

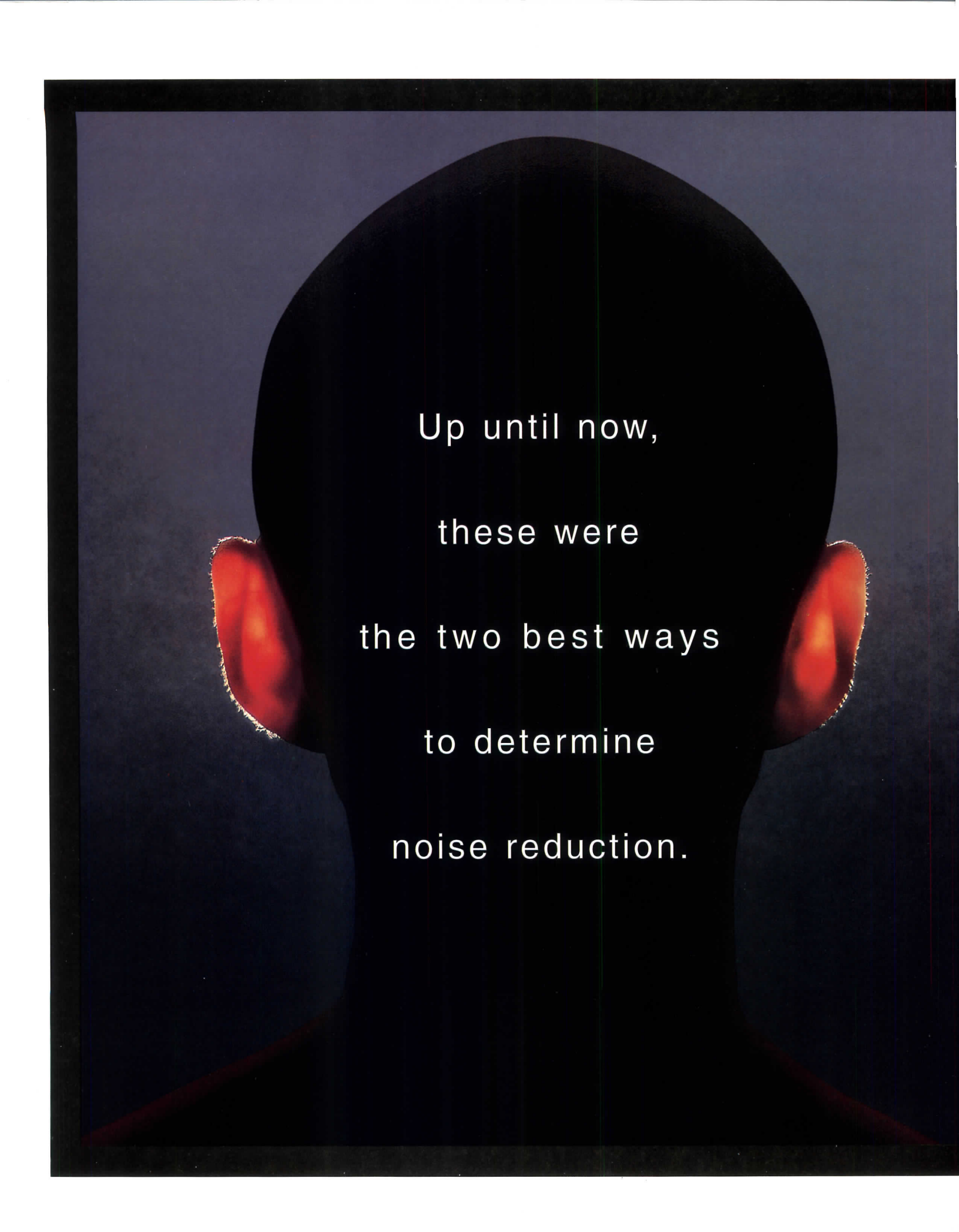
ARCHITECTURAL RECOR



Ronald Reagan Building: A Washington Saga

Listening to Clients

Building Types Study: **Places of Worship**

A silhouette of a human head is centered against a dark blue background. The head is black, and the two ears are highlighted with a bright red, glowing effect. The text is centered within the head's silhouette.

Up until now,
these were
the two best ways
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EDITORIAL

Breaking the silence

BY ROBERT A. IVY, FAIA

We are the quiet ones. Our drawings speak for us, we think, or the models that we make: we do not rely on verbal facility or elaborate rhetoric to explain what we do. One good look should be able to convince anyone of our worth to society. Architects are different, after all. Look at our personal style, somewhere east of artist and left of businessperson. Look at our work. What could be more eloquent than our buildings?

Our communication is primarily graphic, rich in iconography and symbol, form and texture, mass and shine, while the rest of contemporary society speaks the language of words. Architects often find themselves tongue-tied when attempting to write or speak, hindered from fully expressing themselves to their clients and communities. Our language barrier can lead to a sense of isolation, of being marginalized, and the feeling that we are not fully understood.

This is a common complaint among architects: we need greater confidence in writing and speaking articulately in a world in which the volume and importance of words are increasing. Professional architects are drowning in written proposals, presentations, letters of agreement, and contracts. Often every word counts, and we are too often ill equipped to deploy them. We need to be able to share our work better, with self-confidence in both our presentation and listening skills. Whole contracts hang in the balance.

Yet our own spoken and written language, which grows out of architectural culture, inhibits us. It is in architecture school that we begin to pick up a lingo that is jargon-laced or overly burdened with polysyllabic words, when simpler ones would do. It is as if we have willingly painted ourselves into an attractive, well-designed corner and are gesturing wildly for the rest of the world's attention.

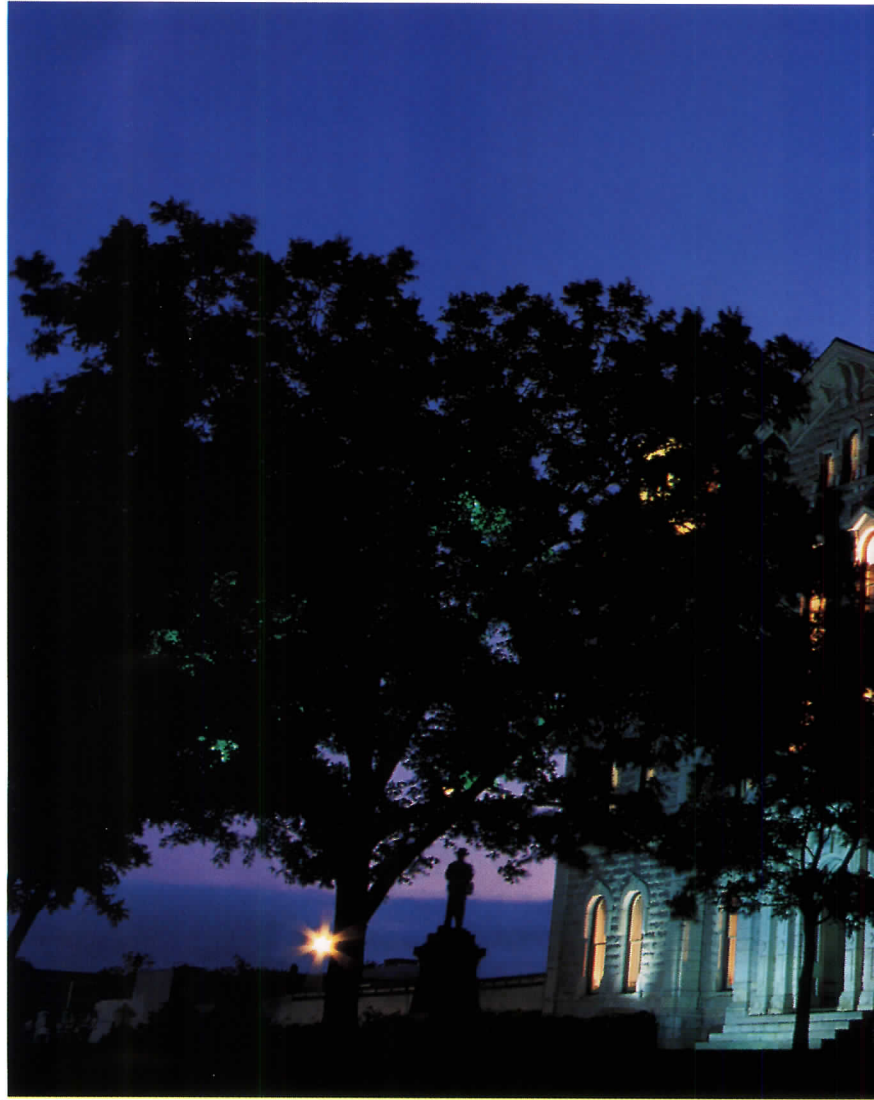
How can we escape? Part of the answer lies in education. As the Carnegie Foundation report on architectural education pointed out, schools of architecture should be accessible places, providing opportunities for reciprocal

learning within the entire university. Our training should engage with other disciplines, inviting critics from across campus and outside the university itself to participate in our juries. In addition to Vitruvius and Jane Jacobs, our reading should encompass the diverse touchstones of the larger intellectual culture, points of common reference that will allow us to share meaning, draw analogies, and create meeting ground.

We need to take a hard look at coursework. There is a strong argument to be made for an initial education that includes the liberal arts and sciences prior to more focused architectural studies, whether at the undergraduate or graduate level. Clemson University in South Carolina now has its architecture school integrated into its College of Architecture, Art, and Humanities. In that program, students will engage philosophy or literature, theater arts or sculpture, for example, acquiring a B.A. with a major in architecture, then progress into a more strictly directed course of study in graduate school. It is an ambitious experiment worth monitoring to see if students graduate as architects with a more balanced perspective.

It seems ironic. At the same moment that many architects are calling for greater rigor in architectural education, with emphasis on the realities of practice, more attention to the pragmatics of making buildings, and greater interaction with practicing professionals, this magazine proposes that we broaden our skills in the basics—reading, writing, and speaking. Compare architectural education to making a building: clear thinking and effective communication lay the best foundation for leadership. The time has come to speak up. We can no longer afford to be quiet.

WHEN IT CAME TO RENOVATING THIS HISTORIC COURTHOUSE, EVEN THE



In 1964, The Parker County Courthouse in Weatherford, Texas was designated a Texas Historic Landmark. And thus began the slow, methodical process of restoring it. First to receive attention was the structure's limestone stonework. Later, the roof was replaced. Then came the windows, which proved to be one of the most challenging aspects of the project.

The Historical Survey Committee mandates that if nothing remains of a historic building's original windows, the new ones must be faithful reproductions, right down to the last detail. Since the courthouse's original wood windows had been replaced by aluminum ones some years back, that meant that all 105 of the new windows had to be virtually identical to those made and installed over a century ago.

Bids were sought, but only two manufacturers felt qualified to respond. One of them, Marvin Windows & Doors, had actually been recommended by a company that was asked to bid but declined.

Though underbid by the other finalist, Marvin's figures were based on building the largest windows with structural muntin bars to withstand the winds that buffeted the building's hilltop site. Intrigued, the architect asked each company to build a sample window. One look at the prototypes and the job was immediately awarded to Marvin.

For the next several weeks, Marvin's architectural department busied itself recreating the past. Working from turn-of-the-century photographs



COMPETITION RULED IN OUR FAVOR.



of the courthouse and measurements of the actual openings, they designed the round tops, double hungs, circles and checkrail units that play such an integral role in the building's design. As for the largest of them, not only were they built to withstand the high wind requirements, Marvin delivered them factory-mulled to further simplify installation.

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LETTERS

Unsustainable rural homes

Twenty years ago, we were designing sustainable homesteads for families that wanted to "return to the earth" in rural areas. It took us a while to recognize that these families were commuting 40 or 50 miles every day from their energy-efficient homes to jobs in the city.

Automobile-dependent transportation and the sprawl associated with it are by far the most significant perpetrators of an unsustainable future. Meanwhile, your article ["The Nature of Green Architecture," April, page 149] and most other articles discussing sustainability feature low-density rural or suburban projects.

While these romantic projects are important experiments for building technology, the ecological heavy lifting comes with rebuilding our existing cities: mass transit, recycling of massive infrastructure investments, dramatic reduction of automobile dependence, diminished encroachment on wildlands and agriculture, and, perhaps most important, increased sustainability for low-income urban populations through job creation and community reinvestment. Only infill development affords this multidimensional, multilevel synergy.

—David J. Mogavero

*Mogavero Notestine Associates
Sacramento, Calif.*

Stereotyping New Urbanism

Your recent article on New Urbanist projects in Turkey [May, page 82] reveals an understanding of the movement that is still tainted by media stereotypes. There is nothing about America or small towns that is essential to New Urbanism, as you suggest. Actually, the older parts of some of our larger cities provide a better illustration of its principles, and the design roots of such cities can often be traced to Europe (though the movement is not about Europe either).

Also, traditional styles are not intrinsic to New Urbanism. While

some of its more prominent projects have relied on historical themes, it is not architectural styles but rather patterns of development—high-density, mixed-use, pedestrian-friendly—that help foster genuine community.

—Tom Houg, AIA
Seattle

Green tower's predecessors

ARCHITECTURAL RECORD's coverage of Foster and Partners' Commerzbank in Frankfurt [January, page 69] talks of "reinventing the skyscraper" without acknowledging that after half a century of importing inappropriate Western ideas, European architects are now being inspired by more appropriate Asian and Australasian models.

Far from being newly invented, the technology of the Commerzbank derives directly from the ideas of Harry Seidler in Australia and Ken Yeang in Malaysia. This is not to detract from the fine quality of Foster's building nor the significance of creating such icons in the West, but it is important to recognize the origins of these ideas.

—John Fraser

*Head of School of Design
Hong Kong Polytechnic University
Hong Kong*

It would have been appropriate in the context of your Commerzbank coverage to mention Skidmore, Owings & Merrill's National Commercial Bank in Jeddah, Saudi Arabia. Foster's triangular plan, with triangular gardens cut out at various floors, is not very different from the plan of that 1983 masterpiece in the desert.

—Husnain Lotia, AIAP
Karachi, Pakistan

Undetermined youth

Although the struggles endured by those you profiled in "Young Architects Profiles" [May, page 136] were indeed compelling, they are not truly indicative of the experiences of many in the profession who are at similar stages in their careers.

Several individuals with whom I

graduated from architecture school in 1991 have found success in this decade without enduring the type of trauma visited upon those you profiled. A combination of talent, determination, and a desire to continue their education in the fields of real estate, business, and law has produced a generation of architects who create their own success. They reject the traditional platform of whining and weeping espoused by those whose compensation package does not match their inflated sense of self-worth. Perhaps you should consider profiling some of these people.

—James T. Cisneros
Stamford, Conn.

Interior designers: a final word

I have been an architectural secretary for 40 years, and having read your article on interior designers [April, page 66], now I've seen it all. They have got to be kidding. What a slap in the face to the registered architects in these firms and to all architects.

—M. J. Crandall
Fort Lee, N.J.

Electric coverage

An excellent choice for the cover of the May issue. I have a newfound appreciation for aboveground utility lines.

—Peter Mullins
San Francisco

More on the haute spec house

The Hariri sisters have created a work of art with Riverbend House ["Making a Spec House Special," April, page 70], making a powerful statement about the style of typical developer spec houses. It is unfortunate, however, that the architects were unable to acknowledge what today's developers do well.

Riverbend House has been difficult to sell because it has been subjected to the planning parameters of a 1,500-square-foot tower apartment. In the translation to a 5,000-square-foot home, there is little acknowledgement of the site, scale, or economics. The interior

bathrooms for the secondary bedrooms are a dead giveaway.

When architects are given freedom in the spec housing market, they can create a home that is both aesthetically and functionally superior to what is normally offered to the public. The Hariris have only half succeeded.

—Robert A. Pennypacker
Ocoee, Fla.

Moving tribute

Your comments regarding the Chapel of St. Ignatius at Seattle University struck a nerve [Editorial, April, page 15]. You reminded all of us that architecture should *move* you.

—Rand Elliott, FAIA

*Elliott + Associates Architects
Oklahoma City*

Credits/corrections

The architects of Valeo Electrical Systems in San Luis Potosi, Mexico (May, page 214), were Davis Brody Bond, LLP. The firm was named incorrectly in the story. In addition to Steven M. Davis, FAIA, and Christopher K. Grabé, AIA, credited personnel from the firm are Frank Michielli, AIA; Ron Eng; Susan Lee; and Mark Turkel. The project team from Ove Arup and Partners included Greg Hodgkinson, partner-in-charge; Dan Brodtkin, project engineer (structural); Mahadev Raman; Ross Clarke; Varughese Cherian; and Askok Rajji.

In the May essay "A New American Factory" (page 199), architectural historian Reyner Banham is misquoted. Banham did not argue that Lockwood, Greene and Company were the decisive architects on the Albert Kahn-designed Ford plant at Highland Park but rather on the 1906 factory for George N. Pierce Company. ■

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CIRCLE 5 ON INQUIRY CARD



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SPEAK OUT A stronger accent on life safety early in the educational process will ensure that architects design safer buildings in the future.

DAVID S. COLLINS

David S. Collins, FAIA, is president of the Preview Group, an architectural consulting firm in Cincinnati, and is the regional manager of the American Forest & Paper Association. He was recently elected secretary of the AIA for the 1999–2000 term.



Life safety isn't a concept solely of interest to regulators. It is, and must remain, a vital element in the process of good design. This concept must be more directly integrated into the educational curriculum in architecture schools and then carried forward throughout the architect's practice.

The disasters that cause damage to buildings—and, too often, to the people within them—are attributable to many factors. Fire is an obvious one; and, as several recent incidents have shown, high winds can also cause great damage. Losses over the past 10 years due to earthquakes have been dramatic, causing major disruptions to the entire economic fabric of many communities.

The modernizing of building codes has been a tool that elected officials have used to establish certain expectations for building performance. New technology has also provided architects with tools to create safer structures and protect the occupants within.

But it is critical that the real issues of safety, as well as the most effective means to prevent loss, be examined during the time an architect spends in school and in the internship period. Strengthening the quality of education early on is the way to develop and maintain a consistently high level of responsibility for public safety.

In an attempt to make safety and the application of codes a vital part of architecture students' educational experience, the National Architectural Accrediting Board (NAAB) has begun to change its

guidelines for accrediting architecture schools.

This new direction by the NAAB, combined with the implementation of a new International Building Code in the year 2000, may bring a single model code to the United States and, perhaps as important, a single source from which educational programs and materials may be drawn.

I hope that the NAAB's guidelines will be strengthened to require architecture schools to teach basic concepts of safety so that *all* students will be able to apply this knowledge to their projects.

And there is much for these students to learn. In general, architects recognize the need for safe design and for the use of safety systems to alert occupants and reduce unavoidable incidents of loss. But these concepts can be better integrated into the educational process.

With the guidance provided by modern building codes, there are few excuses for significant loss in new structures except in the most severe situations. Major improvements in safety systems over the past few decades have had an impact on older structures and buildings that do not conform to today's minimum standards of construction safety and design.

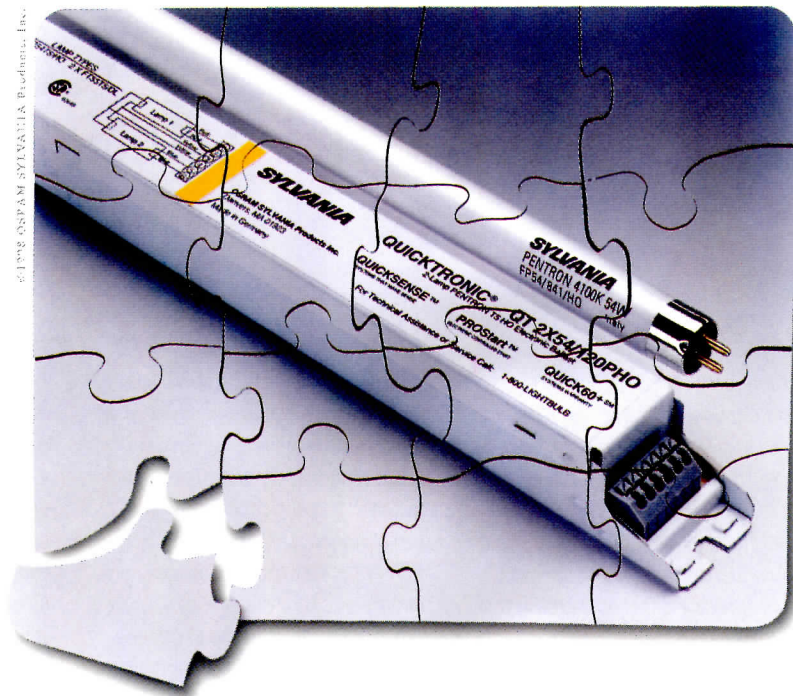
Notably, the installation of residential smoke-detection devices has produced remarkable results in reducing the loss of life in fires. Sprinklers have long been recognized as the best method of preventing the spread of fire beyond the room of origin, and these systems are now designed for residen-

tial buildings, where the largest number of deaths occur. Wind damage is being addressed by model codes and standards agencies; for instance, the American Society of Structural Engineers is developing wind-load design standards that will more appropriately address the design of modern structures. Students should be kept apprised of these changes.

The AIA, through its mandatory education program for its membership, and the National Council of Architectural Registration Boards, through its internship competencies, have taken steps to make "health, safety, and welfare" a critical element of internship, licensing, and continuing education.

Architects are now involved in many areas of their communities, both in and outside of construction. With a keen awareness of safety issues spreading throughout the country, we can help establish appropriate standards, provide guidance and leadership for our institutions, and raise consciousness that good design means a good, safe building. ■

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, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive text approval.*



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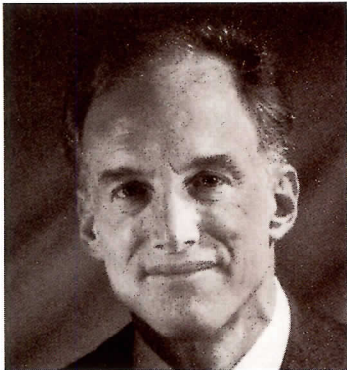


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CIRCLE 6 ON INQUIRY CARD

MENTORS How to deal with the unique problems of buildings that went up during the post–World War II construction boom.

Steven M. Goldberg, FAIA (top), and Jan Keane, FAIA (middle), are partners in Mitchell/Giurgola Architects in New York City. Alan Traugott is a principal in Flack + Kurtz Consulting Engineers, an international firm headquartered in New York City.



At the AIA's recent national convention, Steven Goldberg, Jan Keane, and Alan Traugott spoke of how many buildings constructed in the 1960s are in dire need of revamping. ARCHITECTURAL RECORD asked them to condense their thoughts into a primer for those faced with the task of adapting a 1960s construction.

The sheer magnitude of activity during the post–World War II building boom, which peaked during the 1960s and early 1970s, led to a dramatic alteration of our cities, towns, campuses, and commercial landscapes.

Unfortunately, many of these structures—which in their time were built with newly invented but not thoroughly tested products and systems—are becoming physically and functionally obsolete. Still, there is good news: renovation and adaptive reuse can often be justified over the alternative, starting from scratch. As a result, such buildings actually present great design and technological opportunities for today's architects.

The design of typical buildings of the era emphasized speed of construction, efficiency, and low cost. Structural systems consisted of modular, concrete, or steel-skeleton frames, typically with low floor-to-floor heights and little redundancy. Vast stretches of glass brought light and views, but because energy was cheap the glass was not designed to be efficient.

The purposes of many of these structures have changed, calling for modifications and expansions. Internal redesigns often include

more amenities and communal facilities than had originally existed. It is often necessary to relocate or add corridors, elevators, and stairs to meet current codes and functional needs. Larger building populations require expanded recreational, dining, and toilet facilities. Many times, reconfigurations like these can be conveniently handled within modular steel frameworks because of their easily penetrated metal decks and nonbearing interior walls.

Judging from our experience, a transformation also requires the removal or conversion of outdated mechanical equipment and controls. Still-viable systems can be refitted with energy-conserving variable-speed fan drives and modern digital controls that allow reduced energy use when possible. The existing piping infrastructure can often be reused if it has been well maintained. Equipment that has reached the end of its useful life can be replaced with substantially more efficient modern versions.

Electrical systems must often be overhauled or upgraded because electrical code requirements and usage patterns have changed. New infrastructure for today's communications, video, and data systems must be designed and installed in a cost-effective way that also anticipates future changes in technology.

Many of the older wall systems don't meet today's needs, codes, and standards. Those made of pre-fabricated metal and glass had unexpectedly short life spans, becoming discolored and corroded.

The inefficiency of these walls produces greater heating and cooling requirements and high energy costs. We have found that often such walls do not merit the expense of restoration. Instead, we replace them with the more energy-efficient systems available today, systems that use precast concrete or have a better approach to insulation.

In designing exterior additions and extensions, we have tried to undo what we consider to be a negative aspect of 1960s work: many structures were designed as "object buildings," generally unrelated to the surrounding environment. Our additions and new facades are designed to create contextual links between the buildings and their immediate vicinities.

Through our experience in renovating 1960s buildings, we have learned that wholesale changes—as opposed to minor corrections, restoration, or phased construction—are usually needed. On the other hand, for all of their aesthetic and functional flaws, the straightforward nature of these buildings has facilitated successful adaptations in terms of both context and function. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Submissions may be edited for space and clarity.*

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CIRCLE 7 ON INQUIRY CARD

PULSE RECORD readers were asked: Should interior designers be licensed?

Yes: As interior designers become more involved with life safety issues in new and renovated building interiors, there needs to be a standard of knowledge to protect clients, consumers, and designers. In no way is this meant to prohibit architects from continuing to offer interior design services.

—David D. Stone, IIDA
Symmes Maini & McKee Associates
Cambridge, Mass.

No: Only a small fraction of those engaged in interior design are involved in sophisticated interior construction work. The great majority do what is more accurately described as interior decorating. The vast majority of those who would become licensed as interior designers under most proposed legislation are not required to master a body of knowledge, skills, or abilities beyond

the capacity of a layperson. Also, their activities do not have a substantial impact on the health, safety, and welfare of the public.

—Lenore M. Lucey, FAIA
Executive Vice President, NCARB
Washington, D.C.

Yes: Licensure of interior designers protects the end user because qualified designers are aware of life safety issues and codes.

—Rebecca McAdams, ASID
Hudson, Ohio

Yes: Absolutely, but only those with professional degrees who have passed the NCIDQ exam. Why not? Interior designers have taken many of the same courses as architects and have graduated with degrees from the same universities. Architects can also design interiors, but licensed interior designers would be

specialists in this area and may be more qualified.

—Robert Carver, AIA
Orlando, Fla.

No: States license certain occupations to protect the public, not to confer status on that occupation. Interior designers have not adequately defined what unique services they perform that should be regulated.

—Holly Gerberding, AIA
Chicago, Ill.

Yes: Today's interior designer is no longer an "interior decorator." Licensing is the proper form for states to regulate and oversee the profession of interior design. There must be a process that guarantees that interior designers have a minimum level of education and have passed a nationally recognized

exam. Right now, anyone can call themselves an interior designer.

—Christopher D. Bass, ASID, IIDA
GHK Associates, Inc.
Washington, D.C.

No: Licensure, because of its cost to the states and consumers, and because it limits entry into a profession, is traditionally reserved for professions that, if unregulated, would pose a serious threat to public health, safety, and welfare. There is no serious public threat that is remedied by the licensure of interior designers. Design decisions that affect the public's health, safety, and welfare require the education and examination that a licensed architect brings to the job.

—Wayne Rogers, AIA
AIA Licensing Committee Chair
Catalyst Architects
Columbia, S.C.

This Month's Question

Are many municipal zoning policies outdated or inappropriate?

In some cities, where local zoning codes have changed little since they were implemented, myriad variances and special use approvals are needed for new construction and renovation. New York City is grappling with the proposed rezoning of its theater district, and Milwaukee is replacing its entire zoning code. Portland, Oregon, on the other hand, has a complex but accessible and up-to-date zoning code. This issue has spurred a dialogue among architects, developers, and planners who are working toward progress in city development.

Are many municipal zoning policies outdated or inappropriate? Yes No

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

Let us know your opinion:

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BOOKS Three recent books explore the roles that politicians, citizen activists, and urban designers play in the changing form of cities.

BY JOHN E. CZARNECKI

Capital Dilemma: Germany's Search for a New Architecture of Democracy, by Michael Z. Wise.
New York: Princeton Architectural Press, 1998, 192 pages, \$25.

Cities Back from the Edge: New Life for Downtown, by Roberta Brandes Gratz with Norman Mintz.
New York: John Wiley & Sons, 1998, 362 pages, \$30.

Representation of Places: Reality and Realism in City Design, by Peter Bosselmann.
Berkeley: University of California Press, 1998, 230 pages, \$35.

When it comes to building cities, architects play but one role in a large, complex production. The real forces that drive the shaping of urban form often include political and economic powers, planners, and an engaged citizenry—who ultimately enable the architect to transform a vision into built reality. Two recent books examine how these forces are agents of change in the built environment. A third analyzes different visual representations of the resulting cities.

Political ideology expressed in architecture is what the reunified, democratic Federal Republic of Germany struggles with as it prepares to move its capital from Bonn to Berlin by the year 2000. Michael Z. Wise reveals the story behind Germany's literal reinvention of itself and its construction of a new national identity in *Capital*

John E. Czarnecki, a former editor of Crit, the AIA's national journal, is a graduate architecture student at the University of Wisconsin—Milwaukee.

Dilemma: Germany's Search for a New Architecture of Democracy. As its future capital is rebuilt, at a cost of approximately \$12 billion, the country must constantly ask the question: How will a democratic Germany portray itself through its architecture to its citizenry and the world? From Wise's account, the Germans have not found an easy answer.

Wise, a journalist who covered Central Europe for the *Washington Post*, delivers a well-researched and thorough account that weaves together the political and design history of Germany's civic architecture of the past century. From Prussia, Bismarck's empire, and the Third Reich to a divided postwar country and now a reunited democracy, Germany has a remarkable palette of structures to work with in rebuilding.

The biggest challenge that Germany faces is dealing with the memory of Hitler without presenting itself as an aggressive power. Wise

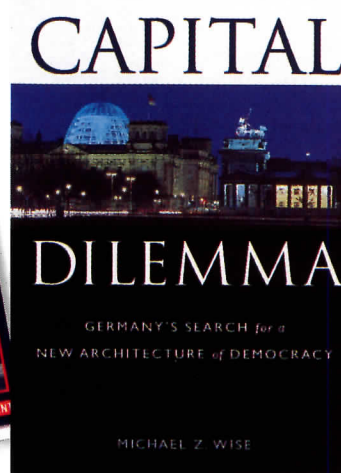
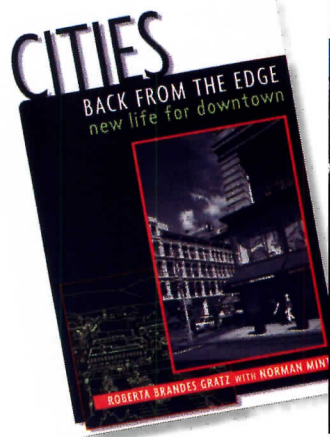
notes that Germany would rather promote what Chancellor Helmut Kohl has called "a European Germany rather than a German Europe." Thus, the new Presidential Office, Chancellery, Parliamentary Offices, and Federal Strip and renovations of existing buildings have to represent a proud but restrained democracy. The result, Wise writes, is that "the new Berlin is less exuberant, experimental, and expansive than the unified German capital of which some had dreamed, and which others had dreaded."

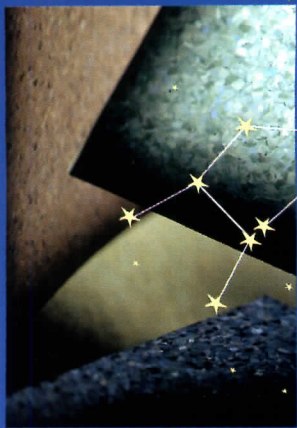
For historians, Wise accurately spells out how Germany is moving forward with "an obsessive degree of caution." But while other massive capital projects such as Brasilia, New Delhi, and Canberra are mentioned briefly, a broader framework is necessary to assess Berlin's master planning efforts as a world capital. Also, architects may desire a more in-depth discussion of the people who are designing the new Berlin and some of the battles they have had to wage.

Urban husbandry at work

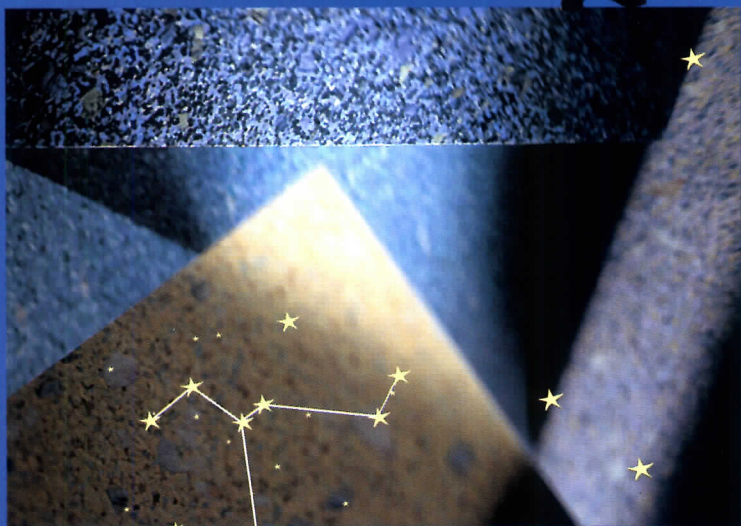
Places that experience change incrementally, rather than through large-scale development, are those that offer the best amenities for cities, states Roberta Brandes Gratz in *Cities Back from the Edge*. Gratz, a journalist and urban critic, worked with Norman Mintz, a consultant on downtown revitalization, to identify what has worked and what has not in the downtowns of cities and towns throughout the United States.

The lengthy text successfully defines the difference between what





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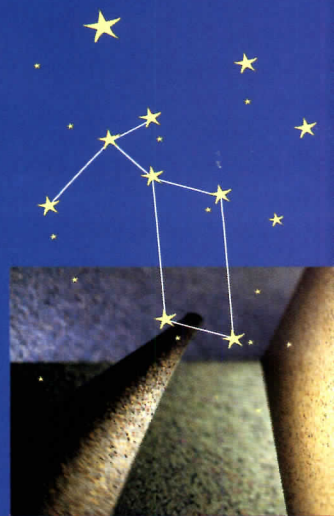
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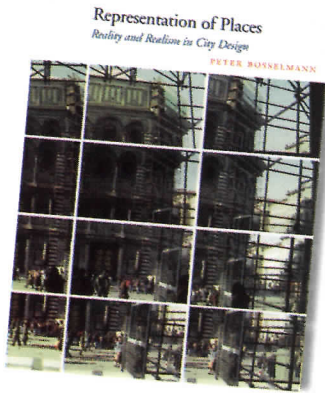
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Representing city design

Architects and urban designers may find that Peter Bosselmann's *Representation of Places* has varying degrees of relevance to their work in the design of cities. A professor of urban design at the University of California at Berkeley's College of Environmental Design, Bosselmann makes the case that the representation of urban design, from two-dimensional maps to perspective drawings, serial vision sketches, and now three-dimensional computer-generated walk-throughs, has evolved slowly and has yet to find a completely accurate mode. A reasonable assertion, but the three case studies from Berkeley's Environmental Simulation Laboratory used to support his argument are self-serving and already dated.

More informative, however, is Bosselmann's critical essay on the search throughout history for a visual language in design. This includes a comparative analysis of a

walk through Venice via serial vision sketches and analogous walks in 14 other cities mapped in figure/ground drawings. Bosselmann's treatment nicely illustrates how the direct experience of a place cannot be conveyed precisely through mapping devices.

Briefly Noted

Renzo Piano Logbook, by *Renzo Piano*; introduction by *Kenneth Frampton*. New York: *Monacelli Press*, 1997, 288 pages, \$30.

Many readers peruse architectural monographs for their evocative color photographs or drawings. Although *Renzo Piano Logbook* boasts some 1,000 illustrations, 900 in color, this is not a monograph in the traditional sense. The illustrations may seize your attention, but the accompanying text, written by Piano himself, is what makes the book rich.

Rather than offering the refined prose, bland design state-

ments, or ego-driven monologues often found in monographs, Piano acts as a storyteller. The architect's text is an honest first-person discussion of not only his own work but also the state of the architectural profession. There is much to learn about his design process in the book's chronological presentation, from detail tectonics to client collaborations and the evolution of cities. What Piano has accomplished is to create a welcoming means to present his projects—to, as he writes, "introduce them in the way that you would introduce friends." ■



Gratz and Mintz call "project planning"—the rebuilding of downtowns with large, expensive schemes produced by bankers, planners, politicians, and developers—and "urban husbandry"—incremental, modest changes to the city initiated by citizen efforts that, collectively, infuse greater vitality into downtowns. Ranging in scope from SoHo to the effects of superstore retail, the book offers valuable lessons for citizen activists and architects on how cities really work.

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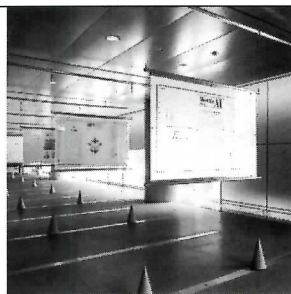
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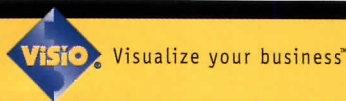


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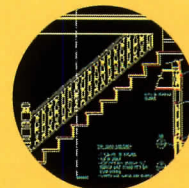
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CORRESPONDENT'S FILE At the urging of a mayor intent on leaving his mark, the city where the skyscraper was born is piling up public works.

BY BLAIR KAMIN

Blair Kamin is the architecture critic of the Chicago Tribune and a contributing editor of ARCHITECTURAL RECORD.

Chicago is often called the city of architecture, but it has also become one of the country's most architect-friendly governments. Several alumni of local design firms have a hand in running the show, heading three of Mayor Richard M. Daley's cabinet-level departments and playing a major role in a popular—albeit aesthetically conservative—public works program that puts architects on equal footing with engineers.

The number of high-ranking Chicago bureaucrats with architectural experience, which almost surely has no equal among major American cities, isn't surprising if you are aware that Daley—son of the legendary “Boss,” Richard J. Daley—is a public works fanatic. From the back of his chauffeured car, he looks out the window and scribbles notes to aides when he sees an unfilled pothole or something else he doesn't like.

He does like trees; thousands have been planted since he was first elected in 1989. He also likes wrought-iron fences. Before the 1996 Democratic National Convention at the United Center, where Michael Jordan and the Bulls play, businesses near the arena received a letter from city officials “suggesting” they tear down their ugly chain-link fences and replace them with wrought iron, which the mayor considers more stately. Most complied.

Daley's attention to the tiniest details is, like everything that goes on in Chicago, rooted in politics. Early in his mayoralty, he wanted to be a master builder like his father, who oversaw the construction of



everything from Chicago's expressways to O'Hare International Airport (which the elder Daley, Irish to the core, called “O'Hara”). As a result, Daley the Younger spent his political capital on big-ticket items like a \$1 billion downtown trolley system. When most of the projects went nowhere and his reelection prospects looked dim, he quickly learned his lesson: small can be beautiful, too.

“People care about what they see out their front window,” he told the *Chicago Tribune* in 1996. “The big projects always have the same players; you either get them done or you don't because of politics and money. But the detail work, the wrought iron, [along with] the streets, crime, the schools. That's what you do.”

