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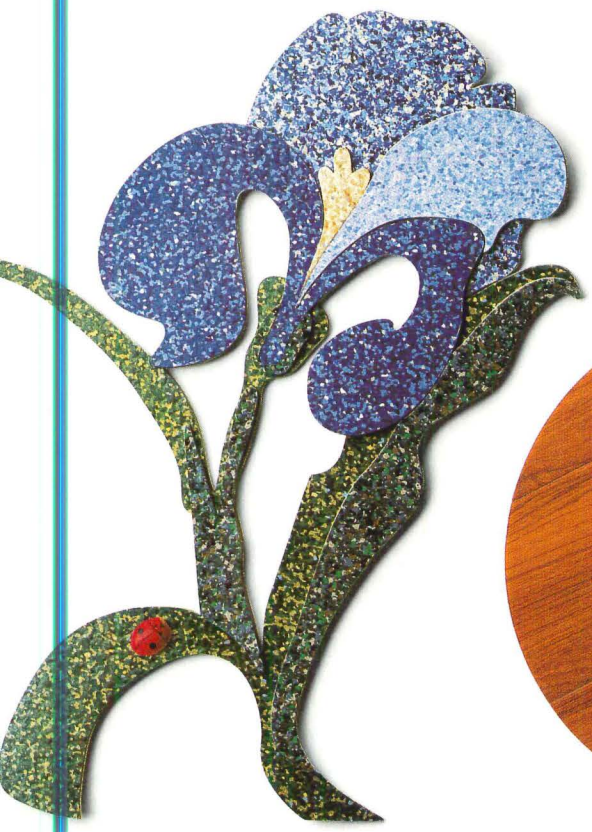

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arch

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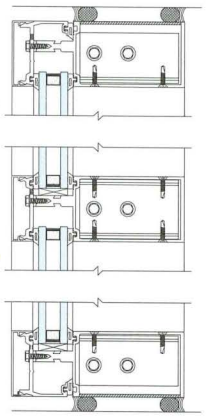

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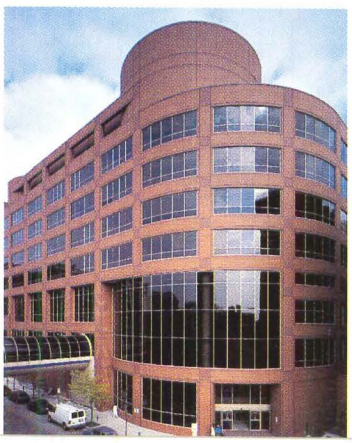

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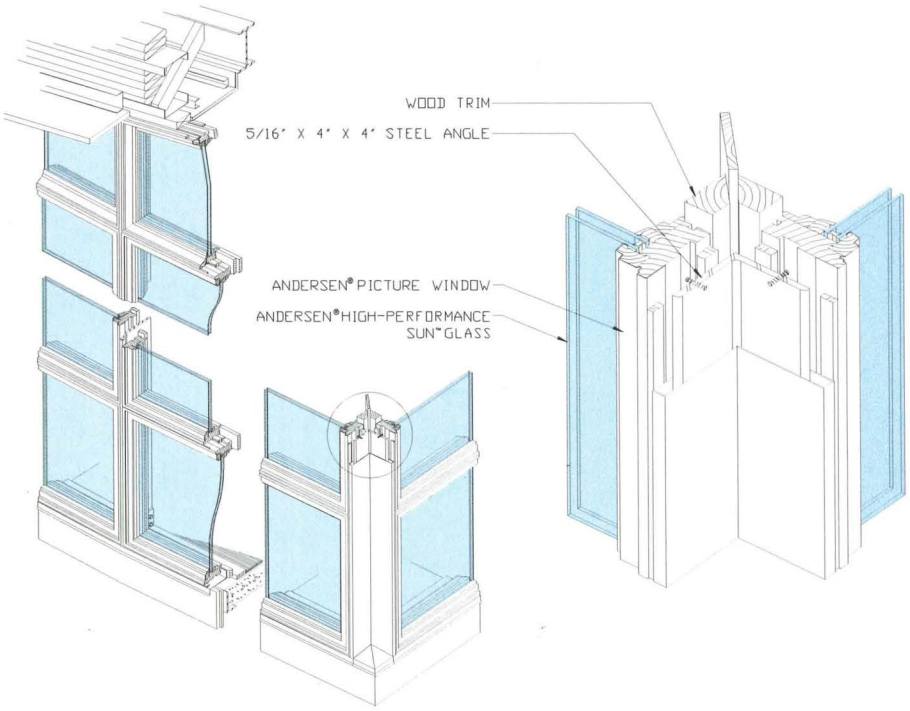

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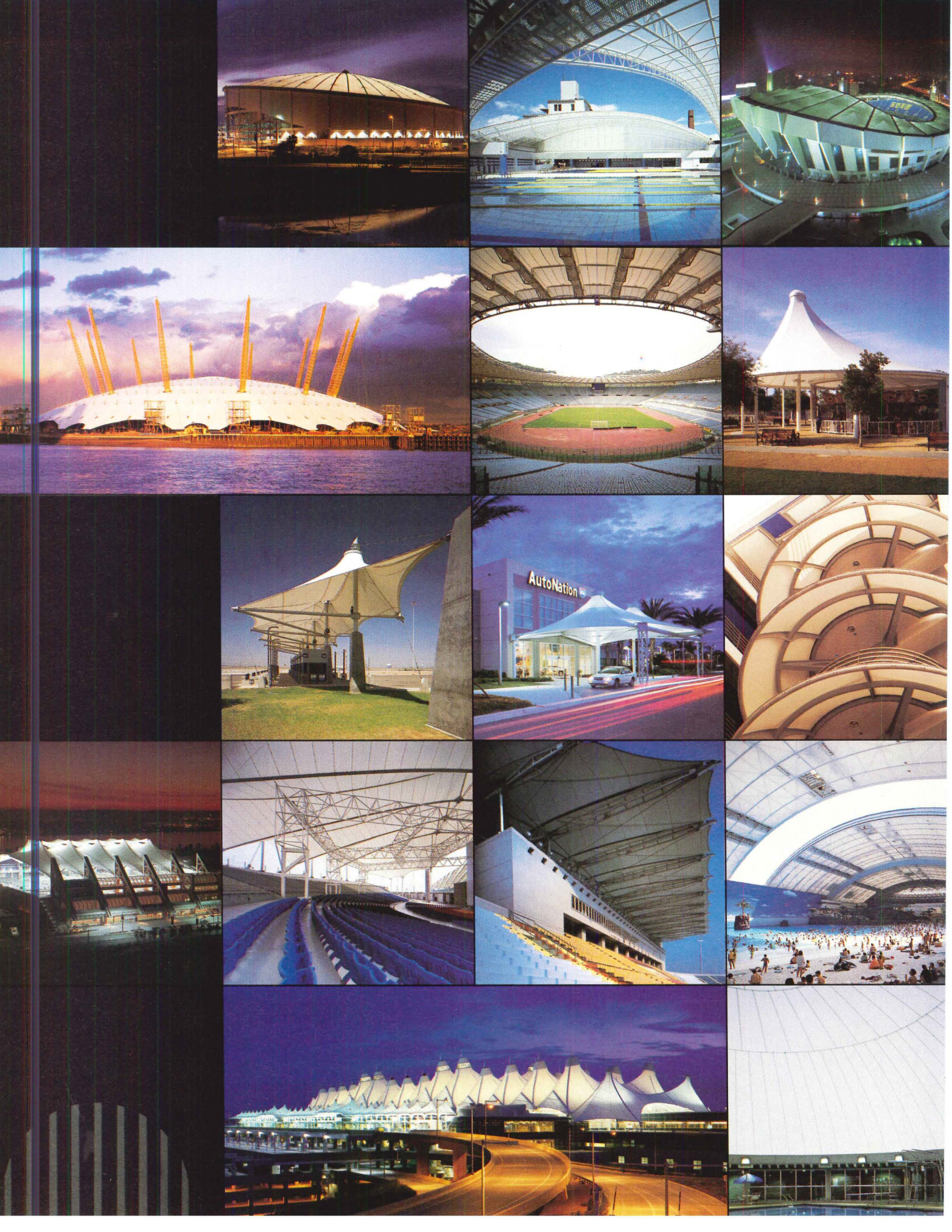
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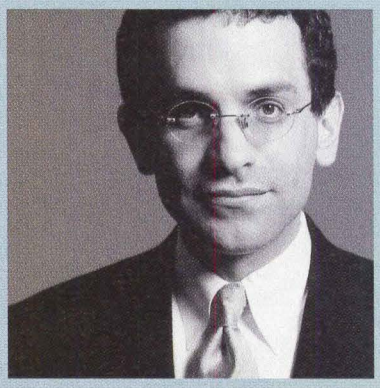


ANNE KATRINE SENSTAD

Architecture really is important. We can prove it.

By Reed Kroloff

The statistic on the cover of this issue is remarkable—some would say appalling. For a nation whose psychic and cultural identity is bound up in images of spacious skies, amber waves of grain, and purple mountain majesties, we spend peculiarly little time enjoying them.

The data has fascinating—and weighty—implications for architects: If Americans aren't outside, it follows that they must be inside, in buildings. In other words, the built environment has become our natural environment. Rather than a mere part of the landscape, architecture *is* the landscape—and of course, architects are the people who create it (or at least they're the people who should). Architects have long been accused of overestimating their cultural significance; here is proof that they haven't.

Of course, architects don't design all, or even most, of the built environment. But rapidly changing technology and increased public sensitivity about design (witness the recent backlash against sprawl) suggest that with careful study, architects could enhance their status. And what better time for architects to assess their place in the order of things than the moment when the entire world is doing the same thing—at the cusp of the millennium?

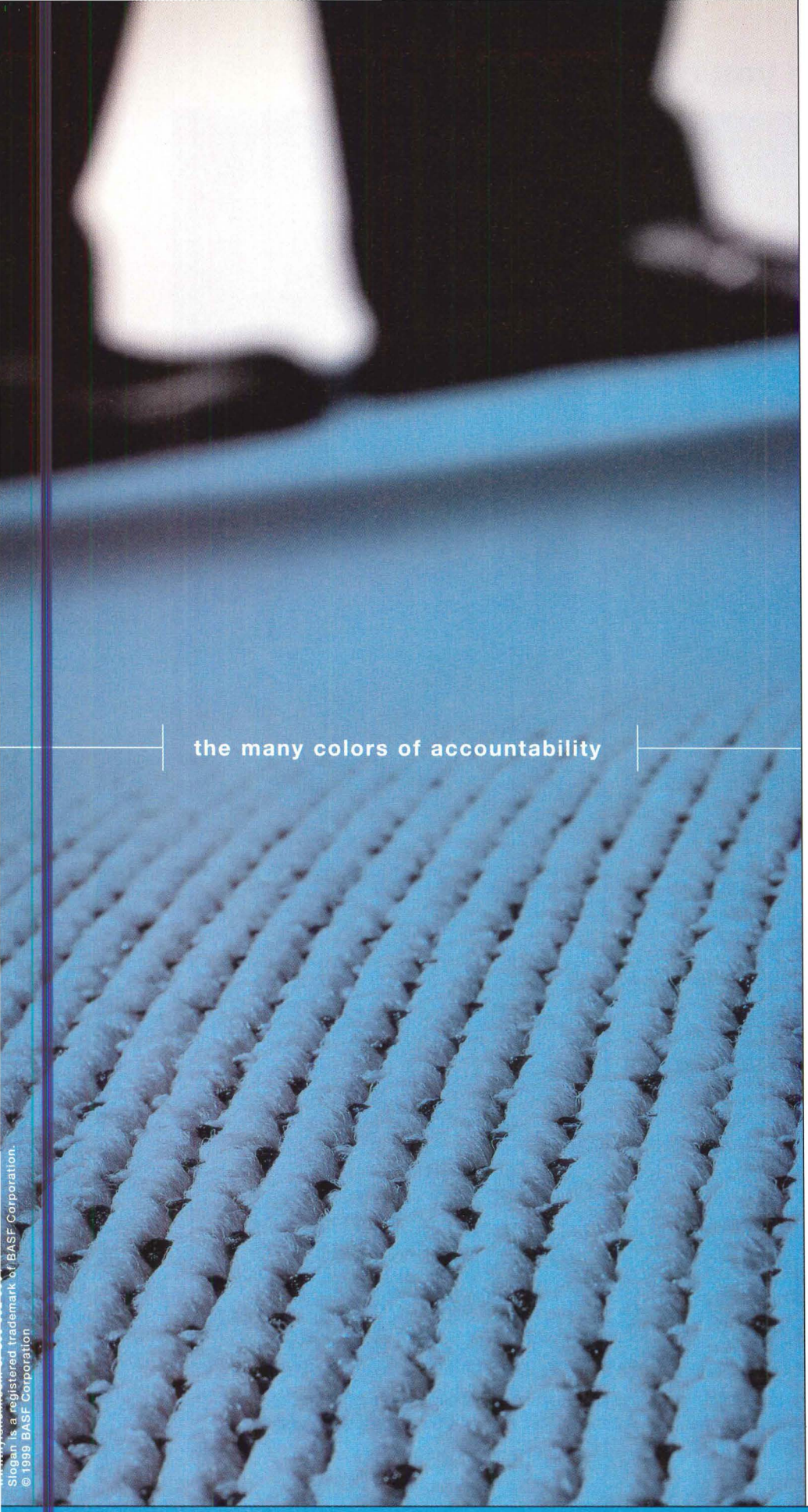
This issue of *Architecture* invites that assessment by reviewing the state of the built environment at the end of the 20th century. We look at the places where people work and live, and how they view their relationships to the city and the nation. Following are stories about buildings and their formal qualities, the state of technology, the essence of style, and more.

Our coverage is not comprehensive; it never could be. We have avoided topics we judged too predictable: You won't find a list of the best buildings or the most important architects of the century (or millennium). We don't try to predict the future—although we do visit with Charles Jencks, who in the past tried to do exactly that. We leave the distant past to textbooks, where it belongs. And we don't try to tie up all of the loose strings at the end.

Instead, we offer a survey, one that concentrates on places and people rather than individual buildings; there are no design reviews in this issue. There are, however, wonderful stories, told by some of today's most respected writers—a number of whom have never appeared in an architectural magazine before. These essays are enhanced by accompanying photography that illuminates, not illustrates. Finally, each of the photographs features statistics that frame the ideas explored in the stories and images.

This issue of *Architecture* is atypical for a professional journal, but this is an atypical moment for our profession, and for society at large. Architecture will have to remake itself over the coming years if it is to assume a position of leadership. *Architecture*, the magazine, will be changing too, but a bit more briskly. In the coming months, the best in new design will return—on more pages, with more photography and better technical illustrations than have appeared regularly in American design magazines. There will be other changes too in the coming months.

But this millennial issue, with its emphasis on storytelling and the people, places, and social forces that make this profession turn, hints most clearly at our new editorial direction, as we grow from an architectural magazine to a magazine that tells the story of architecture. I'm excited about the new year and the new mission. I hope you will be too.



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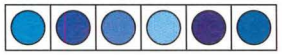

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Architecture asked its December contributing photographers where they spend their 72 outside minutes each day.

Doug Aitkin has shown his work in galleries around the world. "I am in the ocean, and I become the ocean."

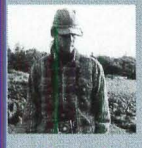
New York–based **Bernd Auers'** work has appeared in *New York*, *W*, *Fast Company*, and *Fortune*. "I cruise the streets on my bicycle."

Richard Barnes is a contributing editor at *Nest Magazine*. His work on the Unabomber Cabin is currently part of the San Francisco Museum of Modern Art's New Acquisitions show. "Only 72 minutes? Strange. I live outdoors and spend my time searching for existence proofs in sidewalk cracks and the interstitial spaces between the leaves of trees."

Katharina Bosse's last exhibition was "Ten Rooms for Sex" at Henry Urbach Architecture. "I walk to the subway, deli, and cinema, and watch other people's dogs playing in Tompkins Square Park."

Marco Brambilla is a commercial and feature film director. His recent projects include *Transit* (Booth-Clibborn Editions, 1999), a book of images related to air travel. "My cigarette breaks over the course of an average day amount to about 72 outdoor minutes—maybe less in winter."

David Byrne, cofounder of the group Talking Heads, has been involved with photography since his college days, but has only recently begun to exhibit and publish his work. His recent book, *Your Action World* (Chronicle Press, 1999), was modeled after corporate reports and inspirational and motivational literature. "I ride my bike."



Paul Cranick lives, works, and makes sushi in Colorado. "I do not go outside at all, unless I'm out for the entire day golfing, riding my bike, or snowboarding."

Berlin-based **Thomas Demand**'s latest solo exhibition was at the Tate Gallery in London, and is currently part of a group show at P.S. 1 in Queens, New York. "I am not American, so I spend much more time outside each day. I swim outside every day that I can."

Mitch Epstein is a visiting associate professor at Bard College, and is working on a project about public and private life in Manhattan. "I walk around the city."

Ted Fair is an artist based in New York. "I look down from high places and do right by folks."

For more than 25 years, **Alex S. MacLean** has documented the changes forced upon the land by human development. "I am engaged in the spectrum of play."

Anne Senstad is a Norwegian-born artist who left her native land of fjords for New York in 1990. Her fine-art work has been exhibited at Snyder Fine Arts in New York, and her portraiture and still lifes appear in the *New York Times Magazine*, *THE FACE*, *Wired*, and *Worth*. "I observe, absorb, and obsess."

Thomas Strong has been a partner in the graphic design firm Strong Cohen since 1968. His clients have included Lomas & Nettleton, Venturi Rauch and Scott Brown, and the Los Angeles Museum of Contemporary Art. "I walk around the Yale campus."

Burk Uzzle been a contract photographer for Black Star and *Life*. His work appears in two published collections, private collections, and museums. "I spend my first 45 minutes running five miles. The rest is spent dodging Florida mosquitoes and running from one air-conditioned place to another."

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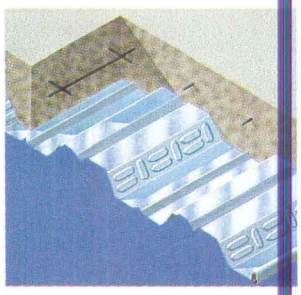

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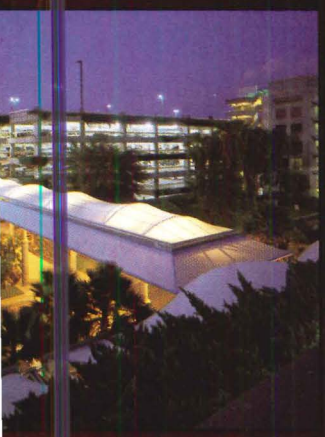

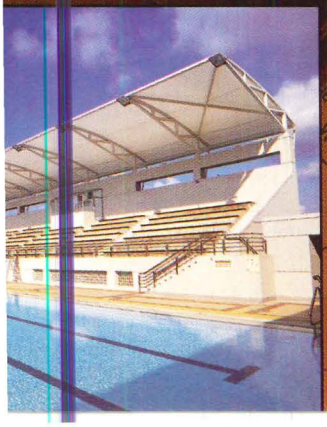

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letters

Debt to Pay

In Reed Kroloff's September editorial (page 11), any mention of reducing the national debt—the single most compelling use of the budget surplus—was conspicuous by its absence. This would be a far greater gift to our children than any number of repairs on leaky classroom roofs. Also, I would favor giving a portion of the surplus to the National Park Service, but only for the purchase of significant open space to be retired forever from exploitative use or, in some cases, from any use whatsoever.

As for Ralph Nader, any friend of trial lawyers is highly unlikely, in the long run, to prove a friend of architects or of the national economy.

Philip Collins
Hopewell, New Jersey

Rebel With a Fan Club

Thank you for publishing Liane Lefaivre's article, "Rebel With a Cause" (September 1999, pages 81–85). I had the good fortune to study under Aldo van Eyck in the early 1960s. He was a powerful figure, a bundle of energy and intellectual might. His humanist approach to architecture and his concern for social interaction had a powerful impact on those who knew him. As students, we were amazed to learn his Amsterdam orphanage was the result of five dedicated years of effort. I visited this building 15 years ago, and its clarity, simplicity, and restraint were evident. Thank you for remembering this great teacher.

E.J. Mackey
Mackey Mitchell Associates
St. Louis

No Rest for the Cubans

As Cathy Lang Ho mentioned in "Italy Helps Cuba Preserve" (October 1999, page 33), Old Havana buildings will be restored and used as restaurants and hotels. However, after the conversion of these buildings into tourist places, no Cuban will be allowed on the premises, except when escorted by a tourist.

Restoration projects are very profitable for the corporations that run Cuba's hotels and restaurants. They invest in the buildings and then get cheap labor—probably the cheapest in the world—to run the places. The government also gets a good deal; it gets paid in dollars, then pays the workers in Cuban pesos. (The government, not the corporations, employs workers.) The tourists stay in nice hotels, watch fantastic shows, and swim at fantastic beaches. This is a win–win situation for everyone except, of course, the Cuban people.

J.A. de Plazaola
Winter Park, Florida

It's Relative

Regarding the News section in the September issue: On page 44, Jeff Kipnis, who "has taught theory and design and published numerous essays of criticism" during "his decade at OSU," was selected as the new curator of architecture at Ohio State's Wexner Center. On page 45, Catherine Ingraham, "a granddaughter of Frank Lloyd Wright," was chosen as the next chair of Pratt's graduate architecture program. You chose not to mention Ingraham's years of teaching experience or her extensive publications. Evidently men are recognized by their achievements, but even today, women are recognized by the men to whom they are related.

Lauren Kogod and David Smiley
New York City

Tanks Again

September's lead article, "Rear-View Mirror" (pages 92–99), suggests that we can look forward by honoring the past. But you ignored how skillfully Mehrdad Yazdani has accomplished the same thing—and in the same issue. His entrance to the Metro Red Line Station (page 117) is shockingly reminiscent of a World War II tank! Painfully, the drab, gray concrete interior also conjures images of great national conflict—but I don't want to head down that road!

James A. Gresham
Tucson

Off Target

I've noted with unease the continuation of the Protest column. Most objects of scorn are in places unfamiliar to me, so I'm never sure if there is merit in the opinions. But if Frank Edgerton Marton's cheap shot at Target's new Minneapolis headquarters (September 1999, page 89) is representative, the rest must be equally worthless. The building is built with quality materials, is respectful of its neighbors, thoughtfully detailed, and sensitively scaled, especially at the three lowest levels. And the 1,000-plus office workers are likely to contribute significantly to the daily urbanity of the Mall. Within the constraints of an imperfect marketplace, I give the building a *B*.

Certainly the loss of "fine-grained" frontage on Nicollet Mall is regrettable, but it's old news. Minneapolis had already squandered most of its historic buildings by the time Target was born in the 1960s, long before Mary Richards came to town. The loss of small business is a global fact as we careen into the megamerger millennium. The values that drove Target to the top of the retail heap are those that have been driving our cities for at least a generation. Our society values the big, quick, and cheap over the small, good, and lasting. If you really want to protest, stop the puerile ranting at architects, take those teapots back to Target, and write more about the realities of outsized corporate culture that increasingly drive our lives.

William Beyer
Principal, Stageberg Beyer Sachs
Minneapolis

CORRECTIONS

"Mexico City's Divining Rod," in the October issue of *Architecture* (pages 132–133), was written by Odile Henault, not Sara Hart as listed in the table of contents.

The e-mail address given at the end of Reed Kroloff's October editorial (page 11) was incorrect. The National Capital Planning Commission may be reached by writing to *info@ncpc.gov*.

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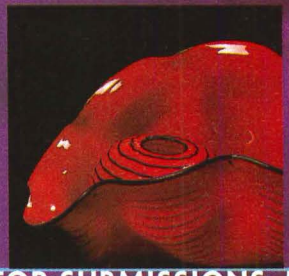

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3. **PROJECT FACTS PAGE**
   To ensure clear communication to the jury, the second page of the binder should list Project Facts under the following headings: Site Characteristics, Type of Client, Type of Glazing Used on the Project, Laminator, and Window Manufacturer. Supply glazing square footages, glazing configurations, costs, and specific materials where possible. All project facts should fit on one page.
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   Supporting materials or drawings that illustrate the challenges or design of the project are encouraged.
6. **ENTRY FEES**
   An entry fee must accompany each submission. The fee is $50. Please make check payable to Saflex Design Awards. International entrants must send drafts in U.S. dollars. Fee must be attached to the entry form.

SUBMISSION REQUIREMENTS:

1. **ANONYMITY**
   To maintain anonymity in judging, no names of entrants or collaborating parties may appear on any part of the submissions except on the entry form(s). Credits may be concealed by tape or other simple means. Do not conceal identity or location of projects.
2. **ENTRY CATEGORIES**
   Identify each submission on its entry form as one of the following: **Commercial** (including retail, airports, stadiums, high-rise residential, hotel, and mixed-use structures); **Institutional** (including health care, educational, government, and correctional facilities); **Residential** (including low-rise and multi-family residential).
3. **ENTRY DEADLINE**
   Deadline for sending entries is March 1, 2000. All entries must show a postage date as evidence of being in the carrier's hands by March 1, 2000. Hand-delivered entries must arrive by 6 p.m. on March 1. To ensure timely receipt, it is recommended to use a carrier that guarantees delivery within a few days.
4. **RETURN OF ENTRIES**
   Entries will not be returned, and become the property of Shandwick International. Solutia and Architecture assumes no liability for loss or damage.

ADDRESS ENTRIES TO:

Saflex Design Awards
c/o Shandwick International
515 Olive Street, Suite 1900
St. Louis, MO 63101

DEADLINE FOR SUBMISSIONS: MARCH 1, 2000

Please complete and submit with supporting materials and entry fee. Photocopies or facsimile copies of this form may be used.

NAME OF ENTRANT _____

TITLE _____

COMPANY OR ORGANIZATION _____

ADDRESS _____

CITY _____ **STATE** _____ **ZIP** _____

PHONE _____

FAX _____ **E-MAIL** _____

CREDITS FOR PUBLICATION (ATTACH ADDITIONAL SHEET IF NECESSARY):

PROJECT NAME _____

LOCATION _____

CLIENT _____

CLIENT PHONE NUMBER _____

CATEGORY (CHECK ONE):

❑ **COMMERCIAL** ❑ **INSTITUTIONAL** ❑ **RESIDENTIAL**

PROJECT COMPLETION DATE _____

I certify that I have read and understood the contest eligibility, materials needed for submission, submission requirements and photography/publishing rights. I also certify that the submitted project was executed by the parties credited and meets all eligibility requirements. I understand that any entry that fails to meet submission requirements may be disqualified. Signer must be authorized to represent those credited.

SIGNATURE _____

Saflex architecture

For more information on the SAFLEX DESIGN AWARDS, please contact 1-800-24-TOUGH or write to Shandwick International 515 Olive Street, Suite 1900, St. Louis, MO 63101

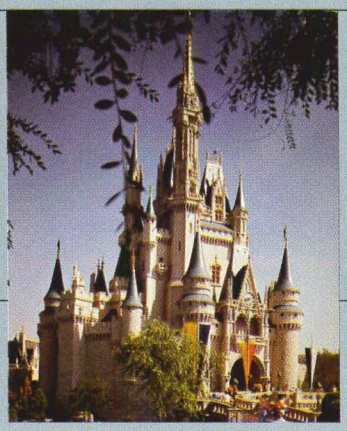
exhibitions

city	dates	exhibition	contact
Boston	through December 15	**Landmark American Bridges of the 21st Century** at the Boston Architectural Center	(617) 536-3170
Los Angeles	through January 9, 2000	**Pompeii: Life in a Roman Town** at the Los Angeles County Museum of Art	(323) 857-6000
New York City	through December 31	**Big Buildings** at the Skyscraper Museum	(212) 968-1961
Pittsburgh	through February 27, 2000	**The Pritzker Architecture Prize 1979–1999** at the Carnegie Museum of Art	(412) 622-3288
Washington, D.C.	through March 6, 2000	**The Corner Store** at the National Building Museum	(202) 272-2448
Washington, D.C.	through May 7, 2000	**See the U.S.A.: Automobile Travel and the American Landscape** at the National Building Museum	(202) 272-2448

Unearthed ruins of **Pompeii's House of the Faun**, as seen in LACMA show, depict ancient Roman life in 79 A.D.

conferences

city	dates	conference	contact
Charleston, South Carolina	February 13–17, 2000	**26th International Making Cities Livable Conference**	(831) 626-9080
Dallas	January 14–17, 2000	**2000 International Builders Show**	www.BuildersShow.com
Los Angeles	March 29–31, 2000	**WestWeek 2000**	(310) 360-6423
Miami	June 14–18, 2000	**53rd Annual Meeting of the Society of Architectural Historians**	www.sah.org
New York City	April 15–19, 2000	**2000 National Planning Conference,** sponsored by the American Planning Association.	(202) 872-0611



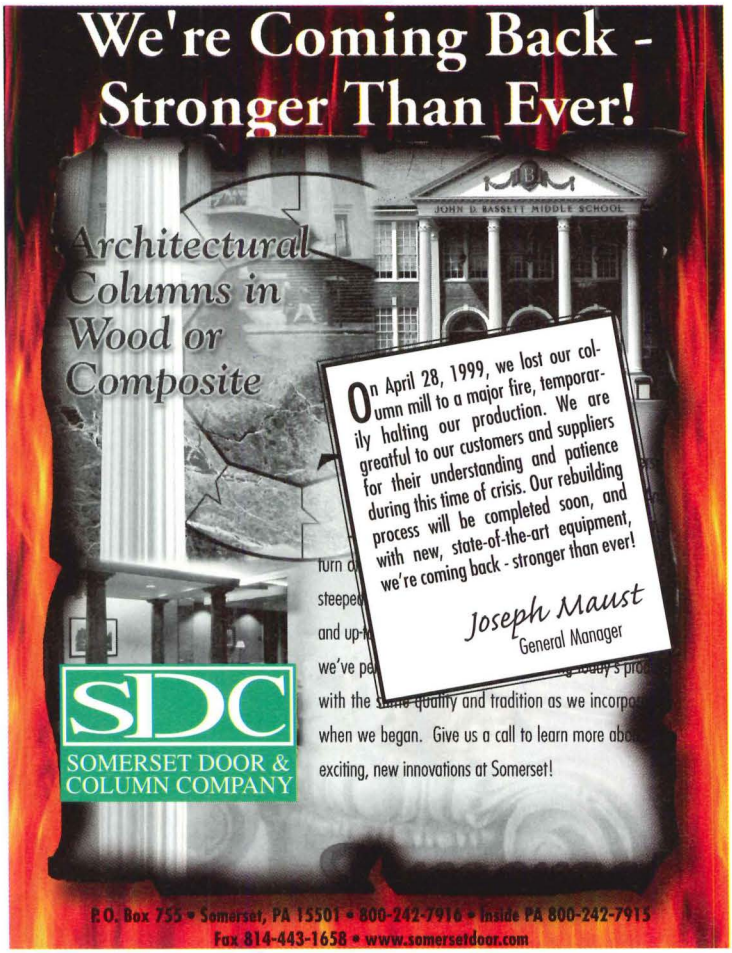
Conferencegoers can explore Disney's version of architectural history (**Cinderella's castle**, for example) at SAH's annual meeting.

competitions

competition	deadline	contact
Milano 2001 Ideas Competition	December 30	www.arcadata.it

Milano 2001 ideas competition proposes luminous gateway sign for public plaza fronting **Milan's Central Station.**

New York State Energy Research and Development Authority Grants for photovoltaic panel installations in commercial structures	January 26, 2000	(518) 862-1090, ext. 3356
Planning a City of Dreams: Designs for Sapporo, Japan, Design Competition	January 31, 2000	(81) (11) 717-8850
The Architectural League of New York 1999–2000 Young Architects Forum Competition for architects less than 10 years out of school	February 18, 2000	(212) 753-1722
Frate Sole Foundation International Prize for Sacred Architecture carries a 300 million-lire (approx. $190,000) prize	May 31, 2000	(39) (0382) 301-413 fax



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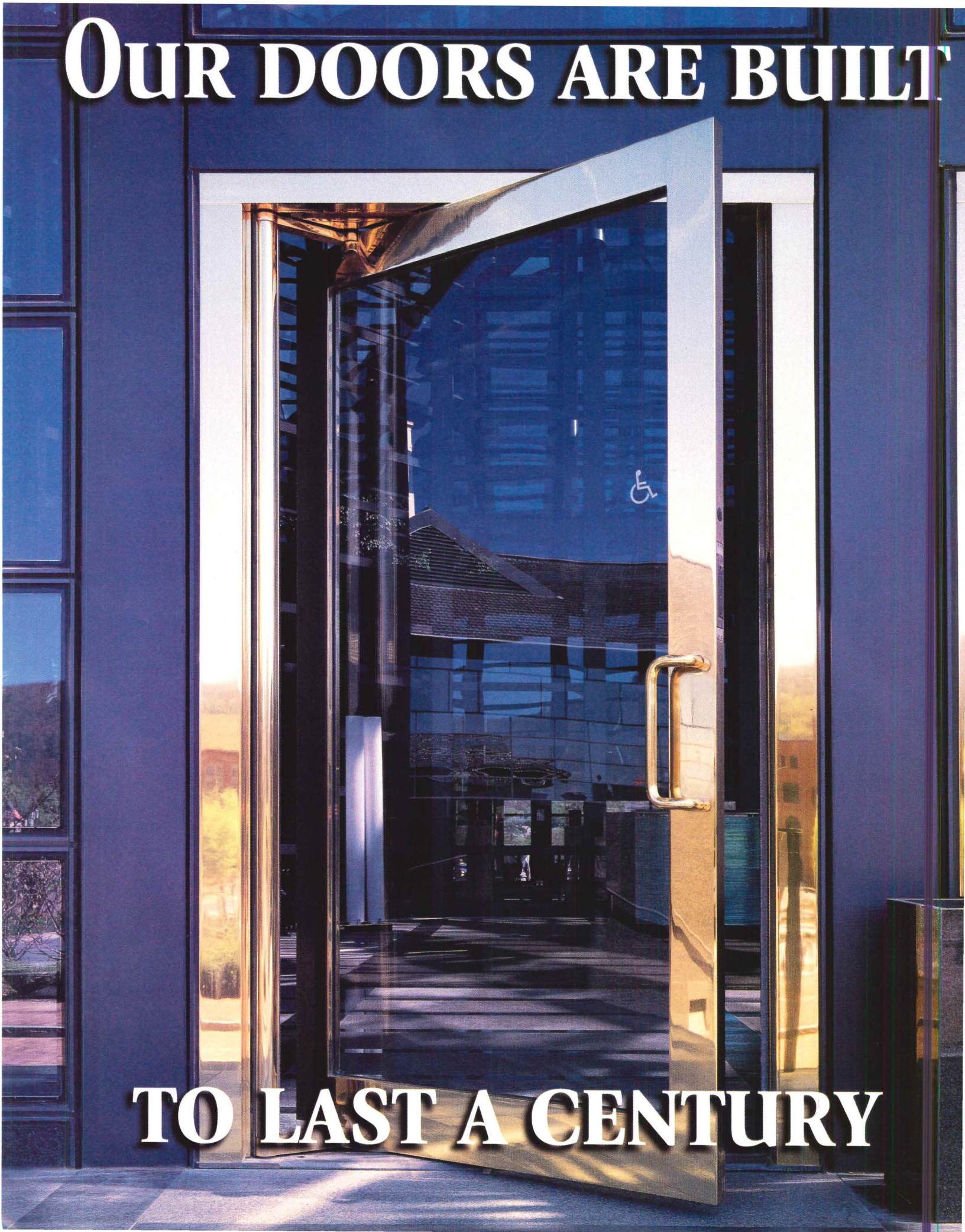
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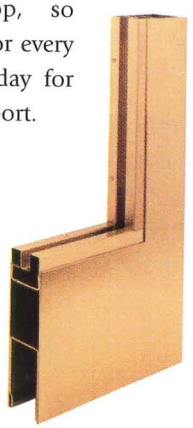
TO LAST A CENTURY

After 70 years in business we're happy to report:

So far so good.

Meticulous craftsmanship produces doors so durable most will outlive the buildings in which they're installed. What makes Ellison Doors virtually indestructible is a unitized superstructure created by welding a .09" continuous frame right through the .09" door face — rather than just tacking channel to the door edge. Seams between stiles and rails are also welded and then, in a painstaking process, ground and finished until welds and joints are invisible. Top rails and stiles are a minimum of 2-3/4" wide. Bottom rails are at least 6" deep. The specs on our glass doors and aluminum doors are equally impressive. And all of our balanced hardware is manufactured in our shop, so replacement components are available for every door we've ever made. Contact us today for complete information and technical support.



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Pinehurst Resort & Country Club
Centennial Course No. 8
Owner: Club Corporation of America
Architect: James R. McVicker Jr. AIA

Roofing Contractor: McRae Roofing Inc
Color: Hemlock Green
Profile: Snap-Clad.

***** *Not to mention the blues, reds and 30 other standard colors on steel. (18 on aluminum)*

SNAP-CLAD™
Metal Roofing Panels

Pinehurst Resort & Country Club recently completed its new clubhouse for its Centennial Course No. 8. The clubhouse, designed by architect James R. McVicker, evokes the rich tradition of Pinehurst and its position at the top of a hill makes it visible from all corners of the course. The project features over 9,000 sq. ft. of Snap-Clad panels with a Hemlock Green PAC-CLAD finish. McRae Roofing Company of Asheboro, North Carolina installed the panels.

Petersen Snap-Clad Panels are corrective leveled as they are roll-formed, allowing us to provide panels of unmatched flatness. PAC-CLAD is a full Kynar 500® finish covered by a non-prorated 20 year warranty. For complete information, please contact Petersen Aluminum Corporation at 1-800-PAC-CLAD or visit us on the web @ www.pac-clad.com.

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visit our website @ http://www.pac-clad.com

Circle 89 on information card

TRIBUTE

Historian Colin Rowe, Cornell Educator, 79

Architectural theorist Colin Rowe, 79, died in Arlington, Virginia, on November 5. Rowe was central to the reassessment of modernism as a professor at Cornell for over 30 years, and authored such landmark texts as "The Mathematics of the Ideal Villa" and *Collage City*. Peter Eisenman, a former student, remembers him:

Colin Rowe was one of the greatest minds in architecture in the second half of the 20th century. He brought to American architecture a heady mixture of wit, erudition, and savoir faire. Above all was his commitment to teaching, rooted in the complex history of the 20th century and the Italian cinquecento. Rowe could not abide the ill-informed, the easy solution, the fashionable intellectual trends. His was a world of Burke, de Tocqueville, and Taine; of the little-known vignettes in peoples' lives that make up the accidents of history. Zeitgeist, historicism, and dialectical modernism were his shibboleths. In the end, for all his Anglo-eccentricities, he was an American, cut from a detailed weave of Hamilton and Jefferson. As such, he had no peer in the history of American architecture. He will always be one of us.

THE LAW

Appeals Court Releases Architect From Liability

A complaint by the Occupational Safety and Health Administration (OSHA) against Denver-based A/E firm CH2M-Hill about the designer's role in a Milwaukee construction accident was resolved in CH2M-Hill's favor in a September ruling by the Seventh Circuit Court of Appeals in Chicago. The protracted dispute arose from a November 1988 construction accident in which three construction workers were killed by an explosion in a tunnel under construction. The workers were employees of S.A. Healy Company, the construction contractor, who failed to take appropriate safety precautions when methane gas was detected in the tunnel.

OSHA had cited CH2M-Hill "for willful violation of the construction standards that apply to employers engaged in construction work." The Court vacated the violations and subsequent penalties on the grounds that "CH2M-Hill's responsibilities did not rise to a level that constituted being engaged in construction work."

CH2M-Hill's agreement with the Milwaukee Metropolitan Sewerage District consisted of a series of complex interlocking contracts that included roles as the owner's representative and construction manager. As in traditional A/E agreements, the contract's language specifically excluded responsibility for "construction means, methods, techniques, procedures, and safety precautions," which were assigned to the construction contractors.

While the decision reaffirmed the A/E's traditional construction administration responsibilities in this particular case, the judges declined to rule on a murky subject referred to as OSHA's "new test." This OSHA policy contends that "architects, engineers, and similar professionals should be treated as joint employers with the firms actually carrying out the construction, even if the contracts assign the project owner full responsibility for directing the work, and to the general contractor sole responsibility for implementing the owner's decisions." The Court expressed "concern" regarding the validity of the "new test."

OSHA counsel declined to comment on whether they will pursue further action against CH2M-Hill, but it's likely that the Court's failure to rule on the "new test" will create a fertile field for future litigation against architects and engineers. With the growing popularity of design-build partnerships and the increasing complexity of construction management duties within the A/E's services, design professionals will need to be wary of OSHA's vague threshold for potential liability within the construction process. *Edward Keegan*

Architecture **picked these 100 events as the more interesting of the century. What are yours?**

LOOKING BACK AT ARCHITECTURE'S CENTURY
Seminal 100 Events

1900
1902 air conditioning invented
1903 Daniel Burnham's Flatiron Building
1906 Philip Johnson born
San Francisco earthquake
Stanford White shot and killed
1908 Greene & Greene's Gamble House
1910 neon lighting invented
1911 Frank Lloyd Wright's *Wasmuth Portfolio*
AIA Journal founded
1913 Warren & Wetmore with Charles Reed and Allen Stem's Grand Central Terminal
stainless steel invented
1915 Le Corbusier's Domino House
Bernard Maybeck's San Francisco Palace of Fine Arts debuts at Int'l Exposition
Irving Gill invents insulated concrete panel system
1920 Vladimir Tatlin's "Monument to the Third International"
Rudolph Schindler emigrates from Vienna to Los Angeles
1922 Raymond Hood and John Mead Howell win competition to design *Chicago Tribune* tower
1923 Hollywood sign installed

Buzz

Stay tuned for an **AIA** shakeup: Several Institute employees may find themselves jobless in the coming months as new CEO "Stormin'" **Norman Koonce** streamlines the Brobdingnagian bureaucracy.

The **National Association of Home Builders** (NAHB) has drawn a line in the sand in the fight against sprawl.

IF YOU CAN IMAGINE IT WE CAN BRING IT TO LIFE

You can paint wood to look like marble, but it wouldn't last long in a high-traffic shopping mall. That's one of the reasons Thompson, Ventulett, Stainback & Associates, architects of the King of Prussia Mall in Philadelphia, chose the real thing. And then went a step further by choosing skilled union masonry contractors and craftworkers to install the 143,000 square feet of marble, glass, and porcelain materials that give this shopping mall its beauty. They chose well. Because in addition to meeting the design challenge, the project was also on budget and on schedule. The King of Prussia Mall is just one example of what to expect of union masonry contractors and craftworkers. Visit our Web site, www.imiweb.org, or call 1-800-IMI-0988 to learn more about how we can help you with the design and construction of beautiful, cost-efficient and everlasting union-built masonry.

