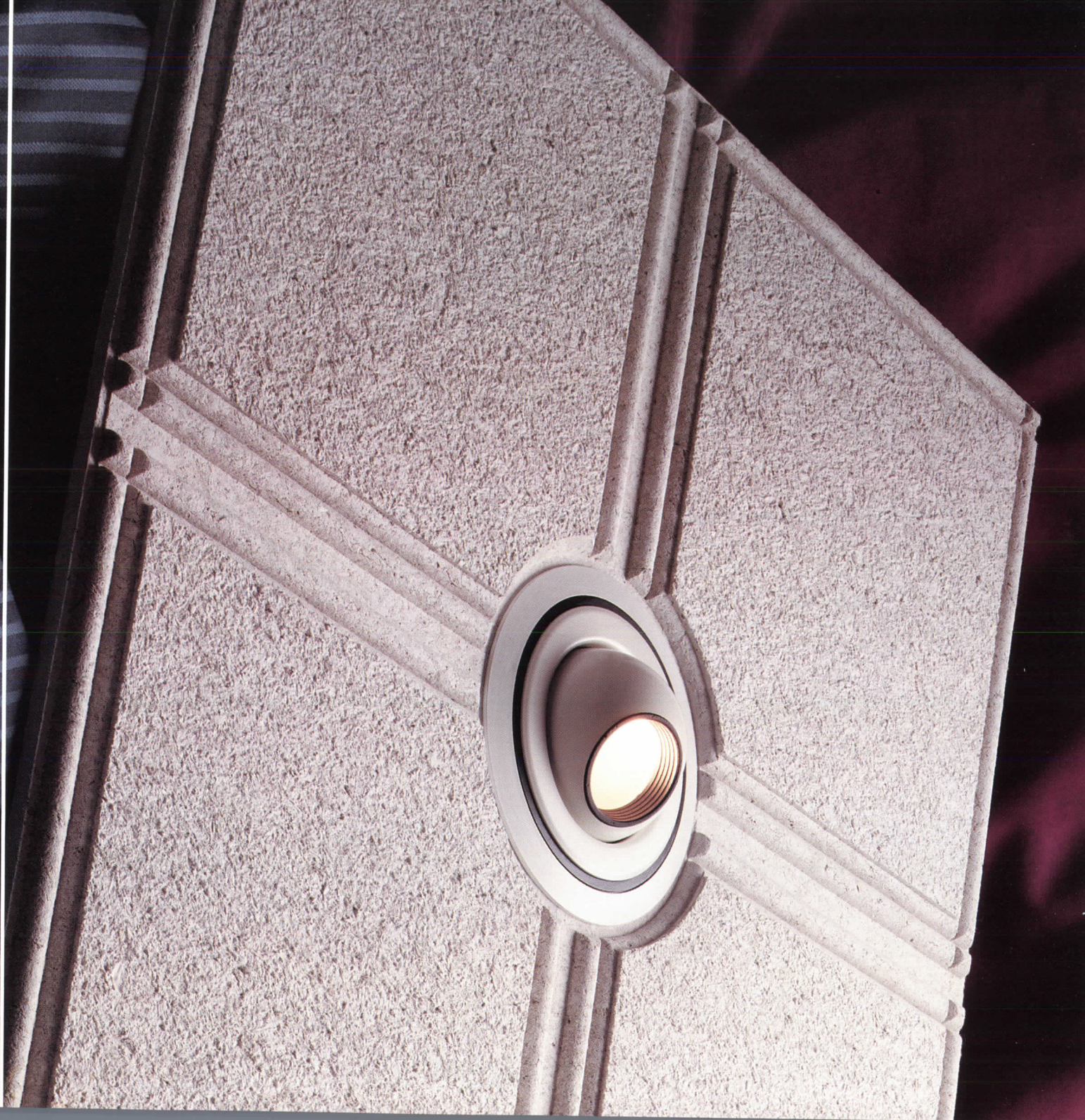




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### On the cover of *Time*

Aaron Betsky's piece on the Neutra centennial celebration [RECORD, July 1992, page 22] is in error when noting Wright, Johnson, and Neutra as the only members of the profession to be pictured on the cover of *Time* magazine. Edward Durell Stone made it (March 31, 1958), and something tells me others may have been there too. [Editor's note: See Editorial, page 9.] Ernest E. Jacks Professor Emeritus School of Architecture University of Arkansas Fayetteville, Arkansas

### Respect for Neutra

Recently some architectural illiterate wrote a post-mortem on Richard Neutra [RECORD, July 1992, page 22].

Neutra was/is not one of my major heroes, but rather an architect I greatly respect and have learned a few things from. If only his writing was as lucid as his buildings! In person he seemed no warmer than the average architect, but he was a true gentleman and for his time and milieu more of a *mensch* than most . . .

Except for Schindler, Neutra, Lloyd Wright, and FLW's forays, whose architecture from the '20s through the '40s is nowadays worth the detour in L.A.? Aside from a few relatively minor talents such as Weber and Soriano, everyone else was doing Caliberian or pastiche moderne kitsch for almost 30 years. Go look. Perhaps you'll find something worth major retrospective coverage; splendidly planned houses of coherent form, siting, and planting as organic as the master's, a concern for the inhabitants, and detailing that was without question closer

to any god than was Mies's. Plus Neutra has something to say and show about urban planning, the design of the extended environment. In his own way he was an organic architect and a romantic; severity was only a protective mask.

Robert M. Tieger, Architect  
New York City

*Author Aaron Betsky replies: If Mr. Tieger had read my article with some care, he might have noted that I do not doubt either Neutra's talent or his contributions to the architectural development of Southern California. I was merely pointing out that Neutra added another, very specific ability to those he possessed as a designer: he was a master propagandist for Modernism. He produced some great masterpieces of "organic design," as Mr. Tieger calls it, and I indeed did laud him for his social consciousness. I would only add that my rather extensive study of him has made me believe that he valued the appearance of modernity and transparency over structural expression—a bias he shared with such great Modernists as Mies van der Rohe. What is more important, Neutra helped to bring the notion of modern design and the values for which it stood to a mass audience. Unless Mr. Tieger believes that architecture should exist in an ivory tower and be the prerogative of the very rich and very cultivated, I cannot see how such an achievement belittles his work. I may be "architecturally illiterate," but I have no wish for others to be so . . .*

Continued on page 125

### October 1-January 31

"Visions/Revisions 1992," an exhibition of unbuilt and theoretical work by Washington architects at the National Building Museum, Washington, D. C. 202/667-1798.

### October 17-January 8

"Sketches and Schemes: The Designs of Harry Weese," a Chicago Architecture Foundation exhibition celebrating the life and work of the Chicago-based architect. For information, call the Chicago Architecture Foundation, 312/922-3432, ext. 127.

### October 23

A day-long conference titled "The Dwelling, the City, the Region: Propositions for Urban Housing Policy and Design," sponsored by the School of Architecture at the New Jersey Institute of Technology. Contact Renada Woodford, 201/596-3080.

### October 24-December 17

An exhibition of work by architect Aldo Rossi, including recent drawings and hand-colored prints depicting the architect's familiar images of domestic architecture. Contact Josie Browne or Molly Sullivan at the Max Protech Gallery in New York City: 212/966-5454.

### November 4-8

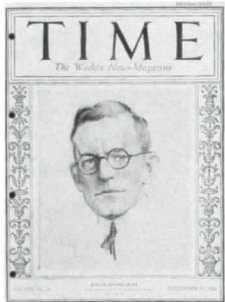
Society of American Registered Architects' 36th annual convention, Stouffer Madison Hotel, Seattle. 708/932-4622.

### November 8-11

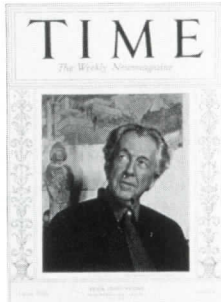
"The Public Building: Form and Influence," a seminar in Jerusalem. Participants include Henry Cobb, Charles Correa, Romaldo Giurgola, Herman Hertzberger, Rafael Moneo, Richard Rogers, Moshe Safdie, Stanford Anderson and Joseph Rykwert. For further information, contact Arthur Spector, 16 Ibn Gvirol Street, Jerusalem, Israel. Tel: 972-2-611-576 or fax: 972-2-610-028.

# ARCHITECTURAL RECORD Editorial

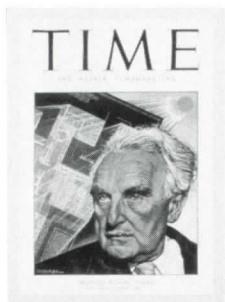
## A Face in *Time*, or What Price Publicity?



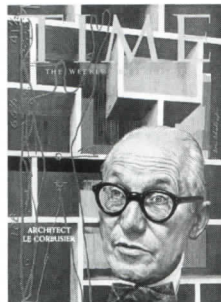
Cram (1926)



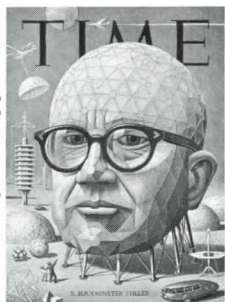
Wright (1938)



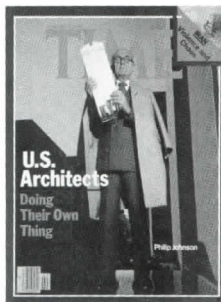
Neutra (1949)



Le Corbusier (1961)



Fuller (1964)



Johnson (1979)

A curious flurry of letters to the editor followed RECORD's July piece about Richard Neutra's centennial, a piece that more than anything dwelt on Neutra's spectacular flair for publicity and the creative use he made of this flair to hype the cause of Modernism. A common thread to all the letters was doubt that Neutra was in fact one of only three architects ever to appear on the cover of *Time* magazine. A bit of research, supported by a timely tip from the AIA's Virgil Carter, revealed the astonishing fact that no fewer than fourteen (14) architects have that distinction. Here's the list, with year of publication:

- |                             |                              |
|-----------------------------|------------------------------|
| Ralph Adams Cram (1926)     | Le Corbusier (1961)          |
| William Adams Delano (1930) | William Pereira (1963)       |
| Frank Lloyd Wright (1938)   | Minoru Yamasaki (1963)       |
| Richard Neutra (1949)       | Edmund Bacon (1964)          |
| Wallace Harrison (1952)     | R. Buckminster Fuller (1964) |
| Eero Saarinen (1956)        | Nathaniel Owings (1968)      |
| Edward D. Stone (1958)      | Philip Johnson (1979)        |

What does this diverse group have in common, what did they do to make the cover, and what good did it do them? For one thing, all 14 had great vision, all were successful in a material sense, and all had made a concrete contribution to the visible world around us, except possibly Fuller, whose enormous gift to today's global dialog is only now being felt and appreciated. On the other hand, not all had the approval of their peers, and Stone, Pereira and, to some extent Yamasaki were often treated roughly in the professional press. For the rest, Delano's name is closely tied to the last hurrah of the great house; Cram's with the heyday of neo-Gothic collegiate architecture; Wright's with completion of two masterpieces, Johnson Wax Building and Fallingwater; Harrison's with heading up the design teams at the U. N. and Rockefeller Center; Saarinen's for his great inventiveness of form; Yamasaki's and Stone's for daring to break the mold of Modernism while seeming to cater to popular tastes; Neutra's for expressing through architecture a new, outdoorsy, California way of life; Le Corbusier's with a wrapup of a revolutionary career (he died four years later), with the Harvard Visual Arts Center still to come and Chandigarh incomplete; Pereira's for his development plan for Irvine, California; Owings's and Bacon's for thinking at a big, urban scale; and, latest but not least, Johnson's for making the architect a household word.

It's hard to say how valuable such a spectacular form of publicity is to the architect. Those who measure publicity by the weight of media clippings make a strong case for the showbiz axiom that publicity is vital to get work, so long as they spell your name right. On the other hand, there are many firms in this country and overseas who do very well, thank you, with little public exposure, an exposure which they neither seek nor in some cases particularly welcome. There's much to be said for letting excellence speak on its own and not to urge it along artificially (a classic case is the current move to award the AIA Gold Medal every year, whether there is a suitable candidate or not).

The real answer rests, perhaps, as it so often does, with the Bard, who says, in *Twelfth Night*: "Some are born great, some achieve greatness and some have greatness thrust upon 'em." *Stephen A. Kliment*

# THE FIRST THING WE DID TO HELP REMODEL THIS OLD HUNTING LODGE WAS

This large, beautiful room is the centerpiece of what was once an exclusive hunting lodge. Built in 1930, the property was converted to a single family residence in the early Fifties. But 40 years of paint, plasterboard and paneling had all but hidden its original elegance.

So, when new owners began renovating it in 1991, they asked architect Katherine Cartrett of Mulfinger, Susanka and Mahady to recapture the original rustic charm of the place.

They asked her to use only the finest high performance building products available. Given those terms, it's not surprising that, when the subject of windows and doors came up, the owners asked to talk with Marvin.

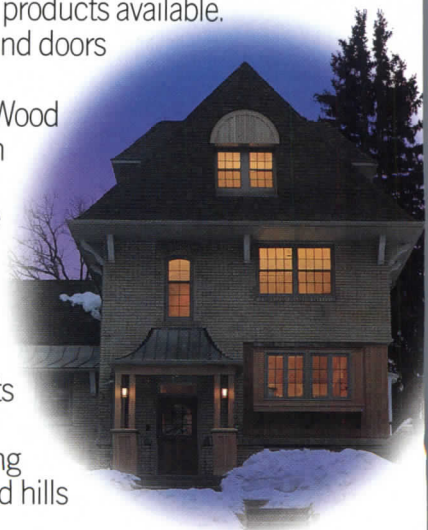
The first step was an on-site meeting. Nick Smaby from Choice Wood Custom Residential Remodelers was there. So were representatives from the Marvin dealer and distributor.

One by one, they inspected every opening in the home. Then the entire group sat down and planned the job out.

Sizes were discussed. So were shapes, styles, energy efficiency, maintenance and budgets.

By the end of the day, the plan called for a combination of new windows and replacement sash – 46 windows in all. There were eight sets of doors too.

The results of that meeting are pictured above. The Marvin Sliding French Doors add light and open the room to the panorama of woods and hills



## Minneapolis

### Variations on a Theme Park



© Peter Rehner studio

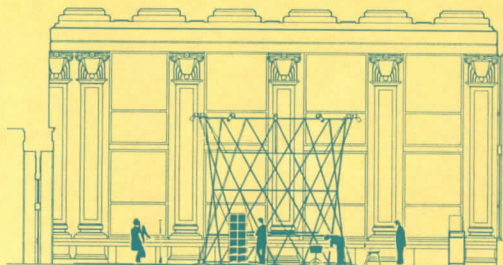
The Mall of America, opened last August in suburban Bloomington and promoted as “the country’s largest fully enclosed retail and family entertainment complex,” is big: along with 10,000 covered parking spaces, its 4.2 million sq ft enclose four anchor stores, 14 theaters, eight nightclubs, and a miniature golf course, all surrounding a seven-acre mini-theme park dubbed Knott’s Camp Snoopy (above). When conceived in 1988 to take advantage of the shopping-as-entertainment craze, critics dubbed it a downtown killer. With recession-strapped consumers

staying home, though, retail analysts now regard the mall’s prospects skeptically. The Twin Cities’ downtowns and existing malls have dug in, hoping to hold customers’ loyalty. Is bigness architecturally better? Designed by Hammel Green & Abrahamson and Korunsky Krank Erickson Architects based on schematics prepared by the Jerde Partnership, the mall wraps four streets of shops around the theme park, connecting the corner anchors. Unfortunately, these streets and the mall’s exterior look like every other mall—only more so. *J. S. R.*

## Chicago

### Elegance on the Production Line

“Elegant Techniques: Italian Design 1980-1992” traces the production and esthetic development of 60 furniture pieces in an exhibit designed by Achille Castiglioni and Michele De Lucchi at the Chicago Cultural Center from October 9 to December 13. ■



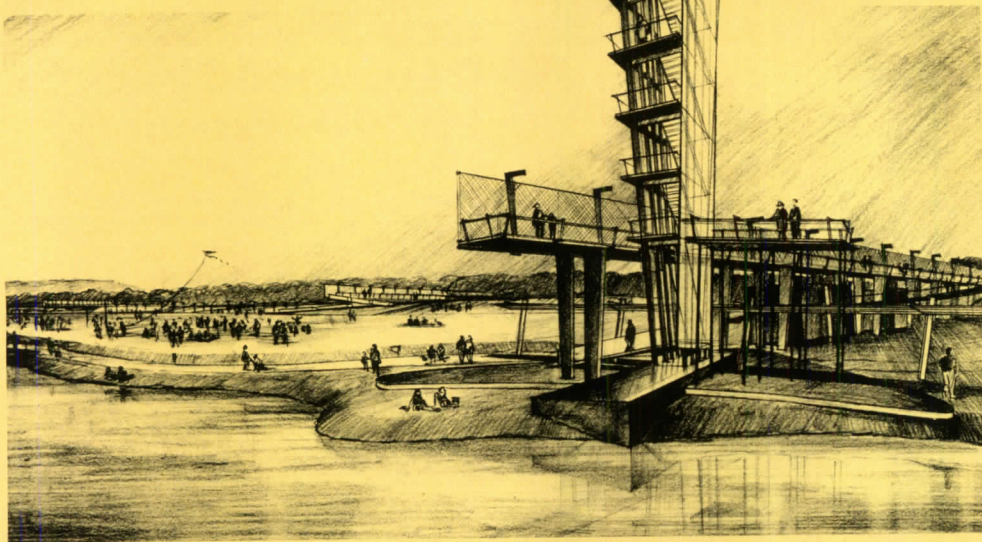
## Houston

### Decorated Shed: Rx for '90s Economy?

Rick Keating calls Keating Mann Jernigan Rottet’s latest crop of corporate designs “exit-strategy buildings, or what-ifs” that owners can easily adapt or lease, unlike the larger 1980s buildings that had to “fit their corporations like a glove.” BMC Software Headquarters offers a real-estate-driven floor plate in a rectilinear box; it addresses a wooded residential community to the west and a major freeway to the east with lavish landscaping and a custom glass curtain wall “collaged on to the chassis.” (The Doug Jamieson rendering that won this year’s American Society of Architectural Perspectivists Hugh Ferriss Award shows curtain-wall detailing in the background.) “The decisions about finish and materials are about timelessness and beauty,” Keating says, “not about impressing anyone.” ■



## Park "Sutures" City to Waterfront



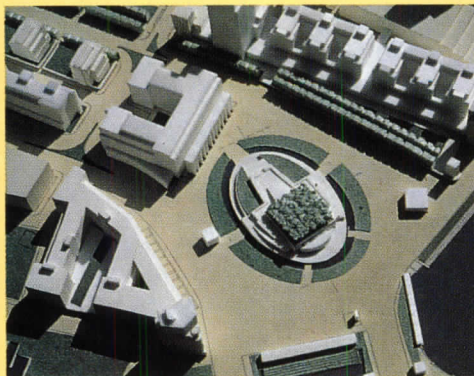
Like many cities, New Brunswick was severed from its waterfront by railroads and a parkway. In this New Jersey city's case, there is also the Delaware and Raritan canal dating from 1834. In their design of the new \$10-million, 14-acre Boyd Park, Parsons + Fernandez-Casteleiro Architects use three new pedestrian bridges as "sutures," uniting city and once cast-off riverside land. Their spiky, dramatic forms will call attention to the park and invite users across the highway. One of the bridges crosses the revitalized canal and towpath, punctuated at waterside by a tower lit at night (above).

This bridge connects to a trellised riverside canopy supported by skewed screens and penetrated by short walkways. The screens form fragmented "rooms," and enclose areas for experimental planting schemes intended to repair damaged waterway edges. The walkways offer framed river views. Working with landscape architect Arnold Associates, the designers envision a small forest to screen restored historic locks and a sloped open field for public events. Facilities for boating, skating, bicycle-riding and jogging are also planned for the park's opening in fall of 1994. *J. S. R.*

### Puerto Rico

## A New Gateway for Old San Juan

By reconfiguring the existing roadway system and surrounding government-owned land, an urban-design study, masterplan, and design-guideline project by Koetter, Kim & Associates will create a new entrance to the islet of San Juan and the historic city of San Juan, in the process opening up 1.5 million sq ft for development centered on a formal public space with waterfront views. Proposals include 950 residential units, along with commercial, exhibition, and hotel convention facilities, and new access to a major existing hotel. ■



## Briefs

### Projects

- Alexander Cooper of Cooper, Robertson & Partners is chairing the volunteer AIA Regional/Urban Design Assistance Team to develop "a vision of Atlanta as an international city and human rights capital" for the 1996 Olympics and beyond. Politicos are worried that air conditioning is the only area in which Atlanta can top Barcelona; some inner-city residents feel Olympic development would mock their concerns.
- Robert A. M. Stern has been tapped to head the rebedazzlement effort for 42nd Street west of Times Square in New York City, where a depressed market tabled four giant Johnson/Burgee towers; Haverson-Rockwell Architects is also on the team. Eastward, Burgee has joined outdoor-display designer George Stobely in the \$6-million America's Exposition Pavilion, where virtual-reality designs will shine through a glass facade onto a relatively staid corner of 42nd Street and 5th Avenue.
- Ellerbe Becket is designing the 78,600-seat Jack Kent Cooke Stadium for the Washington Redskins in Alexandria and Arlington, Virginia, and a \$62-million arena for Manchester, England's bid for Olympics 2000.
- Current SOM projects include the 375,000-sq-ft Sao Paulo tower in Brazil and the American Center for Physics in College Park, Maryland.
- HOK and Lee, Burkhardt, Liu have designed a \$1.2-billion replacement for the L. A. County-USC Medical Center.
- Johnson Fain and Pereira has been commissioned to design Norton Air Force Base's conversion to commercial and industrial use.
- Hardison Komatsu Ivelich & Tucker has designed the 175-unit, low-income Tenderloin Family Apartments now under construction in San Francisco; sponsors include several ethnic groups and major corporations.

### Competitions

- December 30 is deadline for Rudy Bruner Award: 560 Broadway, New York, N. Y. 10012, 212/334-9844.
- November 3 is deadline for Construction Specifications Awards: CSI, 601 Madison St., Alexandria, Va. 22314-1791, 703/684-0300.

### Notes

- NAAB has accredited Boston's Wentworth Institute of Technology's unusual BArch program, which concentrates on construction technologies before considering design. ■

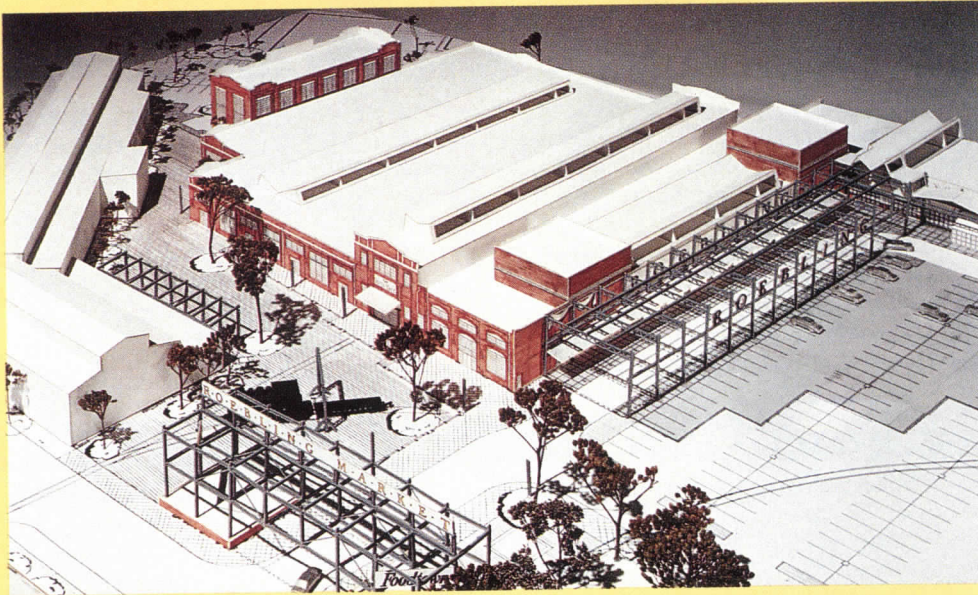


## Old Cable Factories Build Bridges Between Neighborhoods

The first phases of a mixed-use development aimed at bridging the gap between residential communities in downtown Trenton is beginning at an abandoned industrial complex that once supplied the cable for some of the most famous suspension bridges in the U. S., including the Brooklyn Bridge and the Golden Gate Bridge. Now known as the Roebling Complex, the 50-acre tract once housed the mills of the American Steel and Wire Company and John A. Roebling & Sons, which began production in 1848. In addition to their work on suspension bridges, both firms produced wire and spun cable for elevators and trolleys. A masterplan by Clarke & Caton retains most of the original mill structures on a 12-acre parcel for use as a supermarket with additional retail space, offices, 60 units of housing for the elderly, and an Invention Museum in a building that

contains an 1893 cable machine; a restored mill yard will be used for outdoor exhibits, a café, and seating areas. Where demolition is necessary, remaining building skeletons will be structural frames for giant signs serving as gateways to arcades that run in between parking and shops. Although the 360-seat Trenton Performing Arts Center and its main lobby require mainly new construction, an adjacent mill structure, with exposed original heavy timber interiors, will accommodate its dance studio, rehearsal rooms, offices, and the necessary backstage areas. Construction has just begun on the supermarket, retail spaces, and offices and is scheduled to start on the housing units and theater in mid-1993. Future development of the remaining 38 acres is expected to emphasize residential units.

*Judith Davidsen*



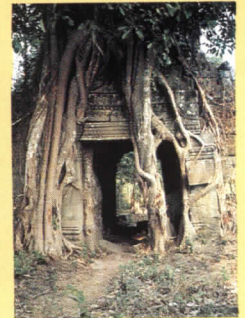
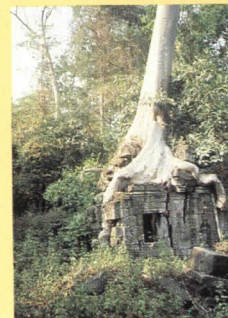
## 12 Win PCI Awards



A U. S. Navy magnetic silencing pier in Kings Bay, Georgia (above) was one of 12 winners in the 1992 design-award competition of the Precast/Prestressed Concrete Institute. Berger/Abam Engineers, Inc. designed the structure, which serves as home port for Ohio-class submarines. Other winners among the 125 entries include Parlin Memorial Library, Everett, Massachusetts (CBT/Childs Bertman Tseckares, Architects), the H. E. L. P Homes in Brooklyn, New York (Cooper, Robertson & Partners, Architects) [RECORD, July 1992, page 108], phase two of Liberty Place, a mixed-use facility in Philadelphia (Zeidler Roberts Partnership, Architects), Saskatoon (Saskatchewan) City Hospital (City Hospital Architects Group, Architects), and Hyatt's Classic Residence Building in Chevy Chase, Maryland (Swanke Hayden Connell, Architects). This year's jury comprised AIA president W. Cecil Steward, RAIC president Roy Willwerth, Florida structural engineer George Southworth, *Progressive Architecture* editor John Morris Dixon, and RECORD editor Stephen Kliment. ■

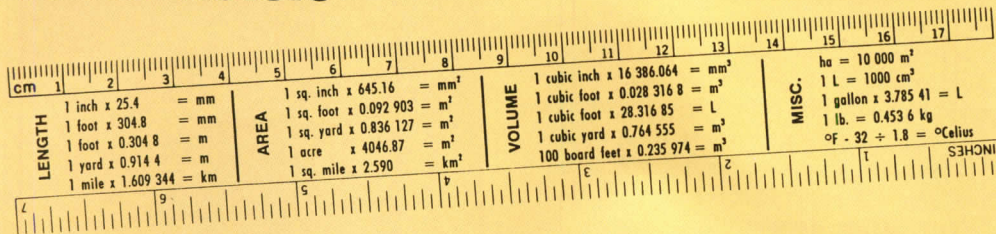
## First Work on Angkor Temples Since Civil War

The World Monuments Fund has begun conserving the 12th-century Preah Khan monastery, one of Angkor's roughly 40 historic sites, in November. Following a romantic lost-temple-discovered-in-jungle approach begun by a French team in the early 1970s, the site will be maintained as partial ruins, with little attempt to disengage temples from giant banyan roots or lichen. Structural work will be limited to preventing future collapse. ■



## Thinking Metric

### Quickly Now, How High Is the Washington Monument? 169.3 Meters



Meters? Yes, meters. (For traditionalists, it is still 555 feet 5 inches). But meters and their cousins—kilometers, centimeters, millimeters, liters, kilograms, metric tons—are the coming thing, and the U. S. government is getting serious about introducing the metric system, the last country in the world (other than Liberia, according to a recent *Washington Post* article) to do so.

Metric conversion has been pushed with varying degrees of intensity since the mid-1970s; the AIA, in fact, first called for metric standards in 1944. Although the new federal Trade and Competitiveness Act mandated that all federal agencies use metric specifications beginning this month, a special Commerce Department review committee set up by President Bush has pushed the official date to January 1994 to allow a

smoother transition. While metric is not yet the rule of the land, it is proceeding briskly. Otto Schick, the General Service Administration's project manager in Philadelphia and de facto overseer of GSA's metric projects nationwide, says "most agencies that do construction have started rather significant projects in metric"—about \$1.5-billion worth. The Department of Veterans Affairs, for instance, is working on three regional headquarters buildings designed in metric, including one costing \$75 million in Philadelphia. Two of the biggest projects in the metric design stage are campuses for the National Institute of Standards and Technology in Maryland and Colorado, estimated to cost around \$800 million. Another large project is a new \$159-million complex for the Smithsonian Institution in Washington, D. C. Further down the road and still in the con-

ceptual stage are facilities for the much-debated Supercollider in Texas in which the \$5 to 6 billion worth of internal components would be specified in metric.

