

ARCHITECTURAL RECORD

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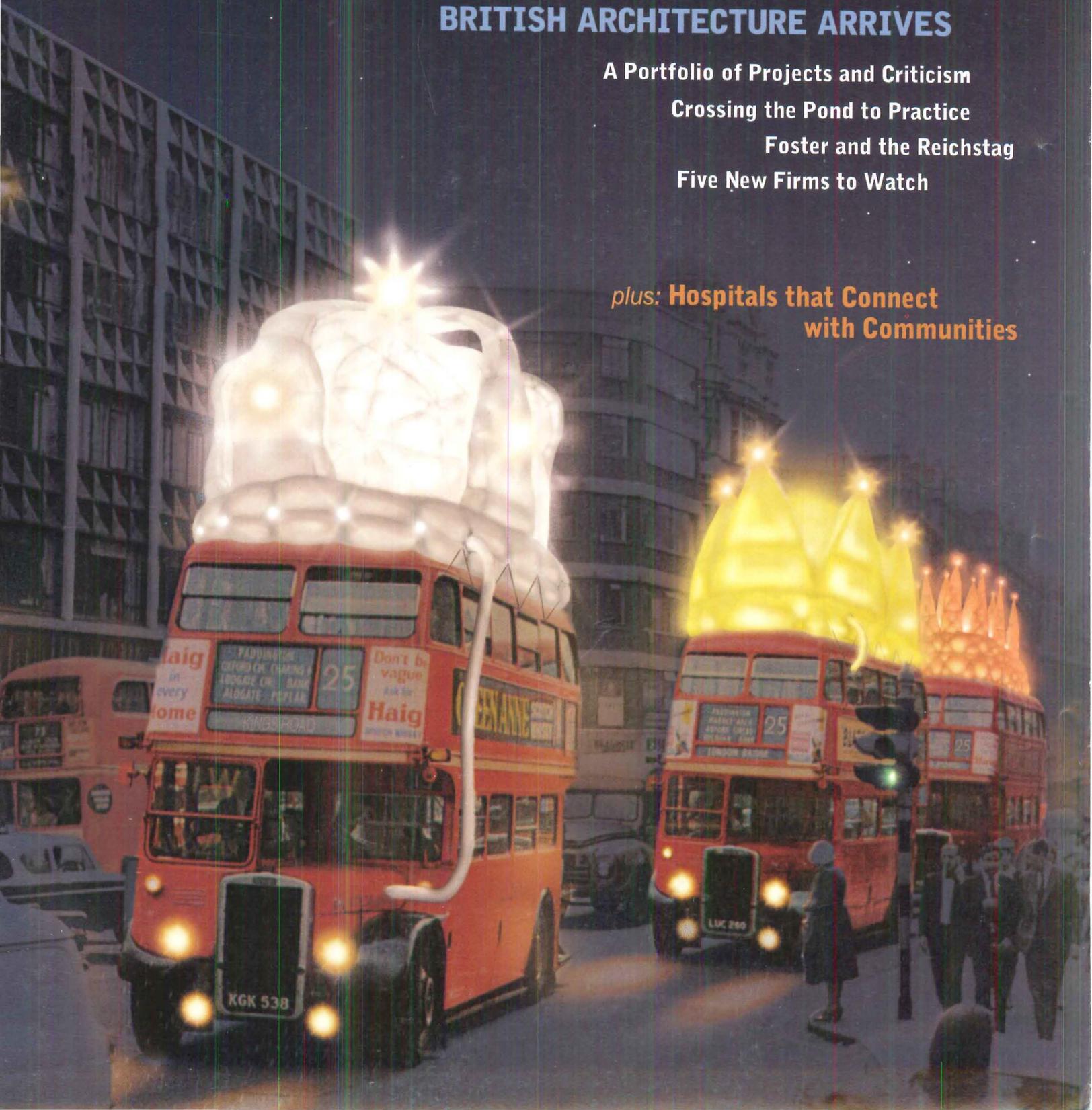
A Portfolio of Projects and Criticism

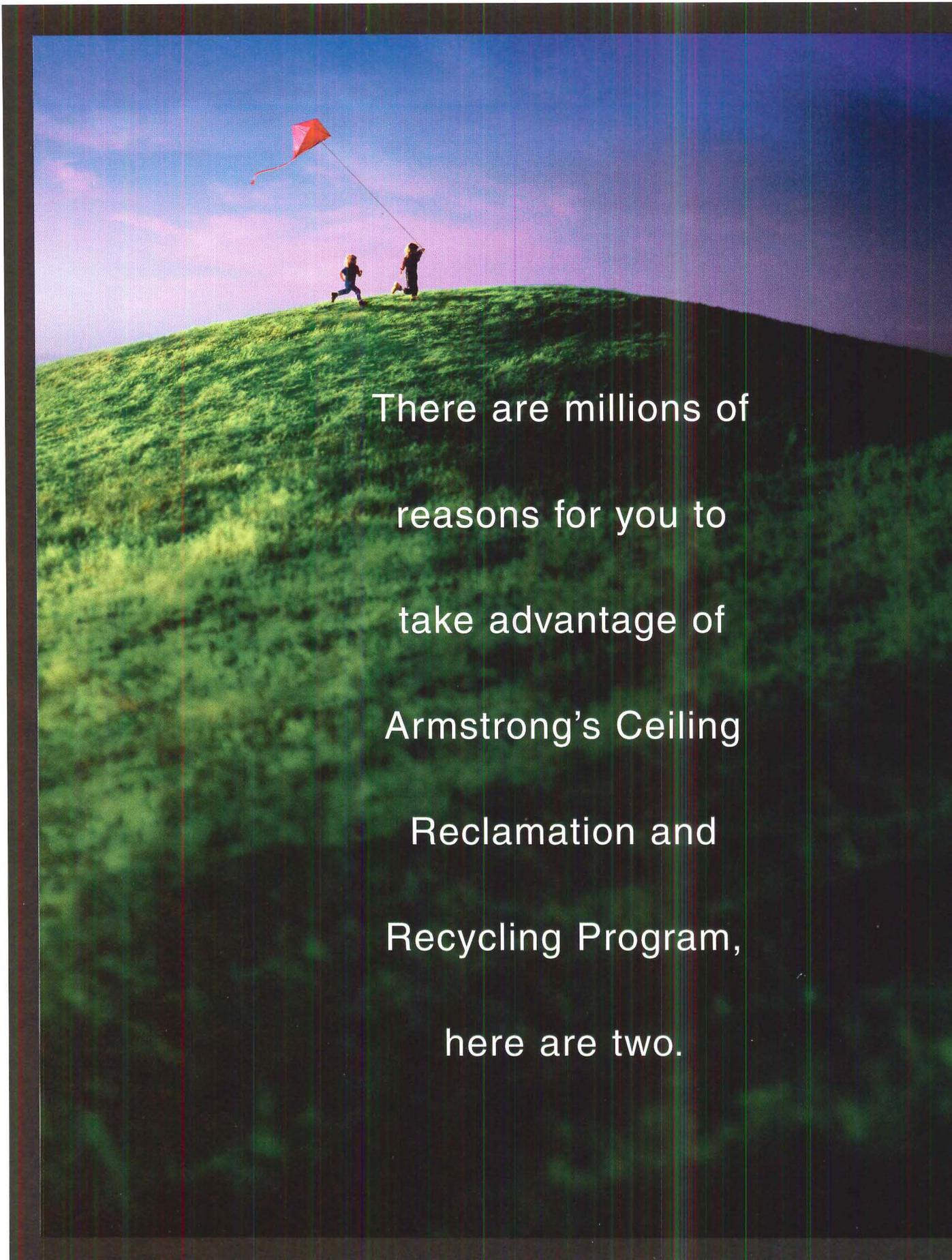
Crossing the Pond to Practice

Foster and the Reichstag

Five New Firms to Watch

plus: Hospitals that Connect
with Communities



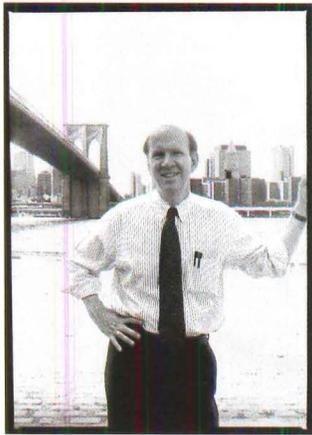
A photograph of two children running on a grassy hill under a blue sky, flying a red kite. The children are silhouetted against the bright sky. The kite is a simple diamond shape with a long tail. The hill is covered in green grass, and the sky is a clear, bright blue. The overall scene is peaceful and evokes a sense of childhood and nature.

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EDITORIAL

Can These Bones Live?

BY ROBERT IVY, FAIA



Millennia ago, the Hebrew prophet Ezekiel was taken to a valley, shown dry bones, and asked, *Can these bones live?* The same question would have applied to the Reichstag after the fall of Berlin. Battle-scarred, graffiti-ridden, this lumbering hulk loomed over the defeated city like the charred remains of defeated imperial ambitions, a reminder that it had taken two world wars and countless lives to reduce Germany's national hubris to rubble.

In 1999, more than 50 years after the fall and division of Berlin by its conquerors, the impossible occurred—the city breathed again as a single metropolis at the head of a reborn nation. In a jolt, the government moved from Bonn; the Reichstag leaped back to life as capitol of a rejuvenated federal republic. Who would have thought the old pile worth salvaging?

Ironically, the architect of the reconstruction is British. After winning a hotly contested competition, Foster and Partners seized the project with fierce determination, investing the plan with substantive analysis and forward-thinking ideas. Cleansed but unsanitized, the new Reichstag reopened on April 19 to immediate iconic status: A revitalized building that captures the new face of the nation—one brimming with intelligence and energy.

Where it had once been a symbol of repression, the Reichstag has metamorphosed into a symbol of clarity. A glass dome, visible from parkland and city street, announces a new openness. Although barred from the parliamentary floor, visitors can spiral up countervailing ramps in the dome, looking out to the city or down to the legislative chamber. The open roof serves as a newly accessible urban room.

The interior architecture is *soignée*—knocked-out, sleek, and simple. Interior corridors incorporate overhead walkways, curved glass walls, and colorful doorways set into old stone walls. Leftover smudges from wartime flame-throwers and Russian graffiti, which most architects would have erased as blight, add memory and texture to the ensemble.

For all its polish, the Reichstag's real triumph is technological: It

functions like a reciprocating, ecological machine. In addition to the critical daylighting strategies, limestone walls provide effective thermal mass, tempering climatic fluctuations. In accordance with Germany's prevailing green ethos, a separate cogenerator fueled by renewable rape-seed oil provides power. Far below the legislative hot air, 330 meters down, saline aquifers store surplus heat, which can be retrieved to balance heat-load disparities.

The building literally breathes. A fountainlike cone covered with 360 mirrors hovers above the legislative chamber, where it harvests and redirects sunlight into the core. Cool air enters gabled vents, falls through shafts beneath the main chamber, and rises slowly across the carpeted floor, only to be exhausted through the pointed end of the sculptural cone. It is a brilliant scheme that should inform architects and the public alike.

For all its technical accomplishments, however, the Reichstag falls short of poetics. Scale and massing continue to ground the building with gravitas. Despite all Foster and Partners' care and the addition of a sparkling dome, the original, foursquare building still broods near the Brandenburg Gate like an imperial pile; wings would not allow it to soar. Some even argue that the Bundestag, the representative body, is displayed like a living diorama, or that the program is too "P.C.," but that is quibbling.

Unlike the days when monumental architecture spelled power, this incarnation of a troubled relic represents a new kind of victory: One of intelligent ideas integrated into the fabric of the contemporary world. Knit into its structure are potent symbolism, new technology, social concern, and art. Foster's Reichstag should serve as proof for any prophet, or any one of us, that dry bones can live again.

You see it,

don't you?

LETTERS

Young architects take heed

Some comments about the intern debate: First, interns aren't giving effective input to the profession. Second, the profession's future depends on developing its people. Following the recent Internship Summit [May, page 99], the issue of intern representation in and commitment to the decisions of the profession should be seriously engaged. A system of legitimate intern representation must become an active and public goal of all the professional organizations, on par with any of the charges mentioned at the summit.

Without achieving this specific, long-term goal, the charges of the summit will simply replace one rigid structure with another, which will eventually require another internship summit, and another. However, with equal collaboration and engagement as our primary goal in both our public statements and our private actions, all the charges of the summit will be realized more naturally and will have more significant impact.

—Casius Pealer, AIA Intern/Associate Committee
New Orleans
Via E-mail

Raymond H. Dehn's Speak Out article [May, page 30] was right on target. The interns of our profession require respect, appreciation, and proper compensation.

Mr. Dehn's concept of how to help the intern gain that respect is to, at least initially, change the title *intern* to *apprentice architect*. I thoroughly agree with a title change be it *apprentice architect*, *intern architect*, or *architectural intern*. In fact, many of the regulators of the profession agree, as one of the resolutions that will be presented at the 1999 NCARB conference relates to an intern title change.

The only disturbing, and inaccurate, part of Mr. Dehn's article was that which related to compensation. In comparing wages of architecture and engineering degree holders, he stated that "Many architectural interns put in long hours and receive no overtime pay for workweeks in excess of 40 hours." The U.S. Labor Department requires interns, or those in a training program, to be compensated on an hourly basis (not salaried) and for overtime (at a time-and-a-half rate) beyond 40 hours in a workweek. Obviously, many interns are not aware of this federal requirement, neither are many of their employers, and neither is the AIA, which annually publishes professional salaries, including those of interns.

We all have been there seeking respect, wishing to be appreciated for our talent and

wanting to be equitably compensated for our efforts. Fellow practitioners, employers, and regulators, it is now payback time!

—Raymond A. DeCesare, AIA, NCARB
The Robinson Green Beretta Corp
Warwick, R.I.

Dehn's dialogue article hits the nail on the head! *Apprentice architect* is the only term to be used to describe an educated individual hoping to reach the milestone of *registered architect*.

It is appalling that the use of *architect* is so abused (*Software architect*? What the hell does that mean?) and yet we within the profession are so esoteric as to avoid the real, traditionally accepted, accurate, and honored term *apprentice architect*.

—David R. Brown III, AIA/CSI
Via E-mail

Why overpower the neighborhood?

I am an avid reader of RECORD, and although I started my architectural studies rather late in life, I have been exposed to municipal planning and building for many years. I am particularly sensitive to residential neighborhood design and the preservation of established neighborhoods.

Perhaps that is why I feel annoyed with the bad design and lack of conscience and taste that Morphosis (Thom Mayne) presented to clients in Manhattan Beach, Calif. [April, page 128].

Why did the owner of the property buy into a "picturesque jumble of small houses" only to erect a broken cement-board facade that overpowers its neighbors? That "gleaming cone" atop the remodeled bungalow must reflect some very bright sun into nearby houses. How was this appropriate or good design? I thought I learned that site and house design should be compatible—regardless of the choice of design style. I have seen many modern homes built in older neighborhoods and the better designs do not disturb or annoy—they exhibit well-scaled mass and beautiful form. Even a better question, why did your magazine highlight this particularly poor specimen of modern design in an older neighborhood.

Evidently, the owners of this property were seeking attention rather than appropriate design. My sincere condolences to the neighbors!

—Marcia W. McLoughlin
Scottsdale, Ariz.

Special Correspondent Suzanne Stephens responds: We understand completely your commitment to the preservation of established neighborhoods. However, accusing the architect and the client of acting without conscience is a bit unfair. They are both quite proud of the house.