That's where Daley's design mavens come in. Their job is to make the city—and the mayor—look good. The team includes Christopher Hill (formerly of Pappageorge Haymes Ltd.), who heads the Department of Planning and Development; Thomas Walker

Renovation of the Roosevelt Road Bridge, just south of the Loop, was completed in 1995.

(formerly of Lohan Associates), who runs the Department of Transportation; and James Law (formerly of Ullman & Fill Architects), who directs the Mayor's Office of Special Events, which runs festivals like the popular Taste of Chicago. Jeff Boyle, a former architect at Skidmore, Owings & Merrill, preceded Walker and Hill in the transportation and planning posts.

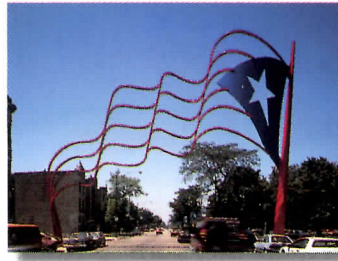
With Daley's backing, the officials have had a significant impact, helping to place cherished landmarks like Ludwig Mies van der Rohe's Lake Shore Drive apartment high-rises on the city landmark rolls and putting a strong emphasis on architecture in tourist promotions.

But their influence has been most visible via a widely acclaimed public works program that has upgraded the design of bridges and viaducts, subway stations, street furniture, schools, and plazas.

Some of the projects, like SOM's 1996 renovation of State Street, which transformed a 1970s transit mall into a powerfully scaled, beautifully detailed public space, have won national AIA urban design awards [see RECORD, May 1998, page 127]. Others, like the new lakefront Museum Campus by Teng & Associates, which unites the city's three natural science museums on a single greensward, result from bold urban planning moves—in the campus's case, moving Lake Shore Drive's lanes away from the lake-shore. All told, the city has spent about \$1 billion on infrastructure since Daley became mayor.

Under previous regimes, architects "weren't getting enough input on the projects," says Boyle, now an executive at a Chicago real estate development firm. "We were concerned with engineering solutions—the thickness of concrete—and less concerned with aesthetics."

Daley's attention to design makes Chicago an exception in a



nation where architecture is rarely on the public agenda. While a few architects, like Seattle mayor Paul Schell, Hon. AIA, and former Charlotte, North Carolina, mayor Harvey Gantt, FAIA, have held positions of power, the profession generally has shied away from politics.

"When [architects] do get in the fray, they're very useful," says Nancy Somerville, Hon. AIA, the AIA's vice president of component affairs. "But getting them in is hard."

In Chicago, a \$42 million bridge renovation completed in 1995 is a prime example of how the tide has turned in favor of design. Bisecting an affluent neighborhood of town houses and single-family

homes a half-mile south of the Loop, the reconstructed Roosevelt Road Bridge replaced a portion of a span built in the late 1920s.

The city's initial proposal, a utilitarian design straight out of an engineer's manual, drew cries of protest from area residents at a hearing required by the U.S. Intermodal Surface Transportation Efficiency Act. "They beat the tar out of us," remembers Stan Kaderbek, the city's chief bridge engineer, who worked with Boyle on the project. "It was a classic defining moment."

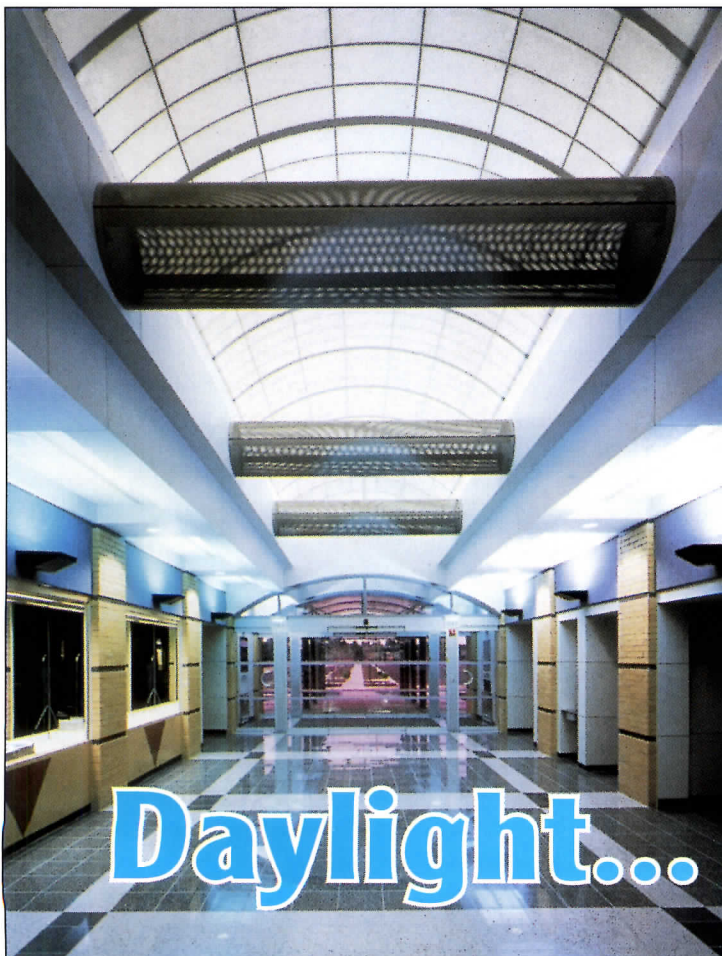
Boyle brought in a fellow Skidmore graduate, Diane Legge Kemp, FAIA, now a principal at Decker Legge Kemp Architects (DLK). She fashioned a bridge that features obelisks in three sizes, towering fluted lampposts, finely detailed planters and retaining walls, and figural sculptures that symbolize the bridge's link between the University of Illinois and the cultural institutions that comprise the lakefront museum campus.

Despite its fussiness, the bridge is an exercise in urban appropriateness that works on two scales: a city scale that recognizes Roosevelt Road's identity as a key east-west arterial of the 1909 Burnham Plan, and a neighborhood scale that allows it to blend comfortably with its surroundings. Above all, it is a place, not simply a passageway.



The project also set a precedent for quality. When the poured-in-place concrete retaining walls showed flaws, Kaderbek told the contractors to jackhammer out 1,000 linear feet of the stuff. The

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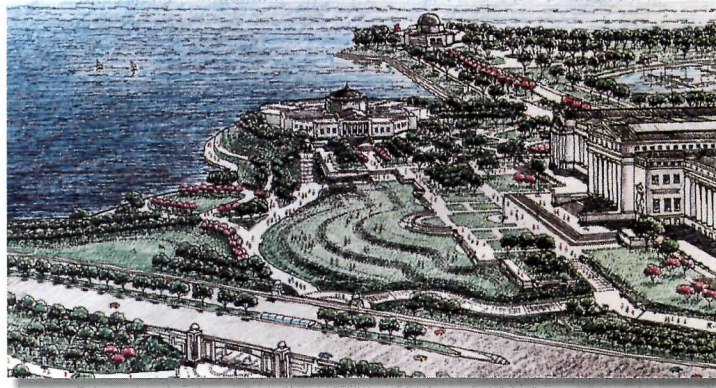
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city and the contractor shared the cost. The bridge renovation went on to win a special recognition award from the Chicago chapter of the AIA in 1996 and set the stage for high-quality but aesthetically conservative work that rejects the City Functional and reembraces the City Beautiful.

These emphases have been evident in other public works, whether small-scale bridges in Chicago's outlying neighborhoods or large-scale downtown projects, like DLK's 1995 renovation of Congress Plaza, a Beaux Arts tour de force that improved pedestrian access to Grant Park from the Loop. It, too, won a national AIA award for urban design. The city also plans a neo-classical look for the renovation of Wacker Drive, the double-decked boulevard that sweeps around the edge of the Loop.

When it comes to projects like these, Chicago isn't bursting with cutting-edge design—nor should it be, say those overseeing the work.



"People, by and large, are conservative," says Kaderbek. "[Daley's] style is conservative. For the people of Chicago, it works, though we also have done crazy stuff."

A rare Modernist statement was made in a largely Puerto Rican neighborhood three miles west of the Loop, where DeStefano and Partners designed two spectacular steel arches stylized in the form of a Puerto Rican flag. Located about a half-mile apart and framing a shopping district, the three-year-old arches consist of an overhead net-

The new museum campus (above); DeStefano's arches (far left); the redone Congress Plaza (left).

work of steel tubes weighing 50 tons and are popular with the local residents.

Not everything has gone smoothly for Daley. With so many projects being trotted out—the administration seems to announce a new public works initiative every week—there have been inevitable

blunders, like a proposal for a 70-foot-tall decorative pylon just south of the Beaux Arts Michigan Avenue Bridge. The overwrought flagpole would have maligned the district around the bridge, which consists of renowned, soaring 1920s skyscrapers like the neo-gothic Tribune Tower and the Spanish Revival Wrigley Building. Fortunately, Daley came to his senses and killed the project. Generally, however, Chicago's public works program is exemplary, showing how cities can elevate mundane infrastructure projects—and the public realm—to new levels.

Moreover, the program's emphasis on connective tissue rather than isolated monuments is undeniably sophisticated, strengthening the fabric of the city as a whole. While the projects lack sizzle, all the details add up, making a powerful impression on outsiders—and on Chicago voters. And surely that must please Daley. He's running for reelection next year. ■

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CIRCLE 15 ON INQUIRY CARD

TRANSPORTATION EQUITY ACT MEANS MORE PROJECTS WILL GET ON THE ROAD

When President Clinton signed the Transportation Equity Act for the 21st Century on June 9, it meant that at least \$195 billion in federal funds will be flowing into highway and mass-transit projects over the next six years.

The final numbers are down from the \$217 billion in the House-passed version and \$214 in the Senate's bill. But the figure represents a 27 percent jump over funding in the Intermodal Surface Transportation Efficiency Act of 1991. And besides the obvious boost to overall transportation markets, the other good news for architects is that key programs established in ISTEA were retained and expanded.

In particular, the Transportation Enhancement Activities program is projected to grow to an average of about \$630 million annually, from \$450 million a year under ISTEA, says Roy Kienitz, director of the Surface Transportation Policy Project.

This category uses Highway Trust Fund dollars for bikepaths, walkways, and historic preservation of buildings such as rail depots. The joint House-Senate conference report on the new "TEA-21" law adds "transportation-related museums" and visitor centers to the list of eligible projects. Among other areas, the bill should also give a boost to the Congestion Mitigation and Air Quality program, which finances multipassenger vehicle lanes and similar projects.

Daniel S. Wilson, the AIA's director of federal affairs, says that if recent trends in enhancement spending hold true, architects will be able to participate in about 45 percent of the new funding pie in projects that are "right up their alley," including historic preservation.

Wilson also notes that TEA-21 specifies a separate enhancements

category for mass-transit funding. The amount is small—only about \$160 million of the \$36 billion allotted for mass transit. But, Wilson says, "It gets you in the door."

Much attention was drawn to the 1,850 "high-priority" highway projects in the bill, totaling some \$9 billion. But Wilson counts 104 enhancement items in the bill. Perhaps the most notable project involves \$40 million to turn Manhattan's James A. Farley Post Office into a new rail station.

Though TEA-21's main drafters focused on increasing funding and ensuring that more will be spent, the lawmakers did include some policy changes. For example, under TEA-21, metropolitan-area and statewide planners need to consider only seven factors in reviewing projects. ISTEA mandated 16 factors for metropolitan planners and 23 for statewide planners. The new statute also permits the same firm to perform an environmental review on a project and then do the design, as long as state officials vouch for the firm's objectivity.

The new law seeks to ensure that most of the sums authorized will be spent according to what lead House negotiator Bud Shuster (R., Pa.) terms "ironclad firewalls," designed to protect against diversion of Highway Trust Fund dollars to nontransportation programs.

Funding is pegged to annual fuel-tax payments into the trust fund. The U.S. Department of Transportation says \$159.1 billion will thus be guaranteed for highways, \$36.25 billion for transit, and \$2.9 billion for safety over the six-year life of TEA-21.

The measure authorizes an additional \$19 billion over six years, bringing the total on paper to \$217 billion. But that \$19 billion depends on future congressional appropriations. *Tom Ichniowski*

KYOTO STATION MAKES A MAJOR IMPACT In September 1997 the reconstructed Kyoto Station opened its doors for the first time. The event not only marked the completion of one of the city's few contemporary landmarks but put to rest much of the debate that has surrounded the project ever since Tokyo architect Hiroshi Hara won the limited competition for its design in 1991.

The controversy involved how to build appropriately in Japan's mecca of traditional culture. Against the backdrop of Kyoto's contemplative temple precincts and meticulously manicured gardens, any new construction was bound to stand out.

While the new station is slightly shorter than the 200-foot-high Kyoto Hotel, the city's

tallest building, at 2.5 million square feet it is by far the biggest. And, clad in reflective glass, granite, and metal panels, it is impossible to miss. On the inside, the monolithic structure is an assemblage of pedestrian-scaled components, organized around a huge man-made valley in the center. A one-story plinth, anchored by a department store at one end and a hotel at the other, serves as the base for the building's artificial landscape and separates it from the inner workings of the ground-level station, which comprises only 5 percent of the total area.

Like many transportation hubs in Japan, Kyoto Station is a marriage of civic and commercial functions, although it does attempt to rise above pure commercialism. Shops and restaurants are interspersed with public spaces such as the Daikaidan (big stairs) connecting the central concourse, and the Sky Garden crowning the building's west end. With a captive audience of some 300,000 visitors daily, the clients, West Japan Railway Company and the Kyoto Station Building Development Co. Ltd., couldn't afford to forgo lucrative advertisements altogether; but instead of having the typically cluttered and disorderly array of billboards, they asked advertising sponsors to team up with artists such as Roy Lichtenstein and Tadanori Yokoo to enrich the visual field.

Though the striking forms and expressions may be more natural to fast-paced Tokyo, there is a place for them in Kyoto, maintains Yukio Kawase, an architect with Hara's firm, Atelier Phi. Kyoto has to be preserved—but cities must continue to grow, evolve, and build, Kawase says. *Naomi Pollock*



Inside the mammoth station (top); a view from the station toward traditional Kyoto.



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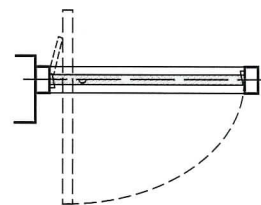
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CIRCLE 18 ON INQUIRY CARD

PROPOSITION 224 IS VOTED DOWN, TO RELIEF OF CALIFORNIA ARCHITECTS

After an extensive and vociferous statewide campaign, private-practice architects had their way in California on June 2 when Proposition 224 was met with a resounding no vote.

If it had passed, the proposition—sponsored by one of the state's most influential public employee unions, Professional Engineers in California Government (PECG)—would have dictated that state and local governments use a new process before contracting out certain construction-related services. To the relief of the broad-based coalition that had instigated a two-year-long effort against it, the measure was defeated by a margin of 54 to 46 percent.

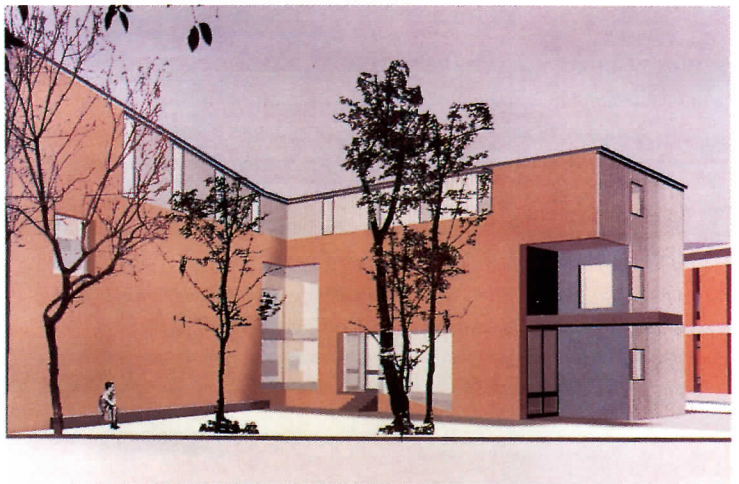
"We let PECG know that the architectural profession would not sit idly by while they created the largest A/E firm in the world funded by taxpayer dollars," said M. Arthur

Gensler Jr., FAIA, after the vote.

Proposition 224 would have added to the state constitution an expensive new cost-benefit analysis scheme to weigh the cost of doing engineering work with state employees against the cost of using outside firms. Competitive bidding would generally have been required for state-funded engineering or design contracts of more than \$50,000.

Contracts with private firms would have been prohibited where work by civil service employees was less costly, unless there was an "urgent need" for the contract.

California architects argued that local governments, schools, hospitals, and the like should have the choice of hiring the most qualified designers and engineers. And they are glad that for the moment, the processes for contracting out construction-related services will not be changing. *Soren Larson*



HOLL'S REDONE DESIGN GETS GO-AHEAD FOR MINNESOTA ARCHITECTURE SCHOOL

Nearly 10 years after unveiling plans for an addition, the College of Architecture and Landscape Architecture at the University of Minnesota has received state funding to begin construction on the expansion, which is being designed by Steven Holl Architects of New York.

Yet the \$26.4 million addition and renovation budget, approximately half of what was originally proposed, means a smaller project. Holl went back to rework a design that won him and co-designer Ellerbe Becket a P/A Award in 1990.

The original proposal featured a circular scheme that rose two stories above the existing building, a Modernist brick box built in 1960. Despite the dramatic curving form, some critics complained that the 90,000-square-foot proposal with its interior courtyard overpowered the existing building.

Their complaints are now irrelevant, as Holl essentially discarded the original design and introduced a new scheme for a 45,000-square-foot addition. The new concept is less overpowering, but no less dramatic. Holl replaced the doughnut-shaped configuration of the first design with a slightly curving, three-story cruciform plan to house a library, an auditorium, a lobby, studios and classrooms, and research and administrative offices.

While the earlier design looked inward, the new scheme looks out-

ward toward the campus. The ends of each masonry-clad wing will feature a translucent glass wall with smaller transparent windows. In addition, a series of seasonal gardens tucked between the quadrants will enhance the campus's landscaping.

The addition and renovation budget includes upgrading the mechanical and electrical systems in the existing facility, with some interior revamping of the structurally sound building. Once completed, the college will unite its diverse programs and departments under one roof, including the renowned Design Center for the American Urban Landscape.

Thomas Fisher, dean of the college, believes the new facility will help promote the Twin Cities design community. "Universities are geared to push the envelope and get people thinking," he says. "This building pushes that envelope in terms of its innovative architecture and landscaping. With the expanded facility, we will have a central space for the Twin Cities design community, and a state-of-the-art college to continue to attract strong students."

Groundbreaking is scheduled for June 1999, with completion slated for January 2001. Vince James Associates of Minneapolis is the associate architect, and Ellerbe Becket is engineer and landscape architect. *Eric Kudalis*

PARIS GOES GAGA FOR LE FOOTBALL When the World Cup ends on July 12, Paris will not only have hosted soccer matches watched by billions of fans around the globe but will have transformed itself into a city-wide arena, with no landmark left untouched.

It all began with the June 9 parade where gigantic soccer-playing robots came to life at four famous sites—the Eiffel Tower, the Arch de Triomphe, Garnier's Opera House, and the Pont Neuf—and roamed the boulevards along the Seine, accompanied by original music and exceptional lighting on city monuments. A giant soccer ball topped Napoleon's Egyptian obelisk on the Place de la Concorde, with television screens instead of the traditional black-and-white panels. These were joined by even larger projection screens on five public plazas, including the city hall.

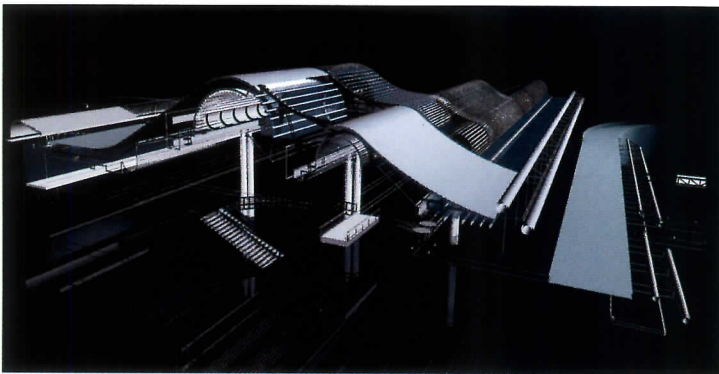
New architecture was also commissioned. One project, the \$3 million Adidas Football Park (left), sits on top of the esplanade at Trocadero, where a 400-seat mini-stadium



was built alongside temporary pavilions stretching to the Eiffel Tower. Not to be outdone, Nike built its "world of soccer" complex below the Grande Arche at La Défense. However, unlike the great international expositions of the past that gave us the Eiffel Tower, none of these structures will leave a lasting architectural imprint on the city. *Claire Downey*

FOCUS ON: AIRPORTS

Aiming high Today's airport planners are emphasizing in-terminal malls, connections to existing urban infrastructure, and—to give travelers a lasting image of a city or region—picturesque design. As with train stations, glass is being used in abundance, requiring tinting, fritting, or some other means of preventing solar-heat gain. The price of all these new priorities is huge; the new Hong Kong International (to be covered in RECORD this fall), which features a terminal designed by a group including Norman Foster, cost \$9.8 billion. Still, many municipalities—even Hong Kong—aren't just trying to break even; as powerful generators of commercial expansion, these megaprojects are potentially high-yield investments. Which is why the management and financing of new airport development is becoming increasingly privatized, particularly in the United States.—David Simon Morton



Yong Dong Area International Airport, main terminal Los Angeles-based Anthony Lumsden, FAIA, favors sectional organization over plan. It's a strategy suited to building types that anticipate expansion of working capacity, like this small airport in the northeast corner of South Korea. The cylindrical volumes of the 230,000-square-foot terminal correspond with function; the largest cylinder shapes the pas-

senger meeting area. For increased capacity, the volumes can be extruded horizontally without interfering with one another. The resulting rolling forms, coated in metal rather than the glass most often specified for airport terminals, give the structure the smooth, precision look of jet engines and fuselages. To be completed in 2001. Architects: Anthony J. Lumsden & Associates and Jung-Il Architects.



San Francisco International Airport, international terminal

This 1.5 million-square-foot terminal will be built over existing access roads, requiring the 866-foot-long roof to span, at its longest interval, 380 feet between columns. Inspired by the Firth of Forth bridge in Scotland, the roof is double-cantilevered, with bow-string trusses at the center. It is a structural form that maintains heavy loads and still achieves

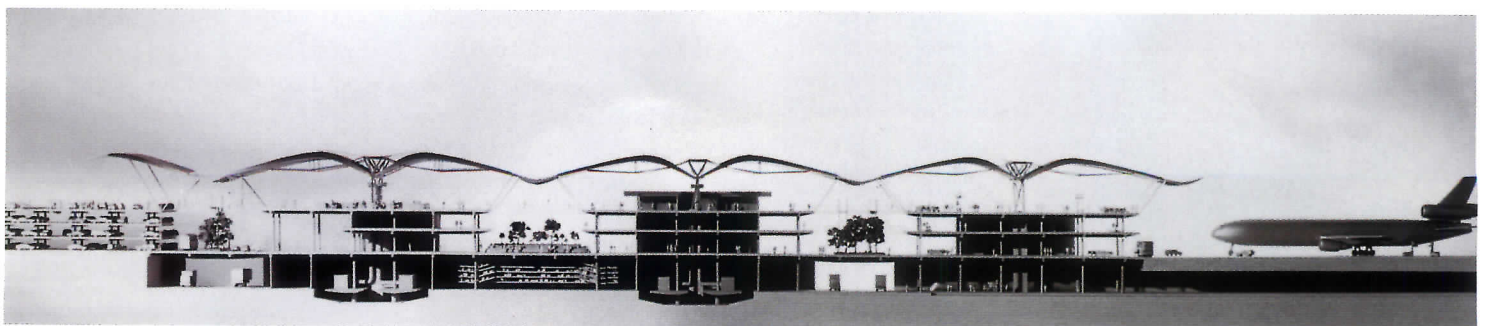
the illusion of lightness. Sunlight is screened through pixel-fritted glass on the west facade and diffused by glass sculptures—designed by James Carpenter—suspended beneath the skylights. All electrical lighting and HVAC are confined to the ticketing booths. Architects: Skidmore, Owings & Merrill/San Francisco—Craig W. Hartman, FAIA, design partner; Del Campo & Maru; Michael Willis and Associates.



Miami International Airport, terminal expansion

Using forms as imprecise metaphors, such as undulating roof planes that can suggest wings, clouds, or waves, the architects sought to evoke "tropicality" without resorting to explicitly

thematic design. The glass of the 2.1 million-square-foot terminal is tinted a deep green. Reaching above blue-hued terrazzo floors, the roof supports are abstract coral trees. Completion is set for 2005. Architects: Arquitectonica.



Madrid-Barajas, new area terminal This 3 million-square-foot terminal is also primarily organized in section, with each functional

grouping separated by an atrium. The atriums bring light and "fingers of the red-earthed Spanish landscape" into large areas of the

airport. In further defiance of the high-tech aesthetic of many airports, the architects hope to use wood and Spanish stone. The roof, with the

repeated shape of a bird's wing, may be covered with photo-voltaic cells. Architects: Richard Rogers Partnership and Studio Lamela.



Progress made it obsolete.

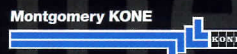
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CIRCLE 19 ON INQUIRY CARD

TEXAS SUMMER HEATING UP AS BIG NAMES BATTLE FOR COMMISSIONS

Along with bluebonnets and tornadoes, this is the season for competitions in Texas, with two museums up for grabs and an arena stirring controversy.

The Dallas Mavericks and the Dallas Stars have chosen Washington, D.C., architect David Schwarz to design their new \$230 million home on an abandoned industrial site just north of downtown. The arena project was narrowly approved by Dallas voters in January, but the choice of Schwarz's historicist scheme (below) did little to heal the divisions. City officials praised the choice, while architects, including several of the competitors, offered harsh assessments of the selection process and the clients.

"It [was] clearly a 180-degree about-face," says William Pedersen of Kohn Pedersen Fox, which was a finalist. "They chose a sedate building, more like a historical train station than a 21st-century building. If that's what they wanted, they should have told us that up front."

Mavericks owner Ross Perot Jr. called Schwarz's design "exactly

right for the citizens of Dallas." The arena should open in late 2000.

The University of Texas's Jack S. Blanton Museum of Art has narrowed its search for an architect to design its addition to three: Antoine Predock Architect, Albuquerque; Herzog & de Meuron, Basel, Switzerland; and Steven Holl Architects, New York. The \$35 million commission will be awarded this month.

Holl and Herzog & de Meuron made the short list in New York's Museum of Modern Art competition last year, while Predock has designed museums in Florida, New Mexico, Arizona, and California and has just won a competition to design the new Tacoma Art Museum building.

Across town, the Austin Museum of Art (formerly the Laguna Gloria Art Museum) is preparing a short list for a new downtown building. Robert Venturi won the commission in 1985, then ran afoul of local politics. The museum board decided to stage a new competition, with the results to be announced this summer. *David Dillon*



COMMISSION HOLDS ITS FIRE AND APPROVES WORLD WAR II MEMORIAL

After being sent soundly back to the proverbial drawing board last July, Friedrich St. Florian's newly revised World War II Memorial has been approved in concept—though with specific points to be worked on—by the Commission of Fine Arts. The commission's chairman, J. Carter Brown, said in a statement that the group "unanimously and enthusiastically approves the site plan, location, and concept of the World War II Memorial as presented at its meeting today."

The statement reflects key criticisms surrounding the original design, unveiled in January 1997. Chosen through a competition, St. Florian's winning submission met with carping by the commission, whose support is vital to any project undertaken on the National Mall. It was also viewed with skepticism by many in both politics and the press. The proposed location, mid-axis

between the Lincoln Memorial and the Washington Monument, was deemed inappropriate because it would have visually blocked the Mall's panorama, as well as curtailed circulation around the Reflecting Pool.

In addition, many critics felt that the scale was too large and that the memorial created an open plaza of questionable merit, surrounded by columns that didn't have an apparent reason for being.

While the commission did not bow to criticism of the choice of site, it did request that St. Florian respond to other concerns. As a result, the architect's revised design allows for open vistas and preserves the Mall's Rainbow Pool and surrounding elm trees. Granite arches are placed at the north and south ends, while arms made of stone and metal frame the interior memorial plaza. A ceremonial area at the western apex features a "torch of freedom."

The commission's statement of endorsement includes 14 design points—ranging from seating and lighting to landscaping—that need to be addressed in design development and presented yet again. The approval does mean, however, that the project moves a big step closer in the drawn-out process of inserting another memorial on the Mall. *Ellen Sands*

DESIGNING IN THE CYBERSPACE AGE The new Getty Center in Los Angeles is certainly a tourist attraction, but it's also attempting to provide a home for meetings of the minds. To that end, a group gathered there last month to address how architecture is being affected by changes in technology and by the increased use of the Internet.

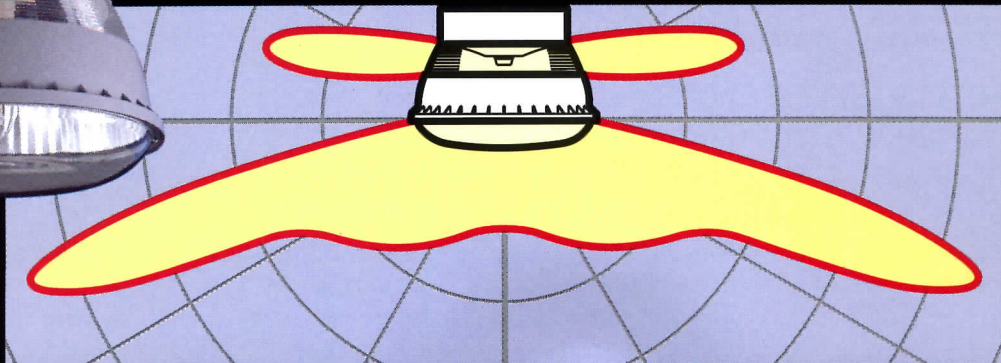
Participants in the symposium, called "Transarchitectures: Visions of Digital Communities," included artists, a technologist, and architects William Mitchell, Michael Benedikt, and David Jensen—a wide-ranging group that managed to draw several conclusions. The panelists declared that our experience of space can no longer be described using conventional architectural terms; that digital, Internet-based environments are now home to more activity than "real-time" communities; and that geographic boundaries have given way to networks tied together by common interests. It was decreed that alternative methods of design must arise from these truths. Although a cohesive strategy for how architecture can best adapt to the digital age was not proposed, the panelists did stress that architects shouldn't wait; now is the time to define and design our new spaces. *Alice Y. Kimm*

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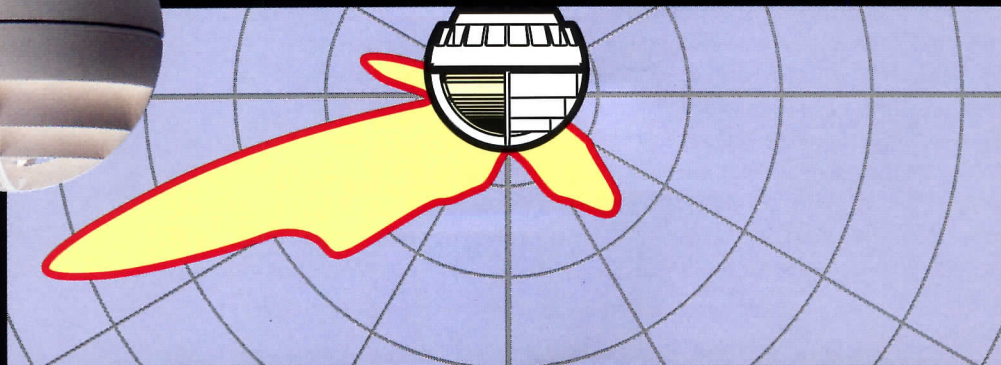
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CIRCLE 20 ON INQUIRY CARD



MOUNT RUSHMORE'S CHISELED FACES GAZE DOWN ON NEW VISITOR COMPLEX

Sculptor Gutzon Borglum spent 14 years on Mount Rushmore National Memorial, in South Dakota's Black Hills, a project that was completed shortly after his death in 1941. Under his supervision, the presidential faces were chiseled into an outcropping of stately granite by workers using drills, dynamite, and jackhammers.

Since the 1950s, visitors to the park have been served by two main buildings, a visitor center and a cafeteria, but the buildings were designed to handle only about 1 million people a year; this year, nearly 3 million will visit the memorial. The National Park Service decided it was time for new facilities.

"This was a rare opportunity to remake an entire park," says superintendent Dan Wenk. He does admit, however, that some locals were sorry to see the old buildings leveled. "We tore down people's memories."

"Those buildings worked at one time, but ultimately they couldn't handle the crowds," says Ron Mason, FAIA, of Anderson Mason Dale, the Denver firm that was selected to design the new visitor complex. Mason used gray granite from Minnesota to create a series of structures, including a pergola, a concession building, an interpretive center and museum, a viewing terrace, and a 2,500-seat amphitheater.

"These are not frail or slight buildings," Mason says. "In that way,

they connect with the strength of the monument, which has enormous integrity. Any architecture [connected to it] must have that same kind of dignity. That doesn't come about with buildings that are self-conscious. So our challenge was to see the buildings as servants to the sculpture, to be seen but in no way ever to compete with the mountain."

The project cost about \$60 million, much of it raised by the nonprofit Mount Rushmore National Memorial Society. The new facilities are already completed but will be officially dedicated on August 25. Mary Ellis Borglum Vhay, Gutzon Borglum's daughter, will be there. "My father would have been thrilled with these new buildings," she says. "They're dignified, and they're beautiful." *David Hill*

SAN FRANCISCO'S SCIENCE PROJECT: RENOVATING THE EXPLORATORIUM

The Exploratorium, the San Francisco science museum that has long since outgrown its hangarlike home at the Palace of Fine Arts, will soon be expanding and renovating.

The Exploratorium has occupied 160,000 square feet of the palace—originally designed by Bernard Maybeck as a temporary structure for the 1915 Panama Pacific Exhibition—since its founding in 1969. In 1993 the museum initiated a series of charrettes to develop a long-term vision; the resultant master plan, developed in consultation with Stastny Brun Architects of Portland, projected adding 50,000 square feet of exhibition space, expanding the workshops and administrative functions westward into the Presidio (a decommissioned army base recently added to the National Park system), and augmenting public amenities such as the restaurant.

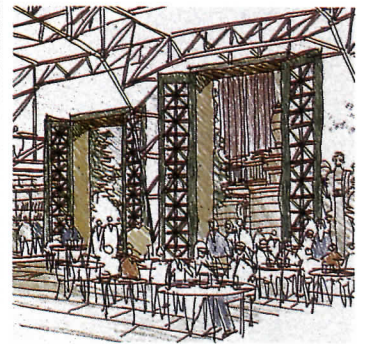
It also calls for reorienting the entrance to bring the arc-shaped building into closer relationship with Maybeck's famed colonnade and rotunda—one of San Francisco's most beloved landmarks.

This year, Esherick Homsey Dodge and Davis (EHDD) prevailed over a field of local architects in an ideas competition, where firms described how they would imple-

ment the established master plan. According to jurors, the EHDD team, led by design principal Chuck Davis and project director Karen Fiene, showed a command over programming issues and had a long track record in designing museum and educational facilities.

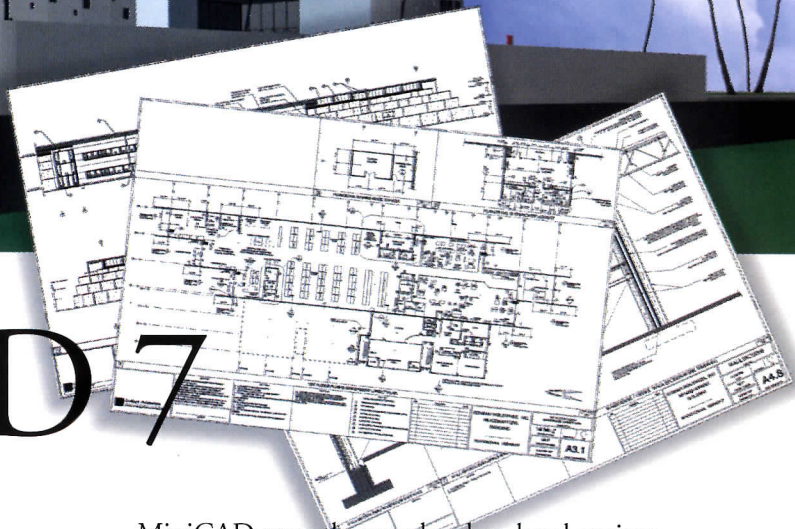
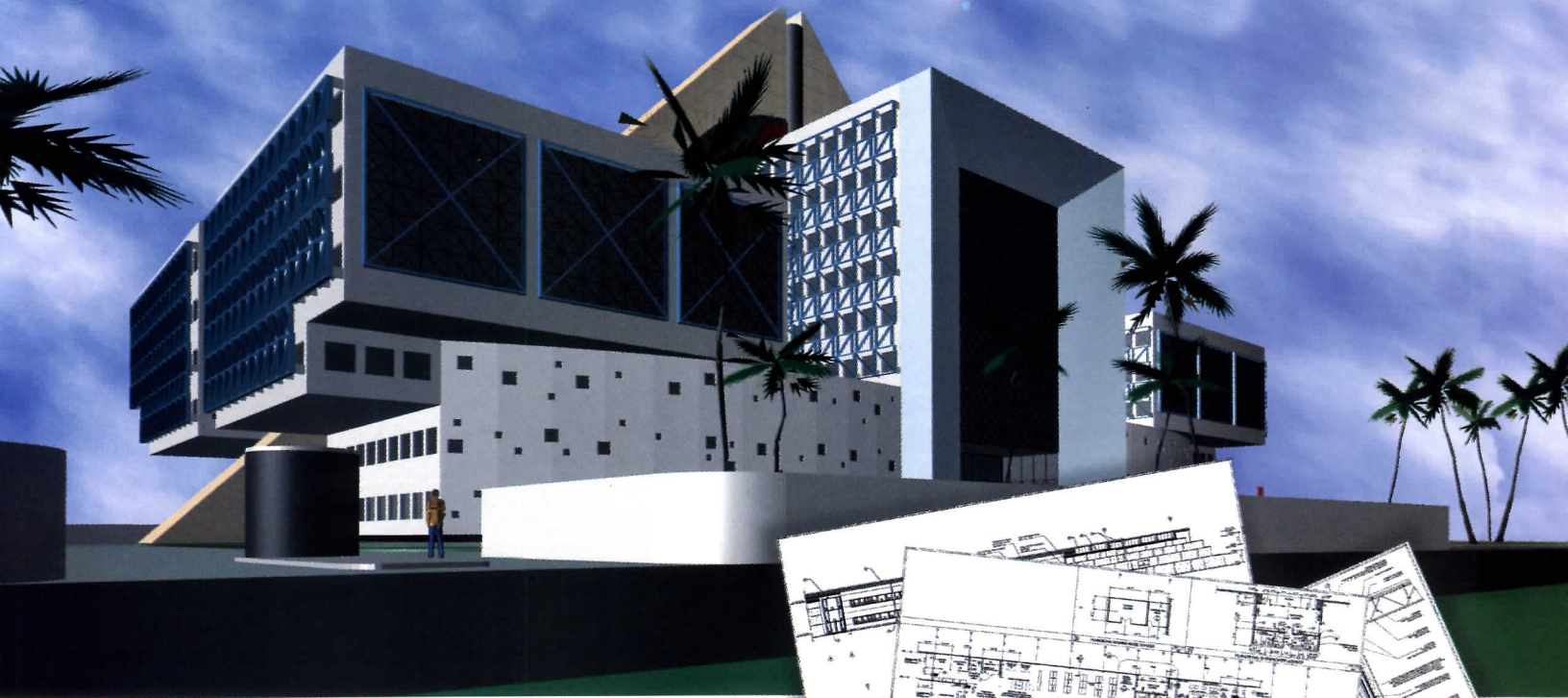
EHDD's proposal (below, part of the interior) calls for restoring parts of the historic facade, connecting the existing site and the Presidio site with a pedestrian bridge, and linking the complex of four experimental theaters.

