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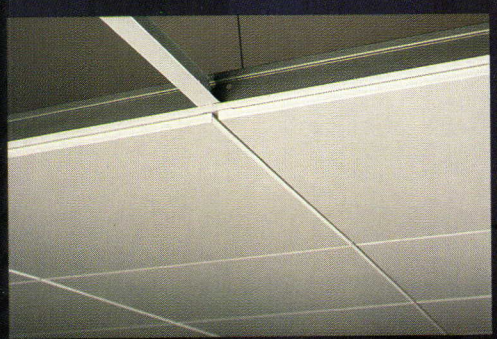

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Gambling on Architecture

Casinos are moving from the strip to Main Street, posing new urban design challenges.

ABOVE: A casino proposed for Windsor, Ontario, by The Hillier Group and Zeidler Roberts Partnership is integrated into a waterfront park.

Learning from Las Vegas, the theoretical treatise written more than 25 years ago by Robert Venturi, Denise Scott Brown, and Steven Izenour, is proving timely again as gambling casinos become the most sought-after building of the 1990s. Legalized gambling is now one of the fastest growing industries in the country, spreading from the casino capitals of Las Vegas and Atlantic City to 37 states in the nation. Fueling this fever is the changing perception that gambling is no longer a sin, but a popular form of entertainment and a lucrative way to raise revenues for subsidizing civic improvements. Washington, D.C., Mayor Sharon Pratt Kelly was criticized when she proposed a casino as a means of financing a new convention center. But, given the lucrative growth in wagering—Americans bet $30 billion in 1992, but they only spent $4.9 billion at the movies—Mayor Kelly's long shot might find its way back to the table.

One contributor to the growth of casinos is the 1988 Indian Gaming Regulatory Act that legalized gambling on reservations. Since 1989, at least 65 casinos have opened on Indian reservations in 18 states, and another 80 tribes have plans for more in 12 other states. Another factor is the rise of riverboat gambling along the Mississippi River and Gulf Coast. New Orleans may soon boast—or regret—the nation's largest gambling palace, and riverboat casinos are under consideration for Boston Harbor and Philadelphia's Schuylkill River.

Architects, too, are getting into the game as casinos grow more sophisticated, from the "ducks" and "sheds" of 1960s Las Vegas to the multifaceted, multi-use complexes of today. Firms such as The Hillier Group of Princeton and Cuningham Hamilton Quiter Architects of Minneapolis are being tapped to design a new generation of casinos, complete with hotels, restaurants, theaters, shopping malls, banks, and special-effects theme parks.

Gone are the neon signs and sidewalk frontage portrayed in *Learning from Las Vegas*. (The landmark Dunes and its famous sign were demolished last fall.) The latest casinos in Las Vegas, like the Luxor and Treasure Island, feature special effects to rival Disney, including a virtual-reality video arcade and a battle on the high seas that takes place every 90 minutes. And, like Disney, companies such as ITT Sheraton are waking to the value of cutting-edge architecture in considering Antoine Predock, Michael Graves, and Arquitectonica to design new casino hotels.

But, casinos offer architects more than the chance to rake in new commissions: They are becoming an increasingly important opportunity for urban design. As casinos move from the strip onto Main Street, or at least near it, in cities like Gary and Hammond, Indiana, they form the cornerstones of urban renewal in derelict industrial areas. Like the festival marketplaces of the 1980s, gambling venues are viewed as economic catalysts to bring people back downtown, usually to a waterfront location. The proximity of new casinos to central business districts requires serious consideration of planning and preservation issues, often at odds with the bright lights, glitz, fantasy—and crime—associated with the building type. It is the reconciliation of these conflicting factors that poses the greatest challenge to architects.

In the 1960s, Venturi, Scott Brown, and Izenour used Las Vegas to call on architects to respect ordinary architecture, challenging the notion of what is cultured and what is common. But as the casinos of the 1990s move toward Main Street, architects will require more practical solutions than Las Vegas precedents. If today's casinos are truly to become the economic generators for decaying cities, the architects designing them will be playing for higher stakes.

Deborah K. Dietsch

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Letters

Transporting Slopopolis

I was dismayed by Herbert McLaughlin's article "Reinventing Slopopolis" (November 1993, pages 43, 45, 47). While lamenting Slopopolis, McLaughlin appears to view the planning of the urban environment as a question of what to do about future suburban growth.

McLaughlin addresses planning issues but does not get at the root problem: money. He presumes the economy will grow along with the population, the infrastructure, and the tax base. But in cities like Detroit, growth has been uneven. The infrastructure has grown laterally to serve surrounding suburbs. But a declining regional population has meant little growth in the overall tax base. Detroit is spending more money to serve fewer people over a larger area. How can such a city afford to reinvent Slopopolis?

McLaughlin also takes issue with the idea of light rail coming to supplant the car. On this point, he crosses the line into social irresponsibility. If car ownership becomes a requirement for securing work, you restrict the ability of the poor to improve their lives. We need to create a strong transportation network which works economically and socially. We must re-create the neighborhood in ways that work. Above all, we must take responsibility for how society develops.

Louis B. Smith, Intern AIA
Detroit, Michigan

While I heartily second Herbert McLaughlin's recommendations for the reinvention of suburbia, I am puzzled by his knocks on public transit. Many of his objectives can best be implemented by zoning that creates transit stops as collection points for large numbers of people.

If transit were available and the transit stops were located in commercial centers peppered with high-density housing, the retailers and developers would abandon the garish strips and participate in the renaissance of our towns and cities.

Andreas von Foerster, AIA
Neskowin, Oregon

Liability agents

I was disappointed by the exclusion of the Professional Liability Agents Network (PLAN) from "Liability on a Leash" (October 1993, pages 99-101). PLAN is comprised of 53 specialist agencies that render insurance, risk management, and loss prevention services to design professionals in the United States and Canada.

Velma Lane, President
Professional Liability Agents Network
Silver Spring, Maryland

Corrections

William LaPatra is senior designer of Zimmer Gunsul Frasca's Bellevue, Washington, regional library (December 1993, pages 78-85).

The university architect of the American Heritage Center in Laramie, Wyoming (December 1993, pages 48-61) is Roger Baalman. The construction manager is Mark Shively of Pouppirt Architects in Cheyenne. Electrical engineering of the building is by Tierra del Sol Engineering, and the civil engineer is Chavez-Grieves.

Events

February 1
AIA's Accent on Architecture awards gala at the National Building Museum in Washington, D.C. Contact: (202) 626-7467.

February 10-12
Conference on Therapeutic Environments sponsored by AIA Academy of Architecture for Health/Healthcare Facilities. Contact: (202) 626-7429.

February 14
Deadline for the American Hardboard Association Home of the Year Awards. Contact: (708) 934-8800.

February 15-18
A four-day conference on Total Quality Management hosted by the Design and Construction Quality Institute in Tampa, Florida. Contact: (301) 588-0967.

February 20-May 10
Frank Lloyd Wright—Architect, an exhibit at the Museum of Modern Art in New York City. Contact: (212) 708-9500.

February 23
Entry deadline for the New England Healthcare Facilities' 1994 Design Awards. Contact: (800) 662-1235.

March 1
Entry deadline for the Boston Society of Architects' 1994 Design Awards. Contact: (617) 951-0845.

March 2-6
Architectural Precast Association's annual convention in San Francisco. Contact: (407) 740-7201.

March 4
Entry deadline for Affordable Infill Housing competition, co-sponsored by the Community Development Corporation of Salt Lake City and ASSIST, a community design center. Contact: (801) 355-7085.

March 12
Constructs & Responsibilities for Architectural Practice, a symposium sponsored by the Harvard University Graduate School of Design. Contact: (617) 495-4315.

March 15
Entry deadline for the Tile Promotion Boards' 1994 Spectrum Awards. Contact: (407) 743-3150.

March 18-20
The Fabric of Neighborhoods, a symposium sponsored by the AIA. Contact: (202) 626-7345.

March 23-25
WestWeek '94 at the Pacific Design Center in Los Angeles. Contact: (310) 657-0800.

March 25
Cost, Time, and Risk, a conference sponsored by the AIA. Contact: (202) 626-7535.

April 15
Entry deadline for Beyond the Border, an AIAS-sponsored competition. Contact: (202) 626-7472.

April 22
Entry deadline for the Architecture Society of Atlanta design competition. Contact: (404) 872-0330.

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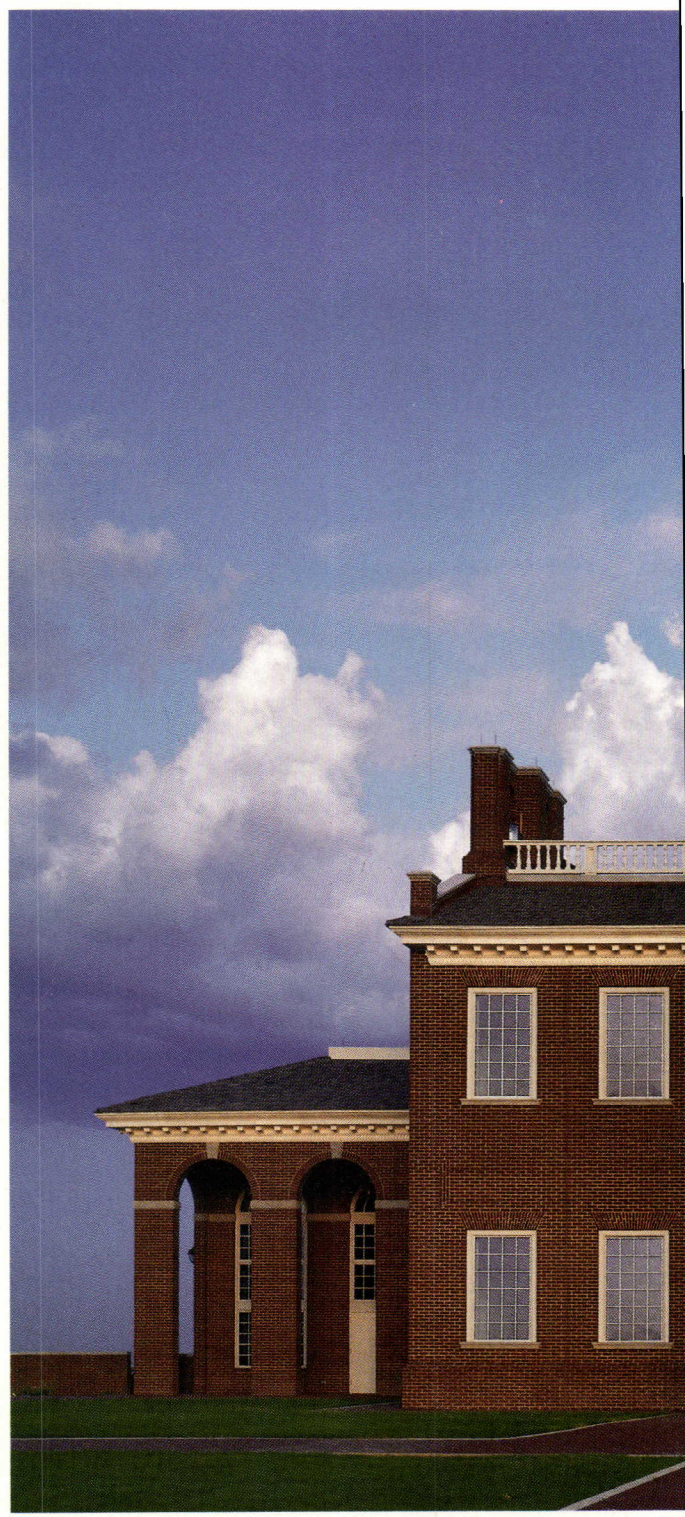

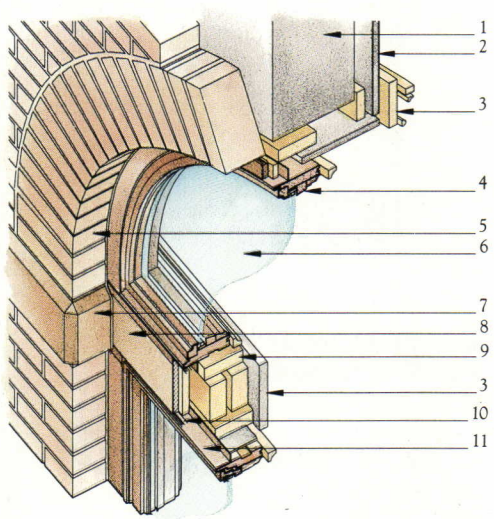

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In Remembrance: Charles W. Moore

Celebrated architect and educator Charles Moore, winner of the 1991 AIA Gold Medal, died on December 16, 1993. During his career, Moore maintained a number of influential practices throughout the country. He taught at the University of California at Berkeley (UC Berkeley); the University of California at Los Angeles (UCLA); and, most recently, at the University of Texas at Austin. Moore also served as Chairman of Yale's architecture department from 1966 to 1971. In recognition of Moore's lifelong involvement in architectural education, these schools are establishing programs in his memory.

The Yale School of Architecture is planning an endowment to support the first-year building program initiated by Moore in 1965 to support underprivileged communities and individuals. The architecture departments at UCLA and UC Berkeley are initiating endowments to support innovative architectural education programs. And the University of Texas is creating a fund to save Moore's Austin residence and studio.

Buzz Yudell, partner of the Santa Monica firm, Moore Ruble Yudell, remembers Moore in the following tribute to his friend and colleague.

ROB LANG

CHARLES MOORE: AIA's 1991 Medalist.

NORMAN MCGRATH

PIAZZA D'ITALIA: Moore's 1978 icon.

TIMOTHY HURSLEY

MOORE RESIDENCE: The architect's Austin home will be preserved as a study center.

Charles Moore, delighting in the inversion of conventions, spoke often of the rights and pleasures of freedom of expression in architecture. He sought to release us from the orthodoxies of rigid ideologies. But in the privacy of his studio, he welcomed the order and disciplines of logic and geometry. As a student of his at Yale during the 1960s, I rarely glimpsed this side of him. It was only later, working professionally with Charles, that these private appetites became clear.

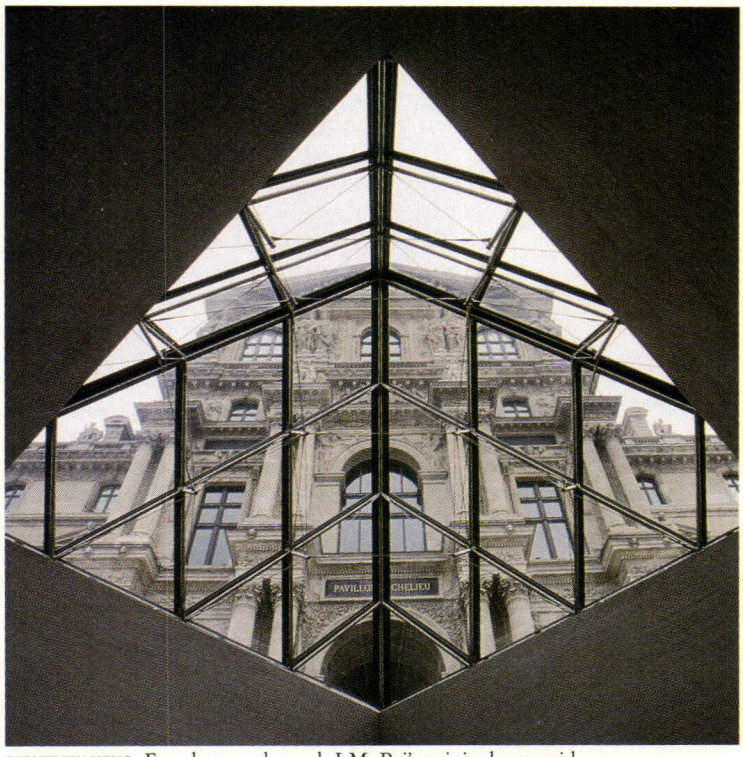
A typical day in 1972 in his Connecticut office is still a vivid memory of Charles' creative duality. In the morning he sat cross-legged, Buddhalike on his chrome yellow drafting table, reviewing correspondence and projects. When presented with tile floor color schemes, he began to shuffle the samples like a board game, and each time he found an appealing palette, Charles would stop briefly to sing (with accurate lyrics) the national anthem of the country whose flag's colors were represented by the tiles.

In the afternoon, driving to Yale to teach a studio, we spent most of the commute trying to solve geometry and construction details for a low-cost housing project. No pencil or paper was used. One of Charles' favorite pastimes was creating and resolving complex geometries while driving. He was fond of recalling his "hair-shirt training" as an undergraduate at the University of Michigan, where students would be called to the blackboard without warning to solve a complex housing problem four ways against a stopwatch.

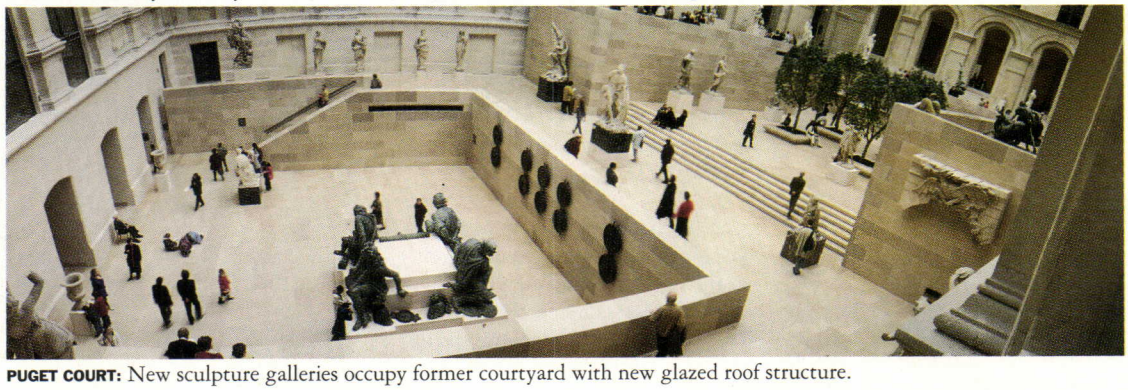
Charles admired both the power of order and the wonder of invention. Hadrian's Villa was a paradigm of his richly personal evocation of place with a disciplined geometric vocabulary: "A whole world in a circle and a square" as he titled his chapter on the villa in *Dimensions*. Palladio, Jefferson, and Kahn held fascination for him as magicians who innovated within geometric systems. In his own work, Charles Moore was drawn to the complexities of hidden or underlying orders that were contrapuntal to freer expressions. It was equally important to him that architecture be about the making and meaning of a specific place and the private and collective acts of dwelling in these places.

Charles loved discipline but defied constraint. He chafed at definitions that limit and winced visibly when he was referred to by such labels as the "father" or "guru" of Postmodernism. Charles saw architecture as part of a continuity of humanistic concerns brought to life through the orders of geometry, space, light, and dwelling. While irreverent of conventional pieties, he was profoundly reverent of the acts of place-making and habitation. His puckish persona contained a disciplined craftsman. Charles was a playful Buddha in a hair shirt.—*Buzz Yudell*

MARLY COURT: Skylit courtyard.



RICHELIEU WING: Facade seen through I.M. Pei's original pyramid.



MARC GARANGER PHOTOS

PUGET COURT: New sculpture galleries occupy former courtyard with new glazed roof structure.

New Louvre Renovation Opens in Paris

When I.M. Pei's designs for a glazed pyramid in the Louvre museum's Cour Napoléon were first made public in 1984, controversy raged in Paris for months. Yet the Grand Louvre project went ahead, with Pei's pyramid as the centerpiece of a master plan covering a total floor area of nearly 60 acres, as well as 30 acres of landscaping. The scheme's second phase is now virtually complete.

Last November saw the opening of the Louvre museum's new Richelieu wing. Despite subfreezing temperatures, capacity crowds stood in line for upwards of two hours to see the new galleries and the 12,000 or so items from the Louvre museum's collections showcased within them.

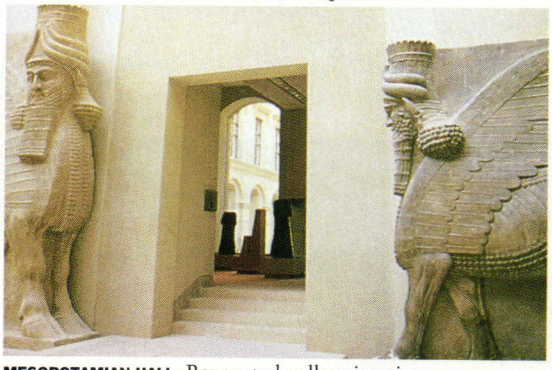
Long envisaged by I.M. Pei's Grand Louvre master plan, the conversion of the Richelieu wing for museum purposes was delayed from 1986 to 1988 by the reluctance of former Finance Minister Edouard Balladur to see his department vacate the Louvre. Built as government offices between 1852 and 1857, the Louvre's Richelieu wing had been the home of the Finance Ministry since 1871. These premises comprised six floor levels of offices arranged around three internal courtyards; a suite of state rooms dating from 1861 overlooked the Cour Napoléon from part of the piano nobile. The state rooms have been retained and restored as a museum exhibit—a fine example of Second Empire pomp, glittering with gold leaf and chandeliers. Ceremonial staircases, facades, and external features have also been reinstated under the supervision of French Monuments Historiques specialists.

But for the most part, the Richelieu wing has been completely gutted internally and restructured, according to designs by I.M. Pei, Michel Macary, and Jean-Michel Wilmotte, to provide the Louvre with just over five acres of additional floor space. The former courtyards have been covered over with glazed roof structures, designed in consultation with Rice-Francis-Ritchie, to create three atria housing large works of sculpture. In the former office blocks, the number of floors has been reduced to three main levels supplemented with mezzanine, semibasement, and basement levels.

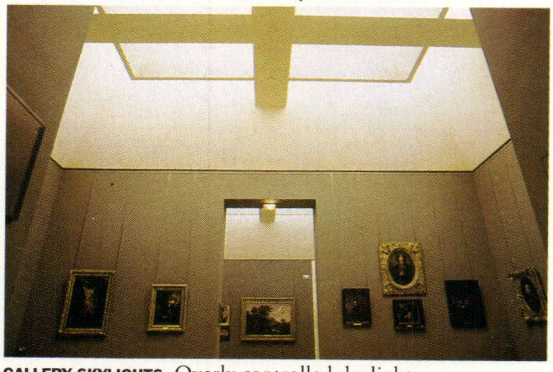
Most of the top floor has been laid out as a series of picture galleries, to benefit from natural lighting. Although extensive use has been made of skylights for this purpose, daylight penetration through them is so heavily controlled as to give the im-

GALLERIES: Offer views into new sculpture court.

RICHELIEU GALLERIES: User-friendly circulation.



MESOPOTAMIAN HALL: Renovated gallery interior.



GALLERY SKYLIGHTS: Overly controlled daylight.

NATIONAL MUSEUM COLLECTION PHOTOS

pression of untimely dusk—no doubt in deference to conservation theories. Nevertheless, numerous views can be enjoyed from all three main levels: over the rue de Rivoli, the Palais Royal, the Cour Napoléon, and the pyramid, into the atria, or toward the Tuileries gardens. Moreover, sequences throughout the Richelieu wing are punctuated with rest areas, cafés, and information points. The results are much more user-friendly than the relentless walkways through the old Louvre.

The definitive installation of collections in the Louvre's Richelieu wing and the spaces vacated elsewhere in the musuem have made possible the phased reorganization of existing facilities (still in progress), with improved access from new centralized underground visitor facilities.

More than 12 acres of subterranean facilities created beneath the Place du Carrousel came into use last year, including parking spaces for 80 tourist buses and 10 times as many cars, a 7,500-square-meter suite of commercial exhibition and conference halls, and 8,406 square meters of shops. All these facilities lead to an underground public space dominated by an inverted glazed pyramid designed by I.M. Pei with Rice-Francis-Ritchie. From there, a subterranean shopping mall provides a direct route to the Louvre museum's main entrance hall and visitor reception area beneath the Cour Napoléon pyramid. On high visitation days, trying to get into the Louvre museum by this route resembles nothing so much as struggling through a crowded international airport.

And the entire complex promises to become even busier. In addition to the reorganization of the Louvre museum's seven departments and the provision of a plethora of new visitor facilities and museum services, Pei's Grand Louvre master plan also encompasses the Museum of Decorative Arts, a new fashion and textile museum; the Ecole du Louvre; and Museums of France conservation workshops and laboratories. In all, exhibition spaces will have doubled, technical areas will have trebled, and visitor reception facilities will have increased twelvefold when the Grand Louvre is finished in 1997. While Pei's master plan is certainly successful in adapting the Louvre museum to meet the demands of both international cultural tourism and contemporary museology, the wisdom of making so large a museum even larger remains questionable.—*Charlotte Ellis*

Charlotte Ellis is a free-lance writer who is based in Paris.

Details

Architect **James Ingo Freed** of **Pei Cobb Freed & Partners** has been commissioned to design a new U.S. Courthouse and Federal Building in Omaha, Nebraska. Freed was selected over **Philip Johnson**, **Kevin Roche**, **Ralph Johnson**, and **Cesar Pelli**.The four finalists in the competition to design Baltimore's new $60 million performing arts center have been announced: **Arata Isozaki and Associates**; **Antoine Predock Architect**; Toronto-based **Lett/Smith Architects**; and **Rafael Viñoly Architects** of New York. Minneapolis-based **Ellerbe Becket** has named **Robert A. Degenhardt** the firm's new President and CEO, succeeding current CEO John Gaunt. **Payette Associates** of Boston is designing a $30 million chemistry building expansion and renovation at Vanderbilt University in Nashville. **Hardy Holzman Pfeiffer Associates** is designing a new performing arts facility for Texas Christian University's College of Fine Arts in Fort Worth, and the new University of Southern California Center for Music. President Clinton has appointed **Cathryn Buford Slater** as Chairman of the Federal Advisory Council on Historic Preservation; Slater replaces current Chairman John C. Harper. **Siegel Diamond Architects** has been selected to design a new laboratory and classroom facility at the Scripps Institute of Oceanography at the University of California at San Diego. The ITT Sheraton Corporation has invited **Michael Graves Architect**, **Arquitectonica**, and **Antoine Predock Architect** to a design competition for a new hotel in Las Vegas. The German insurance company ARAG has commissioned **Norman Foster and Partners** to design its new headquarters in Düsseldorf. **Gwathmey Siegel & Associates** is designing the North Miami Center of Contemporary Art. **Bearsch Compeau Associates** of Binghamton has been commissioned to design the National Soccer Hall of Fame in upstate New York. In New York, **Ehrenkrantz & Ekstut Architects** and **Croxton Collaborative** are designing a new research laboratory for Columbia University's Lamont-Doherty Earth Observatory. The Miami-based **Rufus Nims Architect Foundation** is producing a television series profiling a dozen of Florida's most influential architects, including **Paul Rudolph** and **Charles Harrison Pawley**.

AIA Announces Urban Design Awards

Lauding the "architect's role in working with communities to solve urban problems," the AIA's 1994 Honor Awards for Urban Design were announced this month by a jury comprising architect and urban designer Jonathan Barnett of Washington, D.C.; Houston-based architect Peter Zweig; and Dorothy Inman Crews, mayor of Tallahassee.

The jury honored the redesign of the New York Public Library's terraces adjoining Bryant Park. Philadelphia-based landscape architects Hanna/Olin led a team comprising Davis Brody & Associates, Hardy Holzman Pfeiffer & Associates, and Kupiec & Koustomitis Architects of New York. The jurors cited the project as "a quiet oasis that respects the existing public space."

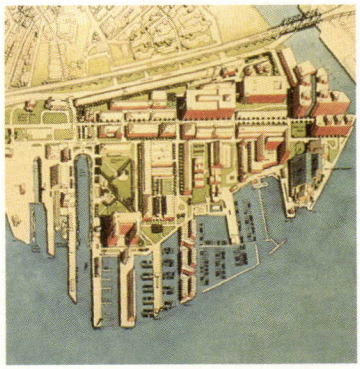
The Boston Redevelopment Authority's master plan for the city's historic Charlestown Navy Yard was commended by jury members as a successful military base reuse. The 135-acre mixed-use development combines a variety of functions in new and existing structures.

Also honored was Boston's Post Office Square, designed by Ellenzweig Associates. The park over a parking garage (ARCHITECTURE, August 1993, pages 78-81) "transforms an unfriendly urban space into an inviting place," said the jurors.

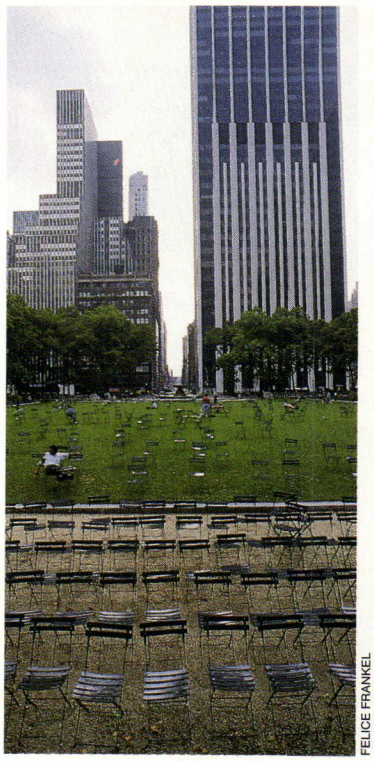
The redevelopment plan for London's historic Paternoster Square was also honored with an award. Hammond Beeby Babka Associates' still-unbuilt master plan will include mixed-use structures on a 7-acre site, reviving "traditional architectural ideas to create a sense of identity," according to the jurors.

These four winning projects—all successful public spaces created from existing contexts—reveal a sensitivity to much more than purely esthetic concerns. The awards will be presented during the AIA's national convention in Los Angeles in May.—*Raul A. Barreneche*

PATERNOSTER SQUARE: London identity.



NAVY YARD: Military base transformed.



FELICE FRANKEL

LIBRARY TERRACES: Quiet oasis.

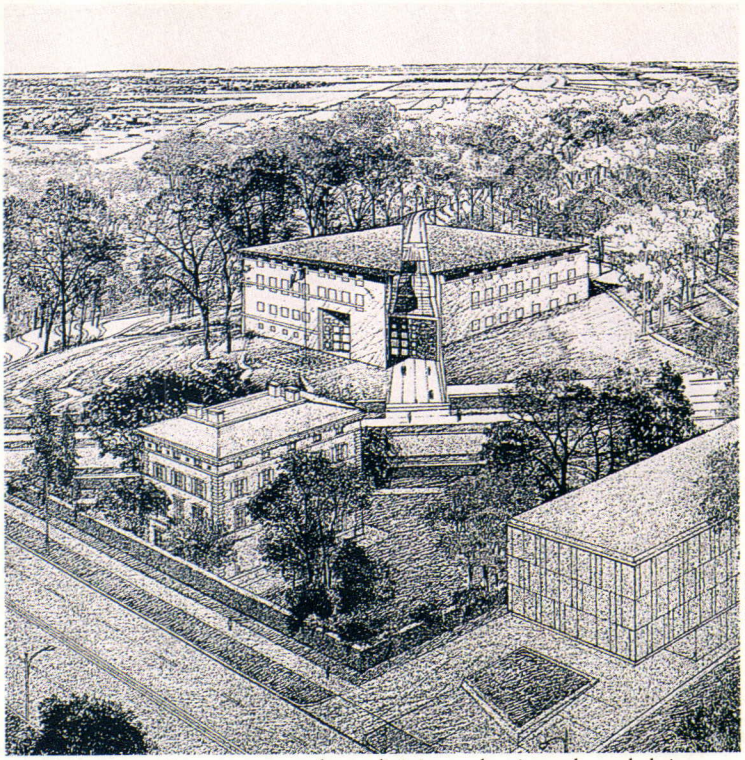
STEVE ROSENTHAL

POST OFFICE SQUARE: Park atop a parking garage provides inviting amenity for Boston financial district.

New Italian Chancery Planned for Washington

In 1992, the Italian Ministry of Foreign Affairs invited nine leading Italian architects to submit designs for a new chancery in Washington, D.C., and eventually selected a project by Roman architect Piero Sartogo over entries from such luminaries as Gae Aulenti, Renzo Piano, and Aldo Rossi. The winning scheme was unveiled last December, after a complex approval process. Local architect Leo A Daly, who administered the original competition, helped secure the necessary local approvals.

The architects, recalls Sartogo, were charged with "making a building that would somehow be Italian." Sartogo met this challenge and also related his design to its immediate context. While the building's marble-clad walls and deep overhanging eaves are reminiscent of traditional Tuscan villas, its square form consciously alludes to Pierre L'Enfant's 18th-century plan for Washington,



PIERO SARTOGO ARCHITECTS

ITALIAN CHANCERY: Structure responds to adjoining embassies and wooded site.

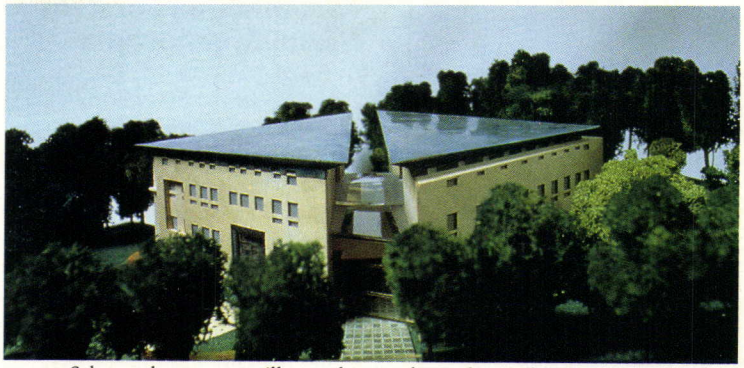
D.C. The scale of the four-story, 100,000-square-foot building also respects that of the surrounding Beaux-Arts embassies.

The new chancery will consolidate all the embassy's offices, currently housed in a 1925 mansion, as well as the offices of various attachés. The building's steeply sloping site comprises 5 wooded acres between Massachusetts Avenue's Embassy Row and Rock Creek Park. The embassy will mediate between the wooded expanse of the park and the formal avenue of embassies.

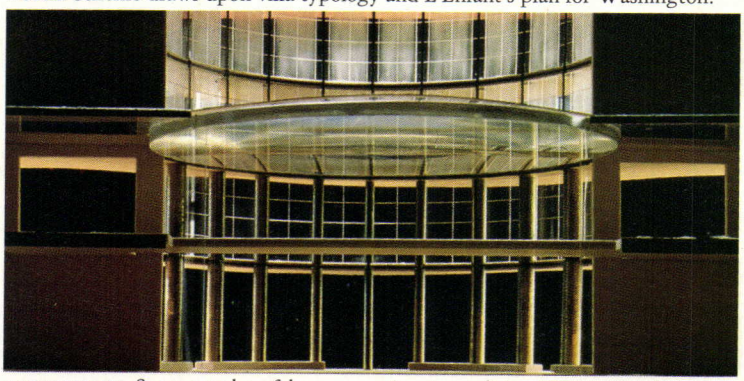
The chancery's square plan is bisected by a diagonal walkway that recalls the splicing of L'Enfant's city plan by the Potomac River. Following the villa typology, few windows will punctuate the chancery's exterior, but will allow sufficient natural light to reach the offices. The building's roof will be clad in copper, echoing the roofscapes of many Washington structures.

Inside, a large two-level atrium will punctuate the center of the building to serve as the chancery's ceremonial focus. The atrium will be fitted with a "glass lens," which the architect claims is more a glass dome than a simple skylight. In the tradition of Alberti and Brunelleschi, Sartogo emphasizes the perspective of the cylindrical atrium by decreasing column diameters as they approach the center. Outside the chancery, an entry piazza will be inlaid with 81 marble squares of diminishing size; the edges of these squares will be highlighted in black to create the illusion of coffers inside a dome.

Although he has designed a number of U.S. projects, including New York City's Italian Trade Center, Banco di Roma building, and the master plan for the Fashion Institute of Technology, Sartogo remains lesser known than many of his Italian contemporaries. His chancery project, which combines a uniquely Italian brand of rationalism with a concern for its American context, should help build his reputation both here and abroad.—*R.A.B.*



MODEL: Scheme draws upon villa typology and L'Enfant's plan for Washington.



ATRIUM MODEL: Space employs false perspectives in tradition of Brunelleschi.

Exhibition Celebrates Miami Architecture

An exhibit at the Bass Museum in Miami Beach celebrates the city's architecture and reveals the rich 20th-century heritage of Florida styles. "The Architecture of Miami Beach: Three Viewpoints," which runs through March 27, is curated by Alan Z. Aiches. The exhibit examines the work of two prominent Miami Beach architects, as well as plans for redeveloping a vital portion of the city's South Pointe waterfront.

The work of Art Deco architect L. Murray Dixon is displayed in vintage photographs in the museum's North Gallery. Dixon was one of a small number of architects who departed from Miami's prominent Mediterranean style to introduce Art Deco to the city in the 1930s. His mastery of the style is evidenced by the hundreds of projects he designed during his lifetime; many still exist.

