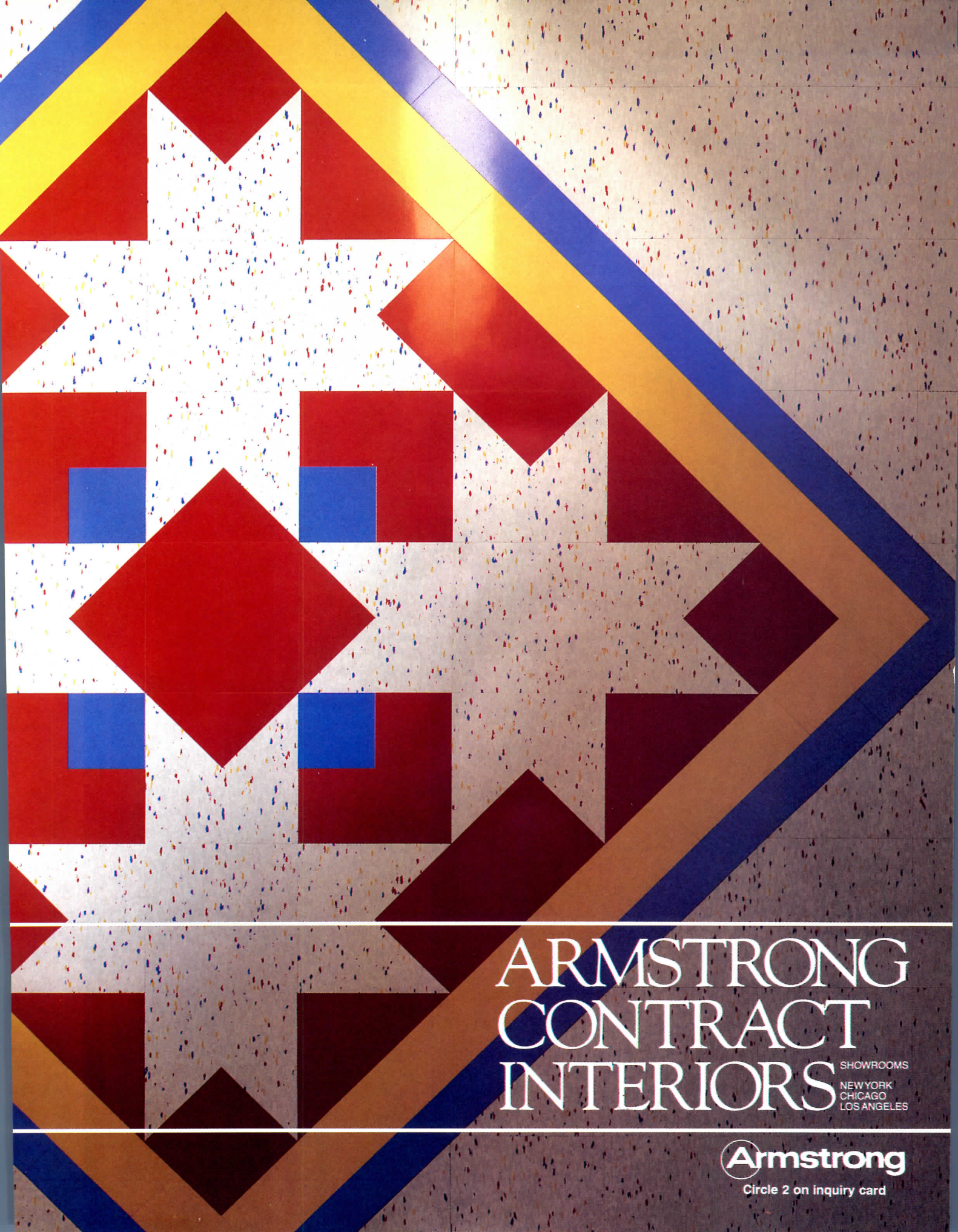
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Stern warnings

I enjoyed Robert Campbell's review of Robert Stern's Ohrstrom Library at St. Paul's in the August RECORD ["Well-Schooled," pages 56-63]. His architectural critique is organized, astute, and sensitive. And humor is always welcome. Campbell's comments on large window detail with gaudy circles, weak vaulted ceiling patterns and overlarge ceiling pendants are certainly part of every critic's prerogative. However, I am concerned by Campbell's [suggestion that] Ohrstrom's private [status] and the philanthropy of Andrew Carnegie should somehow find their way into its architecture.

"Ohrstrom raises doubts." Is Stern insensitive and should he have provided a more austere design in response to New York and Boston's financial dilemmas? Should St. Paul's be admonished for being a private institution with a generous budget? I think not. Social, civic, and economic events change with time. Personal social agendas have little place in an architectural critique.

Elias W. Bullock Jr., Architect
Pensacola, Florida

Design for access

It is a lazy Saturday morning. I had just finished reading your "Observations" for the August issue of RECORD ["It's Accessible . . . But Is It Architecture?", pages 42-44] and decided to write to say that, for the most part, I agree with your evaluation. (I'm a spinal-cord-injured paraplegic who uses a wheelchair most of the time; and my educational background is in architectural design—University of Virginia and Boston Architectural Center before my accident in 1974.) I intended to expound a bit on how everyone always goes for the "big" toilet (at least in the ladies' room), so why not make them all accessible; and wheelchair pedestrians frequently find themselves bottlenecked with walking pedestrians at street-corner curb cuts, so why not slope the entire curb; and then I was going to raise the issue of if architects and clients had been more sensitive to wheelchair users and started incorporationg "access" into all their new designs as a matter of practice, the Americans with Disabilities Act would not have been necessary. For 10-15 years now, the government has offered tax breaks for any establishment serving the public if they spent to imrove "access." Instead many chose to spend on geraniums.

But then I turned the page and gandered in awe at Stern's Ohrstrom Library. It really appears to be a gem. Reading through, I flip to the plans, and, as is my habit since 1974, look for accessiblilty—i.e., access ramp and toilet facilities and elevator. From what is reproduced on page 60, I can only find steps to get into the building, do see an elevator, but it appears there's only one toilet I could use—it's on the main floor and accessible only if the door swings out into the hallway.

Surely, money was not a consideration for this building. Surely a gorgeous ramp down around the diagonal of the chimney tower, incorporated perhaps with a seating area and/or planter, could have worked. Surely . . . See what I mean? Now you, or St. Paul's, or Stern might say that this wheelchair user won't be using the Ohrstrom Library, so why make it accessible? But I counter—

Continued on page 22

November 12-January 3
"Contemporary Architecture from Slovenia," National Institute for Architectural Education, 30 W. 22 St., New York City. 212/924-7000.

November 18-December 13
"Boulevard/Manhattan," work of the Hudson Studio. Buell Hall, Columbia University. 212/854-3414.

November 16-17
"Converging Lines: Architectur Beyond Boundaries," School of Architecture, University of Cali fornia, San Diego. 619/534-3120

November 20-21
"Build Boston '91—Building Globally," World Trade Center, Boston. Sponsored by the Boston Society of Architects. 617/951-1433 ext. 236.

November 20-March 31
Urban Land Institute Awards for Excellence. National Building Museum, 401 F Street, Washington, D. C. 202/272-2448.

Through November 30
"Gaetano Pesce," Peter Joseph Gallery, 745 Fifth Ave., New York City, in conjunction with Tel Aviv Museum of Art (through January 4). 212/751-5500.

December 6-7
"Energy, Environment, & Architecture," symposium sponsored by the AIA Commit tee on the Environment, in conjunction with EcoExpo, a trade show. Sheraton Colony Square and Georgia World Co gress Center. 202/626-7452.

Through January 1
"Austrian Architecture and D sign: Beyond Tradition in the 1990s," Art Institute of Chica Michigan Ave. at Adams St., Chicago. 312/443-3600.

January 24-27, 1992
National Association of Home Builders Convention, Las Veg Convention Center. 800/368-5242 ext. 233.

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Prospects for African-American Architects: A Time for Basics

Earlier this fall I was sitting in the eighth pew of Ebenezer Baptist Church in Atlanta, listening to pastor Reynolds deliver his sermon from a pulpit that had served Martin Luther King, Jr., as well as Dr. King's father and grandfather. I was flanked on all sides by members of the National Organization of Minority Architects, whose convention I had been asked to attend and address. Despite Reverend Reynolds's stirring delivery and the moving music, my mind began to stray to impressions of two days of the most intensive conventiongoing of my life. On the surface the issues were typical—reaching the corporate and public client, networking, legislation, education, alternate career choices, media visibility.

This was surface. Beneath, there roiled powerful currents of hope and despair, faith and alarm, confidence and resentment. How, went the refrain, can African-American architects, 130 years after emancipation and at the end of a generation of civil-rights initiatives, get out from under a pattern of rejection and find more work, more recognition, and a greater impact on the national agenda? Among the concerns, gleaned from scores of conversations with architects and students:

- "Your standards for accepting work for publication ignore the special cultural influences black architects bring to the table."
- "We are mostly considered for work that no one else wants."
- "Retention rates for black architectural students are abysmal."
- "We are not developing the critical mass of members to make a difference."

It wasn't easy to stand before this concerned group and say things that are true but not always palatable. *Item:* the causes for the dropout rate of minority students are economic rather than racial. *Item:* one reason why more black work isn't published is that odds against *any* firm's work being published in any but a post-age-stamp-size news story are very long. Another reason is that black firms mistakenly believe that the major magazines are interested only in star projects by star designers and spurn modest-sized work by unknowns. (As I told the group, you must help us: don't always count on us to find you.) *Item:* why some black architects (like any architect) lose out on choice work may be due to poor marketing.

Also unsettling was the matter of cultural roots. The culture of Africa, I was told, is different from the Eurocentric cast of prevailing U. S. styles, and must be expressed, if not in style, then in attitudes. But what are the specifics of such cultural influences? Is there indeed one "African" culture, or a series of cultures?

Booker T. Washington wrote in 1901 in *Up From Slavery:* " . . . any man, regardless of color, will be recognized and rewarded just in proportion as he learns to do something well—learns to do something better than someone else . . . " Serving on the design-awards jury, I had no trouble finding worthy projects. Design *quality* is not at issue. Minority architects need to use roads to success that happen to work for all firms. There are enough helpful articles, books, and workshops. It is wrong, moreover, to expect one-of-a-kind bursts of publicity, such as Spike Lee's film *Jungle Fever,* to have any long-term impact, good or bad. The only road is a long, creative, persistent fight, using proven methods for becoming known and performing superbly.

Black architects have heard this one before. It's still the best course.
Stephen A. Kliment

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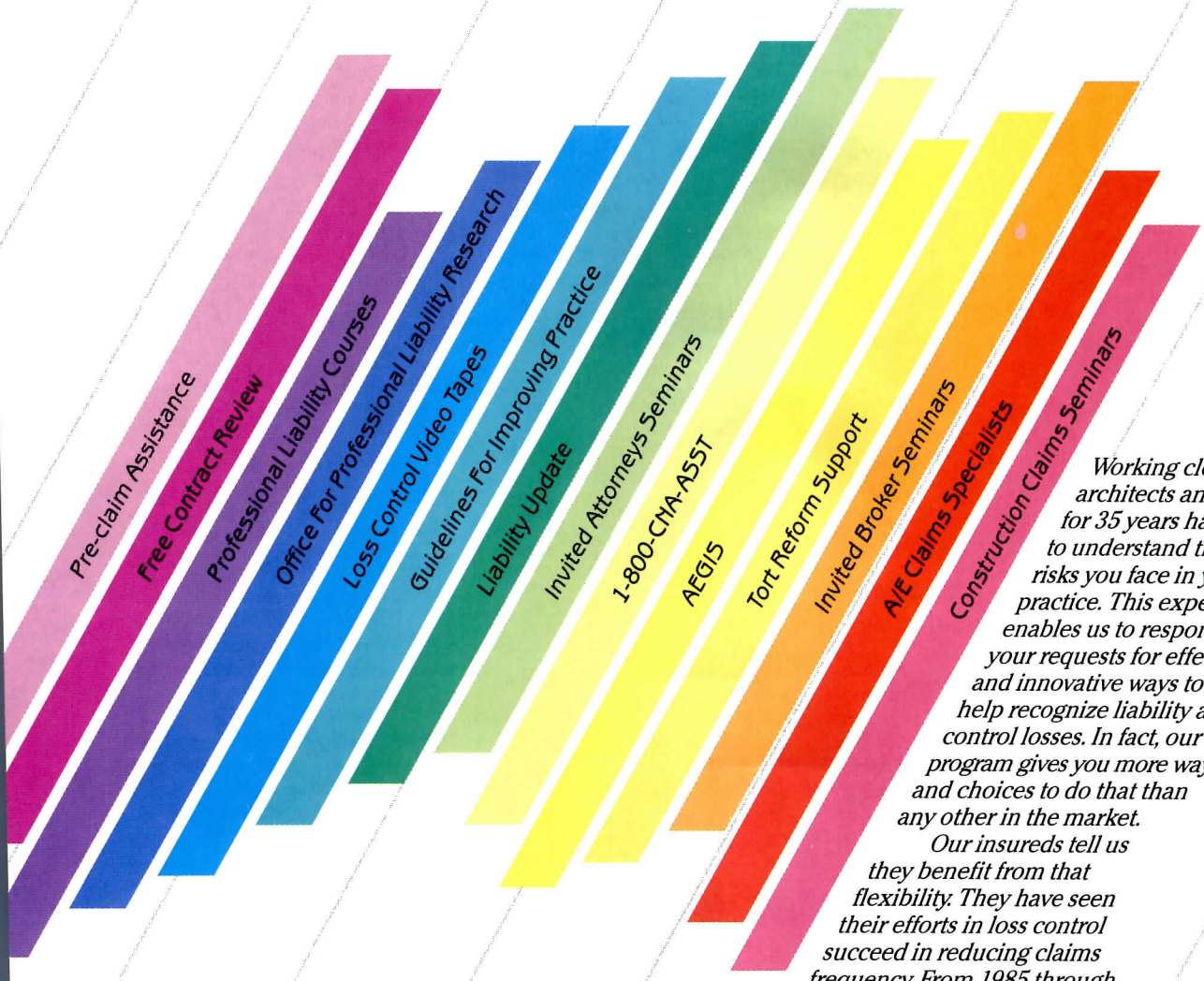

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Continued from page 4

why not? Apart from the fact that I liked the building very much in the pages of RECORD and might want to experience the space, I am the mother of two children, ages 14 and 11, whose educational pathways might lure me to St. Paul's.

Don't think I'm bitter. I just want to try to help raise consciousness toward this issue. And your articles just happened to catch my eye this morning. I felt I needed to respond, to make the point, as you did when you mentioned Corbu, that the sooner architects become sensitive to accessibility and incorporate it innately in design, rather than confronting it as an obstacle to be fought, the better off we all will be—and the building will have integrity, beauty—and accessibility! And maybe no one will have to sue.
Quincy Ryland Dedes
Richmond, Virginia

Birkerts cover-up?

Two things about your August issue: One, I find Gunnar Birkerts's architecture ["Solid Geometry," pages 64-75] to take on forms that often overwhelm the spaces they create. It is a form-specific architecture to which the spaces appear as mere surrogates with incidental duties to fit program requirements. Second, the substance of Birkerts's Turin Mixed-Use Center sketches as front-cover material—even in the context of a talented architect's project in progress—reeks of intellectual idolatry, fast-backward regression and an unnecessary anxiety to be different. All the more so indeed when you left no room for the real thing when completed! Will the back cover then do to even the score? It's a tough act to follow.
Cheikh T. Sylla, President
SYLLA Architects/Planners
Tampa, Florida

Adding to Salk

On a particular occasion, poet Robert Frost was asked to give a recital. The gentleman who introduced Mr. Frost took the opportunity to deliver a rather lengthy analysis of one of his works. When Mr. Frost finally took the speakers' platform, he thanked the gentleman for the insights; he, himself, had never thought of them. It is not that the comments were invalid; it is just that they were not what was guiding the poet. They were not the essence of his work.

Creating architecture is a lot like writing a poem. It does not spring from one's head complete in detail, with symbol and meaning inseparably meshed. It is the result of a patient process: working through alternatives in direction and expression to establish what is most important, what to say about it and how best to say it. Once one is satisfied in

his respect, the work can take on subordinate layers of meaning and color. At some point, others will gain insights the author did not anticipate and may not have been germane to the original concept.

I make these comments with respect to the ongoing discussion regarding the proposed addition to the Salk Institute described in your recent editorial ["Adding to a Masterpiece," RECORD, August 1991, page 9]. Any addition will certainly change some aspect of the space, but one must keep in perspective what would be changed and what would be strengthened. Kahn certainly understood that the institution would grow and change. The design finally chosen to be built testifies to this. The clarity of expression, the sense of the place and its relationship to the landscape is unmistakable when you stand surrounded by the buildings, the sky and the horizon. None of these things is diminished by the proposed addition. The only thing lost is a romanticized entry sequence.

No one can say what Louis Kahn would have recommended; he is not here to tell us, so we only have the legacy of his work to inform us. What we know is that Salk Institute is a living place of vital research and dialog. We know that Kahn gave lucid expression to the "institutions" housed in the buildings and set them in a spectacular landscape in a way that elevated both building and landscape. He made the buildings not only inspire the work, but accommodate it. The facilities must grow in order for this to continue. We must endeavor to understand what guided the poet and what was essential to his vision, and not become distracted by what others have subsequently added. Through this, we can insure both the survival of a great work of architecture and the vital institution it contains.

Peter M. Mitsakos, AIA
Los Angeles

Corrections

The firm mentioned in the editorial "Unsung Hero(in)es" [RECORD, September 1991, page 9] should have read "Jung/Brannen Associates."

The photo credit on page 121 of the October 1991 RECORD ["Strong Medicine"] should have read "©Wolfgang Hoyt photos."

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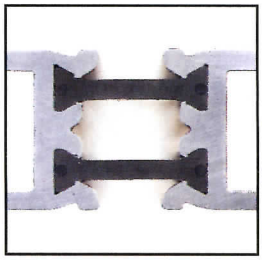

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Spain

Guggenheim Asks Gehry to Design New Expansion Museum for Bilbao

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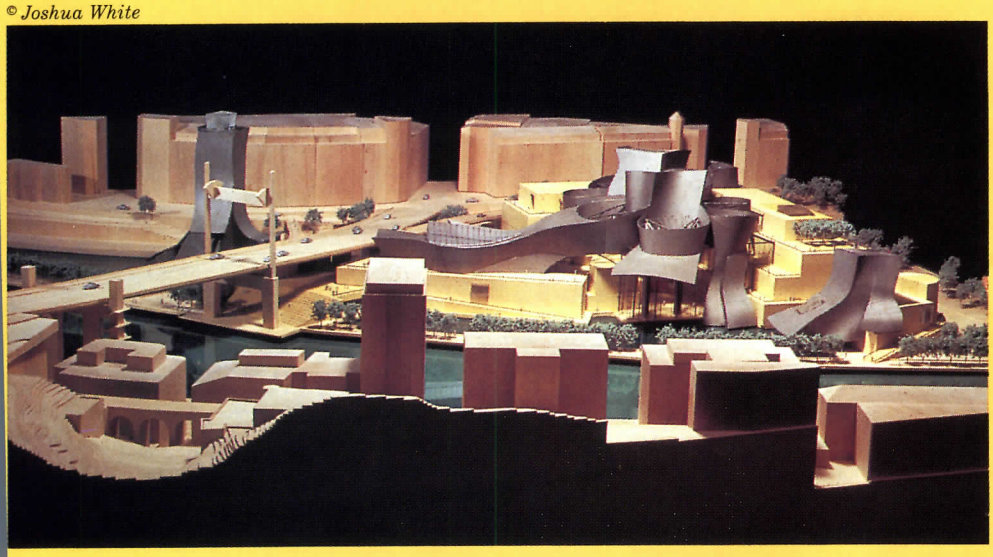
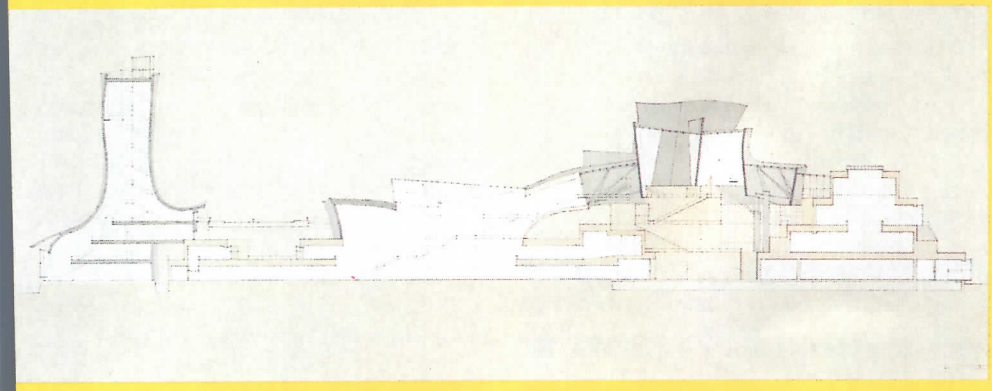
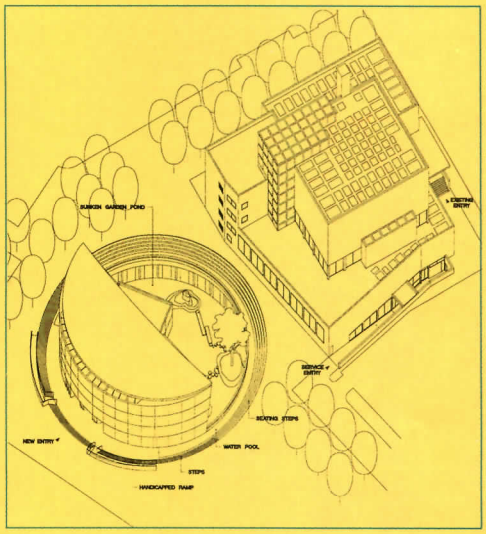


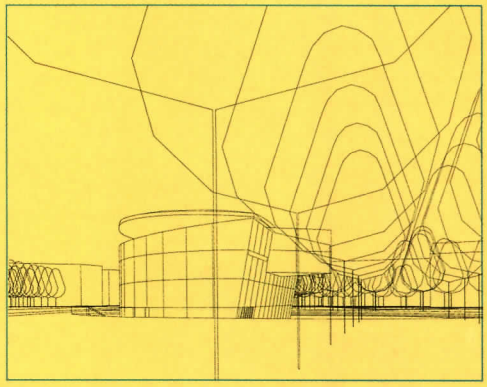


"My idea of heaven" is how Frank Gehry describes the site of his proposed museum of modern art in Bilbao, Spain. For Gehry, heaven takes unexpected form: the riverbank of a bustling port city on the Bay of Biscay, bisected by a bridge that connects a former shipping yard with the city's Colonial quarter on the opposite side of the river. The California-based architect's scheme shows the future home of yet another Guggenheim-operated facility [RECORD, March 1991, page 41] curving fishlike along the waterfront and beneath the imposing bridge before rising dramatically to a 150-foot-high tower gallery (at left in section drawing above), the building overlooks the city's heart. Part of an ambitious billion-dollar redevelopment plan for Spain's fourth-largest city, Gehry's design is shown here in what the architect stresses is "diagrammatic" form. It calls for some 200,000 square feet of permanent- and temporary-installation exhibition space—almost four times the space of Frank Lloyd Wright's Guggenheim "headquarters" in New York City, newly renovated and expanded by Gwathmey Siegel and scheduled to reopen in the spring. If all proceeds according to current plan, the Bilbao museum will open in September 1995. *K. D. S.*

The Netherlands

Kurokawa Plans Van Gogh Addition

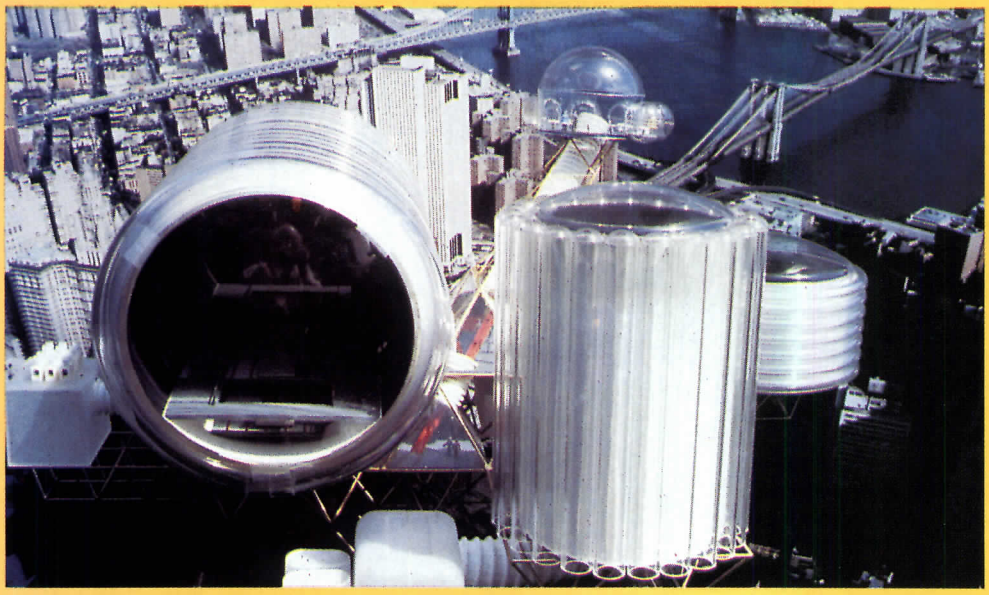




Kisho Kurokawa's design for an addition to the Van Gogh Museum in Amsterdam is the latest evidence of Japan's affection for the Dutch Postimpressionist painter. The $20-million extension is being underwritten by Yasuda Fire & Marine Insurance, which paid almost $40 million for Van Gogh's *Vase with Sunflowers* in 1987. Separated from the main building and accessible through an underground passage, Kurokawa's semi-circular pavilion stands in a pond sunk 65 feet below grade. The curved front wall is closed, with windows under the uptilted roof lighting the two-story exhibition space. *Tracy Metz*

Future New York

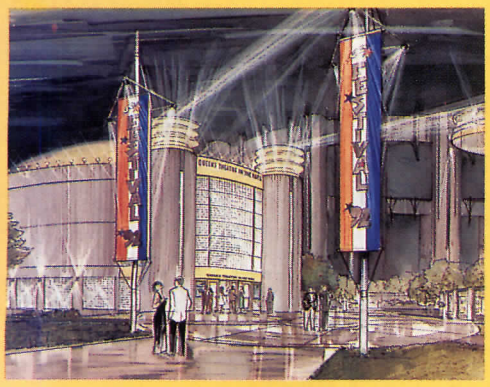
John Johansen's Experimental Theaters Float Above Gotham



Architect John Johansen has produced his Experimental Theater Center, the latest in a series of "symbiotic buildings." The Theater Center is made of lightweight materials for placement on urban rooftops. Access to the center is provided by a "levitator," a cable car sans cables that is propelled by a linear induction motor, a cableless technolgy now used in elevators in Japan, says Johansen. The motor, attached to the exterior of the building, carries passengers from a street-level entry in people-moving tubes to a lobby that offers access to the center's three theaters: Theater of Simultaneity, devoted to horizontal motion; Theater of the Divine Comedy, to vertical motion; and Theater of the Eternal Return, to cyclical motion. These lightweight structures are enclosed in separately formed "air frames." Johansen, whose research in electromagnetic structures is funded by the a grant from the Graham Foundation, sees the air structures as living organic form, energized by the "fibrovascular" system of the people-moving tubes. His target date for feasible construction: 2020. ■

New York

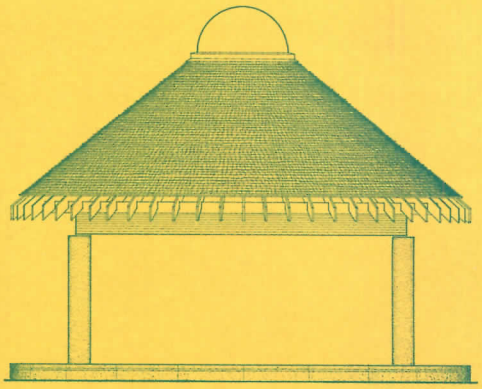
Theaterama Restored in Philip Johnson's 1964 World's Fair Pavilion



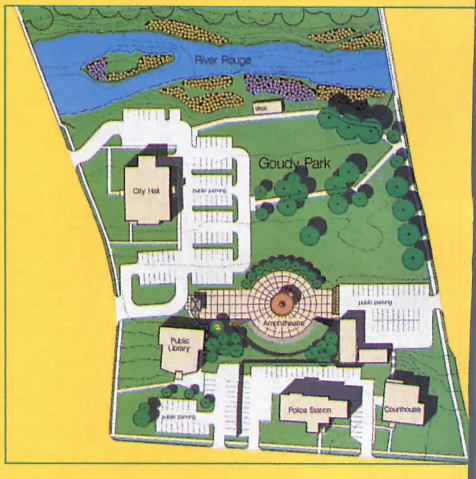
Philip Johnson's Theaterama, part of the New York State Pavilion at the 1964 World's Fair in Flushing, is being transformed with $3 million in public funds by New York City architect Alfredo De Vido into the Queens Theater in the Park. The building has remained largely unused since the fair. Now De Vido is restoring the exterior, putting a 500-seat theater on the main level and a 100-seat theater on a lower level. De Vido is adding two cylindrical shafts enclosing stairway and elevator; a new entrance lobby connects these to the theater. ■

Michigan

Stage Is Set for Downtown Wayne

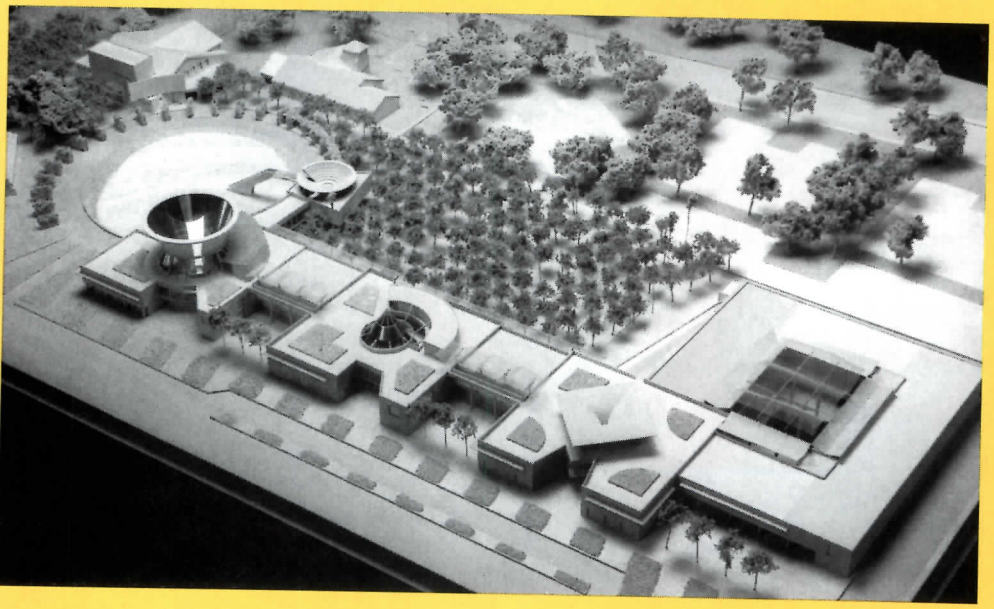


The Goudy Park Amphitheater, by John Davids of TMP Associates in Detroit, sits atop an existing underground reservoir in downtown Wayne. The pocket park is ordered on one side by the Rouge River and on the other by downtown Wayne, including city hall, public library, and police station (site plan below). The year-round amphitheater hosts music and drama, as well as community festivals; in winter, the 120-ft diameter plaza can be flooded for ice skating. The gazebolike stage pavilion (top), built of cedar with copper flashing, is open to provide views from the seating tiers to the river beyond. A structural/lighting grid aids transition from the reservoir's supporting columns to the stage's circular form. The amphitheater and surrounding park, which replaces a vacant asphalt lot, are part of an ongoing effort to transform the industrial clutter along the banks of the Rouge into public urban places. When finished in mid-April, says Davids, Goudy Park should "knit things together a little bit." *P. D. S.*



California

Santos Team Wins Perris Civic Center Competition



The Southern California town of Perris chose a design by architect Adele Naudé Santos, landscape architects Wallace Roberts & Todd, and artist Mathieu Gregoire in a national competition for a civic center. The site provides a municipal focus for this rapidly growing community (pop. 28,000, up from 7,000 four years ago). The design includes the reflective "Skycatcher" over the city hall, a wind tunnel, a pool in police headquarters, and stretches of grass atop the entire scheme. ■

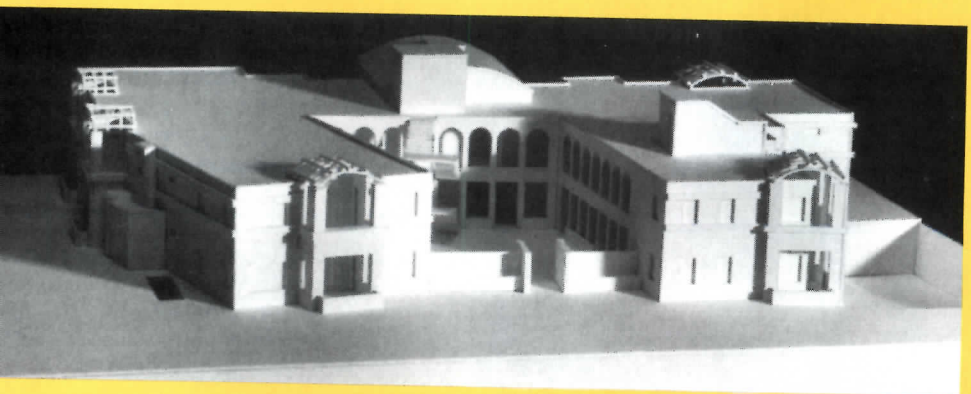
New York / Austria

Hollein's Grand Bösendorfer

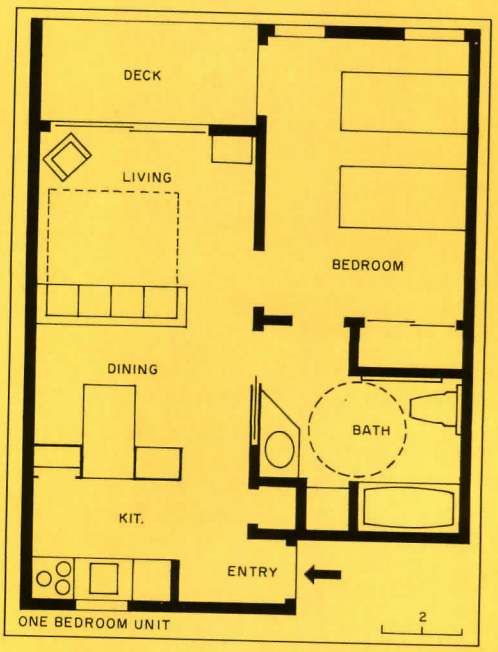
Hans Hollein has concocted a grand piano for Bösendorfer of Vienna, continuing a 125-year Bösendorfer practice of commissioning Austrian architects and designers. Hollein crafted a gold-inlaid lid that opens at the touch of a button and remains up without visible support. Unveiled in October at Designer's Saturday at the International Design Center of New York, the piano anchors a traveling show of Hollein's work sponsored by the Chicago Athenaeum and Bösendorfer parent Kimball International. ■

California

New Housing for AIDS Patients Stresses Privacy



rinstein/Daniels of Culver City designed e 17-unit New Hope Residence for the IDS Ministry of the Episcopalian Diocese San Pedro, inspired by Irving Gill's courtrd houses. Set in a quiet neighborhood, ew Hope has 11 one-bedroom units (550 sq ft) and six two-bedrooms (870 sq ft), with each bedroom large enough for a companion or caregiver's bed. The courtyard and entry/security kiosk offer privacy and community. The diocese has designated two more sites for these urgently needed homes. *P. D. S.*



U. S. Pavilion a Biennale Standout Amid Exhibit Excesses

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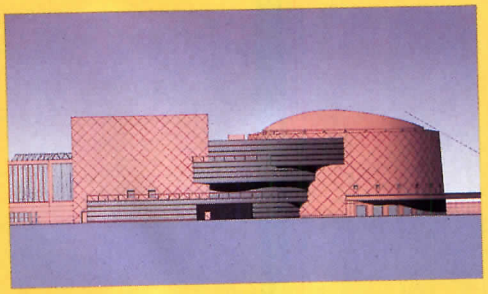
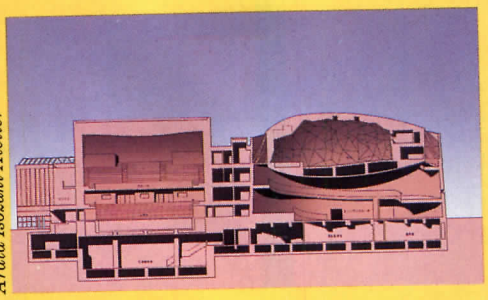




Arata Isozaki Atelier

3

Timothy Street-Porter photos

4

The panoply of architecture shown at Italy's Venice Biennale this September was an ambitious extravangaza—"the largest and most comprehensive architecture review ever realized," according to exhibition director Francesco Dal Co. On view from September 8 to October 6, the show featured work from 29 countries and 43 architecture schools. Entries for three Biennale-sponsored competitions were also displayed—one for the new Lido Cinema Palace that is the home of the Venice Film Festival, won by Spain's Rafael Moneo; another for the "Gateway to Venice" at the city's Piazzale Roma, won by British architects Edward Jones and Jeremy Dixon; a third for a new design for the reconstruction of the Italian Pavilion, awarded to Francesco Callini. If that weren't enough, two actual structures were finished just in time for the opening. The houseboatlike Electa Bookshop by James Stirling Michael Wilford and Associates with Tom Muirhead *(2)* was strategically placed near the entry to the Giardini del Castello, where the national shows were held. A large V-shaped wooden object by Massimo Scolari signaled the entrance to the Corderie dell'Arsenale.