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UNION BUILT BY THE BEST HANDS IN THE BUSINESS

The International Masonry Institute

The International Masonry Institute — a labor/management partnership of the International Union of Bricklayers and Allied Craftworkers and the contractors who employ its members.

NBM Gives First Scully Prize To Scully

The National Building Museum (NBM) has announced that the first recipient of the Vincent J. Scully Prize is none other than—Vincent J. Scully. As an author, historian, and critic, Scully has enlightened three generations of students in his feisty 50-plus years of teaching at Yale University and the University of Miami. The NBM founded the award to "recognize practice, scholarship, or criticism in architecture, landscape architecture, historic preservation, city planning, or urban design." The award carries a $25,000 honorarium and includes a public lecture at the museum.

Scully's lectures are legendary: Playwright Wendy Wasserstein wrote in these pages about cutting her lit classes to sneak into Scully's lectures just for the hell of it. "Vince has been the most influential person in my personal and professional life," enthuses Scully's current boss, Robert A.M. Stern, Yale's present architecture dean. "But he's no Mr. Chips. Yes, he is beloved and admired, but he is also argued with and disagreed with. He doesn't hold back."

Scully received his undergraduate and doctoral degrees from Yale and is the author of many landmark texts, including *The Shingle Style and the Stick Style* and *American Architecture and Urbanism*. He is an honorary member of both the American Institute of Architects and the Royal Institute of British Architects. The National Endowment for the Arts gave Scully its Jefferson Medal in 1995. ***Michael J. O'Connor***

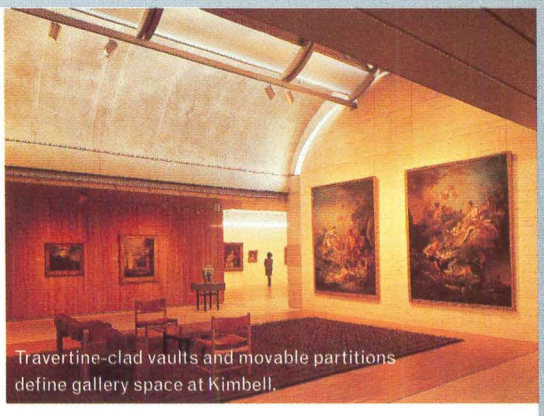
YOU CAN'T BUY TASTE

Decorator Trouble at the Kimbell

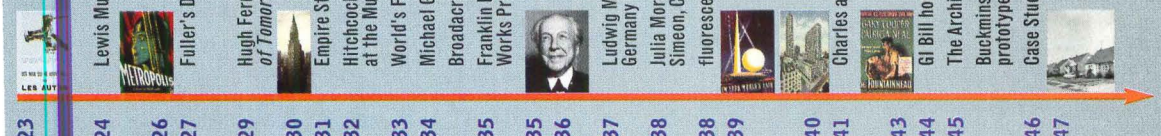
Louis I. Kahn's Kimbell Art Museum in Fort Worth, Texas (1972), is famous for its sublime concrete structure and travertine walls. Last August, however, the museum announced that Milan, Italy–based architect Mario Bellini had been hired to reconfigure the installation of the museum's permanent collection. Bellini's design proposes to cover huge expanses of Kahn's beloved minimalism with swaths of pine-green cloth.

The museum has covered the travertine before, for a few traveling exhibits in the early 1980s. The reinstallation is temporary, and it's important to note that Kahn never intended the walls to be sacrosanct.

Even so, tinkering with the quiet elegance isn't sitting well with everyone. Columbia University professor Kenneth Frampton called the plan "disastrous" and "regrettable," while Kahn scholar David De Long warned, "When you begin to make changes that might seem minor, it can have a devastating effect. Changes need to be made with care and sensitivity." Meanwhile, speculation runs rampant that the reinstallation is only a cover for the museum's perceived lack of direction. The display debuted late last month and will hang through next July. *Kristian Lin*


Travertine-clad vaults and movable partitions define gallery space at Kimbell.

Kristian Lin has written about the Kimbell for the Fort Worth, Texas–based FW Weekly.



Commenting on a report released by the **Sierra Club**, NAHB disagreed with the environmentalists' definition of smart growth. NAHB feels the report ignores the realities of rapidly increasing population and consumer preferences. NAHB predicts that the U.S. will need to build between 1.3 million and 1.5 million new houses annually over the next decade to accommodate a forecasted 30 million-person increase in the nation's population. Of course they do!

Sasaki Associates is designing a master plan for the 108-acre Golden Triangle area of San Juan, Puerto Rico, which will include trade and convention centers, hotels, cruise ship terminals, condominiums, offices, parks, retail, and a children's museum.

The National Trust for Historic Preservation has given a special award to **Ralph Wilson, Sr.**, the founder of the **Wilsonart** laminate company, for his preservation efforts at his own house in Temple, Texas, which—natch—acts as a practical laboratory for the use of his products in the U.S.

Italian architect **Massimiliano Fuksas** is working on two commissions in the Holy Land: Former Israeli Prime Minister **Shimon Peres** tapped Fuksas to design a peace center in Jerusalem, while Palestinian leader **Yasir Arafat** has commissioned him to design a "stairway to heaven" of 2,000 steps in Bethlehem.

The **Uffizi Museum** in Florence, Italy, has charged **Arata Isozaki** with the task of squeezing needed emergency exits into the Renaissance-era palazzo.

Cell biologist **Guenter Blobel**, this year's winner of the Nobel Prize for Medicine, is donating his nearly $1 million prize to ongoing postwar preservation efforts in his native Dresden, Germany.

The **International Code Council**—a consortium comprising the **Building Officials and Code Administrators**

Reinventing the Timeless Double Hung -

How one manufacturer applied advances in technology to save a classic

The double hung window. A staple of American history and architecture for over 300 years. A product rich in style and tradition – yet at the same time, a product known and revered for its simple elegant charm. When first invented, the double hung was composed solely of wood, glass and hardware. It was basic, it was beautiful, but it was high in maintenance and suffered in performance and lack of energy efficiency.

THE PROBLEM

Fast forward to the middle of the 20th century. In an effort to achieve increased energy efficiency and ease of operation, manufacturers sacrificed design by adding wide, obtrusive jamb liners. This innovation improved the operation of the window, but it diminished greatly from the character of the original design.

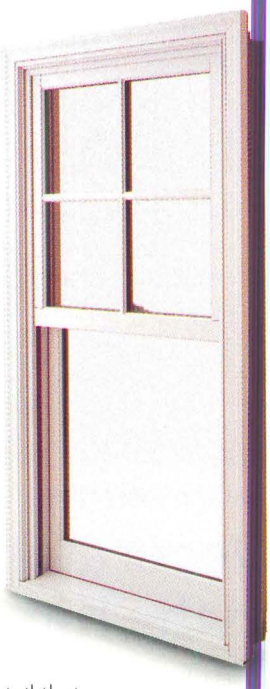
THE SOLUTION

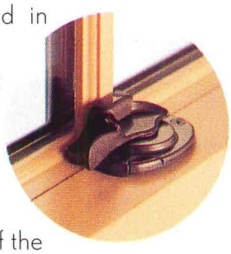
Recently, one manufacturer introduced a product that solves the dilemma of compromising beauty for low maintenance and performance. The manufacturer, Marvin Windows and Doors, has announced the introduction of the entirely new Clad Ultimate Double Hung.

Marvin's new Clad Ultimate Double Hung differs greatly from any other on the market today. Marvin has ingeniously combined the best advances in technology with the high quality, hand-crafted style of the past.

For starters, Marvin replaced the awkward, and obtrusive jamb liner with a wood interior that can be painted or stained to match any decor. The key to this innovation is a unique thin jamb carrier which is concealed by the wood. The jamb carrier also improves the operation of the window making it smoother and easier to tilt and operate.

"Even the most beautiful wood windows were somewhat tainted by overbearing vinyl jamb liners," said Susan Marvin, president of Marvin Windows and Doors. "We have solved that problem and created a window with beauty and function that is unequaled in the industry."





And while tilt double hung windows have been around for years, (Marvin introduced one of the first in the 1960s), this double hung is remarkably improved. To assist in cleaning, the window features a cleverly concealed tilt lever in the sash lock. A detail that allows for extremely easy tilting of the bottom sash.

Marvin redesigned everything in this window – even the screen. Now, screen pins snap into a screen channel rather than the usual tiny and hard to locate holes. This makes for a tighter screen with the added visual benefit of a wider, more traditional profile.

When used with Low E II and argon, the new clad double hung meets the requirements for the Energy Star qualification. To qualify for the voluntary Energy Star program – jointly sponsored by the U.S. Department of Energy and the Environmental Protection Agency – windows need to meet energy efficient specifications based on one of the three U.S. climate zones. The new Marvin Clad Ultimate Double Hung meets the requirements of all three zones.

For low maintenance, the window features Marvin's extruded aluminum cladding – a commercial grade, baked on coating system. The cladding, available in a variety of color choices, stands up to a battery of tests including temperature extremes, nitric acid, UV rays, pollutants and alkalis. Best of all, the cladding is designed with profiles that closely match those of wood. In fact, from a few feet away it is hard to distinguish Marvin's cladding from actual wood.

Marvin Windows and Doors offers a comprehensive new brochure that details the features of their innovative Clad Ultimate Double Hung as well as other products. The brochure is available free by calling 1-888-537-8268.

MARVIN
Windows and Doors

Made for you.

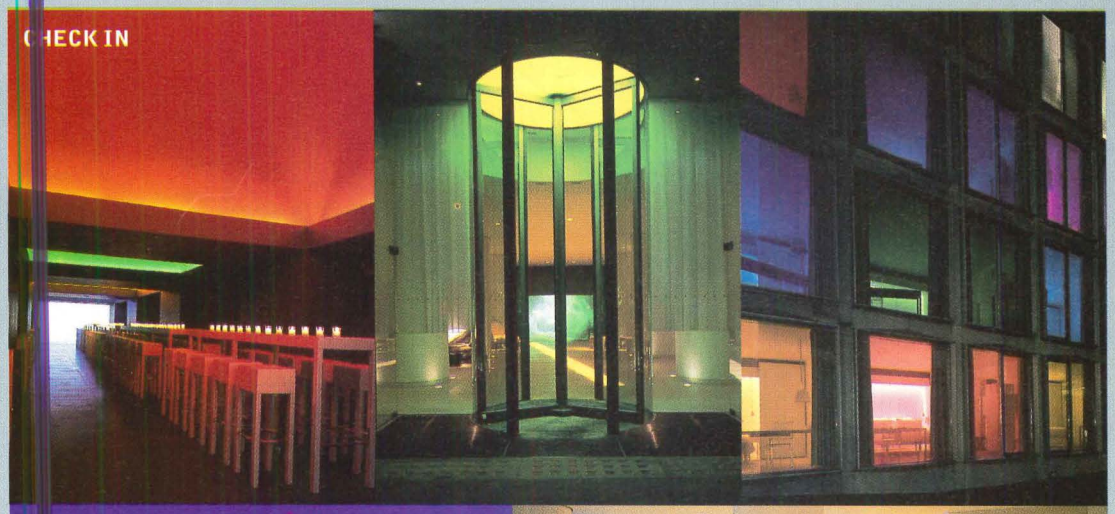
Circle 93 on information card

BANNING THE BOX

Rockville, Maryland, Passes Big-Box Ban

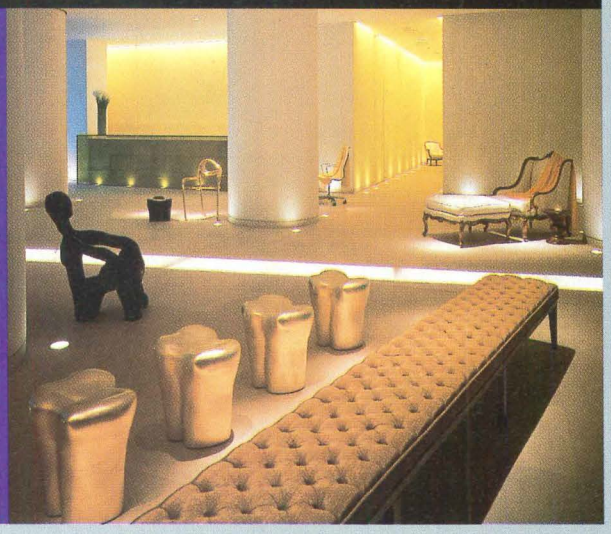
Rockville, Maryland, in suburban Washington, D.C., is the latest in a slew of midsized cities to pursue a ban on the construction of big-box retail outlets. Mayor Rose G. Krasnow, long a critic of the congestion and visual blight caused by these stores along her city's busy Rockville Pike roadway, led the charge to enact a six-month moratorium on big-box retail. The unanimous vote by the Rockville City Council halts the issuance of building permits for single-use outlets of more than 60,000 square feet until April of next year. During that time, the city plans to study the impact of such commercial outlets on traffic, esthetics, small-business viability, and property reuse. *M.J. O.*

CHECK IN



Starck's Light Construction

Philippe Starck has seen the light: His design for Ian Schrager's new St. Martins Lane Hotel in London enriches his minimalism with illumination. The Light Bar (above left) glows purple, green, and red, while the entrance (above center) and eccentrically furnished lobby (right) emanate fluorescent ambers. The multicolored facade (above right) changes as guests customize the color of their rooms by turning a dial over the bed. ***Sara Hart***



1950 Eero Saarinen & Associates founded
The Architects Collaborative's Graduate Center at Harvard
1952 Skidmore, Owings & Merrill's Lever House in New York City
1953 drywall invented
1954 United Nations New York City headquarters
1956 Simon Rodia's Watts Towers
Federal Highway Act
Eero Saarinen's General Motors Technical Center
1958 Mies van der Rohe's Seagram Building
1959 Frank Lloyd Wright's Solomon R. Guggenheim Museum in NYC
Frank Lloyd Wright dies
1960 John Lauther's "Chemosphere"
Archigram forms
1961 Jane Jacobs' *The Death and Life of Great American Cities*
1962 World's Fair in Seattle
1963 Paul Rudolph's Yale Arts & Architecture Building
Pan Am Building
1964 Eero Saarinen's St. Louis Arch
Penn Station demolished
World's Fair in New York City
1965 Vanna Venturi House by Robert Venturi
Lockheed introduces a CAD/CAM system
1966 *Complexity and Contradiction* by Robert Venturi
Charles Moore's Sea Ranch house
1967 Peter Eisenman founds the Institute for Architecture and Urban Studies
1968 Roche Dinkeloo's Ford Foundation headquarters
Harrison and Abramowitz's Lincoln Center
1969 *Five Architects: Eisenman Graves Gwathmey Hejduk Meier*

International, the **International Conference of Building Officials**, and the **Southern Building Code Congress International**—has finally agreed to a national model building code, to be unveiled next month.

The *Washington Post* recently ran a letter to the editor by an outraged **W. Kent Cooper**, who asserted flat out that the World War II Memorial proposed for the Rainbow Pool area just doesn't belong on the National Mall. Funny—wasn't it Cooper who designed the Korean War Memorial that critics loathed when it debuted in 1997?

The United States has withdrawn its entry in the 2000 Expo in Hannover, Germany. The pavilion, to be designed by **Barkow Leibinger Architects**, was cancelled due to a lack of funding.

Zaha Hadid has designed the sets for the 2000 World Tour of London pop group **Pet Shop Boys**. In addition to the sets, concertgoers will see backdrops that show animations of Hadid's architectural projects.

The National Architectural Accrediting Board has welcomed **Florida Atlantic University** (FAU) to its rolls. FAU now awards a five-year Bachelor of Architecture degree.

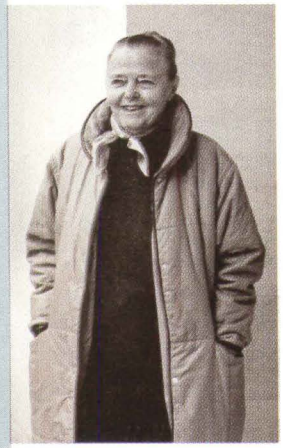
A new hotel in the former East Germany is giving its guests a taste of life behind the Iron Curtain. Upon checking into **Hotel Sittavia**, guests must surrender their passports and change their money into East German marks (guests can buy items within the hotel with the now-defunct currency) at a Checkpoint Charlie–like gateway.

A day early and 19 feet short: The Japanese builder of a 1,518-foot-tall tower in Shanghai, China, had the world's tallest tower at his command for one day. Unfortunately, **SOM** announced their plans for a 1,537-foot-tall tower in Chicago the next day.

OBITUARY: HOK cofounder **George Hellmuth**, 92.

TRIBUTE

Charlotte Perriand Dead at 96



Unlike her mentor and boss Le Corbusier, Charlotte Perriand lived to see their "equipment for living" put to the test of time. When she died on October 27 at the age of 96, she must have been proud that the furniture they designed, together with Pierre Jeanneret, passed the 70-year checkup with flying colors.

Though her tenure (1927–37) in Le Corbusier's studio was formative, her talent and clear modernist sensibilities were evident from her first installation, at the *Salon d'automne* in 1927, of a built-in chrome-and-aluminum "Bar Under the Roof." The spotlight didn't interest the young architect, who achieved far less fame than Le Corbusier, or Jean Prouvé, with whom she designed modular furniture in the 1950s. Perhaps Perriand's greatest contribution was her deep attunement to the human side of the machine for living. *Julie V. Iovine*

***Julie V. Iovine is a design reporter at the* New York Times.**

ALMA MATTERS

AIA Spotlights Congressmen's High Schools

Rep. Mark Foley's alma mater, Lake Worth High School in Lake Worth, Florida, had to build temporary trailers (above) to accommodate overcrowding.

As part of a new Congressional lobbying effort, the American Institute of Architects has published a 64-page booklet that depicts the high school alma maters of several key members of the Ways and Means and Senate Finance committees—and the buildings' various states of disrepair. Titled *Good Enough for Congress? A Pictorial Representation of Why Americans Deserve Better School Buildings*, the AIA hopes that by making the issue of school improvement personal, Congress will pay more attention to the $25 billion in school-improvement funding programs currently under consideration in the House and Senate. "Our intention is not to blindside or embarrass anyone, but simply to demonstrate in a creative and provocative way why this is such an important issue," says AIA President Michael J. Stanton. *M.J. O.*

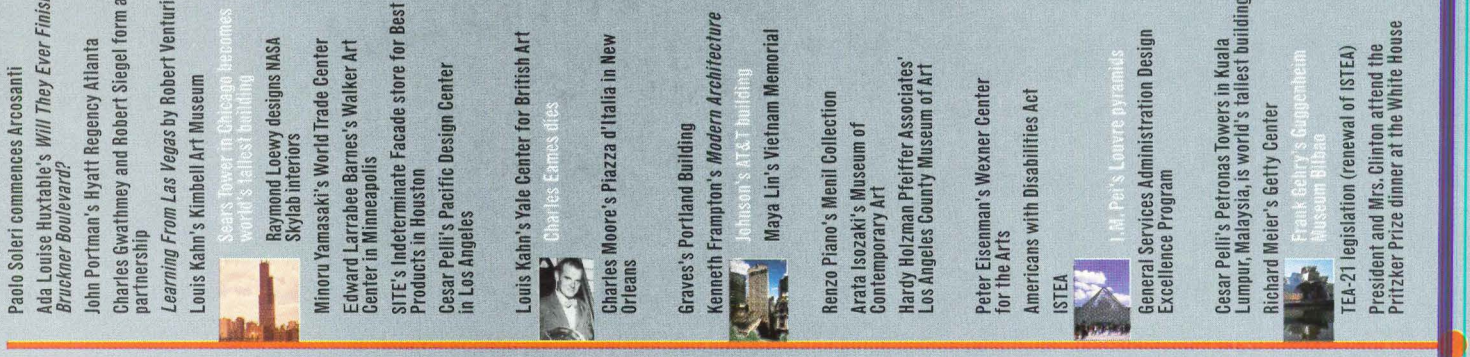
DANGEROUS MINDS

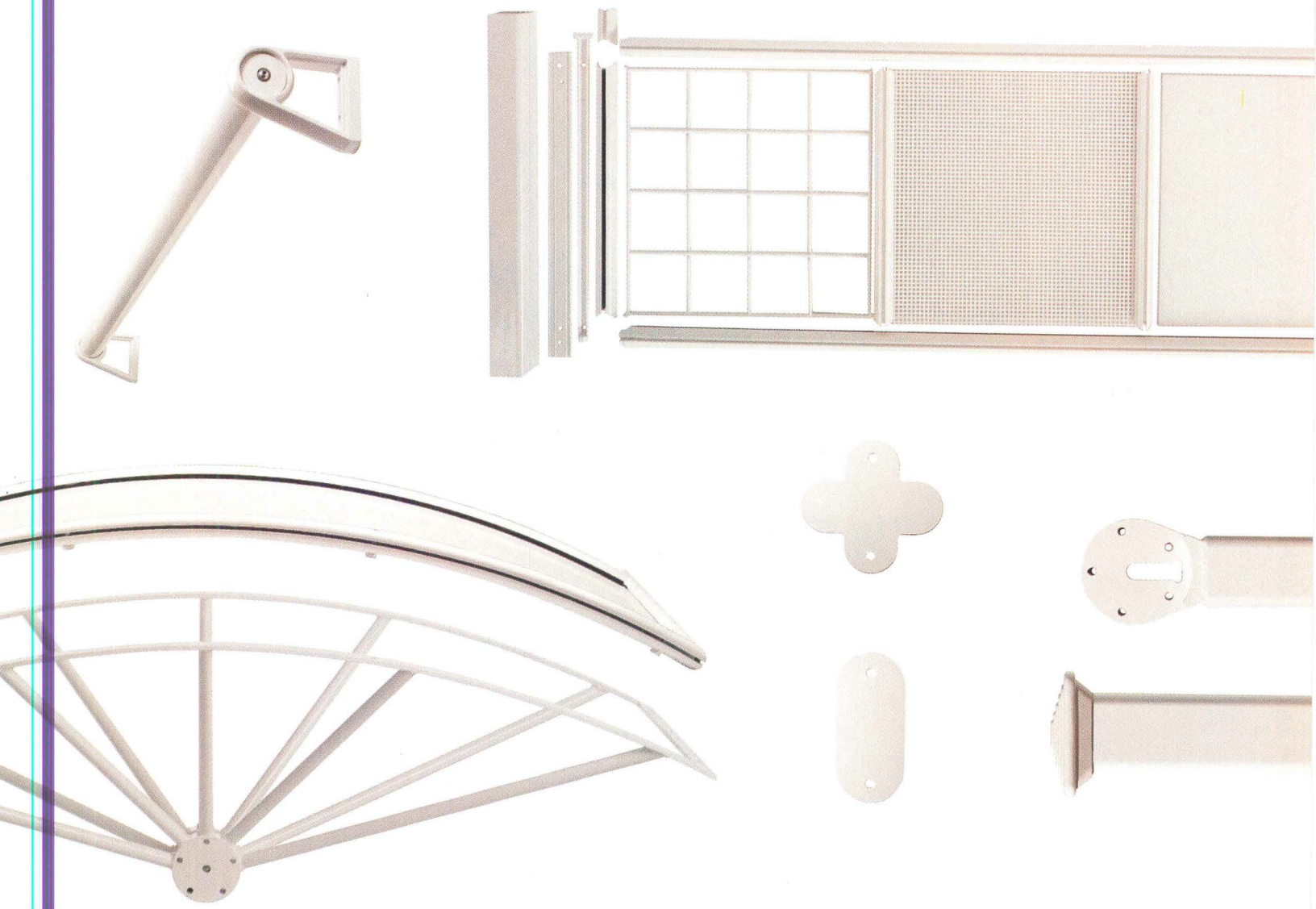
AIA Charter School Closes Amid Violence

It sounded like a great marketing ploy. Just in time for the May 2000 American Institute of Architects National Convention in Philadelphia, the organization unveiled ambitious plans to roll out a state-funded charter school in that city dedicated to architecture and design (*Architecture*, August 1999, page 26).

Less than a month after welcoming 400 students in September, however, officials abruptly closed the school's doors after four teachers and the school's principal resigned, rumors swirled (all untrue) that someone had a gun and was planning a drive-by shooting, and unruly students threw a chair at a teacher. Sadly, this is not so unusual for an inner-city high school. But since the school had received its state charter only six months before opening day, preparations for handling these situations were minimal. (All the accepted students, for example, weren't even interviewed.) Board Chairman Donald Matzkin also acknowledged that a board full of architects wasn't exactly well-versed in the demands of running a public high school.

There is some good news. With a new interim principal and one of the departed educators having returned following an extensive reorganization, the school tentatively reopened as we went to press. *M.J.O.*





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HOUSING

Boomer Bust in Senior Housing

Baby boomers are aging, to be sure, but not as quickly as many developers of senior housing had banked on. Studies show that the average age of today's residents of assisted-living communities is 83. Add to these studies opinion polls that conclude elderly Americans who own their own homes want to stay in them, according to one Harvard University researcher.

Perhaps as a result, the senior housing market, which seemed lucrative and low-risk several years ago, is now "temporarily oversaturated" in 41 percent of the nation's primary urban areas, estimates David Lacy, director of senior housing and long-term care for Ramsey-Shilling Company, an L.A. commercial brokerage firm. Marriott International, which operates 139 communities nationally, announced that it is canceling plans for some communities and slowing new development due to overbuilding in certain markets.

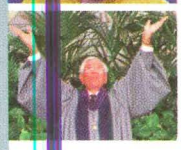
The downturn applies to upscale communities for active residents as well as assisted-living facilities. Developments that once filled their units within 18 months are taking twice that long to reach full occupancy, Lacy says. He also points to dropping stock prices for some senior housing companies.

Looking ahead, Robert Schafer, senior research fellow at Harvard's Joint Center for Housing Studies, said senior communities will not lack for residents. The sheer numbers of aging boomers will sustain the senior housing market, but a boom is not likely. "One thing that has fueled the spurt to assisted-living [communities] is an effort to substitute that type of living for another: nursing homes. It's possible that has run its course," Schafer suggests. Besides, he adds, "People don't feel old as early as our parents did." *Ann Jarmusch*

Ann Jarmusch is an architecture critic for the San Diego Union-Tribune.

LOOKING BACK AT THE ARCHITECTURE'S CENTURY

Patron Saints



Eisner; the Mellons; Guggenheim; Schuller (from top to bottom)

George Gough Booth, a Detroit newspaper baron, created the Cranbrook Educational Community with Finnish architect Eliel Saarinen. Innovation continues with buildings by Peter Rose, Williams Tsien, Steven Holl, and soon, Rafael Moneo.

Dominique De Menil brought high design to Houston, and indirectly, the world. Philip Johnson designed her house (1949) and the Rothko Chapel (1971). Renzo Piano built his first stateside commissions for her: the Menil Collection (1987) and Cy Twombly Gallery (1994).

Michael Eisner brought Stern, Graves, Isozaki, Arquitectonica, and Gehry to the tourism trade. In New Urbanist town Celebration, Florida, with buildings by Stern, Graves, Johnson, Venturi, Moore, and Rossi, he fulfilled Uncle Walt's dream of a totally designed life.

John Entenza, former editor of L.A.-based *Arts & Architecture*, masterminded the magazine's famous Case Study House program, which proved to be a laboratory for some of the century's most important architects, including Charles Eames, Pierre Koenig, and Richard Neutra.

Peggy Guggenheim was the silent partner behind the decision to hire Frank Lloyd Wright to design the Solomon R. Guggenheim Museum in New York City. In her spirit, the museum still taps the most progressive designers, from Isozaki to Gehry.

Edgar J. Kaufmann, and his son, Edgar jr., asked Frank Lloyd Wright to design nearly a dozen projects. Although only three were built, one was Fallingwater, perhaps the most iconic house of the 20th century.

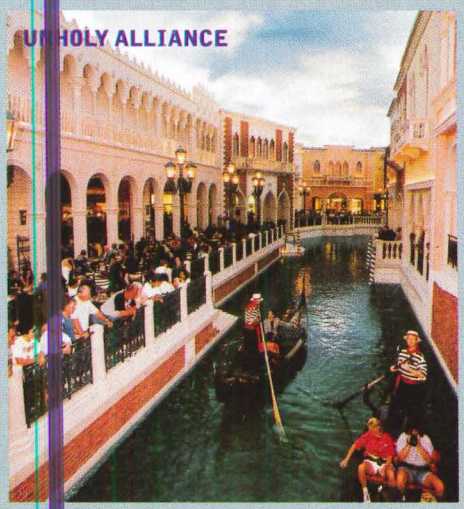
Phyllis Lambert convinced her father to hire Mies to design Seagram's famous Park Avenue tower. Her Canadian Centre for Architecture (CCA) sponsors exhibitions, lectures, and fellowships, including the recently launched IFCCA Prize, intended to stimulate urban revitalization.

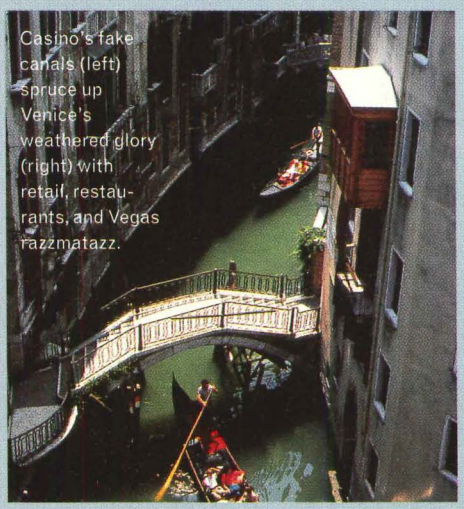
Paul Mellon gave $500,000 to save Monticello and funded Louis Kahn's Yale Center for British Art (1977). Picking up where his father, Andrew, left off, he also footed the $94 million bill for I.M. Pei's National Gallery of Art East Building (1978) in Washington, D.C.

J. Irwin Miller, CEO of Cummins Engine Company, offered to pay the architect's fees for all public projects in Columbus, Indiana—as long as he could pick the shortlist—raising the bar on municipal design to include the names Saarinen, Weese, Pelli, Meier, Venturi, Saitowitz, and Berke.

Robert J. Schuller's Garden Grove, California, campus includes buildings by Neutra (Arboretum and Tower of Hope, 1961 and 1968) and Philip Johnson (Crystal Cathedral, 1980). Richard Meier is currently designing their cafeteria.

UNHOLY ALLIANCE





Casino's fake canals (left) spruce up Venice's weathered glory (right) with retail, restaurants, and Vegas razzmatazz.

Venetian Casino to Preserve 'Other' Venice

They say that imitation is the greatest form of flattery. For a while though, folks in Venice didn't feel that way about Las Vegas' Venetian Hotel and Casino. In an effort to force the Venetian to go union, Culinary Union representatives invited Italian officials and dignitaries, including Mayor Massimo Cacciari, to comment on the Venetian. At a very public press conference, union officials were delighted to read Cacciari's letter aloud, which declared the hotel's fakery to be tasteless, even going as far as to discourage Europeans from visiting.

The Venetian needed to find some Italian *amici* who would give their blessing to the complex's faux canals and building replicas, and quick. First, the hotel got a little *dolce vita* by bringing in very Italian actress Sophia Loren to christen the casino's gondolas at its May opening. Then, the Venetian announced in October the formation of a strategic alliance with The Forum for the Venice Lagoon, an Italian preservation group.

The casino will sponsor a symposium on preservation issues and will extensively promote the organization's activities to its guests. "Many cities have tried to re-create Venice, but the Venetian is by far the best," gushed architect Francesco Calzolaio, a consultant to the Forum. *Che bella falsità!* **M.J.O.**

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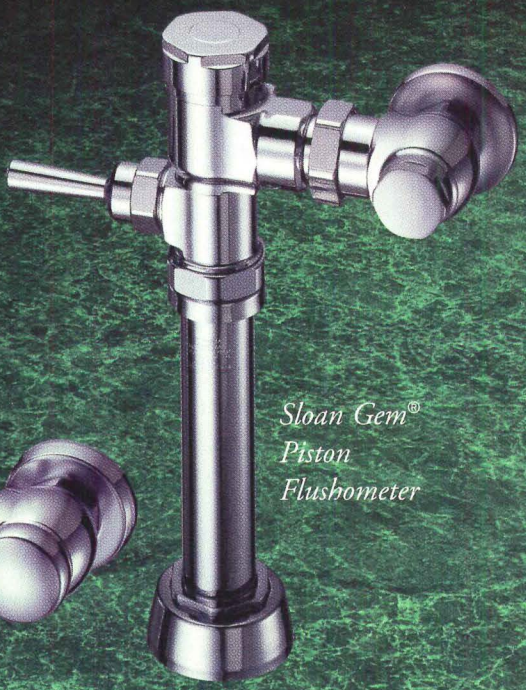

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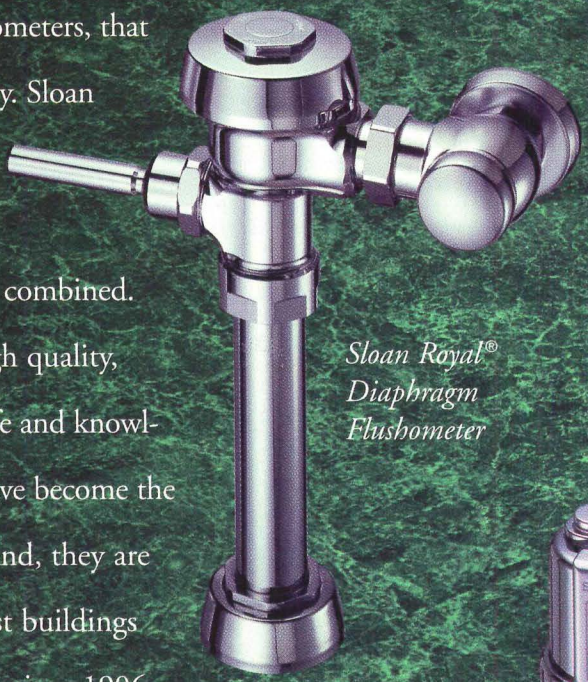

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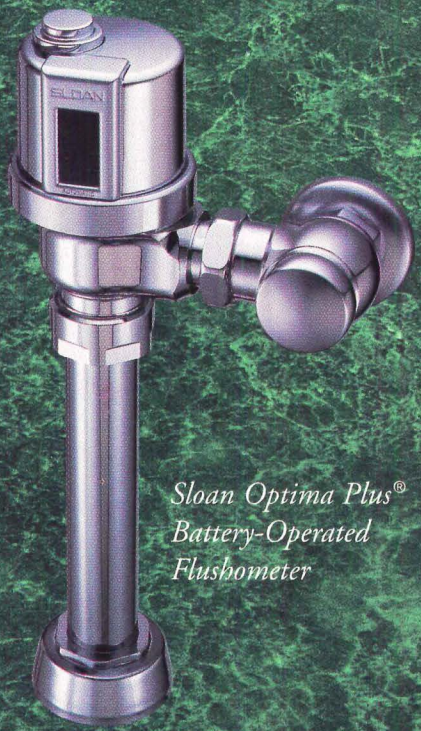

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THE BOOB TUBE

New York, New York, Yadda, Yadda...

Everyone knows New York City is a big town with big buildings. In recent years, it has also become the capital of big history. Since 1995, bookshelves have sagged under the weight of editor Kenneth T. Jackson's *Encyclopedia of New York City* (New York Historical Society, 1995) and *New York 1960* (Monacelli Press, 1998), the third installment in Robert A.M. Stern's ongoing chronicle of the city, each totaling over 1,350 pages. *Gotham* (Oxford University Press), the 1998 blockbuster by Edwin G. Burrows and Mike Wallace, is a 1,400-page history of New York—through 1898.

This year, we move from reams of paper to miles of videotape.

The latest grand attempt to summarize the story of America's premiere metropolis is *New York: A Documentary Film*, produced and directed by Ric Burns. The first 10 hours, broadcast on PBS in mid-November, took us from Henry Hudson's wrong turn up a strange river in 1609 to the completion of the Empire State Building in 1931. A final episode, airing sometime in the spring of 2000, will bring the story to the present. (All episodes will be rebroadcast. Check local listings.)

What will viewers take from these 12 hours in front of the tube? First, of course, they'll get the facts: as much as any armchair historian needs to know about the city's role in the Revolutionary War (underappreciated), the importance of the Erie Canal (essential), the outcome of the Draft Riots (bloody), or the condition of J.P. Morgan's nose (grotesque). If you've seen other Burns documentaries—including *The Civil War*, which Ric produced with his famous brother, Ken—the presentation of *New York* will not surprise you. The past is brought to life by slow pans over still images with a deep cast of talking heads interrupting the visual material. These include the authors mentioned above—the lively Ken Jackson in particular carries a lot of weight—but also less obvious choices such as satirist Fran Lebowitz, social critic Marshall Berman, and Carol Willis, director of the Skyscraper Museum. Mayor Giuliani pops up several times to plug his city.

The straight history is ably, if slowly, conveyed, but the film suffers from a lack of interpretive imagination. The Big Point, pounded home repeatedly, is that the city is an unmatched economic engine to which people can come to reinvent themselves. How novel.

Film's all-encompassing narrative covers (from top to bottom) construction of Lady Liberty, Depression-era labor riots, and Manhattan's transition from port to metropolis.

All of this begs the question of just who this thing is intended for. As part of an academic introduction to the history of the city—perhaps presented to a captive student audience—*New York* is a natural. But for other viewers, especially the hometown crowd, there may be a better way to spend 12 hours: Follow your curiosity through Jackson's *Encyclopedia*, read E.B. White's peerless essay *Here is New York*, and study a good map. Then, with the nine hours that remain, take a long walk and look around for yourself. *Philip Nobel*

Philip Nobel is a New York City–based freelance writer.

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LOOKING BACK AT ARCHITECTURE'S CENTURY

Quotable 10 Quotes

The sun never knew how wonderful it was until it shone on the wall of a building. **Louis I. Kahn**

A doctor can bury his mistakes, but an architect can only advise his clients to plant vines. **Frank Lloyd Wright**

Ignorance transcends architecture. **James Gaskin**

Architecture is very much like the oldest profession in the world. It has only one aim, and that is to please for a fee. **Philip Johnson**

Postwar architecture is the accountants' revenge on the prewar businessmen's dreams. **Rem Koolhaas** in *Delirious New York*

We shape our buildings; thereafter they shape us. **Winston Churchill**

There is one profession and one only, namely architecture, in which progress is not considered necessary, where laziness is enthroned, and in which the reference is always to yesterday. **Le Corbusier** in *Towards a New Architecture*

Architects inflict sensory deprivation on their victims through the "whiteness and lightness and leanness and cleanness and bareness and spareness" of their architecture. **Tom Wolfe** in *From Bauhaus to Our House*

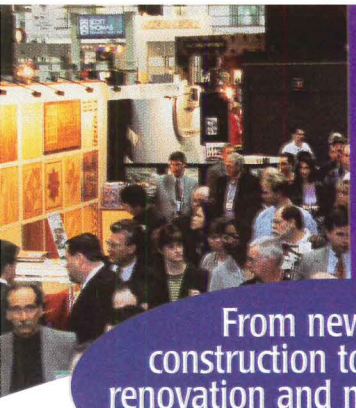
The first principle of architecture is to get the job. **Henry Hobson Richardson**

America has few great cathedrals, but you should see some of our motels. **Herbert V. Prochnow**

HOLIDAY GIFT IDEA

Coffee Table Book

On one episode of *Seinfeld*, Kramer becomes the toast of morning TV with his coffee table-sized coffee-table book about coffee tables, which had fold-out legs that transformed it into a coffee table. Helmut Newton's monograph SUMO isn't about coffee tables (it's mostly about naked women in stiletto heels), but it does come with its own Philippe Starck–designed aluminum coffee table. The 20-by-28-inch, 66-pound magnum opus costs an eye-popping $1,500 and, hypes publisher Taschen, is the "perfect gift for the millennium." *Cathy Lang Ho*



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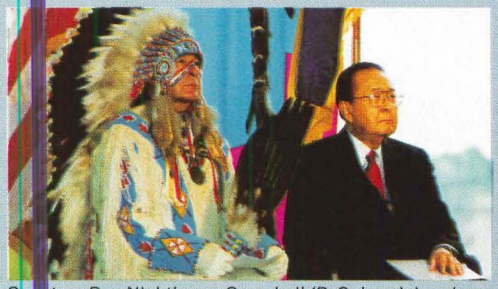
CONFLICT RESOLUTION

Courts Fine Indian Museum Architect, Grant Cardinal Shared Authorship

The controversial dismissal of collaborators GBQC Architects of Philadelphia and Ottawa, Canada–based architect Douglas Cardinal from the Smithsonian Institution's National Museum of the American Indian (NMAI) project (*Architecture*, May 1998, page 38) has been resolved—well, legally, anyway. An out-of-court settlement ruled in September that GBQC must pay the Smithsonian $453,593.03 for costs incurred as a result of failing to meet deadlines in 1998. Further, both GBQC and Cardinal (who was not part of the suit) have been credited with the museum's "conceptual design." (The Smithsonian broke ground on the project at the end of September; it is slated to open in 2002.)

So whose design is the Smithsonian going to build, then? Most recently, the Smithsonian's new architectural team, which includes Native American design consultants, New York City–based Polshek Partnership, and Tobey + Davis of Reston,



Senators Ben Nighthorse Campbell (R-Colorado) and Daniel Inouye (D-Hawaii) attend NMAI groundbreaking.

Virginia, submitted a second revised version of Cardinal's "conceptual design" to the Fine Arts Commission—and it was finally approved.

James Polshek, however, diplomatically explains his firm's role, conceding that "the design is Cardinal's. We are completing work that he did, consistent with [the standards of] the Fine Arts Commission." The ever-demonstrative Cardinal, who received this year's prestigious Gold Medal from the Royal Architectural Institute of Canada, is not happy about this new arrangement. "I don't need a Great White Father," the Blackfoot- and Metis-descended architect protests. "It's outrageous. I will continue to speak out against the forgery of my work," he asserts. *Michelle Patient*

Michelle Patient is a New York City–based freelance writer and editor.

LOOKING BACK AT ARCHITECTURE'S CENTURY
The Next 2000 Millennium

PUBLIC WORKS

Rashid Designs Millennial Manhole Covers

Talk about design headed for the sewer! Industrial designer Karim Rashid has redesigned utility Con Edison's manhole covers to commemorate the millennium. Rashid's design abstracts a standard grid so it appears three-dimensional. The 32-inch-diameter, 314-pound, cast-iron covers have been installed throughout New York City and Westchester and will remain indefinitely. *M.J.O.*

John A. Cunningham
Larry H. Adams, Jr.
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"Textures transform a surface into

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ndscape."

Pilgrim's Progress

Santiago de Compostela, Spain, the destination of the medieval religious pilgrimage, is building a new cultural attraction.

