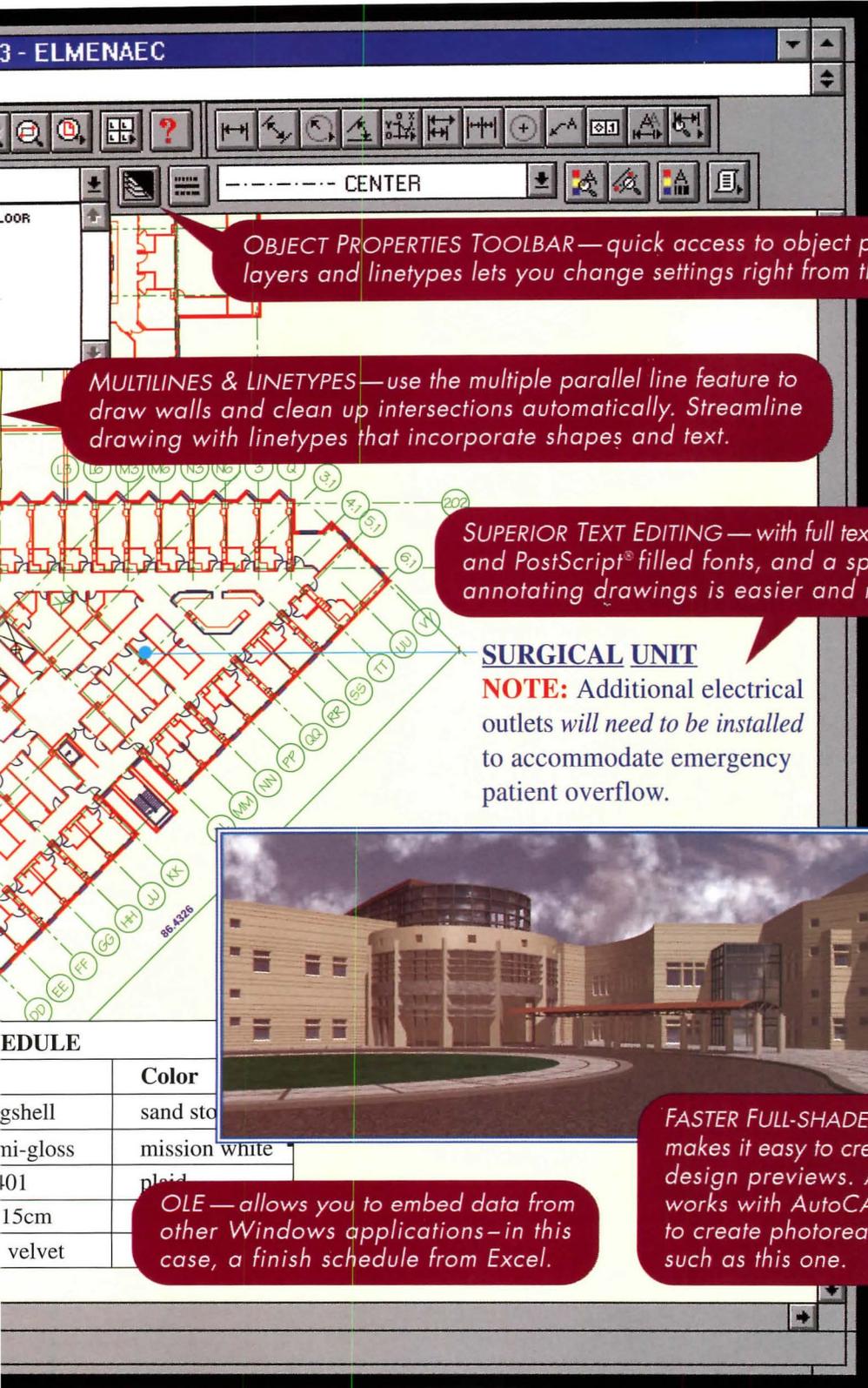


Hiccups



Birthdays



**OBJECT PROPERTIES TOOLBAR** — quick access to object properties like layers and linetypes lets you change settings right from the toolbar.

**MULTILINES & LINETYPES** — use the multiple parallel line feature to draw walls and clean up intersections automatically. Streamline drawing with linetypes that incorporate shapes and text.

**SUPERIOR TEXT EDITING** — with full text editor, TrueType® and PostScript® filled fonts, and a spell checker, annotating drawings is easier and more accurate.

**SURGICAL UNIT**  
**NOTE:** Additional electrical outlets will need to be installed to accommodate emergency patient overflow.



**FASTER FULL-SHADED RENDERING** — makes it easy to create and present design previews. AutoVision 2 works with AutoCAD Release 13 to create photorealistic renderings such as this one.

**OLE** — allows you to embed data from other Windows applications—in this case, a finish schedule from Excel.

SCHEDULE	
	Color
eggshell	sand stone
semi-gloss	mission white
401	plaid
15cm	
velvet	

demo. To order your free demo disk or to request the name of the Authorized Autodesk Dealer nearest you, call 1-800-964-6432 and ask for DemoPak R728. Outside the U.S. and Canada, please fax your request to 1-415-507-6142.

respective holders. Elmendorf Air Force Base Medical Facility 2D architectural, engineering, and construction drawings created by Anderson DeBartolo Pan (ADP). Site plan and landscape design created by Dowl Engineers for Anderson DeBartolo Pan (ADP). 3D extrusions and AutoVision rendering created by Autodesk Marketing Support.

**Stern Words**

Regarding your mention of Robert A.M. Stern's "Affordable, Adaptable Home" featured in June 1994's *Life Magazine* ["Bob Bats 500," *RECORD*, January 1995, page 15], I wrote a lengthy letter to *Life* challenging the house's affordability.

I lamented that, for what it would cost to build in the geographical area of my practice, Stern's house would not necessarily outsell an equally-priced house of far less character with more square footage and more property. Built with the changes recommended by a builder quoted in the article, the house would be undistinguished among the bland builder boxes which are taking over the suburbs.

It would be interesting for *RECORD* to follow the actual building of several of these houses to assess how they actually fare in meeting the challenge to build affordable housing for the middle class.

*Kevin L. Mason, Jr.*  
*Architect*  
*Westfield, New Jersey*

**Formal Credentials?**

I read with great interest your editorial about regulating the practice of architecture by the National Council of Architectural Registration Boards [*RECORD*, August 1994, page 9].

We totally support your views in the final paragraph saying "...but leave it up to the candidates to prepare themselves as best they can. The public has a right to expect safety; it also expects equal opportunity for all."

Because it's the U.S.A.'s equal opportunity for everything, especially education, that gives me hope to enroll in one of the uni-

versities in California. In most countries, to get a degree from a government-accredited school of architecture means we all have to start from square one of typical classroom lectures. For me, those 14 years of experience in architectural firms doesn't help much to secure a place in these schools.

*Stanley Wong*  
*Sabah*  
*East Malaysia*

**Satisfied Client**

I just read the wonderful article on the Banner Building project by Ed Weinstein of Weinstein Copeland Architects [*RECORD*, January 1995, pages 86-87]. I am overwhelmed by the insightful consideration you showed to the project and its "Mom."

Having been on the client end of the project, I have much to say about the courage and foresight it takes to be the first initiator. I think it is a genetic anomaly to feel so passionate about architecture and building. I cried when Ed showed me the first drawings; now here it is in all of its bold glory.

This year I am celebrating 20 years in business as a designer/artist. I think it is a great milestone for any business, but more so, even in this day, for a "Woman-Owned Business." This company has not only been able to provide opportunities for innovative design solutions with architects and designers for their projects, but has provided commissions for our own built projects such as our studios, two homes, and of course the Banner Building (all which have won various AIA awards for each firm commissioned).

*Koryn Rolstad*  
*Bannerworks, Inc.*  
*Seattle, Washington*  
*Continued on page 111*

**March 15-17**

WestWeek 95, Pacific Design Center, Los Angeles.

**March 31-April 2**

Monterey Design Conference at Asilomar on "Seeing Is Believing." Among the speakers will be Peter Q. Bohlin of Bohlin Cywinski Jackson; Samuel Mockbee of Mockbee-Coker Architects and professor of architecture at Auburn University, Canton, Miss.; Ted Flato, Lake/Flato Architects; Michael Bierut and James Biber of Pentagram Architectural Services. Call Donalee Hallenbeck at 800/886-7714 for more information.

**April 23-25**

Contract Interiors exhibition, sponsored by the British Contract Furnishing Association, will be held at Olympia's Grand Hall in London. Ring 0181/910-7872 or fax 0181/910-7930 for program information.

**May 5-8**

AIA National Convention and Expo will be held at the Georgia World Conference Center, Atlanta. For more information, call 800/305-7737.

**May 20-June 15**

World Architecture Exposition, to be held in Nara, Japan, in 1998, has scheduled a pre-event, the WAE Triennale at Nara, with symposia, lectures, and an exhibition of 21 young architects' works. Contact Mr. Kitamori or Ms. Tsunekawa at 1-1-1, Nijo Oji Minami, Nara 630, Japan, or call 81/742-34-1111; fax 81/742-36-0310 for details.

**May 23-25**

Lightfair International, Navy Pier, Chicago. Call 404/220-2217 for conference information.

**May 23-25**

The ICFF exhibit of contemporary furniture will be at the Jacob Javits Center in New York City. Call 800/272-SHOW for attendee information.

*Continued on page 111*



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Not a week goes by in any community in the country without XYZ Developer or John Smith College or the Jonesville Art Museum announcing that it had commissioned I.M. Pei or Phillip Johnson or Michael Graves or Frank Gehry or KPF or Cesar Pelli or some other "signature" architect to design the office tower or biology lab building or Modern Art annex. Or, in an admirable effort to widen the net, had invited a short list of three (or eight, or twenty-eight) celebrated firms to submit credentials or design proposals.

The outcry is immediate—and predictable. Aren't our homegrown firms good enough? What's it costing us to bring in an outsider, in fees and added construction cost? What do they know of our local culture, marketplace, the idiosyncrasies of codes, zoning, or construction practices?

On the surface these concerns have an element of merit. The decision to go outside gives the appearance of casting aspersions on the ability of local firms to provide the kind of service the commission demands. It seems to insert a hypocritical note into local clients' and benefactors' expressed commitment to helping the community when they go outside to confer plum commissions. Often, adding insult to injury, a local firm or two is added to the candidate mix to give the appearance of fairness to what is often a pre-wired decision. Moreover, a common practice is to divide the design contract so the "signature" firm takes the work through design development, whereupon a local firm, often designated as "architect of record," does contract documents and administration.

There's some justice, therefore, to the grumbling. But look at it from the viewpoint of the customer, the board of trustees or developer or city fathers who see this as an opportunity to get the very best design as they see it, whether in-house or imported. It supports the anecdotal axiom that good design adds value; that selection should be determined by standards uncolored by "motherhood" and local loyalties; that tapping an outsider challenges local firms to review their design values and hiring practices; and that it raises the level of public discourse by introducing possibly new ways of looking at the local vocabulary of architectural form and content. As to whether it costs less or more to bring in an outside firm versus going local, there is no real evidence either way, beyond the fact that it takes more of an outside firm's time to service an out-of-town client, that innovative designs have been known to add to construction costs, including change orders, but that a local associated firm can overcome many of these problems.

Don't forget a long list of historic precedents that includes Sir Edwin Lutyens and the Viceregal Lodge, New Delhi; Leblond and Rastrelli, who served Czar Peter the Great in designing the palaces in and around St. Petersburg; I.M. Pei and the Grand Louvre; Jorn Utzon and the Sydney Opera House; the many U.S. firms doing work in the Pacific Rim.

All of which brings us back to the underlying issue: what's wrong with hiring local firms? The answer is: nothing. A local firm should be allowed to do the work if its design record is of a caliber to seduce the client as customer and keeper of the purse strings. If it isn't, the client is at liberty to bring in any firm that raises the profile of the project (a story has it that the main benefactor of a newly founded New Jersey college insisted on a highly controversial outside architect on the grounds that the polemics would attract students); that delivers specialized expertise; or that builds on an existing, happy relationship.

Many firms are quite content to provide all services on some projects and "of record" services in case of an outside firm. As for the local firm that wants to step up its share of "signature" work, it can do so best by developing (or hiring) the kind of design or specialty expertise that has worked for the outsider. The magazines, to which many clients turn when seeking an architect, are constantly on the lookout for emerging local talent of the type that eventually grows into "signature" firms.

But such an effort must be in the firm's focus, and on its main agenda. *Stephen A. Klimant*

VENDING MACHINES CAFETERIAS ENTRY HALLS SERVICE  
COUNTERS ENTRANCES ACCOUNTING CHECK STANDS  
RESTROOMS AUDITORIUMS ELEVATORS OPERATING ROOMS  
DINING ROOMS COMPUTER ROOMS PATIENT ROOMS  
OFFICES RADIATION AREAS MAIN AISLES BOARD ROOMS  
CHAPELS UTILITY AREAS FOOD SERVICE AREAS  
HALLWAYS WAITING ROOMS LOBBIES EMERGENCY ROOMS  
LIBRARIES GYMS MAINTENANCE CLOSETS PIVOT AND  
FUNNEL POINTS FOUNTAINS ELECTRONICS CLEAN ROOMS  
ENTRANCE LOBBIES SALES AREAS SUPPLY ROOMS LDI  
ROOMS RECOVERY ROOMS VENDING MACHINES CLOSETS  
DELICATESSENS ELECTRONIC ROOMS CORRIDORS NURSES  
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## Paris

### Un Grand Projet: Portzamparc's Cité East



© Couturier/Archipress

Opened January 12, the final phase of Christian de Portzamparc's Cité de la Musique—Cité East—adds a public face to the music and dance conservatory opened five years earlier. One of the last “grands projets” to open during President Mitterrand's tenure, and one of the rare cultural venues in this northeast corner of Paris, the project aims to bring music from all disciplines and epochs to the widest possible audience.

Portzamparc's two buildings frame the Grande Halle, a turn-of-the-century slaughterhouse turned exposition hall at the southern entry to Bernard Tschumi's Parc de la Villette. These three very different architectures are typical of the stylistic cohabitation found on the city's poorer eastern fringe where, in an effort to increase



development, the government launched a remarkable wave of architectural competitions. The result is an overlap of cutting-edge designs and working-class neighborhoods.

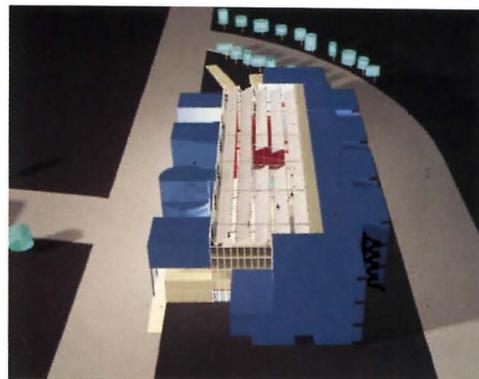
The newest arrival, Cité East, includes a 2,700-seat concert hall, a music museum with over 4,500 historic instruments, an information center, 82 lodgings for conservatory students, a cafe open to the exterior, a police station, and parking.

The many components of the 53,200-square-meter, \$120-million project are joined by a glass-roofed spiral street which doubles as the foyer for the concert hall. It is a space that Portzamparc, the 1994 Pritzker Prize winner, describes as a “conch sea shell” full of reverberations let loose into the city.  
*Claire Downey*

## France

### Winner: Tschumi's Architecture School

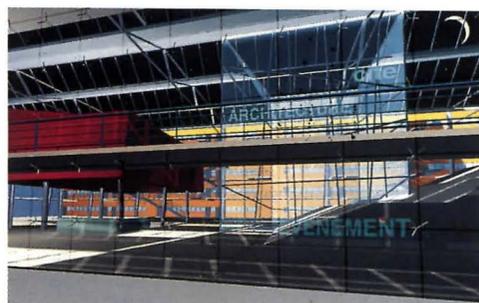
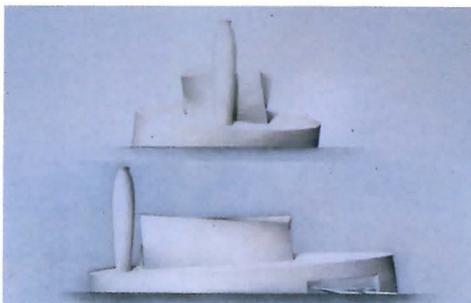
A vast internal forum animates Bernard Tschumi's winning design for a new architecture school on the outskirts of Paris. In Tschumi's scheme, the 24,000-square-foot “exposition hall” is carved out of a 200,000-square-foot block of studio spaces, computer studios, three auditoriums, and a library. A terraced grand stair—where students can comfortably loiter—sweeps down into the space from the studios and jury rooms above. But the school, designed for 1,200 students, is not meant to become an insular academic nest. Instead, Tschumi's mandate was to draw visitors here from the capital city for conferences and other activities related to architecture. He created a veritable architect's village. The school is a 30-minute drive from the capital city—in Champs-sur-Marne, alongside other university buildings by Chaix et Morel and Dominique Perrault, the designer of Paris' Tres Grand Bibliothèque. The first phase is scheduled for completion in 1997. *Nicolai Ourousoff*



## France

### Strack's Tomb for The Millenium

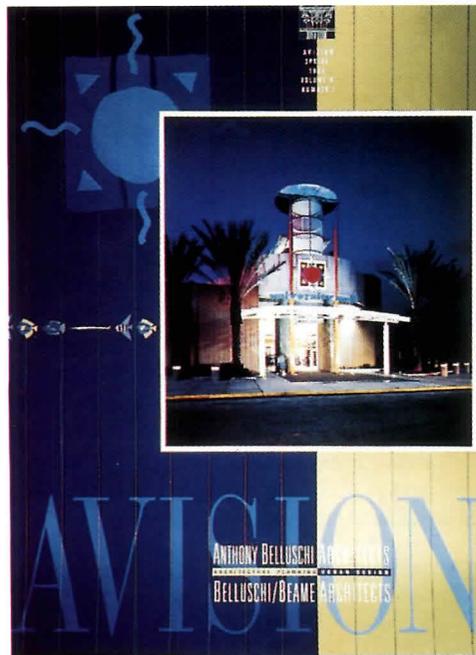
Philippe Starck's winning design for a sewage-treatment plant at Vitry, France, turns incinerating and recycling of garbage into a “mysterious” experience. The \$320-million sculptural tomb is set to start up in 2002. *Claire Downey*



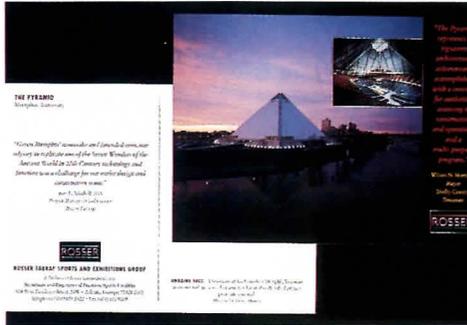
## SMPS Top Awards Honor 30 Marketing Professionals



1



3



2

Earth Technology Corp., Rosser International, and Anthony Belluschi Architects are three of the 30 winners of 1994's Society for Marketing Professional Service's National Awards Program. The awards, begun in 1979, celebrate a range of successful marketing strategies by architects. Earth Technology Corp. won for its 1993 annual report, which is layered with vellum overleafs depicting golden sand dunes (1). Rosser International, which designs sports facilities, was cited for a direct-mail campaign featuring a giant stainless-steel pyramid under a brooding red sky. The series of postcards—mailed out to potential clients—is stamped with quotes from the firm's partners about the projects (2). Belluschi won for elaborate company brochures (3) highlighting the diversity of the firm's work. They depict a pastiche of projects and images, most notably photos of a dizzying swirl of atrium stairs. Awards are presented at the society's convention in Chicago. ■

### The Netherlands

## Aldo Rossi's Glimmering Tower

Across the river from Maastricht's historic, romanesque monuments, Aldo Rossi has designed a haunting abstraction of a local factory to display the city's art. The brooding brick and stone-clad museum is built in the shape of an E. A grand stairway cuts the structure in two, rising up towards a free-standing, zinc-clad tower—the bulbous, silo-like form that is the building's most distinctive feature. The Bonnefantenmuseum, which will open this month, contains the city's archeological collection, Christian art, and sculpture exhibits. ■



## Briefs

- A year after Charles Moore's death, the future of his studio/house in Austin, Tex., is still in doubt. Last September, the University of Texas declined an offer to buy the property by Moore's heirs. A foundation has since been set up to raise funds to save the building: \$350,000 is needed to retire the mortgage and an endowment of \$1.5- to \$2-million should be in place for operations and maintenance. Meanwhile, the Austin chapter of the AIA is considering adopting the studio for its offices. *Gerald Moorhead*

- The family of Dr. Martin Luther King Jr. wants to build a \$60-million interactive park in Atlanta at the site where Dr. King was born and where his crypt lies. The proposal is part of the family's continuing efforts to block a federal-government plan to build an \$11.8-million visitor's center for the same site.

- A 1995 calendar that also contains a listing of all African American architects in practice in the U.S. is available from Jack Travis Architect, 227 West 29th St., NY, NY 10001, for \$5. Call 212/594-1122.

- Herzog and de Meuron, a Swiss firm, has won a competition to design the annex to the Tate in London. Rem Koolhaas and David Chipperfield were also contenders. The annex will be housed in an abandoned power station on the Thames.

- In conjunction with the International Markets and Practice Committee of the AIA, RECORD is preparing a survey of architects who are doing work abroad. Interested firms should contact Russell Keune, AIA, 1735 New York Avenue, NW, Washington, D.C. 20006. Fax: 202/626-7426. Deadline is April 21.

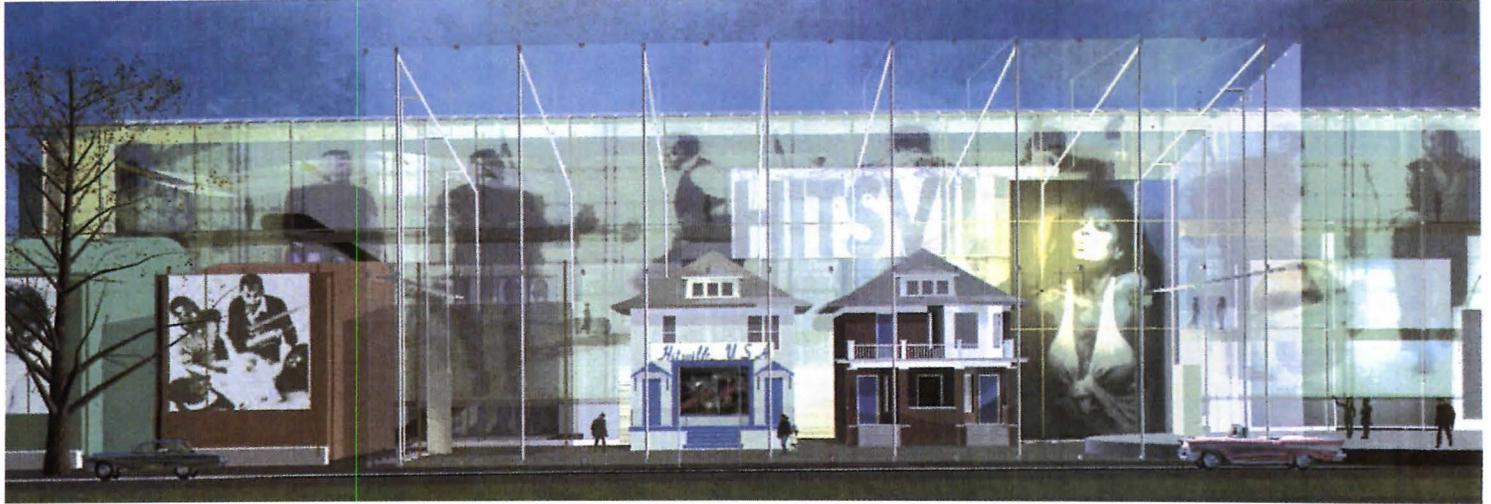
- Architect of the Capitol, George M. White, will not seek reappointment after his current term ends Nov. 21. White will have served 25 years in the post, which was established in 1793 and whose incumbent, unlike White, often has not been an architect. The AIA and other groups are working to redefine the posts's responsibilities, which comprise management of and housekeeping for the Capitol's 275 acres of grounds and the buildings that stand on them.

### Call for entries

Architects with work in Asia are invited to submit projects for possible publication in RECORD's third annual Pacific Rim section. Submission deadline is April 14. Send entries to Cliff Pearson, Associate Editor, 1221 Avenue of the Americas, NY, NY 10020. ■

## Detroit

# Motown Museum to Honor Platinum Performers



Atelier 4 Architecture has completed a tentative design for the future Motown Historical Museum in Detroit. The proposal, still in the conceptual design phase, encases fragments of the famed neighborhood—where Berry Gordy set up shop with a borrowed \$800 in 1959—in a giant, three-story, glass and steel atrium. Administrative areas wrap around two sides of the atrium, while three limestone

towers house the museum's permanent collection, which includes archives and a research center. The 800,000-sq.-ft. museum will include a 300-seat theater, a cafe, dance lounge, and a library/archive. A "Historic Hitsville" exhibition and a radio station/deejay booth are also planned. A giant media curtain is designed to loom over the entire space, forming a vibrant backdrop to the

atrium. Described as "an ever-changing show," the screen will be visible from the street—as if the museum itself were a giant video/TV display—and from planes landing at Detroit airport. Intended to be a true monument to a heritage that produced stars like Stevie Wonder, the Spinners, and the Marvelettes, Motown is now preparing a national campaign to raise funds for the project. ■

## Louisiana

# Tourist Center for Cajun Country

In wet marshlands 25 minutes north of New Orleans, a visitor's center will subtly draw on local culture and its natural surroundings for inspiration. Piazza Architecture's Tourist Commission Building—built in part for Hollywood location scouts—is divided into three interconnected "residential-like" buildings, to give it a human scale. Corrugated-metal roofs and 800 sq. ft. of covered pinewood decks reflect the local architecture. And the building is raised on stilts: most of the site is flooded during the hurricane season. ■



## Las Vegas

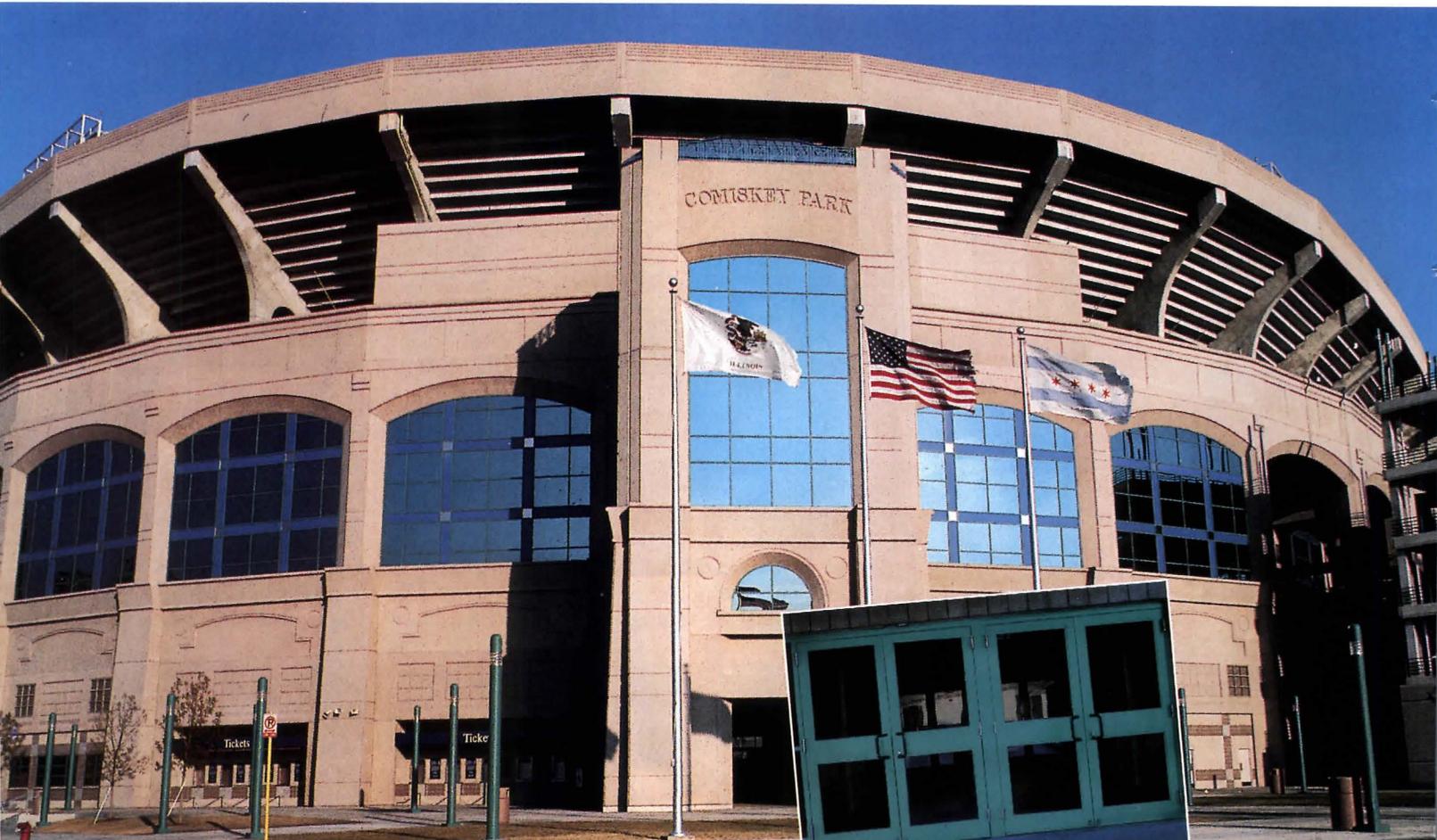
# Sober Landing for Vegas Visitors



Las Vegas' new airport terminal will be sober, not glitzy—at least on the outside. Tate and Snyder Architects, in association with Leo A. Daly, have designed a swooping concrete and glass terminal at McCarran International Airport. Outside, the building vaguely evokes memories of Saarinen's Dulles International

airport. Inside, the terminal is a theme park. Neon signs will mimic the city's strip-like streetscape, evoking a "bright, noisy, and visually exciting gaming environment." The \$180-million project will add 52 new gates—nearly doubling the airport's capacity. It is scheduled to open in early 1998. ■

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## Mid-sized Buildings, Houses Are Main Victims of Kobe Quake

*The Great Hanshin earthquake that struck Kobe, Japan, in the early morning of January 17 (on the first anniversary of the 1994 Northridge, California quake) will be extensively studied in Japan, the U.S., and elsewhere. It is the first instance of a direct hit by a large earthquake on a modern downtown area. The author experienced the earthquake (in Osaka, 27 miles from the epicenter and about 13 miles from the closest freeway collapse), and had the opportunity to enter Kobe with a Japanese TV reporter and camera crew 24 hours later. He was in Japan as one of a group of 40 U.S. earthquake experts and officials preparing for an Urban Earthquake Hazard Reduction workshop. By Christopher Arnold.*

First impressions of a disaster of this scale are powerful but necessarily incomplete. Yet, some authentic observations can be made and a few tentative conclusions reached.

Seismic design has progressed rapidly in the last 30 years. In particular, discoveries were made in reinforced concrete design in the '60s, and translated into codes and design practice in the mid '70s—both in the U.S. and Japan. The general requirement was to greatly increase the amount of steel reinforcing, and to place it so that, when shaken, the concrete structure behaves more like a steel-frame building and deforms without collapsing, greatly enhancing safety.

The world-wide economic boom of the '60s resulted in tremendous urban building development, much of it in reinforced concrete, so that today most cities have a preponderance of structures built with inadequate seismic knowledge, regulated by inadequate codes, and often inadequately designed. This pattern was true in Kobe. Buildings well designed to modern seismic standards (from the '80s on) performed well in Kobe in that they did not collapse and no external damage was visible. Statistically, even the older (pre-'70s) buildings did not do too badly, many spectacular failures notwithstanding.

Due to the time of the earthquake (5:46 a.m.) most casualties occurred not in office buildings, stores, on freeways, or in industrial plants, but in older wood houses with light wood frames, often with an open first floor

(for a store or small workshop) and a heavy ceramic tile roof over a layer of sand or soil. These dwellings are liable to sudden collapse and to fire caused by ruptured gas lines. In the cold January night air, many house heaters were on.

Looking for patterns of damage in bigger buildings, I noted the large number of structures in which an intermediate floor collapsed (2), with no sign of an architectural irregularity at that floor. A number of theories are circulating in engineering circles to explain this phenomenon, which can create terrible life loss in an occupied building.

Many building collapses and other severe damage could be traced to architectural irregularities, particularly "soft" first stories, that is, open or insufficiently braced. In concrete-frame or shear-wall buildings this often leads to overturning or first-floor collapse; in steel buildings the result is more often extreme distortion and effective loss of the building. Sources of additional damage were setbacks that created weak horizontal planes, and other irregularities that created stress concentrations and torsion, with severe damage to the structural resistant system. As in Mexico City, severe damage occurred to mid-rise buildings (up to about 20 stories), rather than the many high-rises.

In Mexico, one saw many "pancaked" buildings, in which floors are piled on one another due to column failure and lack of shear walls, creating devastating entrapment and casualties. While a few such failures were visible at Kobe, the main mode of total failure was overturning, in which the building remains intact, but topples quite slowly to a horizontal position. This was attributed chiefly to narrow buildings (common in Japanese cities) where mostly solid side walls remained intact. The damage to Kobe appears to be in accord with the level of ground motion experienced.

Earthquakes are not an aberration but a natural environmental phenomenon which we face, through public policy, by balancing risks against the economic costs to reduce them.