One apparent aim at some national pavilions was to present sheer quantity. The French gathered together the daunting number of 80 architects under 40, most of whom seemed indebted to Jean Nouvel. *Alors.* The Italians exhibited work by 40 architects, presenting some unfamiliar, even provocative work, but after a while it was all *minestrone.* The Japanese pavilion was refreshing in its focus on five competing schemes for a concert hall in Kyoto, which was awarded to Arata Isozaki *(3).*

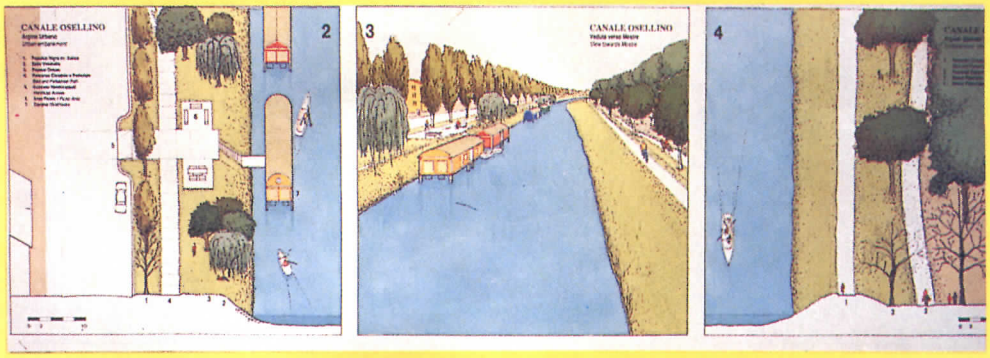
The German pavilion, organized by Vittorio Lampugnani, director of Frankfurt's Architecture Museum, was focused, too—on one (dead) architect, Heinrich Tessenow. Tessenow's clientele in the 1930s included the Third Reich, and many Germans at the Biennale felt he was a peculiar choice. And so it went. Thus, when this year's award fo best national pavilion was given for Austria's straightforward presentation of worl by Hans Hollein, Coop Himmelblau, and ot ers, no one was quite sure why—or, obversely, why not.

The American pavilion, devoted to Frank Gehry's projected Walt Disney Concert Hall *(1)* and Peter Eisenman's design for the University of Cincinnati College of Design, Architecture, Art and Planning *(4)*, exuded an air of bravura showmanship and competitiveness. While pavilion commissioner Philip Johnson's selection had struck many as "the boys again," the installations excelled in the use of environmental exhibition techniques. The show was mounted with private backing from the Guggenheim Museum, the Knoll Group, the Music Center of Los Angeles, the University of Cincinnati, the Contemporary Arts Center, and the Ohio Arts Council.

The computer played a major role in Eisenman's production. Along with polychromatic computer drawings, the display also included a computer-video animation showing how Eisenman's expansion/renovation was "torqued" and "oscillated" to create its "randomly undulant" form. There was even computer music generated by Eisenman reading the text to his exhibit; eerily melanchonic notes boomed forth in a room occupied almost totally by a study/presentation model severed by nine fissures or gaps. Corresponding "shadows," painted circus pink, were projected on the walls and ceiling, alternating with white stripes.

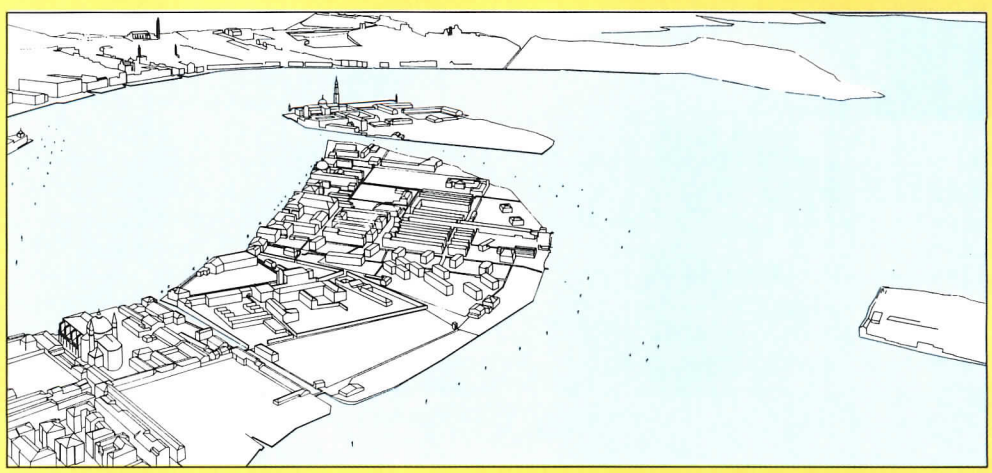
Gehry's presentation of the Disney Music Center emphasized working, study, and presentation models, the latter treated either as large sculptural objects on the floor or as bas-reliefs encrusting the walls. The installation also included music (by the Los Angeles Philharmonic), a film of Gehry discussing the design process for the music hall, plus a 28-by-15-foot-high mock-up of a French limestone wall with a curled edge from Gehry's current scheme. Since changes in the program for the Music Center meant the original competition-winning design was no longer viable, the version on display was a revelation. Yet even this version is not the final, final one. Both Eisenman and Gehry's poetic representations of their architectural intentions were seductive; one, by aestheticizing the intellectual concept; the other, by aestheticizing the design process. Yet if the exhibits distract us from reality, at least they distract us with art and imagination. *Suzanne Stephens*

Historic City Activates Lagoon and Housing Projects



Suburban flight and the burgeoning of "edge cities" are not purely American problems. For decades the residents of Venice have fled their tourist-infested, sinking (and sometimes stinking) but beloved city for the Mestre, a city of 250,000 on the mainland to the northwest. But the area between the island and the Mestre is an industrial wasteland and toxic dump that has devastated the lagoon. "They really screwed things up," says Antonio Di Mambro. Di Mambro runs Comunitas, a Boston-based firm that won an international competition sponsored by the city of Venice to develop San Giuliano, a park that forges a recreational and commuting link between the island city and the Mestre mainland (above). The 1,500-acre cultural/recreational park, on a site that was a fortified gateway to Venice long before it was a chemical dump, reclaims the indigenous marshland critical to the survival of the shallow lagoon ecology. Di Mambro intends the project to serve as a regional prototype for environmentally sound reclamation of former industrial areas, including re-creating the shoreline and waterfront. Within the park are museums devoted to industry, Venetian fortification, and marine technology. The first phase of construction is expected to begin next year.

Despite the disappearing residents, the deteriorating buildings means that housing remains an urgent need. Long delayed by political squabbling, final approval was granted this summer to begin construction on the so-called Institute Autonomous of Public Housing in Venice (below). Portuguese architect Alvaro Siza Vieira won a 1984 competition to develop a master plan for the area. The project redevelops a sprawling 1930s housing project of 335 units at Campo di Marte, a residential neighborhood in a onetime shipbuilding district. Aldo Rossi, Rafael Moneo, and Carlo Ayomnino won a parallel competition to design the apartment buildings. Siza uses two neighboring piazzas as bases for a street axis running through the heart of the community. *Nina Rappaport*



Americans with Disabilities Act

Vaguely Defined Regulations Pose Opportunities, Pitfalls

The Americans with Disabilities Act (ADA) is contained in 300-plus pages of regulations intended to spell out how to provide access to public and private buildings for some 43 million Americans with disabilities. But be warned: the ADA is not a bunch of building codes. It is civil rights legislation aimed at ending discrimination against the disabled. Rather than prescribing specific standards and dimensions, it requires public and private entities to remove architectural barriers insofar as that is "readily achievable," says Ellen Harland, a registered architect and accessibility specialist at the Architectural and Transportation Barriers Compliance Board (ATBCB), an independent agency.

As time passes and lawsuits and other legal procedures mount, a body of case law will accumulate that may provide more specific direction. "It's an effort that will depend on everybody's cooperation," says Harland. "But it's not a hard and definitive formula into which you can plug numbers to determine what is 'readily achievable,' " she says. In some cases, the concept of "alternative service" will be acceptable, but that too will have to be defined over time. Pittsburgh architect and accessibility consultant Dale Lynch worries that there is too much "performance" language that states what is to be achieved without spelling out how to go about it—"prescriptive" language, he says, "is much less error-prone."

But while some see the antibarrier ADA as setting up its own hurdles to design and practice, others see fresh opportunities. The new guidelines represent "a money-making opportunity for architects," particularly if they are already familiar with existing American National Standards Institute (ANSI) standards and the Uniform Federal Accessbility Standards, says Ruth Hall Lusher, director of the Office of Technical and Information Services at ATBCB. The guidelines are based on conditions many architects are familiar with, adds Lusher.

"An architect can show you where barriers exist, and he can show you how to go about removing those barriers," says a spokesperson for the AIA, which helped draft the new rules. "I think a lot of architects are confused about it," she adds. "It's a great opportunity for architects to help clients, but they have to educate themselves first."

Irene Bowen, an attorney in the civil rights division of the Justice Department, which drafted the new rules and released them in July, says the ADA applies to both new construction and alterations. "Existing buildings don't have to be retrofitted totally, but what is 'readily achievable' will be determined on a case-by-case basis." The department has awarded $2.5 million in grants to groups such as the Building Owners and Managers Association to provide training manuals, guidebooks, videos, and other materials.

Title III of the document spells out what facilities are covered—public and commercial facilities ranging from shopping centers to doctors' offices and zoos. Not covered are "entities controlled by religious organizations" including churches and other places of worship, and private clubs. State and local jurisdictions are covered by a separate section, Title II.

Albert Eisenberg, the AIA senior director for federal liaison, thinks "the regulations appear to be pretty reasonable." Important considerations have been codified, such as the requirement for a six-month phasing-in period. This means, in effect, that alterations to buildings and new construction that are begun before the effective January 26, 1992 date would be exempt from the new legislation. Also codified is the 20 percent ceiling on accessibility costs as part of total renovation costs. Copies of the regulations can be obtained at no charge from either the Justice Department (202/514-0301) or the ACTCB (202/653-7848). *Peter Hoffmann*

Handicapped Pupils Get Own School

P. S. 233 (above), which opened this fall in Queens, is New York City's first public school designed for and devoted to the handicapped. The school was designed by local architects Gran Sultan, who worked with P. S. 233 principal Susan Erber on programming for the 100-pupil school. Among accessibility features, the ground-level one-story building has wide corridors for slow-moving, staff-aided students; color-coded classroom entrance alcoves; full-height windows with low sills so students can easily see out. Architect Warren Gran warns against the tendency to view accessibility as an "after the fact" design requirement, which can lead to "awkward ramps and 'back door' entrances." Gran suggests that "accessible buildings potentially make for better places for all users."

Gino Rossetti of Rossetti Associates, whose firm has long incorporated accessibility into its arena programs, agrees. "The ADA is a plus to design," says Rossetti. "Too often the handicapped are shunted off into undesirable areas." Rossetti downplays fears that costs will be prohibitive in new construction, where "there's very little cost differential." Retrofitting is where the expense lies. He has a simple prescription for designers stumped by working with the handicapped: "Put yourself in their position. You can't get any more specific." Rossetti predicts the rules will find wider support within six months. *P. D. S.*

Conventions

Minority Architects Show Muscle at Atlanta Convention

Celebrating its 20th year, the National Organization of Minority Architects (NOMA) put on a strong display of design talent, cultural initiatives, and down-to-earth workshops as it met in Atlanta for its national convention with the largest attendance ever (see Editorial, page 9). Asked whether eventual success in bringing NOMA members into the American architectural mainstream could spell NOMA's demise, president (and Atlanta architect) William J. Stanley III said firmly "no," claiming that the fight against bias looms as a perpetual challenge. Stanley cited three goals on his agenda: improved communication among minority architects by founding and encouraging local NOMA chapters and local autonomy; stepped-up focus on the role of schools (from grade school through architecture school) in fostering cultural consciousness and excellence; and support of the newly established NOMA archive at Howard University made available by Howard Dean Harry G. Robinson.

At the awards banquet, architect and former Charlotte, North Carolina, Mayor Harvey Gantt urged upon minority architects extra tenaciousness in a society that still expects minorities to ceaselessly prove themselves. He also called for more *pro bono* work in urban communities where, he said, "there is a fire burning out of control."

Design honor award winners were Sulton Campbell Britt Owens Architects of Washington, D. C., for the West Baltimore Medical Center, and a residence in Downer's Grove, Illinois, by Wendell Campbell Associates of Chicago. *S. A. K.*

Outlook

Business and Government Leaders Face the Downturn

"What I really want to say," began Gordon Davis, former New York City Parks Commissioner, kicking off an October breakfast conference packed with design industry luminaries on survival in New York, "is 'may I give you my card?' " The light comment by Davis (second from right) masked a darker mood—the increasingly desperate search for work, private or public—that colored the remarks of the moderator, *New York Times* cultural editor Paul Goldberger (left) and those of the other panelists, Olympia & York executive Meyer Frucher and Manhattan borough President Ruth Messinger (right).

Although the focus of the discussion, cosponsored by the National Institute for Architectural Education, *Interiors* magazine, and leading developers, contractors, and design manufacturers, was squarely on New York City, the message was much broader. "Good work begins with social demographics," remarked Goldberger, making the point that as money tightened, especially for speculative development, the building community must turn to public sector projects. Picking up on the theme, Ruth Messinger called for more neighborhood-based design. Developers, she said, must "engage the clients"—i.e., city residents. Meyer Frucher, who also chairs the city's School Construction Authority, was blunt about the situation for all phases of the industry: "Most of us are out there looking for work." The panelists urged the gathered power brokers to place greater pressure on government and one another to get stalled and new projects going. Frucher, describing a "massive need" for infrastructure work, offered a self-help solution: "Stop lamenting. This group should be on the front lines searching for it." *P. D. S.*

Practice

Briefs

Firm Survey

State and local construction on schools and health care facilities is up, federal work is stable, and—big surprise—private jobs are down, according to the AIA's *1991 Firm Survey*. The survey also says that total billings—half of which came from repeat clients—have increased 5 percent, and insurance premiums have dropped. Copies are available for $95 ($50 for members). To order: 800/242-4140.

Firm Changes

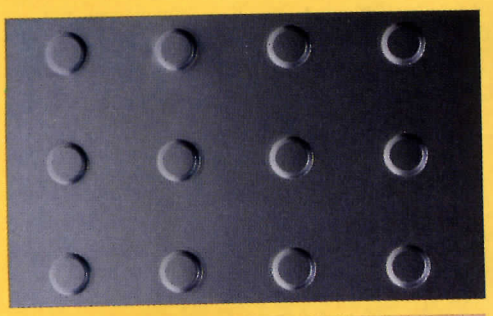
- Perkins Eastman & Partners is the new name of Perkins Eastman Geddis of New York City. Barbara Geddis has opened an office in Stamford, Connecticut.
- Butler Rogers Baskett has merged with Jeremy Lang Architects.

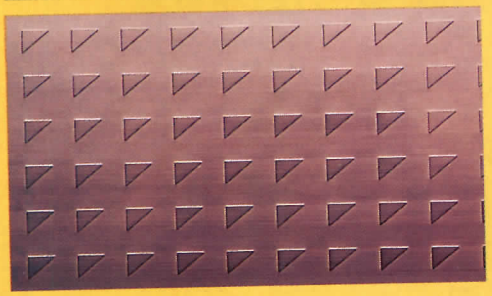
Awards

Architectural photographer Cervin Robinson won the Arnold W. Brunner Award, a national competition sponsored by the New York Chapter of AIA. Robinson proposed a book of black-and-white photographs of American monumental Beaux-Arts architecture and its antecedents, taken so as to show the use of classical orders for new work. ■

Options in Metal Cladding

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





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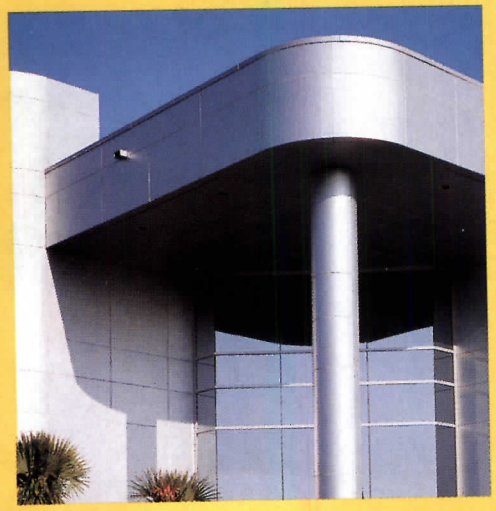

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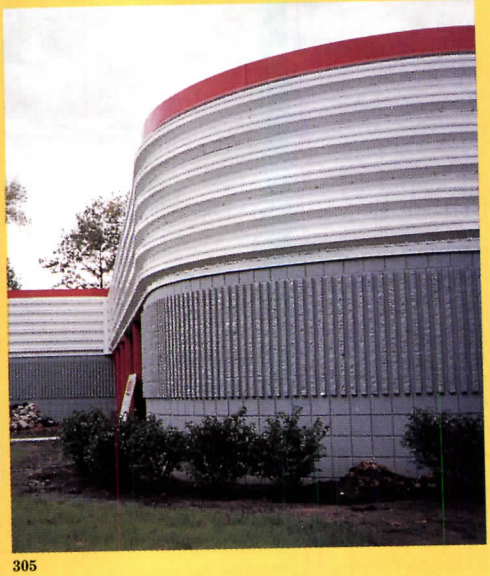

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300. Embossed. MetaBump, a fabricating process that places decorative raised round, square, elliptical, or other "bumps" on 0.04-in.-thick stainless steel or other metals, offers both pattern and finish choices for interior and exterior laminated panels. CAD/CAM techniques make bump shape and placement easy to customize; finishes include directional and nondirectional satin, mirror polish, and interference, enamel, and anodized colors. A. Zahner Co.

301. Curved. P-Cel, a new core material, adds a radius option to Envelope 2000 aluminum-surfaced panels, described as a less-costly way to achieve a high-tech metal look. Wood-, cement-board-, and composite-core panels allow for in-field adaptations such as edge routing. Weyerhaeuser.

302. Shiny. E. W. Smith's Crown Signature panels have a stainless-steel exterior face offered in a bright finish with a visible grain, or in any of seven distinct patterns that increase reflectance. The vertical edges interlock to form a rain-screen detail that minimizes the need for site-applied sealants. E. W. Smith, Inc.

303. Crisp. A composite-core aluminum panel with a Class A fire rating, Reynobond cladding is said to offer excellent fabrication characteristics that permit details like compound curves and tight radii. Options include Kynar finishes in standard and custom colors and panel lengths of over 20 ft. Reynolds Metals Co.

304. Intricate. New alloys that behave like plastic when heated can be formed with custom-profiled tools and dies to create distinctive, deeply shadowed architectural claddings. Features such as ribs, recesses, and logos as well as fastening flanges and details can be incorporated into a seamless metal component in a single press cycle. Superform USA, Div. Alcan Aluminum.

305. Sweeping. Deeply profiled Super-Ri panels were crimp curved to make a sinuou fascia on an industrial building. These Curved Architectural Panels exhibit a lengthened span capacity for a more efficient and economical wall assembly. Steelite, Inc. ■

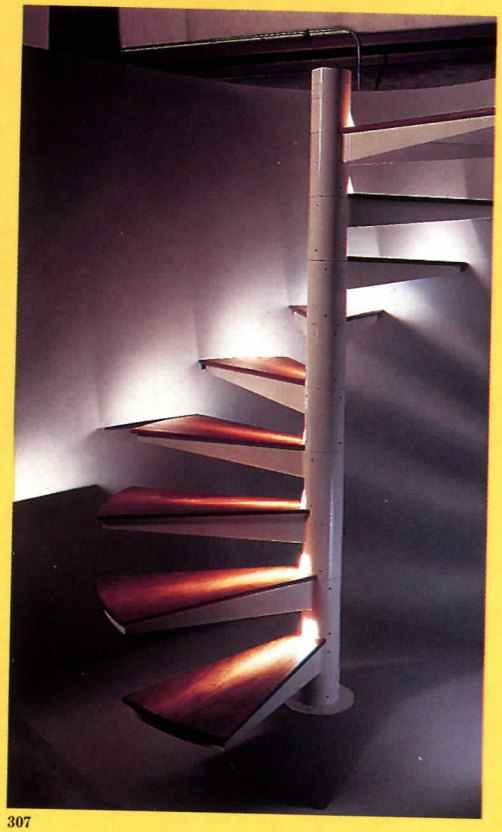
A Place for Everything

06. His corporate-design work with nsler & Associates convinced Brian nneth Graham that management and ff personnel insist on working in piles of per, with files in plain sight (if not always sy to find). In association with Gensler's oduct Design Group and Halcon, a young n out of Minnesota, he developed the enda system, good-looking wood egoods that compensate for reduced uare-footage and increased PC equipment with visually integrated out-in-the-open organizational tools. These allow for vertical filing by providing secondary work surfaces and fold-up readers (top), open-fronted project-active shelves, and "pile-drivers", horizontally shelved stacks. Drawer pulls are smooth and tapered; asymmetrical tops add visual interest. Units pictured are of European steamed beech, a warm-colored, fine-grained wood. Halcon Corp., Stewartville, Minn. ■

Circular Stair

307. Ted Hauri of Boston Design, maker of the spiral Helixstair as well as custom-curved staircases for homes and offices, has developed an illuminated unit that he says significantly advances both safety and esthetics. Two low-voltage bulbs placed within the center column light the tread surface via a 12-mm wide plastic lens, with each step receiving an equal amount of light across its top. A choice of tread materials—grained hardwoods, aluminum diamond plate, or patterned rubber tile—varies the light's effect on the stair as a whole. Other stair designs use the light differently: a tread of frosted glass sends the light upward over the entire surface, or the column-mounted lens is placed so as to highlight the top of the tread. One model illuminates only the stair nosings, creating the appearance of a sparkling helix when ambient light is low. The illuminated Helixstair can be ordered in diameters from 3 ft 6 in. to 8 ft, in 6-in. increments. Boston Design Corp., Boston. ■

Products continued on page 137



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This Month

The theme this month is financial.

• **Construction Volume Outlook.** To the right is F. W. Dodge chief economist, George Christie's tensely awaited, industry-standard annual construction outlook. It is presented each year in Washington, D. C., to a large gathering of invited corporate and government leaders. His forecast: We are starting recovery from recent lows; it will not be as robust as we would like, but a recovery nonetheless.

• **Construction Costs.** Dodge Cost Systems' quarterly report reveals that an upward swing in construction may not mean higher costs—at least not now.

• **Shaping Fees Creatively.** Architect Bradford Perkins reports from the trenches on techniques that architects finely honed in the recession to get decent fees.

• **Promoting the Small Firm.** Marketing consultant Robert Miller tells how small firms can do the most with limited track records and resources by making their time and efforts do double duty.

• **Tight Ships, Loose Mortgages.** Economist Phillip Kidd looks at the economy and sees positive aspects to enduring and surviving a recession.

• **Specification Series: Carpets II.** Specifier Katherine Freeman covers the laying of commercial carpet.

• **Mac, Meet PC.** Computer expert John Hughes reveals how one large firm looked at Mac and DOS and, for now, realizes efficiencies by living in both worlds.

Charles K. Hoyt

Construction Volume Outlook: A New Building Cycle Begins

By George Christie

How you perceive the economy's recovery from the 1990-91 recession depends a lot on your point of view. Incumbent politicians concerned about re-election are inclined to say: "Of course it's happening," and cross their fingers. Business economists say: "It's probably happening," as they hedge their bets. Consumers say: "It won't happen without us," and continue to sit on their credit cards. Bankers ask: "What recovery?" as they unload their nonperforming assets.

Recovery of the construction industry is less controversial, even if it's not all it could be. The industry's leading indicator, the Dodge Index of construction contracting, has been on its way up since early in the year. Nevertheless, a broadly based recovery is still more promise than reality. At the extremes, single-family-house building is coming along nicely, while conditions in the deeply depressed commercial real-estate market have only worsened through 1991.

The Dodge Index establishes that the revival of contracting for new construction began early in 1991. Prior to that, the value of newly started construction of all kinds had fallen from its peak (1989's third quarter) for six consecutive quarters, shrinking by 25 percent along the way. Two quarters of rebound have so far restored only a small portion of that loss.

The 1991 turnaround of construction contracting is just now beginning to pay dividends on the job site. The value of construction put in place, which measures expenditures for materials and wages as work progresses, typically lags contracting by six months. Its last peak in 1990's first quarter arrived right on schedule—two quarters after the peak of contracting. Declining through all of 1990 and half of 1991, construction expenditures now appear ready to follow the Dodge Index upward. Once that occurs, it will be more appropriate to talk about recovery. Meanwhile, a better term to describe activity in 1991 would be "rounding the lower turning point"—the transition from decline to expansion.

Anatomy of the lower turning point

The main issue to be addressed in this 1992 Construction Outlook is renewed expansion of the building business. Before that, it is worth considering what kind of turnaround is in progress:

• *The worst-case scenario* is decline followe by stagnation. But that won't happen until population growth ceases altogether, if eve then, and ZPG isn't due for at least another 50 years. Forget it.

• *Aborted recovery,* a. k. a. the double-bottom recession, is what actually happened th last time around (1980-1982). The risk of fal ing backwards in the near future, however, is low. A premature tightening of credit could do it, but, with inflation under control and the economy's progress in doubt, Fed monetary policy is stimulative—unlike in th early 1980s.

• *Steep decline followed by equally steep recovery* hasn't been experienced since the mid-1970s. To generate a similar recovery i 1992 would require, among other things, a great surge of residential building. With th multifamily-housing market as it is, that simply can't happen.

• *None of the above.* This is the most likely recession/recovery sequence for the early 1990s: steep decline, followed by shallow re covery. The reasons for this condition are a too familiar.

Not playing with a full deck

A supposed side benefit of recession is tha it restores balance to a distorted marketplace. Often it does, but for the building industry this is not one of those times. The excesses of the mid-1980s, which led to the recession of 1990-91, are still far from resolved. They remain as obstacles to the emerging recovery.

redit scarcity: The banking crisis of 1989-
0 may have passed, but its fallout will be a
oud over real-estate finance for years to
ome. Regulation and reform of the banking
ystem have replaced the freewheeling ways
f the 1980s when imprudent lenders heaped
unds on overeager developers.

egulation concerns cleaning up the mess.
or the weakened S&L industry, it means
e taxpayer bailout of more than 10 million
epositors and the liquidation of several
undred billion dollars of questionable as-
ts. For commercial banks, it means
iting down overvalued real-estate hold-
gs, beefing up capital, and tightening
andards on new lending—all of which in-
lve taking sizeable losses.

form is about not letting it happen again.
r the surviving S&Ls, FIRREA has re-
rsed earlier deregulation, ordering thrifts
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ns. Reform legislation covering the big-
commercial-banking industry is still
king its way through Congress.

velopments seem to be gravitating to-
rd a synthesis along these lines:
&Ls are out of commercial real-estate
elopment altogether and will support
idential building on a greatly reduced
le. Mortgages are OK, ADC loans not.
ommercial banking is moving toward
solidation and conservatism. Consolida-
will leave fewer, larger, more-profitable
ks, reducing the number of failures the
IC must cover. High-risk lending (junk
ds, third-world loans, and—yes—com-
cial real estate) has been curtailed to the
nt that the Administration blames over-
ous bank regulators for stalling the
nomy's recovery. In contrast to the high-
/high-yield lending strategy of the
s, safety of principle will be a major con-
ration in the 1990s. Only the brightest
the best of commercial projects will be
ble for financing.

The commercial glut: The other side of the banking breakdown of the 1980s is the unsupportable tax-sheltered building boom that it financed. Certainly, almost every type of commercial building that could benefit from accelerated depreciation—and that includes offices, hotels, shopping centers, apartments, condos, and more—was overdeveloped in between ERTA (1982) and the Tax Reform Act (1987), while buildings were created to shelter income, not people.

The boom reached its peak in 1985. Since then, the annual supply has been reduced by more than half, yet the glut of empty space continues to haunt the construction market. Even at a 1991 building rate far below that of the 1980-82 recession, vacancy rates hang stubbornly high. Until this huge inventory of available space is assimilated, it is academic to consider the recovery of commercial building.

Public priorities: The budget resolution of 1991, which set a new course for deficit reduction after the S&L bailout killed Gramm-Rudman, ostensibly caps most federal construction and other domestic programs to prevent dissipating the peace dividend. Mounting pressure to re-open last year's budget deal based on arms-reduction prospects isn't likely to have much effect on 1992 appropriations. More funds can be made available for one domestic program by cutting another, or by adding a new tax or user fee (which the President threatens to veto). Under these constraints, federal support for construction programs is limited to growth of the tax base itself as the economy recovers.

Things are tighter for state and local governments. Recession has eaten into tax revenue while Medicaid and "corrections" costs continue to soar. Because state governments do not enjoy open-ended deficit financing, states have enacted "extremely austere" budgets for fiscal year 1992. State policy-makers are not confident that even these will stick. Operating expenses are at greater immediate risk than capital projects, but deferral remains an option.

Economic ennui: Nobody ever said that the next cycle of economic expansion would be ushered in by a strong rebound from the mild recession of 1990-91. Nor is this lethargic recovery likely to accelerate soon. The huge federal deficit precludes a tax cut or any other fiscal stimulus, and the Fed's attempts at monetary jump-starts have so far gone largely ignored. A weak recovery without setback remains the assumption underlying this construction forecast. After two years of virtual standstill, total output (real GNP) will expand at an average rate of 3 percent in 1992 and 1993—not impressive at the front end of a business cycle compared to 5 percent during the first two years after the recession of the early 1980s.

One side effect of a half-speed recovery is below-average inflationary pressure. With consumer prices rising at only 3 to 4 percent per year, the Fed has ample room to err on the side of monetary ease. Single-digit mortgage rates are here to stay for a while and will support single-family house sales. Despite relatively low interest rates, however, the *availability* of acquisition, development, and construction loans for income properties will be limited as financial institutions shy away from real-estate investments.

Construction contracting in 1992

Although several unresolved problems left over from the 1980s hinder a clean break from the past, there are several positive forces—also carryovers—that are available to support the construction/building-materials industry through its upcoming cycle. The largest generation in American history has arrived at the age of acquisition. The children of that generation are just reaching school age. A neglected and deteriorating infrastructure must be upgraded. Additions

and improvements to existing nonresidential structures offset depressed conditions in new commercial building.

Building types can be grouped as cyclical or stable. The cyclical group consists of single-family housing and income properties and is approximately three-quarters of the total. Largely privately financed, this group is highly sensitive to financial and economic conditions. The stable group, consisting of institutional and public-works construction, is funded mostly by federal, state, and local governments, and is relatively insulated from the volatility of the money market.

Single-family housing

Normally one of the most volatile of all building categories, this enjoyed a period of uncharacteristic steadiness through the mid-1980s. Inevitably, however, it ended the decade with a crash in the midst of credit crisis and recession. Before the crash, output held close to one million units per year from 1983 through 1989. Favorable demographics and relatively steady mortgage rates provide the explanation. During the second half of the 1980s, an exceptional 9 million people joined the ranks of the 35- to 54-year-olds. This is the prime group for buying houses. With as many folks entering midlife in the early 1990s, we'd probably still be turning out a million houses a year except for the S&L collapse and the recession. Instead, single-family starts averaged only 825,000 in 1990 and 1991.

This huge market is the building industry's main chance for recovery in the near future. The demonstrated potential of one million units per year is still there, and to regain it means an improvement of nearly 25 percent over 1991's estimated total of 810,000 units. The economy's recovery from its recent recession will remove one obstacle, but events of the past several years have shaken consumer confidence and left the thrift industry a hollow shell. To expect a typically strong, first-year rebound in houses is not realistic.

