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Awards Without Meaning

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Every architect likes public recognition. It acknowledges the results of vigorous effort, makes for a good image with clients past, present, and future, looks good in a qualifications package, sparks up morale, and motivates staff to greater effort. One form of recognition is the design award. These are given to architects (and sometimes clients) by professional societies such as AIA, CSI, NOMA, and others at national, state, and local levels; by building industry trade associations; by government agencies at all levels; by local chambers of commerce and various civic groups. But sadly enough there is now such a proliferation of awards that award-giving bodies are often at wits end trying to match potential winners to a long list of honors. There comes a point where the selection process loses meaning. It is as though in a race there is a prize for every contestant. Value is diluted through an inflation of honors—too many prizes chasing too few eligible candidates. It is time for every award-giving panel to look into its soul and make two serious decisions: 1) rather than reach, should we *not* make an award this year; and to drive the point home, issue a strong statement as to why not?, and 2) consider whether a particular award has outlived its usefulness and should, in the lingo of Congress, be “sunsetting.” One year the City Club of New York got infinitely more mileage out of omitting its annual Great Architecture award than it would ever have gained by granting it.

Pruitt-Igoe, Act II

It is almost a generation ago that the utter failure of low-income housing planning and design was symbolized by the demolition of the Pruitt-Igoe public housing project in St. Louis. Now, late this winter, four bleak 13-story towers in Newark, New Jersey, known as Christopher Columbus Homes, were leveled. They were closed up in 1990 after an onslaught of crime and vandalism had made them unlivable. Unfortunately, for every project destroyed because it totally fails to meet the needs of its clientele, hundreds remain to plague their tenants and the community. A new wave of soul-searching, which reaches from the White House to all levels of our society, now tackles the constitutional issue of conducting “sweeps” without warrants to assure the safety of occupants. Yet architects such as Oscar Newman, author of the classic work *Defensible Space*, cite cases in which intelligent measures, not always calling for major extra outlays, were able to deal with a low-income housing challenge. In inner-city Dayton, Newman served as consultant on a scheme that took the crime-ridden Five Oaks neighborhood and out of the street grid created ten mini-neighborhoods of about 100 homes and apartments, each with limited-access streets. Within 11 months, crime is said to have declined by 26%, violent crime by 50%, and housing values rose by 15%. In Yonkers, New York, 200 public housing units were placed in white middle-income areas, using a low-density, scattered site townhouse format with no more than 50 units on each of seven sites. Five of the sites have been occupied for nearly two years. There has reportedly been no increase in crime above that of surrounding areas, no loss in property values, no white flight. So if demolition of Christopher Columbus Homes was the end of Act II of a dismal record of public housing, there’s hope that Dayton and Yonkers and the many other resourceful solutions published in recent years in RECORD and other media, signify a happy Act III in this long-running drama. *Stephen A. Kliment*

THEY DON'T MAKE THEATRES LIKE THIS ANYMORE. WHICH IS WHY THEY

When it opened in 1921, the State Theatre in Minneapolis was hailed as the most luxurious showplace between New York and San Francisco. Sixty years later however, when planning began for a \$130 million office/retail complex for the site, it appeared this grand old theatre would go the way of the silent films it once screened.

But in 1985, a determined group of preservationists succeeded in getting the State placed on the National Register of Historic Places. And one of the first companies to become involved in its restoration was Marvin Windows and Doors.

You see, the windows above the theatre's marquee posed a two-sided problem. Not only would they have to fit perfectly and look exactly like the originals, they'd also have to be durable and maintenance-free. And Marvin was the only manufacturer willing to make these unique windows and stand behind them.

And so, working from measurements of the existing openings, Marvin built the 3' x 10' windows and 6' x 10' double-width units with custom divided lites and the same gently rounded frames as the originals. In addition, each window received a commercial grade exterior finish in a color that matched the look and style of the building.

As a result, the State got windows that look like the originals but actually feature the newest ideas in design, craftsmanship and energy efficiency. And Marvin got the opportunity to prove once again that responsiveness



Austria

Vienna Plan Is in Time-Warp Tradition



© Gerald Zugman

Ortner & Ortner's plan to expand Vienna's museum quarter plays on the city's seldom-acknowledged 700-year tradition of breaking with its own past in order to create new spaces for "cultural nomads"—from the large international exhibits that had been bypass-

ing the city to young artists experimenting with small or temporary projects. Four new buildings (lit in model) will share the embrace of the 19th-century Imperial military stables, which will be adapted for such new uses as workshops and an architecture center. ■

Houston

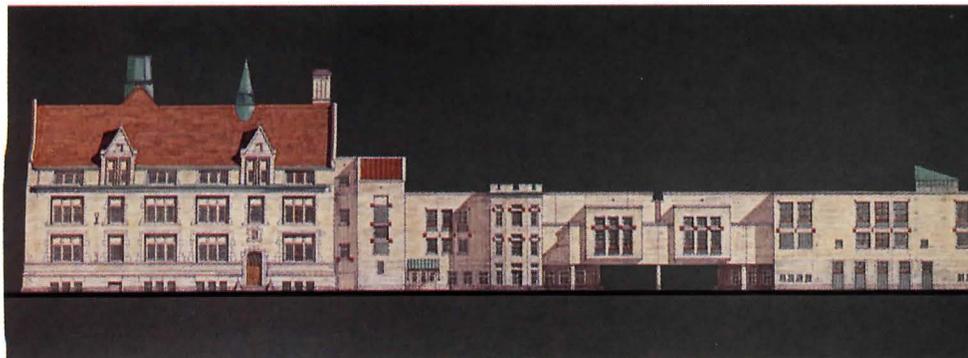
Texas: A Park for The Next Century

Houston's threadbare Hermann Park is undergoing its first master plan in 60 years. Funded by the non-profit Friends of Hermann Park, Laurie Olin of Hanna/Olin will address traffic and parking, drainage and erosion, expansion of existing facilities, and unification of the park's attractions into a greener whole. In 1993, the 407-acre park attracted 5.2-million visitors to a zoo, a Japanese garden, the Museum of Natural Science, Miller Outdoor Theater, a garden center, and the first racially integrated public golf course (1930) in the U. S. *Gerald Moorhead*



New York City

Addition to Brooklyn Elementary School Marks a Homecoming for 1907 Schoolhouse Gothic Style



Hirsch/Danois' 50,000-sq-ft addition (right side of rendering, left) to PS 152 is adjacent to the Georgian-and-Modern Brooklyn College campus but follows the spirit of C.B.J. Snyder's 1907 idiosyncratic Collegiate Gothic original (left side of rendering). The three-story addition to the K-5 school will house cafeteria, kindergartens, library, art and science centers, administration and community spaces. To include major renovations to the original structure, the project will create a block-square facility with simplified, ADA-compliant circulation. ■

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Hong Kong

Seashell-Shaped Stadium Spills Sports and Concerts into Cityscape

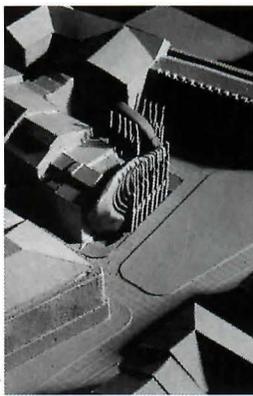
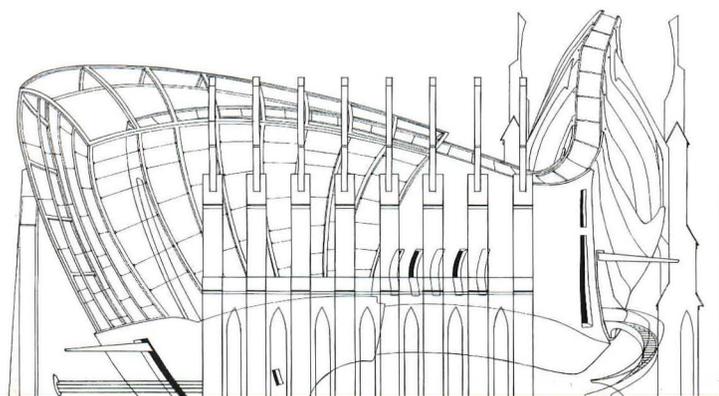
The new Hong Kong Stadium designed by HOK Sport is, at 40,080 seats for soccer and rugby and 50,000 for concerts, more than 40 percent larger than its 1953 predecessor. Enclosed on three sides by higher land and on the fourth by a monumental plaza stair-

case acting as a threshold to the city, the stadium has a Teflon-coated reinforced glass-fiber roof whose pleated arches allude to surrounding hills and, when seen from the air, resemble an opening seashell; the roof takes on a pearly glow when lit from within. ■



Poland

Visionary Monument for the Astronomer Who Shook the World

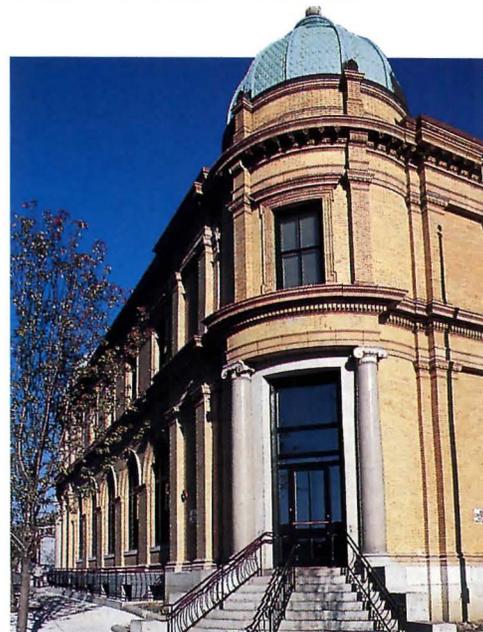


Hwafong Nonchi Wang has won the Grand Prix at the Fifth International Biennale of Architecture in Cracow, with his plan for a planetarium/exhibition hall as a monument to Copernicus, who was educated in Cracow between 1491 and 1495 and set in motion the downfall of Ptolemaic astronomy by postulating that the earth revolves around the sun. The concept honors the astronomer by rejecting Euclidean geometries, which, Wang says, "can't deal with the complexities of nature," in favor of chaos theory. At the same time, he honors the site, near two Gothic

cathedrals, by supporting the structure with flying buttresses, citing the rationalism of Viollet-le-Duc rather than what he calls the "irrationalism of deconstructionism." The photo above right shows the monument in the center of the site model. Wang, founder of Amphibian Arc in South Hadley, Massachusetts, believes that Copernicus's "not-necessarily-orthodox spirituality was central to his discovery of heliocentrism." The Association of Architects of the Republic of Poland is shepherding the project through the approvals and funding processes. ■

Massachusetts

Mini-Revolution at The Post Office



© Warren Patterson

Revolutions historically tended to begin with a bloody take-over of a post office, but a recent coup in the City of Lynn involved the restoration and conversion, by the Design Partnership of Cambridge, of an 1897 downtown post office into a multi-service center for homeless and indigent people. The Romanesque Revival landmark contains a 40-bed shelter, a two-story full-service "soup" kitchen seating 160 in the former main postal area, a satellite health clinic, and office space for other services and outreach agencies. ■

Italy

Marble Prizes Awarded

The Internazionale Marmi e Macchine of Carrara awarded its 1994 Marble Architectural first prize to Marco Tomasi for a mausoleum in Bergamo. Paolo Giordano won for interior design, and Mario Liut for urban landscape. Wilhelm Kucker chaired a jury comprising Gianni Bowri, Italian National Council of Architects; professor Romano Viviani, Florence University; Francis Rambert of *d'Architectures*; Clare Melhuish of *Building Design*; and James S. Russell of ARCHITECTURAL RECORD. North American projects will be juried in 1997. ■

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Briefs

Firm of the Year

Bohlin Cywinski Jackson has received the AIA 1994 Architecture Firm Award, given annually "to a practice that produced distinguished architecture consistently for at least 10 years." Since its 1965 founding by Peter Bohlin and former partner Richard Powell, the firm has won over 100 national, state, and regional awards, and has expanded to a 52-person staff in offices in Pittsburgh, Philadelphia, Wilkes-Barre, and Seattle. "They create a sense of habitation by merging the technical aspects of building with a great sensitivity to landscape and power of place," the AIA Honors jury noted. The firm's drawings will be on display at Pittsburgh's Heinz Architectural Center from June 14 to October 2, and at the University of Washington, Seattle, in January 1995.

Taking on Disney World

Entertainment mogul H. Wayne Huizenga plans a \$1 billion sports/tourist complex called Blockbuster Park near the Everglades to include a retractable-dome baseball stadium, a concert/hockey arena, a theme park, movie studios, hotels and resorts. HOK and Ellerbe Becket, respectively, are providing stadium and arena cost estimates for the development application to the state. Conservationists charge the project endangers the watershed.

Moves

- Robert F. Ladau, former head of Emery Roth & Sons Facilities Management/Interior Design, is now president of SLCE Facilities Management/Interior Design, a new firm affiliated with Schuman Lichtenstein Claman Efron.
- Hammel Green and Abrahamson founder Curt Green has retired from active practice but will continue in a public-relations capacity.
- The AIA has named Philip Schreiner to the newly created post of vice president of member communications.

Publication

NCARB has revised its "Architect Overseas Practice Standards." For copies, call 202/783-6500.

Remembered

- John Yeon, known for regional-style Northwest houses, died in March at age 83. His 1937 Watzek House is listed on the National Register of Historic Places.
- Consulting engineer Anton Tedesko, an expert in thin-shell reinforced concrete construction, died in April at age 90. ■

Justices Aid and Abet Architects in Clipping Courthouse Costs



Just when Congress seems bent on curbing the federal judiciary's costly tastes, Gossen Livingston has brought in a courthouse at \$102 a sq ft, on average a third under recent court projects. "It will provide a comfortable, dignified setting," said U.S. District Court

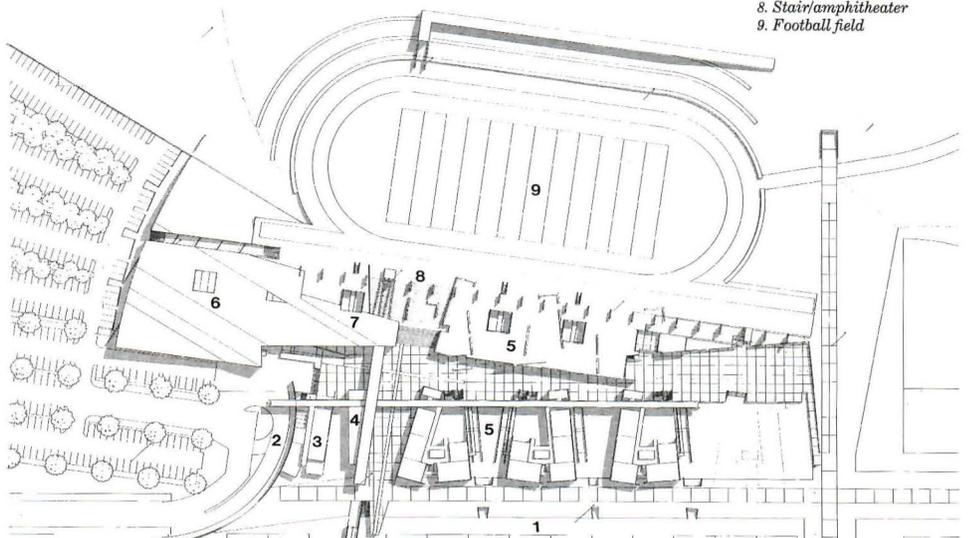


Judge Earl E. O'Conner of the design for shared courtrooms and libraries. "I don't think any of us were interested in having ornate, ostentatious chambers." The firm did solicit their opinions on proportions and distances in a mocked-up courtroom. ■

© Douglas Kahn photos

All the School's a Stage For Teenage Students

1. Playing fields
2. Driveway
3. Administration
4. Library
5. Grade clusters
6. Gymnasium
7. Dining
8. Stair/amphitheater
9. Football field



The Diamond Ranch High School has been designed by Morphosis to follow the amphitheater-like contours of its Pomona location: 25 acres of playing fields on the lowest level and a school building rising two stories, with a mini-amphitheater formed by

a monumental outdoor staircase that cuts through the structure and leads to a top-level roof terrace and the football field whose seating area continues the climb up the slope. The gymnasium mimics the hillside with a pitched roof that undulates with the terrain. ■

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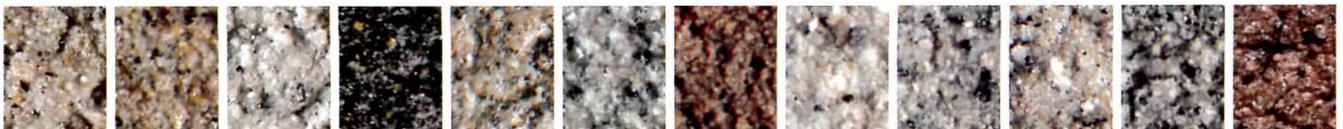
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Why Are Architects So Confused?

What Is Architecture?: An Essay on Landscapes, Buildings, and Machines, by Paul Shephard. Cambridge, Massachusetts: MIT Press, 1994, 128 pages, \$10 (paper)
The Roots of Architectural Invention, by David Leatherbarrow. Cambridge, England: Cambridge University Press, 1993, 242 pages, \$65.

Reviewed by Nancy Levinson

In a simpler and more confident era, the reader of a book called *What Is Architecture?* might reasonably have expected a genial overview, a *Britannica*-like survey that progressed dutifully from Mesopotamia to Manhattan. These being volatile times, however, *What Is Architecture?*, by British architect Paul Shephard, is a sparsely illustrated, very personal essay that assumes no consensus other than widespread bewilderment; as such, it is an inspired and perceptive performance.

Shephard's premise, which few will dispute, is that confusion now beclouds his subject. Today, he notes, "...on the question, 'What is architecture?' there is a hubbub, a furor of nonconsensus." This hubbub is, he suggests, all too understandable; in this century architects have witnessed a rapid succession of styles in both building design and theory, with the proponents of each new style asserting the intellectual and artistic sterility of

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London and St. Paul's Cathedral in December 1940 during the Blitz, from *What Is Architecture?* by Paul Shephard.

their predecessors. Although generally non-partisan, Shephard finds little merit in recent critical efforts to explain architecture in terms adapted from literary theory. Throughout, he takes pains to distinguish what we think and write about architecture from architecture itself—from what he calls "the material facts... [which] exist because they exist, not because we subscribe to their meaning." Or, as he explains, "What is architecture?" is not the same question as "What should architecture be?" or "What is architecture like?"

Adherence to "material facts" does not limit the author's range of references. His search for answers begins with Vitruvius and draws in Brunelleschi, Alberti, Palladio, Wren, Ruskin, Frank Lloyd Wright, and Le Corbusier, among others. Along the way the discussion ranges outside architecture, encompassing Goethe, Schiller, Robinson Crusoe, the Wright Brothers at Kitty Hawk, the *Origin of Species*, war machines of the Pentagon, conversations with the author's friends, even one crude but funny joke. Admitting a fondness for both analogies and trilogies, Shephard constructs several provocative arguments that explore how architecture connects, on the one hand, to landscape and to machines, and, on the other, to drama and to music.

All this intellectual trekking is as pertinent as it is entertaining. Given his book's title, it isn't surprising that Shephard prefers good questions to easy answers. By sharing his own journey, he will surely inspire readers to embark on their own.

Style over substance?

In *The Roots of Architectural Invention*, David Leatherbarrow is also more concerned with questions than answers. He begins this erudite book by stating that architects today are unhealthily obsessed with style, with "the stylized image." As a result, he says in his introduction, "The art of building has been transformed into a business of self-display and promotion through the design and construction of figurative motifs."

Leatherbarrow then devotes the rest of the volume to arguing that contemporary architects rarely ask the kinds of fundamental

questions that, in his view, have been and remain essential to the creation of important architecture.

The Roots of Architectural Invention reveals and explores these questions through discussions of three architectural topics: site, enclosure, and materials. Leatherbarrow, a professor of architecture at the University of Pennsylvania, develops his arguments about each by examining diverse and influential architectural theories, including those of Vitruvius, Alberti, Michaelangelo, Claude Perrault, Gottfried Semper, Adolf Loos, Christian Norberg-Schulz, and Aldo Rossi.

To give a sense of Leatherbarrow's method, the book's first section prods us to examine how we see site. Do we define site as space? As perimeter or context? Or as the land itself? Leatherbarrow suggests that the best architects transcend the limits of typical project thinking by understanding site not as something given, but as something to be invented. As an example, he describes how Borromini's design for the Casa dei Filippini in Rome reimagined and remade its environs.

Leatherbarrow's learning, his knowledge of the canonical works of architectural theory and classical philosophy, informs every page. No doubt the book will send some architects—as it did this reviewer—to their bookshelves, searching for copies of Vitruvius unopened since school. But one virtue of this clearly written book is its attraction to non-academic readers, i.e., to the majority of practicing architects. This clarity is crucial, for *Roots* is concerned at heart with the design and construction of buildings, not with our interpretation of them.

What Is Architecture? and *The Roots of Architectural Invention* complement each other in interesting ways. Although *Architecture?* is conversational, intimate, and allusive in tone, and *Roots* scholarly and complex, both are animated by a passion to return architectural discussion to matters specifically architectural. ■

SUPPORT CAN



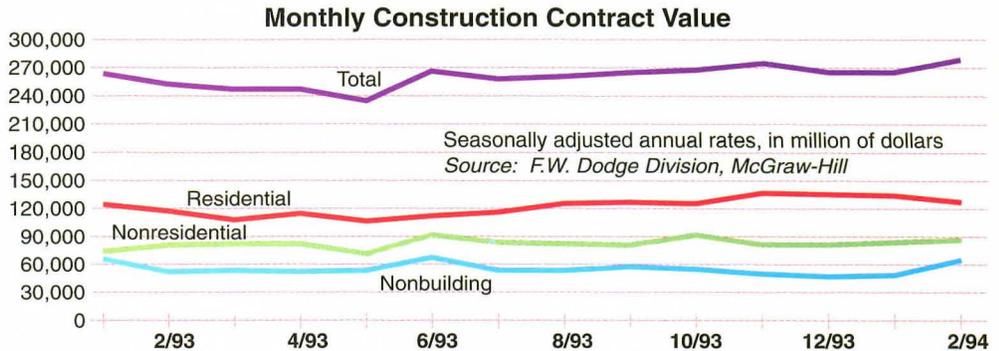
Arched chord joists, Brown & Root employee center, Houston.



Indicators

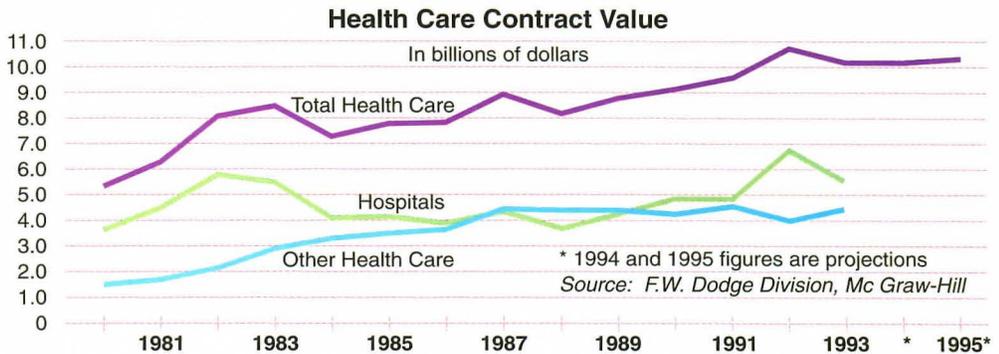
Nonresidential construction shows gains

Construction contracting in January and February showed gains in non-residential and non-building categories, both of which have lagged in the recovery. While housing slipped (3 percent in January and 6 percent in February, attributed to severe weather), non-building—led by highways and other public works—gained substantially. Categories of non-residential construction that showed strength were stores, schools, health-care, public-administration facilities, and correctional facilities. ■



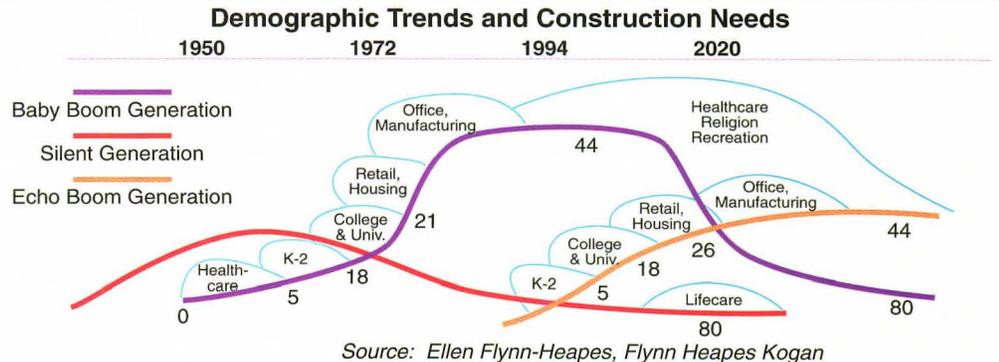
Building's not over for hospitals—yet

Though experts have predicted less hospital construction as care shifts to clinic settings, figures show that the trend in the relationship of hospital construction spending to other health-care-facilities spending (which includes nursing homes and clinics) has not changed yet. (Square footage tracks closely with cost figures, so it isn't exploding costs per sq. ft that's responsible.) Still, it was in hospital spending that last year's steep decline was recorded, which—with health reform in the air—may prove a harbinger. ■



Which generation needs what facilities?