The AIA, meanwhile distributed its 17-page *Pocket Metric Guide* at this year's annual convention, along with a 7-inch, er, 17.8-centimeter pocket ruler (above). It is also planning to reissue in time for the next AIA convention a substantially revised guide for architects, *The AIA Metric Building and Construction Guide*, originally published in 1981 by John Wiley & Sons, Inc., according to AIA Press publisher John Ray Hoke, Jr. The originals "are hard to find today," says David Bullen, director of AIA's Building Performance and Regulations Committee, which is keeping tabs on the subject for the Institute. "We have a copy in our reference library."

Also, the National Institute of Building Sciences in Washington D. C., has established a "Construction Metrication Council" which has published a 34-page booklet, "Metric Guide for Federal Construction." The Coun-

## Refocused Commitment

### Stressing Stress

Hard economic times may intensify professional frustration, but they can also strengthen and refocus professional commitment. Recently, to provide architects a forum for doing this, the Boston Society of Architects sponsored an intensive one-day workshop at Brandeis University, "Literary Texts, Humanistic Values, and the Work of Architects," conducted by two humanities professors. Discussed were topics such as career disenchantment, professional image and compensation, architects' status, and the changing nature of the profession.

The participants—10 men and three women, mostly architects in mid-career—generally agreed about what BSA director Richard Fitzgerald calls "issues that define the pain and pleasure of being an architect." Asked to locate sources of satisfaction, most described architecture as offering a rare, arguably unique, opportunity both to express an artistic vision and to do useful work that benefits society. A less-expected response to the same question emphasized daily interaction and the business of practice. For one principal of a mid-sized firm, this meant "putting together a good team of people to serve as midwife to the product." A partner in a small firm struck a responsive note when she said: "Architecture is more than a profession; it's a way of life and

thinking." One architect observed that friends in more lucrative fields, such as financial services, rarely express that kind of emotional connection to their work. While, surprisingly, compensation was hardly mentioned, other stressful effects of the recession were—the strain of seeing one's practice shrink, of laying off or being laid off, of seeing opportunities recede. Participants talked much of their disappointment at not having opportunities to realize architectural ambitions—to express an artistic vision. They agreed that much frustration stems from the difference between realities of the profession and its "mystique, myth," and "lie." Inevitably, the tenacious influence of *The Fountainhead* and its impossible hero was discussed and regretted. It was

## Practice

# Briefs

cil has also been publishing a newsletter, *Metric in Construction*, since May. In its first issue, the newsletter said that Britain, Australia, South Africa, and Canada all switched to metric from the inch-pound system in the last 20 years, encountering only "minimal problems in the construction industry." It also cited the example of General Motors, which has gone fully metric and had total conversion costs "less than 1 percent of original estimates." And in a pitch for greater international competitiveness for American building products, the newsletter said the European Community has ruled that products with nonmetric labels will not be admitted for sale in their countries after the end of the year.

The second issue published in July said metric can be used on rehab projects. "People who have used metric in rehab say it's essentially no different from using foot-pound units." Also, "metric has one advantage—making field measurements is faster and less error-prone because unit conversions are eliminated." *Peter Hoffmann, Washington, D. C.*

also noted that, whether intentionally or not, schools of architecture often perpetuate the mystique by emphasizing design above all else. Several participants deplored the particular vulnerability of architects to recession while others remarked upon the profession's diminishing status in construction. Said one Boston architect: "I believe we're seeing the profession transformed so that the one I graduated into hardly exists." Brandeis professor Sanford Lottor, noting that similar workshops had been given over 300 times for physicians and lawyers (but not architects), observed that "stress for doctors and lawyers often comes from a sense of too much power. Stress for architects seems to come from a sense of having too little." *Nancy Levinson*

### West Coast hospital boom

If architects Widom Wein Cohen's recent sampling of 128 profit and nonprofit hospitals turns out to be representative, there will be a lot of money spent on hospital construction in California, Oregon, Washington, and Nevada during the next three years. All of those surveyed plan to spend over \$1 million each and 58 percent plan to spend over \$5 million. And it will not be all additions and alterations either. Nine out of 10 own medical office buildings, clinics, and treatment centers away from their main facilities. Nor will it simply be work to conform with the Americans with Disabilities Act. Less than \$300,000 needs to be spent by three quarters of respondents and only 16 percent will spend more than \$500,000. While over half of the respondents have in-house design and construction departments, most commission outside planning and facility management and may be hiring more outside design work. "There is a growing tendency to outsource as economic constraints tighten," says Chester Widom.

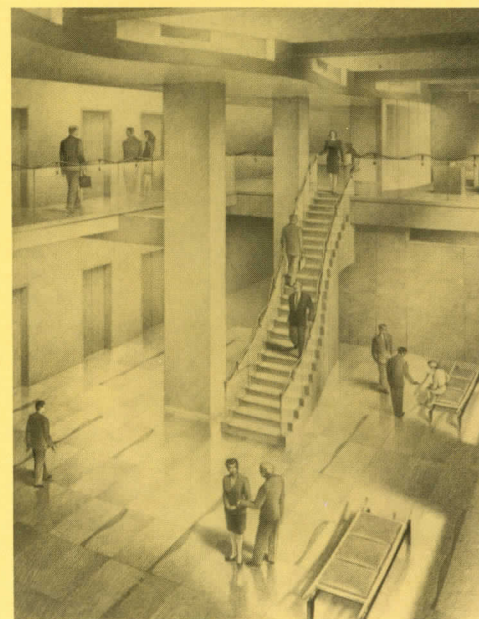
### Facility-management certification

The International Facility Management Association is now giving out certificates of competency to those who can pass its examination covering eight competency areas. Persons having a related degree—including architects—are eligible for the examination after four years of facility-management experience. Those with six years of experience are eligible for a grandfather certificate without examination if they can meet that requirement before July 31, 1993. Two books covering what will be included in the examination (*Competencies for Facility Management Professionals*) and what facility managers do (*Job Analysis Report*) are available for \$175 each to IFMA members and \$225 to nonmembers. For more information, contact IFMA at 800/359-4362.

### Shedding the corporate ego image

In a move that may indicate what such clients will be looking for in the future, one of the largest leases signed on Broadway in the

Wall Street area of New York City is not in a shiny new high-rise, but in a 1906 Gothic-revival building next to Trinity Church. Financial Guaranty Insurance Company has hired architects Kohn Pedersen Fox Associates to redesign 120,000 square feet on



seven floors (photo) including provision for up-to-date computer communications for the company's nationwide interests.

### Exhibit: African-American Architects and Builders

This exhibit is one of the more popular shows doing the rounds of universities and other venues. A meticulous look at the contributions of African-American architects and builders dating back to the early years of slavery and reaching to the work of contemporary practitioners, the exhibit is rich in content but was produced on a shoestring. To improve its format and keep it fit to travel, the architecture school at Auburn University, whose head librarian Vinson McKenzie is curator for the exhibit, is appealing for funds. Contributions should be sent to Vinson McKenzie, Auburn University, Auburn, Ala. 36849-5314.

## Specification Series: Door Hardware

By James N. Davis

The Americans with Disabilities Act gives requirements for door hardware as well as maneuvering clearances and sizes for doors. Review a project during its schematic or design-development phase to determine how design, code, and ADA requirements will affect hardware selection. You may be able to eliminate undesirable and/or costly hardware that you would be stuck with at a later stage.

The ADA deals with specific hardware items, requiring, for instance, thresholds with a maximum 1:12 slope at more than 1/2-inch changes between floor levels and door closers with specific opening times, closing speeds, and opening force. Probably of greater concern to architects is the elimination of knob hardware and thumb latches. The ADA requires that "handles, pulls, latches, locks, and other operating devices shall have a shape that is easy to grasp with

*Mr. Davis is an architect, and specifications and hardware consultant in Atlanta.*

### Guide Specification:

#### PART 1 GENERAL

##### 1.01 References

- A. Standards herein referenced in:  
1. American National Standards Institute.  
2. Door and Hardware Institute.

##### 1.02 Submittals

- A. Hardware schedule: Organize in "hardware set" format. Indicate manufacturer's name, product description, finish and locations of each item with fastenings required. Explain symbols, abbreviations, and codes. Submit complete keying schedule.  
B. Product data: Submit manufacturer's cut sheets for each item. Indicate compliance with ANSI A117.1-1986, handicapped accessibility standards.  
C. Samples: May be requested for architect's approval. Submit with hardware schedule. Samples will be returned to supplier.  
D. Templates:  
1. Furnish templates and approved finish-hardware schedule to door and frame manufacturers for use in fabrication.

one hand and does not require tight grasping, tight pinching, or twisting of a wrist to operate." In other words, knobs and thumb latches are out; levers and pulls are in. While the requirement to use levers appeals to most architects, it poses its own set of problems.

##### Looking at levers

First, while cylindrical locksets are satisfactory for most applications when they are integral with knobs, the same locksets are inadequate for commercial use when integral with levers. Standard cylindrical lock springs are not designed to handle the weight of the lever and after a short time, the lever may sag badly. Also levers invite vandalism more than knobs.

Manufacturers have responded quickly by offering extra-heavy cylindrical locks that offer greater resistance and hold up better than the standard cylindrical lock for levers. There is also the option of a mortise lock, at a higher cost when the lever is solid, which will stand up to heavy and even abusive traffic.

##### 1.03 Product delivery, storage, and handling.

- A. Deliver finish hardware to project site packaged together in sets in accordance with approved hardware schedule.  
1. Where hardware items are furnished by manufacturer in individual boxes, box may be incorporated into repackaging. Mark packages with hardware-set number and door number.  
2. Include manufacturer's installation instructions, fasteners, and installation tools.  
3. Identical hardware sets may be packaged together.  
B. Inventory hardware when delivered. Provide temporary, clean, dry, locked storage area for hardware until installed.

##### 1.04 Quality assurance

- A. Supplier's qualifications: Furnish services of an architectural hardware consultant responsible for hardware scheduling, keying, coordinating with other trades, consulting with architect and owner and on-site inspections to ensure coordination and application.  
B. Items of the same type shall be products of the same manufacturer.

Some levers meant for use with mortise locksets are not manufactured with cast, solid-bar stock, but are hollow, wrought fabrications sometimes filled with resin or metal fillers. This ostensibly reduces lever weight and, thus, sagging even though sagging is not generally a problem when locksets are mortised. Hollow or filled levers are generally less expensive than solid cast levers of the same appearance.

Hollow or filled levers do not seem to present a problem in use and, in fact, once installed are not different to the touch from solid levers. If the specifier prefers solid cast levers, he or she should specify them. Incidentally, mortise locksets with hollow levers cost approximately the same as heavy-duty cylindrical locksets with solid levers.

There is a question of what to do in an existing building. Most code authorities allow the continued use of existing knobs, until the space is renovated. Replacement leaves the building owner with a lot of junk hardware and often requires replacing the door as well in order to get proper cut-outs.

C. Provide hardware for fire-rated openings in compliance with current requirements of NFPA #80 and #101. Exit hardware for fire-rated openings shall bear UL markings.

#### PART 2 PRODUCTS

##### 2.01 Keying

- A. Establish new master-key system.  
B. Operate locksets by construction key system until date of substantial completion. At that time, assist owner in voiding construction-key system.  
C. Provide nickel-silver keys. Furnish the following number of keys:  
1. Construction-master keys: Six each.  
2. Change keys: Two per lock.  
3. Master keys: Six each.

##### 2.02 Finishes

- A. Hinges:  
1. On metal doors: Prime-coated for painting.  
2. On wood doors: Finish to match adjacent hardware.  
B. Door closers: Spray paint to match adjacent hardware.  
C. Locksets and latches:  
D. Flat goods:

## Finish Hardware

*This article examines standards for finishes, and requirements for ADA conformance and fire doors—as well as providing a general outline specification.*

ADA requires that all existing buildings now be equipped with approved types of hardware, which excludes knobs. But it is likely that there will be some time before total compliance.

### Dealing with finishes

One set of designations, US numbers, often give symbols that designate finish but not base metal, while another set, the Building Hardware Manufacturers Association's, designates finish and base metal.

Finishes such as bright stainless steel (US32), satin stainless steel (US32D), polished brass (US3) and oil-rubbed bronze (US10B) are widely used and understood by architects. Stainless-steel finishes are mechanically applied over stainless steel base metal. Chrome, nickel, and some more esoteric finishes are plated finishes applied over brass or another base metal.

Chrome-plated hardware is nearly indistinguishable from stainless-steel hardware of similar finish and may be used to cut costs for locksets and similar

E. All other hardware:

F. Fasteners: Match hardware items.

### 2.03 Hinges

A. Acceptable manufacturers.

B. Hinges: Types indicated in finish-hardware schedule.

C. Specific requirements:

1. Ball-bearing hinges with nonrising pins.
2. Exterior hinges with nonremovable pins.
3. Provide hinge sizes as follows:
  - a. Doors over 4'-0" wide: 6" high.
  - b. Doors over 3'-0", but not exceeding 4'-0" wide: 5" high.
  - c. Doors 3'-0" wide or less: 4 1/2" high.
  - d. Doors 1 3/4" or less thick: 4 1/2" wide.
  - e. Doors over 1 3/4" in thickness: 5" wide.
- D. Fasteners: Flat-head, Phillips screws;
  1. Metal doors and frames: Machine screws into drilled and tapped holes.
  2. Wood doors: Wood screws.
  3. Fire-rated wood doors: Threaded-to-the-head wood screws.

### 2.04 Locksets and latchsets

A. Acceptable manufacturers.

B. Mortise type: 2 3/4" backset, solid-cast le-

hardware that do not receive a great deal of use. Plated hardware will wear through, revealing the base metal, and should not be used on high-traffic doors.

Bronze or brass finishes are also mechanically applied to a base metal. They offer warmth and color, but have ramifications that should be recognized by the architect and explained to the building owner. Polished and satin brass and bronze finishes are available either uncoated or with a clear protective coating.

Uncoated hardware requires regular polishing to prevent tarnishing, making its care an ongoing expense. Daily polishing gives the metal a patina not achievable in a factory, but at a cost. Clear coatings eliminate the need for daily maintenance, but, because they wear and scratch easily, can deteriorate quickly. The metal begins to mottle, then becomes dull and unsightly. The alternative is to strip and replace the coating when it begins to wear. Oil-rubbed bronze is an excellent finish, but will show wear on doors that are used heavily. Another

ver trim, wrought roses; armored front adjustable 1/8" in 2" and latch bolt with 1/2" minimum throw; 5/8" for pairs of doors. Furnish wrought-box strikes.

C. Cylindrical type: 2 3/4" backset, wrought trim; front adjustable 1/8" in 2" and latch bolt with 1/2" minimum throw. Furnish wrought-box strikes.

D. Other items:

## PART 3 EXECUTION

### 3.01 Hardware installations

A. Install finish hardware plumb, level, and true to line, in accordance with manufacturer's product data. Locations of hardware, where applicable, in accordance with:

1. DHI Publication, *Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames.*
2. NWDA Industry Standard I.S.7, *Hardware Locations for Wood Doors.*

B. Install finish hardware to template. Cut and fit substrate to avoid substrate damage and weakening. Cover cut-outs with hardware item. Mortise work in correct locations and size, without gouging, splintering, or causing irregularities in finished work.

warning on oil-rubbed bronze: The finish can vary greatly between manufacturers.

### Special thought for fire-rated doors

Architects often give requirements for fire-rated doors little attention in the design process until a project gets well into working drawings. They must consider door size, configuration, swing, and location to meet tested standards early enough so that they are equipped with proper exit devices or automatic flush bolts, coordinators, and astragals so that the doors are not loaded down with cumbersome equipment. The Steel Door Institute has an excellent publication, *SDI-118, Basic Fire Door Requirements*, which is required reading for architects.

Briefly, fire-labeled doors should be equipped with steel, ball-bearing hinges, and they must latch. Exit devices, often used on rated doors, are sometimes used where not required. Most codes require exit devices only in education and assembly occupancies. Use hold-open devices activated by smoke detectors or fire-alarm systems on doors with heavy traffic. ■

C. Where cutting and fitting is required on substrates to be painted or stained, install, fit, and adjust hardware prior to finishing. Then remove and place in original packaging. Reinstall hardware after finishing.

D. Attach thresholds to concrete surfaces using lead expansion shields and counter-sunk flat-head bronze or stainless screws to match threshold color. Set thresholds in bed of exterior sealant.

### 3.02 Cleaning and adjusting

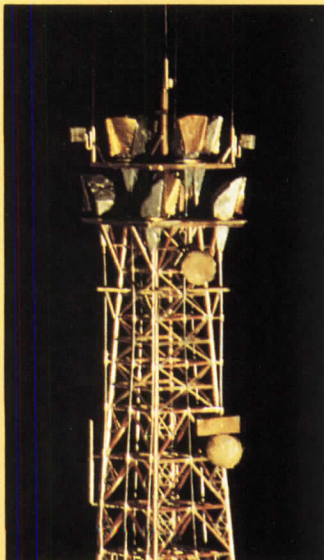
- A. At time of hardware installation, adjust each hardware item to perform function intended. Lubricate moving parts using lubricant acceptable to manufacturer.
- B. Prior to date of substantial completion, readjust and relubricate hardware. Repair or replace defective materials. Clean hardware to remove dust and stains.
- C. Instruct owner's designated personnel in adjustment and maintenance of hardware and finishes during hardware adjustment.

### 3.03 Hardware Schedule

Add schedule. ■

## Telecommunications

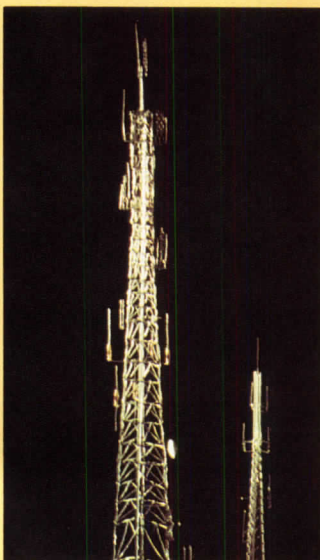
### Long Island vs. Barcelona



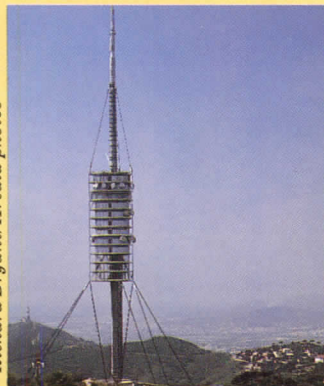
"Lion" (Bruce Bowman)



"Lionness" (Paul Alber)



"Trio" (Burke and Heideg)



© Richard Bryant/Arcaid photos

Michele Bertomen's *Transmission Towers on the Long Island Expressway, a Study in Form* (Princeton Architectural Press) has uncovered a telecommunications-tower cult among architects. The book was a best seller at New York's Urban Center Books, and a followup exhibition, organized by Nicholas Rojas, was also popular. Bertomen's students at the New York Institute of Technology documented 20 towers (by mostly unknown engineers) and volunteered to make the exhibition models (top photos). "It's a different way to look at the built envi-

ronment," explains Bertomen. "We put these objects in a spatial context, and I think architects responded to that." If this can be called the vernacular approach, the Torre de Collserola, standing 950 ft tall on a ridge overlooking Barcelona, is anything but anonymous (above). Architect Norman Foster & Partners with engineers Ove Arup & Partners provided 13 equipment levels supported on a hollow 15-ft-dia slip-formed concrete shaft. Aramid-fiber upper guys don't impede signals. Three pairs of high-strength steel guys tie the tower to its hillside.

## Glass

### Briefs

#### How safe is tempered glass?

Fully tempered glass has long been seen as a safety glass, which must be used in areas where people might be harmed by breakage (sliding patio doors, most prominently). It is very strong and, once broken, it shatters into small, rounded fragments. (Annealed glass breaks in jagged shards.) Glass manufacturers are increasingly turning away from tempered glass as a safety glazing because some lights will spontaneously break. Invisible "micro-inclusions" of nickel sulfide (a manufacturing defect difficult to detect or correct) raise stresses within the glass, causing breakage when in-service stresses are added. Since problems usually come in batches of glass, a single building may suffer many breakage incidents. While some manufacturers claim an additional heat-soaking step all but eliminates the problem, others are suggesting architects find alternatives in highrises (such as heat-strengthened glass) and limit use of tempered glass elsewhere to those areas where breakage won't harm passersby. Laminated glass is a safety-glass alternative because its interlayer resists penetration and holds broken glass fragments in place.

#### Hurricane-proof glazing

In the immediate aftermath of Hurricane Andrew, many in the construction industry commented that very few assemblies could survive Andrewlike winds of up to 150 mph. Joseph E. Minor, a professor of civil engineering at the University of Missouri, Rolla, and a prominent glass expert, may have a solution. Because glass breakage can lead to complete destruction of a building's interior, Minor sought a glass-light design that would resist hurricane wind pressures. His "anchored light" design attaches a 3/4-in.-thick insulated-glass unit to its frame using a bead of structural silicone and a metal anchor bar. The outer light of the glass is laminated, which is "sacrificed" to flying debris. The interlayer protects the inner glass, keeping the light in the unit, thereby retaining building-envelope integrity.

## Assessing Andrew's Fury

As South Florida begins rebuilding after Hurricane Andrew, a key question is emerging: could the damage have been substantially reduced through better construction, or was Andrew simply too powerful? The initial consensus is that inattention to connections, particularly in roofing structures—and not overpowering wind speeds—were key factors in the vast majority of failures. To a lesser degree, lax code enforcement and shoddy construction played a role in individual structural failures, according to wind engineers.

Based on those conclusions, some action has already begun. Dade County building officials have appointed a panel of experts to review the county's building code. Officials banned use of waferboard and oriented strandboard as roof sheathing and no longer permit staples as roof fasteners, citing poor performance during the storm. Officials have also vowed to investigate deficiencies in construction and code enforcement.

### Tough codes alone didn't do the job

Andrew's wind speeds were at the upper range of Dade County's tough 120-mph building code, according to an early report by the Wind Engineering Research Council (WERC), though winds gusted to 150 mph in the hardest-hit areas. The report concludes that "some systemic deficiencies in the code and/or general construction practices are apparent. Even if the final analysis indicates winds 5 to 15 percent in excess of code values, the buildings should have been able to withstand the resulting loads if normal factors of safety are applied."

In general, however, the code's comparatively strict requirements "helped reduce the number of structural failures," the report says. Nevertheless, "the average amount of damage clearly is unacceptable," asserts Joseph E. Minor, a WERC member and chairman of the civil engineering department at the University of Missouri at Rolla.

"What impressed me was the similarity of damage among similar types of homes," says Minor. Peter Sparks, a WERC member and Clemson University civil engineering professor who surveyed the damage, agrees. There was clear evidence of noncode construction in a small percentage of homes, he says. But in far more cases he saw evidence of connection details that technically were in compliance, but in retrospect were clearly inadequate. If constructed properly, buildings "should have been able to handle it," says Sparks. "Our engineering knowledge is obviously not getting to the field."

In commercial structures, a similar pattern occurred, says Sparks. Light roofs were sucked off after windows blew out in openings. Then masonry walls collapsed because lateral support provided by the roof structure was stripped away. "Loss of windows and roof coverings was common, resulting in major water damage to building contents and interiors," the WERC report says.

### Will Dade repeat past mistakes?

Andrew has sparked concerns that rebuilding will not meet the existing code, let alone a higher standard. "Historically we keep the same standards and not even rebuild as well [as what existed]," says Dale C. Perry, current president of WERC and a civil engineering professor at Texas A&M University, College Station.

Though regarded as very strict, South Florida's code may be part of the problem, says engineer Henry Liu, a member of the American Society of Civil Engineers task committee on wind-damage mitigation. Its "performance" path requires engineered construction to withstand 120 mph continuous wind speeds, but its prescriptive alternative, which calls out items such as fastener spacing and hurricane-strap requirements, includes "standards that are really weak," asserts Liu. He says code officials caved in to lobbying by builders. In the

*Hurricane Andrew tore off the stud-framed cladding of a condominium (top). Sheathing-to-truss and truss-to-wall connections proved deficient (bottom).*



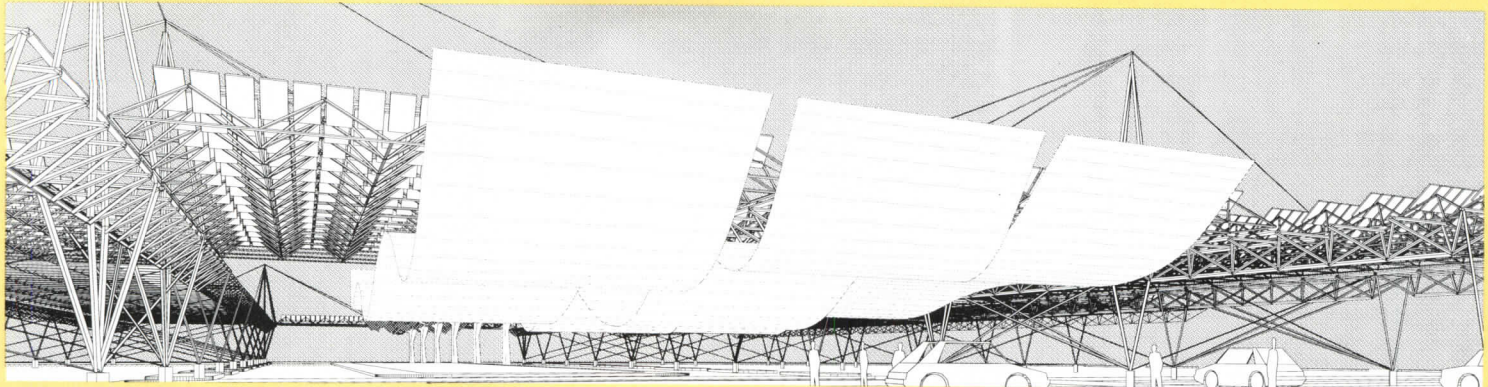
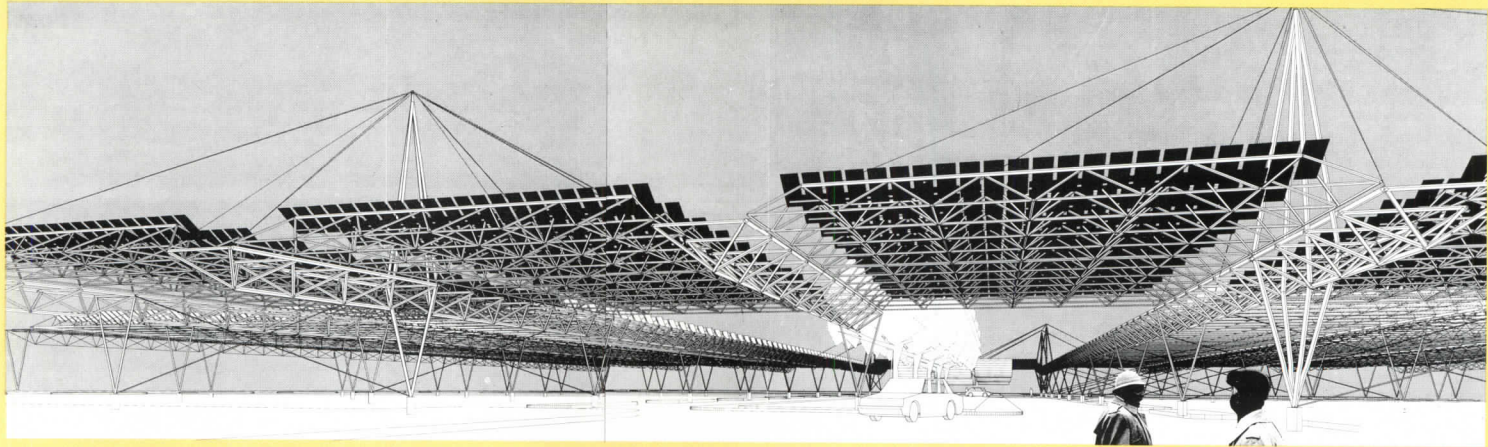
© Reuters/Beltman



© Stephen Setzer

wake of Andrew, some have called for a ban on multifloor stud-wall construction and a return to low buildings with masonry enclosures. "What I don't want is some kind of overreaction by code officials," says Charles Lennon, executive director of the South Florida Home Builders Association, who rejects a ban on frame buildings. Liu concludes, "What really saddens me is that people don't know there are things that can be done for very little cost. You don't have to engineer everything, just have slightly better practice." *Steven W. Setzer*

# PVs Protect Parking

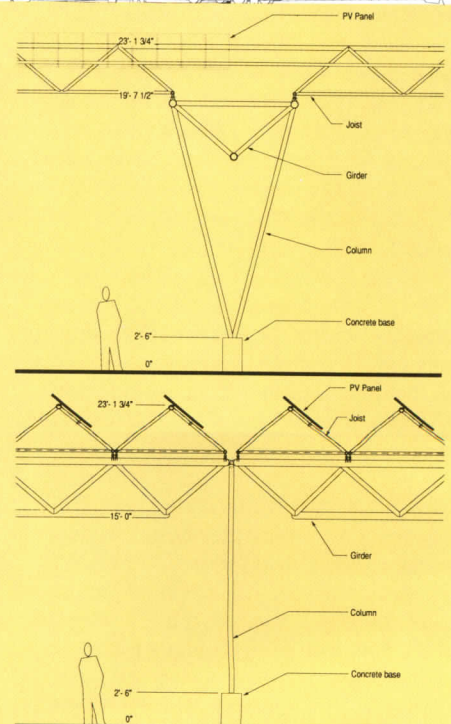


Where most of us would see a 19-acre commuter parking lot, the New York Power Authority (NYPA) envisioned a “solar canopy” generating 3,400 Kw using 70,000 photovoltaic modules. Kiss Cathcart Anders architects and Ove Arup & Partners, engineers, both of New York City, have won a statewide NYPA-sponsored competition for the lot at the Stony Brook campus of the State University of New York.

stations. Girders and trusses share the same basic geometry and bolt-together fasteners permitting much of the array to be shop fabricated. The design “organizes the pieces with great economy,” commented juror Harrison Fraker, dean of the University of Minnesota’s architecture school. Another juror, architect R. Randall Vosbeck, likened the design to the sheds of 19th-century train stations.

