers in Orlando, Philadelphia, and Chicago. Sony's Metreon in San Francisco blends retail with cinemas and themed attractions of both the high- and low-tech variety. Robert Hale, vice president of design and planning for Universal Studios, points out that new kinds of attractions prevent a retail center from getting stale.

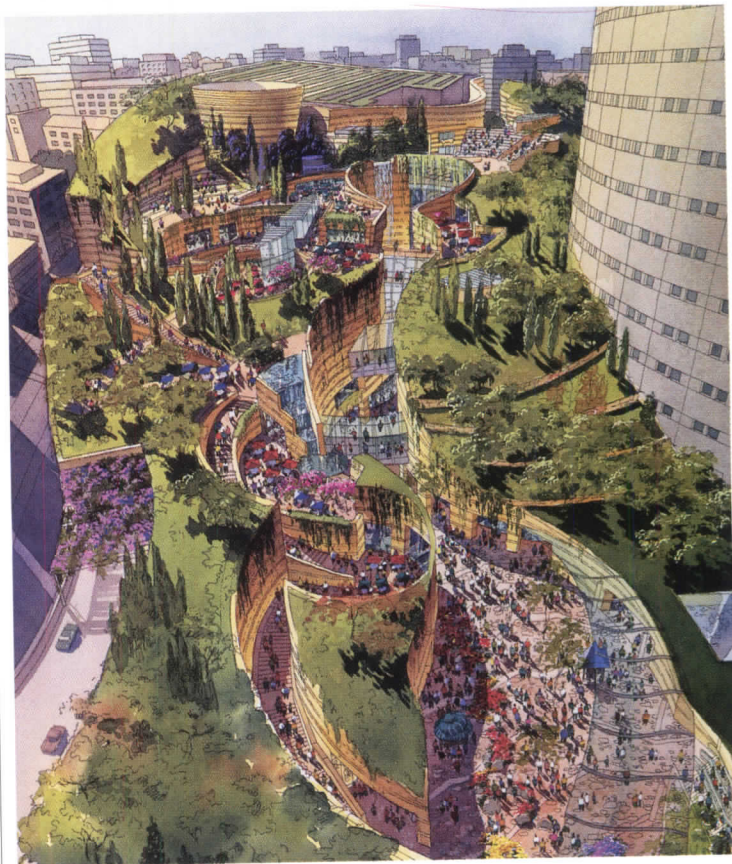
But David Ashen, design director at the image management and strategic design firm Desgrrippes Gobe & Associates in New York, cautions that it is not sufficient to just add videos or even video games to the retail

## **DISNEY, UNIVERSAL, AND SEGA ARE ROLLING OUT RETAIL EXPERIMENTS.**

experience to make it entertaining. And it's important, he says, for malls to appeal to a wide range of senses—not just those needed to manipulate a joystick. To create this kind of appeal, architects, together with interior, graphic, and industrial designers; marketing executives; and developers, are adopting methods generally used in producing motion pictures. For example, designers at ID8, a division of RTKL specializing in entertainment, often begin a project by scripting a narrative—either a fictional one or one that borrows from a local culture—to serve as a design framework. They then develop storyboards that guide every aspect of the architecture as well as the retail techniques and the marketing.

Increasingly, malls are being built or refurbished, with extensive open-air plazas (the reverse of the 1970s trend to enclose earlier strip malls.) This helps create what Eddie Wang, president of the Jerde Partnership International, calls a "town center" atmosphere, offering people of all ages a place to socialize. At the

**The Jerde Partnership envisions Namba in Osaka, Japan, as an "urban magnet," offering shopping and entertainment set within a landscaped canyon that rises eight stories from one end to the other.**







Even Volkswagen has caught the entertainment bug. Its Autostadt in Wolfsburg, Germany, designed by Henn Architekten, will open next year with a museum and brand pavilions.

Avenue of the Peninsula in Palos Verdes, Wang's firm is adding a cinema and removing the roof of a prototypical 1970s enclosed shopping mall, an older Jerde design.

Paul Jacobs, a vice president at

RTKL, says that retail development is echoing the population's move back to the city. His firm's \$100 million "classic Main Street" project under construction in the Brea area of Los Angeles will contain civic spaces, a 22-screen cineplex, 200,000 square feet of retail, and over 100 residential units of varying types, including live/work lofts above the shops.

### Turning shopping into "experience retailing"

Callison's Stan Leagreid confirms that downtown is an important location for what he calls "experience retailing." "Shoppers are looking for something more meaningful than the anonymous mall," he says. And the answer, he proposes, is not necessarily in large-scale redevelopment, but in "coretailing." Complementary lifestyle retailers—Crate and Barrel,

## ENTERTAINMENT RETAIL WORKS BEST WHEN TIED TO A SPECIFIC CONTEXT.

Restoration Hardware, Banana Republic, and the like—can bundle themselves together to form a district within a downtown, supplemented by a cinema, restaurants, a gourmet grocery, a drycleaner, and professional offices. Callison is currently designing a coretail prototype that will bundle Wells Fargo cash machines with Starbucks coffee shops.

Entertainment retail environments are being used, as well, to promote brand names. In Wolfsburg, Germany, Volkswagen has established an "Auto City" overlooking its car production plant. The 75-acre site, planned by Henn Architects and Engineers of Munich, will include a customer center, conference center, auto museum, and luxury hotel, along with individual pavilions for each of the company's car brands.

One of the most elaborate of themed environments has been designed by RTKL for that most flamboyant of American cities, Las Vegas, where entertainment now exceeds gambling as the prime tourist attraction. Desert Passage, a 462,000-square-foot entertainment and retail complex, is a feature of the new Aladdin Hotel & Casino. Here entertainment and retail merge into a seamless fantasyland, taking visitors along a

winding path through recreated trade routes of yore, from southern Spain and Northern Africa to a bejeweled street in India. Exotic tiles, ironwork, and glass will create an "authentic" experience, explains a representative of developer TrizecHahn, who promises that strolling entertainers "will never let the visitor remain an innocent bystander."

### Exporting the concept around the world

American architecture and development firms are involved in scores of entertainment retail complexes throughout the world, notably across Europe and in the Far East. To mention just a few: Orne + Associates has been invited to design a film-based complex in a western European nation. RTKL has designed the 500,000-square-foot Trocadero development in London's Piccadilly Circus; a prototype Warner Brothers entertainment retail complex for international locations; and an entertainment retail project in Yokohama, Japan, which takes the form of a fictitious New England fishing village. Universal Studios is reapplying its CityWalk-style retail

development on its 2,000-acre Port Aventura theme park/resort development in Spain. Sony is developing entertainment complexes in Tokyo and on the Potsdamer Platz in Berlin, the latter an aggressive design by the German-born Chicago architect Helmut Jahn, FAIA. And the list goes on. Segments of the world seem to be begging for American style retail and entertainment expertise, and Americans are eager to comply.

What, then, are the limits to this trend? Richard Orne says, "Entertainment is seen as a panacea, but it can only work if it's built as part of its specific context." He emphasizes the inclusion of local shops as well as national chains. Furthermore, Orne urges, "Connections have to be made with public transportation."

Since entertainment retail is the merger of two intrinsically trendy industries, what will happen to these places when the trend wanes? Matt Valley, editor of *Shopping Center World*, repeats a tongue-in-cheek comment heard at a retail conference: "They'll become the world's biggest racquetball courts."

In fact, sports may be the next growth area for entertainment retail, following the example of the Chelsea Piers complex in Manhattan, which offers a couple of skating rinks, a golf range, and extensive gymnasium facilities along with restaurants and some shopping.

As many retail developers chase the bright lights of entertainment, some questions remain unanswered. For example, will the proliferation of national chains in these establishments promote a certain sameness and bleed them of their excitement? And despite claims of adding vitality to downtowns, will these projects take away business from older, smaller retailers and act only as isolated islands of activity? ■



Murphy/Jahn's Sony Center Berlin will open next June and will feature a pedestrian street leading to a tent-roofed, outdoor forum.

## 1

# Metreon San Francisco, California

**WHAT'S A SHOPPING AND ENTERTAINMENT CENTER DOING IN AN ARTS COMPLEX? KEEPING THE PLACE BUSY AROUND THE CLOCK.**

by Clifford A. Pearson

**Project:** Metreon, San Francisco

**Owner:** Millennium/WDG Ventures

**Collaborating architects:**

SMWM/Gary E. Handel +

Associates—Cathy Simon, FAIA, Gary Handel, AIA, principals-in-charge;

Linda Sobuta, AIA, Deborah

Finkelstein, Wahid Iskanderzada, project managers; Alyosha Verzhbinsky,

AIA, project architect; Glenn Rescalvo,

AIA, senior designer; Bill Katz, Doug

Hoffelt, AIA, Alan Burkett, Louise

Louie, George Duncan, AIA, Shannon

Kaye, Meg Horl, David Kilpatrick,

Connie Maxwell, David Miller, Jasen

Bohlander, Joyce Hwang, Greg Tuck,

Paul Haslhofer, project team

**Interior designers:** Sony Development;

Gensler (gateway, cinemas, *Where the Wild Things Are*)

**Engineer:** DeSimone Consulting

Engineers (structural)

**Contractors:** Bovis (core, shell, and

theaters); Dinwiddie Construction

(tenant improvements)

**Construction cost:** \$200 million

**Scope of work:** Design a new 350,000-square-foot urban entertainment center

**Key components:** Cineplex, IMAX theater, stores, themed attractions

## Sources

**Metal cladding:** Alucobond

**EIFS:** Dryvit

**Tempered glazing, skylights:** Viracon

**Tower sign glass:** Saflex (Opticolor)

**Exterior lighting:** Poulsen, Irideon,

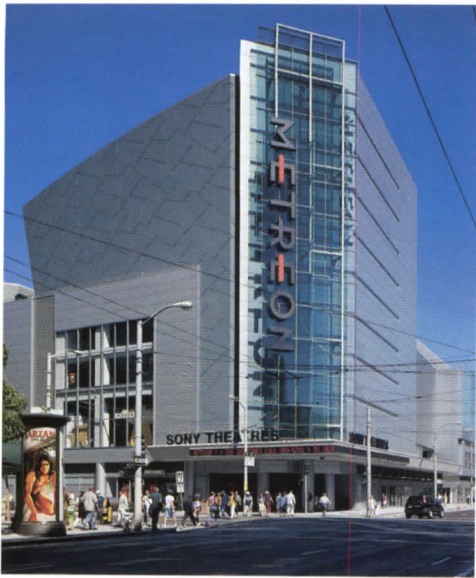
Lithonia Lighting

Two of the driving forces behind the 350,000-square-foot Metreon complex have little or no background in retail—one is a redevelopment agency; the other makes electronic appliances. So it's not surprising that the mall they built one block south of Market Street in San Francisco breaks from the shopping-as-usual approach to retail development.

The San Francisco Redevelopment Agency (SFRA) and Sony Corporation of America, in conjunction with developer Millennium Partners, have done more than just added a multiplex cinema and some entertainment attractions to a typical mall. At Metreon, there are no department-stores-cum-anchor-tenants; the food court has been replaced by a collection of five local restaurants where you can take business clients without having to apologize; and the separation of one store from another is purposely blurred to create a seamless environment.

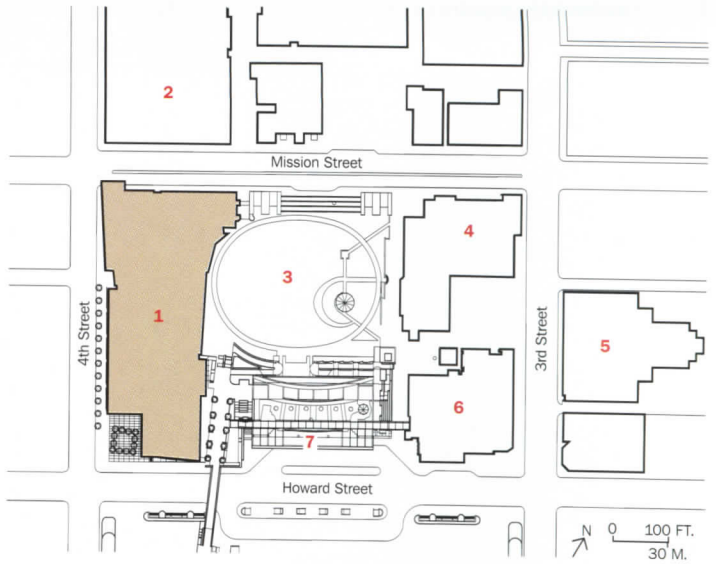
Part of the Yerba Buena Center for the Arts, Metreon offers a dose of popular culture to an established complex that already included a theater designed by James Polshek, FAIA; an art gallery and exhibition hall by Fumihiko Maki; a central esplanade garden by Mitchell/Giurgola Architects; and a children's museum by Adèle Naudé Santos. Mario Botta's Museum of Modern





1. Metreon
2. Marriott Hotel
3. Esplanade
4. Art gallery (Maki)
5. SF MoMA (Botta)
6. Theater (Polshak)
7. Moscone Center

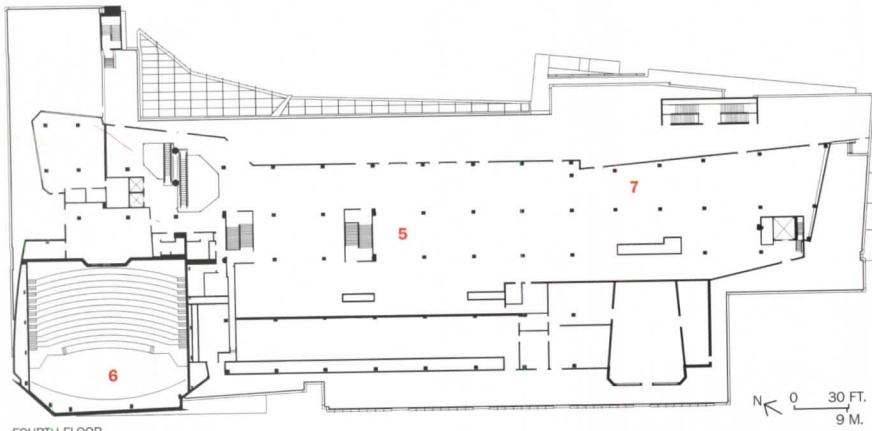
An IMAX theater (left) acts as an icon for the project. Glass panels break up the long Fourth Street facade (opposite bottom); at night, colored light is projected on them. The project faces Yerba Buena Gardens (below).



