ARCHITECTURE

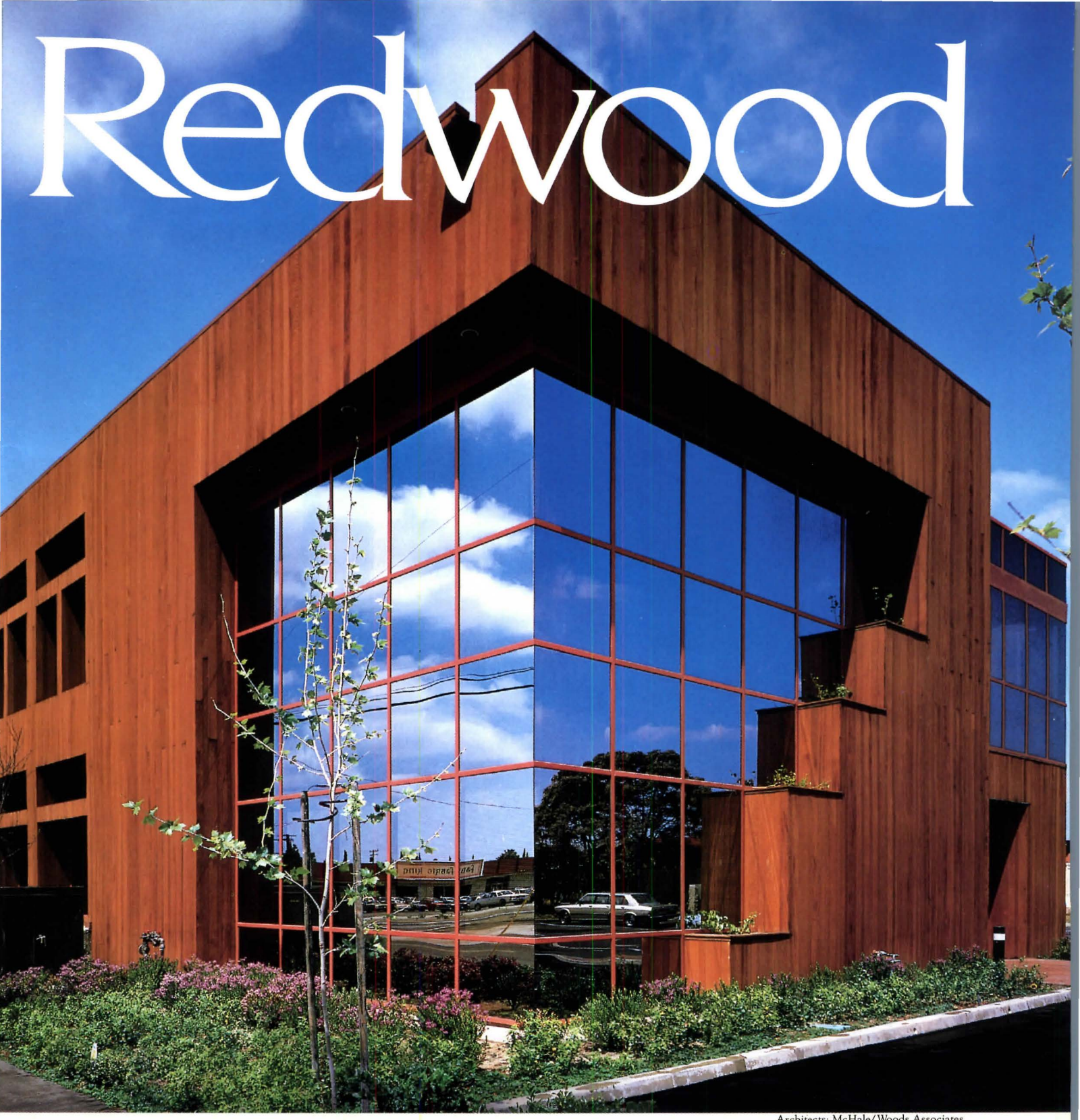
DECEMBER 1991

PAGE 62

PAGE 52

PAGE 68

DESIGN



Architects: McHale/Woods Associates

Natural beauty, durability and stability make it the natural choice for creative designs that endure. Send for Redwood Architectural Guide.

CALIFORNIA REDWOOD ASSOCIATION 405 Enfrente Drive, Suite 200 • Novato, CA 94949 • (415) 382-0662

ARCATA REDWOOD COMPANY • MILLER REDWOOD COMPANY • THE PACIFIC LUMBER COMPANY

Circle 7 on information card

TECHNOLOGY & PRACTICE

DEPARTMENTS

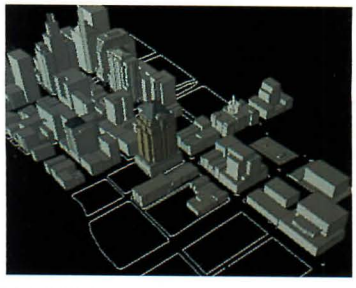
COVER: "The City in the Garden: Perimeter Center," collage by Stephen Kieran and James Timberlake. Cover collage and "Equation" (page 48) created from the following sources: "The City of Composite Presence" by David Griffin and Hans Kolhoff, from *Collage City* by Colin Rowe and Fred Koetter, MIT Press, 1978; "Strip Messages" by Ron Filson and Martha Wagner, from *Learning from Las Vegas* by Robert Venturi, Denise Scott Brown, and Steven Izenour, MIT Press, 1972; "Central Park" from *The Architecture of Western Gardens*, edited by Monique Mosser & Georges Teyssot, MIT Press, 1991, by courtesy of Electa, Milano.

NEXT MONTH'S ISSUE: Color and materials • Glass innovation • Plaster finishes

PAGE 79

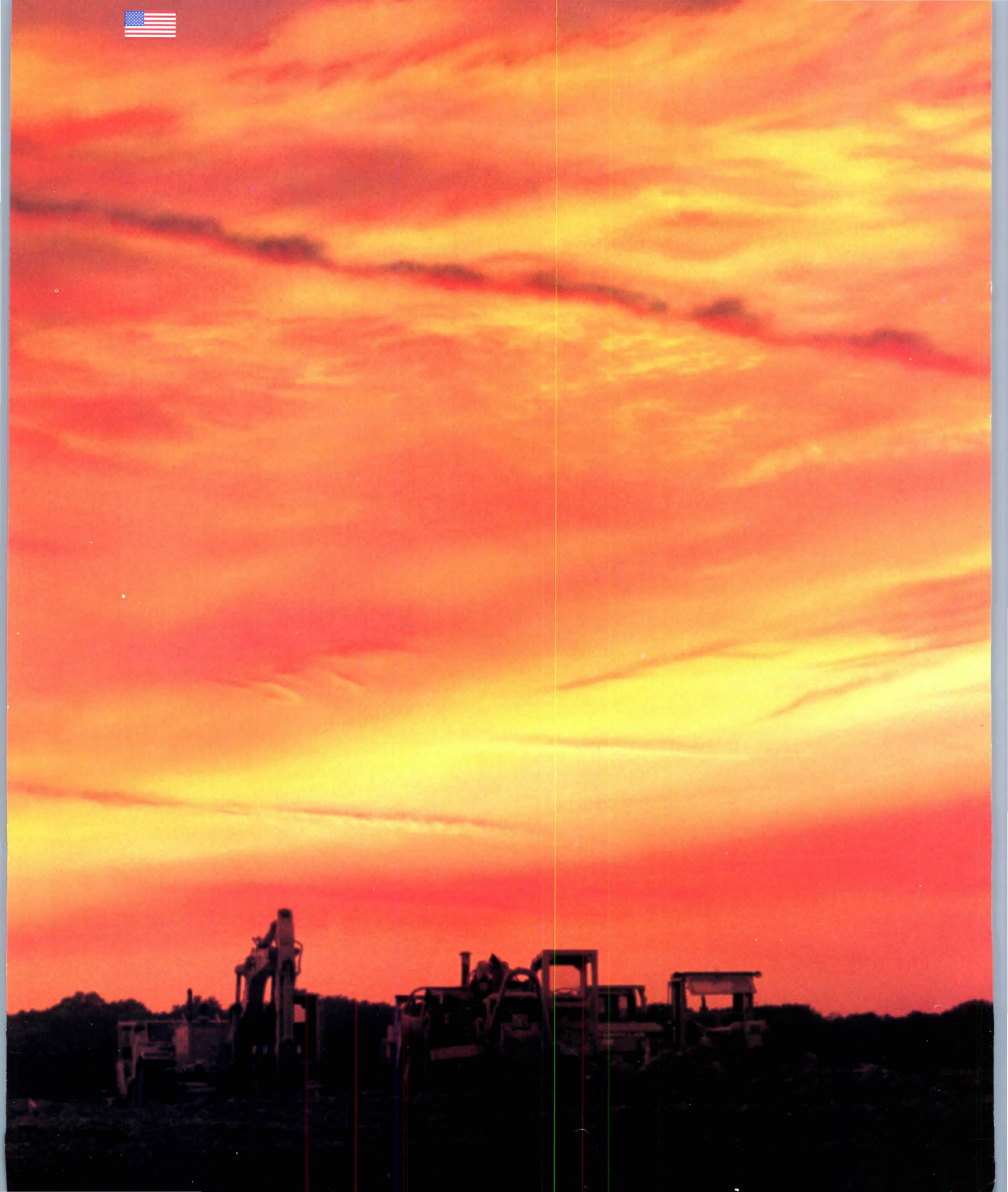
PAGE 80

PAGE 87



PAGE 102

PAGE 21



Awards for a Public Profile

THREE YEARS AGO, THE AIA DECIDED IT WAS TIME THAT the public woke up to the value of what architects do. In 1990, the Institute held its first Accent on Architecture, an annual event intended to heighten general awareness of contemporary design and environmental issues. Next month, Accent '92 will not only honor the winners of the Gold Medal, Architecture Firm Award, 25-Year Award, and Honor Awards, but the new Thomas Jefferson Award for Public Architecture. Two other recently announced AIA award programs for urban design and building interiors—the places where the most people intimately interact with design—call attention to architecture's public dimension.

Juried last month, the new Thomas Jefferson Award for Public Architecture honors an architect who works in the public sector, a private practitioner recognized for the design of outstanding public facilities, and a government official who is an outspoken advocate of design excellence. The competition's first winners reflect a mutual and long-standing commitment to improving civic and government buildings, particularly in Washington, D.C. They are: George M. White, FAIA, the architect of the U.S. Capitol; James Ingo Freed, FAIA, partner of Pei Cobb Freed & Partners; and Senator Daniel Patrick Moynihan, Hon. AIA (D-NY). Each of these winners has not only elevated the profile of public architecture during his career but has intelligently steered the policy that affects its design. Moynihan, for example, drafted the guidelines for the redevelopment of Pennsylvania Avenue in 1961, and continues to advocate preservation and community planning as chairman of the Senate Subcommittee on Water Resources, Transportation, and Infrastructure. In May, he introduced the Excellence in Public Architecture Act of 1991, a Senate bill intended to improve the architectural quality of public buildings erected by the General Services Administration. Freed has also been involved in public policy, as the director of the New York/New Jersey/Connecticut Regional Planning Association in 1965. Since then, he has designed model civic projects such as the Javits Convention Center in New York City, the U.S. Holocaust Memorial Museum in Washington, and the San Francisco Main Public Library. White, too, has extended his talents beyond his Capitol Hill domain by serving on the board of the Pennsylvania Avenue Development Corporation, the D.C. Zoning Commission, and by participating in the urban design of Canberra, Australia's capital city.

The AIA's new awards for urban design and interior architecture further represent the Institute's emphasis on public appreciation of design excellence. The first annual winners will be selected early next year, and will be honored at the AIA's national convention in Boston. Submissions for these programs are due on January 27, 1992. The urban design awards will not only honor architectural designs but city planning and community development projects. Nominations may be submitted by owners, individual practitioners, private firms, public agencies, civic organizations, and public interest groups; the projects need not have been designed by architects or AIA members. Entries to the interior architecture awards program, however, are limited to new or renovated projects designed by architects registered in the United States. Residential, institutional, corporate, commercial, retail, and hospitality interiors are eligible.

By extending its awards programs outside the domain of private firms and individual buildings, the AIA has underscored the multifaceted role that contemporary design plays in our daily lives. The creative ways in which the architecture of the past is being salvaged also deserve the Institute's attention. A national awards program for historic preservation would recognize the increasing complexity and sophistication of restoring, renovating, and adding on to landmarks, and would educate the public about our rich and diverse architectural heritage. Along with the Thomas Jefferson, urban design, and interiors honors, such a new preservation award would amplify the message that architecture is indeed the most public of the arts. ■

—DEBORAH K. DIETSCH

THE LARGEST M
DID THEIR SHOPPI

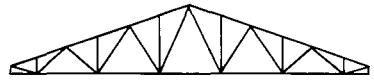
Bow String Steel Jo
Mall of America
Bloomington, Min

LL IN AMERICA
G WITH VULCRAFT.

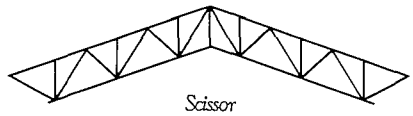
We had exactly what they needed: bow string steel joists that could span a jor concourse at the 4,200,000-square-foot Mall of America. Plus we supplied 0 tons of other joists and joist girders that could accommodate skylights, floor enings, different roof elevations, heavy loading, difficult connections and other nplex considerations.

For a project this gigantic, Vulcraft was the natural place for the builders to n. After all, we're the largest supplier of steel joists in the country and we also vide more than a dozen nonstandard designs, more n anyone else in the industry.

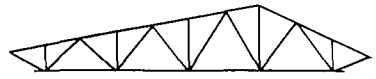
Fact is, we've been making nonstandard joists for rs, and the expertise we've developed, along with large inventory of steel, lets us make them quickly l economically. And the earlier we get involved in design stages, the better for the project. Because our perienced engineers can assist the project's designers l bring the end product in more quickly and at cost than could be done with traditional methods. So when you're designing your next project, think Vulcraft nonstandard joists. They let you expand ur design possibilities while retaining the advantages of steel joist construction. d those advantages are many. Vulcraft joists are strong, yet lightweight and y to erect. And they can be delivered exactly when you need them. So no tter how large or small your project, find out how our standard and non-ndard joists can work for you. See Sweet's 05100/VUL, l do your shopping with any of the plants listed below.



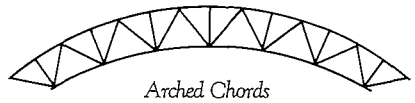
Gable



Scissor



Offset Double Pitch



Arched Chords

VULCRAFT
A Division of Nucor Corporation

x 637, Brigham City, UT 84302 801/734-9433; PO Box 100520, Florence, SC 29501 803/662-0381; PO Box 169, Fort Payne, AL 35967 205/845-2460; PO Box 186, and, TX 75844 409/687-4665; PO Box 59, Norfolk, NE 68702-0059 402/644-8500; PO Box 1000, St. Joe, IN 46785 219/337-5411. Developer: Melvin Simon & tes Inc. and Triple Five Corporation Ltd.; Construction Manager: PCL Construction; Structural Engineer: Schenberger & Associates, Inc.; Steel Fabricator: LeJeune Steel ny; Steel Erector: L.H. Sowles Erection.

LETTERS & EVENTS

Female Chauvinism

I applaud your October 1991 issue, "Women in Architecture," which highlights women effectively serving in roles as designers, principals of firms, and teachers. However, I could not help but feel that ARCHITECTURE's decision to include photographs of the women themselves betrayed an underlying chauvinism.

Edward A. Barnhart, AIA
Venturi, Scott Brown and Associates
Philadelphia, Pennsylvania

At the risk of sounding trite, I will admit that some of my best professional experiences have occurred when I have worked for or with women architects. Nevertheless, I am disturbed by some of the thoughts expressed in the October 1991 "Women in Architecture" issue. A notable example is Frances Halsband's contention that women as a group are inherently superior to men as a group in a broad spectrum of areas, such as group leadership, listening, patience, and the handling of human relationships. The very act of making such a statement disproves the notion and does nothing more than substitute one type of chauvinism for another.

This country is rapidly dividing itself into groups whose members, like children, claim special privileges and point accusing fingers at anyone outside the group. Such behavior will get our country, our profession, and our businesses nowhere fast. True progress will only be made when we return to the idea that merit and responsibility lie with the individual and not with any mass group.

Paul Ashley, AIA
Madison, Wisconsin

Readers' Survey Responses

What a wonderful way to alert the private practitioner to the status of the profession (Readers' Survey, September 1991, pages 91-94)! I trust those in the trenches who responded to your questions "Whose architecture do you admire?" and "Whose work do you despise?" were as delightfully surprised as we were to find complete agreement in almost all cases. Please consider this an informal request to continue probing into somewhat sensitive issues in architecture. We are all in need of such outstanding reporting.

Craig B. Kelford, AIA
Rancho Palos Verdes, California

In ARCHITECTURE's readers' survey, all of the respondents said it would be rosy if society appreciated architects more, if architects made more money, and if government allocated more money for socially conscious buildings. These are all worthy goals, but have we earned these potential rewards?

As architects, we now spend so much time focusing on personal esthetics that we have lost sight of the goals of the Modern movement. The early pioneers—Mies, Wright, Gropius, Corbusier, and Kahn—tried diligently to participate in the Industrial Revolution, but it is now fashionable to suggest they only copied the esthetic of factories, boats, and airplanes. These architects explored the possibilities of concrete, steel, and glass with open spaces and cantilevered structures. If we insist on our present role as makers of personal, one-of-a-kind monuments, we will continue to be seen as a luxury item to be discarded in a recession.

Fred L. Osmon, AIA
Carefree, Arizona

Earning Power

In the article "What Do Architects Really Earn?" (October 1991, pages 93-95), Robert Gutman states that "the public perceives the services of an architect who designs a beautiful house to be less critical—and therefore less valuable monetarily—than those of a physician who saves lives, or a lawyer who saves a client money or staves off a conviction." In my opinion, this statement is absolutely true, and is the crux of why architects are so terribly underpaid in this country.

Our profession has completely failed to convey to the public the tremendous importance of the built environment to our personal lives and the difference that it makes to our society. As an architect, I have to sell my profession as well as my services. If society saw architecture as critically important, the profession would sell itself and I could get on with my real work—designing healthy, satisfying, and appropriately built environments.

Richard Abrahams, AIA
Manchester, Connecticut

Correction

Heather H. McKinney will be president-elect of the Austin Chapter AIA in 1992 and assumes the office in 1993. John Nyfeler, AIA, becomes chapter president in January 1992.

Through January 2: "Austrian Architecture and Design: Beyond Tradition in the 1900s," featuring the work of five Austrian architects. Art Institute of Chicago. Contact: (312) 443-3949.
January 14–February 18: "The Architecture of the House: Innovative Designs," a series of six lectures by American architects at the Smithsonian Institution in Washington, D.C., moderated by Deborah K. Dietsch, Editor-in-Chief, ARCHITECTURE magazine. Contact: (202) 357-3030.
January 19–23: Grass Roots leadership training program at the AIA in Washington, D.C. Contact: Melissa Downey (202) 626-7377.
January 22: AIA's Accent on Architecture, celebrating the 200th anniversary of the White House, at Kennedy Center, Washington, D.C. Contact: Jan Thomas Johnson (202) 626-7572.
January 22: "The White House: Image in Architecture 1792-1992," exhibition opening with honored guest First Lady Barbara Bush. The Octagon, Washington, D.C. Contact: (202) 626-7572.
January 22–March 11: The Arts Club of Chicago presents "Halftime: A Celebration of 75 Years of Chicago Architecture," an exhibition at the Arts Club of Chicago curated by Stanley Tigerman. Contact: (312) 787-3997.
January 24–27: NAHB convention at the Las Vegas Convention Center. Contact: NAHB (800) 368-5242, x233.
February 5–7: "Engineering for Extreme Winds 1992," at Texas Tech University in Lubbock, Texas. Contact: Kisher C. Mehta (806) 742-3476.
February 16–20: "Aberdeen's World of Concrete," an international exposition and conference on construction, at the Georgia World Congress Center in Atlanta, Georgia. Contact: Susan P. Clancy (800) 837-0870.
Through February 28: "Historic and Architectural Treasures in National Parks." Exhibition presented in conjunction with the 75th anniversary of the National Park Service in Washington, D.C. Contact: Donna Anderson at National Building Museum (202) 272-3606.

NEWS

Gehry's Guggenheim ▪ Model Homes in Chicago ▪ Iowa Reunion and Convention

Louis Kahn Revisited in Philadelphia

GRANT MUDFORD

AT A TIME WHEN NEW AMERICAN ARCHITECTURE SEEMS DIRECTIONLESS AND MIRED IN stylistic confusion, Louis I. Kahn's work could be the starting point for a more honest, principled approach to design. This premise was a recurring theme of a 3-day conference in Kahn's hometown, Philadelphia, from October 18 to 20. Sponsored by the AIA's Committee on Design and the Association of Collegiate Schools of Architecture, the 1991 National Design Conference drew more than 370 architects and helped kick off the opening of "Louis I. Kahn: In the Realm of Architecture," a major retrospective at the Philadelphia Museum of Art.

Many of the speakers expressed the hope that the museum exhibition and accompanying catalog (coauthored by David B. Brownlee and David G. De Long, and published by Rizzoli) would spark renewed interest in Kahn's philosophy. "What comes across is the validity of principles in his work," observed architect Romaldo Giurgola, who also practiced in Philadelphia in the 1960s. "The quality of the light, the space, the surface, the geometry—it's not about humor or irony or the exigencies of style." Lee Copeland, a former student of Kahn's, noted: "To see the body of Kahn's work gathered together at the Philadelphia Museum... could be the stimulus needed to bring about a renaissance in architecture."

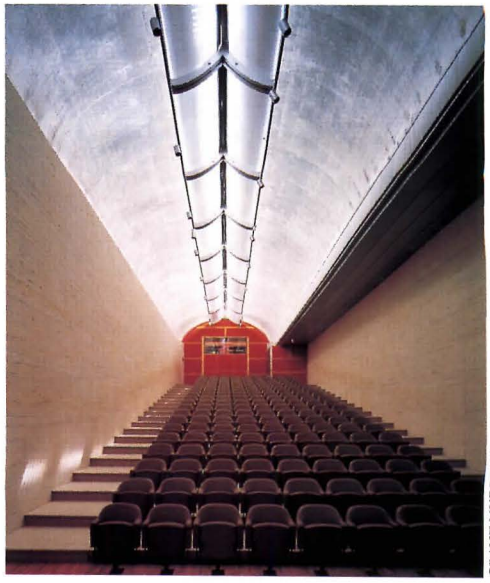
Philadelphia architect Robert Geddes said he hoped the exhibit would mark a turning point in architecture, just as the 1932 MoMA exhibit on the International Style proved to be. Although architects are wary of the United States becoming a "boutique culture" characterized by artificial places such as Disney World, "This exhibit of Kahn raises the possibility that that is not the whole truth; that there is an authenticity of architecture and culture," Geddes asserted.

During a day of touring Kahn-designed buildings, conference attendees experienced firsthand the Modern architect's manipulation of concrete and light. Six busloads of architects visited the Esherick and Korman houses, outside Philadelphia, and Erdman Hall, a dormitory at Bryn Mawr College. Among the other stops were Robert Venturi's 1962 residence for his mother and four buildings designed by Mitchell/Giurgola that make up the American College of Life Underwriters campus.

On the first day of the conference, the architects had an opportunity to view the Kahn show, which was organized by the Museum of Contemporary Art, Los Angeles. Sponsored largely by the Ford Motor Company, the retrospective includes 48 original and new models, photographs by Grant Mudford, a short video commentary by historian Vincent Scully on Kahn's 1974 Yale Center for British Art, and a silent video walkthrough of Kahn's major completed projects. It is the architect's drawings, however, that convey the power of his genius. Unexecuted planning studies for Philadelphia reveal Kahn's fervid search for a more humane

JOHN EBSTEL

The First Unitarian Church and School (top left), the Fisher House (top right), and the Kimbell Art Museum (bottom) are among Kahn's projects on display through *January 5* at the Philadelphia Museum of Art.



GRANT MUDFORD

NOT JUST ANOTHER PRETTY FACE.

The beauty of Louisiana-Pacific's Inner-Seal® panel siding goes well beyond its surface appearance. With its deeply embossed grain texture, it looks exactly like cedar. And it's an oriented strand board, so it has the unmistakable warmth and feel of real wood.

Unlike cedar, Inner-Seal panel siding has no knots, and won't splinter or deteriorate. Unlike plywood, it's without core voids, and can't split or delaminate. And unlike hardboard siding, it resists warping, buckling, bulging, and curling.

In other words, Inner-Seal panel siding ages beautifully. That's because we've combined our *special binder* with specially engineered wood strands to create an exceptionally stable, uniform OSB panel that resists moisture from the inside out. And a primed protective overlay adds extra weather resistance while it extends the paint life.

No wonder it's the first non-veneer siding to receive APA® Performance Rating approval. And no wonder we're able to guarantee it for 25 years.

Perhaps most importantly, we use primarily small-diameter, fast-growing trees to make Inner-Seal panel siding. Its strength comes from our innovations, not from the size and kind of trees we use. So when you use Inner-Seal panel siding in place of sawn wood, you're reducing our country's dependence on old-growth forests.

L-P's Inner-Seal panel siding is available channel grooved or ungrooved, in 4′x7′, 4′x8′, 4′x9′, 4′x10′, 4′x12′, and 4′x16′ lengths, ready to install, with a prime coat guaranteed for five years. Inner-Seal products are also available in lap siding, exterior trim, soffit panel, T&G floor panels, and roof and wall sheathing.

A pretty face is nice. But real beauty—the kind that lasts—comes from within. And that's the beauty of Inner-Seal panel siding from Louisiana-Pacific.

For more information, specifications, and sample, call us today in Los Angeles at **(714) 582-0977**, or in Chicago at **(708) 517-8833.**

Louisiana-Pacific

INNER-SEAL®
PANEL SIDING

Circle 17 on information card

DETAILS

Antoine Predock Architects, in association with Robbins, Bell & Kuehlem Architects, was selected to design a $30 million addition to the Museum of Science and Industry in Tampa, Florida. Other finalists were Frank O. Gehry & Associates, Richard Meier & Partners, Cambridge Seven Associates, and E. Verner Johnson and Associates. Holt Hinshaw Pfau Jones Architecture, in association with Melander Melander & Schilling and James/Snow Architects, was named to design the Lake Superior Center for Freshwater Understanding, a $30 million exhibition and conference center in Duluth, Minnesota. Finalists in the two-stage selection process were Antoine Predock, Frank O. Gehry & Associates, Morphosis, Lohan Associates, and Minneapolis-based HGA. Fox & Fowle Architects has been selected to create the interiors of a new headquarters building, designed by Indian architect Charles Correa, for the Permanent Mission of India to the United Nations. The 27-story structure is scheduled for completion in 1992. University of California, San Diego, has named the first four faculty members in its school of architecture, which is scheduled to open for classes in the fall of 1992. They are: architectural sociologist Dana Cuff; architectural historian William Curtis; Los Angeles architect Craig Hodgetts; and Susan Ubbelohde, an architect and specialist in environmental technologies at the University of Minnesota. Architectural historian Vincent J. Scully, Jr., who has taught at Yale University since 1947, joined the faculty of the University of Miami School of Architecture this month. He will continue to teach at Yale during the fall semester, and will travel to Miami to teach in the spring. Architectural photographer Cervin Robinson was named the 1991 recipient of the $15,000 Arnold W. Brunner Grant, established in 1935 to encourage advanced study in architecture-related fields.

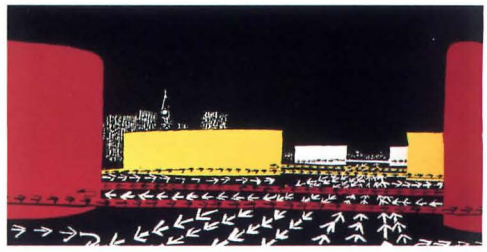
Kahn Revisited *continued from page 21*

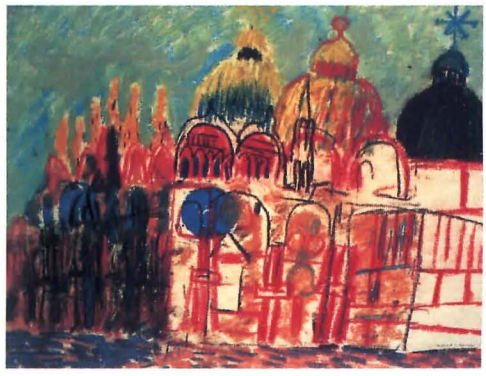
urban order; likewise, his perspective of an office tower in Kansas City, drawn as if it were under construction, and his sketches for Philadelphia's Civic Center and Venice's Palazzo dei Congressi convey his ideas for a transcendent architecture. Like his buildings, Kahn's pencil lines are bold and unrestrained; along with the travel sketches and sketchbook pages, the drawings reveal Kahn's imagination and quest for rationality.

The exhibition is organized into six sections that provide a chronological and thematic overview of Kahn's career, beginning with his designs for subsidized housing and ending with an unexecuted scheme for the Roosevelt Memorial (1974). It also traces the emergence of Kahn's geometric structural vocabulary, from the Yale Art Gallery to his designs for places of worship and study. Japanese architect Arata Isozaki designed the exhibit installation after Kahn's plan for Philadelphia's unbuilt Mikveh Israel Synagogue (1961–72); display panels, in the form of arcs and corridors, refer to the synagogue's towers and hallways. Although the fragmented panels evoke Kahn's passion for ancient ruins, they also tend to obscure some of the drawings.

Unfortunately, the show does not ask the viewer to revisit Kahn's completed projects with a critical eye. Questions about how well his buildings have withstood time and serve their inhabitants are left unanswered. Nor does the descriptive copy refer to the controversy surrounding two Kahn buildings: a proposed addition to the Salk Institute in La Jolla, scheduled to break ground in early 1992, and alterations intended for the Kimbell Museum in Fort Worth.

The exhibition will remain on display in Philadelphia until January 5 before traveling to Paris; New York; Gunma, Japan; Los Angeles; the Kimbell Art Museum in Fort Worth, Texas; and Columbus, Ohio.

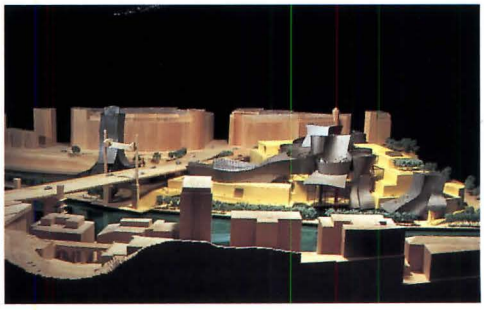




The Kahn retrospective includes a 1953 traffic study for Philadelphia (top) and a 1951 drawing of Piazza San Marco in Venice (above), among other travel sketches.

Kahn's widow, Esther, who was present at the forums and toasts, was visibly touched by the attention focused on her late husband. When asked what she hoped would come of the tribute, she said her wish was to raise enough money to endow an architecture professorship at the University of Pennsylvania's Graduate School of Fine Arts in her husband's name. In mid-October, the school of fine arts' new dean, Patricia Conway, announced a campaign to raise $2 million for just that purpose.

—Ed Gunts and Karen Salmon

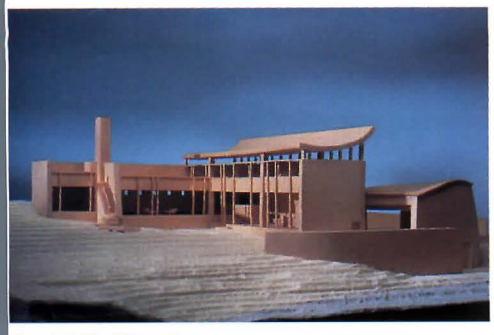


JOSHUA WHITE

Gehry's Guggenheim Unveiled

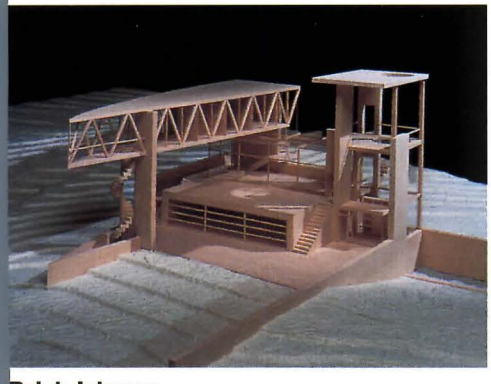
In early October, the Solomon R. Guggenheim Museum unveiled its latest expansion, a design by Frank Gehry for a $100 million branch in Bilbao, the fourth-largest city in Spain. Gehry's 350,000-square-foot, sand-blasted-steel and concrete structure is sited on the banks of the Nervión River, which bisects the former steel-manufacturing center.

Chicago Eight Design Model Houses



Daniel H. Wheeler

Frederick Phillips



Ralph Johnson

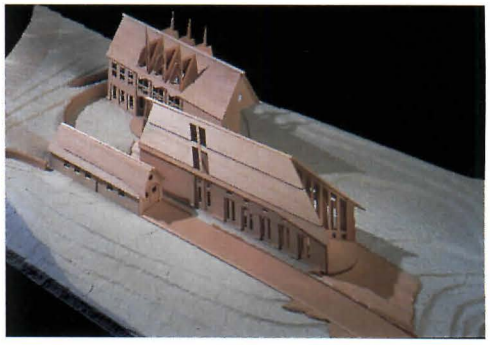
Christopher H. Rudolph

EIGHT OF CHICAGO'S LEADING ARCHITECTS have proposed model houses for a new suburban development in Burr Ridge, Illinois, 30 miles southwest of downtown Chicago. The proposed houses are designed for eight contiguous lots within a 104-acre site. With a name like Falling Water, the residential enclave might suggest a collection of Wrightian tract houses; but the schemes are decidedly progressive in approach. "Our goal was to give some of Chicago's dynamic architects the opportunity to stimulate new ideas in home design," explains Seiji Suzuki, an architect and president of the development company, Pacific-Sakata. The architects—Douglas A. Garofalo, Ralph Johnson, Margaret McCurry, Frederick Phillips, Christopher H. Rudolph, John Syvertsen, Joseph A. Valerio, and Daniel H. Wheeler—are a self-selected group of practitioners that meets regularly to critique one another's work. An exhibit of their models and drawings, "Rumors about the American House," was on view in October at the Gwenda Jay Gallery in Chicago.

In a collective statement that accompanied the exhibition, the architects explained that each of their images "attends to a different set of values concerning context, environment, materials, the American culture, and the sociology of family." The most conventional design is a Prairie Style house, designed by Rudolph, that echoes the stone outcroppings of the site with horizontal volumes. Other schemes recall Modern precedents. Johnson's "House of an Exhibitionist" features a glazed truss structure, a transparent prism, and a stone tower rising above a low stone wall. Phillips's linear residence also incorporates an exposed steel structure and expansive glazing. Wheeler's L-shaped composition recalls the villas of Le Corbusier.

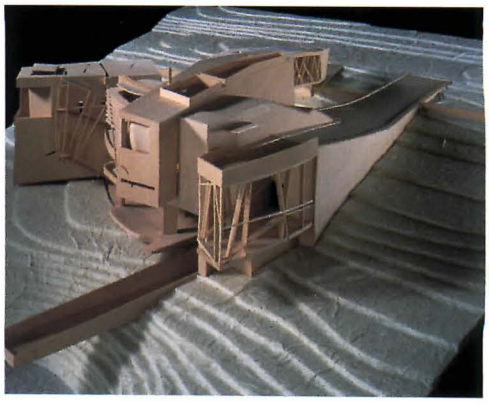
Without a strict program or a specific client for each house, the purpose of the prototypes is to generate ideas for more diverse residential architecture. Although a number of lots have been sold in the development, the buyers are not required to hire an architect who participated in the exhibition. So far, none of the architects has been commissioned to build a scheme. Anticipating such a reaction, the architects wrote, "Taken individually or as a whole, the designs offer much which is unexpected and unfamiliar. Think of them as a starting point—an origin." —L.N.

Margaret McCurry



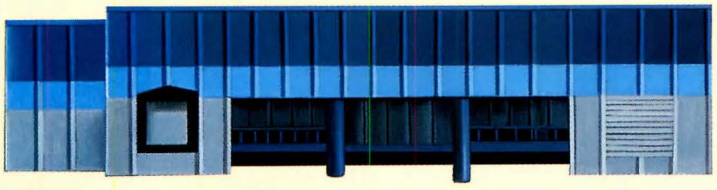
John Syvertsen

Joseph A. Valerio



Douglas A. Garofalo

Everybody knows what a steel joist building looks like.



Surprise.

If you're only looking for us in your shopping mall or over at the warehouse, look again.

All over town.

We're that handsome new condo going up on the west side. That dramatic new corporate headquarters in the office park. The community's new hospital-clinic. A church. Motel. An airplane hangar, maybe. Even New York's World Trade Center, believe it or not.

The point is, steel joist construction is an idea wh time has come—an idea that's catching on everywhe

And no wonder. Steel joist construction is a great tim saver, a weather-beater, too

you have a steel joist building you're proud of, drop us a line or send us a photo.

he economics are all in your vor. And you get complete esign flexibility—the freedom o do exactly what you want.

's easy to start with steel joist onstruction, too. All it takes a good idea and a desire for outstanding results.

Just use your imagination. Because a steel joist building can look like just about any building in town.

And very often does.

STEEL JOIST STANDARD INSTITUTE ©SJI

1205 48th Avenue North • Suite A
Myrtle Beach, South Carolina 29577

Circle 19 on information card

NEWS

AIA Convention in Iowa

THIRTEEN YEARS AGO, IOWA WAS INTRODUCED to four "kids," as Philip Johnson called them, for a series of lectures and a design awards jury. In October, Peter Eisenman, Michael Graves, Charles Gwathmey, and Robert A.M. Stern returned to Des Moines to reprise their memorable series in "Encore," at the Central States Region and Iowa Chapter AIA Convention.

