

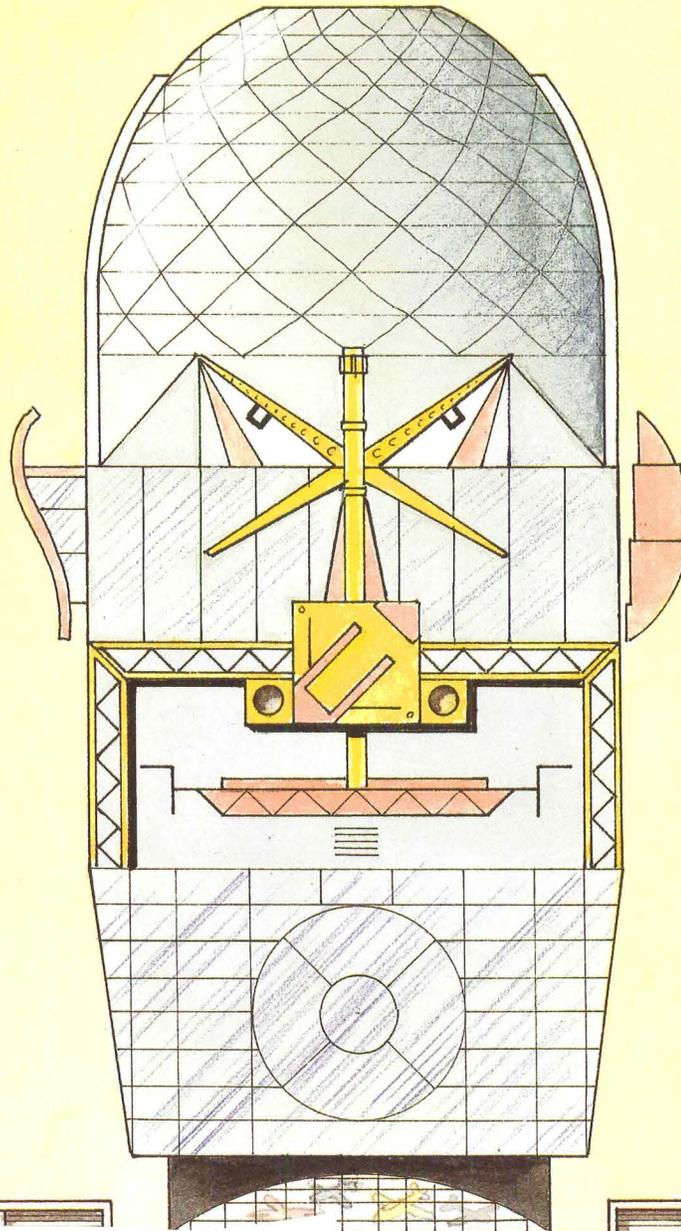
# PIA

# Norman Foster

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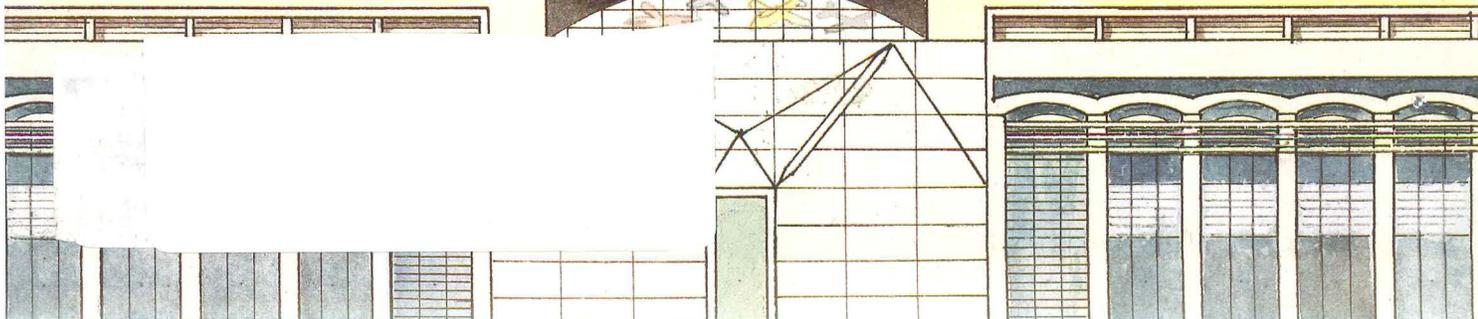
A Penton Publication December 1994



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- AIA Revisited
- Oscar Niemeyer
- Critique: Solana
- Technics File: Lighting

*Hellman*



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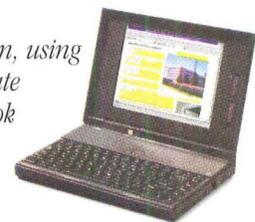
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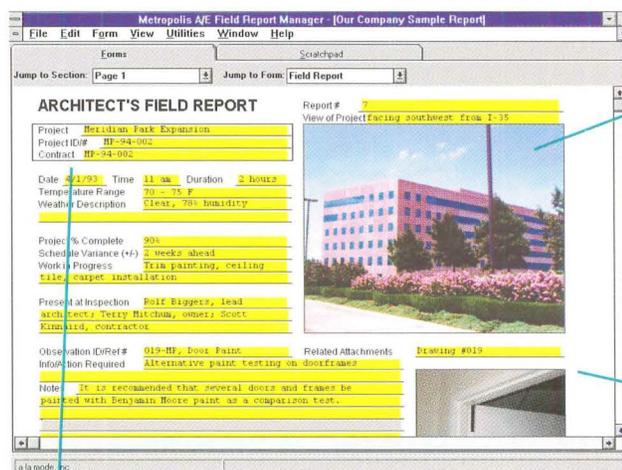


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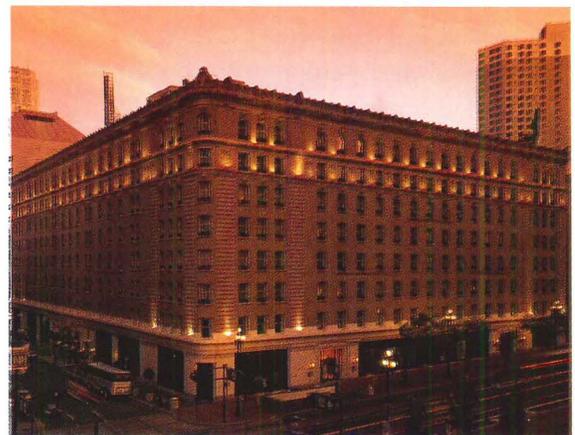
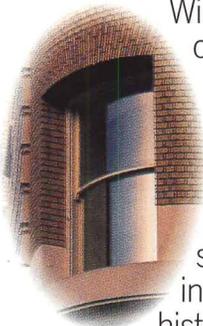
Since 1875, the Sheraton Palace Hotel has been one of San Francisco's most beloved institutions. So when its restoration was being planned in 1989, every effort was made to preserve the details of its original design. Among other things, that meant the replacement of nearly 600 windows. And because of their experience in such projects, Marvin

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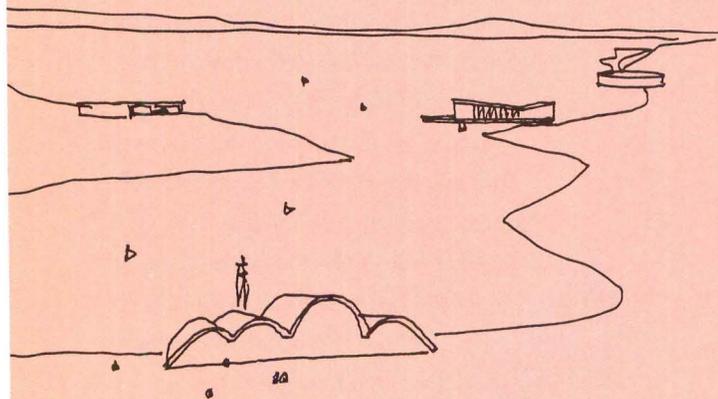
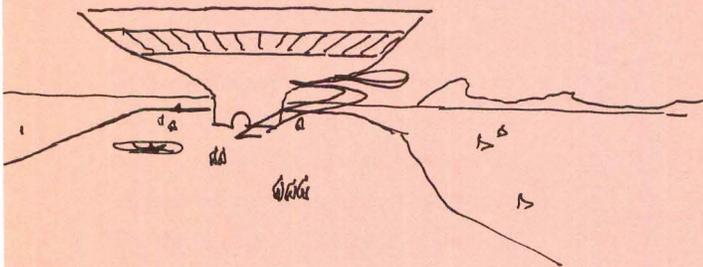
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*Characterization of Norman Foster (p. 49) by Louis Hellman. Included in illustration are the following Foster projects: Reichstag dome (forehead), Renault factory (eyes), Wessex School of Occupational Therapy and Physiotherapy (nose), Tecno Headquarters (right ear), Valencia Congress Center (left ear), Sainsbury Centre (cheeks), Aksa table for Tecno, (chin), American Air Museum (neck), Stansted Airport (tie), Fréjus Regional School (shoulders). Cover design by Julie Anne Yee.*

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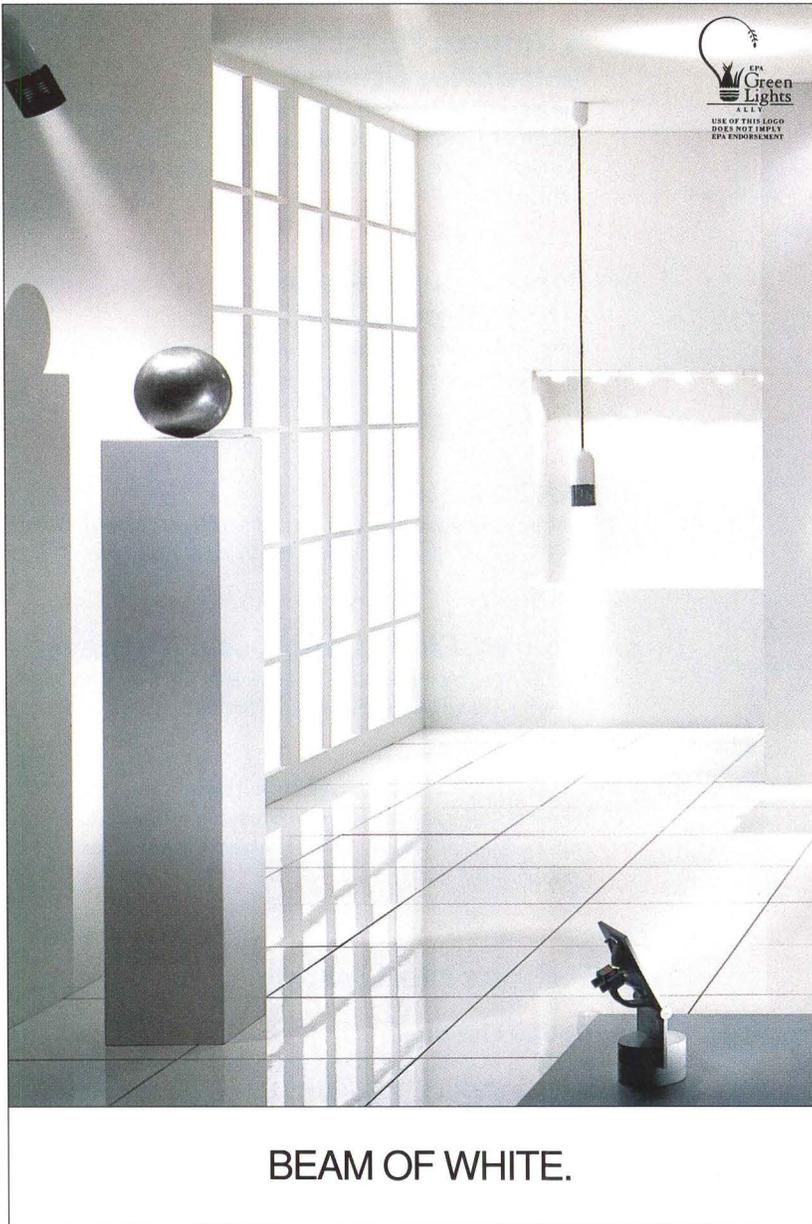
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## Grumbling in the Field

Here's a quiz. An architect is designing a new state college classroom building. When it comes time to lay out the washrooms, the architect calls a respected manufacturer of lavatory equipment. She asks the manufacturer to provide technical assistance, to help lay out the equipment, making sure that there are proper clearances and that the equipment and layout comply with ADA laws. The manufacturer's product reps and technical staff spend time answering lots of product-specific questions, providing information, and generating layout drawings. As the contract documents near completion, the architect asks the manufacturer to provide the names of two competing products for the specifications as "equals." Later, in the field, a subcontractor proposes a substitution not designated in the spec, and the distracted architect acquiesces.

From this experience, the manufacturer concludes (choose one): a) They've been tricked into providing a lot of free help to the ultimate benefit of a competitor; b) The architect is interested only in product features that can be found in other products; c) The person to sell to isn't the architect, but the owner who makes the final decision, or the contractor who can get it into the project as a substitution; d) Architects are spineless; e) All of the above.

If you chose "e," chances are you've been hearing what product manufacturers and their reps are saying about architects. In the architect's defense, including the "or equal" clause is often beyond the designer's control. Many public clients demand, or state laws require, that specifications offer "or equal" alternatives when possible in an effort to get the best bargain.

But the manufacturers' charge that the architect often caves in easily to accepting substitutions not mentioned in the spec is becoming more common. The architect refuses to stand firm when the contractor or the local distributor (who may carry a line of competing products) waves samples and literature at the client for other products that will, they claim, do the job just as well for a lot less. Or the architect may be gearing up for a fight over materials or equipment in high-profile areas of the building (in the lobby or the elevators) and be willing to concede little battles in order to win the war.

The manufacturers' perception that the architect may not be worth talking to has serious implications. Companies find that getting their goods into a project is becoming a matter of end-

running the architect, going directly to the owner, to the GC, or to the construction manager. Need I say that this is yet another sign of the continuing erosion of the architect's role in the design and construction process?

Most architects will agree that getting the owner behind a decision on a product or material is the best way to mitigate assaults on the spec. Architects should build this support early, warning the client to be prepared for an offensive by contractors offering substitutions. Clients must understand that first costs are not the only, or sometimes even the most important, consideration in completing a building that will provide lasting service. The architect's analysis and clear presentation of life-cycle costs should convince a novice client about who on the building team is looking out for his or her interests.

Architects also, according to specifiers Robert Hockaday and Diana Hamilton writing in the *Construction Specifier*, shouldn't include items in the spec that they won't fight for, and shouldn't go along with eleventh-hour changes: "It should be made clear that substitutions will not be acceptable if they simply appear, unannounced, on the shop drawings or submittals." Note that if this advice is to be followed some backbone is required. As for the "or equal" clause, architects have an obligation to be up-front with manufacturers, not to lead them on when they have no intention of writing a prescriptive spec.

The claim of manufacturers that the "or equal" provision is affecting product development is disturbing. Manufacturers are not encouraged to develop new, unique products if architects won't spec them unless there are "equals." "Instead of innovating," one manufacturer's rep told me recently, "we're reducing the product to a common denominator."

Another manufacturer, introducing a new product at a recent trade show, said that architects who came by the display were interested, but wouldn't even think of specifying the new product unless there were two "equals." Thus, manufacturers are dumbing down their lines to ensure that their products are comparable to others on the market.

It would surely be ironic if architects, who are known to complain about the sameness and lack of innovation in building materials and products, were ultimately encouraging this trend through their specs. □

**Through their failure to hold specs, architects are perceived by manufacturers as weak players in the building process and indifferent to product innovation.**



Michael J. Crosbie

## The New P/A

Like so many of your readers, I am relishing the editorial changes at P/A. The magazine has become far more interesting to me and I have renewed my subscription after a lapse of many years. Also, like many readers, I am particularly interested in the discussions surrounding professional stature, respectability, and pay. I found more of all these in my first ten years out of college as a design/build general contractor than most of my fellow architectural school graduates did in various internship arrangements. I hope that situation will change for graduates in the near future. Regarding lack of respect within and for the architectural profession, I could not help noticing a certain irony in your October issue.

First I read the Editorial and Views sections and was glad for the focus on professional ethics but disappointed that the solutions put forth invoked rescue by some outside agency. Michael Crosbie writes that architects who sell their seals "should be turned in" and a Views letter writer thinks a labor union bureaucracy will help "those of us on the lower rungs of the architectural ladder." It

**"As long as architects maintain a condescending attitude toward mere housewives, mere visual artists, mere whatever, they will continue to decline." –Tony Marey**

appears to me that both writers expect relief from outside. They expect some bigger/stronger/ smarter hero to save the day. I believe instead that the professional respect sought in these discussions must be built through the honorable, daily performance of all tasks rather than through fear of retribution. I think examples of excellence and steadiness will do more for the architecture field than threat of punishment.

Next, as I flipped further through the October issue and came to the articles on "The Architecture of Cyberspace" and "Going Turfless" I could not avoid the feeling that the profession was taking two steps backward for each step forward. The first article celebrates the potential role for architects in a virtual world limited to video game aesthetics (and lack thereof) and the second celebrates a "virtual office" which appears more like a frivolous, virtual Romper Room. Is it any wonder that the architecture profession is having problems being perceived as professionally vital or valuable?

If designers want to be respected – and paid – as professionals, we must grow up and take responsibility for the enduring results of our actions. If an employer cheats his/her employees out of fair pay then the entire firm is devalued and the marketplace will reflect

that eventually. If architects deliver trifling, fad designs to their clients then the entire profession is trivialized and its worth is reduced. I believe the profession is simply reaping what it has sown for many years. Since most clients contact the profession through a single architect or a relatively small design team, I believe that the efforts of individuals carry tremendous power to change the profession as a whole. This would be a good time for teachers, students, interns and "starchitects" to review the ways they might contribute daily to the esteem of their peers.

*Kurt Lavenson  
Licensed General Contractor  
Berkeley, California*

The planning and design concepts of the "turfless" offices, while they may not please this reader, are not trivial. –*Editor*

## The Intern Trap

I enjoyed the editorial of your October issue. I have no idea of the quality of designs by the "nonarchitect" kitchen-table designer, but I already like her by the mere description. I

would say that she has avoided the "intern trap" described in your previous issue, utilizing her design ability compounded with the technical expertise of an architectural firm, maximizing the function of both parties. This may be a good organizational development; remember "form follows function."

As long as architects maintain a condescending attitude toward mere housewives, mere visual artists, mere whatever, they will continue to decline. As long as a "nonarchitect" can design buildings that are useful and aesthetically pleasing to "real" people, more power to her.

*Tony Marey  
Wapato, Washington*

## The American Academy in Rome

As a fellow of the American Academy, I was disturbed by Joseph Giovanni's article in the October P/A and his questioning whether the Academy is "relevant for architects pursuing contemporary cultural questions." One can discover in Rome an opponent (with some significant pure forms), as Le Corbusier did, or an ally, as Venturi did. I don't see Mr. Giovanni's point on "relevance."

Le Corbusier and Venturi were both exploring contemporary cultural questions. Nobody was writing about them at that time;

in fact they established the formats for how we subsequently viewed questions on Modernism and Post-Modernism. Parenthetically, Giovanni's guru of relevance, Duchamp, did find time to, shall we say, deconstruct, several auspicious classical "texts" with his *"Morceaux choisis d'après"*... Cranach, Courbet, Rodin and Ingres (I and II), and of course, Leonardo. Mr. Giovanni's polestars, multiculturalism and Post-Structuralism, have both been debated for some time and are being acted upon in our society. There are, however, questions that have not been defined that need study and explanation that could emerge in Rome. Perhaps we might think of Rome as the Sphinx herself, as Ingres depicted eternal questioning, or even as the voluptuary that Duchamp inserted. But whether sphinx, voluptuary, mirror, dig, mine, "bazaar in full swing" (Le Corbusier), magnet, model, "holy city," omphalos, antagonist, we would be unwise to confine it within our current intellectual puzzlements.

I have a challenge to put forward to Mr. Giovanni and others who are interested in the Academy's "relevance."

1. Go out and encourage people they think are relevant to apply for fellowship, thereby expanding our base.
2. Assist us in obtaining funds for the Architecture and Design Arts Fellowships. I know several "very relevant" architects who would like to apply for the fellowship, but could not do so because bringing their families would be too costly. Helping us to obtain larger fellowships would be extremely "relevant" so that architects have the time to explore.
3. I invite Mr. Giovanni to apply for a fellowship to Rome.

Spending six months or a year in Rome is a great opportunity that should be extended to as broad a base as possible.

*Fred Travisano, AIA, FAAR '82  
Princeton, New Jersey*

## CORRECTIONS

### October Report Photo

The image of Los Angeles (P/A, Oct. 1994, p. 41) is inadvertently a mirror image of the actual scene.

### Letter on "Escape from Style"

P/A apologizes for incorrectly using the word "economical" in stead of "ecological" in a letter from Marvin Rosenman in our October Views section (p.10). The corrected sentence reads as follows: A recent (18–19 August 1994) U.N. International Colloquium of Mayors concluded that sustainable human development in the urban setting will depend on the effective promotion of social equity and ecological harmony. □



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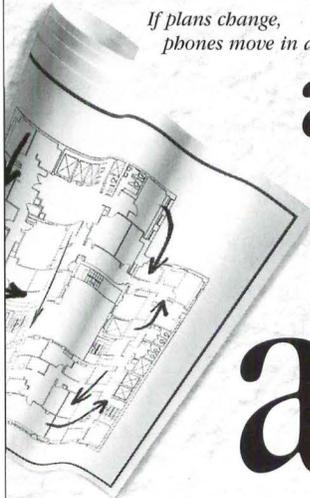
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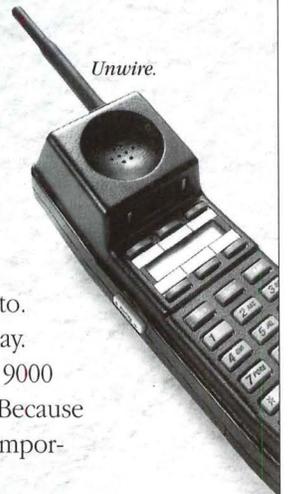


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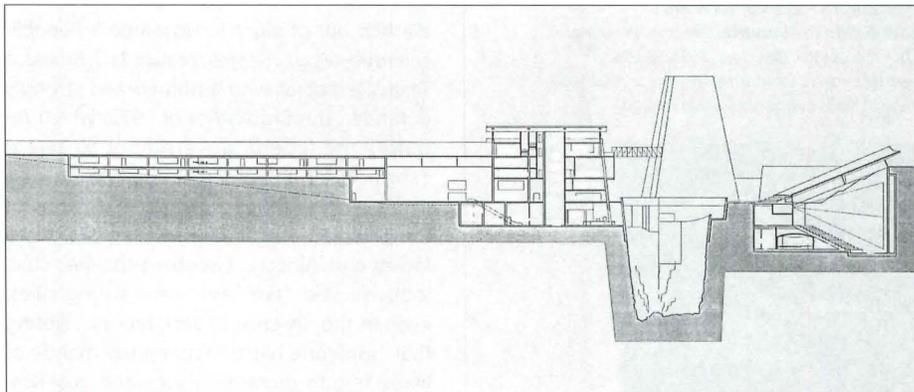
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MODEL AND SECTION OF HOLLEIN'S WINNING DESIGN.

## In France, Go With the Flow

From a field of more than 100 competitors that was winnowed down to five European finalists, the French regional council of Auvergne has chosen Viennese architect Hans Hollein to design a European Volcanism Center that will wow tourists with displays of nature's power. The center will be built near the city of Clermont-Ferrand in a verdant yet somewhat lunar countryside amid a range of approximately 80 slumbering volcanoes. Hollein's design, featuring a conical entry tower that emerges from underground, will have visitors cross a ramp set some 100 feet above a gaping hole giving off vapors, smoke, magma, and distant rumblings. Exhibition areas with presentations ranging from the spectacular to the scientific will be in three real caves reached from a valley cut out of rock. After leaving a "Sleeping Garden," visitors will wind down a ramp to another level where volcanic activity's cultural effects – including Pompeii under ashes – will be evoked. The final spectacle will be "a grandiose show of volcanic eruptions" in a large viewing hall. Hollein, who is noted for novel work with exhibits in museums he has designed in Frankfurt, Teheran, and Mönchengladbach, was cited as the best choice for "an architecture to accompany visitors to the center of the earth." Construction of this "place of culture and science but also of tourism and leisure" will begin in 1995. □

## Lighting Up The Louvre

A stunning \$3-million nighttime lighting installation has been completed for the Cour Napoléon of the Louvre in Paris. More than a mile of tiny low-wattage lamps have been strung along cornices, where, fully adjustable by computer for variable effects, they highlight the building's architectural features. In daylight the lamps are invisible. The Louvre installation has been designed as the showcase demonstration of a new company called Citélum (literally, citylight), a wholly-owned subsidiary of the state-owned electrical utility. The company estimates a market this year for nearly \$10 million in lighting, a fifth of it for buildings and monuments. Other projects recently completed include illumination of Le Corbusier's chapel at Ronchamp. □

## At Penn, Three Years and Out

After a turbulent three-year tenure, Patricia Conway resigned this fall as dean of the Graduate School of Fine Arts (GSFA) faculty at the University of Pennsylvania. In the considered words of a university press release, "Conway's resignation follows a year-long protest by certain of the School's faculty over measures taken to eliminate the School's chronic deficit, to streamline its administration, and to refocus its academic mission." In April the faculty voted "no confidence" in Conway, formerly head of Kohn Pedersen Fox Conway, a New York firm involved primarily in interior design. Critics accused her of aloofness and lack of sensitivity to academic protocol and proce-

dures. She alienated the Department of City and Regional Planning by proposing it be closed. For her part, Conway said, "I'm proud of the School's unprecedented administrative progress, which from the beginning, the University acknowledged would be achieved only at the price of some unpopular decisions." She claimed satisfaction in having recruited "two world-renowned figures" – Witold Rybczynski, the recently appointed Meyerson Professor of Urbanism, and John Dixon Hunt, the new chair of Landscape, Architecture, and Regional Planning – and "several outstanding junior faculty in Architecture and Landscape Architecture." □

## Books



Siena Campo

**Chambers for a Memory Palace**

by Donlyn Lyndon and Charles W. Moore, MIT Press, Cambridge, Massachusetts, 1994, \$29.95.

From two of the architects who gave us The Sea Ranch – a seductive example of placemaking – comes a book that explores the (in)tangibles that connect and intertwine architecture, experience, and memory. In what avoids being a corny format, the book is organized into chapters or “chambers,” each of which holds an exchange of letters between the authors, recalling and responding to memories of such icons of placemaking as the Salk Institute in La Jolla, California, the Cranbrook Academy of Art in Bloomfield Hills, Michigan, the Mosque at Cordoba, Spain, and the Ryoanji Garden in Kyoto, Japan. Through personal observation, Donlyn Lyndon and the late Charles Moore offer a poetic reading of the architectural elements and strategies that contribute to a true sense of place. (Shown above: a sketch of the Campo in Siena, Italy.)

**The Presence of Mies** edited by Detlef Mertins, Princeton Architectural Press, New York, 1994, \$19.95 paper (\$24.95, Macintosh or Windows, available Spring 1995).

This collection of essays is not so much about Mies as it is about the many ways in which he can be interpreted. Everything from liquid crystals to x-rays, from Minimalist art to stand-up comedy, from urban decay to Odysseus is brought to bear on his work, to the point where, as Dan Hoffman writes, “Mies finally disappears from view.” One wonders what Mies – that most laconic of architects – would have thought about such verbosity, with its glimmers of insight behind a curtain wall of nearly opaque writing. Perhaps he knew enough to remain silent.

**The Grand American Avenue: 1850–1920** edited by Jan Cigliano and Sarah Bradford Landau, Pomegranate Books, San Francisco, and The Octagon, 1994, \$45 cloth, \$29.95 paper.

This oversize 412-page book, profuse with period black-and-white photos, recounts the creation, and often the decay, of 12 of the

grandest residential streets in the United States, from Fifth Avenue in New York to Wilshire Boulevard in Los Angeles. A dozen scholars, with fine appreciation of each city’s distinctiveness, meld architecture, planning, wealth, and social ambition into immensely pleasurable stories – even if, as in the case of Cleveland’s Euclid Avenue, the stories the streets tell today are of magnificence lost.

**Briefly Noted**

**Adobe** by Orlando Romero and David Larkin, Houghton Mifflin, 1994, New York, \$50.

Short essays on the history and construction of adobe houses supplement good photographs by Michael Freeman.

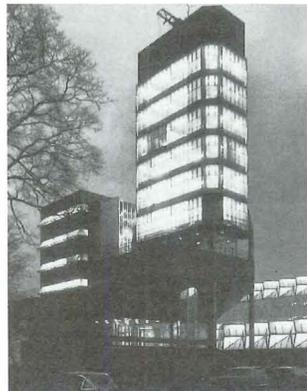
**The Codes Guidebook for Interiors** by Sharon Harmon, Wiley, New York, 1994, \$34.95.

Covers major codes, standards, and federal regulations for new construction and rehab, for commercial and residential projects.

**Designing a Place Called Home:**

**Reordering the Suburbs** by James Wentling, Chapman & Hall, New York, 1994, \$52.95.

Sensible ideas for improving the lamentable state of house and subdivision design.

**Leicester University Engineering Building**

by John McKean, Phaidon, London, 1994, \$29.95.

Thorough monograph on this seminal and controversial project by James Stirling and James Gowan; part of the publisher’s Architecture in Detail series. (Shown above: night view.)

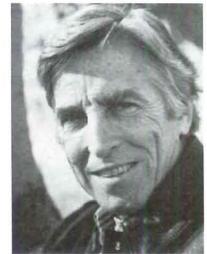
**The Palace of Soviets** by Peter Lizon, Three Continents Press, Colorado Springs, 1994, \$28 paper.

An exhaustive history of the 1931 competition for the never-built monument to the now-gone Soviet state, and its relation to Russian architecture.

**Applied Illumination Engineering**

by Jack L. Lindsey, AEE Energy Books, Lilburn, Georgia, 1994, \$69.

A new sourcebook for innovative techniques in energy-efficient lighting design.

**Barton Myers Wins Canada’s Gold Medal**

Barton Myers, who taught and practiced in Toronto from 1968 until the 1980s, when he moved to Los Angeles, has been awarded the 1994 Gold Medal of the Royal Architectural Institute of Canada. Myers, a professor at UCLA and principal of the 25-member Barton Myers Associates, has been involved in projects ranging from his own house, made of off-the-shelf industrial components, to the design of cultural institutions and the development of high-density urban infill. Among Myers’s most acclaimed works are the Art Gallery of Ontario in Toronto and the P/A-Award-winning Portland (Oregon) Center for the Performing Arts (with BOORA and ELS; P/A, Feb. 1988). His firm’s current commissions include the University of Nevada Las Vegas School of Architecture (P/A, Aug. 1994). □

**Architects’ Advocate Defeated**

Washed out of office in November’s Republican rout was U.S. Representative Jack Brooks, a Texas Democrat who authored and strongly defended the Brooks Act of 1972, which requires the federal government to award contracts for architectural and engineering services according to the qualifications of the providers, not simply on the basis of the lowest cost. Albert C. Eisenberg, the AIA’s chief lobbyist, said, “We have some strong allies, even in the absence of Jack Brooks.” Noting that “someone has to assume the mantle of leadership to promote quality and qualifications in procurement of architectural services,” Eisenberg said, “I have no doubt that will be done in short order.” □

**Cranbrook Director**

New York architect Susana Torre, chairman of architecture and environmental design at Parsons School of Design since 1991, left that

position this month to become director of the Cranbrook Academy of Art and vice president of Cranbrook Educational Community in Bloomfield Hills, Michigan. A native of Argentina, Torre has taught at Yale, Syracuse, Columbia, Carnegie Mellon, and the University of Sydney, and recently helped develop the first architectural school in Iceland. □

## Harry Simmons, Jr., Killed in Plane Crash

Harry Simmons, Jr., founder of Simmons Architects, New York, and an associate architect for the AT&T Building, died Oct. 23 at the age of 51 in a plane crash in Massachusetts. He was known mainly for designing and rehabilitating urban lower- and middle-income housing, generally organizing it around a courtyard, with communal spaces and amenities to foster social cohesion. □

## Kurokawa Gallery in Chicago

Gallery 227 of the Art Institute of Chicago has had a new name bestowed upon it – the Kisho Kurokawa Gallery of Architecture – to honor the prolific Japanese architect and to recognize a \$600,000 endowment he helped obtain from the Japan Foundation. Kurokawa, who is an author as well as an architect of museums and many other buildings around the world, is giving the museum two of his drawings and 20 of his woodcut prints. The Institute says the 3,000-square-foot gallery is the largest single gallery in the U.S. dedicated to architecture. □

## Which Do I Look at First?

A group led by Ann B. Thorpe in Berkeley has started a quarterly multimedia production called *On The Ground*, which consists of a large-format magazine, a video-tape, and a set of slides, all focusing on a single topic in the field of community, design, and environment. The fall issue explores infill development. Among several articles in the print magazine is one in which urban planner Tom Sargent calculates that a person earning \$60,000 a year can buy 1,600 square feet of house in the San Francisco suburbs for the same price as 1,100 square feet of infill housing. The magazine suggests public policies that might make infill more competitive. Two featured print interviews are with architect-author Witold Rybczynski and University of Washington Professor Douglas Kelbaugh. The video, running just 28 minutes, presents a surprisingly comprehensive collection of thoughts from architects, developers, residents, and neighbors of infill projects on the West Coast. The slides, showing several developments from San Diego to Vancouver, seem less essential, which perhaps is why the annual subscription is available for either \$75 with slides or \$60 without. *On The Ground* is at P.O. Box 9034, Berkeley, CA 94709, phone (510) 883-0433. □



## Minority Architects Meet and Present Awards

Chicago was the setting October 6–9 for the annual conference of the National Organization of Minority Architects (NOMA), attended by several hundred architects and a large contingent of students. A highlight of the conference was an address by HUD Secretary Henry Cisneros, who stressed that subsidized housing should not be isolated from the larger society. Succeeding Robert L. Easter of Richmond, Virginia, as NOMA president is Michael A. Rogers of Chicago (see P/A Young Architects issue, July 1993, p. 112).

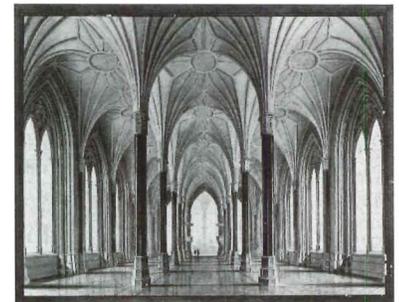
The organization's 1994 Design Excellence Awards, chosen by a jury of four NOMA members plus editors from P/A, Architecture, and Architectural Record, were presented to: Stanley Love-Stanley for expansion and remodeling of St. Paul's Episcopal Church (top) and of a branch YMCA, both in Atlanta; Frank Denner for



the Crunch Gym, New York; R.L. Brown & Associates for the Birmingham Civil Rights Institute, Birmingham, Alabama; Moody/Noland for an education center in Columbus, Ohio; Cordell W. Ingram for People's Place in Atlanta; and Roger Margerum Architects for Genesis Lutheran Church in Detroit. The same jury honored two unbuilt projects: a station for the New York City subway by Stull & Lee (above) and a daycare center for Hawthorne, California, by RAW Architecture. Selected for student honors were projects from Rice and Cornell. □

## Theatrical Schinkel Show in Chicago

"Karl Friedrich Schinkel, 1741–1841: The Drama of Architecture," at the Art Institute of Chicago through Jan. 2, illuminates an aspect of the German Neoclassicist's work not usually examined – the theatricality of his exquisite drawings, nearly 100 of which make up the show. Schinkel was a master of effects, some of which he learned during 10 years of working on operatic stage-set design, transparent backlit drawings, and panoramas. Guest curator Kurt W. Forster writes in the museum catalog that in later years it was Schinkel's "accomplishments as a scenographer that amplified the poetic power and range of his architectural work." Schinkel was revived by Post-Modernists who particularly admired his refined Classicism and his facility – as a senior architect and later as



director of Berlin public works – for adopting different styles as the project warranted. The show also addresses Schinkel's influence on later architects, among them Ludwig Mies van der Rohe, James Stirling, and Albert Speer. The installation by Stanley Tigerman makes a visitor feel, as architecture curator John Zukowsky observes, "as though you were walking into a sepia rendering." Trompe l'oeil wainscoting, paneling, and molding subtly frame the mounted drawings. □

## Calendar

### COMPETITIONS

#### Korean War Veterans Memorial

Deadlines, registration: January 1, 1995; submission: April 30, 1995  
The design of a memorial to Korean War Veterans is the subject of this competition; the site is on the Allegheny River in Pittsburgh. Contact Memorial Fund, 1500 One PPG Place, Pittsburgh, PA 15222. Tel. (412) 594-5659.

#### Brick Awards

Deadlines, registration: January 16, 1995; submission: February 20, 1995  
The AIA/BIA Brick in Architecture Awards recognize outstanding use of brick. Contact AIA/Brick Awards, 1735 New York Ave., NW, Washington, DC 20006-5292. Tel. (202) 626-7300.

#### Restaurant Design Awards

Deadline, submission: January 31, 1995  
The James Beard Design Awards recognize outstanding restaurant design and graphics in the U.S. and Canada. Contact James Beard Awards, c/o M. Young Communications, 77 Fifth Avenue, Ste. 2CD, New York, NY 10003. Fax (212) 645-3654.

#### I.D. Annual Design Review

Deadline, submission: February 1, 1995  
An interactive media category has been added to *I.D. Magazine's* Annual Design Review. Other categories include: environments (architecture, interiors, etc.), consumer products, graphics, furniture, packaging, surfaces, equipment, concepts, and student work. Contact Design Review Editor, I.D., 440 Park Ave. S., 14th Fl., New York, NY 10016. Tel. (212) 447-1400.

#### Young Architects

Deadline, submission: February 21, 1995  
"Time" is the theme of the 14th annual Young Architects Competition sponsored by the Architectural League of New York. Entrants must be no more than ten years out of architecture school; projects of all types, theoretical or real, built or proposed, may be submitted. Contact Architectural League of New York, 457 Madison Ave., New York, NY 10022. Tel. (212) 753-1722.

#### Student Housing

Deadline, submission: April 1, 1995  
Drury College, a liberal arts school, and EFCO Corporation, a manufacturer of custom glazing systems, invite entrants to participate in a national design competition for student housing. Contact Drury-EFCO Competition, Hammons School of Architecture, Drury College, 900 N. Benton, Springfield, MO 65802. Tel. (417) 873-7288, FAX (417) 873-7446.

#### For Students, Virtual Habitats

Deadlines, registration: April 15, 1995; submission: April 29, 1995  
The AIA and Graphisoft U.S. in partnership with Habitat for Humanity invite students to design homes for three different family types; proposals must be in three-dimensional electronic format. Contact Virtual Habitat, AIA Design Competition, 1735 New York Ave., NW, Washington, DC 20006. (202) 626-7472, FAX (202) 626-7414.

### EXHIBITIONS

#### Hawaiian Architectural History

Through January 8, 1995  
Gentry Pacific Design Center, Honolulu.  
"From Grass to Glass: The Search for an Hawaiian Sense of Place" explores questions of regionalism in the state.

#### Under Construction

Through January 27  
Chicago Architecture Foundation.  
This show interprets five construction techniques (load-bearing masonry, steel frame, reinforced concrete, composite, and long-span) through the presentation of construction photos of 13 Chicago buildings.

#### Patkau Architects: Selected Projects

December 2, 1994–January 14, 1995  
Architectural League of New York.  
Patkau Architects, a small firm in Vancouver, synthesizes cultural and architectural regionalism within a Modern milieu.

#### Contemporary British Architecture

December 10–February 26, 1995  
National Academy of Design, New York.  
On view is recent work by British architects, both the Modernists and the Classicists, the famous and the little known.

#### Italian Renaissance Architecture

December 18, 1994–April 16, 1995  
National Gallery of Art, Washington, D.C.  
This is a modified version of the landmark show held in Venice last summer.

### CONFERENCES

#### Energy Efficient Housing

March 8–11, 1995  
Minneapolis.  
This annual event includes a conference, workshops, and a design competition for energy efficient housing (deadline: Dec. 31). Contact EEBA, 1829 Portland Ave., Minneapolis, MN 55404-1898. (612) 871-0413, FAX (612) 871-9441.

#### East Meets West

March 22–24, 1995  
Honolulu, Hawaii.  
"The East-West Encounter," an international meeting on the architecture of the Asia-Pacific region, will look at ways to design a more contextual and culturally sensitive environment. Contact Symposium Coordinator, U. of Hawaii at Manoa, 1859 East-West Rd., Honolulu, HI 96822. Tel. (808) 956-7225, FAX (808) 956-7778.

