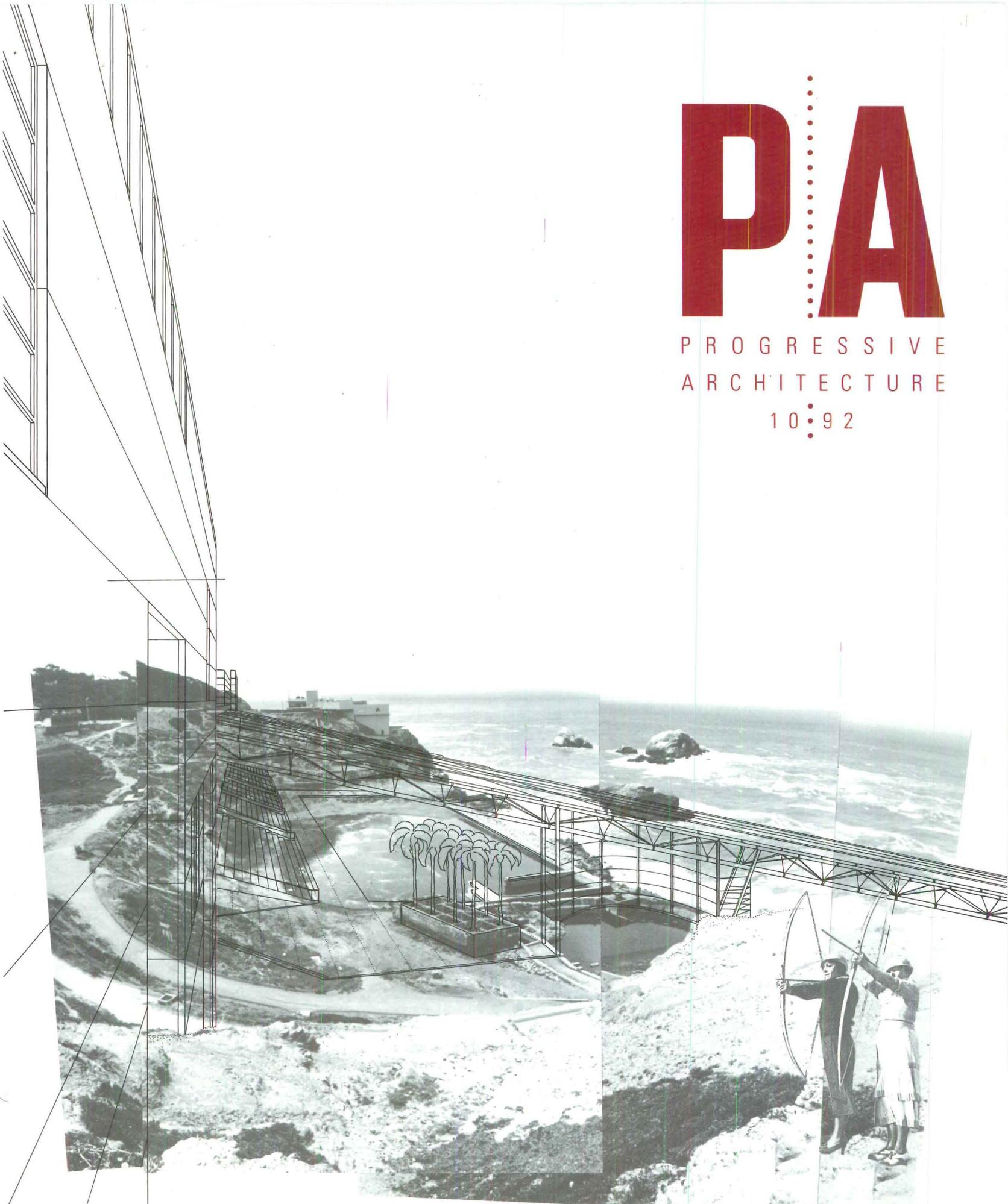


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The New Public Realm Competition Winners



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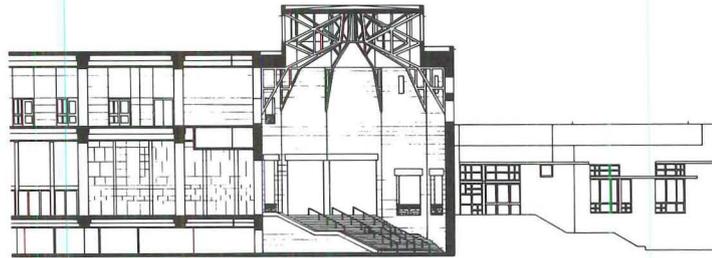
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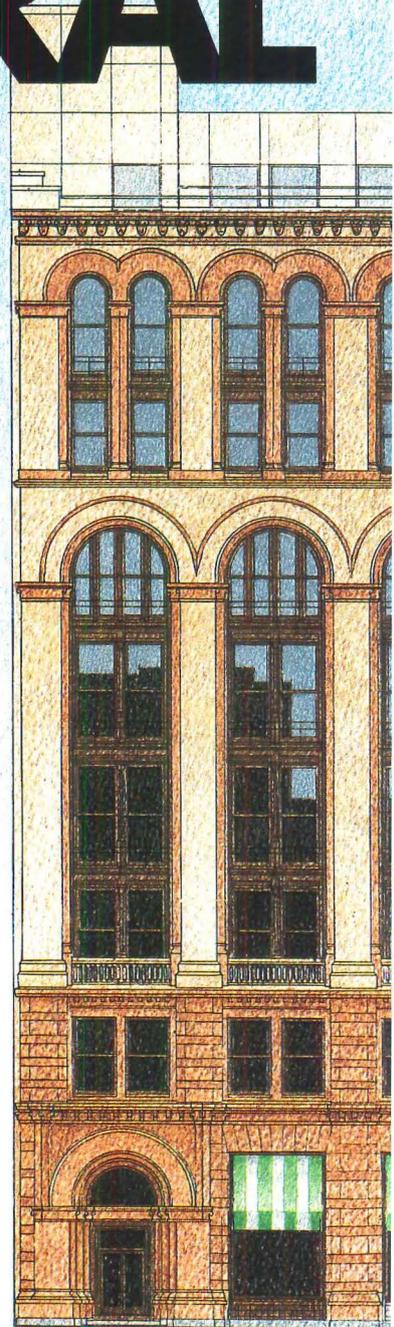
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NATURAL WONDER

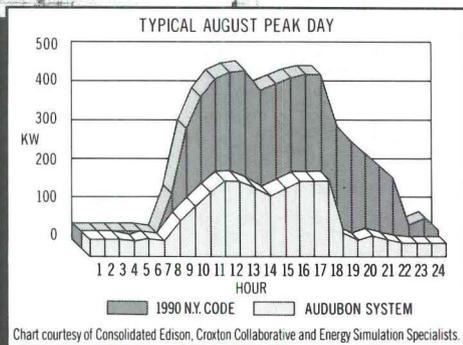
The new National Audubon Society headquarters in New York is setting a 21st-century standard for energy efficiency and environmental impact—using today's technology—thanks in large part to the use of clean, efficient natural gas. As designed by The Croxton Collaborative, this retrofit of a 19th-century building will save \$100,000 a year on energy costs—\$18,000 a year on heating and cooling costs alone with its natural gas heat, hot water *and* air conditioning. The design cuts total electricity use by 68%. Eliminates sulfur oxides, the major component of acid rain. And cuts CFCs to zero.



Headquarters of the National Audubon Society in New York. 21st-century ideas built into a 19th-century landmark.

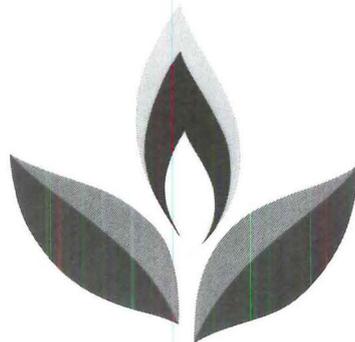
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Editorial

Addressing the Common Good

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Architect M. David Lee, chairman of P/A's New Public Realm jury, calls for a renewal of the nation's public spirit, along with its infrastructure.

As we witness the tumultuous realignment of the world along the narrow self-interests of nationalism, ethnicity, race, economic status, and even marital status, one is forced to question the ultimate consequences of such a "new world order." The rising forces of divisiveness in the United States are particularly troubling since this is a country which has long prided itself as a symbol and a "beacon" of democracy. Whether in fact this view of ourselves is more mythical than actual, the quest for that ideal was and continues to be noble in itself.

Clearly something has gone awry. In a land of enormous wealth, 13 million children, one in every five, now grow up in poverty, according to the Children's Defense Fund. A conservative estimate is that on any given night half a million Americans are homeless; nearly 40 percent of that number are women and children, and one-third are veterans. The United States has the highest homicide rate of any industrialized nation; homicide is the second leading cause of death among *all* American males 15 to 24 years old!

To be sure, these negative indicators fall heaviest on the cities of America, but rural areas have continued a steady decline as well. According to *Business Week*, in some parts of the Great Plains, 60 percent of residents' income comes in the form of Federal subsidies.

Sadly, too much national debate is mired in misleading rhetoric and half-truths. The fact is, we all benefit from government spending. The August 10 issue of *Newsweek* points out that in 1989, for example, the government spent more for the medical care of well-off senior citizens than it did on Head Start, job training, and the women, infants and children (W.I.C. Program) nutrition subsidies *combined!* Counting mortgage interest and other home ownership tax breaks, the government spends more than *four* times as much on middle- and upper-income families as it does to house the poor.

It is time to stop the finger-pointing and to redirect the debate towards a new and more inclusive definition of the common good. As architects, landscape architects, and urban designers, we need to ask ourselves how we might best use our skills and training to build a better nation.

In this issue, the winners of P/A's New Public Realm Competition are announced. The timing of the competition is, in my view, particularly appro-

priate. Most economists and business leaders agree that a substantial investment in our physical and human infrastructure is vital if we are to remain globally competitive. I do not suggest, however, that the public realm is a function solely of public spending. I propose instead that the true public realm is a state of mind and form in which the public and private sectors collaborate in ways that yield the highest good for the most people.

There is much to do. The continuing disintegration of our cities is painful, morally unjust, and costly. Our crumbling infrastructure hampers productivity, and the quality of our natural environment is perceptibly deteriorating. We should place the immediate emphasis where there is the greatest need, but to argue whether we must choose to invest in the cities, in the suburbs, or in rural areas is counter-productive. The public realm touches each and links them physically and symbolically.

Since the lofty era prior to World War II in which many of this country's finest public works were built, public construction has too often been guided by short-term cost savings rather than by long-term benefits. Now the ravages of time and deferred maintenance demand that much of that infrastructure be rehabilitated or replaced. This is a daunting challenge but also an opportunity to build with grace and pride. We must turn away from the notion that what we build in the public sector should seek the lowest common denominator. My hope is that this and other professional journals will track this rebuilding effort and will spur our professions to reach the highest standards of design.

Finally, it is painful to see so many talented and skilled design professionals, who have contributed so much to their communities, now unemployed. When one considers that highly trained professionals cannot find work, it illuminates the folly of those who smugly pass judgment on inner-city residents, many of them unskilled, who cannot find work. It is not us or them; we are *one* nation. The politicians who represent us must be reminded of that fact and must target domestic spending accordingly.

This is a country still with unlimited resources and untapped human potential. Broadening and making more inclusive our perspective of the public realm is a key ingredient in unleashing that potential to the lasting benefit of us all.

M. David Lee, FAIA ■

The author is a partner in Stull & Lee, Inc., Architects and Planners, and president of the Boston Society of Architects.

An exhibition containing 30 entries to P/A's New Public Realm competition will open at 6 p.m. on October 23 at 425 7th Street NW in Washington, D.C., and will remain there through December 12. A symposium on the subject will take place on October 25 from 1:00-3:00 p.m. at the National Building Museum. The exhibit will travel to San Francisco in early 1993, then to other cities. Watch P/A's Calendar for specifics.

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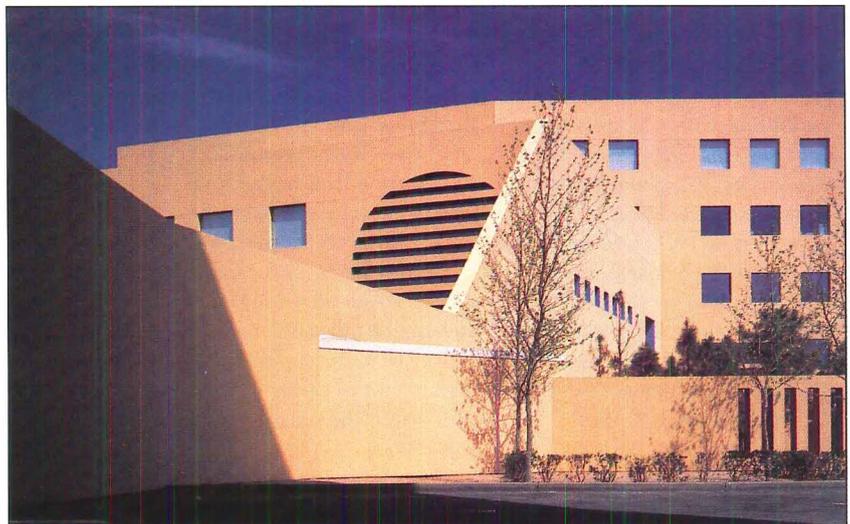
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Above: Employee entrance lobby. The ceiling diffuser in the foreground is a 24" x 24" TITUS Modu-Bloc, installed in a plaster frame. The center panel of the diffuser consists of the same material as the ceiling.

Right: View near the main entrance.



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Views

Cultural Relativism

Thomas Fisher suggested in the "Perspectives" section of your June issue (p. 108) that multiculturalism offers a positive, new direction for the future of architecture. I think, on the contrary, that multiculturalism is another symptom of the cultural fatigue of the West. This fatigue is not, however, caused by the failure of historical Western principles, but by the inadequacy of "progressive" Modern beliefs to provide a stable and dependable foundation for our culture.

The basic, unquestioned dogma of Modernism is that the human race is the sole, autonomous source of its own meaning. We are ultimately no more than we make ourselves to be. Relativism is the corollary of this dogma: if all meaning is merely human fabrication, then all beliefs and values are relative to the time and place of their conception, and no beliefs or values have absolute or universal meaning. Since there are no absolutes by which to judge the value of human endeavor, all cultures are equally valid and equally meaningful. Yet if all cultures are equally meaningful they are also equally meaningless.

Multiculturalism is one consequence of relativism. Since all cultures are equally meaningless, it is easy to select different features from different cultures, regardless of the context of belief into which these features are organically woven, and transport them into an alien context. This concept, as described in Mr. Fisher's article, is the cafeteria of culture: walk down the line and select environmental values from one culture, urban models from another culture, and mystical techniques from still another. This approach represents consumerism at its worst, and trivializes the fundamental beliefs

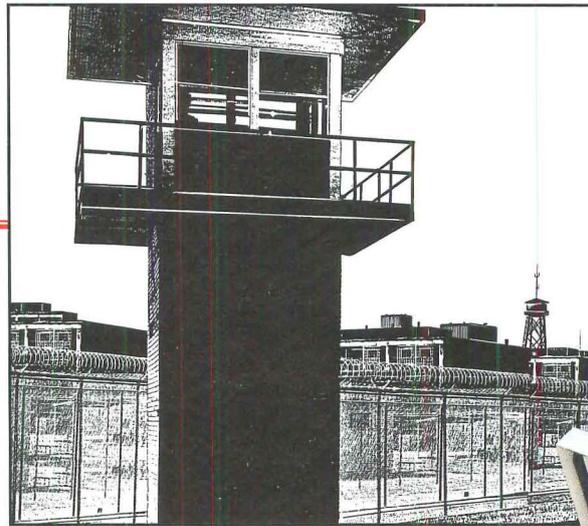
upon which cultures stand and the profound conflicts between the beliefs of different cultures. (Try talking to Zulus or Serbs about cultural diversity.) Rather than respecting "... the non-Western cultures which we have tried for so long to destroy," multiculturalism denigrates those cultures. Multiculturalism is the sanitizing of non-Western cultures into a form which is palatable to the "progressive" Western mind by discarding the context, beliefs, and practices which the "progressive" Westerner finds

offensive. It is the Imperialism of the Enlightened wearing the friendly, "sensitive" mask of inclusiveness.

So Mr. Fisher, in his disdain for imperialism, advocates more of the same. Imperialism is not the problem, however. Nor is culture. The problem is the humanistic presuppositions upon which Modern culture is built. Belief in human autonomy, human goodness, and human ability to perfect society depends as much upon blind faith as the most fantastic reli-

gion ever recorded. Because these presuppositions have no authority, we find our culture and our architecture tossed to and fro by every wind of change. Our attraction to fleeting whims such as deconstruction, multiculturalism, and New Age Architecture exposes an architectural crisis of identity. Because we have no compelling or substantial beliefs we find ourselves reduced to the cafeteria of culture.

If we are serious about assessing the problems of our
(continued on page 128)



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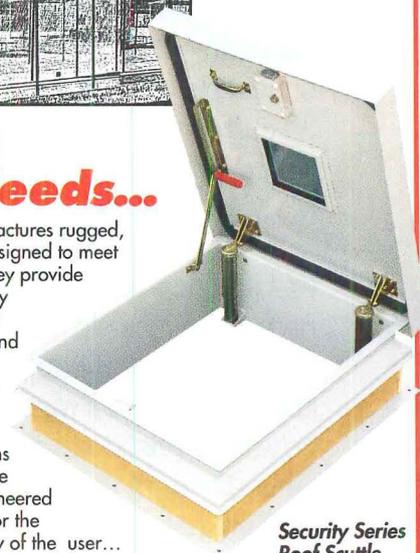
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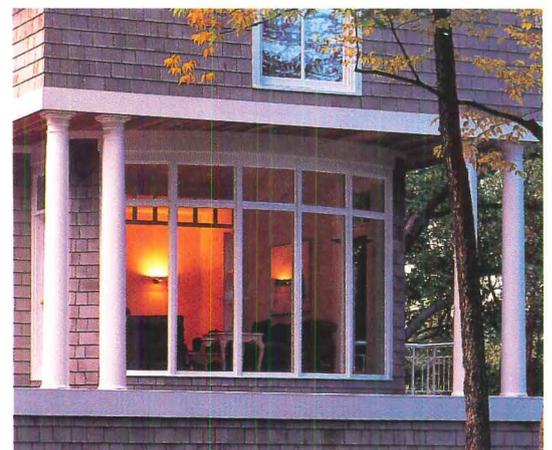
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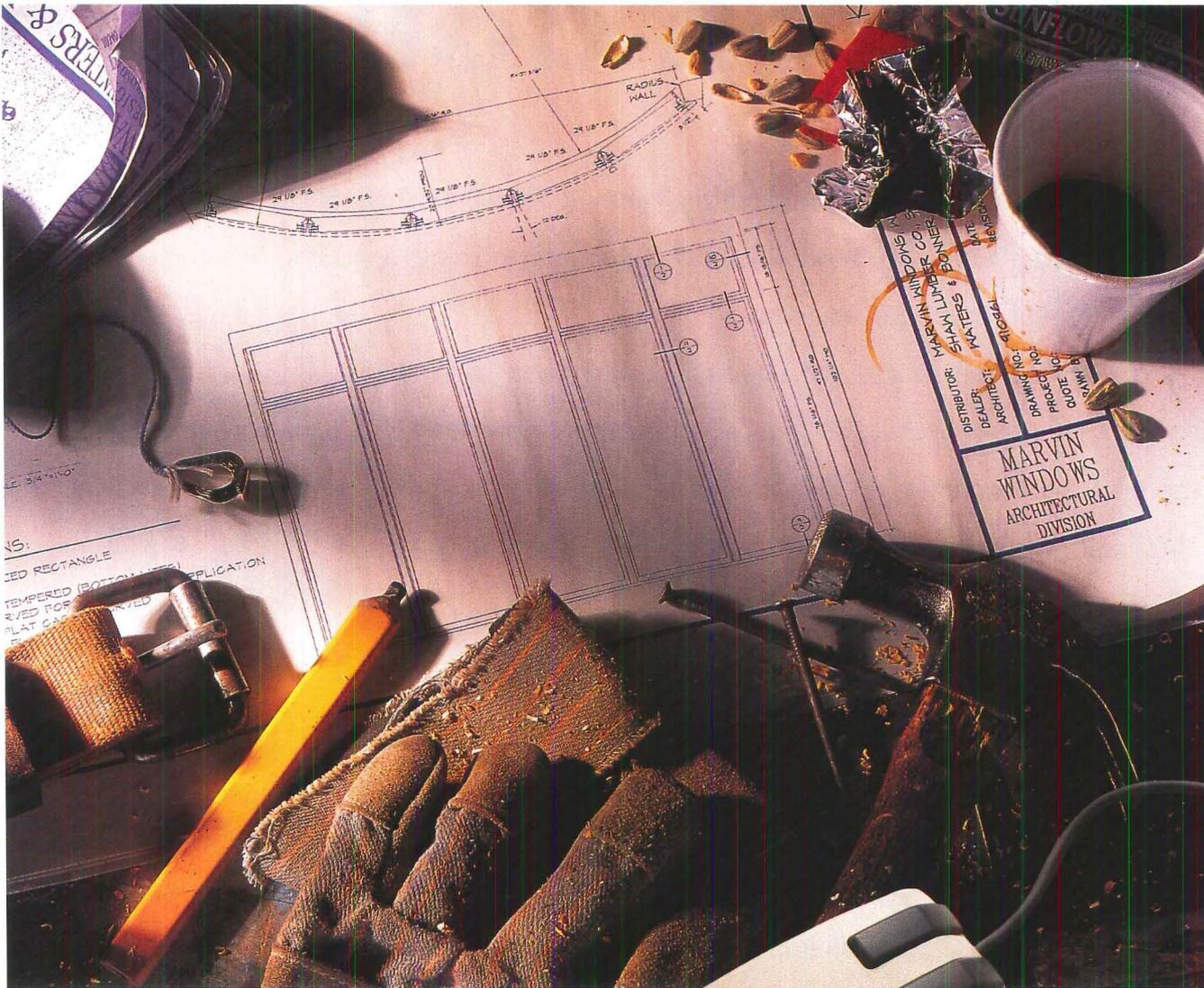
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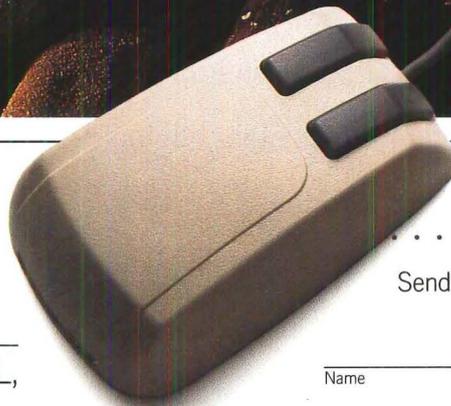


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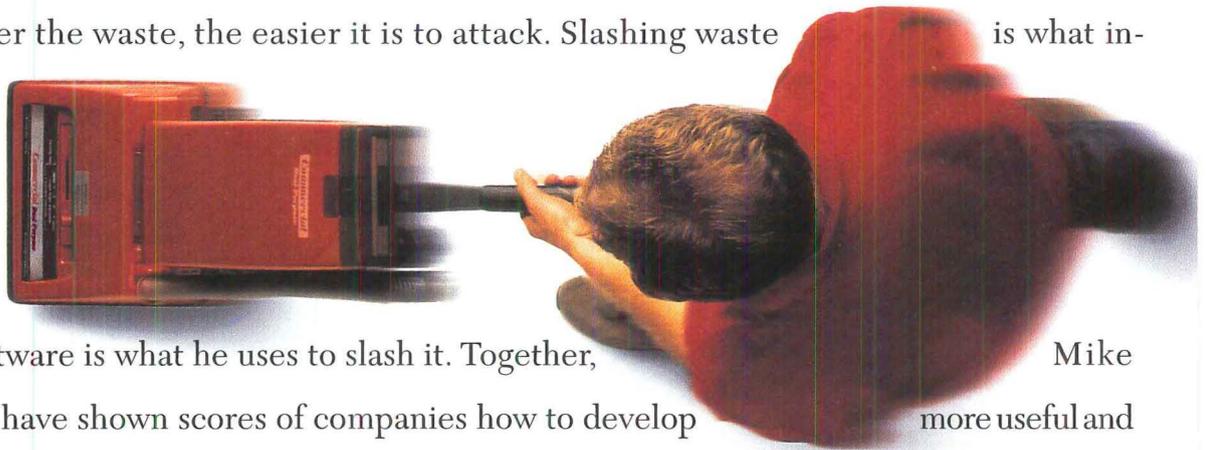


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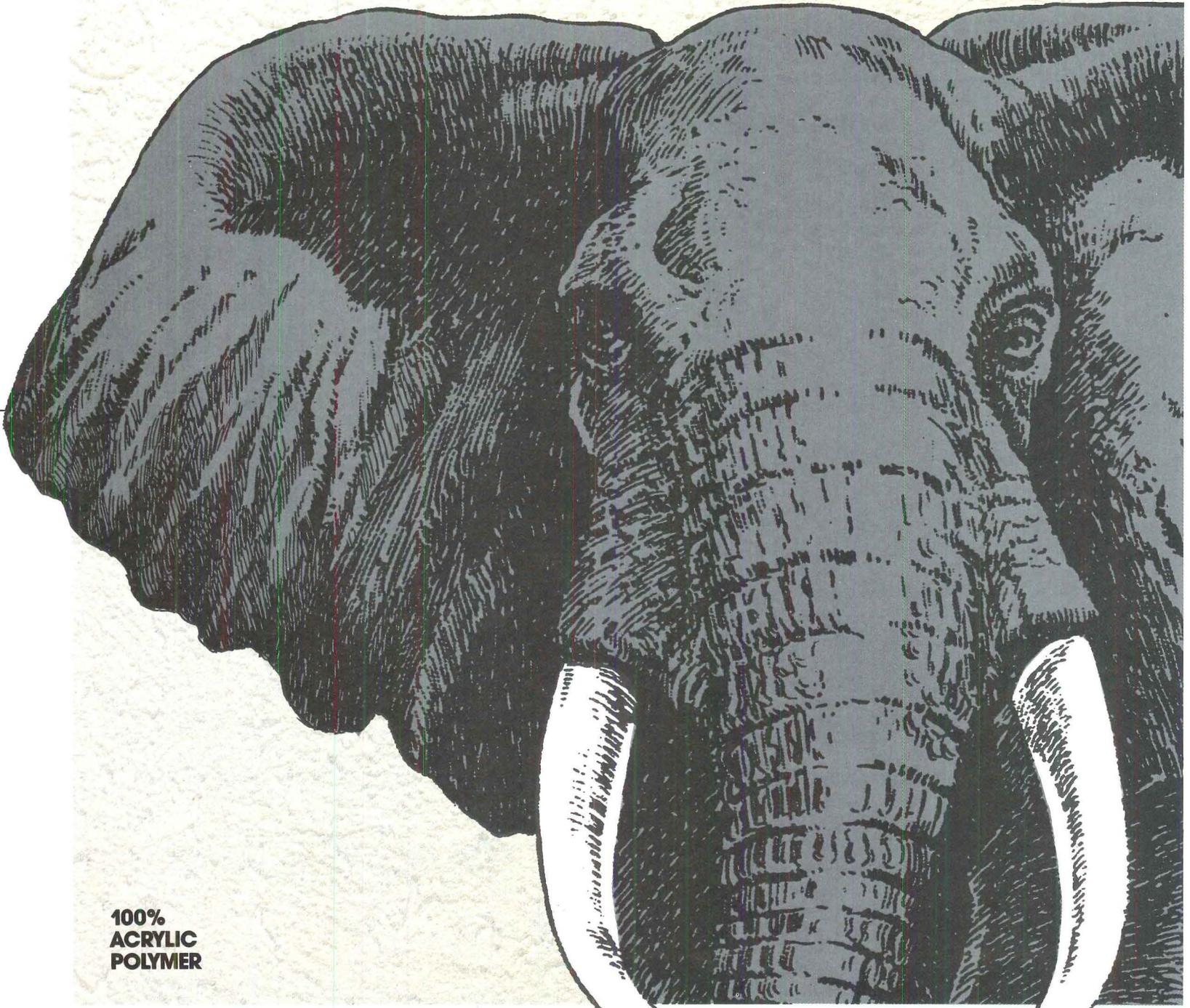
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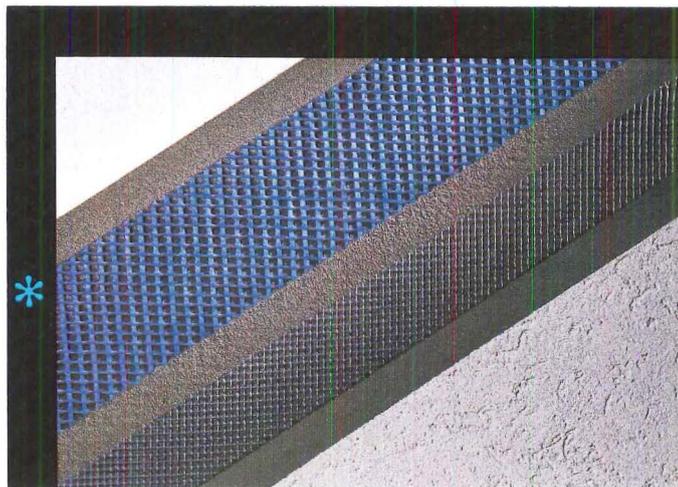
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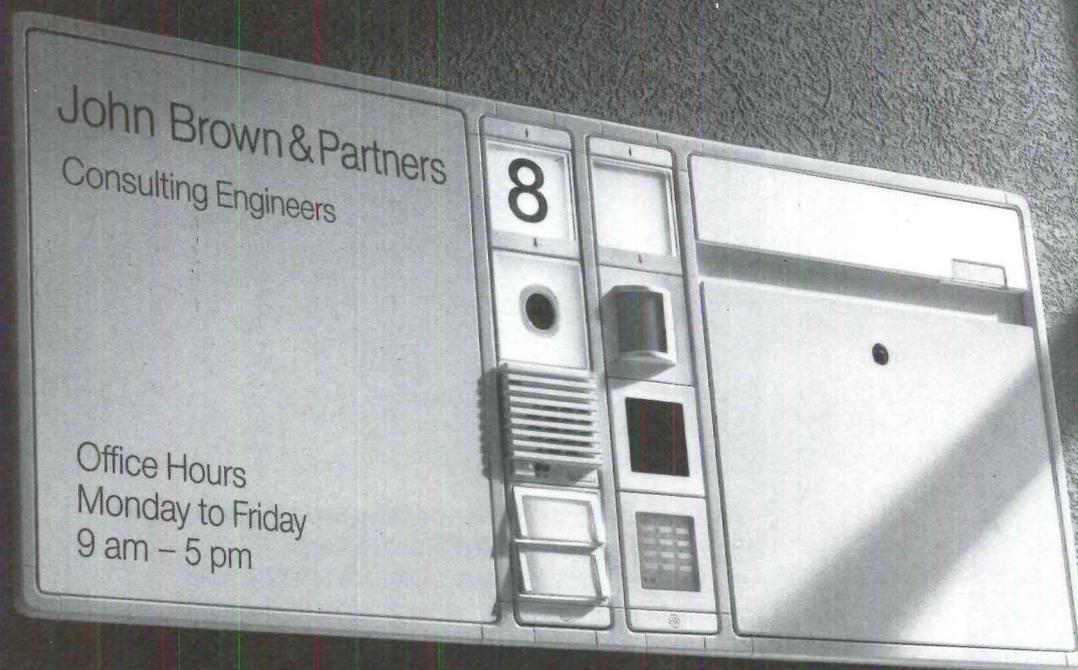
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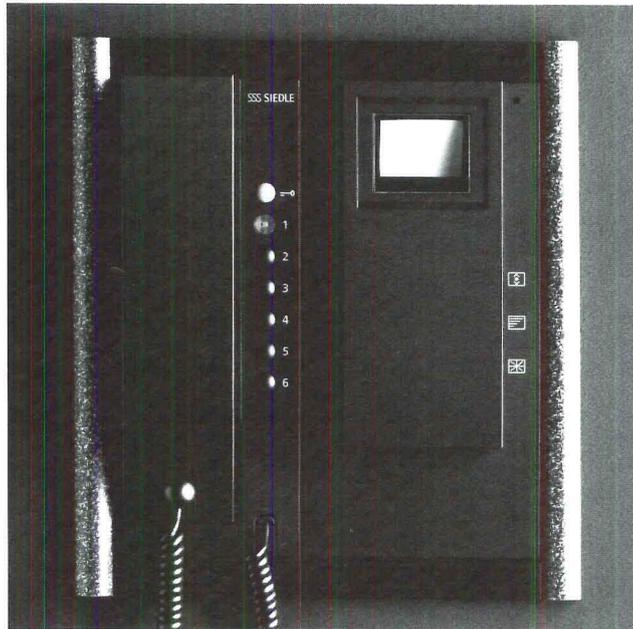
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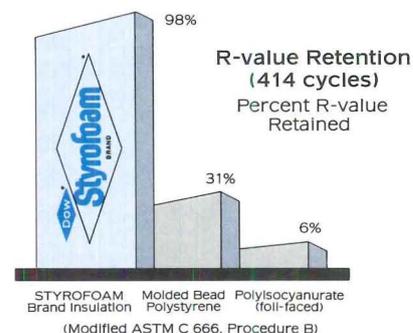
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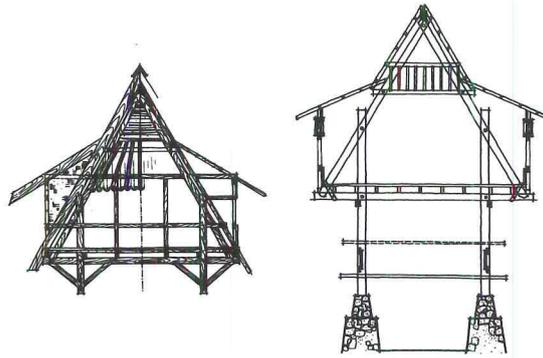


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Canal Emden

Aga Khan winners, clockwise from top left: Kairouan conservation program, Kampung Kali Cho-De sections, Demir Holiday Village, Panafrikan Institute for Development.

Aga Khan Awards Presented

Appropriate technology and sensitivity to context are the hallmarks of the nine projects selected for the 1992 Aga Khan Awards for Architecture. Winning teams from eight predominantly Muslim nations – ranging from Indonesia to the east to Burkina Faso to the west – are sharing \$500,000 in prize money. They were honored in a ceremony that took place in Samarkand, Uzbekistan, on September 19 and was followed by an international seminar on current architectural issues.

This fifth triennial Aga Khan Awards selection adhered to the remarkably conscientious procedures developed to assure the validity of the choices and the availability of their lessons to other architects. Nominations are solicited for architectural and urban design accomplishments from any Moslem country – or intended for Islamic activities in other countries – all of which must have been completed for at least two years so that durability and user satisfaction can be evaluated. These nominees are then winnowed through a process that includes a steering committee of architectural experts, reports by visiting technical teams, and a final master jury. Documentation of finalists by the technical teams is not only a basis for final selection, but is added to a growing reference archive at the Aga Khan Trust for Culture in Geneva (which also supports various related programs in education, urban conservation, and publications on architecture and urban design).

Among the 48 winners from previous years are such internationally known landmarks as Skidmore, Owings & Merrill's Haj Terminal in Jeddah, Saudi Arabia, and Jean Nouvel's Arab Institute in

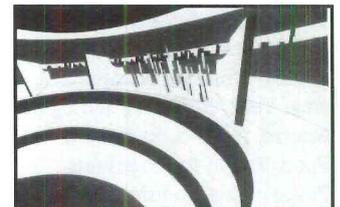
Paris, but the majority have been modest social facilities, building preservation efforts, and neighborhood restoration projects by designers otherwise little known outside their own countries.

This year, 259 nominated projects were initially reduced to 27 for technical team visits, after which the master jury selected the 9 winners. Among the nine jury members were architects Frank Gehry of Los Angeles, Fumihiko Maki of Tokyo, and Balkrishna Doshi of India, and art history chair Renata Holod of the University of Pennsylvania.

In the "directness and modesty" of the chosen projects, the jurors saw lessons "relevant to the developed countries as well as to the developing world." Their choices are:

- Conservation Program, Kairouan, Tunisia – an exemplary adaptation of an existing fabric to contemporary requirements. *Association de Sauvegarde de la Médina de Kairouan.*
- Palace Parks Program, Istanbul – an effective re-use of six Ottoman palace complexes as public space. *Regional Offices of the National Palace Trust.*
- Cultural Park for Children, Cairo – a child-oriented complex of library, art studio, computer workshop, and open space that relates sensitively to its neighborhood. *Abdelhalim Ibrahim Abdelhalim, Architect.*
- East Wahdat Upgrading Program, Amman, Jordan – a well-designed neighborhood of housing, schools, and health facilities that replaces temporary refugee shelters. *Urban Development Department.*
- Kampung Kali Cho-de, Yogyakarta, Indonesia – a self-help housing and public facilities proj-

Public Realm Winners: Results of P/A's recent competition, "The New Public Realm," begin on page 74. An exhibition of entries opens at 425 Seventh Street N.W., Washington, D.C., on October 23.



In Perspectives (page 115): Joseph Giovannini on the Guggenheim's architectural aspirations (above: rendering of installation by Zaha Hadid), and Thomas Vonier on the Presidential candidates and the building industry.

Pencil Points

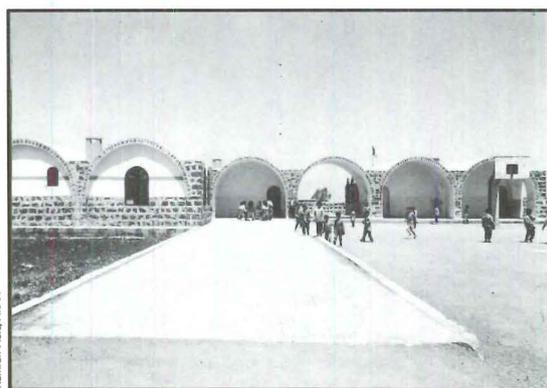
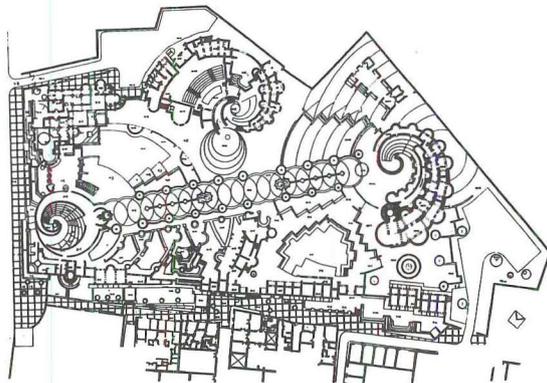
The AIA and the University of Miami School of Architecture have jointly formed The Architecture Recovery Center to coordinate short- and long-term assistance in the post-Hurricane Andrew rebuilding process in South Florida. Contact (800) 392-9272.

A team headed by Robert A.M. Stern has been commissioned to revitalize existing buildings in Times Square under the control of the 42nd Street Development Project. The announcement was made just days after the Times Square Center project by John Burgee Architects (P/A, Oct. 1989, p. 25) was put on indefinite hold.

New architecture school deans include Donna V. Robertson at Tulane; Dr. Thomas D. Galloway, who took office at Georgia Tech October 1; and Roger Schluntz, who goes to the University of Miami in January.

The City of New York has announced six finalists in a design competition for the new Whitehall Ferry Terminal and reorganization of the adjacent Peter Minuit Plaza in Manhattan. The firms are Hardy Holzman Pfeiffer Associates, New York; James Stewart Polshek & Partners, New York; Aldo Rossi's Studio di Architettura, New York; Skidmore Owings & Merrill, New York; Venturi Scott Brown & Associates, Philadelphia, in joint venture with Anderson/Schwartz Architects, New York; and Rafael Viñoly Architects, New York. The \$112-million project will replace the existing terminal damaged in a fire last year.

Frank Lloyd Wright's Dana-Thomas House (1902) in Springfield, Illinois, restored and opened to the public in 1990 at state expense, may be closed because of state budget cuts. For more information contact Dana-Thomas House Foundation, P.O. Box 7123, Springfield, IL 62791, (212) 788-9452.



Kamran Adile/AXCA

Plan of Children's Cultural Park (top) and Syrian school using stone building system (above) — both Aga Khan winners.

Innovations in Housing Winner Built

San Mateo, California, architect T. Randolph Grange submitted the winning entry in the 1991 Innovations in Housing competition, sponsored annually by the American Plywood Association, *Better Homes & Gardens*, *Progressive Architecture*, and *Builder* magazines. As in past years, the Grand Award winner has been built this year by Eller Builders Corporation in Des Moines, Iowa. It is sited in a grove of tall pine trees, a remnant of an earlier Christmas tree farm in an area fittingly called The Woodlands.

The prominent roof extends out to generous overhangs, with outriggers and arching lattice-like eyebrows over both front and rear decks. A grid motif that begins with the entry walk is further reinforced by the trellis and is picked up in the deck and stair banisters, in the gridded floor-to-ceiling windows at the back of the family room, and in the ceramic tile pattern in the bath.

Within its 2500 square feet, the house provides a large family room, a living room, a den, a dining room, a kitchen, a laundry, a master bedroom suite, a powder room, and a sunroom on the first floor; the second floor comprises two bedrooms, a bath, and a "projects" room that could serve as an extra bedroom or playroom. Despite its defined areas of use, the house retains a very open feeling; upon entering, a visitor can see through the house across the two-story family room and through the amply glazed outer wall to the deck beyond. The design places the fireplace in the center of this wall, where it can be enjoyed simultaneously with a view out to the deck and yard.

ect, using A-frame adaptations of traditional rural architecture, which transformed a former squatter settlement. *Yousef B. Mangunwijaya, Architect.*

- Stone Building System, Dar'a Province, Syria — a low-cost, climatically responsive vaulting system, using local basaltic stone with computer technology, which has been demonstrated in four completed schools. *Raif Muhanna and Ziad Muhanna, Architects, and Rafi Muhanna, civil engineer.*
- Demir Holiday Village, Bodrum, Turkey — developed by an architect-developer team, a stone and timber community that offers a sensitive alternative to destructive tourist development. *Turgut Cansever, Emine Ögün, Mehmet Ögün, and Feyza Cansever, Architects.*
- Panafrican Institute for Development, Ouagadougou, Burkina Faso — a campus built entirely of stabilized mud brick, an outstanding adaptation of local resources and traditions. *Association pour le Développement naturel d'une Architecture et d'un Urbanisme Africain.*
- Entrepreneurship Development Institute of India, Ahmedabad — a brick and concrete complex that adapts the traditional courtyard and loggia tradition to low-cost, low-maintenance structures. *Bimal Hasmukh Patel, Architect.*

John Morris Dixon



American Plywood Association

Innovations in Housing winner by T. Randolph Grange.

The house has a comfortable regional air to it; the jury felt that it "identifies with the ground and echoes the hills out on the prairie, possessing a . . . reassuring sense of shelter that is particularly important in the Midwest." They also found the house adaptable, noting, "This seems like a house that will age gracefully and will handle change in the lifestyle of a family over time. There is a lot of flexibility in the living space, with numerous options to accommodate an older parent or a single adult child living in the house."

Jurors for the 1991 competition were architect Jeff Scherer of Meyer, Scherer & Rockcastle, Jim Murphy of P/A, William Nolan of *Better Homes & Gardens*, Susan Bradford of *Builder*, and Gaylen Eller of Eller Builders Corporation.

Washington Report

Perhaps because competition for work gets fiercer by the day, some architects and educators are asking: Are there just too many schools of architecture in the United States?

There is no question that the number of architecture programs has grown recently, despite several years of dim work prospects. In the past two years alone, the National Architectural Accrediting Board has recognized seven new programs in architecture; another five were at some stage in the accreditation process, and at least four more have said they will apply soon. NAAB-accredited programs are offered at 100 schools; 20 grant both bachelor's and master's degrees.

"But the number of schools isn't the right question," says Roger Schluntz, an Arizona State architecture professor and incoming dean at the University of Miami. "Maybe it's all right to ask if too many people are graduating in architecture. Maybe. But is society fully aware of all the things architects can do?" Schluntz believes that graduates are prepared to fulfill a variety of vital professional roles.

NAAB executive director John Maudlin-Jeronimo raises quality of education as the central issue: "The profession needs to encourage better programs, not more or fewer schools."

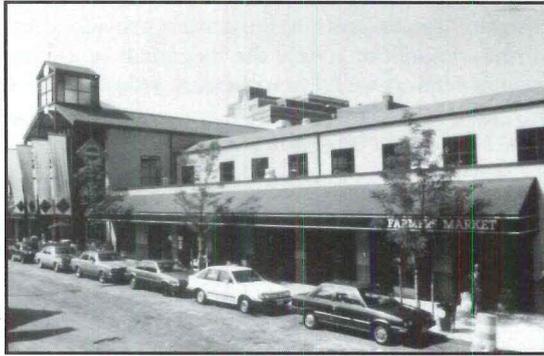
While over 30,000 students may be enrolled in architecture during any given year, the number of graduates is much smaller. In the last academic year, 3489 people received B. Arch. degrees, and 1575 received master's degrees. These numbers have held quite steady over the past decade, as have overall enrollment levels.

But the NAAB thinks that the spate of new programs will mean higher enrollments – and "old" schools tend not to go away, even where architecture graduates aren't really needed and educational quality may have failed to keep pace.

"Presidents and provosts won't make the hard choices," says a Washington architect close to the accreditation process. "It is too tough politically to close an established school. The alumni go crazy and stop (continued on next page)

Chosen to be built in the 1992 competition – the 15th year of this program – is the scheme by second-time winner, Kenneth C. Dahlin, an architect from Racine, Wisconsin. It is being built in Port Orchard, Washington, by Galla Construction, Inc., and reflects the emphasis on Prairie Style

design favored by Dahlin's firm, Genesis Architecture. In addition to returning jurors Murphy and Bradford, new judges were architect and University of Washington Professor Thomas L. Bosworth, Steve Greenhut of *Better Homes & Gardens*, and Ron Galla of Galla Construction. ■



M. Rogol



M. Rogol

Street view (left) and Farmers Hall (right) of Farmer's Market Jamaica

A Farmer's Market for Jamaica, Queens

The redevelopment of Jamaica, a neighborhood of Queens, New York, took a serendipitous turn in 1976, when the Greater Jamaica Development Corporation organized a farmer's market in order to utilize vacant downtown land. Now, the market has become a cornerstone of the community's redevelopment, especially since its permanent home opened for business this summer.

Designed by James McCullar & Associates of New York, Farmer's Market Jamaica includes a center-aisle Farmers Hall, with stalls for vendors of produce and other products, and an adjacent Food Court housing vendors of prepared food. In addition to new construction, the project reuses an

existing commercial building, whose second floor will house offices for social services.

McCullar's design for the market, which occupies an infill site off Jamaica Avenue, employs a somewhat traditional aesthetic reminiscent of Victorian food halls, with exposed steel trusses and a street-facing canopy. But the color palette – green, yellow, pink, and purple – is derived from the tastes of the community's Caribbean population.

The Farmers Hall portion of the project was up and running early this summer, and enjoying great success. Tenants are still being lined up for the Food Court; in lieu of attracting fast-food chains, officials are working to help local citizens obtain start-up funds. **Mark Alden Branch** ■

"Megamall" Opens in Minnesota

Called "the largest fully enclosed combination retail and family entertainment complex in the nation," the new 4.2-million-square-foot Mall of America (P/A, Oct. 1989, p. 25) opened on August 11 in Bloomington, Minnesota, a suburb of Minneapolis. It is perhaps fitting that the "megamall" (as locals call it) should be built less than six miles from Southdale, the nation's first fully enclosed shopping mall built in 1956. Designed by Californian Victor Gruen to counter Minnesota's brutal cold winters, Southdale was at that time the world's largest enclosed, climate-controlled shopping center and one of the few with two major department stores. (The Mall of America has four.)

The success of the \$625-million megamall, designed by the Jerde Partnership of Los Angeles for developers Melvin Simon & Associates and Triple Five Corporation, is seen as crucial to the future of retail in the region. Yet the future of the new retail/entertainment center itself remains in doubt. Since the Mall of America was proposed seven years ago – during the height of the 1980s consumer buying binge – the economy has taken a dramatic downturn, and many once thriving retail



Peter Rements

Knott's Camp Snoopy, centerpiece of the megamall.

complexes throughout the Twin Cities have closed or converted to office and entertainment centers.

Architecturally, the new Mall of America is predictable. Besides more than 2.6 million square feet of retail, efficiently arranged in a square donut plan of "city streets" – distinguished one from another by a too-subtle varying of architec- (continued on next page)

Washington Report

(continued from previous page)

the action. So universities get across-the-board budget cuts, and that weakens all of their programs."

Some schools have continued to function, critics say, even in badly weakened condition and without convincing reasons to exist. "Should mainly rural states – with small, dwindling populations, serious economic problems, and few jobs in the foreseeable future – have not just one, but two state-sponsored schools?" asks one educator, citing Kansas and Oklahoma as examples. Louisiana is frequently mentioned as an egregious case: it has five accredited degree programs in architecture.

But programs are not necessarily redundant. Maudlin-Jeronimo says, for example, that programs recently accredited by the NAAB enhanced diversity in educational offerings. "One was within a school of fine arts, one was at an historically black university, and one in a technical institution."

"What could you do even if you decided that there were too many schools?" scoffs another professor. He doubts that any effort to limit programs or the number of students – by lottery, for example – would get far. "Something like that could be viewed as a restraint of trade," says Maudlin-Jeronimo.

"It's a free-market system, based on informed choice, and it is responsive," says Schluntz; if students don't buy, universities won't sell. Yet one administrator acknowledged that schools face pressure to keep numbers up: "If you need 14 students per studio to make the program work and you have only 8, then you will take the next 6 applicants – or go out and find them – even if they're below what you'd like academically."

Nonetheless, many architects and educators involved in accrediting believe firmly that most schools make earnest, effective attempts to counsel applicants about the challenges and pitfalls they may face as practicing architects. If students decide to go on anyway, it must be from some sense of love or dedication. And maybe the profession should be happier to have them. **Thomas Vonier** ■

Megamall (continued from previous page)

tural details – there are two multi level parking structures with 10,000 spaces and an additional 3000 surface parking stalls on site. What is unusual about the mall is the seven-acre landscaped entertainment park in the donut hole, a central skylit atrium filled with "Knott's Camp Snoopy," a park modeled after Knott's Berry Farm. With the traffic generated by 281 retail stores, 18 service stores, 48 food shops, 21 restaurants, and 9 nightclubs, overlaid with the ubiquitous din from Camp Snoopy, the impression is more that of a state fair than of a shopping mall.

Design-Build Speaker's Platform at Catholic

While every architecture student can wield a mechanical pencil, few can do the same with a rivet gun. Unless they were enrolled last spring in Ann Cederna and Douglas Frederick's design/build studio at Catholic University: a dozen undergraduates and graduate students conceived and fabricated a podium for a knoll next to their school. Fully functional and permanent, the platform refutes charges that academic architecture is a rarefied exercise, detached from reality. Likewise, the cult of the solitary design genius was *outré* in this studio: the podium synthesizes the work of four teams, the final form determined by consensus. Thoroughly articulated (almost to a fault), it's a neo-Constructivist essay in Agitprop, realized not under the patronage of Lenin, but that of Rev. William J. Byron, Catholic's president. A tilted mast, evocative of a project by Lissitsky, points toward the University's main academic building, while the lectern faces the National Shrine, the University's spiritual center.

Debates about the import of the podium were a political encounter on the macro scale. Less profound, but perhaps more memorable, were the negotiations endemic to the construction process: Cost estimates were projected and revised (the podium was built for \$6630), and the District of Columbia's permit office, reportedly a Byzantine bureaucracy, became familiar terrain. Complications seemed to lie in wait: a forgotten foundation was buried beneath the site, and the pilings had to be repositioned. "Process" proved messy, sometimes aggravating, and ultimately rewarding.

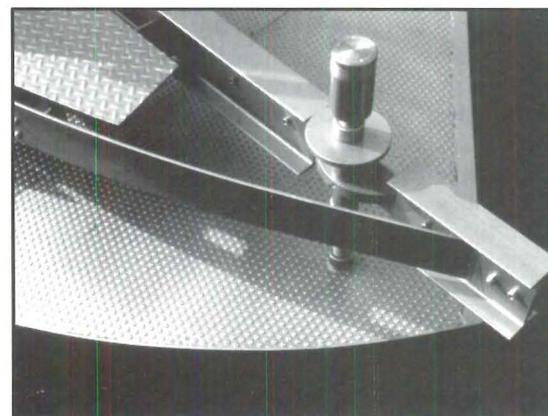
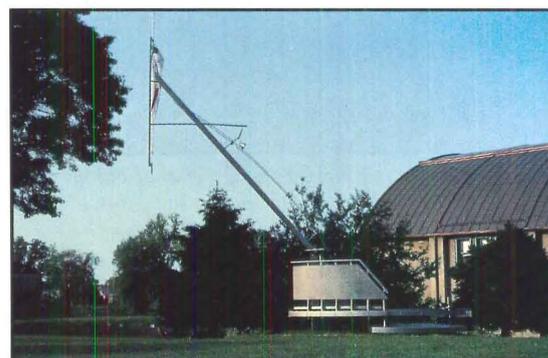
To design and revise details, to solve construction problems as they arise – the students saw firsthand that these are the most time-consuming parts of any design commission. Patrick Bodden,

Environmental Graphic Designers in New York

My presence at the 1992 Society of Environmental Graphic Designers national convention, held in New York in August, was met with comments of surprise: What is P/A doing here?" and "It's about time." It was thus ironic that the conference, themed "COMPLEXcity: The Competition for Communication in the Urban Environment," failed to make many substantial connec-

Victor Gruen, 36 years ago, described Southdale as "the town square that has been lost to the automobile," and added, "It should become the center of this civilization." His words have seemed prescient in recent years, as malls have taken over many public functions. But after a day at the megamall, many people have been heard to say that it's just another mall, only twice as big. As discount stores and "hypermarts" provide ever-stiffer competition, could the megamall be the last gasp of retail as we know it? **Bruce N. Wright** ■

The author is editor of *Inform Design Journal* and teaches at the *Minneapolis College of Art & Design*.