After a videotaped introduction by Johnson, Graves led the lecture series with a sweeping review of his projects, including the Team Disney Building (ARCHITECTURE, June 1991, pages 80-89). Despite the passage of 13 years, the Princeton architect claimed, "We are all still beginners. All this stuff continues to be new." Gwathmey indicated that the period had been "a short time, full of thinking, teaching, and reevaluating," and that a series of personal tragedies had "caused a stall, in which I may have missed about 5 years." The previous 18 months, however, had been a period of creative rejuvenation for the New York architect. Slides of additions to the Guggenheim and Fogg Museums (ARCHITECTURE, November 1991, pages 52-59) gave way to a discussion of four projects in progress.

Works by Des Moines architects led the 1991 Iowa AIA Design Awards, including the Iowa State University Agronomy Building (top) by RDG Bussard Dikis and the Rosenberg Residence (above) in Des Moines by Architects Wells Woodburn O'Neil.

Stern discussed groups of projects, the most convincing a series of houses that revealed continual refinements. He marveled at the "secular religion" he had been exposed to in his work for Disney. Eisenman has yet to design for Disney, but he maintained that the company "understands today's media environment." The significance of the original is disappearing, he said, "which should frighten architects, because it means vision has been subjugated to visuality. In a media environment, the world looks back at us. We are the subject." Eisenman's current works are highlighted by two "folding" projects: a mixed-use

compound in Frankfurt and a tower in Tokyo.

The architects all observed that 1991 differed from 1978 mainly in the sizes of their portfolios and their practices. The same self-doubts and design struggles remain, Graves emphasized, and each architect still works long and hard on every project. Stern pointed out that even Eisenman was building now, and reminded him that in the past he had "implied that we were vulgar because we were building." Eisenman offered a belated apology and admitted he wished he had begun practice much earlier.

The discussion ended, appropriately enough, with today's "rebels." Graves and Stern bemoaned young architects who break rules they do not yet understand. "Throwing a bunch of sticks together is not architecture," said Stern. "We have an obligation to have a core of reference."

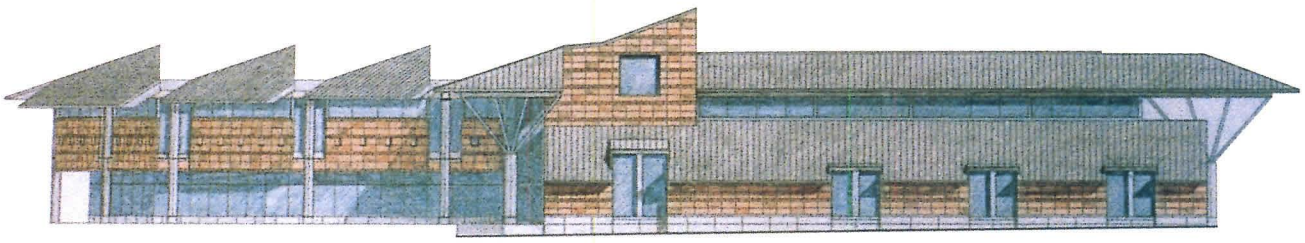
Prior to the reunion, Eisenman, Graves, and Gwathmey judged the Central States Region AIA Design Awards. Eleven of the 13 awards went to Iowa firms, including three to Herbert Lewis Kruse Blunck. Seven projects by three Des Moines firms won recognition in the 1991 Iowa Chapter/AIA Design Awards, judged by Chicago architects Ralph Johnson, Diane Legge-Kemp, and Ron Krueck. RDG Bussard Dikis won two honor awards for its restorations of the Iowa State Capitol and Jasper County Courthouse. ■

—RAY DON TILLEY

KING AU

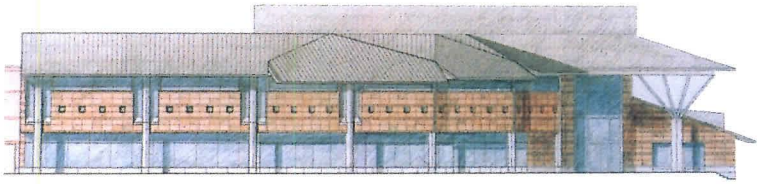
Iowa State University Recreation/Athletic Facility (far left) by RDG Bussard Dikis and Faegre & Benson Law Offices (left) by Herbert Lewis Kruse Blunck were two Central States Region winners.

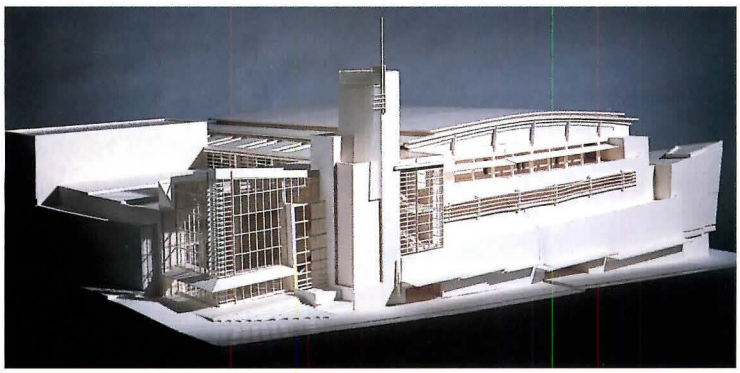
ON THE BOARDS



Bellevue Library
Bellevue, Washington
Zimmer Gunsul Frasca Partnership

BELLEVUE, WASHINGTON, EAST OF SEATTLE, IS a rapidly growing "Uptown" edge city that is now commissioning civic buildings. One of the first is Zimmer Gunsul Frasca's 87,000-square-foot central library adjacent to Bellevue's commercial district. Partner Robert Frasca divided the building into a shedlike arcade to the east (center right), orthogonal administration structures to the north, and a two-story reading space that is curved to address a public plaza (right) and to direct visitors to the building's main entrance. Truncated shed roofs (top) allow light to filter into second-floor reading areas through north-facing clerestory windows. The $11.8 million project will break ground next spring.

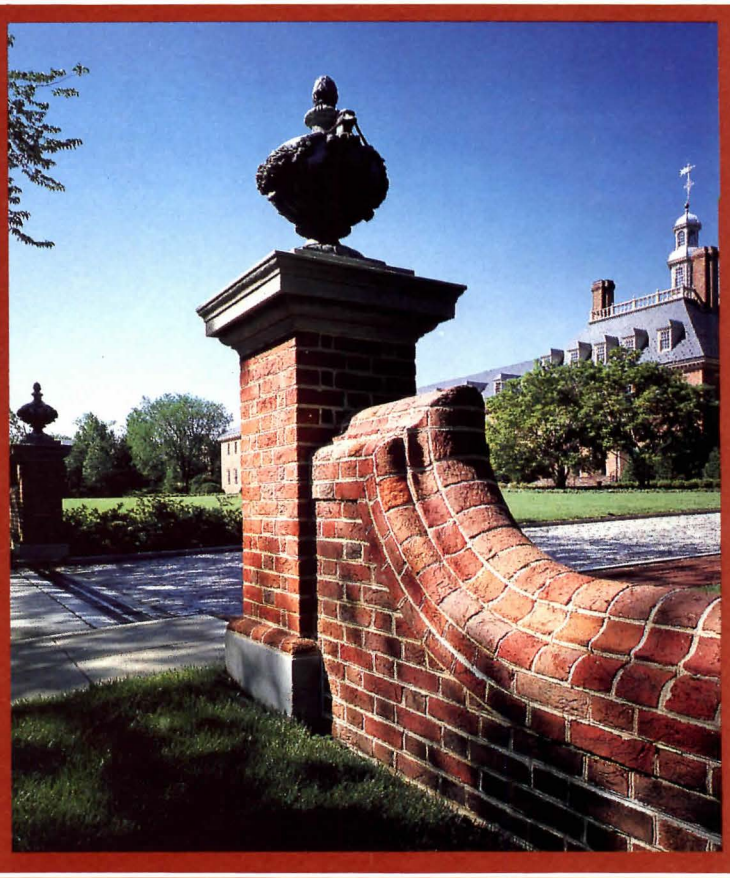




Bellevue Meydenbauer Center
Bellevue, Washington
Kohn Pedersen Fox Associates and HNTB

LOCATED ON A SLOPING SITE IN BELLEVUE'S business district, Kohn Pedersen Fox's 280,000-square-foot convention center (above left) represents the first phase of the city's civic campus. The architects organized the building's primary functions into three distinct volumes: a 450-seat theater, a 36,000-square-foot exhibition hall, and a glass spine housing prefunction and circulation spaces. From the glass-enclosed lobby at the southwest corner (bottom left), visitors may ascend an escalator or stairs to meeting rooms housed beneath a curved aluminum roof. South-facing meeting rooms open onto a terrace; at street level, a stepped canopy creates a pedestrian arcade alongside retail spaces. A tower houses an elevator and indicates the facility's main entrance. The building's exterior will be clad in stucco with precast-concrete details. The $22 million project will be completed in July 1993. ■

—K.S.



BRICK SHAPES GUIDE

INTRODUCTION

Brick shapes. The variety is practically endless and so is their use. This natural flexibility has made brick shapes an integral component in commercial and residential construction.

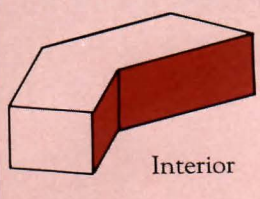
More and more architects rely on brick shapes to create a mood and add a dash of flair. They've discovered brick is an easy and inexpensive way to produce hallmark designs.

Many geometric shapes or configurations can be accomplished with brick. Through contemporary production techniques, both extruded and molded units can be produced in a vast array of sizes, colors and styles. Many of the shapes illustrated in this publication are standard items...readily available from local brick manufacturers.

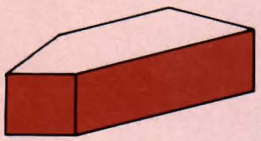
This guide is a tool for exploring brick's flexibility. The more you explore, the more you'll agree...imagination...inspiration...and ingenuity are the only limitations to brick as a design solution.

CORNER BRICK

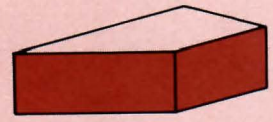
Interior & Exterior



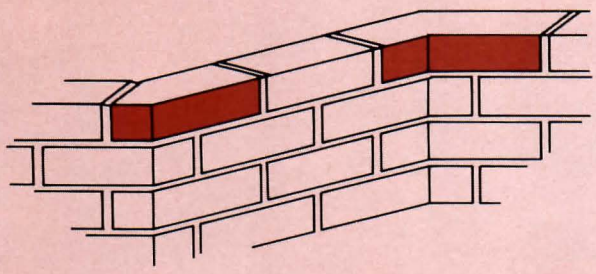
Interior

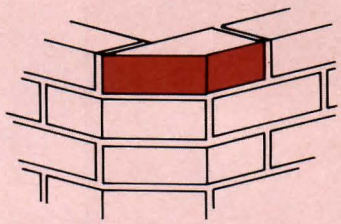


Exterior



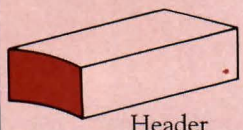
Single Cut



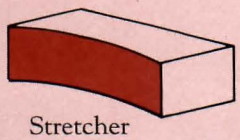


RADIAL BRICK

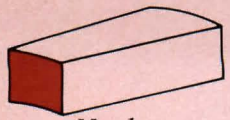
Interior



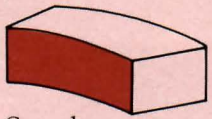
Header
Single Radial



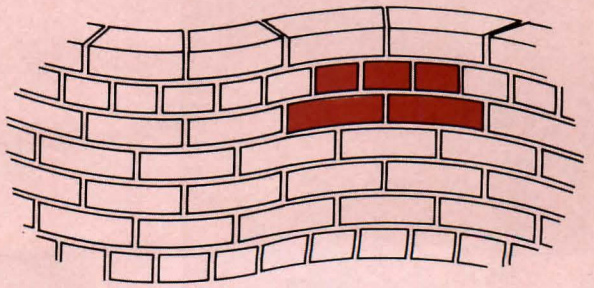
Stretcher
Single Radial



Header
Double Radial

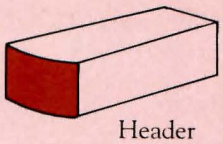


Stretcher
Double Radial

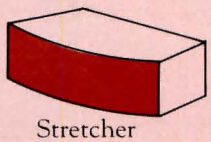


RADIAL

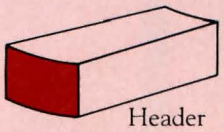
Exterior



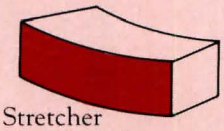
Header
Single Radial



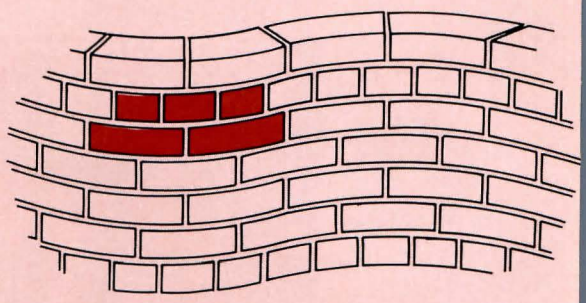
Stretcher
Single Radial



Header
Double Radial



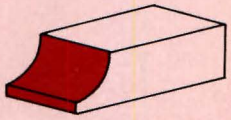
Stretcher
Double Radial



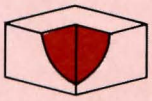
WATERTABLES

Cove

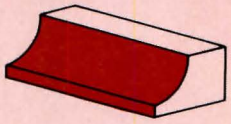
Outside Corner



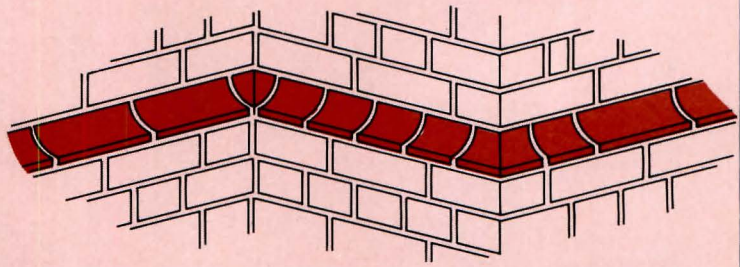
Header



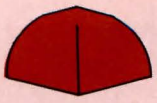
Inside Corner



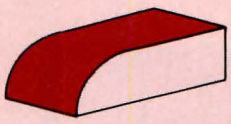
Stretcher



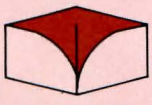
Bullnose



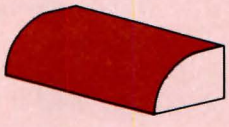
Outside Corner



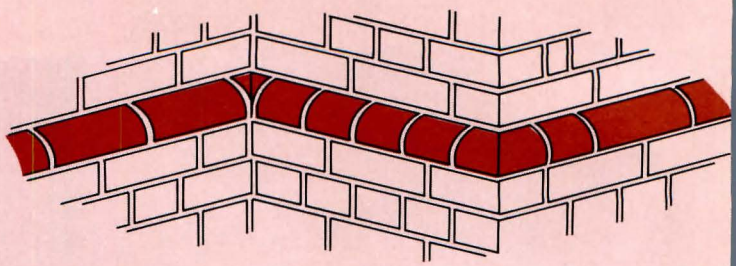
Header



Inside Corner

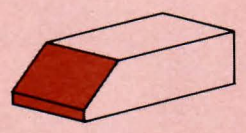


Stretcher

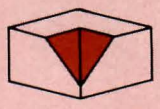


Sloped

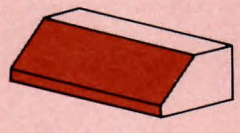
Outside Corner



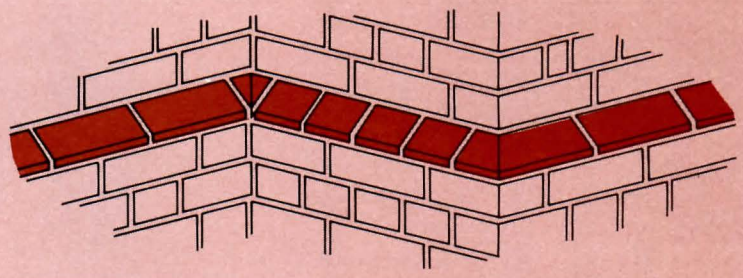
Header



Inside Corner

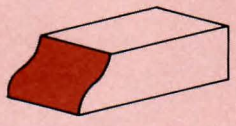


Stretcher

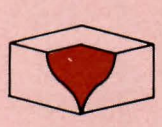


Ogee

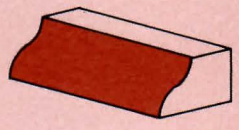
Outside Corner



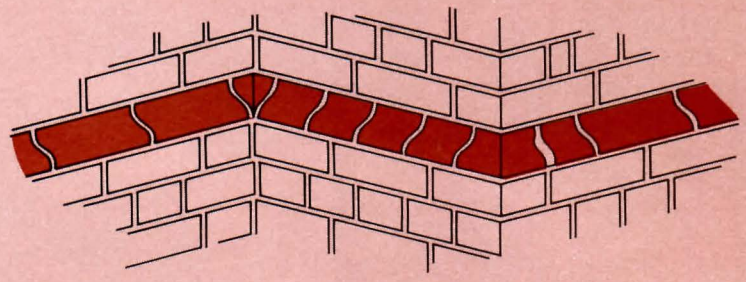
Header



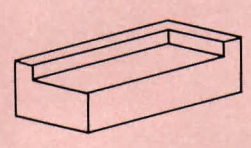
Inside Corner



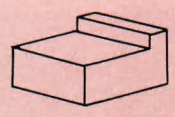
Stretcher



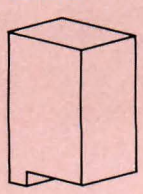
LIPPED BRICK



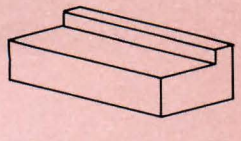
Outside Corner



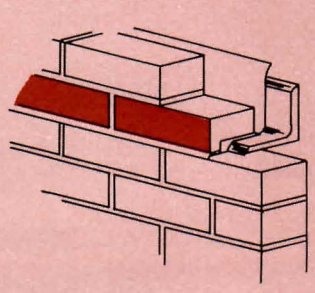
Header

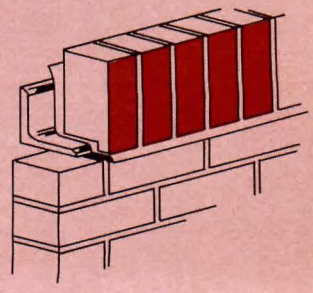


Soldier



Stretcher





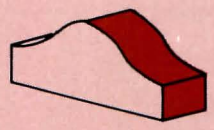
INNOVATIVE EXPRESSION THROUGH BRICK SHAPES

Creative use of bond, together with brick shapes, adds an exciting dimension to any architectural statement. Intricate wall patterns, subtle window treatments and landscaping accents offer an opportunity to achieve brick's ultimate design potential.

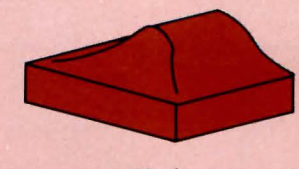
This versatility unlocks an entire spectrum of possibilities for interfacing stark angles and rounded forms. Dramatic depth and shadows can be attained through special shapes at corners and in deep reveals at soffits, lintels and sills. Shapes can also subtly alter horizontal or vertical planes, creating long sweeping curves and exaggerated three dimensional effects.

SILLS, CAPS & COPINGS

Napoleon

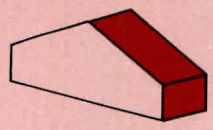


Rowlock

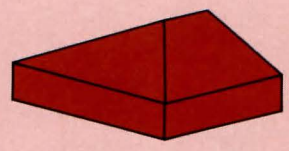


End

Ridge



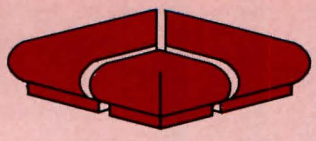
Rowlock



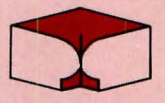
End

SILLS, CAPS & COPINGS

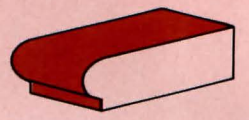
Ogee



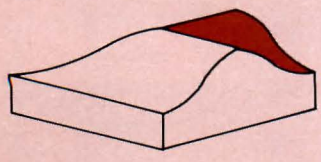
Outside Corner



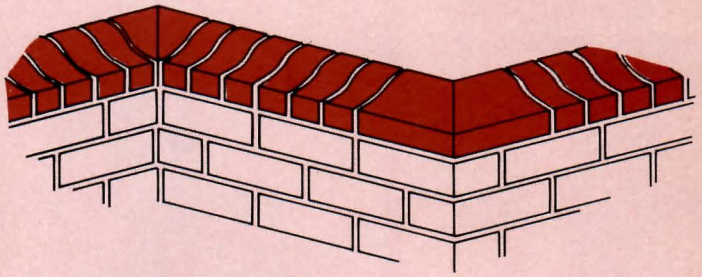
Inside Corner

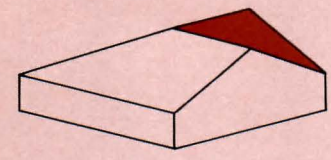


Header

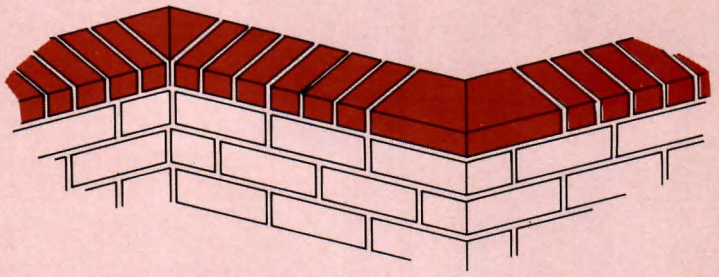


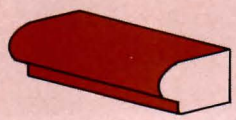
Corner



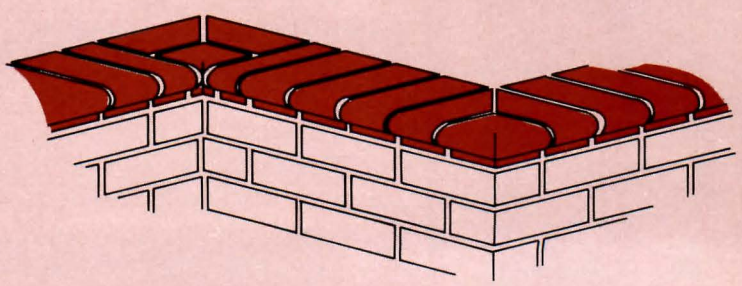


Corner



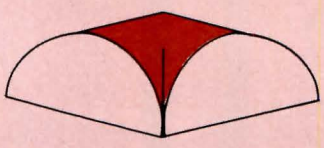


Stretcher

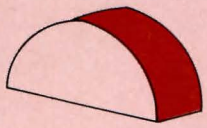


SILLS, CAPS & COPINGS

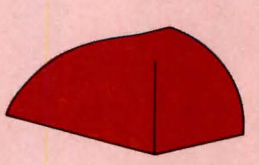
Round



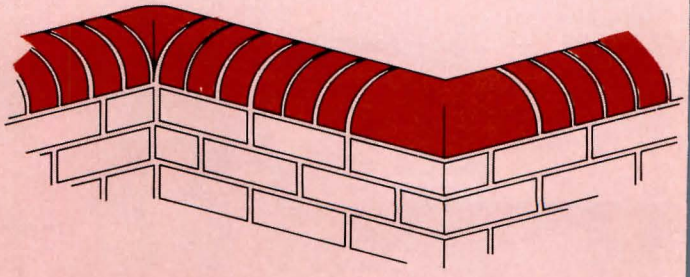
Corner



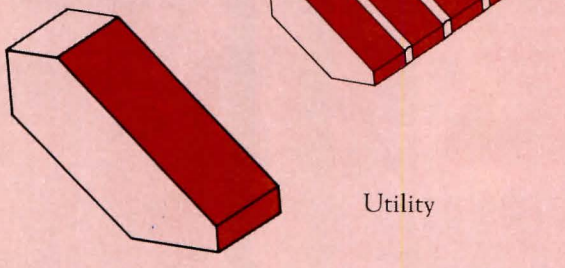
Rowlock



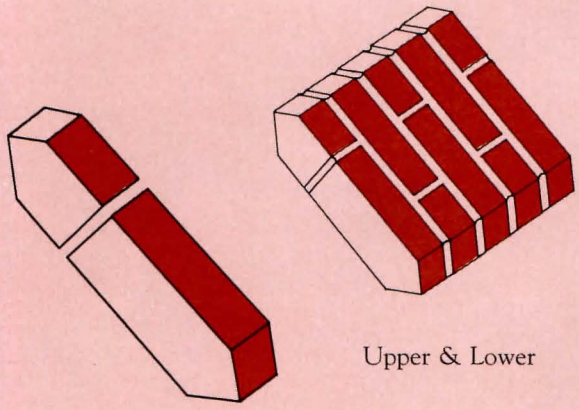
End



Sloped Sill



Utility



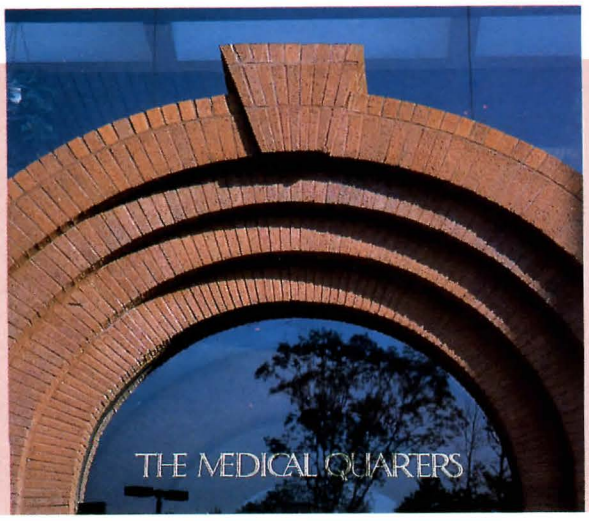
Upper & Lower

Arches of every type: elliptical; segmental; parabolic; circular; tudor; multicentered; Roman; or gothic, emphasized with header and soldier courses not only enhance the asthetic quality of a facade, but provide structural integrity and facilitate interior lighting, especially in space below ground levels.

Blend these elements to project a reverent sense of tradition, warmth and longevity for a congregation. A series of majestic structural gothic arches could guide church members into a vestibule, through a narthex to a chancel arch framing a pulpit.

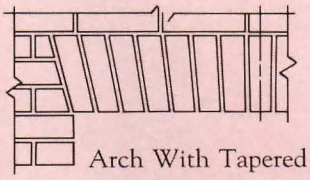
At the opposite end of the spectrum, brick shapes can generate eye-stopping appeal...key to successful shopping malls and retail centers. A circular arch entranceway becomes a landmark... a topic for public conversation and an invitation to buy. False gables with a bullseye or oval form punched out is a focal point visible from blocks away...a design element welcomed by retailers anywhere.

To help resolve today's architectural challenges, many brick manufacturers produce and inventory a wide range of shapes. Rowlocks, sills, treads, copings, jambs, radials and angles are all available as standard items. Thus almost any detailing or design feature can be cost-effectively satisfied.

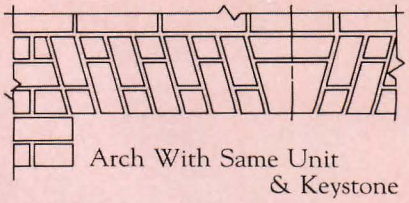


ARCHES

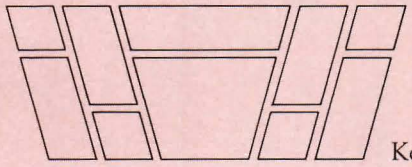
Jack



Arch With Tapered Units

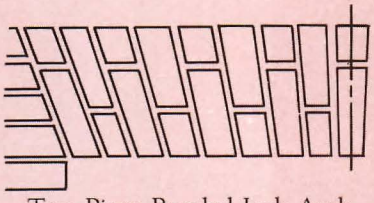


Arch With Same Unit & Keystone

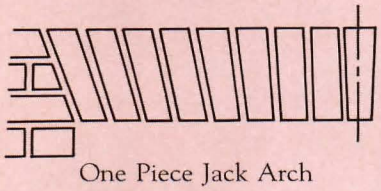


Keystone Details

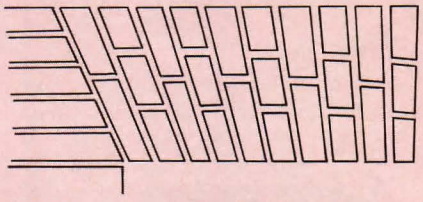
Jack



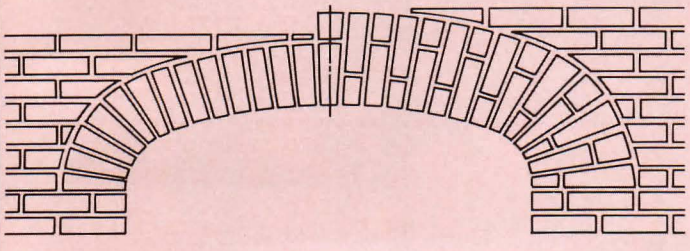
Two Piece Bonded Jack Arch



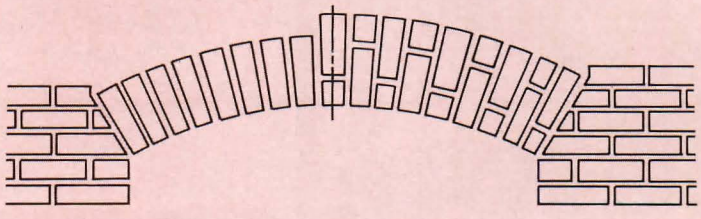
One Piece Jack Arch



Three Piece Bonded Jack Arch

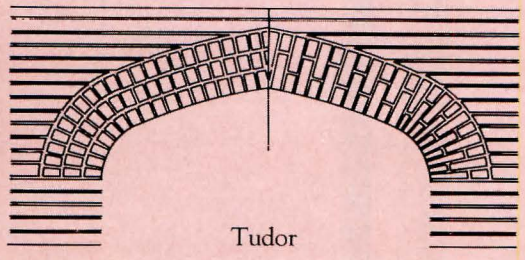


Elliptical

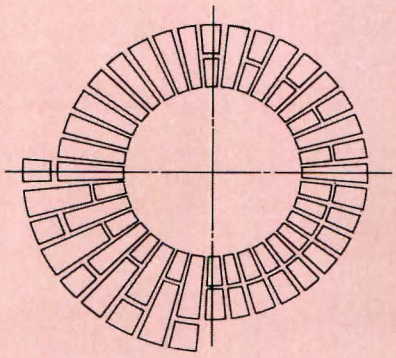


Segmental

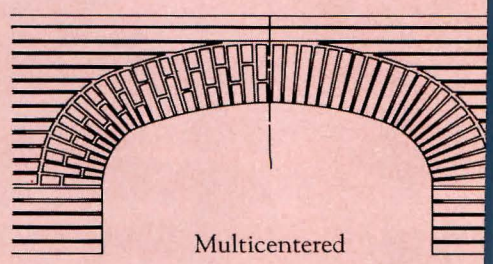
ARCHES



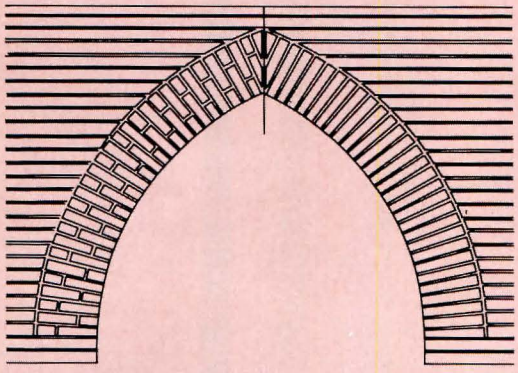
Tudor



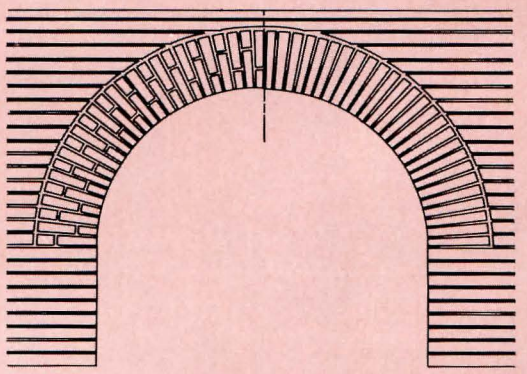
Bullseye



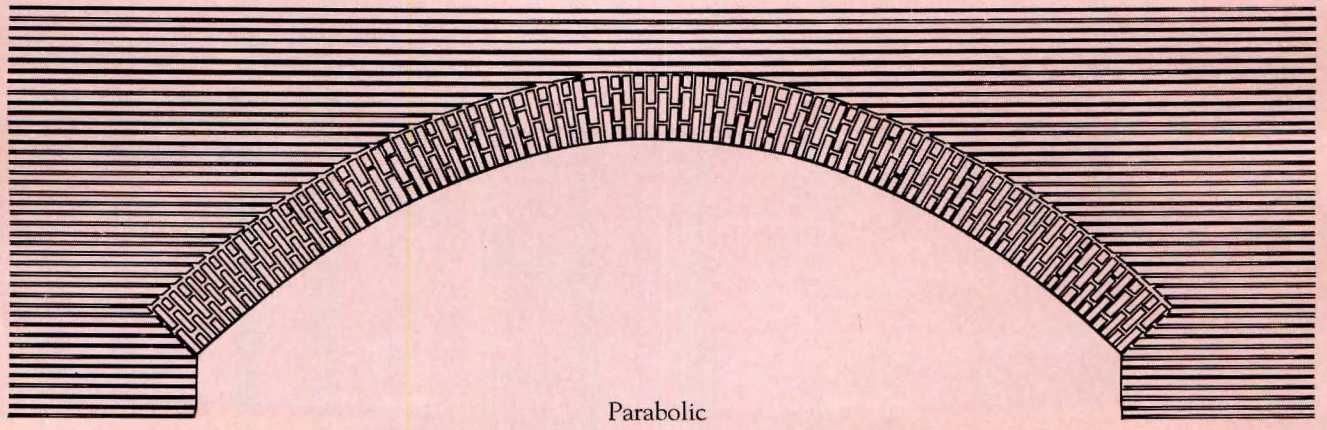
Multicentered



Gothic



Semicircular



Parabolic

CUSTOM SHAPES

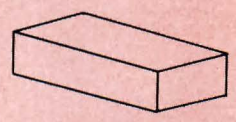
Custom shapes, including the ultimate – brick sculptures – can also be produced. Each is uniquely crafted for a specific use and can add unparalleled detail or sophisticated artistic expression to any building or home.

ORDERING SHAPES

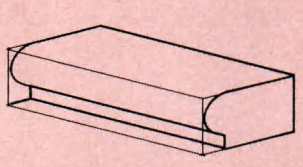
The shapes shown in this publication are considered standard within the brick industry and are generally available from most manufacturers. There are, however, occasions which call for custom shapes to be designed for a particular project. If you design "special" shapes please keep in mind it is more economical to create them from standard slugs of clay.

We suggest you follow the guidelines below and consult with your sales representative when ordering custom shapes.

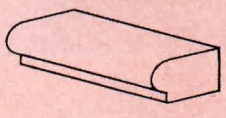
1. Provide a scale drawing for approval of manufacturer including the following information:
   a. Brick Identification (name, shade number, etc.)
   b. Quantity Required
   c. Dimensions of All Sides
   d. Degrees of All Angles
   e. Radius (where applicable)
   f. Exposed Surfaces to be Faced



Standard Slug of Clay



Custom Shape Within
A Standard Slug of Clay



Custom Shape

2. Dimensional tolerances consistent with ASTM C-216, Type FBS (or FBX if specified), angular toleranced ±3 degrees.

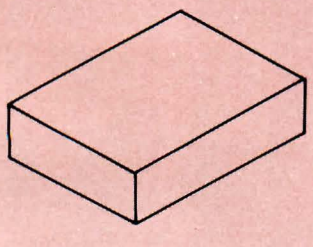
3. Orders for special shapes may not be cancelled, in whole or in part, once manufacturing has begun.

4. Small quantities of certain shapes may include a set-up charge, in addition to the unit price.

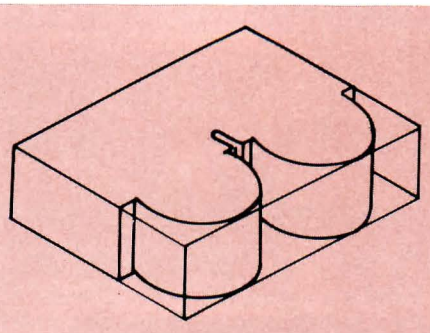
5. "Add on" orders of special shapes which are placed after the original quantity of shapes have been manufactured may be subject to a set-up charge. Color match may not be guaranteed when shapes are ordered after the face brick have been manufactured.

6. Slight variations of color and/or texture may occur with certain shapes.

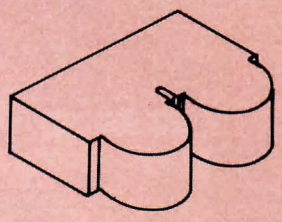
CUSTOM SHAPES



Standard Slug of Clay



Custom Shape Within
A Standard Slug of Clay



Custom Shape

Cities on the Edge

AMERICANS ARE GOING THROUGH THE MOST radical change in 100 years in how they build cities. Every urban area across the nation that is growing is growing in the fashion of Los Angeles, with multiple urban cores called "edge cities." These new hearts of our civilization—in which the majority of metropolitan Americans now work and live—do not look at all like our old downtowns. Buildings rarely rise shoulder to shoulder, as in Chicago, New York City, and Philadelphia. Instead, their broad, low outlines dot the landscape like mushrooms, separated by greensward and parking lots. Their office towers, frequently guarded by trees, gaze at one another from respectful distances through bands of glass that mirror the sun in blue or silver or green or gold, like fanciful drawings of "the City of the Future," circa 1930.