Dixon and others began designing Tropical Deco buildings to elevate tourists from the gloom of the Depression. Unlike the more imposing European strain of Art Deco, Tropical Deco integrated Moderne design with curving walls, a softer palette, and lighthearted ornamentation appropriate to the tropics. Dixon delivered a joyful message with sunny two-story lobbies, playful murals, and intricate friezes. Images of the 1940 Raleigh hotel reflect the architect's signature vocabulary: A soft rhythmic curve graces one side of the seven-story building and is repeated in nautilus-style poolside cabanas. And the more elegant Atlantis hotel flaunts carved friezes flanking its three-story entrance.

As Dixon's work clearly captured the spirit of Miami Beach in the 1930s and 1940s, architect Morris Lapidus' new brand of Modernism set the tone for the decades following. The museum's South Gallery showcases photographs of early store designs by Lapidus. These projects document the architect's unique design vocabulary: a curved wall in Ray's Dresses, lighted glass block in Wallach's store, circular cut-outs in Seagram's Bar, and snaked ceiling forms in the Rainbow Shops. These public enterprises preceded his master works—Fontainebleau, Eden Roc, and Americana hotels—all of which still stand, albeit in somewhat altered versions.

The Fontainebleau, with its signature curved form, opened in 1954 to much criticism; this self-proclaimed "architecture of joy" has only recently been redeemed. Photographs of other Lapidus projects by Samuel H. Gottscho and Ezra Stoller in the Bass Museum exhibit reveal how Lapidus combined elements from his earlier retail designs with a modified French Renaissance style.

At age 91, Lapidus is still living and working in Miami Beach. It is Dixon's built work, however, that is the legacy addressed by a recent charette to master plan the historic South Pointe waterfront.

Miami Beach was originally developed at its south end and slowly

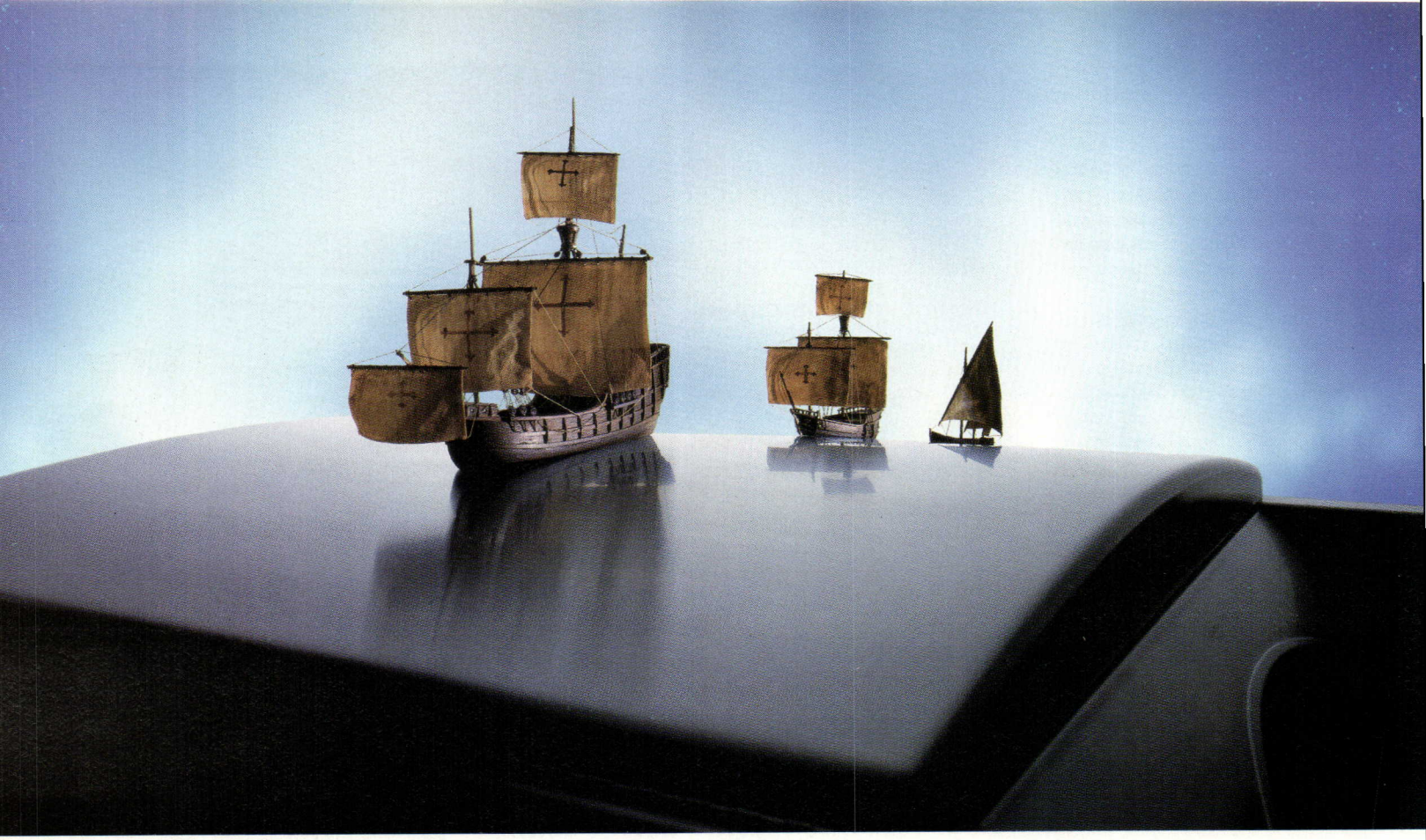
SENATOR HOTEL: Dixon's 1939 design.

grew north. Eventually, oceanfront estates were torn down to make way for huge high-rise hotels and apartments. Meanwhile, the Art Deco buildings at the south end of Miami Beach fell into decay; only when the area received its historic designation in the late 1970s did restoration begin to return the original flavor to this 1-mile-square district.

The south end is now embarking upon a new incarnation. Spurred by a local developer, the Portofino Group, a charette was held last June to generate proposals for creating a unified neighborhood. Ten firms, led by Duany Plater-Zyberk (DPZ), produced a series of master plans that considered the scale of an existing 28-story building, as well as that of smaller Art Deco structures.

Other architecture firms that participated in the charette included Arquitectonica with STA Architects; Michael Graves Architect; Bermello, Ajamil & Partners; Robert A.M. Stern Architects; Sandy & Babcock; and Bernard Zyscovich.

FONTAINEBLEAU: Miami Beach landmark hotel, designed by Morris Lapidus, opened in 1954.



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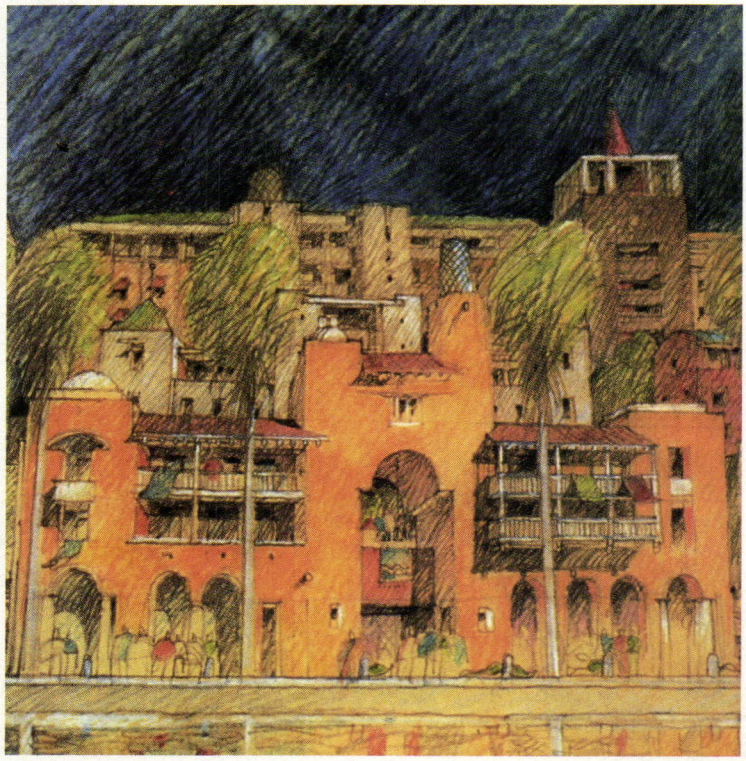
The display of their work is organized to allow visitors to follow the charette process. At the entry to the exhibit, a large site plan establishes the scope of the charette. Inside, drawings by DPZ document several building typologies, uses, and planning densities addressed by the charette participants. Renderings by architect Thomas Spain with DPZ reveal the group's tight scheme of angled streets and densely grouped buildings. Arquitectonica's scheme, meanwhile, features a large residential tower that serves as a landmark for ocean travelers.

These three exhibits reveal an appreciation of Miami Beach's rich architectural past. Architects planning the city's future are clearly building on lively traditions established by Dixon and Lapidus.—*Roberta Klein*

Roberta Klein is a free-lance writer who is based in Miami, Florida.

ARQUITECTONICA: Tower as city beacon.

ROBERT A.M. STERN: Tower scheme.



DUANY PLATER-ZYBERK: Proposed mixed-use structures.

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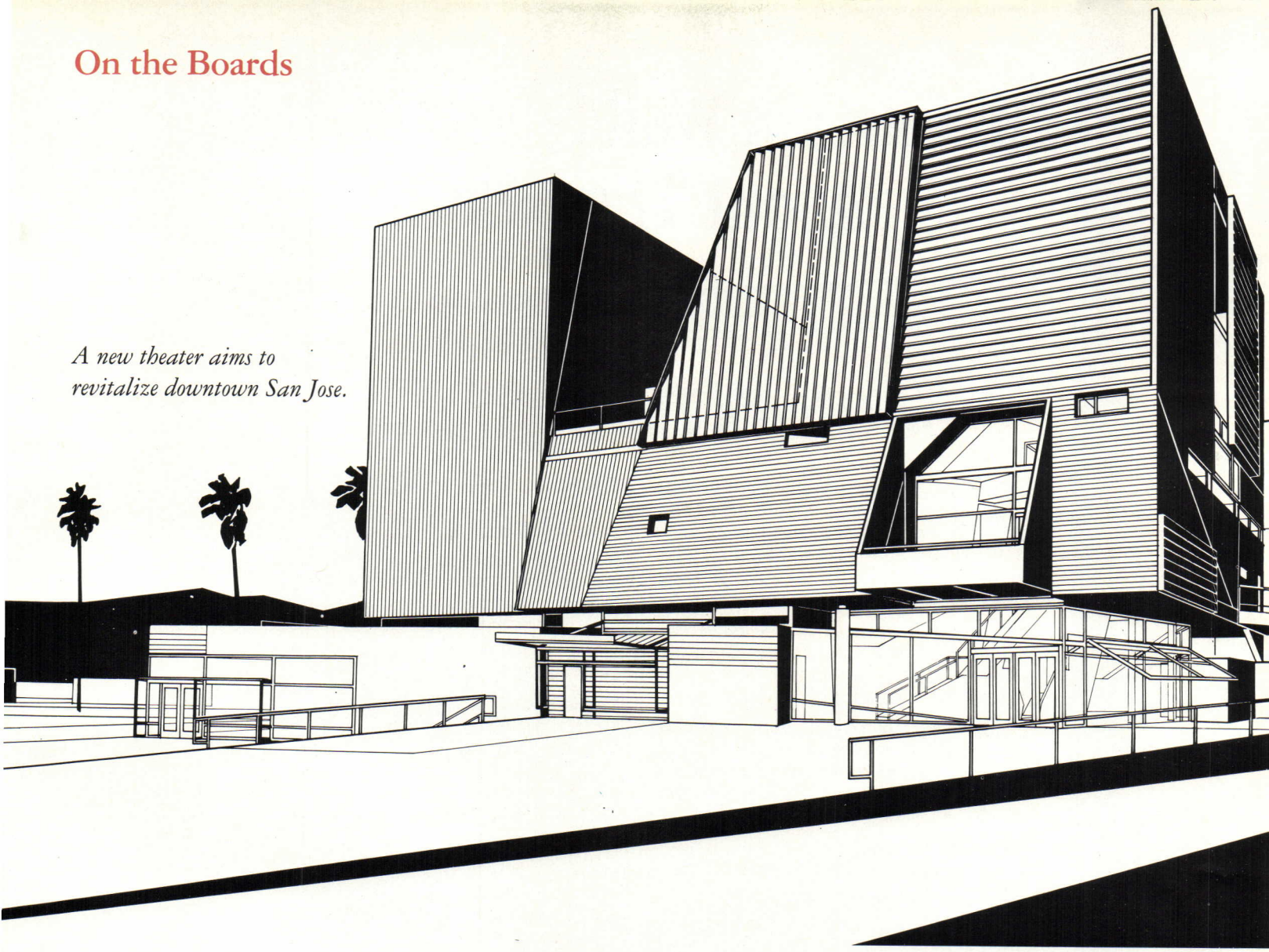
HIS DAY.
VIRTUALLY FORGOTTEN
NOW. AND WAS
SOMETHING
OF A STRANGE BIRD
HIMSELF.

A new theater aims to revitalize downtown San Jose.



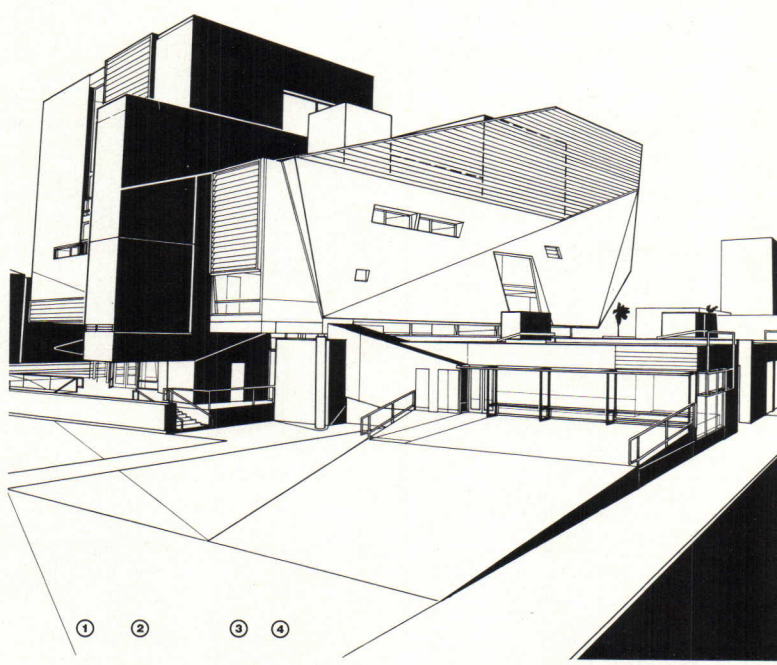
⑤ ⑥ ⑦

San Jose Repertory Theater
San Jose, California
Holt Hinshaw Jones Architects

Downtown San Jose's San Antonio Plaza area, blighted by 1970s redevelopment, will be the site of a new repertory theater, designed by Holt Hinshaw Jones of San Francisco. The 42,000-square-foot facility will incorporate a two-level, 565-seat theater; administrative offices; theatrical workshops; and rehearsal spaces. As required by local urban planning directives, ground-floor retail space will be provided.

The upper floors, including the theater and support spaces, are rotated on a $12^1/_2$ degree angle and expressed as a series of interconnected, chamfered volumes. The steel-framed structure will be clad in metal panels of varying patterns.

Construction is slated to begin this fall and is scheduled for completion by 1996.—*R.A.B*



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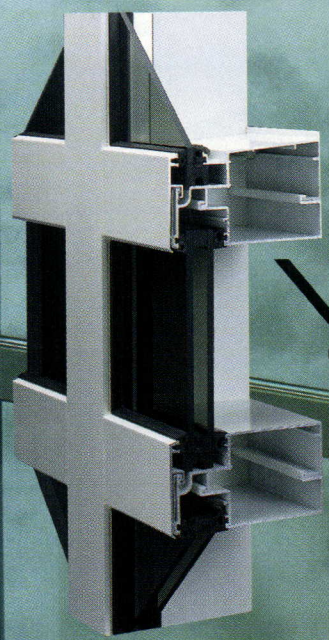

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The Met's newest galleries simulate Classicism to the detriment of the collection.

MEYER GALLERIES: Now demolished.

Neo-Neoclassicism at the Metropolitan

In order to create what it calls "a setting more in line with what the 19th-century artists themselves might have envisioned for their works," the Metropolitan Museum of Art completely demolished the flexible, Modern Andre Meyer Galleries. These galleries were installed by the renowned former Curator John Pope-Hennessy barely 10 years ago in Kevin Roche John Dinkeloo and Associates' Michael J. Rockefeller Wing. The museum not only tore out the moveable wall panels, pedestals, and freestanding casework, but also concealed the perimeter walls, sloping window, and gridded skylit ceiling within a suite of 21 new Neo-Neoclassical rooms that was unveiled last fall.

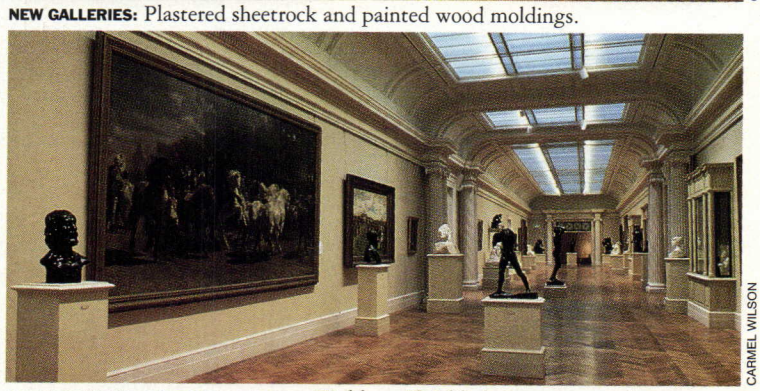
With a $12.4 million budget, the project was no mere installation. But the Met did not commission Roche Dinkeloo to upgrade its original design. Nor did the museum commission any of the many well-known architects who have thought long and hard about the Classical tradition, like Robert Venturi and Denise Scott Brown, Michael Graves, or Allan Greenberg. Instead, the museum assigned the renovation to Curator of European Paintings Gary Tinterow and Senior Exhibition Designer David Harvey. As Tinterow explained, "We'd seen enough museums designed by architects. We wanted to do it ourselves."

After the rooms were designed, Tinterow and Harvey sought advice on proportions and Classical details from Alvin Holm, a "Philadelphia architect who taught the Classical orders to students at New York's National Academy of Design," as quoted in the Met's exhibition catalog. Roche Dinkeloo, which was involved with most of the Met's new galleries since 1967, produced construction documents for the project but was not asked to participate in the design.

The new 19th-century painting and sculpture galleries look almost, but not quite, like the Beaux-Arts rooms in other parts of the museum. After Richard Morris Hunt's stony great hall and spectacular, monumental staircase and McKim Mead & White's imposing wings full of antiquities, the new rooms appear cramped and shoddy. Instead of limestone and plaster, marble and brocade, the new rooms feature painted wood moldings, wainscoting, and plaster-covered sheetrock walls. The elaborate coved ceilings are only 20 feet high. Since the new "skylights" have been installed more than 10 feet below the already-filtered skylights in the roof and filtered further for conservation reasons, visible incandescent and fluorescent lamps provide most of the light. And the new Neoclassical rooms do not begin with a formal entry sequence: They are shoehorned into a corner behind intimate Modern galleries.

CARMEL WILSON

NEW GALLERIES: Plastered sheetrock and painted wood moldings.



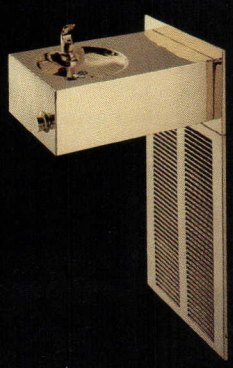
CARMEL WILSON

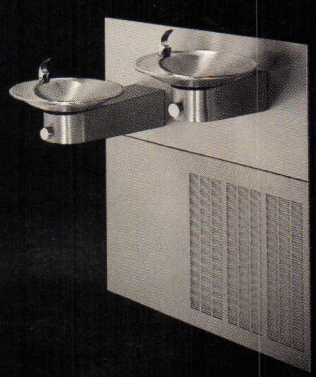
SALON PAINTING AND RODIN GALLERY: Visible artificial lighting source and squat cove.

Unfortunately, the new 19th-century painting and sculpture galleries are neither intimate nor grand. Their elaborate but insubstantial Neoclassical detail creates distraction within the modest spaces. The deep, muted colors of the walls absorb the limited light and compromise the paintings, whose colors, after all, are their primary subjects. For instance, the pink-tinged blue-gray in the Monet room and the blue-green surrounding the Cézannes even approximate the hues inside the frames.

It is difficult to imagine that the pioneering Impressionists and Post-Impressionists featured in these Neo-Neoclassical galleries would choose such a retardataire place to exhibit their work. These radical artists would probably be equally appalled to find their paintings physically and symbolically separated from subsequent 20th-century art and presented as if they were quaint components of period rooms. These artists refused to be consigned to a proper Beaux-Arts salon 100 years ago. Why put them there now?—*Jayne Merkel*

Jayne Merkel directs the Graduate Program in Architecture and Design Criticism at Parsons School for Design/The New School in New York City.





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Make No Small Plans

Grand urban visions can only succeed through collaboration between architects and planners.

This is the century that purposefully split the atom but, inadvertently, divided planners and architects into separate, often adversarial, camps. This is the age that went from Daniel Burnham's "Make no small plans" to plans passed through the sieves of committee approval. This can't be the best way to plan, design, and develop—either for today or for the soon-to-be 21st century. And we should remind ourselves that it was not always so.

Without a user survey, Pope Sixtus V replanned the key streets of medieval Rome, connecting the pilgrimage churches and adding new or improved piazzas, embellishing these public spaces with obelisks.

Without an environmental impact study, Peter the Great drained a swamp and created St. Petersburg, combining canals, palaces, and public buildings in a unique composition.

Without computer-based statistical analysis, Baron Georges-Eugène Haussmann developed a new infrastructure for Paris, including the world's most famous sewer system and the grand boulevards that, in large part, make up our visual image of that city—and serve it well over 100 years later.

Without focus groups, Thomas Jefferson developed, at the edge of the Virginia wilderness, a university of dignity and functional excellence, achieved with a simple palette of materials, building forms, and landscape.

These historic figures were planners all—by the dictionary definition ("a person who plans") and by practice. They never received a planning degree; never took a course in zoning law; never wrote a subdivision regulation, colored a land map, or made decisions by committee vote. How did they do it?

They had visions. They had the political and economic power to implement those visions. And they were able to exercise that power. While we admire the results, we would never today accept the authoritarian methods these visionaries employed. No person, no institution has such power now, nor will it be obtainable in the future.

As for the vision, many planners in the United States are still haunted by disturbing visions from the 1950s and 1960s. During those decades, not enough planners protested the carving up of cities under that banner of "progressive" transportation policy that produced the interstate highway program. Planners allowed zoning to steer planning (instead of vice versa), neatly but artificially and antiseptically segregating uses. Most planning practitioners were persuaded that "old" was synonymous with "disposable"; that "new" equaled "good"; and that "bigger" equaled "best." Then, in reaction, many planners put away their drafting boards, retreating from physical planning (too risky, too political) to the less tangible pursuits of social and economic policy and the seemingly safe refuge (who-can-possibly-criticize-us) of environmental planning.

By the late 1960s, planners and architects went their separate ways, trained in wholly different university curriculums, usually housed in different schools, even if the schools were in the same institution. Students were rarely afforded the opportunity to experience an interdisciplinary design studio. The two disciplines became filled with suspicious—if not adversarial—thoughts about each others' motives and abilities, reflected in such often-heard comments as: "Planners aren't interested in the three-dimensional results of their plans"; "Architects are insensitive to context ... and are mainly concerned with building monuments to themselves."

This isolation did not create a positive picture for either profession. But there are good signs, especially because many planners and architects have learned some valuable lessons. We've learned to start the process of planning and design by understanding the essential identity of a place and opened our eyes to our historic buildings and landscapes. We found that mixed-use is almost always a good prescription and started to create combinations of uses that work physically, economically, and socially.

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ARCHITECTURE

CONTEXT AND INVENTION

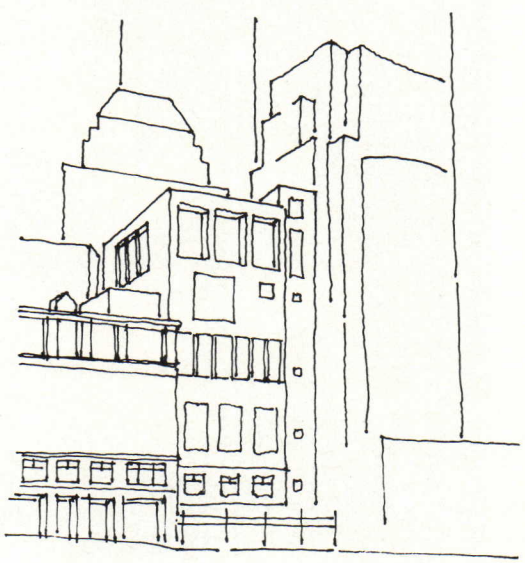
New buildings transform local architectural traditions through analogy and contrast.

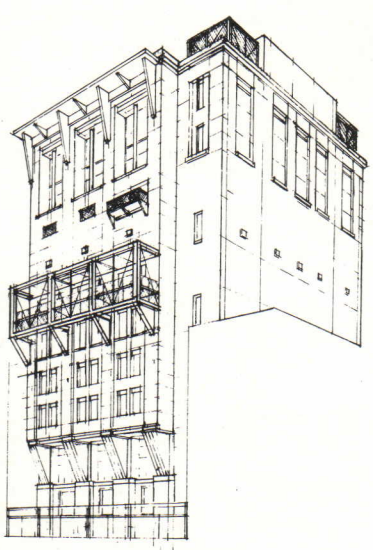
DRAWINGS: Detailed facade studies by Leers, Weinzapfel Associates describe the relationship of the new MBTA tower to neighboring buildings.

Architects commonly use the term "contextualism" to justify the most tenuous relationships between new buildings and their surroundings. The insipid quality of many of these so-called "sympathetic" designs rarely stems from the weakness of the architect's vision, but more often from the timidity of preservation organizations, community boards, and city agencies. These groups' primary objection to new buildings is usually superficial, related to color or style, revealing a lack of faith in the capacity of contemporary architects to match or surpass the achievements of earlier ages. As a result, architects are forced to create an impoverished abstraction of historic landmarks.

The projects in this issue exemplify the most responsible form of contextualism, on sites ranging from a dense urban street to a rural landscape. Each building transforms local traditions; none derives from mere copying. At one extreme, Leers, Weinzapfel's infill tower for the Massachusetts Bay Transportation Authority translates the details, proportions, and rhythms of old Boston into a precise, modern expression; at the other, Venturi, Scott Brown's addition to the Bard College library strengthens the finite composition of an 1893 temple by distilling and sharply opposing its forms. Between these extremes, The Hillier Group's design for the Howard Hughes Medical Institute meets the contextual challenge of a suburban site, where architects must consider landscape as much as building.

Across the continent, James Stewart Polshek creates an avant-garde theater at the heart of San Francisco's Yerba Buena Gardens, a new cultural district with a long, troubled history. His design takes on the greatest challenge of contextualism: to set a precedent for future construction.





MBTA Operations Control Center
Boston, Massachusetts
Leers, Weinzapfel Associates

ROMANTIC MACHINE

SITE PLAN

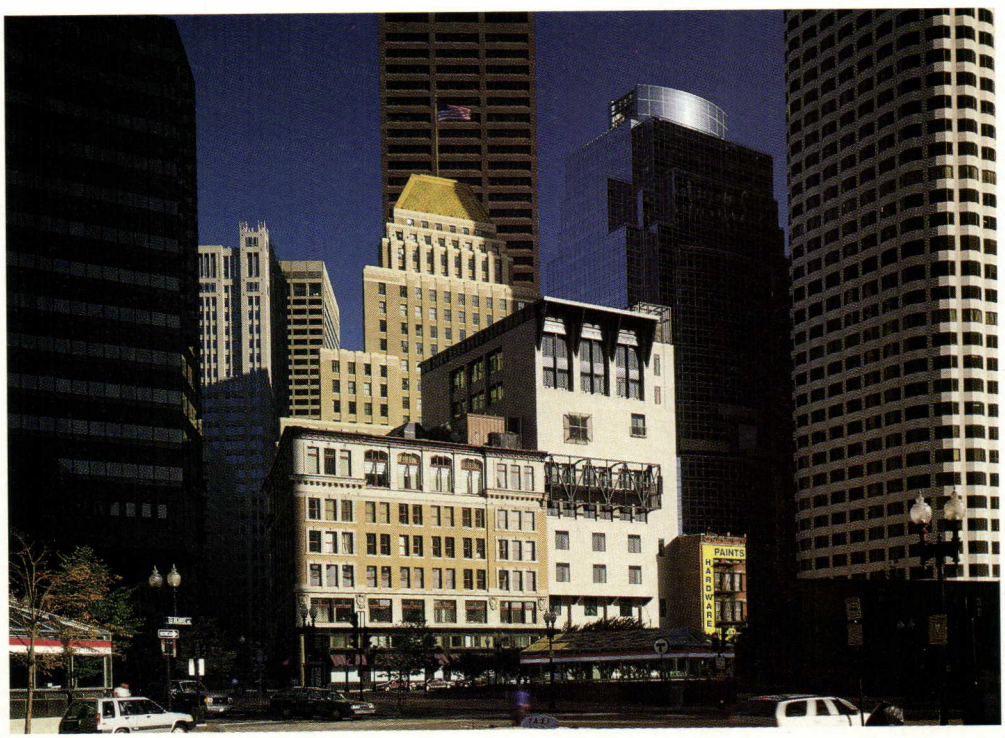
SITE PLAN: MBTA Operations Control Center fits into irregular grid and faces Dewey Square transportation center.
RIGHT: View from South Station shows relationship between new center and 19th- and 20th-century neighbors.
FACING PAGE: Steel-truss balcony along south facade continues cornice line of older buildings on Purchase Street.

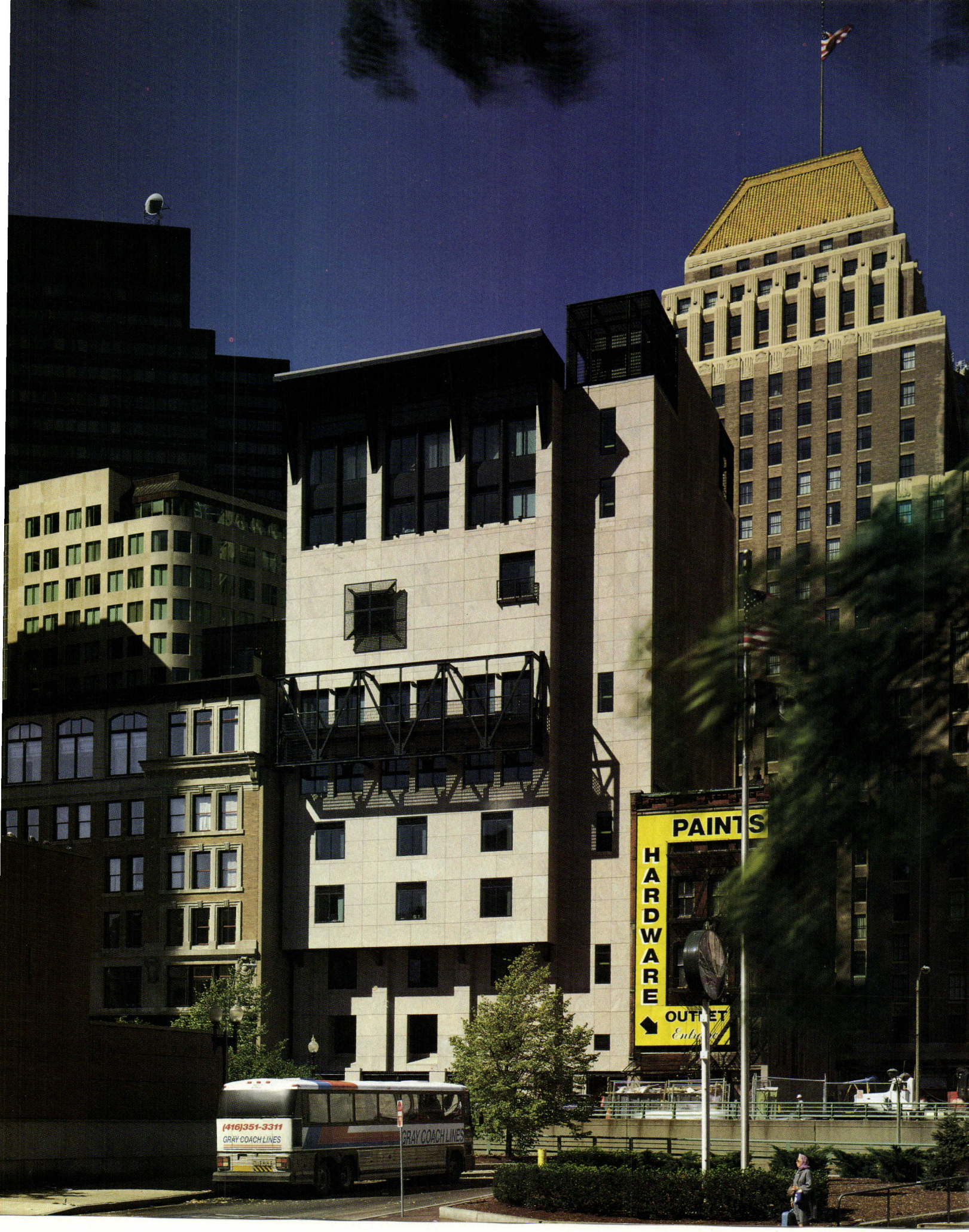
There's no denying that the Boston cityscape is vastly improved with the completion of the Massachusetts Bay Transportation Authority (MBTA) Operations Control Center by Leers, Weinzapfel Associates. Anyone familiar with the building's predecessor—a 1969 bunker that scowled at its neighbors—realizes the city benefits immensely from the architectural disappearing act pulled off in the renovation and expansion of the existing five-story building.

But Leers, Weinzapfel's accomplishment goes far beyond cosmetic intervention. Despite its modest footprint, the Operations Center occupies an important edge of downtown Boston, overlooking a major transportation node and busy expressway.

As a study in massing, the 10-story building solves thorny contextual problems, especially its frontage on two streets with very different characteristics. Straddling a site between quiet High Street and busy Purchase Street, the MBTA center nods respectfully to its venerable masonry neighbors while displaying enough self-confidence to cast off the trappings of a previous age. On the High Street side, its skintight granite erodes in a low-relief pattern of modest grilles and suitably proportioned windows, creating a prepossessing play of solids and voids that is fitting for the canyonlike midblock site. On the opposite face, the scale change along Purchase Street called for a bolder expression. Here, cues from the adjacent 19th-century buildings are echoed back tenfold in a composition of overscaled black steel elements set against the foil of a light-colored-stone grid.

The architects' choice of Stony Point granite for the public facades was just one of several design decisions driven by context. The mammoth steel cornice and industrial-strength balcony facing Purchase Street, for example, echo the steel supports of bridges crossing nearby Fort Point Channel. Other formal responses to context are visible in the Operations Control Center's rectangular pos-

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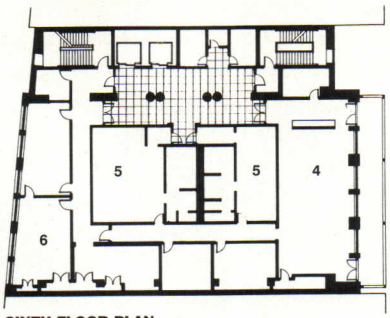
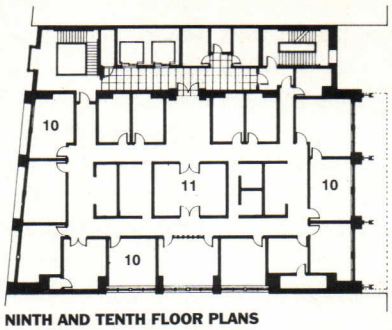
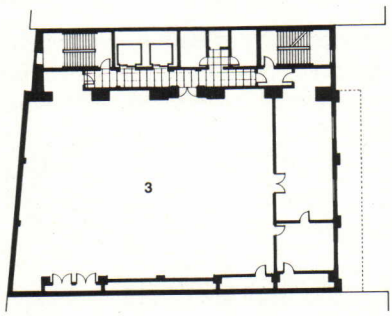


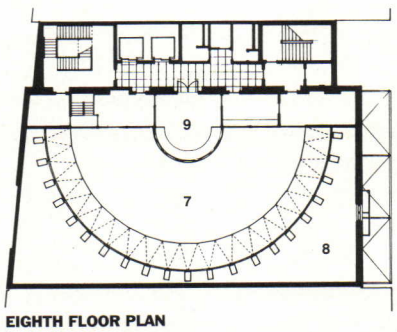
SIXTH FLOOR PLAN



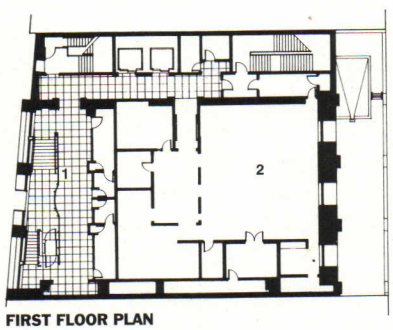
NINTH AND TENTH FLOOR PLANS



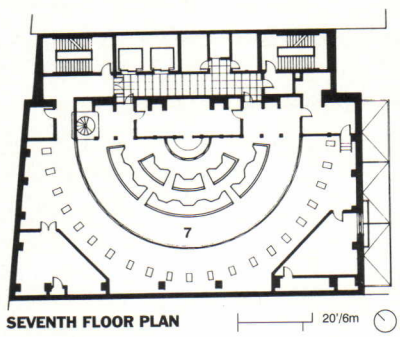
SECOND FLOOR PLAN



EIGHTH FLOOR PLAN



FIRST FLOOR PLAN



SEVENTH FLOOR PLAN

20'/6m

1 LOBBY
2 SCHEDULE ROOM
3 SIGNAL ROOM
4 LUNCH ROOM
5 LOCKER ROOM
6 TRAINING ROOM
7 CONTROL CENTER
8 PROJECTION ROOM
9 BRIEFING ROOM
10 EXECUTIVE OFFICE
11 CONFERENCE ROOM

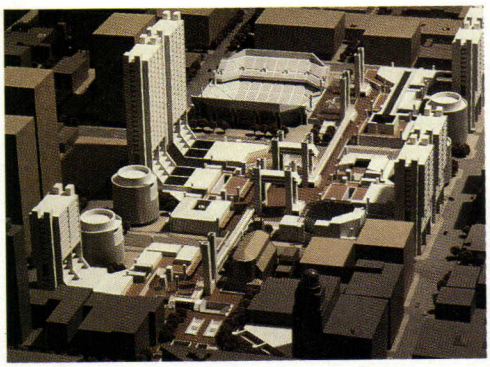
PLANS: North side of building conforms to skewed street grid. West-facing windows on top floors provide perimeter offices with views.
BOTTOM: "Zipper" zone of building includes employee lunch room and balcony supported by steel trusses.
FACING PAGE: New operations control room comprises two-story, semicircular space with rear-projected locator maps of trains. Managers occupy a glass-enclosed mezzanine.