Geography adds another dimension to the decline/recovery sequence. Two regions—the South Atlantic and the West—together account for slightly more than half the national annual potential. During the 1990-91

1991 National Estimates Dodge Construction Potentials

		1991 Preliminary	1992 Forecast	Percent Change 1992/91
Nonresidential Buildings				
Floor Area (millions of sq. ft.)	Office Buildings	100	95	– 5
	Stores and Other Commercial	360	345	– 4
	Manufacturing Buildings	105	100	– 5
	Total Commercial and Mfg.	565	540	– 4
	Educational	160	155	– 3
	Hospital and Health	67	65	– 3
	Other Nonresidential Buildings	146	145	– 1
	Total Institutional and Other	373	365	– 2
	TOTAL NONRESIDENTIAL BUILDINGS	938	905	– 4
Contract Value (millions of $)	Office Buildings	$ 12,375	$ 12,350	
	Stores and Other Commercial	19,100	18,900	–
	Manufacturing Buildings	7,950	7,875	–
	Total Commercial and Mfg.	$ 39,425	$ 39,125	–
	Educational	$ 17,225	$ 17,050	–
	Hospital and Health	9,100	9,025	–
	Other Nonresidential Buildings	15,525	15,875	+
	Total Institutional and Other	$ 41,850	$ 41,950	
	TOTAL NONRESIDENTIAL BUILDINGS	$ 81,275	$ 81,075	
Residential Buildings				
Dwelling Units (thous. of units)	One Family Houses	810	975	+ 2
	Multifamily Housing	190	200	+
	Total Housekeeping Residential	1,000	1,175	+
Floor Area (millions of sq. ft.)	One Family Houses	1,465	1,770	+ 2
	Multifamily Housing	210	220	+
	Nonhousekeeping Residential	30	30	
	Total Residential Buildings	1,705	2,020	+
Contract Value (millions of $)	One Family Houses	$ 83,300	$103,325	+
	Multifamily Housing	12,150	13,125	+
	Nonhousekeeping Residential	3,250	3,300	+
	Total Residential Buildings	$98,700	$119,750	+
Nonbuilding Construction				
Contract Value (millions of $)	Transportation Construction	$ 28,750	$ 30,250	+
	Environmental Construction	14,800	15,200	+
	Total Public Works	$ 43,550	$ 45,450	+
	Utilities	$ 5,000	$ 5,200	+
	TOTAL NONBUILDING CONSTRUCTION	$ 48,550	$ 50,650	+
All Construction				
Contract Value (millions of $)	**Total Construction**	$228,525	$251,475	+
	Dodge Index (1982=100)	145	160	

1991 Regional Estimates Dodge Construction Potentials

Construction Contract Value (millions of dollars)	1991 Preliminary	1992 Forecast	Percent Change 1992/91	1991 Preliminary	1992 Forecast	Percent Change 1992/91
Northeast CT, ME, MA, NH, NJ, NY, PA, RI, VT						
Nonresidential Building				**Residential Building**		
Commercial and Manufacturing	$ 6,925	$ 6,600	–5	One Family Houses	$ 9,950	$12,225	+ 23
Institutional and Other	8,250	7,975	–3	Multifamily and Nhskpg.	3,100	3,050	– 2
Total	$15,175	$14,575	–4	**Total**	$13,050	$15,275	+ 17
Nonbuilding Construction	$10,225	$10,550	+ 3	**TOTAL CONSTRUCTION**	$38,450	$40,400	+ 5
North Central IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI						
Nonresidential Building				**Residential Building**		
Commercial and Manufacturing	$ 9,200	$ 9,375	+ 2	One Family Houses	$18,950	$22,800	+ 20
Institutional and Other	9,150	9,425	+ 3	Multifamily and Nhskpg.	2,975	3,175	+ 7
Total	$18,350	$18,800	+ 2	**Total**	$21,925	$25,975	+ 18
Nonbuilding Construction	$10,400	$10,950	+ 5	**TOTAL CONSTRUCTION**	$50,675	$55,725	+ 10
South Atlantic DE, DC, FL, GA, MD, NC, SC, VA, WV						
Nonresidential Building				**Residential Building**		
Commercial and Manufacturing	$ 7,100	$7,025	–1	One Family Houses	$19,450	$24,775	+ 27
Institutional and Other	8,525	8,150	–4	Multifamily and Nhskpg.	3,450	3,850	+ 12
Total	$15,625	$15,175	–3	**Total**	$22,900	$28,625	+ 25
Nonbuilding Construction	$ 8,000	$ 8,400	+ 5	**TOTAL CONSTRUCTION**	$46,525	$52,200	+ 12
South Central AL, AR, KY, LA, MS, OK, TN, TX						
Nonresidential Building				**Residential Building**		
Commercial and Manufacturing	$ 5,575	$ 6,125	+ 10	One Family Houses	$11,475	$15,275	+ 33
Institutional and Other	6,350	6,575	+ 4	Multifamily and Nhskpg.	1,325	1,675	+ 26
Total	$11,925	$12,700	+ 6	**Total**	$12,800	$16,950	+ 32
Nonbuilding Construction	$ 8,275	$ 8,600	+ 4	**TOTAL CONSTRUCTION**	$33,000	$38,250	+ 16
West AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY						
Nonresidential Building				**Residential Building**		
Commercial and Manufacturing	$10,625	$10,000	–6	One Family Houses	$23,475	$28,250	+ 20
Institutional and Other	9,575	9,825	+ 3	Multifamily and Nhskpg.	4,550	4,675	+ 3
Total	$20,200	$19,825	–2	**Total**	$28,025	$32,925	+ 17
Nonbuilding Construction	$11,650	$12,150	+ 4	**TOTAL CONSTRUCTION**	$59,875	$64,900	+ 8

Prepared by the Economics Department McGraw-Hill Information Services Company, George A. Christie, vice president and chief economist.

decline, these two—along with a third, the boom-and-bust Northeast—absorbed the entire national decline. Building in the three coastal regions fell 25 percent, while the two central regions held steady. National output slipped from nearly full realization of its prerecession potential to 77 percent this year.

Six months of recovery (1991's first quarter to third) show that house building is up in all five regions, but with little uniformity. Only the West so far resembles the national rate of recovery at 20 percent (seasonally adjusted). The rustbelt regions—the Northeast and the North Central—along with the South Atlantic are leading the recovery with gains of 30 to 35 percent, while the South Central is trailing with a nominal 10 percent improvement over its recession low. With most of 1991 now history, it is evident that recovery is "too little/too late" to avoid another decline of the national total for the year as a whole. As bad as that sounds, however, it compares favorably with the two-year cyclical low of 650,000 units during the 1981 and 1982 slump.

In the first full year of recovery—1992—the "Coastal Three," which bore the brunt of the 1990-91 decline, are the obvious candidates for maximum gain. None of them is likely to make it all the way back to pre-1990 volume in 1992, but two—the South Atlantic and the West—will come close. The Northeast will not. These regional variations add up to a national total of 975,000 starts for 1992, a gain of 20 percent. By the second half of the year, the annualized rate of building could slightly exceed one million units, and will then stabilize for the next few years.

Income properties

F. W. Dodge definitions differ from those of the Department of Commerce. Dodge considers some types of townhouses, for example, as multifamily that Commerce classifies as single-family. The grouping of multifamily housing with offices, shopping centers, hotels, and other commercial real estate gathers all the problem markets together in one untidy bundle. All were participants in the mid-1980s tax-shelter boom; all were vastly overdeveloped; and all were in decline long before the recession of 1990-91 came along.

The decline and fall of the income-property group since its 1985 peak (at 1.85-billion square feet) hasn't played according to the standard cyclical script any more than single-family housing has. Ordinarily, commercial building—like other forms of business-capital spending—is a victim of recession and follows the general economic downturn. This time it was ahead of the action by several years. It underscores what unusual times the 1980s were.

It is probably safe to say that the 1990-91 recession has finally established the bottom of the six-year slide of contracting for income properties. What is needed to turn it up?

- Recovery of the economy is one requirement, of course. It appears to be happening, although you have to look hard for evidence. Even when recovery is confirmed by rising income and employment, there's the usual business-investment lag. Experience shows that it can take as much as a year to bring idle capacity into use, and that applies to offices and shopping centers as well as factories. Latest plans for business-capital spending have been scaled back from earlier this year, as business has decided to sit this recovery out for a while longer.
- When business is ready to expand, will bankers be ready to finance it? Presently, most lenders would rather reduce their inventory of overvalued commercial real estate. Furthermore, banker resistance to real-estate development will last as long as the existing surplus of space does. Its assimilation is the other prerequisite to recovery and the prospect isn't encouraging.

In the six years since commercial building topped out, the annual supply of new space has been halved, yet vacancy rates remain stubbornly high and steady. No single event explains this stickiness. As the building boom receded from its peak, it took several years before diminishing supply came into line with the underlying demand for commercial space. Then recession took a large bite out of demand. Almost unnoticed, demographics crept into the equation. Young adults who increase the workforce are at the core of the demand for commercial properties—offices, apartments, stores, and hotels. It was during the second half of the 1980s that the baby bust of the late 1960s and early 1970s began to reach young adulthood. The implications for commercial building are profound. In the second part of the 1980s, growth of this 18 to 35 age group was half the first part. In the first half of the 1990s, *it will shrink by 5 million people.*

Stability of commercial contracting in 1992, following the large back-to-back declines during the recession years, is the best that can be expected for the near term. Next year's office building is forecast at 95 million square feet (-5 percent), retail building at 345 million (-4 percent), and hotels/motels at 30 million (unchanged). With little prospect for near-term improvement in deeply depressed multifamily housing, total square footage for income property will remain close to where it is for another year or more.

Institutional buildings

Annual square footage of new institutional construction hasn't varied more than 2 percent in the last four years, despite upheaval in the credit markets and recession. And 1992 will make it five in a row. The inherent stability of institutional building (schools, health-care facilities, public-administration buildings) stems partly from its close link to slowly changing demographic developments and its relative independence of the money market. Nevertheless, the apparent stability of total institutional building conceals important dynamics of its major components.

There are cycles in institutional building, but they aren't the kind normally associated with the volatile construction business. Institutional-building cycles tend to be generational, the classic case being the impact of the '50s generation on the nation's educational system during the '60s and early '70s. Now it's happening all over again. The echo of the baby boom—the resurgence of births which began in the mid 1970s—reversed a decline of educational building in the early 1980s, giving rise to a new wave of building. Since the 1981-82 low, square footage has increased every year. By 1990, primary-school construction had tripled; high-school building had doubled. College expansion was negligible. . . until now. Educational building is not only the biggest part of the institutional category, but is also the most predictable.

Contracting for health-care facilities, (hospitals, clinics, nursing homes), which depend on both public and private sources of funding, is more complex. As the population ages, its needs for health-care facilities naturally increases. This built-in growth trend, however, has been temporarily interrupted.

During the mid-1980s, a mini-boom in construction of clinics and nursing homes was superimposed on the underlying trend, and it bore a striking resemblance to the tax-shelter boom that was so prevalent in commercial real-estate development at the time. But unlike the commercial-building collapse since tax reform, health-care construction has experienced no worse than a gentle letdown over the past few years. Apparently the strong demographic support behind the health-care industry is largely responsible for the different outcome, and little, if any, further decline is anticipated.

Another category of institutional construction that has shown extraordinary expansion—from less than 20 million square feet in 1980 to the current 40-plus million—is public buildings. It is a sad commentary on the past decade that prisons now make up more than half of this total, up from 25 percent over the ten-year span. A recent compilation of states' plans for 1991-92 indicates a further sizeable increase.

Although the same needs that have supported a high volume of total institutional building, even through the 1990-91 construction recession, are still as pressing as ever, they are temporarily in conflict with a fiscal squeeze on state governments. As priorities are reordered, a token deferral of building programs may be an appropriate gesture. For 1992, it would be prudent to anticipate a minor setback of institutional contracting of up to 5 million square feet (a nominal 1 percent of current volume), which would be confined largely to educational building.

The future ain't what it used to be

So goes a quote by L. P. Berra. It's been the second down year in a row for construction contractors and building-materials suppliers. The most that can be said for 1991 is that it is ending better than it started. Steady improvement in contracting for new projects

since early in the year assures that soon the industry's awaited recovery will become more fact than forecast. The issues for 1992: How much recovery? What kind?

Past performance says that the first full year of recovery offers *potential* gain of 20 percent or more for construction-contract value. That's how much came forth in the beginning years of the two previous building cycles. The 1983 recovery delivered +24 percent; in 1976, +21 percent. Both times, residential building dominated the early phase of expansion; reinforcement by commercial and industrial construction arrived in the second year to keep things going.

The coming expansion of the building industry, beginning in 1992, will follow this well-rehearsed script, but only up to a point. The new cycle will reveal many of the general characteristics of past recoveries, but they'll reappear in an altered state due to the unique circumstances of the 1990s.

The early dominance of house building is already evident, and will become more apparent in 1992. Fortunately, it is the biggest category. As pointed out earlier, the income-property group (offices, apartments, et al) has finally hit bottom, but is destined to stay there until those high vacancy rates yield. Publicly financed construction (institutional buildings and infrastructure projects), though unaffected by the 1990-91 recession, is bumping against its short-term ceiling. And that's all there is.

This means that the 1992 outlook for total construction contracting comes down to a matter of how much the house-building market can deliver. The limits of the residential marketplace have already been identified.

Demographic developments imply a sustainable output up to, but not more than, one million houses per year, although this volume could be exceeded briefly if some unrealized demand carries over from last year. • *Credit availability* imposes another limiting. Low mortgage rates can stimulate sales of existing houses, but, if bankers are reluctant to grant construction loans, the supply of new units will be inhibited. *Geography* is yet another short-term constraint. The depressed Northeast will be the last of the five major regions to regain its prerecession volume and it won't be in 1992.

These limitations indicate that the 1992 potential for recovery of single-family residential building is not what it was in other first-year situations. The estimated total of 975,000 units, at 1992 prices, would nevertheless mean a gain of close to 25 percent in dollars. However, with little net improvement in the rest of the construction market next year, this significant percentage gain in single-family-house building will result in only a 10 percent increase for total construction-contract value—roughly half the first-year gain of prior recoveries. At this early stage, it would appear that offers opportunity for a further advance of another 10 percent with a better balance of residential and nonresidential building. And so it goes, usually for as long as five years.

The demographics of the 1990s will give rise to a different blend of construction needs, just as the needs of the 1980s were different from those of the 1970s.

The next five years

As the construction industry prepares for a new period of cyclical expansion, it is easy to fall into the trap of assuming that one building cycle is not greatly different from another. There are always similarities, of course, but certain features of the future market environment will make it quite different from the 1980s experience. Accelerated depreciation for income properties is long gone and, in its place, is a vast inventory of empty buildings to be assimilated. The free-and-easy lending practices of the 1980s have given way to bank regulation and reform. The demographics of the 1990s will give rise to a different blend of construction needs, just as the needs of the '80s were different from those of the '70s.

One way to see how the building market of the 1990s will differ from that of the 1980s is to compare five-year totals of construction during similar phases of the cycle—in this case, from early recovery to peak. This means matching the prospective totals of 1992 through 1996 against actual values for 1983 through 1987:

• *Single-family houses:* Approximately the same five-year total of units will be built (5.0 million vs. 5.1 million), but they will be worth between 10 and 15 percent more in constant dollars. In the 1990s, houses are averaging 1,800 square feet—15 percent bigger than those built in the mid-1980s.
• *Income properties:* As the assimilation of overbuilding in the 1980s depresses this market, 40 percent less new construction will be initiated. Offices, hotels, and apartments/condos will bear most of the cutback. Retail facilities, drawing support from sustained single-family house development, will be off by about 20 percent.
• *Institutional buildings:* Continuing growth of educational building will boost total institutional construction 20 percent. Hospital/health-care needs will match, but not exceed, the very high 1983-87 total.
• *Infrastructure:* A new highway program will help contracting for public-works projects break out of its recent budgetary straitjacket. The potential gain is limited to about 5 percent, however, as other public priorities compete for the peace dividend.
• *Total construction:* Prospective gains in housing, institutional buildings and public-works construction will not be large enough to offset the lingering weakness in commercial real-estate development. Consequently, the five-year total of construction-contract value (in constant dollars) for 1992-96 may fall short of the 1983-87 total by something between 5 and 10 percent. In current dollars, however, the inflated value of work contracted during 1992-96 will be greater than in 1983-87 by as much as 30 percent. ■

Construction Costs Steady Despite More Building

Although rising construction volume typically heralds a rise in costs, this may not be the case now.

Logic tells us that, after a healthy decline in the previous quarter [RECORD, July 1991, page 76], the steadying of costs in the first quarter of this year (summary, right) was a direct response to steadying demand for construction. Volume had been in free fall through much of 1990, according to F. W. Dodge, and stabilized just before the first quarter at 133 on the Dodge Index—30 percent below the 1989 peak.

After the first quarter, construction picked up until, in August, the Dodge Index stood at 150. Does this mean that costs have risen since this first-quarter report in response to demand, as they have during similar rises? Not necessarily. As Phillip Kidd points out in "Economy" in this issue, businesses of all kinds are in retrenchment, looking for higher productivity and ways to hold down costs that buyers are unwilling to absorb.

A sampling of contractors' observations in September pointed to costs falling further. John Gormly of Oltmans Construction Company in California claimed that costs for certain types of construction there had fallen radically—tilt-up concrete by 15 percent below a year previous. John L. Tishman of Tishman Construction claimed that costs of some buildings in the New York area fell 20 percent below those three years ago. Credited were falling material prices *and* improvement in a cost component once out of control—labor productivity.
Charles K. Hoyt

Data supplied by Dodge Cost Systems Marshall + Swift.

U.S. Summary of Building Construction Costs (in per cent)

DISTRICTS	# METRO AREAS	1/1991 TO 4/1991	4/1990 TO 4/1991	1977* TO 4/1991
EASTERN U.S.				
METRO NY–NJ	18	–0.32	–0.15	2001.96
NEW ENGLAND STATES	33	0.05	0.12	1858.07
NORTHEASTERN STATES	120	0.06	–0.50	1755.24
SOUTHEASTERN STATES	106	0.19	0.19	1825.91
AVERAGE EASTERN U.S.	277	0.08	–0.14	1810.56
WESTERN U.S.				
WEST CENTRAL STATES	122	0.26	–0.67	1703.11
PACIFIC COAST STATES	106	–0.29	–0.85	1807.89
AVERAGE WESTERN U.S.	228	0.00	–0.75	1751.82
UNITED STATES: AVERAGE	505	0.05	–0.42	1784.04

*USING ONLY CITIES WITH BASE YEAR OF 1977.

HISTORICAL BUILDING COSTS INDEXES

Average of all Nonresidential Building Types, 21 Cities

1977 average for each city = 1000.0

Metropolitan area	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 1st	1991 2nd	1991 3rd
Atlanta	2098.6	2078.0	2360.6	2456.7	2448.7	2518.3	2561.9	2580.9	2697.3	2740.4	2711.3	2729.7		
Baltimore	1446.5	1544.9	1639.5	1689.7	1703.7	1743.8	1765.2	1780.2	1849.1	1886.8	1895.2	1900.1		
Birmingham	1407.2	1469.9	1468.1	1535.7	1594.7	1565.7	1587.4	1542.6	1612.5	1643.0	1634.5	1628.3		
Boston	1283.7	1432.5	1502.0	1569.9	1646.0	1721.0	1773.6	1883.0	1921.6	1917.2	1918.4	1908.3		
Chicago	1323.6	1344.7	1425.8	1439.5	1476.7	1528.0	1599.9	1591.4	1636.5	1672.8	1690.9	1714.3		
Cincinnati	1385.2	1350.4	1362.6	1430.8	1484.5	1486.6	1499.4	1510.9	1526.8	1560.7	1552.3	1542.9		
Cleveland	1388.2	1459.5	1511.4	1475.9	1464.0	1474.1	1525.7	1541.8	1550.7	1556.3	1526.1	1515.9		
Dallas	1481.9	1750.6	1834.3	1925.9	1958.0	1963.3	1973.9	1947.2	1927.2	1877.3	1837.0	1839.3		
Denver	1487.4	1632.2	1679.1	1800.1	1824.3	1821.8	1795.8	1732.7	1725.3	1725.9	1663.7	1658.0		
Detroit	1447.4	1580.3	1638.0	1672.1	1697.9	1692.6	1696.6	1689.3	1734.4	1751.2	1737.4	1724.0		
Kansas City	1233.2	1323.4	1381.8	1407.5	1447.1	1472.5	1484.7	1493.7	1505.6	1518.8	1510.8	1515.4		
Los Angeles	1387.5	1474.3	1503.3	1523.9	1555.1	1571.0	1609.7	1675.1	1789.5	1813.7	1800.9	1788.7		
Miami	1380.6	1369.1	1392.1	1467.6	1522.2	1540.6	1566.2	1589.2	1625.2	1641.3	1638.8	1642.0		
Minneapolis	1327.7	1442.6	1576.8	1624.6	1640.4	1661.0	1674.0	1677.0	1690.6	1712.5	1676.0	1670.9		
New Orleans	1505.7	1572.7	1616.9	1650.5	1691.4	1762.5	1760.2	1699.8	1707.3	1685.0	1695.3	1707.4		
New York	1319.4	1419.2	1491.8	1672.5	1747.2	1806.7	1899.9	1980.9	2065.3	2157.2	2126.2	2104.6		
Philadelphia	1539.5	1660.7	1769.4	1819.5	1922.1	1967.9	1992.7	2023.5	2171.4	2244.3	2249.0	2239.5		
Pittsburgh	1341.7	1493.2	1479.5	1497.2	1576.1	1611.0	1665.8	1647.3	1700.3	1721.3	1688.7	1678.3		
St. Louis	1320.0	1397.3	1451.2	1524.9	1625.5	1641.8	1647.4	1653.5	1705.7	1761.1	1732.5	1747.7		
San Francisco	1644.8	1776.4	1810.1	1856.8	1935.3	1961.8	1995.5	1992.0	2090.9	2114.3	2156.0	2150.5		
Seattle	1616.8	1814.9	1962.7	1979.0	1948.9	1937.9	1925.3	1874.7	1968.0	1987.0	2017.6	2015.0		

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.) divided by the in for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (15 divided by 200.0 = 75%) or they are 25% lower in the second period.

Shaping Fees Creatively

Several proven tactics in negotiating better fees during competitive times.

By Bradford Perkins

In the September ARCHITECTURAL RECORD*[page 32], management consultant Peter Piven argued for getting higher fees by basing them on the value of professional services to the client rather than on their cost to the architect. But he admitted that the ability to do this varied with the type of firm. This month, architect Bradford Perkins reports from the trenches on getting a higher fee—value priced or not.*

Ask the right questions; get the right answers

1. *What services are required?* Few projects require only the basic services defined in the AIA's standard contract. Often clients see such additional services as programming and help in getting public approvals and funding as equally important.

2. *What are your probable staff, consultant, and other costs of providing the required services?* You must know how to estimate these costs to negotiate an adequate fee and, possibly, to justify the fee to clients.

3. *How much competition is there for a commission and will fee be a selection factor?* You can assess the difficulty of negotiating an adequate fee if you know how many other firms want the project.

4. *What is the typical range of fees proposed for this type of project?* Although formal fee schedules no longer exist for most project types, there are norms adopted by experienced firms. Assume that experienced owners know or will find out these norms. Norms help architects by indicating fees that competitors find profitable and will therefore seek.

5. *Where are the areas of risk for the design team?* Some project tasks—typically design-development and construction documents—tend to be predictable. Other tasks are difficult to estimate. Public approvals, the conceptual stage of schematics, and construction-phase services are often the hardest to predict since they are so strongly influenced by others.

6. *What does the client perceive as your areas of risk?* Clients rarely have the same views as yours, but they use *their* views to judge *your* fee proposals unless you can explain why, e.g., public approvals are harder to control than consultant costs.

Once you have answered these questions, you are ready to be creative:

Use the right answers creatively

1. *Avoid competition later by getting in early.* If you get the client to select you solely for a feasibility study or concept proposal, you will:
a. Be first in line when a final contract is awarded.
b. Manage to be very competitive on the initial-phase fee without risking a significant loss.
c. Reduce competitive pressure on the rest of the fee, which is most of it.
d. Increase your knowledge of the project's scope, thereby reducing your risk.
e. Have established a personal relationship with the client when you negotiate the remaining phases.

2. *Get a bonus on shaky projects.* Often, the first phase of your work on speculative projects coincides with the period of greatest risk for clients. Clients may be finding out whether the land, necessary approvals, and financing can be obtained, or trying to assemble investors. Architects on speculative projects typically keep fees low for this initial phase and try to recoup the rest of the initial fee afterward. You should therefore consider deferring part of a normal fee in return for a clearly spelled-out bonus once the project proceeds. Architects may do the feasibility phase for one- or two-times direct personnel expense and then charge a bonus of two-times direct personnel expense when the project proceeds. In other cases, they may charge a high multiple for any hours beyond a low upset maximum.

3. *Make sure you are not left at the altar.* If you do choose to defer part of your fee, put safeguards in your agreement that the client does not sell the project, change architects, or take some other action that negates the bonus provision. Think twice about offering a fee deferral if the project lacks a reasonable chance of success. One formula: Multiply the percent of probability that the project will proceed by the amount of the bonus. The first-phase fee should at least break even with costs.

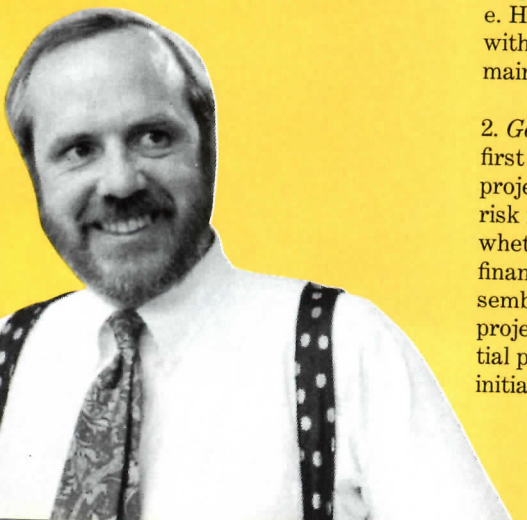
4. *If the client insists on an early agreement on the overall fee, express it as a range that depends on final scope* and *limit the areas of risk.* Limits may include no special public approvals other than normal site-plan review and a building permit; the total number of hours of on-site observation required during basic services; and a clearly established project schedule.

5. *Make your fee* look *reasonable.* When negotiating the full fee, remember that it looks very large to most clients. What is worse, they do not understand why. You may need to show the back-up for the fee calculation so that the client can see how tight it is. Other tactics: Separate out consultant fees in order to reduce the absolute amount of the architectural fee. Alternatively, offer to let clients participate in negotiating consultant-contract amounts. Let the client see that these are fixed and that any reductions to your fee must be absorbed by you, not your consultants.

6. *Know what the norms are.* A reasonable client should not seek less.

7. *Make sure that any limitations on services that you and the client have agreed to under item 4 are included in the final contract.* ■

Mr. Perkins is a principal in Perkins Eastman & Partners in New York City.



Promoting the Small Firm

How one small architectural firm made up for a lack of track record by getting exposure not for completed projects, but for capabilities.

By Robert L. Miller

When a small firm knocks on clients' doors, thin resumé in hand, why would they respond? Small firms seeking work typically face a double handicap of limited promotional resources and a limited track record of completed buildings to promote.

One solution that reinforces the architect's public-relations dollar was described in the article "Piggybacking is Good Business" by Jane Cohn and Dianne L. Frank [RECORD, August 1990, page 37]. They recommended joining clients in their project promotion programs and thereby sharing the costs and benefits of exposure. This works well when architects have projects to show.

Take publicity beyond the obvious

But why stop with existing clients or completed buildings? It's also possible to weave public relations into market research and lead-finding, and to involve a whole range of friends, allies, and market targets.

Consider Michael E. Hickok of Hickok-Warner Architects in Washington, D. C., who had been a principal in charge of a regional 26-person office of ADD, Inc. His three-year-old, six-member office faces a classic small-firm dilemma: how does a relatively new practice that wants good-sized projects gain credibility and visibility?

One answer is to explore with potential clients what they need. Sidestep the recital of qualifications—an approach naturally favored by large, well-established offices with long client lists. Instead, take advantage of other strengths such as imagination, good listening ability, personal chemistry, a keen motivation in understanding what clients are saying, and the capacity for giving personal attention.

Weaving clients and colleagues

Another route to public exposure is to get publicity for a joint research project done with professionals in related fields. Hickok used a design study he completed with Joseph E. Brown, a principal of EDAW, Inc., a landscape architecture and planning firm. The study had been sponsored by the Urban Land Institute to identify the characteristics of a suburban edge city—Tysons Corner, Virginia—and the results had previously been made known only to a limited ULI-related audience. Hickok wrote a new article for a more general audience and offered it to newspapers and magazines with large circulations. The result was publication in *Regardie's*, a Washington, D. C., business magazine widely read by the region's real-estate community, which may otherwise never have seen the ULI report.

This initial public exposure proved to be a beginning. In the course of his research and writing, Hickok has renewed contact with clients from his former career and met new potential clients. He also found information that could be useful in such contexts as what services or design criteria still other clients might be looking for. "Frankly," says Hickok, "it has sometimes been a way to ask what we couldn't otherwise without sounding stupid." And little extra effort was needed to produce spin-offs, such as talks to local business groups. An article by the architects using some of the same research has already appeared as a cover story in *Development*, the magazine of the National Association of Industrial and Office Parks.

Three variations on piggybacking

1. Straightforward collaboration with a noncompeting ally who shares the same promotional interest.

2. Finding out what you need to know while reaching the people you want to influence, by involving them on a high plane as sources, advisors, or collaborators.

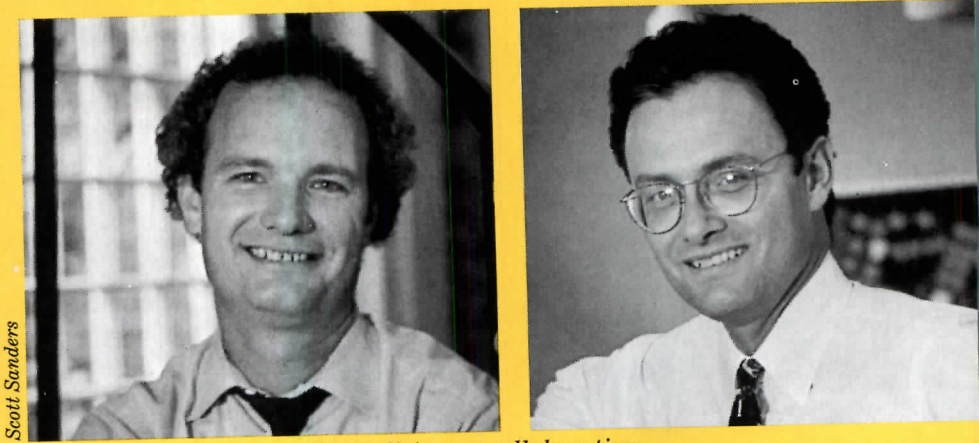
3. Recasting and reformatting an important story for a variety of audiences. This process can go on indefinitely as reprints of the published articles become first brochure inserts, for instance, and then enclosures for a direct-mail campaign.

Advanced piggybacking

As a form of advanced piggybacking, the small-firm principal makes hours spent on direct marketing, lead-finding, client maintenance, and dealing with consultants count double by always looking for ways that information gained can be used for longer-term marketing and promotion programs. Find out something interesting? Put it in a newsletter. Find out a lot of interesting things? Write an article.

Far from alienating clients in business, this should command their added respect, because they typically regard promotion and time management as normal functions. (Other clients may require somewhat more discretion.)

And, paradoxically, this may give the small firm an edge over larger competitors who separate promotion from practice, creating freestanding marketing division often out o touch with the rest of the firm. By combining promotion and practice, small firms can make their marketing more credible. ■



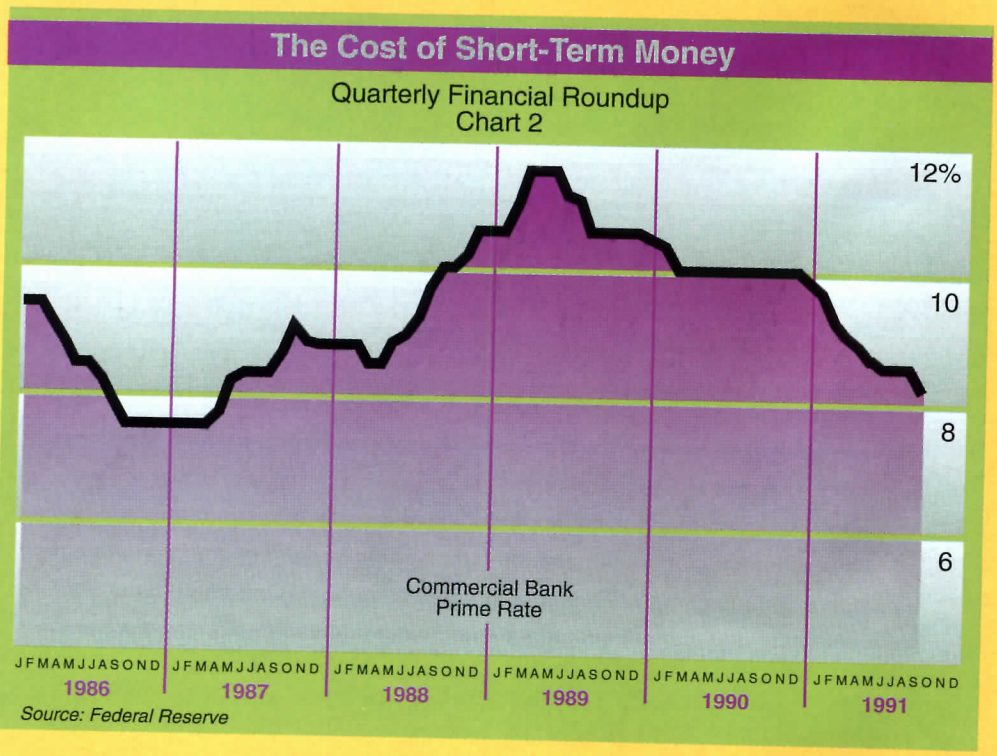
Scott Sanders

Hickok (left) and Brown: Capitalizing on collaboration.

Mr. Miller is an architect and president of Robert L. Miller Associates, a public-relations and marketing firm in Washington, D. C. and New York City.

Economy: Tight Ships, Loose Mortgages

Buried in recent economic data are significant trends that eventually will revive flagging growth.



By Phillip Kidd

To break the shackles of the current economic malaise, employment gains must improve, spurring retail sales and manufacturing production. Unfortunately, this has not yet happened.

Manufacturing employment rose modestly even though industrial production perked up during the second and third quarters. Manufacturers, afraid that the wobbly recovery would not last, lengthened the work week and working hours, rather than hire many more workers.

The service sector (some 75 percent of all employment) let workers go, with the exception of health care. Especially industries such as retailing, finance, communications, and advertising are in a profit squeeze as their customers become very price conscious. They are finding it increasingly difficult to pass rising costs on to them and are forced to control expenses, streamline operations, and raise productivity.

Dr. Kidd is an economic consultant and former director of research for McGraw-Hill Information Services Company.

- State and local workers are being laid off by many governments that are feeling heat to provide services at less cost and with more efficiency. Taxpayers, upset over rising taxes and poor services, are beginning to coerce state and local officials into modernizing service delivery.

Controls on expenses; rising productivity

These actions are reminiscent of the restructuring that manufacturers underwent throughout the 1980s, when aggressive foreign competition compelled them to rein in expenses and boost productivity. Now U. S. producers are better able to compete domestically and internationally, enlarging production without immediately activating inflationary pressures. Throughout 1992, the struggle of service providers to shed employees and become more productive will temper employment growth, personal-income gains, and consumption spending, constricting recovery.

With income advances remaining sluggish, consumers/taxpayers will persistently demand better-quality services at more-affordable prices from both private and public-service providers. Under this relentless pressure, service firms and state and local governments will work to lower costs and improve efficiency in their operations and distribution systems. As these modest productivity gains permeate the economy, service-sector inflation, which is much higher than industrial, will decline. As a result, overall inflation will slide toward 3 percent or less in 1992.

More credit available

The Federal Reserve, reacting to an improving inflation outlook and an uneven rate of economic expansion, will cautiously, but steadily, ease monetary policy into the early spring. Since short-term rates have already fallen dramatically, they are likely to stabilize between 4.5 and 5 percent late in the first quarter of 1992. The prime rate will dip toward 7 percent; intermediate three-to-seven year governments will slide into a 6-to-7-percent range; and 30-year fixed-rate mortgages will drift below 9 percent, settling into a 8-to-8.75 percent range.

A positive, steeply sloping yield curve will allow commercial banks and thrift institutions to maintain significant lending margins (lending rates minus cost of funds) and sustain the profit recovery begun earlier this year. To date, commercial banks have emphasized the purchase of investments over loans. As rebounding profits strengthen their capital positions and opportunities present themselves, banks' business lending, including loans for single-family construction, will accelerate. In addition, both healthy commercial banks and thrift institutions will nudge their consumer and mortgage rates lower to stimulate lending.