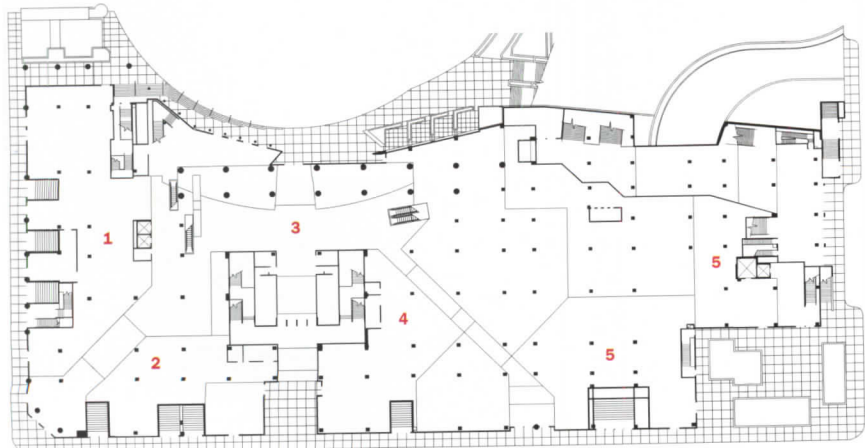


One Metreon facade addresses Yerba Buena Gardens with a four-story crystalline

element that the architects nicknamed "the blade" (opposite and this page).



FOURTH FLOOR



FIRST FLOOR

1. Discovery Channel Store
2. PlayStation Store
3. Gateway
4. Sony Style Store
5. Restaurant
6. IMAX theater
7. Themed attraction

Art is also nearby, and, when they're built, Daniel Libeskind's Jewish Museum and Ricardo Legorreta's Mexican Museum will be also.

While a building with shopping may not seem to fit in a center for the arts, Metreon plays a key role at Yerba Buena, attracting a broad range of visitors, staying open in the evening, and providing subsidies to its nonprofit neighbors.

Getting the right kind of commercial and entertainment ventures for the project, though, proved to be a difficult task. Even after the New York-based developer Millennium Partners and its San Francisco arm, WDG Ventures, joined the team and brought Sony along with them, the program for the site at the corner of Mission and Fourth streets was still in flux. Millennium had worked with Sony on the successful Lincoln Square complex in New York City, which includes a Sony multiplex and IMAX theater, along with a health club and a residential high-rise.

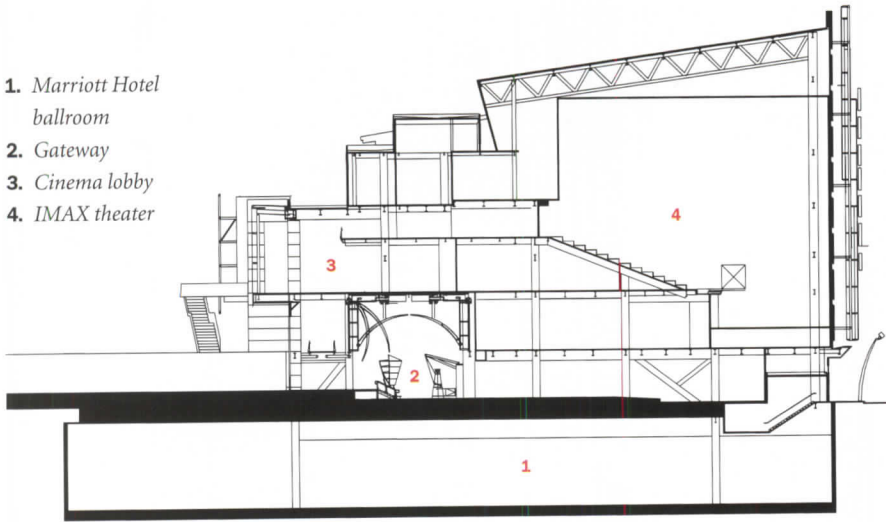
#### Finding a theme for Sony

Instead of creating a mall with a few anchor tenants and lots of generic

With columns set 10 feet on center and glass panes measuring 7.5 by 5 feet, the east-facing curtain wall offers great views of the gardens and surrounding area. A dramatic stair provides access to cinemas, attractions, and a fourth-floor roof terrace.



- 1. Marriott Hotel ballroom
- 2. Gateway
- 3. Cinema lobby
- 4. IMAX theater

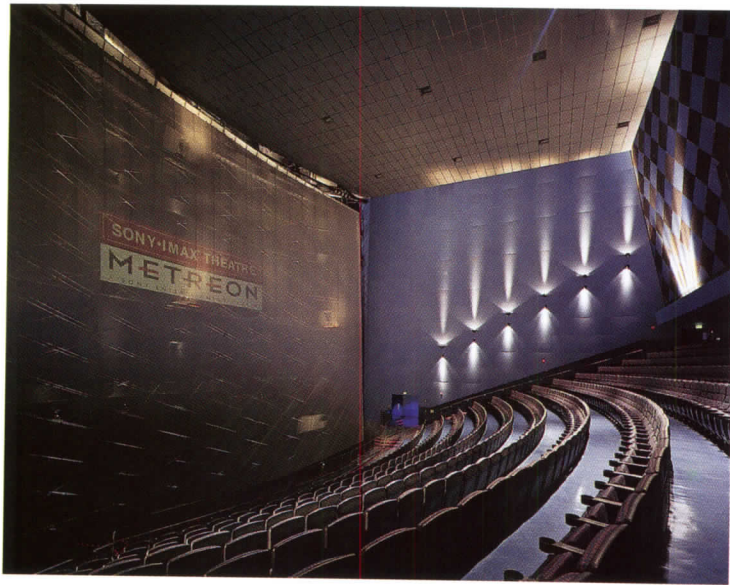


EAST-WEST SECTION

The Gateway (below) is the two-story heart of the project: a central space whose design expresses Sony's theme of technology and convenience. "We think of the Gateway as

our Web page," says Marlene Saritzky, director of communications and marketing for Metreon. Winglike canopies slowly move, adding a dynamic quality to the space.





The IMAX theater is essentially a cube 100 feet in each direction (far left). The Way Things Work (left) is one of three themed attractions. The Airtight Garage (below) is a high-tech video arcade based on the drawings of the French comic-book author known as Moebius.

leasable space, Millennium and Sony approached the project as if it were a Hollywood production—with an overall concept integral to all its parts. Reflecting its new identity as not just a manufacturer but also a producer and distributor of films, music, and computer games, Sony programmed Metreon around a theme of technology and its role in everyday life. Such a focus creates a home for both a Sony Style store and the first retail outlet devoted solely to the company's PlayStation computer games.

"Today Sony is a marriage of hardware and software," explains Herbert Lembcke, FAIA, vice president of development for Metreon.

### Creating special attractions

The company also attracted or helped develop tenants that fit this theme. So Metreon includes a Discovery Channel Store and the first-ever Microsoft brand store. For special attractions that wouldn't be found anywhere else, Sony worked with three authors to turn their books into three-dimensional, amusement-park-like environments. The results are walk-through, interactive versions of Maurice Sendak's children's story *Where The Wild Things Are* and David Macaulay's *The Way Things Work*, as well as a video- and computer-game arcade based on the work of Jean Giraud, a French comic-book illustrator who uses the pen name Moebius.



Each attraction has a separate admission charge, while entry to the rest of the project is free. Each attraction also has its own store and, in the case of the Sendak feature, its own restaurant serving kid-friendly food.

Making the 500-foot-long, four-story building work urbanistically was a challenge for the two architecture firms that collaborated on Metreon: Simon Martin-Vegue Winkelstein Moris (SMWM) and Gary E. Handel + Associates. But in some ways its size is an asset, says Gary Handel, AIA, because it clearly

defines the western edge of Yerba Buena Gardens, something that the smaller buildings on the east side (by Maki and Polshek) don't do. Metreon also does a better job of addressing the street, bringing its bulk right up to the sidewalk rather than sitting back from the urban fray. One disappointing note, though, is the lack of direct access from sidewalks to shops; like more traditional malls, Metreon requires visitors to enter stores from common space inside the building.

While the project presents a hard edge to the street, it offers a

softer, more transparent face to the gardens. Plazas and terraces on three different levels, along with a four-story-high glazed space that the architects nicknamed "the blade," offer a variety of places—both indoors and out—where people can enjoy views of the entire Yerba Buena area. "Like much of our work, Metreon deals with movement and transparency through spaces and with site-specific design," states Cathy Simon, FAIA, principal-in-charge for SMWM.

### A tricky place to build

As if creating a new kind of urban entertainment center weren't enough, the architects had to build part of it on top of the Moscone Center roof and another part of it above the Marriott Hotel's underground ballroom. Huge girders 90 feet long and 10 feet deep span the ballroom, while 12 steel moment frames cross the building from east to west. Accommodating exits for Moscone Center and a huge exhaust vent from the Marriott kitchen made the job even trickier.

Before Metreon opened in June, some people wondered if an urban entertainment center could work in a city like San Francisco, where "mall" is a dirty word. Initial attendance figures indicate it can; 20,000 people a day have been visiting the place, nearly double what had been projected. ■

# 3 Universal Studios Experience, Beijing, China

**HODGETTS + FUNG BRINGS HOLLYWOOD TO A SHOPPING MALL IN CHINA, USING HIGH-TECH GADGETS AND BOLD GRAPHICS TO GET ATTENTION.**

by Clifford A. Pearson

**Project:** Universal Studios Experience, Beijing

**Client:** Universal Studios Recreation Group/Henderson (China) Investments

**Architect:** Hodgetts + Fung Design Associates—Craig Hodgetts, AIA, Ming Fung, principals; Martha de Plazaola, project manager; Denise Zacky, Thierry Garzotto, Janice Shimizu, Jeremy Duvall, Jennifer Dunlop, Michael Knopoff, Clover Lee, Andrew Lindley, Henry Buckingham, Thomas Gluck, Roderick Aichinger, Nicole Strunk, Kirsten Bank, project team

**Associate architect:** House & Robertson

**Engineer:** Ove Arup and Partners

**Consultants:** Joe Kaplan Architectural Lighting (lighting); Edwards Technology (audiovisual)

**Construction manager:** Welbro Management

**General contractor:** PS International

**Construction cost:** \$10 million

**Scope of work:** Insert a 15,000-square-foot outlet in an existing shopping mall

**Key components:** Brand store, five Hollywood attractions, and juice bar

## Sources

**Trowled epoxy terrazzo:** Key Resin

**Counter tiles:** Dal Tile

**Aluminum laminate:** Chemetal

**Metallic paint:** Cardinal Paints

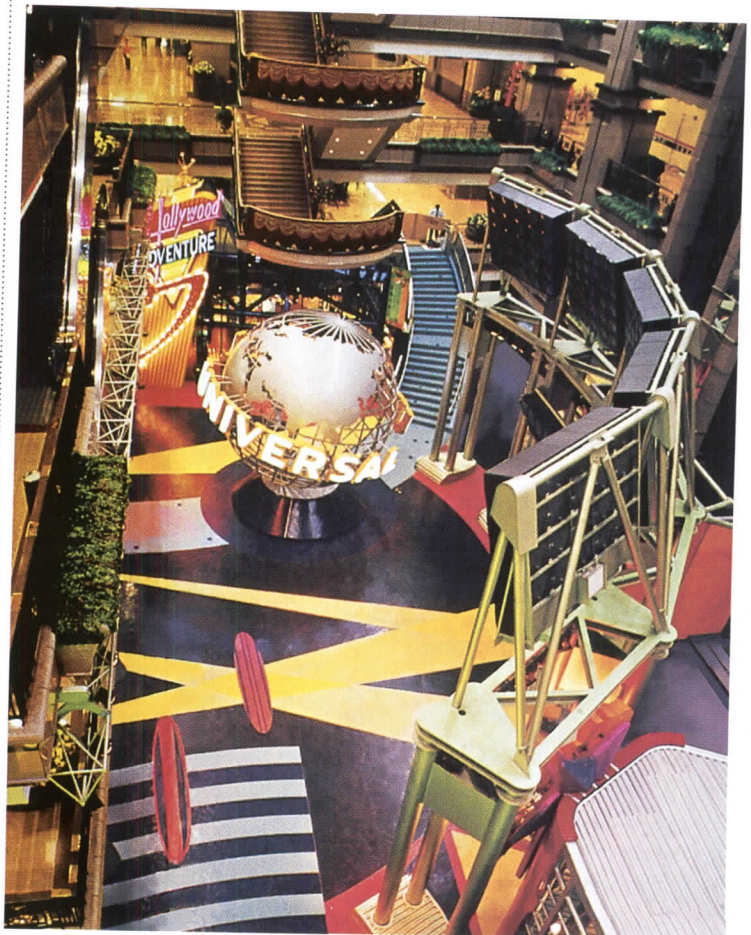
**Theatrical lighting:** Times Square

Inserted within a shopping mall in the center of Beijing, the Universal Experience offers a taste of southern California to the entertainment-hungry denizens of the world's most populous country. To bring Hollywood to China, the 15,000-square-foot project mixes high-tech gadgetry and easy-to-assemble components that were made in the U.S. and then shipped to the site.