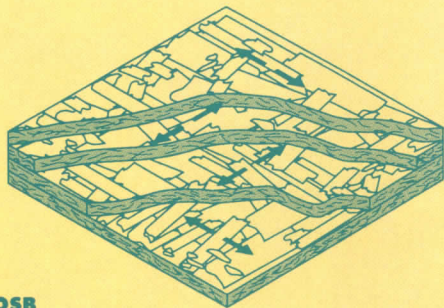
The winning scheme proposes a tubular aluminum column and girder system (drawings right) supporting pyramidal “PV joists.” The module of the joist system permits nearly ideal alignment (within 22 deg, 30 min of due south) regardless of site orientation. Supporting members at 8 ft modules adapt to most parking layouts, according to the designers. A tubular mast with bracing cables will handle clear spans greater than 72 ft or cantilevered end bays (top drawing). The team also suggested fabric shade structures (drawing above) and electric-car recharging

The NYPA also honored schemes by Anthony Moody, of Staten Island, and David Koralek with Roni Ruso of New York City. James M. Cunningham of the NYPA said, “Competitions such as this can help to encourage [PVs’] practical application.” The Power Authority didn’t promise to build the winner, though, and the latest word is they don’t intend to. (Admittedly, it’s not a cheap experiment at \$18.1 million plus PV modules.) Someone should promote development of photovoltaics. Why not oil-dependent New York? *J. S. R.*



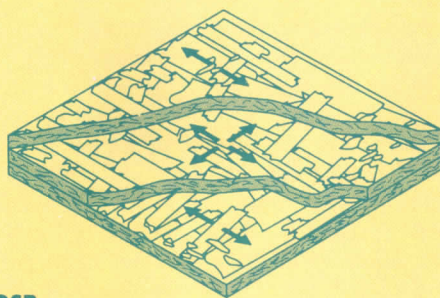


## Picking Structural Panels



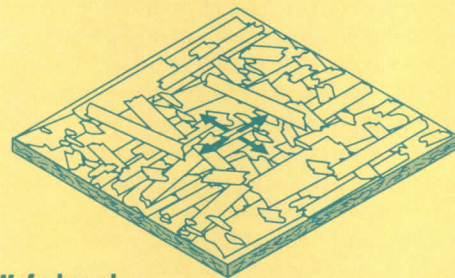
### OSB

Face-layer strands aligned;  
core layer strands  
aligned perpendicular



### OSB

Face-layer strands aligned;  
strands random in core layers



### Waferboard

Random orientation of wafers

The composition of structural wood panels is changing rapidly. Once there was only venerable *plywood*. Made of up to five plies of veneer peeled from logs, it derives impressive strength and dimensional stability from the superimposition of veneer layers at right angles to each other. About 20 years ago a new kind of panel product appeared.

*Waferboard* is made of small pieces (strands or wafers) bonded randomly together in thin mats using heat, pressure, and a waterproof resin. The mats are then laid up in a method similar to that used for plywood.

Increasingly, waferboard has been superseded by *oriented strandboard* (OSB). The difference between waferboard and OSB is that the strands in the outer faces of OSB may be oriented along the axis of the panel where the greatest strength is needed (drawings above). Because of this efficiency and OSB's structural similarity to plywood, waferboard has steadily lost market share to OSB in the U. S. Both OSB and waferboard are typically referred to as "nonveneer" panels (which for now have been banned in South Florida after Hurricane Andrew—story page 35). The American Plywood Association also recognizes *composite* panels manufactured by bonding reconstituted wood cores between layers of wood veneer. As structural panels, says Ken Andreason of the APA, "they are not in the same class as OSB in terms of volume." Some siding products are composites, the exposed face a textured veneer.

### Are all panels created equal?

The American Plywood Association urges architects to judge structural panels on exposure, span rating, and thickness. "The

specifier should go by the grade stamp," says Andreason. "It doesn't matter if the panel is OSB or plywood so long as it meets standards for its intended use." Not everyone feels this way. Russ Snyder, of the Asphalt Roofing Manufacturers' Association, is concerned, for example, about edge swelling in nonveneer products. While some edge swelling or delamination may be acceptable to APA because it doesn't affect the structural integrity of the panel, it *can* affect the roof put on over it: "If you put a four-ply fiberglass roof down [over panels with edge swelling], you will have major problems with your roof," claims Snyder. Nonveneer panels are not currently recommended by ARMA for asphalt-type roofs.

### Treating panels for exposure and fire

For many years, fire-retardant treated plywood was permitted in certain locations in lieu of protective fire-resistive assemblies such as coverings of gypsum drywall. Reacting to widespread structural deterioration brought on by some formulas [RECORD, August 1990, page 99], the APA no longer endorses treatment (though treatment manufacturers now urge acceptance of a "new generation" of products).

While plywood can be pressure-treated to resist decay (for use in areas where consistent moisture exposure can be predicted), the manufacturing process precludes pressure treatment for nonveneer products. Plywood panels with a durability classification of *Exterior* are, according to APA, "designed for applications subject to permanent exposure to the weather," while *Exposure 1*, the next lowest grade may be specified "where high moisture conditions may be encountered in

*Nonveneer structural wood panels use forest resources efficiently and can be engineered to suit specific project needs (drawing: Canadian Wood Council).*

service." The waterproof glues used in these panels are intended to resist delamination due to weathering when, for example, there is a long delay from erection of sheathing to covering with the finishing material. "Exposure 1 and Exterior [grades] have nothing to do with decay," explains Andreason. "Decay is a broader and more severe process than weathering." This distinction might be too subtle for the average designer, but it means that a preservative-treated, Exterior-rated panel must be specified if conditions may induce rot.

OSB is simply the vanguard in a broad trend in which the wood-products industry is treating trees like crops. More and more of each tree is being used, sliced into ever smaller pieces to be reconstituted into an ever larger variety of "engineered wood products." [See also RECORD, December 1989, pages 44-45]. OSB is even used as the web in engineered-wood I-beams. Soon, the constituent mats of OSB will be machine stress-rated, for a product even more structurally efficient. *James S. Russell*

### Further information

"Design/Construction Guide: Residential and Commercial," is among useful publications of the American Plywood Association, P. O. Box 11700, Tacoma, Wash. 98411. "Proper Installation of APA Rated Sheathing For Roof Applications" is available from ARMA, 6000 Executive Boulevard, Suite 201, Rockville, Md. 20852. A report on plywood (including nonveneer panels) for the *Environmental Resource Guide* is in the draft stage. AIA/ERG Project, 1735 New York Avenue, N. W., Washington, D. C. 20006.

## When Nature and Politics Collide

*Shoreline development pits property-rights activists against environmentalists—not to mention storms and erosion.*

Millions of Americans have dreamed of watching waves pound on a wide, sandy beach from the deck of their home, and architects have fulfilled that vision for tens of thousands. Lately, though, the shoreline has become less a place of passive relaxation and more a battleground, where issues of property rights, environmental protection, and public policy have come to loggerheads. Here's a rundown on the conflict:

• **Beach-environment preservation:** The place where water and land meet is an extraordinarily diverse and productive environment. A single stretch of beach, for example, may contain several ecological niches, each of which support different animal and plant species. From low water to high water may mark one zone; from high water to dune edge another, and the trough between ranges of dunes yet another. Environmentalists would like to see shoreline development confined to areas inland of such fragile areas as dune fields or coastal wetlands.

• **Land-owners' rights:** Property-rights activists frequently protest shoreline regulations because such rules may cause land to lose value. When South Carolina's Beachfront Management Act had the effect of prohibiting building on two lots David H. Lucas owned, he took his lawsuit against the state all the way to the U. S. Supreme Court.

• **Taxpayers' obligations:** When storms cause widespread damage, the federal government often picks up the tab (\$7 billion for Hurricane Hugo in 1989; over \$7 billion already promised for South Florida and Louisiana for August's Hurricane Andrew). In hurricane-prone areas, private flood insurance is essentially unavailable. The federal government underwrites such insurance when projects are built to federal standards. Finally, the majority of financing for costly erosion-control measures such as jetties and beach replenishment has come from the federal government, not the states or local communities. Critics of beachfront development say taxpayers should not foot the bill for construction placed in a path of known danger.

### Two threats: Storms and erosion

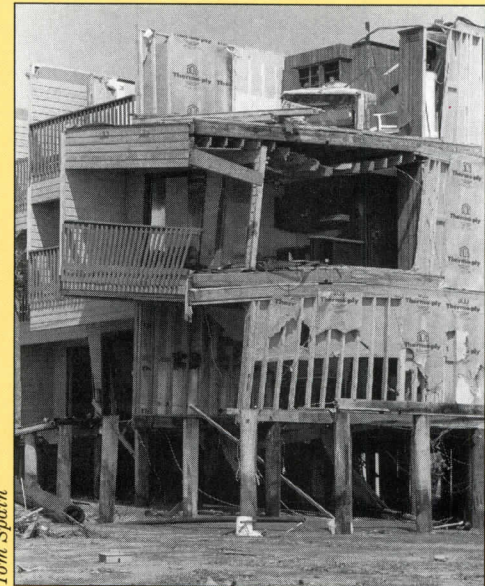
The spectacular destruction and suffering that hurricanes cause calls for measures that mitigate damage. *Indeed, many tech-*

niques are known—and are required in newer building codes—that permit nearly any structure to ride out quite severe storms. Codes require closer spacing of roof-sheathing fasteners, hurricane straps (that tie rafters or trusses to structural walls), and piling-mounted structures (which permit a wave surge to pass underneath). [Laxness in construction and code enforcement often renders such techniques moot—page 35 and RECORD, February 1992, page 24, and February 1990, pages 143-145.]

"Storms are one thing, erosion is something else," explains Orrin H. Pilkey, director of the Program for the Study of Developed Shorelines at Duke University. Pilkey points out that erosion is a continuous process that will eventually undermine even the best-built building. While some beaches are apparently stable, and some appear to be growing, Pilkey claims most are receding, a process that will be exacerbated to the extent that the greenhouse effect causes sea levels to rise.

There are three solutions to erosion: *Hard stabilization* measures include a variety of permanent structures. Seawalls are built parallel to the beach to protect structures as the beach disappears. They are expensive and unattractive—a last resort—and Pilkey, among other experts, claims that they actually increase erosion. Rock or wooden groins, built perpendicular to the shore, or breakwaters, built parallel but offshore, are intended to trap sand drifting along the beach. Though they sometimes work, they too are costly (today around \$4,000 a linear foot) and a hazard to bathers. Frequently the sand they trap is at the expense of downstream beaches. Some states have banned permanent beach maintenance and control structures.

*Beach replenishment* provides new sand by pumping or dredging from deepwater sources, but the integrity of remade beaches differs widely. The federal government successfully restored 10 miles of Miami Beach shore in 1981 at a cost of \$56 million. Sand replaced in a \$5-million program in Ocean City, N. J., though, lasted less than three months. *Relocating structures* is the choice of many shoreline geologists and environ-



Tom Spain



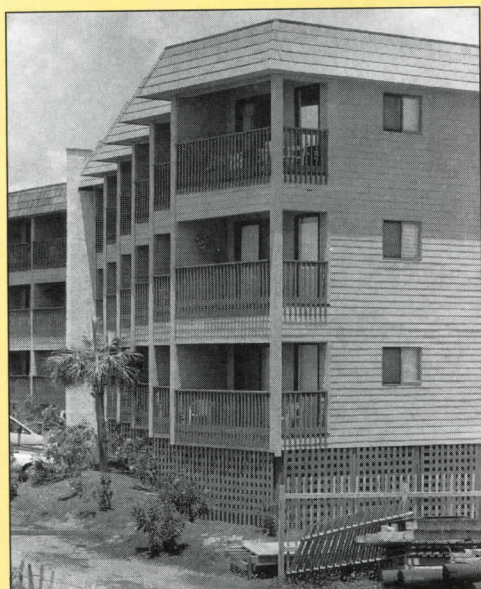
Richard Green

1. Shoreline condominium destruction by Hurricane Hugo on Isle of Palms, S. C.
2. Wave-surge damage at Folly Beach, S. C.

mentalists. If beachfront construction was readily movable (such as modular houses on piles), the natural and environmental attractions of the beach could be maintained, and expensive beach protection or rehabilitation avoided. In existing communities, the political and economic barriers to this technique are obviously formidable. Where would new land for existing structures come from? What becomes of lots no longer tenable for buildings?

### Property rights vs. taxpayer obligations

As the ecological richness and value of the shoreline environment have come to be recognized, and as greater knowledge of storm



3



4

3. Condominium rebuilt in the same exposed position.

4. Rebuilt houses on Folly Beach.

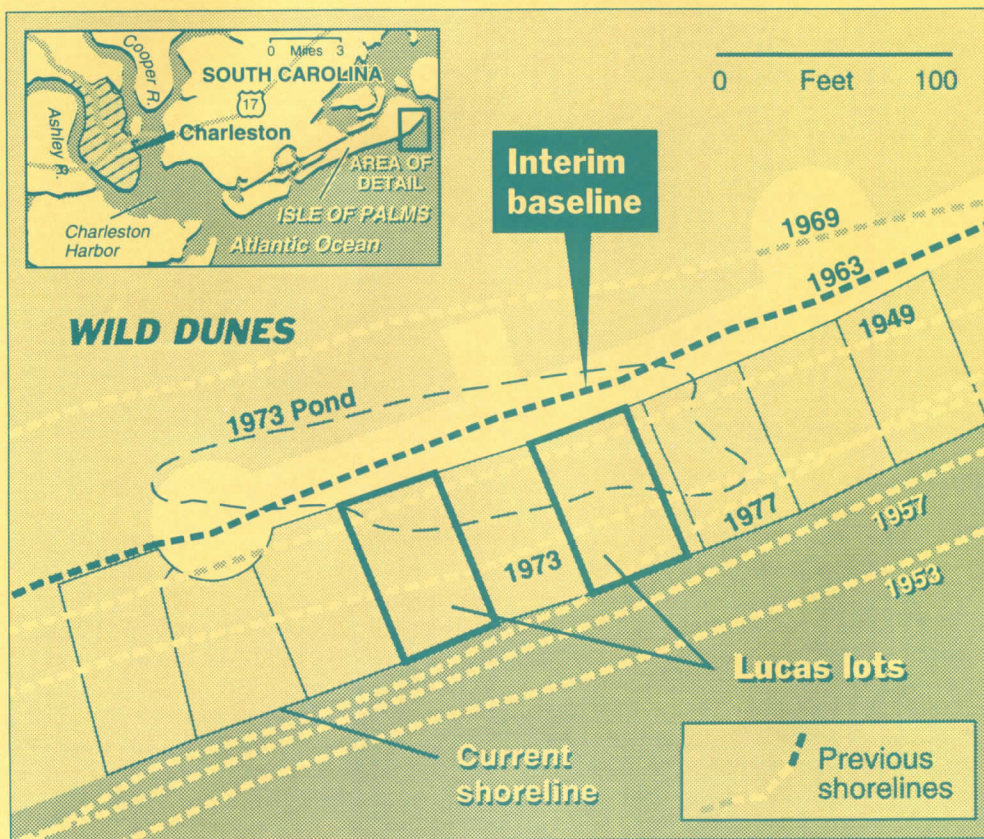
and erosion dynamics has come to the fore, states are regulating shoreline development more rigorously. Many beaches are closed for periods of time to permit nesting of endangered plovers and terns or hatching of loggerhead turtles. States are mandating deeper setback lines to maintain dunes, which offer species habitat, a source for beach sand, and protection of the shore from storms. As a result, areas previously prized may no longer be buildable, as David H. Lucas, a South Carolina builder, found. State regulations prohibited development of two lots he had purchased in the Wild Dunes development on the Isle of Palms, even though surrounding lots had already been built upon (see map).

Though a later amendment likely would have allowed Lucas to build, he nevertheless carried his case to the U. S. Supreme Court, claiming South Carolina's rules were a government "taking" under the U. S. Constitution's Fifth Amendment, which requires "just compensation" from the state. Though the court is thought to be kindly disposed to Lucas and others who regard most zoning, environmental, and historic-landmark regulations as government takings, the decision, handed down last June, only called takings those regulations that "sacrifice all beneficial uses" (a finding essentially similar to that which established the legitimacy of landmarks designation). The majority sent the case back to the lower court to determine if such deprivation occurred.

#### Did we learn anything from Hugo?

The court's decision will not end the public-policy debate on shoreline development. Should Lucas be permitted to build, is the government then responsible for protecting these homes from erosion? Are taxpayers to

foot the bill for storm destruction (including infrastructure such as roads and utilities not covered by insurance) and underwrite rebuilding through federal flood insurance? Was Lucas prudent in paying \$975,000 while shorelines regulations that would affect the property were being considered? Ironically, Hurricane Hugo wrought wide destruction on the very island Lucas seeks to build on. In most cases, officials mandated rebuilding somewhat farther back from the shore, yet houses on the Isle of Palms and Folly Beach still have no protective dune. (The condominium shown left is hardly inland of the high water line.) Dana Beach of the South Carolina Coastal Conservation Commission, an environmental group, says, "These barrier islands once had inexpensive, vernacular houses, which were kind of homegrown. We're seeing these houses replaced with enormous megahouses that cost hundreds of thousands of dollars instead of tens of thousands. One of the major reasons is the availability of subsidized flood insurance." *Continued on page 131*



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Site Furniture/Benches



300a



300b

**300. Twigg.** Craftsman David Robinson makes durable landscape furniture—chairs, swings, benches, arbors, and gazebos—from “gypsy branches” of red cedar, osage orange, locust, and evergreen shrubs such as rhododendron—rot-resistant species with a natural random curvature that works well with his Rustic style. Robinson renovated Central Park’s landscape furniture, built by Anton Gerster from Olmstead/Vaux designs after the Civil War, acquiring the assembly techniques needed for truly rugged, New York-style construction. Prices range from

\$1,000 for a bench (a) to about \$8,000 for the large, 18-ft-diameter gazebo (b). David Robinson/Builder, Pennington, N. J.

**301. Bifocal.** The newest addition to the Petoskey Group of tubular-steel site furniture is a backless bench that permits users to sit facing either coming or going—a plus for shopping malls. Seat options include perforated-metal as shown, steel rods, or wood slats. Metal components come in 10 powdercoat colors. Landscape Forms, Inc., Kalamazoo, Mich.



301

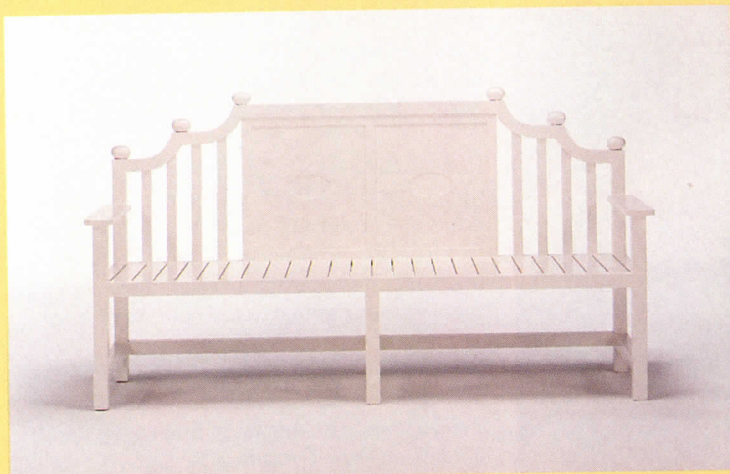


302

**302. Eco-correct.** Mark Singer designed this solid-teak bench in a transitional mode: Oriental-cum-Chippendale. All wood is from an Indonesian plantation certified by the Smart Wood program; it is built using mitered half-lap joints secured with marine epoxy and countersunk screws. A special wet-sanding process is said to insure a smooth surface even after the wood has weathered to a silvery gray. Chairs, tables, and an unusual market umbrella are also available. Giati Designs, Inc., Santa Barbara, Calif.

The bench (even the name sounds down home and comfortable) is a people-parking place shown here in versions for city streets, suburban malls, and country landscapes.

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



303



305



304

**303. In country.** This ornamental bench of spruce and other alpine wood was designed by Josef Hoffmann for a mountain house built in Oberwaltersdorf, Austria, between 1912 and 1914. Replicas of the original are offered in a limited edition of 300; the bench and a companion table come only in a white-lacquer finish. ICF, Inc., Orangeburg, N. Y.

**304. Disney style.** A manufacturer well known for Shingle-style rocking chairs produced this extravagant custom settee to punctuate Frank Gehry's Festival Disney



306



307

entertainment complex at Euro Disney. Designed by David Jackson of Morris Nathanson Design, Inc., the piece has all the broad-plank features of Adirondack chairs—and then some. Weatherend Estate Furniture, Rockland, Maine.

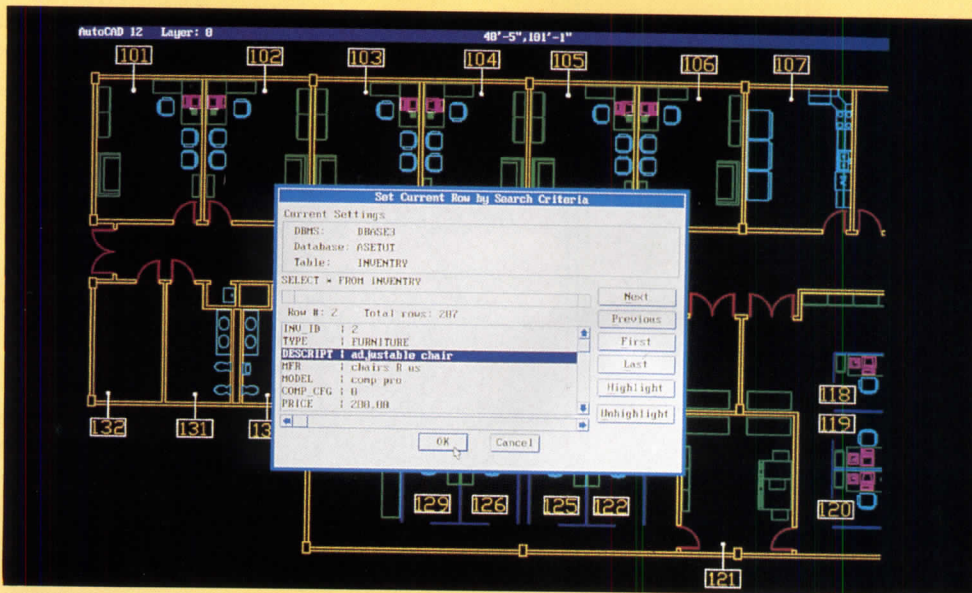
**305. Found.** Furniture artist Susan Parish harvests her raw material from the Pacific Ocean, assembling driftwood and salvaged lumber into rugged, one-of-a-kind seating and tables for outdoor areas. Agnes Bourne, Inc., San Francisco.

**306. Sinuous.** Durable enough for exposed public areas, the Serpentine Seat is an undulating wave of elm wood slats that provides sitting comfort with unobtrusive spacing. Its base is cast concrete, marble aggregate, and aluminum. Factory Furniture, Swindon, U. K.

**307. Sturdy.** Created by the firm that did public seating and other site furnishings for London's Canary Wharf project, the grandly scaled Bix bench is made of Indonesian teak with prominent legs and broad back. Wales & Wales, Lewes, U. K.

## AutoCAD Release 12

For more information circle item numbers on Reader Service Cards.



The new SQL extension can set up attribute data for easier export to a structured query language database program like WindowBase, dBase, or Q+E.

By Steven S. Ross

This latest version—for DOS and for Sun UNIX computers—offers faster zooms and pans, better networking, and (especially for those who use a mouse instead of a digitizing tablet) a better menu system and command interface. Best of all, the file structure is almost identical to that of AutoCAD 11. Thus, files created with earlier versions should be usable with no modification in AutoCAD 12.

Likewise, AutoCAD 12 files can be used in AutoCAD 11. That's particularly important, because the Windows [RECORD, May 1992, page 42] and the Macintosh [September 1992, page 42] versions have not yet been upgraded.

Perhaps the most amazing thing about Release 12 is that it is faster than 11. This is the first time that a new release of AutoCAD, with new features, has been more nimble than its predecessor.

Zooms and pans are faster because Release 12 uses extended memory more efficiently—32 bits at a time instead of 16. This allows a much greater zoom range—132,000 to 1 instead of about 50 to 1—without the software having to regenerate the drawing. Finding

and manipulating entities (including removal of hidden lines) is faster as well. With one of our large test drawings, 2 MB on disk with 16,000 entities, the speedup of hidden-line removal was better than 40 to 1. On a small drawing with 1,200 entities, the speedup was about 6 to 1.

The Release 11 internal Hide and Shade commands have been supplemented with built-in rendering. Renderman super-quality rendering is still an add-on, but you'll no longer have to shell out for AutoShade.

On a network, referenced drawings are not locked, as they were in Release 11. That is, they can be edited, even if the drawing that references them is also being edited at the same time.

Starting with AutoCAD 11, the software's features encouraged users to combine numerous drawing files into one plot. This feature has been made much more useful in AutoCAD 12 with "what you see is what you get" on-screen plot review, much better pen definition (255 colors, line-types, or widths), and the ability to store up to 29 configurations for plotters, printers, paper sizes, and so forth. There's also built-in support for PostScript, so you can send files to PostScript

printers, or easily convert drawing files for use in desktop-published brochures. You can also display PostScript files and insert PostScript images or fonts in AutoCAD drawings.

It is much easier in this "basic" AutoCAD (the software without add-ons) to edit drawings. You can "fence in" groups of entities to select or crosshatch them, or grab on to object "handles" to stretch, move, or copy them without going to the command menu.

Dimensioning is also easier, even without add-ons. You can nest dimensions, drag them around the drawing, and easily create dimension-style defaults.

Third-party developers are already beginning to take advantage of Release 12's improved capacity for customization. Menus and on-screen dialog boxes can be modified by the add-on applications themselves. New one-click commands can invoke complex tasks. There is a danger here that different add-ons will so customize AutoCAD that operator training costs will increase. But the productivity gains for production drafting can be impressive.

Even the now-classic "main menu" has been eliminated; the software opens with the drawing-editor window.

As for drawing methods, AutoCAD now allows some of the labor-saving techniques that have become more common in other software. In 2-D drafting, for instance, users can draw a wall in elevation, then punch "holes" in it. This is fast, and brings the 3-D metaphors to 2-D—making it easier to move between 2-D and 3-D. On the 3-D side, you can now rotate and mirror 3-D objects directly, with single commands.

The bottom line: Release 11 users on DOS computers should definitely upgrade, to take advantage of extra speed. Definitely upgrade DOS or Sun versions if you network as well. Sun users with minimum-configuration stand-alone computers may want to think twice; they may need extra memory. And memory for Sun machines is more expensive than for DOS equipment.

Circle number 308

# SureTrak Project Scheduler 2.0

## AutoCAD 12 summary

**Equipment required:** For DOS, Intel 80386SX or better CPU (80486DX or 80486SX with 80487 coprocessor, or equivalent, strongly recommended), 8 MB of random-access memory, DOS 3.3 (DOS 5.0 recommended), mouse or digitizer (digitizer recommended, but not as strongly as in the past). For Sun workstations, Sun OS 4.1.1 or higher, Open Windows 3.0, 16 MB RAM (32 MB strongly recommended). Supports all Sun displays except grayscale. Render uses 24-bit color, but regular AutoCAD on Sun still uses only 256 out of the 16.7 million colors available on a 24-bit graphics card.

**Vendor:** Autodesk, Inc., 2320 Marinship Way, Sausalito, Calif. 94965, 415/332-2344. \$3,750. Upgrade from any earlier release is \$500 before October 31, 1992. After that, upgrades from Release 11/386 are \$500; upgrades from earlier ADE releases range from \$700 to \$1,250. Upgrades for Sun SPARC are \$500; \$250 if you purchased Release 11 within 30 days of shipment date for Release 12. Release 12 requires Advanced Modeling Extension 2.1 to be used for solids modeling; \$495. Upgrade from AME 2.0 is free; from earlier AME versions \$150.

**Manuals:** A change for the better, compared to historical AutoCAD format. There's the big reference manual, a reference to AutoLISP and ADS-interface applications, 270-page tutorial, 50 pages of details on how the new IGESIN and IGESOUT commands translate IGES files, four thick manuals on customization tools and the new structured query language extension. But best of all, there's a box labeled "open me first" with the disks, the familiar installation and performance guide, and news of numerous learning aids and third-party add-ons.