*Christopher Arnold is an architect and seismic authority in San Francisco.*

© Christopher Arnold photos



1



2



3

*Scenes in Kobe, hit by the Great Hanshin earthquake of January 17, 1995, show overturning caused by the narrowness of many buildings (1); "pancaking," or collapse of only one intermediate floor due to column failure or lack of shear walls (2); and collapse caused by a "soft" or open first floor (3).*



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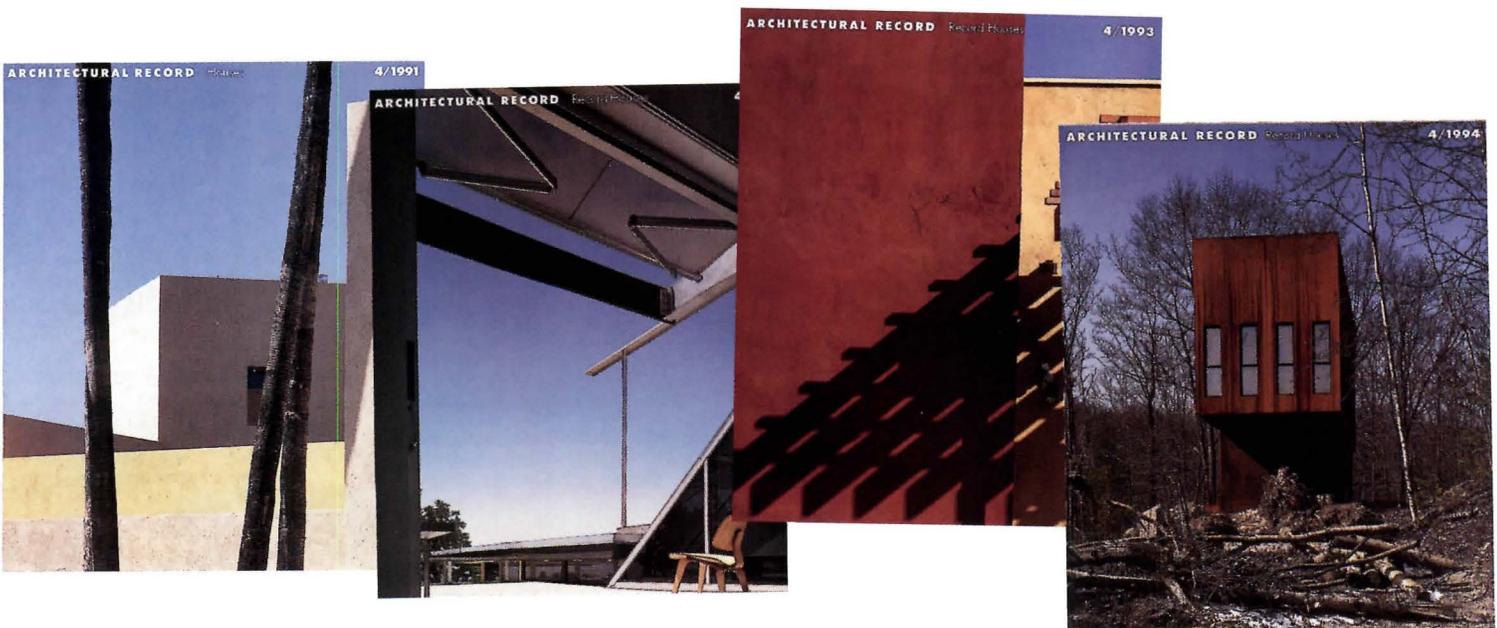
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## Trouble in River City

By Errol Barron

In case you hadn't noticed it, gambling fever is sweeping the nation. Once tinged with a slightly exotic, vaguely forbidden reputation, casino gambling is now perfectly legal in nine states (Colorado, Illinois, Iowa, Louisiana, Mississippi, Missouri, Nevada, New Jersey, and South Dakota) and is being seriously considered for legalization in 14 others. Casinos can also be found on Indian reservations in 11 states. [For a look at casinos along the Mississippi, see "On the Waterfront," page 100.]

Altogether there are 436 gambling establishments in the United States, of which 84 are on Indian reservations and 142 are riverboats. Since the boats are not legally required to cruise, they tend to stay in one place near town centers, becoming important parts of the urban fabric.

Powerful magnets drawing people from entire regions, casinos are raising complex planning and design issues, whether they are on Indian reservations, moored on rivers near financially pressed towns, or set in big cities. Backed by large corporations skilled at lobbying and power politics, casinos are a new force on the urban landscape—one that can move with alarming speed and intensity.

*Errol Barron is a partner in the New Orleans firm of Errol Barron/Michael Toups Architects and a professor at Tulane.*

once approvals have been granted.

There is a frantic exuberance to the national enthusiasm for gambling, a devil-may-care attitude associated with the kinds of baroque behavior found in societies harboring an ill-defined but palpable sense of desperation. One is reminded of Venice in the 18th century, with its great outpouring of architectural extravagance, just as its days of mercantile superiority were waning. While too convenient to cite here, ancient Rome also comes to mind. And there is our *fin-de-siècle* premonition that something very big is happening: ill-defined and perhaps malevolent.

For whatever reason, people are gambling (42 million in 1994, according to unofficial sources) and the amounts of money to be made are so astounding that city and state governments, almost universally facing large budget deficits, are looking at these opportunities with a combination of amazement, suspicion, and relief.

The historic city of New Orleans is no exception. The Crescent City is providing a textbook example of the threats of casino gambling to urban areas—especially historic districts—and of the inability of regulating bodies to react in an organized way to these major changes. So powerful are the casino forces and their promises to generate money that even this city, with its well-organized his-

*As gambling becomes the solution-of-the-month for fiscally strapped states and localities, some casinos threaten to behave like urban-design bullies.*

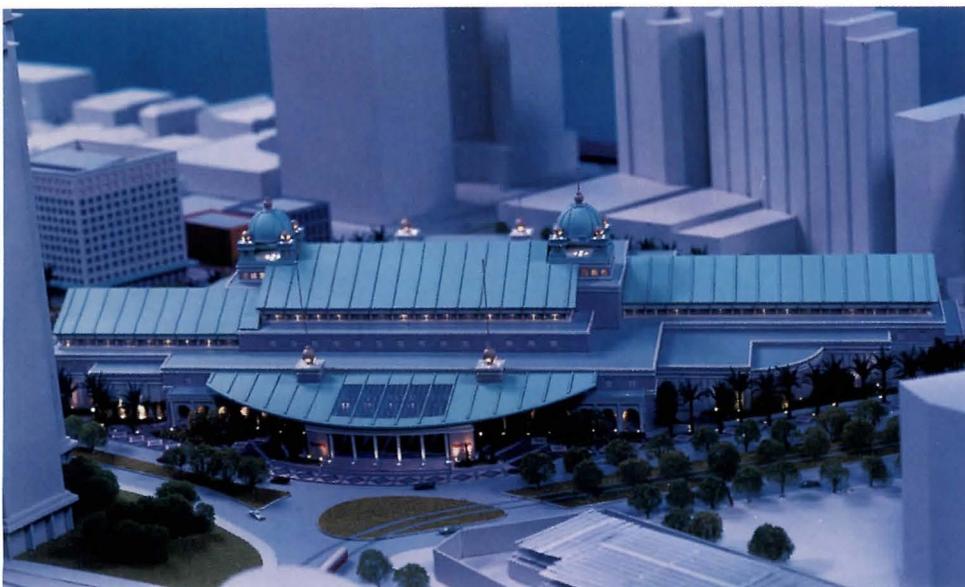
toric district agencies, including the second oldest historic commission in the U.S. (the Vieux Carré Commission) has been caught almost without recourse.

### Leaping at the chance

New Orleans is an easy mark. Poor but voluptuous, the city is too destitute to resist the licentious appeal of the casino proposals. Its politicians have leapt at the chance to realize an income for the city (and some say for themselves). With dwindling revenues from a virtually defunct oil and gas industry, a state burdened with a \$600-million debt, a harrowing crime record (second highest number of murders in the U.S. last year), and a burgeoning underclass (70 percent of all births were illegitimate in 1993), the local authorities were desperate.

The first attempt at obtaining a casino license was by Christopher Hemmeyer, a Hawaii-based developer who proposed the world's largest casino at the convergence and termination of the two principal commercial streets of the city (Canal and Poydras Streets) and the Mississippi River. The casino site, which has remained the designated location throughout the debate, is the point of several

*The approved casino plan by Perez Ernst Farnet Architects (below left) and the earlier Hemmeyer scheme (below) both sit on the site of the existing Rivergate (bottom right).*



© Frank Lotz Miller

*The Rivergate "with its swooping, extravagant arches and cantilevers looked more like a building of pleasure than the new design."*

curiously disconnected urban artifacts: a ferry landing, the Spanish Plaza, the Joan of Arc monument, the Aquarium of the Americas, the World Trade Center (perhaps Edward Durrell Stone's worst building), the Rivergate (an expressive concrete-shell convention structure), a shopping mall-office tower, and a huge public-service electrical substation. At the heart of downtown New Orleans, this site has a long history and a record of ownership that goes directly back to the King of France.

The Hemmeter scheme proposed closing Canal Street, with its historic connection to the river, to construct a huge casino and an adjacent "celebration park" that would feature a 22-in. deep lake in place of Canal Street and a meandering shoreline more Hawaiian than urban.

#### **A public outcry**

The sheer size of this proposal (over a quarter of a million square feet, much of it underground) and its exterior design based on—seriously—the Grand Palais Exhibition Hall of Paris rocked the local architectural community to its foundations. The mayor, who reminded some of us of the vulnerable Ruby Ruggles in Trollope's novel *The Way We Live Now*, enthusiastically selected this scheme and its developer without any public body seriously scrutinizing the deal. It was virtually a private courtship. Public outcry was intense. In the end, this flamboyant, almost ridiculous, confection and its \$30-million glass dome were thrown out when Governor Edwin Edwards, through a hand-picked Board of Commissioners, selected a group of local cronies to actually be the licensed operators for the casino.

A bewildering sequence of events was triggered by this decision. First, the "world's largest casino" simply evaporated before the public's eyes, giving way to a more sensible scheme to renovate the existing Rivergate. Within a short time, this conversion idea was replaced by the decision to demolish the Rivergate and build a new facility, this time all at one level, at grade. While it appeared to many that the Rivergate could and should be adapted, the jobs to be created by the demolition of the Rivergate (a \$5-million contract in itself) and the new construction argued for the new building.

The demolition of the Rivergate has become a curious and poignant affair. Designed in 1962 by Nathaniel C. Curtis, Jr., it was the world's longest thin-shell concrete structure. An expensive, well-made, expressive building, it became part of the local scene.

To save this building, conservative preservationists and the avant-garde worked together. The irony of changing tastes in the architectural world was briefly overshadowed by a union of disparate but sensible groups who recognized that this decidedly Modern building was not only well-built, but had qualities that the consumer architecture of the new casino lacked. To many observers, the old building with its swooping, extravagant arches and cantilevers looked more like a building of pleasure than the new design.

The structure that is to replace the Rivergate is the work of a team of local architects and is as compromised a building as the one which is being demolished is idealistic. It is a yeoman attempt to catch the mood of a casino, but it replaces the open vulgarity of the Hemmeter scheme with a staid, humorless design that uses exposition or transportation imagery as its source. Seemingly derived from a 19th-century train station, it embodies many of the problems of consumer architecture: little or no relation of the wrapper to the interior condition, a permissive use of an inappropriate building type as a model, and a relentless pursuit of the maximum number of square feet under one roof.

Although the building has two floors underground and a huge second floor, the gambling area is all at one level covering the whole site. Its windowless, hermetic, suburban form rotated at a willful angle to all the adjacent streets and buildings has a peculiar and disturbing relation to the city. It does make for a startling contrast by virtue of these characteristics, but—unlike the Duomo of Florence, for example, which looks like a hot-air balloon come to rest in the city center, the casino design is so low and stretched out that, rather than a joyous monument, it makes a hole in the urban assemblage.

As a composition, it is earnest but not artful. One yearns for the hand of the late Charles

Moore because he could have supplied the adjustments, the inflections, the flights of fancy that would have lifted this building type into the realm of successful urban design and delightful architecture. As it is, the building is not a delight. It is autocratic, an exercise in profit maximization. Lacking internal logic, it relies on bogus themes based on saccharin interpretations of Southern lore (a bayou theme here, a southern mansion theme there) to articulate its vast flat spatial condition. Cutting out daylight and other distractions from the obsessive world of gambling, it will sit in the heart of the city, gesturing insincerely while the slot machines whirl inside.

#### **More kitsch for the French Quarter?**

There is also concern over the casino's impact on the historic Vieux Carré, the city's French Quarter. While the beloved image of the French Quarter as a mysteriously foreign haven for artists, ethnic groups, and colorful characters is no longer completely accurate, many people fear that the world's largest casino will strengthen the commercial forces eating away at the historic district's unique identity. Higher rents will drive out all but the high-volume tourist shops which trade in poorly made kitsch, remarkable only for its repetitiveness from shop to shop.

And it has all happened without a serious planning body really involved in the process. The chief city planner was reduced to a pawn. The Historic Districts Landmarks Commission, which repeatedly criticized the scheme as far less desirable than the existing Rivergate, was ignored and became a helpless bystander. The community's architectural and planning professionals were relegated to the status of angry onlookers. Throughout the approvals process the project has been immune to public outcry.

As you read this essay, the Rivergate is coming down and the creation of the third largest footprint of any structure in the city is moving inexorably forward. One shudders at the prospect of this huge, undistinguished building rising in the heart of New Orleans; at the prospect of the casino failing financially, as some predict, leaving an empty steel-frame-and-imitation-stucco hulk in the middle of the city; and at the prospect of the same thing happening in 14 more states. ■



**Page 28****How We Talk About Design:**

*Designers can communicate the abstract and intuitive aspects of design with clients used to thinking in concrete terms. Product designers are showing the way.*

**Page 30****Architects Out of the Loop?**

*By tinkering with project delivery, owners are expressing their dissatisfaction with business as usual. Do alternatives reduce architects' authority?*

**Page 36****End of the Pure Design Firm?**

*Multi-discipline firms, with their focus on client service and efficient delivery, have much to teach all-design practices.*

Though design is central to architects' self-esteem and aspirations, its cultural profile seems lower and for all too many clients its importance is sinking. A Roper study commissioned for the AIA on how clients assess the value of architects' services showed that "the design statement or esthetics of the facility" was a major priority of only 66 percent of respondents, falling well behind fire- and life-safety and other crucial but more pragmatic issues.

An overemphasis on design, critics say, is making architects expendable. Yet Robert Gutman and other analysts still see design as the profession's primary tool for maintaining and improving both its cultural and professional status. Thus, within this section devoted to practice and technology, it's worth considering the uses of design in an era seemingly focused on bare utility.

In three related articles we look first at what architects can learn from successful product designers, who now speak a language clients understand. We also consider new project-delivery methods and multi-discipline firm structures. These offer solutions to long-standing problems, but also challenge the primacy of design—even the authority of the architect. Design's value, however, is too often conveyed only as "the esthetics of the facility." An AIA ad campaign is spreading a message that architects articulate too infrequently—that design can transform needs and constraints into something more valuable and more inspiring than the sum of the program's parts. *J.S.R.*

## How We Talk About Design

At a time when architectural design seems ever lower on clients' agendas, it is ironic that *product* design is enjoying unprecedented acceptance in the business world. It now "speaks" a language business understands: "I think more and more businesses have discovered that design has a bottom-line impact," explains Bruce Nussbaum, a senior editor at *Business Week* who covers design. Over the last few years managers became design converts as they recognized that design was chiefly responsible for the huge success of several prominent products. One example, the Ford Taurus, says Nussbaum, "was a design success, but was also a process success. It proved that if you bring the designers in at the beginning, you get a powerful impact."

Can the lessons of product design be translated to architecture? There are important similarities. Like architects, designers in industry must present issues that are often abstract, intuitive, or anecdotal to people who think in analytical, concrete ways and who look for measurable results. While architects and their clients continue to struggle with these frame-of-reference barriers, the business world is facing them head on.

### Designers vs. implementers

Business-oriented clients can discuss design concepts, says John Kao, as long as they recognize that "there will be different stakeholders, different cognitive styles, and different languages that have to be integrated." Kao teaches creativity courses at Harvard Business School. (He says he hates the word creativity, but hasn't found a better one yet.) "You have people who traffic in imagination versus people more rooted in a sensibility of implementation: marshalling resources, being decisive." He notes that all these qualities—otherwise considered strengths in a manager—can "close off the creative process." Successful companies learn to integrate the culture of design with the culture of implementation, says Kao.

Of course, it's not easy. For every Ford Taurus or Gillette razor, there are failures. Most people can't record a program on their VCR—that's a design failure. In another famous example, Xerox developed almost 20 years ago the basics of the graphical user

interface (the icons, "desktop," and "folders") that you see on the screens of Macintosh and Windows-type computers. Xerox didn't see a market; Apple Computer did. Indeed, the Macintosh is a triumph of design for ease of use rather than a technological breakthrough.

Some critics have argued that architects need to run their practices much more like clients run their businesses. "That's bad advice," says Bruce Nussbaum. "If you want to run a business, hire a business manager." There's a difference between understanding your client and *being* your client, he says. "You have to understand their needs and culture. Become a Peace Corps volunteer in the business, and build within that culture."

You accomplish this, says Kao, by developing a common language. Designers' input is often seen as more valuable when they help to build innovative team structures that get around the feedback failures innate to a linear engineering-to-marketing-to-design-to-manufacturing process. Thus it is foolish for architects to ignore non-traditional project-delivery methods or business struc-

tures (see subsequent stories). Just as important, says Kao, is to help managers recognize that, "too often design gets inundated by operational realities before all the ideas are out." If a client has, as he puts it, "a very narrow definition of design," the designer may have to take steps to change the nature of the dialog. You can't do it in a 15-minute presentation in the manager's office. You might have to go "off-line," as Kao puts it, even working in a separate, neutral place. In presenting ideas, Kao says, the designer "needs to have a sense of theater" to get the manager to look at issues in a less operationally determined light.

### How much design do clients need?

"I see lots of examples where design should be much more central to a company's strategy," notes Kao. A 1993 Roper study commissioned by the AIA showed clients most valued architects for their ability to design new buildings, obtain permits, and do space planning. A common frustration is convincing clients to go beyond these basics to create a special place or signature building. The product-design world struggles with a similar dilemma. Apple's interface was brilliant because it synthesized concepts familiar to non-computer users (file folders, trash cans) into a screen environment that "told" you how to use the unique and productive attributes of the computer.

"Bob," a recently introduced Microsoft interface for home computing, takes things far too literally. It presents an image of a tract-house living room, in which one opens "file cabinets" and uses the "phone." What it fails to do is show the user how the computer is not like a living room. "Bob is a cartoon idea of how people use these things," says Richard Saul Wurman. (Before embarking on various design and publishing ventures, Wurman was a practicing architect. He still thinks of himself as one—in the information realm.) He sees parallels to Bob in "architecture as decoration," where the outside often bears little relationship to the interior: "I think buildings should tell you about themselves. The architecture should tell you how to get through it. Transportation and hospitals—public buildings—need this the most. They're often fixed up by signage."

### Metaphors

*"You might have to go off-line."*

*"The dance of design"*

*"Improvising a duet."*

*"Going out to the woodshed."*

*"A call and response kind of improvisation."*

*"Starting out with the sheet music."*

—John Kao

*As business has discovered, learning to integrate diverse ways of thinking is key to design success. Architects can apply these lessons, too.*

### **The hard part: integration**

That the landscape is littered with bad buildings and failed product designs shows, says Kao, that “getting ideas is often the easy part. Translating them into something that has value is harder.” To succeed, he says, is to focus on designing a *process* that works better. Kao worked with London architect David Chipperfield to design a demonstration house for an exhibition in Germany that he calls, “the poster child for the new wired living environment.” Kao describes the process: “I took the role of the businessman. I described as exactly as possible what the requirements of the project were. That may not be the immediate frame of reference of the designer, but the dance of design is always within constraints. So the manager must define the constraints. I know very little about formal architecture. What David and I did is comparable to when two jazz musicians who play different instruments come together and improvise a duet. We needed to define a project space within which this improvisation could occur.

“In [jazz legend] Charlie Parker’s term, we went out to the woodshed—we had an environment in which we explored the idea intensively. We had to find out how to listen to each other. A lot of negotiation took place. It was a call and response kind of improvisation. Part of it was starting out with the sheet music—the requirements—and then we did some prototypes and renderings, which were a way to communicate, but were also a way to establish a common language that let us come up with a category-busting design.”

### **Designers’ dysfunctional self-image**

It is typical of Kao’s speech to communicate by metaphor and example, and it is done for a purpose. “The use of metaphors is to try and make creativity tangible, and to help make it part of an ongoing management agenda.” Indeed, Kao’s own agenda is to break down prejudices about design—some of which are reinforced by designers themselves. What he considers dysfunctional ways of thinking about creativity include the following: “It’s a divine spark that can’t be taught;” or “it involves the exercise of this kind of mysterious skill that must find its own level, like a gas that expands to fill the room,” or (affected, Bohemian persona): “We’re going to let

our hair down. We now have permission to be wacky and unusual.” Nussbaum sees a problematic self-image exclusive to architecture. “It has this Great Hero tradition, where an individual makes a fantastic statement by building a drop-dead house. That seems to be the driving force in architecture. That’s perfectly OK, but it points you in a direction away from changes in society that you should really grasp and use: downsizing of staff; [the fact that] in hospitals, everyone is walking around with electronic gadgets. Schools are changing for all kinds of reasons. Instead, architects are looking at a vision in their heads of the next big monument. Designers and architects are visual people, and they don’t read about business, about politics, about larger social trends. So the information they’re getting causes a real disconnect between clients’ lives and their lives.”

On an abstract level, this “disconnect” does not bother the public. The AIA’s Roper poll showed the public has a great respect for architecture. And last year’s hugely successful Frank Lloyd Wright exhibit at New York’s Museum of Modern Art only con-

### **Integration**

*“Ideas” translated to “value.”*

*“A design success, but also a process success.”*

*“Become a ‘Peace Corps’ volunteer within the business.”*

*“The building should tell you how to use it.”*

—Richard Saul Wurman,  
Bruce Nussbaum, John Kao

firmed the high esteem in which the great artists of architecture are held. It mattered little to visitors that Wright seemed unable to do a building that didn’t leak. But when people actually try and hire an architect, the architect’s vision can get in the way. All too often, architects not only see clients as the instrument to realize their personal artistic vision, they foolishly reveal this aspiration. It’s the last thing clients want to hear as they view the scary implications of building: an empty bank account; the vagaries of local approvals, construction cost, and delays; the criticism of colleagues if everything doesn’t come out right. Certainly clients say again and again that for architects to regard clients as mere patrons is patronizing.

### **Whose aspirations are we realizing?**

Successful design architects reverse the equation—their artistic vision provides a superior means for the client to realize her or his aspirations. You could call this a marketing ploy, but even well-known architects with signature styles typically prove to be good listeners, good facilitators of dialog, and good presenters. They know how to sum up inchoate needs; they synthesize aspirations into doable programs. That some have a patrician aura, or a flair for the dramatic often increases client esteem—as long as the designer shows that he or she is listening and responding.

While architects can learn much from design for business, there will always be a debate about the role of design. Judges for the 1994 Industrial Design Excellence Awards, juried by the Industrial Designers Society of America, played out a battle between the esthetic and the pragmatic in the pages of sponsor *Business Week*: “For years, designers who counted themselves as artists demeaned the profession and made it vulnerable to being evaluated on superficial, personal, esthetic criteria,” said juror Herb Tyrnauer, professor in the design department of California State University at Long Beach. In debating an award-winning backyard utility shed, Lela Vignelli, president of Vignelli Designs, of New York, replied, “The shed did not rust, did not rot, and cost little. OK, but so what? It looks horrible. It was a good example of the main contrast on the jury—between mere utility vs. illuminated design.” *James S. Russell*

## Architects Out of the Loop?

*By tinkering with project delivery, owners are expressing their dissatisfaction with business as usual. Do alternatives reduce architects' authority?*

By Robert Spencer Barnett

As alternate methods of project delivery gain market share, many architects perceive that their special, collaborative relationship with the client, enjoyed in the traditional design-bid-build delivery method, is being eroded. Can unique qualities of a design—which are often abstract, esthetic, or urbanistic—survive the rough-and-tumble debates over cost or schedule that become part of the process whenever a construction manager or developer is brought in early? Clearly, the answer is yes, but success can only occur when the architect understands the changed dynamics innate to these delivery methods.

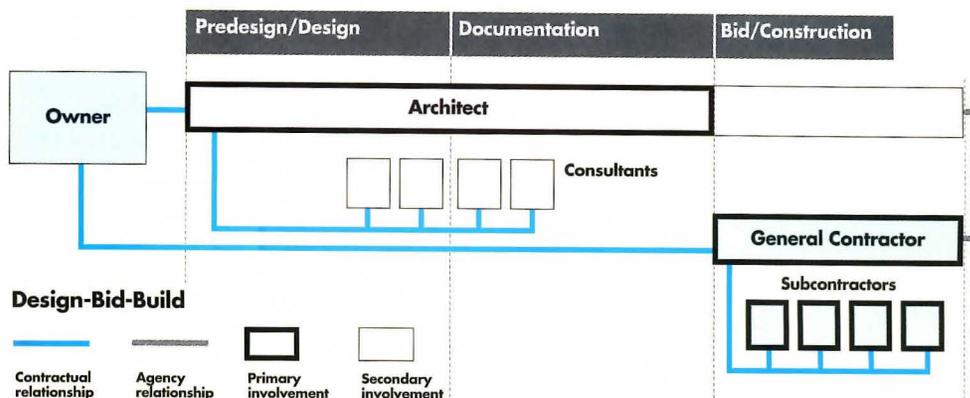
The conventional design-bid-build scenario has one thing going for it. The division of responsibility and liability is clear, whereas there are so many permutations of the alternative delivery methods described below and sketched in accompanying charts as to obscure clear lines of authority and liability. Construction Management (CM), design/build, and bridging require extremely close attention to agreements.

### CM: still controversial

Charles B. Thomsen, an early proponent of construction management, recalls one early client comment: "I wouldn't use CM unless I wanted to control time, money and quality." Who wouldn't, of course. Although CM has been around for 25 years, Thomsen, now president of 3D/International, tried to sell contractors and architects on CM when he was with Caudill Rowlett Scott (CRS) in the late '60s. Since then, he says, it's been received as either a "good thing or a communist plot." It's clear that construction management can be a good thing, at least in the private sector where procurement is not restricted to the lowest bidder.

With several notable exceptions (large A/E firms such as Heery & Heery and the former CRS), construction management became the domain of general contractors. As typically structured, a CM would provide preconstruction services such as estimating, scheduling,

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**Traditional Delivery:** *The conventional design-bid-build method offers clear lines of authority and clear divisions of responsibility. It's slow and inefficient, say clients.*

constructibility reviews and procurement of long-lead items. The CM negotiated a fee for its services and bid out the work to subcontractors and build the project. The form of agreement was the actual cost of the work plus a fee. Owners and architects benefited from the contractor's input in the preconstruction phases.

This CM scenario can work well when the budget is adequate to the client's program, and the client, architect, and CM together have a clear idea of scope. The process becomes more adversarial when the CM sells its services based on its ability to "value engineer"—i.e., cut money out of the budget. If the client's scope or level of quality has not been made clear or is negotiable, the architect may be put in the position of frequently justifying the "soft" intuitive, abstract, or esthetic elements of a design in the context of "hard" questions of cost and schedule. It is especially frustrating when the architect is placed in the position of redrawing elements of the project to meet an ever-declining budget.

Team members can master this dialog, however, by working with the client to explicitly establish goals and acceptable levels of quality. Many architects prefer working with CMs, who may take on costing and scheduling responsibilities that some firms are uncomfortable with. Tom Farina, a principal with The Hillier Group and former head of its CM subsidiary, Design Interface, sees construction management as "complementary" to the architect's services.

### Not all CMs assume risk

Construction management has more recently evolved in two directions, CM-advisor and CM-constructor. The CM as *constructor* offers the preconstruction services described above for a fee, including the division of fast-track projects into appropriate packages. The CM is "at risk," meaning it takes on the responsibilities and liabilities of a general contractor in bidding-out and supervising the work. In fast-track projects, the CM may negotiate a guaranteed maximum price (GMP) at, say, the end of the design-development phase. When documents are complete, subcontracts are bid out. The final price is the actual cost of the work plus the contractor's fee. When this arrangement works well, it permits a very close client, builder, and architect relationship that speeds the process and offers few unpleasant surprises.

It's usually not the cheapest method, though. Critics claim that CMs set high GMPs so that unexpectedly high sub-bids don't cut into profits. Though the buy out and construction savings usually accrue mostly to the client, the fact is the client might not have had to give up as much during design if the GMP wasn't padded [see also RECORD, January 1994, pages 30-33].

The CM as *advisor* provides the requisite preconstruction services, and may manage one general contractor or several prime contractors. The advisor approach is often suited to public-sector projects that require multiple prime contracts or competitive bidding. The CM-advisor is a consultant to the owner,

however, and is not at risk and liable for furnishing labor and materials. For some owners, especially those who don't have in-house staff with construction expertise, there are advantages. The owner gets the early-stage price and constructibility input, yet can still bid out all parts of the work.

But the CM-advisor role has problems, too. Because the contractors sign agreements with the owner and not the CM, multiple primes can point fingers at the CM or each other for schedule or coordination glitches. While a general contractor has a legal agreement that gives it the leverage to push a recalcitrant sub to perform, only the owner, *in consultation with the CM or the architect*, has this power in the CM-advisor scenario. If the owner is not a skilled or experienced negotiator, and contractors are aggressive or have underbid the project, project quality—even completion—can suffer.

Some see an overlap of the CM-advisor's role and the architect's role, especially during construction, which is why the AIA since 1993 has been urging architects to expand their knowledge to take on these services (via agreement documents B141/CMA and B141/ARCH-CM). Owners, however, are sending mixed signals. By increasingly choosing early-stage construction-advisory services, they are saying that they want the checks and balances offered by independent design and construction professionals. On the other hand, owners that find the single-source nature of design/build appealing (see below), may be amenable to single-source delivery that emphasizes the design side over the build side. Dan Rosenfeld, as an owner's representative for both real-estate developers and government clients (now he's a real-estate manager for the city of Los Angeles), feels strongly that CMs must be accountable, that they only add value to a team if they assume risk. For an architect-CM, though, the at-risk scenario adds considerable liability exposure and may create conflicts of interest.

Speed, achieved through fast tracking and concurrent engineering, is probably the greatest strength of construction management. In Texas, where speed is apparently as valued as size, the Department of Criminal

## Risks and Responsibilities in Alternative Project-Delivery Methods

### Design-bid-build

- *Pre-design:* Architect typically offers pre-design services such as programming and site selection.
- *Design:* Architect and consultants provide full design services including construction-cost estimates and schedules. Architect is liable for design efficacy and code compliance.
- *Bid/construction:* Contractor is responsible for construction cost, quality, and schedule. Architect, in consulting role, interprets documents and accepts or rejects construction as complying or not complying with documents.

### CM-constructor

- *Pre-design:* May be handled by the architect or the CM or both. Sometimes architects are hired by or through the CM.
- *Design:* The CM may assume all or part of the scheduling and cost-estimating tasks. CM advises on constructibility and cost of design elements. If a GMP is set, architect typically must design to meet CM's cost estimates. Architect remains responsible for design efficacy. If fast-tracked, the CM assists in dividing the documents into separately bidable packages.
- *Construction:* CM acts as general contractor. Subcontracts may be negotiated or bid. Architect offers typical observation and interpretive services.

### CM-advisor

- *Pre-design:* CM may offer many of the pre-design services typically supplied by the architect.
- *Design:* The CM may assume all or part of the scheduling and cost-estimating tasks. CM advises on constructibility and cost of design elements. CM can't set a GMP because it is not contractually able to enforce.

Architect remains responsible for design efficacy.

- *Bid/construction:* Projects can be fast-tracked, but owner is responsible for coordination of separate construction contracts. CM may offer GC-type services, but as a consultant to the owner. More typically, owner will hire a separate GC. CMs may assume some of architect's typical observation and payment-evaluation duties.

### Design/build

- *Pre-design:* The design/build entity may put together a variety of experts to address pre-design needs.
- *Design:* The architect is hired by the design/build entity, which typically interprets owners needs for designers. In-house "build" experts typically take on schedule, cost, constructibility, and quality-assurance tasks. Design/build entity assumes liability for design efficacy.
- *Construction:* Architects may interpret documents, but most other tasks assumed by design/build entity. Projects are typically fast-tracked.

### Bridging

- *Pre-design:* May be done by owner's architect, a separate entity, or a program manager.
- *Design/bid:* Owner's architect prepares a detailed scope of work and design. Design/builder completes documents, negotiates price, and builds. Owner's architect is responsible for documents it prepares, but design/builder is responsible for technical efficacy as well as price and schedule.
- *Construction:* Owner's architect acts as agent, interpreting documents. *J. S. R.*

Justice recently designed and constructed 32 new prisons for 10,700 prisoners in less than six months (opposite)! Four construction managers, including Turner, Gilbane, Brown & Root, and Fluor-Daniel, Inc., working under the program management of (and to the designs of) CRSS Constructors and 3D/International, Inc., carried out the program. Though standardized design elements, industrialized building techniques, and expedited approvals all contributed to the extraordinarily speedy completion, the electronic integration of data dramatically shortened the design phases. CAD drawing and specification files were developed, reviewed by CMs and clients, and updated in real time (i.e., participants could view changes on-screen over the network rather than wait for prints). Plotting and distribution of documents also took place over a computer network. E-mail, cellular phones, and laptop computers enhanced response

*Owners, in choosing construction-advisory services, are saying that they want the checks and balances offered by independent design and construction professionals.*

time (by avoiding phone tag). Charles Thomsen reports that a dimensional discrepancy was discovered in structural steel that was already fabricated and on site. In less than two hours a remedy was e-mailed to all 24 sites.

**When CM becomes PM**

An extension of the CM idea, program managers have become appealing to certain clients. On very large projects with multiple design and construction teams [as at Denver International Airport, RECORD, November 1994, pages 30-37], they offer administrative and technical expertise owners may not have in-house. Even on small projects, program-management teams may offer services that an owner's (nowadays smaller) staff can't handle. A PM may set up an overall project structure, including costing and scheduling management, and data management. Many participate in pre-design tasks such as site

selection and programming. Some may even establish early design concepts. PM teams may include architects, but are often made up only of engineers and development, construction, or real-estate professionals. The result may be a clear and well-thought-out program, scope, and budget for the architect to work with. Or the architect could be faced with design tasks that are process- or maintenance-oriented, and don't allow the architect-client give and take that can improve the design.

Like CM-advisors, program managers are not-at-risk consultants. Chris Leyenberger, first an architect, then a construction manager, now a program manager with Bovis Management Systems, sees the program manager role as critical for establishing an appropriate organization and process prior to initiating a project. Architects oriented to the process of managing design and construction

can certainly take on program-management tasks. Or a well-executed program-management scheme can permit the architect to do what she or he does best: design.

**The design/build dilemma**

Architects and engineers initially resisted design/build because it put the contractor in the driver's seat. Contractors who had hired a few designers initially marketed it as a means for owners to skip the complexities inherent in separate design and construction entities. Design/builders are still very strong in simple, commodity-type structures such as warehouses and pre-engineered strip-retail centers. In recent years, clients have tried to bring the advantages of design/build (an integrated, single-source team) to larger and more complex projects—with mixed results. The architect is typically concerned that the process puts the contractor between the architect and the owner, with the result that

process issues—schedule, cost, product availability—drive the project more than the client's long-term needs do.