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All submissions should be sent to: Barbara Catlow, Manager of Marketing Services, Dryvit Systems, Inc., One Energy Way, P.O. Box 1014, West Warwick, RI 02893. Submissions for the Dryvit International Design Competition 2000 must be postmarked no later than March 15, 2000.

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LETTERS

As is the case with imaginative architects and clients who experiment with innovative design, the end result is not always going to look like anything else. Los Angeles has a reputation for accommodating such controversial projects: Frank Gehry's house in Santa Monica raised a ruckus with the neighbors when it first went up in 1978; yet now it has reached the status of familiar icon.

In this particular situation, the house, which is quite small in scale, may look "like a UFO, tethered to the existing building's inner core," as I wrote in the article. But this UFO just pops up disarmingly among the jumble of rooftops. It is not exactly the polyhedron that ate L.A. And as you walk around it, you notice the gleaming portion is relegated to the rear elevation. Because of the finish of the metal panels, it lacks the eye-searing shine of most metal finishes.

This may not be beautiful in the eyes of many readers, but we felt there were enough well-designed aspects to warrant examining it further.

Dreaming of trains and stations

I recently read Eli Naor's piece on public transportation [Speak Out, June, page 24]. When I reached the subhead "Reusing abandoned urban-transit structures," my mind immediately went to an old impressive structure known as Union Station in the city of Worcester (I was born and raised in central Massachusetts). For as long as I can remember, there have been numerous attempts to restore the building to its former glory. Imagine my surprise to see it mentioned in the very magazine in my hands! It is encouraging, to say the least. The last time I saw the Station, which had to be several years ago, it was still obvious that beneath its shroud of neglect lay a magnificent structure. I always thought it a shame that the building was no longer used. This was only reinforced on my trips home from college, using both trains and buses. I was stunned to get off the Amtrak train at the Worcester stop to find that it was little more than an exposed slab with a tiny shack for a companion. Not very impressive for the second largest city in New England. I hope this time the project is not just a fantasy. Please keep us updated on its progress.

—Brian Beland
Lake Ronkonkoma, N.Y.

Letters may be E-mailed by visiting our Web site at www.archrecord.com and clicking on News/Features/Dialogue. RECORD may edit letters for grammar, style, and length.

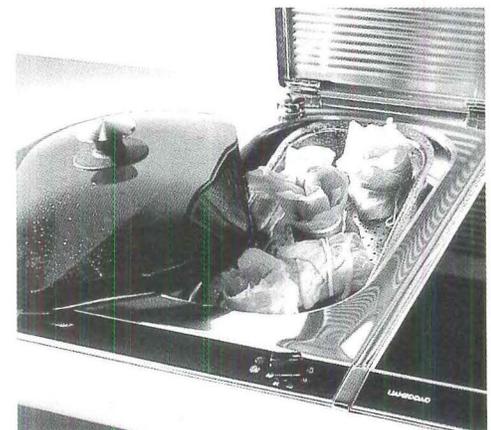


Corrections

Due to a technical error, an incorrect photo ran on page 89 of our June issue. The correct photo, of Saint Michael at Hildesheim, is shown above.

On page 201 of our June issue we inadvertently paired a picture of Kohler's PRO CookCenter with a description of the Gaggenau steamer, part of the Gaggenau's gourmet combination built-in appliance collection (below).

Kohler's PRO CookCenter melds stovetop cooking with the kitchen sink, providing a cooking vessel in conjunction with a kitchen sink. Kohler's new Triple Basin PRO TaskCenter, shown on page 203 of our June issue, integrates a professional kitchen sink with two stainless-steel basins, a faucet, and a number of accessories to maximize efficiency in the kitchen.



Beginning on page 232 of our May issue, we published two projects designed by Hardy Holzman Pfeiffer Associates, The Murchison Center at the University of North Texas and the Walsh Center at Texas Christian University. We would like to add the following names to the design-team credits: Jeff Neaves, Hakee Chang, and Jeeyoon Lim. To the interior-team credits, we'd like to add Joyce Louie and Caroline Bertrand. ■

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CIRCLE 14 ON INQUIRY CARD



SPEAK OUT Architects often lament their lack of acknowledgment. We can take a cue from the movie business when it comes to credits.

BY STEVE DEARLOVE

Steve Dearlove, a member of the Ontario Association of Architects, has his own architecture and interior design practice in Toronto, specializing in residential and small commercial projects. He also acts as a mentor for architectural thesis students at Toronto's Ryerson Polytechnic University.



Constructing a building is a lot like making a movie. The budgets, time frames, and large number of people involved are parallel. But the two endeavors diverge when it comes to public acknowledgment. Yes, a film's stars draw most of the attention, but very many esoteric roles are recognized not only on a yearly basis at awards ceremonies, but every time that movie plays, via its credits. Had any average citizen thought much about cinematography before the "invention" of credits? A child might see the list scrolling by and ask, "What's a cinematographer?"—and get an answer.

How can the architectural profession achieve a similar recognition with the public? Architects continue to wonder why we're given so little respect and compensation.

Obviously, we can't simply do what the movie industry does. But there are ways we, too, can build familiarity—and consequently, understanding and appreciation.

The public has little knowledge of the construction process—never mind the complexities involved—because our school system all but ignores it. None of us had "Architecture and Construction" as a mandatory course in the lower grades or as an option in the upper ones. It's ironic, considering more than 75 percent of Americans live in urban environments. Classes in law, accounting, business, biology (a step away from medicine), and, of course, math (the prerequisite for engineering) are all available.

The school system is a hugely important realm to address. Becoming a local trustee of a

school board is one strategy to make inroads, but unless the majority of boards have a significant contingent of architects sitting on them, their efforts won't get very far. This means that architects dedicated to the cause of widespread architectural public education need to battle for high-ranking positions in the local education administration or municipal government. Those of us who gravitate to the administrative side of the profession would be ideal candidates.

Good news has arrived from Philadelphia. In February, the city's school board approved a proposal for the Architecture & Design Charter High School—the first of its kind in the U.S. (see story, page 68). A committee of educators teamed with AIA Philadelphia to make this happen. Architects got the job done here, and architects can do more of the same elsewhere.

We can address young people by getting more involved in what is taught in our schools. How do we target adults—the people who live in the houses and work in the offices we design? We can increase awareness by marketing ourselves. The movie business has its system of credits; we can do a better job letting people know that architects are indispensable when it comes to the built environment. An initial step has been taken by the AIA with its advertising campaign. It remains to be seen what impact an "image campaign" like this will have, but this should be just the first step toward a goal of getting the architect acknowledged every time a

building is referenced.

And we can't ignore politics. We now have Mayor Schell, Hon. AIA, in Seattle and Mayor Norquist in Milwaukee, politicians who understand architecture and the essential role architects play. But architects themselves need to get elected. We make lousy politicians, because we tend not to gravitate to public life to the degree our counterparts do. As a result, issues that are important to us go unaddressed. Our agenda is not on the agenda. This is wrong, given our frequent appearances in front of local government bodies to defend the merits of our clients' dreams.

We will all ultimately benefit from efforts to increase public recognition. It might take a couple of generations to realize the impact—but perhaps on our future streets children will stop and ask, "What's a job captain (or contractor, drafts-person, acoustical engineer, renderer)?" when they read a list of participants clearly marked on the front of a building. And, we hope, their parents might very well know the answer. ■

Contributions: *If you would like to express your opinion in this column, please send submissions by mail (with a disk) to Speak Out, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive text approval.*

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MENTORS Don't be intimidated by rapid advances in technology. Working on the Internet means a cleaner process and more design control.

Spiro N. Pollalis is professor of design technology and management at the Harvard Design School and director of the Center for Design Informatics, which studies the impact of information technology on the building industry and is active in multimedia research.

Architects have varying reactions to new design technology. Some believe they can now follow their imaginations more freely than ever, while others bemoan the fact that drafting is in danger of becoming a lost art. But none would deny the need to make adjustments in a fast-evolving field. RECORD asked Professor Spiro N. Pollalis to discuss what to expect in the near future.

Computer-aided drafting, structural analysis, and scheduling have become commonplace in architecture. These applications are effective, but they are isolated instances of computer usage—and thus have only created islands of automation. They have not dramatically changed the industry. It is the *coordination* aspect of computing that will make the big alterations.

Constructing a building requires the expertise of many individuals and organizations, which form temporary teams. The presence of so many players increases agency costs, and valuable resources are wasted on translations and communication. Errors and omissions can occur and most projects do not benefit from the lessons learned in previous projects. As a result, the building industry is a prime candidate for using information technology for strategic objectives and for using the Internet to glue together its many pieces.

A new process

The first Internet-based services have started to address the industry's problems. Software companies offer project management networks,

or *project extranets*, that abet communication among the participants in the construction process. The idea is simple: The participants deposit digital documents (text, spreadsheets, drawings, images, etc.) on a server and the documents are immediately available to those authorized to use them. Browsers are available for most applications, so participants who may not have a specific software can still read the uploaded documents.

Paradigm shift

Project extranets can dramatically change the industry. Initially, they are a substitute technology that simply brings efficiency. However, the technology opens new frontiers. It offers indisputable time stamps and documented trails of responses. Users know who has sent what and who has seen the various documents. Even these changes are minor, however, compared to what is expected to happen next.

As discussed at the recent "Design, Construction and the Internet" conference at Harvard, projects will be made of intelligent digital 3-D objects, containing data and relationships, as opposed to drawings and other documents that compose information on paper. Links to databases will provide product information, availability, cost, and delivery schedules. Transactions will occur on the Web. Checking drawings for code compliance, budgets, and construction bids will become commonplace in the Internet. Project extranets will constitute the basis for knowledge management systems, which will

provide intelligent information from past projects.

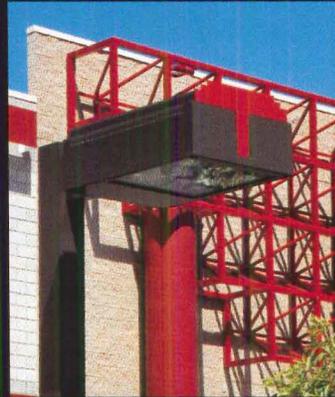
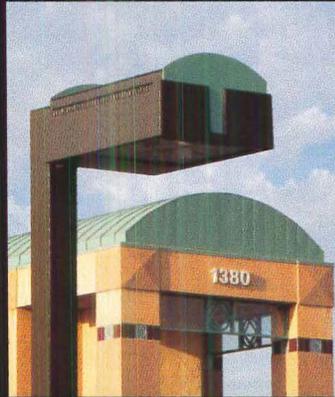
Every indication leads me to believe that these major changes in the building industry are just around the corner. On this assumption, I will identify two immediate opportunities for architects. First, architects will be more powerful in the Internet era: Broad access to information allows the transfer of decision-making to those operating under what is called "uncertainty." Architects who handle the uncertainty of creating space based on aesthetic, symbolism, and function considerations will be able to receive immediate expert advice and timely information through an Internet-based coordination process, allowing them to maintain better control of the design.

Second, the design of the Internet—a complex process based on sensitivity and understanding of space and human activities—is parallel to the design of physical space, which will lead to increased involvement by architects. Liberated from the constraints of gravity and the physical construction process, architects can be influential players in building the Internet's interface. ■

Questions: *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, please send submissions by mail to Mentors, Architectural Record, Two Penn Plaza, New York, N.Y. 10121; by fax to 212/904-4256; or by E-mail by visiting www.archrecord.com and clicking on News/Features/Dialogue. Submissions may be edited for space and clarity.*



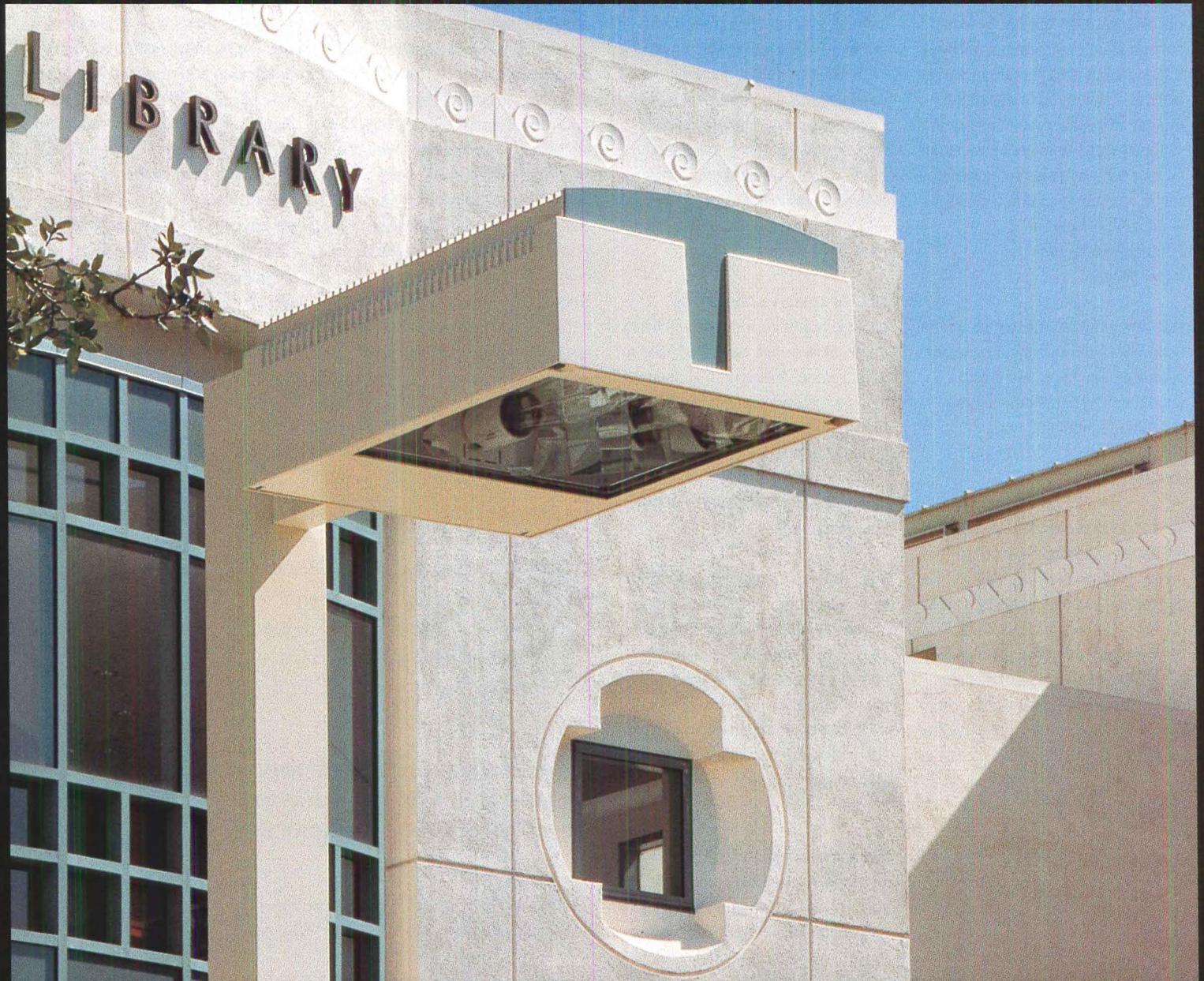
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CIRCLE 16 ON INQUIRY CARD

PULSE RECORD readers were asked: Has the digital revolution fundamentally changed your perception of time?