There is still a sizeable pent-up demand to own a house from those first-time buyers priced out of the market in the 1980s. With prices appreciating only slowly, ownership has become much more affordable for many. In spring, plentiful, reasonably priced mortgages will energize both existing- and new-house sales. As housing picks up, demand for goods and services from other industries will gain new momentum, slowly stimulating more employment, income, and consumer spending. Gradually, the economy will shake off its slow-growth mode and move toward a stronger expansion in midyear. ■

Specifications Series: Commercial Carpet II

By Katherine Freeman

Now that you have specified your choice of carpet [see ARCHITECTURAL RECORD, September 1991, pages 40-41], here are the steps in specifying how it will be laid—by the stretch-in, direct-glue-down, or double-glue-down (for both carpet and cushion) methods. Steps are coordinated with the outline specification (right).

Shop drawings: The contractor, installer, and carpet manufacturer should produce these in a coordinated effort. Shop drawings must include dimensioned seaming and installation diagrams showing carpet layout, and should show verified field conditions and measurements. They also must indicate direction and lay of pile, cushion type and accessories, and type, color, location of carpet insets and borders, and all special conditions such as columns, doorways, enclosing walls and partitions, built-in cabinets, locations where cutouts are required, and transition details to other flooring materials. For large projects, a carpet schedule indicating carpet type, color, and dye lot, type of cushion, and type and color of carpet base is also recommended.

Quality assurance: The carpet installer must have experience in the installation of carpet of similar type and construction, and with projects of similar size and installation methods for similar traffic and abuse. Mock-ups are recommended if installations are large or complex. Indicate location, size, and extent of products requiring mock-ups, and other details of mock-ups should be clarified by drawings or by description in the specification. Review mock-up areas for seam appearance, workmanship, color and color range, pattern, texture, and pattern matching. This section should also include manufacturers' requirements.

Substrate conditions: Carpet performance is greatly affected by substrate conditions, especially in direct-glue-down installations. Substrates must be within manufacturers' recommended limits for moisture content and alkalinity, and must be primed to receive carpet. Uneven or irregular substrates can cause abnormal wear points, which will mar the carpet's appearance over time and may shorten its life. Substrate leveling, patching, and waterproofing are procedures not typically performed by the carpet installer and must be coordinated with other sections.

Ms. Freeman is an associate with architects Thompson, Ventulett, Stainback & Associates in Atlanta.

Stretch-in (tackless) installation: This is a flexible and semipermanent method of installation, in which the carpet and cushion are attached to the floor by "tackless" carpet strips secured around the perimeter of the space. This method allows for easy removal and renovation, but may not be secure enough for heavily trafficked spaces or for areas exposed to wheeled traffic. The cushion underneath provides foot comfort and a feeling of luxury, as well as increasing the lifespan of the carpet.

Direct-glue-down installation: This is the most usual and economical method of carpet installation. The carpeting is glued directly to the substrate, and seams are butted directly together and sealed. Direct-glue-down installation provides a dimensionally stable carpet, suitable for high-traffic areas. Adhesive that allows the carpet to be pulled up and removed is sometimes used in areas of lighter traffic to ease future renovation. In areas where stairs and ramps are carpeted, direct glue-down provides the most secure installation and is typically specified even when other installation methods are used for the rest of the work.

Double-glue-down installation: Gluing carpet to a high-density cushion that is itself glued to the substrate is a recently developed installation method that combines the comfort and durability of stretch-in installation with the stability of direct-glue installation. The cushion provides a more suitable underlayment for the carpeting than a bare substrate, and increases both wear and appearance retention. This method is particularly suitable for high-traffic conditions. Many industry sources recommend it for both commercial and residential work for its economy *and* high quality.

Seams: Hot-melt seams are the most common and economical method of seaming for stretch-in or double-glue-down installations.

A complex installation in AT&T's Atlanta offices by Thompson, Ventulett, Stainback.

Kevin Rose

Hand-sewn seams are the most effective for pattern matching and seam quality, but they are expensive and difficult to obtain. If hand-sewn seams are not specifically indicated, contractors will figure on hot-melt seams in their pricing. For woven carpets, the manufacturer should verify that hot-melt seams are acceptable.

Direct-glue installation usually does not require attaching carpet at seams except where they will receive stress, as they might from nearby expansion joints. Hot-melt seam tape is the usual method of reinforcement in these locations. Most seams in direct-glue installations are formed by simply using sealer on cut carpet edges and butting together. Keep seams to a minimum and do not place perpendicular to door frames or entryways, if possible.

Adhesive and seam sealer: For direct-glue-down and double-glue-down installations, specify a top-grade adhesive and seam sealer recommended by the carpet manufacturer. Indicate pressure-sensitive adhesives that will allow carpet removal where required. Ask the manufacturer to verify that adhesives and sealers meet fire-performance characteristics. Solvent-based adhesives and sealers may create significant fume problems during installation and curing; the contractor must be responsible for adequate post-installation ventilation.

The second of two parts on this subject covers installation.

Solvent-based adhesive products may not be acceptable in areas with low volatile-organic-compound (toxicity and ozone-depletion) requirements. Water-based adhesives emit few, if any, fumes, meet most environmental standards for V. O. C. content, and should also be considered for installations where strong fumes are undesirable.

Cleaning and protection: Carpet adhesive must be removed promptly from the face of the carpet, and debris and unusable scraps must be taken away and disposed of. The carpet must be thoroughly vacuumed, and spots and soiling removed in accordance with the manufacturer's recommendations. Require protective covering thereafter during any ongoing construction and plywood or hardboard protection during the installation of furniture and equipment.

Return maintenance: For large projects, the installer may be made to return after approximately six months. For stretch-in installations, the carpet would be restretched and trimmed to eliminate ripples and other faults. For other types, loose areas would be reglued when required, and faults and seaming trimmed and repaired.

Daily and periodic maintenance: Carpet requires specific maintenance to ensure proper performance and appearance retention. Once damaged, carpet materials are usually not repairable and must be replaced. Discuss appropriate maintenance with the project owner and have the manufacturer review recommended maintenance procedures with the project maintenance staff.

Reference materials that may be helpful in specifying carpets are: *Carpet Specifier's Handbook* and *Flammability of Carpets*, Carpet and Rug Institute, Dalton, Georgia, and *Commercial Carpet Fiber and Manufacturing Glossary*, Dupont Flooring Systems, Wilmington, Delaware. For information on wool carpets, contact The Wool Bureau, Atlanta, Georgia. ■

Correction: September's article on carpet materials incorrectly stated that wool is the first choice for commercial interiors. It should have read that nylon is; wool has the appearance that other fibers aspire to.

Guide Specification: Carpet

(Continued from RECORD, *September 1991, page 41)*

PART 3 EXECUTION

A. Examination:
1. Substrates.
2. Unsatisfactory conditions.

B. Preparation:
1. Conditioning: floor, carpet.
2. Substrate preparation: testing for moisture and alkalinity, cleaning and vacuuming, priming.

C. Installation:
1. Conform with manufacturer's instructions and approved shop drawings.
2. Extent of coverage and terminations.
3. Cutouts.
4. Expansion joints.

5.a. Stretch-in (tackless) installation.
- Tackless carpet stripping.
- Cushion fitting and installation.
- Carpet fitting and pattern matching.
- Seams—hot-melt or hand-sewn.
- Carpet installation.

5. b. Direct glue-down installation:
- Carpet fitting and pattern matching.
- Edges: trimming and sealing of seams.
- Hot-melt seams where required for extra reinforcement.
- Carpet installation: 100 percent contact with adhesive.

5.c. Double-glue-down (over cushion) installation:
- Cushion fitting and installation—usually installed at 90 degrees to carpet direction.
- Carpet fitting and pattern matching.
- Edges: trimming and sealing.
- Seams: hot-melt, hand-sewn, or butted and sealed.
- Carpet installation: 100 percent contact with adhesive.

6. Miscellaneous installations: stair and ramp carpet, carpet base.
7. Installation of edge guards and other accessories.

D. Cleaning and Repair:
1. Adhesive removal, cleaning, and vacuuming.
2. Repair/replacement of damaged/unacceptable areas.

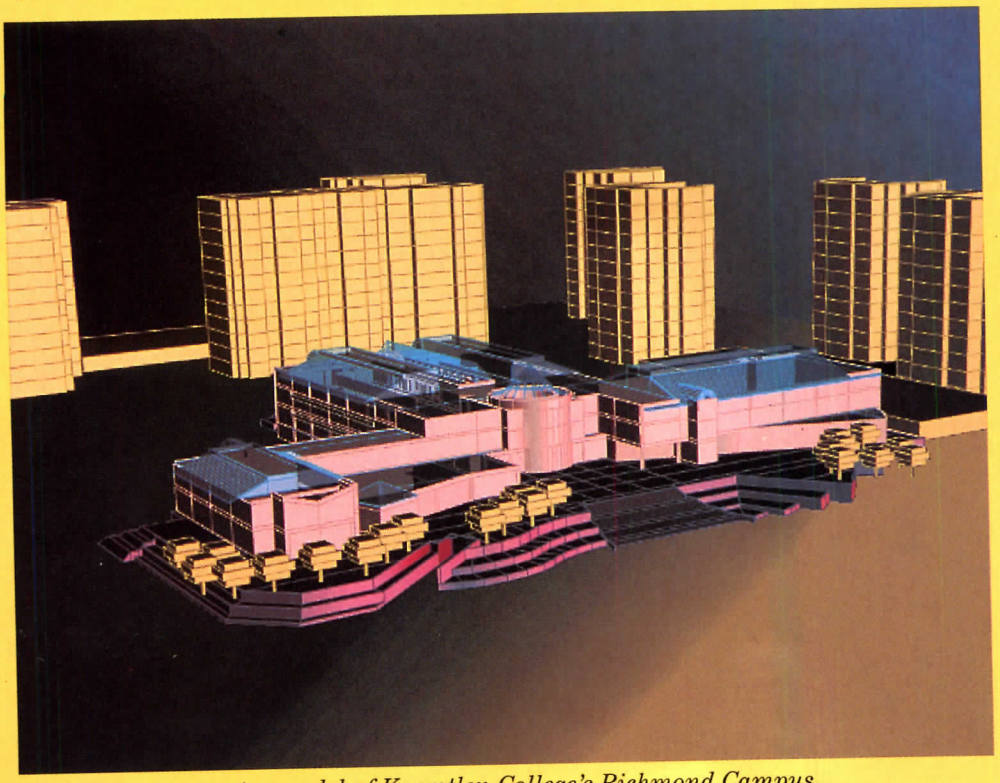
E. Protection and adjustment:
1. Protection: paper/visqueen to protect from foot traffic and dust; hardboard, plywood or similar during furniture and equipment installation.
2. Return maintenance.

F. Condition of finished work.

This guide specification is based on AIA Masterspec.

Mac, Meet PC

One firm looks at two different worlds, Mac and DOS, and, for the moment, decides to live in both.



Design-stage computer model of Kwantlen College's Richmond Campus.

By John Hughes

With more than 100 staff members, Vancouver's Aitken Wreglesworth Associates is a large firm that uses computers from the beginning of conceptual design through production. For a number of years, it successfully used DOS-based '286 and '386 systems, running AutoCAD Release 10, for production drawings, although the system was not considered viable for design. While the majority of senior architects in the firm had been trained on the system, architect technicians used it almost exclusively.

This situation, typical of many firms, presented problems:

1. The firm was at risk of being controlled by staff members with the least experience. Senior professionals understood little of the specific workings of the technology, let alone how to effectively manage its application.
2. Inputting designers' manually produced drawings into the system meant redundancy. It was a case of professional computer operators rather than professionals operating computers.
3. Despite the expensive technology, its potential in design was missed.

John Hughes is a free-lance writer in Fort Collins, Colorado.

Enter architect Brian R. Sinclair, an associate professor at the University of British Columbia with four years' experience in a fully automated architectural firm. AWA's principals felt the time was right for looking at new systems that could be used for design. Sinclair researched both the firm and available systems. Result: in December 1989, the firm purchased $250,000 of Macintosh hardware and software.

Dealing with two systems

"We had to think hard when we looked at Macintosh for design, because basically we were establishing two platforms," says Ute Philips, AWA's vice president of finance and administration. "But we figured it would become irrelevant what our hardware was, because at some time those platforms would have to converge. And ironically enough, they have."

In the short two years since the first Macintosh arrived at AWA's office, the firm has bought some 35 Macintosh stations and an equal number of DOS-based machines. When AWA first looked at Macintosh, it examined the full range of models then available: Mac Plus, Mac SE, Mac SE/30, Mac II, Mac IIcx, and Mac IIci. The SE/30 was selected as the minimum-entry machine because it has a Motorola 68030 processor with a math coprocessor. Given AWA's graphics processing requirements, this hardware was critical to the firm's productivity. In addition to several SE/30s, AWA has obtained many Mac IIcxs, IIcis and, more recently, Mac IIfxs.

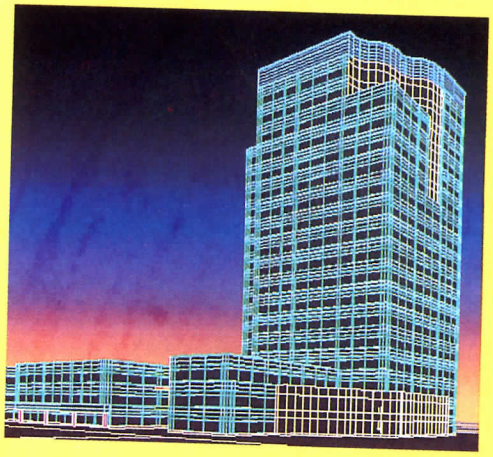
The Macs work together in an AppleTalk network using twisted-pair 10-base-T cabling and a series of Farallon Star Controller hubs. A server primarily administers CE Software QuickMail, which functions well given the limited network traffic in design phases. AWA runs System 6.07, but it intends to load Apple's recently released System 7.0 once the majority of the firm's software packages have been upgraded to full compatibility. Included in AWA's Macintosh local-area network are six laser printers, two 19,200 baud modems, and a 400-dots-per-inch electrostatic plotter. Due t the high traffic flow in production, the DOS-based network demands advanced Novell technology. While the Mac and DOS LANs are not connected today, a bridge is planned in the near future.

"Macintosh is user-friendly for graphics an design," says Sinclair. He sees it as being best suited for casual users and the intuitiv process, "which is what design is all about."

Breaking new ground

The firm's first project designed on Macintosh is Kwantlen College's Richmond Campus, which was started in fall of 1989 (photo above). This 200,000-square-foot com munity college has three stories of academ space organized around a central public rotunda and circulation spine. AWA dedicated four machines to the project—three Mac IIcxls and one Mac IIci. Software, still in u by AWA for design, was Engineered Software's PowerDraw, Paracomp's Model Shop, and Gimeor's Architrion. AWA used

Hydro headquarters complex in Burnaby, British Columbia.



other systems for word processing, spreadsheets, databases, graphics, desktop publishing, desktop presentation and multimedia, rendering, and communications.

Design began in 2-D. Computers were used for conceptual sketches in PowerDraw and for organizing and presenting program information (e. g., spatial and proximity relationships). AutoCAD site data was introduced through DXF. File translation was and is one of AWA's biggest challenges, helped by a staff knowledgeable in DOS/AutoCAD who can establish protocols and trouble-shoot. "This assures our office's continuing compatibility with the AutoCAD-based consultant world," says Sinclair. "When we get information from consultants, we can quickly move it onto the Mac platform, work on design, and then move the information either into production on the DOS platform or back to the consultants."

wantlen's approximate massing on the site as exported out of PowerDraw as PICT es. These provided the 2-D base data, or

with direct support from the developer and BAGH Design, Gimeor's Canadian distributor. While both Model Shop and Architrion currently fail to support 3-D DXF translation, Gimeor expects to release a 3-D DXF translator in early 1992. Currently, the route from ModelShop to Architrion is complex. The architects working through schematics in ModelShop had to track all critical decisions such as setbacks, dimensions, overall massing, fenestration, and site circulation. AWA found it most practical to export 2-D PICT files of the plan and elevations. These were merged into clean layers on the original PowerDraw design drawings, providing templates for updating project information.

Once PowerDraw 2-D design drawings were updated and reconciled to the ModelShop work, base information was converted through DXF for import into Architrion. However, Architrion translation proved a major challenge. Though the software provides for DXF translation, the translator was somewhat unpredictable. It worked best importing AutoCAD DXF files, which required bringing PowerDraw DXF drawings into AutoCAD and then exporting AutoCAD-based DXF files. Despite all the steps, says Sinclair, "the resulting building simulation made the design and designing more accessible to ourselves *and* our client."

"We figured what our hardware was would become irrelevant."

mplates, for ModelShop schematic 3-D exorations. The first stage of 3-D work was eating wire-frame images. Although wire-mes may be confusing for presentations, ey provide designers with a quick and effective exploration of design alternatives, ich can be rotated to determine desired rspectives for more complex and time-conning hidden-line rendered models. Laser nts of both types of models enabled the hitects to sketch manually over them and emble alternate designs. System capabili- further allowed them to study textual fit by modeling neighboring ldings in less than a day.

ving to solids modeling

er the client had approved the design in ciple, AWA could make the leap into ds modeling. This was done in Architrion

Striking a balance

AWA generally uses both computer and manual methods, and did this on the Kwantlen project. Because the client was particularly interested in checking on the design development as it went along, the architects had to repeatedly produce high-quality graphics that conveyed their intentions. In the early stages, they used computer-generated perspectives as guides for manual renderings with an appropriately loose quality. In later stages, they used Architrion for its ability to calculate shades and shadows and worked with many paint and image-processing programs to produce carefully detailed renderings.

The architects also produced numerous computer animations, which allowed both designers and client to experience the buildings in a manner not possible with static images. Both parties thus tested not only visual effect but operational performance. Animations were down-loaded onto 1-inch video masters, then dubbed to standard VHS and S-VHS tape, so that the design could be shown to a wide audience of donors and the community. Says Sinclair: "The costs of the animations were competitive with traditional presentation methods, such as watercolor renderings or physical models."

Expanding uses

Though AWA originally bought Macintosh for design, the system has worked in all phases of the architectural process even while maintaining DOS as the production workhorse. On Kwantlen College, AWA used the Macintosh system to develop wall sections and details for the construction documents. Now the firm uses the Macintosh to develop other components of the working drawings on its British Columbia Hydro headquarters complex in Burnaby (photo above) and for all the working drawings for a residence in Vancouver.

"I've had feedback from some of our people," says AWA president David Aitken, "that Mac is *fun to use. I've never* heard anyone say DOS was fun." But, for some functions, it still works better. ■

ArchiCAD 4.0

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

By Steven S. Ross

This 3-D drafting and rendering package for the Macintosh has been evolving since 1987. It now stands as one of the best for architects on that platform. With it, a designer can develop conceptual 3-D models, pass the files to drafters for hard-line 3-D designs and 2-D working drawings, and produce shaded 3-D views for presentations and for use in animated fly-throughs. There's an underlying database for generating bills-of-materials and a fine two-way file transfer link with Intergraph MicroStation.

All this does not come cheaply. The software alone costs $4,450. Using it to best effect requires the top-of-the-line Macintosh FX. But we have run it comfortably on a slower Macintosh II. And once your system is installed, there will be few extras to buy; ArchiCAD 4.0 is a complete system that even includes architectural symbols (arranged in AIA Masterformat classifications). A versatile plotter control program, PlotMaker, is free. In general, you work in plan. As you draw a wall, you get an opportunity to specify its height and thickness. The 3-D facility is particularly amenable to production environments; as you set a window into a 2-D floor plan, for instance, it will be at a standard distance from floor and ceiling; you specify these in the dialogue box. When you view the elevation, all is in place.

Nonstandard walls—curved partitions or walls meeting oddly sloped roofs, for instance—can be built up out of lines and arcs, then converted to walls with just a few commands. PICT files (scanned images, for example) can be imported to use as backgrounds. You can create special wall materials and other finishes, or you can use the ones that come with the software—brick and plaster.

Because ArchiCAD combines so many functions in one place, and because it is so easy to draw with, it is well worth investigating for small offices, especially where client presentations are important. It can also handle large projects, or coexist with more network-aware packages such as MicroStation. But keeping track of files in a network must be taken into account.

Circle number **308**

A house with a difficult-to-handle roofline is shown on ArchiCAD 4.0.

Summary

Equipment required: A Macintosh with floating point coprocessor, 4 MB of random-access memory, and 256K ROM (that is, an SE/30 or II series; some other models may have a coprocessor installed as an option).

Vendor: Graphisoft, 400 Oyster Point Blvd., Suite 429, South San Francisco, Calif. 94080, 415/737-8665 or 800-344-3468. $4,450. MicroStation A-M Link file translator available free to registered users of both programs. Free upgrade for users who have purchased roughly within last 12 months.

Manuals: More than most Macintosh owners are used to, but divided into small pieces for easy digestion. There's a two-part reference manual on ArchiCAD itself, one for the plotter driver, another for the GDL macro language, and one for the symbol library.

Ease-of-use: This is well-designed software, made for architects. The basic commands are intuitive—especially if you are already used to the Macintosh. You will learn the more advanced items as you gain experience with the system. Library symbols created with earlier versions of ArchiCAD must be converted; the software is included with this package. The bill-of-materials has a set format, but the contents can be exported to other programs (most notably the Excel spreadsheet) for modifications.

Writing macros to create 3-D symbols can be tricky; you have to visualize the symbol in the x-y plane when you specify the macro that will draw it. It is usually easier to tell ArchiCAD to create the macro automatically by saving an object in GDL format.

Error-trapping: Good. You can, however, accidentally create holes in fills (or slabs and roofs) by clicking on them when you mean to mouse-click on a nearby menu. You can draw a solid slab inside another slab, accidentally, perhaps thinking you are drawing a hole in the first slab. But these mistakes can be easily avoided and easily undone. Symbols are drawn in 2-D, but a macro in ArchiCAD's macro language fleshes out the object in three dimensions. The macro and the symbol can, under some circumstances, be disconnected or made incompatible. Likewise, a drawing can be separated from the symbol libraries it uses. If you move a drawing to another office, you will want to save in "archive" format. ■

Thumbnail 3-D Version 1.0

humbnail is an AutoCAD add-on that allows sers to conceptualize and then model a roject on the computer's screen. You can tart with a bubble diagram, block out a floor lan (up to 108 levels), then turn the plan into 3-D mass model. Once you have a concept in place, AutoCAD itself can be used to hard-line draft the final project drawings.
You can simulate walk-throughs by storing slide-images of successive views for later playback.
Circle number **309**

Summary

quipment required: Any computer that an run the DOS version of AutoCAD 10 or 1; AutoCAD 11 recommended. At least 4 IB of extended memory recommended. humbnail does not use a tablet menu, so if ou've been getting by with a mouse any-ay, you don't have to upgrade.

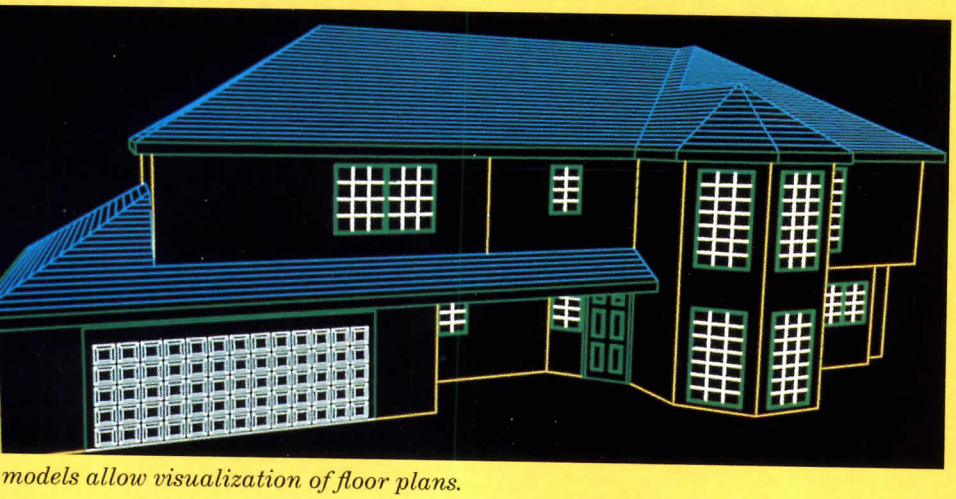
endor: ICG Acquisition Corp., 1120 Hope d., Suite 100, Atlanta, Ga. 30350. Phone 04/552-8800, fax 404/552-8808. $749.

anual: Simply produced, but nicely writ-n and illustrated; there's a short but lequate tutorial for those who have more an a few weeks' AutoCAD experience. The ference section is complete and quite eful.

se-of-use:
ood. Thumbnail compares favorably to any freestanding modeling packages. The g advantages: it uses the familiar utoCAD interface (although with different mmands) and DWG files. Optimizing for e with AutoCAD 10 can be tricky; try 000 for the LISPSTACK. Once you move yond bubble diagrams and walls, Thumb-nail gets less intuitive; sloping roofs are tricky. AutoCAD 10 is slow, 10/386 is better, and 11 is quite fast. If you use AutoCAD 10, consider upgrading to Release 11 to use Thumbnail. You can tell Thumbnail to load all 10 of its modules at once. If you have the memory—at least 6 MB—that's a good idea; it can take several minutes for each module to load separately as you use it.

Error-trapping: Errors seem to be of the nonfatal variety. For instance, you can save the settings for particular styles of door or window in what Thumbnail calls "catalogs." It is easy to forget and save the same settings under different names in the catalogs. The underlying databases of catalogs are stored as standard text, so they can be edited and sorted outside of AutoCAD. You start the process of turning bubbles into spaces by defining a set length on the screen to use as a scale. You may have to redefine the length several times to get what you want.

Thumbnail may load even if you don't want to use it in a specific AutoCAD session, if you start in the Thumbnail directory. It is wise to set up separate batch files for each AutoCAD add-on anyway. ■



models allow visualization of floor plans.

New Graphics Translator

Claris produced this translator mainly for those who wish to use the straightforward Claris CAD and MacDraw packages for production drafting, and then send the files to more advanced CAD packages. There's another use as well, however. Few CAD packages can turn PICT files into vector-based IGES or DXF files. Because almost all CAD packages can handle IGES or DXF, Claris Graphics Translator can be used as an intermediary, even without Claris CAD.

To make that easy, the translator can be run under MultiFinder in the background, while you draw in the foreground. But this will slow the system down and does require lots of memory—4 MB or more, depending on the foreground CAD program you are using. The biggest problem we had was getting the scale of translated drawings right—you may have to engage in some trial-and-error translations to get the hang of scaling.
Circle number **310**

Summary

Equipment required: Macintosh Classic, SE, LC or II-series, System 6.03 or higher, Finder 6.1 or higher, or A/UX 2.0; 2 megabytes of RAM, fixed disk.

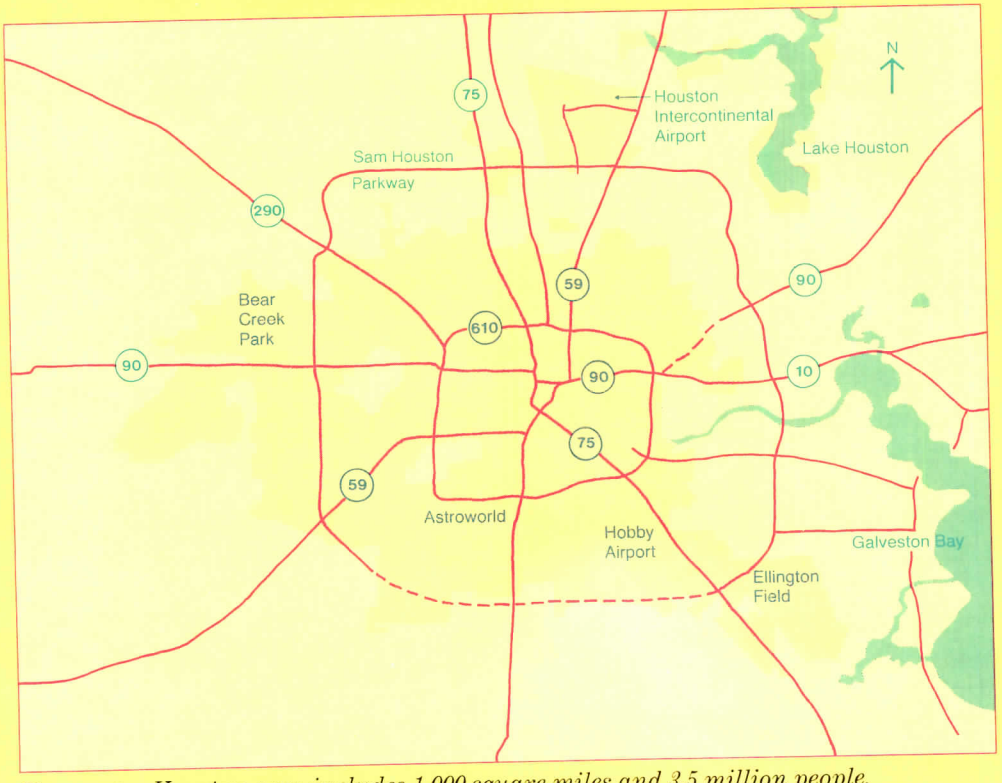
Vendor: Claris Corp., 5201 Patrick Henry Dr., Box 58168, Santa Clara, Calif. 95052, phone 408/987-7000. $299 (upgrades from 1.0 are free; call 800/3-CLARIS).

Manual: To the point—about 50 pages.

Ease-of-use: Exact file translation is never easy. There are too many variables for any software to handle things automatically. But once a translation scheme works, you can save the settings for future use.

Error-trapping: Most of the problems are due to the limitations of different file formats, not to limitations of the translation software. Often, the translation will separate entities like rectangles into individual lines, or complex curves into short line segments. Drawings tend to "look" right, but the drawing may not match its underlying database with respect to defined attributes, filled or cross-hatched surfaces, text blocks, and dimensions. ■

From Space City to Urban Village?



The greater Houston area includes 1,000 square miles and 3.5 million people.

"You drive through . . . Houston and take a look around, and up, and you wonder, what is this place? Is this a place? What's going on here? Is this place trying to outdo New York or be something new under the sun? Is this progress, and if it is progress, is progress good or bad or both, and if both, how do you tell the good from the bad?" Walker Percy, *Life in the South*, 1978.

In January 1991, the Houston City Council unanimously approved an ordinance that would begin the process of "comprehensive planning, zoning, and neighborhood protection," overturning the city's longstanding position as a bastion of antizoning sentiment. The ordinance begins a new era for Houston. But it will take years to tell if this "progress" is good or bad.

Such a fundamental change in the course of the city's development was precipitated by growing political pressure from a coalition of neighborhood civic groups. The area's long recession, which began in 1983, has given people the chance to look around and see what kind of city Houston has become in an unregulated environment. Many parts of town are destabilized by incompatible land uses that stifle improvements or growth. Owners just don't maintain or develop property when a convenience store might pop up on the land next door.

The traditional opponents of planning and zoning—real-estate interests, speculators, and small-property owners—had defeated planning and land-use initiatives since before World War I; they have finally lost their control over the Houston City Council. The legacy of the city's laissez-faire, low-tax, low-regulation approach, intended to foster a "good business climate," is a long list of urban problems: a sewage crisis, a toxic-waste crisis, poorly maintained roads, water and air pollution, traffic congestion, and periodic flooding. The current recession has underscored the social cost of these products of an unregulated free-enterprise system to all levels of citizens.

As recently as 1988, planning was not part of the public agenda. But the AIA R/UDAT analysis by a visiting team of architects and urban designers, held in Houston in 1990, was supported by Mayor Kathryn Whitmire and funded with a city grant. As planning became a viable political issue with grassroots support, backing on the city council fell into place.

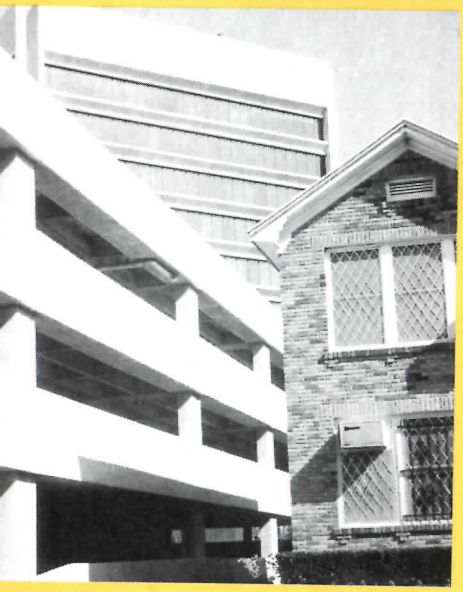
Houston's lack of zoning has often been used to explain its growth and success, and to support the validity of *private* planning over *public* intervention. However, it is wrong to credit too much to this free-wheeling environment; 14 other cities, all zoned, grew at a faster rate than Houston from 1920 to 1960. The recession has even changed the minds of developers, who now better understand the need for neighborhood stability and for land-use controls to protect their investments in all kinds of developments.

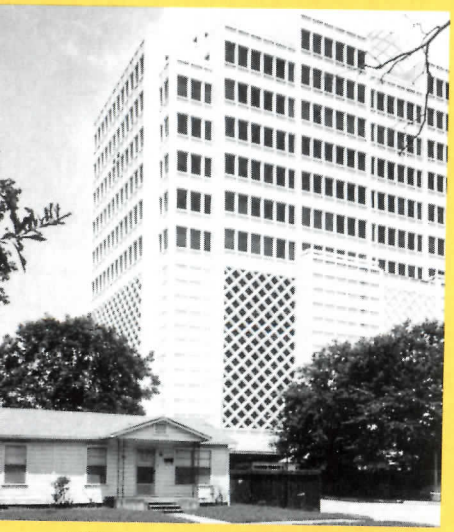
The job ahead

The provisions of the new ordinance establish a planning and zoning commission (expanding the responsibility of the existin planning commission) and trigger a compre hensive planning process. The commission must recommend within three months a pl that "can materially support the maintenance of neighborhood integrity," and within six months present a working program for the Comprehensive Plan itself. Before the end of one year, the Commissio must recommend zoning regulations for th protection of residential neighborhoods. El ments of the Comprehensive Plan specifie in the ordinance include a statement of co munity goals, a detailed database of land u and demographics, and urban-growth and economic-development policies. It also call for coordination of transportation, utility, and infrastructure planning, an environm tal analysis, and recommendations for zoning and/or other regulation and implementation tools. It's an ambitious progra for a city department with limited experience and personnel.

The first goal of the ordinance is to designate and protect residential areas from incompatible encroachments. Although ex isting land uses will be grandfathered an only eliminated over time, neighborhoods should feel secure that further deteriorat or changes in use will be stopped. Stabiliz

Once a citadel of free-market development, Houston recently adopted its first zoning ordinance. Gerald Moorhead examines what this may mean for his hometown.





ompatible uses such as the ones shown ve were common features in Houston ore the city council adopted an ordi- nce designed to begin the process of nprehensive planning, zoning, and ghborhood protection.

tion should help revive residential development, especially in inner-city districts. Highly visible improvement may be years away, but in the short term there should be a major change in the way new development is conceived and implemented.

The first step, the three-month deadline, has been taken gingerly. Rather than impose new regulations before the allotted study period is completed, the planning commission has set up a Neighborhood Protection Team with a staff of 185 to strengthen enforcement of existing nuisance ordinances and deed restrictions. Formerly policed by eight different city departments, these codes are now administered solely by the Planning Department.

Once the neighborhoods are in this temporary holding pattern, the intense work of data gathering and planning will begin. To organize this mammoth task, the city recently hired a new director of planning, Donna Kristaponis, previously director of planning in Palm Beach, Florida, and Austin, Texas. She knows Houston will soon have a comprehensive plan, but says, "the issue is process, not the final document, which will be subject to many revisions and changing dynamics." By establishing a means of public involvement, the planning process can build a consensus—the community's shared vision necessary for long-term success.