**Ease-of-use:** Huge, feature-laden, complicated. But basic commands are intuitive, and the new menu system allows easier customizing.

**Error-trapping:** The new auto-save feature tends to keep you out of trouble, although large drawings do set the fixed disk whirring awhile. You can now lock layers to keep them from being edited, while keeping them open to dimensioning. You can snap an object on one layer to an object on a locked layer. ■

In a sense, this is Primavera Project Planner lite. SureTrak can read and write Primavera files. It can create most of the project reports you might need—Gantt charts, schedule tables, resource leveling, and so forth. But it runs comfortably on a much smaller computer—DOS machines with at least 640K of RAM.

It is ideal for firms that do not need to network their project-management files, even if resource use is complicated by the demands of tracking outsider-supplied services and equipment. We've seen a temptation in smaller practices to use software such as this in place of billing software. You can, but keeping an audit trail is difficult.

The basic approach is standard for project management software—activity-on-node programming (also called the "precedence diagramming method"). Each activity is represented by a box (or node) on a flowchart. Activities can be assigned a start and finish time, and a relationship with other activities. The path through the activities that must be completed in sequence and in the longest cumulative time is the critical path; the project cannot be completed any faster. But as time goes on, noncritical tasks might become critical due to delays.

All this is dandy, but you get out of this type of software only what you put into it—the amount and cost of labor and equipment and material for each task, fixed milestones, constraints among tasks (you can't build the walls without the foundation being in place first), and so forth. And you have to be able to adjust things easily if, for instance, tasks are completed in something other than original order.

SureTrak is good at data entry, although you enter data into general screens instead of directly into the network of tasks. The screens are extremely well thought out, and the software reacts quickly. You can also exchange files with dBase III (or, usually, dBase IV), Lotus 1-2-3, Primavera Project Planner (P3 files) Finest Hour, or text files generated by most word processing, database, and spreadsheet software. If the fields in the incoming file are in the wrong order, you can switch them. *Circle number 309*

## SureTrak Project Scheduler summary

**Equipment required:** DOS computer (80286 CPU or better recommended), 640 K of RAM, graphics monitor (Hercules, EGA, VGA). Compatible with a wide variety of printers and plotters; drivers are included.

**Vendor:** Primavera Systems, Inc., SureTrak Division, 1574 West 1700 South, Salt Lake City, Utah, 84104, 801/973-9610. \$795.

**Manual:** One comprehensive, clearly written, 600-page paperback with good reference section and excellent tutorial.

**Ease-of-use:** Good. You add data through menus rather than by placing to text in the graphical reports themselves. Thus, SureTrak is not up to the latest standards. But it is a fast package—even on an old computer as long as the fixed disk is up-to-date—with well-thought-out menu structure.

**Error-trapping:** Good. It is difficult to add inappropriate data. Billing records are a bit of a problem (a problem shared with many programs of this type). The system doesn't keep full data on earned value—the value of work completed—from period to period. Once a period is completed, the cumulative earned value is rolled over into the next period. If you want to record growth in earned value in detail, you have to back up the schedule files as each period ends. Importing files is a bit tricky; data fields can be truncated in the process. ■

Resource Data		"CURRG"			
Code	Description	Cost		Revenue	
		Unit Cost	Unit Price	Unit Value	Unit Price
PRM1000	Project Manager	0	75.00	0.00	0.00
PRM1001	Project Engineer	0	35.00	0.00	0.00
PRM1002	Design Engineer	24	24.00	0.00	0.00
CLM1000	Technical Clerk	16	10.00	0.00	0.00
SURM001	Surveyor, level 1	0	17.00	0.00	0.00
SURM002	Surveyor, level 2	0	29.00	0.00	0.00
SURM003	Surveyor, level 3	0	25.00	0.00	0.00
ENV1001	Environmental Consultant	1	1200.00	0.00	0.00
		0	0.00	0.00	0.00
		0	0.00	0.00	0.00
		0	0.00	0.00	0.00
		0	0.00	0.00	0.00
		0	0.00	0.00	0.00
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		0	0.00	0.00	0.00
		0	0.00	0.00	0.00
		0	0.00	0.00	0.00

Accept Delete Edit Move Transfer

117

*Data-entry screen for SureTrak. Pop-up menus guide you through the process. Even on a slow computer, the screens come up immediately.*

## Bush or Clinton: What's in it for the Architect?

This presidential election is arguably more important for architects than any in recent memory. And their choices are clearer than they have been in a long time. They can either vote for a candidate with an ambitious but costly plan for infrastructure improvements, changes in energy policies, and an emphasis on planning, or for a candidate who believes that reduced taxes, liberalized regulations, and an improved business climate will stimulate construction activity and thereby create work for architects. The choices are more pronounced for architects because Bill Clinton is one of the first candidate to espouse tenets developed by such "structuralists" as banker Felix Rohatyn and Clinton advisors Derek Shearer, Ira Magaziner, and Robert Reich, who believe that long-term changes in the physical landscape are more important than fiscal measures. Clinton is also seen as the first candidate in a long time to have a planning platform. Bush, on the other hand, believes that fewer governmental regulations combined with fiscal policy will release enough investment capital to create jobs in all sectors of the economy, including construction. He offers architects fewer specifics, but more freedom.

### Clinton's planning platform

Clinton proposes a \$200-billion program for "rebuilding our country, converting from a defense to a peacetime economy, revitalizing our cities," according to a campaign document entitled "Putting the People First." He says he wants to invest not only in rebuilding roads and bridges, but also in a national high-speed rail system, the creation of a "door-to-door information network by 2015," and environmental technologies that will increase recycling. He promises to provide easier credit for both low-income individuals and communities so that they can buy housing. The information network is an extensive data system connecting every citizen with libraries and other statistical sources around the world.

This emphasis on networks comes from Clinton's (and the structuralists') belief that we are in an era of almost complete capital mobility. In this analysis, jobs are independent of natural resources and wage structures. Instead, they move toward the best-

equipped workforce and the most developed infrastructure. It implies a placeless network, much like the nomadic universes of communication envisioned by such French critics as Jean Baudrillard, Gilles Deleuze, and Jean-François Lyotard. The implication for architects is that the profession's future lies not in the creation of isolated buildings, but in developing the architectural expression of such networks.

Another dimension to Clinton's platform is contained in the chapter of his draft transition document entitled "Sustainable Growth: Land Use and Transportation Planning," which was written jointly by architect Peter Calthorpe and Henry Richmond, founder of "A Thousand Friends of Oregon," an advocacy group instrumental in creating Portland's "greenbelt" model of concentrated exurban development.

These two New Traditionalist planners want a Clinton administration to promote transit-oriented development—a "return to the values and traditions of our traditional towns—diversity, community, frugality, and human scale." Such communities would offer dense, mixed-use living areas within walking distances of mass-transit stations.

Offering an alternative to "balkanized metropolitan sprawl and its low-density, segregated land-use patterns," the plan promises places of improved social and racial relations while reducing fuel waste (by cutting car trips) and conserving open spaces. Calthorpe and Richmond point to Portland (Oregon), Sacramento, and San Diego as model cities. They propose that Washington release funds for infrastructure improvements, create a national demonstration project, and sponsor special home mortgages.

Transit-oriented developments seek to create livable and recognizable places within the vast, abstract grid of communication and transportation networks. In the world of structuralist economics, Ronald Reagan's visions of small-town America merge with FDR-style public works. Helping build such a world would seem to offer architects broad opportunities, but it remains to be seen how many of these proposals could be imple-

mented, given budget constraints and local bureaucracy's ability to contest federal government "intrusion."

### Bush's approach

In strong contrast, Bush's primary means for creating renewed building activity is to continue to champion a capital-gains tax cut—as campaign press liaison Tony Mitchell puts it: "We have no specific models or plans. We just want to increase investment in real estate." Bush favors a continuation of current policies and statutes such as the Intermodal Surface Transportation Efficiency Act (ISTEA) and the Americans with Disabilities Act, and to add to the \$3 billion already spent on relief for the homeless. He wants to continue current housing preservation programs, increase borrowing limits on FHA mortgages, and expand the housing voucher program. Beyond that, he says, it's up to the states.

This is in keeping with the traditional Republican commitment to a decreased role for the federal government. Thus, while the Bush position papers emphasize "opening opportunities for all Americans," they leave these openings to the states to carry out. In ISTEA, for example, it is up to local authorities whether the \$151 billion it authorizes over the next six years is to be spent on highways or mass transit. In essence, Bush believes that shaping cities or suburbs are local decisions. Spurring growth and revitalization is his goal. He also proposes to remove regulatory impediments to building. He feels work for architects will pick up with increased investment incentives to individuals, reduced complexity of regulations ruling land development, and a lift in the overall economic climate.

### Kemp's "Not in My Back Yard" report

A key construction blueprint to come out of the Bush administration so far is Housing Secretary Jack Kemp's 1991 document "Not in My Back Yard: Removing Barriers to Affordable Housing." This report uses language associated with social activism—such as "empowerment"—to argue that it is excessive regulations, environmental laws, and local opposition to development (aided by "predatory" lawyers) that are responsible for the dearth of affordable housing and the



*Aaron Betsky examines the presidential candidates' positions on land use, urban planning, infrastructure, and other issues affecting the built environment.*

decline of urban areas. In Kemp's scheme, local governments and environmentalists are the enemies: local governments because they enact strict zoning and building codes to restrict new developers (who Kemp thinks would provide affordable housing), and environmentalists because they refuse to consider social costs when trying to preserve everything from wetlands to endangered species.

The Kemp panel thus proposes that the federal government take the lead in forcing local governments to liberalize their zoning and building codes before the government gives block grants or funds infrastructure improvements. He wants every federal agency to write a Housing Impact Analysis to show how their proposed policies affect housing availability. Such recommendations are targeted at the Endangered Species Act and wetlands regulations, which would have to be changed to take into account affordable housing criteria. Perhaps the most far-reaching proposal asks local governments to adopt universal building codes, making it easier for innovative technology, including modular and manufactured housing, to be built.

Thus, "Not in My Back Yard" is the Bush administration's equivalent of Calthorpe and Richmond's proposals. It too envisions more integrated and livable communities, but believes that they can be achieved not through planning and investment, but by streamlining bureaucracy, at times at the expense of the natural habitat. The Kemp proposals, however, have yet to be turned into a legislative initiative. Local governmental officials in Republican strongholds such as Orange County, California, reportedly spearheaded a drive to persuade Bush not to push the proposals and, with Kemp's position in a second Bush administration unsure, there is no assurance that they will be adopted.

**Who will make a difference?**

Current AIA president W. Cecil Steward thinks that "neither candidate has done enough." He wants both to concentrate on "growth management, issues of sustainability, and improving the social and cultural climate of the inner cities." Though he personally supports what he sees as Clin-

ton's more "holistic" approach to the environment, he points to a draft proposal put forward at the national convention by Robert Peck and Albert Eisenberg called "Towards an Urban Agenda" as representing the AIA's current position. This proposal calls for the creation of Community Improvement Projects that combine building restoration, land-use policies, and tax incentives to make neighborhoods the building blocks for revitalized cities. The authors point out that a participatory planning process can help break the cycle of hopelessness and poverty enveloping inner-city neighborhoods. The draft also proposes a Civilian Conservation and Construction Corps to rebuild our cities. This echoes Clinton's plan to let students work off education debts in national service. The AIA intends to present specific policy proposals to both candidates before the election.

Some architects I spoke with supported Clinton's plans but as tax-payers voiced doubts about their costs. Mark Simon of Centerbrook Architects in Connecticut believes that Clinton's call for a 20 percent increase in overall U. S. energy efficiency by 2015 will "bring a lot of solar-energy innovations developed in the 1970s off the shelf." What's more, he says, "we don't need more office buildings or shopping malls, we need environmentally correct housing, schools, and libraries, and there will be work for architects designing them." Others point out that many regulations actually protect architects, either because their sheer complexity causes clients to turn to professionals, or because they mandate the use of architects.

Phoenix architect Richard Loope of Alliance Southwest supports Bush's efforts to tame bureaucracy. He thinks that "we are moving from a labor-intensive to a capital-intensive profession, and Bush will, with the capital-gains tax cut, tax credits for investment, and an overall reduction in regulations, help architects compete on a global level."

Economic forecaster Jacques Gordon of Baring Institutional Realty Advisors, who monitors real-estate markets throughout the country, isn't sure whether creation of more

investment opportunities will expand an already overbuilt real-estate market. He does think that specific Bush policies such as the North America Free Trade Agreement will stimulate growth in places like Laredo and El Paso, Texas. In the end, he claims, "it doesn't make much difference who is President. The flow of capital, what the Bundesbank is doing in Germany, these are the things that matter." Gordon's worst fear is that "the campaign will get so nasty that people will have so many doubts about the leadership of whoever is elected" that, as a result, they will be too cautious in their spending.

New York City-based architect James Stewart Polshek disagrees: "Almost all of our projects are on hold until the election," he says, "and they may get going no matter who is elected, but I think the process will be accelerated if Democrats get into the White House."

Yet this is only one guess. For all of Clinton's grand schemes, the ultimate difference between the two candidates comes down to the methods by which they want to prime the economic pump. A Clinton administration would probably put more architects to work in planning and government works, while Bush's tax cuts, if he gets them approved by Congress, might well support private-sector growth. Clinton's proposal is unusual in that it addresses architects' concerns more or less directly. Bush's platform, meanwhile, reaches architects more as members of a larger economic community.

Beyond economic choices, there are philosophical issues at stake: do you as an architect want to try to build more livable communities encouraged by strong planning and funding initiatives coming from the federal government, as Clinton proposes, or do you prefer to get there by way of the more laissez-faire fiscal policies of Bush?

*Aaron Betsky*

## Showdown on Outlaw Street

*Robert Campbell's street is a great place to live. Why then won't zoning regulations allow its values to be applied elsewhere?*

By Robert Campbell

In my town of Cambridge, Massachusetts, the rich people live over on the west side near the wide green lawns and spacious mansions of Brattle Street. In my less fashionable neighborhood we refer to that part of town as the Goat Cheese Belt.

We prefer our own more crowded world. My own street is a single long block, lined with 50-year-old Norway maples—said to have been planted by an opportunistic Parks Commissioner who once resided here—and with closely packed, very ordinary one-, two- and three-family wood-frame houses, most of them about 100 years old.

Everyone seems to love my street. It has a gift for bringing people together and persuading them they belong to a community.

It is also hopelessly illegal. Measured by current zoning regulations, it's a model of criminal depravity. Call it Outlaw Street.

That's the point I want to explore. But first, a little description. Last June Outlaw Street threw its 15th annual block party, the equivalent, in ever-changing Cambridge, of Joe DiMaggio's 56-game hitting streak. People returned for that party who'd moved off the block years ago, including one couple, now married with kids, who first met at the Outlaw Street block party of 1980. On the night of this year's bash, the fourth young Benjamin on Outlaw was born. (Two of the Benjamins have brothers named Zachary—I don't know whether this is a national trend or just another quirk of Outlaw Street.)

We're a mixed crowd, fitting right into the pluralistic '90s. There are at least three gay marriages. We go back in time as far as one woman who's 89 and remembers when she used to stable her horse behind her house. At the other end of the age spectrum are maybe two dozen kids.

### No one wants to leave

The couple across the street from me, who have one each of those Bens and Zachs, just bought the yellow house next to the church, making it the third place they've lived on Outlaw Street over a period of 14 years. They can't imagine ever leaving.

On Saturday morning, there's always a neighborhood breakfast table at the deli a couple of blocks away. Every few weeks, someone decides to host a potluck. In the winter, we get together at a camp in New Hampshire for a weekend of cross-county skiing and charades. We've been doing that since 1977; kids who once wobbled on their first skis are out of college now.

What I'm trying to demonstrate is that Outlaw Street is an ideal more often dreamed about than actually found. Outlaw Street is a genuine urban village. So why did we make it illegal?

Illegal, not only in Cambridge, but almost everywhere in the United States. Outlaw Street breaks every rule of today's well-intentioned, but seldom well-considered, zoning and building codes.

### Breaking all the rules

According to received wisdom, our houses are jammed much too tight together, they cover too much of their lots, they're set too close to the street, they don't have enough parking, and many of them—the so-called Boston triple-deckers—are potential fire-traps. The street itself and the sidewalk are too narrow, and the trees at the curb make snow removal inconvenient. And so on.

You couldn't replicate this wonderful street today, not even on its own site. Look at some numbers. According to the current Cambridge code for Outlaw's zoning district, the width of a lot is supposed to be at least 50 feet. Few of ours are, and many fall under 40. The lot area must be at least 5,000 square feet. Again most of ours fall short, often as low as 3,500 and in a few cases less.

Side yards are even more ridiculous. Applying the formula from the zoning code, you'd have to give everyone on Outlaw a side yard of from 15 to 20 feet, depending on the size of the house. That's pretty hard to accomplish when two houses are 5 or 6 feet apart—a condition we've got more than once. Front yards? They're supposed to be 10 to 15 feet, but a couple of ours are zero. Back yards? Forget it: we have six houses on the block that are sited in former back yards.

And remember, I'm comparing Outlaw Street to Cambridge standards, the standards of an old city that permit far higher densities than do most towns. If I showed Outlaw to the authorities in most of America, it would fall so far off the charts it would probably be condemned.

Of course the rules don't hurt us, because we're already here. They just make it impossible for anyone else to create something equally terrific, ever again.

Today's zoning laws are created, apparently, by chlorophyll-drugged terrorists who think everybody in America ought to be living in identical suburban houses with huge neon-green lawns and two cars in the garage. Just like Dick and Jane. Or Beaver Cleaver, not to sound quite so dated.

But those rules shouldn't apply to Outlaw Street, because it *isn't* suburban. Americans have forgotten that cities, too, are quite wonderful places, with virtues very different from those of suburbs. And those virtues depend on breaking today's rules. Outlaw Street's illegalities are the very qualities that enable it to work so well.

All those houses jammed so close together, for instance, make for high density. There are an awful lot of people living on this block (though far fewer than in the past). Outlaw is almost exactly a quarter-mile long and it contains 76 houses and a church, as well as a school, a bank and a laundry at three of the four corners. There's a total of approximately 115 dwelling units, containing 250 people, in this one block. Translated into density, that comes out to 23 units per acre.

You just can't have cities without density. If it weren't for its density, Cambridge wouldn't have enough people to support a subway system and the zillion shops and restaurants that make life here fun. (Seventeen bookstores and more than 50 restaurants in Harvard Square alone, just a 15-minute walk from Outlaw.) There'd be no Saturday breakfast at the local deli if we were spread out more thinly, because there'd be, of course, no local deli. I don't think we'd choose to gather in our cars at the Burger King out on the strip, where the tables are

*Outlaw structures: houses lacking the proper setback from street (1), houses too close together (2), the author's house (3).*

Robert Campbell photos



screwed to the floor and can't be pulled together.

Then there's the matter of friction. Friction is the way you meet your neighbors on Outlaw Street. Their dog messes up your front walk, or your teenager's stereo drives them nuts, or you share the frustration of watching the whole narrow street torn up for a new water main. Friction creates something you might call involuntary socialization. If you sit on an Outlaw Street stoop, everyone who walks by will pass close enough to have to say hello.

By such means you meet, you mix, you get to talking. A neighborhood begins to form. Life itself, it is well to remember, begins with an act of friction. And we keep bumping into one another until life ends.

#### **Two alternative models**

Among both architects and the general public, the Outlaw Street model, with its freestanding houses packed tightly together, has long been unfashionable. Considered more desirable are two other models of residential living. These are the townhouse (or "townhome" in the pathetic language of the real-estate community) and the suburban villa. Georgetown or Russian Hill on the one hand, Tuxedo Park or Marin County on the other. Yet the Outlaw Street model has advantages over both of these.

Like the folks in Georgetown, for example, we enjoy high density and the urban vitality it supports. But we also enjoy daylight on all four sides of our houses, as they don't, and many of us possess driveways for our cars.

And like those other people in Marin County, we enjoy trees and lawns and gardens, albeit modest ones. But we don't have to get in a car to find a sandwich, as they do, and we don't find ourselves stuck in a commuter traffic jam every day.

I'm not arguing that every place ought to be like Outlaw Street. I hope I'm arguing just the opposite. I'm arguing for difference. For not applying one kind of rule to a different kind of place. For not trying to turn Outlaw Street into Wistful Vista. For recognizing something valuable when you see it, no

matter how many knee-jerk rules it violates.

Zoning codes today seldom derive from any deep thought, by the citizens or planners of a town, about what that town should be. Instead, towns shop around for zoning as you might shop for sweaters. They gather codes from other places they think of as being similar, then cut and paste. Or they hire an "expert," meaning a consultant from somewhere else, who may or may not be sensitive to the specialness of the place. Or they go for their models of regional planning associations. Codes are as often written by attorneys as by physical planners. Attorneys are fine, but they're not likely to think freshly about patterns of life and how the built environment does or doesn't support those patterns.

The result is a kind of national entropy, a continuing devolution from difference to sameness. As codes circulate and recirculate, places get to look more and more alike. We grow closer and closer to the condition of becoming one single standardized national coast-to-coast suburbia. Farmlands suburbanize. Everyone knows that. But so do cities. From both ends, we are approaching a mean.

#### **Ignoring textbook standards**

To write a zoning code the way it should be written, a community needs to decide for itself what it wants to be and ought to be, regardless of national or regional textbook standards, and regardless of fashionable images. Then it has to write its own unique code, the one that will nurture its vision of itself, no matter how nutty that vision may seem to someone else. That's the only way to reverse the worldwide trend to sameness.

We should ask our planners to go out and look at real neighborhoods and figure out how they work. And to do so before they finish the job of destroying all our cities—and destroying, as they will eventually if something doesn't change, Outlaw Street itself. ■

## The Way We Were

**Ticket to Paradise: American Movie Theaters and How We Had Fun**, by John Margolies and Emily Gwathmey. Boston: Bullfinch Press, 1991, 144 pages, \$30.

Reviewed by Donald Holden

The story goes that Alvar Aalto looked at a design for a nursery and said: "Not bad so far, but where does the lion live?" Translation: Where is the stage for the magical inner life of the child—and the fantasy life of the adult that child will become?

With a few exceptions, the highbrow architects of our century score zero on the Aalto Lion Scale. But this enchanting book rediscovers the forgotten lowbrow architects who designed our temples of imagination, the stages on which our dreams (and our nightmares) came true for a few hours every Saturday.

*Ticket to Paradise* pulls together a wonderfully entertaining montage of 200 color photographs by John Margolies and text by Emily Gwathmey, plus vintage photographs, postcards, ads, and other curios that range from program covers to popcorn bags. The handsome photos have a suitably artless quality that makes them especially touching. The enthusiastic text is fun to read, not only for its history of architecture but as a capsule history of the movie business and its audience.

The layout—with its goofy tint blocks, overstated typographic contrasts, and diagonal rows of pictures—is an affectionate take-off of the cornball page design that a small-town commercial artist might have produced in the 1930s.

The authors also had the inspired idea of printing letters from movie fans who were

addicted to the old theaters. These letters are so passionate and so poignant that they add an unexpected dimension to the book. Although the authors don't actually confront such issues, one can't help asking two questions. Were these Roman and Moorish, Mayan and Chinese, Buck Rogers and Art Deco fantasies loved by more people than any other buildings of their time? And if so, why did they have so little impact on mainstream architects, who must have bought tickets to paradise every Saturday like all the other kids?

*Donald Holden is a painter and author who worked for industrial designer Henry Dreyfuss in the 1950s and later served as editorial director of Watson-Guptill Publications. His latest book is The Artist's Guide to Using Color, published by North Light Books this year. As a kid he spent Saturdays at the RKO Keith's in Flushing.*

### Books

## Briefly Noted

**The Staircase**, by John Templar. Cambridge: MIT Press, 1992, 2 volumes, 185 pages and 200 pages, \$27 and \$32.

A two-volume study of one of the most basic—and dangerous—architectural elements, *The Staircase* is a fascinating publication. Volume I, entitled *History and Theories*, examines much of the known literature on the subject, ranging from the writings of Vitruvius to those of Pevsner. It also pulls together a wonderful set of examples—from a siege ladder by Leonardo da Vinci to Franco Albini's polygonal helicoidal stair for the Palazzo Rosso in Genoa. Volume II, called *Studies of Hazards, Falls, and Safer Design*, is the technical companion, offering charts, diagrams, and data on why people get hurt on stairs and how accidents can be prevented. Both volumes are handsomely designed and well illustrated with all black-and-white photographs. The writing is straightforward and even the diagrams hold one's attention. A favorite set of illustrations show ascent and descent patterns for a variety of staircase types.

**Cityscapes of Boston: An American City Through Time**, by Robert Campbell and Peter Vanderwarker. Boston: Houghton Mifflin, 1992, 220 pages, \$35.

Using the simple device of juxtaposing old photographs with new ones taken from the same spots, the authors of this book engage in a wonderful dialog that helps explain not only how one particular city has evolved over time but how cities in general develop, decay, grow up, spread out, revive, and change. Vanderwarker's photographs—both the old ones he has selected from archives and the new ones he has taken himself—reveal continuities as well as contrasts. Campbell's text is peppered with sharp insights on urban form and often takes aim at unexpected targets such as preservationists who take too literal an approach to saving the past. Instead of preserving the city in amber, the authors advocate a layered approach to urbanism that recognizes the contributions of different periods and different hands. Like the quirky city it examines, this book adroitly avoids pat responses.

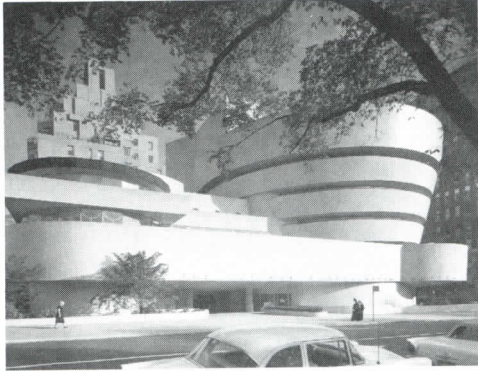
**Block Housing: A Contemporary Perspective**, by Pere Joan Ravetllat. Barcelona: Gustavo Gili, 1992, 189 pages, \$60.

A staple building type since the emergence of the industrial city in the 19th century, the housing block is once again drawing the attention of architects—especially those in Europe. This book presents a handsome portfolio of mostly European examples from the past 10 years, including work by Alvaro Siza, Jean Nouvel, O. M. Ungers, and Nicholas Grimshaw. The book's photographs and design are excellent, but the text has a quickly translated feeling to it.

**Richard Neutra**, by Manfred Sack. Zurich: Verlag für Architektur, 1992, 192 pages, \$25.

A survey of the Viennese-born California Modernist's work on the 100th anniversary of his birth, this book offers a selection from material first published in the 1950s and '60s. The book also includes a short essay by Sigfried Giedion from 1950 and reminiscences by the architect's son Dion.

