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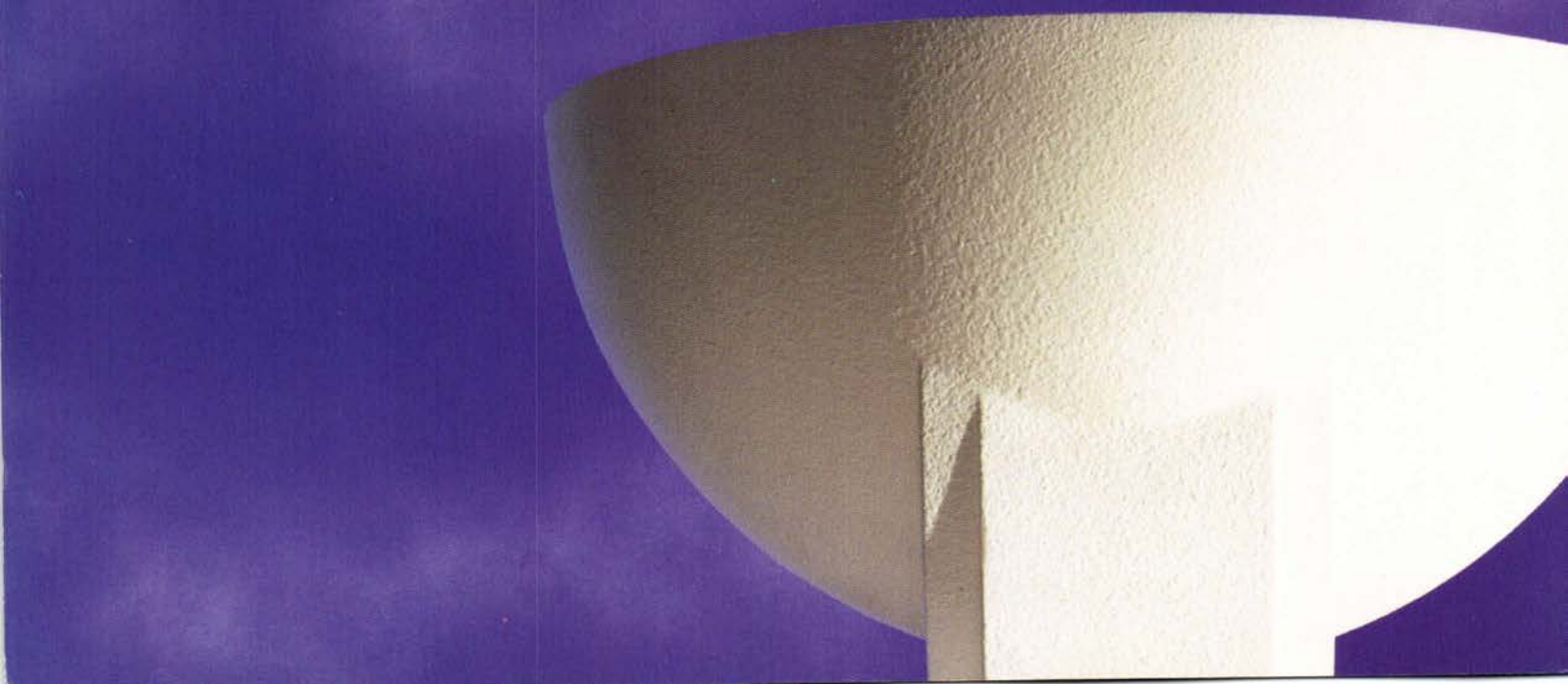

Subsidy Game for Stadiums

Taxpayers are financing new sports venues, but the public benefits are slim.

Dozens of new sports venues are being built under the guise of improving our cities. American taxpayers are subsidizing them, believing that state-of-the-art stadiums, ballparks, and arenas will boost local economies and their cities' reputations. But few downtowns have anything to show for these public investments, as a recent Congressional study reveals. The federal tax incentives for building new stadiums, and the revenues they raise, largely benefit team owners, not ordinary citizens.

That realization, however, hasn't stopped the boom. Since 1990, 29 major new sports facilities have been built in U.S. cities, and 18 more are scheduled to open by 2000, reports *The Stadium Game*, a comprehensive study undertaken by the National Sports Law Institute at Marquette University. Owners of 70 other sports teams, from the Florida Marlins to the Seattle Mariners, also intend to build new sports complexes. According to the stadium report, the costs of these projects are estimated to total more than $2 billion by the turn of the century.

This financial burden is being shouldered by all taxpayers. Most new stadiums today are financed by state or local governments issuing bonds at below-market interest rates, which are exempt from federal income taxes. For example, a study issued last year by the Congressional Research Service shows that a $225 million stadium built today and financed wholly by tax-exempt bonds will receive a lifetime federal tax subsidy up to $75 million, or 34 percent of construction costs. And in most cases, the home team's owners rake in the lion's share of revenues generated by the stadium or ballpark.

Moreover, according to the Congressional report, new stadiums in 27 of 30 metropolitan areas have "no discernible impact" on economic growth; the remaining three have actually hurt their cities' economies. Few sports venues result in a substantial number of local jobs, and those that are created carry a high price tag: At Baltimore's new football stadium, each job created will cost $127,000, compared to the $6,250 it costs to create a job through the state of Maryland's economic development fund. In other words, the costs of federal subsidies for new sports venues far outweigh their benefits.

Congress tried to stop federal subsidies to team owners in its 1986 tax reforms, but stadium developers found the loophole available through tax-exempt bonds. Senator Daniel Patrick Moynihan (D-New York) plans to reintroduce a bill to end this abuse of public funds. If passed, the Stop Tax-exempt Arena Debt Issuance Act (STADIA) would end tax-exempt financing for stadium construction by reclassifying bonds issued for stadium construction as "private activity" bonds.

Moynihan's bill should be passed. Wealthy owners of sports franchises should no longer receive public assistance through a loophole in the law. Federal subsidies should be redirected to schools, housing, and healthcare—public investments that truly benefit taxpayers, sports fans or not. Cities that build stadiums shouldn't force all citizens to pay for the game.

Deborah K. Dietsch

Every brilliant design deserves the right support.

Parking composure

The "Protest" in your November issue (page 65) was a poorly researched piece of journalism. The author failed to explore any design constraints to a large downtown project, such as the need for parking. Evidently, he was not paying much attention when he claimed that the "building seems inspired by a parking garage." The upper three-and-a-half stories are, in fact, a parking garage.

The building attempts to depart from the monolithic, multilevel concrete slab parking structures in Seattle. The idea was to create a composed backdrop against which elements such as the Niketown banners can be tastefully displayed. Without a "featureless facade," as the author puts it, the corner element—the jewel of the project—would not be as brilliant or attractive to potential customers.

Richard Battaglia
Portland, Oregon

Seattle's Niketown store is topped by parking garage.

Architalkture formula

I want to thank Stephen Kliment for his demand for clarity in any dialogue about architecture. This "shoot from the lip" approach he describes in "But What Does It *Mean*?" (*Architecture*, November 1996, pages 71-73) confuses students and clients and exposes the profession's insecurities.

As a practitioner and teacher for 25 years, I have always taken exception to what I call architalkture—the pedantic and stilted stringing together of buzzwords in an attempt to describe an architectural solution for which there is already sufficient language.

With this in mind, I concocted a formula for the optimum number of words of wisdom (WW) that should be said at the graphic presentation of a project: where T_t is the time

$$WW = \frac{666}{T_t + T_{dw} + T_m + 0.0000059} + 69$$

in minutes spent thinking about the project, T_{dw} is the time devoted to producing the drawings, and T_m is the time spent constructing the model.

Even those with the most extreme fear of mathematics can see that the required words of wisdom for any project presentation will not exceed 69 or 70 with the proper preparation.

Thomas L. Turman
Berkeley, California

Fostering leadership

Your editorial (*Architecture*, December 1996, page 15) about engineers lobbying for the right to design buildings for human habitation presents a bleak framework for defining our role. If our only defense against engineers is an emphasis on our training in the safety of a building's occupants, then it is only a matter of time before the engineers win. You and your readers know there is so much more to architecture; why define ourselves so narrowly?

In the same issue, you also present Sharon Sutton's article "Expand Architects' Leadership" (pages 51-57). I have long wondered why architects should educate oblivious citizens, hoping to turn them into clients. At the same time, I have always accepted our role as interpreters of our ideals.

The gap between architects and the rest of our society is baffling, and Sutton's history of how we got here is a sobering wake-up call. We must speak up, start asking why, and challenge the status quo. To add our voices to the mix, rather than stand apart as experts, will benefit the environment and, ultimately, our culture.

Julie E. Gabrielli
Ziger/Snead Architects
Baltimore, Maryland

Thank you for publishing Sharon Sutton's article. On November 5, 1996, I was appointed my city's vice mayor. I will become mayor next December. I was on our city planning commission for four and a half years and helped draw up our new general plan and zoning ordinance.

As an architect of affordable housing, these experiences have taught me the issues first-hand, and from both sides. I have seen my significant influence in this small corner of the world.

We desperately need more architects to do the same. Architects are the ideal people for this type of community service. If I can do it, anyone can. I'm a single mother of two, a sole practitioner, working at home, the sole income provider, and on the board of directors of my local AIA. How would you like to appear before a planning commission without a single architect on it? Do something about it!

Katherine Austin
Sebastopol, California

I read Richard Hobbs's article in *AIArchitect* and Sharon Sutton's "Opinion" in your December issue with considerable interest. Both address leadership, albeit from divergent viewpoints. Although both encourage architects to move beyond project-based practice, they define leadership differently. Hobbs looks at broadening the knowledge base and range of services, while Sutton focuses on the sociological, defining architectural leadership as "reflecting a contractual model of commerce rather than the principled loyalty of guardianship."

Realistically, it is not an either-or proposition, but a marriage of the ethical and the pragmatic. Rather than exclude the real estate investor from our dialogue, we must recognize that architects' long-term prosperity depends on that of their clients. Far from being a holier-than-thou activity, educating and learning from clients is to our mutual benefit and essential to enhancing the value of our services. Closing the gap between architects and the rest of the world lies at the core of leadership.

At AIA Connecticut, we're taking steps to educate and motivate ourselves by implementing a leadership curriculum, encouraging our members to become active in their communities. Once appropriately equipped, architects will be well suited as "stewards of the environment."

Eric J. Oliner
Professional Practice Commissioner
AIA Connecticut
Cheshire, Connecticut

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exhibitions

city	dates	exhibition	contact
Los Angeles	through April 27	**Walt Disney Concert Hall: A Celebration of Music and Architecture** at the Museum of Contemporary Art	(213) 621-2766
Montreal	through March 9	**Uncovering Geometry: Ben Nicholson at the Laurentian Library** at the Canadian Centre for Architecture	(514) 939-7000
New York	February 11-May 18	**Disegno: Italian Renaissance Designs for the Decorative Arts** at the Cooper-Hewitt National Design Museum	(212) 860-6868
	February 26-April 30	**Culture Exchange exhibition** of entrants for the 1996 Paris Prize at the Van Alen Institute	(212) 924-7000
Philadelphia	through February 28	**Richard Meier Builds: From Tabletop to Rooftop** at the Philadelphia Museum of Art	(215) 763-8100

Giulio Romano's canine memorial on view at the Cooper-Hewitt National Design Museum

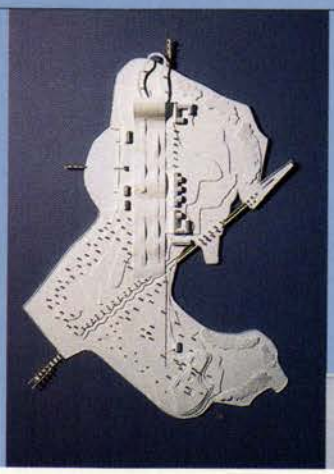
conferences

city	dates	conference	contact
Aspen, Colorado	June 5-8	**Hollywood: A Design for Living** International Design Conference in Aspen	(970) 925-2257
New Orleans	May 15-18	**American Institute of Architects** National Convention and Expo	(617) 859-4475
New York	April 16-17	**Buildings New York** at the Coliseum	(203) 840-5608
	April 28-May 1	**Lightfair International** at the Javits Convention Center	(404) 220-3000
Orlando	April 23-26	**Coverings** flooring, wall covering, tile, and stone exposition	(800) 881-9400
Philadelphia	June 16-19	**A/E/C Systems '97** computer technology show for the design and construction industries	(800) 451-1196
	June 16-19	**Construction Technology '97**, sponsored by *Architecture* and *Interiors* magazines	(800) 451-1196
San Francisco	April 10-12	**Society for Environmental Graphic Design** Conference and Trade Showcase	(202) 638-5555

Sonoma (above) from Waldmann Lighting will be shown at Lightfair International

competitions

competition	deadline	contact
Competition for the Gorée Memorial, a museum and research complex in Dakar, Senegal, sponsored by the International Union of Architects	February 20	(331) 45 24 36 88
DuPont Benedictus Awards for Innovation in Architectural Laminated Glass	March 3	(202) 393-5247
Ideas Afloat competition for Davids Island, New York, sponsored by the College of New Rochelle	April 1	(914) 654-5423
Work Surface under-40 furniture design competition, sponsored by AIA Chicago	April 11 (registration)	(312) 670-7770
Dinkeloo Fellowship competition for residency at the American Academy in Rome, sponsored by the Van Alen Institute	May 1	(312) 924-7000



Design by Catholic University student Phong Tran for the Ideas Afloat competition

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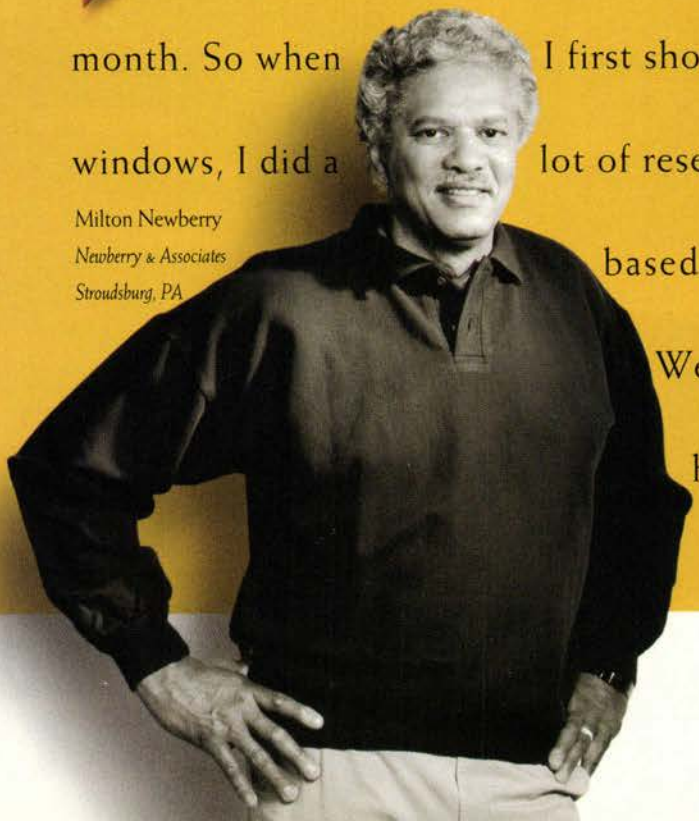
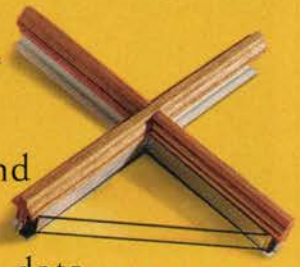


Milton Newberry
Newberry & Associates
Stroudsburg, PA



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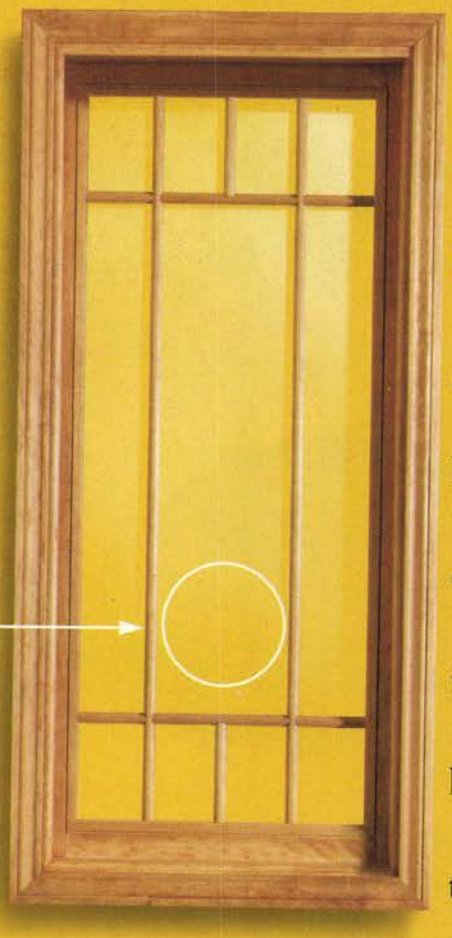

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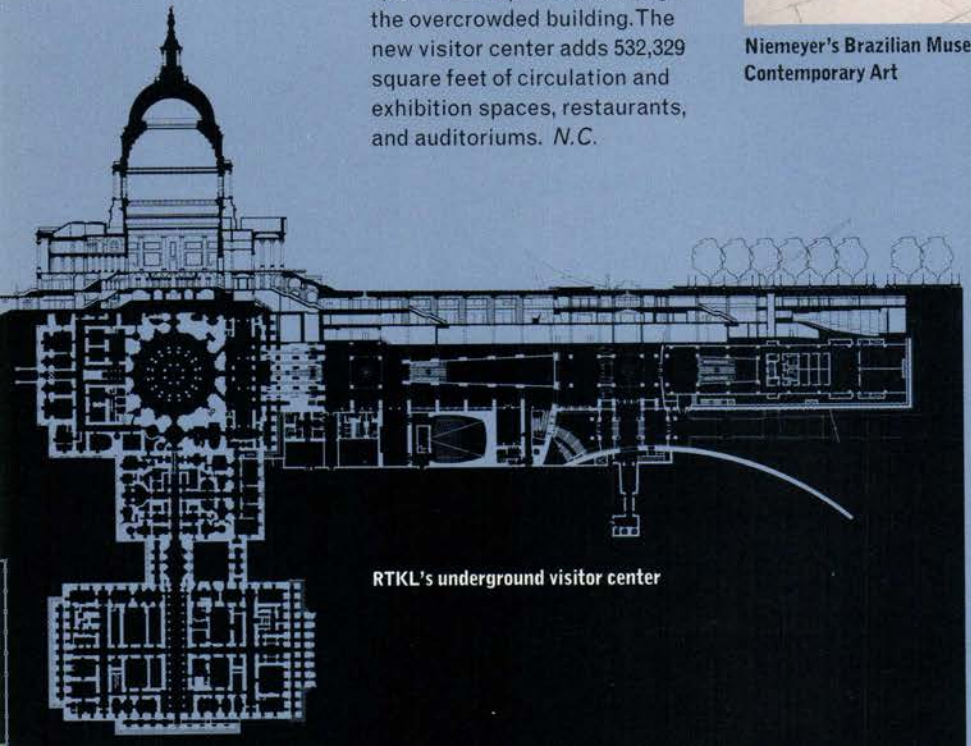
Capitol Architect

President Clinton has nominated Alan M. Hantman to succeed George White as Architect of the Capitol. Hantman was recommended to Clinton by the bipartisan Congressional Architect of the Capitol Selection Committee. New York architect John Burgee and current Acting Architect of the Capitol William L. Ensign were also recommended. The position entails overseeing the preservation, expansion, and maintenance of the U.S. Capitol, Congressional office buildings, the Library of Congress, Supreme Court, and other buildings on Capitol Hill in Washington, D.C.

Hantman, who holds a master's degree in urban planning, was formerly vice president of facilities planning and architecture for the Rockefeller Center Management Corporation. Such experience, claims the 54-year-old architect, prepares him for his new post. "There are many parallels between Rockefeller Center and the Capitol," Hantman relates. The complexes cover 15 and 12 million square feet respectively; both are historic landmarks that also function as working offices; both incorporate significant art and architecture; and both face the challenges of tourism and security. Pending confirmation by the U.S. Senate, Hantman will assume his post this month.

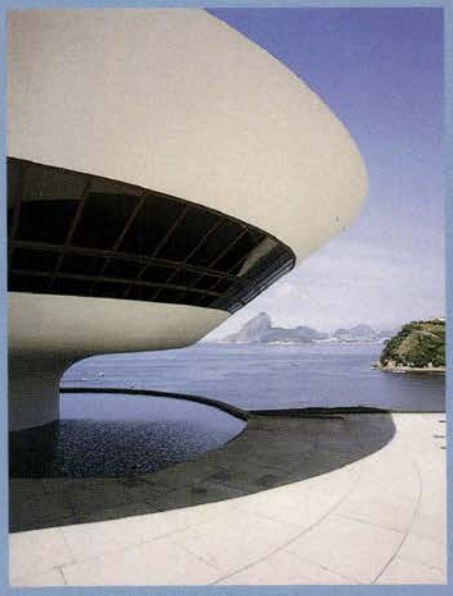
One of his first duties will be the execution of RTKL's $95 million United States Capitol Visitor Center. This underground addition to the east side of the Capitol will ease tourist traffic, estimated at 2,000 visitors per hour, through the overcrowded building. The new visitor center adds 532,329 square feet of circulation and exhibition spaces, restaurants, and auditoriums. *N.C.*



RTKL's underground visitor center

Niemeyer Throws a Curve

In 1955, Brazilian architect Oscar Niemeyer proposed one of the best-known unbuilt designs of the 20th century—a dramatic inverted pyramid for the Museum of Modern Art in Caracas, Venezuela. Now Niemeyer, who turns 90 this year, has realized a new version of the scheme in his Museum of Contemporary Art in Niterói, Brazil, near Rio de Janeiro. The 32,000-square-foot museum, which opened last December, transforms the Caracas pyramid into a curvaceous flying saucer perched on a slender shaft. The museum, built on a promontory overlooking Guanabara Bay, houses four levels of galleries and offices, and is surrounded by a reflecting pool. N.C.



MAGNO MESQUITA

Niemeyer's Brazilian Museum of Contemporary Art

New Plans for Columbus Circle

Developers have long set their sights on New York City's Coliseum, the dilapidated 1956 convention hall located on Columbus Circle. In the mid-1980s, Boston-based developer Mortimer Zuckerman commissioned first **Moshe Safdie**, and then **Skidmore, Owings & Merrill** (SOM) to design a mixed-use high-rise complex on the site, but abandoned his plan in the face of public opposition to its excessive size and scale.

Now, the Metropolitan Transportation Authority (MTA), the city agency that owns the site, is entertaining proposals from nine architect-developer teams, based on a new, more sensitive master plan for the site by **Ehrenkrantz & Eckstut**. The nine different proposals combining residential, hotel, office, retail, and other uses, are designed by **Robert A. M. Stern Architects** and **Costos Kandylis**; **Kohn Pedersen Fox Associates** and **Gruzen Samton Architects**; **Roche Dinkeloo**; **Cesar Pelli & Associates** and **Schuman Lichtenstein**; **Haines Lundberg Waehler**; **Gensler and Associates/Architects** and **Freeman-Ionescu**; **SOM** and **Elkus/Manfredi**; **Murphy/Jahn**; and **James Stewart Polshek Architects** and **Gary Edward Handel & Associates**. The MTA plans to announce a short list by next month.

The quasi-public Economic Development Corporation (EDC) also plans to develop the site of 2 Columbus Circle—the Edward Durrell Stone-designed Huntington Hartford Building opposite the Coliseum that now houses the city's department of cultural affairs. While the EDC has received as many as 10 proposals for 2 Columbus Circle, the group plans to wait until a decision about the Coliseum has been made, claiming the delay will ensure harmony between the two developments. *N.C.*

JACK DEMPSEY

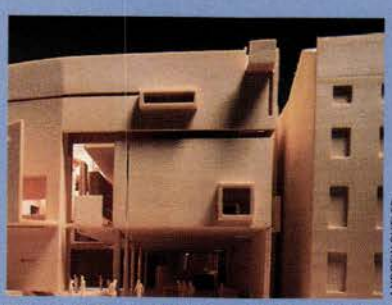
Manhattan Transfer

Want to wake up in the city that never sleeps? Go to Las Vegas, where the new 2,100-room New York New York hotel and casino was designed by local architects Gaskin & Bezanski as a collage of scaled-down Manhattan monuments: A Statue of Liberty and Brooklyn Bridge greet visitors; guest rooms occupy the Chrysler, Seagram, and Empire State buildings; Grand Central Terminal and Ellis Island house restaurants and casinos. While hotel limos look like taxicabs, and the gaming floor like Central Park, management has eliminated potholes, trash, and crime, making the hotel an alluring destination even for New York natives—expected to comprise its second-largest group of visitors. N.C.

IN BRIEF

Is London becoming **Norman Foster**'s personal drawing board? His 1,265-foot-tall Millennium Tower promises to change the skyline when completed in 2001 (*Architecture*, November 1996, page 36). Now his latest competition-winning schemes will transform the city's streets and riverscape as well. Foster's $17 million Millennium Bridge across the Thames will link **Herzog & de Meuron**'s Tate Gallery extension with St. Paul's Cathedral, and his master plan will improve an area encompassing Westminster Abbey, Whitehall, and Trafalgar Square.

Dublin awaits a major addition to the National Gallery of Ireland, designed by the London firm of **Benson & Forsyth**. The architects beat short-listed competitors **Daniel Libeskind**, **Moshe Safdie**, and **Jeremy Dixon Edward Jones**, among others. Benson & Forsyth's $20 million Modernist scheme adds galleries, an auditorium, restaurant, and roof garden to Charles Lanyon's 1856 landmark, and is scheduled to be completed by 2000.



ANDREW PUTLER

Benson & Forsyth's National Gallery addition

MoMA's Top Ten

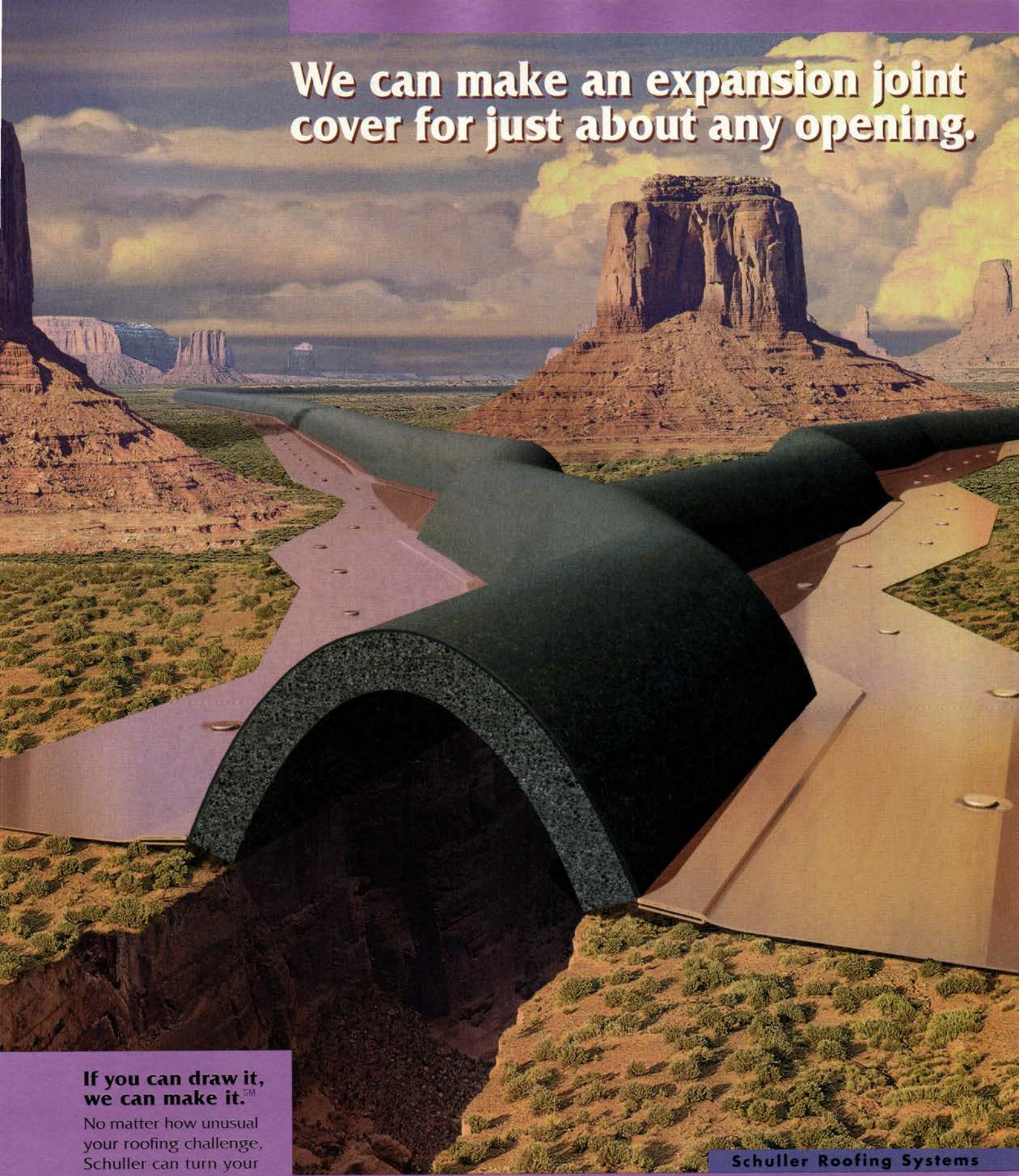
New York City's Museum of Modern Art (MoMA) has announced a short list of 10 architects who will compete to design the museum's next expansion: New York architects Steven Holl, Bernard Tschumi, Rafael Viñoly, and Tod Williams and Billie Tsien; Dutch architects Wiel Arets and Rem Koolhaas; French architect Dominique Perrault; Japanese architects Toyo Ito and Yoshio Taniguchi; and the Swiss firm of Jacques Herzog and Pierre De Meuron.