MBTA OPERATIONS CONTROL CENTER
BOSTON, MASSACHUSETTS

ARCHITECT: Leers, Weinzapfel Associates Architects, Boston—Jane Weinzapfel (principal-in-charge); Andrea Leers (consulting principal); Karen Moore, David Buchanan (design team leaders); Winifred Stopps, William Mackey (project managers); Bradley Johnson (job captain); Alex Adkins, Ellen Altman, Richard Alvord, Mark Armstrong, Eric Gresla, Teresa Griffin, Renee Mierzejewski, Karen Swett, Chuntei Tseng (design team)
ENGINEERS: Ammann & Whitney (structural/mechanical/electrical); Parsons, DeLeuw (communications)
CONSULTANTS: Berg/Howland Associates (lighting); Steven R. McHugh (specifications)
GENERAL CONTRACTOR: Peabody Construction Company
COST: Withheld at owner's request
PHOTOGRAPHER: Steve Rosenthal

Yerba Buena Gardens
San Francisco, California

COMMUNITY GARDEN



MCCUE BOONE TOMSICK

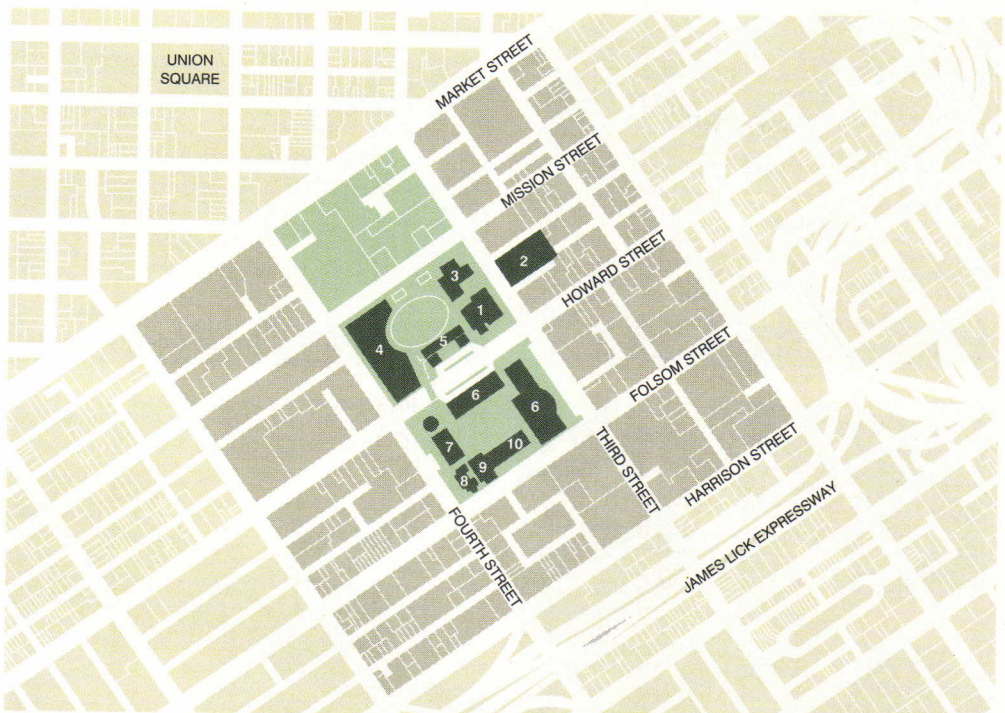
PERRETTI AND PARK PICTURES

TOP LEFT: Kenzo Tange's 1969 scheme included an exhibition hall, garages, a sports arena, and office towers.
TOP RIGHT: In 1984, the 22-acre site for the cultural district known as Yerba Buena Gardens was a parking lot.
ABOVE LEFT: Today, Yerba Buena Gardens includes Fumihiko Maki's Center for the Arts Galleries and Forum, James Stewart Polshek and Partners' Center for the Arts Theater (left in photo), and Esplanade park designed by MGA Partners with Romaldo Giurgola.
ABOVE RIGHT: Photomontage portrays a future Yerba Buena Center, including a children's complex designed by Adèle Naudé Santos, a park by landscape architect M. Paul Freidberg & Partners, and office buildings flanking Mario Botta's Museum of Modern Art. The children's center is scheduled to be completed in 1996; the office buildings await a developer.

Kenzo Tange designed it. John Carl Warnecke planned it, as did the Jerde Partnership a decade later. The Zeidler Roberts Partnership proposed a scheme, with landscape designed by Lawrence Halprin and Omi Lang Associates. Hans Hollein competed for it, as did James Stirling. Finally, in 1985, James Stewart Polshek, Fumihiko Maki, and Romaldo Giurgola won the ultimate commissions. Expectations for San Francisco's Yerba Buena Gardens were thus higher than the Golden Gate Bridge when the 10-acre civic complex opened last October. The project, wistfully named after the 1776 Spanish colony on its site, reflects the power of the private sector and the myriad interest groups who championed—or hindered—its development. The result is a politically correct muddle, but at least Yerba Buena establishes an exuberant new cultural district for the city. San Francisco in the 1990s couldn't produce a boring urban renewal project if it tried.

With its population of more than 650,000 Latinos, Asians, Native Americans, blacks, and whites, San Francisco may be America's most pluralist society. Yerba Buena Gardens reflects the city's pride in its multicultural underpinnings, but the project also demonstrates how far contemporary American planners are prepared to go to apply our democratic system to every facet of our culture, including urban design. Public-private funding for selected quadrants of our inner cities, established in the 1980s with New York's Battery Park City, produces cleverly financed examples of our checkered culture—but does it necessarily foster good design? Future planners of public open spaces in other American cities might look to Yerba Buena Gardens for the answer.

To its credit, Yerba Buena starts off on the right foot, with James Stewart Polshek and Partners' Center for the Arts Theater (pages 58-67) and Fumihiko Maki's Center for the Arts Galleries and Forum, a pair of re-



YERBA BUENA CENTER

1 CENTER FOR THE ARTS THEATER (1993)
2 MUSEUM OF MODERN ART (1995)
3 CENTER FOR THE ARTS GALLERIES AND FORUM (1993)
4 RETAIL (PROPOSED)
5 MOSCONE CONVENTION CENTER NORTH (1993) AND MARTIN LUTHER KING, JR., MEMORIAL (1993)
6 MOSCONE CONVENTION CENTER (1981)
7 CHILDREN'S PLACE (1996)
8 CHILD-CARE CENTER(1996)
9 BOWLING CENTER (1996)
10 ICE SKATING CENTER (1996)

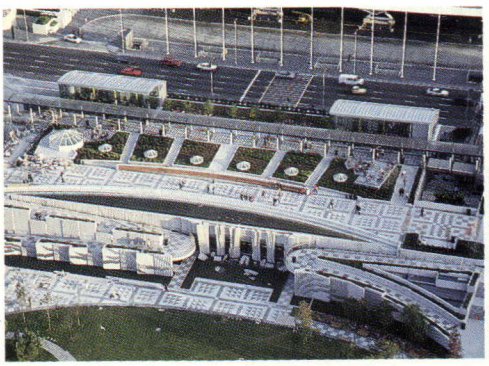
SITE PLAN: Yerba Buena Center occupies 87 acres and stretches from Market Street south almost to the James Lick Expressway. It includes three central blocks called Yerba Buena Gardens that accommodate hotels; a convention center; an arts district; and, ultimately, a children's center.

markably elegant, civic-minded buildings. They rest in a 5 1/2-acre park, called the Esplanade, by MGA Partners with Romaldo Giurgola. One of America's largest new civic complexes, and the only cultural center in the nation that is walking distance from 30,000 hotel rooms and a convention center, the Gardens are only part of 87-acre Yerba Buena Center (YBC), the most ambitious urban renewal project ever undertaken by the San Francisco Redevelopment Agency. They are built in the center of YBC, atop the recently expanded Moscone Convention Center.

"The fact that we were building above Moscone made the park a lightning rod for community activism," explains Lawrence McEwen, MGA Partners' associate in charge of the project. Completed in 1981, Hellmuth, Obata & Kassabaum's convention center replaced a low-income neighborhood whose residents helped drive the exhibition complex underground. Tucking a convention center under a park may be the 20th century's most inspired piece of urban planning. Unfortunately, the Esplanade park, as if trying to please all the activists who saw it to fruition, reaches wide-armed to embrace the city's—if not the world's—cultural groups.

The park includes a Sister City Garden, featuring flora from Osaka, Japan, to Esteli, Nicaragua. A collection of stones, the "Oché Wat Té Ou Reflection," recalls the structures of the American Indians who once inhabited the site. A hard-edged concrete park by Omi Lang Associates separates the Maki and Polshek buildings; it features local artwork and a traffic-deafening waterfall that cascades to the street. Completing the scene are a butterfly garden; a life-sized sculpture of a man shaking hands; and a memorial to Martin Luther King, Jr.

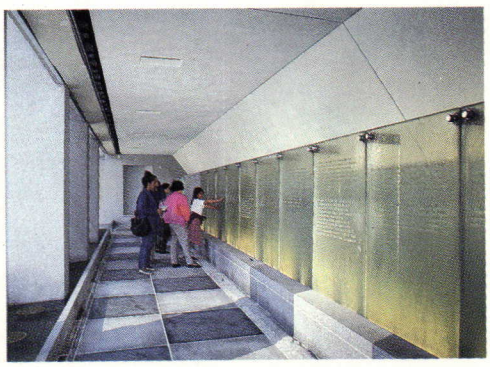
It would be difficult to imagine President François Mitterrand of France, in the middle of planning the Grands Projèts, taking calls from interest groups. ("*Bonjour*, François, I have the Daughters of Marie Antoinette on



PERRETTI AND PARK PICTURES

RICHARD BARNES

PERRETTI AND PARK PICTURES



PERRETTI AND PARK PICTURES

TOP LEFT: Cafes atop the Moscone Convention Center abut covered walkway and terraces overlooking memorial to Martin Luther King, Jr.
TOP RIGHT: King memorial and waterfall were designed by sculptor Houston Conwill, architect Joseph De Pace, and poet Estella Conwill Majozo. Text from Martin Luther King, Jr.'s, speeches is inscribed on granite and glass.
BOTTOM LEFT: The Oché Wat Té Ou Reflection, a small amphitheater by Jaune Quick-to-See Smith and James Luna, includes stones that recall the round houses of the Ohlone people, Yerba Buena's original inhabitants.
BOTTOM RIGHT: Visitors examine the words of Dr. Martin Luther King, Jr., inscribed in panels behind a waterfall.

the phone, requesting a monument. And the Corsicans are demanding an *allée*.") The Grands Projèts wouldn't have been built under such factious pressure, and Yerba Buena almost wasn't. Despite the fanfare accompanying the cultural district's opening last October, its ambitious, centerless Esplanade, whose bermed undulations recall a rural pasture more than an urban park, begs to be enlivened by bookstores, cafes, and restaurants. A retail component was promised by Olympia & York before the developer declared bankruptcy in 1992. That was only one of many setbacks in Yerba Buena's long and tangled history.

After visiting the 1964 Olympic Games in Tokyo, then-Redevelopment Agency Director M. Justin Herman invited Kenzo Tange to design a complex for the Yerba Buena site. With the local firm Gerald McCue & Associates, Tange in 1969 created a fortresslike parking garage planted with office towers and a sports arena, praised by San Francisco's business community but shunned by developers. The office towers, scaled to Tokyo's tight blocks, offered insufficient floor area for the wide parcels south of Market. Housing advocates, claiming the agency's relocation program for residents inadequate, filed suit in federal court; the project was shelved.

In 1976, Mayor-elect George Moscone resurrected the project, calling for an exhibition center. Moscone's package, determined in part by a select committee representing numerous interest groups, included an underground exhibition hall with a privately financed urban theme park above, surrounded by market-rate housing and a new high school. The exhibition center broke ground in August 1978, just three months before Moscone was assassinated.

Construction of the complex, now named for the late mayor, proceeded in early 1979, and the following year, Olympia & York was offered exclusive negotiating rights for YBC's central blocks. The developer's design team,

RICHARD BARNES

LEFT: MGA Partners' Esplanade is a grassy park that addresses Maki's Galleries and Forum (left) and Polshek's Center for the Arts Theater (right). Mario Botta's Museum of Modern Art looms behind them.

comprising the Zeidler Roberts Partnership, Beverly Willis Associates, and landscape architects Lawrence Halprin and Omi Lang Associates, proposed a hotel, office tower, retail complex, public gardens, visual arts center, cinema, and restaurants.

In 1984, Olympia & York and the redevelopment agency reached an "agreement," although each party subsequently changed its side of the bargain. The developers, in the middle of a recession, were reluctant to begin the office towers that were supposed to finance Yerba Buena's cultural facilities. The city undermined the project—literally—by expanding the convention center beneath it, thereby eliminating parking. At one point, the developer suggested that patrons of an entertainment complex designated for the southernmost block should ride from the cultural district on donkeys.

When Olympia & York finally went bust, the city opted to foot the bill for the arts buildings to lure other developers; the plan is working, albeit slowly. New York's Millennium Partners SF has agreed to pick up the tab for the retail complex that faces the Esplanade. The new Mario Botta-designed Museum of Modern Art, a privately financed institution, is scheduled to open in 1995. Two flanking office towers await a developer; and up the street, a tower designed by James Ingo Freed is stalled.

Fumihiko Maki, when asked about the unadorned nature of his Center for the Arts Galleries, gave an answer that told more about his client than his building. "We didn't have Napoleon III of Paris or Michael Eisner of Disney—we had to work with the city of San Francisco." When applying the theory that art and architecture can uplift a city, it helps to begin with strong design. How lucky is San Francisco that its new, hyperactive public space contains restrained forms by Maki and Polshek. Yerba Buena Gardens tells a cautionary tale that other American cities should heed.—*Heidi Landecker*

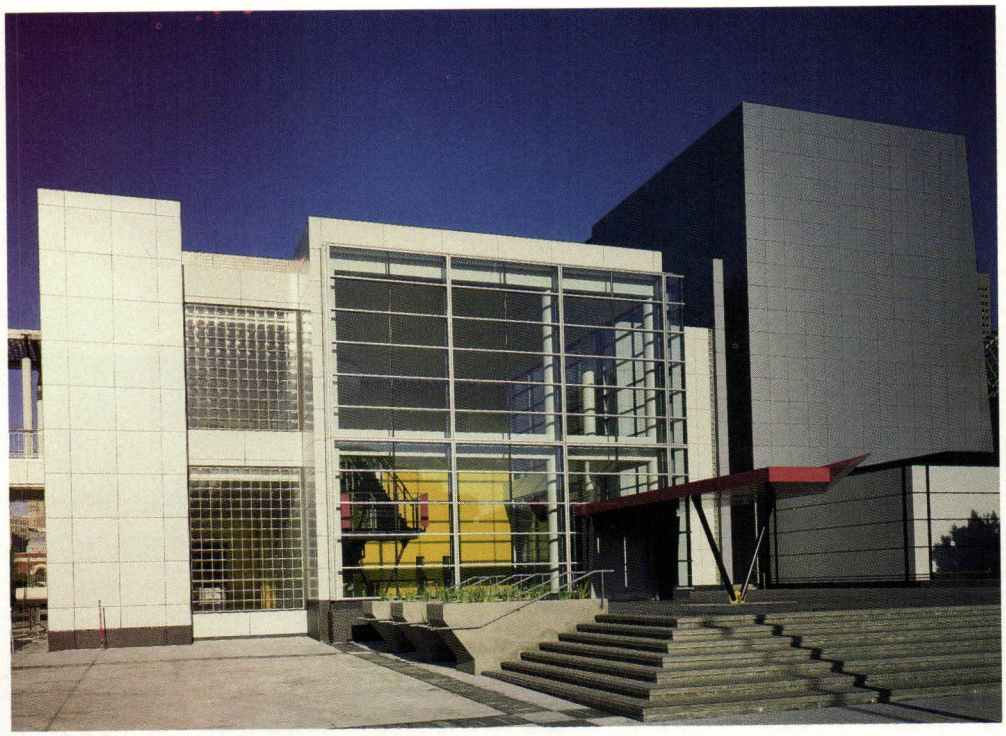
It is a testament to the foresightedness, tenacity, and design talents of Polshek and Todd Schliemann, principal designer of the theater, that from this peculiarly San Franciscan soup has emerged a theater at once elegant and forthright, a singular Modern building that stands up to both Botta's squat, acontextual museum and the odd protrusions of the Moscone Convention Center.

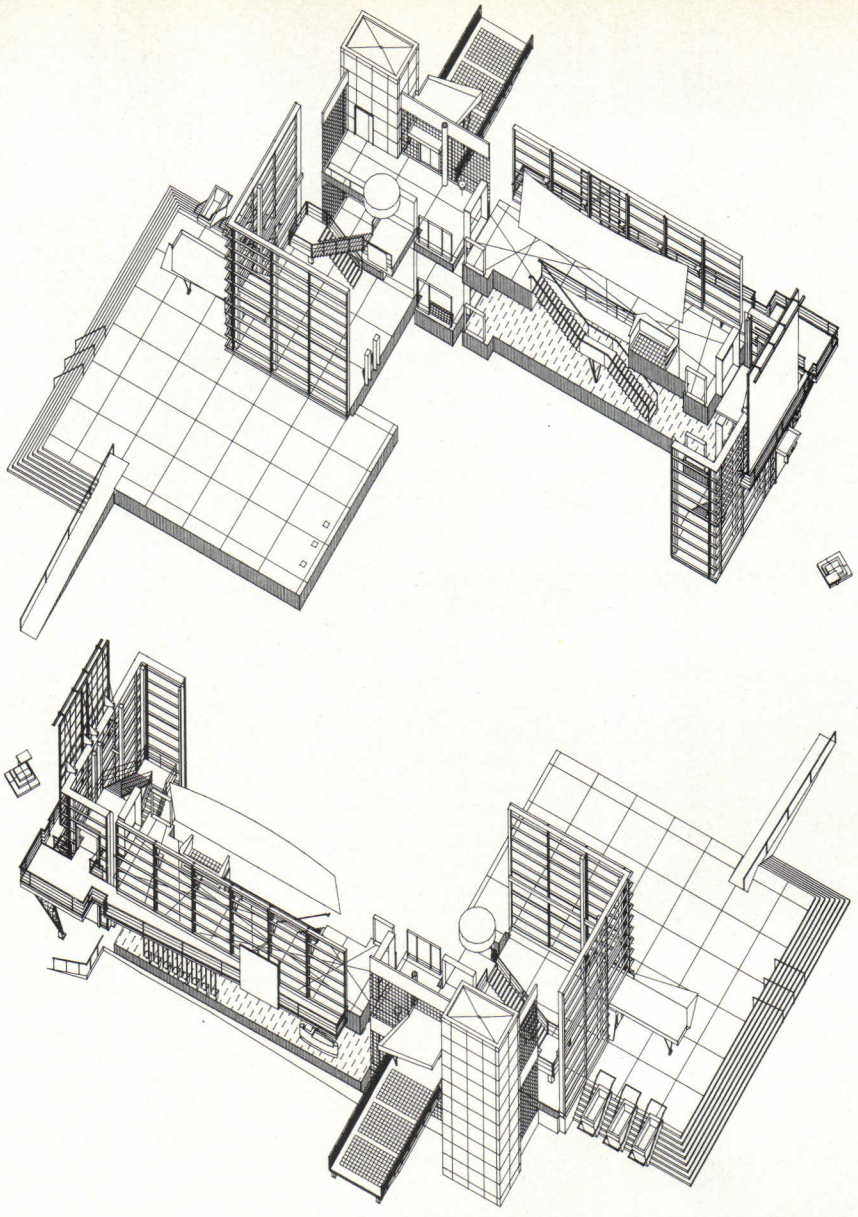
Occupying the easternmost corner of Yerba Buena Gardens, the theater is assembled from cubist volumes rendered in white and gray. Polshek reports that his first image for the building derived from the Japanese game of Go, played with small black and white pieces on a heavy, solid grid for a board. "I'd lived and worked in Japan," he explains. "I reasoned that this was a theater on the Pacific Rim. The multicultural aspect of this building is very important."

The Center for the Arts Theater indeed feels even more Japanese than Maki's aluminum low-rise next door. From the Go metaphor, Polshek explains, it was easy to think of theater as a game, a black box that becomes a place of mystery, where the audience is enlightened by the actors or dancers on the stage. To express the functions of each room of the theater, the architects decided to "pull them apart and construct them in their purest possible form," Polshek says. The result is a 90-foot-tall aluminum stage house that accommodates the fly loft, abutted on the west by a white-tiled volume containing service stairs and lighting. This volume gives way to a ceramic-tiled "black box" for the auditorium. The proscenium, designated by a thin wedge between stage house and seating, is, according to Polshek, "where the enlighteners and those to be enlightened intersect." Support spaces—for example, the green room, backstage, and loading docks—occupy brick volumes abutting the eastern side of the stage house. A 34-foot-square glass cube at the building's southeast corner forms the theater's primary lobby, which addresses Howard and Third streets. A smaller glass cube forms a lobby at the northwest corner, facing Maki's gallery and the park.

Above this lobby entrance is a perforated-metal screen conceived for slide or video shows projected from the roof of Maki's building. The neutral facades of the fly tower could perform the same function, as could a built-in projection screen along the west-facing second-story lobby, whose broad window addresses an elevated strip of cafes on the convention center's roof. The Center for the Arts can't afford these video billboards now, but the infrastructure is in place. Eventually, visitors approaching in cars along the high-speed traffic lanes of Third Street will be treated to video dramas, such as scenes from current or future performances. Similarly, a balcony along the western facade of the theater is designed to bring dancers and actors outside, where they can perform for cafe and park audiences. "I thought of the theater as an actor in a larger drama that involved all of Yerba Buena Gardens," explains Polshek.

BOTTOM LEFT: Main entrance to the Center for the Arts Theater opens to a plaza facing Howard Street.
BOTTOM RIGHT: Jaunty, 1950s-style awning extends from terrazzo-floored lobby to exterior. Narrow steel stair rises to second-story lobby.
FACING PAGE: Projecting aluminum canopy marks the main entrance, through steel doors. Aluminum mullions echo ceramic-tile cladding on auditorium (right in photo).



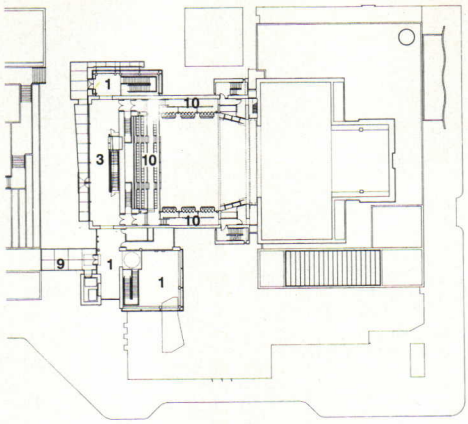


DRAWINGS: Axonometrics reveal glass-enclosed lobbies and corridors, bridge to cafes atop convention center expansion, and corner plaza at entrance.
BOTTOM LEFT: Fifties detailing animates 30-foot-high main lobby, which offers views toward convention center and sites of proposed office buildings.
BOTTOM RIGHT: Steel stair provides theater-goers with a place to see and be seen, as well as access from main lobby to second-story lobby.
FACING PAGE: Second-floor lobby corridor is equipped with a projection screen and custom-designed projector mounts. Images would be visible from Esplanade park and cafes on rooftop of adjacent convention center.

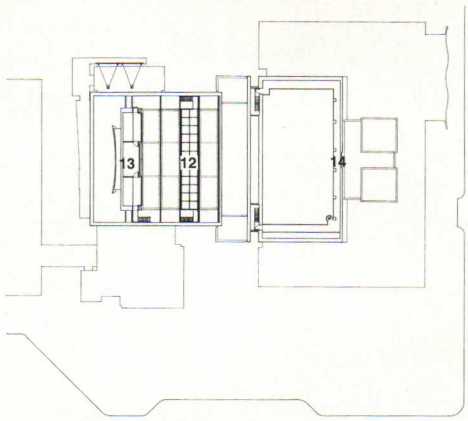
PLANS: Orchestra level reveals green room, dressing rooms, and storage areas. Balcony level includes seating and second-floor lobby. Truss level accommodates access to tension grid, a wire mesh floor for lighting adjustment.
BOTTOM: Polshek defied the traditional notion of a black box theater with bright yellow acoustic panels.
FACING PAGE: Perforated-metal screens enliven balcony railings.

CENTER FOR THE ARTS THEATER
YERBA BUENA GARDENS
SAN FRANCISCO, CALIFORNIA

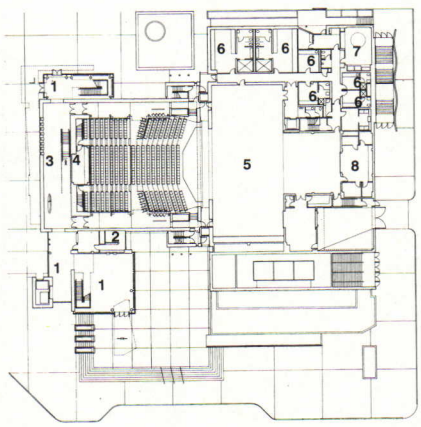
ARCHITECT: James Stewart Polshek and Partners, New York City—James Stewart Polshek, Todd H. Schliemann (principal designers); Joseph L Fleischer (partner-in-charge); Damu Radheshwar, Sara E. Caples (management associates); Jihyon Kim (technical design associate); Greg Doench (senior designer); Amy Eliot, Denis Dambreville, Darius Sollohub, Lois Mate, Lawrence Davis, Mary Beth Comins (design team)
LANDSCAPE ARCHITECT: Patricia O'Brien Landscape Architecture
ENGINEERS: Rutherford & Chekene (structural); Takahashi Consulting Engineers (mechanical/electrical); F.E. Jordan Associates (consulting)
CONSULTANTS: S. Leonard Auerbach (theater); Paoletti Associates (acoustics/audiovisual); Synergy Consultants (lighting); Tracy Turner Design (graphic design); Rolf Jensen & Associates (safety); Hanscomb Associates (cost estimator); Robert Schwartz and Associates (specifications)
COST: Withheld at owner's request
PHOTOGRAPHER: Richard Barnes



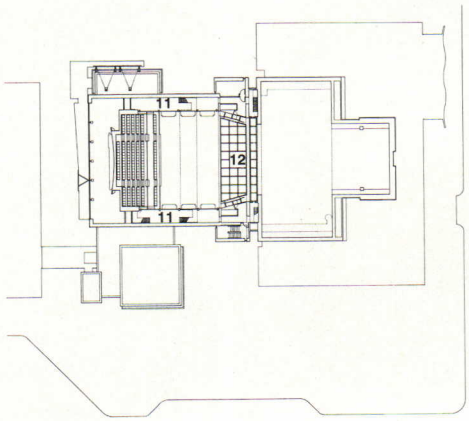
BALCONY LEVEL PLAN



TRUSS LEVEL PLAN



ORCHESTRA LEVEL PLAN



TECH GALLERY LEVEL PLAN

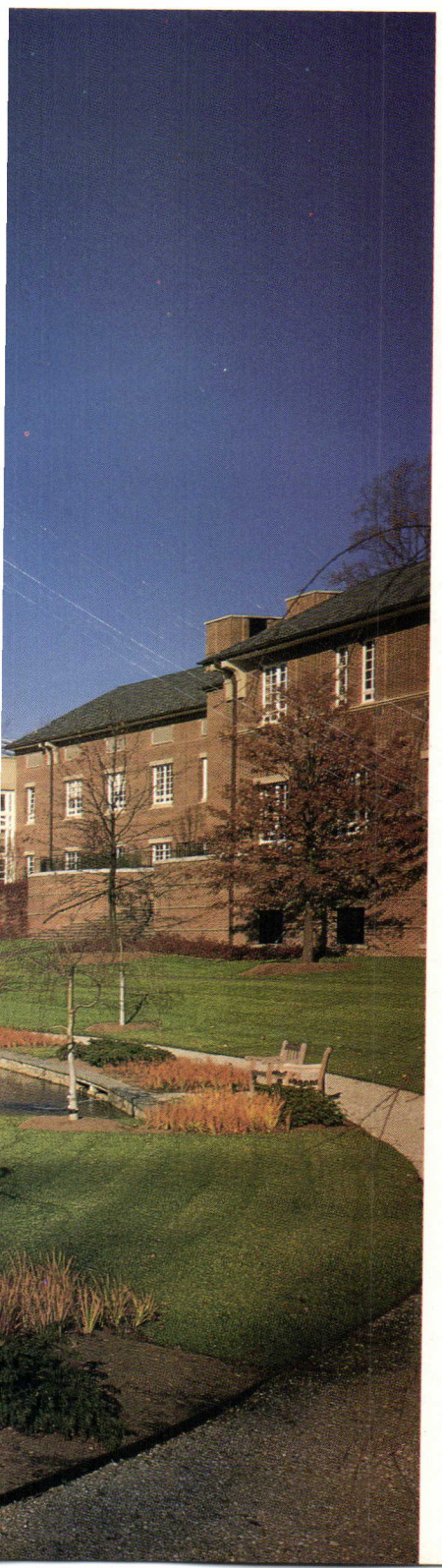
30'/9m

1 LOBBY
2 BOX OFFICE
3 LOUNGE
4 CONTROL ROOM
5 STAGE
6 DRESSING ROOM
7 GREEN ROOM
8 SCENERY SHOP
9 UPPER GARDEN BRIDGE
10 THEATER BALCONY
11 TECHNICAL SYSTEMS GALLERY
12 TENSION GRID
13 SPOTLIGHT BOOTH
14 FLY GALLERY

Howard Hughes Medical Institute
Chevy Chase, Maryland
The Hillier Group, Architect

HOWARD'S VILLA

FACING PAGE AND BELOW: Traditional character and low-rise scale of institute relate to residential neighborhood. East-facing dining room (left) and conservatory (right) flank office block (center). New pond accommodates storm drainage.



One of the most intriguing adornments at the new headquarters for the Howard Hughes Medical Institute (HHMI) is the portrait of Hughes that hangs in the lobby. In this painting, the reclusive billionaire sports aviator gear over a suit and tie, revealing the duplicitous founding of the medical institute that bears his name. In 1953, Hughes chartered HHMI as a spinoff of his aircraft company, creating not only a medical research philanthropy, but also a profitable tax shelter. Now, with an endowment of $7 billion, a staff of 220 medical researchers working at 53 laboratories, and a permanent new administrative headquarters designed by Princeton-based Hillier Group, HHMI at last achieves a legitimacy it lacked during Hughes' lifetime.

The breadth of the complex, elegantly dispersed across 22 acres outside Washington, D.C., evokes the episodic sprawl of Hadrian's villa outside Rome. Although Chevy Chase, Maryland, more closely approximates a so-called "edge city" than the Roman compagne, the villa metaphor nonetheless remains appropriate. Hillier designed the building as a large-scale manor house and periodic meeting place for HHMI's grantees, adapting it to the surrounding terrain as determinately as its domestic Italian counterpart. Even more like Hadrian's villa, the institute is as intricate as a small city.

Hillier sited the complex to meander along the crest of a hill at the northern edge of a modest, postwar residential neighborhood. For decades, local residents fought to retain the domestic scale of the area, periodically blocking, for example, the construction of a pricey department store across the street. In 1987, HHMI purchased what was then the largest undeveloped site inside the Washington Beltway, arousing the suspicions of nearby residents. Although this parcel was zoned for residential use, it was subject to special exception zoning approval by the city, based upon the scale and architectural character of the buildings proposed for the site.

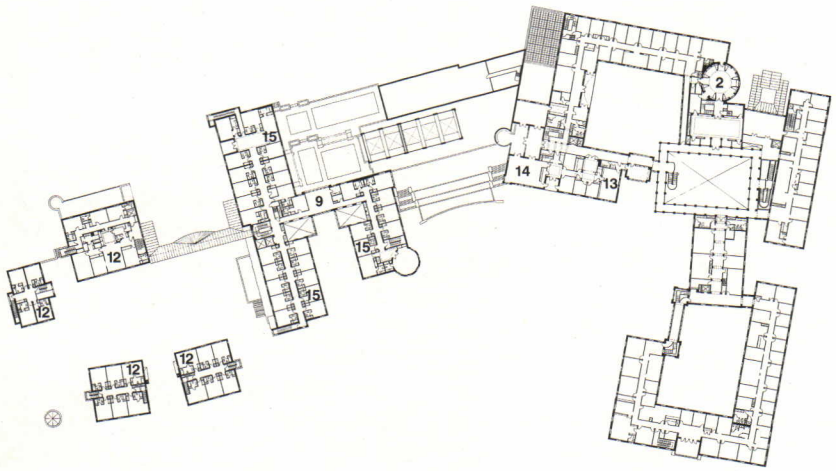
Given the bulk and banality of most buildings on the nearby grounds for the National Institutes of Health, the residents imagined HHMI's headquarters would turn out to be a stark, drab, and ponderous tower surrounded by several acres of parking. To change that perception, the institute's trustees hired Baltimore-based RTKL to develop a site plan for a conference center and administrative headquarters that met stringent local requirements for setbacks, building height, and materials.

RTKL's accommodation of a daunting program within a surprisingly modest, if mall-like, two-story building generated widespread local support for the project. After the city's approval of the conceptual site plan in 1988, HHMI commissioned The Hillier Group to develop RTKL's initial studies. The institute's demand for traditional forms, brick facades, and slate roofs did not surprise Hillier Principal Alan Chimacoff: "The trustees would have moved into an old Georgian campus," he notes, "but none was for sale."

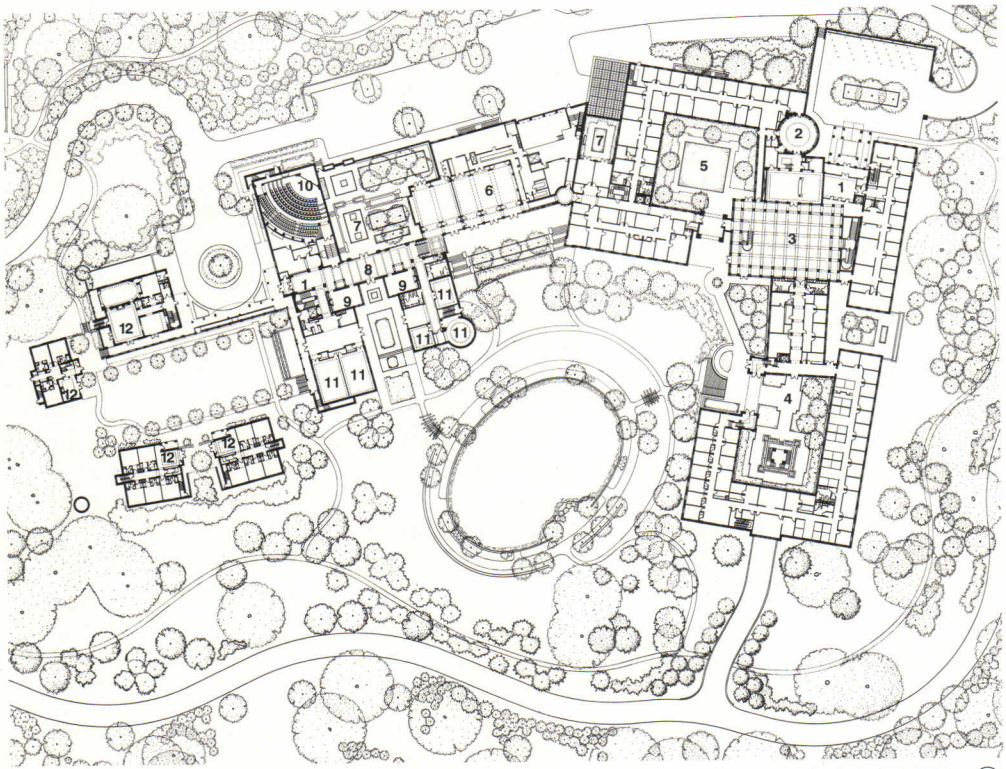
Although Hillier's design vaguely resembles a Georgian estate, one only needs to compare the building with the two newly built houses that face HHMI's entrance to understand the difference between free interpretation of the style and impoverished kitsch. "The literal replication of Georgian and Federal motifs is inappropriate for a pioneer medical research institution," Chimacoff asserts. "We tested the limits of the institute's tolerance, took inventive liberties, and made the building as 'freestyle' as we could." Mercifully, the architects avoid ironic commentary in their adaptation of the Georgian campus tradition. The building's brick facades look solid; bracket-supported cornices are restrained, not cartoonish; and the tall, divided casement windows actually open. Yet, despite the antique aura of the place, no one would mistake HHMI for an old building.