Ezra Stoller/© Esto

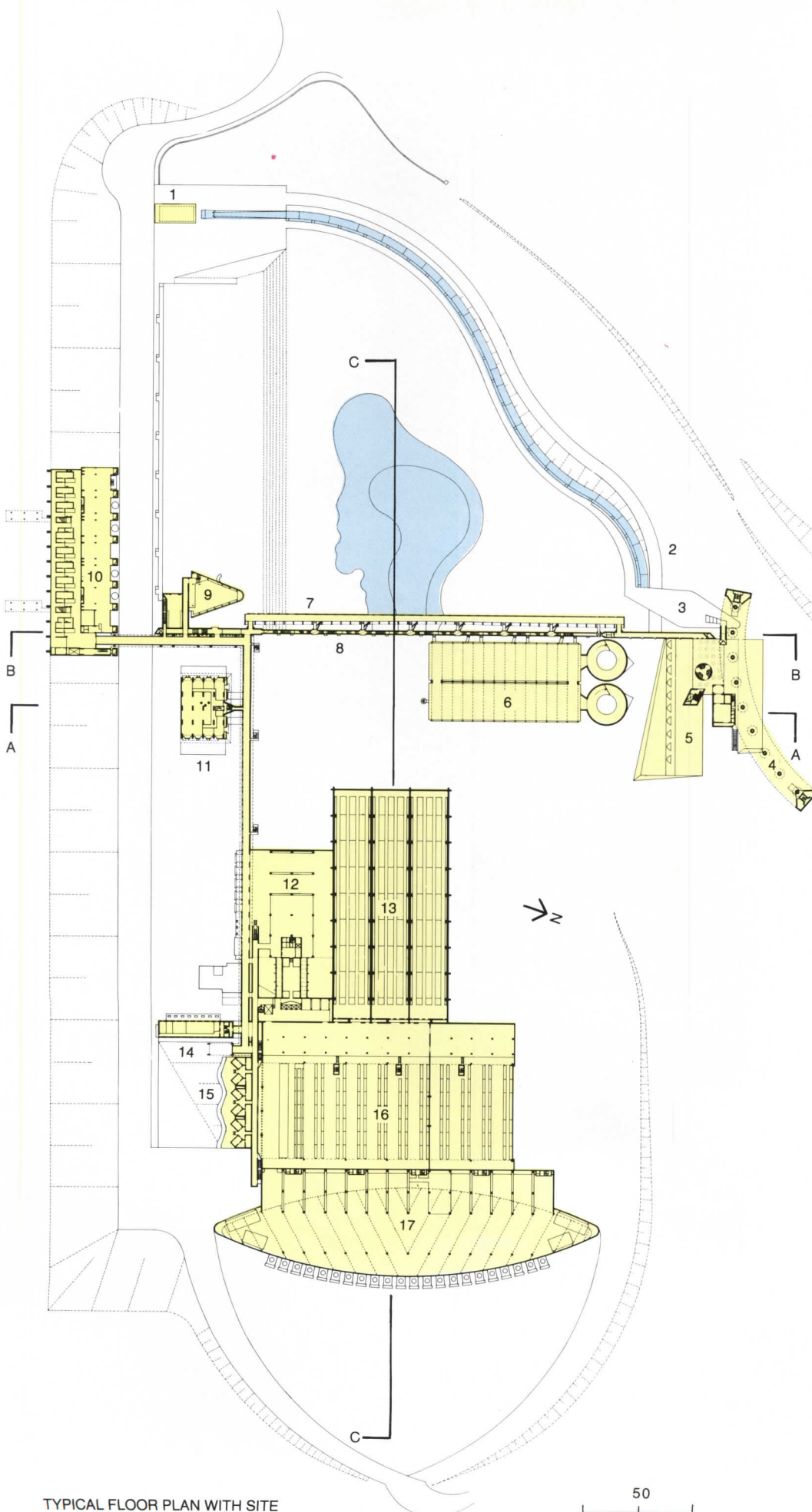


*In the 33 years since the Guggenheim opened many things have changed, but the loyal still flock (see pages 100-101).*

Just when all the hoopla is finally quieting down, why is RECORD doing a cover story on the renovation of the Guggenheim Museum? For one thing, we feature a critique of the “New Guggenheim” by Carter Wiseman (page 102) with a powerful rebuttal by Charles Gwathmey (page 104). For another, we have exclusive photographs of the new interior spaces. Like Frank Lloyd Wright’s original building, Gwathmey Siegel’s scheme has been controversial since the museum announced its expansion plans in 1982. And the debate continues. There is little debate, however, over James Stirling’s place in the pantheon of Modern architects. The completion of a factory in Melsungen, Germany with Walter Nägele (page 74) seemed to herald yet another creative burst in Stirling Wilford’s practice, one that was sadly cut short by Stirling’s sudden death last summer. Creativity would appear to have little place in the design of a remote switching station—“a protective shell” for telephone equipment—but Ross Barney Jankowski’s clever visual pun on technology proves otherwise (page 96). On a more serious note, Daniel Solomon devises infill-housing solutions with two townhouse complexes in San Francisco (page 90), while Louis Goodman combines tradition and innovation in a New England synagogue (page 84). Together, these projects show that the unexpected is as integral to a project’s success as the familiar—or, as Wright wrote about his own design of the Guggenheim: “The whole thing will either throw you off your guard entirely or be just about what you have been dreaming about.” *K. D. S.*



# Swan Song



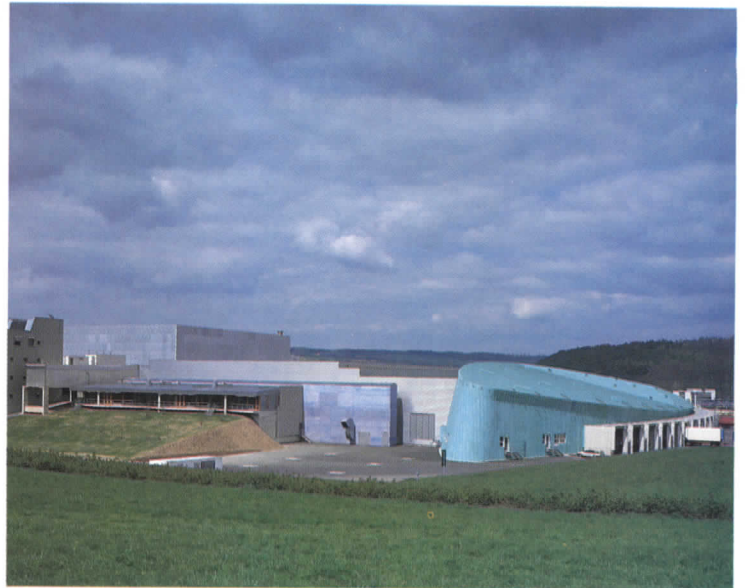
By dispersing the primary functions at B. Braun, the architects made striking juxtapositions. A copper-clad computer building slips between the garage—faced in tilted, screenlike concrete panels—and the administration wing beyond (1 opposite). A three-level corridor creates a plane that visually divides a cafeteria facing a sloping lawn (2). From left to right in 3: the Behrenlike production building, an administration center for the warehouse, the copper-clad shipping docks, and the administration wing. Viewed from the plant's main en-

trance (4), a nearly solid, 800-ft-long "stair wall" is fronted by a timber-framed, glazed gallery connecting parking and administration to manufacturing. With its thick diagonal braces (both crosswise and along its length) and its narrow vertical supports, the gallery nonchalantly seems to violate the laws of structure. A wedge-shaped restaurant is visible in front of the production building (background of 5).

1. Security
2. Garage access
3. VIP dropoff
4. Administration
5. Computers
6. Garage
7. Gallery
8. "Stair wall"
9. Restaurant
10. Production
11. Power house
12. Materials entrance
13. High-bay storage
14. Warehouse administration
15. Cafeteria
16. Distribution
17. Shipping



1



2



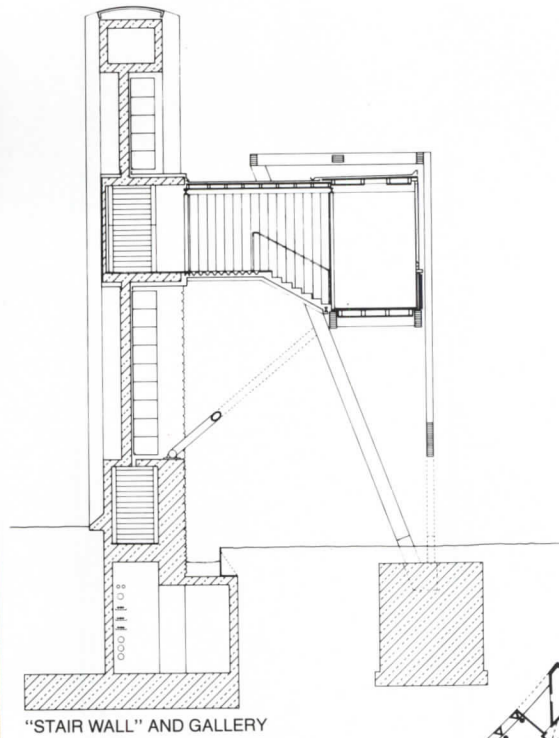
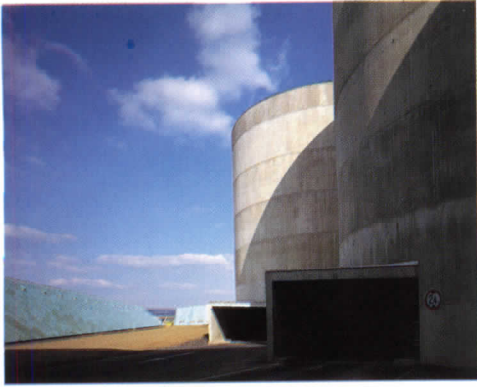
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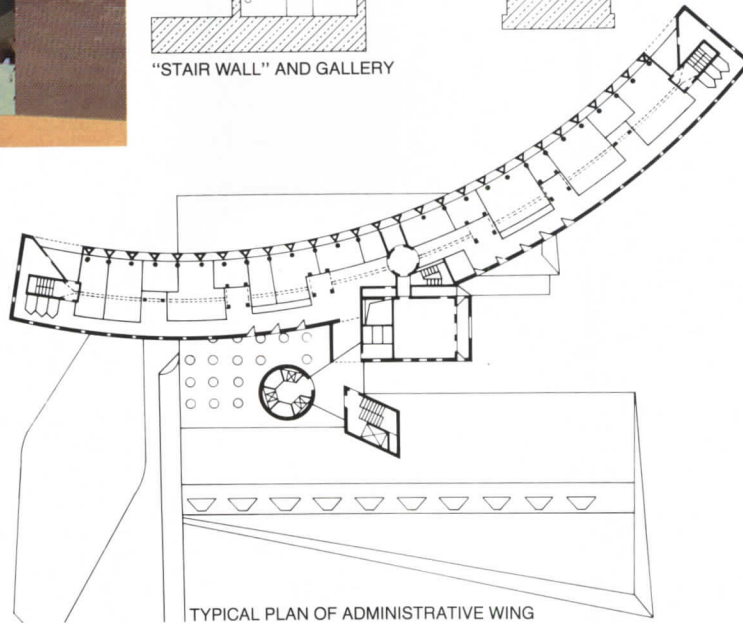
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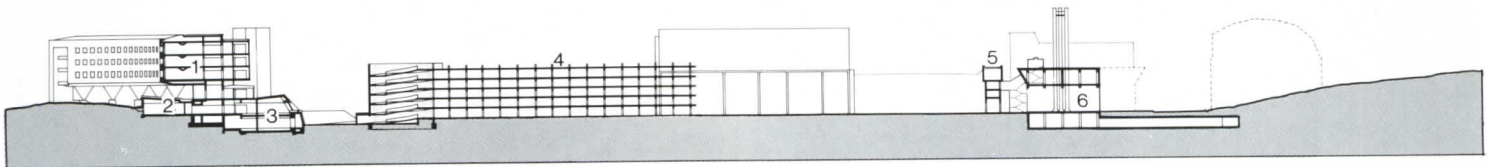
"STAIR WALL" AND GALLERY



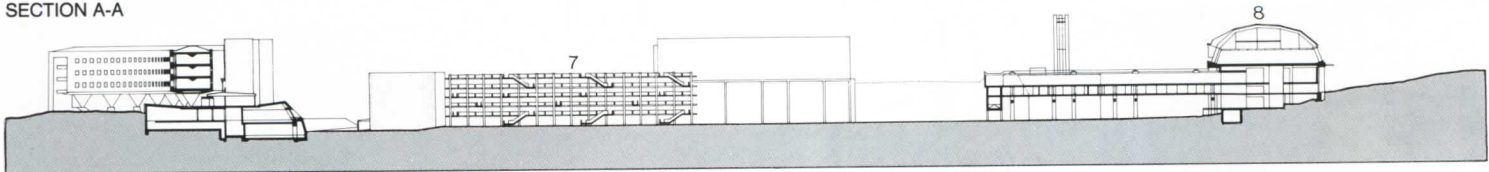
TYPICAL PLAN OF ADMINISTRATIVE WING

*In response to the highly automated nature of the processes, the desire to maintain little inventory on hand, and to provide for many possible expansion scenarios, the architects zoned the structures vertically in three functional layers (sections bottom). Ground level is reserved for goods transport and private cars; the upper level houses transport for automated goods (using robots that follow leads buried in the floor). The pedestrian level is sandwiched between. The masterplan spreads departments over a large area to permit each to expand in response to market needs. Stairs from the parking structure drop between nearly solid walls to connect via short bridges to a timber-framed, glazed gallery (drawing left). (The gallery is ventilated by hydraulically operated lowers. Should the temperature drop below 40F, overhead heaters switch on automatically.) The curving, stainless-steel-clad administration wing is borne by a series of concrete cones (middle left and opposite). At once dainty and hefty, they bring to mind the hippos dancing on tiptoe in Disney's Fantasia. The wing hovers over a copper-paneled shed enclosing mechanical equipment. A similar shed, housing computers, faces the interior of the complex and forms a courtyard with the ramps of the garage (top left).*

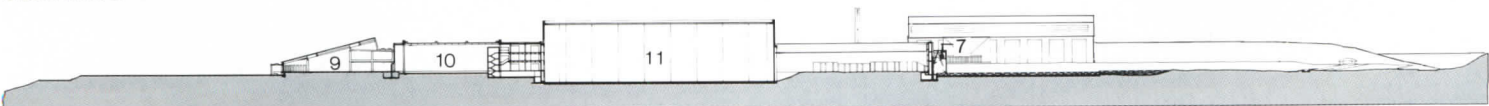
1. Administration
2. Mechanical
3. Computers
4. Garage
5. Corridor
6. Power house
7. "Stair wall"
8. Production
9. Shipping
10. Distribution
11. High-bay storage



SECTION A-A



SECTION B-B



SECTION C-C







A grid pattern has been hand-scribed in concrete walls visible in the main reception area (1, left), which looks out onto conical piers. The pastel colors visible in bridges linking the parking structure and "stair wall" (2) recur throughout the project, most notably in the recessed window openings of the offices (preceding pages). The cafeteria features wedge-shaped coffee mezzanines (3), a form echoed in the billowing space of the restaurant (4) and in light monitors in the passage from offices to parking (opposite).

#### Credits

**B. Braun Melsungen AG**  
 Melsungen, Germany  
**Architects:** James Stirling, Michael Wilford and Associates in association with Walter Nägeli—Ludger Brands, Robert Haas, Regula Klöti, Brendan MacRiabhagh, Bernd Reinecke, Hella Rolfes, Jacques Thorin, Siegfried Wernik (architects); Georg Braun, Annegret Burg, Desmond Byrne, Conni Conradi, Martin Focks, Ferdinand Heide, Lothar Hennig, Renate Keller, Thomas Kemmermann, Joachim Kleine-Allekote, Sabina Krause, Ralf Lenz, Jörg Liebmann, Gudrun Ludwig, Sean Mahon, Bernd Niebuhr, Paul Panter, Dieter Pfannenstiel, Maria Rossi, Norberto Schornberg, Mirjam Schwabe, Julia Tophof (team)  
**Engineers:** Prof. Polonyi + Fink GmbH (structural); Rud. Otto Meyer (mechanical)  
**Contractor:** Walter Hötzel AIV







*In order to prevent hvac requirements from intruding on his basic design concept, Goodman integrated louvers into the siding to vent the mechanical space over the auditorium ceiling (top), deeply recessed lighting and grills in the sanctuary ceiling so they appear as discreet punctures (overleaf top), and used the same siding and slate base on the rest of the building to cover and conceal exit doors (top right). The Ark rests under the circular window and clerestories. A courtyard formed by the new building and the screen wall on pre-existing classrooms (right) is used for social functions in good weather and contains a handicapped-access ramp.*

**B**uilt over an underground stream that had destroyed the building before it, Temple Israel symbolizes a triumph of spirit in several ways. For one, there is architect Louis Goodman's hands-on determination and that of the congregants, who donated work on construction and finishes, to produce the 10,500 square-foot structure at a cost of \$75 per square foot, including demolition and installation of new heavily waterproofed foundations above a drain-and-pump system.

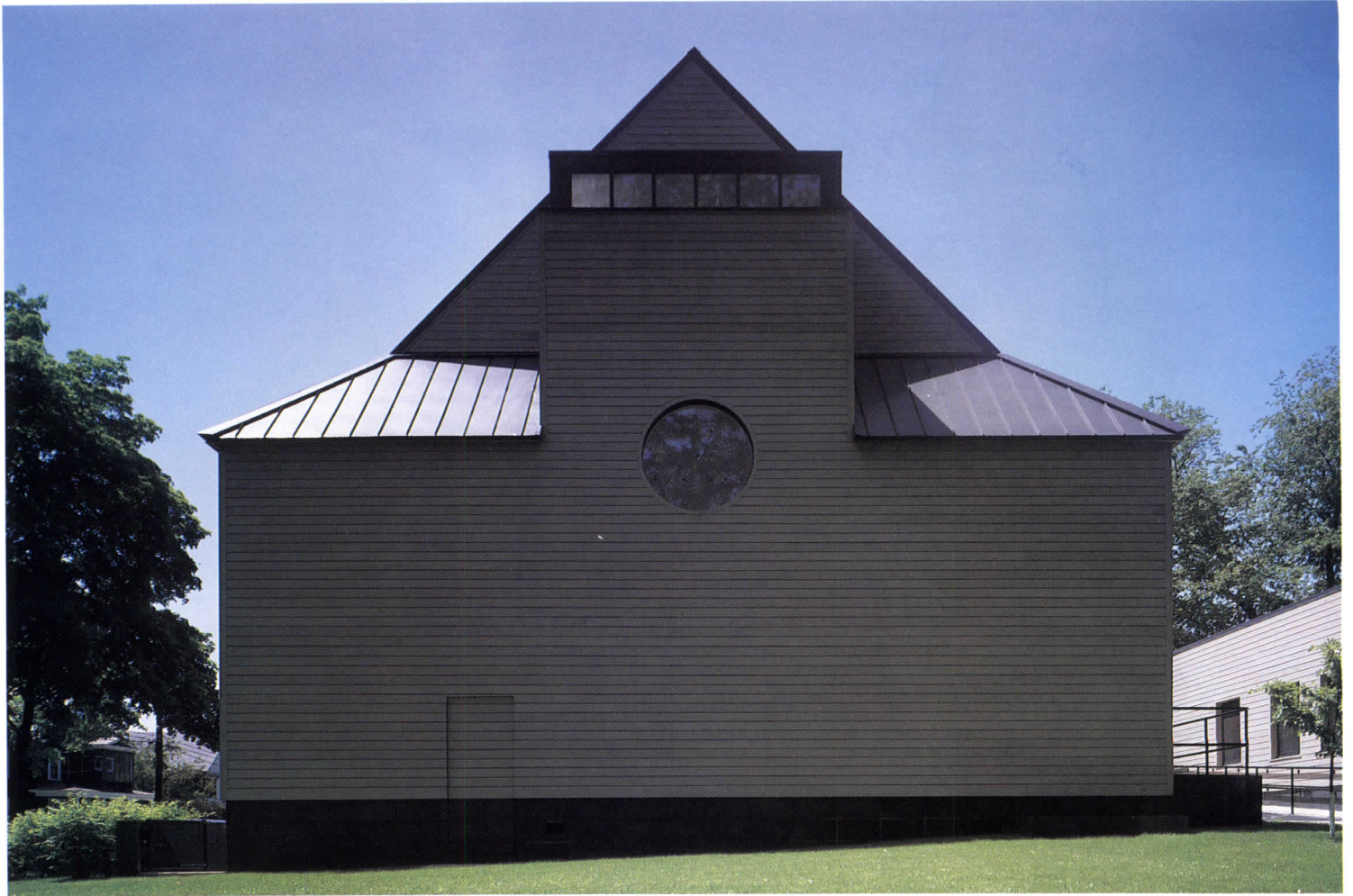
What is more, Goodman's building is all the more remarkable for its unusual detailing and for the way the architect, with the help of Rabbi Louis Rieser, re-examines the nature of synagogues in general. Although Goodman was raised as a Jew, he was surprised to discover that synagogues do not have the fixed requirements dictated by other religions for their buildings. Any consistency in their form comes solely from current architectural practice, which is always evolving. As Rieser puts it: "A service can be held anywhere 10 Jews are. Only the presence of the Torah makes a place sacred; take it away and you have a secular building." He recalls holding services in a community center in Israel.

Goodman points to buildings built by all denominations in the decades after World War II that substituted elaborate materials and showy display for uplifting basic design. Instead he turned to a book given him by Louis Kahn on 18th-century wooden synagogues in Poland, almost all destroyed in the early 1940s. Not only did he find inspiration for a building that fits right into its New England setting, as Rieser and his congregation wanted, but one that provides an artful transition from the outside world into a sanctified one where the effect is achieved less by display than its absence.

The means are straightforward: steel-frame construction with wood-stud-and-rafter infill. Walls are clad on the outside by flush shiplap siding, which not only recognizes an old New England tradition, but, for Goodman, produced a suitable surface for the abstract volumes he wished to create. (While many may see this as a building with highly traditional leanings, local residents, interestingly, view it as "modern.") The roof is standing-seam painted metal. He continued it down onto the vertical wall of the gable over the entrance porch (previous pages) to emphasize his own geometry *and* avoid resemblance to a steeple, which would indicate a church. Indeed, he accentuated the building's horizontal lines for further distinction, striving at all times for a welcoming countenance.

More unusual, deep-set, clear-glass windows give views to the outside, a feature found in few synagogues to avoid distractions. He placed these windows high enough for worshipers to see only sky and trees. He provided 10 of them to correlate with the 10 words of creation painted around the base of the sanctuary ceiling (overleaf). This barrel-vault-shaped ceiling, made of medium-grade wood repeatedly stained to conceal its many flaws, creates, says Rieser, "comfort at first meeting" to new congregants—as does a hushed contemplative atmosphere provided by thick walls of deeper-than-normal studs and heavy insulation. Seats for 265 worshipers are dark-stained pews rescued from the previous church on this site, arranged not around the bema as one would expect for this Orthodox congregation, but mainly in front of it as is usual in Conservative practice. They appear to float on bleached-oak floors and against light rough-finish walls rubbed with white pigment in an effect that Goodman asserts was inspired by the Duomo in Florence.

*Charles K. Hoyt*



# Variations on Patterns

Look at this.” Daniel Solomon points out a 1960s HUD apartment complex in a residential area near one of his recent townhouse projects. Rows of two-story buildings in the complex are laid out at a 30-degree angle to the street, each separated from the next by an alley and cars, complete with curb and gutter, palm trees, sidewalks, and narrow strips of grass. The living-unit-per-acre density of this block of miniaturized suburban-tract housing is low compared to many residential blocks in San Francisco. But it’s easy to see that the complex doesn’t fit into the neighborhood. As Solomon says, “It ignores the city’s street grid, orientation, density, and the rhythm of the lots. It doesn’t handle the cars.”

Solomon’s own work in housing and urban planning suggests that the architecture of a neighborhood and its culture are connected in a complex way with the architecture supporting the culture, much the way trees in an old-growth forest support a fragile, diverse ecosystem. Both the people in a neighborhood and the creatures of the forest are sheltered by structures that grow out of the land; the life forms and their shelter structures are maintained in a mutual equilibrium. Both neighborhoods and the forest support such rich diversity.

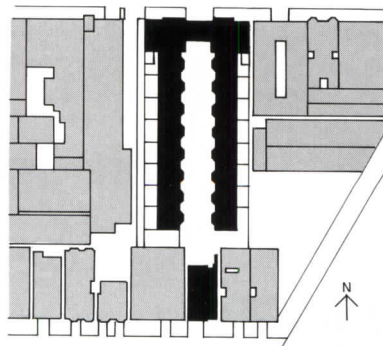
To fill a vacant site in an urban neighborhood with housing that ignores the neighborhood’s architectural past is to risk losing that diversity; the social and commercial contacts in a neighborhood can’t be retained if new dwellings ignore its traditions, just as the abundance of a clear-cut old-growth forest can’t be restored by just replanting trees genetically engineered to produce a harvest in 40 years.

Solomon reports sadly that developing countries hurriedly “modernizing” their housing are in the process of obliterating their own neighborhoods to imitate Western architecture that doesn’t even acknowledge its own traditions. “In Beijing, for example, the heritage in the neighborhoods is so rich, there are layers and layers of it. And yet how brutally they’ve wiped away miles and miles of it, instead of nurturing it and preserving it. There’s no sense of loss. They’re so proud of their modernization, some of which is just a fiftieth-rate version of Western architecture.

“True, living conditions in the old buildings are really horrible. But instead of adding sewers and reducing the population densities and developing the mechanics for getting people out of there, [the Beijing government] just eradicates it. But they could be building in a way that retains some of the flavor of the street life and the culture. It’s a pity.”

Residents of San Francisco don’t share “this end-view of time.” According to Solomon, “They like to see the past alongside rejuvenation.” But here traditional patterns are sometimes battered by the planner’s pen instead of the bulldozer. As a past consultant to the San Francisco Department of City Planning, Solomon helped rewrite planning rules that had prevented architects from following the city’s design traditions.

“What we did was change the rules to once again allow building into the mid-block to create courtyards and alleys. Another change reimposed the old 25-foot-lot grid on aggregated parcels. Third was the limitation on curb cuts and garage door widths, so the streets didn’t



*Fulton Grove’s mid-block alley was formed by joining back-to-back land parcels.*

## Two recent townhouse projects use historic alley and court patterns to create rich urban neighborhood spaces.

*Fulton Grove Townhouses  
Beideman Place Townhouses  
San Francisco, California  
Solomon Architecture and Planning  
and John Goldman,  
associated architects*

turn into rows of garage doors. There are a whole series of ways of adapting the old San Francisco urban morphology of block patterns and lot patterns to contemporary conditions of larger development, the automobile, security, and so on.”

Two recent infill projects retain the character Solomon describes as “the tight, intimate interaction between streets, lots, and buildings that make the city a city.”

### **Fulton Grove Townhouses**

Solomon’s first townhouse project lies on a newly created alley between Fulton and Grove streets near the San Francisco Civic Center. “It replicates a typical San Francisco pattern of mid-block alleys. These were created in the 1850s and 1860s,” says Solomon, “as speculators tried to get higher densities, as well as increasing the perimeters of the blocks, without building higher buildings. A lot of the really nicest little residential enclaves in San Francisco are built on these little speculator alleys. This was made by connecting two parcels together and cutting the alleys through that.”

Two larger flats at each end of the alley frame the double-garage door-sized openings that lead to eight 20- by 20-ft townhouses on each side of the cobblestone alley. Each of the narrow shingle-covered townhouses has a bay-window view of the alley from the loft and master bedroom, a 15-ft garden in the rear, and a garage. The narrow, curbside alley formed by these three-story structures is at a very comfortable pedestrian scale. “The neighborhood children love to come here to play,” says Solomon, “because it feels safe here.”

### **Beideman Place Townhouses**

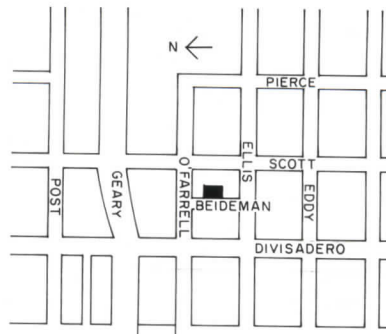
The Beideman Place Townhouses are located on one of the mid-block alleys Solomon describes above, but are based on a different pattern of site development traditional in San Francisco. “A lot of times in the early development of the city, people would build little cottages in the back of the lot and then build a house on the street later,” says Solomon. “The space in between them formed these little courtyards that were really nice. That’s what this is copied from.”

The three-story, five-unit building in the front of the site has townhouses that are almost the same in plan as the two-story six-unit building on the rear of the site, except it houses garages and storage for all 11 units on its first level. Eight of the 11 garages are accessed through the large arch by one curb cut, which also serves as a pedestrian link to the courtyard and the two-story units beyond. The units themselves are tiny—only 16 ft wide—but maintain their own identity with individual entrances and private decks in the rear.

On the street side of the units, Solomon uses elements from nearby Victorian homes and pares them down to the bare essentials: simple bay windows with bracketed eyebrows project over the garage; the clapboard-sided front facade is capped by a corbeled cornice.