Lewis Mumford defined the residential neighborhood as the basic cell of urban planning, a village whose boundaries are based on walking distances. The strength of Houston's new ordinance lies in its return to this basic unit of neighborhood development.

Simplifying the rules

The planners will be searching for what Mayor Whitmire has called a "unique, Houston-style zoning." Those involved in framing the ordinance suggest this might mean as few as three broad categories: single-family-detached residential, mixed-type residential, and heavy industrial. The emphasis will be on protecting residential neighborhoods and forming buffers against more intense commercial uses. The greatest challenge will be in creating these buffer zones, where mixed-use development offers the possibility of adding services and excitement more evenly across the fabric of the city. The simplicity of "Houston-style" zoning is also intended to head off the traditional problems of political corruption and bureaucratic red tape often found in cities with complex zoning and land-use classifications.

Instead of using traditional land-use regulations, Houston's zoning controls will be based on performance standards, by which building types and development will be evaluated for their effect on residential zones. The goal is a strictly administrative process that will provide predictability and accountability for neighborhoods while giving the city's builders the flexibility to respond to market forces.

There is a move afoot across the country in favor of adopting performance standards. With no established zoning habits to overcome, Houston has the advantage of starting with a clean slate. Although there is no model of a large city dealing with zoning the way Houston now is, there are some examples on a smaller scale to show how to build upon neighborhood nuclei.

A celebrated neighborhood in Los Angeles provides one such example. The recent Hollywood Boulevard District Urban Design Plan seeks to take advantage of the area's cultural legends and to "reinforce Hollywood's traditional character and pattern of land use and provide increased opportunity for a variety of new uses, particularly residential, in keeping with Hollywood's promise as an urban live/work community." In Houston, focusing mixed-use areas around particular images could be one way to give each neighborhood a distinct identity. Such an approach might also instill a sense of heritage to the city's existing ethnic neighborhoods: Chinatown, the Hispanic barrios, Asian suburbia, and exclusive fashion gallerias. Although these kinds of places already exist in Houston, the products of informal self-zoning, they could be reinforced with formal planning and could help enrich the city's overall urban experience.

A comfortable walk

The "pedestrian pockets" being planned by

Continued on page 147

The Legacy of Italian Modernism

Surface and Symbol: Giuseppe Terragni and the Architecture of Italian Rationalism, *by Thomas L. Schumacher. New York: Princeton Architectural Press, 1991, 296 pages, $45 (cloth), $30 (paper).*

Reviewed by Dennis P. Doordan

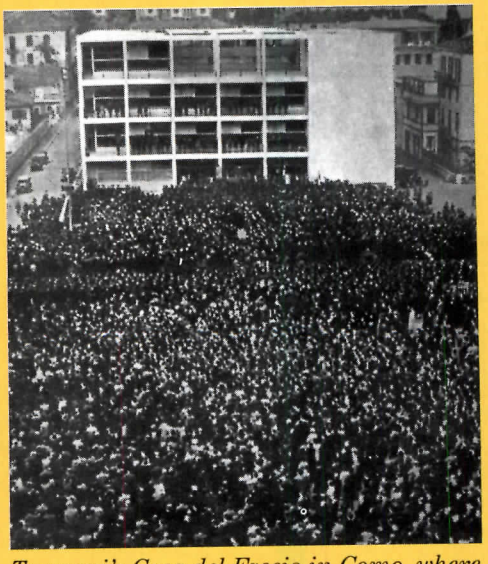
Giuseppe Terragni, one of the most talented Italian architects of this century, produced a provocative body of work that extended the formal parameters of Modernist design while challenging some of the movement's most cherished tenets. In a period when many of his contemporaries argued that architects should reject the past and embrace technology as the source for architectural form, Terragni sought to engage architectural traditions by systematically transforming historical precedents.

The extreme abstraction of much of Terragni's work raises questions about the limits of legibility in Modern design. And Terragni's support of Fascism and Benito Mussolini renders the popular notion that progressive architecture somehow shares a natural affinity with liberal politics problematic. In this Postmodern era obsessed with "critical theory" and historical revisionism, Terragni's career should offer fertile ground for critics, historians, and designers alike. Yet his work has remained mostly inaccessible to non-Italian audiences. Until now.

Surface and Symbol is not Schumacher's first examination of Terragni's work. In 1985 he published *The Danteum*, a study of Terragni's intriguing 1938 unbuilt project for a library and museum dedicated to Dante's *Divine Comedy*. Like his previous book, this one is handsomely produced and well illustrated. Appendices include detailed notes, a bibliography, and map guides complete with street addresses identifying Terragni's extant buildings in Milan, Como, and environs. *Surface and Symbol* also includes a translation of Terragni's account of the design of his masterwork, the Casa del Fascio (Fascist Party Headquarters) in Como, one of the key works of Italian Rationalism.

Schumacher begins with a brief overview of Italian architecture during the 1920s and '30s, outlining the complex relationships between architecture and politics, modernity and tradition, and national and international themes in the architectural culture of Fascist Italy. He follows with details of Terragni's biography, then moves to the real meat of this monograph: design analysis. Schumacher is fascinated by the role of precedent in his subject's work. In his first book, he explored Terragni's transformation of a literary precedent, *The Divine Comedy*. In this book he investigates Terragni's treatment of architectural precedents—individual buildings and building types.

In appropriating the forms of European Modernists and applying them in his own quest for a new Italian architecture, Terragni created buildings notable for their ambiguous position "between the abstract and the concrete, the classical and the modern, the constructive and formal, the disruptive and the contextual." It is this quality of ambiguity—this ability to address multiple themes and support multiple interpretations—that also insures this book will not be the last word on Terragni. For now, however, there is no better place to start.



Terragni's Casa del Fascio in Como, where abstraction and politics collide.

Franco Albini, Architecture and Design 1934-1977, *edited by Stephen Leet. New York: Princeton Architectural Press, 1990, 138 pages, $18 (paper).*
Carlo Scarpa and the Castelvecchio, *by Richard Murphy. London: Butterworth, 1990, 197 pages, $95.*

Reviewed by Andrew Anker

These two recent publications—one a general catalog of the work of Franco Albini, the other an in-depth study of a single project by Carlo Scarpa—provide rich insight into Italian architecture as it developed from the 1930s through the 1970s.

While the two architects were contemporaries, Albini attained prominence much earlier and was active in the pre-World-War-II debate between Rationalists and Neoclassicists. Through a wide-ranging practice that included exhibition design, public housing, urban-planning schemes, and furniture and product design, he remained in the mainstream of Italian architectural thought. Scarpa, on the other hand, did not begin receiving major commissions until the 1950s. He never directly entered the prewar debate, maintaining a position somewhat removed from the general currents. Whatever their differences, though, Scarpa and Albini will always be linked by their museum and exhibition designs. With the exception of the Brion cemetery, Scarpa's work was almost exclusively in this genre.

In their exhibition designs, Albini and his contemporaries expressed their desire to strip away much of the cultural baggage attached to architecture during the period leading up to World War I. The use of mass-produced elements, especially the neutral grid, was a way of creating democratic, nonhierarchical spaces. As Stephen Leet points out in his introduction, this approach led to one of the most striking qualities of Albini's exhibition designs—the use of modern materials within the context of historica building, creating strong contrasts between old and new. Previously, museum design in Italy consisted of creating period rooms tha more or less approximated the era of the ma terial being presented. With his design for the Palazzo Bianco Museum in Genoa, Albir

Dennis P. Doordan is an associate professor in the School of Architecture at the University of Notre Dame and the author of Building Modern Italy: Italian Architecture 1914-1936.

lbini inserted this suspended stair into he historic fabric of the Palazzo Rosso.

rnaled a definitive break with this method presentation. The Palazzo Bianco stands a turning point not only in museum de- n but also in architects' approach toward e use of history.

e the Palazzo Bianco, the Castelvecchio ign highlights, rather than obscures, the ference between old and new. But while ini's work draws much of its power from sharp contrast between traditional and dern forms and materials, Scarpa delves ther into the history of the building, ating it like an archaeological site whose rets are revealed by his intervention.

formats of both books seem well suited heir respective architects. *Franco Albini* udes a thorough catalog of the archi- 's work, along with a biographical look he architect by his longtime partner nca Helg. Leet contributes an essay that mines the development of Albini's work his thinking, as well as a general history talian architecture around World War II. *lo Scarpa*, on the other hand, focuses on rticular project. The author discusses way Scarpa used the existing structure ne Castelvecchio as inspiration for his in- ention and provides insights into his preoccupation with history and narrative in other works. While the book's graphic strength lies in its abundant drawings, better photographs would have helped. The book's design, moreover, is haphazard, with a confusing array of typefaces and images. *Carlo Scarpa and the Castelvecchio*, though, is clearly a labor of love and a valuable addition to the Scarpa literature.

Andrew Anker is an architect who has worked in New York and Italy.

Frank Lloyd Wright: A Primer on Architectural Principles, *edited by Robert McCarter. New York: Princeton Architectural Press, 1991, 304 pages, $40 (cloth), $30 (paper).*
Frank Lloyd Wright Versus America: The 1930s, *by Donald Leslie Johnson. Cambridge: MIT Press, 1990, 436 pages, $40.*

Reviewed by Jonathan Hale

Just when we thought we had heard enough about Frank Lloyd Wright, there comes a book—dryly called a primer and straight out of the academic establishment that Wright loved to flout—that is new and fresh. Wright always posed as an outsider, but Robert McCarter, editor of this collection of essays, gives us another view: that Wright, in his reliance on principle, was integrally part of the great architectural tradition. The reader learns that Wright was not some freak gigantic talent who burst upon the scene like a Fourth-of-July firecracker, preceded by nothing and followed by nothing.

McCarter, for example, writes that "Our contemporary architecture, for all its apparent energy and diversity, seems to be secretly driven by fear of its unacknowledged lack of principles, and is desperately seeing escape in the diversionary adventures of form. The idea of architecture as a *discipline* is the only way out of this impasse. Frank Lloyd Wright, who worked in the cause of architecture, found a unique combination of philosophical and formal principles that allowed him both *confidence* and *wonder*."

McCarter's two essays—"Abstract Essence: Drawing Wright from the Obvious" and "The Integrated Ideal: Ordering Principles in the Architecture of Frank Lloyd Wright," and Patrick Pinnell's article, "Academic Traditions and the Individual Talent: Similarity and Difference in the Formation of Frank Lloyd Wright"—are critical appreciations of Wright that convey an enthusiasm for his work without losing their scholarly footings.

Pinnell's theory of a breakthrough that led to the Prairie House is exciting. Beginning with the 1899 Husser House, says Pinnell, Wright based his house designs on two archetypal plans and superimposed them on grids. Unity of principle and pattern replaced the search for difference and surface variety. In leaping forward, Wright also connected to the past—explicitly to Richardson and implicitly to Durand, whose 1800 treatise was "the Bible of academic use and type." In drawing on the past, claims Pinnell, Wright discovered the principles that made his maturing as an architect possible: he received his "patrimony." And if Wright is part of *our* patrimony, the *Primer* is a good step toward reclaiming it.

Just as Robert McCarter's book isn't really a primer, Donald Leslie Johnson's *Frank Lloyd Wright Versus America* isn't fundamentally about Wright's conflict with his country—though it does present the conventional picture of Wright as the one-of-a-kind maverick. The book is simply a detailed description of Wright's activities in the 1930s, focusing more on his life than his art. While the book manages to hold the reader's interest, unlike the *Primer* it never exhilarates. The virtue of this kind of study is its wealth of information: it is a useful reference, but weak in making connections and analyses about either Wright's buildings or his motives. Johnson gives us the archives in-depth, but he doesn't give us Wright in-depth.

Johnson dismisses Wright's philosophy as "a Whitmanesque Americanism and an Emersonian agrarianism." But McCarter—and Jonathan Lipman in his essay, "Consecrated Space: The Public Buildings of Frank Lloyd Wright,"—show us the Emerson who inspired Wright and who speaks to our age as well.

Jonathan Hale's book on architectural principles, Recapturing the Old Way of Seeing, *will be published by Houghton Mifflin.*

Briefly Noted

Time-Saver Standards for Interior Design and Space Planning, *edited by Joseph De Chiara, Julius Panero, and Martin Zelnik. New York: McGraw-Hill, 1991, 1,160 pages, $95.*
McGraw-Hill's popular series of books devoted to design details and working drawings has been expanded to include this new volume on interiors. Grand in scope, the book ranges from standard furniture dimensions to joinery patterns and lighting specifications—for both residential and commercial interiors. It also tackles the larger issues of programming, circulation, and planning for expansion.

Architectural Drawing: Options for Design, *by Paul Laseau. New York: Design Press, 1991, 197 pages, $18.95.*
This book is not so much a primer on drawing technique, as a guide to understanding what drawing lends to design. Drawing conventions are discussed, with an eye toward improving the quality of design and finding new ways of "seeing and communicating."

Design Drawing Techniques: For Architects, Graphic Designers, & Artists, *by Tom Porter and Sue Goldman. New York: Charles Scribner's Sons, 1991, 144 pages. $16.*
Although devised as a resource for the beginning student, this book will also be a useful guide for architects and designers who want to expand their repertoire of details and hone their personal drawing techniques. The illustrations, culled from the drafting tables of architects from around the country, present a range of styles and approaches.

Measured Drawing for Architects, *by Robert Chitham. London: Butterworth Heinemann, 1991 pages. $45.*
Various techniques for measuring buildings and then drawing them are analyzed in this book, as the author outlines the history of architectural drawing through the centuries. Part of the appeal of this practical guide lies in its use of beautiful historical illustrations and drawings.

Formica & Design: From the Counter Top to High Art, *by Susan Grant Lewin. New York: Rizzoli, 1991, 192 pages, $40.*
The omnipresent plastic laminate that has been cut, shaped, and affixed to nearly every imaginable surface is now the subject of its very own adoring book. Essays by Lewin, Formica's Corporation's creative director, and others tie the material to the high and low of American design. In the eyes of the book's authors Formica is seen as a barometer of changing attitudes toward the "modern" way of life, the image of the home, and fashion.

The Wood Users Guide, *by Pamela Wellner and Eugene Dickey. San Francisco: Rainforest Action Network, 1991, 67 pages, 1-800-989-RAIN.*
A guide to help architects make environmentally responsible decisions about the wood they specify, this pamphlet not only identifies endangered tropical timber, but offers reasonable alternatives and a handy list of resources. ■

Drawn for ARCHITECTURAL RECORD
by Sidney Harris

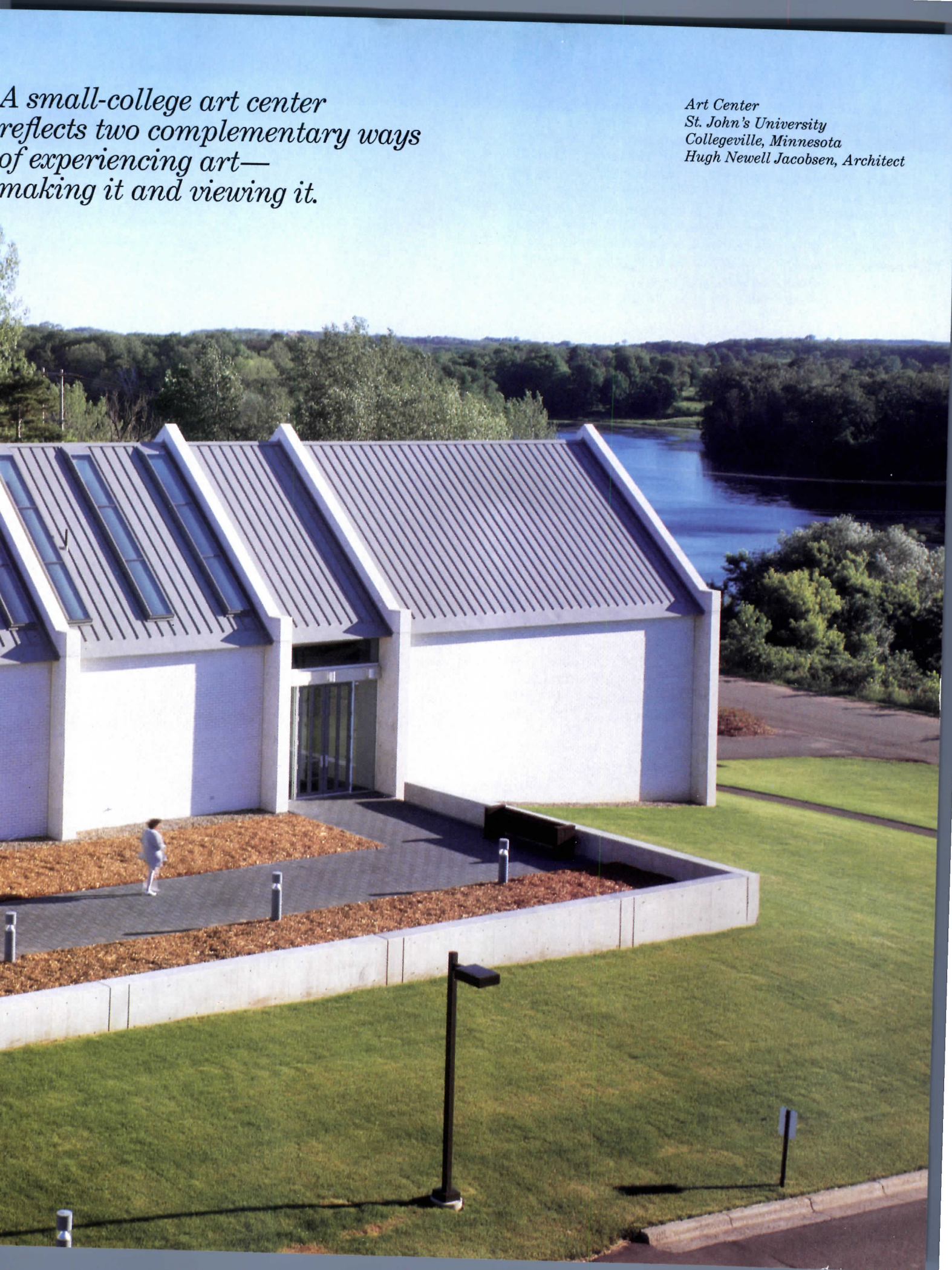
Building Types Study 694/Academic Buildings

My first exposure to significant campus architecture came about in July 1967, when I enrolled in a summer program for high-school juniors at my future alma mater, Trinity College in Hartford. Although I didn't realize it at the time, Trinity's great Victorian Gothic quadrangle would have a lasting impact, pushing me toward an interest in architecture, preservation, and urban planning. What is especially impressive about Trinity—and the best-designed American campuses—is the way they integrate buildings and open space. Happily, after a dismal post-war period when architects seem to have lost their way, we are once again witness to academic buildings that actually enhance notable existing campuses or establish character where none existed. The projects featured in this month's Building Types Study are located at schools ranging in size from 1,600 to 33,000 students. They stand out not just for architectural distinctiveness (in nearly all instances a careful balance of Modernist impulses and respect for existing historic buildings), or for program (for the most part functionally straightforward libraries, classrooms, and studios), but also for their role as placemakers. Some strengthen existing pedestrian axes; others define new social gathering spaces, either through time-honored academic quadrangles or by means of interior atriums. From large public-supported universities in the Pacific Northwest to a small Catholic college on eastern Long Island, their architects share a profound respect for the students and faculty who use academic buildings—and for the American campus-planning tradition. *P. M. S.*

Two Faces of Art

A small-college art center reflects two complementary ways of experiencing art—making it and viewing it.

Art Center
St. John's University
Collegeville, Minnesota
Hugh Newell Jacobsen, Architect

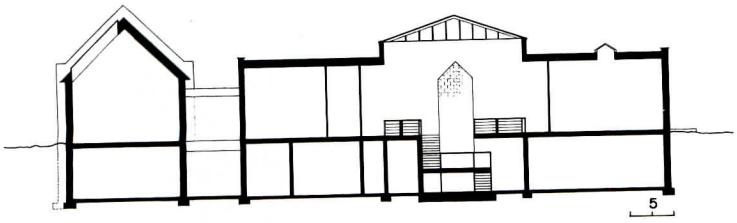


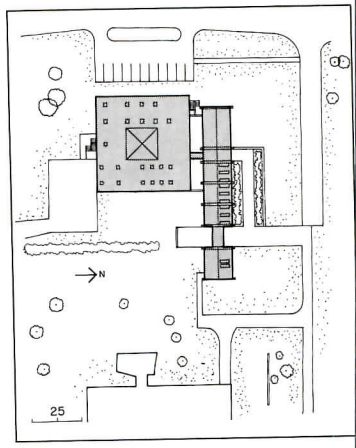
To architects of a certain age, mention of Minnesota's St. John's University summons the powerful image of Marcel Breuer's bell-shaped, neo-Brutalist abbey church of 1961, with its adjoining monastery and landmark bell banner. Though stylistically out of vogue, the complex still commands the campus, posing a force for later planners to reckon with. For architect Hugh Newell Jacobsen, accordingly, the commission to update the master plan meant reconciling the university's picturesque red-brick buildings with Breuer's original scheme, which in the fashion of its day called for razing and replacing them. And designing a new arts center meant mediating between two emphatic design statements with a building that politely, but firmly, projects an identity of its own.

The arts center more importantly represents, according to St. John's director of cultural programming, Judith Karasch, "a strong commitment to the arts." Like many such college programs, arts education at St. John's made shift with hand-me-down facilities until the school's required core curriculum was amended to include basic studies in art, music, or theater. The art department's roster of some 75 majors then swelled by another 500 to 600 enrollees, and the demand for bigger and better quarters became compelling.

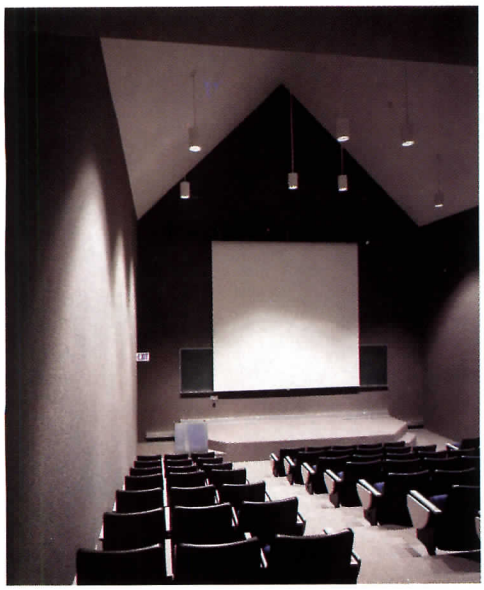
Jacobsen sees the art program as dividing naturally into "clean" pursuits—viewing art—and "dirty" ones—making and teaching it. He disposed the new facility accordingly. The public face is a long low gallery that deploys Jacobsen's trademark 45-degree gables and crisp white-on-white glazed brick; the no-nonsense gray-brick box behind it houses work spaces. The latter, a two-story 95- by 95-foot square, takes advantage of a gentle slope toward a neighboring lake to bring its lower floor partially above grade. Perimeter studios and offices center on an atrium capped by a 35-foot-square skylight. At one edge of the atrium sits a little gabled cinder-block elevator house wrapped by a structural-steel-framed industrial stair painted American-Bridge-and-Foundry yellow. Walls of pale natural-finished plywood further warm an informal setting used for displays and juries of student work as well as just hanging out.

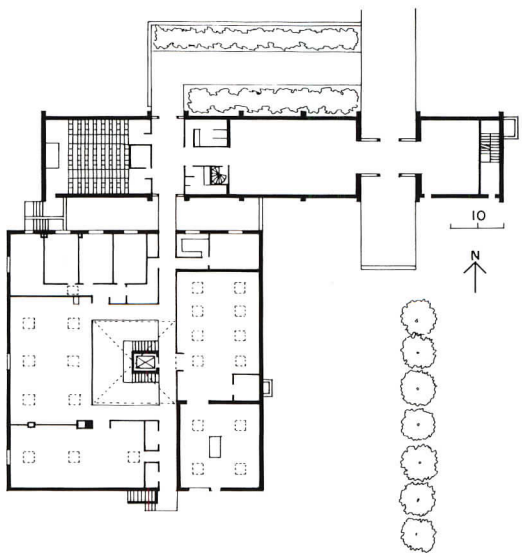
The 30- by 72-foot gallery building is similarly straightforward in structure—brick and block walls framed by precast-concrete bents that obviate interior ties—and in plan—a long main gallery flanked by a more intimate exhibit space and a small auditorium. Students enter both buildings through a corridor between gallery and auditorium, while a more formal glass lobby between the two exhibit areas welcomes the public. The premier space of the complex, the main gallery, is a coolly elegant expanse of high ceilings, gray granite floors, and north light (abetted by track lighting). But it is worth noting that the capacity crowd—some 450 people—who flocked to the recent opening of an Oskar Kokoschka exhibit casually spilled over from the pristine gallery to the studio building's atrium, as cocktail-party guests gravitate to the kitchen. *Margaret Gaskie*





Though the rectangular gallery with its aluminum-clad pitched roof and the square studio building adjoining it (top photo) are themselves lessons in pure form, the arts center provides flexible and practical housing for a varied program. Its placement also strengthens a cross-campus allée, now sketched by a scattering of austere Breuer-designed dormitories, which the Jacobsen master plan extends to a lake at the campus border. The public entrance, a formal glass vestibule between the larger and smaller galleries (opposite), is augmented by a second student entrance that extends through the gallery building, past the auditorium to the teaching facility behind.





The 88-seat auditorium at the west end of the gallery building (top left) is used for campus-wide programs (e. g., an international film series) as well as departmental lectures. Similarly, major exhibits in the main gallery (top right) attract the broader community, welcomed by a glass-enclosed public entry (below). The upper floor of the teaching wing contains faculty offices and large studios, including two sound-proof sculpture "factories" around the central atrium and circulation core (opposite). Natural light from skylights is controlled by motorized horizontal shades. On the lower level, additional large studios and a conference room overlook the lake. Across the atrium, adjoining a student lounge, individual studios for senior art majors are roughly finished with easily replaced plywood to give their occupants a free hand in "decorating" to suit.

Credits
Art Center
St. John's University
Collegeville, Minnesota
Owner: *Order of St. Benedict*
Architect: *Hugh Newell Jacobsen, Architect—Hugh Newell Jacobsen, principal-in-charge; Paul Roddick, project architect*
Architect in Charge: *Rafferty, Rafferty & Tollefson*
Engineers: *McMullan & Associates (structural); Gausman & Moore (mechanical/electrical)*
Consultant: *Donald L. White, Ltd. (specifications)*
General Contractor: *Donlar Construction*

Science Fair

Four new science buildings at th University of Oregon are the product of a campus-planning and design process that begins and ends with users.

University of Oregon Science Complex
Eugene, Oregon
The Ratcliff Architects, Executive Architect
Moore Ruble Yudell, Design Architect

At first glance, the four brand-spanking new science buildings at the University of Oregon appear as if they grew up with the campus, and have been in place for years. They fool the eye not just because the colors and patterns on the brick exteriors look like those on other campus buildings, but also because these buildings just don't look like science buildings. Their massing and rhythm along campus streets and paths and the open spaces between them acknowledge the structure of the university's original campus plan of pre-war two- and three-story brick buildings and courtyards.

Inside the new buildings, paths that lead to office-laboratory nodes and conference spaces are made to cross, so that colleagues will stumble across one another and have the opportunity to interact. Some eight science buildings (four existed) are organized to create intersections of paths, hallways, and bridges—again, stimulating the interaction of faculty and students of different departments and the attendant cross-pollenization of research and ideas.

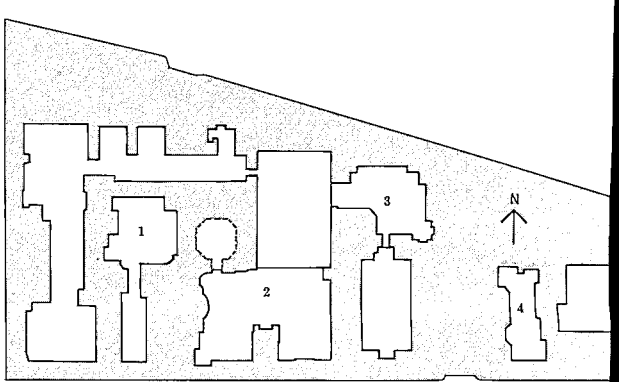
The spirit of sharing within these buildings is not merely egalitarian. It recognizes a current reality of higher science that scientists know only too well: discoveries occur when dissimilar disciplines mix. A scientist today may not be purely a chemist, physicist, or biologist, but a physical chemist or molecular biologist. And it is not surprising to find that these buildings are designed for interaction rather than isolation, because their future users made interdisciplinary contacts a high priority in the university's complex, highly participatory planning process.

As much as the University of Oregon campus provides a physical and historical context for these buildings, so does the evolution of campus-planning policy. From 1914 to 1940 architect and campus planner Ellis Lawrence designed all the buildings on the campus following an almost Jeffersonian scheme. The planning process was simple, with the university presidents and department heads working directly with Lawrence. During the 25 years that followed World War II, a number of unremarkable—some say awful—buildings were built that ignored Lawrence's original plan, as well as the character of the campus established by his work. These buildings are said to have evolved out of collaborations between campus business managers and consulting architects, with users mostly ignored in the process.

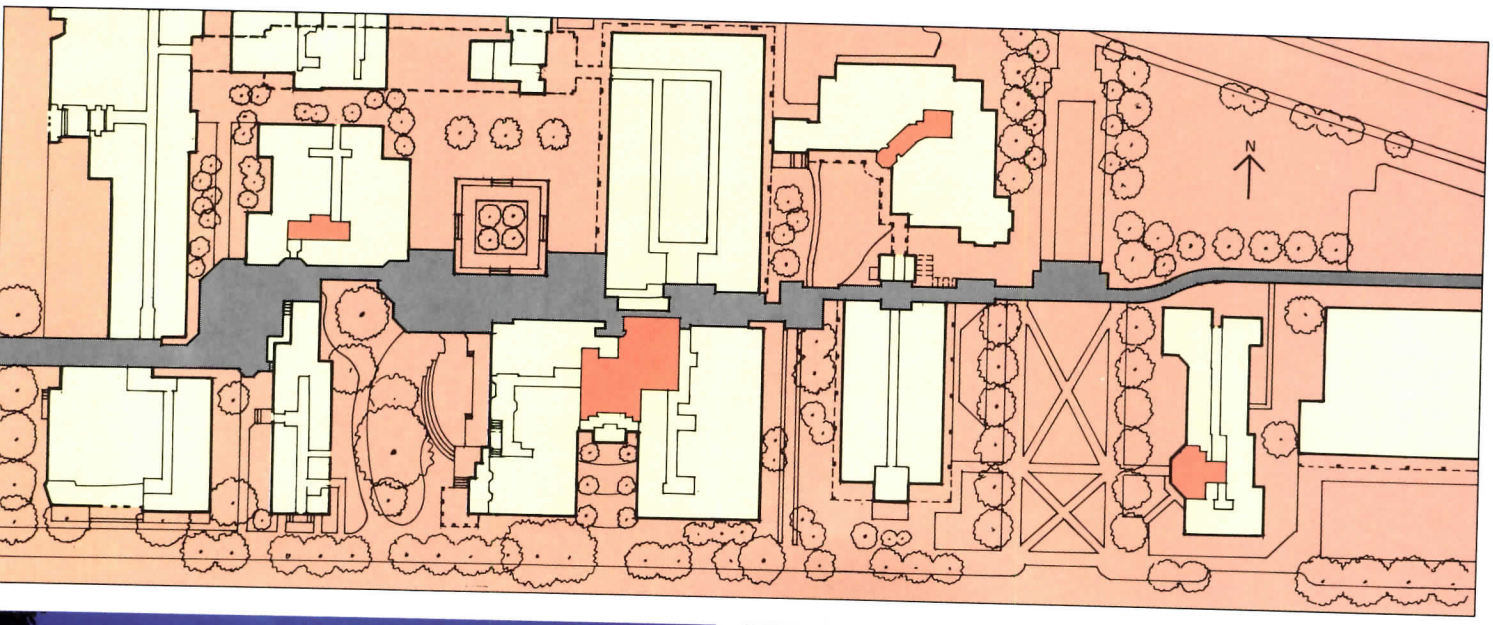
In 1972, the university hired Christopher Alexander and the Center for Environmental Structure to assist in preparing a new campus master plan. Alexander's work was presented to the university in 1973 and later became the university's master plan. Alexander and others published two accounts of this planning process, *A Pattern Language* and *The Oregon Experiment.*

University planners still follow Alexander's precepts. In the case of the new science complex, the design process began without architects. A committee of core users from the various science departments worked with university planners to produce a lengthy document called *A Manual for Prospective Architectural Consultants,* which clearly defined project goals and interdepartmental structure. The group further helped campus planners in writing the RFP for architectural services. They interviewed a number of architectural firms and chose the Ratcliff Architects. Ratcliff Architects, in turn, selected Moore Ruble Yudell, a firm known for collaboration with users and designers.
Continued on page 94

Cascade Hall, the new geology building (overleaf), opens onto a courtyard and a bridge to the existing vulcanology building. The shaded area (top opposite) indicates the Science Walk, a central circulation spine that connects courtyards and twists through new and existing science buildings. The shaded areas within the buildings indicate zones of public space that open onto Science Walk courtyards. In Willamette Hall (physics, 1), skylights cut into a covered porch on the west side (2) allow daylight into interior offices and laboratories. Cascade Hall is seen in the background. A giant bay window (3) marks the entrance to Deschutes Hall (computer science) and a two-story seminar room inside. Streisinger Hall (cell biology, 4) turns a corner between two existing buildings to form this courtyard. The site plan (below) shows how the new buildings nestle between existing ones, repairing the site and re-establishing campus architect Ellis Lawrence's original piecemeal growth pattern.



1. Cascade Hall
2. Willamette Hall
3. Streisinger Hall
4. Deschutes Hall



© *Timothy Hursley photos*

2

4

Willamette Hall's south facade fronts Thirteenth Avenue (opposite and top right). Its elevation is broken into setbacks that imitate the rhythm and massing of Ellis Lawrence's buildings elsewhere on campus. The east side of Willamette Hall (middle right) has a courtyard, which is formed as the building connects with existing Klamath and Streisinger halls. And another courtyard (seen from Thirteenth Avenue at bottom right) leads from the front of Willamette Hall into the building's atrium.

Aware that the University of Oregon's research complex represented a pursuit of academic excellence, and that the facilities would have an impact on the entire campus community, the core-user group decided the buildings themselves should be of the highest quality, and in the planning process, traded lab space to achieve that quality. The high level of finish apparent on the buildings' exteriors (terne-coated stainless-steel roofing, patterned brickwork, ceramic tile, and reinforced concrete detailed to produce bands, pilasters, and arches) is a result of the core-user group's priorities.

1

2

3

4

Convinced that it takes great places to produce great science, the core-user group opted to allocate space to areas that would encourage contacts rather than to isolated lab space. The daylit atrium in Willamette Hall is a result of this decision. The atrium acts as an interdepartmental "hearth," one of the patterns identified by Christopher Alexander as a spot where paths converge to create a meeting place anchored by the warmth and light of a fire (4). The imagery is supported by the chimneylike stair and elevator structure (1, 2, 3), which houses a small coffee bar—an important source of warmth and energy for students and scientists—at its base.

Researchers and students prefer a triumphal walk down the open, winding stairway (opposite) to the elevator, thus increasing the chances of spontaneous meetings. The connecting balconies and sculpture are applied to the brutalist, egg-crate facade of existing Klamath Hall. The core-user group's request that the architects build bridges between departments was taken quite literally (above right) where Klamath and Willamette halls join.