#### Africa 2000

April 3–7, 1995  
Cape Town, South Africa.  
This international conference is held to explore the role of architecture, urban design, and environmental planning in Africa. Also being held is a student competition for a cultural development (deadline: March 31, 1995). Contact Conference Administrator, School of Architecture and Planning, Centilivres Bldg., U. of Cape Town, Rondebosch, 7700, Cape Town, S. Africa. Tel. (021) 650-3705, FAX (021) 650-3754.

## Practice Notes

### How to Get Published

While nothing helps a firm's chances of getting published more than doing good work and having important things to say, the *Insider's Guide to Getting Into Print* by Jane Brown Bambery, Paul Davis Jones, and Cary G. Raymond is a big help. Subjects include how to package stories, work with photographers and editors, and develop a public relations plan. To order, call Mark Zweig & Associates, (508) 651-1559.

### Overhead Down, Profits Up

Harper and Shuman's 1994 Operating Statistics Survey shows that design firms have reduced their overhead rates by a median of 5 percent and have increased median profits almost 70 percent since 1991. Engineering firms remain the most profitable, at 5.9 percent, with architectural firms at 4.4 percent and interior design firms at a meager 1.8 percent. For a copy of the survey, call Bernie Buelow at Harper and Shuman, (617) 492-4410, ext. 234.

## Technics Notes

### Tile Handbook Available

The 1994 edition of the "Handbook for Ceramic Tile Installation" is now available from the Tile Council of America. This quick-reference guide provides architects and specification writers with current, accurate data on materials and methods for ceramic tile installation. The 36-page handbook can be obtained for \$2 from TCA at P.O. Box 326, Princeton, NJ, 08542-0326, 609-921-7050; fax 609-452-7255.

### Preservation Briefs

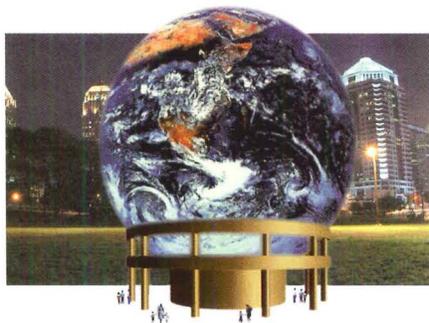
The National Park Service has released new installments in its series *Preservation Briefs*. Subjects include "Mothballing Historic Buildings," "Making Historic Properties Accessible," and "The Preservation and Repair of Historic Stained and Leaded Glass." For prices and ordering information, write: Superintendent of Documents, Government Printing Office, Washington, D.C. 20402-9325, phone 202-783-3238.

### Energy Design Online

News stories, product reviews, and resource reviews from back issues of the *Environmental Building News* are now accessible via computer through Energy Design Online, a new information service. Back issues of *Energy Design Update* and *Energy Source Directory* are also available. To get online, call 212-662-0388; for information about the service, call Energy Design Associates at 212-662-7428.

## A Mies Interior Faces the Wreckers

Despite a last-minute appeal to save it, a 1951 Mies van der Rohe interior at the Chicago Arts Club has been refused landmark designation by the Commission on Chicago Landmarks. It will be demolished by Chicago's John Buck Development Company to make way for a banal retail and movie complex fronting on North Michigan Avenue. Even if the space had been named a landmark, saving it would have been problematic, since it occupies space in two buildings, one of them a nicely scaled Neo-Classical structure, the other a structure of undisputed mediocrity, both of them to be razed next year. Joseph Gonzalez, a partner at Skidmore, Owings & Merrill and a member of the Landmarks Commission, voted against designation, embittering many Chicago architects and preservationists. He claimed the space was not worth saving and ridiculed Terence Riley, head of architecture and design at the Museum of Modern Art, who testified in its favor. The Arts Club's lease on the property will expire in March. □



## Honey, I Blew Up the Lawn Ornament

Tired of having to design those troublesome façades? Well, help is on the way. Now you can just project a video image of a façade – any façade, indeed any image – onto your building and, hey, just take the afternoon off. This labor-saving approach will be on view at the Olympics in Atlanta. A group of investors intends to build GeoNova™, a \$40-million, 170-foot-high globe whose outer surface will serve as a huge spherical screen on which everything from sporting events to satellite pictures of Earth will be projected. Behind those “skin flicks,” as the promoters call them, will be a complex of five theaters, an interactive museum, and restaurants. GeoNova™, which looks like a giant, hyperactive version of the little globes you sometimes see perched on columns on suburban front lawns, has been billed a “one-of-a-kind in the world.” Perhaps it will stay that way. □



Philippa Gallard

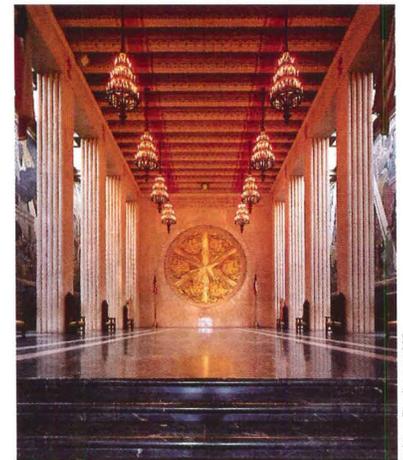
## Extroverted Oval for a Mammoth Paris Stadium

With barely enough time to build it for the World Cup soccer games in 1998, the French government has chosen an elegant concrete oval design by Macary-Zubléna and Costantini-Regembal for a huge new stadium in the northern Paris working-class suburb of Saint-Denis, rejecting a scheme by the other semifinalists, Jean Nouvel, his partner Emmanuel Cattani, and the American firm HOK. The delay-plagued competition attracted some 19 design teams, including Europe's best-known architects, who vied, occasionally bitterly, for the distinction of creating what will surely be France's final *grand projet* of this century. The process prompted what some considered to be the strangest architectural marriages ever

seen. The winning design for the 80,000-seat stadium features soaring exterior steps under a thin, floating oval metal canopy. The winners described their design as extroverted and open to the city, while allowing spectators to sit as close as possible to the action. In stark contrast, Nouvel posited a busy and extraordinarily flexible performance space for mass gatherings of the 21st Century. His colorful design involved a highly complex system of sliding grandstands and other giant pieces of “festive and playful” apparatus to facilitate radical changes in configuration and feeling – for instance, a variation called *ambiance football* for soccer games. The eight finalist designs will be exhibited in Paris in early 1995. □

## Revival Call for an Art Deco Park

Dallas's Fair Park, cited in June by the National Trust for Historic Preservation as one of the country's most endangered historic sites, may be the beneficiary of a \$78-million plan for repairing its distinctive Art Deco exhibition buildings and attracting more year-round visitors. In the 1980s the Dallas Museum of Art and the Dallas Symphony pulled out of the city-owned park, home of the Cotton Bowl and the Texas State Fair, in part because many people considered the surrounding East Dallas neighborhood unsafe. A group known as Friends of Fair Park, however, saw the worth of its formal plan and cream-colored buildings, designed by a large team of architects headed by the local George L. Dahl, with Paul Philippe Cret as a design consultant. To repair the crumbling buildings and preserve murals and sculpture in the park, which was built for the Texas Centennial Exposition of 1936, the Friends group has proposed a five-year plan – two-thirds to be paid for

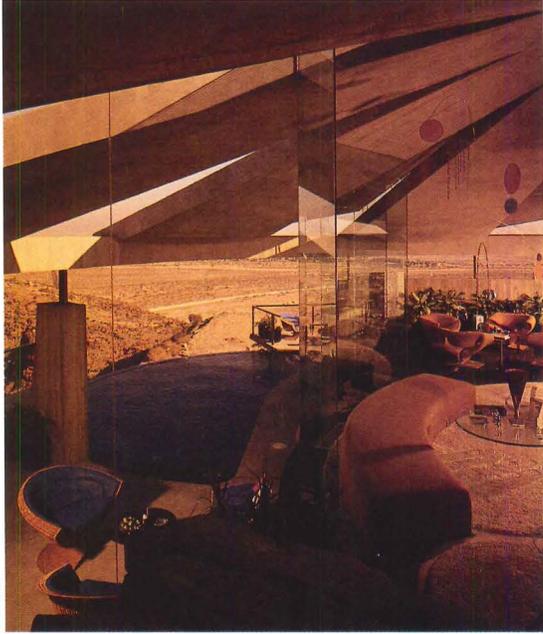


© Doug Tomlinson 1985

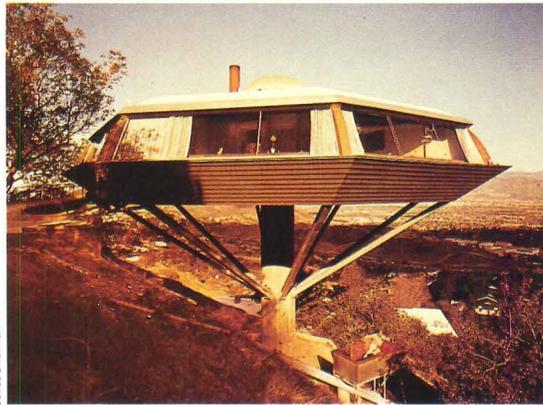
by private donors, the rest by government sources. Friends director Craig Holcomb says the plan includes \$30 million for a new aquarium, whose feasibility is being studied by Holt Hinshaw, San Francisco. The plan calls for submission of a bond package in 1995 to Dallas voters, who rejected a half-cent sales tax increase to benefit Fair Park in 1992. Shown above is the Great Hall of the Hall of State Building. □

# The Legacy of John Lautner, “Lyrical Technologist”

Los Angeles’ master of an architecture that was “thorny with ideas” dies at 83. *by Alan Hess*



Leland Lee



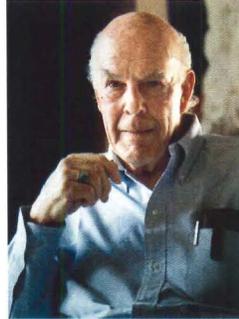
Julius Shulman



Julius Shulman

Lautner’s houses include the Elrod residence with its dramatically skylighted interior (top), the Malin residence

(middle), and his masterpiece the Arango residence (bottom), with its sweeping concrete roof.



John Lautner, who died October 23 at the age of 83, was one of the last living links to the American organic architecture that Frank Lloyd Wright nurtured when the century was young. What made Lautner important, however, was that unlike many of Wright’s early apprentices, he escaped Wright’s spell, set out on his own, and spent 55 years in a highly personal and productive exploration of organic architecture’s possibilities.

Lautner’s wide-ranging search produced an astonishing variety of designs. Critics did not always know what to make of him. His best-known house, the 1960 Malin residence, or Chemosphere, was often likened to a UFO hovering over Mulholland Drive. Lautner had sharp words for commercialism’s clammy hand on architecture, yet he was the designer who produced a series of drive-in restaurants that helped shape the face of the emerging car-culture city.

Lautner was sent to Los Angeles in 1939 to oversee construction of Wright’s Sturges house, the last project with his master before their amicable parting. He went on to help make the city a crucible of Modern design in the 1940s and 1950s.

The 1947 Carling house was his solution to the need for mass-produced housing after World War II. The roof was cantilevered from steel masts anchored in piers. With three or four such piers, shelter could be quickly enclosed, and nonbearing interior walls could be erected as time and budget permitted. Houses such as this were “thorny with ideas,” said Esther McCoy, who called Lautner a “lyrical technologist.” His Henry’s drive-in of 1947, in Glendale, and his Googie’s of 1949, on the Sunset Strip, inspired the modernistic “California coffee shop” that spread across the country in the 1950s.

Lautner left the commercial world largely behind in 1957, devoting his inventiveness to houses. His exploration of concrete as a sensitive and subtle material for residential space bears comparison with the work of Niemeyer, Candela, and Nervi. The sprawling Silvertop in Silver Lake displayed the kinds of gizmos that gave the architect a Buck Rogers reputation: walls of glass that silently disappeared at the touch of a button, high-tech toilets that flushed without a whisper, solid walls that pivoted to become windows. But Silvertop also revealed another Lautner characteristic: devotion to nature, inspired by his youth among the lakes and woods of northern Michigan. Silvertop’s 3,300-square-foot living room, with its single arching concrete roof, is a light-filled meadow; the gentle curve of a hilltop is echoed in a surrounding wall. For the Sheats house of 1963 Lautner used thick, round-bottomed drinking glasses, turned upside down in the triangulated concrete roof coffers, to let in shafts of light as if through a leafy forest canopy.

Lautner’s brave career is only now beginning to be widely understood. With the recent rediscovery of his drive-in designs and publication this year of the long-awaited *John Lautner, Architect* by Frank Escher (Artemis, London), it is clear that there are more riches to be mined in the American lode of organic architecture. □

*Alan Hess is author of Viva Las Vegas: After-Hours Architecture.*

### A Building Inside a Building

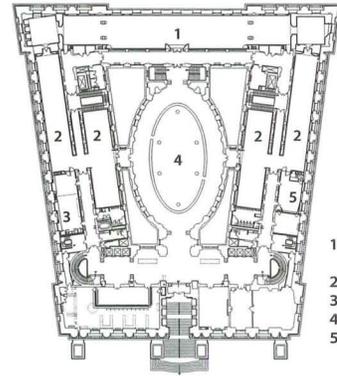
The new home of the National Museum of the American Indian in New York, designed by Ehrenkrantz & Eckstut Architects, is virtually a building inside a building. The 20,000-square-foot galleries, which opened in late October, are housed in the refurbished Alexander Hamilton Custom House, a turn-of-the-century Beaux-Arts landmark designed by Cass Gilbert. Ehrenkrantz & Eckstut also designed the Custom House restoration. The entire project was completed at a cost of \$60 million. The museum is housed on the building's first and second floors. The first contains museum administration and support space. On the second floor one enters gallery spaces from a restored ornate rotunda with a skylight. Also on the second floor is a new theater, a classroom, and gift shop. Within Gilbert's highly ornate building, the architects inserted a subdued interior of freestanding walls, hiding the original plaster walls, cornices, and wood doors. With suspended, vaulted ceilings, they provide neutral gallery spaces finished with wood, plaster, and warm gray travertine. The self-contained museum allows the interiors to be more easily environmentally controlled. If necessary, the museum can also be removed from the historic structure, returning Gilbert's interiors to their original condition.



Walter Dufresne



Jack Pottle



- 1 GALLERY ENTRANCE
- 2 GALLERY
- 3 CLASSROOM
- 4 ROTUNDA
- 5 THEATER

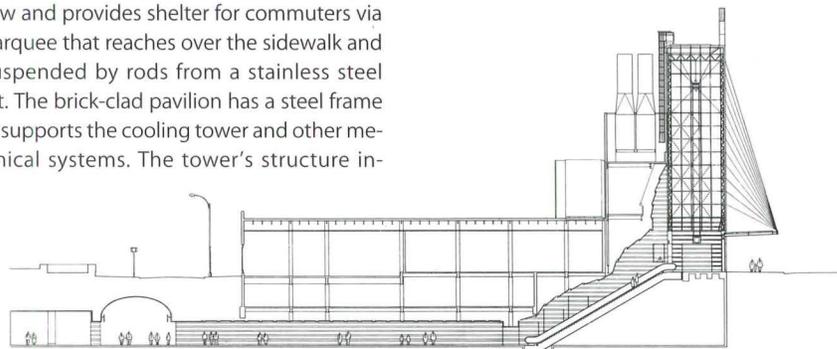
SECOND FLOOR PLAN

40/12m

### A Front Door for NYC's Penn Station

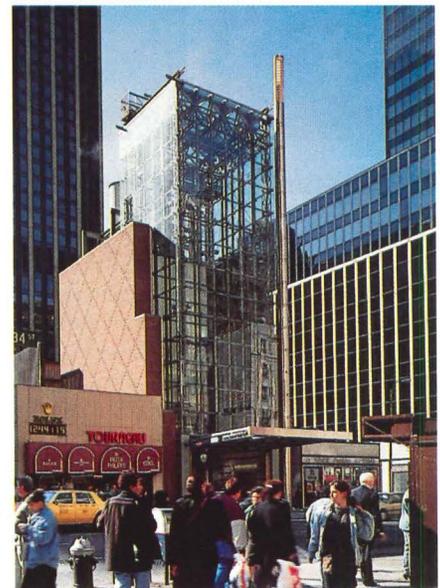
R.M. Kliment & Frances Halsband Architects have designed a new entrance pavilion for Penn Station's Long Island Rail Road passengers who, until now, were greeted by nondescript points of entry to this underground train station. Located on 34th Street just west of 7th Avenue, the pavilion houses climate-control equipment for the entire LIRR concourse below and provides shelter for commuters via a marquee that reaches over the sidewalk and is suspended by rods from a stainless steel mast. The brick-clad pavilion has a steel frame that supports the cooling tower and other mechanical systems. The tower's structure in-

cludes painted steel columns and struts; its glass walls are supported by a mullionless stainless steel flush-bolt system. A clock salvaged from the original Penn Station is suspended within. The entrance pavilion represents \$2.5-million of a \$190-million station improvement project completed in October.

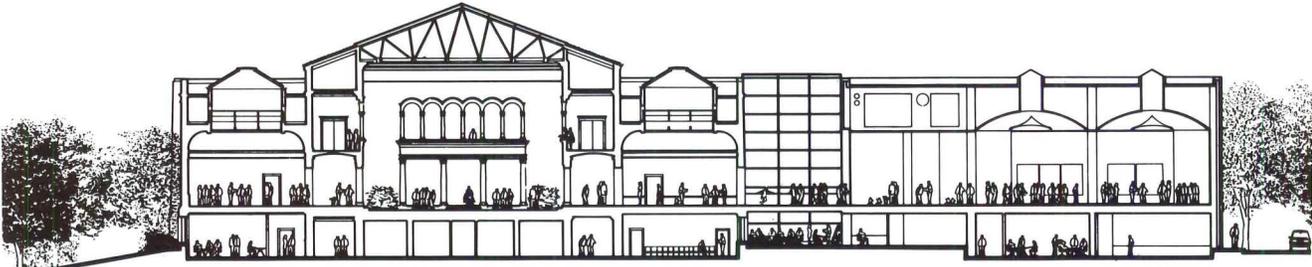


SECTION

40/12m



Cervin Robinson



SECTION WITH EXISTING MUSEUM ON LEFT, FOSTER ADDITION ON RIGHT

40'/12m

### Foster Completes Joslyn Arts Museum Addition

Winner of an invited competition in 1992, the restoration of and addition to Omaha's Joslyn Arts Museum, by Sir Norman Foster & Partners and HDR, is now complete. The addition is a very restrained, boxlike appendage to the side of the 1931 "Prairie Egyptian Style" museum, matching the original building's cornice height, massing, and pink marble cladding. A glass-enclosed link physically connects and visually separates the old and new buildings. Inside the nearly 53,000-square-foot addition are a series of top-lighted galleries; shallow linear vaults and baffles deflect natural light from central skylights



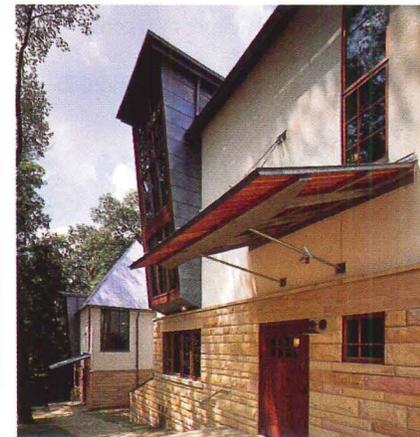
onto the ceiling and walls below. For those who thought that Foster's firm could not do a building that fits into a historic context, this project should cause them to think again.



Photos: P. Dickey Photography



Chuck Choi

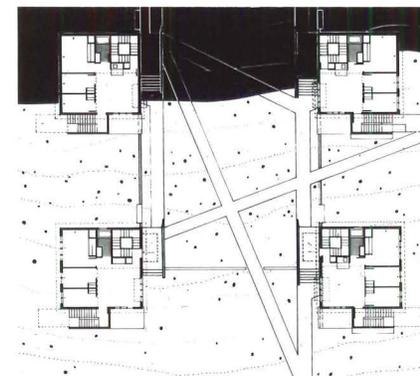


Chuck Choi

### Modern-Gothic Dorms for a 19th-Century Campus

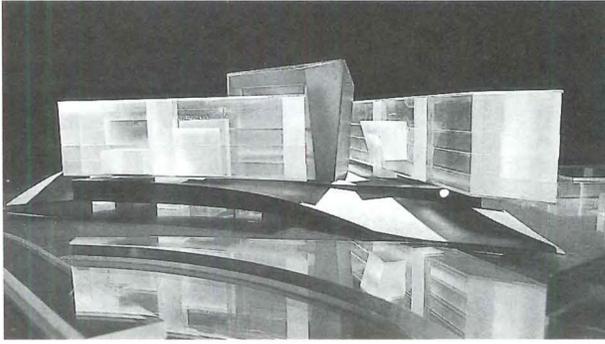
Kenyon College, a liberal arts school founded in 1830 in Gambier, Ohio, invited Thompson & Rose Architects, Cambridge, Massachusetts, to design dormitories for 48 students. The original plan for the school called for an academical village, with a mile-long axis running north to south, off which academic yards would be configured. The new dormitory village, a loosely defined courtyard framed by four discrete buildings, is set on a hillside site just beyond Old Kenyon, a Gothic-style structure that terminates the main axis. A diagonal path runs through the courtyard and links the site to

woodland walking trails and to athletic facilities. The dorms appear to lean up the hill, connecting this campus extension back to the core and paying homage to Old Kenyon. Employing materials found on the campus (sandstone, lead-coated copper, stucco, and mahogany), the architects used the college's Gothic character to inform but not dictate their design, opting for a contemporary interpretation. In plan, the dorms' public spaces are oriented to the courtyard and private spaces to the surrounding woodlands.



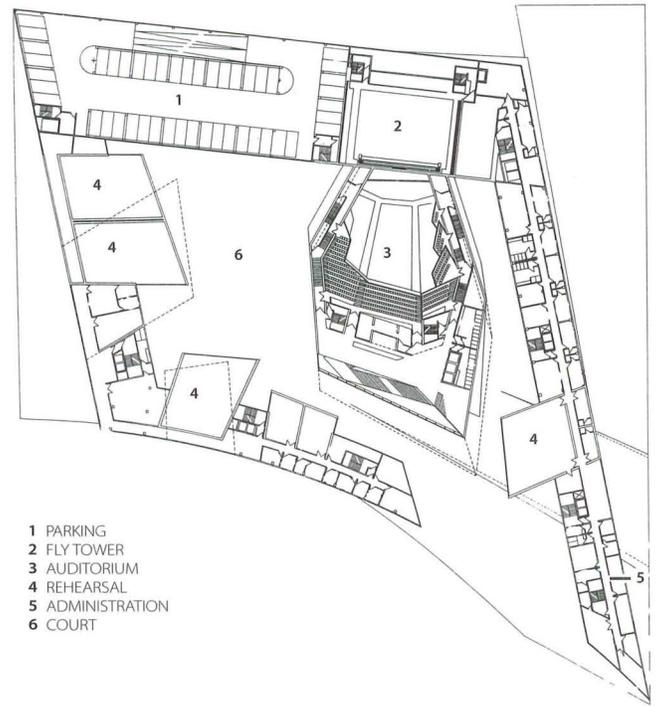
FLOOR PLAN

N ↑ 40'/12m



## An Inverted Opera House

Zaha Hadid has just won – amidst great controversy – a competition to design an opera house for Cardiff in Wales. The building is arranged like “an inverted necklace,” with the major performance and rehearsal rooms facing inward to an open-air court and with service and office spaces wrapped around the perimeter of the site. The opera house itself sits in the middle of the court like a faceted jewel in its box. At least some of the brouhaha created by the design has focused on Hadid’s extending of the piazza in front of the building as a warped plane that rises around and over the entrance and lobby to become the floor of the central court, one level above grade. This penetration of public open space into the heart of the complex creates performance opportunities and will allow people to look in on the rehearsal rooms. But by putting the lobby underneath the warped plane, Hadid has created a low-ceilinged and presumably dark lobby. Also, by providing few entrances in the court, she has created, with the warped plane, a grand and interesting gesture that goes nowhere.



- 1 PARKING
- 2 FLY TOWER
- 3 AUDITORIUM
- 4 REHEARSAL
- 5 ADMINISTRATION
- 6 COURT

SECOND FLOOR PLAN

100/30m

## Zaha Hadid Builds in Berlin

Made famous by her explosive drawing style, architect Zaha Hadid has added another project to her small but growing list of built works (see Vitra Fire Station, P/A, Aug. 1993, p. 48) with the completion of a housing block in Berlin. Designed for Berlin’s IBA ‘87, a housing experiment that included projects by an array of international architects, Hadid’s building in the Kreuzberg quarter of the city completes a large triangular block. The site’s sharp corner is occupied by an 8-story tower that is locked into a long, low section of apartments accessed through an interior gallery. The ground level of the long section is dedicated to commercial use and its roof holds a playground. The tower is made up of three interlocking volumes, the most pronounced a sharply angled prow clad with metal panels. There are three units on each floor, two studios and one three-bedroom, all reached from an internal staircase core.

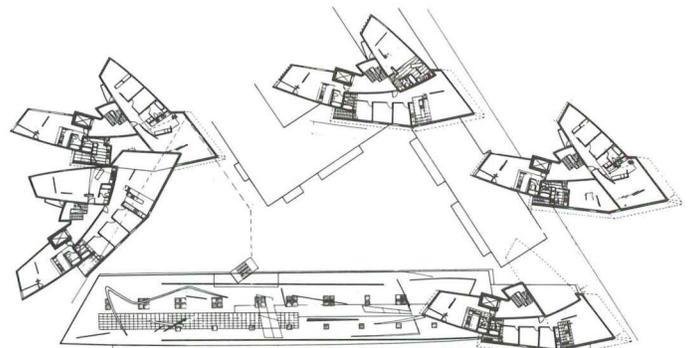


Christian Richters



TYPICAL FLOOR PLAN

40/12m



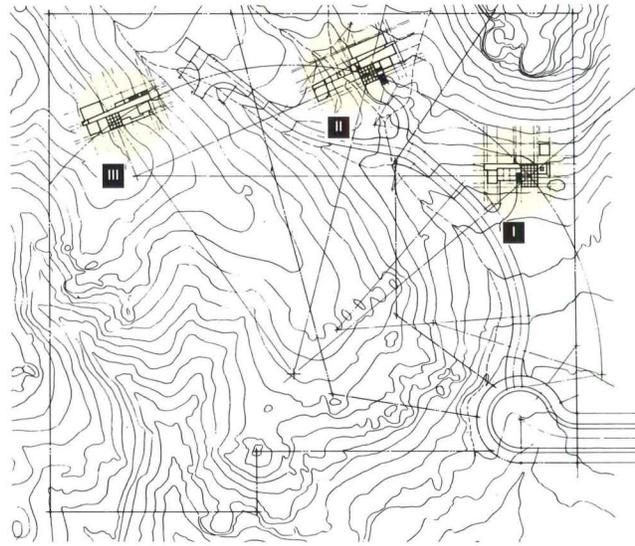
COMPOSITE PLAN: ROOFTOP OF BAR WING AND TOWER APARTMENTS



Photos: these two pages: ©Tom Bonner 1993

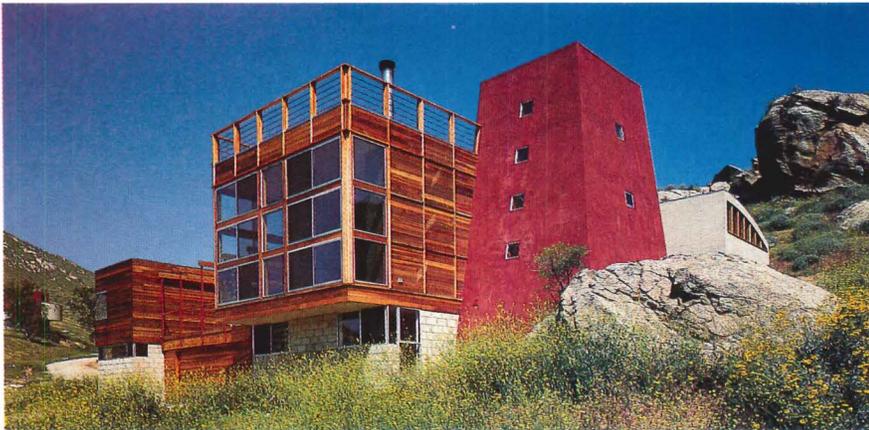
### Three Houses Complement Their Terrain

On eight acres of rock-strewn slopes near Riverside, California, architect Sigrid Miller Pollin of Riverside has arrayed three subtly related houses that enhance their already appealing setting. The architect, who teaches at Cal Poly Pomona, acted as developer for the three-family community and lives in House III. Her intention was to demonstrate an alternative pattern for hillside tracts in semiarid inland California, involving minimal grading, the sharing of a driveway, and siting that responds to microclimate. The houses lie in a gentle arc, taking advantage of long views to the south, and are oriented to receive the prevailing breezes from the northwest. Each house then has a different relation to its immediate terrain – House I lying parallel to the contours, House II bridging a gully, and House III running perpendicular to the slope. While quite diverse, the houses are given a strong family resemblance by their apparent division into smaller volumes, which correspond in scale to the site's largest boulders, and by their consistent palette of materials: exposed concrete block, natural redwood, and dark red or pale tan stucco.



SITE PLAN

N ↑ 100/30m



HOUSE I FROM SOUTHEAST

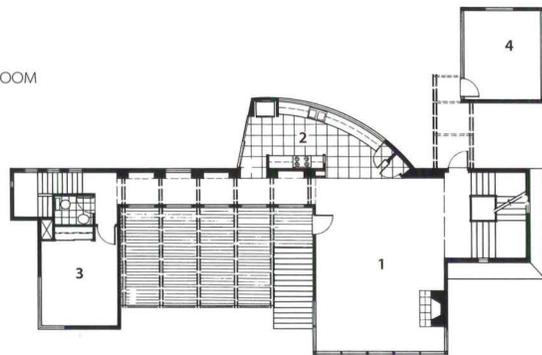


STAIR TOWER

- 1 LIVING/DINING
- 2 KITCHEN
- 3 STUDY/BEDROOM
- 4 FLOATING ROOM
- 5 SITTING AREA
- 6 MASTER BEDROOM
- 7 CARPORT
- 8 BEDROOM

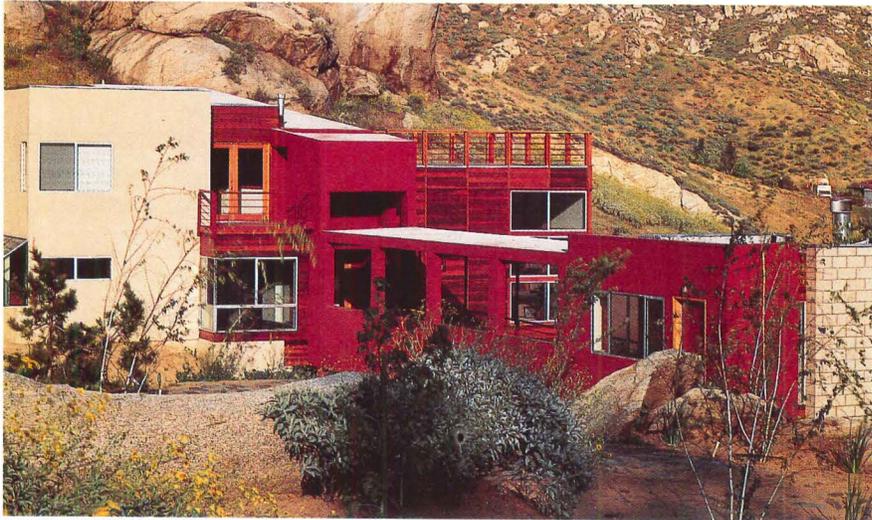


HOUSE I - LOWER FLOOR PLAN

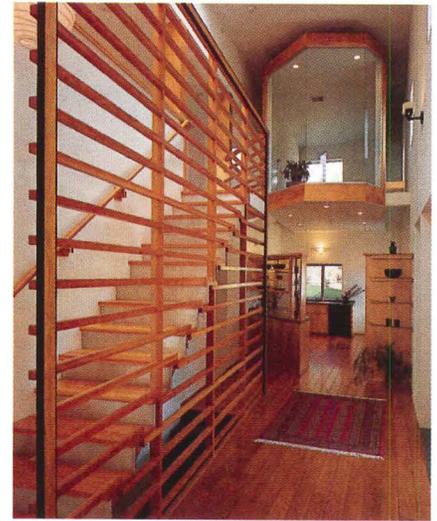


MAIN FLOOR PLAN

N ↑ 20/6m

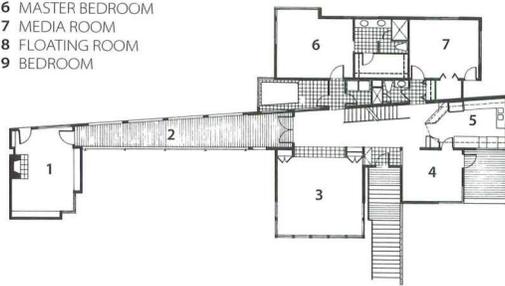


HOUSE II FROM WEST

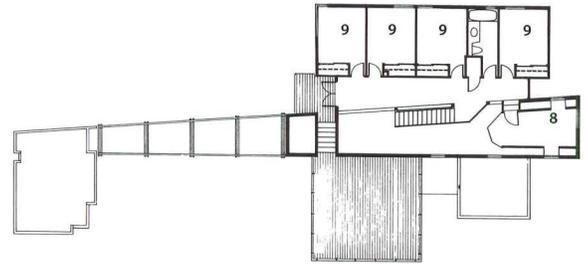


STAIR HALL

- 1 LIBRARY
- 2 BRIDGE
- 3 LIVING ROOM
- 4 DINING ROOM
- 5 KITCHEN
- 6 MASTER BEDROOM
- 7 MEDIA ROOM
- 8 FLOATING ROOM
- 9 BEDROOM



HOUSE II - MAIN FLOOR PLAN



UPPER FLOOR PLAN

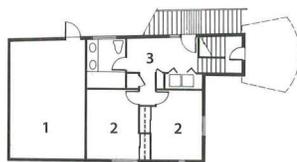


HOUSE III EXTERIOR FROM EAST

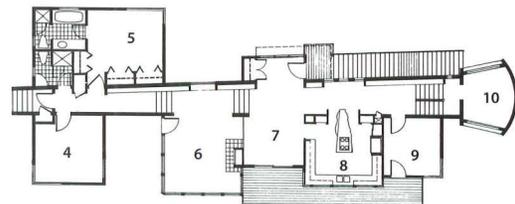


LIVING ROOM

- 1 STORAGE
- 2 BEDROOM
- 3 SITTING ROOM
- 4 GUEST ROOM/STUDY
- 5 MASTER BEDROOM
- 6 LIVING ROOM
- 7 DINING ROOM
- 8 KITCHEN
- 9 STUDY
- 10 FLOATING ROOM



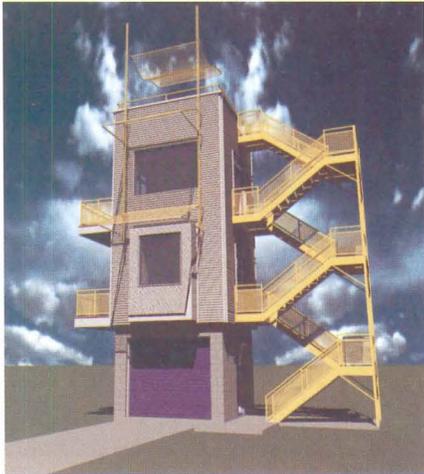
HOUSE III - LOWER FLOOR PLAN



MAIN FLOOR PLAN

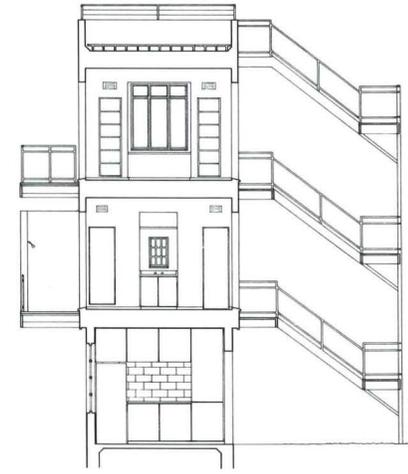


Computer rendering by Richard Dodge, Architect, Austin, TX



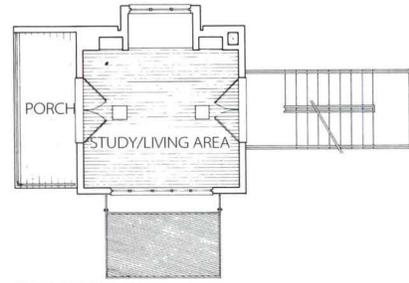
**Up, Up, and Away**

Houston writer Olive Hershey wanted a work space that would be “free, airy, and peaceful” as well as light on utility bills. The local firm Morris Gutierrez Architects responded by designing a small tower retreat for her back yard. The 12-foot-square three-story structure, to be built with masonry walls on the ground level and wood framing above, will provide a bedroom and bathroom, a study/living area, and a kitchen and utility space with a roll-up door opening onto a patio, all in less than 450

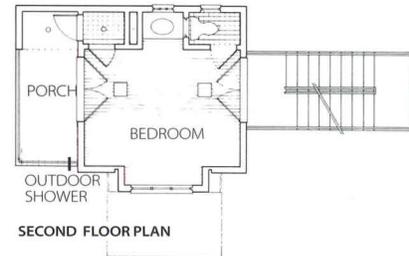


SECTION

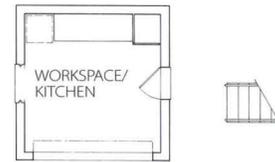
square feet of enclosed space. Casement windows are oriented to catch the prevailing breezes. Projecting porches and screens provide partial protection from the sun. A thin skin of galvanized metal will let heat dissipate quickly for evening comfort, and a whole-house ventilator will move fresh air through the three levels via grates in the floors. The architects see the tower not as a one-of-a-kind solution but as a prototype for low-income modular housing.



THIRD FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

N ↓ 10/3m

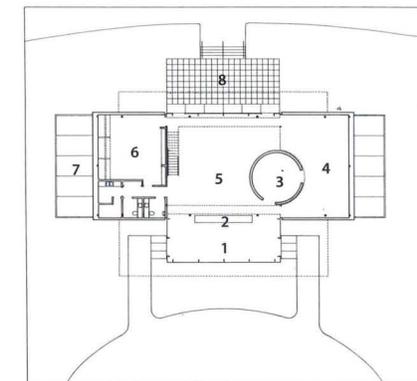


Bryan Melvin Photography

**Crisp and Clean in Vancouver**

Busby Bridger Architects’ marketing pavilion for Concord Pacific Developments in Vancouver was designed to be largely transparent, thereby enticing prospective purchasers to stop and ask for an introduction to a development of 14,000 condominium apartments planned for the Expo ‘86 site on the north

shore of False Creek. Because the pavilion’s crisp Modern use of glass required simple, handsome detailing, Busby Bridger’s product design subsidiary, Designlines Canada, worked with a glazing contractor, AGS, to create an aluminum support system composed of extruded profiles clipped together on site.



GROUND FLOOR PLAN

N ↓ 10/3m

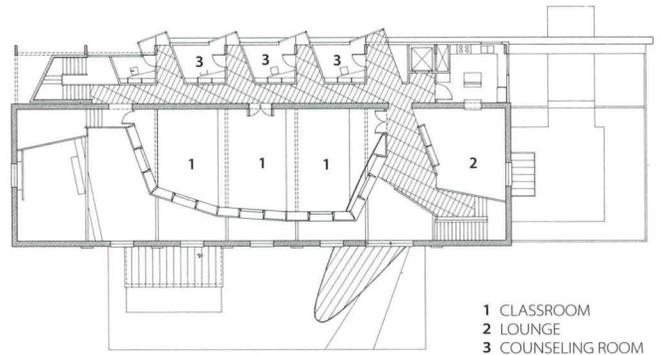
- 1 LOBBY
- 2 VIDEO WALL
- 3 THEATER
- 4 MOCKUP AREA
- 5 EXHIBITION SPACE
- 6 BOARD ROOM
- 7 SERVICES
- 8 DECK

Aluminum castings that hold the glass are quadrupeds with “through-glass” bolt connections. Successful marketing pavilions are needed for only a limited time, so this little jewel is designed to be jacked up and moved once it has served its purpose.