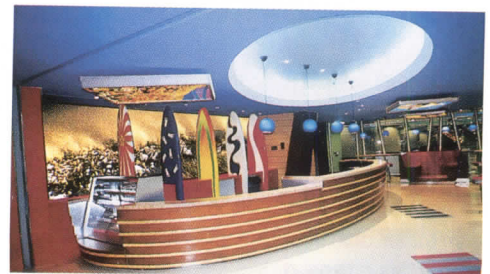
Seen by Universal as "location-based entertainment," the project brings together a Universal Studios store, five attractions serving up ersatz Hollywood experiences—from rides based on the studio's films to a tour of a prop master's room—and even a juice bar. The original idea was to create a prototype that could be replicated (with some variations) in other locations. A slowdown in China's economy and recent acquisitions by Universal's parent company Seagrams, though, have put rollout plans on hold.

## A visually cluttered setting

Because it sits within a glitzy shopping center, the Universal Experience "needed a design vocabulary that could be added to what was there without getting lost," explains Craig Hodgetts, AIA, whose firm Hodgetts + Fung designed the project. "We used structure and color and iconic forms to survive" in the visually cluttered mall setting, he says.

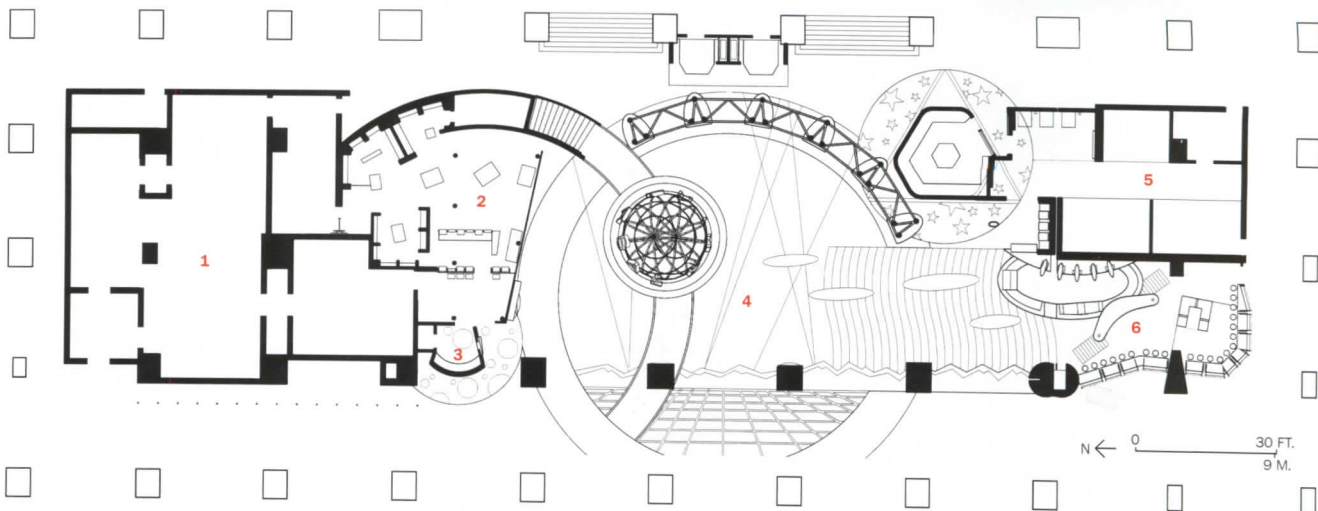


Using a design approach borrowed from roadside graphics, the architects brought together colorful and three-dimensional elements in the juice bar (right) and the plaza (above and opposite).





1. Hollywood Adventure
2. Store
3. Ticket booth
4. Plaza
5. Star Factory
6. Juice bar



All the major elements in the project radiate from a circular plaza paved with boldly patterned terrazzo. To attract shoppers on the two floors above the Universal Experience, the architects designed the plaza to be “one of the project’s primary facades,” says Hodgetts.

On one side of the plaza are the Club California juice bar and the Star Factory photo studio; on the other side are the Universal store and the Hollywood Adventure, which charges admission and offers attractions based on films such as *The Lost World*, *Dante’s Peak*, and *Waterworld*. The idea was to change these attractions periodically, disassembling them and shipping them to other Universal locations, reports David Glover, who was executive creative director at Universal and now is a principal at the Walker Group/CNI in Los Angeles. Each attraction was designed by Universal’s in-house design group.

Mounted on steel columns on the edge of the plaza is a row of five large video screens playing a variety of film clips and images transmitted by the studio’s closed-circuit “U-Link” network, which shows what is happening at other Universal Studios in Orlando and City Walk in Los Angeles. The small outpost in Beijing may not be a big revenue generator, but its real goal is to sell a brand name, not a product. ■



**To attract shoppers on upper floors of the mall, the designers treated the floor of the plaza as a “primary**

**facade.” Large video screens mounted on steel columns are angled so people in the plaza and those above**

**can view them. According to Hodgetts, in an environment like this “the signs become architecture.”**

# 4

# Fashion Valley Center San Diego, California

**ADDING A SECOND LEVEL AND NEW ENTERTAINMENT COMPONENTS TO AN AGING SHOPPING CENTER WAS COMPLICATED BY MOTHER NATURE.**

by Kay Kaiser

**Project:** Fashion Valley Center, San Diego  
**Owner:** Equitable Asset Management  
**Architect:** Altoon + Porter Architects—Ronald Altoon, FAIA, partner-for-design; Carl Meyer, AIA, partner-in-charge; William Sebring, AIA, Randolph Larsen, AIA, partners; Ronald Benson, AIA, senior associate; Jack Fong, AIA, Thai Ta, associates  
**Engineers:** Robert Englekirk (structural); Store, Matakovich & Wolfberg (mechanical); Nikolakopoulos & Associates (electrical); Rick Engineering (civil); Woodward-Clyde (soils); Rolf Jensen & Associates (fire/building code)  
**Construction manager:** O'Brien Kreitzberg  
**General contractor:** Robert E. Bayley Construction

**Construction cost:** \$80 million  
**Scope of work:** Add 284,000 square feet and renovate a 1.7 million-square-foot shopping center  
**New components:** Second-floor retail, multiplex cinema, food court, two indoor restaurants, bar, five parking structures, transit station

**Sources**

**Outdoor furniture and planters:** Wesnic  
**Outdoor lighting:** Lightolier; Lithonia  
**Fire-safety system:** Grinnel  
**Signage:** Scott Architectural Graphics  
**Paint:** Sinclair

Designing a second-story, 284,000-square-foot addition to Fashion Valley Center in San Diego was similar to designing a theater, according to architect Ronald A. Altoon, FAIA, the principal-in-charge of design for the project for Altoon + Porter Architects of Los Angeles. "It's what people see on stage that counts," he said. "We just did what it took to make it work." But as every good stage manager knows, it's what the architects do backstage that makes a theater perform well.

The configuration of the original shopping center made adding an extra floor difficult. When Fashion Valley opened in 1969, it was a state-of-the-art linear mall. Anchor stores were designed by the offices of William Pereira, Charles Luckman, and Ed Killingsworth, titans of retail design at the time.

The challenge presented to Altoon was how to bridge the varying second-floor heights of the existing stores with a new addition. The architect and his colleagues responded by designing a series of stairs and turns that surprise shoppers intermittently in this very long complex. As a result, a journey though Fashion Valley is less repetitive than it might have been.

Treating much of its design as

*Kay Kaiser was the architecture critic for the San Diego Union/Tribune for 10 years.*



a backdrop for shopping, Altoon + Porter used benches, colonnades, and trellises painted a color Altoon calls "sky blue green" to set the stage. The firm also provided some

theatrical lighting with a row of 15-foot-high luminaires on the second-level deck. These elements are super-scale versions of small tin lamps commonly found in Mexico and used for special occasions.

**New infrastructure, too**

On a larger scale, the project included five new parking structures and a double-decked transit station with buses on the bottom and trains connecting the mall to San Diego's light-rail system on top.

A featured attraction of the expanded mall is a new 18-plex, two-story AMC Theater. Adjacent to it on the second level is a new food court called the Cafe Terrace and an open-air bar that seats 75.

A quarter mile long, the mall wraps around an outdoor path (this page and opposite). Sandy soil, a floodplain, and varying heights of existing buildings made adding a second level difficult. Part of the new mix of entertainment is a cineplex (opposite below).

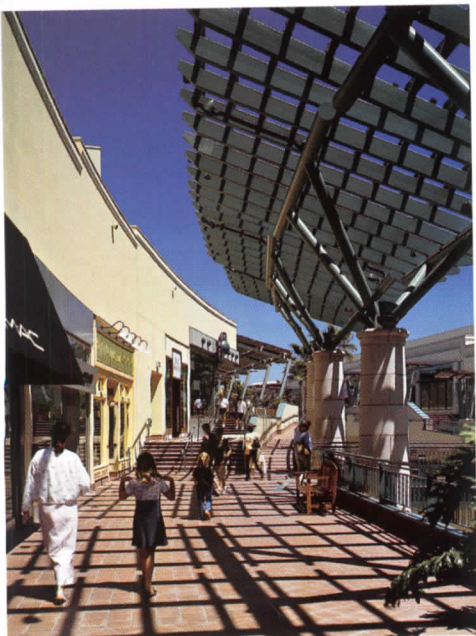




1. Department store
2. Retail
3. Cinema
4. Parking structure



The new Cafe Terrace (above) provides outdoor seating for roughly two dozen food establishments. New canopies, benches, and plantings (left) create a handsome backdrop for shopping.



Indoors, there is a 5,000-square-foot sitdown restaurant.

The open-air center clearly responds to the common dream of southern California's benign climate and spectacular geography. The ironic part of this story is that many of the design challenges came from the site and climate, neither of which are as friendly as people believe.

The 1.7 million-square-foot, quarter-mile-long shopping center is in a long, deep, and verdant valley that stretches from the mountains east of San Diego to the sea. A river runs through the middle. The U.S. Army Corps of Engineers regards the site as a flood plain and has imposed critical mandates for flood control. Although the river is little more than a bubbling brook for most of the year, when it rains in winter, water rises right up to the service curb at the center's southern edge.

Because there was no alternative place on the site, Altoon and his associates had to place four of the new parking structures where floodwaters would run. So they designed the garages to act as levees.

"The floodway engineers wanted to be assured that whatever might be placed in the space between the river and the service curb would not in any way diminish the capacity of the discharge," says

Altoon. "They wanted water to blast out of there without incident."

To let this happen, the contractor excavated below the raw grade of the parking structures, and the architects oriented the ramps and columns to create minimum drag on the flow of water. In addition, the columns were designed to withstand the impact of a floating truck moving at six knots. The height of the garages' ground levels had to exceed normal dimensions so that a person caught in a car upstream and whisked into the structure would have sufficient space between the floodwater and the bottom of the parking-structure deck to breathe and escape drowning.

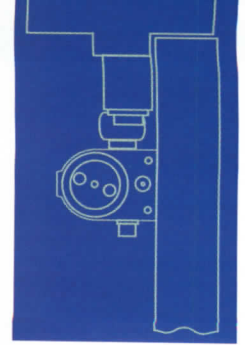
#### Building on shaky ground

The river brought another problem to the architects: sand on the site and lots of it. The composition of the soil was prone to liquefaction in a major earthquake. Altoon and his engineers determined that the existing first floor could hold itself up during an earthquake but was not sufficient to take the additional load of a second floor.

The solution was to design and engineer the new second floor as an independent building. So, the addition straddles the original structure with columns front and back, while maintaining retail visibility by locating columns only at the divisions between stores. ■

# The Ins and Outs of Door Hardware

**UNDERSTANDING THE BASIC ELEMENTS AND HOW CODES INFLUENCE SPECIFICATIONS CAN SAVE ARCHITECTS TIME AND MONEY.**



by Charles Wardell and Wendy Talarico

**D**oor hardware is one of those subjects that architects should understand, but seldom do. When there are challenging, aesthetic details to think about, door hardware seems mundane. Yet it is the hardware that everyone counts on when they pop the touch bar with a hip while carrying their morning coffee, or flip the door stop with a toe to close out the hallway noise. The door must function reliably to keep intruders out, to keep some health-care patients in, and to allow egress in emergencies.