Continued from page 88
Once the architects were selected, planning workshops began in earnest, at one point involving over 100 people from the university community. Accepting input from so many subcommittees required a tremendous amount of coordination and discipline, but also provided the core users with checks and balances so that no one group's interests were favored more than another's.

Designing an academic building is often an exercise in totalitarian campus politics. Here, the process was particularly democratic because, by definition, pattern-language buildings can only be produced through user collaboration. The university administration's commitment to and respect for the decisions of the core-user group and design team was also an important factor.

Design-team members credit the early work of the campus planners and the core-user group for setting clear goals for the new buildings, and especially for the group's adherence to those goals over the six years it took to complete the project. Core-user group members point to a gifted design team that guided and educated them without dominating them. Without doubt both contributed greatly to a new science complex to which students and researchers are devoted. *Charles Linn*

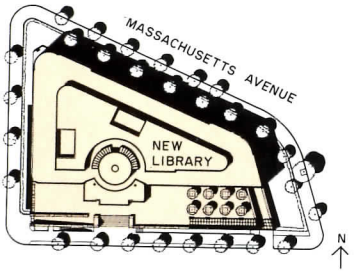
Credits
University of Oregon Science Complex
Eugene, Oregon
Owner: *University of Oregon, Eugene—J. David Rowe, campus planner; John Mosley, vice president, research; Fred Tepfer, facilitator; Gary Fritz, campus architect*
Executive Architect: *The Ratcliff Architects—Christopher Ratcliff, principal; Christie Johnson Coffin, project director; Carl Christiansen, project architect, Willamette and Deschutes halls; Stephanie Bartos, project architect, Streisinger Hall; Tak Yamamoto, project architect, Cascade Hall; Yung Ling Chen, interiors coordinator; Eugene Kodani, senior technical architect; Jack Margolis, specifications and quality control*
Design Architect: *Moore Ruble Yudell—Buzz Yudell, principal designer, principal-in-charge; Charles Moore, John Ruble, principal designers; Stephen Harby, Jim Morton, project managers*
Associate Architect: *Brockmeyer McDonnell—Eugene Brockmeyer, Jerry McDonnell, Russ McCready*
Engineers: *PMB Systems Engineering (structural); Gayner Engineers, Inc. (mechanical); Cammisa & Wipf (electrical); Balhizer Hubbard (civil)*
Consultants: *McLellan & Copenhagen (laboratory planning); Charles M. Salter & Associates (acoustics); Berkeley Solar Group (energy conservation); Dick Peters (lighting); Cameron & McCarthy (landscape); Tina Beebe (color); Lotte Streisinger, Alice Windwall, Kent Bloomer, Jane Marquis, Ed Carpenter, Wayne Chabre, Scott Wylie, artists*
General Contractors: *Wildish Building Company, Robinson Construction, Hyland & Sons*

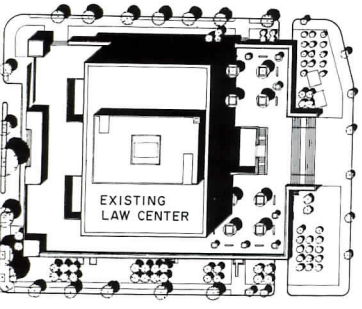
A tower at the southwest corner of Willamette Hall marks the entrance to a series of class rooms and lecture halls, and houses stairs leading to a plaz and covered porch. The hammered copper gargoyles of Sir Isaac Newton (above) and James Maxwell (opposite) by artist Wayne Chabre and some 62 works of art at other locations throughout the complex were acquired through the state of Oregon's Percent for Art in Public Places program, which requires that one percent of the budget for publicly funded projects be used for ar The art was selected by a committee that included users, members of the design team and the local arts community and representatives of the Oregon Arts Commission.

Placemaker

Edward Bennett Williams
Law Library
Georgetown University
Law Center
Washington, D. C.
Hartman-Cox Architects

© Peter Aaron/Esto photos





he Edward Bennett Williams aw Library occupies a trape- oidal site just north of the 971 Georgetown University aw Center (photo top and site lan above). The new building's cus is away from noisy lassachusetts Avenue and in- ard over G Street, which has en turned into a landscaped urtyard. The entrance of this urt (opposite) is a perforated linder connected to the build- g by glass curtain walls.

Gertrude Stein's quip about Oakland, California—"There's no there there"—once aptly described the Georgetown University Law Center. Located on an isolated site across town from the university's main campus, the Law Center was anything but inviting: a buff-colored brick tissue box designed by Edward Durrell Stone in 1971. That, however, was before the university called in Hartman-Cox Architects, whose recent design for the Edward Bennett Williams Law Library on an adjacent site creates both a gentle monument to civility and a "there" where none had been before.

Although the 150,000-square-foot library defers to the older Law Center in a number of ways—both buildings are raised on podiums, both are horizontal structures with strong contrasting vertical lines, and the library's precast concrete roughly matches the color of the Law Center's brick skin—the new building's deep-set windows and pleasing play of solids and voids contrast with the Law Center's relatively flat elevations. As with other recent buildings, Hartman-Cox here has raised the art of precast concrete to new levels, using flexible urethane molds to form the concrete into a variety of classical details. What is more, light sandblasting has produced a cladding so uniformly colored that its skin is often mistaken for limestone.

To establish a sense of place for the campus, Hartman-Cox oriented the library's entrance inward, away from the city, and placed a landscaped courtyard along one block of G Street. The court, set between the Law Center and the library and sunk a floor lower than the platforms, has proven a popular student gathering place. Just as important, with completion of the library the Law Center no longer seems an overbearing temple-in-the-sky. By adding trellises to the platforms of both buildings—and yellow brick service towers to the Law Center's underground garage—Hartman-Cox further injected a much-needed sense of scale and purpose.

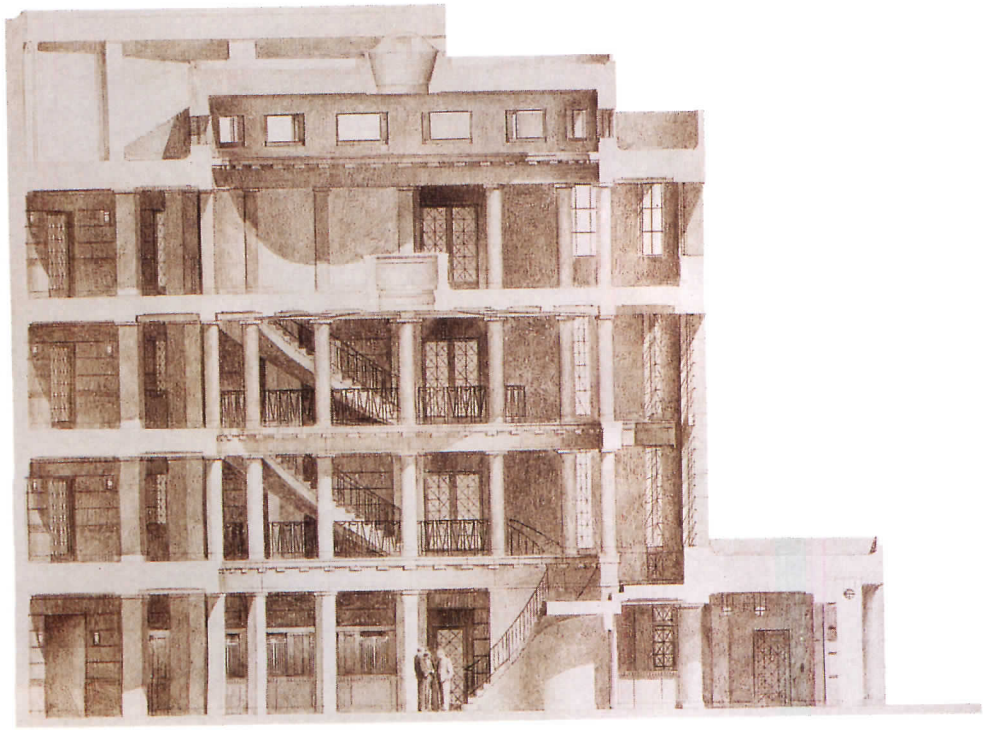
The library's entrance, which faces the north side of the Law Center, is in the form of a cylinder set into an apselike depression in the building's trapezoidal bulk. Inside, the 32-foot-diameter, four-story-high cylinder functions as an imposing atrium. Structural "Tuscan" columns are sheathed in plaster and acrylic, while a coffered, glass-fiber-reinforced gypsum ceiling supports a fifth-floor reading room, which is visible through an oculus.

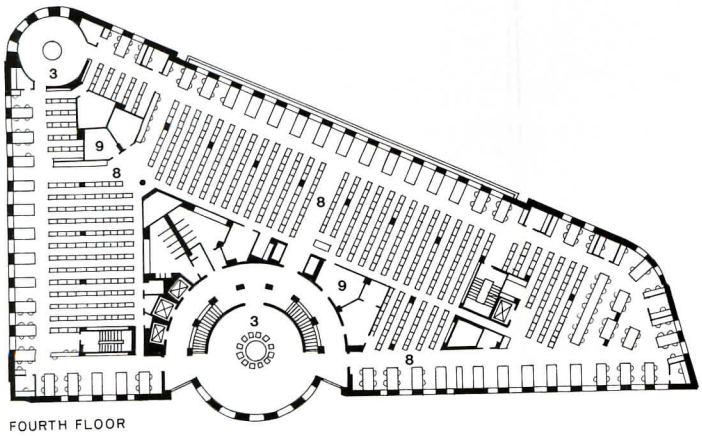
The library's interiors all radiate from the atrium, whose grace is matched by that of the main reading room—a two-story rectangular space with seven windows overlooking Massachusetts Avenue. With its traditionally paneled wood walls and bright-red carpeting, this contemplative space evokes the great American and European reading rooms of the past, including Hartman-Cox's own 1983 addition to the Folger Library. Although the room's wood tables are task-lit, the north-facing windows allow for plentiful natural daylight. Overhead and uplighting provide additional illumination at night.

In plan and in construction the rest of the library is straightforward and economical—flat-slab concrete, hung acoustical ceilings, carpeted floors and walls. Each floor has a combination of reading rooms, study carrels (1,200 in all), book stacks, group-study rooms, and semicircular reading lounges. Tucked into corners are workstations for 200 personal computers. Twelve computer terminals access the on-line card catalog; book capacity is 786,000 volumes. Throughout, architect-designed furniture, light fixtures, and door handles offer a rich consistency from space to space. *Nora Richter Greer*

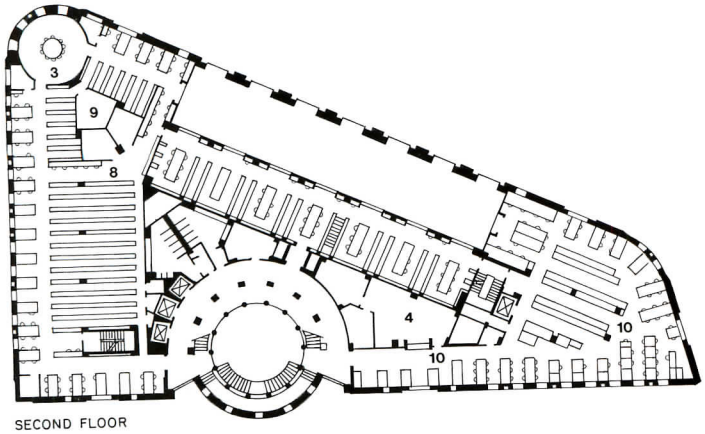
Nora Richter Greer is a free-lance writer in Washington, D. C.

The cylinder functions as a three-story lobby featuring a terrazzo floor laid in a wheel-and-spoke pattern. An oculus set into the glass-fiber-reinforced gypsum ceiling becomes the centerpiece of the reading room above (shown in plan page 100). The atrium is framed by graceful stairways and gray-painted Tuscan columns (left), while a high, wood-appointed reading room runs along the Massachusetts Avenue facade (top photo page 100, and page 101). Reference desk and stacks are just off the main reading room. Semi-circular reading lounges at the building's rounded corners (bottom photo page 100) have proven especially popular among students.

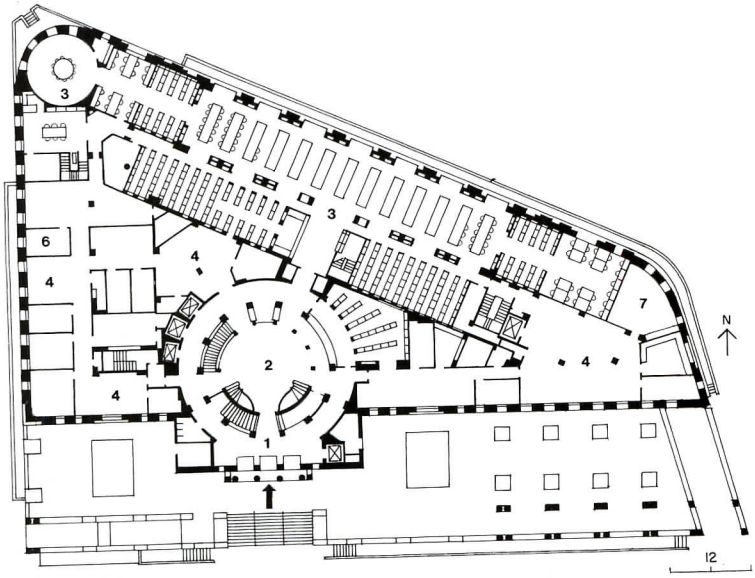




FOURTH FLOOR



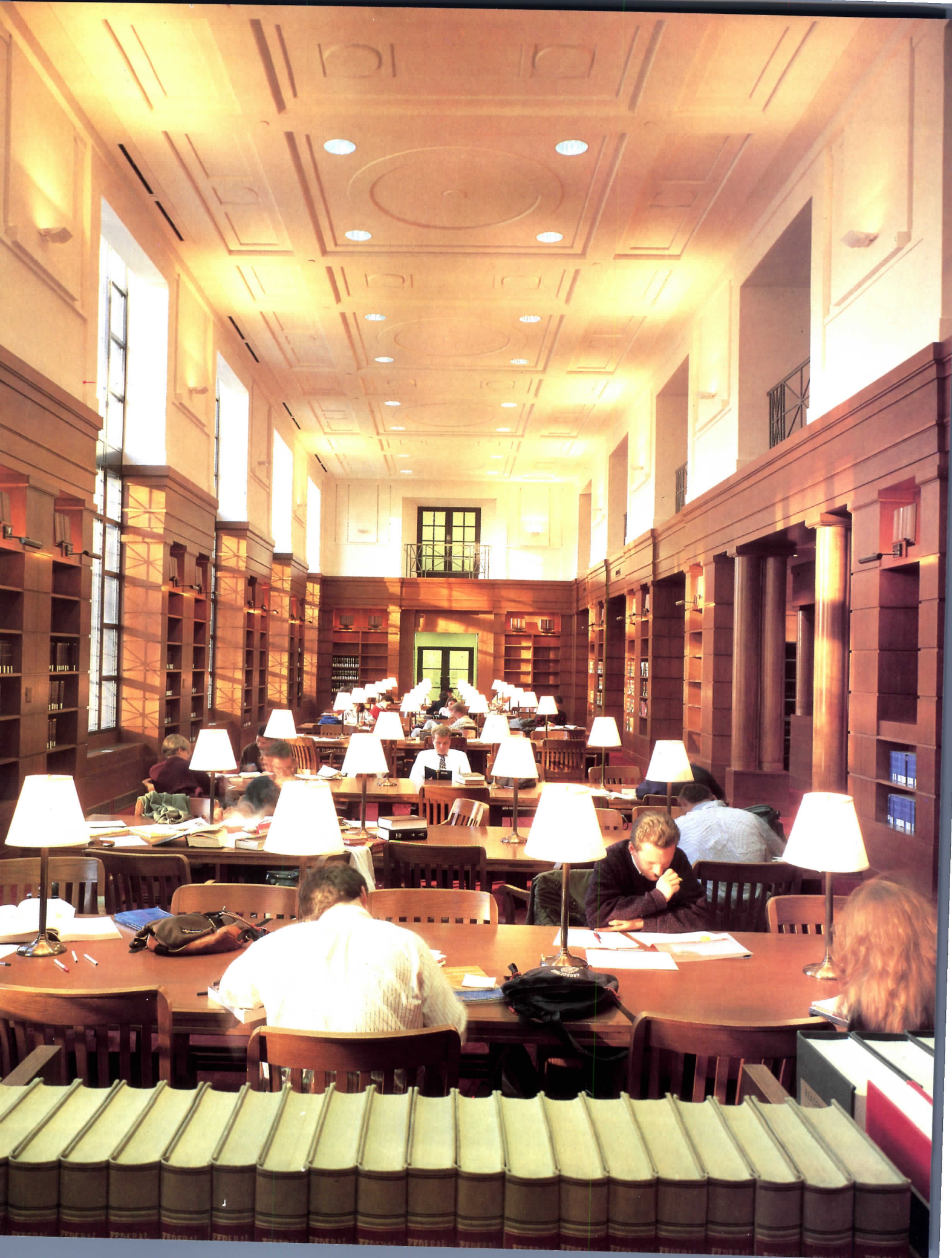
SECOND FLOOR



FIRST FLOOR

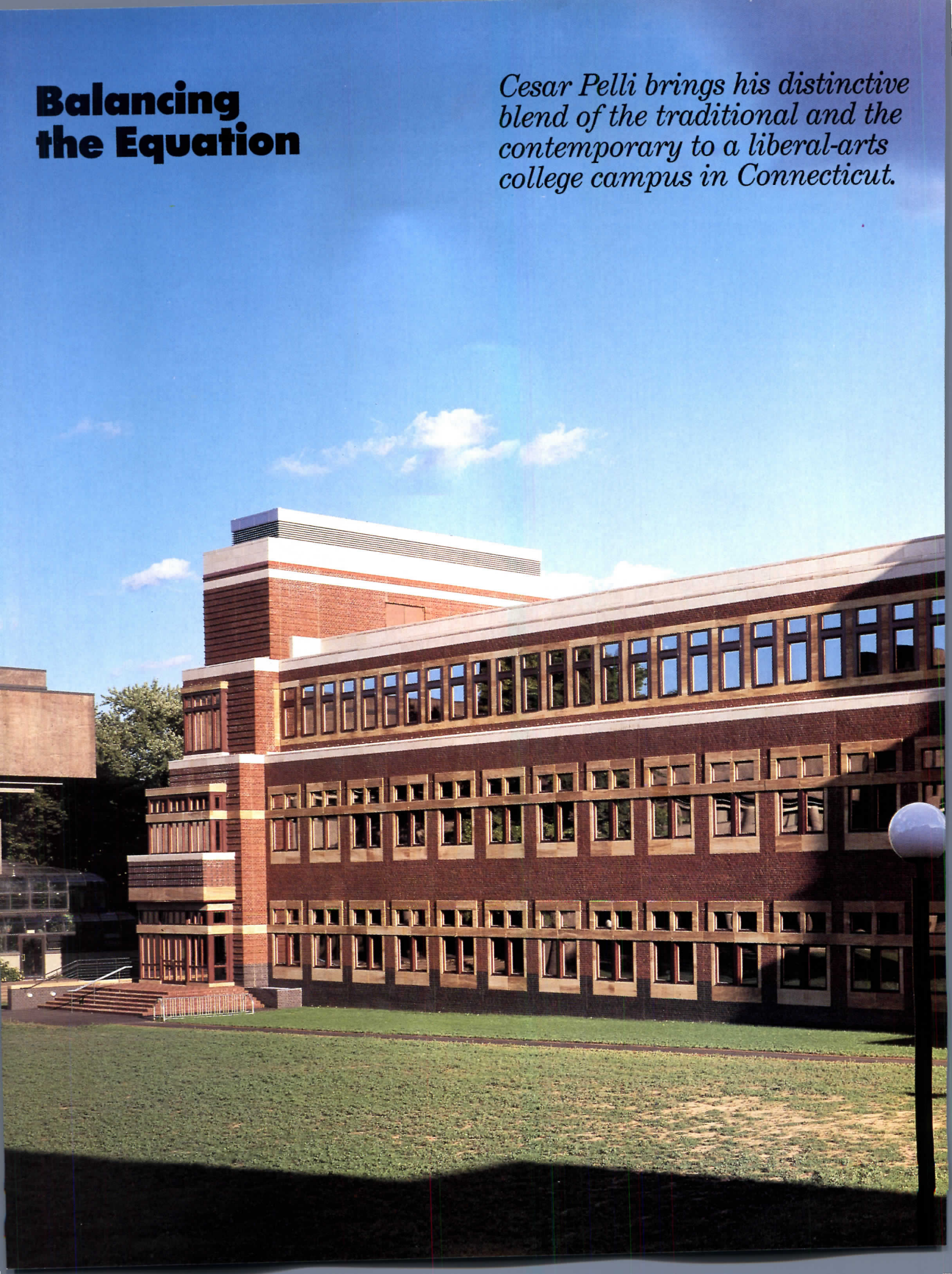
1. *Entry vestibule*
2. *Atrium*
3. *Reading room*
4. *Staff*
5. *Circulation*
6. *Office*
7. *Staff lounge*
8. *General collections stacks*
9. *Group study*
10. *Microform*

Credits
Edward Bennett Williams Law Library Georgetown University Law Center Washington, D. C.
Owner: *Georgetown University*
Architect: *Hartman-Cox Architects—Warren J. Cox and Mario H. Boiardi, partners-in-charge; William Curtis and Peter Grina, project assistants*
Engineers: *James Madison Cutts (structural); Shefferman & Bigelson (mechanical)*
Consultants: *The Environmental Research Group—Walter Moleski (programming); Meade Palmer (landscape architecture)*
General Contractor: *Whiting Turner Contracting Company*



Balancing the Equation

Cesar Pelli brings his distinctive blend of the traditional and the contemporary to a liberal-arts college campus in Connecticut.



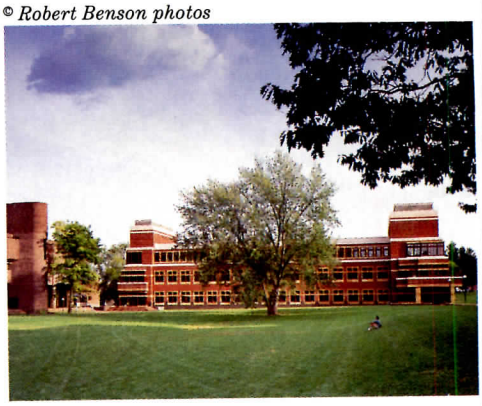
Mathematics, Computing
and Engineering Center
Trinity College
Hartford, Connecticut
Cesar Pelli & Associates, Architect

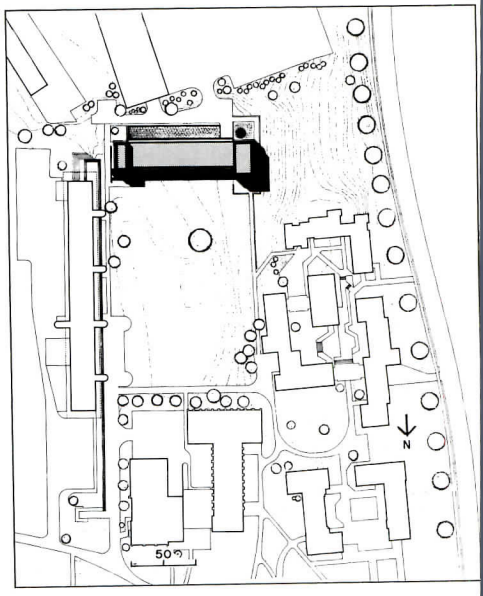
When the trustees of Trinity College decided in 1873 to move the school from downtown Hartford to a high ridge south of the city center, they commissioned English architect William Burges to prepare a four-quadrangle master plan which, if built, would have rivaled the academic cloisters of Oxford and Cambridge. Although the college ultimately erected just one side of one Burges quadrangle, that polychromed sandstone range of classrooms, dormitories, and faculty offices, known as the Long Walk, is "the best example anywhere of Victorian Gothic collegiate architecture," according to historian Henry-Russell Hitchcock.

In recent times, Trinity's architectural patronage has been much less enlightened, its post-war history marked by mediocre appendages haphazardly tacked to its ivied heart of gold. Until now. With the completion of its Mathematics, Computing and Engineering Center (MCEC), designed by Cesar Pelli & Associates, the college has taken a major step toward reversing the architectural and planning indifference of the past 50 years. The MCEC's program of classrooms, seminar rooms, laboratories, faculty offices, and lounges was based on a survey that forecast a growing shortage of academic space on campus. But beyond addressing the college's present and future needs, the 48,000-square-foot facility has significant campus-planning implications, neatly terminating Trinity's previously unresolved southern end and defining a new academic quadrangle on the approximate site of Burges's southernmost proposed quad.

In commissioning Pelli to design the four-story structure, the college turned to an architect whose current institutional work, especially on well-established urban campuses like Rice and Yale, reflects what *New York Times* critic Paul Goldberger calls Pelli's "struggle for synthesis"—i. e., his search to balance respect for historic context with a longstanding commitment to the imagery, materials, and technology of Modernism. And so, while the MCEC is very much a late 20th-century building—a steel-frame-with-concrete-deck facility dedicated to the instruction of high-tech disciplines—Pelli acknowledges his debt to Burges's 120-year-old structures down the path. The MCEC's composition (a horizontal bar flanked by vertical masses), fenestration (tall wood-framed windows, grouped in pairs or threes within thick stone surrounds), color (dark masonry cladding with tawny sandstone trim), and even interior detailing (bits of red stained glass and dark mahogany-veneered paneling) reinterpret elements on the Long Walk and embody what Pelli calls "a confluence of my own sensibility and the character of the place."

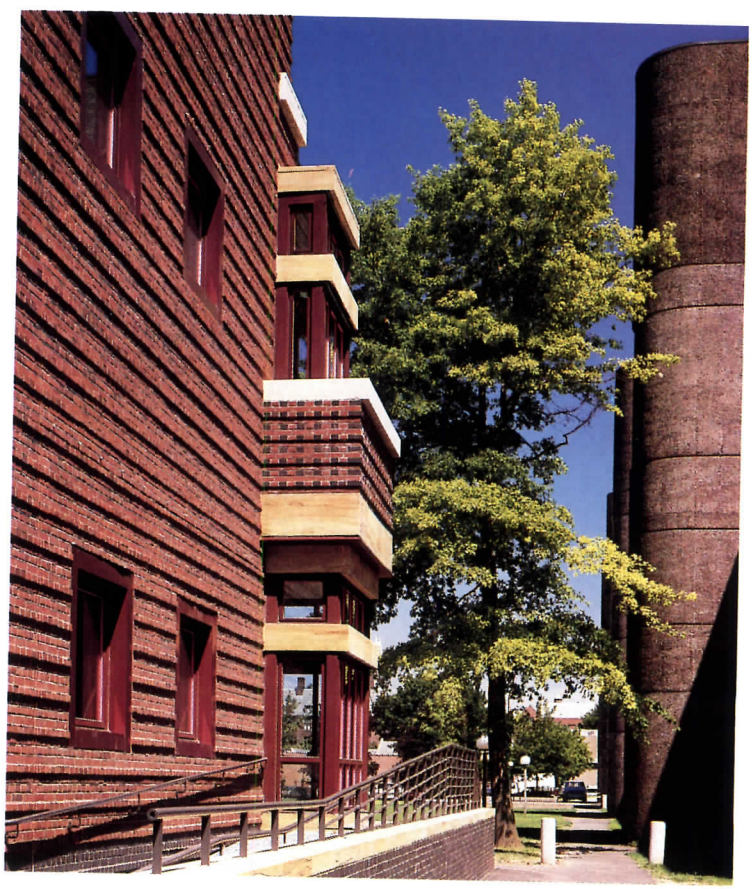
As the first new academic facility on campus in almost 25 years, the MCEC was seen as a "deliberately generic building with the flexibility to accommodate unknown future uses," recalls William Butler, Pelli's design-team leader. Toward that end, the architects organized classrooms and labs as adaptable warehouselike space situated off a 176-foot-long corridor connecting the building's east and west pavilions, which house lounges, seminar rooms, and stairwells. The classrooms and labs enjoy natural light through deeply recessed south-facing windows, while faculty offices on the opposite side of the corridor face north, overlooking the newly formed quad. Another concession to flexibility—and budget—is the MCEC's surprisingly *low*-tech wire-management system. Except for the lower level, which has raised flooring, computer wire runs from labs and classrooms through holes drilled into the concrete slab and then along gypboard-covered trays on either side of corridors. The cable trays would puzzle William Burges, but the gently vaulted corridor ceilings (papered in a Pelli-designed bar-and-dot pattern) and built-in mahogany benches would no doubt please him. *Paul M. Sachner*

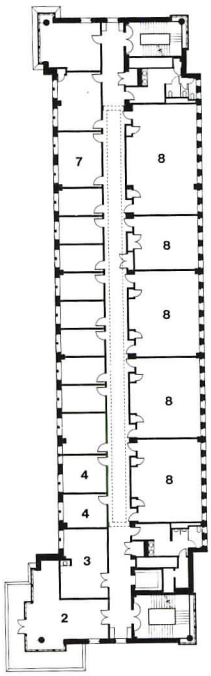




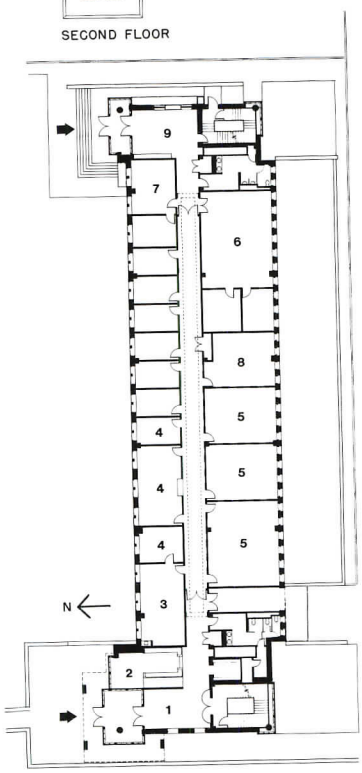
Along with the existing neo-Brutalist Jacobs Life Sciences Center (far left in top photo and overleaf), Trinity's Mathematics, Computing and Engineering Center defines a new academic quadrangle on the southern end of the college's 90-acre campus. The building's north and south elevations reflect the two principal components of its interior program. The north, campus-facing elevation (overleaf) is organized on a 10-foot module that relates directly to faculty offices behind paired double-glazed windows; the south, city-facing elevation (opposite) is arranged on a 5-foot module that allows the college to reconfigure classroom and lab space as instructional requirements change. The 48,000-square-foot building cost $9.9 million.

The MCEC is clad in a combination of red-brown brick, golden Briar Hill sandstone, and white Indiana limestone (top). Window surrounds are red-painted aluminum with mahogany frames, the wood sash selected because it can be easily removed for repair. The brick, which harmonizes with other brick buildings on campus, is laid in an English cross bond (alternate rows of headers and stretchers). On the building's two entrance pavilions (opposite and bottom), every fourth brick course projects three-quarters of an inch for added texture. The facade's polytonality becomes more deliberate on the pavilions' canopy fronts, where header bands alternate black and red. (Although a Trinity art-history professor has likened the peppered brickwork to similarly patterned brick on the Mark Twain House, one of Hartford's best-known landmarks, Pelli denies any direct influence of that earlier building.)





SECOND FLOOR



FIRST FLOOR

1. *West vestibule*
2. *Lounge*
3. *Secretary*
4. *Office*
5. *Computer Center*
6. *Mathematics Center*
7. *Seminar room*
8. *Classroom*
9. *East vestibule*

The MCEC's interior is organized with classrooms, labs, and faculty offices arranged along either side of 7-foot-wide corridors (plans left). Glass-fiber-reinforced gypsum corridor ceilings are covered with custom-designed wallpaper and are flanked by gypsum-board shelves housing computer wire and fluorescent uplighting (opposite). Plantation-grown, East African mahogany-veneered doors, window surrounds, and benches adorn a faculty-student lounge (top) and a sitting area off the main-floor lobby (middle). Stained-glass windows (bottom) are abstract versions of windows found on Trinity's original 19th-century buildings.

Credits

Mathematics, Computing and Engineering Center
Trinity College
Hartford, Connecticut
Owner: *Trinity College*
Architect: *Cesar Pelli & Associates—Cesar Pelli, design principal; Diana Balmori, partner-in-charge; Jeff Paine, project manager; William Butler, design-team leader; Mark Hesselgrave, project architect; Tim Paxton, John Apicella, Roger Schickedantz, Peter Viteretto, Julie Meyers, project team*
Engineers: *Spiegel & Zamecnik (structural); Savage Engineering (mechanical); Blanchet & Associates (civil)*
Consultants: *Hanscomb Associates (cost); Mesh & Juul (lighting)*
General Contractor: *Bartlett Brainard Escott, Inc.*

New Hub for Huskies

A major library addition transforms the University of Washington's HUB Yard from a lumpy cast-off space into a vibrant student mecca.

Allen Library
University of Washington, Seattle
Edward Larrabee Barnes/ John M. Y. Lee, Architects

Using traditional campus brick, terra cotta, limestone, and Perpendicular Gothic-derived forms, and arranging these in a brilliant piece of site design, Edward Barnes and his team has managed to transform what was once an amorphous space across from the Huskies' Union Building into a vibrant place enjoyed by students from all parts of this large commuter campus.

The 215,000-square-foot building itself extends eastward from an existing library complex consisting of a 1935 Neo-Gothic building (bottom right) and its 1962 Yamasakiesque addition. It is a singular blend of high-tech and traditional elements. Campus-Gothic buttresslike exterior columns are fronts for an ingenious composite structural system; finely crafted cherry-wood wet carrels are wired for light, phones, and computers; largely conventional materials were carefully chosen for their "green" attributes. The outside, with its brick in four colors and five patterns, Indiana limestone belt courses and coping stones, and sculpted terra-cotta spandrel panels and slate roof, defers to the original campus style of Bebb and Gould, as reinterpreted by Barnes.

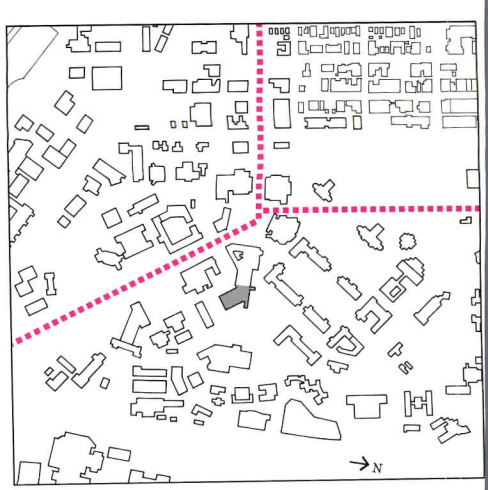
The transition to the interior is abrupt to a fault. As a system of stark white walls, it is Modernism at its most clinical. Director of University Libraries Betty Bengtson and University Architect Edward Duthweiler both told RECORD that while they are highly pleased with the building's performance and the process that produced it, the brusque transition from warm vernacular to bare white interiors was, in Duthweiler's words, "too spare." (The University wants a more colorful interior and at last word may get it.)