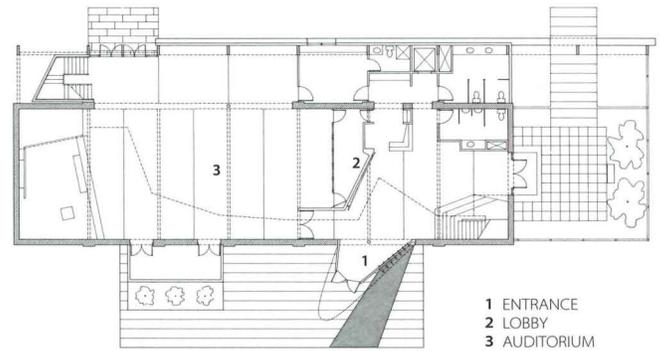


### Community Group to Rehab Inner-City Warehouse

After years of socioeconomic and political “invisibility,” a group of inner-city Trenton residents decided to reassert its presence with the transformation of an abandoned warehouse into the Ujima Community Center and Christian Church. The vandalized and burnt remains of the two-story warehouse will be remade by Richardson Smith Architects of Princeton, New Jersey, into a flexible space for a variety of activities and events. To support the program, a mezzanine level will be added and used as a balcony, a parish hall, and classroom space. The two-phase project will include the renovation of the ground floor and the existing brick shell and a 2,100-square-foot addition with a community art/graffiti masonry wall. The project is currently on hold.



SECOND FLOOR PLAN



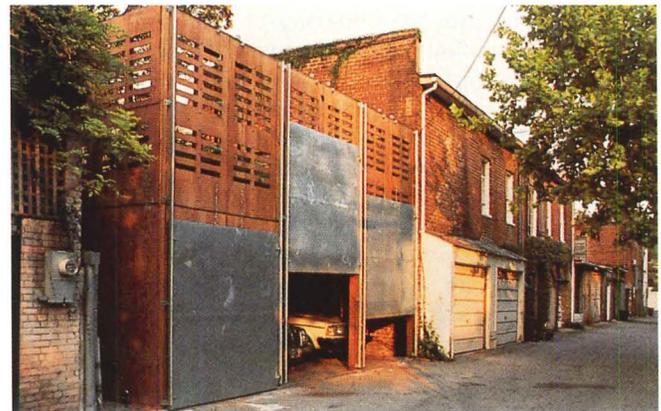
FIRST FLOOR PLAN

N ↖ 20'/6m

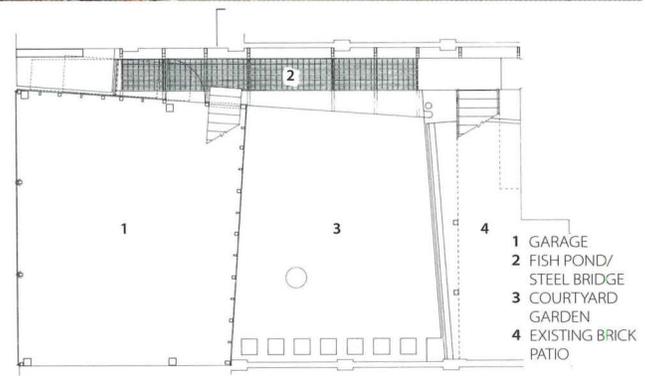


### Gardening on the Garage

The local review board in Savannah tries to get building owners to use historical styles to upgrade the city's alleys, making them resemble the formal 19th-Century façades facing the streets. For a three-car garage on Gaston Street, however, architect Daniel E. Snyder persuaded local officials that it would be fitting to build a simple structure clad in pressure-treated plywood, with doors of smooth galvanized steel. The building gains distinctiveness from patterned openings in the plywood that give passersby glimpses of a vegetable garden planted on the garage's roof. “It's the only spot that gets full sun,” explains Snyder, who wanted a producing garden after moving from the country. The project won Honor Awards from the Georgia AIA and the South Atlantic Regional AIA.



Photos: Tim Rhoad & Associates



GROUND FLOOR PLAN

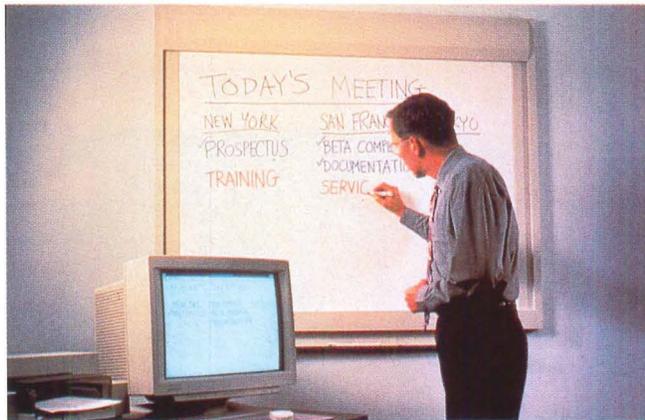
N ↖ 10'/3m



Nick Merrick © 1994 Hedrich Blessing

### One Size Doesn't Fit All

Herman Miller has introduced the Aeron chair as a new generation of workplace seating. Addressing the problem of specifying chairs for an office full of differently proportioned people, the Aeron is offered in three sizes (small, medium, and large), each with a wide range of adjustability. Industrial designers Bill Stumpf and Don Chadwick, with an interdisciplinary team from Herman Miller, came up with the multisize chair concept and several inventive features. The Kinemat® tilt mechanism, for example, allows the chair to support any posture spontaneously. Replacing the foam and fabric of traditional office chairs, an airy, meshlike material called Pellicle® conforms to an individual's body shape, equally distributing body pressure to the chair's seat and back. A two-stage pneumatic lift adjusts the seat of the small chair from 14 1/4 inches to 19 1/2 inches, the medium and large chairs from 15 inches to 20 9/10 inches. Anthropometric studies were conducted and a variety of experts were consulted to inform the design of the chair. Circle 100 on reader service card

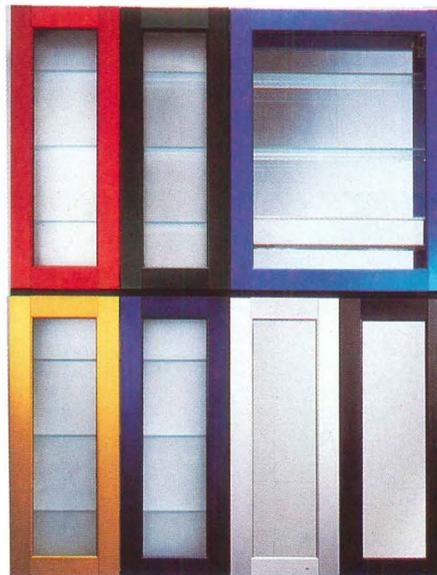


### Computer/Whiteboard

SoftBoard™ is a computer peripheral device from Metro Furniture that combines the functions of a whiteboard with the capabilities of a desktop computer. Information written on its surface is simultaneously

displayed on a Macintosh or Windows-based PC. Data can be saved, printed, used in other applications, and shared with other users in real time.

Circle 101 on reader service card



### Cabinets with Colored Frames

The F Series of colored, anodized aluminum-framed cabinet doors from Robern are suitable for commercial and residential projects. The cabinets, available with any of four glass door styles, are modular and can be

configured in a variety of ways. Surface-mounted and extra-deep versions are both available in a variety of sizes. Frame colors include: anodized silver, gold, black, blue, green, turquoise, and red. Circle 102 on reader service card



### Teak Furniture Collection Expanded

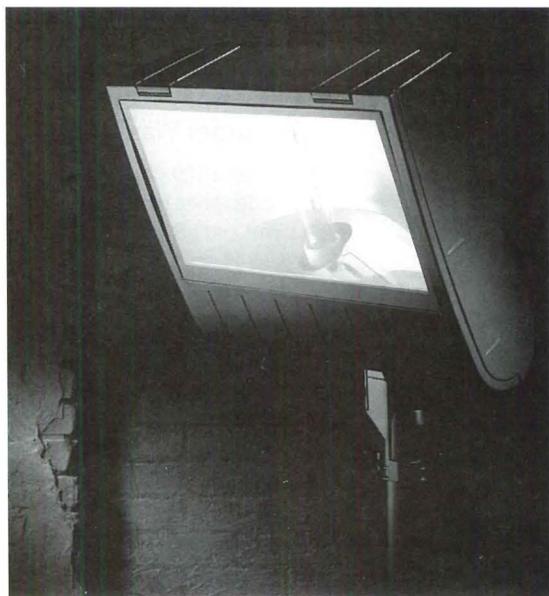
Gardenside's collection of teak furniture now includes the Summerhill five-foot bench. The bench complements the company's line of outdoor furniture, which includes benches, dining tables, chairs, planters, parasols, and chaises. The pieces are suitable for both commercial and residential use and are available with an optional finish for indoor use. The company manufactures its products using wood grown in sustainable-yield programs. Circle 103 on reader service card



### Compact Induction Lamp

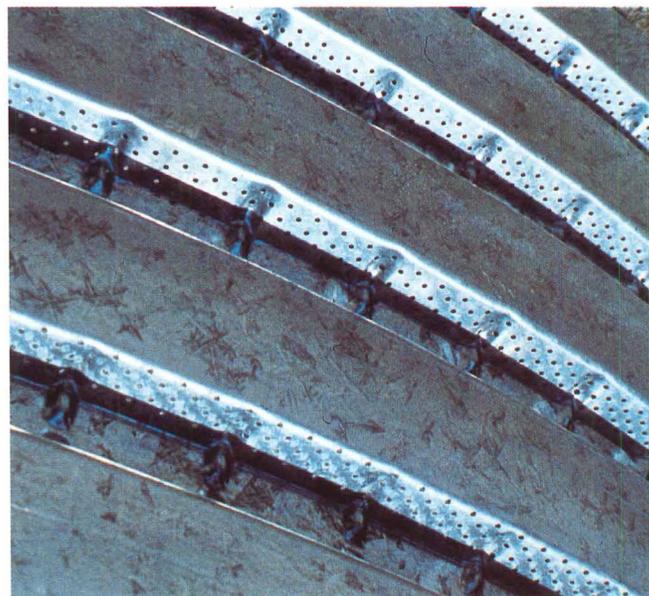
GE is billing its new Genura™ as the first practical E-lamp, that is, a compact high-technology induction reflector lamp. Induction lighting technology uses a magnetic field to induce a current in a gas discharge to produce ultraviolet light. The ultraviolet light excites a phosphor coating on the bulb

and converts it into visible light. Genura combines the energy efficiency of a compact fluorescent with the aesthetic qualities of a standard incandescent reflector lamp. With a 10,000-hour life, the new lamp consumes only 23 watts to produce a light similar to a 100-watt incandescent reflector lamp. Circle 104 on reader service card



### Floodlight with High EPA Ratings

Using a soft-cornered streamlined design to provide high EPA ratings, Lumark Lighting's new Nighthawk III floodlight was designed and built to deliver maximum beam control for storage areas, loading docks, terminals, and building perimeters. The floodlight will save users nearly 1,860 watts of energy each hour it is used, according to the manufacturer. Pole-, ground-, or wall-mounted, the new fixture has a die-cut aluminum optical design that uses 150-1,000W High Pressure Sodium and Metal Halide lamps. Its dark bronze, polyester power coat finish is corrosion resistant. Circle 105 on reader service card



### Custom-Curved Acoustical Metal Decking

Curveline is now offering a custom-curved acoustical metal decking panel produced to required specifications, making it possible to design domes and arches in areas where flat ceilings would normally be needed for sound-control requirements. Using a patented, "crimp-curve" technique, the company can

curve perforated 1½-inch-deep steel decking panels in 22- to 18-gauge without fracturing the panel surface or altering acoustical performance. The curved metal panels form a self-supporting deck; the crimping process is said to increase the load factor of the panels. Circle 106 on reader service card

### Wireless Fire-Rated Glazing

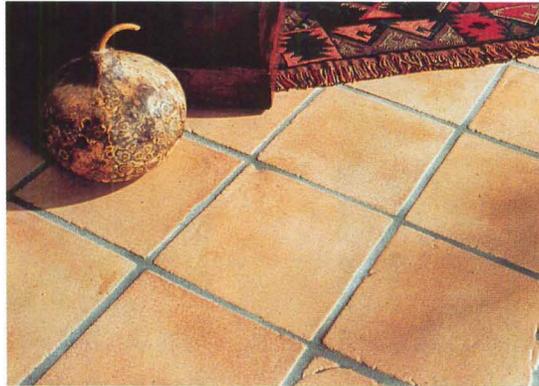
Safety and Fire Technology, Inc., has introduced SuperLite I, "the first clear, fire-rated safety glass to be manufactured in the United States." Designed to be used as a replacement product for existing wired glass and for use in new construction where 30-minute fire ratings are required, SuperLite can be employed in a range of fire-rated wood and steel framing systems. It meets safety impact standards for use in fully glazed door and sidelite applications set by the Consumer Product Safety Commission and Model Building Code, and is available in thicknesses of 1/4-inch and 1/2-inch. Circle 107 on reader service card

### Metal Halide Lamps with Uniform Color

Philips's MasterColor Metal Halide Lamps offer a high level of uniformity and consistency in lamp-to-lamp color compared with other low-wattage metal halide sources, says the manufacturer. The product family uses a ceramic discharge tube of uniform size and shape to combine the white light and high efficiency of metal halide lamps with color stability and long life. Suitable for commercial and retail applications, the lamps achieve a high-lamp efficacy of up to 95 lumens per watt and have a life of 6,000 to 10,000 hours. Circle 108 on reader service card

### Electronic Ballast for Dimmable HID Lighting

The Delta Coventry Corporation has introduced a line of sinusoidal, spectrally pure electronic ballasts for High Intensity Discharge (HID) lamps. The new products offer a stable, tightly managed power source throughout the life of the lamp, with as little as 20 percent the size and weight of conventional ballasts. Continuous dimming of HID lighting, an energy-saving function, is a feature of the ballasts. Circle 109 on reader service card



### Hand-Formed Clay Tiles

Seneca has expanded its line of hand-formed clay tiles. Crafted by artisans using traditional techniques, tiles and trim products in the Handmold® Collection have irregular edges and corners and variegated glazes that combine a matte, stonelike finish with random areas of gloss. (Shown left: a floor made of Sedona-colored Renaissance tiles.)

Circle 110 on reader service card



### Terrazzo Tile Flooring

Three new terrazzo tiles have been introduced by Fritztile. The Classic 200 Terrazzo has a small marble chip and a 1/8-inch gauge suitable for entryways, baths, and kitchens. The Classic 600 Venetian tile has a larger chip and a 3/16-inch gauge. The Classic-N-1000 GraniFlex™ has a medium-size chip and a 1/8-inch gauge.

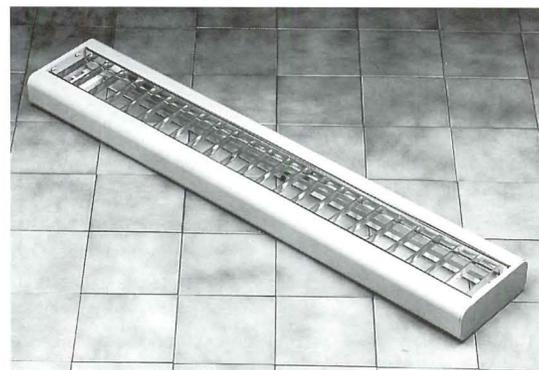
Circle 111 on reader service card



### Fabric from Post-Consumer Waste

Ecodeme, a 100-percent polyester fabric designed for use on panel systems and other vertical surfaces, derives 45 percent of its raw materials from recycled plastic; each yard, for example, includes a recycled content of almost four two-liter soda bottles. The plain-weave fabric meets ASTM E-84 Class 1 or A.

Circle 112 on reader service card



### Fluorescent Lighting Fixtures

Hubbell's new VS900 series of architectural fluorescent lighting fixtures were designed to combine high performance and maximum energy efficiency. Suitable for commercial applications, the fixtures employ a T-8 lamp/ballast combination and offer three light distribution patterns: direct, indirect, and direct/indirect for both task and ambient distribution.

Circle 113 on reader service card

# Computer Products



## Real-Time Simulation

Eagle Point is now distributing Virtual Simulator™, 3-D simulation software that runs in real-time inside AutoCAD®. Virtual Simulator™, developed by CadZooks, Inc., under the name Reality Check, processes up to 150,000 polygons per second on a personal computer, which allows it "to leapfrog over all the others in the real-time simulation market," says Ron Blum of Eagle Point. Another new Eagle Point product is Advanced Architecture for AutoCAD®, which has a "movie" command for building walkthroughs. Circle 114 on reader service card

## Lighting Design Software

Cooper Lighting has announced lighting design and specification software compatible with Microsoft's Windows™. The Envision™ software covers the full spectrum of indoor and outdoor lighting for commercial and industrial applications. Developed in conjunction with Lighting Technologies, Inc., the software calculates light levels and uses these figures to construct room and site layouts and accurate light renderings. Circle 117 on reader service card



## Low-Cost, High-Speed Laser Printer

CalComp has upgraded its 600-dots-per-inch laser printer with a new model, the CCL 600ES, which is lower in cost but twice as fast as the previous version. The new model can now print full-bleed 11" x 17" images on oversize media and has a port for an external SCSI disk. It also comes with 65 Adobe Type 1 fonts, more than any other printer in its class can offer. Circle 115 on reader service card

## Facilities Information System

The Hillier Group has introduced a software package called FIN, the Facilities Information Navigator. FIN is an interactive, user-friendly system that allows facilities managers to retrieve and manage information from various corporate departments about cost, space, personnel, inventory, and associated facilities issues. The software is capable of interpreting this data in strong graphic images for easier understanding. Circle 118 on reader service card



## Portable D-Size Plotter

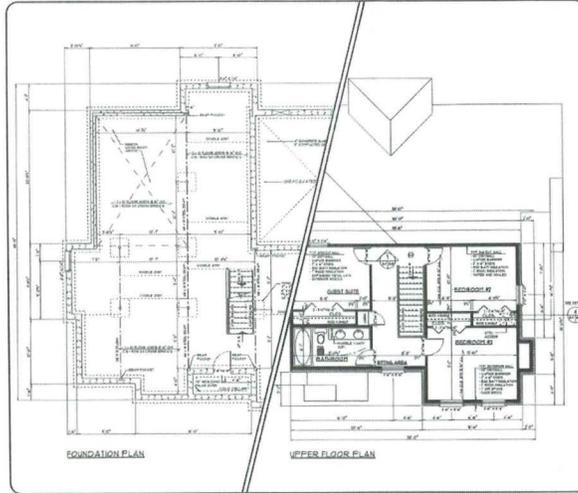
DRAFTSMAN 100, by Parallelex, is a low-cost plotter that can be clamped to a table, desk, or even a wall, allowing architects to plot drawings in the field. Consisting of two tubes, one of which clamps to the surface, the other holding the digital motor and pen carriage, the plotter draws on rigid media, including thick paper, cardboard, and plastic. Circle 116 on reader service card

## Financial Management Software

MacArchitect financial management software, from BEEDEE Corporation, is available for the Macintosh and is designed specifically for architects and design professionals. It allows firms to streamline invoicing, simplify project management, analyze budgets, track project costs, and determine efficiency ratios. Designed by an architect for architects, the software does not require that a user have an accounting background. Circle 119 on reader service card

### Project Management for Windows

Primavera has recently begun shipping a new low-end software package: SureTrak Project Manager for Windows. It provides easy-to-use graphic and analytical tools to enable managers to track projects, allowing users, for example, to cross-cut or drill-down in any direction through project information to get to the heart of a problem and to develop alternative approaches and to compare solutions. Circle 120 on reader service card



### Roofing Dictionary

Roofing consultant, Mike Russo, has developed an online roofing dictionary for IBM, Windows, and Mac versions of Microsoft Word. The dictionary contains hundreds of roofing and construction terms – from “atactic polypropylene” to “zerk” – and makes spellchecking documents a breeze. A custom dictionary can also be created for industry terms not commonly used. Circle 121 on reader service card



### Residential Design Software

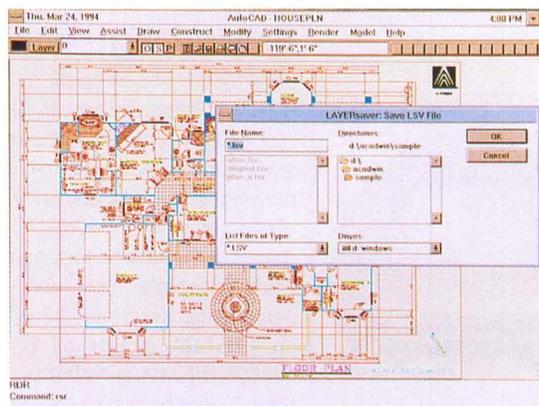
SoftPlan's Architectural Design Software runs on IBM-compatible, 386 and 486 machines. The menu-driven software, which is geared to the residential architect, can quickly produce framing diagrams, cross sections, 3D renderings, materials lists, and cost estimates and can automatically generate elevations from floor and roof plans. A library of materials textures and patterns is also provided. Circle 123 on reader service card

### Video Marker

Boeckler's new Pointmaker® PVI-70tm video marker allows architects to draw on and point to a variety of video and computer images. Areas of drawings on a monitor can be highlighted and annotated with the marker, ideal for group discussions or presentations. The marker, which works regardless of the software used to generate the images, comes in the form of a light pen, a mouse pen, a remote control, a digitizing tablet, or a touch screen. Circle 124 on reader service card

### Desktop Publishing for Architects

NEBS has introduced Page Magic™, a new Windows-based desktop publishing package designed for small businesses. The software includes more than 100 templates and allows users to manipulate text, insert graphics, and integrate graphs and artwork to create professional quality design brochures. It also works in conjunction with Company Colors paper products to produce promotional materials on stationery, flyers, newsletters, and the like. Circle 122 on reader service card



### Drawing Layer Management

AutoLAYER is a software tool for AutoCAD, allowing users to manage easily hundreds of drawing layers. Provided by Hub Engineering Software, AutoLAYER lets you quickly view, update, save, and plot various drawing layers and manipulate layers by picking entities directly from the screen. It also ensures that drawing properties are respected. Circle 125 on reader service card

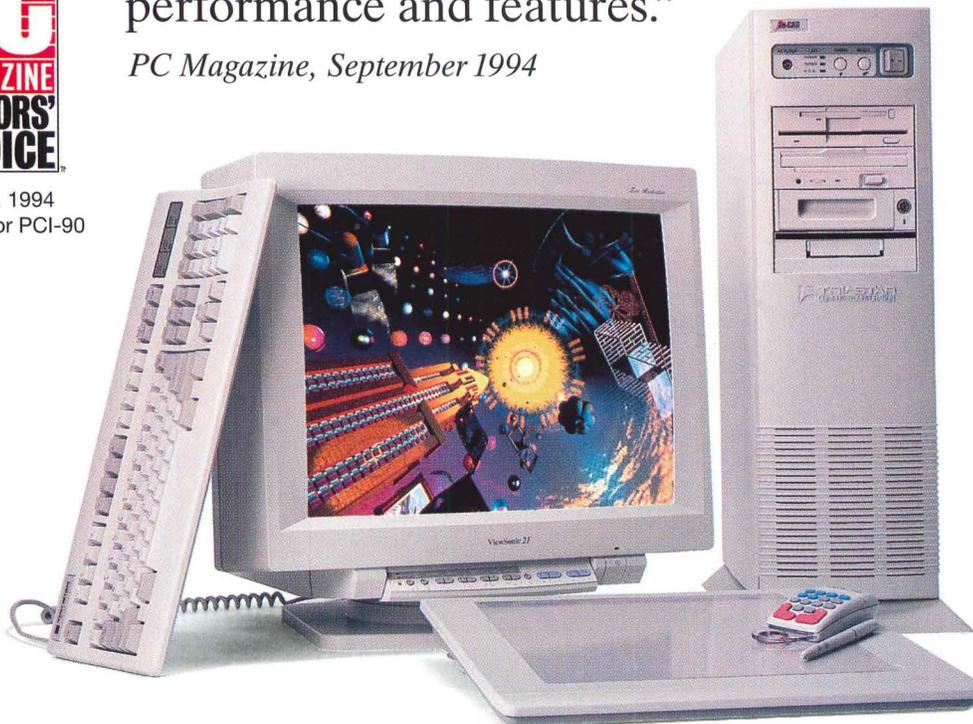
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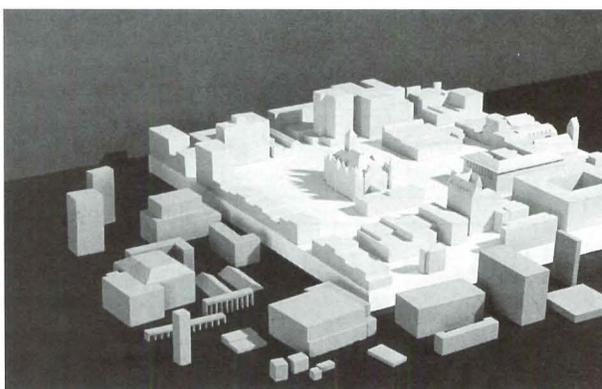
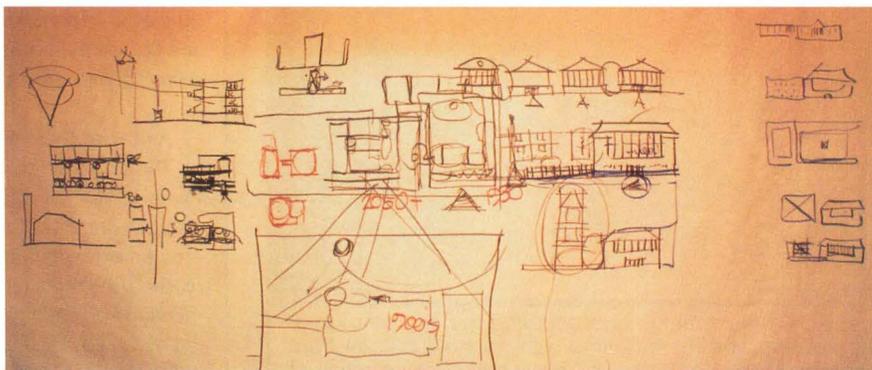


## Inside a Courthouse Competition

Though decisions came with difficulty for a federal project in Scranton, the new way is better than the old. *by Donald Prowler*



Jeff Buck, Vienna Group



The competition involving Scranton's Neoclassical Federal Building, (top left), inspired architect to use widely different techniques. Dagit Saylor sketched possibilities during its presentation, (above), whereas Michael Dennis and MGA Partners used model pieces (left) that committee members were invited to move into different positions.

It was with some reservation that I agreed last March to be the outside architect-adviser on a General Services Administration (GSA) Region III committee to select an architect for the renovation of a federal courthouse in Scranton, Pennsylvania, and for the design of its new annex. Because of previous encounters with federal bureaucracy, I was less than sanguine that this would be time well spent or that I, or anyone else, could have much impact on a process that historically rewarded punctiliousness and perseverance more than talent. But I was intrigued by the Commerce Business Daily (CBD) solicitation for the \$35-million project, which called for "a designer capable of a world class product." Hoping that a "product" meant a "building," I signed on.

At the time, I was only vaguely aware of the relatively new Design Excellence program, which was conceived, in the words of a GSA statement, "to make quality architecture more of a determinant in selections for government projects" and "to open up selections to small, medium, and minority A/E firms." This initiative, championed by Edward Feiner, chief architect for the GSA in Washington, involved, among other things, simplification of the submission process, greater emphasis on the accomplishments and skills of the lead architect, and participation of the architectural community through nonvoting peer review.

Our eight-person committee was creatively chaired by Region III architect David Rupp and included representatives from the Scranton District Court and the National Capital region of GSA. Of the eight, three were architects and two were engineers. We first met in April to review approximately 50 highly

qualified firms that had responded to the announcement. At stake was an opportunity to work on a plum commission – a major addition to a handsome WPA-vintage Neoclassical Post Office and Federal Building. In conjunction with extensive work under way at nearby Steamtown, USA, it is hoped the courthouse will help reclaim Scranton's slowly deteriorating downtown.

### Trying to Define a Project "Philosophy"

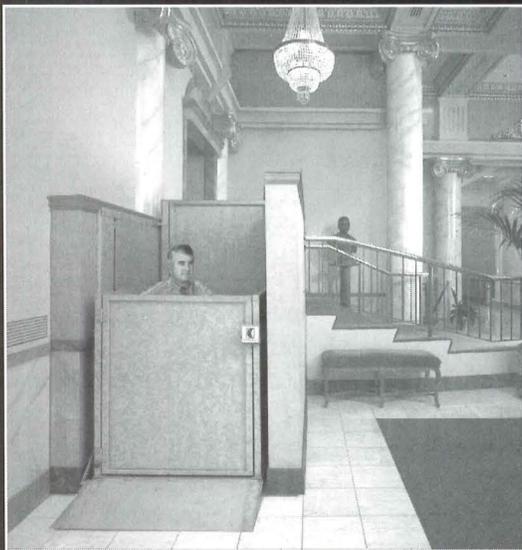
During that marathon day-long meeting, we managed to agree on a short list of eight architecture firms: Michael Graves; Dagit Saylor; Bohlin Cywinski Jackson; Venturi Scott Brown (which soon dropped out, citing prior commitments); Geddes Brecher Qualls and Cunningham (GBQC; a joint venture of Michael Dennis and MGA Partners; a joint venture of Robert Stern and Einhorn Yaffee Prescott, and a joint venture of Hartman-Cox, Ellerbe Becket. Each firm or team was given about six weeks to assemble a complete project team and sub-

mit GSA's infamous 254/255 forms, which require highly detailed information on firm experience and capabilities. The competitors were also asked to prepare for a visit from the selection committee in their offices, at which time each firm was to present what was vaguely termed its "philosophy" for the Scranton project.

As the committee began making its rounds, it became immediately apparent that the short-listed architects had greatly differing notions about what constituted an expression of "philosophy." Some presented nearly complete schematic proposals. All but one firm offered at least some elevation sketches or massing models of proposed solutions. Universally, the presentations were articulate and thought-provoking, and it was clear that most of the teams had done their homework. If anything, perhaps too much so; several of the presentations were so staged they left little sense of life and spontaneity.

After completing (*continued on next page*)

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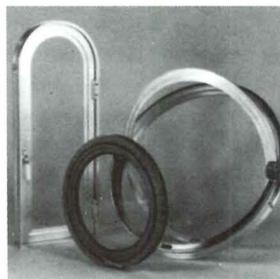
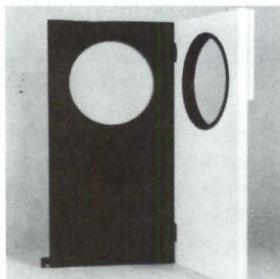
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## Reports

### Courthouse (continued from previous page)

our "tour," the committee met again in Philadelphia to select the winner. Debate was spirited. The very different levels of detail provided by the short-listed firms made it difficult to compare apples to apples. Should a firm be penalized for proposing a specific scheme that not everyone liked, when the architects had not been asked to present specific designs in the first place? Or should a lack of specificity be interpreted as a lack of interest or commitment? In essence, were we a selection committee or a jury? Committee members differed in how they valued various skills and talents. Some looked for a "smoking gun" – a nugget of information that would categorically disqualify a candidate and thus simplify the process. But architecture is not a commodity, and several of us fought to keep the process from becoming too reductive.

#### And Then There Were Three

Through a series of votes, the committee narrowed its choices to three: Bohlin Cywinski Jackson, Michael Dennis and MGA Partners, and Dagit Saylor. But at this juncture, the committee was quite divided. After an extended discussion during which no final decision could be reached, the three remaining firms were asked to attend one last, brief meeting in Philadelphia so that the committee could ask several clarifying questions. The finalists all agreed, but the meetings that transpired only seemed to reinforce opinions already held.

In the end, the committee voted to award the project to Bohlin Cywinski Jackson, with whom GSA has since signed a contract. Subsequently, the three finalists were invited to participate in a debriefing workshop in Scranton, during which the district's judges had an opportunity to hear them present their interpretation of what the courthouse annex could be. This was an honest, enlightening session, with all the firms freely contributing their ideas and insights. Ultimately, in keeping with GSA policy, Bohlin Cywinski Jackson will have to submit three alternative schemes for government review, and it is hoped that with the benefit of the peer discussion in the workshop, they will be encouraged to propose a more robust variety of solutions.

Chicago architect Margaret McCurry, who served as peer adviser on a similar selection process for a GSA Courthouse in Kansas City, for which Pei Cobb Freed & Partners was selected, called her two-day interview process "one of the most enlightening experiences of my professional life." I felt much the same about my experience. The seriousness, commitment, and goodwill of the three finalists was invigorating and at times inspiring.

#### A Better Way to Choose

On a national level, the Design Excellence program has been the subject of scattered complaints. Several members of the AIA Large Firm Roundtable have expressed concern that the process could degenerate into what has been termed a "beauty contest." While the pejorative use of the word beauty is poignant, their point is well taken. Others have criticized specific panels for requesting uncompensated schematic design solutions during the first phase of selection. However, at a meeting at the AIA headquarters in late June, GSA officials outlined attempts to "fine-tune" the Design Excellence program, and AIA representatives, including president-elect Chet Widom, commended GSA for its "increased attention to design quality."

Did the Scranton selection process work? From my perspective, it did. It may not have been perfect, but it was far better than what preceded it. The committee was open and worked diligently to reach the best possible decision. We selected an exceptionally well-qualified architect who most likely would not have been considered for such a job in the past. As our society struggles to create a new generation of meaningful civic architecture, this is a modest, but significant, victory. □

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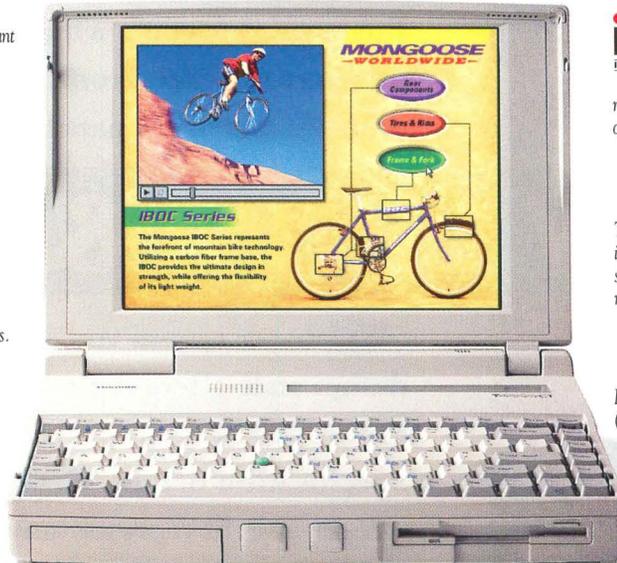
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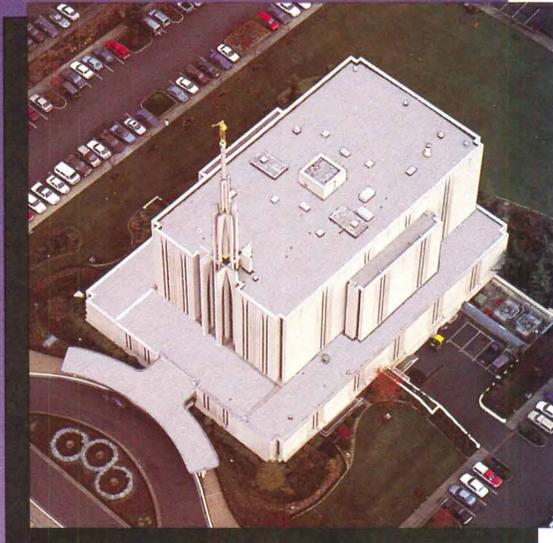
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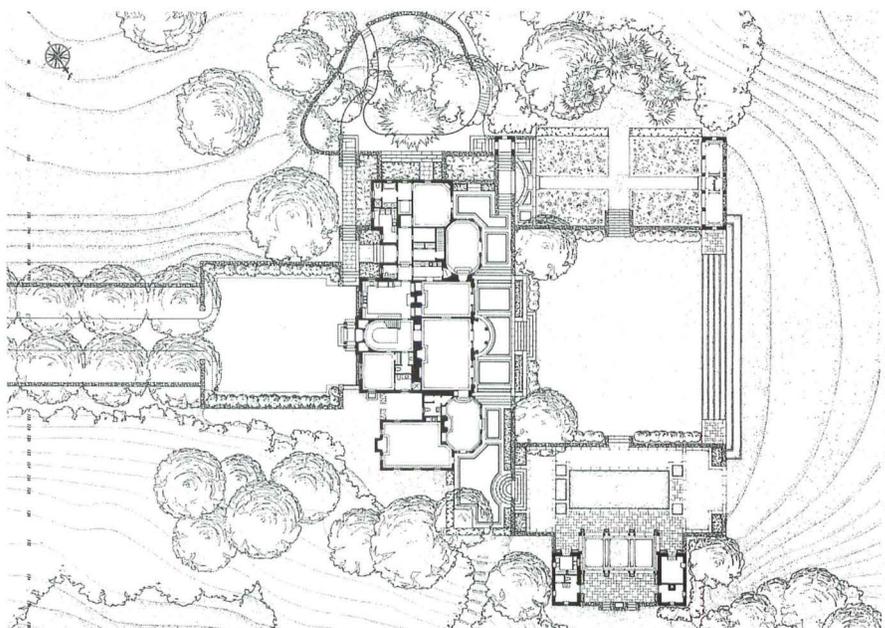
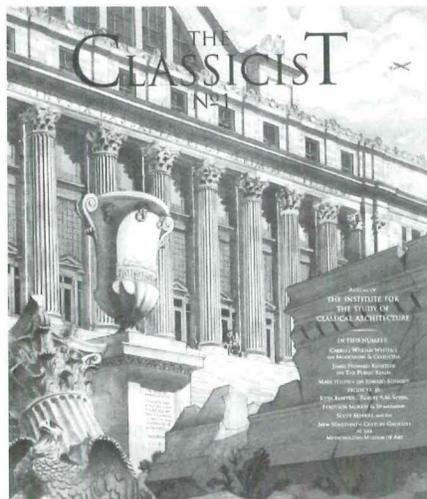
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## The Reticent Revolutionaries

Classical architects are instructing and organizing, but so quietly you might not even notice.

by Philip Langdon



Drawing by Ferguson Murray & Shammaman Architects

One of the projects featured in the inaugural issue of *The Classicist* is architect Mark Ferguson's and landscape designer Deborah Nevins's creation of a fitting landscape, including a walled motor court, for a country house in Connecticut.

If Classicism is a movement that aims to reshape American architecture, it is the most reticent movement I've ever seen.

On the last weekend of October, 250 architects, landscape architects, and interior designers gathered in New York for the second annual conference on Classical design, sponsored principally by *Traditional Building* magazine and the Institute for the Study of Classical Architecture. Clem Labine, *Traditional Building's* publisher, opened the impeccably organized event by looking out from the podium of the Neoclassical Tishman Auditorium at New York University and proclaiming, "Today's program is quite revolutionary." By that, he meant that the Classicism presented by more than a dozen speakers would come across not as the stuff of museum exhibitions and art history courses but as a practical living tradition. Those who assembled at NYU and later in the Institute's 19th-Century loft building in Tribeca heard Classicism propounded as an approach that the makers of buildings and landscapes can readily employ today – even if they do risk being looked on as anachronisms by many of their colleagues.

Certainly Classicism is experiencing one of its periodic renewals. This is evident in expanding organizational activity. Under the direction of Donald M. Rattner, the Institute,

founded in 1991, has given intensive six-week summer courses, has organized classes during the academic year on proportion, traditional wash rendering, and the elements of Classical architecture, and has sponsored a variety of other programs. On the weekend of the conference, the Institute published the thoughtfully written first issue of its annual journal *The Classicist* (available for \$19.50 from the Institute, 111 Franklin St., New York, N.Y. 10013). In Philadelphia, Henry Hope Reed's longtime organization, Classical America, has been displaying increasing energy. And Labine's magazine about products for traditional building has recently been joined on the newsstands by Hearst's *Classic Home*, a co-sponsor with the American Society of Interior Designers and the New York chapter of the American Society of Landscape Architects. All in all, Classicism is displaying growing vitality at both the popular and the professional level.

### Searching for a Guide

Yet many of Classicism's proponents remain exceedingly low-keyed in their efforts to spread the word. That became evident during a workshop conducted by Steve Bass, a New York architect who teaches at the Institute. Bass received his own architectural training at a Modernist school – Pratt Institute in the

1960s, a place where Bauhaus-oriented faculty members steered clear of promulgating rules for the creation of beautiful buildings. At Pratt, "beauty simply could not be discussed," Bass recalled. "I did receive some lessons about how to achieve a striking effect," he acknowledged, but "I didn't know why they worked. I had to discover it each time."