The jury hopes that EHDD's approach will provide a conceptual superstructure for the museum's often chaotic collection, without destroying its science-fair-meets-fun-house atmosphere. A campaign has been launched to raise the project's estimated \$14 million construction cost. *Eric C.Y. Fang*



ARCHITECTURE, NOT ARCHAEOLOGY Despite Italy's spectacular architectural history, few significant projects have been constructed there in the past three decades. Now Walter Veltroni, Italy's Vice Premier and Minister of Cultural Heritage, is seeking a remedy. Earlier this year Veltroni, along with Paolo Costa, the Minister of Public Works, held a meeting with 93 of Italy's best-known architects to discuss the situation and establish future priorities. Addressing issues of quality and the relationship between modern architecture and historic landscapes, Veltroni expressed a new outlook in a country where publicly funded building projects in the recent past have generally been treated as political patronage. He then nominated two National Landmarks Commissioners to develop and coordinate a series of concrete proposals.

In one instance of the new thinking, legislation requiring two-phase competitions is being considered for commissions of important public works. In Italy, where only about 10 national competitions are held per year (as opposed to 2,000 in France, according to Veltroni), this could help increase design quality. The founding of a museum and archives of 20th-century Italian architecture is also under study. Finally, the creation of an architecture branch within the Ministry for Cultural Heritage—which in the past has managed only the nation's historic patrimony—would strengthen the government's role not only in preservation but in planning the future of the built environment. Architect Vittorio Gregotti, after attending the meeting, stated that new architecture should be "a resource for the preservation of the constructed landscape and its growth. There is no conservation without appropriate development that has at its base a critical dialogue with the existing context." *Ilene Steingut*



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CIRCLE 21 ON INQUIRY CARD

NEWS BRIEFS

Lost and found A competition drawing sketched in 1910 by Ludwig Mies van der Rohe and thought to be lost since the 1920s is now at the Museum of Modern Art. As it turns out, the drawing—done in hopes of a commission to build a monument in Germany—had been in the possession of the family of the architect's brother; it was among a group of works donated by various sources to MoMA's Department of Architecture and Design in April. Curators hadn't been alerted to its significance but soon realized what they had. "This extraordinary work will undoubtedly be a highlight of the Mies exhibition we have scheduled for the year 2000," said Terence Riley, Chief Curator of Architecture and Design.

Designed by accident Gunn Levine Associates knew the subject matter: accidents. So when it reno-



A state of emergency near Detroit.

vated the emergency department at North Oakland Medical Centers in Pontiac, Michigan, the firm used the idea of a collision—objects forcibly coming together and breaking apart. The collision portion of the building is embodied by a sculptural space, with fragments forming the triage, registration, and fast-track areas. According to the architects, the effect acts as a distraction, pushing aside thoughts of discom-

fort. Gunn Levine's work won the nonresidential category in the Gypsum Association's 1997 excellence awards.

Florida in compliance The U.S. Justice Department has certified that Florida's building code complies with federal accessibility requirements under the 1990 Americans with Disabilities Act. With the announcement, Florida joins Texas, Washington, and Maine as having their building codes deemed equivalent to ADA, and Justice officials are encouraging other states to follow suit. Architects, contractors, and owners who comply with a certified state code, such as Florida's, will gain added legal protection if they are sued under the ADA.

On a roll Antoine predock is loading up on commissions. The architect, based in Albuquerque and Los Angeles, has been selected to design a new \$250 million baseball stadium for the San Diego Padres.

He will work in association with Kansas City's HOK Sport, which is pretty busy itself—the firm is working on a design for the new Wembley Stadium in London, an 80,000-seat venue that will go up on the original stadium's site after its demolition. Construction will start in July 1999. In other stadium news, historic Lambeau Field in Wisconsin, home of the Green Bay Packers, is set to undergo extensive improvements and additions under the direction of Ellerbe Becket, whose sports architecture office is also based in Kansas City.

Nordic giant Seattle-based NBBJ, the fifth-largest architecture firm in the world, has won a competition to design the new headquarters of Norwegian telecommunications giant Telenor. The 2.75 million-square-foot project will be the largest office building in Scandinavia, housing 6,000 employees and consolidating 40 Telenor offices into a single complex in Oslo.

PHOTOGRAPHY: © GUNN LEVINE ASSOCIATES

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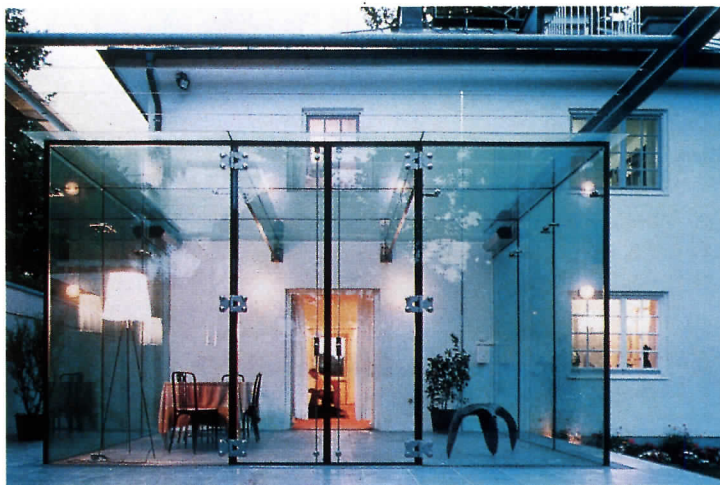
You want to *explore* possibilities others are afraid of.

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Monkey business CLR of Philadelphia, a firm that specializes in zoo design, has agreed to pay \$230,000 to the Vilas Zoo in Madison, Wisconsin, after disgruntled orangutans and chimpanzees caused damage by throwing rocks at windows and dismantling mesh over skylights. Zoo officials said the mesh should have been thicker and the soil free of rocks.

New media The Boston Society of Architects launched a quarterly magazine last month called *Architecture Boston*, with an eye on reaching more than just architects. The magazine is written "in an accessible, jargon-free style," according to the society, and targets anyone interested in the built environment.

Glass acts The 1998 DuPont Benedictus Awards, given annually to architects in recognition of the "significant and enterprising" use of laminated glass, have been



Salzburg's Sailer House.

announced. Jean-Marc Ibos and Myrto Vitart Architects of Paris won in the commercial projects category for the renovation of the Lille Fine Arts Museum in Lille, France. The work was praised for its innovative manipulations of the material's reflective qualities. Meanwhile, Aneta Bulant-Kamenova & Laus Wailzer Architekturstudio of Vienna

took the prize for residences with its conversion and extension of the Sailer House in Salzburg, Austria. The architects were cited for their creation of an integrated space that flowed easily from the outside to the inside.

Gehry's Angels A unique display of modern design is now in residence at the Solomon R. Guggenheim Museum in Manhattan.

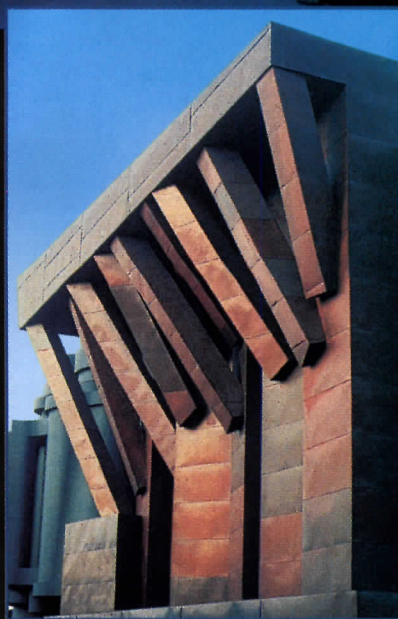
Through September 20, more than 100 motorcycles are featured in an installation devised by Frank O. Gehry, with the bikes placed strategically along the art-filled ramp of the Frank Lloyd Wright building. Gehry's exhibition design, using mostly industrial materials including rubber, raw lumber, and stainless steel, covers the outside parapet walls of the museum's rotunda with sheets of mirror-finish stainless steel. "The Art of the Motorcycle"—meant to recognize an American icon for its design and technical achievement—will travel to Chicago's Field Museum of Natural History in November, and on to the Guggenheim in Bilbao, Spain, in 1999.

Stein honored Karen Stein, Managing Senior Editor of ARCHITECTURAL RECORD, was given a special citation last month by the AIA New York Chapter for "distinguished work and service to the profession." Stein has been at RECORD for 14 years. ■

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Architect: Frank O. Gehry & Associates

CIRCLE 22 ON INQUIRY CARD



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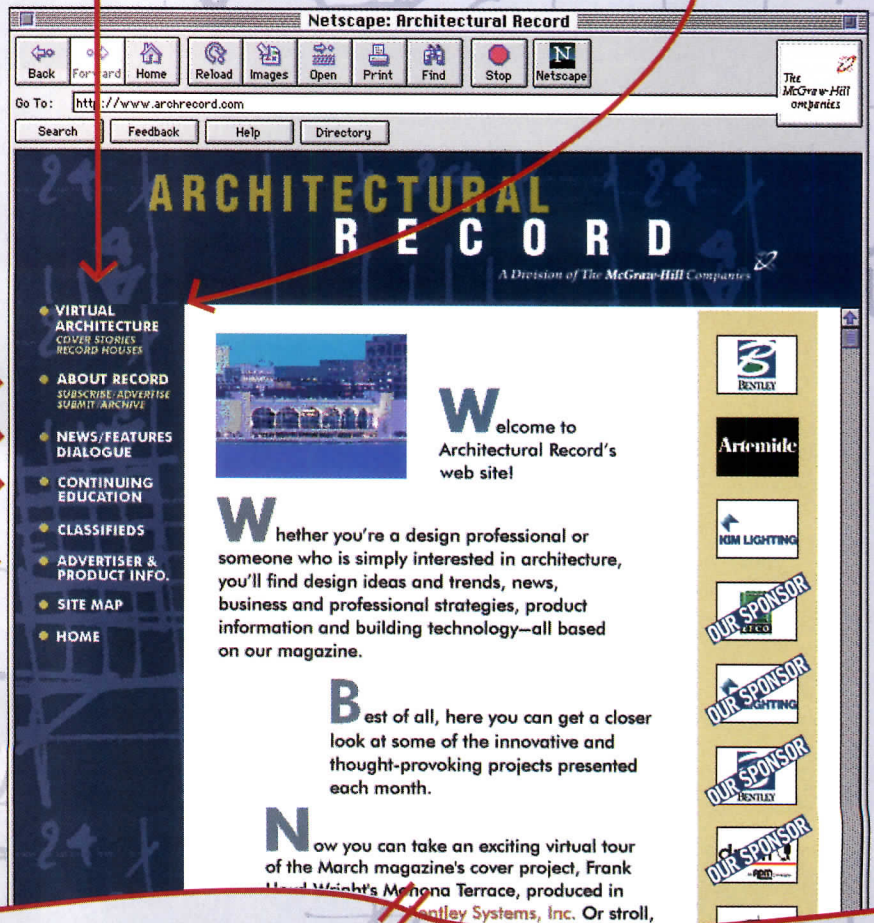
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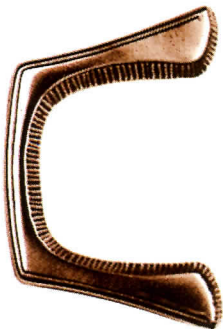
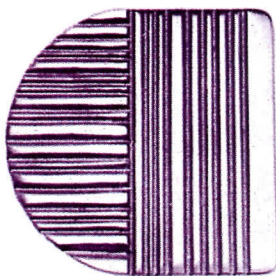
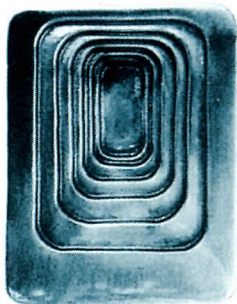
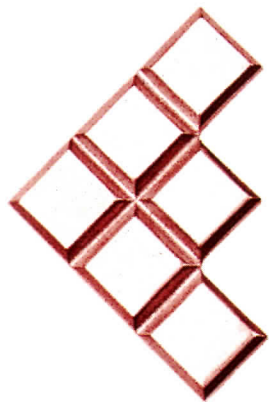


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CIRCLE 23 ON INQUIRY CARD

DATESEVENTS

Calendar

Changing Places: Looking at Southampton**Southampton, New York***Through July 12*

Paintings, maps, plans, and photographs document Southampton sites and how they have changed over time. The show explores issues of village planning, land use, historic preservation, and demographic change. Parrish Art Museum. 516/283-2118.

The City as Memory: International Sculpture Chicago*Through July 12*

Sculpture and other artworks created by artists from Europe, Asia, and North and South America. Chicago Athenaeum Museum of Architecture and Design. 312/251-0176.

Architecture of Independence: Making of Modern South Asia Pittsburgh*Through July 19*

The work of four South Asian architects—Charles Correa, Achyut Kanvinde, Balkrishna Doshi, and Muzharul Islam—is included in this traveling exhibition. Heinz Architectural Center, Carnegie Museum of Art. 412/622-3131.

A New Campus Center: The IIT Competition Results Chicago*Through July 25*

A show of materials submitted by the five finalists in the competition to build a new campus center for the academic complex designed largely by Mies van der Rohe. The exhibition includes work by Peter Eisenman, Zaha Hadid, Helmut Jahn, Kazuyo Sejima and Ryue Nishizawa, and Rem Koolhaas, who won the commission for the campus center. Art Institute of Chicago. 312/443-3600.

American Architecture Awards Chicago*Through August 16*

An exhibition of the 15 winners of this first annual installment of awards for new American projects. Chicago Athenaeum Museum of Architecture and Design. 312/251-0176.

Landmarks of New York New York City*Through August 23*

An exhibition of historical photographs marking the hundredth anniversary of New York City, accompanied by a symposium, walking tours, and panel discussions. New-York Historical Society. 212/873-3400.

The Inflatable Moment: Pneumatics and Protest in '68 New York City*Through August 29*

An exhibition focusing on the French architects and activists Utopie. Also on display are models by Archigram, Frei Otto, Gernot Nalbach, and Coop Himmelblau, as well as structural fragments of built pneumatic projects. Architectural League of New York. 212/753-1722.

Cities on the Move 2 Bordeaux, France*Through August 30*

This collaborative exhibition put together by artists, architects, filmmakers, and other “creators” explores the shapes and forms of Asian cities. Musée d'Art Contemporain. Call 011/33/05/56-52-78-36 or E-mail capc@mairie-bordeaux.fr for details.

Forma Italia Chicago*Through September 6*

An exhibition of Italian furniture, lighting, and industrial design from the permanent collection of the Chicago Athenaeum Museum of Architecture and Design, as well as several new pieces that were intro-

duced in April at Milan's Salone del Mobile. Chicago Athenaeum Museum. 312/251-0176.

The Architecture of Graham, Anderson, Probst & White Chicago*Through September 6*

On exhibit is the work of this venerable Chicago firm, a leader in the development of “commercial classicism.” The projects on view, from 1912 to 1936, include such landmarks as the Merchandise Mart, the Civic Opera House, the Wrigley Building, Chicago Union Station, and the Shedd Aquarium. Chicago Architecture Foundation. 312/922-3432.

Japan 2000: Design for the Japanese Public Chicago*Through September 7*

An exhibition of recent winners of Japan's G-Mark, an annual awards program sponsored by the government, which promotes good design. On display are such winning products as Casio G-Shock watches, Yamaha bicycles, and mini automobiles. Art Institute of Chicago. 312/443-3600.

National Design Triennial New York City*Through September 12*

A survey of developments in contemporary design, investigating how issues and ideas drive design practices in America. Cooper-Hewitt National Design Museum. 212/849-8300.

Completing the Federal Triangle Washington, D.C.*Through September 27*

An exhibition documenting the development of the Ronald Reagan Building and International Trade Center on Pennsylvania Avenue, starting from a design competition in 1989 and culminating with the building's recent completion. The winning design was by Pei Cobb Freed & Partners in association with Ellerbe Becket (see article beginning

on page 58). National Building Museum. 202/272-2448.

Shifting Gears: In Pursuit of a Greener City Toronto*Through September 27*

An exhibition proposing urban design strategies for reducing carbon dioxide emissions. Design Exchange. 416/216-2145.

Fountains: Splash and Spectacle New York City*Through October 11*

This exhibition elucidates the role of European and American fountains—and water as a design force—in defining urban space, with examples ranging from the Renaissance to the present. Cooper-Hewitt National Design Museum. 212/849-8300.

Frank Lloyd Wright and the Living City Weil am Rhein, Germany*Through October 11*

An exhibition of Wright's schemes for Broadacre City, which attempted to erase the dichotomy between city and country. This is the most comprehensive exhibition in Europe of Wright's work to date. Vitra Design Museum. For more information, call 011/49/7621/702-33-51 or visit www.design-museum.de.

The Design and Building of Girard College Philadelphia*Through October 23*

Surviving entries in the 1832 design competition for the college, the first architecture competition to attract nationwide attention, will be on display, as well as drawings of the construction of the winning entry, completed in 1848. Founder's Hall. 215/787-2601.

Under the Sun: An Outdoor Exhibition of Light New York City*Through October 25*

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and commissioned designs. Cooper-Hewitt National Design Museum. 212/849-8300.

New Ways of Revitalizing the American City Washington, D.C.

Through January 3, 1999

An exhibition illustrating how new cultural facilities have enlivened tired downtowns in Phoenix; Cincinnati; Fort Worth; Newark, New Jersey; San Jose, California; and Kansas City, Missouri. National Building Museum. 202/272-2448.

Bechtel's First Century Washington, D.C.

Through January 4, 1999

A portfolio of projects by the San Francisco-based Bechtel Group, one of the world's largest engineering and construction firms. Highlighted "megaprojects" include the Hoover Dam, the Marinship shipyard, San Francisco's rapid transit system, and the Channel Tunnel. National Building Museum. 202/272-2448.

Tony Smith Retrospective New York City

July 2–September 22

Works by the architect and artist, who trained under Frank Lloyd Wright and designed houses before turning to painting and sculpture. Several of Smith's monumental sculptural works will be installed at public sites throughout Manhattan. Museum of Modern Art. 212/708-9400.

Do Normal: Recent Dutch Design San Francisco

July 17–October 20

This exhibition of works by Dutch designers focuses on the centuries-old design consciousness that pervades every aspect of the country's culture. San Francisco Museum of Modern Art. 415/357-4000.

Toward Tomorrow Festival Westfield, Massachusetts

July 23–26

A festival combining the Quality Building Conference, showcasing energy-efficient construction; the Timber Framers Guild of North America's eastern conference; Renew '98, focusing on market successes with renewable energy; and the Solar-Powered Music and Educational Festival. Call 413/774-6051 or visit www.nesea.org for details.

National Society of Professional Engineers Annual Convention

Tulsa

July 23–28

This year's convention features "professional

edge" sessions, practice committee meetings, and the engineering expo of new products and services. So what's different? Astronaut Shannon Lucid will be in attendance. Register on-line at www.nspe.org or call 703/684-2849.

Robert Adam: The Creative Mind Washington, D.C.

July 24–January 3, 1999

An exhibition of the work of the 18th-century Scottish architect, demonstrating the process of design from conception to final presentation. The Octagon. 202/638-3105

alt.office Conference and Expo San Jose, California

August 12–14

The premier national event focusing on alternative work processes from the combined perspective of people, technology, and the environment. Among the speakers at general sessions will be Kevin Kelly of *Wired* magazine and William McDonough, dean of the University of Virginia School of Architecture and a practitioner of sustainable design. McEnery Convention Center. For more information, visit www.altoffice.com.

DOCOMOMO Conference Stockholm

September 16–18

This year's conference of the International Working Party for the Documentation and Conservation of Buildings, Sites, and Neighborhoods of the Modern Movement focuses on the social aspects of modern architecture and urban planning. An international docket of speakers will be presenting papers. Swedish Museum of Architecture. E-mail marina.botta@arkitekturmuseet.se for more information.

Competitions

Religious Art and Architecture Design Awards

Submission deadline: July 24

Faith & Form magazine and the Interfaith Forum on Religion, Art, and Architecture are sponsoring three competitions under the categories of religious architecture, liturgical/interior design, and religious arts. Projects must have been completed since January 1, 1993. Contact *Faith & Form* at 919/489-3359 for an entry form.

Interpane Glass Scholarship

Submission deadline: July 31

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(continued on page 135)

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LISTENING TO:

Clients

WHAT DO THEY THINK OF ARCHITECTS?

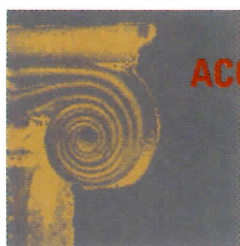
by Andrea Oppenheimer Dean

Perhaps nothing affects an architect's career more profoundly or is more deeply irritating to a client than the inability to achieve mutual trust. For the client it results in unnecessary design and construction problems; for the designer it can spell failure.

Maybe that is why the roundtable of architectural clients convened by ARCHITECTURAL RECORD last April in Atlanta kept spiraling back to issues surrounding the client-architect relationship: How has it changed in recent years? What are the most valuable abilities the architect can bring to it? What are the most frequent causes for its rough periods and breakdowns? How can it be improved? One of the panel's most striking revelations was that clients in all sectors of the economy are increasingly hiring in-house architects to plan, manage, and coordinate their building efforts. For many architects this has meant changed expectations on the clients' part, in terms of the services they need and the manner in which they want them carried out.

In fact, four of the 10 client panelists were also architects: Daniel

Sniff (4 in photos opposite), director of planning, University of Georgia; J. Bradley Satterfield (9), AIA, director of campus architecture, Georgia Institute of Technology; Charles Andrews (5), assistant vice president for space planning and construction, Emory University; and Ken Gwinner, AIA (3), vice president for planning, architecture, and construction, Turner Broadcasting. Also representing the corporate sector was Joyce LaValle, president and CEO of Prince Street Technologies (10), in Cartersville, Georgia. Two Atlanta developers participated: Grant Grimes (2), president of the real estate company Ackerman & Co., and Earnest M. Curtis III (7), vice president of Carter Healthcare Facilities. There were also three government clients: John R. Butler Jr. (11), acting director of the construction division of the Georgia State Financing and Investment Commission; Carol J. Stewart (8), director of library services for Clayton County, Georgia; and Charles Pete Wood (6), a councilman from Smyrna, Georgia. The panel was moderated by Robert Ivy (1), FAIA, editor-in-chief of RECORD.



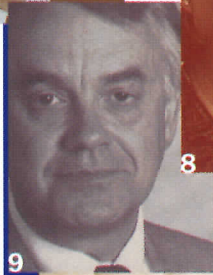
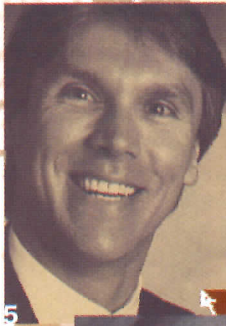
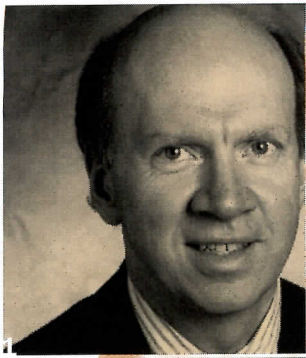
ACCORDING TO OUR PANEL, CLIENTS IN ALL SECTORS OF THE ECONOMY ARE INCREASINGLY HIRING IN-HOUSE ARCHITECTS TO COORDINATE THEIR BUILDING EFFORTS.

Let's begin with the good news: Joyce LaValle, for one, confirmed that architects can benefit their clients in unexpected ways. She recounted taking the helm at Prince Street Technologies in 1995, when the floor-coverings manufacturer was, she said, "in deep trouble." After acquainting themselves with every aspect of the business and its problems, the Atlanta firm of Thompson Ventulett and Stainback (TVS) helped LaValle reevaluate her company and forge a more productive marketing strategy. TVS architects persuaded her, she said, to create a new building that would exhibit the company's products and its benevolent attitude as an employer. As evidence of Prince Street's egalitarianism, the architects created a fully open office plan that brings views of the outdoors and natural light even to the least prestigious clerk and makes manufacturing spaces visible from the office area [see RECORD, December 1996, page 44]. The message, said LaValle, is that "we're all in this

together; there is respect for everyone." The architects also persuaded LaValle to incorporate "environmentally responsible" features, and they convinced her to redirect advertising dollars to bring prospective customers to see the building. Her experience with TVS, LaValle said, made her "a strong advocate of the idea that how [good] the building is often reflects how [good] the business is" and showed her that "really good architects can bring benefits you never expected."

Equally enthusiastic, though for different reasons, was Carol Stewart, Clayton County's Director of Library Services. When she selected Atlanta's Scogin Elam and Bray Architects to design the first of three new county libraries in 1985, Stewart was an inexperienced client and only 36

Andrea Oppenheimer Dean (12 in photos opposite) is a contributing editor of ARCHITECTURAL RECORD and is based in Washington, D.C.





“WHEN THE ARCHITECT STOPS LISTENING, IT ALL BEGINS TO CRASH AND BURN.”

—Daniel Sniff

years old, but she had strong convictions about design. Maybe it was growing up near the Frank Lloyd Wright–designed Florida Southern University, she said, that convinced her she wanted “something unique and wonderful.” She is certain, 15 years later, that Clayton County’s award-winning libraries have lifted the predominantly blue-collar citizenry’s opinion of libraries and of itself [RECORD, May 1992, page 86].

The University of Georgia’s Daniel Sniff recounted a range of experiences. He credited Ayers/Gross/St. John of Baltimore, which created and implemented a new master plan for his university, with challenging him and his staff to redirect their thinking about campus planning and design “to where the emphasis is on memorable people spaces.” But Sniff faulted other architects for their deaf ear to clients’ needs and their arrogance. No complaint was echoed more frequently during the morning’s proceedings or in follow-up telephone conversations. “We know our systems and our campus and our infrastructure, but for some reason architects don’t believe us,” said Emory University’s Charles Andrews. “When the architect stops listening and begins to think that he knows more than we do about laboratory design, for example, it all begins to crash and burn.”

Another frequent source of frustration, said John Butler, who heads the construction division of Georgia’s State Financing and Investment Commission, is with “constructibility problems.” He testified to buildings in which “the actual details don’t go together” and lamented that too few designers have up-to-date knowledge about materials. Many architects don’t realize, he said, “that today’s concrete block is a different material than it was 10 years ago.” What he needs, he continued, and gets too infrequently is architects who are able and willing to answer his questions quickly and completely and can make decisions rapidly. Too often, he said, architects “just defend their position, defending, defending, defending, until all of a sudden it’s too late to easily correct the problem.”

Also singled out was specifications writing. When asked about its importance, whether it remains the job of architects, and how well they carry it out, the panelists agreed: specs are vital and architects are usually in charge, but many do the job carelessly and incompletely. Several clients complained of being presented with boilerplate rather than specifications tailored to the particular project.

Similarly problematic, said Butler, is a tendency among architects to install systems that are up-to-the-minute but too complex for his operations and maintenance staff. Stewart related how her relatively unsophisticated county maintenance people “simply tore new-fangled electronic thermostats off new library buildings. You put some high-tech gizmo on a building, and your staff says, ‘Wot is thayat,’” the library director drawled. By the time she began work on Clayton County’s third new library, she insisted that the workers charged with the building’s upkeep approve its systems before installation. “The level of technology should not exceed the ability of the building’s caretakers to deal with them,” she concluded.

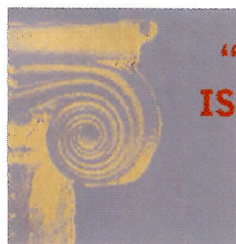
Ken Gwinner, frustrated with architects who don’t know his company well enough and are unwilling to take responsibility for their decisions and for completing projects on time and on budget, says he has “brought more and more people in-house who have the capabilities we

need. We now tend to think of the outside architect as one of the players, but not *the* player.” Gwinner explained that he, as an architect, and his staff do a lot of planning and feasibility studies. “Only when the time is right do we bring in the architect,” he said. “That’s certainly not the way it used to be, but I think a lot of corporations moved to this method because they weren’t getting what they needed. When you hire architects who work for the company, they [need to] know what the corporation’s perspective and culture is.”

Carter Healthcare’s Earnest Curtis, who also has an in-house staff, insisted that “most architects are not close enough to the specific market to be able to fully interpret it or have never been in a position to be helpfully accountable. Owners and users are always accountable for the end product.” Like Turner Broadcasting and Carter Healthcare, which employ architects who serve as clients, Prince Street has recently hired an in-house designer. The majority of employees who deal with construction at Ackerman & Co. have an architectural background, according to Grant Grimes. At Georgia Tech, reported J. Bradley Satterfield, because funding and contracting requirements necessitate separating design and construction services, an in-house professional group has assumed the role of coordinator. And when Butler was asked whether he relies on architecture firms to coordinate state construction projects, he replied, “definitely not.” In fact, nearly all the panelists reported taking an increasingly active role in design and construction.

Surprisingly, perhaps, corporations’ and institutions’ use of in-house architects can depress architects’ fees. Grimes pointed out that when architects are brought in to function as clients, “they’re going to do everything to bring down the fees of the outside firm. It’s a competitive thing,” he said. “They figure, ‘I’ll do the conceptual work, and I’ll only need the outside firm to draft the documents.’” Yet all the panelists agreed that architects are underpaid but held out little hope for a significant change. Because architects have a low opinion of the services they provide, “we don’t value their services enough,” said Satterfield. When architects are willing to accept low fees, that’s what they get, he said. Together with other panelists, he urged designers to begin fee negotiations early rather than saving their protests until late in the job. Butler told how the State of Georgia is trying to provide more equitable compensation by replacing the standard percentage of costs with a lump sum settlement, arrived at through negotiations that begin by establishing a percentage of costs.

What capabilities or qualities do clients who have in-house



“HOW GOOD THE BUILDING IS OFTEN REFLECTS HOW GOOD THE BUSINESS IS.”

—Joyce LaValle

architects value most in the architectural firms they hire? LaValle, Sniff, and Gwinner stressed how important it is for the architects they commission to thoroughly familiarize themselves with the client’s company. Listen to us, Andrews emphasized. Satterfield elaborated, “It all begins with good programming, during which you form an ethic of dialogue.” Several clients reported that they are increasingly using outside architects in new roles. Satterfield, for example, described having asked a designer “to come in and look at the economic feasibility and the program, show us two or three options, and lobby various constituencies for approval.” At other times he expected an architect to meet with Georgia Tech’s

president or senior executives and “bring an objective eye to such highly political decisions as siting a building.” In LaValle’s opinion it makes perfect sense for a profession that is trained in problem-solving techniques to assume such new roles as figuring out new business strategies for a client.

But the architect’s trump card is the ability to design, and several panelists remarked on the magical transformation of a blank sheet of paper into architecture. “That’s a pretty phenomenal accomplishment; there are so many variables,” said Satterfield. How important did these clients consider design to be? Surveys made by his university, said Sniff,



**“WE DON’T VALUE
THE SERVICES OF
ARCHITECTS ENOUGH.”**

—*J. Bradley Satterfield*

show that the look and feel of a campus and its grounds ranks fourth among reasons given by students for choosing a college or university. “Aesthetics,” he said, “are very important.” Butler said his office was prohibited from approving designs that fail to blend with their surroundings, and Grimes explained that his real estate company insists on buildings also “adding something that raises the standard.” Both Butler and Stewart, however, mentioned the public’s misconstrued view that if it looks good, it must be too expensive. “Good design,” insisted Sniff, “is not driven by dollars and cents.” As examples he cited Clayton County’s libraries, which were built for \$68 per square foot.

What about the hiring process? How do these clients acquire their architects? “Doing health-care facilities, nine times out of 10, we deal with an architect we’ve worked with before,” said Curtis. If he hires a new firm he insists that it affiliate with a more experienced one. None of the panelists recommended or used a fee-based selection process. “It doesn’t work,” said Curtis. Sniff too hires on the basis of qualifications but likes to have a broad knowledge about designers he’s considering, “because their having done 10 buildings just like ours doesn’t mean we’ll give them the job.” Before making a decision, he calls former clients to ask whether the firm carried out its work on budget and on schedule, whether it solved the client’s problems, whether it solved them in an innovative way, and whether the architects were good listeners. Andrews told of similarly making selections based on a review of qualifications and recommendations, of proceeding from a long list to a short list and then to interviews. In most cases, Andrews said, he prefers local architects, as do most of the panelists; they hire national firms only if the firms have a local office. “To a large extent the architects are our technical eyes and ears to find out what’s been drawn and agreed to and what’s being built,” said Grimes. “It doesn’t work if they come from out of town.”

And although large firms are winning an increasingly large share of architectural commissions nationwide, the Atlanta-area clients reported hiring firms of every size, using smaller firms, for instance, for renovations, interiors, and showrooms. More important than size, said several panelists, is a firm’s ability to respond quickly and well and to provide continuous service. They agreed that, in most cases, the larger the firm, the less chance that a principal will be involved—which all of the panelists considered important—and the higher the odds of having more than one project architect over the life of a long project. “That’s a distinct disadvantage to us,” said Sniff, who has found that as management turnover increases, so does the number of legal problems.

The advantages to the client of having the uninterrupted attention of a single architectural firm were underscored by Pete Wood, the city councilman from Smyrna. In 1985 the town of 35,000 set out to build a new downtown and hired Sizemore Floyd Architects, Inc. of Atlanta to create a master plan and implement it in phases, completing a community center, a library, and a village green in 1991, a city hall and municipal court building in 1996, and a police facility in 1997. Unlike most of the other Atlanta-area clients, the city counted on the architect for construction supervision. “They’ve been there, they’ve been consistent, and they’ve kept us informed. We’ve counted on them to tell us what the problem areas are and where we are on budget,” Wood said. He relied on his architects’ ability to work with a variety of committees and with neighborhood, special interest, and nonprofit organizations, and he was especially pleased when the designers went beyond their traditional duties. For instance, he said, they represented the city in meetings with private downtown developers to make sure their designs were suitable, and they undertook a search for retailers “who would be compatible with a pedestrian-friendly, family-oriented downtown.”

When the panelists were asked how many of them relied on a traditional design-bid-build method, six raised their hands. Among those using alternative approaches was Curtis, whose company brings the contractor in as part of the design discussion to “find ways to reduce design costs.” He was not alone in preferring fast-track or design-build because it’s “more owner-involved and more of a team approach.”

Paradoxically, although a majority of the Atlanta panelists stressed that architects’ roles and responsibilities are shrinking, the most enthusiastic clients were those who relied fully on their architect to design and deliver all aspects of a project: Pete Wood; Carol Stewart, for whom Scogin Elam and Bray designed all three Clayton County libraries; and Joyce LaValle, for whom TVS created Prince Street’s headquarters and a plant. In the end, all the participants agreed that architects should supervise construction and that “if they want to continue in the profession and keep their reputation, they have got to accept some responsibility for what they do,” as Butler said. That doesn’t eliminate the need for an owner’s representative on site, pointed out corporate clients Earnest Curtis and Ken Gwinner, both of whom are convinced that only an insider will have the information and authority to make rapid, credible decisions.

A final question to the panel: Was there a message that they



**“DO WHAT YOU DO BEST.
FOCUS ON YOUR
CORE COMPETENCIES.”**

—*Earnest M. Curtis III*

wanted to impress upon the architectural profession? There were several. “Do what you do best. Focus on your core competencies of programming, design, and construction,” counseled Curtis. “Get things set up with everyone working as a team up front during programming and be receptive to ideas that may not include the latest widget,” said Grimes. LaValle stressed that “every other industry in America” has gone through a process of reevaluating and revamping the way they do business: “I wonder if the construction process doesn’t have to be taken apart and put back together again, rethought altogether.” In the end, Andrews spoke for everyone when he said, “Listen. Listen. Listen better. Understand the client’s culture. Get immersed in what we do, who we are.” ■

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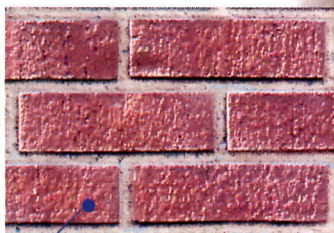
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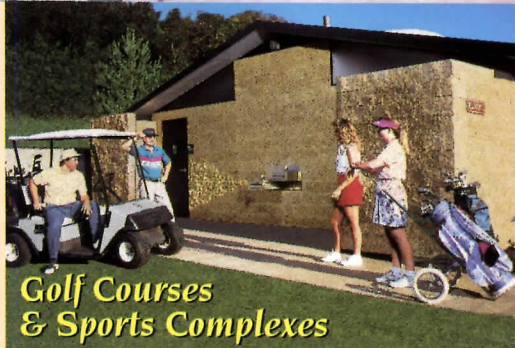
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A porticoed entrance leads to the atrium of the Reagan Building. Behind the curving facade (left in photo) is the Wilson International Center.



PROJECT DIARY: After 11 years of struggle, the RONALD REAGAN BUILDING offers lessons in working with multiple clients and design/build.



by James S. Russell, AIA

James Freed is neither a Postmodernist nor a historicist. Best known for such muscular modern buildings as the Los Angeles convention center and Boston's John Hancock Place, Freed, a partner at Pei Cobb Freed & Partners, has found himself in the anomalous position of reinterpreting Washington, D.C.'s legacy of Beaux Arts Classicism on two of the city's key sites. The first was the U.S. Holocaust Memorial Museum [RECORD, July 1993, page 57], which proved a triumph. The jury is still out on the second, the Ronald Reagan Building and International Trade Center, which opened in early May.

The Reagan Building's inception in the 1980s coincided with a nationwide debate on the role of government. The project became a lightning rod: Detractors saw it as a temple to big government and a tax-and-spend boondoggle. Advocates saw it as a model of efficient procurement and innovative public/private partnership. That these competing visions never came to terms was key to the building's tortuous 11-year gestation, with delay-driven costs that are still the subject of debate.

A 1980s-style marriage of convenience

After decades of failed attempts, the 1980s brought successful revitalization to the north side of Pennsylvania Avenue. America could again be proud of the nation's formerly tattered Main Street. So the late 1980s seemed an auspicious moment to consider completion of the Federal Triangle, the nexus of governmental Washington, on the south side of the avenue. Designed by such blue-chip firms as John Russell Pope;

A rotunda marks the 90-degree angle made to recognize the diagonal of Pennsylvania Avenue (foreground).

Zantzinger, Borie, and Medary; and Delano and Aldrich, the 12-building Federal Triangle formed the most fully realized collection of Beaux Arts structures in Washington. Most of them were built between 1927 and 1938 as massive pedimented and pilastered limestone edifices housing various federal agencies. An 11-acre gap, long used as a parking lot, remained within this 70-acre assemblage. Only a fountain stood as a vestige of the grand formal plaza planned in the 1920s for the site.