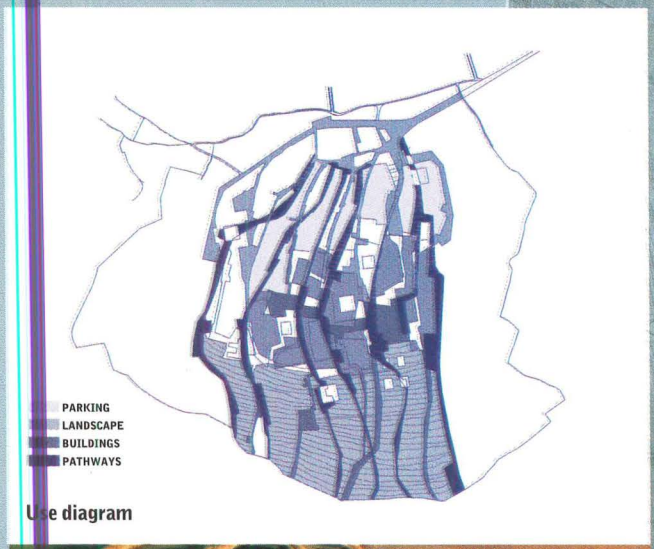
Eisenman Architects, City of Culture of Galicia, Santiago de Compostela, Spain

In the 11th and 12th centuries, Christendom took a vacation. Thankful for having been spared a millennial apocalypse, large numbers of pilgrims trekked across Europe to the great devotional sites of the age: the Holy Land, Rome, and the burial place of St. James the Apostle, Santiago de Compostela in Spain. Today, the proud Romanesque cathedral at the heart of the Galician town lies comparatively empty. Upstart Bilbao, 300 miles to the east, is a far more popular destination for latter-day pilgrims, whose travel decisions are more likely motivated by culture than creed.

Anxious to boost the economy and identity of Santiago de Compostela and surrounding Galicia, the regional ministry of culture and tourism held an invited competition this summer to select a design for a 645,000-square-foot cultural complex cresting a nearby hill. The winning scheme, by New York City architect Peter Eisenman, will incorporate museums, a library, an auditorium, an opera house, electronic and print archives, and other facilities intended to celebrate the history and culture of the city and region. The name of the project—the City of Culture of Galicia—is thus no hyperbole: In the next six years, Eisenman will have built a complex with a footprint as large as that of the historic urban core of Santiago de Compostela itself.

The City of Culture's undulated exterior surface will dip down to form a central north–south plaza bisecting the hilltop complex. Turf will clad the side facing the town to the west, minimizing its visual impact. Local granite will cover the opposite side. Narrow exterior pathways will cut through the center's soft forms, further dividing the different institutions. Eisenman derives these curves and slices from three distinct sources: the surrounding topography, the irregular medieval street pattern of Santiago de Compostela, and the ribbed cockleshell worn by medieval pilgrims to signify their religious endeavor.

The City of Culture is all and none of these things at once. It's almost a symbol like the cockleshell; almost part of the surrounding landscape; almost a town



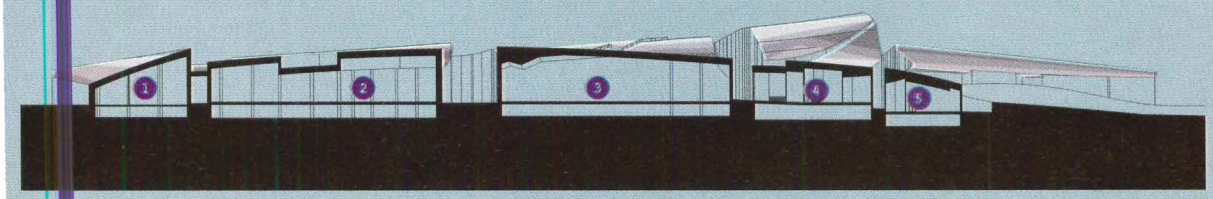
Use diagram

Model from east

Site plan

with traditional streets; almost a suburban mall of dumb boxes—but not quite. Each quality holds the other in check, preventing reading of the art center as a conceptual or formal whole. Eisenman and his avant-garde contemporaries hold such indeterminacy dear, as a characterization of our seemingly chaotic times. If you believe them, then the age of singular ideals is over, just as the pilgrims' age of faith ended centuries ago. ■

Eisenman's **City of Culture of Galicia** rises like continuation of hillside east of historic town of Santiago de Compostella (above). Diagram of programmatic uses (top left) demonstrates Eisenman's interest in irregular **medieval street patterns.** Model photograph (above left) illustrates building's **formal relationship to topography** as well as **cockleshell worn by pilgrims** who came to town in 11th and 12th centuries to visit **tomb of St. James.** Different programmatic elements of City of Culture provide archives, exhibition space, and venues for events about **history and culture of Galician region** and Santiago de Compostela itself.



North–south section 65'/20m

1. Museum of Communication
2. Museum of Galicia
3. library
4. newspaper archive
5. Internet research library

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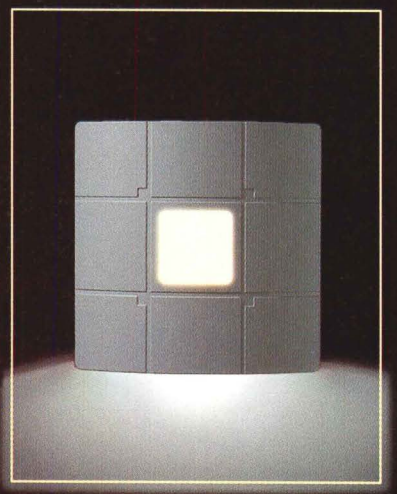

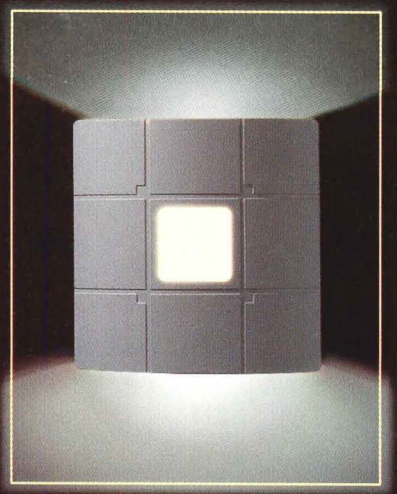

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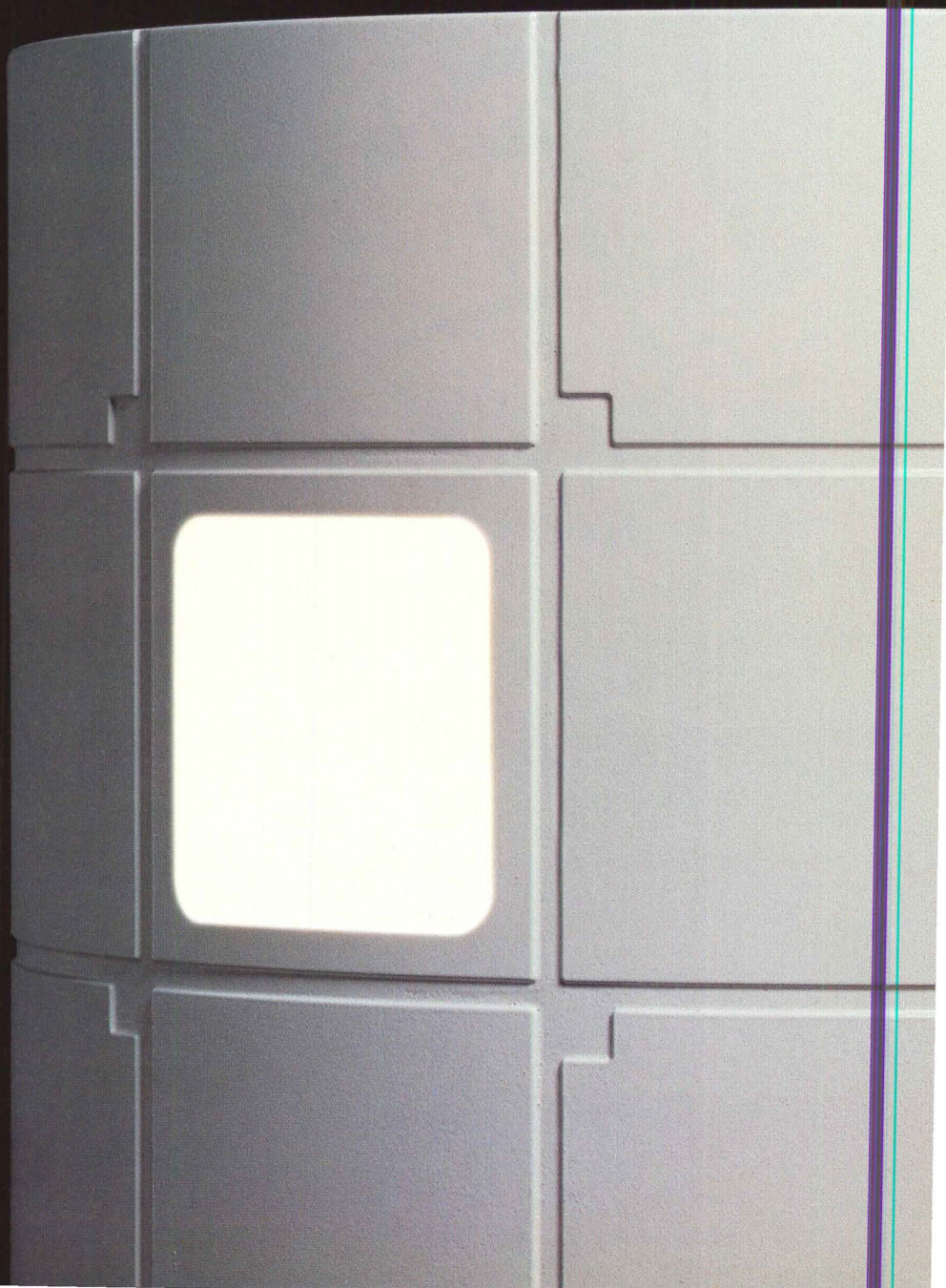

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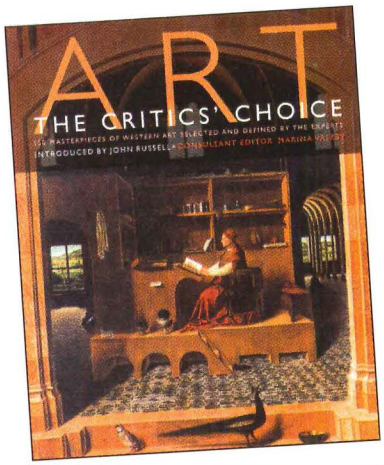
e-topia: "Urban life, Jim—but not as we know it"
by William J. Mitchell (MIT Press, 1999)

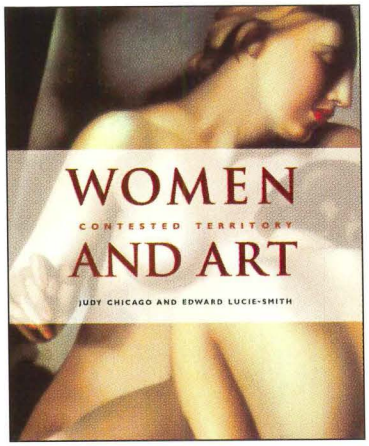
We have, by all accounts, entered the Digital Age—proclaimed to be the equivalent of the Industrial Revolution in its power to transform our lives and landscapes. But for all the attention the Digital Age is receiving, it is hard to state clearly what its arrival means, or *ought* to mean, for architecture and urban design. Will buildings, like information, be dematerialized, transformed into glass, twinkling dust, or light projections? Or will they be left behind, safeguarding some outmoded, brick-and-mortar notion of "reality?"

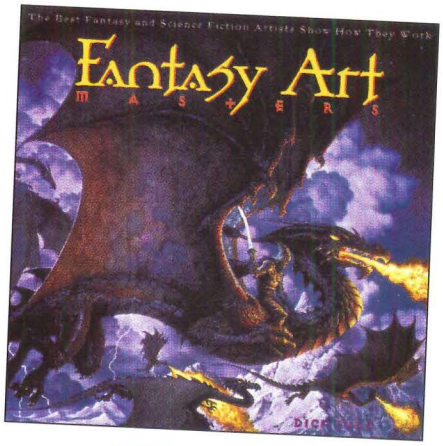
A similar uncertainty operates at an urban scale: Cities are simultaneously more *and* less centralized, more *and* less homogeneous, but almost certainly more complex, with new patterns of work, living, recreation, and transportation. No one has given the physical design of cities under the digital regime the sustained consideration that MIT architecture dean William J. Mitchell has in his two books, *City of Bits* (MIT Press, 1995), and *e-topia: "Urban life, Jim—but not as we know it."* Whereas *City of Bits* abounds in futurist gee-whizzery ("soon we'll be able to *x*," "already we see *y*"), the more recent *e-topia* takes a more measured view and points to potentially real developments. Unfortunately, the literary style of the early chapters of *e-topia* chafes, as, for example, when Mitchell introduces the subject: "You say you want a revolution? . . . Well, you know, most of the things promised by the digerati just haven't been up there with liberty, equality, and fraternity." Or when he warns readers not to "look here for techno-triumphalist, macho-millennial prophecies of a glittering, go-ahead cyber-future." Some readers might have a high tolerance for clichés ("Silicon is the new steel, and the Internet the new railroad"), and might even forgive mixed metaphors (today's global currency trading "is really just an early straw in the digital wind"). But Mitchell seems determined to write an airport best-seller, complete with implied and real exclamation marks, alliterative neologisms, and talk of the "radical transformation" of culture and society that his book purportedly forswears.

In later chapters of *e-topia*, however, Mitchell finds his voice, as he begins to provide a thorough and often insightful survey of how free-flowing, nonlocal information will make a difference in our daily lives once it becomes as cheap and plentiful—and unremarkable—as water

Visual map of **Internet traffic flows**, by Stephen G. Eick at Bell Laboratories.







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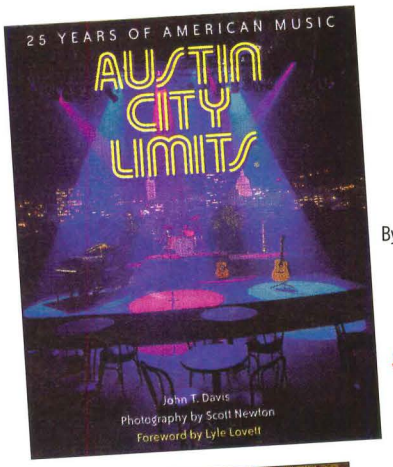

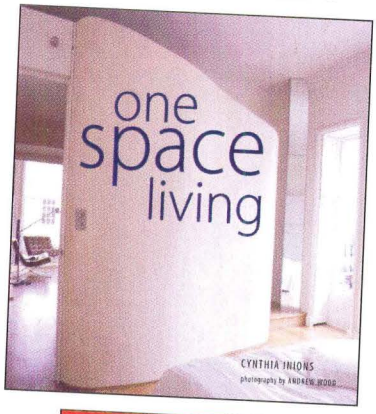

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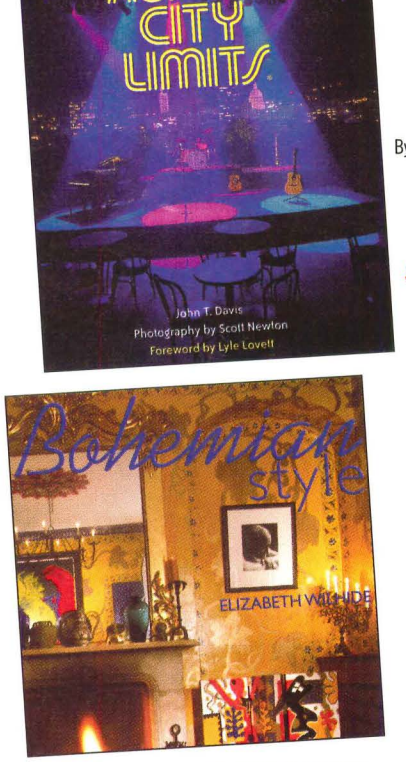

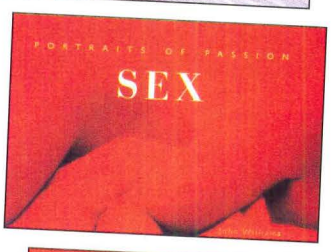

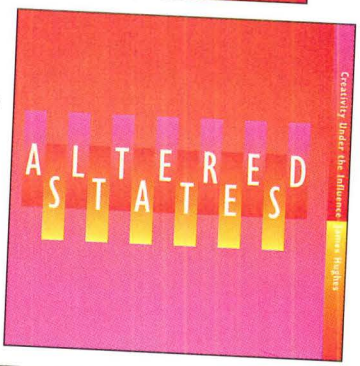

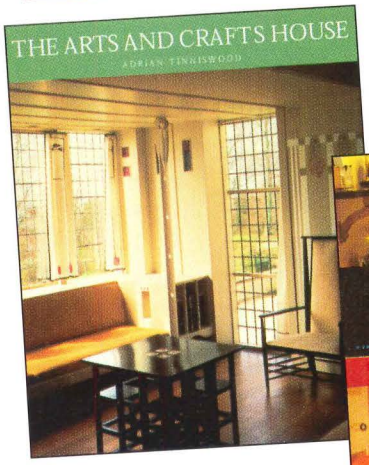

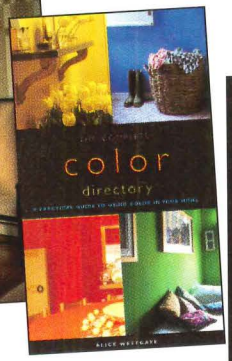

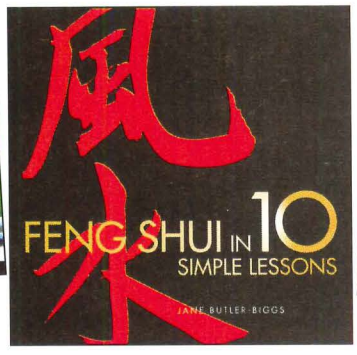

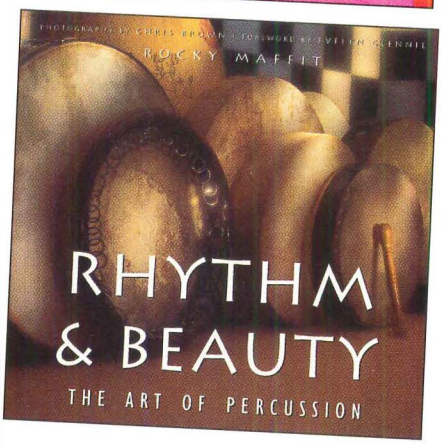

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and electricity. Soon, we won't be limited to local community environments or commuting to distant factories or downtown offices, spending our days among strangers and having no stake in how these places look and operate. We will work in new village-like settlements, whether urban, suburban, or rural. Contrary to what most expect, Mitchell surmises that environments will become more differentiated, not less. For example, once it is possible to buy everything online, local stores, megastores, and malls alike will lose customers in droves—unless they reconsider in depth how a population is engaged with its local physical environment. And Mitchell is confident they will.

All the while, at the smaller scale, networked digital devices will continue to infiltrate all aspects of life. Not only will the pager, cell phone, and PDA merge into one, but everything from keys to credit cards to home appliances will become "smart" and "addressable," becoming, as Mitchell puts it, "a tangible, local delivery point for an indefinitely extensible, globally distributed pool of resources and services." The fact that such pervasive, intelligent tools will also know *who* and *where* we are, at all times, is an insidious implication into which Mitchell does not delve deeply.

Mitchell's comprehensive assessment of digital developments offers one important insight—that new technologies have undermined the traditional city's orchestration of people's likely locations and movements. If we are always reachable via the phone or the Net, we no longer need spatial habits—favorite cafés, park benches, clubs—and the city need not provide urban concentration points such as public buildings, parks, and squares. When we choose to meet "in public," it is with time and place precisely prearranged. Under these circumstances, other people become wallpaper, their presence mere atmospherics.

From this and other observations, Mitchell draws a larger conclusion about the future of cities. We will have many more choices as to how we come into contact with one another, with face-to-face contact as the ultimate and ultimately scarce "good." From now on, not only celebrities and CEOs will ritualize and control who, when, and how others may reach them: We *all* will. Call me, fax me, page me, or e-mail me; speak to my assistant, agent, message service, voice mail, or PDA. Mitchell foresees a broad, new "economy of presence": Everyone has a Web presence, a mail presence, a voice presence, a video presence, a media presence, a physical presence. Who should we make privy to our "real" coordinates? Who gets the cell number; who gets the e-mail? Where am I now? Who wants to know?

E-topia raises questions that architects must confront, for, once upon a time, architecture and the layout of cities answered these very questions, as surely as the well-understood hierarchies of power and class once did. As the world changes, so do the reasons for making places at all. Mitchell rightly shows that the burgeoning Digital Age will force everyone to reevaluate what, exactly, we want from real places. It will soon become essential that we identify—in detail and without fear of sentimentality—what is best about traditional environments, even as we pursue the freedoms from place and time offered by new technologies. Our choices have never been more numerous. ■

Michael Benedikt holds the Hal Box Chair in Urbanism at the University of Texas at Austin, and is the director of the Center for American Architecture and Design.

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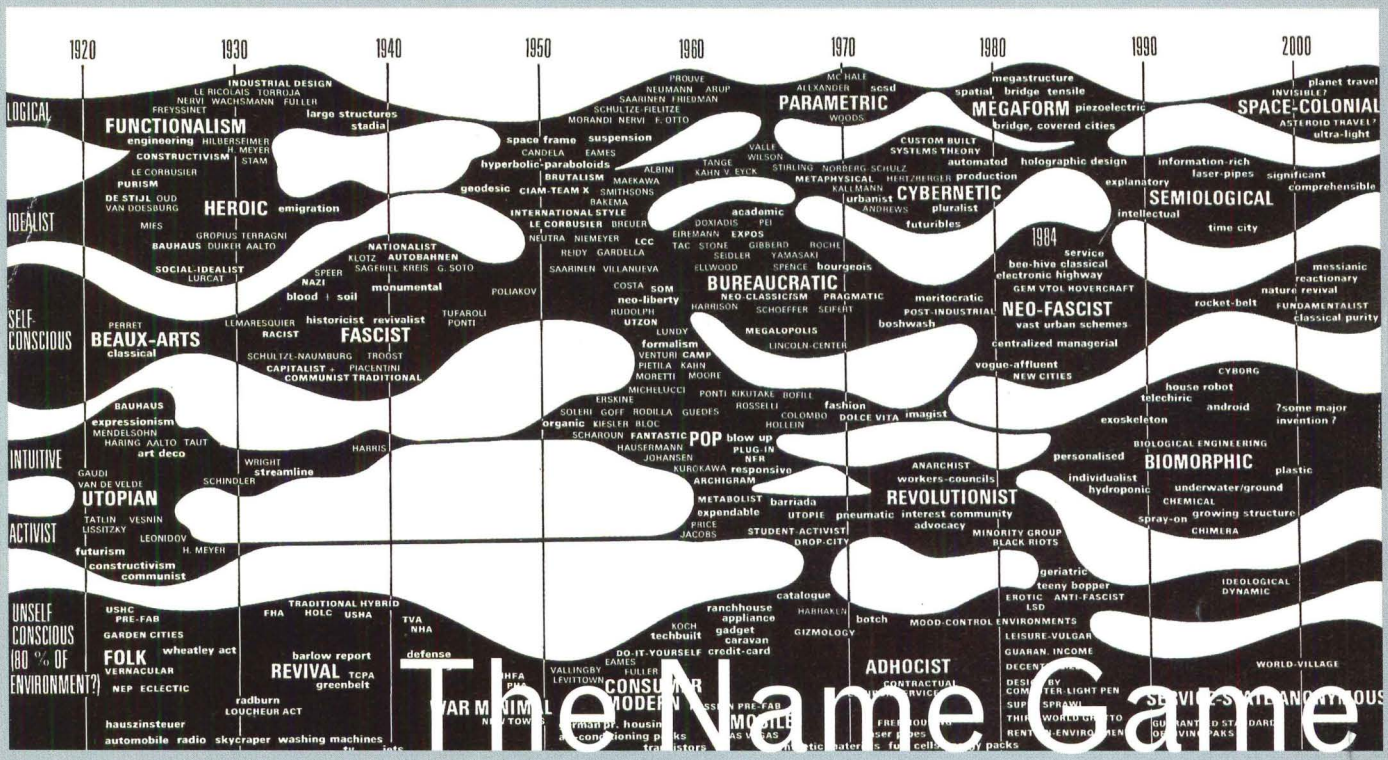
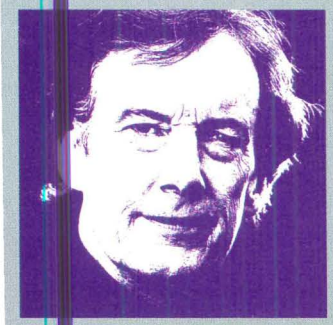


Architectural trend-spotter Charles Jencks' 1971 book *Architecture 2000* predicted biomorphism and the Internet. What else did he hit—or miss? Interview by Susanna Sirefman



Charles Jencks loves words *as much as buildings. The elegant, silver-tongued architect and critic might be called a compulsive taxonomist: In his 28 books and countless essays of the past 25 years, he has obsessively filed, grouped, graded, and predicted trends, presenting architectural history in neat, accessible packages. He popularized the use of the word "postmodernism" in relation to architecture in his 1977* The Language of Post-Modern Architecture. *With the year 2000 around the corner, it seemed appropriate to ask Jencks to revisit his 1971 book,* Architecture 2000: Predictions and Methods, *in which he applied forecasting methods to analyze and anticipate architectural tendencies over the course of the 20th century. Illustrated as the "Evolutionary Tree," technology, sociology, biology, and history play a role in his entertaining predictions. Whether accurate or not, they demonstrate that the art of predicting, of trying to understand where we have been and where we are going, might be more important than the accuracy of the predictions themselves.*

Susanna Sirefman: Do you think your Evolutionary Tree could still be useful today?

Charles Jencks: I think it could predict, in a gross sense, the next 25 years. The Evolutionary Tree, which builds upon the work of anthropologist Claude Lévi-Strauss, is a structural analysis of sociological trends. My six traditions—psychological and epistemological archetypes—if not absolutely airtight, are pretty good, not because they are

In his **Evolutionary Tree**, Jencks identified six major architectural traditions—logical, idealist, self-conscious, intuitive, activist, and unself-conscious—which combine and mutate, as represented by bubbles pulsing across decades.

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eternal but because they are structurally opposed to each other. To get the most possibilities, you have to choose terms that are antinomies. For example, an engineer learns an attitude toward form, creation, truth, and beauty. His discourse traps and forces him along certain lines. Therefore the engineering tradition, which I labeled the "logical" tradition, will carry along lines opposite to the "self-conscious" (beaux arts, academic, classical) tradition. The best architects jump around between my groupings. They are more than activist, idealist, or intuitive and often occupy more than one bubble on my tree. The extraordinary thing about Le Corbusier is he's probably the greatest architect of the 20th century and he occupied three major bubbles: International [Style], brutalist, and postmodernist.

The labeling of architectural movements is a bit like the chicken and the egg: Which came first, the tendency or the classification? Or, how does the labeling of an architectural style or tradition change or solidify that architecture?

Most phrases and mental sets about a period occur after the fact. Sometimes they occur at the fact, as was the case with postmodernism and deconstructivism. The International Style came about slightly after the fact, and the movement became solidified by its classification by North Americans. Sometimes the classifying names are completely out of the blue: A potent metaphor catches on among the populists. Remember that 90 percent of classifications, like Romanesque or Gothic, were negative at first. No architects today would call themselves the "neo-Fascists," a movement I predicted to occur in the 1980s, although I think that was a good prediction, corresponding to what I called "fundamentalist classical purity," "messianic," and "reactionary architecture" in the 1990s. Prince Charles and Ralph Lauren fit into that bubble quite well. The worst buildings of Bob Stern, KPF, and Philip Johnson's 1980s work in Texas can be placed on the edge of that bubble.

One of your most accurate predictions was the Internet. You wrote, "Ultimately the individual could sit in one place daydreaming about a project, scratching away on a television screen with a light pen, calling up product after product to see how it suits his taste, until all the ready-made resources of a society or the world were exhausted."

I got that one right on the nose. I predicted the government would set up the Internet. A very different, surprise-free prediction, for which I don't claim any great insight, is what I called "super sprawl." Horribly, in the early 1960s it was already apparent that the world was headed irreversibly toward "super sprawls."

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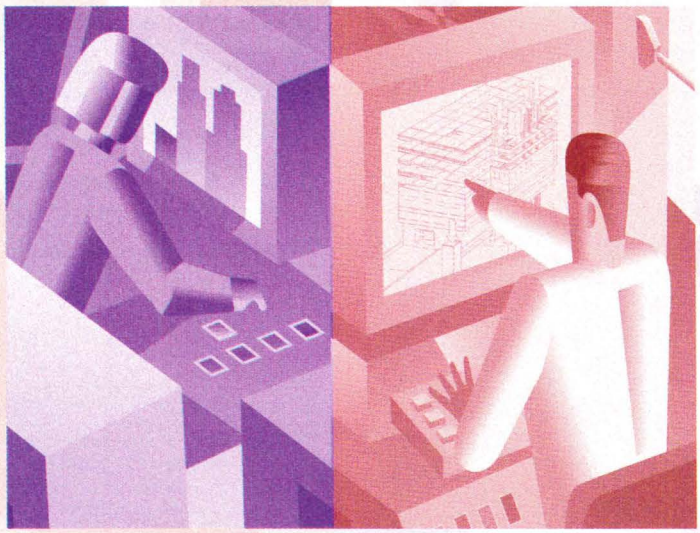

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Another major cultural development you anticipated is the rapid transformation of pop culture into homogenized mass culture. What do you make of the rise of popular interest in design?
During this century, folk culture turned into pop culture, which was then driven out by mass culture, and in the late 1980s transformed into niche-marketed mass production. The handcrafted car and handcrafted house still exist but as minority enterprises, not really competing with the mass market. Despite companies such as Alessi, the trend is usually against quality. It is like the famous Gresham's Law: Cheap or bad products tend to drive out the better product. Bob Stern quotes Walt Disney, "No one ever went broke underestimating the taste of the public." Competition of the mass market is always aiming for cheaper products, which sell well.

Why didn't you foresee the current vogue for "branding" in architecture, or the 1990s notion of signature architects?
That was probably not something that I became aware of until five or six years after I wrote *Architecture 2000*. There were star architects then like Paul Rudolph, producing an identifiable, if somewhat clichéd, product. The system existed but it hadn't yet developed to the superstar level, with architects as identifiable as Xerox, Coca-Cola, and Armani. Historically, of course, Christopher Wren was branded, as was Michelangelo. The big-name architects have always been brands in a sense, but now we live in a commercial culture where it is mass-culture branding rather than high-culture branding. I did predict this commercial culture, however—the advent of theme parks and Disneyland, calling them "leisure-vulgar," "mood-control environments," and placing them in the early 1980s.

Other predictions on the Tree were completely wrong, though, such as the "piezo-electric building," an invention of holding up buildings through electricity.

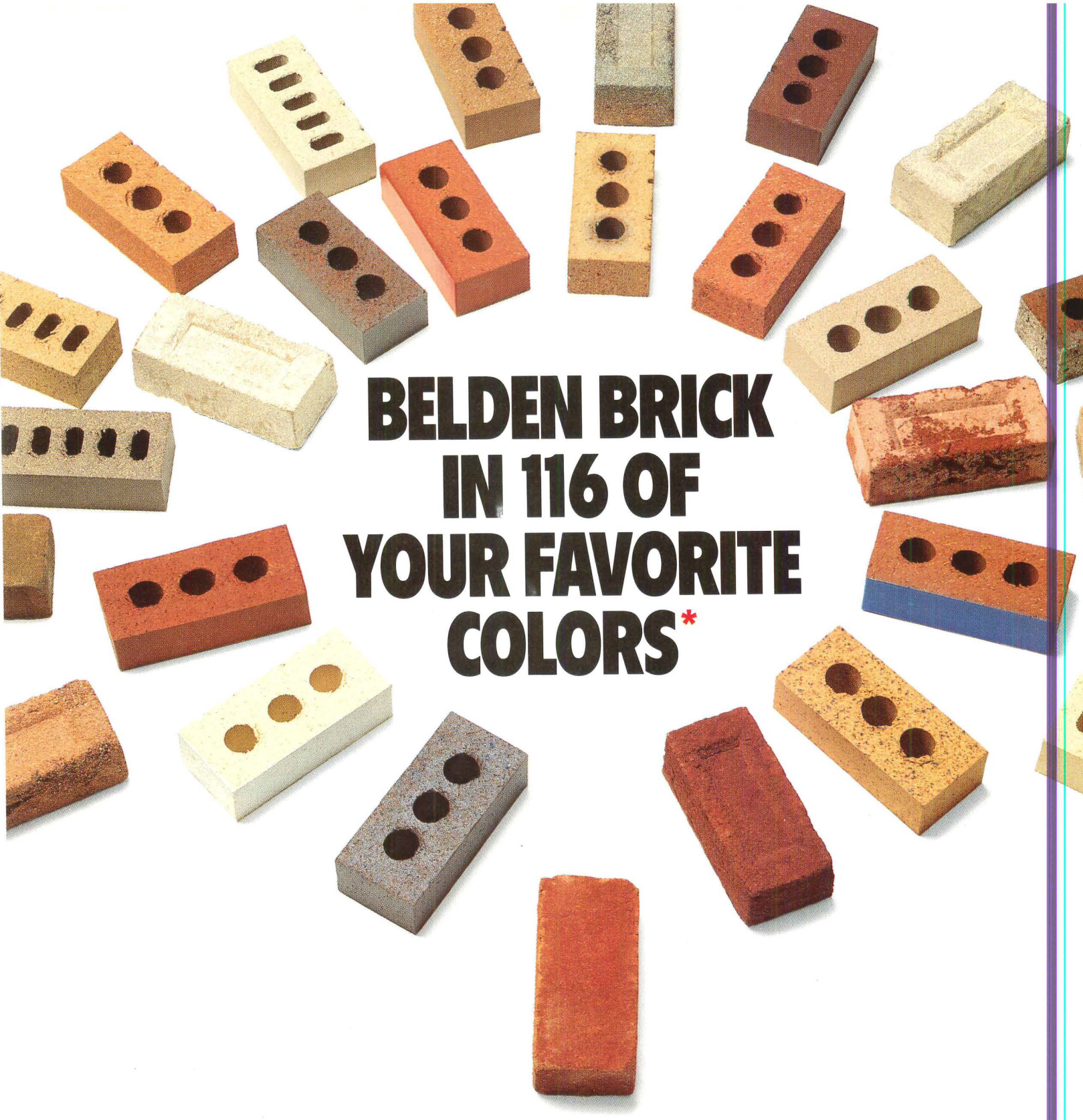
In *Architecture 2000*, you identified the film *Barbarella* as "the first real image of a biomorphic architecture and the triumph of software over hardware." Have we really reached an architecture of "structural fur and viscous steel?" Have we reached that sort of sensual level with something like Bilbao?
Structural fur may not yet be here, but Gehry is very interested in intuitive sensuality and that is one reason people respond to his buildings. I now think that something more complex will grow out of the "cybernetic" and "biomorphic" traditions on the Tree. Young designers are fed up with minimalism, with undernourished architecture. I call it reactionary minimalism, led by Herzog & de Meuron, John Pawson, and Tadao Ando.

Somehow you missed the fabulous growth of the museum and the role it would play over the past 25 years in providing a playground for architectural invention.
Yes, I am mad I didn't predict that art would be a substitute for religion.

Why was the year 2000 so important to people in the 1960s?
The 1920s and 1960s were the two great creative periods of the 20th century. The 1920s had an outburst of all the "isms," which later became "wasms." In the 1960s, there were the hippies, the yippies, the feminists, black power, Vietnam, and a thousand student movements that could fill a dictionary. The optimism of both the 1960s counterculture and big American business happened to focus on the future, as did the United States government, which put money into predicting it. Think tanks, such as the Rand Corporation and the Hudson Institute, were well-funded, while cultural commentators such as [French political theorist] Bertrand de Jouvenal were writing about *futuribles*, or future possibilities. The 1960s was a very fertile period.

The lack of optimism today, the lack of leadership in the West, and the emergence of new scientific theories about the origins of the universe have made people skeptical about predicting farther into the future than tomorrow. By and large, architectural professionals and our politicians are not leaders. They are mouthpieces for people who want to feel good. No one really wants to lead; there is a real loss of nerve caused partly by lack of belief. I am a great believer in predictions, as you can tell. I wish that architects would get interested in prediction again. It was a very exciting time when I wrote *Architecture 2000*.

Susanna Sirefman was a student of Jencks' at the Architectural Association and teaches design studio at New York City College.



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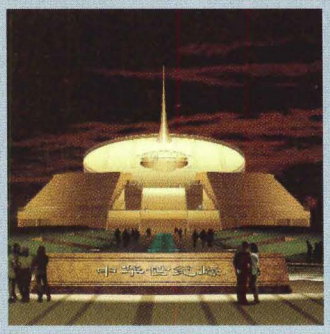
Planet Earth prepares for 2000 with a slew of monumental follies.

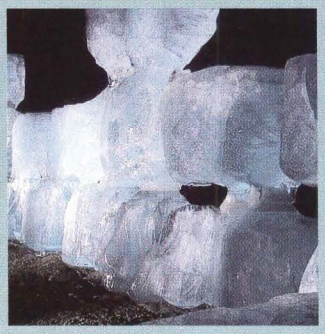
By Cathy Lang Ho and Michael J. O'Connor

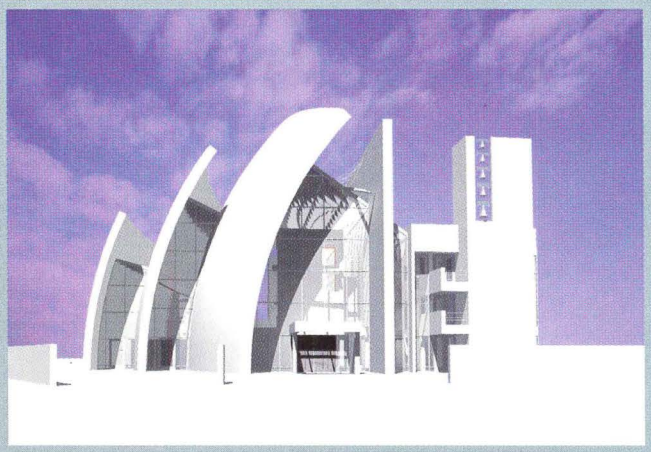
With all the hoo-ha surrounding the arrival of those four little digits, it seems that on this New Year, funny hats and noisemakers aren't going to cut it. Countries in every time zone are competing to build the largest, most extravagant monument to the year 2000. Many are familiar towers, obelisks, pyramids, and temples of both religion and commerce, but others are less commonplace. In the quest for the superlative, many countries' plans end up looking strangely similar.

For instance, New Zealand, Canada, and the U.S. have all planned national time capsules. Both the Great Wall of China and the Eiffel Tower will bear millennial clocks for the all-important countdown. Those nutty kids at MTV are crossing their fingers that Y2K bugs won't glitch FLY2K, their airborne party, which will visit Cairo, Rome, Paris, and London, before deplaning at New Year's Ground Zero—New York City's Times Square—where the famous ball will be dripping in Waterford crystal finery.

LONDON Who knew the Brits would make such a fuss about Y2K? They've earmarked billions of pounds for building projects, including Richard Rogers' mammoth Millennium Dome (*Architecture*, January 1999, pages 108–113). British Airways has gotten into the spirit, footing the bill for the world's largest Ferris wheel, designed by architects David Marks and Julia Barfield. Called the London Eye, the 135-meter-tall observation wheel sits scenically on the south bank of the Thames, and will host more than 2 million visitors next year for 30-minute rides with sweeping views of downtown London.



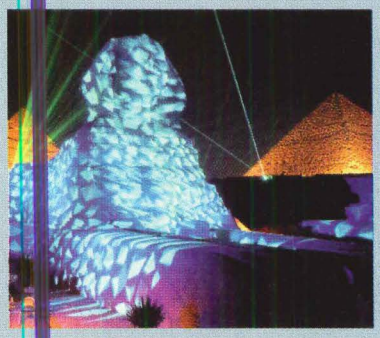


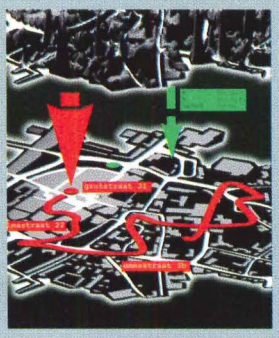


BEIJING Never mind that China is on the verge of Y5K. The 21st century is all about unifying the world into a single market of goods, ideas, banking systems—and time. China wants to partake in the world's spectacle by offering the Century Monument, a structure with Oriental flourishes and a Stalinist scale. Designed by architect Yu Li, the monument will serve as a permanent center for art and science exhibitions, as well as a tourist attraction. Communism might be dead, but postmodernism sure isn't.

JERUSALEM The Holy Land is filled with walls—the Wailing Wall, Jerusalem's Old City walls, and many others, real and imagined. Does it need another? Artist Dale Chihuly installed an ice wall outside Jerusalem's citadel, a disappearing barrier that proposes a new, hopeful model for how to view the lines that divide this contentious territory.

ROME Lest we forget, the Catholic Church will remind us that the millennium has religious significance. Part of the Vatican's official Jubilee 2000 program, Richard Meier's Church of the Year 2000 is under construction in the outskirts of Rome. Meanwhile, the rest of the city is enduring a face-lift that may provoke pilgrims to curse the patron saint of steel scaffolding. A recent cleaning of St. Peter's Basilica has left it so bright that critics suspect the Vatican repainted, rather than rinsed, the notoriously sooty facade.





GIZA, EGYPT What's old will be new again in Egypt. An elaborate plan for New Year's Eve at the Great Pyramids will include a laser show (like the one they staged last May, at far left) and a 12-hour opera scored by French pop star Jean-Michel Jarré called *The Twelve Dreams of the Sun*. Aida! At midnight, a helicopter will replace the Giza pyramid's golden peak, stolen long ago by looters.

DOETINCHEM, THE NETHERLANDS Even a small town can have a millennium tower. Doetinchem commissioned Lars Spuybroek of Nox for the D-Tower: A blobby ground-level structure will serve as an artist residence, while the rest of the "tower" will exist only on the Web. The artists will gather information on townspeople's activities, which will be mapped on a 3D graph; residents will be able to see, for example, where neighbors have the best sex, most fights, or worst habits.

PARIS The quirk of the millennium is that it will be celebrated at different times throughout the world, depending on which side of which meridian you happen to be. France is adding one more meridian to the mix: *La Méridienne Verte*, the brainchild of architect Paul Chemetov, is a line of trees corresponding to the Paris meridian, an organic way of making the invisible—a time zone—visible. It will span 1,200 kilometers, from France's northern to southern borders, crossing cities, agricultural fields, and more, in 337 districts in eight regions.