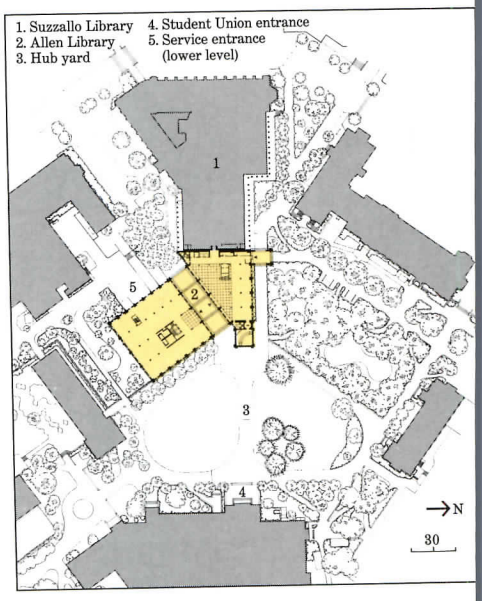
Barnes himself sees this contrast as a deliberate way of expressing the transition from campus context to interior function. The Postmodern exterior is a natural evolution in his approach to style ("I hate to think what you would have gotten had I designed this for you 20 years ago," he told the client during design). He denies that at Allen he abandoned Modernist principles. By abstracting the full-fledged Perpendicular Gothic that marks this (and other) campuses, Barnes reacted against the skin-deep facadism that these days often passes for Postmodern, and came up with a system of ingredients (brick, buttresses, coping stones, the patterned terra cotta) that echo the mass, scale, textures, and colors of the campus.

At the technical and social levels, the building does many things right. The structure is a sensible combination of exterior load-bearing high-fired brick and poured concrete columns (the resulting high mass made possible a jointless, seismically acceptable system), all connected to a steel interior frame. Handicapped access includes such features as 36-inch aisles in stack areas, desks built to accommodate wheelchairs, and remote-control door opening devices.

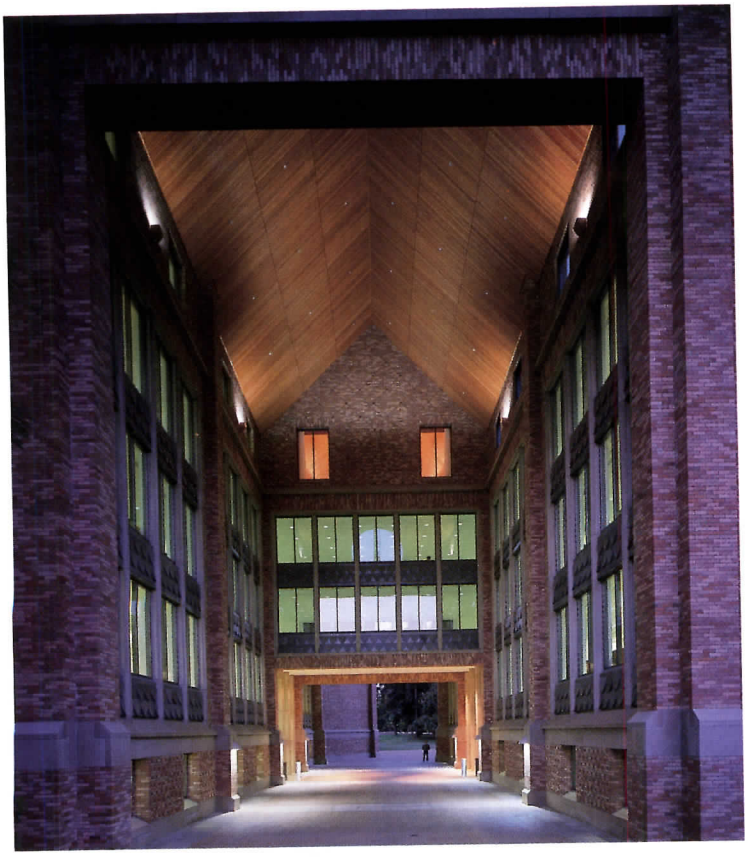
Energy and ecology won out in several ways. A high 80 percent of air is recirculated to conserve energy, and double glazing combined with the heavy exterior wall serves as a thermal mass to even out temperature fluctuations. Inverted roofing, with insulation above the membrane, kicked up the R-factor. Materials are "of the earth"—stone, terra cotta, and high-fired brick that deplete few natural resources and won't need replacement for 100 years.

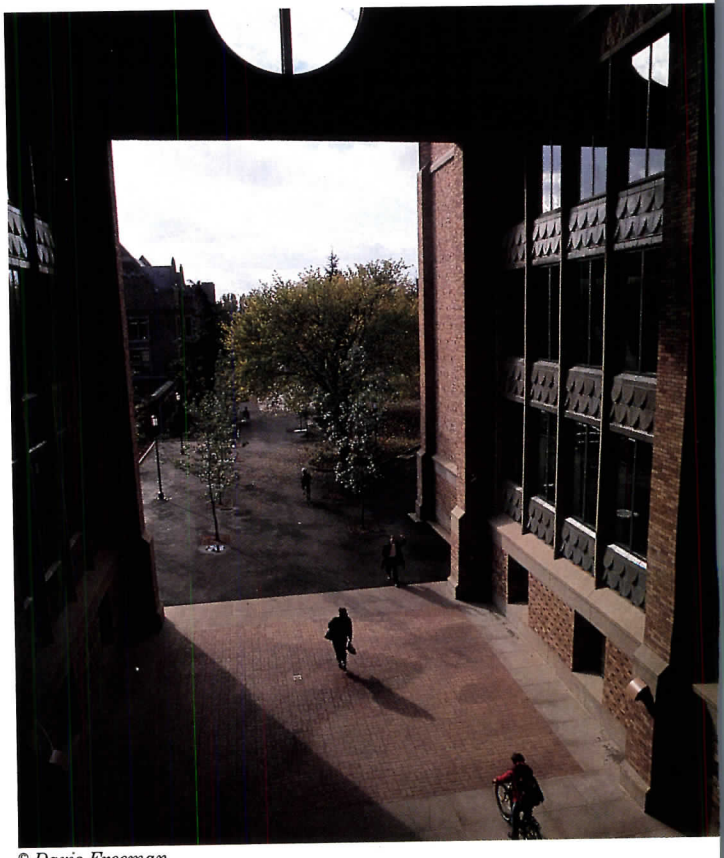
But these are the humble building blocks for a structure whose main claim to fame will surely be its role as a lively place-maker. As Betty Bengtson says: "The students love it. It fits into the surrounding space. It looks as though it's been here for a while."
Stephen A. Kliment





Site of the Allen Library (opposite) is nea the intersection of three major campus axes (top). Arrangement of the building's two wings (above), combined with major regrading of the adjacent open space, has created a highly popular gathering place known as the HUB Yard. The new buildin (capacity: 1 million volumes) caps a library-building program that began in 1935 with the monumental Suzzallo Library (below), designed by Bebb and Goul



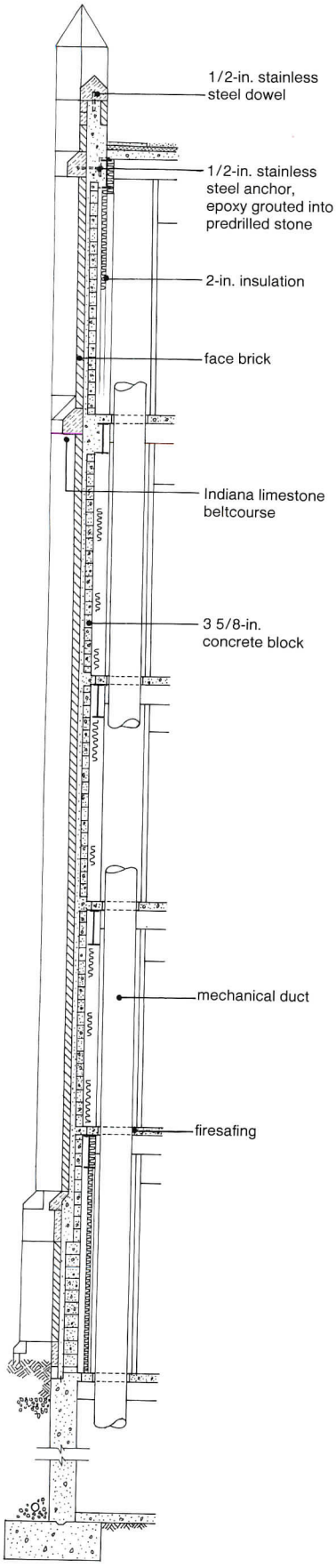


© *Davis Freeman*

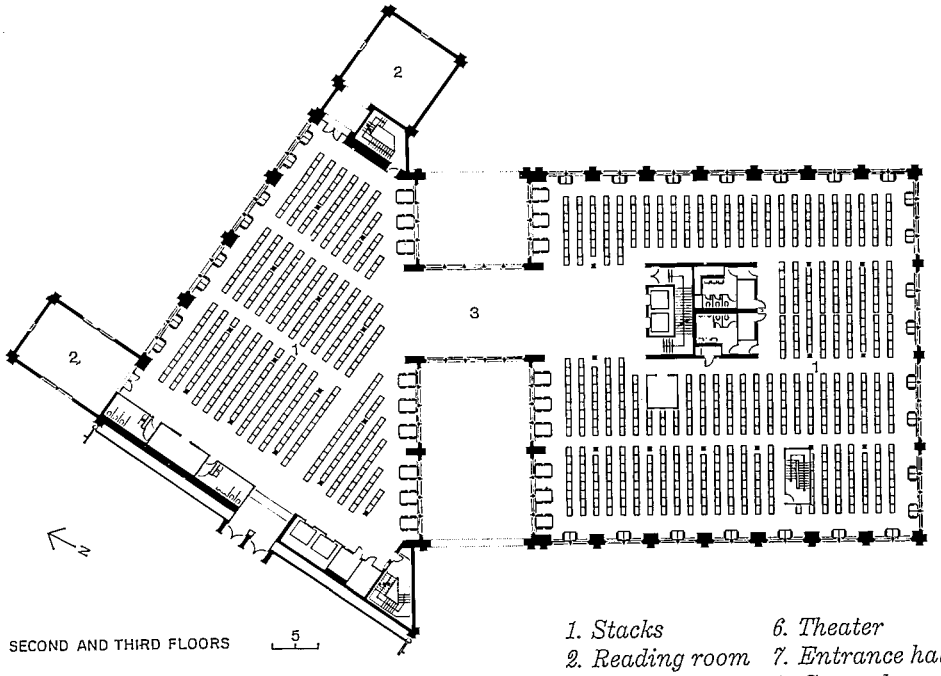
The new library building transformed an amorphous space near the crossing of the campus's three main axes into a vibrant center that faces the Huskies Union Building or HUB (steps seen in foreground, top opposite). The space was completely regraded, reorganizing the walks and using low, brick "seat-walls" and tree planting. The 80-foot-high arcade (bottom left and right), topped by slats of Western hemlock, connects two important segments of the campus and gives onto the library's almost imperceptible main entrance lobby and, across from it, the natural sciences lobby. The large rooms under the pitched roofs contain a large fireplace-equipped conference room and, at the top of the tower, the librarian's office.

The facades (right), while clearly Postmodern, are, according to Barnes, in the tradition of functional architecture in that they express what goes on inside. The structure is a composite of exterior load-bearing brick wall and poured concrete columns connected to a steel interior frame.

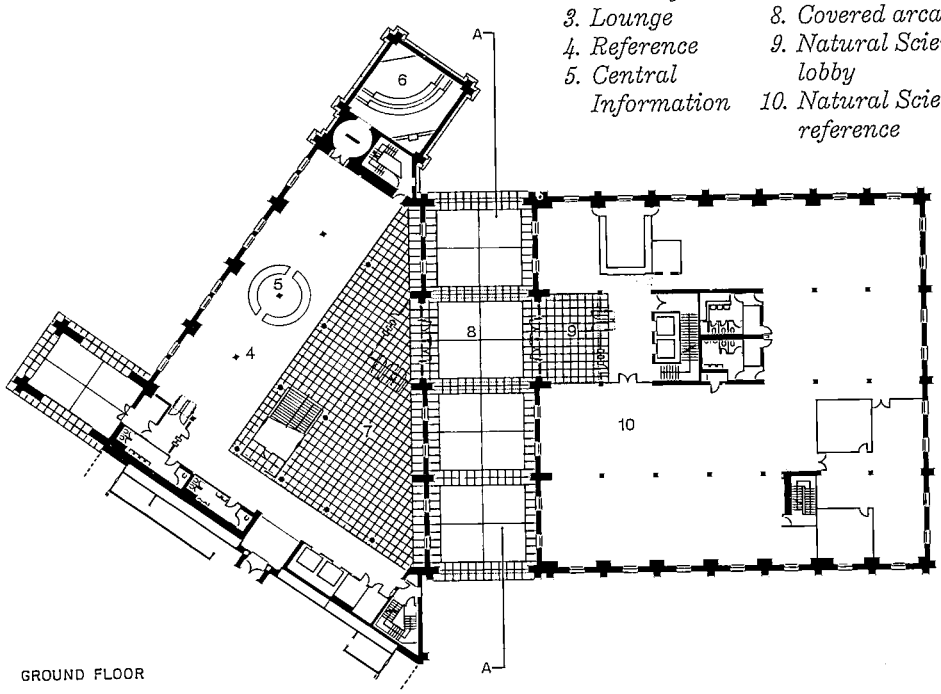
The brick served as formwork, during construction, for the concrete columns. The heavy mass of the exterior wall permitted a jointless structure that meets seismic requirements. Window spandrels come in four geometric patterns and are terra cotta hand-glazed with specks of green, blue, and black. Indiana limestone is used at belt courses, window frames, parapets, and finials. Double-glazed insulating glass comes in a light-green tint to control sun and ultraviolet rays. High-fired brick is used in four colors and five patterns. The roof is of Vermont slate.

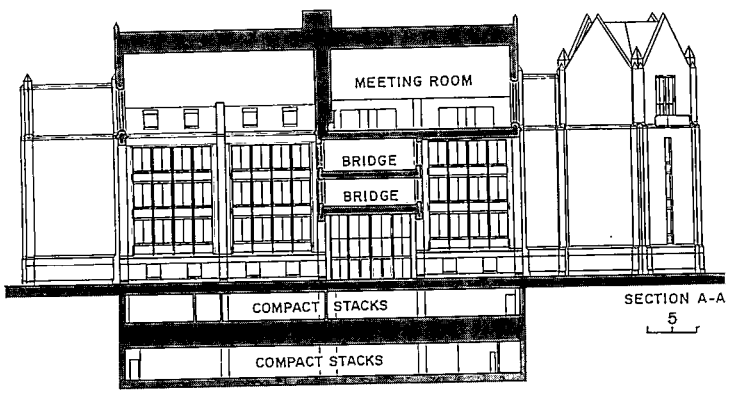


WALL SECTION 2



1. Stacks
2. Reading room
3. Lounge
4. Reference
5. Central Information
6. Theater
7. Entrance hall
8. Covered arcade
9. Natural Sciences lobby
10. Natural Sciences reference





Among the most popular spaces in the new building are lounges located over the arcade on bridges connecting the two wings. Placement of desks, tables, and carrels makes the most of the generous natural light (top and bottom, opposite). Lighting fixtures incorporate ultraviolet filters. Study tables are designed to accommodate wheelchairs; this was done by fabricating the furniture without the typical deep rail under the table edges. The white color scheme will likely be modified by means of gray-green walls at the first floor, salmon-colored walls on upper levels, and gray-beige carpeting.

Credits

Allen Library
University of Washington
Seattle, Washington
Owner: *University of Washington*
Architect: *Edward Larrabee Barnes/John M. Y. Lee Architects; Daniel T. Casey, design associate; Michael S. Barratt, project architect*
Associated Architect/ Engineer: *TRA*
Owner's Project Team: *Edward Duthweiler, universit architect; Janet Donelson, project manager; Sarah Michalak, library administration; Merle Boylan Charles Chamberlin (acting director); Betty Bengtson, directors of libraries 1978-199*
Consultants: *Hanna/Olin, Lt (landscape); McAdams Planning Consultants (library); ; Jules Fisher & Pau Marantz (lighting)*
General Contractor: *M. A. Mortenson Company*

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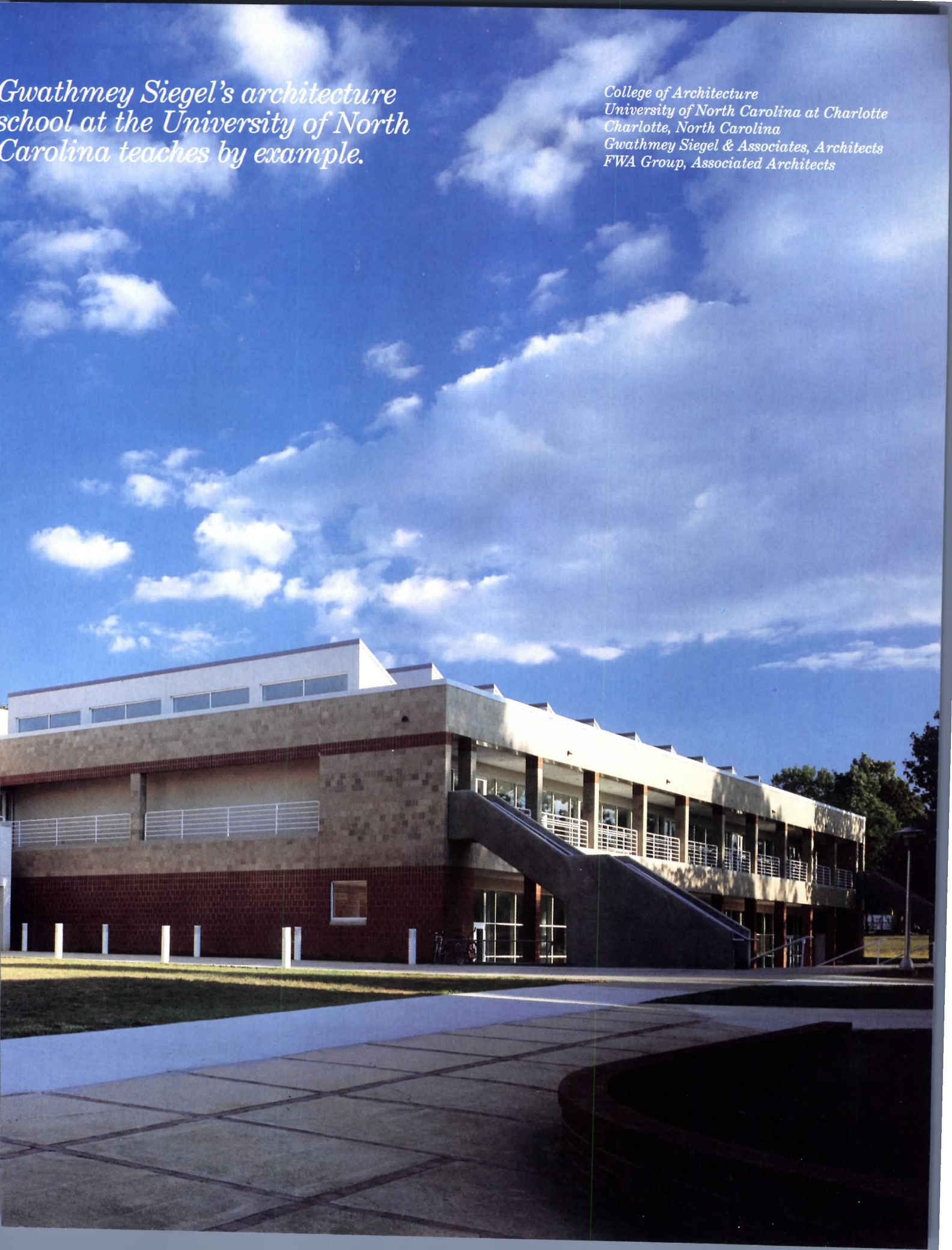
Design For Learning

Gwathmey Siegel's architecture school at the University of North Carolina teaches by example.

College of Architecture
University of North Carolina at Charlotte
Charlotte, North Carolina
Gwathmey Siegel & Associates, Architects
FWA Group, Associated Architects



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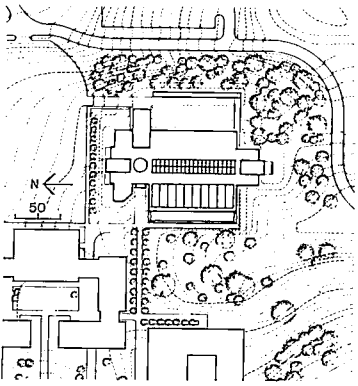
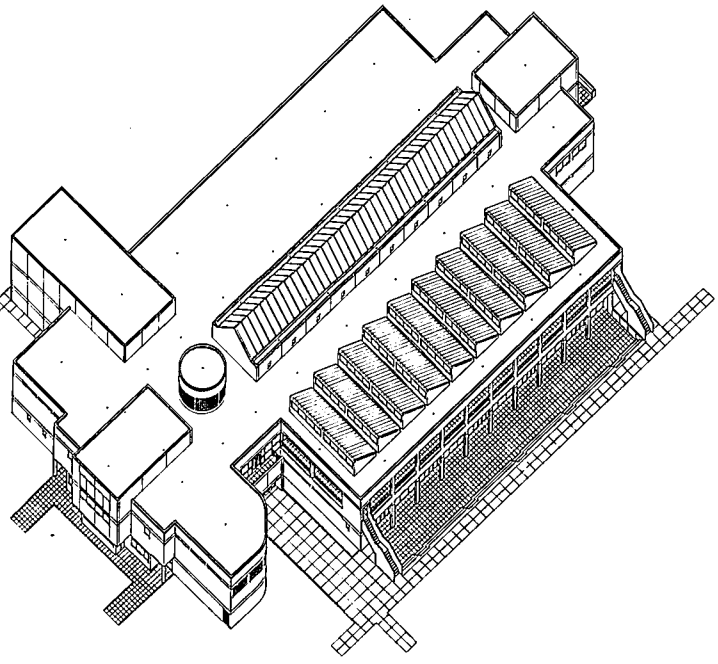


The main entrance to the architecture school (top opposite) continues a path that starts at the university's student union. To the right of the entrance are the design studios; to the left are administrative offices and an exhibit gallery. An extension of the school is possible at the south end, where a 100-seat lecture hall occupies the second floor (bottom opposite).



The most difficult buildings for architects to design are houses for themselves and architecture schools," admits Charles Gwathmey, having completed the new home of the University of North Carolina at Charlotte's college of architecture. Because its studios are loftlike and flexible, "the architecture school is a generic building," explains Gwathmey. "The building had to be general enough to be tolerant, but specific enough to inspire," says the architect. "The challenge was to take specific pieces of the program" and make them memorable. And, so as not to unduly influence the students' own designs, it was intended to be "stylistically neutral."

The spirit of the school is embodied in a central skylit atrium that the architects call the "salon" and by two floors of sun-drenched design studios facing the rest of the Charlotte campus. Although the salon wasn't part of the original program, Gwathmey argued that it was needed to serve as the college's "living room"—a place for everything from crits and impromptu discussions to art exhibits and formal receptions (page 125). Christopher Morgan, chairman of the college, at first saw no need for the salon, but today says the building would not work nearly as well without this space.

The building's design studios—with their 14-foot ceilings on the lower level, north-facing skylights on the upper level, and outdoor work space on both floors—underscore the importance of the studio experience in the school's curriculum (page 124). At the same time, their proximity to fabrication shops points up the college's emphasis on both building and designing. In the studios, columns 18 feet on-center form a grid within which 3-foot-4-inch-high partitions (spaced 36 feet apart) separate the various teaching sections without closing off the space. Tack boards can be mounted on the partitions for more privacy or to display drawings.

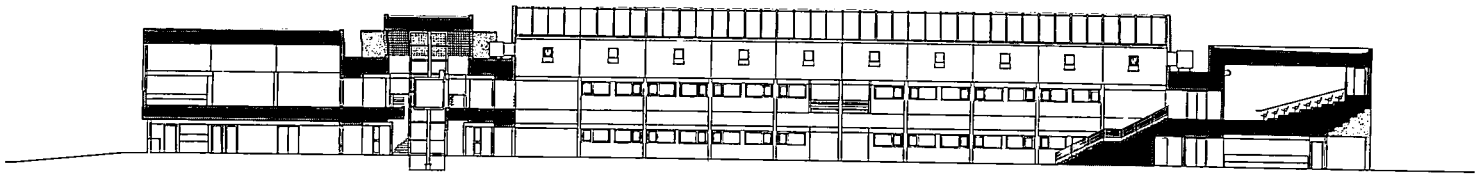
While most buildings on the Charlotte campus are "opaque," says Gwathmey, the architecture school is "porous," offering an extended second-story porch, paved outdoor studio space, and generous glazing along its west facade. At night, when the design studios are alive with students burning the midnight oil, the transparency of this campus-facing side becomes most apparent.

Located on the site of a former parking lot, the 86,000-square-foot building extends a major east-west pedestrian axis, while establishing a new north-south one for future growth. In the process, the building helps define a new lawn linking the architecture school to the rest of the campus, and serves as a model for the next phase of university development, in which parking will be pushed to the periphery of the campus. If need be, the architecture school itself can expand at its south end (bottom opposite).

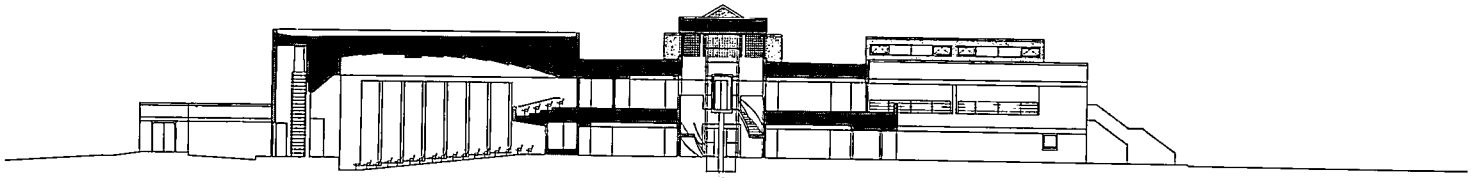
In plan, the building resembles a cathedral, with the two-story salon acting as "nave" (page 125) and narrow corridors on either side serving as "aisles." The corridors provide access to faculty offices and design studios on the west, and offices and workshops on the east. An exhibition gallery (bottom page 124) just north of the main entry and a 240-seat auditorium on axis with the front door also encourage students from other disciplines to visit the building.

A steel-frame structure with masonry bearing walls, the school is a veritable textbook of building materials and systems—its ground-face concrete block, 8- by 8-inch brick, and glazed tile showing how inexpensive and durable materials can be used to great effect, and its glass-enclosed elevator shaft (page 122) exposing the mechanics of getting from one floor to another. *Clifford A. Pearson*

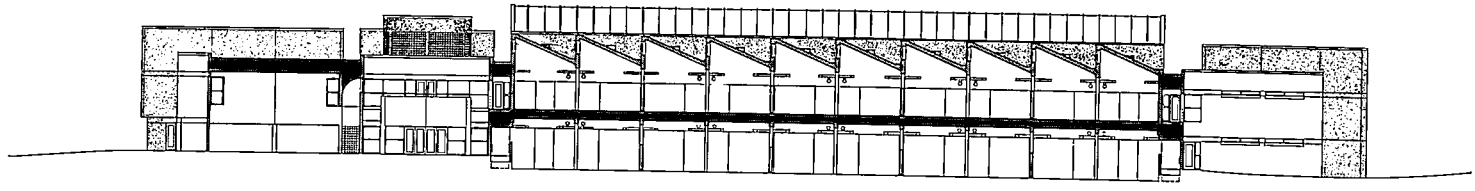

2



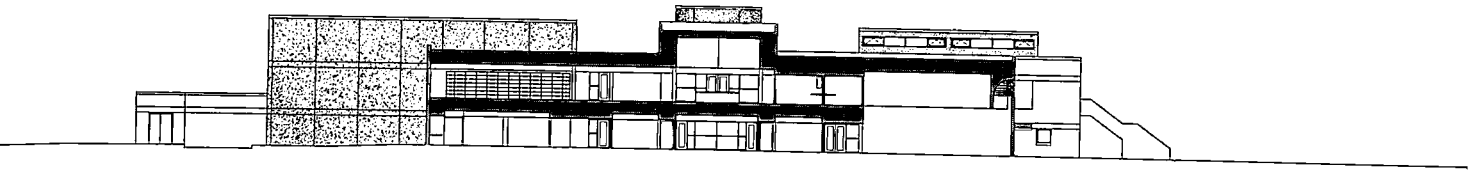
LONGITUDINAL SECTION LOOKING EAST



TRANSVERSE SECTION LOOKING SOUTH

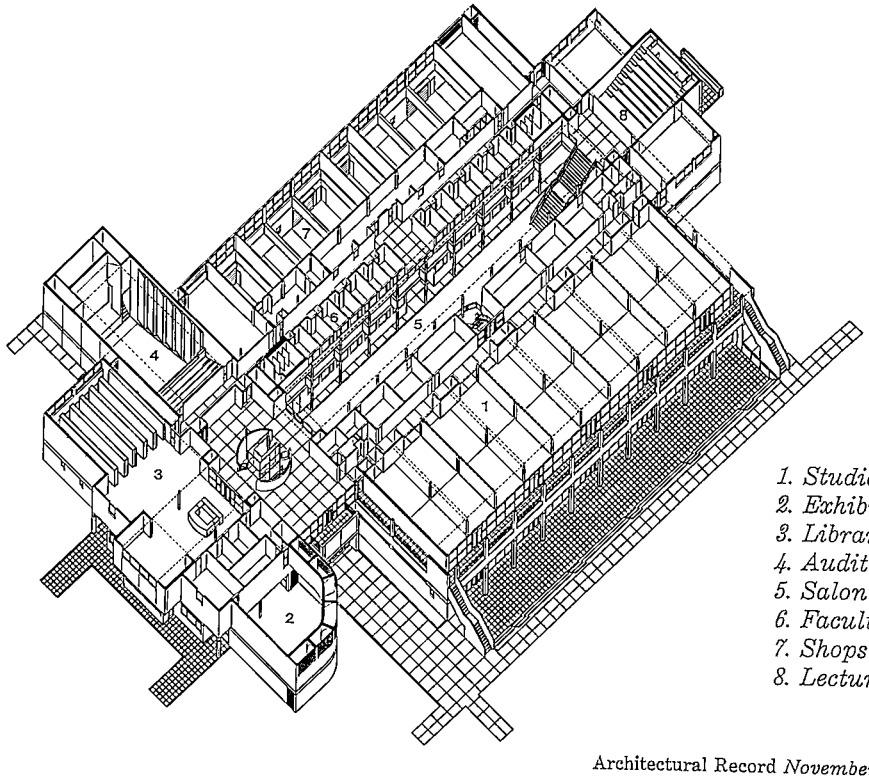


LONGITUDINAL SECTION LOOKING EAST



TRANSVERSE SECTION LOOKING SOUTH

n line with the building's ain entry, a cylindrical air/elevator (opposite) helps orient visitors from the east- st entrance axis to the minant interior axis run- ng north-south along the o-story salon. The elevator's ass enclosure allows students study its operating mecha- sm, while its ground-face ncrete block and metal-tube iling introduces them to a lette of durable materials. tural light penetrates the ilding through north-facing ylights in the studios (above, tion looking east), the salon, d the expansive glazing and rch along the studio facade.



1. *Studios*
2. *Exhibition gallery*
3. *Library*
4. *Auditorium*
5. *Salon*
6. *Faculty offices*
7. *Shops*
8. *Lecture hall*

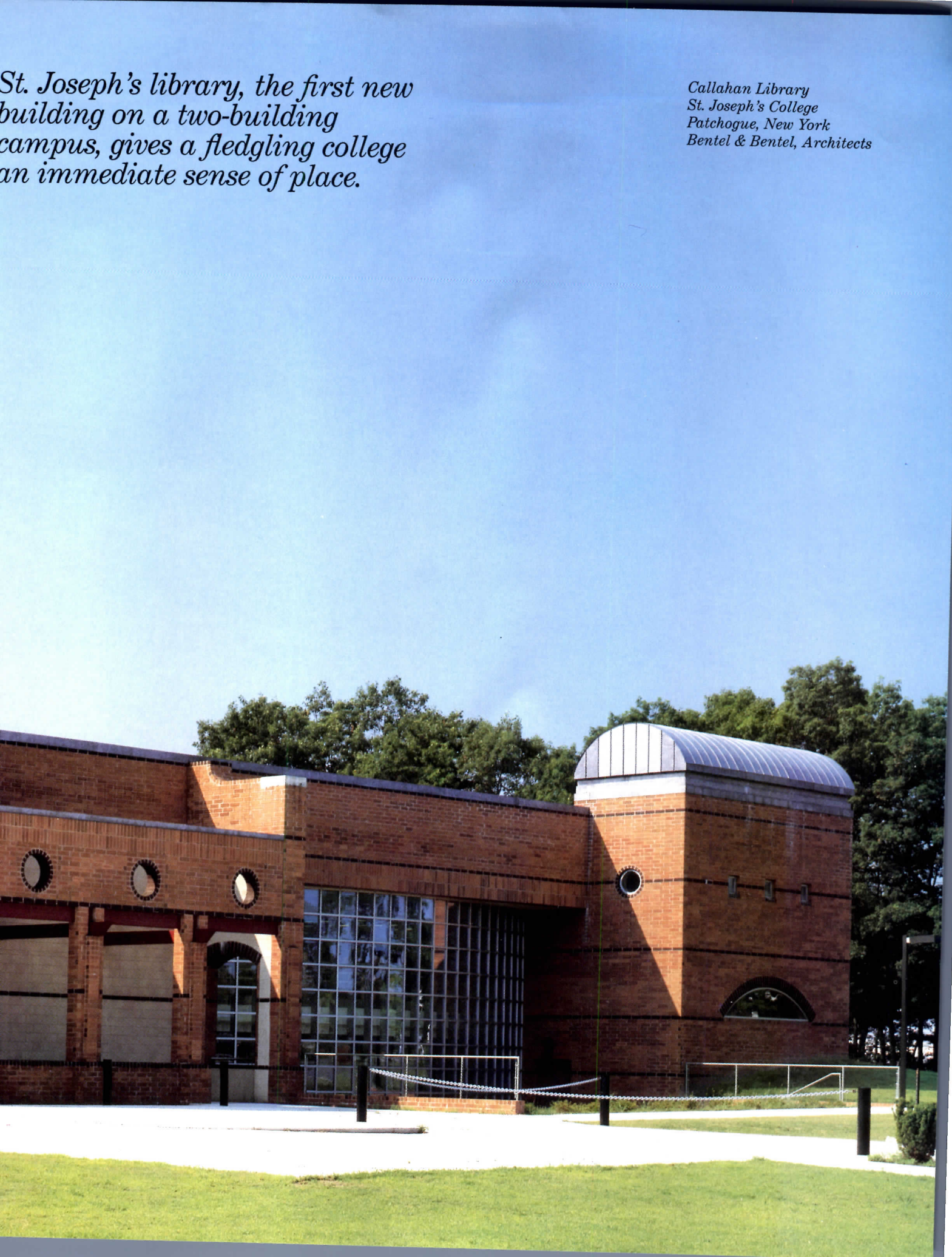
The salon (opposite) is, in Charles Gwathmey's words, the college's "living room," and is used for exhibitions and receptions. Faculty offices look onto the long space from both the first and second floors. Columns 18 feet on center and low partitions running every 36 feet provide an open framework within which studio sections can be arranged. Second-floor studios (top left) receive light from skylights, while ground-floor studios (middle left) enjoy 14-foot-high ceilings and an outdoor teaching area. An exhibition gallery (bottom left) just north of the building's main entry is accessible to visitors as well as students.