By 1987 an unlikely alliance had formed to complete the Federal Triangle. The site appealed to Kenneth R. Sparks, a key figure in the Federal City Council, a powerful civic group, who thought the city needed an international trade center to spur private-sector growth in Washington by increasing its international presence and visibility. Terence C. Golden, then administrator of the General Services Administration, thought that federal agencies were scattered over too many locations and paying too much rent. Senator Daniel Patrick Moynihan got involved because he believed that an inviting civic building could encourage further redevelopment in the area. The men envisioned the Federal Triangle Project, as it was called then, to include an international trade center with spaces for exhibits, restaurants, and banquets; several performing arts venues to expose Washingtonians to culture from the world over and to attract after-dark use to downtown; and 1.1 million square feet of office space for consolidating government agencies.

In approving the project in 1987, Congress put it under the auspices of the semiprivate Pennsylvania Avenue Development Corporation

Project: Ronald Reagan Building and International Trade Center, Washington, D.C.

Architects: Pei Cobb Freed & Partners Architects/Ellerbe Becket Architects & Engineers—James Ingo Freed, FAIA, Werner Wandelmaier, FAIA, Michael Flynn, AIA, Craig Dumas, AIA, Beatrice Lehman, AIA, Charles Young, AIA, Roy Barris, AIA, Alissa Bucher, AIA, David Tobin, AIA, Steven Derasmo, Michael Vissichelli, AIA, Ivan Kreitman, AIA, Richard Smith, Anne Lewison, AIA (Pei Cobb Freed);

Rick Lincicome, AIA, W. Everett Medling, AIA, John Moyer, AIA, Kathleen Alberding, Bradford Cary, Christopher Sasiadek, Darrell Acree, Margaret Flinner, AIA, Charles Franklin, Tony Ramis, Darwin Larson, Ron Runnion (Ellerbe Becket)

Engineers: Weiskopf & Pickworth (structural); Ellerbe Becket (MEP)

Consultants: Fisher Marantz Renfro Stone (lighting); Benjamin Thompson & Associates and Greenwell Goetz (trade center interiors)

Construction Manager: Perini Corp.

WWW On The Web: Take a virtual tour of this project at www.archrecord.com.





The diagonal of the east elevation (middle) is interrupted by a rotunda and culminates in a plaza (left) that extends the Rios Building's hemicycle. Freed made the long 14th Street elevation (bottom) concave but peeled away the edges to make it less formidable. The rusticated base and tripartite facade help disguise the nine floors.



(PADC), with the General Services Administration (GSA) and the newly formed International Cultural and Trade Center Commission (ICTC) as partners. The project team was to be selected by a qualifications process and a design/build competition. Each team would include a developer (to manage the project and front the money for it), a set of designers, and a construction manager. In 1989, Pei Cobb Freed was asked to join a team put together by the Delta Group developers, which included people with whom Freed had worked on the Holocaust Memorial. Pei Cobb Freed would be design architect, while Ellerbe Becket would handle most of the construction documents and construction-phase work. The lead architects for the other teams were Kohn Pedersen Fox; Skidmore, Owings & Merrill; Michael Graves; Hellmuth, Obata & Kassabaum; Harry Weese and Associates; and Hardy Holzman Pfeiffer Associates.

As competing teams looked over the request for proposals, they might have noticed that the project involved three separate programs, each huge, complex, and little fleshed-out; that the client was three-headed; and that public-private design/build project delivery had no precedent for a project of such complexity. If Freed had doubts about the process, they were overcome by the appealing program, with its “energetic, exciting, and inventive” mix of functions and urbanistic potential.

Devising a design approach

Freed began by analyzing the intimidating site, an awkward L shape. The surrounding buildings were not only massive, they had been finished in an era when full-thickness, carved-limestone walls could be built for a relative song. Their consistent cornice lines asked to be extended; the enormous neoclassical hemicycle of the adjacent Ariel Rios Building demanded completion. And Congress had made clear what it wanted: a

FREED DIDN'T WANT A BUILDING THAT WOULD LOOK FAKE, “OUT OF OUR TIME.”

project that “should represent the dignity and stability of the federal government” and “reflect the symbolic importance and historic character of Pennsylvania Avenue and the nation’s capital.” Freed’s inclination, however, was not to replicate the existing buildings’ monumental detailing: “It would have looked fake to me, out of our time,” he explains. A fully modern building, on the other hand—a contrasting rather than contextual approach—would have, he says, “smashed” the consistent unity that was the Triangle assemblage’s primary strength. *(text continues)*



THE LONG AND WINDING ROAD TO FINISH THE FEDERAL TRIANGLE

1920s

The District of Columbia's Fine Arts Commission is asked to develop a plan to provide badly needed office space for several federal agencies on a triangular tract south of Pennsylvania Avenue and east of the Ellipse that fronts the White House. In 1927 architect William Adams Delano proposes a grand scheme of nine buildings inspired by Paris's Louvre and Tuileries gardens. The vast frontages envisioned (the federal complex was almost twice as large as its inspiration) were to be broken up by monumental passageways and planted courtyards. Decades later James Freed would place his Pennsylvania Avenue rotunda where one such passage was planned. The hemicycle of what would eventually be named the Ariel Rios Building faced a proposed grand plaza that would stretch a block and a half to the 14th Street facade of what would become the Department of Commerce Building. The plan is approved, and work begins on the Commerce Building.

1930s

Most of the master plan is built out, including buildings for the Department of Justice, the National

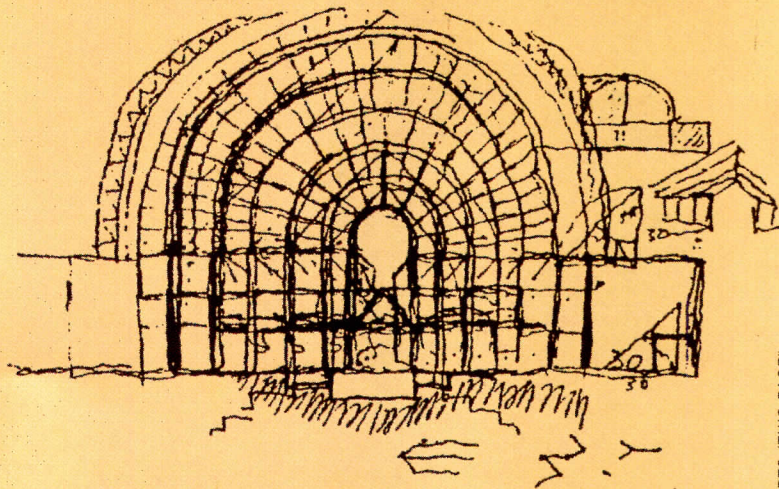
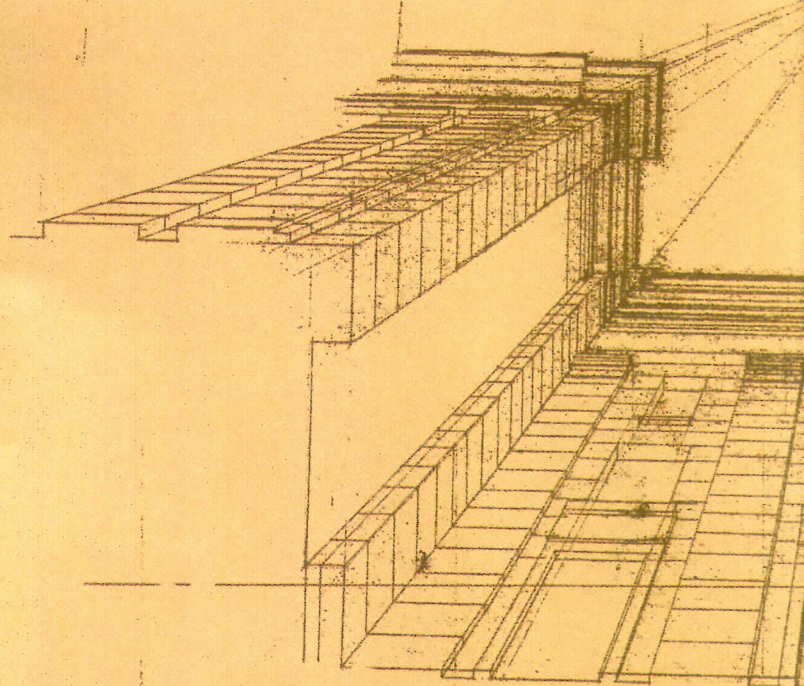
Archives, the Federal Trade Commission, the Internal Revenue Service, the Post Office, the Interstate Commerce Commission, and the Department of Labor. Except for the Oscar S. Straus Memorial Fountain (John Russell Pope, architect, and Adolph A. Weinman, sculptor), the Grand Plaza falls victim to lack of funds during the Great Depression. Its strategically located site becomes a vast parking lot.

1986

Kenneth R. Sparks, a trade-center advocate, and Terence C. Golden, administrator of the General Services Administration (GSA), agree that a combined international trade center and federal office building would be an ideal use of the vacant parcel in the Federal Triangle.

1987

Sen. Daniel Patrick Moynihan of New York, who regards the project as worthy of the Federal Triangle location, agrees to shepherd it through the Senate via the subcommittee on federal construction, of which he is a powerful member. President Ronald Reagan signs the

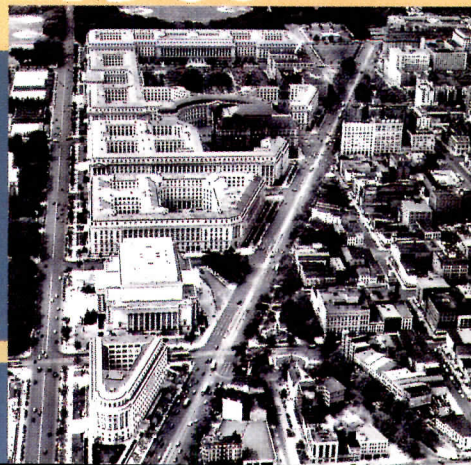


1920s

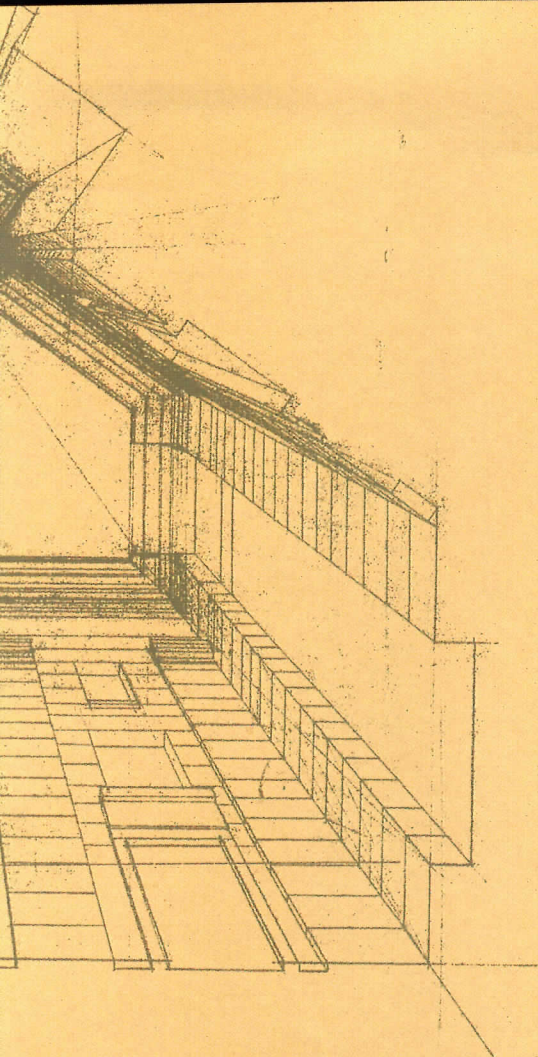


Model of the Grand Plaza that never got built.

1930s



Aerial view of the Federal Triangle.



agency, is put in charge, with GSA as its partner. A master plan is drawn up that includes what is called the International Cultural and Trade Center (ICTC), with 500,000 square feet of trade-related businesses, as well as exhibit space with a large-screen theater, a communications center that would use high-technology means to tie various countries together, four theaters for performing arts, and internationally oriented retail and dining. The project includes 1.1 million square feet to permit consolidation of several government agencies. GSA recommends placing Justice Department offices in the building because the department's headquarters are nearby. The commission charged with running the trade center balks, asking for trade-related agencies. The total proposed size is 2.7 million square feet, and the cost estimate at the time the request for proposals goes out to prospective design/build teams is \$461 million.

strength of the team, even though it offers the highest bid at \$747 million. The project has grown to 3.1 million square feet. The team changes its name to Federal Triangle Corporation and agrees to project trims to bring the budget to \$738 million.

1990

Saratoga Development, the low bidder in the 1989 competition, sues, claiming the award was improperly made. Meanwhile, a development agreement is signed based on the \$738 million estimate. Richard G. Austin takes over at GSA and demands cuts, while the trade center commissioners and others defend a well-finished, well-equipped building befitting the prominent location and prestigious mission. Austin proposes that the Federal Financing Bank lend funds to the project, which would considerably reduce financing costs. PADC requests a \$738 million line of credit from the bank, which it receives. Austin wins \$82 million in cuts, and the project cost drops to \$656 million.

1991

A report by the Office of Management and Budget (OMB) says that the Environmental Protection

possible with the usual method of procuring both design and construction services through appropriations. The idea is to have the developer raise money privately for the project and then be paid back over a 30-year period. The Pennsylvania Avenue Development Corporation (PADC), a quasi-governmental redevelopment

Federal Triangle Act. Though no budget is mandated, GSA estimates that the multimillion-square-foot project will cost \$362 million.

1988

Congress hopes that a consortium led by a private developer will be able to deliver a building more efficiently and less expensively than is

1989

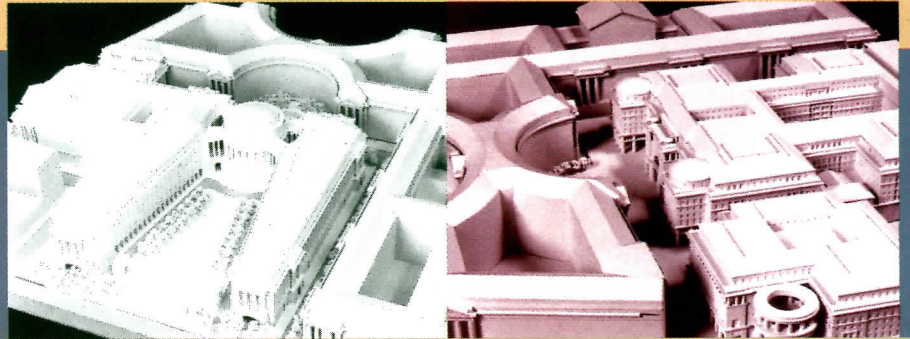
Seven development teams respond to the RFP. The lowest proposed cost is \$556 million. The project is awarded to the Delta Group on the quality of the design and the

1986



Site of the Reagan Building when used as a parking lot.

1989



Two entries to the 1989 competition: SOM (left) and Michael Graves (right).

Agency (EPA) should move into the Federal Triangle, not the internationally oriented U.S. Information Agency. This and other changes delay design and construction, say the architects and builders, requiring additional compensation. PADC pushes construction to begin on a fast track, even though the design of neither the trade and cultural center nor the federal space is finalized. Completion is anticipated for 1994.

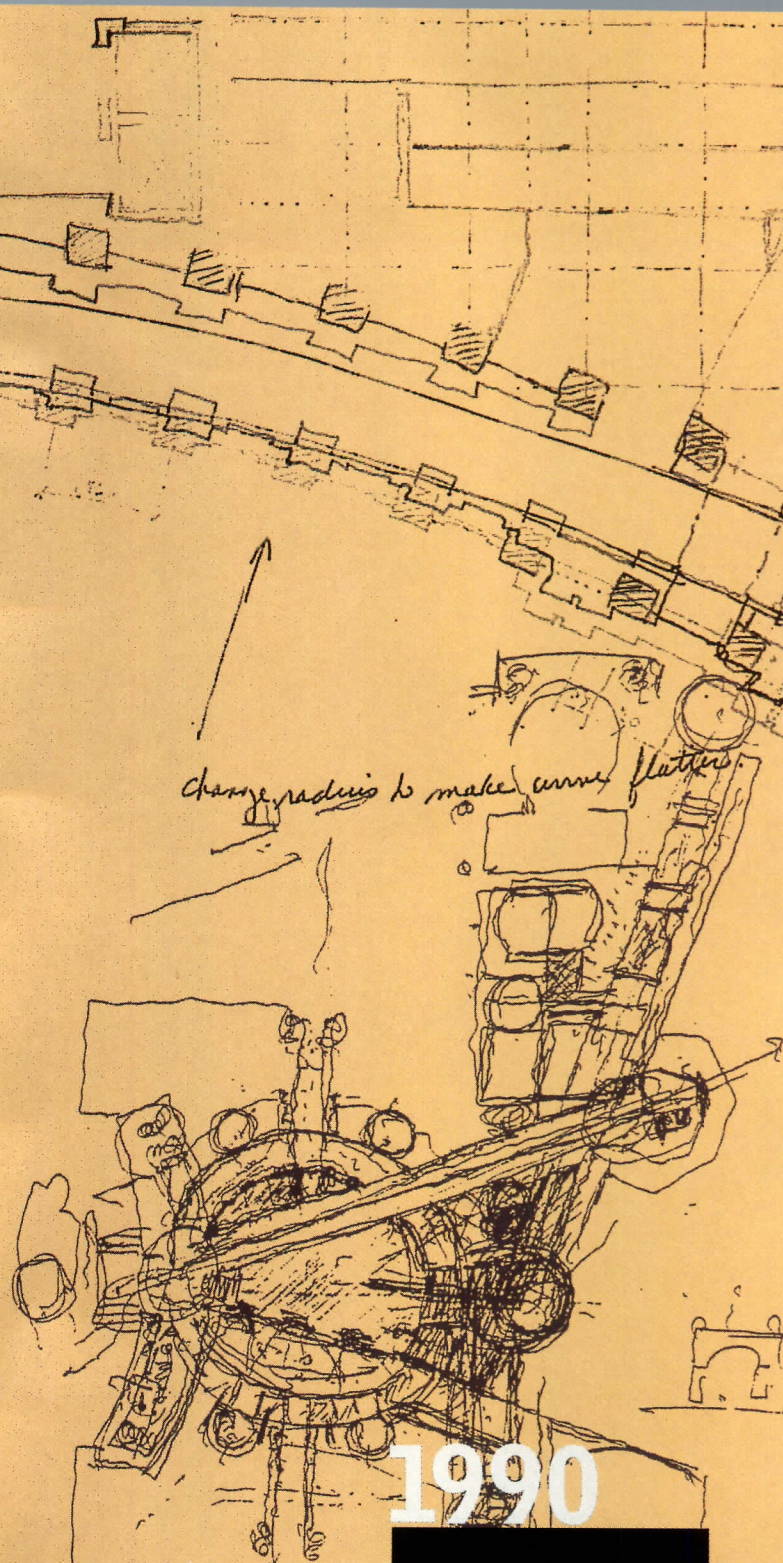
1992

Enabling legislation requires OMB to certify that the cultural and trade component of the project will be self-supporting within three years of completion. An OMB report says the ICTC will not break even, and the funding for the commission is removed. The trade and cultural functions are to be replaced by government offices. GSA wants to move the Department of Transportation and EPA to the Federal Triangle. Redesign begins as documents go out for the concrete bid package. In eliminating the trade and cultural facilities, architectural

fees double, concrete costs rise 50 percent, and costs rise substantially for other consultants and subcontractors already on the job. A slurry wall that was designed to protect the adjacent buildings during excavation and keep the site dry (it has a high water table) takes six months longer than planned and costs \$4 million more than anticipated.

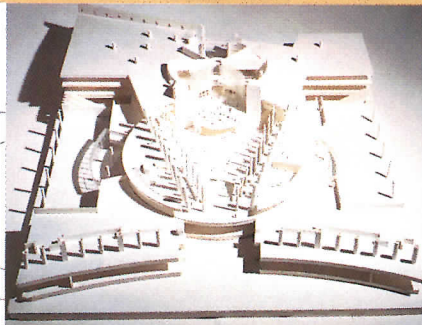
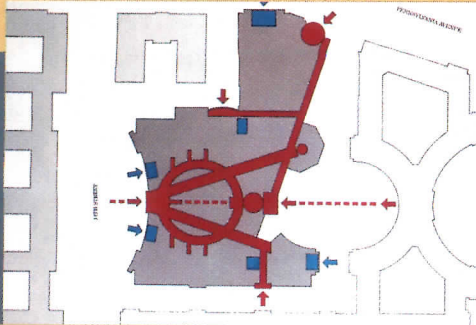
1993

A new GSA chief, Roger W. Johnson, who arrives with the new Clinton administration, takes a fresh look at which agencies will occupy the building. Johnson proposes the retention of a reduced trade center (161,000 square feet, versus the original 500,000 square feet). The trade center would contain offices, exhibit spaces, an auditorium, and a conference center. An IMAX surround cinema, two performing arts theaters, and a private club are eliminated. The EPA retains 200,000

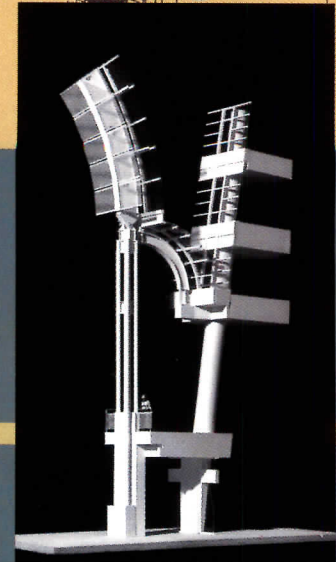


1990

1989



Model of structure connecting atrium to office blocks.



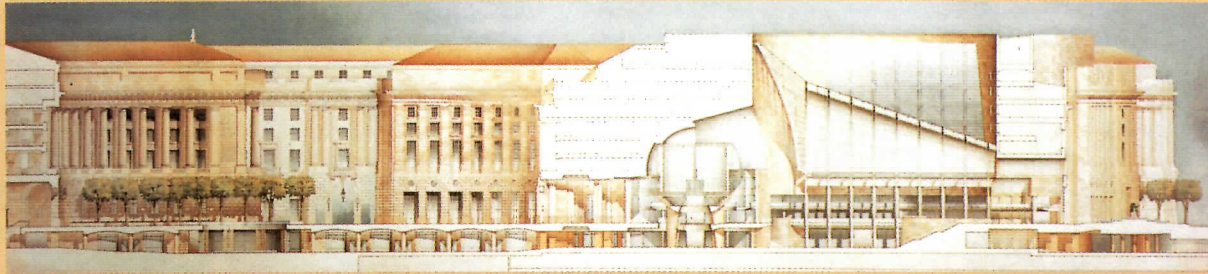
Freed's "architecture of movement" scheme.

Looking west to east through Freed's atrium.

this wall becomes the back of the arcade.

this dimension is reduced.

pavilion has a back and a front - similar to "PIER"



Section through atrium of the Pei Cobb Freed design.

square feet. The Agency for International Development and the Customs Services receive 956,000 square feet of office space. Congress mandates 80,000 square feet in which to relocate the Woodrow Wilson International Center for Scholars. Redesign continues as the concrete frame reaches grade.

1994

The allocation of space to federal agencies continues. The final form of trade-center functions is still under study. The concrete frame rises. The Saratoga suit is dismissed. Lester Hunkele III replaces M. J. Brodie at PADC and negotiates costs for delays so that contractors will move faster. Hunkele fears that the project will cost more than \$700 million, according to an article in the *Washington Post*.

1995

Demands by the building's tenants spur additional redesign; a library requires reworking of floor reinforcement; EPA requests operable

windows for its space. By December 1995 the concrete is completely framed up.

1996-97

In what some regard as an ironic gesture for an advocate of small government, the building is named for President Ronald Reagan, an honor he accepts. Congress shuts down PADC, leaving GSA in sole charge of the project. Construction pushes forward.

1998

The Reagan Building is dedicated on May 5 by President Bill Clinton. Some tenants are still moving in and the trade center anticipates full operation by mid-summer (81 percent of lease space is committed). Nancy Reagan does the ribbon-cutting duties for her husband. At mid-year, workers are changing the building again, substituting permanent finishes for the painted and drywall surfaces that had been temporarily "completed" for the dedication.

1992



Preparing the site for construction.

1995

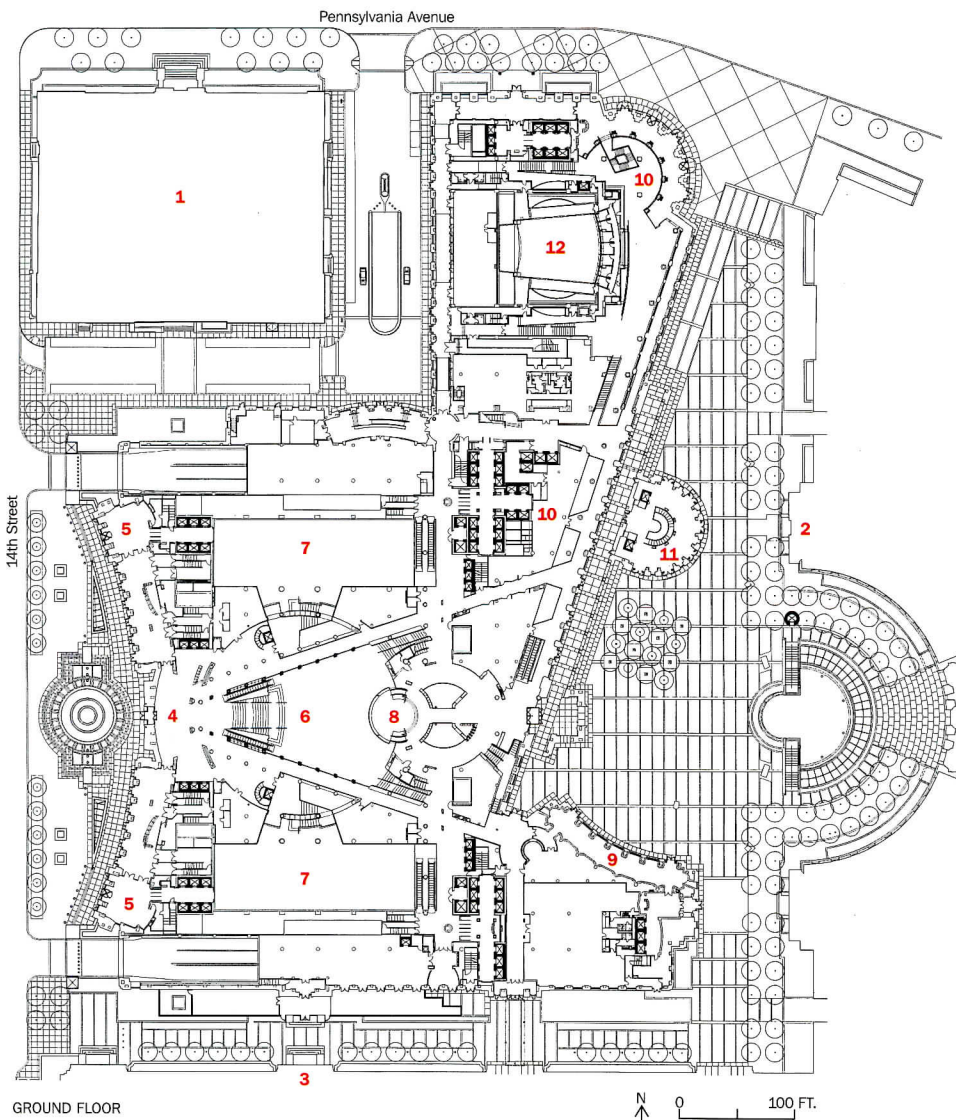


Pennsylvania Avenue rotunda being built.

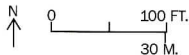
1998



Looking west over the Rios Building to the new Reagan Building.

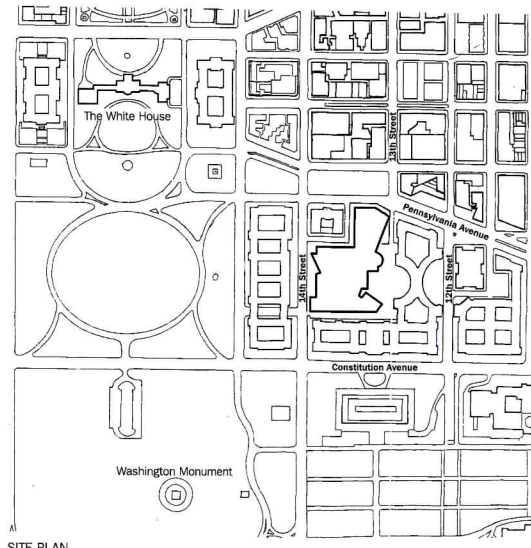


GROUND FLOOR

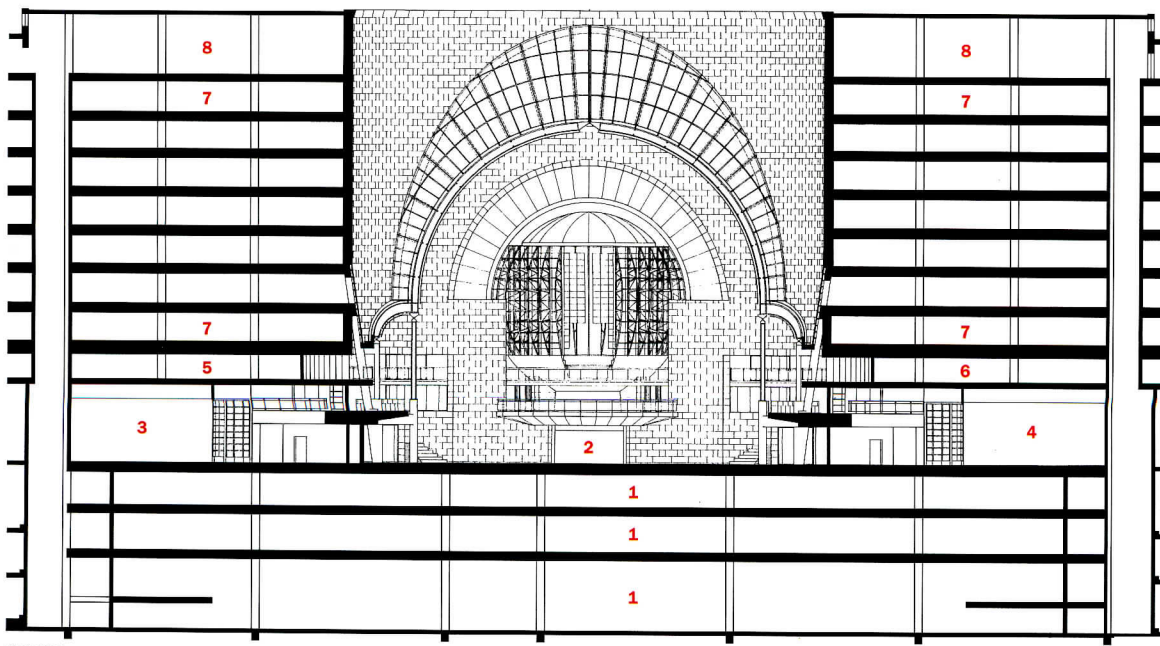


1. District Building
2. Ariel Rios Building
3. Customs Service
4. Main lobby
5. Agency lobby
6. Atrium
7. Trade center exhibits
8. Overlook (sculpture)
9. Wilson Center
10. Trade center
11. Restaurant/reception
12. Auditorium

A trade-related conference center occupies the northern part of the site (floor plan, left), while trade exhibits line the grand atrium. The building is connected at the concourse level to a nearby Metro station.

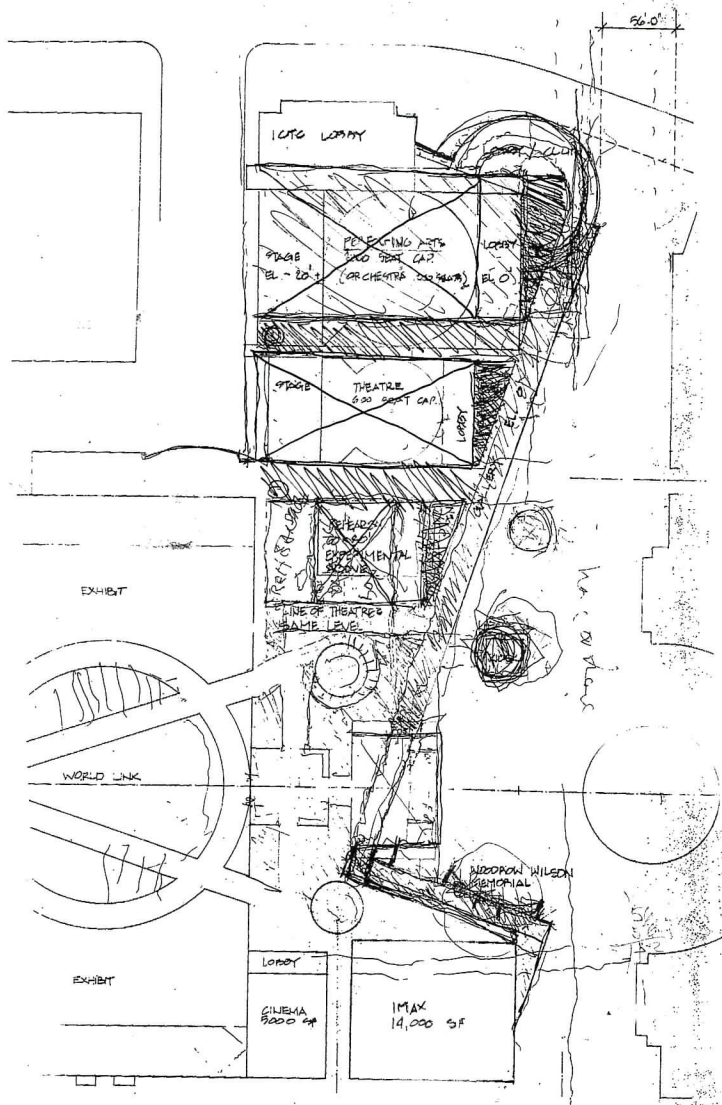


SITE PLAN



SECTION

1. Parking
2. Hemicycle concourse
3. Museum exhibit
4. Trade exhibit
5. Conference center
6. Trade information
7. Office
8. Mechanical



So he looked deeper for a strategy and found one around an “architecture of movement,” the idea of coherently and invitingly orchestrating the various circulation routes demanded by the complex program. He drew a path from 14th Street eastward through a convex facade, which he would make the main elevation. Inside the building, a barrel-vaulted, glass-roofed atrium would open wider as the visitor moved deeper into the building—an internal replacement for the Grand Plaza dreamed of but never realized on the site. It would be a place designed to stir together artists and exhibitors, tourists and bureaucrats.

Freed drew diagonals along two sides of the atrium (diagram, left), forming “streets” along the trade-center “storefronts.” These movement systems led to another diagonal—a line drawn perpendicular to Pennsylvania Avenue. Freed made this, his most anti-Beaux Arts move, as a reconciliation of the orthogonal north-south arrangement of the older Triangle buildings and the northwest-to-southwest thrust of L’Enfant’s

FREED DEVELOPED AN “ARCHITECTURE OF MOVEMENT” THAT ORCHESTRATES THE VARIOUS CIRCULATION ROUTES.

great avenue. In the process of creating this east elevation, he opened a wide courtyard facing the hemicycle of the Rios Building. He also put an arcade on the elevation and placed behind it the performing arts spaces and their lobbies, culminating in a rotunda at the Pennsylvania Avenue corner. Scaled to adjacent buildings, the rotunda would form an inviting entrance to the cultural and trade venues from downtown.

Looking back on the competition entries, Freed characterizes his as the least Beaux Arts in character, the only “asymmetrical” scheme. Yet it won, even though Delta’s price was highest. A consensus of observers says that it was Freed’s design that tilted the decision to Delta. “The breakthrough was swinging that perpendicular to Pennsylvania Avenue and the great conical atrium,” comments J. Carter Brown, who advised PADC and served on Washington’s Fine Arts Commission.

The scheme survives numerous assaults

Against all odds, Freed was able to win loyal allies in the struggle to realize the project. How did he do it? Certainly the near-reverent public appreciation of the Holocaust Memorial was important. But his undeviating commitment, whatever the slings and arrows of Congress or the Office of Management and Budget, earned him friends like Brown, Moynihan, GSA’s Golden, and M. J. Brodie, who was PADC’s executive director until 1993. Freed was, says Brown, “one of the most responsible architects we have ever had. He kept at it through many, many iterations.”

As Freed refined the project, says Brown, “We were eager to see how his design would blend in with the Federal Triangle classicism and yet maintain a sense of clean Modernism.” Freed calls his massing strategy “of our day,” one that avoids the pitfalls of thin-stone appliqué and knee-jerk replication. Freed zeroed in on the site’s anomalies, which, he says, “allowed me to use massing for different ends. It gave me the ability to fragment, which you would never see in Beaux Arts strategies.” He put much of his effort into the internal courtyard facing the Rios Building. When Congress moved the Woodrow Wilson International Center for Scholars from the Smithsonian to the Federal Triangle, Freed gave it a separate identity by expressing it as a curved facade, the only element that visually extends the hemicycle of Rios. He pushed a rotundalike ballroom and reception space out of the east elevation, echoing the Pennsylvania Avenue rotunda and dividing the courtyard in a way that invites visitors.

Freed’s allies like what they got: “I don’t think there is any firm



The Reagan Building’s context includes monumental Beaux Arts neighbors: to the left is the Ariel Rios Building (now being renovated),

to the right is the District Building, and beyond that to the west is the massive Department of Commerce Building.

that does more painstaking and wonderful details than Pei Cobb Freed,” says Brodie. Projects as whipsawed as this one often end up being caricatures of their best intentions. Freed’s design, including carefully detailed atrium supports, glazing, sunshades, patterned terrazzo, limestone walls, and Belgian-block plazas, came through nearly unscathed.

The biggest blow to the design was the major program changes that occurred in 1992. Not only did removal of the cultural functions dramatically alter the nature of the building, but it occurred as the concrete frame went out to bid, so there was no chance to reconsider the basic design strategy. The auditorium was reconfigured, two recital halls and a surround-screen cinema were eliminated, and the 500,000-square-foot trade center became a 161,000-square-foot conference and exhibit venue.

Though some mixing of uses remains, the office component of

EVERYONE WANTED TO SEE HOW FREED WOULD BLEND FEDERAL TRIANGLE CLASSICISM WITH MODERNISM.

the plan now dominates. There are very large floor plates with a low proportion of perimeter wall (indeed, the seventh floor, behind the cornice, has skylights but no windows). Further, urban design guidelines prevented Freed from glazing more than 30 percent of the exterior walls. The office floors suffer from relatively low ceilings, resulting from a 125-foot building-height limit. Freed defends such deep, low floors, but even if he had wanted to offer office workers more access to daylight and a less warrenlike plan, it would have been very difficult to do so on the site, given the sheer amount of square footage that needed to be accommodated.

Problems with the process: what went wrong

In terms of its process, the Reagan Building took too long and cost too much. What went wrong? The combination of PADC, ICTC, and GSA worked at cross purposes, says Terry Soderberg, who was managing director of the Federal Triangle Corporation, and decision-making “had too many levels.” The developers on the design/build team were supposed to expedite the building process but failed to. Soderberg says the developers were “at risk” only for the delivery of the project, not its operation. The project “would not have worked in the private sector,” he says.