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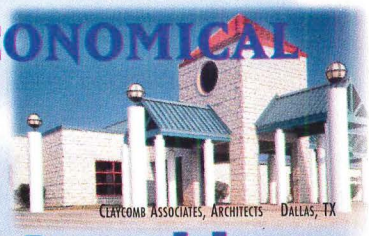

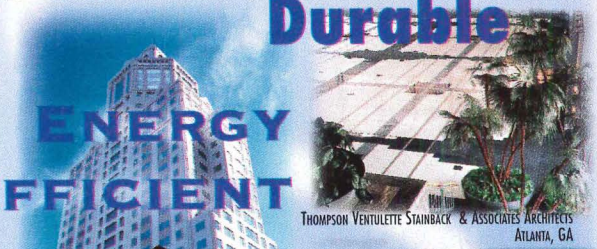

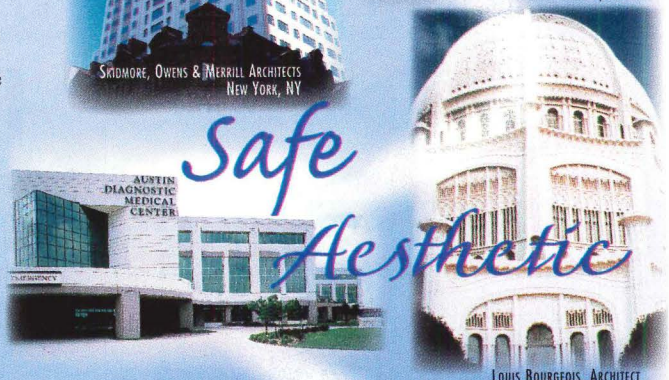

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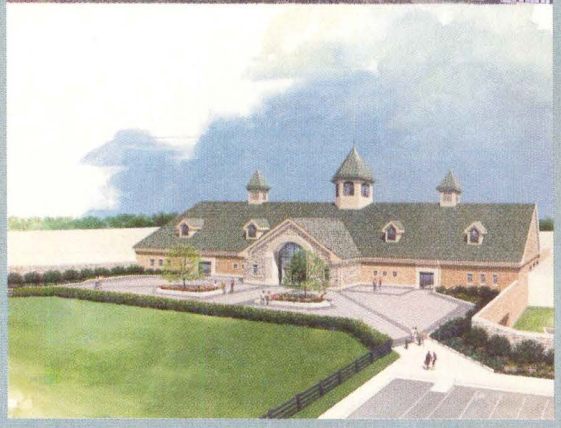

Trojan Horse

DMJM horses around with correctional facility design to put skittish Kentuckians at ease. By Keith Plymale

Fayette County, Kentucky, is building a new detention facility in Lexington. Jails get built all the time, usually without much fanfare. So why is this one such a big deal?

Well, this is no ordinary jail. DMJM's Arlington, Virginia, office and local associate CMW have designed the 407,000-square-foot, 1,179-bed, $71 million jail to resemble a Kentucky horse farm in an effort to blend in with the surrounding stately colonials along the historic Frankfort Pike highway. Correctional officials have hailed the jail as a new model, a pokey even Lexington's horsey set can love.

Or at least avoid. In the 1950s, Lexington built an innovative ring road—the nation's first—to contain development in the city center and preserve the outlying agricultural landscape. The new jail will sit outside that original ring, which has has since been violated periodically to accommodate specific projects. Even so, Lexingtonians will be all but ignorant of the facility's proximity. Even if they happen to drive by, they'll see nothing from the road but a caricature of Southern gentility.

This lockup is so desperate to shirk its identity that nearly 80 percent of the jail's square footage is arrayed in a mammoth semicircular composition hidden behind a gigantic berm and the teensy barnlike facade.

Embedding a program of detention within the image of a horse farm is a missed design opportunity. Society is beginning to acknowledge that the model of detention that has developed and proliferated over this century is now outdated. But simply slapping a pretty face on the same old ugly problem is not the answer. The facade game sends a message that Lexington's government is concerned more with appearances than substance. Further, what about the people who are kept in windowless cells, below grade, out of sight, and out of the public mind? This sort of exercise in denial is no longer conscionable.

The architects here are neither preserving the integrity of the landscape nor building in context. They are creating a country jail masquerading as a country club, one that gobbles up a megasite that will be bulldozed and rebuilt to hide detainees, while maintaining a comfortable, scenographic fiction.

The flawed logic of this project, an alleged attempt to preserve the spatial fabric of the landscape by maintaining the appearance of Frankfort Pike's farms, has manufactured an image of context that debases not only the jail building type, but that of the horse farm as well. Now, as we drive through the bucolic Kentucky landscape, we'll see poetic black and white fences, rolling fields of bluegrass, million-dollar horses, and cupola-topped barns—and think of jail. ■

Keith Plymale is the director of undergraduate studies in architecture at the University of Kentucky.

Whoa, big fella: Demure, barnlike entrance (above) belies the gargantuan complex that fans out into horse country behind it.

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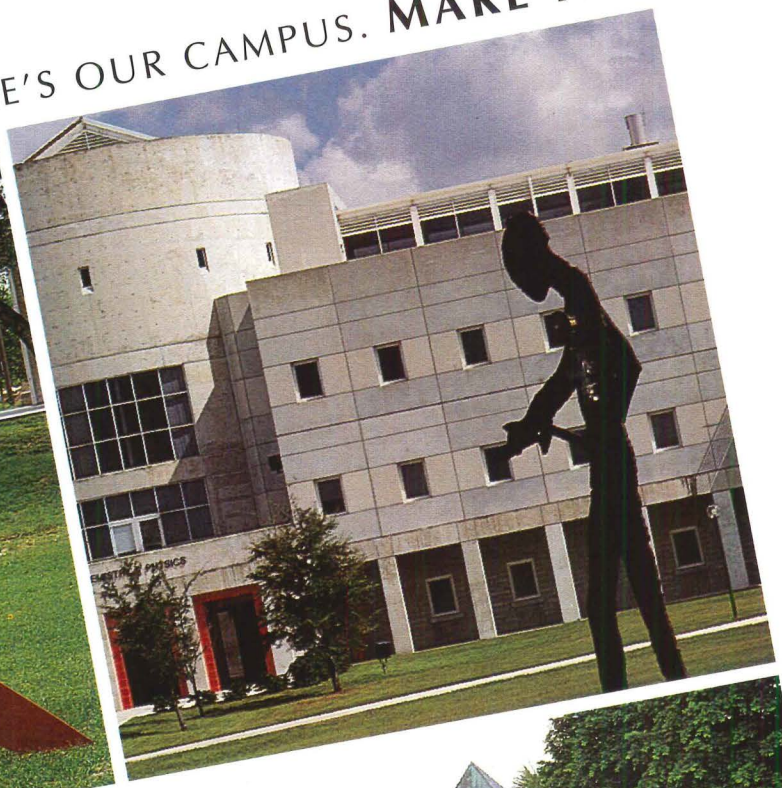

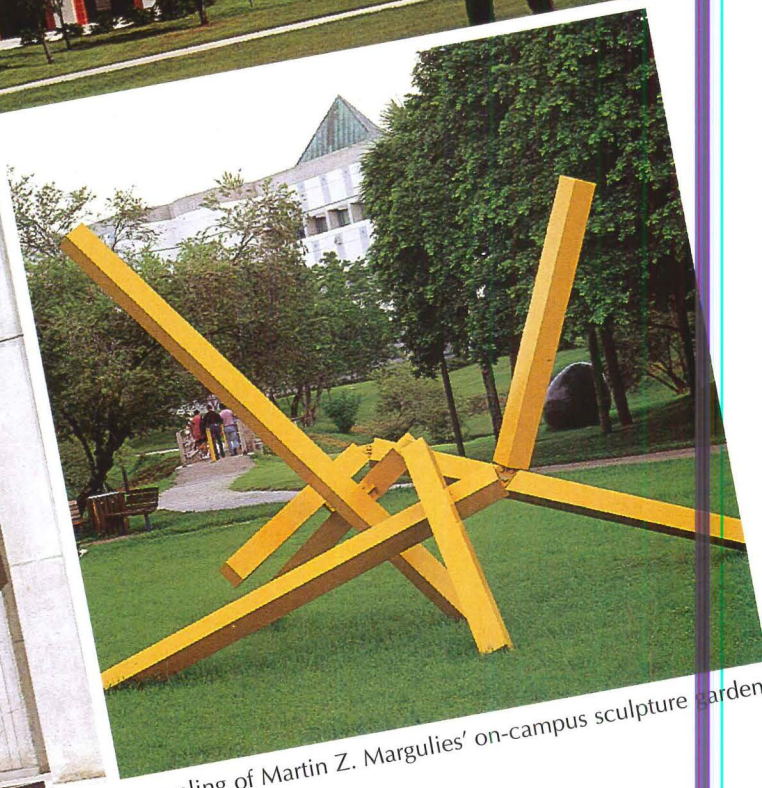

Artpark: A sampling of Martin Z. Margulies' on-campus sculpture garden

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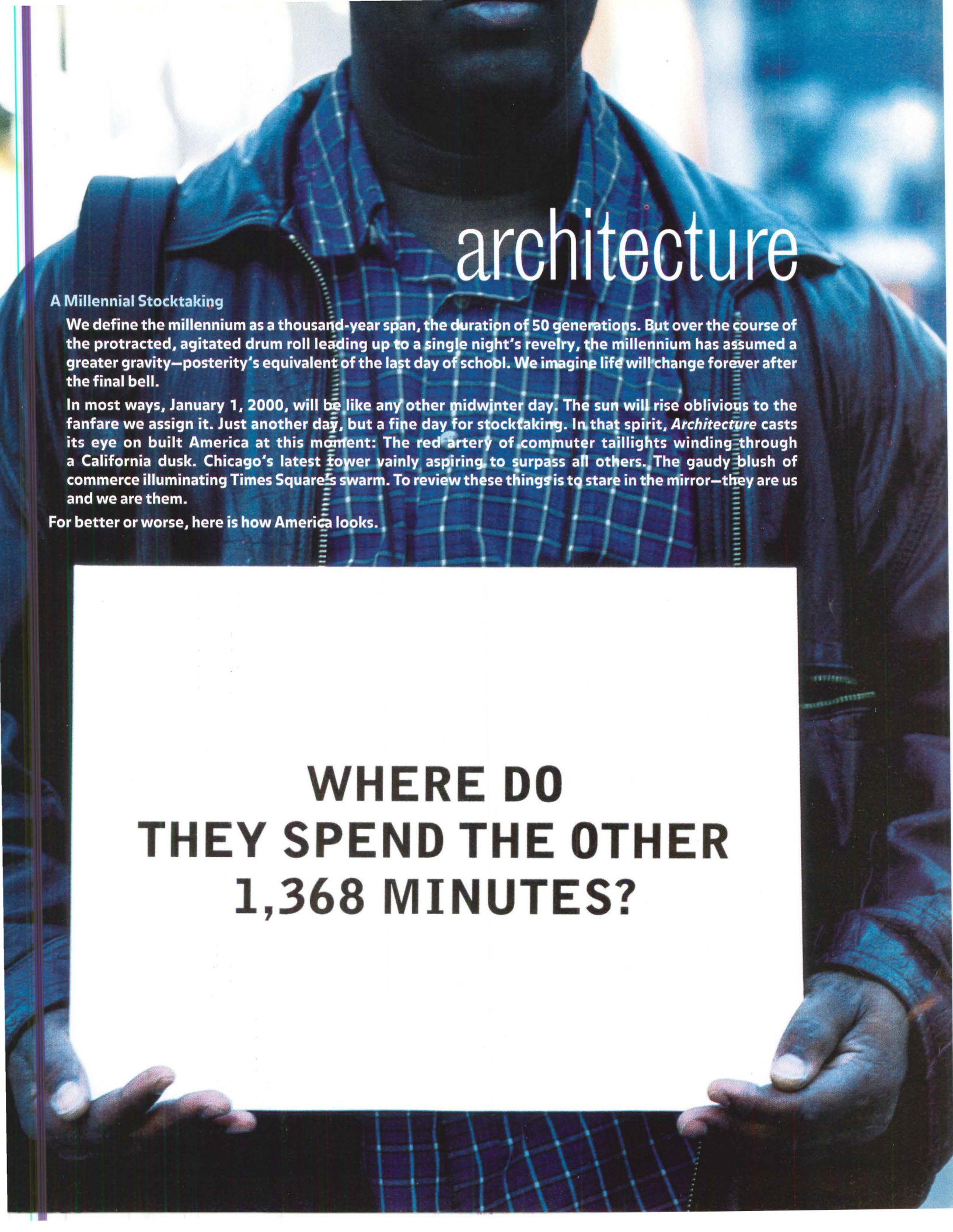
A Millennial Stocktaking

We define the millennium as a thousand-year span, the duration of 50 generations. But over the course of the protracted, agitated drum roll leading up to a single night's revelry, the millennium has assumed a greater gravity—posterity's equivalent of the last day of school. We imagine life will change forever after the final bell.

In most ways, January 1, 2000, will be like any other midwinter day. The sun will rise oblivious to the fanfare we assign it. Just another day, but a fine day for stocktaking. In that spirit, *Architecture* casts its eye on built America at this moment: The red artery of commuter taillights winding through a California dusk. Chicago's latest tower vainly aspiring to surpass all others. The gaudy blush of commerce illuminating Times Square's swarm. To review these things is to stare in the mirror—they are us and we are them.

For better or worse, here is how America looks.



Percentage of employed Americans who feel the need to simplify their lives and create more time for family:	**81**
Percentage who create this time by sleeping less:	**37**
Percentage who create this time by skipping the housekeeping:	**38**
Percentage of Americans who order take-out food at least once a day:	**21**
Percentage of Americans who order take-out food every other day:	**26**

MITCH EPSTEIN | 56TH STREET AND FIFTH AVENUE, NEW YORK CITY |

TED FAIR | WAITING PATIENTLY FOR M. ANTOINETTE | ASYLUM, PA |

Percentage of the U.S. that is paved: **2** Percentage of the U.S. protected as wilderness: **2**

Town & Country

Malcolm Gladwell

Malcolm Gladwell is a staff writer at *The New Yorker*. An archive of his articles can be found at *www.gladwell.com*.

Where does the city end and nature begin? In the age of Range Rovers and mountain bikes, old borders are breaking down.

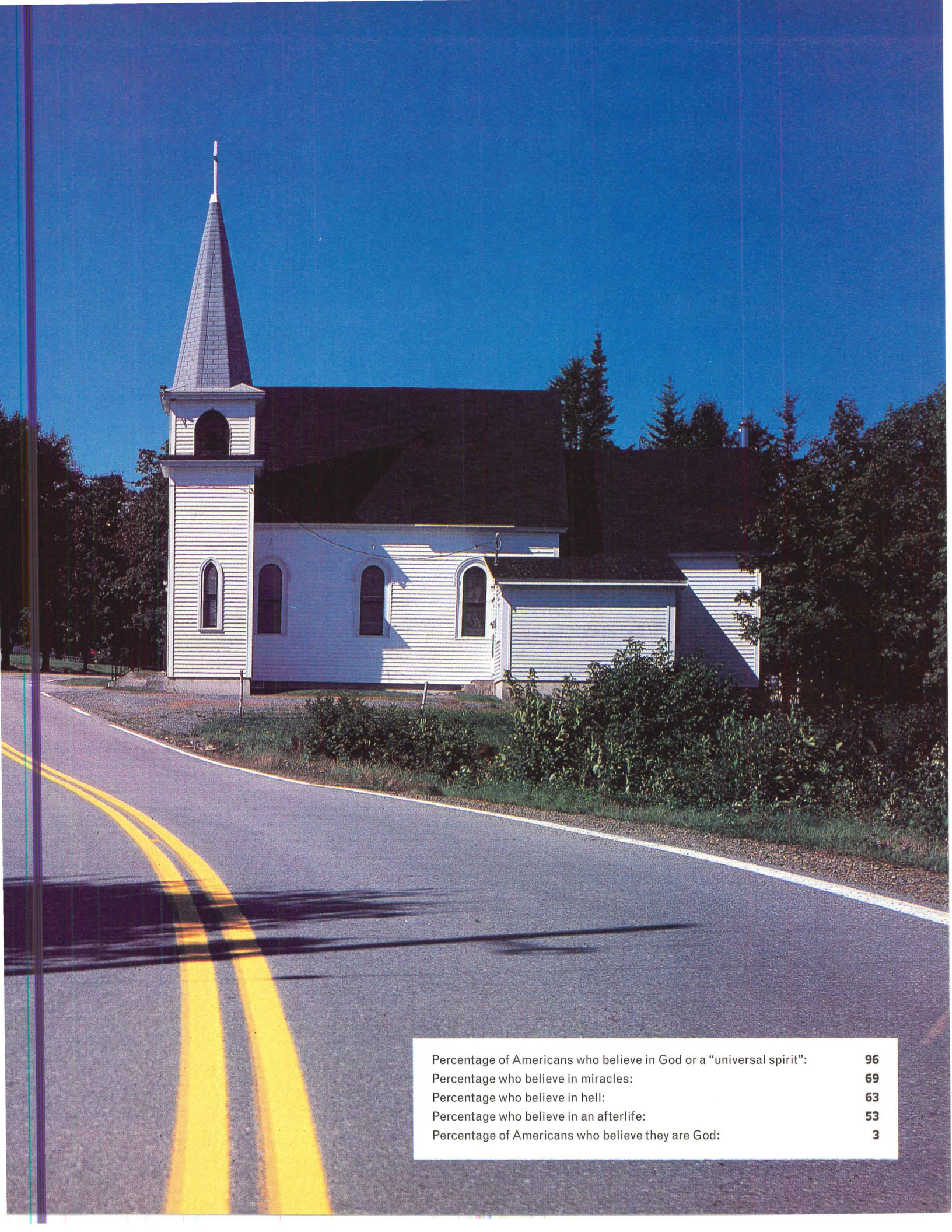
In one heavily played television spot of the past year, a woman in a Nissan Pathfinder outraces another woman in a competing sport utility vehicle for a space in a mall parking lot by driving over a large outcropping of wilderness rock. In another commercial, a woman and a man dressed for the opera drive in a Jeep Cherokee across the ridge of the Grand Canyon. In a third, a woman drives her Ford Explorer from her home in the country, navigating ruts and puddles, to downtown Manhattan, where, with the same casual deftness, she navigates potholes and cobblestones. There is now, apparently, a set of conventions that apply to the marketing of SUVs, and the message of the genre is unmistakable: The contemporary consumer aspires to live in both the city and the country and the demands of both places are pretty much the same.

This idea is, it must be said, something of a departure. Through much of the century, we have held to a notion that city and country are quite distinct, and quarreled only over whether those differences were reconcilable (the garden suburb) or irreconcilable (Jane Jacobs). But now we have decided that there is really no distinction between the two. The same cellular phone, the same walking shoes, the same mountain bike, and the same Gore-Tex raincoat that work in Montana also work on Fifth Avenue. In the waning months of 1999, New York City was rocked by floods, forced to conduct mass insecticide spraying in the face of an outbreak of mosquito-borne disease, and treated to the spectacle of a coyote that somehow made its way into Central Park. And on each occasion the events were treated not as anomalies, but simply as validation of this new order. It appears that nature, which once stopped abruptly at the urban boundary, has now spilled over into the city limits. There are wild animals and disease-carrying insects on the Upper West Side just as, in the vision of Madison Avenue, there are mountainous rocks in parking lots.

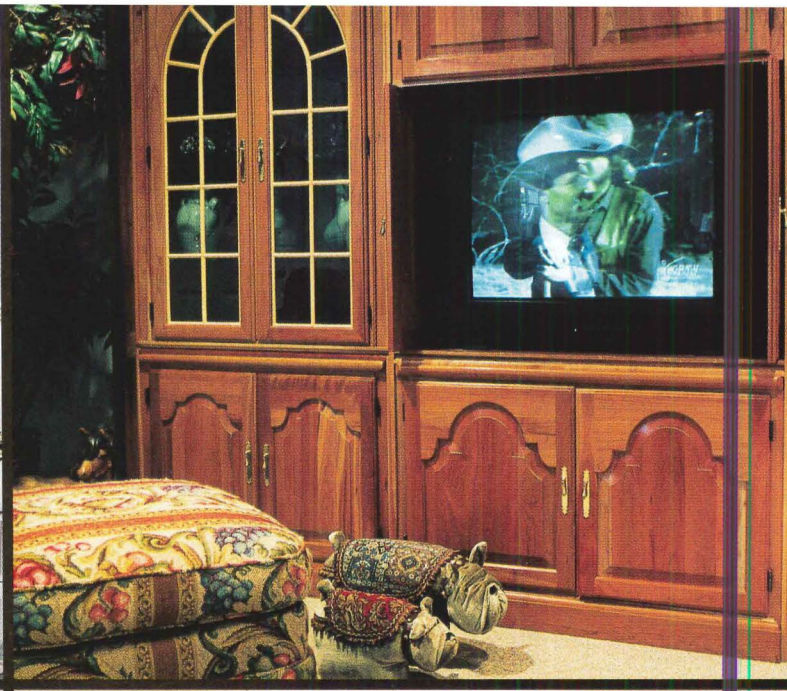
This idea, of course, is nonsense. Members of the late-20th-century middle class—who bounce from the office to the soccer sideline to their suburban homes and back again—probably encounter nature less today than any middle class in history. Nature is not spilling over into city limits. In fact, the direct opposite is true: With the rapid expansion of suburban growth, the city is spilling over into nature, bringing traffic and pollution and natural despoilment with it. Cities, meanwhile, more than ever suffer from problems—poverty, an aging infrastructure, drug use, a crumbling public health system, traffic congestion, a housing shortage—unique to the particularly urban demands of lots of people living very close together in a very small space.

That we have chosen, at this moment, to ignore this fact is a troublesome development. One of the dubious accomplishments of federal policy over the past decade, for example, has been the steady erosion in the specialized programs and subsidies set up for cities by the New Deal and the Great Society. There are many complicated political reasons for this shift, but there is no question that the sport-utility fantasy has given it license, because the fantasy has undermined the once-obvious notion that there is something distinctive about cities and singular about their needs. At the same time, the fantasy has undermined our respect for the natural world as well. When they are not careening through cities, after all, the SUVs in the television commercials careen through pristine wilderness, as if the countryside was as impervious to human and mechanical assault as a stretch of blacktop. As much as they may seem that way from behind the wheel of a sport utility vehicle, ruts and puddles are not potholes and cobblestones.

PAUL CRANICK | PROSPECT, ME |



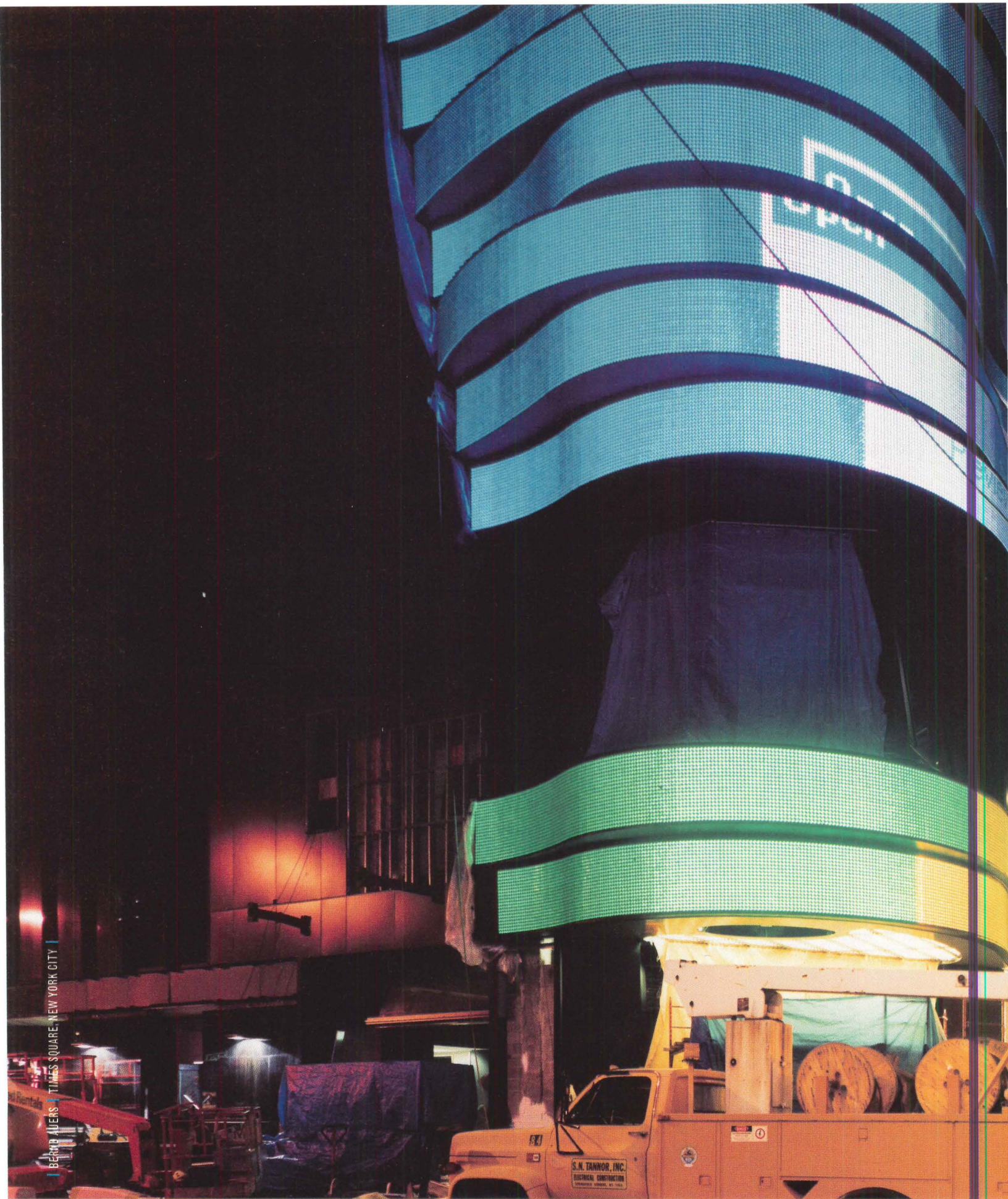
Percentage of Americans who believe in God or a "universal spirit":	**96**
Percentage who believe in miracles:	**69**
Percentage who believe in hell:	**63**
Percentage who believe in an afterlife:	**53**
Percentage of Americans who believe they are God:	**3**



KATHARINA BOSSE | THE HOUSE OF TELEVISIONS | NEW CANAAN, CT

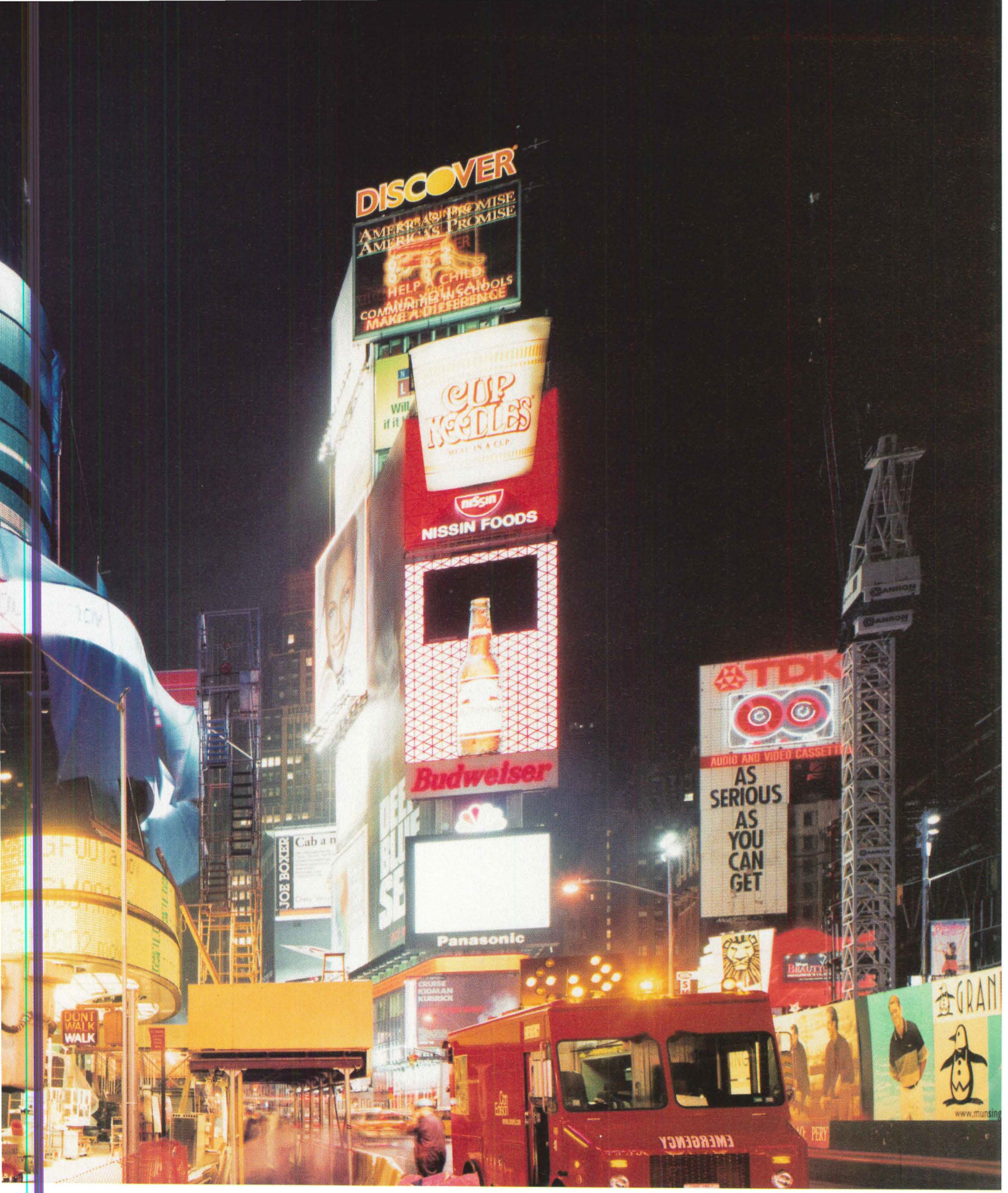
Ratio of humans to TVs: **4 to 1** Amount of time the average American will spend watching TV commercials over a lifetime: **1 year**


THE AVERAGE
AMERICAN HOUSEHOLD
WATCHES 50 HOURS,
44 MINUTES
OF TV EVERY WEEK.



BERNIE AUERS | TIMES SQUARE, NEW YORK CITY |

Number of consecutive years advertising-industry growth has outpaced the growth of the U.S. economy: **5** Percentage of Americans who say billboards are their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Bright Lights, Better City

Philip Nobel

Philip Nobel is a Brooklyn, New York–based freelance writer. He has contributed to *The New York Times* and *Metropolis*. This is his first article for *Architecture*.

Advertising isn't such a bad thing after all.

An old friend, an early adapter to all things digital, used to talk at length about the end of architecture. Applying to new media the old idea that the book had killed the building, he saw a world where architecture, robbed again of its expressive function, would just exist to keep away the rain. In that world, he would go on, people would be so thoroughly jacked-in that the streets would be empty, and with nobody there to read the facades, the art of making them would wither.

It is a world we sometimes see in movies: the graywashed everycity in *The Matrix*, or the lower reaches of *Blade Runner*'s Los Angeles. But in these dark visions, something always comes forward to feed the eyes of those who venture out: spectacular advertising.

We are getting a taste of that future now and it is not at all bad. There's Las Vegas and Piccadilly, Times Square and Tokyo's many improvements on it. But advertising has also edged out architecture in more staid places: Copenhagen, where a building on the main square forfeited its facade to a display of blue neon logos, or Boston, where the magnificent Citgo sign still vies with brick bowfronts as a symbol of the city.

With rare exceptions—prisons, churches, Bilbao—buildings no longer say very much to most people. It was easier to communicate with ornament. No one ever missed the point of that sculpture of Mr. Woolworth counting his nickels in the lobby of his Manhattan tower, or misunderstood the meaning of the Gothic confection outside. But going back to such devices now is futile; that just says "this is old," and it ain't. The borrowed arches and rustication of the Times Tower were dead long before 1965, when they were erased by a white marble reclad and the building became One Times Square. Now that building is back. The 20 floodlit billboards

and four neon spectaculars that sheathe it are the best ornament it ever had. It's a crystallization of the times and it speaks to people directly. When news breaks, they gather in crowds to look up at the Dow Jones zipper and the NBC Jumbotron and the building tells them things about the world. Philip Johnson's plans for an advertising-fronted building on an adjacent site might have done the same thing, but in the hands of a single architect it would not have been so alive.

One could cast this as a battle for citizens' hearts and minds, but for a long time now bright lights have been winning all hearts, hands down. Why else are we so fond of photographing our cities at night? Why do we go in droves to walk the Las Vegas strip? Glowing, flashing signs have realized the old modern dream of building with light and motion. For 50 years, glass towers have stolen images from their neighbors and the sky, and we love it. Why is it so different if a building cedes space to a sign?

The rub, of course, is that while people love advertisements, they hate advertising. It's invasive—who wants to be coaxed into buying something? But advertising in, on, or through architecture is an old story. Risking heresy, what is a rose window but an advertisement for the church? What are the flying hubcaps on the Chrysler Building but a pitch for that company's cars? This was not lost on critics when the Chrysler Building was built. They hated it. We don't. Others might find reason to hate it again. Architecture should be of the moment—a position that only a marginal few refute—and that moment, now, is commercial.

This should not suggest, after Venturi, that there is anything to learn here. Appropriating signage directly would be just one more conceptual dead end in a practice that has already pursued so many others. Enjoy the balance that the invisible hand of commerce has wrought—banal buildings wrapped in borrowed light—and remember that this, too, shall pass. Many economic cycles from now, the ABC Studios marquee will be uncovered in the Meadowlands by a stray kayaker, championed, and returned to its perch at 1500 Broadway. Architects at the relighting gala will marvel at what we didn't see. ■

KOLATAN/MACDONALD | RAYBOULD HOUSE AND GARDEN | FAIRFIELD COUNTY, CT |

Weight, in tons, of retractable roof at Toronto's Skydome, built in 1989:	**11,000**
Open/close time:	**20 minutes**
Weight, in tons, of retractable roof at Phoenix's Bank One Ballpark, built in 1998:	**5,940**
Open/close time:	**5 minutes**

Shape Hedonism and Space Bulimia

Alexander Tzonis

Alexander Tzonis teaches at the Delft University of Technology. His most recent book is *Santiago Calatrava: The Poetics of Movement* (Universe Publishing, 1999).

New technology has unleashed unprecedented forms and spaces, but architecture still hungers for more.

If today's cutting-edge architecture has one conspicuous characteristic, it is daring formal and spatial experimentation, which, some critics charge, has been so excessive that it has spilled over to the level of the self-indulgent and hedonistic. But no matter where one stands on the debate, one thing remains clear: Architecture would not have reached this stage without the extraordinary recent technological advances in both design computational tools and building materials.

Historians will surely draw parallels between the computer-driven proliferation of architectural forms at the end of the millennium, and the formal cornucopia that followed the advent of representational tools such as perspective during the Renaissance and projective geometry during the baroque era. This turn toward formal and spatial freedom could also be compared to the art-nouveau rebellion at the turn of the last century or the expressionist insurrection shortly thereafter. In all cases, architects suddenly acquired the capability to represent and produce a vast class of shapes previously considered indescribable, even unthinkable, let alone buildable.

To understand the impact of new computational tools on architecture, one need only compare the work of Frank Gehry and Santiago Calatrava. Both recruit technology to translate dream work into built work, but their use of technology differs significantly: Computational tools allow Gehry to represent whatever forms he wishes, no matter how complex, even though his spatial inventions actually originate in a traditional manner: He uses sketches and models to depict his initial concepts, as previous generations have always done. But unlike those who struggled to translate novel spatial concoctions from mental image to hand-drawing to model to construction drawings, Gehry relies on state-of-the-art computer hardware and software to map his designs, transforming physical models into digitized data that is then translated into three-dimensional computer models and, ultimately, working drawings. It's important to understand that, in the case of Gehry, these tools are not used to conceive forms, but to facilitate their materialization and production.

Meanwhile, Spanish architect and engineer Calatrava has developed, through mathematics and engineering, computational tools and building technologies that offer unprecedented spatial freedoms. Both Gehry and Calatrava have produced highly informal forms that appear to be in a state of unrest, but Calatrava has carried the idea one step farther, by pushing to acrobatic extremes the act of balance in his structures, and by introducing actual movement—floors that rise and descend, roofs that fold, walls that ripple. His general method involves representing mathematically the movement of space frames and the curved surfaces traced by the frames' joints as they move. These investigations have led to his design of many specialized joint devices (some of which are patented)—a crucial aspect of achieving dynamic buildings.

The key to Calatrava's approach is that computational knowledge functions not simply to ease the design process, but to empower design vision. This process contrasts starkly with most current architecture practice, with designers commonly arriving at a building's form first, and then attempting to figure out (or finding others to figure out) how to build it. For Calatrava, movement is not an act of formal extravagance but a strategy of preservation and economy, for it allows his structures to adapt to changing conditions, anticipating the course of nature by reacting as nature would.

Architecture's newfound formal exuberance is gradually becoming indebted to factors other than new computational methods. In design research, there is a major technological trend

toward finding guidance from nature—both its products and processes—likely a result of expanding scientific knowledge in fields from biology to genetics. Recent important developments are "genetic algorithms" and "artificial life" programs—computer-based design processes that imitate biological evolution or organic growth processes. Science and nature magazines in the United States and Europe regularly report on the vast research in "biomimesis" being conducted in biology and chemistry laboratories alike, attempting to understand the deep logic of nature. Extending this research, interdisciplinary teams of computer scientists, engineers, and material scientists are exploring building materials that use the molecular structure and behavior of organic matter as models to achieve higher structural performance and efficiency. (One good survey of recent strides in this area is Philip Ball's *Made to Measure: New Materials for the 21st Century*, Princeton University Press, 1998.)

Experiments include materials implanted with sensors, capable of monitoring and responding to changes in pressure, temperature, light, and other variable conditions, as well as evaluating the consequences of change, considering various strategies for reaction, giving feedback, and adapting in natural ways. In a sense, this is an extension of technology already in place with alarms and other environmental measuring devices, but the difference is that new materials themselves would self-adjust accordingly, without the need for engineers or users to read data and devise responses. Other advancements include self-curing materials that would react to stress or damage much the way that fractured bones self-repair, and self-forming materials that would grow into a structure according to a "genetic" plan, akin to the bones of growing children. More realistic in the near future are such things as biomimetic paint, which can "grow," beginning as a lump and spreading evenly like skin or mold over prescribed areas. It would be a great benefit for (and thus further encourage) complex surfaces. The more intelligent building materials become, ostensibly the safer, more durable, human-friendly, and life-enhancing environments will be.

Given all this promise, it's unfortunate that the dominant expressions of emergent technology today are still no more than exercises in shape-hedonism and space-bulimia—gratuitous formal statements that remain starved of purpose. New computational tools and advanced materials will not be able to affect architecture in more than superficial ways if two things remain lacking: an institutional framework to put new knowledge to good work, and explicit aims exceeding merely an appetite for novelty. At earlier points in history, architects have found in technology means of liberating their work on esthetic levels, no doubt, but also inspiration to elevate architecture's very ambition, to address issues such as economy and social equity, for example. These goals seem to have disappeared, though they are clearly needed as much today as in the past—perhaps more, with the added concerns of sustainability and community in the context of late-capitalism's inducement of cultural homogenization, social displacement, and ecological crisis on a global scale. The very tools that are being used to liberate architectural form are also capable of liberating a more livable built world.

The work of Gehry and Calatrava are exceptional; Gehry's work offers a sense of optimism about architecture's potential to transform landscapes, economies, and ways of experiencing the world, while Calatrava's demonstrates that technological innovation is necessary in order to ensure architecture's enduring value. "It is important to take the risk of technological experimentation," he explains, "because routine building practices, which respond to fixed conditions, can be more risky in the end." Their work embodies the best of how new technologies can imbue architecture with a dynamism—both metaphoric and physical—that abets its adaptation to a changing world. In other words, such work, and that of explorers in new materials, share the view that formal innovation is essential to architecture's survival.

DILLER + SCOFIDIO, WITH LYN RICE | MOSCONE CENTER EXPANSION | SAN FRANCISCO |

Number of U.S. movie screens operating in 1980: **17,590** Movie screens operating in 1990: **23,489** Movie screens operating in 1998: **34,184**

Take One

Anthony Vidler

Anthony Vidler teaches at the University of California, Los Angeles. His forthcoming book is *Warped Space: Art, Architecture, and Anxiety in Modern Culture* (MIT Press, Spring 2000).

In the entertainment age, architecture and film draw ever closer.

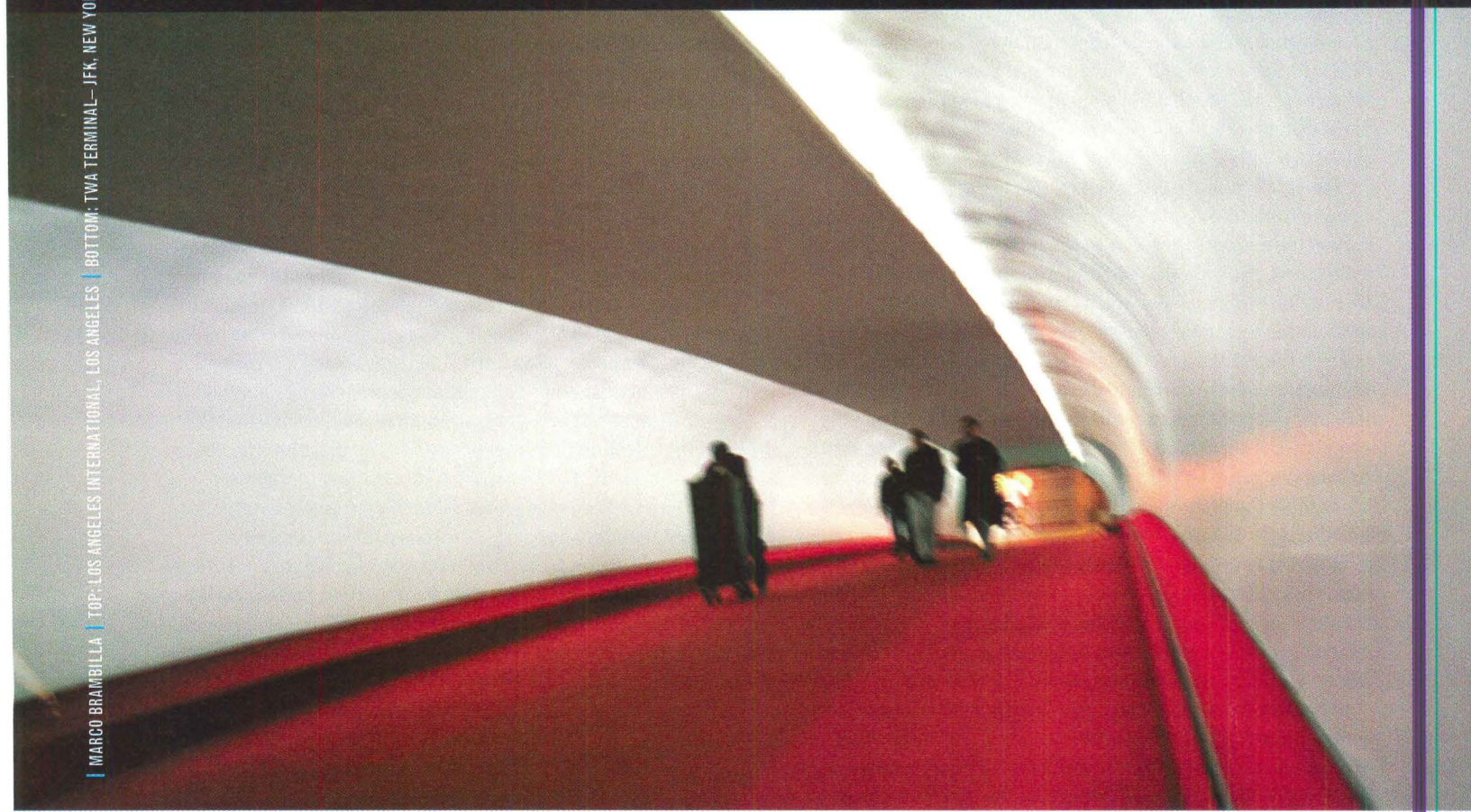
Throughout the 20th century, film and architecture have enjoyed a spatial relationship as close and as mutually informing as that between painting and architecture in the Renaissance. Where the development of linear perspective by Filippo Brunelleschi and others in the 15th century had the effect of placing the human subject in a space proportioned for the body and extended visually for the eye, film offers a representation of movement through space in real time, approximating the architectural experience of the moving subject. Set designs from *Metropolis* and *The Cabinet of Dr. Caligari* to *Blade Runner* have experimented with new spatial ideas, while architects themselves have filmed their works—Le Corbusier's films are notable examples—as well as tried to emulate the spatial effects of movies in their designs.