There are more than 200 of these edge cities in America. Each is or will soon be larger than downtown Memphis, Tennessee, according to the usual urban criteria: tall buildings, bright lights, corporate headquarters, luxury hotels, restaurants, white-collar jobs, upscale marketplaces, hospitals with CAT scans. Two-thirds of all American office facilities are already in edge cities, and 80 percent of them have materialized in only the past 20 years. By the mid-1980s, there was far more office space in edge cities around America's largest metropolis, New York, than there was in midtown Manhattan. In contrast, no new big-city downtowns have been built from the ground up in 76 years, since the one-millionth Model T rolled off Henry Ford's assembly line in 1915.

Yet when I started reporting on edge cities in 1987, one of my first genuine surprises, as a layman, was to discover how little architects usually have to do with the end result of these places. The height, shape, size, density, orientation, and materials of most buildings were largely determined by the formulaic economics of developers; design professionals were, at best, auxiliary players.

Houston's Transco Tower (top left) is the tallest building outside an urban core. Unlike downtowns (top), edge cities are marked by sprawl (above). Irvine, California: farmland in 1970 (top right), edge city in 1990 (right).

Edge cities are the crucible of America's urban future. We must strive to understand them on their own terms and "get them right."

The third wave

EDGE CITIES REPRESENT THE THIRD WAVE OF OUR LIVES PUSHING out into new frontiers in this half-century. After World War II, we moved our homes past the traditional boundaries of what constituted a city. Then we wearied of returning downtown for the necessities of life, so during the 1960s and 1970s we moved our marketplaces to where we lived. Today, we have moved our means of creating wealth—our jobs—out to where most of us have lived and shopped for two generations. That has led to the rise of edge cities. Not since the Industrial Revolution in the last century have we made such profound changes in the ways we live and work.

Cloverleaf in King of Prussia, Pennsylvania, awaits a Boomer.

Nonetheless, edge cities can be tricky to define. They rarely have mayors or city councils, and they seldom match boundaries on a map. We're still in the process of giving each edge city its name—a process, incidentally, that could use more flair. In New Jersey, for example, there is one with only the laconic designation "287 and 78." There are no "Welcome to . . ." signs on the outskirts of edge cities, because most people, even the natives, are uncertain where they begin or end.

How to spot an edge city

SO TO IDENTIFY THESE NEBULOUS PLACES, I HAVE ADOPTED A FIVE-part pragmatic definition. An edge city is any place that:

- Includes 5 million square feet or more of leasable office space—the workplace of the Information Age. Five million square feet is larger than downtown Wilmington, Delaware, or Richmond, Virginia. The edge city outside Houston called the Galleria area—which is crowned by the 64-story Transco Tower, the tallest building in the world outside an old downtown—is bigger than downtown Minneapolis, Minnesota.
- Offers 600,000 square feet or more of leasable retail space—the equivalent of a fair-size shopping mall. That mall will probably contain at least three nationally famous department stores and 80 to 100 shops and boutiques full of merchandise that used to be available only on the finest boulevards of Europe. Even in their heyday, there were not many downtowns that could make such a claim.

Tysons Corner, Virginia, typifies edge city office development.

- Provides more jobs than bedrooms. When the workday starts, people head toward this place, not away from it. This is not a suburb: it's its own urb, and, like all urban places, the population increases at 9 o'clock in the morning.
- Is perceived by the population as one place. It is a regional end destination—not a starting point. An edge city "has it all," from jobs to shopping to entertainment.
- Was nothing like a "city" as recently as 30 years ago. It was just bedrooms then, if not cow pastures. Tysons Corner, Virginia, is a good example of such a miraculous transformation.

Natural selection

EDGE CITIES ARE THE CULMINATION OF A GENERATION OF INDIVIDUAL American value decisions about the best ways to work, shop, and play—about how to create home. If they are still a little ragged at the fringes, it may be because they are works in progress, the product of what Tom Wolfe calls "the hog-stomping Baroque exuberance of American civilization."

But by any quantifiable urban standard, they have already proved to be astoundingly efficient places to make one's fame and fortune. In fact, their icon ought to be a hand-lettered "help wanted" sign taped to plate glass. As real estate markets, they have made an entire generation of homeowners and speculators rich. As bazaars, they are anchored by some of the most luxurious shopping in the world. Edge cities acculturate immigrants, provide child care, and promise safety. They offer an improvement in per capita fuel efficiency over the old suburbia-downtown arrangement, since they move everything closer to the homes of the middle class.

That is why edge cities are the crucible of America's urban future. Having become the places in which the majority of Americans now learn, vote, pray, and die, they will be the forge of the fabled American way of life well into the 21st century.

Evolving edge city forms

EDGE CITIES ARE NOT HOMOgeneous; they may take various forms. I call the three most important types "Uptowns," "Boomers," and "Greenfields."

Irvine, California, represents Greenfield type of edge city.

Uptowns are edge cities built on top of settlements that existed before the automobile. An example is the former arts colony of Pasadena, California. Pasadena survived the 1960s and 1970s without being "urban renewed" or "malled" into utter oblivion. Now it is becoming an edge city office center. A similar example of a former bedroom community–turned–edge city is Stamford, Connecticut. Other Uptowns have been superimposed on crossroads that date back to the 1800s, such as Buckhead in Atlanta, Georgia. The form has even been adapted to a Colonial port village of the 1700s such as Alexandria, Virginia, in the Washington, D.C., area. What these places all have in common is that foot traffic was primary when they were originally laid out and climate control had not been invented.

Uptown sidewalks are all outdoors. Shops, therefore, are designed to face outward to display their wares, which makes them visually interesting. Land ownership was historically highly fragmented, because people did not need much space for their small-scale uses. This yields an architectural diversity that is often worth preserving. Uptowns also present an opportunity for charming boutiques, craftsmen's shops, eateries, and entrepreneurial immigrants; they are especially inviting to those shops that are too idiosyncratic or insuffi-

ciently profitable to survive in a mall. Uptowns are frequently laid out in a rectangular grid, which means that buildings are forced to have some kind of relationship to each other, since they sometimes share common walls.

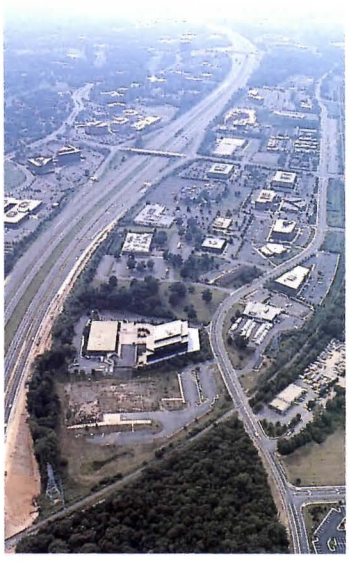
The people who live around this kind of edge city have always had a close historical relationship to the old power centers of the downtowns. They are usually vocal, well educated, well healed, and likely to advocate limitations to what can be done to reconfigure their community for the automobile and the gigantic office complex. When new transit systems are built, they usually come to Uptowns first, because of their traditional density and because they've been around long enough as centers for planners to be conscious of them.

These limitations are, of course, a blessing. Because of them, developers must, to a certain degree, adapt their products to the Uptown rather than the other way around. The very fact that they have a history gives Uptowns a leg up on "civility," perhaps even "soul," over newer forms of edge cities. It means that Uptowns have layers of development: they don't all look the same.

SKYHIGH STUDIOS

UPTOWN: **Bethesda, Maryland, has grown from a Washington, D.C., suburb into a city in its own right.**

Boomers, by contrast, are the classic kind of edge city. They are usually located at freeway intersections, and are almost always centered on a mall. Few buildings are designed to relate to one another, because Boomers began to hit critical mass long before their builders looked around and began to realize that the sum of their efforts was an edge city. Boomers have grown so lavishly that the academically fastidious have even noted that there are three subcategories of them: "the Strip," "the Node," and "the Pig in the Python."



BOOMER: **Located at freeway intersections, Boomers may be subdivided into Strips, such as the Dulles Airport access corridor (left); Nodes, such as Tysons Corner (top); and Pig in the Pythons, such as King of Prussia (above).**

The Strip, of course, is that esteemed urban form that goes on forever—miles long, and only hundreds of yards wide—on either side of a freeway. The classics include the Route 1 corridor near Princeton, New Jersey; Route 128 near the Massachusetts Turnpike outside Boston; and I-270, in Montgomery County, Maryland, in the Washington, D.C., region. It is striking how often the Strip in its purest form occurs in areas in which it is a big political embarrassment; it is difficult to mass enough density in a Strip to yield the benefits of civilization, while its attenuation guarantees traffic congestion. The three cases above, for example, are in places where highly educated people thought they had invested in public planning. Yet the theme of edge cities is "The Law of Unintended Consequences." First coined to describe the actions of Congress, the law states: No matter what you originally thought you were doing, the final outcome will always be a surprise.

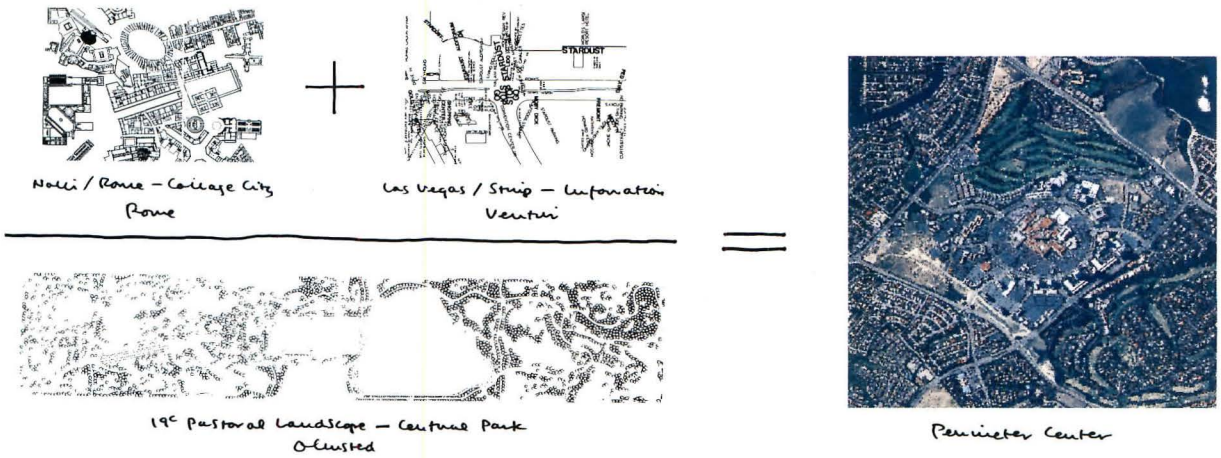
Compared to a Strip, a Node is relatively dense and contained. The Galleria area in the Houston region and Tysons Corner, Virginia, are two examples. There is enough of a center to them that it is possible to imagine a Disneyland-style monorail someday being added to such Nodes—simply because it is possible to imagine drawing a circle around any one of them.

The Pig in the Python is a cross between the other two. It is either a Strip that has begun to develop one or several Nodes—the Lodge Freeway in Southfield, northwest of downtown Detroit, for example, now has three piglike edge city Nodes in its striplike Python. Alter-

continued on page 114

BLACKMON WINTERS

GREENFIELD: **Las Colinas, outside Dallas, reveals the role of private corporations in transforming farmland into edge cities overnight.**



Paradise Regained

LET US BEGIN WITH THE PROPOSITION, RADICAL AMONG architects, that the automobile is here to stay as the central means of transportation. The pedestrian pocket and the 10-minute walk have a place in this country, but we believe it to be a limited place outside of the mainstream desires and dreams of most Americans.

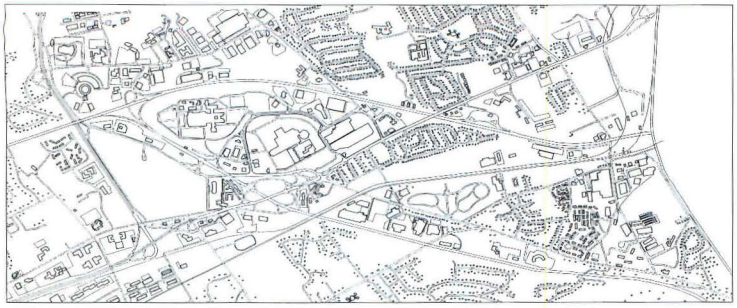
As a nation, we have long preferred to live in the suburbs, a way of life sustained by the regional highway system. Increasingly, we are moving our businesses to new, car-oriented cities that are springing up all over the country. These "perimeter centers" are not defined by the edge of a host city, but rather are ordered by the highway interchange. Perimeter centers cannot be understood in terms of conventional building-to-building or building-to-road relationships, but as abstract circuitries of roadway, each isolated from the next by an insulating "green veil" connecting unseen structures in gardens of commerce and living.

Perimeter centers and their emerging building typologies have been unfairly criticized for deficiencies in comparison to traditional urban forms. They represent a morphological change as different from the Strip as the Strip was from Main Street and the conventional urban grid. In 1968, Robert Venturi, Denise Scott Brown, and Steven Izenour analyzed the Las Vegas Strip as the dematerialization of Main Street's slow-moving spatial enclosure into a mid-speed array of information. The Strip, in turn, has been further dematerialized by the interstate highway network into an aspatial, but ordered, contemporary City in the Garden.

It is interstate highways that have provided the mechanism on a regional scale for the reclamation of paradise in the extended garden of America. This high-speed system and accompanying development cannot be comprehended through traditional types of urban analysis. Search the figure-ground topographies of King of Prussia, Pennsylvania (below); Perimeter Center, Georgia; Tysons Corner, Virginia; or Irvine, California, and few, if any, spaces attain focal status as "rooms." Like a broken kaleidoscope in which the elements fail to coalesce into recognizable patterns, buildings and asphalt appear like isolated, internalized fragments, neither figure nor ground.

Perimeter center icon

THE NOLLI PLAN OF ROME HAS BECOME THE ARCHITECT'S ICON OF the traditional city, and the Strip as information overlay has assumed a comparable role in our understanding of the mid-speed automotive world. What is the graphic icon of the high-speed perimeter center? Neither figural space nor information display, the icon of this new urban form most closely resembles electronic or hydraulic circuitry, with each line representing an individual automotive passage, each

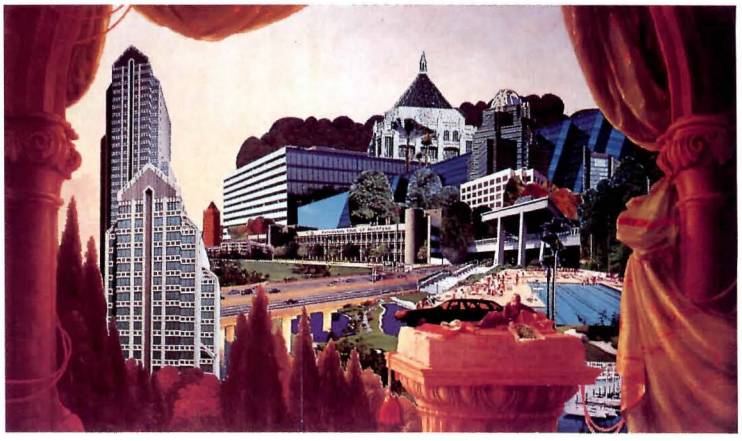


KING OF PRUSSIA, *PENNSYLVANIA—BASE MAP*

BUILDING FIGURE-GROUND

The perimeter-center equation, solved by the gardener-developer, satisfies the architect's dream and the developer's dream.

The Architect's Dream, Thomas Cole, 1840



The Developer's Dream, 1991

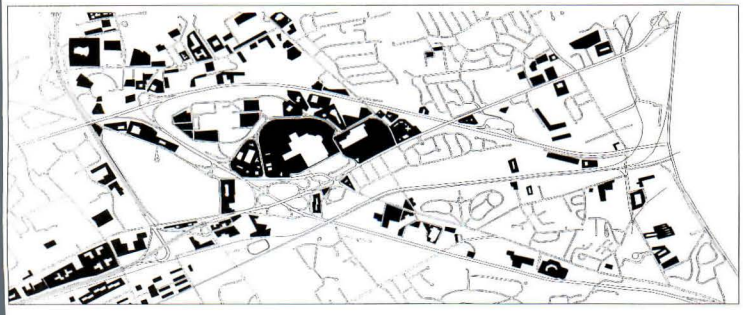
overlay an interchange, and each node in the diagram corresponding to a destination. In short, the only self-contained spaces in the new perimeter center are internalized and privatized automobile and building interiors; everything beyond these realms is simply asphalt circuitry overlaying a garden. Nonetheless, this circuitry, and the garden it occupies, can sustain analysis as a purposeful—even desirable—vernacular form. Further, and perhaps more disturbing to architects, it is our contention that architecture is rendered nearly meaningless in this new *tapis vert*.

Prior to the advent of the interstate highway system, infrastructure and buildings normally shadowed each other, with the road, be it Main Street or the Strip, providing the economic and social justification for buildings or signs that define its sides. The conventional building-to-street relationship, however, dissolves along the interstate highway system. Motorists cannot reach buildings directly from the high-speed roadway. The result is the disassociation of building from street infrastructure; the interstate highway exists visually independent of buildings. Its formal organizing principle is the green veil rather than adjacent buildings or signs. Like insulation surrounding electrical wiring, the landscape visually isolates the roadway from buildings and other roads, first by a uniformly deep band of lawn to either side, and, in some instances, by a border of trees. This fragmented, green-veil concept is extended to perimeter center roadways at all hierarchies of scale. Garden is substituted for building and roadway as the principal ground of the new city. Unlike the conventional American city or the Strip, in which buildings and roadways define each other, it is the garden network of roadway green veils that provides the most basic continuity of perception in a perimeter center.

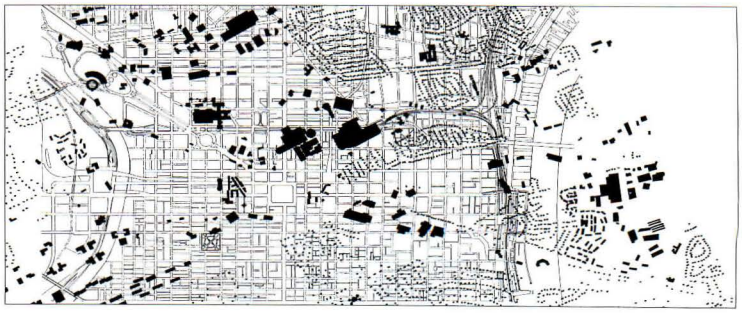
From chess board to hourglass

THE OMNIPRESENT ARRANGEMENT OF STREETS IN THE CONVENtional American city is the grid. In theory, the grid affords a nearly infinite potential for movement from one position to another. But like a chess board, such variables as size, direction, turn limitations, and blockages may preclude certain permutations. By contrast, the citizen motorist in a perimeter center moves about in a morphological model that may best be characterized as an hourglass. Proceeding from home to work or the mall by automobile, the potential field of choices narrows in successive stages as the motorist approaches the perimeter-center interchange. His or her daily journey starts at the front door, then proceeds from the driveway through an extensive network of local capillary streets to two-lane, mid-speed collectors, to a regional highway, to an interstate access interchange, then to an interstate itself, and finally to a perimeter-center interchange.

It is this interchange, not the mall, that is the true focus of perimeter center. It is the single experience that all citizen motorists of the new city share daily. From the passage through the vortex of path and time, the potential for movement again expands outward

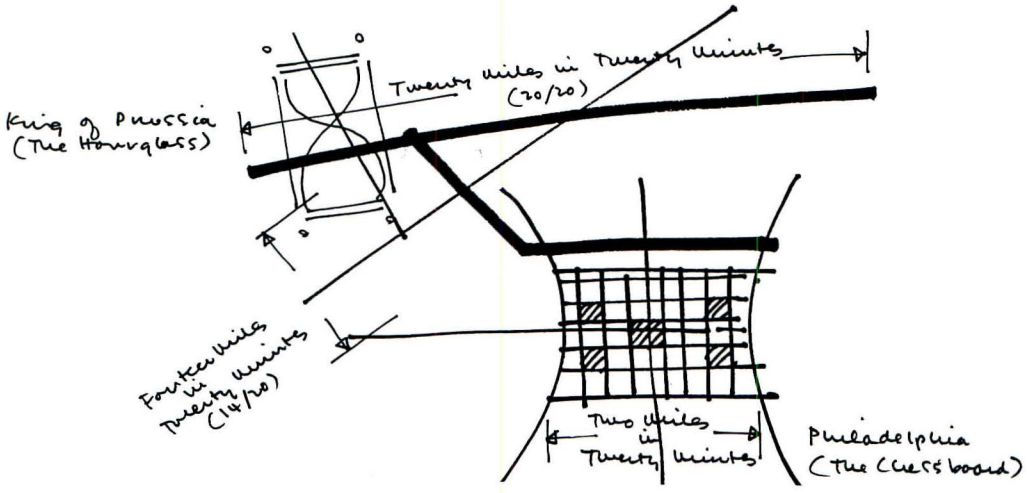


ASPHALT FIGURE-GROUND



BUILDING FIGURE-GROUND SUPERIMPOSED OVER PHILADELPHIA

Unlike the conventional city chess board, time, not distance, is the new measure of the perimeter-center hourglass.



with an increasing array of choices available to the motorist as he or she nears the destination, be it office, mall, or store. Those choices are inversely related to speed of movement. The greater the speed, the fewer the choices (hence the term limited access); the lower the speed, the greater the potential number of destinations. The profound change in infrastructure from the chess-board to the hourglass model is in the dematerialization of connections between destinations that follows from limited-access highways. At the high speeds characteristic of travel on the interstate highway system, distance is collapsed so that 20 miles may be traversed in the same time that it takes to cross the 2 miles of the central Philadelphia grid, river to river (drawing above). The result of these increases in distance between elements in the new city is an altogether new urban form that manifests itself with few conventional object-to-object connections. Nonetheless, with time—not distance—as the measure, this new city is arguably as dense as the conventional city.

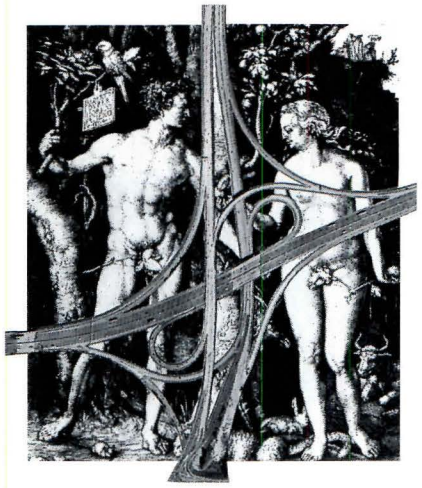
The land bay as private garden

THE SEPARATION OF BUILDING FROM BUILDING and building from roadway in perimeter centers has been codified in the basic unit of perimeter centers: the land bay. The land bay is a ready-for-development parcel, complete with looping access road, utility infrastructure, and planning permits. It may vary in size, from a circumference of more than 1 mile to less than 500 feet, and it usually houses a single use with attendant parking.

In contrast to the land bay, the basic cell of the conventional city, the block, is a regular spatial unit that may be subdivided into hundreds of buildings or spaces, each with a different function, or it may be occupied by a single building or space. The subcellular structures that occupy the block are coded, typically through zoning ordinances, to exhibit conventional relationships to each other and to adjoining streets and sidewalks. The word *block* implies a unit to be assembled by addition or subtraction, or alternatively, to be carved away. It is entirely consistent with Nolli's image of the figured city as a solid form given comprehensibility by its voids. Conversely, the land bay conjures up an almost nautical image of amorphous space anchored above, shiplike, by a temporary tenant. In this sense, it is entirely consistent with the high-speed, self-mobile, driven world of perimeter center.

The zoning regulations that govern perimeter center, particularly setbacks and floor-to-area ratios, have come under recent widespread attack as the progenitors of antiurban form. But these regulations are as consistent with the form of new perimeter centers as traditional urban zoning regulations, such as height and setback, are with the form of the conventional city. And that new form is a garden with buildings subservient to the garden. Perimeter centers can be interpreted as deliberate collections of individual land bays docked against one another; they are developed as privatized gardens in which one works, markets, and resides and that define a collective realm of sorts, interconnected by a network of green-veiled roadways.

Eden made accessible. Is the highway the serpent or the tree of life?



The building in the garden

WITHIN PERIMETER CENTERS, BUILDING-TO-garden relationships, not building-to-building relationships, are the only formally substantive morphology. The buildings themselves may be best analyzed as components of garden typologies, not as structures that exist independent of landscape. In Perimeter Center, north of Atlanta (facing page, bottom), this understanding is manifested by applying garden names to office complexes that would formerly have been referred to by number. And each such Office in the Garden is evocative of a landscape type. For example, Ravinia, a mixed-use office and hotel complex, is a hybrid of two landscape types:

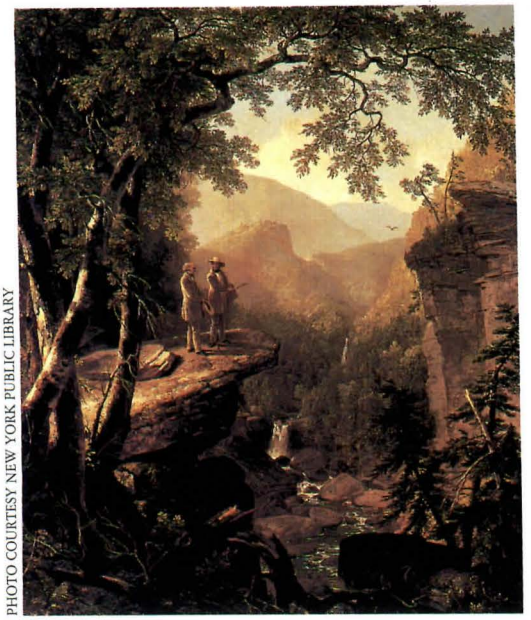
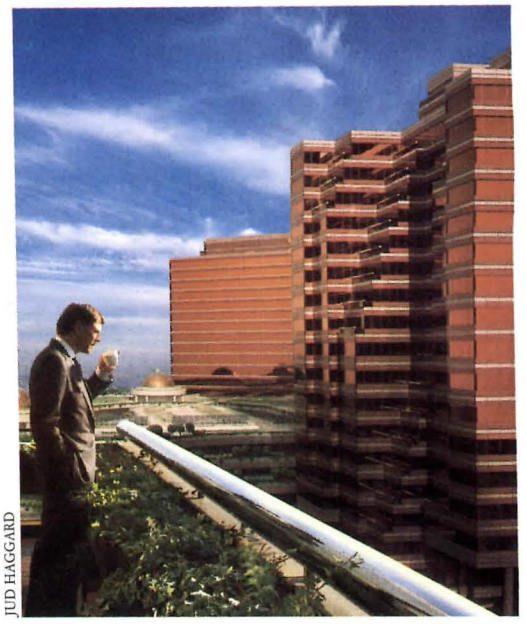


PHOTO COURTESY NEW YORK PUBLIC LIBRARY

Kindred Spirits, Asher B. Durand, 1849



JUD HAGGARD

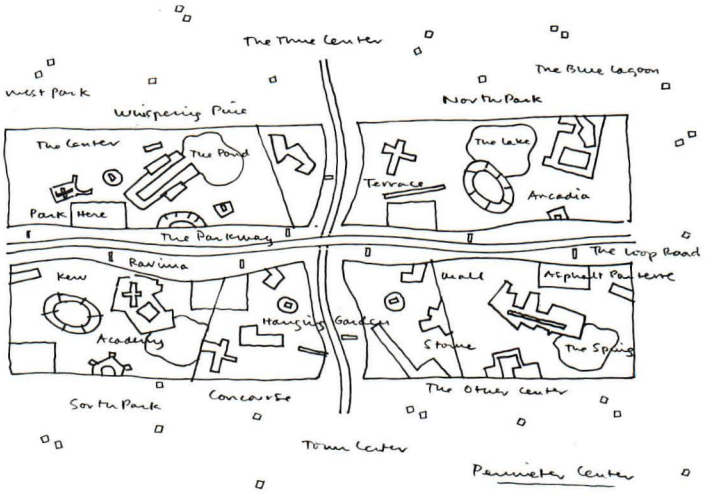
Solitude, Portman Barry Investments, 1991

"ravine" and "arcadia." It is the ravine, complete with stream and waterfalls in a densely wooded arcadian landscape, that dominates Ravinia—not the buildings, which are only obliquely perceived through the garden. The operative image here is Asher Durand's 19th-century vision of contemplation in the American wilderness (top left), with the office structure, not a rock outcropping, becoming the new vantage point for observation of the garden (top right).

Just as the workplace in a perimeter center may be understood through reference to landscape, so too the mall may be comprehended as a composite landscape/parkingscape. The mall is not Main Street, namely a mixed-use outdoor space accessible to wheeled vehicles and pedestrians. It is a privatized mercantile wintergarden centered within an asphalt parterre of parking lots and encircled by a green-veiled loop road. It displaces our retail experience from the 19th-century streetscape to the climatized garden.

The typical perimeter-center residence is either a single-family detached house with front-, side-, and rear-yard setbacks, or a townhouse or garden apartment in an attached, multifamily development. It is the most extended component of the new city, and it may be located anywhere within a 45-minute commute of the citizen motorist's destination. This means that, given the maximum 55-mile circumference of most central city beltways, perimeter-center workers and shoppers may live anywhere within a metropolitan region. In this regard, Frank Lloyd Wright's Broadacre proposal, with its even dispersal of houses on 1-acre plots stretched across the continent, has proved prophetic of perimeter-center development.

Perimeter Center made accessible and defined by the serpentine roadway.



New form of paradise

THE MODERN VISION OF THE CITY IN THE GARDEN HAS NOT YET evolved as Ebenezer Howard, Le Corbusier, and Wright had hoped, through displacement, replacement, or absorption of the central city, but has come to pass as a new peripheral Eden coexistent with the central city. The terrace view of Le Corbusier's Villa Contemporaine can be likened to developers' visions of life in perimeter centers. In short, the vision has come to pass, but it's been displaced to the urban perimeter. Moreover, the uniform landscape topographies of both Villa Contemporaine and Broadacre have given way in perimeter centers to specificity of individual landscape types. Le Corbusier's desired reduction to a single object-type, applied to both landscapes and buildings, is diffused in the hands of developers to a kaleidoscopic landscape that is consistent with our market economy and politics. Rather than a single public garden, the new city is a collection of privatized gardens, each designed to be unique and easily distinguished from its competing neighbors. Each garden is also separated from its neighbors by a green veil and by patterns of automobile access that stress discord, discontinuity, and distinction to enhance marketing. A modern Eden has indeed been attained: in a perimeter center, the garden precedes all else and lends the center its form and substance. ■

—STEPHEN KIERAN AND JAMES TIMBERLAKE

Scott Wing contributed to this article. Stephen Kieran, AIA, and James Timberlake, AIA, principals of the Philadelphia firm Kieran, Timberlake & Harris, are currently writing a book on perimeter centers.

Tustin Market Place
Tustin Ranch, California
LPA Architects with
Legorreta Arquitectos

To Market, To Market

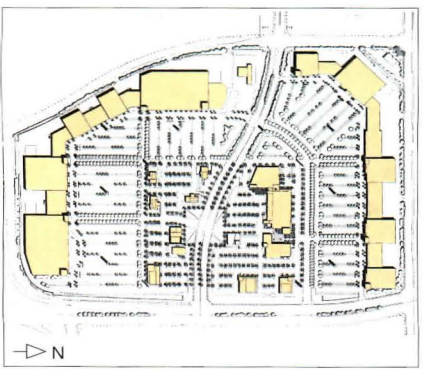
Tustin Market Place combines colorful volumes (above and facing page, top and bottom right) with stately palm trees (left and bottom left) to create the illusion of a desert resort. The complex (plan, facing page) consists of high-volume retail stores surrounding specialty shops and restaurants.

STRETCHED OUT BESIDE THE SANTA ANA Freeway, with pepper and strawberry fields opposite the entrance and miles of red-tile roofs in the distance, Tustin Market Place epitomizes the Southern California building boom. Its bold forms and monumental scale make it an instant freeway icon, while its flat walls and groves of palm trees create the impression of a fancy desert resort.

Such scenographic duplicity is entirely intentional. Designed by LPA Architects (formerly Leason Pomeroy Associates) of Los Angeles in collaboration with Ricardo Legorreta, Tustin Market Place attempts to bridge the gap between the regional mall and Main Street America. It consists of an edge of large, high-volume retailers, ranging from a hardware chain outlet to a toy store, that wraps around a core of movie theaters, restaurants, and specialty shops that is designed to encourage pedestrian traffic. The design premise was that a person who drove to a lumberyard for a sheet of plywood wouldn't be shopping for a CD on the same trip. Conversely, someone who was hunting for the latest Danielle Steele novel wouldn't be in the market for a chest of drawers at the same time. Consequently, the architects created


KIDS 'R' US


TUSTIN
MARKET
PLACE


N

For the 1,600-foot-long development (top), the architects punctuated major paths with palm trees, which soften the impact of parking areas (left and below). The village center (facing page, top) contains a multiscreen cinema and numerous restaurants that give Tustin a festive atmosphere at night (facing page, bottom).

JAY HYMA PHOTOGRAPHY; ANDREA DEL ZOPPO PHOTOGRAPHY (TOP)

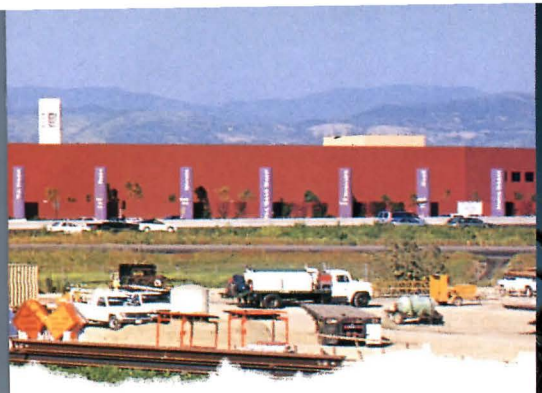
two retail worlds that are separated by an interior boulevard and 4,000 parking spaces.

To introduce order and visual drama to a regional shopping center is a tough assignment, and at Tustin, the architects had better luck with the automobile than the pedestrian. Legorreta's flat blocky forms, highlighted by bursts of brightly colored stucco, make a memorable Modernist statement in a region where nearly every building aspires to be Mission San Juan Capistrano. The main entrance is marked by a "picket fence" of white pylons, abbreviated versions of sidewalk lights and the 90-foot-high light towers in the parking lots by which Marine Corps helicopter pilots from a nearby base navigate at night. These elements establish a clear visual order that is reinforced by crisp, low walls; rows of palm trees that define major paths; towers that identify entrances to stores on the outer ring; and graphics by Sussman/Prejza that are easily read from the freeway.

The pedestrian precinct, on the other hand, is less compelling. Shops and restaurants open onto nicely landscaped courtyards with fountains and palm trees and a sprinkling of neon on facades and roofs. But it is hard to imagine that the residents of Tustin Ranch think of this area as a surrogate town square, particularly since it's hard to get around without a car. The people who want to walk, say, from the cinema to the toy store must do so without benefit of sidewalks or bridges. On this front, Tustin sinks to the level of surrounding developments.

Yet even if the colorful shopping center does not overcome all the limitations of a regional shopping center, the way Legorreta's Solana project outside Dallas redefined the suburban office park, its dramatic, inventive forms add sophisticated design to a genre ruled by market forces. If not an unqualified triumph, Tustin Market Place is sufficiently provocative to make other developers think twice about doing the same old thing. ■

—DAVID DILLON



TUSTIN MARKET PLACE
TUSTIN RANCH, CALIFORNIA

OWNER: Irvine Company
DEVELOPER: Donahue Schriber
ARCHITECT: LPA Architects, Irvine, California—Leason F. Pomeroy III (senior principal); Brian Sandberg (principal-in-charge); Don Pender (project manager); Glenn Carels (project designer); Jon Mills (job captain)
CONSULTANTS: Legorreta Arquitectos (design); Sussman/Prejza & Company (environmental graphics)
LANDSCAPE ARCHITECT: POD
ENGINEERS: Culp & Tanner (structural); Tsuchiyama & Kaino (mechanical); R.E. Wall (electrical); Fuscoe, Williams, Lindgren & Short (civil)
GENERAL CONTRACTOR: Snyder Langston
COST: $36/square foot
PHOTOGRAPHER: Anne Garrison/David Hewitt, except as noted

JAY HYMA PHOTOGRAPHY

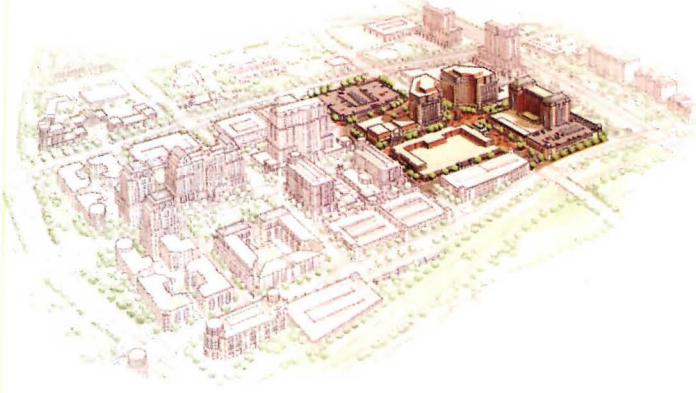
Reston Town Center
Reston, Virginia
RTKL Associates

New Town Downtown

RESTON, VIRGINIA, NOW HOME TO NEARLY 55,000 people, began as one of America's first postwar new towns in the early 1960s, when New York developer Robert E. Simon sold Carnegie Hall to purchase 7,400 acres of farmland 18 miles west of Washington, D.C. He used his initials to form Reston's name, and brought in the Gulf Oil Corporation to help finance development of the planned community. By 1967, Simon had sold Reston to Gulf, which in turn sold the development to a Mobil Oil subsidiary, Reston Land Corporation, in 1978.