Dan Rosenfeld, former Deputy Director of California's Department of General Services, promoted design/build for state projects because "the old method simply didn't work. The traditional design-bid-build projects took up to 10 years to complete, cost \$350 per square foot, and often yielded obsolete facilities." He found that a cost-driven design/build approach used for simple, utilitarian buildings, produced "the worst acceptable design." The quality-driven design/build competition approach, where design/build teams submitted design proposals to meet the state's budgetary and program requirements, was used for "signature" urban projects. *Although the process produced "great designs and great teams,"* Rosenfeld says, "the rules discouraged meaningful interaction between client and architect during the schematic design phase."

**One answer: design/build competitions**

Rosenfeld's qualms notwithstanding, public agencies have continued to experiment with "quality-driven" design/build on important public projects (especially GSA, see RECORD, August 1994, pages 24-27, and February 1995, pages 28-29). Typically, a general contractor and design team are led by a developer, which not only provides expertise, but may take an equity stake in the project (leasing the facility to the public entity for, say, 30 years). The team submits to a selection committee its technical qualifications and a highly developed design.

Because of their high profile and potentially conflicting selection criteria, these competitions can be controversial [RECORD, August 1988, pages 46-49]. What if, for example, the owner likes the design team, but is unhappy with the contractor? Though compensation for competing teams is now the norm, designers usually incur expenses well in excess of their stipend, a situation that typically excludes all but the largest, most well established firms.

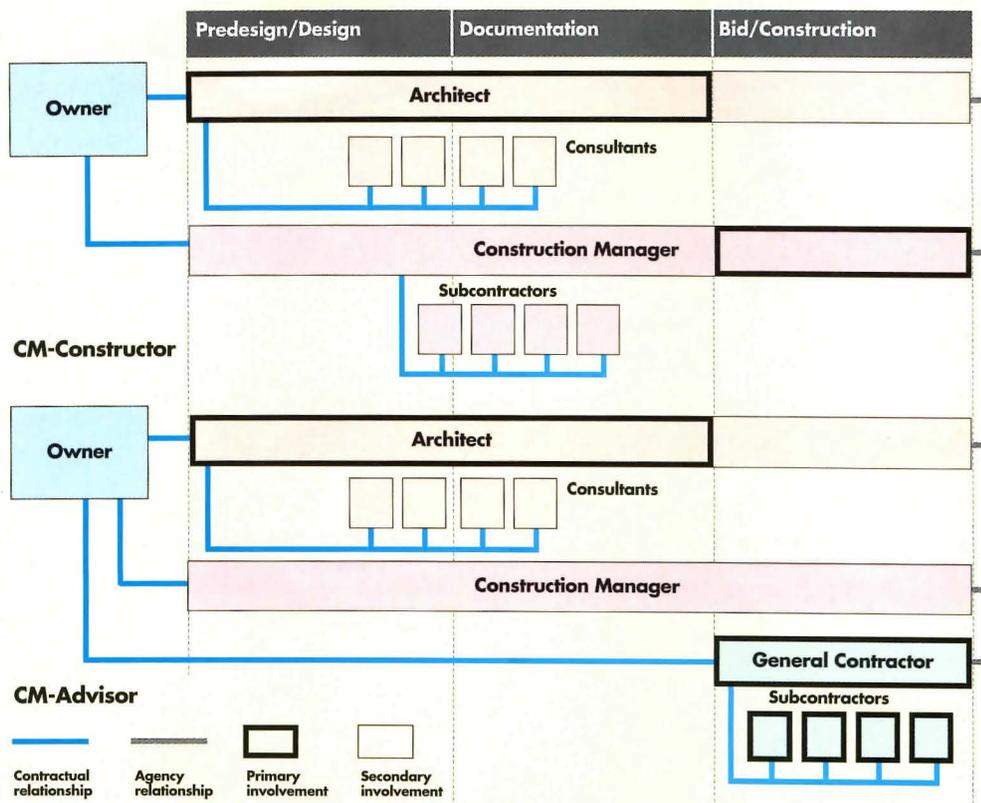
The scope definition prepared by the owner prior to the competition is also crucial to the success of the project. Two high-profile

design/build projects are revealing. The scope document for the Harold Washington Library, in Chicago, was assembled by Edward C. Wundrum, a competition advisor. It included a materials list prepared by the library that virtually guaranteed the building would have the monumental quality of an era before half-inch gypsum board replaced three-coat plaster and 3/4-in. stone veneer replaced load-bearing masonry. 3D/International, which prepared the criteria for the the Thurgood Marshall Judiciary Building, in Washington, D.C., stipulated that the building should endure for 200 years. Though such standards can't guarantee excellence, they certainly make it possible.

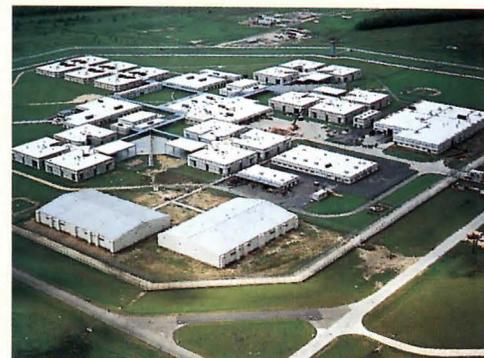
The owner in both cases was a public agency acting on behalf of a separate user. In competing for the Harold Washington Library, Paul Steinbrecher, of design architect Hammond Beeby and Babka, says the firm focused on the user—the library staff—as the true client. He believes that their team won the competition because they had addressed the library planning issues better than their competitors.

John Lee, of John M. Y. Lee Architects, says “the developer is the key, to bang the tables and direct the meetings.” (His firm, with Edward Larrabee Barnes, designed the Thurgood Marshall Judiciary Building.) In Chicago, weekly meetings of the chief executives of the library’s SEBUS consortium (which included developer U.S. Equities, builder Schal, and architect A. Epstein & Sons as well as Hammond Beeby and Babka) resolved internal issues. Then SEBUS would meet with the city, which functioned as an “appellate court.” In these cases, the architect was farther down the hierarchy of review and decision-making than would have been the case with a more traditional delivery method, yet neither architect felt cut off from the client, as is often the case with design/build in its more rudimentary forms.

Another reason the projects worked is that both were well budgeted. Each was more than \$100-million and was designed and constructed in about three years (not counting the scope-development stage and design-team selection period, both considerably longer than the traditional method). And the



**Two ways to CM:** Many architects prefer the close working relationship that's possible in a CM-constructor process. When the CM is well-versed in technologically demanding building types, the greater control that the owner can exercise over scope and time may make up for the somewhat higher costs this technique may entail. The “advisor” method adds another consultant layer to the process—useful to those clients seeking lowest construction cost (through bidding) while benefiting from construction expertise during the design process. A CM process was used to build thousands of new jail cells for 24 Texas correctional facilities in a matter of months. Shown in lower left of image is a 334-bed dormitory addition to the Mark W. Stiles unit in Beaumont. Architect is CRSS+3DI.



© Skycam Photography

process did permit rethinking as clients became more acquainted with the competition-winning schemes. Both architects reported changes galore. In Chicago, the contract documents, which consisted of over 80 sheets of competition drawings prepared by the design team and the design brief issued by the City, were the baseline against which all changes were evaluated. According to Steinbrecher, the process permitted reallocation of resources as long as the budget wasn't exceeded. Where scope changes clearly exceed the budget, however, the design/build process may fail to address the cost issues, as in GSA's courthouse-building program.

**Bridging: best of both worlds?**

Fritz Kastner explains that client UCLA was frustrated "at continually being taken to the cleaners by change-order artists." Thus, Kastner's firm, Stegeman and Kastner, a program manager, is overseeing 908 off

bridging "combines the advantages of design/build with the traditional strengths of competitive bidding. The traditional process hinders the contractor's collaboration with the architects—but design/build hinders the client's collaboration."

This lack of interaction led Rosenfeld, when he was at California's GSA, to a similar approach which he describes as "modified design/build." (He actually adopted a three-tiered approach, in which the delivery method was matched with the state's objectives.) A design team, selected on the basis of quality, worked directly with the state to produce 20-percent-complete construction documents for bid. The balance of the project delivery was handled by a design/build team. Like Thomsen, Rosenfeld concludes that this two-step process provides the "best of both in terms of cost and quality." The down side of this approach is that the succeeding team, if

its cost. In traditional methods, the owner is typically responsible for additional construction costs, though the architect may have to redesign without additional compensation.

**Learning to collaborate**

At base, the search for the perfect project-delivery method comes from the failure of older methods to meet owners' higher expectations. Projects are growing in complexity and clients want them sooner. At the same time, they don't want to pay premiums. In traditional methods, the client would seek the best design from the architect and the lowest cost from the contractor. There is an adversarial nature to this method that was supposed to work to the client's advantage. With today's more complex building technologies, contractor quality and delivery are as important as price, and the architect must inevitably focus more on what's buildable by the contractor.

*"The traditional design-bid-build projects took up to 10 years to complete, cost \$350 per square foot, and often yielded obsolete facilities."—Dan Rosenfeld*

campus-housing units for students with families using a hybrid of traditional delivery and design/build. Under this method, the university hired an architect, with the full complement of consultants, to prepare documents to design-development level. At the same time, the client, using quality-based selection, invited four design/build teams of architects, engineers, and contractors to submit lump-sum bids based on these documents. Once selected, the design/build team became responsible for the completion of the documents and construction of the project. The key to success, according to Kastner, was to develop bid documents with very little "wiggle room," but which invited the contractor to use its "innovation and expertise" to create cost and time savings.

This process is called "bridging," and its promoted by both Charles Thomsen and Heery, which invented it. According to Thomsen,

it low-balled its bid, has an incentive to blame the designers for flaws or overruns. Exactly this problem created havoc at the Denver International Airport. Thomsen replies that bridging, in essence, is widely and successfully applied internationally.

A couple of key aspects of bridging may trouble tradition-minded architects. One, is that Thomsen thinks the owner should own the documents. Then the owner can take the documents to a different design/build team if the original entity fails to meet its contractual obligations. Further, Thomsen sees bridging as delivering a product in which a higher standard might be applied than the usual "standard of care" that courts enforce when disputes about architectural design arise. If the design/build contractor fails to meet the design requirements of the design architect's contract documents, Thomsen feels the owner can force the design/build team to fix it at

Architects can focus too much on specific delivery methods, according to those long involved in improving the construction process, such as Thomsen or management consultant Weld Coxe. What's more important is improving collaboration among design and construction-team members. Coxe and Thomsen are proponents of partnering. "It focuses on opening the channels of communication, installing systems for resolving problems, and defining project goals for those who must work together," says Thomsen. Coxe suggests that the current interest in design/build is "nothing more than client-driven partnering." With Mary Hayden, Coxe conducted a study of design and construction practice in eastern and western Europe, North America, and East Asia for the International Union of Architects (UIA). They concluded that "informed clients continue to demonstrate a preference for strong, independent (influential) architects to be on their side through the building process." They perceived client pressure "to improve the working relationship between designers and contractors without subsuming one to the other."

This sentiment is repeated by owners, architects, and contractors alike. Dan Rosenfeld, who once was a project executive for the real-estate-development firm Cadillac-Fairview,

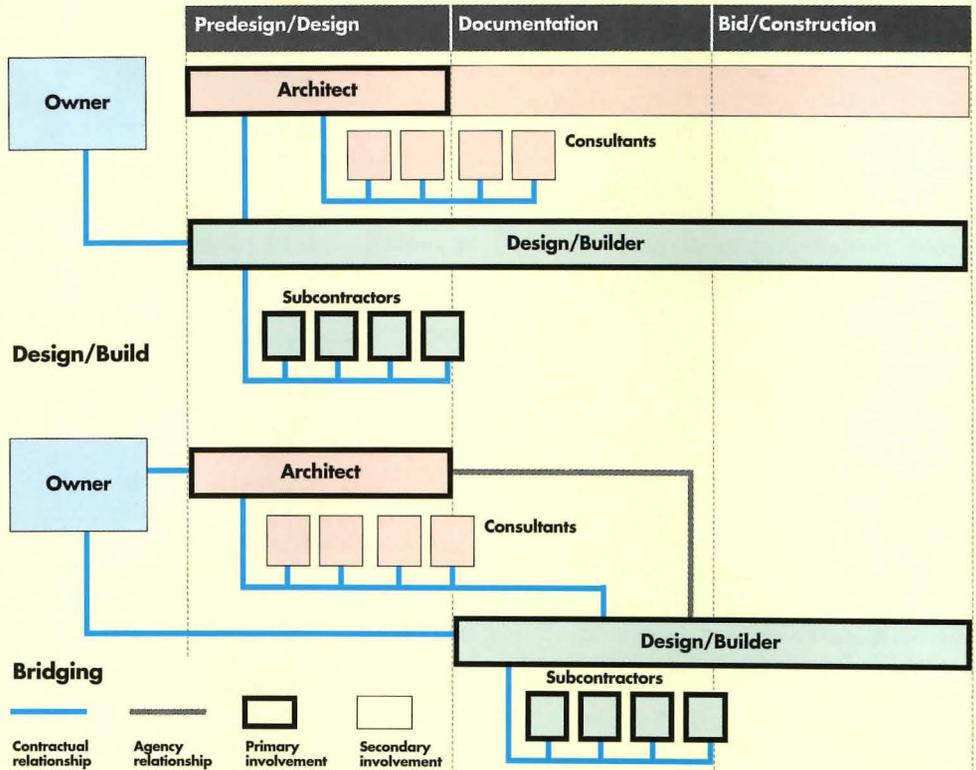
says that an owner will make good decisions if he or she is being advised from “day one by reasonably qualified architects and contractors.” The system of checks and balances where the architect typically advocates quality and the contractor advocates cost consciousness is welcomed by the owner who wants the responsibility for decision-making. Alan Chimacoff, Director of Design for The Hillier Group uses adjectives such as “intelligent, cooperative, strong, concerned, clear, and productive” to describe the attributes of members of owner-architect-contractor teams that produce the highest quality work. While these attributes might describe any successful project-delivery method, the point of partnering is to focus specifically on developing these attributes, and on resolving disputes at the earliest possible time.

Partnering is intended to reward independence and competence as long as it is combined with open mindedness and respect. Partnering sessions proceed from the beginning of the project, so that the groundwork is laid for day-to-day conflict resolution.

**Taking responsibility is key**

From the Jersey Devil—a renegade team of architect-builders who literally move in with the owner to design and construct a building—to the “green eyeshade” drafting room employees of the pre-engineered building “package dealer” (the 1960s precursor of today’s integrated design/build firms), project-delivery methods continue to proliferate. The pros and cons of each methods can boggle the mind of clients. Architects may find themselves in the position of not only proving the worth of their own firm, but of the delivery method or methods that it prefers. While many architects would like fewer project-delivery choices, it’s clear that clients will continue to consider new methods as long as existing ones aren’t satisfactory.

Pessimists see each permutation as a road to architect marginalization, even extinction. After studying world trends in private practice, Weld Coxe concludes: “There is a close relationship between the degree of responsibility architects accept for the fulfillment of their designs, and the social and economic status of architects in the community or society in which they practice.” ■



**Two ways to design/build:** *Though the advantage of design/build for the owner is a single source for all services, the disadvantage for the architect is that he or she is working for the design/build entity, and not the client directly (top). Bridging seeks to solve that problem, by having an “owner’s architect” that is responsible for interpreting the owner’s needs into a bidable combination of drawings and performance specifications. Charles Thomsen feels that this technique works best when the owner’s architect contracts directly with the owner, not the design/build entity. Though consultants are shown as shared in the above diagram, some would argue that the design/build team should have its own consultants.*

## End of the Pure Design Firm?

*Multi-discipline firms, with their focus on client service and efficient delivery, have much to teach all-design firms. But don't count design firms out.*

By Sheri Olson

Some pundits have predicted the virtual end of the architectural-design firm. Owners seek a single-source of design services, not a long line of consultants or a complex joint venture. A practice that doesn't offer extremely specialized services or a huge spectrum of services isn't appealing to today's performance-oriented client, these critics say. *Engineering News-Record's* top 500 design firms are consistently dominated by Architect/Engineers or Architect/Engineer/Constructors. Will multi-service firms come to dominate the design marketplace? And how will all-architecture practices—as traditionally defined—fare?

"High-design firms will always be around, but the majority of us had better face up to the fact that we're not Frank Lloyd Wright," explains Robert Workman, principal of BSW International, the Oklahoma based A/E responsible for over 2,000 Wal-Marts. Design is not a mantra at BSW; service is. "Sure you have to have quality design, it's a baseline expectation," says Workman, "but we also deliver on time and on budget." Unabashedly bottom-line oriented, it's important to the firm that everyone in the building cycle be profitable. "We would like to provide all the services to meet the corporate objectives for a building program," says Workman. "If we don't make good business decisions, it could be crippling for our clients, so a major priority is to be healthy and stable." The firm wouldn't reveal profits, but a *Fortune* article applauding BSW's success estimated 1993 billings at over \$50 million.

In embracing the values of its clients over the often-abstract ones of the profession, the firm is doing what many think more practices should do. BSW places heavy emphasis on process, partly out of necessity, explains Workman. "When you deliver hundreds of projects a year, any inefficiencies in the system are magnified." While all architects seek repeat business, BSW makes it an art form. For its chain-store clients, a specialized team of real-estate professionals, architects, engineers, and construction professionals (the mix depends on the project) designs a

*Sheri Olson is an architect, teacher, and writer with her own firm in New York City.*

process (integrating issues of design, repeatability, and cost) based on the development of a prototype.

The firm believes it's offering what design professionals too frequently ignore. According to Workman, "The reason architects are looked on as a necessary evil, rather than as an answer, is that clients don't see the bottom line value of architects. This is due to the profession's focus on things architects think are important, like design, not on what the client wants, which is usually much more." James Hohenstein, senior vice president, at HDR, Inc., an Omaha-based E/A firm represents many multi-discipline firms when he says, "We don't see ourselves as high design." (Henningson, Durham & Richardson, Inc., the architectural division of the company, specializes in health care, justice, science, and industrial facilities.) "Our values are based on service to our clients and client satisfaction."

### Doing delivery better

The traditional separation of architecture, engineering, and construction began to seem archaic as the inflation and high interest rates of the 1970s drove the cost of delay into the stratosphere. A/E's and design/builders seemed better positioned to make fast-track projects work. Today, neither rates nor inflation drive fast-track: business imperatives do. Product cycles are so short in highly competitive fields like pharmaceuticals and software that companies can't wait years to bring a facility on-line. New York City-based Haines Lundberg Waehler (HLW) credits its tightly integrated multi-discipline process for getting a technically sophisticated one-million-sq-ft drug discovery lab for Schering-Plough from design to completion in just 48 months. Only the sketchiest part was developed before the building's complex program was divided into components, which were designed concurrently, then put back together. In terms of design, "It's no longer either/or, it's and/both," says design principal Ted Hammer. "Client's expectations are higher than ever before. They want design on budget and on time."

To meet today's crushing schedules, Heery International, Inc., an Atlanta-based architecture, engineering, and planning firm, relies extensively on computers for analysis,

programming, and design as well as managing, scheduling, and costing. The firm can offer super-fast-track service because in-house architect/engineer/consultant teams are always in place and ready to go. With restructuring, total-quality management, and other new management techniques sweeping the business world, clients expect their design teams to get on board. Large A/E and E/A firms are restructuring themselves, too, not only to meld with new company cultures, but to manage the work process and flow of information better.

Management of information—especially electronic information—has become a major stumbling block on large, complicated projects, says electronic data-management expert Kristine Fallon. She sees a significant advantage for multi-service firms, because they can avoid handling data manually or converting it to different filing or software systems. Other A/E's claim a more prosaic communications advantage: physical proximity of team members is still the most efficient means of "data exchange."

### Managing complexity

Successfully handling the complexity of many building types also can be an advantage for delivery-oriented multidisciplinary firms. On pharmaceutical projects, the requirements of the sophisticated technology are a high priority, so it's important for the architects to be skilled in the deployment of fume hoods and animal-holding areas. It also falls on the design team, HLW's Hammer says, to be "people advocates"—balancing the high-cost needs of technology with the more intuitive and difficult-to-define needs of the people who work in the facility. A project's public image is also important to clients who realize the value of being sensitive to the community and the environment.

Another appealing aspect of multidisciplinary firms, says Hammer, is that they provide a single source of responsibility, which is increasingly important to those clients that have shrunk their in-house design-management capability over the last few years. In offering a wider range of services to such clients, Hammer sees his firm as redefining design. "It's not just another pretty space." Indeed, a reason the biggest design firms are

multi-discipline is that they bill for far more than traditional services.

**Split loyalties**

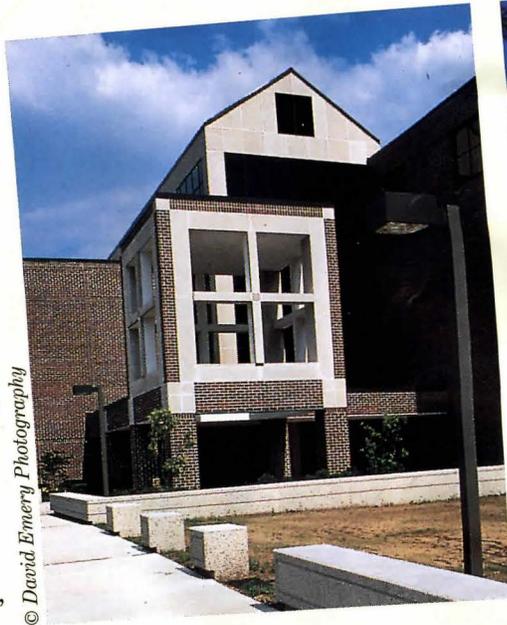
Some say that a firm can take a service orientation too far. John Gaunt, formerly a CEO at Ellerbe Becket, in Minneapolis, and now dean of architecture at the University of Kansas, finds "something dispiriting" about firms focused primarily on financial objectives. He believes the challenge for architects and engineers is to help communities balance growth with quality of life, and "replace what is now expediency with value." Robert Gutman, who has long studied architectural practice at Princeton, adds, "There will always be clients with a limited understanding of design, just as there will always be clients who have a genuine sensibility for design and a belief that it has market value." He warns, "A profession needs to continue to emphasize its core skill or it risks losing its identity; for architects this is design."

The place of design within the multi-discipline firm is especially difficult to resolve, however, because such firms have split loyalties.

• *Engineers vs. architects:* Though compensation and benefits tend to be above average, A/E and E/A firms have trouble hiring the best talent, according to Weld Coxe, a principal of The Coxe Group, a management consultant serving design firms. "Architect-dominated A/E firms have trouble hiring and retaining top-flight engineers, and engineer-dominated E/A firms have trouble retaining top-flight architects," he explains. Dana Cuff, a professor at UCLA who has researched and written on architectural practice, sees cultural differences that spring from their differing training. Engineers in the U.S. seem to be less concerned with design than their European counterparts, who don't have the same tradition of educational separation.

Cuff sees a faulty perception that "if you're interested in engineering, you can't possibly be interested in architecture."

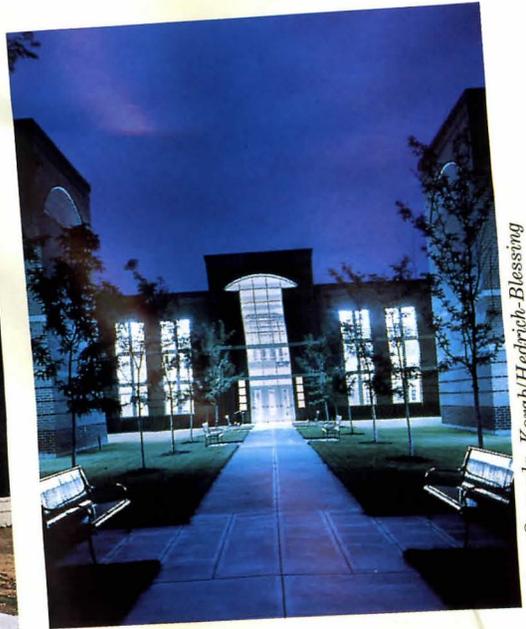
Instead, she says, "architects the E tends to skew the A," says Cuff. She believes that "engineers don't become strong design advocates." The difference between A/E's and E/A's, "has to do with the importance of



© David Emery Photography

**Schools as information infrastructure:**

Can an engineering-driven firm known for its highway and airport work do schools? Yes, claims E/A/P Greiner, because its infrastructure experience gives it an edge in integrating the new telecommunications that



© Gary Quesada, Korah/Hedrich-Blessing

schools increasingly demand. Additions and renovations for Penn High School, Mishawaka, Ind. (left), included a fiber-optic network with local panels to operate a variety of media. A similar system was provided at the new Rockford (Mich.) High School (above).



© Jon B. Petersen

**Taking Sam Walton Seriously:** BSW principal Robert Workman says Wal-Mart's Sam Walton came to the firm complaining that he couldn't find an architect who would take his projects seriously. BSW obliged, even though the cookie-cutter designs and the store's out-of-town locations



**Health Care's Higher Profile:** With health-care providers increasingly comingling for business, hospitals now offer amenities such as fitness centers and

...the Hackensack (N.J.) Pediatric W... comments. "While museums and family houses have always benefited from good design, now these institutional buildings—the type of large-scale projects A/E firms usually get—are benefiting as well."

...from historic preservationists and planners. Clients, though, continue to seek what BSW offers; it has signed up Circuit City, Home Depot, and Taco Bell. Above: the firm's Lawrence, Kans., "Eco-Mart."

With restructuring sweeping the business world, A/E and E/A firms are getting on board, not only to meld with new company cultures, but to better manage work process and information flow.

architecture to the people who run the show," says Stan Lorch, an assistant vice president at E/A Parsons Brinckerhoff, Inc., in New York City.

•Attitude toward growth: Growth is important to Parsons Brinckerhoff, explains Lorch, which is not the case with most all-architecture or all-engineering firms that don't want to take on the management and business-development headaches or face the loss of design control that growth entails. The administration of a large, growing firm is a monumental task, says Lorch: "Training is going on all the time to integrate new people into the culture of the firm."

Size is one of the reasons why Kohn Pedersen Fox Associates decided early on not to go the multi-service route. "We were not looking to be as large as most A/E firms," explains Eugene Kohn. The decision also had to do with the firm's location in New York City, where, Kohn believes, the engineering consultants are outstanding in their own right, and where A/E firms are less established. "We felt we would get the best advice and talent from independent consultants outside the firm, and could even benefit from their experience gained from working for other architects."

For some firms, bridging the culture gulf between architects and engineers becomes a way to address clients' changing design requirements. HLW provides formal training in conflict resolution, focusing on the different ways architects and engineers think, talk, and work. "This is not about feeling warm and fuzzy," partner Ted Hammer emphasizes. "It's about the work turning out better." He calls it "our number-one training issue for the entire firm in 1995." The effort should translate into more closely integrated design concepts and well-coordinated documents, notes Hammer. Architects coordinate the

resident experts, a collection of specialists at the leading edge of new technology.

to seek it out." Ralph Johnson, design principal at A/E Perkins & Will, says his firm has prospered because "there is more emphasis on design today because of an increased awareness in the media." (Pei Cobb Freed's Holocaust Memorial, for example, won a design award sponsored by *Business Week*.)

Hohenstein, of HDR, believes health-care clients look for higher emphasis on design because they have to appeal to the public. "The consumer for a hospital used to be the doctors; now it's the outpatients." Perkins & Will also adjusted their emphasis in response to marketplace demands, particularly in health care and education "Hospitals are marketing design and a better health-care environment," says Johnson. Image is also increasingly important for institutional clients, like universities, who see design as a means to improve their reputation.

Changing expectations for public design has altered attitudes toward two A/E strongholds, sports arenas and convention centers. Richard Farman, executive vice president and director of architectural practice at the Kansas City-based E/A/Planner HNTB, believes these projects are no longer market-driven but image-driven. "Over the past several years, there has been a reduction in attendance and demand for convention centers," he explains, "but operators are still planning expansions as cities compete with each other." Instead of blank convention-center boxes and arenas that resembled freeway off-ramps, cities have increasingly awarded commissions to designers that could evoke old-time ballparks and create unique settings for meetings.

Design architects such as Pei Cobb Freed and Kohn Pedersen Fox, teamed with convention-center specialists, have taken over much of the turf once held by A/E's. On the other hand, a small group of A/E's (all based in Kansas City), by increasing their design profile and making the most of their multidisciplinary approach, have held onto much of the sports-facility work. HNTB's architects and engineers collaborate early on projects.

to integrate a design concept's

or space. An interdisciplinary approach is also useful where repetition of a carefully honed prototype is in order, prisons for example. Currently HNTB is also developing a prototypical classroom.

Design culture in the multi-service firm

"Design," explains Heery vice president and lead designer Chris Knight, "is a basic service, which underlies all of our services, whether architecture or engineering." He believes the market rewards excellence. Concrete measures of excellence in architecture, however, remain elusive. For all the square footage multi-discipline firms build, prestigious awards and prominent design-feature publications often elude them. Because of the high cost of health-care facilities, says HDR's Hohenstein, the firm's emphasis on design is placed on the functional side: in efficient layout, planning, and detailing—all areas that of themselves infrequently generate design awards or publication by journals.

On the other hand, multi-discipline firms can't consistently show that client-driven design and process has produced higher satisfaction. Robert Gutman believes it's "important to clarify for an audience of clients, and even for architects themselves, what is meant by good design." He has found that some firms are very articulate about good design, but the work does not always reflect it as a value.

To become more competitive, some A/E and E/A firms attempt to raise their design reputation, only to find that it's difficult both to build and maintain. To stay in business, large firms have to keep work flowing in, not all of it ideal. John Gaunt, explains, "When the financial crunch is on, there is an inevitable tendency to expediency rather than to sacrifice for design. It is problematic for these firms to consistently maintain an overall high quality of design."

Many firms have tried to graft "name" designers to stodgy firms. There are many unheralded failures, but there are success stories too, such as Cesar Pelli at Gruen or Helmut Jahn at Murphy/Jahn. Perkins &

successfully raised its design profile with

impact on the costly structural... example—or reconsider how alternatives to typical roof trusses might improve the interi-

the help of designer Ralph Johnson... Chicago-based A/E firm's success depended

Design's improving... A/E and E/A firms, while maintaining... focus on service and delivery, see design... ability as increasingly important. Says... "Clients want higher quality design, they understand more about it, and they're willing

on several factors: changes in the firm's management structure, the designer's role within the firm, and the designer's role on the project team. "When I started with the firm in the mid-'70s there were no designers at the officer level," recalls Johnson. "It was a completely management-oriented structure." As a top executive, Johnson now is in a position to advocate design (and to show design sells). Creating teams led by project architects, not project managers, helped to decrease the polarization between the design and management sides. The design-studio system is also team-oriented, not departmental, "which is good business as well as a good experience for younger people," adds Johnson.

**Are all-design firms making inroads?**

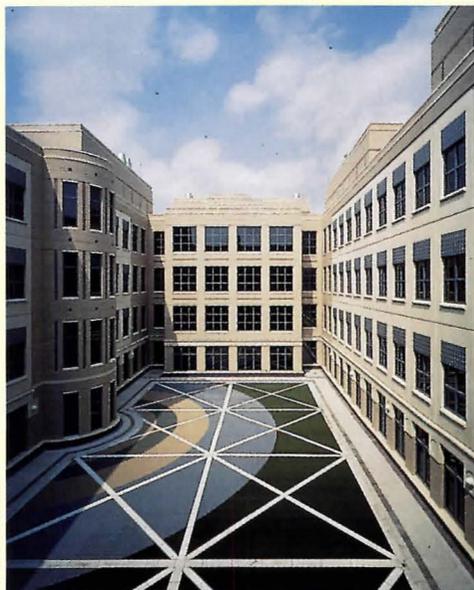
Dana Cuff believes the market for architectural services currently resembles a "dumbbell." Increasingly specialized firms occupy one end and multi-service firms occupy the other. She says that joint ventures of highly qualified architects and consultants are competing successfully against A/Es and E/As. She believes that multi-service firms will have to develop design abilities more fully. Adds Coxe, "really sophisticated clients are now joint venturing a design firm with a construction manager." Coxe believes that "strong idea" firms are increasing market share at the expense of delivery-oriented A/E and E/A firms.

Institutional and governmental clients, who traditionally value single-source responsibility, are also less likely to turn to A/Es because of regulations that encourage the use of minority-owned and women-owned firms. HNTB's Farnan believes that many clients today want every member of the team to have the best possible credentials. Multi-discipline firms can't usually put together teams where everyone is at the top of their field. Some A/Es have also found themselves facing more competition in building types they have traditionally dominated, like health care, as the recession drove all-architect firms to seek new markets. Clearly single-discipline firms have much to learn from the business orientation of A/Es and E/As. It's also clear that multi-discipline firms are already learning from the strong design firms. ■



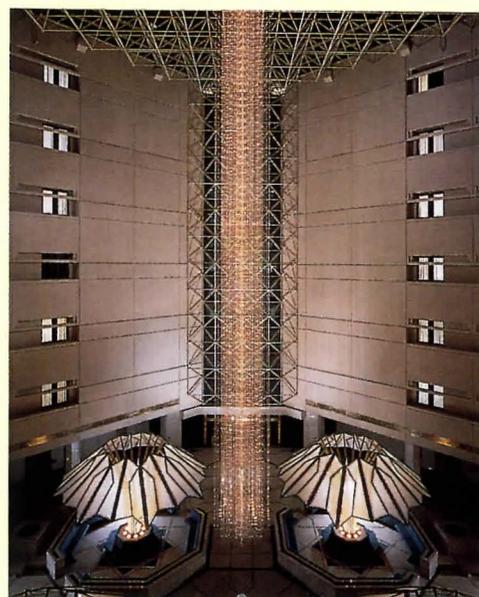
©Jonathan Hillager

**Computer-Generated:** *Heery International relies on sophisticated computer networks to keep up with the pace of change in technology used by health-care clients like the Wolfson's Children's Hospital, in Jacksonville, Fla.*



©Riton Rizzo

**Pharmaceuticals' Fast Track:** *Rapid facilities change at drug companies challenges firms like Haines Lundberg Waehler to deliver technology-intensive projects quickly. At the same time, offering facilities that attract and retain skilled scientists and*



**Patient Focused:** *Design for patients is not unique to American hospital projects. Witness the dramatic atrium at HDR's King Abdulaziz University Hospital, Jeddah, Saudi Arabia. The firm says it never sacrifices good planning to an exterior esthetic.*



© Peter Paige

*technicians is a priority for many clients. Principal Ted Hammer refers to this balance as "high-tech humanism." Pharmaceutical Development Facility (left) and Drug Discovery Center (above), both for Schering-Plough, in Kenilworth, N.J.*

## Finding a Needle in the On-Line Haystack

By Ralph Grabowski

Architects have access to a wealth of information, and none of it is in their office. It's at the end of the phone line, and the cost of this information is significantly cheaper than a massive printed library of perpetually out-of-date technical manuals. Your computer can connect via phone line to vast libraries in minutes. Instead of shelves of binders, you can "download"—that is deliver to your own computer—only the industry standard or product spec you need. And you can use electronic mail (e-mail) to communicate. It's much cheaper and less wasteful than faxes. And easy access to electronic forums and "chat" rooms permits on-line users to debate issues, get technical questions answered, even place or answer classified ads.