Established American architects such as Richard Meier and Michael Graves are notably absent from the list. According to Design and Architecture Curator Terence Riley, MoMA's selection of architects known for more progressive design "reflects a year-long investigation of contemporary architecture by the museum trustees."

The original Philip L. Goodwin- and Edward Durell Stone-designed museum has been expanded twice since its 1939 opening—by Philip Johnson in 1964 and Cesar Pelli in 1985. The museum announced its latest expansion plans last spring. The project may entail renovations of the existing complex, as well as the estimated 250,000-square-foot addition. Three finalists will be announced by May; schematic designs are expected by the end of the year. *N.C.*

Two more turn-of-the-millennium buildings, designed **Richard Meier**, are slated to open in Rome: the Papal Church of the Year 2000 (*Architecture*, August 1996, page 67) and a recently commissioned museum to house the ancient Ara Pacis, or Altar of Peace. The Roman Catholic Church is also heralding plans for Los Angeles's Cathedral of Our Lady of the Angels, which will occupy a 5-acre site near the Hollywood Freeway and Grand Avenue in Los Angeles. The archdiocese of Los Angeles paid the city $10.8 million for the property. **Rafael Moneo**'s preliminary scheme situates the 2,600-seat cathedral on Grand Avenue and the Archbishop's residence on a side street, both facing a 3-acre plaza surrounded by an arcade. The new church will replace St. Vibiana's Cathedral,

(continued on page 27)



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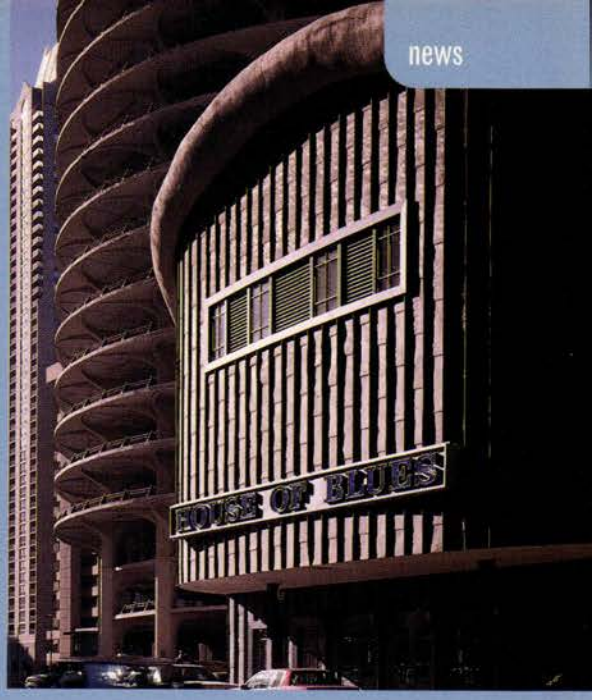
GARY MCCOWAN

Goldberg Variation

Chicago architect Bertrand Goldberg's original scheme for the House of Blues, a New Orleans-themed restaurant in his 1964 mixed-use, high-modern Marina City complex, drew howls from local critics (Architecture, March 1996, page 59). When they complained that his proposed temple front was akin to Da Vinci drawing a mustache on the Mona Lisa, Goldberg denied authorship of the scheme. The completed restaurant, however, exhibits only a subdued sign and two "saddlebag" additions clad in the same standing-seam metal as the 1964 structure. Mies's dictum "build, don't talk" still applies in taciturn Chicago, but this time, critical discussion has changed design for the better. E.K.

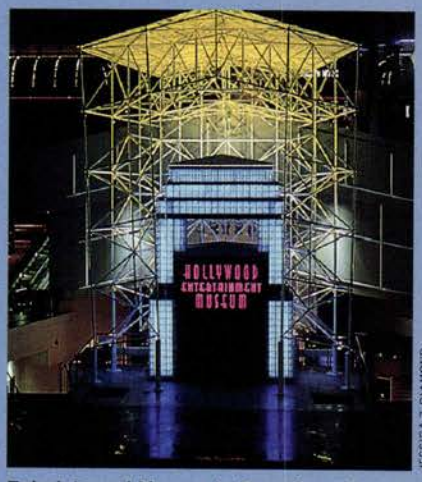


DOUG SHOWER

Goff Masterpiece Destroyed

Shin'enKan, the Bartlesville, Oklahoma, mansion designed by Bruce Goff and built from 1953 through the 1970s, was burned by arsonists to the ground on December 26, 1996. The house had been purchased from the University of Oklahoma by a group of private investors earlier last year, and was valued by architects at $10 million. However, unconventional materials such as coal-and-glass walls and goose feather ceilings made it uninsurable. N.C.

Hollywood Comeback



JESSICA Z. DIAMOND

Entertainment Museum by Barry Howard

Over the years, Tinseltown has lost some of its glitter—most noticeably along Hollywood Boulevard, where movie palaces have been supplanted by pawn shops and tattoo parlors. But 73 new businesses have flourished in the last three years, and local property owners are forming a Business Improvement District to step up security and maintenance in the area.

Many movie palaces are already being restored: In 1991, Disney renovated the El Capitan as a feature films venue; Hodgetts + Fung are restoring the nearby Egyptian Theater for a nonprofit film organization (*Architecture*, June 1996, page 67); and the daughter of Tyrone Power is leading a preservation effort to revive the 1927 Warner-Hollywood Theater.

The new Hollywood Entertainment Museum opened last October in the former food court of a Hollywood Boulevard mall. A Hollywood History Museum is also in the works, scheduled to open later this year in the former Max Factor building. Three new subway stations along Hollywood Boulevard will bring tourists and locals. *N.C.*

(continued from page 25)

a city landmark that is now the subject of a bitter court battle between the archdiocese and the Los Angeles Conservancy (*Architecture*, September 1996, page 48).

In New York City, **Kiss + Cathcart, Architects** have won a commission to renovate and expand SoHo's New Museum of Contemporary Art. And since the New York Public Library's science, business, and industry holdings were moved to a B. Altman's department store renovated by **Gwathmey Siegel & Associates**, interiors at the old 42nd Street building, including the main reading room, are undergoing restoration by **Davis Brody & Associates**. Gwathmey Siegel, meanwhile, has been approached by Harvard University to renovate Baker Library.

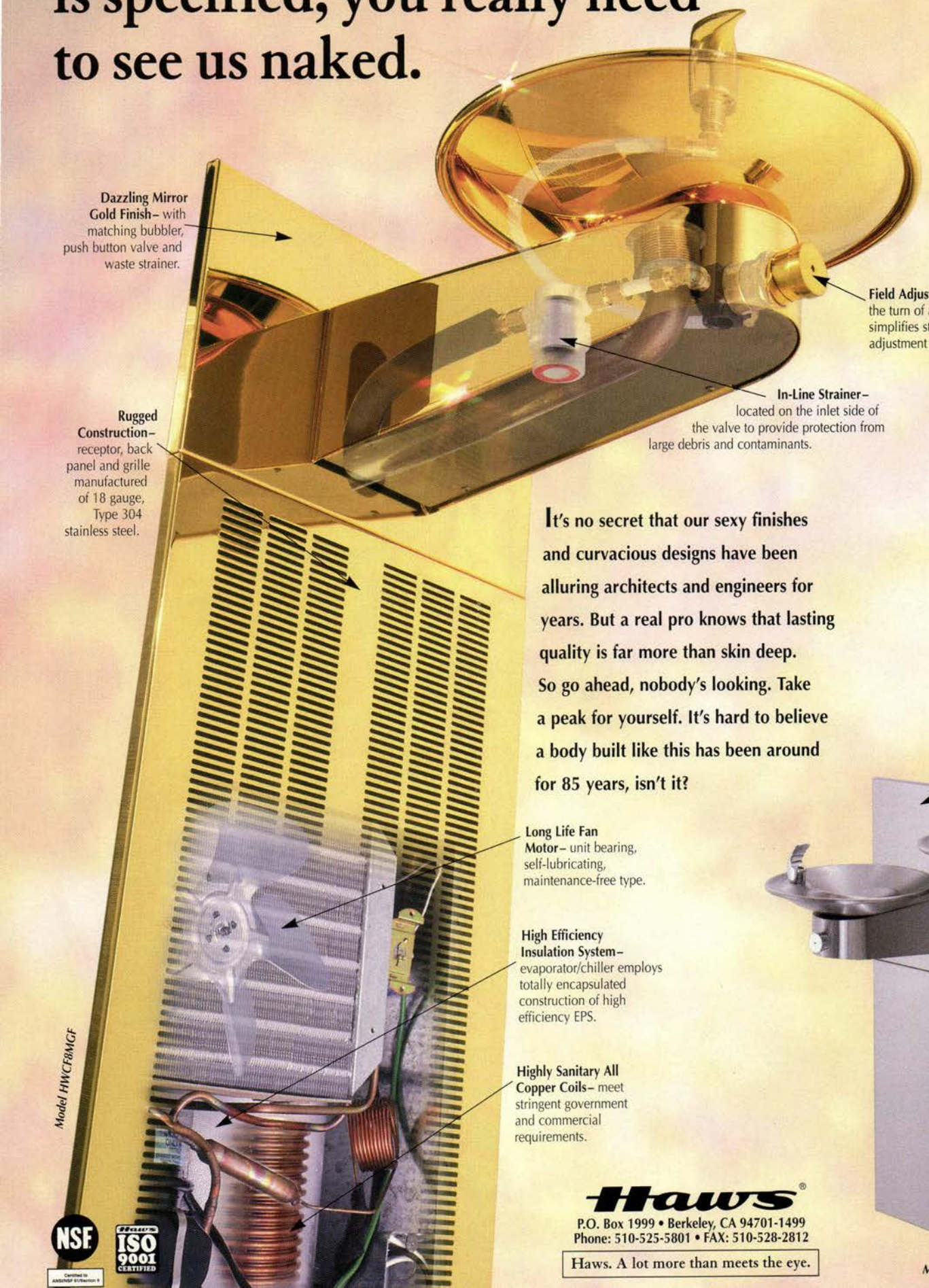
Colgate University and Trinity College of Hartford have commissioned **Cooper Robertson & Partners** to develop campus master plans. **Patkau Architects** have won a competition for the 220,000-square-foot Nursing and Biomedical Sciences Building at the Health Science Center of the University of Texas-Houston. And **Mehrdad Yazdani** of **Dworsky Associates** is designing the 80,000-square-foot Business and Information Technology Building at Chapman College in Orange County, California.

The University of Cincinnati's building campaign is finally coming to a close, with the final commission going to Machado and Silvetti for a dormitory complex. And in Cleveland, **Frank O. Gehry & Associates** has been commissioned to design the 100,000-square-foot Peter Lewis Campus at the Weatherhead School of Management for Case Western Reserve University.

In the face of community opposition to **Holt Hinshaw Architects'** futuristic scheme for the Public Safety Building in Berkeley, the San Francisco firm is being replaced by **Robert A.M. Stern Architects** as designer of the building.

Patkau Architects' Houston science building

To appreciate why Haws is specified, you really need to see us naked.



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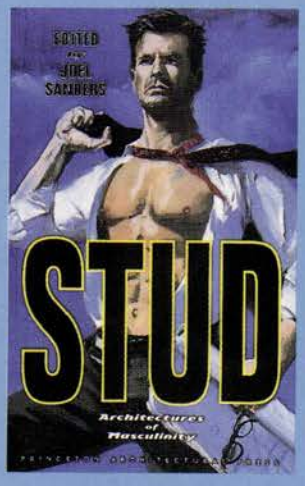
Haws. A lot more than meets the eye.

The cover illustrations of *The Sex of Architecture* (New York: Harry N. Abrams, 1996) and *Stud: Architectures of Masculinity* (New York: Princeton Architectural Press, 1996), two recently published collections of essays, represent stereotypes that the two books question. A famous fashion model of the 1950s swirls her skirt over Paris as she balances precariously atop the Eiffel Tower for *The Sex of Architecture*. Adorning *Stud* is a lean, handsome, Marlboro-type man holding a roll of blueprints, shirt open to expose a muscular chest. By theme and quality, the essays are diverse, but if you can make your way through some silly stuff in both books (such as Vito Acconci's "Adjustable Wall Bras" in *Stud*), important contributions to issues of gender orientation emerge.

Sex in Space

Two new books survey the dimensions of gender politics in architecture.



Editor Joel Sanders and several authors of essays in *Stud* challenge the very notion of masculinity as envisioned by many architects. They refer to the contemporary theory that we construct our gender identities. The essays aim to explore the factors in architecture that shape masculinity. If the concept seems a bit abstract, the essay "Bathroom" by Lee Edelman attempts to explain by examining how public rest rooms for men construct masculine identity. The functional division into two types of facilities, urinals and toilets, inverts the social norms of acceptable displays of the male anatomy (in the movies, for example): genitals are exposed to public view; buttocks are shielded. A second cultural law dictates that contemplation of your neighbor while urinating must never take place, and Edelman notes the presence of televisions above the urinals in one New York City restaurant to fix the potentially wandering gaze.

The undertones of homophobia and homoeroticism in rest rooms underscore a major preoccupation of *Stud*: how architecture defines heterosexual masculinity and denies homosexual masculinity. Gay men constitute a prominent segment of the architectural community, but have achieved their status by not explicitly confronting homosexuality in their work or in public discourse.

Despite the wide participation of gay men in the fields of architecture and design, homophobia persists in architectural circles throughout the United States. The real contribution of *Stud* is that it tackles the issue of homosexual spaces and homophobic responses. In particular, "'Privacy Could Only Be Had in Public': Gay Uses of the Streets," the fine essay by George Chauncey on the history of gay use of public spaces in New York City in the 20th century, demonstrates how gay men appropriated spaces and constructed their own city invisible to the dominant city. Chauncey also explicitly rejects the currently fashionable but vague theory of "queer space" with the argument that there are only spaces used by queers or put to queer use. And indeed, none of the essays even endeavors to define exactly what "queer space" is.

Despite its clear strengths, a key question remains unanswered in *Stud*: Should challenges to stereotypes of masculinity address

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something more than sexuality? *Stud* is ambiguous on this point: several of the essays suggest that straight and gay male identities consist of something more than sexual preference, but the book's voyeuristic images of gyms, blurred photos of gay sexual encounters in sex clubs, and other homoerotic images seem to suggest otherwise. Other than their shock value, these images add nothing to the essays. A book subtitled *Architectures of Masculinity* that begins with a stereotypical stud on the cover and concludes with endpapers bearing multiple illustrations of flaccid penises may not exactly convey the message the authors intended.

In architecture, gay men have enjoyed greater access to prestige, power, and acceptance than women ever have. As editor Patricia Conway notes in *The Sex of Architecture*, women have never received either the Pritzker Prize or the AIA Gold Medal. Women have a fiendishly difficult time finding, and hanging on to, academic positions or partnerships in major firms. The systematic nature of this discrimination is highlighted by the contrary situation, one of the architectural academy's dirty little secrets: many deceitful, corrupt, and unaccomplished men have managed to obtain and retain long-term sinecures as deans.

The 24 brief essays in *The Sex of Architecture* (which ought to be subtitled *Twenty-four Positions*) for the most part do not challenge this system directly. Originally presented at a conference called "Inherited Ideologies," held at the University of Pennsylvania in March 1995 (*Architecture*, May 1995, page 15), the authors want to counter some long-held truisms about men, women, and building: men build, women inhabit; public spaces are for men, private for women; nature is female, culture is male. Much as is the case with *Stud*, the essays only loosely relate to one another, reflect a tedious Northeastern bias, and vary widely in the issues they address, their relation to the book's title, and quality.

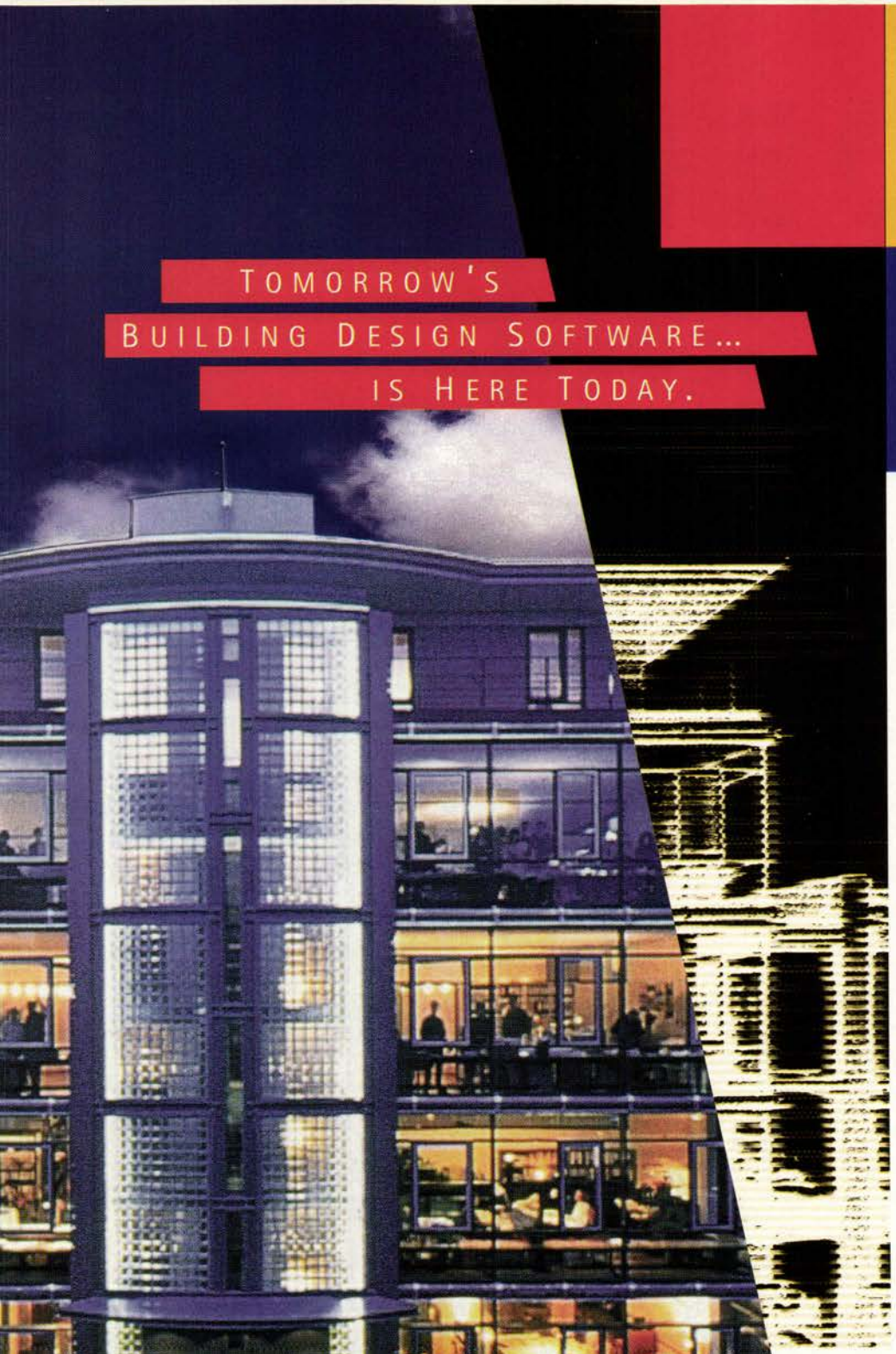
One group of essays divulges new information about women in different historical periods or parts of the world. Most intriguing is Zeynep Celik's fascinating discussion of how Algerian women used rooftops as public spaces alternative to those of men. The accounts by Susana Torre, Lauretta Vinciarelli, and Ghislaine Hermanuz of how women in Argentina, Italy, and New York City claimed or redefined public spaces are also worth reading. Fresh perspectives on important issues of gender, cities, and architecture are provocatively presented in essays by Mary McLeod, M. Christine Boyer, Margaret Crawford, and Lynne Breslin.

Two other groups of essays are diametrically opposed. Leslie Kanes Weisman and Sharon Sutton challenge the way power is deployed in architectural institutions, in particular how they marginalize and oppress women. I remember attending one of Sutton's workshops on power-sharing at the Association of Collegiate Schools of Architecture Administrator's Conference in 1994 (historically a reunion junket of marginal content but significant cost). The workshop provided solid evidence of the difficulty of eroding the patriarchal system in architectural education. Speaking to an overwhelmingly white, male audience of deans and academics, Sutton attempted to explore alternative methods to empower women, students, and staff. Much of the group was unreceptive.

With this in mind, other essays, such as those by Jennifer Bloomer and Catherine Ingraham, amount to little more than personal, aimless ramblings, and are exasperating. As Denise Scott Brown remarks in her contribution, theorists of this type are frequently fuzzy, undisciplined by scholarly research, and advance their conclusions from anecdotes and stereotypes. What they have to say about sex in architecture remains obscure, but what they have to offer anyone at all in their precious, self-serving, and embarrassingly naive narratives eludes me. Too stylized and self-conscious to be meaningful, they seem lost in a dated 1970s feminism remixed with French psychotherapist Jacques Lacan's special brand of misogyny. They start and end nowhere, reinforcing many of the stereotypes most of the other authors seem to want to dismantle. Fortunately, avoiding them is not difficult. Although *The Sex of Architecture* is a dumb title bearing no relation to the book's contents, a few articles make it worth its price.

Several of the essays in *Stud* and *The Sex of Architecture* contribute to a richer understanding of gender issues in architecture. Together, however, the two books suggest a level of comprehension of and concern for gender that is far greater than actually exists. The people who ought to read these books, whether in the academy or in practice, probably will not, and those who are already interested will battle about the terms of the debate rather than challenging the sources of the problems.

Diane Ghirardo is a professor of architecture at the University of Southern California, editor of the Journal of Architectural Education, *and author of* Architecture after Modernism *(Thames and Hudson, 1996).*



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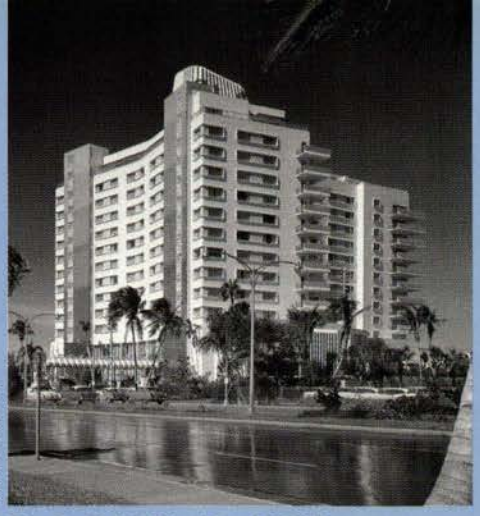


EZRA STOLLER/ESTO

Eden Roc Hotel, Miami Beach (1945)

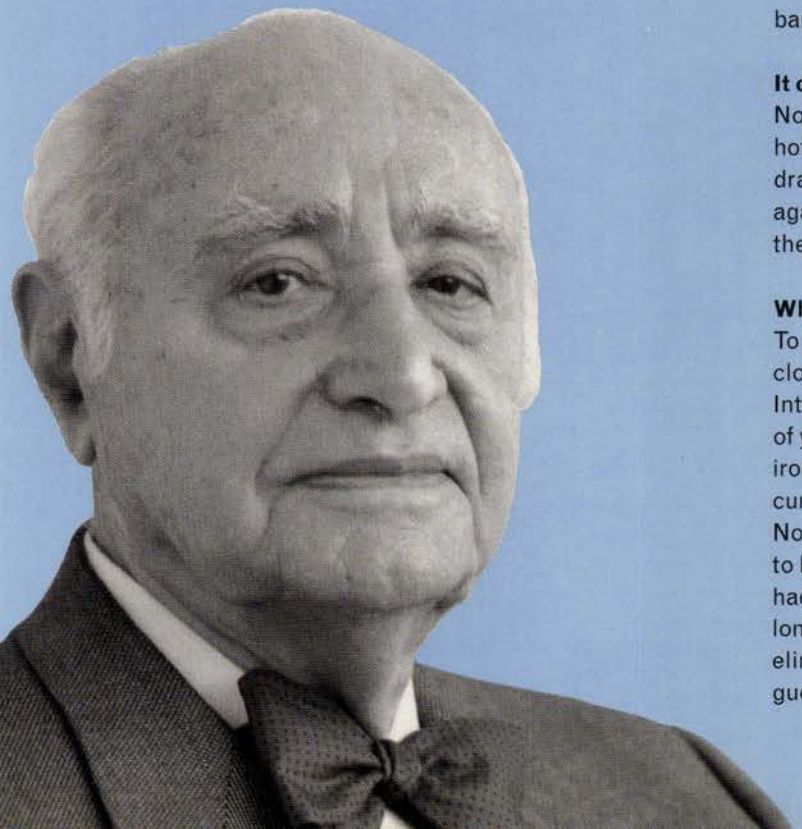
Lapidus Cuts Loose

The Miami Modernist reflects on his long, tumultuous career.

In more than 50 years as a practicing architect, Morris Lapidus never lacked notoriety. Today, the influence of the 94-year-old is stronger than ever, discernible in the work of such architects as Arquitectonica and Rem Koolhaas. Dapper and genial, Lapidus spoke to Architecture *before lecturing to a standing-room-only crowd at the National Building Museum in Washington, D.C., last November.*

ARCHITECTURE: You're certainly getting quite a lot of positive attention these days, with the publication of your new autobiography Too Much is Never Enough (Rizzoli, 1996). But this wasn't always the case, was it?

MORRIS LAPIDUS: Hardly. When the Fontainebleau Hotel was finished in 1954, Doug Haskell [then editor of the *Architectural Forum*] called me and said, "Morris, what the hell did you do? You've created a monstrosity. I'd lose my job if I published this thing!" Then I got calls from the other magazines. And each one of them said the same thing: "We cannot publish that building. We won't dare to publish it!" Then, of course, the critics got on the bandwagon. You'd think that would have ended my career.



It doesn't seem to have done so.

No, it didn't. People came running to me: "I've got a hotel! Do a hotel for me!" Eventually, I ended up with two offices and 40 or 50 draftsmen. I was a prosperous architect. But I was never published again. Even nice, straightforward buildings weren't published. To the architectural world, I didn't exist.

Why do you think the reaction was so vitriolic?

To the critics and much of the profession, architecture was a closed thing during the 1940s and 1950s. It was the period of the International Style, and you just didn't breach that style and do one of your own. If you did, you committed an architectural crime. The ironic thing is that they hated the Fontainebleau because of its curves—the International Style dictated that you build a glass box. No curves. But the Fontainebleau is curved because of function—to keep the lengthy hallways from seeming so long to the guests. I had been traveling for 20 years while doing stores, and I hated the long hallways. I always said if I got the chance to design a hotel, I'd eliminate them. In the Fontainebleau, the corridors are long, but the guests never realize it. The curves express what goes on inside the

building—a Modern concept. But nobody noticed that; they only saw the shape. I was caught in a storm of controversy. "He belongs to no particular school of architecture," they said. "He's a Don Quixote tilting at windmills."

Did you see yourself as a Don Quixote?
Yes, but in a different way than they did. I was a populist. People loved what I did. I never had to solicit work—there were always so many clients coming to me.

I understand you ultimately built more than 1,200 projects.
Was it that many? I never kept count, and eventually I threw out most of my drawings. But the clients loved it—they just kept saying, "Give us more, give us more." So as an architect, and financially, I was a success. The one thing I lacked was the approval of my peers.

Was the profession as dismissive as the critics?
Oh, yes. They tried to get me thrown out of the AIA.

Why?
Because I was getting so much publicity, and the local Miami architects were so intensely jealous. The radio and newspapers really played up the Eden Roc, saying what a great building, what a great architect. I had also worked on five previous hotels in the area, and the newspapers listed me as the architect, even though I was actually the associate architect. The local professionals accused me of lending my name to projects which weren't mine, taking credit for someone else's work. I had to go to Washington, D.C., to appear before the AIA ethics committee, which said, "That isn't the right thing to do." I said, "I don't control it, for heaven's sake, gentlemen." They then pulled out a letter from the Miami chapter of the AIA. The head of the chapter wrote: "We sincerely ask that you suspend Lapidus from the AIA." I asked, "Are you going to do that?" They said, "We'll take it under advisement, Mr. Lapidus." A few weeks later, they sent me a letter: "You're suspended for three years. You can't use the letters AIA." I went through the suspension, changed my stationery. But even after this treatment, I didn't leave the AIA. *[Lapidus resigned from the AIA upon his retirement in 1982. Ten years later, architect Peter Piven, with the backing of Robert Venturi, suggested to Lapidus's son, New York City architect Alan Lapidus, that they would like to nominate Morris for FAIA status. Alan encouraged his father to reactivate his membership in order to accommodate the process. Morris wrote to New York AIA requesting reinstatement as a retired practitioner. Lapidus reports that the AIA never responded.]*

Isn't it ironic that just as you were coming into your greatest fame—and attracting attention to the profession—that you started having this kind of trouble?
That's the way it was from then on. It was a very bitter experience for me. I studied architecture. I loved architecture. I wanted to be accepted by my peers. European architects loved my work.

