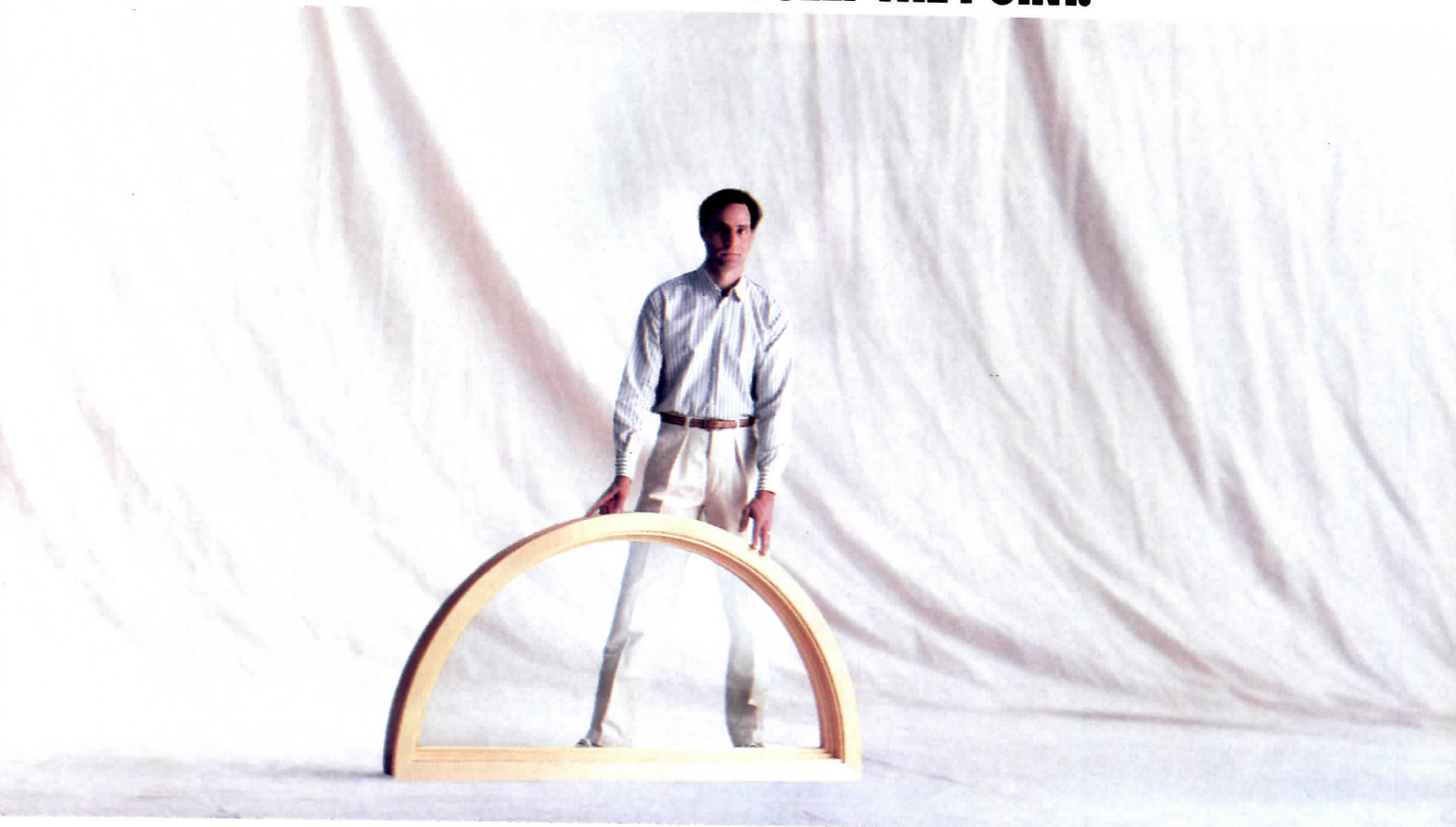


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### Bully for baseball

I really appreciate the new format you've developed for RECORD. I particularly admire the opportunity for capsule stories on several projects as part of the main theme [June 1991, pages 100-103]. (Of course, any issue that deals with the traditional sport of baseball would always be a hit with me.) Keep up the good work.

*Eugene J. Mackey III  
Mackey Associates  
St. Louis, Missouri*

### Filtration's future

The article about the McMillan Filtration Plant [RECORD, May 1991, pages 44-45], stirred a deep design sensibility within me. What a wonderful blend of engineering and nature to develop an artful utilitarian composition. The sand silos and brick houses are such essential forms that I could envision an Aldo Rossian Italian villa landscape—or perhaps Ledouxian. Here is a lesson for architects and others concerned about the built environment to learn from. It is unfortunate that it cannot be utilized as a reserve filtration system. Let us hope that it can be preserved as a park with some landscape additions. As far as my limited images of Washington, D. C., take me, this is definitely one which could enrich the heritage of that city.

*Jeffrey Joseph Hillmeyer  
Architect  
San Diego*

### Misnomers

A brief word about the naming of residences: the name of the client only, please. While the work done on Wright's Dana House [RECORD, May 1991, pages 88-95], is admirable, tacking on the name of subsequent owners is confusing to scholars. Unless Wright altered the house

specifically for the Thomases, their name should not be used. Using it indicates further work by Wright, an erroneous assumption. Only names on original plans should be used. Nothing against the Thomases, but their name does not belong on the house.

*Pervis B. Bacon, Architect  
Malibu, California*

### Similarities

After seeing Philip Johnson's design for the Ryan Fine Arts Center in Pennsylvania [RECORD, June 1991, page 35], I could only wonder how much time Mr. Johnson must have spent in Wayzata, Minnesota, admiring the Winton guest house designed by Frank Gehry.

*Paul Kowalczyk  
Oak Park, Illinois*

### Corrections

Due to an editing error, Robert Campbell's article, "1946/69 Modern Times" [RECORD, July 1991, page 167] named Gropius's Graduate Center as having been destroyed. Burr Hall, located across the street from Harvard's Fogg Museum and designed by Coolidge Shepley Bulfinch and Abbott, was demolished to make way for the Fogg Museum extension. Campbell notes that the Graduate Center is still standing.

In the renovation of Fenway Park [RECORD, June 1991, pages 102-103], Steffian Bradley Associates, not HNTB, designed the owner's suite, bars, and restaurant. HNTB designed the master plan and superstructure.

Construction management for Tigerman McCurry's Hoover Outdoor Education Center [RECORD, June 1991, pages 84-91] was donated by Schal, Inc., first under Richard Halpern, followed by Harold Schiff.

### September 8-October 6

Fifth International Exhibition of Architecture, Venice Biennale, Biennale Gardens and Fondazione A. Maseri, Venice, Italy. 39 41/410-685.

### September 12

"Hidden Treasures," from the Prints and Drawings Collection of The American Architectural Foundation. The Octagon, Washington, D. C. 202/638-3221.

### Through September 15

"Czech Cubism," Vitra Design Museum, Weil am Rhein, Switzerland. 49-7621-702200.

### October 3-December 31

"Tadao Ando," Museum of Modern Art, 11 West 53 St., New York City. 212/708-9400.

### October 10-12

"Urban Waterfronts '91—Make No Little Plans," Ninth Annual Conference of Urban Waterfront Planning, Development and Culture, organized by the Waterfront Center. Ramada Renaissance, Washington, D. C. 202/625-1654.

### October 17-19

"Designer's Saturday," International Design Center of New York, sponsored by Designer's Saturday Inc., New York City. 212/826-3155.

### October 20-January 5

"Louis I. Kahn: In the Realm of Architecture," traveling exhibition organized by The Museum of Contemporary Art, Los Angeles; opening at the Philadelphia Museum of Art. For other dates and locations: 213/621-2766.

### October 21-25

Comdex/Fall '91 exhibition and convention, Sands Expo and Convention Center, Las Vegas. 617/449-6600, ext. 4278.

### November 19-23

Making Cities Livable Eleventh Annual International Conference, organized by the Center for Urban Well Being. Stanford Court Hotel, San Francisco. 408/626-9080.



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**Introduction 55**

**Ohrstrom Library  
 St. Paul's School  
 Concord, New Hampshire 56**

*Robert A. M. Stern Architects*

**New Work by Gunnar Birkerts 64**

In five current projects Gunnar Birkerts combines tectonic mastery with a new lyricism.

**Pennsylvania Plaza  
 Washington, D. C. 76**

*Hartman-Cox Architects*

**Lucerne Rail Station  
 Lucerne, Switzerland 84**

*Santiago Calatrava, Architect and Engineer*

**Mendelsohn House  
 San Francisco, California 90**

*Robert Herman Associates, Architect*

**Building Technology 100**

Cesar Pelli & Associates' highly refined, high-rise curtain-wall design.

**Practice 34**

Japan in the U. S.: American architects find major overseas clients right here at home.  
*By Judith Davidsen*

**Software Reviews 40**

Rasterex Liberty graphics boards; Modeling software—form-Z and WalkThrough.

**Observations 42**

Robert Campbell examines new handicapped-access laws, and raises troubling questions about their impact on architecture and urban design.

**Letters/Calendar 4**

**Editorial 9**

**Design News 21**

**Practice News 26**

**Technology News 28**

**Product News 30**

**Product Literature 110**

**Manufacturer Sources 117**

**Classified Advertising 120**

**Advertising Index 124**

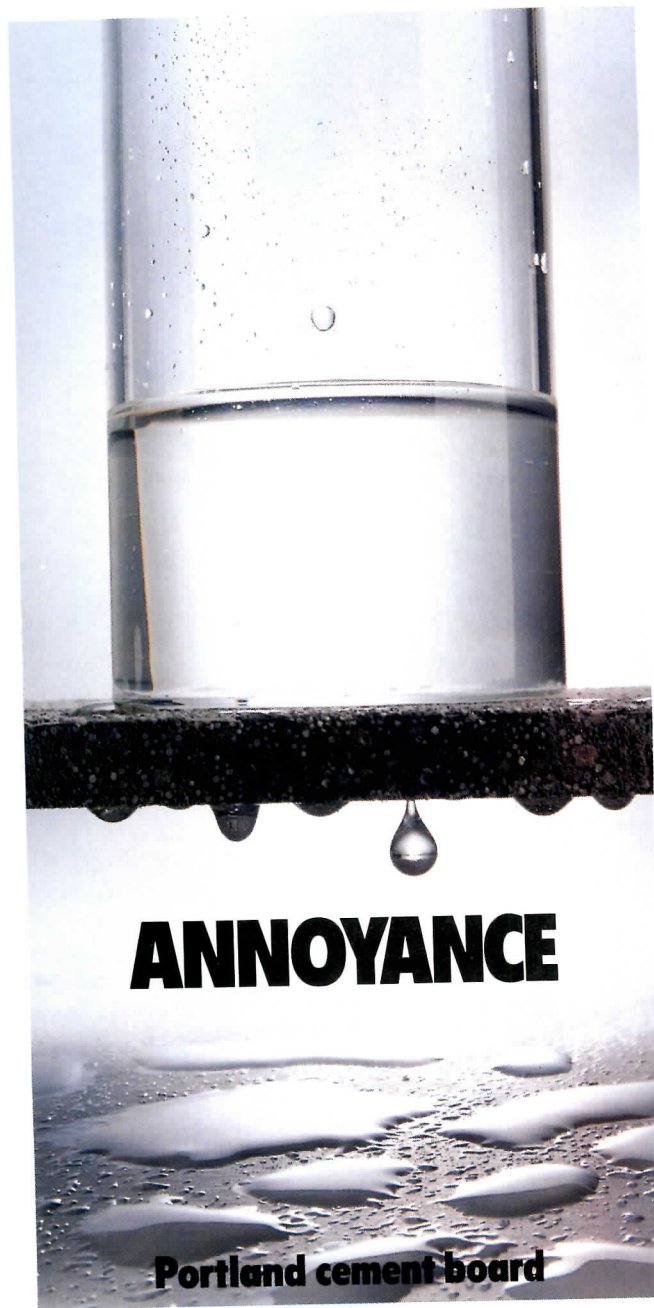
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 Drawing on paper  
 Gunnar Birkerts, Architect*

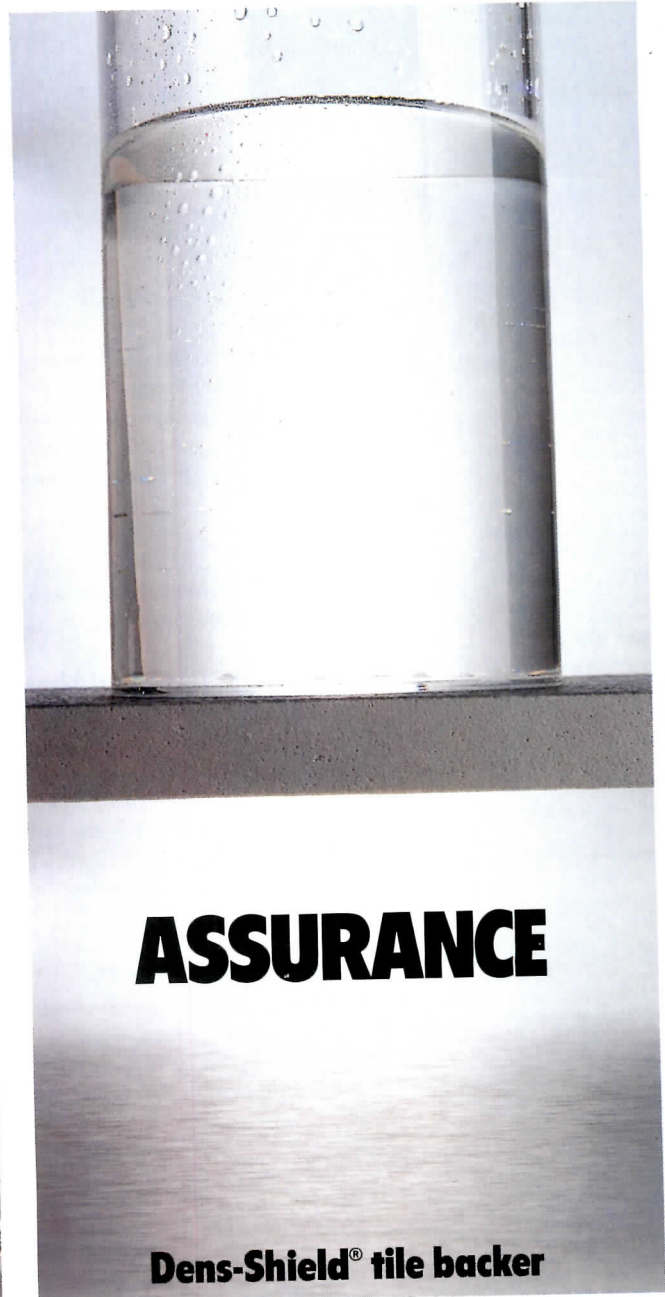
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# Adding to a Masterpiece

The big debate over adding on to Louis Kahn's Salk Institute at La Jolla raises once more the vexing issue of what to do with an architectural (and in this case urban design) jewel when its owners run out of space and decide to expand.

Other recent examples are Wright's Guggenheim Museum (completed over strong objections), Breuer's Whitney Museum (into its umpteenth study), Kahn's Kimbell Museum (Giurgola's scheme shelved), and Saarinen's Dulles Airport (under way).

At the risk of oversimplifying a complex issue, here are the basics:

1. The Acropolis, the Vatican, the city of Florence, the fabric and precincts of many of the greatest Gothic cathedrals are all an outcome of add-ons. Looking back we are less concerned about what might have been than about what we have.
2. What complicates today's equation is that none of the original buildings is more than 32 years old. The protagonists—clients, users, former staffers, family members, critics—who played their part in the original effort are still here, loading their own agenda upon the process and making that process tougher for the owner, donors, and new architect.
3. In the face of this array of complex forces, the risk is that timidity, compromise, rash attempts to interpret squiggles by the master to indicate expansion intent, will end up in solutions that give neither offense nor pleasure.
4. There are elements in masterpieces such as Salk Institute or Guggenheim or Kimbell that must be preserved; there are other elements that can be compromised. What, we must ask, is the building's *conscience*, or what the Finns call *löylö*, or spirit? What, to paraphrase Kahn, does it want to *be*? In Guggenheim, it was the great curve of the outside, and the interior helix. At Kimbell, it is proportion and scale, inside and out, and glorious natural light. At Salk, it's the ritual approach, followed by the perfectly proportioned space between the two wings, with the sky as roof and the Pacific for horizon.
5. Observers and critics, looking back one hundred years from now, will seldom wonder and little care what those 1991 guys did, so long as (a) the spirit of the place is preserved and (b) the added fabric was handled boldly and in a form reflecting the best of its day. These same observers will be outraged if the add-on was a meek effort designed not to offend.

Architects, however illustrious, chosen as they have been to date to do the additions, start out with a no-win situation. Few have come through unscathed. If they are too contextually courteous, they are accused of timidity. If they are too bold, they are accused of smashing an idol.

Perhaps the solution is to choose the architect by limited competition, to a program carefully created by the best minds. This would air the issue without making a public scapegoat of the architect, and build a consensus behind the winner.

That's one man's opinion. What is yours? *Stephen A. Kliment*



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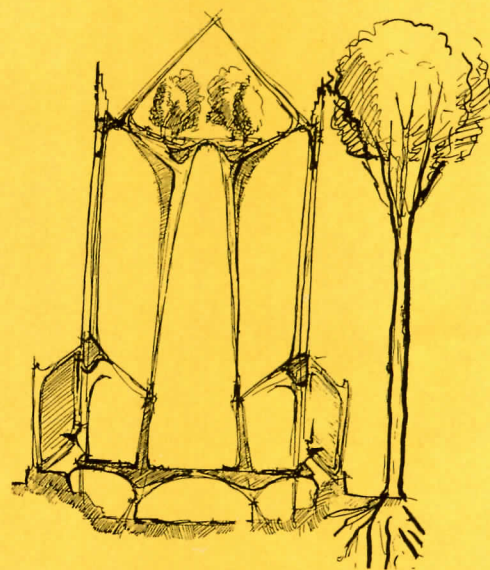
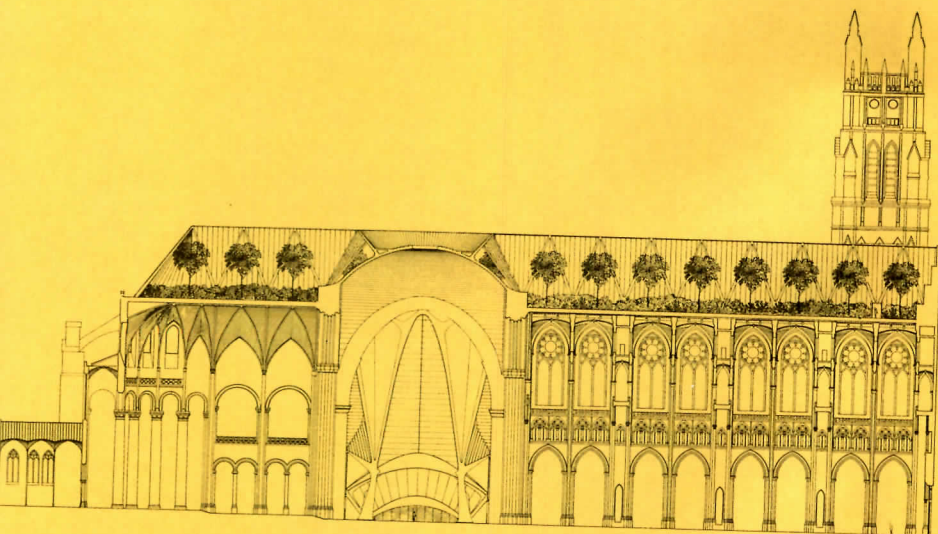
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**New York**

## Modern Gothic Bioshelter for Cathedral of St. John the Divine



sounds like an improbable match, yet it has been a dream of Dean James Parks Morton of New York City's Cathedral of St. John the Divine ever since Buckminster Fuller first proposed a biosphere to top the cathedral back in 1978. Santiago Calatrava's design, above, is the latest outgrowth of Fuller's concept. In June Calatrava won an international competition seeking a design

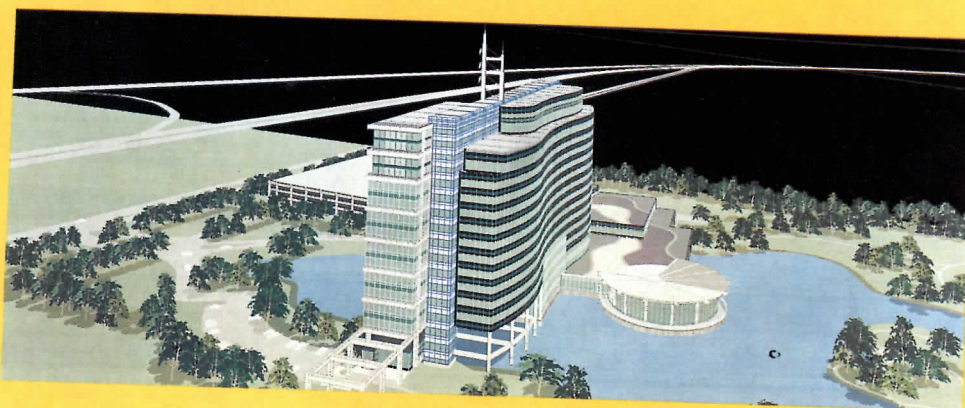
for the bioshelter. A jury that included Philip Johnson, David Childs, James Polshek, and Maya Lin chose his design, which completes St. John's unfinished transepts, over submittals by Tadao Ando, Antoine Predock, Holt Hinshaw Pfau Jones, Keenan Riley, and David Sellers. "My approach was one of respect for the archetypal form of the cathedral," Calatrava told RECORD. "We

understood that the character of the nave should be conserved. We enriched the duality that exists between the crypt and the nave by introducing a third level at the roof, which in traditional cathedral design is never explored." The preliminary design—now "pure sketches," says Calatrava—must be approved by St. John's trustees before construction can start. *P. D. S.*

**Illinois**

## Skidmore/Chicago: New HQ for Spiegel

Putting off rumors of its untimely demise, Skidmore Owings & Merrill/Chicago is moving ahead with this scheme for new corporate headquarters for Spiegel, in Downers Grove, Illinois. The 14-story, 600,000-sq-ft building is under construction. Partner John A. Gonzalez's design responds to a site bounded by two major highways and a forest preserve. The curving green-glass west elevation, facing the natural landscape, contrasts with the strongly expressed east elevation. A central core element rises to a communications tower. ■





## Spain

# 14th-Century House Becomes Granada Study Center



A grant from the Aga Khan's Trust for Culture helped restore the 14th-century Zafra House in Granada, Spain, as the Center for Historical Studies of Granada and its Kingdom. Once a Nasrid Palace, the house was willed in the 16th century to a convent. The



two-year restoration was intended to bring the house as close as possible to its origins. The ground floor is organized around a courtyard and fountains to be used for public functions. The second floor holds a library, meeting room, and offices. *M. L. A.*

## Colorado

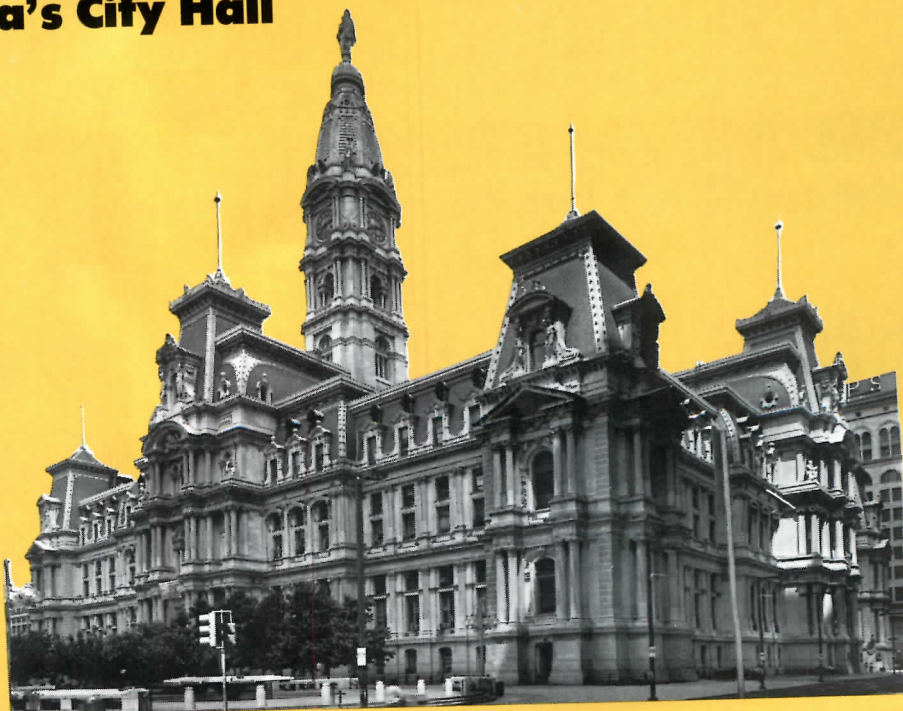
# Bare Bones at Aspen Design Conference

Making more with less during hard times engaged participants in this year's International Design Conference in Aspen, "Bare Bones." But what really emerged from the conference was a reminder of what design is all about—cutting to the heart of the matter and solving problems without excess. Humanism was a recurring theme. Jens Bernsen, director of the Danish Design Council, used furniture pieces and objects as diverse as a beer bottle and an insulin injector to show how economy of design can improve life without sacrificing richness. Environmental activist Barbara Pyle urged more compassion in making decisions affecting the earth's survival. Industrial and furniture designer Bill Stumpf called for a return to regional diversity in design, as well as increased durability and a better balance of humanism and technology. Richard Saul Wurman and Edward Tufte echoed the conference theme with their thoughts on communication. Tufte, author of *Envisioning Information*, showed techniques for improving visual-information display, while Wurman discussed ways of making information more comprehensible. *David K. Ballast*

## Pennsylvania

# Restoring Philadelphia's City Hall

Despite woeful budget problems, the city of Philadelphia is moving ahead with a planned 10-year renovation of its City Hall, hoping to finish work by the building's centenary in 2001. Vitetta Group, in association with Kelly Maiello, begins with an 18-month, \$1.5-million master plan for rehabilitation of the 14 acres of office space in the behemoth building, designed by local architect John McArthur, Jr., jointly with Thomas U. Walter and built in 1872-1901. Hyman Myers of Vitetta sees a three-pronged approach to the multiphase project, starting with a system rehab and overhaul that will focus on building safety. Second is restoration, including cleaning of the facade which is adorned by a multitude of sculptures. Third is the city's hope that the building will attract public activities—beyond the civil courts that will remain on premises. ■



*Peter Olson*



# Preservation: Updating the Jeu de Paume . . .



*F. Kleinefahn photos*

Built in mid-19th century as a tennis arena, the Jeu de Paume in Paris has begun its latest incarnation as an international center for contemporary art. The 1947 version of the hall, the celebrated home for the Impressionists, has been reconfigured by Paris-based

architect Antoine Stinco, who won a nationwide competition in 1989. The \$10-million project meant creating new spaces within while preserving the facade. Not wishing to compete with the exterior (or the art), Stinco fashioned over 10,000 sq ft of plain, natu-

rally lit exhibition space. The main entrance, on the west, features Stinco's most dramatic alteration, offering a greenhouse-like space that rises the full height of the building. Bays on the north and south are also fully glazed. *David Masello*

# . . . Backdating le Nôtre's Versailles, and a New Tuileries

The royal park and gardens of the Palace of Versailles, designed by André le Nôtre for Louis XIV in 1662, are to undergo major restoration to return them to their 17th-century state. In 1986 a Japanese tourist was killed by a falling tree; restoration became even more urgent after the storms that swept through France last February uprooted some 1,500 trees throughout the gardens. In the Grand Parc woods, some 1,200 acres—more than 40 percent—are reported dead. Over a third of Versailles' 60,000 trees will be replaced, and statuary, gilded benches, colored marble, and fountains will be restored. The Petit Parc was first replanted by Louis XVI in 1774-76, and then again in the 19th century (1860-80) under Napoleon III. The next stage in the current project is renovation of the Petit Parc and the Trianon, encompassing over 200 acres near the pal-



ace. Some parts of the gardens, such as the Encelade, have remained untouched since 1670. Here, the trellises will be replaced, along with the bowers that Louis XIV apparently liked. The restoration is expected to take 20 years.