### **Honoring traditional patterns**

Both the Fulton Grove and Beideman Townhouses do meet Daniel Solomon’s goals: they honor traditional San Francisco planning patterns. They borrow freely from San Francisco’s architectural traditions. They create private, outdoor courts and alleys where space is at a premium and expensive. *Charles Linn*



*Beideman has dwellings on the front and rear of one lot, forming gardens between.*

# Fulton Grove Townhouses

*The Fulton Grove Townhouses are sited on each side of a newly created alley between Fulton and Grove streets. Mid-block alleys similar to this one were often created by 19th-century San Francisco developers to increase the perimeter and density of blocks without increasing building heights. The result was often a delightful, very private residential enclave like Fulton Grove.*

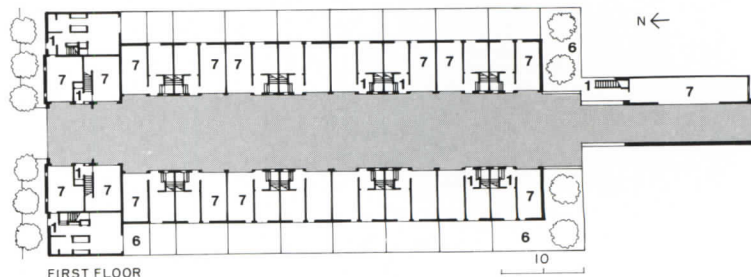
*Flats span the openings that provide access to the alley. The facade (below left) that faces north onto Fulton Street mimics the shingled esthetic of the Pacific Heights neighborhood to the north, while the facade that faces south onto Grove Street with its industrial ironwork and clapboard siding (opposite bottom) draws inspiration from structures in the South of Market neighborhood.*



Christopher Irion photos



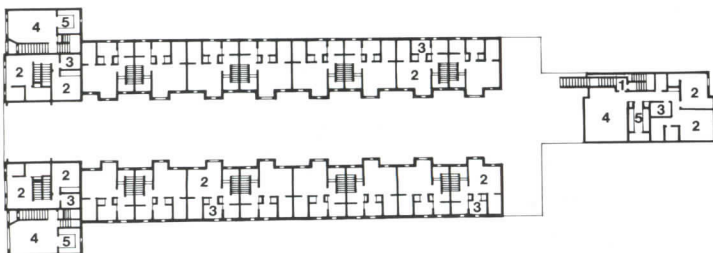
1. Entry
2. Bedroom
3. Bath
4. Living room
5. Kitchen
6. Garden
7. Garage



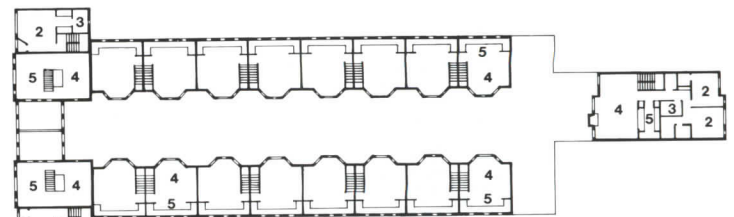


**Credits:**  
*Fulton Grove Townhouses*  
 San Francisco, California  
**Owner:**  
 Urban Frontier Development  
 Corporation, Donald Klingbel,  
 John Heckel  
**Architect:** Solomon  
 Architecture and Planning,—  
 Daniel Solomon, Susan  
 Haviland, Robert Heckel, Lev  
 Weisbach, project architects;

*Philip Rossington, Brad  
 Skaggs, design team*  
**Engineers:** *Culley &  
 Associates, (structural); Pete O.  
 Lapid & Associates  
 (mechanical/electrical)*  
**General Contractor:** *Ginno &  
 Huffman Construction, Inc.*  
**Manufacturer Sources:**  
*See Contents page*



SECOND FLOOR



THIRD FLOOR

# Beideman Place Townhouses

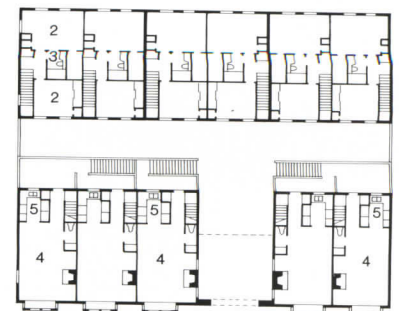
*Beideman Place draws on a different tradition than Fulton Grove. San Franciscans often sought large lots, and built tiny cottages at the rear of them, saving the streetside portion of the lot for more prosperous times when they could afford to build a large house there. The tiny private courtyards left behind the front house have made the rear cottages some of the most*

*sought-after housing in the city. Solomon drew his inspirations from the intimate gardens between the front and rear buildings at Beideman Place. Each of the rear townhouses has a garden, each of the front townhouses is provided with a deck. The three-story front building (below) does not differ significantly in plan from the rear building, except that its first floor is*



Jane Lidz photos

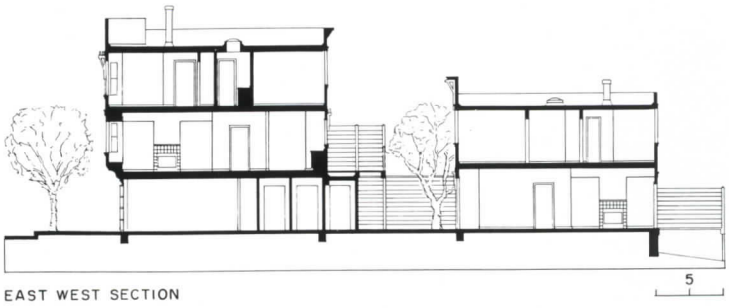
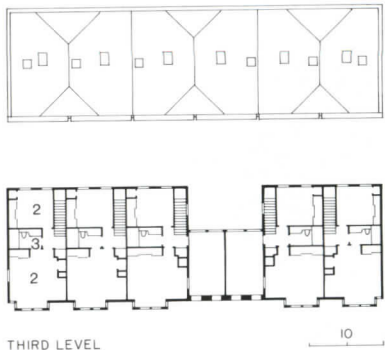
1. Storage
2. Bedroom
3. Bath
4. Living room
5. Kitchen
6. Garage



dedicated to storage and garage spaces. Access to the courtyard and rear building, and several of the garages is through the mid-block arched opening (below).

**Credits**  
*Beideman Place Townhouses*  
 San Francisco, California  
**Owner:** Beideman Investment Group

**Architect:** Solomon Architecture and Planning and John Goldman, associated architects  
**Engineers:** Desai Associates (structural); O'Kelly and Schoenlank (mechanical/electrical)  
**General Contractor:** Urban Designs  
**Manufacturer Sources:** See Contents page



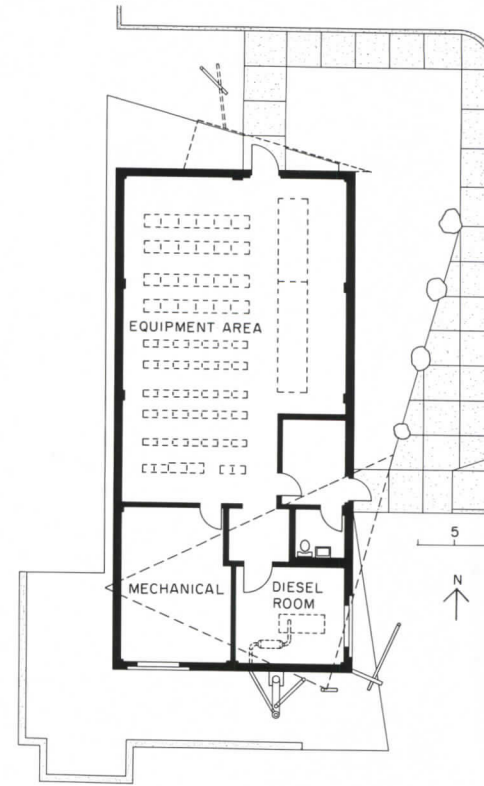
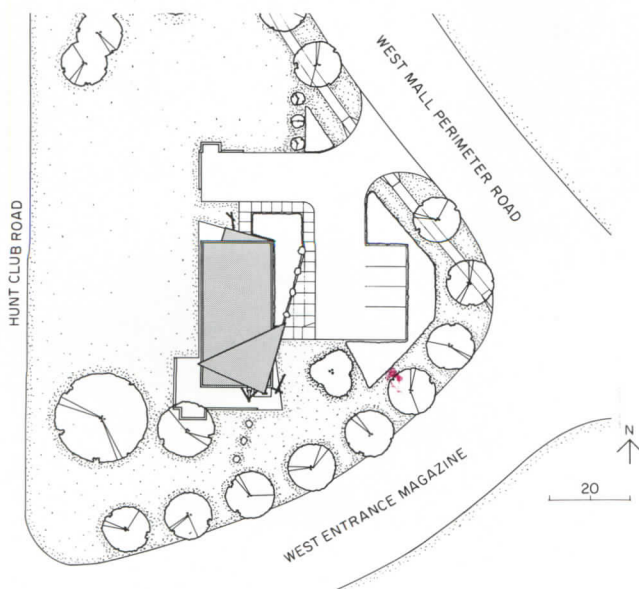
It came from outer space. Judging from the precarious angle of its roof and the knocked-about look of its metal columns, the landing was anything but soft. Four boulders of diminishing size jut above the surface of the earth, offering more evidence of a violent impact.

Such is the story architect Carol Ross Barney likes to imagine for the remote switching unit she designed for Illinois Bell in Gurnee, a distant suburb of Chicago. Set on the outer limits of a giant discount shopping center—between a sea of parking and a berm the developer built to hide the mall from nearby horse farms—the steel-frame, brick-encased structure is a sculptural element that invites conjecture. Its mystery is only enhanced by its lack of any identifying sign or Illinois Bell logo.

One of a growing number of satellite stations in a high-tech phone network, the remote switching unit is in fact a protective shell for telephone cables, a computer switch, and support equipment. Because the system is totally automated, no one actually works in the building. Its only visitor is a technician who comes occasionally to check the systems. Other than protecting the computer switch from the elements, the building's only function is to provide adequate ventilation for an emergency diesel generator and for methane emitted by phone cables.

"At the beginning, we decided either to bury the building or design something no one had ever seen before," says Ross Barney. Clearly, the latter approach won out. "Then we took the few attributes in the program and expressed them." Accordingly, two of the columns scattered like pick-up sticks around the building's southeast corner serve as ventilation flues—one for diesel, the other for methane. Air vents show up on the brick walls as white-louvered triangles. The building's idiosyncratic roof decking turns out to function admirably as protection for a set of air dampers. And the angled pipes attached to the corners of two door canopies do indeed act as structural members. Although the building's operations are mundane, Ross Barney envisioned the structure as no less than a metaphor for a late-20th-century communications network. The unit's energized forms get the message across.

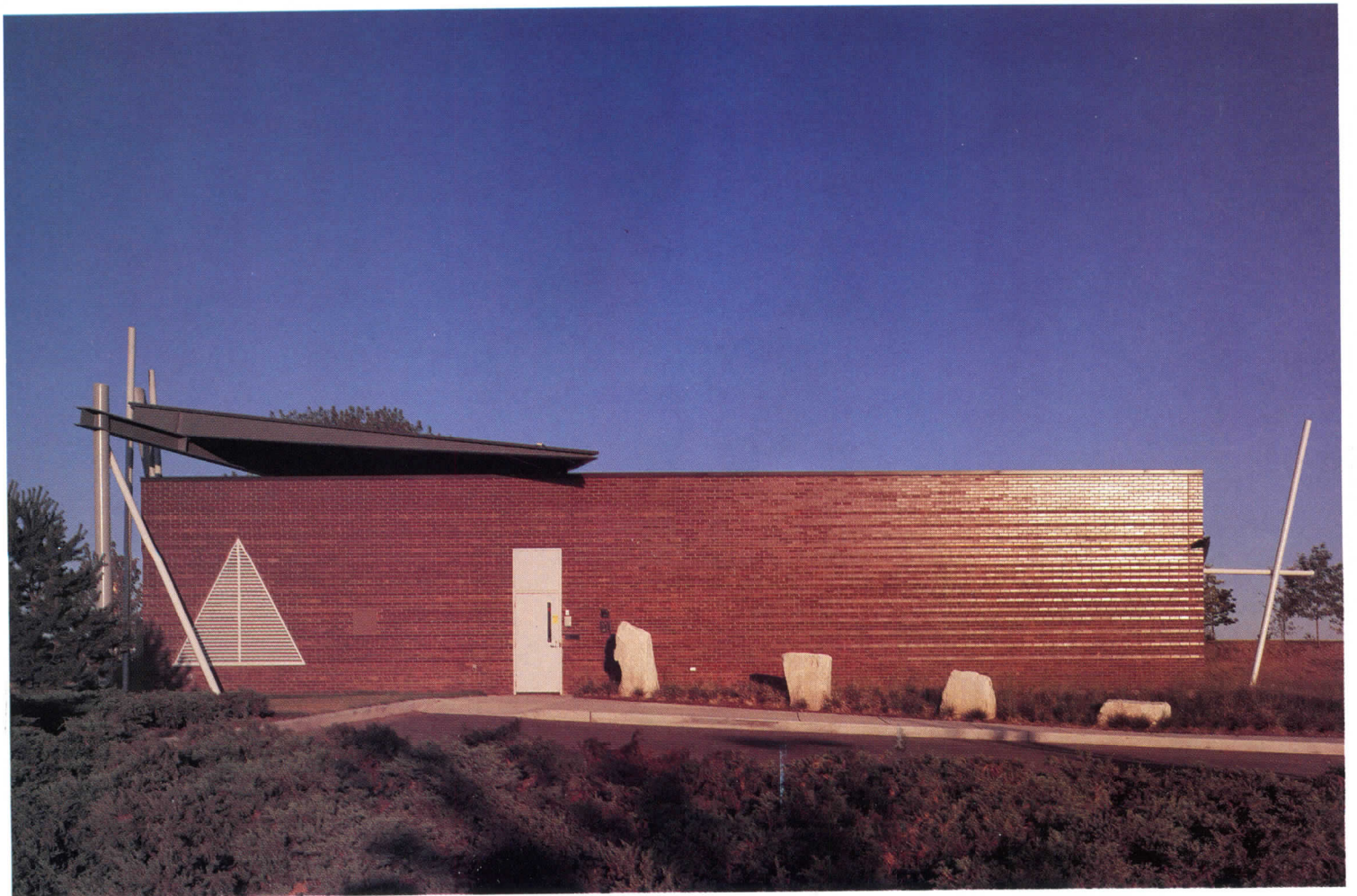
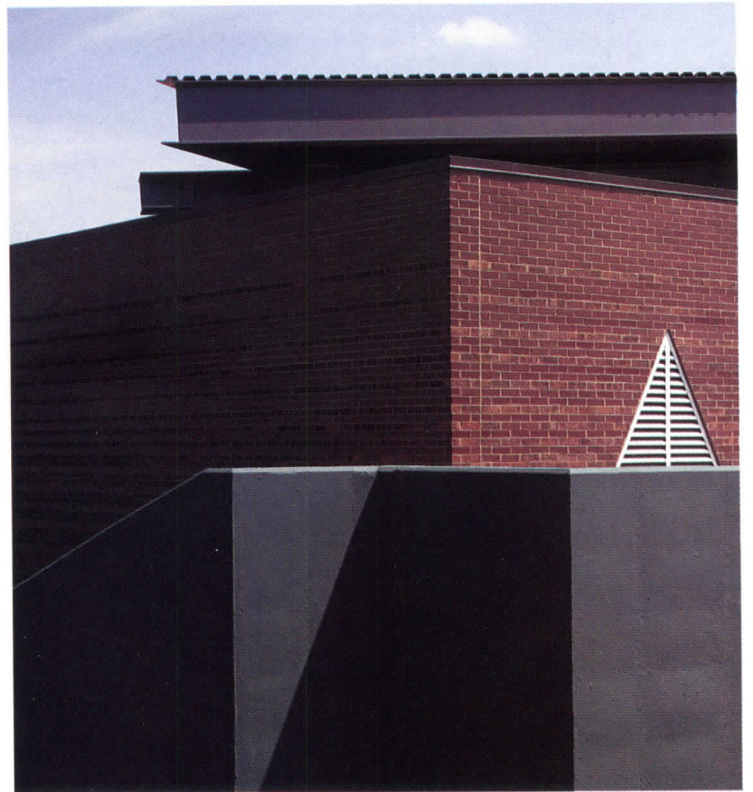
While few people enter the remote switching unit, millions every year see it as they enter the Gurnee Mills mall. "We knew we had maybe 15 seconds to get people's attention," states Ross Barney, "so we couldn't be too subtle." *Clifford A. Pearson*



*Although essentially a brick box for computer equipment, the building expresses its role in a high-tech phone network with angled forms and overlapping planes that hint at the energy and power of 20th-century communications. Bands of glazed and sand-faced brick enhance the illusion of motion (bottom, opposite). Two metal pipes at the southeast corner serve as exhaust flues and two others support the angled roof decking (top left, opposite). The building is a steel-frame structure that can be expanded. Teal-blue concrete walls hide outdoor equipment (top right, opposite).*

#### Credits

**Owner:** Illinois Bell Telephone Co.  
**Architect:** Ross Barney + Jankowski—Carol Ross Barney, principal-in-charge; John A. Fried, project architect  
**Engineer:** Teng & Associates  
**Landscape Architect:** Jacobs/Ryan Associates  
**General Contractor:** Camosy  
**Manufacturer Sources:** See Contents page



**Born Again**



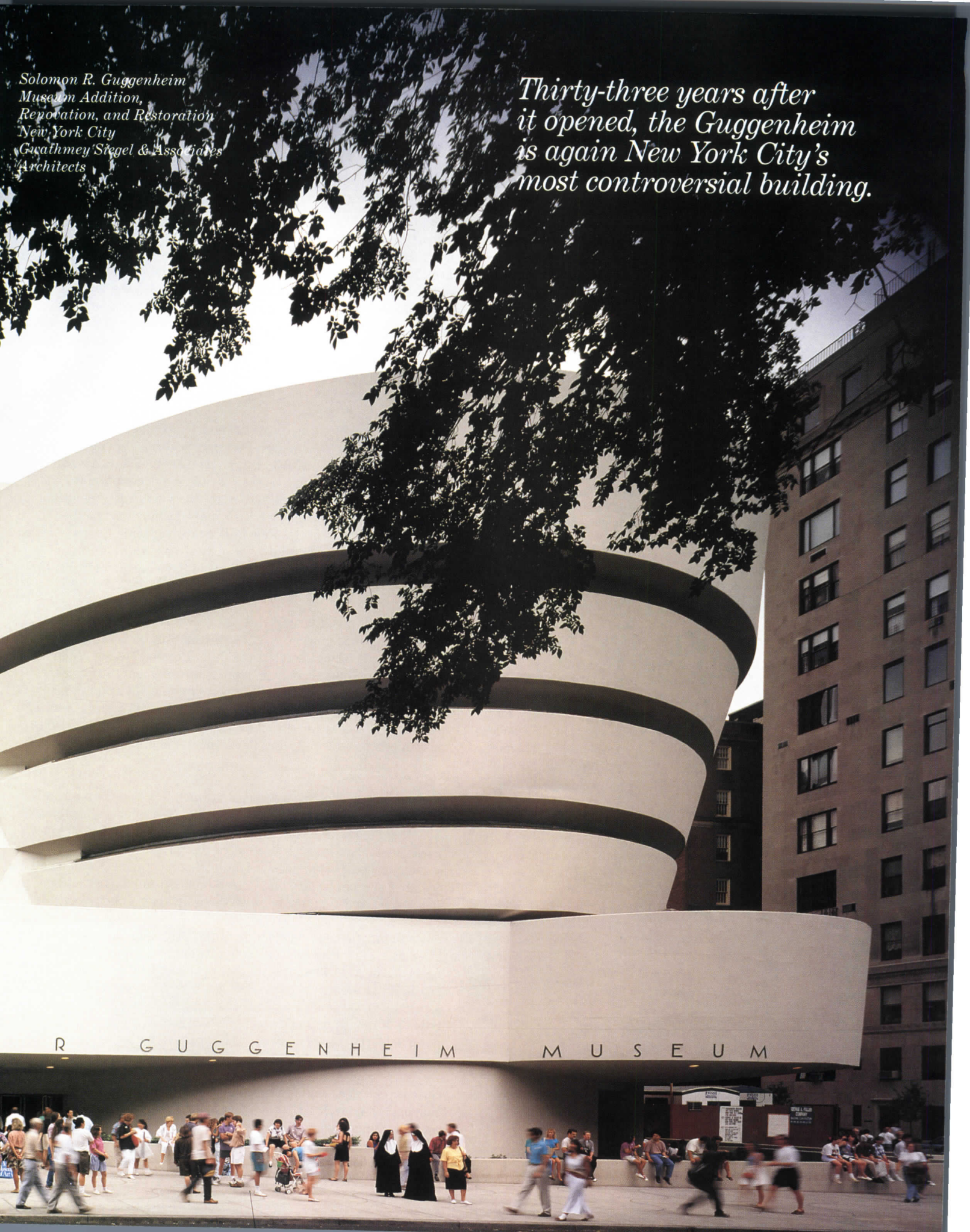
T H E S O L O

THE HAYES COLLECTION

THE GRAND

*Solomon R. Guggenheim  
Museum Addition,  
Renovation, and Restoration  
New York City  
Gwathmey Siegel & Associates  
Architects*

*Thirty-three years after  
it opened, the Guggenheim  
is again New York City's  
most controversial building.*



R G U G G E N H E I M M U S E U M

# Guggenheim Go-Around

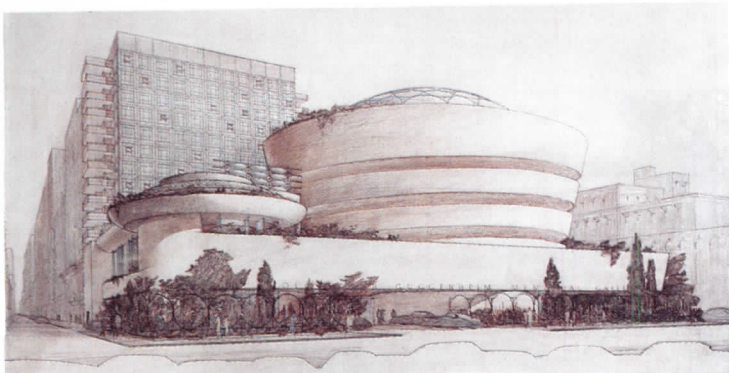
**W**hen the Guggenheim Museum reopened this past summer after 10 years of controversy and nearly \$50-million worth of expansion and renovation, the celebrating went on night after night. The formal parties made the society pages as well as the design pages, and pretty much everybody who was anybody in the worlds of art, architecture, journalism, and fashion paraded through Frank Lloyd Wright's bravura structure to the clink of champagne glasses and the whirring of motor-driven Nikons.

There was much to celebrate. The upper end of Wright's stunning spiral, which had been sealed off since shortly after its completion in 1959 to provide for storage, had been liberated. The skylights, which had been covered to prevent damage to paintings from sunlight, had also been freed by installing special protective glass, which sets the great space aglow. Formerly empty roof space had been converted to a sculpture terrace that provides sweeping views of Central Park. Best of all, the so-called small rotunda, which Wright had designed for offices, had been converted to public spaces.

But with the parties over and the public-relations machinery slowing to a hum, it is clear that the carefully orchestrated euphoria of the reopening ceremonies camouflaged the fact that a major icon of American architecture has been sadly compromised.

To appreciate what has happened, one has to review some of the history that was shunted aside in the rush to market the Guggenheim in its altered state. It is important to remember that the original Wright design for the building was greeted with nothing short of horror by some very reputable commentators. It is no less important to recall that many of their comparably reputable successors were among the first to condemn the idea of tampering with the building in any way once it had been certified by time and familiarity.

And after the firm of Gwathmey Siegel & Associates in 1982 bravely accepted the commission for a major expansion, the public outcry was deafening. The first Gwathmey Siegel design (model photograph below right)—a cantilevered structure that was to replace a smaller (and unhappy) one by William Wesley Peters of Taliesin As-



© Frank Lloyd Wright Foundation

sociated Architects, Wright's successor firm—was roundly ridiculed as resembling a toilet tank. I, for one, supported the scheme, on the grounds that no work of architecture should be considered sacrosanct, even one by Wright. And whatever its sins, the first plan showed some real architectural guts, deliberately challenging Wright with contrasting forms, materials, and colors. (While many of the city's most prominent architects were quick to condemn Michael Graves's contemporaneous scheme for expanding the nearby Whitney Museum of American Art, only a handful spoke out against the Guggenheim plan.)

With the passage of time I was content to see the first Gwathmey Siegel plan defeated, although I was not convinced that a more refined version was impossible. But I was dismayed to see what replaced it. "Plain Vanilla" is too charitable a description for the blandified 10-story "background" slab that won grudging assent from many of the museum's critics and—despite appeals that reached all the way to the New York State Supreme Court—slipped through the civic approval process just a year before the Guggenheim turned 30, the age it would have become eligible for landmark designation.

One of the strongest arguments put forward by the museum and its allies during that process was that the institution had no alternative but to expand. The director at the time, Thomas Messer, cited as evidence that he could display no more than 3 percent of the nearly 5,000 works in the Guggenheim's permanent collection in the existing building. Messer further insisted that the museum desperately needed more space for offices, storage, and conservation. He dismissed proposals for moving those functions underground as "impossible."

Messer was aided in his campaign by such fellow museum heavies as Philippe de Montebello, director of the Metropolitan Museum of Art. Assailing a proposal that the Guggenheim might be able to transfer some of its activities out of the Wright building, thus removing the purported need for new construction, de Montebello declared at a public hearing, "You would not build a zoo and put the zookeepers and doctors and others in a building miles away!"

Since then, of course, leadership of the Guggenheim has passed to Thomas Krens, who in addition to planning for Guggenheim branches in Austria and Spain, has opened a 50,000-square-foot annex in SoHo (designed by Arata Isozaki & Associates) and a separate 30,000-square-foot facility for support services on the West Side of Manhattan. Meanwhile, the Guggenheim has done the "impossible" after all by creating 10,000 square feet of offices beneath the adjoining sidewalks.

So it is now clear that the much-needed renovation of the Wright building could well have gone forward without any tower addition at all. This fundamental flip-flop on the original public justification for expanding the Guggenheim might be less painful if the architectural



*According to critic Carter Wiseman, with the Gwathmey Siegel addition to the Guggenheim Museum complete, "a major icon of American architecture has been sadly compromised."*

results were stronger. They are not. To be sure, the skylight is back, the cracks have been fixed, the small rotunda has been opened to the public, and the whole thing has been given a welcome coat of paint. Gwathmey Siegel's project has nearly doubled the Guggenheim's Fifth Avenue exhibition space (meaning, however, that only 6 percent of the collection can now be shown), the cafeteria has been refurbished, and improvements are under way on the auditorium.

But function was always the least of this extraordinary form. And the attempt to improve one has grievously weakened the other. The uppermost new gallery space, while it evidently satisfies the management's appetite for the display of large works of art, is totally without character, too narrow for its height, and coldly lit, while the connections to the original building are so tight as to be positively pinched, throwing off the expansive whirl of Wright's curves.

Among the many ironies in what has happened is that the best aspects of the renovation have actually highlighted the Guggenheim's essential hostility to both its setting and its program. The Guggenheim as Wright designed it was a magnificently defiant building: antiurban in its disregard for its neighbors, antipainting in the conflict of its architectural curves with the rectangular demands of frames, and antisocial in its supreme egotism. Delicious as the meandering, small rotunda is as an architectural space, it is only slightly better suited to the exhibition of paintings than its mother spiral.

It is intriguing to note that many art critics have been willing to justify what has happened to the Guggenheim by praising the restored interior as more than compensating for the altered exterior. It is as if they were avenging a longstanding hurt imposed by architecture on a sister medium. "Ah hah!" they seem to be saying, "the old concretist Wright is paying for his transgressions against poor canvas." But apart from the main rotunda, the Guggenheim's greatest impact has always been made by its exterior. Consider only that almost every book on modern architecture includes a photograph of Wright's Fifth Avenue facade.

Not that the facade didn't need work. Virtually every one of those photographs shows the building from the southwest, discreetly filling the conspicuously empty left-hand portion of the composition with a branch of a nearby tree.

The composition is now so "complete" that the preferred perspective for photographers has shifted to the northwest. But what they see is architecturally insipid, and so different from the defeated scheme that one has to wonder where Gwathmey Siegel's true esthetic commitment lies. The limestone cladding, which is touted as a gesture of sympathy with the surrounding apartment blocks (something about which Wright cared not a whit), is so close in color to the original form that it seems almost to suck the vitality from it. The architects published remarks about the relationship of the "tartan" pattern of

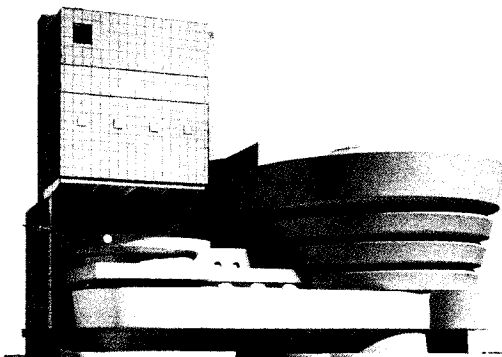
the facade to the Manhattan street grid remind me of statements made by prisoners of war under duress. Surely the worst aspect of the addition is the way in which it collides with Wright's drum, stopping dead the heady illusion of its dynamic rotation. The damage is not violent; it is more the product of a too-close embrace. But the effect is no less painful.

The efforts to obscure the real impact of the Gwathmey Siegel design on Wright's building have extended to almost every aspect of the museum's public-relations campaign. (The photographs issued to the press deftly tuck the new tower behind the Wright drum.) No less evasive are the continuing attempts to demonstrate that the addition fulfills Wright's original intentions. True, Wright did sketches for a slab (drawing below left), but it was fundamentally different from what has been built (it was slimmer, was apparently set farther back, had large windows, and was to have housed artists' studios). In any case, it was abandoned. By using a 1949 rendering of that scheme on its promotion and the invitations to the opening galas, the museum was attempting to tell us that what we get is not what we see.

The Guggenheim's original power always resided in its sculptural heft, not in its success as an exhibition space. The attempt to turn it into something it perhaps should have been, but wasn't, has actually betrayed what it was, and that was a unique monument to this country's greatest architect. One New York designer recently opined that Wright's building has been reduced to a Portmanesque atrium for a "Greater Guggenheim," a party space for an international art mall. Harsh as the judgment is, it rings true when the repainted rotunda is filled with folks in black tie.

To this eye, the Guggenheim always needed something to complete Wright's thrillingly bizarre ensemble, but evidently Wright himself couldn't figure out what it was. I salute his successors for trying, but they couldn't either. *Carter Wiseman*

*Carter Wiseman is the architecture critic for New York Magazine. He is currently at work on a history of 20th-century American architecture, to be published by W. W. Norton.*



*Frank Lloyd Wright's 1943 perspective shows his proposed artists' block (opposite). Model photograph of defeated Gwathmey Siegel scheme, which was presented in June, 1985.*

# On Wright's Foundations

I have been asked by ARCHITECTURAL RECORD to respond to Carter Wiseman's essay (pages 102-103). My preferred reaction would be to simply ignore his subjective analysis, and in the euphemistic sense, return it to the sender, unopened. However, I will address the history, issues, and constraints, as well as our intentions, leaving the reader, preferably the viewer or visitor, to form his or her own conclusions.

I must begin by stating that we regarded the decision to design the addition as obligatory. There was never a moment of hesitation nor apprehension, and to have declined the commission, as some architects advocated, would have been culturally and historically antithetical.

Architecture is not static, nor is perception. We believe in the idea of the addition as much as in its realization: a modern, referential intervention, which supports the formal intentions and precedents of the original building, while extending its ideal and its reality.

The Frank Lloyd Wright Guggenheim Museum represents a singular achievement in modern architectural history. It personifies the vision and relentless commitment of an architect who believed in an idea. Through perseverance and an irreverence for the status quo, he created a work whose spiritualness will forever prevail. It is a building that aspires and inspires; evokes mystery and provokes emotion; is compelling and subversive; is memorable and speculative; is willful and intrusive. Finally, its primary geometric forms are mediated by a poetic and indefinable allusiveness, which is why it survives as an eternal work of architecture.