Photos: Douglas Frederick

"MERAK 16," Catholic's design-build project (top); detail of pin assembly (above).

one of the 12, wryly observed, "It's not glue joining the pieces." The pedagogical motive, according to Frederick, was to show that the process of building should make a design better, rather than diminish it. The podium proves the point: the concept is as strong as the form is elegant. It sets a strong precedent for future design/build studios at Catholic. **Philip Arcidi** ■

tions to the architectural community.

If, in fact, at least some members of this group feel marginalized by the architectural profession, why not take up arms? Why not make a case for collaborative efforts with the architecture team from Day One rather than being brought in to "gussy up" (as one conferee put it) or "decorate" a building after it's been designed or constructed?

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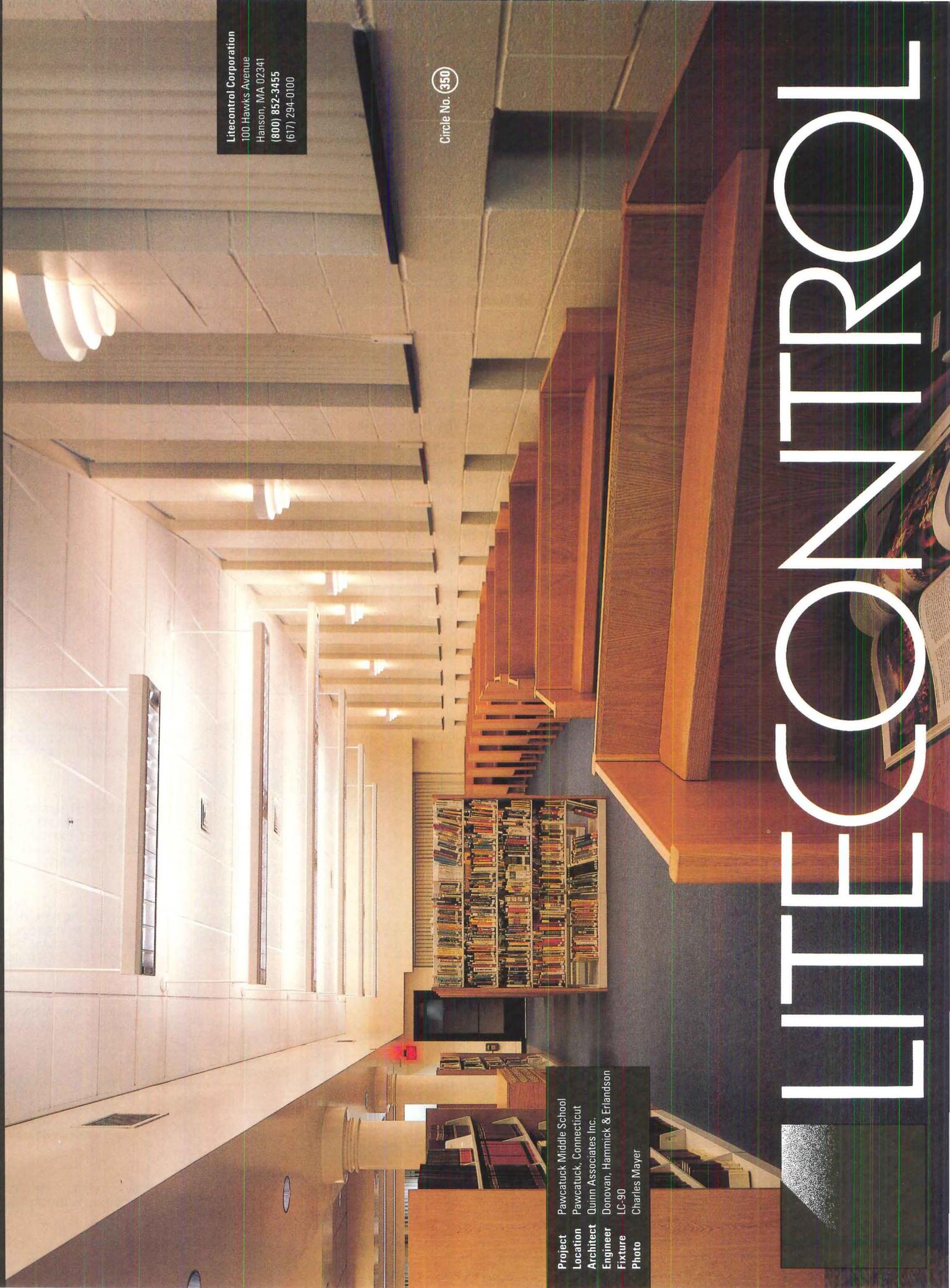
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LITECONTROL



Graphic Designers (continued from page 24)

One significant window of opportunity, barely discussed at the conference (though a workshop was held on the subject), is the SEG'D's recent white paper on the *Americans with Disabilities Act*.

Keynote speaker Ralph Caplan gave a promising opener, bridging the gap between the design disciplines. He defined environmental graphic designers as those who "guide us through space," where "complexity, like cholesterol, is [both] good and bad." Caplan cited Ben Shahn's "In Defense of Chaos" essay and Robert Venturi's *Complexity and Contradiction in Architecture* as documents that, early on, demonstrated that complexity enriches design just as it enriches life.

Complementing Caplan's position, B.J. Krivanek of B.J. Krivanek Art + Design, Los Angeles, argued that simplification does not have to be simplistic. After he showed slides of his Architectural Inscription Program for the Union Rescue Mission, a shelter for homeless people in Los Angeles, a conferee asked if the project was not too complicated for its intended users to understand. Krivanek replied that as a designer and an educator he intended to challenge his audience. His designs require participation rather than dictate it, and represent a small but provocative sector of the profession.

The conference closed with a presentation by Richard Dattner of Richard Dattner Architect, New York, and Gina Russell of Service Station,



Richard Dattner

Architecture and graphics allied: Democratic Convention stage.

New York, who designed the Democratic National Convention stage and graphics, respectively (along with architect Margaret Helfand of New York, consultants, party officials, and Secret Service agents). The ribboned, horizontally configured stage and the bold graphic language had to work in unison to project a "political message of strength," said Dattner. Their presentation suggested that collaboration, beginning with project conception, can result in some very powerful imagery for the dissemination of information.

The SEG'D's members do play a vital role in the shaping of our environment, and if they take anything with them from the conference, it should be that communication between design disciplines is as important as the communications system they develop for the urban environment. **Abby Bussel** ■

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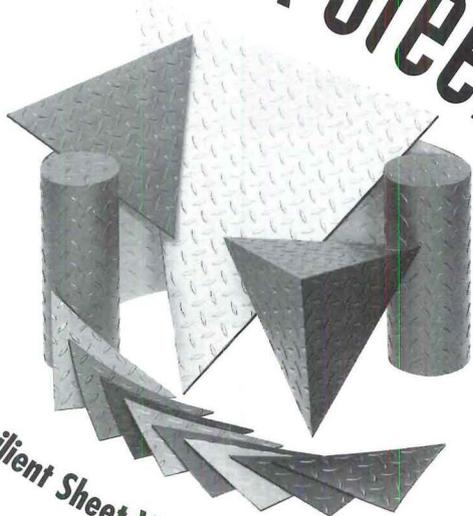
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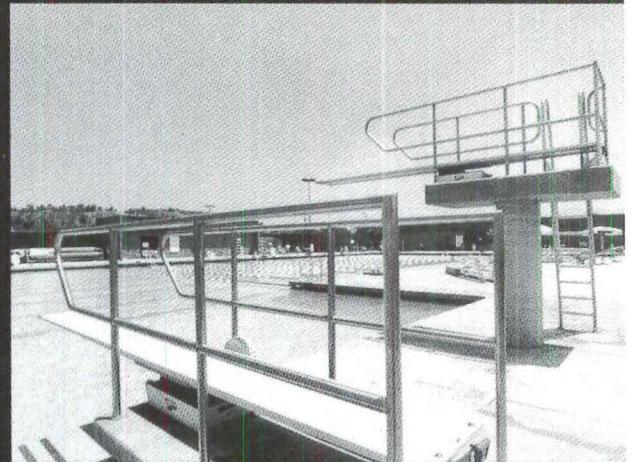
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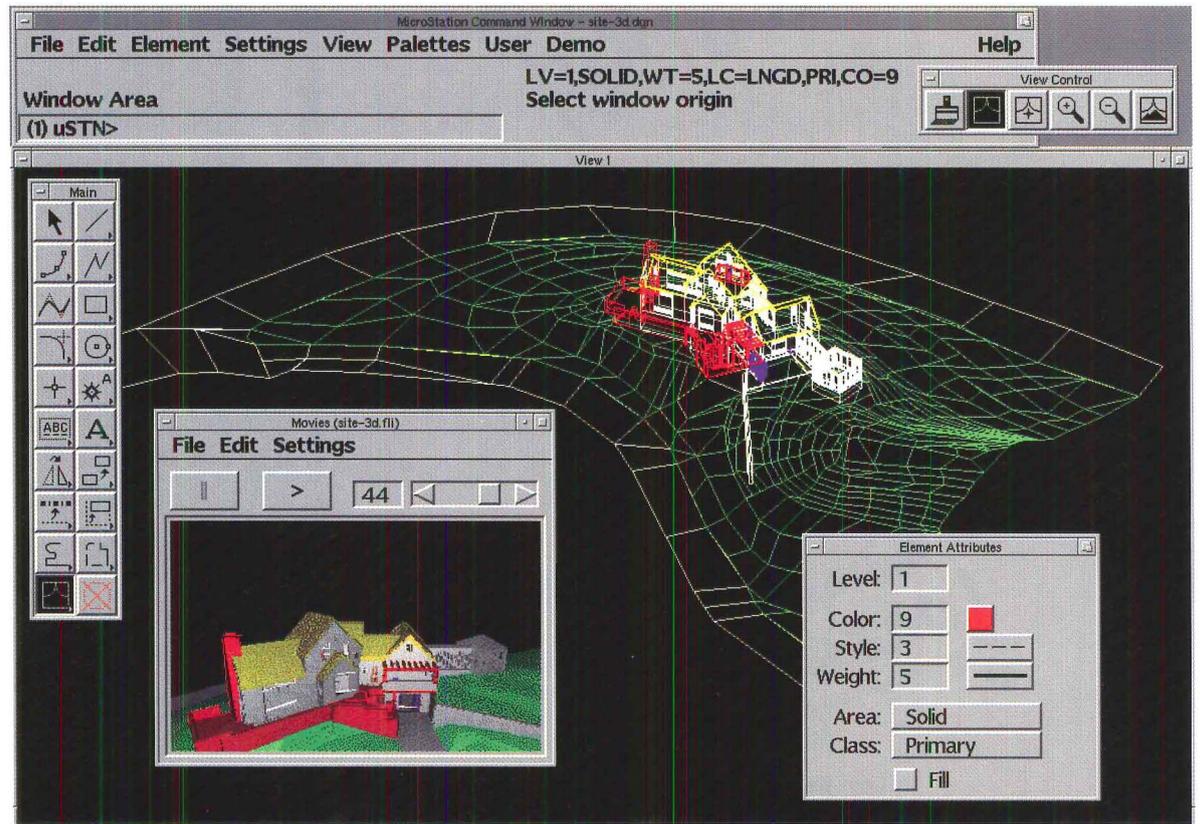


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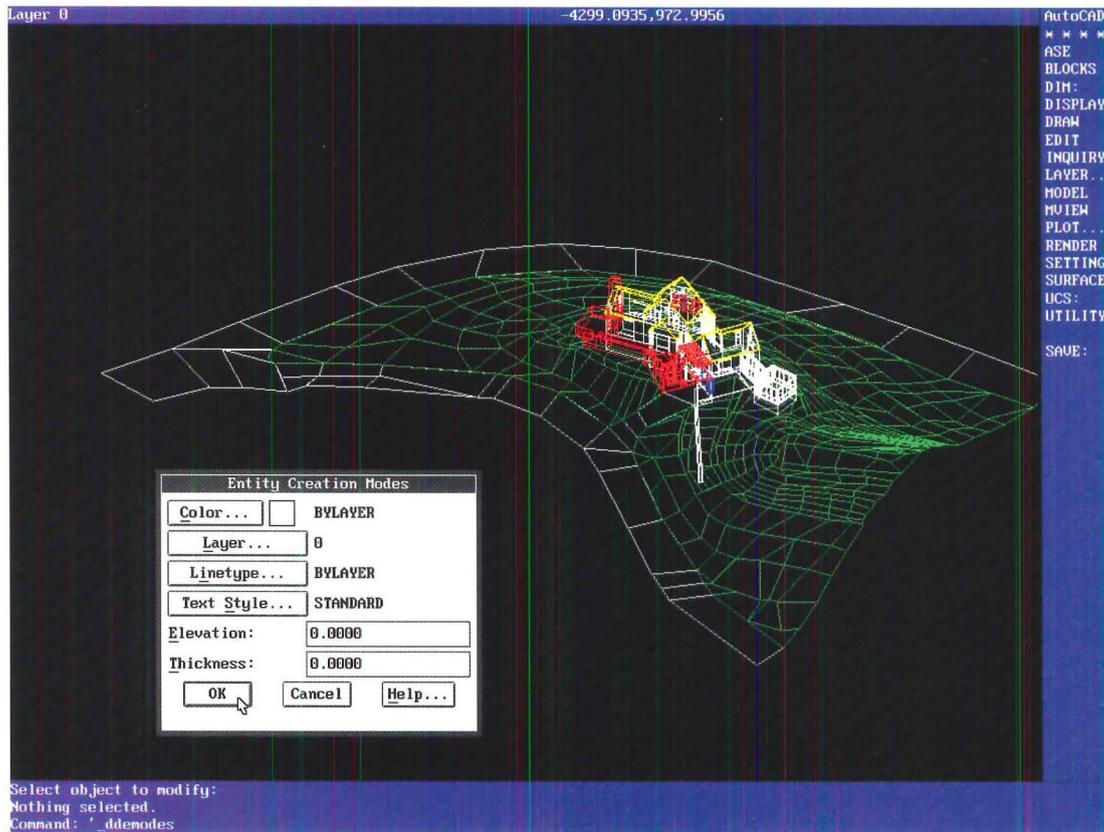
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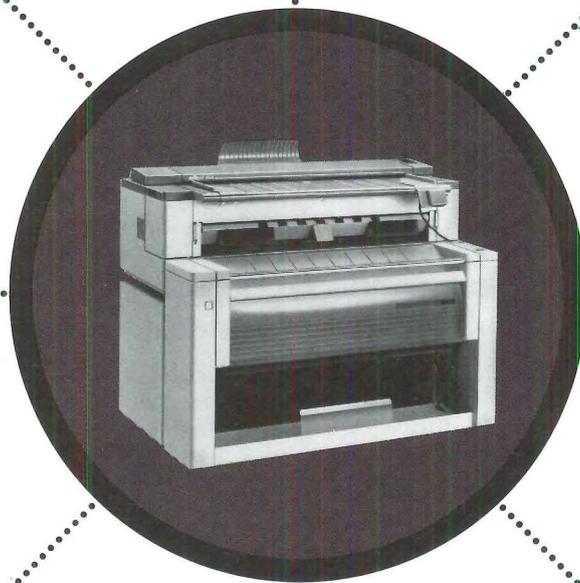
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Calendar

Exhibitions

Biomorphic Concrete
Through October 31

New York. "Pressure Buildings and Blackouts," Mark West's installation/exhibition includes the architects' experimentation with fabric-formed concrete structures (both inside the gallery and oozing out onto its front elevation) and a series of graphite-blackened and erased collages of found photographs and drawings. Storefront.

Gehry's Bentwood Furniture
Through November 15

Montreal. This traveling exhibition of Gehry's bentwood collection for Knoll (P/A, Mar. 1992, p. 116) was organized by the museum. Museum of Decorative Arts.

Czech Cubism
Through December 18

Philadelphia. "Czech Cubism: Architecture and Design" is a traveling exhibition of work by Czechs and Slovaks from the early part of the century. University of the Arts, Rosenwald-Wolf Gallery.

Visions/Revisions 1992
October 1–January 31, 1993

Washington, D.C. Unrealized and theoretical work by architects practicing in Washington, D.C., is on view. National Building Museum.

Italian Furniture
October 9–December 13

Chicago. "Elegant Techniques: Italian Design 1980–1992" exhibition was designed by Studio de Lucchi of Milan. Chicago Cultural Center.

New York Resource Center
October 15–17

New York. The New York Resource Center, housed in the former B. Altman's Building on Fifth Avenue, will be a "temporary exhibition site" for furniture manufacturers during the fall market. The building is currently being restored and will open officially in 1994. Fifth Avenue at 34th Street.

Harry Weese
October 17–January 8, 1993

Chicago. "Sketches and Schemes: The Designs of Harry Weese" includes built and unbuilt work produced since 1947. Chicago Architecture Foundation.

P/A's The New Public Realm
October 24–December 12

Washington, D.C. This traveling exhibition of public works proposals submitted to P/A's The New Public Realm ideas competition (see p. 73, for the winners) is organized in collaboration with Architects, Designers, and Planners for Social Responsibility. It will debut in a former commercial space at 425 Seventh Street, N.W. owned by the Pennsylvania Avenue Development Corporation. The opening reception – open to the public – will be held on October 23, 6:00–8:00 p.m.; a symposium will be held on October 25 at the National Building Museum, 1:00–3:00 p.m.

Aldo Rossi
October 24–December 12

New York. Recent drawings and hand-colored prints will be on view. Max Protetch.

Competitions

CSI Specifications
Application and project manual
deadline November 3

Alexandria, Virginia. The Construction Specifications Institute has announced its 1993 Specifications Competition, honoring professionals who prepare quality construction documents. Contact CSI, 601 Madison St., Alexandria, VA 22314 (703) 684-0300.

Cyprus University Master Plan
Entry deadline November 23

Cyprus. An open, two-stage international ideas competition for the University of Cyprus's new campus at Athalassa, Nicosia, Cyprus, has been announced. A total of \$170,000 in prize money will be awarded. Contact International Competition Office, The University of Cyprus, 75, Kallipoleos Ave., P.O. Box 537, Nicosia (Cyprus) FAX (357) 236-61-98.

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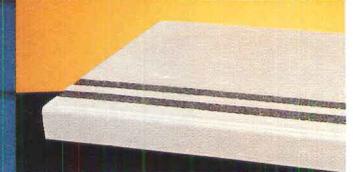
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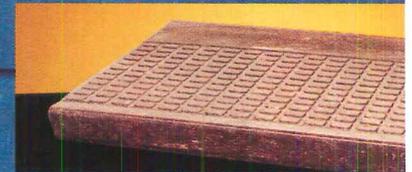
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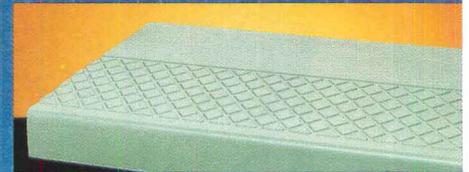
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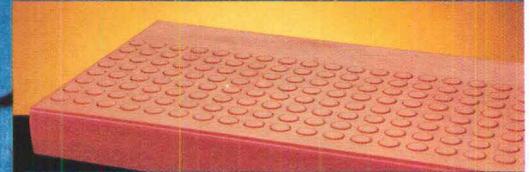
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Bruner Award
Application deadline December 30

New York. The \$50,000, biannual Rudy Bruner Award for Excellence in the Urban Environment "recognizes urban places that successfully reconcile social, economic, and aesthetic values throughout the development process." Contact The Bruner Foundation, 560 Broadway, 5th fl., New York, NY 10012 (212) 334-9844 or FAX (212) 334-9842.

Ideas for the Embarcadero
Entry deadline January 30, 1993

San Francisco. "Call for Vision, San Francisco Embarcadero/Waterfront Competition" is an international ideas program sponsored by 2AES and other community organizations. Entrants are asked to suggest schemes for the revitalization of this neglected area of the city. Contact Pam Kinzie, 2AES, 1700 17th St., 2nd fl., San Francisco, CA 94103 (415) 863-1502.

Sustainable Communities
Registration deadline April 1,
submission deadline May 5

Washington D.C. The AIA and the UIA have announced a "Call for Sustainable Community Solutions." The competition program is now available. Contact Carl Costello, AIA (800) 365-ARCH or FAX (202) 626-7518.

Conferences

Designer's Saturday
October 15-17

New York. "Design America Now: At Home and Abroad" is the theme of this year's contract interiors market (see P/A, Sept. 1992, p. 123, for a preview). Contact IDCNY, Designer's Saturday Registration, 29-10 Thomson Ave., 9th fl., Long Island City, NY 11101 FAX (718) 729-3690.

Urban Housing
October 23

Newark, New Jersey. "The Dwelling, the City, the Region: Propositions for Urban Housing Policy and Design," a conference focusing on neighborhood design, is sponsored by the School of Architecture at New Jersey Institute of Technology. Contact Renada Woodford, School of Architecture, NJIT (201) 596-3080.

Architecture and the Environment
October 29-31

Vancouver "Architecture and the Environment: Micro, Macro, Global" is the title of the The Royal Architecture Institute of Canada national convention. Contact Judy Scott, RAIC, 55 Murray St., Ste. 330, Ottawa, Ontario K1N 5M3 (613) 232-7165 or FAX (613) 232-7559.

Design and the Corporate World
October 23-25

Chicago "Design: A Strategic Partnership with Business" is the title of the American Center for Design's fall conference. Contact American Center for Design (800) 257-8657 or Illinois (312) 787-2018.

The Public Building
November 8-11

Jerusalem. "The Public Building: Form and Influence" is a seminar of case studies presented by an international lineup of architects. Henry Cobb of Pei Cobb Freed & Partners, New York, Charles Correa of India, and Richard Rogers of Richard Rogers Partnership, London, are among the presenters. Contact Arthur Spector, 16 Ibn Gvirol St., Jerusalem, Israel tel. 972-2-611-576 or FAX 972-2-610-028.

Responsible Energy Use
November 16-18

Saratoga Springs, New York. The Northeast Sustainable Energy Association's Energy Opportunities '92 is a conference and trade show focusing on energy conservation, efficiency, and renewable energy sources. Contact Lise Marshall, NESEA, 23 Ames St., Greenfield, MA 01301 (413) 774-6051.

Build Boston
November 18-20

Boston. This annual conference and trade show is sponsored by the Boston Society of Architects/AIA, and the World Trade Center/Boston. Contact BSA, 52 Broad St., MA 02109-4301 (800) 447-7112 ■

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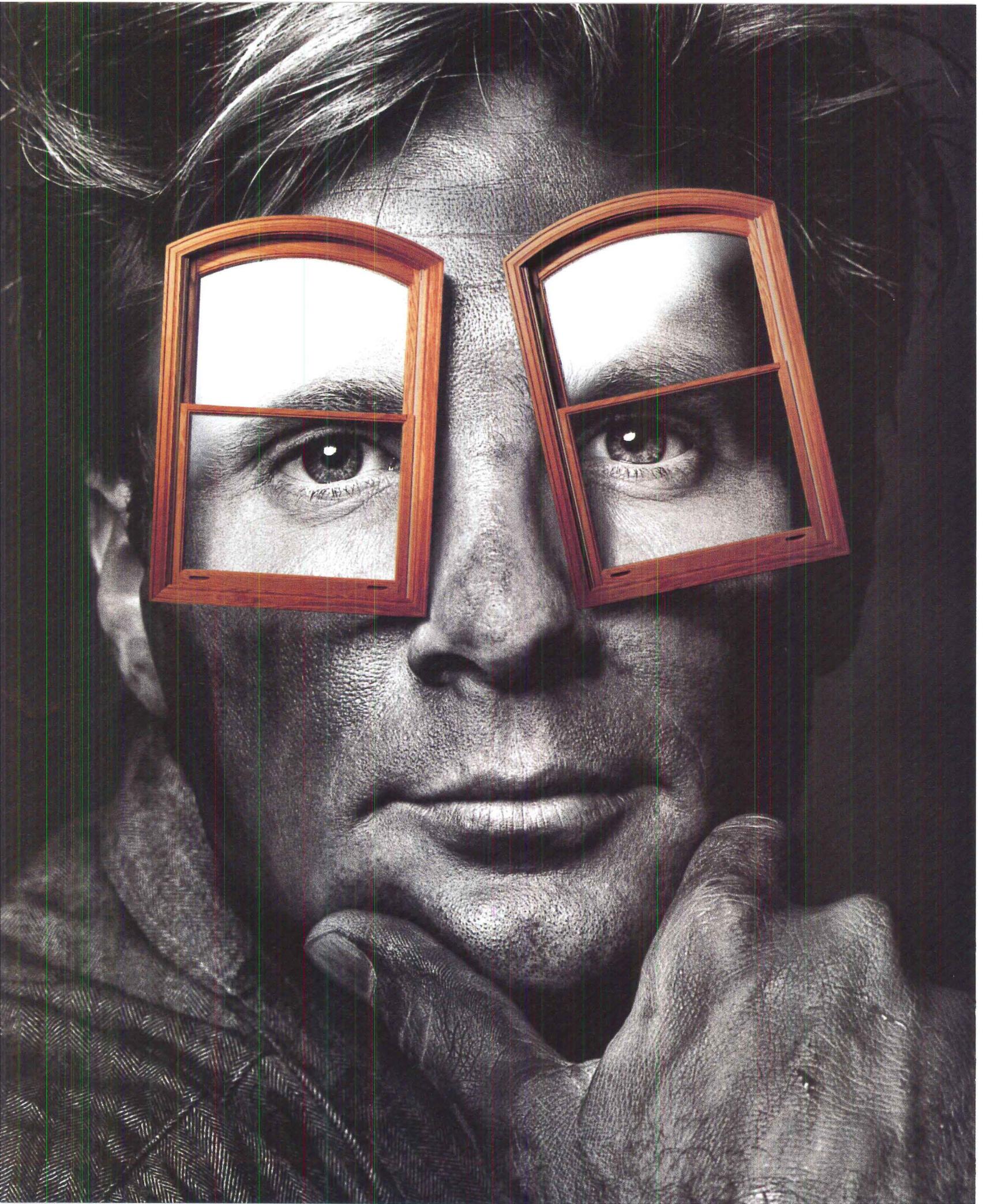
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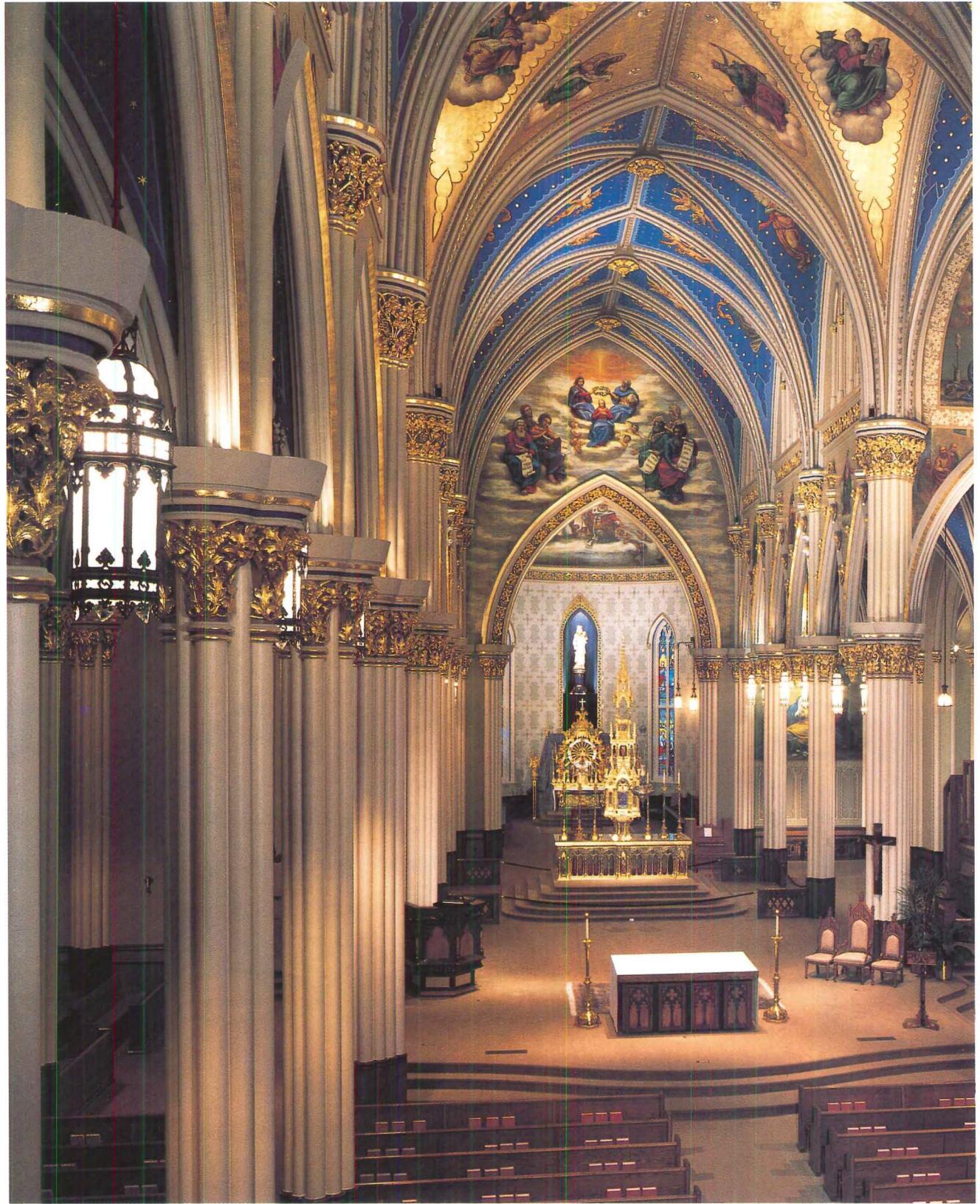
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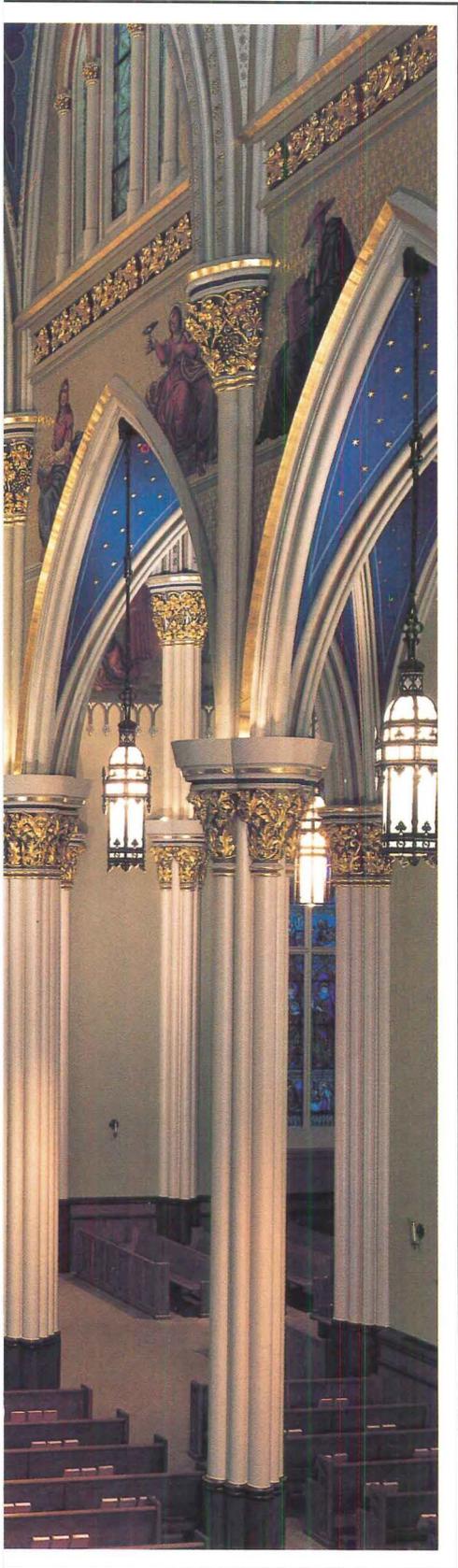
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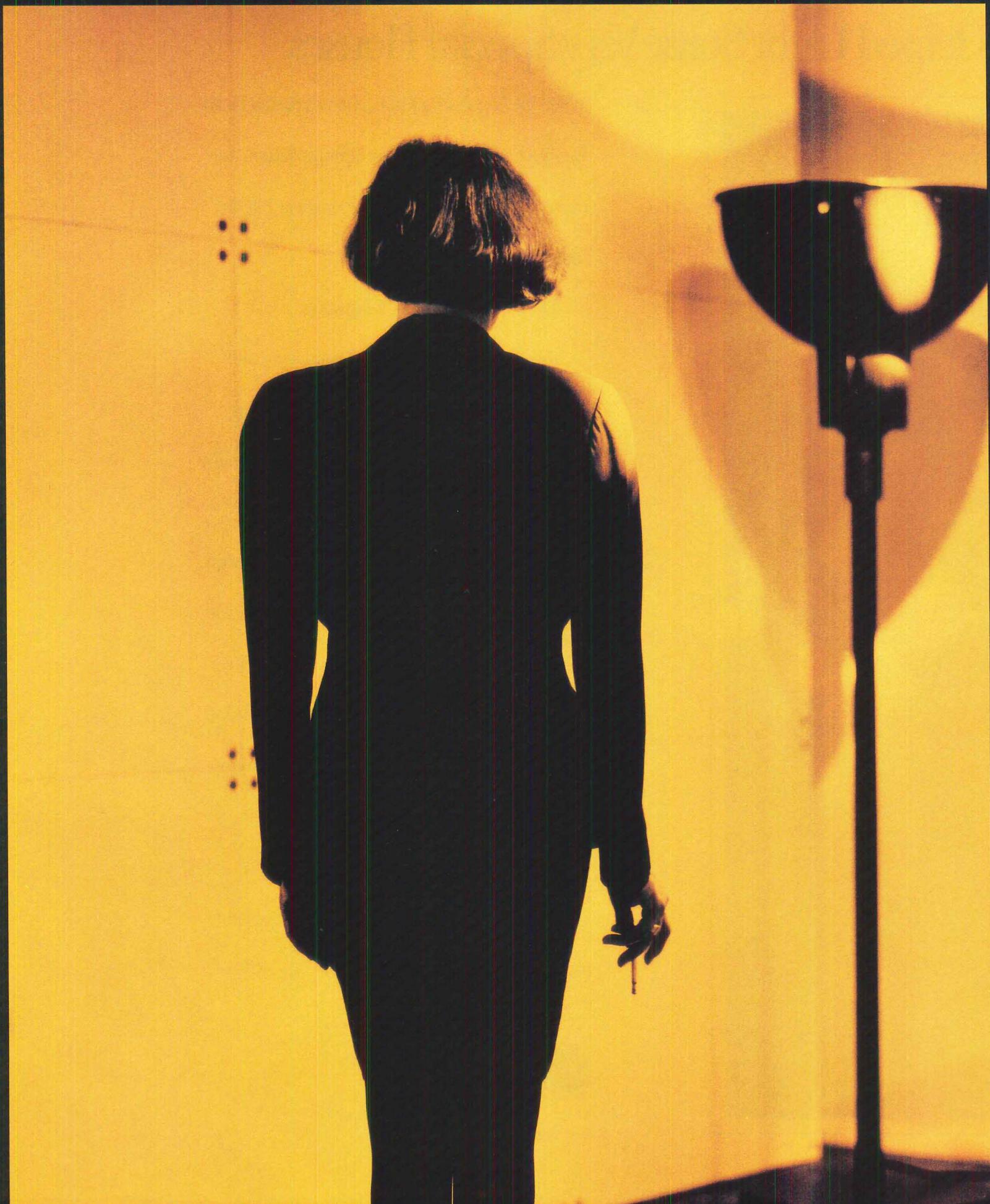
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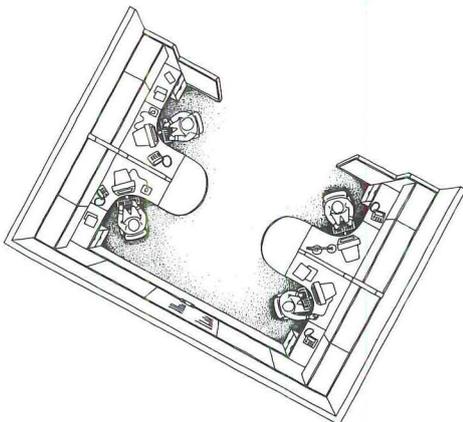
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Technics

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Technics: Designing Replacement Window Systems

Engineers **Michael J. Louis** and **Thomas A. Schwartz** of Simpson Gumpertz & Heger describe the steps needed to help ensure successful replacement windows.

We ask a lot of windows: to keep the weather out and the conditioned air in; to provide sound control; to allow light to enter; to keep drafts out, but allow fresh air in when we want it; to resist wind loads; to have aesthetic appeal; and to do all this for a long time without the need for extensive maintenance. With such an extensive list of requirements, it is no wonder that windows have their share of problems. These problems typically include water leakage, winter draftiness, poor operation, surface condensation, glass breakage, and the fogging of insulating glass units (IGUs). Sometimes window installations have problems from the start; other times, age and weather take their toll. For all these reasons, window replacement is a growing part of building construction.

This article discusses general features that should be incorporated into window design. It also addresses some of the special requirements and pitfalls surrounding the specification and design of replacement windows, and it offers suggestions to help designers detail window systems that will perform, and continue to perform, properly.

Window Investigation

As with any successful rehabilitation project, the replacement of windows should start with a thorough understanding of the problems and conditions that plague the existing window system. Such an investigation must include both the window and the surrounding wall areas. Many window problems, including excessive air and water penetration, may result from the way in which the window is integrated with the surrounding wall, and not from any malfunction of the window itself. We've seen large window-replacement projects that failed to solve the leakage problems that prompted the owner to replace the windows in the first place, because there was an improper investigation that focused on the windows alone and failed to consider adequately the perimeter joints and adjoining wall construction, which were the primary source of the leaks.

A thorough investigation of the existing window system should include the following:

- Review documents of the existing construction (architectural and shop drawings, if available) reports of complaints (leakage, condensation, operability), and specifications and manufacturer's literature.

- Survey the interior of exterior walls for staining and other evidence of leakage.
- Survey exterior wall conditions.
- Probe internal conditions by selective disassembly of wall and window components.
- Test the existing window units, perimeter joints, and adjoining wall surfaces to isolate air and water leakage sources, which can include glazing, frame corners, perimeter sealants, and adjacent walls or roofs.

Since water penetration is a frequent problem in or around malfunctioning windows, water testing is almost always needed. Water tests must be designed to replicate the actual leakage the building experiences. For example, selection of a differential air pressure for window testing that is too high, such as the "certification test pressure" of the window when it was new, may show types of leakage that rarely, if ever, occur and may lead to erroneous conclusions about the source of the actual leakage in the building.¹

Most of the serious, recurring leaks in buildings can be replicated, during testing, by the application of water alone, without the addition of differential air pressure. When water tests with differential pressure are used to model more severe weather conditions, it is important to use realistic air pressures, based on actual weather conditions and wind pressures for a particular site, as a means for evaluating the condition of the existing window and wall assembly.² If on-site weather conditions are not available, use weather records from the nearest airport or National Oceanic and Atmospheric Administration (NOAA) station, and make appropriate adjustments to these data to allow estimation of the weather conditions at the site.³

Replacement Window Design

Along with the usual performance requirements for windows, replacement window design must incorporate special provisions to integrate the new window into an existing structure. For example, should the old window frame be removed or encapsulated by the new window system? Can the old window frame be used as anchorage against wind loads for the new windows? How much disruption of interior finishes is desirable or economically and aesthetically acceptable, since reconstruction of interior finishes can substantially increase the cost of window replacement?

The information obtained from the investigative phase should be used to help establish the design requirements for the replacement window project and should include the following issues:

- Structural – strength, stiffness, attachment, corner construction;
- Air infiltration – through and around windows;
- Water penetration resistance – through and around windows;
- Integration with existing wall elements and finishes;
- Expansion joints;
- Energy use;
- Lighting needs;
- Operability – operation and hardware;
- Condensation potential;
- Security – forced entry and fall-out protection;
- Special features – louvers, vents and panels;
- Durability and maintenance requirements.

Several professional organizations provide design and glazing guidelines to help establish the design criteria for the window itself, including the American Architectural Manufacturers Association (AAMA), the Sealed Insulating Glass Manufacturer's Association (SIGMA), and the Flat Glass Marketing Association (FGMA),⁴ but there are no similar professional organizations to guide integration of the window into an existing wall system. What follows are general design guidelines on water penetration, air infiltration, structural attachment, and the design integration of replacement windows with existing wall elements and finishes.

Where the Window Meets the Wall

All too often, a single line of sealant is used as the sole means of providing a “watertight” connection between the window and the adjacent wall. This approach is easy to design and build, but does not provide reliable protection from leakage. Too many window systems leak because of failure at these perimeter sealants, causing damage to wall finishes and structural elements and reducing the insulating capacity of the wall insulation. Single-sealed perimeter joints between the window and the wall are generally unreliable in preventing water leakage for the following reasons:

- Perimeter sealants are prone to deterioration from heat aging, strain-induced cracking, exposure to ultraviolet light, improper joint geometry (e.g., three-sided bonding), and degradation stemming from their reaction to adjoining building materials.
- Sealants are often incapable of maintaining a watertight bond to the substrate. Many factors can cause adhesion failure and the water's bypassing of the sealant, including chemical or moisture contaminated substrates, porous substrates, cracked substrates (1), weathered substrates (2, 3), inadequate surface area for bonding (such as adhesion to the “raw” end of an extruded metal section), and improper tooling techniques.

When replacement windows are placed outboard of the existing window frame, the perimeter sealant for the new window will be in contact with “weathered” wall surfaces (2). In one recent project we investigated, involving a 25-story vertical strip window, the new window's perimeter sealant contacted the sandy, weathered surface of the mortar, to which it did not bond properly allowing water to flow easily around the window edges. Weathered wall surfaces require special attention in the replacement window specification. To ensure a sound substrate for the perimeter sealant, the wall may require chemical consolidation, grinding, or special cleaning and preparation methods.

Receptors, or subframing members, used to enclose the jambs and/or the head of a window frame, can accommodate existing window openings that are an irregular size, out-of-plumb, or subject to substantial in-plane movement between the window and wall. Receptors can ease installation, save money by reducing the number of different window sizes required, and isolate the window from the wall, but they also provide additional entry points for water and air. Ways of overcoming these drawbacks are discussed below, in the section on flashing.

Corner Construction

Prior to the introduction of thermal breaks, aluminum windows were often joined at their corners by continuous welds,⁵ producing a strong, durable, and watertight corner. However, responding to the need to improve energy efficiency and condensation control, the window industry began producing the thermally broken aluminum window frame. Thermal breaks are plastic compounds used to isolate thermally the inside and outside of the window, i.e., restrict the movement of heat and cold through the window frame. These breaks are typically formed by pouring hot liquid urethane into a cavity in the metal frame extrusion, cooling the urethane to a solid, and then milling out the metal back of the cavity to create a “break” between inside and outside frame sections. Since thermal breaks can-not be welded, frame corners are mechanically joined by fasteners, mortise and tenon construction, or corner brackets, and then sealed with a small amount of joint compound to prevent water at the frame corner from leaking into the wall system. The general practice of sealing frame corners with caulking applies to expensive “architectural” grade window systems as well as to economical “residential” grade. Some manufacturers use a compressible gasket material between the frame sections at the corner, but most manufacturers use sealants only.

These corner seals tend to open and allow water leakage for one or more of the following reasons:

- *Manufacturing defects.* Window assembly is labor sensitive and there are inevitable variations in



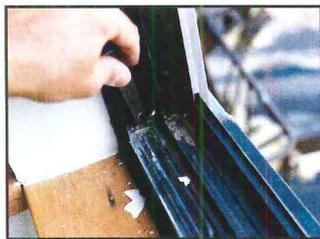
1 A crack at the brick-to-mortar interface will allow water to bypass perimeter sealant joint of window unit.



2 From a distance, window perimeter sealants may appear to be well bonded to brick and mortar.



3 Closer inspection shows cohesive failure of the weak, weathered surface of the mortar, which allows water to bypass the sealant.



4 Corner seals of horizontal sliders are especially prone to leakage where water can collect in the sill track.



5 This view of the underside of a sill after removal of the frame shows a corner gap from the shrinkage of the thermal break.

application and quality control, the highly irregular mating surfaces of complex extrusions are difficult to seal effectively, and manufacturers do not routinely water test all frame corners before they leave the factory.

- *Handling damage.* After the window unit is fabricated, it is packed on a truck, subjected to transportation vibration and shifting on its way to the construction site, moved to a storage location, and then carried or hoisted into position on the building. From shop to site, the frame corners get twisted and racked before installation. Most joint seals are not configured to accommodate any movement.
- *Environmental degradation.* Ponding water in contact with corner sealants will accelerate deterioration and loss of adhesion. Corner seals of horizontal sliders are especially prone to leakage because the sill track is a trough that collects and retains water (4).
- *Thermal-break shrinkage.* Some thermal breaks shrink as they age, opening the corner to leakage (5).
- *Incompatibility.* Contact between incompatible sealants used at window frame corners and window perimeter can cause one or both of the sealants to deteriorate and lose adhesion.

For the above-noted reasons, some window frame corner leakage should be expected, and the window opening should be designed to handle it.

Flashings

Window designs should recognize the inherent unreliability of perimeter sealant joints and window frame corner joinery and should provide a means of collecting the water that bypasses these seals and redirecting the water back to the outside. Flashings are the most common means to provide such protection.^{5,6}

Materials used for the flashing should have the following material characteristics:

- Durability at least as good as the durability of the windows and the adjacent wall, if the flashing is built into the wall.
- Resistance to ultraviolet light degradation, if exposed to the sun.
- Strength and stiffness for drip edge, where required.
- Formability to conform to irregular openings and differing window geometries.
- Durable watertight jointing capability.

Regardless of the type of material employed, properly designed flashings (6, 7, 8) should include the following characteristics:

- Extend flashings completely beneath the window and turn up behind and beside the window to form a watertight “pan.”
- Seal corners of the pan watertight by a durable method, such as soldering or welding.
- Provide positive slope to promote drainage to the outside.
- Do not penetrate horizontal portions of flash-

ing with fasteners or other elements.

- Flashings should have sufficient height to prevent overtopping by water under substantial differential air pressure.
- Seal flashing to the frame to prevent air infiltration from wall cavities or other external sources.
- For long flashing sections, develop watertight expansion mechanisms.

Lead-coated copper and stainless steel have appropriate durability and reliability to use for window flashing, because they can be exposed to the environment without significant degradation, and their corners can be soldered permanently watertight. Galvanized steel is a good alternative flashing material that can be soldered or welded and can be obtained in an array of color coats and galvanizing colors; however, it can corrode.

To prevent galvanic corrosion, flashings should be isolated from the window frame unless they are made of the same or galvanically similar material. Glazing tape, bituminous paints, rubber membranes, and sealants can provide effective isolation. Flashings are generally projected through the wall immediately under the window to form a drip edge outside the plane of the wall. Window sill flashings can also be designed to drain to concealed wall cavities as long as the cavity is waterproofed to the inside of the window flashing and the cavity is properly drained. However, this method for concealing wall flashings is appropriate only if there are no components in the drained cavity that will suffer from the increased exposure to moisture.

Of significant importance for the design of the sill flashing is the height for the flashing’s up-turned legs. Flashings should be designed to resist at least the same differential pressure as the window. AAMA provides a method for determining the design test pressure and water head as a percentage of the design wind load in their “Window Selection Guide,” a method widely accepted in the window industry.

Weep Holes in the Glazing System

The glazing guidelines published by most major window associations (including FGMA’s “Glazing Manual,” SIGMA’s “Recommended Practices for Vertical and Basic Field Glazing of Organically Sealed Insulating Glass Units,” and AAMA’s “Voluntary Specification for Aluminum Prime Window and Sliding Glass Doors”) recommend incorporating weep holes into the sill of the glazing pocket. And yet, some window manufacturers still leave out the weep holes. Manufacturers sometimes eliminate weeps because they feel that the weeps increase the air infiltration through the window system. Introducing weeps into an unwept glazing pocket can increase air infiltration, but other design features of the glazing system, such as interior sealant cap beads or full perimeter heel beads around the glass, can be used to counteract this effect and maintain acceptable air infiltration levels.

Weeps in the glazing system are important because glazing gaskets age, shrink, and pull away from the corners (9); glazing seals fail; and, eventually, water enters the glazing pocket. Weep holes provide a path for water to flow from the glazing pocket to the outside and thereby reduce the exposure time of frame corner seals, insulating glass edge seals, and laminated glass interlayer adhesives that are vulnerable to degradation by standing water. Moisture in contact with the edges of an IGU causes premature failure of the hermetic edge seal and contributes to fogging of the IGU. Also, water in contact with the edge of laminated glass causes delamination and unsightly blister formation in the vision area of the glass. For window units with interior removable glass stops (10), water that cannot flow out weep holes will leak inside along the unsealed edges of these stops. Faced with the option of higher initial window performance versus replacement costs for IGUs and leakage, weep holes are a simple and cost effective way of prolonging the life of the window unit and reducing maintenance costs due to water leakage.

Effective weep systems should have the following features:

- Provide a minimum of 3 weeps per sill of each lite.
- Provide an approximate weep hole diameter of 3/8-inch to reduce clogging.
- Locate weeps below the level of the inside snap-on stops (7, 8).
- Locate weeps away from setting blocks to avoid obstructing the weep area.

Undersized weep holes tend to become clogged with dirt, which reduces their effectiveness. Weep holes should be placed at the center of each lite of glass and outboard of the setting blocks. These locations reduce the distance that water has to travel within the glazing pocket to the weep holes and eliminate the need for water to travel under, or around, the setting blocks.

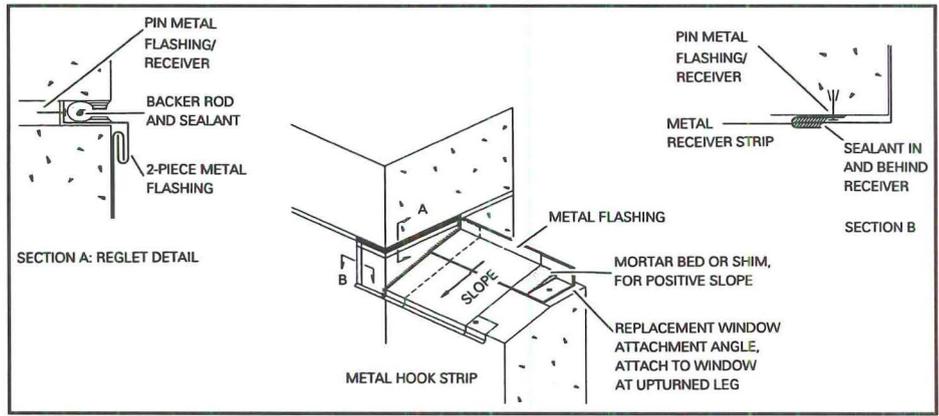
Glazing

Glazing seals vary widely in their use, composition, and performance. The basic components that make up glazing seals include sealants, glazing tapes, and gaskets, which can be used together or independently to provide for weathertight seals between the glass and frame. Glazing options are as follows:

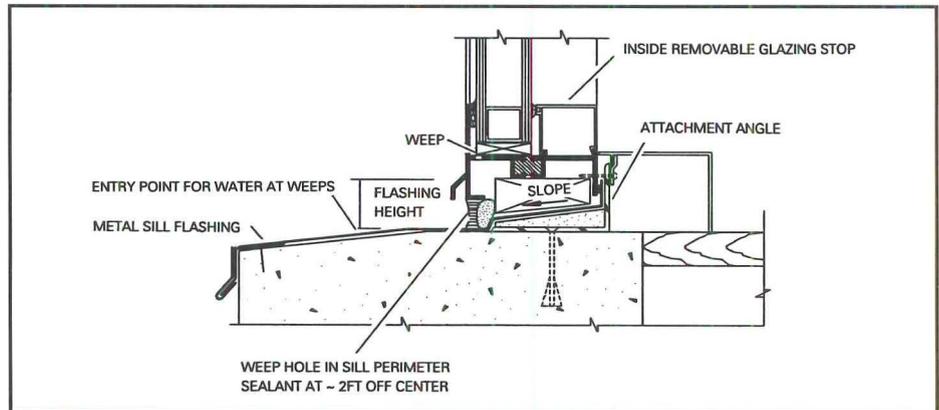
- Wet glazing using sealants.
- Dry glazing using tapes and gaskets.
- Wet/dry glazing, which includes combinations of the above types.

Table 1 highlights some key features regarding wet and dry glazing design. This is not an all-inclusive or exhaustive guide to designing and detailing glazing, but will serve as a starting point for the evaluation and comparison of various glazing options.