Chimacoff's schematic sketches reveal diverse sources of inspiration, beginning with his analysis of the landscape. In most draw-

PLANS: Dining room (bottom plan, center) separates administrative wing (right) from conference center and lodgings (left). Main entrance (top right) leads to conservatory.
FACING PAGE, SKETCH: Chimacoff conceived building as an aggregate of discrete volumes that follow topography.
FACING PAGE, TOP: Headquarters is sited on 22 acres in residential area.
FACING PAGE, BOTTOM: Visitors enter from northwest corner of administrative wing, next to library rotunda.



SECOND FLOOR PLAN



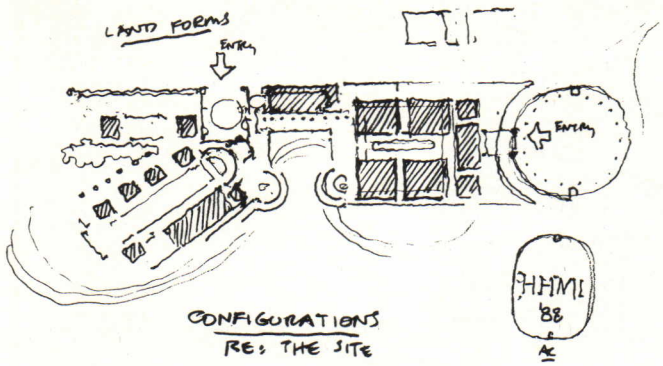
FIRST FLOOR PLAN

1 LOBBY
2 LIBRARY
3 CONSERVATORY
4 EAST COURT
5 WEST COURT
6 DINING ROOM
7 GARDEN
8 RECEPTION
9 LOUNGE
10 AUDITORIUM
11 MEETING ROOM
12 GUEST HOUSE
13 PRESIDENT'S OFFICE
14 TRUSTEE'S ROOM
15 GUEST ROOM

ings, trees occupy the foreground. Appropriately, Chimacoff explores the long, linear, and open qualities of Frank Lloyd Wright's first Taliesin, delineating the continuity and transformation of the ground plane as it moves into the building. For more detailed studies, however, Chimacoff looks to the windows, walls, and arches of country houses by Edwin Lutyens. Indeed, given the trustees' penchant for Georgian and Federal motifs, the institute's finished facades owe greater debt to houses by Lutyens than by Wright. Like Lutyens, Chimacoff combines clever, multiple axes with picturesque massing, but Wright is almost present in the horizontal stretch and gravity of Chimacoff's volumes.

The complexity of the massing belies a simple parti. In the most abstracted version, the building forms an L, skewed slightly to follow the rolling topography. Chimacoff located a 160,000-square-foot administrative wing at the base of the L, an 80,000-square-foot conference center at the top, and a 25,000-square-foot dining room between the two. This basic shape, with its long arm following the land south toward the bordering neighborhood, defines the space for a vast, naturalistic drainage pond at the center of the site. It is only from here that one gets a sense of the entire complex; and as one moves through the building, the pond serves as a point of orientation.

Hillier shatters and fragments the mass of the building into discrete, informal blocks, without detriment to the identity of the whole. Explains Chimacoff: "The trustees did not want to convey a pompous, lavish, and formal image. Unlike Howard Hughes the founder, they keep a low profile." In addition to the pond, Chimacoff relates each of these blocks to an internal courtyard, ensuring a view from each office of either a small garden or the broader landscape surrounding the pond. Inside, a glass-roofed conservatory, located beyond the west-facing main entrance, serves as another point of reference: The southeast corner of this room breaks free



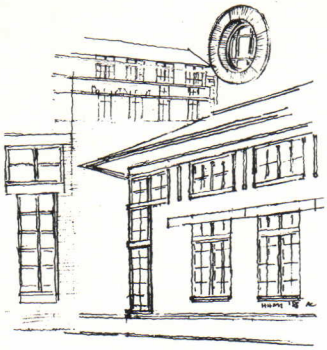
from the flanking brick masses, directing the eye once again toward the pond.

Although visitors and employees cross paths in the conservatory, the centrally located dining room is the great crossroads of the complex. It commands the pond like a theater, linking the administrative wing at the north end of the site to the conference center at the south. As the conference center extends outward, enclosing an auditorium, lodgings, and a reception hall, the mass of the institution dissolves into small temporary residences set in the landscape, effortlessly reducing the scale of a huge complex to the size of the neighboring houses.

For such a sprawling building, only a few awkward moments occur in the massing. One is the circumstantial grouping of forms at the main entry. Here, the rotunda of the library, crowned with a cupola, marks the entrance and establishes a memorable symbol of HHMI's academic mission. The formal imagery, however, sets up the expectation of a grand, axial entrance, which would scarcely compromise the casual effect of the whole. Visitors, however, never approach the building frontally; instead, they slip in from the side as if into a secondary lobby. Similarly incongruous are the pipes for the fire sprinkler system, hanging beneath the exposed-wood structure of the entrance canopy.

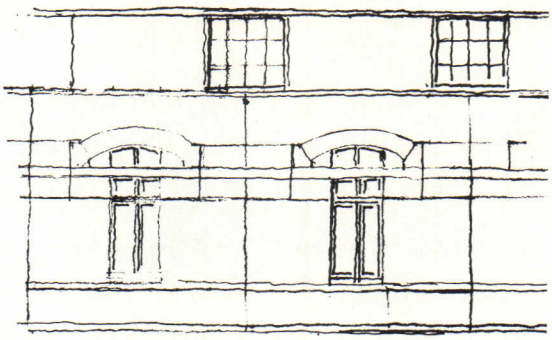
At the level of detailing, the building's facades lack a consistent rigor, particularly where strips of flashing emerge unpredictably from various walls. More puzzling are the vertical reveals that score the base of the walls facing the pond. This detail, however, is forgivable, given the greater purpose of the base: Behind it, Hillier conceals a 177-car parking garage. Like the massing and articulation of the building itself, this attention to pragmatic concerns preserves the sanctity of the land. With modesty, Hillier grounds the building not only in the architectural context of the surrounding neighborhood but, more importantly, in the hierarchy of Washington institutions.—*M. Lindsay Bierman*

WILLIAM GEIGER PHOTOS

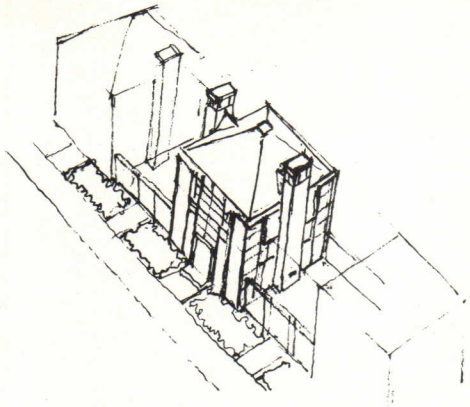


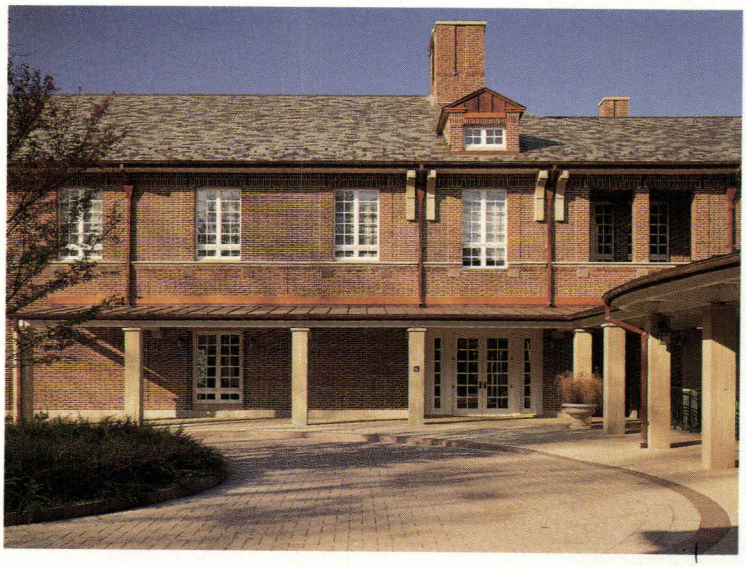
DRAWINGS: Facade studies suggest influence of Edwin Lutyens.
BELOW LEFT: Library rotunda flanks west-facing main entrance.
BELOW RIGHT: Entrance to conference center (left) and dining room (right) flank wing of guest rooms (center).
BOTTOM LEFT: Southwest corner of conservatory (right) opens to courtyard.
BOTTOM RIGHT: Southeast corner of conservatory overlooks pond.
FACING PAGE: Brick base of administrative wing conceals parking garage.

JEFF GOLDBERG / ESTO



DRAWINGS, RIGHT AND FACING PAGE: Sketches study relationship between scale of buildings and landscape. **FACING PAGE:** Chimneylike exhaust vents jut above conference wing. **BELOW LEFT:** Entrance to conference center (right) leads to auditorium. **BELOW RIGHT:** Hillier designed conferee lodgings to resemble small houses. **BOTTOM LEFT:** Cooling tower is elegantly disguised as a dovecote. **BOTTOM RIGHT:** Guest house (left) echoes scale of neighboring houses.





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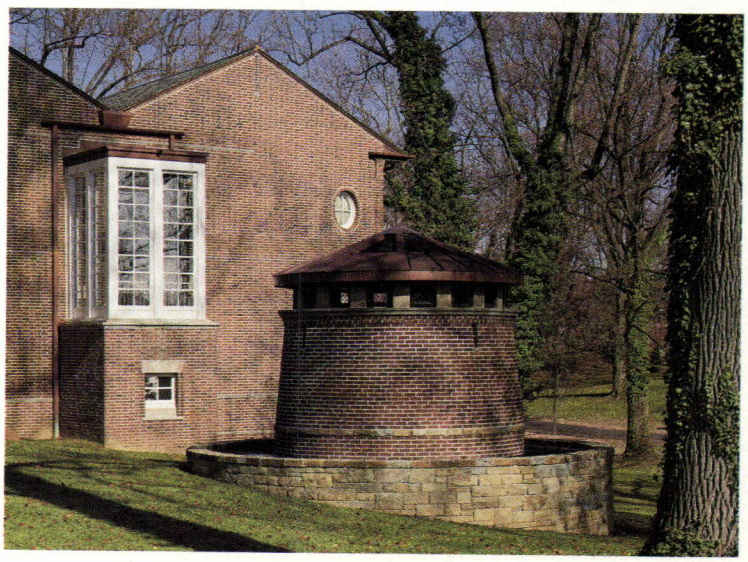

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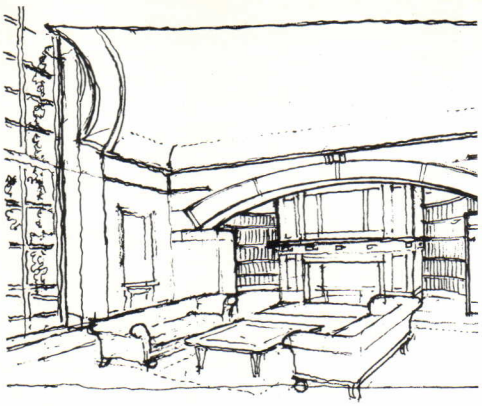
DRAWING: Chimacoff's sketch for conference center lounge evokes a manor-house living room.
BELOW LEFT: Dining room is illuminated by clerestories and chandeliers.
BELOW RIGHT: Stairs at north end of conservatory lead to parking garage below and offices above.
FACING PAGE, DRAWING: Chimacoff designed glass-roofed conservatory to house events and receptions.
FACING PAGE: Concrete brackets support lanterns in skylit conservatory.



JEFF GOLDBERG / ESTO

HOWARD HUGHES MEDICAL INSTITUTE
CHEVY CHASE, MARYLAND

ARCHITECT: The Hillier Group, Princeton—Robert Hillier (principal); Alan Chimacoff (design architect); Peter Hoggan (project architect); Joel Spaeth (programming); Rick Collin (field coordinator); Greg Burke, Wei-Chi Chen, Dan Cummings, Phil Dordai, Todd Fulshaw, Paul Longshaw, Kai Mui, Mac Rawley, Kamlesh Shah, Keat Tan (design team)

LANDSCAPE ARCHITECT: LDR, Louise Schiller Associates

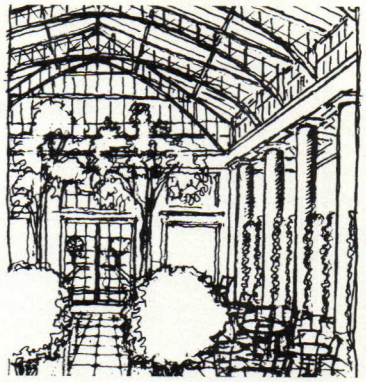
ENGINEERS: Cagley & Associates (structural); Joseph R. Loring & Associates (mechanical); Kamber Engineering (civil); Barton-Aschman Associates (traffic)

CONSULTANTS: Linbeck Construction (project management); ISD (interiors); Jerry Kugler Associates (lighting); Acentech (acoustics); Harrison Conference Services (conference center); Price Waterhouse (telecommunications); Systech Group (security); DFI (library); Door & Hardware Consultants (hardware); Professional Service Industries (geotechnical); Construction Consultation Group (waterproofing); Cini-Little International (food service)

GENERAL CONTRACTOR: George Hyman Construction

COST: Withheld at owner's request

PHOTOGRAPHER: Maxwell MacKenzie, except as noted



ARCADIAN ACROPOLIS

Bard College Library
Annandale-on-Hudson, New York
Venturi, Scott Brown and Associates

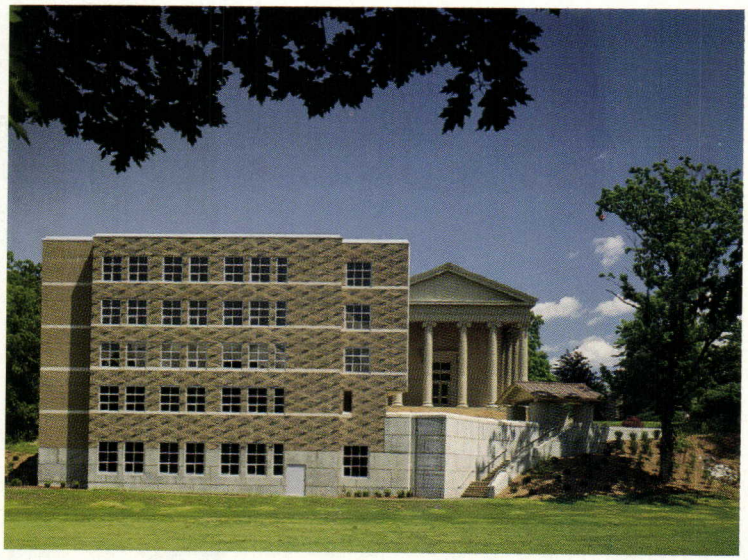
The Bard College library stood alone for nearly a century, as if in a dream, on an Arcadian bluff near the Hudson River. Completed in 1893 by an architect who remains unknown, the building epitomizes the Romantic cult of individual freedom. It was designed as a temple, isolated like an English garden folly, and dedicated to the pursuit of democratic ideals. But the library contained only one splendid, skylit room, which was as impossible to expand as the Parthenon—at least until 1976, when New Canaan, Connecticut-based SMS Architects tacked on a fashionably Brutalist concrete addition. The resulting hybrid haunted the campus like a vengeful ghost whose proud, solemn stance had been vanquished by a tuberous growth. At last, in 1988, Bard commissioned Philadelphia-based Venturi, Scott Brown and Associates to double the library's capacity, ensuring a brilliant and precarious treaty between old and new.

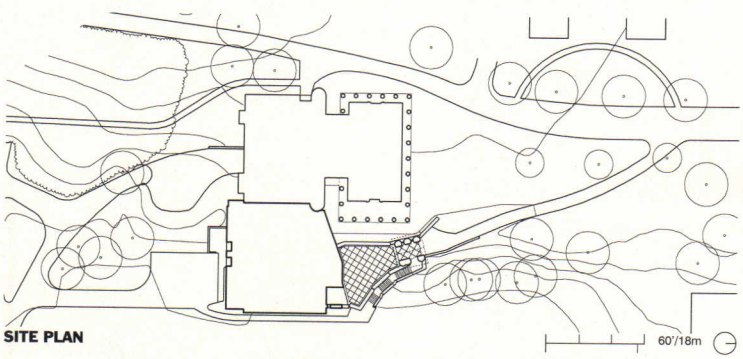
By Venturi's own admission, adding to the finite composition of a temple is unconscionable: "It would have pained me to design the first addition," he confesses. "But I love the perversity of it." Venturi's extension succeeds for the very reasons preservationists love to hate it: The new wing is an intrepid modern counterpart to the 1893 temple, a poignant contrast which, stylistically, looks nothing like its Classical neighbor. It is designed as part of a larger composition that includes the existing library; without the older building, the addition would be meaningless.

Venturi extends the new wing out in front of the existing building, forms a plinth, and adds a crude propylaeum. As a result, he not only conceals the unsightly 1976 addition, but also defines a new precinct for the 1893 temple. Here in Arcadia, Venturi creates an acropolis by evoking the soul of the ancient precedent: Bard's Victorian maiden is reborn as a Greek, joined in a difficult but strong marriage, trumpeting once again all the sculptural vigor of her creation.

The strength of Venturi's scheme derives from the differences between the library's new and old facades. Paired like billboards above the soccer field, the temple's west portico and Venturi's five-story, west-facing facade form an inexorable diptych. The ancient and the modern are inextricably bound by intense struggle: The horizontal bands on Venturi's west facade defy the vertical stance of the portico, and the solid between windows counters the void between columns. Most curiously, Venturi incorporates a small arsenal of gunlike shapes into the pattern of the

FACING PAGE: Venturi, Scott Brown's addition to the Bard College library extends from SMS's 1976 addition to north side of 1893 temple.
BELOW: Addition, original library, and new propylaeum form an academic acropolis at Bard College.
BOTTOM: Retaining wall supports new plinth overlooking soccer field.
SITE PLAN: Expanded library consists of existing temple (center); Venturi-designed plinth and extension (bottom); and 1976 addition (upper left).





SITE PLAN

MATT WARGO

brick. These appear to fire masonry bullets in the direction of the old building, as if to defend the very existence of his new wing.

The horizontal rush of bands and bullets is cut off abruptly at the corner of the south facade, where Venturi employs the more conciliatory tactics of his 1991 addition to the National Gallery in London. On the gallery's south facade, the architect replicates in limestone the Classical order of William Wilkins' 1838 original to orchestrate a Baroque concatenation and inflection toward the center of the building. As the new wall extends away from Trafalgar Square, Venturi gradually strips away the ornamental surface, revealing a flat, elegant box. At Bard, however, Venturi abandons this fluid boundary between new and old, seeking instead what he calls "harmony through analogy and contrast." Rather than replicating and extending the Ionic portico of the 1893 building, he echoes its rhythms and evokes its depths, alternating vertical bands of metal solid and glass void on a two-dimensional surface as graphic and colorful as a De Stijl painting.

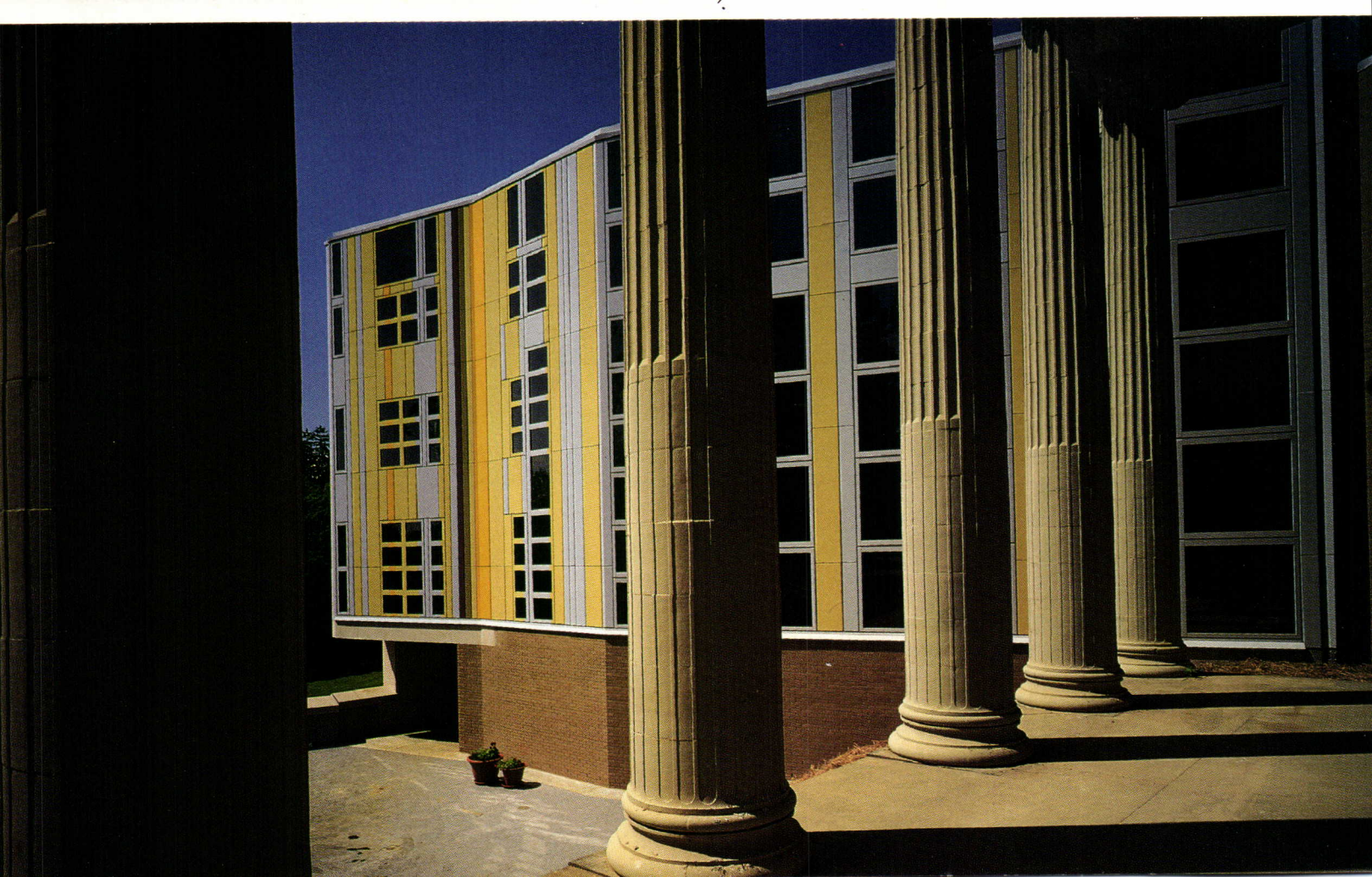
Even after establishing a convincing affinity between the two buildings, Venturi restores the object quality of the temple by cleverly inverting his unifying strategy for the National Gallery. The library's south facade is faceted like its precedent in London, but in this case, the walls appear gradually more solid and traditional as one moves away from the existing building. Rippling like a flag toward the adjacent portico, the angled south wall nearly dissolves into a Miesian frame, transforming the windows into a mirror for the temple. Venturi's reflective, chromatic facade can be seen as a backdrop, too, as if the architect had drawn a curtain before a stage. At dusk, the lights go on and the performance begins: Students appear at reading tables beside windows on three upper floors. Outside, the audience pauses on the plinth and, afterward, either slips in from the corner entrance beneath the stage or descends the stair to the soccer field.

In contrast, the library's north facade derives its simplicity and planarity from the early architecture of New England. "Too many buildings are all flair," Venturi deplores. "Sometimes it's appropriate to be boring and ordinary." His words best describe the library's interior. The new addition was conceived as a flexible loft, with offices facing north, reading areas overlooking the soccer field to the west, and a four-story-high lobby flanking the south wall. By locating the stacks in the center of the new wing, Venturi

MATT WARGO

FACING PAGE: Painted-metal south facade appears more solid as it extends from portico toward southwest corner.
BELOW: Propylaeum with concrete piers and wood roof marks south approach to library's main entrance.
BOTTOM: Design of propylaeum combines form of 1893 temple with color and planarity of 1993 addition.

MATT WARGO



invokes Louis Kahn's idea that "one gets a book and takes it to the light," in this case, one of the nooks or windows looking south and west onto the Hudson River landscape.

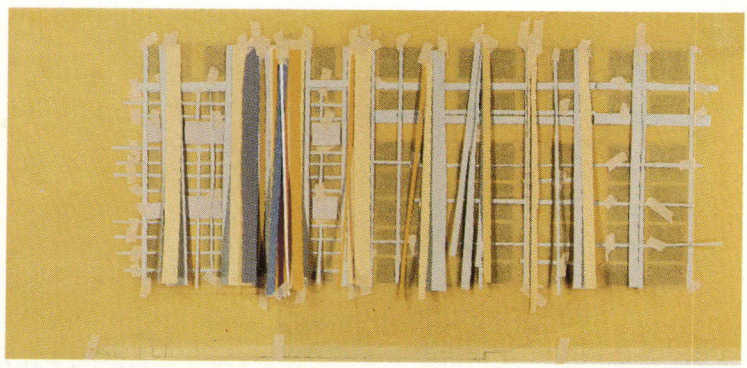
The only embellishment within the no-frills interior is the new main entrance lobby, which is treated as a narrow, four-story slot compressed between an interior wall enclosing the stacks and the south facade. Beyond the diminutive corner entrance, one merely passes through this lobby alongside the high, solid base of Venturi's facade; and the drama of movement and transition between indoors and out is diminished. Although action seems imminent on the field below or the portico above, neither the lobby nor the terrace offer places to sit and watch, or make a grand, stagy entrance. In early schemes, Venturi incorporated a broad stair to the 1893 portico. To avoid confusion over the location of entry, this stair was never built. As a result, students enter the library through the new addition, and the portico remains inaccessible —dead space above a lively soccer field.

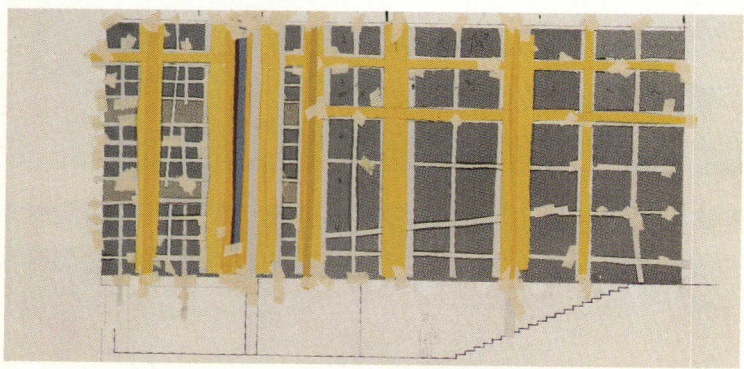
Although Venturi's propylaeum is compromised by squat proportions and elephantine concrete supports, it forms an essential part of the acropolis by marking the entrance to the library's new precinct. Venturi's design for this gate synthesizes the form of the temple with the flat articulation of his addition. In a subtle but tragic way, Venturi realizes a popular version of Bard's temple in our age of cheap Classicism; through the threshold of the propylaeum, he clarifies the bond between the 1893 temple and the 1993 wing as a dialogue of opposing solids.

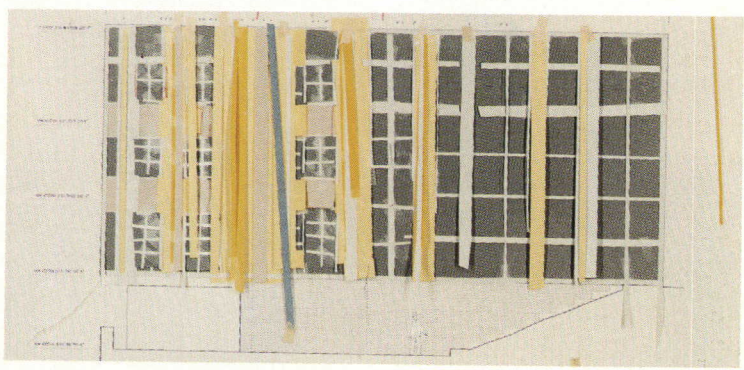
Despite the studied relationship between the temple and the addition, preservationists object to Venturi's scheme on superficial, esthetic grounds. They would prefer a "sympathetic" facade adorned with Classical detail and painted to match meticulously the existing portico, thus reducing the art of architecture to a choice of style and color.

Indeed, Venturi's wing is decidedly novel for this small, rural college where few buildings attract a second glance. But it is no more perverse than the 1893 temple, which is a freewheeling Victorian collage of Classical precedent, replete with terra-cotta-clad columns, tawny brick walls, a bluestone base, an antiqued copper pediment, and a combination of Greek and Roman proportions. After Venturi, Scott Brown's expansion, the library is still the most important building at Bard College; and its identity as the center of campus is more convincing now than ever before.—*M. Lindsay Bierman*

FACING PAGE, TOP: Faceted south facade is angled to reflect portico. Venturi reduced thickness of metal panels toward portico to suggest transformation of wall into Miesian frame.
FACING PAGE, BOTTOM: Alternating vertical bands of metal panels and windows on south facade pick up rhythm and suggest depth of 1893 portico.
FACADE STUDIES: Venturi arranged strips of paper to compose south facade, from dense initial sketch (top) to final schematic design (bottom).



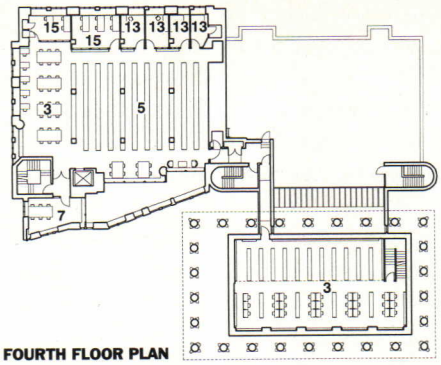




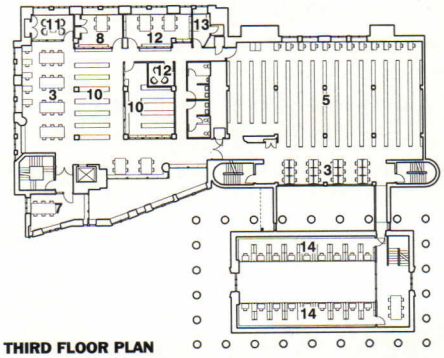
BELOW: North light penetrates reading area through band of offices at rear.
BOTTOM: Oak paneling and built-in seating adorn west wall of reading area. Mechanical system is concealed in 2-foot-thick wall.
PLANS: Stacks occupy core of Venturi's addition (left side, each floor); entrance lobby flanks Venturi's south facade; new reading areas face west.
FACING PAGE: Three enclosed floors of stacks and reading areas (upper left) overlook entrance lobby.

MATT WARGO

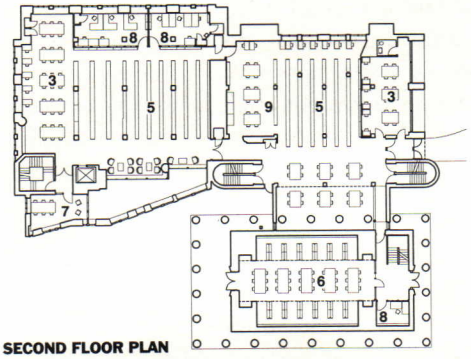
MATT WARGO



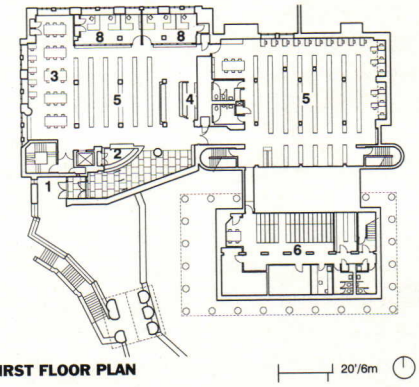
FOURTH FLOOR PLAN



THIRD FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

20'/6m

1 ENTRANCE
2 CIRCULATION DESK
3 READING ROOM
4 CATALOG AREA
5 STACKS
6 ARCHIVES
7 GROUP STUDY
8 OFFICE
9 MICROFILM READERS
10 RESERVE COLLECTIONS
11 AUDIOVISUAL ROOM
12 MUSIC ROOM
13 FACULTY STUDY
14 SPECIAL COLLECTIONS
15 COMPUTER ROOM

MATT WARGO

BARD COLLEGE LIBRARY
ANNANDALE-ON-HUDSON, NEW YORK

ARCHITECT: Venturi, Scott Brown and Associates, Philadelphia—Robert Venturi (principal); Ann Trowbridge (associate-in-charge); Edward Barnhart, Thomas Purdy (project managers); Timothy Kearney, Nancy Rogo Trainer, Ronald Evitts (design team)
ENGINEERS: Keast & Hood (structural); Marvin Waxman Consulting Engineers (mechanical/electrical/plumbing); Morris Associates (civil)
CONSULTANTS: Jules Fisher & Paul Marantz (lighting); Chapman Ducibella Associates (security); International Consultants (cost); Ostergaard Acoustical Associates (acoustics); George Thomas, Noble Preservation Services (historic preservation)
GENERAL CONTACTOR: Barry, Bette, and Led Duke
COST: Withheld at owner's request
PHOTOGRAPHER: Peter Aaron/Esto, except as noted

The Phoenician Resort, Scottsdale, Arizona

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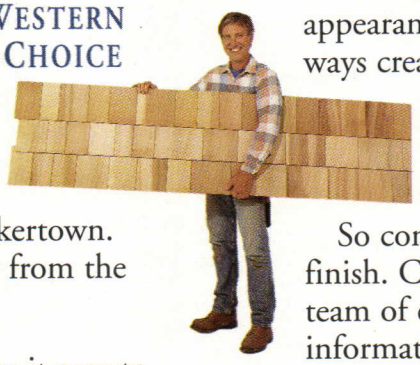

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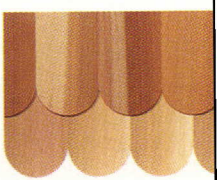

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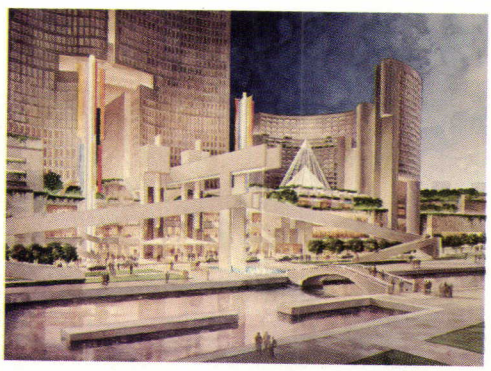
Peter Stoner, Architect
Seattle, Washington

Technology & Practice



DAN HARMON

A new feature devoted to the inner workings of a single architecture practice makes its debut in the Technology & Practice section this month. Our inaugural Practice Profile traces John Portman's bell-curved career as an Atlanta developer-architect from its small beginnings, up through its peak as a designer of lavish office towers in the 1980s, and back down to a leaner, stronger company that is now exploring overseas markets. Through it all, the Portman philosophy that people must be lured back into the city remains constant.

In an attempt to raise the standards of the architecture profession and close the gap between education and practice, the AIA has announced that as of January 1996, all registered architects will be required to participate in continuing education programs to maintain their AIA membership. A practice story examines the development and progress of a pilot program, begun last summer, and its implications for ensuring excellence and professionalism in architecture.

Many architects run their offices on a commission-to-commission subsistence basis. A feature on strategic planning shows how architects can sharpen their competitive edge by charting goals and developing methods for achieving them.