In searching for a reliable way of producing pleasing buildings and achieving an architecture that would not look outdated with the passage of time, Bass eventually arrived at the study of Classical geometry and proportions. One factor that convinced him of Classicism's value was his observation that during the late 19th and early 20th Centuries, huge numbers of competent to beautiful buildings were erected; that was a period in which, he pointed out, "Neoclassicism was strong."

In his workshop, Bass confidently laid out methods of Classical geometry and proportions, drawing on Pythagoras, Plato, Ptolemy, and other ancients. But he cautioned student-practitioners against advocating Classicism among those who have shown no proclivity toward it. The difficulty, he said, is that Classicism is "a subtle doctrine" based on order and unity, a form of design in which "one element must be above another element. You try to translate that socially and it won't fly." In these

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## Reports

### Revolutionaries *(continued from previous page)*

times, he observed, the implications of Classical thinking tend to be met with hostility. "If you go around showing these to people," he warned, "you'll be called a fascist, an elitist."

#### Weeding Out Errors

Rattner, too, refrained from delivering any messianic message about pushing Classicism into public prominence. He devoted his lecture less to bringing more designers into the Classicist fold than to weeding out pseudo-Classicism. He showed a lobby with moldings piled absurdly high ("You do not get more Classical by using more moldings," he admonished), columns in the wrong locations, downlights inserted in the base of an entablature, where they made the structure look insubstantial – examples of a general ignorance of how traditional load-bearing Classical architecture was put together. Considering how much hollow imitation of historical architecture flourishes in American building, it's easy to understand why the Institute's director would focus on the problems of poorly handled Classicism rather than on Classicism's potential. Nonetheless, to anyone familiar with the fervor of a design movement such as the New Urbanism of Andres Duany, Elizabeth Plater-Zyberk, and Peter Calthorpe, the conference of Classicists seemed remarkably lacking in zeal.

Perhaps the lack of excitement should be expected in an architectural discipline that inclines, as one of the essayists in *The Classicist* suggested, toward "decorum, endurance, order, clarity, serenity, simplicity and the dissimulation of effort." These qualities do not mesh easily with the zest and impatience required for a popular movement. An even more important reason for the low-keyed atmosphere may be the fact that the biggest continuing market for Classical design is in the high-end residential field, where passionate missionary work is unnecessary. Affluent homeowners know what they like; they don't have to be proselytized to choose traditional design.

Conference-goers seemed to get what they wanted from the proceedings. A designer from Charlotte, North Carolina, Charles Furman McLarty, told me he had signed up for the conference because he designs traditionally styled 5,000-foot spec houses, which sell for \$500,000 to \$800,000. He wanted to learn more about sources of ideas for such work, going beyond the limited number of antecedents that spec builders in the Charlotte area use again and again. A landscape architect from Yarmouth, Maine, David Melchert, expressed interest in the "procession of movement" that New York architect Robert A.M. Stern – hero of the conference – presented as a key feature of Classical houses and gardens. Melchert said his clients, building 12,000-square-foot houses, consider some aspects of Classicism "too formal, but they like the logic of it, the order of it."

Conference-goers may have learned more about philosophy than they had expected. Bass, in his remarkable three-hour workshop dealing with "harmonic numbers" and other ancient teachings about proportion, made an intriguing, if difficult to summarize, case that Classical proportions are meant to convey more than beauty; they are directed toward unity, toward stimulating "the soul to remember that it is in unity."

Such unusual reflections, linking building to the human condition, made a rewarding conference. But not a conference that is likely to put Classicism on the front burner of American architecture. Even the staunchest advocates of the Classical approach admitted their status as a small minority among professional designers. "Don't get too complacent," warned Stern, surveying the not terribly large auditorium at NYU. "This is all the Classicists there are, in this room – orphans of the storm." □

## Educating Our Kids

A local architectural program for disadvantaged teenagers goes national. *by Abby Bussel*

The most successful educational reform in the U.S. involves modest, independent programs tailored to specific educational philosophies or courses of study. One such small-scale initiative is the Architectural Youth Program (AYP) in New York that gives "at-risk" kids a broader range of opportunities than they would otherwise be exposed to. So successful has AYP's hands-on, career-oriented curriculum been that Ventures in Education, a four-year-old national educational organization based in New York, is planning to introduce similar programs into some of the 81 schools in its network across the U.S.

Developed two years ago by Marc Sokol under the auspices of the nonprofit arm of SITE, the interdisciplinary design firm established by James Wines and Michelle Stone some twenty years ago, AYP initially set out to increase the number of minorities and women entering the profession, (see also "A White Gentleman's Profession?," P/A, November 1994, p. 55) but eventually took on the role of an intervention program "where architecture is used to assist in stabilizing the futures of inner-city young people." Now, with Ventures, AYP will be reaching an even more diverse group, with the Navajo nation and rural Alabama among its targets.

What makes AYP stand out is its emphasis on career education. Though the weekly, academic-year program focuses on architecture, planning, and design, attention centers not so much on making models, for example, as on the fact that tools such as models exist. Getting students to realize that buildings do not just appear, but are conceptualized, developed, and influenced by numerous factors, from site conditions, zoning, and climate to community associations, is a major aim of the program. The larger message is that many people in a wide range of professions contribute to the makings of the built environment.

With entry into college and professional life as the long-term goals, AYP's more im-



AYP Students working on a model (top) and gathered around the completed work (above) with program director Marc Sokol.

Courtesy of AYP staff

Educating Our Kids (continued from previous page)

mediate interest is to keep the kids in school and to get them excited about education. The students are recruited for the program by administration and faculty members from a small group of inner-city high schools and vocational schools. They are asked to look for kids who are lost in the system, kids who are interested in the arts but can't articulate it, kids who draw in their notebooks all day but don't do their school work. A handful of AYP graduates have gone on to The Cooper Union and The Parsons School of Design.



AYP students work on a model.

Courtesy of AYP staff

Now held at Ventures' offices in Manhattan, this year's course is the first to span the full academic year. The curriculum always begins with an introduction to architecture and the architectural process. Course work involves much hands-on learning in a multisession spatial planning charrette and classes on perspective drawing, CAD, theater design, and architectural criticism. Interspersed among these are talks given by a variety of professionals, field trips, and college- and career-oriented workshops covering the college application process and résumé writing. Studio visits are also part of the program. AYP is funded by grants and donations from the New York State Council on the Arts, the National Endowment for the Arts, the Dreyfus Corporation, and The New York Times Company, among others.

Taking an interactive/participatory approach to education, AYP complements the educational philosophy of Ventures in Education. With its main thrust of improving the math and science skills of minority students, Ventures has developed a program that revolves around the concept of problem-based learning, the idea being that students learn by doing, not by rote memorization.

Sokol is currently awaiting word on a grant proposal submitted to the NEA Design Arts program for a project in rural Alabama that would involve 75 fifth- and 75 eleventh-graders in two separate charrettes to redesign a one-quarter-mile stretch of the Black Warrior River. The project will incorporate language arts, science, math, and history in an effort to take a well-rounded look at the problems and potential uses of the riverfront.

Another project in the works is a pilot program in the Dominican Republic. Slated for the summer of 1995, the course is to be held at Altos de Chavon/The School of Design, an affiliate of the Parsons School of Design (an enthusiastic supporter of AYP), located on a lush campus about a 1 1/2-hour drive from the capital, Santo Domingo. Developed in 1978 as an artists' colony, the school was established in 1982 and offers an associate degree. The AYP students, a group expected to include teenagers from New York, Alabama, and the Navajo nation, will not only develop a project for a real site, but will also be exposed to different cultures and a different environment.

Though AYP is not the only program of its kind and it certainly isn't the answer to all our educational woes, it stands as a strong model of how to give underprivileged kids a chance to improve their own lives and to affect the world around them. And for the profession, a commitment to educating kids like those in AYP's program — all kids, for that matter — can only result in a broader understanding of the world in which architects operate: the real world. □

# DON'T OVERLOOK A GROWING MARKET

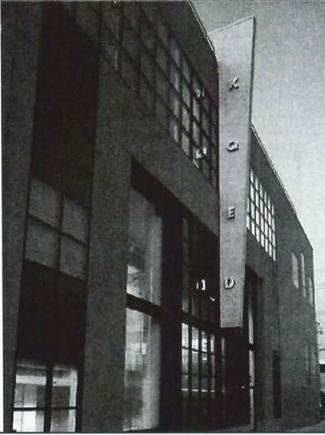
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Creating jobs and addressing economic issues has been a major challenge in the past few years. The industry has seen a decline in demand, and many companies have had to lay off workers. However, there are still opportunities for growth in certain sectors. The industry is expected to recover in the coming years, and many companies are looking for ways to improve their financial performance. This includes restructuring operations, reducing costs, and finding new markets. The industry is also looking for ways to attract new talent and improve its overall efficiency. The industry is expected to continue to grow in the coming years, and many companies are looking for ways to improve their financial performance.



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...the building work is expected to be completed by the end of the year. The building is expected to be a major addition to the city's skyline.

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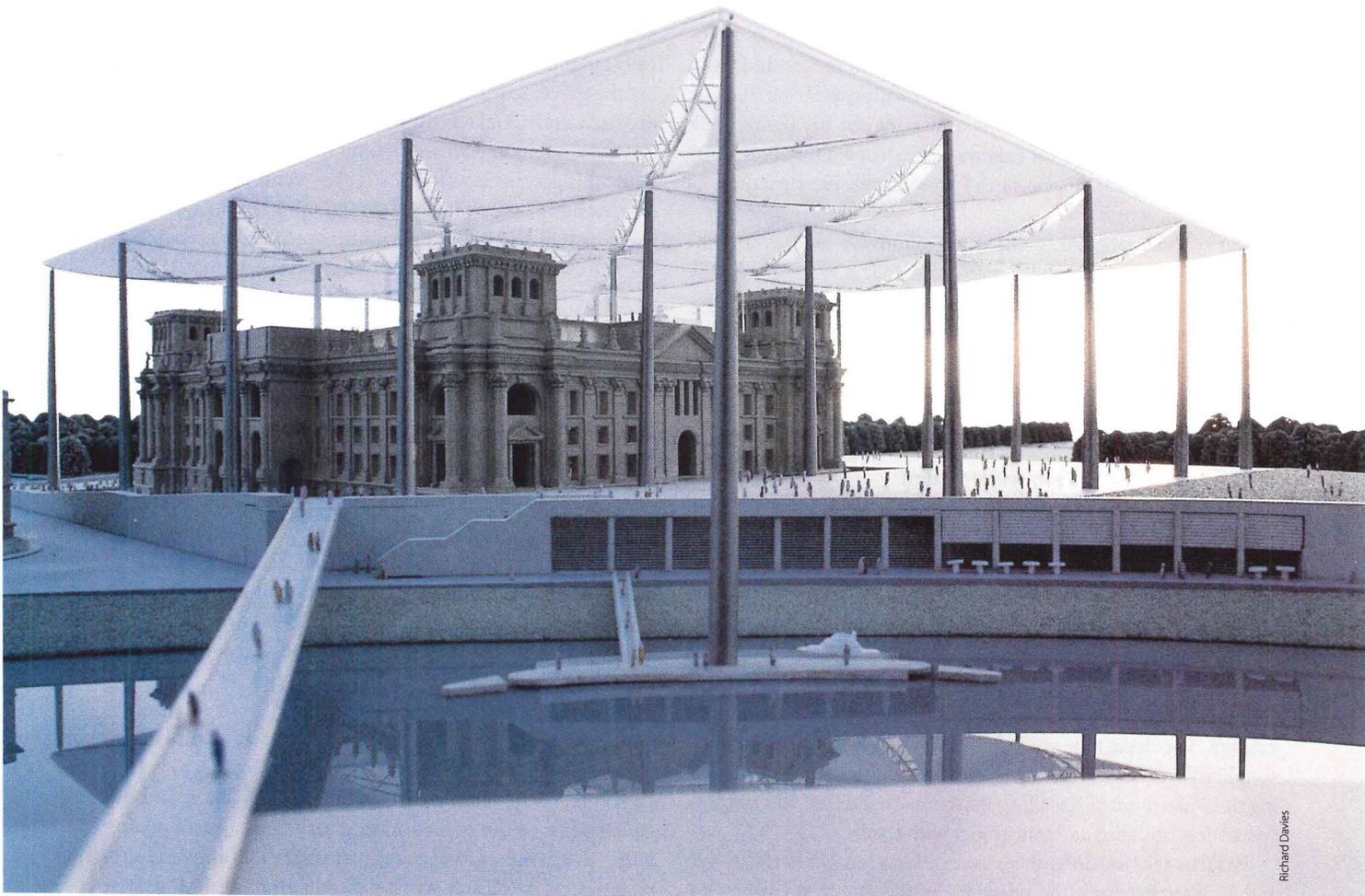
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# THE INDUSTRIAL DESIGN OF BUILDINGS

## Is Norman Foster's Method a Model for Others?

The work of Sir Norman Foster & Partners shows that industrial-design methods can improve the performance of buildings and possibly even the perceived value of architects. *by Thomas Fisher*



1

As you approach the terminal at London's Stansted Airport, designed by Sir Norman Foster & Partners (P/A Dec. 1994, p. 54), the building seems buoyant, almost effervescent, with its undulating roof of domes seeming to float above improbably thin steel struts. The same rarified quality appears in the vast open space inside, where elements that clutter most airports – signage, TV monitors, display boards, lighting fixtures, safety equipment – have been gathered into 24 elegant black boxes integrated into the building's column clusters. Stansted terminal is a Modern tour-de-force, reasserting the value of the free plan and flexible space.

But it is also something else, something even more important than a well-designed airport. In an era when so many buildings come wrapped in styles unrelated to their use or structure, Stansted – and indeed most of Foster's work – shows the power of a design process that refuses to separate aesthetics from function or technology. This refusal is not just some tenacious strain of Modernism. It goes to the heart of what ails this profession, because the more we separate aesthetics from program or technicals, the more we play into the hands of those who would like to portray all architects as building decorators or arrogant "artists." Whether or not you like the looks of Foster's buildings, none of us can afford to dismiss the thinking behind them.

#### What's Relevant and What's Not

Some critics might argue that Norman Foster, too, is something of an "artiste," an international design star whose 250-person staff turns out slick high-tech buildings from its high-ceilinged workroom overlooking the Thames in London. And some architects might have a hard time relating to Foster because of the scale of his commissions and budgets; his firm's bank building in Hong Kong, for example, constructed for about \$800 per square foot, is still one of the most expensive structures of its kind in the world.

But such skepticism, while understandable, misses the underlying relevance of Foster's architecture. The value of what he does has little to do with the size of his commissions (which actually varies considerably) or with the stylistic similarities among his buildings, and everything to do with his method of working, which involves trying to solve the greatest number of problems with a minimum of means.

#### The Architecture of Industrial Design

This approach might best be described as industrial design applied at an architectural or urban scale. Unlike most current modes of architectural production, Foster's method emphasizes interdisciplinary teamwork rather than personal expression, user needs rather than formal conventions, clarity rather than complexity, functionality rather than imagery, invention rather than consumption. As the Spanish critic Josep Maria Gil Guitart recently described it, "Foster and his team do not wish to complicate life. The departure point for their work is always conceptual simplicity with a view not to excluding variables, but to eliminating the superfluous." Recalling Buckminster Fuller's admonition, Foster describes this as "doing more with less."

It is true that the differences in scale between industrial design and architecture limit the relevance of the one to the other; we

rarely get a chance, for example, to build prototypes of buildings and test them the way a company can a car or a computer. But the fact that industrial design has never split aesthetics from function and technology makes it a process from which we might learn how to repair that split in our own discipline.

There are some incentives to do so. While the architectural profession has been struggling in recent years, industrial design has undergone a renaissance, at least in terms of interest and investment by the business community. And it isn't hard to see why. The industrial designer's ability to derive form from technology and to justify beauty in terms of function plays well in a culture that, rightly or wrongly, views aesthetics as a matter of personal preference and utility as the primary way to measure design's value. What Foster has done is show how those values can work in our favor.

#### Team Design

One of the aspects of our field most at odds with industrial design is that of personal expression. While there will always be limited demand for designers known for their signature style, most architects face a situation inimical to personal expression, having to share leadership of the building team with construction managers, project managers, and the like. This rather more humble position is better suited, I think, to the more egalitarian notion of teamwork common among industrial designers.

Foster's office demonstrates the difference. As Foster describes it, their process "is the opposite of much that has been academically taught. The architect is not handing down from above, passing the parcel to the specialist who waits in line to be told what to do. Each individual has the potential for creative input." From the conversations I've had with some of Foster's long-time consultants, this process is well liked. It also seems to be a way to generate new design ideas. In a well functioning team, says Foster, "it is the personal chemistry and mutual respect that enable anyone (on the team) to challenge anything and everything."

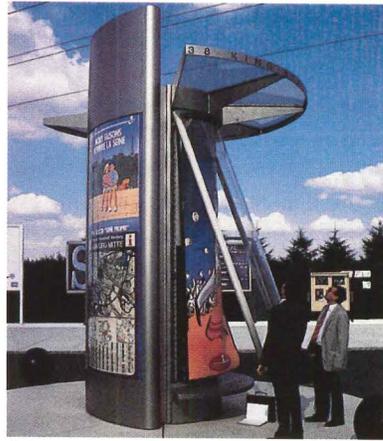
Indeed, Foster is somewhat unusual among design stars for his admiration of anonymous industrial designers. As Foster puts it, they are "often hidden in bureaucratic and business organizations, or sometimes in independent consultants. Their main role, in essence, is problem solving. It is this fundamental aspect of their work that is so often overlooked." Such praise of the anonymous designer is part of a larger belief that design must reconnect to ordinary people and the everyday commercial world if it is to have any effect. "There is a tendency among designers," adds Foster, "to overindulge in the more superficial aspects of their trade to the exclusion of the fundamental problems. The ensuing dialogue, with its overtones of 'good taste' and mystique, is largely irrelevant to a world going about its business."

#### The Nature of Expertise

It is not just the nature of teamwork, but the nature of the team members that distinguishes this process. Most architects are accustomed to depending on clients for information and on local consultants for the expertise necessary to design a building. But industrial design, perhaps because of the mobility and utility of its products, has a somewhat different emphasis. More attention



2



3

The industrial design approach of Sir Norman Foster & Partners, with its emphasis on participatory teamwork and its de-emphasis on highly personal expression, is evident in the layout of the office, where teams of architects and designers, regardless of their status, work at long desks in one large room (4). Foster sits out in the open, at the end table farthest from the entry. The firm has produced a long line of innovative and inventive buildings, of which the firm's competition-winning scheme for the Reichstag – the German parliament building in Berlin – is one of the most recent (1, p. 49). But the firm's intensive involvement in fabrication methods and product improvements (5, 6) has enabled it to establish an active practice in industrial design. Among their recent projects is a 20-seat, wheelchair-accessible, electric bus for the Royal Botanic Gardens in Kew (2); a bus shelter system for the French company, J-C Decaux, which can incorporate trash bins, benches, lavatories, and electronic information systems (3); and a line of tables and desks for the furniture company Tecno (6).



4



5



6

is given to actual user needs, as opposed to what the client says those needs are, and a greater willingness exists to tap expertise from around the world.

For Foster, the search for global expertise is due, in part, to the location of the firm. "We're on a small island with an eroded industrial base," says David Nelson, a partner in the firm, "so we have to go farther afield for consultants and manufacturing expertise." And the intensive research phase that Foster's staff engages in at the beginning of most projects is a search for expertise of a different kind. "We talk a lot to the users of a building," adds Nelson, "because it gives us ideas about how to do things. They are experts in what they do, so it's important to go beyond the figurehead client."

### Challenging Needs

This intensive user input often leads Foster's office to question things in the building program. Most of us acquire the rather bad habit in architecture school of not questioning (for fear of reprisal?) the program requirements given to us by our studio design professors. When that carries over into practice, however, it puts the architect in the position of passive acceptance of what clients ask for, even if that is not in a client's best interest or what the building users actually want or need.

"We listen carefully to clients," says Nelson, "trying to really understand what they are saying and playing it back to them with the hope of making the brief better." The critic Martin Pawley has described this process as a "will to dominate" on Foster's part. "By learning more about his client's needs than the client himself knows," writes Pawley, "Norman Foster the architect has frequently been able to 'move from a situation of inferiority to one of superiority' – and redraft the user's definition of what he needs from his building." But Nelson says that that makes it sound more arrogant than it really is. "We offer suggestions of how to improve a project, but we certainly accept it when a client isn't convinced."

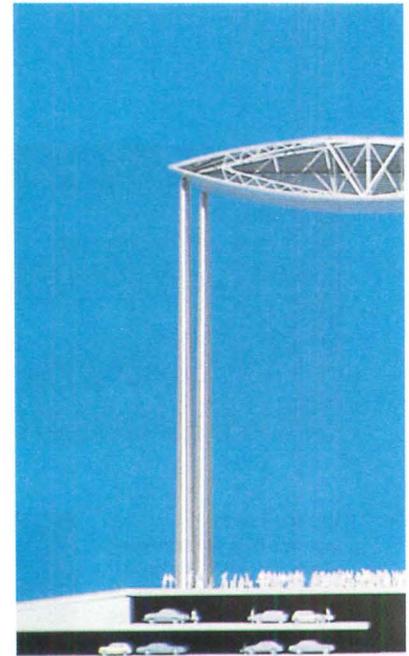
The counterargument to this questioning of need is that it can anger or alienate a client. But, if the questioning is aimed at reducing the cost or improving the efficiency of a project, it can please the client immensely. As one of Foster's clients put it, "He's marvelous. Every time he opens his mouth, a quarter of a million comes off the budget."

### Rejecting Consumerism

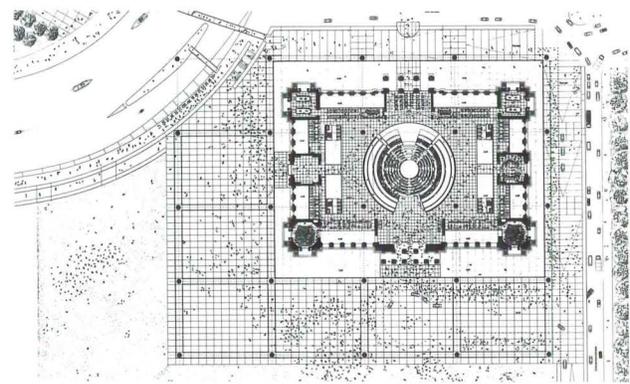
Foster and his staff also frequently question the way building products are manufactured and how they perform. Here, too, many architects have become rather passive, assembling buildings with products identified and largely accepted as shown in the manufacturers' catalogs. The origin of this practice lies not in architecture school, I think, but in our consumer-oriented culture, which encourages us all in the mistaken belief that the superficial variations among the thousands of products available to us can compensate for real differences among them. The result of this consumer attitude is not just diminished performance in buildings, but a diminishing of the architect's influence.

Foster argues that, by pushing manufacturers to do better and by becoming "integrated into the 'how and why' of the making of the building, the architect comes closer to the heart of the project." It certainly increases control over both the function and the aesthetics of what goes into a building. Says Nelson, "When manufacturers say that things have to be certain ways, it's amaz-

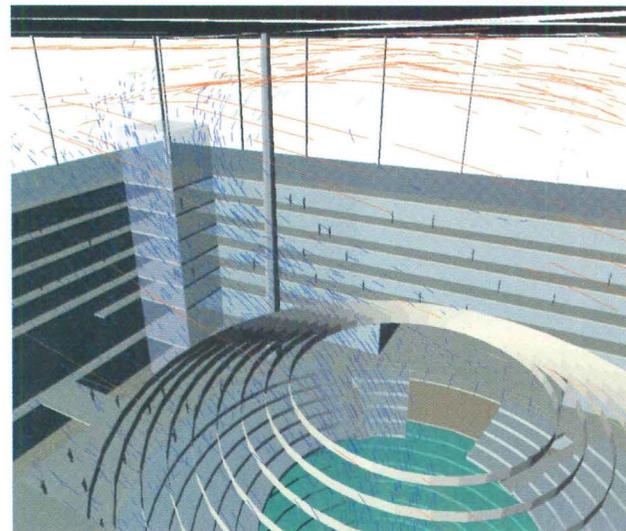
The firm's original entry in the Reichstag competition (1) fit a 366,000-sq-ft program into the small shell of the 1894 building by placing many functions in a podium (7). The podium had a further advantage of getting the public up to the level of the parliament chamber, addressing the German government's desire that the building encourage accessibility and "closeness to the people." A large translucent canopy roof, supported on 25 slender steel columns, provided shelter for people using the plaza around the building and for the public piazza inside the walls of the old building surrounding the assembly chamber. The roof, which would have been erected first, would have allowed work on the parliament building to occur under cover and would have created air movements that would have naturally ventilated much of the building (see sidebar below).



7



PLAZA-LEVEL PLAN, ORIGINAL SCHEME N ← 300/100m

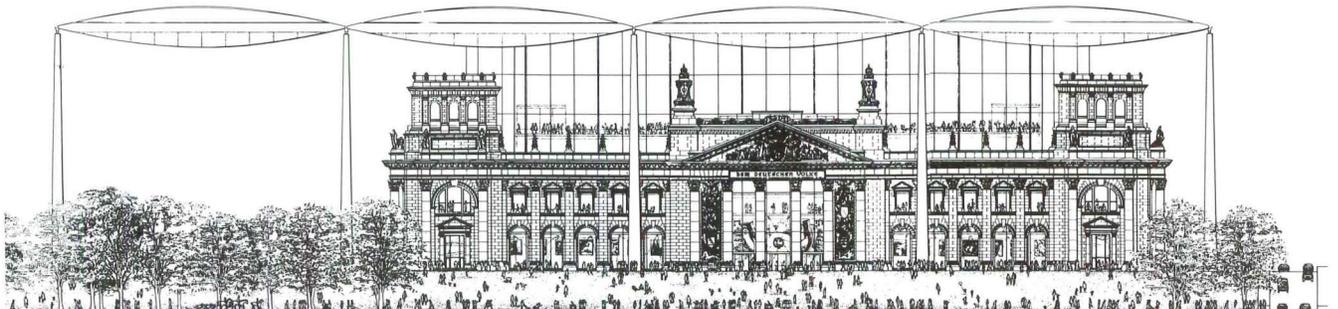


Computer rendering courtesy J. Roger Preston and Partners

8



Richard Davies



ELEVATION, ORIGINAL SCHEME

40/12m

### A Mechanical Engineering Perspective

When faced with unprecedented spaces, such as those often developed by Sir Norman Foster & Partners, the mechanical engineer must find new design methods to avoid uncomfortable levels of risk.

One such method we at J. Roger Preston & Partners, a London-based building services engineering firm, have developed is computational fluid dynamics (CFD), originally developed by the aerospace industry for the design of such things as wings and turbine blades.

We first used CFD on Foster's submission to the Marseilles City Hall competition, to determine the probable stratification of air temperatures within a large, complex space. This technology divides a space into

hundreds of thousands of "finite volumes," and simultaneously solves the equations governing motion and heat transfer for each one. It results in a visualization of air flow patterns, temperature distributions, and contaminant concentrations.

Since that project, J. Roger Preston has applied CFD to a number of Foster projects: to visualize and refine the air flow patterns in the Kawana House, to design the natural ventilation system and solar chimneys on the Lyceum at Fréjus, and to design the ventilated cavity extract window system in the Commerzbank in Frankfurt.

For the Reichstag competition, we used CFD to refine the natural ventilation systems mandated by the brief. The initial competition entry showed ventilating air being drawn down from the roof and

ducted through the basement to enter the internal areas of the building from below. The air would be discharged through high-level openings above the debating chambers (8). In the second stage of the competition, we showed, through CFD, that, by positioning the ventilation openings below the roof line, sufficient air was captured to ventilate the interior spaces for a substantial part of the year, and that the roof increased air flow to the internal space and guided a separate air stream across the underside of the roof glazing to remove heat from the solar blinds.

CFD is a tool that not only can reduce the risk of innovation that typically occurs in Foster's projects, but can reduce the cost and energy use of overly robust systems designed in response to those risks. **Daniel Nall, Principal**

ing what the question ‘Why?’ produces. You end up with a dialogue with them and with improvements that neither of you would have come up with in isolation.”

Nelson admits that this pursuit of innovation has risks. “You have to be cautious; no client wants to be a guinea pig, so if something is new, you have to ask yourself why do it in the first place. Also you have to have a backup.” When Foster developed with H.H. Robertson the raised floor for HongKongBank (March 1986, p. 105), with its honeycomb-core aluminum panel technology borrowed from the aerospace industry, “we had a fallback,” says Nelson, “of a standard computer floor that would not have performed as well, but that would have sufficed.”

What about the criticism that most projects and most clients cannot absorb the cost of such product innovation, even if architects were inclined to pursue it? Nelson acknowledges that architectural fees in the U.K. tend to be higher, on a percentage basis, then they are in North America. However, if the product innovations result in lower construction or operation costs – as is almost always the case with improvements that Foster’s office pursues – then clients must decide whether or not to spend money up front in order to save it later.

### Economy of Means

Although Foster’s challenges to clients’ briefs or manufacturers’ products often end up saving money or improving performance, the firm’s work is still widely seen as being expensive. But this is due, in part, to the media. His large, high-budget projects get most of the press, but he still does the kind of project his firm first gained prominence for: low-cost industrial and warehouse structures. His office recently designed an 80,732-square-foot office, warehouse, and showroom for the furniture company Tecno, which came in at under \$100 per square foot.

It is a different kind of economy, however, that makes the firm’s work so impressive. In architecture, we tend to think of achieving economy by lowering the quality of finishes or reducing the size of a building. Foster, however, views economy more the way an industrial designer does: using the most minimal means to solve the greatest number of problems. “The designer’s task,” says Foster, “could be summed up as analyzing set problems in the widest sense and organizing the best available resources to achieve the highest-performance solution in the most economical manner.”

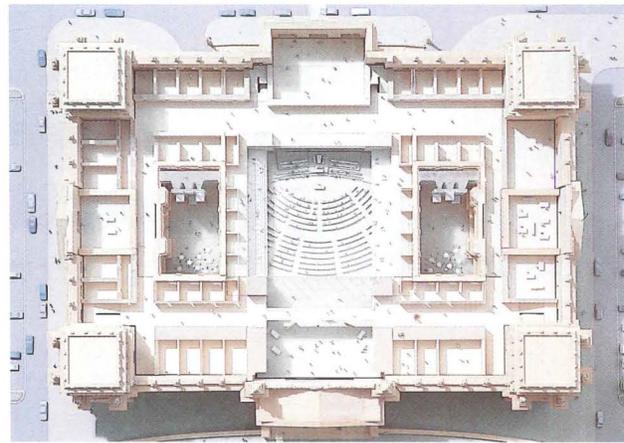
This economy of means can lead to low first costs. But in Foster’s work, it results more often in buildings with long-term flexibility and performance. The Stansted terminal had a budget that was not extravagant, but took into account long-term costs: as servicing and processing requirements at airports change, the mechanical plenum underneath the building and the concourse’s demountable partition system will certainly make the structure adaptable at less expense.

Stansted also shows that economy of means does not necessitate expressing all of the technology in a building. While some of Foster’s early work, up through, say, the HongKongBank, expressed structural and mechanical elements on the outside of the building, the recent projects have become less assertively technological. I think some of this comes from a shift in the firm’s work toward a more environmental position, where, because of passive solar and ventilation strategies, the buildings have become more analogous to tools like umbrellas or lenses than to machines.



Richard Davies

9



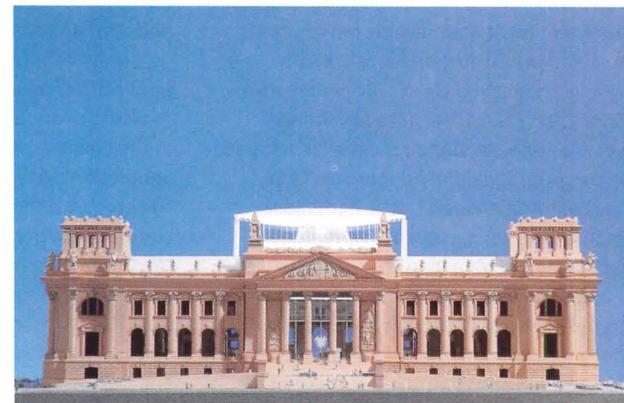
Richard Davies

10



Richard Davies

12



Richard Davies

13

Foster's firm, along with Santiago Calatrava and Pi de Bruijn, were named joint first-place winners of the Reichstag competition and were asked to revise their schemes to accommodate a program almost half the size of the original. Foster's team gave up the giant canopy and fit the program within the confines of the original shell, although they retained the

idea of a central parliament under a translucent roof (11), perimeter offices and meeting rooms (10), and public visibility of parliamentary proceedings (9). Foster's team won the second-round selection process and began schematic design, at which point the client said that there needed to be some evidence on the exterior of the new work.

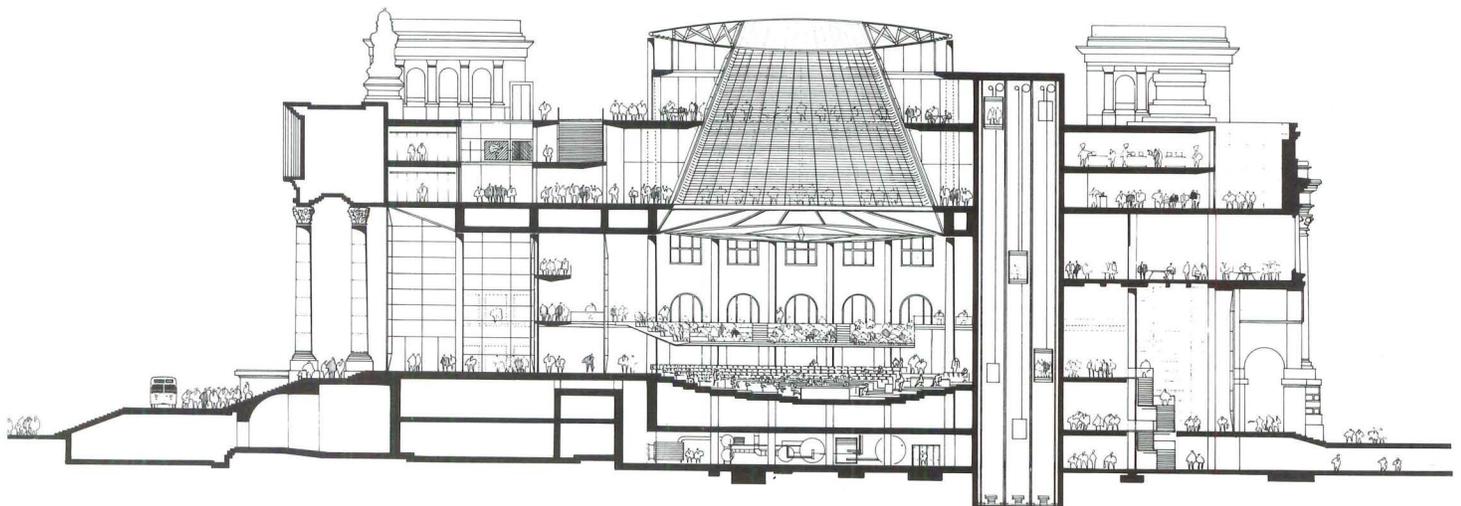


11

Richard Davies

Foster's team, under the leadership of David Nelson, responded to that request by raising the "pillow roof" above the parapet (13) and looking at other ways in which an exterior expression might be achieved (12). During this schematic design phase, the architects also engaged in extensive discussions with users, identifying elements

not addressed in the program, such as the need for caucus rooms for the various political parties or space for the press. At the same time, other ideas were vetoed by the client, such as having a rooftop restaurant around the assembly chamber's central drum (see section below). The drum was developed as a way of naturally ventilating the interior.



SECTION THROUGH THE PARLIAMENT CHAMBER, SCHEMATIC DESIGN

20/6m

**The Myth of the Machine**

Still, the machine seems to remain a sticking point in the minds of many architects when it comes to discussing Foster's work. One reason for that, I think, is the belief that industrial design processes automatically lead to standardized products. A building can never be as standardized as, say, a motorcycle or an airplane. But, this association of machine production and standardization is fast becoming obsolete as computer-controlled equipment allows machine-made components and systems to be customized to a degree never before possible.

Indeed, the critic Chris Abel has argued that the "cybernetic factory" envisioned by Stafford Beer in 1962 is now here. "Beer," writes Abel, "visualized a sensitive industrial 'organism' capable of responding to the fast-changing needs of a true market-orientated economy, turning out customized products ... on variable, computerized production machinery .... Foster's architecture," continues Abel, "shows his unique grasp of these fundamental changes in industrialized technology. By refusing to accept conventional building practices, and by progressively increasing the level of his demands for high-performance, custom-made products, Foster and his team have led the way in encouraging a notoriously conservative building industry to catch up."

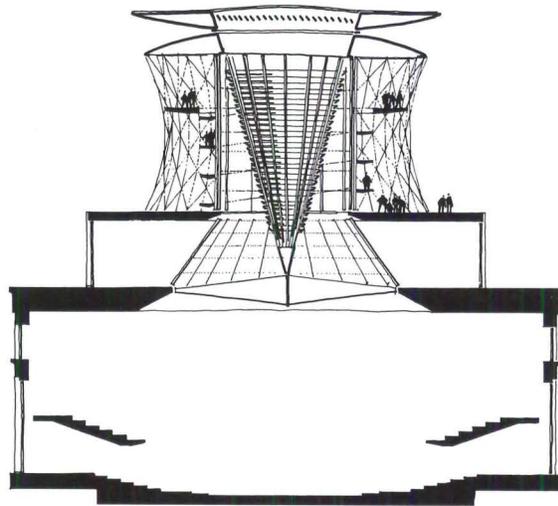
**English Lessons**

Behind Foster's employment of industrial design methods is, as David Nelson put it, an "Englishness." In the country where the industrial revolution first flourished, Foster's office seems less afraid of embracing advanced technology than architects have been in North America. Indeed, Foster, as the Gold Medalist at this year's AIA convention, expressed some envy of the mighty industrial base at our disposal and asked why architects here do not take more advantage of it.

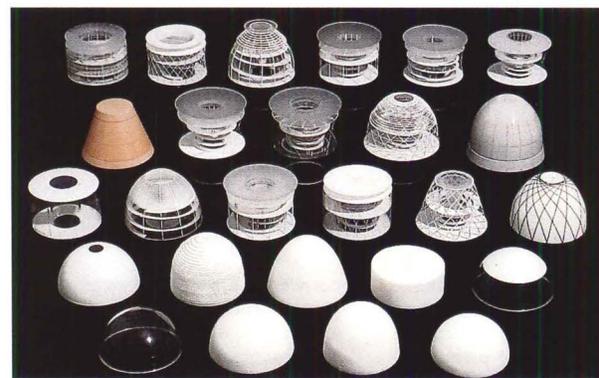
Another "English" aspect of Foster's work is its craft orientation. He seems to share the goal of the 19th-Century Arts & Crafts movement in England of reconnecting design and fabrication. But unlike the reactionary antimachine character of that earlier effort, Foster's method gets at the problem in a different way, by making machine-production more craftlike.

Finally, the analytical and empirical nature of Foster's thinking also has a peculiarly "English" character. It is a mode of thought that values clarity, prizes precision, and respects facts, which is a welcome alternative to some of the fuzzy, jargon-laden thinking in our field. There are, of course, limits to what empirical analysis can achieve, as Foster himself now seems to recognize. The rational systems-approach that characterized his early work, like the Sainsbury Centre for Visual Arts (P/A, Feb. 1979, p. 49), is now weighted more heavily by cultural, contextual, and climatic considerations, as in the Reichstag project shown here.

Every designer's method is, to some extent, personal and unpredictable. And every discipline, even if two are as close as architecture and industrial design, has unique qualities that are not easily transferred. Still, there are aspects of Foster's industrial-design approach that have wide relevance to our field as an explicit model or at least as a gauge against which contrary methods can be more accurately measured. Either way, if we can reconnect the aesthetic, programmatic, and tectonic aspects of architecture, we will all be better off. □

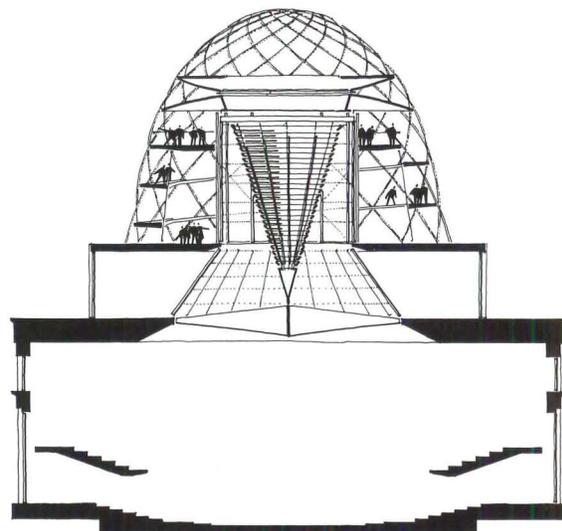


SECTION THROUGH "LIGHTHOUSE" SCHEME



Richard Davies

14



SECTION THROUGH DOME SCHEME

The most recent design stage has involved yet another re-study of the central drum. Although the drum idea was well liked, some on the client's side thought that it should be "more exuberant," leading Foster's team to extend it and see if it couldn't enhance the daylighting of the central space as well as its ventilation (15). By inserting an inverted cone of mirrored louvers within the drum, the designers created a system where legislators could look up and see the sky in the mirrors, while the louvers kept out direct sunlight (section, facing page). They dubbed this the "lighthouse" scheme.