Yes: Technology changes our habits and life rhythm constantly. It not only makes our lives better, it also makes us addicted to the new needs it creates. At the end of the century, we realize that human nature is never satisfied with its own development—it constantly looks for new experiences. We are slaves to technology's material and possibilities. We must be aware of the danger of the dialectic of reality and virtuality that not only concerns our culture but also is restating our existence and giving us a new identity.
—*Alexander Ngai*
Lertora Arquitectos
Lima, Peru

No: Why would it? Responsibility for schedule and delivering the proper customer service to the client should not be dependent on the available technology.
—*Tom Hines*
Jackson, Wyo.

Yes: I find that at times I measure my days in seconds rather than hours. Once one is plugged in (logged on) to the digital ether, time becomes irrelevant. Distances between things, places, even people become mouse-clicks rather than miles. Omaha is equidistant to Chicago, Sydney, and Istanbul. Distance is irrelevant.
—*Robert Frank, AIA*
Washington, D.C.

Yes: The constant growth in technology has definitely allowed us to be more productive compared to the past. However, whether we are taking advantage of this ability is

another question.

As a student, I find myself procrastinating more and more because with a few clicks I can complete all my research on the Internet. Does this mean I have more free time for other things? You bet. But instead I find myself just surfing the net and doing other unproductive things. It's addictive especially for the younger generation because technology is powerful. Although digital technology has made more time available, it has also made time fly faster than ever.
—*Michael Chen*
Flushing, N.Y.

No: The digital revolution has allowed me to be more productive. I accomplish in one day what used to take a week. The flipside? I have never seen so much crap from so many people with so little value. Guard your trees.
—*Richard Alan Baxter*
Kupper Parker Fitzgerald
New Orleans

Yes: Before the digital revolution, we could spend 100% of our time at work working. Now, we spend 75% of our time at work working and the other 25% of our time fixing machines.
—*Carol Marra, whatever you call an intern nowadays*
Mithun Partners
Seattle

More answers to: Can you spot an American house?

Yes: For the following reasons:
1. Size. American houses are as big as you can get, though they rarely

shelter extended families.

2. Frontage. They are designed to have an imposing front, often helped along by a garage that holds one or more cars.
3. Style. Most are built without the help of an architect. If there was an architect involved, the design probably modulates between the client's preconceptions about home and the designer's imposed style.
4. Construction. The American building industry is distinctive in its use of certain materials, timber frame being the most obvious. Types of cladding, windows, roofing, and rain-water goods tell you a lot about the industry behind the building.
5. Internal Plan. American houses have a distinctive organization, not just the openness that timber frames allow but also arrangements that other cultures have yet to adopt, such

- as the breakfast bar, the large fridge, or the grand-entrance staircase.
6. Siting. They sit on plots that European clients can only dream of and are far more likely to be freestanding.
 7. Climate. Most American houses must be habitable in a broad range of temperatures. If well designed, this will be reflected in the overall orientation and massing. Americans also have to put up with bugs that would scare the living daylight out of most Europeans.
 8. Privacy. All the above allow Americans the option of turning inward with blinds or curtains or opening outward to take in the view. Europeans don't usually have a view. If they do, it becomes the reason behind the design.
—*Jeremiah Sheehan, AIA*
RTKL-UK Ltd.
London

This Month's Question

Do American architects have much to learn from their British or European counterparts?

We covet our Continental brothers and sisters' sense of fashion, their cinematographic legacy, their mastery of the culinary arts. But what about architects? Can American architects take a lesson from their counterparts who are blessed (or cursed) with an essential Europeanness? Why or why not?

Fax your response to ARCHITECTURAL RECORD, 212/904-4256, or visit www.archrecord.com and click on News/Features/Dialogue to voice your opinion by E-mail.

Note: Pulse reflects individual responses to each month's question and is not meant to be construed as formal research.

CRITIQUE A call for clarity: American architectural criticism should be less misleading and obscure.

BY THOMAS FISHER

Architectural criticism often sends mixed, deceptive, and incomplete messages about how architects work and what they accomplish—a situation that undermines clients' and the public's views of the profession. At the same time, much critical writing lacks the depth, relevance, and reach to which critics aspire.

This is not to discount the many distinguished and thoughtful works that are regularly published, Blair Kamin's critiques in the *Chicago Tribune*, Ada Louise Huxtable's inquiring reflections in the *Wall Street Journal*, Martin Filler's analytical essays in the *New York Review of Books*, to cite a few. But we have not been nearly critical enough of criticism itself, allowing its deficiencies to go unchallenged.

Take architectural journalism in the professional press. Typically, it begins with a report on a project—what the client wanted, what the problem entailed, how the architect responded—and concludes with a personal assessment about the project's performance and aesthetics. The problem lies in the disconnect between reportage and evaluation, the latter being only loosely linked to the project's requirements and challenges and to the architect's intentions and restrictions.

The typical feature article in an architectural magazine reveals this

Thomas Fisher, a former editorial director of Progressive Architecture, is dean of the College of Architecture and Landscape Architecture at the University of Minnesota and editor of Architectural Research Quarterly, published by Cambridge University Press.

confusion between fact and feeling. Most articles begin with an opening to draw the reader in, then describe the project and its development, and conclude with the author rendering an opinion. This format seems normal to us, but journalists and critics in other fields have expressed surprise about the loose mix of reporting and editorializing.

More influential has been criticism in newspapers and general-audience magazines, which suffers less from the format fatigue common to architectural magazines than from what you might call section segregation. A critic writing for the business pages will tend to present the architect as a businessperson serving the bottom line. In the entertainment section, by contrast, the designer tends to be portrayed as an artist creating miracles. The result is to reinforce the perception of our field as schizoid. Almost never is the designer presented as a professional engaged with the full range of issues that architecture embraces, from politics and economics to technics and aesthetics.

Who's to blame?

We may curse clients who squeeze our design time, thinking architecture is a branch of real estate, or those who think of us solely as decorators of building envelopes or public spaces. But these perceptions are conveyed not only by newspapers and general-circulation magazines but also by the professional architectural press in, for example, criticism that focuses on the formal analysis of buildings. Less frequently read by the public



but more influential in the profession, this type of criticism identifies the architect as adept at composition, at assembling forms and spaces in pleasing ways. By neglecting many other issues, from a building's cultural meanings to its performance, formalist criticism reduces architecture to an act of assembly and the architect to the role of composer. The unhappy result tends to be twofold: One set of clients (and their signature architects), equating the architect's role with the artist's or composer's, will tend to view architecture as a per-

sonal art form. Another group will see the architect as a mere joiner of parts, a mechanic who selects from product catalogs or history books, and who should, like a factory worker, be able to produce at ever-faster speeds.

Formalist criticism, in other words, helps fuel commodification. The building as artwork becomes a high-end commodity, and its architects become trapped by the very signature styles that made them famous. Production firms, meanwhile, become low-end commodity producers, competing mainly on

price and speed of service. While formalist criticism has not caused this situation, it has reinforced it.

A third form of architectural discourse—critical theory—has had an equally paradoxical effect. Generated mostly by and for the academy, such criticism has challenged Modernism, questioning the value of its abstraction, its frequent neglect of context, and its tendency toward cultural insensitivity. Yet critical theory perpetrates the same sins. Often ridiculously abstract, it rarely provides anything concrete for readers to grasp as they swim through a tide of words. Critical theorists frequently cite obscure texts that only a few will know. And they tend to be insensitive to the cultural differences between, say, architecture and continental European philosophy, using the language of the latter in a vain attempt to communicate the former.

Few clients—and few architects—read critical theory, and so,

despite its frequently revolutionary tone, it has had relatively little influence among practitioners. But it breeds bad habits among some students, who, imitating their professors, graduate unable to write a clear sentence. Critical theory's impenetrable style builds a wall between academics and practitioners rather than helps them share ideas and information.

Finding a remedy

Criticism, for all its faults, did not create architecture's problems. Like the architectural culture itself, criticism reflects our prevailing values and contradictions. For example, the split in criticism between analysis and personal opinion mirrors the schism in architecture schools between support courses and design studios, and the division between design firms and service firms reflects the artist/assembler dilemma.

While conflicting values may be deeply embedded in the architec-

tural culture, they are not forever fixed. Having helped to construct our identity, criticism can also be a means of reconstructing it along more beneficial lines. To do so, we need, first, to be more critical of architectural criticism, more vigilant and willing to challenge the unintended meanings, mixed messages, and unsupported assertions made about ourselves and our work.

Other disciplines do this through lengthy letters sections in their journals, including spirited discussions sparked by statements made in previous articles, often with responses from the authors. It is a tradition that keeps the writer honest and sharpens the reader's critical eye.

Second, we need a greater variety of journals. While the U.S. is the largest architectural market in the world, it has fewer national journals than many smaller countries. Professions thrive by sharing information, and ours is definitely

under-served. More than additional publications for generalists, like the two we have, we need journals in print and electronic form that offer more depth in diverse specialties. We need more information and perspective, for example, on particular architectural market segments, with coverage of client-related and architectural issues; on specific content areas, such as technology or practice; and on research efforts in post-occupancy evaluation, building science, and sustainability.

Things are going well for our profession right now as a result of the construction boom. But our intellectual life and the public's perception of our value lags behind, due in no small part to the contradictions and deficiencies in our professional discourse. Remedying the situation is one of the most important long-term investments we could make in ourselves. You could even say it's critical. ■

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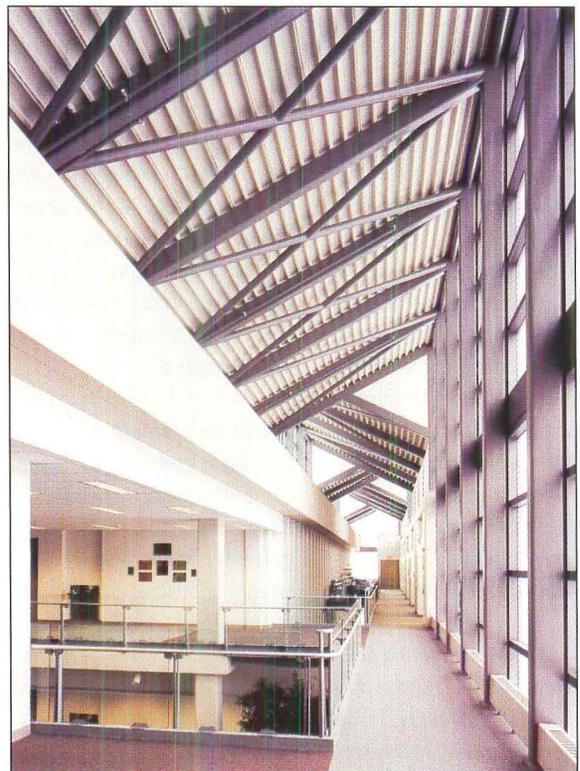


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DIGITAL ARCHITECT Firm principals should consider the many ways that new technologies will transform their staff composition.

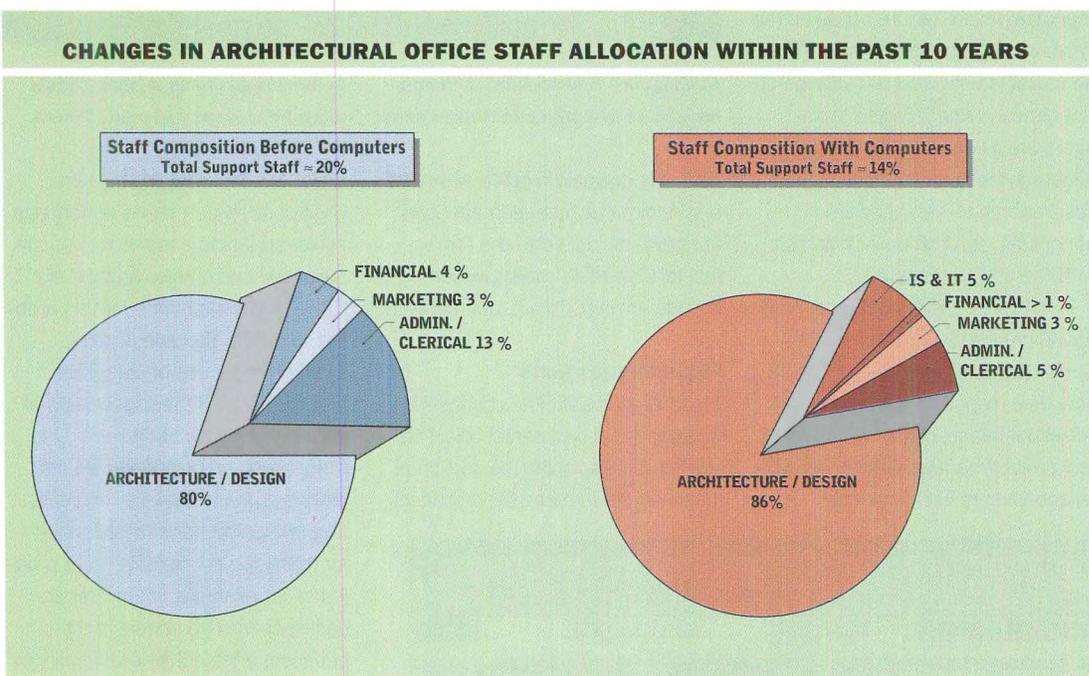
BY JERRY LAISERIN, AIA

Adopting CAD and other digital tools to the practice of architecture entails more than just exchanging graphite for silicon. Properly handled, most technology-driven change can be beneficial, promoting better design and happier clients. The accelerated pace of computer-assisted practice, however, compounded by cultural disparities between technophiles and technophobes on staff, exposes firms to new problems.

In her 1988 book, *In the Age of the Smart Machine*, Shoshana Zuboff, a professor at the Harvard Business School, says the computerized brain is taking over the workplace in all types of offices, not just manufacturing facilities. While that is no surprise, more workers are finding that, in the process, their positions are "deskilled," meaning that skills formerly considered mandatory are suddenly no longer exercised or even needed. For example, chisel-point hand lettering, a once-universal skill among designers, is now as quaint as sleeve garters and drafting aprons.

At the same time, new layers of decision-making complexity are added to many jobs as the sheer quantity of information increases. Design decisions formerly handed down to junior drafters by senior detailers and principals are now made directly by those juniors, who must choose from an array of computer-generated alternatives so

Contributing editor Jerry Laiserin, AIA, consults, lectures, and writes about the impact of information technology on the practice of architecture.



numerous and varied that they can exceed a young architect's professional grasp.

Zuboff says workers with deskilled jobs are bored by the routine of computerized tasks, while other workers are overwhelmed by the information management component of their jobs. These opposing tendencies lead to increased specialization and compartmentalization among support staff and to architectural, or technical, staff taking on broader responsibilities.

Staffing up and down

The old edicts that guided design-firm staffing don't apply to a fully computerized practice. For instance, few architects other than senior principals still have access to an administrative assistant. Over the past 10 to 15 years, nontechnical

and administrative positions have declined from 20 percent of the total staff to 14 percent or less. The composition of this shrinking non-design staff has changed as well. With paper timesheets and nothing fancier than a calculator, one bookkeeper once had to work full-time to post staff hours to projects and generate invoices in a 25-person firm. Bookkeeping, therefore, represented 4 percent of the total staff. Computerized accounting systems and electronic timesheets have slashed that formerly full-time bookkeeping job to perhaps a half-day per week, or from 4 percent to 0.4 percent. And with voicemail systems to handle the phones, computer networks to centralize filing, and word-processing and E-mail software on every architect's desktop, the need for general administrative and cleri-

cal staff has declined to less than half of what it used to be.

In contrast, information services (IS) and information technology (IT) staff, unknown in design firms 10 years ago, account for 3 to 5 percent of total staff. Marketing staff has held constant at 2.5 to 3.3 percent, but desktop publishing and online research have transformed the work.