From the 1970s on, interrelated cinematic notions of framing, montage, movement, and narrative displacement have informed both architectural representation and composition. Thus the formal layout of Bernard Tschumi's Parc de la Villette in Paris, for example, emulates the unrolling of a filmstrip, while its red follies mark the potential intersection of space and event, as in a film montage. Meanwhile, the perspective distortions and compositional freedom of Frank Gehry's assemblages rely on techniques already developed in the cinema, such as angled shots framed from below and rapid shifts of viewpoint. More recently, at the Guggenheim Museum in Bilbao, Gehry worked directly with software originally developed for movie animation.

In his 1983 book, *The Manhattan Transcripts*, Tschumi comments on the implications of the analysis of sequence, movement, and event for built architecture. Architecture experienced sequentially by the viewer, Tschumi implies, works in three dimensions the way film does in two dimensions: to set up a relationship between mental and physical sensation in space. Like film, architecture has the potential to create, stage, or frame events so they take on added meaning. The apparently mundane experiences of everyday life would, through the "lens" of architecture, gain significance and appear in stronger relief.

Tschumi realizes this spatial sensibility in his recently completed Alfred Lerner Hall student center at Columbia University (*Architecture*, November 1999, page 40). The center of the building is open and transparent on the inside, while a glass facade acts as a giant screen displaying interior action to the campus outside. Tschumi introduces movement with ramps that traverse the central atrium and intersect with "event" spaces. He produces montage effects by layering ramp against ramp, spatial zone against spatial zone, setting up intersecting and often overlapping areas of activity. At night, with the ramps highlighted in eerie blue reflected light, the atrium bathed in a golden glow, and the moving silhouettes of students on the ramps resembling a shadow play, Lerner Hall becomes a performance in depth, activated architecture that can truly be called filmic.

Architecture's fascination with film techniques inevitably raises the question of its complicity with today's spectacular consumer culture; the combination of experimental forms and media attention gives an illusion of blockbuster status to many contemporary buildings. Certainly, the new digital technologies employed by architects and filmmakers encourage an attention to surface rather than depth, exterior image rather than interior organization. To resist absorption into a consumer culture of entertainment values, architecture's relation to film must be theoretical and critical rather than imagistic. Its careful expression of movement, event, and space of social interaction can heighten our awareness of our late-modern condition by staging it in buildings that become, in a sense, three-dimensional films.



| MARCO BRAMBILLA | TOP: LOS ANGELES INTERNATIONAL, LOS ANGELES | BOTTOM: TWA TERMINAL—JFK, NEW YORK CITY |

Annual revenue per square foot of retail space at Pittsburgh airport: **$1,000** Annual revenue per square foot of retail space at a typical shopping mall: **$250**

Always Homeward Bound

Pico Iyer

Pico Iyer is the author, most recently, of *Tropical Classical* (Knopf, 1997), and, coming in February, *The Global Soul* (Knopf, 2000).

For an uprooted, peripatetic citizenry, the transit lounge is the new hearth.

When I was growing up, I noticed that the formative experiences of most of my friends were set amidst the traditional fixities of family and home: the parental dinner-table, say, or the neighborhood softball lot; the backyard barbecue where the whole community assembled to assert its collective identity en masse. My own great moments, by contrast, took place, to a startling degree, within a much more generic and placeless place: the airport and its transit lounges. Three times a year from the time I was nine—this was 1966—I would say goodbye to my parents at the Los Angeles airport and get onto a huge "speedbird" to fly across America, over Greenland, to London, where I would disembark and go to school. Three times a year, not realizing I was doing something that members of my parents' or grandparents' generation could scarcely have imagined, I would get on a similar plane and fly back home again. I slept, I ate, I did my sightseeing and I played hooky in a place between cultures, flooded with the colors of a hundred shifting nations.

At the time, of course, this all seemed perfectly natural to me—it was how I went to school, as every child does, except that my school bus happened to be an Airbus. But as the years went on, I came to see that it stood for something deeper: As a boy of entirely Indian descent, born in England and moving to California when I was seven (and then returning by plane at regular intervals to the school I'd left), I couldn't begin to place myself within any conventional sense of nation or tradition. I wasn't English—my complexion told me that much; I wasn't Indian, since that was a distant exotic land where I'd never lived and couldn't speak the language; and I wasn't American, as my "resident alien" card reminds me to this day. Insofar as I had a space of my own, a plot of earth on which to build my life, it existed mostly in the cracks between cultures, the anti-places where I still feel instantly at home: the airport departure lounge, the food court, the international hotel lobby. To this day, I own no property of my own—shuttling back and forth between my mother's home in California and my girlfriend's apartment in Japan—and live on a different continent from the one on which my doctor, my bank account, and my employers reside.

As a boy, I always felt this was an unusual way to live; now, though, the streets and classrooms of New York and Los Angeles and Sydney and Toronto are filled with people far more itinerant and culturally mixed-up than I am. All the world's a thoroughfare, it can sometimes seem these days, and cyberspace has only made literal what has long been implicit on a metaphorical level: We pray and eat and work and woo in spaces that belong to nowhere. The affluent fly to Dubai—or even to Pittsburgh's Sky Mall—just to shop, and the modern airport is equipped with all the amenities of a major city, from golf courses to dental clinics, from mini-breweries to gyms. The airport in Dallas/Fort Worth is larger than Manhattan.

A significant part of this mobile culture is the result of forced uprootedness—the number of refugees in the world, by U.N. count, has leapt from 2.5 million in 1970 to more than 27 million today. But it also speaks to a whole culture coming into being that chooses never to be in one place—in 1998 Hewlett-Packard estimated that more than 58 million people in the United States and Europe alone scan contracts, send faxes, and conduct their lives while on the move (in planes, trains, and automobiles). As one who's seldom lived within 6,000 miles of the nearest relative, I spend 40 days a year, I once calculated, in transit, checking in on my loved ones through computer screens and fax machines and World Phone cards. And architects, who are always the first to gauge tomorrow's trends, and then to make them actual, are more and more acknowledging that transit

spaces are the living rooms, bedrooms and dining rooms of the future. The city of the new millennium, as Rem Koolhaas says, is a "bastard metropolis" built for "people on the move, people poised to move on."

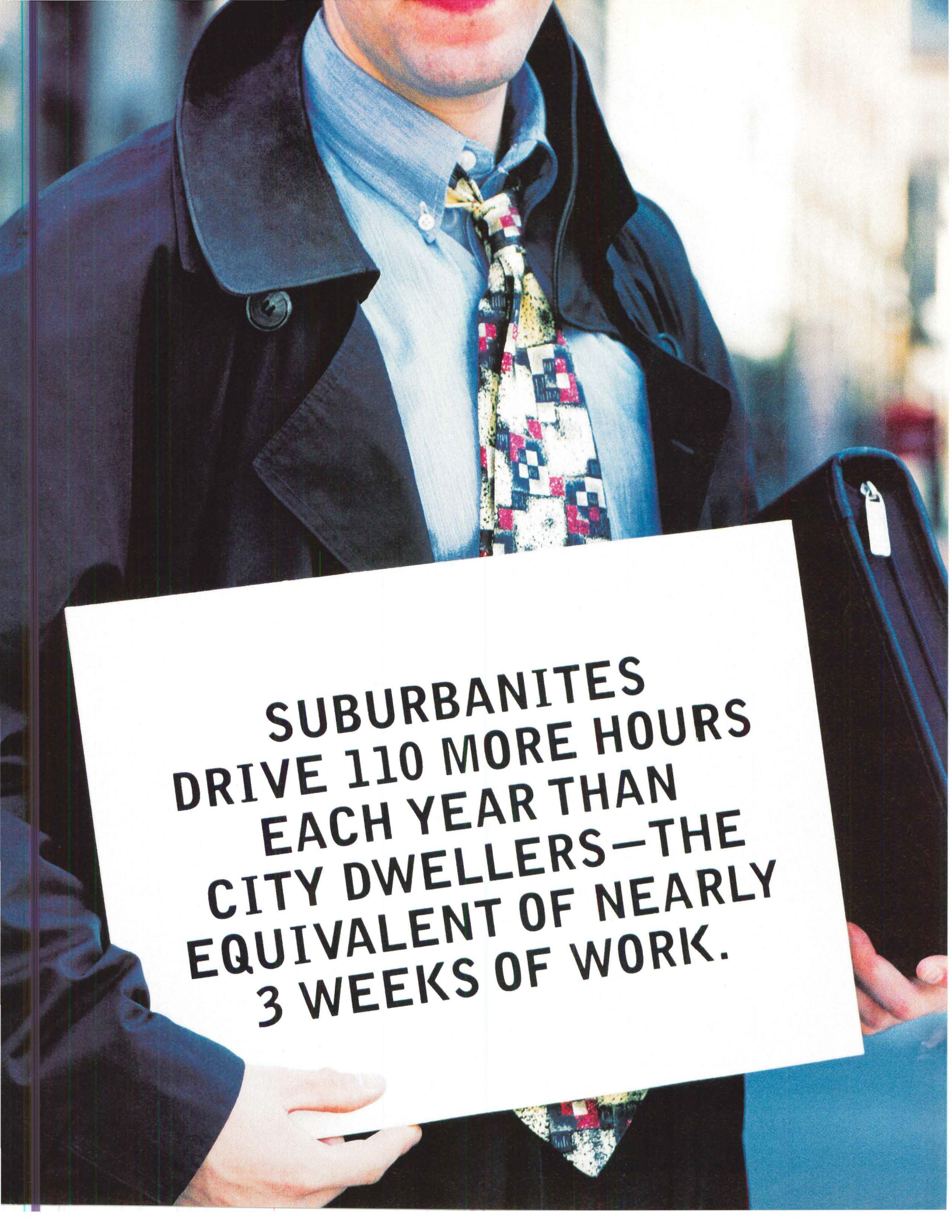
The first time I stepped into the 21st century came, in fact, in September 1998, when I set foot (in transit, of course) in Sir Norman Foster's new $20 billion airport in Hong Kong, a complex as large as London's Heathrow and New York's J.F.K. airports combined. All along the half-mile-long departure concourse, workers in suits were gathered along the window walls, under blinking monitors, waiting to board vessels that would take them to the farthest corners of the planet. The whole building, with its vaulted skylights, looked as if it was ready to take off. For acts of faith, it was easy to believe one need only take the glass elevator down to the lower level; for acts of love, simply head to B-2.

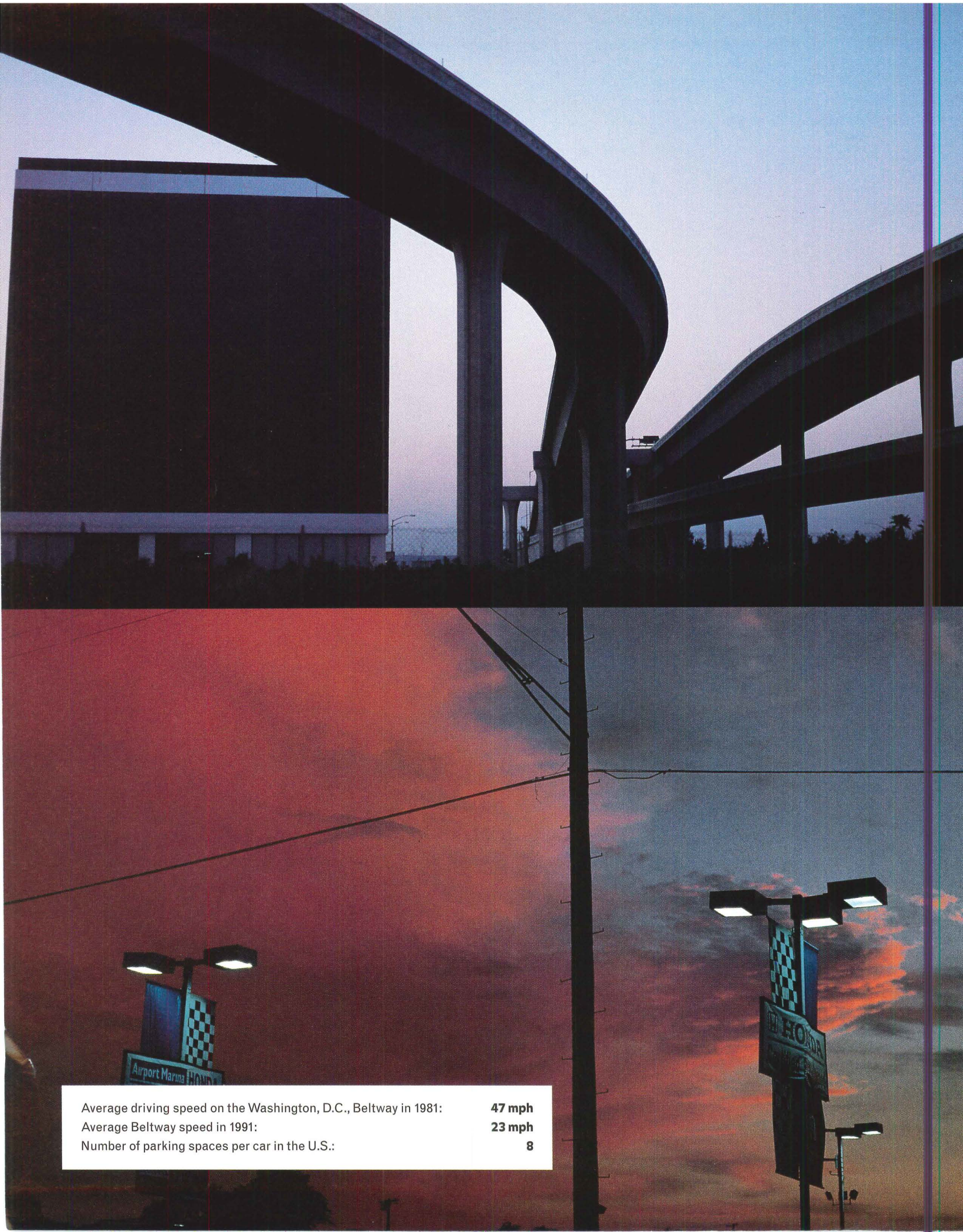
None of this would be remarkable, except that Hong Kong's new airport is a perfect extension—and microcosm—of the city all around it. For all of Hong Kong can have this feeling of a transit lounge, a floating offshore state with convenience stores open around the clock and dollars accepted everywhere. In the heart of the city, the Midlevels Escalator takes commuters home from the financial district to the hilly suburbs, through a 20-minute series of moving staircases; elsewhere in the "international city," whole enclaves are given over to Filipina nannies and British stockbrokers, Vietnamese boat people and Indian traders.

Walking through Hong Kong can feel like walking through an airport, down passageway after passageway, through long anonymous labyrinths of corridors and tunneled walkways, down passenger bridges linking parking lot to terminal concourse. The names around us say nothing about orientation and family—The Gap, The Nature Company, The Sharper Image—and the people beside us are muttering into cellular phones or tapping away at laptops. Monitors flash and public service announcements drone in several languages at once; we walk among rows of screens and banks of telephones. The air is conditioned, and the plants are false.

In recent years, I've come to dwell more and more on the challenges and hazards of this transient life, conducted in a realm without history in which time can seem as compressed as space, and people feel beholden to the laws of no country. Six miles above the earth, with one's duty-free goods in one's lap, it's easy to feel a keener sense of rights than of responsibilities. Those of us who live on cusps have to invent from scratch the very foundations of life that previous generations could take for granted: Where do we belong and which tradition commands our loyalty? Where do we stand, and who are we? When someone asks me where I come from, I either give an answer so long that it fills the whole form, or just say, "Everywhere," or, "Nowhere."

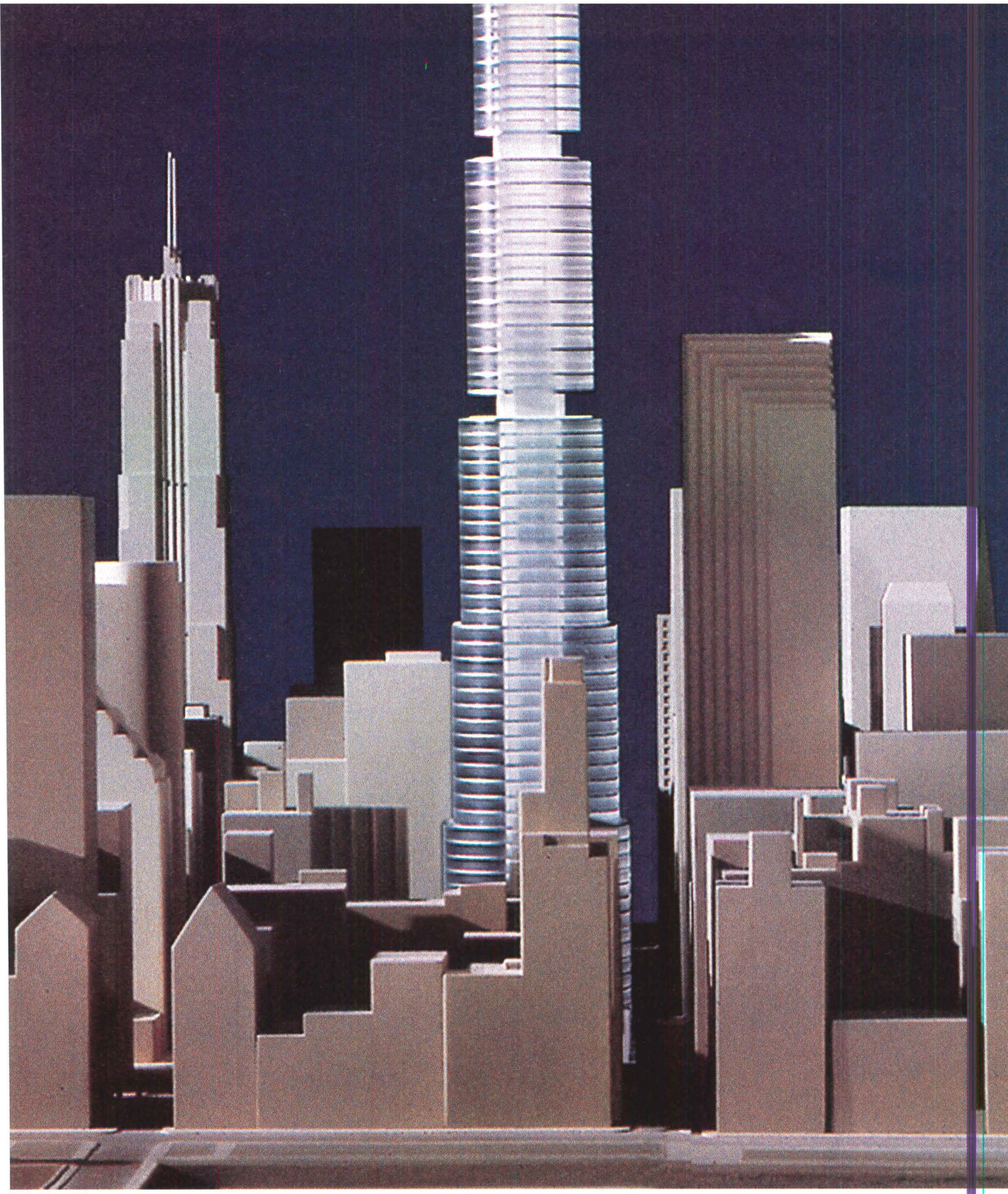
Yet the world of Transit Man is, I think, a large part of the world of the new millennium, and our homes, our loves, our lives increasingly reflect this. The novels we read, already, are set in departure lounges (as in Martin Amis' *The Information*), or in impersonal spaces (nearly all the 535 pages of Kazuo Ishiguro's *The Unconsoled* seem to take place in a foreign hotel). The museums we visit involve, more and more, moving vehicles as part of their design (in Richard Meier's new Getty Center above Los Angeles, say, or I.M. Pei's Miho Museum outside Kyoto), so that the buildings themselves seem to move. We listen to Brian Eno's ambient *Music for Airports* and talk of connections, networks, webs. Indeed, the very people who are designing our future, more and more—Koolhaas, for example, or Gehry—are themselves hybrid nomads whose global clients are on all the continents. The city of my parents' age was a stationary place of monuments; the one of our children's time will be more like a moving walkway, a mobile atrium or an airport writ large, in which everyone—and everything—is neither here nor there.


SUBURBANITES
DRIVE 110 MORE HOURS
EACH YEAR THAN
CITY DWELLERS—THE
EQUIVALENT OF NEARLY
3 WEEKS OF WORK.



Average driving speed on the Washington, D.C., Beltway in 1981:	**47 mph**
Average Beltway speed in 1991:	**23 mph**
Number of parking spaces per car in the U.S.:	**8**

DOUG AITKEN | TOP LEFT, BOTTOM RIGHT: *SNIPER* | TOP RIGHT: *ELECTRIC EARTH* | BOTTOM LEFT: *THESE RESTLESS MINDS* |



Height of Chicago's Reliance Building, the world's tallest building in 1900: **200 feet**

Skyscraper Panic

Bradford McKee

Bradford McKee is an *Architecture* editor-at-large and the arts editor of the *Washington City Paper*.

Do super-tall skyscrapers forecast economic ruin for the cultures that build them?

The skyscraper preoccupied humankind for millennia before it finally rose amid the clatter of the Industrial Revolution, but after barely a century, it seemed to have said all it had to say. If you trace the arc of innovation in tall-building design from 1885, when architect William Le Baron Jenney completed the late Home Insurance Building in Chicago, and follow it through to the rapture of ornament on the Wainwright Building, the drama of form in the Flatiron, the fabulous fashion excess of the Chrysler Building, and the trim dignity of the Seagram Building, you'll also find that as the skyscraper became more familiar, innovation and beauty became increasingly beside the point.

There are exceptions: Norman Foster's Hong Kong and Shanghai Bank, Adrian Smith's Jin Mao Building, and the several good towers by William Pedersen. Yet these buildings stand out like good thumbs on the sore hand of their respective skylines. In the average business district, the esthetic ideas behind the endoskeletal tall buildings have shrunk into a faint sense of material necessity among an overclass of master developers. To look at most of downtown Los Angeles, for example, where men wanted iconic urban profiles so badly they made them up without any economic reason, is to wonder where the love went.

Basically, the love turned to money. A lot of it was play money, as any broker who tried leasing downtown Dallas office space after the 1980s oil bust can attest. Yet the skyscraper is revered as a symbol of prosperity, a trophy of Man at His Best. That notion began, like the skyscraper itself, in the United States as an almost nationalist statement and quickly took hold in cities around the world. Taller meant richer, bigger meant better. Architecture became a nonlethal battleground for boys—and it's almost always boys—and their special toys.

But after all the pumping up, the most celebrated skyscrapers more often than not have come to remind us of excessive folly, a kind of reproachful tattoo on the landscape that we weren't quite sober enough to remember having gotten.

In fact, the correlation between the arrival of superlative new towers and the onset of economic collapse has been fairly consistent. Economist Andrew Lawrence of the venture-capital firm Dresdner Kleinwort Benson in Hong Kong has come up with something he calls the Skyscraper Index, which is derived to show that attempts to construct the world's tallest building typically foreshadow economic disaster. The logic is that feisty real-estate investment and hyperinflated stock markets encourage high-rise speculation beyond any sense of fiscal sanity: The Singer and Metropolitan Life Buildings coincide with the panic of 1907; the Chrysler and Empire State Buildings opened in 1930–31, just as the Great Depression was sinking in. Both the World Trade Center and the Sears Tower that soon outstripped it in the 1970s became metaphors for that decade's rampant inflation. These days, the tallest building on the planet, Cesar Pelli's Petronas Towers in Kuala Lumpur, gets choice press and has played at least one good role in an action flick, but it draws grim laughs from anyone familiar with the financial wreckage of Malaysia—not to mention that of the rest of Southeast Asia.

Lawrence disclaims his findings as possible coincidence, and there are at least 30 reasons around the globe to hope they are—that many skyscraper schemes are currently vying to break new records. A developer in São Paulo, Mario Garnero, has hired Minoru Yamasaki Associates to design a 1,600-foot tower that resembles an outsized Vedic temple. Transcendental Meditation guru Maharishi Manesh Yogi is bringing the bucks to the table, which is nice of him, considering that probably nobody else in late-1990s Brazil has the $1.65 billion the building will cost. City officials in Chicago, never content to play second-best in skyscraper achievement, announced in September

that European American Realty, Ltd., is going to break ground in early 2000 on a $500 million, 1,550-foot Skidmore, Owings & Merrill tower with two 450-foot antennas (elements that, along with spires, spark much disagreement about record-setting criteria). Tokyo, Melbourne, Shanghai, Moscow: All these cities are gunning for gold medals in the high-jump competition.

The hairsplitting over building height has become so absurd in the amount of resources it consumes that there comes a point at which it becomes necessary to step back and revisit the motives behind the pursuit of tallness. Louis Henry Sullivan, poet that he was, insisted that skyscrapers be "great, soaring things." He spoke spiritually, iterating the idea that the Tower of Babel and the pyramids at Tikal, the pagoda at Famen Monastery and Ulm Cathedral, all went up as a metaphorical way of going upstairs to shake hands personally with Yaweh. It turns out, though, that we are not such strictly pious beings.

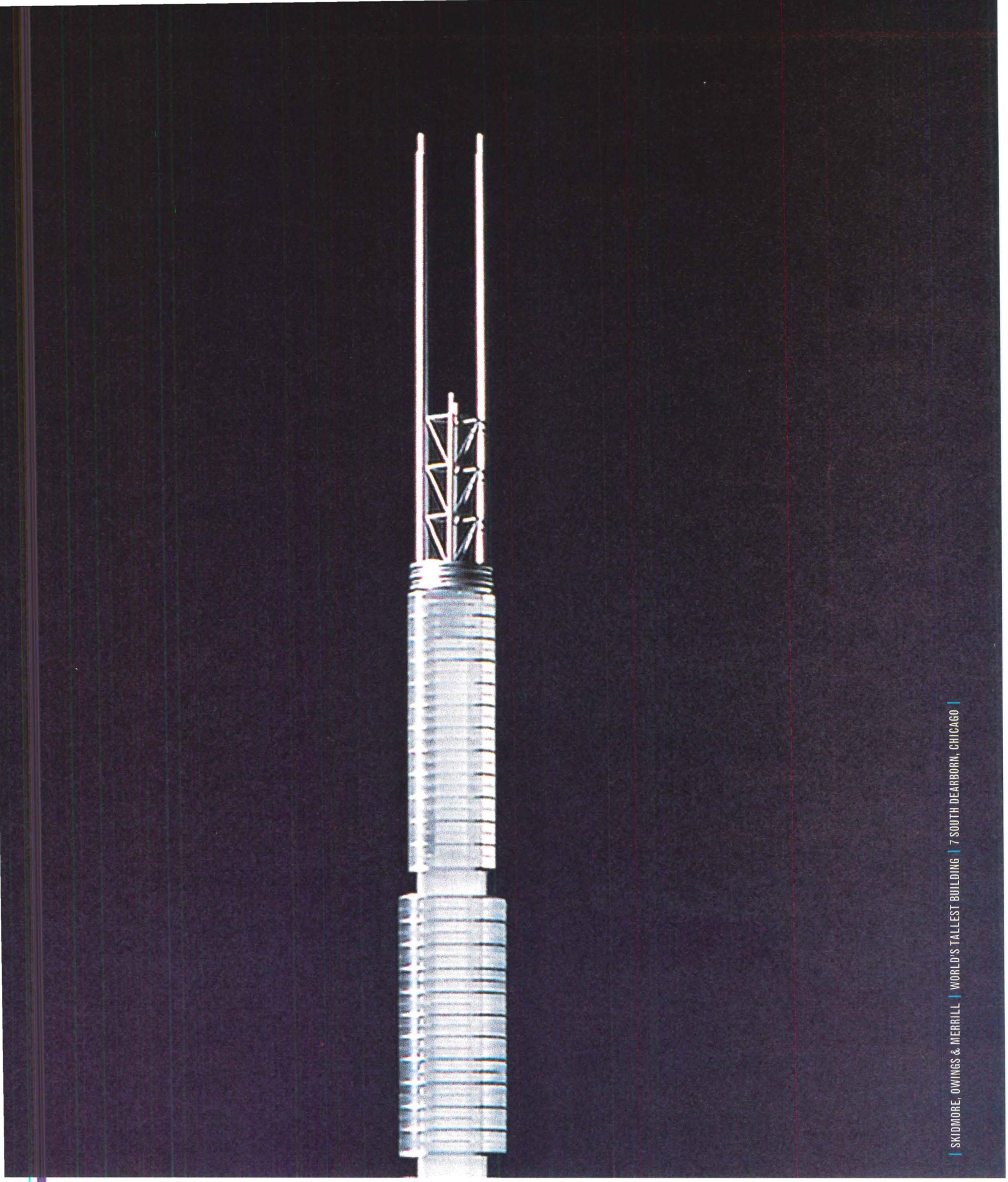
Today, faith is no longer required to build skyward. (Nor is good taste, but that's a separate issue.) The erection of a skyscraper is, the Maharishi Manesh Yogi notwithstanding, an entirely secular undertaking, and generally an expression of power. Look at Chrysler, Rockefeller, Lever! Of course, there is profit as well (Hines, Durst). But profit is at least somewhat nobler than vanity, which is all it takes to get Donald Trump out of bed every morning. Sex? That, too. If the glitzy high-rise originates in Freudian emotions, then the Pudong district of Shanghai has become a global pissing contest.

Sex and a sort of sublimated alpha-male aggression come closest to explaining our obsession with tall buildings. But ultimately, the common sacred or secular explanations for the phenomenon of the skyscraper are too cultivated, too articulated, to fully explain why humans would risk their hides, fighting gravity and wind and seismic upset, for somebody else's ability to have a Bombay and tonic on the 96th floor of the John Hancock Center.

At bottom, skyscrapers are about survival. The ostensible impulses giving rise to them—religion, power-mongering, vainglory, gambling, and sex—all have one thing in common: They are each a speculative means of staying alive. At its most primal, the naked mania of which a skyscraper is made represents a kind of cosmic nesting instinct of the highly leveraged, a desperate grab at immortality by the well fed. The builder of a high-rise may not prove a supernaturally fit member of the species, but at least he'll have a big ticket in the immortality lottery.

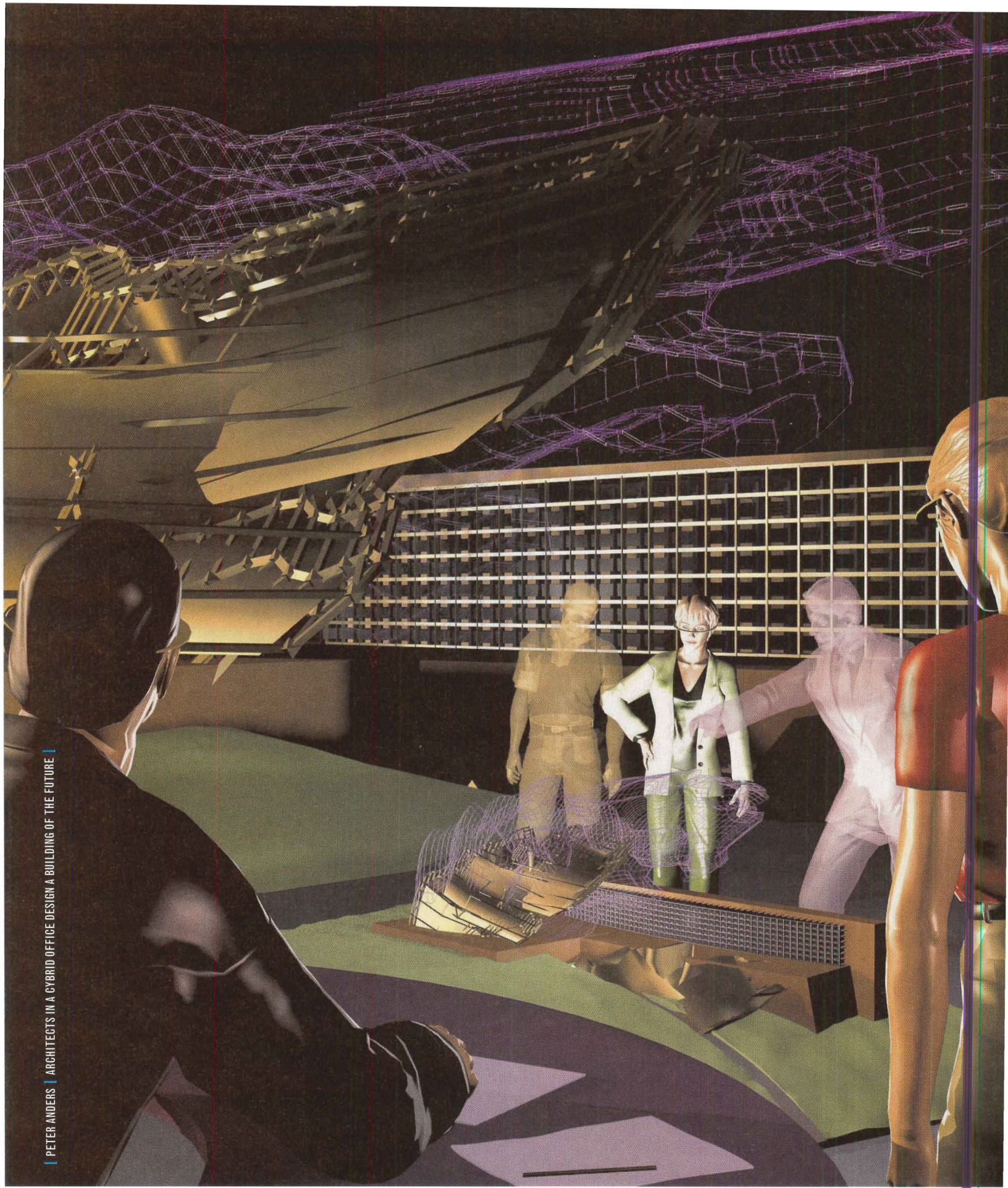
But, like tombs, skyscrapers are deceptively ignorant monuments. They disclose only their namesakes' success, never their failure. The Woolworth Building in the fall of 1997 still sang the aria of one entrepreneur's glory, not the funereal dirge of the eponymous retail store legally ransacked during its final clearance sale on Canal Street in New Orleans. And the Empire State Building was largely unshaken by the Depression; there it stood, a new and gleaming reminder of 1920s go-go presiding over what had by the 1930s become one of the gloomiest cities on earth.

Together, the skyscrapers of the world form a disjointed narrative of either our economic D-days or our Waterloos, depending on who's doing the forensics. Rem Koolhaas, the Extra Large pundit, spoke volumes when he referred to New York City as our civilization's Rosetta Stone. There could hardly be a better way to chart the rise of American capitalism—but not the fall—than to chapter it according to Manhattan's loftiest landmarks. If we have come to lose a lot of our awe in the beliefs behind skyscrapers, our latter-day cathedrals of the oligarchy, we still remain infinitely entertained by their performance on the big screen of the skyline, with their dark gowns embroidered by incandescent beads. We may have grown bored with both their science and their art, yet we can still stare at the best of them with wonder and reflection on our purpose and purposelessness, our ingenuity and frustration, and bless their pointed little heads.



SKIDMORE, OWINGS & MERRILL | WORLD'S TALLEST BUILDING | 7 SOUTH DEARBORN, CHICAGO |

Height of Petronas Towers, Kuala Lumpur, Malaysia, the tallest building at the end of the 20th century: **1,476 feet**



PETER ANDERS | ARCHITECTS IN A CYBRID OFFICE DESIGN A BUILDING OF THE FUTURE |

Percentage of workers who say they are chronically angry on the job: **25** Average number of people murdered in U.S. offices each week: **20**

Eighty-Sixing the Nine-to-Five

Lisa Chadderdon

Lisa Chadderdon is a Boston-based freelance writer and editor. She writes on a variety of business topics, including the design of workspaces.

Tomorrow's office may be ephemeral. Or it may not exist at all.

Imagine you have a 45-person project team starting work next month. And imagine your office lacks adequate space to accommodate those employees on-site for the duration of the months-long project. Now imagine you have fewer than 30 days to come up with a convenient, efficient, cost-effective, and comfortable place to house the team. What do you do?

You build a big tent. At least, that's what the life sciences firm Monsanto did on its research campus in the St. Louis suburb of Chesterfield, Missouri, when it faced exactly this problem for an important bioinformatics project that started in mid-1998. When the main office ran short on room for a team that needed to work on-site, it needed to come up with a solution—fast. That solution came from architects Flad & Associates in the form of an 8,000-square-foot, $1.9 million tent. From idea to implementation, the process took 29 days. Erecting the metal-framed, fabric-clad office itself took less than a week. The barrackslike structure is insulated, fully networked, and, according to site manager Ed Kekac, could be used for 15 years if Monsanto decides to leave it standing.

In the new millennium, mobile structures like Monsanto's tent may be commonplace. Let's face it, firms need places where project teams composed of individuals from across town or across the world can convene on extremely short notice, work with ease and comfort, and leave abruptly when the project is over. That's not an easy task for traditional brick-and-mortar buildings. "One of the great opportunities for architects in the near future will be to take building approaches that are often seen as inappropriate in a corporate context—for example, tensile structures and modular units—and see to what extent they can create a more interesting, lively environment," suggests Frank Becker, head of the International Workplace Studies Program at Cornell University.

That new environment is already replacing the traditionally rigid corporate institutions we inherited from the middle of the century: high-rise buildings with big corner offices and miles of cookie-cutter cubicles. We've all been to Cubeland. Many of us have drudged away in chest-high, fabric-wrapped, privacy-free "landscape offices" at one time or another. They are the dullest of places, swathed in bland colors, devoid of anything that might be termed "creative." They're remnants of a time when companies inhabited offices that matched their bureaucratic, institutional character as closely as their navy pinstriped suits matched their wingtips and starched white shirts.

Those days are gone. The 1990s swept away all of our tightly held conceptions of how work gets done. Technological advances, from laptops to cell phones to the Internet, have changed the way we think about work, commerce, and competition. Small businesses now compete with the big boys, and even outperform them, because technology has leveled the playing field. Nimbleness and speed are rewarded; adaptability is essential; the ability to manage uncertainty determines who wins—and who doesn't. The day of the lumbering firm is over.

Most important, the primary focus of today's businesses has also changed: In our so-called "knowledge economy," products aren't the primary corporate drivers, people ("knowledge workers") are. At the same time, the notion of employee loyalty to a single company is a relic. We hear it everywhere. People want to balance conflicting work and personal lives, and at a moment's notice they'll jump to whichever firm seems to offer the most in that search: more money, new skills, stock options, flextime, extra vacation, or a better work environment.

A fickle workforce is pressuring firms to accommodate unprecedented levels of fluidity and uncertainty, and this is being reflected in the spaces in which we work. A corner office doesn't help you get to the beginning of soccer practice. It doesn't alleviate your interminable Monday morning commute. It doesn't help your deadline-crazed team sequestered in a war room. Telecommuting and office hotelling can help, but they are interim solutions at best. "Until recently, the work environment wasn't viewed as a strategic asset," says Peter Miscovich, Arthur Andersen's director of workplace transformation. "Now it's surfacing as a priority."

In this newer, more hectic environment, employers must identify innovative ways to leverage new technologies that allow employees to work seamlessly from the office, home, airport, or corner coffee shop. In other words, companies are facing a future of virtual offices: where you work will be less important than what you're working on. At Arthur Andersen's new Baltimore office, for example, fully 170 out of 204 employees go without any permanently assigned space. Instead, they reserve space each morning at a computer kiosk.

Jon Ryberg, head of the Ann Arbor–based Facilities Performance Group, predicts, "Soon you'll be able to grow a community of people using technology, rather than having to grow a group using proximity to an existing group. The Internet and e-commerce are overcoming our mental concept of what space is. We're defeating the need for space as a part of the solution." Virtual offices? Officeless offices? They could be the next big thing.