A similar undertaking starts this fall in Paris: renovation of the stately gardens of the Tuileries, 70 acres of former royal gardens that stretch from the Louvre to the Place de la Concorde (and the Jeu de Paume, above). Three generations of the le Nôtre family had a hand in shaping the Tuileries. Now a team comprising Belgian architect Jean Wirtz and the French duo of Louis Benech and Pascal Cribier has won a controversial decision in a closed competition that saw U. S. landscape architect Michael Van Valkenburgh come close to success. They will redesign the Cour du Carrousel, long overrun by tourist buses, in cooperation with I. M. Pei. In addition, plans call for the Champs Elysées to be furnished with underground parking garages, and two rows of trees will be added as an antidote to the traffic congestion. *Tracy Metz*



## Canada's Tokyo Retail Chancery



In Tokyo, where construction costs are among the world's highest, the Canadian government has built a new chancery at no cost to its taxpayers. Canada Place, housing a 45,000-sq-ft chancery and 38,000 sq ft of surplus space, sits on prime real estate bought by Canada in 1932. Construction was financed by a consortium of Shimizu Corporation and Mitsubishi Trust and Banking Corporation, which will for now hold leasing rights on the surplus space. Designers Moriyama and Teshima Planners of Toronto and Shimizu created an eight-story building whose low-rise form defers to the Imperial Palace grounds across the street. The stone-clad base houses the rental space while a sloping glass roof encloses the chancery. Canada Place, a fourth-floor garden recalling the Canadian landscape, links the two components. *Naomi R. Pollock*

## New York

## Halfway Housing for the Mentally Ill Elderly

The clients are what Michael Brill of BOSTI refers to as "double-whammy" cases: their problems include more than one dysfunctional disorder. BOSTI was charged with creating a design program for residences housing people returning to society from total-care institutions. Architects Hamilton Houston Lownie of Buffalo used BOSTI's program to design the Greenwood Residences, two 6,000-sq-ft homes for 12 people each. To promote independence, staff live off premises. Similarly, the program aims to reinforce the delicate social skills of the residents. Organized as a one-story, family-style home, four bedroom wings radiate from a common kitchen area—what BOSTI calls "the natural heart of the house." The program encourages free movement about the house and unforced, voluntary socializing among small groups. A lucid layout includes location cues to keep wandering residents on course and feeling secure. Spurned by an affluent Buffalo suburb and still awaiting promised state funding—a modest \$1.2 million—plans for the stick-built houses have been welcomed by a long standing-working-class neighborhood. *P. D. S.*



**Greenwood Residences**  
Hamilton Houston Lownie  
Architects, P. C./BOSTI

1. Kitchen/dining area
2. Bedroom wing
3. Staff/support area
4. Porch
5. Entry
6. Entry
7. TV room
8. Terrace



## Briefs

## Awards

Pittsburgh Corning Corporation has announced the winners of its PC GlassBlock Architectural Design Awards Competition. The awards are given for applications incorporating PC GlassBlock as a central design element. Awards were presented in two categories: completed/existing and conceptual. In the completed category, first-place winner is John H. Kell, Jr., of Jones Kell Architects, Inc., San Antonio, Texas, whose GlassBlock-inspired designs were used in the admission gate at Sea World in San Antonio. First place in the conceptual category went to Barbara E. Wilks of Cho Wilks & Benn, Inc., of Baltimore, for her proposal for a glass bridge. Winning entries were selected by a panel of five architects: William Brubaker of Perkins & Will; George Hartman of Hartman-Cox; Herbert McLaughlin of Kaplan/McLaughlin/Diaz; George Notter of Notter Finegold + Alexander; and Bartholomew Voorsanger of Voorsanger & Associates Architects.

## Schools

Big new appointments are in the cards at three Ivy League design schools. At Yale's School of Architecture, Dean Thomas Beeby leaves at term's end to concentrate on private practice. John de Monchaux steps down in January after 10 years as Dean of the School of Architecture and Planning at MIT; and Dean Gerald McCue will also be leaving in January from his post at the Harvard Graduate School of Design. No successors have been named.

## New venture

The International Design Center of New York will open an Environmental Business Center, a resource and information service dealing in environmental issues and products. Geared to architects, designers, builders, and engineers, the center opens at DCNY's headquarters in October in time for Designer's Saturday.

## Wesley Peters dies at 78

Peters, head of Taliesin Associated Architects, was Frank Lloyd Wright's son-in-law. **Just a suggestion . . .**

Enzo Piano has refused to chop the wings of his competition-winning 1988 design for Kansai International Airport. The proposal was made after the airport's manmade support island in Osaka Bay sank 11 feet below sea level; the money is needed for added fill. ■

## Rookery Restoration Uncovers Wright

The \$100-million renovation of John Well-born Root's 1888 Rookery Building, on Chicago's South LaSalle Street, is nearly complete. The restoration returns the Rookery to Frank Lloyd Wright's 1905-07 remodeling, removing much of William Drummond's subsequent reworking from the early 1930s. Cast-iron interior columns are sheathed in white marble; ornamental iron electroliers are replaced by rectilinear light fixtures. The courtyard, with its delicate balustrades and winding iron stairways, is one of the salient parts of the project, which is being done by Gunny Harboe of McClier Corp. following conservation work done in the early 1980s by Hasbrouck Peterson Associates. A new glass ceiling covers the glazed-brick and terra cotta courtyard, and the vaulted iron-and-glass skylight has been restored. *Lee Froehlich*



Lisa Hamlin

## Joint-Venture Garden for Battery Park City



Cooper, Robertson & Partners has teamed with New York-based visual artist Jennifer Bartlett and landscape architects Quennell Rothschild on design of South Garden at Battery Park City. This 3.5-acre waterfront public space becomes an anchor for the giant

development, drawing pedestrian traffic as it moves along the esplanade fronting the Hudson River. The design partnership emphasizes the pivotal transition from the garden to adjacent Battery Park, in turn the gateway to New York Harbor. *P. D. S.*



## Transportation

### Surface Transportation Act Stalls in Congress



Spearheaded by the American Institute of Architects, a lobbying group called the Livable Communities Coalition is urging Congress to reauthorize the Surface Transportation Act. The loosely knit coalition, which includes design, planning, preservation, and environmental organizations, sees the reauthorization as a way to coordinate transportation projects with other building areas, and says the bill is instrumental in filling the gap between transportation planning and urban and environmental planning. The reauthorization is also a means to provide funds and support for historic preservation, scenic easements, and highway-billboard pollution controls (above).

In mid-June, the Senate approved a five-year, \$123-billion federal highway bill—its own version of the Surface Transportation Act, which is slated to expire September 30. But the House was still laboring on its version, two bills jointly known as the “Transportation for Livable Communities

Act.” Together, the Transportation for Livable Communities Act addresses four aspects of transportation:

- Title I, covering state and urban planning, would strengthen the links between comprehensive and environmental planning and transportation-investment decisions. It would require local and state highway plans to use management and investment strategies that make the most efficient use of existing facilities in terms of moving people and goods.
- Title II would make those transportation activities eligible for federal funding that are now mostly on the periphery, including scenic and historic landscape enhancements; demonstration projects to encourage design excellence in construction, rehabilitation, and use of transportation facilities; signage; rehabilitation of historic transportation buildings; and other concerns.
- Title III would establish the National Scenic and Historic Highway System, including standards for operation, management, signage, and resource protection. The bill would set aside \$25 million in each of the next five years for these activities.
- Title IV covers recently introduced legislation to restore power to states and localities to remove nonconforming billboards, and to allow states to decide whether to compensate billboard owners. It would also clamp down on a variety of billboard abuses.

Testifying on behalf of the American Institute of Architects at an April hearing in the House surface transportation subcommittee, New York architect Douglas Korves reeled off a sampler of horror stories of bungled planning caused by the single-track approach to road construction in past decades. “Too often,” said Korves, “we have laid out our highways first and considered the effects on our communities and natural resources later.” Will the Act pass? If Congress runs out of time in this session, the current bill will likely be extended for another year. *Peter Hoffmann*

## HUD Funds

### HUD to Elderly: No Dishwashers

The Housing and Urban Development Corporation (HUD) has issued a new notice of available funds for housing for the elderly under its Section 202 program. The initiative, which includes some surprising design restrictions, releases \$550 million for new construction and substantial (i.e., gut) rehabilitation of about 9,400 units; an additional \$263 million covers rental assistance for over 6,000 units. Along with excluding amenities such as bowling alleys, swimming pools, saunas, and Jacuzzis, HUD also proscribes individual-unit balconies and decks, dishwashers, trash compactors, and washer/dryers in individual units.

HUD’s siting requirements are drawn in a medley of broad and specific terms. Projects must be “modest,” and “appropriate to location and proposed resident population within broadly defined parameters.” They “must not be located in an area of minority elderly concentration,” yet “must not be located in a racially mixed area if the project will cause a significant increase in the proportion of minority elderly to nonminority elderly residents in the area.”

HUD lists cost limits for both new construction and rehabbing, ranging from slightly over \$28,000 per family unit without a bedroom (an oxymoron) to around \$41,000 for a two-bedroom unit. In addition to evaluating an applicant’s proven management ability, HUD will evaluate “the extent to which the proposed size and unit mix of the housing will enable the sponsor to manage and operate the housing efficiently.”

AIA spokesman Al Eisenberg says that although the new regulations reflect the institute’s concern that HUD “pay adequate attention to design quality,” they are “overly restrictive for the elderly.” A basic concern that housing not appear low income—is not addressed. Notes Eisenberg: “It’s detrimental to neighborhoods, to individuals, and to the program.” *P. H.*



## CSI Show

# Independent Spec Writer's New Role



Stephen A. Kliment

A bigger role for the independent specification writer over the inhouse writer emerged from a well-attended session given by John Raeber at the 35th annual convention of the Construction Specifications Institute, held in June at the new Arthur Erickson-designed convention center (above) in San Diego [RECORD, August 1990, page 54].

Raeber, a San Francisco-based independent spec writer, laid out a five-point set of challenges for the future spec writer:

Productivity. Less wasted time, greater reliance on computer-aided spec writing.

Clarity.

Brevity. A detailed spec is not necessarily a better spec. There's such a thing as too much information. Less may mean more to the contractor.

Finding answers. Don't depend too much on expert systems to write your specifications for you any time soon. Current computer capacity still isn't big enough for expert systems.

Finding tools. The computer, linking spec writing with design, estimating, and quantity surveying, will be the everyday tool.

Raeber also called for development of a construction thesaurus that would solidify a uniform set of meanings for all construction terms.

Attendance this year was 9,070, against 8,350 at last year's show. There were 1,028 exhibit booths, up 28 from 1990. S.A.K.

## Affordable Housing

# Community Design Centers Seek National Profile

Begun in the mid-1960s as sort of an architectural Legal Aid, the community design movement works to provide architectural services to poor clients. In May two dozen architects and planners from around the United States, joined by several architects from Europe and Mexico, met at the University of Cincinnati for the annual meeting of the Association of Community Designers, a loose-knit organization of nonprofit community design centers. Along with discussing design and innovative financing for low-income housing, the conference took on the issue of what role community design centers ought to play within the architectural profession. Although supported by the AIA, community design centers—there are now about 30 nationwide—remain on the outskirts of the profession. Most at the conference agreed that greater visibility and

a stronger national network were important goals. Yet the centers' effectiveness stems from their intensely local focus, which must not be sacrificed for a higher organizational profile. "We don't want to become one of those groups that entertain themselves by endlessly defining and redefining the housing crisis," says Rex Curry, director of the Pratt Institute Center for Community and Environmental Development in New York City, and the outgoing president. "What's special about the centers is their ability to get in there and work closely with distressed communities, to deal with the problem from the bottom up, not the top down."

For more information about the centers, contact Christopher R. Clark, A. I. A., Director of Design Practice, at the A. I. A. in Washington, D. C., 202/626-7537. Nancy Levinson

## Practice

# Briefs

### Architect vanishes

Without fanfare, 1986 Gold Medal winner Arthur Erickson closed his Los Angeles office in June and returned to Vancouver. Erickson, who has a number of academic projects near completion in California and recently topped off California Plaza Phase 2 in Los Angeles, closed his Toronto office back in 1989.

### GSA and design/build

The General Services Administration has a new policy on design/build projects. Along with project cost and construction time, the policy now considers government control of a building site. It also considers what aspects of a project are best served by the design/build process, and whether that process will secure the best price. Other contract arrangements include fixed price, fixed-price incentive, and unit pricing.

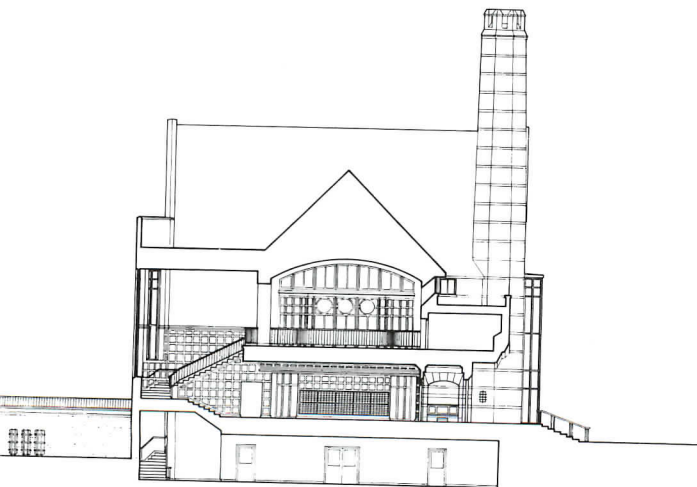
### New resources

A directory of registered African American architects and analyses of upcoming projects by Peter Eisenman and Michael Graves are some of the early offerings of "Practices," a new resource service at the University of Cincinnati's Center for the Study of the Practice of Architecture. Through a series of working papers examining a wide range of practice-related issues, the center hopes to establish an active information exchange for architects. For additional information, contact Daniel S. Friedman at 513/556-6426.

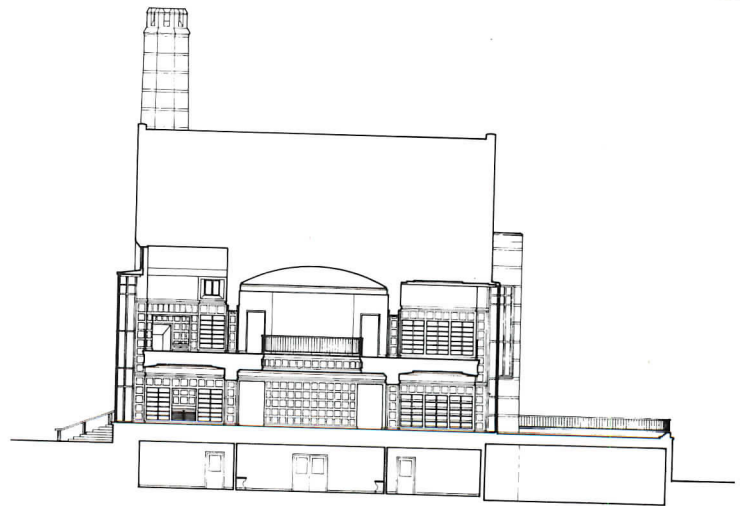
### Chairman for SOM

For the first time in its 50-year history, Skidmore, Owings & Merrill has elected a chairman. David Childs will hold the post for two years, in a management move designed to give a stronger center to SOM's far-flung, recession-plagued practice. ■



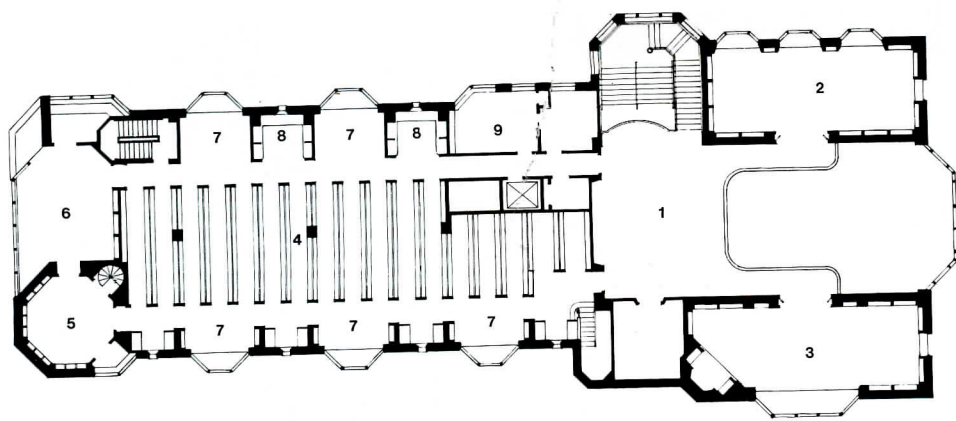


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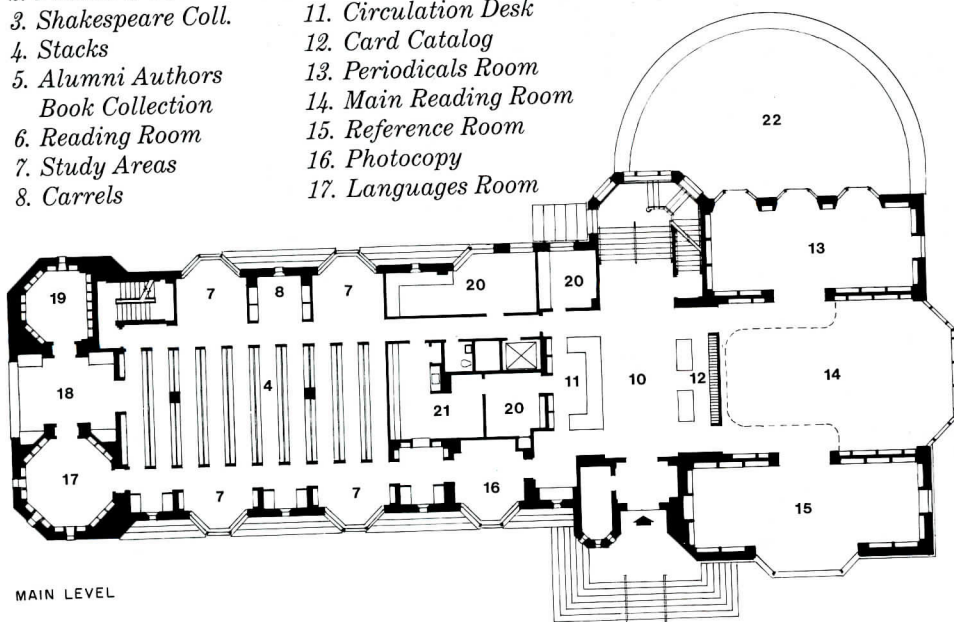
SECTION FACING EAST





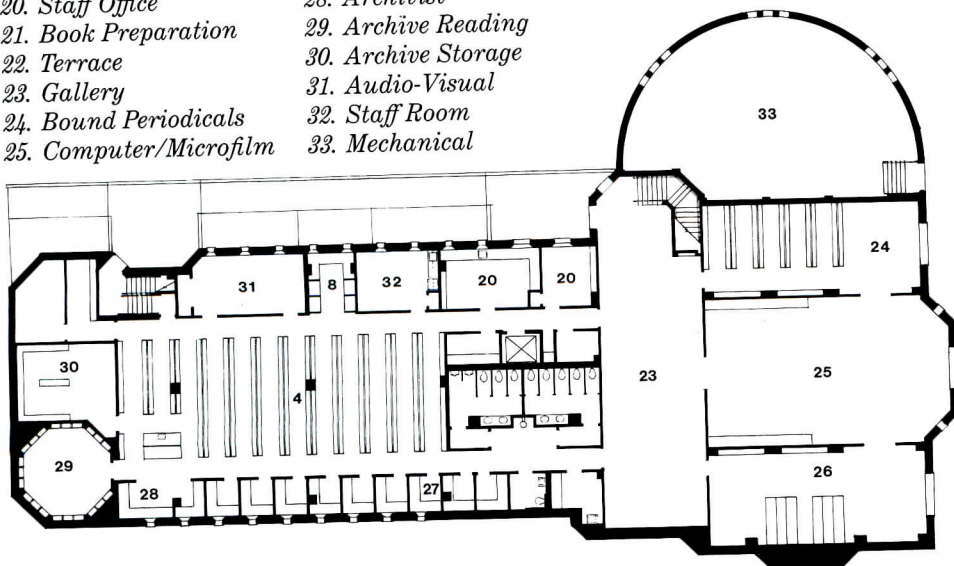
UPPER LEVEL

- |                                   |                       |
|-----------------------------------|-----------------------|
| 1. Hall                           | 9. Librarian          |
| 2. Fine Arts Coll.                | 10. Entrance Hall     |
| 3. Shakespeare Coll.              | 11. Circulation Desk  |
| 4. Stacks                         | 12. Card Catalog      |
| 5. Alumni Authors Book Collection | 13. Periodicals Room  |
| 6. Reading Room                   | 14. Main Reading Room |
| 7. Study Areas                    | 15. Reference Room    |
| 8. Carrels                        | 16. Photocopy         |
|                                   | 17. Languages Room    |



MAIN LEVEL

- |                         |                         |
|-------------------------|-------------------------|
| 18. Classics Collection | 26. Special Collections |
| 19. Reading Room        | 27. Study Rooms         |
| 20. Staff Office        | 28. Archivist           |
| 21. Book Preparation    | 29. Archive Reading     |
| 22. Terrace             | 30. Archive Storage     |
| 23. Gallery             | 31. Audio-Visual        |
| 24. Bound Periodicals   | 32. Staff Room          |
| 25. Computer/Microfilm  | 33. Mechanical          |



LOWER LEVEL

Ohrstrom Library's churchlike plan is organized around book-circulation and card-catalog areas located in the crossing of the nave. The crossing separates bookstacks and study carrels from special-collection reading rooms on either side of the two-story-high Main Reading Room. Photos opposite: 1. Mezzanine of the Main Reading Room, looking west toward views of Lower School Pond. 2. Main Reading Room. 3. Modern Languages Room, located in an octagonal tower. 4. Fine Arts Collections. 5. Shakespeare Collections. 6. Main Entrance Hall with circulation desk and card catalog.







*Continued from page 58*

the past by rephrasing it in his own lingo. He re-invents every motif with an insouciance that's all his own. At its best, his dialogue with history reads like the script of a Thin Man movie.

Indoors, Ohrstrom is generous and fun. It's clear that little expense has been spared. There is a huge double-height main reading room, with views out over Lower School Pond, for the student who wants to feel Napoleonic. But there also are tiny hideaway spaces, ingle-nooks, and carrels and octagons where one or two students can withdraw into virtual anonymity. Altogether, 250 of the school's 550 students can be seated at one time. Books now number 50,000, with capacity for twice as many.

Materials, everywhere, speak of wealth, permanence, and tradition: roofs of slate and lead-coated copper, walls of brick and sandstone, interiors paneled in oak. Many of the furnishings and light fixtures are custom-designed by Stern.

Where things do go wrong is in places where there has been an attempt at more ornament than even this \$250-a-square-foot budget permits. The big steel windows, tricked out with patterns of lines and circles, feel gaudy. The biggest of all invites glare, looking westward across the reflective pond at the harsh, low New England winter sun. Gaudy, too, are the big ceiling pendants, and so is the crisscross pattern of a vaulted ceiling on which applied strips fail to do the work of Tudor ornamental plaster. St. Paul's isn't a place where we want to be reminded of Stern's published admiration for the Miami Beach hotels of Morris Lapidus.

Those, however, are minor glitches in a very strong building. Ohrstrom's success is its expression of the continuity of culture. Computers are present, but they're not allowed to rupture the sense at St. Paul's of an unbroken flow of time, from the past into the present and future. Ohrstrom isn't a factory for processing word-bytes. It's a suite of rooms for study and conversation. Rodney Armstrong, the library consultant for Ohrstrom, says it well: "We didn't want an automat for information, but a place to think and reflect." And the chief librarian, Rosemary Cassells-Brown, says: "We wanted to emphasize the social and sensory aspects of the library." What architect has not dreamed of such clients?

But just because it is so lovely—and especially because it is so generous—Ohrstrom raises doubts. This is a year, after all, in which the mayor of New York has announced the possible closing of branch libraries in that city. It's a year in which Charles McKim's Boston Public Library, a work of architecture far greater than Ohrstrom, continues a long, scandalous slide into decrepitude. Ohrstrom is an index of the widening gap between private wealth and public squalor in the United States. In that sense its very beauty is scary. It was funded, for the most part, by the school's own trustees, who simply reached for their checkbooks. Andrew Carnegie once reached for his, to finance public libraries in dozens of American towns. Those masterpieces by H. H. Richardson, too, were public.

Ohrstrom serves a very small group. It's a group that's more democratic and less in-grown than it once was, but it's still very small. A good building can never be a bad thing, and Ohrstrom is exactly what it should be. But it reminds us again that some Americans are entitled, and some are not.