A door hardware package represents 6 to 7 percent of a typical job budget. Improperly specified, door hardware can cost thousands extra. Liability costs are also an issue, especially if injuries result from malfunctioning hardware.

H. Steven Bettge, a building codes specialist and an architectural hardware consultant with NBBJ in Seattle, tells of doors in a health-care center that were too narrow to allow a stretcher to squeeze through. The design team planned for a 44-inch clear opening, but the hardware consultant was thinking about building security and specified locking devices that reduced the opening size. The cost to correct the problem: \$5,000 per door.

"If only the design team members would understand actual hardware terms," Bettge grouses. "They need to differentiate a door closer

*Charles Wardell is a Martha's Vineyard, Mass.-based freelance writer who specializes in technology-related subjects.*



from an overhead stop and understand that a mortise lock is recessed into the edge of a door."

Ideally, architects should have at least enough knowledge of door hardware to talk intelligently to clients and to work with consultants to make informed decisions. A few big manufacturers dominate the market—Yale Security Group, Ingersoll Rand Hardware, and Assa

Abloy are among the largest—though the remaining 75 to 100 smaller firms are also significant. On a complex project, an architect may have to specify hardware from a dozen different companies.

Architectural hardware consultants have met standards set by the Door and Hardware Institute, an industry trade group. According to Jerry Heppes, executive director, consultants should have detailed knowledge of the total opening—understanding the doors, the hardware, and security issues, a topic that is increasingly integrated with door hardware.

Consultants are often manufacturers' representatives or employees of distributors, though some architects, like Bettge, also are qualified consultants. "As a rule, though, architects are facilitators and coordinators," says Heppes. "The doorway is complicated, not only in function and finishes, but also in codes and security concerns. The increase in technology that's driving new products requires a lot of technical knowledge."



**Bored lock and knob assemblies (top) are most common where security is not a serious concern. Cylindrical locks (above) are easier to install than mortise locks and are more commonly used.**

James Simpson, AIA, with YHR Partners Architecture Planning in Moorhead, Minn., specifies his own hardware most of the time, but relies on consultants for some functions. "They are a real asset in finding hidden costs and keeping track of all the parts and pieces of each component. They are also more up-to-date on changes in product lines and innovations," he says.

The role of the consultant is particularly important as the industry places greater emphasis on electrified products. "Almost all perimeter doors will soon have some electrified product, whether a card reader or an alarm that goes off if the door is opened," Heppes says. With electrification, hardware and security issues are merging. "A consultant can sort through both of these areas," he adds.

## CONTINUING EDUCATION



Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA Continuing Education article. To receive credit, turn to page 176 and follow the instructions.

## LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Clarify the function of each of the various elements of door hardware.
2. Explain the function of door hardware in terms of meeting building codes.
3. Describe how the type of metal, its gauge, and the finish that is used on hardware affect its quality.
4. Explain how electronic hardware is changing the way doors are being specified.

**Parts of a door**

"The function of the door is the primary consideration in specifying hardware," Simpson says. "Is the door fire-rated? Is its main job to keep people out or in? How many people will be using it each day?"

Door hardware is everything that holds the door in place and operates it. This includes eight broad categories: hinges, locks, handles and knobs, bolts, exit devices, closers, door holders and stops, and accessories, such as weatherstripping and padlocks. There are also specialty items for large or glass doors, or doors used in hospitals, hotels, historic renovations, auditoriums, and other unique buildings.

Some categories of hardware are familiar, such as knobs and levers, hinges, and most accessories, though even these must be carefully specified. For example, though hinges come in many configurations, depending on the operation of the door, they must be consistent with the weight and frequency of use of the door. Ball-bearing, oil-impregnated, or antifriction bearing hinges should be specified for doors

equipped with closers for smooth operation.

Locks are probably the most important category and the most complex. They have three basic components: some type of latch bolt, a lock strike, and a cylinder. A bolt is the metal bar that protrudes from the lock and holds it to the strike—the metal compartment in the door that "keeps" or contains the bolt. Spring-loaded latch bolts, which retract when the knob is turned, are used in most all doors. The cylinder contains the springs and tumblers that allow the keys to operate.

A commercial-quality lock has added features that give more security, such as heavier gauge metal, a longer throw on the latch, and more locking functions. Mortise (rectangular shaped and embedded in the edge of a door) locks are stronger than other types and more expensive to purchase and install. Cylindrical locks, which come in light, medium, and heavy-duty grades, are fine for many applications, though mortise locks are more suitable when tight security is imperative.

Bolts, either flush or surface, are part of the door's locking capacity, though they are independent of the lock mechanism. Either flush (concealed within the door) or surface (applied to the top of the door) vari-

## DOOR HARDWARE SELECTION GUIDE

**HINGES:** Types include full mortise, half mortise, full surface, and half surface. The hinge used depends on the door mount and function. For example, spring hinges use the springs contained in them as automatic closers. These are best for doors that don't receive

heavy traffic, but need to be closed each time they are used. Swing-clear hinges are bent so that a door can open fully, allowing a clear opening. Among conventional hinges, five knuckles used to be standard, though many installations are moving to three-knuckle hinges.

**HANDLE & KNOBS:** Lever handles are most commonly used in commercial applications to meet recommendations set by the ADA. This is the most visible and "touched" portion of

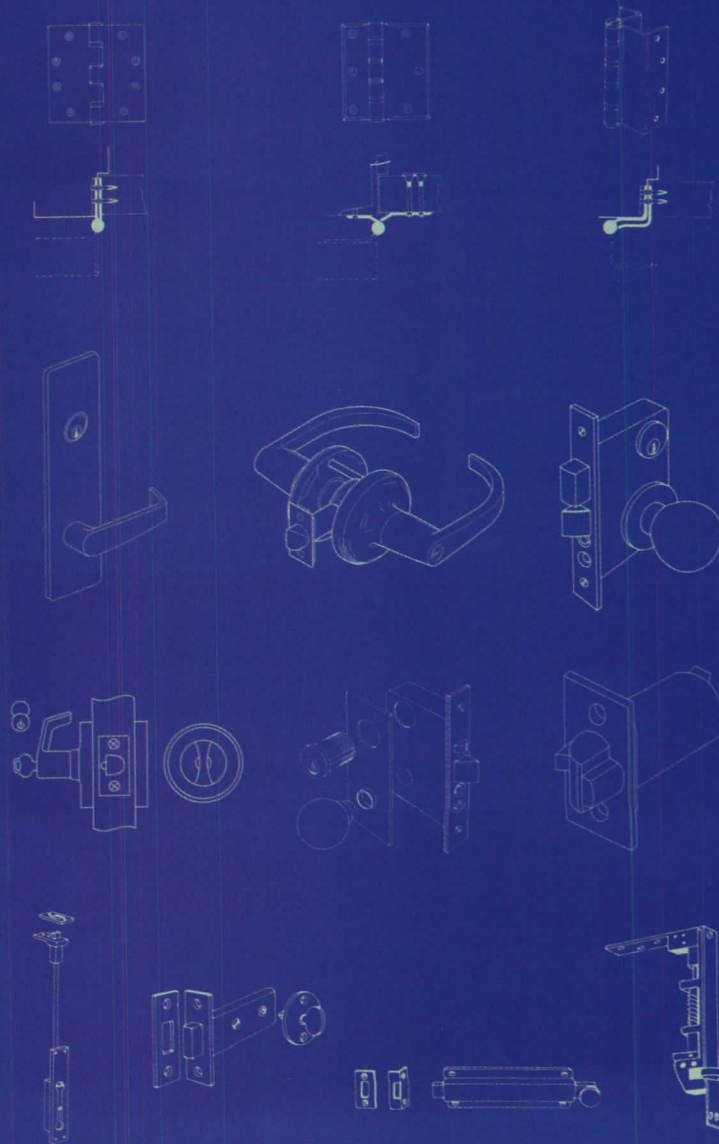
the assembly, so a good, lasting finish is important. Brass is probably used most often for decorative applications. Steel, however, offers high strength and low cost.

**LOCKS:** Four basic types, whose names describe how the lock assembly is installed in the door: bored, preassembled, mortised, and integral. Each type includes some or all the following components: bolts,

latch bolts, dead latches, dead-bolts, lock strikes, and cylinders. Mortise locks are stronger and more versatile than other types. Magnetic locks use an electro-magnet that may be stronger than the door itself.

**BOLTS:** Installed flush with the door or on the surface, bolts can supplement a lock or hold the inactive half of a double door in place. Some bolts operate

vertically, with some type of strike at the top of the door frame and in the floor. Bolts may operate as the knob is turned, or they may operate independently.



eties are used, though the latter are easier and less expensive to install.

Exit devices are latches released by pressing some type of cross or touch bar, often called a panic bar. These open faster and easier than knobs or levers and, therefore, are safer in many applications, particularly fire doors. Codes strictly limit how and where they are applied to the door. Most have a “dogging” feature, which keeps the latch in a retracted position, creating a push-pull door. In addition, vertical-rod exit devices provide latches at the top and bottom of the door, instead of the side, as in the rim or mortised exit device.

The closer controls the door throughout its opening and closing swing. It has three components: a power source, a checking source that controls the rate at which it moves, and a connector or arm that links the door and the frame. The power source is a spring, and the checking source is a hydraulic mechanism. There are several features that can be added to the basic functioning of the closer, such as delayed action and hold-open functions. Closers can be concealed in the door, frame, or floor, or they may be surface mounted.

In special applications and in the case of fire doors, electromag-

netic or pneumatic door closers are combined with smoke detectors. The doors shut automatically if the smoke detector is triggered. These closers provide a legal means of holding doors open that would otherwise have to be closed for fire protection—in hospital corridors, for example.

Door holders and stops prevent the swinging door from damaging an adjacent wall, partition, or piece of equipment. Stops are really glorified bumpers; pieces of metal with rubber tips. Some can be flipped into place or are spring loaded. Overhead holders are mounted to the door and frame and have an arm that limits the door swing.

**What's good?**

Discerning quality means understanding the kind of metal used, the gauge, and the finish. As a rule, steel and stainless steel make the strongest door hardware. Heavy doors that receive high usage need stronger gauges. But instead of specifying this information, manufacturers talk a lot



**EXIT DEVICES:** These consist of the latch, a crossbar (sometimes called a panic or touch bar), and trim—a lever or plate located on the outside of the door, opposite the crossbar. Installed as rim, mortise, surface vertical rod, or concealed vertical rod, the exit device

selected depends on the door. Single doors use rim- or mortise-style exit devices, while double doors have a vertical rod that latches into the frame above and the floor below. These allow quick, easy egress in case of emergencies or in crowded spaces.

**CLOSERS:** Whether surface mounted or concealed, the quality of a closer varies. These should be selected according to the amount of traffic the door gets. The closer consists

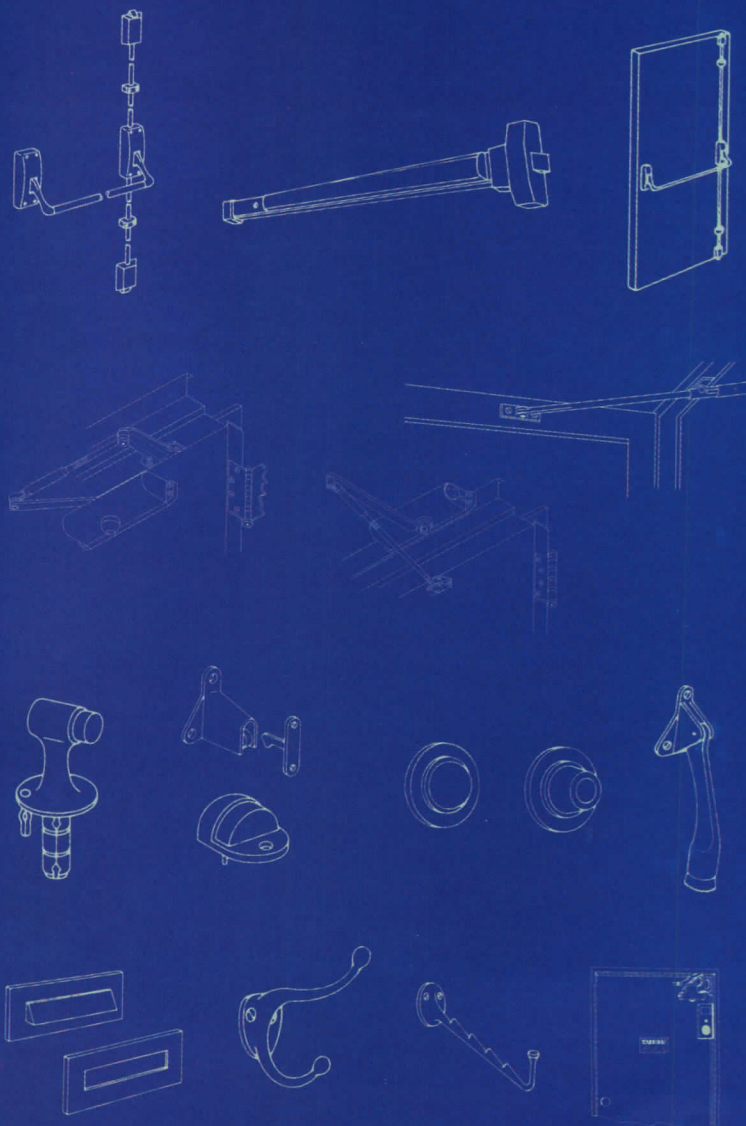
of a spring-powered power source, a checking source that controls the rate at which the door moves, and a connector or arm that links the door and the frame.