A number of architects were asked to draw up master plans for a town center during Reston's early years, but nothing ever came of them, perhaps because the project changed hands so often. Construction of a town center was finally precipitated by the building boom of the 1980s. In 1984, a toll road along the access corridor to Dulles Airport was opened. Suddenly, Reston was a 10-minute drive from one of the nation's fastest-growing international airports and a half-hour from Washington. Predictably, the toll road also prompted a rash of office development that transformed Reston into Virginia's second-largest employment center, after nearby Tysons Corner.

In 1986, the Reston Land Corporation, along with developers Himmel/MKDG, held a design competition for another town center design. RTKL of Baltimore won over submissions by the New York office of Skidmore, Owings & Merrill; Kohn Pedersen Fox Associates; and Thompson Ventulett Stainback & Associates. RTKL's plan for the first phase of Reston's town center straddles the two dominant urban design prototypes of our day. The shops and restaurants, which spill onto a tree-lined main street and town square, recall the small-town America from which Kentlands (pages 74-77) takes its cues. The town center's suburban-style office towers and peripheral parking, which stretch only the length of a shopping mall, are reminiscent of



RTKL's first phase of Reston Town Center (bottom left) is terminated by a Hyatt hotel and twin office buildings (top left). The towers' concave facades (center left), which are anchored by three-story bases and pavilions (facing page), define Fountain Square. The slot between the towers leads to garage and parking.

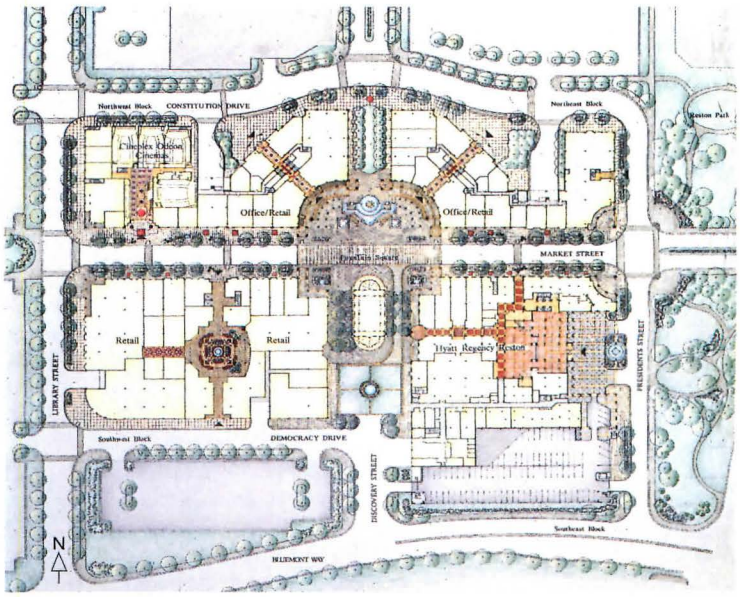

Talbots

such edge cities as nearby Tysons Corner. But unlike Kentlands and Tysons Corner, Reston Town Center was intended to be "an instant city to fill a hole in the doughnut," in the words of RTKL vice chairman George Pillorgé. That is, the idea was to create an urban core for Reston that "can flourish in the traditional ways that communities have developed over the centuries" while accommodating the automobile. "Our shorthand," says Pillorgé, "was to create something familiar yet fresh, a classical composition that related to downtown Washington, D.C.; Old Town Alexandria, Virginia; and Georgetown."

The $300 million project, completed in the summer of 1990, comprises 15 acres of the total 85-acre urban core; it includes a 515-bed hotel, six streetside restaurants, more than 60 shops in 220,000 square feet of retail space, an 11-screen cinema, 500,000 square feet of office space, and parking for more than 1,000 cars. The eclectic buildings, too abstract and substantial to be branded Disneyesque, are faced in a mix of beige brick, precast concrete in various finishes, and pink granite. Frank Lucas, associate principal and lead designer for RTKL, explains that because the complex is so large, he began by "breaking it down, expressing each part separately, and using a pervasive vocabulary of detail and patterning to pull the pieces back together again."

As a result, none of the buildings predominates; all are related through a common horizontal alignment of elements and banding, among other devices, and are subsumed into a greater whole by a continuous, three-story retail block that serves as a foreground to the towers. The center's least successful design elements are the six identical three-story pavilions that mark off the central open spaces, because they are insufficiently integrated with adjacent elements.

RTKL's mandate was to create a spirited street life with an emphasis on the design of open spaces. To that end, the firm collaborated with landscape and urban design specialists Sasaki Associates of Watertown, Massachusetts. Alan Ward, a Sasaki principal, and his team precisely dimensioned each space to entice pedestrians. As a result, the footpath that runs from an unobjectionable parking garage to the north, through a slot separating the two office towers, and into Fountain Square is short, narrow, and pleasantly tree-lined. The square, which arcs around the towers' concave, quarter-circle elevations, is small enough to look alive even on a slow day. Broad brick sidewalks, plant-



GROUND FLOOR PLAN

Fountain Square (facing page) is announced by two ornamental pavilions fronting Market Street (top left) that define the center's east-west axis, with plaza and restaurants to the south (site plan). Just east of the plaza, the architects nestled a low-profile, mixed-use block, with ground-floor retail and setback office space that is reminiscent of Main Street (center left).

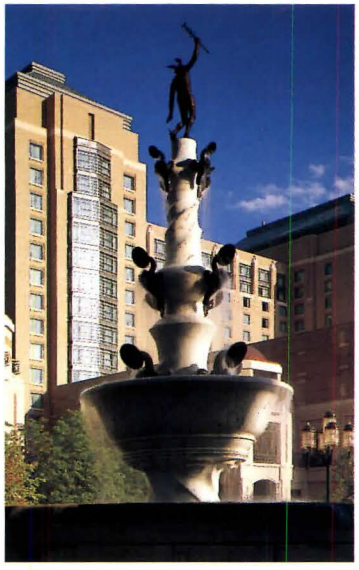
ings, and carefully selected street furniture proclaim Market Street as a primarily pedestrian environment, though it accommodates cars in two driving lanes and curbside parking. Less thought was apparently given to the plaza across Market Street from Fountain Square; it is formless and lifeless, except when animated by concerts in summer, ice-skating in winter, and seasonal festivals. Absent from the new town center is the economic and social diversity that gives downtowns their vitality—and many of their problems. But as Pillorgé points out, "Reston Town Center was never intended to solve urban problems. It's for an upscale population."

RTKL's hybrid of edge city, downtown, and Main Street may be further modified if a proposed expansion of the town center is undertaken. Sasaki Associates has been tentatively hired by the Reston Land Corporation to master plan a six-block addition that would include additional retail space, restaurants, another hotel, and some residential construction. "The spaces will be softer, more like American town squares," explains Ward. According to Reston Land Corporation president James Cleveland's rough estimate, Reston Town Center's second phase could be completed by 1995. ■

—ANDREA OPPENHEIMER DEAN

RESTON TOWN CENTER
RESTON, VIRGINIA

OWNER/DEVELOPER: Reston Town Center Associates, a Mobil Venture, and Himmel & Company
ARCHITECT: RTKL Associates, Baltimore, Maryland—George Pillorgé, FAIA, David Hudson, AIA, Bernard Wulff, AIA (principals-in-charge); Frank Lucas, AIA, Rod Henderer, AIA (project architects); Mike McQueen, AIA, John Beacham (project managers); Kevin Utsey, AIA, S.H. Chen, AIA, Janey Gregory, Ray Symanski, Bill Born, John Noakes, Jaafar Baisah, Johanna LaPierre, Matt Rohr, Ridge Dixon, Janet Felsten, Jim Leonard (design team); Anne Dudrow, Charlie Greenwalt (graphics)
LANDSCAPE ARCHITECT: Sasaki Associates
ENGINEERS: RTKL Associates (structural, mechanical/electrical); Urban Engineering (civil)
CONSULTANTS: Cerami (acoustical); PAMA (audiovisual); Walker Parking Consultants (parking); Engineering Consulting Services (field testing); Construction Research Laboratory, Moisture Systems (exterior walls); D/A Capitol (security); Elevator Service Professionals (elevators); Rolf Jensen & Associates (fire protection); H.M. Brandston & Partners (exterior lighting); Craig Roberts Associates (interior lighting); Wilson & Associates (interiors); Cini-Little (food service)
GENERAL CONTRACTOR: Omni Construction
COST: $300 million
PHOTOGRAPHER: Maxwell MacKenzie



RTKL detailed buildings, lighting, and signage to enhance Reston's street life. The weather vane and globe (center right and bottom left) were designed by its own graphics team; the Mercury fountain (center left) by St. Clair Cemin. Brick and precast concrete are used throughout, from the office tower entrance (top) to the parking structure (facing page, top left). Varied detailing in public areas encourages accessibility for pedestrians and motorists alike (facing page, top right and bottom).

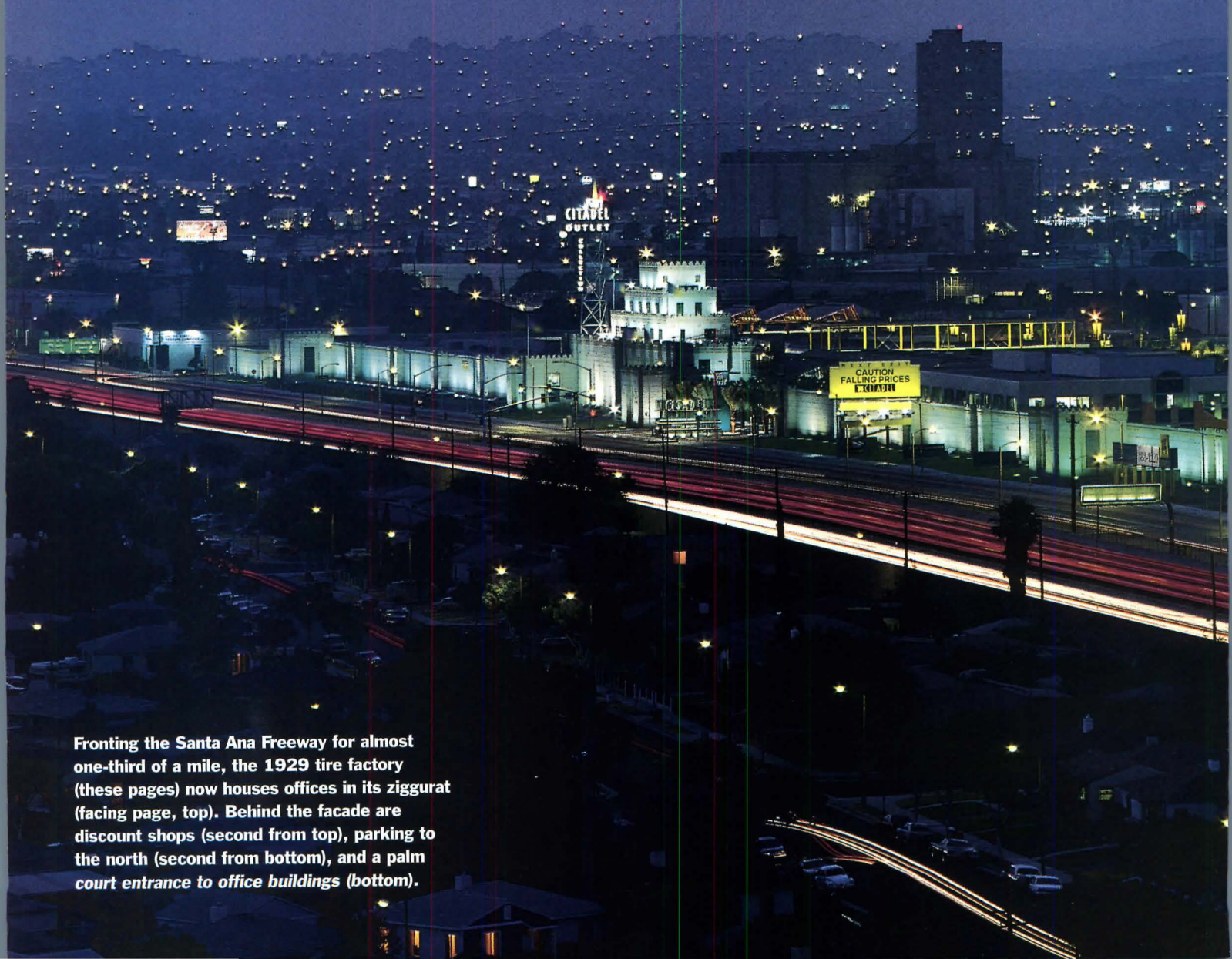

HYATT


MAS

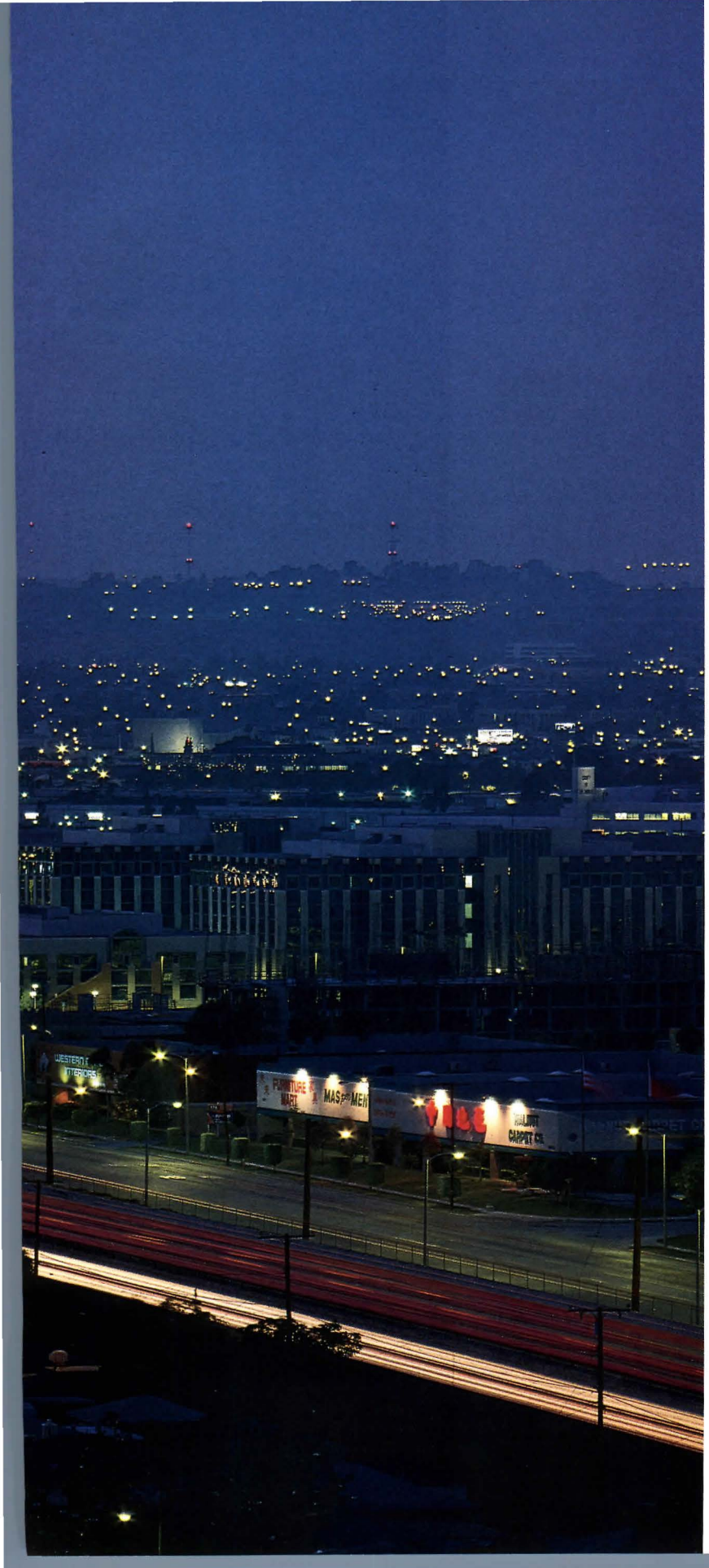

MULTIPLEX
RALEIGHS

The Citadel
City of Commerce, California
The Nadel Partnership and
Sussman/Prejza & Company

Freeway Landmark



Fronting the Santa Ana Freeway for almost one-third of a mile, the 1929 tire factory (these pages) now houses offices in its ziggurat (facing page, top). Behind the facade are discount shops (second from top), parking to the north (second from bottom), and a palm court entrance to office buildings (bottom).


WESTERN INTERIORS
FURNITURE MART
MASTERS
CARPET


CITADEL
OUTLET

LONG BEFORE EDGE CITIES WERE A RECOGnized urban form, there was Los Angeles. Its burgeoning automobile culture, which led to the demolition of the city's rapid transit system, has long encouraged buildings that are oftentimes more accessible to passing motorists than to pedestrians.

An extraordinary monument to the region's devotion to the car is a 1,700-foot-long crenellated wall of Mesopotamian iconography that has stood for 61 years in the City of Commerce, California, six miles east of downtown Los Angeles. Originally home to the Samson Tyre and Rubber Company, the imposing facade was designed in 1929 by local architects Morgan Walls & Clements as a screen for the massive factory and administrative offices. Over the years, the poured-in-place concrete structure, incised with warriors and winged deities and punctuated at its midpoint with a 60-foot-tall ziggurat, became a landmark to the millions of drivers who travel along the Santa Ana Freeway.

But the factory was abandoned in 1978, and fell prey to vandals and threats of demolition. Eight years later, The Nadel Partnership teamed up with Texas developer Trammell Crow Company and won a competition sponsored by the City of Commerce to redevelop the landmark site. Their proposal called for a mixed-use complex comprising an outlet shopping center, four office buildings, and a 200-room hotel, which is now nearing completion.

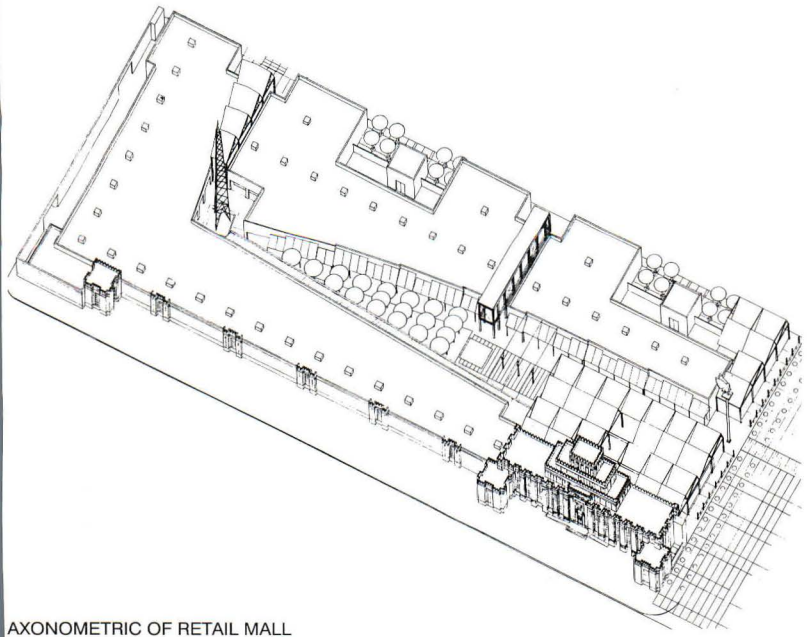
Surprisingly, The Nadel Partnership/Trammell Crow scheme was the only proposal that preserved the ornate factory wall. But as plans progressed, the community, too, expressed its desire that the wall be restored. Recognizing the facade's historical significance and its value as a marketing tool, Trammell Crow brought in the late Houston architect Paul Kennon as architectural consultant, who in turn assembled an impressive team of designers to ensure that the project would not end up a typical suburban corporate park. Los Angeles-based Sussman/Prejza & Company, the firm responsible for creating environmental graphics for the 1984 Olympics, was hired as color consultant and to design the retail component, and San Francisco landscape architect Martha Schwartz joined the team as urban design consultant.

The collaboration paid off. The ambitious, $118 million mixed-use project juxtaposes fantasy and reality, not just in its blending of remnants of the old Assyrian wall and factory with new buildings, but in its astute combination of design talents and developer's economic savvy.

The 35-acre site is bisected by a grand allée, which separates the 157,000-square-foot retail mall to the west from office buildings and a hotel to the east. Urban designer Martha Schwartz cut a 150-foot swath out of the wall next to the ziggurat, which made way for four lanes of traffic through the site and finally opened the nearly one-third-mile-long facade to curious commuters who had long wondered what lay behind the wall. With the precision of a military parade, Schwartz aligned 250 date palms that appear to float above the plaza. She then defied the conventional vocabulary of a roadway and set white concrete bases that resemble inflated inner tubes around each tree to define the lanes of traffic, and alternated gray and red concrete pavers to differentiate pedestrian and vehicular zones. The resulting approach drive is a grand ceremonial space for people that is also open to traffic, proving that the two can happily coexist.

The palm court also serves as a physical buffer between the visual cacophony of the retail outlet mall and the business-as-usual demeanor of the four office buildings. Although the retail portion sits directly behind the flamboyant factory wall, Sussman/Prejza chose to accentuate the existing industrial esthetic of the complex. "The original building was really a factory," recalls designer Fernando Vazquez. "The wall had nothing to do with function; it was only an elaborate facade."

To create a food court directly north of the ziggurat, the architects restored the factory's original sawtooth roof and reinforced the structure with new steel members to meet



AXONOMETRIC OF RETAIL MALL

Painted steel arcades connect parking lot with mall (facing page, top and bottom). Paving zigzags across the courtyard (top), and angled storefronts create a forced perspective down the elliptical plaza (second from top and axonometric). Sawtooth factory roof canopies the landscaped food court (second from bottom). Pathways and arcades converge at the central plaza (bottom).

JAY VENEZIA

seismic code requirements. Vazquez also removed the roof's central bay to frame views to the tower and to highlight the juxtaposition of the mythical wall and the factory's skeletal structure. The older structure's industrial esthetic is echoed in the mall: a 140-foot tower rises above the central courtyard to recall an oil derrick, and gateways from the parking lot are fashioned from steel I-beams. The shops are arranged to create a series of arcades and plazas, providing each one with a storefront and a theoretical address. Layered stucco walls accentuate these smaller courtyards and a landscaped elliptical plaza. Colors are bold, ornamentation is minimal, and forms are simple and strong—reminiscent of the work of Ricardo Legorreta, who consulted on the design of a shopping mall in nearby Orange County (pages 52-55).

Along the southern edge of the site, the tire factory wall and administration building underwent extensive rehabilitation. The wall was shored up with new steel members, and the tower was reinforced with a new steel structural skeleton. The Art Deco lobby, with its intricate friezes and stylized bas-reliefs, was re-created with ornament molded from original details. The great wall was cleaned and painted in subdued hues of green and beige.

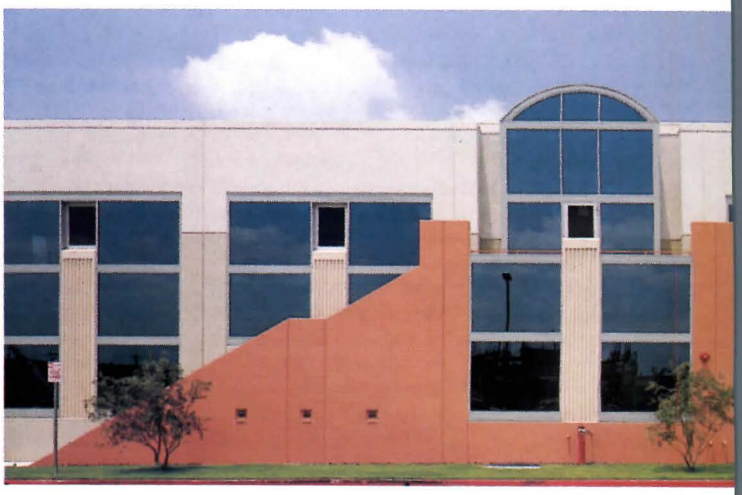
The Nadel Partnership incorporated its own abstracted vocabulary of the Assyrian-inspired ornament for two four-story office buildings that flank the allée to the north and for a pair of two-story structures to the east. They also sited the two lower buildings to reinforce an east-west cross axis, and incorporated an outer stairway along each building's west facade to establish a connection with the palm court. Given the constraints of speculative office development and a budget of approximately $50 per square foot, the four precast-concrete-and-glass buildings appropriately recall the original structure's eclecticism, but pale next to the bold originality of the complex's other components.

The Citadel is a colorful microcosm of contemporary Southern Californian dichotomies. It capitalizes on the region's infatuation with grand illusion while remaining true to less glamorous industrial precedents. Its collection of diverse buildings around courtyards and promenades creates a public experience within the confines of a private development. Unlike much of the sprawling development that characterizes edge cities around the United States, The Citadel achieves an extraordinary freeway experience accessible on a human scale. ■

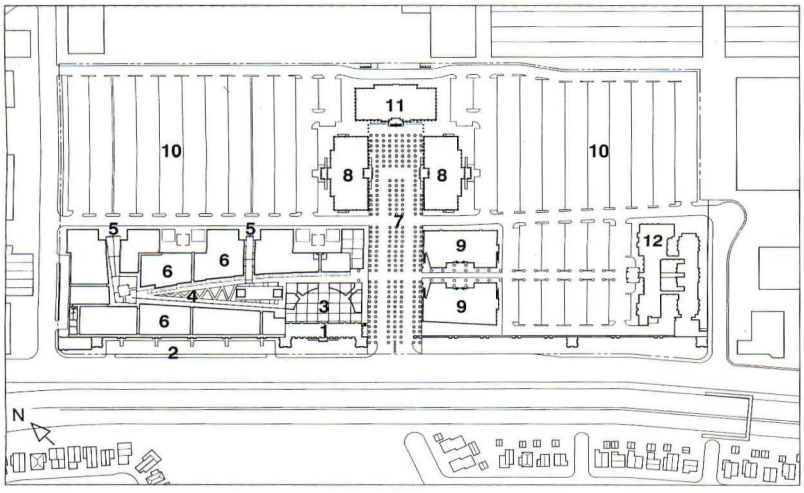
—Lynn Nesmith

THE CITADEL
CITY OF COMMERCE, CALIFORNIA

DEVELOPER: Trammell Crow Company in joint venture with Copley Real Estate Advisors and the City of Commerce Redevelopment Agency
ARCHITECT: The Nadel Partnership, Los Angeles, California—O. Randolph Jones (principal-in-charge); Robert A. Jacques (design principal-in-charge); Giorgio Lupu (project designer); Ira Mann, Chris Tuladhar, Tom Brighton, Joe Fontanilla (project team); Natalya Abolnikova, Ron Bergman, Karen Martin (project assistants)
DESIGN ARCHITECT: Sussman/Prejza & Company, Culver City, California (factory outlet center)—Deborah Sussman, Paul Prejza (principals); Fernando Vazquez (project designer); Ena Dubnoff, Sharon Sterling, Charles Milhaupt, Robin Kerper, (design team); Scott Cuyler, Holly Hampton (graphics and signage)
HOTEL ARCHITECT: Dahl Braden PTM, Dallas, Texas
URBAN DESIGN CONSULTANT: Schwartz, Smith, Meyer, San Francisco, California—Martha Schwartz (principal); David Meyer, Ken Smith (design team)
LANDSCAPE ARCHITECTS: Peridian Irvine (office buildings, factory outlet center, and hotel); Schwartz, Smith, Meyer (grand allée);
ENGINEERS: Meyers, Nelson, Houghton (structural); Hellman & Lober (mechanical); Dalan Engineering (electrical); Psomas & Associates (civil); Linscott, Law & Greenspan (transportation)
CONSULTANTS: Paul Kennon, FAIA, (architectural); Martin Weil, AIA (restoration); Grenald Associates (lighting); Forum Construction Services (construction management); RAW Architects (tenant space planning); Tamara Thomas (art); Eric Orr (water features)
CONTRACTORS: HCB (general); CPW Inc. (restoration)
COST: $118 million—$32/square foot (retail); $50/square foot (commercial)
PHOTOGRAPHER: Jeff Goldberg/Esto, except as noted



Landscaped allée unifies the complex (facing page, top and bottom). Office building rises beyond the parking lot and colored stucco facades of the mall (top right). Two office buildings open onto an east-west cross axis (second from top) with open stairways that border the allée (second from bottom). The original factory wall is now a free-standing prop (bottom).



SITE PLAN

1	EXISTING FACTORY	5	ENTRY ARCADES	9	TWO-STORY OFFICES
2	EXISTING FACTORY WALL	6	RETAIL	10	PARKING
3	FOOD COURT	7	PALM COURT	11	FUTURE OFFICE
4	RETAIL PLAZA	8	FOUR-STORY OFFICES	12	HOTEL

Motorola Museum of Electronics
Schaumburg, Illinois
Booth/Hansen & Associates, Architects

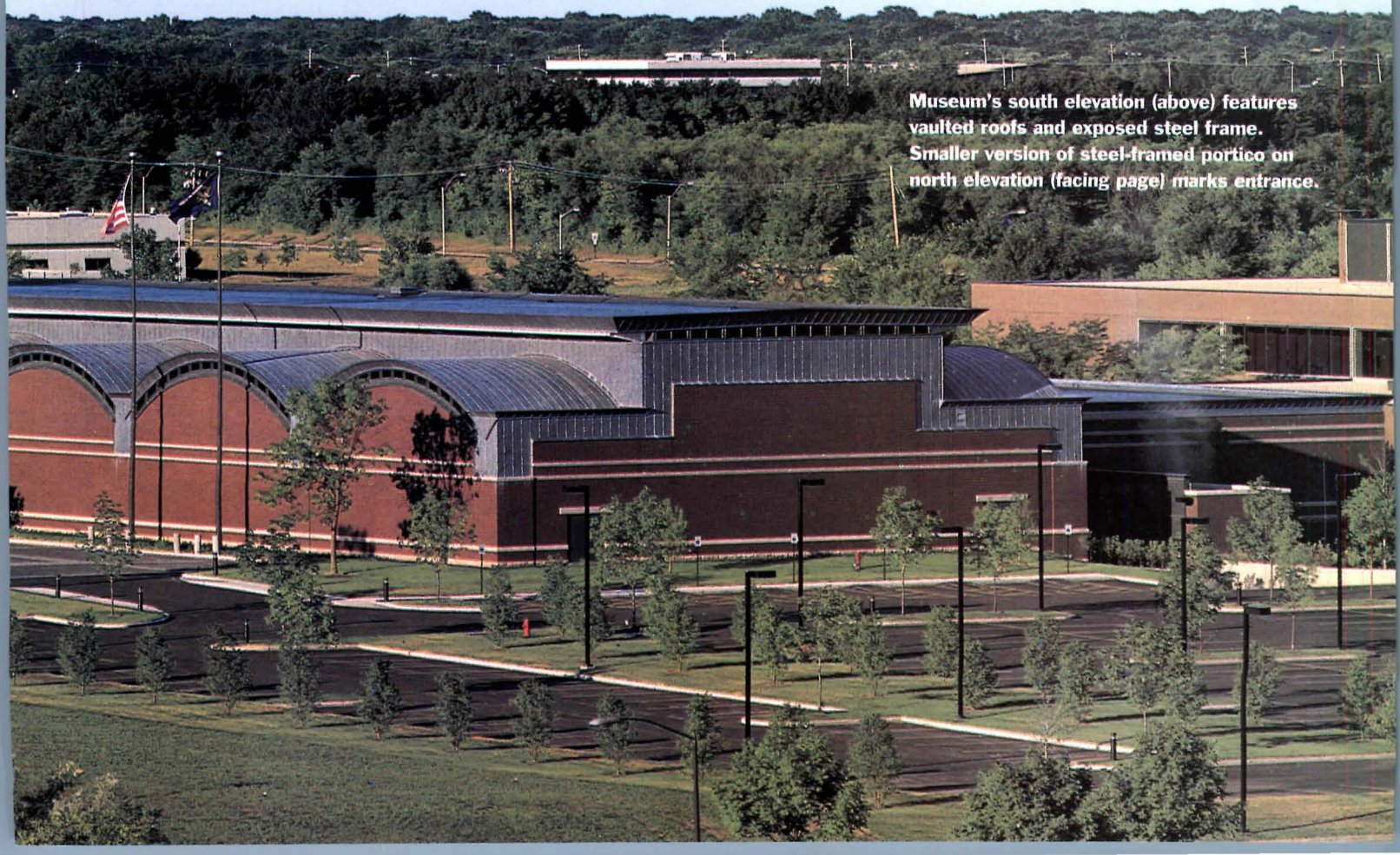
Corporate Signal

IN THE SUBURBAN DESERT OF AUTO REPAIR shops and fast-food chains that is Schaumburg, Illinois, the new Motorola Museum of Electronics is an architectural oasis. Designed by Booth/Hansen & Associates of Chicago, the museum exhibits artifacts from the electronics company's 63-year history and houses a 220-seat auditorium and rooms for corporate receptions and meetings. Its materials are characteristic of most of the buildings on the corporation's 390-acre campus, but they are rendered to distinguish the 85,000-square-foot building from its bland neighbors.

Motorola's history is bound up with the growth of the Chicago area. Founded in Chicago in 1928, the company moved to the edge city of Schaumburg, 15 miles northwest of downtown, in 1976. The brown brick boxes trimmed in white stone on the corporation's campus exude Midwestern utilitarianism and dictated the material palette of the museum's design. After a study of four sites, architect and client agreed upon a grassy crest that overlooks a man-made lake. Adjacent to an interstate highway, the site was chosen for its high visibility and proximity to the company's continuing education center, a 1985 building designed by Lohan Associates, to which the museum is connected.

From the interstate, the museum's south facade, with its slender steel arch and lead-coated-copper roof, hovers above the lake and commands the landscape like a Palladian villa. But the rectangular building quickly disappears from view when driving off the exit ramp, and remains hidden from the campus's north entrance. When approaching the facility, the museum's forecourt is announced by a white steel-arched portico reminiscent of the element glimpsed from the highway.

Like all of the buildings on the Motorola campus, the museum is faced in brown brick, but the brick is laid in an English bond pattern with Dutch corners. The mortar is tinted to match the brick, which gives the walls a monolithic appearance and vividly contrasts with the limestone bands that encircle the building. The lead-coated-copper



Museum's south elevation (above) features vaulted roofs and exposed steel frame. Smaller version of steel-framed portico on north elevation (facing page) marks entrance.

Classically composed portico is sheltered by lead-coated-copper arched roof (below). Brick walls surrounding entrance (left) are variegated to simulate microchips by projecting every other brick in header course.

cornices on the exhibit hall's vaulted roof and the museum's one-story wings provide a crisp edge against the sky. In combination, the stone banding, arches, and exposed steel porticoes break down the scale of the building. The museum's massing is further articulated by its division into a two-story, symmetrical exhibit hall to the west and two conference-reception pavilions to the east, each with its own axial circulation.

Inside the museum, the entrance lobby is surrounded by support spaces, which are paneled in ash and maple veneers that have been sharply detailed with staggered, overlapping vertical joints to visually tie the elements together. This wood paneling resembles stone in its detailing, and since it has been placed below ceiling height, it diminishes the scale of the spaces. The paneling also extends out from walls in the reception hall to enclose food preparation areas and storage closets.

The exhibit gallery is reached through a narrow, panel-lined corridor west of the reception area, which effectively compresses space in contrast to the spatial explosion within the museum. "I want to see it all at once," is how principal Laurence Booth remembers retired Motorola president Robert Galvin describing the visual impact he wanted

upon entering the museum. The 250-foot-by-100-foot exhibit space encompasses a cathedral-like volume that is first viewed from a mezzanine that arcs along its south end. Steel parabolic arches span the space in groin-vault fashion, defining a central nave. Side aisles are contained by lower vaulted ceilings, which are expressed on the exterior. "Electronics are fast and light, doing the most with the least," says Booth, "and we wanted the architecture to symbolize those qualities."

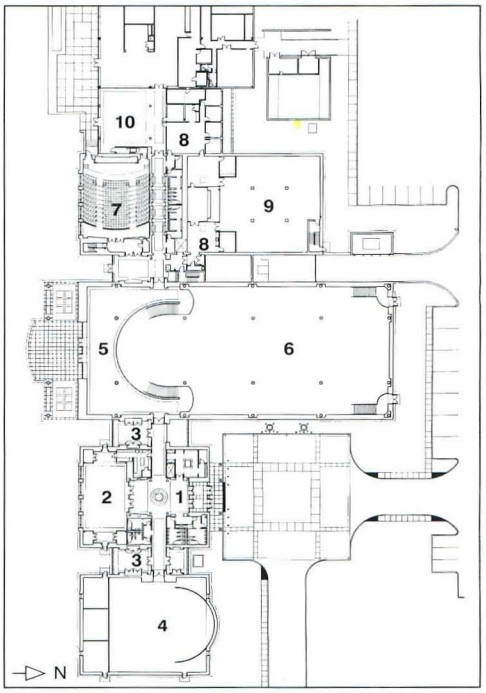
Managing architect William Ketcham notes that the hall's steel framing recalls the 19th-century train sheds and Parisian libraries designed by Pierre-Francois-Henri Labrouste. Unfortunately, the exhibits, which were not designed by Booth/Hansen, are housed within a space frame that appears at odds with the architecture and obscures the vaulted steel tracery when viewed from the exhibit floor.

Booth and Ketcham contend that the ecclesiastical connotations of the hall were unintentional; that they merely wanted a space that would complement the exhibits. But conscious or not, what better precedent than a church could there be for a museum that contains instruments that allow our voices to pass through the air like spirits? ■

—MICHAEL J. CROSBIE

Museum's south portico (right and below) is crowned with lead-coated-copper cornice and reveals steel framing of exhibit hall just behind south wall. East wings contain conference and reception rooms.

Reception room (left) conceals storage and food preparation behind wood-paneled volumes and screen. Such intimate spaces contrast with lofty steel-framed exhibit hall (below), which is daylighted through clerestories.