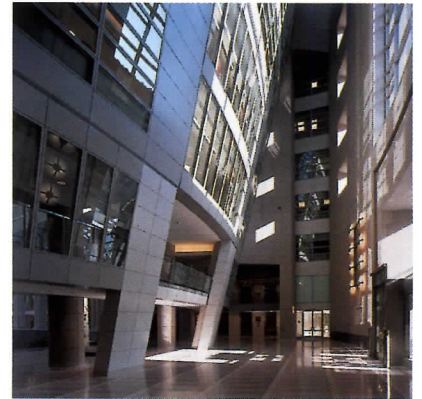
The developers, GSA, and PADC each had construction managers who were to ensure that the Federal Triangle Corporation expedited the project. They too seemed powerless to move the project forward more quickly. Soderberg, Brodie, and William Zeckendorf Jr. (a development partner) all said that the 11-acre size of the site and the 367,000-square-foot floor plates presented numerous time-consuming challenges. Though none of these challenges seems so unprecedented as to explain a seven-year construction period, the scale of client-generated changes makes the fixing of fault difficult. In the end, delays pushed the fees paid to project managers up to \$149 million, according to the *Washington Post*.

The privatization ideology underlying the project simply failed to deliver vaunted efficiencies. PADC proved less experienced in real-world construction than GSA, says Soderberg. But drafters of the Federal Triangle legislation did not trust GSA and put PADC in charge. In addition, ICTC and PADC wanted the best facility possible, which put them at loggerheads with GSA, whose clients would have to pay higher rents.

The client’s assumption that the cultural and trade components needed to be self-supporting is also questionable. There was, first of all, no precedent for such a combination, so before-the-fact estimates of performance were little more than speculation. The Federal Triangle Corporation’s accountants said it would work. GSA and OMB claimed it



Seen from above, the atrium is a sloping glass funnel (above). Spaces leading to and around the atrium (right and below) offer dynamic views through the building. Metal tubes screen sunlight in the atrium, which broadens out as it extends beyond the stair (opposite).





A stairs in the Pennsylvania Avenue rotunda (right) links a street-level arcade to the trade center's conference area. The auditorium (below) has a backlit ceiling. A curving stair (below right) takes visitors from the atrium to a mezzanine-level meeting area that is animated by a neon sculpture by Keith Sonnier (opposite).



wouldn't, and they prevailed—but at great cost to the project. Directives from OMB and Congress clashed either with the desires of GSA or of the trade center, which snarled agency tenant plans for years. Costs grew to the point that agencies balked at the rents that would have to be paid to amortize the project's cost. The final tally is \$738 million. The low interest rate means that the cost with capitalized interest is \$818 million.

Time will tell how well Freed has adapted the design to its context, whether he has found a proper civic scale or merely a bombastic one. The bombastic label may be hard to avoid, given the imperial scale of the neighboring buildings. However correct contextually, the Reagan Building does not present a low-lying aesthetic consistent with the less-hubristic role Americans want government to play nowadays. Architecturally, the building still aspires to mix Washington's business, cultural, bureaucratic, and tourist sectors, but the shrunken trade program may not be enough to draw many visitors beyond those doing business in the complex.

Freed hopes the costs and delays won't be the criteria by which the project is evaluated. Says Freed, "The Federal Triangle shouldn't be judged by itself, but by what it does for the whole city." ■

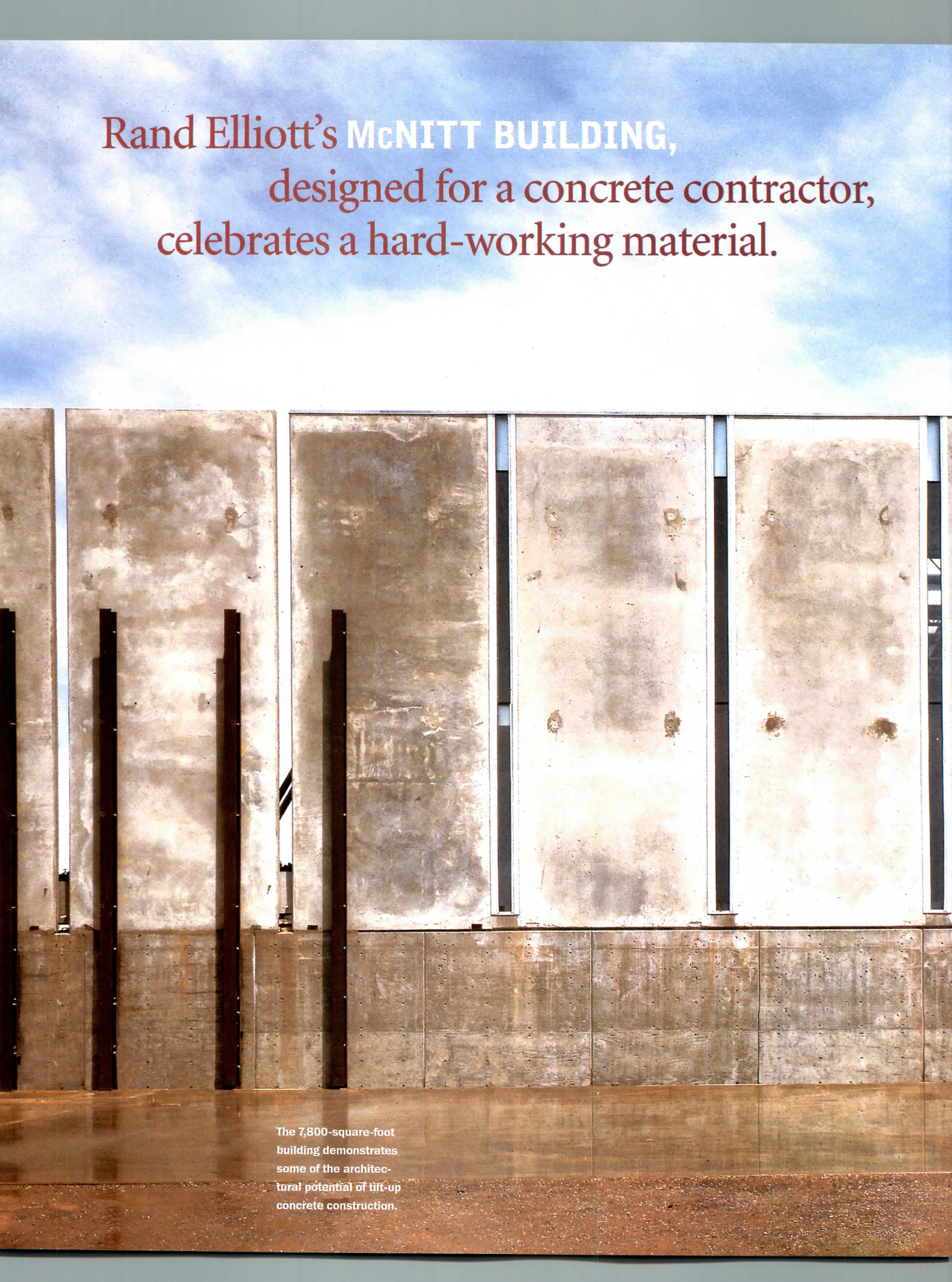
Sources

Exterior stone cladding: *Indiana Limestone Co., Deer Isle Granite*
Precast concrete: *Exposaic Industries Inc. of Virginia*
Curtain wall: *Midwest Curtainwalls*
Fluid-applied roofing: *Baker*
Terra-cotta tiles: *Gladding McBean*
Skylights: *United Skys, Inc., SuperSky Products*
Bronze entry doors: *Ellison Bronze*
Revolving doors: *Crane Fulview Door Company*
Interior metal doors: *Acme*
Interior wood doors: *Weyerhaeuser, Eggers*
Acoustical ceiling and suspension grid: *Armstrong*

Paints and stains: *Sherwin-Williams, Duron*
Wall coverings: *Koroseal*
Floor and wall tile: *Dal-tile*
Carpet: *Shaw Industries*
Raised flooring: *Tate*
Fixed seating: *Irwin Seating Co.*
Interior ambient lighting: *Cornelius (custom)*
Downlights: *Edison Price*
Office lighting: *Day Brite*
Exterior lighting: *Cornelius/Sterner*
Lighting controls: *Square D*
Elevators: *Schindler Elevator Corp.*
Elevator cabs: *Tyler Elevator Products*
Wheelchair lift: *Concord*
Plumbing fixtures: *American Standard*
Water fountains: *Hawes*



Rand Elliott's **McNITT BUILDING**,
designed for a concrete contractor,
celebrates a hard-working material.



The 7,800-square-foot building demonstrates some of the architectural potential of tilt-up concrete construction.

by David Dillon

A client with no money wants a new building on a site that is too small—and he wants it yesterday. Architects get these irrational requests all the time and either ignore them or produce a down-and-dirty scheme that can be knocked out by an assistant in the back shop. The results litter every American roadside.

Oklahoma City architect Rand Elliott received such a request from Kelly McNitt, a local contractor who specializes in tilt-up concrete for warehouses and shopping centers. With his business booming and his existing quarters exploding, McNitt needed more space in a hurry. Nothing fancy or cutting-edge, he explained, just a straightforward, economical building that he could move into in a few months.

Going beyond the letter of the commission, Elliott chose to celebrate the simplicity, economy, and surprising expressiveness of precast-concrete construction. “My goal was to make the building a marketing tool for a young company,” he explains. “I wanted to be very honest about what concrete is, yet I also wanted to show its architectural possibilities.”

The new building had to fit on a 100-by-135-foot patch of unassuming industrial land hemmed in by a boatyard, a row of shacks, and McNitt’s existing offices, a two-story precast pile that resembles the “before” half of a renovation ad. This clearly was not the place to be slick and trendy, so Elliott went raw and basic, making the entire structure an illustration of tilt-up technology.

The exterior walls are precast-concrete panels, 24 feet high and roughly 10 feet wide, that have been finished in a variety of styles and textures: board-formed, sandblasted, smoothed, stained. Elliott hoped to use one panel size throughout but ended up with three. The panels are separated by eight-inch-wide glass strips, which dramatize their lightness and thinness, and are braced on three sides of the building by recycled oil-field pipes. The steel pipes resemble tepee poles—an appropriate analogy in Oklahoma—and reinforce the idea of the building as a construction site.

On the east wall the oil pipes are folded into the facade to frame a fire door, while in the parking lot they are pulled out to form the corners of an implied outdoor room, complete with concrete floor and buffalo grass border. The long west wall is braced from behind, which makes it appear self-supporting.

Elliott resisted all temptation to design a conventional corporate interior or to make the materials seem other than what they are. A blue-collar aesthetic prevails throughout. Roof decking, bar joists, and air ducts are exposed; the floors are scored concrete; the gypsum-board walls follow the rhythms of the exterior panels, with slotted windows providing dramatic shafts of light. Because of site constraints, the *(text continues)*

Contributing editor David Dillon is the architecture critic for the Dallas Morning News and the author of the new plan for Washington, D.C., Extending the Legacy, and forthcoming books on the FDR Memorial and Texas architect O’Neil Ford.

Project: McNitt Building, Oklahoma City, Oklahoma

Owner: K. J. McNitt Construction, Inc.

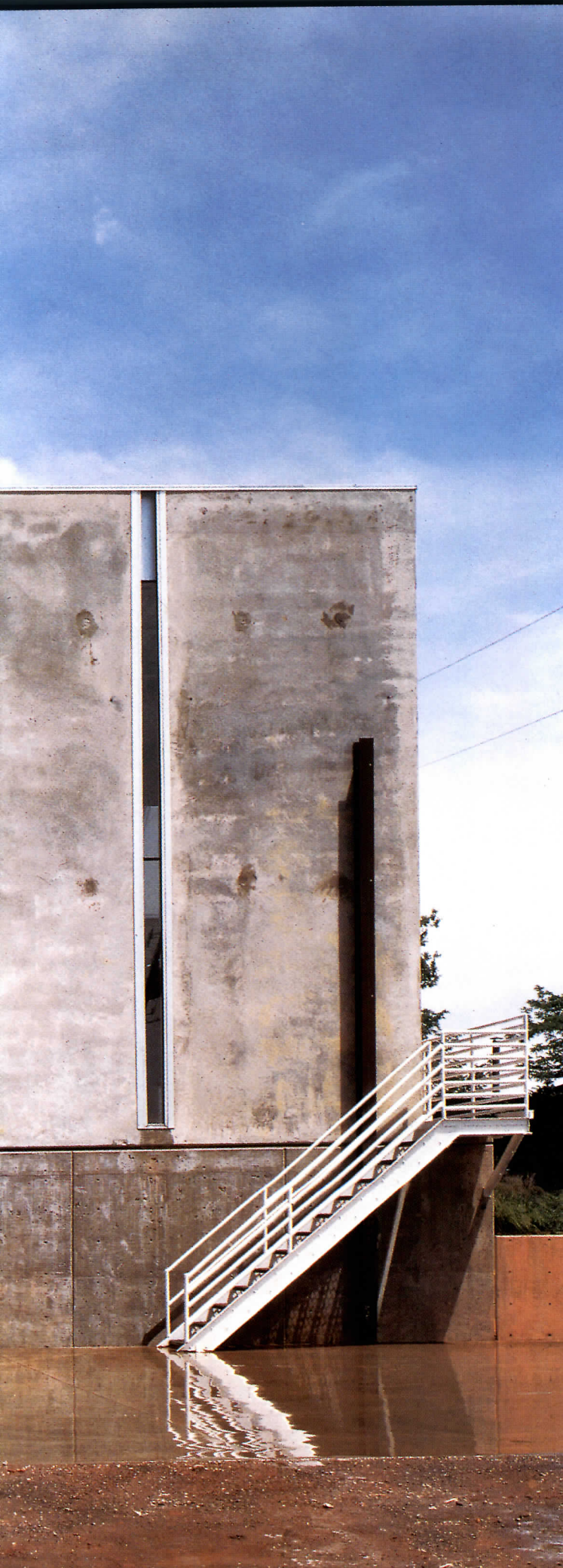
Architect: Elliott + Associates Architects—Rand Elliott, FAIA, principal-in-charge

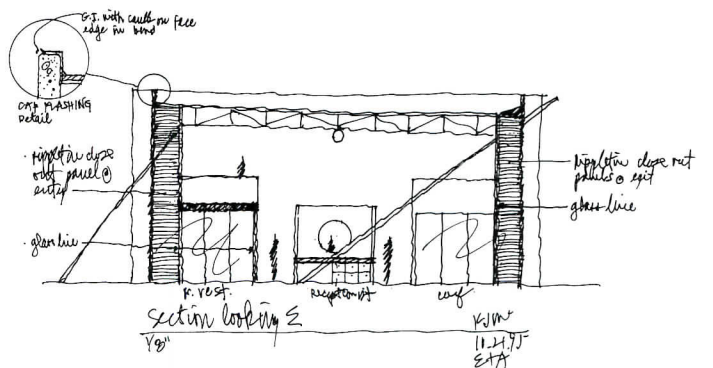
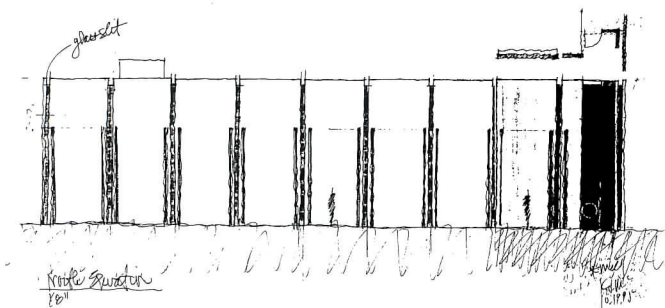
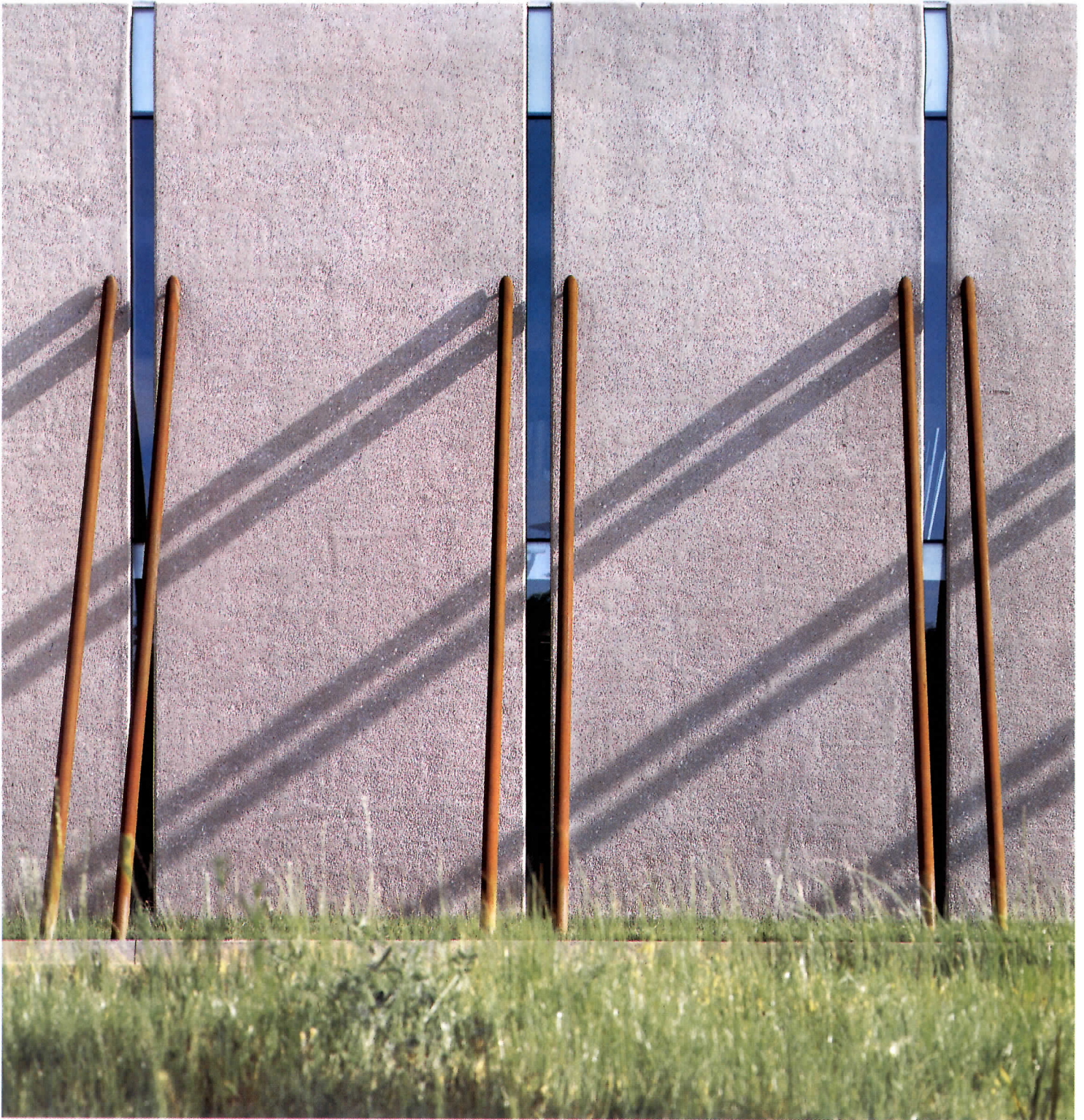
Engineer: Pendergraf Engineering

Consultants: United Acoustics (acoustics); Shawver & Son (electrical); United Mechanical, Inc. (HVAC); Garland’s (landscaping); Penny Lighting Sales (lighting)

General Contractor: K. J. McNitt Construction, Inc.

PHOTOGRAPHY: © BOB SHIMER/HEDRICH BLESSING







Rand Elliott grew up in Clinton, Oklahoma, in the western wheat belt, and has spent most of his 48 years learning to see it. "I'm looking for a spirit or emotion that comes from this place," he says, "one that I can bring to my architecture and that won't run dry."

Elliott's early work was so crisp and rational that he envisioned a career as a prairie Mies van der Rohe. But while that work brought him critical acclaim, it left him feeling disconnected and adrift. He considered moving east, then decided to stay put and reinterpret Modernism for Oklahoma.

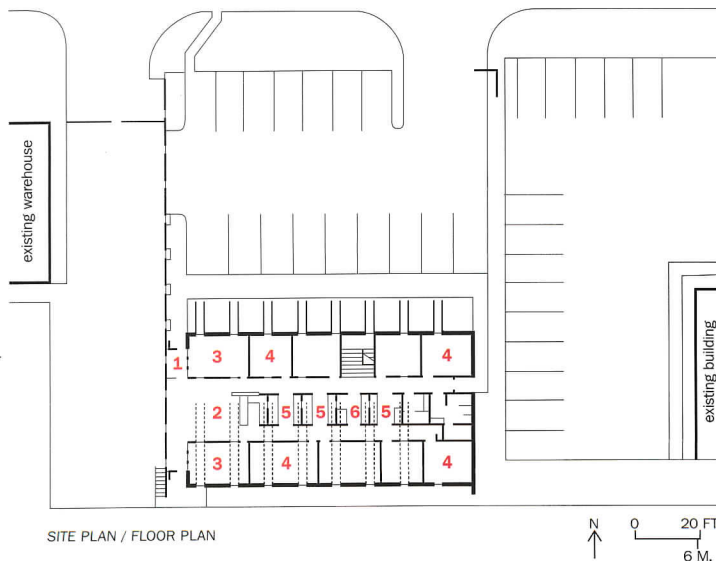
In 1988 he designed a gateway for the Oklahoma City airport: four monumental steel arrows, 70 feet high. This was followed by the ESEO Federal Credit Union, a low-slung building with a broad roof supported by rusting steel columns that branch like trees. With the McNitt Building, Elliott fuses regional and industrial influences: spare pre-cast, steel oil pipes that resemble tepee poles, native buffalo grass.

"It takes time to synthesize those materials so they don't seem hokey," he says. It also takes talent to get beneath the familiar surfaces of a place to layers of meaning that lie deep, like bedrock. *D.D.*

Tilt-up concrete panels are separated by eight-inch-wide strips of glass and braced by recycled oil-field pipes (opposite). The west wall, extending beyond the building envelope, is braced from behind so it seems self-supporting (left).



1. Main entry
2. Reception
3. Conference
4. Office
5. Support
6. Photocopying



A border of buffalo grass around the parking lot initiates a dialogue between the natural and the industrial (right). The precast panels, 24 feet high and about 10 feet wide, exhibit a variety of finishes and textures.







A blue-collar aesthetic prevails in the interiors, with roof decking, bar joists, and air ducts all exposed. Site constraints forced the angled bracing pipes indoors on the south wall (left and opposite), turning them into dramatic elements that define offices, conference rooms, and even the reception desk in the open office area.

pipe bracing for the south wall is inside the building, defining offices and conference rooms, even providing the base for the reception desk. Elliott also took advantage of the soaring volumes created by the precast panels to insert a loft, which seems to float above the main floor.

A building that sells itself

Kelly McNitt says that his new building has generated at least three major jobs and given the company credibility it didn't have before. "I use it as a sales tool every chance I get," says McNitt. "If customers don't ask for a tour when they come in, I give them one before they leave. They're surprised at the scale and the complexity of the work we can do."

The building went up in five months and cost only \$400,000. One reason for these economies is that client and architect had known one another for years. McNitt did drafting for Elliott as a student, and after he started his own company they collaborated on several projects, including a series of modular ATM buildings for banks. Knowing what to expect—and what to avoid—allowed them to bypass the usual roadblocks and get on with the job. Elliott supplied the design, while McNitt produced the working drawings and supervised the construction.

"If I'd designed it myself it would have been a shoebox," McNitt concedes. "A very functional shoebox, perhaps, but not very sophisticated. I knew that Rand would challenge me but that I'd probably end up with a unique product." The two worked out the details in Saturday morning skull sessions in McNitt's office. Elliott would do a freehand sketch, McNitt would have it priced and built. No protracted consultations. Elliott admits that initially the process terrified him. "I'm not accustomed to working that way," he explains. "I like to put something down, refine it,

get a hard drawing, then refine it some more. I was afraid that the process would damage the integrity of the building. It took a while to get comfortable with it."

The only major disagreement occurred over the design of the west wall. Elliott wanted to perforate it randomly with three-inch holes, then fill them with wine bottles, flower vases, and other kinds of glass to show concrete's versatility. McNitt saw the perforations as a maintenance nightmare that would also detract from the purity of the design. He prevailed. "Rand and I know one another well enough not to be overbearing about such things," he says. Elliott vows to try the perforated wall on a future project.

A common assumption about constraints is that they produce mediocre architecture. But the McNitt Building proves just the opposite: that constraints can give architecture greater power by forcing architects to think more strategically. The building is all about adapting to limitations. Its forms and details are a direct response to the demands of the concrete-construction process, not to an abstract notion of style. There are no gratuitous gestures. The appearance is the process—not the same thing as form following function, but close. ■

Sources

Aluminum windows: *Kawneer, Associated Glass*

Solar safety glass: *Associated Glass*

Paints: *Sherwin-Williams*

Plastic laminate: *Formica, American Standard*

Cotton wall fabric: *IDS*

Resilient flooring: *VCT (Kentile Desert Sands)*

Pendant fluorescent uplights: *Metalux*

HID uplights: *Indalux*

Parking lot light: *Lampas*



The universally accessible facility is set within a 600-acre compound, the former home of poet Edna St. Vincent Millay.

A new building at the **MILLAY COLONY** allows visiting artists to live and work in a universally accessible environment.



Special multitextured pathways allow visually impaired visiting artists to enjoy the grounds of the Millay Colony, located in Austerlitz, New York.

For artists with disabilities who have learned to tailor their workspaces and homes to compensate for loss of mobility, sight, or hearing, finding a studio and residence away from home has been a virtual impossibility. Matter-of-fact daily tasks, transposed to an unfamiliar environment filled with obstacles, turn each workday into a frustrating battle. If those obstacles extend into the workspace, physical frustrations are compounded by mental fatigue and exhaustion; inevitably, work suffers.

In the early 1990s, directors of the Millay Colony for the Arts, a tiny 25-year-old colony in Austerlitz, New York, southeast of Albany, had found themselves forced to turn away some qualified artists with disabilities. The ancient converted barn and garage spaces that formed the studios and living facilities at the colony, located on the pastoral grounds of Steepletop, the historic home of poet Edna St. Vincent Millay, simply could not be accessed by an individual in a wheelchair. Faced with a need to renovate and expand, the colony's directors chose to make their new main building a prototype, blending universal access and the arts.

In late 1994, Ann-Ellen Lesser, Millay's executive director, began asking disabled artists and writers—myself among them—for help on this unusual but simple building project. The idea, she explained, was to assemble an advisory committee to work closely with the designer in charge of the project, Vermont-based artist Michael Singer, and the architect of record, Joseph Cincotta. The need for a committee “was almost a given,” explains Lesser.

From the project's outset, Lesser says, the Millay board saw its program not just as the basis for a new building but as a platform for exploring the full range of accessibility issues in building design. Lesser's

Peter Slatin is a New York City-based freelance writer. He is a frequent contributor to Barron's, The New York Post, and Urban Land.

By Peter Slatin

objective was to build a universally accessible studio-residence facility. “Our program from the beginning was fourfold,” explains Lesser. “We wanted a universal design for the building, new product development, committee input, and sharing of lessons learned.” In addition to myself, the advisory committee included writer Kenny Fries, filmmaker Sharon Greytac, writer Raymond Luczak, sculptor Scott Nelson, and visual artist Charles Strouchler.

The building's minuscule budget was set below \$500,000, reflecting Millay's scant resources and an environment of severely contracted federal arts funding. Moreover, getting potential private donors to focus was no easier than getting the attention of government arts agencies. “It was hard to get large foundations or corporations to realize that a small organization in a little town in upstate New York was doing something that would have so much effect,” says Lesser.

First, the building had to be situated within the 600-acre Steepletop compound, which Millay had purchased in 1925. The site chosen for the building was at the top of a steep rise, but landscaping was added to shield it from view along the public road below. “The layout responded to the site and to the issue of privacy,” Singer explains. “You can't see the roofline from the road, and we wanted to make the residences and studios as private visually, emotionally, and acoustically as possible, not only from the outside world but also from *(text continues)*”



Project: Main Building at Steepletop, Millay Colony for the Arts, Austerlitz, New York

Designer: Michael Singer, artist; Sterling McMurrin, Karol Kawaky, design team

Architect of Record: LineSync Architecture and Planning—Joseph Cincotta, principal-in-charge

General Contractor: Caldwell Builders—Rob Caldwell, Bill Casey

Darkroom design: PLF Imaging

The 3,200-square-foot facility overlooks a wooded preserve maintained by the colony.





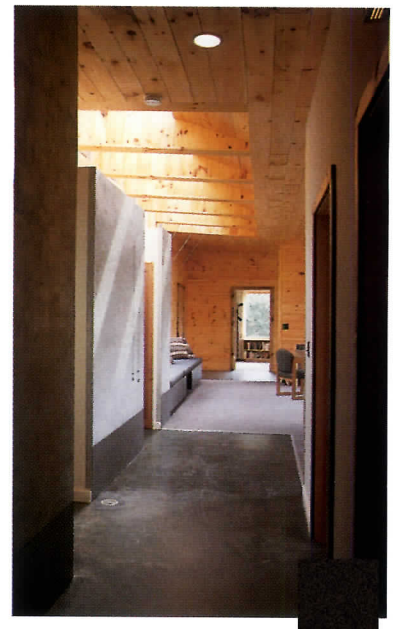
A sheltered carport and walkway ease passage for artists in wheel-chairs (right). Pine

cladding with quarry marks was chosen by Singer for its decorative effect.





Designers worked with manufacturers to produce universally accessible products. Other innovations include strong color contrasts between wall covering and flooring (right) to help the visually impaired. A niche under a bench is for guide dogs (opposite).



each other.” That concern, he says, drove the building’s layout from a central spine.

Before the advisory committee met, Singer and the design team laid out a basic floor plan for the building’s three studio-residences and the common areas. These include a kitchen, lounge, and dining room, as well as a music room. In addition, there is a darkroom, a laundry room, and office space with a reception area for Lesser, set apart from the main facility but connected by a covered walkway. If all goes according to the long-term plan, this office will be converted to studio-residence use as the colony expands.

Construction was slab-on-grade, so that all door sills could be flush with the ground. Although the colony asks artists to come without their spouses or companions, two of the bedrooms were designed to accommodate a personal assistant for wheelchair users. “One of the things that make this project different is that you’ve got a new set of up to five people coming every month,” says Singer. “That’s a different dynamic than a family of five, and the notion of flexibility is very important.”

In the fall of 1995, the committee assembled at the Lighthouse, a Manhattan facility for the blind and visually impaired that itself had

been rebuilt for universal accessibility by Mitchell Giurgola in 1992. On the conference room table was a tactile map of the floor plan. Our task was to dissect the plan, describing what each of us would like to see implemented in the built project.

During the course of the meeting, as the floor plan and a model of the 3,200-square-foot project were examined, the group described both specific and general considerations for the design of the interior spaces. These included the obvious questions of the height of kitchen and bathroom appliances as well as the width of walkways and turnarounds, but they also touched on some lesser-known issues. For example, a bench flanking one wall of the common living room–lounge area has a cutout space into which guide dogs can nestle while their masters sit talking on the bench—a feature that resulted from this exchange. “An observer might think it’s a design move to break up the mass,” comments Singer. “But you need to have a place where the dog can sit and be out of the way.”

Another instance of creative planning that Singer points to is writer Kenny Fries’s request for adjustable shelving in the bedroom furniture. Fries and others also wanted drawers that rolled easily and door pulls that were graspable by someone with incomplete hands or arms.



“The questions kept coming back to the experience of how someone who had a mobility problem would be able to access the building,” Singer explains, citing the sheltered carport that affords direct access to the building for handicapped-driver vehicles. The committee, he adds, “made the program even more clear and specific because we had to look at every design element from the user’s perspective, raising the question, ‘Does it work?’”

A host of other issues emerged from the discussions of the advisory committee. Almost all are a neat fit with the “universal” label, because they incorporate basic design solutions for daily tasks. For the visually impaired user such as myself, strong color contrasts between wall and floor, at door and window openings, and even at light switches and outlets provide clues for guidance. Consistency of placement and clean, clear circulation pathways, not only from room to room but within each room, provide real benefits to the totally blind. Translucent shades over skylights and windows act to mute the harsh effects of direct sunlight, which can be disorienting; nonglare surfaces on walls and flooring do the same. According to Singer, finding a nonglare floor sealant proved virtually impossible. “We found something close, but we still had to use steel

wool to break the gloss,” he says. “That’s a challenge we would put out to the manufacturers.”

The challenge of creating innovative materials, products, and processes, which was taken up by some of the manufacturers whose equipment is incorporated into the building (see page 117), is the surprising essence of the new main building at Millay. The simplicity of the solutions, some of which were easily found and applied and some of which required searching and stringent testing, are indicators of the current state of universal design. “There is still an incredible prejudice against universal design, and the idea is still prevalent that it will ruin the aesthetic value of a building,” observes Singer. “This project dispels that notion.” ■

Sources

Wood siding: *Novelty Siding*
Wood windows: *Marvin*
Skylights: *Velux*
Entrances: *Morgan Doors*
Locksets: *Schlage*
Paints, stains: *Benjamin Moore*

Recyclable carpet: *Interface Flooring Systems, Inc.*

Office furniture: *Herman Miller, Knoll*
Wheelchair-accessible plumbing fixtures: *Kohler*
Universally designed kitchen appliances: *Whirlpool Corporation*

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UNTIL RECENTLY THIS
TECHNOLOGY WAS
AVAILABLE ONLY TO
ARMIES, SPIES, AND HIGH
RANKING GOVERNMENT
INTERIOR DECORATORS.

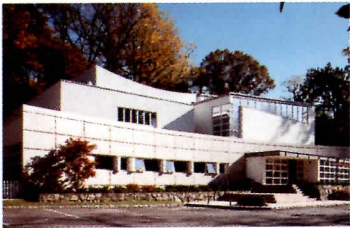


PLACES OF WORSHIP

Where We Seek the Light

DAYLIGHT IS THE COMMON DENOMINATOR IN PLACES OF WORSHIP, NO MATTER WHAT THE RELIGION OR DESIGN STYLE. IT IS THE ELEMENT AROUND WHICH THE FAITHFUL UNITE WITH THEIR CREATOR.

by Charles Linn, AIA



1

Hastings-on-Hudson, New York

After meeting in a concrete box-like building for almost 40 years, the congregation of Temple Beth Shalom has a light-filled, flexible new home.



2

Sarasota, Florida

Architect Carl Abbott's new parish hall and central courtyard for St. Thomas More Catholic Church complete a project he started a decade ago.



3

New Haven, Connecticut

The Joseph Slifka Center for Jewish Life at Yale explores the integration of religious architectural symbolism into a distinguished campus setting.



4

Seattle, Washington

Olson Sundberg Architects collaborate with artist Ed Carpenter to create a new west wall for the 70-year-old St. Mark's Cathedral in Seattle.

Religion is inseparable from light—a form of energy that is life-giving, whose effects are tangible although it is invisible. Light is a symbol of the spirit of God to those who believe. It is no wonder. In the first book of the Old Testament, the Book of Genesis, God creates light before anything else. He separates light and darkness and calls them day and night, the notion of time being invented almost as a by-product. God makes light even before creating the sea, plants and animals, man and woman. That process takes up the whole first day of creation. In the New Testament, St. Matthew goes so far as to say that when Jesus began to preach, a light dawned on those who had been living in the shadow of death.

Likewise, light seems always to have been foremost in the minds of those who design places of worship. Whether they are believers or not, it is hard to dispute the extent to which architects have been inspired in the way they have designed temples, synagogues, mosques, churches, and cathedrals to receive, reflect, and temper light.

From a programmatic standpoint, it is easy to understand why light has been such an important element. Throughout most of the last two millennia, people needed daylight just to see what was transpiring in church. Yet it is hard to imagine that those who designed Notre Dame, for example, had only visibility in mind. The same is true for Le Corbusier's Ronchamp Chapel, Fay Jones's Thorncrown Worship Center, and thousands of other churches whose designers have used fenestration and color to create subtle combinations of direct and indirect light to enhance architectural form. The results seem to reach right inside people—drawing out the powerful invisible connection between the physical and the spiritual.

All four of the projects in this Building Types Study were constructed by people who were committed for a very long time to realizing their dreams of an ideal place to worship, and they were designed by architects who emphasized daylight in their designs. At St. Mark's Cathedral, in Seattle, Olson Sundberg Architects and artist Ed Carpenter constructed a huge rose window some 70 years after the building was completed. The interiors of both Temple Beth Shalom, designed by Edward Mills and Perkins Eastman, and St. Thomas More Catholic Church, recently expanded by Carl Abbott, are lit by generously sized clerestories. Roth and Moore's Joseph Slifka Center for Jewish Life uses a different device—a light court—to carry daylight into its below-grade dining rooms.

Regardless of the methods used, the architects of all of these buildings have created places where people can seek the light. ■

1

Temple Beth Shalom Hastings-on-Hudson, New York

A CONGREGATION'S DESIRE TO HOUSE CLASSROOMS AND WORSHIP SPACE TOGETHER WAS THE STARTING POINT FOR A NEW SYNAGOGUE.

by Elizabeth Kubany

Project: Temple Beth Shalom, Hastings-on-Hudson, New York
Owner: Temple Beth Shalom
Architect: Edward I. Mills & Associates in joint venture with Perkins Eastman Architects—Edward I. Mills, FAIA, Bradford Perkins, FAIA, Aaron Schwarz, AIA (principals); Mauricio Salazar and Peter Hughes (project architects)
Consultants: Abe Joselow Consulting Engineers (mechanical and electrical); Feld, Kaminetzky, Cohen (structural); David Ferris Müller (landscape)
Construction Manager: John Karhu

Though the conventions that govern the design of synagogues have changed in recent years, many of those constructed in the United States during the past 50 years follow a similar approach: religious areas are housed in one wing and the education and administrative functions in another.

In 1992, when the congregation of Temple Beth Shalom of Hastings-on-Hudson, New York, decided they needed a new building, they wanted something different. Since the 1950s, the congregation had held its services in a 7,000-square-foot concrete box-like building; administrative and classroom spaces were housed separately on the site.

The congregation's list of needs was formidable: a minimum of 15,000 square feet to enable its membership to grow; a flexible space to accommodate numerous program elements and widely varying congregation sizes; and a structure that would respect the three-acre hillside site, which is adjacent to the old Croton Aqueduct. In addition, the congregation wanted the new temple to be a peaceful, light-filled place.

The congregation was working with a restricted budget and a tight

schedule: the building had to be designed and built in less than two years for only \$2 million (including site work and furnishings). A joint venture of the firms Edward I. Mills & Associates and Perkins Eastman Architects was selected for the job.

The architects' first task was to rethink the relationship between building and site. "The original building was simply a box stuck into the side of the hill," says Mills, "a common problem with steeply raked sites. How do you make the building feel like it is sitting with the hill rather than against it?"

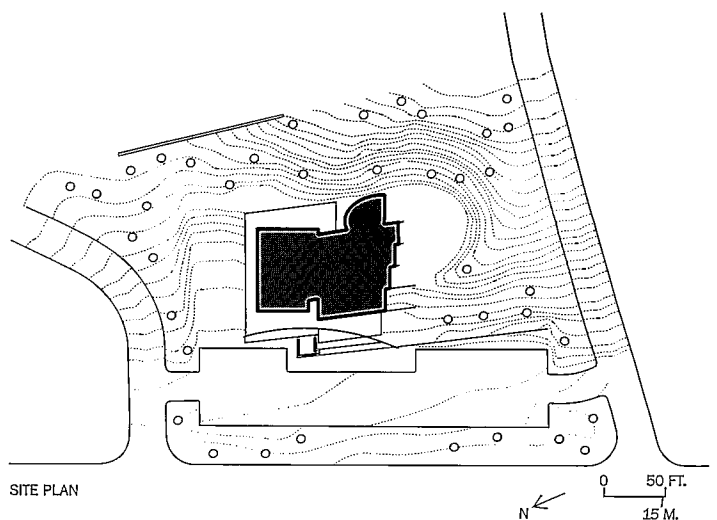
The building mass has been organized to reflect and defer to the topography of the site and to emphasize a sense of procession, from the entry on the ground level to the sanctuary on the upper level,

which contains the tallest spaces in the building. "From the beginning, we used the topography to make the building; we spent a lot of time working out the procession," explains Aaron Schwarz, a partner with Perkins Eastman.