*Robert Campbell is a practicing architect and the architecture critic of The Boston Globe.*



*A two-story-high bay window opens the main reading room (opposite) to a view of Lower School Pond. The room's barrel-vaulted ceiling (above) is embellished with white-painted oak trim and architect-designed pendant fixtures.*

#### **Credits**

*Ohrstrom Library*

*St. Paul's School*

*Concord, New Hampshire*

**Owner:** *St. Paul's School*

**Architect:** *Robert A. M. Stern*

*Architects—Graham S. Wyatt,*

*architect-in-charge; Caryl*

*Kinsey, Preston Gumberich,*

*project managers; Charles D.*

*Warren, design-phase*

*associate; Abigail Huffman,*

*Timothy E. Lenahan, Sandra*

*L. Parsons, Sharon Pett, Eva*

*Pohlen, Mary Ellen Stenger,*

*assistants*

**Engineers:** *Robert Silman &*

*Associates, P. C. (structural);*

*John L. Altieri (mechanical)*

**Interior Designer:** *Robert*

*A. M. Stern Architects—Lisa*

*Maurer, design associate; Alic*

*Yiu, assistant*

**Landscape Architect:** *Robert*

*A. M. Stern Architects—Robert*

*Ermerins, landscape associat*

*William Skelsey, assistant*

**Consultant:** *Cline, Bettridge,*

*Bernstein Lighting Design, In*

*(lighting)*

**General Contractor:**

*H. P. Cummings Co.*

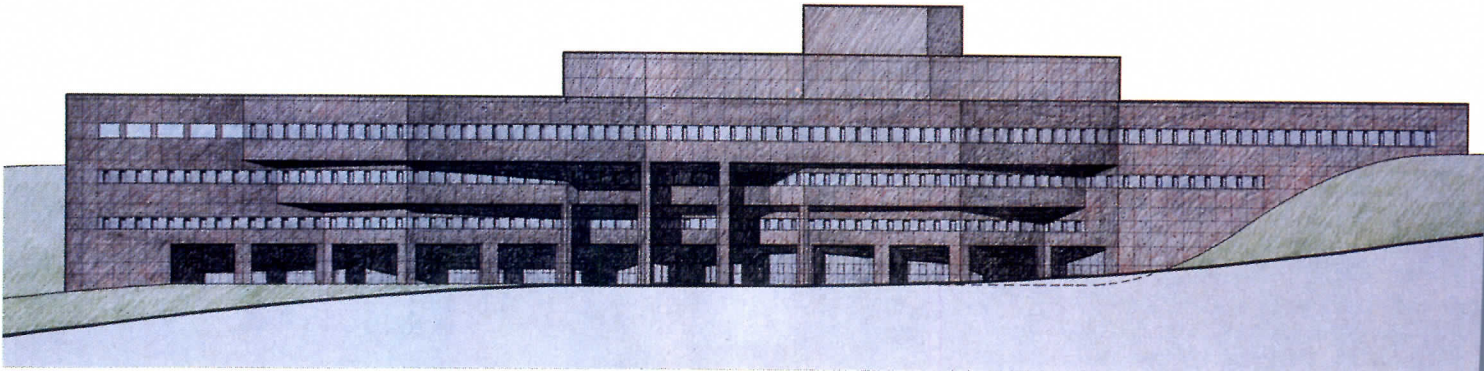




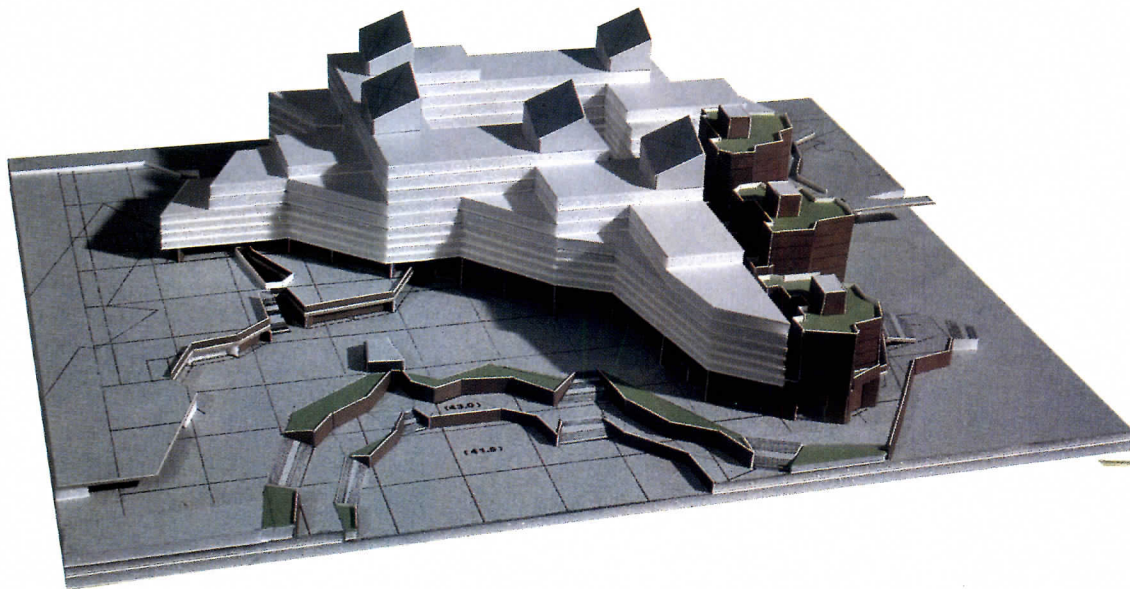


# Solid Geometry

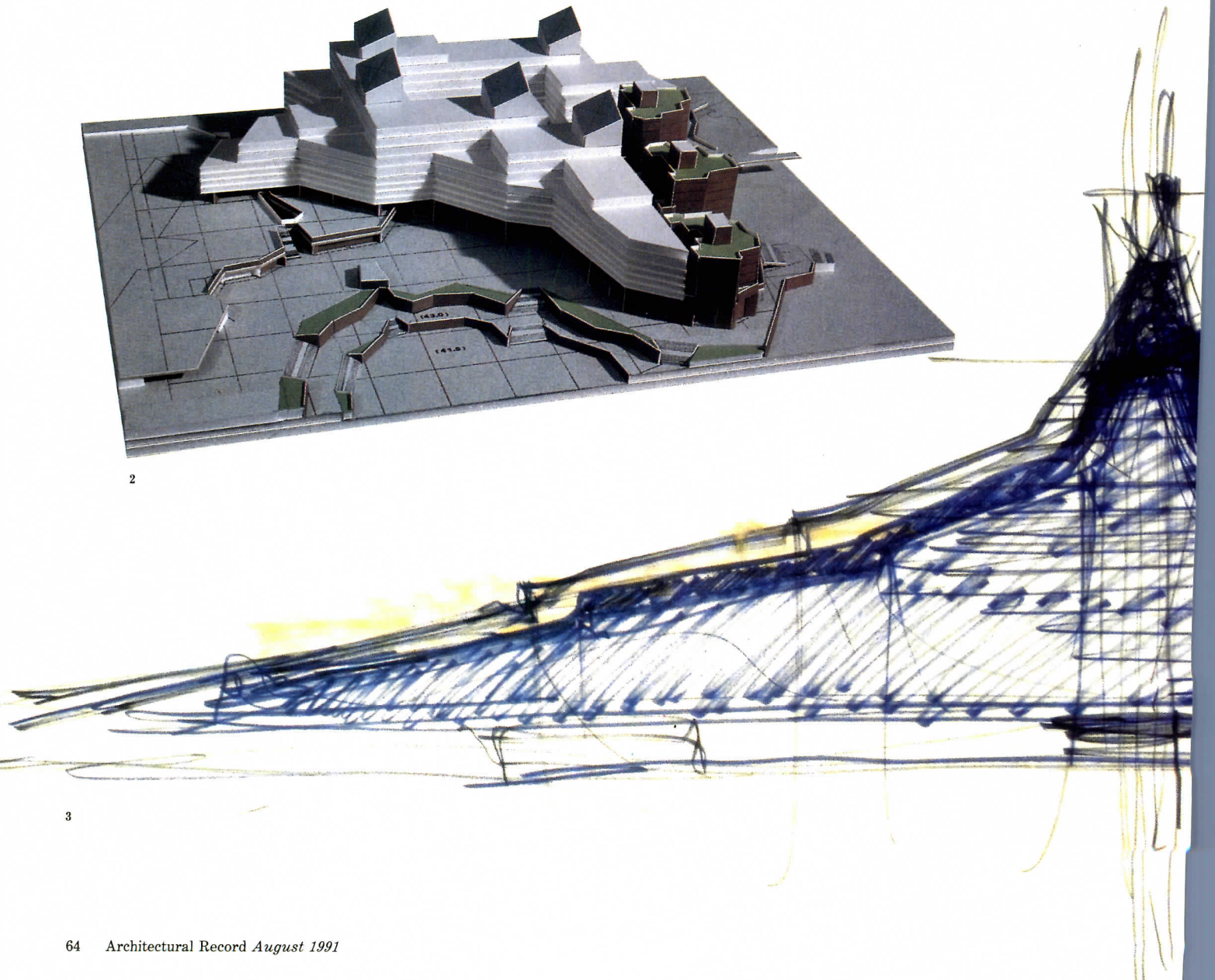
*In five current projects Gunnar Birkerts combines tectonic mastery with a new lyricism.*



1

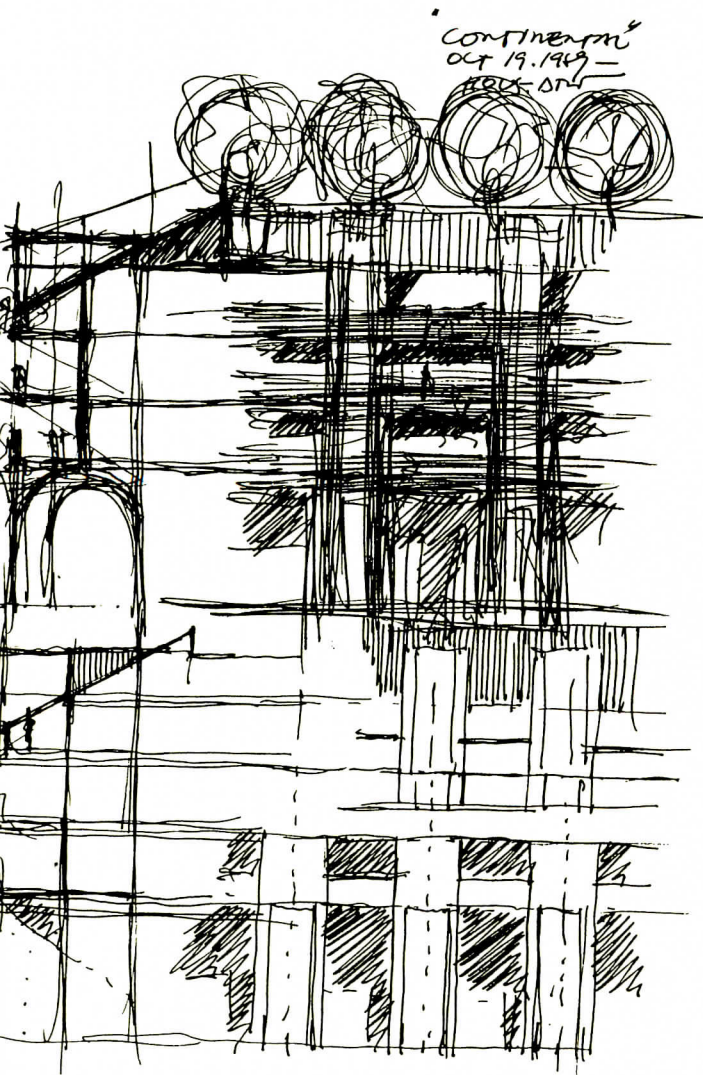


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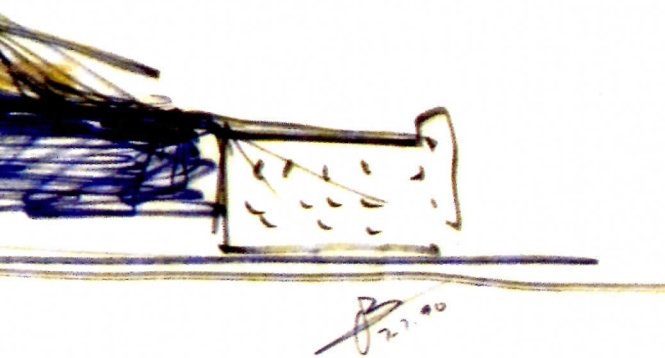


3





1. U. S. Embassy Office Building, Caracas, Venezuela
2. Novoli Mixed-Use Center, Florence, Italy
3. National Library, Riga, Latvia
4. Mixed-Use Center, Turin, Italy



In August 1966 RECORD published drawings of then-current projects by Gunnar Birkerts, with the comment that they reflected “an emerging synthesis and crystallization that have served to clarify his approach and guide his design work.” Precisely 25 years later a similar observation prompts the following sampler.

Although he is a confirmed Modernist, Birkerts’s path has not been that of the International Style nor yet the Bauhaus but the more relaxed road trod by Mendelsohn, Aalto, and the elder Saarinen and later by Saarinen the younger, Breuer, and Kahn. He resists the label “organic” for his architecture, preferring “expressive” as a term that embraces symbolism and metaphor. But he accepts the tag for the process by which building becomes architecture. Building, he says, is “enclosure created . . . using tried systems and known typology”: accommodating but soulless. “Architecture talks, architecture conveys feeling, architecture evokes response and emotion . . .”

In 1966 Birkerts espoused the pure Modernist’s view of structure as an ethical issue, first demanding self-evident truth in showing how loads are carried and only then considering structure as a source of design inspiration. He still does. But over the years his work has become increasingly receptive to those inconsistencies and contradictions that make architecture rich and human. His search is for the specifically appropriate even when this means accepting conflicts between exterior and interior or resolving tensions among competing demands. In the process the geometry of his buildings has become both more complex and more fluid, the right angle yielding to the polygonal and the polygonal now verging toward the fractal geometry of nature.

In the latest projects, indeed, geometry is underpinned by geography, as the study not only of terrain and climate but of flora and fauna, people, customs and built works. Birkerts goes beyond contextualism, moving toward forms that seem to grow from their surroundings but without mimicry. The combination of bold concept and refined execution stands out particularly in the five buildings that follow, all of them planned for culturally rich locations abroad. They are also larger and programmatically more demanding than much of Birkerts’s previous work.

His program for the U. S. embassy in Caracas, for example, includes a new diplomatic compound as well as the office building shown on pages 72-73. The design, however, resorts neither to a predictable “federal” image nor to that of the modern city, but turns to the surrounding Andean foothills and their ageless strata of granite. Mixed-use projects in Turin (pages 66-69) and Florence (pages 70-71), draw on the imagery of those historic cities, referring to the low arcades and tall spires of Turin and the weblike street grid of old Florence. The full force of metaphor comes to bear in Birkerts’s design for the national library of Latvia in his native city of Riga (pages 74-75). A repository for the country’s cultural history, the building refers overtly to the folk tale of a crystal mountain, its peaked profile of glass emerging from a base of historic, indigenous, and fabulous forms. *Margaret Gaskie*

#### Credits

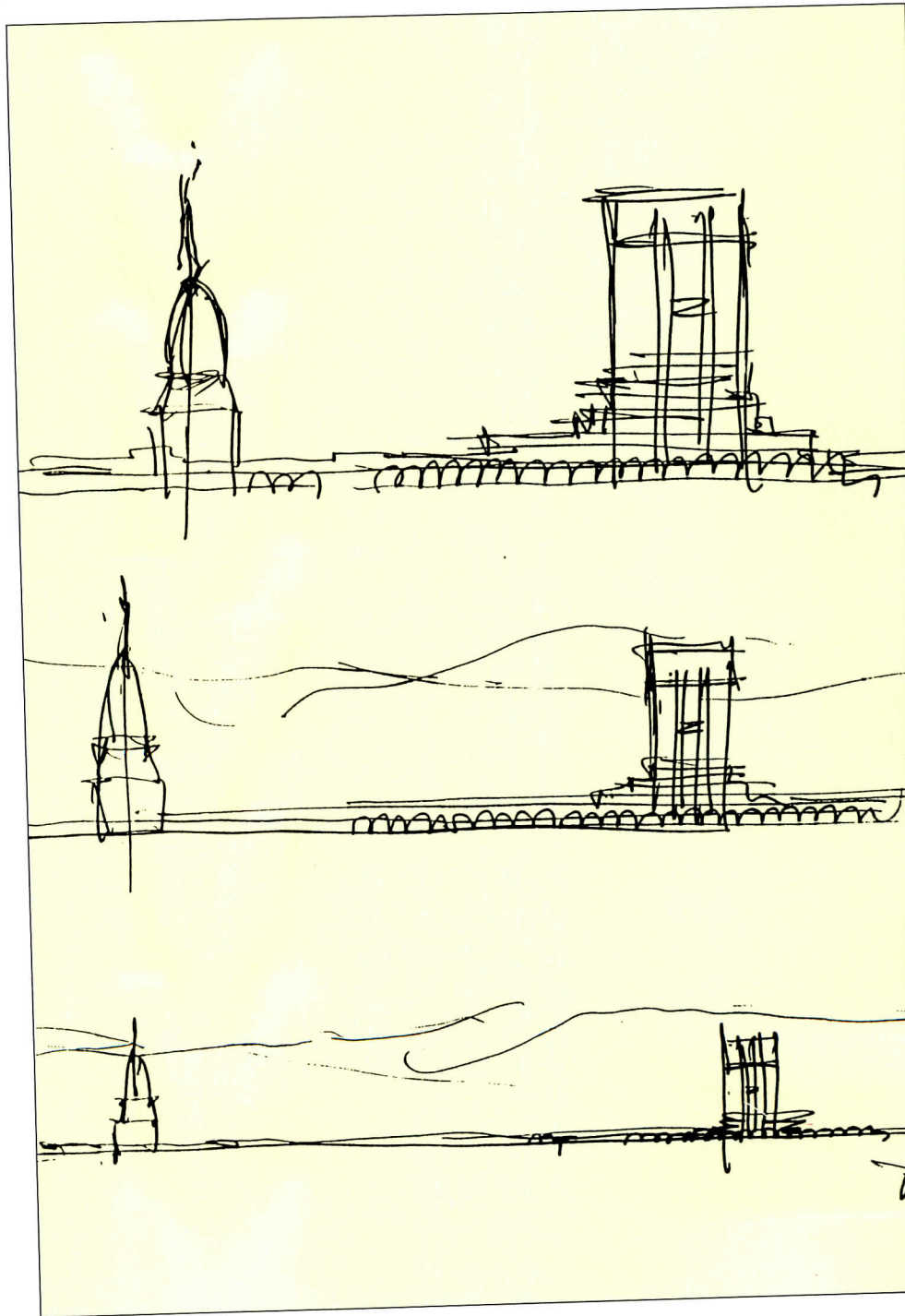
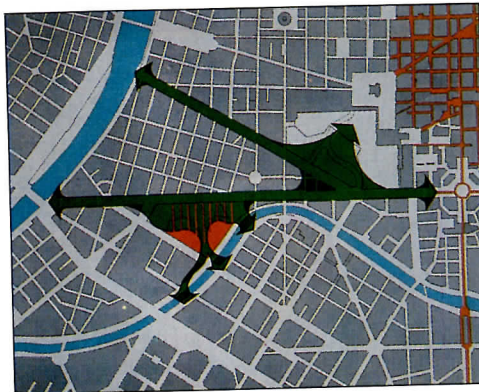
*Gunnar Birkerts and Associates—Gunnar Birkerts with Richard Borrelli, David Chasco, Daniel Dennison, Anthony Duce, Scott Erdy, Anthony Gholz, Page Goode, Bryan Gross, John Krasinkiewicz, Keiichi Miyashita, Makito Mori, Kenneth Rohlfing, Kevin Shultis, Shin-Ming Shyu, Tim Van Dusen, Donald Wesley, Mary Jane Williamson, Ivan Yeung*



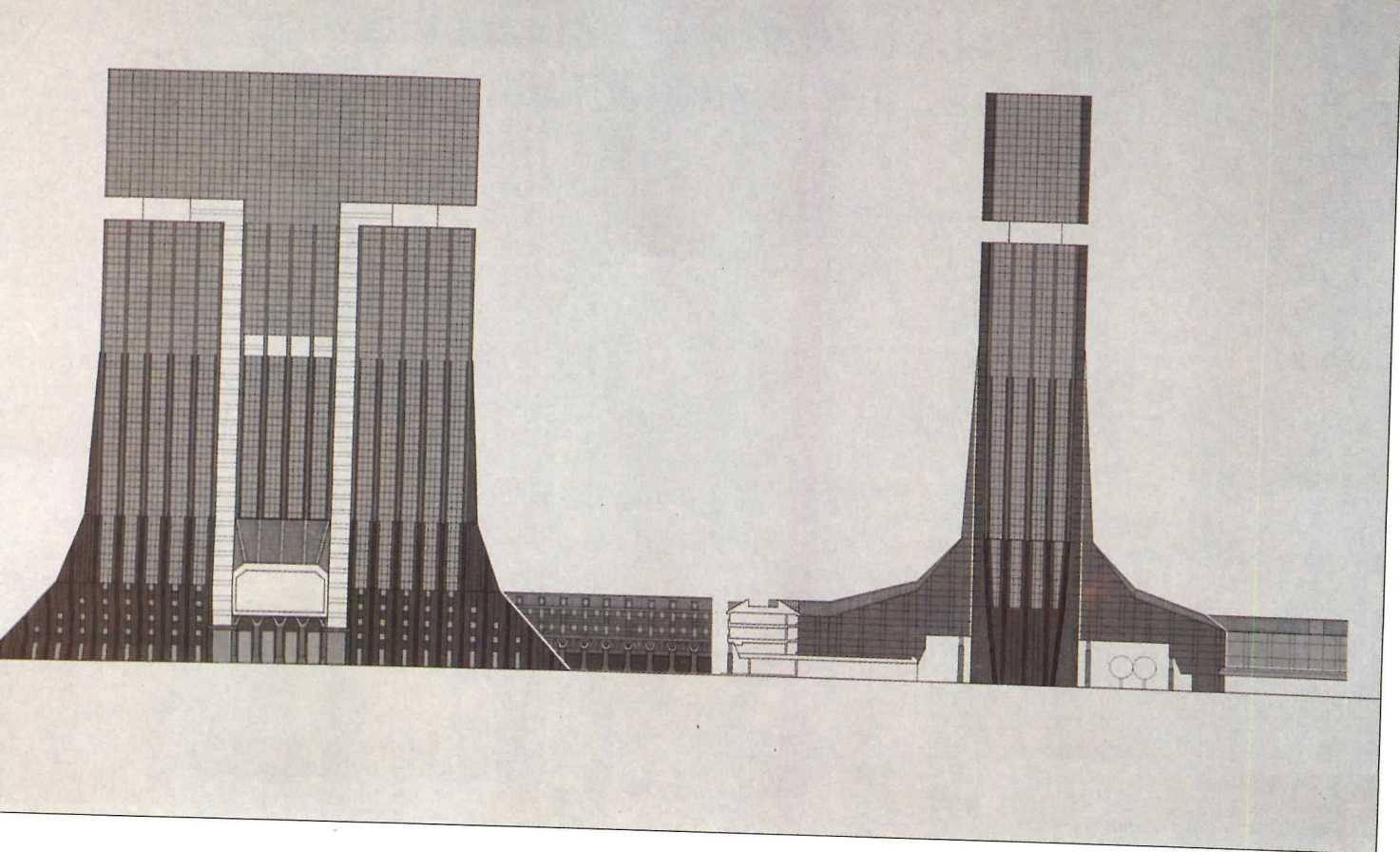
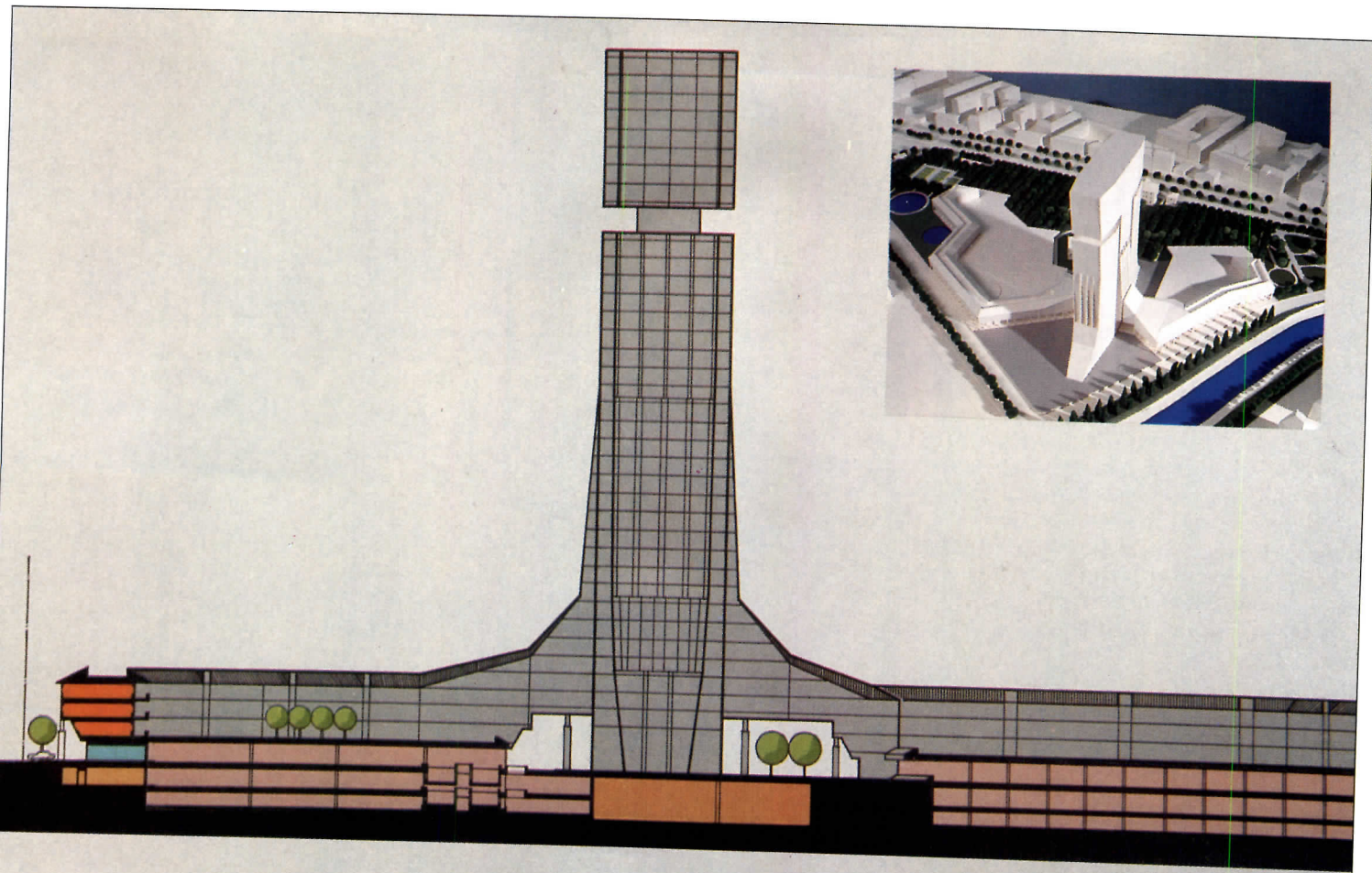
# Mixed-Use Center, Turin

The planned relocation of the local gasworks will free 14 acres in the heart of Turin for a new commercial development that replaces the industrial complex with a 37-story office tower plus smaller residential and retail components. Nestled in a green valley surrounded by mountains and criss-crossed by rivers, Turin is a low city punctuated by domes and spires—most notably the 500-foot-high Victorian landmark, Mole Antonelliana. A major aim of the new complex was to set aside land for public parks which would link with existing green zones, breaking through to the landscaped banks of the river Dora. But to do so at an efficient density required a high-rise structure, the city's first rival to the Mole. Related urban goals were to strengthen boundaries defining existing street alignments, especially the riverside facades, and to recognize the historic past of the site and its vicinity.