This is the much-touted "information super-highway," though today it's more like a service road. For architects, many of the advantages of on-line services still lie in the future. But with the low cost of modems and services, and the steadily improving quality of information, being on-line will soon become as mandatory for firms as a fax machine.

### Info on-ramps

To get online, you need to work through a service provider. If you work for a large firm, you probably don't have to worry about that: your computer is connected to an in-house network, which in turn is connected to the electronic world. In any case, you choose to work through a commercial or private bulletin-board service (BBS) or connect directly to the Internet:

- **Commercial general-interest BBS:** Services like CompuServe, America OnLine, Prodigy, Delphi, GENie, and eWorld provide thousands of special-interest discussion areas, as well as e-mail, daily information updates, and limited Internet access.

- **Private BBS:** These limited-focus services provide group chats, e-mail, and file downloads. Some are linked to each other through BBS interconnections like FidoNet. AIAOnLine is an example of a small, private BBS.

Ralph Grabowski (ralphg@haven.uniserve.com) is the editor of the CAD++ Newsletter and the author of 15 books about CAD, including The Successful CAD Manager's Handbook.

- **Internet:** The Internet is not a single service, but rather an informal interconnection between corporate and university computers throughout the world. The Internet provides the largest database of information, but it has, until recently, been oriented to research and academic users.

On private and commercial BBSs, you can read and save text on-screen. To look at images, you'll have to download them, and use a "viewer" program (usually free). On Internet World Wide Web sites, you can view high-quality graphics on-line.

To get online, you need three pieces of computer equipment:

- **Computer:** Any computer will do; an 80386 CPU is needed for high-speed (9,600 baud or faster) modems.

- **Modem:** Buy the fastest modem that your service provider supports. Today, that's 9,600 or 14,000 baud. Don't buy a faster modem since the price of faster modems is always coming down. I prefer an external modem since it can be easily moved between computers.

- **Software:** It's best to have software specific to each service; fortunately, most service providers give it away. The shareware ProComm (that I use) and commercial packages, such as CrossTalk, can be made to work with any BBS.

### What's on private BBSs

The chart opposite was up-to-date at press time, but services and price change often.

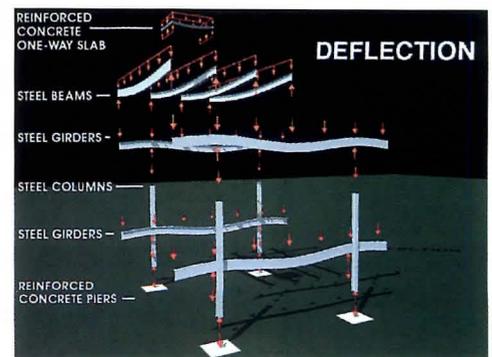
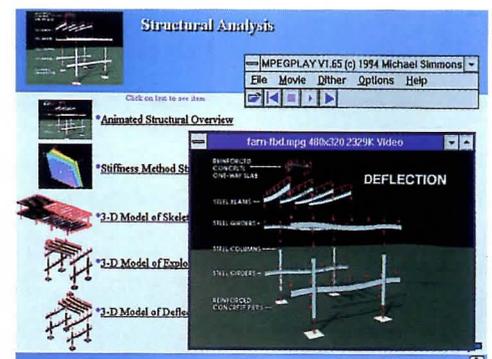
- **A-E Resource** offers access to the architecture and engineering sections of the Commerce Business Daily (CBD), on-line dialogs (conferences) and forums, and 6,839 files to download. When we visited the BBS, the CBD was current but the "Newsletter of Interest to Our Callers" hadn't been updated in eight months.

- **AE&C InfoNet**, in addition to posting the CBD, tracks all awards (see file awards94.txt for 1994). The BBS stores professional newsletters, the Design Firm Cost Index, the Department of Commerce's Design & Construction Industry Outlook, and a Human Resources Center. When we visited the BBS, we were caller 11,106. The American Consulting Engineers Council newsletter was up

to date. Scanning the files area, we noted 50 to 60 CBD downloads daily.

- **AIA OnLine** is strongest in its searchable databases. It offers CBD access, product information, directories for architects and consultants, and employment referrals. MasterSpec tutorials, NIBS guide specifications, and ASTM abstracts are also accessible. Some advertised services, like publication indexes and downloadable cost information, are not available. The interface is non-standard, but does the job once you get used to it. Product information is still sketchy. Forums and roundtables aren't attracting much participation yet.

*Architecture On Line* bills itself as an "electronic journal." This brand-new product of Princeton Architectural Press is oriented to "the ideas and events in architecture today." Users can read and download articles, submit articles, participate in discussion groups, and



The Columbia University schools of architecture and engineering have put interactive, animated presentations illustrating famous works of architecture on the World Wide Web (<http://www.cc.columbia.edu/~archpub/BT/B.T.html>). Above: Mies' Farnsworth House.

*With the low cost of modems and services, and the steadily improving quality of information, being on-line will soon become as mandatory for firms as a fax machine.*

	Private BBSs						Consumer-Oriented BBSs	
	AlAOnline	Architecture Online	AE&C InfoNet	A-E Resource	ReproCAD Network	SourceNet	America OnLine	CompuServe
<b>Features</b>	CBD and other business-development leads, interest-area forums and roundtables, job listings, construction cost info, publication indexes	Online architectural journal; architectural information resource	CBD, A/E industry information, shareware, ACEC bulletins, Harper & Shuman bulletins	CBD, CAD and graphics files; product demos	Long-distance reprographic and file exchange information with access to service bureaus in the U.S. and Canada	Canadian government, corporate, real-estate, jobs, and product info	Forums on architecture, CAD, and related fields; shareware	CAD vendor forums; shareware
<b>Cost</b>	\$9.00 per hour	\$30 per year	\$240 per year	\$95 per year	Free	Free; some surcharged databases	\$9.95 per month; \$3.50 per hour after 5 hours; some surcharges	\$9.95 per month; \$4.80 per hour; many surcharges
<b>Free Trial</b>	No	NA	30 minutes	15 days		Yes	10 hours	\$25 credit or 1 month free.
<b>Max. Baud</b>	14,400	28,800	14,400	14,400	14,400	NA	14,400	14,400
<b>Hardware/OS</b>	Mac, DOS, Windows	Mac, Windows	Any	Any	Mac, PC	NA	Mac, DOS, Windows	All personal computers
<b>Operator</b>	Telebuild LC division of Telescan	Princeton Architectural Press	Claire Ross Organization	Parallel Resources	ReproCAD Distributors	PGA Canada	America OnLine	H&R Block
<b>Internet Email Address</b>	theaia@aol.com	sales@pap.designsys.com	NA	NA	NA	NA	NA	70006.101@compuserve.com
<b>Voice</b>	800/864-7753	212/995-9620	602/488-5440	205/821-9000	800/354-5304	416/269-1507 X158	800/827-6364	800/848-8990
<b>Fax</b>	202/626-7420	212/995-9454		205/821-9700	NA	NA	NA	NA
<b>Address</b>	1735 New York Avenue NW, Washington DC 20006-5292	37 East 7th Street, New York NY 10003	PO Box 4808, Cave Creek, AZ 85331	703 East Glenn Avenue, PO Box 2488, Auburn, AL 36831	3650 Mt. Diablo Blvd. #200 Lafayette, CA 94549	NA	8619 Westwood Center Drive, Vienna VA 22182-2285	PO Box 20212, Columbus OH 43220

browse facsimiles of academic journals, such as the *Journal of the Society of Architectural Historians*.

Two services take a different path. The ReproCAD Network links 50 service bureaus that plot CAD drawings. You upload the CAD drawing to the network, which plots it locally or in another city. Express vans deliver the plotted output. The upload is free, included in the plotting charge. Dodge Dataline<sup>2</sup> for Design Professionals is an on-line lead-tracking system. (It's part of RECORD parent company McGraw-Hill.) It has a huge nationwide project database (over 500,000, including those in the CBD, listed in seven stages of project development), and it's updated constantly. The service's cost is based on geographic area. (Dodge Electronic Media, 1221 Avenue of the Americas, 29th floor, New York, NY 10020; 800/426-7766).

#### What's on the Internet

The designers of the Internet knew it would become impossible to find files stored on its hundreds of thousands of computers, so they created computer sites whose sole job is to index information. Examples: news groups, the World Wide Web, Gopher, and Anonymous

File Transfer Protocol (FTP) sites. Each is accessed by a different software program. Since it is not possible to index all information stored on all computers, you typically need to search each of these indexing systems—at least until you become overwhelmed with data. Most of the access software includes “bookmarks” that let you save the name of a site so that you can quickly return to it at a later time. In a free-wheeling but fairly limited search, we located more than 70 on-line information sources that might be of interest to architects. Jeanne Brown, architecture studies librarian at the University of Nevada, has compiled an annotated list of architecture and building Internet sites (jeanneb@nevada.edu or The University Libraries, Box 45-7001, University of Nevada, Las Vegas, Las Vegas, NV 89154-7001).

To access the Internet from a personal computer, you need a SLIP driver (such as the freeware Trumpet Winsock for Windows), a fast modem (14,400 baud minimum), and an Internet service provider that your modem can dial up. Some hints at what's available on the Internet:

- *Internet News Groups:* News groups are

public discussion forums, in which you can participate. New groups can be found at news.announce.newgroups. Ask questions at news.newusers.questions.

- *World Wide Web Sites:* The most exciting part of Internet is the World Wide Web (WWW or “the Web”). The Web is appealing because software “browsers” not only make searching easier, they readily access images of stunning quality. When you find a site's “home page,” you use on-screen buttons or click on highlighted text to access the information offered (which, via “hyperlinks” may be on a computer on another continent). One way to find information on the Web is through the What's New site at <http://home.mcom.com/home/whats-new.html>, grouped by month and updated every day. The October-to-January list produced no references to architecture, though.

Another Web-search method is to use a search engine. I selected BrokerQuery at <http://harvest.cs.colorado.edu/>, which found 50 references to the search word “architecture” from among 17,800 WWW home pages. Some references dealt with the “architecture” of computer systems rather than

*Continued on page 113.*

## Inexpensive Animation Lets You Walk Around—or Fly Through—a Model

By Steven S. Ross

This month we explore the world of “entry-level” interactive 3D modeling, with two packages—Virtus WalkThrough Pro 2.0, and Caligari trueSpace 1.0. Both allow you to create 3D models and interact with them—walking through and flying around them. Both also allow you to create movies—animations—that you can play back later. (Last month, we detailed many image-editing packages that offer great flexibility but no animation features.)

WalkThrough is available for Windows and the Macintosh (we reviewed it on a Power Macintosh). trueSpace is a Windows-only application. WalkThrough is a bit more “interactive” but trueSpace has better drawing tools, particularly for highly irregular shapes. trueSpace 2.0, due out soon, also offers boolean modeling, better dimensioning, and associative dimensioning.

Neither does exactly what Autodesk 3D Studio and similar high-end animation packages can do—animate huge photorealistic images. But trueSpace comes close (with a significant speed penalty compared to WalkThrough), at a fourth the price of 3D Studio. And both offer the ability to add texture and color to liven things up and make the images realistic enough to help clients and colleagues understand key design features.

WalkThrough benefits from Apple QuickTime animation tools. They allow fast movement within fairly complex models. But you are not limited to the Mac in this regard. Virtus includes two “players” for your QuickTime animations, one for the Mac and one for Windows. Caligari lets you download an animation player at no charge. Both companies allow you to distribute the players to clients.

In general, you will use WalkThrough more to rough out concept models before hardline drafting, to work side-by-side with the client in interactive mode, or to create simple 3D models from 2D drawings. You will use trueSpace to do fancier animations of simple models, or to do final presentations once the design is final or near-final.

### Virtus WalkThrough Pro 2.0

**Vendor:** Virtus Corporation, 118 MacKenan Dr., Suite 250, Cary, NC 27511, 919/467-9700, 800/847-8871, fax 919/460-4530.

**Price:** WalkThrough Pro \$495, various galleries (sample rooms, textures, scenes, and so forth) \$39.

**Equipment required:** Macintosh 68020 or higher CPU, System 6.0.4 or later with 4MB of RAM available for application (after System is loaded); PowerMac and System 7.1 or higher and 8MB strongly recommended. For Windows version, 8MB and 80486 or higher CPU strongly recommended.

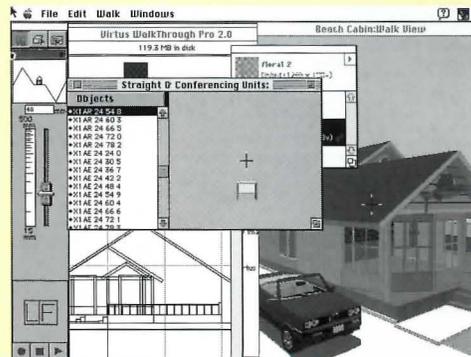
Since its introduction in 1993, WalkThrough has occupied a unique niche in architectural graphics. Strictly speaking, it is not a modeling program. In fact, if you overlap shapes, you may get odd and unintended shading and texture effects. And you can't use one shape to hollow out another—no boolean operations. This makes concave shapes somewhat difficult to draw—you have to build them out of simpler blocks.

WalkThrough is built for speed—using integer rather than floating-point graphics (you get a workspace about 65,000 points wide and high; if the points are an inch apart you define a cube roughly a mile on a side).

If your working style matches WalkThrough's, you will feel comfortable indeed. For instance, if you build up a structure a room at a time much like you would with a bubble diagram, and bring the pieces together to make the rough building, everything goes well. If you like to start with a shell and stick partitions inside, the final model will run slowly and you will find it more difficult to add elements.

You then set the path you want to follow through and around the model by using the mouse or cursor keys. The view follows the cursor, interactively.

WalkThrough is best used when you are just starting a project (at the conceptual stage), or when you have a 2D drafting package and want to explain your designs to a client—or to yourself. It accepts DXF files and can export 3D DXF, but can import only 2D.



*Top: You can put the drawing window (left) and the Virtus WalkThrough window side-by-side for final touchups. The path is echoed in the 2D plan (not shown).*

*Above: You can create wild effects, like spinning a room while walking through a model—in this case, we're inside Fallingwater.*

Although, in general, you draw in 2D in one window, then add depth to the object to get the third dimension, you now have limited editing in 3D. Version 2.0 adds a 3D object selector and 3D surface selector. You select a single object or surface to work on in the 3D Walk View.

There's also a new “smooth shading” that softens edges, giving a smoother and more realistic appearance to curved objects. And walks are more realistic—you can now keep viewers from going through solid objects, if you wish.

There's more flexibility with textures. You can attach them to a model, or keep them separate (and the model smaller) by linking the textures. You can also print the 3D Walk View of models to which textures have been applied. Library support is much improved,

*One new and one updated package from Virtus and Caligari let you create 3D models, interact with them, and turn them into animations that you can play back later:*

although libraries (doors, windows, people, and so forth) are only 2D. Hundreds of textures such as tiles, fabrics, and so forth ship with the product.

**Manuals:** Two small paperbacks. One is a user guide, the other is a tutorial.

**Ease-of-use:** Going to 24-bit color, transparent or translucent objects, or shaded/shadowed objects, slows things down considerably. On a slow machine, this can cause you to lose the interactivity for which WalkThrough was groomed. One trick: Scan and edit a texture at any convenient resolution, inside a bitmap software package such as Adobe Photoshop, but save the final image at 72 dpi—the maximum your monitor is likely to be capable of anyway.

One thing that's particularly intuitive: If you start "from the inside," placing your furniture before building the room around it, for instance, everything in the room moves as you nudge the room itself up against the rest of the building.

**Error-trapping:** There's a problem with DXF export on a Power Macintosh; use the 680x0 version and run it in 680x0 emulation mode to use "Export" (2D or 3D DXF) and to use 2D DXF in the "Import Trace Layer" pop-up menu.

**300** on Reader Service Card

## Caligari trueSpace 1.0

**Vendor:** Caligari Corporation, 1955 Landings Drive, Mountain View, CA 94043, 415/390-9600, 800/351-7620, fax 415/390-9755.

**Price:** \$795. Free upgrade to 2.0 when it ships (expected this quarter). Viewer for distributing your animations is also free, but must be obtained separately.

**Equipment required:** Windows, 80386 and 4MB of random-access memory for minimal functionality. We strongly recommend an 80486 or Pentium, and 8MB (16MB for large models or ray-tracing).

Caligari was founded in 1986 as Octree Software to produce graphics software for the Amiga. It has many movie and TV animation projects to its credit. Only with release of trueSpace 1.0 last year, however, has the firm gone after the architectural market.

The "feel" of this software is that of a drafting program and paint program all in one. While it is nice to have all the functionality in one place, it does slow things up. You cannot, for instance, easily sketch with this software unless you have a very fast computer. We had to mount it on a 90 MHz Pentium with 9 millisecond-access hard drive and 16MB of RAM, and S3-accelerated graphics card to get comfortable reaction time with it. We're told that Version 2.0 will be somewhat faster.

Nevertheless, we suspect most architects will want to import their designs into trueSpace, rather than start with it. Fortunately, trueSpace handles imports from DXF, even 3D DXF, and even very large DXF files, 2MB or more, easily. DXF entities that have no "physical" meaning (points, dimensions, extrusion vectors, lines with no width, and so forth) are not translated into trueSpace.

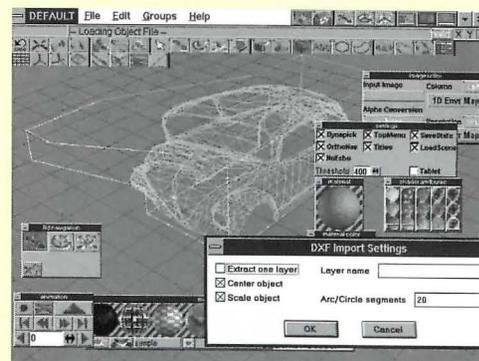
Aside from DXF, Version 1.0 supports 3D formats such as 3D Studio, WaveFront, Imagine, and LightWave, and imports most standard image formats, including BMP and TGA. (Version 2.0 will also support PostScript, Adobe Illustrator, TIF and GIF import and FLIC and JPEG export.)

Version 1.0 has a wide range of drawing objects that you can put together, stretch, pinch and otherwise deform to get the shape you want. There are impressive special effects such as fog and ray-traced surfaces that cast reflections.

Version 2.0 will include better solid rendering of 3D objects, 3D boolean operations, field rendering for improved video quality, and auto-dimensioning and numerical entries for technical illustration.

Tools for animation are the chief reason to pick trueSpace over other paint, illustration, and modeling packages. In general, you build or modify your image. Then you set a path through and around the image. Finally, you set your lights and shading. (There's no point setting up lights first; you don't need them where your path's view won't see the surfaces they illuminate. You want as few as possible to keep speed up.)

The computer then calculates the images for animation, automatically. For very high



*Deforming an object is reasonably intuitive; trueSpace builds a box around it, and you deform the box. After deformation, the VW Bug looks melted. This image, by the way, with its many vortices, took just a few seconds to modify on a 486-class computer running at 33 MHz—about the slowest you should use. Here, the import process for DXF file was begun as well.*

quality, the animation can be output as a series of TGA images.

In general, you will not want to take a DXF image out of trueSpace and put it back into your CAD package. It is possible, but test first. Version 1.0 does not output DXF with layer information. Some DXF import filters in CAD packages require that DXF entities be associated with a layer.

Likewise, transfer to 3D Studio ASCII is not perfect, mainly because the file structure for 3D Studio ASCII is rather rudimentary; it ignores most information on materials (surface texture, for instance) and grouping hierarchies.

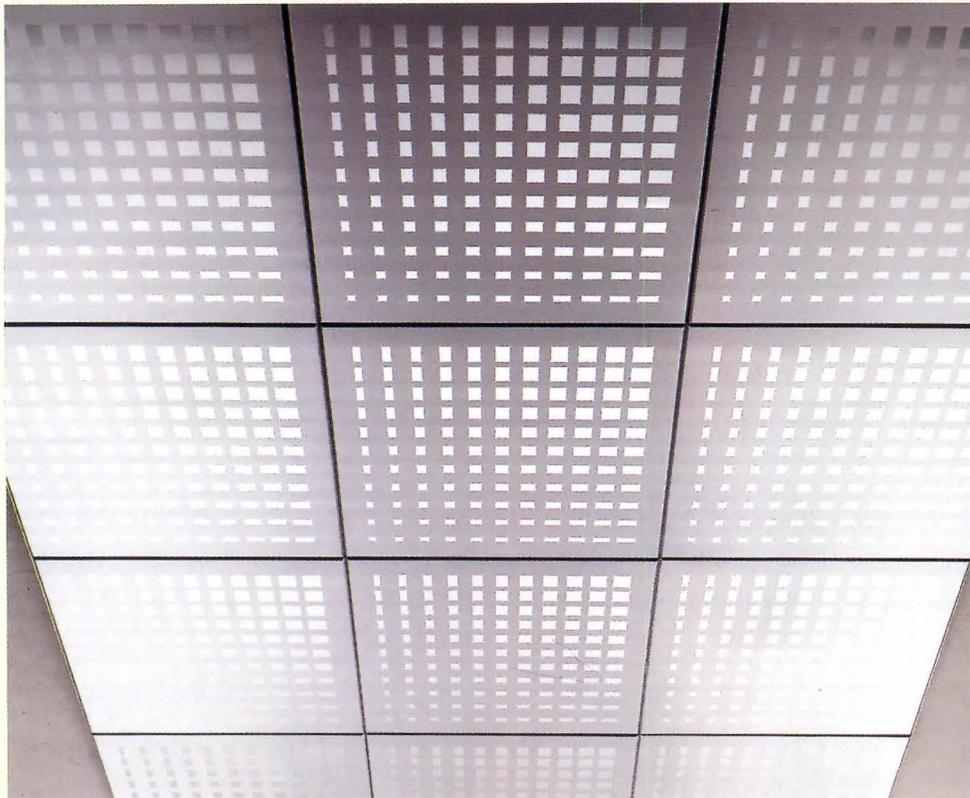
**Manual:** One large paperback with tutorial and command reference. Writing and layout are excellent, but not oriented toward architectural work.

**Ease-of-use:** Speed is an issue.

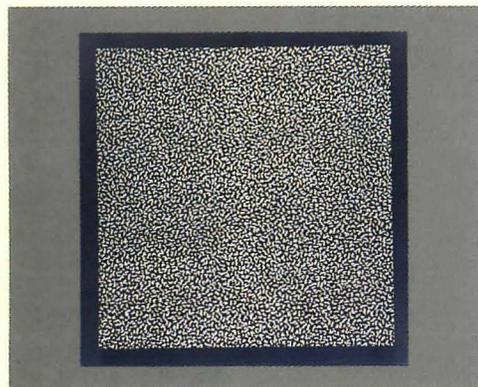
**Error-trapping:** Remarkable. We occasionally crashed the system doing something most readers would not do—maintaining a memory-resident program to capture on-screen images. When we restarted Windows and then trueSpace, we recovered just about everything.

**301** on Reader Service Card

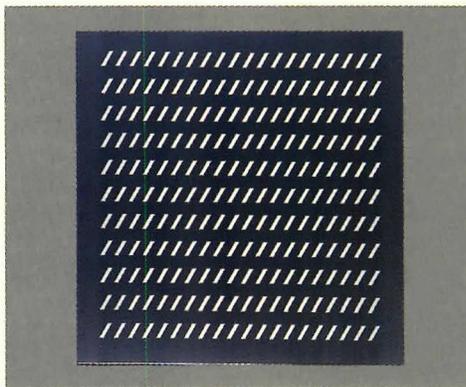
**Decorative Ceiling Treatments**



302a



302b



302c

**302. Gleaming overhead**

Forms+Surfaces has taken its expertise in thin-metal treatment (the Santa Barbara-based source already makes custom metallic wall and door finishes) onto the ceiling, with new aluminum panels for use in suspended grid. All tiles can have tegular edges for use with 15/16-in. T bar; some designs can be specified with formed edges for snap-in installation on concealed carriers. Rated incombustible, the various panel styles come in 21 standard patterns, but several finish and embossing options can make any given

installation a custom ceiling. The patterns shown are from the top-of-the-line CS5000 Series, which offers both specular and satin finishes on the same panel. Forms+Surfaces, Santa Barbara, Calif.

**303. Linear and leaf**

With its acquisition of Interfinish Specialty Products, Chicago Metallic is able to offer even more decorative ceiling options to go with its own grid systems. Shown here: Leaf-Lite, with short, formed-metal "leaves" dangling from concealed carriers (303a). A



303a



303b

somewhat exotic ceiling offered in bright mirror and brass finishes (or any custom color), Leaf-Lite effectively hides light sources placed above the channels. A more conventional look, the narrow-profile Vista ceiling is nevertheless capable of sinuous curves (303b). For this installation, an outdoor mall converted into a skylit atrium (DI Architecture, Inc.), use of a laser transit and custom-bent carrier channels assured that individual slats were perfectly aligned over spans of 500 feet. Chicago Metallic Corp., Chicago.

Ceiling treatments in metals, wood, and FRG—some brand new, some updates of older designs—provide a look at the expanding range of decorative options available for the fifth wall.



304



305a

**304. Punch proof**

A new perforated-steel shell for Sonex acoustical-foam wall and ceiling panels adds an impact-resistant product to Illbruck's sound-control line. The Class-A, non-fibrous foam has a surface configured in hundreds of anechoic wedges said to collect noise from all angles; the open-cell construction of the material itself absorbs sound. Basketball-proof housing has a 50-percent-free perforation pattern, and comes in light gray, beige, and white. Suitable for humid environments. 800/662-0032. Illbruck, Minneapolis.



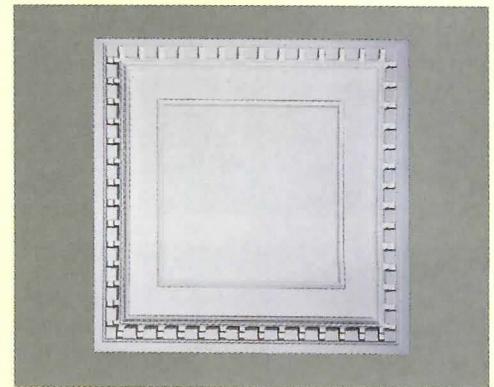
305b

**305. Scandinavian feel**

The Ventwood ceiling is made of evenly spaced rails of solid red oak, clear hemlock, and red cedar. Pre-assembled into custom-size interlocking panels using dowels, ceilings are installed with metal clips onto a standard grid system. The coved hall pictured (305b) is part of new Music Rooms at M.I.T. designed by university staff architect Melanie Brothier. Here, the connecting dowels have been painted to match the black acoustic batt placed behind the ceiling. The detail (305a) shows how neatly diffusers, sprinkler heads,



306a



306b



306c

and recessed lighting can be inserted into the slatted panels. Howard Mfg. Co., Kent, Wash.

**306. Easy-to-install coffered ceiling**

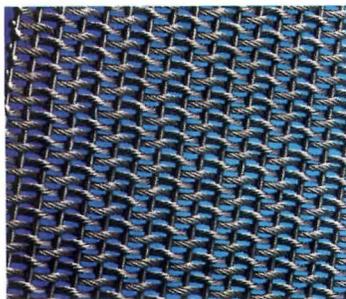
Cadre 2- by 2-ft panels, made of plaster-like fiberglass-reinforced gypsum, provide a classic coffered-ceiling appearance in a completely accessible and fire-resistant suspended assembly. A concave dome, shown in the Executive pattern, highlights a pendant fixture (306a); Dentil (306b) and Shell (306c) are more traditional, sculptured designs. USG Interiors, Chicago. ■



**307. Low-shading tinted glass**  
A high-performance glass said to provide exceptional control over solar heat gain and glare with minimal exterior reflectance, SuperGrey has a 0.38 shading coefficient. Architects Stucky + Vitale found the glass to offer a color-neutral, comfortable working environment as well as the esthetics of a darker gray exterior color. Libbey-Owens-Ford Co., Toledo, Ohio.



**308. Two-hour-label cable**  
Copper-clad, mineral-insulated cable, developed to keep fuel shut-off valves operable even in very-high-temperature refinery fires, can insure emergency power feed for evacuation and fire-fighting equipment. Installed in free air, UL-listed fire-resistant cables require much less space and are more flexible than fireproof conduit; can be retrofit. Pyrotecnax USA, Inc., West Syracuse, N.Y.



**309. Stainless-steel wire cloth**  
A French source offers stainless-steel wire cloth and mesh in a wide range of decorative textures, wire shapes, and open-space patterns, such as this combination of rods and woven wire. Virtually rust proof, metal "cloth" was used as a for-the-ages interior wall treatment and as a 250-ft-high exterior-stair enclosure in the Bibliothèque de France. Sprint Metal, Paris.



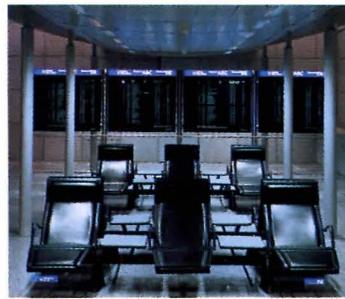
**310. Office filing components**  
Office Specialty, a Canadian firm, recently acquired the patents and furniture designs formerly manufactured by Storwal. Now being marketed as the Performance Group, the office-storage line is based on a 1 1/2-in. module, with files in 41 different case heights and eight file-front options. Custom tops and configurations are a specialty. Office Specialty, Holland Landing, Ont.



**311. Light-diffusing curtain wall**  
Architects Thompson, Hancock & Whitte Associates, wanting the large east- and west-facing walls of Cincinnati's new Delta Air Lines Terminal to admit lots of daylight with minimal glare, specified custom ChromaFusion laminated glass. A sandblast-density interlayer with a light-diffusing floodcoat seems luminous even on overcast days. 800/275-7272. Cesar Color, Burlingame, Calif.



**312. Lead-abatement covering**  
A domestically made woven-fiber-glass wallcovering, Newtex has been approved by the New York City Housing Authority as a reinforcement in lead-paint encapsulant systems. Paintable, textured, and air permeable, the material can be hung over cracked and rough brick, concrete, block, drywall, paneling, and plaster. 800/836-1001. Newtex Industries, Inc., Victor, N.Y.



**313. Heavy-use seating system**  
Architects of the just-opened Terminal 2 at Frankfurt's international airport specified over 4,500 Meeting seats by Italian manufacturer Matteograssi, including these chaise longue models (for really long layovers?). Made with black hide stretched over a steel frame mounted on a fixed beam, seats and lounges can be ordered with tables as shown. BFI, High Point, N.C.



**314. Corrosion-proof piping**  
Made of solvent-weldable CPVC, FlowGuard Gold plumbing systems for hot or cold potable water are said never to corrode, pit, or scale, even in the most aggressive water conditions. The material's basic flexibility permits fairly tight radius curves, and greatly reduces water hammer within the system. Meets ANSI/NSF Standard 61 and all national codes. The BF Goodrich Co., Cleveland. ■

## Short takes

### A significant contribution.

In a major coup for the preservation of pristine wilderness areas, Georgia-Pacific, a major forest owner, has entered into a voluntary agreement with The Nature Conservancy to develop a joint ecosystem management plan for North Carolina forested wetlands the company owns. Seven large tracts, comprising almost all of the swamps and bottomland still unprotected along the Lower Roanoke River, had been des-

ignated as one of the Conservancy's "Last Great Places." G-P has relinquished all timber rights to the 6,500 acres of the most ecologically valuable land; any tree harvesting on the other sites must be mutually agreed on—and done by helicopter.

**Video guide to ADA compliance.** A 30-minute film covers the most important requirements, going on-location at hotels, museums, and beauty shops to show inexpensive

ways to meet access requirements. Cost: \$39.95 plus postage from the Eastern Paralyzed Veterans Association, 800/489-8436.

**Takeover.** EFCO Corp. of Monett, Mo., has acquired the U.S. assets of Don Reynolds Facades, and will be marketing and installing the British curtain-wall system in North America. Nicholas Grimshaw used this exterior-glazed wall at Heathrow Airport [RECORD, June 1993]. ■

*Building Types Study 724/Leisure Facilities*

Childhood dreams of fantastic places of the future have, for some architects, been realized—in a variety of ways. Robert Stern's Feature Animation Building for the Walt Disney Company in Burbank, California (page 72) was inspired, he says, by "growing up watching Disney cartoons." A red and pink corrugated metal facade along the freeway and a purple "sorcerer's hat" (actually a 40-foot-high cone that caps the office of Roy Disney, the head of the animation division) give a fairy-tale effect. Across the ocean, is Rem Koolhaas and his Office for Metropolitan Architecture's Grand Palais in Lille, France (page 88). Their city of the future relies, among other things, on high-speed trains, which can efficiently transport people from all over Europe to areas once considered remote. Euralille, a 173-acre transportation, living, and working development masterplanned by OMA is, says correspondent Claire Downey, "their testing ground," and the massive, astylistic Grand Palais "is defined by the transient links that exist in all cities." Transience, above all economic, is a familiar theme to inhabitants along the Mississippi River, a region examined in this month's building types study on casinos (page 100). According to *The New York Times*, in November, 1993 13 new operating casinos in Mississippi produced \$80 million of revenue, helping unemployment fall to 4.2 percent from the previous year's 7.1 percent. Architect Coleman Coker reports on the architectural cost of the Mississippi gambling boom. Critic Robert Campbell examines the Ivy League campus work of Boston firm Kallmann McKinnell & Wood (page 82)—rari-fied fantasy worlds of their own. *Karen D. Stein*

*Manufacturers' Sources  
listed on page 125*

# Animated Architecture

*Robert A.M. Stern unreels  
Disney's Animation Building  
onto a Fantasy Landscape*



*Feature Animation Building  
Walt Disney Company  
Burbank, California  
Robert A.M. Stern, Architect  
Morris Architects, Architect of Record*



**R**obert A.M. Stern remembers growing up watching Disney cartoons, “which always took place in some fantastic city of the future.” As a grown man with a large office, “I finally got to build that vision.” His excuse was the Disney Corporation’s need to house their highly successful animation department in bigger quarters “on campus” in Burbank, California. The 243,000-square-foot Animation Building now houses well over 500 animators and administrators who are busy turning out successors to *Beauty and the Beast*, *The Little Mermaid*, *The Lion King*, and this summer’s *Pocahontas*.

The need to make some Disney Magic allowed Stern to create forms that depart from the more classicized language for which he has become famous. Like his 1989 Mexx Building in the Netherlands, the Animation Building combines the exuberant celebration of the freedom that modern technology gives designers. Integrating technology with consumer fantasies, the building arrests the senses while accommodating rational functions.