15

Richard Davies

Some legislators, however, wanted a dome on the building, either a restoration of the original or a new dome that recalled its shape. Accordingly, Foster's team studied a wide range of dome shapes (14) and evaluated how they would look on the completed building (16). The team also looked at ways in which the mirrored daylighting system could work within a dome shape. The architects preferred the lighthouse scheme; as David Nelson put it, "this scheme was more efficient because its structure worked largely in tension, while the dome required compression." However, the client voted for the dome scheme, which is now being further developed.



16

Richard Davies

REPORT FROM PHOENIX

# City or Supersuburb?

Long dismissed as nothing more than a resort town, Phoenix is attempting to reposition itself as a first-class city. But an identity crisis is corrupting the process. *by Abby Bussel*

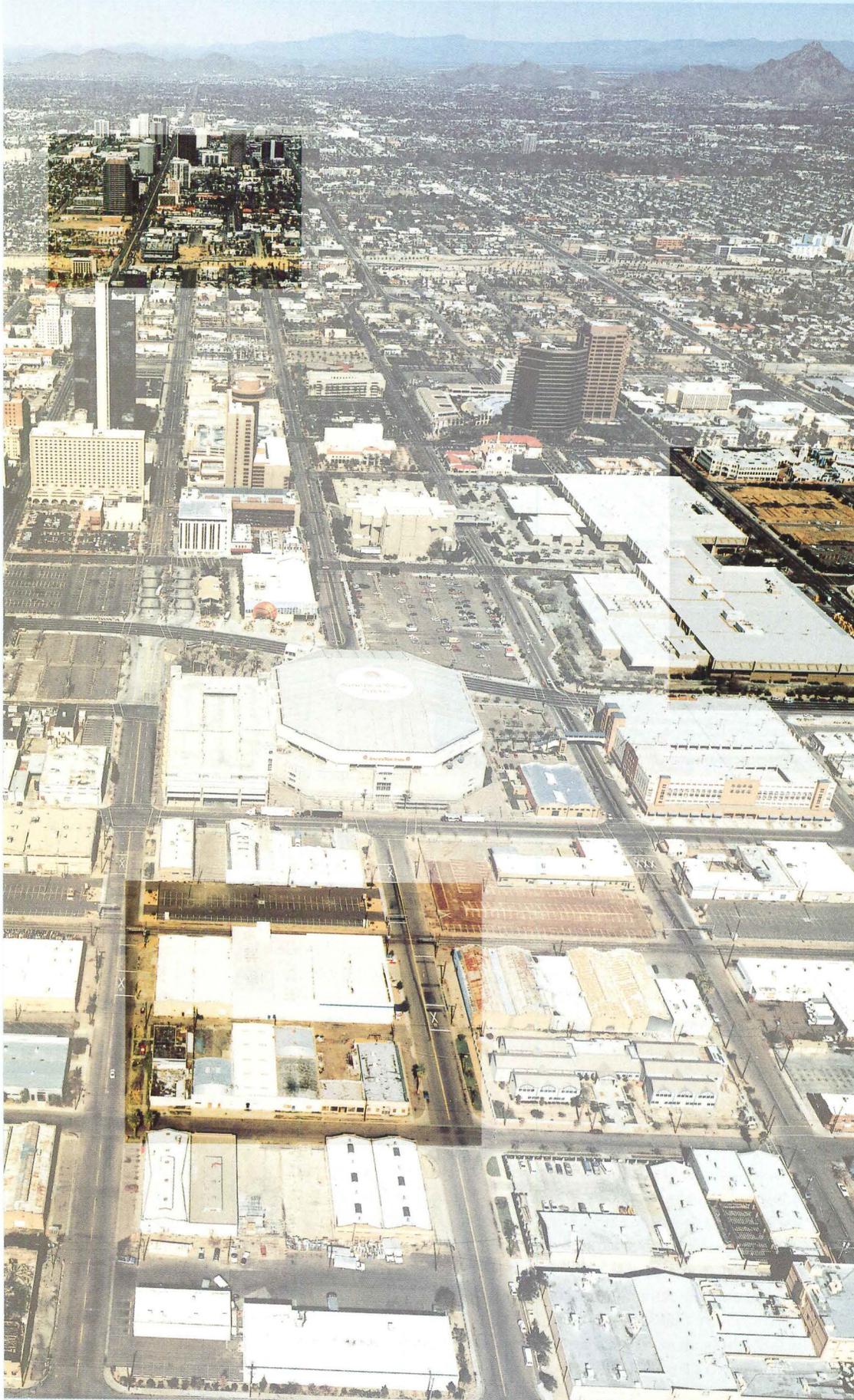
Phoenix is the eighth largest “city” in the country, but it looks and feels more like a giant suburb, a strip mall on steroids. Every destination is driven to. There are few pedestrians, and, most significantly, there is no center. But for all its uncitlike characteristics, Phoenix is one of the fastest growing metropolitan areas in the country and it now must come to terms with its identity. Is it a city or a supersuburb? And if it is a supersuburb will it ever be taken as seriously as a city? These questions, faced by many Sunbelt cities and loosely aggregated communities, involve issues of sustainable land use and comprehensive planning.

The passage in Phoenix of a \$1-billion bond issue for public works in 1988 marked a significant commitment to its future development. Several new cultural facilities, a new city hall, a new “public” waste management plant, and a major public art initiative represent an attempt to make a city out of a suburb. Some of the projects engender a sense of place and some address the unique issues of building in the desert, but like metropolitan Phoenix they are dispersed over a large area. These buildings may be putting symbols of big city life in place, but without a framework to hold them together, there is little hope for an urban life to flourish or for an identity to coalesce. What Phoenix needs now is a cohesive city plan and strong leadership to implement it. The major question to be addressed is how to create a sense of place in a car-oriented culture.

## What Should a Modern Desert City Be?

The lack of a plan for the city in the wake of a massive building program is the subject of a potent debate taking place in Phoenix about what a modern desert city should be. And some possi-





An aerial view of Phoenix (1, looking north) shows how the nuance of place is lost in a morass of erratic development. Several new projects now rising address the issue of placemaking but are themselves dispersed and disconnected developments. The challenge to architects and planners is to find a way to connect the pieces.

Among the projects are a handful of cultural facilities that attempt to imbue the landscape with a civic presence: The new Central Library and the Art Museum extension/renovation (highlighted at the top of the photograph), now under construction; and the Arizona Science Center and the Phoenix Museum of History which are to rise just east of the Phoenix Civic Plaza (highlight at middle right).

The new Phoenix City Hall (highlighted at the middle left), designed by Langdon Wilson, is an attempt to deal with a bureaucratic dilemma: should the symbol of government be a corporate office tower or a piece of public architecture?

Reusing existing buildings is an uncommon venture in Phoenix, where land and construction costs are cheap. But some people see the potential: artists are beginning to open studios and galleries in the warehouse district south of downtown (representative portion highlighted at bottom right).

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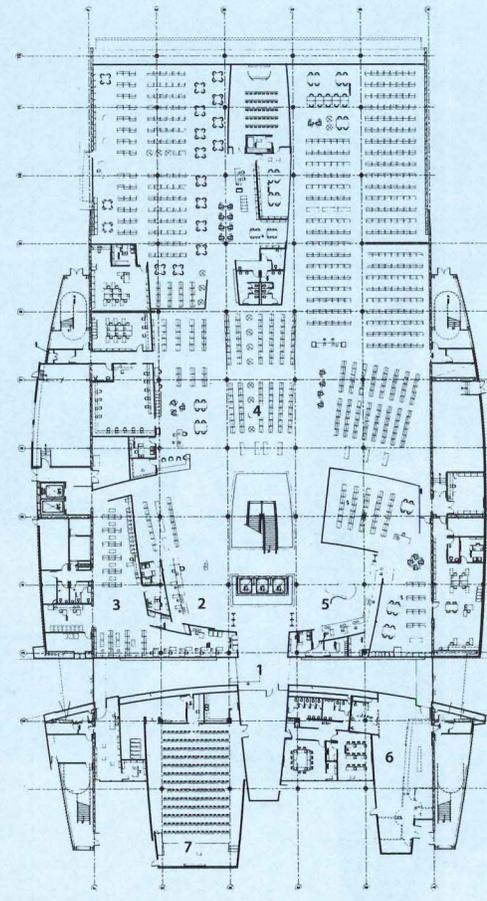


Abby Busseel



Wendell Burnette

- 1 LOBBY
- 2 CHECK-IN
- 3 CIRCULATION
- 4 BOOKS
- 5 CHECK-OUT
- 6 RESTAURANT
- 7 AUDITORIUM



GROUND FLOOR PLAN N ↓ 40/12m

The New Central Library (2), located on the main north-south artery in Phoenix, is placed on the site's southwestern corner. The siting both allows for future expansion to the north and provides a high-profile street presence unusual in a town that favors parking lots out front.

The library, designed by Will Bruder with Wendell Burnette, may look like a big box from the outside, but inside it is an urban microcosm. For example, the ground floor has a restaurant, an auditorium, meeting rooms, a kids' room, a book shop, and other public spaces. Mechanical functions are housed in two copper-clad "saddlebags".

The placement of the entire circulating, nonfiction collection and the majority of the library's reading tables on the top floor (3), offers visitors a perspective on Phoenix they can't get in a rear-view mirror. The great hall's "candlestick" columns support a tensegrity space frame with cable stays and polished steel flying struts. Light-blue skylights will introduce spots of light into the 43,000-square-foot space.

ble answers are taking shape. There are, for example, several water-related initiatives in the works, such as the Rio Salado Development Plan and a project involving the remains of an extensive canal system left by the Pre-Columbian Hohokam Indians. And there are other environmental initiatives as well. One idea that is becoming popular in Phoenix is "xeriscaping," which requires that landscaping leave the ground plane untouched – a concept applicable to other sunbaked, water-poor locales. An environmental showcase house sponsored by the Arizona Public Service Company is nearing completion; designed by Jones Studio, a local firm known for its energy efficient design, the house employs passive solar systems and building materials that have a recycled content.

But those initiatives do not directly address the sprawl. Some people argue that both commercial and residential infill is the best strategy, others believe that sprawl can be a benign type of growth. In an article in *Planning* magazine titled "Sprawl Can Be Good," Frederick Steiner, Director of the Arizona State University School

of Planning and Landscape Architecture at Tempe, argues that the Southwest "demands a very special settlement pattern. The issue is not whether that settlement should be dispersed or not – but whether it is ecologically sound. Both high- and low-density settlements are possible, and probably desirable, if done with quality, equity, and environmental sensitivity."

#### Current Conditions

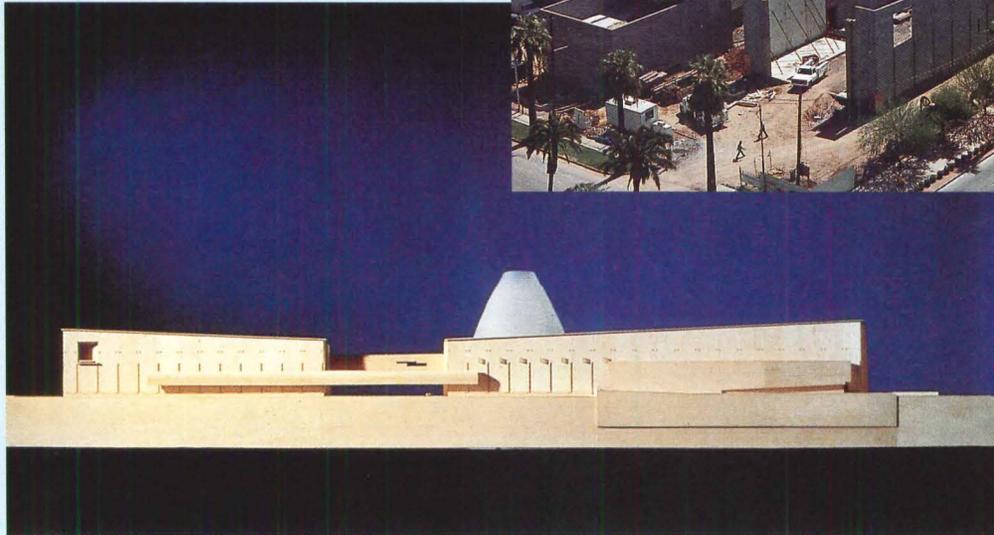
Steiner's argument is intriguing, but how to do you get developers to listen to such ideas? The reality is that the growth of Phoenix and its kind, mostly at the hands of visionless developers – air conditioners at the ready – has resulted in an energy-sucking artificial landscape. Laid out on what seems like the biggest grid in the world, Phoenix has shamelessly exploited the environment. Its sea of walled compounds enclosing thin-walled, Spanish-style houses with red tile roofs, deemed the "Red Tide" by *Arizona Republic* architecture critic Reed Kroloff, marches across the ground plane, a sprawling morass. Its commercial zones, characterized by



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nondescript sheds and boxes linked by little more than parking lots and wide avenues, have few identifying marks. And the city keeps growing. Maricopa County, which encompasses the 9,226-square-mile Phoenix metropolitan area, is 2.2 million people strong and expanding every day.

### Politics (Not) as Usual

While the private sector is responsible for much of the mayhem, tax-hungry governments are, of course, equally culpable. Yet it is predominantly the public sector that initiated the current building program in Phoenix. The new projects are the result of an unusual gathering of like minds: a mayor who understood the meaning of civic architecture; a populus intent on a better place to live; a courageous architect; and arts commission leaders and a public works chief who realized that infrastructure is as public as it gets, that it should be celebrated, not hidden.

Terry Goddard, a young mayor with big plans for his city, is credited with pushing the city council towards a visionary agenda in the

1980s. It was a time, says Ray Quay, Assistant Director of the City Planning Department, when “people believed we were on the golden path and that we were rapidly becoming a major urban center. We had the money to do it and nothing to stop us. That was the attitude.” But soon after the passage of the bond issue, the economy went into a tailspin and the build-out of the proposed projects had to be extended from a five- to a ten-year plan, according to Quay. To make matters worse, Goddard resigned from office to embark on what turned out to be an unsuccessful bid for the state’s governorship. His departure paved the way for much political backpedaling. A plan for a new municipal government center (P/A, Sept. 1985, p. 26) was the first casualty. The result of an international competition won by Barton Myers in 1985, the scheme was scrapped soon after Goddard left office.

“What you’re seeing now,” says Wendell Burnette, an architect of the new Central Library, “are the remnants of Goddard’s vision.”

*(continued on next page)*

A complex of 1950s buildings designed by Alden Dow, a Wrightian, on a Central Avenue site, currently houses the Phoenix Art Museum, the Little Theater, and the main library, but a reorganization will soon give the site over to the museum and the theater; the library will move to a new home a few blocks south (see opposite page). Currently under construction, the museum addition (6), designed by Tod Williams and Billie Tsien, is oriented to the street. Creating a strong line amid the scattered development of the neighborhood, its two small volumes will be clad with gray-green precast panels. The color recalls the native Palo Brea tree (the low, bushy trees seen in the construction photo), and is intended to make a dynamic statement about the important role of culture and civic architecture in a city. The avenue elevation (5) will be punctuated with an 80-foot-tall, cone-shaped sculpture pavilion rising behind it, set within an exterior courtyard that acts as a connection to the existing complex (4).



Timothy Hursley

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The Phoenix City Hall (7) has been commended for its energy-conserving system of stainless steel screens and visors, and criticized for making merely satisfactory public and urbanistic moves. Its ground floor plan is also problematic: visitors who come in through the main public entry will find themselves looking at the underside of the lobby's grand staircase (8, right foreground); the lobby arcade accommodates public events and is connected to the landmark Orpheum Theater.

Much of the disappointment in this building comes from what might have been: a competition-winning scheme for a municipal government center designed by Barton Myers and driven by civic and urbanistic ideas was unceremoniously dropped soon after Terry Goddard, the mayor who initiated the competition, resigned to run for governor. Myers's proposal (9) included a grid of low-rise, high-density buildings laid out around a plaza and included fountains, gardens, and courts.

### City Hall or Corporate HQ?

The opportunity to make a civic gesture, to give even a symbolic center to the sprawl, came and went with the design of a new city hall completed about one year ago in Phoenix's tiny downtown. Designed by the local firm Langdon Wilson, the city hall, although the recipient of a 1994 AIA Arizona Merit Award, has been the subject of much controversy and mixed reviews. Critics of the building tend to fault it for being a fussy office tower rather than a piece of civic architecture, and, at the same time, acknowledge that the architects made an earnest attempt to meet a strict program on a tight budget.

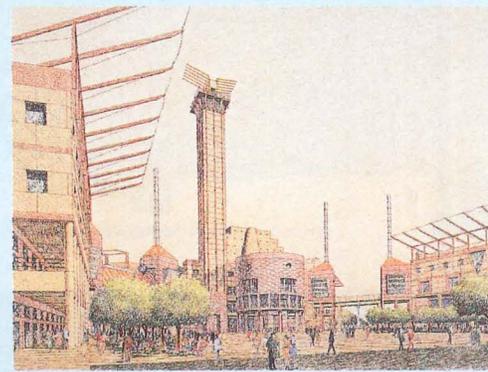
While much criticism has been directed at the architects, the government has also been called to task. "The city likes to think it runs itself like a corporation," says Kroloff, who is also an assistant professor of architecture at ASU. "The new city hall is a remarkably accurate representation of the way city government is run."

Myers's competition-winning scheme, in contrast, was a 12-block grid of low-rise, high-density buildings with sunshading cornices



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Timothy Hursley



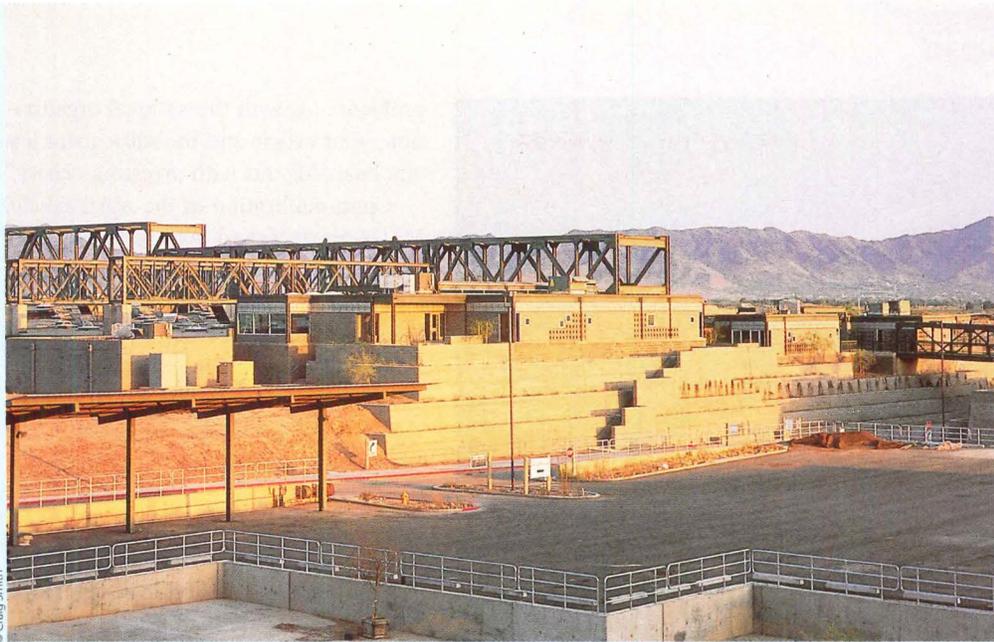
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Drawing: Carlos Dhinz

grouped around a public plaza with gardens, pools, fountains, and courts linked by an aqueduct. As much as the scheme was praised for its urbanistic, public gestures and the way it addressed the desert climate, the new city hall has been admonished for making what are perceived by many to be merely adequate civic moves: a spiky south-facing spire (the opposite direction from the bulk of Phoenix); a pedestrian plaza, a gesture of welcome to constituents and to other government buildings nearby; and a lobby arcade used for public events and as a link to the adjoining landmark Orpheum Theater. As to the demise of Myers's design, Kroloff believes the bureaucracy "was livid that it would only be on the fourth floor."

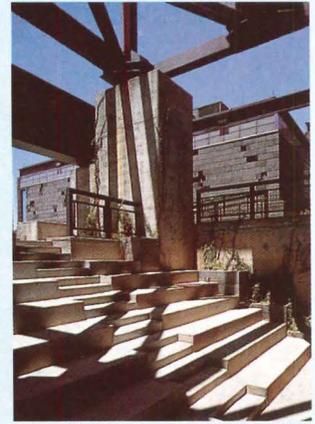
### Addressing the Street

Where most development in Phoenix sits back from the street, giving priority to the almighty parking space over the making of a street wall, the architects of some of the new cultural projects go against the grain, siting their buildings right up to the sidewalk. It is an urban-



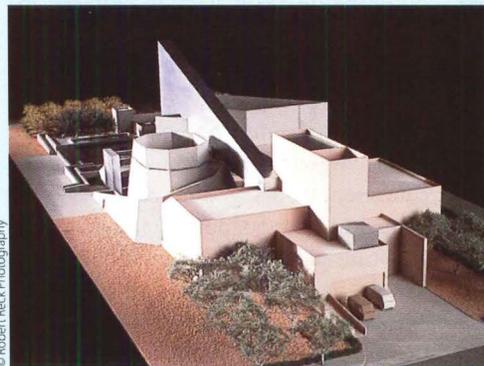
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© Robert Beck Photography

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istic strategy capable of diversifying the homogeneous zones of the supersuburb.

Central Avenue, the main north-south thoroughfare in Phoenix, suffers from scattershot development of low- and high-rise buildings dribbling along its edges. But the avenue now has the chance for a new life. The Phoenix Art Museum, the Little Theater, and the main public library currently housed on a Central Avenue site surrounded by parking lots, are undergoing a major reorganization, giving a strong public face and a civic presence to these cultural facilities. The Art Museum will expand on-site and the library will move to a new home currently under construction a few blocks south.

Both projects are sited directly along the street's east edge. This linear arrangement is seen as an opportunity to make this stretch of Central into a cultural center. A proposed arts walk, on hold until private funding can be raised, would link the library, the art museum, and potentially the Heard Museum, a major collection of Native American art and artifacts located farther north on Central. Should the arts

walk be realized, it will be a step towards urban placemaking, but can one project make up for 40 years of sprawl-making?

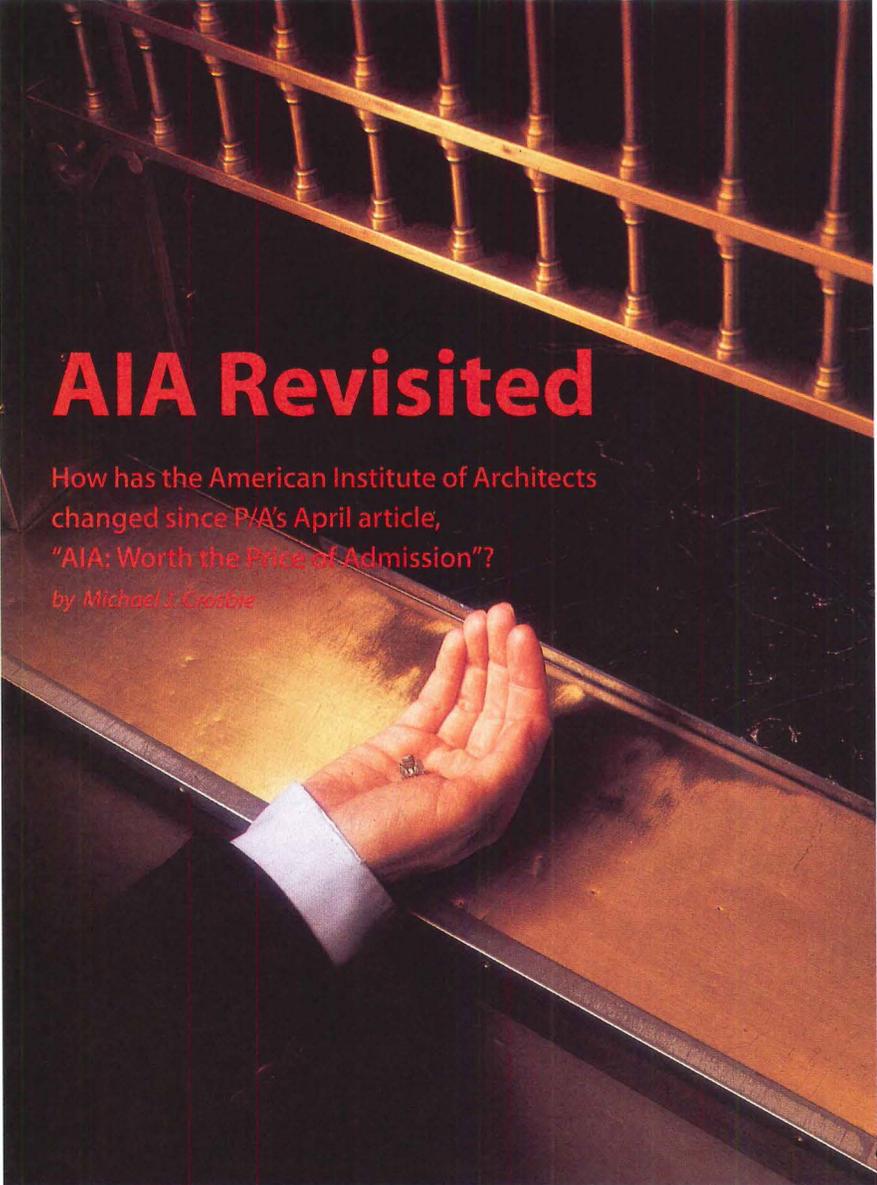
#### A Sense of Place

Architect Will Bruder, designer of the new Central Library with Wendell Burnette, has his own ideas about what is missing in Phoenix. He argues, for example, that the sprawl marching across the desert should be reinvigorated with a new housing typology, one that, like the desert's surreal landscape, would be about the "fantasy of living," using the most romantic qualities of Southwestern life as inspiration. He sees the lack of a sense of place as a national problem, reflecting the transient state of our society. His idea, applied on a broader level to civic and cultural projects, offers a potential strategy for figuratively unifying scattered settlements. Rather than transplanting style and mechanical apparatus from other places, a public architecture could explore the foundations of frontier life.

Unlike the City Hall, the new Central Library (P/A, Feb. 1994, p. 26), (continued on page 92)

The Phoenix Public Art Commission in conjunction with the public works department uses urban planning strategies to combine, not decorate, infrastructure with public art; it is a model worth following nationally. Among its visionary projects is the 27th Avenue Solid Waste Treatment plant (10), located several miles south of downtown, designed by two artists in collaboration with an engineering firm and two consultant architects. The plant's low-profile and concrete-block terraces echo the powerful forms of the surrounding landscape; myriad outdoor spaces (11) take advantage of the desert views and the climate. The shed, the size of two football fields, is supported by a 480-foot-long rooftop truss and columns set outside of the building envelope (there are two interior columns).

Dynamic form-making used to create a civic presence is also the hallmark of Antoine Predock's Arizona Science Center (12) and Langdon Wilson's Phoenix Museum of History (13), both of which are under construction at their downtown site.



# AIA Revisited

How has the American Institute of Architects changed since P/A's April article, "AIA: Worth the Price of Admission"?

by Michael J. Crosbie

Michael Hurd

Eight months have passed since the publication of our report on the value of AIA membership (see P/A, April 1994, p. 60). We've taken another look to see how the Institute has responded to the article, and what changes are now taking place under the leadership of AIA CEO Terrence McDermott, who replaced James Cramer last March.

The article brought us an avalanche of letters from AIA members and nonmembers, most of them supportive of the piece. A theme woven through many of the letters was that the AIA is anything but a single organization: members derive most of their benefits at the local chapter level, and see the national hierarchy as a distant and disinterested bureaucracy.

## Not One AIA

Jim Sanders, President of the AIA's Seattle chapter, observed that "most of us, and many of our clients and the public, experience an AIA that has little to do with the national bureaucracy. Much that directly affects and engages architects happens in AIA components throughout the country, on very modest budgets, with a minimum of waste and overhead."

In response to a letter we published from Gloria Wise, Executive Director of the Dallas chapter, recounting that component's efforts to help architects find jobs and stressing the benefits of membership (P/A Sept. 1994, p. 98), architect Frank Orr of Nashville wrote us that Wise "seems to have entirely missed the point of the disaffection in the ranks of AIA. The

problem ... is with the national organization. Your article and the subsequent letters bear this out with arresting clarity."

Upon publication of the April article, McDermott faxed AIA components around the country, alerting them to the article. McDermott assessed the damage: "Although covered with gunpowder and fragments, they hit no vital organs ...." Components were told to stand united: "[AIA President] Bill Chapin and I will respond for the Institute. Please join us in a single positive voice ... and try not to be drawn into their controversy personally."

But some chapters were questioning the Institute's effectiveness even before the P/A article was published. The AIA Southern California Forum, a regional group representing nearly 4,000 members, had composed a four-page letter to Chapin outlining its dissatisfaction with the Institute. The letter mirrored many of the concerns about the Institute mentioned in P/A's article, such as the worth of membership, strengthening local chapters, raising public awareness of architecture through education, lobbying, the size and expense of the AIA board of directors, and how the Institute planned to react to the Weiss Report – an unvarnished study of the Institute's effectiveness, commissioned by the AIA board, that was quoted extensively in P/A's article. "... we looked to national to serve as a role model for our state and local organizations," wrote forum members. "Gradually, however, national has turned inward, promoting its own growth and well being, to the detriment of its members and the profession."

The letter was sent in May to every national AIA board member and every chapter. The Southern California Forum has yet to receive a response from McDermott. In June Chapin sent a maudlin missive that seemed to underscore the split between the AIA's national and local levels. "... while knowing that the AIA has had problems, I must say I must belong to a different organization than you," Chapin observed, "because I still get significant value out of all the levels of AIA .... Frankly, I'd hate to think what state the profession would be in without this broken-down old AIA."

The P/A article stimulated debate as we hoped it would, and it continues to do so, among chapters around the country. Several chapters discussed it in their newslet-

ters; the Philadelphia chapter sent it to its members requesting comment that could be communicated at the national convention. The chapter then published many of the responses. The Boston chapter circulated the article to its board and committee chairs, urging comment. The worth of AIA membership also appeared as a seminar topic at a host of annual chapter meetings; I was invited by the Texas Society of Architects to participate in a panel discussion about it.

Even though P/A's article was never acknowledged in a national AIA publication, and was essentially dismissed as "yellow journalism" by "Chicken Little critics" at the AIA convention in May, it had an immediate effect. Convention delegates approved a resolution for the distribution of the Weiss Report and for ongoing discussion of its recommendations (see P/A, June 1994, p. 25).

### **The Anorexic Institute of Architects**

According to an AIA staffer, when the Institute's management learned that I was preparing this follow-up article, it instructed staff to direct all phone calls from me to McDermott's office. But I found employees who were willing to talk about the changes at national headquarters.

Since assuming the Institute's helm, McDermott's most dramatic action has been to pare down the bloated bureaucracy at national headquarters. At the end of May more than a dozen staffers were laid off, bringing personnel to 187. Since then, according to one employee, "staff is being picked off at the rate of one or two a week." The goal is to get the staff to approximately 139 by year's end, according to AIA Vice President Raj Barr-Kumar. The personnel cutback is one strategy to prepare the AIA for the suspension of supplemental dues, scheduled for 1997. This will result in an income cut of approximately \$3.2 million, according to a confidential AIA planning report, representing a 28 percent decrease in discretionary income.

The layoffs, according to some, have sent staff morale through the subbasement and have caused some senior staff to feel that their talents are not being best utilized. According to one AIA staffer, with the improvement in the economy, most laid-off employees find new job prospects brightening, so the low morale has more to do with the increased workload than

with the fear of unemployment. "People are leaving on their own or are happy they've been laid off, because they perceive that they're overworked," McDermott, says this staffer, "is a hard-headed businessman, and makes no bones about it. Things are moving in the right direction, but I'm concerned at the preoccupation with money, and about his not being an architect. I think there are certain things essential to a society of professionals that cannot be measured in money. The return on investment is not the only thing we should look at."

With fewer support personnel, some senior staff feel their time is not properly utilized. McDermott has expressed interest in increasing the staff's value to the

**"The layoffs, according to some, have sent staff morale through the subbasement and have caused some senior staff to feel that their talents are not being best utilized."**

membership, says a senior staffer, "but now that I spend 30 percent of my time being an administrative assistant, I have a hard time believing it."

In April we reported on the salaries of AIA's top brass, which range anywhere from an average of \$100,000 to \$225,000, plus a generous benefits package. A number of our readers expressed outrage at these salaries. When I asked McDermott if any thought had been given to salary reductions to help retain personnel and save money, he said no, and it's not being considered as an option.

### **Benchmarking and Outsourcing**

To maintain a level of service with a smaller headquarters staff, McDermott has taken a page out of current business management. AIA's business centers, such as Masterspec and AIA documents, are being "benchmarked and outsourced," in business parlance. Benchmarking determines "quality, value to the membership, cost containment, and investment needs," says McDermott. If an outside contractor can produce Masterspec, for example, at the same quality but for lower cost than in-house, it will be outsourced.

For some, outsourcing raises the specter of losing control over content, as AIA did when it sold its magazine to Billboard Publications in New York. McDermott says this won't happen again. "Architecture

was a sale of asset. None of the things we're doing are an asset sale. The Institute will retain its assets and control, with a partnership agreement."

### **Reallocating Resources**

The layoffs and belt-tightening have resulted in a refocusing of priorities at the national level. Some areas are getting less attention, such as community design and environmentally sustainable architecture (wasn't that a convention theme a year-and-a-half ago?).

The major thrust of Institute activity, according to McDermott, is in three areas: internal and external communications, government affairs, and continuing professional education. To demonstrate his

commitment, communications and government affairs now report directly to the CEO.

In the area of government affairs, McDermott says that AIA's lobbying efforts should be stronger, "not reactive, but to create opportunities for the profession." While the funding of other AIA activities has decreased, government affairs spending for next year will be increased. By how much? "It's not huge, I couldn't even guess how much," says McDermott.

As we reported in April, less than 6 cents of your AIA dues dollar goes into lobbying. We suggest that the increase should be much larger, perhaps three- or fourfold, to demonstrate AIA's commitment to this critical area. We reported in April that the number of AIA lobbyists at the federal level is three. At press time this number had not increased but, according to McDermott, "additions to staff are planned." In September attorney Stuart Binstock was hired to head the federal markets and regulations division.

### **The Medium or the Message?**

The most visible change in the area of communications has been the appearance of *AIArchitect*, which replaces *AIA Memo* and other publications such as Professional Interest Area newsletters. This move by McDermott is not surprising; a study completed last year by KRC

Research & Consulting showed that communication between the national organization and the membership was less than satisfactory. In fact, McDermott's background as a former executive with Cahners Publications was a deciding factor in the board's selection of him for the post. Among McDermott's first actions as CEO was the hiring of two new staff vice presidents for communications, Charles Hamlin and Philip Schreiner, both with publishing backgrounds.

The initial issues of *AIArchitect* have been dismal. Just before the ax fell *Memo* was getting better, carrying more practice advice and professional information in

**“As to eliminating the board perk of compensated spouse travel, McDermott doesn't believe it's an issue. 'As long as the board's effective, I don't think it matters if they bring their wives along.'”**

more in-depth articles. *AIArchitect*, on the other hand, is filled with AIA happy talk, grip-and-grin photo-ops of AIA honchos, and glowing testimonials written by national staff about what the AIA can do for you. Graphically, it doesn't look much different from the newsletters of other trade associations, like the American Society of Sanitary Engineers. News of AIA components and lots of mug shots are thrown in to help create a sense of a “national architectural community” as McDermott has described it. But such a professional community is created with people you interact with everyday at the chapter level, not through reports about a total stranger's promotion to senior associate in some far-away place. The Institute ought to be publishing information relevant to members on a national level, something that architects can use in daily practice.

### Is This the Real Thing?

AIA members have been clamoring for greater public awareness of the profession. As we noted in April, the Weiss Report and a P/A reader poll (see P/A, May 1987, p. 15) both found that improving the public's understanding and appreciation of the profession was high on members' wish lists. Next month the Institute will unveil its advertising campaign to raise public awareness of the architect's worth. The AIA will spend \$1.5 million a year for the next three years for a print advertisement campaign in consumer and business

media developed by the Martin Agency, an ad firm whose clients have included Mercedes-Benz and Coke.

The prospect of being packaged like a soft drink makes some architects and AIA staffers squirm. “The marketing push is a major concern to a lot of people here,” says a senior staff person, adding, “How well do you respond to ads for lawyers?” McDermott defends the program, saying that the Martin Agency is noted for turning research into persuasive images. But the bulk of this “research” is ad agency focus group sessions: how architects and clients perceive the profession's worth. According to one AIA employee, the agency

showed a test ad to business people about how architects “add value” to a project, and they chuckled.

The Martin Agency also has access to research on the benefits of using architects, such as one study on reducing healthcare costs through improved facility design, and the effects of interior design on “wellness.” This is where more emphasis should be placed. Ads that employ the fuzzy, feel-good chatter about “design excellence” that the Institute is so good at producing are not going to sell. The AIA should employ the AIA/ACSA Research Council to stimulate quantifiable research throughout the country into the verifiable advantages of using an architect. These findings should, perhaps, not be used in advertising but published in a quarterly review that would be sent to selected movers and shakers in the business world. Such a publication could raise more awareness and have a more continuous impact than a one-off ad. The Institute could coordinate this with a program to provide materials and training for architects themselves to raise the awareness of potential clients. McDermott says that next year architecture research will be given more priority to provide architects with “the tools to practice more profitably and aggressively.”

### A Continuing Board Boondoggle

In April we reported on the cost of the AIA board of directors (approximately a

million dollars a year) and its cumbersome size of 49 members. Even AIA President Chapin agreed in his response to our article that the board is “too big and unwieldy.” The board has continued to study this problem, and has instituted some procedural changes to speed its deliberations. According to McDermott, next year the board will eliminate a meeting and will present a report on further ways to cut expenses, such as having fewer meetings of the full board, more meetings of its smaller executive committee, and perhaps reducing board size.

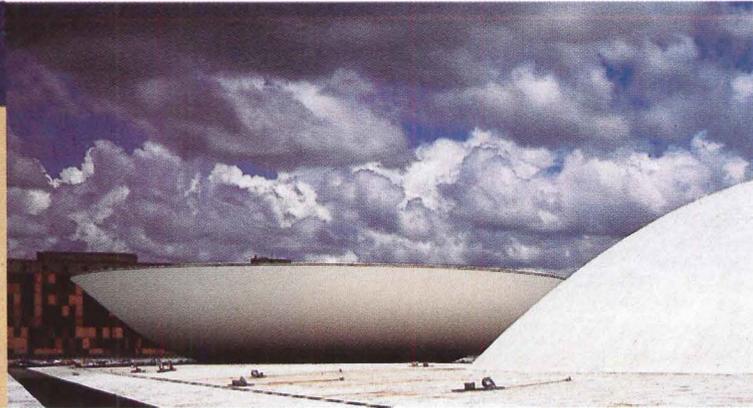
As to eliminating the board perk of compensated spouse travel, McDermott doesn't believe it's an issue. “As long as the board's effective, I don't think it matters if they bring their wives along.”

In fact this perk does inhibit the AIA board's effectiveness, according to former board member Laurie Maurer. “Much better use of time could be achieved if these were considered business meetings, not mini-vacations,” observes Maurer. She recalls several board meetings when substantive business discussions had to be stopped because it was time to escort the spouses-in-waiting to a cocktail party. “Board members can contribute good insights, but they have to be given the time to do that,” says Maurer. Cutting spouse travel, she concludes, “is an easy way for the board to become more efficient.”

By my own estimate, paying for spouse travel to board meetings costs AIA members from \$40,000 to \$50,000 a year. That money could go a long way toward hiring another AIA lobbyist, from which all members would benefit.