These shifts in staff composition explain some of the computer-related friction that now exists. For example, office managers and CAD managers may both stake plausible claims to control the firm's computer network. Financial managers and project managers may become mutually frustrated by miscommunication about the appropriate level of detail that each thinks is appropriate to include in computer-generated

project cost reports. If such conflicts are not anticipated and prepared for—by setting realistic expectations of what computers can and cannot do to support each staffer's responsibilities—computerization will impede internal communications rather than enhance them.

Many younger firms founded by computer-savvy principals avoided these transitional problems because they started up as fully computerized operations. If there is no office manager whose tenure predates the firm's computers, then there will be no conflicts over who is in charge of the network. And if project managers are given the tools needed to generate their own internal project cost reports, there will be less opportunity for miscommunication with the accounting staff.

Karen Lee, an architect at New York City-based S. Russell Groves Studio (SRG), says many architects now take responsibility for all their correspondence, communication, and project management. Such self-reliance can result in midsize



At Margulies & Associates, a laptop hooked up to a projector is used early

distinctly downtown office aesthetic and minimalist management style are perfectly suited to the firm's fashionable retail clients, which include Armani, Coach, and Hilfiger.

Managing projects

Technology doesn't just change the quantity and mix of nontechnical staff positions, it also shifts the division of responsibilities among the architects.

in the design phase to show clients alternative ideas and related costs.

ence." But in a booming economy, Steinglass says, "there is not enough senior-staff time and skill to properly supervise and mentor younger staff."

Part of the blame for this problem, explains Steinglass is the indiscriminate use of computer technology with the expectation of greater speed and accuracy. Computers, unfortunately, do not always guarantee these results. In fact, the computer can be faulted for many project management problems. For example, critical design decisions may go undocumented because of the ephemeral quality of E-mail and the dispersed filing (or nonfiling) of documents that results from having less administrative staff.

One way out of this conundrum is to organize an office into collaborative project teams rather than hierarchical structures. This keeps the filing of project information closer to the source, where team members can assume mutual responsibility for organizing documents. In Steinglass' view, such teaming also allows technophobic staff to get more comfortable with computers while giving junior-level technophiles a safe framework for professional development.

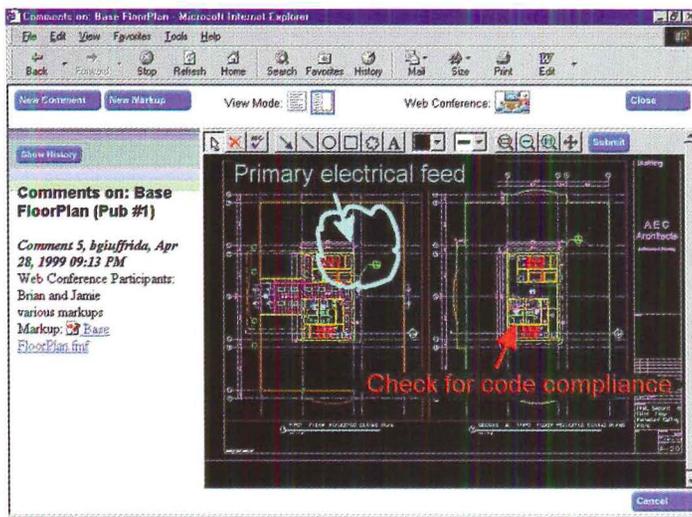
Serving clients

Once computer-adept architects advance into upper management, there will be a radical transformation of traditional roles, says Spiro N. Pollalis, professor of design technol-

ogy and management at the Harvard Graduate School of Design. Particularly interesting will be the new kinds of collaborations with clients that emerge, especially via the Internet. "Architects have been limited to incremental innovation—not because they do not have the vision, but because they must accommodate the business practices of a highly fragmented industry." But this will change.

For example, clients have demanded faster, cheaper, and better design services since computers were first used in architecture. Yet the traditional method of preparing relatively complete drawings for bidding and then redesigning to control costs often forces architects into a cruel trade-off between project quality and profit. Some progressive firms, like Margulies & Associates of Boston, use computers to facilitate an interactive design session early in the design process, thereby encouraging the client to make cost-sensitive decisions early on. In the interactive sessions, the client, consultants, and contractor gather around the architect's laptop computer. A video projector instantly displays architect-controlled alternative design and cost options for a project, making the client and the design team equally aware of the consequences of all decisions.

Internet technology will significantly reduce costs: Viewing and marking up drawing files online avoids the costs of bringing the team together in one room and shipping physical drawings from one team member to another. Those who have experimented with running jobs online report project time and cost savings as great as 10 percent, thanks to reduced travel, eliminating costs associated with printing and distributing drawings, and shortening decision-making time. Such savings, as a percentage of project cost, equal or exceed typical design fees, implying that some day soon clients may value architects for their project communications as much as for their traditional design skills. ■

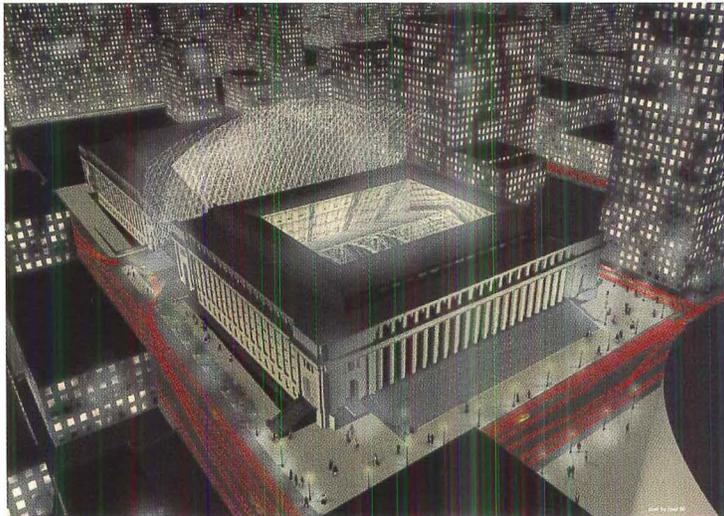


Using a project Web site, where design team members can mark up

and share drawings online, may cut project costs by 10 percent or more.

practices and zero or near-zero nontechnical staff. At SRG's headquarters in SoHo, there is no receptionist, no administrative offices, no private offices, no drafting boards, not even cubicles. Everyone, including the principal, works at identical computer-equipped industrial-strength tables in a loftlike environment. The

Ralph Steinglass, FAIA, principal of Teambuilders, an organizational development consulting firm in New York City, observes that "the burden of production is shifting from experienced practitioners who lack computer skills to the shoulders of young graduates with more computer expertise than professional experi-



PENN STATION'S GHOST LINGERS: LANDMARKS TO GET NEW LOOKS

The much-lamented death of the old Penn Station still reverberates. The demolition in 1963 of McKim, Mead & White's 1910 masterpiece sparked protests that led to the founding of New York's Landmarks Preservation Commission, and urban leaders vowed never to let a similar tragedy happen again.

This legacy has been prominent of late. The extensive refurbishing of Grand Central Terminal has been completed, to much fanfare, and now another New York landmark—McKim, Mead & White's General Post Office, across 8th Avenue from the Penn Station site—will be converted into a new Penn Station in something of a conciliatory gesture after 35 years of regret.

David Childs, FAIA, of Skidmore, Owings & Merrill has created a design (above) that installs a ticketing hall—featuring a glass-and-metal truss structure that will soar



75 feet above the roof line to mark the main entry for approaching travellers—in a truck roadway between the post office's classical main building, built in 1913, and the annex added in 1935. The courtyard of the older structure will be covered with a glass roof so that passengers can enter the various train levels in an open space bathed in light.

A question mark still hovers over the proposed budget of \$468 million—about \$400 million has been committed from city, state, and federal sources—but the project appears to have the necessary momentum. Groundbreaking is expected next year, with completion in 2003.

Meanwhile, Kansas City's Union Station—built two years after Grand Central, in 1914—has been saved from the wrecking ball. The station, which has essentially been dormant since 1983, is being converted into a science museum and shopping center, to a design by Ehrenkrantz Eckstut & Kuhn and Keyes Condon Florence. A new space to the west of the structure will house the main part of Science City, while the existing building is being restored and redesigned as a "town square" (left) with shops and restaurants. *Soren Larson*

OVERWHELMED BY REQUIREMENTS, INTERNS CHEAT ON REPORTS TO NCARB

Faced with having to document 5,600 hours of specialized experience before they can take the registration exam, untold numbers of interns are falsifying their training reports to the National Council of Architectural Registration Boards (NCARB)—often with the complicity of their employers.

This quiet epidemic of dishonest reporting, which involves the compilation of the hours needed to fulfill the requirements of the Intern Development Program (IDP), goes beyond the isolated acts of a few bad apples, NCARB officials and others studying the problem now agree. At the heart of the cheating dilemma, many say, is a profession that has yet to fully embrace its obligations to mentor young architects in the architectural office setting.

"It's not a problem that's going to be solved in a few months," says Joseph P. Giattina, FAIA, president of NCARB. "[It will involve] recreating the feeling in the profession that we need to share what we have with the next generation. I don't think that's there anymore."

Pamela Hill, AIA, coauthor of an NCARB-sponsored national survey of internship that was made public in April, argues that the cheating problem "is a creation of the profession. In other words, a certain setting is provided for interns where, in many cases, it is impossible not to be dishonest to get very difficult areas checked off to complete the IDP and, thus, ultimately become registered."

Problematic penalties

Last July, prompted by nearly a half dozen cases of blatant falsification of IDP reports caught by NCARB's monitors, including forgeries of employer signatures, the board made a move to stiffen its penalties. Under the new rules, the board will disallow IDP credit for the period covered by a falsified report and any further credit for a year after that.

Nevertheless, such monitoring apparently detects and penalizes only the most egregious and inept cheating cases. Giattina and Robert Rosenfeld, NCARB's director of Student and Intern Services, say the board may soon consider tighter scrutiny of IDP record keeping, including requiring more frequent reporting by applicants or undertaking more spot audits of individual IDP documentation.

Revelations from the field

NCARB's national survey of about 1,000 current and former interns, conducted by Hill, along with an assistant vice provost at Montana State University, and Beth Quinn, a sociologist from the same school, yielded unsolicited comments from about a dozen interns who attested to the prevalence of IDP cheating. The interns discussed and complained about the indifference and complicity of many employers and the often extreme difficulties of meeting IDP training requirements in areas such as building cost analysis, office management, getting to construction sites, and interactions with clients including bidding and contract negotiations.

A 29-year-old male intern from Michigan wrote: "Employers are simply not interested in IDP program. In order to actually complete the program in three years, I usually have to lie about the experience I have had. I have never had an employer question the information on my reports, or even discuss them with me."

The need to lie?

A 27-year-old Colorado intern stressed what some perceive as the necessity to falsify. "It's a shame that virtually everyone recognizes the need to lie about experience units in certain categories to meet the minimums. An architect told me, 'there's virtually no way to finish IDP if you don't fabricate some of your

(continued on page 62)



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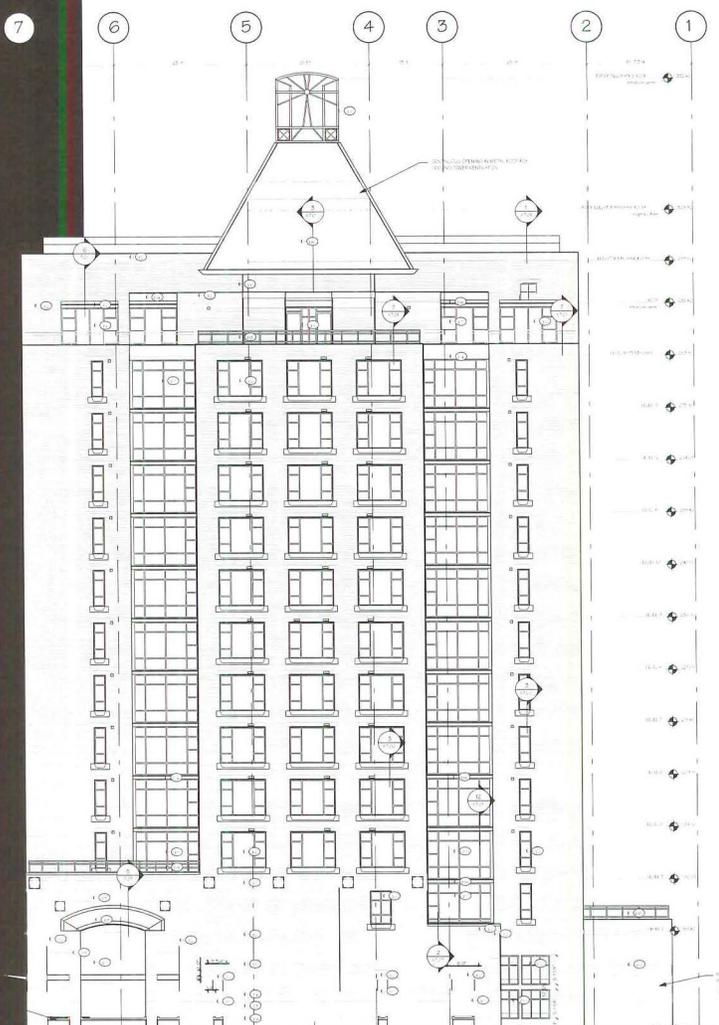
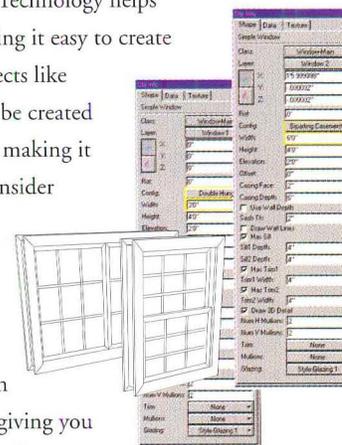
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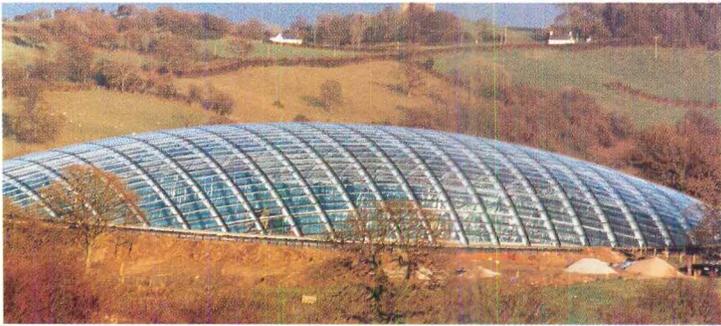


Mike Huggins, Burrows Huggins Architects, Vancouver, Canada



FOCUS ON THE U.K.

A ROUNDUP of the latest news from Great Britain.



BOTANIC GARDEN IN WALES BOASTS ONE OF WORLD'S LARGEST GLASS SPANS

In 1848, Richard Turner's Palm House at the Royal Botanic Gardens in Kew, with its unsupported expanses of curved glass, was considered a technological wonder: A marriage between engineering and architecture that heralded the modern era. Today, architects are challenged more than ever by the possibilities of glass and steel in designing lighter and more transparent buildings. Lord Norman Foster is a leading creator in the field, as seen in his glass-hooded metro entrances in Bilbao and the beehive dome on the Reichstag in Berlin (see page 102).

The progression has come full circle with Foster's design of one of the world's largest clear-span plant conservatories, the Great Glasshouse for the new National Botanic Garden of Wales. From a distance, the shallow, toroidal ellipse of a dome appears to skim the earth, blending in with the contours of the surrounding hills. When the 568-acre Welsh garden, a Millennium Commission-funded project, opens on Easter 2000, it will join its 19th-century counterparts at Kew and Edinburgh as the third botanic garden of the U.K.