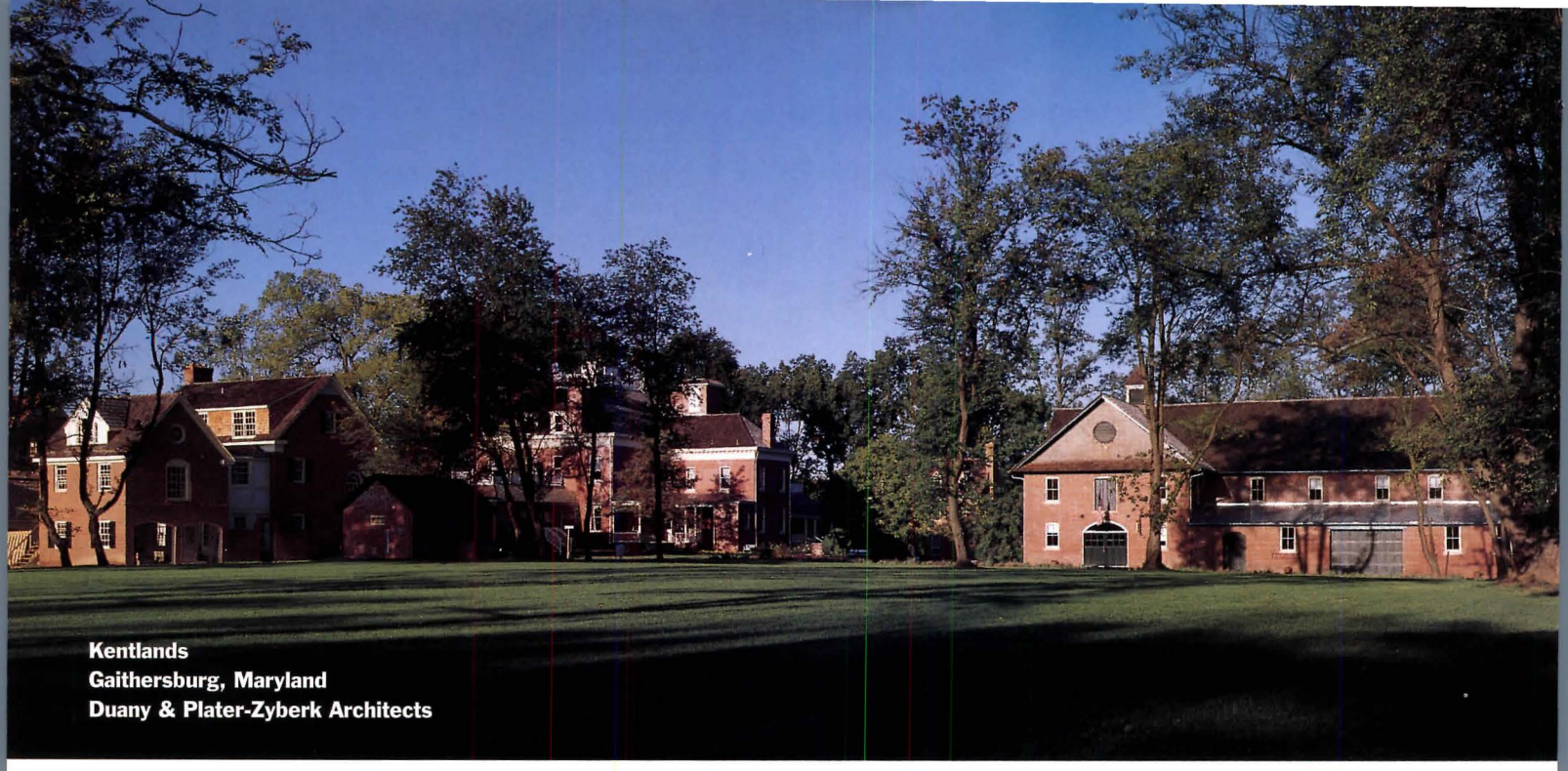
GROUND FLOOR PLAN

1	ENTRANCE LOBBY	6	EXHIBIT HALL
2	RECEPTION LOUNGE	7	AUDITORIUM
3	CONFERENCE ROOMS	8	OFFICES
4	PARTNERSHIP CENTER	9	STORAGE
5	MEZZANINE	10	DINING ROOM

MOTOROLA MUSEUM OF ELECTRONICS
SCHAUMBURG, ILLINOIS

CLIENT: Motorola, Inc.
ARCHITECT: Booth/Hansen & Associates, Chicago, Illinois—Laurence Booth (design principal); Paul Hansen (management principal); William Ketcham (managing architect); James Fraerman (technical architect); Margaret Derwent (design architect); Paul Duffy (vice president); Foster Dale, Robert Jakubik, Kevin Rotheroe, John Tittmann, Tara Walter (project team)
LANDSCAPE ARCHITECT: James Dowden & Associates
ENGINEERS: Martin/Martin (structural); Gamze, Korobkin, Caloger (mechanical/electrical); Barton Aschman Associates (civil)
CONSULTANTS: Boyce Nemec Design (audiovisual); Shiner + Associates (acoustics); Rolf Jensen & Associates (fire protection); George Sexton Associates (lighting); Hanscomb Associates (cost-estimating); Christine Beall (masonry)
GENERAL CONTRACTOR: Turner Construction Company
COST: Withheld at owner's request
PHOTOGRAPHER: Timothy Hursley, The Arkansas Office

Reception desk (right) is finished in maple and ash—like wall paneling—and receives natural light from above. Corridor at right of reception area leads to mezzanine, which allows view of entire exhibit hall (below).



Kentlands
Gaithersburg, Maryland
Duany & Plater-Zyberk Architects

Plan Meets Reality

IN SMALL-TOWN AMERICA OF OLD, THE POSTman always rang twice. But in the new small town of Kentlands, in Gaithersburg, Maryland, he doesn't even come to the door. Instead, residents get their mail from a freestanding box in the alley behind their garage, if they live in a detached house, or from a slot in a gang mailbox, if they live in a townhouse or an apartment.

By itself, this modern method of mail delivery will hardly diminish the quality of life at Kentlands, a 1,600-unit community that is now taking shape on a picturesque tract of former farmland 23 miles northwest of the nation's capital. But it is highly ironic for a community that was designed to offer an alternative to the car-oriented subdivisions of the 1960s and 1970s. Andres Duany and Elizabeth Plater-Zyberk, a husband-and-wife team of architects, had envisioned an intimate, slow-paced atmosphere, the kind that made 19th-century small towns so pleasant. But how can the builders of Kentlands call it a walkable community when mail carriers don't even make their rounds on foot?

The lack of door-to-door deliveries illustrates but one obstacle that confronted Duany & Plater-Zyberk (DPZ) in the firm's quest to create a "Neo-Traditional" community that looks and functions differently from other suburban developments. For them, recreating the simple life has turned out to be more than a little complicated.

"You're really getting into a whole new business with this stuff," maintains William Winburn IV, a former vice president of Joseph Alfandre & Company, the developer of Kentlands. "It's a break in every element, from code enforcement to traffic engineering to financing. You have to redo everything. It requires a whole new level of commitment."

More than three years have passed since the development team headed by Alfandre first unveiled plans to build a mixed-use community on the former Kent family farm, one of the last large parcels available for development in Gaithersburg. The planning effort represented a rare opportunity for DPZ, which is best known for producing the master plan of Seaside, an idyllic resort community on the Florida Panhandle. Seaside, too, harks back to the small towns of the 19th century; it is a self-contained community where you can walk to the post office and chat with neighbors.

Kentlands gave DPZ a chance to apply their Neo-Traditional ideas to the construction of a year-round community in the suburbs of a large city. They wanted to provide an alternative to such automobile-dependent new towns as Columbia, Maryland; Reston, Virginia (pages 56-61); and others that have been built over the past three decades. After studying Annapolis, Maryland; Georgetown, in Washington, D.C.; and other places with a small-town feeling, they decided to promote interaction among residents by doing away with the culs-de-sac and single-use zoning that separate residences from shops and offices. Their set of building codes spells out where each building will go and how it will relate to the others based on traditional methods of 19th-century planning.

DPZ's plan for the 352-acre Kentlands site (ARCHITECTURE, April 1990, pages 80-83)

PHOTOGRAPHY BY ALAN KARCHMER

The design of Kentlands takes its cues from the Kent family mansion and outbuildings (facing page). Rigorous design codes stipulate a small-town character. Houses are designed in a variety of traditional styles (top left and right), some with "granny flats" above garages (far left in photo, facing page). Codes encourage builders of even the least expensive townhouses (top right) to use brick, stone, and wood—materials that look and age better than aluminum and vinyl.

garnered widespread acclaim as a model that could set a new standard for orderly growth on the edge of cities, reversing 50 years of bad planning and revolutionizing suburban life. "We have two missions at Kentlands," Duany says. "To create a new town, and to change the way the world is planned."

Of the nearly three dozen Neo-Traditional villages, towns, and hamlets that DPZ has designed since Seaside, Kentlands is the farthest along of any intended for the suburbs, with more than 350 houses and apartments now in place. But it has not been immune from the economic problems that have plagued developers across the country. In July, the project was taken over by its lender, Chevy Chase Federal Savings Bank, after the original development team headed by Alfandre & Company ran into financial difficulties stemming from the economic recession. While the loss of control has been wrenching for the developer, which has been retained as a consultant, the restructuring has allowed the project to continue.

Kentlands may also give DPZ an opportunity to answer some of the critics of the Neo-Traditional town-planning movement in general. More than a few design professionals and academics have expressed reservations about what they see as DPZ's nostalgia-laden formulaic approach. "I see Seaside as an elitist fantasy," architect Frank Gehry was quoted in *Newsweek* as saying earlier this year. "I think it's like saying to your kids, 'Look, we don't have any new ideas, so we're going to take ideas from the past.' " During a recent symposium at the Smithsonian Institution, Austin architect Lawrence Speck expressed disdain for "this Anytown formula." He added, "I think the notion that there are just a few simple rules, and that they work everywhere, is very simple-minded."

Duany has done his best to answer the skeptics. "There are all sorts of people going around saying that I'm an excellent snake-oil salesman," he claims. "People are skeptical because they can't believe it's so good."

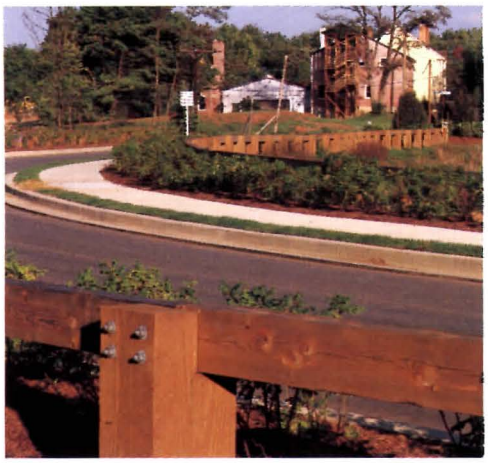
Kentlands had the makings of a successful community from the start, with its stately mansion and farm buildings dating from the 1850s, three picturesque lakes, great stands of trees and other mature vegetation, and abundance of wildlife. The original plan called for the construction, over 10 years, of as many as 1,600 residences in five neighborhoods, an elementary school, a cultural center, 900,000 square feet of office space, and a regional shopping center.

In drawings that were produced during a seven-day design charette held in June 1988, the town was depicted as featuring a traditional Main Street with small-scale shops and offices, pleasant tree-lined residential streets, and formal parks and open spaces. Residences were rendered in a variety of traditional styles, including Georgian, Victorian, and Shingle. The designers insisted that the houses be made of real brick, stone, and wood—materials that look and age better than aluminum and vinyl.

But what really made Kentlands different was that it grew out of a process that emphasized the creation of an integrated, sociable place, rather than a collection of disparate building objects. DPZ's principals say that looking backward is a way of imposing order and that they returned to traditional methods of place-making—concentration of uses, multiplicity of scales, redundancy of streets, hierarchical pattern of public spaces—because they work. By borrowing the best ideas from the past and applying them to solve problems in the present, they are trying to create nothing less than an all-encompassing guide for a new American urbanism: "The new town, the old ways."

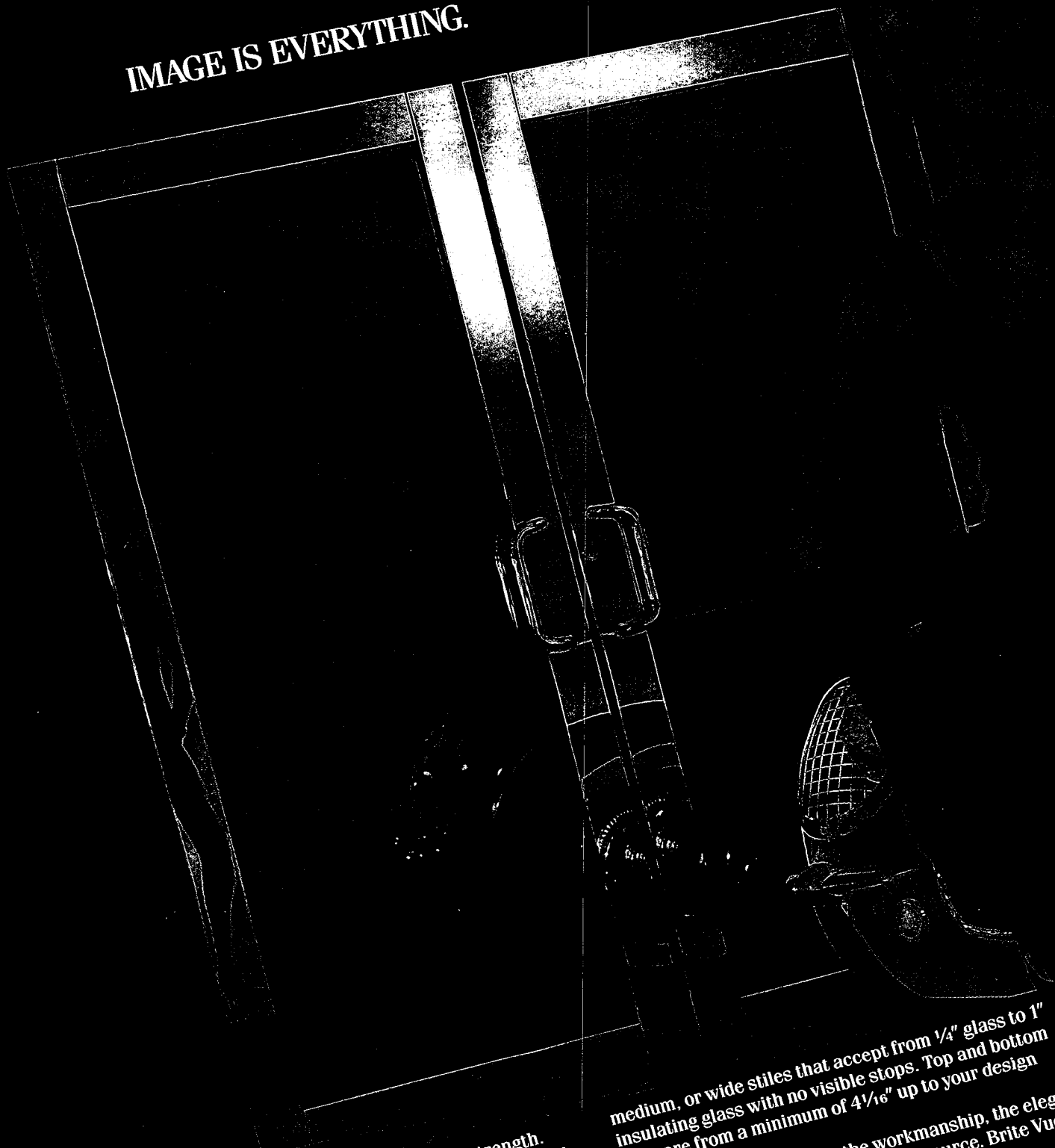
In the early plans, the most distinctive neighborhood was a rather quirky cultural village built around the old farm buildings. The mansion, barn, and other structures were to be recycled for public uses, ranging from a community center to craft studios; their architecture was to set the tone for the new houses that would be built nearby, many of which were to overlook the largest lake.

continued on page 116



Kentlands' initial phase includes 240 mid-rise apartments (facing page, left) and an elementary school (facing page, right). One "innovation" is the return of back alleys (top left and top right) as service corridors. The original Kent family mansion (center right) was restored for community use. Details controlled by the design codes include (clockwise from bottom right): free-standing mailboxes, old-fashioned street lamps, front porches, and wooden guard rails.

IMAGE IS EVERYTHING.



In strength there is beauty. And in beauty, strength. Brite Vue tempered glass entrance systems. Full framed entrances, clad in muntz metal or stainless steel, with added thickness to protect against distortion from dents or abuse.

Design flexibility increases with choices of narrow, medium, or wide stiles that accept from ¼" glass to 1" insulating glass with no visible stops. Top and bottom rails are from a minimum of 4 1/16" up to your design requirements.

The glass, the metal, the workmanship, the elegance and the attitude. All from the same source. Brite Vue.

BRITE VUE

Brite Vue Glass Systems, Inc.
A Kawneer Company
Department C
Technology Park Atlanta
555 Guthridge Court
Norcross, GA 30092

Circle 29 on information

INFO

TECHNOLOGY & PRACTICE

Asbestos Reassessed

IN OCTOBER, THE ASBESTOS LITERATURE REview Panel of the Health Effects Institute (HEI) released a report, mandated by Congress in 1988, that summarizes current scientific knowledge about asbestos and determines areas requiring further research. HEI is an independent, nonprofit organization funded by the EPA and private-sector interest groups, including real estate, insurance, and asbestos-manufacturing companies. The report concludes that building occupants' exposure to asbestos is generally very low, and that removal of intact, asbestos-containing material within well-maintained buildings is often not the best recourse because it may create a dangerous situation where none had previously existed. Some workers, however, such as maintenance personnel, may face a higher exposure risk to asbestos. The conclusions reinforce EPA's current policy, which is outlined in the 1990 publication, "Managing Asbestos in Place: A Building Owner's Guide to Operation and Maintenance Programs for Asbestos-Containing Materials," commonly referred to as "the Green Book" (ARCHITECTURE, November 1990, pages 127-130). The report, however, leaves many questions unanswered, noting a lack of reliable data and the difficulty in assessing asbestos-exposure health risks.

Although HEI's findings will not change current regulatory policy, the decision by a federal appellate court will. A new ruling permits the continued manufacture of asbestos-cement siding, roofing shingles, and water pipes, and asbestos roof coatings, gaskets, and cements. Under legislation passed in 1989, all such building materials would have been eliminated by August 1996. But the U.S. Fifth Circuit Court of Appeals determined that the EPA had failed to provide substantial evidence that such products posed an unreasonable risk and had neglected to assess alternatives to the banned substances. According to the Asbestos Information Association (which represents the asbestos industry), the ruling will not affect building products that have already been discontinued, such as asbestos-containing felt, sheet goods, and vinyl tile. —M.S.H.

ELLIOTT KAUFMAN PHOTOS

Green Architecture Flourishes at IDCNY

This year's Designer's Saturday, held in October at the International Design Center, New York (IDCNY), focused on ecology and design. To heighten practitioners' environmental awareness in their own firms, the AIA unveiled a two-part exhibit (above). A green space (below) included such ecologically sound elements as operable windows, an ammonia-free large-format copier, and a reusable ceramic coffee mug. The adjacent area, painted orange, contained less desirable products often found in offices, such as sealed windows, an ammonia-based blueprint machine, and two weeks' worth of plastic cups. Signs in both areas outlined the environmental impact of each element. The exhibit, which remains on display at IDCNY, was designed by the New York firms of William McDonough Architects and Milton Glaser in consultation with members of AIA's Committee on the Environment. Materials were donated by manufacturers. For more information, contact (718) 937-7474.

Metal Technology Conference Debuts in October

FROM OCTOBER 16-18, 3,650 ARCHITECTS, ENgineers, contractors, facility managers, building owners, and developers attended MetalCon '91 in Washington, D.C., the metal construction industry's first conference and exhibition. A total of 240 exhibitors tried to shed the conventional image of metal as a material appropriate only for industrial and agricultural building applications. Manufacturers' booths displayed a broad array of profiles and finishes now available for architectural metal roofing and wall systems. Speakers at more than 50 technical seminars addressed the correct applications for designing, detailing, and installing such building system products. The design flexibility of pre-engineered metal structures, advances in metal coatings, and increased protection against weathering were discussed, providing architects with the information they need to correctly specify metal building components and finishes for new or retrofit projects. MetalCon will be an annual event, with next year's conference to be held in October 1992 in Chicago. For more information, contact: (708) 981-8013. ■

Stacking the Decks

Site-sensitive parking integrates garages into downtown and edge city architecture.

PARKING GARAGES ARE HERE TO STAY. A major survey of the industry conducted by the Alexandria, Virginia-based Parking Market Research Company reports that nearly 1,200 multilevel parking structures were constructed between 1987 and 1990, totaling $8.5 billion worth of construction and providing room for more than 1 million cars. With the need to maximize land use, surface parking lots (below) are no longer economically viable, nor are they considered an acceptable urban planning option. According to the American Planning Association report entitled "Aesthetics of Parking," planning commissions and citizens groups are demanding that parking lots go beyond merely satisfying minimal functional requirements. Such efforts have led to mixed-use garages: structures that combine parking with shops and offices.

As developers are forced to comply with more stringent zoning ordinances (or to make their projects more leasable), architects are designing parking as an integral part of a building, and not as an afterthought. The proposed expansion of Seaport Village (facing page), a downtown San Diego waterfront retail development, for example, was stalled for several years because the city's port authority rejected two proposed above-grade schemes that hampered sight lines and public access to the bay. An underground solution by Hope Architects and Engineers, with a park on the street-level roof, resolved the debate.

Burying a garage is one way to eliminate the eyesore of parked cars, but the added costs of excavating and shoring an additional structure to retain earth and resist groundwater are prohibitively expensive for all but the most premium lots. Like underground garages, enclosed above-grade multilevel parking decks, especially when they include office space, require sprinkler systems, fire-rated separations, and mechanical ventilation systems to meet fire codes and ensure occupant safety.

The alternative, partially open or screened walls, creates a more pleasant environment, allowing natural light and ventilation and eliminating the need for costly mechanical exhausts and sprinklers. Likewise, open setbacks and landscaping break down the scale of a structure designed to accommodate cars to more human proportions and buffer pedestrians from the impact of otherwise harsh blank walls.

Architects must, however, balance esthetics with the structure's rigid requirements for automobile maneuvering, traffic flow, and durability. According to the National Parking Association, a ramped deck with parking along the inclines presents the best and most widely used approach to easy maneuvering while minimizing travel distances and the size of the structure. Post-tensioned and precast, prestressed concrete for maximum spans and minimum floor-to-floor heights have proved the most durable and efficient construction methods. For integrating functions other than parking within the garage, the two most common structural bay sizes, 60-foot-long spans and 30-foot-square column grids, provide a suitable base for either open office or compartmentalized commercial space to be constructed above.

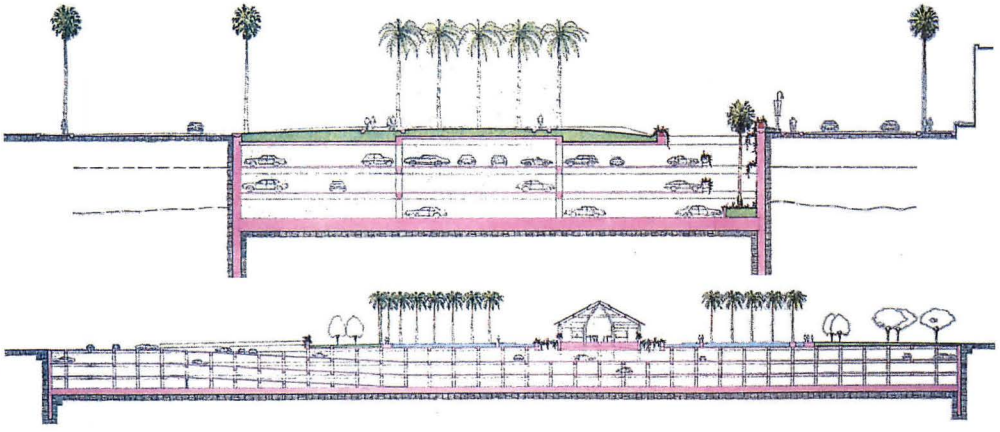
As developers are forced to comply with more stringent zoning ordinances (or to make their projects more leasable), architects are designing parking as an integral part of a building, and not as an afterthought.

Architects concerned with the growth of office parks outside traditional downtowns face another dilemma: commuters who want both a parklike setting and a place to park their cars. To mediate these seemingly contradictory requirements, architects should look to garages built in big cities, where parking is treated as architecture. The architect-development team Portman Barry Investments has carried the idea of mixed-use parking garages from multistory downtown structures to edge cities. The firm's Courtland Square in Atlanta, for example, incorporates a two-story rooftop health club on top of eight parking levels. Now, Riverwood and Northpark (following pages), two suburban developments 30 minutes north of the city, incorporate food courts and rooftop plazas as tenant amenities and exemplify Portman Barry's heightened sensitivity to integrating high-density parking into commercial developments.

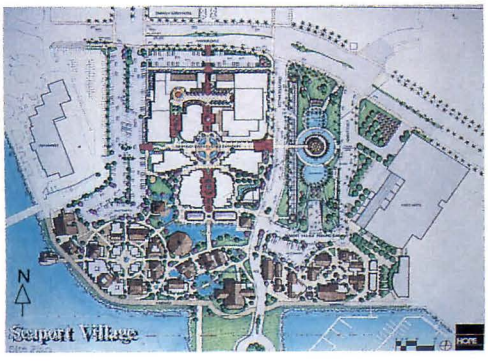
—MARC S. HARRIMAN

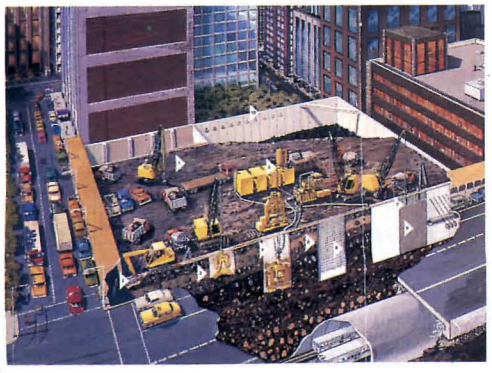
ARCHIVE PHOTOS/HELPERN

ARCHIVE PHOTOS/AMBERG



PARKING GARAGE SECTIONS



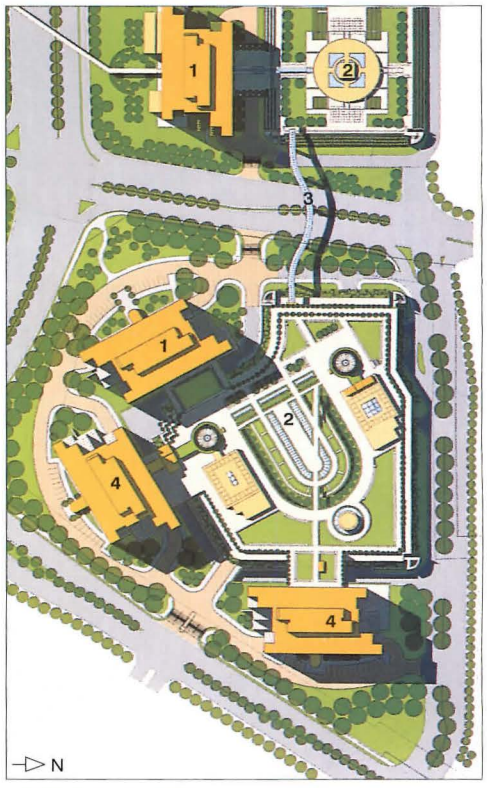


Parking for 1,200 cars is kept underground to create a street-level park (top). Submerging the garage conserves views and access to San Diego Bay along the waterfront (site plan, left). Three-foot-thick retaining walls, sunk 50 feet deep to a hard-clay foundation (section, top), resist hydrostatic pressure. A continuous light well will provide daylight to all three levels (section, above). Because of the site's proximity to the bay, slurry walls will be employed to keep water out of the garage during construction (bottom left).

Seaport Village
San Diego, California
Hope Architects and Engineers

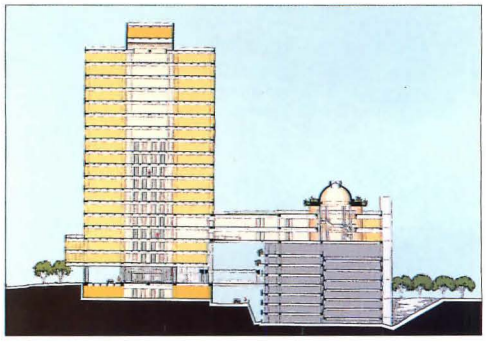
DEVELOPERS PROPOSING LARGE-SCALE PROJects along San Diego's waterfront may no longer claim that site conditions prohibit sensitively placed parking. Although several projects constructed in the 1980s now block public access and views of San Diego Bay, city officials, bolstered by the support of community organizations, rejected a proposed parking garage with three-and-one-half stories above grade to accompany the 164,000-square-foot expansion of Seaport Village, a 10-year-old complex of shop, cafés, and restaurants. A revised scheme by a San Diego firm, Hope Architects and Engineers, for a three-story parking garage calls for constructing the 1,200-car structure entirely underground to conserve sight lines. At street level, the roof of the underground structure will support a 3.6-acre public park landscaped with grass, palm trees, and shallow reflecting pools. Visitors will benefit from a continuous light well along the western edge of the parking deck that permits daylight and natural ventilation and encourages plants in a "hanging garden" to thrive down to the lowest level. They may also ascend in glass elevators to a glass-and-steel pavilion, in the center of the landscaped area, that will form a western focal point for the city's newly created linear park. The park leads to the mall's expanded area and waterfront boardwalk.

The economic success of the existing Seaport Village Mall makes such a precedent-setting scheme feasible, helping to defray the estimated $6 million additional cost of constructing the garage underground. The site is adjacent to the bay, and the resulting high water table, only 5 to 10 feet below grade, poses potential problems both during excavation and after the structure is completed. Once ground is broken in mid-1992, trenches will be dug and kept filled with a liquid slurry composed of an expansive clay called bentonite that will prevent groundwater seepage into the site. Later, the slurry mixture will be pumped out and replaced with steel-reinforced concrete that will form 3-foot-thick walls surrounding the garage to resist the hydrostatic pressure exerted on its perimeter. Because the height of the water table will cause the structure to become buoyant, the retaining walls, built in 18-foot widths, will be sunk to depths of more than 50 feet to anchor the foundation to a hard-clay layer known as the Bay Point formation.

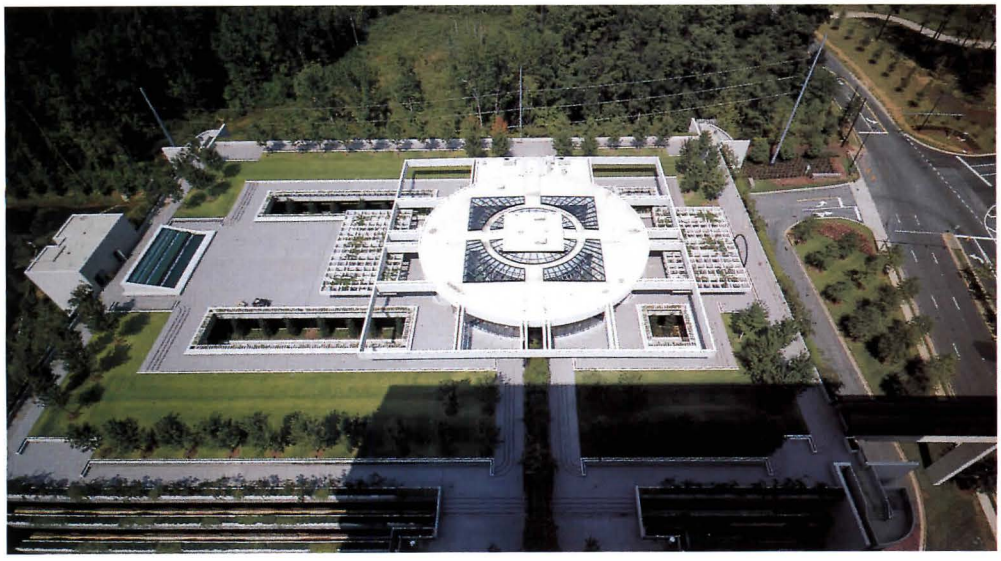


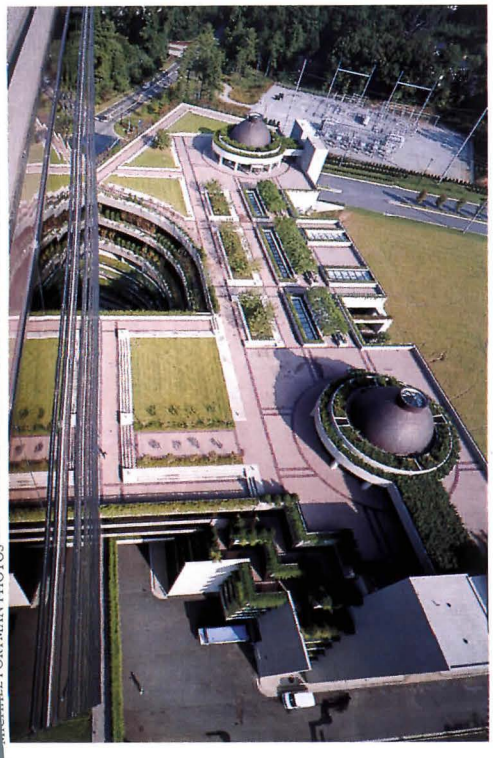
NORTHPARK MASTER PLAN

1 OFFICE TOWER
2 MIXED-USE PARKING DECK
3 PEDESTRIAN BRIDGE
4 PROPOSED OFFICE TOWER



Northpark Town Center's west 18-story office tower includes an adjacent four-level, mixed-use parking deck (top left). The two upper levels house offices topped by a landscaped roof terrace. A pedestrian bridge links the structure to the second office tower and parking deck across the road (left). Three of the seven parking levels are located below grade (section) but are still open to light and air. Once the four 18-story office buildings are constructed, they will be linked to rooftop terraces and walkways above the parking levels (site plan).





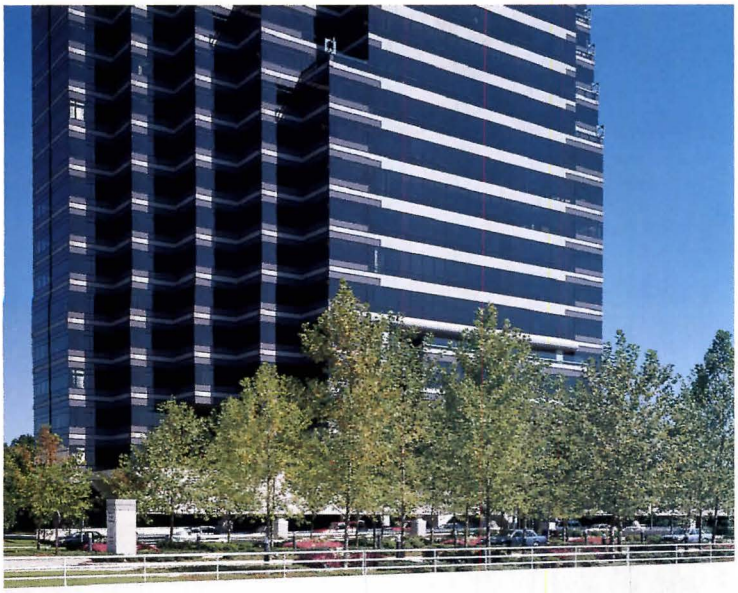
A rooftop garden with oval restaurant (top) offers office workers a scenic view over the garage and an off-street dining area. Planters on the perimeter of the garage (above) step back from the street edge to buffer views of parked cars and of the seven-story, post-tensioned-beam-and-slab concrete structure. Copper rotundas cap circular stairs that flank the central skylighted food court (bottom left) and provide access to the landscaped terrace atop the parking levels.

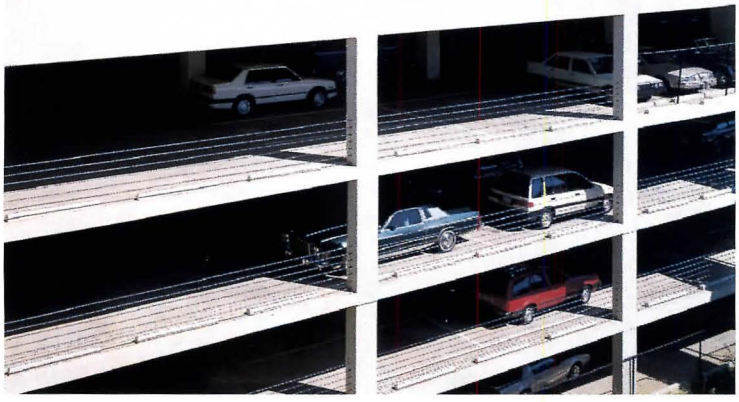
Northpark Town Center
Atlanta, Georgia
John Portman & Associates

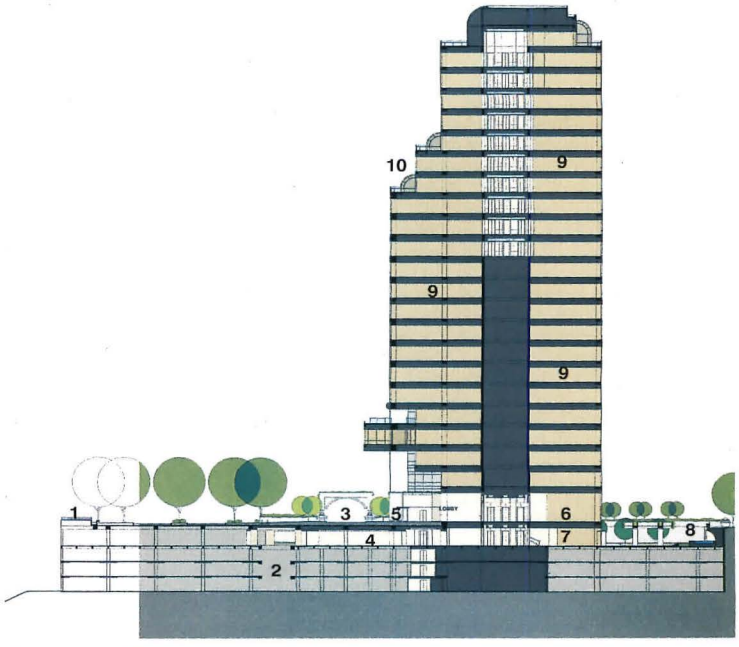
LESS THAN 30 MINUTES NORTH OF DOWNtown Atlanta, Northpark Town Center is emerging as a major edge city development. The mixed-use project, located at the juncture of the city's perimeter loop and a major north-south parkway, will eventually comprise nearly 3 million square feet of suburban office space and an 800,000-square-foot retail village. Two 18-story office towers (with attached garages), designed by John Portman & Associates, were completed in 1986 and 1989 respectively. Two more 18-story office buildings, a 50-story office tower, a 25-story office building, and a 382-room hotel remain to be built.