Birkerts likens the development scheme to the evolution of the city itself. To the natural valley, for example, came the old Roman street grid, which was overlaid in turn by the more relaxed patterns of the Citta Nuova, military fortifications, and the Baroque period's introduction of urban axes radiating from the city center. Similarly, the proposed complex shifts from the vernacular to forms and materials reflective of industry and advanced technology. A horizontal matrix is developed from the park and its plantings, together with low-rise commercial and residential structures that draw on the old city's scale and architectural language of porticos and gables, bays and balconies. Against it the high-

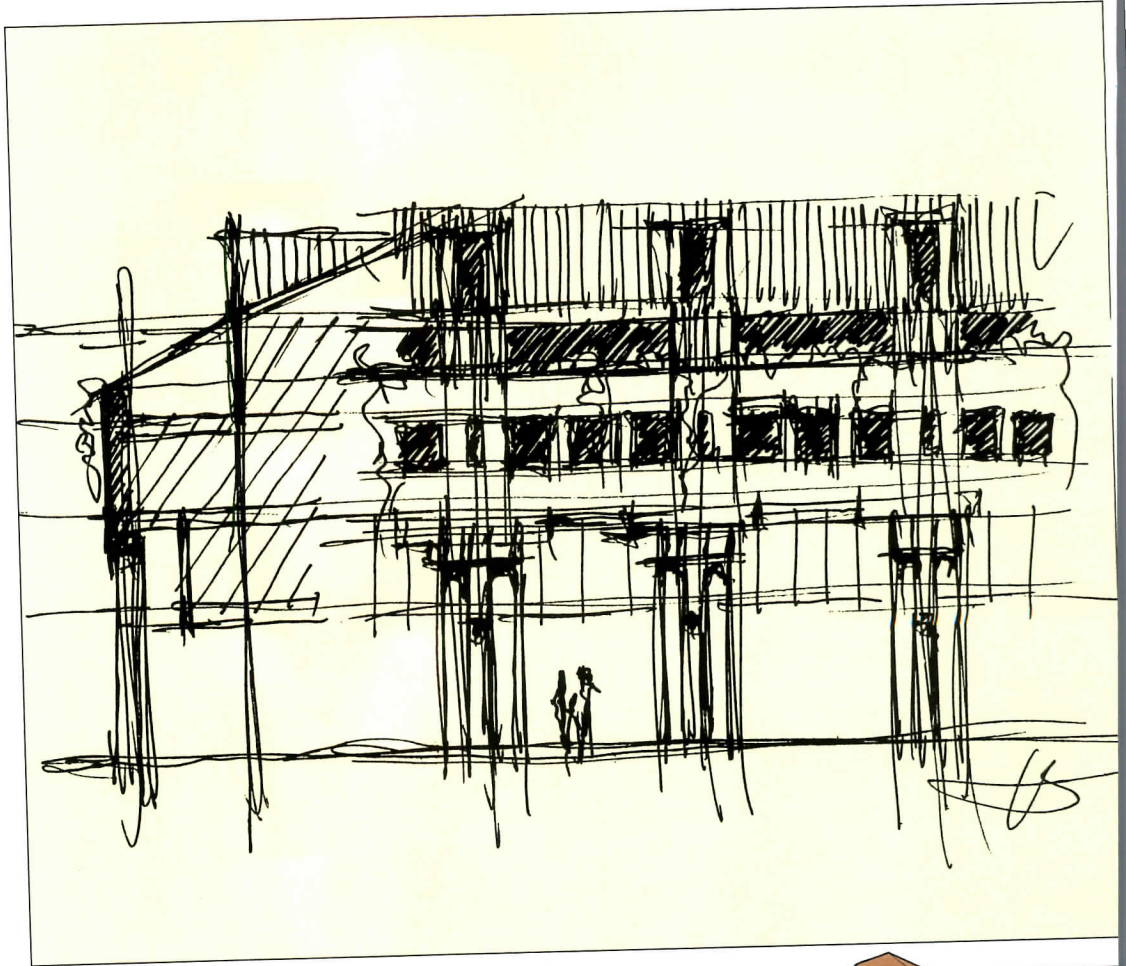








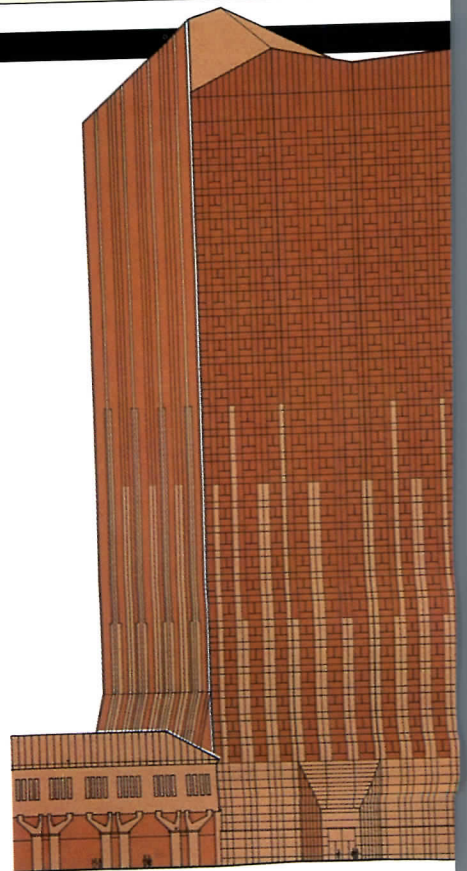
rise office complex sets three reinforced-concrete towers crossed by a steel-framed horizontal element at the top, a scheme that assures flexibility as well as access to light and views. Each unit is freestanding and capable of functioning independently although lateral links can be added as needed. The transition in scale from townhouse to tower is accomplished through both massing and materials. The low buildings that shoulder buttresslike against the high ones house large-scale spaces for conferences and meetings and serve as the towers' lobbies. (Parking is underground.) The project's street edges are more crisply defined by arcades sheltering pedestrian passages past shops and restaurants, with housing above. Ground-level buildings adapt the local tan brick, but also introduce to the arcade (studies at right) the metal of the tower's curtain wall, which in turn dissolves to all-glass as the structure rises.



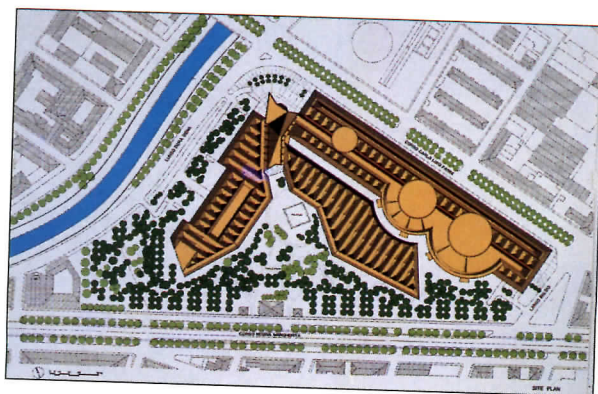
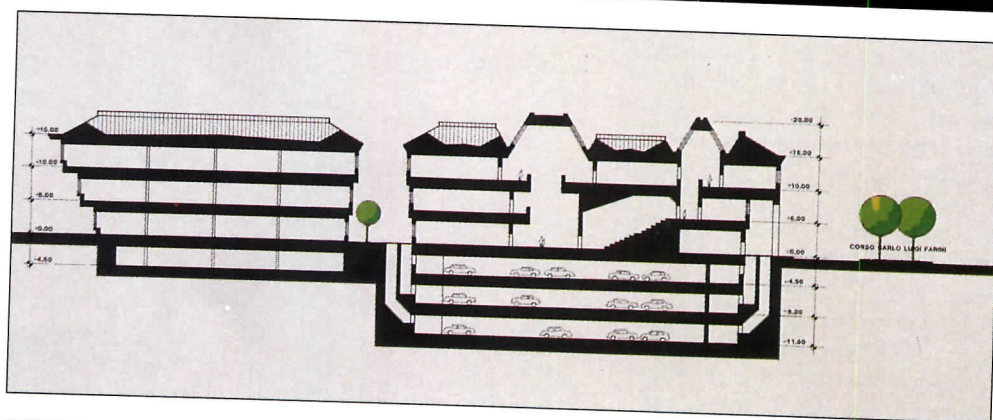
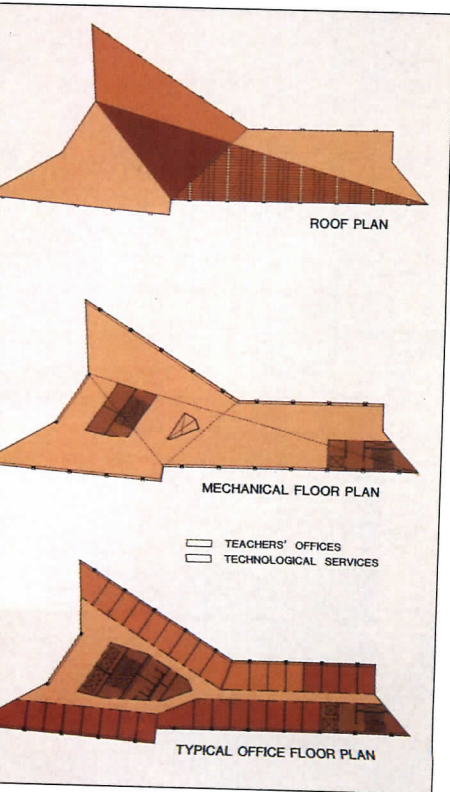
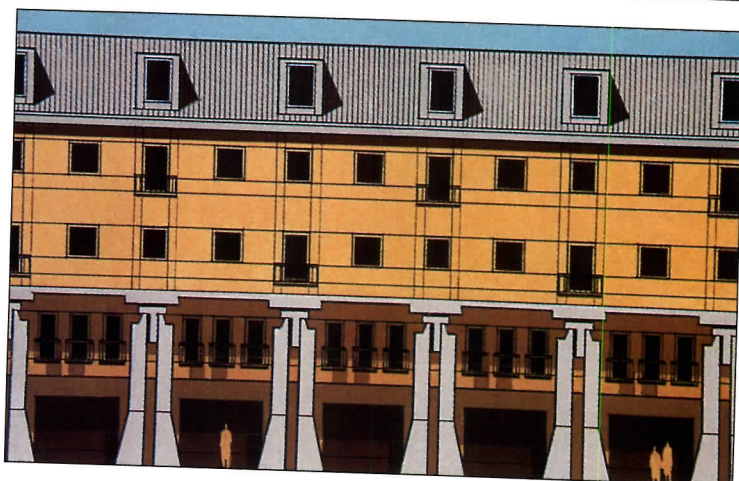
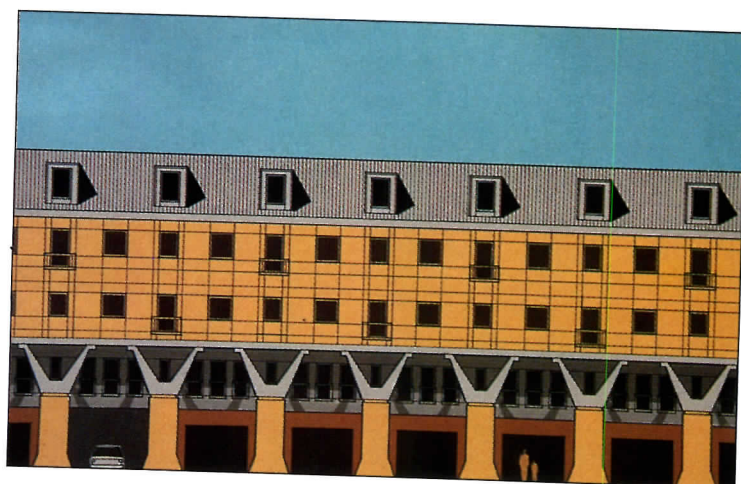
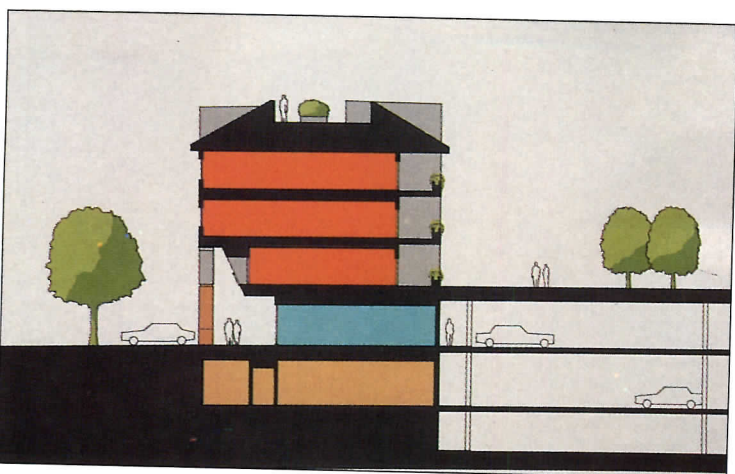
## Humanities Faculties, University of Turin

Turin officials are also considering for the redevelopment of the former gasworks site an alternate scheme that would provide a new campus for the humanities faculties of the University of Turin. The university complex would include classrooms, faculty offices, a library, and a student center, again with underground parking. Although the second proposal would devote less land to public park areas and green zones, it too demanded a high-rise solution to achieve the desired density. Like the first, the scheme deploys a low horizontal base in the vernacular of the old city, which becomes a buttress for a free-standing tower to house the university administration.

With less need for flexibility in allotting space, the tower is a single entity, but it displays a similar sequencing of materials from low-tech arcaded brick to high-tech glass and steel. At the top the tower is enclosed in faceted planes of glass, recalling the silhouette of the Alps in the background. While adding to trees and plantings already on site, the park layout will incorporate such ghosts of the gasworks as a museum housed in the original machine hall and reflecting pools in the footprints left by cylindrical storage tanks.







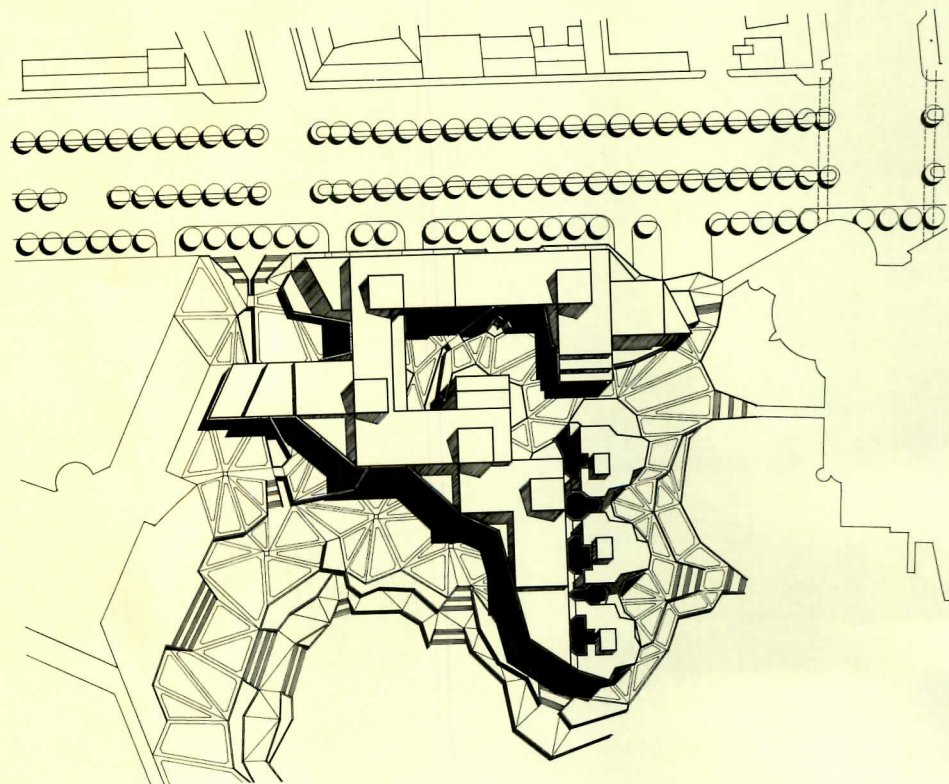
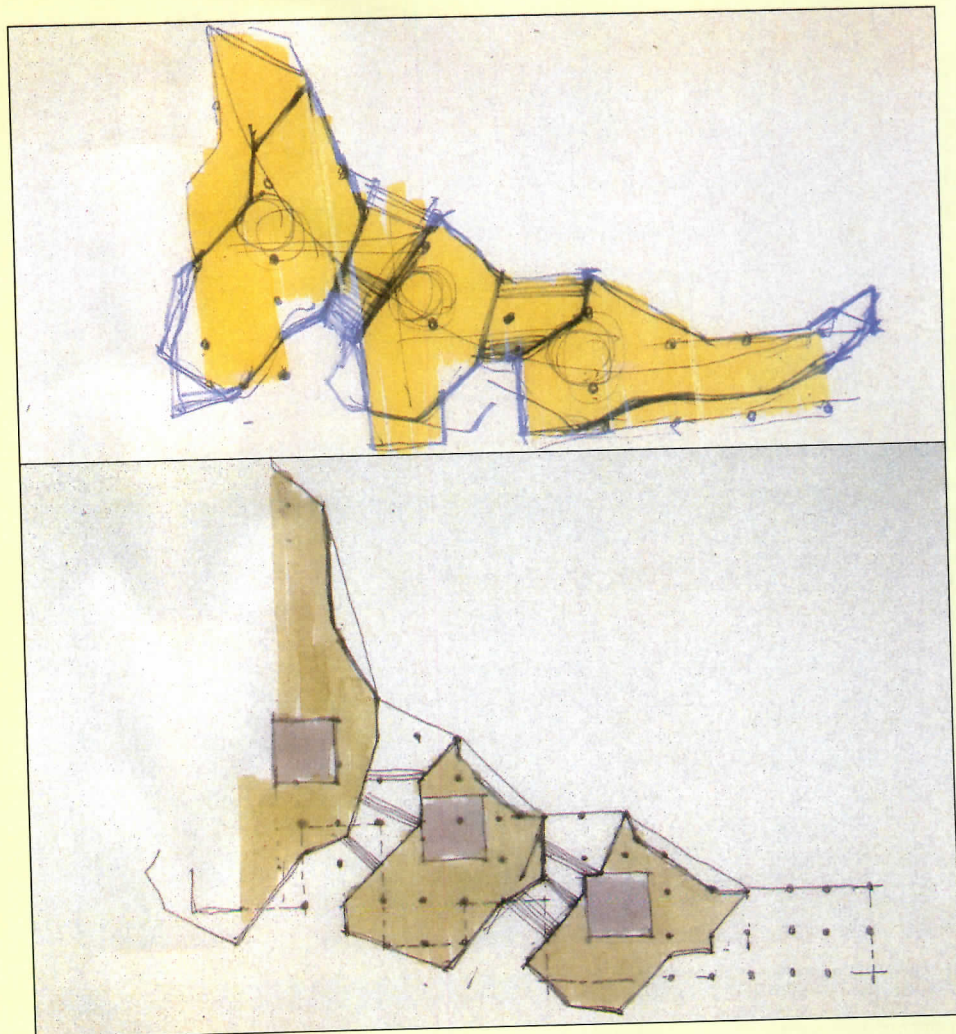


# Mixed-Use Center, Florence

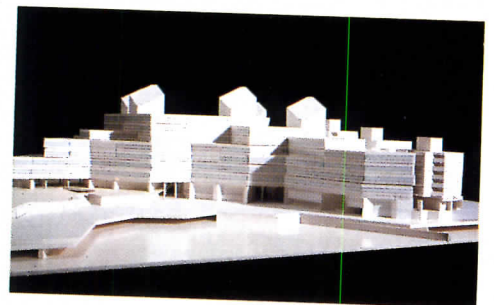
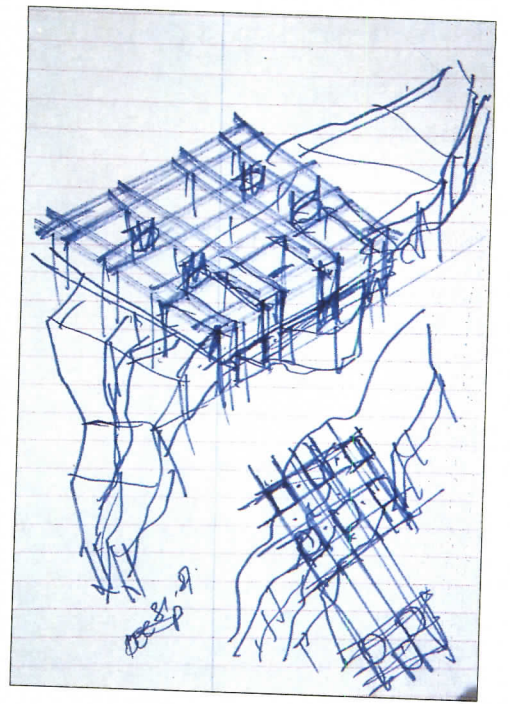
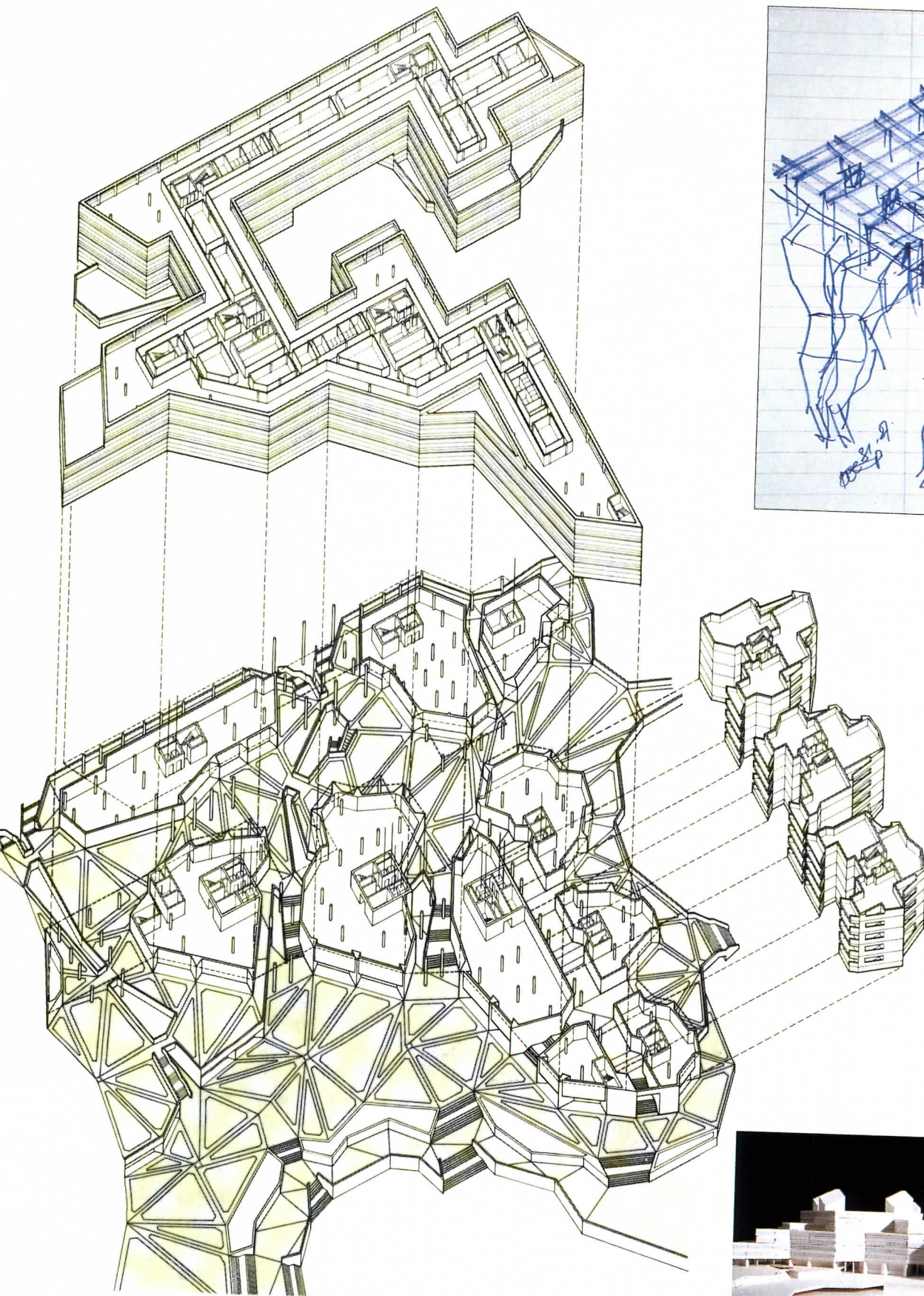
*Like Turin, Florence is encouraging new commercial development to siphon business uses away from the densely packed core of the old city. So the closing of an obsolete in-city manufacturing plant was seized as an opportunity to recapture its 70 acres for more congenial uses. The result is a mixed-use complex, organized around a new public park, in which separate building parcels have been allocated to each of seven major architectural firms.*

*For his 865,700-square-foot portion, on a site facing a major boulevard, Birkerts's concern has been to reflect the scale and texture of historical Florence by clustering offices and housing in irregular masses on a multilayered base. The base provides two parking decks underground and one at street level, the latter edged with retail space along both boulevard and park. But the main commercial sector is a platform one level higher than the street, tied into the parking by light courts, elevators, and stairs. Cascading stairs and terraces link it to street and park.*

*With deliveries and auto traffic confined below, the upper deck becomes a lively web of interlacing pedestrian ways that recall the narrow, twisting streets of the old city. The separate utility/service cores and heights varying from three to six stories allow the office complex to be divided vertically or horizontally to accommodate a range of tenants. The three residential units are individual six-story houses, each divided into no more than three apartments per floor to assure generous daylight and views from every room.*







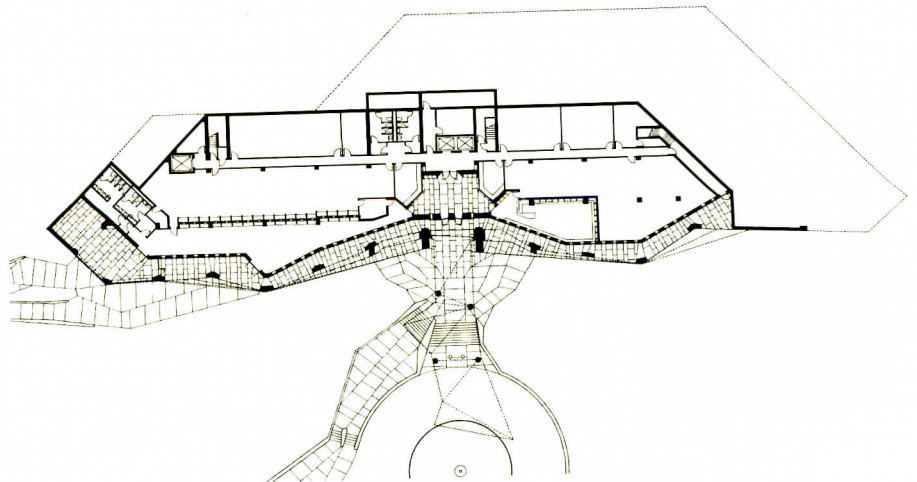
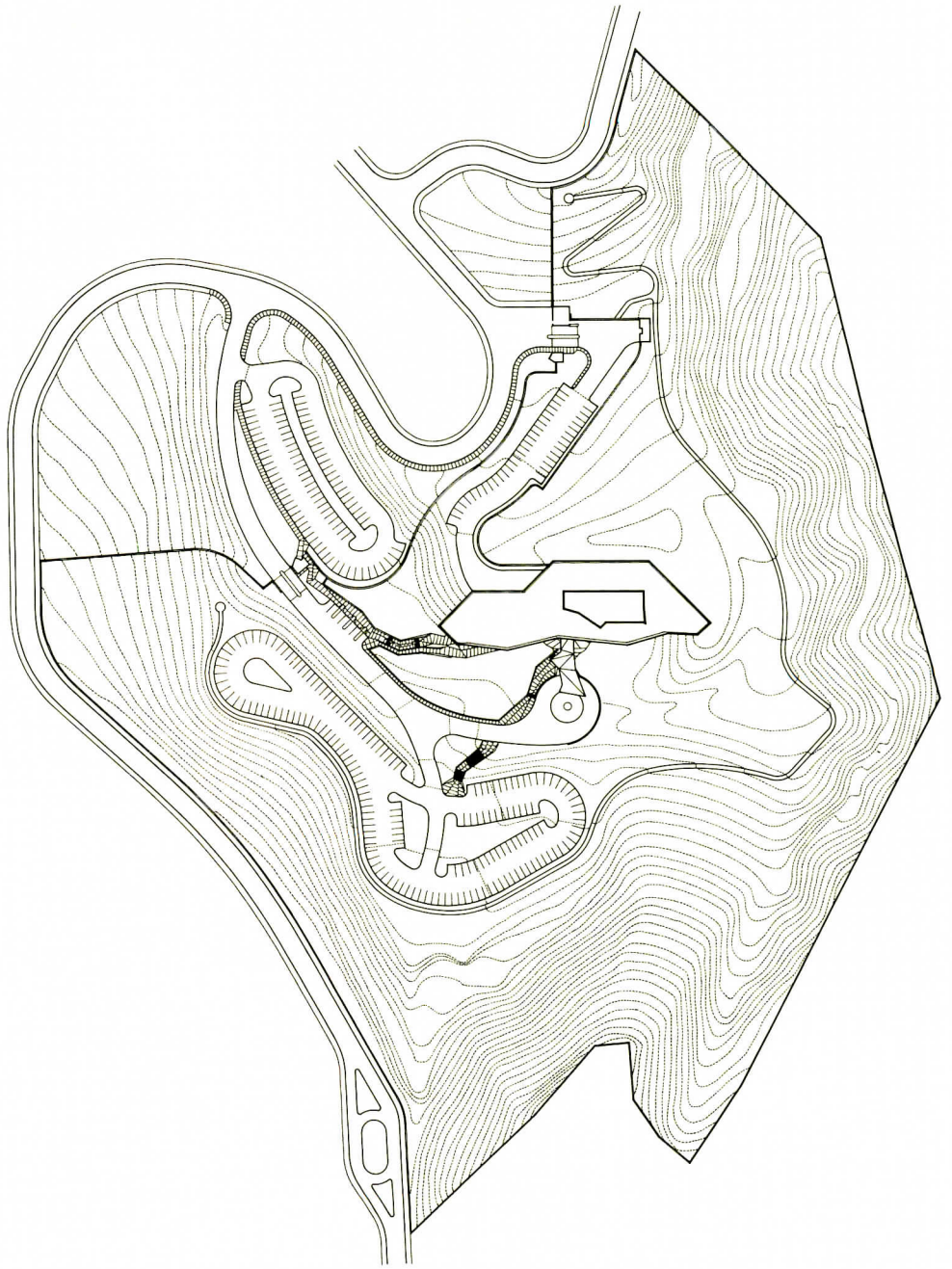