Interior, Rainbow Shop, Brooklyn, New York (1935)

The American public did too.
Well, I knew the public. I was always interested in people. I always said that when I retired I was going to write a book about mankind—and I did in the late 1980s, called *Man's 3 Million Year Odyssey* (Vantage Press, 1989).

And how did this research affect your work?
In store design, I had to attract people so I had to understand them. People walk toward light. It's because the first thing that catches their eye is the bright spot. I call it the moth theory. I found that people don't walk in straight lines—they meander. So my walls meandered. I also developed my own rules for systems of ornament and the use of color.

What drove your design of hotels?
After 22 years of store design, the idea was still: let me do something to entice people. I tried to dream their dreams. I used to go to the movies, and so did they. That's where they got their culture. So why not design a movie set? Just go wild. The critics said I designed for people who didn't know the difference between architecture and Coney Island. They missed the point entirely.

What do you think of architecture today?
It's moving in the right direction. It's much more open today than it was before. There is a hunger for different things.

Is there anyone practicing now whose work you like?
Oh, yes. Rem Koolhaas, Cesar Pelli, and Renzo Piano. They start by designing what's inside the building—not just enclosing space with a boxlike form. They seem to pour an envelope over the functions to give a building its shape—form following function. They're not just creating unusual forms to be smart or clever. I think Piano is the greatest of all of them. He loves form, but he's also constantly testing new materials—experimenting with new ways to build. He does such marvelous things.

Of all the buildings you have designed, which is your favorite?
The Fontainebleau. Sweeping, curving. It represents my most original thinking. It was a fantasy world of richness and elegance. It was a world that excited people. They loved it.

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Fashion Victim

A new Madison Avenue boutique maxes out on minimalism.

Fashion designers appreciate the value of architecture as a marketing tool, as a spate of recent stores along New York City's Madison Avenue proves. In 1986, Ralph Lauren commissioned designer Naomi Leff to renovate the Rhinelander-Waldo mansion on 72nd Street; Calvin Klein selected British minimalist John Pawson for his stripped-down boutique at 60th Street, which opened in 1995; and most recently, Giorgio Armani tapped **Peter Marino** to emulate his clothing's quiet elegance at 65th Street.

But Marino failed to deliver the goods. The big white box that sits on the northwest corner of Madison Avenue and 65th Street is neither an inspired stylistic exercise nor a neighborly addition. Known for designing houses for the wealthy, including a 1988 Milan house for Armani, Marino tried to echo the Italian designer's sophisticated clothes through a minimalist wrapper for his new store. But other than adhering to Adolf Loos's axiom that ornament is crime, his rectilinear architecture turns its back on Modernism's basic tenets. By removing all distractions, Marino only exposes his neglect of scale, proportion, and hierarchy.

In the name of contextualism (and to meet the strict demands of the New York City Landmarks Preservation Commission), the architect kept the store's height at 61 feet, even with adjacent brownstones. Yet its consistent cornice line does not compensate for the store's otherwise total disregard for its surroundings. Neighboring rowhouses are darkly colored, richly patterned and textured; windows and doors are rhythmically staggered; protruding cornices and stoops mediate between sky and ground. The Armani store's Madison Avenue facade, by contrast, is a symmetrical, undifferentiated, half-block-long surface, barely relieved by a shallow, recessed bay and terrace in the middle of its two upper stories. Ten-foot-square windows are arranged in four identical rows, flush with the surrounding limestone cladding. The massive white limestone panels are flat and repetitive, their size and rhythm unmodulated.

To mask the building's awkwardness, and to relieve his clear discomfort with unadorned surfaces, Marino employs an extravagant material palette on the interior. But the lavish limestone, glass, exotic wood veneers, and supple leathers are inconsistently applied, entirely lacking in visual order.

A Modernist scheme from a designer truly skilled in the subtleties of abstraction might have enriched the historic surroundings of this shopping district. In Marino's hands, unfortunately, the delicacy and restraint of the best Modern work is lost. The suit may be made of silk, but the cut is all wrong. *Ned Cramer*

Minimalism: Design's

Downsized almost to death, architecture must try harder to make a claim on our lives with the most minimal of means. By Aaron Betsky

After decades of style wars and years of value engineering, it's becoming difficult to find something resembling the proud edifices architects believe they are destined to bestow on a grateful populace. Increasingly, architects sell themselves as problem solvers and purveyors of the elegant gesture that you barely notice. In a situation where architects design fewer and fewer structures (in states such as California you don't even need a license to design a single-family house) and the theoretical justifications for form-making are increasingly thin, architecture has reached a nadir: what is it, who needs it, and why build?

These are not just navel-staring questions for architects to ponder between jobs. Several years ago, a national magazine specializing in showing the kind of highly designed interiors that are supposed to represent the American ideal of home held focus groups to find out what its readers liked. Participants disagreed endlessly about whether they preferred Victorian, Southwestern style, or "modern" rooms, and whether they wanted advice on where to buy accessories or would rather see how famous people lived. The one thing they all agreed on was that they had no interest in anything labeled "architecture." "It has nothing to do with our lives. Why are you always trying to force it on us?" one participant complained.

A hip publishing organization received a similar response when it recently test-marketed a new design magazine: as soon as the name "architecture" or even "design" appeared in the title, potential subscribers' interest in the magazine plummeted. That sentiment is echoed by a group of clients the AIA put together several years ago, according to the Institute's First Vice President and President-Elect Ronald Altoon: "We asked them whether they thought architects protected them, and they said, 'You must be kidding; we hire people to protect us from the architects we hire.' You could never get away with that in the medical or legal professions."

Increasingly, architects aren't getting away with it either. Though it is hard to pinpoint statistics, there is a general sense among both architects and laypeople that, as architect Stanley Tigerman puts it, "the cult of the architect is on the wane." To a certain extent, this decline is a reaction against both the excesses of the 1980s and the exuberance of Deconstructivism, the last big architectural style to sail through our culture. This culture of excess made the public identify architecture with luxury and undisciplined play.

There is also an economic reason for the decline: in an era of downsizing, telecommuting, and more and more controls on where and how we can build, the sorts of commissions for stand-alone, signature buildings that are the mark of what architects and critics think of as great architecture are increasingly rare. "The era of the big downtown office building is over, and it isn't going to come back,"

THESE PAGES: John Pawson's Minimalist design for Jigsaw, a store completed in London last year.

RICHARD GLOVER/ARCAID

Disappearing Act

baldly states Cesar J. Chekijian, senior vice president for corporate properties at the Chase Group. Even when something is built, the watchword, says Chekijian, is "flexibility... the application of information technology and 'work smart' plans demands it." The buildings that are built are subjected to endless rounds of value engineering, because, as Chekijian puts it, "all excesses in these design-driven features are costs that have to be born per employee as additional liabilities by the client and, ultimately, the shareholders."

A case study in this movement toward more efficient building with minimal architecture is the program started several years ago by Bell Atlantic Real Estate. According to Manager of Real Estate Jorge Kosares, Bell Atlantic weeded its list of approved architects down to three, and gave each of them a "master contract" for the design of all of the company's facilities that included a list of materials and space standards that the chosen trio could use. Now Kosares is developing similar contracts with suppliers, so that the architects' choices of materials will be even more limited. Not that there is much of a chance for architects to express themselves anyway: "Our main criteria was that we wanted architects who could understand flexibility. Most of our work is internal alterations that happen all the time, not signature buildings. Switching equipment gets smaller and smaller, we have downsized, and we can recapture space," Kosares continues. "The only reason we need architecture is to make our unoccupied buildings in residential areas acceptable and pleasant, and make comfortable, ergonomically correct spaces on the inside."

For many bottom-line-minded clients, the problem with architecture is that it appears excessive, even if it produces an efficient arrangement of spaces. For years, Silicon Valley companies would never hire "name" architects because, says San Francisco-based Studios Architecture Partner Eric Sueberkrop, "the perception was that you were wasting money that should be spent on research and development. The moment these companies did a signature building, their stock plummeted."

In its work for companies such as Silicon Graphics, Nortel, and 3Com, Studios has tried to show how the firm can use architecture to attract employees and make better use of space, but the architect's biggest victory has been the ability to create buildings that can be one thing or another: what is an office building for 3Com today could be a factory tomorrow, and vice versa. Sueberkrop calls his approach "a built-in exit strategy." The "big moves" are on the outside, in tacked-on employee amenities such as health clubs, cafes, and training centers that seduce employees or clients into the realm of the company.

Clients such as Chekijian, however, have very little use for such add-ons: "If you want to do P.R. with your buildings, that's not a good use of resources. Let P.R. figure out how to do that. The era of building monuments is over." The implication is that graphics and other nonstructural means of identity affirmation are much better at promoting a positive image of a company or organization. It is a sense that is confirmed by the recent growth in hybrid architecture/graphic design firms such as Sussman Prejza in Los Angeles and Environmental Arts in Denver.

Even this attempt to save the dumb box with the big sign (or lots of little ones) may be a losing battle. In a world where electronic media outperform even the showiest building, it is almost impossible to create a building that will hold the average American's attention for very long. "I took my kids to see the Wexner Center," says the architect of that triumph of Poststructuralist derring-do, Peter Eisenman, "and all they wanted to do was to look at the video monitors. That's what they've grown up with." "Buildings like Eisenman's Wexner Center and the Aronoff Center are the end of the road," says Tigerman. "We'll look back at them in embarrassment, or as representing a time that is over."

The new time is one of restraint. Tigerman, who became famous for his chameleonlike ability to change styles and design buildings that were as much messages as shelters, has retreated to the making of clean, white apartments. He also runs a quasi-design school, Archeworks, that concentrates on helping those in need through small, often invisible improvements such as better room arrangements for single-room-occupancy hotels or ergonomic pointing devices for the disabled. "At whatever level you're building," Tigerman sighs, "this is not the time to be excessively expressive. This is where architecture is going to be for a very long time."

Amazingly enough, architects have turned this condition of minimal possibilities for expression into yet another style: Minimalism. Though Tigerman points out that it is "inherent in International-Style Modernism," this minimalism is not that of steel and glass. It is one of glossy surfaces and extravagantly empty rooms. As the painter Peter Halley, a client of Ms. Minimalism Deborah Berke, puts it: "The modern idea is that if you are rich enough, you can live in a bare space—a kind of post-Soho loft—rather than in a palace." Like all styles, the new minimalism has been validated by a European import, in this case in the form of the work of British designer John Pawson, whose clumsy Calvin Klein boutique introduced the New York City demimonde to the idea last year, and who this year published his own manifesto, *Minimum* (Phaidon Press, 1996, $95). Unlike Robert

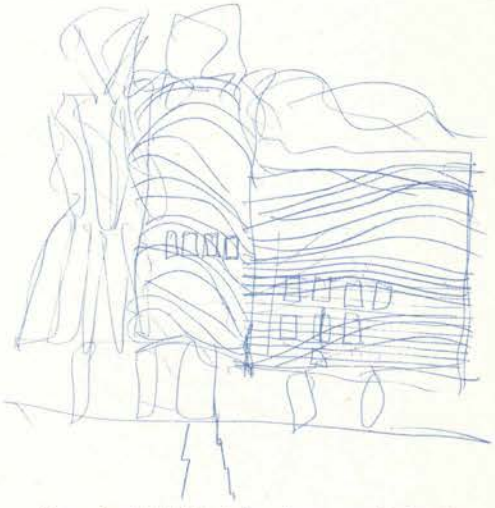

FRED AND GINGER
DANCE IN PRAGUE
Frank Gehry choreographs the kinetic pair into a vibrant ensemble


MOTORS

Viewed from a bridge crossing the Vltava River, the office building by Frank Gehry known as Fred and Ginger terminates a turn-of-the-century row of riverfront buildings with paired towers that turn the heavily trafficked corner.

TIM GRIFFITH

Urbanistically, Gehry's building corrects a flaw in a boulevard realigned with the bridge by staking out a wide stretch of sidewalk with ground-level columns.



Conceptual sketch by Gehry shows waves in facade, which mediate between his towers' verticality and the surrounding block's dominant horizontality.

Two contexts confronted Frank Gehry as he set out to design an office building overlooking the Vltava River in Prague's sacrosanct historic district. The first was Prague itself, whose diverse collection of buildings embodies the city's venerable and complex history: Medieval turrets, Gothic spires, Renaissance cornices, Baroque domes, and Art Nouveau curves embellish buildings whose collective stylistic wildness is tamed only by a common apartment-block typology and a seven-story height limit.

The second context was the momentum of an inherited scheme designed by Prague architect Vladimir Milunic who, in the early 1980s, had proposed a conceptual plan for the vacant riverfront site at the suggestion of Czech president Vaclav Havel. (The president and architect both lived next door to the office building site, in an apartment building designed and built by Havel's grandfather in 1905.) Programmed at Havel's request with bookstores, a gallery, a multipurpose hall, and a rooftop café, Milunic's first design suggested a nude female figure, trousers dropped around the legs, and other errant themes that symbolized Milunic's interest in matter that suddenly starts to move. When a real investor—the Dutch insurance company International Netherlands Group (ING)—finally materialized in 1992, Milunic transformed the not very profitable, dominantly cultural complex into an office building. Seeking an international architect with an international reputation, ING commissioned Gehry—at the suggestion of Milunic, who admires

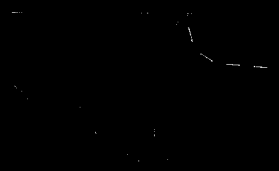
Mock-up of wall in field sandwiches concrete-panel base, insulation, window unit, and plaster finish (below). Ginger's galvanized steel frame was fabricated and pre-assembled in Italy, then dismantled, shipped, and installed on site (bottom).

MARC SALETTE PHOTOS

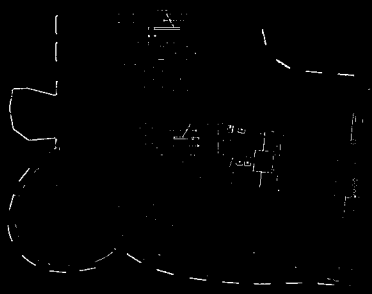
Views of Fred and Ginger before they are dressed to the nines in glass and plaster reveal structure. Poured concrete slabs curve around inner corner of interior courtyard (top). Ninety-nine customized forms were used to cast Fred's concrete-panel understructure (above).

Third-floor plan

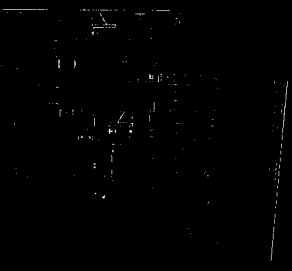
Roof plan



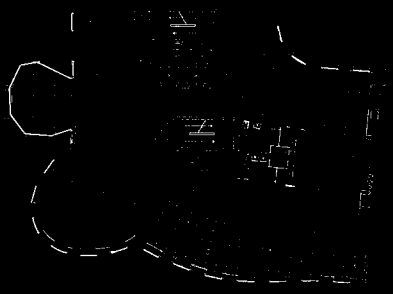
First-floor plan



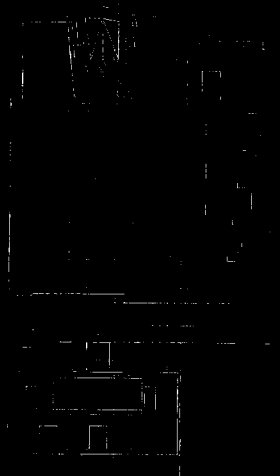
Seventh-floor plan



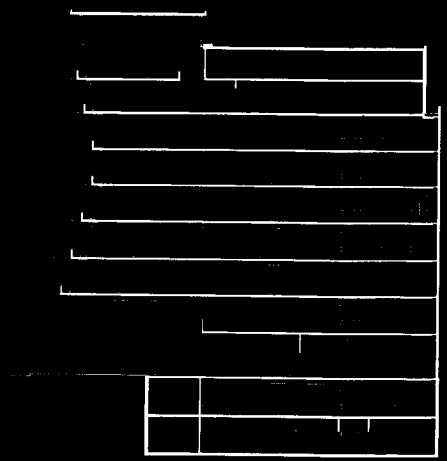
Lower level two floor plan



Fourth-floor plan



East-west section looking south



North-south section looking east

heavily trafficked corner and face a small square bordered by Neo-Renaissance, Neo-Baroque, and Modernist buildings, festooned with a motley assortment of projecting bays and towers.

"Vlado told me the city wanted the building to project so its body language would point to the bridge," says Gehry. "Without a pointer, the traffic went the wrong way." Just downriver is a Medieval stone tower topped with a bulbous copper dome, and the pristine, white Manes Gallery, designed by Otakar Novotny in 1930, bridges a canal. Heterogeneity typifies this corner of Prague as it does the whole city: "We have no architectural unity," observes Milunic.

The program, with a tight spec budget, necessitated maximizing the permissible volume, which required Gehry to squeeze an extra story within the height established by the neighboring building. He chose to obscure the mismatch of floors by staggering the height of the windows at each floor and striating the entire facade in undulating lines, a design ploy that vibrates the facade loose from the adjacent buildings, sending it into a running jump that culminates in a flaring cylindrical tower.

"Through Vlado, Havel asked for a building that fit into the 19th-century, but one that wasn't Cubist," remarks Gehry. "I looked at the surrounding facades, and it's a language of bumps—implied towers, bays, turrets, and spheres on the roof." Gehry started playing with implied towers, one facing the river and another projected toward the public plaza, and the implied tower became a "head piece" for the plaza, anchoring it like a cathedral tower. "We started messing with glass and plaster, and I started making the projected tower like a big lantern in glass, facing the plaza. The glass tower grew, we made models, and I realized it would block the views to Prague Castle from the balconies next door. So we pinched it, and it looked like a woman's dress. Then I met Havel, and in that exchange, he talked about abstraction and said the image was too representational. I wasn't intending it to be representational, and I got a lot of flack. That's when I started calling it Ginger. And Fred's name came up. The Czechs thought I was playing with their heads."

Gehry's flaring cylindrical tower plays Fred Astaire to the elegant glassy, nine-story Ginger Rogers, spinning in freeze-frame, her legs extending from a shimmering dress of fragmented glass cut on the bias and pinched at the waist. Fred wears a hat in the form of a dome shaped from filmy strands of wire mesh, and Ginger seems to extend a glassy arm over Fred's shoulder, forming a shimmering ridge of glass that curves across the roof. The side facade beyond Ginger resumes the fenestration of the front facade.

Both figures, the erect Fred and the fluid Ginger, step out from the building block, echoing the Medieval stone tower opposite and playing the role of paired campaniles on the urban square. Gehry daringly monumentalizes his figure through the fragility of glass. "For better or worse, I tried to fit in," says Gehry. "I look at the shapes and forms rather than the precise language—I don't use a Neo-Greek language, but take the scale of the pediment, the decoration, the openings. I abstract from the existing context more as a sculptor making parts and pieces."

But beyond their punctuating roles in the square and at the end of the row of buildings, Fred and Ginger redefine the tip of the wedged site, correcting the existing misalignment of streets leading to the bridge by edging out toward the traffic. With her legs tripping along the sidewalk near the curb, Ginger forms both a covered colonnade that protects pedestrians and a canopy in front of a revolving door leading to the entrance lobby.

From this entrance, a visitor looks back to the street through a curved perimeter wall of glass and the hem of Ginger's striated glass dress, and the whole transparent spatial sandwich—the revolving glass door, the two layers of curving glass—plays off the cars rounding the corner. The composite of revolving and spinning curves constitutes a kaleidoscopic lens that shapes a view of the city outside into one of movement and change. Ginger's upper floors offer another unique view of Prague: each floor—especially at the top—projects visitors out into the street where they hover as though suspended in thin air by a helicopter.

Inside, there are six floors of office space above retail and a top floor and roof aerie housing a restaurant. A café occupies the ground floor, next to a commercial space. On each of the upper stories, the floor plate is pinched with deep involutions where Fred and Ginger embrace one another and touch the sides of the structure. The curvilinear plan, with a geometry that is always changing, almost necessitates free-form interior planning. London-based Czech architect Eva Jiricna masterfully accommodated a dense program for an investment company on two of the floors, with her signature steel-and-glass partitions (facing page).

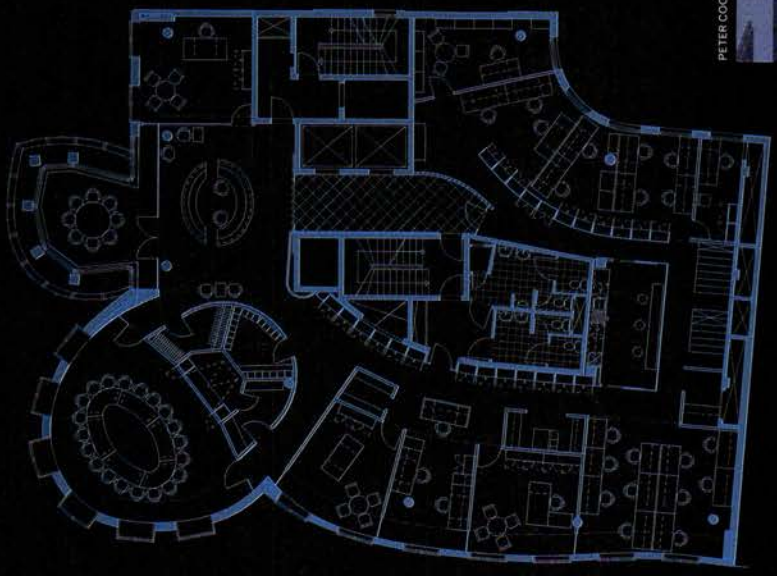
The context made many demands, and Gehry addressed most of them, though not with equal success. Undoubtedly, the brilliance of the building is Ginger, whose swirling dress and outstretched arm incarnate a grace worthy of Prague. Fred, however, is an unnecessarily stiff and unimaginative partner (unlike his namesake), even given his role as geometric straight man.

Ginger's top floor, with two glazed membranes, projects beyond the body of the main structure to afford sweeping city views.

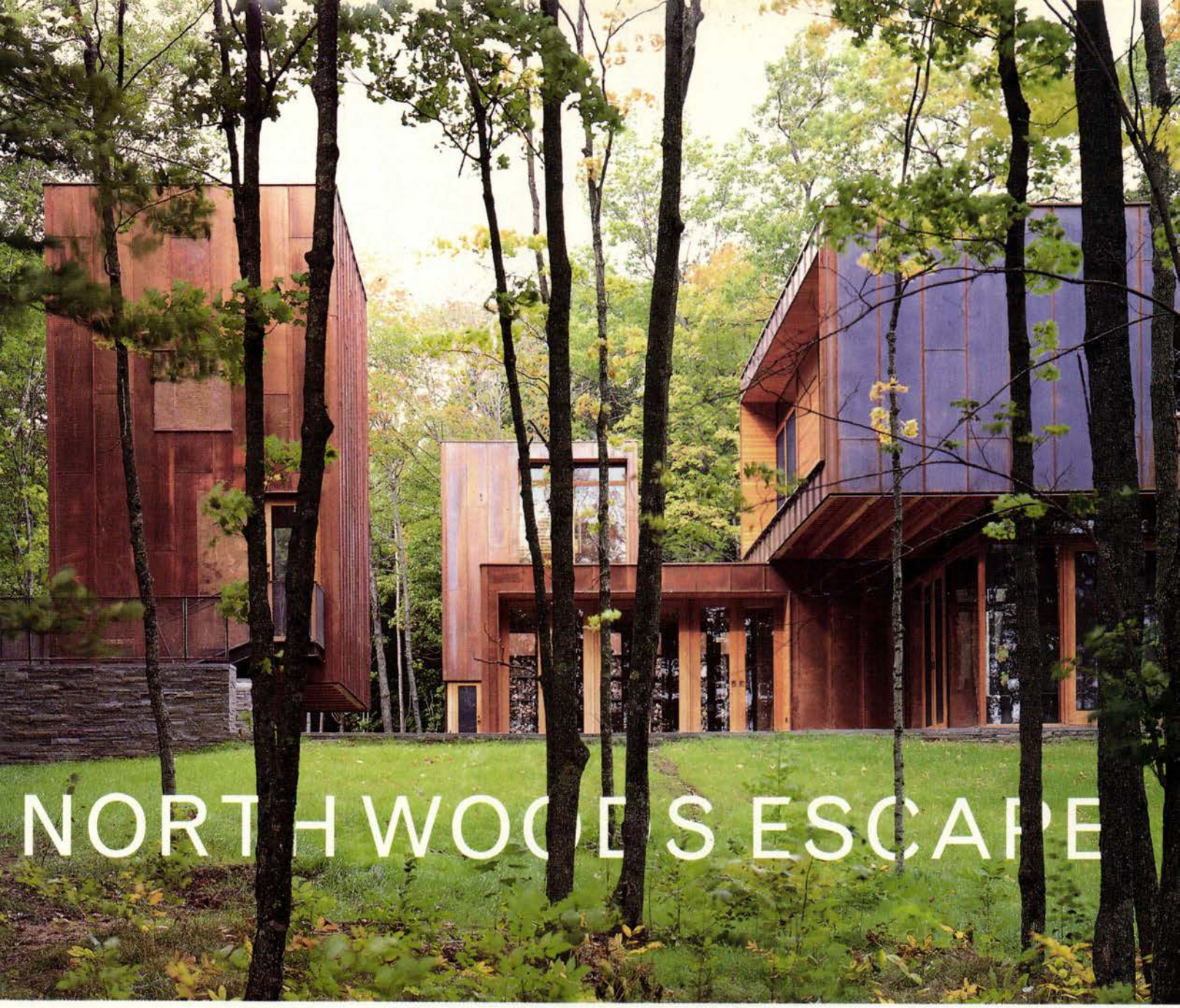
London-based Czech architect Eva Jiricna designed the Anderson Consulting offices on the sixth and seventh floors of Gehry's building, showing how irregular floor plate can be divided into offices and conference areas. A small kitchen and lunchroom are located at the edge of the seventh floor's central core.

PETER COOK PHOTOS

Conference room located inside Fred capitalizes on the curvilinear perimeter of Gehry's building. A smaller conference room (top) occupies the faceted Ginger, immediately adjacent to the reception area.



Seventh-floor plan

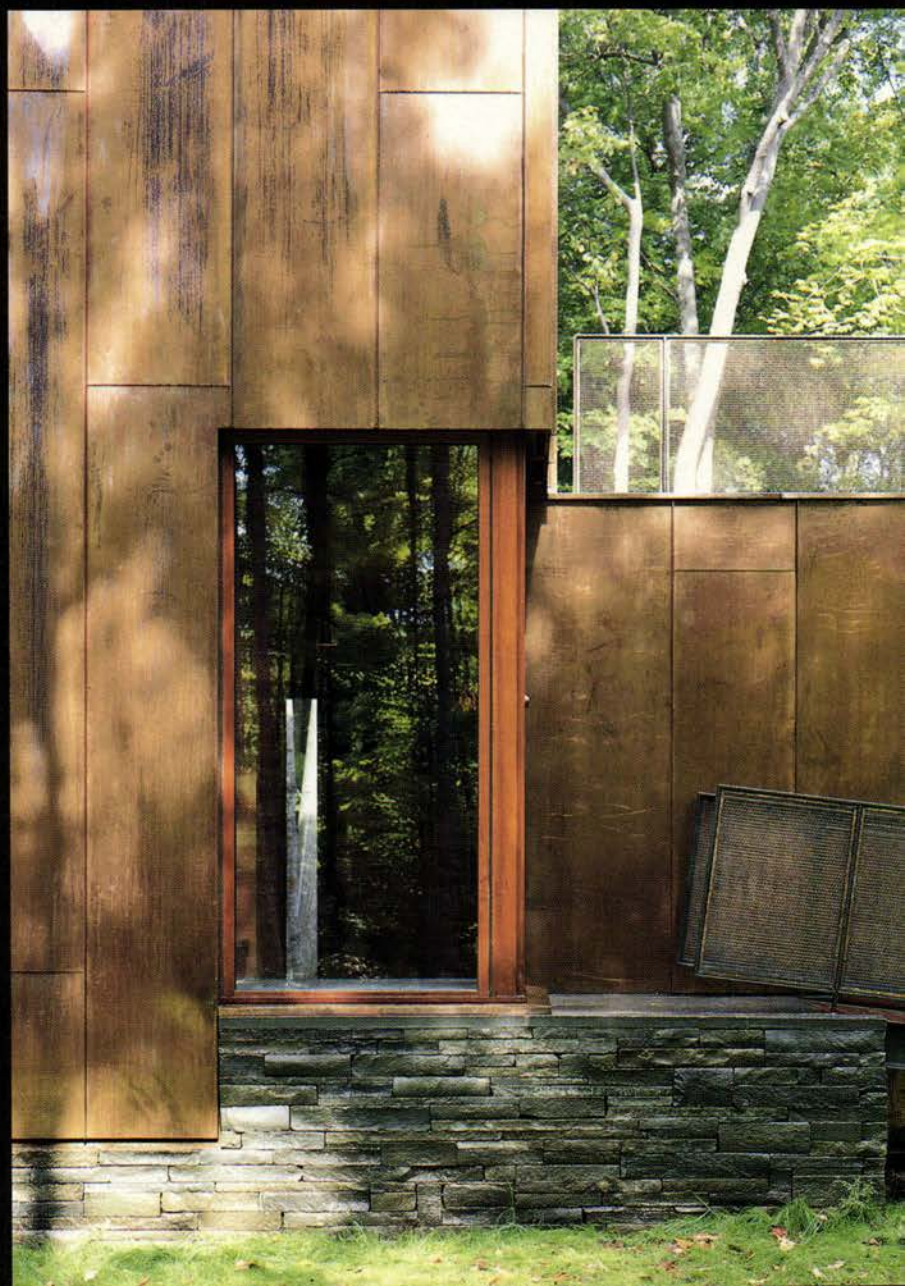


NORTHWOODS ESCAPE

A COPPER-CLAD HOUSE IN WISCONSIN BY MINNEAPOLIS ARCHITECT VINCENT JAMES CHALLENGES THE CONVENTIONAL RUSTIC BUILDINGS OF THE UPPER MIDWEST.