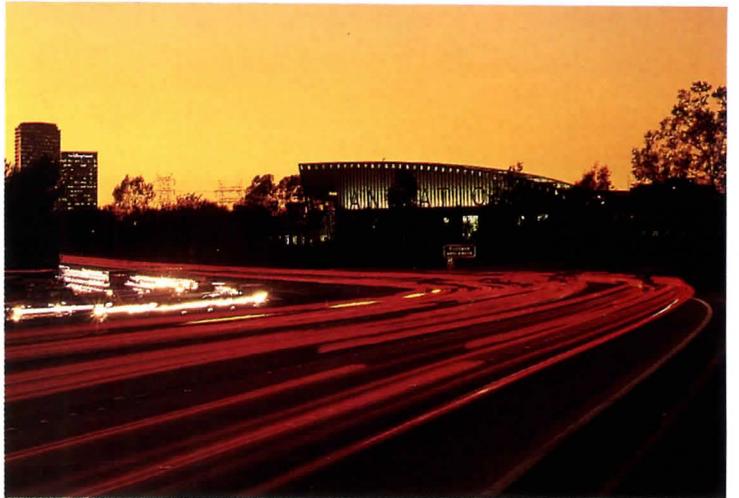
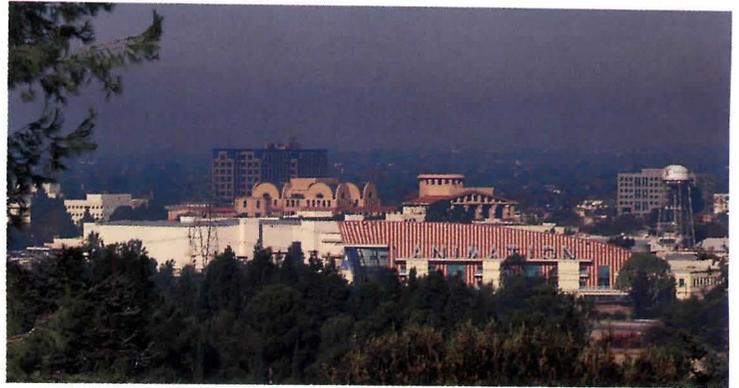
“Too bad you can’t see the building from the freeway,” Disney chairman Michael Eisner says, referring ironically to its fantastic facade, which in fact faces one of the busiest thoroughfares in California. The Animation Building is an abstract, sweeping billboard, complete with giant letters that spell out its name. Stern colored its corrugated metal facade with whimsical shades of red and pink, and capped the composition with a six-story replica of the sorcerer’s hat Mickey Mouse wears in *Fantasia*. The Animation Building levitates from the site into fantasy.

Yet the structure is not what Robert Venturi would call a “building-board.” Behind the sound-baffling facade that has already become such a local landmark that helicopters use it to locate problems on the freeway, there stands a row of stucco-clad vaulted bays where the serious animation work occurs. These may be cartoon versions of Peter Behrens’s 1909 AEG Turbine Factory, an early Modern industrial icon, or possibly even Disney’s own early studio buildings.

Behind these walls lie the acres of “cheap space” where the actual work goes on, and it is here the architect has worked his true magic. “I told Stern to make this space look like his own office: a big loft,” comments Eisner, adding that he sees an analogy between the “back-stage” production of films, and the studios where architects work. The interiors are simple broad corridors for the display of work in progress, enclosed production and meeting rooms, and acres of work space, whose black insulation paper studded with metal brads resemble a clear night sky.

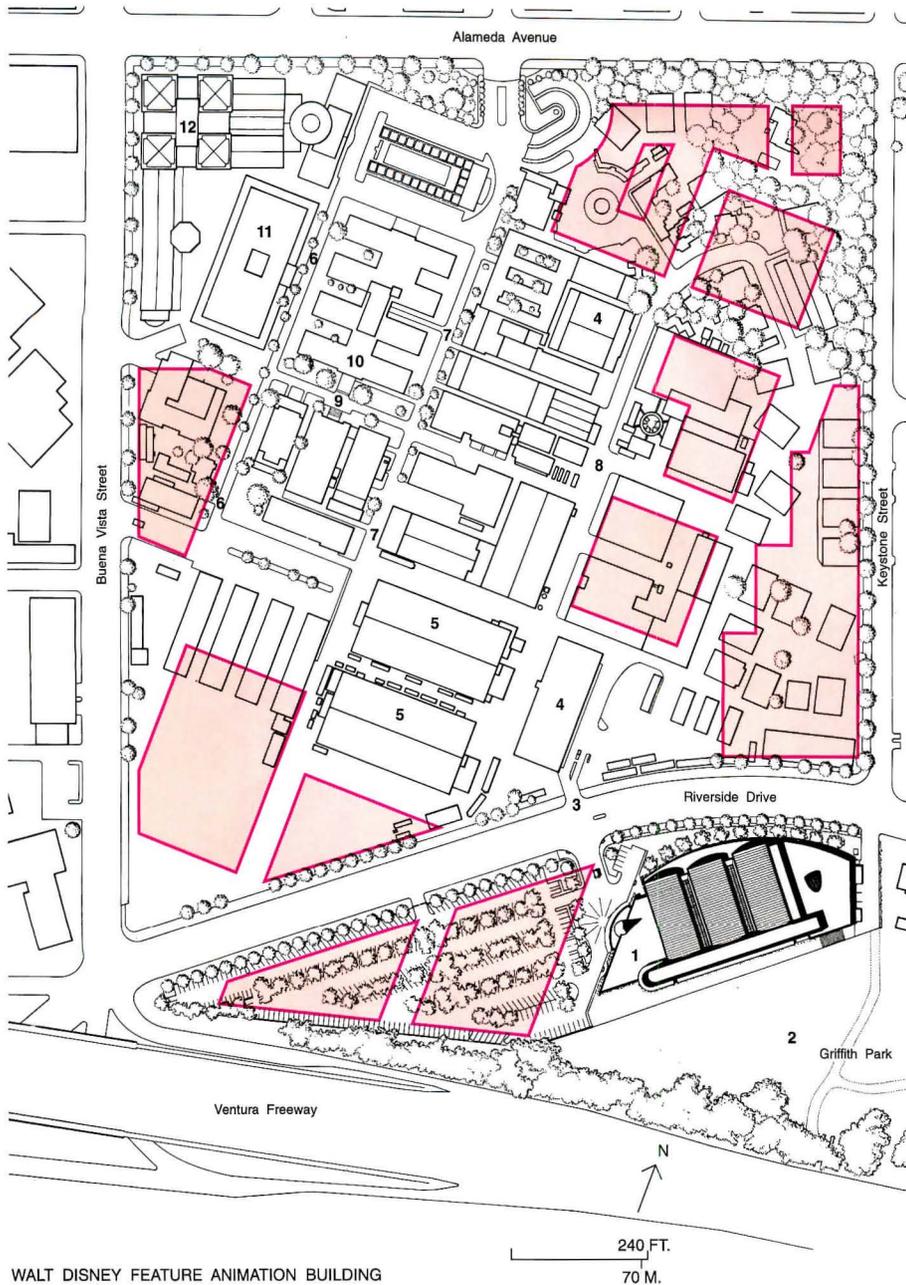
The cartoon world is extended to the Mickey Mouse tables designed for the building, and culminates inside the sorcerer’s hat with the office of Roy Disney, who is head of the animation division. The 40-foot-high cone is topped by a skylight that offers a tilted perspective on the work going on in the Animation Building. This soaring, off-kilter vantage point helps one appreciate how architecture can create animated surroundings. Robert Stern has turned the fun of fantasy into an otherworldly structure. *Aaron Betsky*

© Peter Aaron photos



*“I’m just being contextual,” says Stern, of the building’s arresting form. He points out that the site is at the edge of the Disney complex, where it borders a neighborhood of one-story single-family houses. The arc of the main facade is a billboard visible from the adjacent freeway, and also marks the direction of future development, which will one day culminate in 12- to 15-story buildings beyond the residential area.*





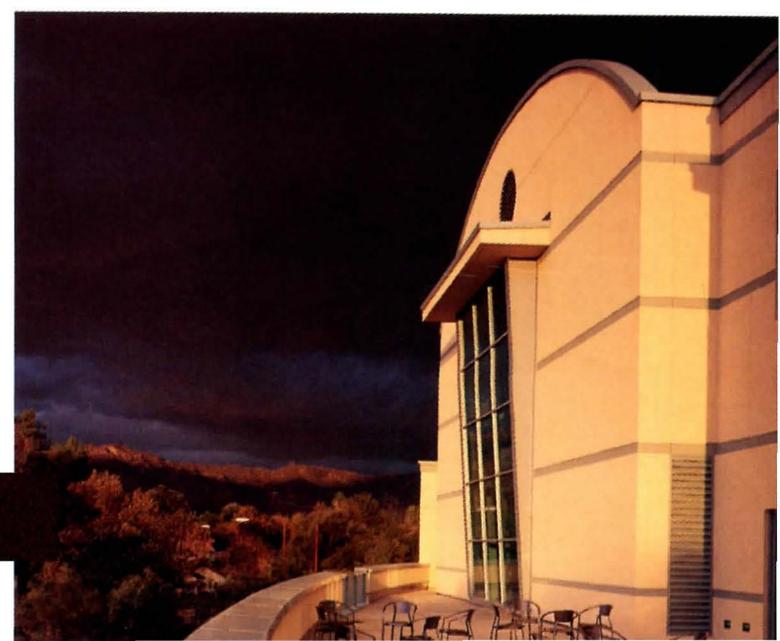
WALT DISNEY FEATURE ANIMATION BUILDING

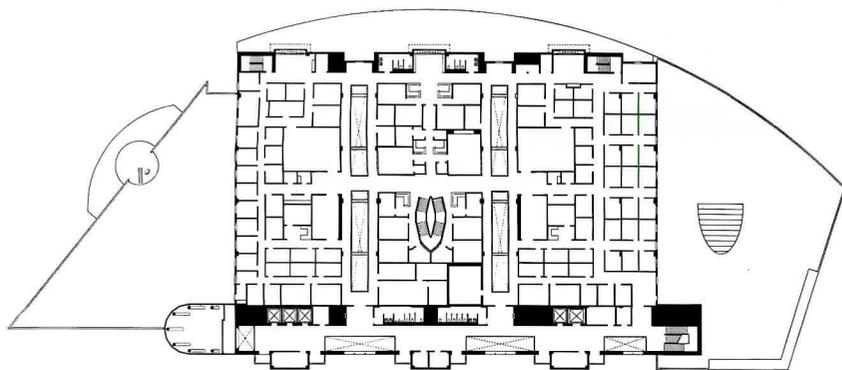
- |                          |   |
|--------------------------|---|
| 1. Animation building    | 9. Dopey Drive                                |
| 2. Los Angeles city park | 10. Original Animation Building by Kem Webber |
| 3. Studio lot gate       | 11. Roy O. Disney Building                    |
| 4. Production            | 12. Team Disney Building by Michael Graves    |
| 5. Sound stage           | Note: colored areas indicate future buildings |
| 6. Mickey Avenue         |   |
| 7. Minnie Avenue         |   |
| 8. Donald Avenue         |   |

"When I was growing up," remembers Stern, "Los Angeles meant one of two things: the glamour of Hollywood and Sunset Boulevard, and buildings that were slightly off, as if they were about to fall over. This building has a little bit of both qualities." The main facade addresses the freeway as a sweep of corrugated metal, but below this gesture more solid-seeming stucco forms shade the interior corridor and anchor the building to what is in reality a rather sylvan setting to the south, where an equestrian center and riding trails give some animators the opportunity to literally ride to work.

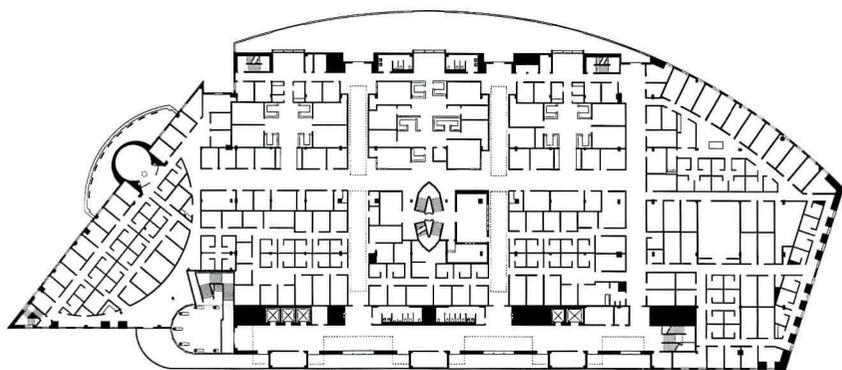
Meanwhile, the north facade blends in with the barn-like studio buildings of the rest of the Disney complex, which is anchored by Michael Graves's headquarters building on the northwest corner. Space for future expansion is currently the Animation Building's parking lot.

To control this composition, Stern uses the metaphor of a roll of film—including sprockets—unreeling itself across the site. Past an entry that resembles a neighborhood theater, the film becomes a pattern in the floor. It culminates in the tilted corner of the atrium, which sums up the grand ambitions of the structure. This area is all the general public will ever get to see of the interior.

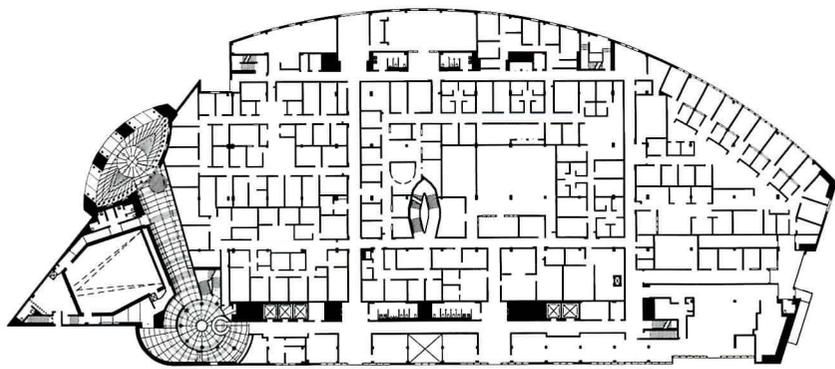




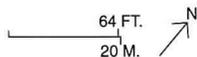
THIRD FLOOR



SECOND FLOOR



GROUND FLOOR



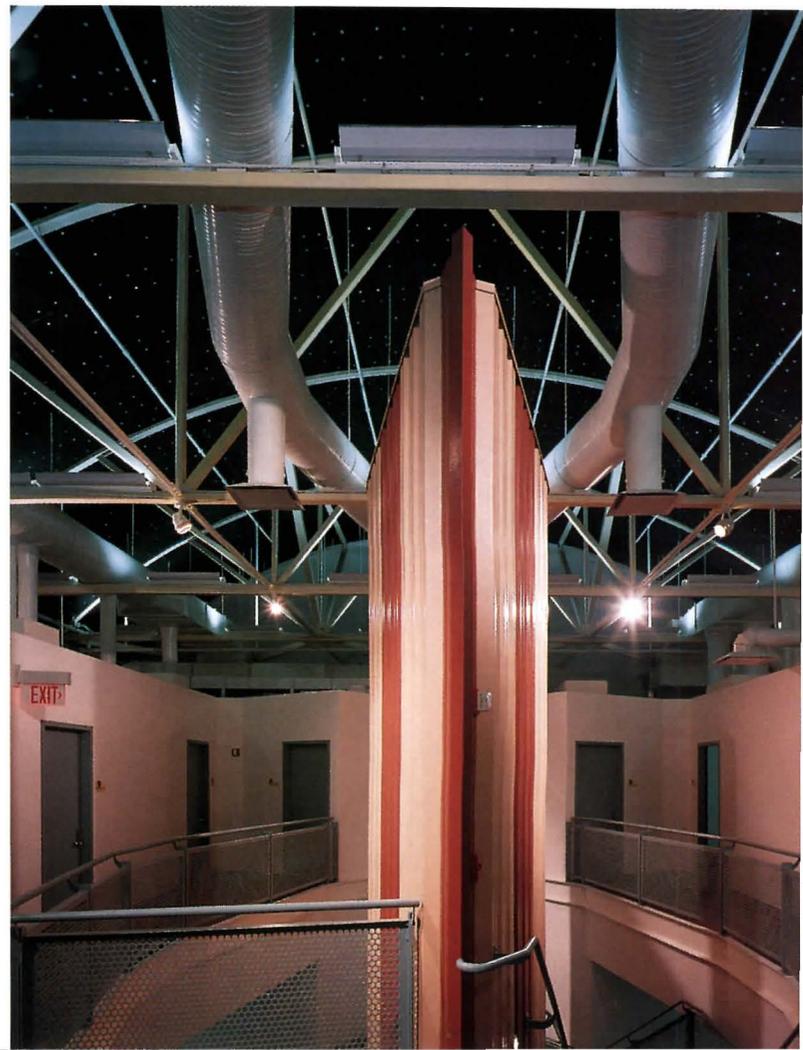
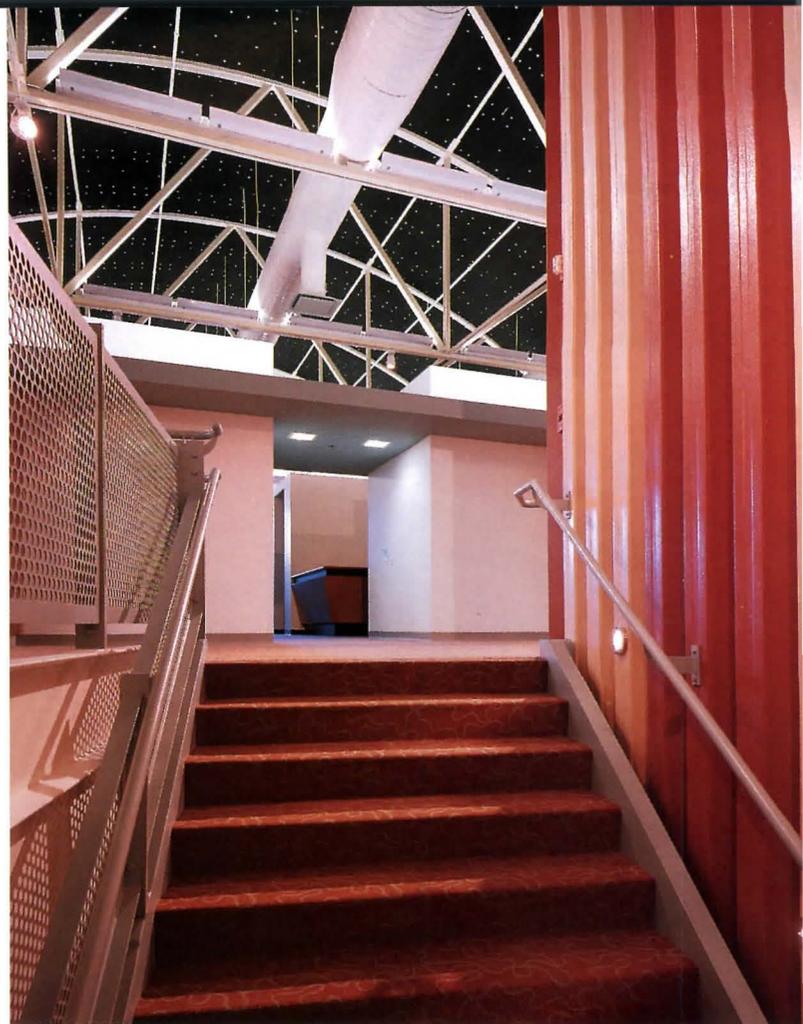
- |               |                     |
|---------------|---------------------|
| 1. Library    | 8. Main story room  |
| 2. Lounge     | 9. Terrace          |
| 3. Story room | 10. Skylit corridor |
| 4. Skylight   | 11. Screening room  |
| 5. Balcony    | 12. Projection room |
| 6. Concourse  | 13. Commissary      |
| 7. Atrium     | 14. Conference room |

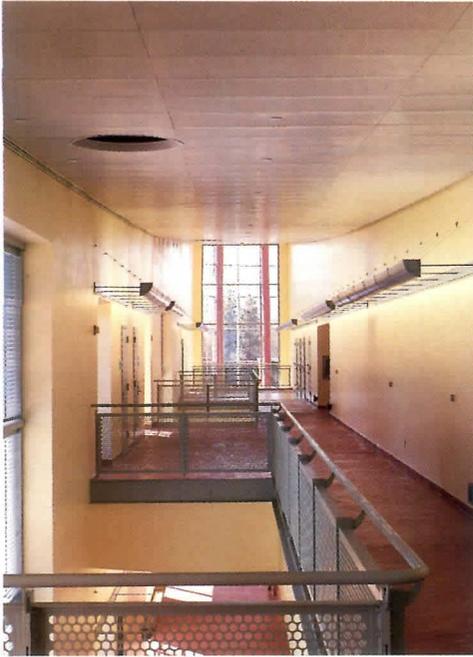
### Up Close

*Drawing on the grid.* The dense plan of the Animation Building reveals its size and complexity. This is no ordinary office building, but was designed to fit animators' rather specialized needs. George Lucas acted as a consultant in laying out some of the production spaces, to give designers information on how changing animation technologies might affect space configurations in the future. Yet in order to make personal contact simpler ("this is still a business where you have to work face to face," Eisner reminds a visitor excited by the automation of animation), Stern subdivided the bulk of the floor into a grid pattern that is even easier to understand because its major elements are three-story-tall, balconied shafts that penetrate the rows of studios, offices, and meeting places.

The grid is interrupted by larger conference rooms that act as gathering places. The suite of executive offices breaks from the clear order that controls most of the building to create a diagonal slice at the western edge, anchored by Roy Disney's office.

*The amount of work done in the corridors, where drawings are displayed and discussed, gave the architect the excuse to make the shared spaces of the Animation Building into generous places he likens to town squares—giving the impression he is trying to build Disneyland's Main Street on the Disney Campus. The black ceiling should make the animators feel as if they are already living in a fantasyland—a sense that even visitors will get when they enter the tilted skylight spindle that terminates the public route into the building.*





The front of the animation building is dominated by a broad corridor ("big enough to accommodate the creative mess here," says Stern) that is already filling with the high-tech clutter of modern movie making. Acting as both the main circulation corridor and a buffer to the freeway noise, it follows the line of electrical and air-conditioning equipment hidden behind the facade.

The main office floors stretch out perpendicular to this avenue as "streets" organized around "squares," where conference and screening rooms form the gathering spaces for this animators' city. Tack strips allow them to display and discuss their works in progress. In styling this environment, the architect picked up on what he calls the "California Modern" of the original Disney Studio buildings designed by Kem Weber in 1939, right down to the signing and colors that duplicate that original streamlined campus. The exception is Roy Disney's vertiginous office inside the sorcerer's hat, right.



#### Credits

*Feature Animation Building*  
Walt Disney Company  
Burbank, California

**Client:** Disney Development Company

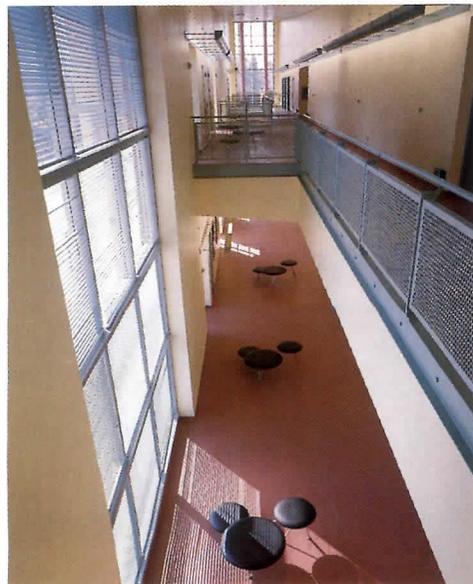
**Architect:** Robert A.M. Stern Architects—  
Paul Whalen, Barry Rice,  
architects-in-charge; Michael Jones,  
Geoffrey Mouen, architects

**Architect of Record:** Morris Architects—  
Donald Springer, partner-in-charge; William  
Vaughan, Carl Jacksits, project architects;  
Timothy Burnett, site architect

**Interior Designer:** Robert A.M. Stern  
Architects—Alex Lamis, Barry Rice,  
architects-in-charge; Pat Burns, interior  
designer; Valerie Hughes, Jane Whitford,  
Adam Anuszkiewicz, assistants

**Engineers:** De Simone Chaplin and  
Dobryn Consulting Engineers (structural);  
Cosentini Associates (M.E.P.); Psoomas Asso-  
ciates (civil)

**Consultants:** Imero Fiorentino; Cosentini  
Associates (lighting); Charles M. Salter  
Associates (acoustics); CBA, Ltd. (cost and  
scheduling); Lucas Film Ltd. (screening  
rooms); SWA Group (landscape); Beck and  
Graboski Design (signage); Patrick Stein  
Associates (food service)





# Tradition Triumphs

By Robert Campbell

Universities represent, for most people, the time in their lives when they were most conscious of their physical surroundings, and the time when they lived in an environment that referred to the past.”

Michael McKinnell is talking. He and I are touring from Cambridge to Princeton to New Haven, to visit three campus buildings designed by the firm of Kallmann McKinnell & Wood. McKinnell argues that each of his firm's buildings is different from the others because each is responding to the genius of a different place. “In a university setting,” he says, “you're much more aware of the exterior quality and appearance of buildings than you are in other settings. Issues are heightened. University presidents, faculty, students—they care what the campus looks like, they worry about a tree being taken down. The alumni want the campus to look like what they remember, or think they remember. There's a yearning for a sense of continuity, for stasis and permanence, an environment that links us to the past, and perhaps to the future. Continuity is explicit in the university context. It's exactly the opposite of a place like Manhattan, where you find all these exquisite and expensive interiors, but they're placed against an urban background that is ignored or despaired of.”

*“Marx Hall is physically attached to an older building. . . it's like a new engine on an existing architectural train.”*

Harvard, Yale, and Princeton are indeed very different. Although I realize that any attempt to characterize them will ruffle some feathers, I'm going to try. At Yale, you always have the sense of an institution trying to create a private world of interior quads. The distinction between town and gown is in this sense emphasized, and you come away with a sense of a Trollopian world of plump towers and serene cloisters, of rich materials and nostalgic evocations. But at the same time, Yale responds to a powerful, very American local order, namely the nine-square grid of the New Haven city plan. Yale buildings obsessively recapitulate the grid in their rectangular closed quads. And they stretch themselves out thin, to shape the streets of the town. The very first Yale building extruded itself to a length of 162 feet with a width of only 23 feet, so as to line the New Haven Green with as much facade as possible.

KMW's Bass Hall is a part of this world. It's a long building that joins with others to shape a closed quad. In program, Bass is a row of biology labs on its north face, a row of service spaces down the middle, and a row of faculty offices on the south. It bridges between two earlier buildings, one modern, the other Tudor. At the opposite end of the quad is Philip Johnson's famous Kline Science Tower. Johnson called this quad a “temenos,” or precinct surrounding a sacred structure, and he defined three sides with a beefy arcade.

The architects respond to these demanding constraints with a building that addresses them all, yet maintains its integrity. Up here on a hilltop, away from the street grid, the New Haven block reformulates itself. Bass closes the quad with the assurance of a door clicking shut. The horizontality of the flat, serene, space-defining south facade is articulated by a firm continuous eyeshade that parallels the Johnson arcade below. This facade contains professors' offices, their windows looking down to the quad and out to the New Haven skyline. Characteristic Yale brick and sandstone achieve the reddish-brownish late Victorian color of Kline and so many other Yale buildings. Facing north, away from the quad, is Bass's lab facade, rendered not horizontally but vertically. Here the panels of glass and brick suggest the shafts of lab services inside, recalling Louis Kahn's Richards Labs at the University of Pennsylvania. The brick panels narrow as they rise, and the windows widen, as in Kahn's Exeter Library. You're reminded that the floor plan, too, with its ranks of served and servant space, is Kahnian, rather like the plan of the Salk Institute, where—same as here—the professors look inward to a courtyard and a far horizon, while the labs face outward to the immediate surroundings.

Princeton is a different world. Built on a less flat site than Yale or Harvard, it becomes, especially as you move farther from the town side, an experience of paths and turns, of climbs and hikes—an episodic world, a quest through a landscape, an orienteering expedition in which you sight your way by the buildings. Princeton's architecture is more intimate, more village-like in scale, more light-hearted somehow, than either Harvard's or Yale's, and there is no governing geometry like the New Haven street grid, no hierarchic center like Harvard Yard and Harvard Square. Because of the lack of a larger order or style, you tend to notice each separate building, even each part of each building, and the buildings often respond by developing idiosyncratic detail.

Marx Hall, at Princeton, is a new home for the philosophy department and a Center for Human Values (see following pages). The program includes faculty offices, meeting rooms, and a library. Marx is the most deferential of the three KMW buildings, the least assertive of a new presence. In part, that's because it's physically attached to an older building called 1879 Hall. Marx presents itself very much as an extension, even a replication, of 1879 Hall: it's like a new engine on an existing architectural train. It imitates the older building's gables, bay windows, limestone water and string courses, and English-bonded red brick, but then declares its independence by means of the windows, which are crisply articulated in steel in an almost Miesian manner, and big enough to give Marx just the hint of a toy-like, slightly theatrical scale. Marx works effectively to shape its corner of the campus. It helps enclose a green space that previously leaked out badly here. And at its northern end, Marx rises into a small tower of seminar rooms, a gabled tower with exactly the right degree of modest assertion to enable it to form one gatepost—the other is McCosh Hall across the way—of a major pedestrian entrance to this part of the campus. The little tower is rotated slightly, to align with McCosh and with a wide path called McCosh Walk. More than the other buildings, Marx is a completion rather than a declaration.

## Three buildings by Kallmann McKinnell & Wood, at Yale, Princeton, and Harvard, respect the genius of each place.

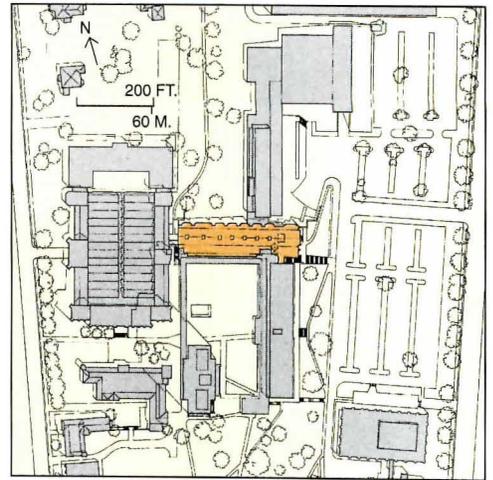
Harvard is still another story. Harvard's essence is its way of opening itself to the community; town and gown there tend to interdigitate. The characteristic motif is the three-sided quad, open at all its corners and, on the fourth side, to the town, a motif that harks back to Harvard's anti-Anglican, Puritan beginnings. Harvard was never meant to be a cloister. "Harvard was meant to serve the community and be a part of it, a purpose for which inward-turning groups of buildings were inappropriate," says one scholar. Thus the essential Harvard emerged, in Harvard Yard, as a group of separate buildings of simple prismatic shapes, standing slightly apart from one another on a plane of grass beneath a canopy of trees, always placed so the view to something beyond remains open, and connected by direct angled footpaths that express the movement of the students. Most of the architecture is simple, too, characteristically Georgian or neo-Georgian in style—"raw and bold brick edifices," as critic Montgomery Schuyler, who hated them, wrote in *RECORD* in 1909.

Hauser Hall is a five-story pile of Law School classrooms and professors' offices, made of red brick trimmed in white limestone and red granite (see following pages). It's a typical Harvard free-standing box, defining an open space by confronting but not actually completing it. Hauser's site is important, facing south across what was a nondescript lawn known as Holmes Field. Hauser's most prominent features are a jutting roof that looks like a visor and an entry archway that looks like a mouth; they create an almost military frontality, like that of a barking sergeant, that seems to call Holmes Field and its disparate buildings to attention. "Shape up," Hauser tells the space in front of it. Around in back, by contrast, Hauser is configured into a curve, thus neatly solving the problem of how to address the multiple arcs and angles of the Harkness Commons graduate center, by Walter Gropius and The Architects Collaborative.

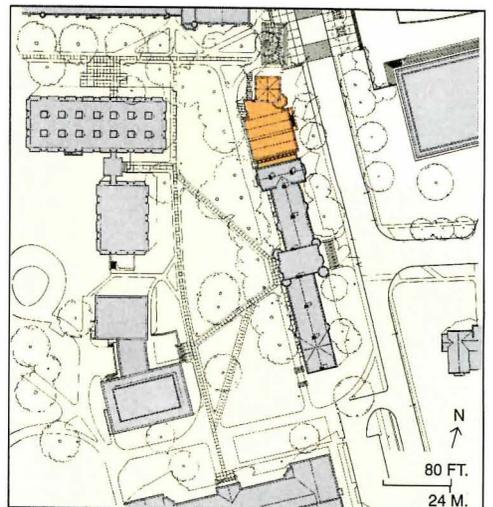
Everywhere, the craftsmanship is superb: in its materiality this is a massive and weighty building, yet one that is finely argued. Some of Hauser's details remind you of H. H. Richardson, who designed the law school's first home—nearby Austin Hall. But KMW's version of Richardson is carefully muted, flattened, abstracted: it's a memory of Richardson, not a revival. And the Richardsonian brick and stone are boldly invaded, on the main facade, by tall metal-and-glass bays that push forward rudely from inside the building. More, the bays are stacks of windows for professors' glass offices where the professors, with their computers and modern ways, are new wine in the old bottle of Harvard law school. Even the limestone is dense with fossils: another metaphor for the integration of new and old.

A university is a paradox. It must hoard the wisdom of the past in the collective memory of its libraries and scholars, but at the same time it must go about the business of inventing the future in the experiments of its laboratories and creative thinkers. More than most architects, Kallmann McKinnell & Wood grapples with that paradox, and in so doing redeems the notion that there can still be such a thing as time and place in the contemporary world.

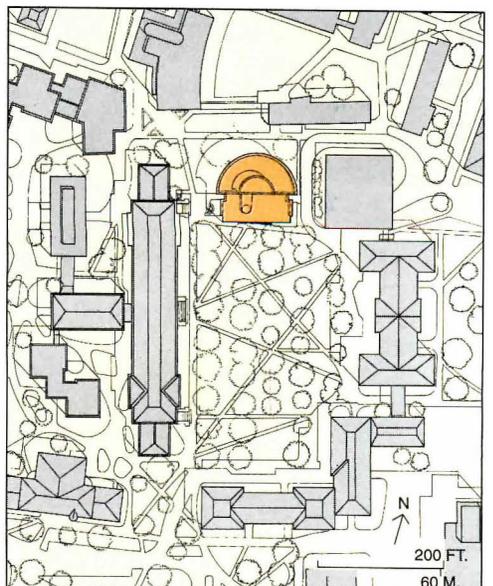
*All three university buildings define outdoor space, but in different ways and using varied programs. At Yale, Bass Center (biology) completes a very eclectic quad, punctuated by Philip Johnson's 1966 Kline Science Tower.*



*At Princeton, Marx Hall (philosophy and human values) extends an existing Tudor structure northward to provide an anchor for a key corner of the campus.*



*At Harvard, Hauser Hall (law) commands but doesn't enclose a formerly shapeless quad, while the curved rear section responds to the angles of the Gropius/TAC Graduate Center complex (north of Hauser; partly visible on site plan).*



# Bass Center for Molecular Biology

*Yale University,  
New Haven, Connecticut  
Kallmann McKinnell & Wood  
Architects, Inc.*

© Steve Rosenthal photos



Front and back of Bass Hall are very different. Facing south, toward the quad (1), Bass provides a firm, shaded horizontal wall to enclose the outdoor space. Behind this facade lie faculty offices which, on the upper floors, enjoy long views of the New Haven skyline. The rear facade (2) contains labs and is expressed with more verticality, suggesting the mechanical service shafts inside, in a manner recalling

Louis Kahn's Richards Labs at the University of Pennsylvania.