Economists have long predicted building needs based on demographic trends. Ellen Flynn-Heapes, a management consultant at Washington, D.C.-based Flynn Heapes Kogan, created the intriguing diagram that visually documents these trends (it first appeared in the *SMPS Marketer* in February 1994). In the next few years, for example, baby boomers' parents will move into retirement, while the boomers become more concerned with health care. Their kids need schools. (Numbers on the graph are ages.) ■



The Profession This Month

- **Should Architects Design Cities:** As part of RECORD's continuing Agenda series, Suzanne Stephens examines architects' renewed focus on community design—and this movement's new critics. Also, Charles Lockwood writes on the "undesigned" periphery. Finally, is Rome a model for nurturing older communities? *Page 28*
- **Time To Look Again at Desktop Control:** Several trends make a powerful case for individually controlled, workstation-based ventilation and lighting. *Page 34*

- **The Revolution in Color Output:** Declining prices and increasing quality of computer printers and plotters means architects have more choices to make. Steven S. Ross sorts out the innovations. *Page 36*
- **Glass and Plastic Glazing:** Our New Product reports include sun-control glazing from Germany, and plastic glazings that meet new impact- and wind-load codes. *Page 40*

Should Architects Design Cities?

By Suzanne Stephens

The irony of it all. At a moment when so many architects see themselves as marginalized in their traditional role as designers of buildings, others are attaining widespread influence in the remaking of older communities and the planning of new ones. To be sure, firms such as Venturi, Scott Brown and Associates have long been involved in urban design and planning. What's surprising is the number of architects who are risking the wrath of politicians, policymakers, and certified planners in proposing alternatives to suburban sprawl and to America's slavish dependence on cars.

By now the principles of the traditional neighborhood developments (TNDs) pioneered by Andres Duany and Elizabeth Plater-Zyberk (DPZ), of Miami, or the transit-oriented developments (TODs) conceived by Peter Calthorpe, of San Francisco, are well known. They have galvanized public officials and private developers into revising zoning and rethinking long-held tenets.

These practitioners of self-styled New Urbanism differ on many details, but are united on essential principles. Douglas Kelbaugh, at the University of Washington in Seattle, Harrison Fraker, at the University of Minnesota in

Suzanne Stephens is the editor of Oculus, published by the New York Chapter/AIA, and a regular contributor to the New York Times.

Harbor Town, an example of proliferating TNDs, has been planned by RKTL as an extension of Memphis's downtown (1). Houses (3) were designed by Looney, Ricks, Kiss for developer Henry Turley Company. Housing, including units with mother-in-law apartments is rising at Peter Calthorpe's Laguna West (4, 5), but the commercial center remains undeveloped (2). Fred Koetter and Susie Kim propose air-rights development over Boston's Storrow Drive (6).

Minneapolis, Stefanos Polyzoides and Elizabeth Moule, of Los Angeles, and Daniel Solomon, of San Francisco, now count themselves among the converted. Indeed, the Congress for the New Urbanism meets in Los Angeles at the end of May.

Architects have always felt that their efforts should not be restricted to single buildings on individual sites, but should extend to the streets and communities of which they are a part. Still, the intense criticism of the alienating neo-Corbusian landscapes of the post-war era stung. Architects still must overcome suspicion that they are purveying abstract, simplistic solutions rooted in a singular artistic vision rather than listening to and acting on what communities actually want and need.

Does suburbia need a focus?

Though the New Urbanism is in no way Corbusian, the principles and the first realized efforts of these architects have come increasingly under fire, mostly from planners and academics. Roberta Feldman, a professor in the School of Architecture, and Martin Jaffe, a professor in the School of Urban Planning and Policy, both at the University of Illinois at Chicago, claim that New Urbanist thought is based on false premises. They see America's diffuse, car-oriented spatial structures as suited to post-industrial patterns of working and living. Americans are no longer "place bound," Feldman and Jaffe write (*Inland*

Architect, September-October 1992), and the idea of creating a "public realm by replicating an historic, centered settlement simply has no functional basis." Dennis McClendon, once managing editor, now design director of *Planning* magazine, argues that the public may be more attached to the freedom that the car allows than most architects suppose. Even Steven Izenour, a partner with Venturi, Scott Brown and Associates (and a cycling enthusiast), finds downplaying the car "a little romantic."

Increasing density, a goal especially of TODs, also comes under fire. Though intended to reduce the environmental impact of development, "the desirability and feasibility of compact urban forms," write Ivonne Audirac, Anne H. Shermeyen, and Mac T. Smith, "rests on a frail foundation of knowledge regarding the net costs and benefits of urban sprawl" (*APA Journal*, Autumn 1990). The critics of suburbia, they write, "ignore the fact that preference for low-density living has been well-documented in the planning and sociological literature."

The realities of development may also impede these communities' vision of mixed-use. The concept of integrating commercial uses has been slow to reach fruition in the new TNDs. In spite of DPZ's strenuous efforts to make it an extension of the pedestrian-scale streets, a shopping plaza built at the firm's Kentlands,



1



2



3



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As part of *RECORD's* series on expanded roles for architects, Suzanne Stephens examines the renewed focus on community design—and this movement's new critics. Earlier series installments: public housing (January); industrial heritage (February).

in Gaithersburg, Md. is a conventional strip behind a sea of asphalt. While single-family housing proceeds apace at Laguna West, the TND planned by Peter Calthorpe near Sacramento, Calif. [*RECORD*, January 1994, page 90], the commercial center will not be built until a critical mass of shoppers exists (2, opposite). Robert Bruegmann, a Chicago-based architectural historian, wonders if Americans will give up discounts and the wide choice of goods available in regional malls for pedestrian-scale towns that don't accommodate "the footprint of a Wal-Mart."

The gridded streets are presented by New Urbanists as less space wasting and more conducive to mixing uses than suburbia's typical pod-like subdivisions. They have their detractors: "A disadvantage of the grid," McClendon argues, "is the use of the streets by outsiders. Anyone who doesn't live there can drive down the streets, which is often anathema to suburbanites used to cul-de-sac streets, collector, and arterial roads."

Jumping on the TND bandwagon

The architects of TNDs tout the turn-of-the-century, small-town-America porches, dormers, and picket fences of their communities as both climatically sensitive and desired by buyers. The critics have called these features anachronistic and sentimental. Feldman and Jaffe wonder if rehashed vernacular "will generate blandness and

uniformity [as in the much-maligned ranch burger] merely through pervasive duplication." Already numerous communities are being built in the style of DPZ's famous prototype, Seaside, Fla., ignoring the attention to materials, proportions, and detailing in the original. In some cases the planning concepts that endeared TNDs and TODs to policy makers concerned about congestion (reducing auto trips with neighborhood retail and a focus on transit nodes) or to environmental activists (who prefer preservation of open space through higher density and more concentrated development) are being watered down as the ideas spread more widely: "Developers are quick to jump on the bandwagon," Dennis McClendon maintains. "They just put up a gazebo and claim it's a neo-traditional village."

Buyers: pro-community; anti-sprawl

The New Urbanists, however, may have read the market better than the critics. According to *Builder Magazine*, John Schleimer, a real-estate analyst in Sacramento, found that 84 percent of 311 respondents in four TNDs he surveyed would choose a similar development again. The sense of community was highest on their list of advantages. Visual preference studies developed by Anton Nelessen, an architect and planner who works in Princeton, N. J., show similar predilections. Nelessen has interviewed some 25,000 people in the workshops he has conducted over the

years with both public officials and citizens. "A set of design principles is constant, in spite of regional differences," he notes. Participants preferred town centers with some kind of public space. "They hate commercial strips, arterial roads, and are anti-sprawl," Nelessen emphasizes. "Never once", he says, "did the preference workshops call for a cul-de-sac."

The car remains a problem—for everyone. According to analyst Lloyd Bookout, who wrote a series of articles in *Urban Land* magazine in 1992, explosive traffic growth isn't going away. A U. S. Department of Transportation study he cites, shows that the "vehicle miles traveled increased nationwide by a staggering 41 percent between 1983 and 1990." The six percent increase in population would only account for 14.8 percent of the total traffic growth. Nevertheless Bookout notes that TNDs use 13 percent more land for streets than do standard Planned Unit Developments.

Devaluing the physical city

Because more of the neo-traditional communities exist in colored drawings and plans than in actuality, it will be some time before the success or failure of these towns can be fully gauged. Nevertheless it is clear that these schemes do bring back an important visual emphasis to planning. "Architects can deal with abstract concepts and communicate



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them visually to the public," says George Crandall, an architect from Portland, Ore., who has been instrumental in organizing a regional planning process for the area. "Planners don't have these strengths." Indeed, Andres Duany has long argued that if architects don't bring design skills to the table—and bring them in a way acceptable to developers and buyers—no one else will. Today's cities are "planned" by non-designers, he explains: civil and highway engineers, and speculators.

And what of planners? William Morrish maintains that for the last 20 years they have devalued physical factors. "Planners have limited their language to quantitative analysis," he says. "These people are in charge of cities, yet they have no sense of history." Morrish is an architect who, with landscape architect Catherine Brown, was recruited by Harrison Fraker to run the University of Minnesota's Design Center for American Urban Landscape in Minneapolis. The shift away from qualitative thinking among planning professionals, he and others say, occurred in the 1960s and 1970s, and even earlier, when most of the graduate schools began to stress public policy, sociology, demographics, and economics over design. This left a void, according to Morrish, which architects began to fill by defining the new field of urban design. Though the Boston firm of Koetter Kim finds itself increasingly competing with urban designers, Susie Kim feels their firm's

strengths as architects have been key to getting work. "There are firms that call themselves urban designers or planners that don't know the implications of block sizes on building layout or flexibility," she says. "Planners come with the ingredients, but rarely a vision of how the parts go together. There has to be an understanding of economic viability and how an idea fits with societal aspirations, but you really have to shape and mold these things; give them weight." Indeed, says Kim, this is the only way affected citizens can evaluate plans. "You have to suggest things, and let people pick at them. People need something to react to."

What architects are good at

Architects have succeeded in newly embattled suburbs, Douglas Kelbaugh suggests, because they "have more of a missionary zeal about saving the city, making suburbs livable, and reversing devastating trends." Planner Denise Scott Brown, whose book *Urban Concepts* was recently published by Academy Editions, maintains that architects' visual orientation is not their only advantage. "Architects are trained as doers," she says. "They can use information to make decisions. Their training teaches them to take knowledge from other disciplines, such as architectural history and engineering, and apply it to architecture. Planners and city policy makers get less training in putting knowledge to action."

While the New Urbanists stress the marketability and the public's participation and acceptance of their designs, other architects are bringing a much more esthetic slant. Diana Agrest and Mario Gandelsonas have taken inspiration from the clash of two city gridirons in Des Moines, Ia. Arquitectonica's Meerhoven project, a new city center near Eindhoven and the residential town of Velkhoven in Holland, uses forms familiar from the firm's architectural work (below and opposite). Still, the redesign of this former NATO base, like the American TNDs and TODs, will have a town center with a clear hierarchy of streets oriented to inhabitants accustomed to traveling extensively by bike and foot. It is designed as a mixed-use center with 5,000 units of housing as well as a lake and an industrial park. "The strongest component of the area is its park-like aspect," says Arquitectonica partner Laurinda Speer. In the Nanwaitan District of Shanghai, China, where Arquitectonica is designing a mixed-use district on the waterfront, pedestrians and bicyclists, as in Holland, need no introduction. Instead, the architects are carefully considering the impact of mass bicycle traffic: the firm is providing a huge allée for pedestrians. The development will also be tied to an extension of the metropolitan transit system.

Architects have been criticized by planners for believing their visually generated

Arquitectonica has designed Meerhoven in Holland, a new town that will link Eindhoven, the headquarters of electronics giant Phillips and Veldhoven, a neighboring town (7, 8). The master plan includes 8,000 units of housing, 2 million sq ft of office and related spaces, 80,000 sq ft of commercial space, 1-million sq ft devoted to manufacturing, and an exposition grounds. It is one of the first post-cold war conversions of a military base for civilian use. In China, the Nanwaitang district plan, also by Arqui-

tectonica, includes 40 million sq ft of new office, retail, hotel, and residential development in a new financial district along the Huangpu River (9). The firm will design six of the proposed towers, including an 88-story landmark on the waterfront. The firm is also at work on the International Commerce Center for Beijing (10).



In some cases the planning concepts that endeared TNDs and TODs to policy makers and environmental activists are being watered down as the ideas proliferate.

schemes may actually ameliorate social conflict. "Architects are guilty of assuming they can model the world the way they think it should be," observes Dennis McClendon. Scott Brown finds many architects "have a tendency to see everything as a physical problem when a physical solution isn't always needed." Scott Brown also observes, "Architects may not be able to see that something that appears dysfunctional from their point of view may function for someone else." Some are not well informed, she continues, and "their social ignorance may guide them to irrelevant solutions."

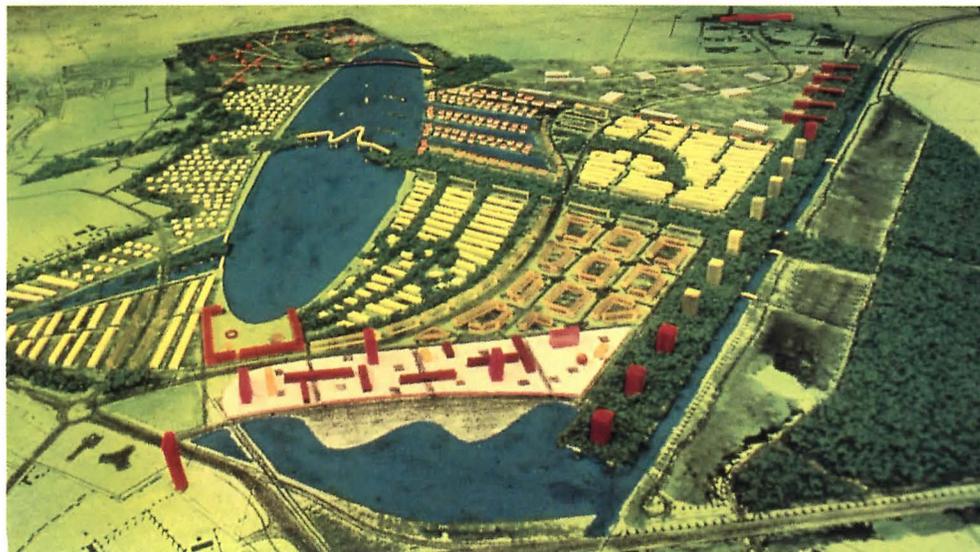
A larger vision of urbanism

Nevertheless, a growing number of architects who have turned to planning are going beyond the conventional definition of designer. Indeed the architects who have been attracted to the TNDs and TODs of the New Urbanism aspire to a regional vision that considers area-wide transportation impacts of new development, seeks to preserve valued natural environments, and recognizes that central cities and their low-density suburbs are single economic entities that have a shared destiny. "Morrish and Brown are trying to bring ecology and geology, and the morphology of the place into consideration as we build new communities," says Harrison Fraker, dean of the College of Architecture and Landscape Architecture at the University of Minnesota. These disci-

plines are being applied by a joint study aimed at reviving Phelan Village, northeast of St. Paul.

In a major study for Portland, Ore., Peter Calthorpe is analyzing ways to repair and regenerate existing suburbs within a regional framework. In his study he is showing how various alternatives to growth could affect eight different sites. In Florida, John Moore is addressing similar regional concerns through the Florida Center for Community Design + Research at the University of South Florida in Tampa. (Finding less damaging methods of development is essential in the region, as the state and federal government undertake a massive effort to save the declining Everglades—a victim to a large extent of insensitive development.) Both Moore, the center's director, and Calthorpe have focused on the underdeveloped, older existing subdivisions that can't be bulldozed or infilled. They are not cohesive enough to be neighborhoods and too hard for developers to assemble.

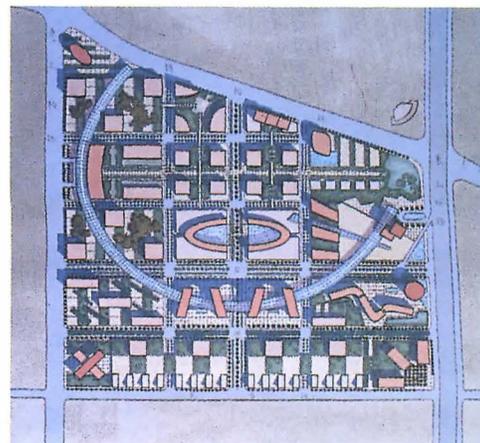
Only when such high ambitions have been tested by built work will it be possible to evaluate this revived role for the architects. For years many have waited on the sidelines for others to fix the way America builds cities. Now a new generation has decided it can take the heat, and has moved right into the kitchen. ■



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Cracks in the Veneer of the Undesigned City

By Charles Lockwood

Over a generation, dozens of suburban downtowns or "edge cities" emerged at the periphery of the nation's metropolitan areas. These high-density employment, retail, and entertainment centers have been touted as a new form of urban development, intended to replace traditional downtowns and highway-strip development. More importantly, they have been shaped by marketing consultants, not architects, and built piecemeal by real-estate developers, rather than master-planned. The primary role of design has been as packaging intended to differentiate essentially similar stand-alone building "product." Is this a good way to build a city? A closer look reveals cracks in the reflective-glass veneer.

Most suburban downtowns—including Tysons Corner, Va.; Bellevue, Wash.; Las Colinas, Tex.; and Costa Mesa, Calif.—sprouted, seemingly overnight, and soon became local giants. One example: Perimeter Center and Buckhead, near Atlanta, each boasts more Class A office space than downtown.

Big-city problems move outward

The single-minded devotion to leasable square footage often obliterates those qualities that drew people to the low-density periphery (quiet, open space, and a small-town, neighborhood orientation). Where once corporate R&D centers nestled among generous landscaping, it is now more common to see mid-rise towers sitting atop multi-story parking structures surrounded by asphalt. Homeowners in the western end of the San Fernando Valley, for example, are fighting long-term plans to add 20 million sq ft to the 15-million-sq-ft Warner Center office and retail complex (it would then rival downtown Los Angeles).

Some of the problems of central-city downtowns have come to haunt the new suburban centers, particularly traffic congestion. Cars choke freeways not just at the morning and evening rush but even at midday, since

Charles Lockwood, author of seven books, co-wrote an article in the October 1986 Atlantic Monthly that was among the first to identify the suburban-downtown trend.

workers must drive to do even routine errands. (In most cities, beltways linking suburban centers are more congested than downtown-to-suburb corridors.)

Crime, particularly gang activity, is a problem in malls as widely scattered as Southfield, Mich.; Houston; and Southern California. One mall on Long Island, N. Y., became a favorite location for auto-theft insurance scams.

Does business need edge city?

Surprisingly, even as they have become a dominant business location, the future of suburban downtowns is not assured. As buildings age, tenants are moving to newer, evermore distant, but less-congested locations. (J. C. Penney chose the Dallas area when it left midtown Manhattan, but built in Plano, some 35 miles from downtown. When Sears moved staff from its tower in Chicago's Loop, it didn't choose established suburban business centers, but exurban Schaumburg.) Many of these so-called "edge cities," though, were built in the 1980s speculative boom, and vacancy rates have typically exceeded more-costly downtowns by several points.

Upheaval in the white-collar corporate world and in retailing is clouding the assumptions on which suburban downtowns were built. "Corporations won't necessarily want space in today's suburbs," warns Peter Miscovich, vice president of Interior Space International. Instead of prestige towers or low-rise campuses with huge floor plates for single users, Miscovich sees some tenants "moving to the outermost fringe of metropolitan areas. Others are relocating to small towns that are geographically remote, but technologically convenient to the rest of the country." Regional malls, too, are losing their allure as shoppers abandon anchoring department stores for highway-strip discounters, "power centers," mail order, and television shopping.

Winners and losers

Some suburban downtowns will evolve successfully, particularly those located in their metropolitan area's favored sector. Decline, though, is already visible in the Sherman Oaks/Van Nuys complex at the intersection of the Ventura and San Diego freeways, in Los Angeles' San Fernando Valley. White Plains,

Products of marketing rather than design, suburban downtowns are touted as the business location of choice. Their future looks clouded.



© Timothy Hursley



Bellevue, Wash., is an auto-oriented postwar downtown that has not left its future to chance [RECORD, July 1988, page 108-111]. It's encouraging housing (top) within walking distance of shopping, offices, and its new regional library (above—Zimmer Gunsul Frasca, architect). Still, a long-planned pedestrian spine is more idea than reality.

N. Y.; Stamford, Conn.; and Southfield, Mich.; may be tottering on the brink. Even a study by real-estate-investment giant Prudential Insurance (as reported in *Edge City News*) found considerable variance in investment potential for many suburban downtowns, rating several areas around Detroit, Boston, Seattle, and the Bay Area "pricey," and some places near Dallas, Houston, and Miami as "opportunistic"—meaning good values.

Of course, suburban downtowns are a relatively new phenomenon. With time, these centers might evolve into more pleasing and functional entities, just as the raw industrial towns of the late 19th century were transformed into more attractive and comfortable places by stricter regulation on business and esthetic movements such as the Parks and City Beautiful. Though they may not have been in on the inception, retooling suburbia may offer important new opportunities for architects. ■

Nurturing a Long-Term Vision For the City

There are those who argue that urban America's explosion outward—its restless search for greener pastures—is both vital and suited to modern life (previous stories). As urban areas expand, though, older communities come to be seen as “obsolete,”—places better left behind. Indeed the nation has left behind whole downtowns (Detroit), industrial complexes (Pittsburgh), vast train stations (Kansas City, Buffalo), and countless once-thriving neighborhoods, which—at best—are seen as urban panhandlers, always after a federal handout

It sometimes seems that only architects ask whether such patterns are morally or historically defensible. Can the nation one day be persuaded to *nurture* cities? Where can we find a vision powerful enough to change what seems culturally ingrained? In Rome, Astra Zarina argues. A professor at Seattle's University of Washington, she has, in her role as director of the College of Architecture's programs in Italy, focused her students on the powerful lessons the Eternal City itself—not just its monuments—can teach. Even among great European cities, Rome is unique, she says. “You have milieus and environments that have undergone enormous transformation. Yet, each was built on what went before.” For her, the lesson of Rome is “the enormous amount of adaptation, reshaping, and remolding on all levels.”

Uncovering the city's essence

For 25 years she has prodded students to walk, draw, and measure the streets, blocks and neighborhoods (*rioni*) of Rome's historic center, in the process peeling away layer after layer of the city's history. Zarina asks students to analyze the physical: proportions of buildings and streets; the influence of a piazza's shape (whether Baroque setpiece or historical accident) on its activity and flow. Students look at connections and hierarchy and what's above the street as well as on it.

While the entire city comes under scrutiny, Zarina and her students (including, once, the writer) have increasingly focused on the Pio Block, a seemingly non-descript Medieval jumble amidst the city's glittering architectural treasures. (Other groups have worked on Civita di Bagnoregio, a tiny hilltown.) Students have pulled together an incredibly rich

history out of the apparent disorder. Within the block's current envelope (outline in drawing bottom), you can still read the plan of the Teatro di Pompeo, a vast open-air hemicycle that occupied the site 2,000 years ago. The line of the stadium seats is visible in the curve of rooftops (top photo) and streets whose walls are made from houses built over the ancient foundations. Students have documented the incorporation of primitive residential *insulae* (the Roman tenement) into elegant Renaissance parlors and their subsequent division into upscale apartments. Ancient vaults and piers (black poché in drawing) are still visible in ground-floor restaurants and car-repair shops. The program became so successful that the University of Washington established permanent quarters (designed by Zarina and her husband, architect Tony Costa Heywood) in part of a 17th-century palace within the Pio block (shaded area of plan). Even the renovations became a learning experience, uncovering remains of a Medieval tower often shown in historical documents, but thought destroyed (middle photo).

Models of adaptability

Rome also has building-scale lessons to offer, according to Zarina. “I try to bring students back to spatial essentials. The *insula*, for example, is a type that reappears all the way into the 19th century. It's just a superblock penetrated by portals and loosened up by courtyards. But it allows a diversity of functions.” She steers students away from what she calls “hand in glove” architecture suited only to a single purpose. An Italian palazzo, she says, “is a kind of ennobled loft, containing certain sizes of spaces that you can adapt to any number of uses.”