This great building has been severely compromised over the years, the most overt desecration being the systematic elimination of natu-



© Jeff Goldberg/Esto photos

ral light. Clearly, the majesty of the forms was enriched through the ever-changing variation of daylight. Its elimination was the precursor for further disfigurement and compromise. The building and the institution it represented needed to be reclaimed.

The protracted debate over our project was at times distressing and irrational. However, we always believed that preservation means more than simply maintaining "what is" or reconstituting "what was." The idea of resurrecting and transforming a seminal work for posterity was our continued motivation.

I believe that precedent shapes intention. It is important to note that Wright first proposed an annex in 1943 with a perspective drawing (page 102). *Architectural Forum* published the proposal in 1952, with plans and perspectives depicting a concrete and glass gridded slab accommodating historical-collection galleries, archives, and artist studios. The program was less important to the project than the intention to establish a referential plane as a mediating background wall between the iconic spirals and the surrounding neighborhood.

Wright's proposed facade was rendered as a tartan grid acting as a geometric counterpoint to the curvilinear, dynamic forms of the rotundas. The graphic quality rather than specific materials was of primary relevance to our scheme. Our selection of limestone was appropriate in that it articulates not only the idea of gravity and plane, but also because the change in texture and color highlights the difference between the new building and the monolithic, cantilevered forms of the original structure.

Programmatically, the Wright building contained two exhibition spaces: the high gallery and the main rotunda (see plans on page 109). With the acquisition of the Thannhauser Collection in 1965, the second floor of the small rotunda, known as the monitor building, was transformed from a library into the first permanent-collection gallery spaces. In 1968, an annex was completed in the northeast corner of the site, which was previously occupied by a service courtyard. The four-story concrete structure by William Wesley Peters of Taliesin Associated Architects was to house art storage, technical support space, and staff offices. In 1974, the original ground-floor driveway was enclosed to house a restaurant and bookstore. In 1986, the fourth level of the annex was modified to contain a portion of the permanent collection known as "The Pioneers of Twentieth Century Art."

Both the Wright proposal and the Taliesin annex established precedents for our subsequent addition: 1) the dimensions of Wright's proposed facade were derived from the four-foot and eight-foot grids of the original structure; 2) the footprint of the Taliesin addition was the one now occupied by our annex; 3) Wright's annex intersected the large rotunda and was integrated into the existing southeast firestair; 4) the Taliesin annex was wider (from east to west) than the Wright design by 10 feet (35 feet versus 25 feet), but

*Charles Gwathmey reaffirms his and Robert Siegel's transformation of Frank Lloyd Wright's Guggenheim Museum, asserting, "We believe in the idea of the addition as much as in its realization."*

equal in length (100 feet) and height (135 feet); 5) the Taliesin addition was faced in precast concrete in eight-foot, octagonal panels with recessed facets, a reinterpretation of Wright's eight-foot-square grid, yet interpreted as abstract and planar; and 6) the foundations and columns of the Taliesin annex were built to structurally accommodate an additional six stories. Our building is founded on the columns of the Taliesin annex and is both a reinterpretation and a transformation in its exterior and interior relationship with the original building.

In its present renovated state, the four-story small rotunda reveals the design as essentially based on Wright's prairie houses, with glazed horizontal pavilions reaching out toward nature—a spatial and formal juxtaposition with the closed large rotunda (pages 110-111). This previously unrevealed building now provides a new circulation route connecting the addition and the large rotunda. The glass wall along the small rotunda's north facade overlooks the original structure's multifaceted forms and planes, at once objectifying it and calling attention to it.

As with any intervention, there are literal and perceptual adjustments. The primary exterior change has been to cover the triangular stair walls from the fourth level to the roof. By using the stair as a knuckle at the intersection of the large rotunda and the new galleries, one now experiences the space of the stair and the form of the object both from the original building and from the addition. The diagonal Wright wall in the new galleries presides as a referential plane, orienting and reminding the visitor of the interface of new and old.

The seventh floor ramp has been opened for the first time to the public as a gallery, and acts as the final procession to the addition.

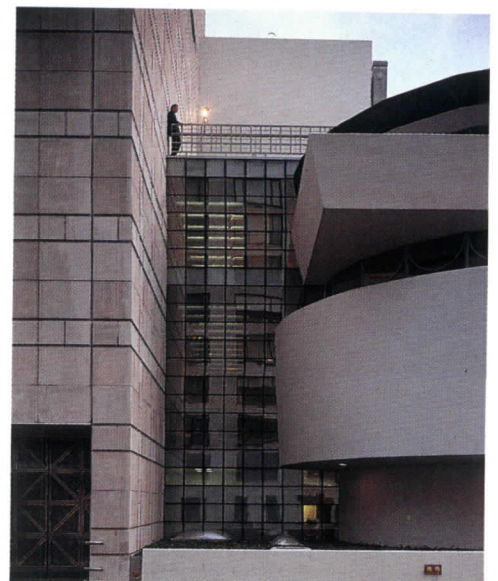
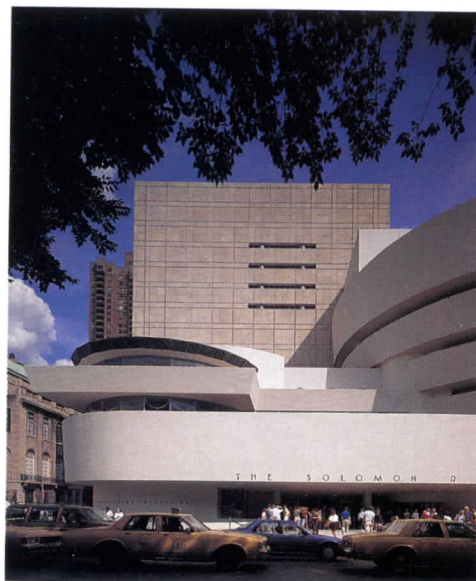
It fulfills the volumetric climax. The renovation of the third and fourth floors of the small rotunda into exhibition spaces engages Central Park, giving visitors a new vantage point as well as an outward symbol of the link between Wright's architecture and nature. The ability to see the roof of the large rotunda, and the addition of a new fifth-floor sculpture garden (page 110), reveals the complex anew, both in relation to Central Park and to the new addition.

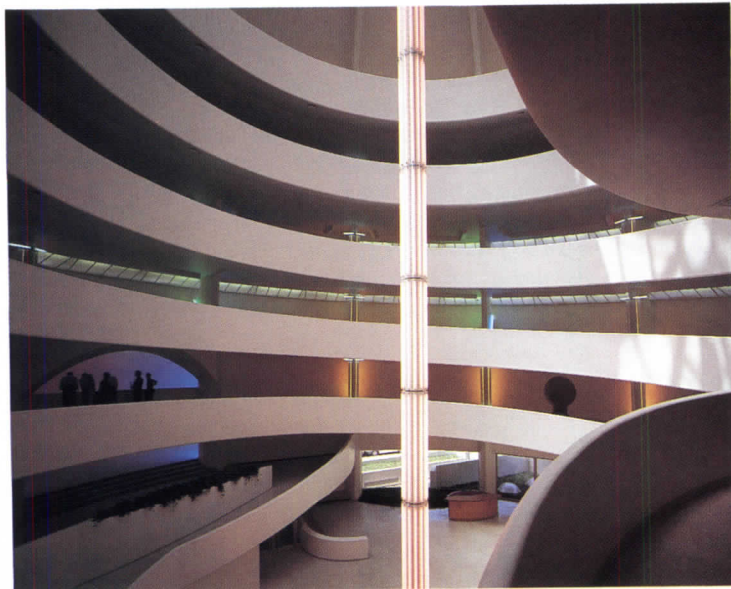
These new layers encourage exploration and rediscovery of the Wright building in a way that was previously impossible. Moving in and out of the original building varies the spatial experience, while it reinforces the intention and spirit of Wright's masterpiece.

The new galleries afford a curatorial flexibility that did not previously exist and that was desperately needed. The original building is finally free. The itinerary through the galleries is now neither automatic nor obvious; rather it represents an extended elaboration and dialog with Wright in particular and Modern architecture in general. The large rotunda space is now the new "courtyard" to the whole, retained in its pure vision as a compelling and unique volume, awaiting the creative intervention of exhibition curators.

In conclusion, I believe that the most important recognition of one's work comes from colleagues in the profession. After touring the project, Peter Eisenman wrote us: "I was stunned by the restraint, the understanding, the care, and above all the sacrifice of ego to the love of architecture. All I can say . . . is that you have given an original gift to architecture." This touches me deeply.

*Charles Gwathmey*



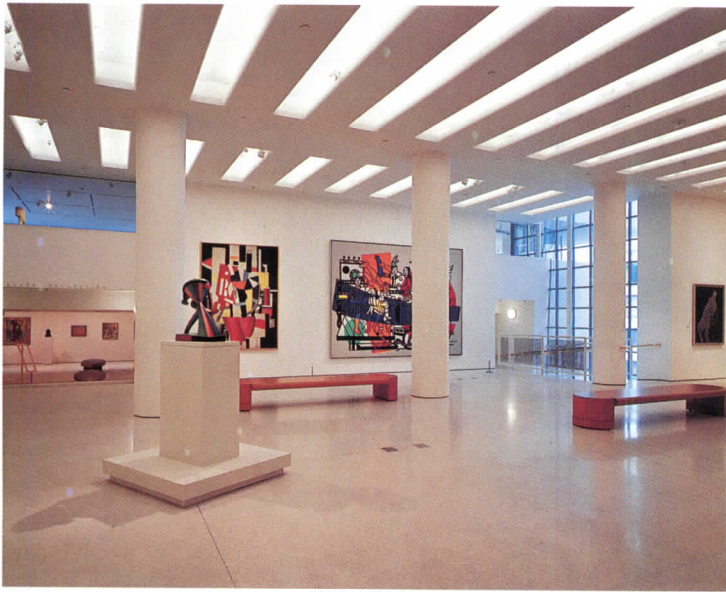


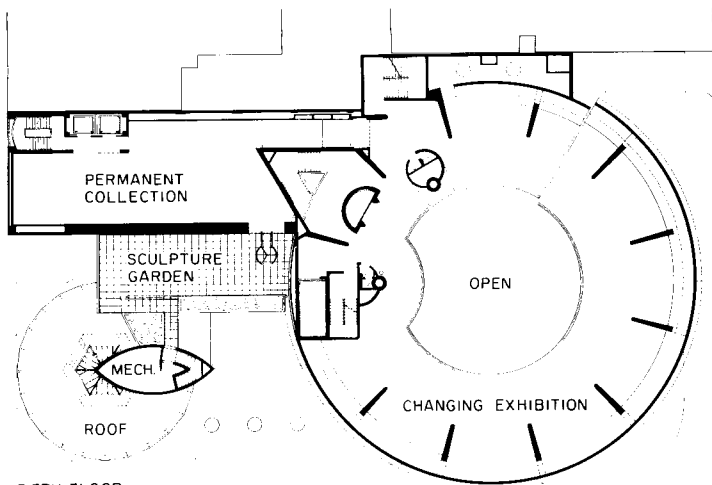
*A centerpiece of Gwathmey Siegel's renovation of Frank Lloyd Wright's rotunda is the repair of the skylight dome, which had not been cleaned since the museum opened in 1959. The architects patched the concrete frame and replaced the original dome's single-glazed skylight and single-glazed nonweatherproof interior "laylight" with a double-glazed skylight (one layer each of clear and textured glass) and a refurbished single-glazed laylight of textured glass, using laminated panes with an ultraviolet-screening, low-emissivity interlayer. In the 18-inch air-space between the new skylight and laylight, the architects installed a state-of-the-art climate-control system, replacing outmoded air conditioning that had been added to the building after its completion.*

*The architects also uncovered perimeter skylights that had been boarded up when the seventh floor ramp was closed off to the public to provide art storage space soon after the museum opened (top left). Curved rotunda walls made of gunite sprayed onto plywood forms were stripped of paint and plaster and were recoated with foamed-glass insulation and a new layer of plaster.*

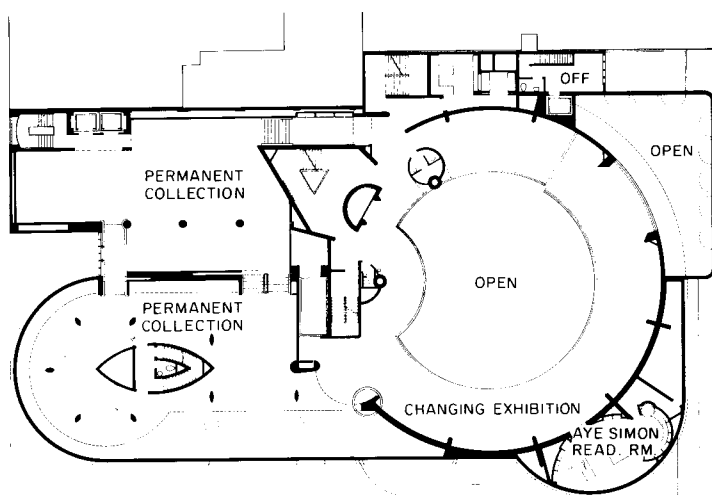
*Gwathmey Siegel adapted Wright's designs of oak ticket and information desks (adjustments were made to accommodate computers) and replicated Wright's proposed benches, which for budgetary reasons were never built when the Guggenheim first opened (middle and bottom left). The giant "umbrella pole" in the center of the rotunda and additional colored lights along the perimeter are part of artist Dan Flavin's installation for the museum's inaugural exhibition, which closed last August.*



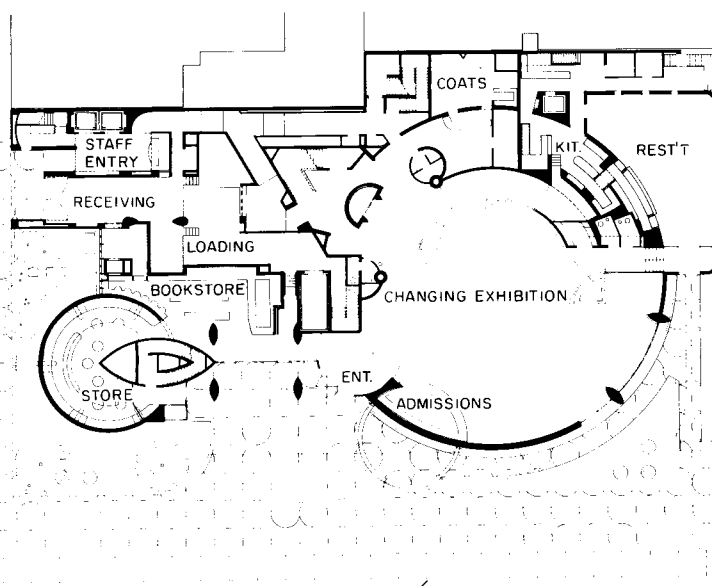




FIFTH FLOOR



SECOND FLOOR

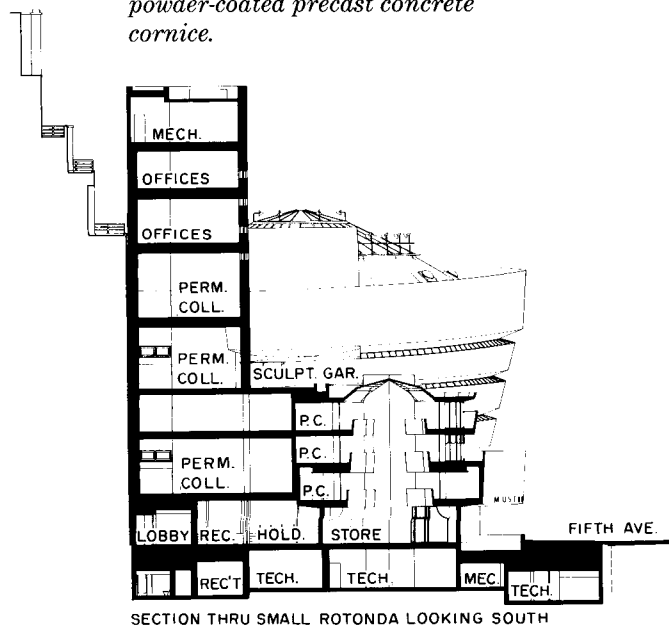


GROUND FLOOR



*In configuring the new galleries, Gwathmey Siegel looked to Wright's double-height "high gallery" adjacent to the main rotunda (second-floor plan left) as a precedent. Not only did the architects incorporate two-story galleries into the second and fifth floors of their 35-foot by 100-foot building (section below), they also claim that the existence of exhibition space tangential to the central rotunda dictated the location of their galleries, which are connected to the rotunda by either small staircases or ramps. The new galleries (totaling some 30,000 square feet) are bisected by the concrete columns of the 1968 Taliesin annex (opposite), which are now structural supports for the Gwathmey Siegel building.*

*Eighteen-inch wide by 12-inch deep ceiling troughs mask hvac grilles and fluorescent fixtures for ambient lighting that can be used alternately with incandescent track fixtures, which are hung from trough shelves. In the new double-height galleries, details of Wright's small rotunda are revealed. A gridded north-facing glass wall (opposite middle left and bottom left) admits natural light and provides views of Wright's bronze powder-coated precast concrete cornice.*



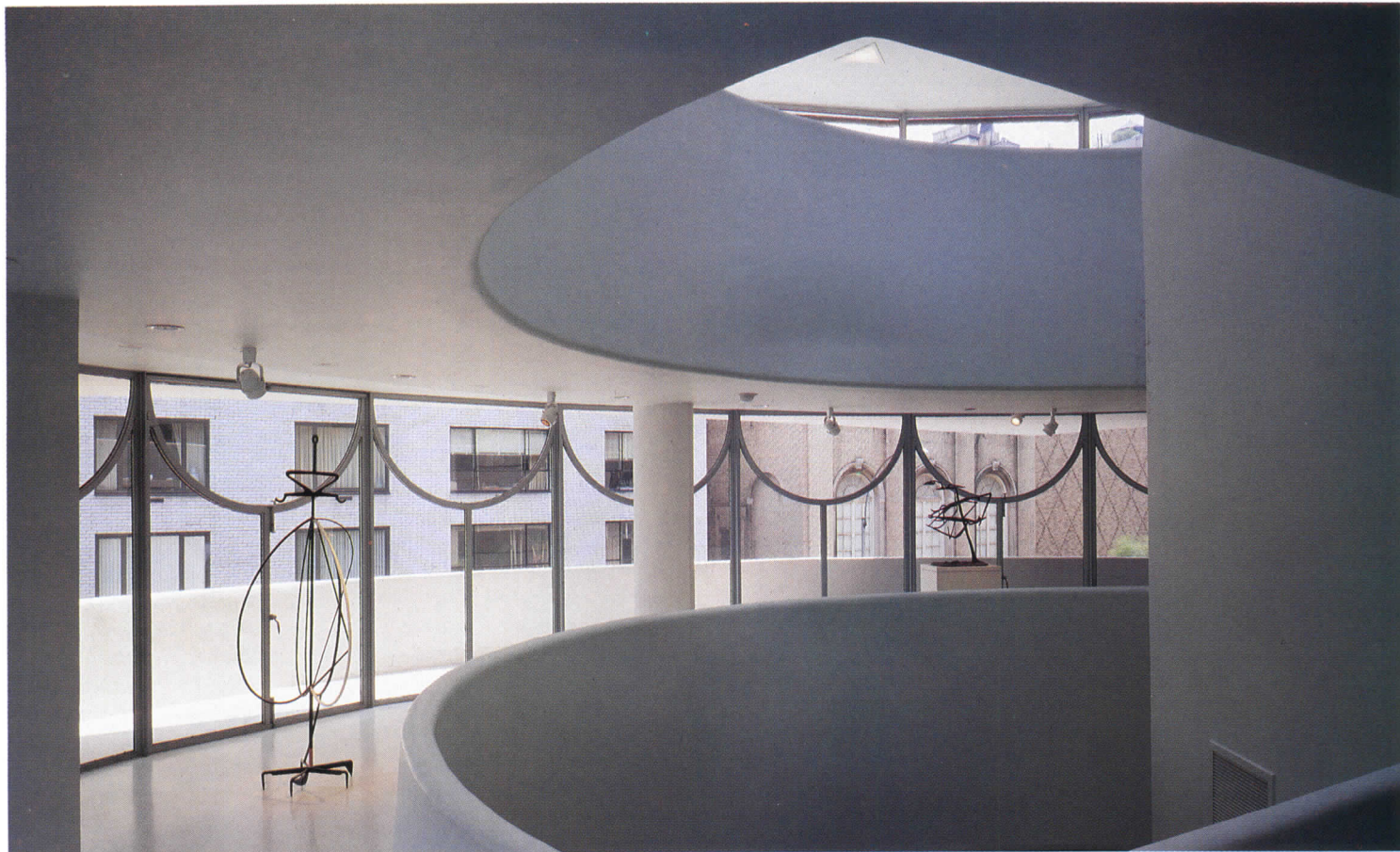
SECTION THRU SMALL ROTONDA LOOKING SOUTH



*Prior to the renovation, Wright's small rotunda, known as the monitor building, contained administrative offices. Gwathmey Siegel removed interior partitions and refurbished the original skylight (left). Curved windows along Fifth Avenue were also replaced, while their painted steel frames were repaired (opposite top). Gwathmey Siegel's gridded-glass wall, highlighted by a bronze railing, overlooks Wright's projected cornice (top and opposite bottom). Triangular lights are re-created versions of Wright-designed fixtures.*

*On the ground floor of the small rotunda (plans previous page), an enlarged museum shop replaces the former book store and café (not shown); a new restaurant occupies the site of the original restaurant in the complex's southeast corner behind the main rotunda. On the fifth floor, a new outdoor sculpture terrace atop the monitor building (above) overlooks Fifth Avenue and Central Park beyond.*







To create 10,000 square feet of underground offices for museum staff, Gwathmey Siegel excavated 17 feet beneath the Wright rotunda to the edge of the Fifth Avenue sidewalk, reshoring the original foundations. Access to the offices is via elevators located in the northeast corner of the new building (plans page 109) or along Wright's auditorium-access ramp, which winds around the main rotunda (photo) to connect to the restaurant at the southeast corner of the complex.

Inside the vault offices, Thomas Sansone of TAS Design added eight Wrightian porthole windows and six skylights to brighten the space. Fluorescent fixtures provide additional lighting. Private offices are screened by partitions of cherry and fluted and etched glass. Custom carpets in shades of green and red recall Wright's circular motifs, and desks of ash and pearwood by TAS Design fill spaces between new fin walls.

In contrast, the executive offices which occupy the top two floors of the Gwathmey Siegel building, command impressive views of Central Park and Manhattan's Upper West Side beyond (opposite top) from 2-foot-high window slots. The gridded glass wall of museum director Thomas Krens's suite (opposite bottom) faces north.

#### Credits

Solomon R. Guggenheim Museum Addition, Renovation, and Restoration  
New York City

**Architect:** Gwathmey Siegel & Associates Architects—Charles Gwathmey and Robert Siegel, partners-in-charge; Jacob Alspector, associate-in-charge; Pierre Cantacuzene (annex/1987 renovation), Gregory Karn (annex), Earl Swisher (restoration), project architects; Paul Aferiat, Pat Cheung, Nancy Clayton, Marc

Dubois, Steven Forman, David Fratianna, Gerry Gendreau, Siamak Hariri, Anthony Iovino, Dirk Kramer, Dan Madlansacay, Jeffrey Murphy, Roy Pertchik, Jurgen Raab, Joe Ruocco, Gary Shoemaker, Robert E. Siegel, Irene Torroella, Alexandra Villegas, Peter Wiederspan, Ross Wimer, Steve Yablou, project team

**Engineers:** Severud Associates—Edward Messina, principal-in-charge (structural); John L. Altieri—Andrew Sebor, principal-in-charge (mechanical/electrical);

**Consultants:** Light and Space Associates, Ltd (lighting); Building Conservation Association (restoration/preservation); The Office of Pat DeBellis (landscape); Vignelli Associates (graphics); Heitman & Associates (curtain wall); Woodward Clyde (geotechnical); Cole, Gillman Associates (building code); Development Consulting Services (zoning); Specification Associates (specifications); Post and Grossbard (food services); Jaros, Baum, and Bolles (elevators)

#### Construction Managers:

Target Builders (1987 renovation); Lehrer, McGovern & Bovis, Inc. (annex); George A. Fuller Company (restoration, vault)

#### Manufacturer Sources:

See Contents page

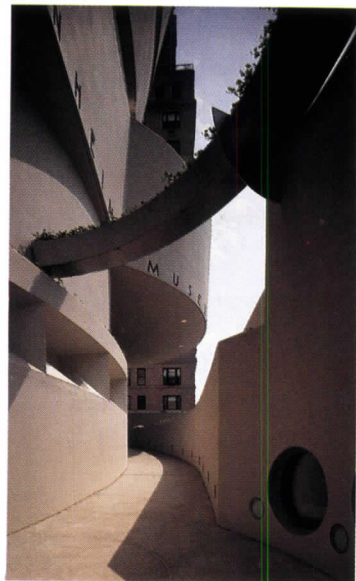
Solomon R. Guggenheim Museum Vault Offices  
New York City

**Architect:** Gwathmey Siegel & Associates Architects (vault shell)

**Interior Designer:** TAS Design Associates—Thomas Sansone and Thomas Hut, principals-in-charge; Francine Monaco, project architect; Carlos Sifuentes, Javier de la Garza, Patrocinio Binuya, Margie O'Shea, Thomas Rose, Linda Gatter, project team

#### Manufacturer Sources:

See Contents page



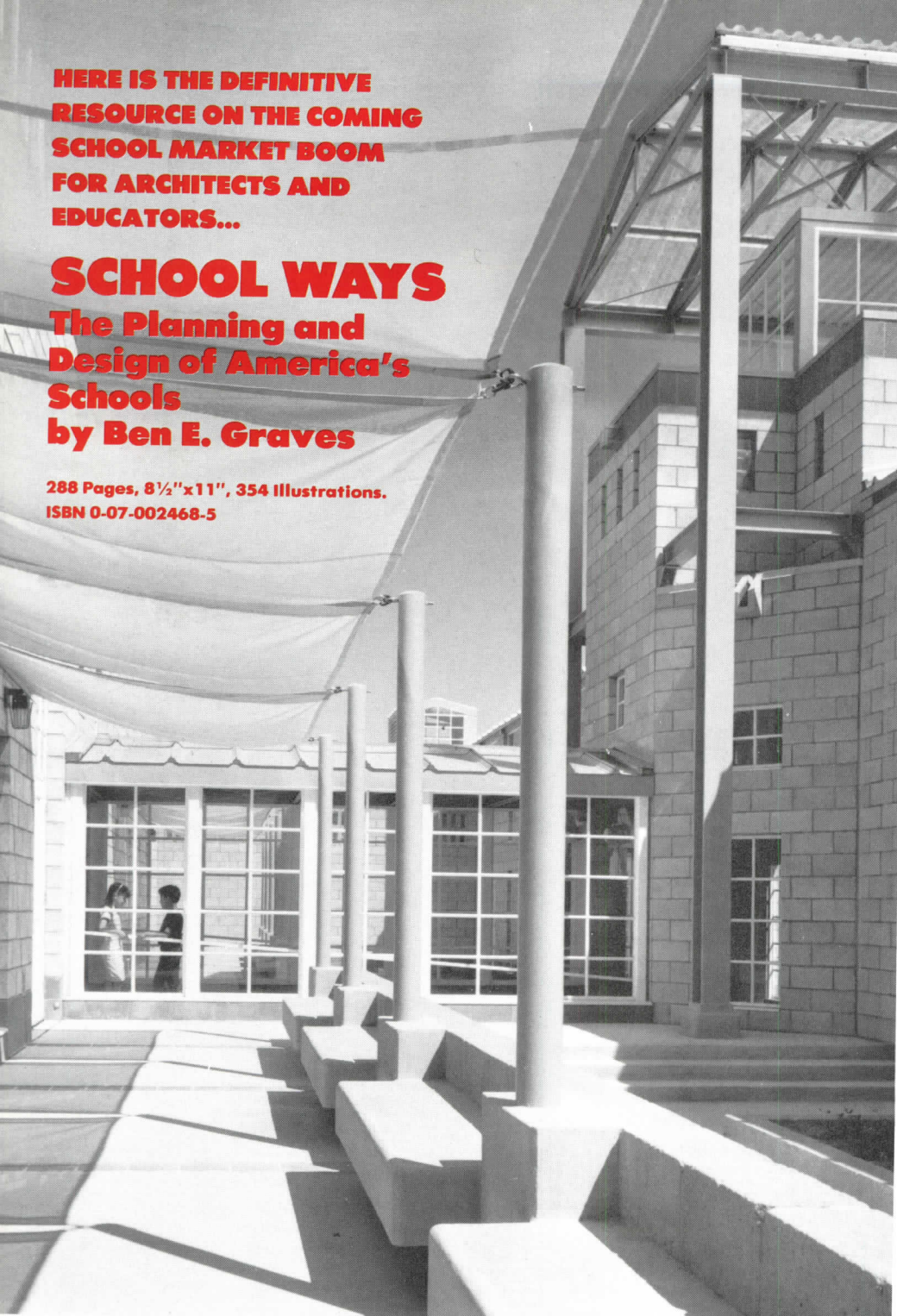


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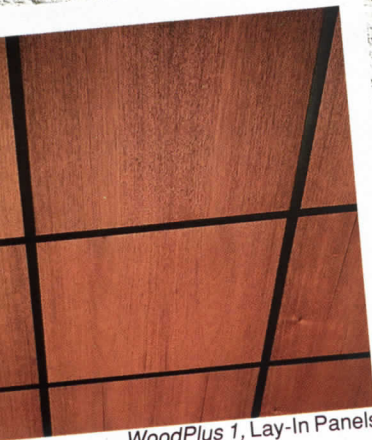
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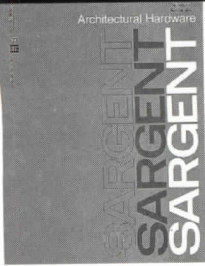
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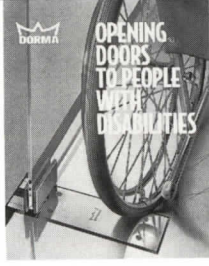
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#### 400. Masterkeyed locks

A 1992 catalog highlights masterkeyed locks, removable-core cylinders, the Keso multiple-level security system, electro-mechanical locks, closers, and exit devices. Charts match handle design and lock type with specific uses such as exits, public entrance, dormitory/motel, and hospitals. Sargent Manufacturing, New Haven.