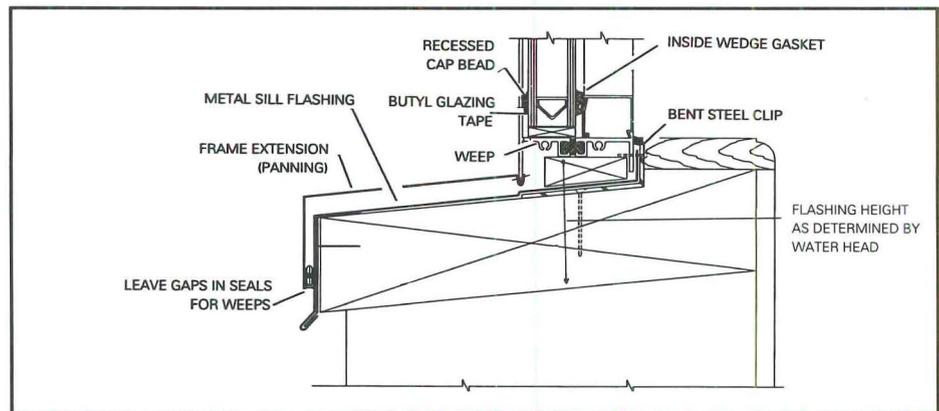
Glass can be factory or field glazed. Factory



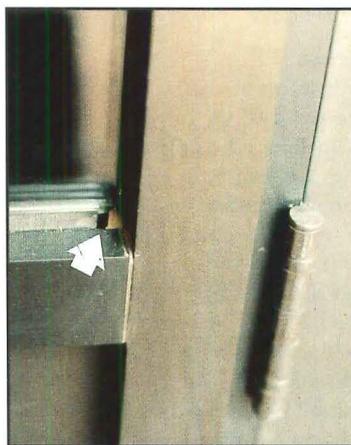
6 CORNER TERMINATION OF WINDOW SILL FLASHING



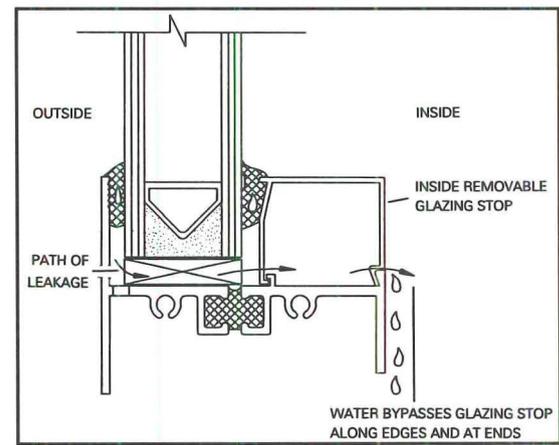
7 THROUGH-WALL FLASHING AT WINDOW SILL



8 FLASHING DESIGN HEIGHT WHERE HEIGHT OF UPTURNED LEG IS RESTRICTED



9 AGED GASKET PULLED AWAY FROM FRAME



10 WATER LEAKAGE ALONG REMOVABLE STOPS

Redrawn by Evan L. Goldenberg

Table 1 – Wet versus Dry Glazing

Wet Glazing

Advantages

- Better watertight integrity.
- Reduced tendency of the glass to “walk” within the glazing pocket.
- The most reliable method for excluding air and water from the glazing pocket.

Disadvantages

- Generally requires exterior access to apply and to replace glass.
- Highly dependent upon workmanship.

Dry Glazing

Advantages

- Easy to install.
- Less reliance on workmanship.
- Can be done from the inside.

Disadvantages

- Not as air or watertight as wet glazing.
- Gaskets can shrink and cause water entry at corners.
- Gaskets can roll into the glazing pocket and put uneven stress on the glass.
- Glass can walk laterally within the glazing pocket.

Table 2 – Consequences of Using Poured-and-Debridged Thermal Breaks

- Strength and stiffness of the frame member is reduced because of the lower strength of the thermal break material and the loss of the composite action of inside and outside elements. Strength reduction can be significant, compared to single component aluminum frames.⁷
- The frame is prone to brittle fracture from overstress.
- The frame is prone to fabrication defects, such as the cold pouring of the liquid thermal break compound, resulting in incomplete filling of the cavity and loss of structural integrity of the metal section. Poor debridging operations, such as cutting too deep into the thermal break when milling off the back of the cavity, can reduce the cross-section of the thermal break and create a stress concentration that reduces frame strength.

glazing is generally more cost effective, and provides more consistent workmanship quality; however, factory glazing can conceal nonconforming glazing work. For large projects, we recommend that the designer periodically review the manufacturer’s assembly process during window fabrication. It is also a good idea to remove a few glazing stops and to check glazing components, such as setting blocks, jamb blocks, IGU edge seals, and the location and size of weep holes on random windows when they are delivered to the site to help assure that the factory glazing was done according to the specifications.

A butyl tape with silicone sealant cap bead on the outside of the glass and wedge-type or foam gaskets on the inside of the glass provide a durable and reasonably reliable glass-to-frame seal (8). The recessed cap bead seal provides parallel bonding surfaces for optimum sealant geometry, and the sloped design for the sealant helps shed water away from the glass. Butyl tape provides a solid back-up for the sealant joint and a reliable buffer to cushion the glass from contacting the metal frame; the adhesive qualities of the tape also reduces the tendency for the glass to “walk” laterally, but this does not eliminate the need for anti-walk blocks.

Replacement Window Mock-Ups

Trial mock-ups of the proposed replacement window provide invaluable information on aesthetic impact, practicality and economy of construction procedures, construction trade sequencing, material procurement lead-time, integration of the new system with existing finishes, evaluation of structural anchorage methods, and conformance with design documents. Mock-ups should be tested to verify performance issues such as water penetration and air infiltration resistance, and they should be installed before the plans and specifications are bid. Pre-production mock-ups help avoid costly changes to the construction contract and delays. The initial installations of the replacement window and a random sampling throughout the project should also be tested to help assure that the production units replicate the performance of the approved models, and that installation quality is maintained.

Design for Airtightness

Excessive air infiltration at the window perimeter and the consequences of introducing this unconditioned air (not heated, cooled, dehumidified) to the building are common window problems. Most replacement window systems provide an air seal to the existing construction at the outside perimeter of the window by means of sealants. However, if the existing construction has an air barrier somewhere inboard of the exterior face of the wall, such as with cavity wall construction, there can be a break in the air seal at the sides of the window opening (11). Air circulating within the masonry cavity has a clear path to the sides of the window, bypassing the exterior air seal and

cooling the inboard side of the thermal break. The magnitude of the air flow from this non-window source can cause the best window to be drafty and can lead to condensation along the window jambs during cold weather. To correct the air flow problem, the air barrier must be made continuous at the sides of the window opening. Sealants, jamb flashings, and insulation can be used to block this air path (12).

Foam baffles are used by many window manufacturers to reduce air infiltration at weep holes. Baffles are composed of open cell foam, and they are placed directly behind the weep holes in the glazing pocket. The density or the amount and size of pore openings in the foam strips can be adjusted to provide resistance to air flow and thereby maintain higher air infiltration resistance while incorporating weep holes. One drawback to the use of foam baffles is that baffle strips with smaller pore openings tend to collect dirt and dust that are brought into the glazing pocket by air and water. Over the long term, baffle strips tend to become fully or partially clogged and will obstruct or impede the flow of water out of the glazing pocket. They will also degrade if exposed to direct or reflected ultraviolet light.

Hardware mounted to the jambs or inside face of window frames provides penetrations through the frame that can compromise air and water seals to the interior. Penetrations through the window jamb, for example, may allow substantial air infiltration from a cold wall cavity that results in a drafty window. The effects of such penetrations are not evaluated in typical laboratory certification tests, so a window that is advertised to be highly airtight may be anything but airtight when installed, unless the sealing of these jamb penetrations is addressed in the replacement window specifications and during installation.

Designing for Structural Adequacy and Attachment

Structural requirements for window systems are generally dictated by local building codes. Codes often constitute minimum standards that may or may not be adequate for a particular project. For example, building code load requirements are generally based on conventional building shapes; buildings of unusual geometry or exposure may require wind tunnel studies to help establish appropriate loads. Relatively small cladding components, such as windows, are subject to higher peak wind loads than larger wall areas; most current building codes recognize this phenomenon, but some do not. Several professional organizations have published design guides to aid the designer in determining the design wind loads for specific sites, many of which are referenced by codes. Some well recognized design guides are AAMA’s “Design Wind Loads for Buildings, and Boundary Layer Wind Tunnel Testing,” AAMA’s “Voluntary Guide Specifications (GS-001 and 101–88),” and the American Society of Civil Engineers’ (ASCE’s) “Minimum Design Loads for Buildings and Other Structures (ANSI/ASCE 7–88).” Final

design of frame anchors should be the responsibility of the window manufacturer. The design documents, however, should show an anchorage method that “works” for the window model on which the documents are based, thereby providing reasonable assurance that the anchorage can be integrated properly with flashings and other existing elements and providing guidance to the window manufacturer.

Window Anchorage

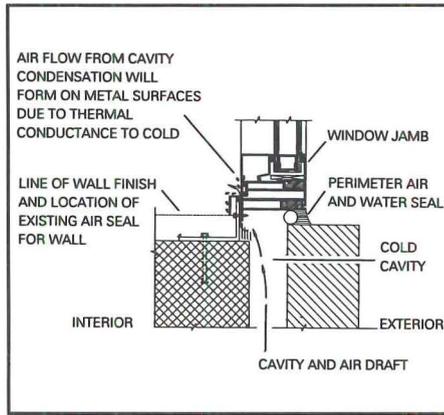
It may be desirable to keep the existing window frame in place as an anchor for the replacement window, in light of the cost to remove existing frame anchors that are concealed behind expensive or difficult-to-match wall finishes, or because extensive demolition may be required to install new anchors. Of course, a thorough investigation is required to determine that the existing framework is sound and capable of bearing the loads from the new window. All window manufacturers provide a variety of specialty exterior panning, designed to cover existing framing members, and interior trim to make the transition to the existing wall finish. A drawback to leaving the existing window framing in place, however, is that it may reduce the size of the replacement window and can produce a bulky appearance at the perimeter of the window frame. A mock-up window should be installed to evaluate the overall aesthetics for the project.

Window frame anchorage should provide for the following:

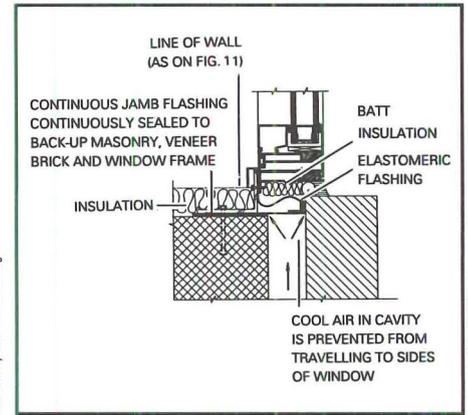
- Anchors must be capable of transferring the gravity and wind load from the window to the building structure, under repeated load application, without yielding or loosening.
- Anchors must be solid bearing, so that they do not bend or rotate under load, and must provide stability for the window without overstressing the frame members, the wall, or the window.
- With larger units, anchors must accommodate differential temperature movement between the frame and structural support.
- Some typical examples of both proper and improper frame anchorage schemes are shown at right (13).

The Structural Issues of Thermal Breaks

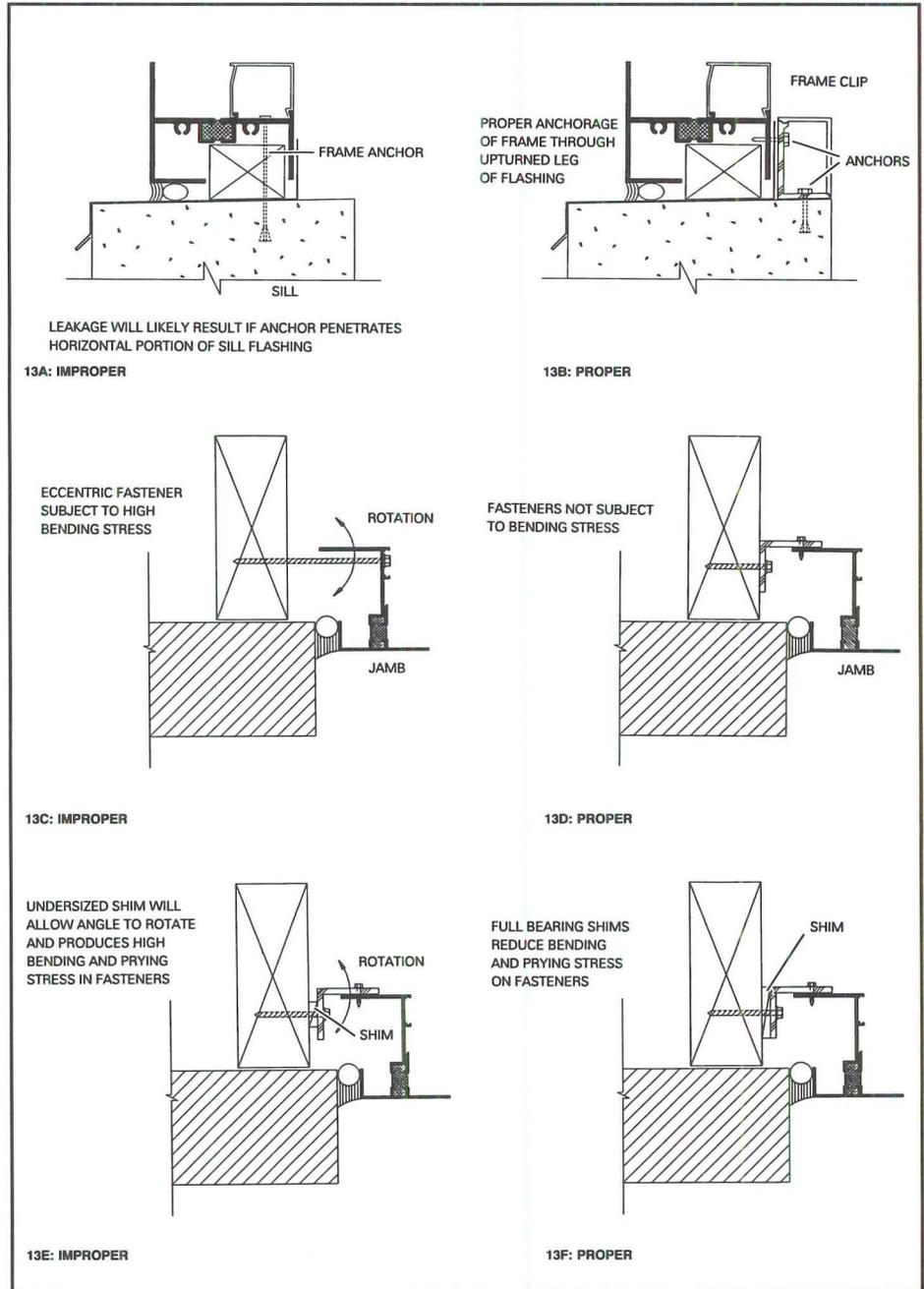
Special consideration should be given to the structural characteristics of thermally broken aluminum window frames. Although we have not investigated any thermal break fractures in field installations, we have seen the stress-concentrating defects noted in Table 2 and have seen low-stress fractures in laboratory tests. We remain cautious about the structural integrity of poured-and-debrided plastic thermal breaks and, depending on the location of the thermal break and the loads on the window, recommend incorporating a structural connection that will prevent loss of window components from the window opening should a



11 WINDOW JAMB CONSTRUCTION THAT ALLOWS EXCESSIVE AIR INFILTRATION AND CONDENSATION AT WINDOW PERIMETER



12 WINDOW JAMB CONSTRUCTION THAT REDUCES LEAKAGE, HEAT FLOW AND DRAFTS AROUND WINDOW



13 FRAME ANCHORAGE SCHEMES

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1 "Misguided Proof Tests," T.A. Schwartz, in *Glass Digest*, 15 June 1988, pp. 30-32, Ashlee Publishing Co. Inc., New York, New York, (212) 682-7681.

2 "How to Avoid Misusing Tests," T.A. Schwartz, in *Glass Digest*, 15 August 1988, pp. 32-36, Ashlee Publishing Co. Inc. (see Reference 1).

3 "Establishing Appropriate Field Performance Test Levels for Investigation of Leakage Through the Building Envelope," G.C. Cole and T.A. Schwartz, in *Water in Exterior Building Walls: Problems and Solutions*, ASTM STP 1107, Thomas A. Schwartz, Ed., 1991, pp. 150-159, American Society for Testing and Materials, Philadelphia, Pennsylvania, (212) 299-5585.

4 American Architectural Manufacturers Association (AAMA), 2700 River Road, Des Plaines, Illinois, 60018, (708) 202-1350; Sealed Insulating Glass Manufacturers Association (SIGMA), 6 SW 2nd Street, Suite 7, Lee's Summit, Missouri 64063, (816) 524-9340; Flat Glass Marketing Association (FGMA), 3310 SW Harrison St., Topeka, Kansas, 66611-2279, (913) 266-7013.

5 "Window Sill Flashings: The Why and How," J.C. Myers, P/A, June 1990, pp. 41-43.

6 "Techniques," J.M. Roehm in *Glass Digest*, Ashlee Publishing Co. Inc. (see Reference 1) 15 September 1984, pp. 30, 116-117.

7 "Structural Performance of Poured and Debrided Framing Systems," Publication No. AAMA TIR-A8-90, 1990, American Architectural Manufacturers Association, Des Plaines, Illinois (see Reference 4).

8 "Analyzing the Cause of Fractures, After the Fact," T.A. Schwartz, in *Glass Digest*, 15 April 1984, p. 66, Ashlee Publishing Co. Inc. (see Reference 1).

9 "How to Avoid Glass Fractures," in *Glass Digest*, 15 March 1984, p. 58, Ashlee Publishing Co. Inc. (see Reference 1).

10 "Special Considerations in the Design and Use of Small Insulating Glass Units," T.A. Schwartz, M.S. Zarghamee, and G.C. Cole, in *Science and Technology of Glazing Systems*, ASTM STP 1054, 1989, pp. 121-134, C.J. Parise, Editor, American Society for Testing and Materials, Philadelphia (see Reference 3).

thermal break fracture occur in service. This can be accomplished by locating window fasteners outboard of the thermal break, or introducing discrete clips or metal "bridging" across the thermal break. Clips can be coated or dipped in urethane to insulate them and reduce the amount of heat and cold bridging the thermal break. Some manufacturers offer window designs with interlocking sections or integral clips so that thermal break fractures cannot result in window component disengagement.

Avoiding Glass Fractures

Most architectural glass fractures result from physical damage to the edge of the glass. Such damage concentrates stress in the glass and can cause fracture even when the "nominal" stress in the glass is well within design limits. Most of the major architectural glass failures, including the infamous problems with the original glass of the John Hancock Tower in Boston, can be traced back to edge defects and stress concentrations.

Glass edges may be damaged and weakened by manufacturing defects, handling, and by contact with hard objects in the glazing system during installation and service.⁸ To avoid glass-to-metal contact and stress concentration in the glass during service, glass must be "cushioned" within the window frame and the frame must not deflect excessively to come in contact with the glass.⁹ Proper cushioning is achieved with setting blocks and jamb (anti-walk) blocks.

Setting Blocks

Setting blocks support the glass in the glazing pocket, isolate the glass from contacting the metal frame, and keep the edges of the glass up off the sill and away from any water that may be present. A general rule of thumb for large lites requires each setting block to be 1/10-inch long for each square foot of glass area supported, with a minimum length of 4 inches. For insulating glass units, the setting blocks should be wide enough to support both lites.

Setting blocks should be firm enough to provide stable support, yet flexible enough to avoid chipping the glass edges. Use neoprene or silicone blocks having a Shore A Durometer hardness of about 85. The setting block material must also be compatible with the edge seal of the IGU, because a reaction between these components can cause premature failure of the edge seal and fogging of the IGU.

Setting blocks should be placed at the quarter points under each lite of glass, and should not obstruct the weep holes at the sill. Some window manufacturers routinely place setting blocks in front of weep holes to help block air flow into the glazing pocket and increase the air infiltration resistance of the window unit. This glazing technique may decrease air leakage performance, but it retards or prevents drainage of water that may enter the glazing pocket. The small reduction in air leakage is not worth the cost to replace IGUs that fail prematurely because they sit in water.

Jamb Blocks

Jamb blocks prevent damage to the edges of the glass during construction and they prevent lateral "walking" of the glass. Like setting blocks, jamb blocks help cushion the glass within the glazing pocket, and work best when they are made of neoprene or silicone blocks with a Shore A Durometer hardness of about 70. A minimum of two jamb blocks should be placed along each jamb and spaced at least 1/8 inch from the glass edge; if blocks are installed tight to the glass edges, the thermal movement and racking of the window frame can fracture the glass.

Small Insulating Glass Units

Special consideration and attention must be given to the design of windows incorporating small IGUs (about 14" x 11" or smaller). Small IGUs have unique characteristics resulting from the large interpane air-space (when compared to the glass thickness) and from the relative stiffness of small lites of glass. The high stiffness of the glass plate can introduce high stresses in the glass as it attempts to deflect in response to pressure differences between the sealed interpane space and the ambient air; such stresses can cause high rates of breakage.¹⁰ The glass in these small units must be designed for the stress induced from interpane pressure, which generally exceeds the stress induced from the wind.

Summary

The design of replacement window systems offers all the challenges of new construction, and then some. Performance problems can be minimized through proper design, which includes the following steps:

- Investigate the problems associated with the existing window system to avoid repeating mistakes; the use of appropriate water tests is critical.
- Pay close attention to the special problems associated with integrating a new window into an existing wall system.
- Off-the-shelf window assemblies from manufacturers may require modification to obtain the best results
- Do not rely solely on sealants to keep water out of the building. Provide for the control of water that eventually bypasses the perimeter and corner sealants by using appropriate perimeter flashings.

Michael J. Louis, Thomas A. Schwartz. ■

The authors are Senior Engineer and Principal, respectively, with the consulting engineering firm of Simpson Gumpertz & Heger Inc., of Boston and San Francisco. Both authors are professional engineers, having extensive experience in the investigation of malfunctioning window and wall systems, and in the remedial design of these building elements. Mr. Schwartz is chairman of the ASTM committees on the strength of windows and the performance of exterior wall systems.

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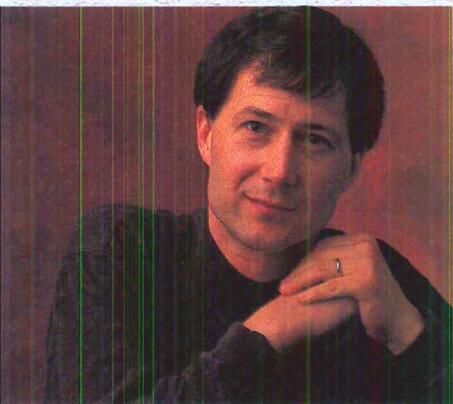
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Technics Topics: Asphalt-Glass Shingle Splitting

Engineer **Carl G. Cash** of Simpson Gumpertz & Heger describes

an emerging problem with asphalt shingles and how to avoid it.

Some asphalt shingles are tearing themselves apart on roofs less than four years old. This thermally driven splitting is unrelated to substrate movement. Some splits are horizontal (1) and some are vertical (2). The vertical splits are often associated with sealant spots close to the adjoining shingle edges (3). This study records some conditions that lead to splitting, reports analytical data and the physical properties of random samples of 15 glass-fiber-based shingles, and tells the specifier how to avoid shingles that are prone to splitting.

What Leads to Splitting

Thermal splitting occurs in self-sealing shingles when they are firmly sealed, the ambient temperature declines, and the strength of the sealant bond is greater than the tear resistance of the glass reinforcing felt. The conditions that promote tearing are firm tab sealant bond and low tear resistance of the shingle.

Some of the conditions that promote a firm sealant bond are:

- The type of sealant installed in the factory (the shear strength of the sealant used by various manufacturers can vary from less than 1 to more than 5 psi in controlled laboratory tests);
- The color of the shingles (dark shingles are more likely to seal firmly than light ones);
- The slope of the roof (slopes that maximize solar exposure maximize the potential sealing);
- The local climate (tabs seal quickly in tropical climates,

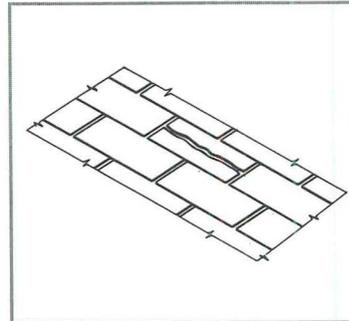
slowly in temperate climates, and sometimes not at all in cold climates);

- The application season (shingles applied in summer will seal faster and better than those applied in winter);
- The exposure of the shingles (shingles facing south or west are more likely to seal firmly than those facing north or east);
- The deck insulation (shingles applied directly to insulated decks are more likely to seal firmly than those applied to "cold" – ventilated – decks).

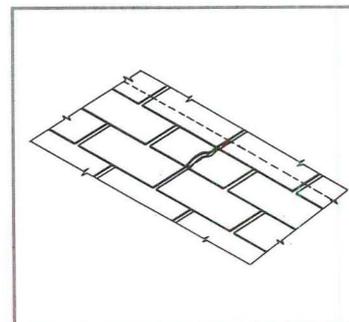
Some of the conditions that contribute to low tearing resistance are:

- Low tear resistance of the shingle as manufactured (two-thirds of 15 randomly selected glass felt shingle samples failed to comply with the modest tear strength requirements of ASTM D 3462;
- Relatively low mass of the glass fiber felt (shingles where the felt mass was less than 2 lbs/100 ft² are more likely to fail the ASTM tear strength requirement);
- High percentage of filler in the top coating asphalt (the filler content in half of the ten samples with poor tear strength was 70 percent or more);
- The age of the shingles (like people, asphalt shingles lose flexibility and tear strength with age, but not necessarily with exposure).

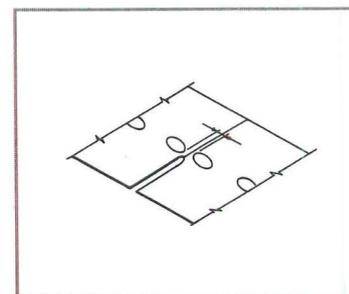
Because of the smaller gauge length, shingles with adhesive bars or dots close to shingle ends are more prone to splitting than shingles in which the



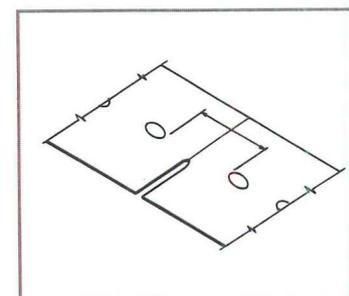
1 TYPICAL HORIZONTAL SPLIT IN A SHINGLE TAB.



2 TYPICAL VERTICAL SPLIT, OVER A JOINT BETWEEN ADJOINING SHINGLES.



3 SMALL GAUGE LENGTH BETWEEN ADHESIVE DOTS – THERMAL SPLITTING IS LIKELY.



4 LARGER GAUGE LENGTH BETWEEN ADHESIVE DOTS – THERMAL SPLITTING IS LESS LIKELY.

Tech Notes

Architects looking for resources and assistance should watch for P/A's Information Sources guide, which will be packaged with the November issue. This special issue contains listings of associations and publishers, references, and reviews of manufacturers' free product literature.

Wayfinding: People, Signs, and Architecture is a new book that takes a holistic approach to directing people to and through buildings. Authors Paul Arthur, and Romedi Passini offer advice not only on the design and placement of graphic signage, but on general design strategies to minimize user confusion. The book is available for \$49.95 from McGraw Hill, 11 West 19th St., New York, NY 10011, 1-800-2-MCGRAW.

The MIT Press has released a two-volume set on staircases by John Templer which promises to be the most comprehensive treatise on the subject yet written. The first volume, *The Staircase: History and Theories*, deals with the stair as an aesthetic, architectonic, ergonomic and cultural object. The second volume, *The Staircase: Studies of Hazards, Falls, and Safer Design*, draws on twenty years of human factors research on slips, trips, and falls, and how to design stairs to minimize injuries. The two volumes sell individually for \$27.50 and \$32.50 (respectively) or together for \$55.00 from The MIT Press, 55 Hayward St., Cambridge, MA 02142, 1-800-356-0343.

Table 1 Asphalt Shingle Analyses and Testing

Manufacturer	A	B	B	C	C	D	E	E	F	G	G	H	I	I	J	K	L	L	ASTM
Warranty Period	20	25	25	25	25	25	25	25	25	25	20	25	30	25	25	25	25	25	D-3462
Felt Type	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Organic	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass
Configuration	3 Tab	Lamin.	3 Tab	Overlay	3 Tab	Lamin.	3 Tab	Strip	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	Lamin.	3 Tab	3 Tab	Lamin.	Glass
Property													SBS	SBS					
Analysis (pounds/100 ft²)																			
<i>Components</i>																			
Felt	1.90	1.81	1.95	2.33	2.33	1.38	2.22	1.68	2.03	11.21	1.66	2.54	2.29	2.06	1.94	1.94	1.84	1.90	1.35 min.
Net Mass	105.5	85.8	96.4	91.1	99.5	78.5	102.9	79.2	97.0	113.4	85.5	107.6	99.8	88.8	96.0	107.9	104.9	89.5	70 min
Total Asphalt (pounds)	27.8	16.1	20.4	19.1	21.9	13.9	20.4	14.1	26.2	35.6	18.2	22.5	20.3	18.4	24.2	26.9	24.1	18.8	15 min.
+ #70 Sieve (pounds)	41.0	37.7	35.6	41.9	37.0	39.1	42.0	35.9	29.2	34.7	35.9	46.2	41.1	39.4	31.6	42.8	42.5	38.9	25 min.
Percent Filler In Coating, Mean	55.6	65.2	65.3	59.3	63.6	63.4	65.2	66.1	60.2	63.9	62.0	61.8	64.0	61.1	61.3	57.4	60.2	61.4	70 max.
Physical Tests																			
<i>Tear Strength (grams)</i>																			
Mean	1,395	1,235	1,580	1,885	2,130	1,107	1,757	1,466	1,341	3,052	1,088	1,853	2,252	2,054	1,136	1,485	1,174	2,093	1,700 min.
<i>Fastener Pull-through (pounds)</i>																			
<i>@32° F</i>																			
Mean	37	53	43	43	51	36	39	53	26	64	21	36	41	35	22	36	28	49	(30 min.)

Bold Numbers = Values that do not comply with ASTM D-3462. SBS = Styrene-butadiene-styrene modified asphalt. () = Proposed Value

Table 2 Asphalt Shingle Analyses and Testing Exposed (yes) and Unexposed (no) Product from Two Manufacturers

Manufacturer	B	B	B	B	B	B	B	B	B	B	B	B	E	E	E	E	E	ASTM	
Sample	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	D-3462	
Exposure	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Glass	
Felt Type	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	
Configuration	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	3 Tab	Glass	
Analysis: (pounds/100 ft²)																			
<i>Components</i>																			
Felt	1.65	1.75	1.17	1.84	1.75	1.87	2.06	1.94	2.54	1.71	1.97	1.87	1.97	1.17	2.06	2.29	2.19	1.35 min.	
Net Mass	82.1	86.4	87.1	82.7	82.0	82.6	87.9	90.4	88.1	80.2	87.2	87.3	82.7	86.2	108.9	99.9	98.2	70 min.	
Total Asphalt (pounds)	17.2	18.8	20.4	21.0	19.7	16.0	22.8	20.5	23.9	17.8	17.8	18.1	16.3	17.3	27.4	24.3	23.8	15 min.	
+ #70 Sieve (pounds)	29.2	30.7	33.9	31.3	29.8	30.6	30.1	34.4	30.5	29.1	34.0	34.1	32.9	34.7	37.7	37.6	36.9	25 min.	
Percent Filler In Coating, Mean	66.3	64.5	65.2	59.1	62.0	67.1	58.1	61.8	57.5	62.8	65.3	62.8	65.5	66.1	52.0	64.0	57.4	70 max.	
Physical Tests																			
<i>Tear Strength (grams)</i>																			
Mean	664	742	566	621	629	477	542	574	901	427	594	574	659	1,237	1,006	1,261	1,332	1,700 min.	

Bold Numbers = Values that do not comply with ASTM D-3462.

adhesive is farther away from the ends of the shingle (4).

Shingle Analysis and Testing

Our laboratory tested 15 glass fiber felt based shingles from 12 manufacturers, one based on organic felt, and two SBS (styrene-butadiene-styrene modified asphalt) shingles for comparison. We also tested a number of samples, both exposed and unexposed to the weather, obtained in the field from roofs that failed by thermal splitting.

The unexposed new glass fiber felt reinforced asphalt shingles were all random samples from distributors' warehouses. Since only one sample of each shingle was tested, these data apply only to the samples tested and may not typify other shingles or other manufacturing plants of the manufacturers shown. Data in Table 1 show:

- Two-thirds of the glass felt shingles tested failed the

tearing resistance requirement of ASTM D 3462. (Not all manufacturers claim to comply with this ASTM standard.)

- Four of 15 samples failed the requirement (proposed, but not yet approved by ASTM) for fastener pull-through.
- Two of the 15 samples contained less than the minimum quantity of asphalt required by ASTM D 3462.

Table 2 shows data for shingle samples have split in the field. The data are similar to those for new shingles in Table 1. The tear strengths of the older shingles are much lower than the new shingles, although there is no statistical significance in the tear strength difference between aged-unexposed and aged-exposed samples. Many of the field samples have less than two pounds of felt per 100 ft², and they have a highly filled top coating.

Minimizing Shingle Splitting

The following are some steps that you can take to minimize the thermal splitting of shingles (splitting that is unrelated to substrate movement):

- Specify shingles by manufacturers who advertise that they comply with ASTM D 3462 (not all manufacturers advertise compliance).
- Require certification of compliance with ASTM D 3018 (for fire resistance), D 3161 (for wind resistance), and D 3462 (for composition and tear resistance) by the manufacturer.
- Select shingles with sealant bars or dots that are spaced away from the adjoining edges.
- Select light-colored shingles and install them on ventilated decks.
- Use an appropriate slope of between 40 and 175 percent (5 to 21 in/ft).
- In larger projects, where the cost benefit is justified, con-

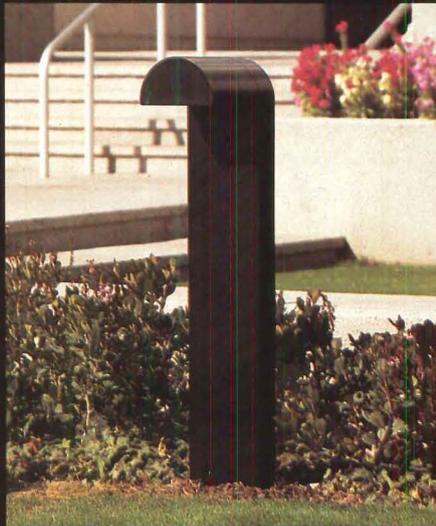
sider having shingle samples tested for compliance with ASTM D 3462 by an independent laboratory (manufacturers' advertised values are not always reproduced in product, so check the tear resistance). **Carl G. Cash** ■

The author is a principal with Simpson Gumpertz & Heger Inc., Consulting Engineers, in Arlington, Massachusetts, where he specializes in field and laboratory investigations of roofing systems. He is a fellow of ASTM and is chairman of Subcommittee D-8.20, Non-structural Roof Systems.

References

ASTM D 3462, "Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules"; ASTM D 3018, "Specification for Class A Asphalt Shingles Surfaced with Mineral Granules; and ASTM 3161, Test Method for Wind-Resistance of Asphalt Shingles," ASTM, Philadelphia, (215) 299-5585.

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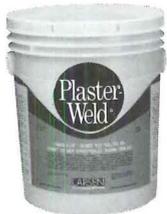
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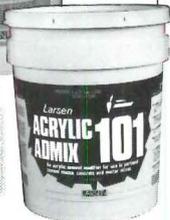
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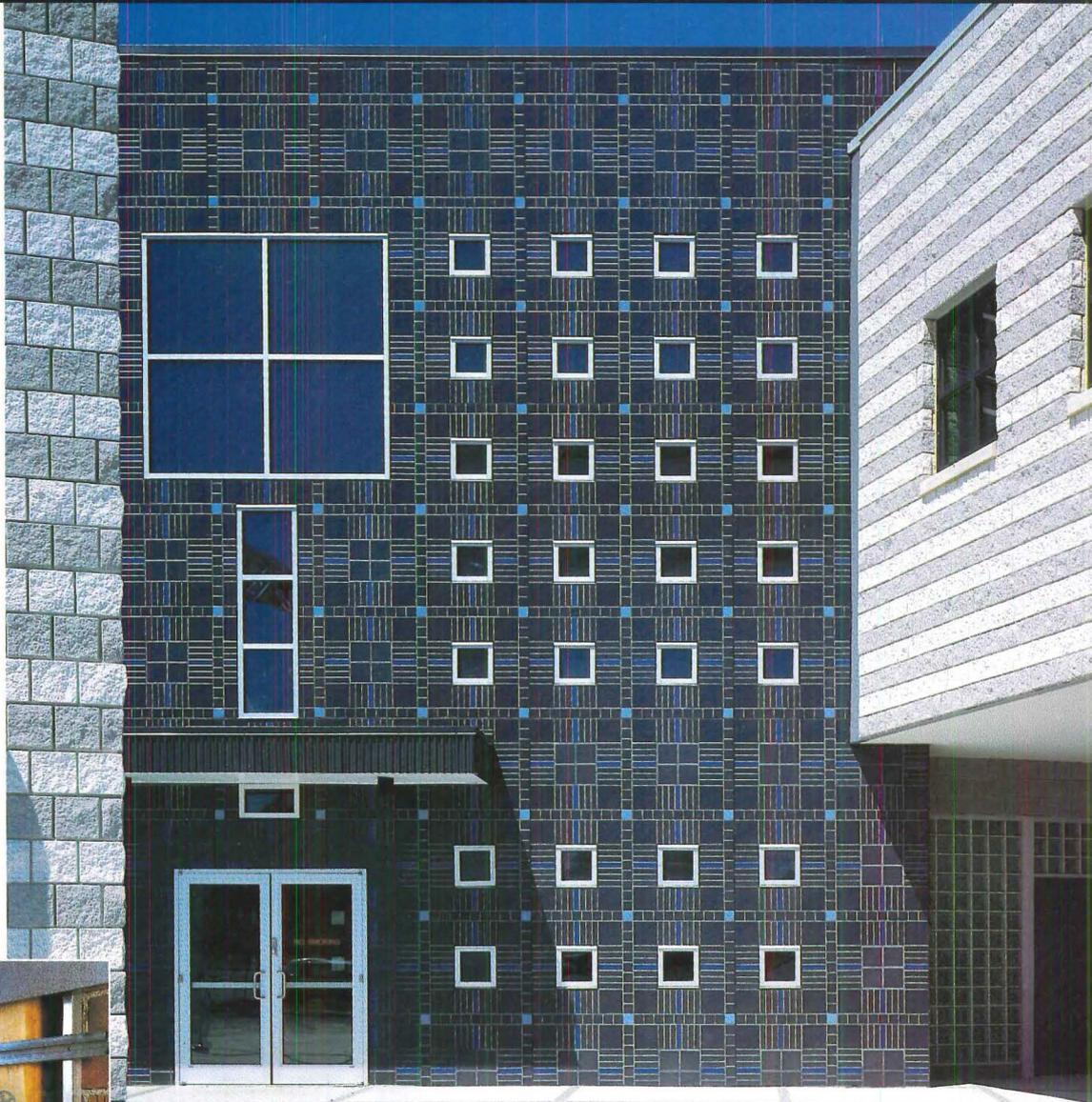
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FOR Johnson International Supply Corporation
BY Mr. Peter J. Miller
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Phoebe Putney Hospital
Hospital Upgrade Albany, Dougherty County, Minnesota MC 99
DESCRIPTION: Phoebe Putney Hospital is planning to upgrade their existing facility at 417 Third Avenue in Albany. Plans call for a new two-story facility, north of Phoebe's existing tower. That will house an expanded emergency department, x-ray, diagnostic area, treatment room and 2 clinical treatment areas all on the first floor. The second floor will use 10 labor, delivery and recovery rooms, two pre-natal observation areas, one post-natal delivery room and a recovery area. The existing five-story existing tower will not have any work. Construction will start in the fourth quarter of 1992 at a cost of \$19,500,000.
OWNER: Phoebe Putney Hospital
417 Main Street
Albany, Georgia 31703
Phoebe Putney Hospital
200 W. Peachtree Street
Atlanta, Georgia 30309
Tel: (404) 525-7000
Email: P. Pfeiffer, Vice President of Development
John Simpson, Administrator
DESIGNER: Group Seven Architects
418 High Street
Baltimore, MD
International Falls, Minnesota 55401
Phone: (557) 874-1414
Fax: (557) 874-1410
James Conner, Project Manager
CONTRACTOR: General Contractors may mail letters of introduction and submitals to 800-222-0255. Selection of a contractor is expected in the fourth quarter of 1992.
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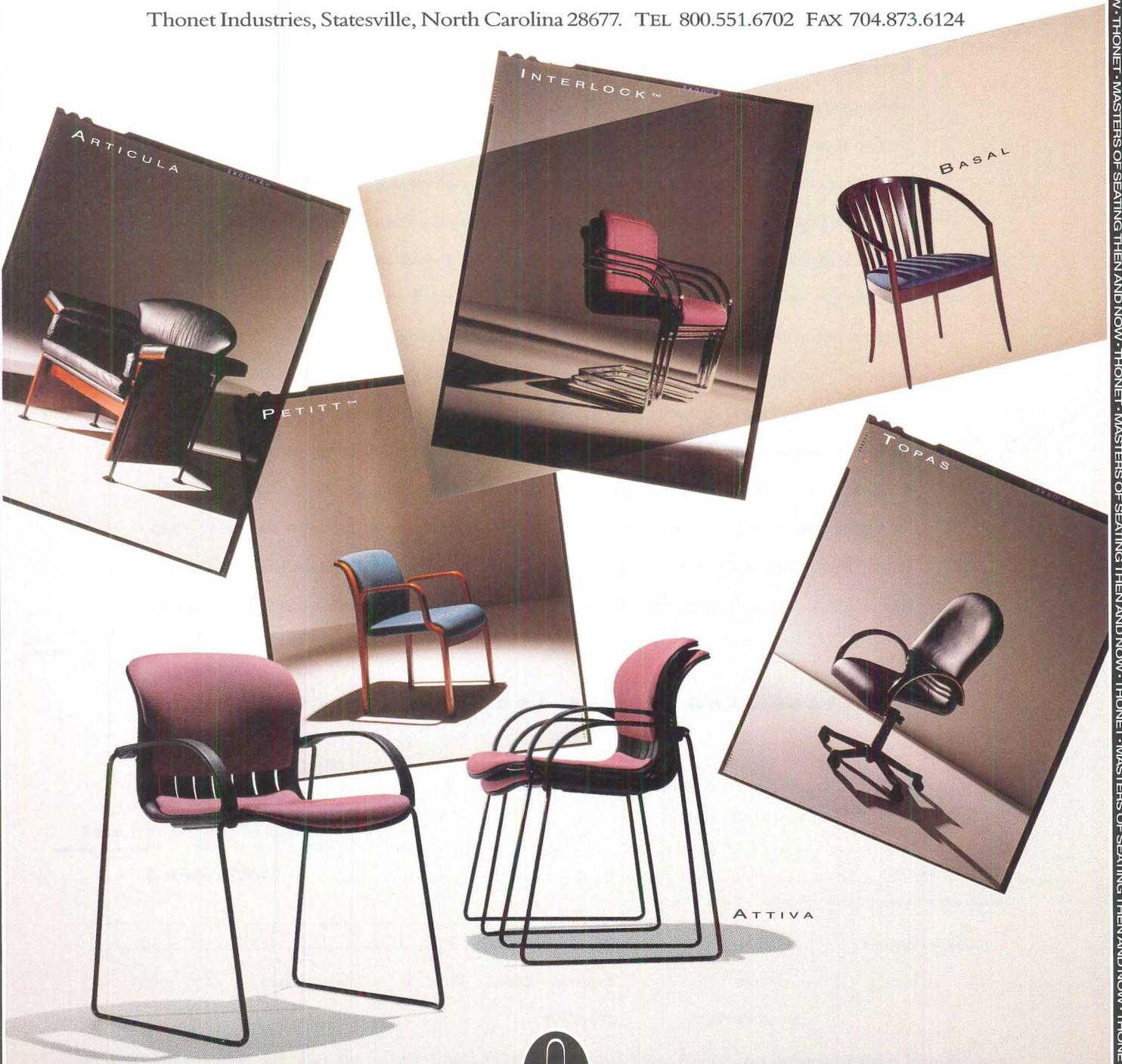
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Practice

With increasing competition for project leads,

many firms are turning to intelligence gathering services.

Marketing: Using Intelligence Services

Perhaps the most important statistical change brought about by the recession has been a demographic change in the kind of work available to design firms. According to AIA statistics, the share of architectural firms' revenues received from developers has fallen from 22 percent at the height of the boom in 1986 to just 13 percent last year. With only modest gains in private-sector building starts expected for 1992, this unusual distribution of clientele is likely to change the way firms hunt for new contracts.

In the boom years of the 1980s, many firms established extensive networks of contacts primarily with private-sector developers. With the scarcity of developer work now available, competition for jobs has ballooned. Competition for institutional work has expanded perhaps most of all, as firms attempt to compete to replace lost commercial opportunities. Professional Services Management Journal (PSMJ) reports that marketing costs as a percentage of net revenues for design firms jumped 15 percent in 1991. And many firms are currently spending 10 to 11 percent of their net revenues on marketing.

Many firms are turning to intelligence gathering services companies with national and international networks of researchers that promise to give their clients advance knowledge of construction projects.

According to Jeffrey Blydenburgh, Associate Director of HOK Hospitality in St. Louis, the intelligence services he uses are a bargain at current prices. Of the

100 or so leads he received from one such service last year, he landed just one job for his firm, but he is still satisfied. According to Blydenburgh, "there are differing opinions (on intelligence gathering services) at HOK but," in his view, "even if you only get one job in 100, the money is negligible compared to what you bring in from the contract." Blydenburgh spent a total of \$600 for the service, and plans to spend \$1500 on intelligence services this year. He also feels that the leads that do not turn into contracts are still useful because, "they help to identify the names of people who are building." But he was quick to add that intelligence services are no substitute for maintaining a personal network of contacts.

There are several intelligence services available to architects, including the *Project Reports*, the *Commerce Business Daily*, the *National Building News Service*, *International Construction Week*, and the *Clark Reports*. The last of these, the *Clark Reports*, differs in format from the others, and is probably of most interest to architects. While the rest of the intelligence gathering services publish periodic listings of planned projects in a "printout" format, the *Clark Reports* operate more like a wire service, sending out single-page bulletins on each new lead as the information becomes available.

A typical *Clark Reports* bulletin contains a description of the project including type, location, area, cost, and expected construction dates. According to Tom Czarnowski, an Associate Partner at Fox and Fowle in New York, the *Clark Reports* are "more comprehensive than the others."

But not all *Clark Reports* subscribers are entirely satisfied with the service. According to Claire Werth, the Vice President for Business Development at Clements and Clements Architects of Pasadena, the reports are often, "either about jobs that have already been contracted, or about jobs that won't be contracted for a long time." *Clark Reports* President, Jeff Clark does not believe his product arrives too late, and says, "it's difficult to be too early in reporting projects."

Clark is also quick to point out that the reports are targeted at a specific clientele. All the projects listed have construction costs of more than \$1 million. Gina Deeming, Business Manager for Erlich Architects of Venice, California, felt that, as a result, the reports, "cater to corporate, cookie-cutter work - not finding people who want award-winning buildings."

Clark says that although the number of A/E firms using his service is relatively small, it has grown considerably during the recession. **David Gruber** ■

Directory of Intelligence Gathering Services:

Clark Reports: 1-800-222-0255

Commerce Business Daily:

(301) 816-8950

International Construction Week:

011-44-0243-533-322

National Building News Service:

(603) 827-3358

Project Reports: 1-800-366-8181

Practice

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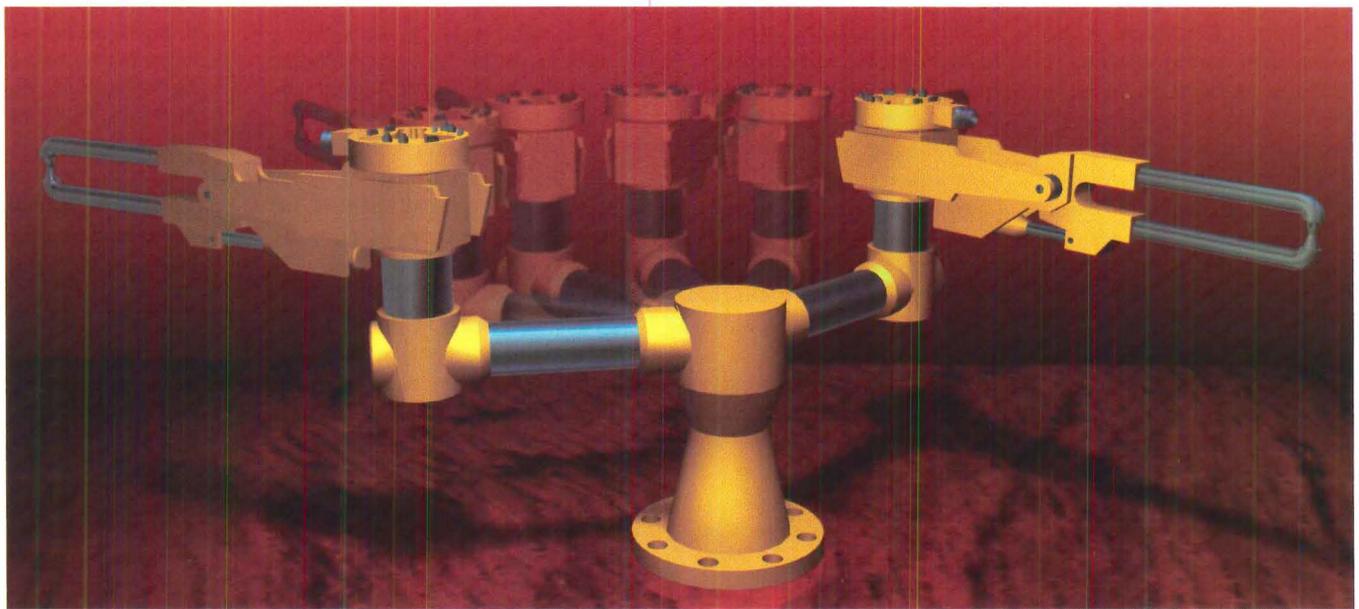
Practice Points

The AIA has produced a video entitled, *Investing in a Dream: A Guide to Getting the Home You Really Want*. The video is intended to be shown to clients as a method of reinforcing the value of an architect's services and as a step-by-step explanation of the role of the client in working with the architect. The video is available to members for \$19.95 and to non-members for \$29.95. Call (800) 242-4140 for information.

Building Design and Construction magazine has published its annual ranking of architecture/engineering firms in terms of annual billings. Ellerbe Becket of Minneapolis is this year's largest firm with receipts of over \$80 million. Last year's first place firm, Hellmuth Obata & Kassabaum fell to second with receipts of \$74 1/4 million. Rising within the top ten standings were Leo A. Daly of Omaha, The Smith Group of Detroit, and HDR, Inc. of Omaha.

The Construction Connection is a new company that helps architects find materials manufacturers. Architects looking for material suppliers call the company, free of charge, and give a list of the materials they need to specify. The Construction Connection then contacts three manufacturers of each material and refers them to the architect. The process is said to take three to four days. For information call (305) 653-0701, or fax (305) 653-1084.

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Architect and management consultant **Glenn Garrison** describes a recent project

in which job-site problems were minimized with a quality program.

Management: Job-Site Quality

Producing quality architecture – in design, in management, in construction – takes commitment and investment. A quality program can focus these efforts to increase the pace of work accomplished, control costs, and solidify team efforts; but this will happen only if fundamental principles are built into the work, as they were in the construction of the new headquarters for NASA.

In 1991, I joined the “lead team” of a job-site quality program developed by McDevitt & Street, the general contractor and construction manager for the NASA facility in Washington, D.C. McDevitt & Street had successfully used a quality program within the company, but the NASA project was the first time its Washington division had applied it to the job site, requiring the inclusion of the owner, Boston Properties, and the Architect, Kohn Pedersen Fox Associates. The quality program helped maintain an accelerated schedule, which brought the job in two months early with corresponding budget savings. It also led to an innovative model for increasing the effectiveness and cooperation of the project team – owner, architect, and contractor.

Fundamentals of a Quality Program

Essential to the successful implementation of a quality program in the construction phase are the following:

- a strong and committed lead team for the program
- clear, agreed upon lead-team work rules
- the involvement of everyone on the job

The NASA “lead team” was launched with an ice-breaking “project quality planning session,” which allowed members to get to know each other and to define a project mission statement: “To produce a successful project for everyone involved by continuous improvement through the constructive interchange of experience, creative ideas, and thought.” This effort, and the lead team’s agreement to adhere to the “rules of conduct” developed and used by McDevitt & Street as part of the firm’s overall quality program, set the stage for success.

The work rules set-up by the lead team served as a framework for the construction phase and were important in speeding the flow of work. The initial work rules were:

- No changes in the work would be made without lead team discussion.
- The project team would always have an up-to-date work schedule.
- The tenant would make timely decisions.
- The architect would be included in the owner/tenant/tenant’s architect loop.
- Two weeks would be the turnaround time on shop drawings and requests for information.
- The project team would increase the level of involvement and contact with workers.

These work rules were selected from about 30 items listed during the planning session. They are tasks commonly found on all construction projects, but the structure applied to them this time, and the continuous attention

paid to them, made a difference in how the job was carried out.

Motivating the Work Force

Just as important to the success of the quality program were the activities that involved the job work force at all levels:

- recognition of effort and achievement;
- formation of quality task teams;
- development of training programs;
- monitoring of quality indicators.

Recognition of good work motivates and improves job attitudes. Workers who had done an exceptional job were named “quality crew of the month.” Award notices listing the crew members were posted throughout the job, the lead team went into the field to congratulate them, and a letter of recognition was sent to the president of the workers’ company. Letters of recognition were also sent on behalf of anyone doing an outstanding job – suppliers, administration staff, tradespeople. In this way, the lead team, field workers, subcontractors – indeed, everyone involved in the project – got to know each other on a first-name basis, resulting in better communication, greater pride in the work, and a closer, more cooperative work effort. “Honorary guests,” such as consultants or tenant representatives, were invited to lead team meetings in recognition of their expertise and to give them an insight into the team’s activities.

Quality task teams were formed to investigate particular work items in detail. And training and development activities pro-

vided ongoing job-site education, such as project team field trips to fabrication plants, and CPR/first aid training.