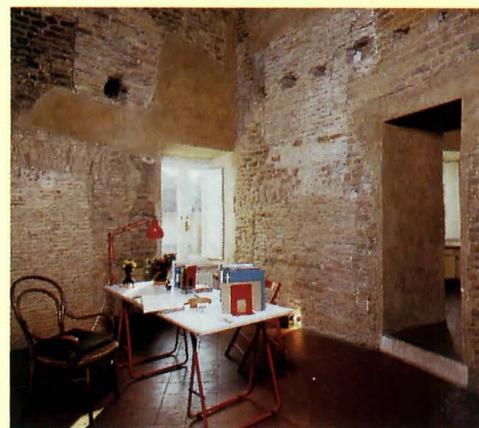
Zarina's approach keys into what seems a primal urge among architects to shape the city—even when not invited to. Rome nurtures the vision that cities should be built for the long term—a stand few city builders will take these days. “You get a completely different frame of reference,” explains Steven Holl, an early Rome program participant and among its most illustrious alumni. “You think about buildings with a different conception of time. The intensity of the layers of history—and how they can be read—is humbling.”

James S. Russell

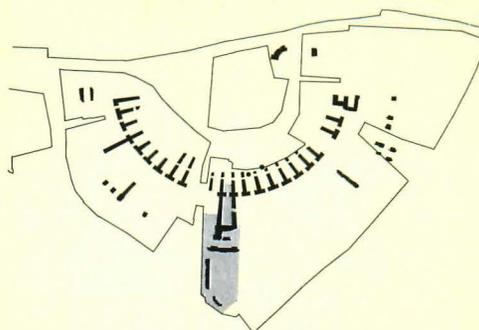
Astra Zarina argues that Rome offers unique inspiration to those seeking a way to remake America's urban chaos.



© James S. Russell



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Time to Look Again at Desktop Control

By Philip C. Weiner

There is an experimental office in Tokyo where conditioned air is imperceptibly introduced through tiny perforations in the carpet. In Germany, an office worker casually adjusts the air velocity and temperature coming from a network of ducts built into her desk. In Indiana, an employee adjusts a desktop control panel to dim the ambient light, increase the white noise level, and warm his feet, while his neighbor in the next cubicle does the opposite. These are all examples of a trend toward greater individual control of heat, ventilation, and light in the office. Increasingly, researchers and clients are concluding that today's universal lighting and ventilating solutions are no longer adequate.

While many managers and owners acknowledge that individual control is innately appealing, such systems have not been widely used in America, primarily because of fear that high first costs (and, potentially, high operating costs) won't deliver tangible returns in productivity or satisfaction. Several trends, however, make a powerful case for a new look at these techniques.

Currently there are two alternatives to conventional ceiling delivery and return:

- **Underfloor systems** supply conditioned air to the workstation through adjustable outlets in a raised floor. (The plenum itself may be pressurized or local fans may draw air from the plenum or ductwork to drive the outlets.) Underfloor systems' advantages are that the air is delivered directly to the occupant (ceiling delivery/return schemes often short-circuit) and that air speed and direction can be adjusted.

- **"Task" conditioning**, a more sophisticated approach, delivers conditioned air ducted up from a raised floor or exterior wall to the breathing zone through a diffuser in the office partition or desk or through a special desktop device. In both underfloor and task systems, air is exhausted through conventional ceiling returns.

There is a variety of currently marketed devices. CenterCore offers an air-filtration

Philip C. Weiner is a New York-based architect specializing in corporate interiors.

Trends in energy conservation, workplace patterns, and use of microcomputers make a powerful case for individually controlled, workstation-based ventilating and lighting.

and fan device that can be integrated into a workstation cluster. It's reasonably priced at about \$250 per worker, but it supplements conventional air delivery rather than replacing it. Tate, a major supplier of raised access floors, offers the Task Air Module in which fans draw conditioned air from an underfloor zero-pressure plenum, supplying the workstation through user-adjustable grilles.

Incorporated into a standard 24-inch floor panel, it can be conveniently placed and relocated. It's easy to add additional outlets to handle extra equipment loads. If the client can justify the cost of an access floor to ease recabling, the additional cost of about \$300 per unit may seem reasonable. The Personal Environment Module (PEM) from Johnson Controls remains the most ambitious choice, providing fingertip control of filtered air flow (through a convenient desktop diffuser), temperature, and task lighting. It offers sound masking and a built-in radiant panel for supplemental heat. An infrared sensor shuts the unit down when the occupant leaves, and restarts it when the occupant returns, remembering previous settings. This sophistication comes at a price—about \$2,000 per station. The desk-hung fan unit is bulky and must be connected to the building hvac, typically through a raised floor (below). These American companies have entered a field long dominated by European firms such as Krantz (Germany) and Climatedesk (Sweden). Most major manufacturers of systems furniture have task-conditioning products in development.

Heed the unhappy office worker

While several trends are driving increased scrutiny of user-controlled systems, the most important factor is that users are experiencing more discomfort in the conditioned environment. Even among well-designed variable-air-volume ceiling-delivery systems that meet industry-accepted criteria for comfort, survey after survey documents widespread dissatisfaction with office air quality, (ranging from 27 percent to 35 percent, according to research by Alan Hedge, Abigail T. Michael and Sharon L. Parmelee of Cornell University's Department of Design and Environmental Analysis; another study found dissatisfaction as high as 70 percent). Some buildings with indoor air-quality problems suffer from poor air

distribution, even though designed to meet accepted criteria. Thermal comfort is vexing because individuals report widely varying comfort levels even within the accepted temperature comfort zone. Men tend to feel too warm at temperatures that please women. Older workers tend to feel cold at higher temperatures than younger people.

Productivity and air quality

David Wyon of the Swedish Building Research Institute has studied building design and efficiency for more than 25 years. At the American Society of Heating, Refrigerating, and Air-Conditioning Engineers' (ASHRAE) Healthy Buildings—IAQ '91 conference, Wyon reported, "temperature does affect productivity directly, and it does affect Sick-Building Syndrome." In office settings, Wyon claimed, "quite small deviations from the individual optimum temperature can have powerful negative effects on efficiency." Researchers L. G. Berglund and W. S. Cain found that people perceive air quality less acceptable as temperature climbs to 77F or higher—an ever more frequent occurrence in today's offices. Wyon found the productivity of persons experiencing Sick-Building Syndrome can be expected to decline from 20 to 50 percent. (Conclusions of both studies are described in more detail in the December 1991 *Indoor Air Quality Bulletin*.)

Other trends favoring "task" control

- **Computers, monitors, fax machines, and printers** are adding heat to the workspace in ways conventional systems don't always handle well. It's not just the higher heat loads (think of each device as equivalent to an incandescent light bulb), but the desktop location of the devices that exacerbates prob-



Johnson Controls' Personal Environment Module is the state of the art in task control but is bulky and needs base-building hvac.

© Wolfgang Hoyt



lems already documented by research. Stagnant air is particularly a problem in the kinds of densely laid out, shoulder-high office-system cubicles that are widely used today, according to the Cornell research.

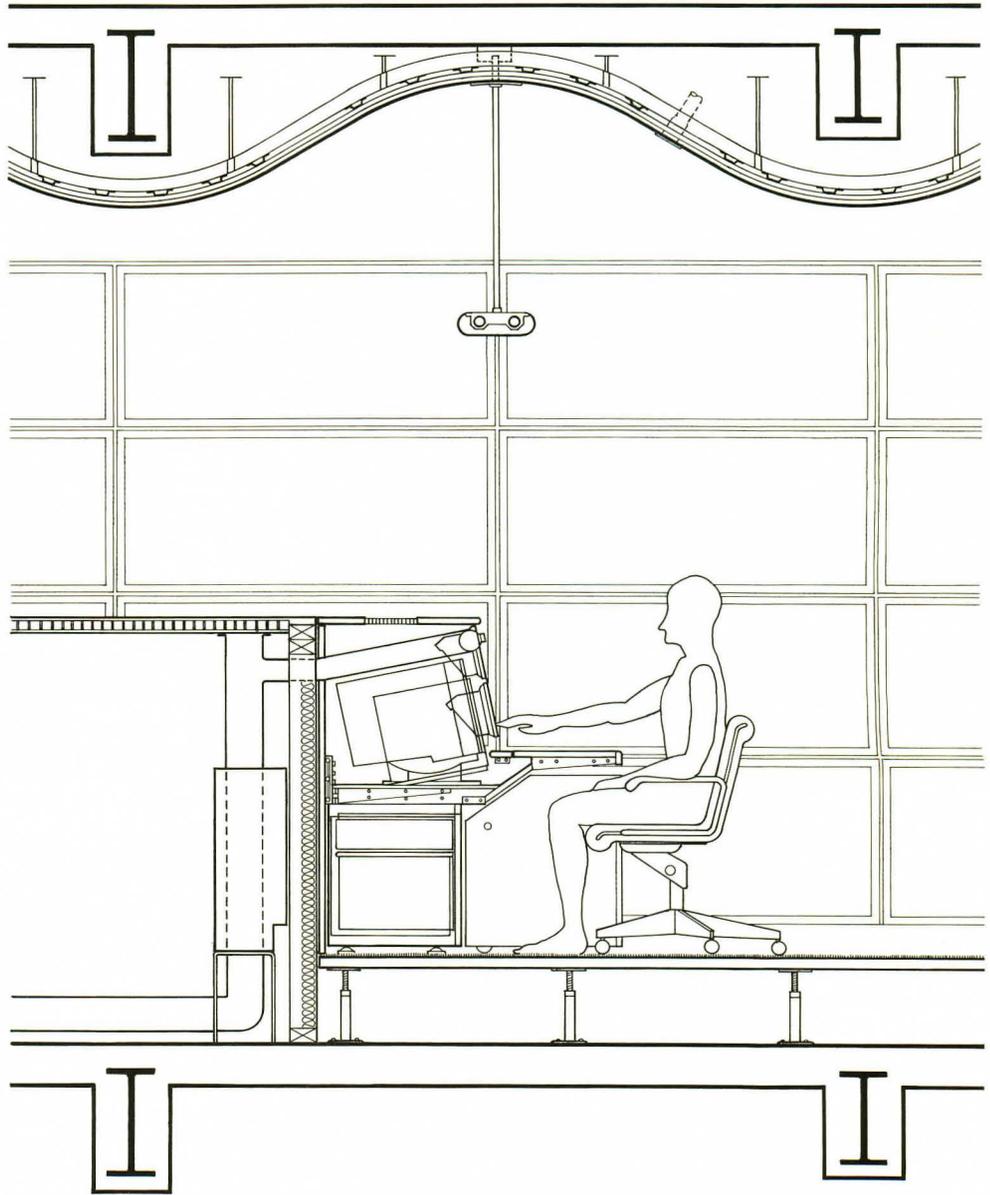
• *Changing patterns of work:* Typically, says Professor Edward Arens of the Building Science Laboratory at the University of California, Berkeley, “you find less than half the people are at their workstations at any one time.” The trend may be accelerating as more staff work part time at home, on flex-time shifts, at clients’ workplaces, or in task-oriented groups that are tied to projects rather than places. Combined with occupancy sensors that automatically shut down the air-conditioning and lighting of unoccupied spaces, individual controls may offer dramatic energy savings, even permitting downsizing expensive equipment. A study by John E. Seem a senior research engineer at Johnson Controls, and James E. Braun of Purdue University, showed that there can be an energy penalty with individual controls of as much as 15 percent. But they found impressive savings in offices where 50 percent of workstations are occupied at a given time.

Do individual controls deliver?

Researchers have been actively tracking the small installed base of user-controlled systems in America, and their documentation suggests impressive improvements in comfort and productivity. Wyons reported a 34 percent reduction in symptoms of Sick-Building Syndrome in offices where users could individually control the temperature. Other surveys show high satisfaction, and many users consider themselves more pro-

Skidmore Owings & Merrill provided a task-based system in the trading room of Credit Lyonnais in New York when low ceilings and a raised floor precluded overhead ductwork. “We wanted the ceiling as high as

possible for an indirect, low-glare lighting system,” explains associate partner Steve Apking. Fan coil units behind desks cool room air, expelling it both upward and outward through an adjustable nozzle.



ductive with individual control. An independent study by Rensselaer Polytechnic Institute’s Center for Architectural Research looked at the West Bend Mutual Insurance Company headquarters, where 370 Johnson Controls PEM units were installed. It found a 2.8 percent improvement in productivity attributable directly to the devices. (Almost no single strategy has been shown to improve productivity so dramatically.) Given an annual salary base of \$13 million, West Bend

management reports that it saves at least \$260,000 per year. With these savings and those from energy conservation and lower base-building hvac costs, West Bend’s payback was less than one year. Arens says some Japanese clients have found desk-based systems to be lower in first cost and operating cost.

Professor Walter M. Kroner of RPI, who led
Continued on page 45

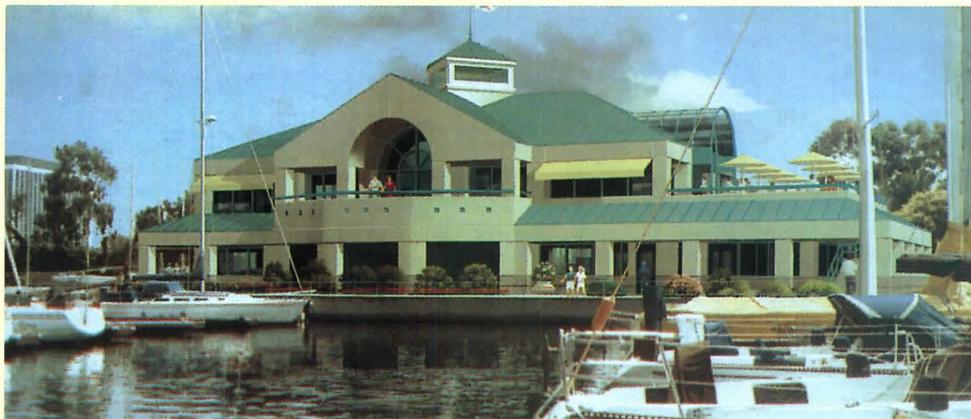
Revolution in Color Output

There has been a revolution brewing in output devices. Pen plotters have gotten easier to maintain; software improvements have reduced the complexity of setting up and using more than one printer. New printers, based mainly on inkjet technology, are small enough and simple enough to use routinely for check plots and even for final, client-ready drawings. New printing systems have appeared with color technology that realizes in hard copy what the 3D and rendered images modern CAD software promises on-screen.

It's easier to understand the current array of output options by recognizing that the kinds of printers most offices can afford fall into one of the four categories discussed below (in order of descending sophistication and, usually, cost.) Which output technology is best for you? The answer depends on the size of your office, the nature of your practice, client expectations, and—something rarely mentioned—your drawing style.

Thermal-transfer color printers

Using belts of wax-like ink, most systems



1 move the page under belts that apply appropriate amounts of colors in turn. The ink belts are heated from behind by rows of tiny styluses that transfer ink to the page. These printers produce by far the brightest and widest range of colors. The different inks blend together to build up near-photo-quality hues. Solid areas are handled consistently with no evident banding (created by the line-by-line passes of the print head on other output devices). The resolution is 300 to 600

dpi, but, like the continuous-tone printers, the dot build-up can make images look sharper.

The printer uses the edges of the page to grab the print, moving it and the ink belts under the fixed styluses. The print area thus is not quite the full page width. The printer will make crisp images on acetate for use on overhead projectors, but an inkjet may do about as well at much lower cost per image.

Perspective

What Device Is Right For You?

Output devices in the over-\$10,000 range are usually too pricey for all but the largest offices. That's where you'll find high-volume machines using electrostatic and xerographic technology. Nevertheless, rapidly changing technology and declining prices mean that large offices or those with specialized needs can consider replacing many of the tasks heretofore performed by service bureaus with these high-end devices.

Large-format (D- and E-size) color inkjets are well under \$10,000, which makes them practical in many settings.

- CalComp's DrawingMaster, a direct-image printer (the colors are embedded in special paper) starts at about \$10,000. **Circle 300.**

- Monochrome electrostatics are getting cheaper: JDL's ExpressPlotter II lists for

under \$12,000. **Circle 301**

- Océ-Bruning models are faster, and start at slightly higher prices. **Circle 302**

Service bureaus have fought back by installing fancy equipment inside large client offices, and by connecting smaller clients with fast modems. The fastest are now 28.8 kilobits-per-second—fast enough to transfer a larger-than-average 10MB plot file in about 45 minutes (or as little as 15 minutes with data compression).

Continuous-tone printers

These vaporize ("sublime") dyes on ribbons when heated (which is why it's called dye-sublimation technology), producing softly blended edges between colors as they are absorbed into special paper. Up to 16.8 million colors are possible. Though the

current technology offers typical resolution of about 300 dpi (the same as most office-computer laser printers), the color density may appear deeper and the range of colors higher because the printer lays down many dots of different colors on the same spot rather than one dot of one color. These high-volume printers are usually priced over \$15,000. Shinko makes the print engine used by many suppliers, which include:

- Mitsubishi International: **Circle 303**
- Seiko (they make Epson): **Circle 304**
- Kodak: **Circle 305**

S. S. R.

Rapidly improving technology and dropping prices means that printing options have multiplied, even for smaller firms. And high-quality color is increasingly affordable.



2

- Summagraphics offers a model that uses a narrow print head, to keep costs lower. **Circle 306**
- Star Micronics recently introduced an A-size unit for only \$600. **Circle 307**
- Fargo's (1) costs slightly more. **Circle 308**
- LaserMaster's top-of-the-line, 36-inch-wide unit goes for close to \$30,000. **Circle 309**

Color inkjet printers

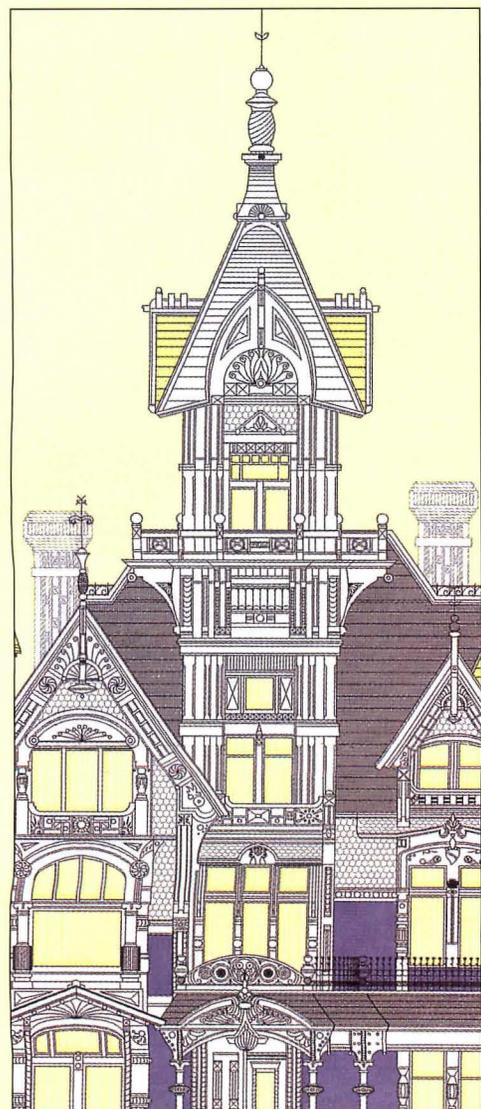
These vaporize either liquid or solid inks into droplets that are applied to the page. They don't offer the color density and range of more sophisticated printers, but resolution (300 to 360 dpi) is far higher than typical dot-matrix, the color is better, and output is much faster.

In general, inkjets that use solid-ink sticks (the stick's surface is melted just before the ink is sprayed) provide a more contrasty, crisp image on plain paper than do all-liquid inkjets. These printers are sometimes advertised as "phase change" inkjets. There are always exceptions. The many inkjets based on Canon print engines get up to 360 dpi from liquid ink. Also, liquid-ink inkjets tend

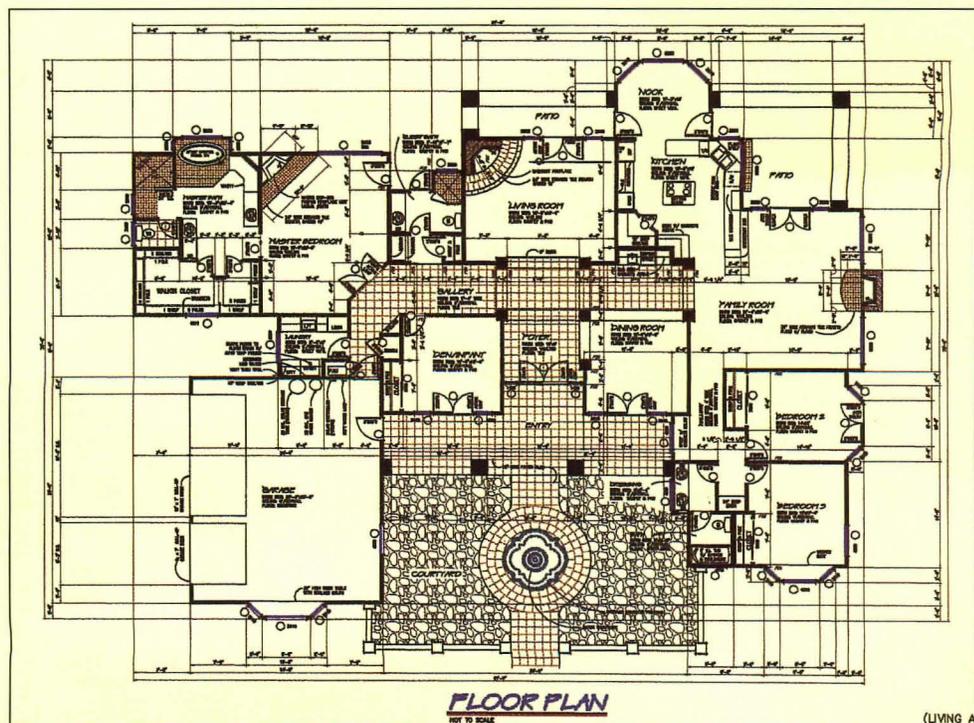
to produce better overhead transparencies. Those that use solid ink are better for projecting line art because the ink is a bit thick and opaque to project colors well.

Though inkjets usually cover broad shaded areas well, experiment with printing media to obtain the best results. Coated, less-absorbent stock gives cleaner lines but muddier solid areas, especially where several colors are applied. Inkjet color images may fade over time because the inks are dyes, not pigments that clog the jet orifices. (The newer black inks *are* now pigments.) Use the inkjet images for interim presentations and not for archives or permanent displays. Monochrome inkjets can plot the same image four to six times faster than a pen plotter. Inkjets tend to be used for images that have

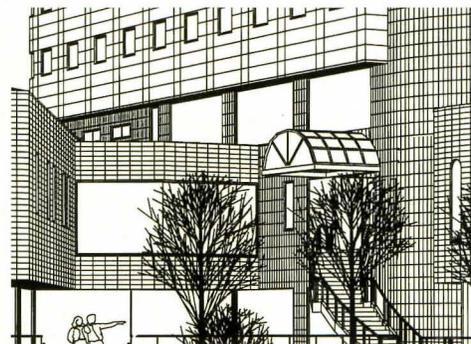
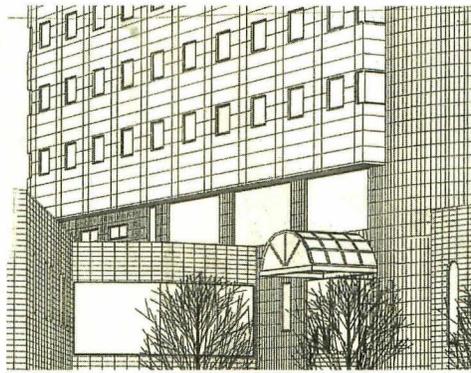
1. Fargo's Primera thermal-transfer printer.
2. Hewlett-Packard DesignJet 200 printers with stand.
3. Note clean tones and crisp lines in Novajet's color inkjet.
4. Note handling of color and pattern on Hewlett-Packard's DesignJet 650C inkjet.



3



4



more shading, adding to output time, so actual speed will depend in part on the kinds of drawings you do.

- Encad pioneered large-format color inkjets with its NovaJet (3, page 37). *Circle 310*
- Hewlett-Packard (2, 4, page 37) followed with a broad color-inkjet product line with prices ranging from \$300 for a 550C model to \$10,000 for an E-size printer. *Circle 311*

Both vendors have added control software that eliminates banding as successive passes of the printhead build up the image.

Pen and pencil plotters

Plotters remain the least expensive way to get large-format high-resolution color images. Color choices are only limited by the number of colored pens you choose to maintain. Another plotter limitation is that you must make sure that drawings consistently specify the same pen color for pen number, and that pens are loaded correctly.

Pen plotters also have well-known limitations when it comes to toned areas or mixed colors. You can reduce these banding and color-consistency problems by using pens with wide

points; even porous-point pens are available. A better solution may be updated software (in either the originating application or in the device's plot-control program) that turns shaded or solid areas into cross-hatch patterns. These plot more consistently. Sometimes, this conversion can be artfully handled by CAD software. We have just begun to examine ArchiCAD 4.5 for the Macintosh, which has this feature.