# U. S. Embassy Offices, Caracas

*Birkerts describes Caracas as a vertical city where high-rise office and apartment towers reach up from a valley in the Andean foothills. But the new United States embassy to the south takes its imagery instead from the rugged land, perching above the city on a promontory formed by two plateaus. In addition to the office building shown here, the master-plan includes a future ambassador's residence and housing and recreation facilities for embassy staff. A pair of "double-barreled" two-lane sally ports control both vehicular and pedestrian traffic, with the aid of a concrete wall around the perimeter of the 27-acre complex.*

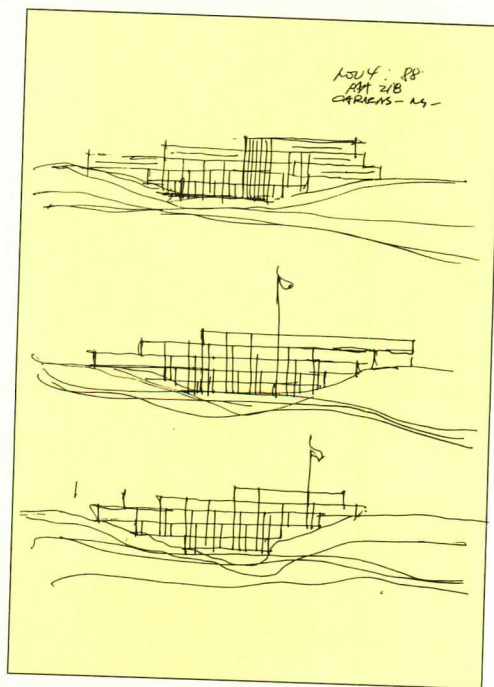
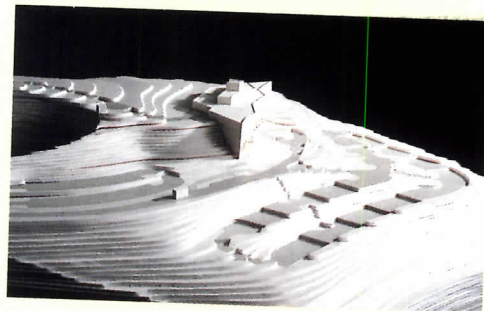
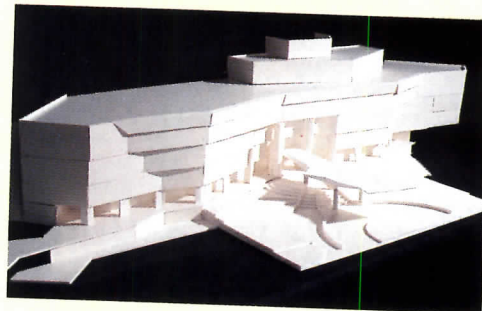
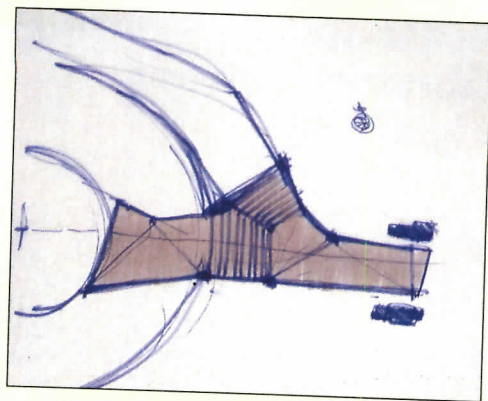
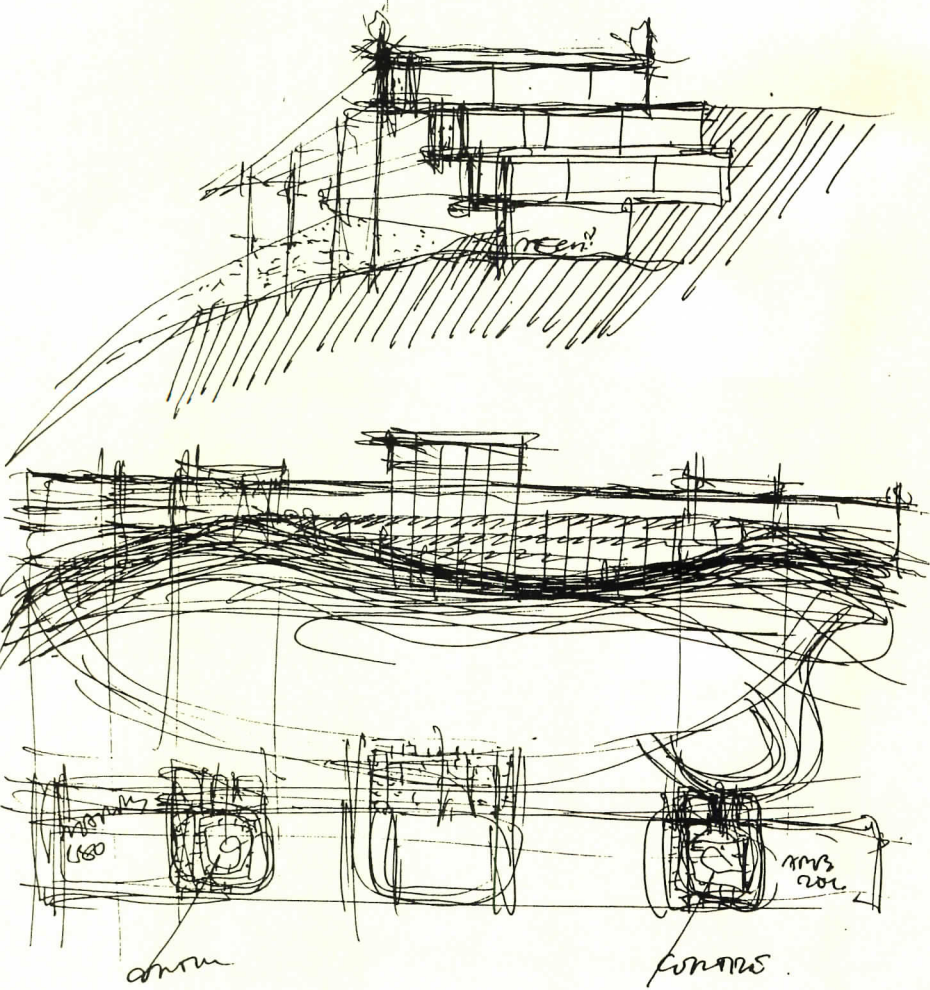
*In contrast to the vertical thrust of the city, Birkerts not only stretched the office building across the sweeping contours of the site but burrowed three of its five stories (the program height limitation) into the hillside. With only levels four and five exposed above ground on three sides, building security is enhanced while the front elevation remains wide and welcoming. The office structure is reinforced concrete with 22.5-foot-square bays, clad in red local granite.*

*Strengthening the image of lamina erupting from a base of rock strata, the faceted front facade is defined by layered overhangs that project outward as the building rises. The main floor is faced in reflective gray spandrel glass with flush windows; the upper floors defined by ribbons of spandrel glass with punched windows. Along the base sturdy granite columns form a pedestrian arcade, becoming taller as they approach a main entrance flanked by three-story pillars.*





CARLSON - 10:30:88 -  
5:30am -

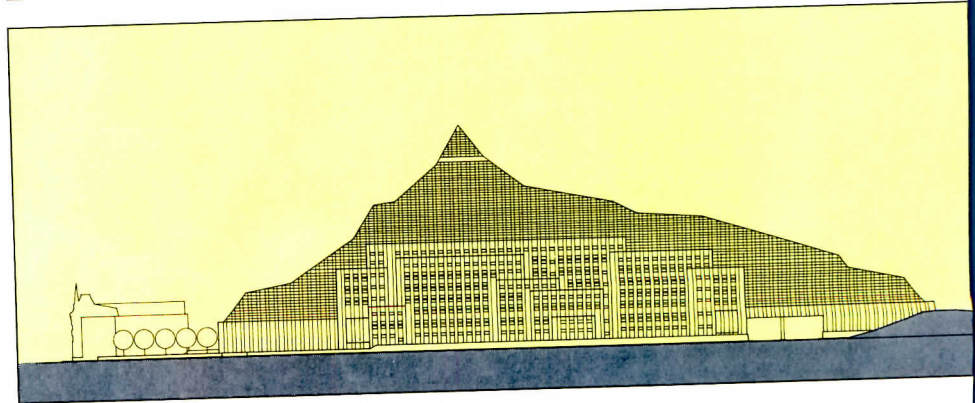
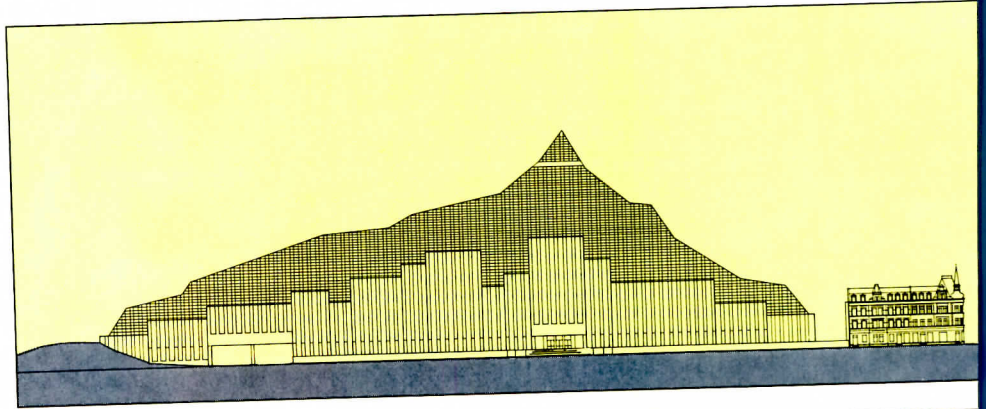
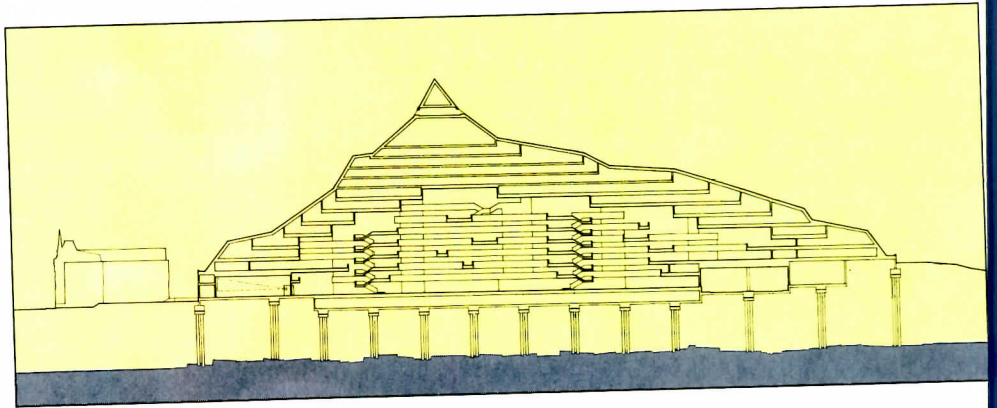
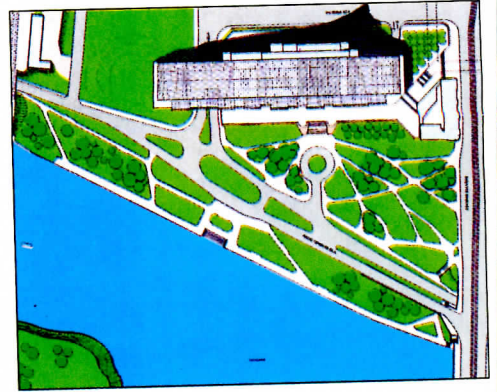
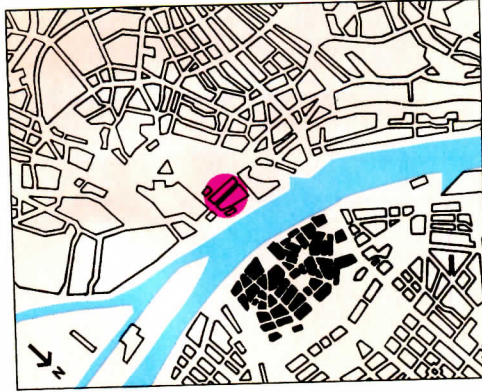




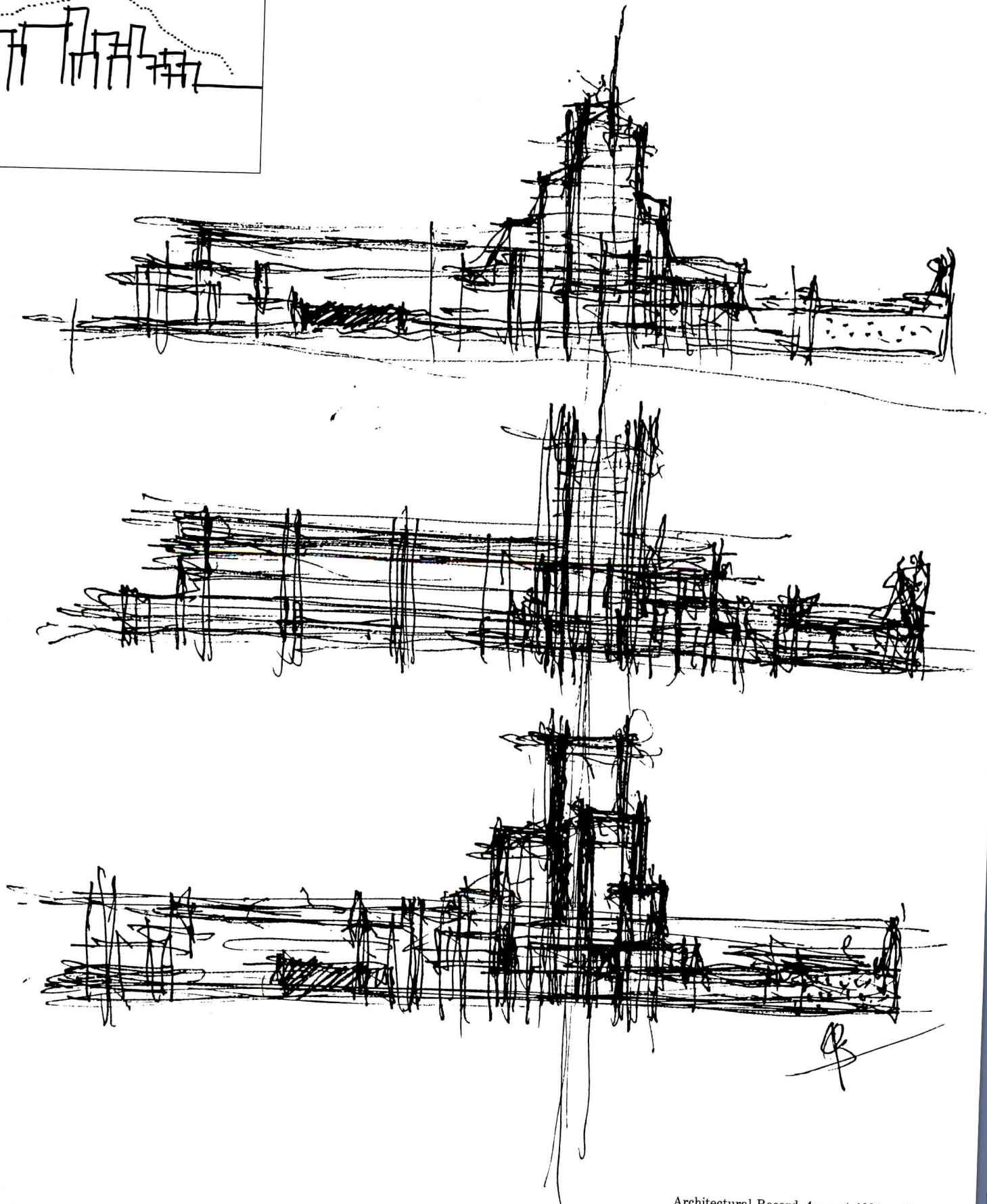
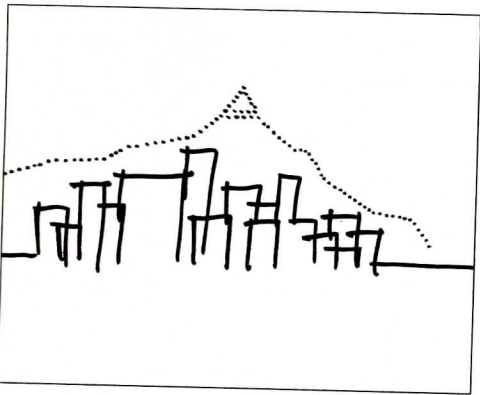
# National Library, Riga

Perhaps the most prized of Birkerts's recent commissions is a new National Library in his native Riga whose design expresses metaphors from Latvian fable and poetry: a crystal mountain a prince must scale to wake the sleeping princess, sunken castles rising into sunlight, fortresses of light emerging from darkness. In addition to consolidating twelve now-scattered collections of literature, the building's 500,000 square feet will house the national archives, a treasury of folklore, music, and ethnographic materials that reflect the country's 2,000-year cultural heritage. The library will be situated on the bank of the 1,800-foot-wide Daugava River which flows through the city of Riga, crossed by flanking bridges that suggest a strong urban scale. To the south lies an area slated for redevelopment as a cultural center; across the river an assemblage of 18th- and 19th-century buildings.

The design concept responds to both place and culture. The core of the library, which lifts storage for 5.5 million books above a potential flood plain, is the crystal mountain: a faceted linear structure of concrete faced glass that rises vertically to an off-center peak. Along its base to the north, reading rooms are contained in a projecting masonry element that recalls in scale and form the vernacular of the buildings across the river. On the opposite facade a similar element housing working and administrative areas responds to later development to the south. No "infill" building, the library proclaims itself a symbol of Latvian culture. The Rigan associate for the project is Modris Gelzis Associates.



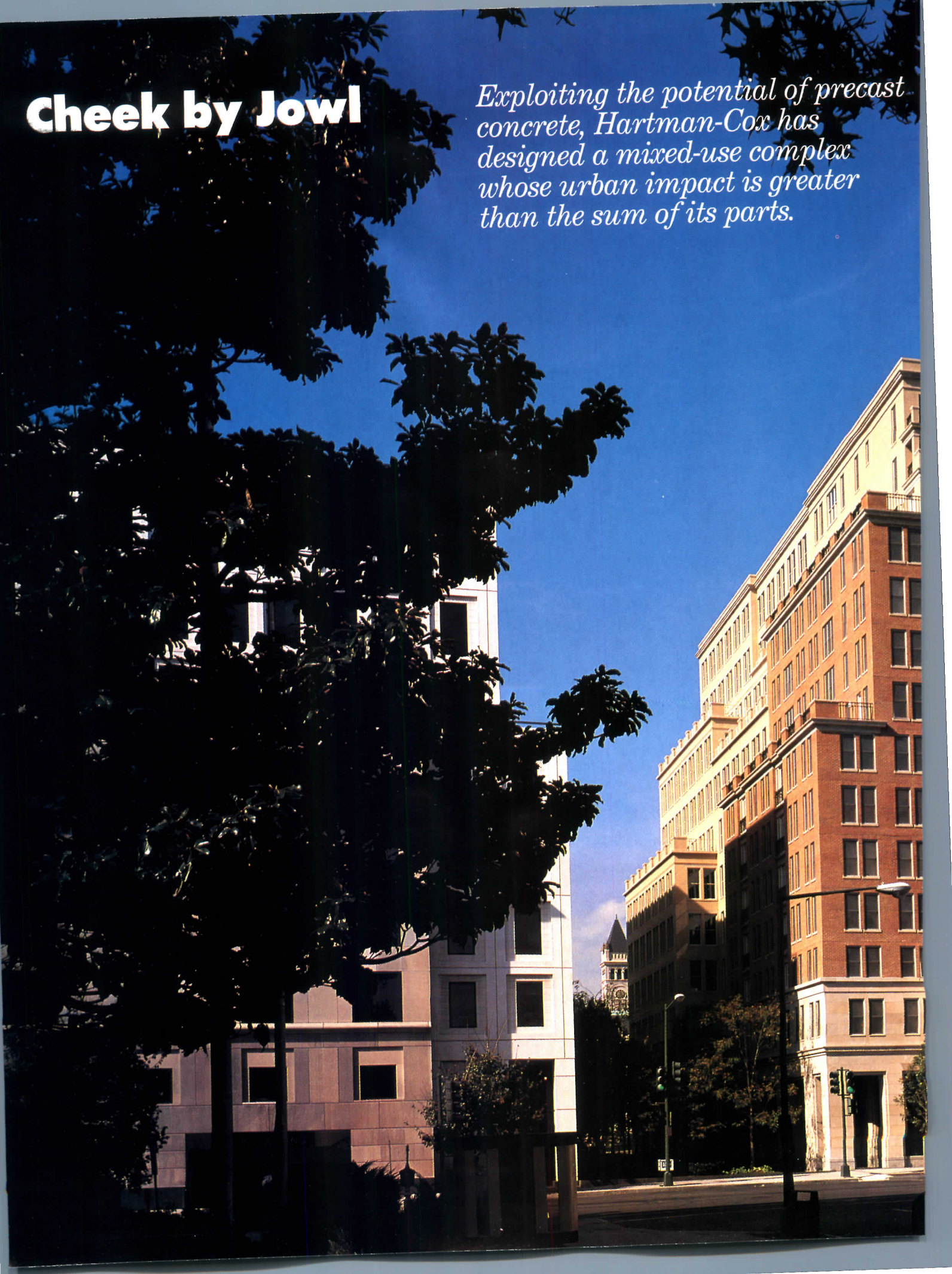






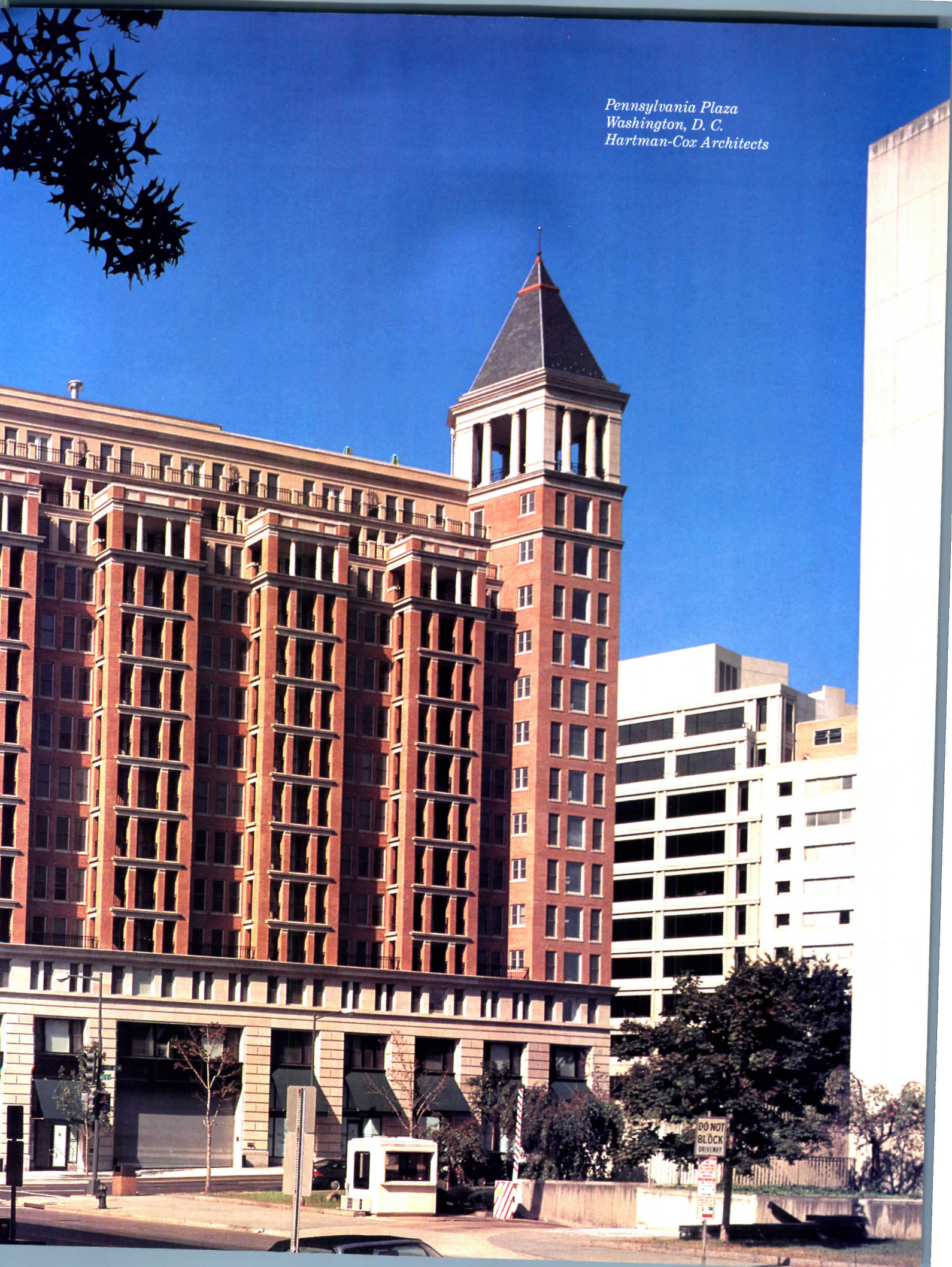
# Cheek by Jowl

*Exploiting the potential of precast concrete, Hartman-Cox has designed a mixed-use complex whose urban impact is greater than the sum of its parts.*

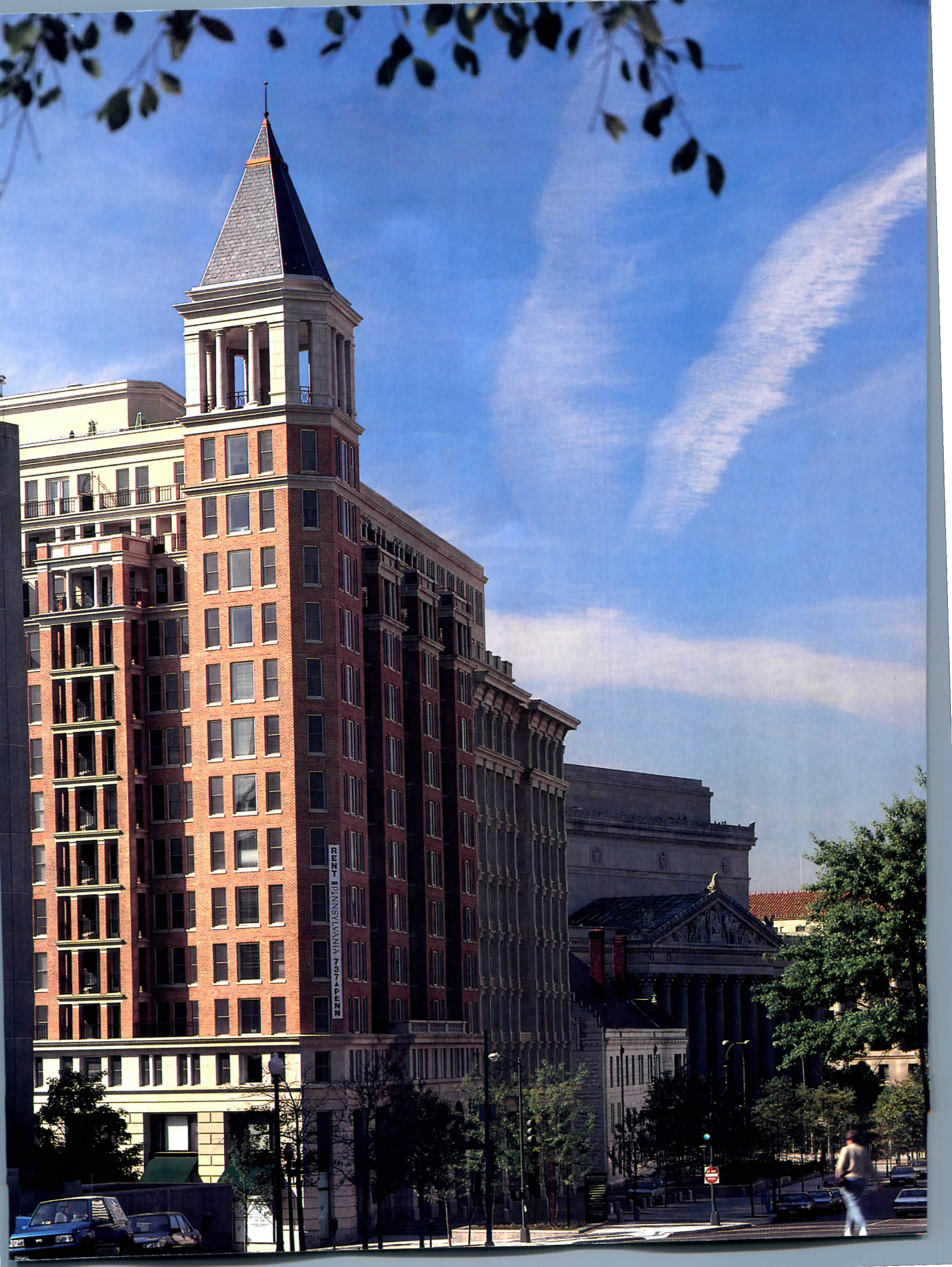




*Pennsylvania Plaza  
Washington, D. C.  
Hartman-Cox Architects*







FREE PENNSYLVANIA HOSPITAL





The red-brick residential component of Pennsylvania Plaza (preceding pages) captures the morning sun and is anchored by a tower that echoes the silhouettes of the Washington Monument (opposite) and the nearby Sears Building (top). Setbacks at the 10th and 11th floors of the precast-clad office structure (above) help reduce the building's mass.