**DOOR HOLDERS & STOPS:** Stops protect walls, columns, and equipment from the door as it swings open. They are frequently metal with rubber

bumpers on the top or front. Holders, attached to the door and frame, are used to keep a door in an open or quasi-open position.

**ACCESSORIES:** There are numerous types of accessories, ranging from padlocks to gaskets, weather-

stripping to alarm devices. Kickplates, pulls, and push plates are also considered accessories.



about cycle tests. These are gradings based on ANSI test standards for all hardware. ANSI Grade 1 means the component has passed a higher number of cycle tests than grades two or three. One company may boast that its door closer is tested to 500,000 cycles. That sounds impressive, but a competing product may have passed 2 million cycles.

Even cycle testing, though, is not always reliable. "Unless you're a metallurgist, evaluating quality is tricky. And there can be subtle differences on the inside of an assembly, such as the quality of the arms on a closer," Simpson says. Often the only way to make an accurate comparison is to talk to people or to look at an actual installation.

Flowers recommends making decisions based on the warranty. "I'm not sure it matters to the clients what the body is made of, as long as they have a warranty that will cover them for the life of the building," she says.



Plated finishes are applied for aesthetics and to prevent tarnishing and oxidation. In some cases the metal is simply polished, brushed, or lacquered to achieve a certain look. "These are cyclical," says Susan Flowers of Cleveland Vicon Co., a hardware distributor in Cleveland. "We go through phases where everyone wants polished chrome, then polished brass, then bronze. We've found that the most durable is dull chrome or dull stainless steel."

The plating process has changed drastically within the past few years, in some cases allowing more durable finishes. But the process will change even more as environmental rules become more stringent. Plating brass, for example, requires cyanide. To reduce the amount of cyanide dumping, platers are forced to apply thinner coatings.

Powder-coating is one alternative to plating. It's not as harmful to the environment, and it's durable, but it doesn't produce a fine metallic finish. Also, solid nylon handles are available, as well as nylon-covered metal handles. They're used in desert areas on exterior doors because they don't transmit heat.

### Know the codes

"Unless they have someone dedicated to keeping track of codes and changes, architects will have a hard time keeping up with regulations," says Bob Cook, president of Securitron Magnalock Corp., a hardware distributor in Sparks, Nev.

Hardware, particularly on fire doors and building exits, is mandated by local and national codes. The specifics vary, but the basic premise is to provide free egress at all times. "When an individual approaches a door, they need to be in control of their own destiny," Cook adds. "All the model codes say you must be able to exit in one

## "UNLESS YOU'RE A METALLURGIST, EVALUATING QUALITY IS TRICKY."

operation, one simple maneuver. And that maneuver must be obvious, even in the dark. For example, to operate a lever, one simply pushes it down, the latch releases, and the door opens. If a deadbolt is added but the lever doesn't retract it at the same moment it releases the latch, then that door becomes illegal."

Fire performance and accessibility have influenced codes the most, Cook says. Architects should have at least a basic familiarity with the Americans with Disabilities Act (ADA) and the National Fire Protection Association's Life Safety Code as they relate to door hardware.

As a result of the ADA, for example, knobs are almost extinct, except in residential units. Spacing for levers and panic bars on closing devices are crucial. Surface-mounted vertical-rod exit devices on double doors can pose problems. The footrest of a wheelchair can catch on the bottom of the door and prevent the person from exiting. As a result, the bottom 10 inches of a door is supposed to be smooth and uninterrupted. Some companies make a plate the vertical rod, so it conforms to code.

Fire codes and the ADA also dictate the placement of panic hardware. For example, some states require a mounting height between 30 and 44 inches. Others prohibit placing panic bars below 36 inches.

### Wired openings

The future, it seems, lies in all things electronic, including door hardware. Though the wired variety costs up to 10 times more than standard hardware, it offers some critical advantages. Aside from making it easy to log the comings and goings of building occupants, electronic devices make it possible to seal off a fire in a portion of the building from a computer in a remote location, open a door with the click of a transmitter, or lock down an entire building with the flick of a switch.

The components are somewhat the same, though they are often wired to perform their functions automatically. The locking system, for example, is wired so that the bolt is thrown or retracted at a signal

from the keypad or keying system, or from a central station. The keys have a code number so that the system can record keyholders' comings and goings.

If specifying standard door hardware is complex, dealing with electronic systems is even more so. Products are new enough that many architects aren't sure who the leading manufacturers are, how to determine quality, or who to designate to do the design work and installation.

James Simpson, AIA, with YHR Partners Architecture Planning in Moorhead, Minn., relies on electrical engineers to get power to the door frame and to specify the card reader. The architect specifies the strike release and the power supply for a

door. The strike is wired by an electrician and installed by whomever is doing the doors and hardware. But, he says, everyone seems to be doing this a little differently.

"We've seen specs from reputable architecture firms where they've forgotten to run power to the door, missed one of the connections, or specified the power incorrectly," says Susan Flowers of Cleveland Vicon Co., a hardware distributor. For instance, the strike release needs to be the same voltage as the power supply. It's not uncommon for one to be 12 volts DC and the other to be 120 volts AC, requiring a transformer. Failing to specify this could hold up the job later.

Flowers recommends working with consultants who are familiar

with these products—usually those working for distributors who offer the full gamut of electronic access controls.

Electronic systems bring unique problems. "We had a situation where a magnetic locking system wasn't working properly. We realized that interference from other electronic hardware behind the device was causing it to malfunction," Simpson says. The solution? They tacked a piece of tinfoil behind the equipment on the other side of the wall.

Another problem that lingers in the minds of anyone involved with electronic locking devices: What happens during a power failure? "Backup power," Cook says. "If the building doesn't have it, a battery backup lasts 32 hours." C.W. and W.T.



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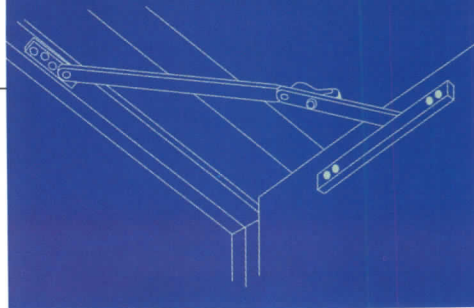


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CIRCLE 69 ON INQUIRY CARD



Many jurisdictions require a 32-inch clear opening for wheelchairs, but the panic hardware sticks out and becomes an obstruction. "Some panic hardware isn't allowed on a three-foot door," Flowers says. "But some codes say that anything mounted above 34 inches may extend 4 inches into the width of the door."

The International Building Code, available for adoption by local jurisdictions in 2000, won't result in any substantive changes in door hardware requirements, but it will affect manufacturers by requiring positive-pressure testing of fire-door assemblies and hardware. This means doors must be tested under realistic conditions; in the past, they were subjected to a gas furnace, then sprayed with a fire hose to make

## HARDWARE DISTRIBUTORS AND SECURITY COMPANIES ARE CREATING ALLIANCES

sure the door didn't fall out. But testing this way pulls cool air from the other side of the door, which changes the results. In an actual fire, warm air builds up in the top half of the room, and cool air in the bottom. The top half of the door is pulled one way, and the bottom half the other. Somewhere between them there's a neutral pressure plane. Doors must stay latched under these conditions.

Positive-pressure testing is expensive for manufacturers. More of them are including intumescent seals that expand to fill the opening and close the gap to keep the door in place. Door closers are also affected because the fluids in some are flammable. Some hardware will have to be redesigned, and some products will be offered in two grades while others all will be fire rated.

### Hardware meets security

"Access control" refers to electrified door hardware products that connect to a larger security system within the building. These systems are growing in both complexity and in use, requiring architects and consultants to become specialists in electronic door hardware and security.

"I look at the openings, including the hardware, the frames, and the access control, as a unit. People in the openings business are best at access control. We know the rules and regulations. Just because there's a piece of wire doesn't mean we have to be afraid of it," says Daniel Heinz, president of Nelson Holland Inc., a distributor in Phoenix.

The Door and Hardware Institute's Jerry Heppes agrees. "The hardware distributor and the security company are at the table together, creating alliances," he says. "Ten years ago, they were two separate industries. Now they're overlapping. Locks support the monitoring system and hinges have space for security wiring to run through them."

Electronic controls bring a different type of security to the door. "They provide knowledge. The building owner has a record of who was in the building and when," Cook says. "Electrified hardware also provides convenience. The building can be locked down for the night by flipping a switch." When it comes to the actual performance of the hardware, electronic controls may sound as if they provide better security, but Cook adds, "A good old mechanical deadbolt is better." ■



## AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

### INSTRUCTIONS

- ◆ Read the article "The Ins and Outs of Door Hardware" using the learning objectives provided.
- ◆ Complete the questions below, then check your answers [page 196].
- ◆ Fill out and submit the AIA/CES education reporting form [page 196] or file the form on ARCHITECTURAL RECORD's Web site at [www.archrecord.com](http://www.archrecord.com) to receive two AIA learning units, including one hour of health, safety, and welfare credit.

### QUESTIONS

1. What is the overarching objective of all the model codes for the operation of door hardware?

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2. What are the functions of each of the elements of door hardware?

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3. How will the new International Building Code influence door hardware specifications?

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4. How is the quality of door hardware rated?

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5. How is door hardware affected by electronic security devices?

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# TECH BRIEFS

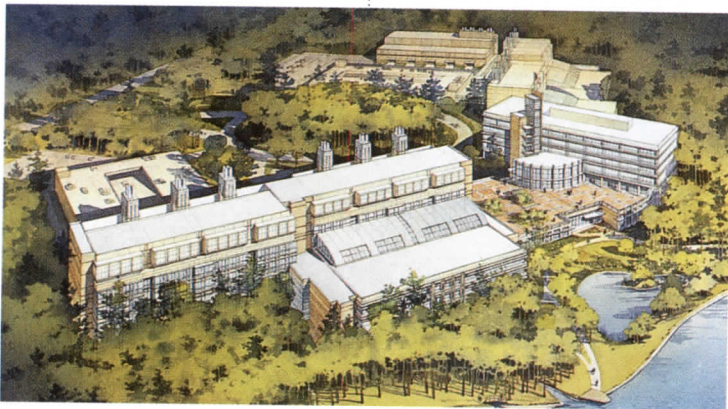
## SUSTAINABLE BUILDINGS: NOW MANDATORY ON THE FEDERAL LEVEL

It's been almost 120 days since President Clinton issued his executive order, "Greening the Government Through Efficient Energy Management," an edict that calls for major reductions in energy use among federal buildings—the largest energy consumers in the U.S. The order calls for the development of sustainable design principles for siting, designing, and building new federal facilities, all within a 120-day limit.

To create these principles, the government is turning to architects familiar with green design. Requests for proposals are already

calling for architects with sustainable design experience. "They want firms with in-house expertise, not those who need consultants on energy efficiency or green products to join the team," says Gale Lindsey, AIA, of Wake Forest, N.C., former chairman of the AIA's Committee on the Environment.

The order also requires federal agencies to reduce per-square-foot energy consumption by 35 percent by 2010 relative to 1985. The Office of Management and Budget must develop an "energy score-card" for evaluating each agency's progress. —Wendy Talarico



Hellmuth, Obata + Kassabaum was hired to design the new Environmental Protection Agency Campus (above) in Research Triangle Park, N.C., in part because of its experience with sustainable design.

**INTERNATIONAL CODE COUNCIL MEETS** September was a big month for code officials. For the first time, representatives of all three code organizations met to finalize the new International Code Council's (ICC) building code. September 12–17, officials from the International Conference of Building Officials (which produces the Uniform Building Code), the Building Officials and Code Administrators International (which produces the National Building Code), and the Southern Building Code Congress International (which produces the Standard Building Code) formally pooled efforts and voted on the components of the international code, available for adoption in 2000. While some of the code has been available for several years, the 2000 version will be a full edition, including residential, fire, and building documents. Various localities may still reference the regional codes, but there will be no more amendments to these. "All our efforts are going into the ICC, at least for now," says John Battles of the Southern Building Code Congress. —W.T.