Surveys have shown that well over half of all plots in a typical office are check plots. If your drawings have a high level of detail, requiring large-format check plots, consider a pencil plotter, which are much faster than pen plotters. Mutoh's models (5, 6) can hold hundreds of leads—up to 720 on the largest model—allowing unattended operation for hours or days at a time. Ink version is (7). *Circle 312*

If you are sticking with ink, a speedy alternative is one of the many monochrome C-size printer/plotters based on the Canon Bubble-jet engine. Besides Hewlett-Packard, other prominent suppliers are:

- Pacific Data (8): *Circle 313*

- 5. Mutoh's XP-510R.
- 6. Pencil plotting on Mutoh's XP-510R offers a softer rendering than pen.
- 7. Pen plotting on Mutoh's RT-500 is more opaque, but with slightly more clogging where lines cross.
- 8. Pacific Data's bubble-jet ProTracer:

- JDL: *Circle 314*
- Summagraphics: *Circle 315*
- If you want to save money, and can live with B-size, drop to the new CalComp mono-chrome TechJet, for under \$700. *Circle 300.*

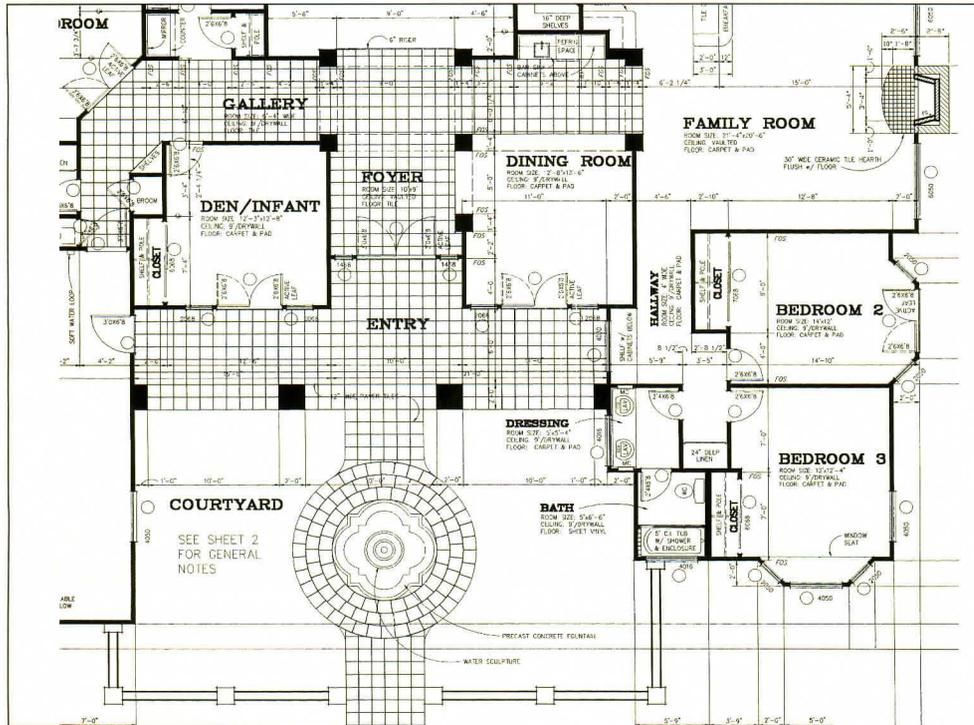
Fast, large-format, service-bureau-style pen plotters are certainly cheap enough for many practices. Slower models seem more popular, not only because they have low purchase prices, but because they are cheap to keep.

We have found that the two, one-year-old, 8-pen plotters we use for review purposes have been virtually maintenance-free—more like office laser printers than plotters. The main reason, it appears, is that they both have traded speed for dependability. The Roland SketchMate is a flat-bed plotter, meaning that the pen moves across the paper, which is fixed in position. It's a simpler mechanism that's easy on the media. The CalComp DesignMate (D-size goes for under \$2,000) works like most other large-format plotters: the pen moves across the plotting media's short dimension while the plotter moves the media up and down. Fast plotters must grip media hard to move it quickly. The CalComp is slow enough so that it can gently grip media, meaning very little trouble-causing paper dust and grit is shed. *Circle 300*

- The A-size Roland's street price is about \$500, and it has a parallel as well as a serial port. *Circle 316*
- Summagraphics has been using a substitute for the grit wheel on its super-fast HiPlot 7000 series—the wheel has a laser-etched grooved surface that grips the page without tearing it as much as irregular grit points would. *Circle 317*

Likewise, the faster the plotter, the more critical are ink-flow rates. Fast pen plotters must be watched constantly to make sure ink is flowing correctly.

Newer devices can print colors in more continuous, even tones. Some offer excellent resolution, with crisp lines and wide color range. Software can even overcome the color limitations of pen plotters.



Color dot-matrix

Pins in the printer head impact on a multicolor ribbon, impressing the image on the page. These printers are noisy and slow, and resolution is low, typically 80 to 120 dpi. They are useful for checkprints. Color ribbons are expensive, but the printers themselves are not, selling for as little as \$200. Maximum width is typically 11 inches.

Dot matrix printers perform particularly well for jobs that are mainly black-and-white with bits of color. Banding is a problem in images that have broad areas of pure, solid tone. The low resolution tends to produce poor results when you try to mix the ribbon's primary colors to produce different shades or gradations. Most units of this type are meant for the home market and sell for under \$500. JDL sells a high-resolution 360-dpi color D-size dot-matrix, the OmniPlotter, for under \$5,000.

Another way to add a small area of color, or one color in addition to black, is to use a high-quality, office-type monochrome printer—a laser printer or inkjet. You use CAD software to put items of a given color on separate

layers. The printing takes two passes (you change the ink or toner cartridge in between), and you “turn off” layers you don’t want to print in a given pass.

Set-up and software become easier

Since printing and plotting are often the greatest source of computer frustration, it’s good news that output-device software is becoming easier to use, and set-ups more flexible. These days, output devices can be found that use the serial (COM) port, the parallel (printer) port, or a network connector. Some printers and plotters come with all three built-in or available as add-on modules. Most network software now allows you to connect an output device either as a stand-alone “node” on a network, or to an assigned computer that allows printing and plotting from a different computer.

As personal-computer CAD software has moved from DOS to the Windows operating system, output-device handling has been moved from the specific application to the operating system. The advantage is that you set up the printing device once, and it works for all applications on the computer. You no

longer need separate pen settings for AutoCAD and Generic CAD, for example. Still, each printer and plotter family has its unique language, which not all other models can “read.” Most plotters can understand either HP-GL (Hewlett-Packard Graphics Language) or HP-GL/2, faster with more built-in primitive shapes for smoother output.

PostScript, a computer language first invented to make typeset-quality output for laser printers, is touchier. It is tempting to use because many CAD packages can output this format, and it’s a widely used standard for non-CAD printed documents, such as firm brochures. The original version, which resides in many laser printers, does not support color directly; for that, you need PostScript Level 2. There have been many “clone” versions of PostScript that do not fully emulate the original. Problems have been especially noticeable in color work. Thus, before you commit to a PostScript printer, try some test images at the dealer.

Consider also the amount of memory that comes with the printer or plotter. A plotter that can store a drawing file while the image is being output will allow the rest of your system to run faster. It won’t have to “borrow” memory from the originating computer or network while it’s working.

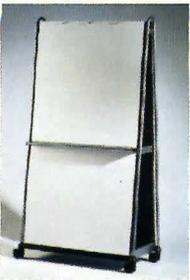
Inkjets, laser printers, and dot-matrix printers turn a *vector* image—the format used by all CAD software—into a *raster* image, which prints faster. (Raster images are also sometimes compatible with “paint” programs and image-touch up programs like Adobe Photoshop.) Consider buying or adding enough memory to store at least an entire page (1 to 2MB for A-size). Raster printers can get by with less memory, but will print five to 10 times faster if you have enough. The standard for graphics on an HP LaserJet, for instance, is about 2MB. A color image can be 4MB or more. And an image will need more memory if it uses many custom PostScript fonts. An alternative if you’re short of memory is to convert the image from vector to raster before you print. Many special add-on boards are available to do it. *Steven S. Ross*

Product Briefs

For more information, circle item numbers on Reader Service Card.



321. Three-user washbasin
A one-piece fixture with three individual handwashing stations run from one plumbing connection, the Express lavatory is made of a granite-look solid-surface material said to resist stains, sharp impacts, and burns. Unit comes with metering faucets that meet water-conservation and accessibility standards. Bradley Corp., Menomonee Falls, Wis.



322. Conference equipment
A new line, the Teamwork collection consists of "collaborative" work products—tables, presentation boards, storage carts and A/V units—said to give a uniform, designed look to meeting and conferencing spaces. Pictured: a mobile presentation easel holding a dry-marker white board, tack panel, flip-chart storage, and a display rail/handle. Metro Furniture, Burlingame, Calif.



323. Healthier keyboard
The design of this add-on system was based on extensive research said to demonstrate how keeping hands in a vertically neutral position while keyboarding and mousing prevents carpal tunnel syndrome, neck and shoulder injuries, and back and circulation problems. Adjustable keyboard tray has a negative slope, relieving all stress. Proformix, Whitehouse Station, N.J.



324. Low-upkeep upholstery
Made of Zeftron 200 solution-dyed nylon, described as exceptionally fade-resistant and colorfast, Powerhouse upholstery fabric is being marketed specifically for healthcare, hospitality, and heavy-use corporate settings. Styles include a textured boucle, a crepe, florals, and a scroll pattern, all of which can be cleaned as needed using a diluted bleach solution. Maharam, New York City.



325. Glazed terra-cotta pottery
A reissue of Gladding McBean garden pottery and ornamental pieces, made from the original molds dating from 1890 to 1926, includes this 80-lb Art Nouveau vase in Arroyo Green, one of 25 glaze colors available. Hand-crafted items such as large "oil jars", urns, pedestals, planters, tables, and benches can be used indoors and out. Gladding McBean Pottery, Culver City, Calif.



326. Hybrid seating
Halfway between a stool and standing up, The Stitz permits a wide range of individual leaning motions. Suitable for work situations that need an upright position, for conferencing, or for phone schmoozing. A sand-filled rubber base gives stability without marring floors. Made in Germany; designed by Roericht Product Development. Wilkahn, Inc., New York City.



327. Medical casework
Made primarily of 18-gauge steel, the Framework Furniture System includes base and suspended cabinets, wall cases, and space-saving vertical storage designed for the ease-of-use and low-maintenance requirements of doctor's offices and surgery centers. Components work together to give a "built in" appearance. American Seating, Grand Rapids, Mich.



328. Structural vinyl railings
Based on a thick-walled extruded vinyl tubing reinforced with #40 pipe at posts and top horizontals, the Avcon rail system meets BOCA impact code at any point. Available in standard and custom rail designs and a range of co-extruded colors, the weather-, pollution-, and UV-resistant components are said to be competitive with welded-pipe railings. Avcon, Inc., Toms River, N.J.

Short takes

Hurricane code blows in. New Dade County (Florida) hurricane-resistant building-code requirements go into effect May 31. Designed to keep the building envelope intact and prevent the sudden interior pressurization that blew off so many roofs during Hurricane Andrew, the new standards needed a new test protocol. Called the "large missile impact" test, the procedure requires windows and doors to

remain intact (*not* unbroken) after receiving two blows from an 8-ft-long 2 by 4 travelling at 34 mph, then 9,000 cycles of pressure testing.

Knocking out knockoffs. Imagineering, Inc., of Rockport, Maine, makers of Weatherend outdoor furniture, successfully sued a copycat competitor under trade dress laws. The U.S. District Court, Southern District of New York, ruled

the imitation—of style, construction details, even paint type and advertising copy—had far exceeded flattery, and awarded the plaintiffs substantial fees and punitive damages.

Rainforest marketing. Under a 1994 sales promotion, when architects and designers specify Azrock's wood-look vinyl strips, the flooring manufacturer will preserve a little piece of the rainforest in their name.

TOUGH as nails.

The first time you hammer a nail into a FiberBond® wallboard, you'll know just what we mean. It feels like you're putting the nail into the wall, not through it. FiberBond wallboard is extremely strong

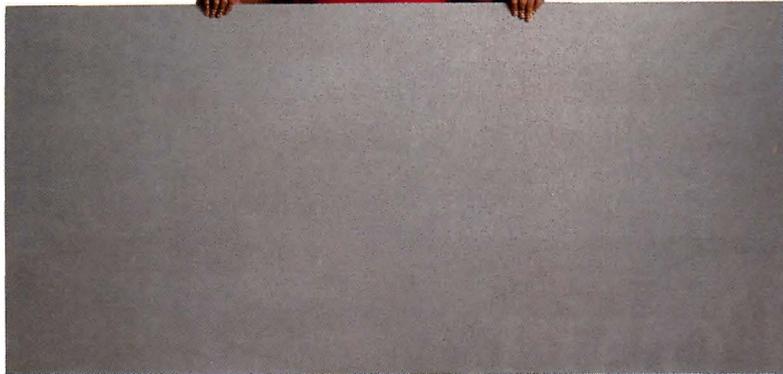
And *strong enough*

and solid because it's fiber from – amazingly
It can take more

reinforced with cellulose
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abuse than or-

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dinary drywall.
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absorbent. In other words,



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And it's more
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Circle 16 on inquiry card

Continued from page 21

Olympics Light

An article in RECORD LIGHTING [February 1994, Carrying the Torch from Super Bowl '94 to Olympics '96] incorrectly stated the position of the Environmental Protection Agency (EPA) on the proposed nighttime lighting of the Atlanta skyline. EPA has been discussing the plan with its sponsors, and has expressed concerns about the potential net increase in electricity use (and thus pollution) that could result from the proposal. We are examining various options that would show off Atlanta in the best light during the 1996 Olympics while producing a net environmental benefit. EPA looks forward to "blessing" a lighting plan consistent with that goal.

Robert M. Kwartin
Director, EPA Green Lights Program
Washington, D. C.

Light Language

A gentleman who works for a major lamp company frequently finishes off his talks and presentations with: "...come on, guys, it's real, it's not artificial." I had not realized this was contagious, but your editorial in the Feb-

ruary 1994 RECORD LIGHTING makes it seem so. Of course there is such a thing as artificial light; it is light that has been man-made, as opposed to occurring in nature (which is called "natural" light).

It is difficult to judge which is more regrettable—the presence of one more voice corrupting the English language, or one more person claiming to speak for a profession he does not understand.

Douglas Baker
Consultant
Newport, R. I.

RECORD LIGHTING Editor Charles Linn replies: If there really is such a thing as artificial light, this letter must be from an artificial lighting consultant. Thanks for helping me understand your profession.

Crystalizing Influence

A word of appreciation for Jim Russell's interpretation of the Southgate Block [RECORD, October 1993, pages 114-115]. You helped me unravel a tangle of interests and concerns which the project was trying to address, and made more intelligible what in

my own mind was somewhat obscure.

I particularly enjoyed your summarization of the project's composition in terms of "rhythm" and the grouping of its various details under the rubric of "conveying a solidity." On some reflection, this is the net effect of what we were trying to achieve.

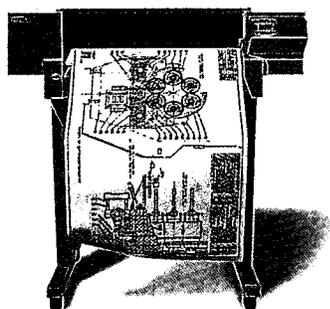
The discovery of an audience for my firm's work on this modest building type was unexpected. Thank you for your commitment in bringing it to light.

Jonathan Levi, Architect
Brookline, Mass.

Clarification

In our story on seismic and preservation ["Landmark Dilemma: How Much Upgrading Is Enough?" RECORD, February 1994, page 28], the description of the Sheraton Palace upgrade should have noted that only one shear wall was extended the full building height. Further, while H.J. Degenkolb Associates were peer reviewers on Skidmore, Owings & Merrill's design, and offered other consulting services to the owner, they were not consultants to the architect-engineer. ■

Power.



5 minute plots

Now, with a new low price, the HP DesignJet 200 monochrome inkjet plotter is more affordable than ever.

It's true. For about the price of the average pen plotter, the HP DesignJet 200 gives you crisp, 300-dpi, D-size plots in under five minutes.

Of course, HP's proven inkjet technology means more than just fast plotting. It means no more pen-related problems. No more skipped lines. No more pen clogging. And our smooth, quiet writing

Task Control continued from page 35 the West Bend study, feels that "if we are truly concerned about being globally competitive, we must find ways to maximize productivity and creativity from our human-resource base. People are different, and there must be greater individual control over the workplace environment." Cornell professor Alan Hedge agrees, adding that "employees are becoming more aware of this issue, and as emerging job markets create a demand for skilled workers, business will have to improve air quality to attract them."

But not all experts agree that conventional hvac technology should be scrapped. Mahadev Raman of Ove Arup & Partners' New York office (which has installed their own floor-plenum supply) says "it's a gross oversimplification that VAV-based technology doesn't work. Unfortunately, the bland arrangement seen in too many spec buildings is eventually overwhelmed by a demand higher than the design load." Individual controls require a careful integration of lighting, hvac, and controls that may be too sophisticated for some building owners to manage. Raman also points out that some building

codes make sharing of space by cables and ventilation difficult. Others have expressed concern about keeping underfloor units clean, and avoiding airflow and cabling conflicts.

Individual controls or furnishings-based systems may become more widespread through specialized installations such as video monitor-intensive trading rooms (page 35). In some areas of the country, individual controls, combined with a window interlock that shuts off local mechanical ventilation, may improve the prospects for natural ventilation. (Open windows in buildings with large ventilation zones often increase air-conditioning loads rather than decrease them.) Likewise, individual controls may make an energy-saving daylighting strategy more viable.

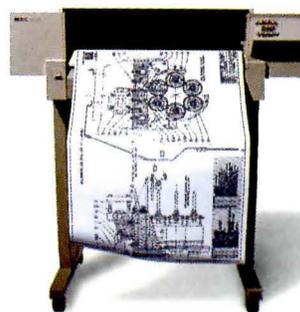
How quickly personal environmental control catches on will likely depend on how soon its components become more flexible, less bulky, and interchangeable, rather than furniture-based; how well existing buildings can be retrofitted; and whether researchers continue to find substantial productivity benefits. In the book *Behavioral Issues in Office*

Design, author J. D. Wineman points out that human-resources costs represent from 90 to 92 percent of a building's cost over 40 years. Thus, even tiny improvements in productivity offer stunning paybacks. ■

Further Information

- "IAQ, Productivity, and Occupant Control," in *Indoor Air Quality Bulletin*, December 1991. P. O. Box 8446, Santa Cruz, CA 94061-8446 (408/426-6624)
- "The Impact of Personal Environmental Control on Building Energy Use," by John E. Seem and James E. Braun in *ASHRAE Transactions*, 1992, V. 98, Pt. 1. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 1791 Tullie Circle, N.E., Atlanta, GA 30329 (404/321-5478)
- "Comfort Control for Short-Term Occupancy," by M. Fountain, G. Brager, E. Arens, F. Bauman, and C. Benton, to be published in a forthcoming issue of *Energy and Buildings*.

To the people.



\$2,995*

system makes the HP DesignJet 200 ideal for any office environment. And with the addition of legs, the DesignJet 200 converts from a desktop to a free-standing plotter.

So get the plotter that saves you as much time as it does money. Call 1-800-851-1170, Ext. 7720 for the location of your local HP demo dealer!



*E-size model priced at just \$3,995. Suggested U.S. list prices. Price does not include optional legs and bin. Plot images courtesy of Autodesk, Inc. In Canada, call 1-800-387-3867, Ext. 7720. ©1994 Hewlett-Packard Company PE12402

Circle 17 on inquiry card

CHANGE



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Installation is fast and easy. Alucobond Material goes right over the old exterior without the need to remove or pre-treat the existing building material. And with new, cost-efficient systems now available for attachment, it's even

more affordable. Choose from a wide variety of standard colors and finishes. Or use our in-house, coil coating custom-color capabilities to add just the right color to restore or improve on a building's original beauty.

“The image of the American abroad has long been romanticized to represent freedom and individuality,” writes correspondent Claire Downey in her report on Frank Gehry’s American Center in Paris (page 86). Gehry as expatriate is particularly apt. Born in Toronto, he came to Los Angeles in 1949 to attend UCLA. In the early years of his practice, Gehry, by his own admission, associated more with artists than architects—to detractors he was unorthodox, to supporters he was avante-garde. He was an outsider both geographically and professionally and this critical distance helped foster a unique vision. Yet later, widespread acceptance made him the ultimate insider: he was characterized by the Pritzker jury in its 1989 award to him as “refreshingly original” and, ironically, “totally American.” Also described as quintessentially American is the architecture of Robert Venturi and Denise Scott Brown, a portrait borne out by their fire station for Disney in Orlando (page 94). Henry Smith-Miller and Laurie Hawkinson invest a mixed-use building in Telluride, Colorado with turn-of-the-century Americana, borrowing imagery from old mining towns (page 76). American architecture takes different form in Haines Lundberg Waehler’s design of the Federal Reserve Bank of New York. Located in New Jersey, it gives comfortable suburban scale and presence to what is essentially a processing plant for money (page 80). For many architects who have emigrated here, recognition and commissions in this country help solidify their position at home. Thus, Cambridge-based Kyu Sung Woo returns to his native Seoul to build a museum for celebrated Korean painter Kim Whanki, who himself made his reputation abroad (page 68). This month’s Building Types Study (page 98) examines one of the most hotly debated issues in America today: healthcare.

Karen D. Stein

*Manufacturers’ Sources
listed on page 119*

Mountain Museum



*A steep site prompts Kyu Sung
Woo to adopt traditional Korean
site planning concepts.*

*Whanki Museum
Seoul, Korea
Kyu Sung Woo, Architect
Ilkun Architects & Engineers,
Associate Architect
Dyne Architects, Associate Architect*



From the beginning of his career, Kim Whanki, the late Korean painter who made his name in Paris and New York, yearned to open a museum in his native Seoul. Now, nearly 20 years after the artist's death, his dream has finally come true.

Designed by Korean-born Kyu Sung Woo of Cambridge, Massachusetts, the Whanki Museum occupies a 30,250-square-foot site in the Buam Dong Valley on Seoul's northern edge. Selected for its easy access and picturesque terrain, the narrow valley is populated with walled, post-Korean War residences and a smattering of small shops—all bound together by a circuitous network of streets that conforms to topography and property lines rather than any form of city grid.

Like its neighbors, the museum's precinct is outlined with a wall, an element which Woo calls "a very important part of Korean architecture." Because it establishes a clear, formal boundary, the wall has been used to order Korea's rugged landscape for centuries. Inside the wall, Woo adopted the traditional additive method of site planning, adding a second building to make the most of the site's limited area and mediate its substantial grade differences. Not only does the 4,600-square-foot annex house a gift shop and temporary exhibition space, the 11,470-square-foot main building itself is composed of a series of discrete volumes housing galleries, administration, and an apartment for an artist-in-residence. And by embedding the three-story, steel-framed building into the hillside, Woo was able to provide high space for Whanki's large canvases, which is the focus of the collection, without overwhelming the scale of the neighborhood.

The heart of the museum is a 26-foot, cube-shaped hall capped by an exterior courtyard. Skylights and the courtyard's glass-block enclosure, which acts like a clerestory, forge a connection to the outside and bathe the room's white walls with light that is celadon-colored, a sea-green shade associated with Korean porcelain. Used for displays and assemblies, the room is wrapped with triple-height, 6-foot-wide stairs which generate the intricate circulation "ribbons" that wend their way in and around the building. While maze-like paths may lack efficiency, Woo acknowledges, they offer museum-goers a rich and varied experience. Even the exterior interstitial space between building and wall is filled with stepped walkways, terraces, and rest spots for surveying scenic vistas and remnants of the historic city wall in the distance.

The dramatic high point of the museum is its double-vaulted gallery housing the permanent collection. Here stairs open onto a spacious room with a 12-foot-high picture window framing a view of In Wang Mountain's craggy peaks. While electric light was essential for conservation, daylight reflected up into the vaults fills the room with all the peace and serenity of a Whanki painting. "A museum does not have to be an isolated area," explains Woo, "it is good to be connected to nature and the life of the city."