The architects ramped the parking lot to accommodate a four-foot grade change from the bottom to the top, where a set of exterior stairs leads to the entrance. A poured-in-place concrete wall curves to welcome the visitor. An angled canopy and a large bronze door further punctuate this important entry.

Besides forming the entrance facade, the entry wall also establishes a datum line that extends into a plinth to form the lower story. This story supports the primary

New York City writer Elizabeth Kubany is an occasional contributor to ARCHITECTURAL RECORD.

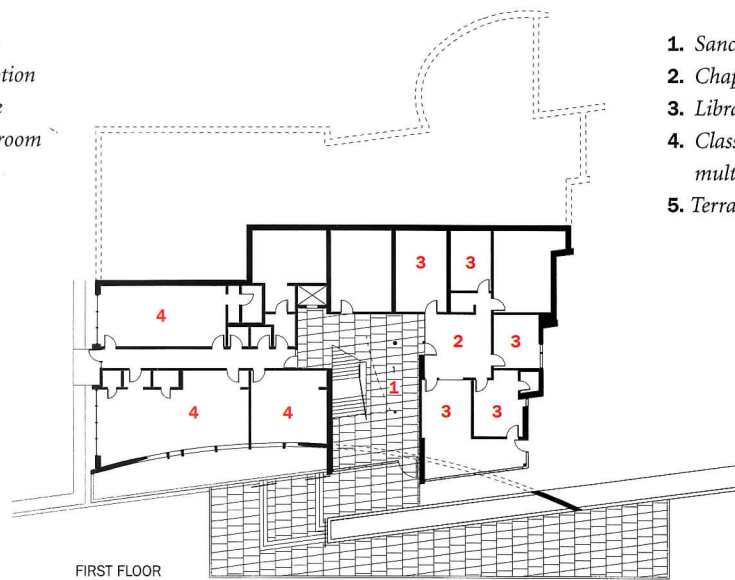




The arcing entry wall (left) establishes a datum line that forms the base of the building. Changes in the ceiling height on the second level (below) mimic the topography of the site, reinforcing the relationship between the synagogue and the hill it is built on.

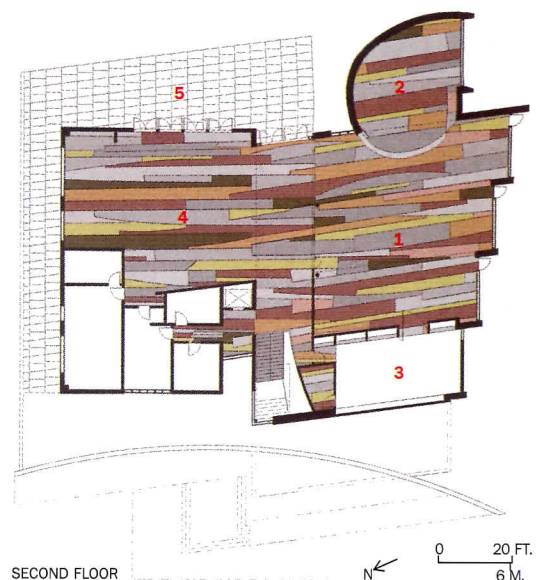


1. Entry
2. Reception
3. Office
4. Classroom



FIRST FLOOR

1. Sanctuary
2. Chapel
3. Library
4. Classroom/
multipurpose
5. Terrace



SECOND FLOOR



A glass, steel, and concrete staircase is part of the procession of hierarchically arranged spaces, from the first-floor entry, leading to offices and classrooms, to the second-floor sanctuary.



building mass, which houses the sanctuary.

Inside, a set of vertical windows and a clerestory window illuminate the entry hall, which allows passage to offices and classrooms on the ground floor. A sculptural granite-and-steel staircase leads from the entry hall to the second level.

The upper level is flexible and versatile. The sanctuary can be configured to take up almost the entire second floor or only a small part of it. Flexibility is critical because the congregation can vary in size from only a dozen worshippers to hundreds during the High Holidays. Movable partition walls, some pre-manufactured and others constructed on site by a metalworker, allow multiple configurations: one large room, three separate rooms (a sanctuary, a classroom, and a multipurpose space), or a combination of these.

Regardless of how the space is configured, south-facing windows bathe the entire sanctuary in bright light. Openings in the trusses that span the sanctuary have been glazed to form clerestories. These windows allow western light to shine on the bimah, a platform that holds the Torah, and enliven the space by dividing it into five bays. The western bay, separated from the sanctuary, can be used as a library; three bays in the center (the

tallest being 35 feet high) form the bulk of the sanctuary; and a short chapel-like bay at the eastern end normally holds the bimah.

When the large multipurpose room is opened up to the sanctuary to accommodate a large gathering, the congregation faces south instead of east. The architects designed the bimah so it could be relocated for these occasions. In most synagogues the Ark is located behind the bimah; here a freestanding 25-foot rotating Ark—a cubist composition of steel and wood that holds three Torahs and the eternal light—serves both arrangements.

Mills stresses that “there was no money to spend on finishes.” Besides the Ark, the lectern, and the staircase, Mills designed a custom carpet for the entire upper level in a geometric pattern that resembles the local fieldstone.

The end result of this difficult building program is, according to Rabbi Edward L. Schechter, a synagogue that “functions so well we can do everything we want to.” ■

Sources

- Windows and curtain wall:** *Hurd*
- Built-up roofing:** *G.A.F.*
- Lay-in ceilings:** *Armstrong*
- Paints and stains:** *Benjamin Moore*
- Plastic laminate:** *Nevamar*
- Custom carpeting:** *Shaw Carpet*
- Lighting:** *Halo, Edison Price, Litecontrol*

The pattern of the carpet on the second floor (plan left), custom designed by architect Ed Mills, is influenced by the local fieldstone. The small chapel (right) is the normal resting place for the custom-designed bimah (below), which holds the Torah for reading. The Ark (right), seen to the right of the bimah,

holds three Torahs and the eternal flame. During the High Holidays, the anigre-veneered partitions can be opened and the seating rearranged to allow for a larger congregation. On these occasions, the locations of the bimah and the Ark are adjusted to maintain the proper orientation.



2 St. Thomas More Catholic Church Sarasota, Florida

TEN YEARS AFTER THE ORIGINAL CHURCH WAS BUILT, THE SAME ARCHITECT DESIGNS A NEW PARISH HALL AND COURTYARD.

by Beth Dunlop

Project: *St. Thomas More Catholic Church, Sarasota, Florida*
Client: *Father Eugene Ryan, Ray Haddad, Frank Faga for the Diocese of Venice*
Architect: *Carl Abbott, FAIA, Architects/Planners—Carl Abbott, principal-in-charge of design; Gregory Hall, AIA, project manager; Cooper Abbott, planner; Michael O'Donnell, project manager*
Consultants: *Willy Malarcher (liturgical)*
Engineers: *New parish center—Stirling Wilbur (structural); A.M. Engineering (civil); A. J. Sanchez (mechanical/electrical)*
Existing church—A. L. Conyers (structural/civil); W. R. Frizzell (mechanical/ electrical)
Contractor: *Halfacre (new parish center)*

St. Thomas More Catholic Church sits on 20 wooded acres in suburban Sarasota. Though the site is surrounded by houses on all sides, the church is completely obscured from view, as if it were literally a church in the pine forest. Indeed, the intent of the architect, Carl Abbott, FAIA, was “to do a building that was quiet in its environment yet had a certain kinetic energy as well.”

To get to the church, one parks at the periphery of the grounds and walks through the Southern slash pines and saw palmettos, the native landscape of the Florida Gulf Coast. The church is low slung and has no steeple, deferring to the trees that reach high above the roofline. In keeping with the environment, it is not white but a silvery gray that resembles the trunk of a royal palm tree, and is clad in a heavily textured blown-on stucco, perhaps to give it a barklike texture.

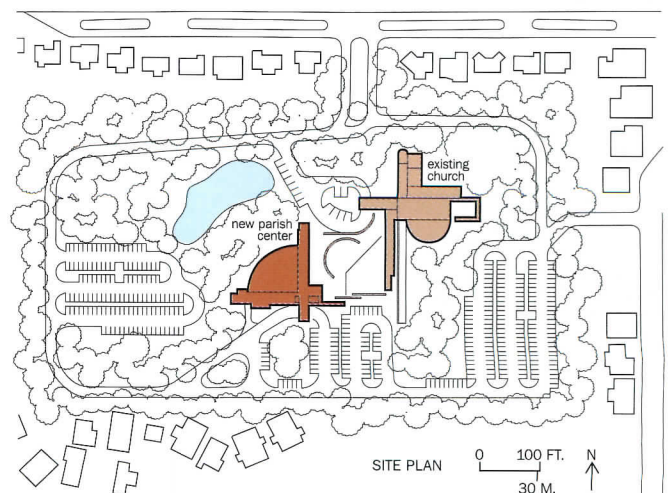
While the church complex does offer a respite from the world, it is also a center of activity. The parish has become one of the biggest and busiest in Sarasota, drawing worshippers from a wide area. The original church—a sanctuary, a chapel, and a cloistered garden—is now a decade old; the parish hall and central courtyard, also

Beth Dunlop is a contributing editor for RECORD and was the Miami Herald's architecture critic from 1979 to 1993.

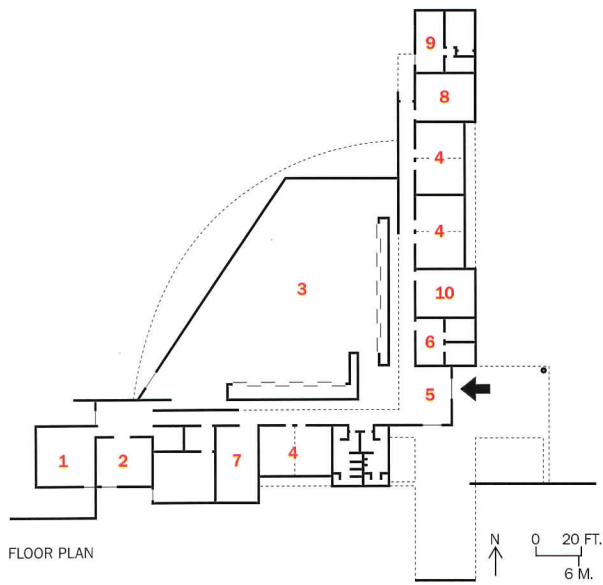
designed by Abbott, were completed earlier this year.

Abbott was selected to design St. Thomas More in part because he was not a Roman Catholic. The congregation was beginning to use the Church's new liturgy and wanted an architect with few preconceptions

about how the worship space should evolve. Abbott came to see the Mass as a kind of movable feast, one that may involve a certain amount of choreography, as worshippers visit the Stations of the Cross and walk up to receive the Eucharist. The church was designed



1. Banquet room
2. Kitchen
3. Main room
4. Meeting room
5. Lobby
6. Office
7. Storage
8. Senior room
9. Apartment
10. Youth room



The main hall of St. Thomas More's new parish center (below) overlooks a pond and a forest of palmetto and slash pine trees.

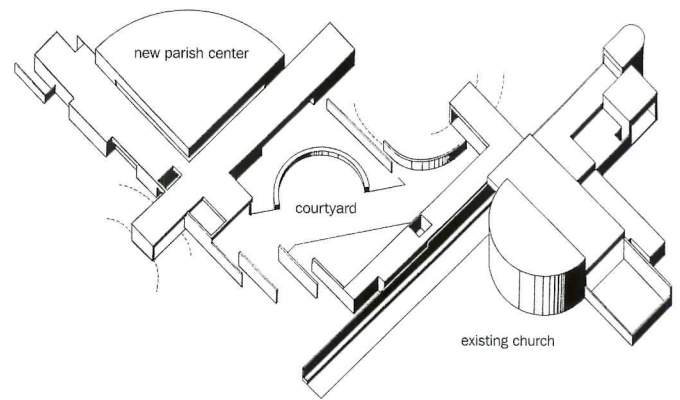
A courtyard (above)—formed by the walls of the church and parish hall and freestanding curved walls—separates the two buildings.



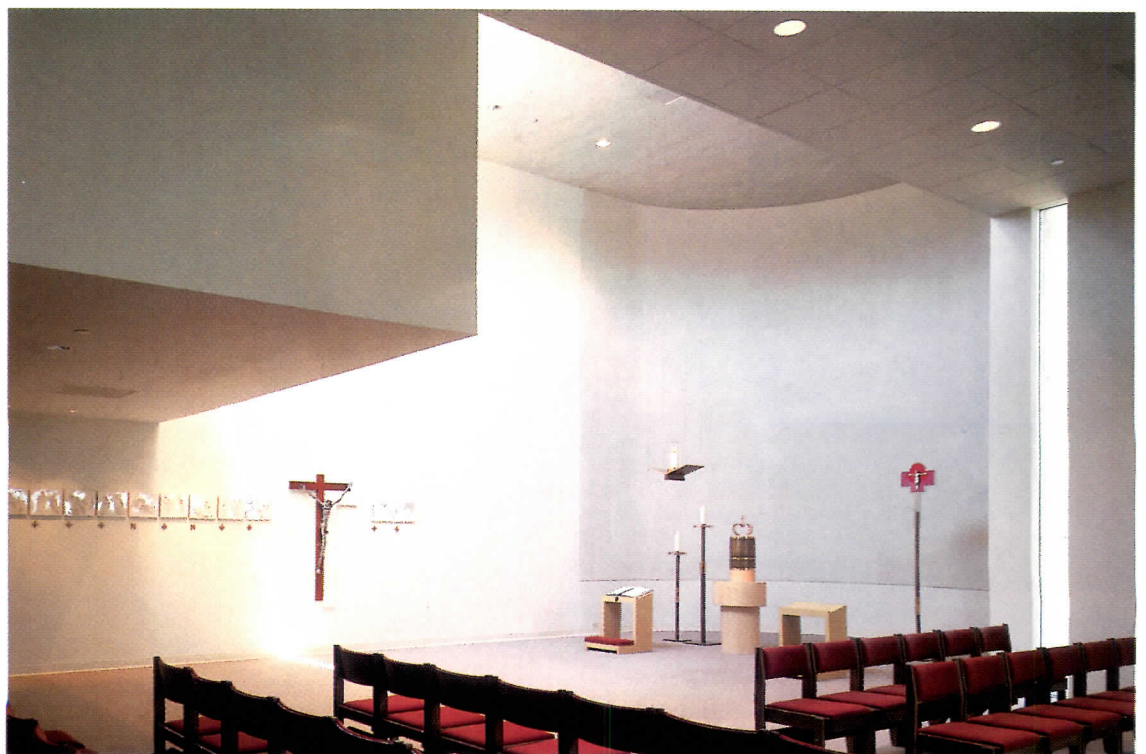
AN EVOLVING CHURCH IS EXPRESSED BY RIGID FORMS SET WITHIN CHAOS

Both the original church (right in axonometric) and the new parish hall (left in axonometric) are pieced together from rigid geometric forms. Architect Carl Abbott intended for the design of the church, built 10 years ago (photos this page), to provide a sense of order and structure amid the uplifting but randomly spaced trees on the site. Taken together, the church's forms, set in an environment of natural chaos, symbolize the stable but ever-changing Catholic church. The main

sanctuary, which can accommodate as many as 850 worshippers, is an exercise in simple geometry, a half-circle linked to a half-square, and functions as a kind of theater-in-the-round. Abbott knew that the space needed to be flexible enough to embrace the evolving needs of the church liturgy. Merging the half-circle and half-square seemed appropriate: it was a nod to the apsidal church narthexes of the past but inflected by the crispness of modern geometry. *B.D.*



The altar in the main sanctuary is placed on a cross-shaped platform (above). To one side of the narthex is a cloistered garden (above right), which refers to a historical sacred space but is designed and positioned in an unexpected manner. The semicircular chapel altar (right), at the end of a 240-foot-long processional walkway, contains the reserved Eucharist and is lighted by clerestory windows.





The floor-to-ceiling windows of the parish hall's main room provide views of the pond and church grounds. The space can seat as many as 1,000 people.



An interior corridor in the new parish hall (above), which leads from the main room to

a series of meeting and classrooms, is illuminated by clerestories. These windows

relate to those in the original church, built 10 years earlier.

after numerous personal conversations with the priest and many parishioners, as well as an open forum. Churchgoers asked Abbott for a design that would reflect the Catholic faith's new freedom and modernity; they wanted a church that would welcome and embrace them, not an untouchable monument set apart by ritual and long-standing church roles.

The church stood alone for almost a decade until the diocese was ready to add the supporting spaces. At that point the full plan began to take shape. Abbott looked at a number of larger churches and found them dark and self-contained, which didn't seem appropriate in Florida's sunny climate. Instead, he chose to position the parish center so as to create a courtyard that would be "the heart of the whole complex." Large and walled, the courtyard is at once a link between the two buildings and its own entity. Some walls are formed by the building facades; others are freestanding, in the tradition of Luis Barragan. Both straight and semicircular walls appear in the courtyard.

The design of the parish hall, used for meetings, social events, wedding receptions, and other ancillary functions, is a variation on the church's simple geometry. In plan, two rectangular bars, which house offices and support facilities, embrace the main hall, a precise

quarter-circle in form. Abbott used basic building materials—concrete, stucco, and glass—and a restrained design so as not to compete with the natural landscape.

He also made the most of the opportunity to use light as an architectural element, to provide a sense of both repose and celebration. In the sanctuary and the chapel, he says, the light is "contemplative and reflective," while the parish center is "sparkling with direct sun—active and energetic." Where he wanted infusions of light and views, Abbott used window walls. The curved facade of the parish center, for example, looks out onto a small pond (built for water attenuation but used in a picturesque manner).

Creating successful adjuncts to existing buildings is, in a way, not unlike designing ideal marriage partners. At St. Thomas More, the old has been joined to the new by making forms and materials compatible and by repeating common themes, such as the use of clerestories throughout to bring light into the spaces. ■

Sources

Windows, glazing, and entrances:

Kawneer Company

Hardware: *Schlage Lock Company*

Acoustical ceilings: *Armstrong World Industries*

Demountable partitions: *Modernfold*

Paints: *Sherwin-Williams*

3

Joseph Slifka Center for Jewish Life, Yale University New Haven, Connecticut

BOTH SYMBOLICALLY AND FUNCTIONALLY, A NEW JEWISH CENTER COMBINES A SENSE OF COMMUNITY WITH OPENNESS TO THE WORLD.

by John Morris Dixon, FAIA

Project: *Joseph Slifka Center for Jewish Life, Yale University, New Haven, Connecticut*

Owner: *Friends of Yale Hillel Foundation*

Architect: *Roth and Moore Architects—Harold Roth, FAIA, William Moore, AIA, partners-in-charge; Randall Luther, David Thompson, George Clemens, Lawrence Odjfell, Amy Beierle, David Roth, design team*

Consultants: *Spiegel Zamecnik & Shah (structural); BVH Engineers (mechanical and electrical); Jack Curtis & Associates (landscape); Cavanaugh Tocci (acoustical)*

General Contractor: *Stone Building Company*

Only a few decades ago, the very presence of Jewish students on Ivy League campuses was hotly debated. And until recently campus Jewish organizations typically met in makeshift quarters. But the last few years have seen the construction of Jewish centers at Princeton (Robert A.M. Stern Architects, 1993), Harvard (Moshe Safdie and Associates, 1994), and Dartmouth (R. M. Kliment & Frances Halsband Architects, 1997). At Yale, architect Harold Roth, FAIA, a partner at Roth and Moore Architects, has been involved in planning the Joseph Slifka Center for Jewish Life for more than 30 years, a long, beneficial gestation period.

The design of such a building raises complex questions of both function and symbolism. The center has to serve as a place for worship, social gathering, study, cultural events, and kosher food service. For its constituents, who differ widely in religious practices and lifestyles, the building serves a great variety of needs. Every week, the center accommodates services for Orthodox, Conservative, and Reform groups simultaneously.

To the rest of the university, a Jewish center represents one of many groups whose traditions both

enrich and divide the community. How distinctive should such a building look? How anonymous? How closed or how welcoming? Is there any appropriate way for it to look Jewish?

The Slifka Center's director, Rabbi James Ponet, a 1968 Yale graduate, wanted above all to avoid an image of isolation. He is satisfied that his building is welcoming to all, and that those who come here will "know they're at Yale." Actually, the

building is on land leased from Yale and was built by an independent nonprofit group. (In a creative funding strategy that could be applicable to other university-linked structures, contributions to the center were counted toward Yale alumni fund goals, but only for a limited period, thus encouraging timely donations.)

The new structure is set off subtly from the modest Federal- and Italianate-style red brick



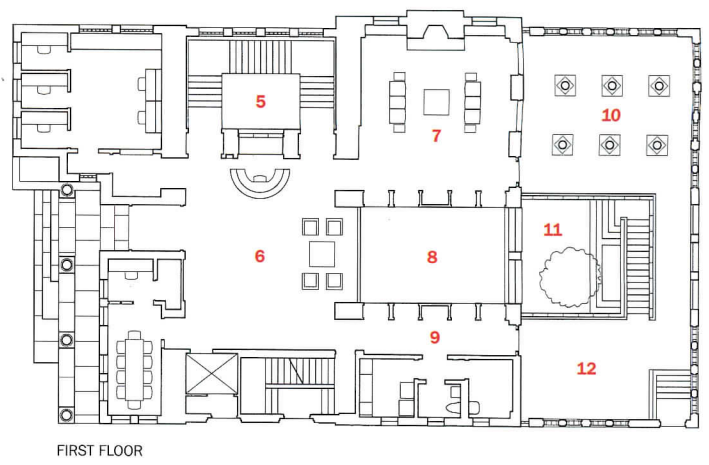
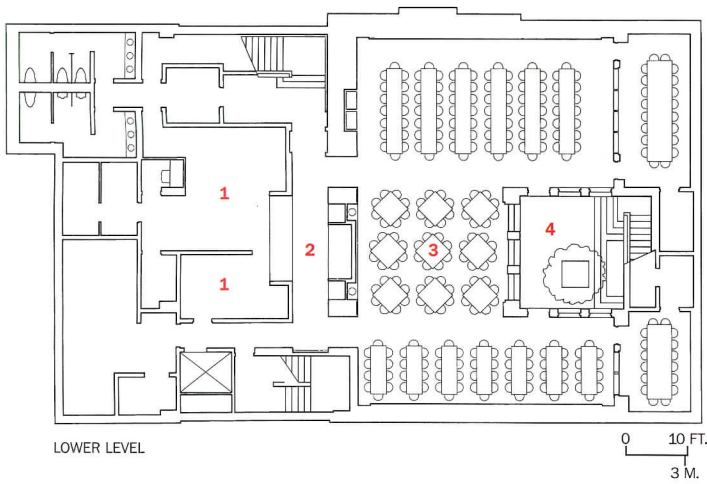
John Morris Dixon, FAIA, was the editor of Progressive Architecture from 1972 to 1996.



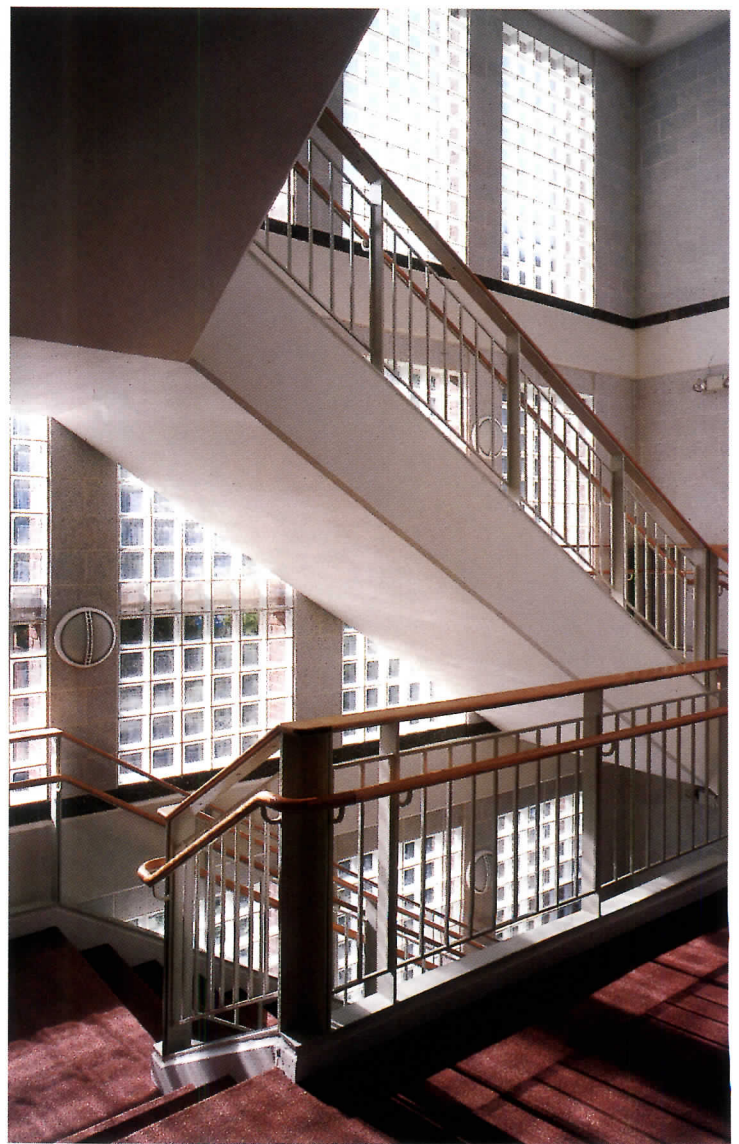
The building's brick walls continue the predominant material on this small-scaled streetscape (opposite). Bold cast-stone elements recall Yale's more monumental buildings and suggest the building has an institutional purpose. The setback and the arcade (left) provide a transition from the street; the arcade covers a low-slope ramp.

The sukkah (right) is a permanent framework for the outdoor shelter used in the Sukkoth harvest festival. Here it fulfills a ritual purpose while also serving as a trellis for one of the building's south terraces. Because all materials used in a sukkah must be natural, wood columns are concealed in concrete, and the beams are solid redwood.

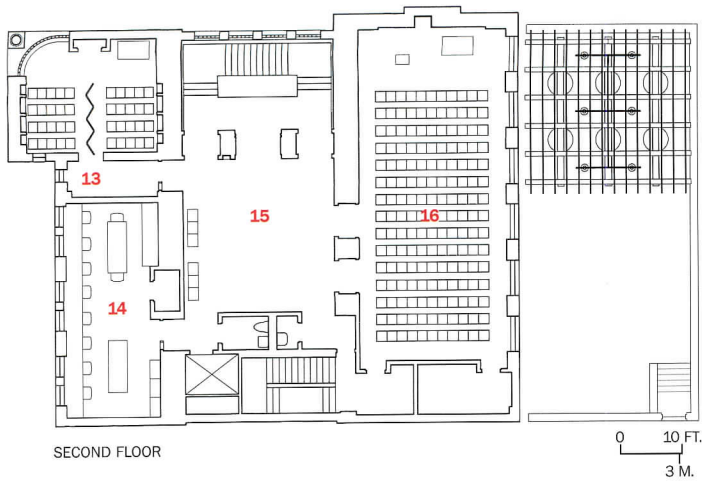




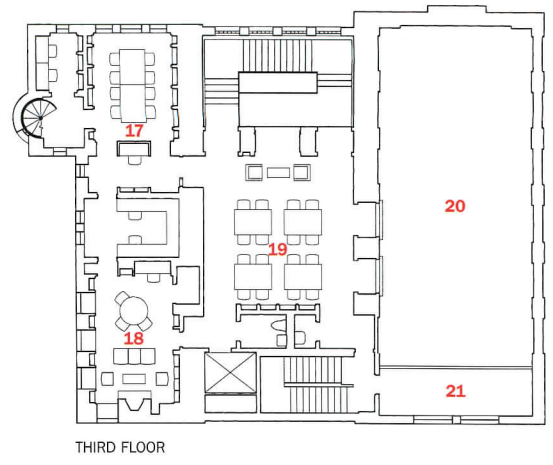
- | | | |
|-------------------|-------------------|--------------------|
| 1. Kosher kitchen | 5. Reception | 9. Gallery |
| 2. Servery | 6. Lobby | 10. Sukkah |
| 3. Dining room | 7. Living room | 11. Open to garden |
| 4. Garden court | 8. Open to dining | 12. Terrace |



The dining room (left) and the main stairway (above) have large glazed openings that allow a generous amount of daylight to flow into the building.



SECOND FLOOR



THIRD FLOOR

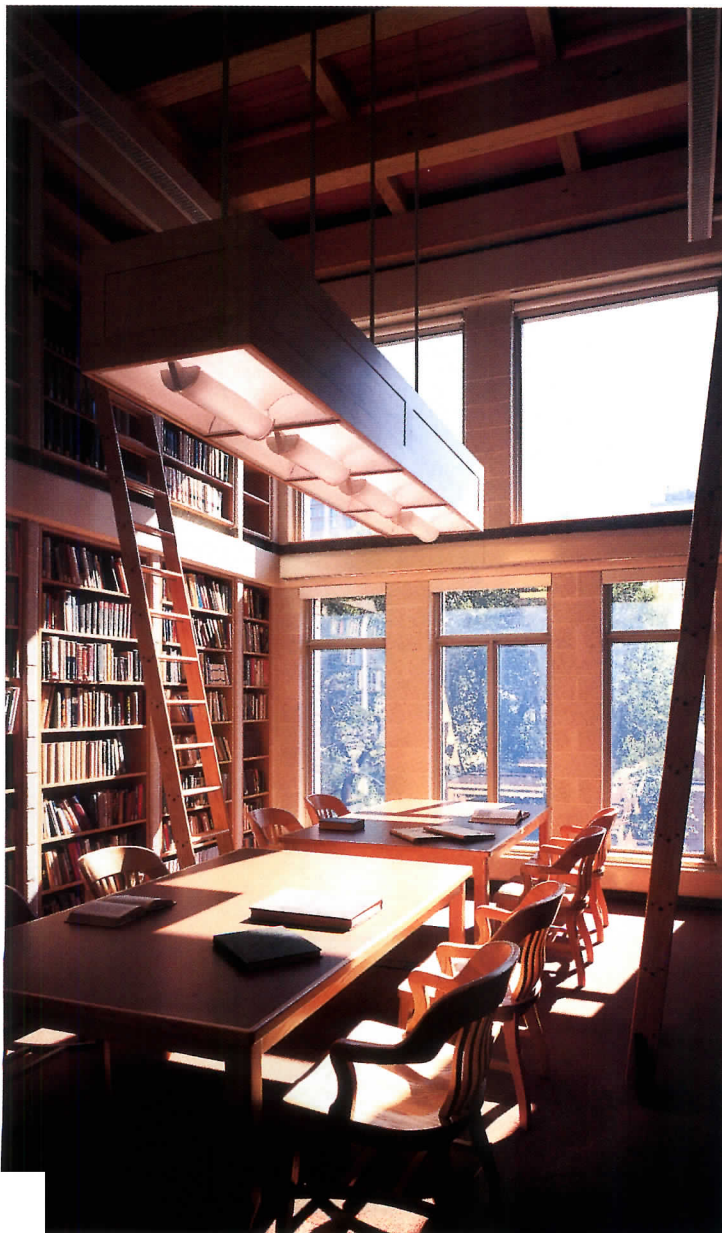
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|----------------------|-----------------------|--------------------|
| 13. Bait midrash | 16. Multipurpose room | 19. Study lounge |
| 14. Student programs | 17. Library | 20. Open to chapel |
| 15. Lobby | 18. Rabbi's study | 21. Balcony |



During Orthodox services in the secluded *bait midrash*, male and female worshipers are separated by a folding screen.



The sukkah (far left) as seen from the west entrance of the terrace. The garden court (left) is adjacent to the dining room on the lower level of the building. The library (below) offers a quiet respite for study, while the multipurpose room (opposite) is used for dances, lectures, movies, and Conservative sabbath services.



buildings that flank it. Recognizing that it will be approached sidelong down a narrow street, Roth has given depth to the building's facade: part of it is brought out to the sidewalk line and the rest is set back a few feet; a low arcade is carved out in front to provide space for socializing. Squat columns, brick arches, and inserts of cast stone recall Yale's prevailing Gothic Revival fabric while also alluding to the Middle Eastern origins of Judaism.

Before even reaching the glazed entry doors, the visitor can see that there is an open interior, flooded with daylight from the south-facing rear wall. Inside, a series of distinct but visually interconnected spaces are arranged around a central lobby. Straight ahead, the floor drops away to reveal the expansive, light-filled dining hall below. A reception desk stands discreetly to one side, near a broad, daylit stairwell that connects all four levels.

A sense of solidity was clearly a primary criterion for the interior. During the value-engineering phase, the architects and the chief benefactors successfully defended such elements as the ground-face block interior walls, the expanses of hardwood paneling, and the coffered concrete floor slabs, arguing that they were necessary for programmatic reasons: the massive floors, along with the heavy hardwood

doors and shutters that can close off rooms, make it feasible for Israeli folk dancing and quiet discussions to go on in adjoining spaces.

Durability is also a vital quality, since the building has attracted large numbers of users, some Jewish and some not. The dining room draws many people who had never frequented the kosher kitchen in the building that previously housed the Jewish center. In addition, the building is a popular location for lectures, concerts, and social events, some sponsored by non-Jewish groups.

The Slifka Center for Jewish Life combines a sense of community for its users with a feeling of openness to the world. Its envelope is tough yet permeable, the interior dignified but open. It is a building prepared to play a positive long-term role in the overall life—not just the Jewish life—of a great university. ■

Sources

Windows: EFCO Corp.

Skylights: Wasco Products

Fire doors: Cornell Iron Works

Hardware: Sargent

Acoustical tile: USG Interiors

Suspension grid: USG Interiors, Donn Finline

Quarry floor tile: Dal-tile

Carpet: Lees, Stratton

Exterior lighting: Bega



4

West Wall, St. Mark's Cathedral Seattle, Washington

A NEW ROSE WINDOW, BY OLSON SUNDBERG ARCHITECTS, CREATES A MAGICAL PLAY OF REFLECTED LIGHT.

by Sheri Olson, AIA

Project: West Wall, St. Mark's Cathedral, Seattle, Washington

Owner: St. Mark's Cathedral

Architect: Olson Sundberg Architects—Jim Olson, principal; Stephen Yamada-Heidner, project manager; Steve Kern, Brooks Brainerd, Kevin King, Joe Iano, project team

Artist: Ed Carpenter

Consultants: Coughlin Porter Lundeen (structural); KPF—Robert Grummel (structural engineer for altar screen glazing); The Greenbusch Group (mechanical); Michael Yantis & Associates (acoustical); Eskilsson Architecture (specifications); Wiss, Janney, Elstner (building envelope); Lightcrafters (lighting)

Contractor: Sellen Construction Company

During early evening services, weddings, and concerts at the 70-year-old St. Mark's Cathedral in Seattle, "The glare was so bad in the sanctuary that the congregation often wore sunglasses and hats to shield their eyes," says Jim Olson, FAIA, of Olson Sundberg Architects (no relation to the author). The intense sunlight is due to the cathedral's unique orientation: its altar is on the west, not the east like most churches, and its windows were not covered in stained glass.

This is just one of the unusual conditions addressed in the architects' master plan to renovate and expand the incomplete landmark by Bakewell & Brown. The Depression truncated the Neo-Byzantine design, stranding St. Mark's huge central transept without its intended spire, nave, or apse. As a result, the interior of the unfinished cathedral is a spare, almost austere, concrete box with grand proportions. "Our priority was to create a sense of transcendence while preserving the cathedral's simple majesty," says Olson.

A diaphanous new 57-foot-high steel-and-glass altar screen now modulates the harsh light. Originally, the commission called for a rose window in the west wall with a separate reredos (altar screen). It

Sheri Olson, AIA, is a writer and architect based in Seattle. She is a regular contributor to RECORD.

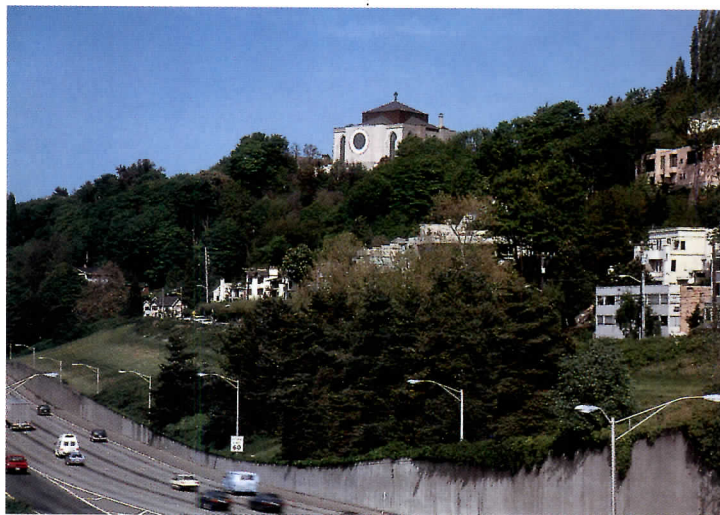
quickly became apparent that the window size permitted by the structural constraints—and by the desire to limit western sun—would appear too small in the vast sanctuary.

From this contradiction in scales a dramatic hybrid arose: a 21-foot-diameter circle cut in the exterior wall is aligned with a 28-foot-diameter "rose window" in a free-standing altar screen, which is placed 20 feet inside the church. Pulling these elements apart into distinct layers creates a small private chapel behind the reredos for prayer, meditation, or small ceremonies. Glimpses of a Celtic cross, which was once on top of the cathedral and is now relocated to the chapel, can be caught through the screen.

For the design of the reredos,

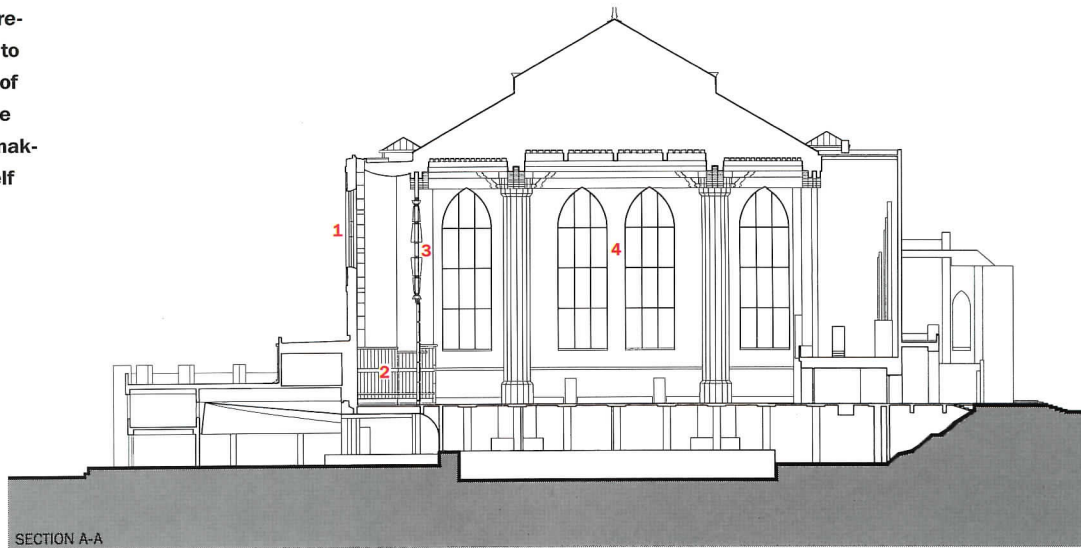
Olson Sundberg called on a past collaborator, Ed Carpenter, a Portland artist known for his large-scale glass installations. With Carpenter the architects developed a simple scheme: a grid of 200 two-by-four-foot kiln-fused glass panels that serve as a backdrop for the abstract glass rose window above.