## HOW LONG WILL THAT DECK LAST?

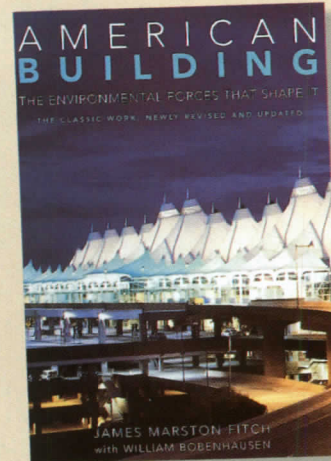
Most decking wood is treated with waterborne preservatives, principally chromated-copper arsenate (CCA) applied in a pressure chamber to help it penetrate into the wood. The process is supposed to extend the life of the wood to at least 25 years. A recent survey found that many decks are replaced after less than 10 years. This has implications not only for the value of decks and other applications for pressure-treated wood, but also for disposal considerations regarding treated wood.

The research, based on 3,197 surveys sent to carpenters in the southeastern U.S., showed that 67 percent of the removed decks were under 10 years old. Of the reasons given for removal, 57 percent were due to deterioration of the deck, either "rotted or bug eaten" or "structurally unsound." The remaining 43 percent were removed because the "owner didn't like the look of the wood."

To some degree, these results can be explained by the fact that pressure-treated wood is not immune to checking and splitting, though it's often promoted as "maintenance free." Manufacturers now offer premium decking with protective coatings, and all recommend annual maintenance with water repellents. Another frequent problem is improper deck design and construction that traps moisture. The survey doesn't say to what extent these problems are responsible for early replacements.

If treated wood does not last the 25 years that its manufacturers claim, the use of toxic chemicals in it is difficult to justify, particularly in light of disposal problems. Wood in landfills releases toxins into groundwater. Meanwhile, many incineration facilities refuse to burn it because of the difficulties in disposing of the heavy metals that are produced during the combustion process.

—Nadav Malin

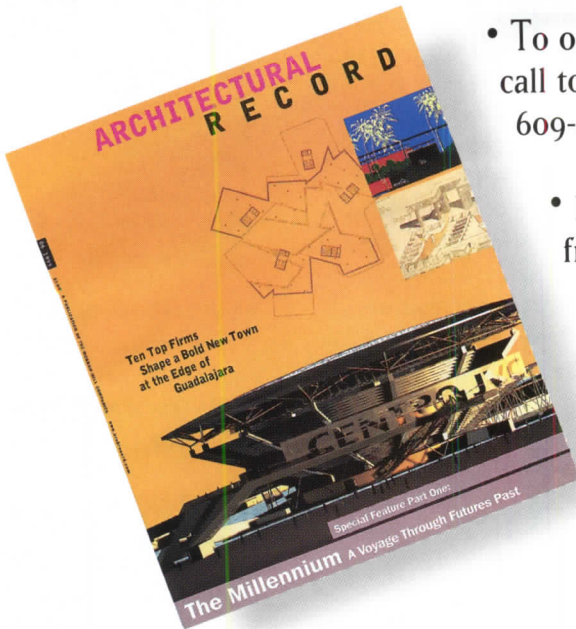


### AN UPDATED CLASSIC

Recently revised, *American Building: The Environmental Forces That Shape It*, James Marston Fitch's 1947 classic book about the effects of buildings on people and their surroundings, now includes commentary on contemporary buildings, such as the Main Terminal of the Denver International Airport. William Bobenshausen, an architect and adjunct professor at the School of Architecture and Environmental Studies at the City College of New York and the New Jersey Institute of Technology, worked closely with many architects who specialize in sustainable design as he updated the book. A new chapter, "Toward Sustainability," focuses on energy conservation, while ideas and case studies on sustainable design and material usage are inserted throughout the book. There are also investigations of inner-city and suburban renewal projects, such as Baltimore's Inner Harbor and Seaside in Florida. Chapters on air quality, heating and cooling, structural systems, and noise control now include new technologies, along with the original author's classic ideas.

—Dan Newberry

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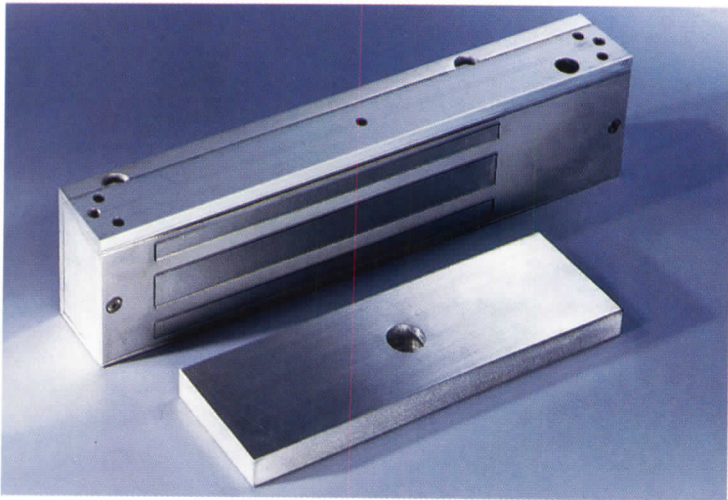
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# NEW PRODUCTS



## ELECTRONIC LOCKS CAN HANDLE 300 TO 1650 POUNDS OF FORCE

The DORMA Group has introduced a line of electronic access-control hardware to complement the company's full range of door controls and exit devices. The line features electromagnetic locks (shown above), shear locks, delayed-egress locks, power supplies, electric strikes, keypads, switches, and other accessories.

Included in the new line are single- and double-unit electromagnetic locks and specialized electromagnetic locks designed for

such applications as gates, cabinets, and sliding doors. They feature holding forces ranging from 300 to 1,650 pounds.

Also available are shear locks, either surface mounted, concealed, or semiconcealed, and a delayed-egress lock that complies with NFPA 101 life-safety requirements. Programmable digital keypads include on-board microprocessors and nonvolatile memory. 800/523-8483. DORMA Architectural Hardware, Reamstown, Pa. **CIRCLE 200**

## ELECTRONIC ACCESS CONTROL WITHOUT BATTERIES OR WIRES

With an internal generator, the PowerLever makes its own electrical energy each time the lever is depressed. Without batteries or wires, the PowerLever 3000 model shown here, allows access for up to 96 users and records up to 945 date/time-stamped audit events.

PowerLever offers various features including keyless six-digit entry, user-changeable PINs, wrong-try lock-out (prevents hackers from determining combination through trial and error), and a choice of finishes. PowerLever is appropriate for a variety of applications, such as the private or



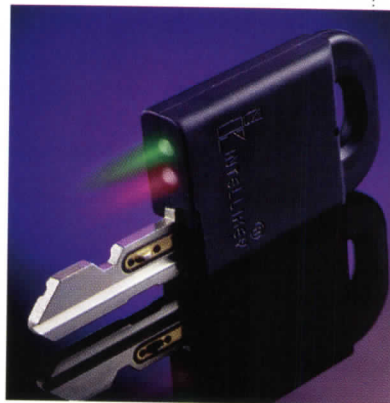
restricted areas of airports, banks, office buildings, and educational facilities. 800/950-4744. Mas-Hamilton Group Inc., Lexington, Ky. **CIRCLE 201**

If your next project requires doors, and most projects do, then it will also require door hardware. Specified for decoration, security, safety, or accessibility, the category of door hardware includes everything from locksets, hinges, closers, push/pull plates, knobs and handles, to keys and key systems. In addition to the products listed here, check out this month's Technology article [page 171] where we take an in-depth look at the subject. Of particular interest to architects at the moment are advances in electrified hardware; examples are highlighted below and in the roundup on the following page. *Rita F. Catinella, Products Editor*

## PROGRAMMABLE KEYS AND LOCKS OFFER SECURITY AND EASE OF REKEYING

Part of the Yale Security Group, Corbin Russwin's Intellikey (below) is a patented technology that combines the benefits of retrofittable high-security cylinders with

four lever designs including Merlot, Frascati, Zinfadel, and Tuscany. It is available in five architectural finishes, including Lifetime Infini-T Finish in bright and satin brass finishes.

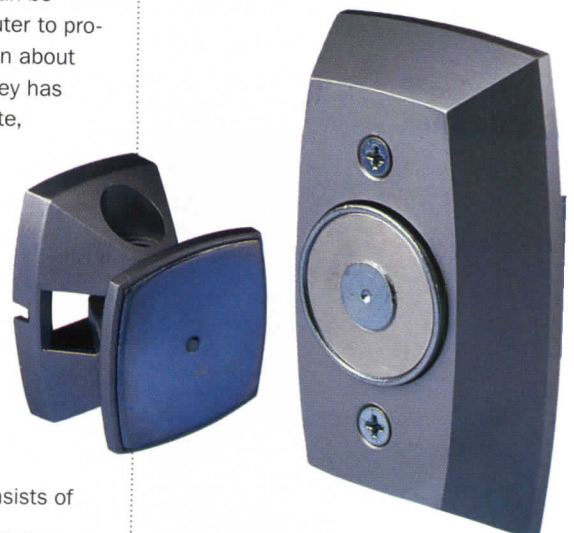


Rixson, another member of the group, offers the triple-voltage electromagnetic door release (below). This release features a low-voltage coil that allows for full field adaptability, low-amperage draw (.02), and new extension pieces that can meet any requirement, including bends. Rixson's electromagnetics are designed specifically to hold fire and smoke barrier doors until

access-control capabilities and easy "re-keying." The system can be fitted to existing doors and locks. Keys and locks can be programmed to allow or restrict access to different parts of a building or even throughout sites worldwide. The information stored in each key and lock can be transferred to a computer to provide precise information about where and when each key has been used, such as date, time, and whether access was allowed.

Also available from Corbin Russwin is the Vineyard Collection of decorative levers, roses, and escutcheons for use with the ML2000 Series Corbin Russwin Mortise Lockset. The Vineyard Collection consists of

released by a remote smoke detector or other switching device. Warehoused for immediate shipment, the electromagnetic door release is energized by 12vDC, 24vAC/DC, or 120vAC. 800/438-1951. Yale Security Group, Monroe, N.C. **CIRCLE 202**





**▲ Millennium falcon**

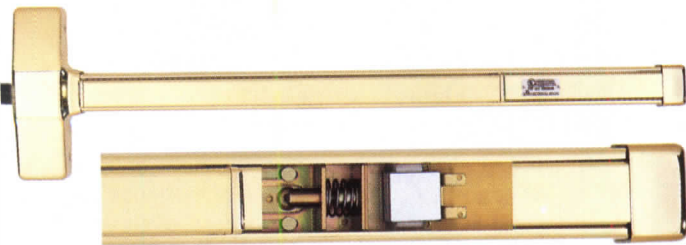
The Falcon T Series (above) is a heavy-duty Grade 1 key-in-lever lockset that has 3 lever designs, 25 functions, and 6

finishes. It's UL listed for three-hour A-label doors, meets ADA requirements, stands up to heavy abuse and vandalism, and accepts virtually all competitors' standard cylinders and interchangeable cores. Also available from Falcon is the M Series, a heavy-duty mortise lockset that has

7 lever designs, 3 knob designs, 27 functions, and 8 finishes.

800/266-4456. Falcon, Brea, Calif.

**CIRCLE 203**



**▲ Electric dogging pushbars**

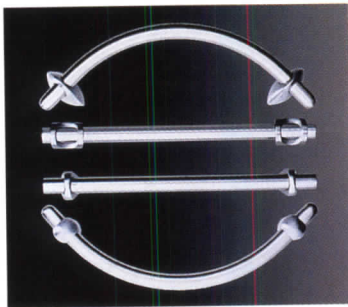
Monarch Hardware introduces electric dogging to pushbar series devices. This feature electronically holds the touch bar depressed, eliminating touch-bar movement when the latch is held retracted at dogged position (bar shown on top; detail,

below). Electric dogging allows quiet operation, ideal for theaters, libraries, courtrooms, auditoriums, and churches. The pushbars are UL-listed, panic- and fire-rated exit devices with retrofit availability. 800/826-5792. Monarch Hardware, Shepherdsville, Ky. **CIRCLE 204**

**► New direction in door pulls**

The Compass collection's doorpull grips and standoffs may be mixed in an array of combinations and come in a variety of standard materials and finishes. Suited for interiors or exteriors, doorpulls may be single mounted or mounted back-to-back on doors. 877/323-3344.

Hardware+, A Forms+Surfaces Company, Carpinteria, Calif. **CIRCLE 205**



**▼ Levers and plates**

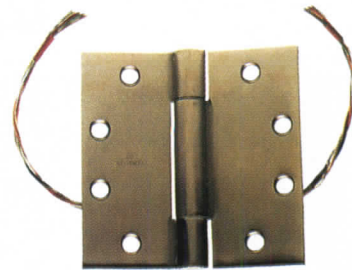
The Bellissimo collection features four new levers and a selection of escutcheon plates. The levers and plates are available in seven different finishes: satin chrome, polished chrome, brass polished, antique brass, dark bronze, white powdercoated, and pewter. 800/927-1097. G-U Hardware Inc., Newport News, Va.