### Conclusion

Since taking office McDermott has made several decisive moves to trim AIA staff, strengthen its communications and government affairs wings, and raise public awareness of the profession. We applaud his promise to invest more in architectural research. While we agree with the ends of making the Institute and the profession stronger, we remain skeptical about some of the means. We encourage all architects to continue to voice their concerns and suggestions to the AIA leadership. A stronger AIA, at both the national and chapter levels, will make it easier for all members to decide to write out that dues check. □



## Women, Clouds, and Oscar Niemeyer

The pioneering Modernist, still active at 87, draws on what he perceives to be the beauties of Brazil.



Designing much as he did in the 1930s, Niemeyer unabashedly includes women on Rio's beaches (sketch, above left) among the natural phenomena that inspire him. In the clouds above Brasilia (above), he discerns idealized people and abstract building forms.

Oscar Niemeyer is alive and well and practicing architecture in Rio de Janeiro. When I was in architecture school in the 1950s, Niemeyer was widely revered for making Modernism more humane, giving it spatial drama and sensuous qualities that could appeal to the public. As we continue dealing with Modernism's impersonality and its lack of attachment to place, as we look more carefully at the work of such individualists as the late John Lautner (p. 16) we can well afford to look again at Niemeyer's prodigious, still expanding output.

Earlier this year, I had the pleasure of visiting the three areas of Brazil where most of Niemeyer's works are concentrated: Rio de Janeiro and environs, the state capital of Belo Horizonte and its suburb, Pampulha, and the national capital of Brasilia, the world's largest Modernist city. I also saw the remarkably vigorous Niemeyer in his studio high above the Copacabana Beach in Rio, explaining his design principles with a black marking pen as he stood at an easel.

In recent months, two books on the architect, both by architectural historian David Underwood, have been published: the compact *Oscar Niemeyer and Brazilian Free-form Modernism* (George Braziller, New York) and the larger, more lavishly illustrated *Oscar Niemeyer and the Architecture of Brazil* (Rizzoli, New York). In both volumes, Underwood speaks about how Niemeyer reshaped Le Corbusier's principles to fit his Brazilian world view. He

asserts that "four elements – white beaches, huge mountains, old Baroque churches, and beautiful tanned women – formed the stuff of Niemeyer's dreams and his best creations." He responded equally, Underwood points out, to the dominant natural phenomena of Brasilia's high plains setting, writing a poem titled "Clouds" about the anthropomorphic images that form and dissolve in the skies there.

An interview with Underwood takes up Niemeyer's role in the unfolding of Modern architecture.

John Morris Dixon

### A Brazilian Modernism

**Dixon** Just how did Niemeyer alter the Modernist canon in order to make it Brazilian?

**Underwood** I think the first thing he did to alter the Modernist canon was to get away from Rationalism as a steady diet, and to say that form doesn't necessarily have to be a matter of the standardization or the rectilinearity of the International Style – that form is first of all a matter of fine art – and that in this particular instance it could follow a cultural desire to be seen as distinct, a Brazilian need to express cultural innovation and modernity.

He was striving to get away from a specifically European mode of proceeding – even though Le Corbusier was of course a primary influence for him. His career would be unthinkable



without the six weeks he spent with Le Corbusier [in 1936, as one of a team collaborating on the Ministry of Education and Health Building in Rio]. The teacher/student relationship there was a unique one. He observed what Le Corbusier did for six weeks, they parted, and then there was an explosion: Niemeyer began to explore his own environment in a very creative way.

By 1940 he was moving in another direction entirely; he was no longer interested purely in Le Corbusier's five points. The Pampulha work [1940–1943] shows that what he wanted was a curvilinear, lyrical architecture that was more in tune with the Brazilian Baroque. And so this architecture answers not only to the environment, the mountains, and the landscapes that inspired him, but to the Colonial Baroque past that he found interesting architecturally because of its curvilinear form, because of its purity of volume, because it was perceived as uniquely Brazilian.

Another way in which he departed from the orthodoxy of European Modernism was to get quite involved in a more Surrealist approach in his own design methodology. And that's not to say that he studied the Surrealists and read all their books and said "Well, I'd better do what they're doing." I think his Surrealism was more at a personal level. I'm talking about a creative process that reflects the world of dreams, the subconscious, and the irrational, a design process that is free and uninhibited, spontaneous,

related to automatism. Niemeyer would sit down with a piece of paper and wouldn't lift his pen from the page until the drawing was complete. He had absorbed the drafting style of Le Corbusier and in some ways went beyond it to design with even greater spontaneity and fluidity. I think a lot of his buildings have a kind of raw, primitive power that derives precisely from that freedom of drafting method.

**Dixon** Don't his Surrealist qualities also have to do with the exceptional isolation of the buildings as objects, the way the cathedral at Brasilia stands on its absolutely blank plane, the way the Congress complex there touches the earth only lightly?

**Underwood** Yes, he's very interested in floating forms and the juxtaposition of the absurd, in buildings that often seem to be out of context with their landscapes. We see this especially in Brasilia. There are strong contrasts of forms – very erect male forms against curving female forms. Niemeyer's mapping out of gender differences is also an important theme in his work.

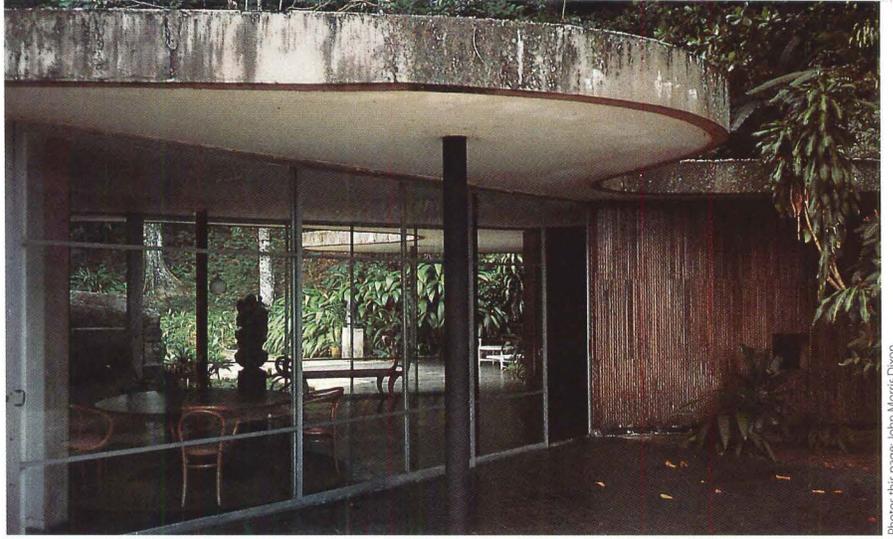
**Dixon** And sometimes a scalelessness – an indeterminate scale.

**Underwood** Yes, but I feel we have to be careful not to push this Surrealist analogy too far. I don't see Niemeyer as primarily a Surrealist architect. I see him as an architect who was inspired in part by the irrational and by a desire to create an architecture of dramatic contrasts. But he also considers very carefully the program

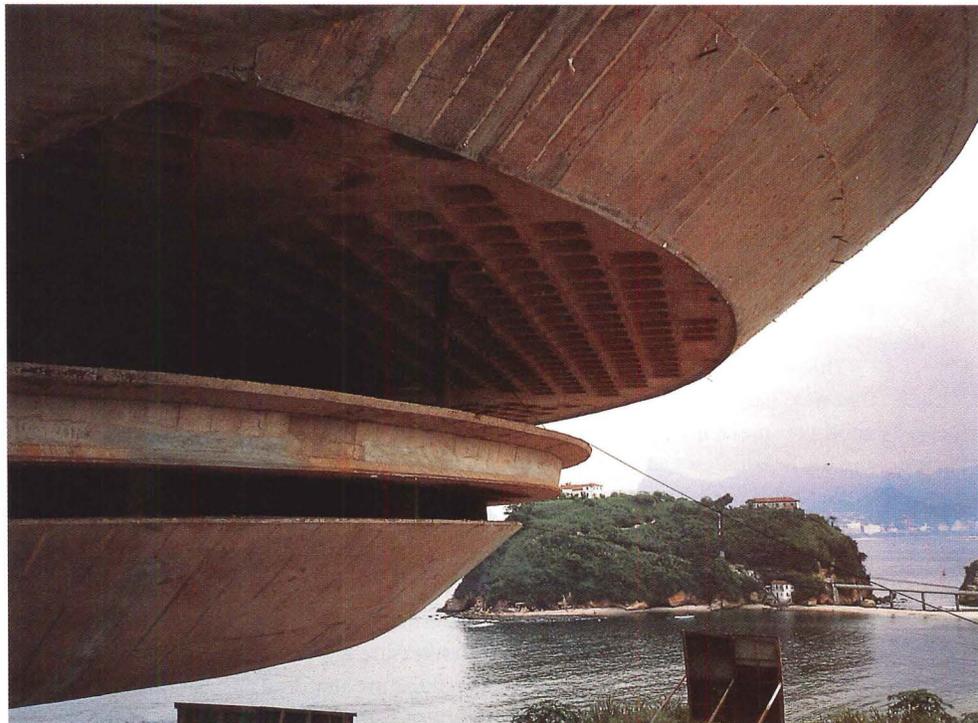
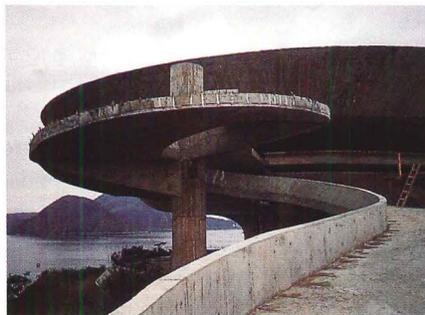
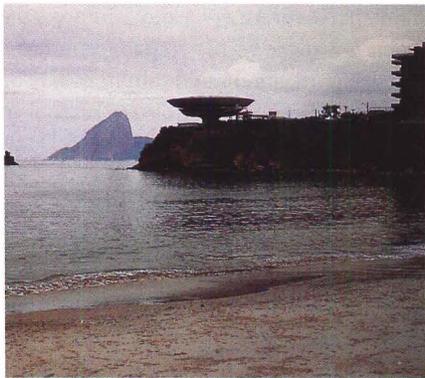
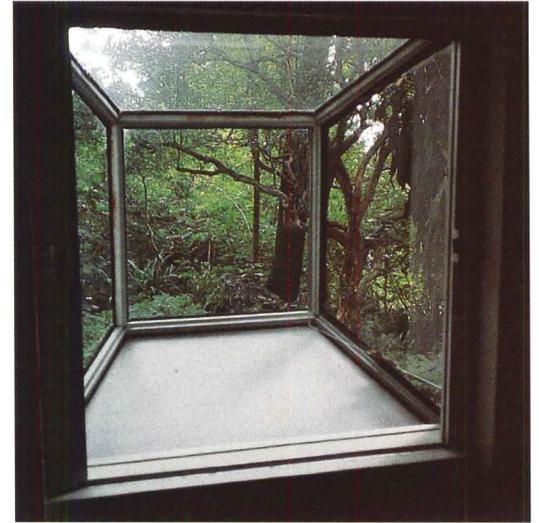
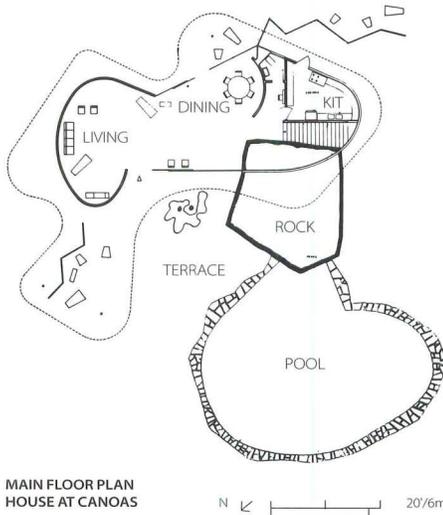
Niemeyer's own house in Canoas, a hillside suburb of Rio, was completed in 1954. Approached from above (early view, facing page) the house forms a platform far above the Atlantic. Niemeyer centered the house on a granite boulder that is exposed inside and outside. The curves of the main floor plan allow for fluid organization of space: the narrow waist of the main living area (upper right) connects more expansive living and dining areas at either end. Under the terrace, rectilinear partitions define the four bedrooms reached through a library at the foot of the stairs. Projecting bedroom windows (right) compensate in part for the half-buried character of this floor; thickening foliage now allows only glimpses of the ocean.

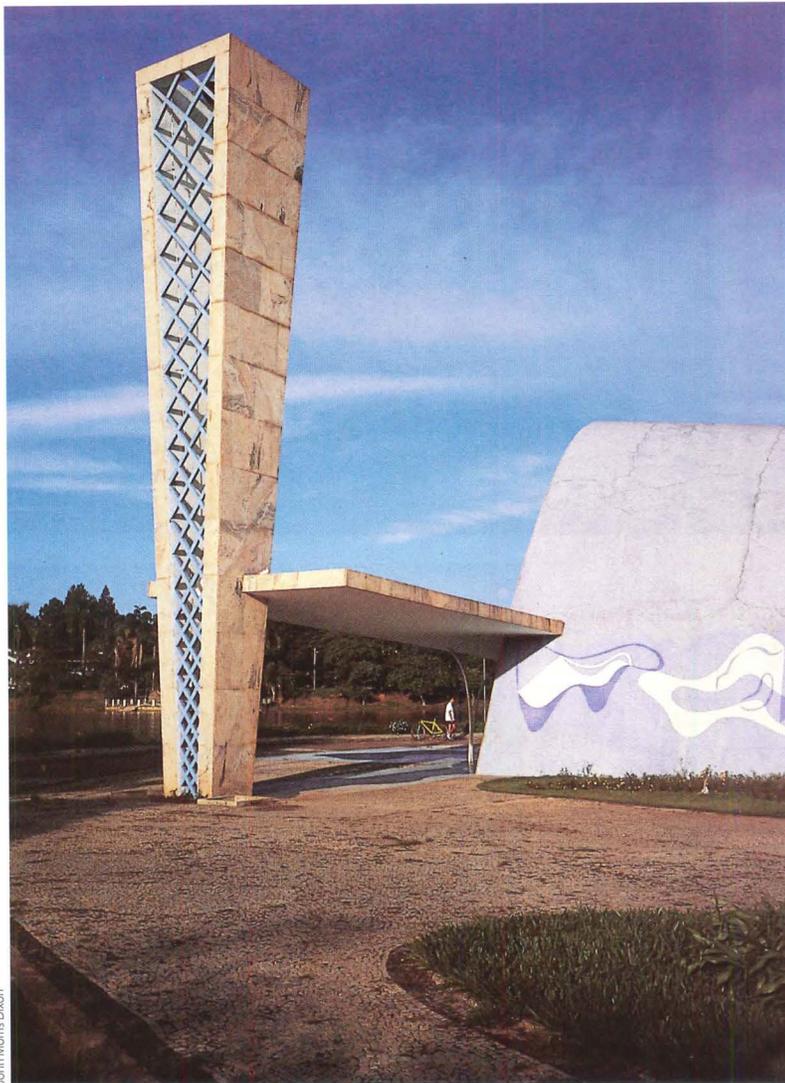
Under construction this year across the bay from Rio is the Contemporary Art Museum in Niteroi. Standing on one sturdy leg, the museum rises from a promontory (below, upper left photo) with superb views. Visitors will enter by way of a freestanding spiral ramp (bottom left). Sloping glass enclosing the continuous story-high openings of the lobby/cafeteria floor (bottom right) will be shaded by the building's geometry. Most of the gallery space will be in the windowless volume above.

Facing page: Michel Micch



Photos this page: John Morris Dixon





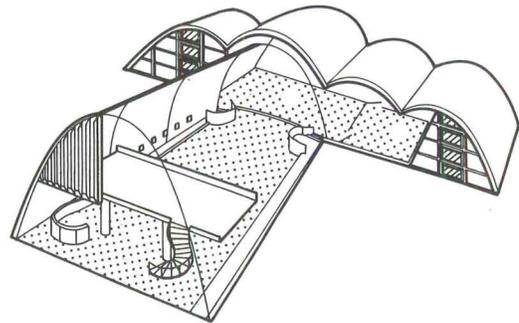
John Morris Dixon

In 1940, Niemeyer began a series of landmarks along the shores of an artificial lake at the center of the new suburb of Pampulha, outside the bustling inland state capital of Belo Horizonte. In the Chapel of St. Francis of Assisi, completed in 1943, Niemeyer made radical

use of tapered parabolic concrete shells to articulate the various programmatic parts. The belltower (left) also expresses the gravity-defying potential of modern construction. Ornament inside and out is by Niemeyer's long-time collaborator, Candido Portinari.



David Underwood



CUTAWAY PERSPECTIVE, CHURCH AT PAMPULHA

and the means at his disposal. It's more difficult to be a Surrealist architect than it is to be a Surrealist painter.

I think the Memorial de America Latina in São Paulo, which is his late masterpiece, is his most Surrealistic work, because here we have very dramatic biomorphic forms in a charged juxtaposition with complex spaces. The most remarkable thing of all about that complex is that here in the middle of an ensemble of buildings that has been erected by a capitalist state and wealthy industrialists he sticks an enormous bleeding hand inspired by Eduardo Galleano's *Open Veins of Latin America*.

#### The Artful Detour

**Dixon** What about some of Brazil's cultural traditions? In your book you make a connection between Niemeyer's architecture and the Brazilian social strategy of the *jeito*.

**Underwood** Well, the *jeito* is a way of coping. It is a cultural trick that allows savvy Brazilians to get around problems – an ad hoc way of circumventing difficulties in ways that rule-bound cultures could never do.

**Dixon** And it's an admired approach among Brazilians.

**Underwood** Yes. And I see Niemeyer's architecture as reflecting that tradition in two ways. First, it's an architecture that finds a way around difficulties. You know, the shortest distance between

two points, we tend to think in North America and Europe, is the straight line. Well, he prefers a more scenic route. Second, the *jeito* is a way of achieving things that you might not normally be able to achieve. He is forced to leave Brazil for political reasons in the 1960s and '70s. He is able to get commissions in France, Italy, and North Africa. Even when he returns to Brazil, he gets commissions from politicians on the left and from politicians on the right; he gets commissions from populist governments as well as wealthy industrialists. He has a tremendous *jeito*, a talent for persisting and succeeding. The essence of the *jeito* is this savvy – the ability to persist and survive under difficult and changing circumstances.

#### Niemeyer's Influence

**Dixon** You have said that Niemeyer is not as well appreciated in North America as he might have been. Can we review some of the reasons for this?

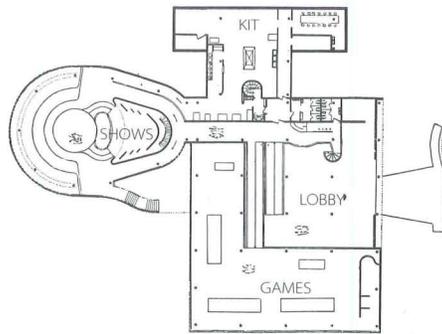
**Underwood** Well, aside from the North American tendency to consider things that happen in Latin America as third-rate or derivative, Niemeyer was and is a highly controversial architect. The functionalist establishment was very troubled by what he was doing. When Walter Gropius visited Niemeyer's house in Canoas, he said "Oscar, I like your house, but it's not repeatable." And of

Two other Niemeyer structures along the lake at Pampulha are the Casino (right) and the Dance Hall (bottom of page). Conceived as the social center of the suburb and completed in 1942, the Casino was closed down when Brazil outlawed gambling in 1946 and is now an art museum. While it obviously has too much glazing for an art museum, its elegant sequences of ramps and stairs (center, right) make for a rich art-viewing experience; the little theater in the pear-shaped entertainment wing is suitable for lectures.

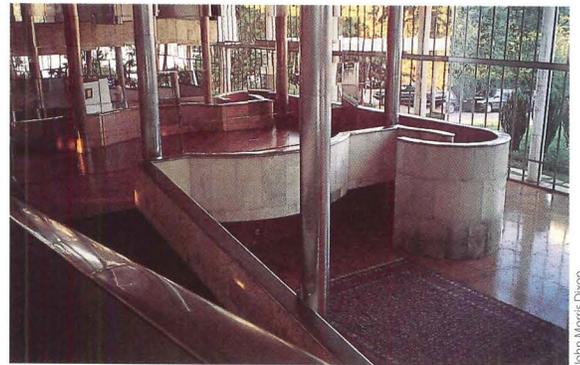
The Dance Hall (bottom right), also dating from 1942, follows the curving edges of a small island linked to the lakeshore by a footbridge. Embellished with tile patterns by Candido Portinari, the structure was built as a setting for Brazil's national dance, the samba. It has never been used as a dance hall, but as a restaurant, which it is today. All of the Pampulha facilities were plagued by the slow development of the suburb and problems with the lake's water. But these structures established Niemeyer's international reputation, and after a half century of vicissitudes all are in use and reasonably well preserved.



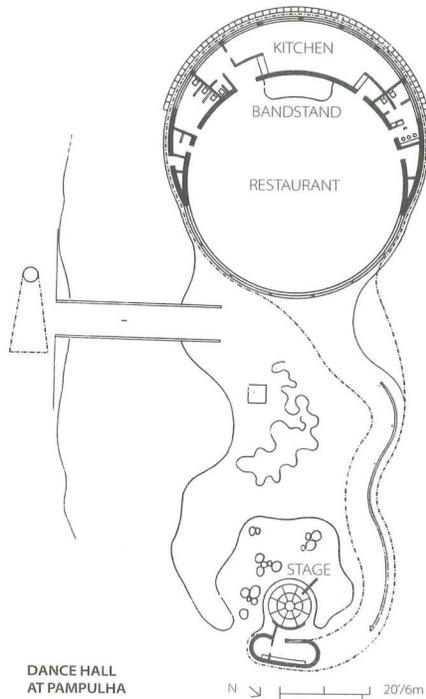
Marcell Gauthier



UPPER FLOOR  
CASINO AT PAMPULHA  
N 40/12m



John Morris Dixon



DANCE HALL  
AT PAMPULHA  
N 20/6m



David Underwood



course Niemeyer was thrilled by this, because he was trying to get away from Bauhaus standardization.

**Dixon** I remember from architecture school in the early 1950s that the buildings at Pampulha were icons for the students. That may have been Niemeyer's moment. There was more interest in Latin America generally in those years.

**Underwood** The interest in Brazilian architecture at that time may have been a holdover from the Museum of Modern Art's exhibit on Brazil during World War II. There was a politically motivated interest then in building alliances with Latin America, and the exhibit was one manifestation.

**Dixon** The decline in interest may have had to do with what was going on elsewhere. During the 1950s, Le Corbusier made his conversion to a more sensuous kind of architecture, which immediately upstaged Niemeyer's efforts.

**Underwood** Despite the fact that Niemeyer was really the pioneer. In the early '40s he was already developing freer forms.

**Dixon** Then, around 1960, there was the reaction to Brasilia.

**Underwood** There was a time when Brasilia was seen as the Brave New World, and there was tremendous excitement. But the historical judgment from the '60s on was that this was a failed effort: a lot of money was spent but the Modernist Utopia was not realized. Niemeyer and Costa, the planner of the city, were of

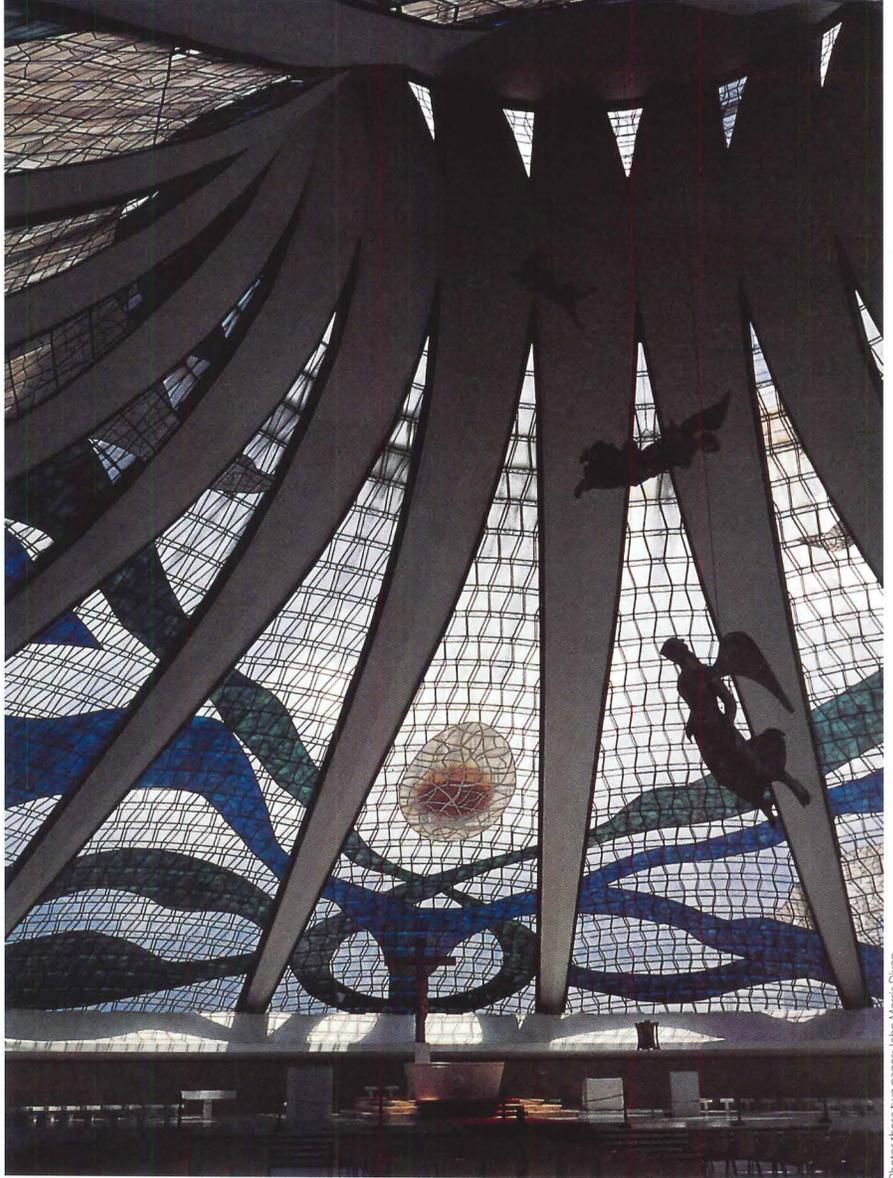
course blamed. But the idea of creating an egalitarian society through architecture was fraught with contradictions, especially in the context of Brazil's elitist patronage and profound social dilemmas. Niemeyer's awareness of these problems led him to be more skeptical than Corbu about the power of architecture to avert social revolution. Even though Niemeyer designed Corbusian *unités* – or so-called social condensers – in Brasilia, he was always more interested in the creation of new forms and in the spiritual project of architecture – its power to uplift the human spirit with an otherworldly vision of the future.

**Dixon** Brasilia ended up as a bustling white-collar city, with shanty towns in its farthest outskirts where poor people lead a strikingly separate existence. It can be criticized for the dominance of the automobile, and the totally intimidating scale, which dwarfs any building seen along its major axes.

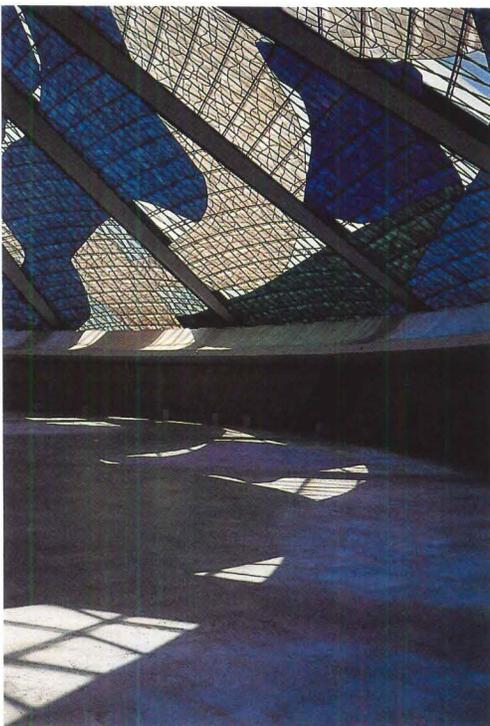
**Underwood** The power of Costa's plan was that it left so much opportunity to the architect. If you go back to the city and look at the monuments as works of art, and the interaction between the architecture and the space, it's really quite awesome. Imagine the world of Modern architecture without Brasilia. I can't imagine that. Whatever you may think of it as a social Utopia and a working city, it's still the most impressive example anywhere of the Modernist aesthetic on a large urban scale. □

Niemeyer's design ideas permeate the new national capital, Brasilia. The city plan by Niemeyer's mentor Lucio Costa, chosen in a 1957 competition for which Niemeyer served as a juror, provided for numerous freestanding monumental structures, virtually all designed by Niemeyer. While many of these symbolic structures became more or less Classicized, with colonnaded façades befitting their common designation as *palacios*, the pivotal National Congress complex (facing page) held to Modernist tenets of asymmetry, articulation of parts, and abstraction of forms. Its twin-towered secretariat rises from a white plinth, through which emerge the upper portions of the senators' and deputies' chambers, one the inverse of the other.

Set to one side of the city's central mall is Niemeyer's Cathedral (this page). This landmark differs from his other Brasilia work in that its form is defined by an innovative structural concept: the 16 concrete members that sweep up to shape a kind of crown. To leave this singular form unencumbered, Niemeyer set it on a blank plaza, with a free-standing belltower (bottom right). Entering the worship space through an austere tunnel, the visitor emerges into an exhilarating, light-filled space. Recently installed glazing by Marianne Peretti sets cloudlike swaths of color against areas where the meshlike steel glass framing is exposed and clear glass reveals the actual clouds hovering above Brasilia.

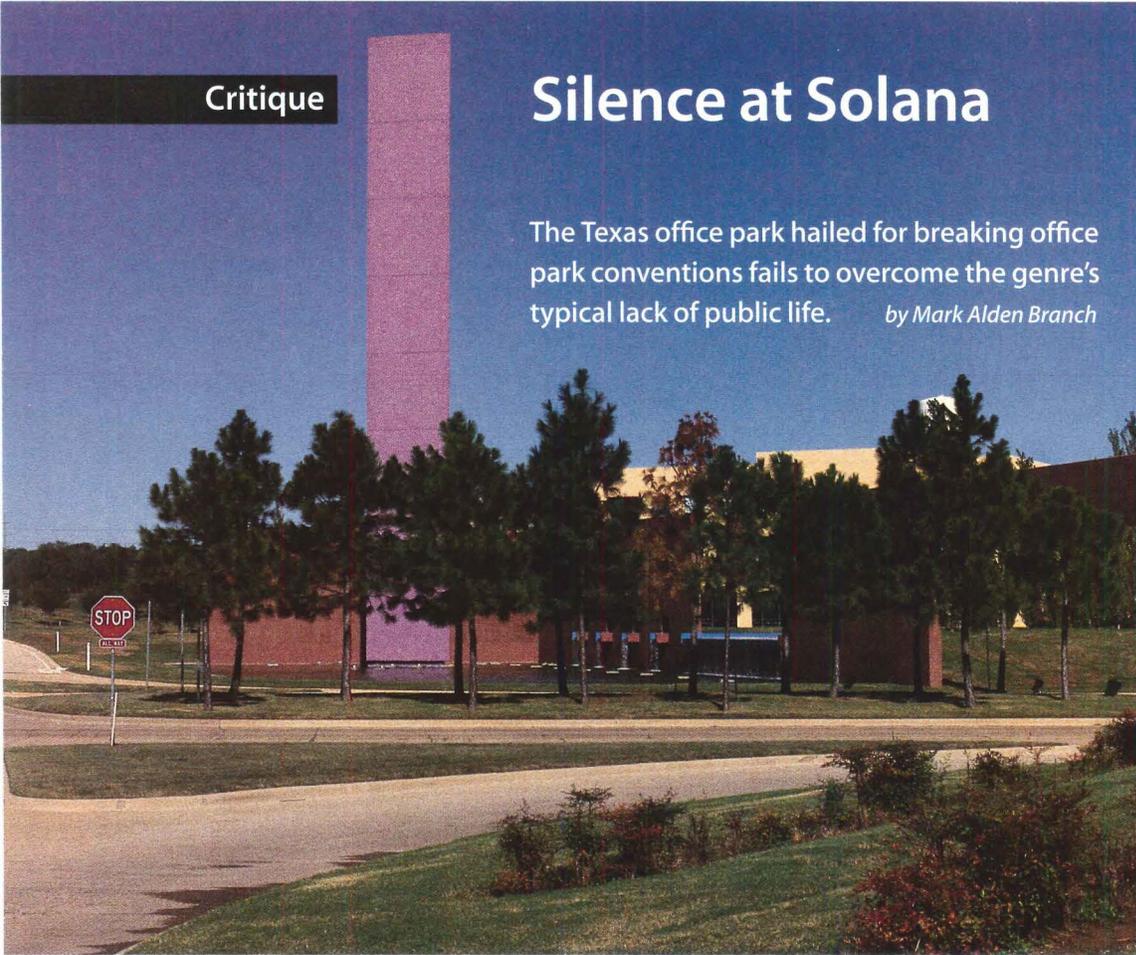


Photos: these two pages: John Morris Dixon



# Silence at Solana

The Texas office park hailed for breaking office park conventions fails to overcome the genre's typical lack of public life. *by Mark Alden Branch*



Auto traffic approaching Solana from Dallas or from the airport is greeted with this view: with a walled precinct, triangular pylons, and a reflecting pool, Solana claims **its own highway interchange**. The rows of nandina bushes in the four corners of the precinct (lower right) don't seem to have taken off.

When I visited Solana, the office park near Dallas/Fort Worth Airport developed by IBM and Maguire Thomas Partners, I couldn't help thinking of the old movie cliché – is it from a Western or a war movie? – where one guy says “It sure is quiet out there” and the other says “Yeah, ... *too* quiet.”

There aren't many people spotted outside their cars in this almost-rural place that straddles a highway and the border between the Texas towns of Westlake and Southlake. A pedestrian (especially, say, one with a camera scrambling up highway embankments looking for good photo angles) can feel very conspicuous and very much out of place. All the folks at Solana seem to be doing what they're supposed to do, wearing their ID badges and swiping their cards to enter the office buildings, and that camera-toting visitor was asked by a polite security guard whether he needed a camera permit. (He didn't.)

Ordinarily, such observations about a suburban office park would be unsurprising, but Solana is no ordinary office park. With an all-star design team that included Ricardo Legorreta, Mitchell/Giurgola Architects, and the landscape architects Peter Walker and Martha Schwartz, Solana was hailed as a “bold experiment” in a P/A cover story (April 1989, p. 65) when its first stage was completed. Most of what made Solana unusual was Maguire Thomas's engagement of high-design architects in a building and planning type they rarely touch. But also worthy of note was the idea – implicit in the planning, especially in the extensive and creative landscaping by Walker and Schwartz – that Solana would

have places for people to be other than in cars or offices.

Although there is room for more development on this 900-acre site, Solana currently consists of three major pieces along a boulevard that intersects a limited-access highway: two clusters of office buildings originally built for IBM (IBM Westlake, by Mitchell/Giurgola Architects and HKS, and IBM Southlake, by Ricardo Legorreta and Leason Pomeroy Associates) and a “Village Center,” also by Legorreta and Leason Pomeroy, with two spec office buildings, a retail center, and a Marriott Hotel. Also near the Village Center are a health club and the National Boy Scout Executive Training Center.

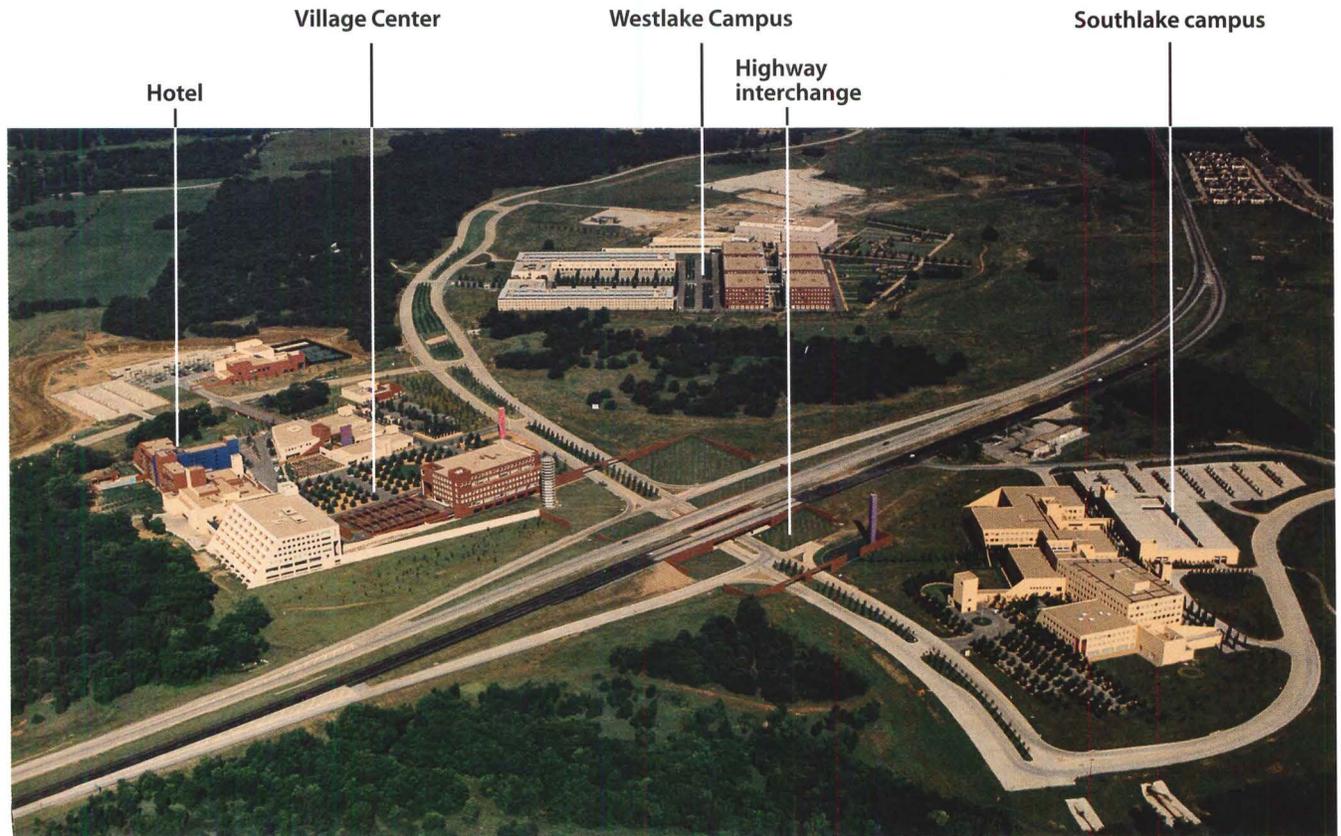
## Southlake

Legorreta laid out his Southlake building in a seemingly casual way, with a rhythm of wings and courtyards that becomes apparent only in plan. Its low-lying forms meet the ground gently, with angled wing walls easing the transition. Like his Village Center across the highway, the Southlake building provides ever-changing views as you move through or around it. Bits of passionate color are revealed within the recesses of neutral walls; pylons or other vertical features come into view and make unexpected compositions.

Among the best parts of the Southlake building is its barrel-vaulted entry hall. Legorreta's understanding of hot climates helps to create a wonderful procession: from the Texas heat to a covered portico, then through heavy wood doors into the

Development at Solana has been concentrated in three areas: the Village Center and the Westlake and Southlake campuses. The

distances between them are too great to walk (and there are no sidewalks), but a shuttle bus runs between them.



Oliver's Custom Photography

entry hall itself, mercifully cool and dark with its blue walls and ceiling. The building's courtyards are also especially fine, now that Walker and Schwartz's landscaping has come in; they provide engaging and appealing views for workers, although the only people I saw actually using them were a few employees on smoking breaks. (Bless the anti-smoking crusade for putting life back into public places.)

### The Village Center

These subtle gestures are easy to appreciate if you've brought a camera and are trying to compose pictures, and they probably come gradually to one who works in the Southlake building every day. But the subtlety is surely all but lost on the car crowd that swings into the Village Center to drop off dry cleaning. To the casual observer, the Village Center doesn't assert itself as anything more carefully conceived than the typical office park, though with better taste. Legorreta's language of incidents and juxtapositions is calibrated as if this were a pedestrian city, where people wander and congregate in the open spaces, and where his subtle compositional effects might be more easily admired.