Playful elements at corners serve as knuckles, allowing Bass to join comfortably with neighboring buildings of very different styles. "Bridge of Sighs" (3) links Bass with an older Tudor building and forms a typical Yale arched entryway. Old Weathervane Tower (seen in 3) is the source for the shape of a new copper hat (at



2



3



4

right in 1), which tops off the elevator shaft. A round column of Philip Johnson's Kline tower frames the view of the quad (4). Seen from downhill (5), Bass rises in a craggy, slotted and gabled mass, as if for defense.

The ground plan (below) reveals logical ranks of labs, service spaces, and offices. Upper-floor plans are similar, but with more space for informal social contact,

and with corridors that extend on bridges to connect with older buildings at both ends. A typical lab (6) is well lit by translucent coves; desk space is placed against window walls to enjoy the view. A seminar room (7) and classrooms fill corners opposite the main stair. Materials are brick, reddish brownstone, cast stone, and lead-coated copper at the roof.

**Credits**

*Nancy Lee and Perry R. Bass  
Center for Molecular and  
Structural Biology  
New Haven, Connecticut*

**Architect:** *Kallmann McKinnell  
& Wood Architects, Inc.*

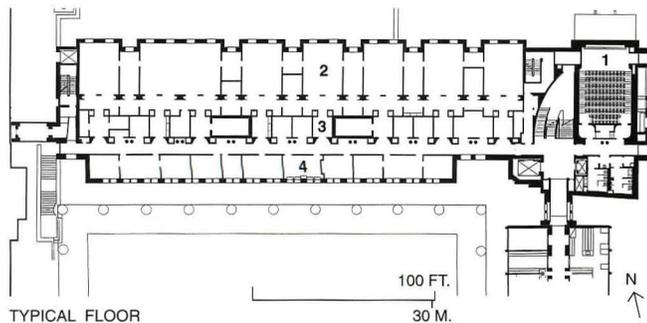
**Engineers:** *Martin Horton  
Associates (structural); Van  
Zelm, Heywood & Shadford  
(mechanical, electrical,  
plumbing, and fire protection)*

**Construction Manager:** *Turner  
Construction*



5

- 1. Lecture hall
- 2. Laboratories
- 3. Lab support
- 4. Faculty offices



6



7

# Louis Marx Jr. Hall Center for Human Values

*Princeton University,  
Princeton, New Jersey  
Kallmann McKinnell & Wood  
Architects, Inc.*

© Otto Baitz photo



1

Marx Hall responds to the smaller, more broken scale of Princeton. It picks up the gabled skyline, limestone trim, and red-brick bond of the attached older neo-Tudor building, then transforms these motifs into a contemporary expression with large windows framed in steel (1 and 2). At the north end, Marx rises to a miniature tower of seminar rooms, rotated to frame a key entrance to the campus (3).

## Credits

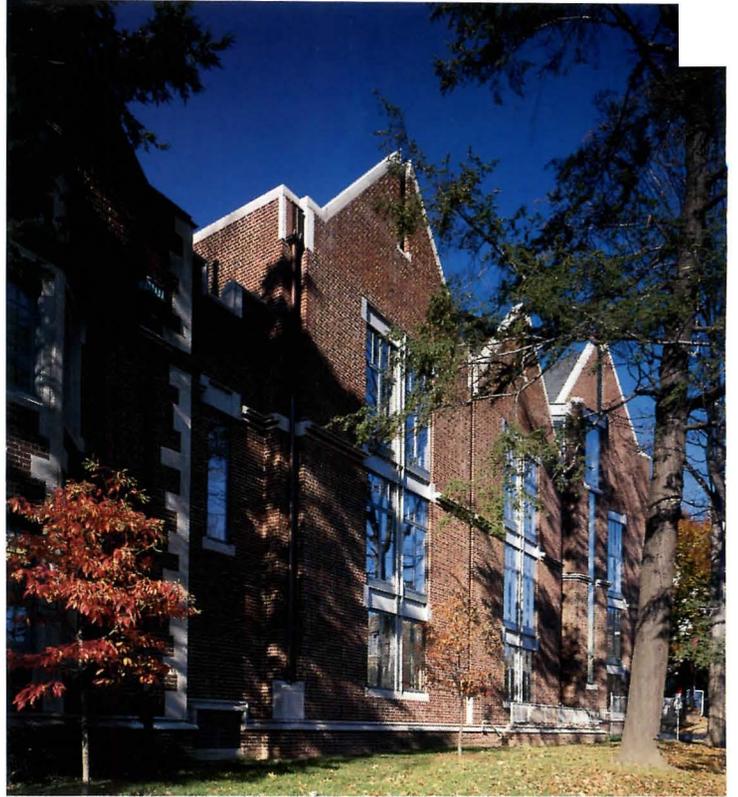
*Louis Marx Jr. '53 Hall, Center for Human Values  
Princeton, New Jersey*

**Architect:** Kallmann McKinnell & Wood Architects, Inc.

**Engineers:** Lim Consultants, Inc. (structural); Cosentini Associates (mechanical, electrical, plumbing)

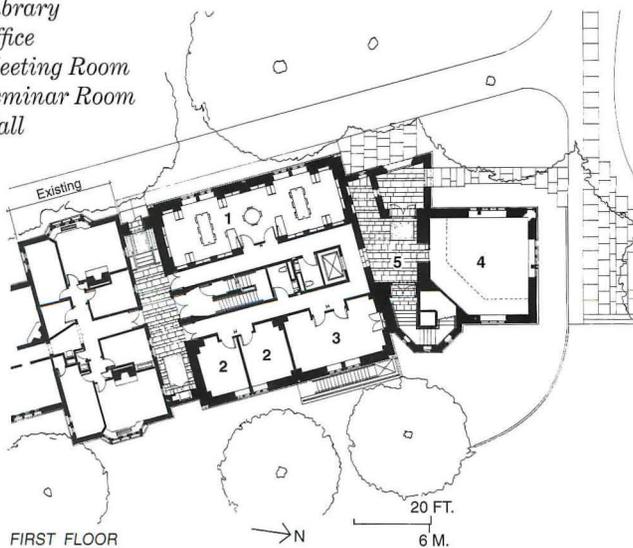
**Construction Manager:** Humphreys & Harding, Inc.

© Peter Vanderwarker photos



2

1. Library
2. Office
3. Meeting Room
4. Seminar Room
5. Hall



3

# Hauser Hall, Harvard Law School

Harvard University,  
Cambridge, Massachusetts  
Kallmann McKinnell & Wood  
Architects, Inc.

© Steve Rosenthal photos



1

Hauser Hall respects Harvard's tradition of free-standing buildings. South facade (1) mixes memories of Austin Hall by H. H. Richardson and other neighbors to knit together a disjointed part of campus. A curved rear wing (2) draws viewers past the building toward other parts of campus in typical Harvard fashion. Plan reveals Richardsonian entrance. Detail (3) displays rich craftsmanship in limestone and brick.

## Credits

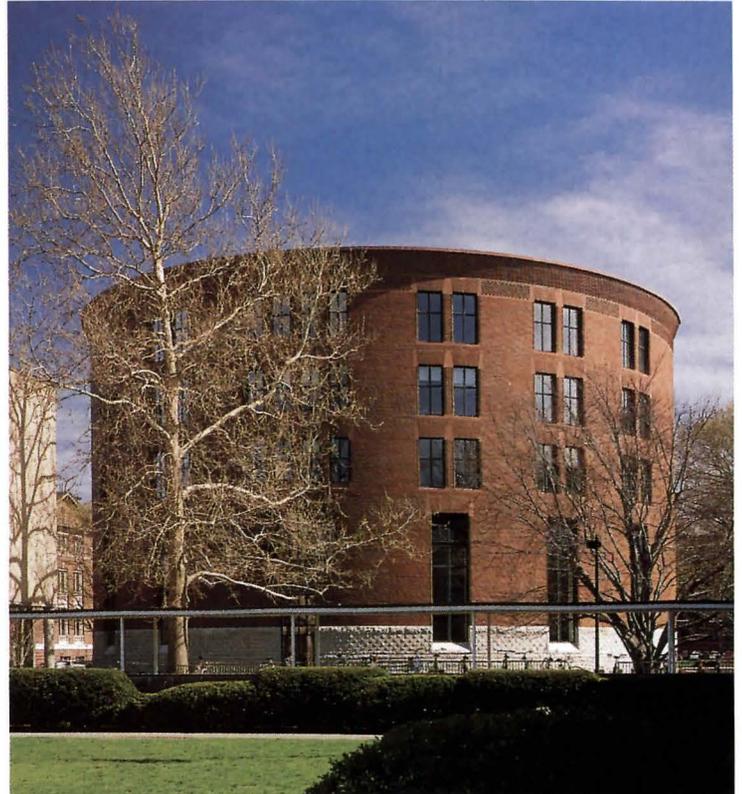
*Hauser Hall, Harvard Law School*

*Cambridge, Massachusetts*

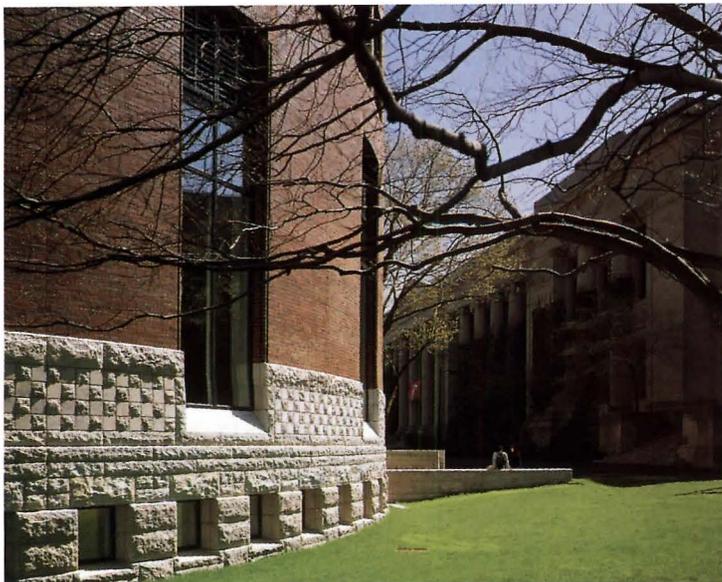
**Architect:** Kallmann McKinnell & Wood Architects, Inc.

**Engineers:** Weidlinger Associates (structural); TMP (hvac, plumbing, fire protection); Lottero & Mason Associates, Inc. (electrical); Bryant Assoc. (civil)

**General Contractor:** Daniel O'Connell's Sons

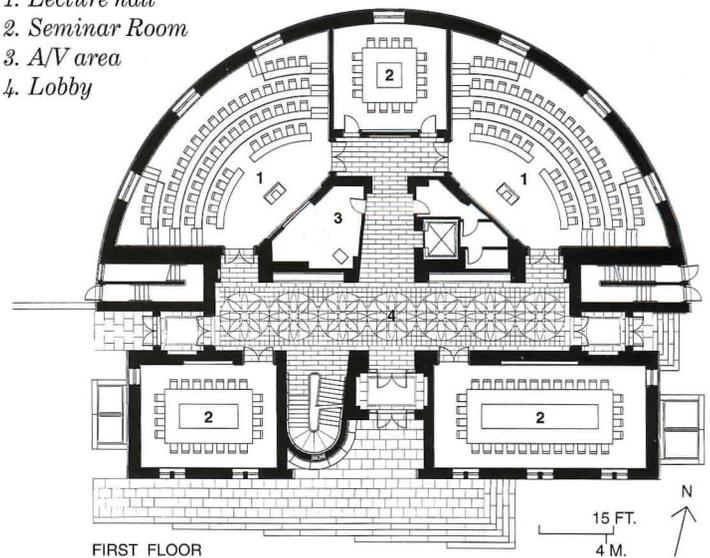


2



3

1. Lecture hall
2. Seminar Room
3. A/V area
4. Lobby



# Euralille: Crossroads to 21st-Century Europe



*Trains and rail stations are back!  
Rem Koolhaas's high-tech Lille Grand  
Palais is a multi-function center, and  
a destination for "Chunnel" users.*

*Lille Grand Palais  
Lille, France  
Office for Metropolitan Architecture  
Rem Koolhaas, Architect  
F.M. Delhay-Caille, Co-Architect*





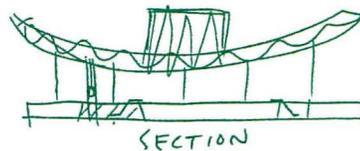
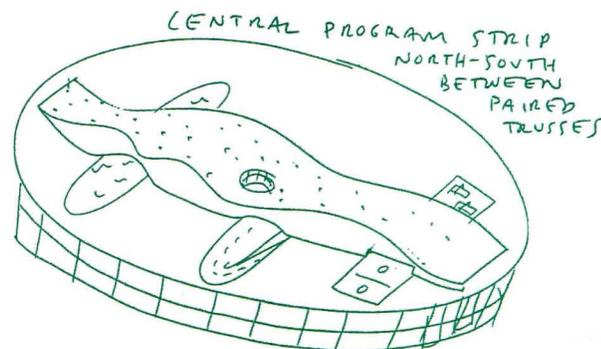
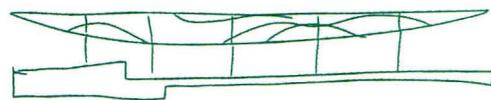
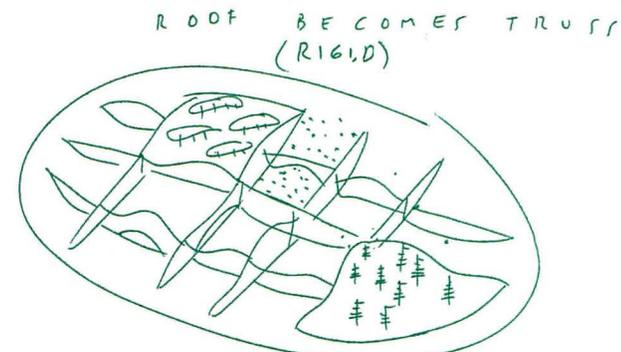
As most European cities move to shelter their historic centers, pushing the hypermarket, the congress center, and the rock concert venue out to suburban zones, Rem Koolhaas and his Rotterdam-based Office for Metropolitan Architecture (OMA), are bringing "big" architecture back into the city as a realistic and viable component of urban scale. Their testing ground is Euralille, a dense 173-acre transportation, living, and working sub-center, adjacent to the old town of Lille in northern France. Koolhaas is both the master planner of Euralille, and architect of one of its key buildings, the Lille Grand Palais.

Euralille's main reason for being is its train station, intended to send freight and passengers throughout Europe and across the "Chunnel" to Great Britain. Situating the high-speed TGV train in Lille has made the city a crossroads of European interchange, at the center of the London/Brussels/Paris triangle, containing more than 50-million inhabitants. By 1996, almost 100 TGV trains will stop at Euralille's new station daily. Inspired by so much coming and going, Koolhaas has often described the project as having a "soft" address—located not in terms of geography, but the distance in time away from other cities ("40 minutes from Paris"; "70 minutes from London"). Much of the reasoning behind Euralille is, therefore, based on temporary programs for large numbers of users. The connecting projects within the complex, including Clause Vasconi's World Trade Center, Christian Portzamparc's office tower, Jean Nouvel's commercial center and apartments become, in Koolhaas's words, "short circuits to the sensation of movement."

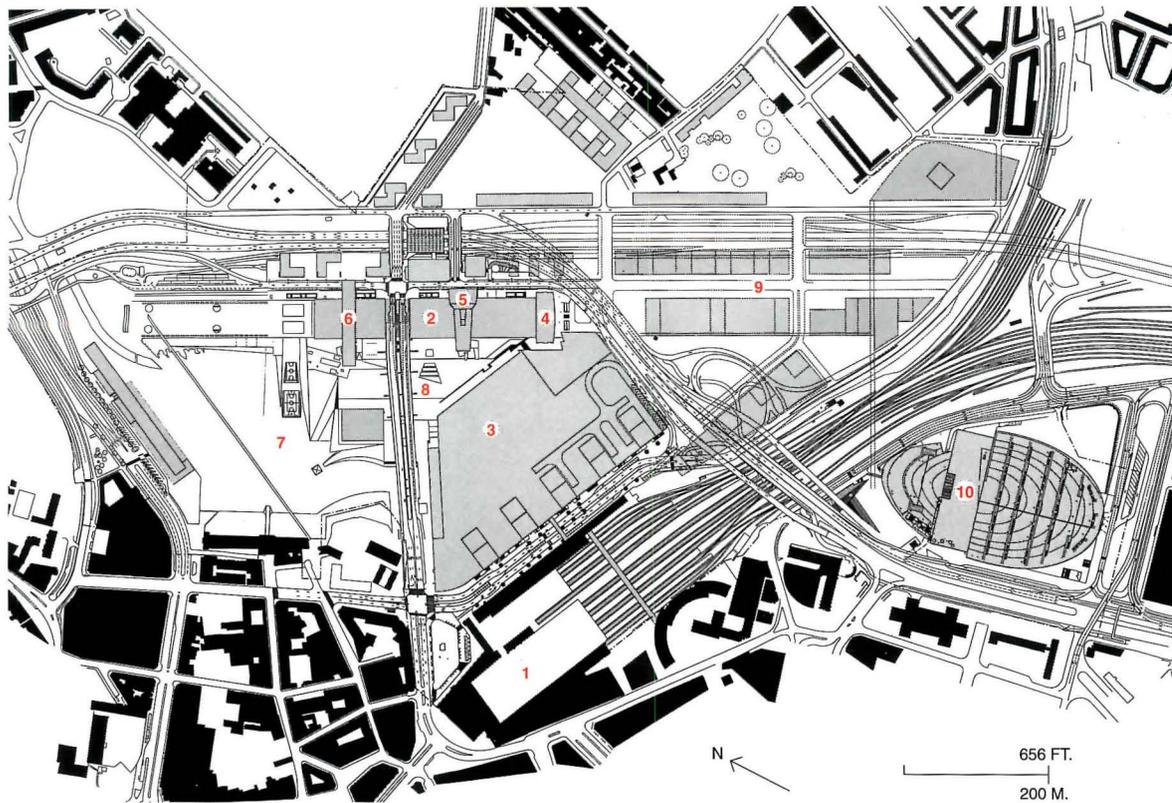
The Lille Grand Palais, which opened in June 1994, is a multi-function exposition hall, congress center, and concert hall, and can easily handle over 15,000 people per day. Set into a triangular site and cut off from the rest of Euralille by an existing road and train tracks, the context of the Grand Palais is defined by the transient links that exist in all cities: traffic, communications networks, and the influx of crowds. Bypassing any idea of local style, the facades are treated with repeated lines and textures in transparent to dark gray materials. The facade is both gritty and dynamic, following the unexpected lines of an egg-shaped plan. As Koolhaas has pointed out, with the size and complexity of the over-lapping program so typical of Euralille, "the architect cannot pretend to fit them into a traditional urban typology." Yet, by basing his architecture on less tangible connections, the Lille Grand Palais could be located in almost any urban center.

The large programs of the Grand Palais are divided horizontally into three parallel zones, with a semi-circular open shell at each end. The larger southern end houses a 211,250-square-foot exhibition space, and the northern end, a 6,000-seat concert hall. It is in the central rectangular wedge of the congress center where the clarity of the plan is overlaid with the complexity of the section. Here the public converges in the entrance lobby and the first-floor reception areas, spaces defined by concrete undersides of the three auditoria. Accented by the triangular-plan staircase and the structural columns, the dynamic space defies the expectations of the building type.

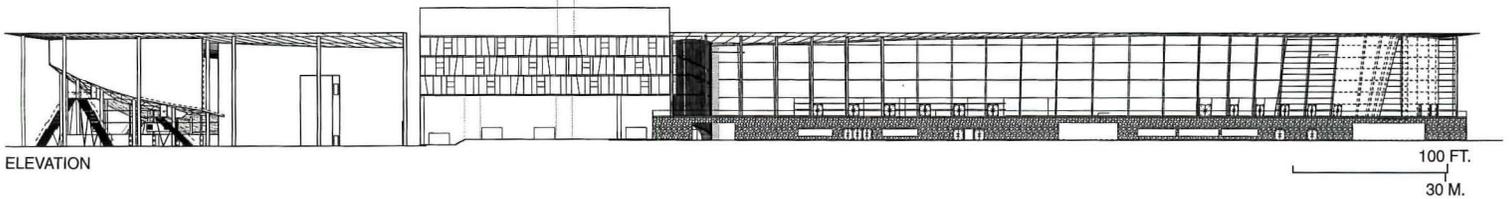
The exposition hall, along with its meeting rooms, offices, four bars, and two restaurants, will serve the large trade fairs of this industrial city. Divisible into three spaces, the hall is unified by the repeating rhythm of the laminated wood panels suspended from the ceiling, and softened by daylight filtering through the facade. Since the turn of the century, daylight is an element rarely found in exposition halls, and a design priority OMA had to fight for. It is Koolhaas's ability to overhaul a predictable building type that makes his version of large-scale architecture so infinitely interesting. *Claire Downey*



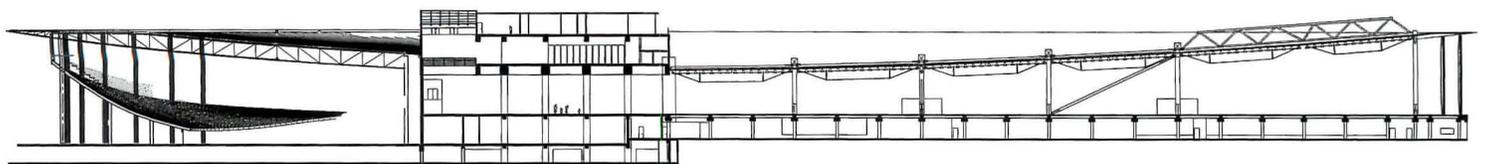
Sketches show how the integration of structure (top axonometric and section) and program (bottom axonometric) came together early in the design of the Lille Grand Palais.



1. Existing station
2. TGV
3. Commercial center
4. World Trade Center tower
5. Crédit Lyonnais tower
6. Hotel
7. Urban park
8. Lowered station square
9. Area reserved for Phase 2
10. Lille Grand Palais



ELEVATION

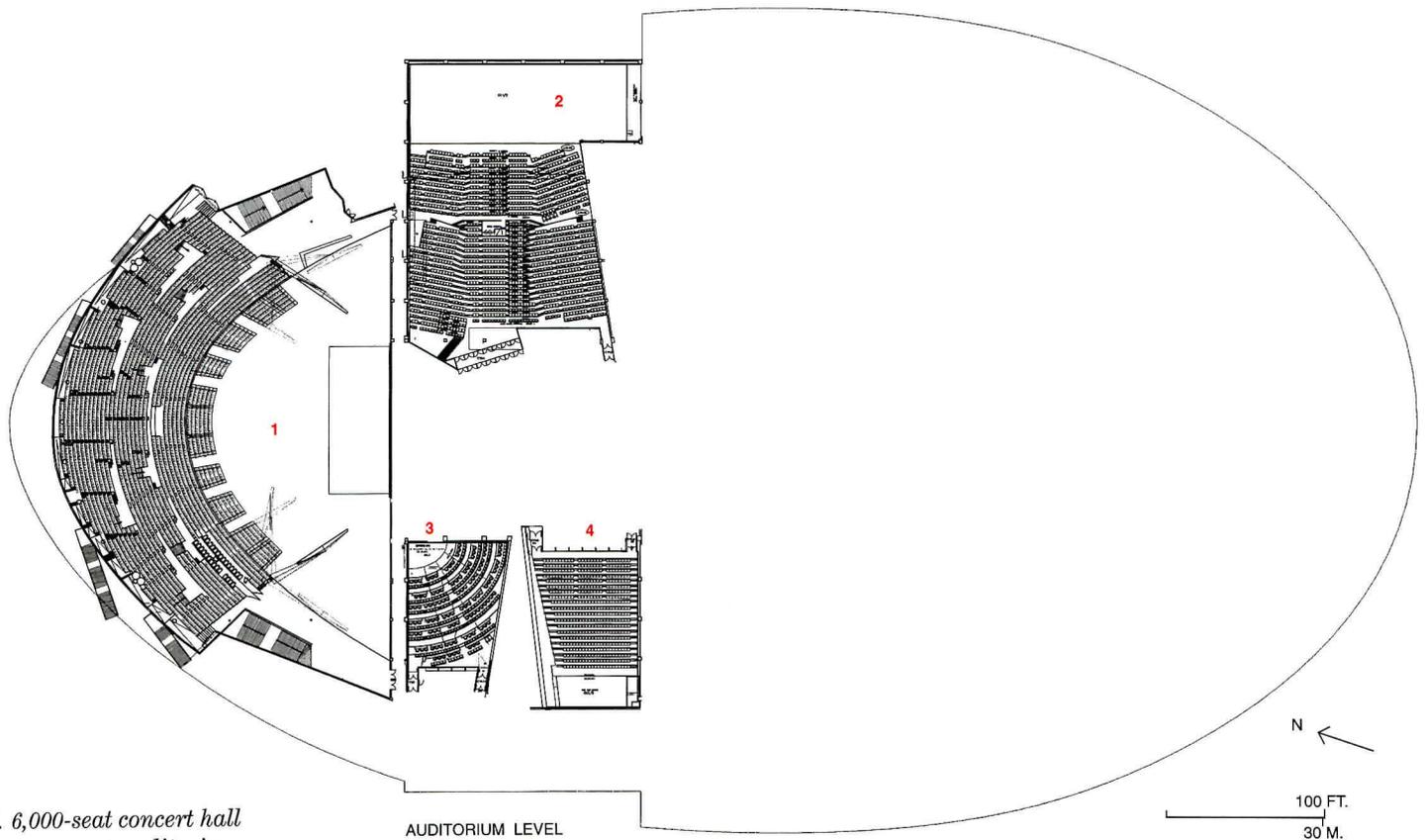


LONGITUDINAL SECTION

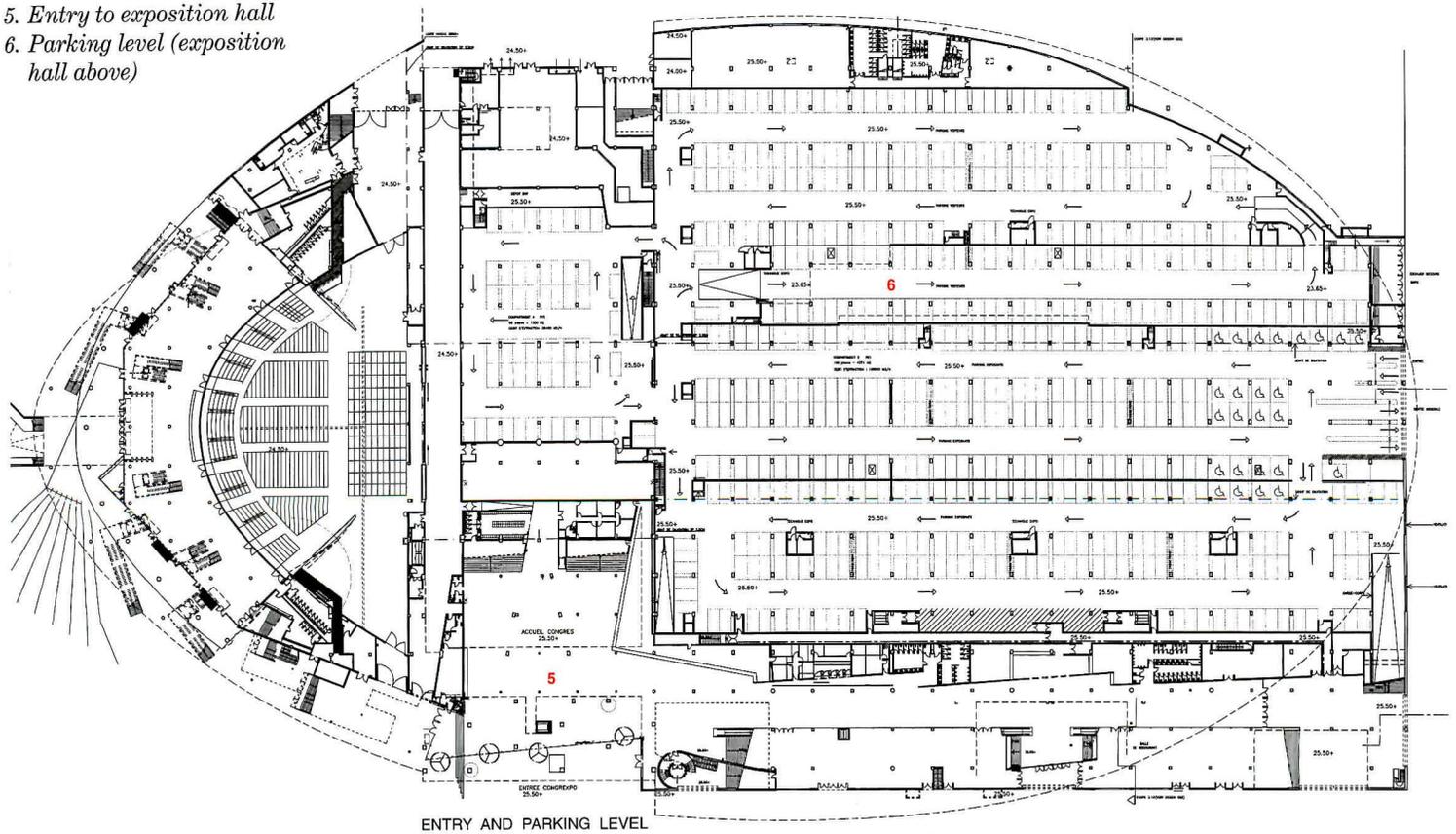
*Euralille* (see site plan, top) is a dense 173-acre multi-use complex outside the old town of Lille in northern France. Its reason for being is its train station. In 1996 it will be a stopping point for 100 high-speed TGV trains per day. This makes the site attractive as a destination in its own right, and as a location for an exposition center and concert hall. Each of the building's activities has its own zone, arranged so that the interfaces create new opportunities for contact. In the east-west direction, the zones are autonomous, while in the north-south direction, they are connected. The large amphitheater-like auditoria are placed back to back to form a bridge over the large public reception spaces below.

The vertical layering of the building begins with the parking and deliveries level. The edges toward the city are enlivened with the reception area and other daylight spaces, while the opposite edge is at the same height as the service road, to accommodate trucks making deliveries to the exhibition hall.

The facades that cover the middle layer of the building open onto the public spaces and are oriented toward the city. The top layer, the roof, has an almost perfectly oval form which is lower toward the center. The ceiling follows this form so that it is possible to imagine the shape of the building without ever viewing it as a whole.