Nearly 30 quality indicators were used to monitor and measure productivity. The lead team defined the indicators, and the group responsible for the work tracked them. Each indicator revealed problems for the team to solve jointly. The indicator “precast production,” for example, helped the precast supplier revise sequences and methods to improve production output and meet schedule needs, without the usual finger pointing and yelling. Another indicator, “shop drawings turnaround” allowed the project team to monitor the turnaround time for shop drawings and let the owner set priorities for items with major schedule and budget implications. A final and tangible effect of the quality program was seen in the “zero punch list” indicator: a punch list had no items on it because they had been caught and corrected as part of the work.

The NASA project proves that quality programs work. They create an atmosphere on the job site that promotes efficiency, craftsmanship, and continuous improvement. And the possibilities of this method are endless: after integrating the quality process into the office and jobsite, the next step might entail applying the process to the operation of the completed building and even to the organization of the tenant offices themselves.

Glenn Garrison ■

The author is an architect and an architectural management consultant in New York. He was the Project Manager for Kohn Pedersen Fox Associates on the NASA job.

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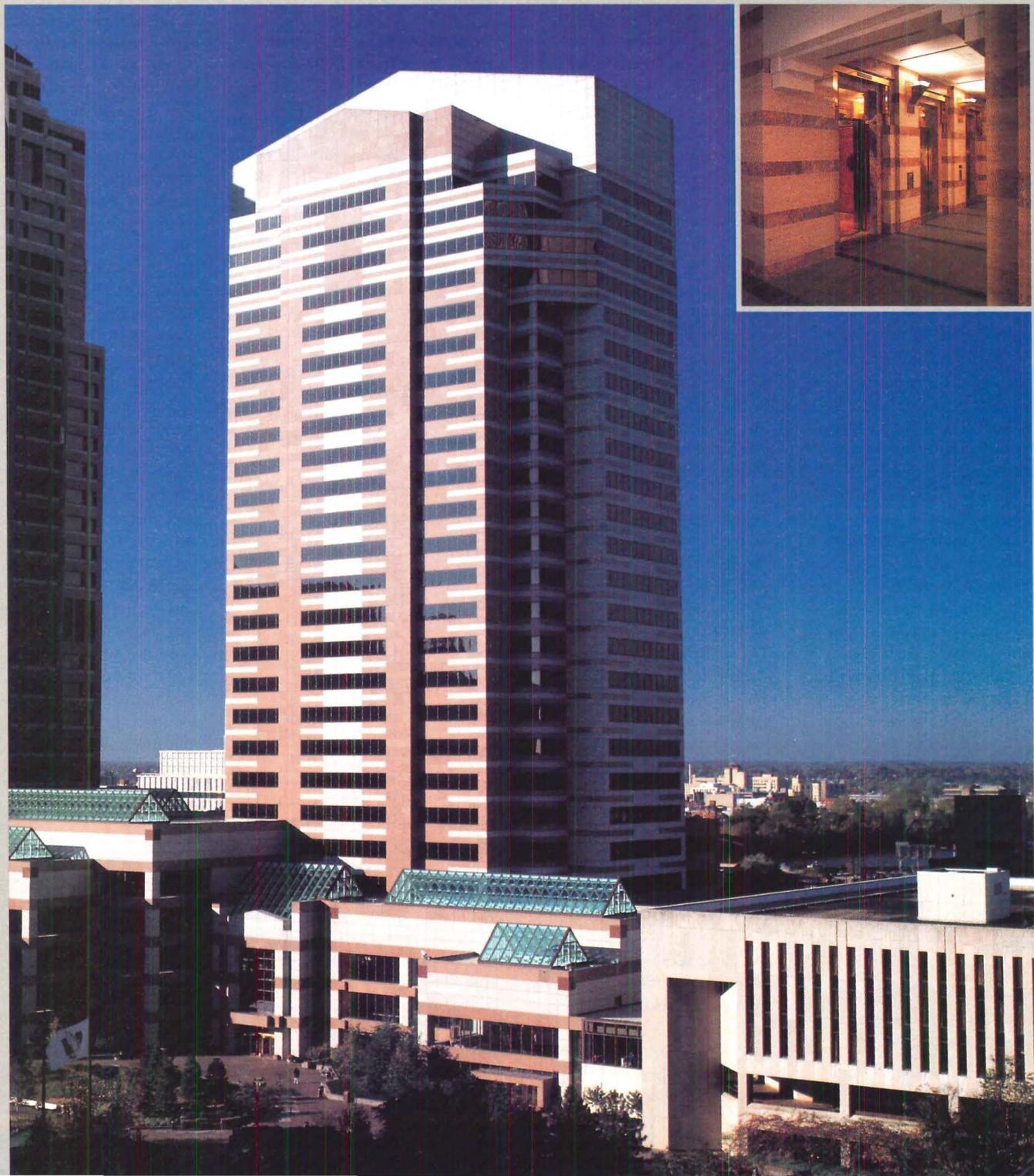
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Charles S. Han describes how pen-based graphical interfaces may revolutionize the use of computers by architects.

Computers: Pen-Based Systems in the Architecture Profession

You may already have seen one: a palm- or notepad-sized portable computer with a special pen that allows the user to write directly on the screen. This emerging technology, called pen-based computing, may revolutionize the way architects use computers. One day soon architects on a job site will be able to sketch the fabrication process of a construction detail and have that information immediately linked to the factory, where the operator can follow along and, in return, make suggestions to the architect.

Pen-based computing can be defined as a hardware and software system that uses its screen both for output, like a conventional computer, and for input, via a pen-like device. The keyboard becomes a secondary method of data entry, and the mouse becomes obsolete. GRiD Systems introduced such a machine, called GRiDPAD, more than two years ago. However, until recently, microprocessor fabrication, storage and input devices, and handwriting recognition software were not sophisticated enough to make pen-based systems a popular alternative to conventional computers. With recent advances, pen-based systems are being touted as the technology that will finally bring computers to those who have thus far avoided using them.

Because pen-based computers approximate the sketchpad and notebook it seems likely that whichever system eventually dominates will be linked to the needs of architects and other design professionals.

Applications for Architects

Up to this point, the strength of computers – their accuracy and hardline capabilities – has been the weakest point in terms of architectural design. Forcing the architect to commit to a specific line or shape of a space too early limits imagination and possibilities. By contrast, pen-based systems will be able to record and display the architect's freehand line and, at the same time, sketched concepts will be able to be translated into a dimensioned drawing and immediately tested for structural integrity, energy and lighting efficiency, or budget constraints.

Pen-based computing seems poised to revolutionize the production end of the CAD market as well. There is continuous debate over whether it is more efficient to produce working drawings using CAD or pencil and paper, yet it is widely accepted that making modifications to CAD drawings is a much faster process than modifying drawings by hand. A pen-based CAD package would enjoy the best of both worlds because the architect could use the speed and intuitiveness of drawing with a pen and, at the same time, maintain all of the hardline and modification abilities of present CAD systems.

The further advantage of pen-based systems is portability. Users will be able to import various CAD file formats and sketch on top of them on site as well as incorporate other types of documents such as photos that are shot with a digital camera. Many in the industry are also talking about incorporating cellular telephones within portable computers, which would allow the instant transfer of drawings and data between the site and office.

Recent Developments

Before pen-based computers can become a widespread alternative to conventional personal computers, standardized operating systems will have to be written for them.

There are several companies trying to set the industry standard for a pen-based operating system. Companies such as GRiD and Momenta Computer have already marketed pen-based computer systems with their own proprietary operating systems and application software (see P/A, Oct. 1991, p. 113). But neither is expected to become a standard for software companies. The major battle is expected to be between giant Microsoft and upstart GO Corporation.

Microsoft's operating system solution, PenWindows, is an extension of Microsoft Windows. Windows is the graphical user interface (GUI) that has recently gained widespread popularity for PC compatibles. Applications that currently run in the Windows environment will also be able to run under PenWindows.

GO Corporation has taken an entirely different approach with PenPoint, writing its operating system from scratch. GO has discarded the desktop GUI, and instead created the Notebook User Interface (NUI). The user "flips" from one "page" to another by touching its "tab" with the pen. All programs are run simultaneously, and information can be transferred from one "page" to another.

By starting with a clean slate, GO has been able to avoid the limitations associated with working with the MS-DOS foundation that Microsoft has maintained. Microsoft's advantage is that software for DOS and Windows envi-

ronments can still be run under PenWindows. Software for GO's PenPoint will have to be written from scratch.

Both PenWindows and PenPoint have been designed for high-end personal computers that should cost between \$4,000 and \$6,000. Several companies are offering computers that will support both systems, such as NCR's 3125, and Microslate's Datalite series. IBM is planning a pen-based computer called ThinkPad which is currently expected only to support PenPoint. IBM has also announced plans to add pen extensions to its OS/2 2.0 operating system.

Whatever the system, the ability to combine the power of sketching, hardline, text, and mobility will make a powerful argument for this new kind of computer. But widespread acceptance may take time. Handwriting recognition for pen-based systems is good, but not perfect. Currently the vendors claim only 99 percent recognition accuracy for hand-printed block letters. Cursive handwriting recognition is still in the developmental stage. Paragraph, a US/Russian venture is working on a cursive recognition system with GO and Apple and currently claims 90–95 percent accuracy. Block printing is far slower than typing for most people, so until cursive handwriting recognition systems are fully developed those who use computers for text entry are likely to hold on to their keyboards.

Charles S. Han ■

Charles S. Han is a recent graduate of the Building Process Area at the Department of Architecture of the University of California at Berkeley. Research for this article was done as part of his Master's Thesis under Professor Hansjoachim Neis.



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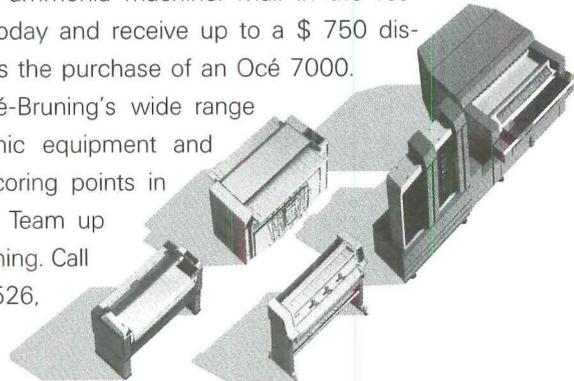
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Design

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.....

A look in both directions, this issue reaches all the way from



the imagined to the historic.

*Sutro Baths,
San Francisco,
October 21, 1894
(see page 76).*

Leading off this multifaceted issue are the winners of the newest P/A competition, “The New Public Realm,” vivid demonstrations of the architects’ constructive imaginations. The restoration of a significant piece of architectural history, Chicago’s Rookery Building, is also highlighted here, as are the Austin, Texas, Convention Center, the work of an “emerging” firm, and a small museum in Japan.

William C. Billington/ Marylyn Blaistell Collection

The New Public Realm

After scrutinizing 232 entries, the jury for P/A's New Public Realm Competition gave awards to ten submissions, which are featured on the following pages.

What is the public realm and what should it be? With that question in mind, we announced a competition, "The New Public Realm," in the April, 1992, issue of P/A (pp. 59–68). Our intent in launching this competition was to add the voices of our readers to the current political debate about our infrastructure and to demonstrate that the design professions have much to contribute to any national reconstruction effort. Our expectations, accordingly, were high and so were the quality and substance of the entries submitted.

The Range of Submissions

On the whole, the entries underscored the real complexity of the public realm. Several submissions dealt with what the public commonly thinks of as infrastructure: roads, highways, and bridges; indeed, there were so many submissions addressing the vacant space under and around freeways that we made a separate category of them for the jury to consider. One of the most common solutions involved integrating housing into this infrastructure: housing in bridge abutments, housing under highway overpasses, housing within cloverleaves. The jury was skeptical of such combinations, however. As one juror put it, "We moved the poor people out to build these highways, and now we're going to move the same people back in underneath them?" Proposals to place commercial and recreational space among bridges, highways, and dams (p. 84, 88) fared much better with this jury. Still, all of these submissions raised an important point: we should see our investment in infrastructure as an opportunity to address larger social problems and provide greater public amenity.

Another group of entries addressed less traditional infrastructure: the vast and often underutilized open spaces of our cities and suburbs – the excessively large parking lots, the empty areas around downtowns or among suburban developments, the forgotten stretches of landscape along rail lines and waterways. Most of these entries suggested ways in which such open space could be made more vital and serve more than one function. A few schemes, for example, came up with ingenious ways of reusing parking lots, enlivening vacant sites, and utilizing air rights over rail lines. Other projects suggested ways of increasing the density and mixed uses in suburban commercial and residential areas (p. 79), of reuniting the public and its waterways (p. 82), of reinhabiting empty inner city blocks (p. 78), and of inserting utilities – recycling or water treatment facilities, for example – into empty lots (p. 83). Most of these entries confronted head-on one of the greatest obstacles to public realm improvements: zoning laws with their bias toward separating the city out into single-uses, an inefficient and wasteful use of our land and resources.

Building Types

A large number of submissions involved specific buildings. There were some fine examples of traditional public facilities – city halls, schools, train stations, airports (p. 80) – as well as proposals to turn abandoned private property, such as empty commercial and industrial buildings (p. 86), to public use. Another set of entries involved less conventional, hybrid structures. Some of these involved unusual functional combinations, such as a bus station/media center, a billboard/homeless shelter, and a public swimming pool/desalinization plant/wind-powered electrical generating facility (p. 76). Others involved reimagining private facilities in a public context; one entry, for example, proposed a series of small urban follies that contained such things as cooking facilities, showers, and toilets, providing the homeless with some of the comforts of home. Such submissions suggest that, after a decade of being starved for funding and attention, the public realm needs not so much expansion, as redefinition to address the growing gap between the rich and the poor, the skilled and the unskilled.

This need for redefinition extends to our infrastructure itself. As several entries noted, electronics – high-speed computers, interactive televisions, satellite communications – are all part of a new, and largely invisible infrastructure whose potential we have only begun to understand. The limits of that understanding were evident in a few submissions that, as one juror noted, had a "Big Brother" quality about them, depicting large numbers of people sitting passively before large television screens. But other entries envisioned a more hopeful future, one in which the interactive aspect of this infrastructure would be harnessed to promote participatory democracy and more citizen involvement in the shaping of public policy (p. 87).

Juror Comments

The jury (facing page) was minus one member, Herbert Muschamp, who, just prior to the judging, became the new architectural critic for the New York Times, whose policy precludes its critics' serving on juries. The remaining four jurors, chaired by David Lee, ably addressed a wide range of issues during their deliberations.

A lot of their discussion revolved around the distinction Susana Torre made between the public and the civic realm. "The civic realm," she said, "is one in which people come together because there is a commonality of purpose, a sense of community, while the public realm is marked by contested territory, strife, competition, and danger." The jurors debated whether a civic realm is even possible, given the fragmentation of today's society, and what role architecture and urban design can or cannot play in creating this sense of community. The jurors did agree, however, that few entries addressed this distinc-

The assembled jury.



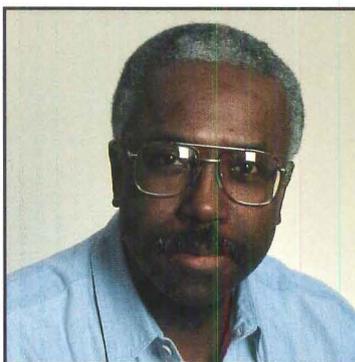
tion. As David Lee put it, "We have seen a lot of ideas here for the public realm, but not enough ideas about the civic realm."

The jurors also discussed the difficulty of dealing with public realm issues, especially in cities, at a time when government has put so much emphasis on – and provided so many incentives for – private consumption and suburban growth. Although Harvey Gantt told sobering tales of fighting disinvestment and job loss during his two terms as the mayor of Charlotte, North Carolina, he still "expected more entries to focus on inner-city America, especially post-L.A." The period of only 50 days between the L.A. events and P/A's competition deadline was probably a factor. The jurors agreed with Robert Yaro that the repopulation of the inner city will happen only if we can "provide the kind of amenity that up until now has only been available in the suburbs," just as we must try to create, in the suburbs, "a civic realm out of what is now private space."

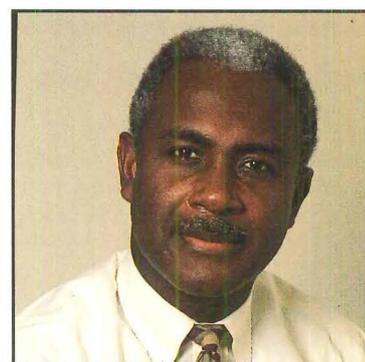
The deliberation ended with a summary by Yaro of what the jurors wished they had seen more of in the competition. "We didn't see a lot about the dismal things in suburban America – parking lots, parking structures, office parks – nor about new communities, rural landscapes, urban parks, suburban strips, or infilling the urban fabric. We also did not see many proposals from interdisciplinary design teams. Considering the complex problems of the public realm, many submissions would have benefited from the involvement of planners, landscape architects, social scientists." The jury said this, not to fault the entrants, but to point to issues still needing attention and to encourage P/A to make this competition a regular feature. That, we thought, was yet another good idea to emerge in those two days of discussion.

Thomas Fisher

To get the maximum exposure for the most entries, P/A is sponsoring a traveling exhibition of the 10 winners plus approximately 30 other entries, working closely with chapters of Architects/Designers/Planners for Social Responsibility (ADPSR) in various cities. The first stop, in this political season, is Washington D.C., in a storefront exhibition space at 425 7th Street, N.W.. The public opening is October 23rd, 6:00–8:00 pm. and a symposium, also open to the public and moderated by P/A's executive editor, Thomas Fisher, will be held October 24th in Washington. After closing on December 12th, the exhibit will travel to San Francisco's 2AES gallery at 340 Bryant Street, opening on January 7th, 1993. Future stops will probably include Denver, Chicago, and Toronto, so watch P/A's calendar for times and places.



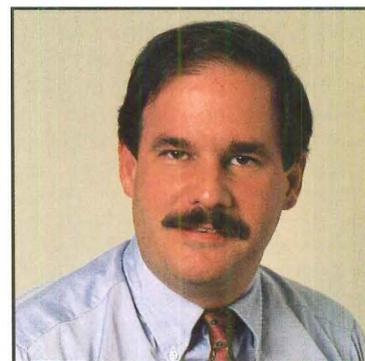
David Lee
David Lee is a partner in the firm of Stull & Lee in Boston. He is the current president of the Boston Society of Architects and serves as an adjunct professor in the Department of Planning and Urban Design at Harvard. His firm has won several design awards and has a diverse practice of commercial, institutional, and governmental work. Lee was elected chairman of the jury.



Harvey Gantt
Harvey Gantt is a partner with the Charlotte, North Carolina, firm of Gantt Huberman Architects. He has served as a three-term member of Charlotte's City Council and as a two-term mayor of Charlotte. He was the first black Democratic Party nominee from North Carolina to the U.S. Senate, narrowly losing the 1990 race to Jesse Helms. His firm's work includes a variety of commercial and institutional projects.



Susana Torre
Susana Torre is the principal of Susana Torre & Associates in New York. She also serves as the chair of the Department of Environmental Design at Parsons School of Design in New York and is on the board of directors of Architects/Designers/Planners for Social Responsibility, New York. She has previously served as an architectural design juror in the 1986 P/A Awards Program.



Robert Yaro
Robert Yaro is the senior vice president of the Regional Plan Association, New York, and has been actively involved in a recent updating of plans for the tri-state region. Prior to his current position, he served as the director of the Graduate Program in Regional Planning at the University of Massachusetts, Amherst, and as the founding director of the Center for Rural Massachusetts.

All jury photos: Hawk Photography

Sutro Baths: A New Public Room

Tanner Leddy Maytum Stacy Architects

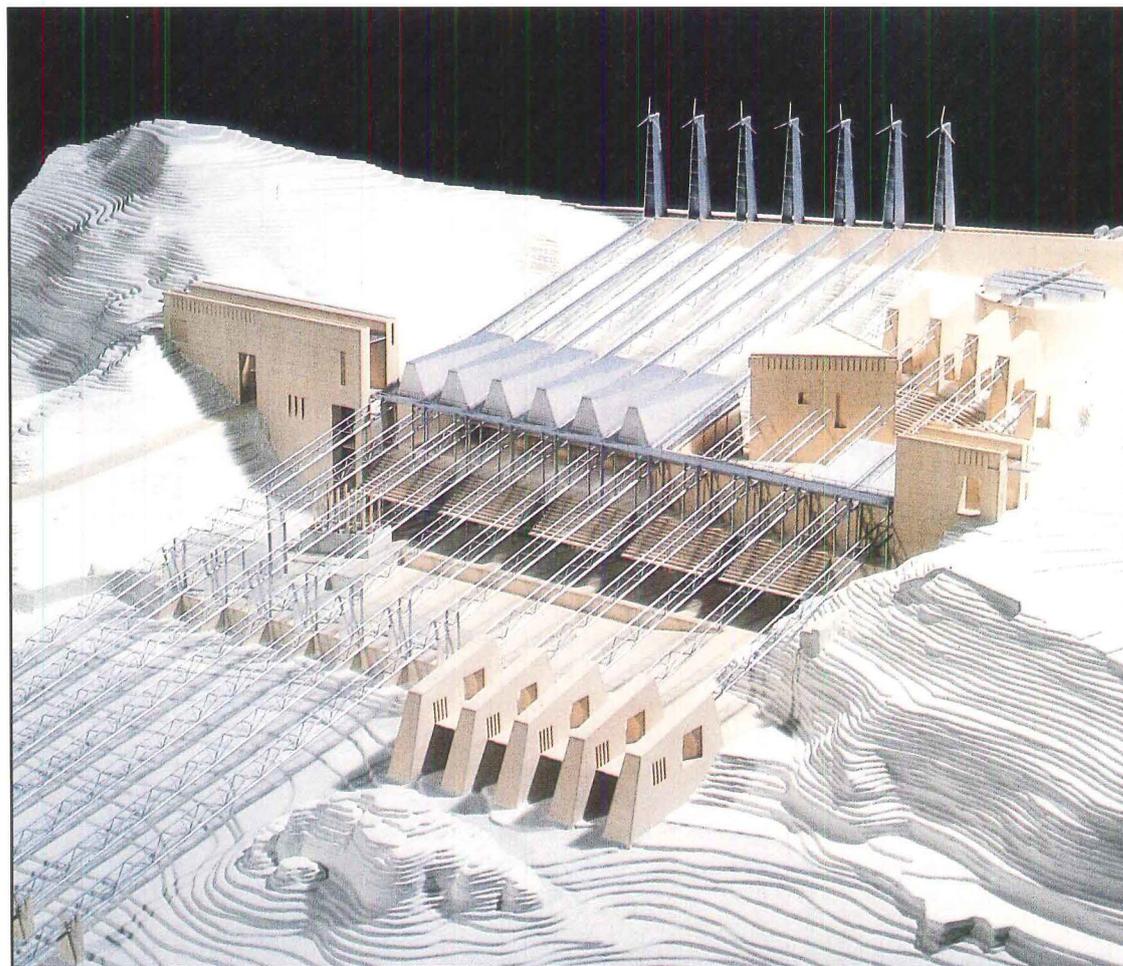
Project: Sutro Baths: A New Public Room, San Francisco.

Site: San Francisco's Sutro Baths, completed in 1894 and in use until their closing in 1966, subsequently burned during demolition in June, 1966. The remaining ruins, including the original great salt water pool, are located at the base of a steep hillside on the edge of the Pacific.

Program: Create an urban space that addresses physical and spiritual needs of the city by integrating civic gathering spaces with facilities for alternative energy generation and desalination of ocean water, on one of the city's most spectacular public sites.

Solution: The proposal is envisioned as creating "a new kind of public space which draws from the power of history, nature, and technology to give new life to the city." The main salt water pool would be reclaimed for recreational use, and new desalination facilities would be located on the hillside above the pool. Wind generators would be installed at the top of the hill; from their base, multiple lightweight trusses of a new high-strength fiberglass composite would span down the hill, over the pool, and into the sea. The bottom chords of the triangular trusses would serve as water conduits, bringing sea water to the desalination stills. Farther up the hill, the trusses would also carry pedestrian bridges to parking areas above.

Architect: Tanner Leddy Maytum Stacy Architects, San Francisco (William Leddy, design partner; Stephen Cassell, assistant designer; Joanne Kennedy and Stephen Cassell, presentation designers; Craig Edwards, William Goryl, William Leddy, Nick Noyes, and James Tanner, presentation architects; Kim Kwan, David Lynch and Alfonso Fabrega, model designers; William Goryl, model architect).



MODEL FROM THE SOUTH

Jury Discussion

Jurors were most impressed by this proposal on many levels. One of the prime factors they admired was the multiple benefits that would accrue to the city as a result of this scheme. As David Lee noted, "This one is consistent with something that runs through several things we've seen, to use the public investment to do a public good. This is an important function to accomplish, and they do it in a way that's symbolic, and civic, and fun. It's about working with a piece of infrastructure that

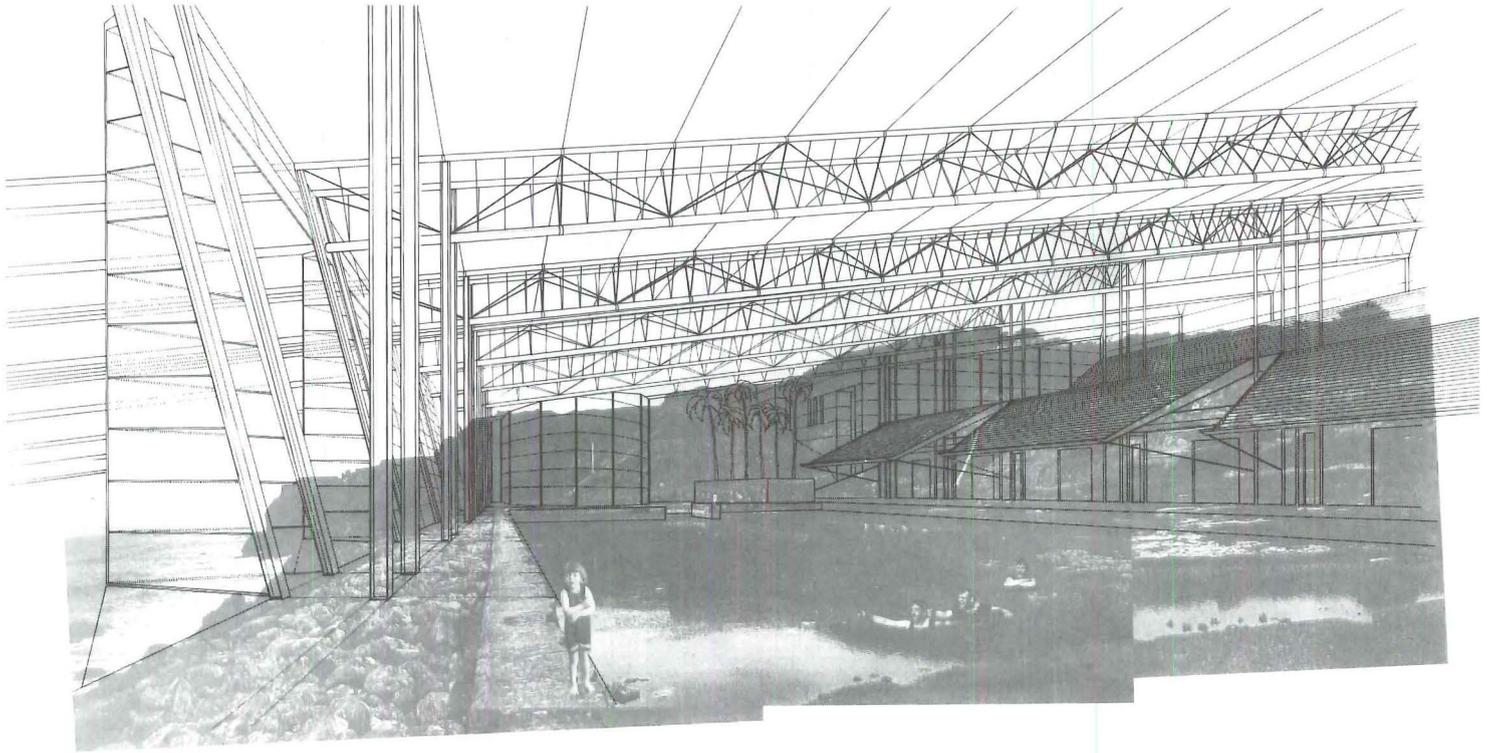
has a civic presence."

Appropriately, the thing Harvey Gantt saw was that the project "is the kind of thing that a politician loves, the bread-and-butter project that doesn't get buried underground, where nobody ever sees it."

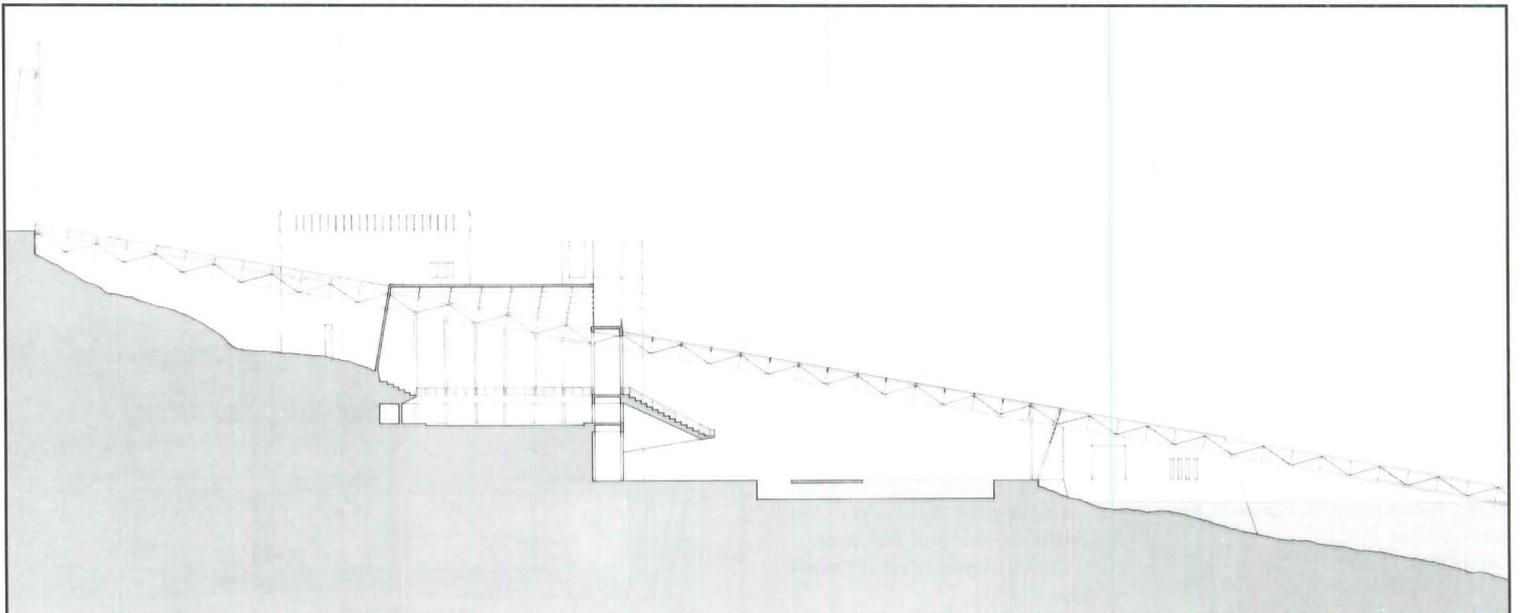
Robert Yaro pointed to the country's economic condition, and to the common community resistance to proposals of works for the public good. "There are two other things here," he noted. "One is that, as a nation, we can't afford to throw money at single-purpose activities; we've got to be looking for multiple benefits. Two, we've got

an enormous NIMBY problem on virtually everything we do. This takes two difficult-to-site facilities and does more than just sugar-coat them."

David Lee also commented on the skillful presentation of the idea. Of the brochure, he said, "This is beautifully presented; the way in which they have shown the original bath house with the new system overlaid is lovely. If you're going to talk about doing something in the public realm, you've got to present it in a way that the public can understand."



PERSPECTIVE AT SALT WATER POOL



CROSS SECTION LOOKING SOUTH

40/12m

Subway Suburb

John Montague Massengale

Project: Paradigm Park, a Subway Suburb for the South Bronx.

Site: A nearly abandoned urban site in the Bathgate area of the Bronx, New York.

Program: The reclamation of the South Bronx by means of "building projects that foster a sense of community."

Solution: Massengale proposes a "subway suburb" exploiting infrastructure already existing on the site: expensive utility lines are already in place, and the Metro-North commuter railroad runs alongside the site.

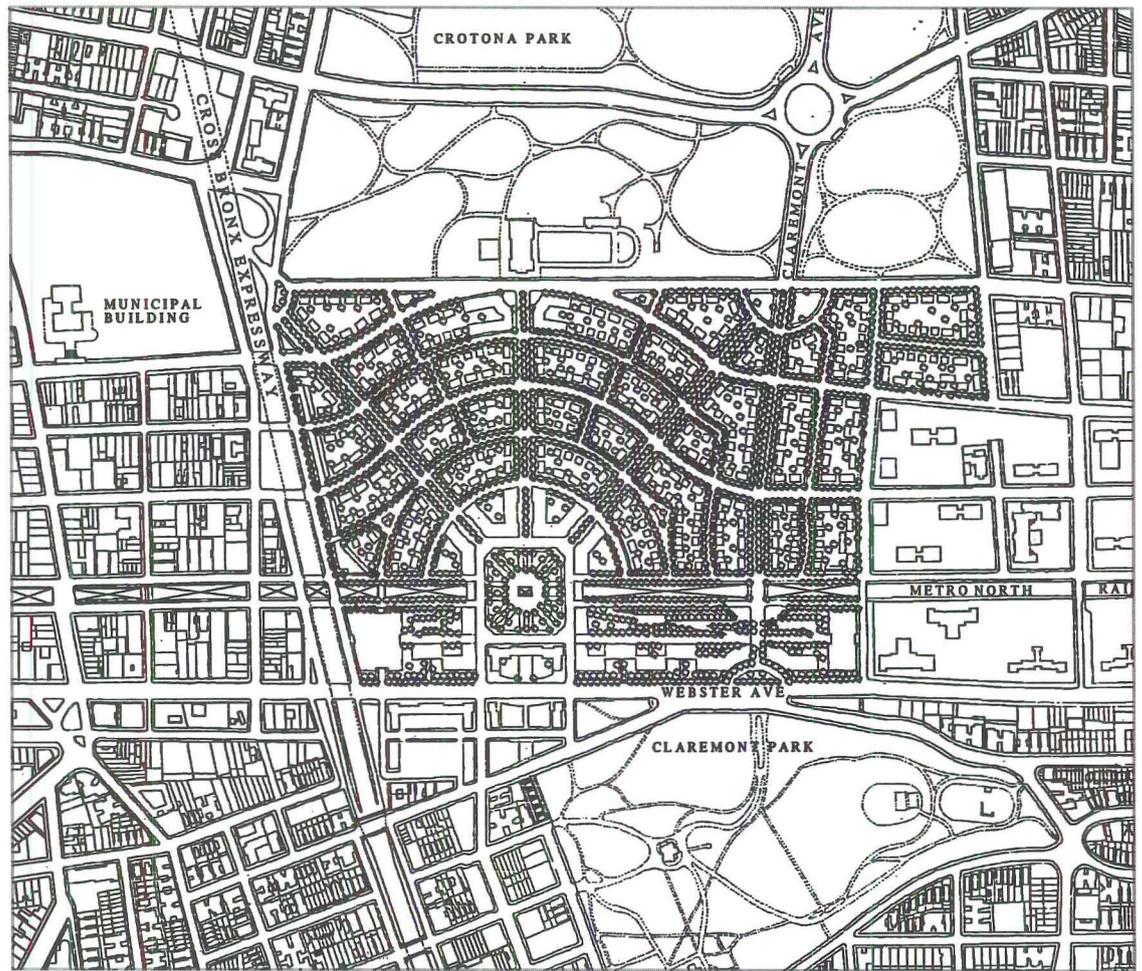
The new suburb, "Paradigm Park," draws on research conducted by Massengale and Robert A.M. Stern into American planned suburban developments, which have often been employed on urban sites (Forest Hills Gardens in Queens, New York, for example.) Paradigm Park would have its own station on the rail line, surrounded by a public space called Station Square. This "downtown" would have four- and five-story apartment buildings. The rest of the site has three avenues and two through streets knitted into the city grid, with smaller local streets between them.

Building codes for the community would be minimal, with more attention given to the design of streets: "If the street is properly sized, planted with trees at the right distances, and bordered by buildings of enough uniformity, the space becomes more important than the buildings."

Architect: John Montague Massengale, John Montague Massengale & Partners, Bedford, New York.

Project team: Anthony Cohn, Charles Evers, Robert Gabalski, Benjamin Krauer, Arthur Pier.

Consultants: Robert A.M. Stern, Robert A.M. Stern Architects, New York; Edward I. Mills, New York.

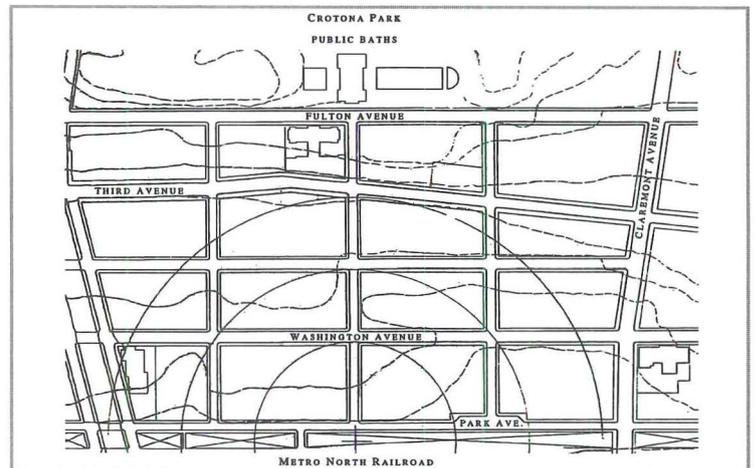


PROPOSED SITE PLAN

Jury Discussion

The jury admired the scheme because it entails bringing the middle-class back to a part of the city it has abandoned for the suburbs, without displacing poor people. Said David Lee: "We may not get the middle manager from IBM to come back, but we have a better shot at getting the recent African-American college graduate to stay."

Dissenting juror Susana Torre said that the plan "speaks very loud of gentrification," and that it neglected the cultural needs of minority populations.



EXISTING SITE PLAN

Post Suburbia

Angela Brooks

Project: Post Suburbia.

Site: Prototypical proposal for American suburbs; research area was El Segundo, California.

Program: "Post Suburbia" addresses the dissonance between contemporary living patterns and the suburban landscape: the submission points out that only 13 percent of all households fit the model on which suburbia was based (working father, non-working mother, two children) and that only 8 percent of potential home buyers can afford a detached, single-family house.

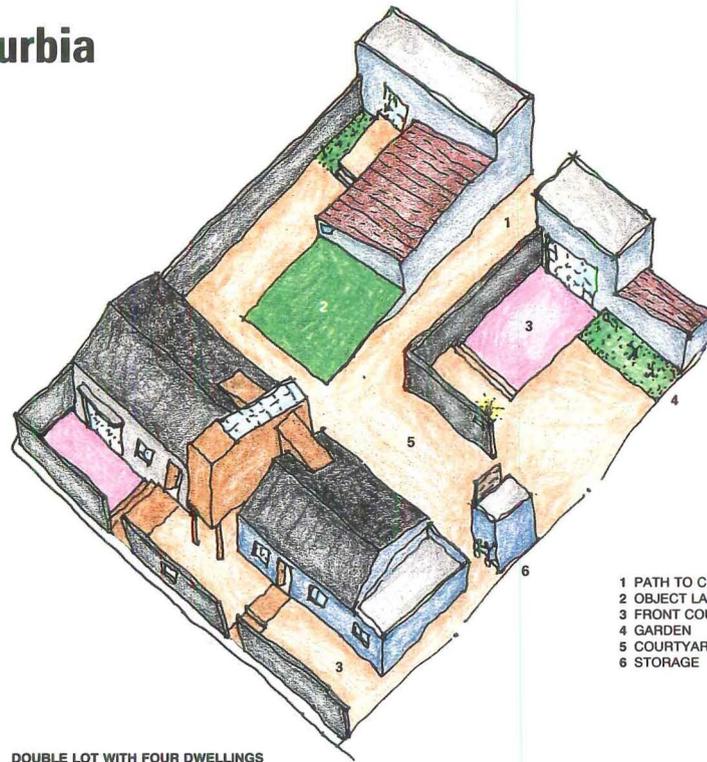
Solution: The plan proposes altering suburban zoning laws to permit more flexible uses of existing property. The plan allows for attached houses, rental units, combinations of lots for apartments, and for "inverted blocks," where neighbors can dedicate their back yards as common space. Small businesses would be permitted to "infiltrate" suburbs. Besides providing greater flexibility, the variation in height, density, and use could, the authors say, 'bring the dead suburb to life.'

Architect: Angela Brooks, Venice, California.

Project team: Lawrence Scarpa and David Johnson of Pugh + Scarpa, Santa Monica, California. Advisor: Robert Mangurian, Venice, California.

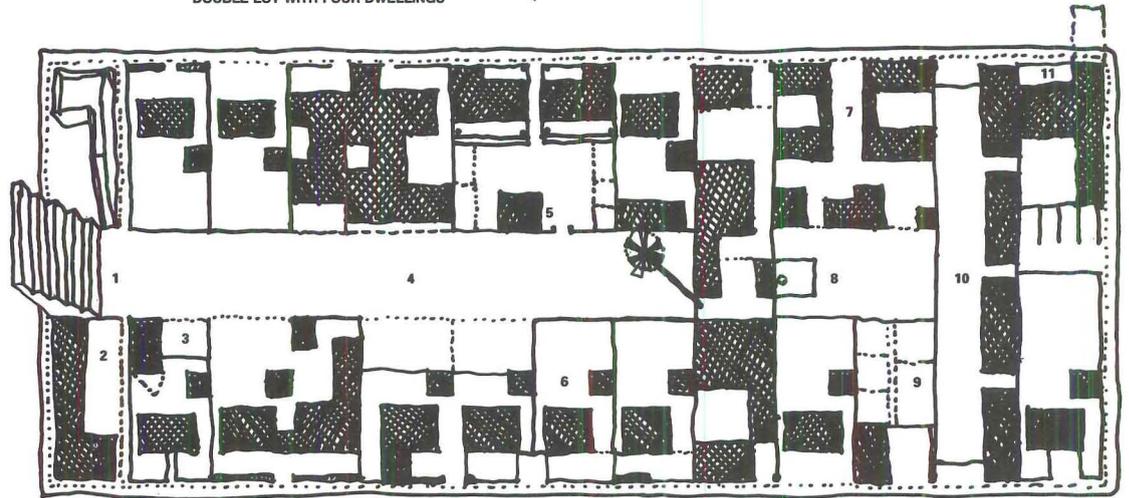
Jury Discussion

The jurors thought the scheme "a thoroughly researched effort" that is "getting at a cutting edge issue," in the words of David Lee. Susana Torre supported the plan, observing that "changes to zoning legislation will be required to achieve a suburban fabric that conserves natural resources." But Harvey Gantt, while sympathetic to the project's goals, thought that "it doesn't really face up to political reality."



- 1 PATH TO CENTER OF BLOCK
- 2 OBJECT LAWN
- 3 FRONT COURT
- 4 GARDEN
- 5 COURTYARD
- 6 STORAGE

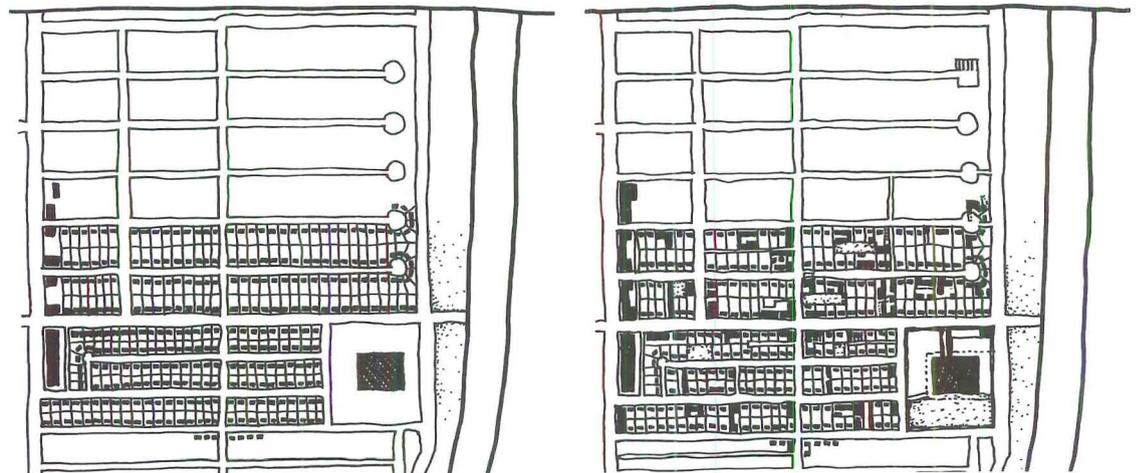
DOUBLE LOT WITH FOUR DWELLINGS



PLAN OF TYPICAL BLOCK AFTER ZONING CHANGES

100/30m

- 1 BLEACHERS
- 2 DAY CARE
- 3 DETACHED STORAGE
- 4 GREEN
- 5 TOWER
- 6 EXISTING HOUSES WITH DETACHED GARAGES
- 7 THREE DETACHED HOUSES ON DOUBLE LOT
- 8 BASKETBALL COURT
- 9 GARDEN
- 10 FOUR APARTMENTS ON LONG LOT
- 11 CONVENIENCE STORE



EXISTING SITE PLAN OF RESEARCH AREA



1000/300m

PROPOSED SITE PLAN OF RESEARCH AREA

Lake Calumet Airport

The City of Chicago

Project: Lake Calumet Airport, Chicago.

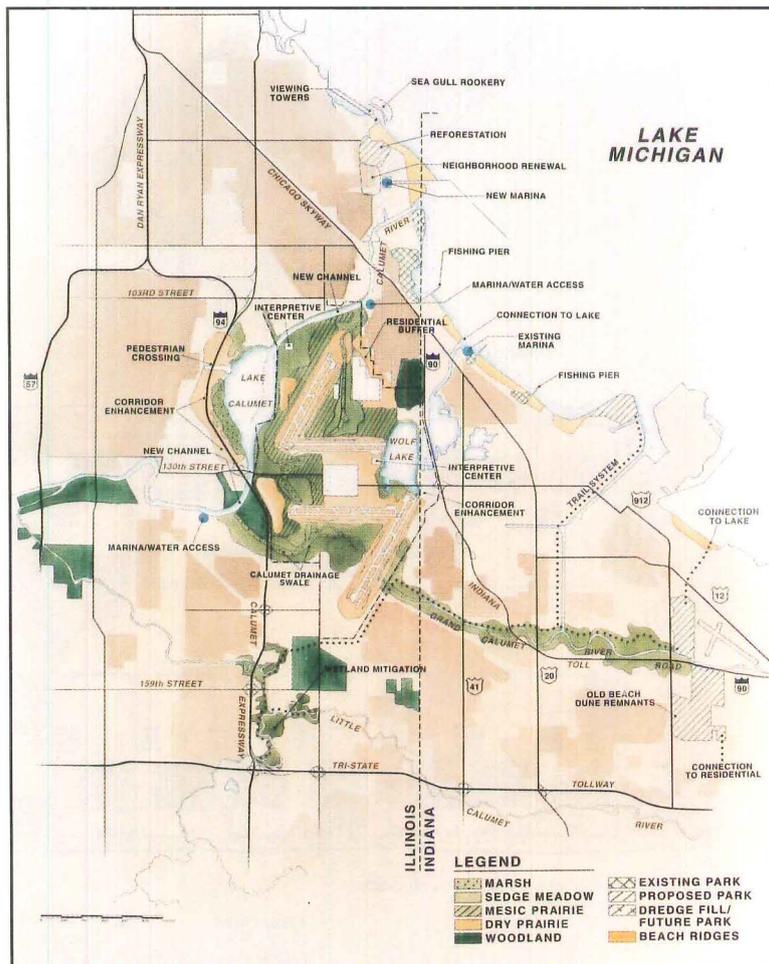
Site: 9500-acre tract in extreme southeast Chicago, Cook County, Illinois, and in Lake County, Indiana.

Program: A third airport in southeast Chicago, an area in severe need of economic, environmental, ecological, and aesthetic improvement. Its waters are polluted, and the region has become a dumping ground, yet it is well situated to serve a high-population area.

Solution: The jury decided to recognize jointly two separate submissions from the City of Chicago, since they present two somewhat different, but related, parts of the same overall project.

These companion studies thoroughly document the need for a stimulus such as the airport to reverse the area's decline. One of the studies, entitled "The Third Airport, Southeast Chicago and Environmental Opportunities: Ideas, Concepts, and Suggestions," examines the environmental impact possible as part of the airport proposal; the focus is on reclaiming what were natural features – meadow, prairie, river, and beach areas – and it makes suggestions for areas beyond the airport boundaries. Also included are suggested changes to enrich or establish areas for recreation and for wildlife, with ways to relocate nesting areas for gull and heron populations away from the airport.

The second proposal, entitled "Lake Calumet Airport," looks more at the actual airport facility, and deals in depth with the airport's impact on employment and its funding possibilities. The airport is expected to generate 235,000 jobs by the year 2020; within a 20-mile radius of the site are 4.2 million people, nearly 50 percent of whom are either African-American or Hispanic. The report recognizes environmental factors, pinpointing



REGIONAL MAP, WITH SUGGESTED IMPROVEMENTS

N ↑ 3 mi/5 km

natural areas; endangered species, waste, landfill, and wetlands areas, and remedial actions.

Entrant (both submissions): City of Chicago, Richard M. Daley, Mayor.

Firm ("The Third Airport..."): Hey & Associates, Inc., Donald L. Hey, hydrologist; Gary C. Schaefer and David T. Urban, environmental engineers).

Team: Lane H. Kendig, Lane Kendig & Associates, Inc., city planner; John A. Bailey, Transportation Systems Associates, Inc., transportation planner; William E. Southern, EnCap, Inc., ornithologist; Richard C. Smardon, Integrated Site, Inc., landscape archi-

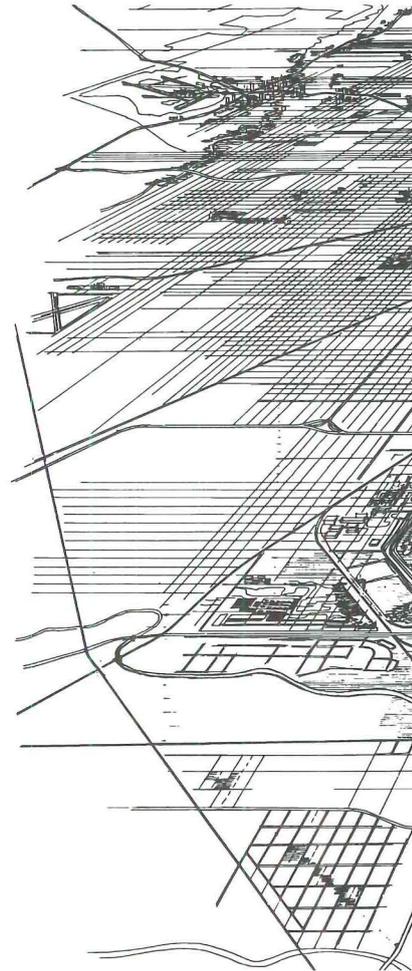
tect; Robert Montgomery, Warzyn Inc., solid waste engineer.

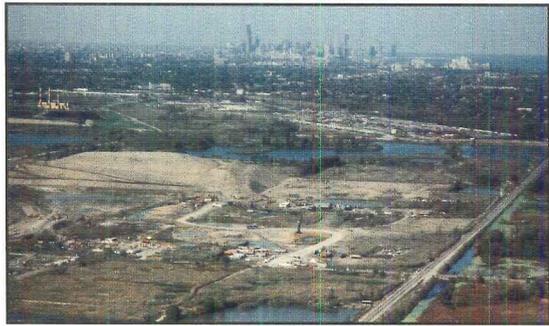
Firm ("Lake Calumet Airport"): City of Chicago, Lake Calumet Airport Project Team.

Team: Office of the Mayor, Department of Aviation, Department of Housing, Department of Law, Department of Planning and Economic Development, Department of Transportation.