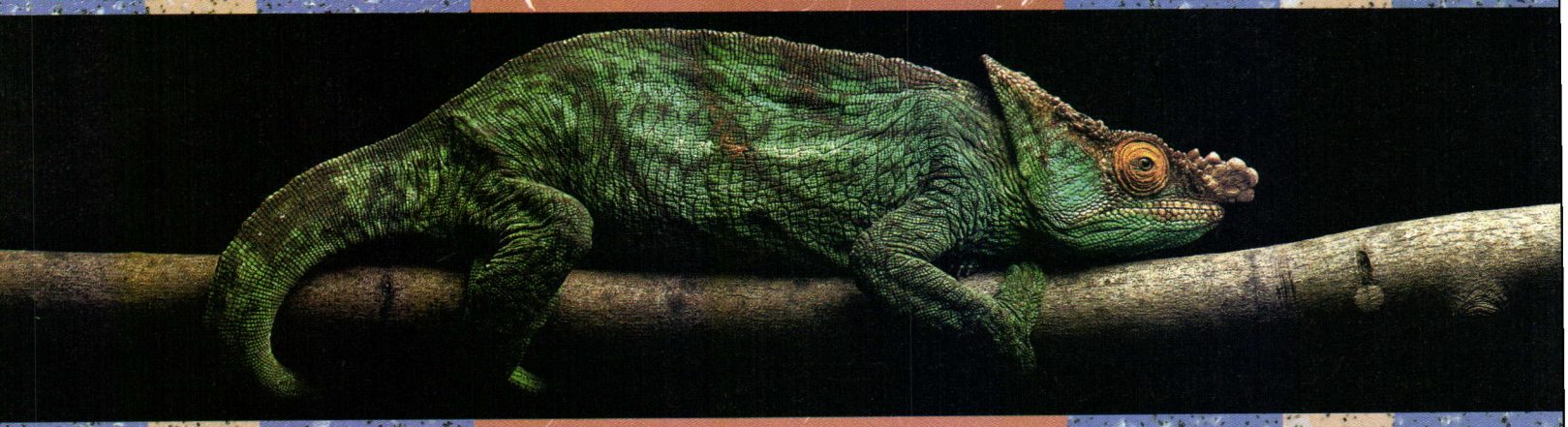
New performance-based fire codes are making buildings safer while freeing architects from the restrictions of confusing, and often contradictory, regulations. A technology feature examines three case studies in which architects combine the critical tools for fire safety—materials, sprinklers, egress paths, and detection systems—in intelligent, cost-effective, and sometimes unconventional ways. These new methods for designing fire-safety systems achieve the critical goal of leading occupants out of a building before they are overcome by smoke.

A true information superhighway is still decades away, but by combining a wide range of computer-based technologies—including modems, faxes, and video teleconferencing systems—architects are collaborating on projects in spite of being separated by hundreds or thousands of miles.

To thrive in the 21st century, architects must expand both their knowledge and their practice, providing a wider variety of services to a broader, more far-flung client base. The educational programs and telecommuting technology of today are helping to prepare architects for the commissions of the future.

F L O O R I N G

GO WILD WITH COLOR! ENOUGH OPTIONS TO CONFOUND A CHAMELEON.



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Quaternario Awards Announced in Singapore

An international foundation recognizes inventive uses of structural technology.

The Quaternario Foundation, an international organization established to promote innovation in architectural technology, held a conference in Singapore last December to explore developments in building envelope systems. Presented at the conference was the International Award for Innovative Technology in Architecture (IAITA), initiated in 1986 by Massimo Colomban—President of the Italian curtain wall manufacturer Permasteelisa—to recognize buildings that incorporate imaginative structural systems.

Among the previous winners of the prestigious IAITA are Emilio Ambasz's San Antonio Botanical Conservatory, Helmut Jahn's United Airlines terminal at O'Hare Airport in Chicago, and the Sant Jordi sports hall designed by Arata Isozaki for the 1992 Barcelona Olympics.

The 1993 event featured a panel of experts on curtain wall technology, including Michael D. Flynn of Pei Cobb Freed & Partners and John C. Perry of Arup Facade Engineering in Australia. Nine speakers discussed trends in building envelope technology and developments in curtain wall testing and research. Following the presentations and panel discussions, an international jury composed of Norman Foster, Richard Rogers, Jean Nouvel, Australian architect Philip Sutton Cox, and architect Tay Kheng Soon of Singapore announced the five IAITA-winning projects. The schemes were selected from 20 finalists, which included projects from Europe, North America, Asia, and Australia. According to the jury, the winners not only reveal a "sensitive application of technology and innovation," but also offer appropriate responses to environmental and site concerns.

Nicholas Grimshaw & Partners' Waterloo International Terminal in London (ARCHITECTURE, September 1993, pages 82-83) was cited for its clear and dramatic structural expression. The railway station's asymmetrical bowstring trusses combine both tension and compression members and are composed of tapering sectional tubes.

Tokyo's Nippon Convention Center by Maki and Associates employs an innovative space beam system, a hybrid between traditional trusses and space frame structures. This unique system allows for roof spans of up to 60 meters. The roof is clad in 0.4-millimeter-thick stainless steel sheets that are continuously seam-welded, following a process developed by Maki for the construction of his Fujisawa Gymnasium.

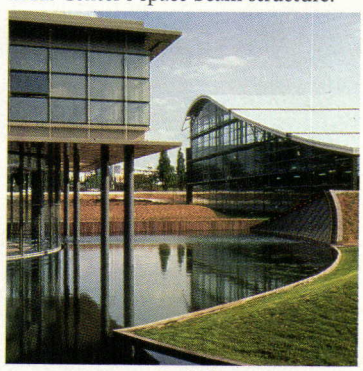
TOSHIHARU KITAJIMA

MAKI: Tokyo convention center.

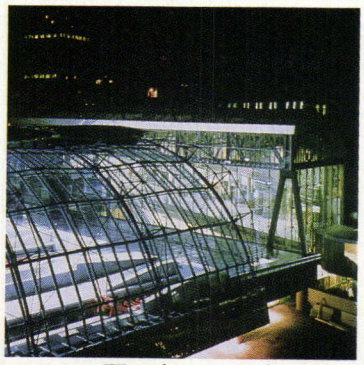
TOSHIHARU KITAJIMA

MAKI: Center's space beam structure.

FORBES/FITZHARDINGE: Technical center.



VALODE & PISTRE: Paris factory.



GRIMSHAW: Waterloo terminal's trusses.

BEHNISCH: Skylit German parliament.

The German Federal Parliament Building by Stuttgart-based Behnisch & Partners features a large skylight fitted with a series of moveable glass blinds that regulate heat and sunlight. Inside, metal panels and mechanical systems are hung from exposed structural members.

French architects Valode & Pistre et Associés' design for a l'Oréal factory outside Paris is distinguished by an aluminum- and polyethylene-clad roof that is delicately supported "like a leaf balanced on the ends of fingertips," according to architect Denis Valode. The roof comprises 20,000 panels that are secured by adjustable stainless steel clips.

The CRA Advanced Technical Development Center in Victoria, Australia, designed by Forbes and Fitzhardinge Architects of Perth, features a series of external steel walkways covered with a steel and aluminum brise soleil. The technical development center's gently arched, cable-stayed roof is hung from exposed circular steel columns that extend above the roof surface.

An accompanying exhibition showcasing the 20 finalists opened in Singapore during December's conference. The show will travel to the Royal Institute of British Architects' London headquarters in the spring before continuing to the grounds of the Venice Biennale later this year. The foundation's next international gathering is scheduled to take place in 1995; sites under consideration include Berlin, Chicago, and London.—*R.A.B*

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A new trade treaty prompts reexamination of foreign licensure and firm alliances.

Foreign Registration Remains After NAFTA

While the North American Free Trade Agreement (NAFTA) has the potential to open vast new architecture markets in Mexico and Canada, U.S. architects must still meet foreign registration requirements to practice in either country. Though Mexico is planning to lift its tariffs and citizenship requirements on professional service providers, architects still will have to comply with strict Mexican registration criteria to practice south of the border.

Canada, the other signator of the trade treaty, presents fewer barriers than Mexico for U.S. architects as a result of the U.S.-Canada Free Trade Agreement, which took effect in 1989. The AIA and the Royal Architectural Institute of Canada are negotiating reciprocal professional standards for practitioners in both countries. Those provisions are expected to be ratified by the two architectural organizations this month.

Mexico presents U.S. architects with a different system of professional mandates and unfamiliar protocols for doing business. Both foreign and indigenous practitioners in Mexico must be registered with the Secretariat of Public Education, a government agency that accredits architectural academic programs and issues the *cedula*, or professional license. Foreign architects in possession of a professional visa can consult, research, or teach without the *cedula*, but may neither sign drawings nor supervise construction. They may practice fully under an *immigrante* visa, however, for which a *cedula* is required beforehand.

Prerequisite to the *cedula* is a five-year university degree in architecture and passage of a professional exam overseen by 16 local architectural societies, the Collegios de Arquitectos. Two certification levels for practice are possible: One is a certificate for construction managers; the other is a certificate for a "structural designer" to sign drawings and documents. The license is good for three years. However, few, if any, U.S. architecture firms practice on their own in Mexico because registration requirements prove prohibitive. Instead, U.S. practitioners comply with the rules in short form by associating with registered Mexican architects. On their own, "the legality of practicing in Mexico is very difficult for a U.S. architect," maintains C. Mark Seiley, principal of Haldeman Powell + Partners, based in Dallas. "If you haven't been educated and registered in Mexico, it's nearly impossible" because of the country's stringent registration criteria, according to Seiley.

Mexico registers only individuals to practice, not firms. Before NAFTA, those individuals were required to be Mexican citizens. However, a trilateral agreement among the United States, Mexico, and Canada will eliminate all citizenship requirements by January 1996. Under the treaty's temporary entry provisions, professionals will be entitled to expedited visas to visit Mexico on business. Also phased out will be the 15 percent tariffs on printed materials, which include documents such as blueprints and renderings.

Architecture firms in the United States have established a variety of relationships with Mexican architects. Seiley explains that Haldeman Powell + Partners associates with a client-practitioner hybrid known as a *grupo*, which incorporates development, architecture, engineering, and construction under one roof. "They wanted a U.S. architect's technical expertise and a more stateside type of design," says Seiley, but an architect or engineer registered in Mexico must stamp all drawings.

Kaplan/McLaughlin/Diaz (KMD) of San Francisco has set up an affiliate firm of its own in Mexico, with Mexican architects on its staff of 17. RTKL Associates, based in Baltimore, has established an open-ended strategic alliance with a Mexican firm in Guadalajara.

Both Seiley and James Diaz, principal of KMD, caution against a gold-rush mentality for architects hoping to practice in Mexico. Diaz points to a scarcity of foreign capital in Mexico for building projects, which could intensify with political changes following next year's presidential election. And he describes a Mexican distaste for certain American methods of doing business. "There is a lot more trust in the spoken word in Mexico," says Diaz, "and people shy away from our complicated contracts." Seiley's experience affirms Diaz's view: "Mexican business is driven by relationships." No matter how legitimate a professional's credentials, he explains, "people in Mexico don't do business unless they feel comfortable and they trust you."—*B.M.*

Registration Requirements in Canada, the United States, and Mexico

Canada Registration with provincial architectural association is required to practice under title of "architect" in Canada. Some temporary licensing allowed for single projects if practitioner meets provincial requirements.

United States Registration required for citizens and noncitizens to practice under title of "architect" in all 50 states, the District of Columbia, and the four territories. Registration mandatory to offer architectural services to public. Mississippi, Montana, and North Dakota allow practitioners to offer services without registration, but use of title is restricted. New York and Indiana allow temporary registration for single projects.

Mexico Both foreign and Mexican architects must register with Secretariat of Public Education, which validates all academic credentials, both Mexican and foreign.

"We are Atlanta's largest taxpayer," he says, referring to the multiblock network of office buildings and trade marts that form the cornerstone of his enterprises.

Early developer projects

The kernel of Portman's success lies in his real understanding that "people, not things" make up the city, an unsentimental appraisal forged through his experience with local trade marts, his first development venture. Shortly after opening his own office in 1953, Portman's eye fell on the Belle Isle property, a multistory garage about to be vacated. He approached the owner's representative with the possibility of converting the garage to a wholesale showroom, a bold suggestion that prompted a counter-offer: "You form a corporation and come back."

The rest is legend. After leasing half of the first floor, construction proceeded from the top floor down as tenants signed up. Within a year and a half, Portman had leased 250,000 square feet—all predicated on occupancy. His success with marketing had architectural implications: By seeking people first, building projects followed.

Today the Atlanta Market Center, comprising 8 million square feet, continues to fuel Atlanta's urban renaissance. The Merchandise, Gift, and Apparel marts; the Decorative Arts Center; as well as Inforum, a technology mart, attract over a half-million buyers to 40 teeming trade shows per year. These marketplaces represent the unfolding of the Portman vision for Atlanta, an influence that rivals that of any architect on an American city.

Three Portman-designed convention hotels anchor the marts: the invariably soothing interior of the 1967 Hyatt Regency, Portman's signatory atrium hotel; the 73-story cylindrical shaft of the 1976 Peachtree Westin Plaza; and the cavernous 1,675-room Marriott Marquis, completed in 1985. Former Mayor Andrew Young cites their importance to the local economy: "Those three hotels paved the way for Atlanta to become one of the leading convention cities in the world. And the convention business has made Atlanta recession-proof."

Atlanta and Portman grew up together. "If Atlanta is a great city, it is because as a young man, John Portman made a commitment to make it one," says Young. Born in 1924, Portman lived downtown within the shadows of his current office building. His entrepreneurial skills appeared early. "At 15, I started my first joint-venture development," he boasts. Football teammates were stationed outside the six downtown movie theaters with boxes of gum. Portman supplied the gum and rode a bicycle to replenish the stock. "We split the profits 50/50."

After service in the U.S. Navy, Portman worked his way through the architecture program at Georgia Tech, graduating in 1950. Anxious to get to work, he opened his own office immediately after completing his apprenticeship with an Atlanta firm, Stevens and Wilkinson. An assessment of the competition revealed that a partner, someone with office practice skills and construction experience, could help win commissions. An experienced professor from Georgia Tech, H. Griffith Edwards, fulfilled Portman's goal of a mutually sustaining team.

Armed with a balanced organization, Portman entered the development arena. Following the debut of his groundbreaking 1967 Hyatt Regency hotel in Atlanta, the scope of his enterprises mushroomed. Joined by son Jack as chief of the firm's development arm, Portman underwrote development of significant urban projects with clients that include this nation's most visible, respected financiers and corporate chiefs: San Francisco's Embarcadero Center developed with David Rockefeller (1971-88); his private venture near the bay, The Portman hotel, a building with a respectfully articulated exterior, now known as the Pan-Pacific (1987); with Henry Ford, Detroit's massive Renaissance Center (1976); and in New York, the Marriott Marquis hotel in Times Square (1985), with J.W. "Bill" Marriott.

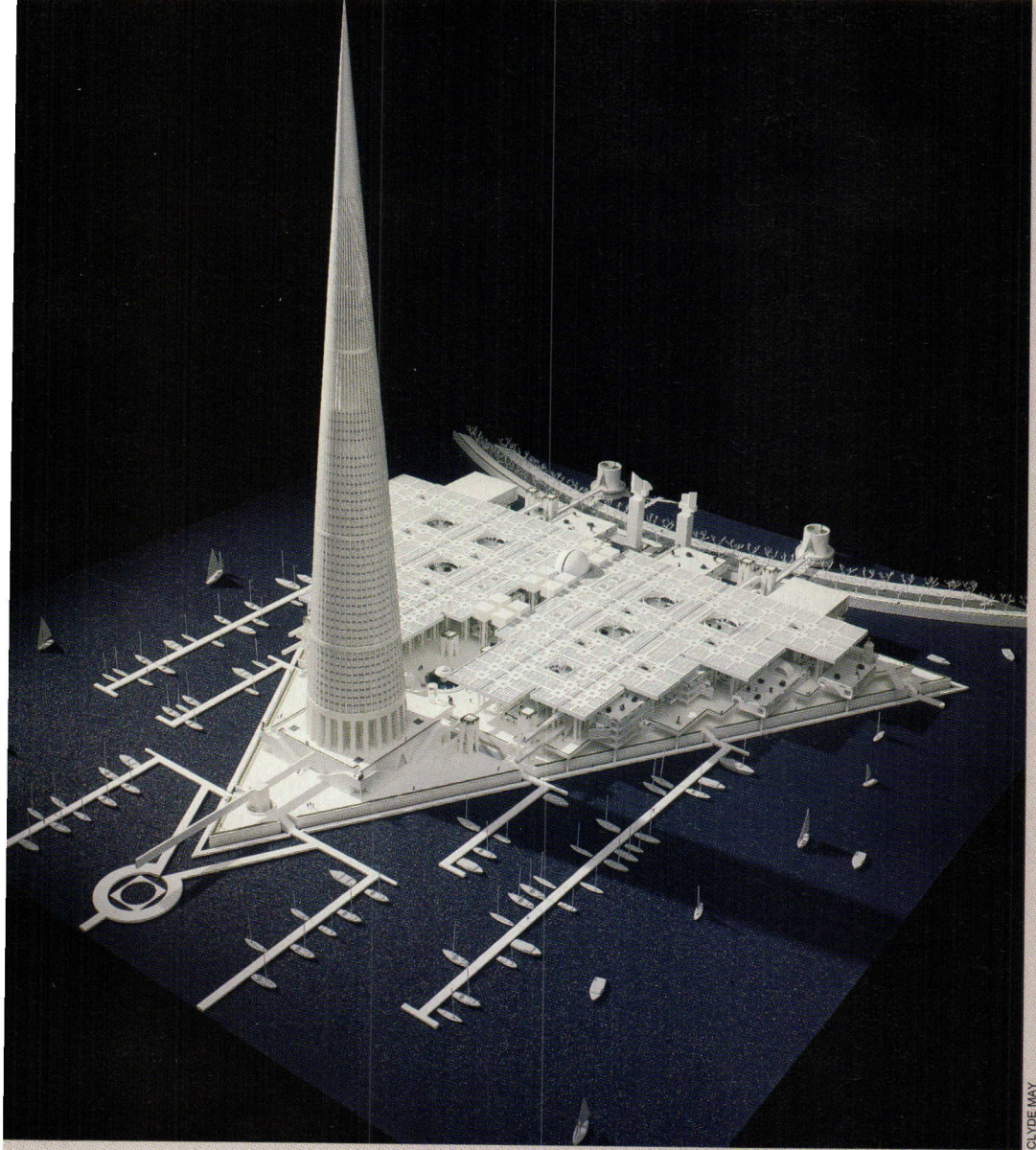
Challenging urban traditions

Self-initiated work also allowed Portman to work at an urban scale. When others were abandoning America's downtowns for the suburbs in the 1970s and 1980s, it was John Portman who responded, enticing businesses and tourists to reinvest in American cities. It was not solely an esthetic exercise. "For our cities to survive, they have to be restructured, revived under new circumstances. That's why I started Peachtree Center."

Some of Portman's attempts at urban revival have resulted in strong negative reactions. In describing the Detroit Renaissance Center shortly after it was built, critic Paul Goldberger commented: "It is almost designed as if the insurrection has already taken place, and it was time to barricade oneself inward. It is that sense of being cut off—pushing the existing city away, as if to say that it did not matter, that it was somehow dirty and ugly and best avoided."

CLYDE MAY

ABOVE: Il Porto Vecchio, an unrealized harborfront development designed in 1988 for Genoa, Italy.
FACING PAGE, TOP LEFT: Model of Genoa project features beaconlike conical tower in harbor.
FACING PAGE, BOTTOM LEFT: Proposed 725-room expansion (tower, right) to an existing luxury hotel in Cairo.
FACING PAGE, TOP AND BOTTOM RIGHT: Model for Gateway City, designed in 1990, proposes a mixed-use scheme for Yokohama, Japan, including offices, shopping, housing, concert hall, and 510-room hotel.



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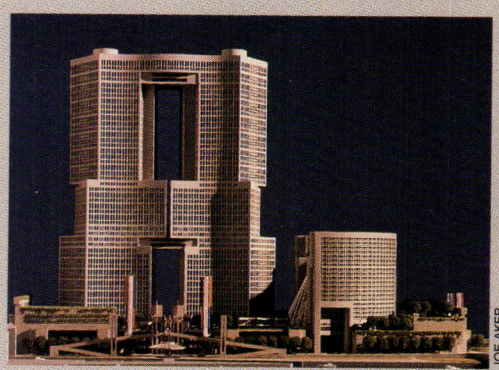
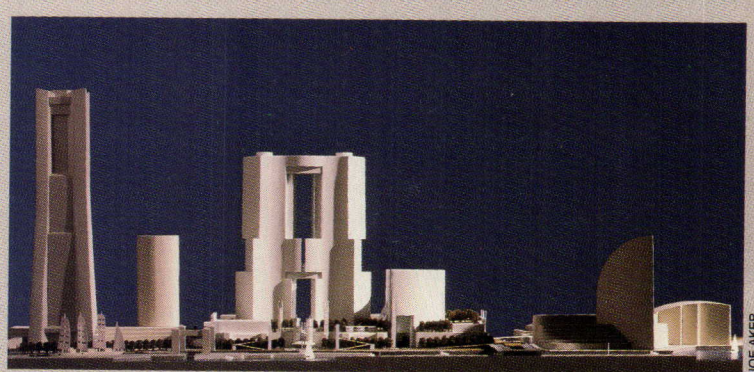


JOE AKER



JOE AKER

CLYDE MAY

But Portman remains an unfazed champion of downtowns. Although he has planned two large suburban office developments in north Atlanta, Riverwood and North Park, suburbs create isolation, he contends, "They are communities of wheels . . . a nomadic society." The city, by contrast, is "where people meet people, see people." And according to Portman, the key is density, properly designed, which can create amenities—museums, restaurants, and shops.

In creating urban centers, Portman has challenged the traditional notions of how urban density should be achieved. Projects such as Peachtree Center are less concerned with open streetscapes lined with fully packed blocks than with interlinked blocks of captured space. It is an architecture of interiors, modulated by light and layering, given scale by human artifacts and the sensory variety of water and plants. These projects may be bunkerlike, but they are safe and comfortable, familiar as the suburban mall.

Portman's interior networks offer a sense of safety in downtowns threatened with the perception of mounting crime. J.W. "Bill" Marriott cites the "increased security on the part of guests" that was a by-product of the atrium hotel, such as Atlanta's Marriott Marquis. Whether for pleasure or hermetic insulation, Portman's formula works: people are attracted downtown.

New directions

Portman's architecture has evolved over time; more recent projects offer more interaction with the street. Architect Kemp Mooney, who teaches architecture at Georgia Tech, thinks that a recently completed office tower, One Peachtree Center, may represent the best of Portman's work. Mooney particularly admires the humanely scaled piazzas, sculpture, and planting surrounding the building. "It's a place for people to walk up and meander," he says. "As a street participant, I find it entertaining."

Rising from a strong granite base, the 60-story structure exhibits a sureness and snap in its curtain wall, a strong hand in its details at large and small scales. Throughout the lower floors, Portman's own sculptures and bright paintings stand beside the work of professional artists. Although hanging beads and elevated planters are pure Portman, assurance in the details comes from Richards Mixon, an architect formerly with I.M. Pei, who heads the firm's design effort.

Mixon's presence signals a seriousness on Portman's part for mature, carefully detailed design. Together, the two architects collaborate on increasingly far-flung projects. Documents shuttled among their offices in Hong Kong, Shanghai, and Atlanta by modem have included designs for Marina Square in Singapore (1987) and Shanghai Centre in the People's Republic of China (1990), both immense, mixed-use developments tailored to the grand Portman vision.

Changing clientele

While the scale of his projects remains large, Portman's architecture staff has dropped from 150 persons to a more manageable 40, according to Mixon, a major shift that reflects a changed clientele. After years of being its own client, John Portman & Associates now courts the open market for fee-basis work, from feasibility studies to building design—even the Portman Companies are not immune to economic forces. Changes in the tax code, depressed real estate values, and political events such as the Tiananmen Square incident, which affected the firm's Shanghai Centre project, pressured the Portman Companies to restructure debt in 1990. In a highly visible series of articles, *The Atlanta Constitution* reported that Portman offered a collateral pool of "all of the assets of the Portman Companies" as security for what it reported as approximately $2 billion in debts to about 50 creditors. After protracted discussions, renegotiated loans freed the organization to do what it does well, designing and managing properties for others.

Portman finds most of his new business in the Pacific Rim, entering foreign competitions for architectural services. Two recent competitions for mixed-use projects in the People's Republic of China (facing page) exhibit characteristic clarity with an enriched appreciation for the cultural milieu.

Despite financial problems and criticism of his unfashionably large projects, Portman is still regarded as an architectural giant in Atlanta. "There wouldn't be any street life downtown without him," asserts Andrew Young. John Busby, former AIA president, agrees, describing his fellow Atlantan as "an outspoken architect who put his visions in substantive developments."

Portman's legacy extends beyond Atlanta, beyond the influence of the atrium hotel or any other individual design issue. It is his personal belief in the American city that towers above any specific building. If our cities succeed because "people want to be a part of them," no one has wanted to be a part of them more than John Portman.—*Robert Ivy*

DAN HARMON

ABOVE: Baoda Mansion, a development currently in schematic design phase for Shanghai, China, combines offices and a light-industrial complex.

FACING PAGE, TOP LEFT: Competition entry for Jin Mao Building, an 88-story skyscraper for Shanghai, was designed last year. The upper 30 floors house a club and hotel rooms. The middle 52 floors house offices, and the lower 6 house hotel services.

FACING PAGE, TOP RIGHT: Olympic Village Housing at Georgia Tech is designed to house 700 athletes during the 1996 Olympics, then be converted to student housing.

FACING PAGE, BOTTOM LEFT: Rendering for Moscow Center, a 1.6 million-square-foot, multi-use complex with a 660-foot tower was designed in 1989-1990 and is currently on hold, due to the weak Russian economy.

FACING PAGE, BOTTOM RIGHT: Shandong Hotel and People's Hall, a 520-room hotel, exhibition hall, and convention center will be located in Jinan, China.

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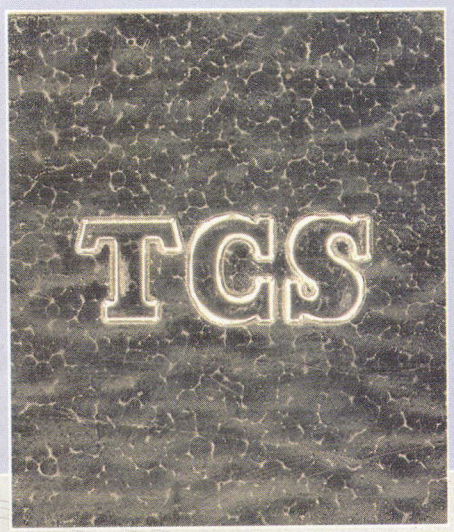

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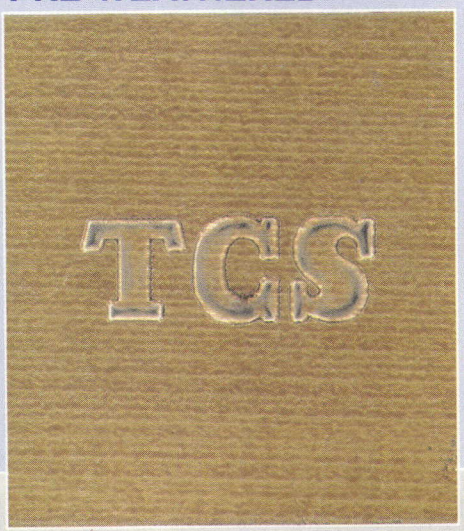
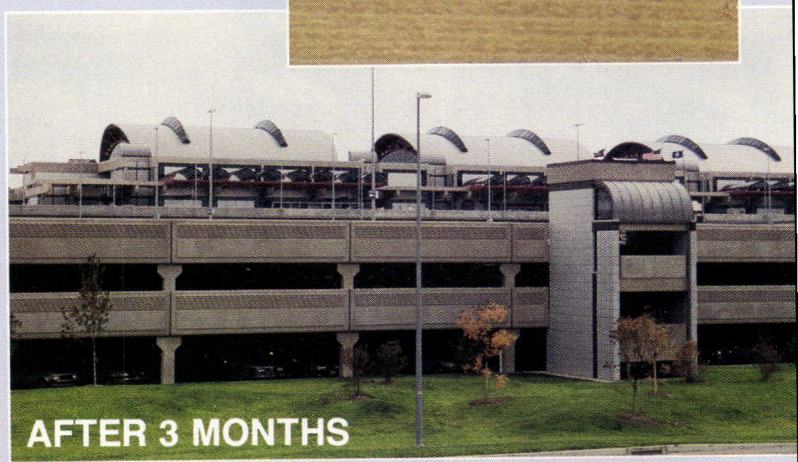


Hinsdale High School, Hinsdale, Illinois
Architects: Cone & Dornbusch



Pittsburgh International Airport
Architect: Tasso Katselas

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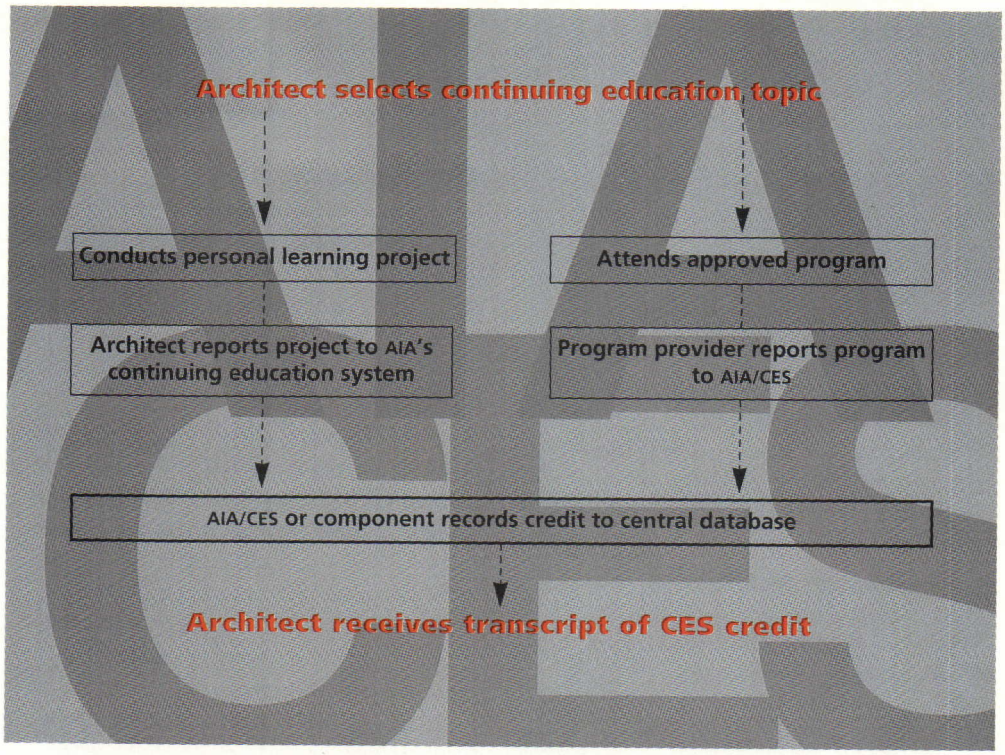
Continuing Education Update

How the AIA is progressing in its development of lifelong learning requirements.



ABOVE RIGHT: To earn continuing education credit, architects may choose either self-directed projects or programs offered by eligible providers.

The AIA's new requirement for continuing education for architects represents a milestone for the profession. It is being instituted, by no coincidence, during a time of often-baffling changes in practice as well as a widening gap between practice and education. "Education and practice have been slowly drifting apart, and that is damaging to both practice and academia," contends architect and educator Cesar Pelli. "Architectural practice must be reinvigorated with new insights and fresh theories. But theory without practice loses meaning and is not applicable to the real world."

Doctors, lawyers, accountants, and pharmacists all stay abreast of professional advancements by submitting to intensive educational courses each year. Now it is architects' turn. At the AIA's national convention in 1992, more than two-thirds of the convention delegates voted affirmatively to require lifelong education in the profession.

Starting in January 1996, all registered architects will be required to participate in about a dozen hours of continuing education programs per year to be eligible for membership in the AIA. The exact requisite number of hours will be determined at the end of a year-long pilot project, now under way, that will conclude in August 1994.

Troubleshooting the system

The pilot project, which was implemented in August 1993, is being conducted by the AIA, the University of Oklahoma's Center for Continuing Professional and Higher Education, and 130 volunteer education providers nationwide. The University of Oklahoma was chosen from among several universities that responded to AIA's competitive request for proposals. The purpose of the pilot is to work out any snags in the delivery of continuing education programs—refining the requirements, testing the record-keeping network, and evaluating new ideas.

"We just sent out our first transcripts," along with troubleshooting questionnaires about the system, notes Michael Price, a registered architect and continuing education specialist who is coordinating the debut of the continuing education system, or CES, with the help of Robert Fox, director of Oklahoma's continuing education research center, and Richard Hobbs, the AIA's group vice president for practice education.

These transcripts, which indicate credits earned, are being sent out to the 1,900 architects who are participating in the 12-month-long study. Participants in and providers for the pilot are volunteers who responded through their local chapters or their firms to the AIA's volunteer search. Three of the largest firms in the country, RTKL, Gensler and Associates, and Odell Associates, agreed to have their architectural staffs participate.

Volunteers are also being asked to provide their demographic profile, because once the system is established, the AIA plans to make it possible for architects to compare the courses they're taking with the choices of

Continuing Education Credit Criteria

The AIA's continuing education programs will be rated according to their specialization and applicability to professional development.

Level 1 Program

Criteria: General topic with implications for architects, delivered by an industry expert on the subject.
Example: A lecture by the director of a vocational-rehabilitation agency on how to accommodate in workplace settings those employees who have disabilities.

Level 2 Program

Criteria: Program developed with architects in mind; involves interactive learning.
Example: A seminar on physical-therapy center design, taught by an architect experienced in this area; with sample problem-solving, group discussions, and question-and-answer forum.

Level 3 Program

Criteria: Program meeting a need of architects; learning assessed during or directly following the program.
Example: Series of approved workshops on federal disability-access requirements; quiz or critique of sample project follows each of the workshops.

their peers. "We've planned this program to be as personally meaningful as possible," Price maintains, "and at the same time, we've tried to limit the bureaucracy."

Methods of study

The AIA's system is designed to encourage practitioners to formally probe their favorite areas of interest. "We've set up the system to support good architects and help them practice better," says the AIA's Hobbs. "In many cases," he adds, "we'll be giving architects the ability to expand their services."

At the beginning of 1996, when the education requirements go into effect, the AIA's computerized CES network will be ready to run. The initial course offerings will be announced, and a new database will be created at the Institute for registering members. By January 1997, all AIA members must have earned their first round of credits in order to renew their memberships.

Architects will begin the continuing education process by deciding on the topic they wish to study. Then they will explore the range of ways to study it: by taking a college course; attending a three-day seminar given by an expert in another town; or spending a day at an intensive workshop, directed by a specialist on the subject, at the local AIA chapter. In addition, architects could conceive a learning project on their own, an option that is unique to the Institute's type of continuing education system.

Broad curriculum

Architects will take their desired course on the topic, or conduct their learning project, and either the course provider or the architect will report the architect's credit to the AIA's central database that will serve the CES network. Each year, members will receive transcripts of their completed courses and their credit earned. Coursework and other activities may also be reported to the Institute via the AIA Online national computer network.

The network of education providers will comprise architecture firms, AIA components and committees, schools, private associations, government agencies, industry groups, and individual experts. Already, during the current pilot, intriguing ideas have emerged.

For example, Lord, Aeck & Sargent of Atlanta, one of several firms nationwide that is part of the AIA's pilot, has created what it calls Lord, Aeck & Sargent University, or LASU, a program that requires the 90 employees of the firm to study and/or teach 48 hours each year, in order to work at the firm and to fulfill their AIA continuing education requirements. The LASU program is being developed independently of the AIA's education effort, but its offerings are intended to satisfy the requirements of the AIA.

The LASU program comprises four types of training: leadership; design and building technology; tools; and design process. Principal-in-charge Larry Lord asserts that the mix of teaching and auditing helps build greater expertise in a given subject. To ensure that Lord, Aeck & Sargent is following AIA's guidelines, Price of the University of Oklahoma has been reviewing LASU's criteria for their suitability to AIA's program. Once the AIA's system is in place, a staff arbiter will likely take responsibility for certifying that providers' programs remain up to par.

Access and diversity

If participating providers in the AIA's pilot are any indicator, the CES provider network will be quite diverse. Some of the 110 organizations providing volunteer educational services are AIA Arizona; the California Building Codes Institute; the Construction Specifications Institute; Washington, D.C.-based Florance Eichbaum Esocoff King Architects; Rensselaer Polytechnic Institute; and liability-insurance underwriter Victor O. Schinnerer & Company. These providers will offer instruction in such topics as CAD, design theories, disability access, liability, finance, and seismic engineering.