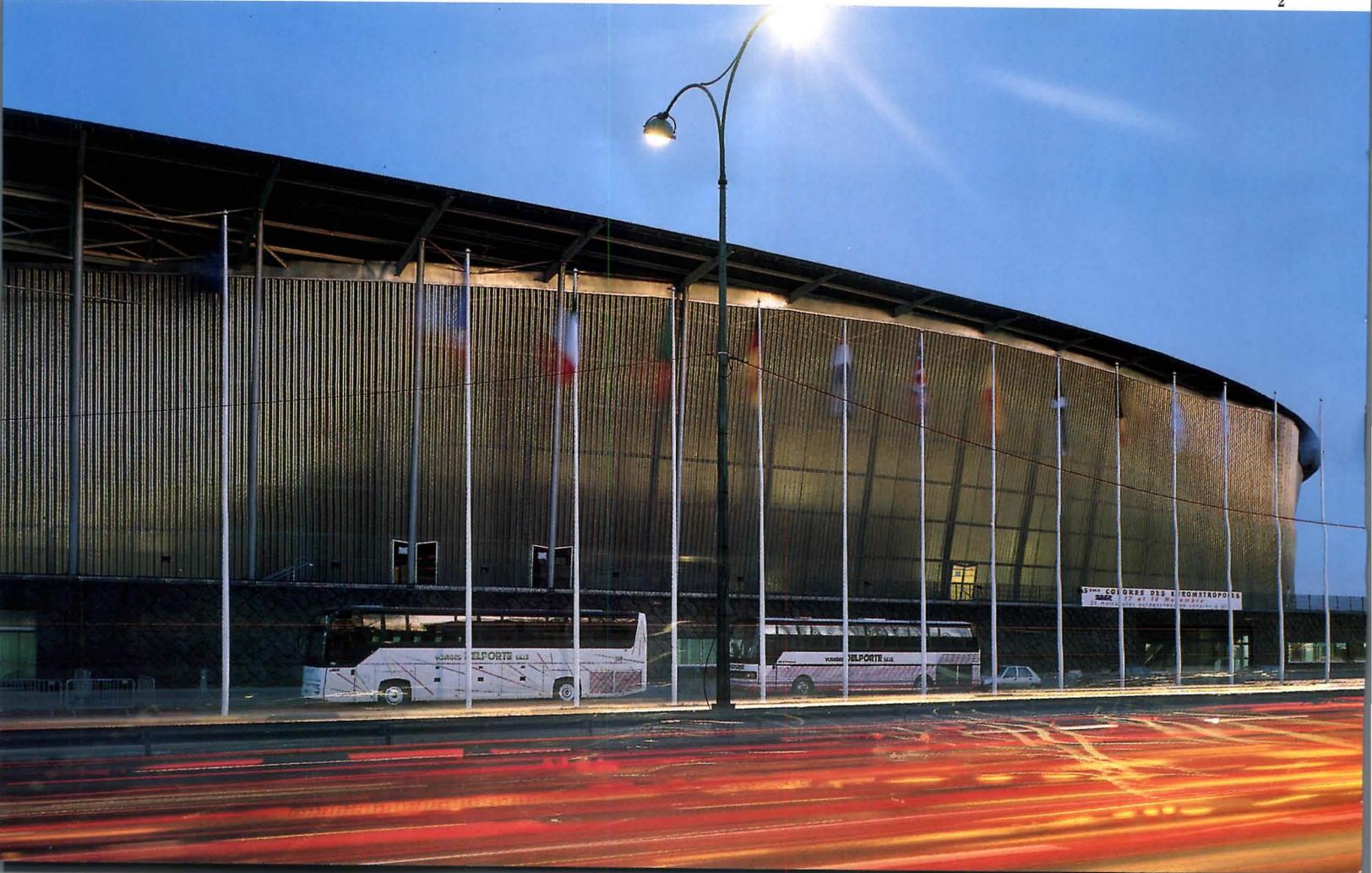
- 1. 6,000-seat concert hall
- 2. 1,500-seat auditorium
- 3. 500-seat auditorium
- 4. 350-seat auditorium
- 5. Entry to exposition hall
- 6. Parking level (exposition hall above)





1

2





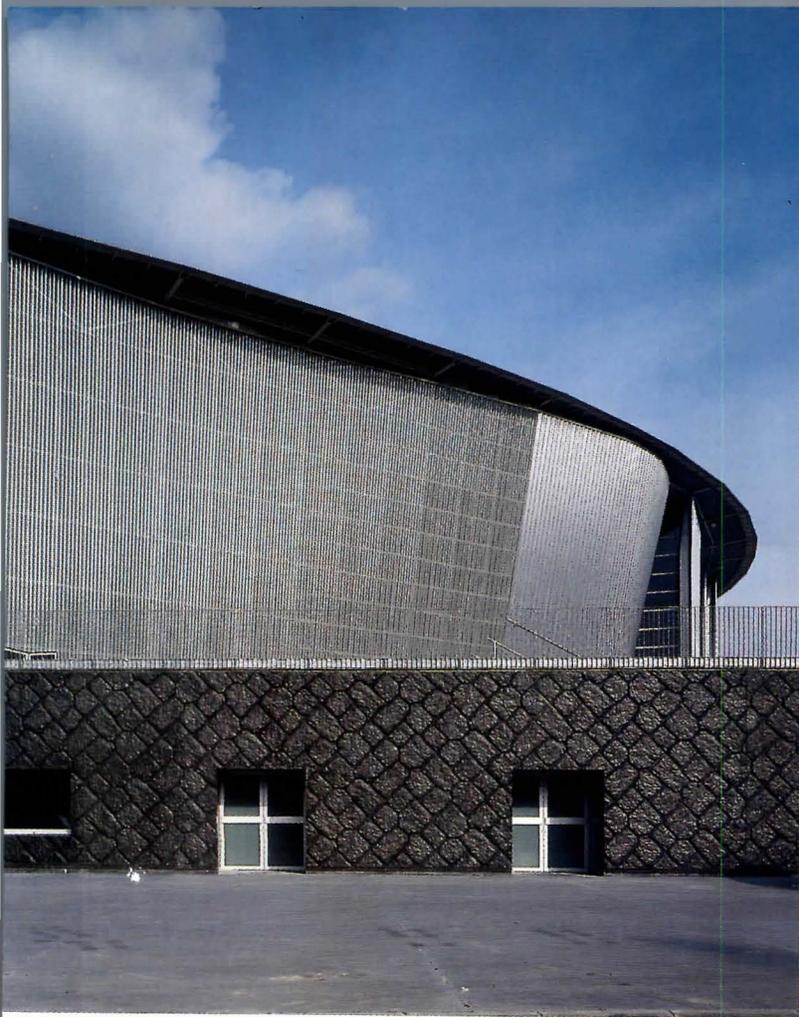
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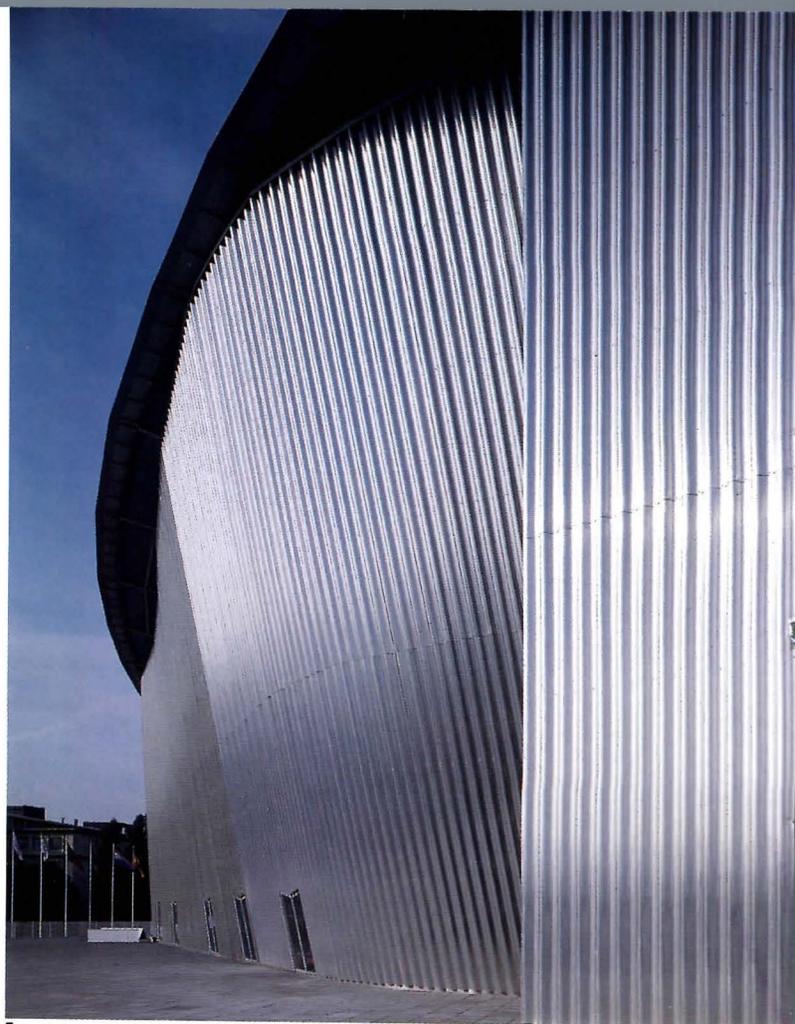
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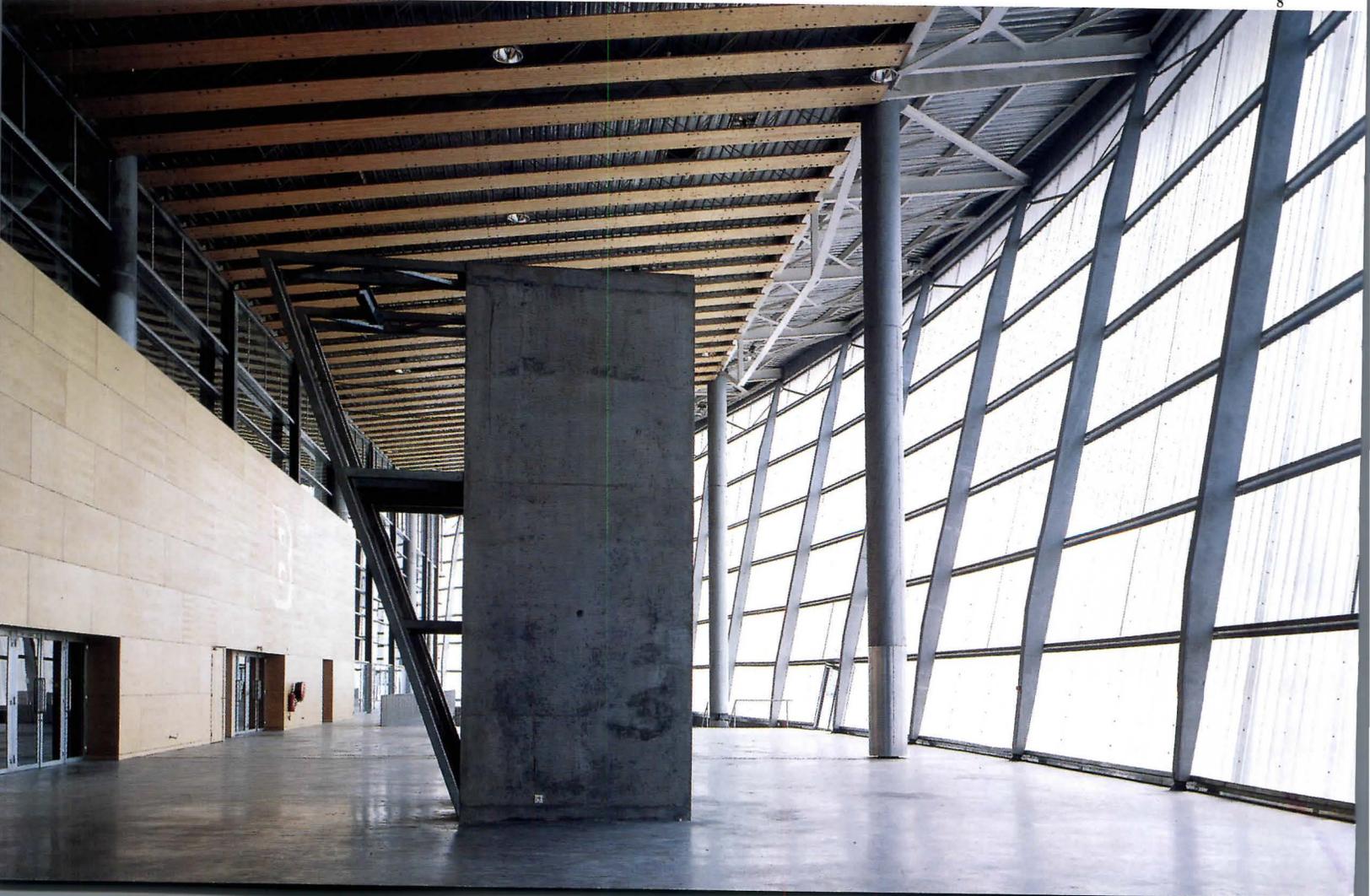


6



7

8

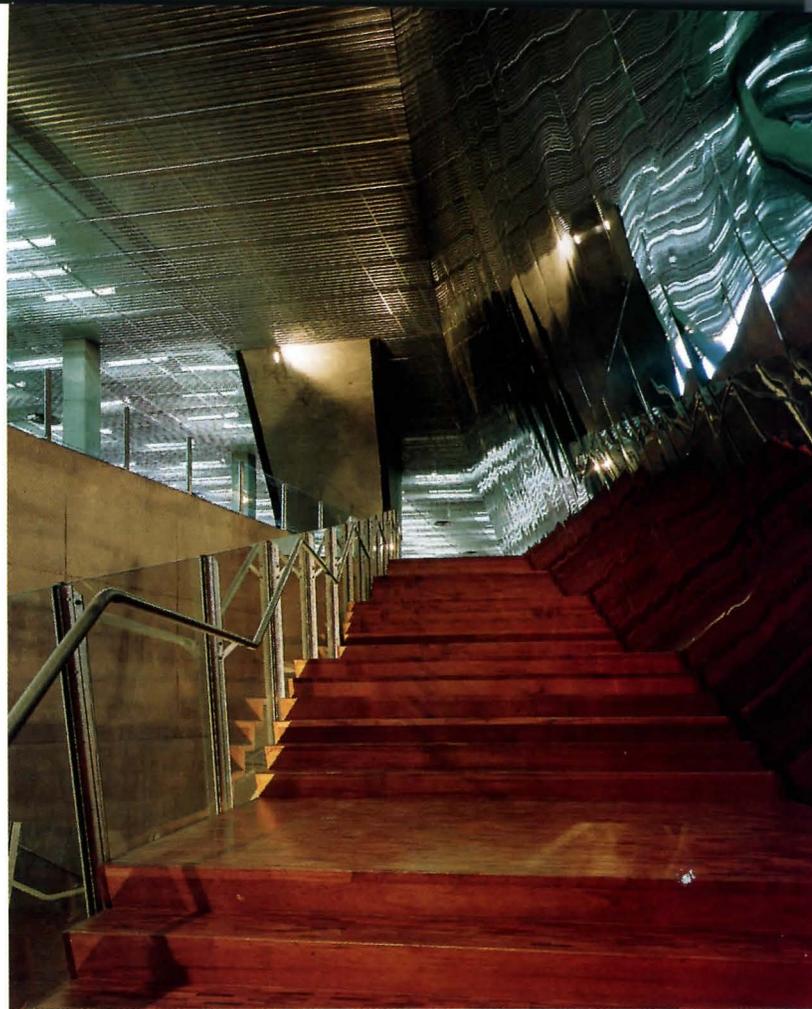


### Up Close

*Transparency* (see photos on previous spread). Whether solid, transparent, or obscure, Koolhaas uses texture as well as opacity to differentiate the three large volumes of the Grand Palais. The alternating flat and angled glass shingles of the congress center facade (1,3,4), with their vertical glass supports, fill the interior lobbies and halls with direct sunlight. In contrast, a soft diffuse light enters through the exposition halls' corrugated facade panels of translucent fiberglass (2), encrusted with aluminum particles. Atop the congress center, the concrete envelope of the roof terrace is pierced by large circular openings to the sky (5). At night the facade surfaces unite, becoming an immense illuminated surface.

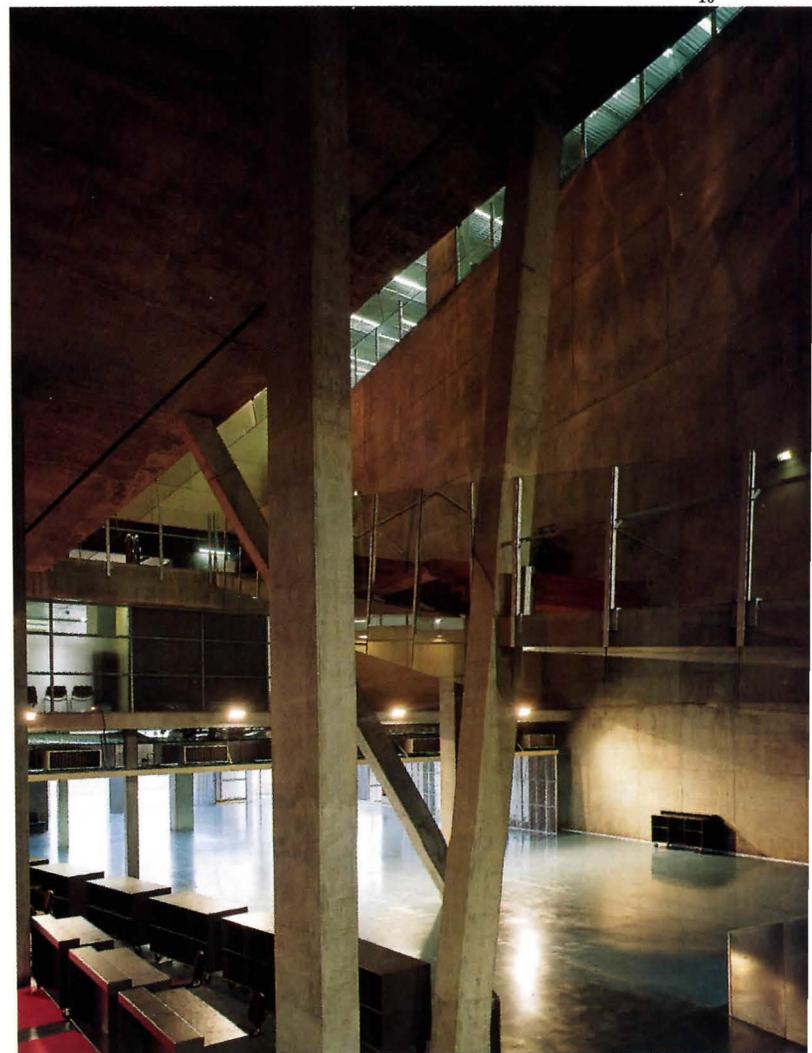
*Structural Acrobatics*. Koolhaas has devised the neat trick of creating surfaces that seem to float, while at the same time using structure as a major design element. The undulating surfaces of the exhibition hall (6,7) push out from the scored concrete building base, at some points almost escaping the thin edge of the roof. On the interior (8), the translucent skin is reinforced by steel members which change their angle of inclination to fit the curvature of the facade.

Fixed against the protruding wall of the 500-seat auditorium, the staircase (9) leading up to the congress center restaurant is mirrored in polished stainless-steel cladding. The skewed optical effect creates a slight sense of vertigo. Movement is the focus of the central lobby space (10), where the diagonal structural columns, escalators, and slanting columns make it difficult to find two parallel surfaces. The sea of round and square columns within the congress center lobby supports the auditoria above, but also acts as detail, along with the triangular stair, in the otherwise stark space.



9

10





11



12



13



14

While the main lobby of the Grand Palais (10) is defined by the undersides of the auditoria and the outside walls of the main rooms, the interiors of these rooms are unique, self-contained designs. For the exposition hall (11), Koolhaas wanted a maximum of daylight, and a minimum of heavy ceiling structure. The galvanized-steel column bases house air-conditioning diffusers, since there is no ceiling ductwork.

Both the 1,500- and 500-seat auditoria are equipped with translator boxes, and seat-side audio hookups for nine-language translations. The faceted polycarbonate acoustical baffles of the large auditorium (12, 13, and opposite) recall the facade of the exposition hall. Very different treatments are found in the mid-sized auditorium with its orange seats and black leatherette padded walls, and the 350-seat hall finished in warm pine.

#### Credits

Lille Grand Palais  
Lille, France

**Architect:** Office for Metropolitan Architecture—Rem Koolhaas, Jan-Willem van Kullenburg, Douglas Grieco, Ray Maggiore, Riens Dijkstra, Ruud Cobussen, Edu Arroyo Munoz, Jim Njoo, Mark Schendel, Yushi Uehara, Sara Whiting, William Wilson, Ron Witte, Dirk Zulderveld, Diana Stiles, Luc Veeger

**Co-Architect:** F.M. Delhay-Caille—François Delhay, François Brevart, Christophe d'Hulst, Shoreh Davar, James Langlin, Isabelle le Métay, Olivier Tourraine, Xavier d'Alençon

**Interior Designer:** Petra Blasse and Julie Sfez

**Engineers:** Ove Arup & Partners—Cecil Balmond, Robert Pugh, Rory McGowan, (structural); Sodeg Ingenierie—Pascal Bakaert, Gerard Catutti, Michel Desplanque, Bruno Fontana, Joel Taquet (hvac); Rens van Luxemburg (acoustics)



# On the Waterfront

By Coleman Coker

Heading south out of Memphis—built on the southern most Chickasaw bluff, above the floodwaters of the mighty Mississippi—I travel down Highway 61. As the old single-lane highway cuts straight through the heart of the Delta making its way to New Orleans, I'm reminded of how this time-worn artery supplied life-blood to the rest of the world, serving as a path northward for many. To Memphis' Beale Street for a fortunate few—musicians, like B.B. King, Furry Lewis, Albert King—and on to Chicago, for others—Muddy Waters, Howlin' Wolf, John Lee Hooker. The impoverished, too, have found this an unavoidable but certain route, when generations ago—as mechanized farming deprived tenant farmers of their meager livelihood—land-dependent families migrated along this same road, only to arrive at low-skilled, low-paying factory jobs in northern cities.

Now, as I cross the city limits into Mississippi, it's late afternoon. The sky begins to turn the color of dry-slate as I descend into an expanse of pancake-flat farm land. Narrow at first, this terrain is bounded on the east by a distinct vertical edge, a geological separation, which meanders to the south, touching the river again at Vicksburg, and clearly marking the eastern limits of the rich alluvial soil that lies within this long, thin 200-mile strip. As repetitious rows of soybeans and cotton spread out before me—occasionally interrupted by a cypress tree-lined bayou—I recognize on my west flank another demarcation formed of long, straight, smooth lines of grassy geometry. These are the levees jutting above the farmland as they run parallel with the Mississippi. Tirelessly standing guard against periodic floods, the levees have made this black earth some of the most productive in the country; valued raw material for an enormous, multi-national agri-business that satiates the devouring appetite of "big" cultivation.

## Rich soil, poor people

Yet with this kind of wealth, the Delta has remained a third-world community, one of the nation's poorest places, where jobs—outside of catfish farming—are few. Most who have remained live in unmitigated poverty. Abandoned, small-town main streets are lined with deteriorating brick shells. (They stand inevitably to remind us that there used to be commerce here.) Skeletal tenements are forsaken, their former occupants barely subsisting in slightly better shotgun shacks in destitute hamlets: Sugar Ditch, Itta Bena, Mound Bayou, and Alligator, the outskirts of Helena, Yazoo City. Yet, in this impoverishment, in this inimitable landscape, there remains a quiet affirmation: there is more here than meets the eye. As the land has persevered, it remains saturated with contradiction—proof that this area has served as a crucible for human endurance and social confrontation. As the time, tempo, and meter beats out its own distinct cadence, the Delta forms its own particular visual rhythm, one in which each beat confirms that there is something substantial about these places, some quality that remains, for lack of a better term, "real."

*Coleman Coker is a principal of Mockbee/Coker Architects and teaches at the Memphis College of Art.*

## Mississippi mirage?

As I leave the sprawl of Memphis, the flatness of the land and the darkness spreading out before me, I come upon a new spectacle, something never seen here before. Competing with the enormity of the land, immense billboards, one after the other, begin to light my way through the early evening. Gigantic beauties, tantalizingly clad, tell me that they have the "certified loosest slots" in the Delta. Each boasts of its biggest winners with smallest bets. I'm told that *my* fistful of dollars is just down the road. Words like roulette, blackjack, craps, form a whole new language for this part of the world. Alluring announcements make the traveler aware that casinos have come to the Mississippi Delta. And in a big way.

As I proceed southward, I'm soon confronted with an anomaly. Veering off the main highway, I'm now on a new four-lane road filled with visitors to this, until recently, nearly uninhabited area. Mingling with the uncountable headlights, crisp lasers scan the sky, gyrating a heavenly advertisement. More gigantic signs full of neon and scintillating luminescence—in gold and silver, vermilion and ultramarine—persuade me that my fortune is certain to lie in Treasure Bay, Hollywood, Sam's Town, Fitzgerald's, or several of the other casinos competing for attention. Caught in the stream of automobiles, I cross the levee and begin to make out the casinos. There they stand, sculpted in synthetic stucco and bathed in an ephemeral haze: an ersatz Neo-classical mansion, its ruby-roofed facade full of well-proportioned columns and overscaled windows that open onto nothing; filled instead with two-dimensional, silhouetted forms in festive period costume. A parking lot away is a vinyl-sided theatrical facade, a wild-west town. Its huge neon beacon boasts of lobster-and-steak dinners, only \$5.95. Nearby, an emerald- and ochre-colored Irish castle stands surrounded by its own counterfeit moat. And there's a *faux bois* pirate's ship—on its bow a grinning mermaid, its main mast topped with a tattered Jolly Roger, all defended by a mock cannon that will never fire a broadside. There's also a stone and split-timbered Bavari-



*Fitzgerald's, Robinsonville, Mississippi*

## Architect Coleman Coker, of Memphis, and photographer Timothy Hursley, of Little Rock, take a drive along the Mississippi River to see the newest riverfront attractions.

an chalet, and a red-and-white striped circus big-top trimmed in confectionary color. All are new, their backs to the river's edge, where shifting sand bars and barges vie for navigable waters.

This northwest corner of Mississippi—whose traditional cash-crops have been cotton, the Blues, and, more recently, pond-raised catfish—has undergone an overnight transformation. The first casino opened over two years ago in Tunica. There are now 10 complexes here, with two more under construction. Each has its own nightclubs and restaurants, while several boast their own hotels. Also, there are smaller motels, travel parks, and quick-stop gas stations opening every week.

All the big names have invested: Harrah's, Sheraton, Bally's, Circus Circus. Aside from those outside of Memphis, there are more: one in Lula, across from Helena, two in Greenville, four in Vicksburg, one in Natchez. These southernmost gaming houses address the context by trying to fit in: to avoid the *faux pas* of offending its historically-minded citizenry, one Vicksburg complex might pass as a Federal-style civic center, while the ante-bellum town of Natchez converted an authentic river steamer. Between Tunica and New Orleans there are, at last count, 18 new casinos. Along the Gulf Coast there are 14.

### Casinos spread their wealth

In a short time casinos proved to be more than beneficial to this economically-barren state. Aside from all the new construction generated by the casinos themselves, new schools, health-care facilities, highway construction and repairs are now under way, all paid for by taxes from the casino revenues. Architects benefit from this directly, of course, and in the spin-off work as well. In a state long known for its political and social conservatism, the legislature, having year after year overseen the poorest state in the country, agreed after much debate to permit gambling—as long as the gambling floors themselves didn't touch state soil. The new casinos complied,

first building on barges actually in the river. More recently, though, they've become increasingly clever: shallow, plastic-lined moats filled with artificially colored blueish-green water that surround the buildings still comply with the letter, if not the intent, of the law.

Nothing in Commerce Landing, Mhoon Landing, and Casino Center appears done with permanence in mind. Rather, simulation disguised as commerce in turn disguised as entertainment is the order of the day. Everything subtle about the casinos' design focuses on the task of forgetting. Fantasy themes of the palatial south, treasure ships, the big top, and elegant riverboats offer a temporary suspension of reality: while here one may temporarily imagine oneself as a cunning riverboat gambler, wild West sheriff, or esteemed feudal lord. The casinos, isolated as they are from time and locale, exist in their own framework, one which seems detached and other-worldly. This sense of disconnectedness—the surreal quality that's sustained by the *trompe l'oeil* atmosphere—is further heightened by the contrast with the place where the casinos are built: the inexorable steadiness of the land and its deteriorating monuments, the immense poverty that remains here, and the inexhaustible power that the river still holds. This egregious difference is the deepest impression I leave with.

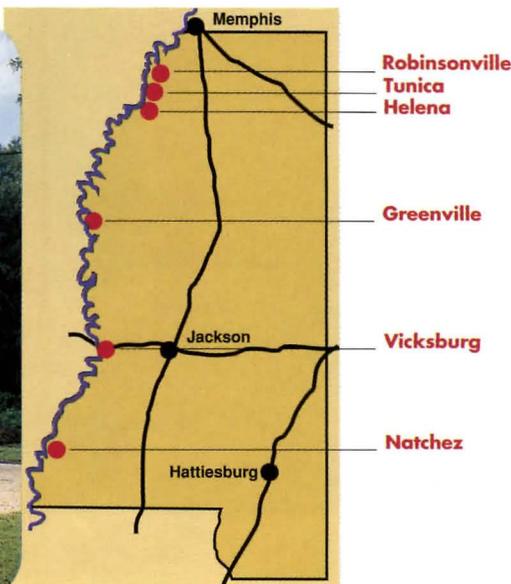
As I depart the glitz and shimmering artificiality, I'm reminded of something that Jean Baudrillard wrote some years ago when he stated that, for the first time, our western culture is no longer confronted with the age-old necessity of gathering goods and materials just in order to survive. Now, in our society of abundance—or overabundance—where material goods abound, we're now faced with a different dilemma. We must figure out how to harvest this plenitude of material wealth that is all around, how to present and package it, so that it's appealing and seductive. The new casinos in Mississippi have effectively hit upon the opportune solution and, in doing so, have made pleasure the Delta's newest cash crop.



©Timothy Hursley photos



Route 82



Map of Mississippi

*“More gigantic signs full of neon and scintillating luminescence...persuade me that my fortune is certain to lie in Treasure Bay, Hollywood, Sam’s Town, Fitzgerald’s, or several of the other casinos competing for attention.”*



Because it's close to Memphis, Tennessee, Robinsonville, located in the extreme north-west corner of Mississippi, has become the new home of the greatest concentration of casinos built along the river. Before the arrival of these sprawling gambling complexes, this tiny community consisted of not much more than a handful of

humble residences, an old grocery store, and a run-down cotton gin. Newly carved from the soybean and cotton fields, the glut of wealth that put down roots just west of Robinsonville has now turned the only road running through the small hamlet into a perpetual stream of bumper-to-bumper automobiles.

1, 2, 3. *Circus Circus, Robinsonville, Mississippi*  
Hnedak Bobo Group, Architect

4. *Treasure Bay, Robinsonville, Mississippi*  
Allen & Hoshell, Architect

5. *Harrah's, Robinsonville, Mississippi*

6. *Sam's Town, Robinsonville, Mississippi*  
Askew Nixon Ferguson, Architect



2



3



5



6

*“... the Delta has remained a third-world community, one of the nation’s poorest places, where jobs—outside of catfish farming—are few.”*

The first casino, Splash (below), opened in the small Delta town of Tunica, Mississippi, previously known for high unemployment and destitute living conditions. As other casinos followed, Tunica began to reap financial and employment benefits. With the more recent opening of casinos in Robinsonville (previous pages), those in Tunica are faltering. The President casino even untethered itself from its moorings and



floated down river to the Gulf Coast; Splash is considering joining the other casinos further north in Robinsonville. That's how Lady Luck (below left), in Helena, Arkansas, found its home. Located earlier in Robinsonville, the casino didn't want competition, so it moved 20 miles south and reopened, capitalizing on the Delta Blues tradition by donning gigantic neon guitars and subtitled itself "Rhythm &

Blues." Greenville, Mississippi, in the heart of the delta, has produced a wealth of writers, including Walker Percy and Shelby Foote. Hodding Carter and his family, long-time owners of the town's newspaper, won a Pulitzer Prize for their strong support of civil rights during an era of social intolerance. The two casinos here are on boats (below right) and are smaller than most of the complexes up and down river.

1. Splash, Tunica, Mississippi  
O.T. Marshall Architects-Engineers, Architect2.,
5. Helena, Arkansas
3. Lady Luck Rhythm & Blues, Helena, Arkansas
4. Cotton Club, Greenville, Mississippi  
Frank Hall & Associates, Architect



*"...simulation disguised as commerce  
in turn disguised as entertainment  
is the order of the day."*



1



3

The four casinos in Vicksburg, Mississippi, take advantage of the town's proximity to the state capital of Jackson, located 45 minutes to the east. An old river town located at the mouth of the Yazoo River, Vicksburg has been a destination of Civil War aficionados because of its National Park Battlefield. During the

War, Grant's troops kept the town under siege for 47 days, pounding it day and night from iron-clad boats on the Mississippi River. Today, new barges on the river, clad in Victorian regalia, are again making their mark on the city.

1. *Ameristar, Vicksburg, Mississippi*  
*Morris & Brown Architects, Architect*
2. *Lady Luck, Natchez, Mississippi*  
*Bill Preston (naval architect) and Charles Moroney (site improvement)*
- 3., 4. *Vicksburg, Mississippi*



4

*“These southernmost gaming houses address the context by trying to fit in: to avoid the faux pas of offending the historically minded citizenry...”*



At the bottom of the bluff, and rambling along the foot of the old town of Vicksburg, Harrah's works hard to complement the buildings up the hill. Repetitive cupolas mimic the courthouse to the east. Traditional red brick sheathing, accented by a water-table of cast stone meant to look like granite, is topped by a painted metal roof meant to resemble aged copper—today's

materials trying to pass for yesterday's. In keeping with the gambling boat tradition—and, more importantly, to comply with the state's requirement that casinos don't actually touch state soil—the gaming floor is on a simulated paddle-wheeler connected to a hotel by a windowless pedestrian walk and ramps adorned in patriotic plastic swags.

1, 2, 3, 4. Harrah's, Vicksburg, Mississippi



2

3

4

**CALL FOR ENTRIES**

# **RECORD INTERIORS 1995**

The editors of ARCHITECTURAL RECORD announce the 26th annual RECORD INTERIORS awards program. This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovative programs, building technologies, and use of materials. There is an entry fee of \$15 per submission; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (transparencies, slides, or prints), and a brief project description bound firmly in an 8-1/2- by 11-in. folder—and be postmarked no later than April 30, 1995. Winning entries will be featured in the 1995 RECORD INTERIORS. Other submissions will either be returned or scheduled for a future issue. If you would like your entry returned, please include a self-addressed envelope with appropriate postage.

Submissions should be mailed to:

**Karen D. Stein**  
**RECORD INTERIORS**  
**ARCHITECTURAL RECORD**

1221 Avenue of the Americas  
New York, New York 10020

Letters continued from page 4

### Ten Points of Praise

I liked your Ten Point Forecast for '95 [RECORD, January 1995, page 7]. With you joggling the business of architecture, things can't help getting better down the way.

Thomas A. Bullock

Adjunct Professor, Texas A&M University  
College of Architecture  
College Station, Texas

I would like to know more about the New York City procedure [allowing architects and engineers to obtain building permits without plan review subject to certain conditions] referred to in your editorial [RECORD, January 1995, page 7]. I would like to know how the policy is working, how long implemented, and so forth. The idea could be desirable here in Florida if mandatory contract administration is employed.

Bennett Shuman

Architect

Pensacola, Florida

New York City's Building Commissioner is Joel Miele. Source of the report was a story by Alan Oser of The New York Times, published in that newspaper November 27, 1994.  
—Ed.

Calendar continued from page 4

### June 5-8

A/E/C Systems will hold its 1995 conference and exhibit at the Georgia World Conference Center, Atlanta. Call Sharon Price at 800/451-1196; 203/665-0153, or fax her at 203/666-4782.

### Resuming in 1995

"Meet the Architect" tours of the Guggenheim Museum will be conducted by either Charles Gwathmey or Jacob Alspector of Gwathmey Siegel & Associates Architects. Price of \$27.50 for non-members (\$24 for members) includes admission and breakfast. Also, tours of Manhattan's SoHo cast-iron-buildings district will be conducted by an architectural historian, beginning in March. Price of \$21 for non-members (\$19 for members) includes breakfast and the tour. Call 212/423-3699 for information.

### Competitions

- Entries for Southern Living magazine's Southern Home Awards competition for outstanding residential design in six categories are due May 31. Call 800/366-4712 for information.
- Portfolio submissions are due April 14 for the Burnham Prize competition sponsored by the Chicago Architectural Club. Eligible are architects under 40 who received their pro-

fessional degrees after 1985 and are residents of one of eight Midwestern states. Call 708/940-9600 (ext 1295) for more information.

- The Young Architects Forum will hold a juried exhibit May 5 open to all architect interns. Registration is March 1; submissions are due April 1. Write Rodney Dionisio, 1215 Hightower Trail, Building B Suite 220, Atlanta Ga. 30350 for details.

- Entries for the College Housing Design Competition sponsored by EFCO Corp. and Drury College are due April 1. Licensed architects are asked to develop residential-housing designs for up to 300 students on an eight-acre site adjoining the Springfield, Mo., college. Cash prizes are \$10,000, \$5,000, \$3,000, and \$2,000. Call David Hutchens at 800/221-4169 for contest details.

- A \$15,000 prize will be awarded by the Royal Oak Foundation to the winning entry that displays "a sympathetic collaboration among the three disciplines of architecture, interior design, and landscape architecture." Submissions must be received between April 1 and 15. Call 212/966-6565.