Consultants: Burrell Public Relations, public relations; Camiros, Ltd., development; Cianciara Architects, architects; Dames & Moore, river relocation; Hey & Associates, Inc., environmental opportunities; Fullerton & Friar, Inc., financial feasibility; Gardner, Carton & Douglas and Hopkins & Sutter, legal;

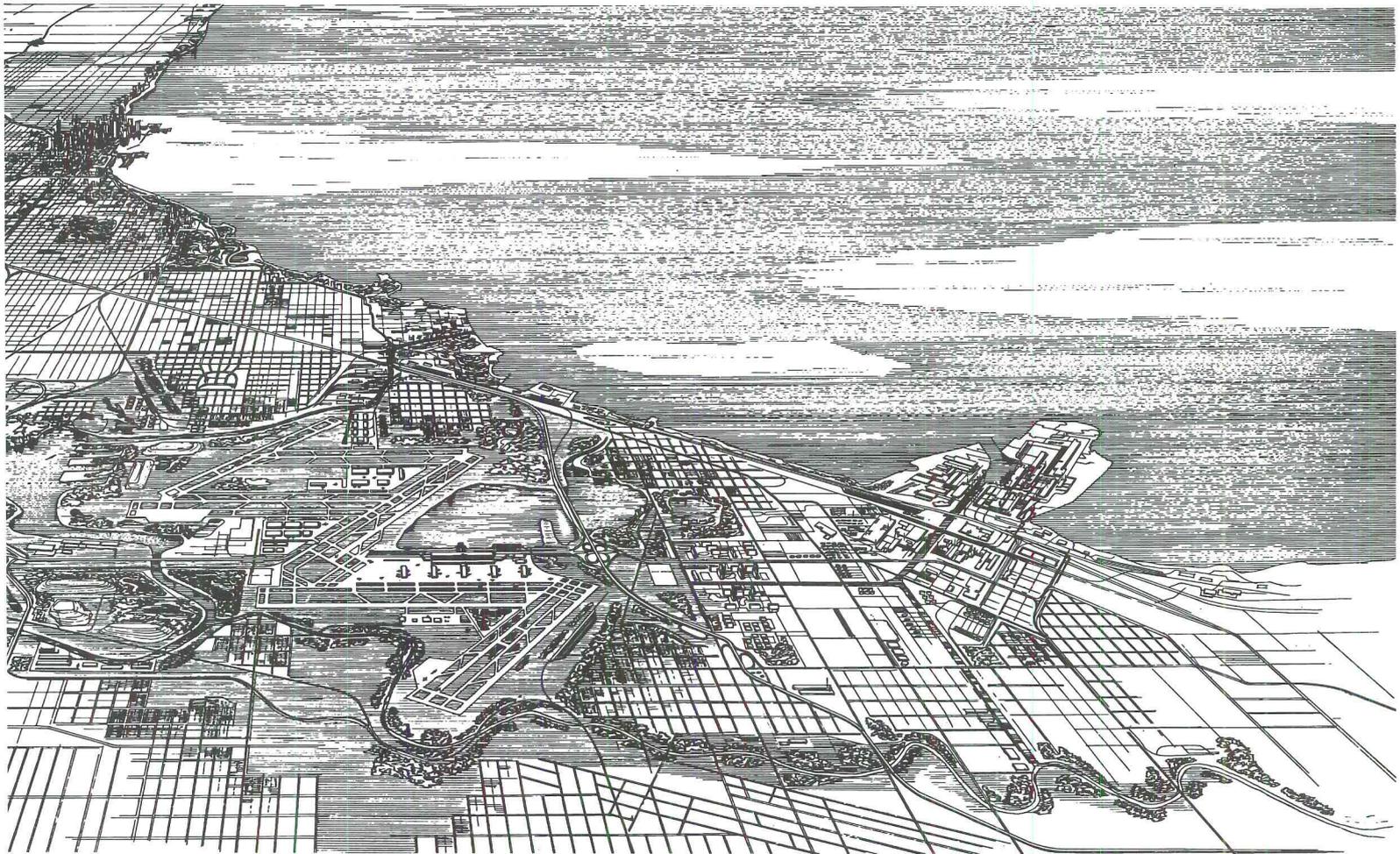
Idea Design for Business, Inc., graphics and design; Johnson Johnson & Roy, Inc., wetlands; Landrum & Brown, Inc. and Ricondo & Associates, aviation consultants; National Economic Research Associates, Inc., economic impacts, forecasting; NORC, survey research; Real Estate Analysis Corporation, industrial and residential relocation costs; Skidmore, Owings & Merrill, constructability, infrastructure; SPSS Inc., community impacts; Transportation Systems Associates, Inc., railroad relocation; Warzyn Inc., waste remediation.





Lawrence Orient

PHOTO OF THE REGION TODAY



AERIAL PERSPECTIVE OF THE REGION FROM THE SOUTH

Jury Discussion

To planners of a third airport to supplement O'Hare and Midway, the Lake Calumet proposal seemed to offer some things two more distant sites did not: the opportunity to cause the rebirth of an area plagued by unemployment and other economic woes, and polluted waters, wetlands, and air.

But the studies point out that there are also many opportunities in this geographical area. David Lee commented that "If they do pull this plan together, they've chosen a part of Chicago that could really be restored. They're saying

there is this big scar. There are people around, and there are ways for them to get to the site – 26 rail corridors, 210 lane-miles of expressway – so if you're going to locate another airport, maybe this is the place to do it. They talk about unemployment among young African-Americans; this is a potential economic generator."

Robert Yaro pointed out that the airport promised to create assured construction jobs and other permanent jobs, and Harvey Gantt asked if residents would be rewarded forever with jet noise. Yaro said that, while there has been and may still be controversy about this

point, part of the proposal calls for a mitigation program, dealing with runway locations, sound insulation, and double glazing.

To explain his caution, Gantt elaborated by adding, "When you talk about reclaiming a whole area like that, it raises a question; they often try to place these things in the poorest communities. The promise is that 'We're going to give you a job, which you didn't have, you're going to be safe, and you're going to be able to build a house and to do all kinds of other things.' I just want to make sure we don't send the wrong message."

But Robert Yaro pointed out

that "In this case, the nearest competition was out on the suburban edge, where they wanted it desperately. But Chicago won out over that location, based on this proposal, so this is not something nobody wanted, it's something everybody wanted." David Lee summed up by saying, "My reason for supporting this is, it says as public policy, a major public investment must take into account many factors, including environmental considerations and access obviously, but also the community that will be served and might benefit from it."

Storm Water as a Resource

Wenk Associates

Project: Grade-level storm water systems as public amenities.

Site: Suburbs and edge cities.

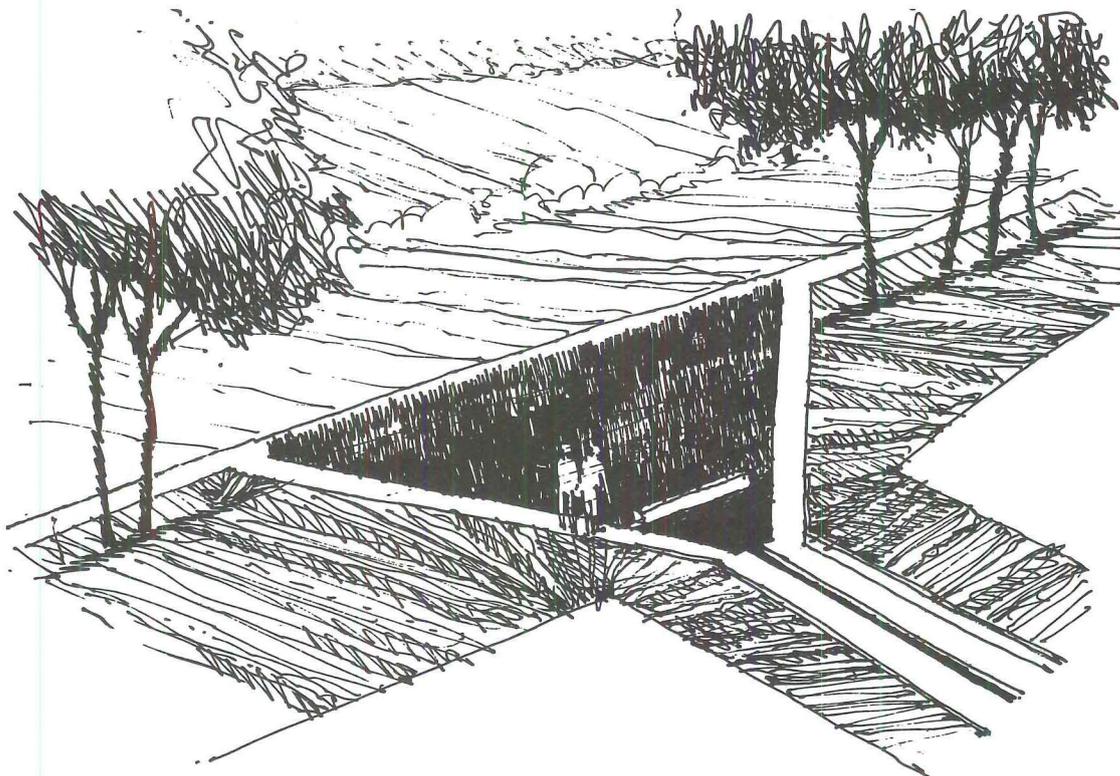
Program: To develop storm water systems that enhance and define the landscape.

Solution: The entrants argue that existing storm water infrastructure was conceived as an engineering problem in densely populated urban centers, yet the exponential growth of suburbs and edge cities requires and allows for a more creative distribution system. They liken their proposal to “preindustrial flood irrigation systems” that left water on the surface and used gravity to spread it out and irrigate the landscape. They suggest that urban storm water can “support the establishment of a landscape network in suburban communities of the semi-arid west.” Their “network” of water gardens, canals, natural drainages, and runnels would clean polluted water and irrigate the landscape, providing a “modest civic presence throughout the interstitial spaces of the suburbs.”

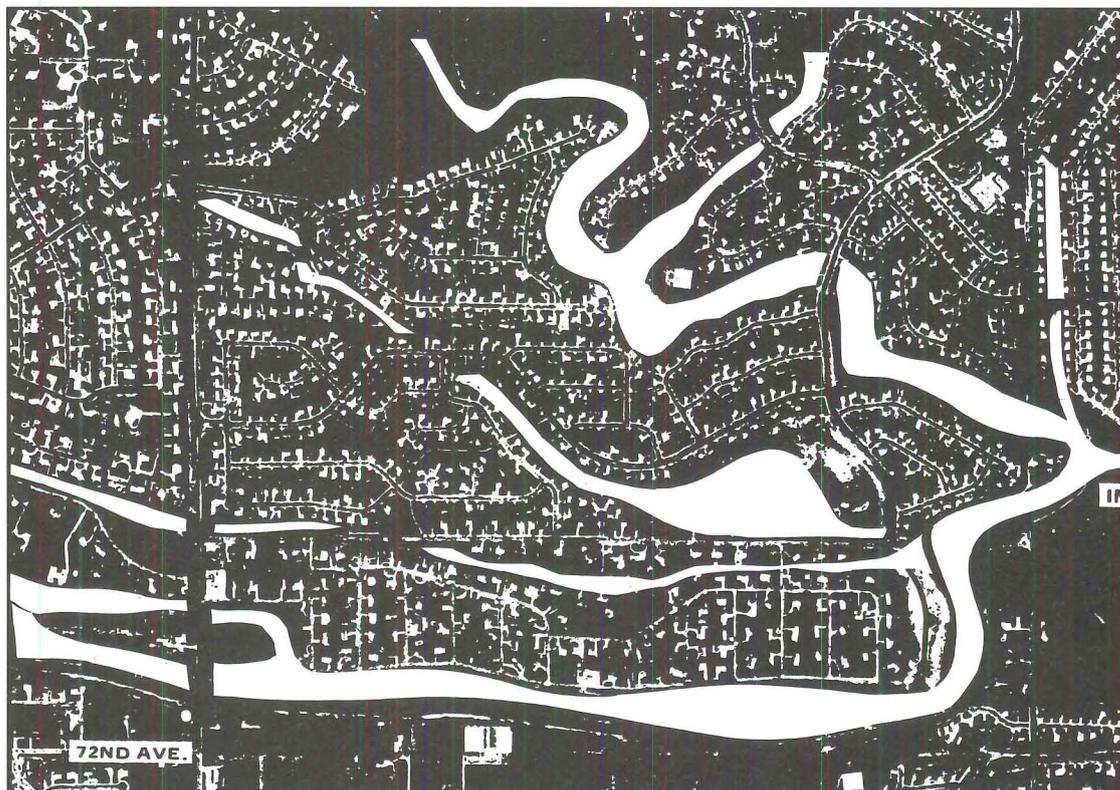
Landscape architect: *Wenk Associates, Denver (Bill Wenk, Billy Gregg, and Kevin Dunnett).*

Jury Discussion

With their inclination toward projects that celebrate, rehabilitate, or reuse infrastructure, the jury thought this entry provided an appealing connection between utilitarian systems and the public. Robert Yaro pointed out that storm water infrastructure is generally buried underground and that this proposal uses infrastructure to create “better places and a better environment.” Susana Torre added that “it’s a very powerful idea because it makes visible the connection of the city to the natural region.”



STORM WATER SYSTEM, INTERSECTION OF WATER GARDEN, SEDIMENT BASIN, AND RUNNEL



GREEN NETWORK

Greenhouses that Grow Clean Water

Sally Siddiqi and Gilles Chabannes

Project: Small-scale, solar-powered waste treatment facilities.

Site: Infill locations such as empty sites or rooftops in cities.

Program: To develop an environmentally sound alternative to centralized sewage purification systems.

Solution: Centralized sewage facilities, argue the designers, are costly to operate, emit noxious fumes, tend to be visually obtrusive, and use chemicals that pollute, rather than purify, water. Their proposal calls for the Solar Aquatics System, a duplication of natural purification processes, to be used in greenhouse infill structures or on rooftops, and plugged into existing infrastructure. The system moves sewage by gravity through a series of tanks, lagoons, and marshes where plants and animals break it down. The facility, which must provide 75 square feet per person, is viewed as a community-run entity, constructed and maintained by its members.

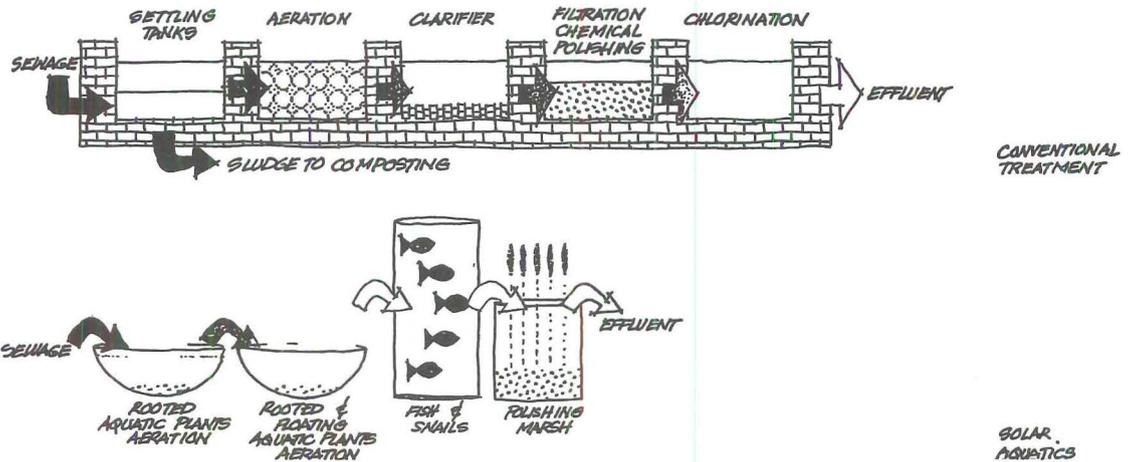
Landscape Architect: Sally Siddiqi of Sally Siddiqi and Company, New York.
Architect: Gilles Chabannes, of Eisele & Chabannes Architects, New York.
Consultant: Ecological Engineering Associates, systems engineer.

Jury Discussion

Robert Yaro liked the proposal because it allowed the treatment process to be completed in smaller and "much friendlier kinds of manifestations." But Harvey Gantt questioned whether such facilities should be in residential areas: "Believe me, you're going to have a problem putting these anywhere." Yaro knew of a facility being constructed in a residential area of a Western Massachusetts village, where it is viewed as a "positive thing." [Susana Torre abstained from voting or discussing the project because she knew the entrant.]



SOLAR AQUATICS-POWERED GREENHOUSE INFILL BUILDING PROPOSED FOR AN URBAN NEIGHBORHOOD



PROCESS DIAGRAMS OF CONVENTIONAL (TOP) AND SOLAR AQUATICS (BOTTOM) SEWAGE TREATMENT

Mississippi River Bridge Corridor



Michael Stanton, Scott Wall

Project: Mississippi River Bridge Corridor, New Orleans.

Site: A two-mile-long breach in the city, where lie abandoned railyards and factories, and substructures of the Greater New Orleans Bridge.

Program: To reclaim the wasteland and reintegrate it into the city.

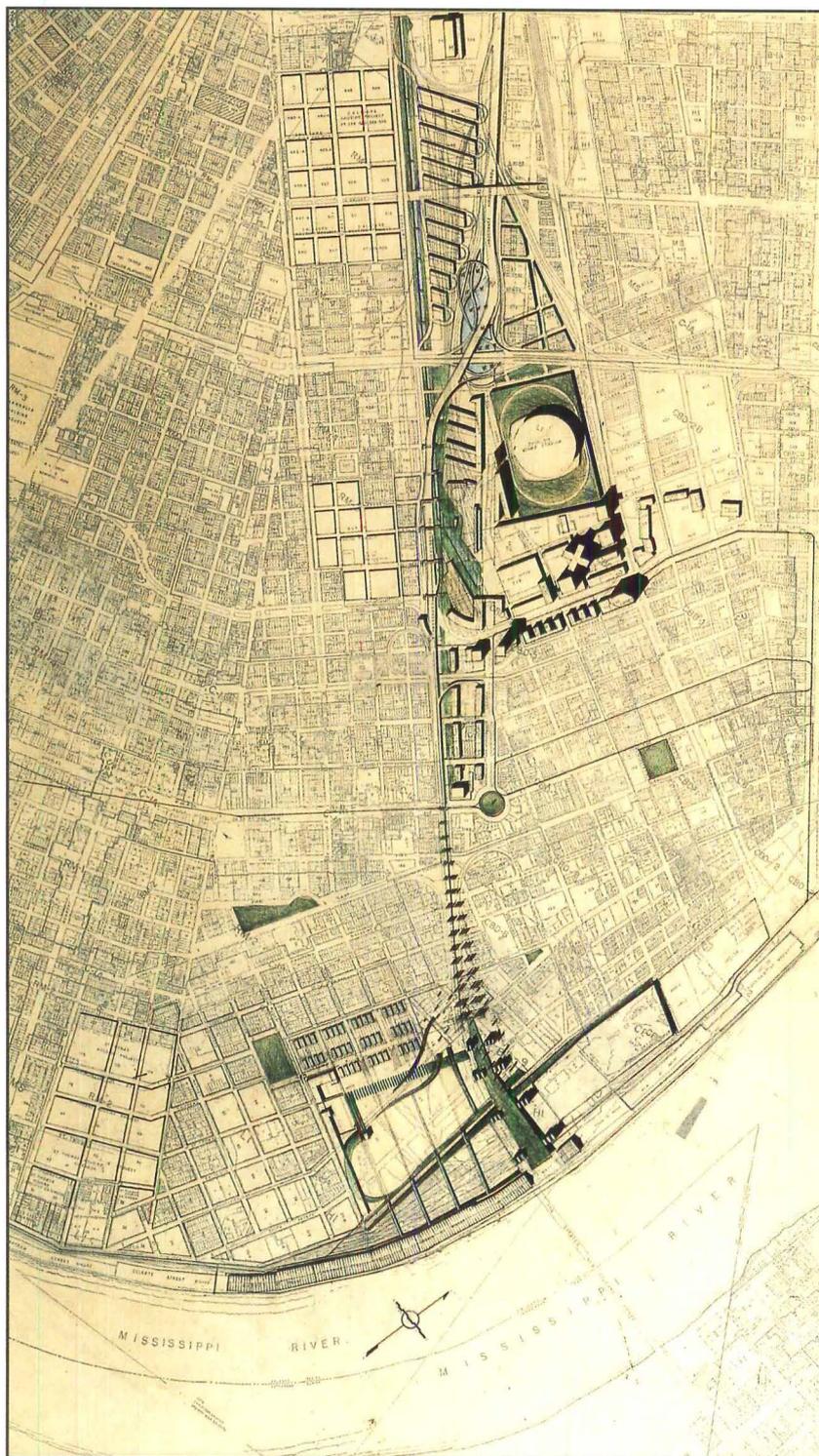
Solution: With the intention of “re-stitching” the urban fabric, the street grid is brought back to link areas that are now divided; where streets cannot cross, the architects propose pedestrian bridges. A linear park planned along the blighted underside of the freeway provides continuity, and is part of a series of recreational facilities including a boating basin, a new canal, and an elevated swimming pool. Specific stretches of the breach are proposed for a variety of new uses including housing, medium-rise strip office buildings wrapped around the bases of existing towers, parking structures with commercial perimeters, a new transportation hub on the site of the derelict railyards, a medical conference area, and a light industrial zone that would provide training and employment for residents of nearby housing projects.

Architects: Michael Stanton, Scott Wall, the Architectural Coalition, Tulane University School of Architecture, New Orleans (Rose Bartush, Chris Cooper, Ginger Desmond, Michael Dougherty, Chris Martin, Shea Murdock, Robert Riccardi, Linna Richardson, Michelle Rinehart, B.J. Siegel, Mark Townsend, project team).

Clients: New Orleans Union Pacific Terminal (NOUPT); Downtown Development District; Central Area Committee, New Orleans Chamber of Commerce; Mayor’s Office.

Urban Studies Program Coordinator: Grover E. Mouton III, Director of Special Programs, Tulane University School of Architecture.

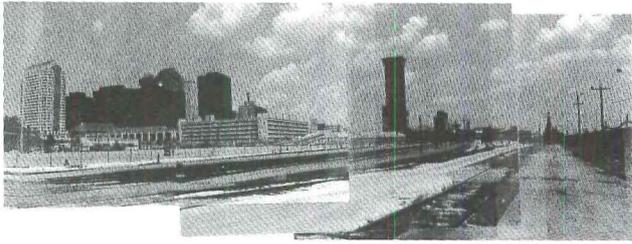
Project Advisors: Robert Becker, Audubon Institute; Robert Tannen.



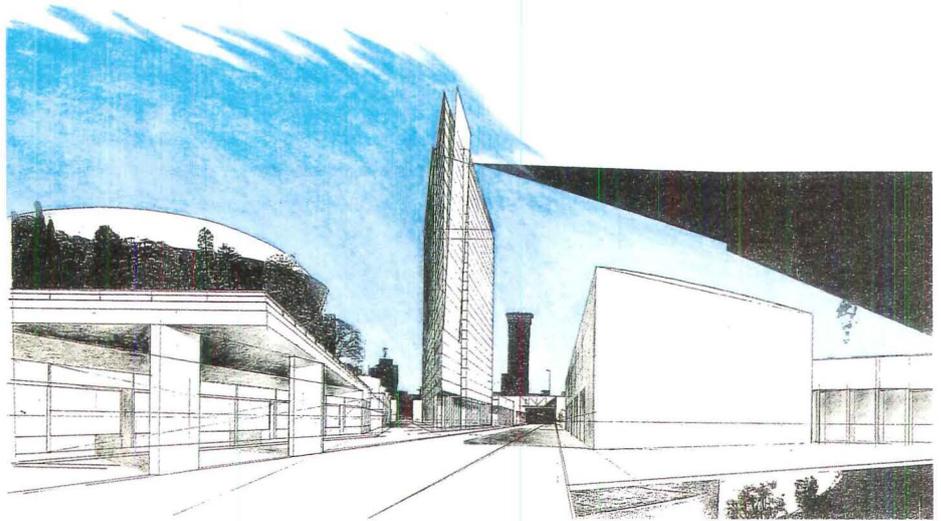
GENERAL SITE PLAN

N 1000/300m





DERELICT RAILYARDS, ABOVE, SITE OF PROPOSED TRANSPORTATION CORE AND CONVENTION HOTEL, RIGHT.



FREEWAY INTERCHANGE, ABOVE, SITE OF PROPOSED BOATING BASIN, RIGHT.



Jury Discussion

The jurors perceived the urban wasteland addressed in this project as representative of the desolate residual areas scarring many American cities, and acknowledged the need to focus on urban reclamation. "It's another one of these bleak places that we've created in our public works projects," said Robert Yaro. "But then the reuse, it seems to me, is also pretty dismal. I'm concerned that what they're replacing [the wasteland] with is nearly as oppressive." David Lee and Harvey Gantt disagreed, focusing on the urbanistic and strategic

merits of the proposal. "Obviously you're not going to get a nice pristine single family house under an expressway," said Gantt. "I thought the designers came up with various kinds of uses that [are feasible]."

Susana Torre observed that the project would need to be "tested in a political reality," with the result that the pressure to accommodate conflicting interests would yield richer urban solutions. Lee suggested the proposal was cognizant of that from the start. "It's about saying, 'Look, here's the bold stroke idea. We're going to reclaim this thing, and we're going to put a lot of mixed uses in,'" he said. "It

deals mostly with adjacent and left-over spaces, and it goes through exactly the process [Susana] talked about, where you negotiate all the way down the line; you have some organizing principles, and you end up with something that's very rich, and which changes from one community to the other."

Despite the reservations about the architectural quality of the proposal, Gantt summed up the jury's overriding recognition of the project's relevance. "It has to be tried," he said. "Because there are too many of these places."

Rust Belt Renewal

David Gosling, Architect/Urban Planner

Project: Rehabilitation of vacant steel mills, Duquesne, Pennsylvania.

Site: the “flats” – defunct steel mills between the Monongahela River and the “hill town” of Duquesne.

Program: Three schemes providing studio workshops, park space, a recycling plant, industrial incubators, housing, and high-tech research centers.

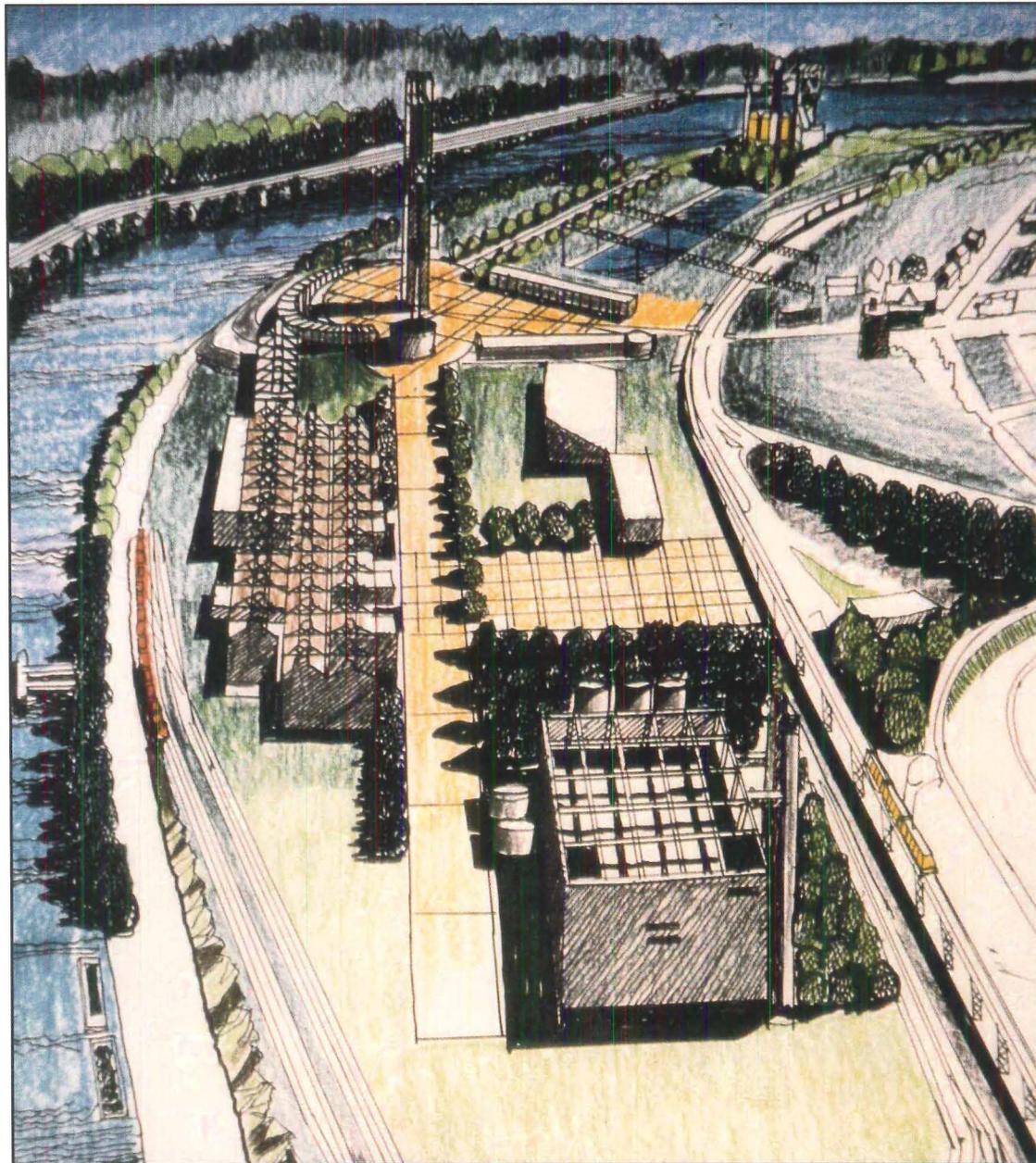
Solution: Proposals to create jobs and link the city (with well designed neighborhoods in reasonable repair) with a vast – and empty – steel plant, and with the Monongahela River.

Architect/Planner: David Gosling, Center for Urban Design, University of Cincinnati, Cincinnati, Ohio (Stephen Proctor, architect; Maria-Cristina Gosling, planner; based on R/UDAT study organized by the AIA, James Franklin, Charles Zucker, David Lewis, 12 American and 6 British members of the R/UDAT team, and 11 Carnegie-Mellon students).

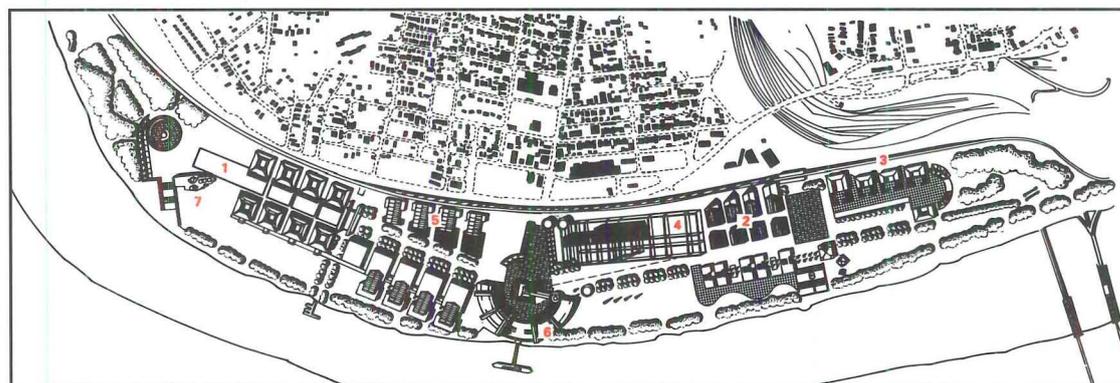
Jury Discussion

This scheme, a public/private collaboration to recycle a lapsed infrastructure, had a two-fold appeal to the jury: Duquesne could develop jobs as well as an alternative to our typical zoned developments. David Lee thought it had “a romantic quality to it”; Harvey Gantt feared that the environmental cleanup of the site might be formidable. Robert Yaro replied that this scheme could “create market forces that would in part allow that to happen.” He added that refitting the structures was only part of the challenge: to succeed, cities like Duquesne might have to develop “a different set of jobs from the ones that were there.”

- 1 LAKE (FORMER ORE STOCK PIT)
- 2 STUDIO WORKSHOPS
- 3 RESEARCH RECOVERY PLANT/ CO-GENERATION POWER PLANT
- 4 INCUBATOR UNITS
- 5 TERTIARY INDUSTRY HIGH TECHNOLOGY UNITS
- 6 MELLON INSTITUTE SCIENCE PARK
- 7 INDUSTRIAL HERITAGE MUSEUM (FORMER BLAST FURNACE)



PERSPECTIVE, INDUSTRIAL INCUBATOR UNITS IN FORMER STEEL MILL STRUCTURE (SCHEME 2)



PLAN, SCHEME 2: STEEL MILLS REHABILITATED FOR INDUSTRY & RESEARCH

N 1000'/300m

David Gosling

Stephen Proctor & Maria-Cristina Gosling

The Community Media Center

Raul Rosas

Project: The Community Media Center.

Site: Hypothetically, a location central to the community it serves.

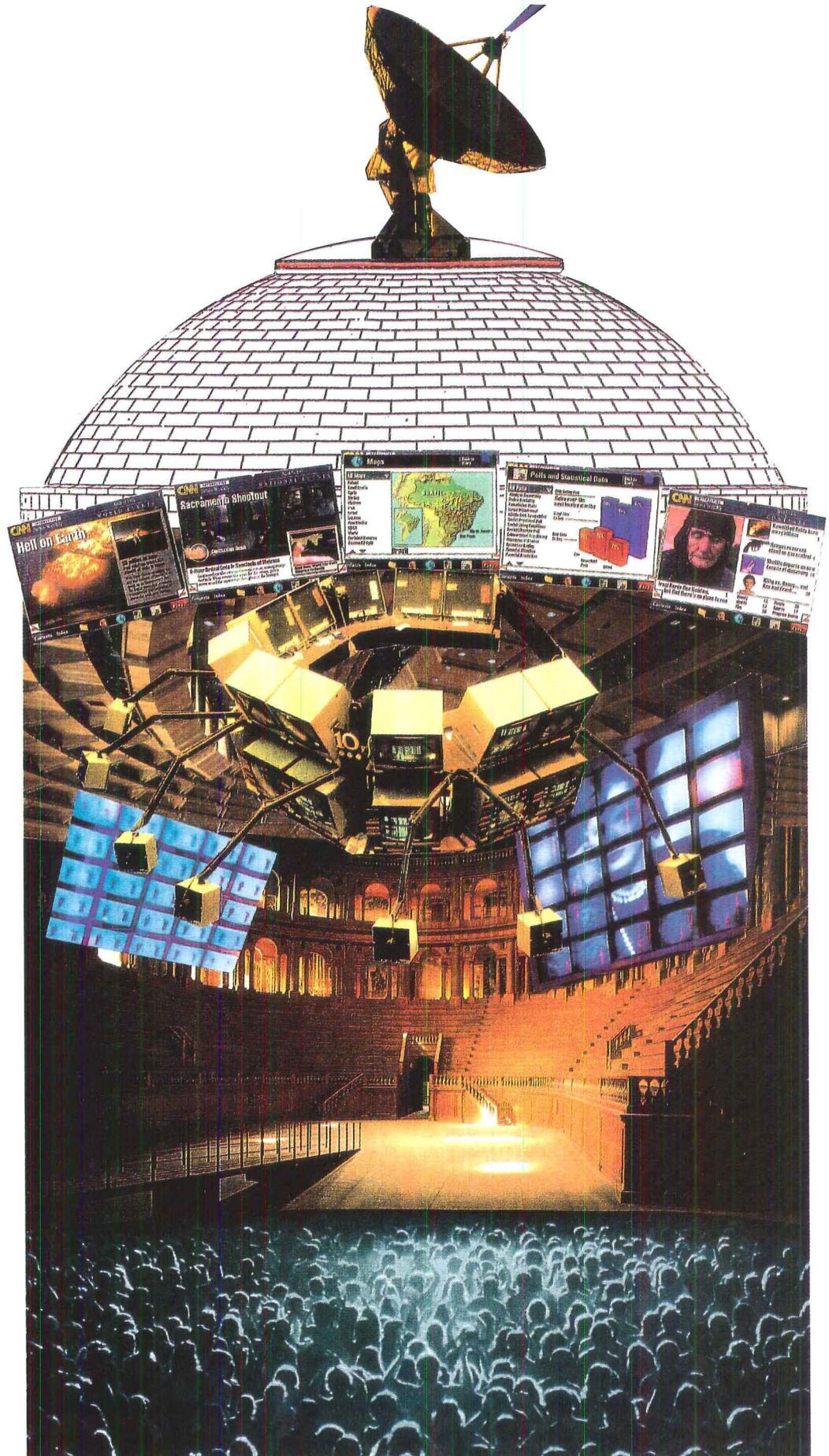
Program: To create an “electronic town hall” for the global village.

Solution: The proposal is based on the premises that though we are living in the information age, consumer technology has contributed to our isolation and passivity – we learn of world events from the safety of our fortresslike homes; our society struggles to find clear statements of common purpose, yet the democratic process is undermined by the lack of interaction. Moreover, the “weaker” parts of society are further disadvantaged by not having the access and skills to use existing communication technology. The proposed community media centers would address these problems by functioning as a forum for public dialogue, a mix of library and town hall that would enable communities to research any issues, and then debate courses of action.

Architect: Raul Rosas, Architect, New York (Raul Rosas, principal; Christopher Andrews, designer; Keith Mascheroni, graphic designer; Andrew Kamins, research).

Jury Discussion

In evaluating this proposal the jurors accepted its premises but had difficulty understanding the architectural implications. “What he’s putting forward makes some sense, but I cannot picture this from a physical or spatial standpoint,” said Harvey Gantt. Susana Torre viewed the abstractness as an advantage. “The whole thing falls apart if you see it as something that we’re doing now,” she said. “My interest in this is that it’s not a material, physical place, and that all it speaks about is the need to develop interactive conditions so that [the political process] does not become Big Brother.”



Ross Lord Reservoir Park

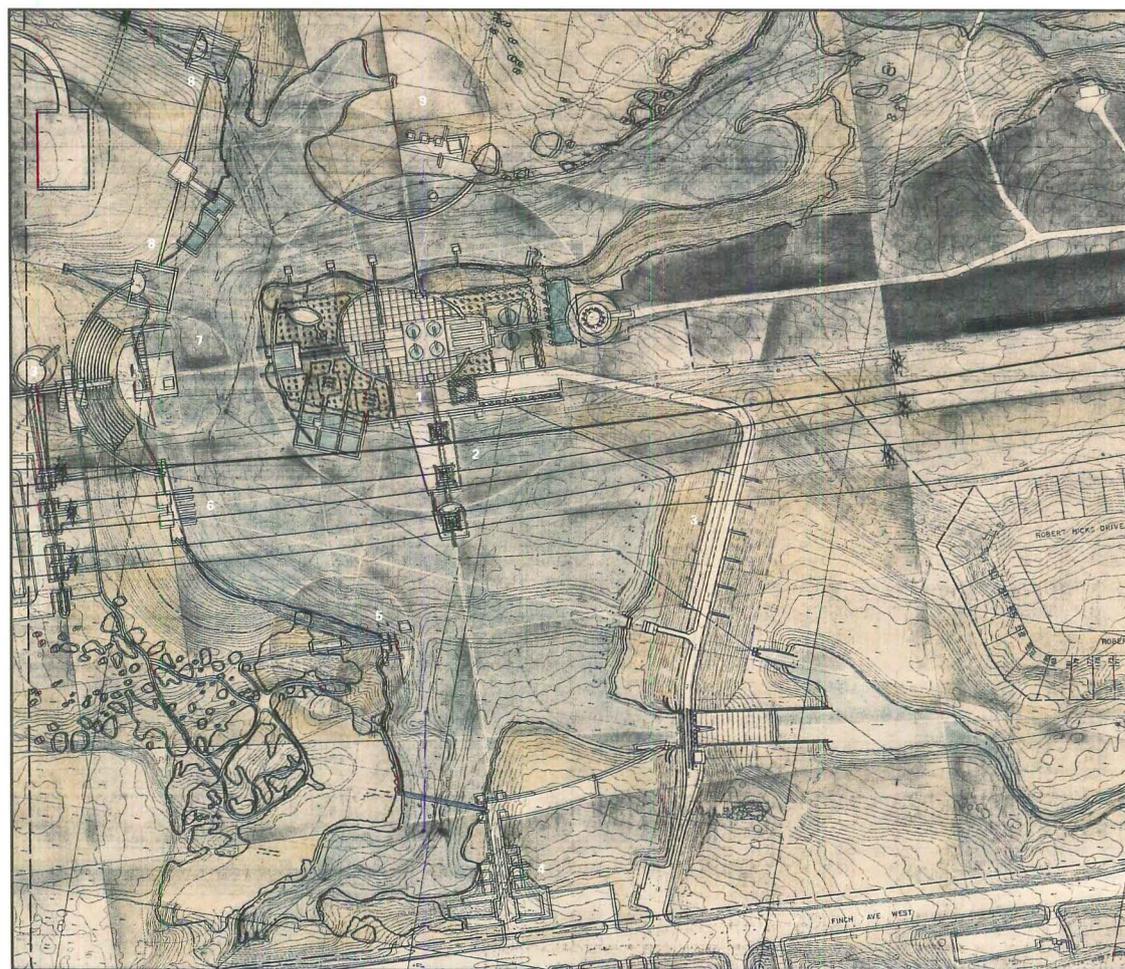
Tim Lee

Project: Ross Lord Reservoir Park, North York, Ontario, Canada.
Site: A park on a storm water runoff artery flowing from Metropolitan Toronto to Lake Ontario. Electric towers and a flood control reservoir occupy the southern part of the park, with sports fields to the north.
Program: Places for boating, swimming, and other forms of recreation, designed to correspond with the reservoir's geography.
Solution: Public works infrastructure will become a park: a bypassed site will be designed as a civic space, a landscape that enriches Torontonians' understanding of their city. Now a flood control reservoir on the edge of Toronto, the site is envisioned as a complement to central Toronto's primary park. At present, Ross Reservoir features a dam, utility towers, and a sports field. Under a phased plan, a water treatment plant (to make the reservoir swimmable) will be installed on a landscaped peninsula; a swimming area, piers, a shopping plaza, a boat dock, an amphitheater, and a marsh plant water treatment garden will follow.

Designer: *Tim Lee, Dunlop Farrow Architects, Toronto (thesis project, University of Waterloo School of Architecture; Andrew Levitt, thesis adviser).*
Consultants: *Maria Kelleher, environmental engineering.*
Model Assistant: *Peter Muir.*
Drawing Photographer: *Fototechnik.*

Jury Discussion

The scheme suggests that a sense of place can be created from urban infrastructure. Yaro noted that it reclaims "one of these godforsaken places that our cities are filled with." Gantt considered the overlay of recreation on a water reclamation plant a counterpart to some of Frederick Law Olmsted's parks.



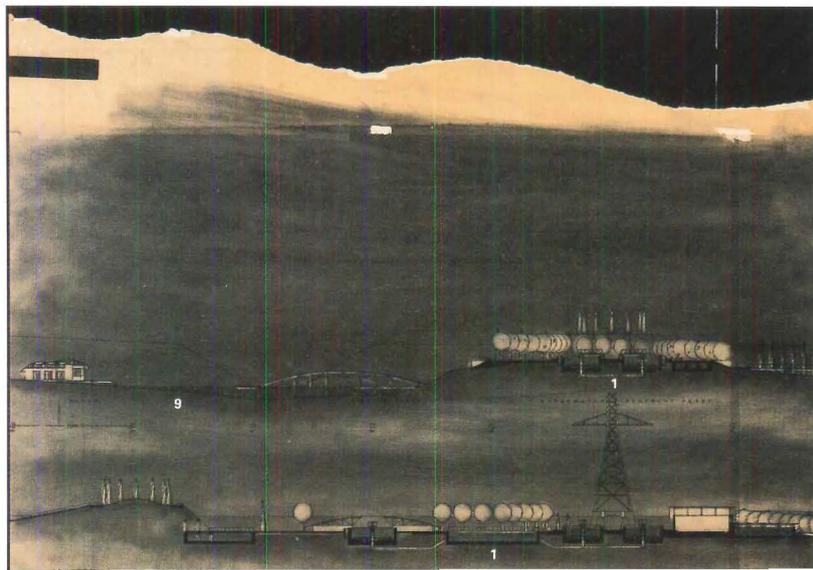
RESERVOIR PARK, PLAN WITH PHASED DEVELOPMENTS

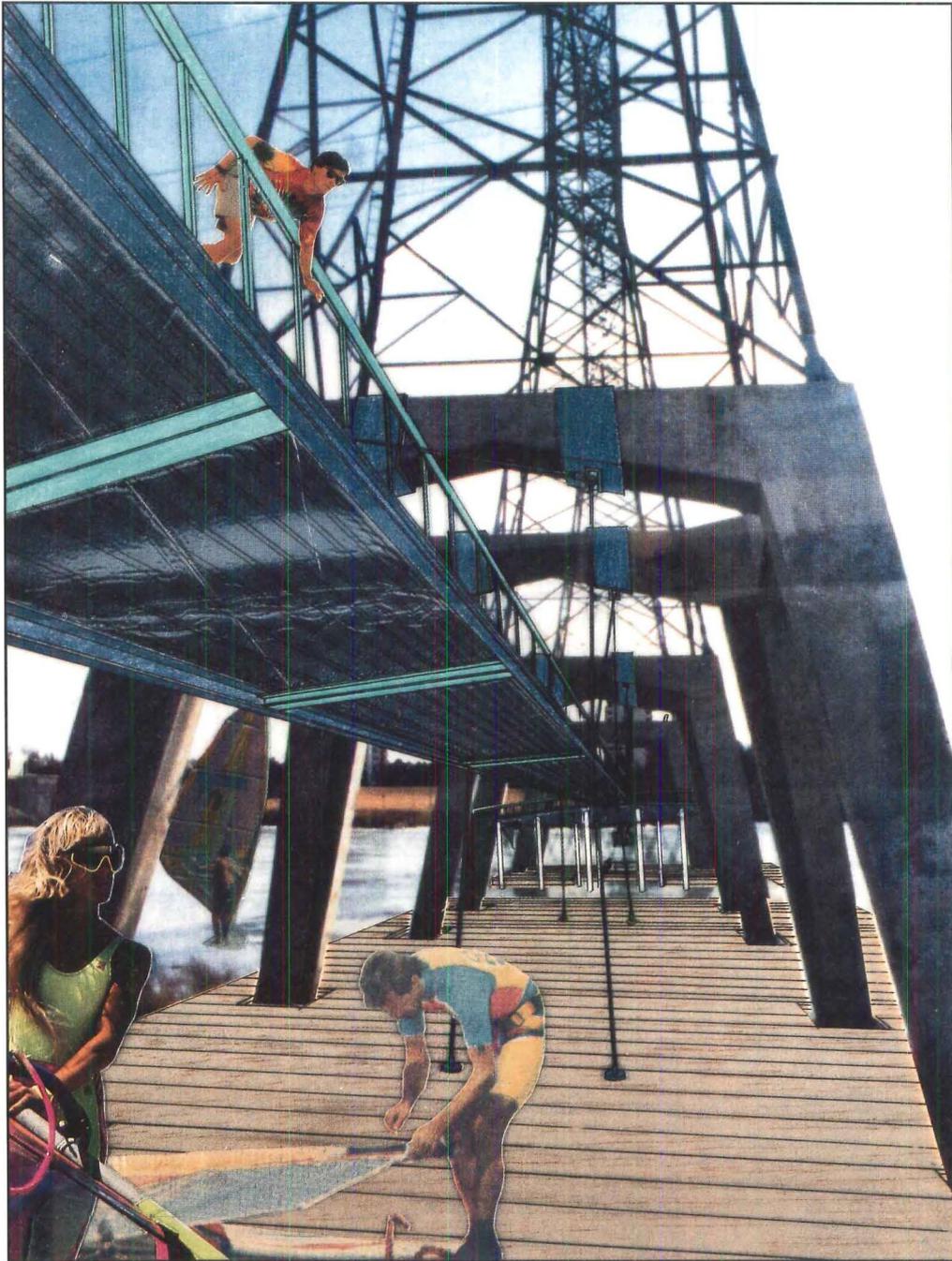
N ↑ 300/100m

- 1 WATER TREATMENT PLANT/PENINSULA GARDEN
- 2 PIER ENGAGING HYDRO TOWERS
- 3 BELVEDERES AT PARKING LOT/BUS STOP
- 4 SHOPPING PLAZA ON PIERS
- 5 WATER SLIDE
- 6 BOAT DOCK
- 7 AMPHITHEATER
- 8 MARSH PLANT WATER TREATMENT GARDEN
- 9 SELF-TREATED, CONTAINED SWIMMING AREA WITHIN RESERVOIR

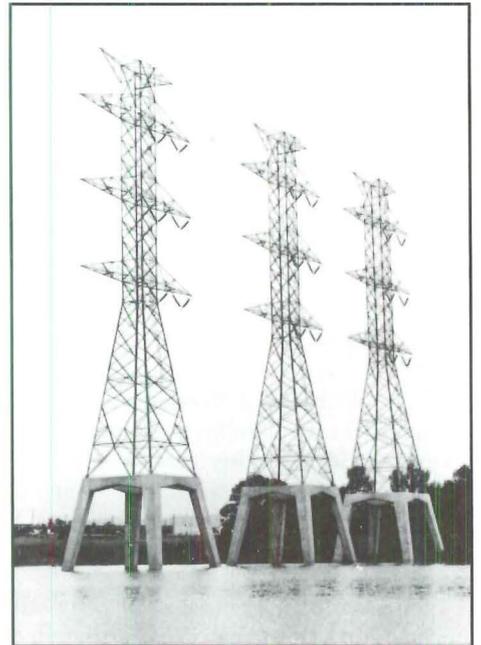
NORTH-SOUTH SECTION (RIGHT, UPPER DRAWING):
 EAST-WEST SECTION (LOWER DRAWING) 100/30m

.....
 The multiple dividends appealed to Yaro, who observed that "we can't afford to throw money on single purpose activities; we've got to be looking for multiple benefits."

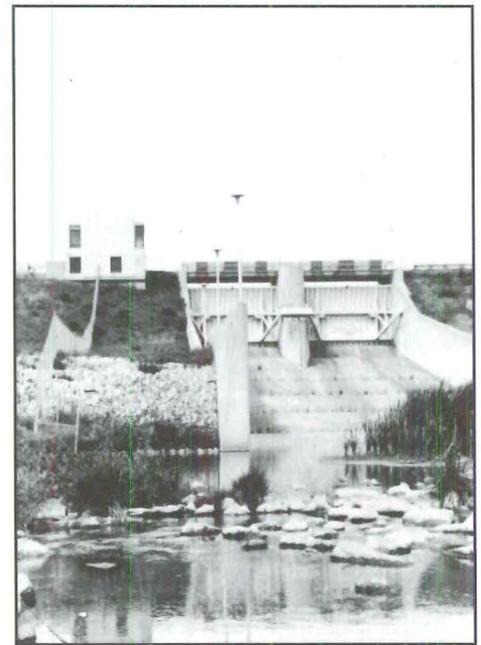




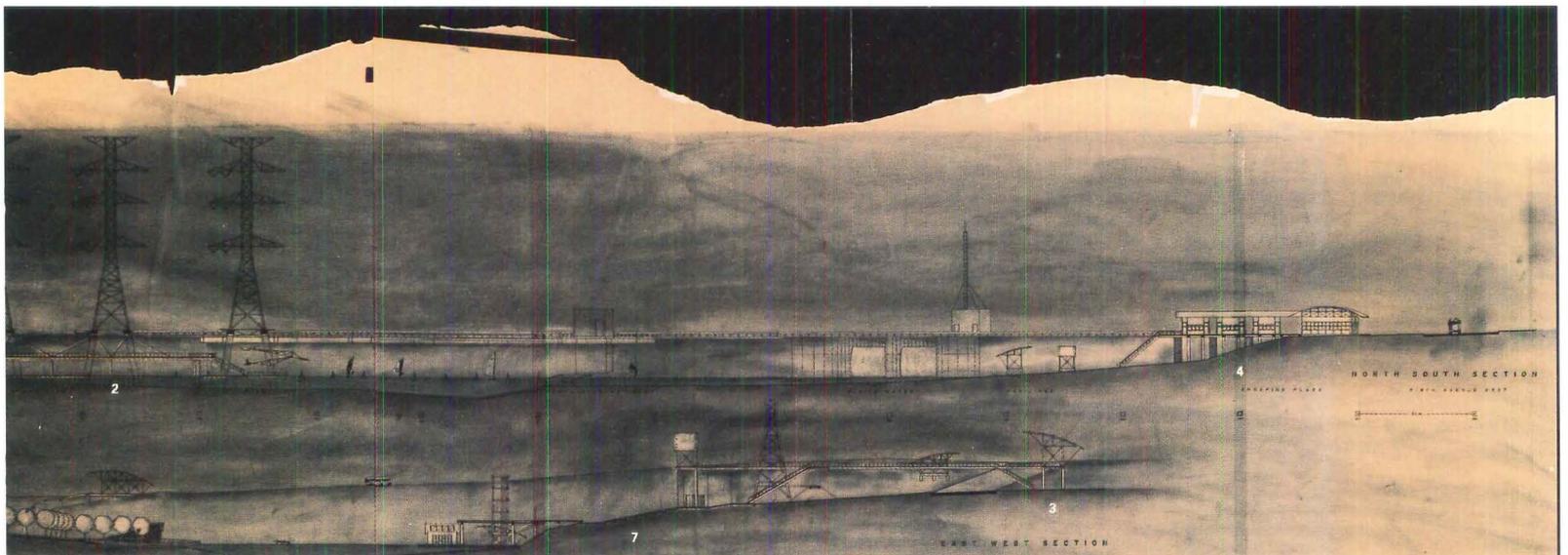
COLLAGE, PIER BENEATH HYDRO TOWERS



HYDRO TOWERS AT PRESENT



FLOOD CONTROL DAM AT PRESENT



The Rookery Unveiled

A new restoration by McClier highlights the rich history of John Root's masterpiece.

It would be hard to overestimate Chicagoans' affection for The Rookery. Well before it officially reopened in May this year, a steady stream of people began to pass through daily to see its restoration.

"Is that real gold lamé?"

"You bet it is."

So goes one exchange between an out-of-towner and a proud native, admiring, in their own ways, the reapplied gold leaf highlighting portions of the skylight's iron tracery in the light court.

The Rookery is easy to admire. Its stalwart character ensured its survival on LaSalle, a street given to ever larger buildings. Completed in 1888 during the fertile period following the Chicago Fire, the building is a combination of invention and expediency that characterizes the best buildings of the period. Indeed, the Rookery has become famous as a kind of architectural palimpsest in which the past and future can be read. It represents a turning point for the tall building, incorporating innovations like skeleton framing, the elevator, and fire-proofing with the load-bearing structural technology of its day.

John Root, the design architect, and his partner Daniel Burnham, got the commission in 1885. The Rookery inherited the site and the nickname of Chicago's temporary post-Fire city hall, which was plagued by nesting pigeons.

The building's great size posed structural and planning problems that Root solved with a mix of existing technology and invention. The outer walls are largely load-bearing. In the light well, though, Root used a skeleton frame – advanced for its time – that permitted him to open the walls to natural light, making offices on the interior as appealing as those on the exterior. The plan was born of necessity: as structural technology was advancing more rapidly than lighting, the ability to erect large buildings outstripped the ability to illuminate them. The light well solved the problem by bringing daylight into the center of the building.