Logistically, the main challenge is ensuring that all members, especially those in rural or remote areas, have access to the providers. Many access problems will be resolved by technology such as teleconferencing, satellite downlink, and educational computer software. More intensive interactive programs, however, will still be conducted in person. For example, this month, the Wyoming AIA chapter is incorporating a pilot course into its annual meeting. For four hours, Wyoming architects will attend a course conducted by Ashley McConnaughey, president of Beedee Corporation, a financial software publisher, distributor, and consultancy in Seattle. "We'll deal with financial stuff—how to do some down-and-dirty budgeting, for instance, that doesn't take two days and a CPA license," McConnaughey asserts.

The other logistical issue of these programs is cost. AIA members may spend as little or as much money as they wish pursuing their career-long training. There will be no administrative or paperwork costs required of architects taking the courses.

Credit will accrue for architects according to the quality of the educational programs they choose. The AIA has established three program "quality levels," which makes it possible to "weigh" each hour that an architect spends on continuing education.

The more preferred, heavily weighted programs, the Level 3s, would ideally be those types of programs, directed expressly toward architects, that involve a great deal of interaction between the instructor and the students, and that include some kind of testing or project to help indicate whether the class was a success for the architect.

McConnaughey's program for the AIA chapter in Wyoming is ranked Level 3. "This is not going to be something where I just stand up and talk," McConnaughey explains. "Architects will have to participate along with me and show they can make the information I give them work in their firms."

Less heavily weighted are the Level 2 credit programs. They are dedicated more or less to the topic of the student's interest and require some interactive learning. Level 1 programs are those that are professionally useful, but not too demanding or difficult, such as a two-hour lecture on environmental issues that perhaps generally will inform an architect's future designs.

Calculating credit

Credit is calculated by multiplying the number of hours (quantity) times the level or rank (quality) to achieve the number of "learning units" earned. So if an architect were to spend 10 hours in an education program, then 10, 20, or 30 learning units of credit would be earned, depending on the program's rigor. Hobbs suggests that the AIA will require 20 to 25 learning units per year, or perhaps 40 to 45 units every two years for architects to maintain their status as AIA members in good standing.

The credits to be awarded under the AIA's system, the learning units, are not widely applied in academia. More commonly recognized is the standard continuing education credit, or CEU. But the University of Oklahoma's Price insists that CEUs or other academic credit schedules simply reward time spent sitting in the classroom. "When people interact, they learn more," Price asserts. In the AIA's new program, credit will be earned according to the involvement of the architect, as judged by his or her degree of interaction with the subject being studied. The number of credits earned will literally be a product of quantity times quality.

Stipulations as to course content are minimal: Level 3 programs must all be preapproved by the Institute for credit; and at least one-third of the credits earned during each term must be related to health, safety, or welfare issues. Assigning credit for course work or independent study will rely mainly on good-faith reporting by both education providers and architects. However, the AIA intends to conduct random audits of the system to ensure that the system is documented accurately and is not abused.

Cultivating leadership

Naturally, some members are less enthusiastic than others about the AIA's education requirements. AIA Gold Medalist E. Fay Jones insists that his teaching career has, in fact, been equal parts of instruction and learning. Jones asserts that he would not like to sacrifice the time he spends teaching simply to satisfy education requirements.

Jones' partner, Maurice Jennings, approves of the initiative, albeit with reservations: "I believe in continuing education, and I think that most states in time will require it, especially with the AIA making it mandatory," Jennings says. "What I fear is that the time will not be reciprocal with each state, and I will end up in a classroom and not at my drafting table doing architecture." Fortunately, the AIA system appears to be set up to encourage learning in many forms. Both Jones and Jennings will likely be able to earn credit doing what they believe affords them the greatest benefit.

The same will be true for all AIA members. In fact, many welcome the requirements. "Finally, American architects will be on the cutting edge of technology and learning," declares Dean Kahremanis, an architect in Holland, Ohio. "How else will we maintain world leadership in the profession?"

Educator, architect, and 1992 AIA President Cecil Steward suggests that if architects hope to preserve their leadership role in society, they must constantly seek to interrelate the forces at work in the arts, humanities, science, and technology. "Architects have always sought to know more," Steward asserts. The Institute is presuming that its effort will simply formalize something that a lot of architects take upon themselves already, that is, the pursuit of knowledge throughout their careers.—*Bradford McKee*

William J. Carpenter, assistant professor of architecture at the Southern College of Technology in Atlanta, contributed to this article.

AIA/CES Summary

- Architects may select any topic that has an essentially professional purpose.
- Architects may select from a wide variety of program formats, providers, and learning resources.
- Architects may design their own learning projects for credit.
- A database of providers and programs will be available through AIA Online.
- All continuing education programs will be weighted equally according to three levels of quality, which are based on educational value.
- The integrity of the system will be maintained through random audits of reported programs.

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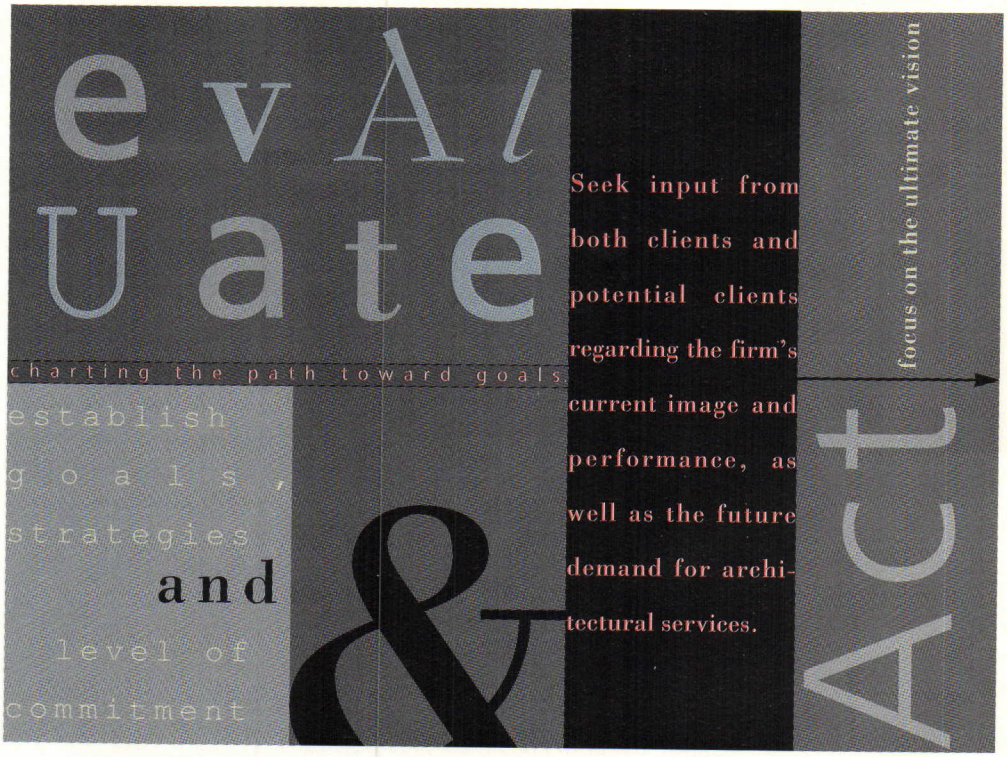
Strategic Planning

To achieve prosperity, a firm must define its vision and develop a framework for action.



During the recession, some architecture firms actually grew, smoothly weathered ownership transitions, advanced to national work, beat larger firms in competitions, and earned greater fees. Principals of these firms assert that strategic planning is a tool that has helped them both secure commissions in new markets and manage their own offices more effectively.

Strategic planning is the process of complete business tuning, aimed at moving a firm forward by projecting a desired future goal and creating strategies and structures for its achievement. Effective planning begins by matching a firm's values and resources to its current and future opportunities.

Conceptually, strategic planning involves appraising the firm's current situation; defining a vision for the future; charting a path toward these goals; and setting the plan in motion. This ongoing exercise helps solve problems in both the design and the delivery processes. It helps improve profitability. It helps combat organizational fatigue and inertia. It helps groom new leaders for the firm. In short, strategic planning is a clear and precise method to visualize and define success and then to systematically remove obstacles to reaching that goal.

Long-haul commitment

But strategic planning is not an instant panacea that always yields immediate results. Firms that succeed in achieving their goals orient themselves toward long-term success. For them, strategic planning becomes a fact of professional life, requiring initiative and a commitment to follow through.

Einhorn Yaffee Prescott (EYP), a 320-person firm based in Albany, New York, for example, has prospered during the recession, attributing its success to strategic planning. "The strategic planning process gave us the focus we needed to get the job done," Principal Andy Prescott maintains. "We work hard and put the necessary time into our planning, but we have to stay vigilant." Maintaining such discipline is not easy, Prescott adds, because architecture/engineering firms like his usually are tactically oriented to near-term goals and resist planning for the future.

Bob Degenhardt, president of Minneapolis-based Ellerbe Becket, the largest architecture/engineering firm in the United States, agrees that strategic planning remains foreign to many architects. "They have trouble envisioning the design of the practice," Degenhardt contends; at least, that is, until strategic planning becomes a task with structure and deadlines. Once the strategic vision is articulated, architects discover how it works. And when positive results start appearing, they recognize its value.

The first requirement for any positive change is motivation. It helps to remember that motivation springs from discontent generated by problems and ambitions. Motivational catalysts fall into three categories: performance and profit; growth and competition; and leadership and transition.

Tension points that are related to performance and profit, for example, include too much low-budget production work; systems that don't control the work process adequately; inefficiencies in project delivery and their impact on earnings; and staff members who have lost any entrepreneurial edge. Typical problems related to growth and competition include a wide portfolio that suffers from limited depth in stronger niches of practice, as well as career plateaus for senior staff caused by restrained firm growth. Leadership and transition tension points may consist of poor preparation of successors and ambivalence toward retirement, or black sheep in top management. These critical issues form the launching pad for the firm's strategic initiatives. The planning process provides the vehicle and itinerary, and the strong will to change serves as the fuel.

Planning enhances success

Yet, strategic planning is not only a tool for troubled firms. Even healthy practices benefit from strategic planning. The Karlsberger Companies, a 120-person firm in Columbus, Ohio, for example, is a leader in healthcare facilities with its niche in children's hospitals. Still, Karlsberger President and CEO Mike Tyne has identified four crucial issues around which he directs the firm's strategic planning process: profitability, branch offices, succession, and diversification of the practice. To keep Karlsberger's practice in top form, Tyne understands the necessity for principals and vice presidents to remain focused on crucial issues and to build consensus on key strategies through a formal regimen of mission and vision statements, benchmark goals, ongoing strategies, and active programs.

Formality is the key of commitment to strategic planning. A casual approach will likely render poor results. Ellerbe Becket has been practicing some form of strategic planning for 20 years, according to Degenhardt, but only in the past five years has the firm espoused formal strategic planning that commands a full collaborative process among all staff. Motivating the firm was the need to keep up with fast, dramatic changes in the marketplace. "Some of those changes had caught us flat-footed," Degenhardt admits.

Ellerbe Becket knows a lot about its market, he says, but its reaction time to market shifts needed major improvement. Thus, Ellerbe Becket is reorganizing to provide services according to customer groups rather than building type. "Imagine a firmwide matrix of client-type experts," says Degenhardt, "who can articulate clients' needs so well they can lead them in their own field."

Strategic planning consists of a simple four-stage framework: appraisal, objective, strategy, and action. Architects should begin by assembling information about the firm and its environment. During this initial phase, the firm should appraise its current situation—its strengths, weaknesses, opportunities, and perils. These factors will form a strong basis for decision-making throughout the planning process. This analysis should include input from all staff, gathered from surveys, individual discussions, or focus groups. As a result, firm members will be more involved in and committed to the process.

During this appraisal stage, the firm also should seek feedback from both clients and potential clients regarding the firm's image and performance. Principals should gauge potential clients' future demand for services. Asking clients for their assessment of the firm will lend valuable intelligence to strategy development. Ellerbe Becket's annual planning cycle includes such a market-research phase. For example, rather than automatically investing funds to provide new services on gut feeling alone, the firm first surveys clients to determine actual demand.

Defining a vision

The next stage of strategic planning requires articulation of the firm's values and objectives in the form of vision and mission statements. The firm should begin by developing a comprehensive series of 20 to 25 statements that fully describe the firm's vision, categorized in each of its five strategic functions: marketing, project operations, human resources, finance, and leadership. Each vision statement should express a firmly held belief, coupled with its justification.

Summarize the mission statement from the major elements of the vision. For example, a vision for the firm's marketing could be stated as: "We choose to focus our expertise on developing town centers, as we are dedicated to sound urban planning." Or project operations could be described as: "We incorporate the latest CADD technologies, as they offer us greater efficiency and accuracy." In subsequent years, the firm should review the mission statement to make refinements based on the development of its strategy.

The firm's strategy to realize its goals is established in the third phase of the planning process, in which a framework of directives is set up to support the achievement of the objectives. These objectives serve as specific, in-

cremental benchmarks for the progress of strategic planning. Goals should concentrate on the largest gaps between the firm's vision and reality. Be sure to formulate goals that are specific, measurable, and achievable.

Plotting a strategy

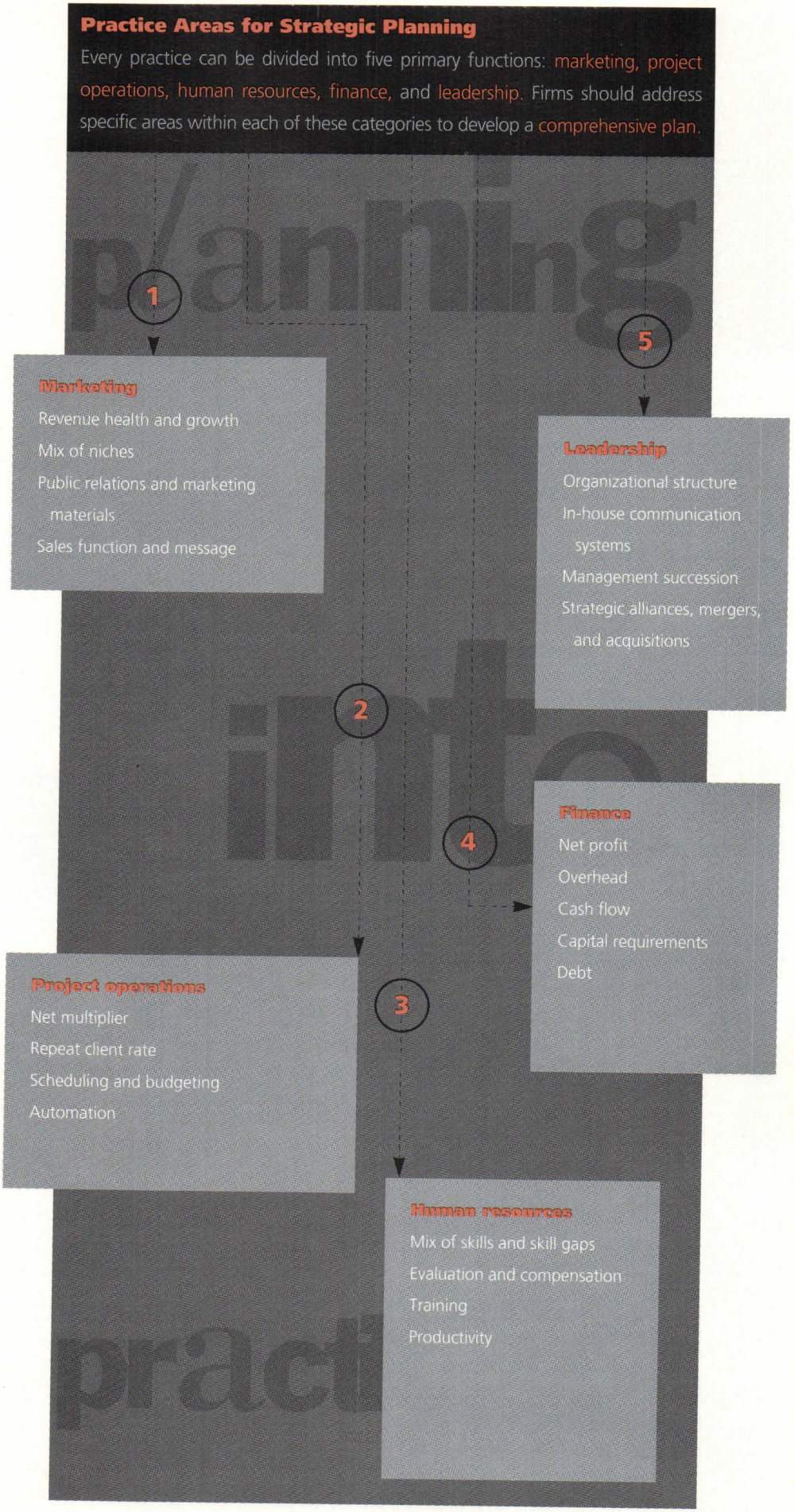
Firms should use a three-year time horizon to project progress. For example, suppose the firm currently earns 10 percent of its revenue in the airport market. In the first year, it should aim for 15 percent airport revenue. In the second year, it should seek 30 percent; and in the third year, it should try for 40 percent. Once the goals are set, the firm should develop directional statements or strategies describing how it will achieve these goals, such as: "To achieve our profitability goal, we will strengthen marketing while seeking more efficient means to deliver services."

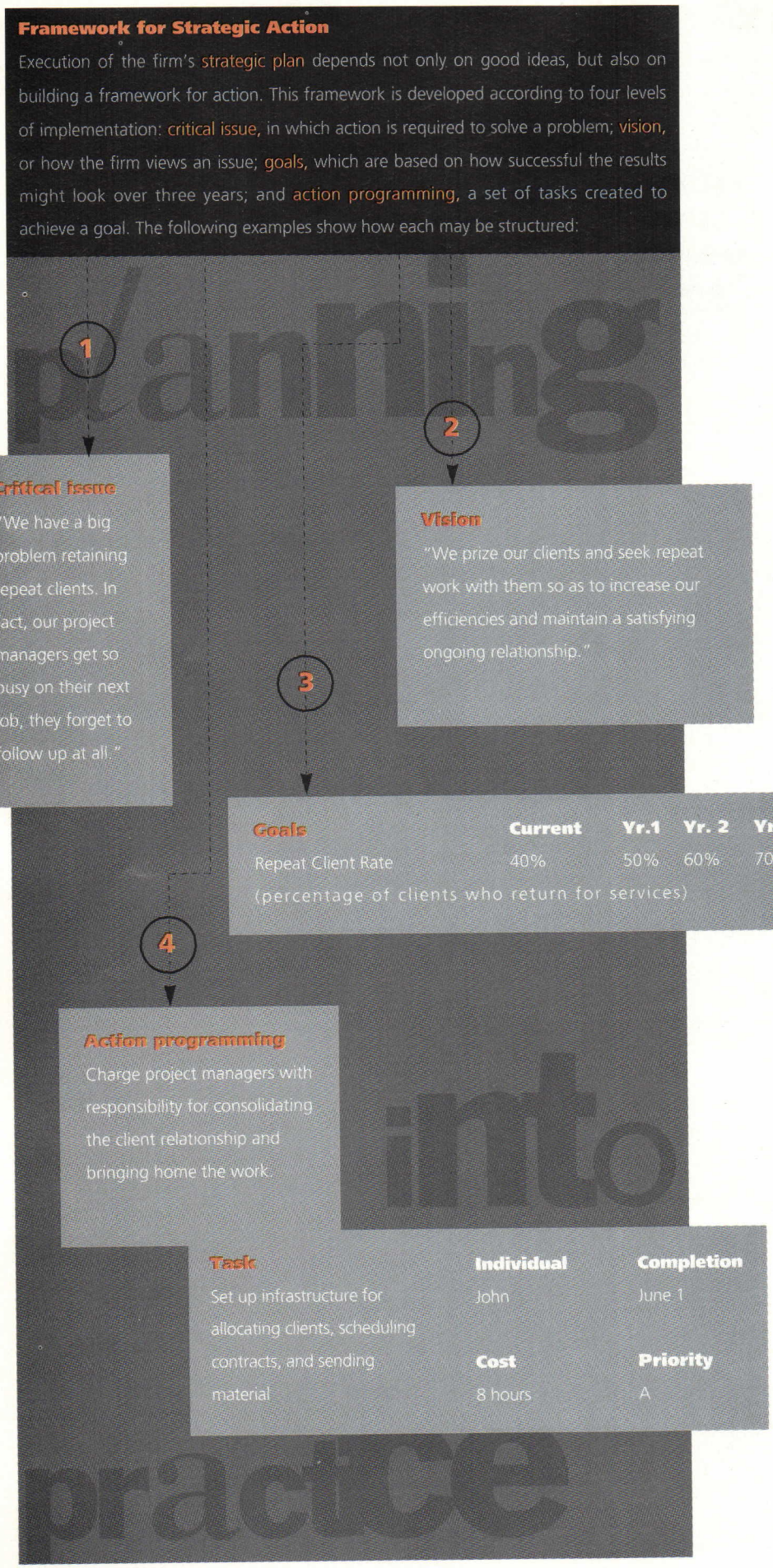
Next, the firm should devise specific actions that detail how its goals and strategies will be executed. What specific tasks must be undertaken to achieve the goals? For effective implementation, elements for action should include descriptions of the tasks, names of those who will direct the team in charge of the tasks, estimated costs of the initiatives in labor and expenses, completion dates, and priorities. Action elements should read like this: "We will hold a project management seminar. Partner Smith will be in charge of it; it will cost 50 hours of work and be completed by June 1. Its priority is secondary to projects, but ahead of new competitions."

Because any firm's resources are always limited, the key to a successful plan is rigorously prioritizing action into primary, secondary, and tertiary levels. Andy Prescott explains that EYP has learned by experience to be quite careful and realistic about what tasks it can accomplish. "Clients, after all, will always come first," Prescott notes.

To begin implementing a strategic plan, formulate several small tasks that can be completed quickly and early to gather momentum. All involved should receive a list of commitments for fulfilling action programs. Each participant should be able to describe his or her particular task so that everyone understands what they must do.

Consistent attention to progress is the key that ensures the execution of the strategic plan. Coaching should be routine. The firm should schedule quarterly meetings to review progress and should host occasional retreats to encourage commitment. The action program will serve as an agenda for each meeting, and individuals will report on the status





of their tasks, adding any new initiatives that should be considered in light of events in the market. Supplement these quarterly updates with coaching behind the scenes.

Planning retreats

Some architecture firms hold annual or semi-annual retreats to step back and focus on the big picture, away from the pressures of the workday. Effective retreats are brief (one or two days) and intensive and zero in on the firm's crucial issues in small sessions. They may be formally or informally structured.

Strategic planning retreats should be directed by a core planning team of eight or 10 top managers, including the firm's financial and marketing experts. The firm should furnish this team with input from every staff member. Studies show that staff commitment to achieving a firm's goals correlates to the amount of their participation in building the plan. Gathering ideas for the strategic plan though surveys, interviews, or focus groups helps enfranchise the staff and build commitment to the firm's vision.

If the firm is small, consider including the whole staff at the retreat. If the firm is larger, it may be preferable to elect one or two at-large members to the planning team so that all staff departments are represented. Incorporate other senior staff into one or more issue-focus sessions during the retreat. Ellerbe Becket has 35 top managers, and the firm relies on focus meetings during its annual retreat to cover such major issues as critical markets, ownership transition, nontraditional services, and leadership skills.

Even the midsized firm MSKTD & Associates, with a staff of 48 in Fort Wayne, Indiana, has held officewide retreats for the past 13 years. MSKTD & Associates President Al Sheldon encourages all staff to participate. "It gives us significant results in employee involvement and morale," Sheldon observes.

Whether the retreat and other planning sessions should be led by a firm manager or by an outside consultant depends on the dynamics of the particular firm. The Karlsberger Companies formerly handled strategic planning from within, but found it difficult. Participants complained that President and CEO Mike Tyne, who directed the sessions, was "too influential" in the process, lacking the objectivity and neutrality that an outside facilitator brings. The firm also tried appointing one of its own master-planners from the healthcare practice as its strategic-planning coordinator. However, that individual was perceived as "biased toward the master-plan-

ning side of the practice," at the expense of the architecture and interior design departments. As a result, he was not completely respected in his role as facilitator.

Yet, staff facilitators can work well if the process is well organized and if the individual is knowledgeable. For instance, Michael Hickok of Hickok-Warner Architects in Washington, D.C., has led his firm's strategic planning effort since it was first established in 1988, and its success is reflected in the firm's growth from only two partners to a staff of 18, despite the recession.

Tailoring the agenda

Whether a firm decides to hire an outside consultant or elects a staff supervisor to direct the process, the roles, responsibilities, and requirements of the job remain the same. The facilitator must know the architectural profession—MSKTD & Associates once used a well-known, high-priced consulting firm that attempted to recast the design firm as a manufacturing company. The coach also should be an excellent elicitor of information and a good synthesizer of patterns. The role requires strong organizational skills and an ability to build consensus. Also requisite is experience in developing and implementing action plans from ideas generated by staff.

Before the retreat, the facilitator should analyze critical issues and design the agenda. During the retreat, the facilitator leads the group through the four components of the strategic planning process by orchestrating the discussion, documenting key decisions, and advising on management concerns.

Effective planning retreats address each of the five strategic functions of the firm as a system. Not all the functions must be emphasized to the same degree, however. For example, during its annual retreats, King & King Architects, a 25-person firm near Syracuse, New York, spent a considerable period of time on the issue of ownership transition. Wittenberg, Delony & Davidson, with a staff of 35 in Little Rock, Arkansas, devoted its entire retreat to design quality. Finegold Alexander + Associates in Boston, with 25 employees, and 65-person Williams Trebilcock Whitehead in Pittsburgh both focused their 1993 retreats on marketing strategies.

The best managed firms don't stop planning after the retreat. Ellerbe Becket has a four-season planning cycle that works well for its staff and doesn't overburden the system. Beginning in the spring, the firm completes an analysis of internal and external issues and reexamines the existing strategic plan in light of recent changes. New initiatives emerge at this stage. In the summer, the firm conducts market research to determine whether its initiatives meet market demand. In the fall, the firm fully develops the useful initiatives and allocates the resources they require. This carefully designed, market-oriented approach works well for the firm.

Institutionalizing the planning process

If strategic planning fails, it is often because of poor preparation on the issues and markets; or vague goals with no implementation plan or follow-up mechanism; or, possibly, too many great ideas for which there are no resources. Going back to business-as-usual seriously undermines the credibility of both the firm's owners and the process itself, leading to cynicism and frustration among staff.

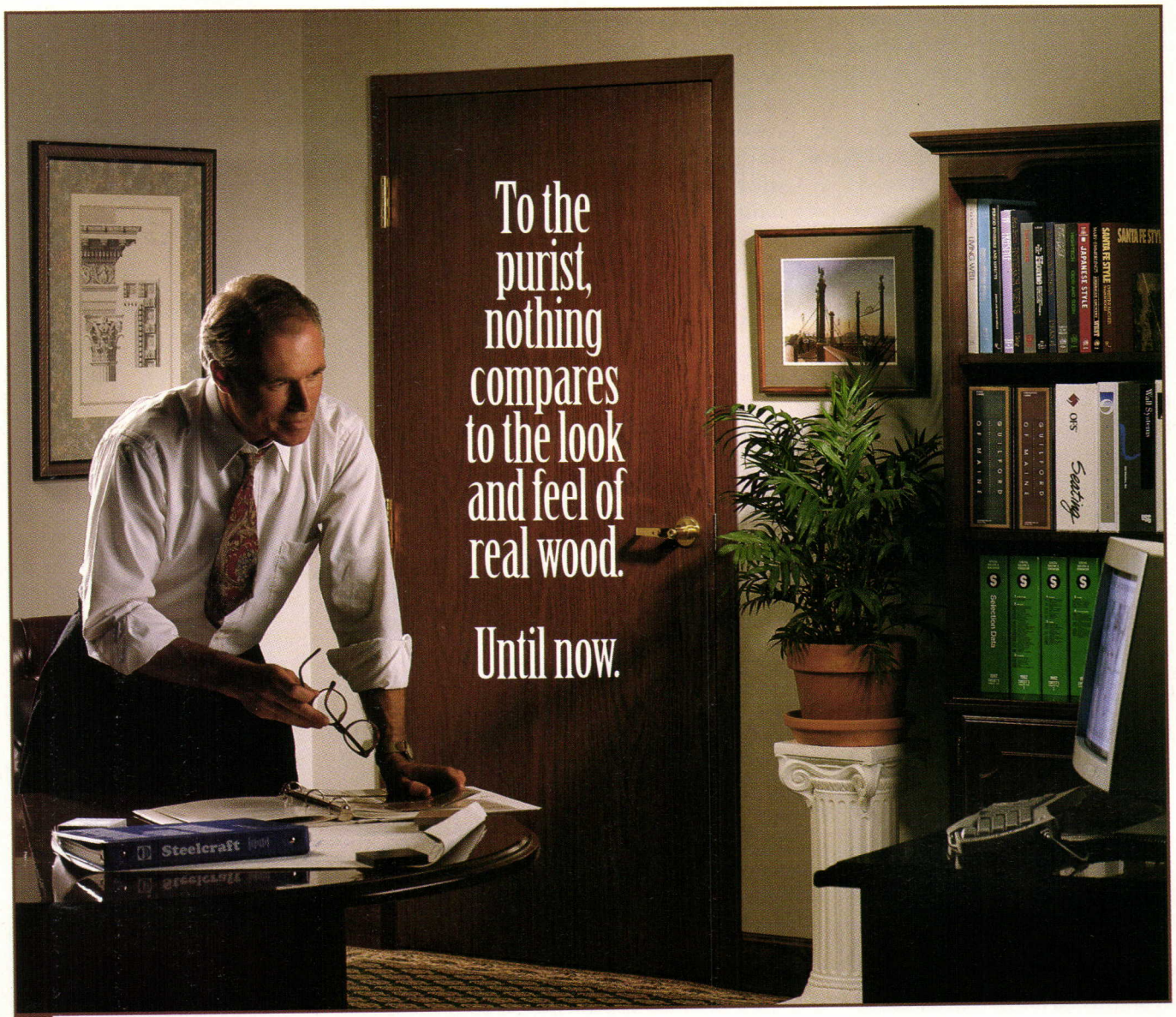
Many professionals prematurely congratulate themselves on a job well done. But a plan is only a beginning. To be most effective, strategic planning must be an ongoing, dynamic process that is so well integrated into the firm's operations that it becomes institutionalized into the practice, much like regular scheduling or financial reporting.

Day-to-day deadlines often interfere with monitoring the plan regularly unless the firm is committed to strategic planning. Instituting a formal schedule for delivering progress reports, treated like a project with a firm deadline, will help considerably. Bob Degenhardt measures progress on a quarterly basis and personally reviews the performance of Ellerbe Becket's six offices twice a year each. These deadlines help managers get organized and keep priorities in clear sight.

Al Sheldon of MSKTD & Associates keeps the strategic planning progress on track through periodic meetings with planning team members, coupled with what he calls "management by wandering around" between meetings to support the execution of strategic projects. This gesture promotes high-priority work in a low-pressure fashion.

Given solid examples of its success, why would so many architects resist strategic planning? "Architects tend to dislike the planning process, thinking it inhibits their creativity and confines them," says Degenhardt. "We find just the opposite. It's because we plan that we can find the resources we need to support and accelerate our creativity."—*Ellen Flynn-Heapes*

Ellen Flynn-Heapes is principal of Flynn Heapes Kogan, a management and marketing consulting firm in Alexandria, Virginia.



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Engineering Fire Safety

Performance-based fire protection solutions allow greater design freedom.

ABOVE RIGHT: Test conducted by National Institute of Standards and Technology shows rapidly growing blaze in an open-plan office, challenging conventional fire protection wisdom.

Designing a fire-safe building today requires sifting through a myriad of local, national, and model building codes; synthesizing conflicting requirements; and developing a cost-effective structure that local officials deem complies with the codes. In the United States and throughout most of the world, fire codes are largely prescriptive: They prescribe exactly how thick a concrete slab must be, how far apart the exit doors may be placed, and how many air changes must occur in a specific space every hour. Many prescriptive codes were formulated in reaction to catastrophic fires, rather than engineering criteria.

This "cookbook" approach to fire protection, however, neither provides the most economical solution nor creates the best possible fire protection for both building occupants and property, according to a growing number of fire protection engineers, researchers, and architects. This group of professionals advocates adopting more flexible, performance-based criteria to achieve less expensive, more effective fire-safety design.

Performance-based protection

Unlike prescriptive codes, which often have no clearly defined objectives, the performance-based approach establishes specific goals for fire protection and allows an architect to determine how best to reach those goals through analytical tools. A performance-based code, for example, might require that all occupants escape the building before being overcome by smoke. The architect must decide what combination of materials, sprinklers, egress paths, detection systems, and other elements would optimally achieve the desired result. Such engineered solutions promise much greater design freedom for the architect, who is now hamstrung by restrictive prescriptive constraints.

While prescriptive safety codes are currently the norm, performance-based fire design is being gradually incorporated into the three U.S. model building codes—published by the Building Officials & Code Administrators (BOCA) International, the International Conference of Building Officials (ICBO), and the Southern Building Code Congress (SBCC) International—and into the National Fire Protection Association's Life Safety Code.

As fire protection technology and research advance in coming years, many fire-safety experts predict that a performance-based approach will replace the prescriptive approach in the building codes. Predicts Rolf Jensen, chairman of the Deerfield, Illinois-based fire engineering company Rolf Jensen & Associates: "We will go to performance codes in the next 10 to 20 years. There is no question it will reduce the cost of construction."

The United States currently spends an average of $130 billion each year on fire protection, according to Richard W. Bukowski, a senior research engineer with the National Institute of Standards and Technology (NIST) Building and Fire Research Laboratory in Gaithersburg, Maryland. That sum, which

includes property lost to fire as well as money spent on construction, firefighting equipment, maintenance, insurance, and even the staffing of paid fire departments, is essentially wasted—since it isn't spent to improve the quality of life—and is viewed by many as an unnecessary drag on the economy.

Engineering-based protection

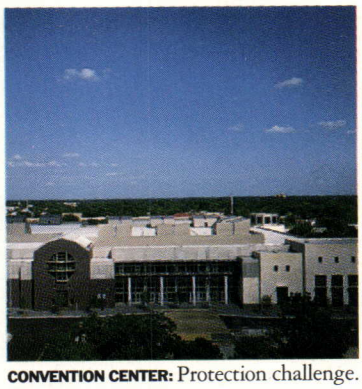
The move toward engineering-based fire protection during the past 25 years has been driven by the results of research into fire growth and spread, smoke movement, and fire evacuation criteria at laboratories such as NIST's Building and Fire Research Laboratory. In addition, architects and fire protection engineers are increasingly relying on computerized numerical fire models to analyze and predict the outcome of potential fires (ARCHITECTURE, July 1990, pages 121-122, 131). These complex models have improved in recent years so that they can provide much more accurate predictions of a fire's effect on both structure and occupants.

The further development of these analytical models will be key to the code's broad acceptance of performance criteria, many experts believe. Such computer-generated models are currently being widely employed by fire protection engineers to gain acceptance from building code officials for "equivalent" fire protection designs. These alternate, "equivalent" solutions are permitted under most local building codes when the design team can prove that the proposed, performance-based design is equal to or better than the design that would have been achieved under applicable conventional codes.

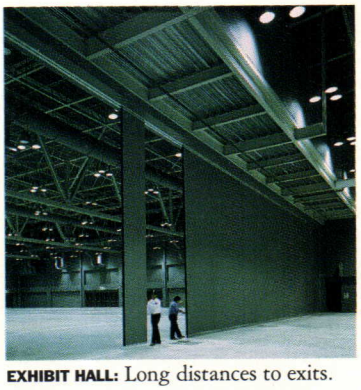
Proving equivalency depends on identifying the specific code requirements that affect the project; discerning the original intent of the code, often not explicitly stated; and then examining how it applies to the project under design. Computer models can then be used to develop and verify alternate fire protection systems that can be supported by persuasive engineering and technical data.

Overcoming code barriers

Convincing officials in some 35,000 building code jurisdictions of equivalency, however, can be a daunting undertaking. Building code officials sometimes lack the necessary education and experience to judge alternatives to the status quo. In addition, regulatory bodies are not supported by any economic incentive to push for change and, indeed, often fear lawsuits and liability from code deviations if a disastrous fire occurs.

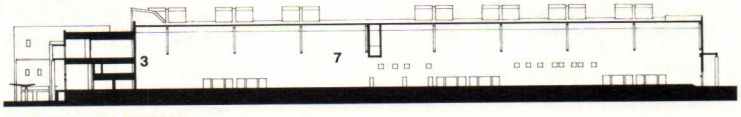


CONVENTION CENTER: Protection challenge.