An engineered system of small metal clips attach the panels to the steel structure while allowing the glass to expand and contract. To achieve the desired texture and translucency for the lower panels, glassmaker Doug Hansen carefully weighed and then melted chunks of clear plate glass (the only way to ensure a consistent one-inch thickness). In contrast to the milky subtlety of the screen, the rose window is three concentric rings of

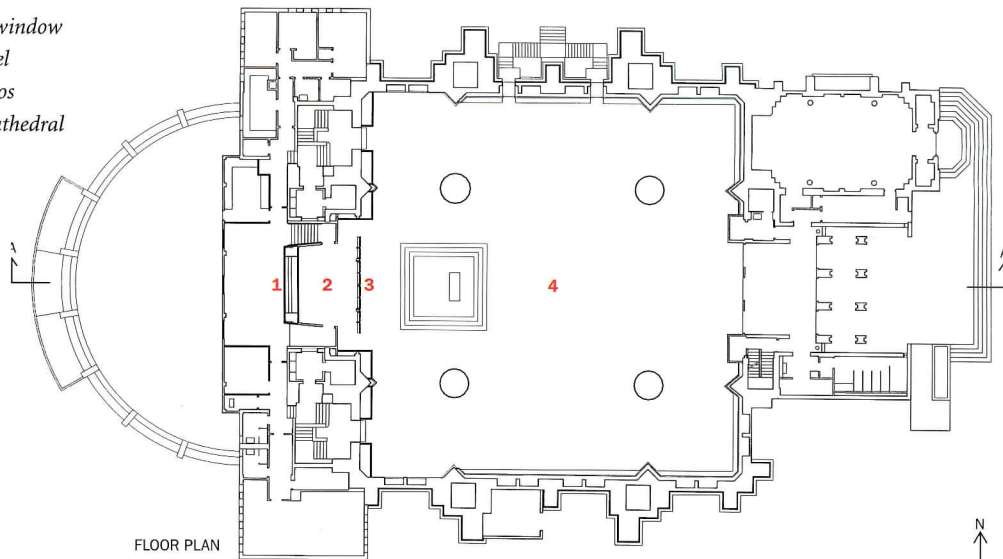


The design of the new rose window and reredos arose as a way to control the amount of sunlight entering the sanctuary without making the window itself appear too small.

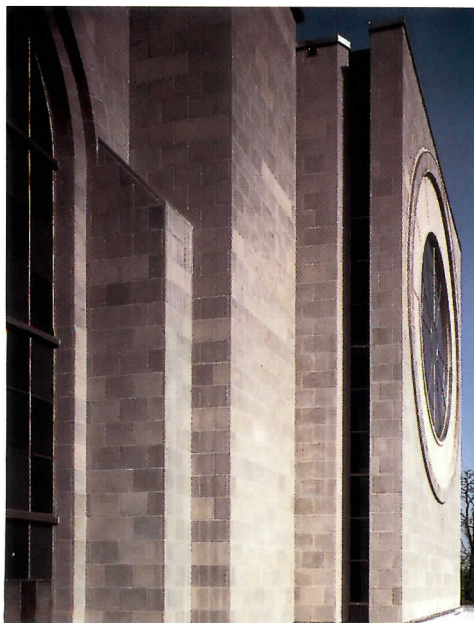
1. New rose window
2. New chapel
3. New reredos
4. Existing cathedral



1. New rose window
2. New chapel
3. New reredos
4. Existing cathedral



Originally St. Mark's Cathedral was to be covered with stone, but due to the Depression, its concrete superstructure was left bare. The west walls of the church are the first to be clad in pale gray Indiana limestone; the rest of the church will be covered eventually.



laminated glass panels; the two inner rings are clear, fritted glass; the outer is dichroic glass. Setting each of the panels on end exposes a knife-edge polished surface to the sanctuary, making the whole piece sparkle and enhancing its three-dimensional quality. Angling the glass also optimizes the kaleidoscopic colors produced by dichroic glass when light interacts with its surfaces. "It's a beautiful effect, but we limited the amount of dichroic glass because too much can get gaudy," says Carpenter.

St. Mark's sanctuary already had remarkable acoustics—perfect for choral concerts and organ recitals from the large Flentrop organ—so it was of special concern that the new altar screen not damage this quality. The danger was that the small chapel formed by the screen within the large volume of the sanctuary might dampen the acoustics, deadening the overall sound. Working with acoustical engineer Michael Yantis, Olson Sundberg subtly angled the back walls of the chapel and increased the spacing between the individual glass panels, allowing the screen to "acoustically breathe."

Camouflaged within the overall composition of the screen is a pair of 28-foot-tall doors that open and shut for acoustical fine tuning. While not part of the original program and requirements, the congregation now

finds the doors indispensable for ceremonial purposes. "During the processional the choir will often start to sing while hidden behind the screen, producing an ethereal sound," says Yantis. "As they emerge from behind the screen, they also emerge acoustically."

At night, light from the new rose window acts as a beacon on a hill above Seattle. During the day, the roundel is highly visible from the city below, its apparent size increased by its installation within a large limestone circle. This prominent western elevation is the first of the "temporarily" exposed concrete exterior walls to be clad in pale gray Indiana limestone. Eventually all of the corroded sanctuary windows will be rebuilt and reglazed with a subtle frit pattern and tint to minimize glare, as were the two arched windows on either side of the rose window. Olson Sundberg is also designing new liturgical furnishings including an altar platform, a lectern, and an ambo. "I now know how the medieval cathedrals builders must have felt," says Olson, describing the work on St. Mark's, which stretches before him into the next century. ■

Stone: *Indiana limestone*

Aluminum windows: *Custom Window*

Low-e glass: *Northwest Industries*

Fused clear glass: *Douglas Hansen and Associates*

Understanding Accessibility Laws

WHILE THE COURTS ARE CONSIDERING THE LIABILITY OF ARCHITECTS FOR ADA COMPLIANCE, THE FEDERAL GOVERNMENT IS REVIEWING AND REVISING DESIGN GUIDELINES.

by Nancy Solomon, AIA

Eight years have passed since Congress enacted the Americans with Disabilities Act (ADA) on July 26, 1990. While awareness of the needs of the disabled has certainly increased, and more buildings are more accessible to more people, much about the law is still in flux—from whether architects are directly liable if their buildings don't meet ADA requirements to the format and content of the law's design criteria. To minimize the risk associated with an ADA violation, architects would be wise to remain abreast of ongoing legislative developments and take advantage of the available tools and resources.

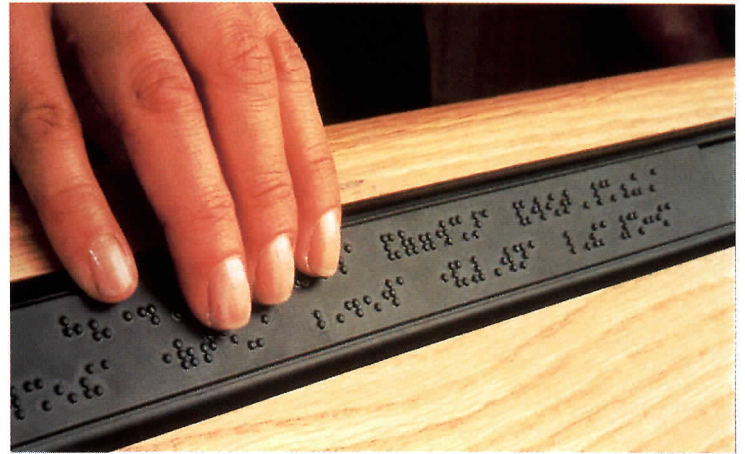
The ADA is a broad, sweeping civil rights law that prohibits discrimination on the basis of disabilities. Title I of the legislation addresses employment practices; Title II covers programs, services, and activities of state and local governments; Title III considers public accommodations and commercial facilities; and Title IV requires relay operators for telephone systems.

Recognizing the tremendous expense in removing all existing barriers, the law allows for different thresholds of accessibility. While new construction projects must be fully accessible, for example, only a percentage of construction funds must be earmarked for accessibility improvements for alterations or renovations. Finances permitting, owners of existing places of public accommodations must make readily achievable upgrades on a continuous basis. In addition, although buildings housing public programs administered by state and local governments must be accessible, not every existing space inside them need be.

Several agencies have jurisdiction over parts of the ADA. The Equal Employment Opportunity Commission handles regulations, technical assistance, and enforcement of Title I. The Department of Justice does the same for Titles II and III, and can also certify that a state or local accessibility code is equivalent to the ADA's requirements for new construction and alterations. The Department of Transportation handles regulations, technical assistance, and enforcement of transportation requirements under Titles II and III. The Federal Communications Commission oversees Title IV. And the U.S. Architectural and Transportation Barriers Compliance Board, an independent federal agency often referred to as the Access Board, develops the technical design guidelines and offers technical assistance on architectural, transportation, and communications issues.

The ADA is one of several laws designed to help the disabled community. The Architectural Barriers Act of 1968 applies to facilities designed, constructed, altered, and leased with certain federal funds. The Rehabilitation Act of 1973 requires programs that receive federal financial assistance to be accessible. And the Fair Housing Amendments Act of 1988 targets multifamily dwellings.

Nancy Solomon, AIA, is a freelance writer located in Beltsville, Maryland, and frequently contributes articles on technology to ARCHITECTURAL RECORD.



These laws have generated several accessibility guidelines. The Uniform Federal Accessibility Standards (UFAS) are issued by the General Service Administration, the U.S. Postal Service, the Department of Defense, and the Department of Housing and Urban Development for the Architectural Barriers Act. UFAS is based on the Minimum Guidelines and Requirements for Accessible Design, which are developed by the Access Board. UFAS is also the minimum standard for the Rehabilitation Act. Within ADA, private and commercial entities must follow the Justice Department's Standards for Accessible Design based on the Access Board's Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG) or a certified equivalent. State and local governments can follow either ADAAG or UFAS. For the Fair Housing Act, architects can heed the Fair Housing Act Accessibility Guidelines, issued by HUD, or CABO/ANSI A117.1 1986. In the meantime, most building codes have historically cited CABO/ANSI A117.1 as a reference on accessibility. Not surprisingly, a large part of the confusion among architects is the plethora of regulations and guidelines.

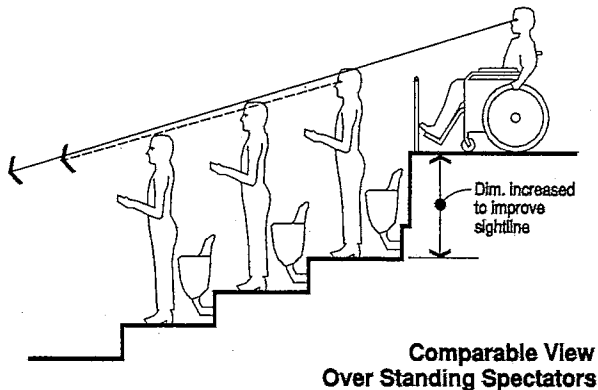
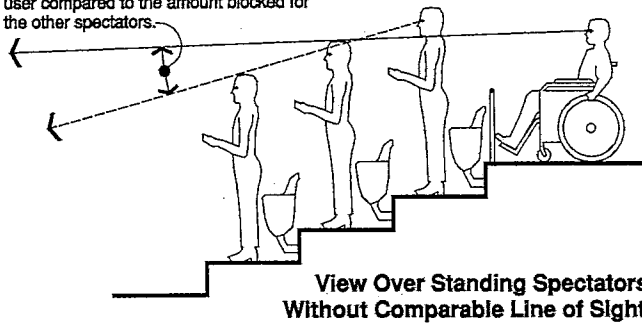
The Raynes Rail is a wayfinding system developed for the visually impaired by Coco Raynes Associates. It provides information using Braille and audio messages.

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 136 and follow the instructions.

Learning Objectives After reading this article, you should be able to:

1. Describe the scope of the Americans with Disabilities Act.
2. List the agencies that have jurisdiction over ADA compliance.
3. Contrast the AIA's position on the legal liability of architects in regard to ADA to the Department of Justice's position.
4. Describe the current method of merging different accessibility guidelines into one.

The difference in the viewing angles will determine the amount of action blocked for the wheelchair user compared to the amount blocked for the other spectators.



Legal action

Since the law was enacted, lawsuits filed by individuals, groups representing the disabled, and the Justice Department for alleged ADA violations have tested the intent and language of the law in courts throughout the country. In some cases the critical question is who is liable for the infraction. In others, interpretations of specific content or requirements of the law are being argued.

From the architect's perspective, one of the most closely followed series of suits has been that filed against Ellerbe Becket Architects and Engineers, headquartered in Minneapolis. In June 1996, in a federal district court in Washington, D.C., the Paralyzed Veterans of America filed a suit against the firm and the owners and operators of the city's MCI Center. The veteran's group protested that the new arena failed to provide the disabled with a line of sight to the playing field comparable to that provided for able-bodied spectators. Specifically, the plaintiffs complained that people in wheelchairs could not see over the heads of people below who stood during particularly exciting parts of the game.

The Justice Department filed another suit in October 1996 in the U.S. Federal District Court in Minneapolis. Like the Paralyzed Veterans, the Justice Department argued that the firm failed to provide comparable lines of sight in six stadiums across the country. In the fall of 1996 two disabled persons filed suit against the owners of the Florida Panthers Arena and architect Ellerbe Becket, alleging that

Evan Terry Associates, accessibility consultants, proposed this solution to sight line problems in stadiums.

the firm failed to provide comparable lines of sight in six stadiums across the country. In the fall of 1996 two disabled persons filed suit against the owners of the Florida Panthers Arena and architect Ellerbe Becket, alleging that

RESOURCES TO HELP WITH THE RULES

Given the complexity of the law and the seriousness of a violation, experts on all sides stress the importance of education. "This is not a statute that our members are purposely violating," says Stuart Binstock, former vice president of federal affairs at the AIA. "It is a complicated area, and many times, if violations have occurred, they come out of ignorance rather than purposeful avoidance of the law."

"First and foremost, architects should read the regulations—all of them," says Marsha Mazz of the Access Board. "The biggest mistakes I have seen are made by architects who want to use the ADA Accessibility Guidelines all by themselves. The ADAAG are just part of a larger body of regulations. The Department of Justice regulations include lots of information in addition to standards." Mazz also warns architects to make sure they have the right regulations for the client and the project.

In addition, code consultant Steven Winkel reminds architects that they must think about accessibility at the beginning of a project—during site planning and schematic design, when it is still relatively easy to make any necessary adjustments.

And Donald R. Hanks, an architect with BFE Architecture in Raleigh, North Carolina, adds, "When the project gets too big or complex, nothing can substitute for a consultant who specializes in accessibility. Architects are missing a lot of the detail since they are not working with the codes every day. You have to totally immerse yourself in them. You have to know the intent and be able to interpret the laws. And you also have to know the whole spectrum of users and what their different needs are."

Following are two of the most useful resources available for architects on the subject of accessibility guidelines.

U.S. Department of Justice, Civil Rights Division, Disability Rights Section

ADA information line: 800/514-0301; 800-514-0383 (TDD)
www.usdoj.gov/crt/ada/adahom1.htm
 Department of Justice regulations, general information, and technical assistance can be obtained by phone or fax. Regulations, technical assistance materials, enforcement activities, status of building code certification, and information on proposed changes in requirements are also available.

U.S. Architectural and Transportation Barriers Compliance Board

ADA technical assistance line: 800/872-2253; 800/993-2822 (TTY); www.access-board.gov
 The ATBCB (the Access Board) has several architects and accessibility specialists on staff, each with an expertise relevant to different areas of rulemaking—with respect to ADAAG, the Access Board is the final authority. The Access Board will custom develop and deliver a training session for an office or a

chapter workshop without a fee (they ask only that their travel and accommodations costs be reimbursed). Most training sessions can be accomplished for less than \$500 and range from a half-day to three days. More than 6,000 slides are available as visual aids, as well as handouts that include recent rulemakings, ADAAG, technical assistance bulletins, and other materials to update attendees' files. Programs can focus on a specific project, a new guideline, or can clarify issues raised by the audience.

Visit the board's Web site for more information on its activities—there are eight rulemakings under way that will be of interest to many readers. Most of these rules will add new special-application sections to ADAAG over the next few years.

The AIA has an on-line forum at www.e-architect.com/gov/ada.asp to collect member comments on the Recommendations for New ADAAG. A task force will use these opinions to create an AIA consensus report, which will be sent to the board after the proposed rule is issued.



Providing accessible facilities for customers is simply good for business. A wheelchair-accessible lavatory at the New York New York Hotel and Casino in Las Vegas (left) and a ramp-accessible exercise pool at the Wellness Center in Manitoba, Canada, allow more people to use these facilities.



the new stadium in Broward County was inaccessible in various respects, including line of sight.

These cases against Ellerbe Becket have been resolved. The architects were dismissed prior to the trial phase of the D.C. case in July 1996 by the judge, who ruled that architects were not directly liable under the ADA. In February 1997, the U.S. District Court of Southern District of Florida determined that architects were directly liable and kept Ellerbe Becket in the Panthers Arena case; however, the case was dropped by the complainants. In October 1997, the U.S. District Court in Minnesota denied a motion by Ellerbe Becket to dismiss the case against the firm. Ellerbe Becket and the Justice Department subsequently agreed to a consent order in May of this year. It stipulates that in the future the firm will use guidelines that the government says will ensure that spectators in wheelchairs can see the action in stadiums, even when fans are standing in front.

The AIA, which has filed a friend-of-the-court brief in the Washington and Minneapolis cases, argues that the ADA did not intend for architects to be sued directly under the act. Architects are responsible to the owners for ADA compliance through a contract for professional services, and must perform to a professional standard of care, according to the AIA's Statement on Universal Accessibility and ADA in its Americans with Disabilities Act and Fair Housing Act Resource Supplement.

According to Stuart Binstock, former vice president of federal affairs at the AIA, the difference between suing an architect under a contractual relationship and suing directly under ADA is in the standard of liability: Within a contractual relationship, architects may be sued under tort law for violating their reasonable standard of care. Under ADA, the standard is strict liability. Under a contractual obligation, therefore, an architect can argue that he or she did what could reasonably be expected in that particular situation. No such excuse is acceptable under the civil rights legislation—the architect would simply be liable if a violation is found, no matter what the extenuating circumstances.

Despite the AIA's position, some accessibility experts believe that eventually the Department of Justice's position is likely to prevail. "If I were a conservative architect, I would be nervous," says Kathy Gips, director of training at Adaptive Environments in Boston.

Certification process

Unlike standards referenced by a building code, no official is authorized to review an architect's decisions about ADA Accessibility Guidelines during the design process. "Enforcement is done after the fact," explains code consultant Steven R. Winkel, FAIA, an architect and civil engineer in

Berkeley, California. "This is unfortunate, because when it comes to the built environment, change is always easier on paper than in the field," he says. To redress this, the ADA requires the Justice Department to review any building codes submitted by state and local authorities to determine if they meet the same or comparable accessibility standards.

Unfortunately, to date only four state building codes have been certified, those in Washington, Texas, Maine, and Florida. New Mexico, Minnesota, New Jersey, Maryland, California, the Village of Oak Park, Illinois, and the County of Hawaii, Hawaii, are awaiting code review. "We think that is too slow," says Binstock. According to Binstock, the Justice

NO CODE OFFICIAL IS AUTHORIZED TO REVIEW AN ARCHITECT'S DECISIONS CONCERNING ADAAG DURING DESIGN.

Department is trying to hire more staff to speed up its ability to certify state codes. "The certification of codes is crucial," continues Binstock, "because once a code is certified, a project that complies with the certified state or local code complies with ADA." This provides some predictability for the private sector—something that presently does not exist in locations where a code has not been certified by the Justice Department.

ADA Accessibility Guidelines revisions

On another front, the Access Board is supplementing and refining its original guidelines. Last January the board issued what it calls final rules regarding children's facilities, courts, and jails.

The rules for children's use permit a designer to specify a child-sized accessible element, such as a toilet room, rather than its adult-sized equivalent, in rooms designated for children, such as a nursery school room. Before the advent of these guidelines, design professionals were not required to provide child-sized facilities and often did not, even though this would seem to be a matter of common sense. "The ruling does not require additional child-sized elements in facilities not primarily designed for children," explains Marsha K. Mazz, technical assistance coordinator at the Access Board, "even if children may sometimes be present." The children's rule will apply to Titles II and III when adopted by the Department of Justice.

The final rules for judicial and detention facilities give scope and technical design guidance to these two building types. Until now, ADA Accessibility Guidelines had not stipulated design guidelines targeted to the unique needs of these facilities. Among other requirements, the

judicial section states that jury boxes and witness stands must be accessible, and the detention section reduces the percentage of accessible jail cells from five to two. Title II entities—state and local agencies—may elect either UFAS or ADA Accessibility Guidelines 1–10 as the design standard for new construction or alterations.

Like all guidelines published by the Access Board for ADA, these are not enforceable until the Justice Department issues them as standards. The department is expected to write appropriate preambles, submit the proposed requirements for public comment, and issue their own final rules later this year. Of even greater interest to architects, however, is the Access Board's ongoing review of the ADA's guidelines as a whole. In 1994 the Access Board convened a federal advisory committee to reconsider the ADA Accessibility Guidelines in their entirety.

Although periodic review of regulations is standard for a federal agency, such a committee is not. "We convened it because we saw a need to harmonize with model codes," says Mazz. "We thought there were a lot of folks out there who had good information and we wanted to make sure that there were no unnecessary conflicts. We were not given time to do that for the first version." The committee, which consisted of 22 repre-

sentatives from various building, construction, code, and disability organizations, issued the Final Report: Recommendations for New ADA Accessibility Guidelines on September 30, 1996, after more than two years of work.

At the time the committee was convened, the ANSI A117 committee was gearing up for its routine, five-year revision of its own CABO/ANSI A117.1 standard. Many in the field saw this as the golden opportunity to bring the various accessibility codes and standards in line with one another. "There are a lot of pieces to accessibility," explains David A. Harris, FAIA, chair of the National Institute of Building Sciences in Washington, D.C., and president of the advisory committee. "It should be a goal to get all of these things coordinated so architects, building owners, and others don't have to use different criteria." One of the biggest complaints about ADAAG from the perspective of design and construction professionals is that it isn't CABO/ANSI A117.1, so architects typically have to adhere to both to satisfy ADA and their local code.

Many members of the ADA Accessibility Guidelines committee also sit on the CABO/ANSI A117 committee, and a special subcommittee was formed to coordinate the two. Harris reports that compromises were

ADA REFERENCES AND DESIGN AIDS

A number of computer-based education and design tools are available to help designers wend their way through the plethora of ADA design rules and regulations and to suggest design solutions that are ADA-compliant. The software vendors continually update their products to reflect the latest changes in these rules.

ADA Design Assistant

In conjunction with Softdesk's Auto-Architect 8.0 and AutoCAD R13/14 on Windows 95 or NT, this access-compliance software helps architects with some of the most

problematic details—curbs, ramps, doors, and toilet rooms—as the project is being drawn.

Evan Terry Associates
One Perimeter Park South, 200S
Birmingham, AL 35243
205/972-9101
205/972-9110 fax

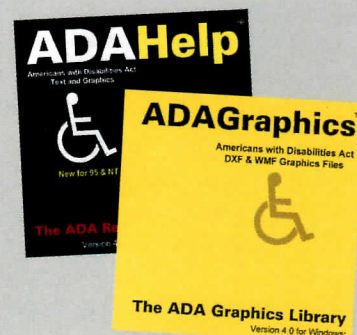
ADA Self-Study

This interactive software package provides an overview of the ADA, including terminology, practice tips, and references. Runs under Windows 3.1x, 95 or NT.
AIA Learning Products
202/626-7465

ADAHelp 4.0

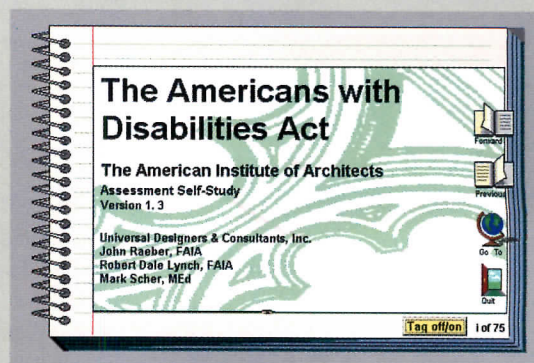
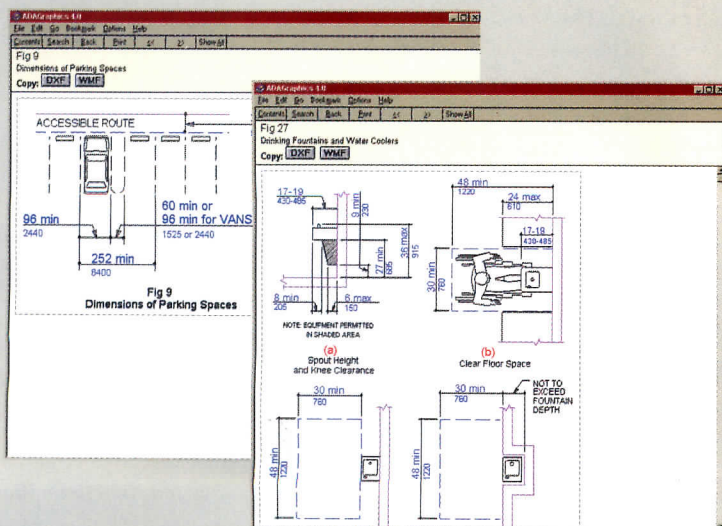
ADAGraphics 4.0

ADAHelp is a Windows program that helps architects sift through the ADA regulations. Updates will be made available as new regulations are adopted. ADAGraphics allows the user to view ADAAG graphics files and copy them into DOS or Windows CAD programs. Both of these products will run under Windows 3.1x, 95 or NT.
Kelley Computer Software
1701 Broadway, Suite 348
Vancouver, WA 98663
503/771-7242
adahelp@aol.com



ADAHelp and ADAGraphics programs (above; detail of ADAGraphics left) help designers sift through ADA regulations and add ADAAG graphics

to drawings. The AIA offers a self-study course in ADA terminology, practice tips, and a reference guide (below).



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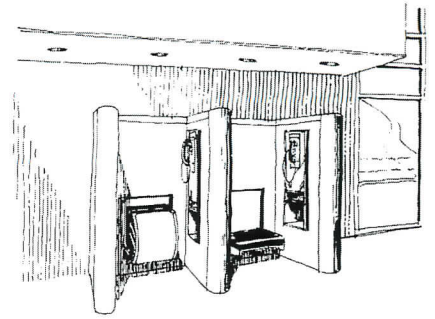


A visual paging system (above), an emergency two-way communica-

tions system (right), and accessible telephone booths (drawing)

were designed by Pamela Pflueger Associates for use at the

Portland, Oregon, International Airport.



made on both sides so that the documents could be as close as possible. Both were reformatted during this process. Instead of being arranged in sections according to how a disabled person experiences a space, they are organized in chapters according to building systems. The format is more like a building code, explains John P.S. Salmen, AIA, president of Universal Designers & Consultants in Takoma Park, Maryland, and AIA representative to the committee. He predicts that the new organization will give more flexibility and be easier to apply to a wider range of situations.

Unlike ANSI, the original ADA Accessibility Guidelines include both the scope of work—in which the required number of accessible toilets, for example, is specified—and technical criteria, such as the dimensions of those toilets. Both types of information are mixed together in the ADA document, forcing architects to sift through the technical material to determine how many of a particular fixture are needed. The proposed ADA Accessibility Guidelines document separates the two: all scoping information is contained in one chapter, while the technical criteria appear in the appropriate systems chapters. In addition to making it easier for an architect to determine what is required, explains Salmen, this change makes it easier to compare ANSI and the ADA Accessibility Guidelines.

Marvin J. Cantor, FAIA, a building codes and standards consultant in Fairfax, Virginia, estimates that the committee achieved about 90 percent harmony between the two draft documents. "Now we have ADA Accessibility Guidelines that look like ANSI with an additional chapter," says Salmen. "It's wonderful for the architect because it lays the groundwork for the federal government to adopt consensus standards from the private sector." The committee made other changes as well. It cleaned up the language of the guidelines, for example, using enforcement language consistent with building code terminology. "We have become very careful in the use of mandatory language," says Mazz. To avoid legal confusion, it also converted criteria contained in pictures to text. Drawings that once held legal clout are now merely helpful illustrations in an accompanying commentary. Technical criteria were clarified and in some cases enhanced, such as those for visual and tactile signage.

The Access Board is now reviewing the September 1996 report, inserting its new provisions regarding children's, judicial, and detention facilities, and coordinating the draft with revisions of other guidelines

under its authority, such as the Minimum Guidelines and Requirements for Accessible Design. "In the end, we hope to provide a very tightly correlated set of guidelines," says Mazz.

The board hopes to publish the Notice of Proposed Rulemaking for Revisions to the ADA Accessibility Guidelines for public review in the early months of 1999, after which the board will issue its final rule. The new ADA guidelines, however, will not become law until the Justice Department reviews them, makes additional changes if deemed necessary, and incorporates them into its own standards, which are appended to its regulations. This several-tiered procedure concerns some in the industry. "It was an enormous process—the negotiating and balancing to get everyone to agree," explains Salmen. "ANSI has now adopted the revisions, but the Access Board has been tinkering with them for a year and a half. And then the Justice Department will decide what they will do. We pray that it will look the same but are afraid that it won't."

Salmen encourages architects to respond during the public comment period, requesting that the new ADA Accessibility Guidelines resemble the new CABO/ANSI A117.1. "We have the opportunity for the first, and maybe only, time to bring the two together," Salmen says. "There will be many more opportunities to ratchet up the degree of accessibility, but this is the only opportunity to establish one standard, thereby simplifying the entire process." Salmen hopes that if the ADA Accessibility Guidelines and ANSI can be closely coordinated now, one day ADA Accessibility Guidelines can simply adopt the ANSI standard and add its own chapter. In response to such concerns, Mazz is reassuring: "The committee report has had as few changes as is necessary to date. The board is proceeding very carefully with a great deal of respect for the report and the work of the advisory committee," she says.

The Access Board welcomes architects' comments on the recommendations for the new ADA Accessibility Guidelines. The report can be read on the Access Board's Web site or obtained by calling the board's toll-free number (see resources sidebar). Mazz suggests architects report what they don't like, but also what they do like. "I can guarantee that for everything someone likes, there is someone who won't like it," adds Mazz. "But if someone sees that a problem has been taken care of, they should let us know." ■

NEW PRODUCTS

UNIVERSALLY DESIGNED PRODUCTS FOR THE MILLAY ARTS COLONY



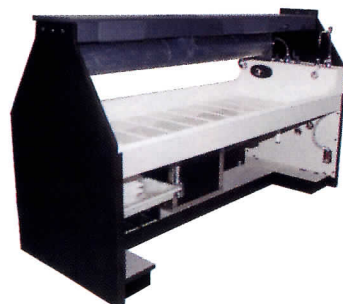
When executive director Ann-Ellen Lesser enlisted the help of designer Michael Singer and a planning committee of artists to work on a new building for the Millay Colony for the Arts, she didn't realize that they would encounter the first of their many challenges so quickly. One of the members of the planning committee was visually impaired, and they had to devise a way for him to decipher the architectural plans for the project. After reading an article about an organization called Art Education for the Blind and its use of tactile drawings, Lesser contacted Teresa Kardoulis of InTouch Graphics and Accessories Plus, who designed a customized tactile plan as well as a large-print map (above right).

Another issue faced during the planning process is a concern for many artists, disabled or not: adequate exhaust systems. Nederman, a commercial exhaust system manufacturer, worked with Lesser and a group of colony artists to create Studio Assistant, a compact, mobile extraction unit that removes toxic fumes and dust (above). The system worked so well for Millay—disabled

artists can easily wheel the system around—that Nederman decided to market the product nationwide.

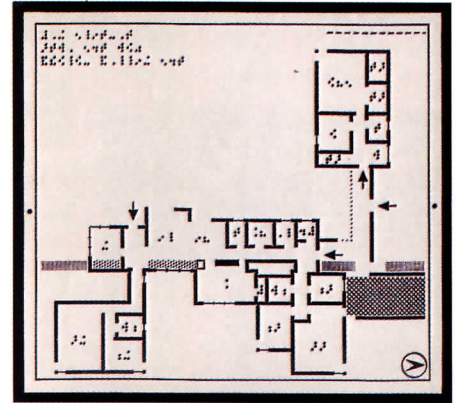
The initial darkroom design, by PLF Imaging, was accessible: there was sufficient floor space for a wheelchair, and lower-height light switches, equipment controls, and sinks. But Lesser pushed for universal design: "We weren't satisfied with just accessibility. We wanted universality." PLF Imaging called on photo-equipment manufacturers to create wheelchair-accessible light-tight revolving doors with ramps and a handicapped-accessible film-processing station (below). "Product manufacturers were very creative in finding solutions to fit our goal," says Lesser.

For the kitchen, Whirlpool, a company that has given much thought to appliances for a graying nation, worked with the Millay



As mentioned in the story on the Millay Colony for the Arts (page 78), executive director Ann-Ellen Lesser was determined to see that the colony's new building be a retreat where everyone, especially artists with disabling conditions, can enjoy the creative process. This page describes how various manufacturers developed new products or simply donated existing ones that helped Lesser meet her goal. Continuing our look at ADA-compliant products this month, page two highlights other commercial and residential building products that meet the needs of architects designing for the disabled. —Elana H. Frankel, Products Editor

Ann-Ellen Lesser and designer/artist Michael Singer worked with product manufacturers like Nederman, Whirlpool, and Interface as well as artists-in-residence to create a collection of universally designed products for Millay.



Colony to provide design insights as well as products (above left).

Among products donated to the colony were recycled carpet from Interface's Compositions collection, which can be traversed easily in a wheelchair; a collection of universal tableware by Mary Bulger of Marusya, Inc.; and communications equipment from Ameriphone.

"What we learned," reports Lesser, "is that once your goal is universality, you test everything against it. And even though we couldn't solve everything, we were able to accomplish a great deal."

Accessories Plus, Chicago 312/222-0020 **CIRCLE 200**
 Ameriphone, Garden Grove, Calif. 714/897-0808 **CIRCLE 201**
 Interface, La Grange, Ga. 800/336-0225 **CIRCLE 202**
 InTouch Graphics, New York City 212/677-4575 **CIRCLE 203**
 Marusya, Albany, N.Y. 518/274-1745 **CIRCLE 204**
 Nederman, Westland, Mich. 313/729-3344 **CIRCLE 205**
 PLF Imaging, Central Islip, N.Y. 516/582-6150 **CIRCLE 206**
 Whirlpool, Benton Harbor, Mich. 616/923-7200 **CIRCLE 207**



**BUILDING PRODUCTS
THAT MEET ADA NEEDS**

From AutoCAD software enhancements to universally designed cabinetry for the kitchen, the innovative products that are highlighted on this page will help architects, builders, and developers design residential and commercial buildings that satisfy the needs of the millions of people who are challenged by physical limitations.