.....
On the building's exterior (1), the tight brickwork required only modest tuckpointing. The parapet, which was in danger of collapse, was rebuilt in 1984. Wright's re-created lobby is visible through the LaSalle entry (2) and its re-opened half-round window. In the light court, Wright removed armatures supporting the stair (3), adding two straps that suspend it from the ceiling and spoil the stair's original gravity-defying quality.



1, 2

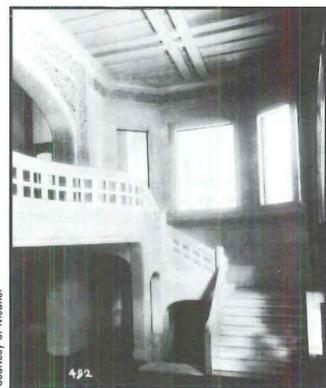




Remembering Burnham and (Especially) Root

When the Rookery was completed, Burnham & Root were among the first to move in, taking an 11th-floor office with splendid southeast views. Their library – which reportedly contained a complete set of Piranesi drawings – is being restored by McClier and will become a conference room for an incoming tenant. On designated days it will be opened to the public.

John Root's and Daniel Burnham's partnership was founded on complementary abilities. Burnham brought his sophisticated managerial skills and Root supplied design and engineering talents. The floor plan tells the story: Burnham's private office contained a desk, but no drafting table, and was directly across from the waiting room where clients arrived. Root's office opened onto his studio and was connected to the engineer's office and, beyond, to the drafting room.



Original Burnham & Root Rookery lobby.

Their practice flourished in the 1880s and 1890s, when they produced more than two dozen buildings in downtown Chicago. Only two still stand, the Rookery and the Monadnock.

John Root died suddenly at 41 in 1891, when his firm was at work on preliminary plans for the 1893 Chicago fair, which did much to further Burnham's career. Some have speculated sadly on what Root might have done given more time. His adventurous work was the product of a profound understanding of engineering and design and was a vigorous response to extraordinary times. Further refinements born of increased maturity could have followed.

But Root treated the Rookery's light well as more than a functional device. The shaft of the well was trimmed with gold leaf and clad in white terra cotta that reflected and compounded the strength of sunlight. Says restoration architect T. Gunny Harboe, "The brilliance of the building is its combination of light and space. It is a modern concept to use light to define space but it is rooted in the Victorian time."

Root's light court did not survive long. The Rookery has always been vulnerable to the pressures of modernization to attract new tenants. Frank Lloyd Wright was the first to renovate, in 1905. In the light court, Wright encased Root's iron columns with white marble, incised with a pattern in gold leaf based on a Root design. Wright replaced much of the ornate ironwork with a simpler pattern, also of Root's design. In the two lobbies, Wright retained Root's volumes but eliminated his curving surfaces in favor of simpler horizontal planes. The intervention, though not modest, was respectful.

Others followed Wright with a dispiriting decline in sensitivity. Around 1930, William Drummond – an architect who had once worked with Wright – did real damage, spoiling the entry sequence and the penetration of light into the interior. To create more office space, he tore out two marble staircases that led from the principal lobby on LaSalle Street to the second story, and floored over the opening. Later, perhaps in the 1940s, Root's skylight was painted and tarred over.

Detailed plans for a restoration by Hasbrouck Hunderman Architects were scotched in 1986 when Continental Bank, the building's owner, abandoned the project for financial reasons. The restoration was not revived until the building was purchased in 1988 by a "smitten" commodities futures trader, Tom Baldwin. He has paid dearly for his affection: together the building and restoration has cost more than \$90 million.

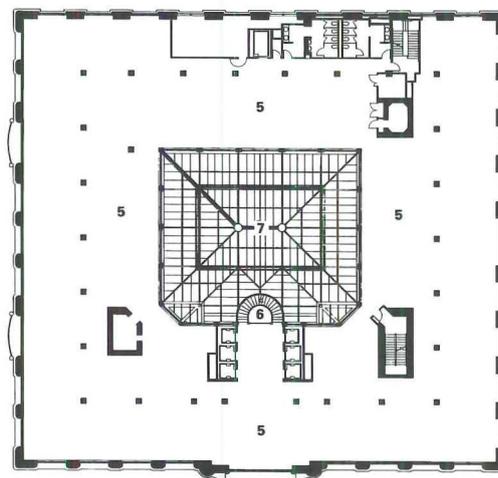
Baldwin hired McClier, a young firm better known for its design-build work than for historical work, as restoration architect. The project was led by Harboe, who built on Hasbrouck Hunderman's work and, with a supportive client, was able to substantially expand the scope and depth of the restoration plan. One notable addition was the re-creation of Root's mosaic floor.

Too much had been lost to contemplate restoration to the original Root plan, so it became an amalgamation, incorporating Root, Wright, and a little Drummond in the principal public areas. For lack of earlier evidence, the elevator lobby was brought back to Drummond's time, while the two lobbies and the light court were restored to the time of Wright's renovation.

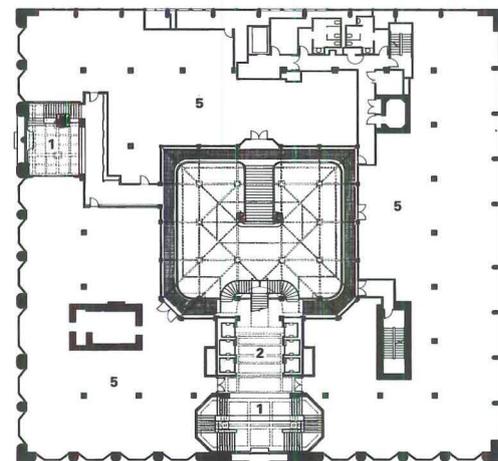
The light court at the heart of the Rookery has been meticulously restored. The re-creation of Root's floor is enriching, even though fragments testify to the original floor's greater beauty, its richer color, and the superior artistry of the hand-set stones over the partially automated process used now. The skylight was repaired, and a trans-

The Rookery revolves around the light court (6), capped at the second story by Root's skylight. The light fixtures are Wright's, as is the gold-incised marble. William Drummond's Art Deco elevator lobbies (5) stand between the light court and Wright's LaSalle Street lobby (4).

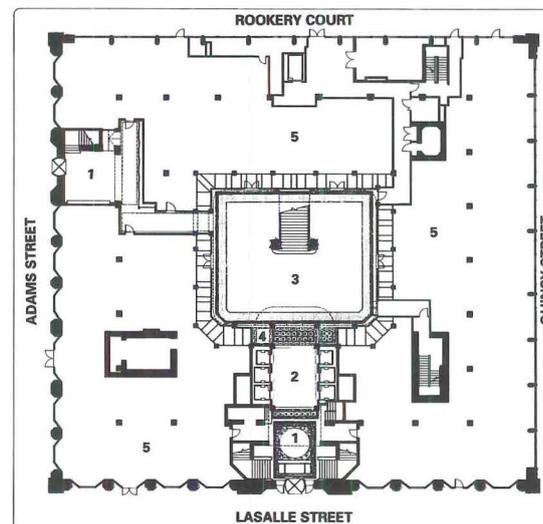
- 1 LOBBY
- 2 ELEVATOR LOBBY
- 3 LIGHT COURT
- 4 INTERPRETIVE CORNER
- 5 TENANT SPACE
- 6 ORIEL STAIR
- 7 ORIGINAL SKYLIGHT



TYPICAL FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN



4



5



6

Project: *The Rookery, Chicago.*
Original architects: *Burnham & Root; subsequent remodelings by Frank Lloyd Wright and William Drummond.*

Restoration architects: *McClier, Chicago (Grant G. McCullagh, principal in charge; W. Thomas Dobbins, Jr., project manager; T. Gunny Harboe, project architect).*

Client: *Baldwin Development Co.*

Site: *1/4 city block at Adams and LaSalle Streets in the heart of Chicago's financial district.*

Program: *restoration and rehabilitation of 104-year-old, 282,000-sq-ft office and retail building.*

Structural system: *"rail grillage" spread footings, cast iron columns, wrought iron beams, flat tile arch floors and some masonry bearing walls.*

Major materials: *granite, cast iron and aluminum storefronts, pressed brick, unglazed terra cotta, original wood windows retrofitted with insulating glass, cast iron skylight, carrara marble, marble mosaic floor (see *Building Materials*, p. 133).*

Mechanical system: *roof-mounted cooling tower with water-cooled package air-conditioning units and electrically heated fan boxes for perimeter heat.*

Consultants: *Tylk, Gustafson & Associates (Kevin Wilson, project manager), structural; Environmental Systems Design (Dan Murphy, project manager), mechanical; Hasbrouck/Peterson/Zimoch/Siriattumrong, conservation consultants; Donald Bliss, lighting; Edgett, Williams Consulting Group, elevators.*

General contractor: *Peck/Jones Construction.*

Costs: *\$25,000,000.*

Photos: *Nick Merrick, Hedrich-Blessing.*

lucent glass similar to that used by Root was found to replace the glass that had been coated with paint and tar. On the justly famous oriel stairs, paint was removed to reveal the copper-plated cast iron beneath. The original storefronts that circle the court were restored where possible, and the remainder were rebuilt.

The most obvious intervention in the restoration is the new skylight crowning the light well, added for energy conservation and to protect both the terra cotta in the light well and the restored skylight below. While its necessity blunts criticism, it is an obtrusive presence plainly visible from the office floors. And the experience of looking into the light well will never be what it was, especially on a rainy or snowy day. But those who know how Root's now-protected skylight always leaked may say that is all for the better.

Less defensible is the loss of an ornamental stair by Root. To create more uninterrupted office area, an elevator and stair were torn out of the building on the Adams Street side. The economic argument was compelling enough to win approval – before McClier came on the job – by landmarks organizations overseeing the building. Grilles copied from Wright's originals are to be mounted in the Adams lobby to simulate the elevators. The stairs have been dismantled and are in storage.

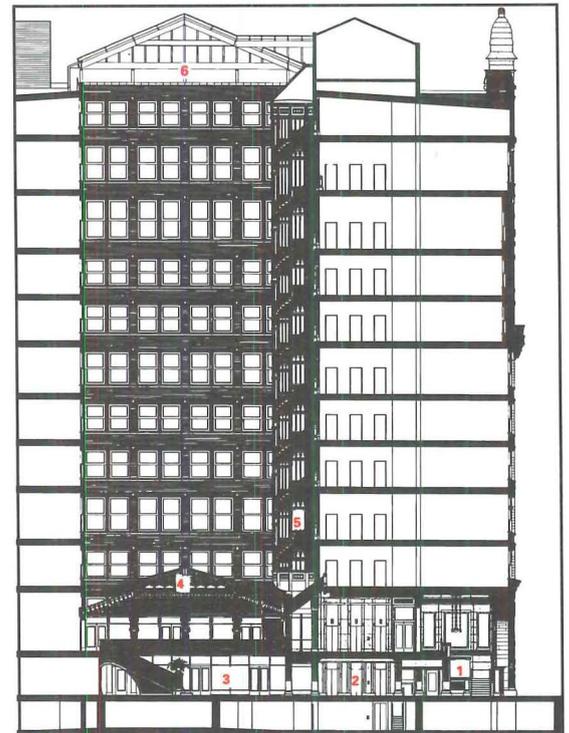
McClier's work respects the Rookery's long and useful life with the transformations that time, fashion, various architects and owners have imposed on it. The layers are there to be read in a corner of the light court, where a portion of Root's mosaic floor survived and has been preserved. The vitality of the Rookery comes through in this "interpretive corner." Certainly, had it been possible, restoration to the Root original would have been preferable, as little of John Root's work is extant. But there is significance in Wright's renovation, and the historic value of this restoration is as plain as the quality of its execution.

The Rookery has always been an active building, empty only while it awaited restoration. But now it is as few Chicagoans have ever seen it. Light floods the court. People moving through the complex combination of lobbies and stairs leading to the court create the vitality of an urban street. The real restoration of the Rookery is here, in its reanimation. It depends on the passage of people through it and the play of light over its surfaces. Baldwin understands this and sounds the right note, echoing the turn-of-the-century spirit that created this building. He has the impatience of the entrepreneur and the appreciation of the connoisseur when he says, "I love this building. But it will be incomplete until it is 100 percent leased – an active building with people using it as a place of business – the way it used to be. I don't want it to be just an architectural gem. When it's a business again it will be finished." **Cheryl Kent**

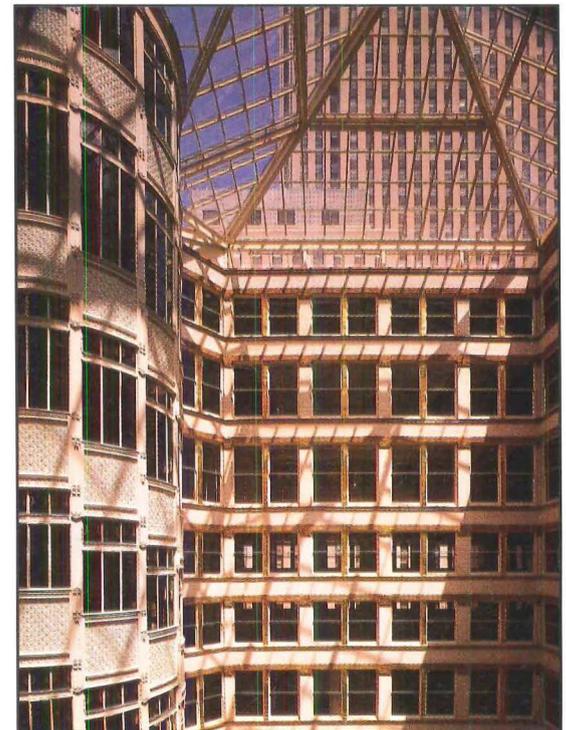
The author is P/A's Chicago correspondent.

The oriel stair (8) rises from the third level and protrudes into the light well. Root was drawn to exotic Moorish details popular at the turn of the century, and employed them on the stairwell windows and the building exterior. A new skylight (7), designed to emulate the hipped form of Root's, protects the light well.

- | | |
|------------------------|---------------------|
| 1 LASALLE STREET LOBBY | 4 ORIGINAL SKYLIGHT |
| 2 ELEVATOR LOBBY | 5 ORIEL STAIR |
| 3 LIGHT COURT | 6 NEW SKYLIGHT |



SECTION LOOKING SOUTH





Emerging Talent

Kuwabara Payne McKenna Blumberg



1

This young firm, successors to Barton Myers's

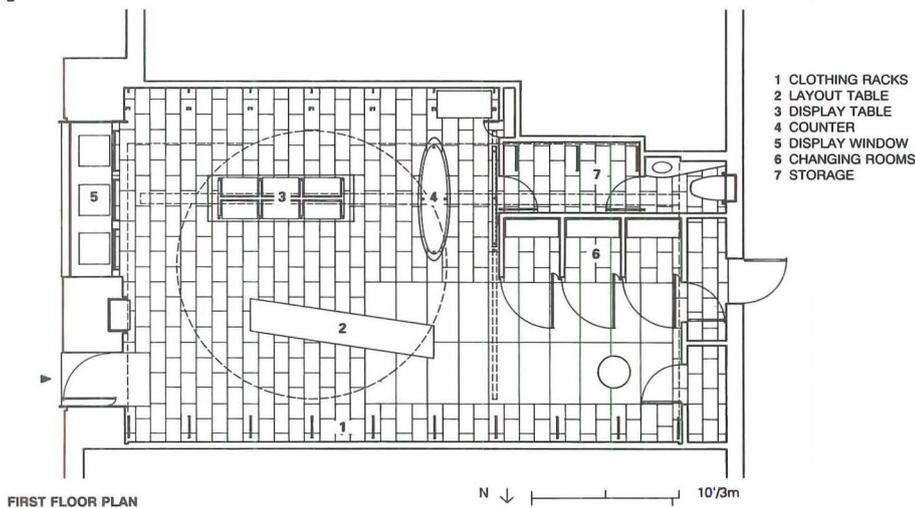
Toronto office, have developed their own hybrid form
of architecture and practice.

Jane Jacobs, in her book *Cities and the Wealth of Nations*, argues that a city's economic health depends upon its ability to replace imports with locally produced goods and services, eventually exporting these to other, less vital regions. That argument seems apt when considering the architectural scene in Toronto, where Jacobs herself now lives. That city was once fairly stagnant architecturally, and most of the best work was done by imported talent, such as Viljo Revell and Mies van der Rohe, or by immigrants to Canada who set up practice there, such as Barton Myers and A. J. Diamond. But Toronto's architectural scene has changed. Some of the best work is now being done by Canadians raised in or near the city (see P/A, May, 1992, p. 148), and they are developing an architecture that can compete with almost anything produced in Canada or the U.S.

Perhaps the best example of this architectural import-replacement is the firm of Kuwabara Payne McKenna Blumberg (KPMB). Its four partners – Bruce Kuwabara, Thomas Payne, Marianne McKenna, and Shirley Blumberg – are all Canadians and all former associates of Barton Myers. Myers, a native of the U.S., came to Toronto in 1967 and ran, first with his partner A. J. Diamond and



2



FIRST FLOOR PLAN

- 1 CLOTHING RACKS
- 2 LAYOUT TABLE
- 3 DISPLAY TABLE
- 4 COUNTER
- 5 DISPLAY WINDOW
- 6 CHANGING ROOMS
- 7 STORAGE

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KPMB gained widespread recognition for their competition-winning design for the Kitchener, Ontario, city hall (1), which is now being built essentially as designed. It shows the firm's ability to make its own hybrid out of disparate sources, recalling, for example, Stirling & Wilford's Stuttgart Museum and Ivan Chernikhov's 1920s design for the State Hygiene Institute. Early in KPMB's practice, the firm completed several small Toronto shop interiors under the direction of Bruce Kuwabara, of which Nicholas (2) is one of the best examples. Desks and display cabinets set up a dynamic movement within the shop that is visually controlled by a circular wood-paneled ceiling plane. This tension between activity and restraint, found in many KPMB projects, is also evident in the materials used in this shop: the pattern of the casegoods' lacewood and beechwood veneers is visually countered by the pervasive use of monochromatic stainless steel and glass.

Project: *Nicholas, Toronto.*

Architects: *Kuwabara Payne McKenna Blumberg (Bruce Kuwabara, partner-in-charge; Thomas Payne, Todd Macyk, project team).*

Consultants: *M.S.Yolles & Partners, structural; Merber Corporation, mechanical, electrical; Lawrence Finn & Associates, graphic design.*

Photo: *Steven Evans.*

then by himself, the best design-oriented architectural firm in the city. In 1986, however, after he won the competition to design a new civic center in Phoenix, Myers decided to move to Los Angeles.

In any event, Myers's associates and staff decided not to move with him and, on February 1st, 1987, KPMB opened their own office in Toronto, in the same space Myers had occupied. (The split between Myers and his former associates, however, was not complete, since he has continued to work with them on major Canadian projects, such as the Art Gallery of Ontario and Woodsworth College at the University of Toronto, p. 100.) KPMB has had many of the advantages that successor firms enjoy, such as having major clients in both Canada and the U.S. and an established reputation carry over from the previous office. But that does not explain the success – or the significance – of this firm.

A Hybrid Practice

When a city replaces its imports, claims Jacobs, it improvises, developing local hybrids of goods and services that draw upon the specific resources of the place. This process of hybridization is

evident in the architecture exported from our major cities; one could argue, for example, that Los Angeles has developed its own architectural hybrid (raw materials, colliding form), as has Chicago (precise steelwork, classicizing form), Miami (saturated color, over-scaled form), and Boston (traditional brickwork, contextual form).

This has not been accompanied, however, by a hybridization of architectural practice. The way firms practice in all of these cities is essentially the same. Also, at least in the firms exporting design, there remains a paternalistic structure, identifying the entire office with the work of its principal designer, usually a white male. It is ironic, indeed, that some of the firms who have most staked their reputation on questioning the authority of Modernism and establishing a new avant-garde still practice along these fairly traditional lines.

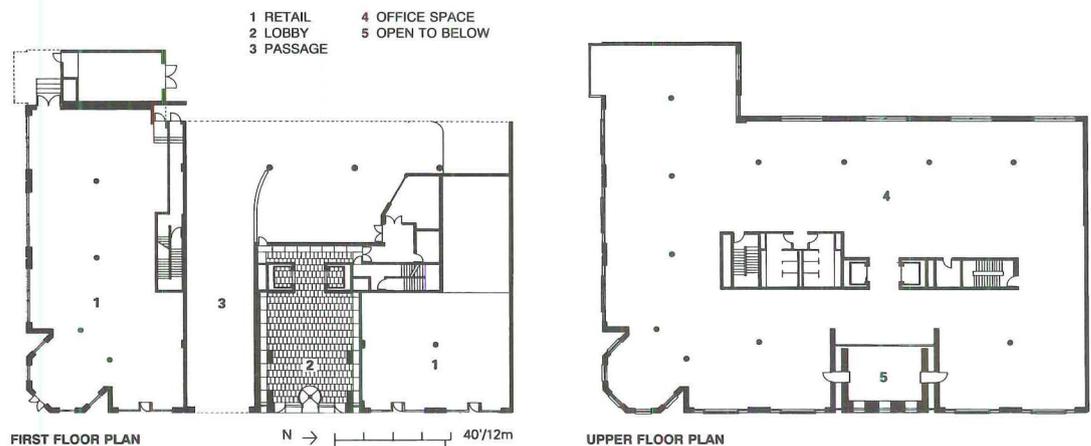
This raises several questions: How much is the development of an architectural hybrid in a particular city fed or inhibited by the work of a local "star" designer who has a national or international practice? How sustainable is the paternalistic structure of many leading design firms at a time when people are challenging such authoritarian models? Does the act of design in a world that is

The Canadian headquarters for Saatchi & Saatchi (3) shows how KPMB's hybrid form-making can accommodate the often conflicting demands of owners and local preservationists. Partner-in-charge Shirley Blumberg was required by the city of Toronto to incorporate in her design the façade of an old building on the site. Rather than try to mimic or suppress this façade, she saw it as an opportunity to mark the entrance to the building and to set up materials and rhythms off which the rest of the building plays. She also makes subtle gestures to adjacent structures: the paired bays refer to an immediately adjacent building, while the corner, limestone-clad octagon refers to the materials of the St. Lawrence Town Hall across the side street. All of this is articulated in a way that picks up the rhythm of the street without being fussy. Inside, the old façade serves as a screen for a three-story lobby that gives access to a central elevator and stair core.

Project: King James Place, Toronto.
Architects: Kuwabara Payne McKenna Blumberg (Shirley Blumberg, partner-in-charge; Michael Taylor, associate-in-charge; Bruce Kuwabara, Byron Carter, Michael Poitras, Josef Neuwirth, Elaine Didyk, project team).
Consultants: Read Jones Christoffersen, structural; Merber Corporation, mechanical; Carinci Burt Rogers, electrical.
Photos: Steven Evans.



3



becoming ever more complex, multicultural, and information-based demand a new, more hybrid practice? How might such a hybrid practice be structured? And, could it generate design that is exportable, as Jane Jacobs might say?

In the context of such questions, KPMB is particularly noteworthy because it has developed a more open, hybrid form of architecture and has taken the much more unusual step of structuring its practice along the same lines. The partnership, for example, is a mix of people of different genders, religious beliefs, ethnic backgrounds, and political inclinations. Also, the four partners handle all aspects of the practice – design, administration, production – and they all work on and contribute to each other's jobs, even though each partner has a distinct design sensibility. And, in contrast to the singular design identity of their former boss, Barton Myers, KPMB's growing design reputation in Canada rests with the group, not with any one partner. Theirs, in other words, is neither the autonomous individualism of the "star" design firm nor the rather autonomous specialization of corporate-type firms, but a more diverse and less structured hybridization of those older models.

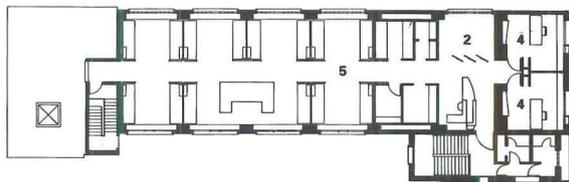
A Hybrid Architecture

The idea behind KPMB's practice is evident in their architecture. Critic Larry Richards puts it well when describing KPMB's competition-winning design for the Kitchener, Ontario, city hall. "Its willful hybridization and ambiguity incorporate something for everyone. Strident Modernism co-exists with traces of Classicism, dreams of social utopias, flirtations with streamlining . . . participat[ing] in what critics and philosophers have called the 'culture of convalescent modernity . . . [where] all the voices and impulses of the modern world meet and mingle promiscuously.'"

KPMB pursues this hybrid architecture, fully aware, says Bruce Kuwabara, that "there has to be a tension in the work to save it from becoming merely a pastiche." This results in a certain austerity or sobriety in most of KPMB's work; the number of materials and range of colors, for example, are typically very limited, as if to keep some control over the architecture's "promiscuous mingling" of influences, ranging from Ivan Leonidov and Louis Kahn to Arata Isozaki and James Stirling. But what really saves this work from being a pastiche of visual quotes is its emphasis on the material

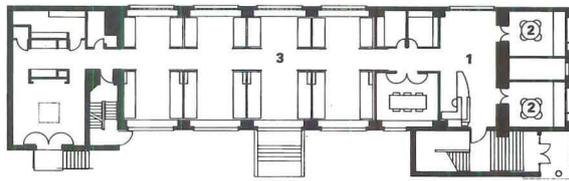


4



- 1 RECEPTION
- 2 MEETING ROOMS
- 3 ADMINISTRATION
- 4 PARTNER'S OFFICES
- 5 DESIGN STUDIO

SECOND FLOOR PLAN



FIRST FLOOR PLAN

N ↑ 40/12m

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A hybrid architecture also works well when a building is being rehabilitated, allowing the old and the new to coexist and, in the case of this loft conversion (4), to comment visually upon each other. Marianne McKenna, as a partner-in-charge for KPMB, transformed a spare brick building by adding two large stucco panels to its façade. The old window openings show through larger voids in the stucco, and new sills and mullions repropportion the fenestration without obscuring the original window shapes. A new stucco wall along the side of the building extends to form an implied volume that then appears cut out to reveal the brick core of the original structure. This idea of layering, allowing the new and the old to remain intact while still modifying each other, is continued in the interior, where new partitions and lighting fixtures pass beneath the original wood truss roof.

Project: *Tudhope Associates, Toronto.*

Architects: *Kuwabara Payne McKenna Blumberg (Marianne McKenna, Bruce Kuwabara, partners-in-charge; Howard Sutcliffe, Luigi LaRocca, Beverly Horii, Neil Morfitt, project team).*

Consultants: *M.S.Yolles & Partners, structural; Merber Corporation, mechanical; Carinci Burt Rogers, electrical.*

Photo: *Steven Evans.*

aspects of architecture and its avoidance of anything even remotely scenographic. Woodsworth College, for example, recalls the work of Louis Kahn, not by using Kahn-like shapes as some sort of "sign," but by using basic materials – brick, wood, concrete – as Kahn did, to articulate the structure from the infill, and the service areas from the served. Before a true hybrid can develop out of the work of others, notes Kuwabara, "You have to understand the ideas behind it and not settle for just a superficial reading of its forms."

Future Hybrids

KPMB and other firms like them point in a direction that I think this profession must take. They show that we cannot question the authoritarian aspects of Modern architecture without also challenging the paternalistic structure of the firms that produced that work. Put another way, we cannot create an architecture for a more multicultural world without leadership in design firms that is more ethnically, racially, and sexually diverse.

As to how this will come about, we might return to Jane Jacobs for a moment. Now that more diverse firms such as KPMB have begun

to export their services to other cities in Canada and the U.S., that puts pressure, according to Jacobs, on the profession in those various places to substitute for that import hybrids of their own. This process of import-replacement can take time and, in economically stagnant cities, it may not happen at all. It suggests, however, that the opening up of the profession to people who have formerly been excluded is inevitable. Some may find this process exciting, others threatening, but, as Jane Jacobs reminds us, it is one of the primary ways economies grow. **Thomas Fisher** ■

Representing the Academical Village



5

Architect Steven Fong discusses the University of Toronto's

Woodsworth College, jointly designed by Barton Myers
and Kuwabara Payne McKenna Blumberg.

The renovation of and addition to Woodsworth College help reconstitute the surrounding campus of the University of Toronto. The college forms a quadrangle, like others on the campus, that encloses a courtyard/garden and that functions as a place of gathering. And its basic planning strategies – extending the surrounding urban typology, using lowrise buildings to make a courtyard, fronting the project on the street, preserving and reusing a historically significant house – are all characteristic of the operative orthodoxy currently promoted by the Big Chill generation.

Although the belief in reconstituting and repairing cities, launched for the most part in the mid-1970s, has spawned a whole industry of guideline-writing urbanists, there have been precious few opportunities here for architects. Ironically, the building programs of university campuses have sponsored the most visible and successful urban architecture. Common to Venturi Scott Brown's brick façades at Princeton and University of Pennsylvania, to Koetter Kim's turret at Syracuse University, and to Stirling Wilford's chameleon-like performance at Rice is a sensitivity to the morphological structure and typological condition of the host campuses.



Woodsworth College at the University of Toronto is one of KPMB's finest projects so far, produced in close association with Barton Myers. The college, which serves commuter students at the university, occupies a mid-block site behind three historic houses and a drill hall (7). One of the houses and the drill hall were incorporated into the new building, which wraps around three sides of an outdoor court, forming a smaller version of the quadrangles elsewhere on the campus (5). The houses act as a kind of filter: their former driveways, which terminate in brick gates (6, 8) provide pedestrian access to the college. The college building itself has a social center and dining/assembly space, partly created out of the rehabilitated drill hall. One of the most dramatic interior spaces is just inside the main entrance (9), with its dynamic reception desk and canopy standing within a high-ceilinged room, which is terminated by a large brick fireplace. From this space, students and faculty move along single-loaded corridors, which open out to the quadrangle through large glazed doors (10).

Although of consistently high quality, Woodsworth College is also a hybrid in several respects. First, the project was a joint effort of former co-workers: Barton Myers Architect and KPMB, with Thomas Payne as the partner-in-charge. Second, the building itself successfully joins different design sources. There is, for example, *(continued on next page)*

6

Woodsworth College, jointly designed by Barton Myers and Kuwabara Payne McKenna Blumberg, shares these ambitions. Beginning with the joining together of disparate existing buildings on the site, the architects have devised a unified composition that extends the recognizable pattern of the buildings and spaces of the campus. Geometrically controlled on the inside by the courtyard, the building is irregular and contingent on its contrasting exterior perimeter. The frontage on St. George Street, comprising an existing house, new gates, and the end of the U-shaped addition, provides many points of entry. Along this frontage, the project is reticent; the representative public presence is a space – the interior courtyard.

An architecture such as this, whose ambitions are textural and urbanistically restorative, has certain intrinsic problems of identity (witness Stirling at Rice, P/A, December 1981, pp. 53–61). On these terms, Woodsworth College is remarkably suave and architecturally powerful. The building achieves its representational presence by expressing its constituent parts, engaging in what Alison and Peter Smithson identify as the “intellectual appraisal” of the constructional

process. Characteristic of this critical approach to tectonics is the adroit handling of materials: their selection, placement, juxtaposition, and joining.

At Woodsworth College, this process of selection suggests a three-tier system of coding that appears to assign to specific trades an architectural role. The first order is masonry, whose primary (although not exclusive) role is the delimitation of space. The second order is wood, typically infilling and framing masonry apertures, but also forming walls, partitions, and furnishings. And, the third order is steel, consisting of intricate episodic installations. These three orders – corresponding primarily to the architectural roles of wall, infill, and installation – constitute the critical sieve through which selections and details have been passed. And, while each order has presence throughout the building, there is also a specific location where its dominant, innate characteristics are evident.

The emblematic brick masonry wall, for example, is the “face” to the enclosed loggia that rings the courtyard. With a one-story section and a walkway above, like the structures defining The Lawn at the University of Virginia, this wall forms an agora-like space at Woods-

(continued from previous page)

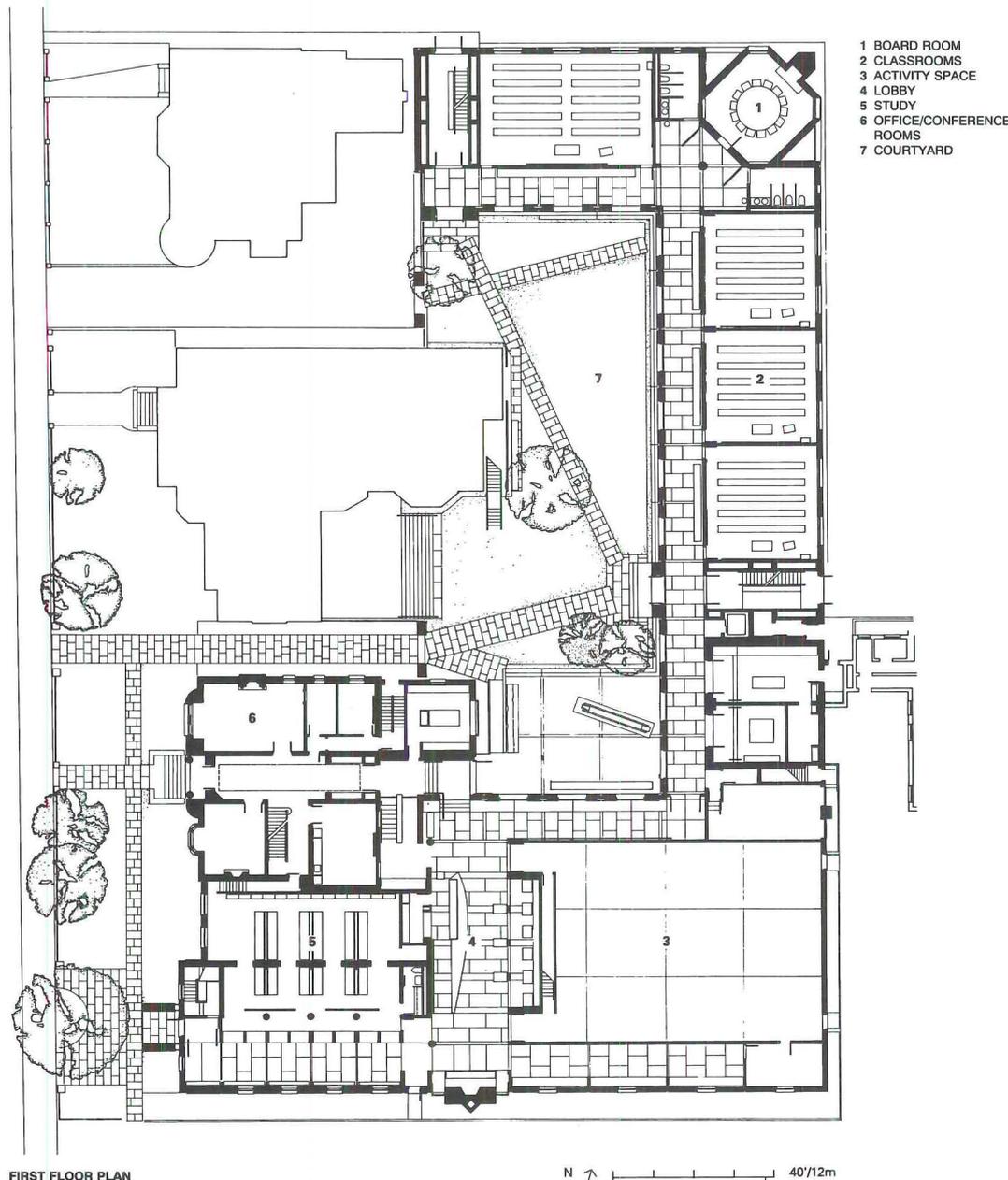
the strong echo of Louis Kahn's work in Woodsworth College's simple, almost archaic forms, the direct juxtaposition of "natural" materials (wood, concrete, steel, brick), and articulated service functions such as the tall stair towers. Yet grafted on to this are more dynamic elements, such as the reception area's irregularly shaped desk and floating canopy.

Third, the college, within the larger university, is a kind of functional and formal hybrid. It is, for example, a commuter college in a university of residential colleges. And unlike most of the other colleges, it combines new and old elements, using the historic houses both to define one end of the quadrangle and to serve as a filter into it. The design also establishes a visual dialog with the existing structures. Although the new college carries through some of the major materials of the older buildings – brick walls, stone trim, wood windows – the Barton Myers/KPMB design holds its own with a more abstract, rationalist architectural vocabulary.

This project is a fitting return to Toronto for Barton Myers, who came to the city some 25 years ago to fly the banner of Modernism and contextualism. Woodsworth College shows that both he and his former associates, KPMB, have much to offer the next quarter-century.

Project: Woodsworth College, University of Toronto, Toronto.

Associated architects: Barton Myers Architect Inc., Los Angeles, (Barton



worth that alludes to Thomas Jefferson's notion of the university as an "academical village."

In contrast, wood assumes a foreground status in places such as the reception desk adjacent to the St. George Street entry. Here, a mahogany plane of movable shutters and counters is the primary spatial definer. This large wooden infill, its emphatically grained surface divided into repetitive components and modulated through a tracery of reveals, commands authority as a primary architectural event.

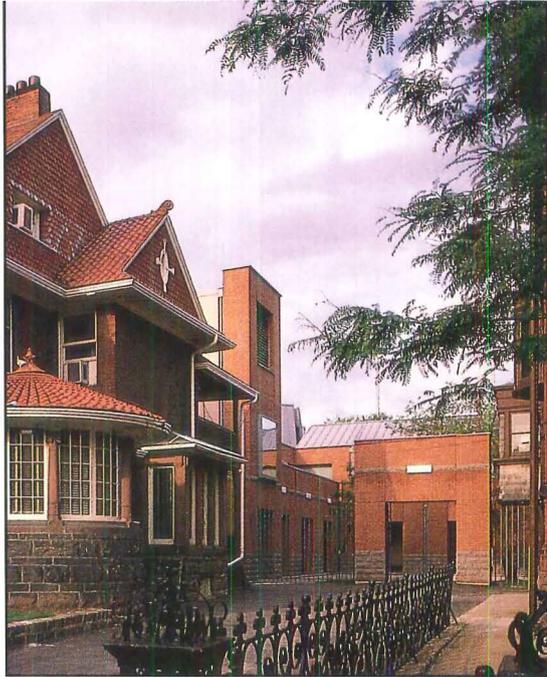
Steel, painted with epoxy-lacquer to look like a soft sandblasted finish, creates various episodes, such as the hyper-tectonic suspended lighting canopy over the serving bar. Steel, with a similar finish, also serves in the principal switchback stairway on the east side of the building.

An architecture whose presence is the aggregate experience of its details is consonant with the tradition of North American campuses. The Collegiate Gothic style, well represented at most northeastern American schools as well as at the University of Toronto, is typified by a textural intensity of handcrafted details in stone, wood, and

glass. What the architects of the Collegiate Gothic style achieved was a projection of craft as both an individual endeavor and a guild presence within a collective institutional identity. Woodsworth College appears to allude to these themes.

If the project of modernity can be defined as the search for an appropriate understanding of our time, then the seemingly recon-stitutive aspects of this architecture must be critically scrutinized. During this period of intense challenge to our intellectual heritage, when university curriculums are being rapidly transformed, the built form of Woodsworth College appears to be conspiratorial with the traditional academic cloister, a kind of rear-guard action.

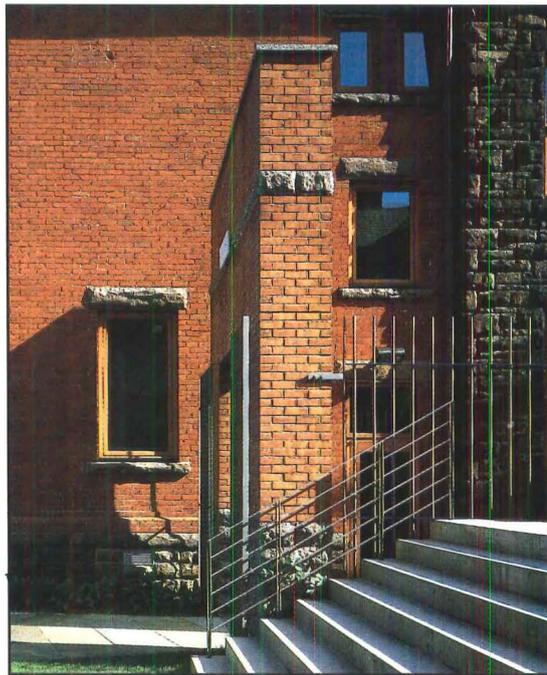
Here, the architects have made a statement about universal values. They believe that their work is an expression of the basic human activity of gathering; their courtyard-cum-cloister accommodates, even celebrates, this act. Also, this building reveals a profound respect for workmanship as an act of individual human beings and as part of an honorable tradition. In this way, the architects dignify both the art of construction and, by extension, the educational endeavors carried on within the building's walls.



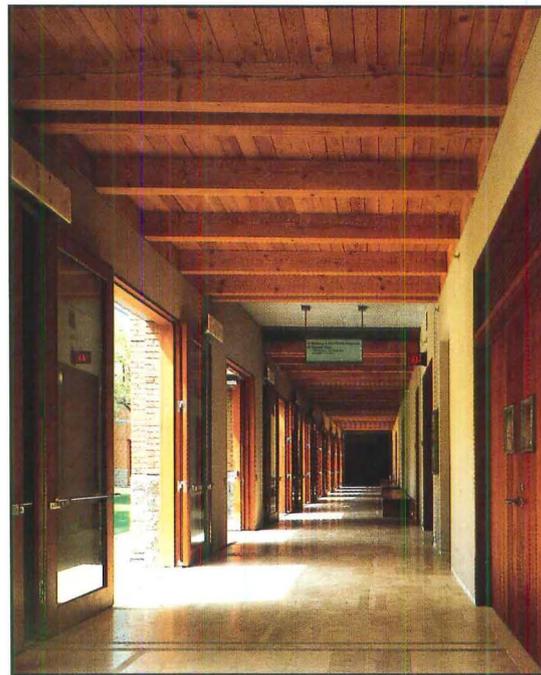
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 Myers, principal) and Kuwabara Payne McKenna Blumberg Architects, Toronto (Thomas Payne, principal-in-charge; Siamak Hariri, associate-in-charge; David Pontarini, Victoria Gregory, John Cook, Goran Milosevic, Josef Neuwirth, Bob Sims, Mitchell Hall, Birgit Siber, project team).

Client: Governing Council of the University of Toronto; Janice Oliver, Office of the Vice-President, Alex Waugh, Woodsworth College.

Site: 39,660 sq ft within the urban fabric of downtown Toronto on the campus of the University of Toronto, adjacent to three houses.

Program: provide classrooms, faculty offices, and communal facilities for commuter students. 44,000 gross sq ft, of which 19,840 sq ft are new construction and 21,800 sq ft renovation work.

Structural system: load-bearing masonry, concrete, structural steel.

Major materials: sand-cast brick, granite trim, painted metal roof, exterior painted stucco, wood doors and windows, Mexican onyx.

Mechanical system: central variable air volume system served by reciprocating chilled water system; central boilers and custom radiators.

Consultants: Ferris & Quinn Associates, landscape; Yolles Partnership, structural; Merber Corporation, mechanical & electrical; A.J. Vermeulen, cost consultant.

General contractor: Jaltas Inc., Toronto.

Costs: budget: \$7.38 million (Cdn.) 1990; bid: \$7.30 million (Cdn.) 1990; actual: \$7.6 million (Cdn.) 1992.

Photos: Steven Evans except where noted.

This architecture has greater significance than as an exercise in building an academic environment or in developing a constructional scheme. It makes the case for an architecture of reconstitution, an urban architecture whose outward and initial identity is subsumed in the textural reading of the city. As the importance of intensifying and repairing our cities is recognized, architects will increasingly be considering the nature of infill projects such as this.

At Woodsworth College, representational presence and cultural meaning are communicated through its tectonics. Composed of clearly detailed and highly charged episodes that interrelate and sequentially merge in space, this architecture resists being recorded by the static medium of photography. It will challenge the limits of publication to transmit such an architecture so that a larger audience may appreciate its philosophical premises and its architectural experiences. **Steven Fong** ■

The author is an architect in Toronto who teaches at the School of Architecture and Landscape Architecture at the University of Toronto.

In a convention center for the Texas capital, a consortium of architects has developed a variety of moderately scaled volumes to mitigate the inevitable bulk.

Austin's new convention center does what few such facilities manage: the 404,000-square-foot, \$69-million building makes a distinguished contribution to the central business district of its city. Creating something architectural from a building type that usually emphasizes bulk and repetition is always difficult. That the attempt should succeed in Austin is doubly remarkable.

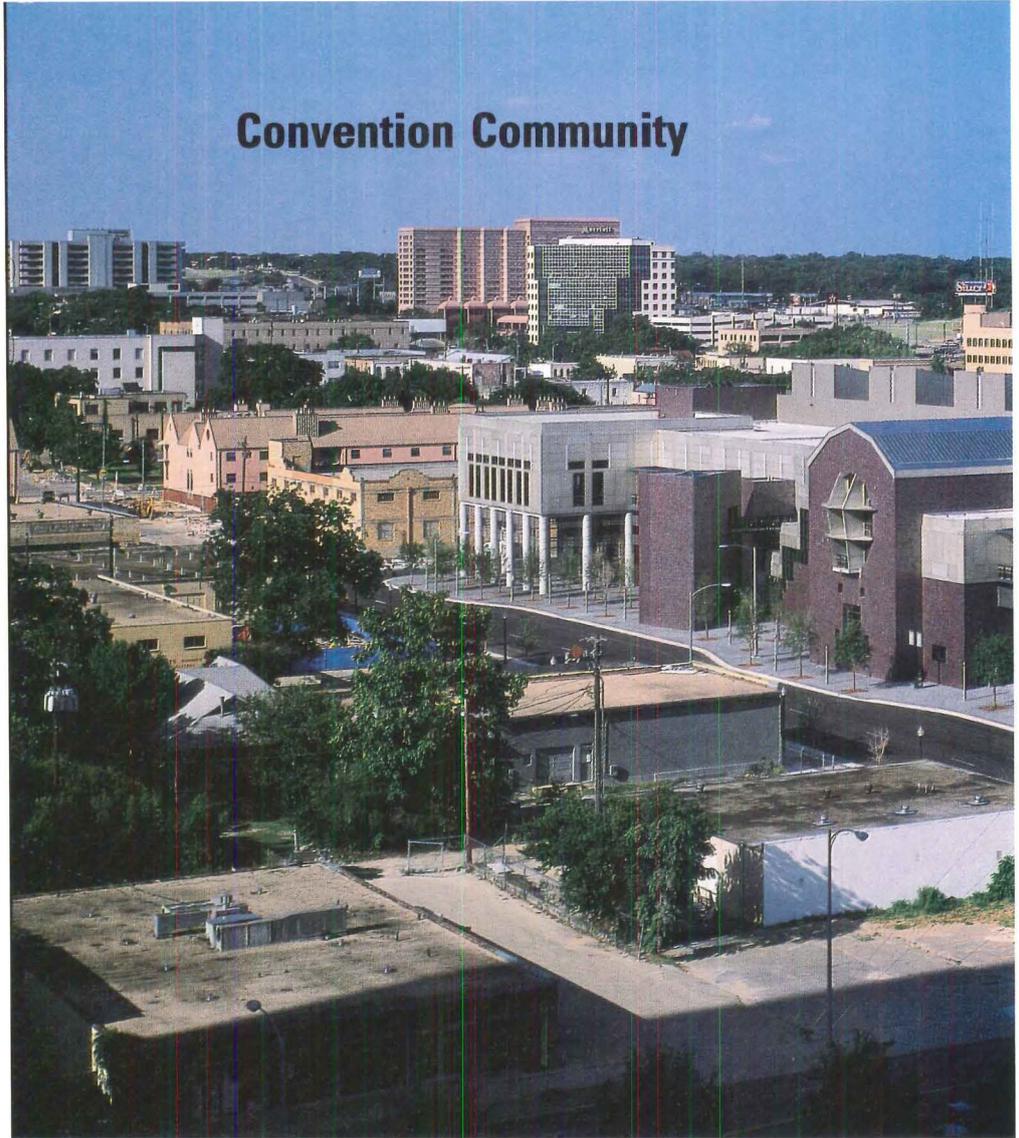
Austin's municipal politics have long been exquisitely balanced between pro-growth and slow-growth factions, constantly roiled by well-heeled developers, hardball ethnic and neighborhood pressure groups, and entrenched power centers in the legislature, governor's mansion, state bureaucracies, and the University of Texas, with its 50,000-plus students.

The result is that Austin is a can't-do city: over the last 15 years, political paralysis has killed half a dozen substantial civic undertakings, while clearing the way for construction of a series of ungainly downtown highrises and a rash of freeway-side office parks that now have the country's highest vacancy rate. The convention center was the only major civic project in Austin to survive the Texas crash of the late 1980s, and political wrangling over its site and the contracts for its design and construction often threatened its demise. Once a four-block site on the east side of downtown near the freeway was chosen and once a consensus-satisfying design-and-construction team was assembled, the project was still loaded with conflicting expectations.

The Austin Convention Center works as architecture because Austin Collaborative Venture (a joint venture of Page Southerland Page; Lawrence W. Speck Associates; and Villalva Cotera Kolar; all of Austin, with Ellerbe Becket Architects of Minneapolis) resolved those expectations with architectural strategies, ranging from contextualism to high-tech scenography, that fit the psychological and political polarities of the city. Their convention center presents itself as a city in microcosm, turning a different face to every context.

At the center of the site are the convention center's *raison d'être*, its exhibition halls. With spans of up to 270 feet, these halls are topped by 28-foot-deep steel trusses whose bottom chords are 36 feet above the floor. Back-of-the-house functions are as important in attracting convention planners as the overall architectural character. From a service yard at the northeast corner of the

Convention Community





3

site, 18-wheeler trucks can drive directly into the ballroom or any of the exhibition halls, as well as to the back of the extensive first-floor kitchens and storage areas.

Under the design leadership of Speck, the architects wrapped the empty spaces of the convention center in a series of zones organized around dramatic entry elements, each with a different height and different materials. At the southeast corner, for example, is an 84-foot-tall, 12-sided tower faced in rough-finished limestone blocks, topped by a lantern clad in tightly interlocking metal panels, which provides the main entry to the ballroom. The architects say the construction technique serves as a link to the traditional architecture of the area's German and Anglo settlers. To the west, turning toward the shallow limestone-bottomed trickle called Waller Creek, the building is again faced in rough limestone, and its rectilinear footprint gives way to irregular terraces that can be used as informal dining spaces.

By contrast, at the southwest corner, another entry element protrudes. Called the palazzo, it is surfaced up to its roofline in sharply jointed limestone blocks over a base of polished pink granite. The palazzo, looking onto an unprepossessing group of low metal warehouses and parking lots, (continued on page 108)

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Lawrence W. Speck and the other architects of the Austin Collaborative Venture used changing scale and materials with a range of local associations to break down the visual bulk of the Austin Convention Center, at the corner of Trinity and First Streets (1), in a district of warehouses and parking lots at the edge of the downtown area. The "palazzo" block at the main street-corner is faced outside and inside (2) with cut limestone; metal eyebrows that shade the tall windows on the outside extend in to form light valances in the 44-foot-tall assembly space. At the main drop-off area on the south (First Street) front (3), an angled glass-and-steel bus shelter on concrete piers, a pedestrian canopy, and upper-level sunscreens protect alighting visitors.

The Convention Center and the City

Information fairs, the activities of convention centers, act centripetally. It is virtually the duty of the organizers of these fairs to capture and hold their clients. Such centers offer extensive services, but they exist to make the event self-sufficient.

Little wonder that architects often frame such institutions with vast exhibition/meeting rooms, smaller multipurpose rooms, and prefunction areas, jammed into featureless, windowless volumes devoid of relation to their surroundings. Does this character serve either the center or the city? Viewed from the center, if the city seems distant and alien, the conventioneer may be artificially retained in the event. But it may as likely be that it is the center that is seen as alien within the city, thus inducing flight. It is in the city's interest that its visitors discover and use the city generally, imagining their own return or that of their friends.

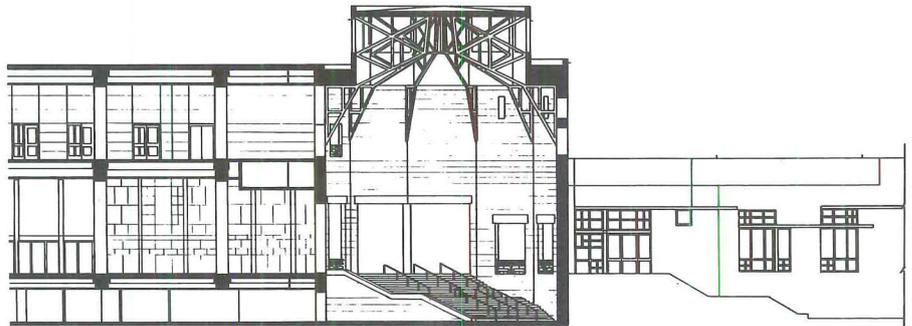
The Javits Center in New York City, by I.M. Pei & Partners, offers little change, but rather proves that transparency of the enclosure is not enough. Positively, the Javits addresses the street, and its sheer enclosure allows distant views of the city and a reciprocal, nighttime play of its own lights. Yet in the end the experience remains architecturally and socially hermetic.

Hynes Convention Center in Boston (P/A, May 1989, p. 65), despite the constraints of incorporating existing exhibition halls, takes significant steps. The new Hynes integrates the enlarged center into the streetscape of Boston. It relies primarily on a long Boylston Street façade, which is hardly more than a membrane between the street and the internal circulation galleries above. That these galleries form a separable spatial unit rather than only a façade is revealed as one turns the corner at either end, finding a narrow, articulated face with a crowning gable roof. A rotunda rises above that same gable roof, distinguishing the principal entrance and vertical circulation of the center. In these ways, the Hynes begins to break the organization and mass of a convention center into smaller units that establish reciprocities with the city. The closely bounded site, the constraints of the existing halls, and the decorum of Back Bay placed limits on the pursuit of this strategy.