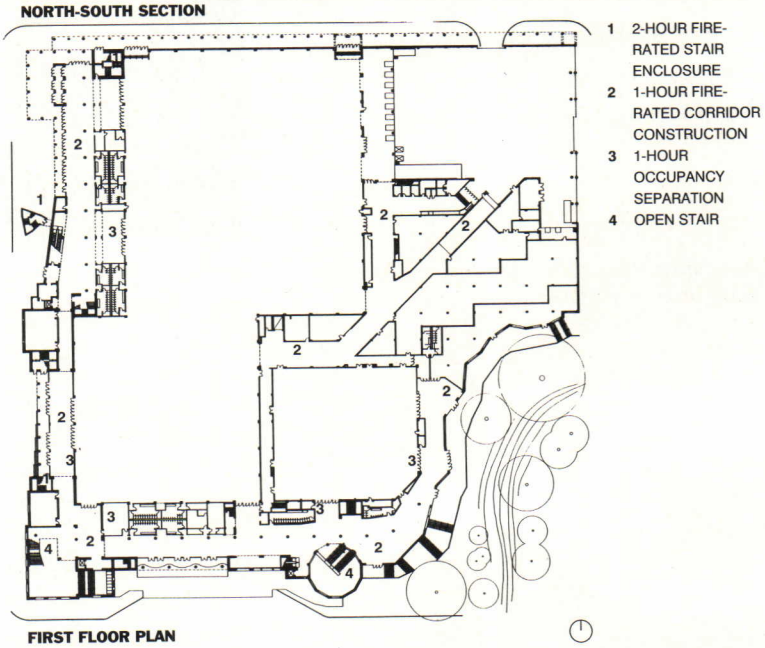


RICHARD PAYNE

EXHIBIT HALL: Long distances to exits.



NORTH-SOUTH SECTION



FIRST FLOOR PLAN

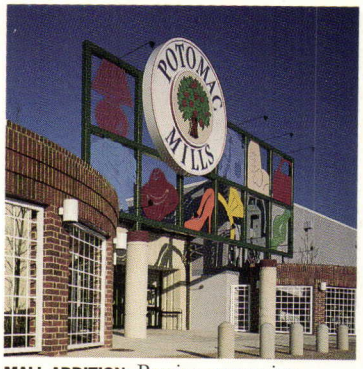
Austin Convention Center
Austin, Texas
Austin Collaborative Venture

The enormity of an exhibition space in the Austin Convention Center (ARCHITECTURE, October 1992, pages 76-83) became an asset under a performance-based solution developed to safely move out occupants.

The 46,000-square-foot exhibit space challenged fire protection engineers because it increased the escape distance to some 328 feet, 50 percent greater than the 200 feet permitted under the 1988 Uniform Building Code that governed the design. Visitors in the north exhibit hall could not exit to the north or west of the convention center if fire broke out because those areas were reserved for vehicular and service access, explains Randolf W. Tucker, senior vice president of the Houston office of Rolf Jensen & Associates.

A timed exit analysis, calculated for the project and presented to code and fire officials, demonstrated that despite the distances, all occupants could escape even the farthest reaches of the exhibit space in 2.1 minutes. The building was tested under computer models simulating three fire sizes: a 5-megawatt fire, equivalent to an average living room burning in a fire; a 10-megawatt fire, equivalent to two exhibit booths in flames; and a 20-megawatt fire, representing a row of exhibit booths on fire. Even with a safety factor that doubled the exit time, the smoke layer in the 48-foot-high exhibit space would descend only to a non-threatening 35 feet above the floor.

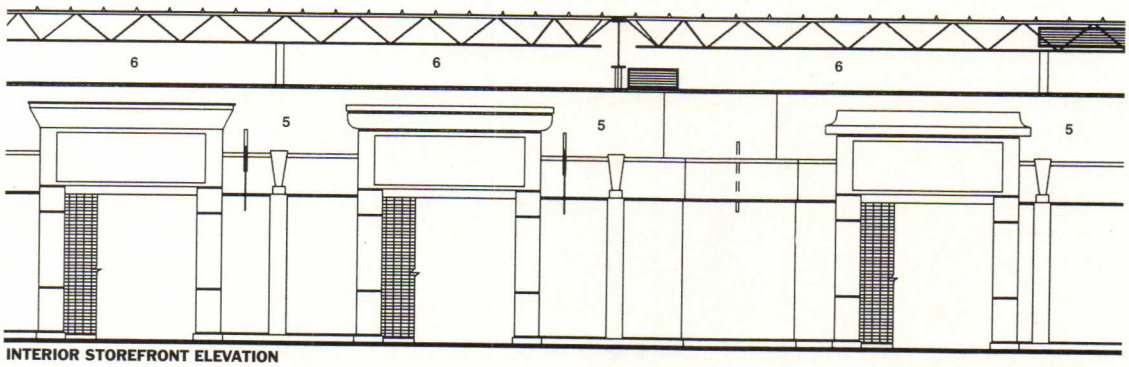
Fire spread is inhibited by 2-hour fire-rated walls separating rooms. In addition, the building is fully sprinklered and equipped with an alarm system expected to bring fire department response in 3 minutes.



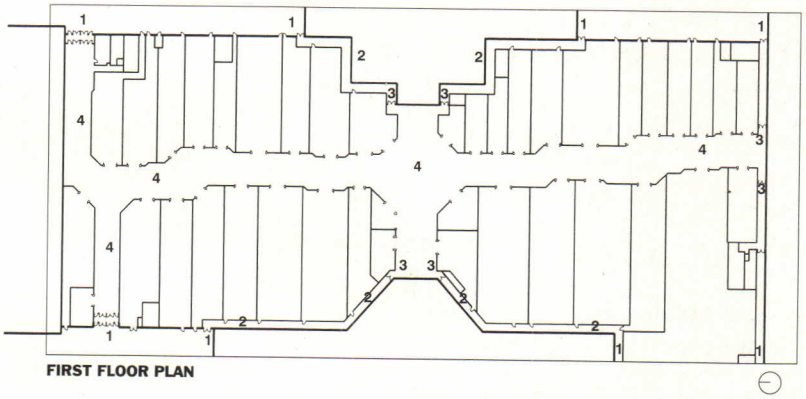
MALL ADDITION: Passive protection.

PARTIAL HEIGHT PARTITIONS: Smoke passes above walls to spread over ceiling.

MARK WEILAND PHOTOS



INTERIOR STOREFRONT ELEVATION



FIRST FLOOR PLAN

1 EXIT
2 1-HOUR FIRE-RATED EXIT CORRIDOR
3 1-HOUR FIRE-RATED DOORS
4 NON-FIRE-RATED MAIN CORRIDOR
5 NON-FIRE-RATED PARTITION WALL
6 OPEN SPACE

Potomac Mills Mall Addition
Prince William County, Virginia
Rippetau Architects

Although conventional wisdom holds that building occupants are best protected from fire and smoke through the separation of building areas, a one-story shopping mall addition completed last fall relies on an intentional lack of compartmentalization to diminish the possible effects of a fire and provide shoppers with time to escape.

At the 156,000-square-foot Potomac Mills Mall in Virginia, walls separating tenant spaces and public corridors do not meet the ceiling, which averages 17 feet in height, but extend only 12 feet, creating a single open volume of air above that permits the free movement of gases at that level, explains Darrell Rippetau, principal of Washington, D.C.-based Rippetau Architects.

As a result, smoke from a fire will rise naturally to the ceiling and will spread over the large volume. It would not drop to a level where it could impede egress or harm building inhabitants, according to fire protection engineer Carl Baldassarra, president of Schirmer Engineering. Using the National Institute of Standards and Technology's computer model ASET-B and assuming no sprinkler operation, Baldassarra showed that 20 minutes into a fire, the smoke layer would drop to only 12.3 feet above the floor. If the same mall contained full-height partitions, the smoke layer in a typical tenant space would descend to the floor in less than 20 minutes. Furthermore, in 20 minutes, the smoke layer would descend to just 4 feet off the ground in common spaces.

When the building was designed, Virginia enforced the 1990 edition of the BOCA National Building Code, which includes prescriptive criteria for the number of air changes per hour and requires a mechanical smoke control system. Baldassarra designed the mall's passive system under the more performance-oriented 1992 edition of BOCA and submitted the calculations to gain acceptance from building officials.

The building's roof does contain a mechanical fan system to exhaust smoke. However, this system is designed to be operated by the fire department only to clear smoke from the building after occupants escape. It is structured so that the fire alarm will shut down all HVAC units during a fire so smoke is not transmitted into the lower, occupied area of the mall. In addition, the entire mall is sprinklered with an electrically supervised, automatic sprinkler system. Furthermore, hand-held fire extinguishers are provided for every 3,000 square feet of floor area.

As a result, development of a performance-based equivalent design is worthwhile only if the financial stakes are high enough to justify both the time and the money required to grant equivalency, explains Craig Beyler, a technical director of Hughes Associates, Fire Science and Engineering in Columbia, Maryland. Equivalency based on performance analysis is sought for clean-room projects for the semiconductor industry, for example, because owners can save millions of dollars by avoiding the requirement to insulate exposed steel structural elements, since that insulation must be of superior quality to satisfy clean-room specifications. The consultant might show that the insulation is not necessary by determining the facility's largest fuel load—its combustible construction elements and building contents—and analyzing a potential fire's size, heat release rate, and flame height to determine the exposure of the structural elements and to judge whether the fire could heat them to the point of failure.

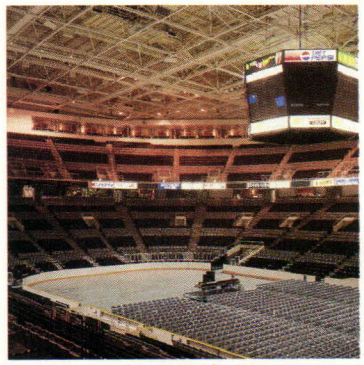
Replacing prescriptive codes

Equivalency is also frequently applied to major projects, including airport terminals, stadiums, and convention centers that have high public occupancies and are of such magnitude that they don't fit easily under the current codes. Often, due to the high visibility and public nature of these projects, fire engineers are brought in to make sure that no mistakes are made in the design of the fire protection systems. As a result, the engineers develop innovative, performance-based alternatives to prescriptive code requirements for these large-scale buildings.

Performance-based fire protection criteria have already replaced prescriptive codes in several countries, including Japan, Australia, the United Kingdom, and New Zealand. In fact, New Zealand's fire protection code currently takes up only five pages of that country's building regulations.

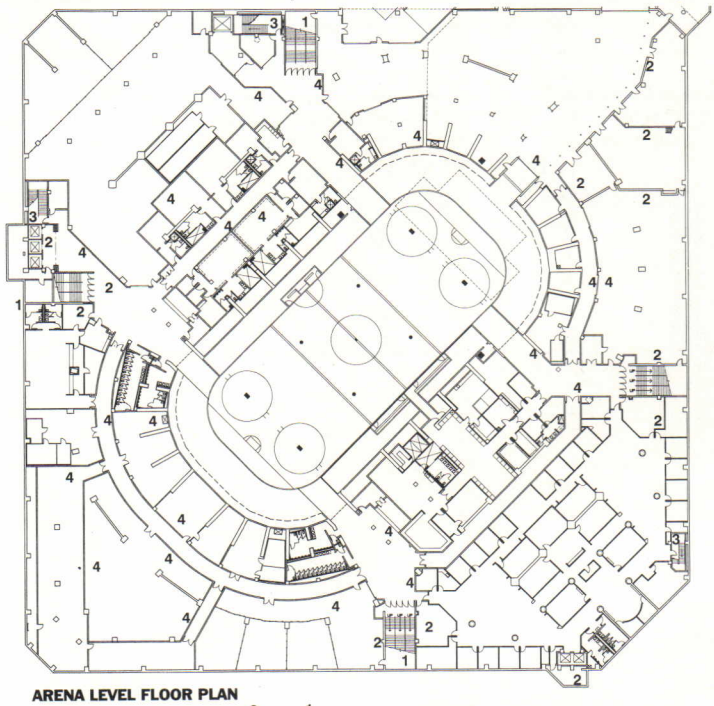
How performance-based fire protection criteria will be incorporated into U.S. codes and construction practices remains to be seen. Apart from generating cost savings and freeing architects to develop more innovative designs, engineered fire protection criteria may also increase safety by increasing architects' understanding of exactly what protection is being provided, claims Rolf Jensen. "You can come closer to a reasonable evaluation of your safety factor," explains Jensen. "It will let you know how much cushion you have in your design to take care of the unknowns."—*Virginia Kent Dorris*

SAN JOSE ARENA: Exit time analyzed.

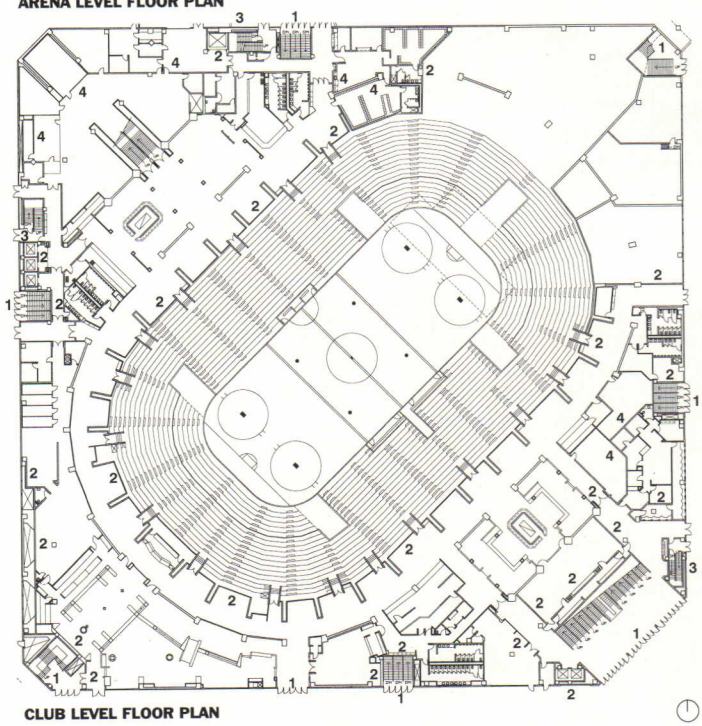


SEATING: Smoke rises after escape.

MARK SINK PHOTOS



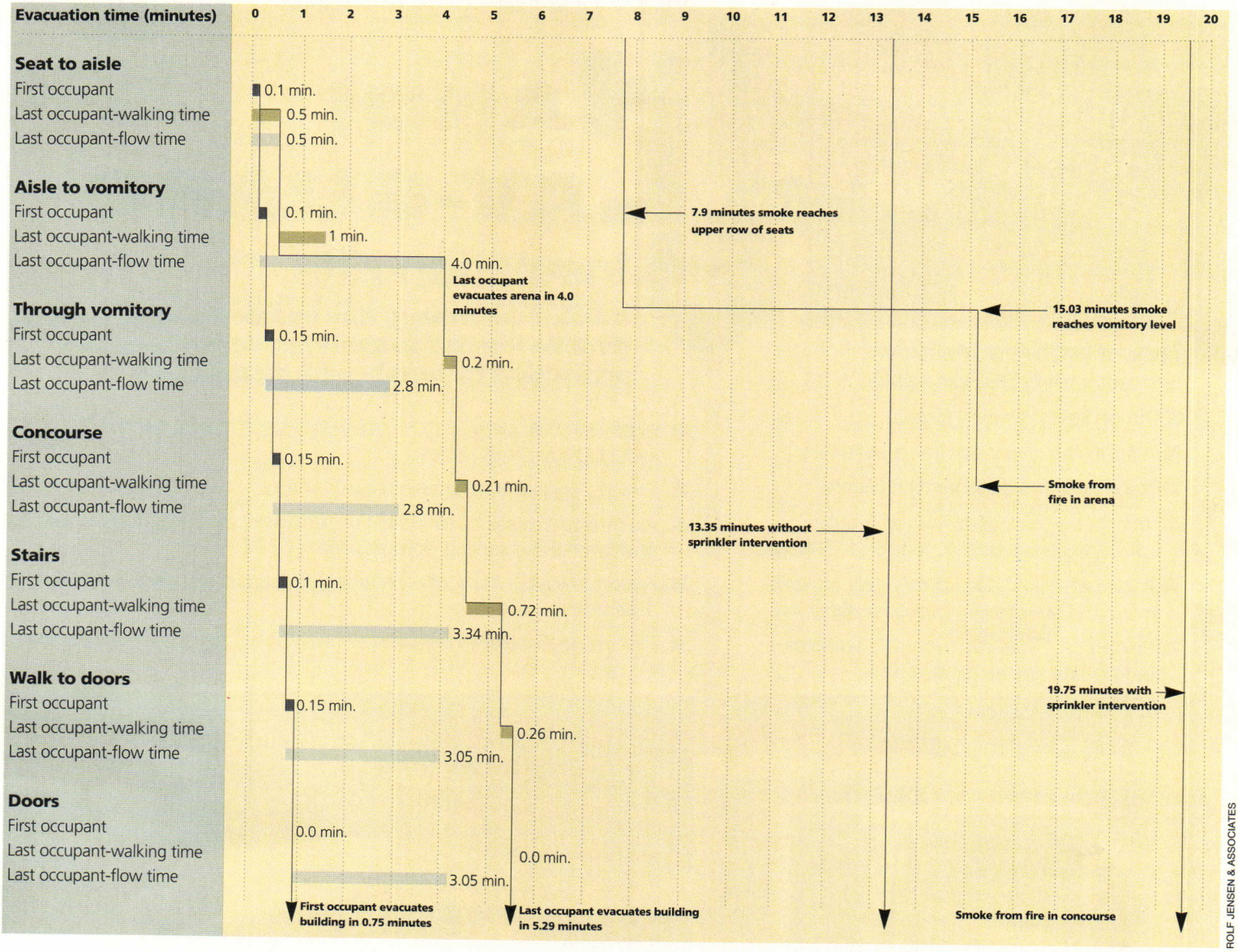
ARENA LEVEL FLOOR PLAN



CLUB LEVEL FLOOR PLAN

1 EXIT
2 2-HOUR FIRE-RATED PARTITION
3 2-HOUR FIRE-RATED STAIR ENCLOSURE
4 1-HOUR FIRE-RATED PARTITION

Timed Exit Study for San Jose Arena



ROLF JENSEN & ASSOCIATES

San Jose Arena
San Jose, California
Sink Combs Dethlefs, Architects

A computer analysis that simulates the time required for all occupants to escape the building in the event of fire formed the basis for a performance-based fire protection design at the recently completed, multipurpose San Jose Arena. That study, conducted by fire protection engineer Rolf Jensen & Associates, demonstrated to fire department officials that the arena met the intent of the prevailing Uniform Building Code even if seat grouping, aisle width, and travel distance to exits did not meet the letter of the code.

The arena's engineering-based fire protection system allowed architects Sink Combs Dethlefs to maximize the number of seats available to San Jose Sharks fans while precisely understanding and ensuring their safety. The "egg-in-a-box" design for the arena, with major entrances and exits at the southeast and northwest corners, can seat 17,300 for hockey games, explains the firm's vice president Fred J. Coester.

The timed exit study for the building, considered conservative because it did not take into account the positive effects of sprinklers positioned throughout the building, demonstrated that despite travel distances to exits greater than the 200 feet allowed by code, all occupants would be able to exit in 5.29 minutes, well within the 7.6 minutes permitted under National Fire Protection Code provisions. The architects' decision to increase the number of seats between aisles from 14 to 28, while increasing the distance between seating rows and adjusting aisle widths, did not affect egress time, the study indicated. The analysis, based on computer fire models DETACT and ASET-B developed by the National Institute of Standards and Technology, anticipates that the smoke layer generated by a significant, fast-growing fire on the arena floor would descend to the top row of the upper deck of seats in about 8 minutes and to the vomitory exits in about 14 minutes, long after everyone is expected to have escaped.

The fire department was consulted early during the planning and design processes, soon after the modified fire protection solutions were developed, explains James W. Simms, senior consulting engineer in the Concord, California, office of Rolf Jensen & Associates. "When you are going to take this kind of approach, it is critical that you go about it early in the design process," Simms explains. "Some of these protection methods, if they are not accepted, can have a major impact on the design of the building."

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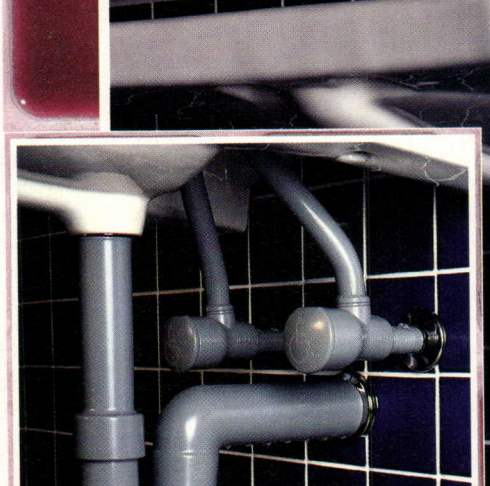

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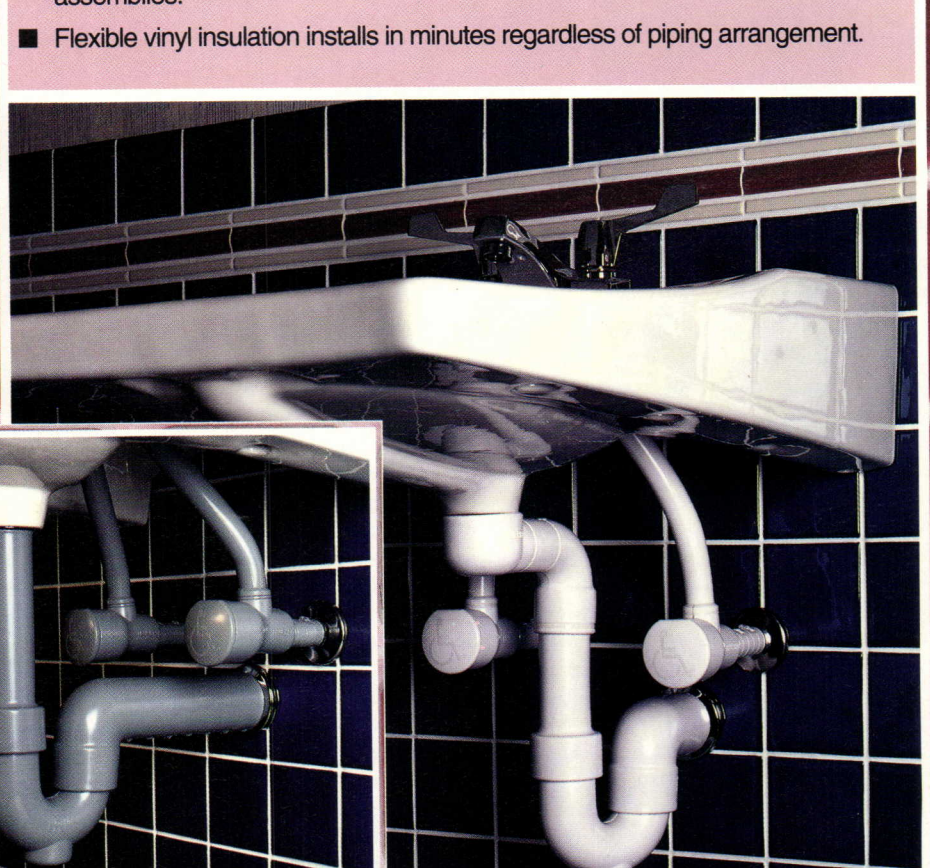

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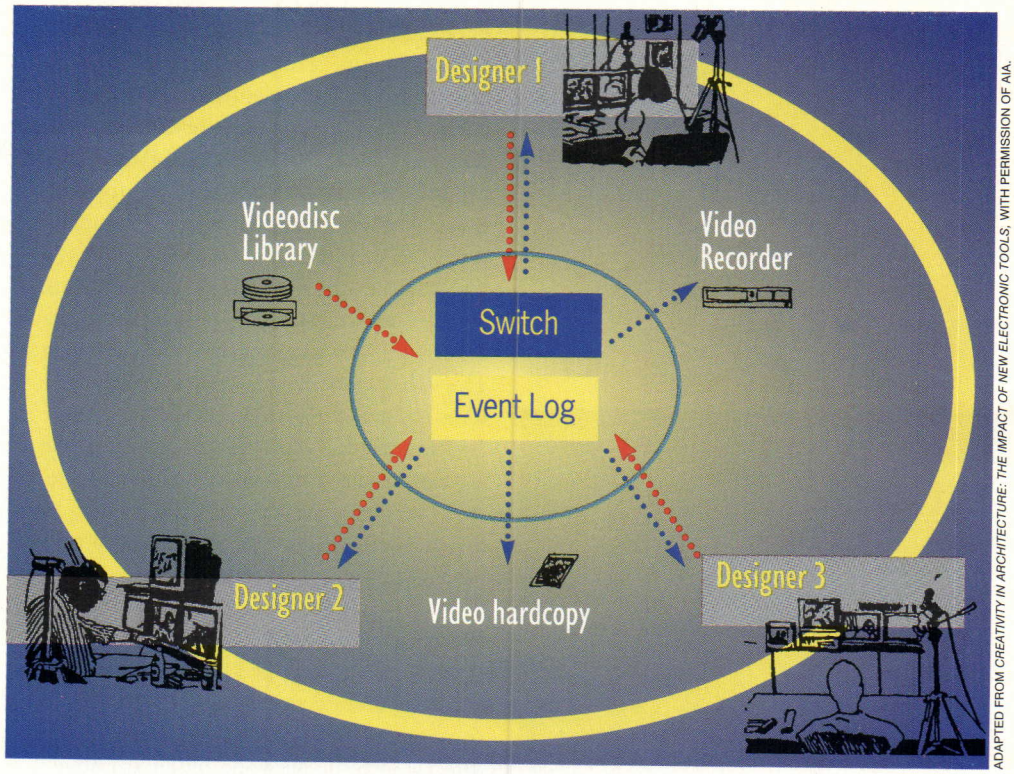
Designing by Long Distance

From faxes to teleconferencing, new technologies are resulting in better communications.



ADAPTED FROM *CREATIVITY IN ARCHITECTURE: THE IMPACT OF NEW ELECTRONIC TOOLS*, WITH PERMISSION OF AIA.

ABOVE RIGHT: Diagram depicts how geographically remote designers, connected by audio and video networks, work in "media space."

In the future, architects will be able to communicate through words, numbers, and images with virtually any other firm on the planet. Although a full-scale "information superhighway" is still years away, architects are already adopting some of its components to facilitate communications with clients and consultants. These range from now-mundane fax transmissions to high-tech video teleconferences in which architects in geographically remote locations work simultaneously on the same drawings.

Electronic exchanges

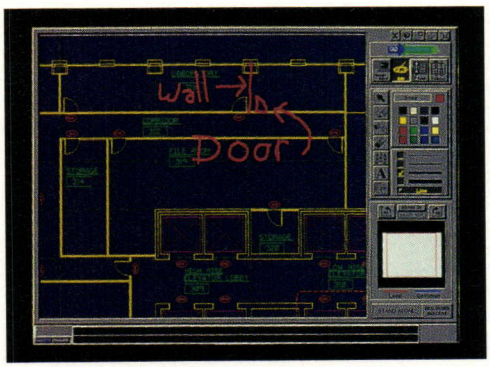
To reap maximum benefit from computer technology, information should ideally be exchanged in a form that can be both transmitted quickly and modified by the receiver. This format consideration explains the recent explosion in interest in electronic mail (e-mail). Individuals can exchange typed messages through the public-domain Internet, available to educational and governmental institutions, and through centralized commercial services such as CompuServe and America Online. Anyone with access to one of these services can send e-mail to individuals on most other services. In addition, with some limitations, nontext computer files such as drawings or 3D models can also be exchanged. Many services feature electronic "forums" in which different groups discuss various issues of special interest.

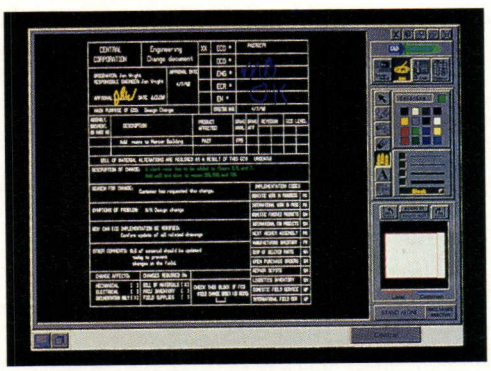
CompuServe offers a forum sponsored by the League for Engineering Automation Productivity, founded by Virginia Beach, Virginia-based engineer Joel Orr. Topics under continuous discussion include CAD, computer hardware, project management, and specification writing. Orr points out that speed and precision of communication are determining factors for business success in the construction industry. "So when digital communications become even slightly more accessible," he predicts, "competition will cause the use of electronic services to skyrocket. They'll provide quick answers to technical, business, and legal questions."

Redlining on computer

In addition to verbal exchanges, of course, architects also need to share drawings. The electronic transmission of images is not as popular as e-mail because large drawings may take hours to transmit. Potential incompatibilities between sending and receiving CAD systems also pose a problem. To overcome this barrier, AT&T has recently introduced the Picasso Still-Image Phone that sends TV-quality color images over an ordinary telephone line while allowing people to converse over the same line, all for the cost of an ordinary phone call. Architects discussing a design problem can each "redline" the screen with a computer mouse, see what each other is drawing, and store the changes.

Intergraph's new CAD Conferencing software works similarly, but allows groups of up to 16 to participate in a conference. Any workstation document, including scanned





TOP: AT&T's Picasso Still-Image Phone allows people to talk and exchange images over a single phone line.
CENTER: Intergraph's CAD Conferencing software enables groups of up to 16 geographically remote architects to simultaneously mark up drawings.
ABOVE: At the end of a successful CAD Conferencing session, participants can literally sign off on decisions made.

drawings, can be displayed simultaneously on all participants' screens. Each individual's marks are uniquely identified by icons or color codes as they document emerging ideas on an on-screen "white board." Participants can literally sign off on agreed-upon solutions. Numerous companies, for example, Apple, IBM, and Silicon Graphics, offer systems that incorporate a real-time video image on the screen so that two people can see each other while working on the same document. The video frame rate for these desktop systems is slow and permits little more than "talking heads." However, transmission rates are expected to improve in the near future. Also, with emerging design and manufacturing standards, these systems will become more compatible across platforms.

Modems and e-mail

With modem-equipped portable computers, traveling architects can dial in to their office computers and work as if they were plugged directly into the network, albeit at a slower transmission rate. From a remote location, they can retrieve information, modify files, and request printouts. Austin, Texas-based architect Ed B. Wallace takes advantage of AppleTalk Remote Access to share Macintosh files with his consultants. When they need to exchange drawings, one can log onto another's computer; and protected by security codes that prevent intrusions into private files, they can read, modify, or print the drawings. Wallace is intrigued by the Macintoshes with built-in audiovisual capabilities. "I'll be able to take a video camera to a construction site," explains Wallace, "then capture video images to document any problems we find, and send them instantly with recorded voice messages to an engineer for review. This improvement in communications with colleagues and clients will significantly reduce construction delays."

William Tucker, director of computer services with Florance Eichbaum Esocoff King (FEEK) Architects in Washington, D.C., reports that a recently added Shiva LanRover—a networkable modem—has given everyone in his firm dial-in/dial-out capability through a single modem. "This modem is critical for long-distance integration," Tucker reports, "and acceptance of the technology has been reminiscent of our introduction to the fax machine. We really didn't think we would use it much until the first day it was installed. Now, project managers transfer files directly with consultants rather than route them through a computer department."

Although FEEK still relies on transmitting drawings via overnight mail, the architecture firm finds telecommunications essential for transmitting smaller word processing and project management documents. "E-mail improves project management," Tucker notes, "because it's easier than playing telephone tag. But most importantly, when we're putting together a project team, we don't have to limit our search to the best consultants in our area. We can look for the best consultants in the world."

E-mail services are also offered by several companies that specialize in communications for design professionals. ReproCAD, based in Lafayette, California, and the C4 Network, in Denver, Colorado, both offer nationwide connections to high-end plotting and color printing service bureaus. Utilizing the same communication lines, architects can exchange drawings and e-mail with consultants.

The C4 Network has been used extensively by Cesar Pelli & Associates in the firm's work as design architects on National Airport in Washington, D.C., with production architect Leo A Daly. Pelli senior associate Phillip G. Bernstein has been largely responsible for establishing his firm's telecommunications for the project. The architects frequently distribute design documents to other consultants through the network. "Without this tool," Bernstein reports, "there is no way we could have engaged in distributed design on such a technically complex project."

Although Pelli has become more interested in computer presentations because of recent advances in rendering quality, the firm still relies on travel for interactive client presentations. "Before this interaction can occur via long distance," Bernstein notes, "we'll need a technology that allows us to transmit images of one another as well as very-high-quality representations of the work."

Virtual design studio

Experiments in transmitting computer images along with audio and video have been conducted recently in academia. Architecture professors and students from the Massachusetts Institute of Technology, Harvard's Graduate School of Design, Washington University in St. Louis, the University of British Columbia (UBC) in Vancouver, and Hong Kong University (HKU) have been collaborating on design projects through the Internet. In the group's first experiment with a two-week "virtual design studio," they proposed infill housing for Kat Hing Wai, a traditional, walled village in the New Territories

near Hong Kong. HKU students prepared measured drawings of the site, and an electronic site plan and problem description were distributed to all the participating schools. Each student designed a prototype housing unit and sent electronic documentation—models, drawings, renderings, and writings—to a computer at UBC in Vancouver.

In the project's second phase, students browsed through the collection of designs, downloaded selected prototypes, modified them, and composed a 3D model of the village from the components. This second phase was particularly instructive since the students faced problems with time zones, dissimilar computer systems, transmissions of large files, and cultural differences.

At the end of the second week, the group of students held a "virtual crit." At a designated time, all five groups gathered at their respective universities, with a five-way conference call enabling the jurors to discuss the projects, and with a prearranged sequence of images to appear on their computers. In a more recent experiment, conducted by UBC professor Jerzy Wojtowicz and Washington University professor Davis van Bakergem, a video component was added, allowing students and jurors to see, as well as hear, each other while discussing the work.

Wojtowicz concludes that these long-distance experiments illustrate the practicality of two complementary forms of design communication: synchronous design discussion via video link, well suited for quick problem-solving, and asynchronous, network-based collaboration, more appropriate for design development and reflective criticism. Descriptions of this work are soon to published by the Hong Kong University Press in *Virtual Village Studio*, edited by Wojtowicz.

Video teleconferencing

One important benefit of technology-assisted long-distance design collaboration is bringing people together without expensive travel. Yet face-to-face meetings cannot be eliminated entirely. Marion Kromm White is an East Coast-based planner who consults with the aviation focus group of the St. Louis office of Hellmuth, Obata & Kassabaum (HOK) on airport design. She notes: "Architects are so visually oriented, it's difficult to write all your ideas on paper. You need to meet in person on occasion, spread the drawings on the table, wave your hands around, and get the immediate response from a brainstorming session." To simulate this interaction through telecommunications, it's important to understand the social dynamics of design teams. For several years, the social components of design processes have been studied by researchers at the Palo Alto Research Center (PARC), home of the pioneering work on graphical user interfaces that were later commercialized in the Apple Macintosh. Architect Steve Harrison and his fellow PARC researchers had noticed that, far from improving design communications, CAD systems were actually isolating individuals from the social interactions that are so common during conceptual design.

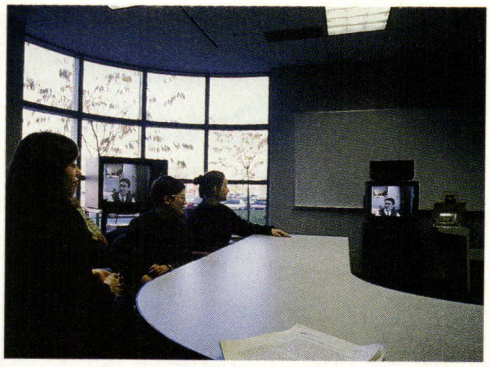
To promote this social element in long-distance design processes, Harrison and his colleagues set up an experimental "media space." This space consists of networked computers and video cameras pointed at designers and their drafting tables. The audio and video connection simulates a single environment like a large architectural studio, but distributed over different floors, different buildings, or even different cities.

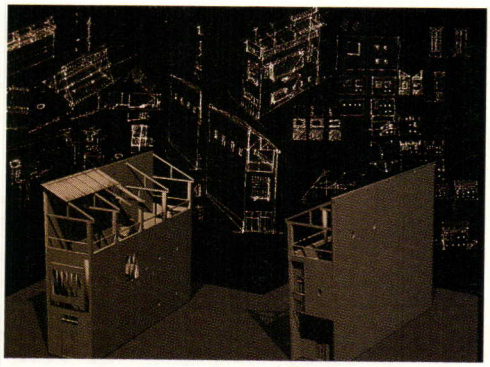
Shared media space

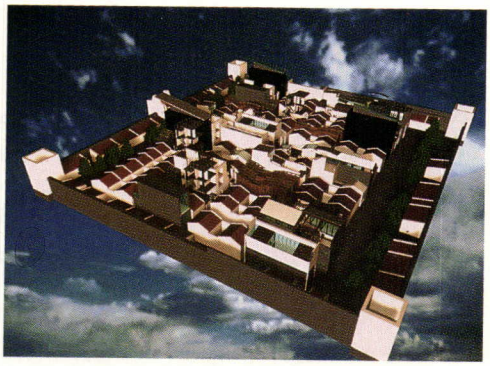
In one experiment, in which a media space was shared between Palo Alto and a sister office in Portland, Oregon, the cameras were on all day, every day, for several years. Video images were transmitted by a high-speed data link and audio, by speaker phones. Harrison explains: "Media spaces support maintaining peripheral awareness of others, chance encounters, one-on-one conversations, group discussions, presentations, social functions, and support for specific tasks, like sketching or marking up drawings."