**CIRCLE 206**



**▼ Closer passes fire test**

LCN, a division of Ingersoll-Rand Architectural Division, has introduced a new line of door closers designed for fire-rated openings. In tests conducted by UL, the LCN closers were subjected to the new Positive Pressure Fire Test, which calls for the closers to be mounted on the on-fire side of the door. LCN passed the test due to the combination of new cylinder components and a new heat-resistant, hydraulic fluid. LCN plans to offer a full line of ANSI grade closers that can be mounted on interior and



**▲ 10-wire door hinge**

Stanley has introduced a new hinge to its CB series. The CECB 1900 10-wire hinge is now available for a broad range of door applications including swing clear, wide throw, concealed, slip-in, and special applications. Approved for use in three-hour, fire-rated door assemblies, the hinges serve a broad range of commercial applications where multiple door sensors are needed. The 10-wire hinge enables the door to power up to five sensors or electronic door strikes. 800/337-4393. The Stanley Works, New Britain, Conn. **CIRCLE 207**

exterior doors in all standard mounting configurations: hinge side, over-the-door (push side), and parallel arm (push side). 800/526-2400. LCN, Princeton, Ill. **CIRCLE 208**



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## PRODUCT BRIEFS

► **Lighter than air**

Introduced at the International Contemporary Furniture Fair held in New York this past May, the Laleggera chair, designed by Riccardo Blumer, weighs only 5.3 pounds. This lightness is achieved through a special process, also used in the construction of glider planes, by which a polyurethane filling is injected into the wooden structure. Laleggera has a solid maple frame with surface finishes available in natural maple, cherry, or an ebony-tinted ash. The foot pads are offered in felt or soft or hard rubber. 800/319-8222. M2L, New York City.

CIRCLE 209

▲ **Mediterranean welcome**

Milliken Carpet, Commercial Markets, offers two new 36-inch-by-36-inch Image Tiles inspired by the look of woven and braided raffia, a fiber from a Mediterranean palm. Raffia Tex, installed

in quarter-turns, evokes the look of bamboo venetian blinds, while Raffia Ribbon provides a continuous, seamless pattern of floating crescents. Designed for use alone or together, the Raffia patterns are available in 11 coordinated colors. The Raffia collection is a tufted construction of Milliken certified WearOn nylon

with a standard Comfort Plus cushion backing for improved ergonomics. All Milliken Image Tiles can be redesigned and renewed using Milliken's Earth Square program. 706/880-5511. Milliken Carpet, LaGrange, Ga. **CIRCLE 210**

► **Parisian patterns**

Pallas introduces Images of Paris, an upholstery textile collection by guest designer, Orlando Diaz-Azcuy. "I travel to Paris to see beauty in its most perfect state," says Diaz-Azcuy, "and I leave with indelible memories of each park, monument, and corner I have passed." Featuring patterns inspired by Parisian fashion, rivers, gardens, and architecture, the fabrics collection meet or exceed ACT standards for heavy-duty contract upholstery. 800/4-PALLAS. Pallas Textiles, Green Bay, Wis. **CIRCLE 211**

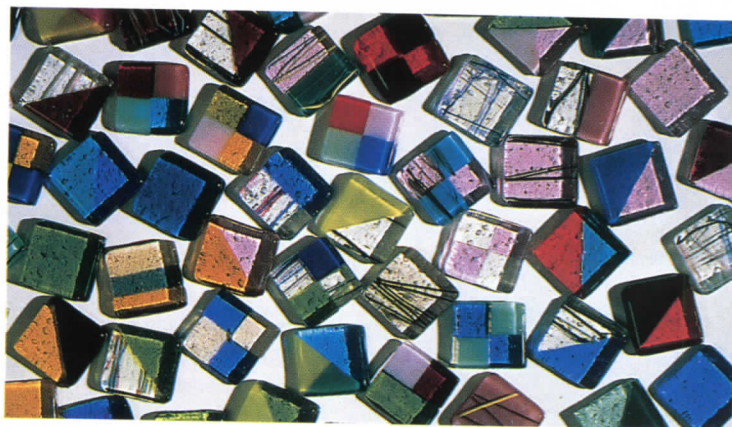
► **Polished plumbing**

Acorn has introduced a new line of designer basins to the Neo-Metro Collection of stainless-steel plumbing fixtures. The Metropolis Basin is manufactured out of durable stainless steel that can be ordered free-standing or wall mountable for commercial and residential use. Bowl options include the D bowl and round bowl. The pedestal design, which has polished seam welds, operates with standard plumbing trim. A concealed back access panel makes installation easy. Brush satin and "mira" high-polish finishes are available. 626/336-4561. Acorn Engineering Co., City of Industry, Calif. **CIRCLE 212**

◀ **Solid foundation**

Louisiana-Pacific now offers a lifetime warranty for buyers of the company's Solid Start Floor System with Top Notch oriented strand board tongue-and-groove floor panels. While limited warranties are not new to the industry, this warranty covers the whole floor system, rather than just individual parts. Solid Start and Top Notch products are manufactured throughout the U.S. 800/299-0028, ext. 707. Louisiana-Pacific, Portland, Ore.

CIRCLE 213

▲ **Eye candy**

Dolce tiles, available from Ann Sacks, are a whimsical addition to any residential wall or floor. The hand-crafted tiles feature a mix of contemporary-styled transparent and opaque glass. Dolce

tiles have been hand-cut, assembled, and then fused in a kiln. Clear glass or ceramic tiles can be used to offset these bright and elevating pieces. 503/281-7751. Ann Sacks, Portland, Ore.

CIRCLE 214

PRODUCT BRIEFS

▼ **Metalizing technology**

Recently patented, LuminOre is a process that is an alternative to a wide range of traditional metal-working techniques, such as plating, hot casting, forging, and sheet metal forming. The LuminOre process is cold-spray, cold-cast, or hand applied, and uses standard spray equipment and metal polishing tools. LuminOre composites contain up to 95 percent metal, provide a seamless application, and are available in six metals: copper, brass, bronze, aluminum, nickel silver, and iron. Young Electric Sign Company, Las Vegas, supplied the MGM Grand Hotel in Las Vegas with 12 Herculean sculptures (left) that feature the LuminOre system. 760/634-5474. LuminOre Inc., Encinitas, Calif. **CIRCLE 215**



► **Audible signage**

Talking Signs is an infrared wireless communications system that provides the visually impaired with human voice messages when the signal from a hand held remote is picked up by a Talking Sign. The system may be used wherever landmark identification and way-finding assistance are needed. For example, upon entering a lobby, the person scans the environment with the hand-held receiver. When the signal hits a Talking Sign, the receiver might detect "information desk" when pointing directly ahead and "public telephones" when pointing to the right. There are currently 800 talking signs attached to San Francisco street signs, bus shelters, and public buildings around the city, and they soon will be installed in the San Francisco Airport. 888/825-5746. Talking Signs Inc., Baton Rouge, La. **CIRCLE 216**

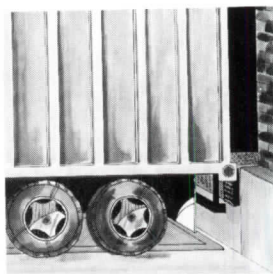


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PRODUCT BRIEFS

▼ **Chemically balanced**

Formica has introduced Formica Chemtop, a chemical-resistant laminate available in 20 colors and patterns that comes with a one-year limited warranty. Through the use of Formica's Chematte integral process,

Formica Chemtop is resistant to a variety of harsh chemicals or strong cleaning agents that may damage an ordinary melamine surface. The integral coating produces a slightly different hue than its corresponding standard Formica brand laminate items and matte finish. Typical applications of



Formica Chemtop include horizontal and vertical surfaces on lab benches, tabletops, and other work surfaces in chemical, medical, scientific, pathogenic, and photographic laboratories, as well as clinics, mortuaries, nursing stations, and other institutional uses. It can also be used in commercial or light-duty manufacturing operations. 800/FORMICA. Formica Corporation, Cincinnati.

CIRCLE 217



► **Cooking advantage**

The GE Advantium oven cooks with conventional oven quality in about a quarter of the time. Unlike other ovens, no pre-heating is required, so you can take food from the refrigerator to the table in minutes. The oven features more than 80 preprogrammed menus, an easy to read LED display, scroll-through cooking options, and the ability to save favorite recipes. Advantium requires no special cookware and the stainless-steel interior is easy to clean. 800/626-2000. GE Appliances, Louisville. CIRCLE 218

► **Widening selection**

With the addition of the GPI 40 and GPI 60 wide Wood I Beam joists, which feature 2½-inch-wide laminated veneer lumber flanges, Georgia-Pacific claims to offer the most extensive line of wide-flange, wooden I-joists in the nation. The new flange products complement the company's existing series of wide-flange solid-sawn lumber I-joists. 800/BUILD-GP. Georgia-Pacific Corporation, Atlanta.

CIRCLE 219



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PRODUCT BRIEFS



process that allows images to be transmitted directly from computer to printer, enabling photographic-quality reproduction on essentially any fabric. This technique, developed by one of the oldest printers in Japan, can print designs using up to 500 colors at once. Although it takes a full day to produce 50 yards of printed fabric, the finished product looks textural and almost three dimensional.



▲ Photogenic fabrics

Furniture, carpet, and menswear designer Jhane Barnes is the first to design contract textiles using Photo-Realism, a new advanced printing

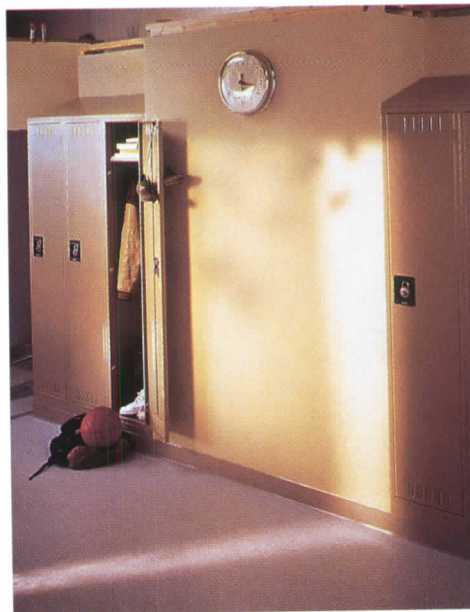
For the collection, Barnes developed three patterns, each in two colorways. Reel to Reel features subtly gradating rectangles of color; Aperture resembles an air-brushed, fan-shaped burst of color; and Double Exposure incorporates slight variants of the same rectangular shape in an almost

gridlike pattern. The collection is printed on a durable blend of 97 percent wool and 3 percent nylon. 800/922-0542. Jhane Barnes Textiles Inc., Lenoir, N.C.

CIRCLE 220

▼ Abuse-resistant panels

Fiberock brand abuse-resistant gypsum fiber panels, new from United States Gypsum Company (USG), are engineered to provide increased resistance to abrasion, indentation, and penetration for interior walls and ceilings in both residential and commercial construction.



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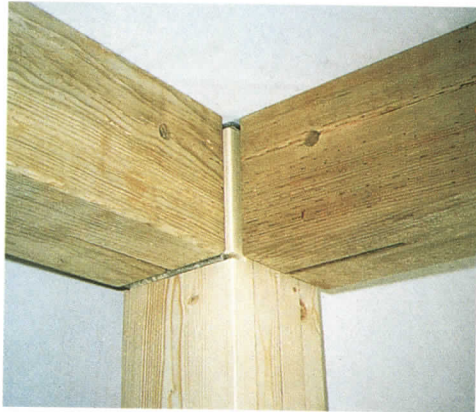
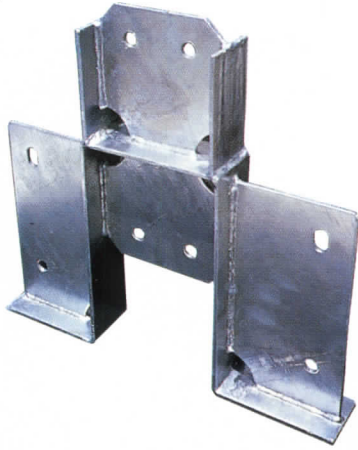
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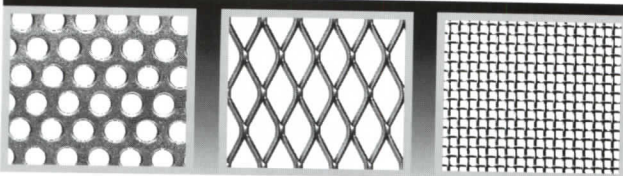
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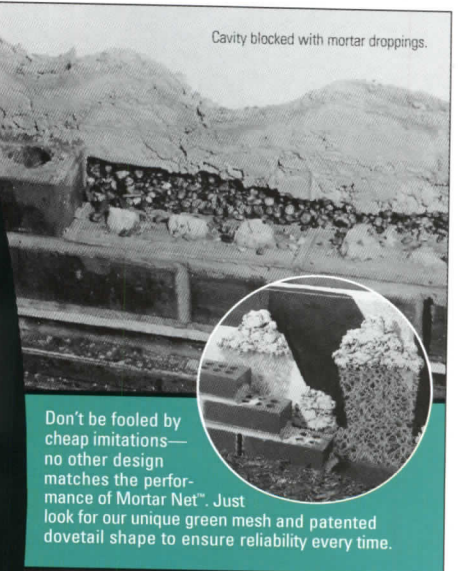
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## PRODUCT LITERATURE

**Enhanced lock program**

An enhanced Rapidkey program, from Ingersoll-Rand Architectural Hardware's Schlage Commercial Lock Division, provides many new features including easier-to-use configuration menus. 719/264-5300. Schlage Commercial Lock Division, Colorado Springs, Colo.