Visitors enter courtyard through copper-clad doors next to garage (left); bridge spanning courtyard connects main house's second-floor hall with deck on garage roof. Ramp (below) leads to 35-foot-high tower at southwest corner. Courtyard (facing page) is tucked between main house and garage. Firewood is stacked in shelving recessed into garage wall.

RAIN, SNOW, AND AIRBORNE IMPURITIES LEAVE THEIR MARK ON THE COPPER SURFACE—A REMINDER OF HOW EPHEMERAL THINGS ARE.

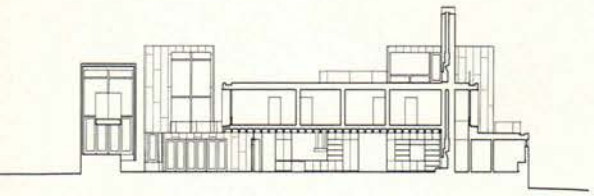


grouped along the eastern half of the first floor, facing the lake; the kitchen occupies the western half, facing the woods. The first-floor main bedroom reaches toward the lake from the house's northeast corner. Four bedrooms with separate baths occupy the second floor, and the third floor accommodates a studio with rooftop deck.

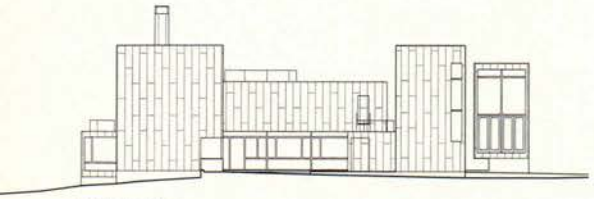
Although the rooms offer dramatic views of the landscape, the interior seems cool and detached. James says he chose Douglas fir paneling because of its connection with rural architecture, and applied the wood to create "tubular" spaces that steer your perspective outward to the windows. The owners note that "the unity of the materials creates a cohesive whole." But as appealing as Douglas fir is, the interior falls prey to too much of a good thing. The second-floor bedrooms and first-floor master suite seem particularly cool. The variation in window sizes and heights, however, adds visual interest otherwise lacking in the upstairs rooms themselves.

By far the house's best interior space is the open, first-floor living and dining room, because here James employs a rich contrast of materials and textures in a bluestone floor, light-toned fir walls, slate fireplace, and a rhythmic march of ceiling beams.

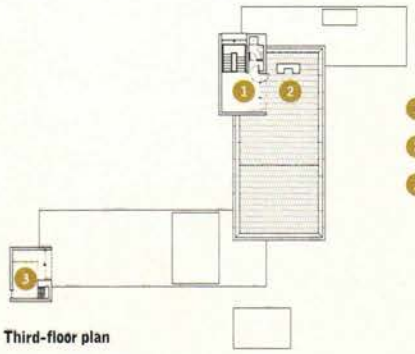
Of all the materials, the copper applied to the exterior of the house is the most unusual. Its pinkish hue makes this collection of orthogonally placed copper boxes in the woods visually jarring. Yet time will prove beneficial. Explains the owner, who chose the material, "Rain, snow, and airborne impurities all leave their marks on the surface. The copper is a reminder of how ephemeral things are."



East elevation

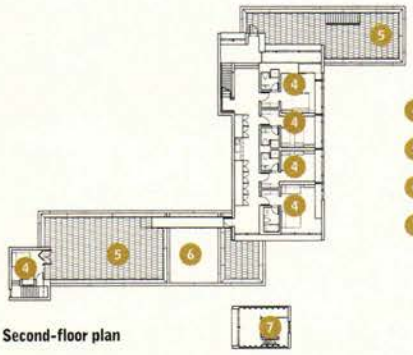


West elevation



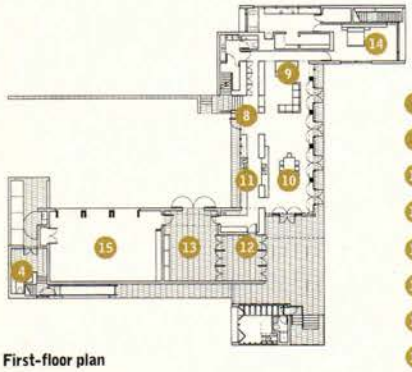
1 Studio
2 Outdoor deck
3 Tower loft

Third-floor plan



4 Bedroom
5 Outdoor deck
6 Bridge
7 Studio Loft

Second-floor plan



8 Entrance
9 Living
10 Dining
11 Kitchen
12 Porch
13 Courtyard
14 Bedroom
15 Garage

First-floor plan

Like a garden designed to change over the years, the Type/Variant house is meant to evolve. James explains that the panels weren't cleaned or buffed during construction, leaving fingerprints and smudges as signs of the building process. The copper panels already show signs of weathering and turning brown. In a few years, the rosy copper will match the tree trunks and eventually assume a green patina.

Even small things in this house are designed to change with age. An iron door knocker, for instance, smacks against the unprotected wood, forming a deeper groove in the door with each knock. Northern Wisconsin's notoriously harsh winters will expedite the aging process, and even those who find the Type/Variant House curiously out of place may eventually think it's always been there as the building quietly merges into the landscape. *Eric Kudalis*

Eric Kudalis is editor of Architecture Minnesota.

TYPE/VARIANT HOUSE
ARCHITECT: Vincent James Associates (project initiated by James/Snow Architects), Minneapolis—Vincent James (principal); Paul Yaggie (project architect); Nancy Blankfard, Nathan Knutson (collaborators); Andrew Dull, Steve Lazen, Krista Scheib, Julie Snow, Taavo Somer, Kate Wyberg (project team)
LANDSCAPE ARCHITECT: Coen + Stumpf and Associates
GENERAL CONTRACTOR: Yerigan Construction
PHOTOGRAPHER: Don F. Wong Photography

JAMES APPLIED DOUGLAS FIR IN SUCH A WAY AS TO CREATE "TUBULAR" SPACES THAT STEER YOUR PERSPECTIVE OUTWARD TO THE WINDOWS.

Horizontal Douglas fir paneling on floor, wall, and ceiling directs views out toward the landscape. Second-floor bedroom (above) is flanked by built-in bunk beds and clerestory windows. Living room fireplace (below) is clad in slate; Douglas fir beams and bluestone floor add textural variety.

THE CONTRACTS FROM Hell

New owner-driven agreements signify the withering of architects' authority.
By Bradford McKee

Clients are trying to keep a tighter rein on the design process while seeking to shed all responsibility for the outcome of projects. The resulting casualty is the trust between client and architect.

Richard L. Tredway, principal of Tredway Associates Architects of Edmond, Oklahoma, was all set to design a new softball facility in mid-1994 for the University of Oklahoma in Norman—until the university's lawyers presented him with the contract. It wasn't the standard AIA-drafted agreement between owners and architects, but an unfamiliar document that seemed like a legal minefield. The contract contained all the explosive elements that lawyers tell architects to avoid. It would have saddled Tredway with total liability for any problems that arose in designing and building the softball center, regardless of the architect's negligence or fault, and would have freed the university from all the project's potential legal burdens. The building would be delivered on time and turn out perfectly, the contract stipulated, or Tredway would pay the client dearly.

Tredway could never safely work under such terms. To start, if he agreed to sign the contract, no liability insurer would cover him. The architect tried bargaining with the university, but the client refused to budge. In January 1996, after four months of failed contract talks, the university's lawyers gave Tredway an ultimatum to sign or take a hike so they could call the next-ranked firm on the shortlist. Tredway turned down the $1 million commission, wasting months of work, he contends. "The university said, 'We have no liability whatsoever if you sign this agreement,'" Tredway recalls. "And if they weren't willing to take it on, I certainly don't want to."

Clients, as Tredway and other architects have learned lately, are trying to keep a tighter rein on the design process. At the same time, they are seeking to shed all responsibility for the outcome of projects. Organizational pressures are driving building owners to sidestep the risks inherent in design and construction. Corporate real estate managers, especially in the information industries, are being pushed to show their properties' contributions to company productivity and profits, leaving little tolerance for delays or down times. Institutional clients show similar strains to realize returns from their buildings under directors' scrutiny. And public agencies, shaken by past scandals involving white-elephant building projects, are guarding their taxpayer investments more carefully.

The resulting casualty is the compact between client and architect that has always produced the most satisfying architecture. Many clients seem to want to distance themselves from designers, rather than work closely with them and share the risks of design and construction. These clients want timelier attention and greater guarantees of delivery from their architects. They tend to expect an increased or indefinite scope of work for the same or lesser fees—meaning more free services.

The client's key instrument in this campaign is the contract. Tredway's firm was not the only architect to whom the University of Oklahoma presented its rogue agreement. Nor is the university the only client these days wielding such a document. Architects nationwide are discovering strange, new forms of contracts among an increasing number of clients. "We've been getting calls from architects all over the country," reports Daniel LaRue Gross, the AIA's program director for state and local government affairs. "They're all saying these are the contracts from hell."

Source of the contracts

The contracts that Tredway and other architects are confronting in fact come from the Atlanta-based National Construction Law Center (NCLC). This association is affiliated with the Atlanta law firm of Phillips & Reid, which specializes in construction law on behalf of public and private owners, developers, and insurers. In 1984, that firm helped draft a similar set of construction contracts for the National Association of Attorneys General (NAAG), geared toward public entities. The AIA hotly opposed NAAG's documents at the time, and they eventually faded into obscurity.

But the ghost of NAAG's contracts is back. Since 1992, the NCLC has been selling a set of six project contracts to owners as an alternative to the standard AIA forms. NCLC takes a two-day road show to various cities around the country to talk to building owners about legal issues and dispute resolution—and to hawk its kit of contracts.

So far, the center reports having sold "many hundreds" of sets of contracts, though an exact number was not available. About two-thirds are bought by public-sector agencies such as county governments and school districts. The rest go to corporate and commercial clients. Six contracts covering the architects and contractors plus an orientation program are available for $1,170, and allow owners to "pull years of legal expertise right off your shelf," as the NCLC's marketing brochure attests. "We want to put the owner on a level playing field" with architects in legal disputes, insists Sarah I. Coulter, NCLC's president. "After all, who's paying the bills?"

Coulter maintains that the documents are fair for all parties, unlike the typical AIA form, which, she says, unfairly favors architects. But architects and their attorneys strongly disagree. The NCLC

documents "are simply poorly written," argues George J. Vogler, an Oklahoma City attorney who has been fighting the University of Oklahoma's use of the documents. "They are ambiguous, impractical, and contradictory. They are not artfully drafted—and that's the nastiest thing you can say about another lawyer's work."

Ultimately, architects are uninsurable if they sign the NCLC contract, liability experts say, because it forces architects to make promises regarding issues over which they typically have little control. Rather than holding the architect to prevailing professional standards, which are based on a complex body of legal theory, this new contract calls for practitioners to give guarantees of no-fault service and trouble-free buildings. The aim of owners, argues Vogler, is to sweep away the complicated standards of professional liability and cast their grievances in the framework of product liability, "which is a whole lot more fun in court" for owners than having to prove professional recklessness. "It's an awful contract," contends Richard D. Kroll, senior vice president of DPIC Companies in Monterey, California. "It's fraught with problems from top to bottom."

Contract language too draconian

Architects familiar with the contracts cite numerous problems. At the top of the contract, the standard NCLC form requires architects to warrant that they have "become familiar" with the project site conditions, when most architects don't start site reconnaissance until the service contract is signed. In the next paragraph, the architect promises that "all" project documents and drawings will be perfectly coordinated and conform to "all applicable law, codes, and regulations." But as Paul Genecki, senior vice president of liability insurer Victor O. Schinnerer & Company of Chevy Chase, Maryland, maintains, "there are thousands of laws, codes, and regulations that relate to design and construction. All are subject to change, and many are open to interpretation." Plus, while architects can pledge to keep documentation errors to a minimum, the promise of perfect documentation inheres a higher level of service, Genecki says, for which most clients are not willing to pay.

The language found throughout the NCLC's documents creates an nebulous scope of services for architects and raises unrealistic client expectations, liability consultants warn, with open-ended catch phrases such as "but not necessarily limited to," "if and as necessary and useful to the Owner," and "any other documents or things necessary." Standard AIA-based contracts generally contain more tightly qualified clauses that specifically define the scope of work at each stage in the design and construction process.

NCLC's standard document also compels the architect to redesign the project if the costs involved go over the stated maximum price—without earning any additional fees. But as attorney Norman Coplan, of the New York firm Bernstein, Weiss, Coplan, Weinstein & Lake points out, project costs can blow a client's budget for reasons remote from architects' performance, such as inordinately high bids or market prices for materials. AIA contracts generally don't contain cost guarantees, and many liability policies do not even cover cost estimates.

Other troubles arise in the contract's treatment of the construction process. The architect is supposed to certify that he or she will "inspect the work of the contractor whenever and wherever appropriate" to "protect the owner from continuing deficient or defective work, [and] from...unexcused delays in the schedule and from overpayment to the contractor." The term "inspect" ratchets up architects' traditional responsibility under AIA-derived agreements to "observe" construction. Moreover, the architect cannot "protect" the owner, but can promise to "endeavor to protect" the owner's interests, maintains Genecki.

"Under these circumstances, even a modest project would require full-time, on-site representation" by the architect, Genecki asserts, or else the architect could be held liable for breach of contract for any work that doesn't conform to the design specifications. Many other prickly passages fill the NCLC contract, but one near the bottom sums up the document's spirit: "The Architect shall indemnify and hold harmless the Owner from and against all liability, claims, loss, costs and expense arising out of, or resulting from, the services of the Architect."

Some are amended, others aren't

With such hands-off clauses, these new documents allow owners to "opt out" of their role as design clients, Vogler laments. "They don't have to participate in the difficult tasks of making compromises. It's simplistic, shortsighted, and decidedly unprofessional." NCLC's Coulter counters that these contracts are just standard forms, like those developed by the AIA or the National Society of Professional Engineers, "and they should be amended per location and the situation."

Rather than holding the architect to prevailing professional standards, which are based on a complex body of legal theory, this new contract calls for practitioners to guarantee no-fault service and trouble-free buildings.

Clients, architects concede, have plenty of reasons to respond to past project-related debacles with greater legal cover. Architects set the trend in motion decades ago by delegating their own responsibilities to contractors, construction managers, and program managers.

Some clients are more willing than others to change the terms of NCLC's contracts. The engineering and architecture firm Shive-Hattery in Cedar Rapids, Iowa, encountered the contract on a job to design a $6.5 million juvenile detention center for Linn County, Iowa. Shive-Hattery, one of three architects the county first asked to sign the unfamiliar agreement, fought the contract's stringent terms and won crucial changes, which were also incorporated into the contracts of the other two firms. "We're still uneasy about the county's insistence that we define a specific schedule," remarks Shive-Hattery principal Allen M. Varney III, "especially when they cannot politically guarantee that schedule," given any public body's bureaucratic review process.

The University of Oklahoma has been much more stubborn. Architects Glover Smith Bode of Oklahoma City had an experience similar to Tredway's as they prepared to execute a $25 million addition to the university's law school, in association with design architect Hardy Holzman Pfeiffer Associates. After haggling for months over the contract language, the university insisted the firm sign the NCLC-derived contract or forfeit the job.

Rather than give up the job, Glover Smith Bode went to court and won an order to halt the project until the terms could be settled—which could have taken months. University President David L. Boren finally ordered his staff attorneys to accommodate the architects, because the school had a deadline to file for matching grants to pay for the building and wanted the design contract in place. The university "made major changes for us, but this leaves no hope for anyone else," laments principal Albert W. Bode, because the compromise was based on pragmatics, not principle.

Preventing catastrophic losses

The university has strong reasons for turning to the NCLC-style contracts. "It protects the public owner from catastrophic defects more completely than the AIA documents," asserts Kurt Ockershauser, associate general counsel for the university. As for the strict warranty provisions, Ockershauser adds, the university is trying to back up its "implied warranty" to the contractor when it hands over the architect's drawings. "The warranty provision is not unreasonable," he avers. "But so far as I know, that's a minority view."

But other public-sector clients share his sentiments. Officials in Sedgwick County, Kansas, attended an NCLC seminar and began using the organization's contracts last year. The county formerly relied on AIA documents, which "have some judicial history and definiteness to them," comments Assistant County Counselor Richard A. Eusom, benefits NCLC's documents don't provide. "But they also have some things in them that are very unfair to owners," Eusom maintains, citing an AIA contract's one-year statute of limitations after which the client has no recourse to the architect should the building somehow fail. That doesn't protect the county from latent defects. The county is employing an NCLC contract for a $3 million parking garage to replace one demolished because of failed steel rebar, Eusom explains. The county's taxpayers take the loss.

Winning at any price

Clients, architects concede, have plenty of reasons to respond to past project-related debacles with greater legal cover. Architects set the trend in motion decades ago by delegating their own responsibilities to any number of proxies—contractors, construction managers, and program managers—who have gladly assumed the corresponding power, let alone fees. This withering of architects' authority has left the architectural profession pining to regain the lead role in building projects. And the NCLC's new genre of contracts unblinkingly gives it back, but with virtually no leverage to speak of.

The AIA, through its state-chapter lobbyists, is working on a plan to beat back the NCLC's insurgency, much as it warded off the NAAG documents a decade ago. One prong of the Institute's strategic assault involves compiling testimony from owners and legal experts familiar with AIA contracts to argue to owners that the NCLC forms' apparent advantages in fact amount to zero.

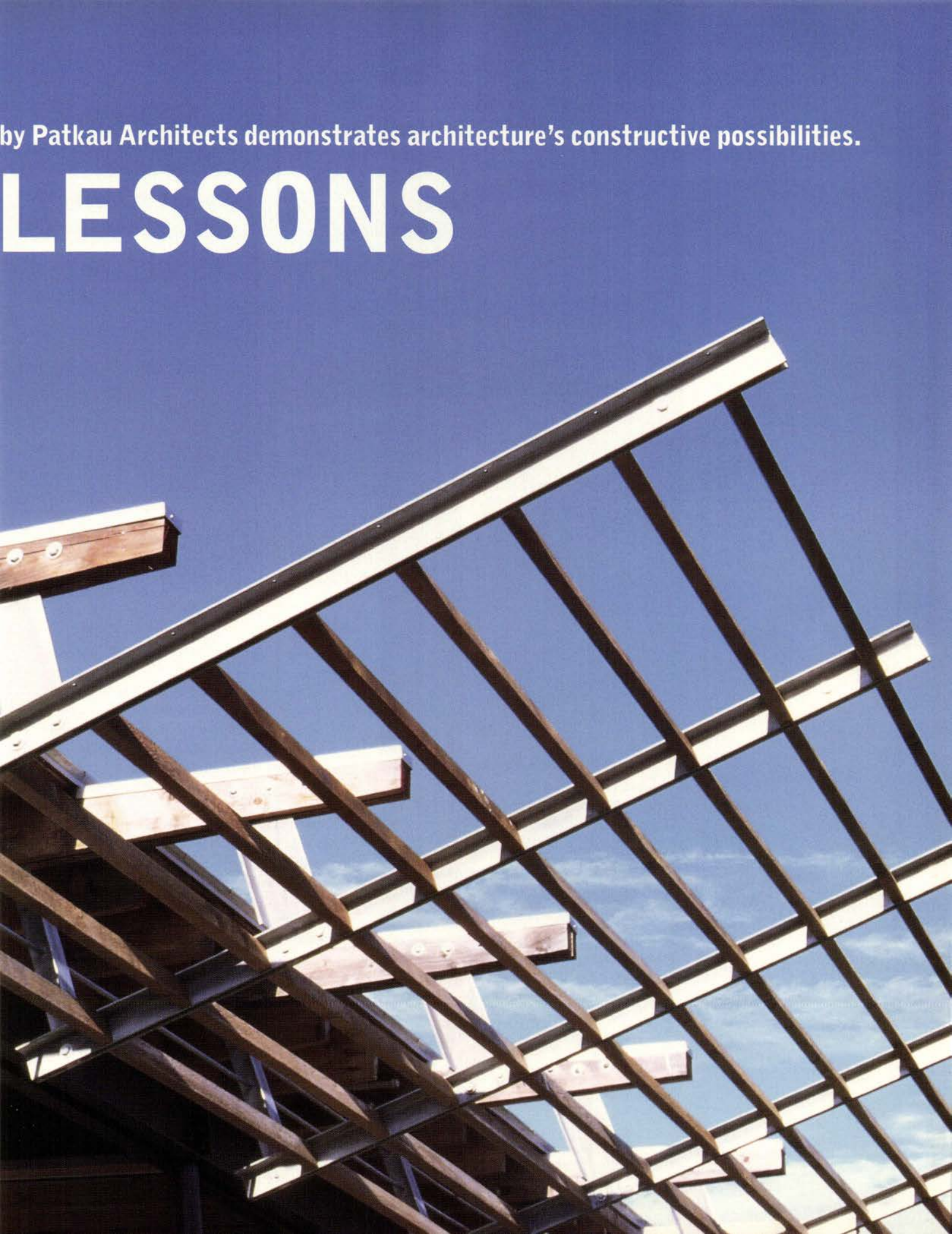
It will be tough for the architectural profession to win back disenchanted owners, however. The NCLC contracts are by no means dominating the market, but they are a grim bellwether for architects trying to restore owners' trust. "Architects have brought some of this on themselves," maintains architect Haven Mankin of Frankfurt Short Bruza in Oklahoma City, who has lobbied the state against using the NCLC contracts on behalf of the local AIA chapter. "These contracts are appearing in response to problems that architects have not taken care of properly. The architects are pointing at the contractor and the contractor is pointing at the builder, and the client is off to the side going, 'What about me?' " says Mankin. "This contract is all about winning—being sure the client's going to win, regardless."

A new public elementary school in British Columbia

TECTONIC

by Patkau Architects demonstrates architecture's constructive possibilities.

LESSONS



Roof overhang shelters storytelling nook in easternmost classroom. Steel-framed windows are set into concrete base.

School's southern face is clad in cedar shingles and topped by a standing-seam metal roof and skylights that brighten circulation areas.

Across the suburban landscape of stuccoed tract houses and small farms northwest of Victoria, British Columbia, Strawberry Vale School appears, a long, leaning, folded box. Sheathed in unpainted clapboard, the building's color matches the burnished gold of parched tufts of grass at summer's end. That grass is green now, as the winter rains have begun, and the first group of students, teachers, and administrators have settled into a building designed to challenge them intellectually through the seasons.

This public elementary school, designed by Patkau Architects of Vancouver, represents a poignant triumph in a cultural and political climate as resistant to architecture as British Columbia's. Last September, the province's Minister of Education announced that five "no frills, cookie-cutter" prototypes for public schools will be designed by the ministry as a cost-cutting measure. This move effectively ends architects' involvement with communities where schools are built, terminating a program that has produced excellent, nationally recognized buildings in the province's rapidly growing towns over the last decade.

Strawberry Vale, with 16 classrooms for 300 students, is among the last of these site-

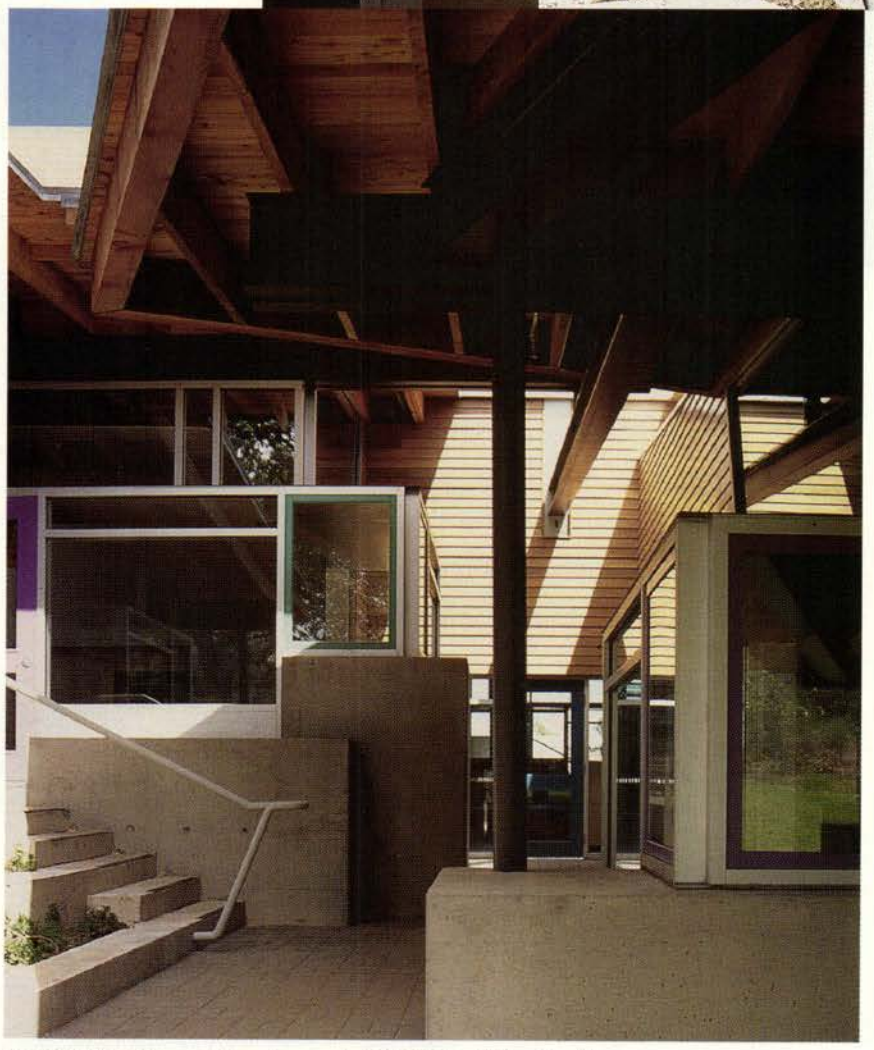
specific schools. It is located between an 1893 one-room schoolhouse, a soon-to-be-demolished 1950 school, and a small rocky woodland of Garry oaks, a rare species native to southern Vancouver Island. The architects paid close attention to the site's hydrology, directing rainwater to a lowland swale that the school's students will develop as a wetland laboratory.

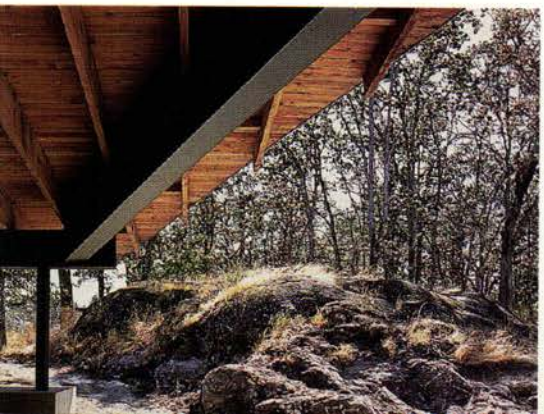
The basic formal organization of the school is disarmingly simple, while the visual experience of the interior is enveloping and very rich. Moving through the school suggests a cinematic experience. Views extend diagonally across layers of space. A central circulation spine, ramped up to negotiate an 8-foot change of grade from east to west, runs the length of the building.

On the south side of the ramp, facing the rocks and oak trees, classrooms are grouped together in four pods, each comprising four separate rooms. Along the north side of the spine lie the library, gymnasium, administrative offices, health room, special education classroom, and service areas. The process of melding the building's program to the land grows from a deep understanding of the site and an attempt to give, in the Patkaus' own words, "architectural form to environmental forces."

Between each classroom pod, a series of highly articulated interstitial spaces serve as dynamic porches to the landscape. The pods are not aligned, so the central hallway jogs to accommodate a storytelling area, access to the library, offices, the front door, and the gym. While the organization is essentially linear, the building is quite porous laterally, connecting front to back rather than end to end. Strawberry Vale is not—at least not yet—the high-security school of metal detectors and centralized access; 24 doors lead outside.