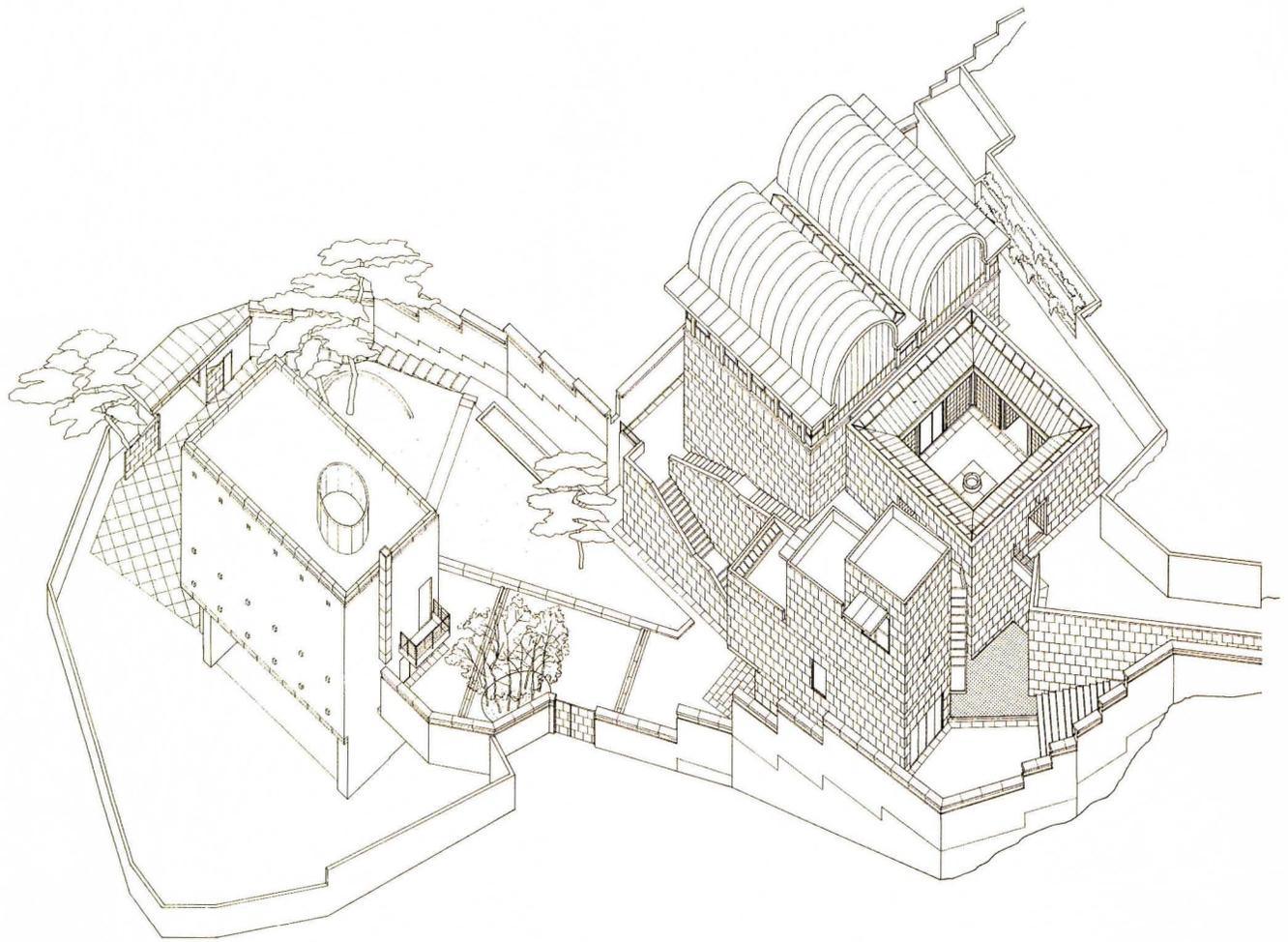
A close friend of the painter, Woo was the logical choice to design this memorial. Like Whanki, Woo established his reputation in the West where his practice has focused on housing. His first major Korean commission was the Seoul Olympic Athletes' and Reporters' Village [RECORD, September 1988, pages 118-127], an innovative 165-acre residential facility which was converted into apartments after the 1988 Olympics. The Whanki Museum is a milestone in its own right. One of the first small museums to be built in Korea, it is testimony to the country's growing economic prosperity and resurgent cultural pride. *Naomi R. Pollock*

© Timothy Hursley photos



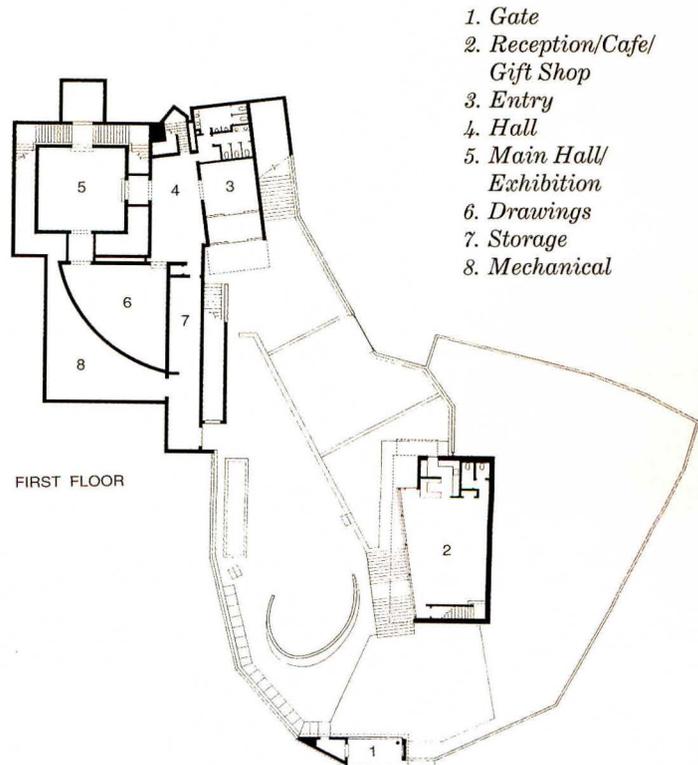
The museum sits on a rough-hewn granite base, its walls clad with smooth granite panels (top and bottom). The annex and compound wall are made of contrasting concrete brick (middle). Elements meeting the sky are covered with lead-coated copper (opposite).



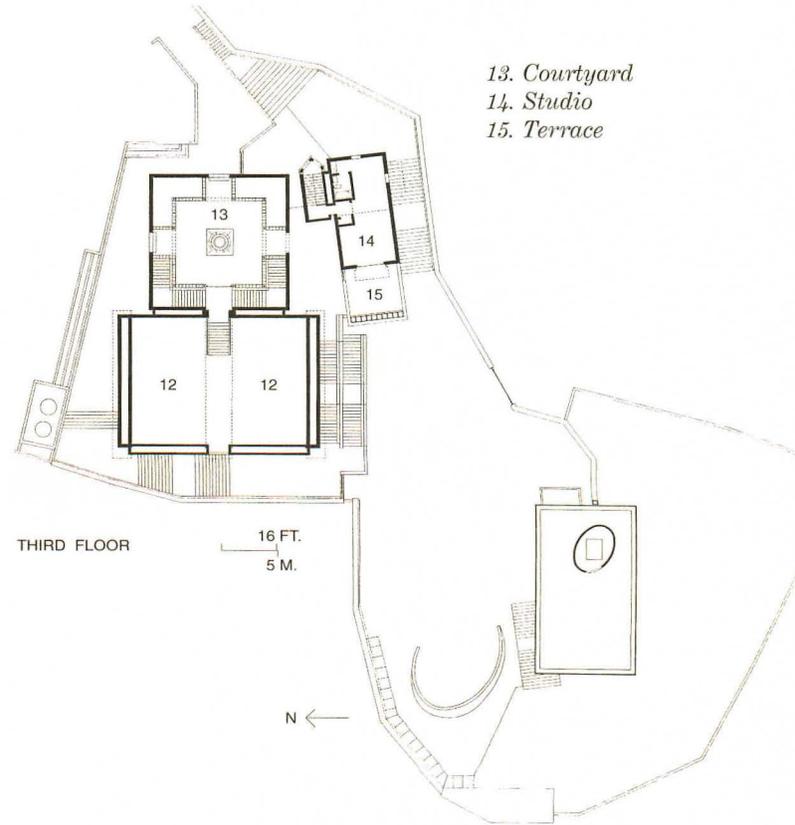
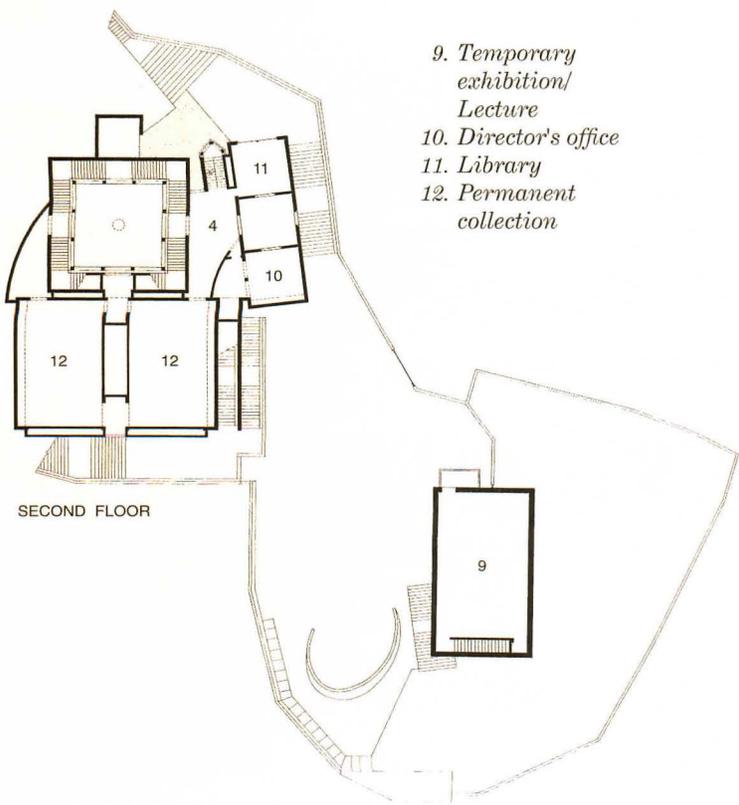
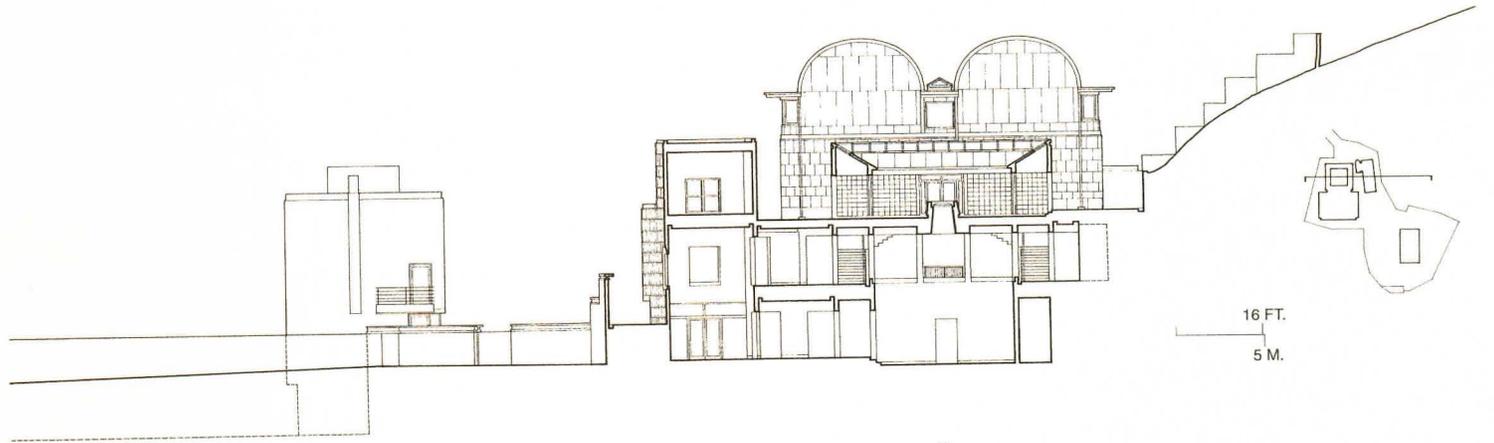


Up Close

Siting in the tradition. In contrast to the West (Wright excepted), Korean buildings are seldom sited on mountain tops. The Whanki Museum is no exception: the main building's steel frame is perched inside a concrete basin set into the hillside. Like a traditional palace, the building is composed of several distinct pieces united by a central courtyard (above and opposite). Enclosed with glass block that lets light filter into the main hall below, the courtyard (the structure in the middle is a light-well), is covered with masato stone dust. Midway through construction of the main building, a second parcel of land was acquired for the annex. Clad with Korean concrete brick, the annex's simple rectangles contrast sharply with the complexity of the granite-covered main building. In addition to fulfilling left over needs, the annex creates a generous entry sequence for the entire museum. The whole composition is tied together with terraced landscaping that highlights the site's grade changes; it was designed with Cambridge-based landscape architect Michael Van Valkenburgh.



FIRST FLOOR





The museum's grand finale is the double-vaulted gallery with its view of In Wang Mountain (left). The main hall's roof structure supports the exterior courtyard above. An oculus, skylights, and glass block fill the room with daylight. The floor is composed of delicate strips of wood (bottom and opposite).

Credits

*Whanki Museum
Seoul, Korea*

Owner: *The Whanki Foundation*

Architect: *Kyu Sung Woo
Architect—Kyu Sung Woo,
principal*

Associate Architects: *Ilkun
Architects & Engineers; Dyne
Architects*

Engineers: *Hanna Group
Architects & Consulting Engineers
(structural); Bow M.I.E.
Consultants (mechanical); Sae
Han Engineer Consultants
(electrical)*

Consultants: *Powell Lighting
Design (lighting); Cosentini
Associates (mechanical); Michael
Van Valkenburgh Associates
(landscape)*

General Contractor: *Pull Ham
Construction Co., Ltd.*





Breaking the Box

*Plunge Landing
Telluride, Colorado
Smith-Miller + Hauckinson
Architects*



Like many small Colorado towns, Telluride achieved fame and fortune in the late 1880s, when its picturesque hillsides yielded vast quantities of silver to bands of itinerant prospectors. By 1891, a train depot for a new spur of the Rio Grande Southern Railroad was completed to ease transportation of the precious metal. In 1893, the silver market collapsed, the railroad went bankrupt, and town growth stopped. Although some mines later became sources for gold and uranium, Telluride never quite matched its high-profile status until it exploited another of its natural attributes—its slopes. In 1972, the first ski lifts on the mountain opened and, in recent years, Telluride has attracted ski-minded visitors away from nearby resorts like Aspen, crowding the relatively remote town of 1,500.

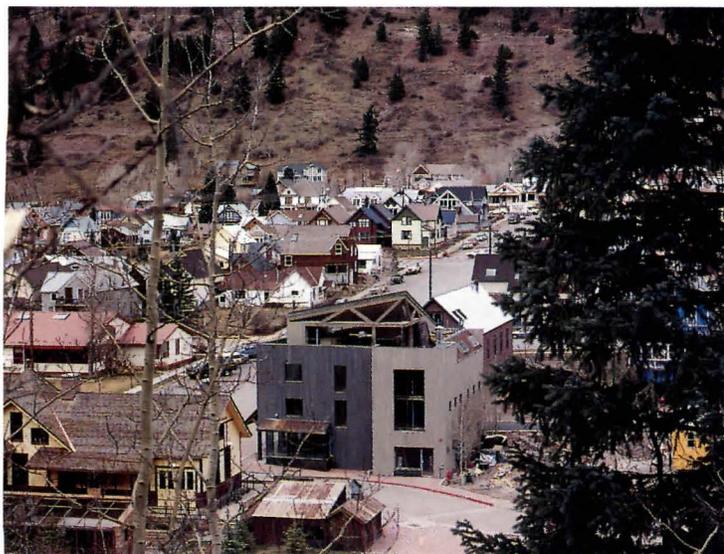
Architecturally, Telluride has a split personality. Its history as a mining town has left a legacy of ramshackle wooden shed structures with flat metal roofs that are clustered in the hills and backyards of private homes. Its public face, exhibited on Main Street, is grander, a “robust Victorian,” according to the guide books. Asked to design a mixed-use commercial/residential building on a prominent site opposite the former train depot, New York City-based architects Henry Smith-Miller and Laurie Hawkinson eschewed the “historical” replication of Victorian-like condominium complexes that have sprung up on the outskirts of town. Instead, they found inspiration in the mining structures, which, they say, derived their form only out of necessity—for shelter and simple, low-cost construction. Their strategy met with initial resistance from the local historic architectural review commission, which seeks to preserve the old town’s quaint charm, but won eventual acceptance for its nod to regional vernacular.

The 9,500-square-foot structure is an irregular box, adjusted to accentuate the view down Townsend Street, which ends at the old depot. Ground-floor office space along Townsend is enclosed by a glass storefront. A large corrugated rusted steel canopy marks the entrance, recalling the roofs of mine sheds. Entrances to two separate rental units are discreetly positioned on side-streets. Cedar wood siding is stained gray and green to give the effect of aged clapboard siding. The architects reserved their customary structural exhibitionism for the roof, which breaks through the main volume of the building. Supported by massive recycled Douglas fir beams, it points dramatically toward the main ski slope, as if to remind visitors of the town’s current claim to fame. *Karen D. Stein*



Plunge Landing is located at the southern edge of Telluride, between the ski slopes and the center of town. On one side it faces the San Miguel River and the former train depot, which has been converted into a restaurant. The new building’s tilted awning of rusted corrugated steel wraps the west and south facades and points toward the adjacent historic structure, suggesting an outdoor gathering place in between the two (opposite and left). Plunge Landing’s

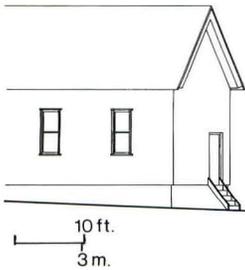
roof breaks through its rectilinear main volume to provide mountain views and admit south light (above). Ground-floor and basement space is for commercial use and the upper three floors are arranged into two apartments with separate entrances.



©Paul Warchol photos



Ground-floor commercial space overlooks the town and mountains (far left). Entry halls to the apartments have custom-designed ski racks of stainless steel against galvanized sheet metal walls and metal grating on floors and stairs to minimize tracking of dirt and snow (near left). The overall structure of the building is wood and steel. Each apartment has its own amenities: the east unit has a double-height living room with a small balcony facing the slopes (plans left), while the west unit has a third-floor kitchen/living room with wrap-around terraces (opposite). Salvaged Douglas fir beams support the roof, and the space's complex geometry is clad in a patchwork of maple veneer panels.



Credits

Plunge Landing

Telluride, Colorado

Owners: Ralph and Lee Kovel

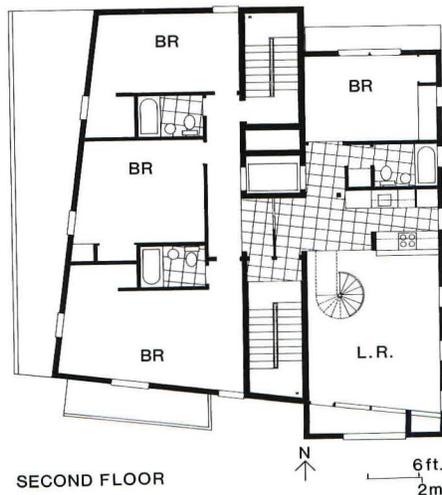
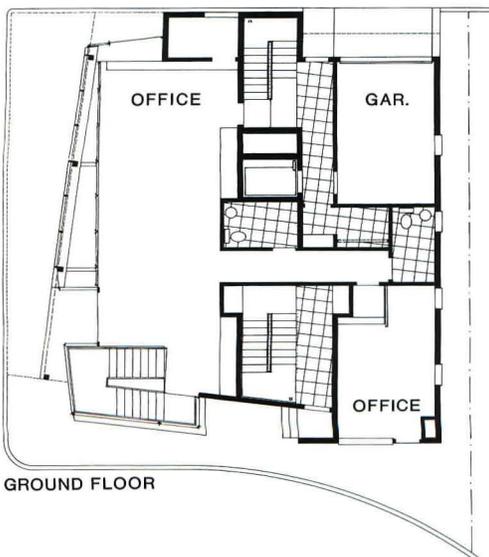
Architect: Smith-Miller + Hawkinson Architects—Henry Smith-Miller, Laurie Hawkinson, principals-in-charge; Eric Cobb, project architect; Eugene Harris, Belen Moneo, Virginia Navid, Lawrence Ko, Greg Dupasquier, project team

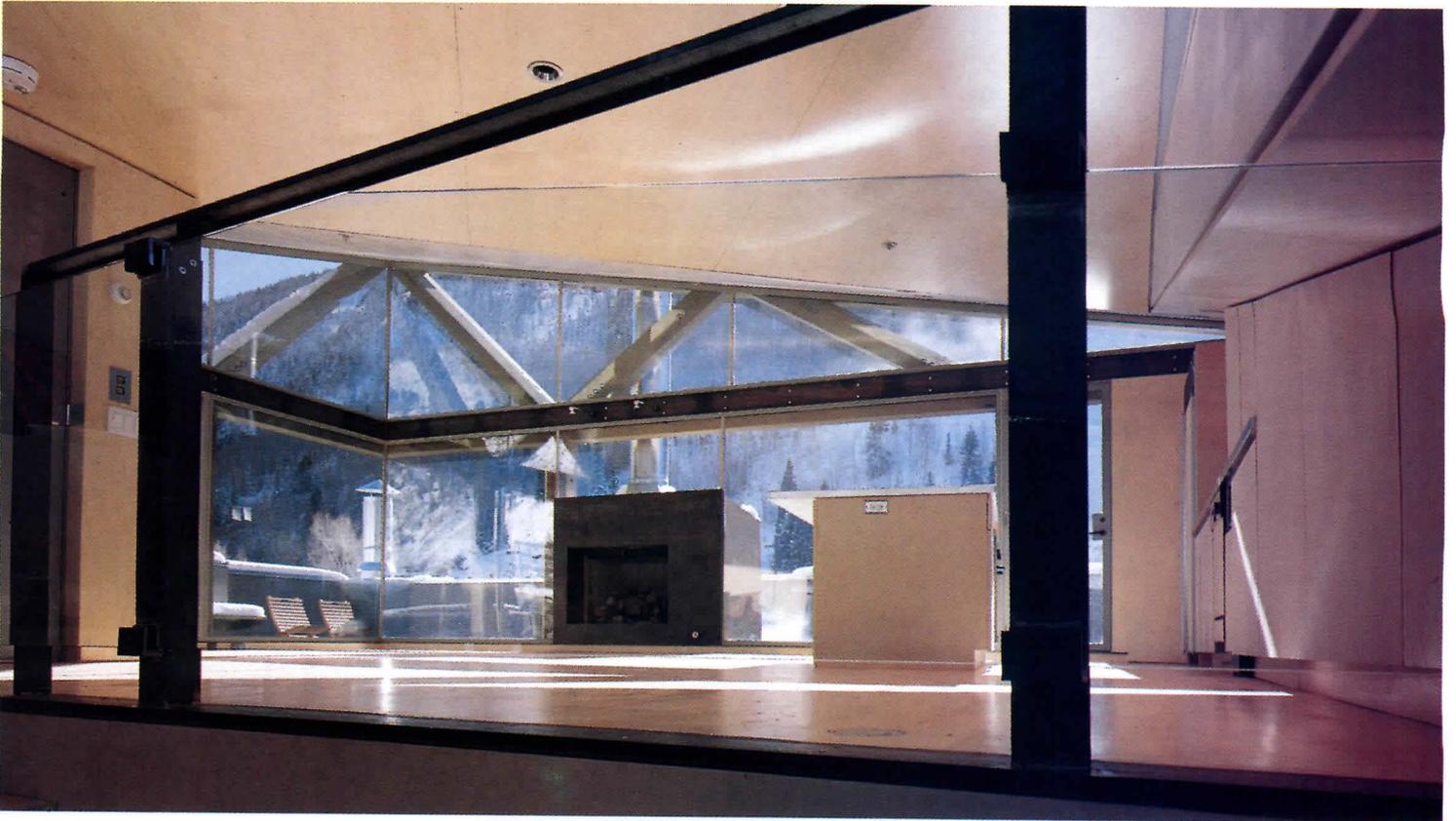
Project Supervisor: Watts Design—Greg Watts, principal

Engineers: Nevjahr & Gorman (structural); Mark Eatherton (mechanical)

Consultants: Novasel Lighting Design—Gary Novasel, principal; Amy Vitale, project manager (lighting); Nevasca Development Corp. (project managers)

General Contractor: Wodehouse Builders





aspirations, and dreams.

Trucks carrying checks use a ramp (bottom photo) to load and unload on the second floor. Other trucks enter and leave an open space beyond the ramps that HLW principal Theodore Hammer refers to as the "cash courtyard," loading and unloading inside sealed docks. "That ramp was one of our better inspirations," says Hammer. The Federal Reserve would have preferred check and cash facilities on one floor for ease of access, but the site was not large enough. Notes center manager John Eighmy: "With the ramp and a two-story cash vault (plan following page) where money can be transferred at either level, the architects accomplished the same result." Access is possible at both floors.

The operations center's purpose, in part, is to reconcile amounts on checks brought in from various sources, weeding out errors and returns, and ship the checks back out again. Speed is of the essence. This facility runs round-the-clock and the plan of the basic operations areas is virtually a diagram of work flow. In the case of cash, this means high-speed sorting, storage of reserves, and—read it and weep—destruction of bills that are tired and old. All this high-volume, fast-paced turnaround means quick access to sources of fast transportation, which is the reason this facility is located near the intersection of major highways and, for checks, an airport.