Developing parking for the entire complex was a major planning issue, since the parking decks had to function on their own and tie into each succeeding construction phase. Portman also sought to turn the parking for more than 11,000 commuters into an amenity, rather than a mere necessity. Because Northpark is surrounded by a residential community, the architects designed each garage to terrace back from the street edge, with each parking level ringed by planters to screen direct views of the cars. Landscaped drives are constructed with interlocking brick pavers rather than concrete or asphalt surfaces. The taller of the two parking structures is situated in a ravine, allowing the back edge of three of the five parking levels to be partially tucked away below grade without incurring the costs of excavation or the installation of sprinklers and mechanical ventilation systems that would otherwise be required by fire codes.

The wide floor plates of the parking decks, which are supported by post-tensioned concrete slabs that span up to 60 feet, support not only vehicle parking and circulation but open-plan offices over the structure. Taking advantage of the bay spacing, the architects placed two stories of leasable office space on top of the two parking levels in the west garage and the five parking levels in the east garage. The office buildings and garages are linked to one another by pedestrian bridges that lead to walkways and food courts in the office floors and rooftop terraces above the parking levels. The Building Owners and Managers Association (BOMA) cited Northpark Town Center's successful blend of parking and amenities by naming it Atlanta's 1990 Office Building of the Year.

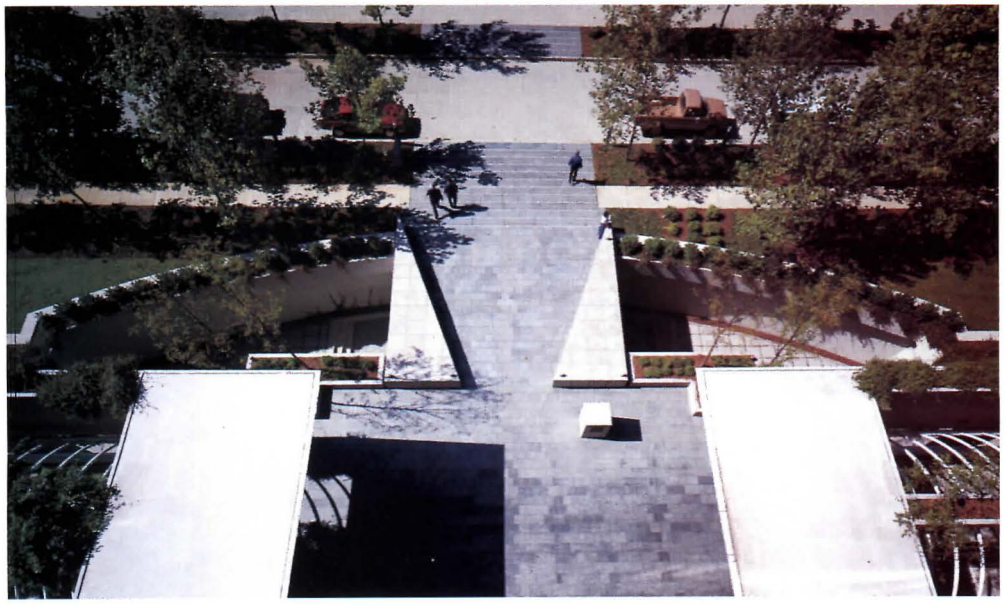






EAST-WEST SECTION

1	TERRACE	6	BANK
2	PARKING DECK	7	RESTAURANT
3	ENTRY DRIVE	8	SUNKEN GARDEN
4	RETAIL	9	OFFICES
5	LOBBY	10	OFFICE TERRACE



Riverwood's four levels of parking for 1,400 cars are built into a deep ravine (facing page, section), and form the base for a 22-story office tower (facing page, top left). Two landscaped tiers buffer parking from the building's entrances (facing page, bottom left and right). Viewed from above (top), the tiers that ring the building's front are built on top of the garage and conceal views of parked cars. A sunken garden adjacent to the first level of covered parking (above) is screened by trees to provide privacy from an adjacent highway at the rear of the site.

Riverwood
Atlanta, Georgia
John Portman & Associates

RIVERWOOD, A 31-ACRE, MIXED-USE SUBURban business community north of Atlanta, is designed to comprise 1.9 million square feet of office space, a 250-room luxury hotel, and parking for more than 6,000 cars. Construction of the first phase of the development, a 22-story office tower and attached parking garage for more than 1,400 cars, was completed in 1989 and reveals how John Portman & Associates took full advantage of the site's physical characteristics. The architects positioned the five-level parking deck within a steeply sloped ravine to alleviate the costs of constructing the structure underground and to provide a base for the tower. The placement of the deck also shields cars from view while allowing the sides to remain open to daylight and natural ventilation.

The building's 500,000 square feet of office space may be reached from the upper two tiers of the garage: a landscaped terrace on the parking deck roof and a partially covered parking level below. The top tier drops off at the front of the building, which leaves the level directly beneath it open along the sides and rear. Where the lower tier is exposed, landscaped walkways, rather than parked cars, encircle the base of the office tower to lead pedestrians from the adjacent concealed parking to the building entrances. Together, the two landscaped levels distance the parked cars from building entries and mask their view from east-facing offices that overlook the garage below.

Vehicles are also shielded from view by a barrel-vaulted, vine-clad trellis over the entry drive. Since the back of the building faces an adjacent highway, the rear of the sunken garden terrace is carved into the hillside. Screened by a line of trees, tenants who gather in the space at lunchtime are provided with a visual and acoustical buffer from nearby traffic.

The uppermost covered parking level is designed with a floor-to-floor height of 12 feet, rather than the minimum standard of 9 feet, and is required by code to provide accessibility at grade level for oversized vans with wheelchair lifts. The added height provides ample headroom beneath the drainpipes. Reinforced-concrete troughs are sunk to a depth flush with the bottom of the beams below the parking deck roof to create planting beds for the mature root balls of the tree-lined entry drive above. ■

A FEW REASONS WHY A 350 TUFFLINE ENTRANCE LIVES UP TO ITS NAME.

AND A FEW REASONS WHY IT HAS TO.

350 Tuffline. Educational tool for the 90's. And beyond. For new and replacement doors at schools, college campuses, and in other high traffic and abuse-prone installations. Tuffline entrances are all their name says they are. Tested in the educational market, Tuffline is offered as single-acting entrances in both singles and pairs to 8′ heights. With durable butts, pivots, closers and panics to resist vulnerability and increase security when school's out. And design options such as Paneline® to customize without compromise.

Tuffline. At the head of the class.

Kawneer

For technical specifications contact:
Kawneer Company, Inc. Department C,
Technology Park-Atlanta,
555 Guthridge Court, Norcross, GA 30092

Circle 31 on information card

City Lights

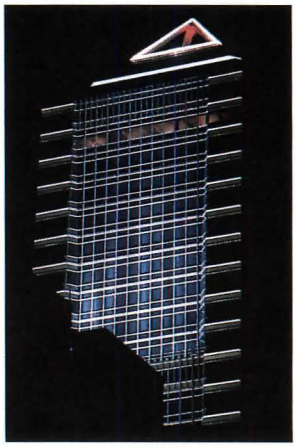
How neighborhoods, streets, and buildings are defined through outdoor lighting.

WHEN IT COMES TO EXTERIOR ILLUMINATION, quality, not quantity, appears to be the rallying cry of the nation's top lighting designers. "The days of lumen-blasting—when almost every building was flat lit with floodlights—are over," declares Stefan Graf of Illuminart in Ypsilanti, Michigan. Constrained by economic and environmental factors and boosted by improved technology and greater experience, lighting designers are learning to make a little light go a long way.

Quality lighting means more than providing a prescribed number of footcandles on building surfaces or city sidewalks. Architects should consider color rendition, freedom from glare, and purposeful contrasts in designing a successful lighting scheme.

On an urban scale, achieving quality lighting often means persuading municipalities to forgo strictly engineered streetlighting solutions in which fixture types and locations are determined by rigid, inflexible formulas. Site-sensitive design requires a thorough study of the street's character and functions. A master lighting plan for Detroit illustrates such a thoughtful approach (pages 88-89).

At the building level, successful lighting means establishing a nighttime identity with a minimum of energy. While many clients view the illumination of their projects as a good marketing strategy, they do not want to appear to be energy guzzlers. Highlighting essential elements of a building, rather than flooding the entire facade, often satisfies these conflicting requirements. Judged with energy efficiency in mind, many of the winners of Florida's "Night Beautiful" competition (pages 90-91) demonstrate such selective lighting techniques.



The control of lighting has also become a critical factor in exterior design. Light pollution, excessive diffused light that escapes into the atmosphere, must be controlled so that astronomers can continue to study the night sky. Light trespassing, light that shines uninvited onto another site, must also be curtailed so that glaring beams from one building do not disturb occupants of another. Both light pollution and trespassing have received increased attention from the public in recent years, and some municipalities have even enacted legislation to curb offending rays.

Meanwhile, more products that manipulate light are now available. Fiber-optic and light-tube systems, both dependent on internal reflections within a linear casing, can deliver light to a location remote from its lamp source. Fiber-optic systems have been successfully applied in specialized locations, such as underwater environments. Light tubes, which are larger than fiber-optic systems and generate more intense light, have been specified on building facades. Such tubes deliver light to inaccessible exterior locations, while the lamps and ballasts are maintained from more convenient positions. Brennan Beer Gorman Architects relied on such a system in designing Herald Square in Washington, D.C. (pages 92-93).

Improved optical systems that control beam spread, louvers that shield light, and motion sensors that turn lights on only when they are needed are just a few more of the myriad products that are helping architects to direct exterior illumination where it is needed—and nowhere else.

—NANCY B. SOLOMON

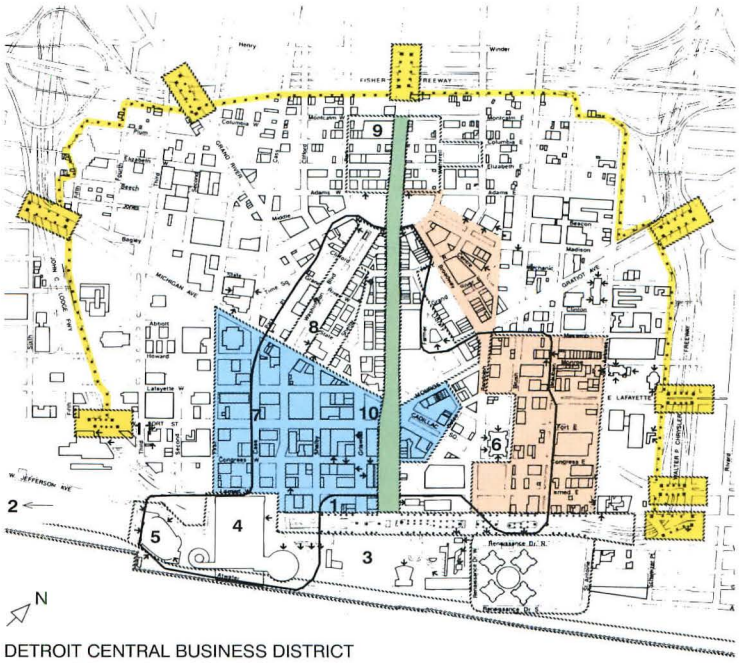
BALTHAZAR KORAB

JOHN EDEN

Steve Margulies of Cosentini Lighting Design in New York floodlighted Cleveland Clinic (above), but selectively lighted Park Avenue Tower (top right). Four houses (right) in Venice, California, by local architect James McGlothlin, direct light outdoors through four different translucent systems: glass blocks, fiberglass panels, standard windows, and a curtain wall (left to right).

1. 150 W. Jefferson Building (left), BEI Associates
ANR Building (right), ANR Real Estate Group

2. Ambassador Bridge
Motor City Electric



3. Hart Plaza
H.M. Brandston & Partners

4. Cobo Arena
H.M. Brandston & Partners

5. Joe Louis Arena
H.M. Brandston & Partners

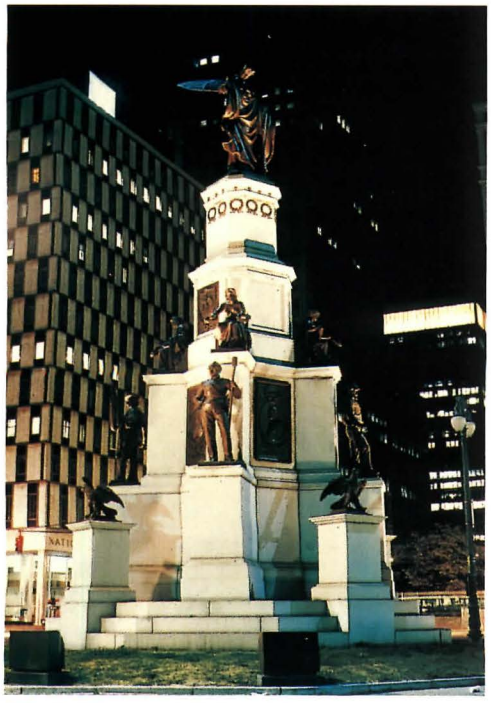
6. Wayne County Building
Smith Hinchman & Grylls

7. Detroit Club
Smith Hinchman & Grylls

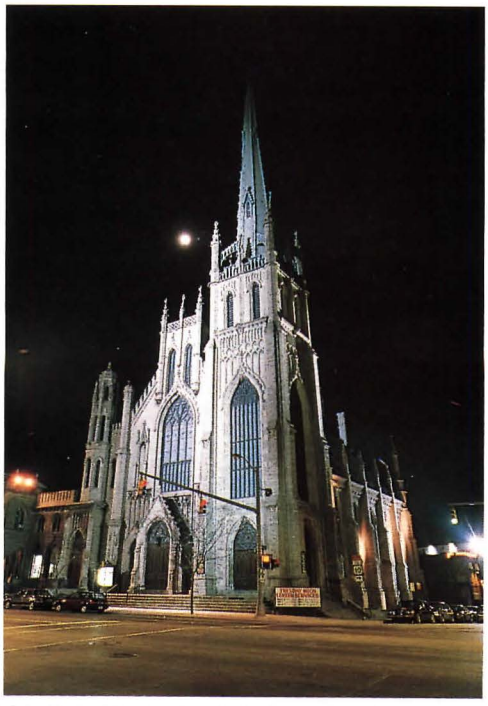
8. St. Aloysius Church
H.M. Brandston & Partners

ROBERT J. FOVALDI

9. Fox Theater
Gary Steffy Lighting Design



10. Soldiers and Sailors Monument
H.M. Brandston & Partners



11. Fort Street Presbyterian Church
H.M. Brandston & Partners

Lighting Up Detroit

THE MASTER PLAN TO RELIGHT DETROIT'S Central Business District (CBD), known as "Starring Detroit," is now beginning to take shape. Initiated in 1984, the program is intended to encourage a more vibrant and safe downtown nightlife. Twenty-seven public and religious structures have been illuminated to date. Another eight private buildings have been lighted by owners that voluntarily chose to follow the plan.

The project is the brainchild of Detroit's CBD Association and other businesspeople. The association retained lighting consultant H.M. Brandston & Partners of New York to develop the plan, and formed the CBD Foundation to raise money and oversee its implementation. The city of Detroit has also funded portions of the effort. Seven years after its inception, Starring Detroit stands out as the most ambitious relighting program of a major urban core ever undertaken.

Planner Howard Brandston began the monumental task with a comprehensive study of the entire city. His design team identified existing boundaries, areas of activity, circulation spines, and focal points. Distinctive areas of the city were treated to underscore their inherent character. For example, a traditional lamppost and fixture was specified for Woodward Avenue, a north-south route of historic significance. In contrast, a less ornamental pedestrian street lamp and taller mast lights were recommended for the more heavily trafficked and commercial Jefferson Avenue. Festive kiosks were designed for the city's entertainment district to provide lighting at a pedestrian scale.

The entire plan was divided into three stages. The first phase included the two major thoroughfares, a plaza, two sports arenas, and several churches, monuments, and city-owned buildings. With the exception of Jefferson Avenue, all the work has been completed. The second phase, which includes the kiosks, will begin in the fall of 1992.

The third phase was intended to comprise a necklace of traditional fixtures that would define the outer boundary of the CBD. Although elegant in design, the ring of lights may never be installed. "In these economically tough times," explains CBD Foundation director Natalie Stocks, "we want to focus on projects that are not just esthetically pleasing but also on ones that provide a measure of safety." The foundation will meet soon to determine whether other downtown structures need to be illuminated instead.

Lake Mary City Hall
Lake Mary, Florida
Architect: Catalyst Architects
Lighting: G.R.G. Vanderweil Engineers

DARYL MUND

Courvoisier Centre I & II
Miami, Florida
Architect: J. Scott Architecture
Lighting: Della-Rizza & Associates

WESH-TV Broadcasting Company
Winter Park, Florida
Architect: Rees & Associates
Lighting: Roger L. Edwards and
Robert J. Laughlin & Associates

550 Biltmore Way Building
Coral Gables, Florida
Architects: Thomas A. Spain, O.K. Houstoun, and Glenn Pratt
Lighting: Leslie Wheel/Wheel Gerstoff Lighting

Winter Park Civic Center
Winter Park, Florida
Architect: Catalyst Architects
Lighting: G.R.G. Vanderweil Engineers

Florida's Bright Lights

THE GROWING RECOGNITION THAT EXTERIOR lighting can improve community and commerce is underlined by "Night Beautiful," an annual competition of outdoor lighting projects in Florida. Begun in 1987 by Florida Power and Light, a Miami-based utility company, the competition has grown into a statewide event. Cosponsors now include Tampa Electric, Florida Power Corporation, Orlando Utilities Commission, General Electric Lighting Systems, Sylvania, GTE, the Southeastern Region of the Illuminating Engineering Society, and the Florida Department of Commerce.

Architects Richard G. Allen and Daniel S. Powers, lighting designers Diane Berrian-Viola and Julian Harlan, and Department of Commerce representative Robert Langford reviewed the 176 submissions according to building program and size, lighting performance, energy efficiency, esthetic and functional value, and originality. One project from each of the competition's five categories was selected "Best of Show." They were: Lake Mary City Hall in Lake Mary (single-story buildings); Philharmonic Center for the Arts in Naples (two to five stories); 550 Biltmore Way Building in Coral Gables (six stories and above); Universal Studios Florida in Orlando (specialty lighting); and Epping Forest Yacht Club in Jacksonville (landscape lighting). Fifteen other projects were also recognized: Country Isles Elementary School; Winter Park Civic Center; Caruso's Palace; WESH-TV Broadcasting Company; Courvoisier Centre; One Metro Center; Sheraton Plaza Hotel at the Florida Mall; Pleasure Island; Town & Country Center; Gateway Centre Business Park; WTVT Channel 13; and four entries from Busch Gardens.

The projects represent a range of products and techniques. For example, designer Carlos Cajigas of G.R.G. Vanderweil Engineers installed indirect metal-halide fixtures along the exterior covered walkways of Lake Mary City Hall to achieve a soft and even nighttime glow. Leslie Wheel of Wheel Gerstoff Lighting purposely juxtaposed metal-halide and high-pressure sodium lamps on the facades of 550 Biltmore Way Building to produce a theatrical effect of contrasting colors. Doug Tibbits and George Wolbrecht of John Watson Landscape Illumination strategically mounted high-intensity discharge lamps in trees, rather than on poles, and shielded the sources from view to establish a natural, moonlit atmosphere at Epping Forest.

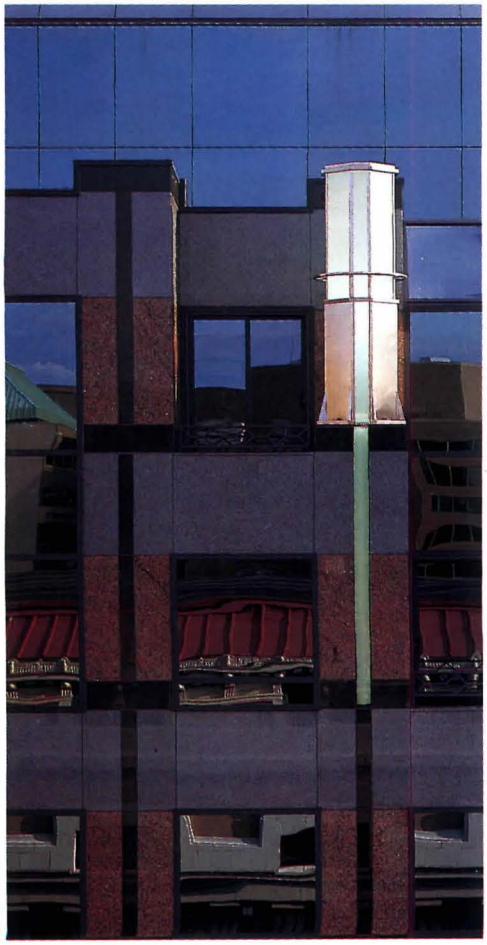
ED CHAPPELL

Philharmonic Center for The Arts
Naples, Florida
Architects: Aubry Architects and Robert Forsythe & Associates
Lighting: CHP & Associates

Universal Studios Florida
Orlando, Florida
Architect: Ellerbe Beckett
Lighting: Theoria Productions

Epping Forest Yacht Club
Jacksonville, Florida
Architect: R. Glen Mitchell and Associates
Lighting: John Watson Landscape Illumination

Sheraton Plaza Hotel at the Florida Mall
Orlando, Florida
Architect: Burke, Bales & Mills Associates
Lighting: Robert J. Laughlin & Associates



MAXWELL MACKENZIE PHOTOS

Capital Showcase

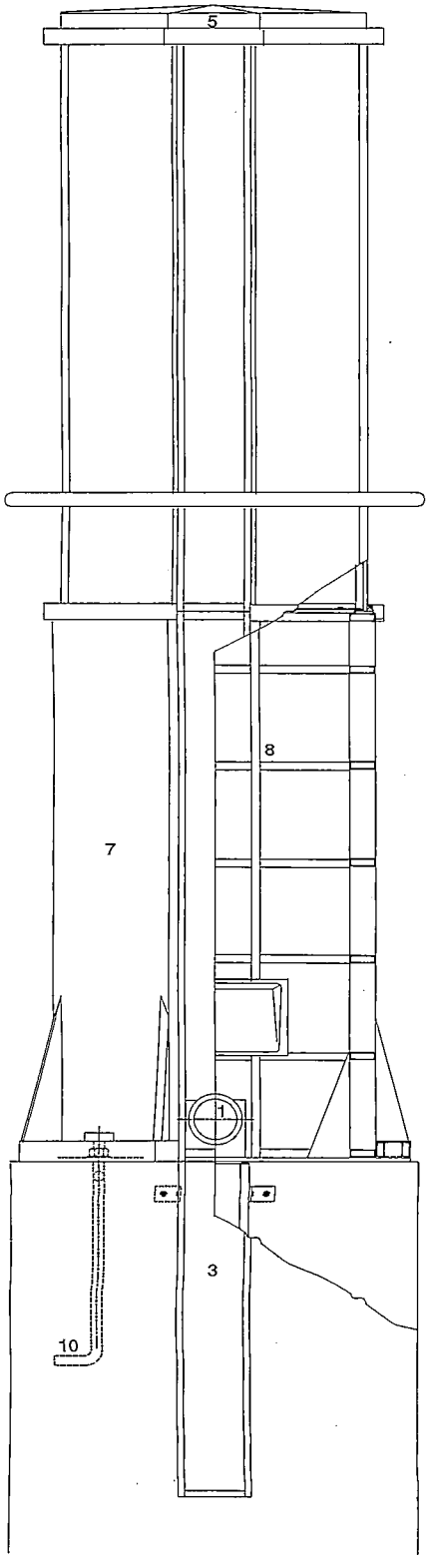
Herald Square
Washington, D.C.
Brennan Beer Gorman Architects

COMMISSIONED TO DESIGN A SPECULATIVE office building that would stand out in Washington, D.C.'s competitive market, Brennan Beer Gorman Architects developed an exterior lighting system that is integrated into the architecture and thereby draws attention to the building. "The lighting," explains project manager Mark Boekenheide, "is intended to expand the building's presence and to create a nighttime image on the streetscape that is very different from its daytime expression."

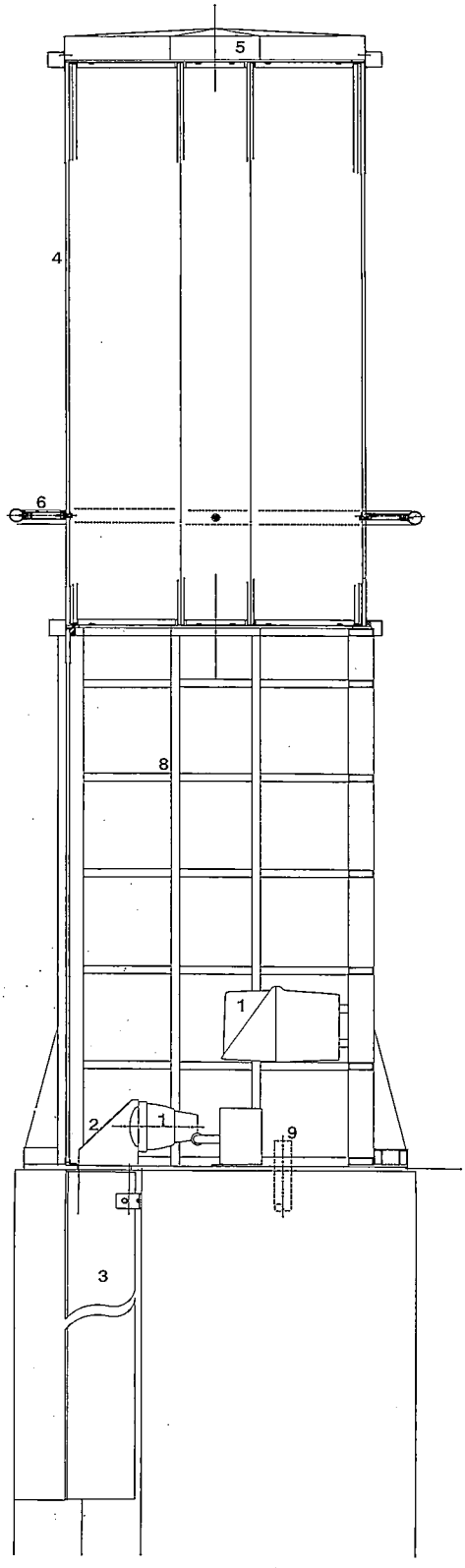
Completed last June, Herald Square is crowned by 10 lighting pylons. These stainless-steel-and-frosted-glass luminaires, which measure 12 feet high and 42 inches wide, are octagonal in plan and anchored to granite buttresses at the 11th floor. From each pylon, an 8-inch-wide band of frosted glass extends 12 feet 9 inches into the exterior granite skin below, like an illuminated shard sliced into the building's structure. Light reemerges at the retail level in the form of 4-foot-high-by-1-foot-wide sconces mounted on the building's facades along vertical axes that extend from the pylons. These wall fixtures, which form a half octagon in plan, echo the shape of the pylons above. The architects continue the lighting scheme into the building's lobby with four luminaires designed as modifications of the exterior pylons.

This variety of luminaires and locations necessitated different lamps. The signature pylons, which are best seen from a distance, are fitted with metal halides to generate bright, white beams. The sconces, which accent the retail zone, rely on fluorescent tubes for a softer luminance at the pedestrian level. And the lobby fixtures feature cold cathode lamps to achieve sharp, crisp light. All the fixtures were engineered and fabricated by Lightolier West of California based on the architect's schematic designs.

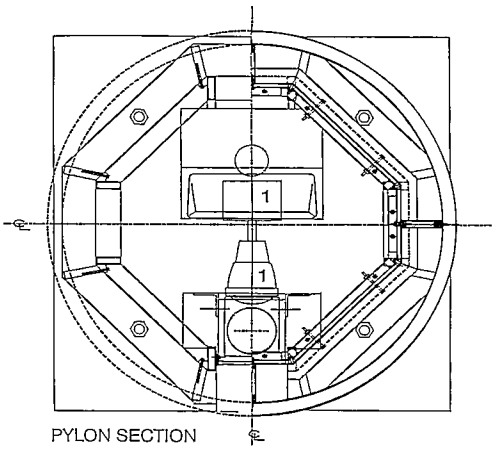
Illuminating the inaccessible glass slot below the pylons proved to be the greatest technical challenge posed by the lighting scheme. The architects installed a metal-halide lamp at the base of each pylon that could be easily serviced from the 11th-floor terrace. Manipulated by a mirror and optically treated films (facing page), light from this lamp is channeled into the long, narrow shaft to generate an even glow. ■



PYLON ELEVATION/SECTION



PYLON SECTION

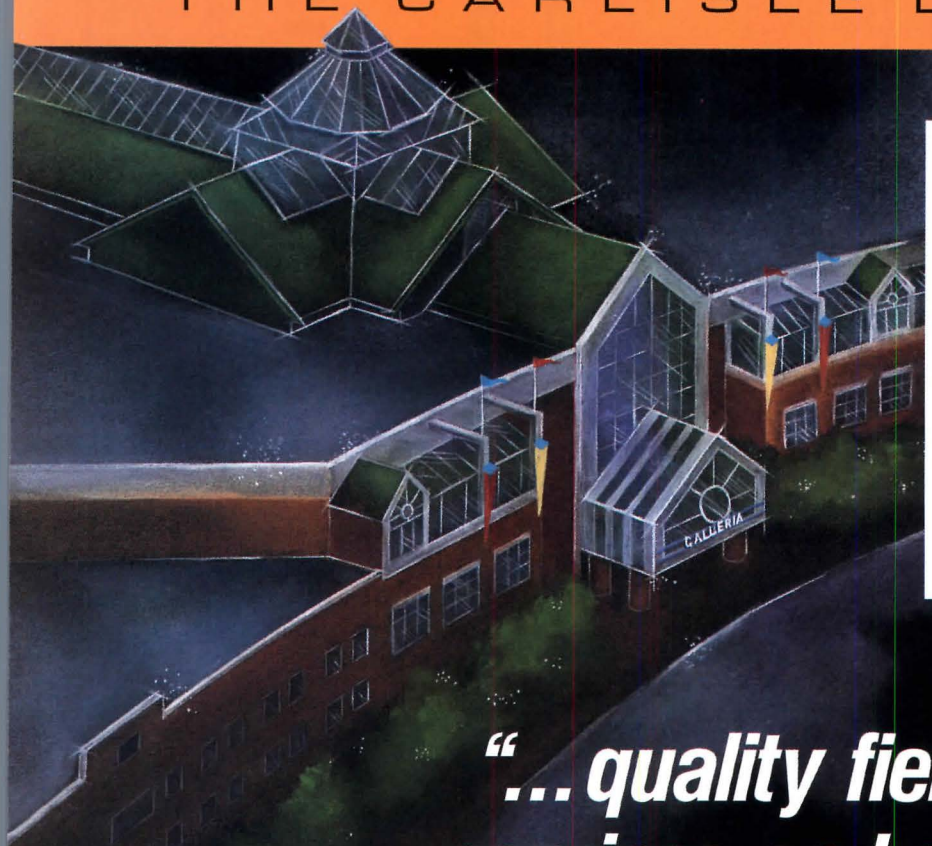


PYLON SECTION

1 METAL-HALIDE LAMP
2 MIRROR
3 LIGHT TUBE
4 FROSTED GLASS
5 STAINLESS-STEEL CAP
6 STAINLESS-STEEL RING
7 STAINLESS-STEEL OUTER SKIN
8 WELDED-ALUMINUM FRAMEWORK
9 WIRE-CONDUIT ENTRANCE
10 MOUNTING STUD

Herald Square (facing page, top) integrates light tubes that extend beyond custom-designed pylons (facing page, bottom left and right) into the skin. The pylons contain two lamps (plan, top), one of which illuminates the top of the fixture. Beams from a lower lamp (sections, left) bounce off a mirror into the tube and are diffused by a sheet of optical film that lines the shaft. A second reflective film, which is adhered to the first, controls the amount of light exiting the tube; more rays are allowed to escape from the bottom to compensate for the greater light intensity near the source at the top. A third mirrorlike film at the end of the tube reflects light back into the housing.

THE CARLISLE DIFFERENCE



Architect: Arrowstreet, Inc., Somerville, MA
Developer: New England Development Co., Newton, MA
Consultant: Engineering Management Consultants, Inc., Newton, MA
Roofer: The Hartford Roofing Co., Inc., Glastonbury, CT

"...quality field representatives, services and customer support."

"We specified Carlisle SynTec Systems as a quality roofing standard," said Peter Belford, architect, Arrowstreet, Inc., Somerville, MA. "They usually are our first choice because of the quality of their field representatives, service and customer support. "The technical back up available provides us with a solid base for drawings and specifications assuring a quality installation."

When the fast-tracked $150 million, CambridgeSide Galleria shopping complex near Boston was kicked into overdrive by New England Development Co., The Hartford Roofing Co., Inc., of Glastonbury, CT, recommended a combination of Carlisle's Fully-Adhered and Mechanically-Fastened systems for the 167,000 square foot roofing project.

"Two of the beauties of this roof are it goes down fast and is essentially watertight right away. That helped us fast-track the work going on below," said Bill Daigle of Engineering Management Consultants, Inc., Newton, MA.

Carlisle's design professionals also set quality standards for you, the specifier, in other areas; conducting informative regional and in-house design conferences and delivering quick responses to your inquiries. Carlisle's technical representatives conduct the most demanding inspections resulting in the issuance of meaningful membrane system warranties.

When you look at roofing design conferences, services, systems, products and warranties, Carlisle Really Has No Equal. Let us help you with your next roofing project. Call us for additional information about the Carlisle Difference (USA) 800-233-0551; (PA) 800-932-4646; (Canada) 416-564-5557.

THERE *Really* IS NO EQUAL.

CARLISLE
Carlisle SynTec Systems

P.O. Box 7000
Carlisle, PA 17013-0925

Circle 33 on information card

Copyrighting Architecture

A new law expands protection for architects' work.

UNTIL LAST YEAR, U.S. COPYRIGHT LAW HAD few teeth to protect architects' original designs. As recently as 1988, for example, a copycat builder in Scarsdale, New York, received little more than a slap on the wrist for building a house that was nearly identical to a custom-designed home only two doors down the street. Thereafter, new legislation became a top priority for the architectural profession. After intense lobbying by the AIA, the Architectural Works Copyright Protection Act was passed by Congress and took effect on December 1, 1990.

The new act protects the design of a building as well as the expression of that design in drawings and plans, and isolates "architectural works" as a new category of copyrightable subject matter. In other words, an architect's design is protected as well as the building itself. According to the legislation, "an 'architectural work' is the design of a building as embodied in any tangible medium of expression, including a building, architectural plans, or drawings. The work includes the overall form as well as the arrangement and composition of spaces and elements in the design, but does not include individual standard features."

Copyright protection before the act

IN THE PAST, COPYRIGHT PROTECTION EXtended only to an architect's two-dimensional plans and drawings (under a "graphics works" section). Plans and drawings were considered "intellectual expressions," and thus could be copyrighted, but the buildings that arose from them were "useful articles" beyond copyright jurisdiction. A highly ingenious building "idea" could be safeguarded under a design patent, but such a patent was far more difficult, and more expensive, to obtain than a copyright. Thus, anybody could legally circumvent an architect's copyright by making measured drawings from the final building.

Starting in the 1920s, numerous attempts were made to change the law to permit copyrights for architectural designs. Each time the idea was rejected because of fears that copyrighting architectural designs would confuse U.S. patent law, even though building designs had long been protected under the copyright laws of other countries. Reflecting this intransigent posture, the United States remained one of the few holdouts that refused to ratify the 100-year-old Bern Convention, which provided for reciprocity of copyright protection among signatory countries.

As international markets became more important to our national economy (and to the balance of trade), protecting American

ANDREW BORDWIN

In 1987, one year after architect Kenneth Nadler completed a custom-designed home in Scarsdale, New York (above), a builder constructed a nearly identical house on the same block (left). Although the copycat builder had pirated the original working drawings from the building department's files, the judge ruled that the law merely prohibited the unauthorized duplication of copyrighted plans. Anyone was free, however, to build a clone of the house depicted in those plans. Under the new law, the copyright holder could have received monetary damages, halted construction on the house, or had it torn down.

intellectual property increased in importance as well. Fearing that we might lose our commercial edge in computer technology due to piracy, computer software manufacturers became the Bern Convention's strongest advocates, and it was largely through their efforts that it was finally adopted. Questions were raised at the same time about the adequacy of U.S. copyright law, because the Bern *Convention* required signatories to protect "works of architecture," including original building designs. Congress was still reluctant to change the law, but after a study conducted by the U.S. Copyright Office concluded that American law was deficient, the AIA launched its intensive lobbying effort, and the Architectural Works Copyright Protection Act was passed.