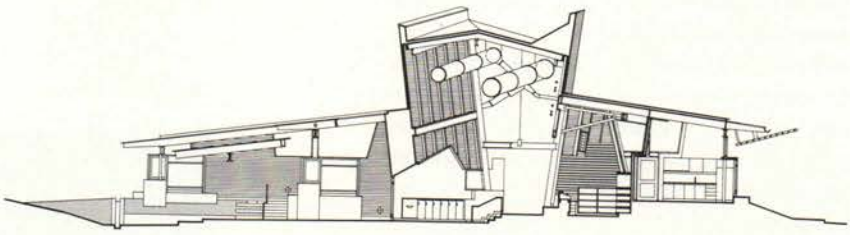
The plan suggests a linear city with a few kinks, yet it is in section that the building is most animated. The structural steel delineating the circulation spine leans outward, as the widening volume rises to 35 feet. Giant galvanized steel ducts and air handlers hang



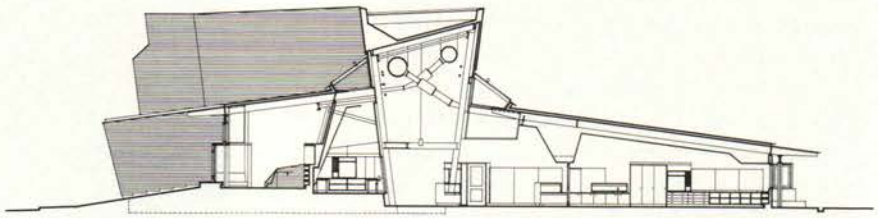


Porch (left) doubles as outdoor play area in British Columbia's rainy climate. Classroom pods are surrounded by vegetation with views of rocks and oak trees (top). View between classroom pods reveals dynamic material assemblies (above).

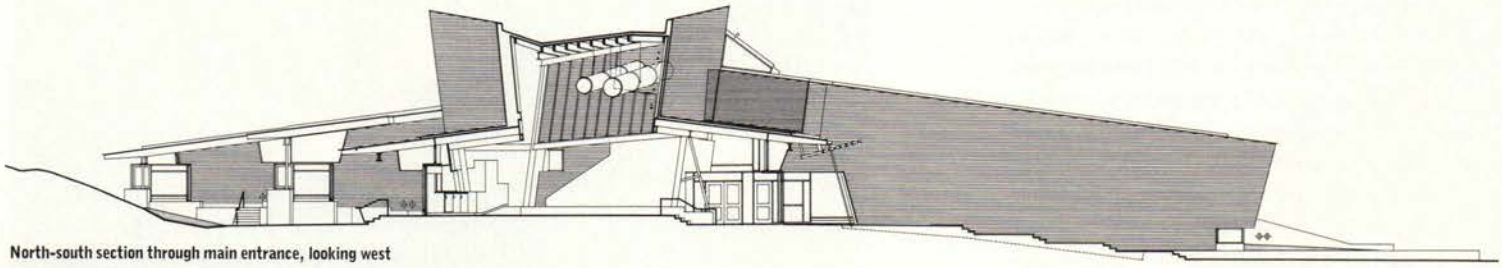
Models of circulation spine (above) and classroom pods (bottom) reveal prominence of interior and exterior steel structure.



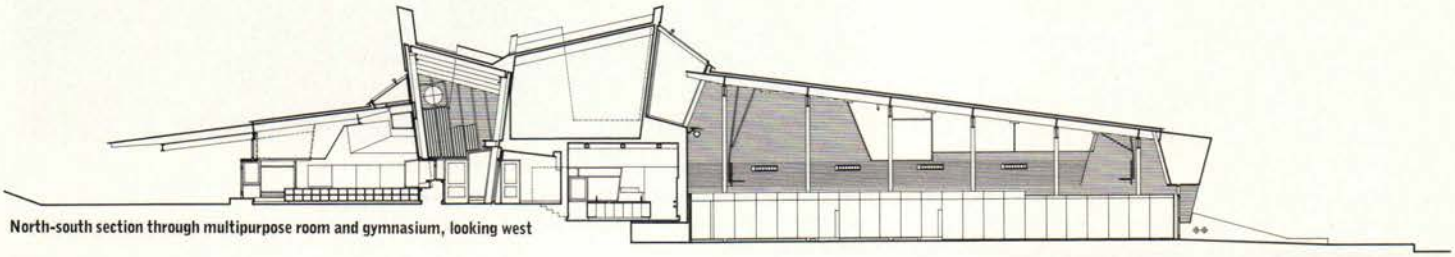
North-south section through staff room and between classroom pods, looking west



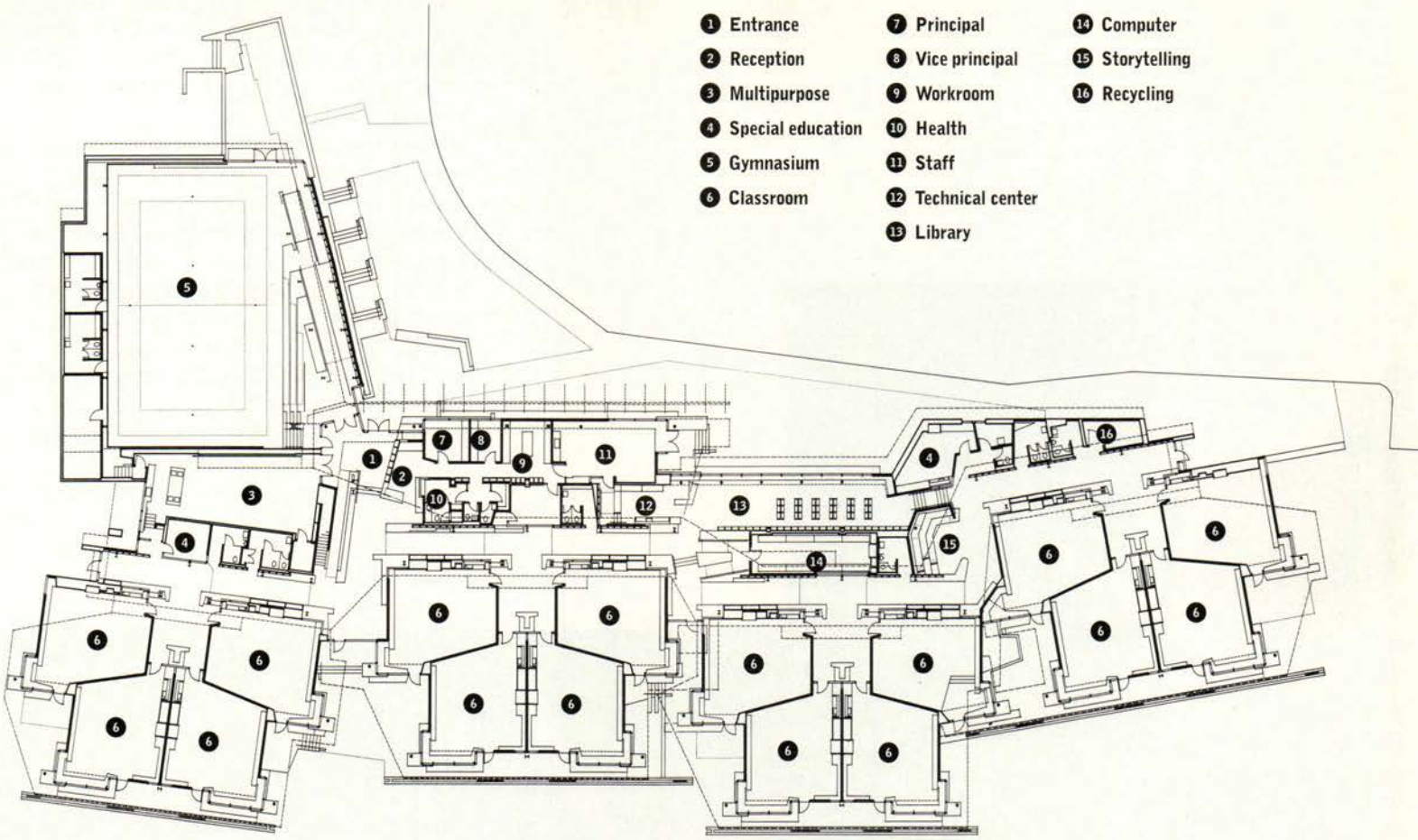
North-south section through library, computer room, spine, and classroom, looking east

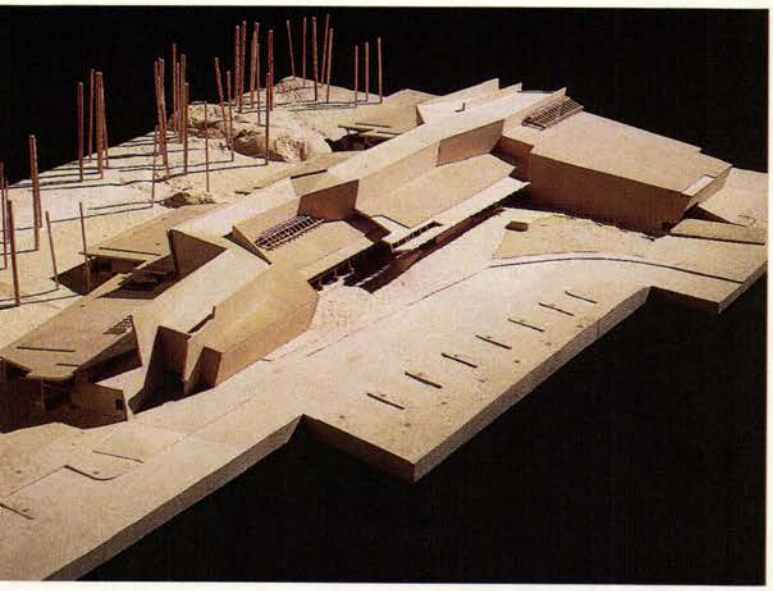


North-south section through main entrance, looking west

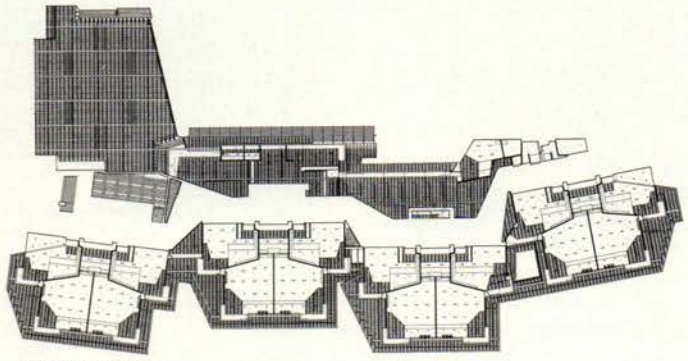


North-south section through multipurpose room and gymnasium, looking west

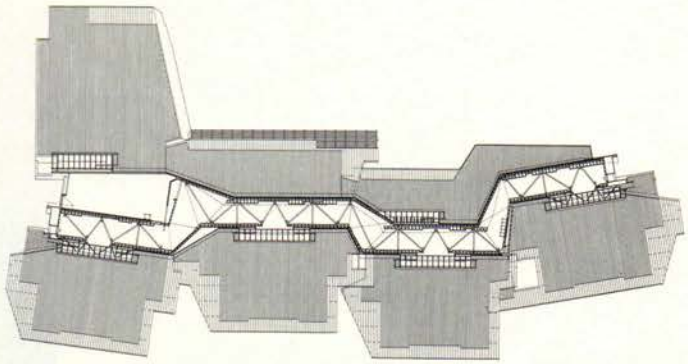




Massing model and plans show linear arrangement of school with classroom modules to south and support spaces to north of circulation spine.



Reflected ceiling plan



Roof plan

near the top of the spine, as if floating. A line of steel beams zigzags between columns at a height of about 10 feet, providing a dynamic, if virtual, ceiling.

The spine, where light levels vary dramatically, is the antithesis of a traditional institutional corridor, a fact that has frustrated members of the Greater Victoria School Board. A student remarked to a recent visitor that he'd heard the spine was meant to be the skeleton of a whale, and then described a classmate who climbed the ribs. The story illustrates the diverging sensibilities of architect and school administrator. The former imagines an architectural space charged with the richness and possibility of the forest, the latter sees danger and liability, and yearns for a hospital-like environment of safety and control.

In a building in which uniqueness and par-

Entrance to classroom is marked by steel structure and maple plywood student lockers (above). Basic building systems are visible at juncture of library, technical center, and computer room (right).

ticularity triumph over repetition, the classrooms are anomalies, repeated four times. At the entrance to each group of classrooms, tall skylit vestibules, the building's only symmetrical volumes, provide natural light. Glazed storytelling corners, which extend under the eaves toward the rocky landscape in projecting window seats, admit more light and views.

Each classroom is distinct, however, reflecting the different characters of the porches between the pods, which register the site's grade changes, the spine, and the roofs overhead. These relatively serene rooms are not the authoritarian precincts of desks facing front toward flag, blackboard, and teacher. Two walls of each room hold cabinetry for a sink, teaching supplies, a television, and children's storage; a third carries the blackboard. Corners provide access to hallway and landscape.

Since school began this past September, each room, as reflected by the positions of students' and teachers' desks, has been occupied differently. Queried as to the architecture's effect on the students, a teacher replied, "The students can breathe here," revealing the frustration of years of teaching in the repressive environment of portable classrooms.

While the school's form is suggestive of ways it might be occupied, the architecture is explicitly didactic. The central spine is purposely heterogeneous in both material and use, layering elements to articulate their differences. The raw materials of construction—steel and wood beams, unclad studs—are visibly embedded in the walls of the spine. Another architecture, of students' lockers and storage cabinets built from maple plywood, lines the spine. These strata, like a vertical archaeology of the wall, portray in their unmediated simultaneity both the process of construction and the particulars of occupation. The space of the spine eddies and flows like a

Steel beams (top left) create a secondary ceiling to the eastern end of the spine. Scale of computer room and bookshelves in library mediates 35-foot ceiling height (above).

Entrance to classroom (top left) is daylit by clerestory skylight and interior corner window opening to spine. Ramp from building entrance snakes behind steel structure and concrete bleachers of gymnasium (above).

stream, and as the section changes, the polished concrete of the floor swells up to form benches, bleachers, and steps.

If the spine offers an inside-out architecture, the gymnasium is its inverse. With leaning steel columns and beams supporting exposed wood rafters, the gym employs the structural vocabulary of the building, but its walls are closed. Its plywood wall panels are actually doors to storage areas and changing rooms beyond. Above these panels, carved into the depth of the wall, large windows face west and south. This may be the most elegant elementary school gymnasium on record.

Cladding is typically applied to close a wall, to construct a finished image against the multiple facts of construction and occupation. At Strawberry Vale, the Patkaus attempt, according to John Patkau, "to make the construction of the building and the architecture one," and have done so by exposing the structural materials, leaving the walls open and unclad. Of course, this strategy involves organizing the sequencing of the North American construction process—what Patricia Patkau calls the "chainsaw culture"—and planning for the limits of its craftsmanship.

Yet the Patkaus distance their architecture from a simple exposition of construction facts. The articulation of materials and construction does not demystify the building, nor offer it a moral rectitude derived from "honesty." Instead, it produces a vital and charged experience, a set of spaces that evoke a sense of multiple scales, inside and outside, frame and wall, order and anomaly, and darkness and light. Strawberry Vale School is clearly wrought from the Patkaus' conviction that architecture is rich, complex, and still full of possibilities. This is an architecture that anticipates, stimulates, and rewards the senses. John and Patricia Patkau have intertwined environmentalism and structural rigor with a sensuality of materials and space—lessons only architecture can teach. *George Wagner*

George Wagner teaches at the University of British Columbia's School of Architecture.

STRAWBERRY VALE ELEMENTARY SCHOOL
VICTORIA, BRITISH COLUMBIA, CANADA
ARCHITECT: Patkau Architects, Vancouver, British Columbia, Canada—Grace Cheung, Michael Cunningham, Michael Kothke, Tim Newton, John Patkau, Patricia Patkau, David Shone, Peter Suter, Alan Teramura, John Wall, Jacqueline Wang (project team)
CONSULTANTS: C.Y. Loh Associates (structural); D.W. Thomson (mechanical); Reid Crowther & Partners (electrical); Gage Babcock & Associates (fire protection); Susan Morris Specifications (specifications); Moura Quayle/Lanarc (landscape); 1st Team Engineering (civil); Thurber Engineering (geotechnical); Barron Kennedy Lyzon & Associates (acoustic); Dr. Ray Cole/Environmental Research Group, School of Architecture, University of British Columbia (environmental); B.T.Y. Group (quantity surveyor); Vaitkunas Design (signage)
GENERAL CONTRACTOR: JCR Construction
PHOTOGRAPHER: James Dow

"Mass culture is becoming so predominant that the local and the particular are becoming less and less evident," explains Vancouver architect Patricia Patkau. In response, she and her husband and partner, John Patkau, with partner Michael Cunningham, have attempted to design buildings related to circumstance—to the particulars of climate, topography, program, client, and local culture. While this approach suggests an architecture attuned to local vernacular or precedents, the Patkaus are in fact committed Modernists with an interest in the specific, interpreted culture of a place. Their regard for abstraction is rendered through inventions in the medium of articulated and juxtaposed materials—the work is neither mimetic nor colloquial. "We tend to differentiate elements within building assemblies," explains John Patkau, "expressing the role of each element, either directly or through representation, so that the nature of the construction and the forces which act upon it are evident."

The Patkaus thrive on the distance of Vancouver from the centers of power, and the luxury of reflection and concentration that distance affords. Working in their downtown office with a staff of between five and 10, 49-year-old John and 45-year-old Patricia practice a true collaboration, enabled by adjacent desks and ongoing conversation. Distrustful of the publicity that celebrates the architect and not the work, the modest pair remain protective of their time, frequently refusing offers to lecture, and unwavering in their focus on their lives in architecture.

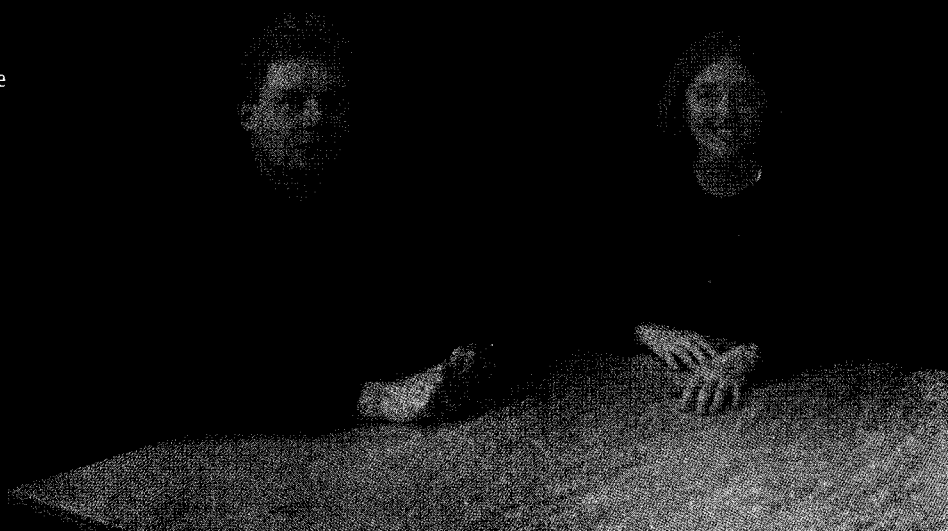
Admirers of Herman Hertzberger, Hans Scharoun, and contemporary Los Angeles architects such as Koning Eizenberg, Morphosis, and the late Frank Israel, the Patkaus produce work that is both integrally part of its culture—basic and immediate in its materiality—yet deeply embedded in an understanding of the architectural traditions of Europe and North America.

They started their practice in Edmonton, Alberta, in 1978, and moved to Vancouver in 1984 to take advantage of the opportunities presented by its expanding economy. Cunningham, 41, who joined the firm as an associate in 1993, became a partner in 1995. Over the past decade, the Patkaus' work has been widely published and received numerous awards.

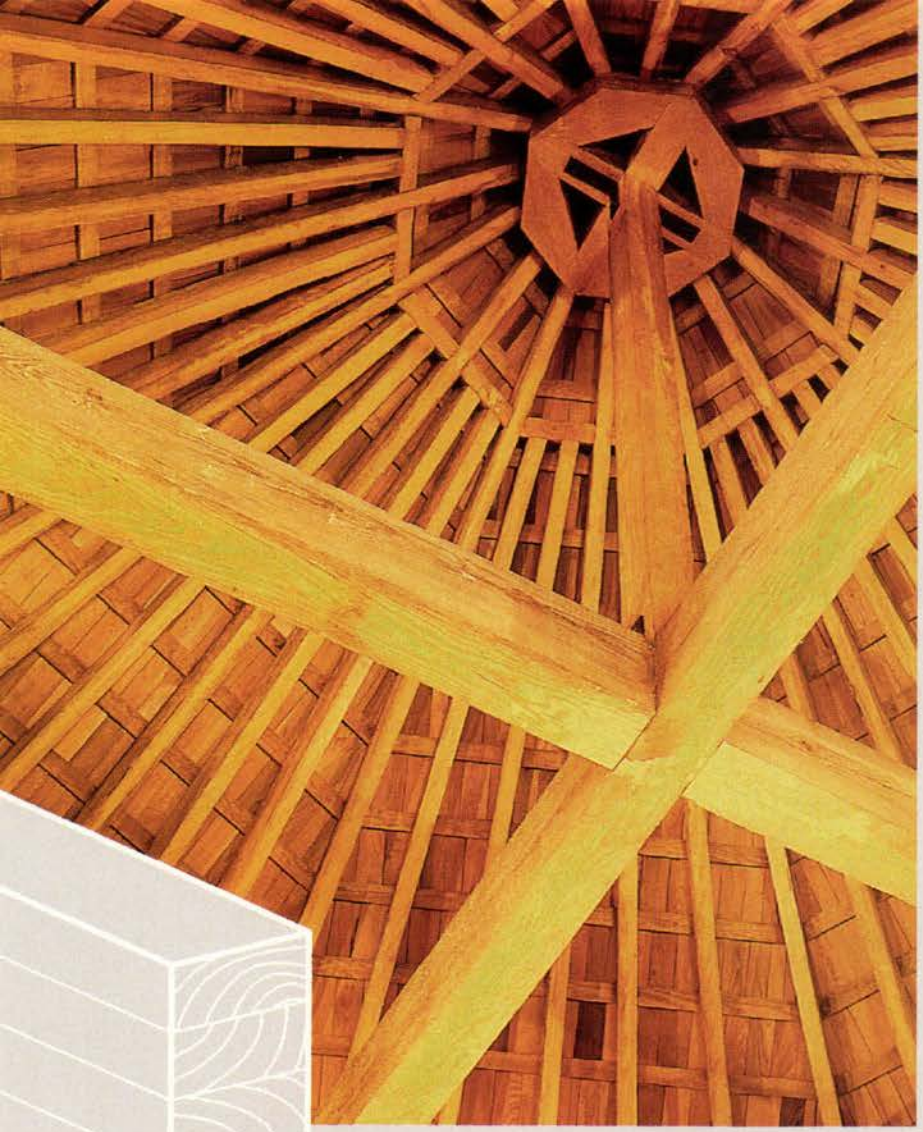
As part of her dedication to architecture, Patricia Patkau has taught full-time since 1988, and is a tenured associate professor in the School of Architecture at the University of British Columbia in Vancouver. From 1988 to 1990 she taught at the University of California, Los Angeles, and both she and her husband served as the Elliot Noyes Professors at Harvard's Graduate School of Design in 1995.

The intensity of the architecture the Patkaus have produced out of small public commissions has brought them international recognition. Thus far, their work has comprised houses, schools, and public buildings, most notably the Canadian Clay and Glass Gallery in Waterloo, Ontario (1988); Seabird Island School in Agassiz, British Columbia (1988); the Newton Library (1990) and Emily Carr College of Art and Design (1991), both in Vancouver; and the Barnes House in Nanaimo, British Columbia (1992).

With the completion of Strawberry Vale, a project that represents ideas they have been working on for 10 years, the Patkaus anticipate a change in the nature of their practice. They are now competing for larger projects, and recently won the 220,000-square-foot Nursing and Biomedical Sciences Building at the Health Science Center of the University of Texas-Houston. We're "moving up in scale enough to cause us to substantially change the way we work," says Patricia Patkau. And their dictum, "the process of construction becomes the detail," will most likely yield to assemblies and details more reflective of the sequence and process of large-scale construction.



Architects John and Patricia Patkau



Wood composites and computer modeling offer useful tools for replicating traditional craft.

Technology and Practice

Technology

Engineered Lumber's Strengths

Manufactured lumber is gaining ground as an affordable, flexible alternative to solid-sawn framing. It wastes less wood and takes advantage of fast growing trees.

Practice

Defections and Damage Control

When a key employee becomes a rival, it hurts more than a firm's feelings. But a well-drafted noncompete agreement with new employees can help thwart competitive catastrophe when they depart.

Preservation Technology

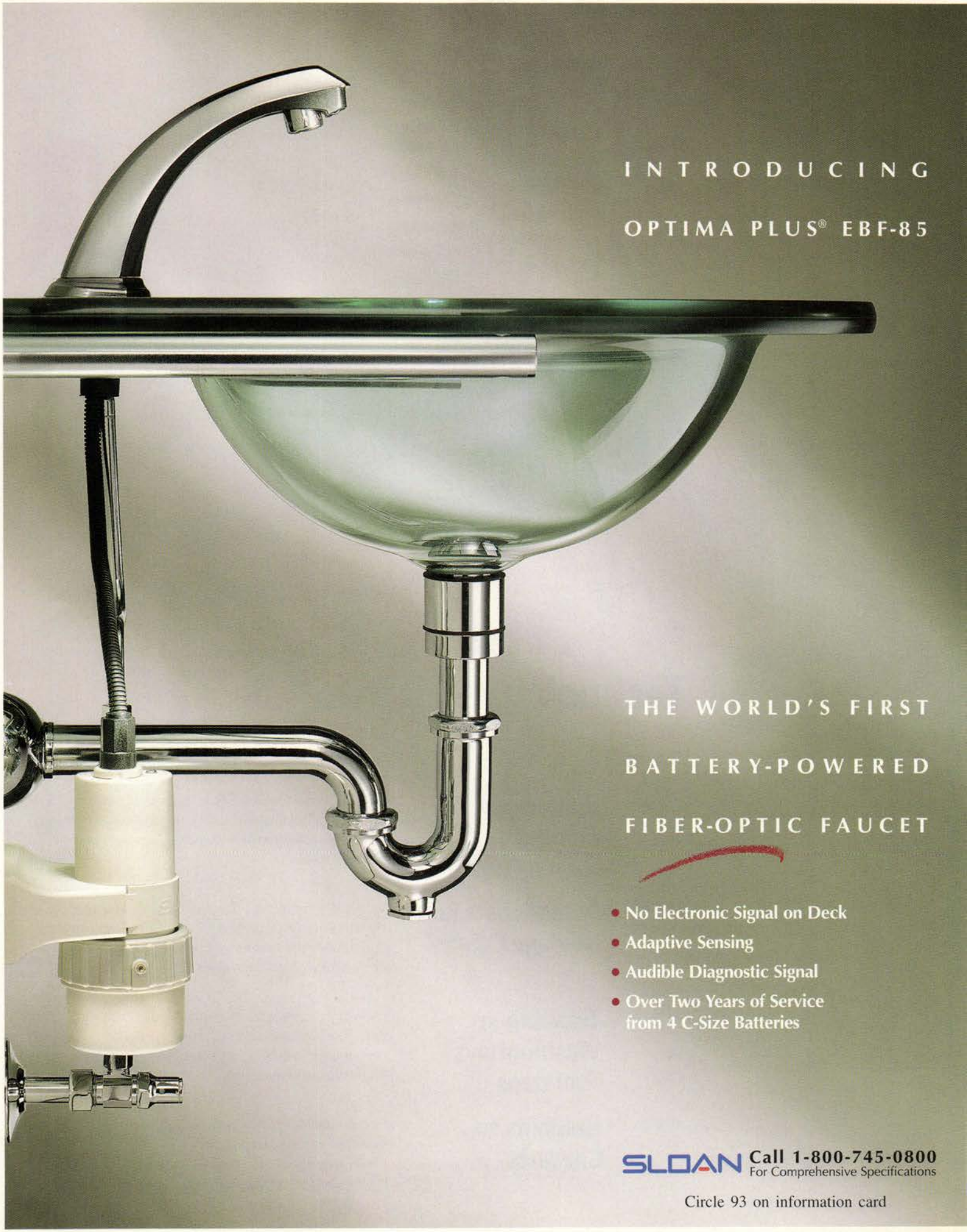
Treading in Washington's Footsteps

Quinn Evans/Architects combine 18th-century details and modern-day structural knowledge to recreate a treading barn at George Washington's Mount Vernon plantation.

Computers

Holdouts to Converts

Firms of all sizes have embraced CAD from top to bottom—except design principals. Younger architects easily spin concepts out of the computer, but will their elders in the studio ever learn the digital ropes?