Whatever else it has, the Village Center cannot claim much pedestrian life. I visited during a spell of sunny fall weather, before work and during lunch, and found the Center almost spookily deserted, with no noise but the whir of the maintenance crew's leaf blowers. There are functioning businesses, including an apparently thriving childcare center and a Chili's restaurant whose

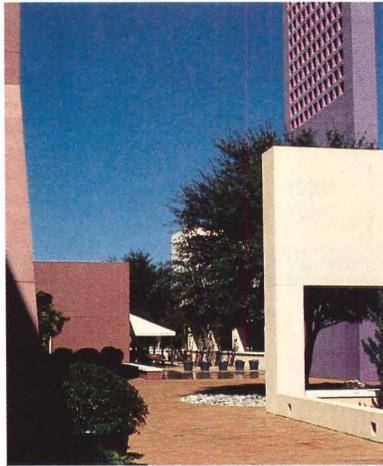
outdoor tables enliven the central plaza a bit at lunchtime; but despite its hopeful name, the Village Center is still, as Joel Warren Barna called it in his excellent book on Texas architecture, *The See-Through Years*, a place of "aching loneliness, reminding the visitor more of de Chirico than of Barragán."

Of course, some gestures, such as the great pylons that dominate the highway interchanges, succeed in capturing attention even at 70 miles an hour. But at that scale, the hazards of trying to create a separate world become apparent: right next door to Solana is the large, ungainly water tower of the adjacent Trophy Club residential development, competing with the pylons and tending to break the spell. It's the same kind of problem faced by Disney's Imagineers: how to keep nearby reality from intruding on your fantasy.

Some of Solana's neighbors expressed discomfort with Legorreta's yellows, fuchsias, reds, and purples while the project was under way; this has been attributed by some to cultural xenophobia, but the neighbors had a point: Solana is in Texas, but not in the part of Texas where bold colors and simple stuccoed forms seem perfectly natural. The site is in the midst of a belt of thick scrub oak forest, and for more than half the year Solana's surroundings are green. Legorreta's aesthetic seems to be intended for a more extreme landscape and a more intense light than actually exist here.

No additional office space has been built at Solana since the initial phase of construction, but a substantial addition was made

At the heart of **Legorreta's Village Center** lies a nicely scaled but **under-used plaza** (right). It took some waiting to get a photo with people in it.

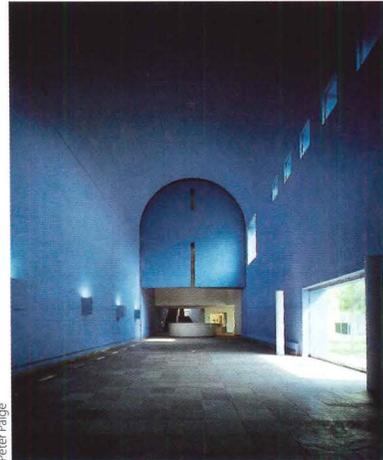


The **entrance court of the Marriott Hotel** (below) is dominated by Walker and Schwartz's effective primitivist stone dome, sliced through at several points.



David Walker

For the **Southlake campus** Walker and Schwartz created **intriguing courtyards**, with a system of water courses that drain into a shallow pool at the highway exit (p. 79).



Peter Paige

Inside Southlake, **Legorreta's handsome barrel-vaulted entry hall** provides a cool contrast to the earthy tones of the exterior.

in 1990 with the completion of a fine Marriott Hotel by Legorreta and Leason Pomeroy, with interiors by Richard Keating, who was then with Skidmore, Owings & Merrill, Los Angeles. Maguire Thomas vice-president Richard Kuhlman says that the 200-room hotel has become "the center of life" at Solana since it opened. While it was built to serve IBM, Kuhlman says the hotel has survived the company's downsizing and has a following among businesspeople who relish the quiet setting. The hotel interiors combine Legorreta's hot-weather sensibility (the cool, dark entry sequence, like that of the IBM Southlake building, must seem a godsend in the summer) with Keating's Modern tectonics; the latter shows up most prominently in the hotel bar, which has a dome with an offset oculus. A health club serving the hotel and offices, also by Legorreta and Leason Pomeroy, was completed in 1991.

### Westlake

The most successful part of Solana, in my view, is the Westlake campus designed for IBM by Mitchell/Giurgola. Where Legorreta responded to the site's lazily rolling hills with an equally laid-back architecture, Mitchell/Giurgola carved out a rigid precinct with six boxlike buildings lining a green "street" and two L-shaped parking garages that embrace a surprisingly compelling parking lot. The composition brings to mind the Rationalism of Aldo Rossi, especially the red stucco office buildings, with their grids of recessed square windows.

Within the shady confines of the interior "street," though, the Westlake buildings open up, with large expanses of glass set into a precast concrete frame. The curiously proportioned space works quite well, although the landscaping seemed to be suffering when I visited: the poplars looked sickly, and the plants in a watercourse running along the street were uninspired. But the rationality of the space and its surrounding buildings is easily more engaging than Legorreta's more complex efforts, at least to a visitor.

The other two buildings on the Westlake campus, also by Mitchell/Giurgola and HKS, do their best to wreck the harmony: looming over the six tidy office buildings is an overscaled and clumsily detailed computer center, with cream-colored, insubstantial-looking EIFS walls, and a cafeteria that is mysteriously and unfortunately clad in white, green, and red marble. These buildings are aligned not with the others but with the grid of the next phase of Westlake; their siting may make more sense if that phase is realized, but their materials will continue to be at odds with the rest of Solana.

### The Landscape

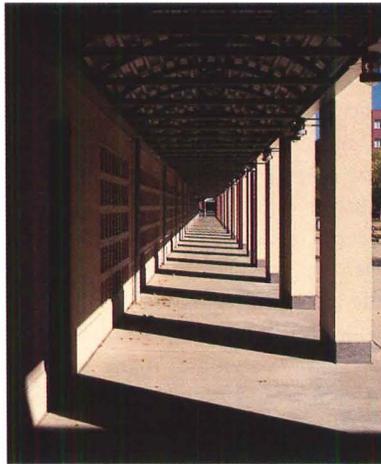
The most important and most laudable aspect of Peter Walker and Martha Schwartz's landscape plan for Solana was the simple idea that the buildings should sit in the existing rolling terrain. On the large scale, the attitude was one of deference to natural conditions, and it greatly enhances Solana's sense of place. On a



### The interior "street" of the Westlake campus

(above) is a comfortable space, although the limited sun angles don't seem to be helping the poplars. The language of punched windows present throughout Solana is traded for walls of glass behind a white precast concrete frame.

The parking lot is surrounded by garages and **lined with arcades** (right), turning a necessary evil into a legible space.



The **cubic forms** of the six Westlake office buildings (right) have a compelling geometric order. Here the depth of the window recesses is more exaggerated than in the Southlake buildings, creating a dramatic grid of shadows. In the background at lower left is the less skillfully detailed computer center.



It's hard to know why the architects chose to break with Solana's palette of materials and colors in the **cafeteria building** (left), which is clad in white, red, and green marble.

smaller scale, though, Walker and Schwartz employed the playful geometry and the man-made elements that characterized their work together. (They have since dissolved their partnership.) Sometimes, as in the Village Center's garden of evergreens set out in blue pots in a formal grid, the strategy is easy to apprehend, but much of the underlying order became apparent to me only when I studied aerial photographs. Still, the tree-planted parking lots and the gardens with linear water courses help establish Solana as different from, and better than, the average office park.

Another important landscape gesture was the decision – after state highway officials gave permission – to claim the intersection of the highway with Solana's main boulevard as part of the site. The highway exits are walled to define a kind of auto foyer, with the four corners of the intersections planted in Walker and Schwartz's geometric patterns. Here, too, are the great entrance pylons: one purple and one yellow. The purple pylon sits in a pool fed by a water course that leads from the Southlake building, creating a handsome vignette for people entering from the east, as most people do.

### IBM's Troubles

After reaching an occupancy rate of 98 percent in 1991, Solana's population took a dive in 1992 when a financially troubled IBM began downsizing, vacating most of its Westlake space and reprogramming its Southlake building to accept more em-

ployees. The idea of dividing the Westlake offices into six different buildings proved wise: in subtlety the Westlake space, IBM can offer multiple tenants the prestige and convenience of having their own building (Citicorp recently leased one building). The Southlake building, by contrast, would have been difficult to retrofit as a multitenant space.

The reduced number of people now working at Solana has surely had an effect on the life of its Village Center and other institutions, and may account for some of the eerie quiet I witnessed. Perhaps a greater number and mix of tenants will help cure Solana's "aching loneliness," but I'm not so sure. While Solana's high-minded architects have created an environment of much greater aesthetic interest than that of most office parks, they have also tried to graft a kind of public, outdoor pedestrian life on an environment that could not support it. In other words, even the best suburban office park isn't good enough. □

**Project** Solana, Westlake and Southlake, Texas.

**Architects** Ricardo Legorreta Arquitectos, Mexico City, and Leason Pomeroy Associates, Orange, California (IBM Southlake, Village Center, National Boy Scout Executive Training Center, Solana Health Club, Marriott Hotel (Marriott interiors by Richard Keating, formerly of Skidmore, Owings & Merrill, Los Angeles)); Mitchell/Giurgola Architects, New York, and HKS, Inc., Dallas (IBM Westlake).

**Photos** Mark Alden Branch, except as noted.

# Outlaw Lighting

Private and public programs promote energy-efficient lighting, but the Energy Policy Act bans outright certain lighting products.

How can architects find their way through this new landscape? *by Harvey Bryan*

## Abstract

Demand-side management programs by utilities and the federal government's Green Lights program have made significant inroads in promoting energy-efficient lighting. But the Energy Policy Act now prohibits certain types of lighting. This article provides analysis to help architects determine new lamp performance compared with older lighting products.

Encouraged by the call for more energy-efficient products by the Carter administration in the late 1970s, the lighting industry for more than a decade has been at the forefront of innovation. During this period, lamp manufacturers have introduced an array of new products, such as T8 fluorescents, compact fluorescents, MR16s, color-improved low-wattage HIDs, and electronic ballasts. While impressive, these products, when new, were not making the market penetration that many in the industry had hoped. The unexpected problems associated with a decade of flat energy costs, little energy leadership, and higher product costs all limited market share.

Not until the late 1980s, when utility-sponsored incentive programs began to attract attention, did a market for these products start to emerge. More recently, environmental concerns associated with the generation of electricity have further increased these products' market share by making them "green" products. Most dramatically, a new federal law has in effect given energy-efficient lighting a near monopoly by eliminating its competition.

The uniqueness of today's design practice requires that architects and/or lighting designers, in preparing lighting packages, be knowledgeable not only about the latest products, but also about the latest programs. The following presents three programs that have had and will increasingly have a significant influence on lighting design.

## Demand-Side Management Programs

Utility-sponsored Demand-Side Management (DSM) programs provide customers with direct financial incentives to promote energy efficiency. Their main goal is to reduce or postpone the need for new power plant construction by reducing electrical demand. DSM programs have experienced phenomenal growth since their inception nearly a decade ago, involving as many as 150,000 commercial and industrial participants in programs offered by more than 100 utilities.

Lighting programs have emerged as the most popular DSM programs. Clients like them because they provide the least intrusive form of retrofit and show immediate results; utilities like them because they are easy to manage and are very cost-effective. To qualify for a DSM program, a customer prepares a lighting survey following an agreed-on format (many utilities provide preprinted worksheets). Usually several energy-efficient lighting strategies are proposed, installation costs are estimated, and incentive payments are determined.

Once a strategy is agreed on, the utility helps the customer select a contractor and supervises installation. After testing the completed project, the utility sends an incentive check to the customer. Although incentive payments vary widely among utilities, a recent study by the Electric Power Research Institute found that incentives range from 30 to 50 percent of the cost of installed equipment. Designers who have used these programs have been able to provide increased design service with support from the local utility.

*(continued on page 80)*

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*The author is an architect and researcher in Boston, and a frequent contributor to P/A in the area of building technology.*

**FLUORESCENT LAMPS**

**NONCOMPLYING LAMPS**

Affected by the April 30, 1994 deadline



**F96T12/**

CW (Cool white)  
4100-4200K

WW (Warm white)

D (Daylight)  
6300-6500K



**F96T12/HO/(High-Output)**

CW (Cool white)  
4100-4200K

WW (Warm white)  
3000K

D (Daylight)  
6300-6500K

**GREEN CHOICE\***

- Excellent energy savings
- Very good color, 80+CRI

F096/841<sup>1</sup>  
F96T8/TL841<sup>2</sup>  
F96T8/SPX41<sup>3</sup>

F096/830<sup>1</sup>  
F96T8/TL830<sup>2</sup>  
F96T8/SPX30<sup>3</sup>

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**GOOD CHOICE**

- \* Good energy savings
- \* Good color, 70+CRI

F96T12/D841/SS<sup>1</sup>  
F96T12/41U/EW<sup>2</sup>  
F96T12/SP41/WM<sup>3,4</sup>

F96T12/830/SS<sup>1</sup>  
F96T12/30U/EW<sup>2</sup>  
F96T12/SP30/WM<sup>3,4</sup>

F96T12/D864/SS<sup>1</sup>  
F96T12/DX/EW<sup>2</sup>  
F96T12/SP65/WM<sup>3,4</sup>

F96T12/D41/HO/SS<sup>1</sup>  
F96T12/41U/HO/EW<sup>2</sup>  
F96T12/SP41/HO/WM<sup>3,4</sup>

F96T12/D30/HO/SS<sup>1</sup>  
F96T12/SPEC30/HO/EW<sup>2</sup>  
F96T12/SP30/HO/WM<sup>3</sup>

F96T12/D864/HO/SS<sup>1</sup>  
F96T12/DX/HO/EW<sup>2</sup>  
F96T12/SP65/HO/WM<sup>3,4</sup>

**MEETS STANDARD**

- Saves energy

F96T12/CW/SS<sup>1</sup>  
F96T12/CW/EW<sup>2</sup>  
F96T12/CW/WM<sup>3</sup>

F96T12/WW/SS<sup>1</sup>  
F96T12/WW/EW<sup>2</sup>  
F96T12/WW/WM<sup>3</sup>

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F96T12/CW/HO/SS<sup>1</sup>  
F96T12/CW/HO/EW<sup>2</sup>  
F96T12/CW/HO/WM<sup>3</sup>

F96T12/WW/HO/SS<sup>1</sup>  
F96T12/WW/HO/EW<sup>2</sup>  
F96T12/WW/HO/WM<sup>3</sup>

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**NONCOMPLYING LAMPS**

Affected by the October 31, 1994 deadline



**F40/**

CW (Cool white)  
4100-4200K

WW (Warm white)  
3000K

D (Daylight)  
6300-6500K



**FB40/6 or F40/U/6/ U-Tube**

CW (Cool white)  
4100-4200K

WW (Warm white)  
3000K

F032/841<sup>1</sup>  
F32T8/TL841<sup>2</sup>  
F32T8/SPX41<sup>3</sup>

F032/830<sup>1</sup>  
F32T8/TL830<sup>2</sup>  
F32T8/SPX30<sup>3</sup>

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FB032/841/6<sup>1</sup>  
FB31T8/TL841/6<sup>1</sup>  
F32T8/SPX41/U/6<sup>1</sup>

FB032/830/6<sup>1</sup>  
FB31T8/TL830/6<sup>2</sup>  
F32T8/SPX30/U/6<sup>3</sup>

F40D841/SS<sup>1</sup>  
F40/41U/RS/EW<sup>2</sup>  
F40/SP41/RS/WM<sup>3,4</sup>

F40/D830/SS<sup>1</sup>  
F40/30U/RS/EW<sup>2,5</sup>  
F40/SP30/RS/WM<sup>3,4</sup>

F40/D864/SS<sup>1</sup>  
F40/DX/EW<sup>2</sup>  
F40/SP65/RS/WM<sup>3</sup>

FB40/D41/6/SS<sup>1</sup>  
FB40/41U/6<sup>2,5</sup>  
F40/SP41/U/6<sup>3</sup>

FB40/D30/6/SS<sup>1</sup>  
FB40/30U/6<sup>2,5</sup>  
F40/SP30/U/6<sup>3,4</sup>

F40/CW/SS<sup>1</sup>  
F40/CW/RS/EW<sup>2</sup>  
F40/CW/RS/WM<sup>3</sup>

F40/WW/SS<sup>1</sup>  
F40/WW/RS/EW<sup>2</sup>  
F40/WW/RS/WM<sup>3</sup>

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F40/CW/6/SS<sup>1</sup>  
FB40/CW/6/EW<sup>2</sup>  
F40/CW/U/6/WM<sup>3</sup>

FB40/WW/6/SS<sup>1</sup>  
FB40/WW/U/6/EW<sup>2</sup>  
F40/WW/U/6/WM<sup>3</sup>

**DIRECTIONAL INCANDESCENT LAMPS**

**NONCOMPLYING LAMPS**

Affected by the October 31, 1995 deadline



**R30**

**75R30/\*\***



**R40**

**75R40/\*\***

**120R40/\*\***

**150R40/\*\***



**PAR38**

**75PAR38/\*\***

**150PAR38/\*\***

**GREEN CHOICE**

LPW > 18.0

50PAR30/CAP/\*\*<sup>1</sup>  
50PAR30/H/\*\*<sup>2</sup>  
50PAR30/HR/\*\*<sup>3</sup>

45PAR38/CAP/\*\*<sup>1</sup>  
SL18/R40<sup>3</sup>  
50PAR38/HR/\*\*<sup>3</sup>

75PAR38/CAP/\*\*<sup>1</sup>  
60PAR38/H/\*\*<sup>2</sup>  
60PAR38/HR/\*\*<sup>3</sup>

75PAR38/CAP/\*\*<sup>1</sup>  
60PAR38/H/\*\*<sup>2</sup>  
60PAR38/HR/\*\*<sup>3</sup>

45PAR38/CAP/\*\*<sup>1</sup>  
45PAR38/H/\*\*<sup>2</sup>  
50PAR38/HR/\*\*<sup>3</sup>

75PAR38/CAP/\*\*<sup>1</sup>  
60PAR38/H/\*\*<sup>2</sup>  
60PAR38/HR/\*\*<sup>3</sup>

**GOOD CHOICE**

LPW > 12.0

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60R30/\*\*<sup>3</sup>

50PAR30/CAP/\*\*<sup>1</sup>  
45PAR38/H/\*\*<sup>2</sup>  
45PAR38/HR/\*\*<sup>3</sup>

-----  
75PAR38/H/\*\*<sup>2</sup>  
-----

90PAR38/CAP/\*\*<sup>1</sup>  
90PAR38/H/\*\*<sup>2</sup>  
90PAR38/HR/\*\*<sup>3</sup>

50PAR30/CAP/\*\*<sup>1</sup>  
50PAR30/H/\*\*<sup>2</sup>  
45PAR38/HR/\*\*<sup>3</sup>

90PAR38/CAP/\*\*<sup>1</sup>  
90PAR38/H/\*\*<sup>2</sup>  
90PAR38/HR/\*\*<sup>3</sup>

**MEETS STANDARD**

LPW > 10.5

50ER30<sup>1,2,3</sup>

50ER30<sup>1,2,3</sup>

75ER30<sup>1,2,3</sup>

120ER40<sup>1,2,3</sup>

50ER30<sup>1,2,3</sup>

120ER40<sup>1,2,3</sup>

General Note: Between now and October 31, 1995, we can expect a number of new lamps to be announced.

\* T\* lamps will require electronic ballast upgrade      \*\* Could be either Spot(SP) or Flood (FL) type lamp.

<sup>1</sup> Osram-Sylvania, <sup>2</sup> Philips, <sup>3</sup> General Electric, <sup>4</sup> SPX lamps are also suitable, <sup>5</sup> SPEC lamps are also suitable

### Green Lights

Green Lights is a voluntary, nonregulatory program designed to encourage major U.S. companies to use energy-efficient lighting technologies. Developed by the Environmental Protection Agency and launched in January 1991, it recognized what many environmentalists have been saying for years: that if encouraged on a large scale, energy-efficient lighting not only saves energy, but also significantly reduces pollution. The logic is simple: electricity generation contributes heavily to air pollution (40 per-

cented within five years) to install energy-efficient lighting where it is profitable and where lighting quality is not compromised. There are no prescriptive program requirements, but a participant must agree to name an implementation manager who will oversee and document the lighting upgrades to the EPA.

The EPA's commitment provides participants with considerable technical support, starting with a team of lighting experts, who disseminate information throughout the process, including a technical hotline, a Lighting Upgrade Man-

communications material intended to keep participants and the public informed; this includes a monthly newsletter distributed to more than 20,000 Green Lights constituents – current and prospective program participants, lighting and building management professionals, members of the media, and other interested parties. The EPA also places Green Lights public-service advertising in major magazines, and will provide assistance to journalists who are preparing reports on energy-efficient lighting. Finally, the EPA encourages participants to promote their own Green Lights success stories by distributing ready-to-use promotional kits.

The Green Lights program has far exceeded expectations. In less than four years of operation it has more than 1,600 participants committed to upgrading nearly 4.5 billion square feet of space. This year participants have saved nearly one billion kwh of electricity, which translates into \$70 million in reduced electric bills. The nation as a whole has benefited by having its annual carbon dioxide emissions reduced by 600,000 tons, annual sulfur dioxide emissions reduced by 435 tons, and annual nitrogen oxide emissions reduced by 205 tons.

Among federal environmental programs Green Lights stands out; so much so that President Clinton used Green Lights as the model for the public-private partnerships that are so central to the Administration's recently announced Climate Change Action Plan – a national plan to address global warming by reducing greenhouse gas emissions. This plan has already resulted in an expansion of Green Lights. Last June the EPA announced the Energy Star Showcase Buildings Program, an intensive one-year pilot project with 25 Green Lights Partners, to determine if the lessons learned in lighting can be applied to other energy-efficient building technologies. Besides lighting, improvements will focus on optimizing building operations, reducing building loads, upgrading fan systems, improving HVAC performance, and preparing for CFC phase-out. If the pilot project is successful, look for Green Lights to become Green Buildings – a comprehensive energy-efficient building program.

If, indeed, these programs are the

**“The Green Lights program has far exceeded expectations. In less than four years of operation it has more than 1,600 participants committed to upgrading nearly 4.5 billion square feet of space.”**

cent of the carbon dioxide, 70 percent of the sulfur dioxide, and 40 percent of the nitrogen oxide) and is a factor in acid mine run-off, oil spills, natural gas leakage, and toxic and nuclear waste. Since lighting accounts for approximately 25 percent of the electricity used in the U.S., a program that reduces electric lighting demand by approximately 50 percent could reduce the nation's demand for electricity by 12 percent – a goal that energy experts think is achievable. This in turn would reduce annual carbon dioxide emissions by 22 million tons (4 percent of the national total – equivalent to eliminating one-third of the U.S. auto fleet), sulfur dioxide emissions by 1.4 million tons (7 percent of the national total), and nitrogen oxide emissions by 660,000 tons (4 percent of the national total).

Realizing the significance of such numbers, the EPA has sought to use market mechanisms to attract organizations that would approach lighting as an investment rather than as just an operating cost. The strategy is to use energy-efficient lighting to reduce energy consumption, prevent pollution, and provide better lighting quality. When an organization agrees to participate in the Green Lights program, it signs a memorandum of understanding (MOU) with the EPA. Signing the MOU makes lighting a priority and defines the responsibilities of both parties. This partnership requires participants to survey their facilities and come up with a plan (to be com-

pleted within five years) to install energy-efficient lighting where it is profitable and where lighting quality is not compromised. In addition, the EPA provides several user-friendly computer software tools that help Green Lights participants survey their facilities, analyze their upgrade options, estimate the impact of specific upgrades, and calculate the internal rate of return. A Financing Directory is also provided, which is a computerized national data base of utility-sponsored DSM programs and other third-party financing programs.

The EPA has also been able to enlist considerable outside support through its Ally Program, which includes lighting manufacturers and electric utilities who agree to educate their customers about the benefits of energy-efficient lighting. Finally, the EPA cosponsors the National Lighting Product Information Program at Rensselaer Polytechnic Institute's Lighting Research Center, whose research results are published in *Specifier Reports* – a series of objective product specific evaluations sent to all Green Lights participants.

While the direct benefits of the Green Lights program are considerable, indirect advantages are also attractive. Both the EPA and participating organizations understand that consumers rate environmental or “green” programs very high and the public relations benefit of such programs can be significant. As part of its promise to promote the Green Lights, the EPA distributes an assortment of

wave of the future, it is critical that architects become involved in them. Such programs provide an excellent vehicle for making clients aware of the central role that design can play in providing a sustainable built environment.

### The Energy Policy Act

Signed into law two years ago, the Energy Policy Act (EPACT) is the most comprehensive attempt by Congress to promote energy efficiency. No sector of the economy went unnoticed and buildings were of particular concern; components such as HVAC equipment, motors, windows, lamps, and luminaires were addressed in this legislation. As in many policy acts, Congress sets the general intent and deadlines while requesting a federal agency (in this case, the Department of Energy) to develop the specifics. As those specifics emerged, it became apparent that EPACT will have a long-term effect on the specification of lighting products, (EPACT contains lighting regulations that can extend until 2005.)

EPACT mandates some complex performance standards for both efficiency (measured by lumens per watt, or LPW) and color rendering (measured by the color rendering index, or CRI). Lamps not meeting these standards – which include many of today's most commonly used lamps – will be prohibited from manufacture or import. The following list and the table on page 79 summarize the regulations included in EPACT.

**Fluorescent Lamps.** By regulating efficiency, EPACT has in effect eliminated full-wattage (40W, 75W, 110W) general-service fluorescent lamps in favor of energy-efficient reduced-wattage (32W, 60W, 95W) lamps. By setting color rendering requirements, the law penalizes the use of the cheaper halo-phosphor colors (i.e., warm white and cool white) by encouraging the use of the expensive rare earth (triphosphor) colors. In response to EPACT's first deadline (April 30, 1994) lamp manufacturers have already ended production of full-wattage eight-foot slimline and eight-foot-high output lamps (lamps already in inventory can still be sold). The next scheduled deadline (October 31, 1995) will see the elimination of full-wattage four-foot medium bi-pin and two-foot U-shaped lamps.

In essence, what the law has done is

to push the industry away from the standard T12 (1½-inch tube) to the more highly efficient and better color rendering T8 (1-inch tube) fluorescent; however, the use of the T8 lamp will require a ballast replacement. Even with this added expense, it is still very economical. For example, T8 lamps used in combination with an electronic ballast consume approximately half the energy of a standard T12 fixture and potentially save up to \$200 in energy costs over the life of the first set of lamps. All general-service fluorescent lamps must comply with new labeling requirements by April 30, 1995; these will most likely include an LPW rating, lumen output, color rendering, and lamp life information.

**Incandescent Lamps.** The next scheduled deadline (October 31, 1995) will eliminate several types of directional incandescent lamps that do not meet efficiency requirements. These include all medium-base PAR and R lamps of 40 watts and higher. The most obvious replacement for these lamps will be the halogen PAR, the compact fluorescent reflector, or the low-voltage (MR16) lamps; all remaining directional incandescents must be relabeled by April 30, 1995. The new labels will likely include an LPW rating, beam angle, maximum intensity, and lamp life information.

EPACT's only provision for general-service incandescents is to require relabeling by April 30, 1995. While the specifics are still pending, these labels will likely include some operating-cost comparison to compact fluorescents, the idea being to make the consumer more aware of the total cost involved in the purchase of an incandescent lamp.

**HID Lamps.** EPACT does not currently regulate high-intensity-discharge lamps. However, the law requests that DOE develop HID standards for implementation in 1999. Here we will most likely see restrictions placed on the use of mercury lamps – the least efficient lamp in the HID family.

### Exemptions, Enforcement, Revisions

The lighting provisions of EPACT are not inclusive, in that they do not address all the thousands of lamps currently in use. Congress deemed these lamps to be already in compliance, found that their elimination would create economic hard-

ship for a certain class of user, or exempted them because they were designed for some special application.

Yet EPACT contains some of the strictest enforcement penalties ever proposed by Congress. Enforcement will be done at the point of manufacture or import by inventorying all lamps on the implementation date. Any non-inventoried lamp sold after that date will be subject to a fine of up to \$100 for each day since the law went into effect.

EPACT also contains provisions that set deadlines for amending the standard if certain criteria are not met. These changes will most likely be a further tightening of the performance standards and the elimination of exemptions, as lighting technology continues to improve. Thus, it is reasonable to expect EPACT to continue to change until the last deadline, which is slated to go into effect in the year 2005. Such a moving target will create problems for the end users who want to comply only minimally with EPACT, because they may in a few years have to relamp all over again.

### Conclusion

Although all the subtleties of the programs outlined here may seem overwhelming, they become clearer with use. In fact, the vast majority of the energy-efficient lighting technologies being promoted by DSM programs, Green Lights, and the Energy Policy Act have been available for years. Thus, we should not look on these programs, particularly EPACT, as a new set of restrictions. We should regard these programs, in combination, as an opportunity to expand design services by encouraging clients to consider energy-efficient lighting in their facilities. In so doing we will help address the national energy problem, reduce environmental pollution, improve the luminous quality of our buildings, and save clients a great deal of money.

### Further Information

**DSM Programs:** Contact your local electric utility.

**EPA Green Lights Program,** 401 M Street, SW, Washington, D.C. 20460, 202-775-6650.

**Energy Policy Act:** Pacific Northwest Laboratory, P.O. Box 999, Richland, WA 99352, 800-270-2633 □

# Seeing the Light

A new program at the Lighting Research Center documents case studies of energy-efficient lighting strategies for the benefit of architects, clients, and utilities.

by Naomi Miller

## Abstract

An array of energy-efficient lighting technology is now available, but there is little documentation of how the various products are best used in design. A new program at RPI's Lighting Research Center evaluates energy-efficient lighting projects according to user satisfaction, energy consumption, cost, installation, and other factors. The information is useful to architects in determining energy-efficient lighting strategies for similar facilities.

In the past five years an overwhelming number of energy-efficient lighting products have invaded the market: lamps, ballasts, controls, luminaires. However, their penetration into the architectural market has been slow because architects, engineers, and lighting designers often don't know how to apply them or feel confident that these products will perform reliably. There are dozens of installations where energy reduction was a primary goal, but the resulting light quality is too dim, too spotty, too glaring, or is plagued with field problems.

## The DELTA Program

In the interest of helping design professionals successfully specify energy-conscious lighting systems, the Lighting Research Center at Rensselaer Polytechnic Institute in Troy, New York, has developed a program to identify, evaluate, and document lighting installations that have achieved both high energy efficiency and lighting quality.

The program is called DELTA: Demonstration and Evaluation of Lighting Technologies and Applications. The product, a series of case studies, each presented in a 12-page publication, should become a reference tool and communication vehicle for design professionals. The publications convey information on lighting layouts, mounting details, and light levels graphically so that architects can find the information they need at a glance. A consistent format for the publications also makes it easy to find comparable information in the different case studies.

## First Case Study

The first publication documents an A&P Food Market in Old Lyme, Connecticut. The market was designed by the architects and designers in A&P's Corporate Planning and Design group. In the design stages, Connecticut Light & Power worked with A&P to convert

their lighting specifications to T8 fluorescent lamps and electronic ballasts. When the store was complete, CL&P recognized that this store could teach other designers and customers in their service territory how to save energy without sacrificing comfort or appearance. CL&P contacted the Lighting Research Center, then funded the evaluation of the store's lighting and the DELTA publication.

The store uses energy-efficient, high-color-rendering lamps, making the merchandise as well as the skin tones of the occupants look natural. Wherever possible, fluorescent lamps are operated by electronic ballasts, which are more efficient, quieter, and reduce flicker better than conventional ballasts. The store also has successfully incorporated compact fluorescent lamps and compact metal halide lamps into its displays. The whole-building energy-management system automatically lowers interior lighting levels at dusk, lowers them even further when the store closes for restocking and cleaning, and switches lights near windows either on or off in response to available daylighting.

The lighting is cleverly located to maximize the visibility of products without excessive glare or contrast for shoppers. A&P has also contracted with a lighting maintenance company to ensure that lamps are replaced before they seriously degrade in light output, and are kept clean for maximum light output.

## Evaluation Process

The DELTA team of six researchers and students, directed by Dr. Peter Boyce, head of Human Factors at the Lighting Research Center, began its work by visiting the site, checking the

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*Naomi Miller is the DELTA Program Director at the Lighting Research Center, School of Architecture, Rensselaer Polytechnic Institute, Troy, New York. Call 518-276-8716 for more information on DELTA.*

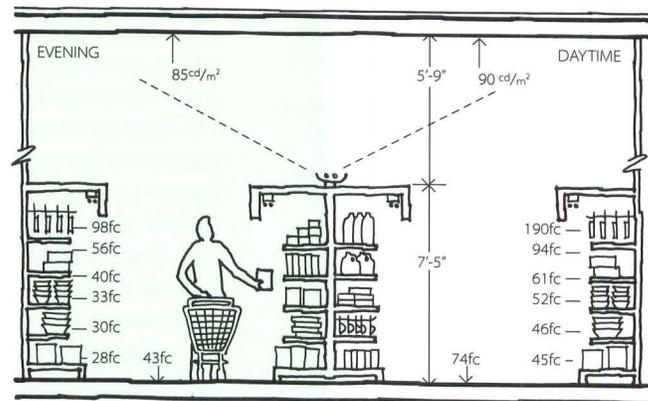


1 OVERVIEW OF A&P STORE INTERIOR

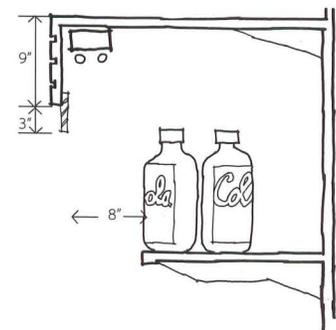
© 1994 Robert Benson

The A&P Food Market is a 43,000-square-foot space in which energy-efficient lighting equipment has been skillfully integrated into the store design. Fluorescent lighting concealed by valances in the grocery aisles helps reduce distracting ceiling clutter associated with suspended luminaires or bright ceiling-mounted striplights. The effect is softened with fluorescent uplighting that few people notice, but that makes the space feel spacious and cheerful.

Incandescent lighting is not used; accent lighting is delivered with double-ended compact metal halide and compact fluorescent sources. The total connected lighting power density in the store is only 2.1 watts per square foot, compared with a 2.5 watt per square foot limit set by the ASHRAE/IES 90.1-1989 energy standard. The maximum connected load is never fully used because automatic controls reduce lighting during evening shopping hours when customers' eyes are used to the darkness outside. For example, at dusk, half the lamps in the grocery aisle valances shut off. (The corresponding light levels are illustrated in the near right section.) The energy management system also switches off lights near windows during daylight hours and turns off accent lighting after the store has closed to customers.



GROCERY AISLE SECTION

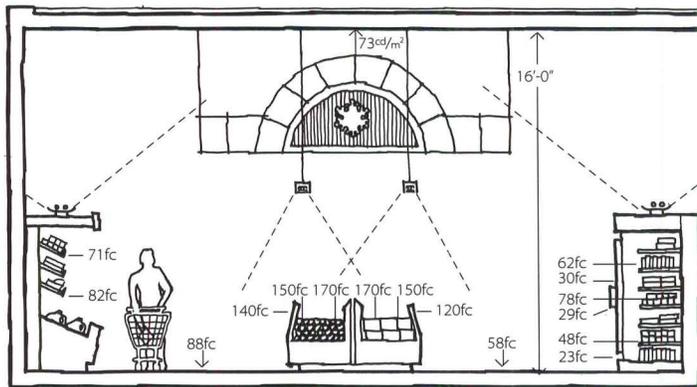


GONDOLA VALANCE



2 FROZEN FOOD AREA

© 1994 Robert Benson



FROZEN FOOD SECTION

Fluorescent uplights are built into the top of the refrigerated cases (2) to make the space feel bright and open. However, freezer cases with glass doors pose a special lighting problem. Illuminances inside the case must exceed those outside the case, or reflections will make the products difficult to see. Low-temperature fluorescent strip lighting built into the vertical cases provides illuminances inside the case that are at least 1.6 times the illuminance on the outside of the case.

The success of a supermarket is measured in sales, and sales depend on customer attitudes. DELTA surveyed 112 A&P customers for their impressions of the lighting (3). Although all areas were judged to be satisfactory, the grocery aisles and the frozen food section were identified as the most attractive and comfortable places, where it was easiest to see merchandise. The bakery and the florist areas received the lowest ratings. Written comments from customers most often mentioned glare and extreme brightness in those areas as the problems. Many noted how comfortable the store's overall lighting is, and mentioned how easy it is to read labels in the grocery aisles. DELTA observed no significant difference in customer impressions at different times of day, even though light levels are reduced for evening shoppers.

PERCENTAGES OF PEOPLE WHO AGREED THAT LIGHTING IS:

AREA OF SUPERMARKET	ATTRACTIVE	COMFORTABLE	EASY TO SEE
OVERALL STORE	98	99	96
GROCERY AISLES	95	96	96
FROZEN FOODS	96	93	96
PRODUCE	93	91	89
DELI/MEATS	93	91	95
BAKERY	87	85	85
BULK GOODS	92	93	97
FLORIST	87	86	92
CHECKOUT	90	92	96

3 DELTA CUSTOMER SATISFACTION SURVEY

design documentation, and identifying the areas of the store that would be of greatest interest to designers, engineers, and facility managers. They focused not just on areas where the lighting design worked well, but specifically chose an area that appeared less successful as well. (Often more can be learned from what didn't work than from what did.) The team arranged with the store manager and the A&P corporate engineer to return two weeks later with an evaluation team, and discussed its activities and schedule so that store operations would be affected as little as possible by the visit.

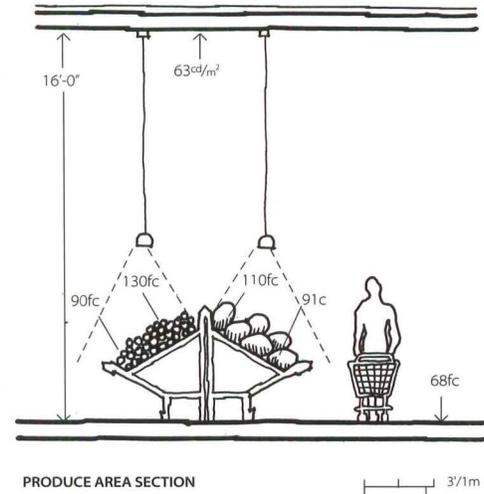
The team spent a total of 24 hours at the store, collecting data. Extensive photometric measurements were recorded: horizontal illuminances on floors and food cases, vertical illuminances on grocery shelves and food cases, and luminances of ceilings, walls, and windows. These measurements were taken at different times of the day to document the luminous environment under different switching conditions. As-built documentation of luminaires, mountings, lamps, and controls was prepared and energy use was then calculated.

An important part of the evaluation process was collecting impressions from the store's staff and customers of light quality. Managers and employees were interviewed to find out whether there were any staff complaints about glare, unsatisfactory color, flicker, maintenance issues, etc. Customers were also surveyed about the store's lighting quality, with queries such as: Is the merchandise easy to see in the bakery? Is the lighting comfortable in the grocery aisles? Where is lighting at its worst? Which area is best? Is the lighting of the produce area attractive? Overall, how does the lighting of this su-



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4 PRODUCE AREA WITH DOWNLIGHT ACCENTS



permarket compare with the lighting of other supermarkets you are familiar with? The survey encouraged shoppers to add comments and explanations, which added to our understanding of what shoppers liked and disliked.

The interviews and collected data were then analyzed and translated into sketches, tables, and text. The interior was photographed by a professional architectural photographer. The resulting publication contains a lighting plan and details to scale; specifications on lighting products; recommendations of aiming and spacing; cost information; wattage, lighting power densities, and overall energy consumption compared to typical code limits; and data on environmental impact. The effort was to create a case-study document that would be as practical as possible for architects and other specifiers of lighting.

#### How to Use the Information

Approximately six issues of the *DELTA Portfolio* will be published each year, covering a wide range of projects. Ultimately there will be a binder with tabs for different project types: offices, public spaces, retail spaces, schools, industrial applications, etc. If you are designing a supermarket, you can open up the *DELTA Portfolio* and pull out all the publications on this building type. You can quickly look at different lighting approaches and determine what kinds of luminaires worked well, how high they were mounted, what kind of illuminances they produced, and how they were specified. If the design budget precludes bringing in a consultant, this information is a good start. The *Portfolio* can also serve as a visual communication tool between the architect and the lighting consultant, the electrical engineer, and the client. By refer-

ring to the lighting effects illustrated, the lighting consultant can outline the options that would work in a project, and can use the photographs and illustrations to help a client visualize the lighting in the space being designed.