Ten years ago, we never would have done a precast building," says Lee Becker, project architect for Pennsylvania Plaza, a 300,000-square-foot office and residential structure that is helping to breathe new life into an older part of downtown Washington, D. C. Becker turns and points to one of Washington's many postwar office buildings whose dull precast facade is streaked with soot and water stains. No further explanation is needed. Over the last decade, however, the number and quality of precast manufacturers have increased greatly, allowing architects to exploit fully the material's inherent plasticity and overcome its limitations. Today Hartman-Cox has two other precast office buildings under construction in Washington, and Becker is a dedicated convert.

Flexible urethane molds now used in making precast concrete allow architects to design more elaborate details than before. The production process, though, favors certain shapes—rounded and sloped ones, say, versus those with right angles—and requires the sides of each form to be flat. Smaller pieces with greater depth and variation in shape hide streaking, says Becker, while the larger, flatter pieces favored in the past highlight discoloration. The greater depth of the detailing also keeps water from washing over the building's curtain wall, preventing water seepage.

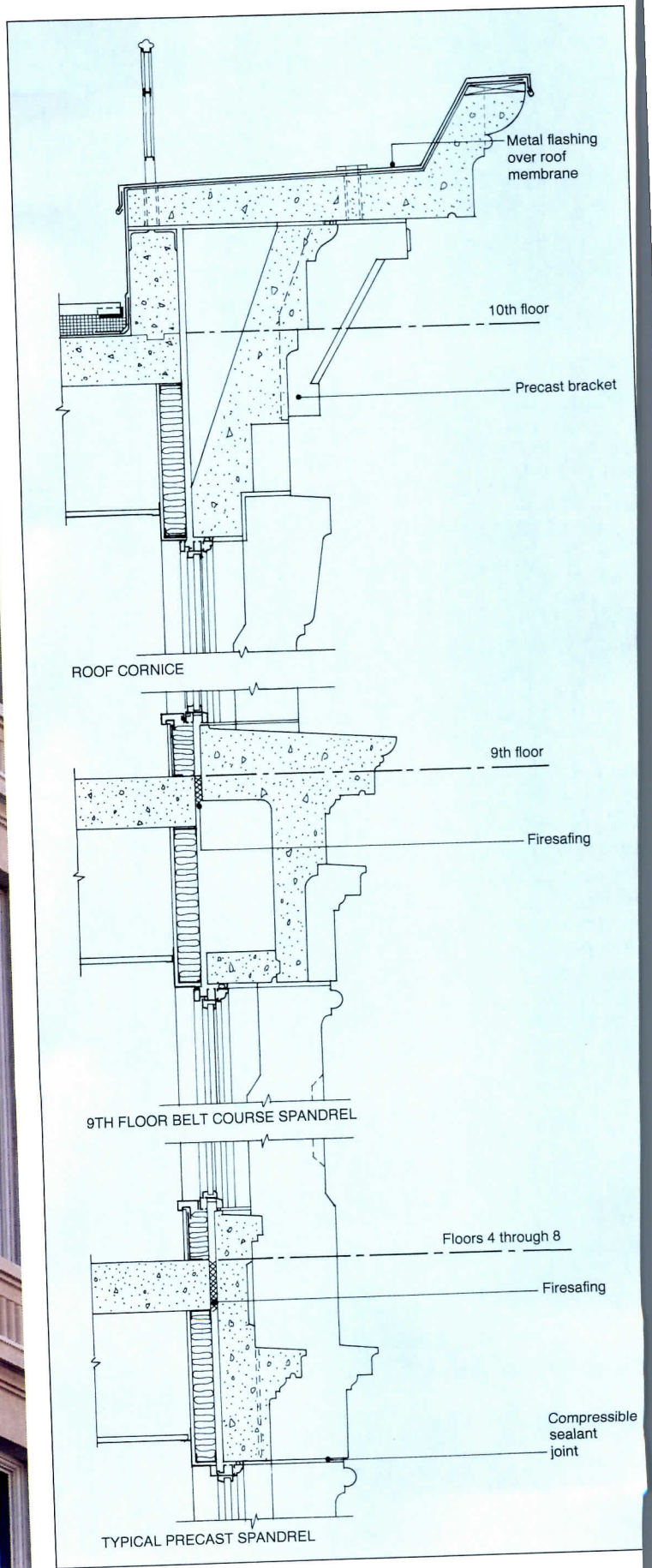
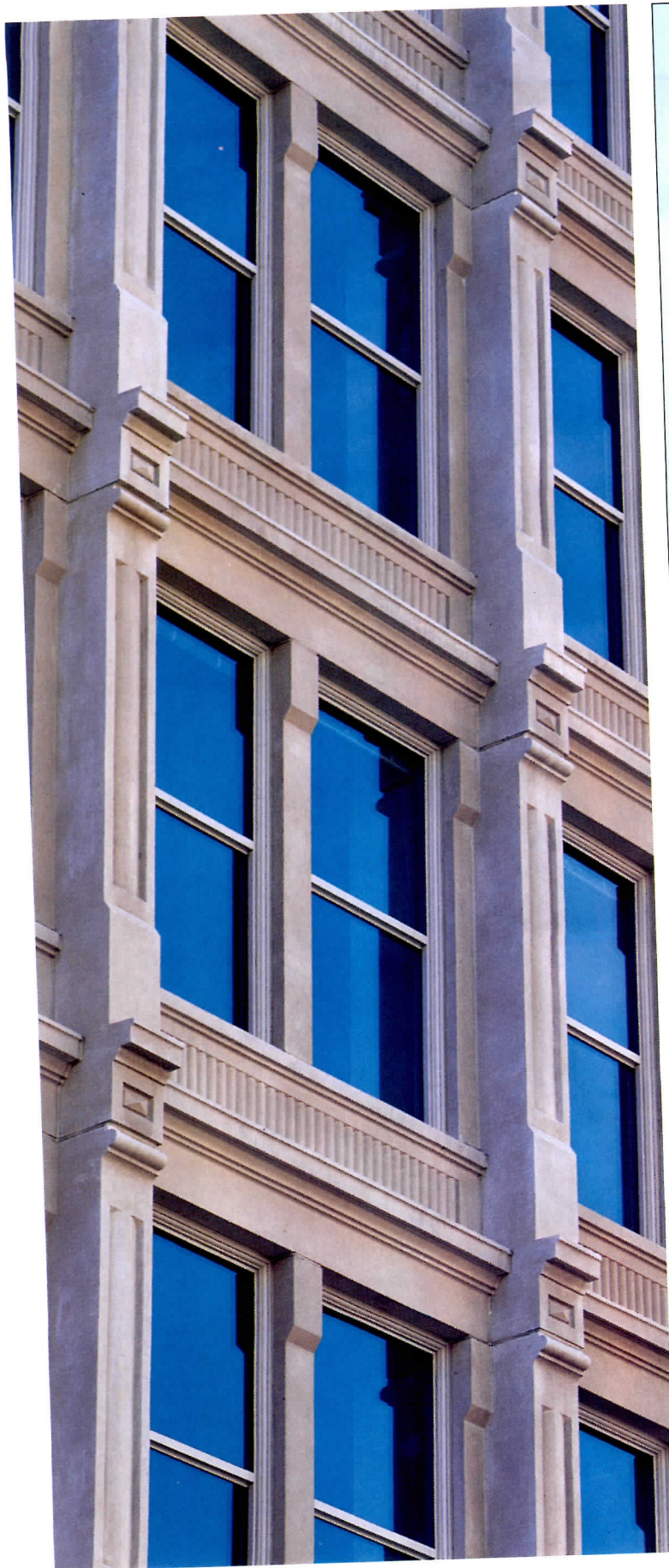
Pennsylvania Plaza's surface treatment is a direct descendant of 19th-century cast-iron loft buildings, which interpreted Italianate forms in a cast material (photo and sections, page 80, and elevation, page 81). By attaching precast panels to the outside of a poured-in-place concrete frame, Hartman-Cox left the interior perimeter of each floor free of elements that might restrict partitioning. From outside, the building appears to be rich with the architectural detailing of its 19th-century progenitors, while inside it seems as light as any Modern office tower. In fact, the building's facade is 50 percent glazing, typical of office buildings today.

Functionally and visually, Pennsylvania Plaza is two separate buildings: a 12-story, 155,000-square-foot office building and a 14-story, 145,000-square-foot residential building. The office structure is clad mostly in precast and organized along a grid with columns 20 feet on-center; the 150-unit apartment building is clad in red and buff brick with 15-foot bays. The two halves are connected structurally to better distribute wind loads and reduce shear. Three levels of parking with space for 194 cars are below grade.

Hartman-Cox faced the challenge of combining office and residential functions both at Pennsylvania Plaza and at Market Square, a project two blocks away that was designed and built at about the same time. At Market Square, the architects organized the two functions horizontally, placing four floors of apartments above nine floors of office and retail space. The constraints of a tight trapezoidal site at Pennsylvania Plaza forced Hartman-Cox to take a different approach—placing the office component on the western portion of the lot to exploit views up Pennsylvania Avenue and wrapping apartments around the building's eastern perimeter to catch the morning sun. This scheme maximizes floor plates for the office component, providing 16,000 square feet of leasable space on each floor, while drawing a "skinny" profile with the greatest exposure to sunlight for the residential component.

Ground-floor retail, including a sidewalk café, ties the building to Indiana Avenue on the north, while an arcade looks onto a small park on the south. A corner tower evocative of others in the area also helps the building fit into the neighborhood. *Clifford A. Pearson*





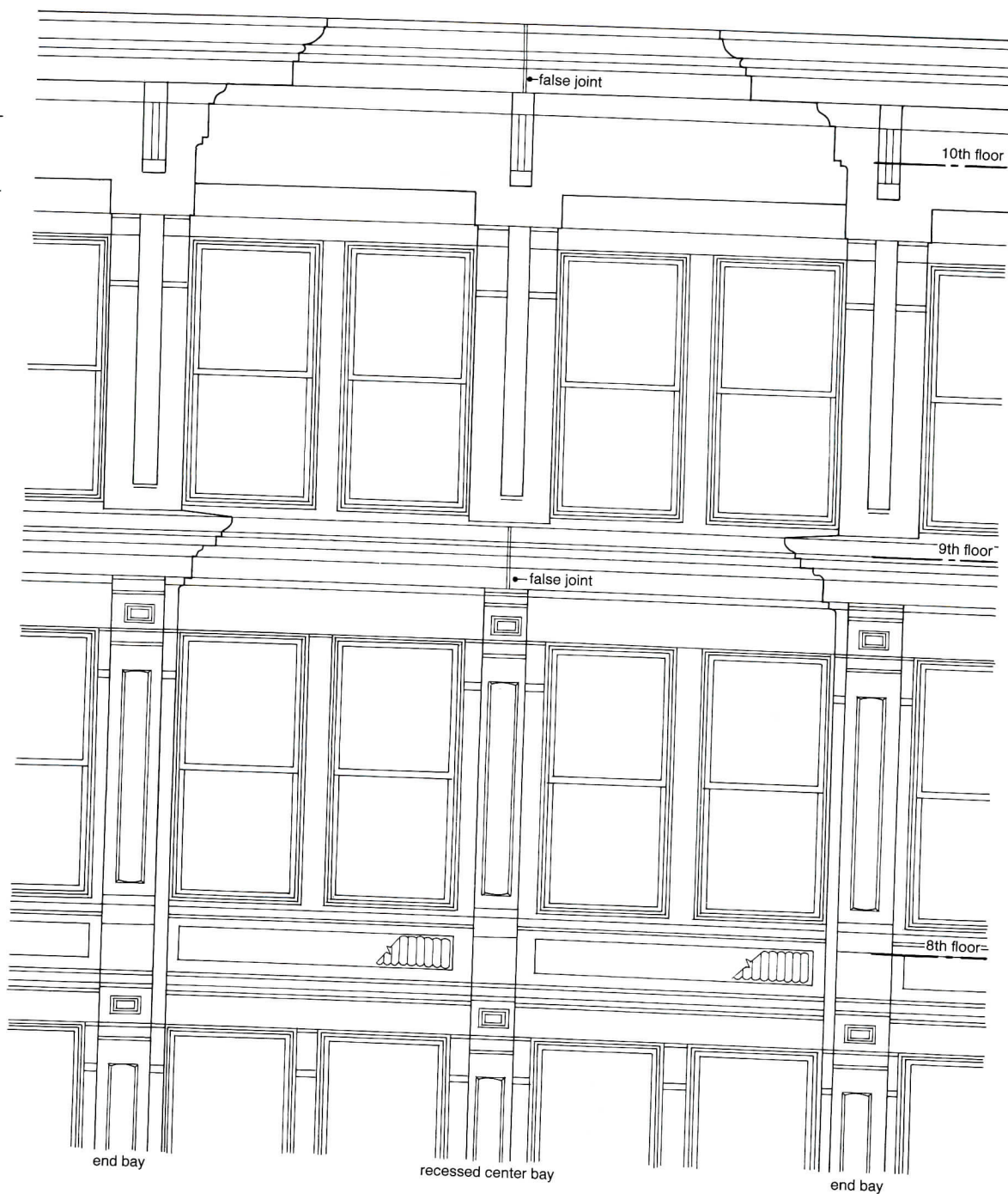


Hartman-Cox had eschewed precast concrete in the past, but its experiences with Pennsylvania Plaza and several other buildings now under construction have convinced the firm that, properly handled, the material can produce excellent architectural details.

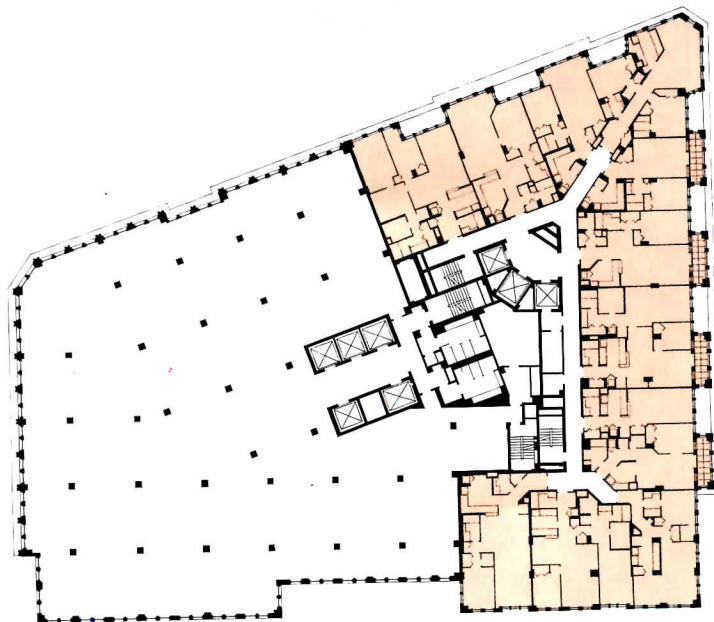
Flexible urethane molds today allow architects to design more elaborately shaped panels, as long as basic guidelines are followed. Cross-sections of precast pieces (opposite, right) show the curved and sloped lines favored by the manufacturing process.

Because large flat panels tend to highlight streaking and discoloration, Hartman-Cox designed smaller pieces with greater variation in profile. The depth of the precast detailing ensures that water will not wash over the building's curtain wall and cause seepage.

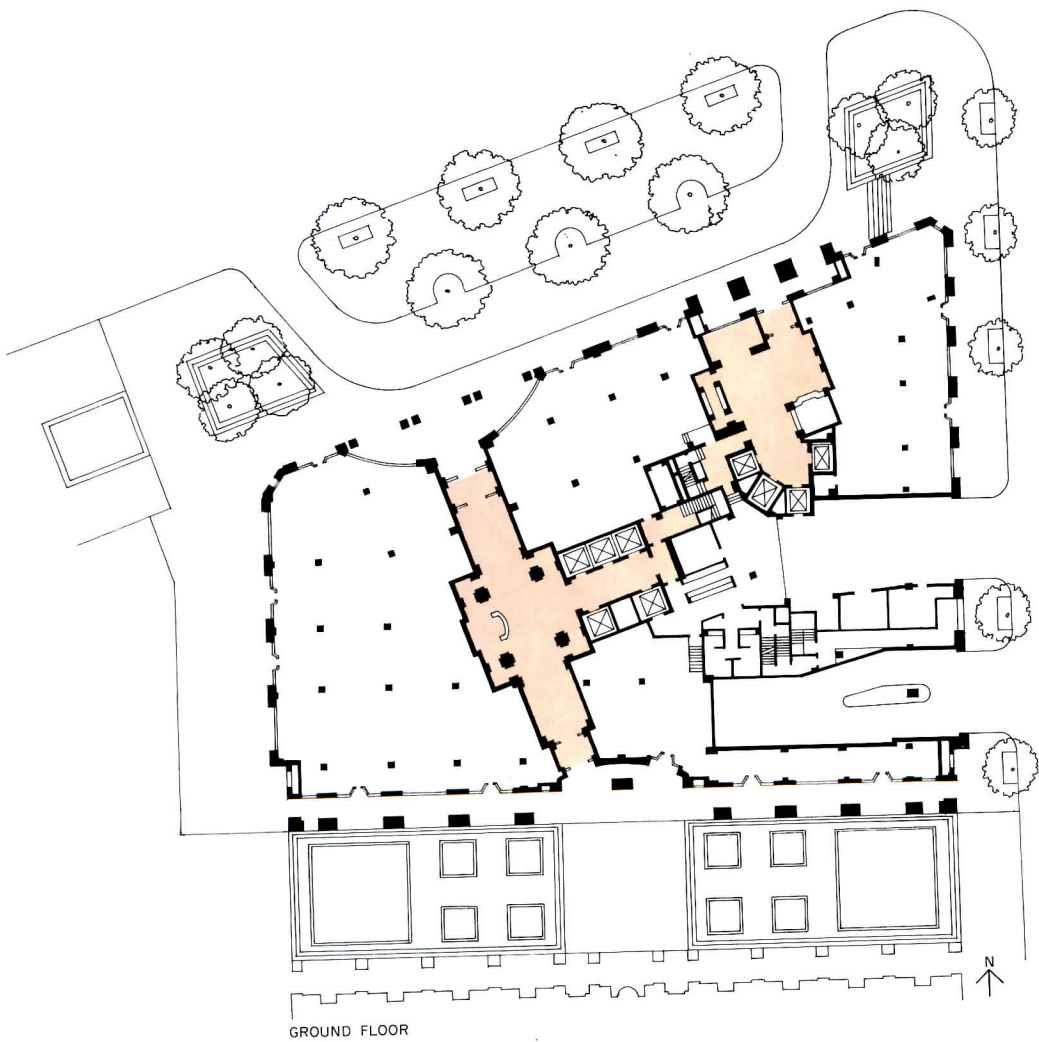
Elevation of the office building facade (right) shows the designer's affinity to the Italianate forms of 19th-century cast-iron buildings. "We spent a lot of time looking at 19th-century commercial lofts," explains project architect Lee Becker. Developers of office buildings always want to maximize the amount of window expanse to provide light-filled interiors," says Becker, "but we wanted to create a facade with a sense of depth and weight." Working with precast concrete, the architects at Hartman-Cox were able to provide both.







TYPICAL FLOOR (FLOORS 4-8)



GROUND FLOOR

The project's office lobby (opposite) runs from Indiana Avenue on the north to a vest-pocket park on the south. "It's nice to walk into a lobby and be able to see light on the other side," says Lee Becker. Lobby walls are clad in Rochebelle Beige limestone and Chiampo Mandorlato marble. The dominant flooring materials are Montecarlo and Rosso Levante marble. A separate lobby (not shown) serves the residential section of the project. While Hartman-Cox established the basic organization of the apartment building, CHK Architects designed the lobby and laid out the apartments.

**Credits**

*Pennsylvania Plaza  
Washington, D. C.*

**Owner:** *The Sigal/Zuckerman Co., The Abernathy Group, Lawrence Ruben Co.*

**Architect:** *Hartman-Cox Architects—George Hartman, partner-in-charge; Lee Becker, project architect; Bill Neudorfer, Alex Zaras, Carrie Burke, design team*

**Associate Architect:** *CHK Architects (residential interiors)*

**Engineers:** *James Madison Cutts (structural); Girard Engineering (mechanical/electrical); A. Morton Thomas & Associates (civil)*

**Consultants:** *Claude R. Engle (lighting); Tom Lee Ltd. (interiors, residential lobby)*

**General Contractor:** *Sigal Construction*







# Express Track





*Santiago Calatrava's entrance  
hall to the Lucerne rail station  
creates poetry out of a union of  
architecture and engineering.*

*Station Hall  
Lucerne Railway Station  
Lucerne, Switzerland  
Santiago Calatrava,  
Architect and Engineer*







ant premier  
RESTAURANT

DEPARTS		ABFAHRTEN		PARTENZE	
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WC P Polizei Kongresshaus

↑







The steel, glass, and concrete entrance hall that Spanish-born architect and engineer Santiago Calatrava has designed for the new railway station in the Swiss town of Lucerne combines airy grace with technical virtuosity. And in urban-planning terms, the foyer steps in successfully between the severe bulk of the rail station, and the city, with its lake outside.

The station is the most recent completed project of the Swiss Federal Railways' ambitious construction program. After a competition that began back in 1975, the city of Lucerne commissioned the local firm Amman & Baumann to redesign the area around the station in a scheme whose first phases included a mail-distribution center (Switzerland's largest), an apartment and office building, and a vocational-training center for 600 students. The current, and final, stage comprises a new rail concourse with office space above and retail below, a bus station occupying public space in front of the terminal, and a 200-foot extension of train platforms.

Although Amman & Baumann's original plan for the station called for a large glass foyer, this project segment was in the end delegated to Calatrava, who shortly before had designed a smaller canopy for the neighboring mail-distribution center [RECORD, August 1986, pages 130-139]. (Calatrava's previous tie to Swiss rail projects includes his design of the Stadelhofen station in Zurich, completed last year—see RECORD, October 1990, pages 54-61.)

In Lucerne, Calatrava elected to suspend the station hall's metal and glass roof from a triangular tensile system (drawing below right). The roof is attached to the station proper for stability, with the gap in between serving as an outlet for warm air as it rises. Although the 16 canted, precast-concrete columns boast the anthropomorphic form that has become Calatrava's trademark, they also owe a debt to a work by an earlier Modern master of expressionism: Eero Saarinen's Dulles Airport Terminal. The steel spindles that stabilize the hall, however, are pure Calatrava. Wire cables running from "spoil-ers" along the top of the columns penetrate the glass roof to join metal trusses at a central anchor point (pages 84-85 and opposite). The spoilers' height echoes that of cornices on surrounding buildings.

Elsewhere in the station, Amman & Baumann have adapted Calatrava's streamlined "natural" forms, but with less conviction, in the concrete elevator towers, a railing along the balcony overlooking the tracks, and a parabola-shaped kiosk. Dark-green Italian marble sheathing the station facade offers a pleasing contrast to the metal and glass of the foyer.