How the act works

IN ADDITION TO THE NEW "ARCHITECTURAL works" category, an architect's plans and drawings may still be copyrighted under the "pictorial and sculptural works" category. Thus, an architect may now obtain two copyrights: one for the plans and drawings, and the other for the building design. The new act covers such by-products of practice as models, computer programs, and electronically recorded or produced documents.

The act also includes "the overall form as well as the arrangement and composition of spaces and elements." The records of the congressional hearings indicate that Congress intended to focus on the "poetic language" of architecture—that is, esthetics. Still, the language of the new act is so sweeping, it could extend to otherwise unprotected elements that are selected, coordinated, and arranged in an original way; to new design elements incorporated into otherwise standard building features; and to interior elements of architecture. On the other hand, Congress did not intend to protect elements that are "intrinsic to the building in its most basic form—determined by pragmatic, constructional, and technical requirements." Thus, an exception is made for "standard features"—building components such as stock doors and windows. "Generally, functional elements whose placement is dictated by utilitarian concerns are not included and neither are bridges, cloverleafs, dams, or walkways."

The act places two other limitations on an exclusive architectural copyright. The first is that photographs and other representations of an architectural work may be made without prior permission from the architect as long as the work is publicly displayed. The second is that the owner of a building from which the copyrighted materials was constructed has the right to alter or destroy the building without the architect's permission. The procedures for maintaining a copyright or for bringing an infringement action are practically the same for architectural works as for most other copyrighted works.

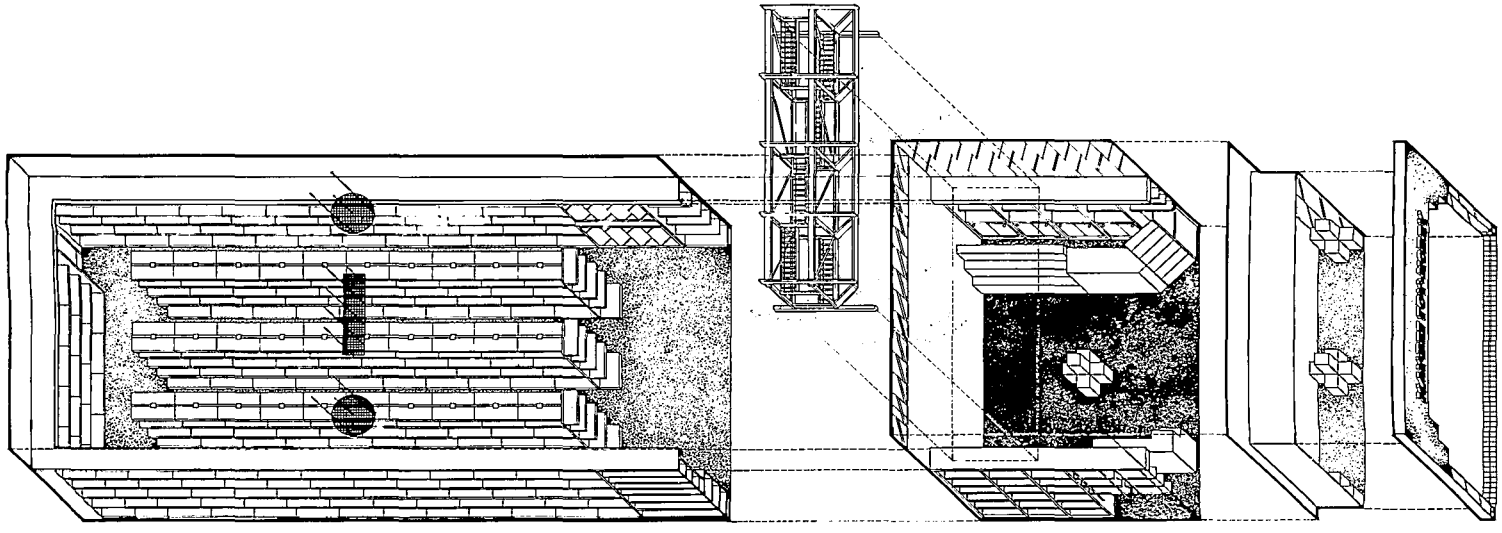
In 1990, a New York State court found the Melville Corporation guilty of illegally using copyrighted plans to construct hundreds of Kay-Bee Toy & Hobby Shop stores from cut-and-paste versions of architect Yar Kunycia's original, contractually agreed-upon plans. Under the copyright law then in effect, the judge ruled that the architect's method of expression, including the presentation style and perspective in the drawings (below)—but not the designs themselves—were protected from unauthorized duplication.

Registering a copyright

TO OBTAIN FULL PROTECTION UNDER THE copyright law, an architect must give adequate notice to other parties that a copyright is claimed, and apply for and obtain registration of the copyright with the U.S. Copyright Office. Previously, if either of these steps was neglected, an architect could have been barred from suing under the copyright law. Such a forfeiture of rights is no longer the case, but failure to make adequate notification or to promptly register the copyright can still put an architect at a disadvantage, since the copyright law grants more remedies, including attorneys' fees and statutory damages, if all the procedures are correctly followed in a timely manner.

Three examples of correct copyright notice are: ©1991 John Doe; Copyright, 1991, JD Inc.; and Copyr. 1991 JDI. If the initials of a firm are used, they should be readily recognizable to the public as identifying the business. The date may include the day and month, but only the year is really necessary. The date should not be later than the actual publication date, since this is viewed as an unfair attempt to extend the duration of the copyright, and the copyright notice would then be void.

Registering a copyright is not complicated. All it takes is completing a form and submitting copies of the copyrightable materials along with a filing fee. For multiple applications, some publishers have deposited funds with the copyright office on which they may draw to simplify the process. To date, the copyright office has permitted registration of both the design and the documents to be done on the same type of form used for graphic works (i.e., Form VA). However,



the applicant must file two separate (although nearly identical) registration forms because separate copyrights for the design and documents will be issued. To register the copyright on the design of a building, an architect must also provide a set of duplicate photographs of the completed structure. The copyright office prefers archival-quality photographs for the collection purposes of the Library of Congress.

Scope of the act

ONCE AN ARCHITECT OBTAINS A COPYRIGHT, he or she generally has the exclusive right to make copies or derivative versions of the copyrighted work. A frequent misconception about copyright is that a minor change to the original work will avoid infringement. But if the new work is clearly recognizable as only a minor derivation from the original, it is prohibited. For example, merely changing door swings or creating a mirror image of the original is still copying. Thus, the new act can be a powerful tool to protect architects' rights, and architects can protect those rights by learning some very simple principles:

- A copyright exists in a work at the moment of its creation. Drawings, for instance, are created on the date they are completed. A building is probably created on the date of substantial completion, although a precise definition is not clearly laid out in the act, nor has it been determined as yet by the U.S. Copyright Office or any court decision.
- The act limits coverage to architectural works created on or after December 1, 1990. It further limits coverage for a small group of projects that on December 1, 1990, were already embodied in unpublished drawings or plans and permits them to be protected until December 31, 2002—unless a project is constructed before then. (This limit does not affect plans and drawings copyrighted under other sections of the copyright law.)
- The creator of a work, as its author, is generally the rightful claimant for copyright purposes, except in a case where the work is "made for hire." Under the copyright law, a "work made for hire" automatically belongs to the employer in an employee-employer relationship. A copyright may also be transferred by written agreement from the author to another party.

In architectural practice, the copyright of a work created by an employee of an architectural firm in the normal course of his or her employment is owned by the firm. The firm, in turn, retains the copyright in an owner-architect relationship, unless a written agreement has been made to transfer the right to the client. For instance, under Article 6 of AIA Document B141, "Standard Form of Agreement Between Owner and Architect," an architect retains all ownership rights in the documents, including the copyright. Even though B141 does not mention the new design copyright, it, too, remains with the architect. Remember, an architect can now have two distinct copyrights. It is thus doubly important that an architect examine, with the help of legal counsel, any proposal from a client to transfer copyrights to the client. An ill-considered transfer of copyrights can seriously harm an architect's practice by prohibiting the further use of individualized motifs or stylistic devices embodied in the copyrighted works and sold to the client.

- The duration of a copyright depends upon whether the copyright remains with the individual author or is transferred as a "work made for hire." An individual author's copyright spans the life of the author plus 50 years. The copyright of a "work made for hire" has a 75-year duration from the date of first publication. For plans and drawings, the date of first publication is when they are distributed or made available to the public. A cautious architect should assume that publication may occur when the documents leave the office, and should thus take appropriate precautions to protect all copyrights. Although AIA Document B141 specifically states that "submission or distribution of documents to meet official regulatory requirements . . . is not to be construed as publication . . . ," this may not be enough to discourage third parties from abusing a copyright.

For buildings designs, the date of first publication has not been defined, since the copyright office has yet to make a ruling on this issue. Currently proposed regulations state that construction of the design is not by itself publication, but have left unanswered the question of whether sale of a building is publication. Likewise, no precise method has been developed for creating a copyright notice for the design of a building. Some have suggested that we will soon see buildings with bronze plaques bearing the architect's copyright notice. But given cooperation among members of the profession, this is exactly the sort of petty gesture that the act was designed to make unnecessary. ■

—DALE ELLICKSON

Dale Ellickson is an architect, attorney, and senior director of AIA's Documents program.

Protection Checklist

THE NEW ACT ENHANCES THE RIGHTS of the original architect on a project, but it creates new responsibilities for subsequent architects who may work on the project. When preparing an alteration or taking over a project in midstream, a practitioner should carefully check with the client about any outstanding copyright claims on designs or drawings done by the previous architect. Office procedures should also be set up for monitoring and maintaining copyrights:

- All owner-architect agreements should be scrutinized before signing any copyright transfers. If the client requests or demands a transfer of ownership and copyrights for the documents and the design, be certain the firm will not be hindered in the future from using derivatives of those materials on subsequent projects for other clients.
- Appoint one person in the office to handle all copyright matters, especially the dual registrations for the documents and the design. A log should be maintained showing registration dates and distributions made of any such published or unpublished works.
- Place an appropriate copyright notice on all design and construction documents that leave the office. It is preferable to place it within the body of the drawing instead of the title block, which could be stripped away.
- On unpublished works, place a notice on the work such as "A copyright is claimed on this unpublished material by John Doe. No publication or further distribution is allowed without the written permission of John Doe." This will help avoid misunderstandings about the status of unpublished works when they are seen or distributed to outside parties.
- Request the appropriate forms and instructional materials, such as Circular 41 and Information Packet 115, from the U.S. Copyright Office. The address is: Library of Congress, Washington, D.C. 20559; or call (202) 479-0700.

Finally, keep up-to-date. This is a changing area of practice that is becoming increasingly important to creative professionals.

Major flaws

Even the best plans can fail if your phone system's capabilities are in question. So the companies of Bell Atlantic have developed some customized phone solutions to help keep your firm's valuable time and money from slipping through the cracks.

found in

By providing 'call accounting' capabilities, Bell Atlantic was able to help Hankins and Anderson Inc. track the length of their client calls. This permitted billable hours to be accurately evaluated and invoiced. And for Bernardon & Associates, Bell Atlantic

architectural

added 'voice paging,' allowing the staff to get their calls quickly and easily. To get the phone system that's right for you, call your representative at Bell of Pennsylvania, Diamond State Telephone, New Jersey Bell or The C&P Telephone companies.

firm.

Let Bell Atlantic help your company build a better foundation. 1-800-843-2255.

Bell Atlantic
We're More Than Just Talk.®

Finishing Touches

Different textures add variety to stone-clad structures.

FOR EVERY TYPE OF BUILDING STONE, AN array of finishes can be applied to vary its surface texture. Therefore, architects should be aware of each stone's inherent properties and the choices of finish before making a selection. Among the variables are the stone's chemical composition, whether it is intended for interior or exterior use, the appearance that the finish produces (the same finish will look different on different kinds of stone), production time, and the stone manufacturer. Many manufacturers offer proprietary finishes that are gradations or combinations of standard finishes.

Granite finishes

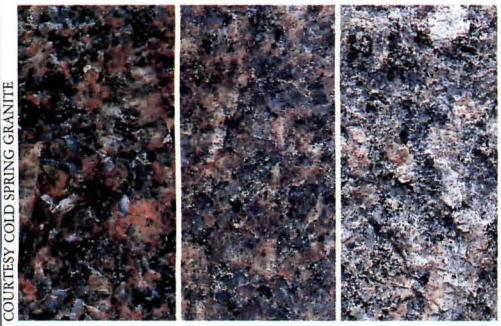
GRANITE IS AN IGNEOUS ROCK FORMED BY volcanic action; it consists mostly of quartz, feldspar, and mica, which give it a uniform crystalline structure. Of the most common types of building stone, granite is the hardest. Its hardness allows it to be finished in the greatest number of ways.

The smoothest finish is polished, in which the material takes on a mirrorlike appearance and shows the greatest contrast between its dark and light speckles of color. Highly polished finishes are produced in several stages. First, blocks of granite are sliced into slabs. Then the slabs are passed broad face up through an automated polishing machine, where they are swept with grinding wheels and a slurry of steel grit. The final polishing is applied by diamond pads, which are actually bricks impregnated with silicon carbide. The material's edges are then polished by hand.

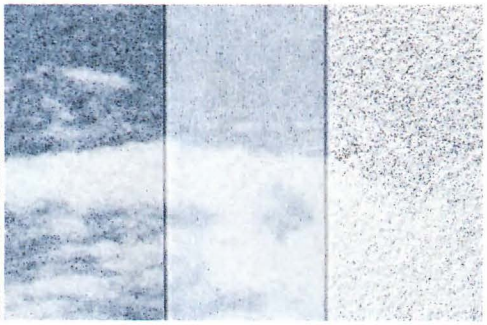
Honed finishes are less fine than polished and are achieved by eliminating the final steps of the polishing process. Honed granite is very smooth to the touch, with little or no reflection; it often appears milky or cloudy, particularly if the stone is dark, and the material lacks the depth common with polishing. Sand and abrasive finishes, which give granite a rough texture similar to sandpaper, are also available, as are sawn finishes, which bear markings left by the various tools used to cut the material.

Thermal (also known as flamed) finishes are unique to granite. Sawn slabs are passed under a flame of about 1,800 degrees Fahrenheit, which quickly expands the surface of the material and causes $1/16$ to $1/8$ inches of stone to flake off. The surface is then washed with water. Thermal finishes are rough and random in texture; granular crystals that are fractured appear shiny, while aggregate material in the granite remains dull. Flamed finishes also lighten the color of the granite.

Granite can also be bush-hammered, which produces a rougher texture than flaming and is applied with a round-headed hammer that pounds the surface of the stone. Bush-hammered finishes can be random or linear, with so many parallel cuts to an inch. For example, an 8-cut finish would have cuts no more than $3/32$ inches apart, while a coarser 4-cut finish would have cuts no more than $7/32$ inches apart. The roughest finishes on granite are rock face, in which the craggy face of the stone bows out, and split face, in which the stone face is rough but vertical.



COURTESY COLD SPRING GRANITE



COURTESY COLD SPRING GRANITE

PAUL G. BESWICK

Different finishes on the same material accentuate a range of qualities inherent in a particular stone. Granite with polished, honed, and flamed finishes (above left, left to right) appears successively lighter in color, with less contrast between aggregates in the material. Marble with polished, honed, and abrasive finishes (above right, left to right) loses its rich veining and color with successively rougher textures. Polished finish must be applied by hand (right) to marble that is not a flat slab. Such handwork increases finishing costs.

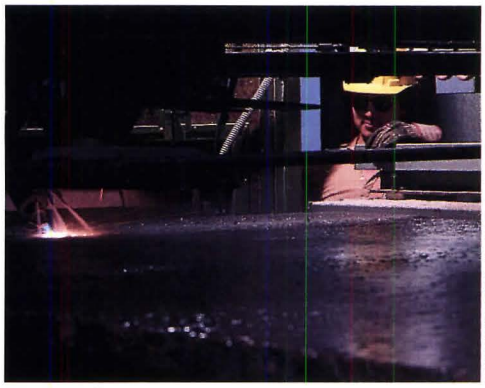
Marble finishes

MARBLE IS A METAMORPHIC STONE OF CALcite, dolomite, or serpentine, whose distinctive color variations and veining are caused by impurities that seep into it under heat and pressure. There are four universal grades of marble, which indicate relative fragility: A and B have few faults and cracks; C and D have faults and voids that require filling in, or cracks that are joined with cement or epoxy. A softer material than granite, marble offers a greater range of color and can be finished in many of the same ways. Polishing marble accentuates the depth of the material, darkens its color, and brings out the veining. Marble can also be honed or sand-finished. It cannot be thermally finished, and although rough finishes such as bush-hammering can be applied to marble, they tend to dull and obscure the stone's natural attributes.

Limestone finishes

SOFTER IN COMPARISON TO GRANITE AND marble, limestone is a sedimentary rock composed of calcium carbonate that is uniform in color and composition. Its distinguishing finishing feature, until recently, was that it could not be polished; but, according to Brian Moore of the Indiana Limestone Company, polished finishes on limestone for interior use have been achieved by Japanese stone companies. By American industry standards, the finest limestone finish possible is smooth, which is achieved with various grinding, planing, and sanding machines. Because limestone is a visually dense and monolithic material, there are a variety of effects that can be achieved by surface finishing. A plucked finish roughens the surface, plucking out small pieces of the stone. A broached or machine-tooled finish cuts grooves into the material, known as "bats." The roughest is a 4-bat finish with four grooves to an inch; the least rough is an 8-bat finish. The groove depth normally ranges between 1/16 and 1/32 inches, but deeper grooves to accentuate shadows are possible. Limestone can be bush-hammered into a random finish with a variety of different heads.

A number of finishes can be achieved on limestone during the sawing process by adding abrasives that fall between the blade and the material and scour the stone. A chat-sawed finish has a pebbled texture that is produced by adding coarse chat sand (with granules as large as 1/4 inch) to the saw. Steel shot creates random elliptical swirls and parallel grooves, and the shot oxides leave traces of rust in the finish. Limestone can also be finished with a split face or a rock face, both of which give it a rustic appearance.



COURTESY COLD SPRING GRANITE

Quarried blocks are first cut with gang saw (bottom left) to create slabs that can be fed through finishing machines. Thermal finish is applied by exposing granite to a high-temperature jet flame (above), while marble emerges with a glass finish from polishing machine (bottom right).

Pros and cons of finishes

WHILE HIGHLY POLISHED FINISHES BRING out the luster, depth, and color of marble and granite, such finishes have disadvantages depending on where they are used. Exterior polished stone will dull when exposed to the elements and begin to look more like a honed finish. Polishing also hardens the surface of the stone, according to architect and structural engineer Ian Chin of Wiss Janney Elstner Associates, Chicago, an architectural engineering firm that specializes in stone work. "It makes the stone more impervious to moisture," points out Chin. "If water gets into the wall through the joints and seeps into the stone from its unpolished side, it cannot evaporate easily and may cause dark stains to appear." In addition, when trapped moisture freezes, it may cause the stone to spall.

PAUL G. BESWICK

PAUL G. BESWICK

From an esthetic point of view, polished exterior surfaces will transform a building into a highly reflective object. "A honed exterior finish is a better way of rendering the building's massing in a solid way," maintains project architect James Von Klemperer of Kohn Pedersen Fox Associates. "You don't have the dramatic reflections and glassy texture of a polished finish, which can confuse the clarity of the massing."

Polished floors can provide dramatic reflections in the interior, but such finishes require constant upkeep and soon dull to a honed finish. Polished dark stone in particular scratches easily, will cloud with foot traffic, and, because it's highly reflective, will make uneven settling of the stone more obvious. Polished floors are also more slippery than honed floors because of a lower coefficient of friction, and are thus more hazardous.

Honed, sand, and abrasive finishes weather well, allow the stone to breathe (and are thus less likely to discolor and spall), and provide safer walking surfaces. Thermal finishes, however, cause microcracking in the stone's surface because of the exposure to high temperatures. Bush-hammering causes similar distress to the stone and is not recommended on panels less than 2 inches thick.

An alternative to flaming and bush-hammering, Chin points out, is a water-blasted finish, in which the stone is hit with a thin jet of water at pressures as high as 20,000 psi. The texture is rougher than a flamed finish, but there is no microcracking. Different nozzle tips can create a variety of grooved and sculpted finishes. Many large stone suppliers use water at lower pressures to cleanse honed and flamed finishes. "It makes a thermal finish smoother, taking the sharp edges off it," says Chuck Muhlbauer of Cold Spring Granite in Cold Spring, Minnesota, "and removes a milky cast on honed finishes so the grain appears clearer and darker."

Although dramatic in texture, split- and rock-face finishes are generally limited in size. According to the Indiana Limestone Institute, such finishes cannot by produced on pieces larger than 4 feet long by $1\frac{1}{3}$ feet high. Larger pieces at lower cost can be obtained, claims Malcolm Holzman of Hardy Holzman Pfeiffer, by requesting a stone plant's discarded material. "The rusticated pieces that we used in the Virginia Museum of Fine Arts are rough backs that came off the outside of quarry blocks, which are usually thrown away," he explains.

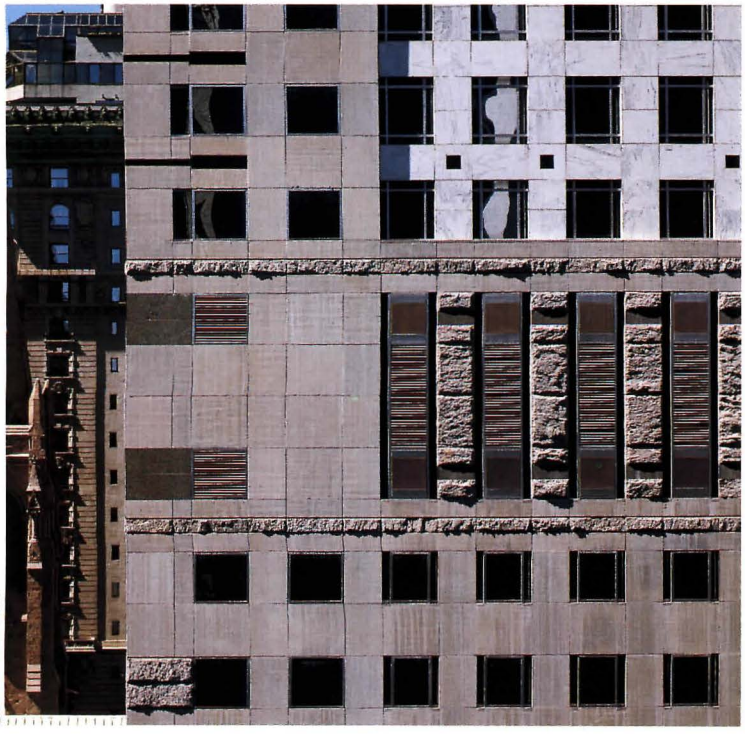
A plethora of limestone finishes was used on the museum, notes Holzman, "to give a large building with little fenestration texture and patterning that would be interesting close up and far away." At the building's base are openings framed in rusticated stone and a field of shot-sawed blocks. The upper portions are alternating bands of smooth and grooved material, with a cornice of honed granite. Holzman's aim in his choice of any stone finish "is to exploit the material's irregularity, its color, texture, and patterning. The finish we choose for a stone is based on the inherent qualities of the material, and how those qualities can be accentuated."

The finishes discussed in this article are industry standards, although one stone company's honed finish may be another's sand finish. A sample of the material in the desired finish should be requested from the manufacturer and retained by the architect until the stone arrives for installation, when it can be compared to the sample. ■

—MICHAEL J. CROSBIE

PETER OLSON

Polished marble is best applied to interiors, such as Mellon Bank Center's lobby by Kohn Pedersen Fox. Marble contrasts with limestone on KPF's 712 Fifth Avenue (bottom left); limestone finishes enhance Hardy Holzman Pfeiffer's Virginia Museum of Fine Arts (bottom right).



CERVIN ROBINSON

TIMOTHY HURSLEY

Customized Systems

Architects can tailor CADD software to better suit their practices.

IT WOULD BE A SAD STATE OF AFFAIRS IF every architect had to write a computer program before designing a building electronically. On the other hand, if architects were unable to modify their software, the acceptance of computer-aided design and drafting packages might be just as dismal.

Fortunately, there's a middle ground. Many CADD applications permit customization; these modifications can range from the relatively simple development of office-standard symbols to the writing of complex computer routines that can transform generic drafting software into specialized architectural design systems. Many systems permit the development of "macros," which are shortcut keystrokes or mouse clicks that replace longer sequences of frequently performed commands. Some CADD systems also allow users to tailor the command menus and the building attributes stored in an associated database. Such customization does not usually require a knowledge of programming.

Image of Rowes Wharf in Boston (bottom left) by Skidmore, Owings & Merrill was modeled and rendered with IBM's AES software. An analytical study model of the New York State Assembly Senate Chamber (bottom right) was created with software developed by Swanke Hayden Connell Architects.

For more complex procedures, some systems provide built-in programming languages. For example, Intergraph's MicroStation implements a version of "C," and AutoCad supports both C and AutoLISP. Though powerful, these languages can appear inscrutable to those not versed in computer programming. In contrast, Claris's HyperCard provides more accessible "authoring" software for the Macintosh and allows users to design screens, databases, and links between data and applications.

Regardless of the degree to which a designer chooses to customize, the process is much simpler than it was for CADD pioneers, who had little choice but to start from scratch.

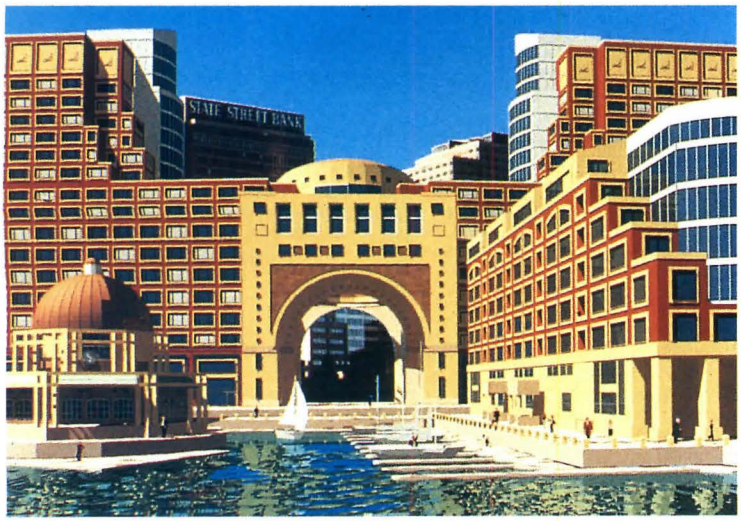
A tradition of customization

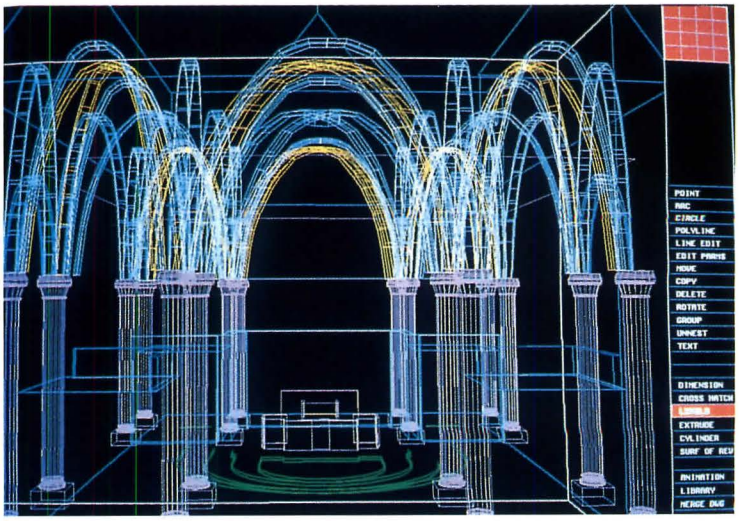
FOR YEARS, A FEW LARGE FIRMS HAVE BEEN developing their own computer applications. These include Skidmore, Owings & Merrill (SOM) in Chicago; Hellmuth, Obata & Kassabaum (HOK) in St. Louis; Swanke Hayden Connell Architects (SHCA) in New York; and RTKL Associates in Baltimore. Their in-house efforts were motivated by a lack of high-quality commercial software, and were spearheaded by architects with backgrounds in computer science.

Although there is now far more software available than there was when these architecture firms launched their own programs, some firms continue to use and develop their own software because they enjoy the special fit between it and their practices. For example, Richard Hayden, principal of SHCA, appreciates the links that the firm has established between graphic information in drawings and numeric information in associated databases. "Our predesign services, such as programming and specific information tracking for drawing schedules and purchase orders, can be integrated into our system. Compared to commercial systems, ours has a greater capacity for information and operates at a much faster pace."

HOK's Ken Herold explains that his firm began its own software development in 1982, because most design programs were then tailored for manufacturing. "We developed 'intelligent walls,' " Herold says, "which are more than two parallel lines on a screen. A wall in our system 'knows' it can do certain things. It knows it has doors and windows; it knows things about the room, such as its function, location, and materials." In effect, these double lines become the symbolic representation of stored information and related calculation procedures.

According to Thomas Faucher, an architect with RTKL, the firm's software allows its staff to use computers exactly the way they





want to. "We see minor flaws in off-the-shelf software," he contends. Instead of spending a lot of time on intricate renderings, for example, RTKL designers prefer to generate quick perspectives on their computers, which they can use later as underlays for manual renderings and continued development. Custom software makes it easy and intuitive to transfer plan sketches through a digitizing tablet to perspective-generating routines.

SOM has gone a step further than most other firms in developing in-house applications. In a cooperative agreement with IBM, it has developed a commercial product, the Architecture & Engineering Series (AES). Operating on IBM workstations and personal computers, AES integrates modeling, visualization, drafting, databases, and engineering procedures in a system that can be applied throughout the design process, from site design through facility management.

A key player in SOM's software development for 20 years was Doug Stoker, now a professor of architecture at Virginia Polytechnic Institute. He explains that SOM had a do-it-yourself tradition because it couldn't buy what it needed. He believes, however, that no firm could afford to take on such a costly, time-consuming project today. "The general-purpose collection of tools available is much richer now," Stoker says,"but one thing hasn't changed one iota: the really useful programs are still customized for a project. In spite of all the artificial intelligence work that's being done, there are no general design issues that the computer can help you solve easily. You can only define design problems one project at a time. The good news, he continues, "is that if you use a system long enough, project after project, you build up an 'information asset.' As you accumulate details, symbols, and macros, you capture your design firm's methodology."

Small-scale customizing

IN RECENT YEARS, NUMEROUS FIRMS HAVE developed their own information assets. Designers commonly draw CADD symbols to produce office-standard title blocks, north arrows, and so on. Some, like the firm Pierce Goodwin Alexander & Linville (PGAL) in Houston, have tailored graphic menus for their digitizing tablets. According to PGAL architect John Wells, these menus can be changed to suit each new job.

Ironically, perhaps, ties to traditional methods are often the reason for customizing software. Jay Pace, computer manager for the Taliesin Architects, the Frank Lloyd Wright spin-off firm in Scottsdale, Arizona, believes that if Wright were alive today, he would be actively involved in customization. "He would have enough influence to attract a team of developers to make the software he wanted," Pace claims. "For example, he would insist that grids not be limited to square units. There are many possibilities, such as diamond shapes, hexagons, and rhomboids, and he would want the grid to be as easily applied vertically as it is horizontally."

As successful as some practitioners have been in molding software to fit their office needs, there are many who insist that an architect's job is to design buildings, not software. Philadelphia-based architect George Manos, who uses DesignCad, from the Pryor, Oklahoma-based firm American Small Business Computers, argues that the ease with which AutoCad can be customized is an indication of its limited usefulness. Having used computers in his firm for the past 11 years, Manos is uncomfortable with the choice between a system that requires him to program and one that is geared toward the profession but is far more expensive. "Customization is not the answer," he argues. "Discipline-specific, intuitively ordered, sensibly priced software is."

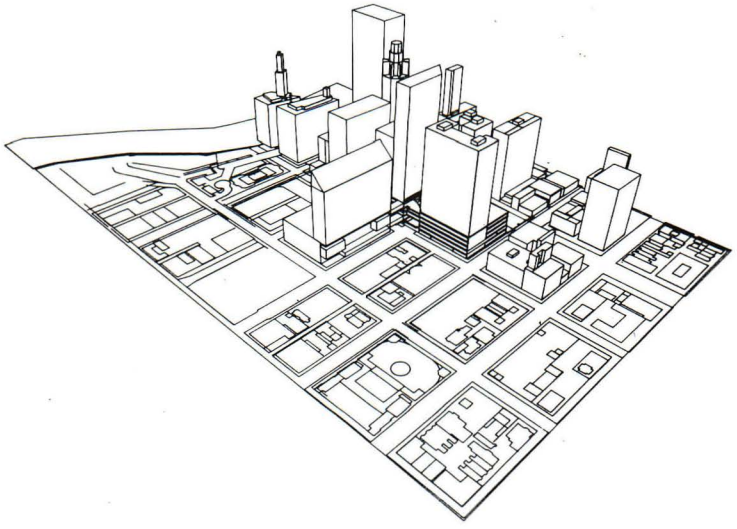
CADD add-ons

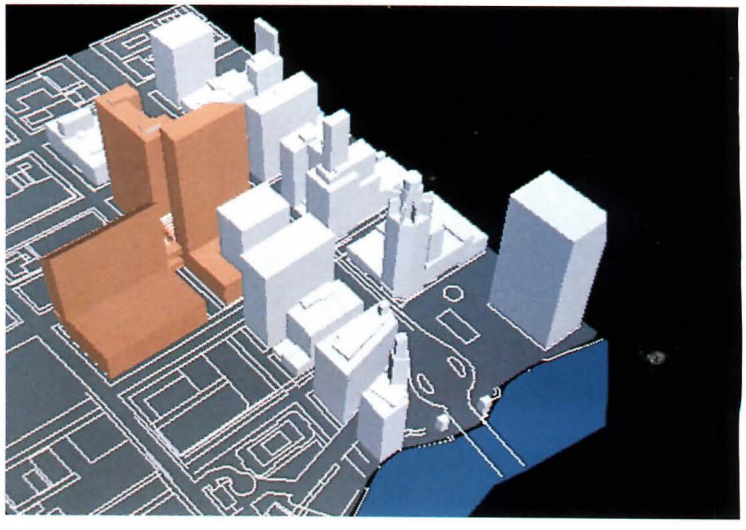
MANOS IS NOT ALONE. OTHER ARCHITECTS who were frustrated by the lack of architecture-specific features in generic CADD software have taken the plunge into customization, and eventually turned their work into commercially successful CADD add-ons. Such add-ons run concurrently with a CADD host and reduce the need for further customizing.

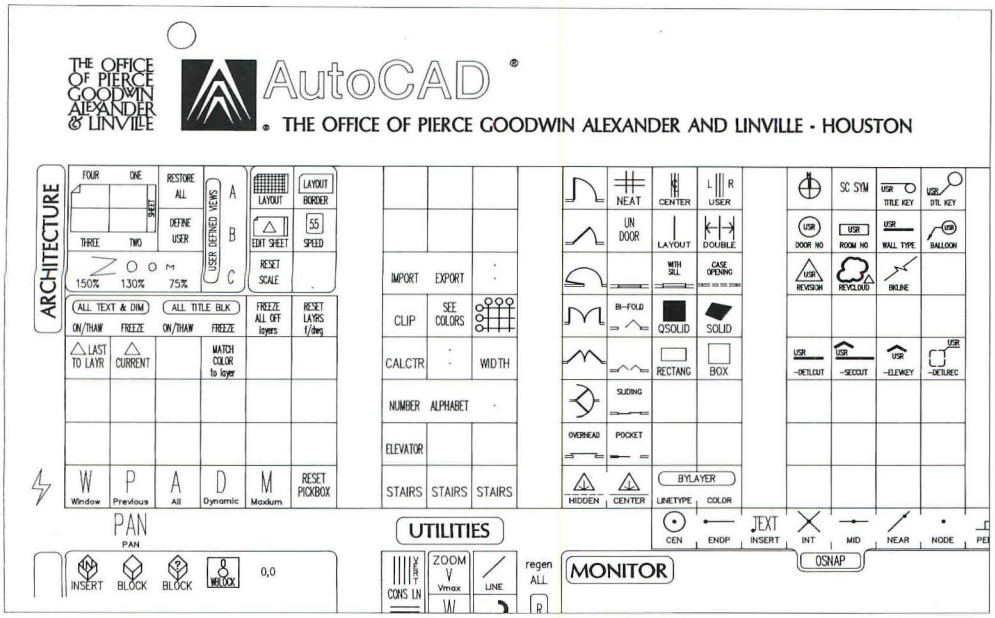
Architectural Power Tools (APT), developed by Caricato Systems in Santa Rosa, California, is one example of an AutoCad add-on. A few of APT's capabilities include designing a gable roof given three corners of a rectangular building, compiling room and door schedules from a built-in database, and automatically recalculating room areas whenever dimensions change.

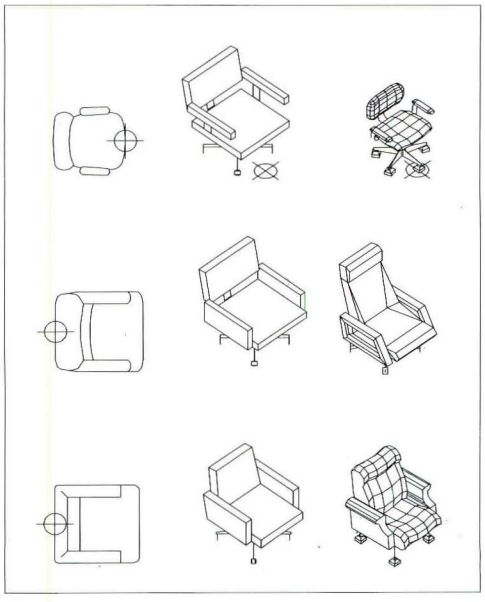
The CaddShare Corporation of Atlanta has produced applications for MicroStation that implement CONDOC keynotes and associated material descriptions. It has also developed tools for facility design that offer automated stair-drafting and ceiling-grid generation. In addition, a space-planning module facilitates the specification, placement, and management of furniture.