Measuring 330 feet long and 180 feet wide, the Great Glasshouse possesses an airy lightness as it rises above a tilted concrete ring beam and a concrete cave used for exhibition and support facilities. One thousand panes of

laminated glass are supported by an aluminum grid above a network of 24 tubular arches and a perpendicular series of smaller tubular members braced with steel rods. Nearly 20 percent of the panes will open to allow air movement.

The conservatory is the centerpiece of the master plan produced by Foster with landscape consultants Colvin and Moggridge on the site of the Middleton Hall estate and its 18th-century park. Colvin and Moggridge have designed a 720-foot broadwalk leading to the Great Glasshouse that purportedly is the longest planted border in Europe.

For the interior of the Glasshouse, Foster found his equal in the French-trained landscape designer Kathryn Gustafson. In her Seattle studio, Gustafson modeled an earthworks landscape that could be described as the Grand Canyon under a glass sky. Her design includes sharply cut stone chasms and crevices, a 16-foot-high waterfall, and a flood plain at the bottom. The dramatic landscape is planted with Mediterranean-type flora from the northern and southern hemispheres. By day, as the sun moves across the sky, the sheer stone walls of the gorge will cast deep shadows. Illuminated at night, the Great Glasshouse will be a sliver of light, like a giant lens looking out on the horizon. *Paula Deitz*

NEW ENTERTAINMENT CENTER MAKES WAVES IN SEASHORE TOWN

On a dramatic coastline in Ilfracombe, England, London's Tim Ronalds Architects has designed a theater called the Landmark using unusual, conical brick structures that stand out amid a more traditional context. Ilfracombe, in Devon, developed as a seaside resort in the 19th century. Tourism had declined in recent decades, and in 1994 the community decided to build a new theater to serve locals in the winter and entertain tourists in the sum-

mer. Ronalds' scheme met with initial skepticism but eventually earned approval by a show of hands at a town meeting.

The architects say that the conical concept came from a desire to use no metal (previous theaters had rusted away), to provide sculptural forms that had a strong presence on the site, and to create a dramatic internal space. The theater occupies the intersection of the juxtaposed cones. *Soren Larson*



PARLIAMENTARY PROBLEMS After securing its right to devolution from England and to establish its first parliament in 300 years, Scottish authorities commissioned a new parliament building—but the going hasn't been easy. The new parliament has been elected, but a battle is raging over the proposed project's design and its funding.

One problem, some new parliament members say, is that the planned new building at Holyrood in Edinburgh is already well over budget. The total cost of the construction, and the fee for temporary use of the Church of Scotland Assembly Hall and offices until the building is complete, currently stands at over £100 million. An alternative proposal, involving the adaptation of existing government buildings, carries a price tag of under £50 million. Some parliament members are also upset that the commissioned architect, Enric Miralles, appears to have altered the earlier agreed-upon design.

But Miralles, a Catalan architect, defended his concept at a recent conference as part of Glasgow's current celebration of architecture (see page 59). In addition, at the same event, the runner-up in the parliament competition—Scottish architect Jim Gibson, who is based in the Australian office of Denton Corker Marshall—elicited his countrymen's support and warned that Miralles faced "the nightmare client from hell" in the new Scottish Parliament. Gibson called for solidarity among the Scottish architectural profession in ensuring that the Miralles design doesn't get "so diluted by committee meetings and compromise as to become unrecognizable." *Soren Larson and Katherine MacInnes*

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CIRCLE 27 ON INQUIRY CARD

FOCUS ON THE U.K.

A ROUNDUP of the latest news from Great Britain.

COMMISSIONS AND PROJECTS APLENTY KEEP ENGLAND A DESIGN HUB

British architects are thriving, winning international competitions at home and abroad, at the same time that their foreign counterparts are finding interesting work in the U.K.

Brisac Gonzalez Architecture, based in London, has won a competition to design the Museum of World Culture in Gothenburg, Sweden. The project, to be completed in 2003, involves designing a 140,000-square-foot museum at the foot of a hill, adjacent to the popular Liseberg amusement park. The architects' scheme includes an enclosed west portion containing gallery spaces and an open east side to host public activities.

London's John McAslan & Partners has been selected to develop a master plan and design for the remodeling of the King Charles Building at the former Royal Naval College in Greenwich. The structure, part of a World Heritage

Site, will be transformed into a new home for the Trinity College of Music, which now occupies three buildings in London's West End. The King Charles Building—construction of which began in 1664, with Christopher Wren as one of the architects—will be ready for Trinity's consolidated operations in 2001.

In Manchester, plans are underway to build a museum dedicated to victims of the Holocaust. The Shoah Centre is being designed by Daniel Libeskind, the designer of the Jewish Museum in Berlin, and will be sited beside the Imperial War Museum of the North. Meanwhile, Libeskind's much-debated design for an abstract addition to the Victoria & Albert Museum in London—dubbed "The Spiral"—got a boost recently when an unnamed donor gave \$30 million toward its completion, which is slated for 2004. *Soren Larson*



DESIGN DEBATE IS A HIGH POINT OF GLASGOW'S FESTIVE YEAR

"Glasgow 1999, U.K. City of Architecture and Design," a year-long festival with over 300 events that is being billed as "the largest celebration of architecture and design ever attempted," is now in full swing. Though activities began in January, an early peak was hit in late May with "From the City to the Spoon," a conference addressing all forms of design that was organized by the Royal Incorporation of Architects in Scotland.

Thousands of delegates, speakers, and exhibitors flocked to the Lord Norman Foster-designed "Armadillo" conference center on the Clyde river for the event, whose central theme was national identity. Lord Richard Rogers was somewhat predictable, covered topics he has already presented elsewhere. Delhi based architect Charles Correa, who followed, stressed Churchill's maxim that "we build our buildings and then our buildings build us." Martha Schwartz, an American landscape architect, was one of the few speakers who actually addressed national identity. She claimed that the idea was "old fashioned and should be replaced by a focus on developing personal identity instead." The new Scottish Parliament was also debated (see page 57).

Not only architects carried the discussion: Paul Smith, a fashion designer, attributed the success of his business to "keeping a visual diary of observations. My message to architects is that I am bored by the disease called copying. Use your

eyes." Furniture designer Ron Arad took up this theme and together with Spanish graphic designer Javier Mariscal argued forcefully for the social and psychological benefits of uncompromisingly good and original design in the built environment.

To put on the yearlong celebration, Glasgow had raised £6 million and secured Deyan Sudjic, former editor of the design journal *Blueprint*, to run it. Why did the characteristically thrifty Scots want to fund architecture and design? "Well, not only for art for art's sake," says Sudjic. "This is a sound commercial venture." As he surveyed the conference, Sudjic offered his own take on the state of architecture: "The most talked about architects [now] are Frank Gehry and Rem Koolhaas and Zaha Hadid, and all their work is about uncertainty. So I think the future is . . . uncertain."

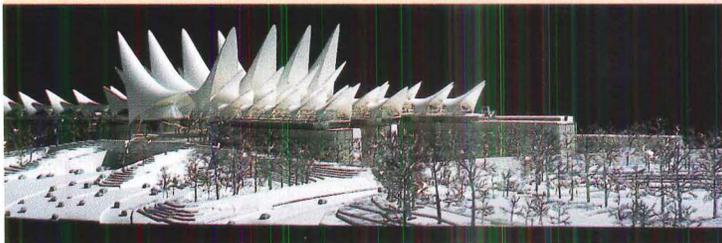
Glasgow has long had little tourism, and cultural events are seen as a way to kickstart economic development. Now, tourism is Scotland's main industry. But Glasgow 1999 "can't only be seen as a simple exercise in pulling tourists in," Sudjic claims. "I'm trying to encourage people to take architecture and design seriously."

Among other activities, Glasgow will host an international festival, in October; "Modern Masters," an exhibition great architects' work; and "Houses of the Future" (above), a vast display of possible home design in the coming decades. *Katherine MacInnes*

LORD ROGERS TO BUILD IN BELGIUM Antwerp's new complex of law courts, designed by the Richard Rogers Partnership, will make for an unusual sight on the Belgian city's skyline: The striking scheme will include a sequence of dramatic sail-like roofs that will be visible from points all around the city.

Combining a number of disparate judicial functions, the new courts will consist of eight wings arranged symmetrically around an axis that will serve as a central public space. According to the Rogers Partnership, the design continues the themes of public accessibility and transparency used in the architect's recent designs of courts in Strasbourg and Bordeaux, France.

Rogers was chosen by a jury convened by the Belgian Ministry of Justice. Associates for the scheme are Belgian architects/engineers Van Kerckhove B.V.B.A., consulting engineers Ove Arup, and landscape architects Wirtz International. The project's construction will cost an estimated \$75 million. *S.L.*



Request for Proposals

SolarScapes Commission Project at Liberty Science Center
Liberty Science Center (LSC) and GPU Energy announce SolarScapes:
An open competition for two solar-powered art/exhibit projects.



COMMISSIONS

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EXHIBIT SITE

Liberty Science Center is located in Liberty State Park in Jersey City, New Jersey, with views of Ellis Island, the Statue of Liberty, and lower Manhattan.

ELIGIBILITY

SolarScapes is a unique commission project open to artists, lighting and exhibit designers, and architects.

TIMELINE

Design Proposals Due:	August 1, 1999
Notification of Winning Proposals:	September 17, 1999
Prototyping and public presentations:	September 1999 - January 2000
Installation:	January 24 - February 5, 2000

JURY

Liberty Science Center:	Wayne LaBar, Vice President
GPU Energy:	Douglas J. Howe, Vice President of Customer Services
ASCI:	Cynthia Pannucci, Founder/Director
Gensler Associates:	Patric O'Malley, AIA, Vice President
Pace University Energy Project:	Ed Smeloff, Executive Director
Available Light:	Steven Rosen, Principal

GUIDELINES



This competition has been organized through Art & Science Collaborations, Inc. (ASCI). Guidelines are available at <http://www.asci.org/LSC~solar>. For further inquiries contact Cynthia Pannucci at ASCI: 718-816-9796. (Please read the Guidelines thoroughly before calling!)



INTERNS *continued from page 55*

experience.' He was right." Other interns willing to talk to RECORD about their experiences suggested that dishonest reporting takes a number of forms in addition to the handful of glaring cases detected by NCARB's monitoring. One Texas intern told of an employer who offered a summer internship with no pay in exchange for the employer's promise to sign falsely inflated IDP training reports.

Rationalizations

Perhaps the most common falsification takes the form of what some call a "liberal interpretation" of IDP record-keeping rules by both interns and their bosses to fit their office's circumstances. One intern at a large Southwestern firm claims that some employers seem willing to certify that an intern has fulfilled the hourly requirements of IDP if they feel that the necessary level of experience and understanding has been achieved—even if the required hours have not been met. "I know it's wrong, and it goes against NCARB's bean counting, but if you can get the full understanding without doing the required hours, then you can rationalize it," the intern says.

Others say that IDP fudging often occurs as a result of a mismatch between an intern's office experiences and the IDP's reporting categories. As a Chicago intern explains: "I've found that my responsibilities have included tasks which don't fall neatly into the categories as described in the IDP program. [This situation] has led me to bounce a few credits in one area to another."

Lack of supervision

In other cases, falsification occurs more through indifference or ignorance about IDP's requirements than through outright dishonesty. An intern who has held jobs in Hawaii and California says her bosses left it entirely to her to decide whether a particular activity

fit the categories of IDP. "No one in the office was familiar with IDP," the intern remembers. "My supervisor just checked off the forms and I had them signed by a principal."

The real problems

Heightened surveillance by NCARB might deter some of the dishonesty. But most agree that widespread cheating will likely persist until the more deep-seated problems of ignorance about IDP on the part of interns and employers, the inflexibility of some of the program's requirements, and the near absence of intern mentoring in many architecture offices are meaningfully addressed by the profession as a whole.

Since its founding some 20 years ago, IDP's effectiveness as a roadmap to gaining the experience needed to pass the registration exam has rested almost entirely on the good faith and honesty of both interns and employers.

Paradoxically, argues Quinn of Montana State, the system is also "criminogenic"—that is, IDP's built-in difficulties and frustrations invite illegal or unethical behavior in otherwise honest people. Many interns apparently feel they have little choice but to fudge their IDP reports, or else spend five, six, or more years struggling to meet IDP requirements.

"I have tried to be honest," says a San Francisco Bay Area intern. "But it seems that it is not always possible in the true sense of it. There is bending of the rules, and it is hard to get all of the experience required in office management, project management and some of the other tasks that are reserved for upper-level personnel in the firm."

For now, at least, it seems that the watchdogs at NCARB may respond to the cheating problem by edging away a bit from the largely unfettered honor system governing IDP and toward one following President Reagan's famously skeptical foreign policy adage: Trust, but verify. *Lee D. Mitgang*



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AMID A DEVELOPMENT SQUABBLE, NOUVEL CREATES FIRST DESIGN FOR U.S.

The French architect Jean Nouvel has designed an elegant 250-room hotel and a multiplex cinema for a highly contested waterfront site in Brooklyn. If it is built, Nouvel's first building in the U.S. would be the anchor for a \$300 million dollar redevelopment of 26 acres on the East River between the Brooklyn and Manhattan bridges.

Over the last two decades, the developer David C. Walentas has acquired most of the old warehouse buildings in the neighborhood, a gritty industrial area called DUMBO (Down Under the Manhattan Bridge Overpass). His redevelopment scheme includes a riverfront promenade, marina, ice-skating rink, parking, retail outlets, restaurants, and public parks. Walentas has paired Nouvel with Beyer Blinder Belle, creators of the project's master plan, and with landscape architects

M. Paul Friedberg & Partners.

If approvals are secured—and this is far from certain, because the waterfront itself is owned by the city and state—construction is expected to begin in early 2001. But those approvals won't arrive if the Brooklyn Bridge Park Coalition has its way. The group is vehemently opposed to the Walentas plan, citing the potential blocking of scenic views; a limited public access to the

waterfront; and increased traffic, among other concerns. The group is seeking an architect to develop an alternative scheme, one that would likely involve more publicly-accessible waterfront, limited retail development, and the preservation of views and historic structures.

As for Nouvel, his proposed \$80 million dollar pier building, a 350,000-square-foot glass and steel cantilever supported by a rectilinear theater, promises spectacular views of Manhattan. Nouvel has treated the back and

belly of the hanging hotel as elevations, opening both up to the adjacent bridge and water traffic. Even the cinema uses the drama of Manhattan's romantic skyline—movie screens would lift to reveal the urban backdrop. Nouvel sees the hotel as "a golden opportunity to reach out a Narcissus mirror to Manhattan." While Nouvel's contemporary architecture would celebrate nearby Manhattan, it would certainly also resonate profoundly in its own tiny corner of Brooklyn. *Susanna Sirefman*



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DESKS, PHONES, A BASKETBALL COURT: REEBOK'S NEW WORLD HEADQUARTERS

NBBJ's design of the new headquarters for Reebok, in a rural area south of Boston, centers on a basic—but often overlooked—concept: Employees should work in an environment that is relevant to what they do. Reebok's workers design athletic gear; NBBJ placed a fitness center within one building and laid out a running track that crosses underneath the complex. Reebok

depends on the free exchange of creative ideas by groups of people; the design employs abundant transparency, open corridors and clear sightlines, and minimized hierarchy to facilitate interaction.