- Submission deadline is April 28 for design of the Minamata, Japan, memorial to victims of mercury contamination—the "Minamata Disease." Arata Isozaki will judge the entries. Call 81/966-63-1111. ■

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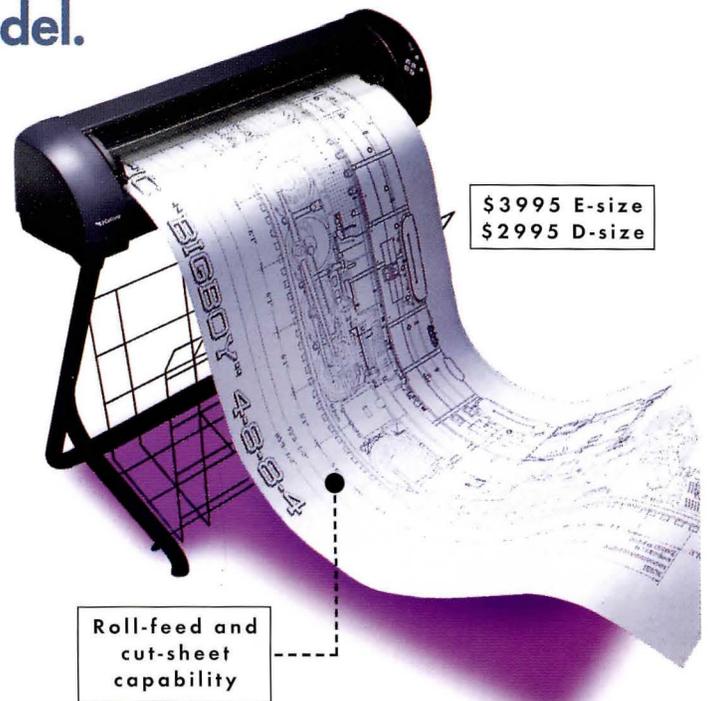
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**On-line** continued from page 41

buildings! With the list, I visited Web sites in five countries in half-an-hour at a cost of 38 cents. Some are listed on page 119.

•*Gopher, Archie, and FTP Sites:* Gopher, Archie, (yes, there's a Veronica, too) and anonymous FTP sites are named after the software used to access data. This software is freeware (available for download at no charge). Downloading through FTP is no more difficult than copying a file from one subdirectory to another.

#### What's on commercial BBSs

•*CompuServe (CIS):* After surfing the "Net," this service feels like the fuddy-duddy mainframe computers it is built upon. However, it's much easier finding information on CIS than on the Internet since it is cataloged more carefully. CompuServe divides itself into hundreds of forums, each dedicated to a specific topic. It offers access to business and engineering databases, but few of these appear to offer much of interest to construction professionals. Architecture is discussed in section 11 of the LEAP forum. CompuServe is strongest in CAD-vendor activity; there's not much activity on other architectural subjects.

•*America OnLine (AOL):* Much like CompuServe, this BBS offers forums, a limited Internet connection, and e-mail. It has a more attractive and easier-to-use interface. It also has a single pricing structure. Since it started as a Macintosh-only service, it's stronger than CompuServe in Mac-oriented computer forums. It has much less activity in AutoCAD forums than Compuserve. Its PLACES forum appears to have the most active discussions of non-computer architectural issues. (It's much busier than AIAOnline.) Corbis, a Microsoft spinoff, offers downloadable digitized images of art and architecture, its limited collection focusing right now on famous buildings like St. Peter's Basilica in Rome (keyword: Corbis).

•*Other commercial BBSs:* Prodigy, Delphi, General Electric's GENie, and Apple Computer's eWorld are smaller services, primarily oriented to consumers, and thus have little as yet focused on the specific interests of architects. Delphi has been known as the easiest gateway to the Internet, but Prodigy has just announced full (i.e., graphic) Internet access. CIS and AOL shouldn't be far behind. Which to choose? The short answer is, "It depends." You may have to try

a couple of BBSs before you find one that meets your needs. Fortunately, most offer a free trial that lets you poke around without incurring the usual charges.

#### What's next?

With local service providers making Internet access dirt cheap, I foresee the demise of the private BBS. After all, what is the Internet but many private and public BBSs strung together worldwide using one rapidly-emerging standard—the Mosaic-style Web browser?

I wonder whether even the commercial BBSs can survive the decade. Most are scrambling to provide full Internet access. But consumers will soon learn that they can access the Internet without the commercial BBSs' \$3- to \$10-per-hour charges. Almost all of the software required for accessing the Internet is free, down to the software for creating your own Web home page. As the Web goes commercial, though, companies will devise various means to "price" information. Home pages may well become the ubiquitous means of information distribution in the late '90s, just as desktop publishing was in the '80s. ■  
*James S. Russell contributed to this article.*



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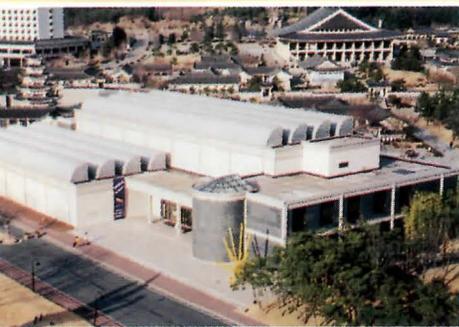
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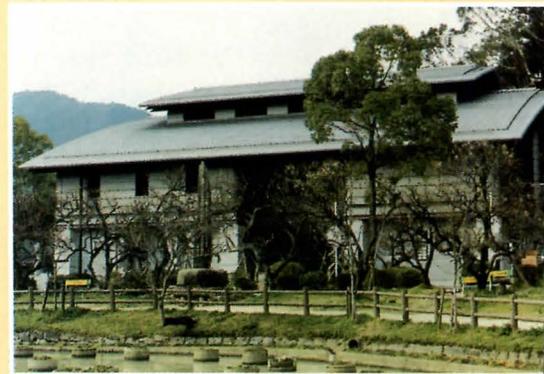
Arena  
 Stockley Park, Heathrow  
 Architects: Arup Associates

## KOREA



Keishu Art Museum  
 Seoul, Korea

## JAPAN

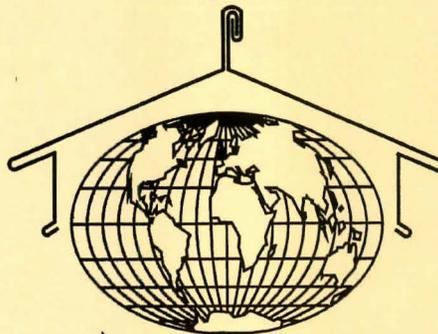


Dazaifu Treasures Museum  
 Tokyo, Japan  
 Architects: Satoh Total Planning and Architecture

## UNITED STATES



International Airport  
 Pittsburgh, Pennsylvania  
 Architects: Tasso Katselas Associates



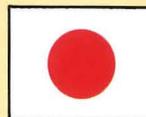
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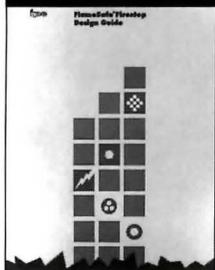
#### 400. Vandal-resistant locksets

A four-page brochure describes a new heavy-duty lever lockset built around an interchangeable core and a site-customizable masterkeying system. 9K Varsity series locks resist brute-force attacks on the lever-handle hardware, and permit key operation from the exterior and emergency egress even if damaged. Best Lock Corp., Indianapolis.



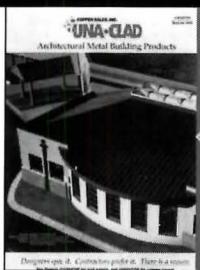
#### 401. Conference furnishings

A laminate-surface line offers tables in virtually any size, shape, or configuration, as well as new wall-mounted marker- and video-presentation boards, fixed and mobile lecterns, and audio/video equipment cabinets. A 12-page catalog illustrates many of the base, finish, and edge-profile options available in the custom-order program. LUI Corp., Baltimore.



#### 402. Firestop design guide

Product-specific guidelines are offered to help in the selection and specification of firestop systems, matching different Flamesafe caulks and safings with applicable building conditions. Lead- and asbestos-encapsulation products are also offered. International Protective Coatings Corp., Oakhurst, N.J.



#### 403. Architectural metals

Updated 1995 catalogs cover this maker's major product lines: standing-seam and flush-panel roofing; custom cladding panels in several metals; and column covers in round, square, oblong, and rectangular shapes. Custom fabrications and sizes are a specialty; color photos show recent installations. 800/426-7737. Copper Sales, Inc., Minneapolis.



#### 404. Railings and handrails

A 16-page catalog illustrates the Connectorail, a non-welded assembly available in aluminum, bronze, and stainless steel. Posts and top rails run in continuous lengths; supports may be embedded, surface-mounted, or side-mounted using a fascia flange. Brackets accommodate unusual ramp or stair angles. 800/526-6293. Julius Blum & Co., Carlstadt, N.J.

\* Product Data on CAD disk

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



#### 405. Green insulation

Brochure describes how thermal insulations determine a large share of a building's long-term environmental impact. Discusses the true, cradle-to-grave costs of construction materials, and deals broadly with the global problems caused by energy consumption and its toxic by-products. Pittsburgh Corning Corp., Pittsburgh. \*

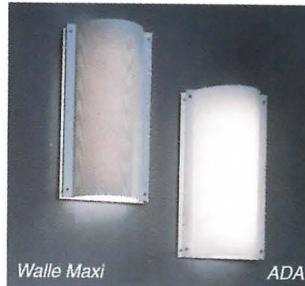
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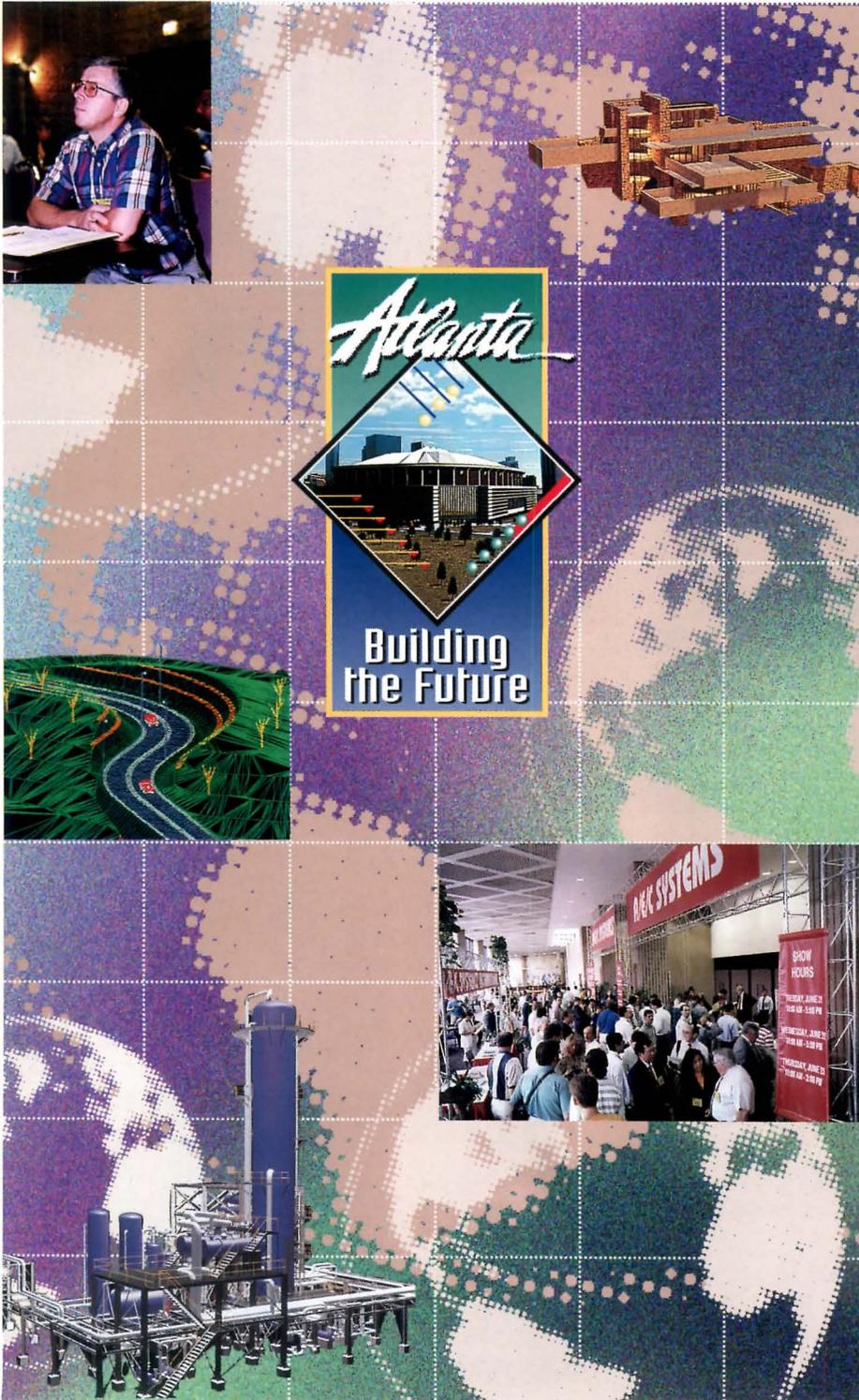
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**406. Design for impaired vision**  
A 38-page booklet, *ADA Accessibility Guidelines: Provisions for People with Impaired Vision*, discusses building elements that affect users with some degree of visual impairment. Topics include detectable warnings, elevators, handrails, illumination levels, and automated teller machines. 212/821-9200. The Lighthouse, Inc., New York City.



**407. Pre-engineered structures**  
A color folder describes design and fabrication capabilities for steel buildings that require unusually long clear spans, heavier structural loads, and other special program criteria. Integration of metal roofs, walls, and framing components is said to provide faster construction times, lower costs, and energy efficiencies. Butler Mfg. Co., Kansas City, Mo.



**408. Metal details on disk**  
A new, seven-disk CAD version of SMACNA's Architectural Sheet Metal Manual includes 170 details, each with descriptive text and plotting suggestions. For AutoCAD 12 (DOS or Windows) and other programs. Discount price to architects: \$300. 703/803-2989. Sheet Metal & Air Conditioning Contractors National Assn., Chantilly, Va. \*



**409. Architectural veneers**  
A source of fine exotic and domestic woods for paneling and cabinetry explains veneer terminology and usage. Defines figure types such as fiddleback and mottle, and illustrates the distinct appearance of different matching methods. Pocket-size folio illustrates wood species; flitch samples available. 708/547-6673. R.S. Bacon Veneer Co., Hillside, Ill.



**410. Elevator upgrade**  
HelpLink is a new emergency communications system described as a cost-effective and hassle-free way to update existing elevators to ADA standards. A color folder illustrates features and options, including signage and finishes. A 24-hour monitoring service is available. Fax requests: 601/342-4309. Dover Elevator Systems, Memphis, Tenn.  
\* Product Data on CAD disk  
For more information, circle item numbers on Reader Service Card.

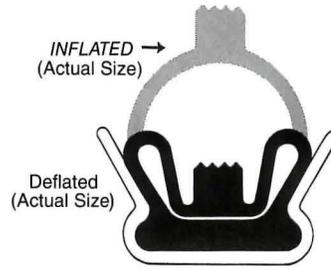


**411. Hinging hardware**  
A full-line architectural catalog illustrates mortise-, full-surface, five-knuckle, Roton, and other hinges for wood and hollow-metal doors, and includes door accessories such as pulls, push plates and bars, stops, and bolts. Gives size, finish, and mounting details for all products. 800/782-0149. Hager Hinge Co., St. Louis.

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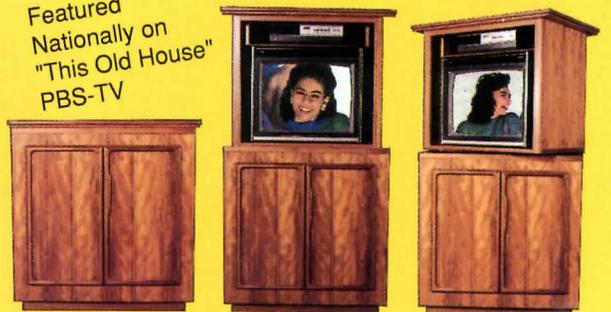
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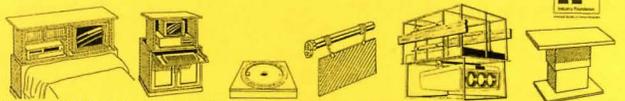


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### Additional On-line Resources

• *Internet News Groups.* News groups are public discussion forums. Architecture related: alt.3dalt.architecture; alt.architecture.int-design; alt.architecture.alternative; alt.cad; alt.cad.cadkey; alt.cyberspace; alt.landscape.architecture; alt.planning.urban; alt.sys.intergraph; comp.cad.autocad; comp.cad.cadence; comp.cad.microstation; comp.cad.pro-engineer; comp.graphics.rendering.

• *World Wide Web:* Some architecture-related sites: O'Donnell, Wicklund, Pigozzi and Peterson Architects, Inc. at <http://www.automatrix.com/owp/index.html>; New Zealand Schools of Architecture and Design at <http://www.arch.vuw.ac.nz/>. CAD vendors with Web sites: Bentley Systems (MicroStation) at <http://www.bentley.com> and Intergraph at <http://www.intergraph.com>. A free on-line dictionary of computing is at <http://wombat.doc.ic.ac.uk>.

• *Gopher, Archie, and Anonymous FTP sites:* CAD-related FTP sites: autodesk.com; microsoft.com; and bentley.com. U.S. National Archives Center for Electronic Records: [ftp://cu.nih.gov/nara\\_electronic](ftp://cu.nih.gov/nara_electronic). The Virtual Reference Desk at the University of California, Irvine ([cwis.uci.edu](http://cwis.uci.edu)) includes on-line

versions of *Webster's Dictionary* and the *American English Dictionary*, and *Roget's Thesaurus*, as well as the USPS zip-code directory, telephone area codes, foreign-currency exchange rates, geographic names, and weather information. Gopher sites: Library of Congress: [marvel.loc.gov](http://marvel.loc.gov); Occupational Safety and Health Administration: [ginfo.cs.fit.edu](http://ginfo.cs.fit.edu); Disability information: [valdor.cc.buffalo.edu](http://valdor.cc.buffalo.edu); Environmental Protection Agency: [gopher.epa.gov](http://gopher.epa.gov); EPA Futures Studies: [futures.wic.epa.gov](http://futures.wic.epa.gov); National Science Foundation: [stis.nsf.gov](http://stis.nsf.gov).

• *Commercial BBS sites:* On CompuServe, Autodesk is in forums ACAD, ADESK, ADESKBETA, and ASOFT. Bentley Systems: MSTATION; Foresight Resources is in PCVENA; IBM CAD/CAM in IBMENG. In the CADDVEND forum, find Archibus (section #15), Ashlar (#8), CadKey and DataCAD (#7), CADlink (#5), DesignCAD (#23), Digitarch (#13), Ditek (#20), ESRI (#9), Evolution Computing (#3), Flownet (#19), GDS (#14), Graphsoft (#11), IBM CAD (#10), Intusoft (#21), IsiCAD (#4), McNeel & Associates (#18), Numera Software (#16), Protel (#6), Sigma Design (#12), TommySoftware (#22), TurboCAD (#17). *R.G.*

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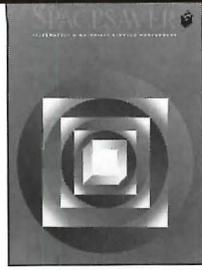
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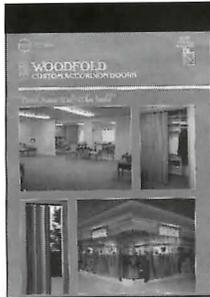


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Interior and exterior signs for corporate identity, wayfinding, ADA compliance, and other graphics programs are covered in a 24-page catalog. Explains how a proprietary Graphic Blast process creates raised and engraved lettering on the same sign, in materials such as Corian, metal, stone, and wood. 800/235-2378. Best Mfg. Co., Montrose, Colo.

**413. Efficient materials storage**

A colorful Storage Solution brochure explains how mobile, high-density storage for documents and materials—from football uniforms to magnetic media to artwork—frees up a floor plan, meets ADA access and safety mandates, improves file security, and facilitates access to stored items. Spacesaver Corp., Fort Atkinson, Wis. \*

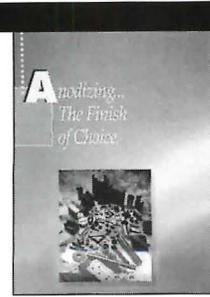


**414. Accordion partitions**

A 14-page 1995 design guide introduces an acoustically-rated accordion folding door available in heights of up to 10 ft. Product line includes see-through store enclosures and folding doors for homes, schools, and offices. Options include glazed lights and ventilating inserts. Woodfold-Marco Mfg., Forest Grove, Ore.

**415. Laminated-cork flooring**

A flyer explains the shock-absorbing, thermal, and acoustic features of Ipecork plank, real hardwood and cork veneers over a cushioning cork middle layer, finished with a clear vinyl wear layer. Suitable for residential areas, including kitchens, and for commercial and retail floors. 800/828-2675. Environmental Flooring Products, Lithonia, Ga.



**416. Rubber flooring**

New literature on all Pirelli commercial and institutional floor products illustrates colorful patterns, smooth marble-looks, solids, and studded, non-slip floors for heavy-traffic areas. Materials offered in both tile and roll formats, and FR and oil-resistant compounds. All color and pattern options shown. PRF USA, Inc., Teaneck, N.J.

\* Product Data on CAD disk

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

**417. Understanding anodizing**

A 16-page guide gives architects a technical, working knowledge of anodizing, and what to expect when ordering these metal finishes. Text explains durability, color stability, low maintenance, and cost features, and compares batch and continuous-coil techniques. 708/526-2010. Aluminum Anodizers Council, Wauconda, Ill.

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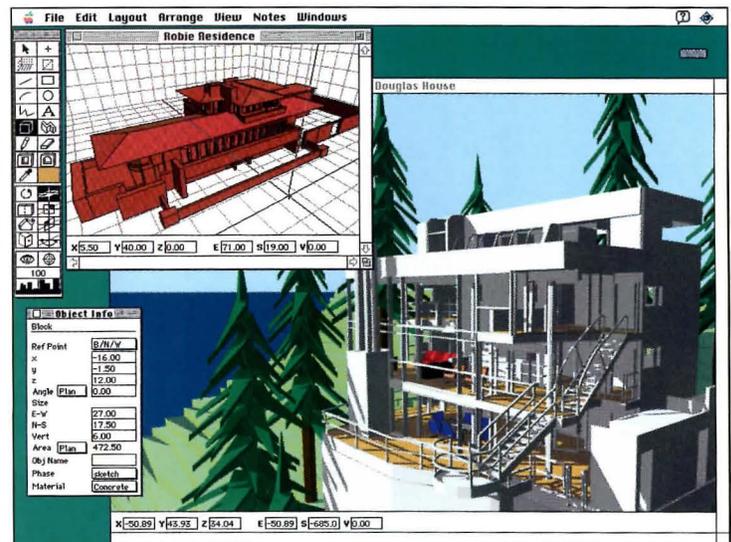
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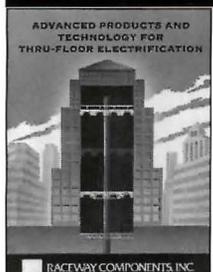
### 418. Asphalt roof shingles

A color catalog gives appearance, performance, and installation information on all GAF shingles for residential and light-commercial use. Individual binder-mount pages with actual shingle samples are available for all product lines, including Timberline, Royal Sovereign, and Sentinel. 908/271-8400. GAF Building Materials, North Brunswick, N.J.



### 419. Slip-resist tile flooring

New Ironrock sample program covers three heavy-traffic "X-color" pavers, made with metallic additives throughout the body of the tile for enhanced slip resistance. Boards contrast textured X tiles with plain ones in the same colors. For use in commercial kitchens, airports, and malls. 216/484-4887. Metropolitan Ceramics, Canton, Ohio.



### 420. Power-distribution guide

An eight-page catalog matches four floor types—poke-through, raised floor, concrete deck, and cellular duct—with the correct electrical fittings. Photos show all products, including furniture feeds, access boxes, and service heads; many fit flush against flooring "where they will never annoy you again". Raceway Components, Inc., Edison, N.J.



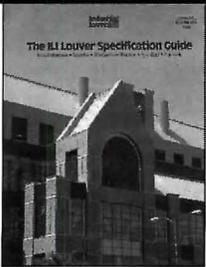
### 421. Steel door specification

Ceco's 1995 catalog covers standard-duty, heavy-duty, and extra-heavy-duty doors for offices, schools, hospitality, and healthcare use. Drawings show all basic configurations, glazing options, and ventilating louvers; a useful chart matches each door product with specific locations in each type of building. Ceco Door Products, Brentwood, Tenn.



### 422. Movable wall systems

Product-presentation sheets detail the features of two panelized metal-wall styles: the new Forecast system, described as cost-competitive with drywall, and the European-look InterSign Wall, with a radius curve on windows, door frames, and corners. Gives sound-transmission and fire ratings; cites recent installations. The Mills Co., Cleveland.



### 423. Custom ventilation louvers

A 20-page specification guide illustrates very-large louvers fabricated to meet custom architectural and finish requirements, such as the round-top arch designed for the Genzyme Building, Boston. Louver types include acoustical, adjustable, drainable, thin-line, and storm-resistant styles. Industrial Louvers, Inc., Delano, Minn. ■

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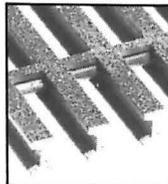
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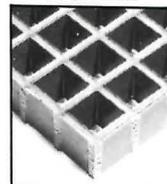
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# Fiberglass Gratings

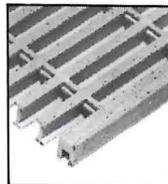
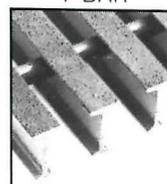
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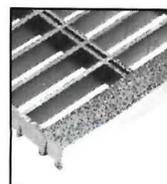
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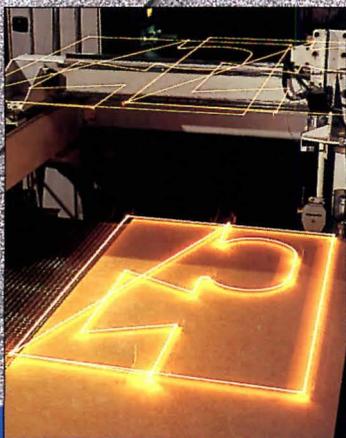


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## Manufacturer Sources

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

### Pages 84-85

The Louis Marx Jr. Hall, Center for Human Values, Princeton University  
Kallmann McKinnell & Wood Architects, Inc., Architect

Brick veneer: Glen-Gery Corp. Built-up roofing: Tremco. Slate roofing shingles: Vermont Structural Slate. Fixed and operable windows: Custom Window Co. Glazing: PPG Industries, Glass Group. Oak and glass entrances: Somerset Door & Column Co. Stone flooring: Burlington Natstone Inc. Fire shutters: Cornell Iron Works. Cylindrical locksets: Best Lock Co. Exit devices: Von Duprin. Closers: Dorma. Elevators: ESCO.

### Pages 86-87

The Nancy Lee and Perry R. Bass Center for Molecular & Structural Biology, Yale University  
Kallmann McKinnell & Wood Architects, Inc.

Face brick: Glen-Gery Corp. (Alwine 250). Split-faced brownstone: Carl Schilling Stone Works. Cast stone: Sun Precast, Inc. Custom-color mortar: SGS. Extruded-aluminum curtain wall and infill glazing: Marmet Corp. EPDM sheet roofing: Carlisle SynTec Systems. Lead-coated copper roofing: Fabricated by Premier Roofing Co. Glazing: PPG Industries, Glass Group. Interior flush-wood and custom doors: Weyerhaeuser Co. Entrances: Acme Metal Products. Mortise locksets: Corbin-Russwin Architectural Hardware. EIFS materials: Sto Corp. (Toughwall); Dryvit Systems, Inc. Laboratory casework: Fisher Scientific. Fixtures: Chicago Faucet Co. Laboratory lighting: Visual Comfort Lighting. Seminar tables: BKM Woodworking Co., Inc. Hydraulic elevators: F. S. Payne Co. Handicap-access lift: Whittaker Co.

### Pages 88-89

Hauser Hall, Harvard University Law School  
Kallmann McKinnell & Wood Architects, Inc., Architect

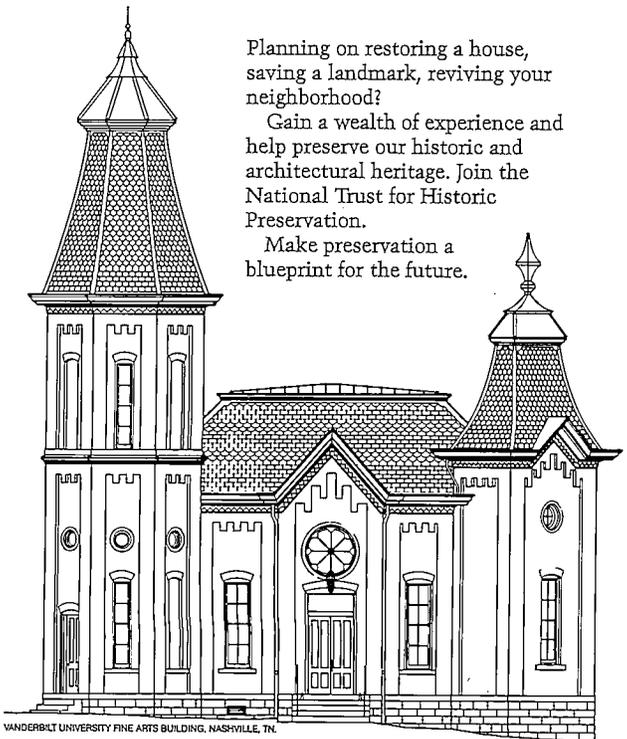
Exterior brick: Summit Brick Co. Limestone: Carl Schilling Stoneworks, Inc. Granite: New England Stone Industries. Ballasted EPDM roofing: Carlisle SynTec System. Glazed

curtain walls and aluminum-framed windows: Custom Window Co. Glazing: Rochester Insulated Glass. Stainless-steel rolling grille: Overhead Door Co. Wood entrances, interior doors, and paneling: Beabois (custom by architects). Mortise locksets: Corbin Russwin Architectural Hardware. Paints: Sherwin-Williams, Inc. Interior lighting: Litecontrol Corp.; American Glass Light. Elevators: Beckwith. ■

### Corrections

- The Design News coverage of the Wakiki Convention Center [*RECORD*, January 1995, pg. 15] should have credited Wimberly Allison Tong & Goo as being the architect of record, in association with Loschky Marquardt & Nesholm.
- In the same issue, the photos of the Monte Cristo Hotel Renovation [page 35] should have been credited to Michael Ian Shopenn. ■

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AutoCAD Macintosh Users...

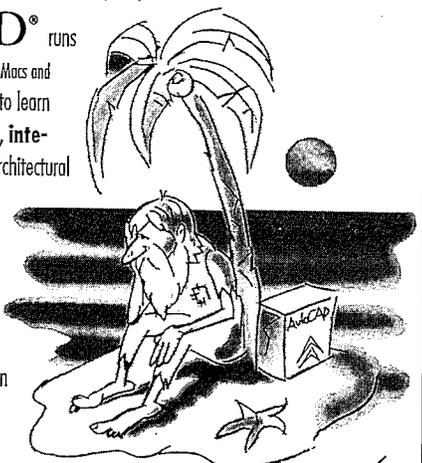
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Architectural Record March 1995 125

# Manufacturers' Spotlight

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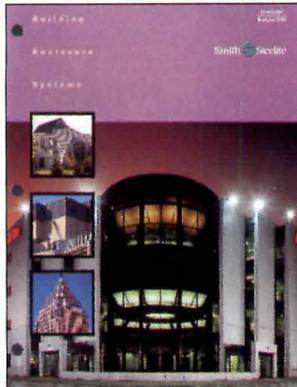


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### Atkinson Dynamics

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## Metal Building Enclosure Products

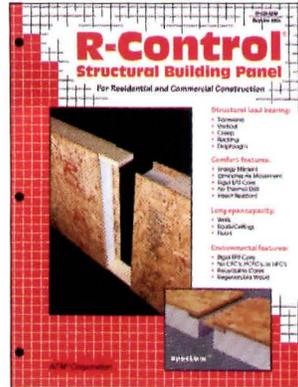


36-page catalog describes Smith Steelite's metal enclosure systems for non-residential insulated and non-insulated walls, roofs, composite walls, profiled panels, curved panels, structural standing seam roof, windows, vents and louvers. Also systems for explosion release, sound absorption, firewalls, asbestos panel replacement. Includes product features, application photos, specifications, color selector guide, protective coatings specifications.

### Smith Steelite

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## R-Control® Structural Building Panels

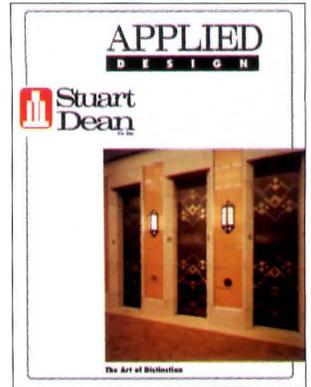


R-Control® Structural Building Panels provide superior insulation for walls and roofs in residential and commercial applications. EPS insulation is adhesively welded between stranded lumber facings, creating a panel that won't warp. R-Control has passed structural and fire tests as prescribed by national building code authorities. AFM's EPS contains no CFC's, HCFC's, or HFC's. R-Control; Panels are manufactured across the nation.

### AFM Corp.

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## Applied Design by Stuart Dean

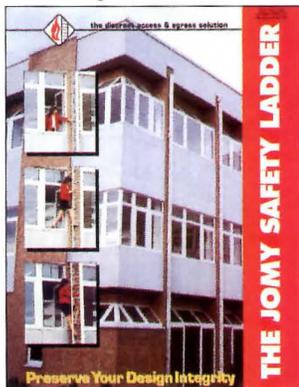


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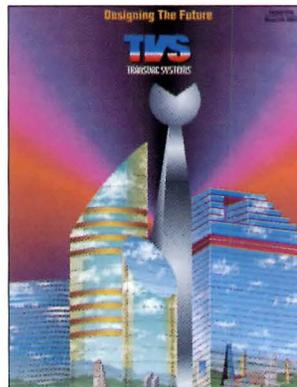


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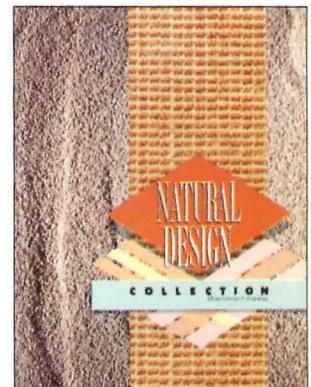


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