In more recent media space setups, the computer is a secondary communication device, to record, file, and manage video material for later reference. To further support design, PARC software developers have created software tools, such as a video white board, giving designers a common sketch surface. Although Harrison does not believe such a setup can replace true face-to-face meetings, he insists it is essential for good design in long-distance collaborations.

William J. Mitchell, Dean of MIT's School of Architecture and Planning, summarizes the advantages of these technologies to architecture firms: "In a fast-changing world, the winners are likely to be smaller, more nimble organizations structured to form effective ad hoc alliances with other organizations, to aggregate expertise 'on-the-fly' as specific circumstances arise," he claims. "The virtual design studio establishes a new paradigm for CAD."—*B. J. Novitski*







TOP: A video jury, sponsored by US Sprint, is held simultaneously at the University of British Columbia and Washington University.
CENTER: In a "virtual design studio" among five schools, students exchanged electronic sketches and models of infill housing.
ABOVE: For a final review held simultaneously in three countries, shared models were combined into village designs.

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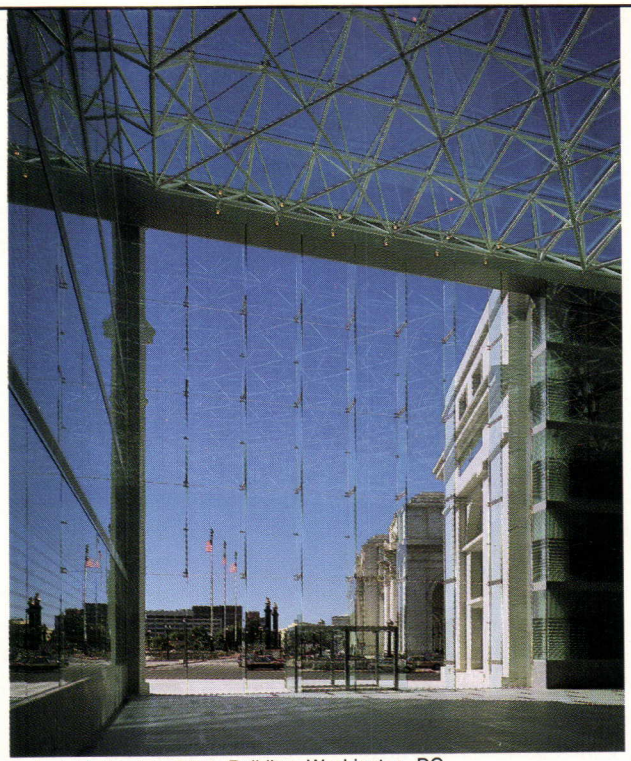
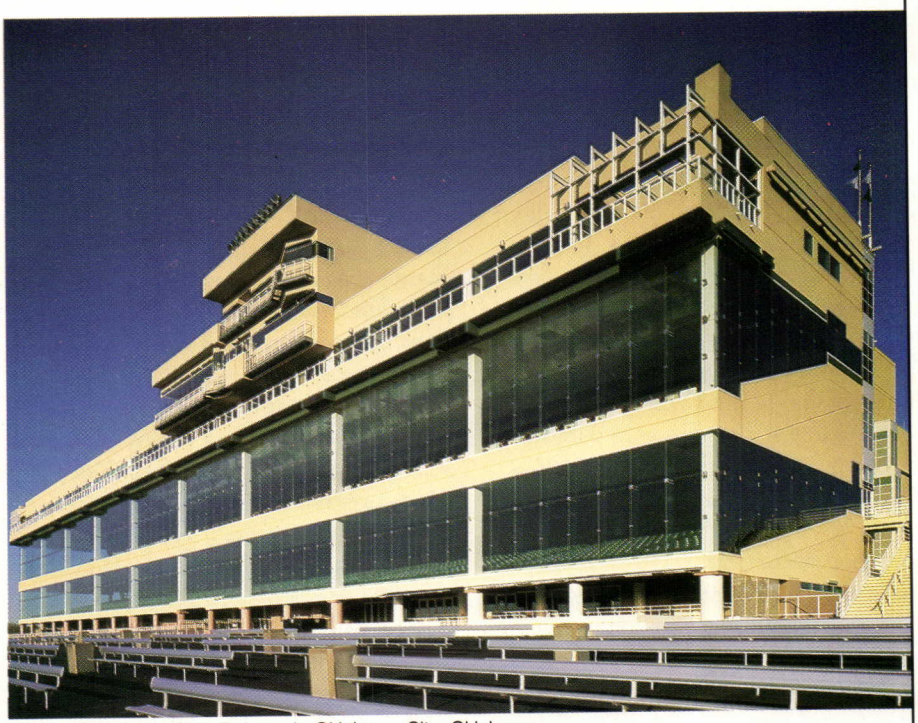


Project: Federal Judiciary Building, Washington, DC
Architects: E.L. Barnes—J.M.Y. Lee Architects
Product: Single Planar—Laminated Planar



Project: Remington Park Racetrack, Oklahoma City, Oklahoma
Architect: Ewing Cole Cherry Parsky
Product: Patch Plate System

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Products

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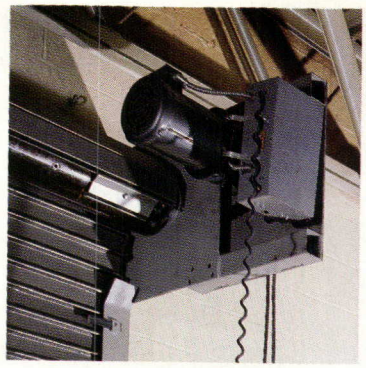
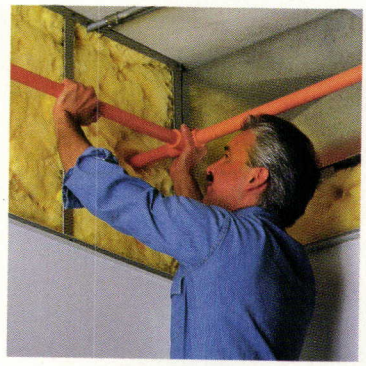
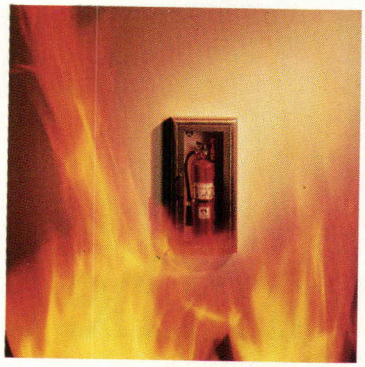
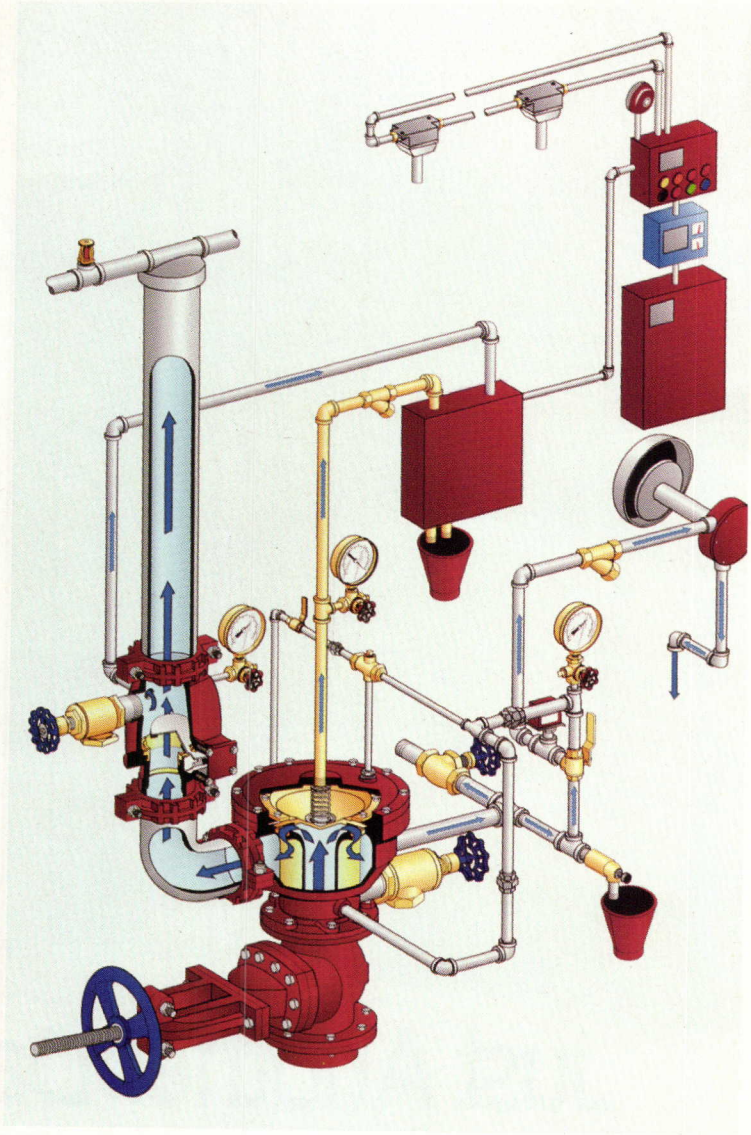






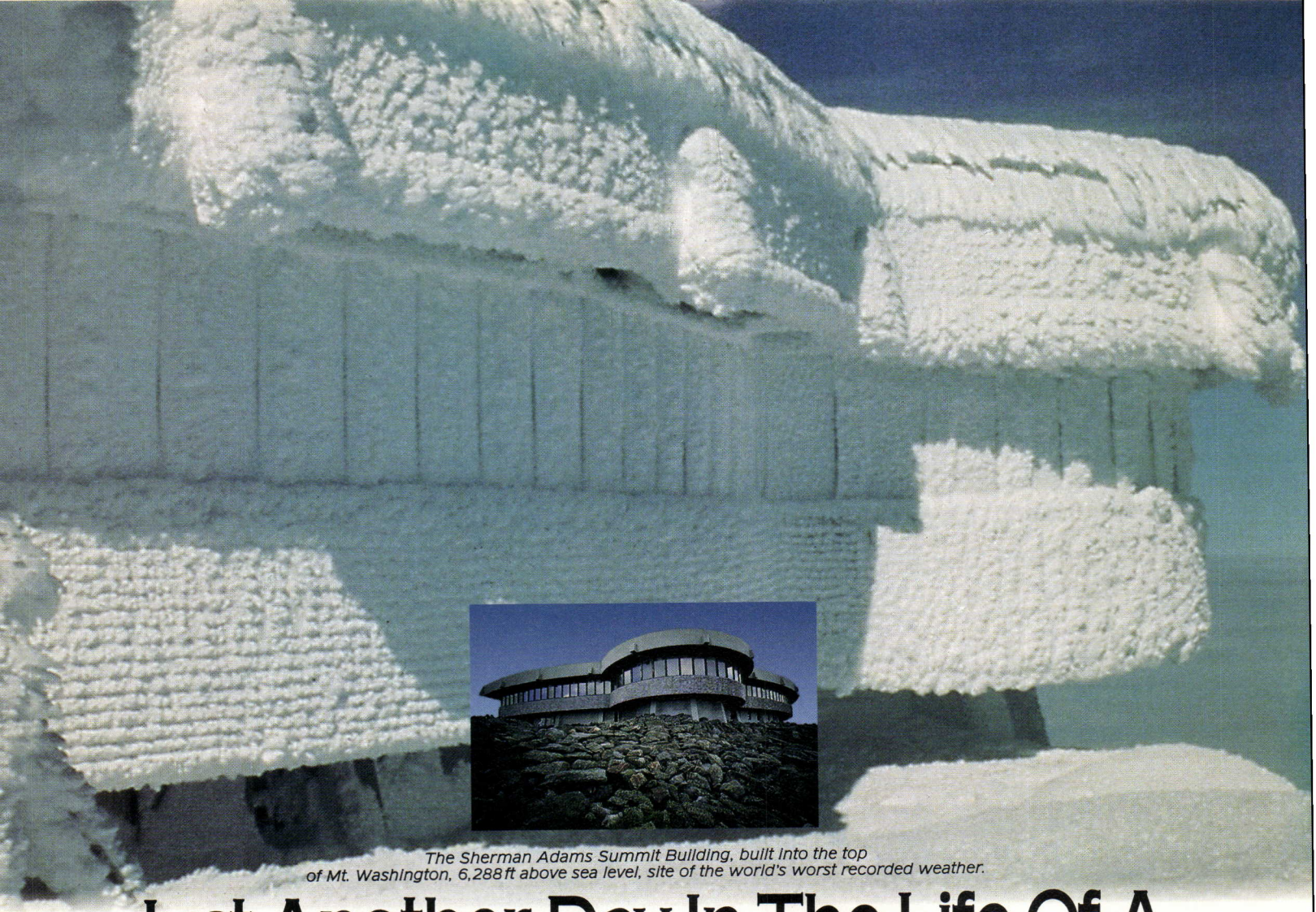


TOP LEFT: Cornell Iron Works manufactures a line of rolling fire doors. Its M100 Firegard's coiling unit can be recessed in a soffit or a ceiling and has been tested for 500 automatic closings and 50,000 open/close cycles. The door may be activated by a fusible link or a signal from a building alarm system or smoke detector. During a power failure, the M100 Firegard will release the door at a speed of not less than 6 inches per second and not more than 9 inches per second. This system is available on fire doors up to 32 feet wide by 24 feet high.
Circle 401 on information card.

CENTER LEFT: BlazeMaster piping and fittings for fire sprinkler systems are manufactured by BFGoodrich Company to reduce installation time and costs. The system is constructed of postchlorinated polyvinyl chloride piping and has been tested by direct exposure to fire, with temperatures in excess of 1500 degrees Fahrenheit. BlazeMaster piping can be installed in light-hazard occupancies and residential occupancies up to four stories in height, as defined in the standard for sprinkler systems.
Circle 402 on information card.

BOTTOM LEFT: J.L. Industries, based in Bloomington, Minnesota, has manufactured fire protection equipment and fire extinguisher cabinets for over 40 years. The company's Fire-FX Option cabinets are designed to be recessed into a wall without violating fire-safety standards. The cabinet consists of a double wall unit, with a 5/8-inch layer of insulation, which eliminates the need for additional insulation behind the cabinet. This construction reduces installation costs. The cabinet conforms to one- and two-hour combustible and noncombustible fire barrier wall system building codes. The Fire-FX Option is available on the company's Cavalier, Ambassador, Cosmopolitan, Clear Vu, Panorama, and Continental Series cabinets.
Circle 403 on information card.

ABOVE: The Viking Corporation, a manufacturer of sprinkler systems, has developed the Firecycle. This system is designed with very sensitive detectors to release water in the event of a fire, while limiting water damage and hazardous runoff. If a fire should reignite, the system will again release only the necessary amount of water to extinguish the fire and will continue this cycle until the threat of fire is eliminated. Firecycle is installed with dry piping, which is purported to eliminate water damage if a sprinkler is mechanically damaged. This system is appropriate for libraries, museums, and computer and telecommunications rooms.
Circle 404 on information card.



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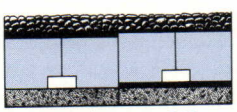

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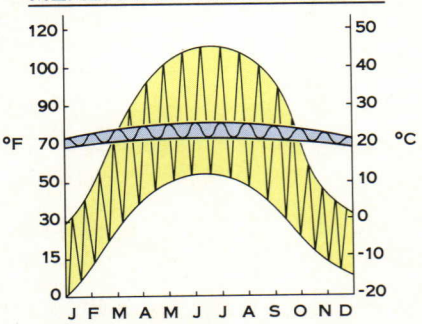

MEMBRANE PROTECTION (PMR vs CONVENTIONAL) Studies have shown that *a constant temperature can extend the life of the membrane.* Compare a PMR roof (blue line), where the temperature of the membrane remains constant, with that of a conventional roof (yellow line), where the temperature of the membrane fluctuates widely.

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Circle 89 on information card

Surfacing material

Corian, manufactured by DuPont (above), is offering 10 new colors, including five Sierra colors and two new textures called Venaro and Summit. With a color palette spanning 28 colors, this solid surfacing now complements a variety of woods and reflects current design trends. Corian is arranged into five color families with coordinating hues and patterns that will complement the manufacturer's complete palette.
Circle 405 on information card.

Zinc hinges

Hager Hinge Company offers a line of residential door hinges designed to provide high-grade performance with a rust-resistant finish. The hinges are coated with an environmentally friendly brasstone zinc dichromate, which is free of cyanide-based chemicals. This zinc plating is followed by application of a brass-tone chromate conversion coating, with a final clear lacquer coating.
Circle 406 on information card.

Acrylic shelving

Walker Display offers two additions to its Picture System. Its acrylic showcase and shelving units are designed to hang from the system's picture rods and are constructed of 1/4-inch clear acrylic. The showcases feature removable recessed shelves with either a 6-inch or 8-inch depth, a height of 18 inches, and widths of 24 or 30 inches. Acrylic shelves are available in 4- and 6-inch depths and widths of 12 and 18 inches.
Circle 407 on information card.

Water filtration system

Franke, a kitchen and accessory manufacturer, offers Triflow, a water filtration system (above). This system eliminates the need for a separate, filtered water tap on the sink deck. Triflow encompasses an independent waterway that runs through the faucet, as well as separate passageways for hot and cold water supply. A compact filtration system, located beneath the sink, contains a replaceable ceramic cartridge. Franke purports that the filtration system removes microscopic particles, chlorine, and contaminants. Triflow is available in traditional, Corinthian, and Modern designs in a variety of colors and finishes.
Circle 408 on information card.

Fire-rated glass

Glassprotex, a division of O'Keeffe's, manufactures a safety-rated glazing material called Pyroswiss. The glazing is applied on standard, fire-rated hollow metal or solid-core wooden doors; sidelights; transoms; and borrowed lights. The glazing can be inserted into standard, fire-rated framing and does not require caulking. It is purportedly 10 times more resistant to breaking than wired or ceramic glass and is available in dual-glazed, tinted, high-performance, or exterior applications. Its clarity is greater than wired or ceramic glass. Pyroswiss meets the Model Building Code's 20- to 30-minute smoke control assemblies in one-hour, fire-rated corridors.
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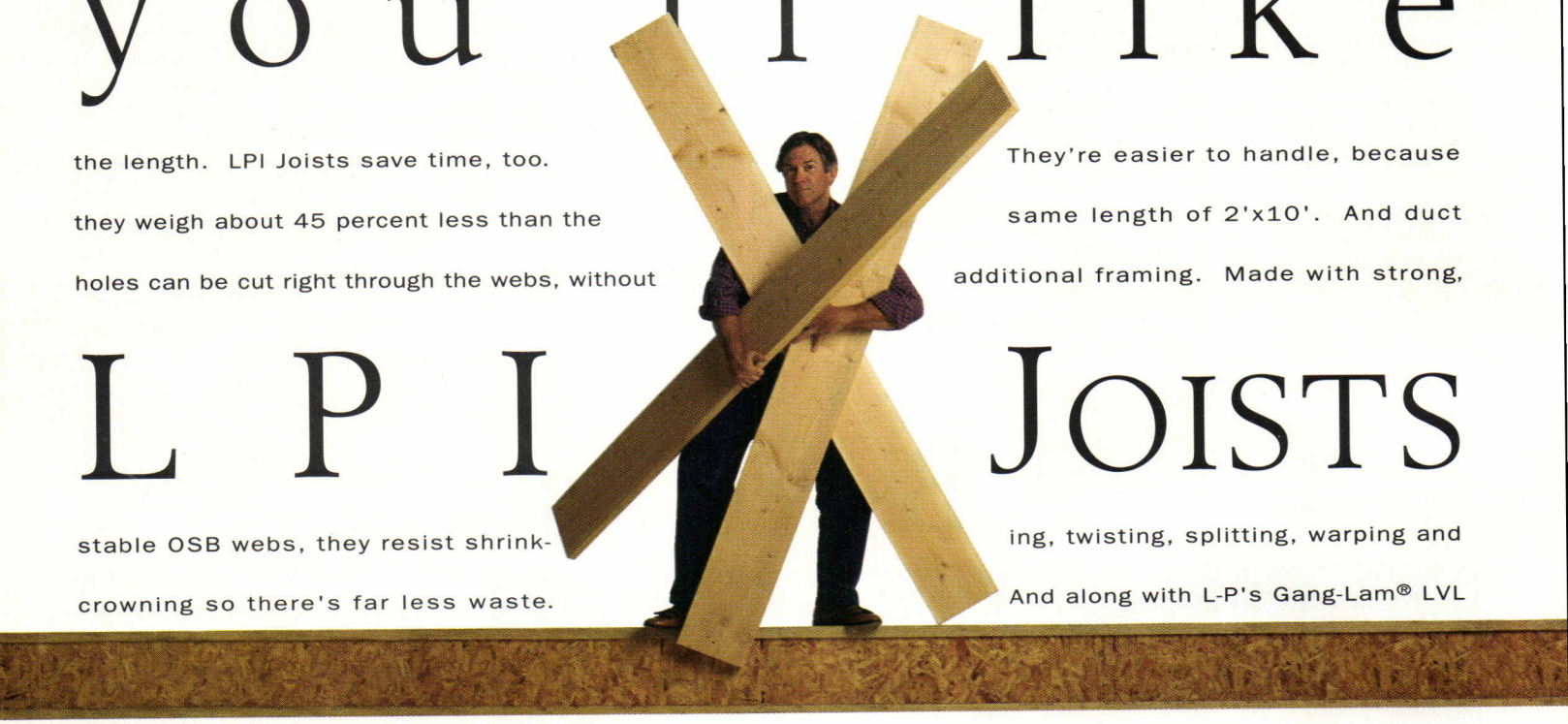

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stable OSB webs, they resist shrinking, twisting, splitting, warping and crowning so there's far less waste. And along with L-P's Gang-Lam® LVL

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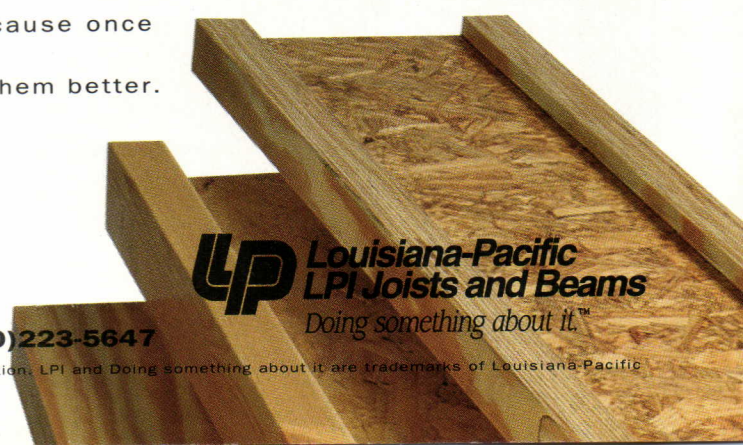
lumber.



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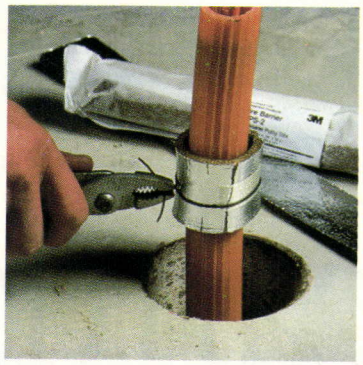
Circle 91 on information card

Latex paint

California Products Corporation offers Aquafleck (above), a water-based, multicolor acrylic latex paint designed for residential, institutional, commercial, and industrial applications. The finish has a class A fire rating and is purported to be virtually odorless. It can be applied with a roller; brush; and airless, HVLP, and conventional spray equipment. Aquafleck is offered in a broad range of base coat colors and 48 standard finish coat colors. This paint also features custom-color matching capabilities. This latex finish purportedly resists dirt and fingerprints and damage caused by mildew and humidity. It requires two layers and will dry in one hour. Environmentally friendly, Aquafleck contains half the ozone-depleting elements of other multicolor products. It is nontoxic, noncombustible, and lead- and mercury-free.
Circle 410 on information card.

Tile brochure

C-Cure Corporation, a manufacturer of adhesives, offers a full-color brochure for tile installation. The brochure details the company's expansive product lines of mortars, additives, mastics, epoxies, and surface preparations and specialty products for the setting of tiles. Application procedures and general properties of C-Cure materials are outlined, as well as illustrations depicting proper installation methods for substrates, walls, and other surfaces.
Circle 411 on information card.



Fire barriers

3M offers firestop systems and devices to prevent the spread of flames and toxic fumes through penetrations in fire-rated walls and floors that accommodate power, communications, plumbing, and ventilation systems. 3M's firesafe products include a fire barrier strip (above) that is wrapped around a flexible plastic inner duct containing fiber optic cable, which will automatically expand to seal the opening in the event of fire; a fire barrier plastic pipe device that will close off the penetration should the pipe melt or burn; and a fire barrier putty that surrounds communication cables penetrating a concrete floor. The company's systems are recognized by the National Fire Protection Association.
Circle 412 on information card.

Fire-rated door frame

Benchmark manufactures the Adjusta-Fit split-jamb steel door frame. This frame is available with prehung insulated doors and is designed for wood and metal stud or masonry openings; new construction or renovation; as well as inswing or outswing, and single or double doors. Adjusta-Fit meets national and local fire code requirements and is available already primed. This system is formed from a heavy-guage galvanized steel finished in a dry powder paint coating. The coating has a porcelainlike finish that is purported to provide better adhesion than a wet paint process.
Circle 413 on information card.

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Robert Hoover Production Director
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ADVERTISING SALES OFFICES

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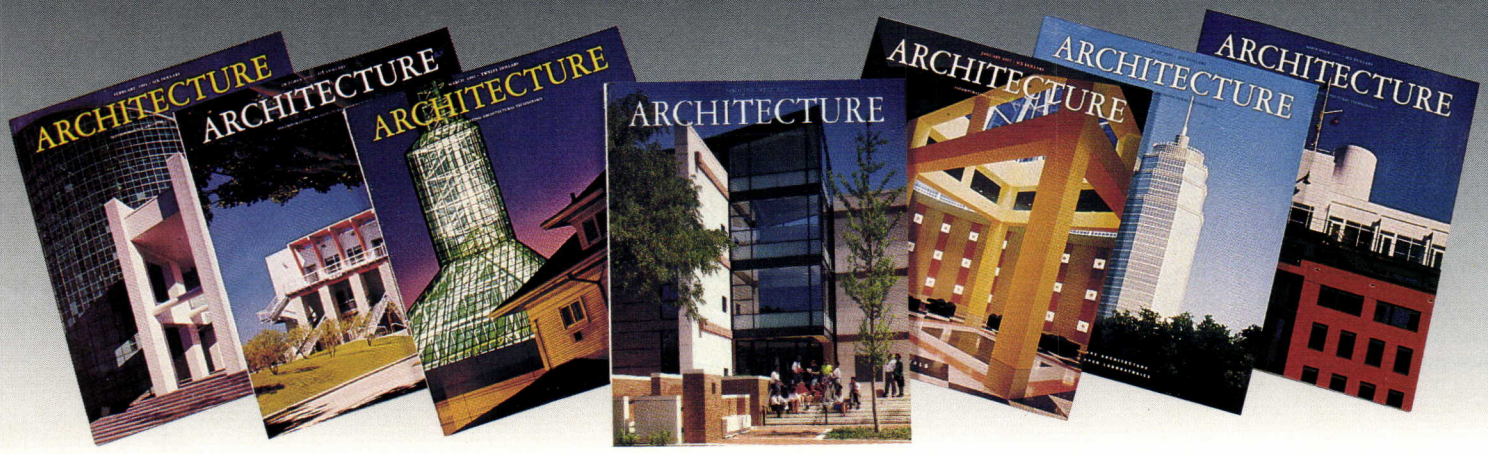

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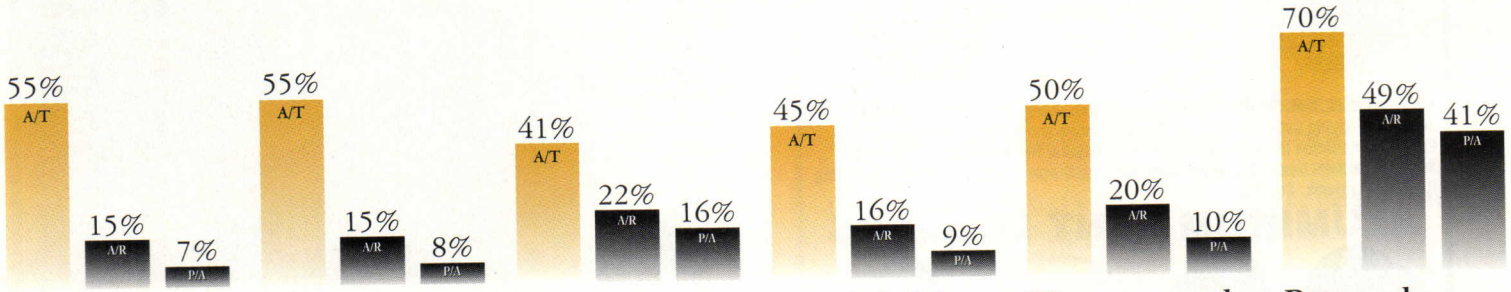

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AND THE INSIDE
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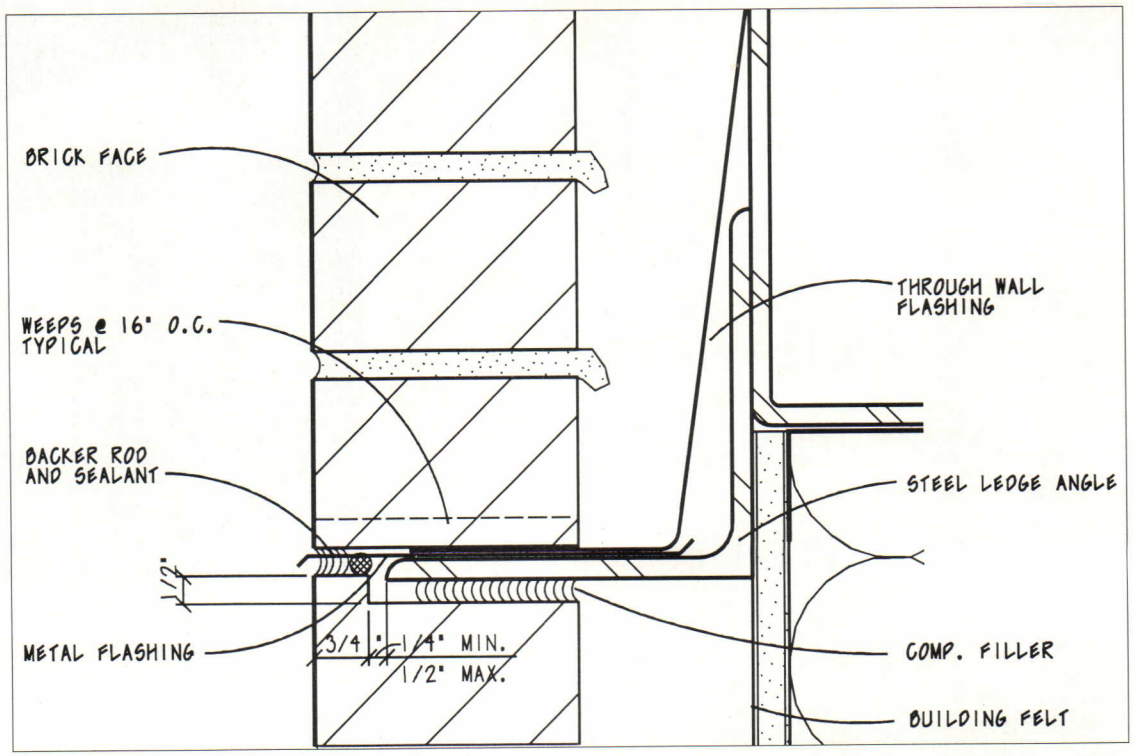

Moisture Protection

CSI Section 07000

Waterproofing concrete

Architectural concrete, a building material chosen to express purity of form and structure, has taken a backseat to lightweight, insulated, and waterproof building skin systems. Even in low-rise buildings where concrete loadbearing exterior walls are cost advantageous, veneered or panelized systems seem to be preferred, especially in geographic areas with prolonged rainy seasons.

It is difficult to waterproof exterior concrete walls without destroying the natural sandblasted finish. Although progress has been made by the construction industry to develop penetrating sealers for exterior concrete, these finishes are no substitutes for waterproofing. Sealers shed water and keep the concrete surface clean, but usually require reapplication every four to five years.

The good news is that there are effective materials available to waterproof concrete even when applied on the inside face of the wall. Many products work well even against hydrostatic pressure. These waterproofing agents consist of a mixture of Portland cement, sand, and other special chemicals that are applied as a brushed-on cementitious coating. When these materials are mixed with water, a catalytic reaction occurs that generates a nonsoluble crystalline formation of dendritic fibers (a treelike branching made by one mineral crystallizing in another) within the pores and capillaries of the concrete, which then renders the concrete waterproof.

Most of these waterproofing agents are nontoxic and meet the Environmental Protection Agency's strict requirements for application on structures that hold potable water. Since the specification varies from one manufacturer to another, architects should carefully check product literature. In virtually all cases, this crystallizing waterproofing material can be applied on moist or even uncured concrete without any problems. In fact, uncured concrete is the preferred substrate for such applications, since water is required for the catalytic reaction. Another advantage of this waterproofing is that it works well for renovations, because it can be applied to existing buildings, usually after a problem with water infiltration has been discovered.

In addition to these benefits, crystallizing waterproofing appears to be less costly to apply than most other types of waterproofing. This agent helps to establish architecturally treated concrete walls once again as a great material choice for many types of buildings.

Heinz K. Rudolf, AIA
BOORA Architects
Portland, Oregon

Through-wall flashing

Moisture penetration is the primary problem of metal-stud-supported brick cavity walls. The Brick Institute of America recognizes this dilemma, but like any respectable advocacy group, it refrains from too much advice—leaving the essential detailing up to architects.

To create a detail that both works and looks good, architects should consider three important criteria. The flashing connected to the wall felts should be flexible and resistant to ultraviolet light. Then, the drip should extend beyond the surface of the wall to allow gravity to work for the system. Finally, a flashing material should be selected by an architect on the basis of its esthetics.

We have developed a two-part through-wall flashing system to accommodate all of these requirements (drawing above). An uncured neoprene membrane with excellent thermal resistance is adhered to a 24-gauge PVF-coated section that creates an unobtrusive or colorful drip at the face of the wall. This detail works well when a special brick shape is installed with the lip pointed upward so that the joint width is constant through the wall. And, as always, the success of any detail relies more on accurate installation than on good design.

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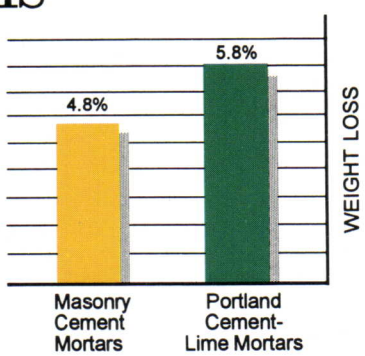

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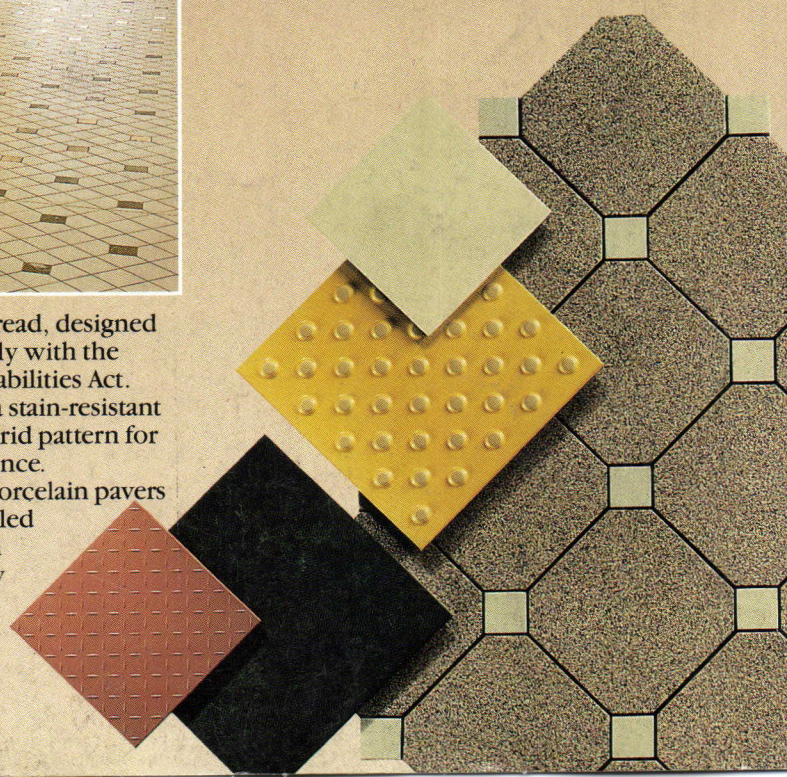

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