"The design dovetails with the health and fitness aspects of what [Reebok] does," says Steven McConnell, AIA, design principal at NBBJ in Seattle. "It's meant to be a

charged creative environment that thrives on serendipitous interaction. All the venues needed to test the products are part of the immediate environment."

The 522,000-square-foot headquarters consists of a central spine, where the employees will enter, with four branches—organized by department—curving away from it. "The spine collects all the energy and the activity," says McConnell, "and it gives everyone a

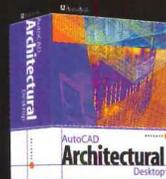
common point of reference."

Because of the positioning of the various offshoots and the extensive use of glass in the curtain wall, employees will be able to see the spine and parts of other sections from any vantage point, giving them a constant perspective.

The open plans also mean that employees on different levels of the four-story buildings will be able to see each other moving about. A small stream will run along the outside border of the building complex, while the ground in front is landscaped in a bowl shape, rising up to meet the headquarters' second level in the front.

Along with the four 100,000-square-foot office buildings are the fitness center (including an NBA-quality basketball court inside the building), a guesthouse, a large cafeteria, conference space and an exhibit hall, and two parking garages. Construction began in April 1998, and the employees will move in by next June. *Soren Larson*

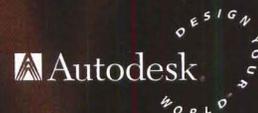
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GENSLER ADDS HOLISTIC DESIGN TO A HIGH-TECH OFFICE CLUSTER

Amid the concrete-box designs of the 5,000-acre Irvine Spectrum, a high-tech office community in Irvine, Calif., Gensler's Newport Beach office has designed an eye-catching world headquarters for Nikken. The facility features a monumental, 55-foot-tall glass entrance and is intended to capture the philosophies of Nikken, a health products distributor. "[The new headquarters] was designed to create a strong

imagery for the company," says Dale Noriyuki, Gensler's project manager for the Nikken headquarters.

For example, four trees line the path to the entrance and one tree stands in the lobby as symbols of Nikken's five pillars of health: Body, mind, family, finances, and society. "Part of the concept of this building is bringing the outside in," Noriyuki adds. In addition to the indoor tree, an outdoor reflecting pool appears

to extend into the lobby. Also, outside materials such as gravel become more refined inside in the form of travertine stone and sand.

The Irvine Company, the real-estate firm that drew up the Spectrum's master plan in the 1960s, continues to influence the site's architecture. "The Irvine Company has its own criteria. All designs have to be approved along with city-planning department approval," Noriyuki says. In keeping with those criteria, one entrance of

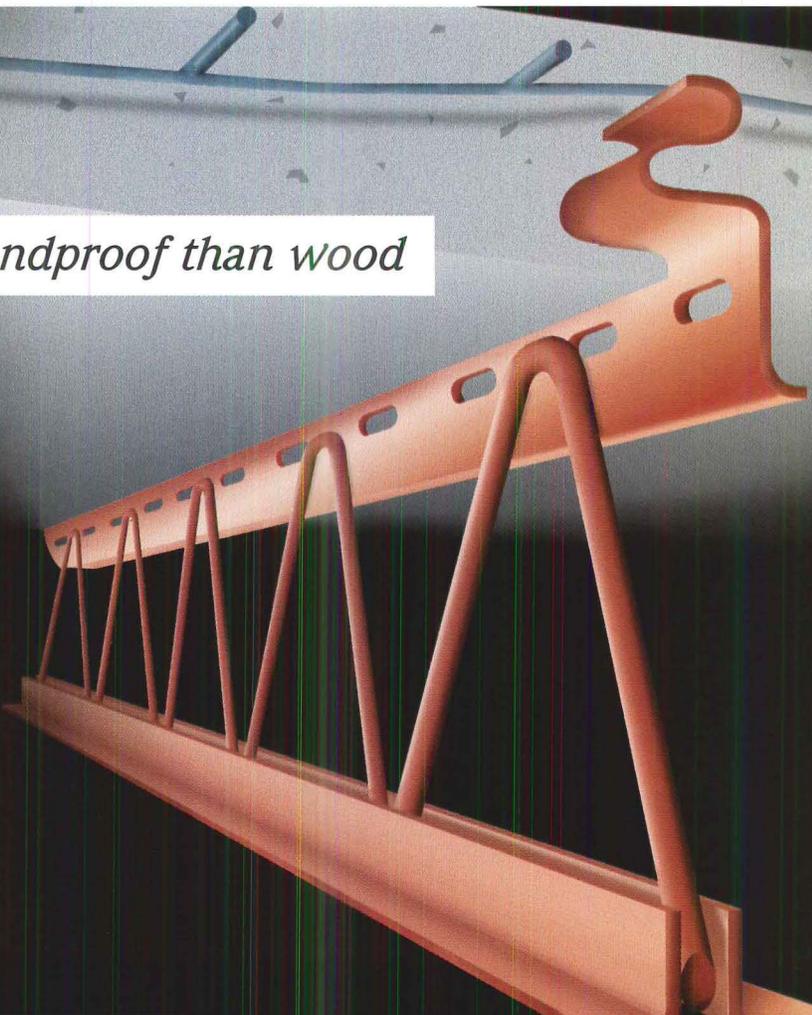
the 215,000-square-foot Nikken facility is more like its concrete-box neighbors. But most visitors will walk past the reflecting pool and stone garden to enter via a 10,000-square-foot lobby, featuring the soaring glass entryway. The lobby connects via an atrium to the other four structures, including a three-story executive office building and a 90,000-square-foot warehouse. The new headquarters building is expected to open in September. *Susan R. Bleznick*

NEW TOPICS FOR NEW URBANISTS What exactly determines the wealth of a city? Does it go beyond well-designed neighborhoods to include a diversity of people, with multiple education and employment opportunities? The discussion at the seventh Congress for the New Urbanism (CNU), "The Wealth of Cities," broadened the focus of New Urbanism to include policy issues that directly affect cities, such as crime, education, and employment. More than 1,000 attendees—purportedly the largest gathering of New Urbanists to date—were in Milwaukee June 3-6 for the conference. John Norquist, the mayor of Milwaukee and a Congress for the New Urbanism board member, hosted the gathering. Norquist, an advocate for school choice, echoed an earlier statement by urban designer Jonathan Barnett that innovations in design require parallel public-policy innova-

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FLORIDA STUDENTS DESIGN A MEMORIAL FOR VALUJET VICTIMS

The memorial to the victims of ValuJet's Flight 592 is a stark presence in the murky landscape of the Florida Everglades. It is composed of 110 pillars, one for each victim of the crash, with the pyramid-capped columns rising from a slab of concrete that seems to form a gash in the land. The columns range from two to eight feet tall and, as in a battlefield graveyard, are arranged

in straight rows across the concrete slab. The idea was to create two simultaneous symbols: The plane crashing into the muck and the victims' souls rising heavenward.

It is both memorial and metaphorical graveyard. The DC-9 plunged into the water on May 11, 1996, with such impact that it plowed through the 10-foot-deep swamp, hit the limestone bedrock, and disintegrated; few



pieces of the wreckage were recovered. The memorial site is eight miles from the location of the crash.

The memorial—cosponsored by the International Masonry Institute, the United Way, and others—was designed by the American Institute of Architecture Students (AIAS) branches at the University of Miami and Florida Atlantic University. One of the victims of the crash was Howard Reitz, a second-year architecture student at the University of Miami. His

parents, Larry and Carol Reitz, were instrumental in ensuring that the project was designed and built by students. Their express desire was to create a memorial to the victims that would express their son's love of the profession he had chosen but would never practice.

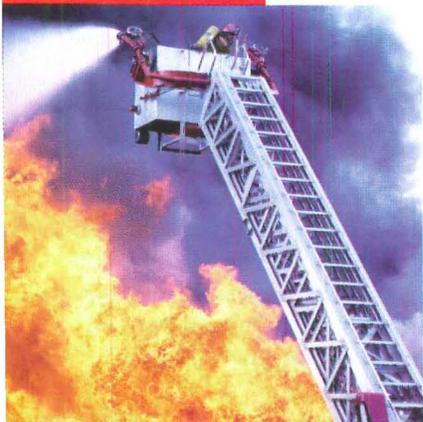
The students opened the process in a 1998 charrette, then began constructing the memorial with the help of local stonemasons and numerous others. *Beth Dunlop*

tions. "It's not just the physical design," Norquist said. "What CNU is about is people and what happens in their lives."

While the New Urbanists have developed a well-crafted message of what they consider good urban design, they have had difficulty coming to consensus on broader social issues. In one session, panel members debated urban race and class issues. Author James Kunstler, speaking from the audience, called for a more civil society. His comment, though, that young African-Americans should be "nicer to white people," created a chaotic atmosphere with shouts back and forth from the audience and panel members. Perhaps the reality of diverse urban life may not be the vision that all New Urbanists are ready to accept. *John E. Czarnecki*

3

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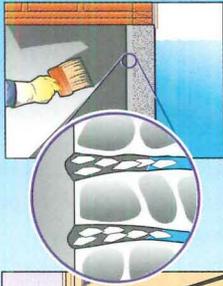
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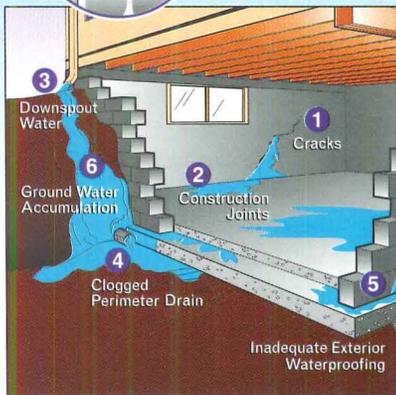
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NEWS BRIEFS

Starting early The Architecture & Design Charter High School in Philadelphia—the first of its kind in the U.S.—is now accepting applications from students entering grades 9–11 (grade 12 will be added next year) and plans to open in September in a 26,000-square-foot building downtown. In addition to the standard core curricula offered in other public high schools, the charter school, which was developed by a committee of educators and members of AIA Philadelphia, will introduce students to the theories and practice of architecture and design and to the construction industry.

Friendly town The New York Convention & Visitors Bureau has opened a Visitor Information Center at Seventh Avenue and 53rd Street. The 2,200-square-foot VIC, created with a technologically advanced design by New York's RKK&G, includes a multimedia wall and an electronic information kiosk. Visitors will be able to get up-to-date information on events and attractions, detailed maps, tickets to selected activities, and advice from multilingual counselors.

The list lengthens The University of Cincinnati, which already has buildings by Frank Gehry, FAIA; Henry Cobb, FAIA; Peter Eisenman, FAIA; Michael Graves, FAIA; and David Childs, FAIA, has asked high-profile firms Gwathmey Siegel Associates, Morphosis, and Moore Ruble Yudell to design structures for the campus in the coming years.

Maki's medal The Japan Art Association has awarded its 1999 Praemium Imperiale Award for architecture to Japanese architect Fumihiko Maki, HON. FAIA, known for technical excellence and a melding of Western and Eastern styles. Maki, who is based in Tokyo but has both worked and taught in the U.S., receives a grant of approximately \$121,000 and will be presented with his medal in Tokyo in October. The association considers its awards to be comparable to the Nobel Prize.

High honors The 11th Annual AIA Education Honor Awards have gone to "Curriculum for Architecture Schools (and Firms)," a Boston Architectural Center curriculum, and to "CoOL Studio: Opening Up the Discursive Space of Design," a Georgia Institute of Technology Internet-based studio.

No growth spurt The Portland, Ore., area is serious about limiting sprawl. Washington County has struck a deal with the Intel Corporation, the state's largest private employer, that provides the

company with tax incentives to keep it from moving away. However, Intel will pay a "growth impact fee" if it exceeds a ceiling of 1,000 new manufacturing jobs. The reason: The county is trying to stop development from disrupting the farms, forests, and orchards in the area.

Cooper's crusade Cooper Union's School of Architecture recently held its annual exhibition of students' work, and the presentations, as usual, focused on the artistic side of architecture. Under



Dean John Hejduk, FAIA, the curriculum is based on a diverse cultural view and fruitful interaction with other creative disciplines. The promotion of individual voices was apparent in the fifth-year students' work, whose projects were based on instructions to use an Emily Dickinson poem, the word *night*, and a musical instrument, among other elements, as inspirations.

The main problem The National Trust for Historic Preservation has released its annual list of America's most endangered places, or "11 sites facing their 11th hour." Alongside the usual array of needy buildings and districts is a more conceptual location: The "Corner of Main and Main." The Trust says that traditional downtowns across the country are being hit by "the drugstore invasion," with many historic structures being razed and replaced by cookie-cutter chain stores.

Logan's run Cambridge Seven Associates has designed a network of elevated walkways (above) at Logan International Airport to link terminals with parking garages. The walkways, which use a flexible structural steel-tube truss system, are part of a \$1 billion modernization program.

Summer tour Häfele America Co. is touring North America this summer with its Mobile Design Center, a 40-foot coach outfitted with over 1,000 pieces of hardware and design systems. The bus will stop at architectural, interior design, and manufacturers' offices in more than 25 cities. ■

DATESEVENTS

Calendar

Micro Space/Global Time: An Architectural Manifesto**Vienna/Los Angeles***Through July 11*

Eight internationally acclaimed architects and artists consider the transformation of architecture and urban environments in the era of digitalization. MAK—Austrian Museum of Applied Arts, +1/71136-233 in Vienna, and MAK—Center for Art and Architecture, 323/651-1510, in L.A.

The Essence of Architecture**Paris***Through July 12*

A reflection on the nature of architecture as exhibited in about 50 drawings, mostly by Italian and French artists of the 16th and 17th centuries, including Vasari, Giulio Romano, and Claude Lorrain. The Louvre. +1/40-20-53-14.

A Structure Revealed: The Amsterdam Stock Exchange**Los Angeles***Through July 25*

A suite of 22 innovative pencil drawings by San Francisco architect Daniel Caston explores the structure of Hendrik P. Berlage's Amsterdam Stock Exchange. Getty Research Institute Exhibitions Gallery. 310/440-7360.

The Architecture of Democracy Glasgow, Scotland*Through July 25*

An exhibition of parliamentary buildings at the McLellan Galleries, 270 Sauchiehall Street. +41/331-1854.

VOA Associates Incorporated Chicago*Through July 31*

A look at 30 years of architecture, planning, and interior design by the Chicago firm, whose commissions have included college and university facilities, master plans, corporate headquarters, hotels, and transportation projects, as well as the recent reconstruction of Navy Pier. Chicago Architecture Foundation. 312/922-3432.

The Ordinary Made Extraordinary: African Textiles and Decorative Objects**Chicago***Through August 1*

Works from West, Central, and Southern Africa

derived from traditions of making beautiful objects to meet practical needs. The Art Institute of Chicago. 312/443-3600.

Sarah Sze**Chicago***Through August 1*

Sze's installations consist of meticulously arranged found objects, such as electrical appliances, pushpins, colored wire, candy, and aspirin, that suggest a miniature world of urban sprawl. Museum of Contemporary Art. 312/280-2660.

Hugh Newell Jacobsen**Washington, D.C.***Through August 15*

This retrospective includes the architect's gabled-pavilion houses, where farmhouse facades conjoin with mirror-glass curtainwalls. National Building Museum. 202/272-2448.

Philippe Starck: Furniture & Objects**Long Island City, New York***Through August 29*

A selection of signature works highlights Starck's creative transformation of simple objects, such as a toothbrush or flyswatter, into sculptural forms. P.S.1 Contemporary Art Center. 718/784-2084.