CIRCLE 223

**Revisiting classic lighting**

Artemide's Modern Classics catalogue features 18 luminaires from the 1960s and '70s that have been put back into production. 516/694-9292. Artemide Inc., Farmingdale, N.Y. CIRCLE 224

**Continuous hinge line**

A full-color brochure summarizes Markar Products' architectural continuous hinge line, which consists of over 100 models. 800/866-1688. Markar Products Inc., Lancaster, N.Y. CIRCLE 225

**Quick-ship for open office**

Panel Concepts' brochure presents the Turnaround 5, quick-ship program for the

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Prefix line of open-office systems. 714/433-3300. Panel Concepts Inc., Santa Ana, Calif. CIRCLE 226

**Academic furniture offerings**

Thos. Moser Cabinetmakers' new brochure features a selection of hand-crafted cherry furniture designed specifically for libraries and other academic settings. 800/708-9703. Thos. Moser Cabinetmakers, Auburn, Maine.

CIRCLE 227

**Continuous hinge line**

Johns Manville has organized a variety of fire-stopping information, including how to use Firetemp caulk and spray, in an easy-to-use guide. 800/654-3103. Johns Manville Corp., Denver. CIRCLE 228



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## PRODUCT LITERATURE

**Sandstone brochure**

A new color brochure from American Stone Corporation highlights the company's operation, products, and services. The brochure depicts some of the landmark buildings constructed of American Stone's Cleveland Quarries' sandstone. 416/656-3422. American Stone Industries Inc., Amherst, Ohio. **CIRCLE 229**

**Epoxy resin surface brochure**

A new six-page brochure from Epoxyn Products highlights the application of epoxy resin for laboratory work surfaces. Charts document the results of independent testing on the physical properties and heat- and chemical-resistance of Epoxyn work surfaces. 870/425-4321. Epoxyn Products, Mountain Home, Ark. **CIRCLE 230**

**Wood-flooring portfolio**

As part of Hartco's 1999 Elite Retailer Program, the new Sliced Cut Line Portfolio is being offered to Hartco's top dealers nationwide. Contained in an easily transportable black carrying case, the

portfolio features actual wood samples of each of Hartco's eight sliced-cut products, as well as samples of all colors in the line. 214/887-2000. Hartco Flooring Co., Mount Olive, N.J. **CIRCLE 231**

**Brick design software**

BoralVision is new computer imaging software from Boral Bricks that allows architects to apply different brick styles and colors to design elevations with the click of a mouse. 800/5-BORAL-5. Boral Bricks Inc., Roswell, Ga. **CIRCLE 232**

**Guideline for improved IAQ**

A new technical bulletin that provides guidelines for the proper selection of air-filtration products in schools has been published by FARR Company. 800/333-7320. FARR Company, El Segundo, Calif. **CIRCLE 233**

**Naturally inspired lighting**

Meyda Tiffany has a new 28-page catalogue, *The Old Forge Collection*, which includes lighting hand-forged from steel and inspired by wildlife. 800/222-4009. Meyda Tiffany, Yorkville, N.Y. **CIRCLE 234**

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1. All model codes specify that a person must be able to open the door and exit in one simple and obvious maneuver. Any locking device must be released in that one simple operation. Additionally, the opening device must be easy for anyone to operate—usually a lever or push bar. This must be placed at the proper height. Most codes require a 32-inch clear opening, but some allow anything mounted above 34 inches to extend 4 inches into the width of the opening.
2. Door hardware is divided into eight broad categories: hinges, locks, handles, bolts, exit devices, closers, door holders, and accessories. Hinges support the weight of the door in use. Doors equipped with closers should have antifriction bearing hinges for smooth operation. Locks have three basic components: a latch bolt, a lock strike, and a cylinder. Bolts are part of the door's locking capacity, though they are independent of the lock mechanism. The bolt protrudes from the lock and holds it to the strike. The cylinder contains the springs and tumblers that allow the keys to operate. Exit devices are latches released by pressing some type of touch bar. Closers control the door movement

throughout its opening and closing swing. Accessories are items added to the door, such as weatherstripping.

3. The International Building Code won't result in any substantive changes in door-hardware requirements, but it will affect manufacturers by requiring positive-pressure testing of fire-door assemblies. This new testing is done under realistic conditions—warm air builds up on the top, and cooler air stays in the bottom of the room. As a result, the top half of the door is pulled one way and the bottom half the other, with a neutral pressure plane in between. Doors must stay latched under these conditions.
4. Discerning quality means understanding the kind of metal used, the gauge, and the finish. Heavy doors or those in high-use areas need hardware made from stronger gauges of metal. ANSI test standards determine the number of cycle tests the hardware passes. Grade one means the component has passed a higher number of cycle tests than grades two or three. There can still be subtle differences on the inside of a hardware assembly, so the best way to make a comparison is to look at an actual installation and read the warranty.
5. Door hardware products can be connected to a security system within a building, which records and monitors door use. This is called access control. Locks support the monitoring system, and hinges have space for security wiring to run through them. Electrified hardware provides the convenience of being able to lock a building by flipping a switch.



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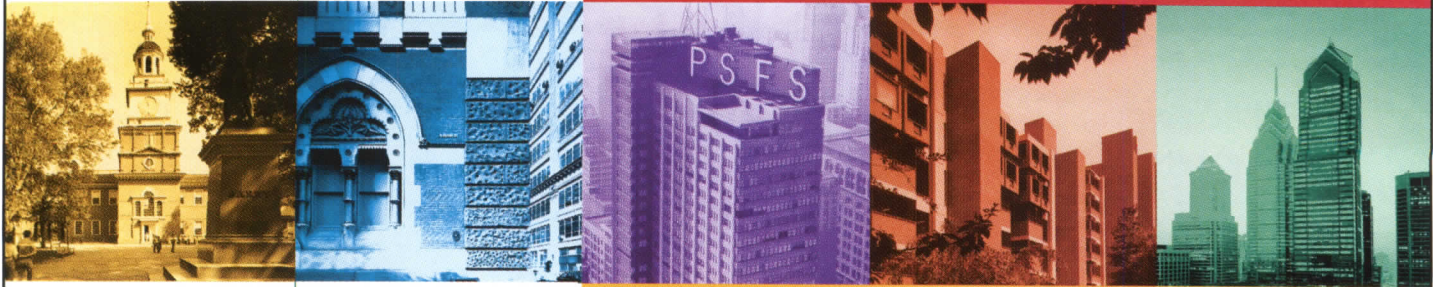
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# THE FUTURE Biofiltration could become an effective means of combating poor indoor air quality.

BY KIRA L. GOULD



According to the U.S. Environmental Protection Agency, at least a third of new or renovated buildings have indoor air quality (IAQ) problems. Future solutions, some researchers believe, may lie in living systems—“breathing walls” built into the interior architecture—which mimic the natural air filtration process or “biofiltration” performed by plants and other organic matter. These ideas are becoming increasingly important as awareness of IAQ issues grows and associated costs mount. People working in buildings with particularly poor IAQ report headaches, red eyes, and lethargy, symptoms that have become known as sick building syndrome. Studies show that resulting health-care costs reach nearly \$30 billion annually, and absenteeism and productivity losses may account for another \$100 billion.

Poor IAQ is generally caused by emissions from the materials (and people) in buildings. When trace amounts of formaldehyde emissions from one product mix with trace amounts of other chemical emissions, including smoke and perfume, the unpredictable result is a cocktail that can be offensive to many people (and potentially dangerous to those with even mild chemical sensitivities). Compounding the problem, since the 1970s buildings have been sealed tightly to limit energy costs. Architects have begun to tackle poor IAQ by selecting building materials and furnishings that emit fewer volatile organic compounds, and this is helping in many cases. But additional measures are necessary.

One tactic is to increase air exchange. Philadelphia's Sheraton Rittenhouse Square Hotel (right) calls itself the country's first “environmentally smart” hotel. According to Barry Dimson, CEO of EcoSmart Healthy Properties, a consultant on the project, fresh and filtered air is pumped into guest rooms at a rate of 100 cubic feet per minute. Every half-hour, approximately 70 percent of each room's air is replaced.

Using plants to clean the air is another option. Oxygen production



has long been touted as an ancillary benefit of house plants. But to increase the scale at which such solutions can be effective, researchers and inventors are now trying to bring biofiltration itself, not just plants, indoors. As a NASA environmental scientist, Bill Wolverton worked toward developing ecological life-support systems for space habitats; since retirement, he has directed research toward solving environmental problems on this planet. Wolverton has shown how bringing together plants, with their

root-associated microorganisms with filtering capabilities, and mechanical air movement can improve IAQ in larger spaces than space habitats, and perhaps whole buildings. The systems are water-based, so they are not prone to the growth of mold spores sometimes associated with soil use.

Wolfgang Amelung, a biologist and “experimental engineer,” has taken biofiltration further. Amelung, the owner of Genetron Systems in Toronto, stresses that he designs

“high-order ecosystems. When there are enough pieces, the system becomes self-organizing and self-correcting. This is difficult to embrace in the context of Newtonian thinking because it is not mechanical. This is the beginning of organic technology.”

Amelung created the Environmental Room at Canada Life Assurance Company's Toronto office (center). This 80-foot indoor air biofilter, sort of a life-size terrarium without the glass, includes hundreds of species of plants, water, rock,

frogs, fish, insects, and a “scrubber” made of fiberglass panels faced with porous lava rock. The panels, wetted by circulating water and covered with moss, make up the “breathing wall.” An air handler draws air through the scrubber and hydroponic region and then into the HVAC system and pushes it back into the room. “Spores are attracted to the system, so they don't float around,” Amelung says. “And microorganisms are good at breaking down minerals that we prefer not to have in the air.” The University of Guelph's Department of Horticultural Science is studying the Canada Life project; in the five years since installation, tests have recorded no negative by-products, such as spore build-up or unpleasant odors.

Joe Miriam, CEO of Club Monaco in Toronto, heard of Amelung while he was puzzling over employees' complaints about headaches and red eyes. Amelung designed a 40-foot-square, passive breathing wall for the company in a large central atrium not linked to the air-handling system. Although no conclusive air-quality studies have been performed, the aesthetic and acoustic benefits have exceeded expectations, says Miriam.

To tackle a whole building's IAQ, Amelung proposes setting up a network of different-sized systems throughout the facility. He hopes to have the opportunity to test this idea soon. In the meantime, perhaps we should go back to designing offices with operable windows.

*Kira L. Gould is a freelance writer living in New York.*

# Are You Moving Fast Enough?

by Charlie White, AIA

With computers, as in race cars, faster is always better. A high performance computer is made up of high performance parts; high speed RAM, fast hard drives, and powerful video cards to name a few. But the most important factor has always been the CPU, the central processing unit. Historically, Intel has been the undisputed champion of high speed processors. Its 600 MHz Pentium III is the latest in a long line of record-breaking speedsters.

Now, a new contender in the processor wars, AMD's Athlon K7, is enough to make even the most diehard Intel fan sit up and take notice. For the first time an Intel competitor is offering a faster x86 processor. Recent independent benchmarks show the 650 MHz AMD Athlon beating the fastest Pentium III by an average of nearly 17 percent. Intel has responded by lowering the cost of its Pentium III line by an average of 43% and will release its 700MHz Coppermine CPU about the time you read this article.

Does this race for processor speed affect the average architect? You bet. In fact, as architects become more and more automated, the computer continues to evolve as a core element of their business. This evolution is fundamentally changing the work of the architect. Ultimately, the most important result of this race between Intel and its rivals will be incredible new software tools that will show up on our desktops. These capabilities will only be possible with the advanced processing power of these new CPU's.

Fortunately, due to the intense competition between manufacturers, the price of performance continues to fall. A relatively small investment can lead to huge increases in productivity. Our office has experienced a performance gain of at least 60% from our computers over the past 18 months. The truly phenomenal part is that our cost for the computers has gone down. There is no other part of our business infrastructure that even compares with that efficiency.

Architectural firms can't afford to get behind the technology curve. With the large sums of money at stake in architectural projects, it only makes sense to use the most productive tools available. As the list of recent computer acquisitions on the right indicates, in our office we tend to buy a new computer every 90 days. This small investment has paid off in higher productivity and capabilities we simply would not have otherwise. As application technology expands to include real-time 3D modeling, Internet collaboration and distance learning, it will be crucial to have the best hardware and software for the task.

Today my minimum computer configuration includes Intel's 500MHz Celeron for those on tight budgets, and for high performance, the 600MHz Pentium III. These faster speeds will only increase the longevity and effectiveness of that computer you are investing in today.



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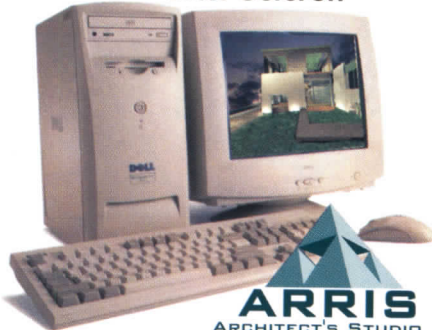
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