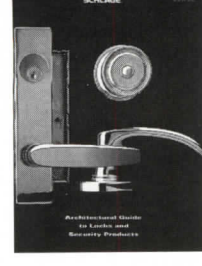
#### 401. Door closers

A six-page brochure details how the provisions of the Americans with Disabilities Act affects door-closer selection, and illustrates some problems that can occur when conforming to the Act. Explains features of surface-applied, concealed, and fire/life safety closers that meet barrier-free specifications. Dorma Door Controls, Inc., Reamstown, Pa.



#### 402. Builders hardware

Selection guide describes Duralock and Dexter lines of latches, leversets, and entrance hardware for residential and light-commercial projects. All finish options and lockset styles are shown in color, with door prep details and dimensions given for each product. Master Lock Corp. Auburn, Ala.



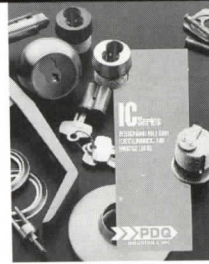
#### 403. Architectural hardware

A 34-page catalog covers commercial, residential, and retail locks and security products, including knob- and lever-handle designs for all applications. Function, keying, dimension, and finish information listed for F, H, L, and ME/MD-Series hardware. A finish-selector kit is available for a small charge. Schlage Lock Co., San Francisco.



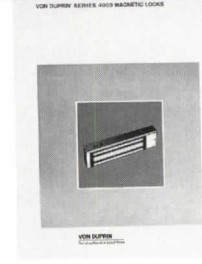
#### 404. Hinges and accessories

Pivot, loose-joint, full mortise, and five-knuckle hinges are described in a 16-page architectural catalog. Trim products include pulls, door stops, flush bolts, and latches, as well as Roton gear hinges for wood and metal door systems, including fire-rated applications. Hager Hinge Co., St. Louis.



#### 405. Interchangeable core

An interchangeable-core option is available for this maker's commercial-grade locksets. Brass cores come in configurations for both heavy-duty and standard-duty applications, in ball-knob and lever-handle styles for cylindrical and mortise locks. Line drawings detail door cutout requirements. PDQ Industries, Brownstown, Pa.



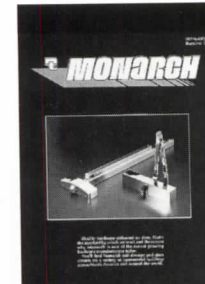
#### 406. Magnetic locks

A 16-page catalog describes Max Hold Series 4000 direct-hold electro-magnetic locks, described as the only such line available with UL listings for burglary resistance, releasing device, and auxiliary lock for fire doors. With no external mounting screws, the device can be set in the field for 12- or 24-volt operation. Von Duprin, Inc., Indianapolis.



#### 407. Mortise locksets

Decorative locksets for residential, commercial, and institutional use, including 3-hour fire-rated lines, are shown in all finish options. Diagrams illustrate keying functions for all configurations; custom locksets are available for special applications. Marks Hardware, Inc., Amityville, N. Y.



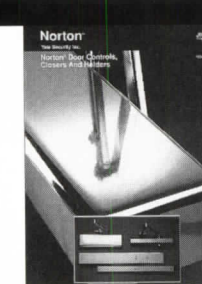
#### 408. Panic devices

A capabilities brochure features low-profile touch-bar exits for high-traffic areas, and economical bars that meet many exit-hardware requirements with a 1 1/2 hr, B label. Closers, handles, and trim items are included; sales offices listed. Monarch Hardware & Mfg., Shepherdsville, Ky.



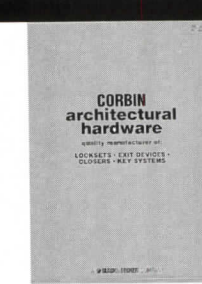
#### 409. Door operators

Doors up to 600 pounds can be operated by Kwik Op DD-1000 and 2000-series surface-mounted pneumatic devices. Compatible with almost all types of interior and exterior doors, the operators have no gears, clutches, or motors, and allow for continuous manual operation as a conventional door. Door Dynamics, Inc., Vancouver, Wash.



#### 410. Closers and holders

Surface-mounted rack and pinion closers for the most demanding applications are featured in a 16-page catalog. Introduces a security closer, Series 7770/7570, for use in prisons and other areas requiring a high level of abuse and damage resistance. Norton Door Controls, Charlotte, N. C.



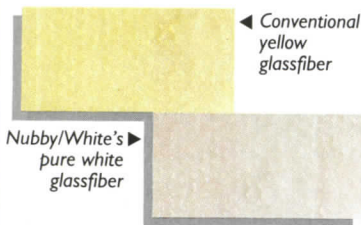
#### 411. Selection guide

Written as a concise specification reference to this maker's complete line of keying systems, locksets, door closers, and exits, Corbin's 16-page catalog includes dimensional data, functions, and handle options for mortise and cylindrical locks. Corbin Architectural Hardware, Berlin, Conn.

*continued on page 118*

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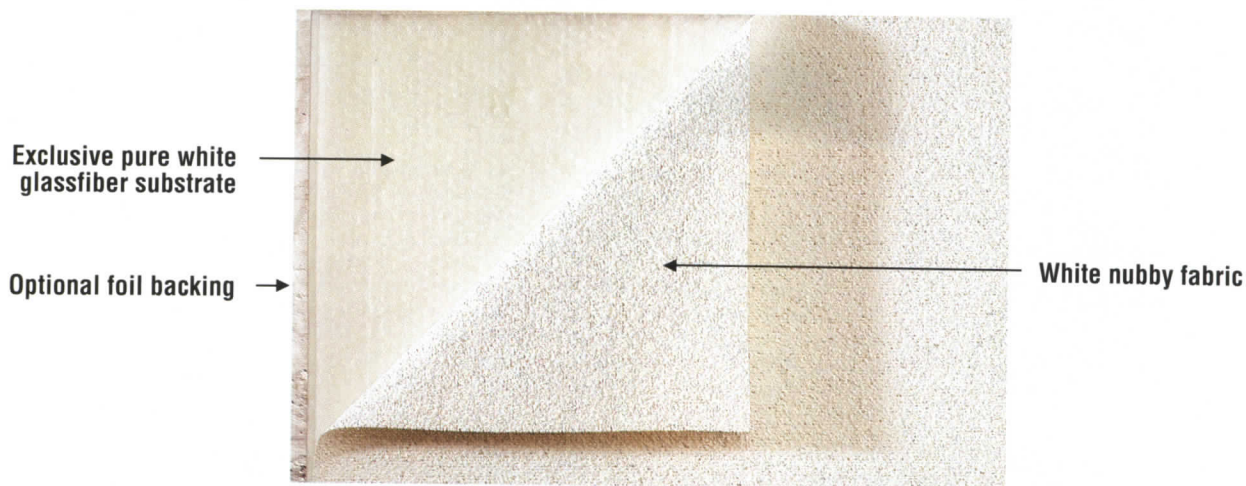
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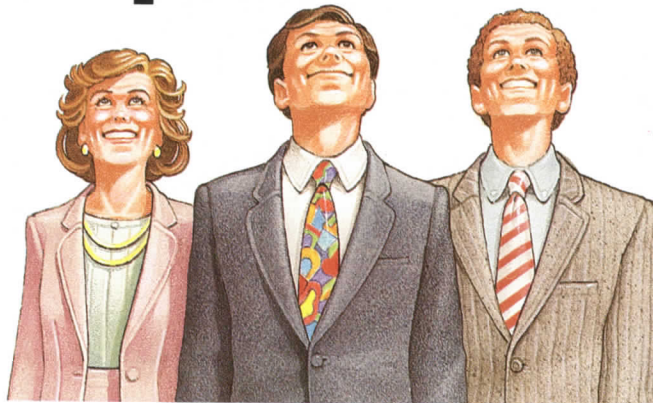
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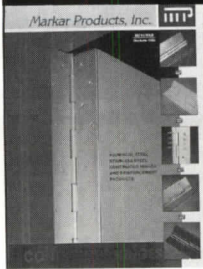
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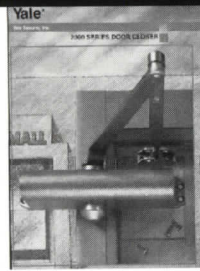
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## Product Literature / Hardware



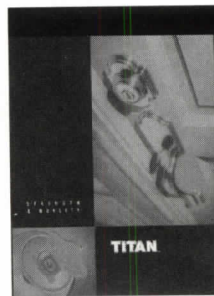
### 412. Continuous hinges

An illustrated brochure outlines the installation and load-carrying benefits of continuous hinges made of aluminum, steel, and stainless steel. Surface-applied, these hinges are said to be especially useful in retrofit applications. Reinforcing pivot- and full-length geared hinges are also included. Markar Products, Inc., Akron, N.Y.



### 413. Cost-effective

A color folder describes 2300 Series door closers as devices recommended for commercial and industrial applications where the emphasis is on economy. The brochure also includes installation schematics, operational features, and closer accessories. Yale, Inc., Charlotte, N. C.



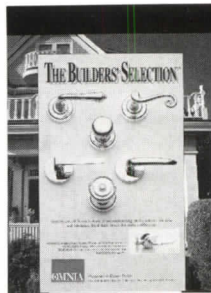
### 414. Residential hardware

Titan, a new line of ANSI A156.5 Grade 2-rated deadbolts, levers, and handlesets, comes with a 50-year warranty. Levers and handlesets are made of forged solid brass; all locksets are compatible with Kwikset 5-pin keying systems. Color catalogs list product specifications and illustrate seven standard-finish options. Kwikset Corp., Anaheim, Calif.



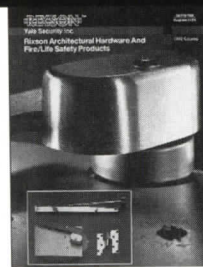
### 415. Architectural hardware

A full line of commercial locksets, levers and knobs, exit devices, closers, and interchangeable core cylinders are covered in a 20-page catalog. Dimensions, function options, and finish and trim choices are presented in easy-to-use chart format. Arrow, Brooklyn, N. Y.



### 416. Brass fittings

The Builders' Selection is a new line of solid-brass knobs and latchsets available from stock at what are described as extremely competitive prices. Hardware comes in passage, privacy, closet, single dummy and pair dummy functions, and polished and shaded bronze and polished and satin chrome finishes. Omnia Industries, Cedar Grove, N. J.



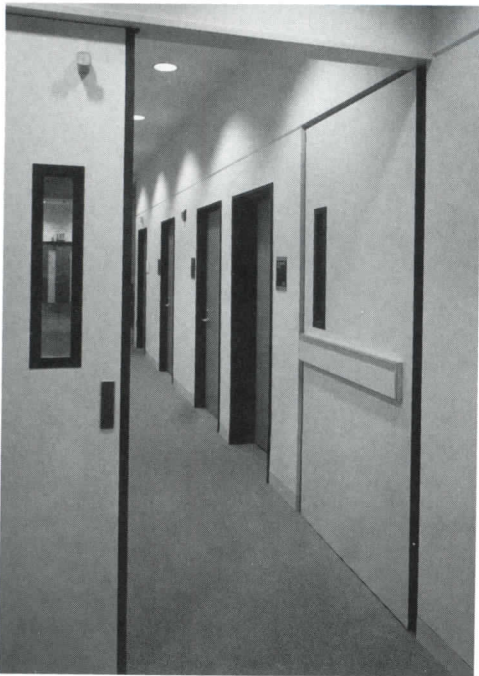
### 417. Closers and trims

Brochure describes concealed and surface-mount closers for all types of heavy- and medium-traffic doors, smoke-actuated releases, pivots, stops, and ADA-compliant thresholds that accommodate over 3,000 special layout applications. Rixson-Firemark, Inc., Franklin Park, Ill.

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

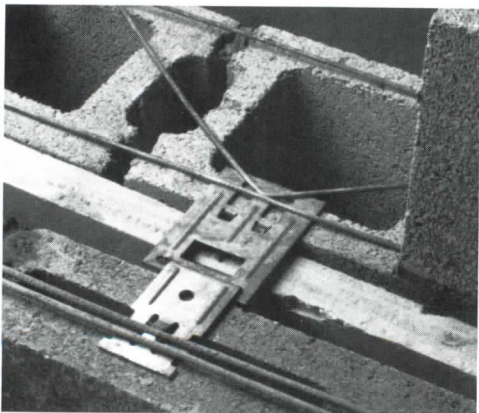


## New Products



C. M. Korab

**310. Clear-width-compliant.** The Total-Door system's push-bar device is shallow enough, at 1 5/16-in., to allow the assembly to meet the requirements of Section 4.13.5 (minimum clear opening at doors) and Section 4.4.1 (protruding objects in corridors) of ADA Accessibility Guidelines, as well as the clear-width criteria of current fire codes. The door's continuous hinge is said to permit retrofit to virtually any surface including metals, wood, or directly to masonry. Openings, Pontiac, Mich.



**311. Seismic tie.** Designed for masonry-to-masonry connections in Seismic Zones 3 and 4, as well as for areas with high wind loads, new plate and pintle devices are made of 12-gauge galvanized or stainless steel. The pintle is said to improve anchoring strength and offer better control of wall movement due to both positive and negative wind loading. Dur-O-Wal, Inc., Arlington Heights, Ill.



**312. Concrete lap siding.** Made from autoclaved cellulose-reinforced fiber cement, Hardiplank boards offer a number of finish options, including Colonial Roughsawn (pictured), a natural woodgrain look, and a smooth-sanded plank with a channel-lap shadow line. Material is noncombustible and will not rot or deteriorate from moisture or insects, but is said to fasten and cut like wood. James Hardie Building Products, Inc., San Fernando, Calif. ■



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## Manufacturer Sources

For your convenience in locating building materials and other products shown in this month's feature articles, *RECORD* has asked the architects to identify the products specified.

### Pages 74-83

B. Braun Melsungen AG  
James Stirling, Michael Wilford and Associates in association with Walter Nægeli  
Corrugated metal roofing and wall cladding: VAW/Bonn. Black brick: Baggeridge Brick (U. K.). Wood hopper windows and laminated timbers: F. Dickert. Metal cladding: Hinrichs+Aupferman. Elevators: Otis. Linear fluorescent lighting: AEG. Pendant fixtures: Louis Poulsen Lighting (Arne Jacobsen design). Ply tables and chairs: Hansen (Arne Jacobsen design). Linoleum: Forbo. Recessed downlights: AEG; Louis Poulsen Lighting.

### Pages 84-89

Temple Israel  
M. Louis Goodman Architect  
Standing-seam roof: AEP/Span. Wood windows: Marvin. Locksets, closers, and exit devices: Corbin Hardware. Hinges: Stanley. Paints and stains: Benjamin Moore & Co. Sconces: RAAK. Pendant: custom by architect. Recessed lighting: Halo. Elevator: Sedgewick. Resilient flooring: Armstrong World Industries. Exterior in-grade lighting: Kim.

### Pages 90, 92-93

Fulton Grove Townhouses  
Solomon Architecture and Planning, Architect  
Cedar-shingle siding: Shakertown, Inc. Aluminum-framed windows: Milgard Mfg., Inc. Built-up roofing: Manville. Entrance locksets: Schlage Lock Co. Exterior lighting: Bega/FS. Interior fixtures: Prisma. Fireplace: Superior Fireplace Co.

### Pages 91, 94-95

Beideman Place Townhouses  
Daniel Solomon and John Goldman, Associated Architects  
Cottage-lap siding: Weyerhaeuser. Exterior paints: Fuller O'Brien. Roofing: Owens-Corning Fiberglas Corp. Single-hung windows: Viking. Interior paints: Kelly-Moore. Prefinished wood floor: Hartco. Fireplace: Superior Fireplace Co. Tile surround: Forms + Surfaces. Lighting fixtures: Lightolier, Inc.

### Pages 96-99

Remote Switching Unit  
Ross Barney + Jankowski, Architect  
Louvers: Airlite Co. Roofing: Trocal Roofing Systems. Paint on concrete: Pratt & Lambert. Roof-edge system: W. P. Hickman (Perma Snap). Brick: Handley & Midland Brick Companies. Paints on metal surfaces: Glidden.

### Pages 101-113

Solomon R. Guggenheim Museum Addition, Renovation, and Restoration  
Gwathmey Siegel & Associates Architects  
Truss-mounted stone cladding: Indiana Limestone Co., Inc. Claycoat face brick: Glen-Gery Corp. Glass block: Pittsburgh Corning, Inc. Aluminum-framed custom-design windows: Armet Architectural Products. UV-blocking insulating glazing: Spectrum Glass Products; Falconer. Infill curtain wall: IDA. Skylight structure: EPI/

Naturalite. Laminated UV-blocking skylight glazing: Monsanto Chemical Co. (Solarflex). Metal-clad asphaltic roofing: Siplast, Inc. (copper-faced Veral). Liquid-applied membrane, roof pavers: American Hydrotech. Entrance: Mison. Frosted-glass panels: Somerset Wood Products. Exterior paint: Themec, Inc.

**Page 108**—Incandescent track lighting: LSI. Indirect/ambient fluorescent fixtures: Zumtobel. Exit lights: mcPhilben. Epoxy terrazzo: Master Builders, Inc. Paints: Benjamin Moore & Co. Rolling fire doors: Cornell. Gypsum plaster: USG Corp.

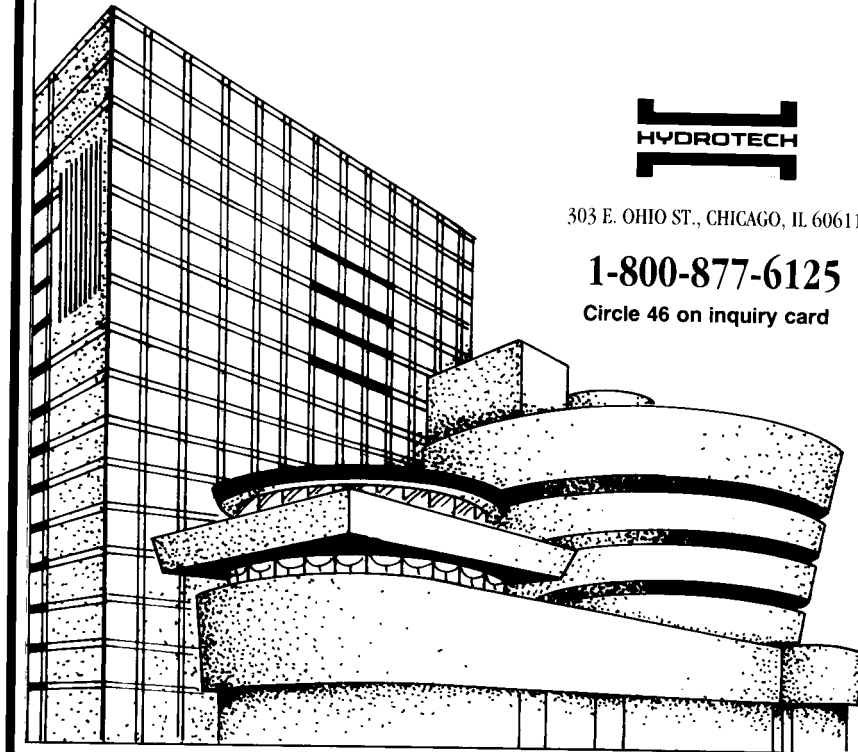
**Page 110**—Railings: Model Metals. Paints: ConLux.

**Page 112**—Downlighting: Lightolier, Inc. Car-

peting: custom design by TAS, woven by U. S. Axminster. Acid-etched glass: S. A. Bendheim. Anodized-aluminum frame: IDA. Indirect/ambient fluorescent fixtures: Zumtobel. Cherry woodwork: Patella. Workstations: custom by TAS, fabricated by Craftwood.

**Page 113**—(top) Conference table: Unifor, Inc. Seating: The Knoll Group, Inc. (Sapper Chair). Custom casework: Craftwood. Solid-surface counter material, laminates: Formica Corp. (Fountainhead; Color Core). (bottom) Conference tables: custom by owner. Seating: The Knoll, Group, Inc. Indirect pendants: Peerless Lighting Corp. Gridded window: Regency Architectural Metals.

# Guggenheim's roofing and waterproofing choice was Monolithic Membrane 6125 by American Hydrotech, Inc.



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Letters Continued from page 4

**Seeing the Corsets**

Your presentation of Architect Harry Wolf and Engineer Guy Nordenson's design for a Los Angeles tower [RECORD, August 1992, page 126] reminds me of Lou Kahn's remark about the Seagram Building: "She is a beautiful bronze lady, but she is all corseted inside . . . but you can't see the corsets."

In the tower design, we see the corsets through the grid of a superimposed curtain wall. This is a particularly interesting corset because it laces together bays of several dimensions that respond to earthquake loads, the core, and a decision to keep columns out of building corners.

The structural diagrams indicate how much more interesting this corseted building might be. Suppose the curtain wall followed the corset diagonals at the corners, the base, and the building's top. Little usable floor space would be lost and the building would develop a profile consistent with its sophisticated structure.

This building is on the verge of giving form to an unfinished theme in modern tower construction. The theme has much more potential than the current practice of designing tower walls as nostalgic pastiches independent of structure.

*Gifford Pierce  
Professor of Architecture  
College of Art and Architecture  
University of Idaho  
Moscow, Idaho*

**On Running**

I enjoyed your editorial in August RECORD. I would add that running is also a good way to see a town, so long as you are not running by your watch and can stop whenever you see something interesting . . .

In about an hour one can cover any downtown area and, in smaller places, most or all of town; check out the best commercial and industrial buildings, bridges, houses, and sometimes even farms; and find that one restaurant with the handwritten menu that you'll return to an hour or two later. With my running shoes I've never found a boring town—or an architecturally unredeeming one.

*William A. Brenner  
National Institute of Building Sciences  
Washington, D. C.*

**Social Housing**

Congratulations to ARCHITECTURAL RECORD for recognizing the value and significance of the Delancey project [Social Housing, RECORD, July 1992, page 72].  
*Donald A. Crosby, Principal  
Crosby Helmich Frye & Drake  
San Francisco*

Congratulations on the July social housing package. Bob Campbell sets it up with his usual brilliance. Seen through his eyes the strengths of the buildings are better understood and their shortcomings are placed in perspective. His is the best mind I know of currently in service to the profession, and you are to be commended for show-casing

his writing so prominently.  
*Allen Freeman, Senior Editor  
Historic Preservation  
Washington, D. C.*

**Corrections**

General Contractor for family housing, Flatlands, Brooklyn [RECORD, July 1992, page 90] was Gemma Construction Company, Inc. General Contractor for singles housing, Brownsville, Brooklyn [July 1992, page 86] was Hercules Construction Company.

Eduardo Dans of SOM played a key role in the technical documentation of the Islamic Cultural Center [RECORD, August 1992, page 90].

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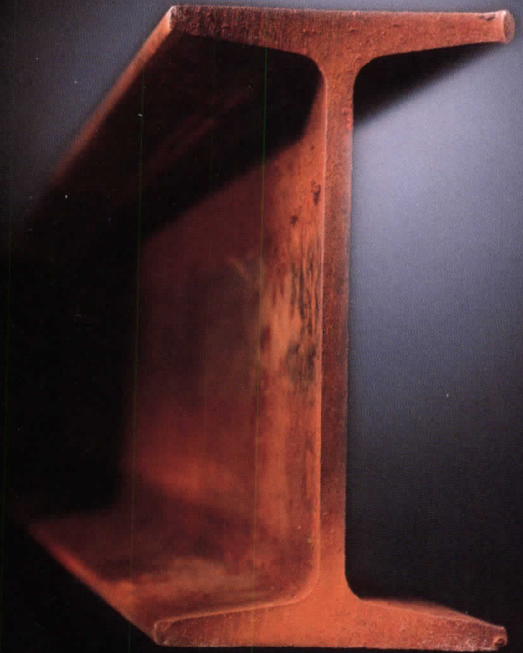
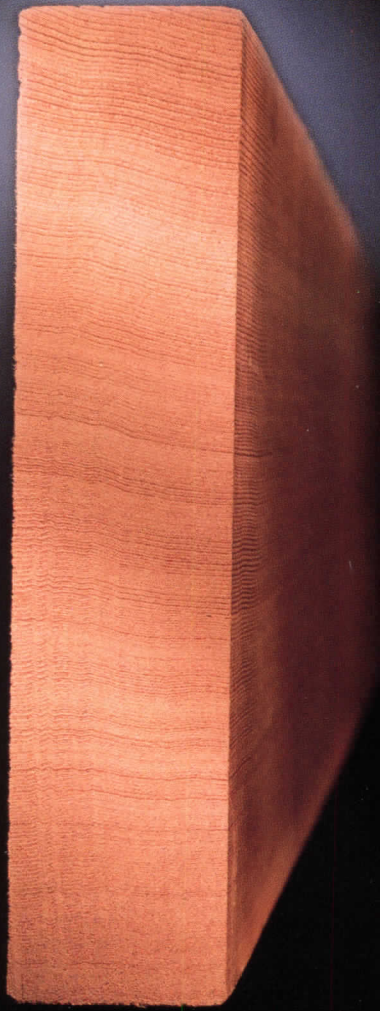
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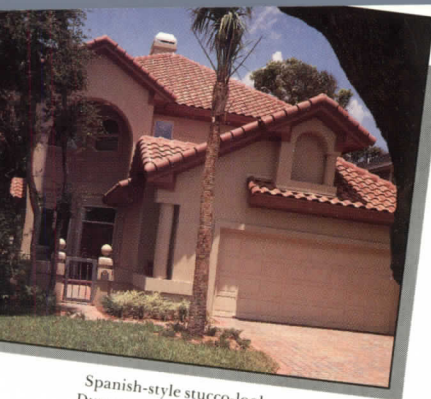
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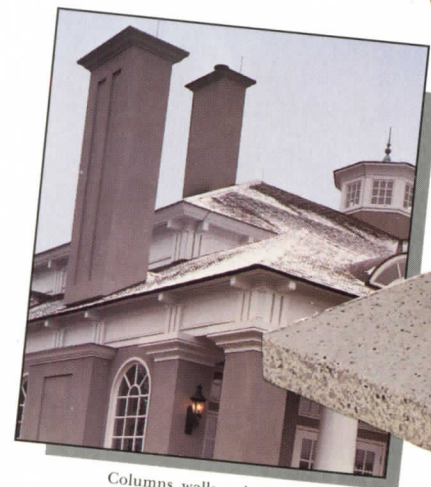
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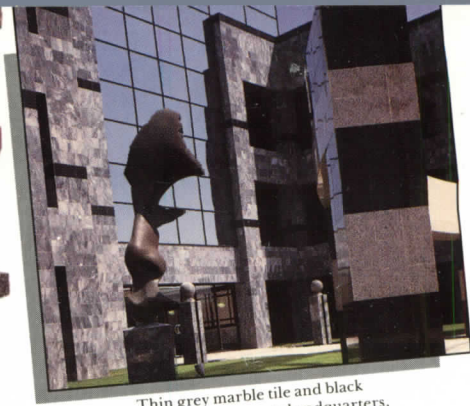
Spanish-style stucco-look  
DUROCK exterior, residence,  
Jacksonville, FL



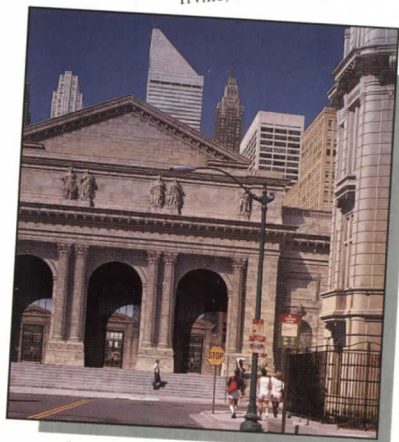
Stucco-look DUROCK exterior,  
residence, Mobile, AL



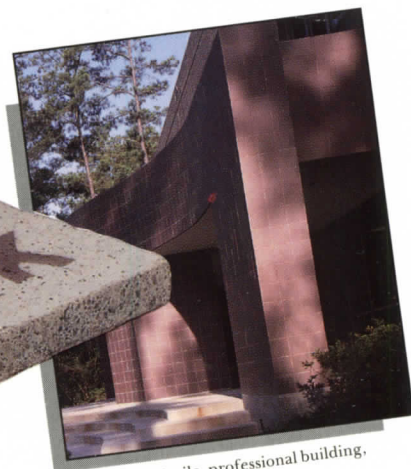
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