▲ AutoCAD assistance

Evan Terry Associates' ADA Design Assistant software is an add-on for SoftDesk Auto-Architect 8.0 that helps users design ADA-compliant buildings. Drawings, like the one shown above for a single-user bathroom, can be dragged

and dropped into AutoCAD or Auto-Architect. The drawings include dimensions and turning spaces, as well as fixture and door clearances. For use with AutoCAD R14 on Windows 95 and Auto-Architect 8.0. 205/972-9101. Evan Terry Associates, Birmingham, Ala. **CIRCLE 208**

▼ Power to the people

Wiremold's Perimeter raceway system provides access to power, voice, and data at any height. A running raceway approximately three feet high makes access easier for those with disabilities. 800/621-0049. Wiremold Company, West Hartford, Conn. **CIRCLE 209**



▲ Universal design elements

Kraftmaid's Passport kitchen cabinet series, available in 10 door styles, three wood species, and various finishes, has low counters, work centers, wall ovens, and microwaves, which can be used while seated. A nine-inch toe kick allows wheelchair users to move around the kitchen freely. 440/632-5333. Kraftmaid, Middlefield, Ohio. **CIRCLE 210**

▼ Specialized seating

Invacare's extensive line of tailored power and manual chairs includes the Action Super Pro-T wheelchair, shown here, which has a completely customized frame and is available in a variety of colors. 800/333-6900. Invacare, Elyria, Ohio. **CIRCLE 211**



◀ For kitchen and bath

Elkay offers an extensive line of ADA-compliant residential sinks and faucets, including single- and double-bowl sinks as well as single-lever and single- and two-handle faucets. Elkay also offers single-lever lavatory faucets. Shown here is model GEGR-3321, a double-bowl kitchen sink from the Celebrity line. Made of 20-gauge stainless steel, the sink features a bowl depth of 5 1/2 inches, making it accessible for people in wheelchairs. 630/574-8484. Elkay, Oak Brook, Ill. **CIRCLE 212**



▼ Retrofitting toilets

The new, ADA-compliant A.D.A. Flushometer handle from Sloan is now triple-sealed and has an increased length. Made with an elastomeric material, the handle can withstand the

chemically treated water of most municipal water systems. A sealing lobe with sharp edges acts like a scraper to dislodge foreign material. The



handle can also be retrofitted on all Sloan Royal and Regal Flushometers. 847/671-4300. Sloan, Franklin Park, Ill. **CIRCLE 213**

► A custom lift between levels

The S-model vertical platform lift manufactured and distributed by Access Industries can be customized to blend with surrounding interiors and/or exteriors. A selection of hoistway door and gate options is available, as is a variety of control panels (platform-, post-, and flush-mounted pushbuttons) and finish colors (taupe, sable brown, pearl gray, and ivory white). Lift heights up to 171 inches can provide easy access between two or three landings. Three platform sizes are available: 36 by 38 inches, 36 by 56 inches, and 36 by 60 inches. 800/925-3100. Access Industries, Grandview, Mo. **CIRCLE 214**

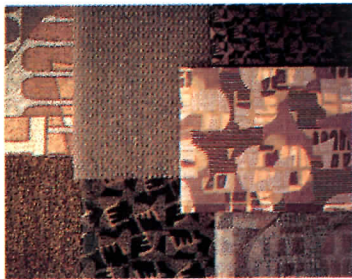


PRODUCT BRIEFS



▲ Cotton and chenille

Grahampton chenille, a viscose/cotton chenille blend from Brunshawig & Fils, is a jacquard design with Celtic origins. A stylized letter B is the focal point of its serpentine figure. Available in two neutrals and a pair of darker solids. 212/838-7878. Brunshawig & Fils, New York City. **CIRCLE 215**



▲ Textile resource

The Bridging collection of new patterns from Shashi Caan/Nizina is based on design elements derived from bridges: Colu is named for a bridge in Colusa, California; Nizina for an Alaskan bridge; and Arvada for a bridge in Wyoming. 336/885-2900. Nizina, High Point, N.C. **CIRCLE 218**

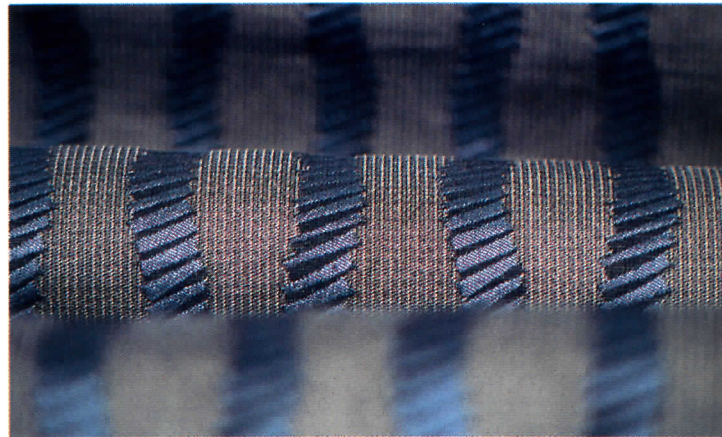


▲ Sophisticated design

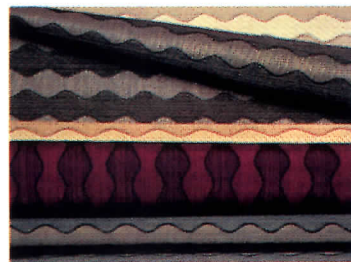
The Spring 1998 collection of fabrics from Pollack and Associates, called Celebration, includes (from left to right) Square Knot, a small check that alternates satin boxes and knots of bouclé yarn; Monarch Mohair, with a subtle

▼ Zip-a-dee-doo-dah

Zip City, one of several new patterns from Maharam, features an undulating sawtooth band against a metallic background. Also available are Elegy,



Credence, and Tenet, three coordinating upholstery fabrics; and Somerset, four vinyl wallcoverings inspired by medieval designs. 800/600-3636. Maharam, New York City. **CIRCLE 216**

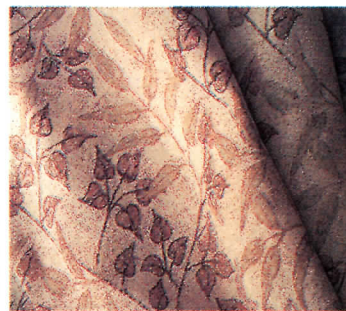


▲ Classical motifs

The Civilization collection, by Dorothy Cosonas, director of design for Unika Vae, a division of ICF Group, consists of four fabrics, including Odyssea, an undulating vertical-striped pattern, shown here in a variety of colors. 800/237-1625. ICF Group, Valley Cottage, N.J. **CIRCLE 219**

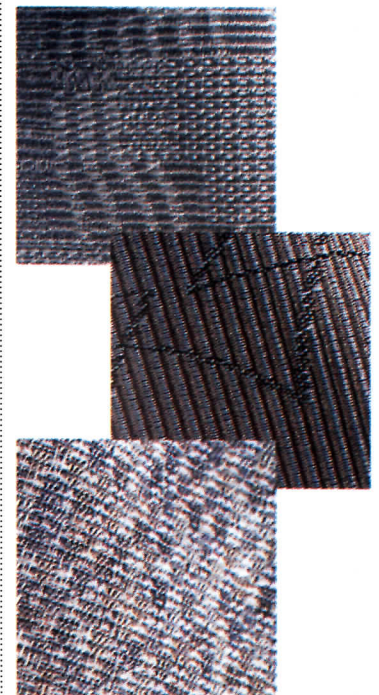
▼ Asian inspiration

Donghia's Night Garden collection features four designs: Protea, Daphne, Moonray, and, shown here, Chaya, named for the Japanese tea house. The tapestry is a cotton/wool/polyester/nylon combination with leaves and stems strewn across an earth-toned background. Available in five colors. 212/925-2777. Donghia, New York City. **CIRCLE 220**



▼ Corporate puns

Textile designer Michael Laessle has created three new additions to the Resumé Collection for Business by Pallas Panels, a new division of Pallas. Game Plan has a checkerboard motif; Paper Shuffle is reminiscent of a ticker-tape parade; and Human Resources is a random-looking grid of rectangles and squares. The fabrics are 100 percent fire-retardant polyester, measure 66 inches wide, and meet ACT standards. Laessle is donating all of his royalties from this collection to the Michael D. Laessle Foundation for AIDS Care, a newly established organization whose mission is to improve the quality of life of people with AIDS. 800/4-PALLAS. Pallas, Green Bay, Wisc. **CIRCLE 217**



▼ Sit back and think of England

Inspired by the gracious style of the 18th-century English manor Stratfield Saye, an estate outside London, contract fabric designer Mary Jo Miller created

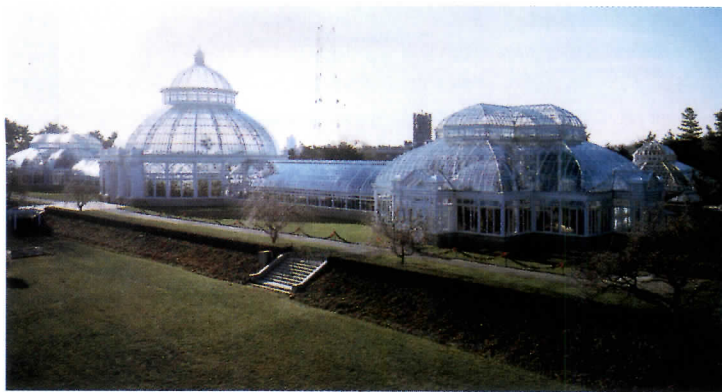
the Stratfield collection for HBF, which includes (from left to right) Library, Drawing Room, Great Hall, and Print Room. 828/328-2064. HBF, Hickory, N.C. **CIRCLE 222**



panné; Box Seat, a plaid of cotton, viscose, linen, and nylon that coordinates with Square Knot; and Knit Wit, a window fabric that combines a warp knit construction and a viscose raffia fiber. 212/627-7766. Pollack and Associates, New York City. **CIRCLE 221**

▼ Walks of life

To commemorate Pergo's 20th anniversary, Perstop Flooring has introduced six new laminate floor designs, including the black-and-white checkerboard pattern shown here, a brown-and-beige checkerboard, Amsterdam oak, Newport green, gunstock oak, and travertine stone. All six designs feature matching wallbases and moldings. 800/33-PERGO. Perstop Flooring, Raleigh, N.C. **CIRCLE 223**



▲ Greenhouse effects

In restoring the New York Botanical Garden's Enid A. Haupt Conservatory, a 1902 greenhouse by Lord and Burnham, 52 coats of paint were scraped away and replaced with polyurethane coatings from Tnemec containing Desmodur polyisocyanates from Bayer. Since durability and low maintenance were top priorities, New York City architects Beyer Blinder Belle

and engineers Ove Arup and Partners specified the zinc-rich polyurethane primer, an intermediate polyamide epoxy, and an acrylic polyurethane finish coat for the conservatory's exposed steel framing and cast-iron gutters, splice plates, and connectors. 816/483-3400. Tnemec, Kansas City, Mo. **CIRCLE 224** 412/777-2815. Bayer, Pittsburgh. **CIRCLE 225**

► Acrylic sheet coatings

CYRO licensed 3M's 906 abrasion-resistant coating for its ACRYLITE AR acrylic product. The sheet is available with coating on one side or both; a coated ACRYLITE AR sheet has 40 times the mar resistance of uncoated. 800/631-5384. CYRO, Rockaway, N.J. **CIRCLE 227**



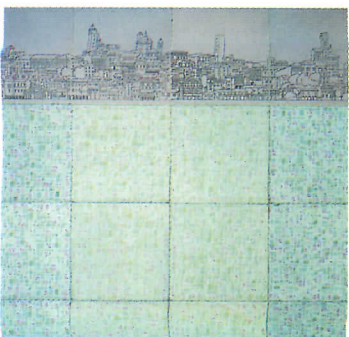
▼ Interior door design

TruGrain flush door facings from Masonite are manufactured with high-density fiberboard made from wood. The two finishes are a light, warm natural tone and a rich medium hue called harvest. Prefinished trims are also available. 800/405-2233. Masonite, Chicago. **CIRCLE 228**



◀ Ch..ch..ch...changes

Ferro's Chameleon glaze changes the color of tiles when they are exposed to light. The glaze's formula works with the color spectra generated by different light conditions (morning, noon, or evening). A bathroom that is powder blue in the early morning hours will evolve into a deeper periwinkle by twilight. The glaze can be applied to field and trim tiles. 216/641-8580. Ferro, Cleveland. **CIRCLE 229**



▼ Color coordinated

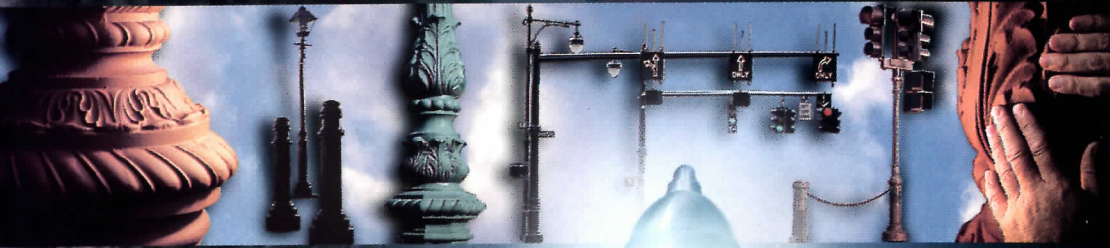
Armstrong has introduced 15 new colors to the Imperial Texture line of vinyl composition tile; five colors of slip-retardant tile floors; 15 new colors of vinyl sheet flooring; and 60 solid-color welding rods, shown here, which provide better seam matches. 800/292-6308. Armstrong, Lancaster, Pa. **CIRCLE 226**



◀ Get a handle on it

The Taipan collection of door and window handles from Italy's Colombo Designs was created by Milanese industrial designer Luca Colombo and is distributed in the United States through Ironmonger. Available in metal (chrome, mercury, or matte black) or wood (briar, pearwood, or rosewood) with a chrome, gold, or matte nickel, gold, or black finish. 312/527-4800. Ironmonger, Chicago. **CIRCLE 230**





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CIRCLE 42 ON INQUIRY CARD

PRODUCT BRIEFS



◀ **Bicoastal appeal**

Weather Shield Windows and Doors has redesigned and expanded its product line of ProShield vinyl-clad wooded windows to include a new corrosive-resistant hardware package—to help combat salt air, sea spray, blowing sand, and searing sun in coastal homes—and French and center-hinged styles of patio doors. 800/477-6808. Weather Shield, Medford, Wisc. **CIRCLE 231**

▼ **The beauty of brick**

The M Brick system from Pacific Brick Systems embeds brick in concrete using interlocking brick inlay templates (BITs). Each BIT holds a thin brick and snaps together with other BITs. Concrete is poured over the back of the bricks. After curing, the BITs are removed, revealing the brick veneer and covered mortar joints. 800/387-6945. Pacific Brick Systems, Portland, Oreg. **CIRCLE 233**



▲ **Thin is in**

The future of home theater is with Philips Electronics' latest version of the popular Plasma Technology Flat TV system: a 4½-inch-thick monitor, a control/receiver box, and four sound channels and an integrated center speaker for Dolby Pro Logic surround-sound. The television is DTV-compatible and can accommodate a split or mosaic screen. It can also display images from laserdiscs and video-cassettes. 770/821-2400. Philips, Atlanta. **CIRCLE 234**



▲ **Folding glass walls**

System SL 45, a 10-panel aluminum-framed folding wall shown here with a 20-degree angle between panels, can be created in heights up to nine feet six

inches and panel widths up to three feet seven inches. Powder-coated, anodized, and wet finishes are available. 800/873-5673. Nana Wall System, Mill Valley, Calif. **CIRCLE 232**

▼ **Outdoor acrylic technology**

For years, Aristech has been producing acrylic-based sheets under a private label. At the AIA convention in May, the company launched its own exterior wall-cladding product. 800/354-9858. Aristech Acrylics, Florence, Ky. **CIRCLE 235**



▼ **Hide it up; hide it down**

Created by Mike Peterson and Patrick O'Connor, the Hide-A-Bench from Athletic Seating Technologies (Astech) allows for

a maximum of 14 seats in a two-row option (a single row is also available). The bench can also be used in hand-capped seating areas mandated by the

Americans with Disabilities Act. Optional accessories include hand- and end rails and color padded covers. 303/674-2595. Astech, Evergreen, Colo. **CIRCLE 236**



▲ **Built-in drainage system**

The architectural firm of Cox, Kliever and Company recently used Parex Water Master EIFS as the exterior cladding for Linkhorn Bay, a waterfront condominium project in Virginia Beach, Virginia. Covered with 100 percent acrylic colored finishes, Water Master has a liquid membrane that protects the sheathing from moisture and an EPS insulation board with drainage channels. Evaluated by the ICBO and SBCCI. 800/537-2739. Parex, Redan, Ga. **CIRCLE 237**

A Tale of Two Water Closet Technologies



by Joseph M. Smaul, P.E.

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

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

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

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

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

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

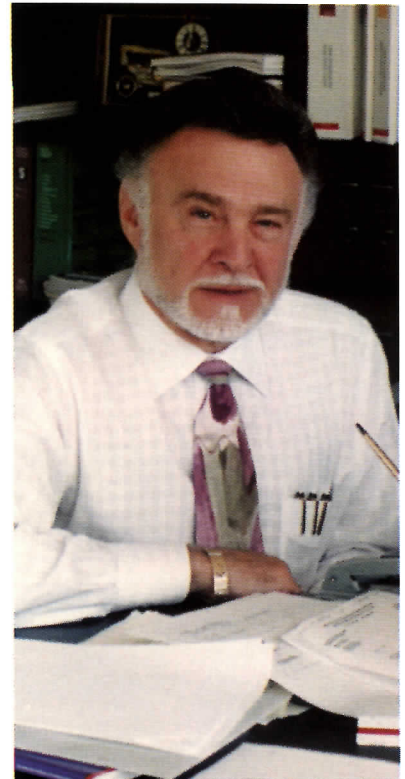
I decided I needed more information before I made our final recommendation between gravity and pressure-assist, so I researched further by calling maintenance engineers around Las Vegas hotels. I found out that they were either installing pressure-assist, or replacing gravity with pressure-assist. One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

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

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

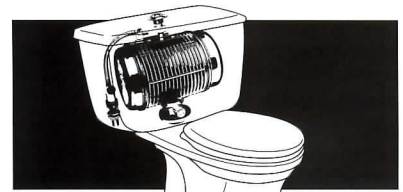
But I also came upon something from my study that was truly amazing: it didn't matter which fixture manufacturer was specified for pressure-assist toilets. All the manufacturers were using the same pressure-assist technology in their pressure-assist fixtures. That technology? Sloan's **FLUSHMATE**® pressure-assist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

Of course, you can't make a statement that for all conditions, pressure-assist works best. However, if performance is the criteria, fixtures with Sloan's **FLUSHMATE**® pressure-assist operating system do, in fact, work the best.



About Joseph Smaul, P.E.

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



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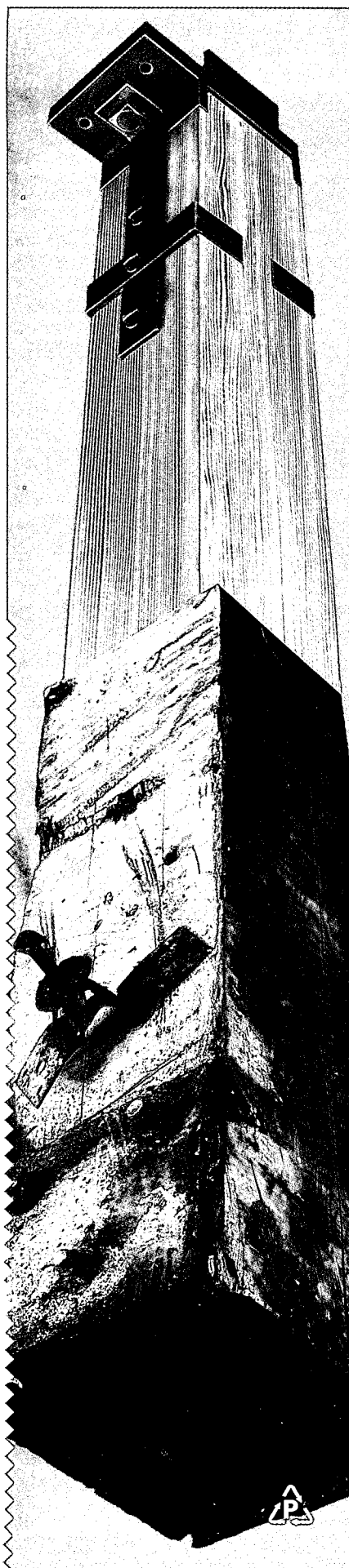
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New Nemetschek AutoCAD R14 modules, called Palladio X, include walls, openings, doors, and windows; stairs; roofs; building manager; structures; custom objects; and schedules. 800/479-0736. Nemetschek, Mill Valley, Calif. CIRCLE 238

Custom accordion doors

Woodfold-Marco's accordion folding doors are displayed in a new 12-page brochure. 503/357-7181. Woodfold-Marco, Forest Grove, Oreg. CIRCLE 239

Open-office planning

Panel Concepts' powered and non-powered panel systems and modular frame components, called Bottom Line, include work surfaces, storage, filing, and computer support. 800/854-6919. Panel Concepts, Santa Ana, Calif. CIRCLE 240

Aluminum finishes

"Consider Your Options... Architectural Aluminum Finishes" provides details on a variety of finishes. 770/449-5555. Kawneer, Norcross, Va. CIRCLE 241

Commercial roofing

AlliedSignal Commercial Roofing Systems' Millennium catalog includes spec information on roofing systems made with polymer-enhanced coal tar membranes and mastics. 800/221-6490. AlliedSignal, Cary, N.C. CIRCLE 242

Skylight projects

The Skywall Translucent Systems brochure highlights recent projects that use skylights, including the Augusta Medical Center and The New York Times Newspaper Group. 800/869-4567. Skywall, Terrell, Tex. CIRCLE 243

NEW SITES FOR CYBERSURFING

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CIRCLE 44 ON INQUIRY CARD

For more information, circle item numbers on Reader Service Card

(continued from page 46)

attending college or university schools of architecture, engineering, and architectural/construction engineering. For more information, visit www.interpane.com or call 800/334-1797.

Youth Salon Competition

Submission deadline: August 4

Architects and artists under 35 years old are eligible for this ideas competition. The challenge is to identify a problem in one's city, solve it with design, and evaluate the solution. For entry requirements or more information, visit www.makoto-architect.com.

Fitch Charitable Trust Mid-Career Grants

Application deadline: August 15

Research grants of \$20,000 are being awarded to professionals in the fields of historic preservation, architecture, landscape architecture, urban design, environmental planning, archaeology, architectural history, and the decorative arts. Those with an advanced or professional degree and at least 10 years of experience are eligible. Smaller grants of up to \$10,000 are also being awarded. Contact Morley Bland at Beyer Blinder Belle, 212/777-7800, for more information.

Pier 40 Competition

Registration deadline: August 17

submission deadline: September 17

The Van Alen Institute and a local community board are sponsoring a design competition for a 15-acre pier on New York City's Hudson River waterfront. The pier is at the center of proposals to turn the entire waterfront into green space. Visit www.vanalen.org for details.

Boston Society of Architects Design Awards

Submission deadline: August (unbuilt awards); September (honor awards)

The BSA's Architectural Design Honor Awards program is open to all Massachusetts architects' projects anywhere in the world and to all architects who have designed built projects in Massachusetts. The Unbuilt Architecture Design Awards are open to architects, architectural educators, and students anywhere in the world. Call BSA at 617/951-1433 x221; fax 617/951-0845; or E-mail bsarch@architects.org.

Membrane Design Competition

Submission deadline: September 2

This year's Membrane Design Competition, sponsored by Taiyokogyo Corporation, honors the creative design of airport structures using membrane. Write Membrane Design Competition,

4-8-4 Kigawa-higashi, Yodogawa-ku, Osaka 532-0012, Japan; fax 011/81/6/306-3154; or E-mail mh_001600@fc.taiyokogyo.co.jp.

Shinkenchiu Residential Competition

Submission deadline: September 10

Kyoto architect Shin Takamatsu will judge this year's ideas competition, sponsored by *Japan Architect* magazine. Winners' work will be published in the December 1998 issue of *JA*. To receive a copy of the rules, fax a request to 011/81/3/3811-0243.

AIA Continental Europe Design Awards

Submission deadline: September 11

Eligible projects are those built on the European continent and completed after January 1, 1993. For submission information, contact Frimmel Smith at frimmel@compuserve.com.

Union Internationale des Architectes Student Competition

Registration deadline: September 15

Submission deadline: January 31, 1999

In the spirit of the Istanbul Declaration on Human Settlements, student entrants are invited to design a housing project for a city in their home countries. In addition to cash, the winner will receive the UNESCO Prize for Architecture. To register, call Liu Kecheng at Xi'an University, in Xi'an, China, 011/86/29/220-29-43, fax 011/86/29/552-78-21, or E-mail LiuKCH@pub.online.xa.sn.cn.

Wood Design Awards

Registration deadline: September 18

Sponsored by the Wood Products Promotion Council, this competition honors outstanding wood projects in two categories: completed wood buildings and architectural woodwork interiors. Projects must have been completed since 1995. Contact the Architectural Woodwork Institute at 703/733-0600, fax 703/733-0584, or E-mail jdurham@awinet.org.

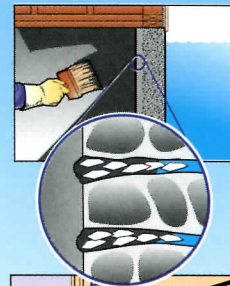
auto.des.sys Design Competition

The Acadiana Educational Endowment and software makers auto.des.sys, Inc. are sponsoring a competition to design the Louis Armstrong High School for the Arts in Acadiana, Louisiana. The competition is open to students worldwide and will take place in two stages over the 1998-99 school year. Call 614/488-8838 or E-mail formz@formz.com for details. ■

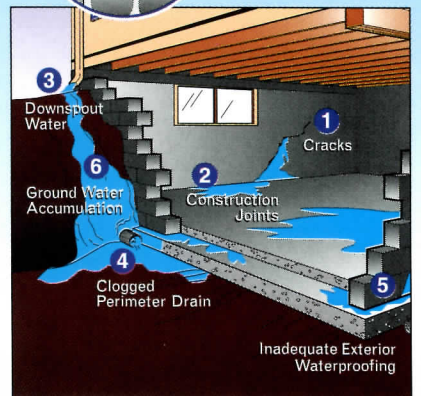
Please submit information for exhibitions, conferences, and competitions at least six weeks prior to the magazine's publication date (e.g., August 15 for the October issue).



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Instructions

- ◆ Read the article “Understanding Accessibility Laws” (page 109) using the learning objectives provided.
- ◆ Complete the questions below, then check your answers (page 138).
- ◆ Fill out the self-report form (page 138) and submit it to receive two AIA Learning Units.

Questions

1. Describe the scope of the ADA.

2. List the agencies that have jurisdiction over parts of the ADA, and which parts they handle.

3. Discuss the status of revisions to the ADA Accessibility Guidelines.

4. Explain the difference between the AIA’s position regarding the architect’s legal liability for ADA compliance and the Department of Justice’s position.

5. Describe the advantages of having local codes certified.



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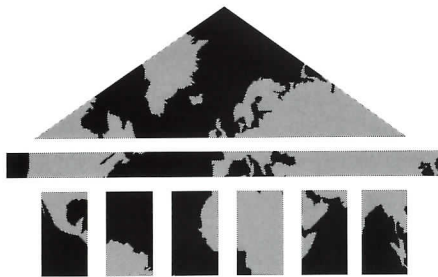
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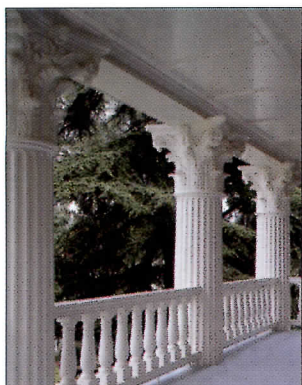
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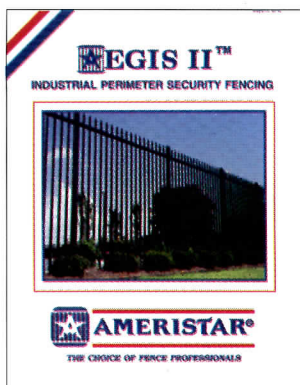


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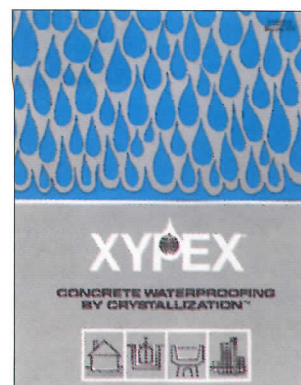


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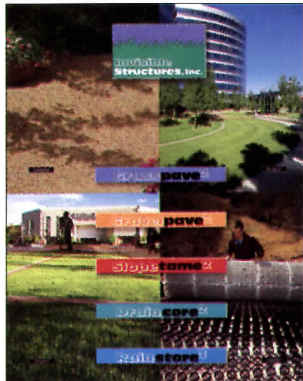


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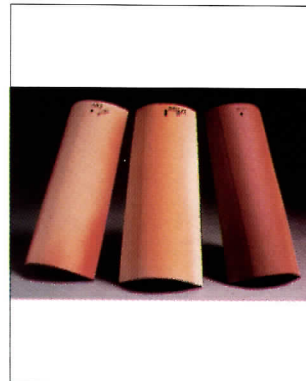


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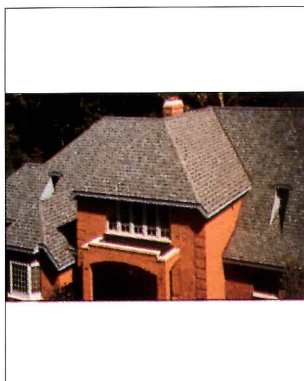


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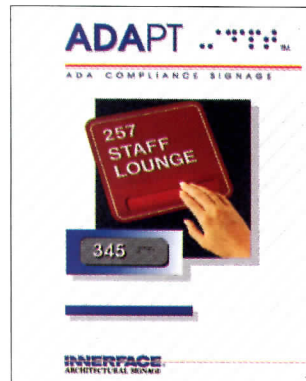


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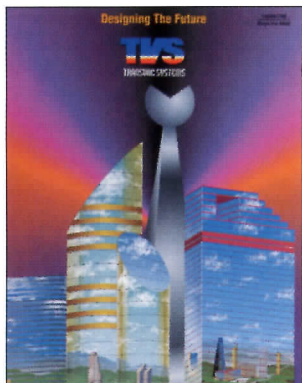


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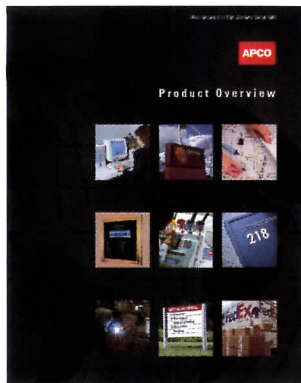


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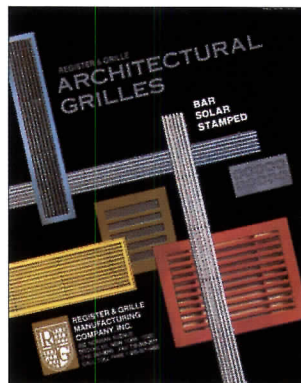


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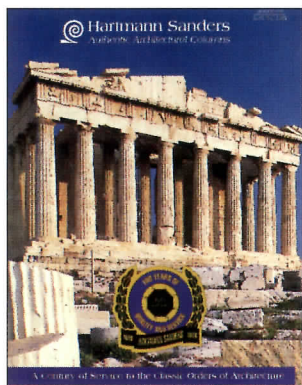


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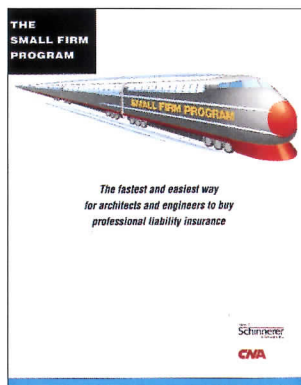


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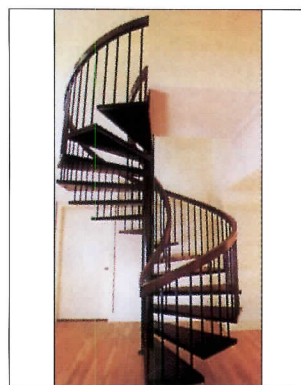


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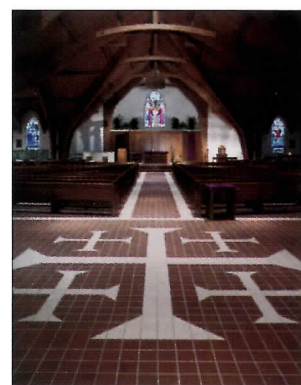


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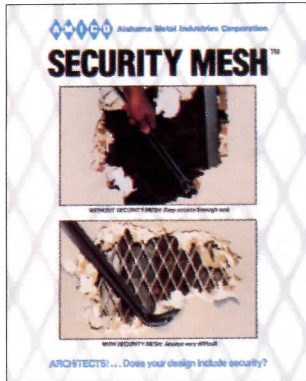


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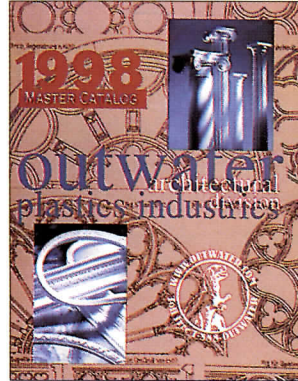


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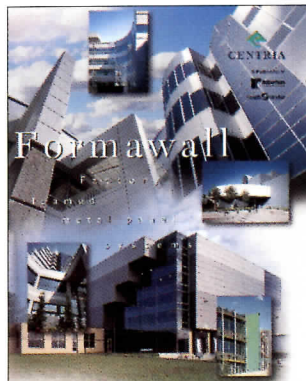


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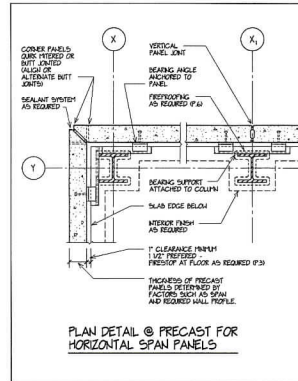


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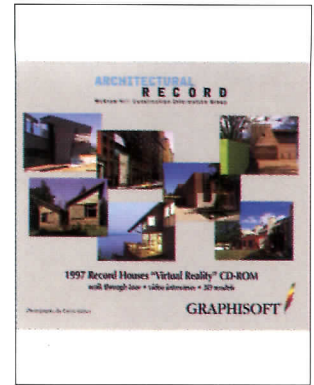


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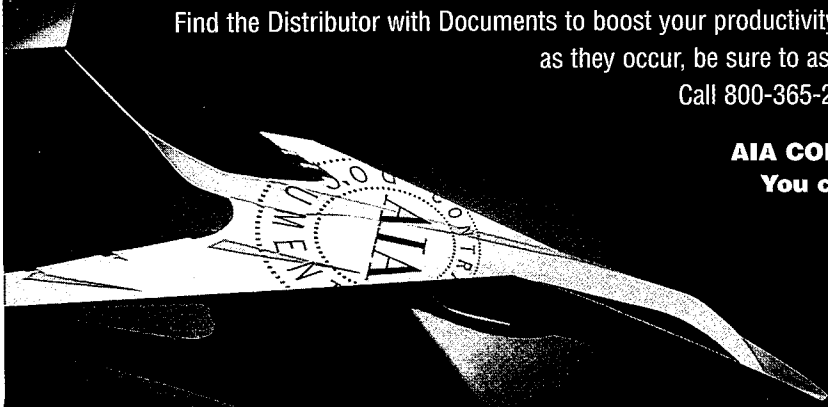
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THE FUTURE Combining steel, modular, and panel technology to create an efficient building structure

BY CHARLES BEVIER



The panelized modular unit, with roof trusses inside (far left), is ready to be shipped. Once at the site, it is stacked on top of the first floor (left). The panelized home is completed (above).

What if the building industry's future included an expandable structure that could be shipped to a job site in a compact form, and then popped up vertically and elongated? The use of a modular core, manufactured in a factory environment, would minimize up-front material costs, reduce on-site labor, and allow for quicker completion times. Toss in energy-efficient building materials, and this system could revolutionize residential and light commercial construction.

Developer Ray Kavarsky, president of Innovative Building Systems (IBS) in Berlin, Connecticut, has patented such a solution. It combines modular, panel, and steel technology to create a system where the structure's shell—with folding walls and a telescopic, steel-framed floor joist system—expands once it arrives at the building site. What's more, for better insulation, the envelope can include structural insulated panels (SIPs) with R-28 values.

"I've been working as a builder and developer for 30 years," says Kavarsky. "I've always liked steel because of its efficiencies. It's

stronger than wood. It's impervious to insects. It doesn't warp, twist, or shrink. And it costs about the same as a good piece of wood."

Kavarsky had found that transporting modular structures was a real problem. Shipping units up to 16 feet wide and 80 feet long across state or county lines can be very expensive. In addition, negotiating the bureaucratic maze of state Department of Transportation permits, county or township permits, police escorts, flag cars and drivers, and bridge-crossing restrictions would tax anyone's patience.

This frustration was the trigger for Kavarsky's new building system. "I wanted to develop a structure that was no more than eight and a half feet wide by 13 and a half feet high," he says. "That way you can get down the highway without flag cars or special permits."

With IBS's framing system, the shell of the structure forms its own transport container. Made from 16-gauge steel C-studs, the shell costs between \$12 and \$15 per square foot to construct. In its folded-up position, the shell can be filled with steel roof trusses and other compo-

nents, further simplifying transportation. "It's also great for overseas shipping," says Kavarsky.

Once shipped to the site, the modular core is picked up by a crane and set on the foundation. What was the top of the structure during shipping becomes a wall, which folds down once the unit is set. The telescoping floor joist system is then expanded to the full perimeter of the foundation footprint. The process is the same for second or third stories. Roof trusses are then added. The shell can be made weathertight in hours.

Architect Vito Caolo, AIA, president of Caolo & Bieniek Associates, in Springfield, Massachusetts, says he used Kavarsky's system for a post office because of its engineering and design capabilities. "It has a lot of advantages," says Caolo. "You can get the unit anywhere and it can be erected in a matter of weeks. And the way it's designed, it can be made to meet wind- or snow-load codes for any area."

Kavarsky's system has also attracted the attention of Steven Winter Associates (SWA), in Norwalk, Connecticut, which has been

at the forefront of energy-efficient design for 25 years. Alexander Grinnell, principal at SWA, thinks Kavarsky is combining materials in an intriguing way. "Using SIPs as wall panels, for instance, eliminates a plethora of problems with connectors and fasteners that metal framing can engender. And SIPs solve the problems of energy and thermal loss exhibited by steel."

SIPs combine the structural system, wall and roof sheathing, and insulation in a single panel construction. They are made of a rigid foam core sandwiched between two exterior skins, commonly oriented strand board. The core can also be composed of expanded polystyrene, extruded polystyrene, Styrofoam, or polyurethane.

Kavarsky's adoption of SIPs is relatively recent. The post office and several single-family-home urban infill projects were completed earlier this year using traditional steel framing for the walls and batt insulation. Since adding SIPs to his system, Kavarsky says, he has seen increased interest in his product: "We're looking to do six more post offices in 1998, and we've had inquiries about commercial buildings and single-family homes." ■

Charles Bevier is the editor of Building Systems Magazine, based in Lakewood, Colorado.



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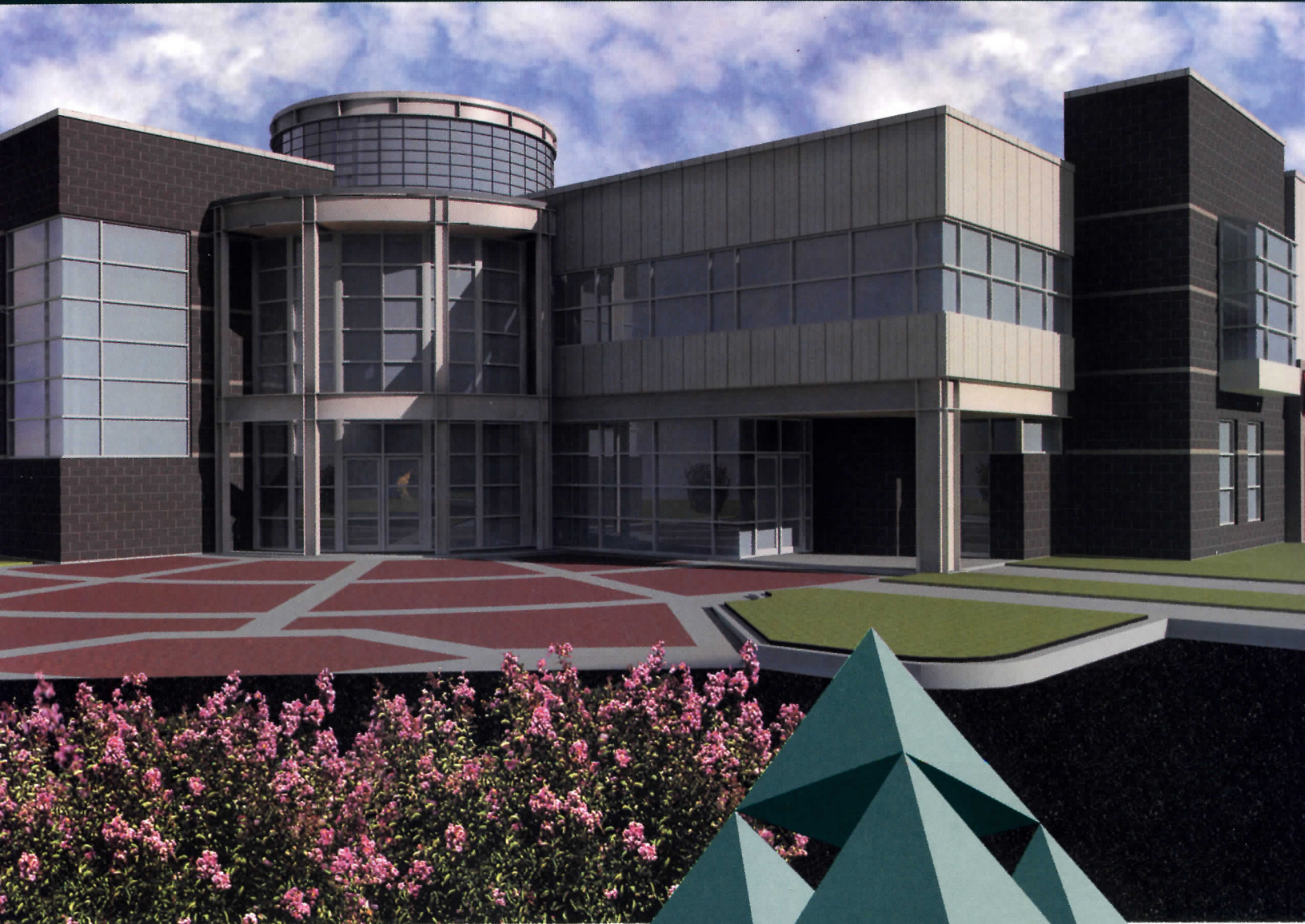
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