Pedestrians enter the station hall at street level or via subterranean pedestrian crossings that provide direct access to shops and to such railway services as ticket offices and baggage lockers. Banks of escalators, flights of stairs, and long steel beams containing shutters used to close off the station at night interrupt the hall's free flow of space. Visual clutter is further heightened by Austrian lighting designer Christian Bartenbach's reflective clouds, which are hung from the roof trusses, and by a train arrival/departure board that appears on the verge of piercing the glass roof (previous pages). Still, despite an interior that bears the marks of different hands, Calatrava's singular grace and technical skill have given Lucerne a welcoming new front door. *Tracy Metz*

#### Credits

*Lucerne Railway Station  
Lucerne Switzerland*

#### Owner:

*Swiss Federal Railways*

#### Architects and Engineers:

*Santiago Calatrava—Peter Lüthi, chief engineer (station hall); Amman & Baumann—Peter Baumann (overall station complex)*

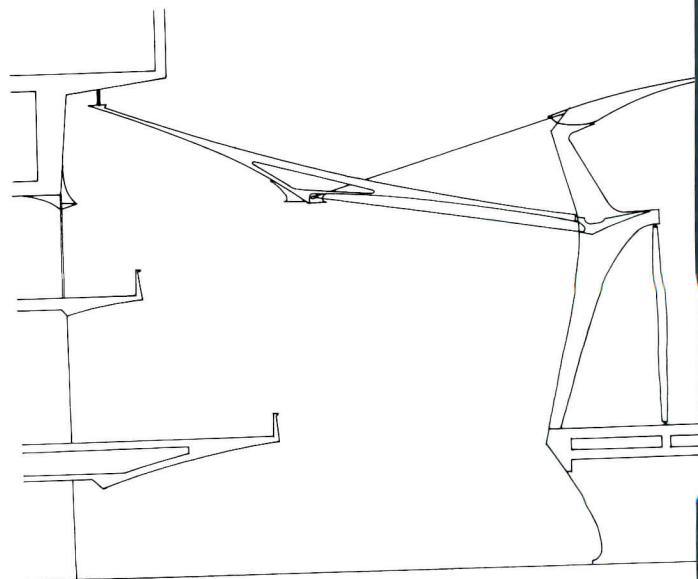
#### Consultants:

*Bartenbach & Partners (lighting);*

*Glastroesch AG (glasswork);*

*Mauchle AG (steel fabrication);*

*Angliker AG (concrete)*



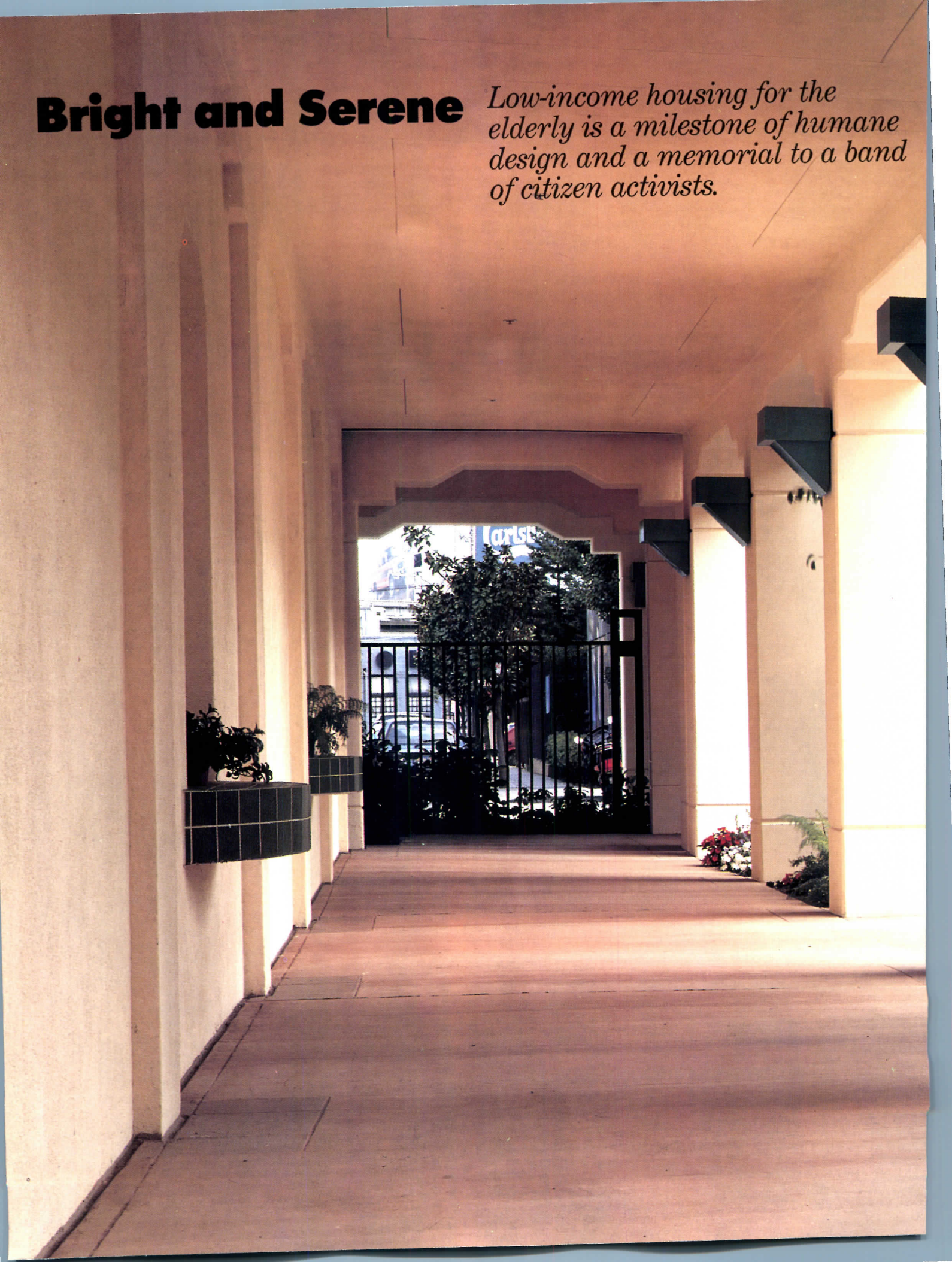






# Bright and Serene

*Low-income housing for the elderly is a milestone of humane design and a memorial to a band of citizen activists.*





*Mendelsohn House  
San Francisco, California  
Robert Herman  
Associates, Architects*





**M**endelsohn House, a 189-unit apartment complex for low-income elderly residents, culminates a generation-long effort to rebuild a San Francisco neighborhood without uprooting its residents. And it is a monument to one of the most positive manifestations of citizen activism to occur in any American city.

In the 1950s the federal bulldozer roared through San Francisco at full speed. A prime target was the South of Market district, an area housing 4,000 people, most of them "single, elderly, male and poor," wrote planner Chester Hartman in his 1974 book *Land Grab and Community Resistance in San Francisco*. Some were alcoholics, Hartman acknowledged. But most were retired or disabled working men who had come to South of Market to live out their lives. "The area and its 48 residential hotels provided them with inexpensive housing and eating places. It was sunny and flat in a city where hills and fog abound. It was downtown, near Market Street, the city's transportation hub, and other facilities they needed. Most of all, it provided them with a community of other single men with common backgrounds, experiences and problems . . . South of Market was their family and their home."

To the newspapers, however, and to some city officials and planners, this was skid row and its residents bums and winos. The city's course was clear: raze the entire neighborhood and replace it with a gleaming new multi-use complex. Called Yerba Buena Center, the complex was to include only 276 units of relocation housing, on a remote corner of the project site. But the residents, who included many retired trade unionists, were not to be moved without a fight. In 1969 they organized Tenants and Owners in Opposition to Redevelopment (TOOR), pushing for retention and rehabilitation of some of the hotels. This would "kill the Yerba Buena Center project and destroy our dreams," cried an aggrieved city official.

The courts took another view. In 1973 TOOR won a settlement requiring the San Francisco Redevelopment Agency to provide at least 1,500 units of relocation housing for residents of the area and set aside four sites in the new center for housing built by nonprofit groups, to be partially funded by raising the city's hotel tax. Mendelsohn House is the third project built on these sites by Tenants and Owners Development Corporation, an offshoot of TOOR. All were named for early TOOR leaders: George Woolf, Ceatrice Polite, Peter Mendelsohn. And all were designed by Robert Herman Associates following what is clearly a learning curve. Each project has been more humane than the one before in its amenities and more sophisticated in its design.

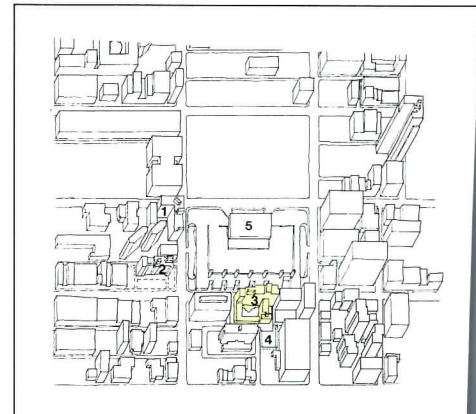
Because Mendelsohn House is on a major axis of the Yerba Buena project, clearly visible to visitors to the George Moscone Convention Center, the city recognized that it should present an attractive backdrop. Accordingly, the budget was "less constrained" than for earlier projects, and HUD red tape was circumvented since the entire subsidy came from the city. Herman nonetheless abided by HUD's limits on apartment size to reassure the city that the project was suitably modest—and to avoid redesign in case HUD money became available. But he also gave each apartment a bay window and most of them enjoy recessed balconies as well, creating a rhythmic, lively texture for the facade facing the convention center.

The complex's studio and one-bedroom apartments are contained in a nine-story slab with seven- and three-story wings enclosing a central courtyard. The structure is poured-in-place concrete supported by concrete piles into landfill. The frame is exposed and painted,

© Richard Barnes photos



*Above: the once-threatened South of Market area where Robert Herman Associates has designed three low-income apartment buildings for a nonprofit development group formed by defenders of the community from "slum clearance." Right: the "rippling, rhythmic" Folsom Street facade of Mendelsohn House, with its bays and recessed balconies. The building makes a serenely attractive backdrop for the city's nearby convention center.*



- |                               |                              |
|-------------------------------|------------------------------|
| 1. Woolf House                | 4. Alice Street Gardens      |
| 2. Ceatrice Polite Apartments | 5. Moscone Convention Center |
| 3. Mendelsohn House           |                              |





THE CROWNE  
CORPORATION  
NORTH BEACH  
LEGEND'S BUILDING

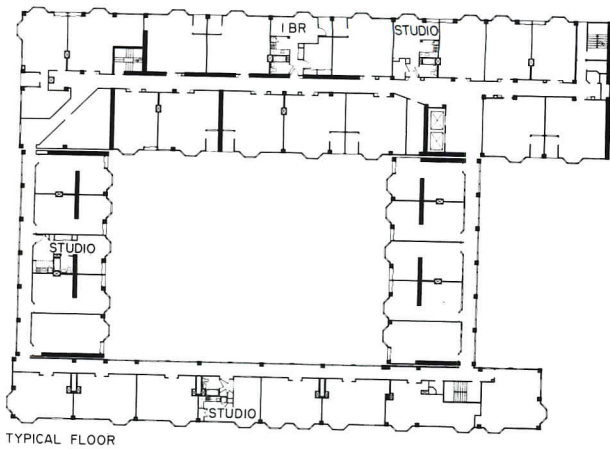
PARK

NO  
STOP  
FREE FIRE

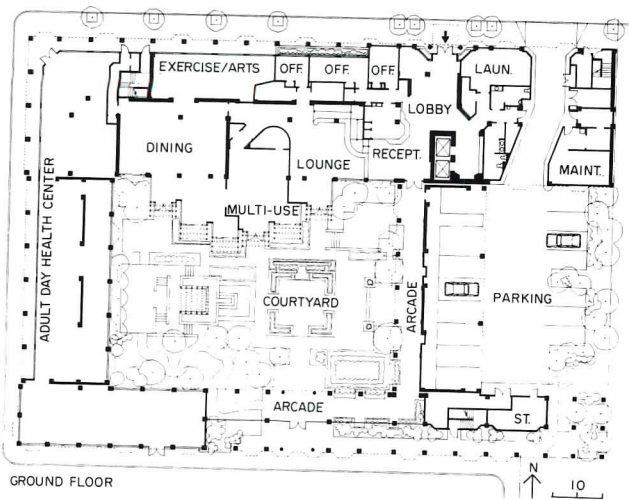








TYPICAL FLOOR



GROUND FLOOR



ft: the Folsom Street facade, concrete frame with cement plaster infill panels, is enlivened by green rails and window frames and tile and glass-block accents. This tallest element of the building has double-loaded corridors (plan above). Lower elements enclosing central courtyard have single-loaded corridors so they can be narrower, giving additional space to the courtyard. The ground floor (plan above) contains a variety of communal facilities, some of which—e.g., the exercise and arts room and an adult health center currently under construction—have outer entrances so neighbors as well as residents of the building may use them. Public areas

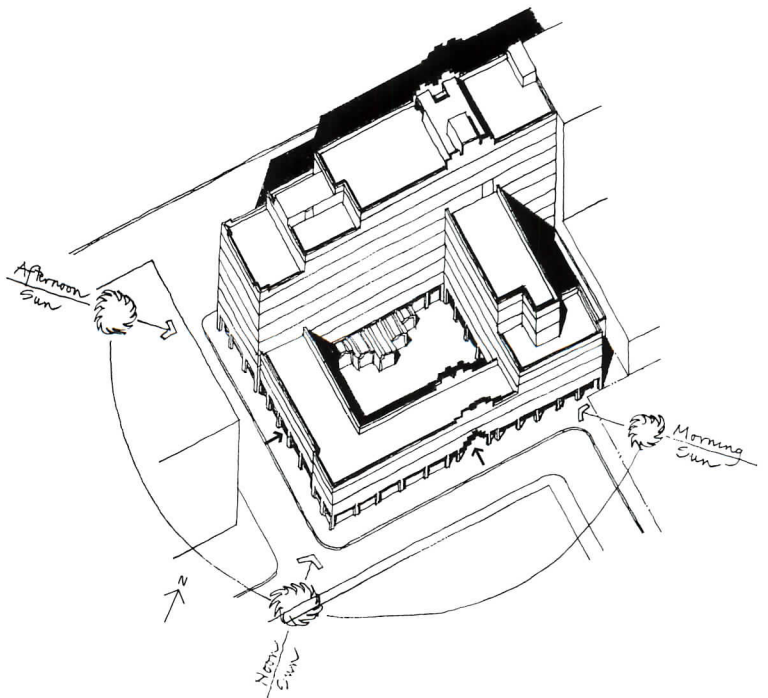
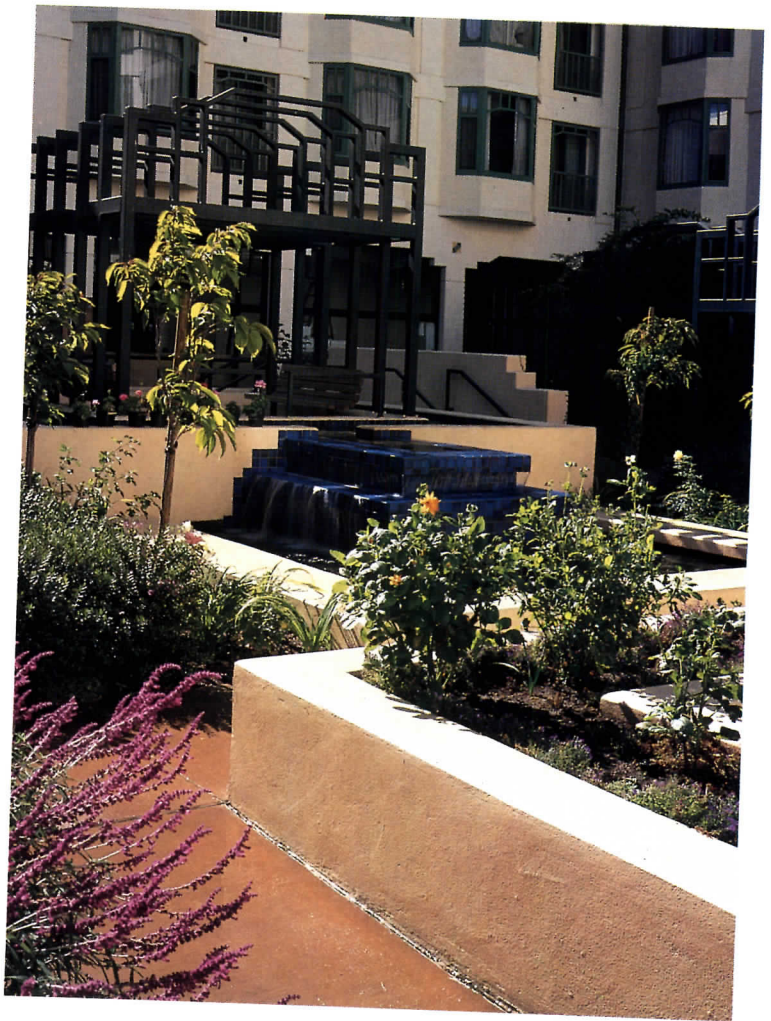
were designed for "maximum mingling." Pavilionlike structures extend from the dining and multi-use rooms into the arcaded courtyard (left in photo right). The central courtyard is pleasantly landscaped and embellished with a fountain, reflecting pool, and metal trellises. It is an active, human-scaled space.







*Left: detail of one of the lower elements. Open arcades serve as links to the surrounding neighborhood, which includes a well-used community garden. Right: detail of the courtyard. As diagram below indicates, the building's massing was influenced by a desire to make maximum use of San Francisco's fickle sun. During much of the day the long shadow of the large Folsom Street mass falls mainly onto the street itself.*





with infill panels of painted cement plaster. The nine-story element is so oriented that during much of day it casts its long shadow only over wide and heavily traveled Folsom Street (see solar diagram page 97). Its bulk also helps shield the courtyard from street noise. The three-story elements were kept at that height to suggest a residential scale and also to admit as much sun as possible to the courtyard. The lower building elements were also kept narrow to allow a courtyard large enough to provide privacy for apartments facing each other across it.

The courtyard is arcaded on three sides, and pavilions project into it from the main building's public areas. It is luxuriantly planted and includes a handsome fountain and shallow pool, along with a hard-surface exercise area and a grassy gathering place for special events. There are also meandering paths for strolling and a tot lot for visiting grandchildren. At the rear, opening onto a narrower and less busy street, is a second entrance through a generous open arcade, which "opens the inner life of the building to the city beyond," in Herman's words, and provides a visual linkage to a nearby community garden. Mendelsohn House itself has roof gardens at two levels, framed by parapets inset with glass block.

At the Folsom Street entrance a glass canopy roofs a portal brightened by decorative tiles (including a portrait of Peter Mendelsohn in the entryway) and green-enameled window and door frames. The stepped, almost Egyptian arch is a recurring design theme. The lobby, Herman says, was intended to be "reminiscent of a comfortable residential hotel." There is seating at the front door for "inconspicuous people-watching." Extra space was given to the area around the mailboxes—a major social center. Other ground-floor common rooms designed to encourage mingling include a wicker-furnished lounge, a festive community dining room, and a multi-purpose room with a big-screen television. A neighborhood health clinic for seniors will occupy the ground floor of the three-story wing. Elevators are oversized to accommodate wheelchairs and stretchers. An emergency call system links apartments to the main desk and manager's apartment.

Private areas too are thoughtfully designed and human in scale. Upstairs corridors have deeply recessed front doors with package shelves and kitchen windows that are a second source of light for apartments. Unit plans carefully locate kitchens so a person cooking is near the center of the living space rather than isolated. About 10 percent of the kitchens have low counters and other features for disabled tenants, and all are easily adapted to them. *Donald Canty*

#### Credits

*Mendelsohn House*  
San Francisco, California

#### Owner:

*Tenants and Owners Development Corporation*

#### Architect:

*Robert Herman Associates—Robert Herman, Stuart Stoller, project architects; Susie Coliver, associate designer*

#### Engineers:

*Raj Desai Associates (structural); Montgomery & Roberts (mechanical); Stanley Anderson (electrical)*

#### Consultants:

*Tito Patri & Associates (landscape); Architectural Lighting Design (lighting)*

#### General Contractor:

*S. J. Amoroso Construction*



*Top: kitchen window giving on one of the single-loaded corridors borrows light from outside. Other photos show ground-floor communal spaces, designed and detailed to resemble as much as possible, architect Herman says, "a comfortable residential hotel." Sconces and some other light fixtures were custom-designed for the building.*







# Highly Refined

*Technical focus: The secret of Cesar Pelli's success in spec office high-rises lies in his curtain-wall design.*







© Jon Miller/Hedrich-Blessing (this photo and opposite page)



© Peter Sutherland

Projecting granite-clad piers and aluminum rails give vertical emphasis to 181 Madison Street in Chicago (top and opposite). Metal piers are wider at the center of the elevation of 777 South Figueroa Street in Los Angeles (above).

About 25 years ago, something happened to skyscrapers. The prismatic slabs of postwar Modernism began to disappear along with the slim, soaring Classical and Art Deco masonry towers that once defined the skylines of American cities from coast to coast. All too often these were replaced or overtopped by anonymous office boxes with thick, bulky silhouettes and narrow ribbons of reflective glass. Once the very essence of downtown prestige, the high-rise office building became meanly sheathed raw space.

Architects aren't entirely to blame for this state of affairs. Over the years the real-estate business has struggled to codify the attributes of office space so that properties could be marketed as commodities, with assorted, easily understood amenities tacked on to justify variations in rent. Architects *are* to blame for the cookie-cutter look of much recent spec architecture to the extent that they neither question these underlying assumptions nor exploit them to the utmost.

Cesar Pelli is not out to undermine the developer's tall-building formula. For one thing, he explains, it represents, "a pretty clear knowledge of what major tenants—law firms, accounting firms, brokers—need and prefer." As a product of the demands of construction, layout, provision of mechanical services, and tenant expectations, the downtown office building has been honed to a well-known quantity. "Some older buildings were thought not to work, and what we see at this time reflects three to four iterations since," Pelli comments. What he seeks is a level of *architectural* refinement equal to that of the developer's pro forma.

This is a subtle rather than heroic feat. After all, the attributes of the speculative formula are mundane. Here's the recipe: a tower of 750,000 to 1,000,000 sq ft, 40 to 50 stories tall, with a 5-ft planning module, essentially square in plan (which is deemed to be the best compromise among ratio of window-to-internal offices, economy of servicing, and adjacencies for typical work groups). This formula typically produces a structure that is somewhat thick for its height with deep horizontal spandrels and thin ribbons of vision glass. While many architects chafe at this meager raw material, Pelli sees opportunities. "It's a wonderful building type, the kind of building that makes cities functional."

Two recent towers exemplify his approach. Pelli avoids what some designers do—in marketing jargon—to differentiate the product: gimmicky shape-making (some buildings these days seem only to have corner offices) and hyperactively patterned elevations. Instead he clothes the maximum-efficiency plan in a sheer yet modeled wall that slims the bulky silhouette and refracts ever-changing patterns of light and shadow. For the 50-story tower at 181 Madison Street, in Chicago (top left and opposite), he set the glass line considerably back from vertical granite-clad piers to give three-dimensional life to the wall. A projecting vertical rail (dividing the glass infill) and stainless-steel fins at the roof edges gleam both day and night. 777 South Figueroa, in downtown Los Angeles, is a metal-and-glass wall with even deeper relief (bottom left). It not only picks up the brilliant Southern California light, but the varied width of the vertical piers enriches the facade and visually attenuates the building's bulk.

Both projects were designed in close collaboration with associated architects and curtain-wall fabricating firms. As Mike Minkoff of Bruce Engineering observes, "Don't assume that custom-designed systems cost more than off-the-shelf ones." Meeting the constraints of budget-minded developers requires, as the details on the following pages show, a flexible design approach. *James S. Russell*



# 181 Madison Street Chicago

Though the curtain wall of this 50-story, 1-million-sq-ft building is a deceptively simple system of granite-clad piers with glass infill, Pelli made several visual refinements to move away from the flatness common to office buildings. The piers project 9 in. from the glass line, and a mullionlike vertical rail is mounted 3 in. in front of the window (drawings opposite left). This required a commitment from the owner, recalls Gregg Jones, Pelli's design-team leader, since space beyond the glass line is not considered rentable but does count toward the building's floor area in zoning calculations.

The vision glass has a reflective coating that is matched by the upper half of a single-light spandrel panel. An applied mullion separates the upper from the lower half, which is patterned with a ceramic-frit grid. The glazing reads one way from close up, where the frit pattern can be seen, and another way from a distance where the spandrel appears as two subtle shades of gray. Together these moves "delicately weave the building together," says Jones.

At building setbacks and at the roof, the piers are carved away into narrow, finial-like stainless-steel projections, which visually dissolve the building's bulky silhouette and catch both sunlight during the day and artificial lighting at night (right).

## Credits

181 Madison Street  
Chicago, Illinois

**Owner:** Miglin-Beitler

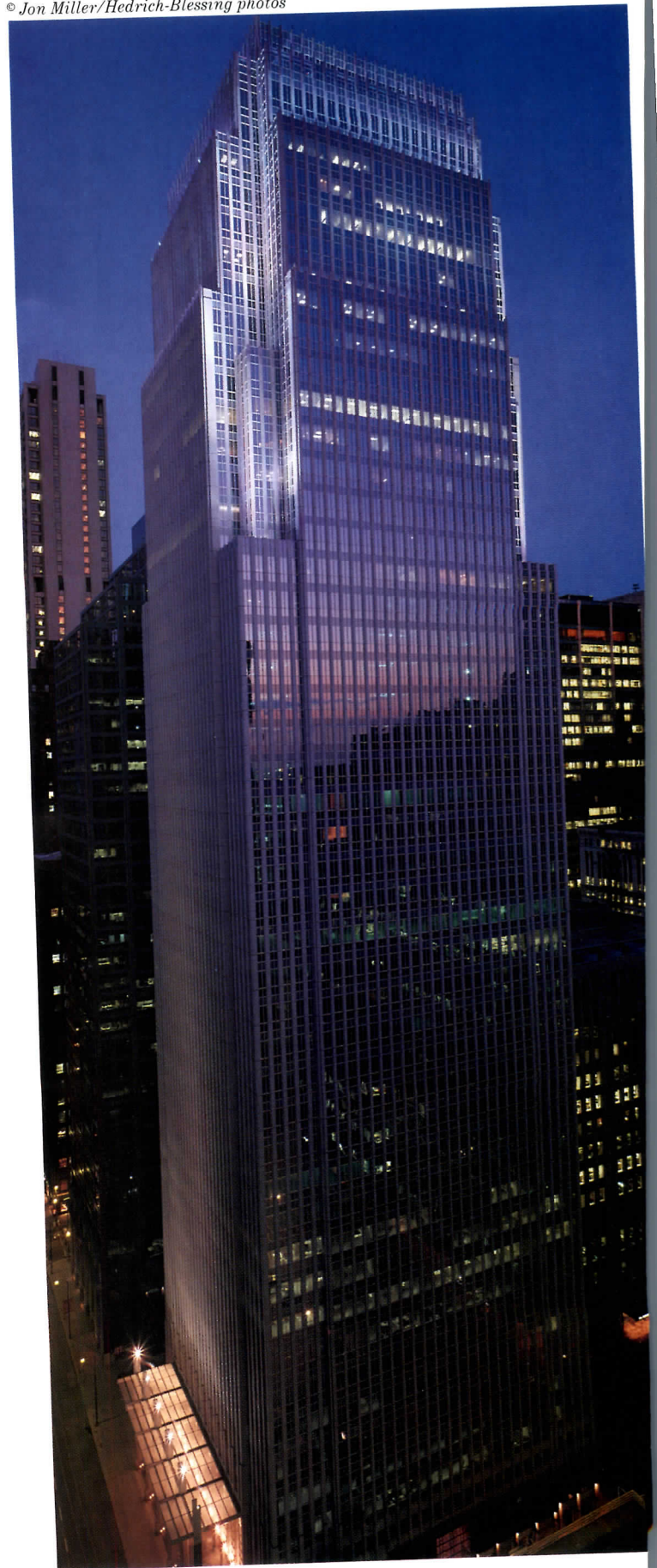
**Architect:** Cesar Pelli & Associates—Cesar Pelli, design principal; F. W. Clarke, III, project principal; Gregg E. Jones, design-team leader; Jon Pickard, Bruce Davis, Lazaros Papanikolaou, Greg Barnell, Tony Markese, design team

**Associated Architect:** Shaw and Associates, Inc.—Patrick Shaw, principal-in-charge; Kurt Koentopp, project architect

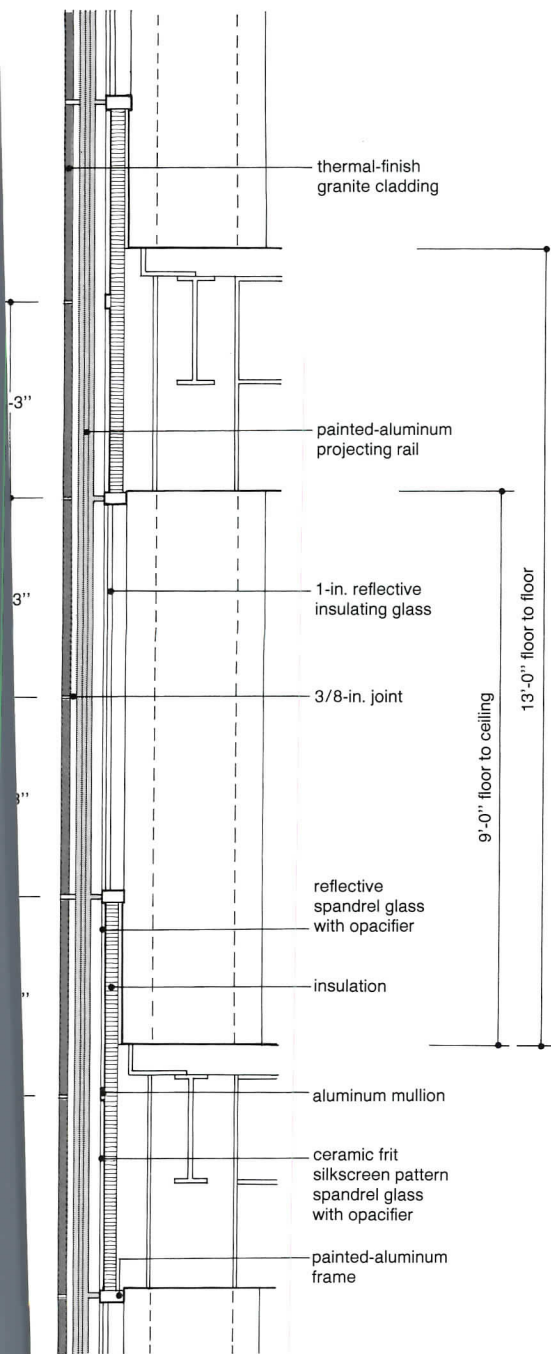
**Engineer:** Cohen-Barreto-Marchertas, Inc. (structural); Environmental Systems Design, Inc. (mechanical, electrical, plumbing)