The Austin Convention Center runs with this idea. Here, in a new building on a site open to all sides, yet oriented to different urban and landscape conditions, one can articulate the parts and put them in dialogue with their surroundings. Here the arrival, circulation, and open activity areas of the center wrap the large hall.

We see that a convention center need not be one great mass, but rather something of a village in itself. Spaces are differentiated both with reference to their own use or place in the internal organization as well as in relation to the site conditions. These changes in form are paralleled by changes in materials. Yet this appears not as a nostalgic or historicizing "village," but as a genuine rethinking of the organization of large systems in elements that consider the person and the more intimate scale of the urban landscape. This is most obvious in the relation of casual activities to the creek that runs through the site, but it appears more subtly throughout the center's periphery. Could one go a step further, embracing the city itself? The envisioned extension of the Austin center toward downtown might well permit the incorporation of street activity that would be city and center at once. **Stanford Anderson**

The author is head of the Architecture Department at M.I.T.

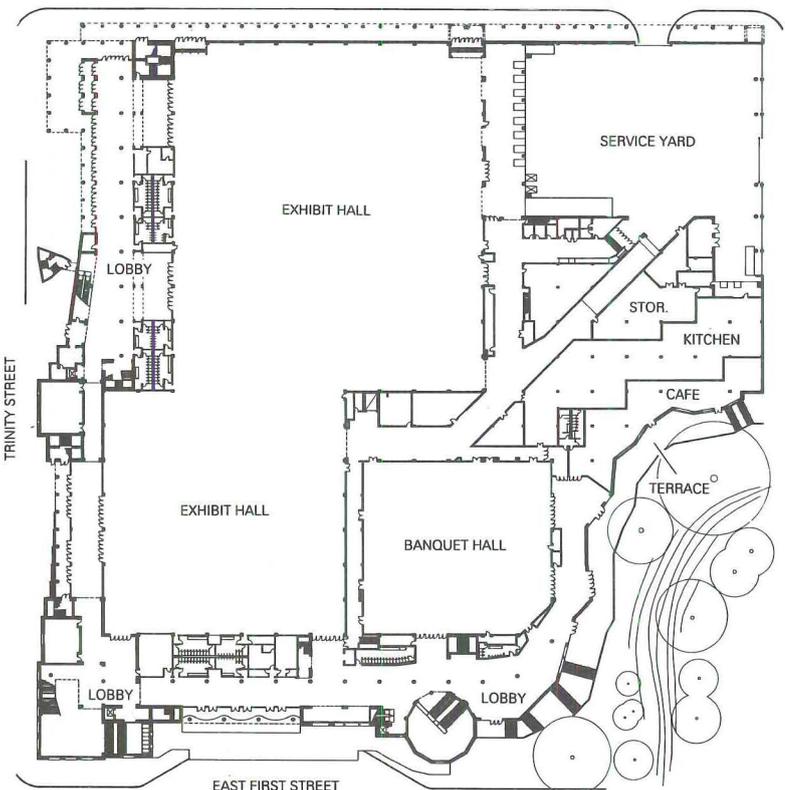


PARTIAL SECTION, EAST FIRST STREET LOBBY

40/12m



4

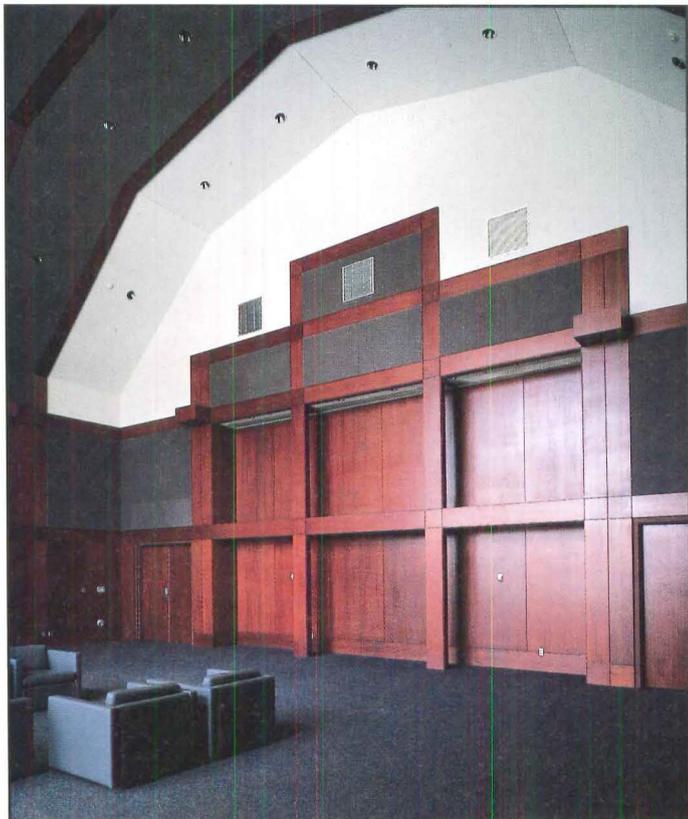


MAIN FLOOR PLAN

N ↑ 100/30m



5



6



7

A partial section (facing page) shows some of the lobbies and public amenities that wrap the main exhibit hall volumes (see plan); meeting rooms are mainly on the second floor and in the partial basement. The two exhibit halls (4), with 28-foot-deep trusses spanning up to 270 feet, are painted a soft green. On the west façade, a gabled projection faced

with dark, overscaled brick (5), has a large polygonal window, divided by steel sunshades, that lights a special mahogany-paneled meeting room (6). Changes in light quality and materials differentiate the long lobbies (7).

(continued from page 105)

nevertheless recalls the Neoclassical and Art Moderne formality of other Austin landmarks.

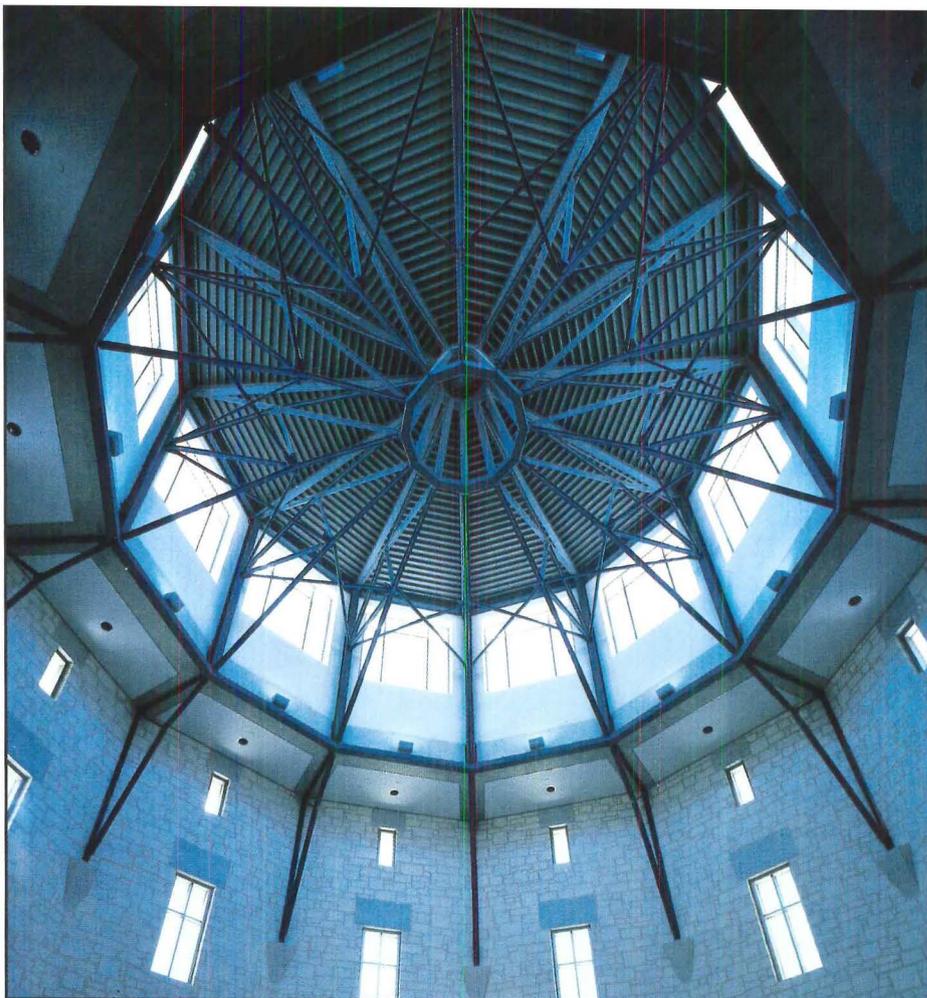
Between the projecting elements are the center's three bus-drop-off points, with glass walls behind round concrete columns, fronted by steel-and-glass canopies and metal sunshades. Behind the columns and above the window walls, the building is surfaced in the same gray metal panel system used for the tower lantern. The panels were chosen, the architects say, because they look "high-tech" and "futuristic"; their crisp shadows result from the fact that their seams snap together without the sealant typically used to keep rain water out (the design channels water out the bottom). These panels, like the limestone used in the rotunda and palazzo, are among a few relatively expensive materials for a project in which cost-consciousness was paramount.

"We wanted the street-level spaces that people would see most often to have nice finishes," says Matthew Kreisle of Page Southerland Page, project architect for the convention center. "We balanced the expense by using low-cost materials in other places." Kreisle cites as an example the low-cost but handsome painted metal shingles used to surface the east elevation and the air-handling equipment that surrounds the exhibition hall blocks. Inside, following the same strategy, granite and mahogany paneling is used for most of the eye-level interior spaces; less expensive fabric panels line the upper walls.

Punctuating the Trinity Street façade – and aligned with an important view down Second Street – is a gable-roofed projection, faced in another low-cost but effective material, a darkly radiant purple-brown glazed brick. The projection's polygonal second-story window, gridded by a protruding steel sunshade above a small balcony, opens out from the center's one non-standard meeting room, which the architects refer to as "the board room." It suffers from a problem that also affects the wide, well-shaded balconies that line the rest of the second story of the Trinity elevation: there is little to see from them but the rusting roofs of electrical-parts warehouses and the backs of parking garages.

Several civic improvement proposals for the area were supposed to have been completed when the center opened in July, but were delayed by cost and construction problems. Until improvements to its district are complete, the convention center will continue to look like what it is – an ambitious project dropped into the middle of a ramshackle warehouse zone that has a lot of growing up to do. After more than a decade of false starts, Austin has a building that can set the pattern for civic development, maintaining the scale of Austin's historic fabric while projecting messages not only about the city's divisions but about its ultimately invaluable diversity. **Joel Barna**

The author is P/A's Texas correspondent and editor of Texas Architect. His book, The See-Through Years, published by Rice University Press, will appear in November.

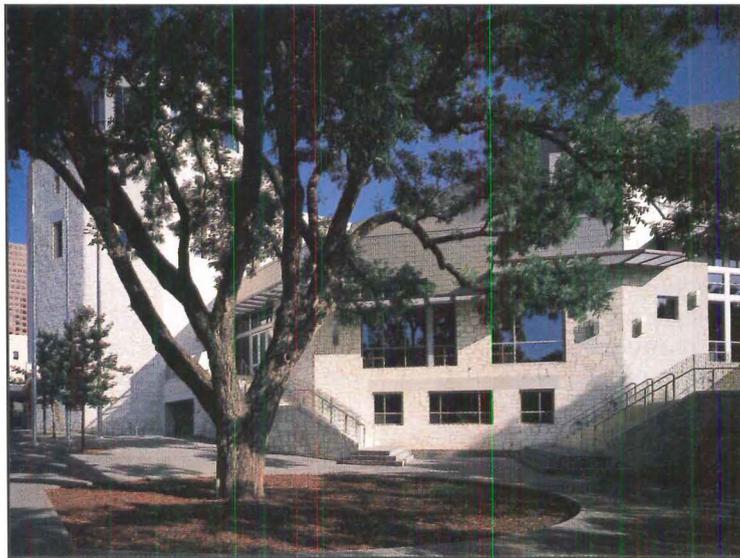


8, 9





10



11

A 12-sided rotunda (8, 9) is a prominent feature of the First Street façade (10) and the main entry to the center's banquet hall. Its lantern is roofed by a tension-ring structure (section, page 106), which springs from squinches in the rough-textured limestone walls. The same masonry –

traditional in central Texas – is used on the terraces facing Waller Creek, outside the center's café.

Project: Austin Convention Center, Austin, Texas.

Architects: Austin Collaborative Venture (Page Southerland Page, Austin, prime contractor and architect of record; Lawrence W. Speck Associates, Austin; Villalva Cotera Kolar, Austin; Ellerbe Becket, Minneapolis). Matthew F. Kreisle III, principal in charge; Charles L. Tilley, project manager; Lawrence W. Speck, design lead; Arturo Arrendondo, Tom Frank Golson, M. Hamilton Frederick, Alfred Godfrey, Eve Persons, Andrew Baer, Scott Jordan Denny, design team.

Client: City of Austin (Nathan Schneider, architect, contract director).

Site: four-city-block downtown tract, one block from interstate; gradual slope toward creek, which clips southeast corner of site.

Program: exhibit space, banquet hall, meeting rooms, kitchen, restaurant, plus service and administration spaces; flexibility of use essential. 410,000 gross sq ft (including covered areas at 1/2); exhibit space, 125,972 sq ft; meeting rooms, 24,815 sq ft; banquet hall, 23,669 sq ft.

Structural system: reinforced concrete frame, steel trusses, concrete and metal deck roof.

Major materials: granite, local limestone – smooth and rough-cut, ironspot brick, aluminum curtain walls and panels, metal shingles (see Building Materials, p. 133).

Mechanical system: electrical AC system, with thermal storage for off-peak power use, gas-fired heating, some active solar power source.

Consultants: Johnson Johnson Roy, landscape; Ellerbe Becket, structural; Page Southerland Page/Ellerbe Becket, mechanical and electrical; Page Southerland Page, civil engineering.

Project Management: Gilbane Building Company (Robert K. Farmer, project manager).

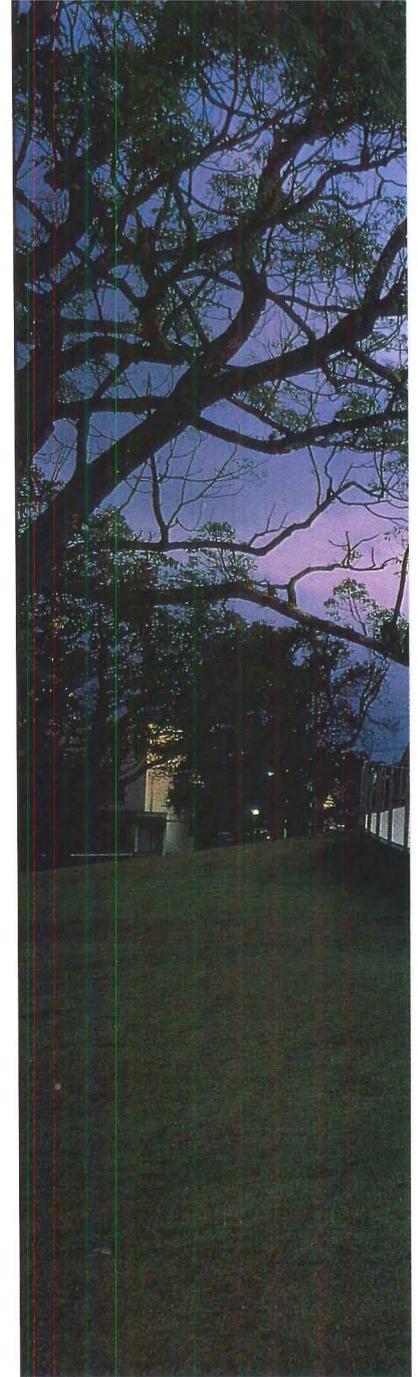
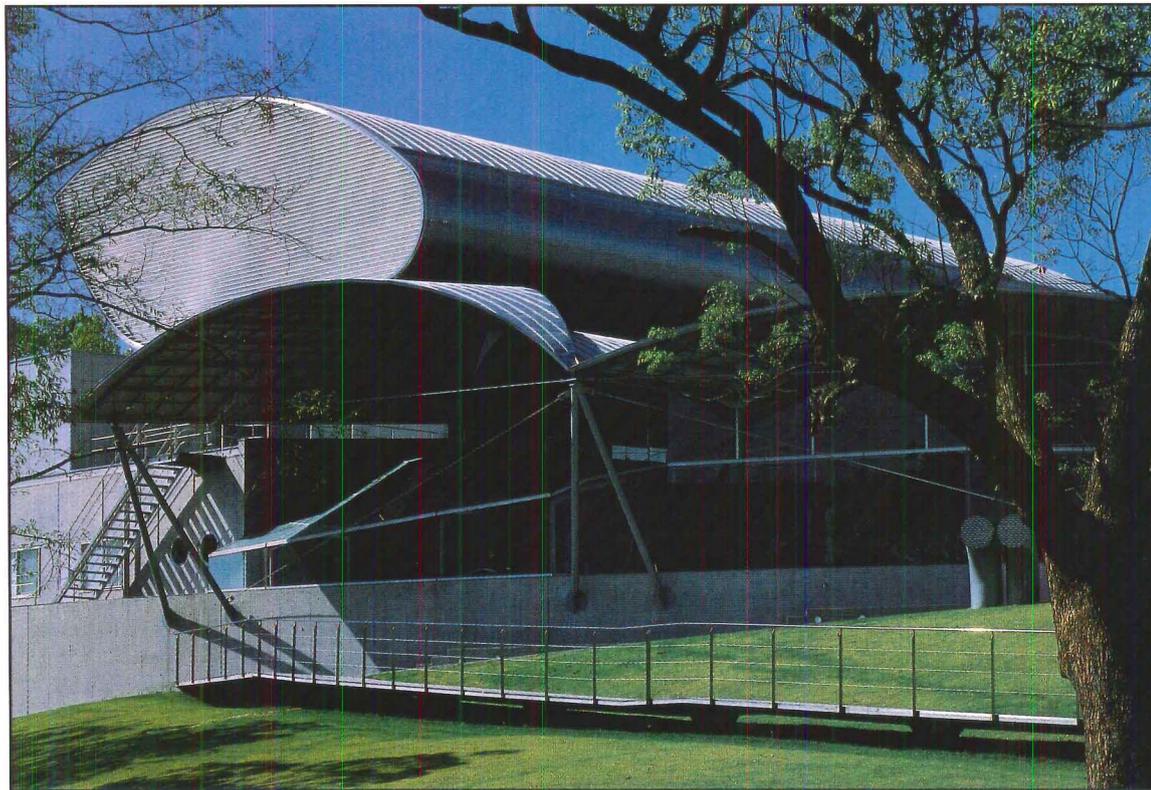
General contractor: SAE Spaw-Glass.

Costs: \$50,425,500 (actual, 1992), \$122.98 per sq ft, including site work, landscaping, interior finishes and furnishings.

Photos: Richard Payne.

Cultural Amenity

Enlisted under Kumamoto Prefecture's special program to upgrade design, architect Toyo Ito has housed a modest museum in a symbol of local aspiration.



Yatsushiro is a provincial city on the Japanese island of Kyushu with beginnings as a feudal castle-town. A long history of reclamation work has left a land of unmitigated flatness, covered today by factories and fields of rush, from which tatami mats are made.

The Yatsushiro Municipal Museum is dedicated to local archaeology, history, and folklore, with special emphasis on a collection of artworks, documents, and Noh costumes amassed by a family prominent in the Edo period (1600–1868). However, far from being the fusty storehouse of relics that one might expect, the museum, or at least that portion visible from the street, is an airy pavilion of gleaming metal set upon a hill.

The museum is to date the largest work realized, and, excepting some temporary exposition structures, the first public building designed by Toyo Ito. Hitherto, Ito's projects have expressed a sophisticated, metropolitan point of view; and a

city of 120,000 in remote Kumamoto Prefecture seems at first blush an unlikely place to find him.

Ito received this commission through the program known as Artpolis initiated by the prefectural government to improve the standard of design of public architecture. Municipalities like Yatsushiro, with plans to build, have been invited to participate in the program; Arata Isozaki, the Artpolis commissioner authorized to nominate architects, introduced Ito to city officials.

As it turned out, the nomination was apt, for what the client wanted was not simply a museum. Yatsushiro, like other provincial areas in Japan, is losing its youths to the big cities. To help stem this flow, officials wanted to introduce a bit of urbanity, and they asked Ito for a facility that would be chic and impressive enough for the locals to take dates to or to show off to visitors.

The site is in the historic center of the city, with a library, a courthouse, and an auditorium nearby.



Most important, a garden and a teahouse that used to be part of an Edo-period villa are located to the north, directly across the street. Building coverage was severely limited by law, because the site is inside a park area. However, the extent to which the building could be extended vertically to compensate for the horizontal constraint was also limited. Digging a basement was not feasible because the reclaimed land has a high water table. An unwritten rule, observed in the neighborhood of the site, to build no higher than the masonry walls that survive from the vanished castle, meant that the museum could go up 65 feet at most.

The solution Ito arrived at was to have visitors enter on a second floor that is disguised as the first. A series of delicate, ribbed stainless steel vaults shelters the lobby and café. The main exhibition area, with its display of artifacts that need controlled environment, is at street level, hidden by a grassy berm. Set farther back and above the vaults

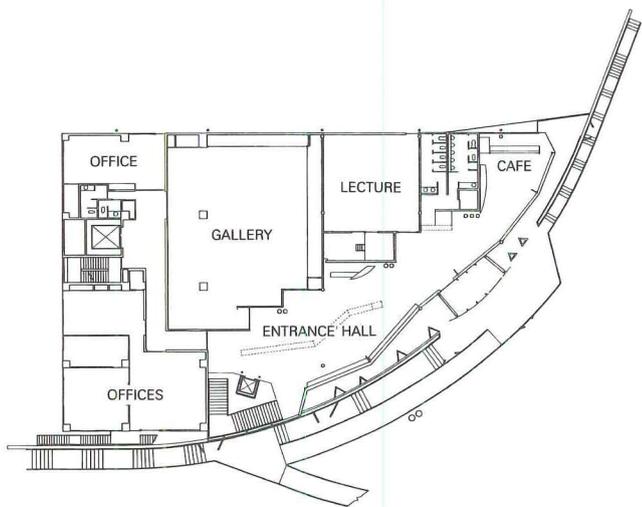
is a cylinder, clad likewise in metal, that accommodates storage. (The architect calls the cylinder "the Shosoin of the future," likening it to the famous storehouse of ancient treasures in Nara.)

The artificial hill, though slight, comes as a surprise in this otherwise level city and announces the special nature of the building. The complex confluence of vaults with deep overhangs is dramatic, yet not out of scale with the teahouse. On the west side, where space is provided for outdoor exhibits, the full height of the museum is exposed.

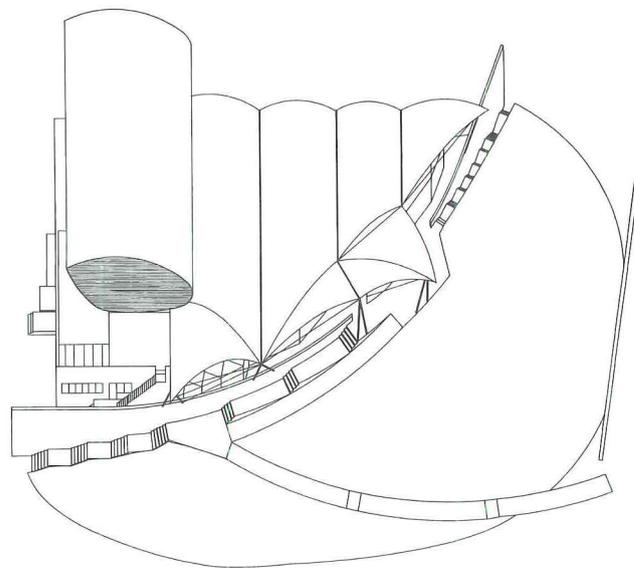
The Yatsushiro Museum is a summing up of ideas that have preoccupied Ito in the past, such as the lightness and transparency of materials and the ribbed vaults of the 1984 Silver Hut (his own house in Tokyo, hitherto his best-known work), and the autonomous, geometrical object first seen in his 1986 Tower of Winds in Yokohama.

Yet in this synthesis there is something new as well. Up to now, Ito has sought to express the

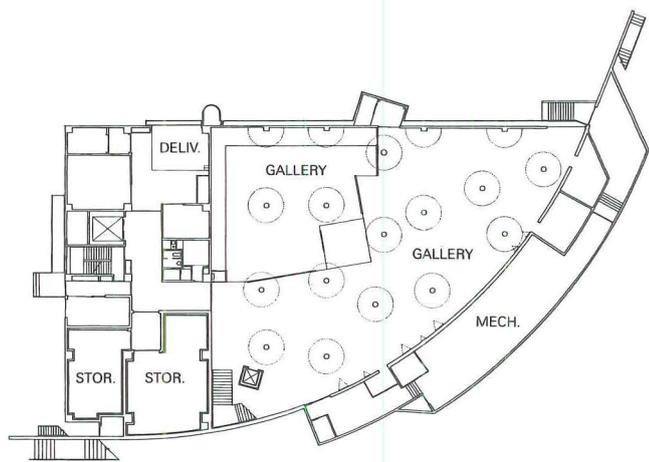
.....
A sweeping walk up the museum's artificial mound (2) leads to a billowing entrance canopy (1), supported on delicate, paired, cable-braced struts. Stainless steel, with welded seams, clads roofs and the fourth-floor storage superstructure, which gives the building visual prominence without violating informal height restrictions.



SECOND FLOOR PLAN

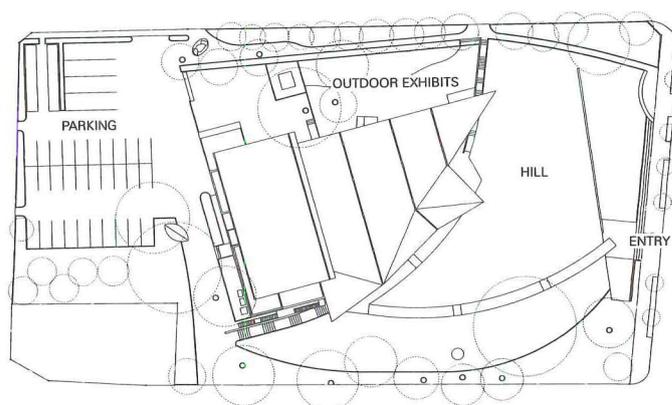


AERIAL PROJECTION



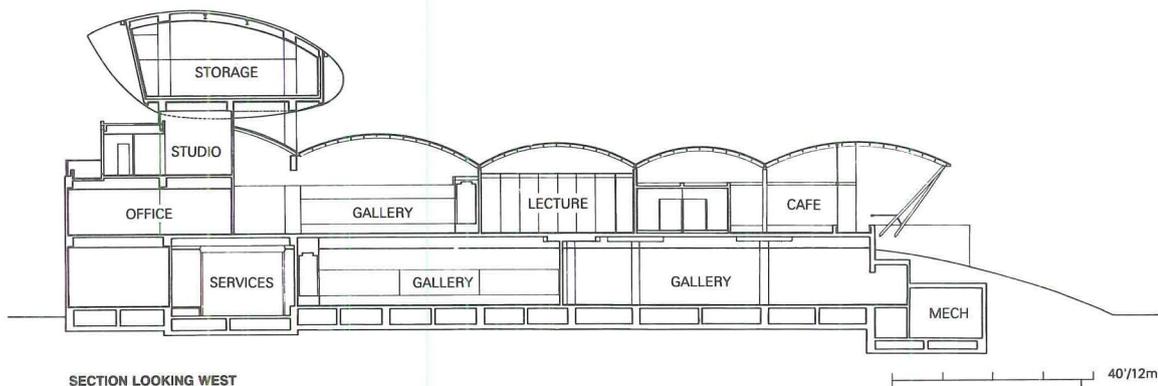
FIRST FLOOR PLAN

N → 40/12m



SITE PLAN

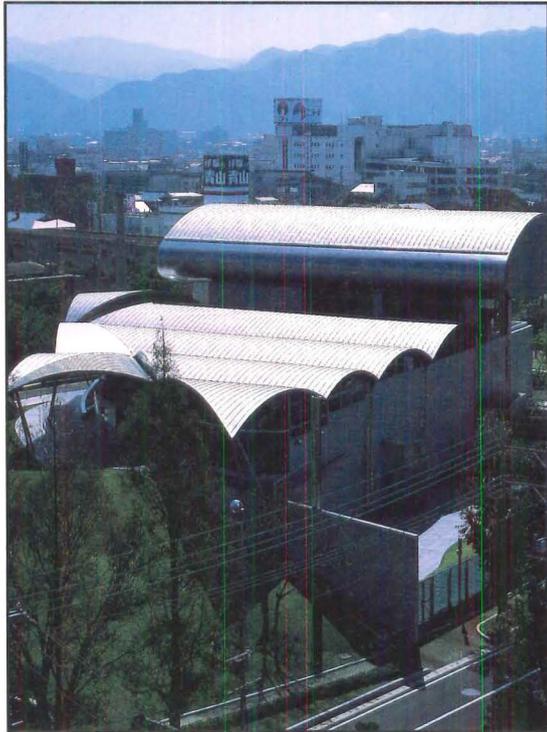
N ↗ 100/12m



SECTION LOOKING WEST

40/12m

The building plans and section show the principal exhibition spaces on the bermed first floor. Apparently random column placement in these spaces, along with bluish colors, suggest an underwater environment; one long, curved wall (4) is lighted by triangular skylights let into the terrace above. The entrance hall and a variety of amenities are on the exposed second floor (5), with its faceted glass walls, terraces, and grounds. A few service facilities occupy the small third floor, and the fourth-floor storage space is treated as an elevated treasure chest, climaxing the series of leaping roofs (3).



3



4



5

freedom and mobility enjoyed by individuals in metropolises like Tokyo, and has paid scant heed to community relationships. He has developed – with, assuredly, great care and deliberation – a casual, provisional look in his buildings.

In comparison with past works, the Yatsushiro Museum is the very image of stability. Despite the exceptional lightness achieved by the structural engineer Toshihiko Kimura, the building is solidier than anything Ito has done before. Moreover, as with a recent guesthouse for Sapporo Breweries in Hokkaido and a kindergarten under construction in Frankfurt, Ito's architecture is closely integrated with the landscape.

These changes are accounted for in part by the programs with his recent commissions. Like other Japanese architects of his generation who viewed architecture as a means of highly personal expression and were disdainful of conventional practitioners, Ito in recent years has himself become an

established figure, increasingly responsible for commissions that demand a more deliberate approach. Ito's involvement with Yatsushiro, for example, did not stop with the museum. Shopkeepers in a nearby commercial area that was going to seed asked Ito for help, and he has obliged by designing a small gallery and offering neighborhood improvement proposals.

Ito's transition is not being made without some discomfort. In his public comments with respect to Yatsushiro, he has expressed both satisfaction at having done a creditable job as a professional, and chagrin at having lost his carefree, outsider status. However, those who have occasion to visit this elegant museum are less likely to have mixed emotions and to regard his loss as very much their gain. **Hiroshi Watanabe** ■

The author, P/A's Tokyo correspondent, has recently published Amazing Architecture from Japan (Weatherhill, 1991).

Project: Yatsushiro Municipal Museum, Yatsushiro, Kumamoto Prefecture, Japan.

Architect: Toyo Ito Associates.

Client: Yatsushiro city.

Site: flat area at city core, part of public park; area 8223 sq m (88,500 sq ft).

Program: museum of local history; floor area, 3418 sq m (36,800 sq ft).

Structural system: reinforced concrete, with framing of top floor.

Major materials: stainless steel, glass.

Photos: Tomio Ohashi.

Where do urban plans get their meaning?

Spiro Kostof's erudite answers are reviewed by **Stanford Anderson**.

Books of Note

Surface & Symbol: Giuseppe Terragni and the Architecture of Italian Rationalism by **Thomas L. Schumacher**, Princeton Architectural Press, New York, 1991, 295 pp., \$45, cloth, \$29.95, paper. Terragni's political and architectural affiliations and talents are connected to the larger context of pre-war Italy in this revisionist history. It is the first English language monograph.

Hospital Interior Architecture: Creating Healing Environments for Special Patient Populations by **Jain Malkin, Van Nostrand Reinhold**, New York, 1992, 478 pp., \$124.95.

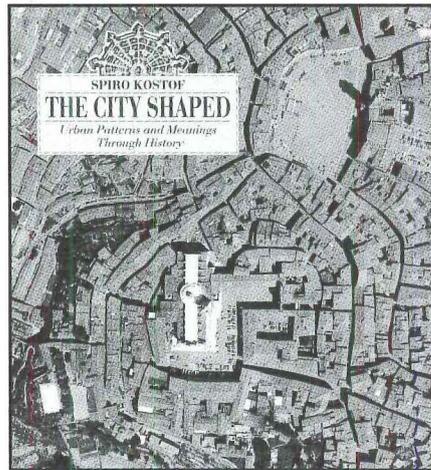
This informative volume is devoted mainly to specific kinds of facilities, but it also discusses topics such as holistic therapy and donor recognition displays.

John Portman by **Paolo Riani**, interview with **Paul Goldberger**, AIA Press, Washington, D.C., 1990, 246 pp., \$60.

This monograph covers Portman's 30-year career, including the famous behemoth hotels and his own houses, sculpture, and painting.

Type and the (Im)Possibilities of Convention edited by **Garth Rockcastle**, **Midgard Monographs of Architectural Theory and Criticism**, Princeton Architectural Press, New York, Number 2, 176 pp., 1991, \$14.95.

This collection of papers, given at a conference at the University of Minnesota in 1987, (de)mystifies the meaning of type within the conventions of architecture and design.



The City Shaped: Urban Patterns and Meanings Through History by **Spiro Kostof**, Little, Brown/Bulfinch, Boston, 1991, 352 pp., \$50.

We are recorders of a physicality, then, akin to that of a flowing river or a changing sky. So we will be mindful of urban process, in this sense of the phrase, both as an ongoing concern in discussing each one of our themes, and as an overarching subject of conclusion.

— Spiro Kostof, *The City Shaped*.

Architects and scholars alike must regret that *The City Shaped* initiates a project that now must be completed with the posthumous publication of a companion volume, *The City Assembled*.

Spiro Kostof died in the prime of his career in December of last year. A distinguished architectural historian, Kostof was this year accorded the Topaz Award, the highest commendation in architectural education given by the Association of Collegiate Schools of Architecture. That award properly recognized Kostof's brilliant career at the College of Environmental Design of the University of California at Berkeley. His eminence is confirmed in his extensive list of publications, his television series "America by Design," and in the vivid recollections of the lucid and challenging lectures he delivered throughout the world. Beyond all this Spiro Kostof was a man of great charm, good humor, and fidelity whose friendship many enjoyed; I count myself in that fortunate group. There is then a temptation to turn this review of a worthy book into a eulogy. Yet insistent matters in Kostof's text provoke a chal-

lenge, and it seems fairer both to the author and the reader to pursue those matters that unsettle.

It is not easy to describe any work of great scope and ambition, especially when its seemingly tangible theme becomes, according to Kostof, a "physicality ... akin to that of a flowing river or a changing sky." Kostof confronts this issue and appears to conclude that, in the case of a city, one *can* step into the same river twice. He concludes his introduction with a paragraph of a single sentence: "The challenge in this book and its companion volume will be to seize upon and reconcile [the] vital contest between socio-economic change and the persistence of the artifact."

Perhaps it is this persistence of the artifact as well as the universal geographic and temporal scope of *The City Shaped* that brings the body of the book back to familiar themes. The "urban patterns" of Kostof's subtitle are rendered in the chapter headings: "'Organic' Patterns," "The Grid," "The City as Diagram," "The Grand Manner," and "The Urban Skyline."

Such patterns are remarkably common in the established analyses of urban form from which Kostof claims to distance himself. Furthermore, the broad scope of the book precludes sustained analysis of a single city where the artifact persists within a condition of (even radical) socio-economic change — as Kostof had observed in *The Third Rome* (1973).

The strength of Kostof's book is that he creates an arena of discussion between the abstraction of urban patterns and the detail of particular urban histories. He recognizes systems of decision and order behind the seemingly most arbitrary of "organic" plans. When he writes about the grid, Kostof considers the forces working to mitigate its regularity: the freeing of movement from geometric order; the reorganization of the blocks; and the impact of new public focuses on the urban fabric. This intermediate level of discourse is conducted, as he rightly insists, with concrete historical examples.

Kostof does not believe that the initial (or any other synchronic) state in the development of an urban form poses limits or potentials for the city's forces of change. Instead he asserts that the patterns he analyzes are neutral vehicles: "For us, then, city form is neutral until it is impressed with specific cultural intent. So there is no point in noticing formal similarities between L'Enfant's plan for Wash-

(continued on page 139)

Thomas Vonier looks at the issues.

Building Interest in the Platform

Despite more than a decade of solid evidence and the present campaign's non-stop use of words like "building" and "rebuilding," many people still find it difficult to see just how the outcome of presidential elections can bear directly on the particular concerns of design professionals.

Special interests properly come well behind other issues in troubled times, just as these Presidential debates seem certain to involve subjects more interesting than whether architects, engineers, and builders have enough work.

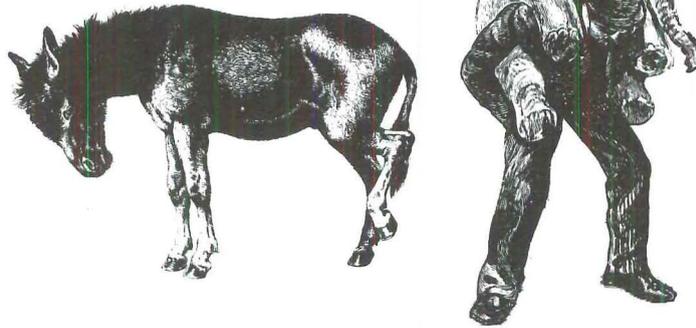
Yet the recent record suggests that the person who becomes President can have considerable, direct, and lasting consequence for the building industry – not just for designers or builders, but also for the timber, gypsum, and steel industries (among many others), all thoroughly alarmed over basic pocketbook issues. So at least in some measure out of urgent business anxiety, this election has seemed to garner a level of attention and importance within the building industry that has outstripped any accorded to a presidential race in memory.

As everyone recalls, often wistfully, Federal income tax reforms introduced by President Reagan in 1981 produced the biggest private real estate value and construction boom in modern American history. But with those same tax reforms widely blamed for stupefying national deficits and ensuing market busts (whose free falls seem far from over), many are frustrated that President Bush suggests only that the nation seek additional tax breaks and "stay the course" in applying (selectively) free-market principles.

Message: business incentives and capital gains tax breaks, plus further relaxation of onerous regulations and a little emphasis on education, will yield jobs and growth aplenty – straps enough, apparently, for all boots. Once derided by Bush as "voodoo economics," the idea that a rising business tide lifted by tax breaks would lift all boats seemed, in early fall, at least, to be as far as this President would go to address the electorate's deepening concerns.

HUD Secretary Jack Kemp and other conservatives had proposed more aggressive incentives for business programs; while these strategies might eventually have led to new bricks-and-mortar spending, they did not make it to the campaign. Instead, the administration seems to be recycling its old ideas: try *harder* to sell off public housing that nobody really wants to people who can't really afford it; lift *more* of the costly regulations that prevent businesses from hiring as many people as it could if it didn't have to spend so much on health and safety; let taxpayers underwrite a *greater* proportion of business risk.

It was hard this fall to find any enthusiasm in the building community for the Republican version of the domestic agenda. "What's to compare?" demanded one Washington building industry lobbyist when asked for his views on the parties' differences. "The Republicans are saying absolutely nothing."



Not quite, perhaps, but part of their problem – at least in terms of appeal to the building community – is that people could not envision results: if the lowest mortgage interest and commercial loan rates in a generation have not helped boost activity, why should the tweaking of remote intangibles like the capital gains tax rates?

The Democrats have been more specific and inventive (to the extent of not explaining where the funds would come from) in framing agendas for environmental cleanup and repair or renewal of industrial infrastructure, as well as for education and public service. Their ideas seem to involve more bricks and mortar – at least they make it sound as if people will actually be building *something* – so they have won many advocates in the architecture profession.

As the Democrats' stock was hitting new highs in the polls, market analysts identified areas of business that might prosper in a new administration:

- Infrastructure repair and modernization, boosting demand for design services, construction, timber, and concrete – not only for bridges and roads, but also for proposed light rail and high-speed train projects;
- Design, construction, and equipment manufacturing for the infrastructure initiatives and the renewal of public works;
- Environmental cleanup, fossil-fuel conservation, waste management, pollution control, and technology upgrades, which would spur new construction and open new areas to development;
- Design for the "wiring" of proposed new national electronic information networks, plus adaptation of educational facilities to meet new global imperatives.

Received wisdom in Washington says that big business (especially if it is involved with natural resource extraction and military spending programs) will support Republicans. It is true, at any rate, that such industries have supported tax policies of the past two administrations and the anti-regulatory activities led by their Vice-Presidents.

But in the view of some market analysts, even big business – including many building industry heavyweights – might welcome a change in the Presidency. And more than a little, that view seems to stem from the evident belief that the party challenging the incumbent is the one most committed to building. **Thomas Vonier** ■

The author is P/A's correspondent in Washington and Paris.

Joseph Giovannini examines how architecture figures in the recasting of the Guggenheim Museum.

Breaking the Institutional Envelope

Architecture critics have weighed in on the Guggenheim addition by Gwathmey Siegel & Associates Architects with mixed reviews; others have questioned the museum's ambitions to go multinational. But overlooked in all the ink is the role that the Guggenheim, in its expansions at home and abroad, has assigned to architecture in reinventing itself.

If ever a building defined an institution, it was Frank Lloyd Wright's Guggenheim, whirling away in an individuality at splendid odds with the Manhattan grid. Wright's design constitutes the identity of the Guggenheim so fully that, according to a 1990 museum survey, the building itself – often called the museum's greatest work of art – is the main reason people visit. Wright's Guggenheim now is proving an inspiration for the museum's further development. Says the museum's director Thomas Krens, "We're defining ourselves in terms of strength, and architecture is one of our strengths."

Krens is a man with a radical plan: a network of museums abroad (including an enlarged Peggy Guggenheim Museum in Venice) that will complement the Guggenheim's Manhattan facilities and qualitatively expand its collection, while responding to the urban and cultural opportunities presented by the host cities. Krens's much-debated agenda has engendered striking architectural proposals that were exhibited this summer at the Leo Castelli Gallery in New York. Hans Hollein has designed an unprecedented museum with chambers carved in the rock of a promontory in the center of Salzburg, Austria; for a branch in Bilbao, Spain, Frank Gehry has proposed a grouping of several restrained buildings joined by an atrium, and topped by a tumultuous roofscape churning with compound curves reminiscent of his Vitra Design Museum in Germany.

"Great architecture increases the ability of a museum to attract an audience: a great building and collection is a case where one plus one adds up to more than two," says Krens. "Also, museum architecture represents a special class of architecture with a potential greater than almost any other building type to give people a transcendent experience."

Wright's Guggenheim illustrates one of two Modernist museum paradigms, the other represented by its colleague down the grid, the Museum of Modern Art. Conceived as the Museum of Non-Objective Painting by its original director, Hilla Rebay, the Guggenheim knowingly tapped Wright, a master of light who characteristically imbued his buildings with his own myth and spirit. Rebay, whose galleries massaged viewers with music, incense, and plush seating, wanted the building to act on the viewer experientially, like art. Accordingly, in the philosophical opposition between subject and object, Wright's Guggenheim emphasizes the subjective

experience of the viewer: visitors to his rotunda find themselves bathed in light, at the center of a thrilling vortex whose spiraling ramp provides diverse – at times dizzying – vistas. By winning the senses, the building engages the mind and lifts the spirit.

But of the two paradigms, MoMA has been by far the more dominant. From the start, Philip Goodwin and Edward Durrell Stone's museum represented the cold Newtonian universe of material objectivity, where space is a neutral receptacle for an encyclopedic collection of objects. In a positivist century, the pieties of MoMA's neutral white box became orthodoxy in what was largely seen as an either/or choice between art and architecture.

Krens came to the Guggenheim after officiating over a Charles Moore addition to the Williams College Museum of Art, and after working on Mass MoCA in North Adams, Massachusetts, an as yet unrealized proposal to convert abandoned mills into one of the largest museums of contemporary art in the world. While Krens once tended to favor the white box as the most expedient solution for gallery space, the Williams College project taught him that the integration of a museum's unique program, content, and design could yield much more potent results. At Williams, he realized that a chain of white boxes was not only boring, but it profaned what it was intended to hallow – rendering the art pieces like listings in an encyclopedia. Adding onto an eccentric existing building demonstrated that varying volume and height could create a museum that seemed larger because of its wider range of spatial experience. Proceeding from the premise that "not all art works in all spaces," Krens argues that "a monolithic museum loses its validity."

Krens is proposing the fairly obvious but nonetheless radical notion that varieties of architectural experience catalyze different interpretations of objects, which are no longer considered autonomous, or absolute.

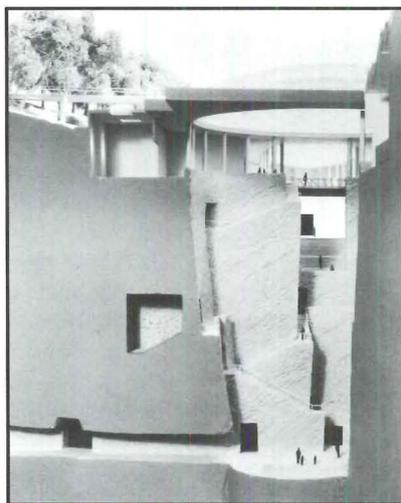
When Krens came to New York in 1988, the controversial Gwathmey-Siegel plans for the addition were virtually a *fait accompli*, developed under his predecessor, Thomas Messer. Unlike James Johnson Sweeney, the Guggenheim's second director, who treated Wright and his building as adversaries, Krens saw the Wright building as a potential ally. His decision to broaden work on the landmark to include the restoration of the Wright original was a masterly stroke: the Guggenheim, at last, was treating the Wright building as the pride of its collection, not as a

white elephant, and the respect shown for Wright's interiors helped neutralize the standing controversy over the addition. When finished, the Gwathmey-Siegel restoration efforts were unanimously applauded.

To further diversify the institution's Manhattan facilities, Krens engaged Arata Isozaki to design a Downtown branch in the thick of SoHo. In the two-and-a-half stories of a prototypical loft building,



Model of proposed Guggenheim branch museum in Bilbao, Spain, by Frank O. Gehry & Associates.



Section model of proposed Guggenheim branch museum in Salzburg, Austria, by Hans Hollein.

Joshua White

Atelier Hans Hollein

**"In a positivist century, the pieties of MoMA's neutral white box became orthodoxy
in what was largely seen as an either/or choice
between art and architecture."**

Isozaki produced a subtly detailed space with a character at once distinctive and serene. The architect orchestrated natural and artificial light and a simple palette of materials and colors into glowing spaces reminiscent of Wright's rotunda. The paleness of Isozaki's space has value, the whiteness hovering like a mist off the walls and floors. Seeing a Kandinsky in the SoHo Guggenheim is experientially different from seeing it in the Wright building or in the Gwathmey-Siegel annex.

The controversy surrounding Krens's expansion program has more to do with funding than with aesthetics, focusing on the fact that the collection constitutes the museum's collateral: many critics worry that although the proposed buildings in Europe are being financed by the host governments, failure of branch Guggenheims may jeopardize the collection. Krens and the trustees have presumably crunched the numbers, but they are not for public consumption. What *has* been made public is a persuasive architectural argument.

When Krens went to Salzburg several years ago to meet with civic leaders who had proposed a Guggenheim branch there, it was originally to decline the offer (Salzburg wanted the Guggenheim to help extend the city's cultural "season" through the year). But his visit happened to coincide with the announcement of Hans Hollein's competition-winning design for the relocation of an existing museum to spaces excavated in the city's promontory. These promised a haunting mythopoetic quality (complete with a circular, cliff-sided atrium coincidentally related to Wright's rotunda). The scope of the design exceeded the mandate for a provincial museum, and its magnetizing originality begged a worthy collection. Krens was convinced. "It's pure seduction," he says. "An invisible museum inside the rock."

By the time the Guggenheim was approached by the city of Bilbao to establish another branch there, Krens had developed a position about the role of architecture for satellite museums: the Guggenheim could not duplicate itself architecturally like a McDonald's; nor could the branches become, like those of the Whitney, outposts submerged within larger (corporate) buildings. The respective designs would have to distinguish each venue and establish a unique viewing experience, each large enough to achieve a critical mass and notable enough to become a destination.

For Bilbao, Krens helped stage a limited competition between Frank Gehry, Coop Himmelblau, and Arata Isozaki. Gehry won with a design whose sculptural roofscape is responsive to the city's undulating topography, and which has a strong presence on the riverfront, also integrating an adjacent elevated highway into the composition. "What I want from Gehry is Gehry's best building, and I want it to be as historic as Frank Lloyd Wright's," says Krens. Gehry, for his part, has been careful not to compete with the art, paring the more assertive forms from the galleries. The building seems a hybrid of the Guggenheim on the outside and MoMA on the inside, though it

also proffers what Krens calls "a third kind of space" – rooms devoted to certain artists who have been consulted about the kind of spaces best suited to their work. Thus, the projected museum follows the Guggenheim's original paradigm of a building with a strong, rather than a neutral, presence – essentially adopting Rebay's notion of the experience of architecture as art.

The use of architecture is occurring also at exhibition scale. Zaha Hadid designed the installation of "The Great Utopia: The Russian and Soviet Avant-Garde 1915–1932," an exhibition slated to open in September at the newly reopened Fifth Avenue Guggenheim. The proposed design is brilliant: a calligraphic abstraction of Tatlin's Monument to the Third International that swirls up through Wright's spiraling rotunda, and a Malevich-inspired Arkitecton that pierces the floors of the annex, sliding onto the ramps of the rotunda, where it is transformed by the circularity. What is telling is the administration's thoughtful pairing of commission and designer:

no architect knows the material better than Hadid, and no one is more likely to bring the appropriate historical resonance to a contemporary installation.

But architecture for the new Guggenheim is also a vehicle to expand the charter of a museum whose collection was in some way frozen by Wright's building. The original Guggenheim, never good for conventional sculpture, was conceived as a museum of easel art rather than loft, or conceptual art; as such it was outdated for the art of the late 20th Century. Krens sees

the highly individuated designs in different countries as an instrument of the museum's diversification: a means to accommodate large-scale contemporary work and broaden the museum's scope. That ability could in turn attract gifts.

Museum design, then, has become identified with collection content: architecture is destiny as well as destination. As a vehicle to confer visibility and legitimacy on institutions, the ground-breaking designs of Hollein and Gehry indeed lend authority to the vision of a dispersed institution – initiating a discussion about architecture that is, presumably, a foretaste of the art. The quality of the designs (and the reputation of the architects) give the proposed branches a presence before the fact, and may help to precipitate them. But Krens's perception of architecture also ventures into new museological territory – which engages the old MoMA versus Guggenheim argument with a fresh view about the relativity of the art object in varying, "interpretive" environments.

Architecture may be seen as the most prominent artifact in the Guggenheim collection, with a talismanic potential for assuring the success of the museum itself. If realized at a level equal to the institutional intent, the proposed new buildings promise to etch themselves in the collective cultural mind. **Joseph Giovannini** ■

The author is an architect and critic in New York.



Renderings of installation by Zaha Hadid for Russian Avant-Garde exhibit at the Fifth Avenue Guggenheim.

Noted with Pleasure: in his most recent book, Japanese architect **Kisho Kurokawa** formulates a philosophy for architecture based on an appreciation of diversity.

[The] great wave of industrialization gave birth to the International Style. This is the Modern architecture we are all so familiar with, the great boxes of steel, glass and concrete. The International Style liberated architecture from past modes through the use of new materials and revolutionary technologies, creating a universal architectural model that spread to all countries and cultures. For me, the International Style resembles Esperanto since it sought to create a common architectural language for all humanity.

But this universal model is in fact based on the values and ethos of Western civilization. Again, the resemblance to Esperanto is clear, for Esperanto was a universal language based on Western languages. Modernization turned out to be industrialization, based on the value system of the West; and the developing nations, in their pursuit of modernization through industrialization, have all quite naturally pursued Westernization with equal keenness.

When the positions or standards of cultural value are in disagreement, it is not necessary for one side to defeat the other and force his values on his opponent. They can instead search for common ground, even while remaining in mutual opposition. The success of this approach depends upon whether one has any desire to understand one's opponent. Even two cultures so different from each other that understanding is impossible will find that the sincere desire to understand the other makes co-operation possible. Symbiosis of this sort, a symbiosis that includes elements of opposition and competition, is a common feature of the animal and plant kingdoms, which is why I have selected the word symbiosis rather than peace, harmony or coexistence.

In the age of symbiosis the ideals of universality and equality, which have passed unchallenged, will cease to apply. Until now, the most widely accepted form of universality has been technology. It was widely believed that technology, which brought wealth and happiness to the masses, would unify and homogenize the entire world, regardless of the differences in development or culture among nations. Cars, nuclear power plants, and the glass and steel of Modern architecture were supposed to make people in the deserts of the Middle East, the tropical cities of Southeast Asia and the loess plains of China happy, and make them the same.

We no longer believe this is true: technology does not take root when it is cut off from culture and tradition. The transfer of technology requires sophistication: adaptation to region, to unique situations and to custom. When the technology of one culture is introduced into another with a different lifestyle, it is often difficult to ensure that the technology will take root.

I must make perfectly clear, however, that in rejecting the universalism and internationalism that presupposed the superiority of the West, I do not advocate a static traditionalism or narrow racialism. I believe instead that the coming age will be a time when the different regions of the world will re-examine their own traditions. On the international level, each region will confront the values and standards of other regions and, while mutually influencing each other, each will produce its own distinctive culture. Rather than internationalism, I call this interculturalism.