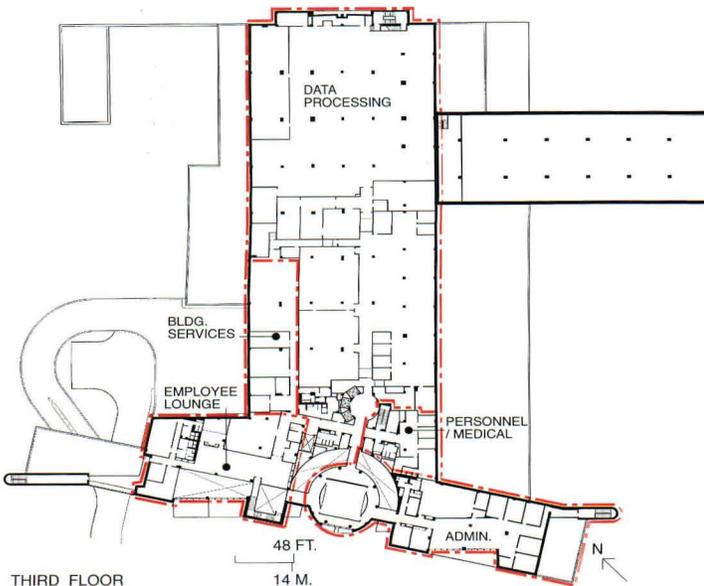
Times have changed in the 80 or so years since the New York City Federal Reserve headquarters was built to resemble an Italian palace: safe and secure—above reproach and, to the sidewalk observer, above processing checks and cash. Inside, armed guards used to escort each cart laden with cash and checks as it went through hand-sorting and record-keeping. By contrast, in the new center, cash is handled by computer-guided robotic carts. The center also houses a data-processing contingency center designed to assume all automated



Big Operator

*Federal Reserve Bank of New York
East Rutherford Operations Center
East Rutherford, New Jersey
Haines Lundberg Waehler, Architects*





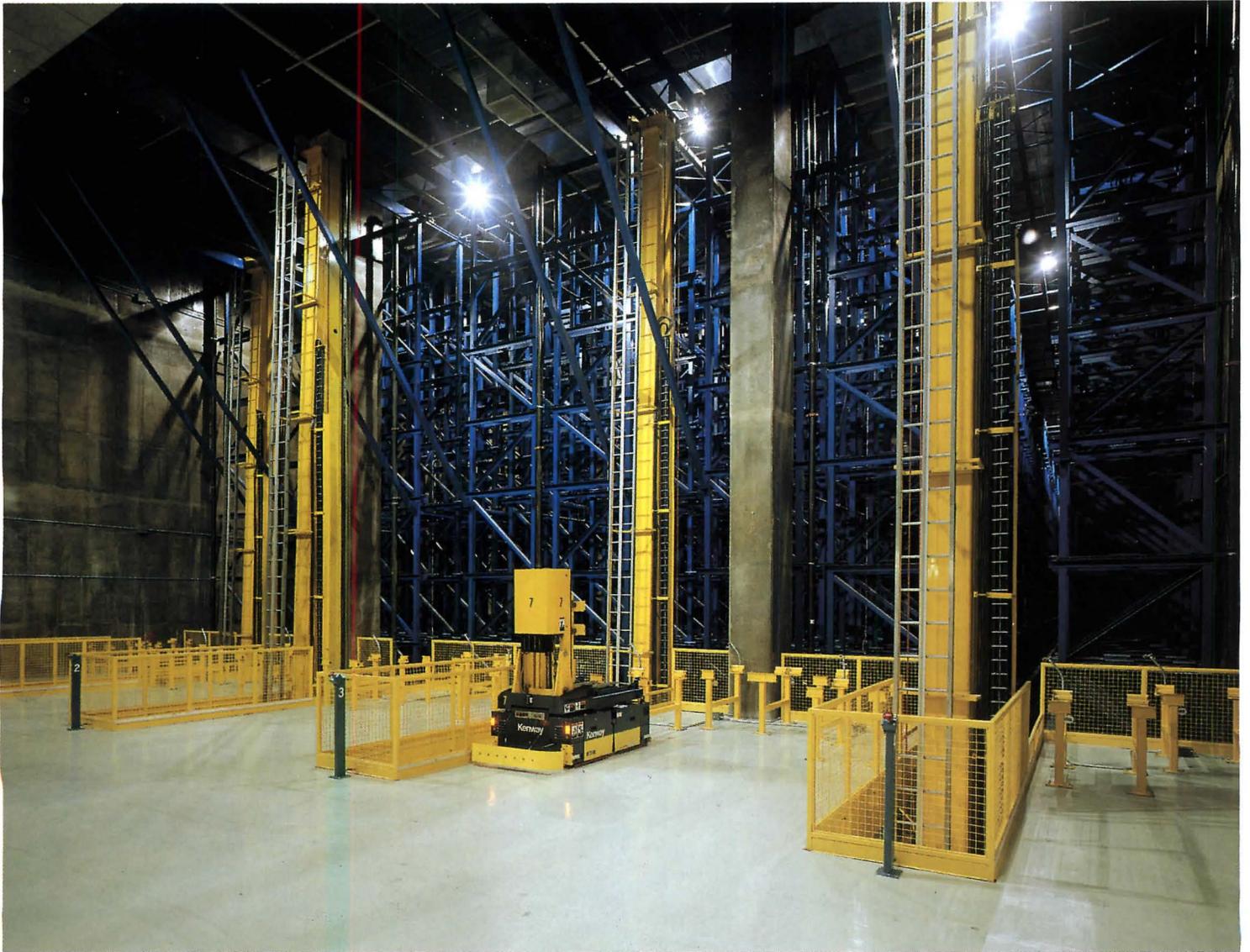
Up Close

Staying flexible. Because of a heavy reliance on technology in its operations, this building is “unbelievably complex,” says HLW principal Ted Hammer. Still, he is able to quote the architect’s favorite line: “On time and on budget.” Costs were \$80 million for basic design and construction, or less than \$200 per square foot. But he does not claim all the credit. The client representative, Federal Reserve executive vice president Suzanne Cutler, even though this was her first construction experience, “had an uncanny sense for negotiation during bidding and construction.” The timing of contracts also helped. This was a competitive time. “The center was the biggest project in New Jersey in many years,” recalls Hammer. Most to the point, however, was the “collegial relationship the architects had built up on previous projects with construction managers, Torcon, Inc. This company was not brought in as early as HLW would have liked, but, when it was, it assured more manageable bid packages by successfully separating the primary contract into parts despite the building’s complexity.

One big challenge the architects and CM had to overcome was the client’s need to expand the facility during construction. The program had anticipated expansion, but “we just didn’t expect it so soon,” explains Hammer. Down came the concrete panels on the east facade, outward went the steel-frame construction, and back up went the panels. “Well, that’s what they were designed to do,” he says. Another major anticipated change is a growing volume of cash and shrinking volume of checks that the facility will handle. This means walls may well move again—not only outward, but inside as well.

The front part of the building is angled to parallel the access street, while the rest of the building aligns with the surrounding street grid. Heavy mechanical and electrical requirements are fed by a thin structure that projects above and to either side of the offices and employee facilities, and that seems from the exterior to slice diagonally through that part of the building. Employee facilities are bright and cheerful and include a large cafeteria with a variety of seating options (above), a health club, and several lounges. The Federal Reserve uses this “full-service environment,” as center

director John Eighmey calls it, to compete with other high-tech employers in the area. Competition can be difficult. “Our people have demanding jobs,” notes bank executive vice president Suzanne Cutler. They also work under pressure and at odd hours. Another concern for architects is seen in the architects’ attention to acoustic isolation between the cash-handling area and the rest of the building. The cash facility may appear to be a silent, peopleless world (photos overleaf), but in reality it is very noisy.





Visitors to these facilities in operation would see more cash than in their wildest dreams—stacked to the ceiling in the vault (opposite) or carried by rolling robots to processing stations.

Credits

Federal Reserve Bank of New York, East Rutherford Operations Center East Rutherford, New Jersey

Owner: *Federal Reserve Bank of New York*

Architects, Engineers, and Interior Designers: *Haines Lundberg Waehler—Theodore Hammer, managing partner and lead designer; Jay Fleishman, director of design; Walter*

Zupancich, director of interior design; Emiliano Castro, senior interior designer; Karen Cumberpatch, interior designer; Said Zomorrodian, designer; Seymour Fish, Charles Lazarou, partners and project managers; Alan Kaplan, engineering partner; Thomas De Monse, project architect; John Steigerwald, project planner and programmer; Steven L. Viehl, chief mechanical engineer; Myron Schloss, chief electrical engineer; Dominic Cardinale, chief plumbing and fire-protection engineer; Jiann Tsai, electrical project engineer; William Jarema, structural senior project engineer; Lisa

Lerner, fire protection project engineer; Randy Fleischmann, director of specifications and research; Donald Briggs, code administration; Michael Blauvelt, landscape and site engineer; Hank Kowalski, mechanical engineer

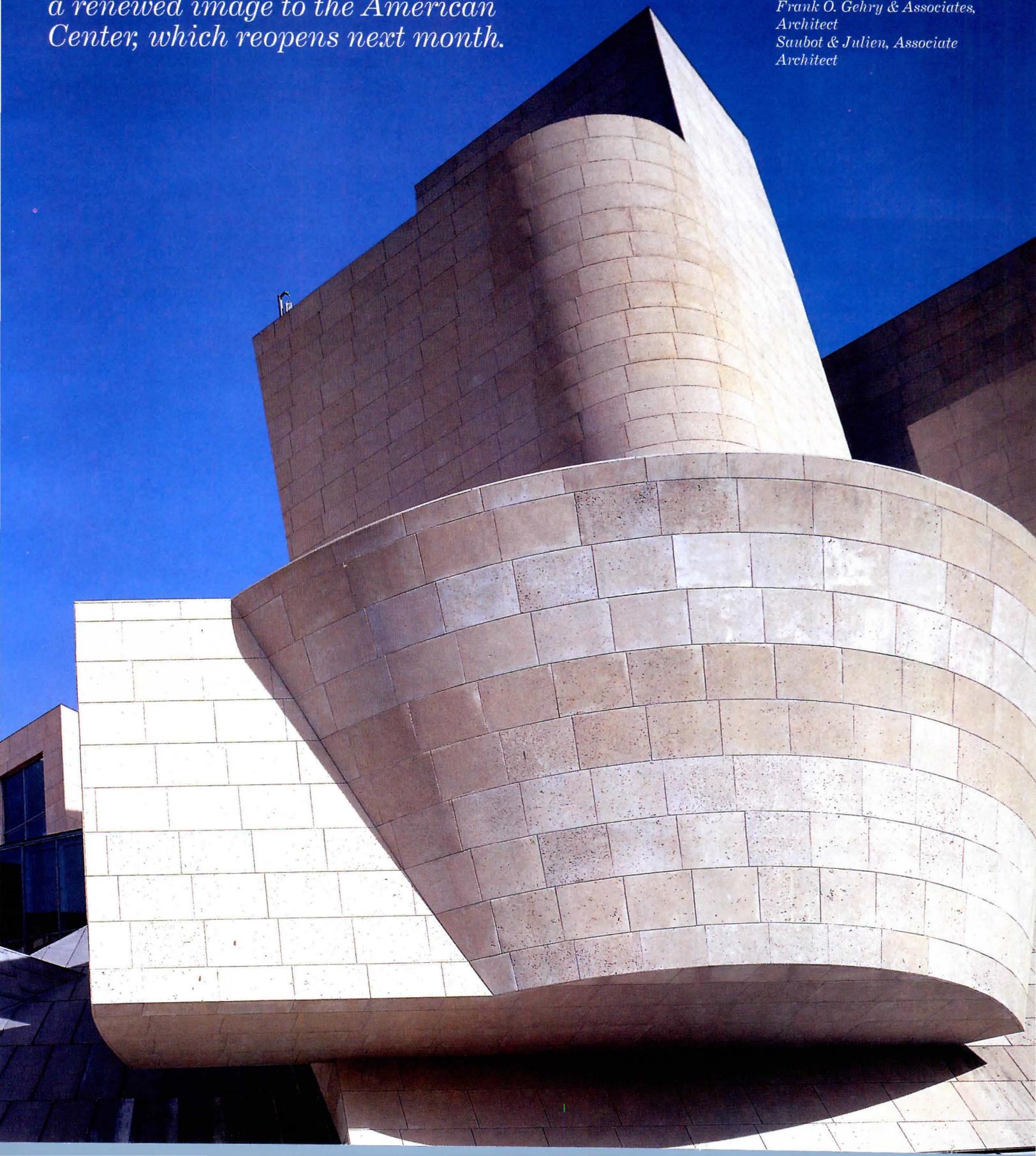
Consultants: *Torcon, Inc., construction manager; Productivity Systems, Inc., storage and material handling; Giampietro Associates, Inc., food facility design; Harris & Walsh, Inc., security*

An American in Paris



*Frank Gehry gives a new home and
a renewed image to the American
Center, which reopens next month.*

*American Center
Paris, France
Frank O. Gehry & Associates,
Architect
Saubot & Julien, Associate
Architect*



The image of the American abroad has long been romanticized to represent freedom and individuality, and any American enclave in Paris bears the burden of these associations. During its 53-year occupation of 261 Boulevard Raspail, in the heart of post-War expatriate Paris on the Left Bank, the American Center did not disappoint. It was the place to hear American jazz, participate in "happenings," and watch experimental dance. Closed in 1987, the 1930s Neoclassical building by Welles Bosworth was razed to make room for the glass box-like Fondation Cartier by Jean Nouvel, which opened this month. Needing more space and a renewed image, the American Center moved across the Seine River to Bercy on the Right Bank. The Center commissioned Frank Gehry to create a physical place of exchange and to promote all aspects of American art.

The rebuilding of Bercy is part of the French government's plan to redevelop eastern Paris, a scheme that extends all the way to Gehry's other built project in France, the entertainment complex at Euro Disney in suburban Marne la Vallée. The new American Center is down the street from Paul Chemetov's massive Ministry of Finance and across the river from Dominique Perrault's equally grandiose Library of France. Next door, modern apartment buildings and hotels have replaced the old village atmosphere of wine wholesalers and worker housing that was once Bercy.

In a zone largely void of historic content Gehry found himself within Paris yet beyond its traditional fabric—an ideal location, perhaps, for an architect who considers himself an outsider, but who has a strong personal attachment to the city. Splicing together images of Paris, Gehry has recreated, in his words, "a sculptural sense of the city" within one building. An essential aspect is what Gehry calls "the cleavage of the Parisian skyline," where blank walls of buildings are exposed by the path of a road or, simply, a change in building height; roof planes are irregular and through gaps, courtyards and their inner activities are revealed. Gehry carved his center court behind the five very different faces of his 198,000-square-foot structure. Split on the diagonal, the building spills out towards a new city park. It is this opening out from the center that prevents the dense forms of French limestone from appearing forbidding.

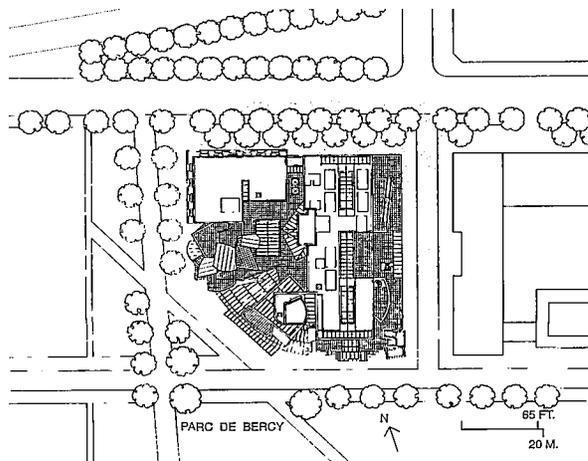
The crucial cut through the building was a response to a city require-

ment that the southwest corner of the building be sliced off at 45 degrees to the park entry plaza. For the client, this became the logical main entrance; for Gehry, it presented the added challenge of turning the corner from a sober north facade to a more lively entrance. His solution is two-tiered. At street level, shop fronts and a cafe line the plaza, generating pedestrian traffic along the building's west facade. Above, the mix of forms creates a lively rhythm that builds to a crescendo at the entrance. Slide open the central glass doors and events can spill out to the park; close them and two arm-like wings embrace visitors.

From the outside, the cityscape of forms expresses the diverse program, including 26 apartments for visiting artists and scholars, a 100-seat cinema, a 400-seat theater, galleries, visual arts studios, a language school, and a restaurant. Inside, these varied parts and pieces spiral around the central atrium, which Gehry compares to a town square. The sense of movement is reinforced by views across the court from the glass-enclosed stair of the east wing, through lobby skylights, or from windows that frame views and visitors throughout the building.

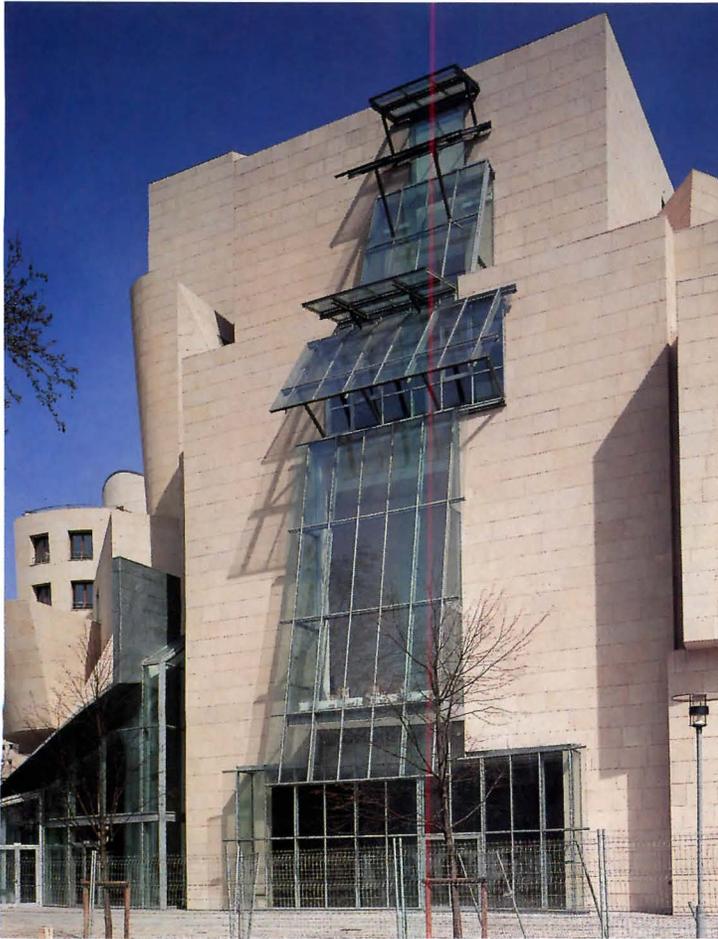
Below ground, a double-height 2,500-square-foot black-box film/sound recording studio rises up into the lobby to form the base of the mezzanine. Although added late in the design process, it has become a critical part of the building's program, representing the increased importance of film and video. It is also the center of what is one of the most complex and tightly knit programs that Gehry has ever tackled. During the year and a half design process, the architect relied on his own experience in designing art installations and on the input of artists in every discipline, particularly for the theater, his first for the dramatic arts.

The American Center aims to be a cultural bridge between Europe and America. Already its architecture is a key first step. Although a cultural emissary of sorts from abroad, it is in no way an island. The interplay of forms—windows lifting out from the lounge and galleries, the zinc skirt floating above the entrance—contributes to an overall image of accessibility. Gehry has given a lesson in architectural equality which seems to wink at its formidable *grands projets* neighbors.
Claire Downey

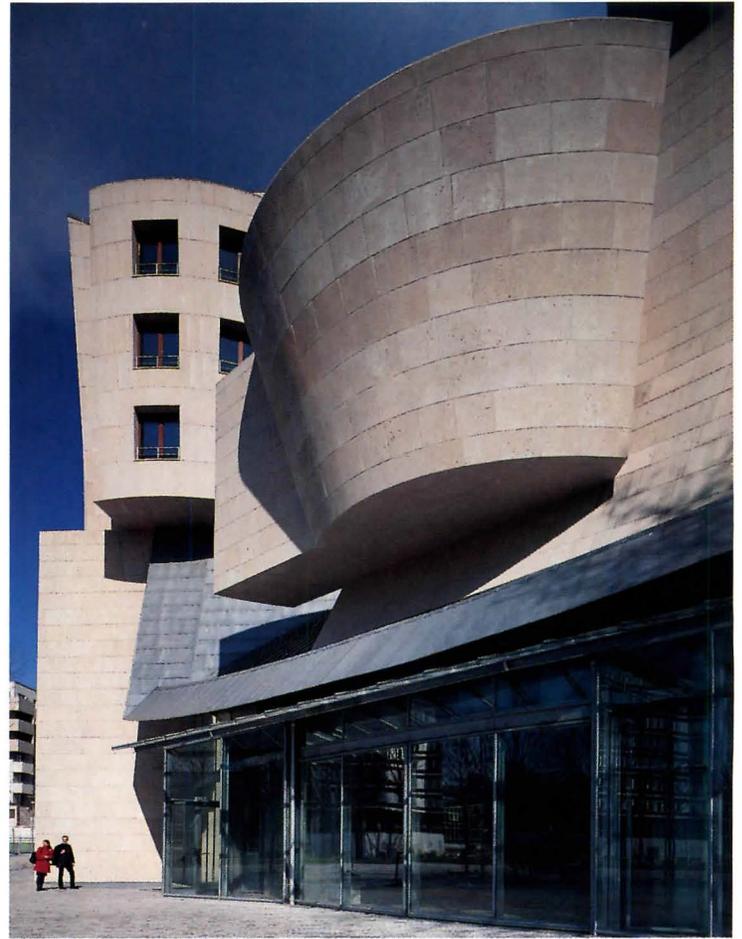


Like a compact city of diverse cultural activities, the American Center has many faces. The sloping Mansard roof-inspired planes of the street facade contrast with the playful forms of the penthouse apartments (opposite top) and, continuing southward, the curved zinc awning over the entrance (opposite bottom).



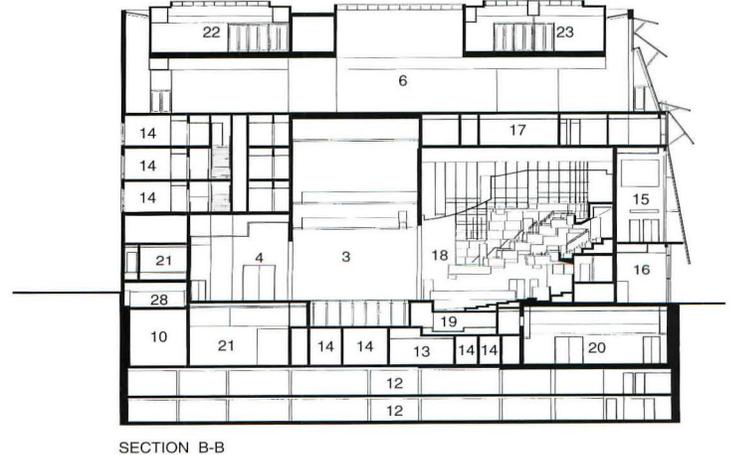
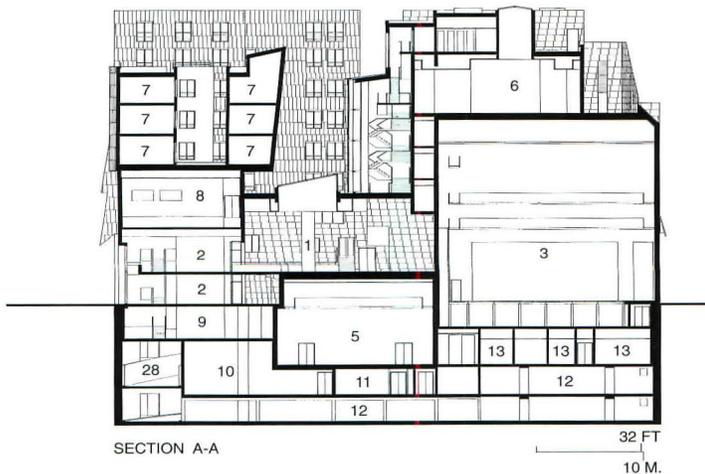


Cascading planes of glass emerge from the narrow eastern block, introducing a lilting rhythm to the park-front facade (above left). The planes of glass protrude beyond their transparent side panels in what Gehry describes as a new version of the bay



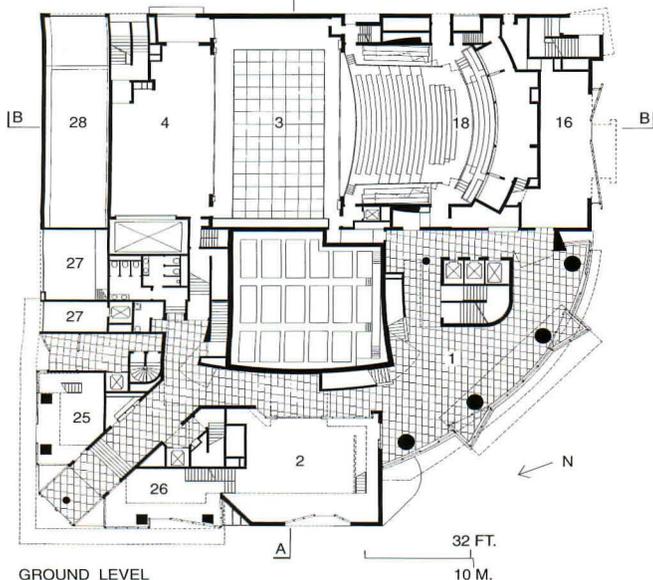
window. Gehry has likened the wide, curved slope of the zinc entry awning to a raised ballerina tutu, which is held in place by a massive stair and elevator tower rising above (above right). For cladding, he chose St. Maximin limestone, the same stone used

on the Louvre. The size of the stone on curved and inclined facades had to be calculated panel by panel. Sections show the dense vertical layering of spaces into two distinct wings—apartment house/cinema and theater—joined by a central atrium (draw-





ings below). On the ground floor, the main lobby, restaurant, offices, a side entrance, and the 11,170-square-foot theater with generous back-of-house areas are arranged around the protruding volume of the large black box studio (plan below).