**Curtain-wall Consultant:** Curtainwall Design & Consulting

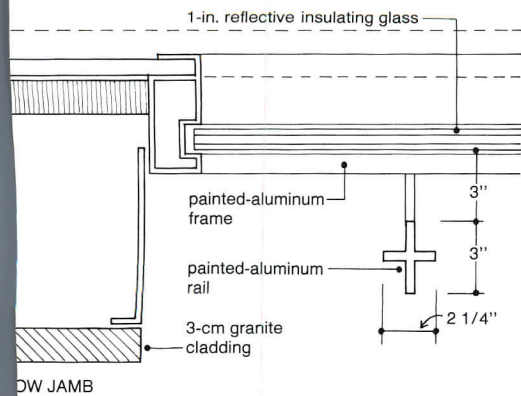
**Construction Manager:** Schal Associates



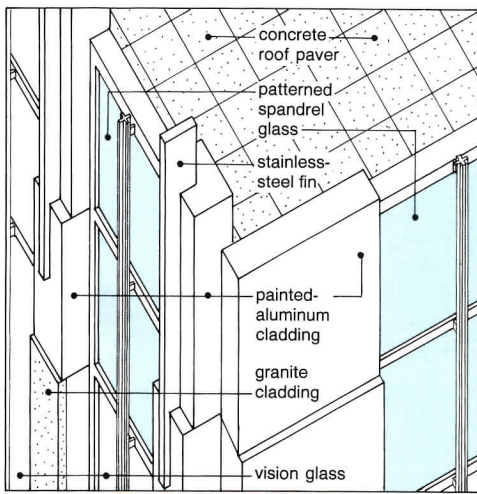




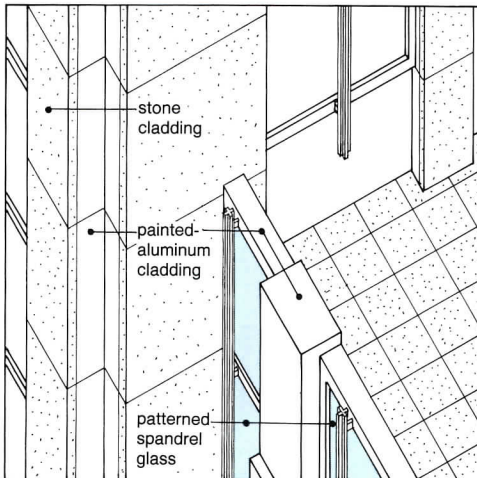
CURTAIN WALL SECTION



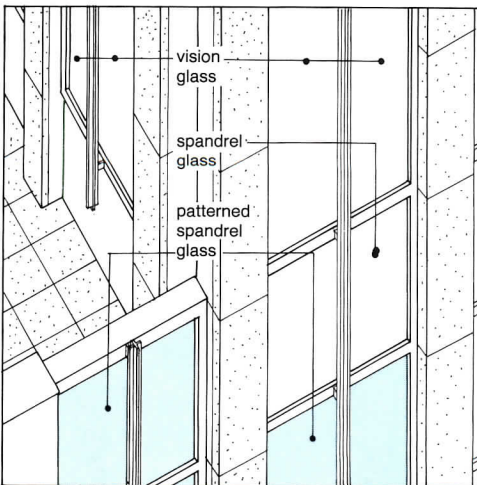
WINDOW JAMB



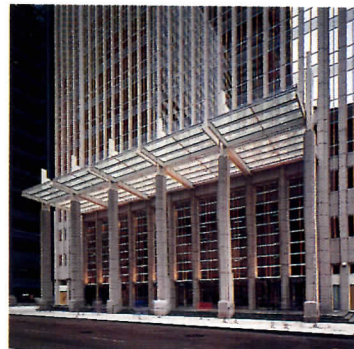
PARAPET AT 41ST FLOOR



PARAPET AT 33RD FLOOR



PARAPET AT 46TH FLOOR



*As originally conceived, 181 Madison's stone pilasters would have had stone returns. Bruce Engineering, the curtain-wall manufacturer, proposed aluminum extrusions, which were less costly and support the granite anchors (bottom left). The full-floor stone pieces and their attachment were preassembled in a factory. The curtain-wall framing and glazing were fastened on site, typical of a "stick" system. At the entrance, a metal-framed skylight canopy picks up the theme of the wall, with its glass striped in a ceramic frit (above). Diagonal horizontal tension cables add another visual layer.*



# 777 South Figueroa Los Angeles

At 1.1 million sq ft and 53 stories, 777 South Figueroa is slightly larger than the Chicago project, which was designed earlier. "As we worked on the wall [of 181] and did value engineering, it was suggested that there were considerable savings if we substituted metal for stone at some height of the building," Pelli explains. Though he likes to use stone (and some developers consider stone *de rigueur* on "better" buildings and metal "cheap and dated"), Pelli wanted to make a wall "using metal in a more sculptural and artistic way."

He sought a more modeled surface to develop deep shadows in the bright sun of Los Angeles—an unrealistic hope with stone cladding. This was accomplished at three scales. At the building scale, the two gently curved sides soften its bulk. Then Pelli developed a pier system between the windows composed of paired three-quarter-round shapes divided by a rectangular fin that projects as far as 13 in. from the glass line (details following pages). To further enliven this skin, the architects designed the piers to be wider in the center of the elevation than at the edges. On the flat facades, the piers also become narrower at upper floors, marking the setbacks on the curved sides.

## Credits

*777 South Figueroa*

*Los Angeles, California*

**Owners:** *Ayrcorp, Mitsubishi Real Estate, Prudential Realty Group*

**Architect:** *Cesar Pelli & Associates—Cesar Pelli, principal for design; F. W. Clarke, III, project principal; Gregg E. Jones, Marcy Schulte, Lazaros Panikoloau, Gregory Barnell, Mariko Masuoka, design team*

**Associate Architects:** *Langdon Wilson Architecture, Planning—Randolph Jefferson, partner-in-charge; Vano Haritunians, Francisco Choi, Nien-Tsu Yuh, project team*

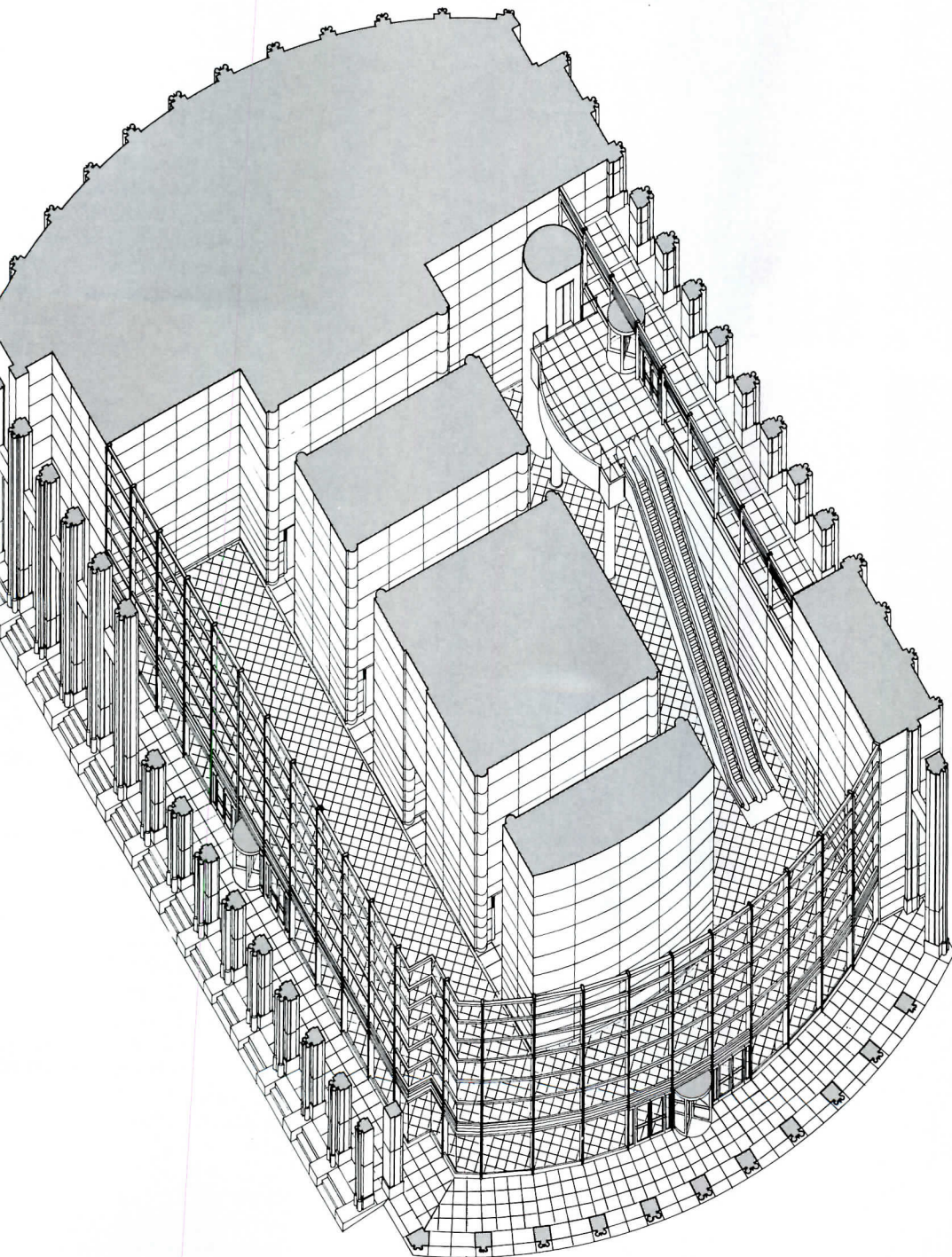
**Engineers:** *John A. Martin & Associates (structural); James A. Knowles & Associates (mechanical); Levine/Seegal Associates (electrical, plumbing); Kirkwood Dynalectric Co. (electrical)*

**Curtain-wall Consultant:** *Peter M. Muller*

**Construction Manager:** *Peck/Jones-Bellows Construction*







*The curved facades and variations in width of 777 South Figueroa's curtain-wall piers give visual life to the wall (opposite). Inside the lobby, which is screened by an aluminum-clad arcade (left), the architects controlled the patterning of highly veined marble (above) by selecting and marking pieces at the quarry.*





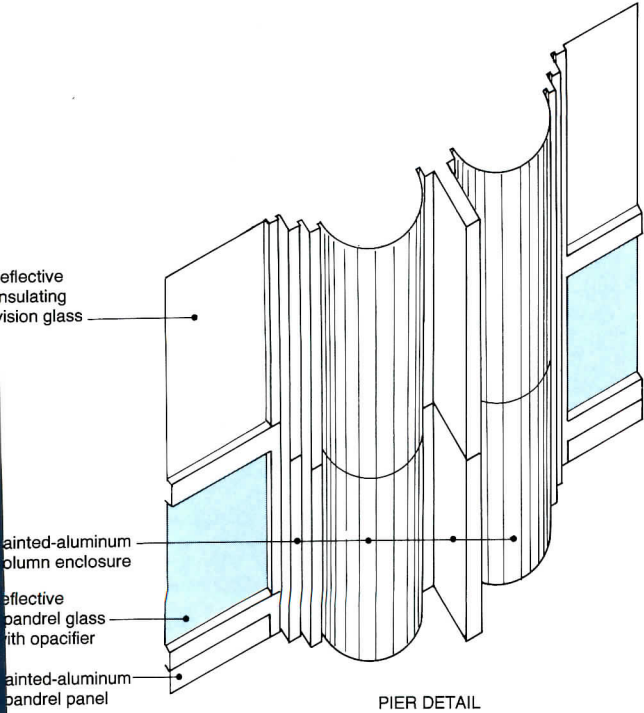
According to Randy Jefferson, a partner with Langdon Wilson Architects, "The major issue in these kinds of projects is having all of the team as part of the process." As the project's associated architect, his firm is responsible not only for the contract documents, but also for communication among design team, owner, contractor, and critical subcontractors, all of whom were brought in early. In the case of the building's wall, the team learned that the paired three-quarter-round aluminum piers (details opposite) were too big to be extruded as a single piece. The subcontractor found a fabricator in Germany who could make the shapes using break-forming equipment.

The design team sought to avoid exposed sealant joints for reasons of both maintenance and appearance (the joints would soon be soiled). The team designed a unitized wall system in which panels are mechanically interlocked with a concealed neoprene gasket to prevent air infiltration.

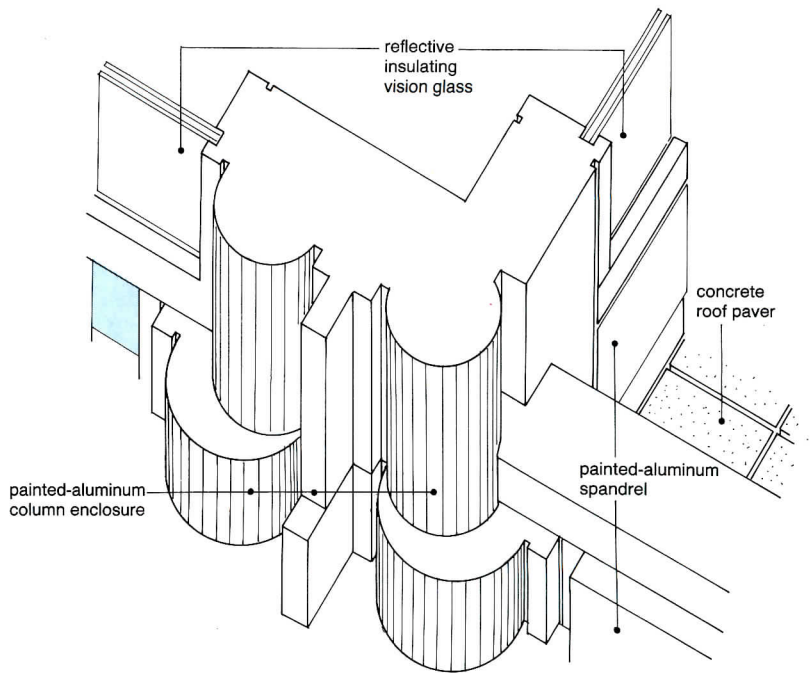
The building's varied surface is the result of paired column shapes designed in three radii (middle and upper left opposite). As the glazed infill becomes wider at the corners (maintaining the five-ft orthogonal module) and near the top of the building (photo 2), the "columns" become smaller and the stepped, rectangular trim profiles drop away (bottom right opposite). Setbacks and the building's top are crowned by painted-aluminum "cornice" panels (1). The design team paid particular attention to the difficult combination of corners and terraces (opposite top right and bottom left).

The arcade (3, 4) screens a lobby window wall that is painted a lighter shade and accented by stainless-steel bands.

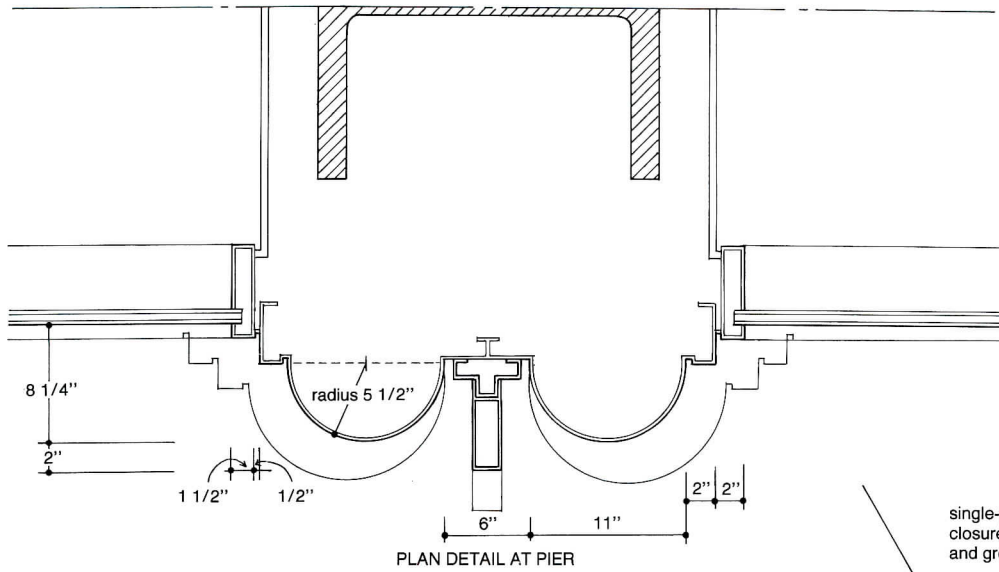




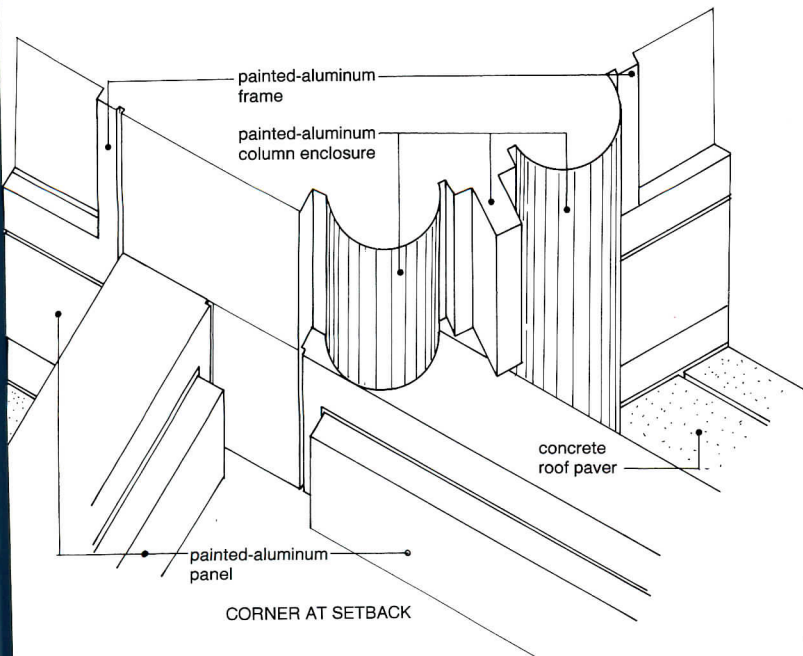
PIER DETAIL



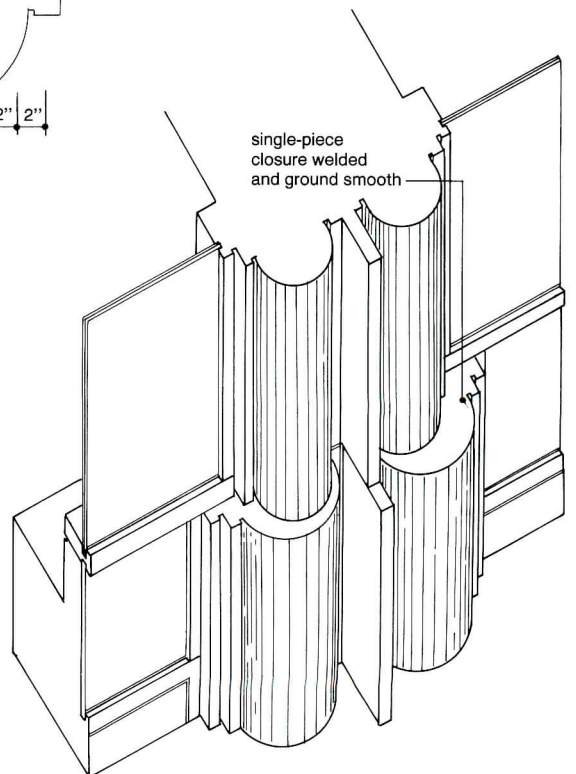
CORNER AT SETBACK



PLAN DETAIL AT PIER



CORNER AT SETBACK



PIER ENCLOSURE TRANSITION





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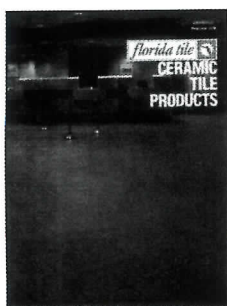
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# Tile and Setting Materials

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



### Ceramic Variations

Unique textures and shadings are presented in a 51-page brochure, as well as high-gloss, faux marble and granite, decorative patterns, and color-accented floor and wall tiles. Florida Tile.

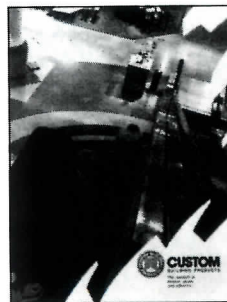
**400**



### Terrazzo Guide

Brochure outlines National Terrazzo and Mosaic Association's standards, specs of materials and installation, and basic terrazzo systems. Shows successful terrazzo installations. NTMA.

**401**



### Installation and Maintenance

Over 75 mortars, grouts, adhesives, and sealants are featured, with an application guide for interior and exterior products. Grouts come in 47 colors. Custom Building Products.

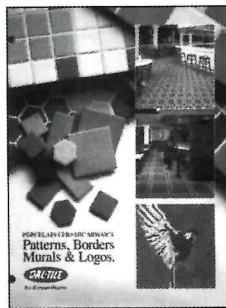
**402**



### Choices

Armstone offers 15 designer shades of floor tiles and wall panels in three finishes: polished, textured, and honed. Versatile tile comes in various sizes that can be custom cut. ArmStar.

**403**



### Porcelain Art

Catalog illustrates numerous pattern and border choices available from an 80-color array of mosaic tile. Design and size of tile can be varied, and custom murals and logos specified. Dal-Tile.

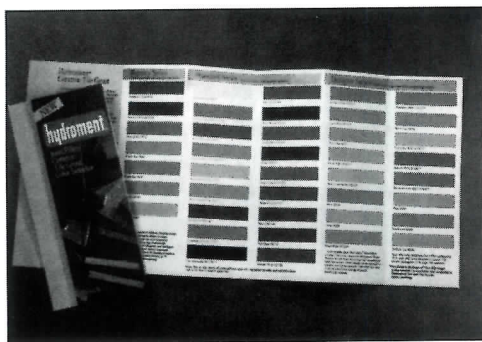
**404**



### Recycled Pavers

Catalog introduces a paver made from a feldspar byproduct that comes in four finishes and numerous colors. Fourteen new products are shown, including setting mortars and grouts. Summitville.

**405**



### Color Card

Hydroment grout selector guide offers 41 colors in a fold-out brochure. Short-form specification information included as well as coverage charts and packaging information. Bostik.

**406**



### Tile Tell-All

Extensive brochure describes glazed and unglazed floor and wall tile, decorative tile, ceramic mosaics, and bathroom accessories, natural stone products, mounted tile sheets, and trim. Includes installation products as well as

architectural specifications, industry tests, and an application guide. Illustrates plumbing-fixture and paint-color coordinations. American Olean.

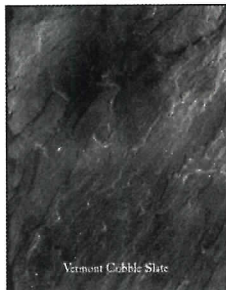
**407**



### Encaustic Tiles

British floor tile used to create intricate patterns in the Capitol Building and the Smithsonian Institute is illustrated in brochure. Gives sample patterns and history of the tile. H & R Johnson.

**408**



### Slate Solutions

Brochure describes the various applications of hand-selected antique slate tiles including flooring, hearths, vertical-surface veneers, and furniture and countertop veneers. Vermont Cobble Slate.

**409**



### Creative

Artistic surfaces created with modeled clay in an unlimited range of colors and texture for exteriors or interiors. Includes information on wa floor, and color-inlay tiles. Design Technics.

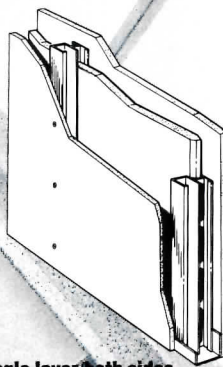
**410**



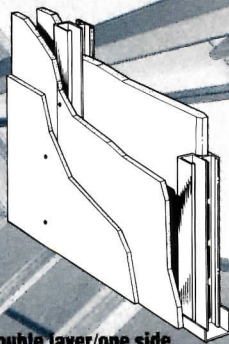
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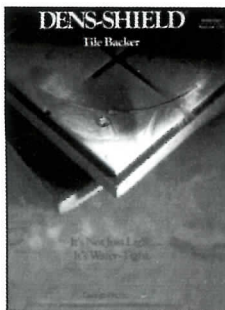
**Traffic Tile**  
Brochure features tile for use indoors and out, on walls, or as a countertop. Made of 70 percent recycled glass using a glass-bonding technique, it has a through-body color that resists wear. Stonewear.  
**411**



**Marble Classics**  
Folder illustrates benefits of this premium marble, suitable for commercial, residential, wall panels, and more. Colors, physical requirements, and possible patterns shown. Georgia Marble.  
**412**



**Unglazed Tiles**  
Colormassa ceramic tiles and porcelain pavers, suited for heavy-duty applications as well as residential and pool use, are illustrated in numerous colors, finishes, patterns, and textures. Floor Gres Ceramiche.  
**413**



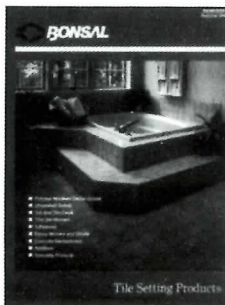
**Tile Backer**  
Dens-Shield's exclusive water-resistant coating on a silicone-based gypsum core makes this lightweight tile-backer stable and damp-proof. Easy-to-handle, cuts-to-size with a blade. Georgia-Pacific.  
**414**



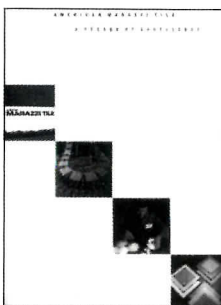
**Porcelain**  
The 26 colors and three finishes featured in this folder are offered in the most current colors designed by Barbara Schirmeister. Three sizes. Crossville Ceramics.  
**415**



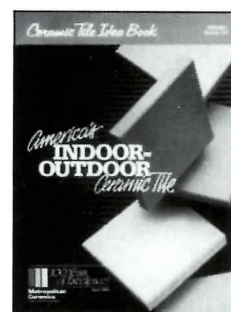
**Newest Trends**  
Architectural focus in brochure for floor products shows natural-look stainproof porcelain, granite pavers, and unglazed colored porcelain in over 30 colors. Innovative Ceramics, Inc.  
**416**



**Setting Products**  
Various tile-installation materials are described, including polymer-modified dense grout, dry-wall grout, thin-set mortars, adhesives, epoxy mortars, and concrete backer-board. Bonsal.  
**417**



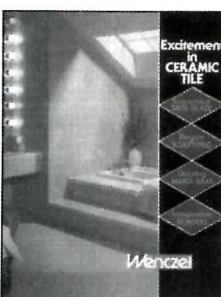
**Silk-Screened**  
Capabilities brochure for only domestic manufacturer producing silk-screened-patterned flooring and technology for monocottura fast-firing tile, and Firestream tile. Marazzi Tile.  
**418**



**Idea Book**  
Installation photos, pattern suggestions, color swatches, performance specs, and special trim shapes are included in this colorful indoor/outdoor ceramic-tile idea book. Metropolitan Ceramics.  
**419**



**Granite Tiles**  
Eighteen shades of granite are shown in an architectural folder. Polished, honed, and thermal finishes are available. Finish edges can be smooth cut or beveled. American Granite Tile.  
**420**



**Striking Color**  
Brochure features Mardi Gras, a tile that comes in high-fashion colors like hunter green, cobalt blue, raspberry, and teal. Shows patterns created in conjunction with white tile. Wenzel.  
**421**



**Perfect Finish**  
Brochure describes trims in brass, aluminum, and steel, step-tread nosing, expansion joints, control joints, matting, and other tile-installation products. Schlüter Systems. ■  
**422**