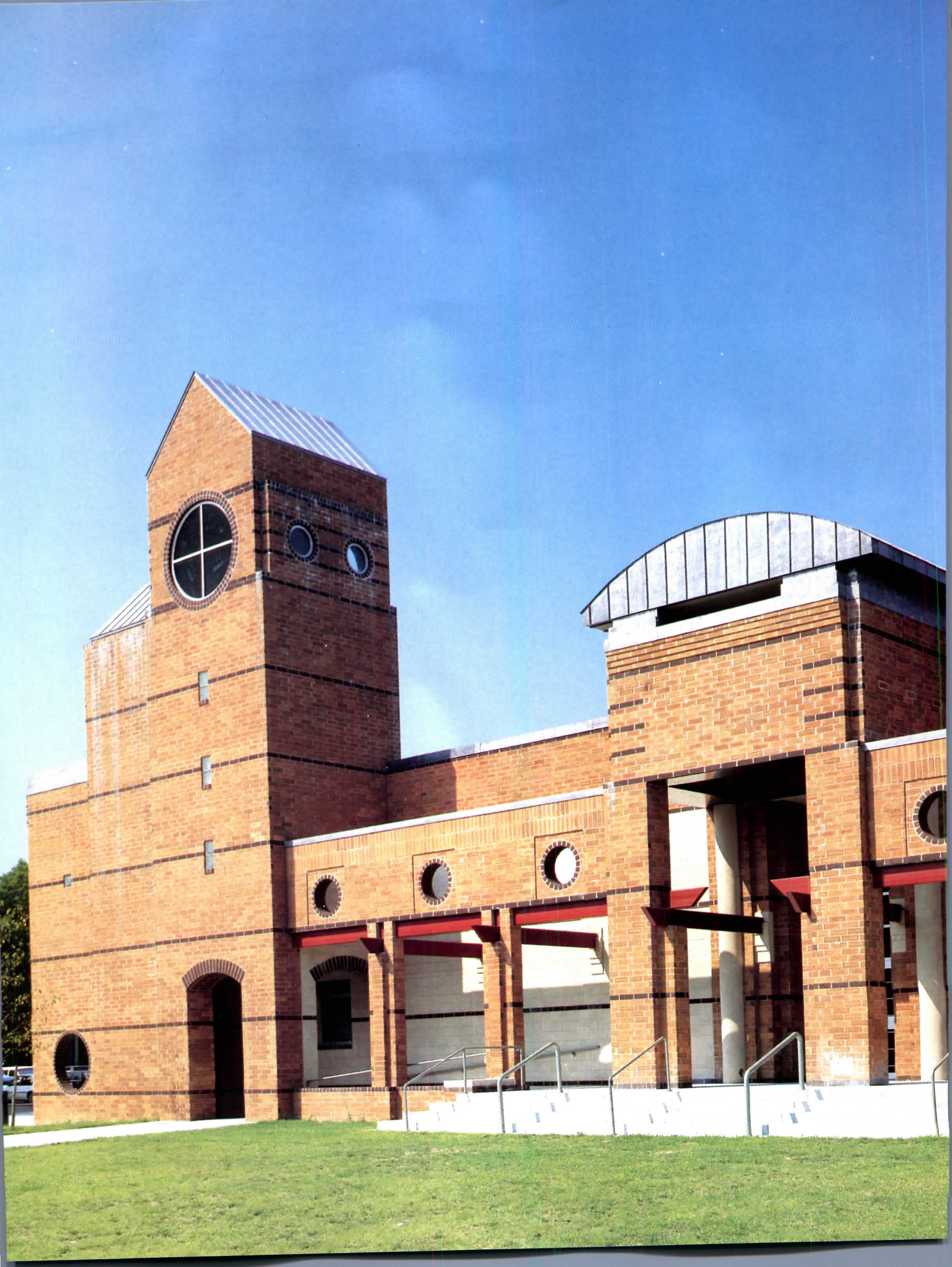
Credits
College of Architecture
University of North Carolina at Charlotte
Charlotte, North Carolina
Owner: *University of North Carolina at Charlotte*
Architect: *Gwathmey Siegel & Associates Architects—Charles Gwathmey, Robert Siegel, partners; Bruce Donnally, associate in charge*
Associate Architect: *FWA Group—Scott Ferebee, principal-in-charge; Stephen A McCall, project manager; J. David Parke, project architect; Luis Tochiki, production assistant*
Engineers: *King/Guinn Associates (structural); The DSA Group of North Carolina (mechanical/electrical)*
Consultants: *Jerry Kugler Associates (lighting); Peter George Associates (acoustics)*
General Contractor: *Beam Construction*

Instant Academe

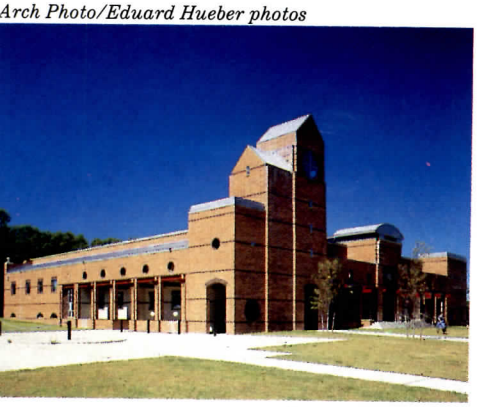
St. Joseph's library, the first new building on a two-building campus, gives a fledgling college an immediate sense of place.

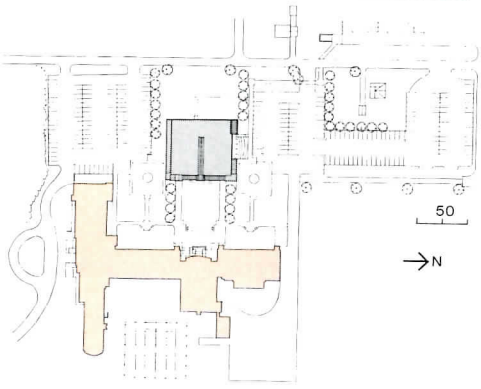
Callahan Library
St. Joseph's College
Patchogue, New York
Bentel & Bentel, Architects





Arch Photo/Eduard Hueber photos





The new library engages the emerging central commons with loggias planned to link with not-yet-built trellised crosswalks and flanking corner drop-offs. Towers capped with lead-coated copper roofs and flashing lend added presence to the simple square structure. Materials chosen to complement the existing classroom building include cladding in a warm russet utility-size brick and coursing and trim brick in chocolate brown. Concrete block exposed within the loggias is softened by a parge coat of coffee-and-cream stucco.

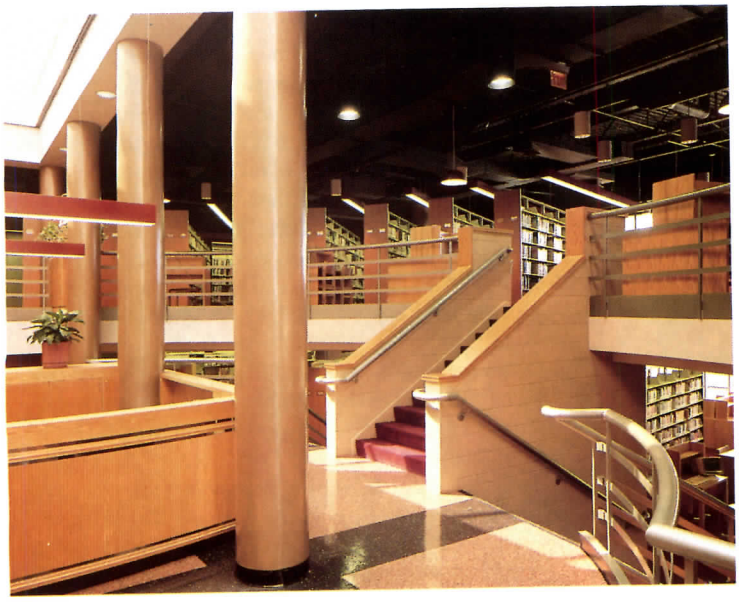
When St. Joseph's College, a 100-year-old Brooklyn-based institution, decided to extend its educational reach to include a branch on outer Long Island, it acquired as a ready-made campus a disused secondary school in the mid-island town of Patchogue. The building acquired is a sturdy and dignified, if not notably distinguished, L-shaped brick structure that contained adequate classroom space for the school's 1,700 full-time and 300 part-time students and even a few bonus spaces such as a modest gym and cafeteria. But it lacked both the full range of facilities and the sense of order and hierarchy associated with a college. And it continued to look like a suburban high school despite the newly donned mantle of higher learning.

The most pressing item on St. Joseph's agenda for developing the new branch was a library to house the 100,000-volume collection temporarily crammed into the existing building's basement cafeteria and to provide on-campus study facilities, a key concern for any commuter college. Architects Bentel & Bentel, however, took the commission for a new library building a step farther. The library also became the keystone of a new master plan that would emphasize and shape the exterior spaces of the two-building campus, foreshadowing a series of quadrangles at its core.

The main entrance to the existing classroom facility (though less heavily trafficked than a second entry tucked into the building angle) is a shallowly bowed portal that is further underscored by a recently added ramp for wheelchair access. Placing the library entrance directly across from it at once sets up a dialog between the two which is intensified by a series of carefully orchestrated architectural "incidents" marking the library facades.

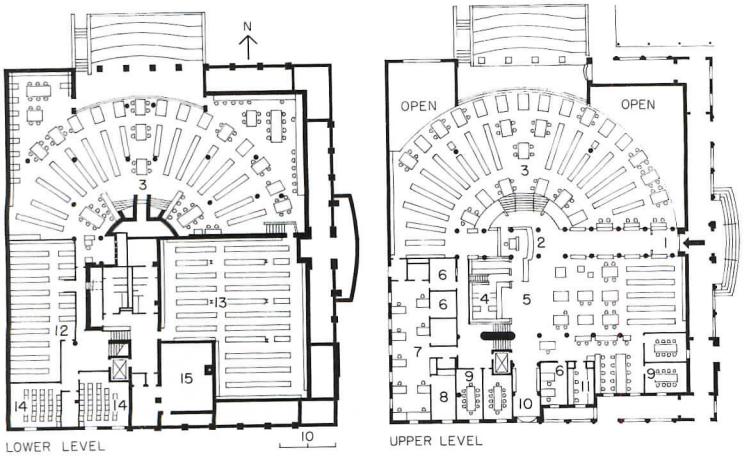
Pursuing the concept of the library as a storage depot for information—a reading abetted by the lean budget for the project—the design team headed by brothers Peter and Paul Bentel saw the building as a straightforward but flexible rectangular shell much like that of an industrial building. (A load-bearing brick-on-concrete-block structure with steel-framed roof was also well within the purview of local contractors.) However, the simple square box is wrapped on front and sides by loggias, which provide welcome enclosure for students arriving at parking lots at either end, and, when completed, will also extend trellised walkways across the central quadrangle to the main building (site plan left). At the library entry and corners, this outer layer thickens to form towers, including a four-story pinnacle on the south that emulates the traditional campanile. On the north, at the principal approach to the campus, the skin peels back to reveal an immense aluminum-framed bay window that recalls the entry to the classroom building and opens inviting glimpses of the library interior while providing light and views.

The new cross-quadrangle axis is carried through the porticoed library entrance with a skylit processional corridor outlined by tall, round, metallic-painted columns—some real and some not—that lead to the central circulation desk. In addition to bringing natural light to the building core, the passage divides the interior space between the main reference and reading room on one side and two radially organized "split-level" study and stack areas on the other. Areas requiring visual or acoustic privacy, such as offices and seminar rooms, are ranged around the perimeter of the reading room. Placing the circulation desk at the building hub, done mainly for security reasons, also gives the interiors a continuous flow that visually unites the varying functional divisions within. Natural blond oak furnishings combine with natural light and abundant task light to create a space at once intimate and expansive. *Margaret Gaskie*



A double row of columns forms skylit interior "allée" (opposite) that continues the axis formed b the entrances of the new library and the existing classroom build ing across from it. On the north side of the library, half-stories u and down lead to stacks laid ou in a radial plan to ease supervi sion from the central circulatio desk (top photo). Carrels occupy the rim of each level (bottom photo). Beneath the main readi room on the south, a basement provides book storage as well as additional classrooms and staff work spaces.

Credits
Callahan Library
St. Joseph's College
Patchogue, New York
Architect: *Bentel & Bentel—Peter Bentel, Paul Bentel, project architects/designers; Carol Rusche, project designer; Michael Kranyak, project manager; Ed Casper, Theresa McCarty, project team*
Engineers: *Seelye, Stevenson, Value & Knecht (structural); Butler Enterprises (hvac); Alfred T. Baker (electrical); Harry Leibusor (plumbing)*
Consultants: *Bentel & Bentel (master planning)*
General Contractor: *J. Petrocelli Construction*



1. *Entry*
2. *Circulation desk*
3. *Stack area*
4. *AV/reserved*
5. *Reference/reading*
6. *Office*
7. *Staff workroom*
8. *Lounge*
9. *Seminar*
10. *Reading*
11. *Microfilm*
12. *Periodicals/archives*
13. *Book storage*
14. *Classroom*
15. *Mechanical*

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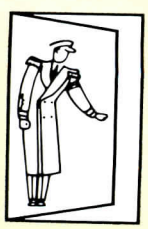

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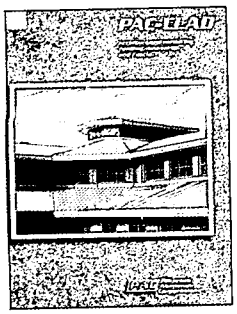
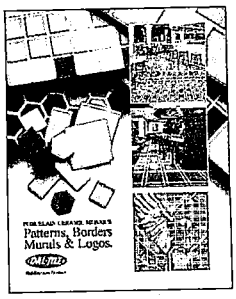


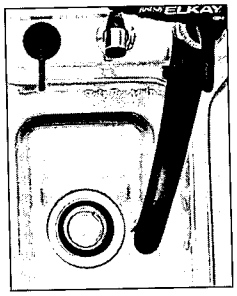
Metal-roof Design
A 28-page catalog features in-use photos, details, and load tables for Pac-Clad roofing panels, offered in a color range from dark bronze and copper to terra cotta and teal. Petersen Aluminum Corp.
400

Articulating Stacker
Brochure shows the Perry Chair in all plastic-color options as well as upholstered versions. For mass-seating use in auditorium, classroom, or office, it can also work as a side chair. KI.
401

Cork Flooring
A resilient material available in sheets as long as 98 feet, Cork Carpet offers acoustic, foot-comfort, and environmental advantages in indoor-sports applications. Forbo Floor Coverings, Inc.
402

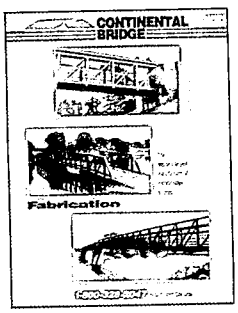


Ceramic Mosaics
52 pages on using porcelain-ceramic tile in decorative patterns, borders, murals, and custom logos. Small-scale tiles come in 72 frost- and stain-resistant colors. Dal Tile Corp.
403

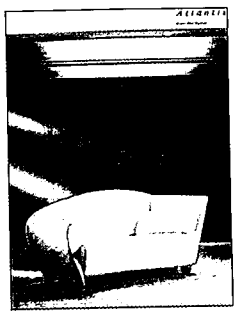


Sinks and Fittings
Full-color catalog emphasizes style and function in sinks for kitchen, lavatory, laundry, and hospitality areas. Most sinks are stainless steel, but some are of Sculptura composite material. Elkay.
404

Hardwood-floor Guide
Questions and answers about proper care of residential wood floors from a maker of VOC-compliant stains, sealers, and waterborne finishes. BonaKemi USA
405

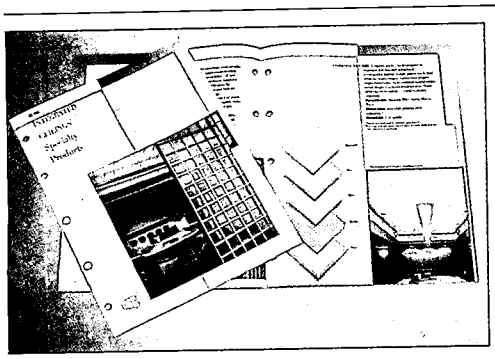


Landscape Bridges
Prefabricated spans for use in parks, as skywalks and highway overpasses, and in industrial applications can be designed with Durawood recycled-plastic lumber components. Continental Bridge.
406

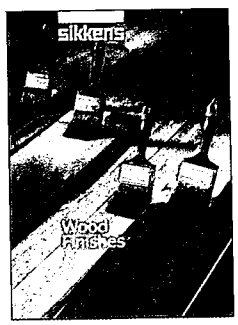


Viennese Seating
International Style as interpreted in beautifully upholstered Austrian-made Atlantis armchairs, sofas, and chaise longue designs by Boris Podrecca. Franz Whittmann, G.m.b.H.
407

Clay Roof Tile
Written for the architect, a color brochure shows many current tile styles, textures, and colors used on both residential and commercial projects. Ludowici-Celadon, Inc.
408



Special Ceilings
A 16-page color brochure suggests how acrylic-block panels, luminous skylights, reflective surfaces, and other systems can help achieve a custom look at standard-product prices. USG Interiors, Inc.
409



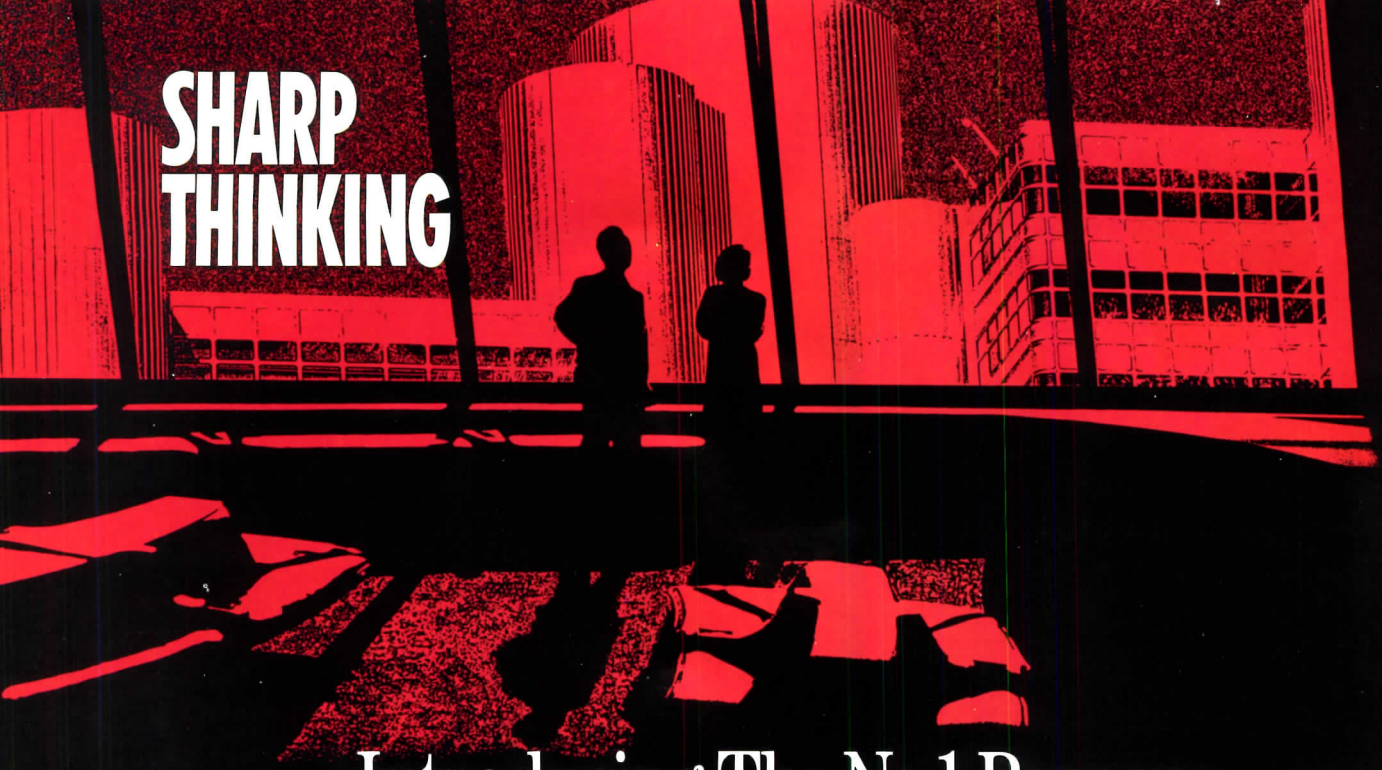
Wood-finish Systems
Colorful booklet explains the appearance and weathering benefits of Sikkens Cetol coatings for both interior and exterior architectural-wood applications. Opaque coatings come in 13 solid colors that allow wood texture to show through; UV-resistant clear finishes are said to build a durable, breathable and water-repellent barrier. Akzo Coatings, Ltd.
410

10. Sled-base stacker. System 12 chairs, escribed as attractively priced and durable, eature a one-piece back with a ready-made andhold for easy positioning. The chair acks 40 high, and is suggested for office nd institutional areas such as cafeterias, assrooms, and auditoriums. Comforto, A aworth Portfolio Company.

11. Step up. Putnam is now making its assic stools and ladders in an expanded nge of hardwoods, including oak, ash, rch, maple, cherry, walnut, teak, and Hon- ras mahogany. Folding ladders come in w 24- and 30-in.-high models. Putnam Roll- g Ladder Co., Inc.

312. Ceiling-tile coating. Coustic-Coat is a cosmetic resurfacing material that is sprayed on acoustical surfaces. Available in six white and off-white shades, the water-based vehicle can also be tinted to match any color. Said to leave the pores and fissures open, it will not bond panels to grid. The coating meets California State Fire Marshall flame-retardant standards, and will not compromise the flame- and smoke-ratings of a rated ceiling. Coustic-Glo International.

Continued on page 139



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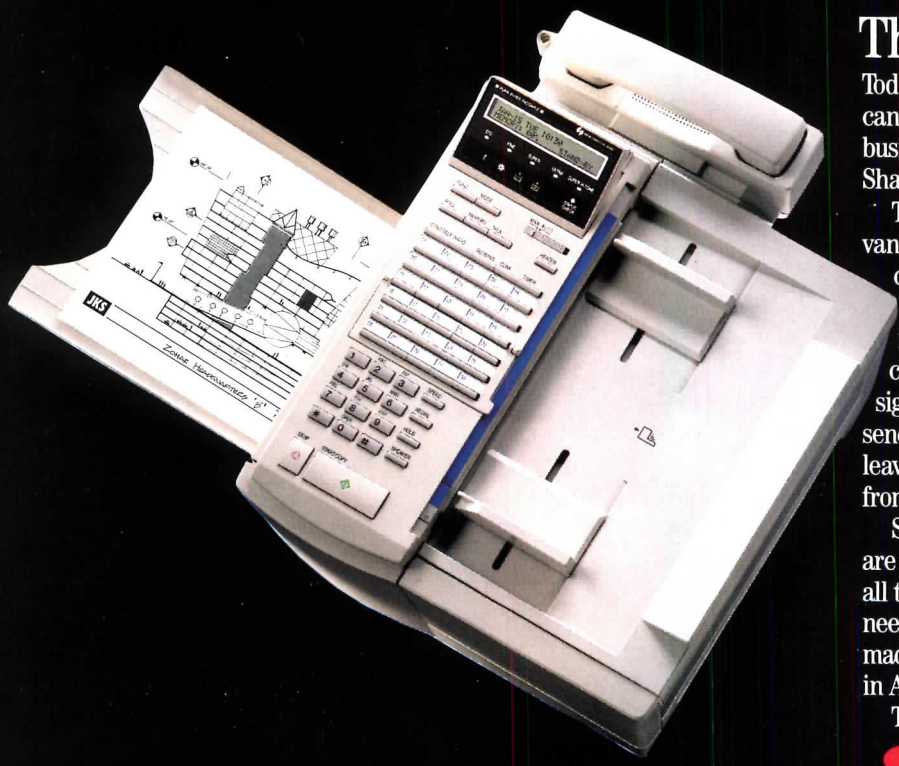

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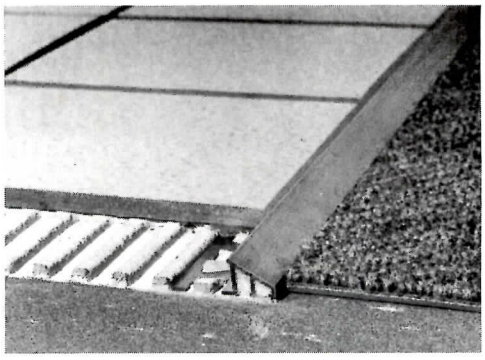
313. Cement board. A tile substrate designed specifically for use around high-moisture areas, Durock now comes in a lighter-weight panel configuration. The thinner, 5/16-in. board should make floor and countertop renovations easier, and eliminate the need for transition members between tile and other flooring materials. United States Gypsum Co.

314. Low-profile skylight. Andersen Windows is now making a skylight designed to let in the most light and no water. The narrow frame installs with aluminum step-flashing and without exposed screws; units are sized to fit within American roof-construction dimensions. Glass edges are deeply captured within the sash to make condensation less likely. Andersen Windows, Inc.



315. Stepless transition. The Reno-Profile provides a sloped surface that smoothly connects tile or stone floors with floor surfaces of lower height, such as carpeting. The strip has an end leg with an inclined aluminum or brass edge attached and a perforated anchoring leg which is embedded in the tile adhesive. Different sizes accommodate tiles of four thicknesses from 5/16- to 5/8-in. Schluter Systems, Inc.

Continued on page 141

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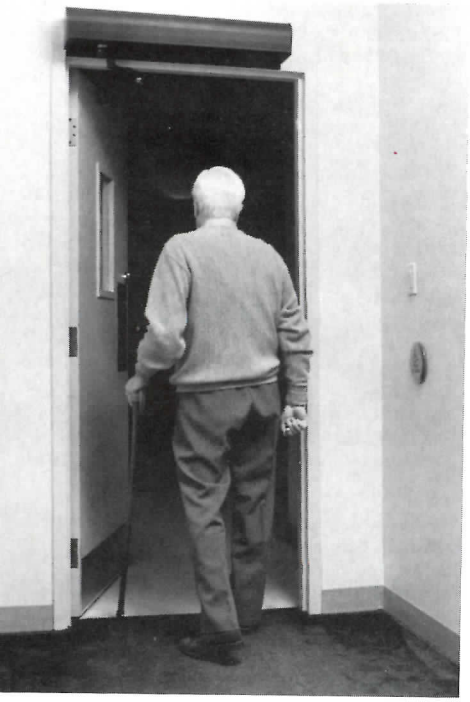

16. Door operator. Gemini GT operators rovide the option of both manual and auto- atic access. They are suggested as an conomical retrofit (under $1,000) to make oors accessible to the elderly and handi- apped. All components are surface mounted r easy installation on existing doors. Both old-open delay and opening speed are ad- stable. Gyro Tech, Inc.

17. Site furniture. A simple design with ooth surfaces, rounded corners, and mor- e-and-tenon joinery, Braun's new bench ems to combine both Shaker and Edwar- n motifs. Made of plantation-grown stralian Jarrah, it is offered in a variety colors and wood finishes for either indoor outdoor spaces. D. M. Braun & Co.

318. Sculptural lounge. Victor I. Dziekiewicz designed the Allora chair from a series of rounded forms, detailed by inset panels on the overscaled arms. Upholstery options include either Brueton or COM fabrics and leathers. Brueton Industries, Inc. ■

Manufacturer Sources

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

Pages 80-85
Art Gallery, St. John's University
Hugh Newell Jacobsen, FAIA, Architect
Metal roofing: Berridge. Brick: Glen-Gery (K32). Membrane roofing: General Tile. Atrium skylight: Imperial. Glazing: Viracon. Roof skylights: Naturalite. Downlighting (at entrance): Prescolite. Site furniture: Woodworking Shop, St. John's University. Auditorium seating and upholstery: American Seating. Gallery lighting: Lightolier. Stone flooring: Cold Spring Granite.

Pages 96-101
Edward Bennett Williams Law Library
Hartman-Cox Architects
Curtain wall, windows, and entrance: Vistawall. Precast Concrete: Beercon. Roofing: American Hydrotech. Glass: Falconer. Sprinklers: Grinell. Paints: PPG, Coatings & Resins Group. Molded GFRG: Formglas, Inc. Terrazzo: Boatman/Magnani. Carpet: Bigelow. Seating: Worden; Jasper Chair; Bernhardt. Tables/carrels: Johns & Hausman. Upholstery: Majilite. Parabolic fixtures: Lithonia. Decorative and entry lighting: N. L. Hydraulic elevators: U.S. Elevator.

Pages 102-109
Mathematics, Computing and Engineering Center
Trinity College
Cesar Pelli & Associates, Architect
Brick: Glen-Gery; Yankee Hill Brick (Black). Stone: Indiana Limestone; Briar Hill Sandstone. Wood curtain walls, mahogany windows and entrance: Duratherm. Aluminum ornament and trim: AA Glass. Single-ply roofing: Carlisle. Clear IG units: Viracon. Patterned glass: S. A. Bendheim Co. (Cleartex). Interior mahogany doors: Buell Door Co. Locksets: Corbin/Lincoln. Hinges: Stanley. Closers: LCN/Smoothie. Door releases: Rixson-Firemark. Exit devices: Corbin. Acoustical tile: Armstrong. Grid: Chicago Metallic Corp. Integrated aluminum soffit: Simplex. Vaulted ceiling: Plastrglas, Inc. Drywall: Gold Bond. Mahogany benches: Ricketson Woodwork. Millwork finish: Devoe. Custom-glazed face brick: Minnesota Clay Products. Carpeting: Harbinger (custom-pattern Antron). Raised floor: Tate. Bench: Weatherend. Tables and lounge seating: Thonet. Fluorescent lighting: Louis Poulsen (Cirkul). Outdoor recessed steplight: Devine Lighting. Cove lighting: Litecontrol (Cove-45). Hydraulic Elevator: Otis.

Pages 110-117
Allen Library, University of Washington
Edward Larrabee Barnes/John M.Y. Lee, Architects
Terra Cotta: Ludowici Celadon. Indiana Limestone: Harding & Cogswell. Bricks: Interspace Industries. Liquid-membrane roof: American Hydrotech. Lead-coated copper: Architectural Sheet Metal (Tacoma). Slate: Vermont Structural Slate. Windows: Herzog Aluminum. Rails, interio frameless lights, and glass doors: Tempglass Western, Inc. (CA). Stainless-steel entrances: Dawson Metal Co. Ceilings: Armstrong. Grid: Donn. Wood ceilings: Ventwood. Paints: Glidden. Metal coatings: Tnemec. Wood-floor finish: Glitsa American. Carrels: Worden Furniture. Stack lights: Zumtobel. Downlights, other lighting: Edison Price. Passenger Elevators: Montgomery.

Pages 118-125
College of Architecture, University of North Carolina at Charlotte
Gwathmey Siegel & Associates Architects and The FWA Group, Associated Architects
EIFS: Finestone. Ballasted EPDM: Firestone. Standing-seam roof: Berridge. Skylight panels: Kalwall. Interior windows: Hope's Architectural Products. Exterior windows and metal doors: Kawneer. Clear low-E glass: PPG. Wood doors: Weyerhauser. Ceilings: USG Interiors (Designer Squares). Grid: Donn. Perforated-metal ceilings: Simplex. Ground-face CMU: Plasticrete. Latex paints: Duron. Laminates: Wilsonart. Wood-bloc floor: Worthwood. Vinyl floor: Tarkett. Carpet: Lee's. Ceiling fixtures: Louis Poulsen. Bollards: Devine. Elevators: Southern Elevator.

Pages 126-131
Callahan Library, St. Joseph's College
Bentel & Bentel, Architects/Planners
Brick: Glen-Gery (Spring Hue). Curtain walls: Lynbrook Glass. EPDM roofing: Carlisle. Grave stops: Lead-coated copper. Aluminum windows: Kawneer. Glass: PPG. Glass block: Pittsburgh Corning. Glass Entrances: Falconer Glass. Exterior finishes: Dryvit. Ceilings: Armstrong. Grid: Chicago Metallic. Circulation desk, planters: Nationwide Millwork. Laminates: Nevamar; Formi Metallic paint on columns: Conlux. Prefabricate column covers: Lombard Corp. Terrazzo tile: Fr Tile. Library stacks: Library Bureau. Recessed, track, and pendant lighting: Kurt Versen; Lightolier. Pole-tops and bollards: Devine. Two-door elevator: Dover.

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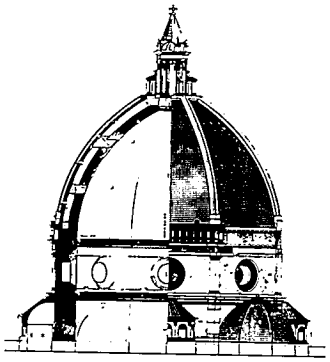

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Space City-Urban Village

Continued from page 51

Peter Calthorpe in Sacramento and other places are simple clusters of housing, retail, and offices within a quarter-mile walking radius of transit systems. They are the best examples of neighborhood-oriented development in practice today. Using Houston's existing neighborhoods as its basic planning units, the city could surround and support them with mixed-use buffer zones. The result might well be the framework for a more pedestrian-mobile city with a lively blend of unique places and activities.

From this approach might flow development of new land on the city perimeter and revitalization of inner-city neighborhoods. But first, METRO (Metropolitan Transit Authority) must be brought into the comprehensive plan. For the past decade, Houston has debated the issue of rail transportation, and METRO has spent millions of tax dollars on studies and engineering designs for several rail systems. Detailed decisions on specific hardware and routes, however, should be put on hold until a regional transportation strategy can be made part of the comprehensive plan.

With some optimists predicting that Houston is about to enter a new growth cycle during which its population and area may double over the next 30 years, the city's planners will have to take the lead in considering the entire metropolitan region, an area now occupying over 1,000 square miles and including nearly 3.5 million inhabitants. At the same time Houston will have to provide expertise to its smaller neighbors. Regional planning will be crucial in coping with problems of traffic, pollution, crime, and municipal and social services, none of which stop at political borders.

Houston's planners and officials should take to heart the advice of Lewis Mumford in his 1952 essay "The Modern City." "Urban design is fundamentally an economic and political problem. Where control is unified, order is possible. The choice is not between control and no control but between an arbitrary, one-sided control and control exercised by a responsible authority on behalf of the entire community."

With neighborhood-based planning regulated by performance standards as the core of an integrated regional master plan, Houston can evolve into something new under the hot Gulf Coast sun. It may even become a national prototype of the new urban village.
Gerald Moorhead

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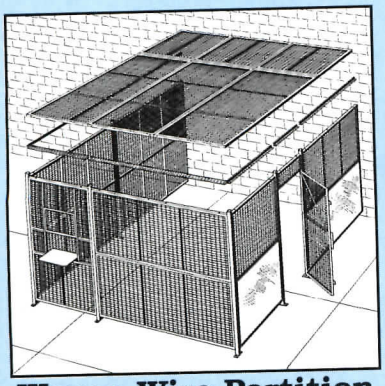

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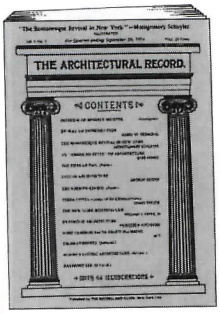

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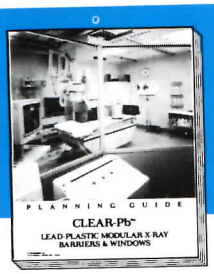

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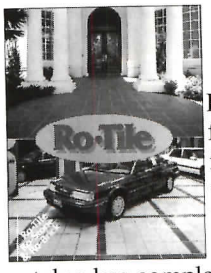

Ro-Tile Publishes New Product Catalog

Ro-Tile Inc., manufacturers of high quality concrete floor and wall tiles, has published its new 1992 catalog. The full color catalog has complete technical information on Ro-Tile, Ro-Stone and Ro-Brick, the company's main products. There are also design idea photos and related specification information.

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