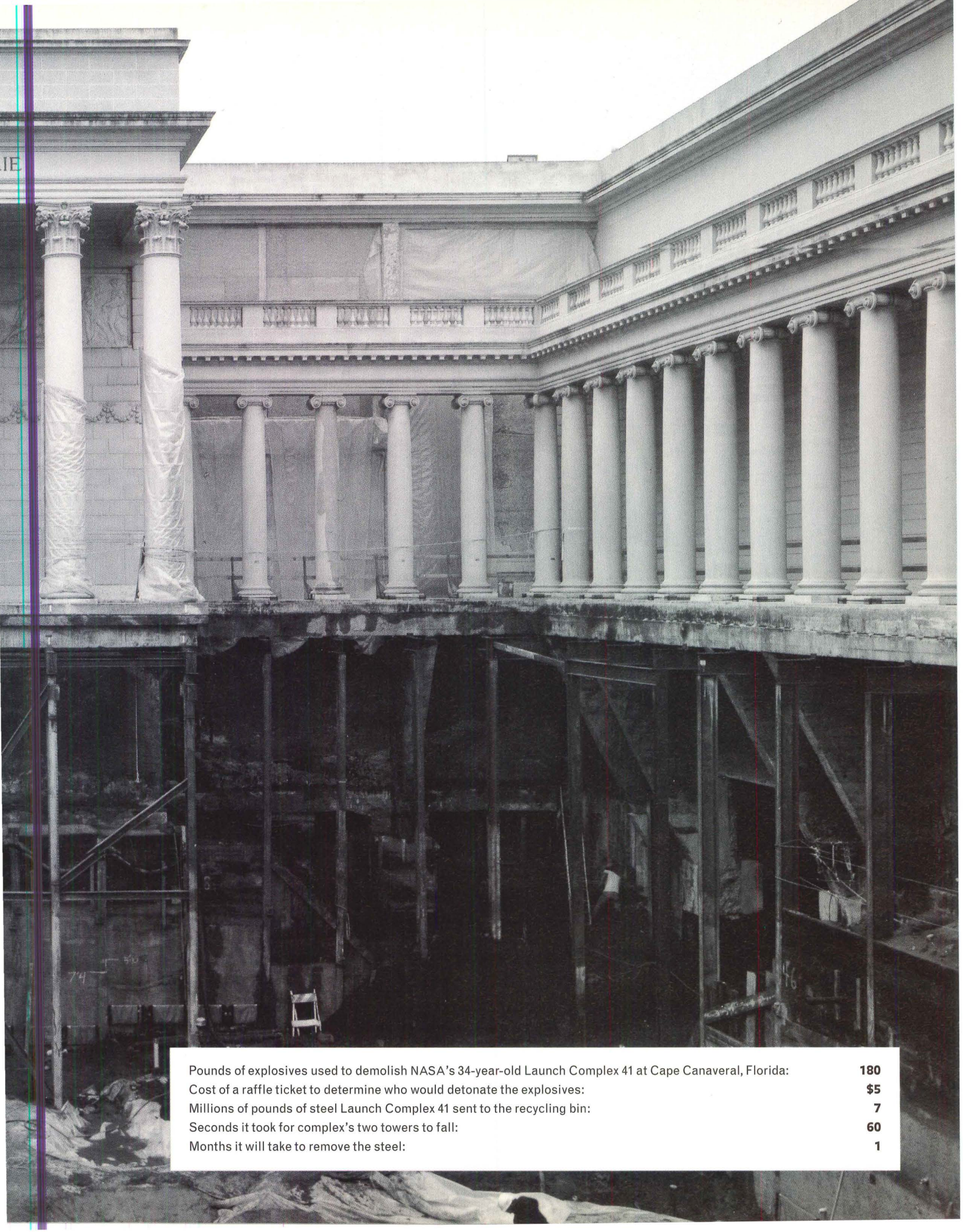
Corporations will also need to make the workspaces they already own smarter, faster, and more efficient. How? By turning offices into spaces where every available inch is used as a work tool. Gervais Tompkin, studio design director for Gensler's San Francisco office, envisions offices that take work off the desks and move it onto the walls: literally writing on walls, putting digital screens in walls, and posting work on walls. "There's been a migration from the horizontal to the vertical," he explains. "The notion that desks and cubes are used for most work is going to change to the way a whole space or building is used for work. The separation of workspace and architecture will disappear. Then the facility will be seen as a 100 percent work tool." And what if we took that a step farther? Perhaps we will soon be working on digital walls in buildings with extreme mobility built in. Picture this: walls and furniture that all move at the touch of a remote control, enabling offices to variously create personal pods, team spaces, or large conference spaces. The new office will be flexible enough to meet all of a firm's changing needs at a moment's notice.

Of course, this is just the beginning. More complicated and creative changes in office design will occur in response to the more complicated questions that arise from the changing face of the competitive landscape: How do we help employees make better decisions faster? How do we increase the pace of internal change without alienating employees? How do we support a mobile workforce spread all over the globe? How can we predict the impact of the next technological revolution on how we do business? And, finally, how can we rethink the design of workspace to help us answer these provocative questions? The answer might just lie in a revolution—a revolution in workspace that's long overdue. So as the next millennium opens, hang on tight—a revolution is coming.

THOMAS DEMAND | *ARCHIVE* (DETAIL) |

Number of sheets of paper each U.S. worker uses per year: **5,400** Percentage of "stuff" stored in workplaces never used or referred to: **30**

| RICHARD BARNES | *MUSEUM WITH EXCAVATED COURTYARD* | CALIFORNIA PALACE OF THE LEGION OF HONOR | SAN FRANCISCO |



Pounds of explosives used to demolish NASA's 34-year-old Launch Complex 41 at Cape Canaveral, Florida:	**180**
Cost of a raffle ticket to determine who would detonate the explosives:	**$5**
Millions of pounds of steel Launch Complex 41 sent to the recycling bin:	**7**
Seconds it took for complex's two towers to fall:	**60**
Months it will take to remove the steel:	**1**

The End of Preservation

Anne Matthews

Anne Matthews is a contributing editor at *Preservation Magazine* and teaches media history at NYU. She is completing a book on urban ecology for Farrar, Straus & Giroux.

The preservation movement's successes may lead to its undoing.

You can't play the cultural hero forever. American preservationists have cast themselves as a domestic resistance movement since 1949, when the National Trust for Historic Preservation was born, an alliance of public clout and private money fighting the freeway-to-Levittown excesses of postwar development. Design obsessives and history buffs in every state have saved thousands of historic structures and sites in the decades since, believing each rescue a public lesson in the virtues of the Federalist mansion or the Arts and Crafts bungalow over the ticky-tacky exurb and the wetlands supermall.

But postmillennial preservation fights will likely be wars of attrition and detail, fought block by block, house by house, loophole by loophole. The moral high ground may be up for grabs as well. To instant-wealth families and property-rights enthusiasts, preservationists can look entrenched, sanctimonious, and zealous with other peoples' money, forever backing the public good over the private right to a six-car garage and sauna.

Consider some recent preservation battles, all deeply odd by pre-Clinton Era standards.

In New York City, the official historian of Queens (a Landmarks Commission member who fought for years to save the borough's handsome old homes) recently sold his own historic house to a developer for a $100,000 profit. "*There*'s an ethical dilemma," he noted, before moving, rather hastily, to Maryland. Former preservation comrades scrambled to prevent demolition.

In Madison, Wisconsin, city planners nominated a mile-long shopping avenue of sandstone Victorian vernacular to the National Register of Historic Places. Owners and merchants hyperventilated, fearing increased

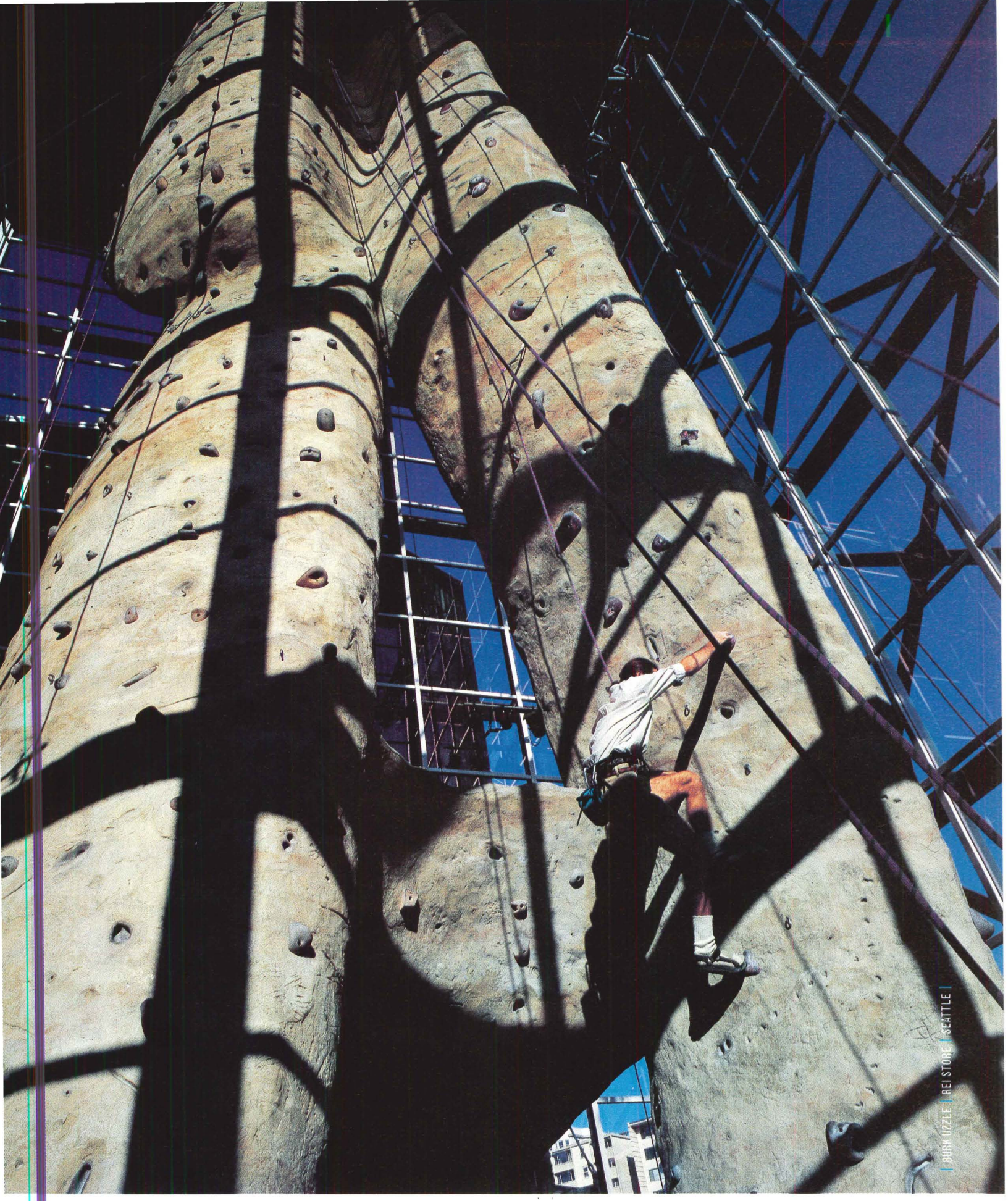
taxes and oversight. "It's criminal, criminal!" shouted one developer at the public hearing. "Read my lips: We don't trust you." Since more than half the affected property owners opposed the nomination, it died on the spot, as per federal regulations, making Madison the first Wisconsin downtown in 10 years to reject National Register status—a classic case, observed one bewildered preservation officer, of no good deed going unpunished.

On Nantucket, where the median house price is now $806,000, ferocious midcentury design codes keep the built environment as consistent as any New Urbanist development. ("Turn left at the gray house with white trim," goes an island joke; Nantucket dwellings don't come any other way.) But a Nineties influx of celebs and moguls still flooded its fragile low-rise landscape with outrageous summer mansions, and outrageous building behaviors: Buy two historic houses and raze one, keep the facade of a listed dwelling but gut the interior, ruin classic moor vistas with a two-acre palace on an eight-acre lot.

"At its best, preservation engages the past in a conversation with the present over a mutual concern for the future," notes William J. Murtagh, first Keeper of the National Register. At its worst, the preservation movement notices everything except the trains that hit it. Preservation and conservation groups are merging, even swapping, agendas; the Sierra Club now fights uncontrolled growth, the National Trust saves viewscapes as well as buildings—but both still rely on civic-minded repent-and-reform pitches from the late Industrial Age, quite unsuited to libertarian zillionaires from cyberspace.

For wherever online fortunes cluster, Silicon implants follow: Purchase house, scrap house, insert megamansion, as when Oracle CEO Larry Ellison bought a 1913 Julia Morgan house in Woodside, California, dismantled it, then built a 23-acre Japanese medieval retreat, complete with artificial lake and underground parking garage. From Menlo Park and Palo Alto to Montgomery County, Maryland, preservation is suddenly, viciously, a market issue, as high-end homeowner groups demand neighborhood notification laws—or fight to repeal historic preservation ordinances altogether. But Information Age excesses may prove a new beginning for American preservation, not its end: The best postmillennial preservationist may well be the angry cyberbaron faced with a 40-room stucco chateau going up next door, just eight feet from the lot line. ■


AMERICANS
TYPICALLY SPEND
6 HOURS PER WEEK
SHOPPING, AND
40 MINUTES PLAYING
WITH KIDS.



Number of annual visitors to Potomac Mills shopping mall in Dale City, Virginia: **23 million** Number of annual visitors to battlefields in Virginia: **6 million**

TARGET "BULL'S-EYE"

Square footage of retail space per person in the U.S.: **19** Year in which the number of shopping centers in the U.S. surpassed the number of high schools: **1987**

Accounting for Taste

Paola Antonelli

Paola Antonelli is an architecture and design critic, and a curator at the Museum of Modern Art in New York.

The battle for democratic style rages on.

Style, like the weather, is only discussed when it is extraordinarily good or bad. But it's always there—a barometric measure of people's identities and aspirations. "Good" style historically has corresponded to the taste (and agenda) of the elite: For centuries, style has been used as an ideological medium, especially in architecture. The most refined examples have come from authoritarian regimes, such as those of Chinese dynasties, Paris under Baron Haussmann, or Benito Mussolini's Fascist Italy, which used style to divide and conquer the class system and more.

With class distinctions presumably a thing of the past and pluralism in full bloom, one might think that style has achieved some level of democracy. Thinkers like Rem Koolhaas have taught us that style can be in the intention, the attitude, the size—not just in reductive concepts like formal homogeneity. A good example is one of the most ambitious politico-architectural makeovers in recent history: the *Grands Travaux* initiated by François Mitterand in Paris in the 1980s, a triumph of visual diversity that gave France an image of inclusiveness and open-mindedness.

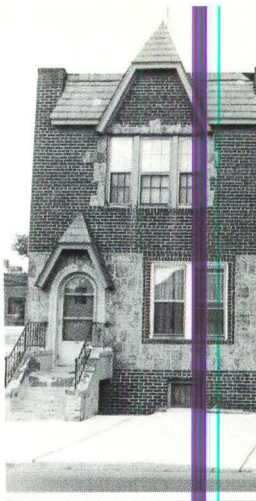
But despite a more eclectic attitude about what constitutes good style and greater access to well-designed objects, clothes, and environments, style still functions as it always has, organizing the world into high and low, cool and dumb, worldly and provincial. The average consumer's approach to good design today is ages old: It's good because *they* like it—*they* meaning the anointed chic, the magazines, the museums. The celebrity factor continues to wield influence. Both Philippe Starck and Michael Graves are designing affordable products (for 7-11 and Target, respectively), which would seem to democratize style by bringing it to the masses, but such objects are consumed more for the designers' names than for improving people's lives. The recognition of style is still a recognition of distinction.

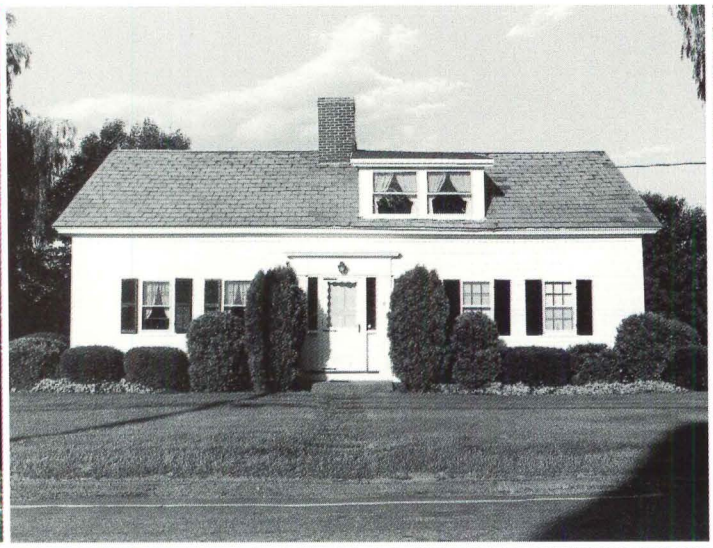
A true democracy of style will happen when people feel self-assured that their personal choices are good because they are right for them, not because they fit in with an image purveyed by tastemakers of the mainstream. Fashion is closer to achieving democracy, for people have not only the ability to choose, mix, and match from a plethora of styles, but also the confidence to do so. The current recipe for style allows for ingredients from all levels and types of cultures. An exemplar of democratic style today is hip-hop culture, with its fashion and music based on sampling and layering, compositions of old and new, endowed with a finish of surprising originality.

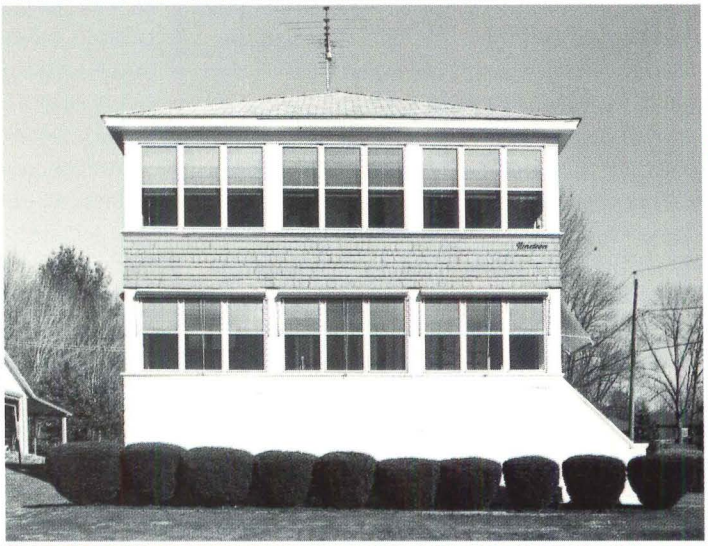
Architecture and design, however, lag behind. The majority of the population has little direct experience of good architecture. Architect-designed houses are still generally an option for the elite, while most serious architects have little influence on production housing (though recently many high-profile architects have begun to offer thoughtful alternatives in the increasingly overburdened suburban housing market). Design—of furniture, furnishings, and products—has greater potential to achieve a level of democracy akin to fashion, because people relate to both in a similar way: as consumers.

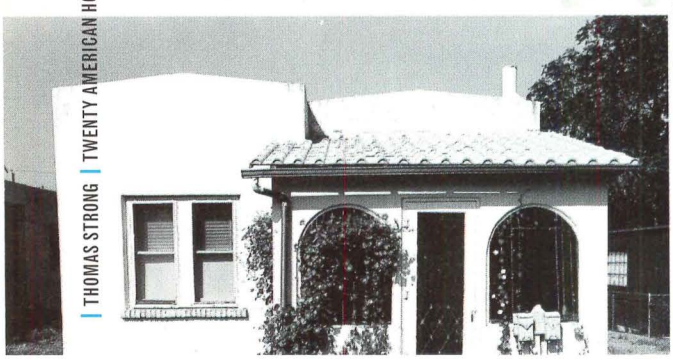
Design choices are more plentiful now than before, but this is not in itself a remedy. Still missing, on a broad scale, is knowledge of how or why people should buy this endless supply and variety of goods. Enter Martha Stewart, a revolutionary in the battle for a democracy of style and educator extraordinaire. Stewart shows a large public how to attain style through personal choices, focusing on at-hand, at-home creativity rather than simple emulation or consumption (though one must note that her products are available at that grand democratic emporium, Kmart). With step-by-step instructions, Stewart empowers her audience by giving them control of their personal style. Her lesson is worth learning: Good style is something that is found—not only in hip catalogs, magazines, and stores—but within us.







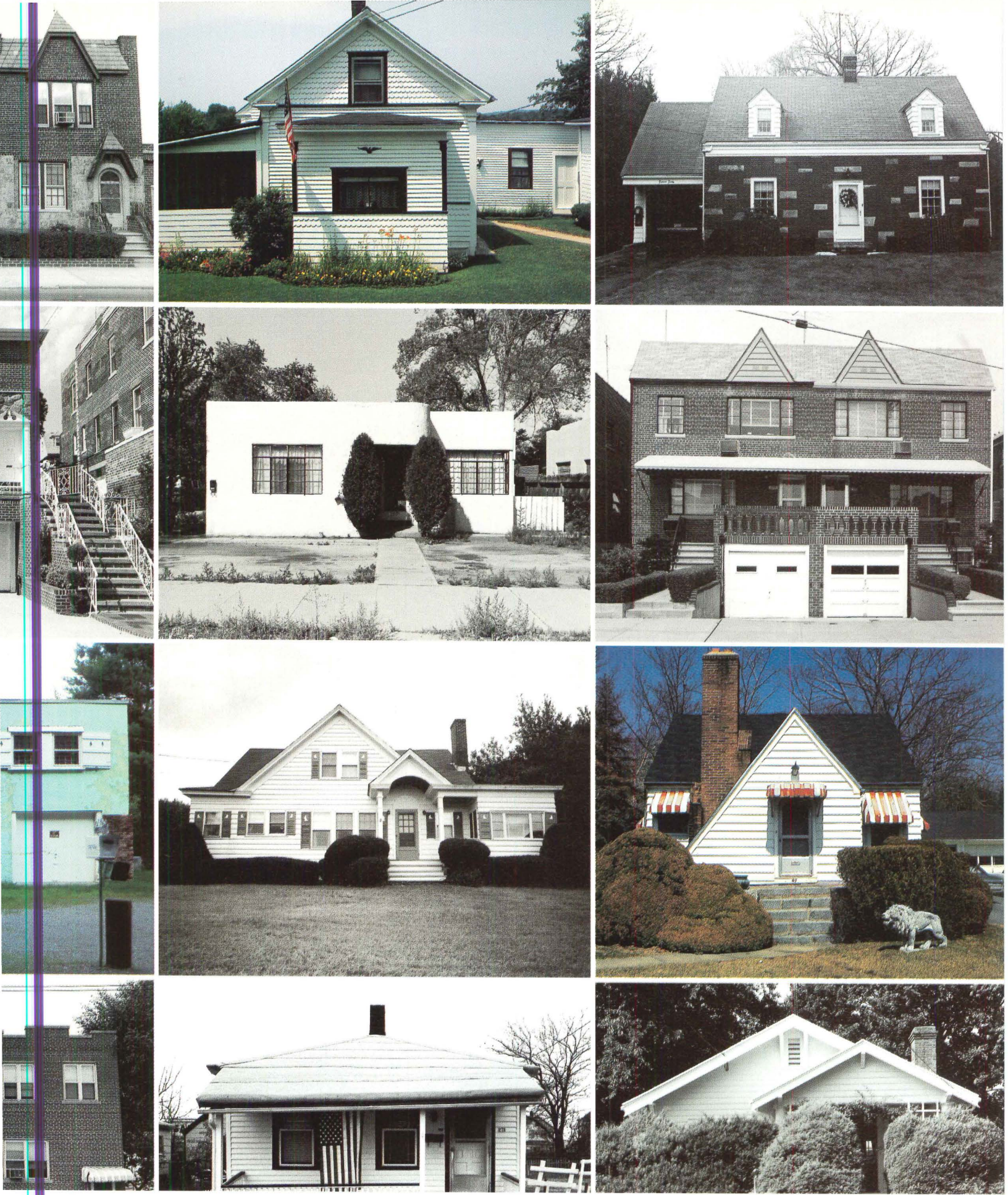





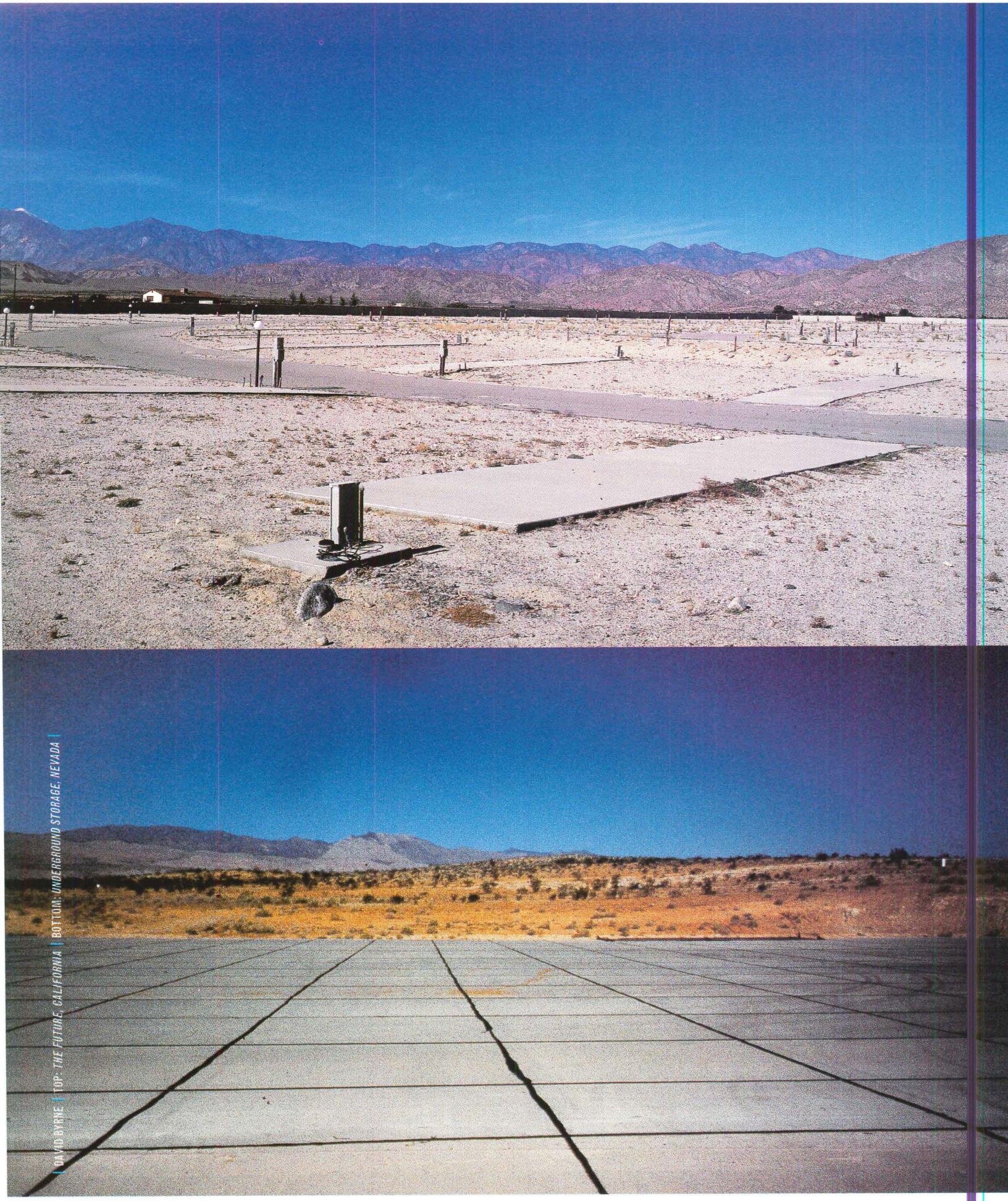



THOMAS STRONG | TWENTY AMERICAN HOUSES |

Number of homes built in the U.S. during this century: **100 million** Percentage of American families who owned their own home in 1950: **55** Percentage of Ame



lies who owned their own home in 1998: **63.8** Number of American homes that change hands each day: **more than 10,000**



DAVID BYRNE | TOP: *THE FUTURE, CALIFORNIA* | BOTTOM: *UNDERGROUND STORAGE, NEVADA* |

Acres of U.S. farmland lost to development every hour: **50** Number of U.S. farms eliminated since 1969: **800,000**

Sprawl Pilots

Po Bronson

Po Bronson is the author of *Nudist on the Late Shift: And Other True Tales of Silicon Valley* (Random House, 1999).

From 1,500 feet, suburban sprawl assumes its own logic.

My favorite metaphor being whispered around Silicon Valley lately is "Dark Matter." Physicists theorize that Dark Matter is sort of an invisible space glue—if it weren't for Dark Matter, the known universe would either collapse in on itself or drift apart. In the Internet industry, Dark Matter refers to the 10 million personal Web pages, and to all those people in Middle America trading antique muffin tins on eBay, and to those 15 million AOL users typing meaningless banter in chat rooms. In Silicon Valley, Dark Matter's real-life equivalent is the millions of ordinary people who commute up and down the peninsula.

So this fall, I had Dark Matter on my mind when I took a low-altitude reconnaissance flight over the Valley in a six-seat Cessna 206 during the peak hours of the Friday afternoon commute. My escorts were Fadi Saba, an environmental activist, and Stuart Cohen, director of the Bay Area Transportation Choices Forum. Our volunteer pilot was Bruce McLean, who spent eight years in the software industry before founding a charter-pilot service that caters to busy young entrepreneurs who need a lift around Northern California.

Bruce is a member of Lighthawk, an organization of pilots who volunteer to fly politicians over environmental hot spots such as clear-cut forests. They've found that a good visual is worth a thousand lobbyists; the dire reality speaks for itself. Recently, Lighthawk added suburban sprawl to its list of human disasters, and pilots are flying politicos over endless miles of look-alike cul-de-sacs and tract homes. I was the first passenger to get their 1,500-foot view of Silicon Valley.

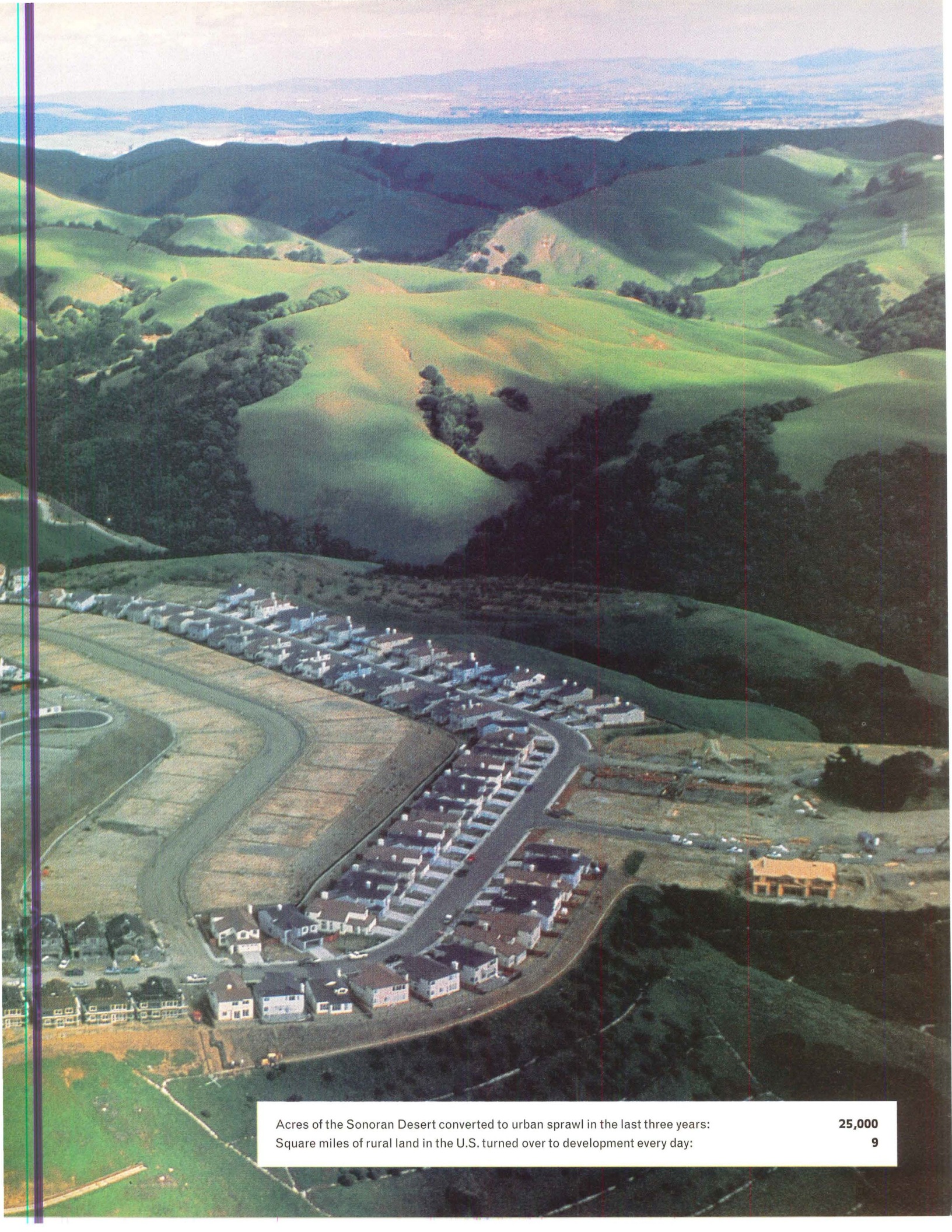
Their point about Silicon Valley is that 99 percent of the buildings are no more than two stories tall and surrounded by massive asphalt parking lots. The density of the Valley is only about five units per acre, versus 35 units per acre up in San Francisco. We took off from San Carlos, banking hard to avoid the six blue-mirror towers of Oracle, which is the only high-tech campus to build up rather than out. For many years, Valley residents thought the blatant visibility of these towers was ignobly ostentatious—just another way for the company's chief ego, Larry Ellison, to show off. But now his monuments to self are role models for smart growth.

As the Internet has boomed, Silicon Valley has blown out its southern border, erecting a corridor of tract developments and outlet malls on the farmlands of the lush Coyote Valley. But I couldn't muster any indignance to match that of my escorts. The thing is, from 1,500 feet Silicon Valley looks like Dark Matter heaven. Ordinary people absolutely love it here. Most of the development is in one long 55-mile arterial corridor that averages only three miles wide, which seems to me to be pretty much what planners want—one-dimensional sprawl is a lot more manageable than two-dimensional sprawl.

The consequence, of course, is highway gridlock. And at 4:30 on a Friday afternoon, the river of brake lights on the 680 to Fremont and the 237 across the Alviso mudflats is telltale. In Silicon Valley, all problems are viewed as great opportunities. So when I see the gridlock river, I just know there are dozens of entrepreneurs sitting in that traffic trying to figure out how to make telecommuting easier. And entrepreneurial-minded developers are no doubt calculating the economics—no politician needs to persuade them that with office rents nearing $4 a square foot per month, it's well worth tearing down those tilt-ups and building up into the sky.

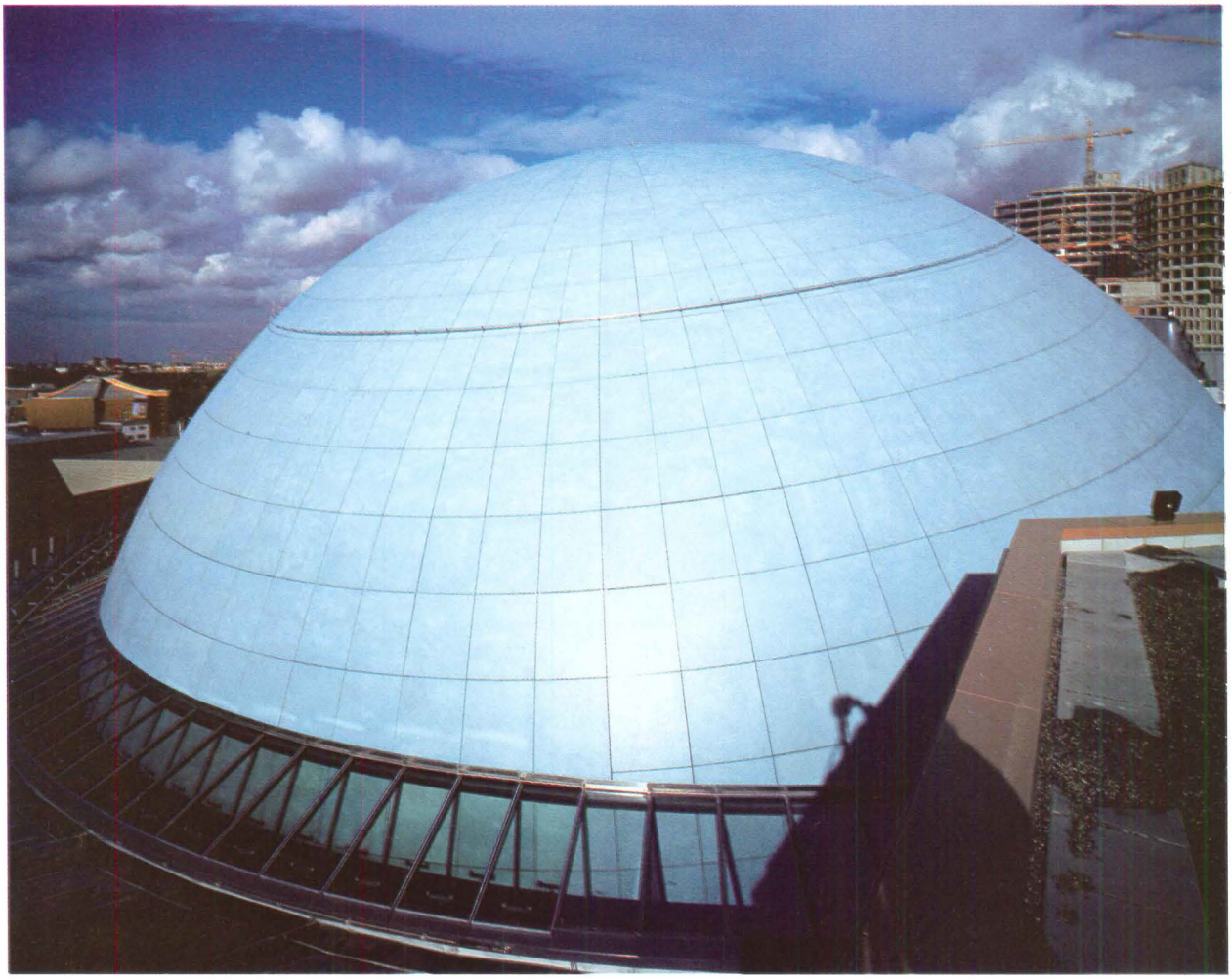
Inside the Cessna, our intercom gets taken over by our pilot negotiating with air traffic controllers. In our silence, we watch the red river of taillights. I know the sight of it disheartens my escorts, or makes them furious that society hasn't learned better. But I just see a market. A big red market, billions strong. I look into the future and see entrepreneurs emerging from the Dark Matter to tap that market, getting hugely and insanely rich off that market. Staring at that gridlock river, I am struck with envy.

ALEX S. MACLEAN | DUBLIN CANYON, CA



Acres of the Sonoran Desert converted to urban sprawl in the last three years:	**25,000**
Square miles of rural land in the U.S. turned over to development every day:	**9**

Michelangelo's work is without equal on the inside but look what Buchtal can do on the outside !!!