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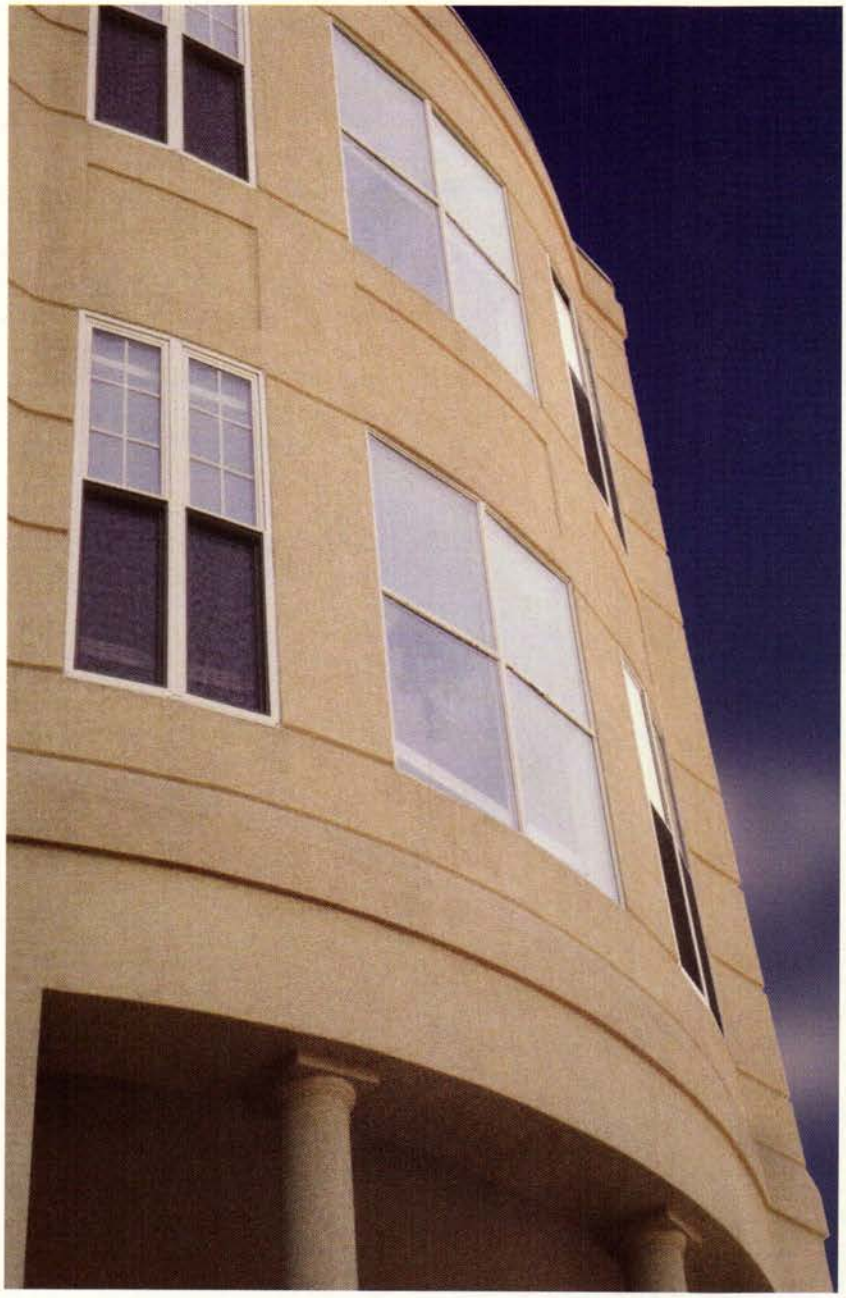

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Technology

Engineered Lumber's Strengths

For many applications, manufactured wood outstrips the real thing. Lower costs and greater versatility are only part of the reason.

By Elizabeth S. Padjen

Mother Nature is losing her competitive edge. Given her wood's inferior structural capabilities, decades-long lead times, and escalating prices, things don't look good for the old gal. The engineered lumber industry is leaving her in the sawdust.

"Engineered lumber"—a term that didn't exist a few decades ago—refers to manufactured framing lumber such as glulams, wood I-joists, laminated veneer lumber, parallel strand lumber, and laminated strand lumber. "Engineered wood" is a broader category that includes structural panels such as plywood and oriented strand board.

With the market for these products expected to rise 150 percent by the year 2000, the engineered lumber industry is experiencing exponential growth. New government controls over harvests of old-growth forests limit the already declining availability of high-quality dimension lumber. Foreseeing this inevitability, the industry has pursued new manufacturing processes that waste less wood fiber and take advantage of smaller trees as well as fast-growing, neglected species such as aspen and poplar.

The resulting products offer high strength-to-weight ratios and are free of the annoying, if endearing, idiosyncrasies of traditional lumber: Dimensionally stable, they do not twist, check, cup, split, shrink, or warp. "Technology allows us to do more with less," notes Darren Harris of APA—The Engineered Wood Association (formerly the American Plywood Association). "The need for products equal to solid-sawn lumber has led to products that are actually superior."

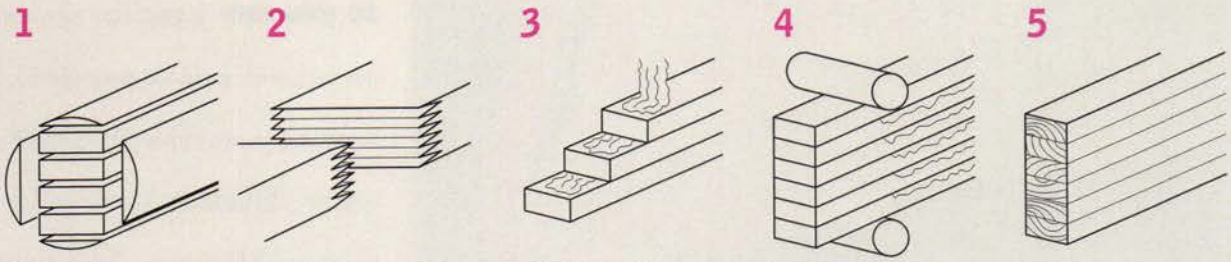
Glulams best known

Developed more than a century ago in Europe and introduced in this country in 1934, glulams are the best-known engineered lumber products. Formed of solid-sawn wood glued end-to-end and then face-bonded in layered laminations (lams), a glulam is stronger than comparable dimensional lumber and is easily cambered.

As the only engineered lumber product that is based on solid-sawn lumber, glulams may seem to be an old technology, but innovation is under way in this part of the

Glulams

SOURCE: APA-THE ENGINEERED WOOD ASSOCIATION

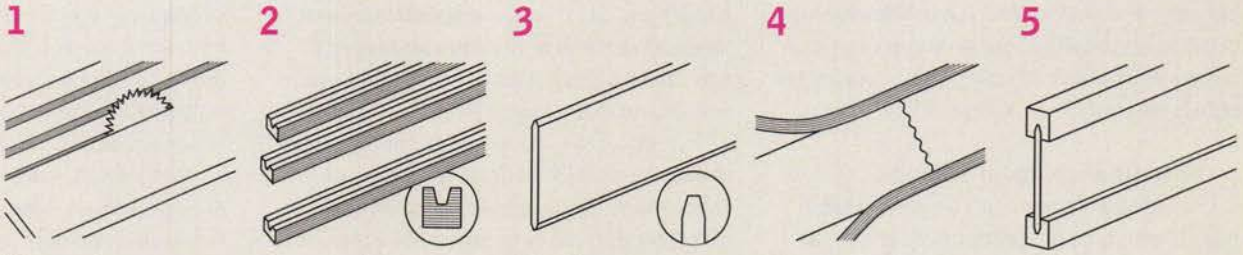


Appropriate for long-span beams, headers, arches, and domes, glulams are formed of solid-sawn wood glued end-to-end and face-bonded in layered laminations called "lams." These lams are stress graded, and higher quality wood is placed at the top and bottom for compression and tension. This process yields a stronger section than dimensional lumber of comparable size. Easily cambered, glulams are commonly available in two standard grades, architectural and industrial, based on appearance; custom glulams are also sold. Leading producers include Boise-Cascade, Georgia Pacific, Rosboro, and Willamette.

Frank O. Gehry & Associates' roof structure for Disney hockey rink (facing page) in Anaheim combines curved southern yellow pine glulam girders and solid-sawn Douglas fir purlins.

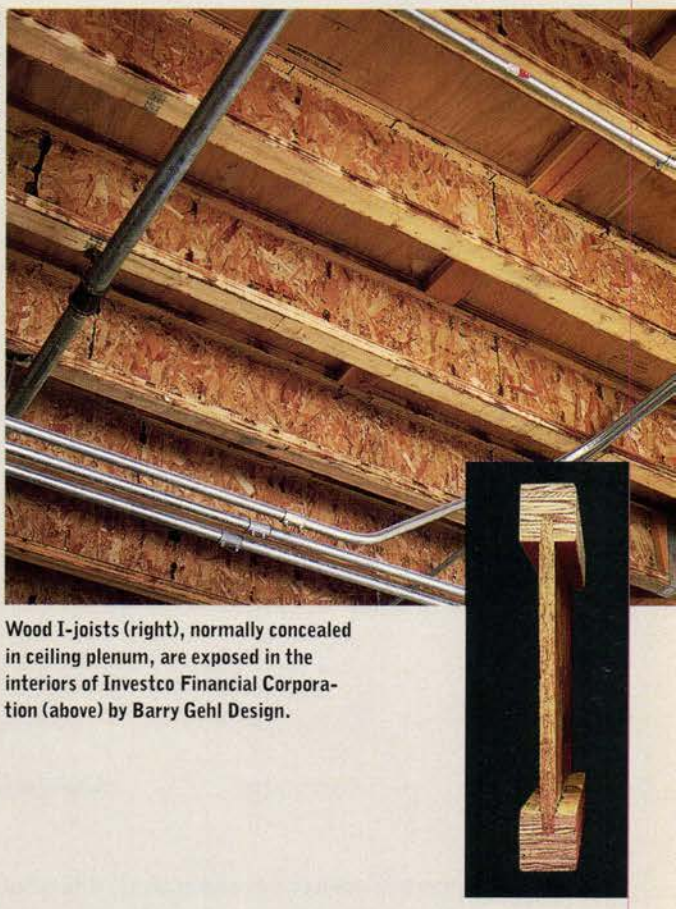
Wood I-Joists

SOURCE: TRUS JOIST MACMILLAN



Wood I-joists are fabricated with laminated veneer lumber or solid-sawn flanges and oriented strand board or plywood webs. Available in lengths up to 80 feet, they are increasingly common in residential construction, where their stiffness and stability virtually eliminate the problem of squeaking floors. Ductwork, plumbing, and conduit lines are easily run through holes in the web, maximizing ceiling heights as well as clear spans. Leading producers are Boise-Cascade, Georgia Pacific, Louisiana Pacific, Trus Joist MacMillan, and Willamette.

CHRIS EDEN PHOTOGRAPHY



TIMOTHY HURSLEY

Wood I-joists (right), normally concealed in ceiling plenum, are exposed in the interiors of Investco Financial Corporation (above) by Barry Gehl Design.

market, too. American Laminators of Drain, Oregon, received patent protection in 1994 for a new process that incorporates a thin (.07 inches) fiber-reinforced panel bonded between the bottom two lams. The resulting beam is up to 50 percent stronger than a comparable conventional glulam and better able to absorb seismic forces.

Structural composite lumber

Wood I-joists were introduced in 1969 by Trus Joist, now a partnership known as Trus Joist MacMillan. Requiring 50 percent less wood than a comparably dimensioned solid-sawn member, I-joists are fabricated with laminated veneer lumber or solid-sawn flanges and oriented strand board or plywood webs.

Trus Joist MacMillan, which bills itself as the first forest products company exploiting technology rather than timberland, has also been the innovator of products known as structural composite lumber—laminated veneer lumber (LVL), parallel strand lumber (PSL), and laminated strand lumber (LSL)—and is currently the only brand-name producer of the latter two. New technologies have led to increasingly efficient use of wood resources: Traditional solid-sawn lumber uses 40 percent of a log; LVL uses 50 percent; PSL uses 65 percent; and the recently introduced LSL uses nearly 75 percent. Structural composite lumber takes advantage of the wide availability and relatively low cost of small-diameter, second- or third-growth trees.

Put into production in 1970, laminated veneer lumber (Trus Joist MacMillan's "Microllam," for example) is made from dried, graded veneers that, unlike plywood, are laid up with parallel grain. The veneers are bonded with adhesives and pressed into large billets, or blocks, from which dimensional pieces are cut. With design values up to 40 percent higher than equally dimensioned Douglas fir, LVL is an effective medium-span beam and header.

Parallel strand lumber, such as Trus Joist MacMillan's "Parallam," was introduced in the late 1980s and is gaining market share as an alternative to glulams and steel. Parallel strand lumber is made with veneers (small-diameter Douglas fir, hem-fir, which uses hemlock and fir, and southern pine) that are cut into 4- to 8-foot strands and pressed into billets that are longer and stronger than the original trees.

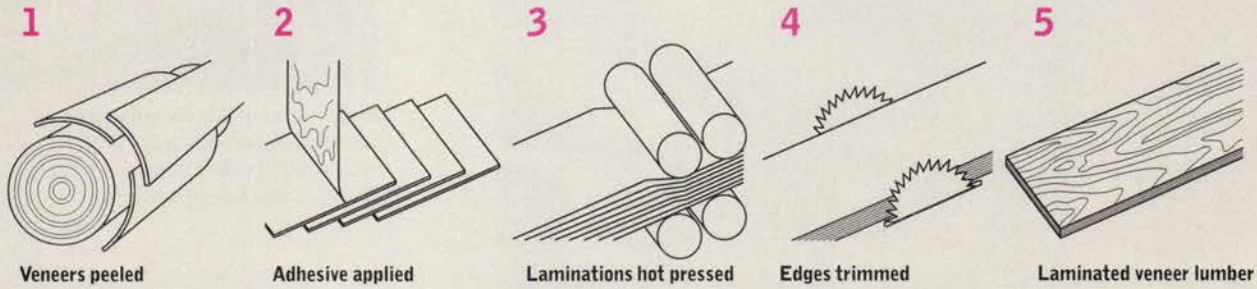
Released in 1992 by Trus Joist MacMillan, laminated strand lumber, called Timberstrand, is made with 12-inch-long strands of aspen or poplar, species that previously had limited use. LSL is used for rim board, medium-span beams and headers, custom millwork, and as a core material in doors, windows, and furniture. In late 1995, 2-by-4 and 2-by-6 LSL studs were introduced. A new product, "SpaceMaker," is a bolted, ready-to-assemble truss system incorporating Timberstrand members.

Complex cost considerations

Engineered lumber is considered by many architects and builders to be more expensive than traditional systems, but the growing market and a recent study by the National Association of Home Builders (NAHB) are eroding this perception. Still, direct comparisons are difficult. "You can try to compare apple for apple," says William Biddle, manager of the building products information center at the NAHB Research Center, "but one of the apples is constantly changing, which is the cost of lumber." Biddle's organization analyzed

Laminated Veneer Lumber

SOURCE: TRUS JOIST MACMILLAN

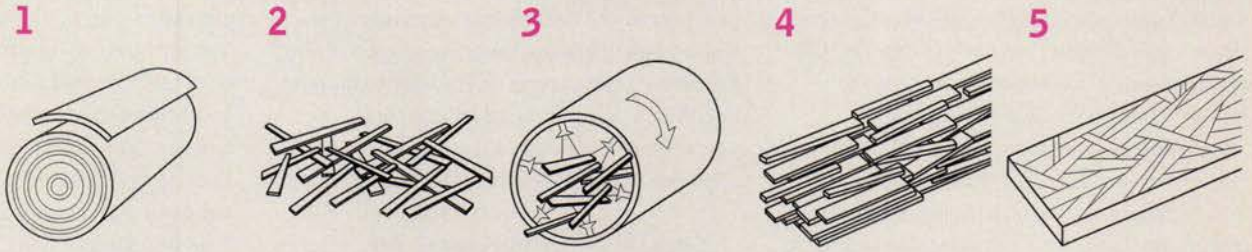


Appropriate for medium-span beams and headers, laminated veneer lumber is made from dried, graded veneers laid up with parallel grain. The veneers are bonded with adhesives and pressed into large billets, or blocks, from which members are cut. This process yields design values (bending) up to 40 percent higher than equally dimensioned solid-sawn lumber. Leading producers include Boise-Cascade, Georgia Pacific, Louisiana Pacific, Trus Joist MacMillan, and Willamette.

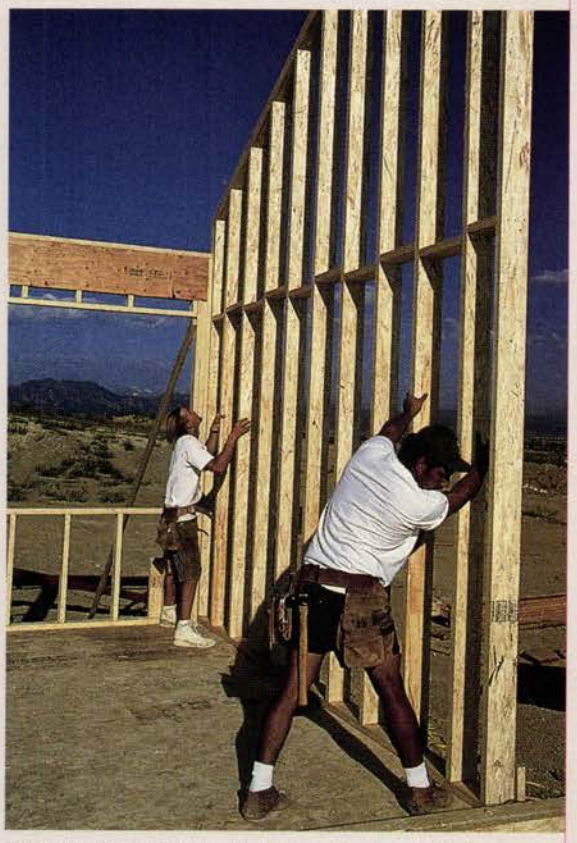
Graham Gund Architects' dormitory at Westminster School (facing page) combines laminated veneer lumber ridge beam with solid-sawn lumber rafters.

Laminated Strand Lumber

SOURCE: TRUS JOIST MACMILLAN



Laminated strand lumber is made with 12-inch-long strands of aspen or poplar, and used for rim board and medium-span beams and headers. LSL is easily shaped, making it suitable for custom millwork and as a core material in doors, windows, and furniture, where it can substitute for ponderosa pine. Because of its inherent strength, twist-resistance, and stability, laminated strand lumber is especially suited to long-stud applications and in crack-prone installations like stucco or plaster walls. Design values (bending) are 22 percent higher than solid-sawn lumber. Shear strength for LSL is almost 50 percent stronger than either LVL or PSL and double that of solid-sawn lumber. Trus Joist MacMillan is the leading producer of LSL.



Laminated strand lumber studs, free of knots and pitch pockets, resist warping and twisting.

costs in a study commissioned in 1995 by the Forest Products Lab of the U.S. Department of Agriculture. The Research Center compared costs for two 2,100-square-foot, two-story houses (featuring large, open first floors) with semiattached garages—one constructed of traditional lumber, the other of engineered wood. "When we did our study, the cost of lumber was down, and the cost for the houses was about equal. Now [with higher lumber costs], the house with the engineered wood system would be cheaper."

But Biddle notes that there are still many variables. Other designs with smaller spaces and one-story, slab-on-grade structures may not be as cost-effective in engineered wood. Builder familiarity with the products can also affect pricing: Many builders have discovered that engineered wood lowers their labor costs and prefer its consistent quality, which means less waste and less need for shimming. Regional availability is also a consideration.

Keith Gross, an architect with HDS/Hans D. Strauch in Boston, describes the complexity of cost considerations for a house currently under construction on Martha's Vineyard: "We used Parallam because of its strength and ability to carry more load—conventional wood couldn't give us the spans. We also considered steel, which actually costs less for some of the components, but the labor was much higher. And on an island, you worry about shipping. Parallams were stocked in local lumber yards. They gave us greater flexibility and allowed us to avoid wood-steel transitions."

Specifying engineered wood

APA—The Engineered Wood Council predicts increased market share for its members' products with the adoption of national performance standards for wood I-joists, anticipated within the next six months. Performance standards are expected to encourage competition by eliminating proprietary standards; multiple manufacturers will be able to meet a specification. (National standards for glulams were adopted several years ago.)

Industry competition is already evident: Georgia-Pacific has just announced a new lifetime warranty on its products; and Trus Joist MacMillan is aggressively promoting its "systems," including garage door headers and SpaceMaker attic framing aimed at the residential market.

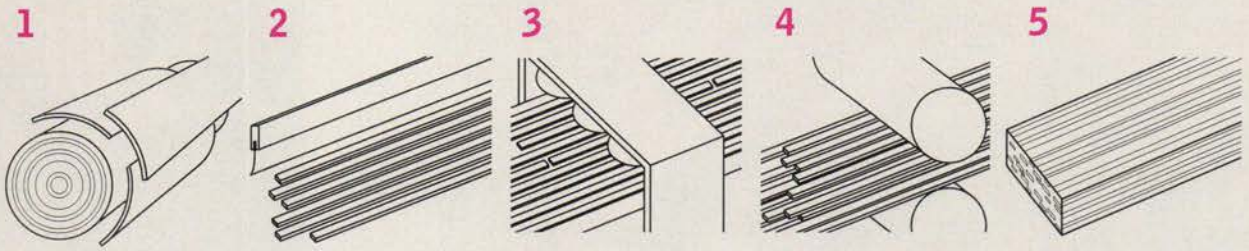
While most engineered lumber can be detailed using conventional practices, there are some special considerations for wood I-joists. Web stiffeners, "squash blocks," or blocking panels are required at bearing conditions to prevent crushing or buckling, and rim boards are required at perimeters. Details on these considerations should be checked in the manufacturer literature. And because of their lighter mass, wood I-joists have their own fire assembly ratings, typically requiring two layers of fire-rated gypsum wallboard to achieve a one-hour rating. All assemblies should be verified for local code compliance.

"The construction industry moves at such a snail's pace," says NAHB's Biddle, "that we frequently don't see that things are changing. But now it's moving fast to engineered wood." Biddle takes a long view. "This is as significant to design as the change from post-and-beam to light-frame construction."

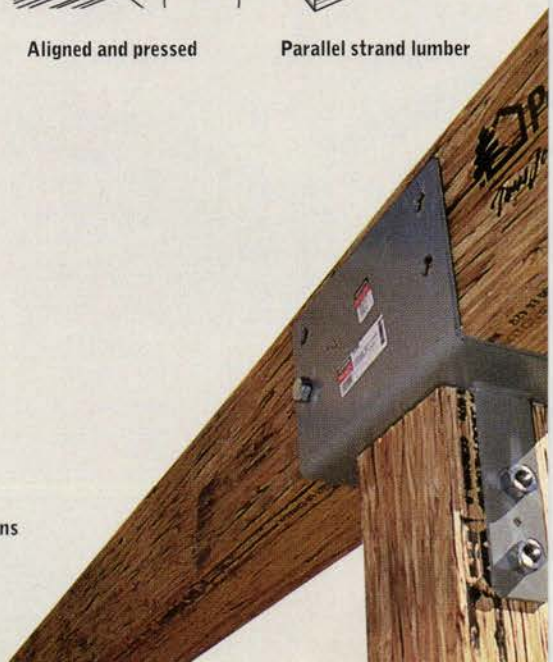
Elizabeth S. Padjen is president of Padjen Architects in Topsfield, Massachusetts.

Parallel Strand Lumber

SOURCE: TRUS JOIST MACMILLAN



An alternative to steel beams, headers, columns, and trusses, parallel strand lumber (PSL) is made with veneers from small-diameter Douglas fir, hem-fir, and southern pine trees. Cut into 4- to 8-foot strands, the veneers are pressed into billets to create sections that are longer and stronger than the original trees and minimize waste. Natural defects like knots and pitch pockets are dispersed and have minimal visual or structural effect. PSL can be pressure-treated and cambered, and its parallel graining can be exposed, making it an effective substitute for traditional heavy timber. Trus Joist MacMillan is the leading producer of this type of engineered lumber.



Main carrying beam of parallel strand lumber (right) spans up to 60 feet, replacing glulam and steel framing.

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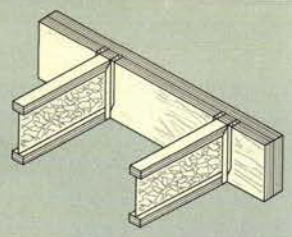

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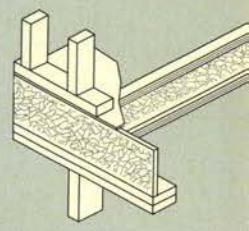

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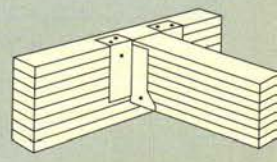

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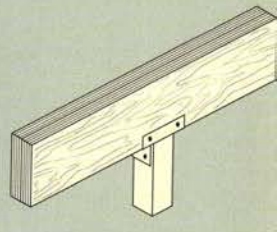

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Practice

Defections and Damage Control

One of your firm's top rainmakers is off to join the competition. Is your client base safe?

By Barry LePatner

Two of your key employees tell you they're leaving the firm. You're in shock, and it gets worse: Several staff members are joining them to start a small office half a mile from your own. Pretty soon it's clear the defectors have convinced several of your firm's top clients, on whose projects they worked, to follow them as well. Besides feeling surprised, disappointed, and betrayed, you feel guilty for failing to prevent this crisis.

Could this situation have been avoided? Presuming you missed or ignored signs of dissatisfaction, you might still have stemmed such a loss by implementing noncompete agreements or restrictive covenants with these employees.

After a decade in the drawer, noncompete agreements are again receiving new attention from firm principals. One reason is the economy's slow but steady recovery. Work is picking up in firms that struggled to maintain a healthy balance sheet through the sluggish early 1990s. Architects who have kept in touch with their clients during this time have discovered that their business outlook is entirely different today compared to the earlier half of the decade. For example, AT&T, General Motors, IBM, and other blue-chip corporations have undergone significant internal makeovers. State and local government leadership has dramatically changed as well.

With the current growth cycle, human resources and the ability to keep new work in the office have again become a business imperative. Most architectural firms are having no trouble occupying their full-time professional employees with increasing workloads. Problems will arise, however, in firms that fail to strike a delicate balance between the need to develop relationships among key employees and their new clients while minimizing the associated risk of losing that business to an employee who leaves the firm.

Creating employee loyalty is as time-consuming and costly as building a new client relationship. Design firms spent the recession of the early 1990s nurturing their current clients. Now that this costly investment is finally showing dividends, firms must move to protect their internal assets, especially the creative talents of their staff. Otherwise, key people may ride down the elevator one evening and take the firm's hard-earned business with them.

Why does this happen? As is so often the case, personal relationships govern client relationships. Key employees market their own personalities as well as the firm's design product. In the worst cases, if this conduct steps across the line and turns unethical, it is possible to revoke the license of the professional responsible for illegally taking advantage of his or her employer's client relationship.

To avoid this scenario, many firms turn to noncompete agreements or employment agreements with restrictive covenants. These contracts are designed to set limits on how far employees can depart from the basic responsibilities of their employment as prescribed by the firm. Most states' laws frown on restrictions that seriously inhibit a person's livelihood. Courts have historically looked at noncompete agreements and restrictive covenants from three perspectives: transactions involving the sale of a business; employment agreements for employees with special skills; and employment agreements in general.

Courts have issued clear guidelines concerning the sales of businesses and general employment agreements. For transactions that involve the sale of a business,

reasonable covenants not to compete agreed upon at the time of the sale are routinely enforced to protect against unfair or illegal conduct that causes economic injury. However, restrictive covenants that preclude former employees from engaging in their profession are generally unenforceable.

Since professionals have special skills, they stand on slightly different footing than less-skilled employees. Covenants restricting a professional from carrying on his or her profession are common, and courts have enforced restrictive covenants with the following characteristics: the restrictive covenant must be neither harsh nor oppressive, and it must include a specific and reasonable time frame, as well as geographic boundaries and/or limitations of the scope of work.

Design professionals often shy away from incorporating restrictive covenants in their shareholder, partnership, or employment agreements. They either believe it is not part of their firm's culture or think that these situations, when they do arise, will eventually work themselves out. Some firms believe that, if necessary, courts will infer a covenant not to compete when there is none. What these firms fail to understand is that while some courts may indeed infer a covenant not to compete, they will only do so for the term of employment. This decision means that anticompetitive covenants covering the post-employment period will not be inferred. Since the post-employment period is generally regarded as the most critical time for the former employee to woo clients from a former firm, a firm's reliance on legal prohibition in these situations is its best recourse against such conduct.

In contrast, the rest of the business world understands that these provisions safeguard the firm's ongoing client business. The corporate world views their absence in employment agreements as gross dereliction of a sound business policy.

Before drafting a noncompete agreement for a professional firm, principals must remember that courts take a strict approach to all anticompetitive covenants in employment agreements. The reason behind this strict approach is that once the term of an employment agreement has expired, general public policy favors open competition.

Furthermore, the courts will generally dismiss any suit filed by an employer who seeks to enforce a noncompete agreement in cases where the employee has been terminated without cause.

Since a noncompete agreement is simply a contract, the courts apply the same rules of contract law in construing their terms, with the notable caveat that they will strictly construe these agreements against the employer.

While each situation is different, it's best to draft noncompete agreements for professionals as clearly as possible to reflect all parties' intentions in an effort to survive the strict scrutiny of the courts. In other words, when a court is presented with a restrictive covenant that bears more than one reasonable interpretation, the preferred interpretation is the one that least restricts competition, and it will generally be resolved in favor of the employee.