1. Lobby
2. Restaurant
3. Stage
4. Backstage
5. Large black box
6. Exhibition room
7. Apartment
8. Projection room
9. Kitchen
10. Mechanical
11. Storage
12. Parking
13. Costumes/
dressing room
14. Office
15. Foyer
16. Travel agency
17. Language school
18. Theater
19. Orchestra
20. Small black box
21. Theater workshop
22. Dance studio
23. Visual arts studio
24. Apartment lobby
25. Bookstore
26. Shop
27. Loading
28. Ramp

Up Close

Several buildings in one. Above the ground floor, the American Center splits into two sections. The western L-shaped wing contains apartments and the cinema, while the theater, the language school, a large gallery, a visual arts studio, and rehearsal rooms are layered vertically on the eastern edge. Two black box film/sound recording studios are located one level below ground. Fitting the dense program onto less than a 24,000-square-foot lot with 85-foot height restrictions and other set-back requirements forced Gehry to tightly control the building's borders. The more sedately urban facade (left), for example, gives few clues to interior functions. It's only from the truncated entry facade that articulated volumes come tumbling out. Externally, the massing of the building relates more to the overall image of Paris than its immediate surroundings, as the park and many of the nearby apartment buildings had yet to be designed in 1991 when ground was broken. Still to come is a pedestrian bridge linking the park to the Library of France, currently under construction across the Seine.



The interior spaces are connected by a central atrium or “urban street” clad in the same French limestone as the exterior. Gehry has created a series of balconies, stairways, and framed openings, placing everyone on stage. “From the moment you enter,” says Gehry, “you see the activity of the building.” Overlooking Paris is a lobby bar adjacent to the theater, with Gehry’s sloping version of the bay window (below).

Credits

American Center

Paris, France

Architect: *Frank O. Gehry & Associates—Frank Gehry, principal-in-charge/design; Robert G. Hale, James M. Glymph, principals-in-charge/management; Edwin Chan, C. Gregory Walsh, project designers; Marc Salette, Thomas J. Hoos, project architects; Brian Yoo, David Gastrau, David Pakshong, Kevin Daly, Tina Chee, project team*

Associate Architect: *Saubot & Julien—Roger Saubot, principal-in-charge; Jean Rouit, project manager; Philippe Cieren, project architect; Nicolas Camilleri, Antoine Maroun, Pierre Tanguy, Pierre Cam, Jean-Marie Thévenot*

Consultants: *Xu Acoustique—Albert Yaying Xu (acoustics); Rioualec Scénographie—Michel Rioualec (theater)*





Fire Cracker

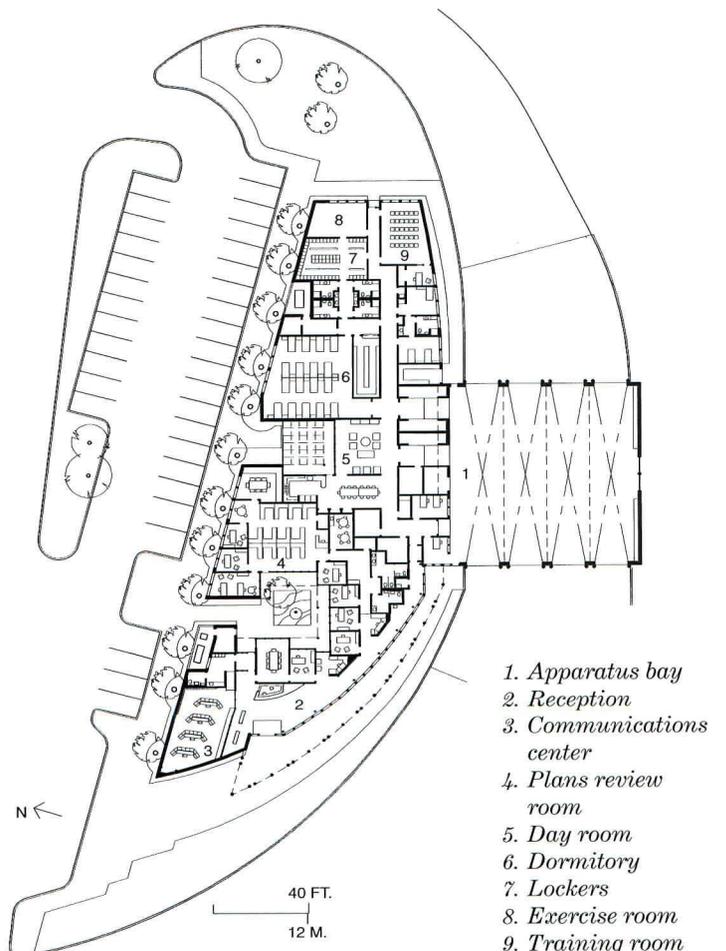
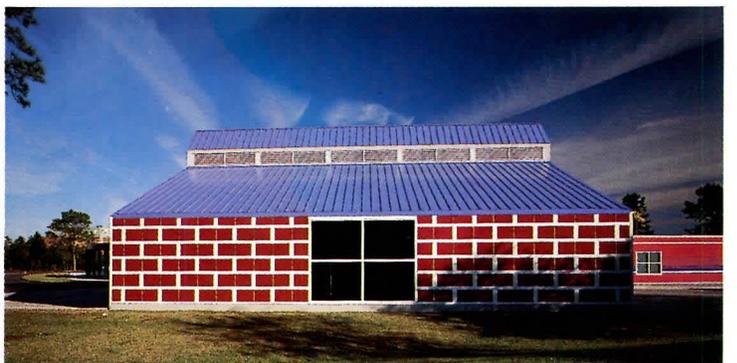
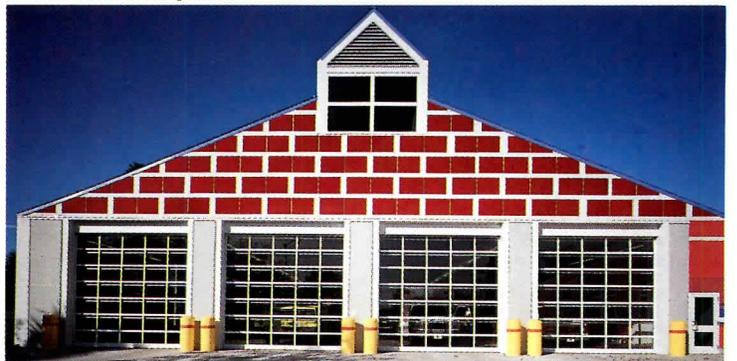
The idea behind the Reedy Creek Improvement District Emergency Services Center was to make it look like an old-fashioned fire station that a child might have drawn with a box of crayons. This resulting witty design is the first Disney-sponsored project completed by Venturi, Scott Brown and Associates. "We saw it as an opportunity to use big-scale patterns that are traditional images, but exaggerated. It fits our philosophy about signs and big graphics," explains project architect Timothy Kearney.

The apparatus shed, where fire engines are housed, is clad in what appear to be oversized red bricks. One wall is dappled with dalmatian spots. A large and leaky fire hydrant sits out front; it's actually a fountain. In this building the medium and the message thoroughly intertwine and nothing is actually what it seems. The "bricks" and the dalmatian-dappled wall are porcelain panels. Adding to the surreal effect, there's no symmetry; everything is 16 inches off center. The contractor, initially unaware of the Venturi firm's penchant, as Kearney puts it, "of not putting anything in the middle," actually evened out one facade and had to rebuild it.

The building is really a 22,500-square-foot state-of-the-art emergency services center. But Robert Venturi and Denise Scott Brown wanted to signal a turn-of-the-century fire house in a small town, and needed to do so in a one-story structure located on a five-acre site. Disney's domain in Orlando sprawls over 30,000 acres that now include the Magic Kingdom, Epcot, Disney MGM Studios, Pleasure Island, Typhoon Lagoon, and more. Officially, it is under the auspices of the Reedy Creek Improvement District, a self-governing entity established by an act of the Florida Legislature in 1967, when Walt Disney first conceived the Magic Kingdom.

The fire house occupies a prominent site on the road into the Magic Kingdom, so Venturi and Scott Brown were asked to design a building that would convey its place and use, serving as a signpost on the road—an assignment suited to the architect's typically wry transformation of the vernacular. The equipment shed is just that, a shed decorated with a batten-seam aluminum roof and huge glass overhead doors, and punctuated by yellow bollards and pink trim. The main building follows a curve, and its entrance is an arcade marked by blue and pink-painted steel columns. (The curve accommodates the wider turning radius of fire trucks.) The spots are a *double-entendre*, invoking Disney's animated film "101 Dalmatians" and the traditional fire station mascot. At Disney, scale is always manipulated and perspective forced for visual effect, and this building is no exception: some spots are the size of a dog. While the overall design is replete with tongue-in-cheek references to fire-station imagery, one longstanding symbol was omitted for insurance and safety reasons: there is no fire pole. *Beth Dunlop*

©Peter Aaron/Esto photos





This fire house had to be both a high-tech emergency services center and a roadside attraction for visitors to nearby Walt Disney World. The equipment shed is clad in porcelain panels silk-screened to look like giant bricks. A seamed metal roof is meant to evoke small-town fire houses. A flame-resistant roof membrane was used to fireproof the exterior lest a stray fire-cracker from Epcot's nightly

extravaganza damage the structure. The architectural motifs continue inside, where walls are painted with dalmatian spots and fire hydrants and valves line the corridor for sculptural effect. The building houses the central communications for all of Disney World's emergency calls, and accommodates three shifts of firefighters.

Credits
 Reedy Creek Emergency Services Headquarters
 Orlando, Florida
Owner: Reedy Creek Improvement District
Design Architect: Venturi, Scott Brown and Associates—Robert Venturi, principal-in-charge; Timothy Kearney, project architect; Steven Izenour, Eva Lew, Amy Noble, team
Associate Architect:

Schenkelshultz—J. Thomas Chandler, principal-in-charge; Dan Fields, Gary Krueger, project managers
Engineers: Braga Burton Braswell & Associates (structural); Overstreet Consultants (mechanical); Dyer, Riddle, Mills & Precourt (civil)
Consultant: Canin Associates (landscape)
General Contractor: Switt Construction Company

How Reform Is Shaping Up

With the topic of reform as the backdrop to nearly every discussion of healthcare today, architects are wondering how changes in the delivery and payment systems will affect the design of hospitals, outpatient clinics, and other medical facilities. What is clear is that change has already begun. Small independent hospitals without the resources to upgrade their facilities and adapt to a more competitive environment are either going out of business or are merging with more successful healthcare providers. As a result, large networks of community and regional facilities are emerging as the dominant forces in the industry, using their size and sophisticated management expertise to contain skyrocketing costs, reduce redundancy, and offer a broad spectrum of services from regular health examinations to specialized cancer care and sometimes even long-term elderly care.

While other building sectors were hard hit by the post-1987 recession and many remain at depressed levels of activity, healthcare has stayed strong, largely due to changes in insurance companies' reimbursement policies in the early '80s that promoted increased competition among healthcare providers. According to recent figures from the U.S. Department of Commerce, private non-residential healthcare construction spending is expected to rise at an annual rate of five percent over the next five years. Data from F.W. Dodge are less bullish, predicting a slight decrease in the contract value of healthcare construction, from \$10.2 billion in 1993 to \$10.1 this year and then an increase to \$10.4 billion in 1995. Although the immediate picture is in doubt due to the uncertainties about pending legislation, the Commerce Department expects healthcare to be the fastest growing area of private non-residential construction, increasing from \$9 billion in 1993 to \$11.3 billion in 1998. About 70 percent of this money is expected to go for adding to or modernizing existing facilities and 30 percent for new facilities.

A national survey of 249 hospital executives last summer by the Tribrook Group, a consulting firm in Westmont, Illinois, agrees, indicating that 58.6 percent had plans for expansion or renovation, with 27 percent revealing plans for new or off-site facilities. Tribrook's president David Rich says this data means that hospitals are not

Sara O. Marberry is the editor of Aesclepius, the quarterly newsletter of The National Symposium on Healthcare Design.

The MacNeal Bridgeview Medical Center (right) outside of Chicago, designed by Stone Marraccini Patterson (SMP), is a good example of the latest healthcare facilities. Just 14,500 square feet, the building is a community-based clinic that emphasizes patient education and early diagnosis. This patient-focused approach can be seen in the center's light-filled reception and education wing.

afraid of the future and are forging ahead with plans for new facilities and ways to deliver healthcare.

If passed, the Clinton Administration's national healthcare reform proposals or some other kind of universal-insurance plan will strengthen these trends by adding 40 million previously uninsured Americans to the market of paying consumers and by fostering alliances of healthcare providers. As large health maintenance organizations (HMOs), insurance companies, and regional networks of hospitals compete for these new customers and fight to retain their existing ones, they will use architectural design as an important marketing tool, says Leland Kaiser, a healthcare consultant and associate professor in health administration at the University of Colorado in Denver. Calling the 1990s the "decade of design" in healthcare, Kaiser says that patients who have a choice between more than one provider will select the most attractive, easy-to-use facilities.

The shape of things to come

In addition to debating whether healthcare coverage should be universal for all Americans, Congress and the President will have to decide exactly what kinds of services to cover. These decisions will directly affect the kinds of facilities to be built. For example, depending on the shape of the final bill, healthcare providers may find themselves building new psychiatric, dental, or other specialty-care facilities.

"Reform will happen with or without the Clinton plan," asserts Nels Berg, senior vice president of construction and facilities for Mt. Sinai Medical Center in New York. "The government may affect the rate of growth, but what is driving it are the large business groups," says Berg, referring to the corporations who buy vast sums of healthcare for their employees. "As a result, hospitals are affiliating with one another now to make sure that they survive."

Proposed cuts in Medicare reimbursements will affect hospitals financially, particularly public and teaching hospitals in inner cities, which will have to provide emergency and prenatal care for illegal aliens not covered under the Clinton plan. And, as has been the trend in the past 10 years, hospitals will be pressured to keep patients out, rather than in. This shift will redirect their focus toward primary care and keeping people healthy rather than only treating them once they get



© Steve Hall/Hedrich-Blessing

Although no one knows exactly what shape healthcare reform will take, Sara Marberry examines possible ramifications on the planning and design of healthcare facilities.

sick. The good news for hospitals is that universal coverage would allow nearly everyone to pay for a broad range of hospital services. "Reform will result in the consolidation of organizations, not physical entities," says Mike Hemmes, editor of *Health Facility Management*. In other words, as the big networks get bigger, the number of providers may go down but the number of facilities may not. "Urban-rural linkages of hospitals will require more building of small satellite facilities," explains Hemmes.

Facilities get new roles

These satellite facilities will serve a different role than the small hospitals of the past; instead of being general-purpose providers, they will serve as primary-care institutions rooted in their surrounding communities. Emphasizing health education, preventive care, and routine medical services, these satellite units will direct patients in need of more specialized treatment to their affiliated regional hospitals. By differentiating the roles of community and regional facilities, large healthcare providers will be able to eliminate some duplication of expensive medical equipment.

"Networks will oversee the development of regional primary care, located in new ambulatory-care centers, outpatient surgery centers, and medical office buildings," explains futurist Russ Coile, president of the Health Forecasting Group in Santa Clarita, California, in *New Paradigm in Healthcare: Selected Presentations from the First Five Symposia on Healthcare Design*, to be published by Van Nostrand Reinhold in 1995. Acute care, on the other hand, will be provided at a network's central or "hub" hospital. One-stop shopping for services will be provided through this hub hospital and surrounding satellite facilities for primary care, rehabilitation, cancer, sub-acute care, obstetrics, long-term care, AIDS, fitness, day care, and so forth.

The formation of hub hospitals, says Coile, is forcing the closing of some smaller hospitals and causing a "rationalization of redundancy" in some services. Excess bed space in hospitals can be reallocated to long-term skilled-nursing care, rehabilitation units, new ambulatory-care programs, and hospital-based physicians' offices.

Another way networks contain costs is by emphasizing outpatient care at all their facilities. As they reduce the number of beds in

expensive acute-care wings, hospitals are busy building outpatient pavilions that often include spacious, light-filled lobbies and act as friendly new faces to buildings that had in the past been dour and intimidating. Designed with the patient in mind, these new pavilions use design to mark the hospital's front door and direct visitors from reception area to admitting, examination, and treatment areas.

In the past, hospitals often were designed with only the needs of doctors, nurses, and support staff in mind. The results were hospitals laid out in a maze of departments and corridors, with visitors lost unless they asked for help at every corner. Not surprisingly, hospitals that are easy to navigate often require smaller staffs.

The environment as healer

Attractive public spaces and patient rooms are not just good marketing tools. As doctors learn more about the connection between patients' minds and bodies, they are realizing that a pleasant sun-filled environment can contribute to the healing process. "There is increasing recognition of the potential therapeutic value of the environment in which care is delivered," says Rob Matthew, a design associate at Kaplan McLaughlin Diaz Architects.

Although many hospitals today cannot fill their beds, they still may not be able to reduce the amount of square footage devoted to inpatient care. Because hospital beds are being used only for the most acute-care patients, rooms have to be larger to handle all the associated medical equipment. At the same time, hospitals are responding to patients' demand for more privacy by relying more on single-bed rooms. This trend is already evident at Kaiser Permanente/Northern California, which is planning for 80 percent private and 20 percent semi-private rooms in its three new hospitals.

The healthcare industry is complex and cannot be summarized in a handful of examples. Nonetheless, the four projects shown on the following pages highlight some of the most important trends in the field. From a large urban hospital transforming itself into a more user-friendly institution to a small satellite facility in rural Louisiana, from a new elderly care wing of a Canadian hospital to a new cancer center in Connecticut, these projects shed useful light on the future of healthcare. *Sara O. Marberry*



Growing competition in the healthcare field led the Sutter Health system and a local physicians group to develop the Sutter Santa Cruz Maternity & Surgery Center in California (left). Designed by Kaplan McLaughlin Diaz, the small hospital (50,000 square feet) marks a new generation of specialty-care satellite facilities that large healthcare providers are in the process of building.

Outpatient Services Addition

*St. Luke's Medical Center
Milwaukee, Wisconsin
Bobrow/Thomas and Associates*

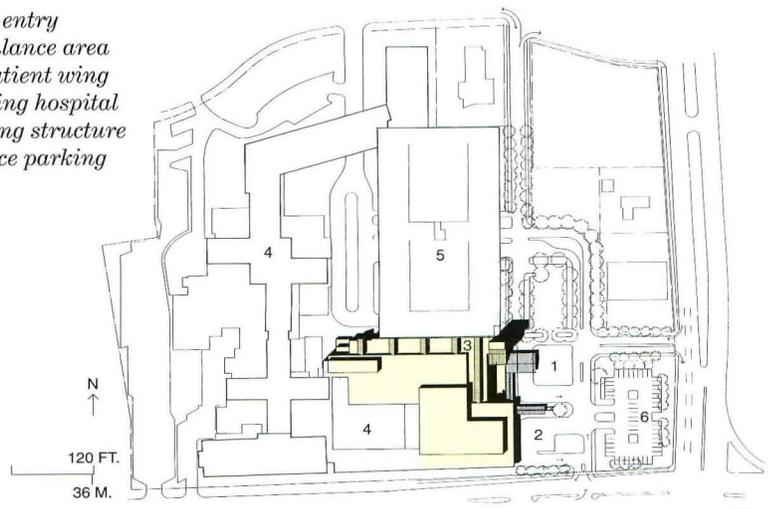
In keeping with the general trend toward healthcare reform, St. Luke's Medical Center in Milwaukee realized several years ago it had to build a more community-oriented, public-friendly identity. At the same time, efforts to contain healthcare costs were forcing it to place greater emphasis on outpatient services and to become more market-sensitive. Over the years,

the hospital had grown in fits and starts—adding new departments here and expanded facilities there. After several decades of such piecemeal growth, the hospital campus was a maze of buildings offering few clues to getting around. In fact, when architect Michael Bobrow would ask taxi drivers to take him to the hospital, they could drop him off at any one of six different

© Grant Mudford photos



1. Main entry
2. Ambulance area
3. Outpatient wing
4. Existing hospital
5. Parking structure
6. Surface parking



entrances. Hired to develop a masterplan for the hospital campus and then commissioned to design the new outpatient and emergency services wing, Bobrow's firm, Bobrow/Thomas and Associates (BTA), brought order to the medical center by giving it a new public face and a clearly identified circulation spine. Creating an inviting, non-threatening character for St.

Luke's was a driving force behind BTA's masterplan and its architectural design for the new outpatient wing. A 165,000-square-foot L-shaped building, the addition wraps around the existing hospital and connects to an existing parking structure. With a seven-story, glass-and-brick elevator tower that serves as a beacon at night, a large steel canopy, and a skylit lobby that

faces a major intersection, the new building has established a higher public profile for St. Luke's. "We used the building to establish St. Luke's as the center of its community," explains Bobrow. Helping the hospital to reinvent itself as a patient-focused institution, BTA used daylight as an important tool in creating attractive spaces. The main lobby and the two-story-

high Galleria that forms the spine for the outpatient wing use combinations of large windows, clerestories, light wells, light monitors, and skylights to bring as much sunlight indoors as possible. At the same time, a variety of courtyards and landscaped outdoor spaces break with the traditional model of the hospital as a hermetically sealed, inwardly directed environment. Even



To give the hospital a higher public profile, the architects moved the main entrance (opposite) from a side street to a major intersection. The design of the new elevator tower (opposite and above left) refers to a clocktower at a 1930s school across the intersection. The brick specified for the hospital addition recalls that used on many older buildings in Milwaukee and is richer in tone than that used on other buildings at St. Luke's. A sunken courtyard (above right) brings light into the below-grade portions of the Vince Lombardi Cancer Clinic.

the cancer center, which is in part located below grade due to shielding requirements, receives a remarkable amount of sunlight thanks to a skillfully inserted sunken courtyard. Today's reform-minded healthcare world stresses easy-to-navigate, attractive circulation spaces. The skylit galleria that BTA designed for St. Luke's is a good example of this trend, providing a clear east-

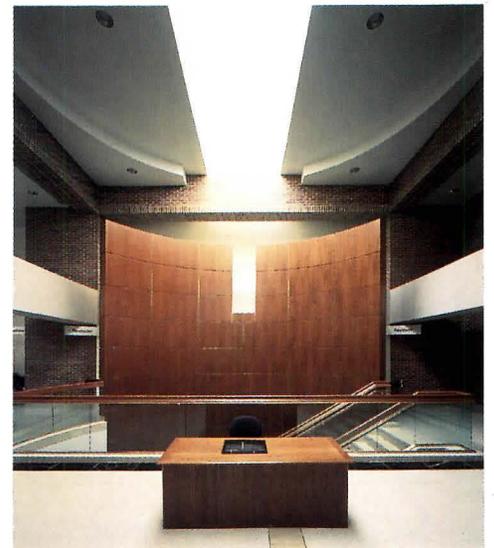
west path from the front lobby to the various outpatient departments included in the new wing. Each of these departments (testing, radiology, and diagnostic and treatment) has its own reception and waiting areas just off the galleria and a clearly marked path leading from examination rooms to departments in the old hospital building. By placing generic exam rooms

between each department, the architects provided for flexibility of use; if one department is busier than another on a particular day, it can borrow exam rooms from its neighboring department. Future growth can be accommodated simply by extending the galleria farther west and linking new departments to it. While the galleria occupies the north leg of the new

building's "L," a new emergency department—including seven major treatment rooms and 15 minor treatment rooms—resides in the east leg. Separate wings for emergency and outpatient services ensures that one doesn't interfere with the other. The next phase in the hospital's masterplan is a 16-story specialty-care tower located north of the galleria. *Clifford A. Pearson*



The long expanse of the two-story-high galleria is broken up by generous skylights (above and opposite left). The skylights also help define the departments that feed off the galleria, giving the circulation spine the sense of being a series of rooms instead of just one long corridor. The top floor, where same-day surgery facilities are located, has its own reception area (above). By introducing sunlight from above and from the side, the architects made the reception area on the main floor (opposite right) an enticing space. A curving cherry wood wall serves as a visual landmark to help orient visitors (right).