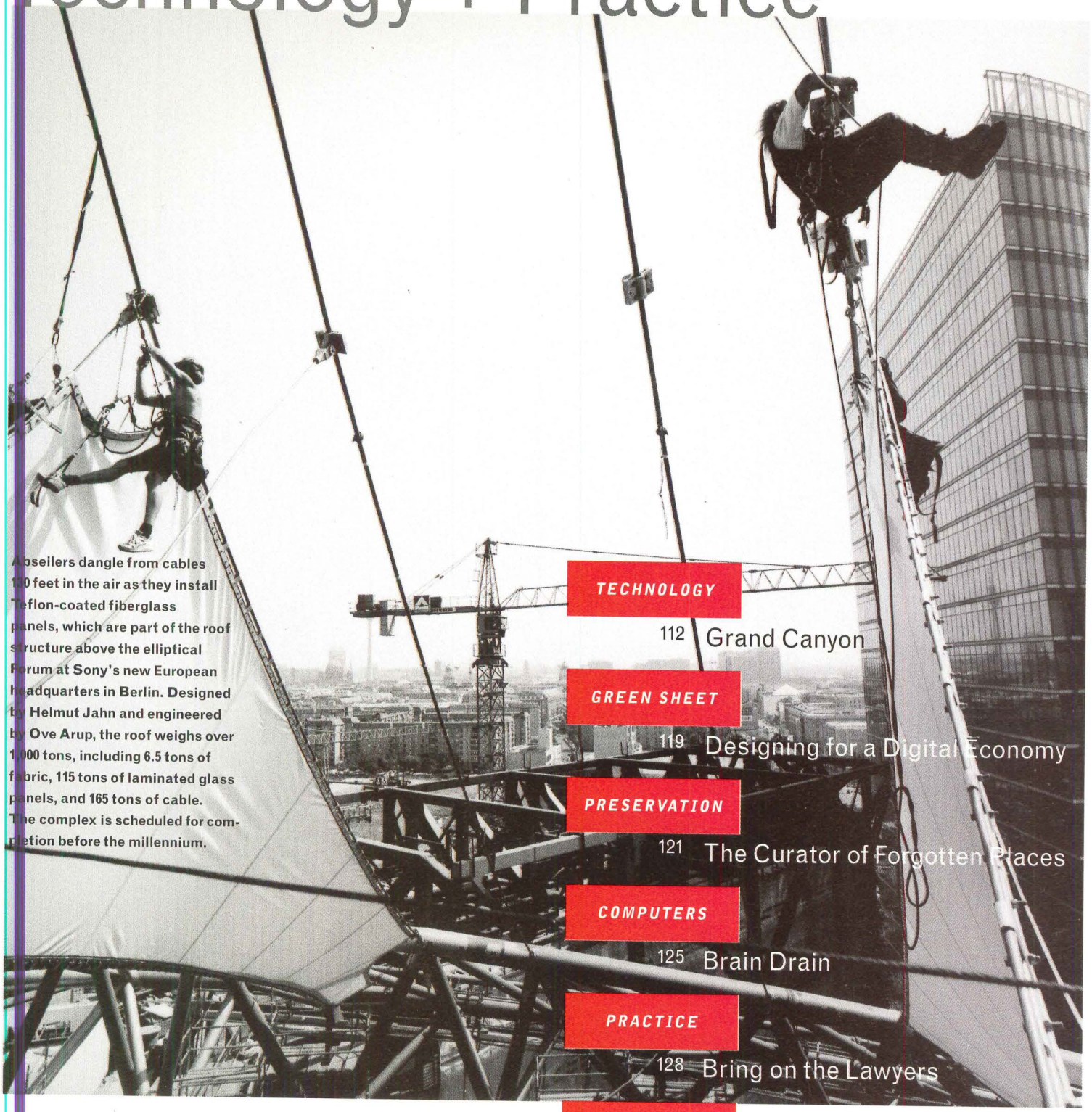
When the renowned European architect, Renzo Piano, was asked to create a very special look for the new IMAX theater in Berlin, he turned to Buchtal - the only ceramic manufacturer able to produce what he wanted. The 20,000 s.ft. surface of the dome is now covered by ceramic panels, curved in two directions and some as large as 4 ft. in height, giving the impression of a globe, glittering at night and reflecting the sun and clouds by day.
This unique project clearly demonstrates that Buchtal continues to be the industry leader in project ceramics. Whether it's a special size or a particular color you want, Buchtal should be your first call. You can find us on the web at www.buchtalusa.com or call us at 770-442-5500

BUCHTAL
Corporation USA

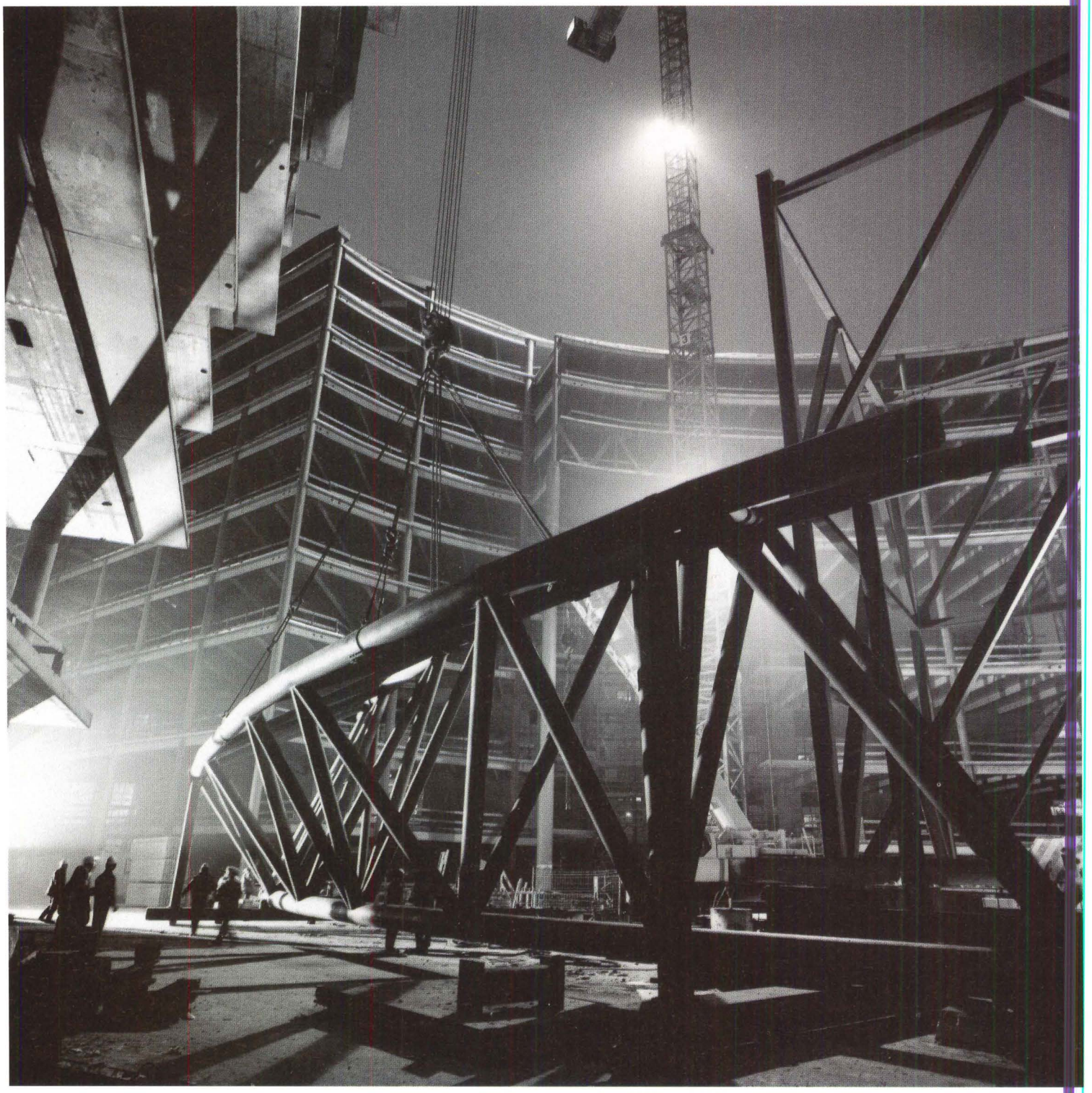
The leader in architectural ceramics

Circle 149 on information card

architecture
Technology + Practice



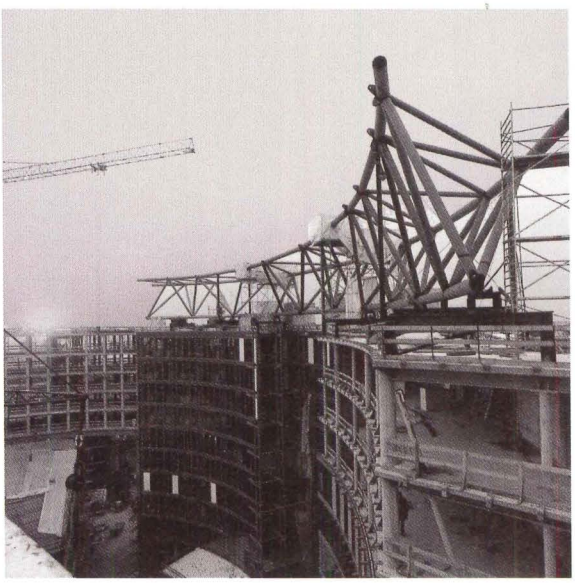
Abseilers dangle from cables 100 feet in the air as they install Teflon-coated fiberglass panels, which are part of the roof structure above the elliptical Forum at Sony's new European headquarters in Berlin. Designed by Helmut Jahn and engineered by Ove Arup, the roof weighs over 1,000 tons, including 6.5 tons of fabric, 115 tons of laminated glass panels, and 165 tons of cable. The complex is scheduled for completion before the millennium.

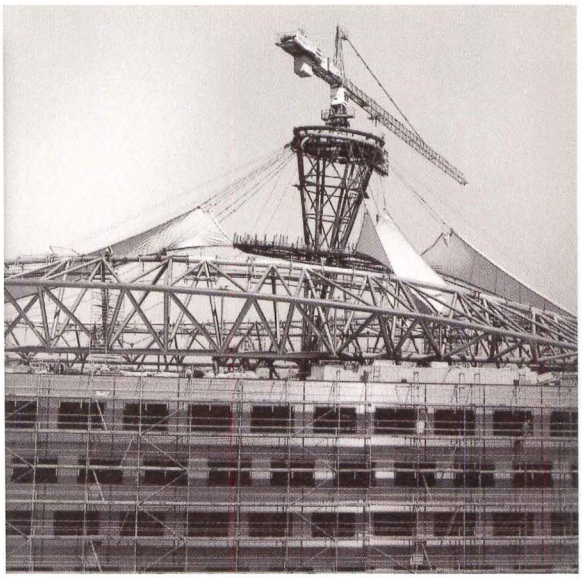


Grand Canyon

It's been described as a bicycle wheel, a tipped teepee, an umbrella with a hole in it, a volcano. To the architect, it's the anti-dome. To the engineer, it's a hyperbolic cone. Whatever the characterization, the enormous roof looming above the western edge of Potsdamer Platz in Berlin is certainly the focal point of Sony's new European headquarters.

The roof covers a 328-by-262-foot elliptical public arena called the Forum, which is the center of a 2.3 million-square-foot complex designed by German-born architect Helmut Jahn, principal of Chicago-based Murphy/Jahn, who won the plum commission to design the global multimedia and electronics giant's headquarters in 1992. Armed with the principles set forth in the government-commissioned master plan by architects Hilmer and





Photographer Roland Horn records the rise of Helmut Jahn's dramatic Forum at the Sony Center in Berlin. By Sara Hart

The Forum roof sits on a 550-ton compression ring beam, which is a triangular space frame (above images) made of steel tubes measuring 20 inches in diameter. The ring beam is supported vertically at seven bridge bearings on top of the surrounding buildings. Horizontally, it is supported at two structurally determined points that allow it to expand and contract freely according to temperature loading fluctuations.

Ring beam sections were too large to be fabricated in a factory and then shipped, so they were built on site (facing page). Computer-controlled plasma torches were required for the complicated welding process. The beveled ends of the tubes varied considerably in profile because the beam's cross section fluctuates between 13 and 24 feet as it follows the hyperbolic curve of the roof. The width maintains a constant 20 feet.

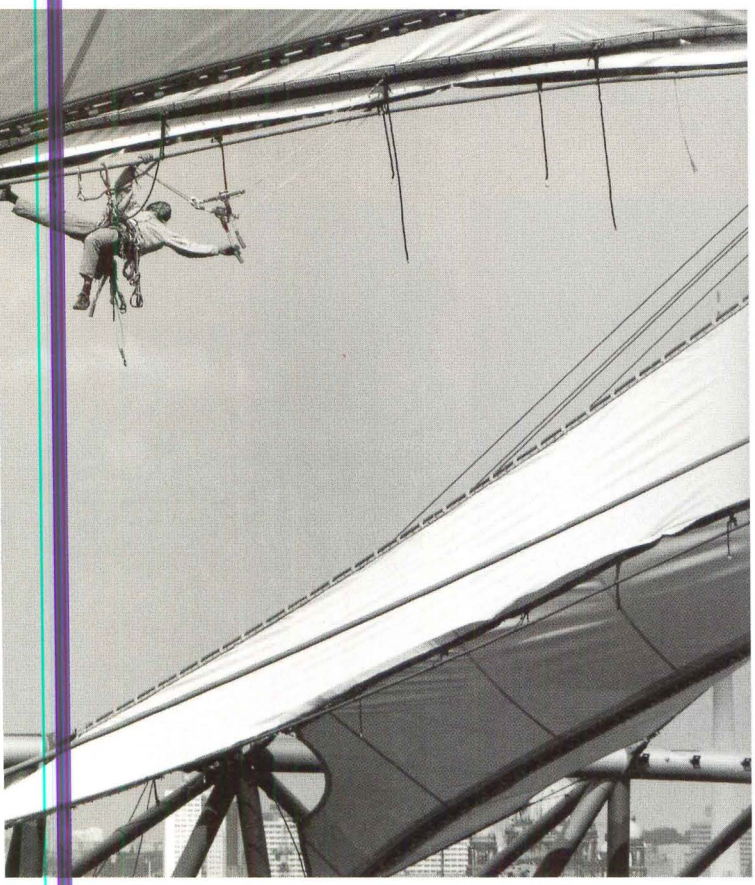
A 140-foot king post (above, right) extends 85 feet beyond the cone opening. Cross-braced tubes attach it to the steel ring beam defining the 33-foot-diameter opening in the cone.

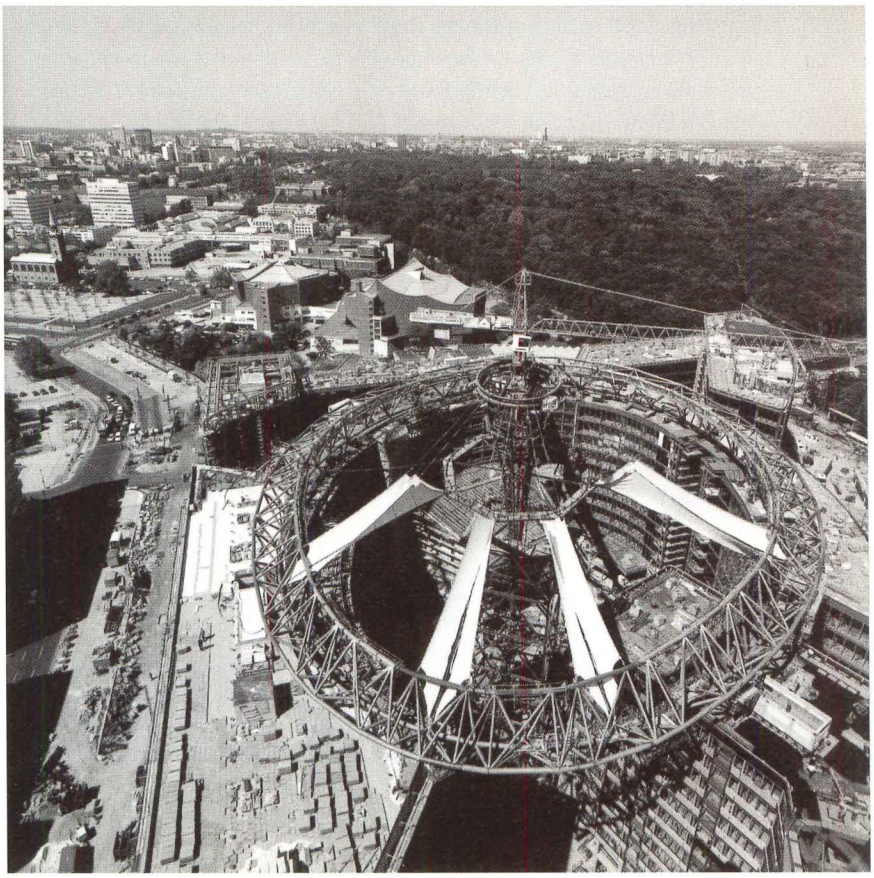
Sattler (*Architecture*, September 1998, pages 50–53), Jahn developed an urban ensemble of seven 10-story buildings and one office tower that climbs to 300 feet. Several of the structures circumscribe the Forum, which offers 24-hour retail and entertainment activities. The major draw will be Filmhaus—the permanent home of the Marlene Dietrich film archives— as well as a multiplex movie house and an IMAX cinema.

The Forum's spectacular roof is the work of Ove Arup's New York office. Associate Markus Schulte, who headed up the structural engineering team, describes the roof form as a hyperbolic cone made of prestressed cables, Teflon-coated fiberglass fabric, and laminated glass panels. "The surface of the roof was developed out of a hyperbolic cone. If you tilt a cone eight degrees, then cut it with a horizontal plane, the cone will be elliptical in plan," he explains. The hyperbolic form allows each panel of glass or fabric to be a consistent shape. The glass panels are described as segments of circumferential rings radiating from the cone, which in the ellipse is also the axis of symmetry. The fabric panels running between the glass

The steel node (above, left) at the bottom of the 94-ton king post supports cables leading to the ring beam.

A trifurcated connection (above, right) in the king-post cable is necessary to allow more even load distribution in the ring beam by spreading out the force from the main cables into three smaller cables. This detail also makes the ends of the king-post cables adjustable to compensate for the tolerances in the ring beam.





Abseilers (above, left) installed 6,280 square yards of Teflon-coated fiberglass panels. Each fabric segment has two ridge cables and one valley cable (above, right) measuring 1.5 inches in diameter. These cables have anticlastic curvature, and the fabric spans uniaxially between them.

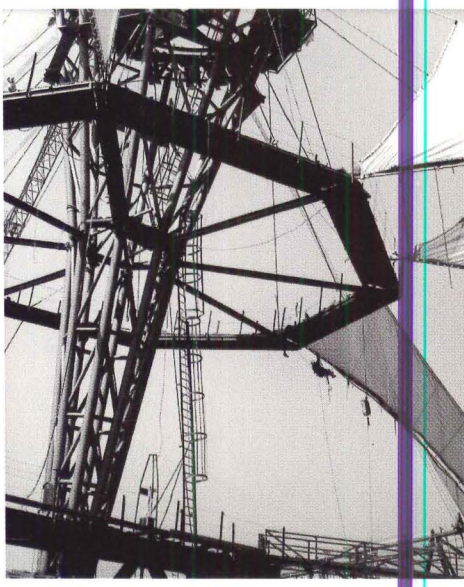
One hundred sixty-five tons of cables were used in the roof structure (above, right). These are fully locked aerial cables: The outer wire layers of the cables have a *z*-shaped section, not a circular one. This shape enables the wires to interlock, thus preventing moisture from infiltrating the cable.

segments are configured three-dimensionally as ridges and valleys.

The outer system of cables supporting the glass and fabric panels are attached to a compression ring beam at the perimeter. Schulte compares it to a bicycle wheel. "Two layers of cables span radially from an inner axis to an outer ring beam. The top layer of cables controls the alternating fabric and glass panels," he explains. "The bottom layer suspends a king post in the interior of the space over the Forum."

Whereas the roof is designed to protect the enclosure from the elements, its tilted cone is open, allowing it to act as a chimney by drawing warm indoor air through the top. In winter, the comfort level of the space will be passively controlled by the radiant heat from the buildings that enclose the Forum, which will also act as wind shields. Both architect and engineer agree that this solution adequately ventilates the space without the use of expensive, energy-consuming HVAC systems. Oddly enough, however, no one knows how much precipitation will actually infiltrate the space through the open cone, but the consensus is that only the severest storms will pose a threat. Regardless, it will remain permanently open.

Berlin photographer Roland Horn usually takes pictures of people at work, which is what drew him to the Sony construction site. Here, he widened his field of vision to capture the surgical precision and synchronicity of welders fitting sections of the 550-ton ring beam together while dangling abseilers connect Teflon-coated panels to a complex system of cables. This is one of many projects the Berlin government hopes will erase the horrible urban scar left by the Berlin Wall and restore the city by the beginning of the next century to its stature at the start of this one, when Berlin was the bustling capital of Germany and Potsdamer Platz was its cultural epicenter.



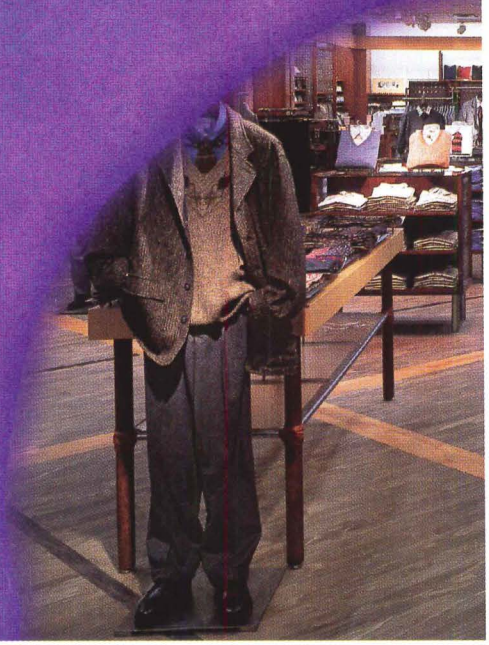
Engineers evaluated the integrity of the structure using three different computer programs. Fablon, developed internally by Ove Arup, was used for form-finding and investigating strength and serviceability. SAP2000Plus was used to calculate the natural frequency for the ring beam and the king post (above images).

Laminated glass panels will fill the gaps between the fabric panels (facing page). Glass distortion was a major concern. A third computer program was written to calculate the warping and the rotation of each glass panel based on the results for the overall displacement of the structure. The initial concept specified glass shingles with sliding bearings, but the contractor replaced them with elastomeric buffers.

THE FORUM ROOF, BERLIN

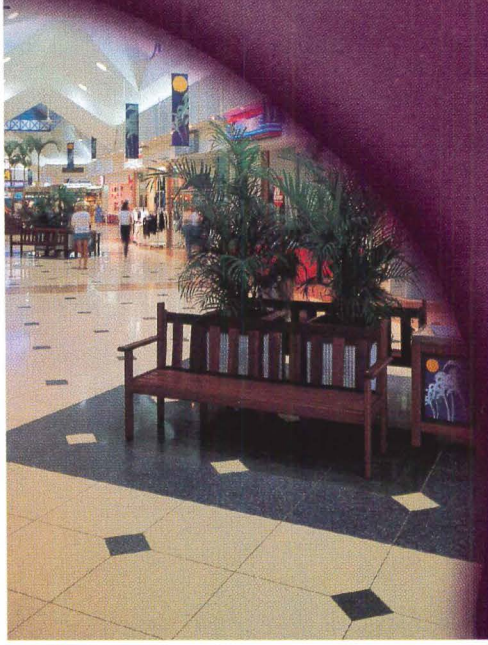
CLIENT: The Sony Corporation in partnership with Tishman Speyer and Kajima **ARCHITECT:** Murphy/Jahn, Chicago **CONSULTANTS:** Ove Arup & Partners, New York City (roof structure); Hochtief AG, Berlin (general contractor); Waagner-Biro, Graz, Austria, with Birdair, Buffalo (roof subcontractor) **COST OF ROOF:** $16 million

If it looks smart...

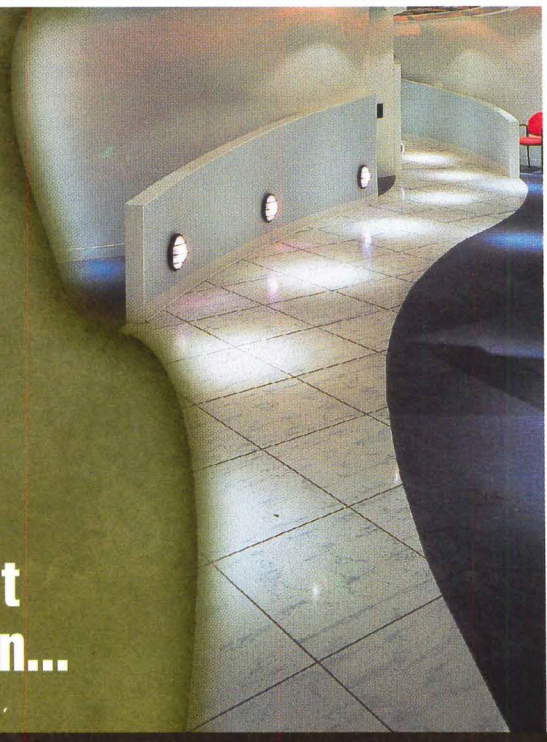


Timeless® Series 3 acrylic impregnated hardwood flooring in a California department store.

and the performance of the floor is smart...



Armstone® cast marble tile installed in a shopping center in Western Australia.



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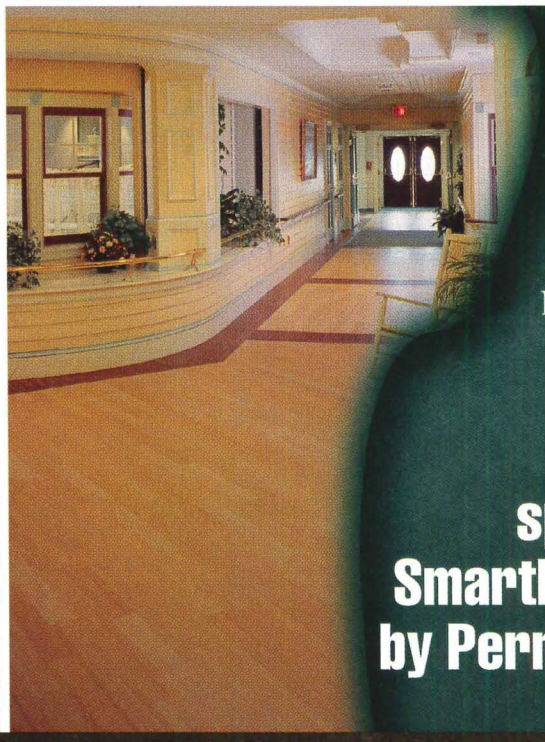

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Designing for a Digital Economy.

Nevin Cohen explains how e-commerce will transform the built environment.

In just a few years, the Internet has grown from an obscure tool for academics to a worldwide community of 170 million people. It has also emerged as a global electronic marketplace. In the United States alone, the value of online business-to-business transactions, commonly referred to as electronic commerce, or e-commerce, is projected to reach $1.3 trillion by 2004 with online consumer sales exceeding $80 billion, according to Forrester Research, a Boston-based firm that studies the Internet market.

E-commerce will likely reduce the need for some building types, particularly banks, bookstores, and other businesses that primarily process or sell information-based products, giving architects a unique opportunity—perhaps even a professional responsibility—to create bold schemes for a rapidly changing environment. According to James Culberson, president of the American Bankers Association, soon half of all financial transactions in the United States will be conducted electronically, with one-third of all bank branches closing as a result. With the growth of on-demand publishing and downloadable music, new retail establishments can be designed as compact showrooms with virtually no physical inventory.

Whereas certain building types may become obsolete in urban centers, the new digital economy may create a market for residential building in areas heretofore considered impractical. Craig McCaw, telecommunications guru and former owner of McCaw Cellular Communications, insists "the real potential of the Internet is that people can live where they like." Armed with cellular telephones and solar generators, people can build homes beyond the reach of the utility grid and still have access to products from around the world. In Arizona, where $270 a month buys the photovoltaic panels and backup propane generator to run a fully wired household, developers are gobbling up the most remote vistas for luxury housing. Authorities concerned about open-space conservation may find themselves unprepared to deal with a completely new set of land-use issues. Some areas of southeast Arizona considered protected simply by virtue of their inaccessibility—such as Bisbee, a former mining town in a chaste canyon—are now being developed off the grid as luxury ranches.

Although e-commerce promises waste reduction, the truth is that, at least in the short term, surges in consumption of certain resources can be expected. Ironically, one such side-effect of online shopping has been an increase in gasoline consumption. The average American household makes more than 500 trips to the store by car each year. As consumers do more shopping online, some trips may be avoided. But if they insist on overnight delivery to replicate the instant gratification of in-person shopping, fuel consumption could actually skyrocket. Patagonia, the outdoor-clothing company, found that if it sent a product via overnight mail, transportation alone accounted for over a quarter of the energy required to manufacture and deliver it.

Architects and planners will face major challenges in the decade ahead. The first is to begin measuring the Internet's impact on the built environment by tracking "dotcom" practices, studying transportation and building patterns, and surveying the shopping habits of Internet users. The optimistic view envisions architects using this data to create prototypes that, for instance, combine gas stations with mail-order pick-up and return facilities, while employing new technologies and identifying greener methods and materials. Meanwhile, a clear view of the new e-landscape remains forever around the corner.

Environmental consultant Nevin Cohen is currently developing a program with the Tellus Institute to examine the environmental impact of the Internet.

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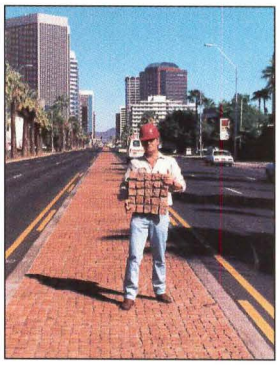

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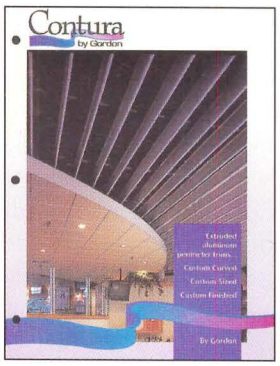

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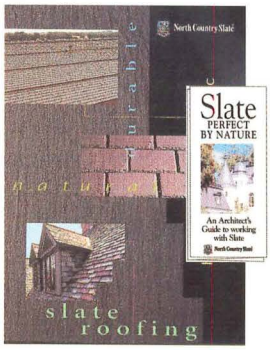

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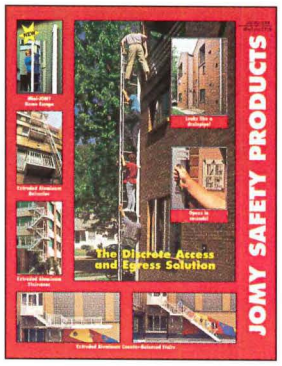

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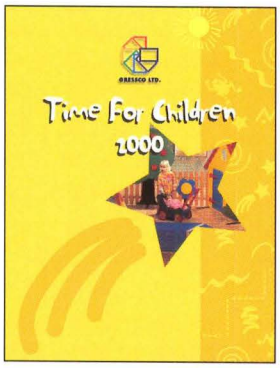

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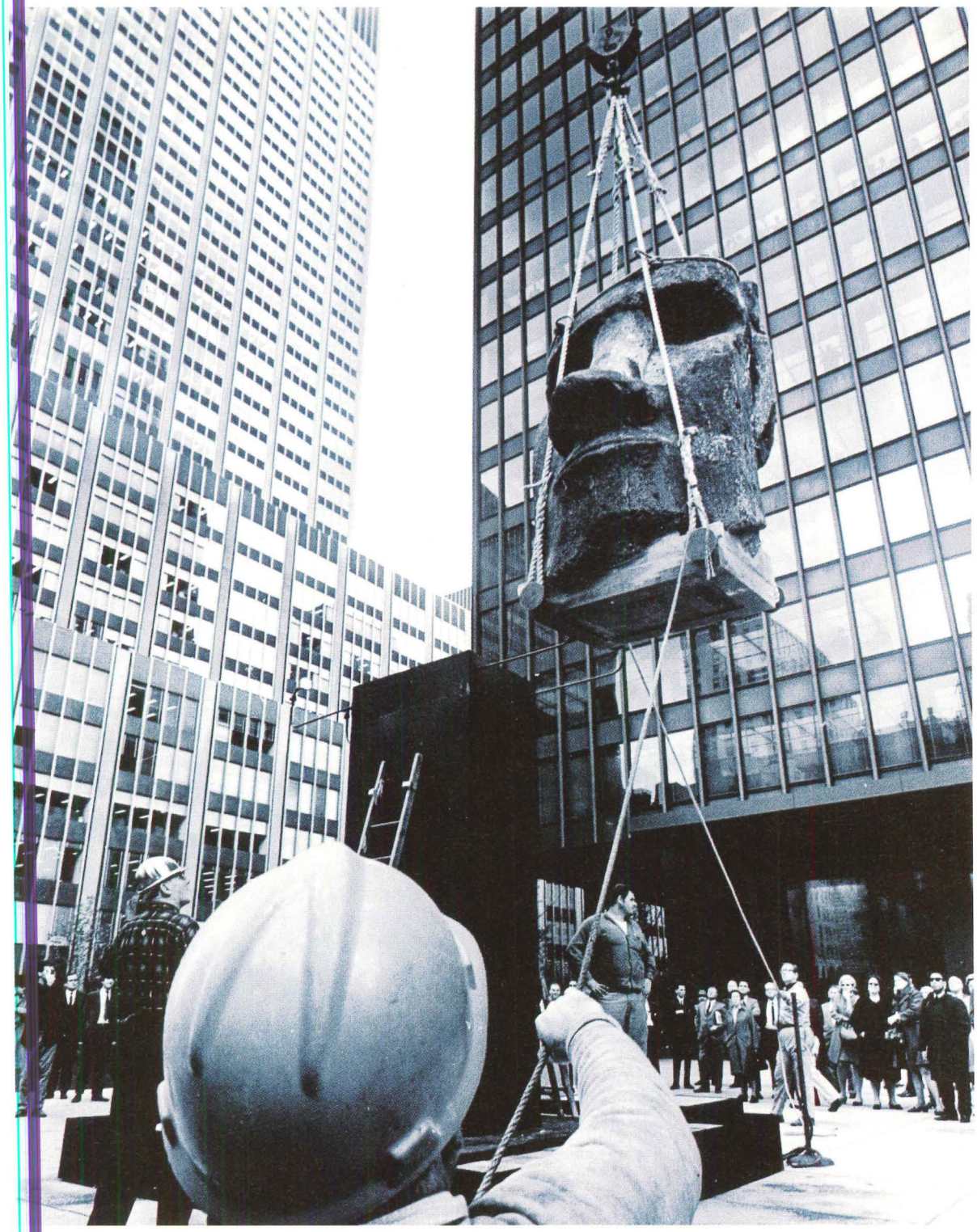


The Curator of Forgotten Places

An art world impresario campaigns to save neglected sacred sites.

By Michael Cannell

Stoneriggers hoist five-ton **Easter Island head** onto pedestal on Seagram Building plaza in 1968.

At 4:30 in the morning on October 13, Sam Green, a fiftysomething New Yorker with a shock of silver hair and a neatly trimmed beard, stood in a plaza in the Costa Rican capitol of San José and watched triumphantly as two tractor-trailers drove west into the predawn darkness. The trucks followed the Pan American Highway as it switchbacked up the 11,000-foot Cordillera de Talamanco and descended the far side to the jungles of the Diquis Delta in the country's far southwestern corner. There, after a full day's drive, the trailers disgorged their unlikely cargo: eight granite spheres sculpted to smooth, mathematically perfect proportions by ancient artisans. The largest orb weighed eight tons. Think of them as a Latin American version of Stonehenge—strangely stirring monoliths of mysterious pre-Columbian origin. Baffled archaeologists can only guess at their origin.

The spheres were discovered when the United Fruit Company cleared the land for expansive banana plantations in the 1940s. One by one, the granite orbs were taken away and installed as yard ornaments for homes and government buildings. "They're thought to be good luck," Green says. "Anyone with a truck just took one."

The churches of Ani, Turkey, have been abandoned since 14th century (left). Mysterious **mesoamerican spheres** found in southwestern Costa Rica are rounded to within millimeters of perfection (right).

Green first inspected the spheres in 1972, shortly after a plantation manager's wife described them at a New York dinner party. Earlier this year, he joined the Museo Nacional de Costa Rica in a campaign—more like a rescue mission—to repatriate the 500 spheres that were missing. Arriving on the site three days after the tractor-trailers unloaded the first eight spheres, Green watched a ragtag local marching band honor their return. "I had to put my sunglasses on to hide the tears," he says. "It may be the first time a national museum has returned treasures to the people whose land they came from."

Days later, Green is working the phone and fielding faxes back in the Manhattan office of his nonprofit Landmarks Foundation Protecting Sacred Sites Globally (*www.landmarksfoundation.org*), a four-person volunteer operation housed above a fashionable Upper East Side restaurant. His self-appointed mission: to conserve the overlooked religious edifices languishing in the world's backwaters. Practically nobody cares that Irish farmers are toppling Celtic circles of stone or that Mexican cattle ranchers are fencing off the Huichol Indians' 1,000-year-old pilgrimage routes—nobody but Green, that is. "This is my niche," he says. "I'm not interested in fixing frescoes and gilded palaces. I'm not interested in displays of wealth and power."

Curator at large

Green found his calling while serving in 1968 as New York City's curator of outdoor sculpture. That year he learned that Lan Chile airlines and Air France were planning an airstrip and refueling station on Chile's Easter Island for transpacific flights, thereby endangering one of the world's great sites of indigenous sculpture. Green conspired to scuttle their plan by arranging for a military cargo plane returning from Vietnam to stop off at the island and load up an eight-foot sculptural head severed from its 12-foot pedestal by a 1960 hurricane. As New York's czar of public sculpture, Green knew how to move big objects. He managed to close the 59th Street Bridge and two lanes of Park Avenue so the head could be transported from Kennedy Airport to the Seagram Building, where it was mounted on a pedestal designed by Philip Johnson. The scowling, pucker-mouthed monolithic head provoked a public outcry, and the Easter Island bulldozers were halted. (The head now stands outside Chile's national museum.)

Over the following three decades, he curated private art collections for wealthy clients. In lieu of payment, he often accepted plane tickets to remote religious ruins. He inspected dozens in all, from Bhutanese monasteries to Buddhas carved into a Sri Lankan mountainside. "I'm like a junkie," he says. "I need my fix of awe. I find it in sacred places that still have that spirit in them. Notre Dame doesn't have it anymore; the tourists took it all away. I have to travel to sites that make my pulse race."

Neglected sites

At first, Green went for fun. "It was a great pleasure, not a responsibility," he says. "Nobody would walk all those hundreds of miles unless they wanted to go." Over the years, however, he grew grievously aware that the preservation establishment had turned its back on his sacred sites. The World Monuments Fund (WMF), with its Park Avenue headquarters and extravagant backing from American Express, skews its resources toward visitor-friendly, photogenic landmarks, sites that announce their significance in obvious ways, such as Colorado's Mesa Verde and Arizona's Fort Apache.

By 1995, Green felt he could no longer stand by as development and erosion preyed upon forgotten sites. "It

came time to do something about it," he says. "I wanted to see if I could replicate my success with Easter Island." That year, Green launched his foundation with backing from philanthropists Caroline Newhouse and Sandra Payson. (Green is the descendent of the Boston beer manufacturer, and so far he has supplied most of the foundation's $100,000 budget.)

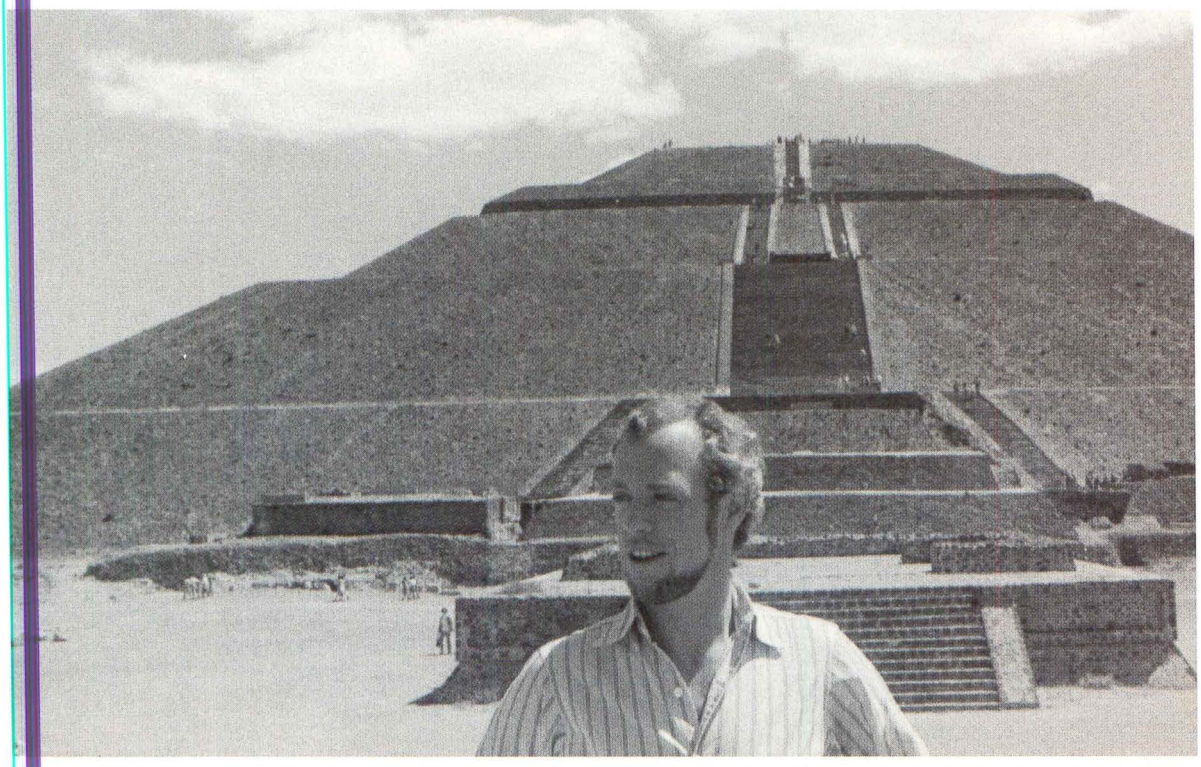
The WMF, with its proprietary grip on the field, is quick to dismiss Green as a well-intentioned amateur, a dilettante working on the fringes. But even his detractors offer begrudging respect for his unflagging instigative energy. "When Sam Green dies, he's going to heaven," says John Stubbs, the WMF's vice president of programs. "It's activists like him who roll up their sleeves and carry the banner."

A year after launching the foundation, Green helped organize a conference in Ani, Turkey, site of more than a dozen abandoned proto-Gothic churches in various states of ruin. Anecdotal history contends that the 13th-century crusaders observed these churches, and conveyed their early Gothic stirrings home to Western Europe. For all its significance, Ani has suffered from ill-conceived preservation. At one point, Turkish authorities poured cement over walls in a misguided bid to protect them. Still worse, walls are pockmarked with recent shell damage, suggesting the churches have been used for target practice. Green helped assemble an international roster of archaeologists, engineers, and preservationists to emphasize the site's importance. "It took just three days," he says, "to persuade the Turkish government to properly protect them."

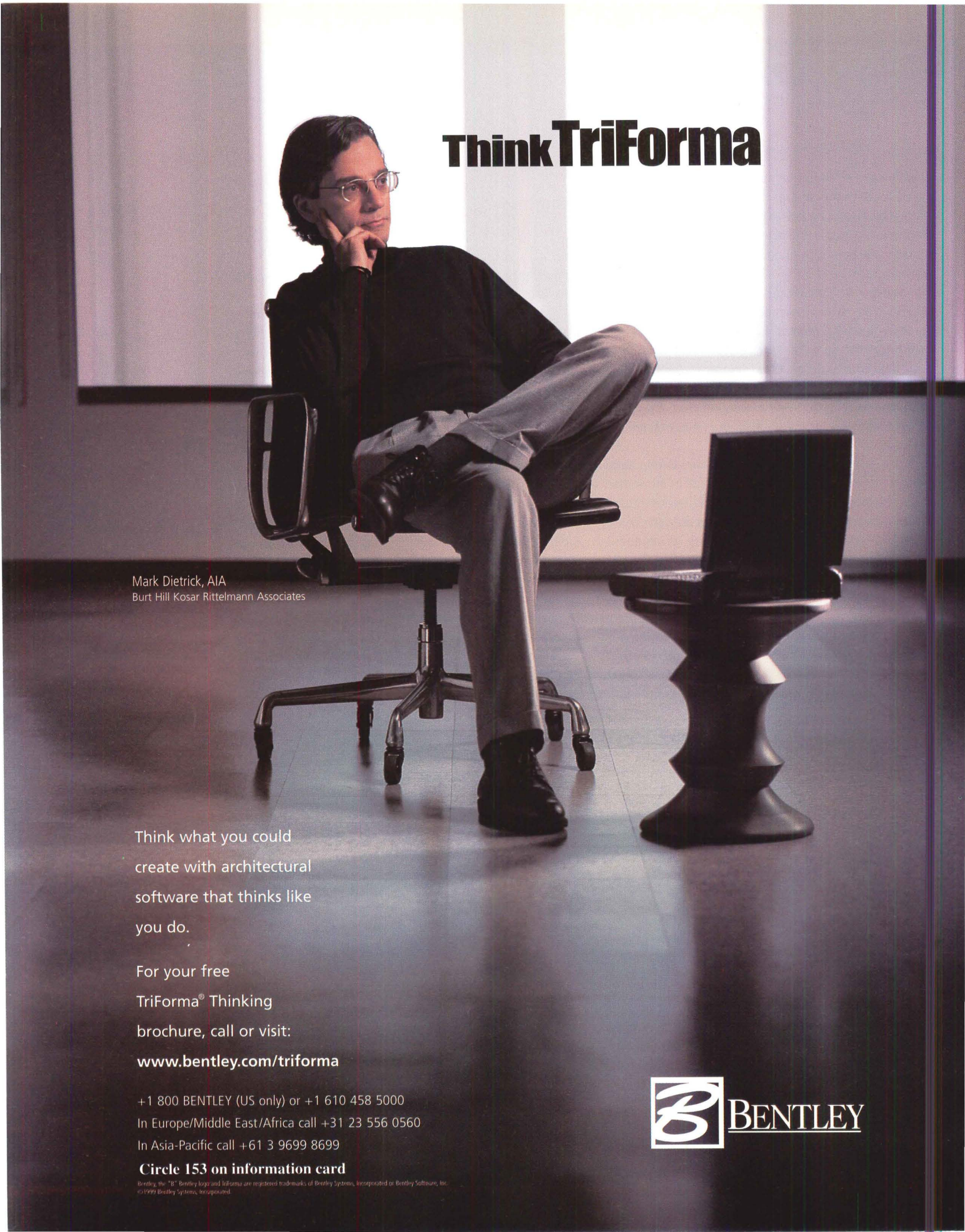
Practically nobody cares that Irish farmers are toppling Celtic circles of stone or that Mexican ranchers are fencing off Indian pilgrimage routes.