#### Future Case Studies

There are five organizations now sponsoring DELTA projects: the New York State Energy Research and Development Authority, Bonneville Power Administration, Ontario Hydro, Northeast Utilities, and Consolidated Edison Company of New York. Each organization is funding one or more commercial, institutional, or industrial projects. Ultimately the portfolio case studies will include new, renovation, and retrofit projects. Upcoming projects include the Connecticut Science Center (DuBose Associates, Architects; BVH Engineers); a Sony disc manufacturing center in Oregon (Boucher Mouchka Larson, Architects, PAE Consulting Engineers); the Atmospheric Sciences Research Center in Albany (Cannon Architects and Engineers, Horton Lees Lighting Design); and a renovated carpet mill in Amsterdam, New York.

The challenge of the DELTA program is to spread the word about improving energy efficiency, visual effectiveness, and human comfort in built environments. To do this, we match up good installations and their designers and owners with funding groups in order to produce the publications. Architects can encourage their local utilities and state energy organizations to participate in the DELTA program. If you know of a project that fits the criteria of energy efficiency and lighting quality, bring it to the attention of your utility and energy offices, and of the Lighting Research Center. □

Lighting is especially important for scrutinizing fresh produce. Fruits and vegetables are visually appealing merchandise, and lighting (4) can heighten the visual drama by concentrating light on the produce itself rather than on the floor and ceiling. Most of the illumination is from downlights, either fluorescent pendants over the bins, or fluorescent striplights built into cases along the wall. There is a small amount of upright to wash walls above the perimeter cases, so that the area does not look cave-like. (A few customers reported they would prefer this area have even more ambient light so that the produce would be more uniformly lighted.) Warm-color, high-color-rendering fluorescent lamps (3000K, 80 CRI) bring out the natural color of everything from strawberries to asparagus.

Fax us your thoughts  
and help P/A address a critical subject:

# Architectural Registration

For an April article on the architectural registration exam and the role of NCARB, P/A would welcome your observations.

1. Do you believe the Architectural Registration Exam (ARE) is a fair appraisal of an architect's professional abilities?
2. If you took the new ARE in June, or graded the exam, what is your appraisal of the new content and format?
3. Can you cite examples of why you believe the ARE is unfair in its content, administration, or grading?
4. If you are NCARB certified, what is your appraisal of NCARB's function, policies, and cost?
5. How might the ARE and NCARB be changed for the betterment of the profession?

**Optional:** Your name

Your telephone

Feel free to address the situation as you wish, without being bound by the above questions or by this form. All responses will be considered confidential. Nothing will be quoted by name unless we obtain your expressed permission. Send us your thoughts.

**By FAX to:** Registration  
FAX 203 348 4023

**By mail to:** Registration  
Progressive Architecture  
600 Summer Street  
PO Box 1361  
Stamford, Connecticut 06904

**By e-mail to:** Registration  
"Progressive Arch"  
via AIA Online

# Progressive Architecture 1994 Annual Index

This index lists the issue and page number of articles that have appeared in P/A in 1994. It is organized alphabetically by subject, and by architects and designers. The Information Sources issue, is not included in this index. The 1994 P/A Annual Index was compiled by Search Publishing Inc. of Devon, PA.

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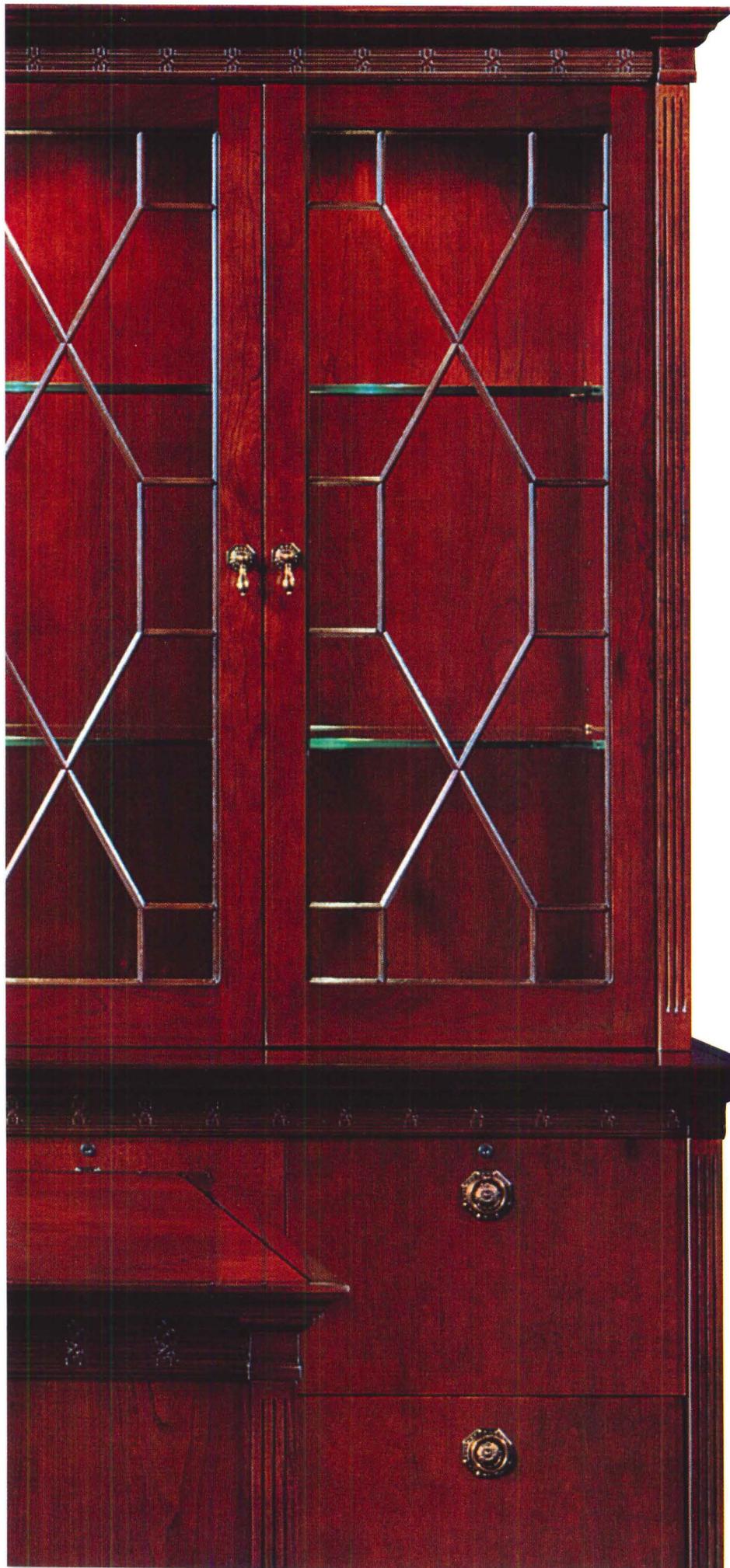
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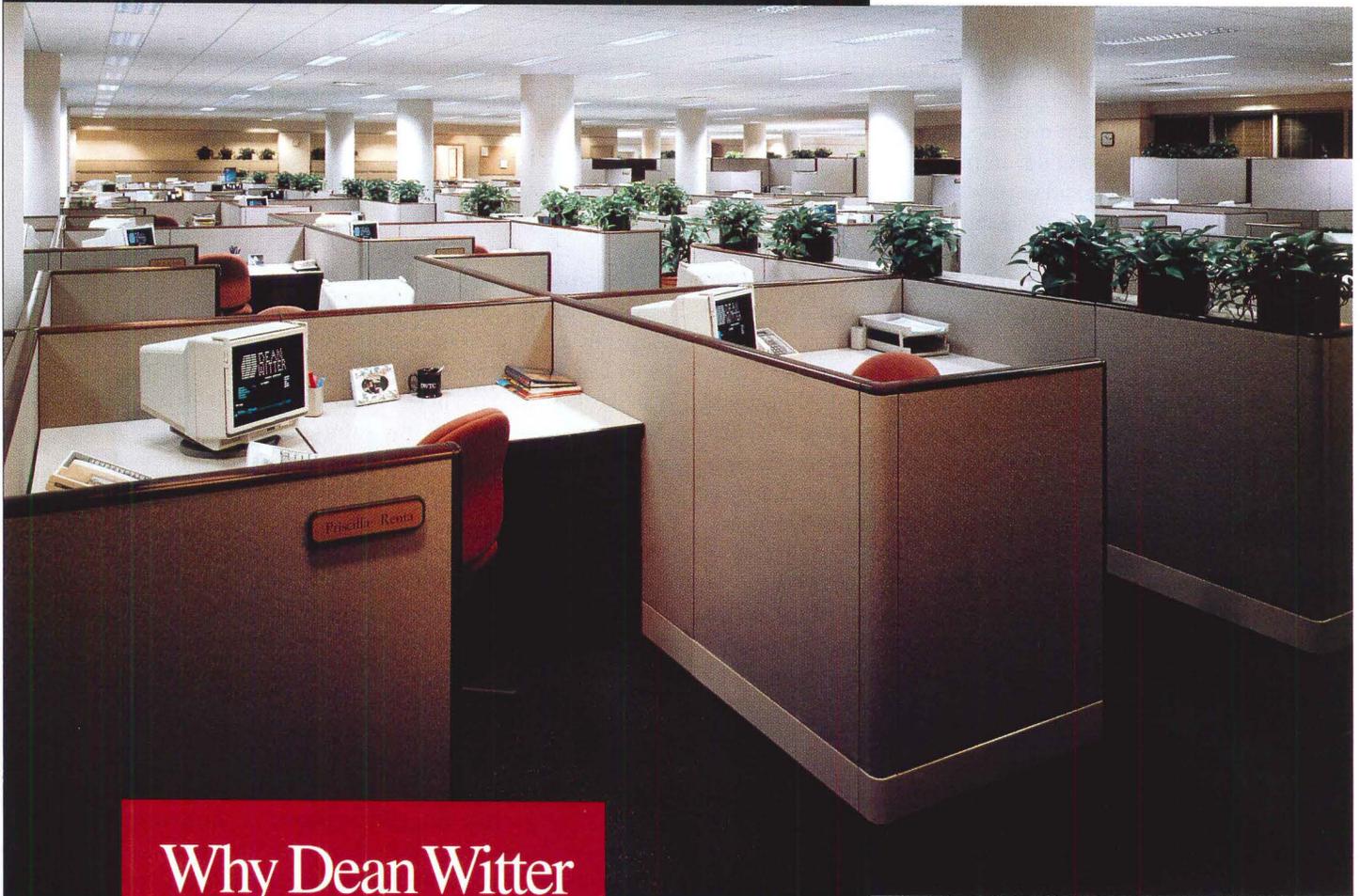
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## REPORT FROM PHOENIX: City or Supersuburb?

(continued from page 63) now nearing completion, is a piece of civic architecture appropriate to a modern desert city. Credited to a joint venture called BruderDWLarchitects, and designed by Bruder with Burnette (P/A, July 1990, p. 70), it goes far beyond its basic program, which proposed a “warehouse” for books and technology. Rectangular in plan, with two copper-clad “saddlebags” on its east and west sides, and glazing on the north and south elevations (sunshades and louvers modulate the sun), the library is both an ode to the car culture (its glazed ends acting like a virtual drive-thru) and a powerful statement about building in the desert (a metaphorical mesa transplanted from Monument Valley).

Forgoing the high-brow gestures of a Carnegie library’s lions and grand entry, this building meets the public on the ground floor: visitors will descend into the library down slightly sloping ramps which lead to a five-story light “canyon.” The placement of the entire circulating, nonfiction collection and the majority of the library’s reading tables on the top floor affords the highest perch and the best views to citizens (conversely, the top floor of the city hall houses the economic development agency).

To get the proposal through, Bruder appeared before the design review panel (set up to supervise all of the cultural projects), spoke at 25 community meetings, and even made an appearance on talk radio to discuss the design. The town maverick and a source of inspiration for young architects, Bruder is lauded for his role as visionary/unofficial troublemaker – an essential figure in any town.

### Art on the Street

The new Phoenix Art Museum extension and renovation by Lescher & Mahoney/DLR Group, Phoenix, in association with Tod Williams-Billie Tsien & Associates, New York, takes a similarly unconventional route to an architecture of civic proportions. The extension, composed of two long, low volumes along Central, is pushed right up against the avenue, announcing itself to passersby. Rather than competing with the desert’s otherworldly mutations, the addition is firmly rooted to its site and oriented to the avenue. Its two main volumes, connected by a terne-coated stainless steel bridge, slope down to a central main entrance. The precast street façades are an eye-popping luminescent gray-green that, along with an 80-foot-high cone-shaped sculpture pavilion rising from behind the addition, will give the museum a street presence it never had. Made of translucent reinforced fiberglass panels and equipped with a misting system, the cone (to be built when private funding is secured) will offer relief from the desert heat and will provide an “outdoor” counterpart to the artificially lighted, air-conditioned gallery additions.

### Symbols of the Southwest

Another strategy for building in the Southwest is one of symbolic gestures. And there is an odd grouping of historic and geographic symbolism taking shape on the east edge of downtown Phoenix. Heritage Square, a multi-block site, holds several historic structures, some transferred there from other locations, and two big holes: one for Antoine Predock’s Arizona Science Center, the other for Langdon Wilson’s Phoenix Museum of History. A public plaza will connect the pieces.

Predock believes that building in the desert comes with certain responsibilities. “It’s important” he says, “to celebrate the

blazing sun and not to deny it.” His Science Center, one of the most eagerly awaited of the cultural projects, is designed to do just that: a sunken forecourt leads visitors to the museum’s open-air inner courtyard, where terraces and trellis systems “create respites from the sun.” A central triangular form, the building’s highest point, rises towards the sky. Inside, the exhibition incorporates the ideas of procession and experience, analogous to a journey through the desert.

### Infrastructure as Urban Fabric

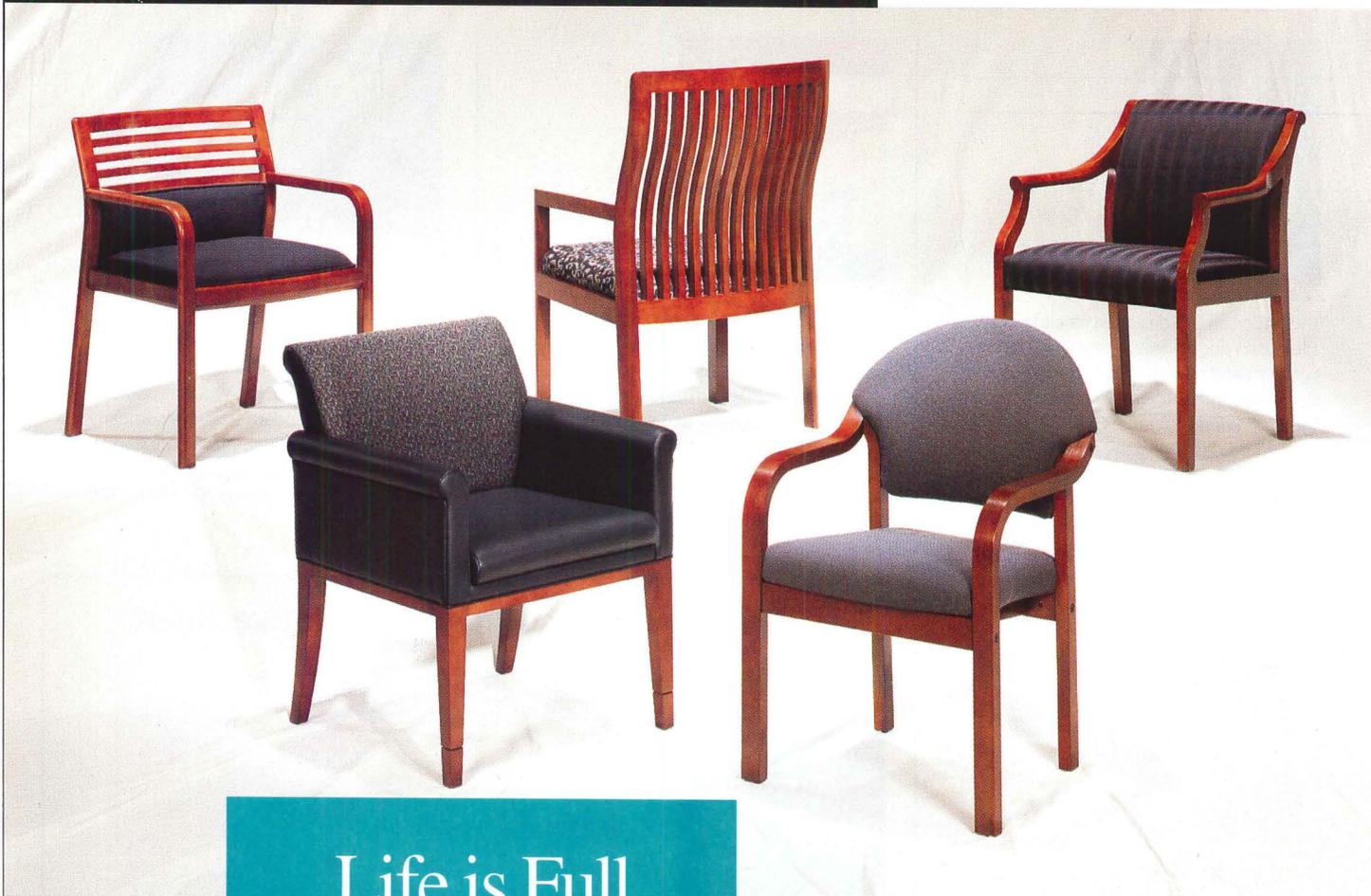
One area where Phoenix has something to teach more established cities is in its broadening of the definition of public art. Financed by Percent for Art funds and executed in collaboration with the department of public works, the Phoenix Arts Commission’s public art program transforms infrastructure into public architecture. From highway overpasses to a waste management facility, the Commission has integrated the roles of art, architecture, and engineering.

The 27th Avenue Solid Waste Management Facility, located between downtown Phoenix and the South Mountain range, is not only an example of an unusual collaboration, but a piece of civic architecture. Designed by a team led by artists Michael Singer and Linnea Glatt with engineers Black & Veatch and two consultant architects, the facility invites the public to observe its inner-workings. The original proposal for the plant, a shed with lots of columns inside, was designed by Black & Veatch, but public works chief Ron Jensen wanted a flexible space and a program that included a public education component. So, with the help of the Arts Commission, the artists were chosen and asked to lead a redesign. Completed last year, the plant includes an outdoor amphitheater and a catwalk from which visitors may view the process within, a resource library, a meeting room, and a variety of shaded outdoor spaces oriented to the surrounding desert landscape.

### Urban Prescriptions

There are small signs of an urban life in Phoenix worth listening to and expanding on. Coffee houses, for example, have become centers of a vital community, even giving rise to a hip magazine-style newspaper call *Java*. Generally located in open-air shopping malls, they are likened by Will Bruder to the public space of a Roman piazza. And an arts district is slowly taking shape south of downtown, in an area with a relatively dense stock of warehouse buildings. Picking up on this trend, Terry Goddard, now a private citizen, plans to remake an old church into affordable housing and artists’ studios on a site near the city hall.

With more large-scale projects planned and proposed it is essential for Phoenix, like other rapidly expanding Sunbelt cities, to decide what it wants to be, city or suburb. The ideas currently in the air – infill, energy-conservation, placemaking, etc. – are excellent strategies. But broad steps should be taken to expedite them. Arguing that they lack a platform from which to be heard, architects and planners, for example, might consider forming a coalition, a united front from which to develop ideas and propose a cohesive plan to the city. Make the bureaucrats listen. And one idea might be a high-profile surface transportation system, with strategic routes and multipurpose busstops. It would help to tie the new projects to one another and to the sprawl, and would get people out of their cars to see what a city could be like. □



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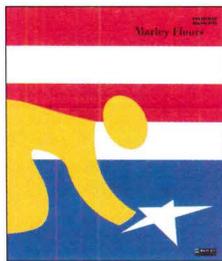
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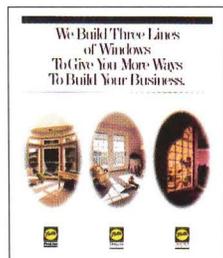
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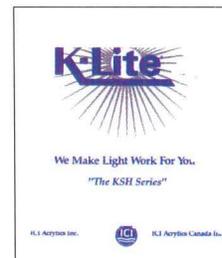
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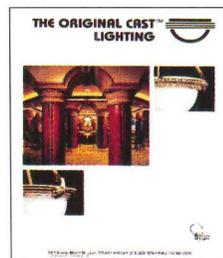
The new catalog #6 from BEGA has a new graphic format and includes 25 new design groups and more than 125 new products. In addition to the new groups and products and documentation of established BEGA designs, this 200-page catalog features important ordering information, special order, and color information, and easy-to-use Iso-footcandle chart data.

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From K-Lite/ICI Acrylics is a new energy packet that includes information on the KSH Series Control Lenses (KSH 3E, KSH-23, and Triumph) for new and retrofit applications of fluorescent or HID luminaires. The packet's comparative data demonstrates how lensed lighting systems can offer superior illumination, improved uniformity, and wider spacing. They are also less costly to install, operate, and maintain than other optical systems.

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## SITUATIONS OPEN

### ASSISTANT PROFESSOR OF ARCHITECTURE UNIVERSITY OF NEBRASKA

**University of Nebraska** - The College of Architecture invites applications for a full time tenure-track position at the assistant professor level beginning in Fall 1995. The appointee is expected to teach courses in architectural design at the undergraduate and graduate level, and to conduct lecture courses in one or more of the major areas of the curriculum. In addition, faculty are required to serve the department and the University. Salary will be commensurate with the qualifications and experience.

Candidates should hold a Masters of Architecture Degree or the equivalent. Applicants with Professional registration are preferred. The successful appointee must demonstrate the potential for achievement in both teaching, and creative activity in design or research in a related area of interest.

Applicants should submit a letter of interest, a curriculum vitae, names and addresses of three references and portfolio to Thomas Laging, Chair of the Search Committee, College of Architecture, University of Nebraska, Lincoln, NE 68588-0107. Review will begin February 15, 1995. However, applications will be accepted until the position is filled not later than July 15, 1995.

The University of Nebraska-Lincoln is committed to a pluralistic campus community through Affirmative Action and Equal Opportunity and is responsive to the needs of dual career couples. We assure reasonable accommodation under the Americans with Disabilities Act; contact Dr. Laging at the above address for more information.

### Announcement of Position Vacancy DEAN, COLLEGE OF ARCHITECTURE AND PLANNING

Ball State University  
Muncie, Indiana

Ball State University invites nominations and applications for the Dean of the College of Architecture and Planning. The Dean reports to the Provost and Vice President for Academic Affairs and is the chief academic and administrative officer of the college. The Dean plans, directs, and coordinates the operational, personnel, budgetary, and student activities of the college and provides leadership and direction in the development and implementation of curricula, academic programs, and related activities.

Ball State University is in Muncie, Indiana, a city with a population of approximately 80,000, located 50 miles northeast of Indianapolis and 230 miles southeast of Chicago. The university has an enrollment of 19,500 students and a full-time faculty of over 900. The College of Architecture and Planning, the only state-supported school of architecture in Indiana, offers programs at the baccalaureate and master levels to its approximately 680 students, through its three departments, Architecture, Landscape Architecture, and Urban Planning. The College faculty, approximately 60 in number, hold degrees from more than forty universities and have professional experience in a broad range of private firms, public agencies, and other academic institutions. Particular strengths of the College are its diversity and inter-disciplinary approach, as exhibited in its curricula and in special programs, such as Community-Based Projects.

The College of Architecture and Planning is looking for a dean who has attained distinction in the environmental design professions and can exhibit evidence of knowledge of the professions, outstanding leadership and management ability, and a strong sense of vision. The Dean will provide academic leadership and will be expected to teach at least one course per year. In addition, the Dean will maintain relationships with external constituents, including benefactors and alumni. Minimum qualifications for the position include: 1) a masters degree and credentials that will merit a faculty appointment at senior rank in one of the departments in the college; 2) demonstrated record of success in scholarly productivity and/or professional practice; 3) demonstrated successful experience in developing external funding or fund raising; 4) experience in higher education academic administration; 5) teaching experience; and 6) ability to communicate effectively.

Tenure may be earned in an academic department, not as an administrator. Immediate tenure may be granted to individuals with exceptional credentials. Salary is competitive and commensurate with experience and qualifications.

Applicants and nominees should send letter of application, curriculum vitae, and names of three references to Ms. Jean Wittig, Chair, Selection Committee for Dean of Architecture and Planning, Office of the Provost, Ball State University, Muncie, IN 47306. Review of applications will begin January 15, 1995, and continue until position is filled. Position will be available July 1, 1995.

*Ball State University is an equal opportunity/affirmative action employer and is strongly and actively committed to diversity within its community.*

### YALE UNIVERSITY

The School of Architecture invites applications for a position in architectural theory and design to commence in the Fall of 1995. Appointee will play a primary role in the teaching of architectural theory in the professional program and supervision of advanced studies in the post-professional and research programs. Candidates should also be able to conduct architectural design studios at various levels. Candidates should have a record of publication, design work, and teaching experience commensurate with a leadership role at a major institution and in the international field. The School is considering a tenure-track or adjunct appointment at the level of Assistant or Associate Professor. Salary and rank are negotiable based upon qualifications and experience.

Applicants should send a letter of interest, accompanied by a curriculum vitae and a list of referees by December 15, 1994 to Alan Plattus, Associate Dean, School of Architecture, Yale University, P.O. Box 208242, New Haven, CT 06520-8242. Do not send additional supporting materials at this time. Yale University is an Equal Opportunity/Affirmative Action Employer.

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## SITUATIONS OPEN

The School of Architecture at Princeton University is seeking candidates for two full-time faculty positions at the rank of Lecturer, or Assistant Professor (tenure-track).

The first position is for a candidate to teach design and one of the following: computing and imaging, the history and theory of architecture, representational studies, urbanism, or building science. Qualifications shall include: previous teaching experience, the ability to carry out scholarship and research in an area of specialized interest, and recognized excellence in architectural design. A professional degree in architecture is required. Teaching responsibilities include participation in the A.B. and M.Arch. programs.

The second position is for a candidate to teach the history and theory of architecture and landscape. Qualifications shall include: previous teaching experience, the ability to carry out scholarship and research in an area of specialized interest. A Ph.D., or its equivalent, and a professional degree in architecture are required. Teaching responsibilities include participation in the A.B., M.Arch., and Ph.D. programs, including teaching undergraduate and graduate design studios.

The positions are to begin in September 1995. A letter of interest and curriculum vitae should be sent before January 1, 1995 to:

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The School also seeks candidates for the following tenure-track positions, at the Assistant or Associate Professor level commencing Fall 1995. Responsibilities include teaching, curriculum development, and University and professional service. Demonstrated teaching ability, practitioner experience and professional registration are preferred. Application deadline for the positions is January 31, 1995. Please send letter of interest, including vitae, evidence of creative and/or teaching endeavors, the names and phone numbers of three referees, a portfolio, and other substantiating material to Dr. I.E. Majzub, Interim Director, School of Design, College of Engineering and Design, Florida International University, Miami, Florida 33199.

#### Architecture

A Professional terminal degree in Architecture or related fields.

#### Interior Design

An MA, MFA, or MS in Interior Design or related fields, an affiliation with a professional interior design organization preferred.

#### Landscape Architecture

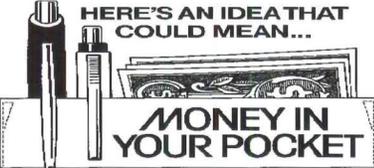
A terminal degree in Landscape Architecture or related field, including a professional degree in Landscape Architecture.

**Environmental & Urban Systems** A PhD or equivalent in Urban Design, Environmental Design, Planning, or other related discipline. Experience in policy, law, transportation, computers environmental sciences, and related scholarly work and research are assets.

**Florida International University** is an equal opportunity, affirmative action, equal access university, part of the State University System of Florida.

### URBAN DESIGNER CITY OF ALBUQUERQUE, NEW MEXICO PLANNING DEPARTMENT

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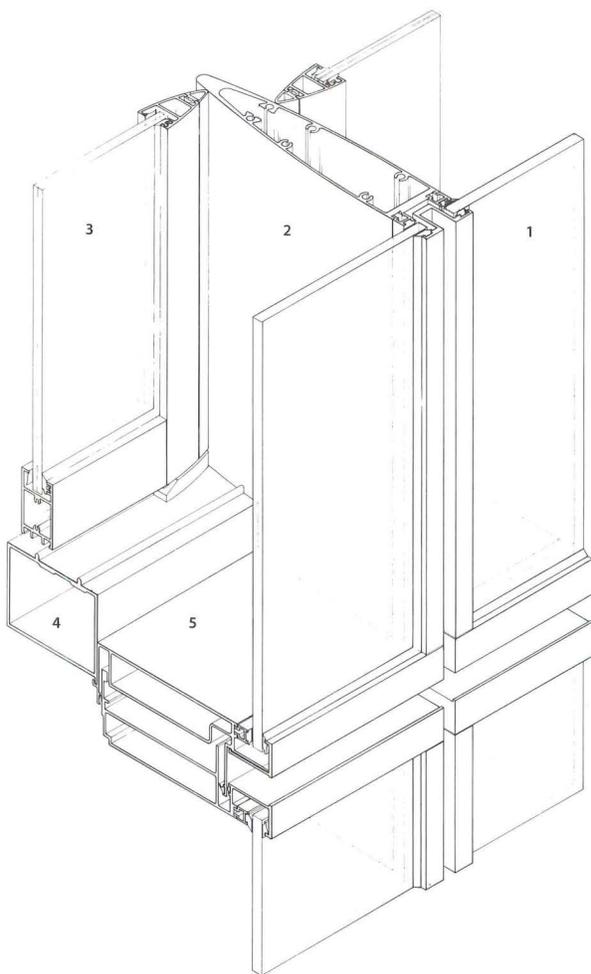
The offices and television studios for ITN in London, designed by Sir Norman Foster & Partners (see page 49), demonstrate the ability of that firm to innovate, even on a commercial developer's budget. The ten-story building occupies a deep site in the center of London. To bring more daylight into the center of the building, Foster's team inserted an atrium that runs the entire height of the structure and steps outward as it rises, creating planted interior terraces.

The most innovative part of the building, however, is its curtain wall. To bring in the maxi-

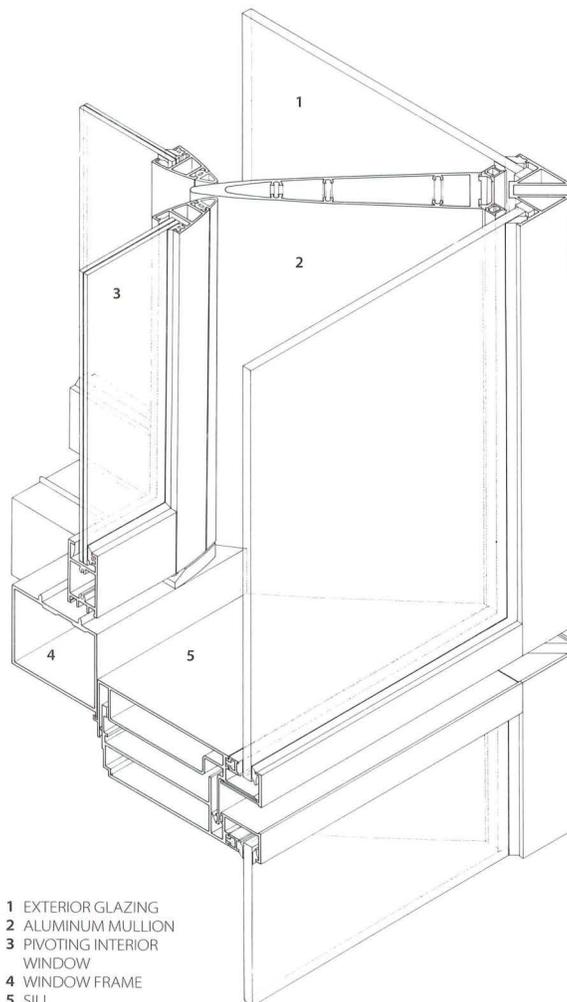
imum amount of daylight as well as to address the client's desire for openness to the public, the architects wanted to keep the glass as clear as possible. But this created problems with heat gain, which led them to devise a curtain wall with a substantial air space between an inner and an outer layer of glass. Because the outer, single-glazed layer extends from floor to floor, solar heated air is extracted from the curtain wall space through registers directly into the ceiling plenum. Horizontal blinds between the two layers of glazing allow occupants to control the

amount of direct solar gain into the interior, and hinged interior windows provide access to the blinds for adjustment and to the interior of the glass for cleaning.

Foster has developed variations of this double-walled curtain wall elsewhere, as in its Business Promotion Centre in Duisburg, Germany, (P/A, Feb. 94, p. 76). While glazing systems such as this are not appropriate in all cases, they are an option worth considering for clients more concerned about long-term energy performance than about short-term cost. **Thomas Fisher**



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**Saade, Mark & Associates:** Souk Shopping District, Beirut, Lebanon, Oct p. 19. **Saia & Barbarese:** Farmhouse, Bromont, QUE, Canada, Aug p. 24; Ste.-Marie Recreation Centre, Montreal, Quebec, Canada, Oct P/A Plans p. 35. **Saitowitz, Stanley:** Live/Work Building, San Francisco, May p. 35. **Samyn, Philippe & Partners:** Belgian Forestry Department, Aug p. 20. **Sanders, Joel:** Artists' Live/Work Housing, Peekskill, NY, Jan p. 32. **Sapphire Associates:** Library, Blairstown, NJ, Apr P/A Plans p. 10. **Sasaki Associates:** Library, Plymouth, MA, Apr P/A Plans p. 18; Recreation and Aquatics Center, University of California Santa Barbara, Oct P/A Plans p. 40. **Scarpa, Tobia & Abra:** Benetton Group Factory, Treviso, Italy, Apr p. 35. **Schal Associates:** Harold Washington Library, Chicago, Jun p. 92. **Schinkel, Karl Friedrich:** Exhibition, Dec p. 13. **Schwartz, David:** Fort Worth, TX, Performing Arts Center, Jun p. 66. **Schwartz, Martha:** West Shore/Rash Field Competition, Baltimore, MD, Jul p. 30. **Scogin Elam & Bray:** Arizona State University, Law Library, Tempe, AZ, Feb p. 23. **SEBUS Group:** Harold Washington Library, Chicago, Jun p. 92. **Seidel/Holzman:** The Farm, Soquel, CA, May p. 36. **Sert Jackson & Gourley:** Peabody Terrace, Cambridge, MA, Jun p. 100. **Shenzhen University Institute of Architectural Design:** Special Economic Zone, Shenzhen, China, Sep p. 49. **Shulman, Julius:** Architectural Photographer, Apr p. 78. **Siebein Gary:** Listening to Buildings, Jul p. 86. **Sikes Jennings Kelly & Brewer:** Prudential Center, Boston, MA, Oct p. 82. **Silver & Ziskind:** Correctional Treatment Facility, Washington, DC, Oct P/A Plans p. 7. **Simmons, Jr., Harry:** Killed in Plane Crash, Dec p. 12. **SITE:** Architectural Youth Program, New York, NY, Dec p. 45. **Skidmore, Owings & Merrill:** San Francisco International Airport, Jun p. 68; Ho Chi Minh City, Vietnam, City Center Competition, Sep p. 22. **Slutsky, Rael:** Ferriss Prize Winner, Jul p. 22. **Smith Hinchman & Grylls Associates:** Gary Center, Western Michigan University, Kalamazoo, MI, Oct P/A Plans p. 44. **Smith, Timothy:** Sustainable Communities in the Urban-Rural Interface, Jul p. 86. **SMRT:** Cumberland County Jail, Portland, ME, Oct P/A Plans p. 9. **Snyder, Daniel E.:** Three-Car Garage, Savannah, GA, Dec p. 23. **Solomon Architecture & Planning:** Communications Hill, San Jose, CA, Jan p. 36; Del Carlo Court, San Francisco, May p. 36. **SOM** (see Skidmore, Owings & Merrill). **Spangler Semler Schlenker:** Library, Matteson, IL, Apr P/A Plans p. 22. **Speck, Lawrence Studio:**

Salado Community Hall, Salado, TX, Aug p. 23. **SPGA:** Moss/Otis Elevator International, Moscow, Aug p. 49. **Stecker LaBau McManus Architect:** Loomis Chaffee School, Arts Center, Windsor, CT, Jun p. 66. **Steele, Tim Tivoli:** Unitarian Church, Hayward, CA, Apr P/A Plans p. 39. **Steiner, Rudolf:** Goetheanum, Dornach, Switzerland, Feb p. 66. **Stern, Robert A.M.:** Affordable Adaptable Home, Aug p. 15. **Stone, Edward Durrell:** Amoco Building, Chicago, Feb p. 59. **Stubbins Associates:** House of Correction, Boston, MA, Oct P/A Plans p. 10. **Studio A:** Affordable Housing, Charleston, SC, May p. 36. **Studio Milou:** Tumulus Museum, Bougon, France, May p. 39. **Studios Architecture:** Silicon Graphics Inc., Mountain View, CA, Aug p. 20. **STV Group:** Prison Expansion, Leesport, PA, Oct P/A Plans p. 17. **Sullivan, Louis:** Charnley House, Chicago, Jun p. 23. **Sussman/Prejza:** L.A. Casa, Los Angeles, Jul p. 31. **Svigals Associates:** Science Park, New Haven, CT, Apr p. 82. **Swanke Hayden Connell:** Gilda's Club, New York, NY, Sep p. 25.

**Tafari, Manfredo:** Dies at Age 59, May p. 28. **Tappe, Anthony:** Library, Chatham, MA, Apr P/A Plans p. 25. **Taylor Clark Architects:** New York Hospital, New York City, May p. 39. **Thompson & Rose Architects:** Atlantic Center for the Arts, New Smyrna Beach, FL, Feb p. 24; Kenyon College, Dormitories, Gambier, OH, Dec p. 18. **Thompson Ventulett Stainback:** Reading Terminal Train Shed, Philadelphia, May p. 35; Charlotte, NC, Convention Center, Sep p. 27. **Tien Tao Ching Hua University & Associates:** Chong Hua Sheng Mwu Gwung (Palace of God), Houston, Apr P/A Plans p. 36. **TMP Associates:** Washtenaw County Recreation Center, Ann Arbor, MI, Oct P/A Plans p. 39. **TRA Architects:** Regional Justice Facility, Kent, WA, Oct P/A Plans p. 20. **Trott, Richard & Partners:** Convention Center, Columbus, OH, Feb p. 78. **Tsang Partnership:** Bus Terminal, Tacoma, WA, Oct p. 23. **Tschumi, Bernard:** Exhibition, Jul p. 19. **Tuck Hinton Architects:** Tennessee Aquarium, IMAX Theater, Chattanooga, TN, Nov p. 30. **Turnbull, William Associates:** Presbyterian Church, Sonoma, CA, Apr P/A Plans p. 37.

**Underhill, Michael, David Heymann & Laura J. Miller, Architects:** Ontario Bible Church, Ames, IA, Jan p. 40. **USA Architects:** Prison Expansion, Leesport, PA, Oct P/A Plans p. 17. **Uvegi Associates:** Interactive Digital Imaging Store, New York City, Apr p. 35.

**VBN Architects:** Oakland, CA, City Hall Renovations, Oct p. 21. **VEE Collaborative:** Church, Lake Forest, CA, Apr P/A Plans p. 41. **Vilkas Group:** Battery Park City, New York, May p. 64. **Vitetta Group:** Reading Terminal Train Shed, Philadelphia, May p. 35.

**Walton Madden Cooper Robinson Pones:** Church, St. Mary's County, MD, Apr P/A Plans p. 34. **Ware Associates:** Chapel, Chicago, Apr P/A Plans p. 40. **Weber Group:** Prison Expansion, Leesport, PA, Oct P/A Plans p. 17. **Wei, Wesley Architects:** Chinatown Community Center, Philadelphia, PA, Aug p. 22; Oct P/A Plans p. 31. **West, Mark:** Fabric Formwork for Reinforced Concrete Structures, Jul p. 86. **Westfourth Architecture P.C.:** International Center for Film and Television, Bucharest, Romania, Jan p. 62. **Wiginton Fawcett Hooker Jeffrey Architects:** Community Center, Mesquite, TX, Oct P/A Plans p. 34. **Wilford, Michael & James Stirling:** University of California, Science Library, Irvine, CA, Oct p. 24. **Willis, Michael & Associates:** San Francisco International Airport, Jun p. 68. **Wilson, Carol:** House One, Portland, ME, Jul p. 34. **Winter, John & Associates:** 83-85 Mansell Street, London, Feb p. 70. **Woodhouse, David Architect:** Lake County Museum, Illinois, Apr p. 33. **Wright, Frank Lloyd:** Exhibition, Apr p. 15; Charnley House, Chicago, Jun p. 23; Darwin D. Martin House, Buffalo, NY, Sep p. 21. □