Five reasons to seek noncompete agreements

1 **On average, the cost of replacing and orienting a mid-level to senior professional equals 150 percent of the employee's current salary.**

2 **Losing key personnel disrupts organizations.**

3 **Training new professionals detracts from the time needed by principals to develop and maintain client relationships.**

4 **When key personnel leave a firm, their experience and knowledge depart with them.**

5 **Departing employees try to convince clients that they can provide services faster, cheaper, and better than their former employer.**

Noncompete agreements should include a provision similar to the following:

The employee agrees that the services he/she provides to the Firm are based upon the provision of architectural services arising from the development of relationships with clients of the Firm. The Employee recognizes that in the event the Employee leaves the Firm to compete with the Firm, the Firm shall suffer significant damage. The Employee hereby agrees that until the (fill in number of years) anniversary of the date on which the employment

relationship between the Employee and the Firm is terminated (the "Non-Competition Period"), the Employee shall not, within the Geographical Area (as hereinafter defined), and without the prior written consent of the Firm, directly or indirectly compete or associate with, or participate as an agent, representative, consultant, stockholder, partner, joint venturer, director, officer, or employee in any business, directly or indirectly, competing with the business of the Firm or in the fields of (insert description of fields).

A second provision would come into play in the event of an employee's actual or threatened breach of the noncompete provision. In that case, the firm would be entitled to an injunction restraining the employee from such action. Finally, it's always advisable that the employee have an independent attorney review the agreement on his or her behalf.

For example, one New York architectural firm included a restrictive covenant that required an associate not to compete for 24 months following the date of the agreement. The employee left the firm after 30 months and immediately joined a competitor. The employer sued the former employee, and the court ruled in favor of the employee despite the employer's argument that the covenant should be read to mean that the 24-month period would not start until after the employment contract terminated. In short, the court simply enforced the provision exactly as stated in the agreement. If the employer meant that the time period would not start until after termination of the employee, the covenant should have stated so.

Another firm in the Midwest sued a former employee who solicited one of the firm's clients. The firm thought it had protected itself by including in its employment contract a covenant prohibiting employees from soliciting any of its top three clients, all specifically named in the agreement. Over time, the firm's top three clients changed, but the principals never modified the covenant. When a former employee solicited a client who was not specified in the agreement, the firm lost its case.

While courts have a tendency to protect an employee's interests, they do recognize valid business concerns. In one recent non-design firm case, an appellate court determined that a noncompete clause was reasonable in terms of the scope of employment prohibited and the time period. But it also found that the employer had not proved the geographic limitation reasonable. The contract restricted the employee from engaging in the specified business within a radius of 250 miles of any of the firm's offices. The appellate court remanded the case back to a trial court so the jury could determine whether the geographic limitation was reasonable.

The benefits derived from a noncompete agreement are not restricted to the firm. In specific ways, they can have positive results for the employee. One such "win-win" scenario occurred in a multinational design firm that tried to expand into new markets by hiring senior personnel with specific expertise. The firm negotiated an employment agreement with new employees that included a noncompete provision and a provision rewarding employees for all new commissions they brought in. This type of balanced agreement gives key personnel an incentive not to walk away with clients, and to receive more compensation than they may gain by going outside the firm.

Experience demonstrates that when firms balance the protections they need while rewarding key personnel, noncompete agreements can create a positive framework for such employees to become prime candidates for promotion within the organization.

Design firms destined to succeed in the next century will be those who garner the most talented brainpower and lock their talents into long-term contracts. Firms that view key employees as valued assets are more likely to grow with a regular stable of talented individuals. It will be the minds and talents of the independent decisionmakers of the successful firms that will determine which organizations stay ahead of or fall behind the competition.

Once principals recognize that their employees are the firm's most significant assets, they should be willing to make a meaningful investment in them to keep them on board.

Barry LePatner is the founding partner of Barry B. LePatner & Associates, a New York law firm specializing in design, construction, and real estate law. Timothy F. Hegarty, an associate of the firm, and Roy R. Pachecano, the firm's design consultant, contributed to this article.

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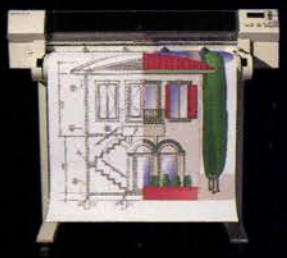

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Treading in Washington's Footsteps

Electronics and archaeology help rebuild the first President's grain barn at Mount Vernon.

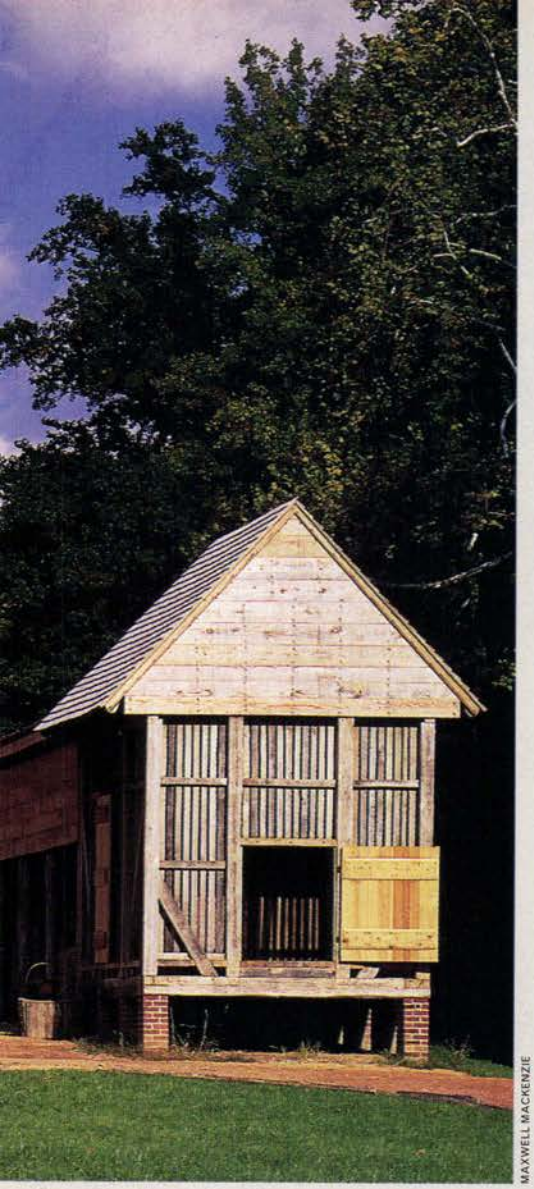
By Vernon Mays

Although he was too humble or polite to admit it, George Washington was a pioneer of American agriculture. Even while tending to the business of founding a new republic, Washington attempted equally ambitious experiments to discover new agricultural efficiencies and improve production on his five, large-scale Virginia farms.

One such experiment was the 16-sided treading barn he built in 1794 at Dogue Run, one of the farms at his 8,000-acre Mount Vernon plantation in northern Virginia. The famous barn, which was badly deteriorated and isolated on a site nearly 3 miles from the main manor house, was demolished around 1875. Last fall, after five years of research and painstaking construction guided by Quinn Evans/Architects of Washington, D.C., a $1.5 million replica of the barn was opened to the public by the Mount Vernon Ladies' Association, which purchased Washington's property in 1860 and has tended it ever since. The barn is the keystone of an interpretive program focusing on the creative agricultural pursuits of America's first president.

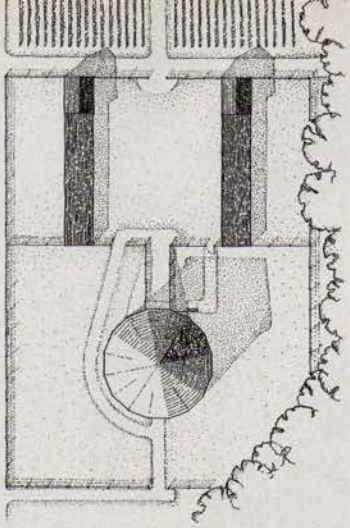
Even before the American Revolution, Washington stopped growing tobacco in favor of grains, primarily wheat. And rather than occupy his slave labor with the time-consuming task of threshing wheat by hand, Washington adopted the practice called treading, in which horses or oxen were led across layers of wheat. The grinding action of their hooves separated the grain from the straw. Washington's innovative twist was to move this typically outdoor activity indoors, allowing production to continue year round, rain or shine. He conceived of his Mount Vernon barn as a large and efficient machine for threshing grain.

A circular, or nearly circular, form was required for the upper-level treading floor. Narrow planks were spaced far enough apart on the floor so that grains would fall through to the granary below as the animals trod across the wheat. Because a truly cir-



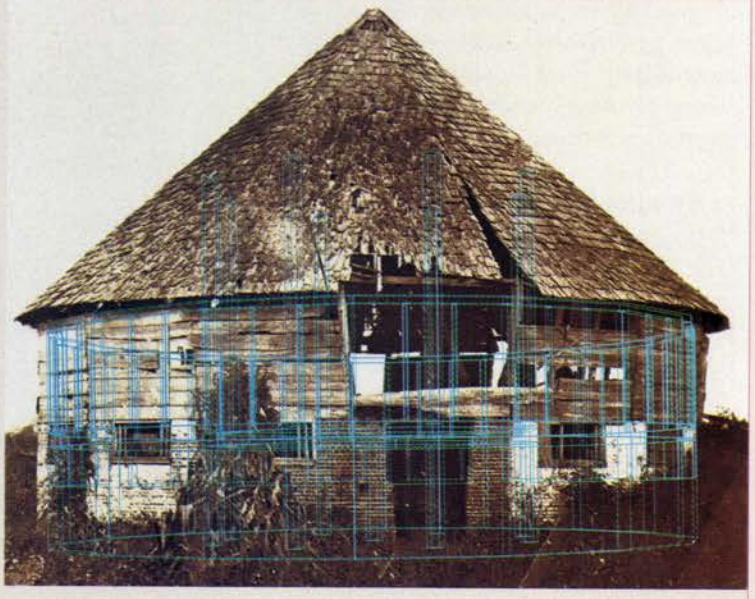
MAXWELL MACKENZIE

Quinn Evans's recreated treading barn at Mount Vernon (center) is flanked by corn cribs to store feed and stables that once housed horses, oxen, and mules.



Contemporary accessibility codes dictated a long entry ramp (left in plan), moving the barn farther from the barnyard than in Washington's original layout.

A surviving photograph of Washington's original barn, taken about 1870, provided the basis for the reconstruction. Quinn Evans superimposed new structure over photo, which was scanned into computer.

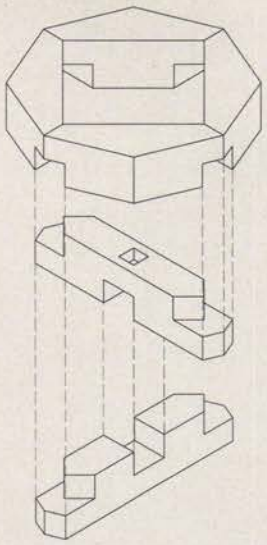


cular building would have been difficult to erect, Washington settled on a faceted structure measuring 52 feet in diameter.

Documents aid design

By the time Quinn Evans was commissioned to recreate Washington's barn, historians had already been researching the historic structure for more than a year. Three key pieces of information assisted the architect in the siting and design of the timber-frame barn and its flanking ancillary structures—two stables and attached corn cribs: a photograph of the dilapidated barn (c. 1870); Washington's site plan for the barn complex; and a bill of materials specifying items such as wood species and sizes of structural members. "That's pretty fantastic to have," notes Principal Michael L. Quinn. "Washington calculated the number of bricks to the one."

Washington resided in Philadelphia during much of the barn's construction, so his surviving letters to plantation managers provided other insights, as did documents such as the farm ledger books and carpenter's reports. Historians also studied buildings in nearby Alexandria by the same workmen. But the historic reports also raised questions that architects at Quinn Evans tried to answer through their own devices—the most important one being



A six-piece oak compression ring with notched cross-braces supports the roof near its peak.

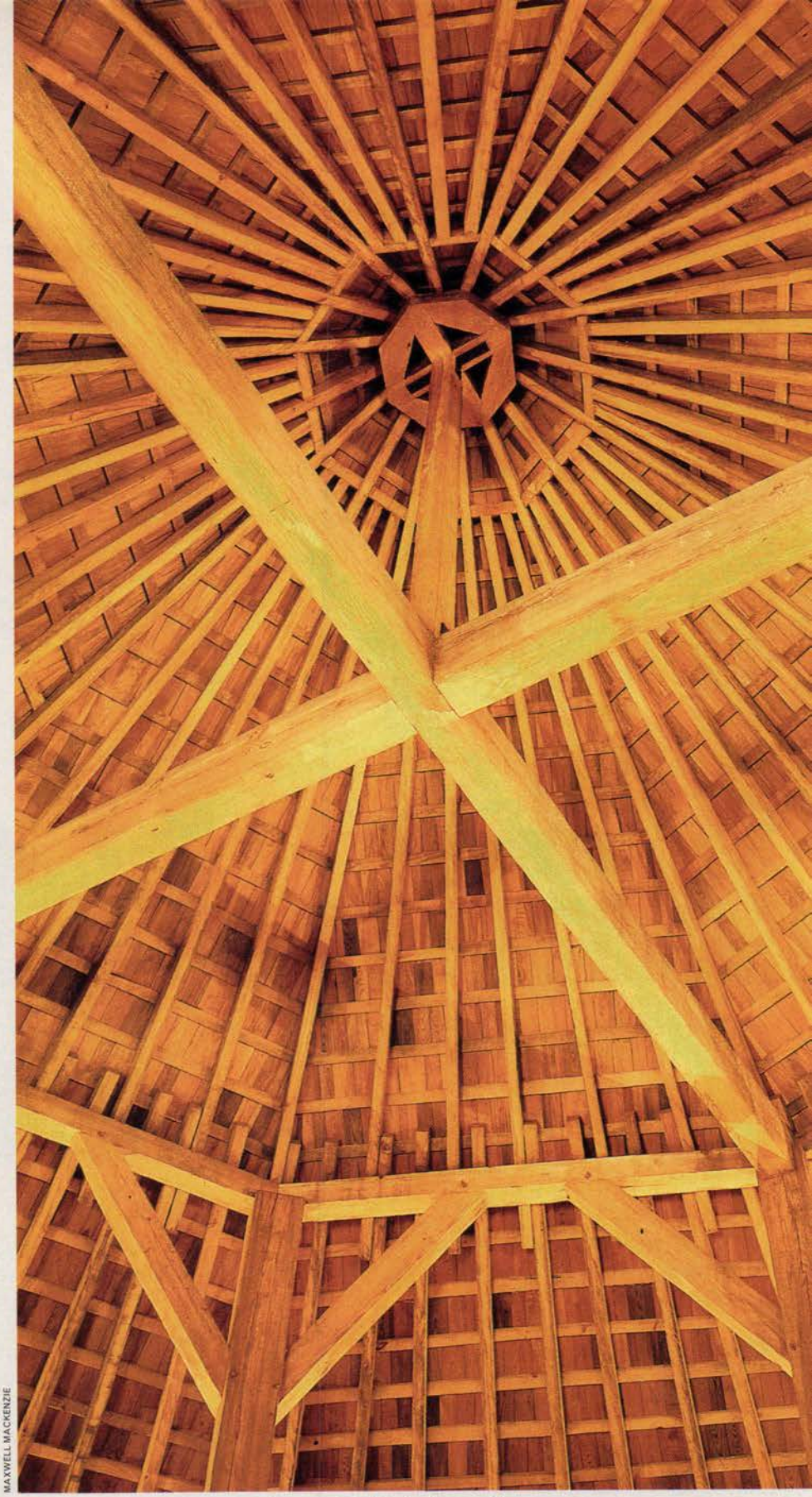
CAD. Using the computer as an investigative tool, they applied high-resolution scanning, photo enhancement, and CAD modeling to turn the historic photograph into a font of invaluable dimensional and structural information.

Structure through scanning

Quinn Evans scanned the surviving photo—a positive image on glass plate—at high resolution for analysis on the video monitor. In the historic photo, the barn's walls have gaping holes as a result of roof failure and other modifications. "We tried to look inside and brighten the shadows to confirm ideas about how it was braced, how the walls and windows were constructed," recalls Project Architect Gordon Bingaman. "You could actually count the number of bars on the ground-floor windows."

Then Quinn Evans pushed the process a step further. Using Washington's specifications, they developed a theoretically perfect model of the barn in CAD. Then, by rotating the three-dimensional model of the barn to match the precise point of view of the 19th-century photographer, they produced a structural overlay that coincided with the photograph. The technique provided a reliable method for testing bracing alternatives, and a half dozen were tried using a combination of construction records and bills of lading, which contained data on specific lengths of wood purchased from Alexandria lumber yards.

Notches in the studs visible in the enlarged photograph helped confirm theories about the sequence of the barn's

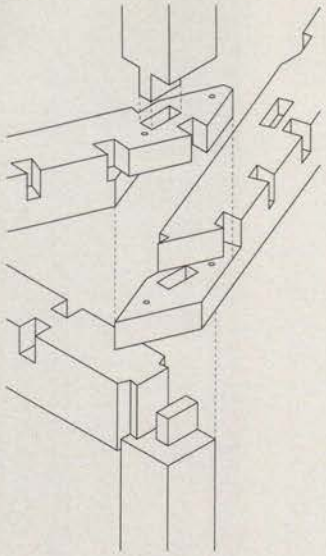


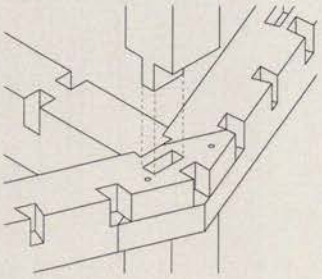
MAXWELL MACKENZIE

In keeping with the original, most of the barn is built of southern yellow pine, including the large king-post truss.

MOUNT VERNON LADIES' ASSOCIATION

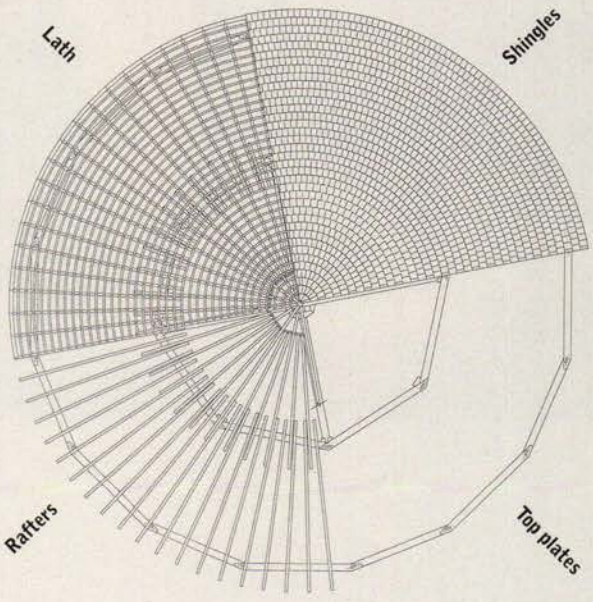
Rafters that rest on the 16 sides of the outer wall converge on an intermediate structure with eight sides. This geometry required many members to be cut to odd lengths and angled on-site to rest solidly on the top plate.



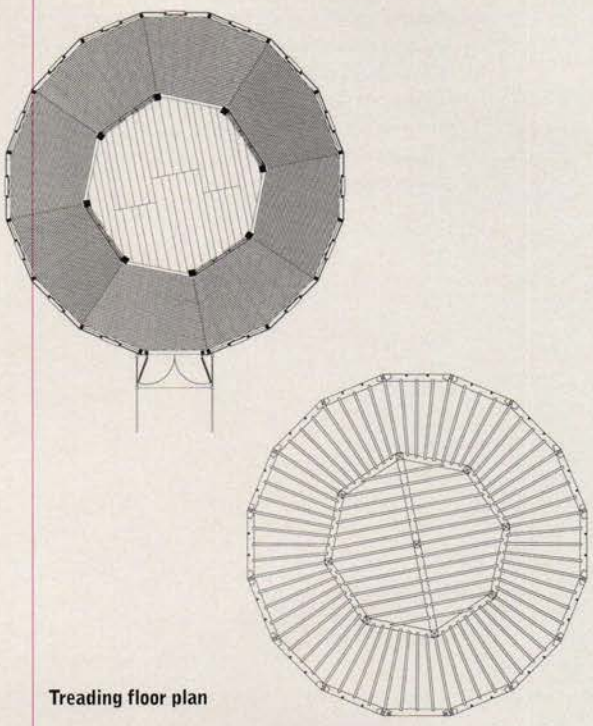


Radial geometry of the treading floor level necessitated complex wood joinery, which was often refined in the field (details, left). All major structural members and most secondary materials, if visible to tourists, were cut and shaped using period tools such as adzes and pit saws (below).

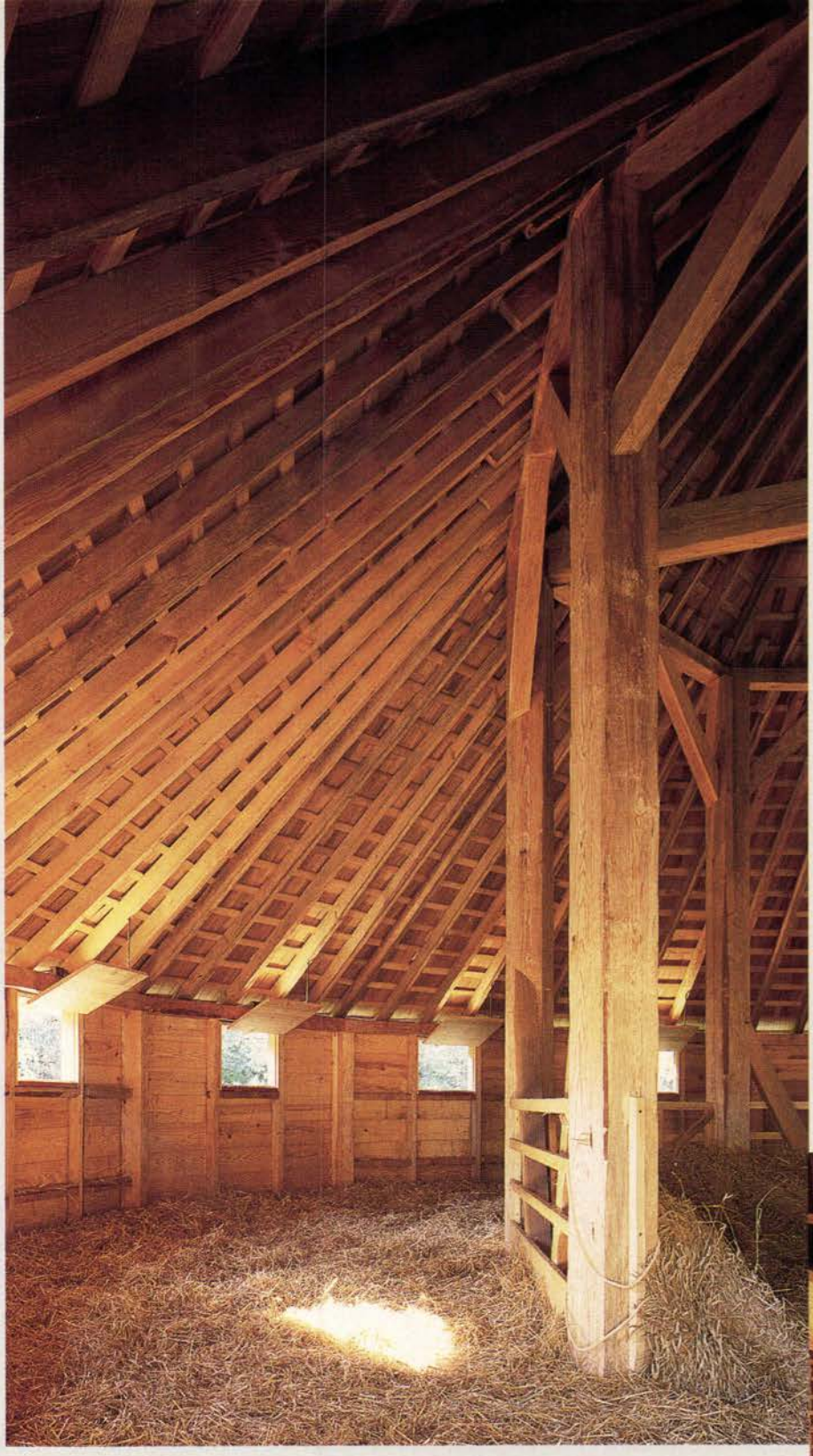
MOUNT VERNON LADIES' ASSOCIATION



Roof framing plan



Treading floor plan



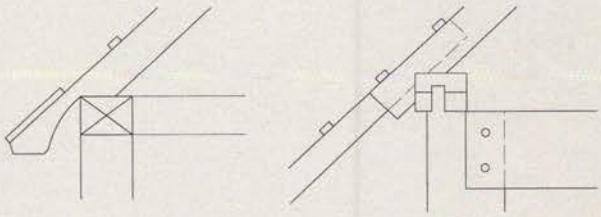
MAXWELL MACKENZIE PHOTOS

construction. They suggested that eight primary wall frames were built and tilted up, then filled in with secondary stick-built bays. Another surprise was the amount of visual information on the first-floor windows. "You can see that the head and the sill continue through into the brick," says Bingaman. "That was Washington's direction. He was very concerned about the security of his grain."

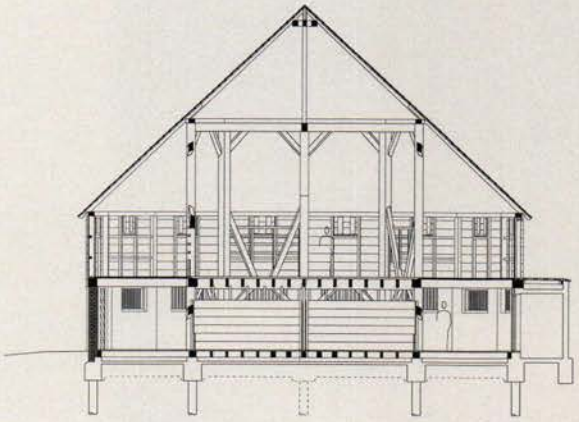
Material inventories

At the client's direction, the barn was reconstructed using authentic materials and period fabrication methods. That decision created challenges. Among them was the joinery, which at one point requires the combination of five heavy timbers. "That joint went through several iterations," says Bingaman. "And, in the end, we were very comfortable giving our contractor and craftsmen the latitude to adjust joinery in the field."

Washington was as precise a record keeper as his contemporary Thomas Jefferson, so the original materials were no mystery. Not only did he keep detailed inventories of the tens of thousands of nails he purchased, but his carpenters were required to record the number of timbers they prepared, their sizes, and their species. One of the most difficult items to obtain in the late 20th century was the horizontal beam that supports the vertical king post and stabilizes the octagonal top plate of the



Lower-level walls are built of hand-molded brick for structural stability and security. Rear view (left) shows entrance to lower-level granary. To ensure dry conditions in the lower level, a mud slab was poured beneath the building and a modern drainage system installed (section below).



roof. The difficult task of locating a log of adequate density and size—8 by 12 inches and 28 feet long—was made easier through the aid of the American Forest and Paper Association. The organization contacted major wood products firms and obtained donations of old-growth pine and oak logs, similar to the original material, for the reconstruction.

Recreating timbers

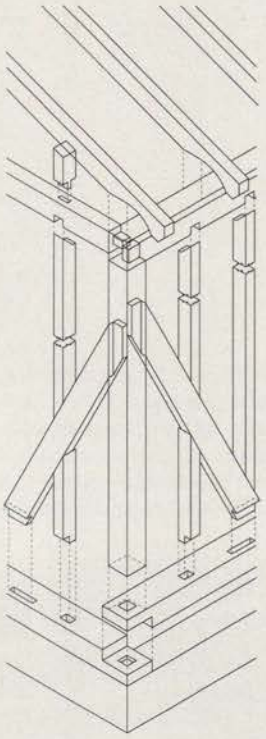
A team of craftsmen was assembled from surrounding states to raise the barn under the direction of Construction Manager John O'Rourke, a specialist in delicate restoration work. Primary timbers were sawed by hand with a 7-foot-long pit saw, shaped with an adze, and faced with a broadax. Mount Vernon incorporated these activities into its interpretive program, although additional work was done off-site to produce the needed quantities.

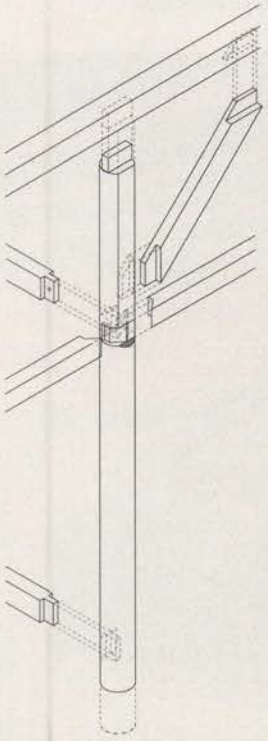
Because of the critical role moisture content plays in predicting the structural capacity and dimensional shrinkage that occurs in heavy timber construction, the architects pushed themselves to determine the size of the major members early in the process—"so that the members could be cut and seasoned before construction," explains Bingaman.

Sturdy white oak was harvested from the present-day Mount Vernon estate and applied to form the treading floor of the upper level (facing page, left). Oak was also used in critical structural members such as lower-level columns (below). Rafter details (facing page) show decorative ends common to period outbuildings for the gentry and overlapping rafters notched into the top plate of the inner octagon.

Oak rafters and beams of twin corn cribs are hand-sawn.