While the industrial society aimed for universality and homogeneity, the information society will aim for multiplicity. Universal,

homogenized information is of reduced value; in order to establish their own identities, people try to distinguish themselves from others. In this manner, things, people, and society will grow infinitely various, and architecture is no exception. The differentiation of architecture will be achieved in the evocation of new meanings, bringing differences and variety into new work.

It is mistaken to regard the Post-Modern as a chaotic transitional period. The appearance of a highly differentiated architecture, the eruption of the evocation of new meanings, is the manifestation of the architecture of the information age. Differences are created by giving consideration to relations, or by Heidegger's "care" (*Sorge*). The evocation of meaning through difference requires a keen sensitivity as an essential prerequisite.

... Modern man is a person whose interior nature – his spontaneity and sensitivity – is controlled and subjugated by his reason. Reason, science, technology and economics take precedence over culture, art, literature and thought. To challenge Modernism and Modern architecture is to challenge Western Rationalism. Contemporary Post-Modern architecture has not yet achieved the essential conquest of Western dominance and Rationalism.

In architecture there is a Post-Modernist group represented in America by Robert Venturi and Michael Graves, and in Japan Arata Isozaki is often called a Post-Modern architect. But in my opinion, they are Post-Modern only in the narrowest sense of the term. Their

"While the industrial society aimed for universality and homogeneity, the information society will aim for multiplicity."

method is to incorporate the architectural styles of the past – predominantly the European past – into contemporary architecture. They do not subscribe to the broader Post-Modernism I speak of, which seeks to eliminate the domination of the West and transcend Modernism.

Though I have said that our living environments, our cities and our architecture should be novelistic, with many different readings, I also believe that this "novel," when finally deconstructed, should be akin to a poem that expresses, finally, nothing. As Baudrillard has written, "*La poétique* as the exchange of symbols brings into play a strictly limited and determined group of words. Its purpose is to totally exhaust those words."

Kisho Kurokawa was a founder of the Metabolist Movement, and a member of Team X. He has written several books including Homo Movens (1969), and Rediscovering Japanese Space (1989).

Reprinted with permission, Kurokawa, Kisho, *From Metabolism to Symbiosis*, Academy Editions, London, 1991.



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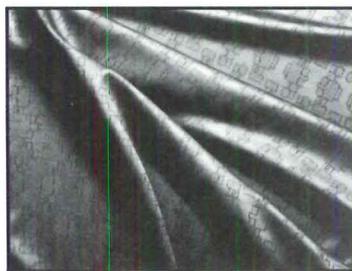
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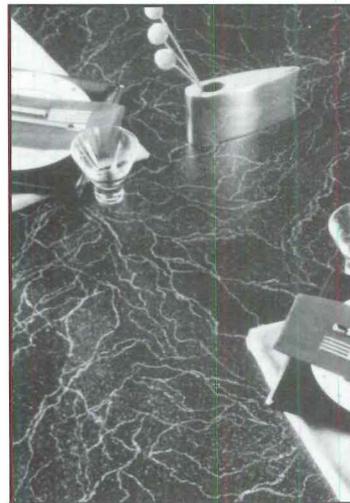
Architectural Glazing Regulations
The Guide to Architectural Glazing Regulations is an updated version of the National Glass Association's *Guide to Federal Glazing Laws and the Model Safety Glazing Codes 1990*. Codes and regulations for safety glazing, hazardous locations, and sloped glazing of doors, sidelights, wired glass, railings, mirrors, fixed and operable panels, skylights, and other overhead glazing are addressed. NGA.

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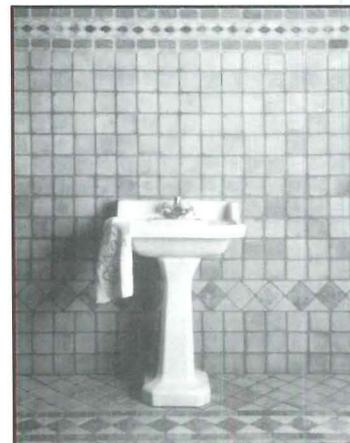
Worsted Wool Textile
Designer Jennifer Eno's new collection, "Family Album," includes 15 designs. "Home-wood" (above) is 100 percent worsted wool and is available in a 54-inch width. Bernhardt.

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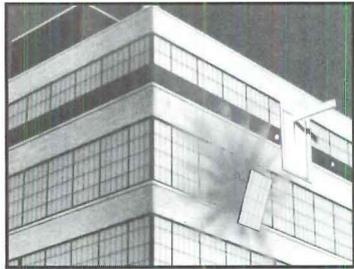


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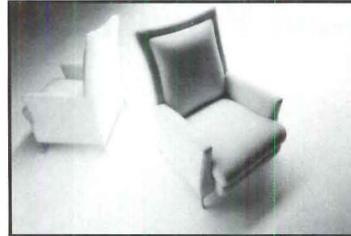
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"Toad Hall," designed by Glenn Pushelberg of Yabu Pushelberg, Toronto, is upholstered and has a steel base. Louis.

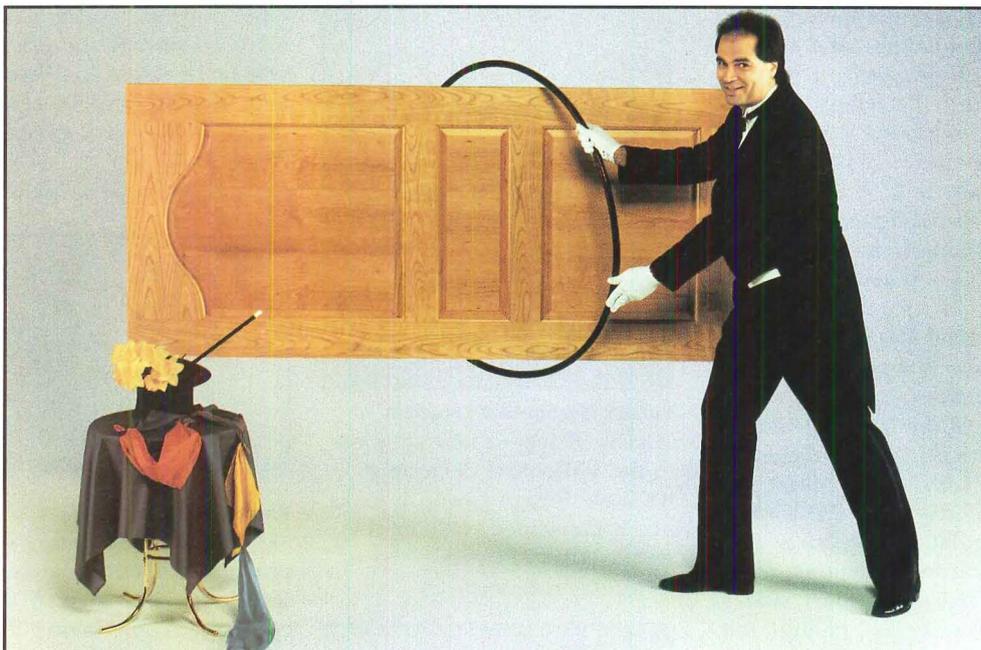
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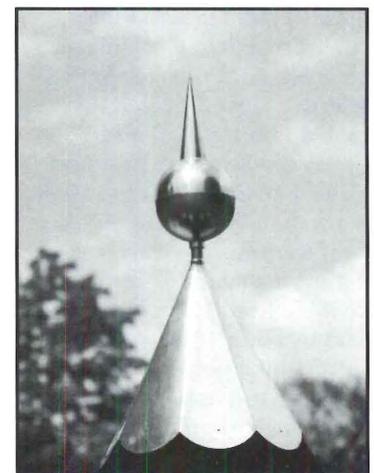
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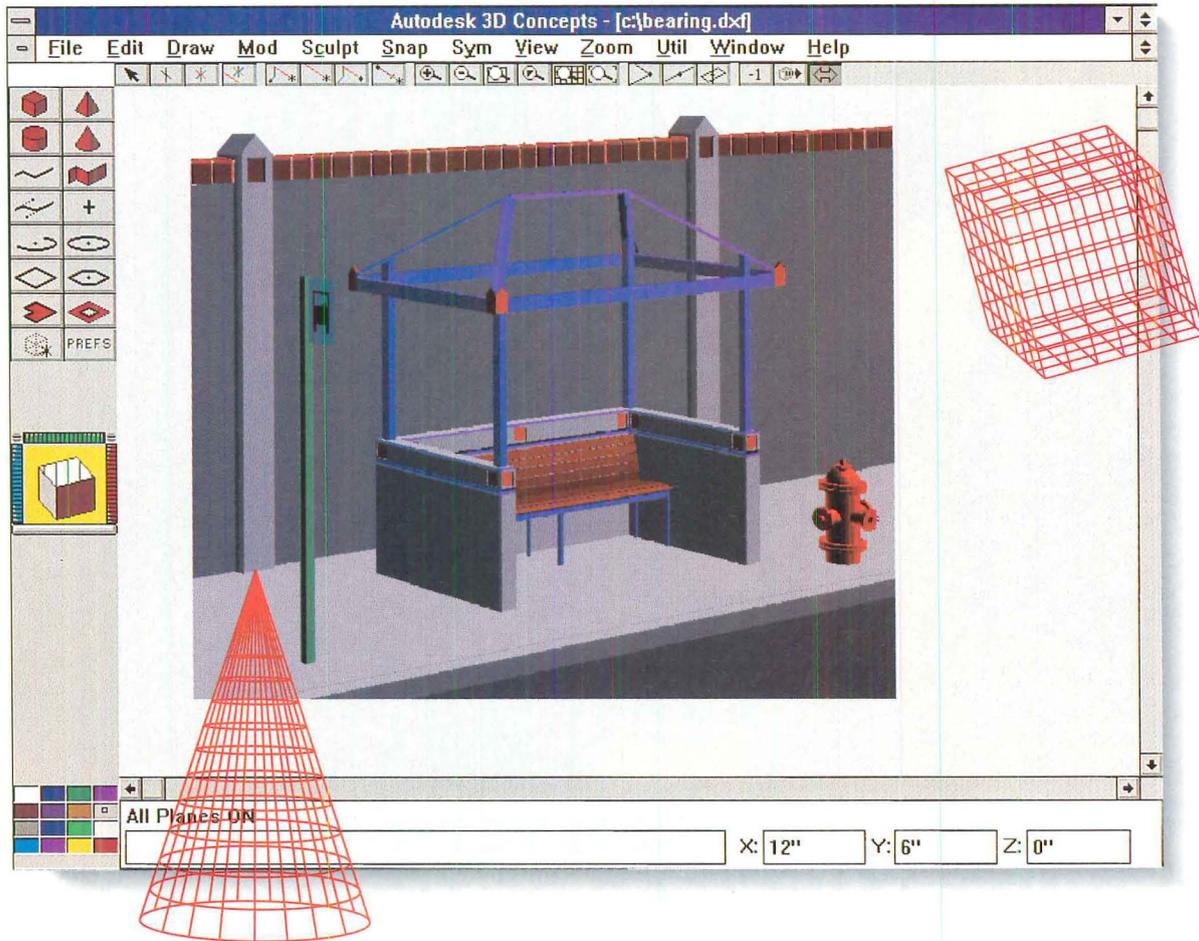


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(continued on page 125)



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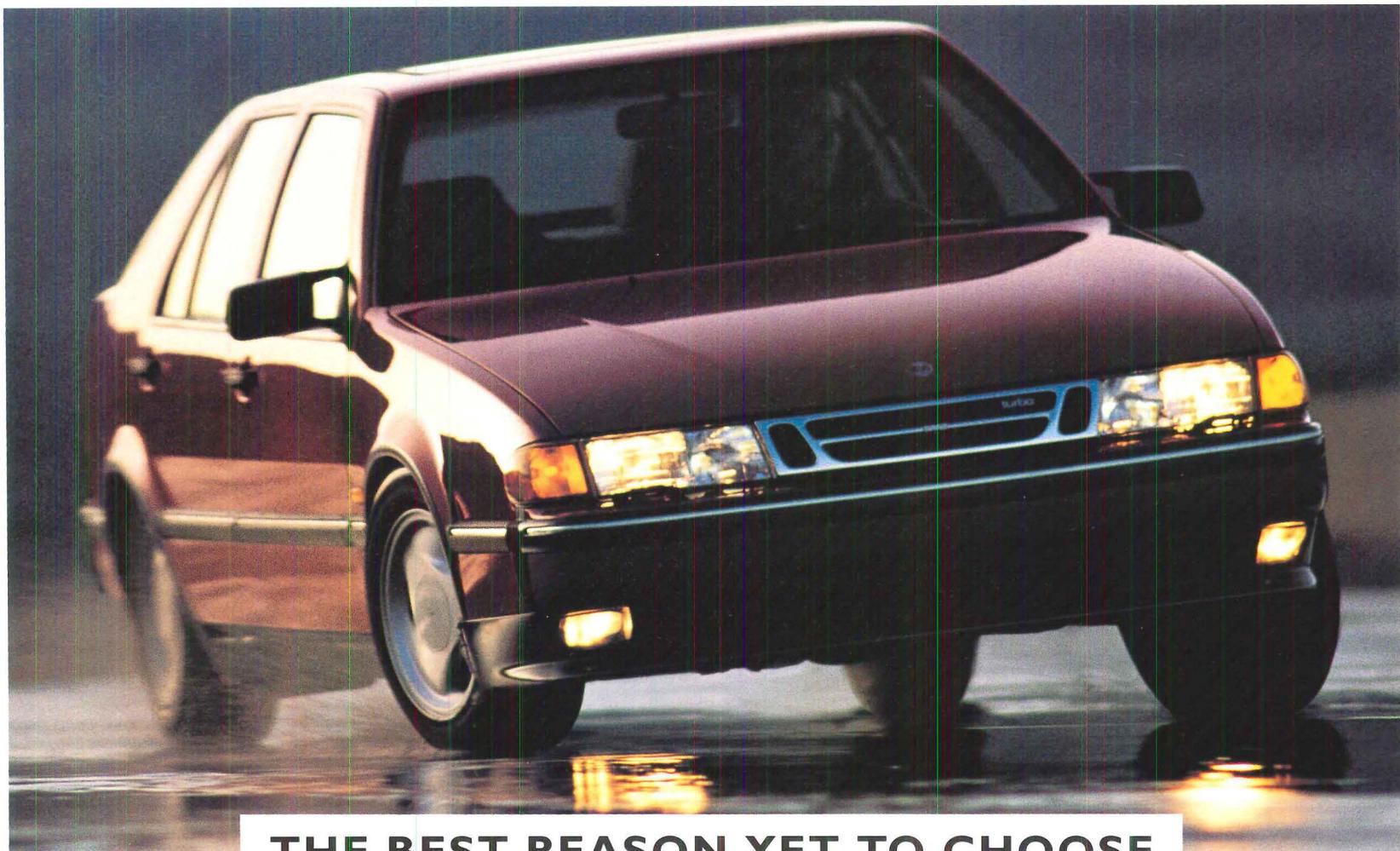
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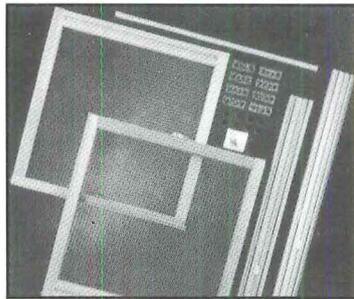
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Technics-Related Products

The products listed here complement the Technics article on replacement windows, (see p. 42).



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The "Vets Pak"™ wood sash replacement kit is designed to replace double-hung windows. Standard and custom sizes may

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jamb depth; an overall 3/4-inch glazing capacity; a fusion-welded frame; and a positive interlock with dual weatherstripping. Rehau.

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(continued on next page)



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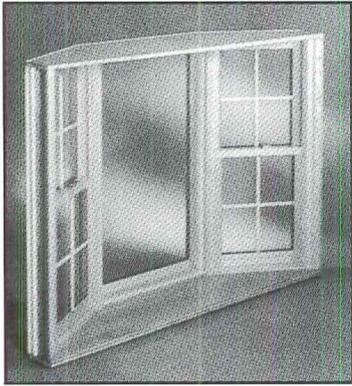
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(continued from previous page)



Clad Wood Windows Brochure

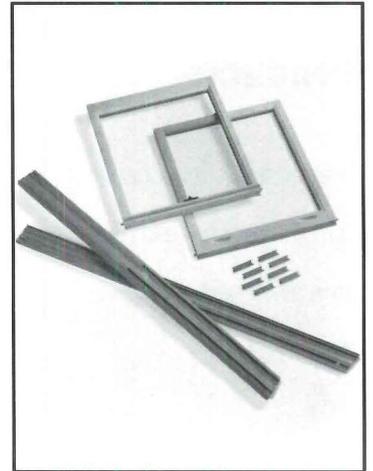
This brochure describes the "Class View" line of clad-wood replacement windows. The line is available in double-hung, casement, awning, bay, and bow designs. The windows are custom made so tear-out and block-in procedures are not necessary. Malta®.

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This "Tilt-Pak" kit, for replacement of existing double-hung wood windows, may be ordered in pine, true oak, cherrywood, and all grilles and glazing options. The kits include weatherstripping, vinyl jamb liners, and installation brackets. Weather Shield.

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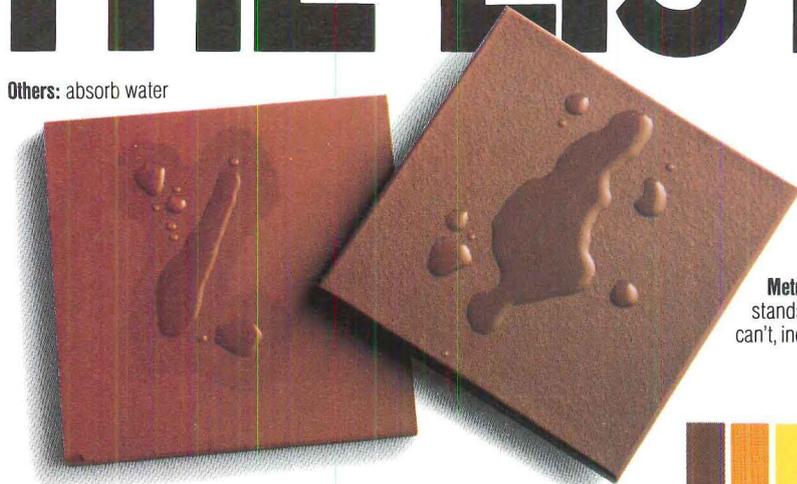
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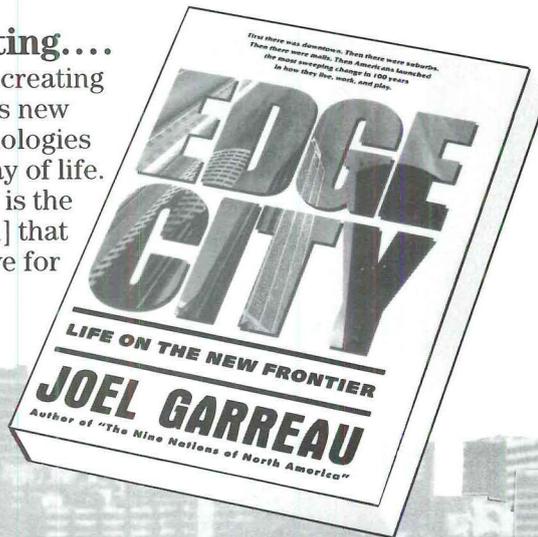
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Views (continued from page 11)

culture, then all presuppositions should be put on the table and thoroughly re-examined. If relativism and humanism are exempted from this process, our culture and our architecture will continue to degenerate. The greatest hope for the West is to discard the vacuous tenets of Modernism and resume the search for enduring principles such as Truth and Beauty which motivated our civilization for centuries.

Lamont F. Wade, AIA

Nicholason Greene and Gulak

Glen Allen, Virginia

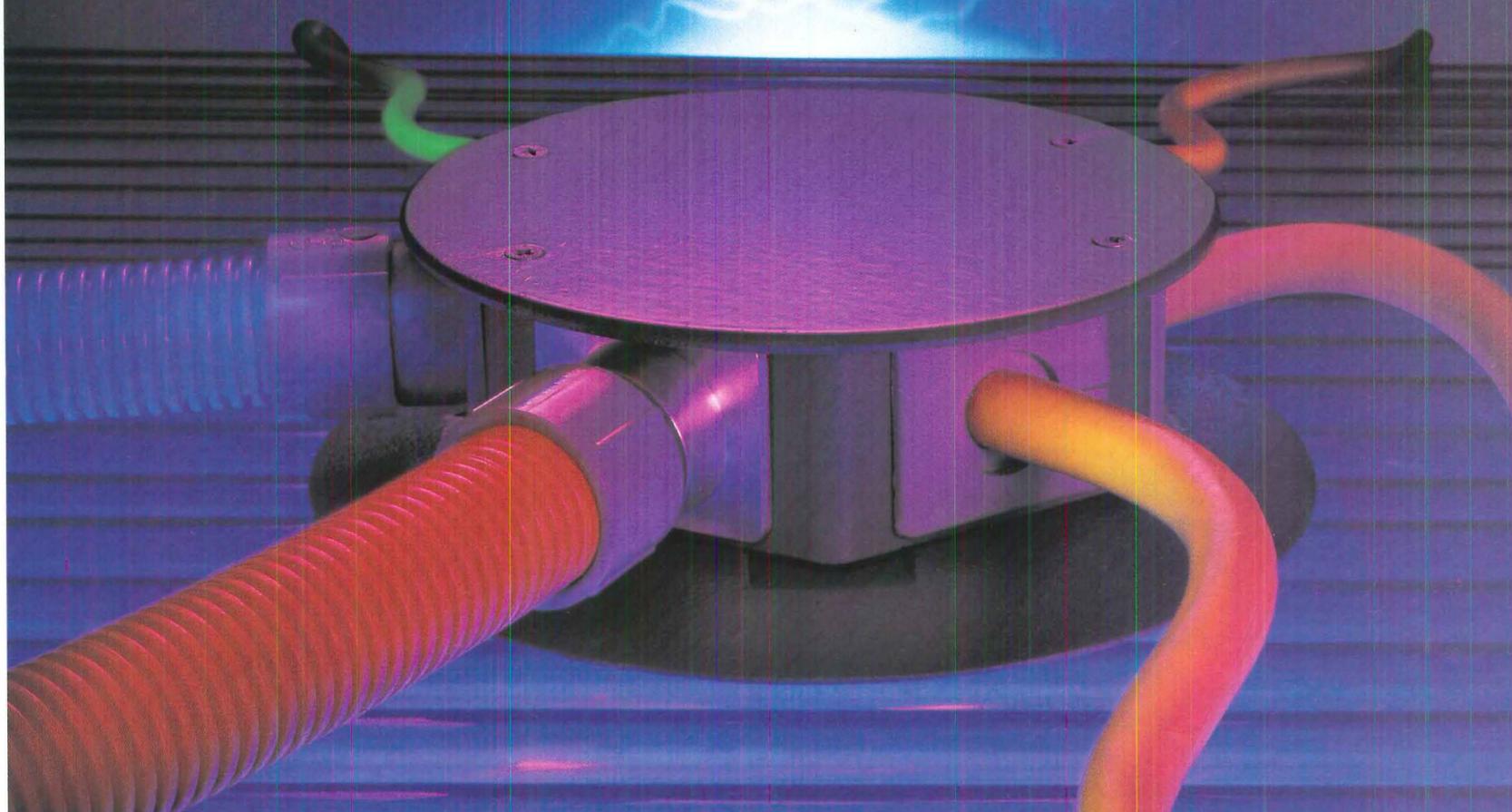
P.S. The revelation that "... our culture is looking to architecture for direction ..." comes as welcome news. I can tell all my unemployed colleagues that "our culture" has put them out of work so they can have ample time to devote to the search for direction.

[Because of flaws in his logic (a thing, for example, cannot be equally meaningful and meaningless at the same time for the same people), Mr. Wade ends up attributing to me the very opposite of what I was arguing for. I agree that the worst thing we could do (and have done) is borrow superficially from other cultures. I was arguing for a much more profound understanding of cultural difference as well as some underlying similarities. This would show, I think, that "Beauty" has come in many forms (but not *any* form) and that "Truth" has meant many things (but not *anything*). I am not a relativist, but I do believe that the world is more complex than some of us want it to be. — Thomas Fisher]

Misattribution

David Clarke's review *Out of Site*, published in April (p. 131), made assertions about Margaret Crawford that are not supported by the text. Clarke wrote that she "believes that architects are not only responsible for the homes of the homeless but also for their homelessness." A survey of Crawford's essay in *Out of Site* reveals no statement to support that or several other statements that Clarke attributed to her. P/A regrets the misattributions.

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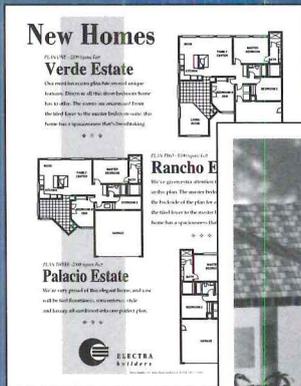
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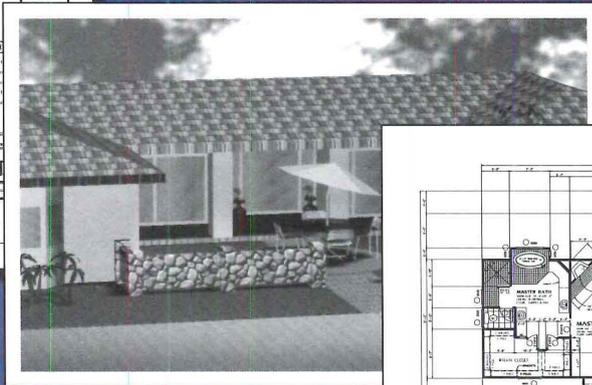
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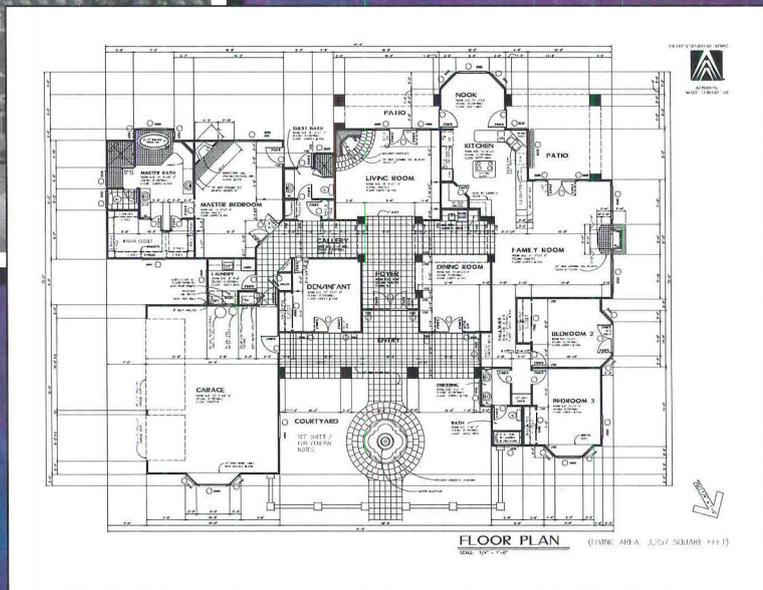
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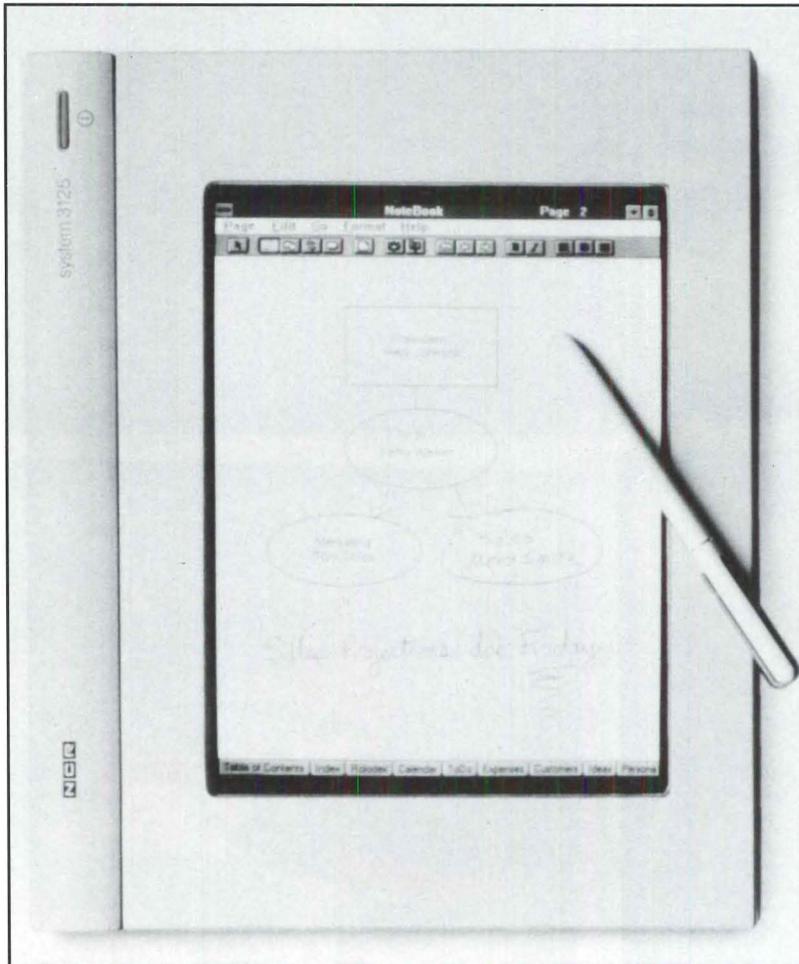
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Computer Products

Articles in this section complement the Practice article

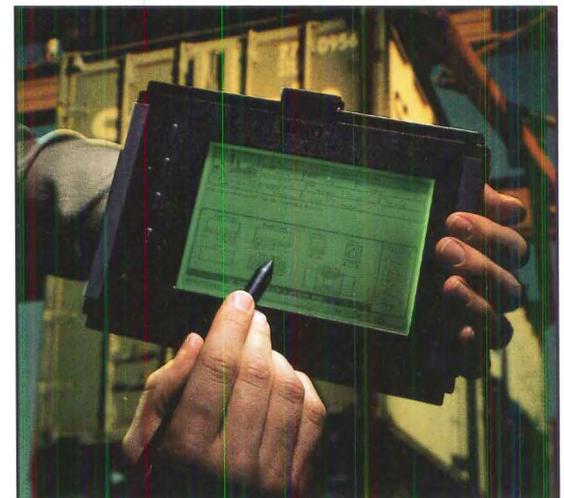
by **Charles Han** on Pen-based computing (see p. 69).



1



2



3

1 Windows for Pens

The pen extension of Microsoft Windows 3.1 adds more than 70 new functions to the operating system. Able to be used along with existing Windows Desktops, the pen-based software is sold by hardware vendors or is pre-installed by supporting hardware manufacturers. It is shown here running on NCR's model 3125 NotePad. Microsoft.

Circle 120 on reader service card

1 NCR 3125

The 3125 NotePad is also available with GO Corporation's PenPoint, or Microsoft's PenOS extension for DOS. The Intel 386 based system measures 9.8" x 11.7" x 1.2", and weighs about four pounds. It can be ordered with a number of different memory options including a hard disk, diskette drive, and Flash EPROM cards, as well as a fax/modem adapter. NCR.

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2 Infolio

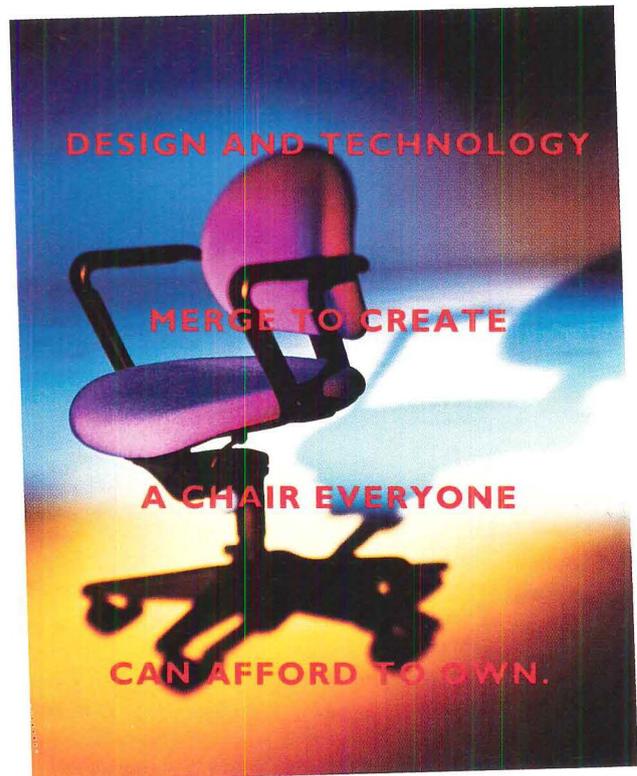
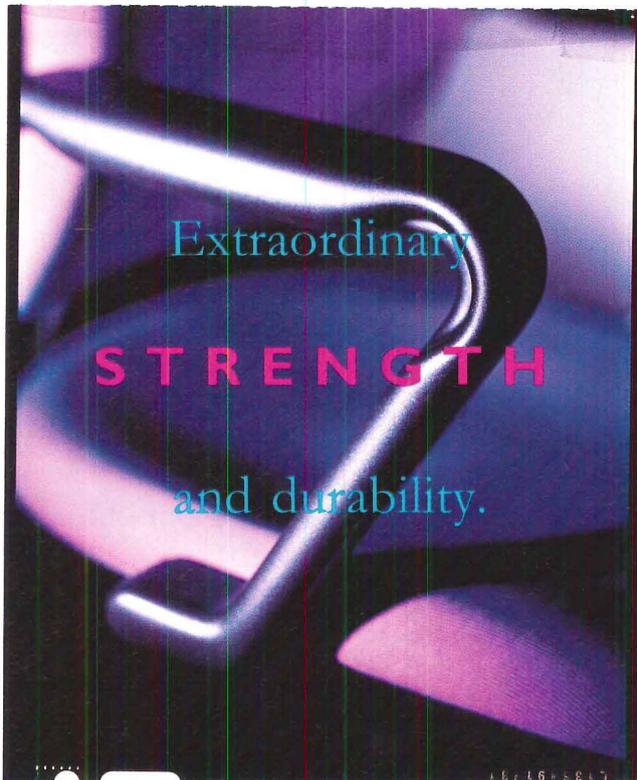
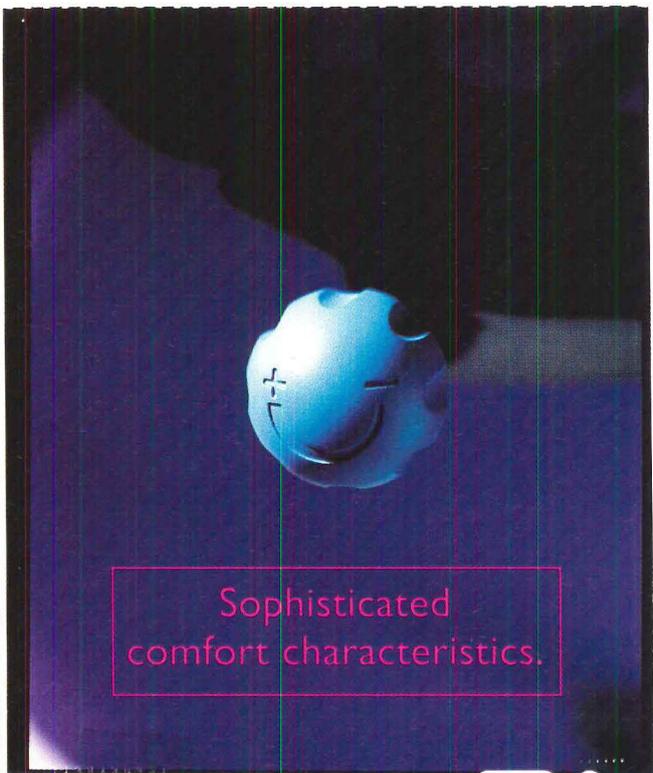
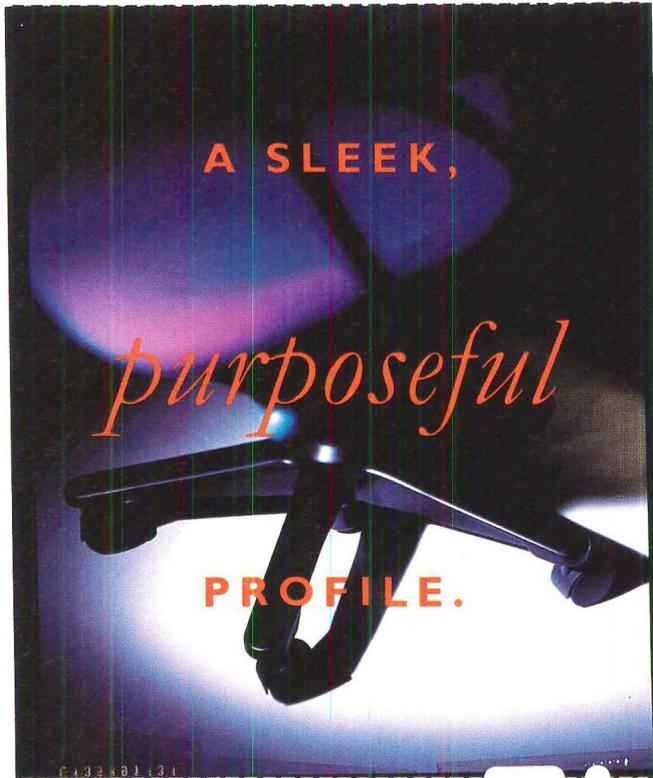
PI Systems' pen computer measures 9.4" x 11.2" x 1.2" and weighs just 2.9 pounds. The system uses standard AA batteries, which last twelve hours between recharging. Included with the computer are programs for a calculator, clock, calendar, address book, scribble pad, and handwriting trainer. PI Systems.

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3 PalmPAD

GRiD Systems is emphasizing portability and ruggedness with this pen computer. The unit can be strapped to the hand or, when not in use, can be worn on the wrist, belt, or shoulder. It is water resistant, and is said to withstand three-foot drops onto concrete. The PalmPAD is primarily designed for data collection applications. GRiD Systems.

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Building Materials

Major materials suppliers as they were furnished to P/A by the architects for buildings featured this month.

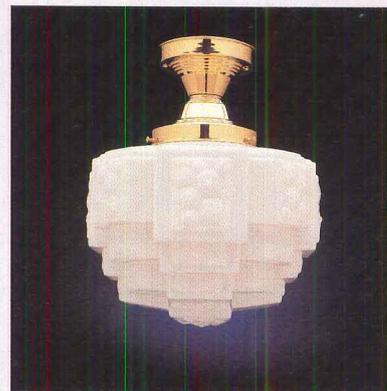
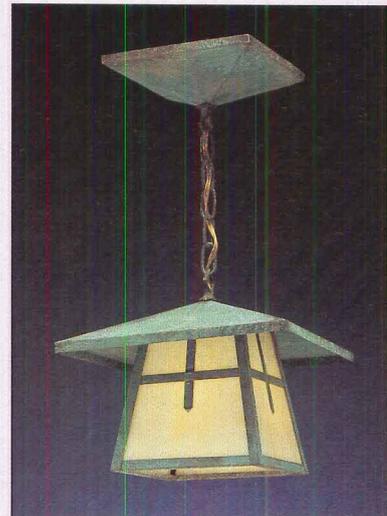
Project: The Rookery, Chicago (p. 90). Architects: McClier, Chicago. Cast iron storefronts: Custom Architectural Metals. Marble: Cremar Spa. Insulated glass: Coolidge Glass. Skylight: Supersky. Revolving doors: Crane Fulview Door Co. Wood doors and millwork: Kister Wood Products. Gypsum board coffer system ceiling: McNulty Bros. Acoustical tile ceiling: Armstrong. Single-ply membrane roof: Trocal. Volcky panels: American Colloid. Waterproofing membrane: American Hydrotech. Sealants: Illbruck, Mameco. Fireproofing insulation: Isolatek. Exterior paint: Glidden. Hinges: Hager. Locksets, door closers: Russwin. High tower locks: Security Door Controls. Security/fire system: Intercon Security. Security card reader: Indala. Elevators: Otis. Downlights: Lightolier. Metal halide floodlights: Infranor. Lavatories, urinals: Kohler. Faucets: Symmons. Toilet stalls: Global. Washroom accessories: Bradley. Water fountains: Oasis. Sprinklers: Reliable. Heating system: Environmental Technologies. Air conditioning units: York. Thermostats: Barber Coleman. Restored and replicated historic lighting fixtures: Ball & Ball.

Austin Convention Center, Austin, Texas (p. 104). Architects: Austin Collaborative Venture. Granite: ACTI Trading. Smooth and rough-cut limestone: Leander Cut Stone. Giant Norman brick: Endicott Clay Products. Anodized aluminum panels: Pohl Koln. Kynar-coated metal shingles: Berridge. Painted CMU: Featherlite. Anodized aluminum doors and windows: Atlas. Double glazing: Guardian. Gypsum board: USG. Water-resistant gypsum board: Gold Bond. Wood panelling: Out-of-the-Woods. Fabric pan-

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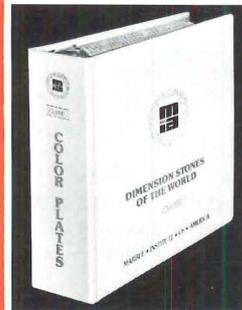
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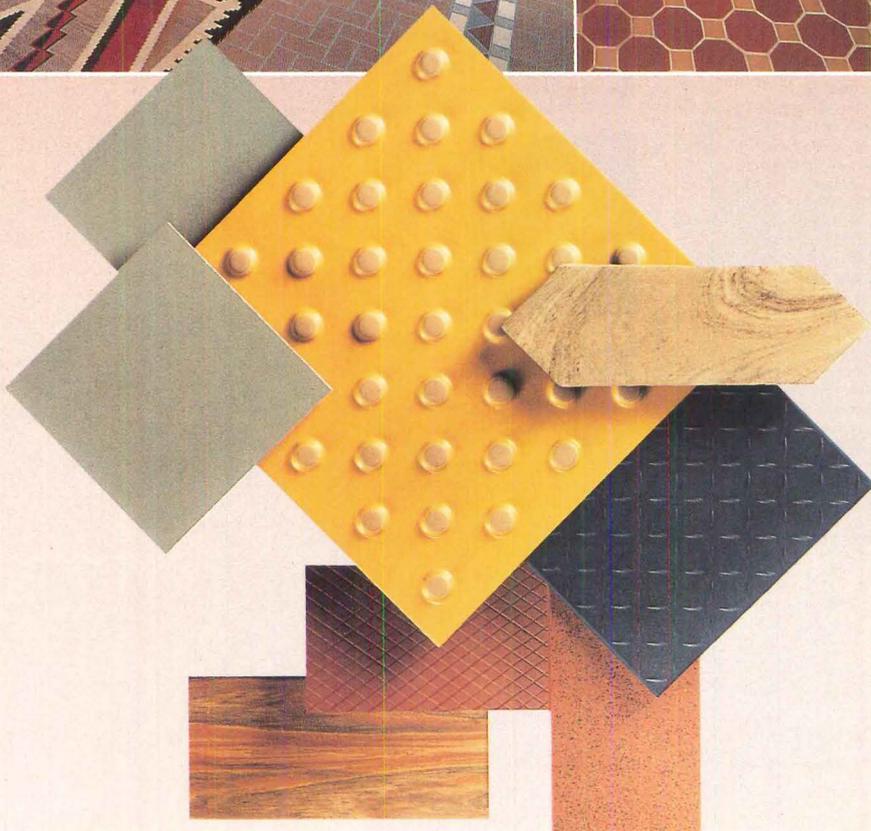


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Sutro Baths

Tanner Leddy Maytum Stacy Architects, San Francisco. William Leddy, B. Arch., University of Oregon, 1975; firm founded in 1980, previously Tanner & VanDine Architects; Exhibition, "In the Spirit of Modernism," San Francisco Museum of Modern Art, 1991-92; P/A Citation, DataMart, San Francisco California, 1984.

Subway Suburb

John Montague Massengale, architect and town planner, Bedford, New York. B.A., Harvard College; M. Arch., University of Pennsylvania; Co-author of *The Anglo-American Suburb* (New York, St. Martin's Press; London, Academy Editions; 1981) and *New York 1900* (New York, Rizzoli, 1983); Director of Federated Conservationists of Westchester County (FCWC).



Brooks

Post-Suburbia

Angela Brooks, B. Design in Architecture, University of Florida, 1987; M. Arch., SCI-Arch, 1991; Exhibit, "Broadening The Discourse", UCLA, 1992; Exhibit, "Re: The American Dream" with Mary-Ann Ray, Barnsdall Art Park, Hollywood, 1991.

Lake Calumet Airport

Donald L. Hey, President, Hey & Associates. B.S. Civil Engineering, University of Missouri, 1963; M.S. Water Resources Engineering, Kansas University, 1968; Ph.D., Environmental Engineering, Northwestern University, 1974; Director, Wetlands Research, Inc.



Gregg, Wenk, Dunnett

Storm Water Resources

Bill Wenk, Principal, Wenk Associates, a Denver landscape architecture and urban design firm. BSLA, Michigan State; MLA, University of Oregon; adjunct Associate Professor of Landscape Architecture, University of Colorado School of Architecture and Planning.
Billy Gregg, BFA, Emerson College, 1982; MLA, University of Colorado at Denver, 1988.
Kevin Dunnett, BSLA, Colorado State University, 1990.



Chabannes

Solar Aquatics Systems

Gilles Chabannes, Partner, Eisele-Chabannes Architects, New York. Graduate, University of Texas School of Architecture; participated in the development of "passive-solar" software used as a national standard by the Department of Energy; has practiced architecture in Texas, New Mexico, Pennsylvania, and Canada.

Sally Siddiqi, Principal, Sally Siddiqi & Company, New York, a business development firm specializing in the design industry. B.L.A., University of Washington; B.A., University of Minnesota; received two U.S. Department of Energy grants for passive solar design; Chairwoman, Architects/Designers/Planners for Social Responsibility/New York (ADPSR/NY); Member, Executive Committee of ADPSR/National; Member, The New York River Project's Board of Directors; Delegate, United Nations; teaches landscape architecture at the Salvadori Educational Center on the Built Environment.



Wall

Mississippi River Bridge Corridor

Michael Stanton, Assistant Professor of Theory and Design, Tulane University. Educated at Antioch College and Harvard; M. Arch., Princeton, 1984; founding director, Tulane's Architecture in Venice Program; has practiced in New York, London, Boston, and Washington, D.C.; has taught at the Institute for Architecture and Urban Studies, RISD, Catholic University; and The University of Miami; editor and writer, *Academy Editions*, London, and *The Museum of Modern Art*; first recipient of the Aga Khan Traveling Fellowship; recipient of a Rome Prize in Architecture, 1990-1991.

Scott W. Wall, architect, New Orleans, and Assistant Professor of Theory and Design, Tulane University. B.A., Davidson College, 1980; B. Arch. (hons), University of Tennessee, 1983; M. Arch., Rice University, 1988; recipient of the Presidential Fellowship, the Morris R. Pittman Traveling Fellowship, the Margaret Everson-Fossi Traveling Fellowship, and the Sudler Prize in The Combined Arts; has taught at The University of Tennessee, Georgia Institute of Technology, and Rice; editor-in-chief of the *TSA Review*.



Siddiqi



Maria-Cristina Gosling and David Gosling

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Proctor

Steel Mill Rehab

David Gosling, Director, Center for Urban Design, University of Cincinnati. B.A.(hons), Manchester University (UK); M. Arch., MIT, 1958; M.C.P., Yale, 1960; Ph.D., Sheffield University (UK), 1985. Former Dean of Architectural Studies, Sheffield University, (UK) 1973-1989; Co-Author "Concepts of Urban Design" (1984); State of Ohio: First Eminent Scholar in Urban Design
Stephen Proctor, Partner, Proctor & Matthews, London. B.A.(hons), Sheffield University (UK), 1981, M.A. (Dist.), 1984; 1st Prize Winner RTPI/IFHP European Prize, 1986

Maria Cristina Gosling, Graduate Research Assistant, University of Cincinnati. B.A.(hons), Sheffield University (UK) 1990; J.R. James Prize, 1990; J.R. James Research Fellowship, 1991.



Andrews, Mascheroni, Rosas

Community Media Center

Raul Rosas, Principal, Raul Rosas Architects, New York. B.A. Arch., Pratt Institute, 1978; 1st Prize, Space Habitat Design Competition, 1989.

Chris Andrews, B.A. Arch, RISD, 1981

Keith Mascheroni, B.A. Graphic Design, RISD, 1980



Lee

Ross Lord Reservoir Park

Tim Lee, designer with Dunlop Farrow Inc., Architects, Toronto. B. Env. Studies, University of Waterloo, 1986; B. Arch., 1989; Award of Merit in the 1989 Ontario Association of Architects (OM) Headquarters Competition; Third place, 1991 Super Sandcastle competition organized by Endless Summer, a Toronto charity for the homeless.



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Books (continued from page 114)
ington and the absolutist diagrams of Versailles or Karlsruhe ... unless we can elaborate on the nature of the content that was to be housed within each, and the social premises of the designers."

Intention is a notoriously slippery subject. For at least some of the cities Kostof considers, the artifact itself is the major evidence for intention. Even for well documented artifacts, reconstruction of intention is open to question. It is still more questionable whether the planners of a city, whether designers or other agents, successfully matched their intentions to the pattern. Finally, for a "physicality ... akin to that of a flowing river or a changing sky," is the initial intent or the persistent artifact more enduring under socio-economic change?

The thrust of Kostof's argument and the organization of his book may lead us back to a point he sought to disavow: that the designer's interest in "urban patterns" might support something

more than arbitrary formal play. Kostof asserts: "To the form-seeker, for example, a grid is a grid is

"The urban designer's interest in 'urban patterns' might support something more than arbitrary formal play."

a grid. At best it is a visual theme upon which to play variations ... To us here, on the other hand, how, and with what intentions, the Romans in Britain, the *bastidors* (builders) of medieval Wales and Gascony, the Spanish in Mexico, or the Illinois Central Railroad Company in the prairies of the Midwest employed this very same device of settlement will be the principal substance of a review of orthogonal planning. We will have to come to grips with the fact that the grid has accommodated a startling variety of social structures."

It is correct and, given the state of the literature, distressingly necessary to make this claim that the generic form – *the grid* – can sustain many uses and meanings.

It is, on the other hand, distressing to find that an art historian of Kostof's acuity reduces a great diversity of urban forms to the "very same device of settlement." That he does this intentionally is documented in his dismissive separation of himself from designers: "[The literature of urban design] is full of references to the social implications of urban form. Is the gridiron plan tedious and disorienting? Do certain kinds of public places engender social interaction or discourage it? That sort of thing. These matters, since I am not a member of the designing confraternity, are on the whole extraneous to my inquiry"

Yet precisely these kinds of questions must be entertained if one is to give any substance to two of Kostof's central concerns: How did the intentions of initial actors lead them to choose among the plenitude of "neutral" patterns? How is the persistence of the artifact through socio-economic change significant unless this reveals sustaining properties

of the artifact itself? Urban or architectural forms are not deterministic, but they do constrain and enable.

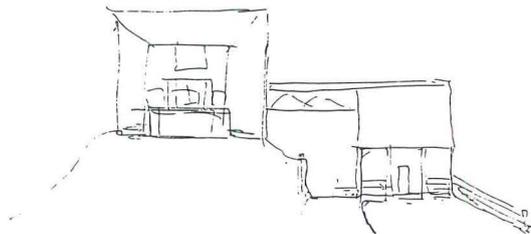
Kostof refuses to consider the possibility that urban form is *not* neutral, that it may be calculated relative to initial intent and yet may also, in its persistence, engender or discourage unforeseen social interaction. Kostof concludes with a call for citizens to take responsibility in the change of their city – including how it is shaped. That responsibility too is difficult to exercise if urban form is wholly neutral.

Stanford Anderson ■

The author is the head of the Department of Architecture at the Massachusetts Institute of Technology.

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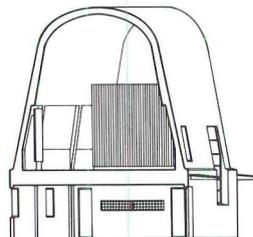
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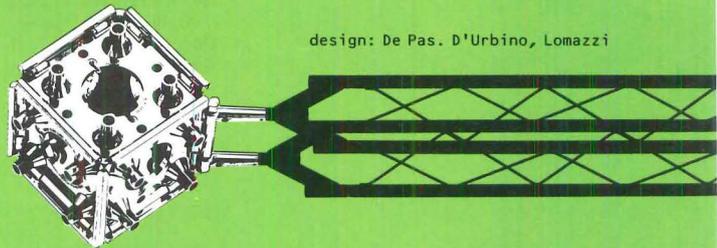
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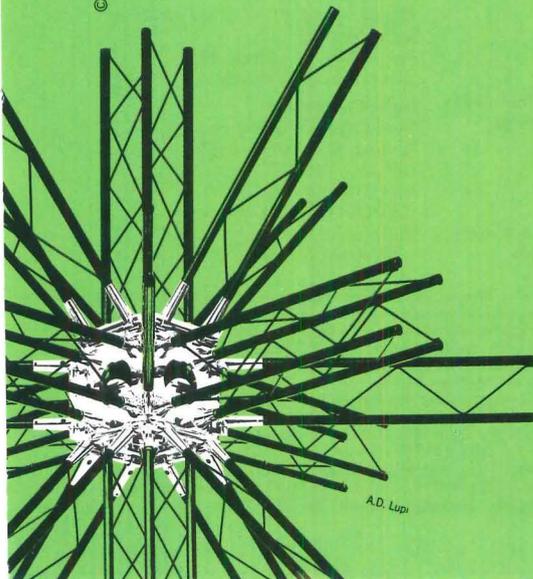
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