More than half a dozen times a year, Green embarks on the curatorial equivalent of *Heart of Darkness*. Weeks after returning from the reinstallation of Costa Rica's spheres, he would fly to Cuba, where he's trying against formidable resistance to preserve a cemetery crowded with neoclassical tombs and statuary dating back to the 1830s. He also plans to accompany Princess Elizabeth of Yugoslavia on an inspection tour of monasteries damaged during last spring's ethnic war. Last month, Green learned of a small temple-fortress complex in Jodhpur, India, in critical need. He's also investigating a little Russian church bombed during World War II. Villagers collected fallen ceiling frescoes and painstakingly stored the pieces for the last 50 years. Green will solicit donations for these projects among his friends in New York's social whirl, a task he refers to as "social work."

Green holds the collection plate in one hand and his passport in the other. "I go out of a sense of mission," he says. "It seems to be my destiny to travel to the most difficult places on earth and look at piles of rock and know that they were once very special."



Sam Green inspects **Toltec ruins** of Teotihuacan, northeast of Mexico City, in 1972.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Brain Drain

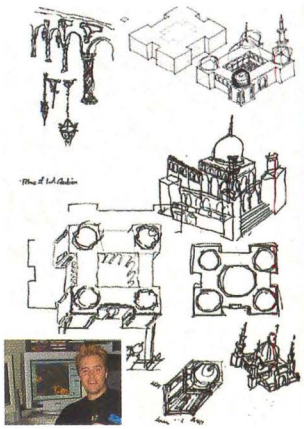
Young architects are fleeing the studio to build in the virtual world.
By Michael Cannell

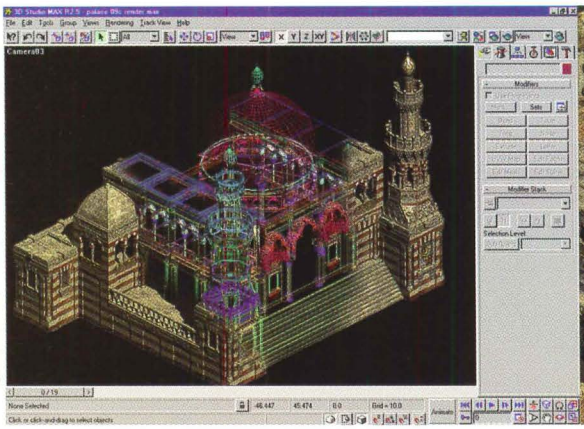
When David Glenn earned a bachelor of architecture degree at Virginia Polytechnic Institute in 1993, he had every reason to expect a conventional design career. Although jobs were scarce at the bitter end of the recession, he found work preparing renderings for big corporate projects.

Three years later, Glenn, 29, designs shadowy dungeons stalked by mercenaries, domed palaces lined with elaborate frescoes and parquet floors, and cathedrals built over the ruins of ancient monasteries. He toils in the realm of mad kings and rampaging sorcerers. No, he does not work for Robert A.M. Stern.

Glenn designs background scenes and buildings for Diablo II, the upcoming sequel to the best-selling computer game produced by Blizzard Entertainment. He stands in the vanguard of a growing trend: Thousands of young architects are abandoning traditional design careers to ply their skills in the more remunerative and freewheeling fields of computer games and film special effects. "I could never have predicted this path," Glenn says. "But it allows me to actualize what I enjoy about architecture without having to be a monkey in some big corporate machinery. Of course, you interact with virtual architecture in a different way. But I still consider it architecture."

As three-dimensional computer modeling establishes itself as a mainstay of architecture curriculums, students find themselves eminently employable in other fields. For Glenn, the transition was seamless. As a renderer with Michael Sechman and Associates, in Orinda, California, he used AutoCAD programs, 3D Studio MAX by Kinetix, and Photoshop by Adobe to depict train stations, airports, and high-rises. In 1997, Maxis hired Sechman's firm to work on Simcity 3000, the latest in a line of popular simulations of virtual cities. All of a sudden, Glenn found himself designing entire metropolises, richly detailed with stadiums, municipal parks, and elevated highways. In January 1998, Glenn jumped to Blizzard, where he now conjures mesoamerican pyramids and Egyptian desert outposts for Diablo II. "As games become more sophisticated, the design considerations have grown more important," he says. "Games have become like movie productions. You can get by without set designers, but you're a lot better off with them. Can games continue to thrive without architects? Not likely."





"You interact with virtual architecture in a different way. But I still consider it architecture."

David Glenn sketched studies for Diablo II's Palace of Lut Gholein (left). Sketches were translated to computer composite (center). Finished palace as it appears in game's desert scene (right).

What does the exodus portend for the profession? It suggests, at least in part, that architecture is alienating its interns, who earn an average of $39,200—about 25 percent less than architects who work on computer games. The number of architects taking the Architectural Registration Exam has dropped by nearly 75 percent since 1990. The field can hardly afford further attrition.

On the other hand, the virtual world amounts to a vast new frontier in which to work. "We're always trying to narrow the definition of architecture," says Dana Cuff, acting chair of architecture and urban design at the University of California, Los Angeles. "We might be better off broadening it. It's encouraging that many fields—from theme parks to computer games—are turning to architecture for the best-trained digital designers."

"It's no longer acceptable to have a corridor leading to another corridor. Players want to see intricate circulation patterns."

David Dunn situated Oni's crime task-force headquarters down dark city street (left). Crime fighters inhabit virtual office building (right).

Moving into the mainstream

It would never have occurred to game manufacturers to recruit architects back when games consisted of crude figures jerking their way across flat, two-dimensional scenes. As new software programs such as Adobe's Photoshop and Discrete Logic's Lightscape introduced the light and texture of detailed 3D environments, architects were suddenly in demand. "We want to move into the mainstream," says Brandon Smith, spokesperson for Cavedog Entertainment, a game manufacturer based in Bothell, Washington. "We're looking for legitimacy, and architects can help."

"Games designed by illustrators now feel hollow and incomplete," adds Ron Gilbert, Cavedog's creative director. "You walk through a virtual world and you realize the door isn't the right size, windows are the wrong height, and the circulation isn't arranged like a real building. All those subtle things make us subconsciously comfortable in a building. That sense of realism is crucial to pulling people into that world. Consumers won't buy games that don't feel right. We need that sophistication to be competitive."

"It's no longer acceptable to simply have a corridor leading to another corridor," adds David Dunn, an architect working on a futuristic game called Oni for Bungie Software. "Players want to see open spaces and intricate circulation patterns. If you have a design background, you're trained to think in those terms."

Architects will also play a growing role as the game industry grows up and expands out of its kid ghetto. Last year, games were the fastest-growing segment of the entertainment industry, with 181 million units sold, or roughly two games for every U.S. household. Surprisingly,

nine out of 10 purchasers were 18 or older, according to the Interactive Digital Software Association. "We're right on the cusp of respectability," Gilbert concurs. "Entertaining yourself on the computer is becoming more acceptable, and not just for kids. Some alien-zapping 12-year-old doesn't care if the surroundings are architecturally correct, but it matters to our growing older audience. They want a more realistic experience."

For that reason, game manufacturers are willing to pay generously for a convincing sense of place. Glenn, for example, now earns three times as much money as he did in his last architectural job, which ended less than two years ago. Architecture graduates who concoct special effects for movie production can make $100,000 or more within a year or so. Plus, entertainment companies typically offer stock options, bonuses, and profit sharing—benefits often unknown among even the plushest design firms.

Graduates who would otherwise endure years of stultifying junior-level scut work are drawn to the virtual world's swashbuckling, free-for-all meritocracy. "I have all the fun of working in an experimental design field," says Julia Reuwee, a lead designer at CyberSites, a New York Internet firm that hired seven architects as it more than doubled in size over the last four months. "I have everything I liked about school: studio space with pinups and reviews. But I don't have to deal with contractors and clients."

Creature features

The same holds true for architects working in the closely related field of movie animation and special effects. As many as ten years ago, architecture students started learning animation programs in order to simulate the experience of walking through elaborate unbuilt spaces. When Tim McLaughlin graduated from Texas A&M's four-year program in environmental design, for example, he left with an animation reel instead of the traditional portfolio. "My work looked more appropriate for the entertainment industry than architecture," he says. "I thought I was stepping into the architectural future," McLaughlin says, "but I ended up outside architecture altogether." Within months, McLaughlin was working at George Lucas' Industrial Light & Magic in Marin County, California.

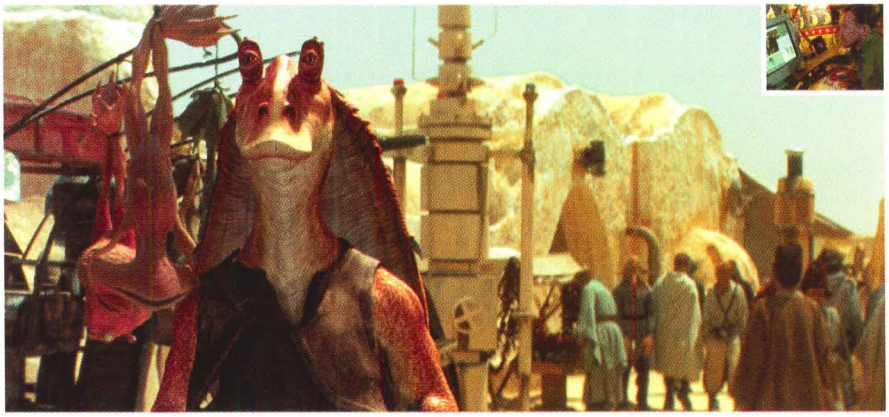
Over the past five years, McLaughlin has concocted hundreds of animated creatures for five feature films, including this year's *Star Wars* prequel, *The Phantom Menace*. His job is to meld the color and texture of the creatures' skin and clothes with their underlying skeletal structure so they move with a cohesive and convincing gait. "It's not unlike the skin of a building with systems inside it," he says. "There's the outside appearance versus the inner mechanics."

The demand for architects can only grow as the graphical sense of place explored by computer games is used to organize information on CD-ROMs and Internet sites. CyberSites, for example, produced a CD-ROM, called SPQR, that invites users to walk through ancient Rome. From the Forum to the Temple of Saturn, today's ruins stand as if newly completed. The firm also built a Web version of ancient Rome (*www.ancientsites.com*) that has attracted 100,000 registered users. "It's like a living, breathing city of 100,000," says cofounder Edwin Muir. "Some are sleeping, but at any given time, 300 of them are in our town square." Muir has also replicated Athens, Babylon, and colonial New York, among others.

Of course, virtual architecture is by definition flickering and ephemeral. Muir's buildings fade with a mouse click. Heady as their pell-mell careers may be, today's young cyberarchitects—or most of them, anyway—still aspire to build something real. "You can't ever give that up," says Muir. "Maybe what we're doing now will pay for it. We'll build real architecture after the big IPO." ■

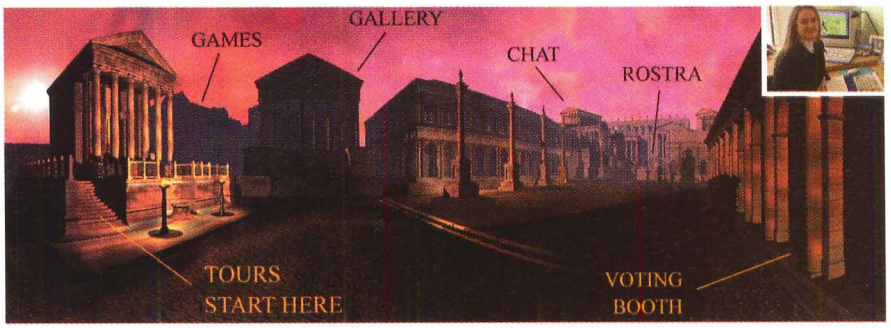
"I thought I was stepping into the architectural future, but I ended up outside architecture altogether."

Tim McLaughlin's creation, Jar Jar, strolls on *Star Wars* planet Tatooine.



"I have all the fun of working in an experimental design field, and I don't have to deal with contractors and clients."

Julia Reuwee designs virtual cities, including ancient Rome.



Bring on the Lawyers

Will patents turn architecture into a litigious dogfight?

By Shaila Dewan

At first glance, Parkside looks like any number of gated housing developments spreading like kudzu along Houston's western edge, luring homeowners with the nostalgic whisper of pastel clapboard and neighborly evening chats over the fence. There's nothing novel about its mix-and-match facades, postage-stamp lawns, and brick-paved streets. But to Houston architects Mark Kaufman and Donald Meeks, Parkside is special—so special, they patented it.

In fact, Kaufman Meeks + Partners holds four patents: two for community layouts like Parkside's, one for an apartment circulation pattern, and another that allows tenants to park on the same level as their apartments. The patents aren't about esthetics so much as the budget's bottom line: Parkside's configuration allows for eight houses per acre instead of the usual 3.5, and the circulation pattern allows for high-rise density in a wood-frame building by eliminating the need for breezeways.

Unlike copyrights, which protect designs for specific buildings, patents protect ideas that can be adapted for multiple projects. By licensing his patents throughout the country, Kaufman hopes to create "the MacDonald's of affordable housing." Of course, anyone—architect or developer—who adopts Kaufman's designs must pay his fee to use them. Competitors complain that Kaufman is trying to bully them with threats of legal action. They call his plan coercive; Kaufman calls it populist. Peppering his argument with bromides like "American dream" and "societal benefit," Kaufman insists that architects won't be motivated to develop design solutions like his unless they can own them—and profit from them.

Kaufman may be on the leading edge of a legal trend that will change the business of architecture forever. Though most practitioners are still unaware of it, Congress beefed up architectural copyright protections in 1990, explicitly extending copyright law to cover the duplication of actual buildings, not just two-dimensional drawings and plans. Nine years later, intellectual-property lawyers throughout the country are seeing architects file suit against copycats—and win. Last June, for example, Chicago architect Patricia Craig won a suit against another architect, a builder, and even the real-estate agent who reproduced her floor plan in a brochure. (Damages have not yet been awarded.) Says her attorney, Jeff Gargano, "As architects become more aware of the copyright law and how it can protect them, they will be pursuing more and more of these cases."

Copycat suits

While it may be too early to call architectural patenting a breakout trend, indications are that competition will force architects, like their counterparts in other creative fields, to aggressively protect intellectual property. Whether that's good or bad is the subject of some debate. On the downside, architects could find themselves hamstrung, unable to use designs that suit their needs because someone else already owns them. Like medicine, architecture could become a profession whose central mission is eclipsed by legal wrangling. Architects have always built upon one another's accomplishments, so patents threaten normal ways of doing business. There's a fine line between stealing a design and simply improving on it. "Patenting an architectural system is totally ridiculous and should not be allowed," says Mike Hampton of Womack Hampton, a Dallas-based competitor of Kaufman Meeks. "It's unethical. It's against the spirit of the practice of architecture." Despite the enormous impact patents could have on the profession, the American Institute of Architects (AIA) has yet to adopt a stance on the issue.

But where many architects foresee a litigious mess, Kaufman envisions a new, more efficient way of doing business: The most creative architects will license their designs to local firms, who, in turn, will purvey brand-name designs like Pelli or Venturi the way department stores offer Prada and Gucci. Changing the way architects do business won't be easy, Kaufman concedes, because developers don't like to pay architects, even when their designs shave down costs. "They'd rather build something that costs $3.5 million more," he says.

Patents aren't the only form of protection. In the past five years, the Flatiron Building, the Chrysler Building's stainless-steel spire, and the Empire State Building have all filed to be registered as trademarks. "Who Owns the N.Y. Skyline?" asked a recent *New York Times* headline. "Check

Kaufman Meeks + Partners' **patented plan** for Houston's Parkside at Clayton Park is meant to provide affordable housing. Eighteen floor plans, such as "The Elm" (below), start around $75,000.

the fine print." Meanwhile, the New York Stock Exchange sued (as yet unsuccessfully) the New York-New York Hotel and Casino in Las Vegas for creating a one-third scale model of the Exchange on its gambling floor.

So far, trademarking has benefited building owners more than architects, though that may change as architects who design distinctive buildings recognize the lucrative potential of licensing and merchandising. Cleveland's Rock and Roll Hall of Fame, for example, provoked a legal dustup when it tried to stop a photographer from marketing a poster of the pyramid-like building. Kaufman notes that I.M. Pei failed to retain a copyright interest in reproductions of the building's image. "Do you have any idea," he says, "how much money Pei lost?"

Early birds

For now, patents remain architecture's most controversial form of intellectual property. Because budget and code constraints have narrowed the range of design options for houses and apartments, whoever files their patents first may end up owning a disproportionate share of the limited design solutions. It hardly seems right to begrudge someone a patent if they've truly devised something new. But what if early birds lay claim to designs they didn't originate? Detractors say Kaufman Meeks has done exactly that. "We think those techniques have been in use for many years," says Joe Molinaro, director of land development services for the National Association of Home Builders (NAHB).

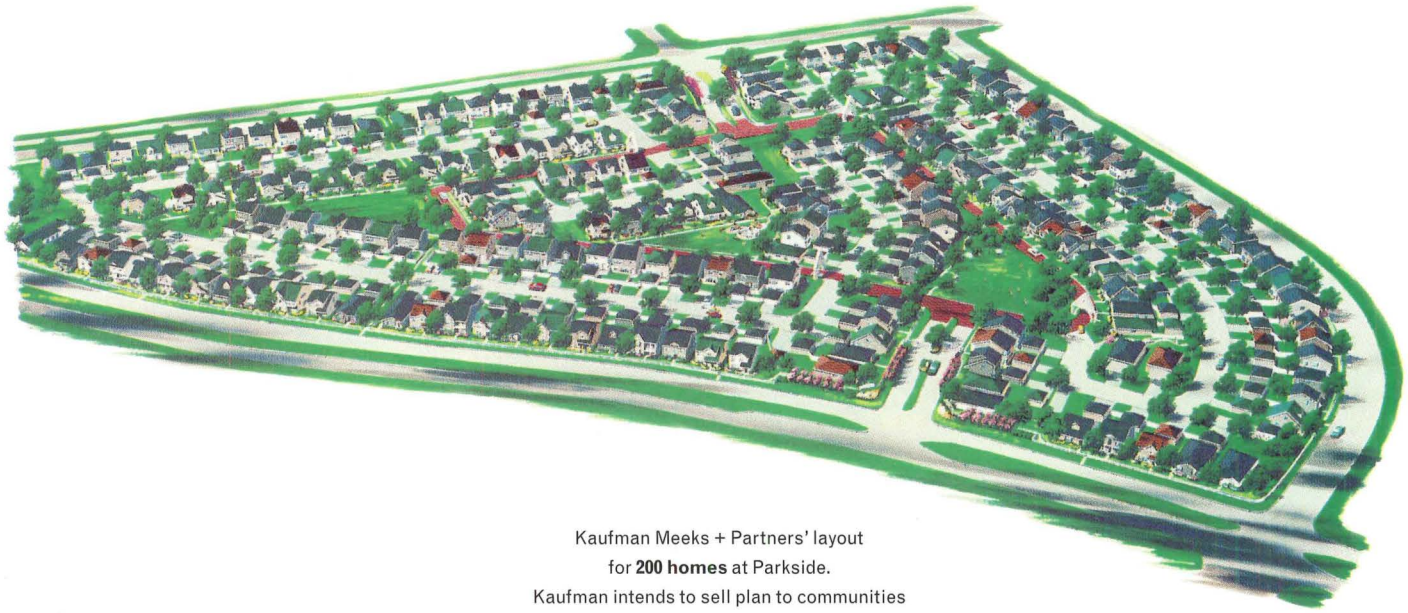
So who's to blame? Molinaro holds the patent office at least partially responsible for its unfamiliarity with architectural history. In fact, the NAHB has begun work on a resource book to help patent examiners determine what's innovative and what's not. "Housing has evolved as a vernacular art form," Molinaro says. "We don't know who invented the door. We don't know who invented the window." Maybe so, but Kaufman insists his designs are, like many patents, fresh combinations of old techniques. He and his partner spent years, Kaufman claims, devising ways to cut costs while meeting building codes, a process he compares to "solving a Rubik's cube." The result, according to Kaufman: cheaper and denser projects, which translate into more affordable housing for those who need it.

Firms can violate a patent without even knowing it. When the Memphis-based firm of Looney Ricks Kiss learned of Kaufman Meeks' patents, it felt obliged to hire costly patent attorneys to ensure its designers didn't unwittingly infringe on the patents. In essence, says in-house lawyer Jennifer Sammons, the attorneys "helped us avoid doing things we normally would have done." The patents are easy to evade, once they're identified. "But do we want to have to think about that every time we do a project?" Sammons asks. "The answer is no."

The protests might be nothing more than resistance to change. Washington, D.C.–based patent attorney Jim Gatto compares the furor to the outcry that struck the software industry in the mid-1980s, when many programmers opposed patenting software. "This happens anytime somebody gets out in front in an industry and starts filing patents," Gatto says.

But there may be an important difference between adapting the law to new technology and applying it to old practices. According to federal law, patents only stick if they're both "novel" and "non-obvious" to others trained in the profession. Those who doubt the validity of a Kaufman Meeks patent can pay $2,500 to have the patent office review it. But more likely, the courts will decide their legitimacy. Kaufman Meeks is already preparing to file two patent infringement suits.

Meanwhile, in the court of public opinion, Kaufman Meeks has found some unlikely local defenders. Houston architect Cameron Armstrong, for example, whose signature metal houses define the high-end of housing design in Houston, might be expected to sniff at Kaufman's vision of Parkside replicas dotting the nation's suburbs. But Armstrong, who worked for Kaufman Meeks after graduate school, places the firm squarely in the architectural vanguard. He says patents will finally force developers to pay for design ideas instead of recycling them at will. "For the first time," Armstrong says, "it establishes equity in the project for the creative part of the process." ■

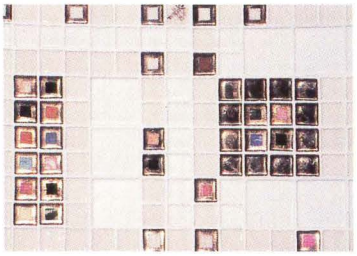


Kaufman Meeks + Partners' layout
for **200 homes** at Parkside.
Kaufman intends to sell plan to communities
throughout United States.

Shaila Dewan is a staff writer and art critic for the *Houston Press*.

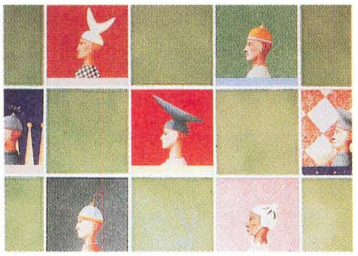
Italian Import

Compiled by Joelle Byrer



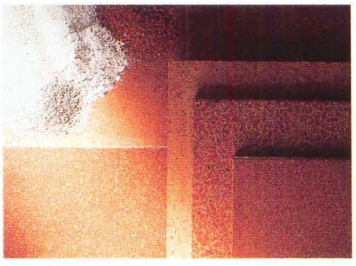
Ceramica di Treviso introduced a line of mesh-mounted tiles inspired by turn-of-the-century Austrian painter Gustav Klimt. Mirroring Klimt's opulent colors, the tiles are glazed in gold and silver with a delicate insert of color. *Circle 295 on information card.*

Sicis, based in Ravenna, introduces Iridium (top) and Thassos (bottom). Iridium's iridescent glass mosaics mix metal with glass; it is available in 41 colors. Thassos, made of Greek marble, is a mesh-mounted tile for floors or walls. *Circle 297 on information card.*

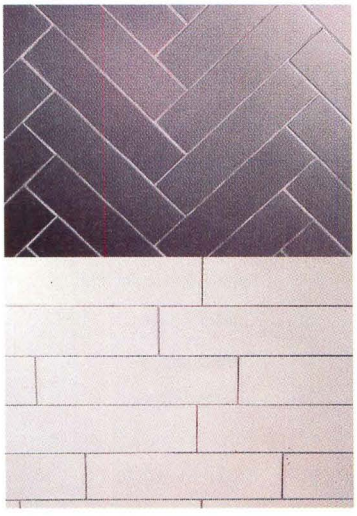


Accademia's Ponte Sul Arno is a playful example of tiles that build upon the tradition of decorative murals. Painted by hand with Renaissance-inspired profiles, these tiles are available through special order from Hastings Tile. *Circle 299 on information card.*

Caffe Latte, designed by Julia Binfield, is part of tile manufacturer Gabbeianelli's Galleria collection. These wall tiles maintain the tradition of hand-painted tiles with modern style. The 8-by-8-inch tiles can be stacked up to 72 inches high for a playful effect of teetering cups and saucers. *Circle 296 on information card.*



Sannini Impruneta, based in Florence, presents their resin-based Cotto Stone tiles, which recall the bits of color in traditional terrazzo. Sannini Impruneta tiles include recycled pieces of cotto, or ceramic. Cotto Stone is available in 4-by-9-foot resin slabs and is ideal for both indoor and outdoor use. *Circle 298 on information card.*



Floor, conceived by Italian interior designer Claudio la Viola, is based on geometric modules. These simple, elegant rectangular tiles are available in one length with three different widths and eight color choices, all of which are compatible, complementary, and suitable for floors and walls. *Circle 300 on information card.*

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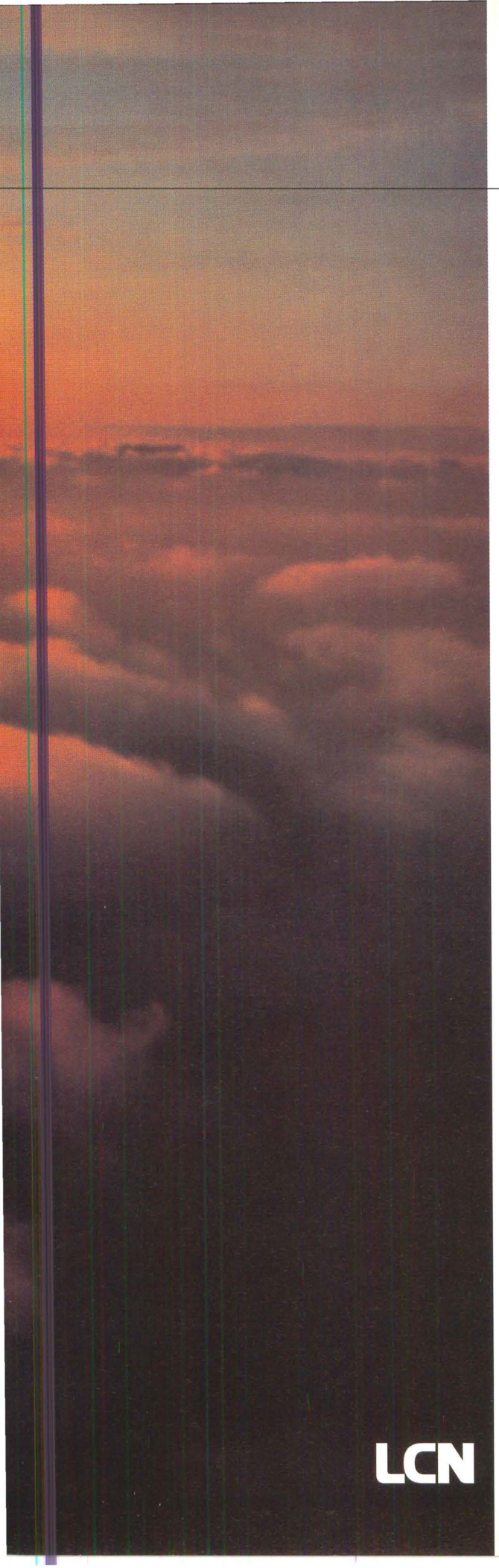

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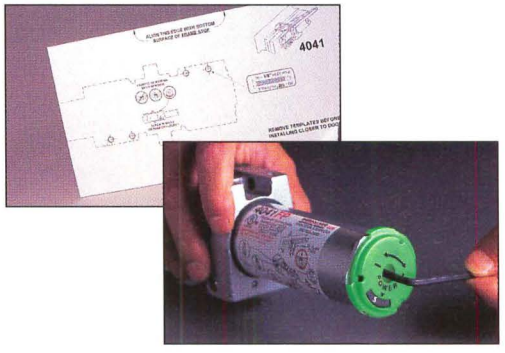

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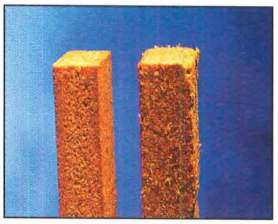

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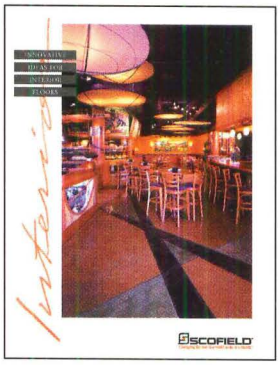

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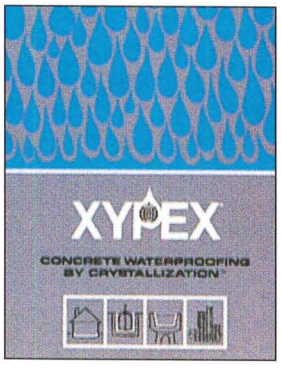

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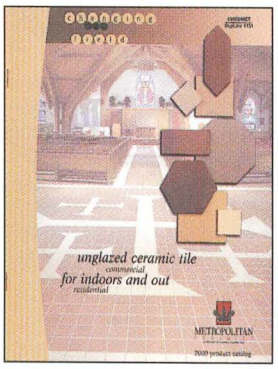

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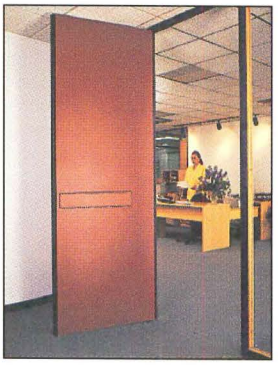

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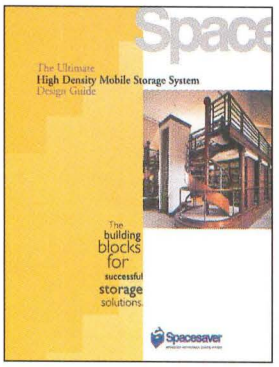

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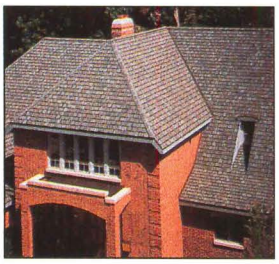

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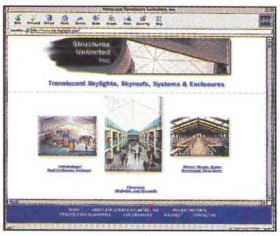

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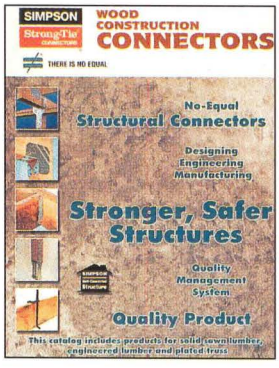

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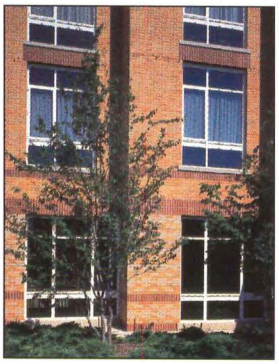

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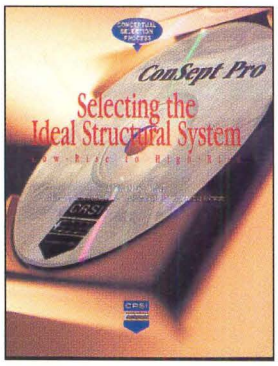

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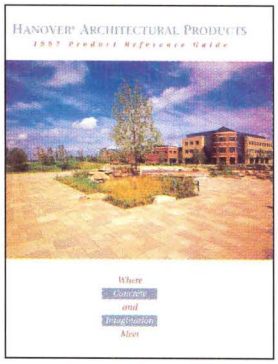

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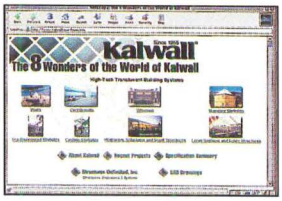
Kaleidoscope by Landscape Forms is the first pre-engineered, pre-finished modular wall, canopy and seating system for outdoor spaces. Combine the components to create innovative alternatives to custom designed site elements at a fraction of the cost. The solid steel and aluminum overhead canopy offers protection from the elements. The durable metal wall system defines outdoor space or provides human scale and intimacy. Integrated seating offers even more choices. Please call 800-521-2546 or visit www.landscapeforms.com for more information.
Circle 53.

Heat-N-Glo

Three-Sided Fireplace for Unlimited Installations—Heat-N-Glo introduces model PIER-TRC, a three-sided direct vent fireplace that can be terminated vertically or horizontally to accommodate nearly any application. The PIER-TRC is perfect as a room divider, bar end of counter or a wide variety of creative installation possibilities. As with all Heat-N-Glo fireplaces, the PIER-TRC can be operated by remote control for the ultimate in convenience. Call (888)427-3973(GasFyre).
Circle 57.

Kalwall Corporation

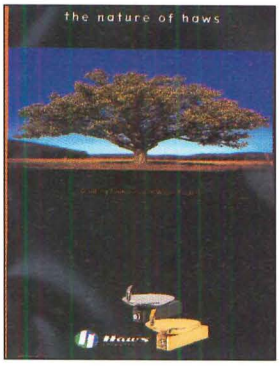


Daylight Web Site—www.kalwall.com features high-tech translucent building solutions for daylighting. Kalwall Skylights, Walls, Curtainwalls, Windows and Complete Structures allow total design control, creating the most people-friendly environments with glare-free, shadowless, natural light. Examples are showcased, such as: schools, airports, restaurants, commercial buildings, shopping malls. Specs and CAD drawings can be downloaded. Or call 1-800-258-9777.
Circle 59.

Pemko

New Pemko Full-Line Catalog—Beyond new thresholds, door bottoms, perimeter gasketing, and astragals, Pemko's new catalog includes HSS2000 (an intumescent fire life-safety product), FS3000 (an unbelievable glazing compound which allows for much larger lites in rated doors), security door bottoms, new continuous geared hinges, ADA compliant rubber and aluminum ramps, and an expanded line of nylon brush products.
Circle 63.

Haws Corporation

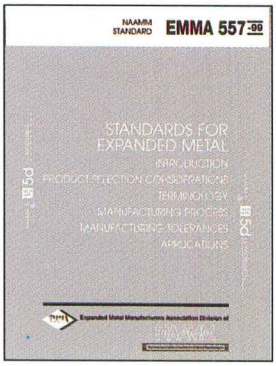


Haws has been innovating drinking fountains since inventing the drinking fountain. That means over 90 years of improvements that have kept Haws products at the forefront of the industry. To help you stay current on the exciting lines of drinking fountains and water coolers, Haws has created "The Nature of Haws", a 24 page color brochure featuring photographs, specs and worldwide contact information. "The Nature of Haws" is available from Haws representatives; by fax at (510) 528-2812; or by email, haws@hawsco.com.
Circle 67.

Tan.Go Lighting

The Bau 2 metallic or acrylic pendants with an aluminum support is available with a shade in white or gray. UL approved - incandescent 100 watts. Phone 201-662-7012 Fax 201-662-7013.
Circle 71.

NAAMM

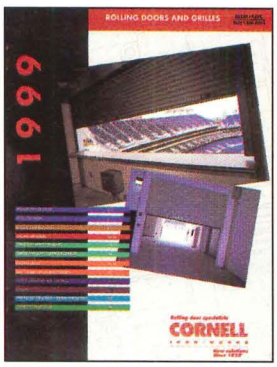


Standards for Expanded Metal, NAAMM Standard EMMA 557-99, is now available from the Expanded Metal Manufacturers Association (EMMA) Division of NAAMM, the National Association of Architectural Metal Manufacturers. The document covers selection considerations, recommended nomenclature (including weights and dimensions), and manufacturing tolerances for expanded metal products. A must for all design professionals.
Circle 61.

Copper Development Association

CDA's *Copper in Architecture Self-Study Program* offers information on the design, specification and installation of architectural copper. Designated for 10 AIA Learning Units (LUs). Contains PC disks with specifications and sample detail drawings, a 30-minute videotape on fundamental designs, a design handbook on Sheet Copper Applications and a mail-in quiz. $40 from the Copper Development Association, 888-427-2411.
Circle 65.

Cornell Iron Works



New features in counter fire doors and grilles enhance safety and reduce costs—SmokeShield rolling counter fire doors meet UL, NFPA, and UBC standards and carry UL labels for fire protection and smoke-and-draft control. The EZ Lift grille design extends push-up size range for rolling grilles by more than 33%. Initial and operating costs are lower than motor operated grilles.
Tel 800.233.8366; fax 800.526.0841; e-mail cornell@cornelliron.com.
Circle 69.

Architecture Literature Portfolio Upcoming Issues

ISSUE DATES	CLOSING DATES
March 2000	January 21, 2000
May 2000	March 24, 2000
July 2000	May 22, 2000
October 1999	August 20, 1999
September 2000	July 21, 2000
November 2000	September 22, 2000

Doom Rooms

Bunkers and bomb shelters protect us from imagined enemies. By Andrei Codrescu

The news from Berlin that the German government is planning to pave over Hitler's bunker must have struck a blow to owners of doomsday bunkers all over the world. The bunker mentality is deeply ingrained in human history. Its recent resurgence in the United States, the most well-defended and technologically advanced country in the world, warrants reflection. Why do so many Americans, no longer threatened by hostile Indians or invading armies, still feel the need to fortify themselves within compounds?

The new perceived threats come from within. Our own government, minorities, and global conspirators are among the many vague pretexts invoked by right-wing and religious groups for walling themselves in. The showdown between the followers of David Koresh and the FBI added fuel to their raging paranoia. The fact that it took weeks to destroy Koresh's compound must have inspired many new projects to improve and defend similar fortresses.

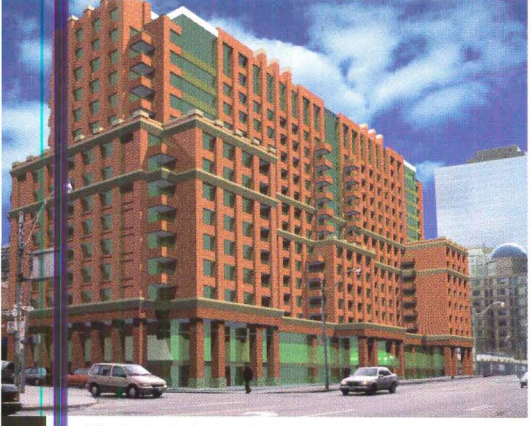
Waiting for doomsday and surviving it is an old American obsession. In the mid-1950s and early 1960s, this urge to survive a global catastrophe led to the construction of countless bomb shelters—everything from simple, enforced deep cellars lined with shelves of Spam, to underground palaces stocked with tins of salmon mousse and complete sets of *National Geographic*.

The glee with which they took to building themselves a subterranean afterlife has deep roots in the American psyche. Since the early days of the colonies and the subsequent Western expansion, Americans have always tried to put distance between themselves and their nearest neighbors. Going it alone, making it in the wild, and surviving a hostile environment are some of our essential myths. In the vast plains of the West, military forts were the first to lay claim to territory, and all subsequent dwellings outside the forts had to be well defended. The fort remained both model and necessity until late in the 19th century, when we could finally relax enough to open our abodes to the great outdoors. Even so, the fort mentality and the terror of the outside did not leave us for long. When the atom bomb gave us leave, our fort–bunker instinct erupted with a vengeance.

It is inevitable that such architecture would flourish again at the end of the second Christian millennium. Unlike Europeans, who had survived the ominous, portent-ridden end of the first millennium, when most people were certain of doomsday, the New World has yet to undergo such an experience.

The paradox is that such paranoia should emerge in a prosperous age of increasing global openness. During the Great Depression and the Second World War, Americans pulled together and built communal spaces, dams, and bridges. In the age of the Internet, some people are ready to hide, though they'll surely take their laptops with them.

Bunker sweet bunker: In 1950s America, fear of the bomb sent suburbanites scrambling for underground protection.



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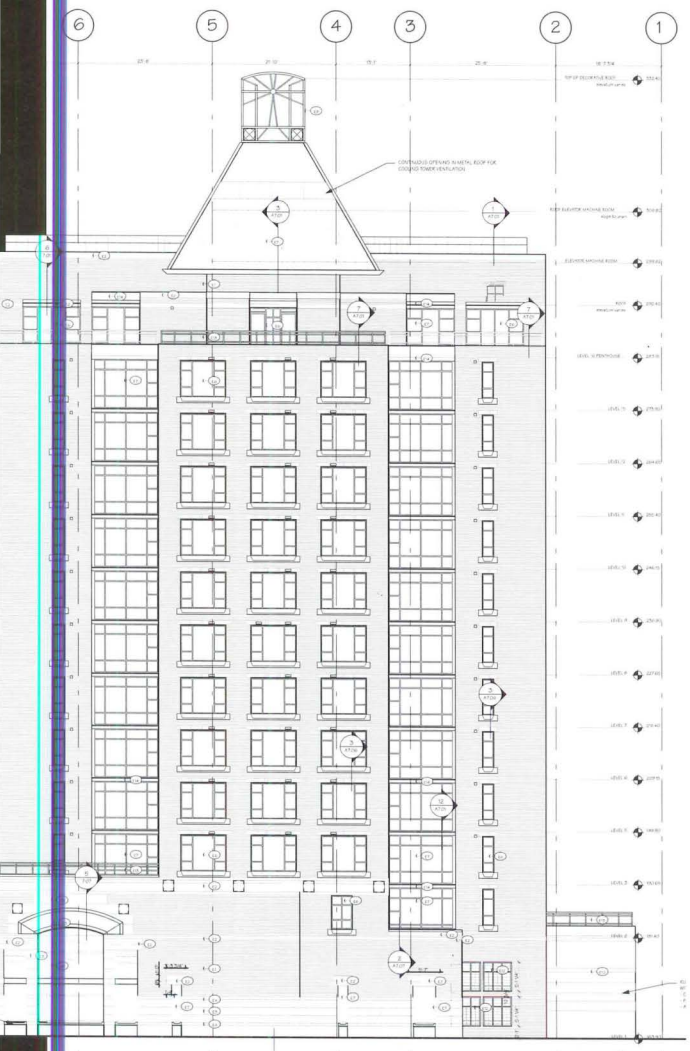

Mike Huggins, Burrows Huggins Archite Vancouver, Canada

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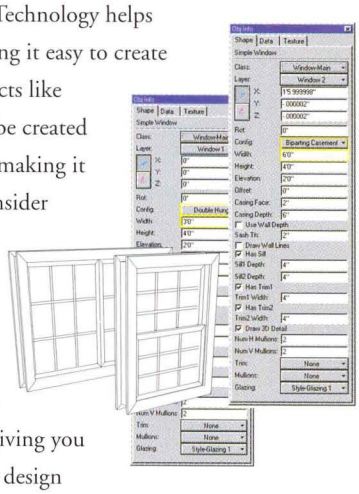

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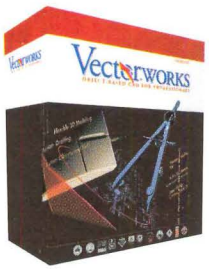

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