Original documentation of corn cribs and stables was limited to one plan by Washington, so their construction is more conjectural than the barn's. Using similar structures in the region as models, Quinn Evans interpreted two different periods—1780 and 1795—reflecting significant advances in construction.





Back corner of stable shows corner bracing, studs, and post, which is mortised into sill (drawing, above). Front of stable is supported by locust posts sunk into ground (left).

For the sake of economy and speed, wood elements that remained out of public view—such as the undersides of the ground-level floor boards—were cut with modern saws. Invariably, other modern construction methods had to be incorporated to ensure that the building would bear heavy foot traffic, that codes would be met, and that the lower floor wouldn't rot (as it did in the original). Largely because the barn was constructed on the filled-in site of a former marsh, known in Washington's time as Hell Hole, the building rests on 60-foot-deep piles that support a concrete ring beam.

Quinn still marvels at the complexity of what seemed at first to be a relatively modest commission. Certainly a similar building could have been produced more quickly, easily, and cheaply. But Mount Vernon embarked on a state-of-the-art reconstruction that, through a three-part video shown on site, interprets the art of historical construction methods as well as presenting the final product of that painstaking process.

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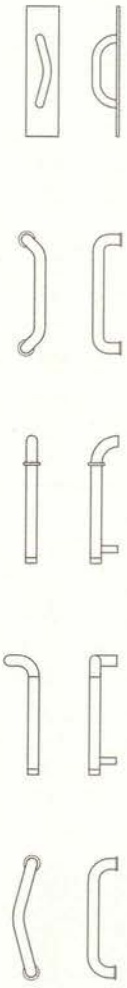

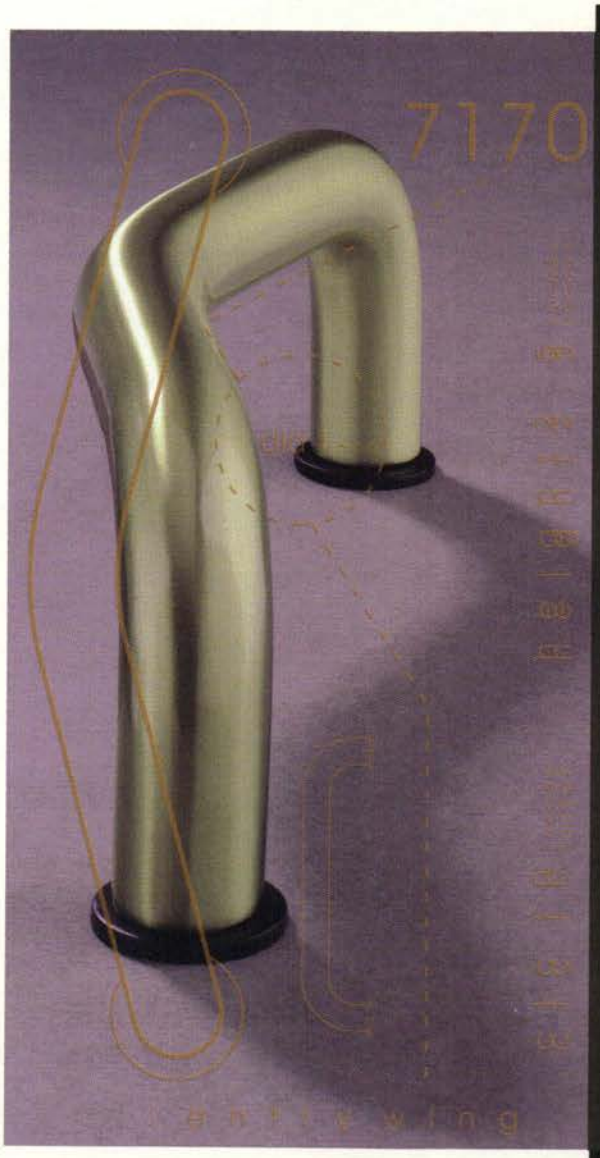

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Computers

Holdouts to Converts

Seasoned designers typically avoid the computer. But the more adventurous are supplementing trace and pencil with monitor and mouse.

By Ann C. Sullivan

Today, nearly every member of an architecture firm, from entry-level draftspeople to senior-level management, works on a computer. Project architects send drawings to consultants and file for building permits electronically. Construction administrators revise details on a laptop computer at the site. Partners pocket a CD-ROM, rather than lug a portfolio, to present their work to prospective clients. A study by Zweig White & Associates, an A/E/C market research firm based in Natick, Massachusetts, confirms that 81 percent of principals surveyed have a computer in their work space, up from 40 percent in 1991.

The last computer holdouts are designers. Groomed to conceptualize with pencil and trace paper, many refuse to replace, or even supplement, their familiar tools with a mouse and monitor. "Someone not literate on the computer gets too involved in the process of drawing," explains Ralph Johnson, principal of Perkins & Will Architects, who is reluctant to compose digitally. "The product and the spontaneity are lost."

Mehrdad Yazdani, design director of Dworsky Associates in Los Angeles, agrees. For the U.S. Courthouse project in Las Vegas, Yazdani's four senior designers and two intermediate designers work digitally, while Yazdani, whose time is divided among as many as eight ongoing projects, doesn't feel compelled to learn the computer. "I'm faster and I think better with freehand," the 35-year-old architect asserts, "and I haven't found a program that allows me to study a design as fast as I can in freehand sketches and study models."

The more computers become entrenched in the daily operation of a firm, the more glaring the resistance to them on the part of designers. However, such computer holdouts represent a shrinking percentage of the architectural workforce. A younger, technically proficient generation is rising through the ranks. It's only a matter of time before CAD-literate employees and new computer-trained graduates fully embrace automated design.

In the meantime, firms must stay abreast of the latest software just to keep up with the competition. Clients demand electronic documentation and respond to technical prowess and eye-catching graphics. Pressured to learn the digital ropes, designers are gradually adopting an automation strategy—ideally one that complements their design mission.

A gradual approach

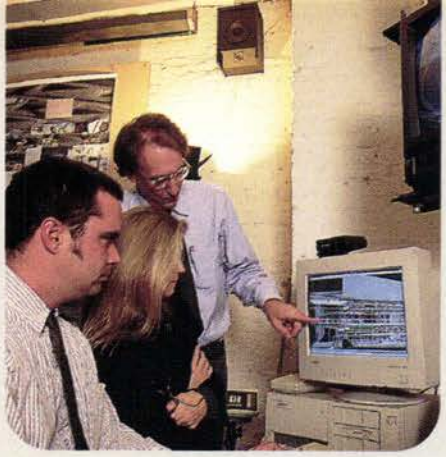
With 625 employees and offices in six cities, Seattle-based NBBJ has been a CAD proponent for years. Initially, like most firms, NBBJ relied on computers for documentation purposes. Designated CAD operators performed most of the work. Gradually, junior and senior designers have taken the time to learn visualization software and most now develop conceptual designs digitally. CAD helps the firm to stay on top of fast-paced project schedules that scarcely allow time to breathe, let alone design.

Today, NBBJ advocates a multimedia approach to design through a combination of physical models, trace paper sketches, and computer applications. "The problem with the computer is that it can make you very, very tight and force you into thinking you have to make detail decisions at an early period, when you really don't," observes 41-year-old NBBJ designer Steve McConnell. A balance between traditional and electronic media, he adds, is important to the firm.

New York-based Smith-Miller + Hawkinson Architects, which has expanded from a three-person start-up in 1983 to today's 20-employee firm with a satellite office in Los Angeles, invested heavily in computers three years ago. Capitalizing on the availability of 32-bit operating systems, their purchases

Rob Quigley (front) and designer Wendell Schackelford navigate addition to Carver Elementary School.

JIM COIT PHOTOGRAPHY



LISA QUINONES PHOTOGRAPHY

SM + H Associate John Conaty (front) with Laurie Hawkinson and Henry Smith-Miller.

include hardware that provides Internet links between offices, remote access, and electronic mail; conventional architectural software such as AutoCAD and 3D Studio; and Softimage, a high-end rendering application created for the entertainment industry.

"There are things that the computer does that we could not have done by hand," observes Laurie Hawkinson. For a park at the North Carolina Museum of Art in Raleigh, the firm inserted enormous letters formed of boulders, gravel, and brick into the landscape. "With the computer, we calculated precisely and in a very analytical way where the deformed surface of the land would intersect with the rigid text," Hawkinson explains. A three-dimensional animation rendered with transparent surfaces captured the architect's design intentions in a way that wasn't possible through a static, hand-drawn rendering. Smith-Miller + Hawkinson made the transition to computers with the help of CreativeTechnologies, a computer consulting firm started in 1991 by James Venturi (son of architects Robert Venturi and Denise Scott Brown).

Computers and conventions

Among their over-40 peers, Laurie Hawkinson and Henry Smith-Miller are progressive in their commitment to experiment with computers, but they like to keep one foot firmly planted in traditional methods. "The computer only does so much for us," notes Smith-Miller, who refuses to rely on the computer for schematic design. "We find that at the front end, sketching by hand and building models by hand cannot be replaced."

Other designers envision a more active role of the computer in design—eventually. When San Diego architect Rob Wellington Quigley first considered automating his 12-person practice, he watched and learned from his colleagues before investing. And for years, he held off taking the electronic plunge. "All my investigations suggested that the computer industry wasn't really ready for architecture," explains Quigley, citing colleagues' stories of arduous training and high costs that outweighed productivity gains.

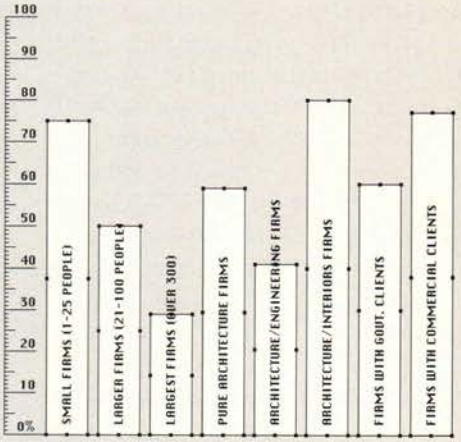
Quigley's attitude changed last year with the release of Graphisoft's ArchiCAD 5.0. The software allows users to edit sectional drawings and generate virtual reality walkthroughs of models. "For the first time, I'm finding that computers are useful," admits 52-year-old Quigley, who today seats himself in front of a computer screen to navigate virtual reality walkthroughs more often than he anticipated. "I don't compose on the computer yet, but I see myself doing that within a year."

Finding the right software is critical to overcoming what many designers perceive as the "canned look" of computer-generated design studies. "We're not looking for a false consistency in our studio," says Craig Hodgetts, partner of Hodgetts + Fung in Los Angeles. "We've noticed that the computer can begin to discipline work in a direction that has more to do with the software than with a firm's design intentions."

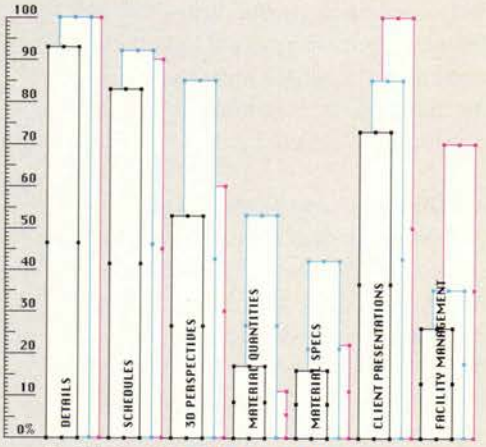
To combat this bias, Hodgetts + Fung avoids using drafting software during conceptual design. Instead, 59-year-old Hodgetts scans freehand perspectives into Adobe Illustrator, a graphic design package, to study light, color, texture, and volume. "We use the program like a sketch pad," explains Hodgetts, "and then import schematic drawings into CAD software to develop more dimensionally accurate production drawings."

Ben Wood, partner of Wood & Zapata's Boston office, takes an approach similar to that of Hodgetts + Fung. The firm looks to the entertainment and graphic design industries for software as well as presentation ideas. "There are incredibly powerful tools if you don't look for the 'this is for architects' label," insists 49-year-old Wood. With Partner Carlos Zapata, Wood pulled together a multimedia presentation for an airport concourse design in three days. Movie

Percentage of billable staff that is CAD-trained

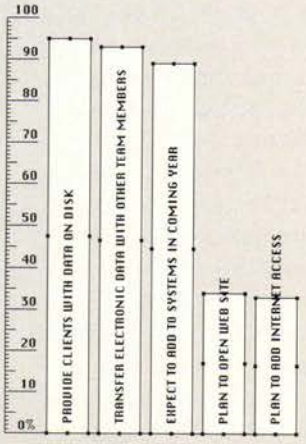


What do firms use CAD for?



Architectural Architectural/Engineering
Architectural/Interiors

Computer services beyond CAD



SOURCE: PSMJ/PRACTICE MANAGEMENT ASSOCIATES, NEWTON, MASSACHUSETTS

clips downloaded off the Internet and melded with design graphics helped secure the commission.

Wood learned about computers through two young MIT graduates, who started a multimedia design firm in 1991. Wood hired Jeet Singh and Joe Chung to digitize a video of a model while he was partner-in-charge of Ben Thompson Associates (BTA). Impressed with their work, he bartered space in BTA's basement in exchange for a first-hand glance at how it's done. Today, Singh and Chung run Art Technology Group, a multimillion-dollar design and consulting firm; and Wood learned from watching them and experimenting with their systems.

Another incentive to staying on top of technology is the ability to recruit architects who are drawn to the most sophisticated hardware and software. "I believe that you need the fastest, latest computer, or you won't get the fastest, latest talent," explains Wood, who continually upgrades his 30-workstation fleet. "The people in our office are here because they like the work we do. But they also like the access to the technology we have."

Dangers of the culture gap

Wood's enthusiasm is the key to his success. If the principal doling out the money for high-end software and hardware doesn't share the vision of the firm's computer jockeys, problems will arise. Peter Gluck, principal of New York-based Peter L. Gluck and Partners, is an electronic convert who once embraced computer technology but is now rethinking its benefits—after investing thousands in state-of-the-art visualization programs. "The biggest problem for me is a cultural division between the people who really like computers and the people who don't," explains Gluck, who was unable to reconcile the two camps. "Once employees get comfortable playing with a computer, they don't want to turn it off to deal with a client, figure out a detail, or address all the other things that are part of architecture."

Firms like Smith-Miller + Hawkinson and NBBJ try to avoid such rifts in a firm by training every project team member on the computer. "The people in our office are not technicians, they are designers," insists Hawkinson. NBBJ's McConnell agrees: "We don't differentiate design from production." Firmwide CAD literacy is critical to implementing design by computer.

JOEL LEVIN PHOTOGRAPHIC SERVICES

NBBJ Designers Steven McConnell (left) and Richard Dallem augment electronic modeling.

A recent explosion of hardware and software developments is fueling the conversion of design holdouts. ArchiCAD typifies a new generation of CAD software that strives to attract computer-resistant designers through user-friendly drawing tools. Manufacturers want to shake off CAD's image as a production tool and promote applications that integrate conceptual design, presentation graphics, and construction documents. One ArchiCAD user leading the pack is Studios Architecture. A physical model has not been built in the firm's San Francisco office in more than two years; all volumetric design studies are conducted electronically.

Bentley Systems' MicroStation TriForma similarly adopts a "single-building" approach to architecture, which means that a schematic model created for design purposes will provide a starting point for generating plans, sections, elevations, and details. With many early applications, three-dimensional modeling was an isolated, time-consuming function completely removed from construction documentation. But the theory behind this new single-building approach is that more team members, including designers, will contribute to a single project database.

Manufacturers are working to extend the breadth of electronic files by adding Internet browsing capabilities to CAD software. Last year, Autodesk enabled AutoCAD Release 13 users to publish two-dimensional drawings in an Internet-compatible format through the company's new compressed file format for the Internet, called drawing web format (DWF), and its WHIP! Plug-In viewer for Internet browsers. At the same time, Bentley Systems unveiled Engineering Links, a series of tools including an Internet browser embedded in MicroStation and the ability to export MicroStation data into Web publishing formats.

For these reasons, today's software developers shy away from using the CAD acronym of old, which many architects still equate with computer-aided drafting, explains Keith Bentley, chief executive officer of Bentley Systems. "As opposed to the drafting seat most architects are familiar with today, we're thinking more of an engineering seat," asserts Bentley. In the future, architects will import three-dimensional components from manufacturers' web pages into drawing files, such as dropping a window or a truss directly into a model while preserving critical data including thermal performance and fire rating.

The next generation

A fearless few designers now wholeheartedly embrace conceptualization on the computer. Greg Lynn of Greg Lynn FORM in Hoboken, New Jersey, claims that his designs are not possible without the computer. The firm employs dynamics software to determine forces and values for volumes. "It's basically like setting up temperatures on the site," explains Lynn, whose firm won a P/A design award this year for a computer-designed church (*Architecture*, January 1997, pages 80-81).

Skeptics, however, will continue to look askance at those who relinquish conventional drawing tools. "Imagine that architects are now reduced to being typists and gameplayers," muses Smith-Miller, referring to the substitution of keyboard and mouse for parallel rule and pencil.

While the pursuit of a project conceived, developed, and detailed entirely on the computer remains, for the moment, as elusive as the paperless office, today's technology suggests that the notion is not as far-fetched as many designers believe. "Everything is converging at once," observes Wood, "from client sensibilities to computer technology to the talent pool." To make genuine progress in computer-aided design, he adds, "all we need are principals who are at least willing to try."

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Image rendered by Cooper Carry & Assoc., Inc. using MicroStation MasterPiece.

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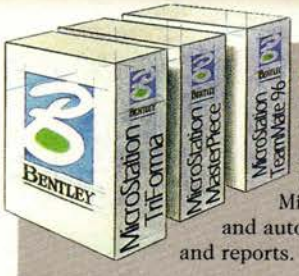

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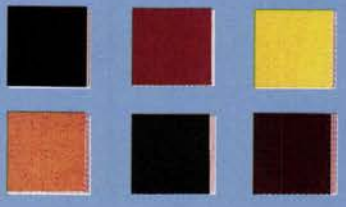
Custom-designed open-web trusses from Trus Joist MacMillan (left) combine steel tubes with laminated veneer lumber and solid-sawn lumber, and employ less steel than conventional trusses and less wood than glulam systems. The Boise, Idaho-based manufacturer offers several series of open-web trusses: the TJM and TJH series accommodate heavy loads and long spans; the TJS series is recommended for long spans with light loads; the TJL, TJLX, and TJW series are designed for mid-range spans. *Circle 292 on information card.*

Lumber Connections

USP Lumber Connectors, a division of United Steel Products, manufactures a range of steel connections for structural wood elements. For instance, USP Lumber Connectors' products can be employed to hang wood I-joists from wood beams (far left), steel beams, and masonry walls. Top-mount and face-mount hangers are available. USP also manufactures heavy column bases and column and post caps. *Circle 293 on information card.*

Joist Tie

New from Simpson Strong Tie is the THAI hanger for I-joists. The product features extra-long straps that can be formed on the job site. The THAI hanger can accommodate joists measuring 9 1/4 to 14 inches deep, and 1 1/2 to 5 1/4 inches wide. Another new product from Simpson Strong Tie is the concealed joist tie, a 10-gauge, galvanized steel lumber connector hidden within the beam. *Circle 294 on information card.*



Birch Plywood

Birch plywood from Finland Color Plywood is available in six color finishes and a new clear finish. The Venice Beach, California-based manufacturer applies finishes to both sides of the 8-by-4-foot panels. The panels are manufactured in 9-ply (1/2 inch) and 14-ply (3/4 inch) thicknesses. *Circle 295 on information card.*

Reclaimed Wood

The G.R. Plume Company uses a wood-colored adhesive to bond its composite-glued timbers (left). This adhesive plugs, patches, and shapes recycled wood, helping the worn-out timbers regain their esthetic appeal, and eliminating the need for laminates. *Circle 296 on information card.*

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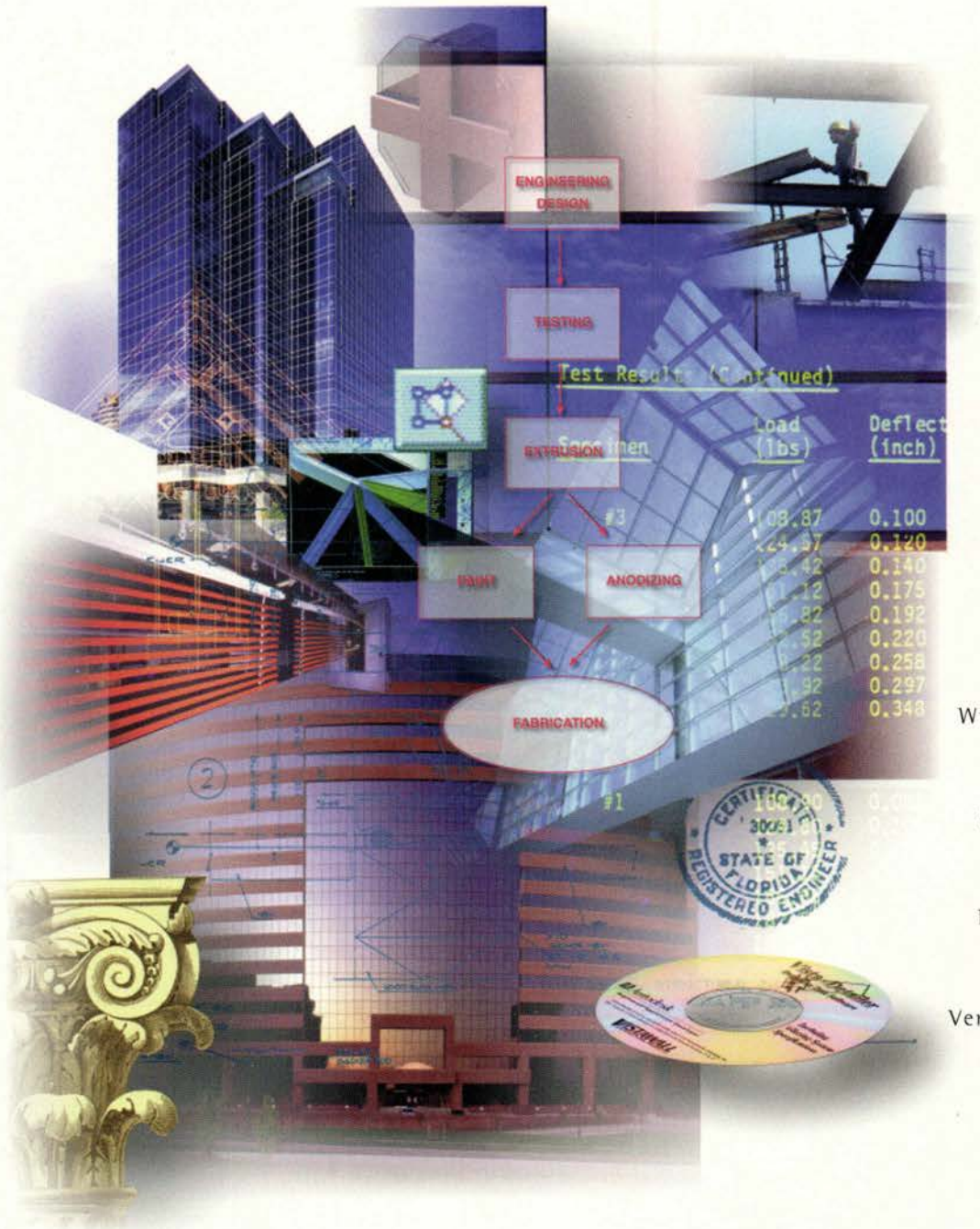

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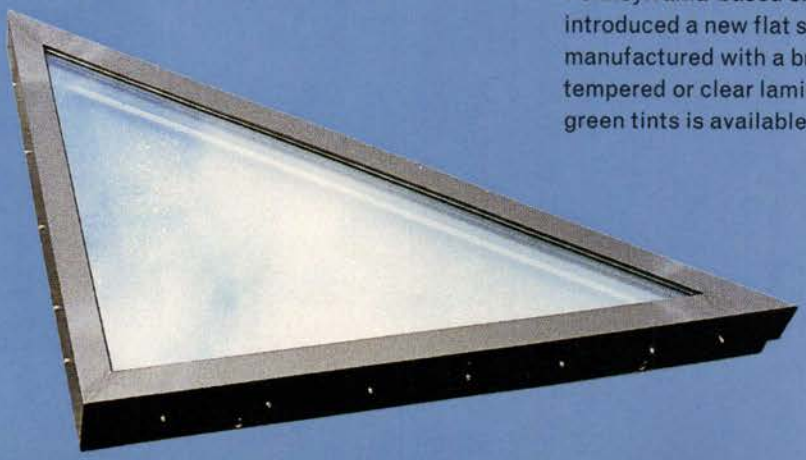
Structural Glazing
New to the American market is a structural glazing system from MERO Structures, the MERO Point Supported Glass System. This rotational, point-supported glass anchor system can be used with insulated, laminated, and monolithic glass panes to decrease secondary bending and stresses. The stainless steel fitting that attaches to the glass can either be sunk into its thickness, or raised behind the glazed surface. *Circle 297 on information card.*

Bathroom Accessories
New York designer David Zelman created the O-hi-O series of bathroom accessories for Robern to emulate early 20th-century industrial esthetics. The manufacturer offers two versions: aluminum and gold-plated New Paris (left) and aluminum and stainless steel Xenia; both series include a towel bar, towel ring, robe hook, soap holder, cup and toothbrush holder, paper holder, and shelf. *Circle 298 on information card.*

Ceiling Panels
New Hi-LR Ultima RH90 acoustic ceiling panels from Armstrong World Industries are a highly reflectant version of Armstrong's original Ultima RH90 panels. About 89 percent of light that shines on the panels is reflected, reducing the amount of lighting required in a room and resulting in a significant savings in electricity costs. The system is available in 2-foot-square and 2-by-4-foot sizes, with square cut and beveled edges. *Circle 299 on information card.*

Flat Skylight
Pennsylvania-based skylight manufacturer Skytech Systems has introduced a new flat skylight. The aluminum-framed unit is manufactured with a bronze-painted or clear anodized finish; clear tempered or clear laminated insulated glass in bronze, gray, or green tints is available. *Circle 300 on information card.*



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Architectural Trademarks

Buildings have become profitable pawns of litigious owners.

Don't shoot that building! That's what a U.S. District Court in Cleveland told local photographer Charles Gentile last year when he started selling four-color posters of the I.M. Pei-designed Rock and Roll Hall of Fame on the city's lakefront. Gentile's posters, which sold for $25 each, showed the building's pyramidal profile backlit by the glow of sunset over Lake Erie, with the words "The Rock and Rock Hall of Fame and Museum—Cleveland" along the bottom. But the photographer, the court ruled, was treading on the Hall of Fame's trademark protection of its singular building by making money on its image. Or was he?

Because Gentile wasn't party to any licensing agreements with the Hall of Fame, the museum's attorneys filed an injunction to stop him from selling any more posters. Gentile's trademark violation, the attorneys argued, was undermining the rock hall's ability to collect licensing fees on memorabilia such as caps and T-shirts. The museum uses those proceeds—about $2 million per year—to repay taxpayer-backed bonds that funded the building's construction. Judge George W. White agreed with the museum, made Gentile turn over his posters to museum lawyers, and ordered him to stop printing them. Gentile is appealing the decision.

Can a work of architecture be protected as a trademark? The museum's lawyers offered persuasive precedents: About 100 U.S. buildings are registered trademarks, including the Citicorp Center in Manhattan and San Francisco's Transamerica tower. Most trademarked architecture, however, belongs to franchises such as McDonald's, with its mansard roof; Pizza Hut's colonnade; and Wendy's yellow cornice.

In 1937, White Castle System of Eating Houses Corporation stopped White Tower System Inc., another restaurant, from copying the design of its fast-food fortresses. And in 1970, Fotomat Corporation fought off a competitor who imitated the "arbitrary and fanciful design" of its little film huts in shopping center parking lots.

Those cases establish that Gentile cannot build a replica of the rock hall and try to pass it off as the original. Trademark law, contends law professor Stephen R. Barnett of the University of California at Berkeley, is supposed to indicate the source of something, not thwart copiers—that's the job of copyright law. And copyright law actually supports architectural photographers such as Gentile.

In 1990, Congress passed the Architectural Works Copyright Protection Act to protect "architectural works." Before that law was enacted, copyright law covered plans and drawings as "pictorial, graphic" intellectual property, but the buildings themselves weren't explicitly off limits. The architectural works act stops someone from plagiarizing a building's "overall form as well as the arrangement and composition of spaces." Yet, Congress provides a wide exemption permitting "pictorial representations" of buildings if they are "located in or ordinarily visible from a public place," because, as the U.S. House of Representatives asserted when it approved the law, "architecture is a public art form and is enjoyed as such."

"Public" is the key word. The rock hall's lawyers are invoking trademark law to prohibit what copyright law expressly allows. As a publicly funded piece of architecture sitting on a prominent downtown site, the Rock and Roll Hall of Fame should be fair game for photographers.

Even under trademark law, Gentile's posters are what experts call "fair use." Gentile wasn't exploiting the museum as a trademark. He used its trademarked name in a descriptive way, never suggesting that the museum is the source of his posters. (A short disclaimer would help). The Rock and Roll Hall of Fame should be proud to have inspired the public with its architecture. Its directors ought to think twice about trouncing an entrepreneur's First Amendment right to the unrestrained traffic of words and images.—*Bradford McKee*

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