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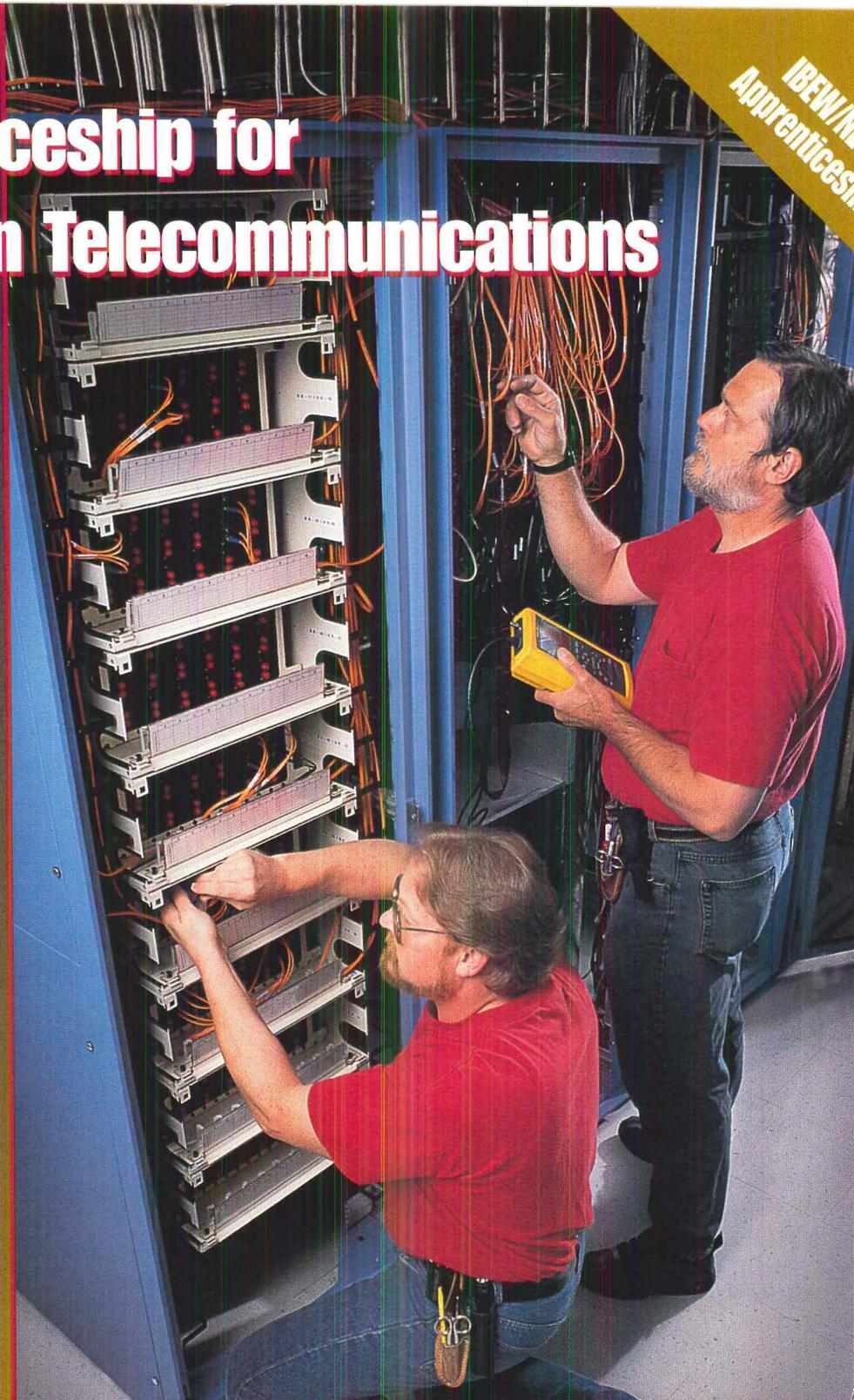
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**Breaking Through: The Creative Engineer
Zion, Illinois***Through August 31*

Exhibit looks at the role of creativity in engineering feats ranging from roller-coaster design to the construction of Colorado's Hanging Lake Viaduct to finessing Voyager 2's in-flight maneuvers from Earth. Power House. 847/746-7494.

**An Urban Experiment in Central Berlin:
Planning Potsdamer Platz****Washington, D.C.***Through September 19*

Development concepts and building designs for Potsdamer Platz. National Building Museum. 202/272-2448.

**Paper Architecture
Denver***Through October 3*

Show highlights drawings and renderings from the museum's collection. Works by Ponti, Wright, and Piranesi, among others, are on view. The Denver Art Museum. 303/640-4433.

**Merchant Prince and Master Builder:
Kaufmann and Wright
Pittsburgh***Through October 3*

An exhibition exploring the belief shared by Frank Lloyd Wright and his client Edgar Kaufmann—for whom he designed Fallingwater in 1936—that good design had the power to change lives. Heinz Architectural Center, Carnegie Museum of Art. 412/622-3131.

**The Architecture of Reassurance
Pittsburgh***Through October 10*

Through 350 objects from the archives of Walt Disney Imagineering, including plans, drawings, models, posters, and advertisements, this exhibition explores the history of Disney theme parks. The Andy Warhol Museum. 412/237-8338.

**Earthworks Revisited
Seattle***Through May 2000*

An installation celebrating the 20th anniversary of the King County Arts Commission's project Earthworks: Land Reclamation as Sculpture. Seattle Art Museum. 206/654-3158.

**The Un-Private House
New York City***July 1-October 5*

Twenty-six innovative dwellings by a diverse group of architects reflect the transformation of

the private house in response to evolving architectural theory and changing ways of living. The Museum of Modern Art. 212/708-9750.

**Vanity Cases by Philippe Starck
Glasgow, Scotland***July 23-October 31*

The exhibition features examples of Starck's work miniaturized to scale and displayed in vanity cases. The Lighthouse. +41/287-7106.

**Manifesto: Fifty Years of British Radicals
London***July 5-August 28*

"Manifesto" examines the work of Britain's archi-

tectural radicals from 1945 to today—including Alison and Peter Smithson, Ian Nairn, Archigram, and others—and asks what it was they were trying to change. RIBA Architecture Gallery. +71/580-5533.

**Richard Meier Architect
Paris***July 12-September 26*

Organized by the Museum of Contemporary Art, Los Angeles, this major retrospective traces Meier's work and explores its relationship to abstraction in 20th-century art and architecture. Galerie Nationale de Jeu de Paume. 213/621-2766.

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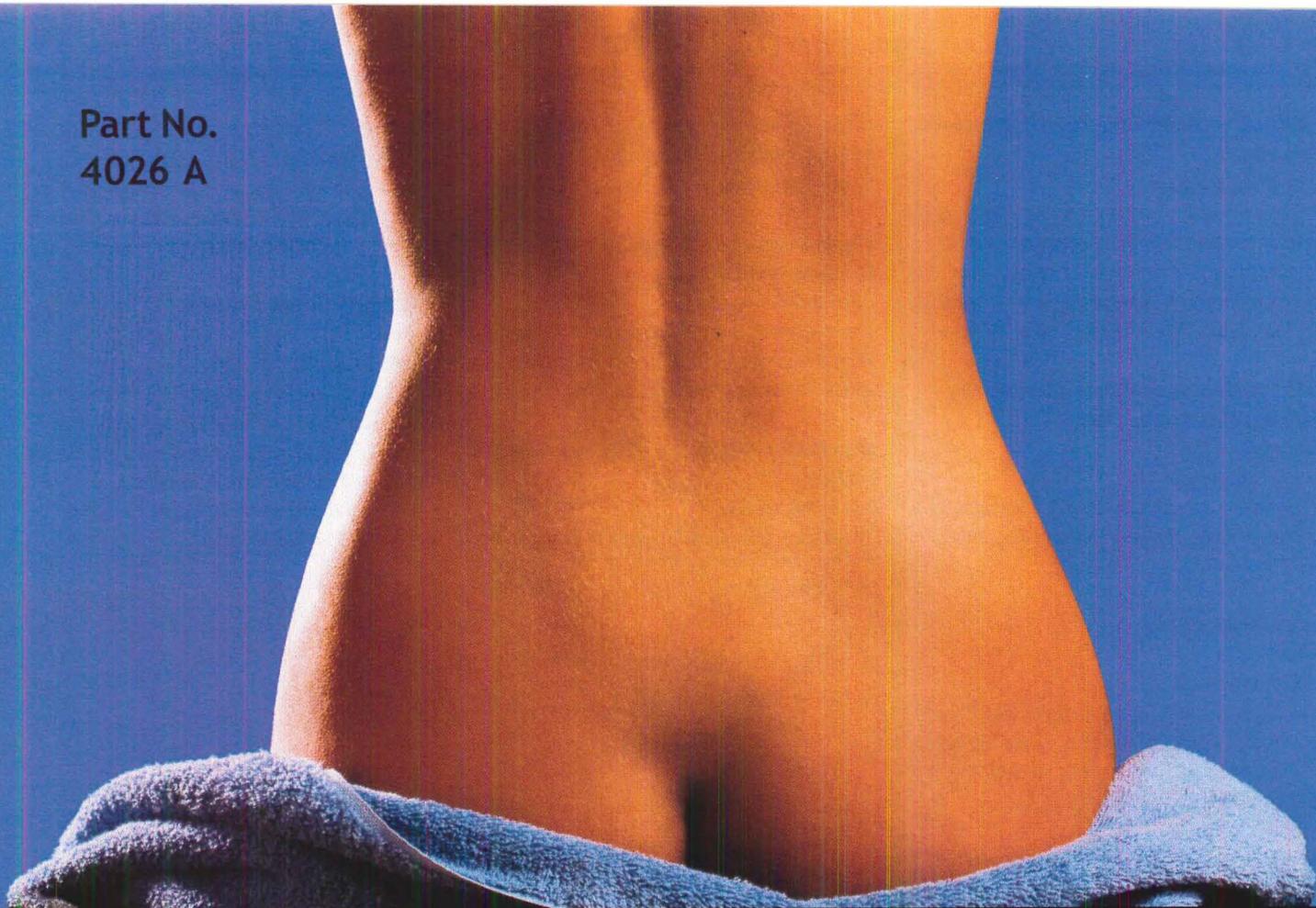
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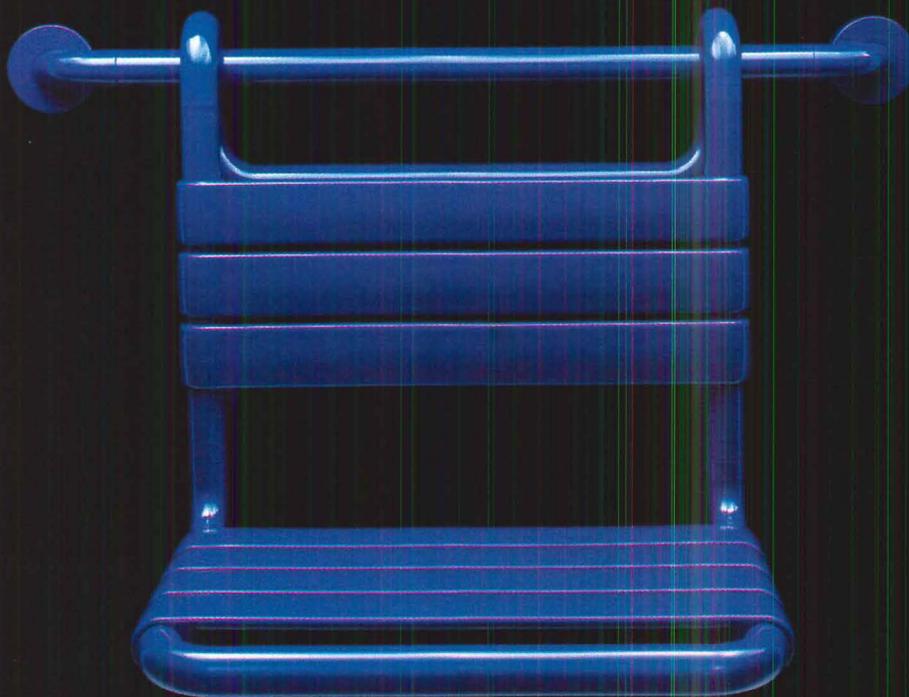
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The Work of Charles and Ray Eames: A Legacy of Invention**New York City***Through January 9, 2000*

More than 500 artifacts—furniture, drawings, models, photographs, slides, films, and experimental pieces—exemplify this husband-and-wife team's efforts to improve society through design. Cooper-Hewitt National Design Museum. 212/849-8400.

Milestones of Modernism 1880-1940: Selections from the Norwest Collection**Minneapolis***July 9-September 12*

This exhibition displays furniture, metalwork, ceramics, glass, and works on paper from a collection that spans from 1880 to 1940. Also on display will be works by Frank Lloyd Wright, Georg Jensen, and William Morris, among others. The Minneapolis Institute of Arts. 612/870-3131.

Metropolitan Images: Recent Works by Jonathan Bressler**New York City***Through July 28*

These collage-on-canvas works incorporate heavily patterned and colorful background designs executed with hand-silk-screened paper and use historical, iconographic imagery, some from the Metropolitan Museum of Art, giving the exhibition its title. New York School of Interior Design. 212/472-1500.

Different Roads: Automobiles for the Next Century**New York City***July 21-September 21*

MoMA examines the future of the automobile and its design and the impact it has on society and the environment. The Museum of Modern Art. 212/708-9400.

H VEN LC: Hôpital de Venise Le Corbusier Venice*Through July 31 and August 30-October 9*

Early 1960s drawings by Le Corbusier and Guillermo Jullian de la Fuente for the Civil Hospital of Venice, from the Ospedale Civile di Venezia collection. Istituto Universitario di Architettura di Venezia-Archivio Progetti. +41/257-1012 x1014.

Yasuhiro Ishimoto: A Tale of Two Cities Chicago*Through September 12*

Works by the Japanese photographer known for his street photography of Tokyo and Chicago. The Art Institute of Chicago. 312/443-3600.

Competitions

1999 Design Awards Program**New York City***Submission Deadline: September 8*

The American Institute of Architects New York Chapter announces the 1999 Design Awards Program eligible to AIA New York Chapter Members, or registered architects practicing in New York City. The categories are Built Work, Interiors, and Projects. For more information, call the AIA, New York Chapter, 212/683-0023.

Europando: Constructing the Town in the French Tropics*Registration deadline: September 15**Closing date for entries October 29*

Architects under the age of 45 are being asked to find innovative architectural and urban responses to relevant problems on the following four selected sites in the French Overseas Department: Guadeloupe, French Guyana, Martinique, and Réunion. +1/55-86-95-55.