With software developed by RTKL, designers created a hidden-line drawing (bottom left) and color model (bottom right) of a mixed-use project in Chicago. A digitizing tablet made input of existing context (everything but the orange buildings) fast and accurate.





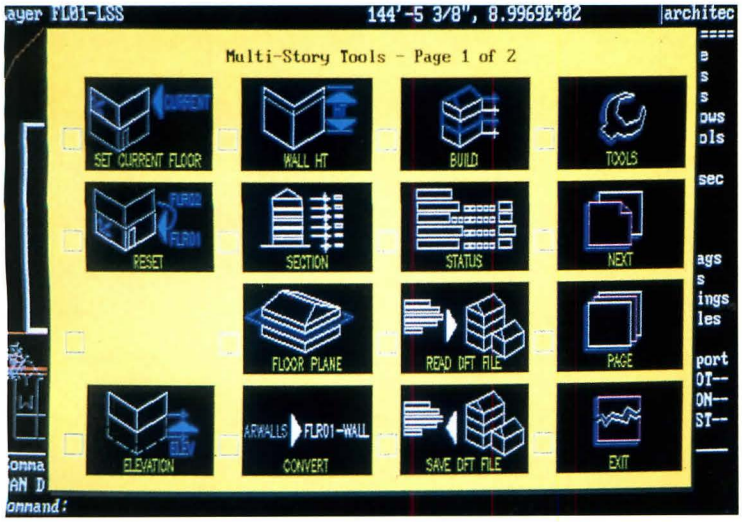


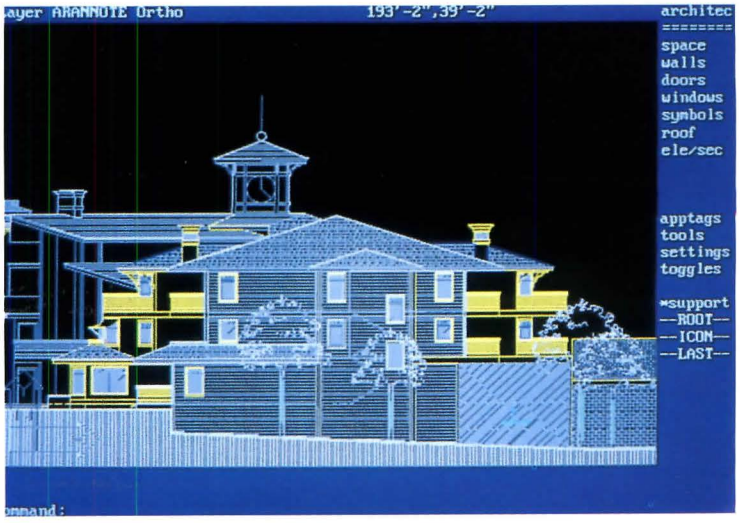


Architects can customize AutoCad by associating command macros with icons on graphic menus that are plotted on Mylar and overlaid on digitizing tablets. A partial menu (above) from Pierce Goodwin Alexander & Linville arranges drawing sheets, assigns door types, and applies symbols. Libraries of architectural symbols, called blocks, are available from a variety of commercial sources, including examples of furniture (right) from the Arch-T2 Block Catalog, Ketiv Technologies, Portland, Oregon. ASG Architectural enhances AutoCad's usefulness to architects and engineers. The icon screen (bottom left) illustrates some of the special functions useful in manipulating multistory buildings; the exterior elevation of Ashland Motel by the San Francisco-based firm Neeley/Lofrano (bottom right) is shown with a menu of architectural commands.

The Arch-T2 template software developed by Ketiv Technologies in Portland, Oregon, provides libraries of architectural symbols and tools for AutoCad. For example, a routine for stairs "knows" the Uniform Building Code's rise and run restrictions. When designers place stairs on their drawings, the software prevents them from exceeding those limitations. Ketiv's William Holt maintains the company's interest in CADD transcends paper drafting; it aspires to design strategies that simulate construction. Consequently, its CADD images are not just collections of lines and arcs but views of organized building components. A line that represents the interior surface of a wall is linked to several variables such as material, texture, and color, so that the computer can perform both renderings and material takeoffs.

Some of the best-selling third-party products are those from ASG of Sausalito, California, and Softdesk (formerly DCA Software) of Henniker, New Hampshire. These companies produce multidisciplinary applications that provide building-specific capabilities to enhance AutoCad's basic graphic software. The president of ASG, Dennis Neeley, is an architect who began developing software to customize AutoCad for his own practice. Now ASG sells integrated products to a market that includes facility managers and a range of design professionals. "It's critical that architects be allowed to customize ASG's symbols," Neeley maintains, "because most insist on some personal expression on drawings. But I don't believe that architects should be forced to customize. For one thing, they're in business to design buildings, not to develop software. Also, too much expressiveness tends to make drawings difficult and costly for contractors to interpret."





Research prototypes

WE ARE PROBABLY YEARS AWAY FROM THE day when software bridges the chasm between what computers can do and what designers need. Nonetheless, software research being conducted in architecture schools across the country is incrementally building that bridge.

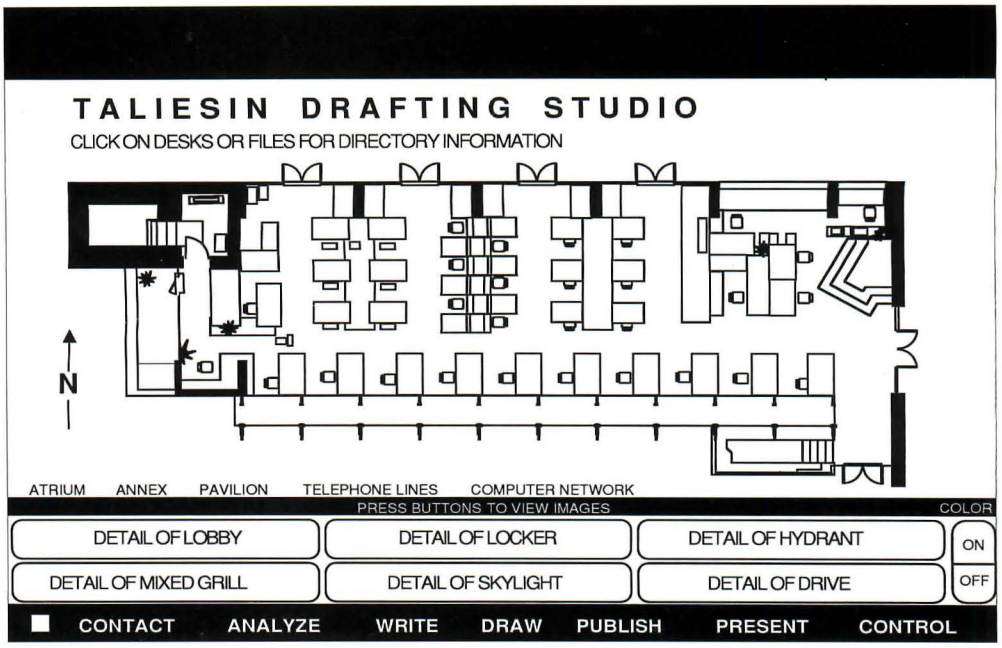
Thus far, most architectural software products have been developed along two separate tracks: engineering analysis and graphic modeling. This dichotomy, however, does not fully support design, which must integrate both analytic and subjective considerations. A team of architectural researchers at Texas A&M University, in College Station, is trying to unite the two tracks with a "knowledge-based" system for designing energy-efficient buildings. The designer works in the graphic mode and concentrates on geometric and spatial concerns.

Meanwhile, in the background, the computer evaluates the building's thermal performance by comparing it to rules of thumb from energy experts. An "energy adviser" makes recommendations that become more sophisticated and precise as design progresses. The adviser may, for example, recommend shading devices, higher insulation, different lighting fixtures, more glazing layers, or a shift in building orientation.

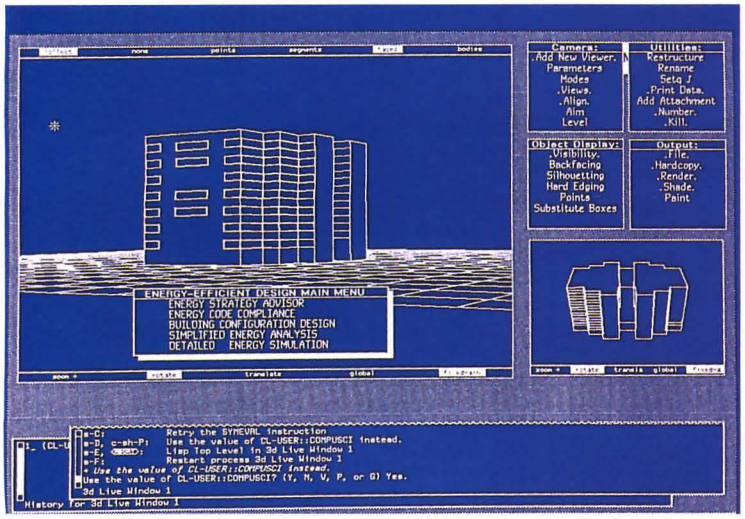
Researchers at the Center for Building Performance and Diagnostics at Carnegie Mellon University in Pittsburgh are working on software that facilitates the geometric modeling of a building while evaluating the building's total performance. Performance is broadly defined to include the interactions among spatial, thermal, visual, acoustic, and other variables, with the long-term goal of enhancing worker comfort and productivity. Designers will be able to develop a building graphically and receive feedback in the form of renderings, code checks, and a range of performance factors.

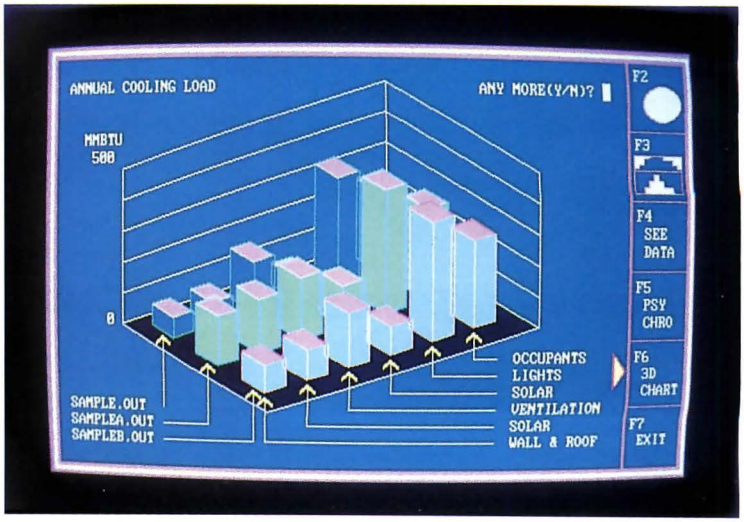
The common thread in the drive to customize—whether it's in university research labs, CADD software companies, or architectural firms—is that architects are working to incorporate their knowledge and creativity into a mechanistic environment that is better suited to computations and simple graphics. It's a frustrating struggle, but progress is being made, thanks to advances in hardware and to a continual expansion of ideas about how to translate design into computable formats. As the struggle continues, design tools will be produced that enhance, if not revolutionize, the capabilities of the profession. ■

—B.J. NOVITSKI



Taliesin Architects, the Frank Lloyd Wright spin-off firm, controls a large array of Macintosh files and applications with a customized HyperCard directory (above). The directory displays a plan of their drafting studio and key words for destinations within the computer system. Users navigate by clicking on a portion of the plan or on a key word. The firm's computer manager, Jay Pace, asserts that if Wright were alive today, he would be enthusiastically involved in CADD applications. "He would have enough influence to get the software he wanted," he says. Research at the university level will produce commercial software in the coming years. At Texas A&M, Larry Degelman and colleagues are developing a "knowledge-based" system combining a geometric modeler (bottom left) with energy analysis (bottom right).



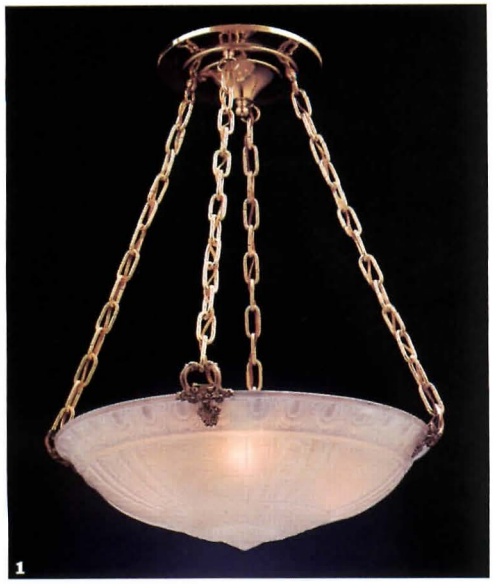


Designer's Saturday

IDCNY focuses on environmental sensitivity.

THIS YEAR'S DESIGNER'S SATURDAY MARKED THE OPENING OF WEB Center, an environmental resource for architects and interior designers housed in the International Design Center, New York (IDCNY). Focusing on world environmental and business (WEB) issues, the center will provide current green information through workshops, symposia, lectures, and conferences. Because the design community is daily confronted by changing government regulations and environmentally aware clients, the center's founders have planned programs that will keep design professionals up-to-date on issues such as energy efficiency, land use, asbestos removal, waste management, and indoor air pollution. In addition, the center will help architects and designers to identify environmentally friendly building materials that meet performance and budget requirements. Program director Cassandra DePreta plans to schedule an organized educational event on the third Wednesday of each month. Currently featuring an AIA-sponsored exhibit on "The Environmentally Sound Office" (page 79), the center will continue to display temporary and permanent exhibits tailored to educating not only members of the design community that regularly visit the IDCNY, but the public at large. —KAREN SALMON

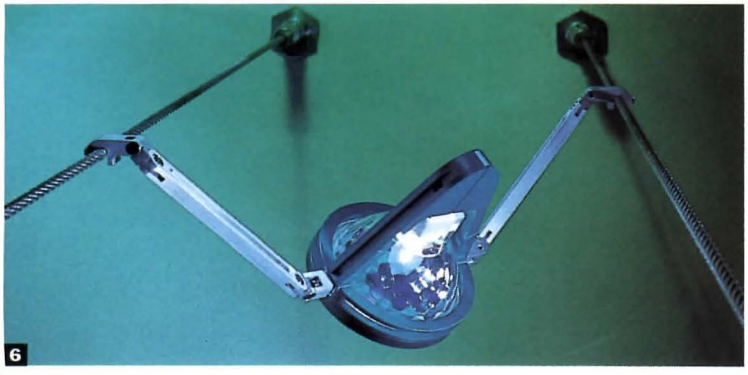
1. The Knoll Group offers Feathers upholstery fabric in eight color schemes. Circle 401 on information card.
2. AI reintroduces the Utrecht armchair, designed in 1935 by Gerrit Thomas Rietveld. Circle 402 on information card.
3. Herman Miller's Sanford collection of office systems integrates cable managers and surface grommets for electrical equipment. Circle 403 on information card.
4. Armstrong introduces 1-foot-square vinyl tile for healthcare and commercial installations. Circle 404 on information card.
5. The Choices office system by Trendway combines PVC work surfaces with wood trim. Circle 405 on information card.
6. Precision's Imagine office system includes stackable panels and storage bins. Circle 406 on information card.



Lighting Up

Fixtures offer energy-saving alternatives.

IN AN ERA OF RENEWED COMMITMENT TO THE ENVIRONMENT, architects are continually looking for energy-efficient lighting systems that do not sacrifice color consistency or quality. Since they were introduced to the United States nearly a decade ago, compact fluorescent lamps have become the most popular energy-saving light source, particularly for wall sconces. Some manufacturers produce interior luminaires that use metal-halide lamps. These lamps are compact, long-burning, and the most color consistent of all high-intensity-distribution light sources. In addition to metal halide, the Credenza Bollard series (bottom right), which lights pathways, steps, and parking areas, accommodates mercury, incandescent, and fluorescent lamps. A third energy-saving option, 12-volt halogen lighting, has recently become popular. The halogen bridge (bottom left), developed by SF 12V in San Francisco, offers an energy-saving alternative to track lighting. The system relies upon two parallel conductor cables that span a wall or ceiling; the company manufactures five different fixtures that can be fastened to the cables at any point. —K.S.



1. Rejuvenation Lamp & Fixture offers the Ainsworth pendant. Circle 407 on information card.
2. Holophane's PrismGlo Arcadia luminaires are available in a range of colors. Circle 408 on information card.
3. The Ashley Uplight With Downlight by American Glass Light is offered in three diameters. Circle 409 on information card.
4. Flos's Mira/P utilizes incandescent or fluorescent lamps. Circle 410 on information card.
5. The SFC wall sconce by SPI Lighting incorporates a hinged cover to facilitate cleaning. Circle 411 on information card.
6. SF 12V's Byrdy light features four adjustable joints. Circle 412 on information card.
7. McGraw-Edison manufactures the Credenza Bollard. Circle 413 on information card.

ADVERTISERS INDEX

EDITORIAL OFFICE
1130 Connecticut Avenue, N.W., Suite 625
Washington, D.C. 20036
(202) 828-0993

EXECUTIVE OFFICE
994 Old Eagle School Road, Suite 1010
Wayne, Pennsylvania 19087
(215) 254-9800

Robert Hoover
Production Director
H. Kratos Vos
Circulation Manager
Nancy A. Perri
Assistant to the Publisher
Robert G. Kliesch
Publisher

ADVERTISING SALES OFFICES
New York/Connecticut (215) 935-8522
D. Douglas Johnson
P.O. Box 199
Devon, Pennsylvania 19333
New England (617) 242-3042
Joan Donahue
31 Shipway Place
Charlestown, Massachusetts 02129
Philadelphia/Pittsburgh (215) 254-9800
George T. Broskey, Eastern Sales Manager
994 Old Eagle School Rd., Suite 1010
Wayne, Pennsylvania 19087
Southeast (215) 935-8522
D. Douglas Johnson
P.O. Box 199
Devon, Pennsylvania 19333
Midwest (312) 527-1055
Jack E. Bergren
Robert G. Hatfield
1337 The Merchandise Mart
Chicago, Illinois 60654
Jack E. Bergren (414) 786-4286
2530 Coach House Dr.
Brookfield, (Milwaukee) Wisconsin 53005
Edward R. Novak (708) 658-7133
E.R. & J. Assoc., Inc.
P.O. Box 648
Algonquin, Illinois 60102
Southwest (314) 569-3210
Richard Grater
1466 Summerhaven
St. Louis, Missouri 63146
West/Northwest (619) 451-9782
James A. Anderson
Western Sales Manager
11858 Bernardo Plaza Court, Suite 240-C
San Diego, California 92128
Canada (416) 833-6200
Donald C. Fenn
148 King Road E.
King City, Ontario L0G 1K0 CANADA
Italy 9-20135 Milano (02) 54.00.757
Cesare Fiorucci, Viale Sabotino
Telex: 326559 Timas; Fax: 5451526

EIFS Options

Synthetic finishes encourage design flexibility.

AS LOW-COST, LIGHTWEIGHT ALTERNATIVES TO STUCCO, EXTERIOR insulation and finish systems (EIFS) allow architects to create custom facades while reducing a building's energy consumption. By adding insulation to a structure's exterior, architects can eliminate interior insulation and minimize HVAC systems, depending upon the local climate. Thin base and finish coats, coupled with the moldable properties of foam insulation board, enable architects to create a range of details and custom forms for projects with tight budgets. Manufacturers consistently offer their products in different finishes and colors. When considering exterior insulation and finish systems, however, architects still face the issue of durability. Unlike stucco, EIFS are inherently flexible, and will resist cracking when subjected to harsh weather. Yet the synthetic materials can suffer denting or penetration if not properly specified or adequately reinforced. To protect exterior finishes against punctures, manufacturers have incorporated heavy fiberglass mesh and fiber-reinforced ground coats into their systems. Other exterior insulation and finish systems designed to resist impact include prefabricated, high-strength foam insulation panels that are mechanically fastened to exterior substrates. ■

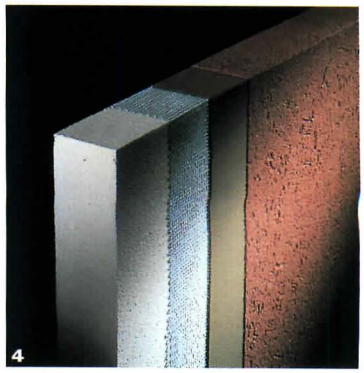
—K.S.


1


2

1. Quikrete's fiberglass-reinforced stucco can be applied to insulation boards. Circle 414 on information card.
2. Thorowall's granite- and stuccolike finishes are available in a range of colors and textures. Circle 415 on information card.
3. Sto Corporation manufactures seven complete EIFS products. Circle 416 on information card.
4. Dryvit's Outsulation can be preassembled or applied on-site. Circle 417 on information card.
5. Created by TEC, the Ful-o-Mite system includes a 100-percent-acrylic finish coat. Circle 418 on information card.
6. Senergy offers two complete EIFS materials. Circle 419 on information card.


3


4


5


6

ANNUAL INDEX

Edge Cities *continued from page 47*

natively, the Pig in the Python can be a Node that has begun to grow a tail like a comet as it strips down one or more of its approaching highways. King of Prussia, Pennsylvania (pages 48-51) is a good example.

The final major form of edge city, and the most ambitious, is the Greenfield. Increasingly, Greenfields are state-of-the-art responses to the perceived chaos of the Boomers, and they are the most awesome. They occur at the intersection of several thousand acres of farmland and one developer's monumental ego. Their hallmarks are amazingly grand visions of human nature and rigid control of vast areas by private corporations. They are the result of a builder's intention to "do it right" when he finds himself in possession of an enormous amount of acreage, which he invariably calls "a blank slate." The battle cries are "master planning," "mixed use," and "controls." Greenfields are meant to show nothing less than that all of man's needs and desires can be met by the glories of the marketplace (if one developer is capable of aiming sufficiently high). Examples include Las Colinas, near Dallas/Fort Worth Airport; Irvine, on the southern fringe of the Los Angeles basin; the Bishop Ranch, east of San Francisco; and, predictably, a Disney entry near Orlando beyond Epcot Center. What is most remarkable about these Greenfields is not that there are so many of them (because they require so much land, they are more common in the West), but rather how many are on the drawing boards and how much they are expected to cost.

So long, Frank Lloyd Wright?

WHEN THE LOGIC OF EDGE CITIES IS FINALLY decoded, we're faced with the question "Are they our new cities on the hill?" Frank Lloyd Wright, that most American of American architects, might have thought so. In his plan for the urban future that he christened Broadacre City, Wright anticipated with stunning accuracy many of the features of edge cities. "Nonsense is talked by our big skyscraperites in the blind alley they have set up, defending urban congestion by obscuring the simple facts of the issue," he trumpeted in 1958. "Their skyscraper-by-skyscraper is . . . the gravestone of . . . centralization."

Wright yearned for a system in which all men would flee the evils of big cap authorities, big cities—troglodytes stripe—for a connection with nature. of land per person would be about ri he saw newly freed individuals comi together in totally modern agglom Automobiles and aircraft would be t ous agents of this dispersion and re tion, and he knew exactly what wo pen when, inexorably, we blew ed out to the scale they required.

"After all is said and done, *he*— zen—is really the city," Wright rem his book *The Living City*. "The city where he goes. He is learning to go enjoys all the city ever gave him, f dom, security, and beauty of his bi the good ground."

Things will get better

HOW ABOUT THAT? WE'VE DONE IT! we, in our new edge cities, ever goin the benefits of what Frank Lloyd knew we'd sow?

Robert Fishman, a Rutgers Univ torian, is optimistic. "All new city f pear in their early stages to be cha

He quotes Charles Dickens on Lon- 1848: "There were a hundred thou- apes and substances of incomplete- ildly mingling out of their places, down, burrowing in the earth, aspir- he earth, moldering in the water, and igible as in any dream." It is also the -sentence description of an edge city. tually, however, Fishman claims, all ban forms—whether they be the suburbs of 100 years ago, the Levit- f 40 years ago, or the edge cities of evolve this way: First, planners of ge- mprehend what makes them tick. peculative builders of less candle- et the general idea, and try to repli- formula. Finally, individual owners lly upgrade their properties. They und at what other people are doing, what is good or bad, and eliminate nt elements and bring their commu- ser to what is perceived to be the We might hope that a similar process at work in the postsuburban outer hman concludes.

question is the extent to which archi- d other design professionals—whom I naively thought were the guardians of our built environment—will choose to have a hand in shaping this landscape. They need to recognize, as I have, that edge cities are a way of looking at America, a means to obtain a broader understanding of our values and where we're going.

For one thing, I have decided that it is wrong to think of the land in terms of a dichotomy (as either sacred or profane) and to recoil from the modern works of humans, thinking that somehow such a distinction would better serve the natural environment. On mature reflection, I have come to believe that the healing of our world will only occur if people view all land as sacred—the newly and popularly built human environment no less than the ancient and unspoiled. What this means is that those who view themselves as revering quality of life—the Sierra Club, the National Trust for Historic Preservation, and yes, the American Institute of Architects—will have to commit themselves to understanding this new world, holding their noses if they must.

For to achieve the ends that we hold most dear—in the old downtowns no less than in the wilderness—we must sympathetically understand the edge city world. It is our world, indivisible.

Go back then and look at Wright's drawings in *The Living City* and read his words. Wright laid it all out for us a generation ago, chapter and verse, even getting many of the numbers right. He genuinely believed that Americans continued to be the sons and daughters of pioneers, "the sons of the sons of American Democracy." He saw us heading out of our old cities, freed from old verities and creating a new spiritual integrity in community. He was not wrong.

We must strive then to understand edge cities on their own terms, and, with respect, to "get them right." After all, we are not simply talking about asphalt, or concrete, or the places where 80 percent of all the building is being done. We are talking about the places that our children, and our children's children, will call home. ■

—JOEL GARREAU

Joel Garreau, a senior writer for the Washington Post, *is the author of* Edge City: Life on the New Frontier, *recently published by Doubleday.*

Kentlands *continued from page 76*

Other proposed sections included a Main Street neighborhood, with offices, shops, and apartment buildings; a Midtown neighborhood, with a mixture of housing types; a Hill District that followed the sloping terrain; and a Gatehouse area near the elementary school.

Many of these areas were designed to foster small-town intimacy. Instead of wide *culs-de-sacs* branching off a main spine road, there would be a grid of crisscrossing streets and alleyways; the narrow streets would serve to slow down traffic and the alleys to hide garages. Civic squares, traffic circles, and village greens were designed to enhance the sense of public space. The designers also sought to provide opportunities for a variety of housing so that people of different income levels could live close to one another.

To make sure that individual buildings worked together to form a unified plan no matter how many different builders became involved, the architects developed two codes to guide development: the first to regulate architectural features (pitched or hipped roofs, for example, are required), and the second to guide urban design, including heights, widths, and setbacks. DPZ also opened a branch office on the site with a full-time town architect, Mike Watkins, so that the firm could maintain some control over what was built.

Almost as soon as plans were laid, however, the development team began to encounter obstacles. One of the first involved the elementary school, which was to be built at the community entrance. Because the school was the first nonresidential building at Kentlands, the designers wanted to create a landmark. But the local board of education, on a tight construction schedule, wanted to follow an off-the-shelf design: a two-story structure with a flat roof and ceramic-tiled exterior.

The developers were told they could change the appearance of the school—if they spent their own funds. With that concession, DPZ got the county to replace the tile with brick, to erect columns and a pediment at the entrance, and to add a cornice and sloping roof—at a cost of $350,000 to the developers. The designers also asked school officials to reverse the plan of the building so that the kindergarten wing, rather than a loading dock, would face the main entrance road. Citing time constraints, county officials wouldn't oblige. As a result, the school's weakest facade terminates a key vista.

The school is sited on a public circle, which posed another design dilemma, since early plans called for a traffic circle to be created at the site's highest point. But the high point at Kentlands happened to be where county transportation officials had previously approved plans for a divided "collector road" to carry heavy traffic, and the county believed the circle would slow traffic. So DPZ negotiated a compromise with transportation officials: it would build a divided circle, with the median strip of the collector road running down the middle so that cars could go straight through. Now Kentlands residents are expressing concerns that their children will have trouble crossing the street because of the through traffic.

Another aspect of the roadway design involved stone curbs. The developers had offered to install granite rather than concrete curbs along main streets—a detail found in many older towns. But the county officials who maintain the roads said they would permit granite curbing only if the developers set aside enough extra granite to cover repairs for the next 40 years. Unable to pay for that much stone up front, the developers opted for concrete instead.

Ironically, it is in the public areas—the realm that Duany and Plater-Zyberk most wanted to affect—that they have had the least control. Local residents and officials have been receptive, largely because the designers drew them into the planning process during the weeklong design charette. But formula-driven businessmen and by-the-book government agencies have been slow to accept their unconventional ideas. In some instances, such real-world encounters have actually delayed Kentlands' construction.

For example, the developers had envisioned a two-story day-care center next to the elementary school that would help frame the nearby traffic circle. But most day-care chains will only work in single-story buildings, because they can operate with a smaller staff and obtain lower insurance rates. A non–chain operator finally emerged to run the Kentlands center, but a builder hasn't been found. As a result, the community will have to wait for its two-story day-care center.

The delivery of services has also posed problems. The U.S. Postal Service not only decided to withhold house-to-house deliveries, it also refused to establish a separate post office at Kentlands because Gaithersburg already had a post office several miles away. At Seaside, the Greek Revival post office is a perfect marker for the center of town, as well as a message center and architectural icon for the community.

Nevertheless, DPZ has had its shar
tories. For example:

- DPZ wanted to build some roads w
than 20 feet of clearance. Local
wouldn't allow it, because fire
wouldn't be able to get through. But
department finally relented and agree
cept some narrower roads, if the
would install fire sprinklers in ho
those streets—at an added cost of $1
square foot.
- The city of Gaithersburg required
velopers to build guard rails to fence
where roads were constructed alo
lakes. The standard was metal gua
identical to those found along in
highways. Finding the metal rails u
architects suggested wooden guard ra
lar to those found on federal parklan
city accepted the compromise—again
as the developer paid the extra expens
- The city's code called for trees n
than 12 feet on center, but DPZ obtai
mission to plant trees 4 feet on cente
tain places to help create a stronge
wall. The compromise was 6 feet.
- To help provide affordable hous
planners suggested that homeowner
lowed to have rear-yard outbuildin
mother-in-law apartments or "granr
The city code did not permit such str
but officials agreed to allow small
garage apartments.
- The six home builders—Rocky
Communities, C.I./Mitchell & Bes
pany, Barratt Washington, Fairfield
Bozzuto & Associates, and Joseph
Homes—have shown some eage
adapt their standard products to th
lands concept, and their houses exhi
architectural variety and richness tha
in other subdivisions. There is als
tively wide price range, from $119,0
condominium to $550,000 or mor
largest three-story house.

Because Kentlands is still years a
completion, it's hard to tell exactl
will turn out—or how suburban liv
terns may change. Thus far, no st
been built, so people still have to
their cars to buy milk or run other
Still, a few areas are complete, and i
ble to make some general observatio

It is apparent that Kentlands is n
to become some kind of suburban
land or yuppie Xanadu, the way so
advance publicity might have sugg
anything, Kentlands has the oppos
lem: it's not lively enough. The stree

crooked and cranky than the potent charette drawings hinted they would be. Houses in the Old Farm neighborhood are more homogeneous than they were supposed to be, some public amenities have been eliminated, and the much-desired social mix is not evident.

The original notion of building affordable housing close to high-priced housing has given way to a different notion of affordability. It's not $50,000 houses next to $150,000 houses, but a $160,000 house two blocks away from a $400,000 house. Above-garage granny flats show little sign so far of being used for anything but glorified guest apartments or home offices. At the same time, the recession has forced some builders to reevaluate their products and come up with less expensive models for Kentlands, including 1,500-square-foot cottages priced below $200,000 that are selling well.

Another shortcoming is that Kentlands has no link to rapid transit, although the state has some long-range plans to construct a light-rail line that might run through the property. The greenway system around the neighborhoods is not particularly coherent, largely because existing wetlands dictated where houses could and could not be built.

Yet there are signs that Kentlands really will "live" differently from other new subdivisions in the Washington area once all the pieces are in place. For example, the city of Gaithersburg has incorporated the designers' architectural and urban design codes as part of a new zoning category created to govern development of the site. Plans for future buildings indicate that they will reinforce the town's unique character, including a custom-designed gas station and a traditional church with a steeple.

Across the street from Kentlands, a competing developer is doing well with a subdivision that has enough of a village ambience that it might be mistaken for a clone of its neighbor. Other builders are planning what might be called second-generation Kentlands projects, taking some of its Neo-Traditional ideas even further. Alfandre's company, for example, has two more communities in the works: Belmont in Loudoun County, Virginia, and The Settlement in Sandy Springs, near Olney, Maryland.

Duany, who still visits Kentlands about once a month, says that while he wishes some decisions had turned out differently, he is not particularly disturbed by flaws in the project. In fact, he argues, design imperfections can make a town more memorable, while reflecting that it is part of the real world. "Annapolis is full of lessons," he observes. "One of them is how imperfect urbanism can be and still make a really great town. Everywhere you look in Annapolis, things are off, things are imperfect. Yet it all adds up to a really magnificent place."

Kentlands, too, is destined to be imperfect; but it is likely to be memorable as well. Its designers may not have won every battle, but they managed to win the important ones that govern urban standards for the town's streets and public spaces. And they accomplished these feats in a place where effective town planning is urgently needed: in the midst of the Washington, D.C., *metropolitan* area, which is fast becoming choked with haphazard suburban sprawl. Given the experience it has gained and the lessons it has learned at Kentlands, DPZ is likely to succeed even more the next time with its ongoing experiment in American urbanism. ■

—EDWARD GUNTS

Did you miss valuable information offered by advertisers in last month's issue of ARCHITECTURE?

The manufacturers listed below and on the following pages were advertisers in last month's issue who are anxious to provide you with their latest product information and literature for your planning needs. To receive this helpful information, just circle the appropriate numbers on the self-addressed, postage-paid response card. For product information and literature from advertisers in this issue of ARCHITECTURE, circle the appropriate numbers appearing on the advertisements.

Alply, Inc. Tech Wall® clad buildings include some of the world's most exciting structures. *Circle No. 60*

Alumax Magnolia Div. Alumax offers the largest selection of bath enclosure systems on the market. *Circle No. 90*

American Olean Tile. No one offers as many textures, colors, and styles of quality ceramic tile. *Circle No. 50*

American Stair Glide. When barriers prohibit wheelchair traffic, install the durable performance of American Stair-Glide Products. *Circle No. 28*

Andersen Corporation. Andersen® wood. Perma-Shield® vinyl. Andersen software. Solutions for architects who have to be in two times at one place. *Circle No. 1*

Architectural Area Lighting. Traditional lanterns of heavy cast aluminum that operate a variety of H.I.D. lamps. *Circle No. 14*

Art Directions. Write for more information on the original cast lighting. *Circle No. 32*

Bethlehem Steel Corp. Send for information about the flexibility, durability and cost-effectiveness of prepainted Galvalume™ sheet for roofing and siding components. *Circle No. 42*

Bobrick Washroom. Designer Series offers a complete selection of washroom accessories in 35 colors. *Circle No. 88*

Bradley Corp. You can have precise metering and day-to-day reliability with Bradley Futura Faucets featuring ACCU-Zone™ no-touch metering control. *Circle No. 4*

Bradley Corp. Six Flags Over Georgia chose the Futura™ over other no-touch faucets for their theme park. *Circle No. 6*

Brite Vue Glass Systems. The glass, the metal, the workmanship, the elegance and the attitude. All from the same source. *Circle No. 68*

Cedar Shake & Shingle Bureau. Certi-Split, Certigrade and CertiSawn® insure your shakes and shingles are made from #1 grade cedar. *Circle No. 94*

Chicago Faucet Co. Reflections—new colors, same old quality. Send for more information today. *Circle No. 112*

Crown Metal Mfg. Co. Get the EDGE Wall Standard. Send for more information today. *Circle No. 30*

DPIC Companies. Independent agents work even harder for you. *Circle No. 76*

Eliason. Easy Swing® doors utilize gravity and offset pivots to facilitate a safe, gentle swinging action. *Circle No. 22*

Follansbee Steel. TCS®, Terne-coated stainless steel, has graduated as a superbly functional roofing material for educational buildings. *Circle No. 102*

Fry Reglet. Fry moldings, which have added function and design to exteriors for over 20 years, are now enhancing interiors as well. Send or more information. *Circle No. 108*

General Electric. Monogram introduces a flush design wall oven to its repertoire of built-in appliances. *Circle No. 58*

Georgia Pacific. G-P Dens-Glass® Gold is named for its unique gold alkali-resistant coating. *Circle No. 36*

Gold Bond. Technical experts provide you with the information you need. *Circle No. 110*

Goodyear Tire & Rubber. For a striking improvement in roofing, ask for Goodyear's Versiweld™ with EPDM polymer alloy. *Circle No. 92*

Hafele. Send today for more information on the Hawa Wall System. *Circle No. 40*

Haws Faucet. A full line of drinking fountains and water coolers specially designed to enhance your every creation. *Circle No. 78*

Helios Industries. Tensioned membranes have proven their usefulness in a variety of applications in every sort of climate. *Circle No. 54*

HEWI, Inc. Color, Design, Performance. Send for more information today. *Circle No. 132*

Hewlett Packard. HP DraftMaster Series plotters give you the best combination of line quality and speed on the market. *Circle No. 20*

Hurd Millwork. Hurd Insol-8™—the biggest news in windows since double-pane glass. *Circle No. 56*

Intergraph. The premier system for architecture, building services design, facilities management, and more. *Circle No. 98*

ISICAD, Inc. CADVANCE® is the only CAD software designed specifically for PC networks. *Circle No. 96*

Kawneer Company, Inc. Serving the most advanced needs of the architect. *Circle No. 44*

Kawneer Company, Inc. A complete line of aluminum entrance systems. Each a timeless classic in its own right. *Circle No. 100*

Koh-I-Noor. Rapidograph renderings present architectural designs in the clearest light possible. *Circle No. 72*