Credits

*Outpatient Services Addition
St. Luke's Medical Center
Milwaukee, Wisconsin*

Owner: *St. Luke's Medical
Center*

Architect: *Bobrow/Thomas and
Associates—Michael Bobrow,
design principal; Julia Thomas,
planning principal; Wayne
Fishback, project management
principal; Anthony Roesch, pro-*

*gramming and medical plan-
ning principal; John Sealander,
project architect; Malcolm
Brown, senior designer; Brett
Meyer, job captain; Joseph
Rothman, director of construc-
tion administration; Carol
Fishback, director of interior
design; Ervin Schloemer, site
representative; Arturo Santos,
Ezekial Triana, Lillian Chang,
Kevin Adams, Rey Turla, Perci-*

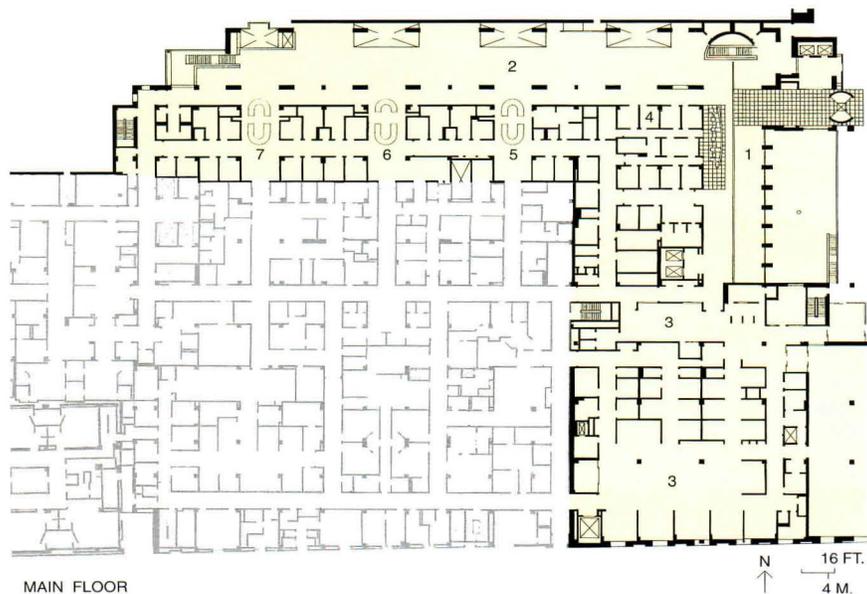
*val Alger, Frank Yu, K.C.
Huang, Hillary Jaye, Eduardo
Lopez, Ron Miranda, Luis
Noboa, Aida Stavugaard, Xavier
Garcia, project team*

Engineers: *Schmidt, Garden &
Erikson (mechanical/electrical
and structural); Graef, Anhalt,
Schloemer (civil)*

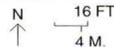
Consultants: *The Jacob Braun
Company (landscape architec-
ture); Saul Goldin (lighting);*

*Devenish Associates (interior
design); Mitchell International
(medical equipment planning);
Rolf Jensen & Associates (build-
ing code consultants); Pro-Spec
Associates (specifications);
Finish Hardware Specifiers
(finish hardware)*

Construction Manager: *Oscar
J. Boldt Construction*



MAIN FLOOR



- 1. Lobby
- 2. Galleria
- 3. Emergency
- 4. Admitting
- 5. Test center
- 6. Radiology
- 7. Diagnostic and treatment

MRI Center

*Alexandria, Louisiana
Douglas Ashe and Associates and
Lewis Brown & Associates*

Demand by both the public and the medical establishment for advanced medical technology is forcing some healthcare providers in rural areas to form joint ventures with competitors to build expensive new facilities. Thus the two largest hospitals in central Louisiana pooled resources to build this Magnetic Resonance Imaging Center in Alexandria. By siting the 4,770-

square-foot outpatient facility along a major street and giving it a formal linear plan, the architects created a building with a strong public identity. But by using pitched roofs and an intimate scale, they made it fit into a mostly residential neighborhood, explains project architect Douglas Ashe. To limit the amount of expensive shielding needed, the procedure room is



© Alan Karchmer photos

Located halfway between the two hospitals that own it, the MRI Center is a steel-frame, concrete-slab structure that cost \$800,000 to build. Because steel interferes with magnetic resonance imaging, concrete block and wood-laminate arches were used for walls and roof in the procedure room. A long canopy leads to the main entry of the

building (above), while a driveway on the southeast side of the building (not shown) provides access for ambulances. To create a calming, patient-friendly environment, the architects brought light and views into interiors with clerestories and windows that look onto a landscaped courtyard (opposite bottom left and right).

located at one end of the building. The procedure room was designed so it can share dressing and preparation rooms with a second procedure room in the future. By raising the roof above the circulation spine and the main public areas, the architects were able to bring in sunlight from clerestory windows and create a soothing environment. The main public areas also wrap

around a private courtyard on the north side of the building, providing a strong visual connection between indoors and out. C.A.P.

Credits

M.R.I. Center

Alexandria, Louisiana

Owners: *Rapides Regional Medical Center and St. Frances Cabrini Hospital*

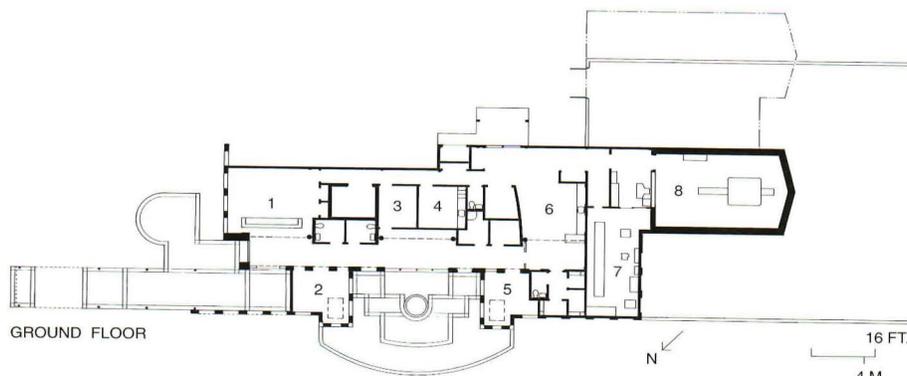
Architects: *Douglas Ashe and Associates and Lewis Brown & Associates—Douglas Ashe, project designer; Lewis Brown, architect for contract documents; Kevin Broussard, Rodney*

LeBlanc, project team

Engineers: *LaBauve and Co. (structural); Purtle Associates (mechanical); E.E. Consultants (electrical); Pan American (site survey); Capozzoli Associates (geo-technical)*

Consultants: *Patrick Moore Landscape Architects (landscape design); Medical Systems (MRI)*

General Contractor: *Skip Converse, Inc.*



1. Reception
2. Waiting
3. Office
4. Lounge
5. Conference
6. Preparation
7. Computer
8. Procedure

Extended-Care Facility

*St. Thomas-Elgin General Hospital,
St. Thomas, Ontario
NORR Partnership, Limited*

© Stevan Evans photos

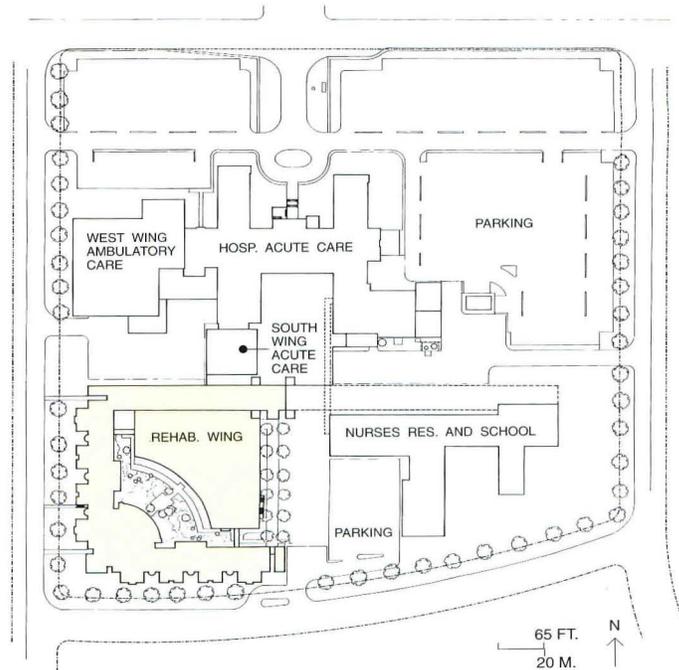


This 120-bed long-term-care addition follows several trends that Sara Marberry's (page 98) essay predicts will position traditional hospitals for the future. The new facility is the first of several pavilions planned for specialized treatment, for which basic acute care will only be one component. The architects also envision the entire complex as welcoming and an easy place for

patients to orient themselves. A future building for outpatients will open to the atrium walkway through storefront entrances for each department. Despite construction cost constraints, the architects brought a maximum of psychologically healing sunlight indoors through generously glazed single-loaded corridors and many sunrooms. "The goal here is to promote self-reliance,"



To ease community concern about the new facility's intrusion on blocks of surrounding bungalows, the architects held the height of the concrete-frame structure to two stories and segmented the facade facing the street into small-scale units. Each projecting and recessed unit contains two bedrooms centered on a sun room used for relaxation and greeting family and guests. This makes for a welcome change from the conventional large central common room.



says NORR partner Skip Schwartz, pointing to hands-free elevators and flower beds the more agile patients plant themselves. It is also to encourage a return to the community, although the average patient age is over 85. One trend that Marberry reported was not followed in this \$20-million facility. Most patient rooms are not singles, but doubles. "Private rooms are

in demand in cities," notes Schwartz, "but in rural areas like this, multiple-bed rooms are most popular." *Charles K. Hoyt*

Credits

*St. Thomas-Elgin Hospital
St. Thomas, Ontario*

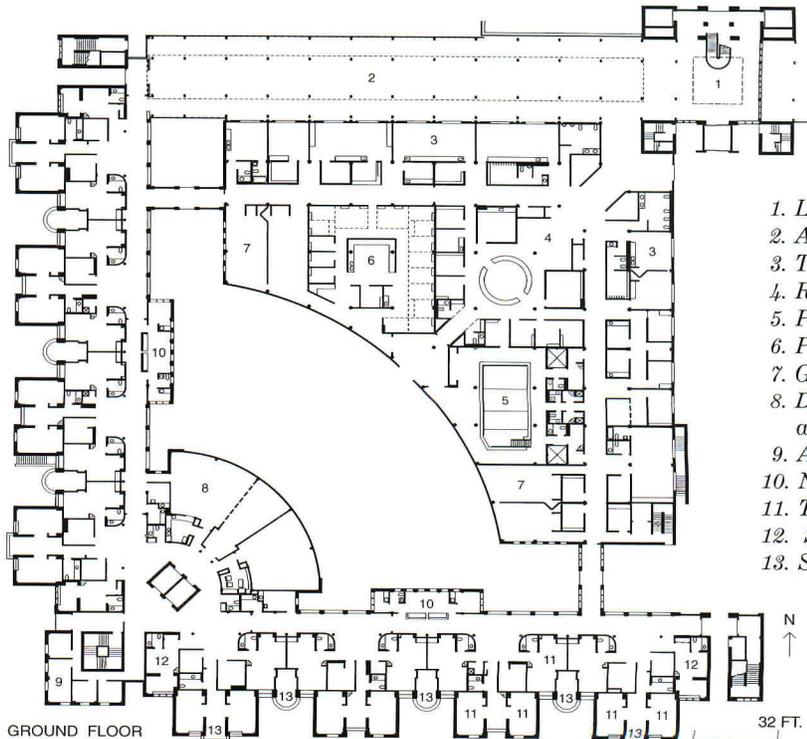
Owners: *The Board of
Governors, St. Thomas-Elgin
and Government of Ontario*

Architects: *NORR Partnership,
Limited—Skip Schwartz,
principal-in-charge; Patsy
Poulin, project manager;
Hugh Westren, contract
administration; Forrest*

*Grieson, chief specifier; Hugh
Blatsutto, structural engineer*

Engineers: *Vanderwesten &
Rutherford, Limited, mechanical
and electrical*

General Contractor: *Ellis-Don
Company, Limited*



- 1. Lobby
- 2. Atrium walkway
- 3. Therapy
- 4. Reception
- 5. Pool
- 6. Physiotherapy
- 7. Gym
- 8. Dining and activities
- 9. Administration
- 10. Nurse
- 11. Two-bedroom
- 12. Single-bedroom
- 13. Sun room

GROUND FLOOR

N
↑
32 FT.
10 M.

Cancer Center

*Saint Francis Hospital and Medical Center
Hartford, Connecticut
TRO/The Ritchie Organization, Architect*

A good example of the trend toward creating separate facilities for high-profile departments, this 31,200-square-foot Cancer Center was designed as a free-standing building with its own identity. But as the first phase of an ongoing \$132-million expansion program that will consolidate ambulatory services and replace outmoded inpatient services at this large hospital

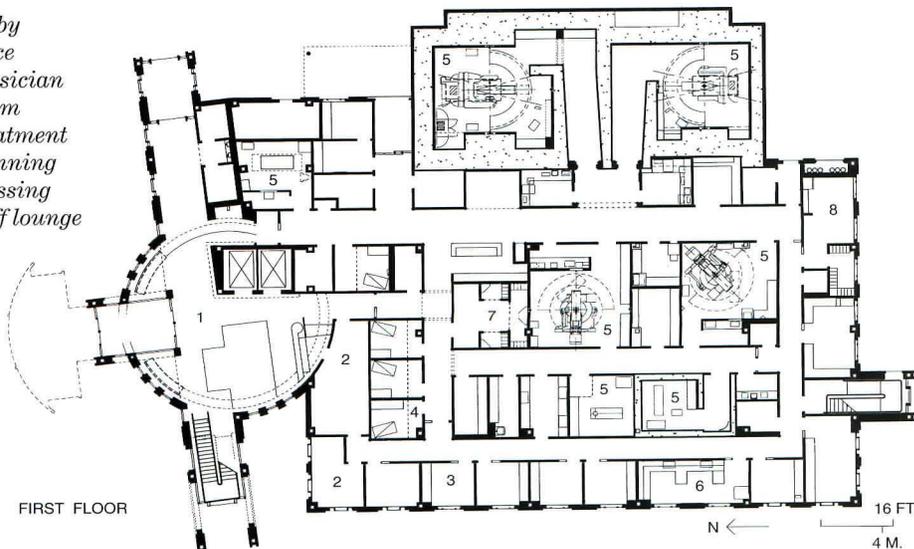
campus, the Cancer Center had eventually to link up with the existing hospital, an adjacent medical office building, and a patient-care tower now under construction. The first new building on a forecourt that brings order to the campus, the cancer unit helps create a new front door to the medical complex. Like most new healthcare facilities, this one primarily services

© Warren Jagger photos



Fenestration of the Cancer Center echoes that of the medical office building behind it (above), while its cable-suspended glass canopy helps give it identity. The strong axis defined by the two-story circulation spine ends with a stair tower on the west (opposite top left) and will eventually connect with the office building and the existing hospital on the east. "We didn't want to create the look of a hotel or a residential building," says Morgan of the Cancer Center's interiors (opposite). "What we wanted to do was design spaces with lots of sunlight that would be relaxing and uplifting."

1. Lobby
2. Office
3. Physician
4. Exam
5. Treatment
6. Planning
7. Dressing
8. Staff lounge



outpatients and realizes a patient-focused approach with its large circular lobby and its clearly defined circulation, says Wendell Morgan, TRO president. Although Modern and clad in precast concrete, the Cancer Center picks up the proportions and character of the elevations of its closest neighbor—a handsome limestone medical office building completed in 1941. Rejecting the

sterile clinical look of old cancer wards, the hospital felt that patients facing life-threatening illnesses would appreciate generously proportioned public spaces with large windows and plenty of sunlight. While TRO met all of the shielding requirements of the latest cancer technology, it didn't lose sight of the patient's need for a soothing environment. *C.A.P.*

Credits

*Cancer Center
Hartford, Connecticut*

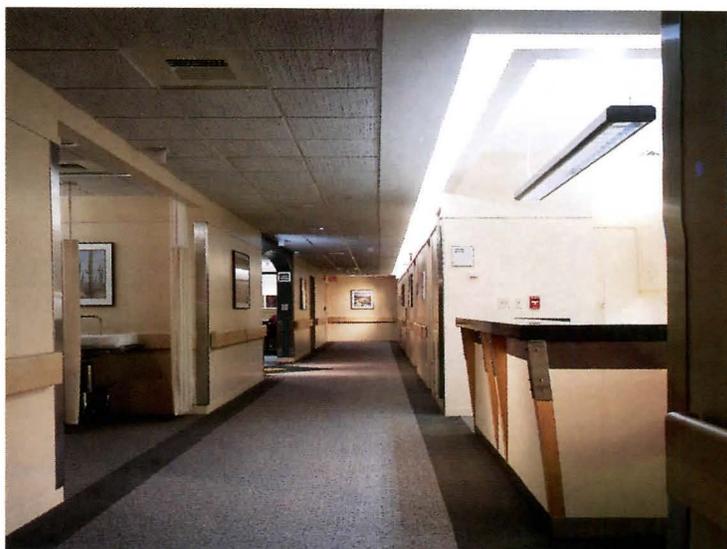
Owner: *Saint Francis Hospital
and Medical Center*

Architect: *TRO/The Ritchie
Organization—Wendell R.
Morgan, Jr., project executive;
Robert W. Hoye, Erich Griebbling,
principals-in-charge; Robert
Burkhart, Steve Fiore, project
managers; Carlos Melendez,*

*Kregg Elsass, Frank Botti,
Russell Fuller, David Sweeney,
project designers; M. Allison
Miele, interior designer; Zack
Domike, Luis Riobueno, Visda
Saeyan, Anthony Iacovino,
Christian Mungenast, team*

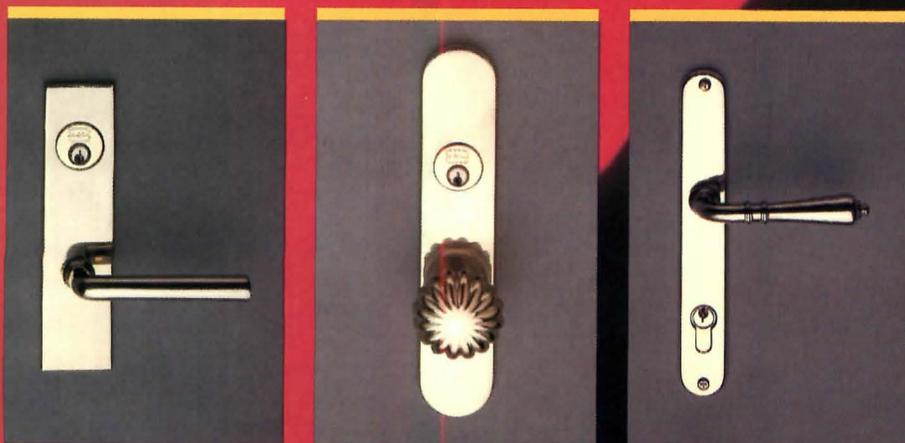
Engineer: *Hallisey and Hebert
(structural)*

Construction Manager:
Gilbane Building Company



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LUTRON
Coopersburg, PA 18036-1299

With 425,00 square feet and floors over three acres in area, the Federal Reserve Bank's new operations center in East Rutherford, New Jersey, is big. It contains the latest technology for security and operations, including the bank's first fully automated cash-handling system. Huge tractor-trailer trucks enter and leave constantly through a portal in the front facade (left side of center photo, right). They haul heavy bundled loads. But, far from routine freight, these loads are the lifeblood of our economy and the stuff of many people's hopes, aspirations, and dreams.

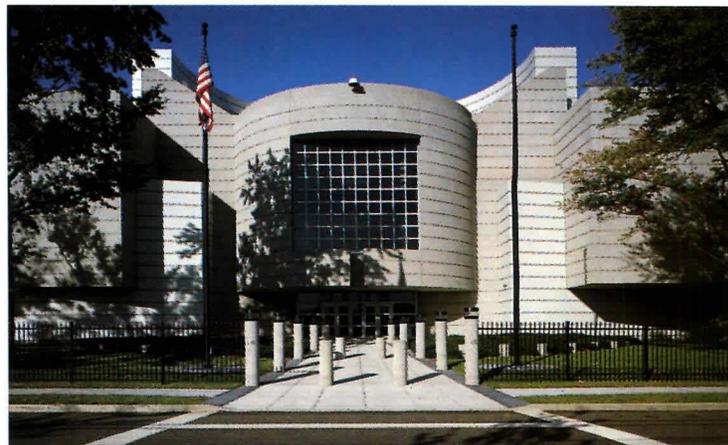
Trucks carrying checks use a ramp (bottom photo) to load and unload on the second floor. Other trucks enter and leave an open space beyond the ramps that HLW principal Theodore Hammer refers to as the "cash courtyard," loading and unloading inside sealed docks. "That ramp was one of our better inspirations," says Hammer. The Federal Reserve would have preferred check and cash facilities on one floor for ease of access, but the site was not large enough. Notes center manager John Eighmy: "With the ramp and a two-story cash vault (plan following page) where money can be transferred at either level, the architects accomplished the same result." Access is possible at both floors.

The operations center's purpose, in part, is to reconcile amounts on checks brought in from various sources, weeding out errors and returns, and ship the checks back out again. Speed is of the essence. This facility runs round-the-clock and the plan of the basic operations areas is virtually a diagram of work flow. In the case of cash, this means high-speed sorting, storage of reserves, and—read it and weep—destruction of bills that are tired and old. All this high-volume, fast-paced turnaround means quick access to sources of fast transportation, which is the reason this facility is located near the intersection of major highways and, for checks, an airport.

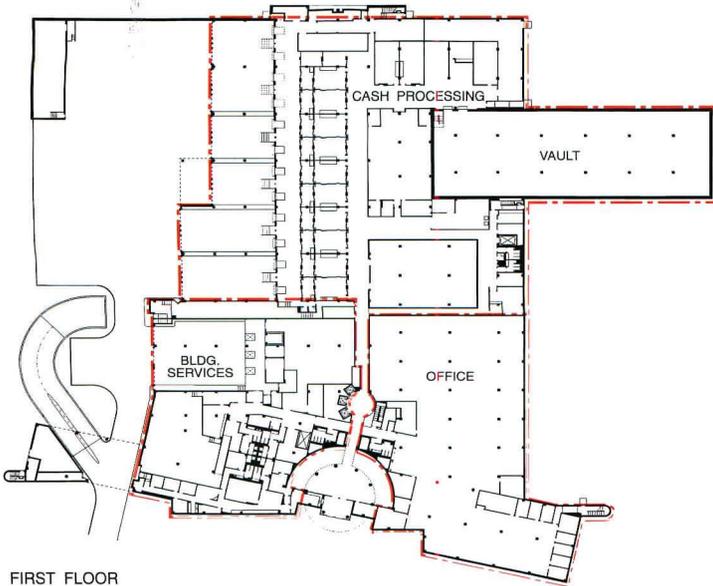
Times have changed in the 80 or so years since the New York City Federal Reserve headquarters was built to resemble an Italian palace: safe and secure—above reproach and, to the sidewalk observer, above processing checks and cash. Inside, armed guards used to escort each cart laden with cash and checks as it went through hand-sorting and record-keeping. By contrast, in the new center, cash is handled by computer-guided robotic carts. The center also houses a data-processing contingency center designed to assume all automated record keeping and to guide transactions in the event of system failure in other locations. This role means lots of power backup including a complete diesel-generator plant.

"I had to use every visual device I know," says Hammer about his role in the building's unusual appearance. The design goal was to fit what could have been a massive windowless box into primarily a small-scale residential area. "It had to be a good neighbor, if not a welcoming one," he explains. It also had to fit the Federal Reserve's desire to express solid character and security. The design response started with the angled planes of the front facade to the south, which segment its bulk while still tying it together into one composition. This apparent reduction of scale is enhanced by cladding the planes in two materials: metal and precast-concrete panels. The concrete, at a distance, appears convincingly like granite. The rest of the building is more straightforward—especially to the east facing a highway. To the west lie single-family houses. Here the building steps back to retain a small park left over from a light-manufacturing facility once on the site. "We hardly touched a tree," Hammer says proudly.

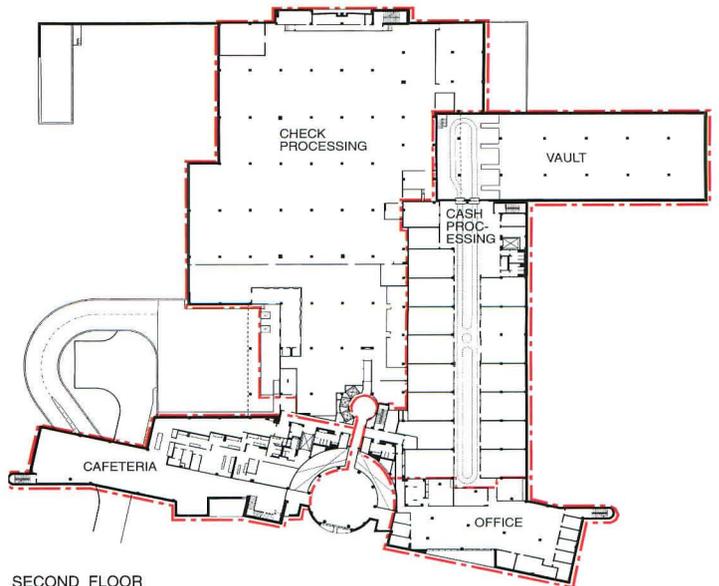
Charles K. Hoyt



The architects made the most of those windows that don't reveal inside operations. Their large size brings daylight deep into the building through the lobby (top) and cafeteria.



FIRST FLOOR



SECOND FLOOR