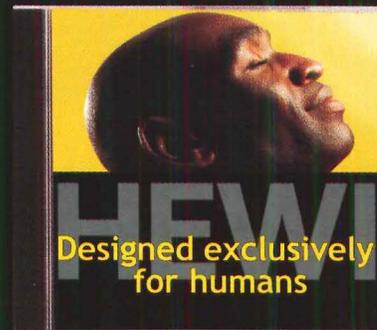
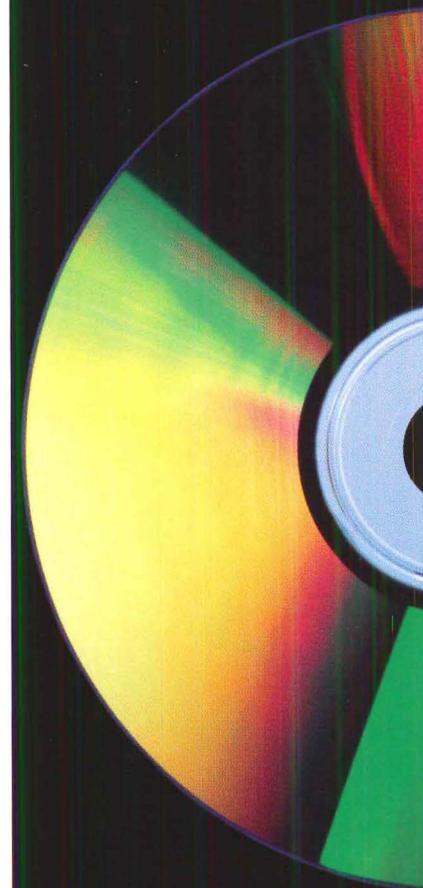
Jubilee 2000 Design Competition**Our Lady of Guadalupe, Milford, Indiana***Submission and judging: December 1999*

The Roman Catholic Diocese of Fort Wayne-South Bend in Indiana is sponsoring a design competition for a new church with social and educational facilities for a rural Hispanic parish. First prize will be the contract for complete architectural services for design and construction. Second and third prizes will be cash awards. This competition is open to all. Collaboration between designers, architects, liturgists, theologians, artists, students, etc., is encouraged. For more information, call 219/483-3661.

1999 James Marston Fitch Charitable Foundation Mid-Career Grant Awards*Application deadline: September 1*

A \$20,000 research grant will be awarded to a professional with an advanced or professional degree and at least 10 years of experience, as well as an established identity in historic preservation, architecture, landscape architecture, urban design, environmental planning, law, engineering, archaeology, architectural history, or the decorative arts. The grants are intended to support original research and creative design that advances the practice of preservation in the U.S. For information, call Margaret Evans at the offices of Beyer Blinder Belle, 212/777-7800. ■

Please submit information for events and competitions at least six weeks prior to the magazine's publication date (July 15 for the September issue).

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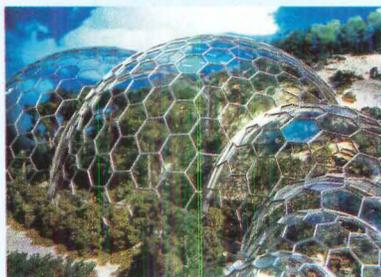
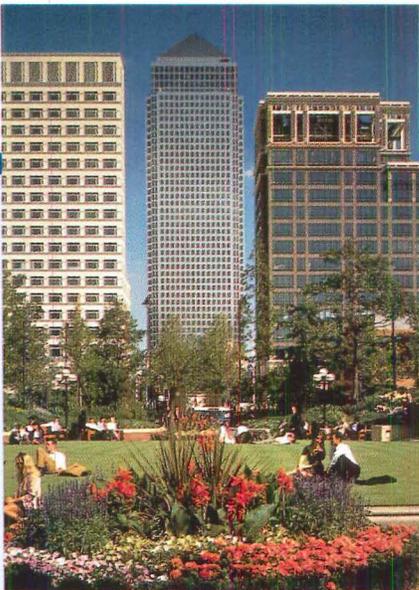
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FEATURES

COOL BRITANNIA IS A HOTBED OF ARCHITECTURAL ACTIVITY. HERE'S A GUIDE TO SOME OF THE ACTION.



The Empire may be long gone, but British architecture is thriving. In a creative splurge, the globe is becoming dotted with projects that share the British mastery of language—in this case, architectural language. Moreover, the best work reflects analytical acumen, technical mastery, and wit characteristic of her people.

While we editorialized in March that the British were coming, we now confidently announce that they have arrived. *RECORD* recognizes a worldwide body of distinctive work by British architects in this unusual portrait of the state of British architecture. Leading off the discussions is Hugh Pearman, a leading London critic, who gives an overview of the architectural scene. He is complemented by David Jenkins' explanation of the professional relationships: More than who begat whom, Jenkins' complex family tree recounts courtship, marriage, and divorce among the players. Everyone seems to have worked for everyone. And despite frequent intermarriage, the progeny have emerged remarkably acute.

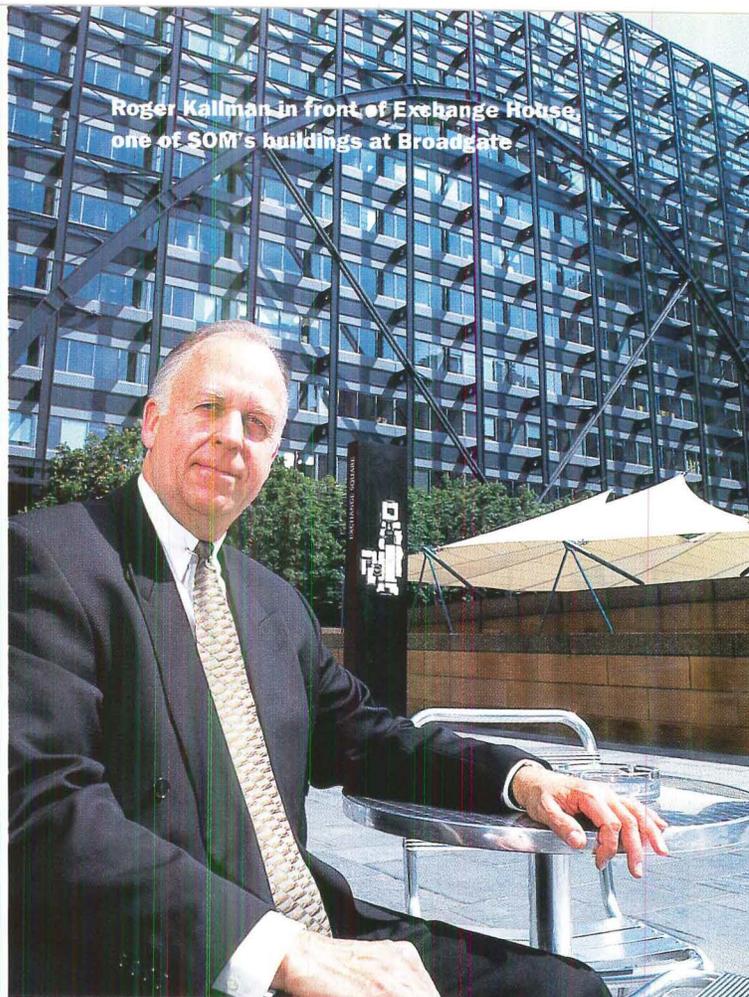
For the well-established or those with plans to come, London's pull has proved irresistible. "Crossing the Pond" explains why and admits that, while the international reach is superb, all is not tea and scones; if anything, the English regulatory environment is more problematic than our own.

For those who master her political intricacies, however, London offers a superb perch for international practice, and no one has capitalized on that position better than Norman Foster. Finally, listen in as the jet-pilot-cum-architect describes his own passions and how he has translated his commitment to social art into architecture.

Swanke Hayden Connell's David Walker poses in front of the Tower of London



Roger Kallman in front of Exchange House, one of SOM's buildings at Broadgate



Bruce Danzer of Studios visits the Greater London House, an Art Deco landmark, near Camden



American M.J. Long on a site visit to the British Library, which she codDesigned with her husband Sir Colin St. John Wilson



Crossing the Pond

THE EXPERIENCE OF AMERICANS
WORKING IN ENGLAND
SPEAKS VOLUMES ABOUT
THE DIFFERENCES BETWEEN
AMERICAN AND BRITISH
ARCHITECTURAL PRACTICE

Stephan Reinke of HOK at the entrance to
the Oxford Circus tube station

by Elizabeth Harrison Kubany

Gensler's Steven Steimer overlooking
the City of London

The British call it the Big Bang, and it started an American invasion. The deregulation of the London stock exchange caused droves of American architects to relocate to Britain in the late 1980s with a specialized knowledge of project delivery that their British counterparts did not have. Today, while it seems British practitioners have caught up, Americans still wax romantic about their experience in Britain and remain sanguine about their future there.

The Big Bang

Before 1986, trading stocks in Britain was legally restricted to those who were members of the London stock exchange. When legislation was passed to deregulate the market, London was opened to massive growth (hence, the name Big Bang) as both foreign and British financial institutions set up or expanded their operations there. The need to house these companies sparked the largest building boom in the city since the reconstruction that followed the Great Fire of 1666.

For decades preceding this deregulation, big American architectural practices had been creating quality spec office buildings for corporate clients. As a result, the Americans, unlike their British counterparts, had experience with large-scale, fast-track construction techniques. With the need for huge amounts of space in a hurry, it seemed natural for developers and companies to turn to the Americans. According to Kenneth Powell, a British journalist and architecture critic, "the sheer quantity and speed of the work made it necessary for clients to look outside Britain for a new kind of architectural expertise. American practices had the technology and know-how to handle large projects. The British practices were simply left behind." Richard Rogers' London headquarters for Lloyd's of London, which opened in 1986, took nine years from con-

PHOTOGRAPHY (CLOCKWISE FROM UPPER LEFT): PETER MASSETT/PM PHOTOGRAPHY; ANTHONY WELLER; CLAIRE MORRISON/HOK; DENNIS RAMSEY/ RAMSEY PHOTOGRAPHIC; GERHARD STROMBERG; TIMOTHY SOAR



Swanke Hayden Connell's Deutsche Bank Headquarters in The City of London

ception to completion, and “no one had that kind of time in the late 1980s,” Powell says.

The American invasion

Many American firms followed their American clients to London or were invited by British developers. Stuart Lipton, president of Stanhope Plc, the London-based real estate company that developed Broadgate, the first large-scale project to be completed after the deregulation, is one of the

“At this point, I have no plans to leave London. Professionally, there are good opportunities for Americans and, on a personal level, living in Europe is tremendous.”

—Bruce Danzer, AIA, Managing Principal, Studios Architecture

AIA, director of Skidmore, Owings, and Merrill’s (SOM) London office, credits Lipton for introducing fast-track construction to Britain. SOM, for one, opened its office in London in 1986 specifically to service Lipton and his Broadgate project.

Why Britain?

Before the late 1980s, there were only a handful of Americans working abroad. Eugene Kohn, FAIA, of Kohn Pederson Fox (KPF), reports that he attended a conference of building professionals in 1985 at which an economist predicted that the audience “would be out of business by 1990 if it didn’t go global.” Due in large part to the 1987 crash of the American stock market and the ensuing recession, American practitioners increased their foreign billings by 247 percent, from \$17 million to \$59 million, between 1988 and 1989. In contrast to the situation in America, the economic climate in Britain must have seemed like a boon to American architects. The common language and other similarities also made Britain a natural choice. According to Lee Polisano, AIA, RIBA, a senior partner of Kohn Pederson Fox (KPF), “We decided on London because England had a business climate that was sympathetic to the climate we, as a New York-based corporation, understood. The taxation system, the sophisti-

cated communications technologies, the social benefits, and the employment laws were all considerations.”

The American way

When American architects arrived in London, they found a real niche for the American way of doing things. “Americans have a sense of urgency and an entrepreneurial spirit that is appealing to all clients,” says Stephan C. Reinke, AIA, director of HOK International.

This can-do attitude, along with technical knowledge, seems to be the reason why American architects have prospered in Britain. According to Kallman, “When I began practicing here, American architects paid greater attention to detail, created more detailed specification outlines, and knew far, far more about how to create a building that meets contemporary comfort standards than the British. It was clear that, if international companies were going to provide their employees with good facilities, American know-how was needed.”

In the areas of building technologies and project procurement, the Americans contributed a tremendous amount of knowledge. But they have fallen short in other areas. According to Lipton, “a number of American practices have been producing pastiche. Their designs are often very boring, mundane, and inappropriate. They are just not daring enough in terms of design.” J. Robert Hillier, FAIA, of The Hillier Group admits, “American architects are viewed as being more modern and current from a technological and procurement standpoint and because our productivity is higher. But from a design standpoint, much braver work is being done by the Europeans.”

Breaking the mold

Americans first went to Britain to do commercial work and, for the most part, that is what they are still doing. According to Powell, “There has been a long-standing preconception that these American practices do only commercial work. But, we are beginning to see them break free from this stereotype.” KPF, for example, is now working on the new Rothmere Institute for American Studies at Oxford University and doing master-

J. Robert Hillier in front of The Hillier Group's Discovery Center in Harlow



planning work for the London School of Economics and the city of Glasgow, while SOM has done some master-planning projects for Thames University.

One of the few American firms that has done a major cultural project in Britain is Philadelphia-based Venturi, Scott Brown and Associates, which designed the Sainsbury Wing of the National Gallery in 1990. When asked about her experience, Denise Scott Brown, RIBA, explains that doing a “great national institution is clearly not like doing a commercial project.” Her scheme was built and was widely considered a success. Yet, Scott Brown still has some lingering resentment. “There is an

“There is an easy British prejudice against anything American. They put the adjective *vulgar* in front of the word *American* without thinking about it.”

—Denise Scott Brown, RIBA, Partner, Venturi, Scott Brown and Associates

easy British prejudice against anything American; they put the adjective *vulgar* in front of *American* without thinking about it,” she says. “The British view America as the country where the poor have had the effrontery to become rich. All the architecture critics had a patronizing tone and seemed to suggest that we

were lower class people who had dared to become educated and had not done it right.”

Scott Brown also notes that the British have a very different worldview from the Americans, which affects the design process: “Americans see a problem and try to solve it, while the British seem to think problems can’t be solved, only made better. Neither extreme is right.” These attitudes are reflected in meetings in Britain, which tend to be formal affairs, not working sessions. “Rather than voicing opinions and raising issues in meetings as Americans do, a British team member will often return to his office after the meeting and write a scathing letter about issues that were raised. More of the process takes place in writing, which makes it much more adversarial,” says David Walker, AIA, RIBA, design director of Swanke Hayden Connell’s London office.

Contractual difficulties

This adversity is the result, in part, of the way the standard form of contract in Britain, the JCT98, defines the architect-client-contractor relationship. While the architect administers this contract on behalf of the owner, the owner and construction manager are actually the parties bound by its terms. Therefore, the architect is forced to act as the owner’s representative, making decisions about the contractor’s obligations. It is a demanding, onerous, and legally difficult role for architects to play as it requires them to administer the terms of the contract, spend considerable time at the construction site reviewing the contractor’s work, and alert the client if the contractor is not fulfilling his obligation. As a result, the traditional relationship between the architect and contractor can be a difficult one.

Planning causes pain

In addition to the problems of contracts and licensing (see sidebar), Americans almost unanimously cite the planning process in Britain as one of the chief differences between American and British architectural practice. The process of getting a project approved by local planning authorities and consulting bodies, such as English Heritage and the Royal Fine Arts Commission (RFAC), can be “painful,” says one architect. Building regulations in Britain are far more stringent than in the U.S., while zoning regulations are not as well defined. Getting a building approved in Britain requires negotiation. Architects must present their project to the planning officers and convince them of the design’s merits;



SOM's Garrard House, an office building, in London

“I truly believe our work is better as a result of having a London office.”

—Eugene Kohn, FAIA, Partner, Kohn Pederson Fox

the officers in turn present the project to the planning commissioner who grants or denies approval. According to Reinke, “Whereas in the U.S., zoning is prescriptive, here in the U.K. it is discretionary. We have been through exercises where our clients have spent half a million pounds before the project can even go to the planning subcommittee. At that point, we have no assurance that it will be approved. Although we have a 100 percent record in achieving consent, we still sometimes struggle with the vagaries of the process.” Despite a directive from the British secretary of state in the mid-1980s that planning officers were to judge a building based only on its planning attributes, many architects have had these officers question their choice of materials and colors and other aesthetic matters.

“This is a system that tends to defeat projects,” says Kallman.

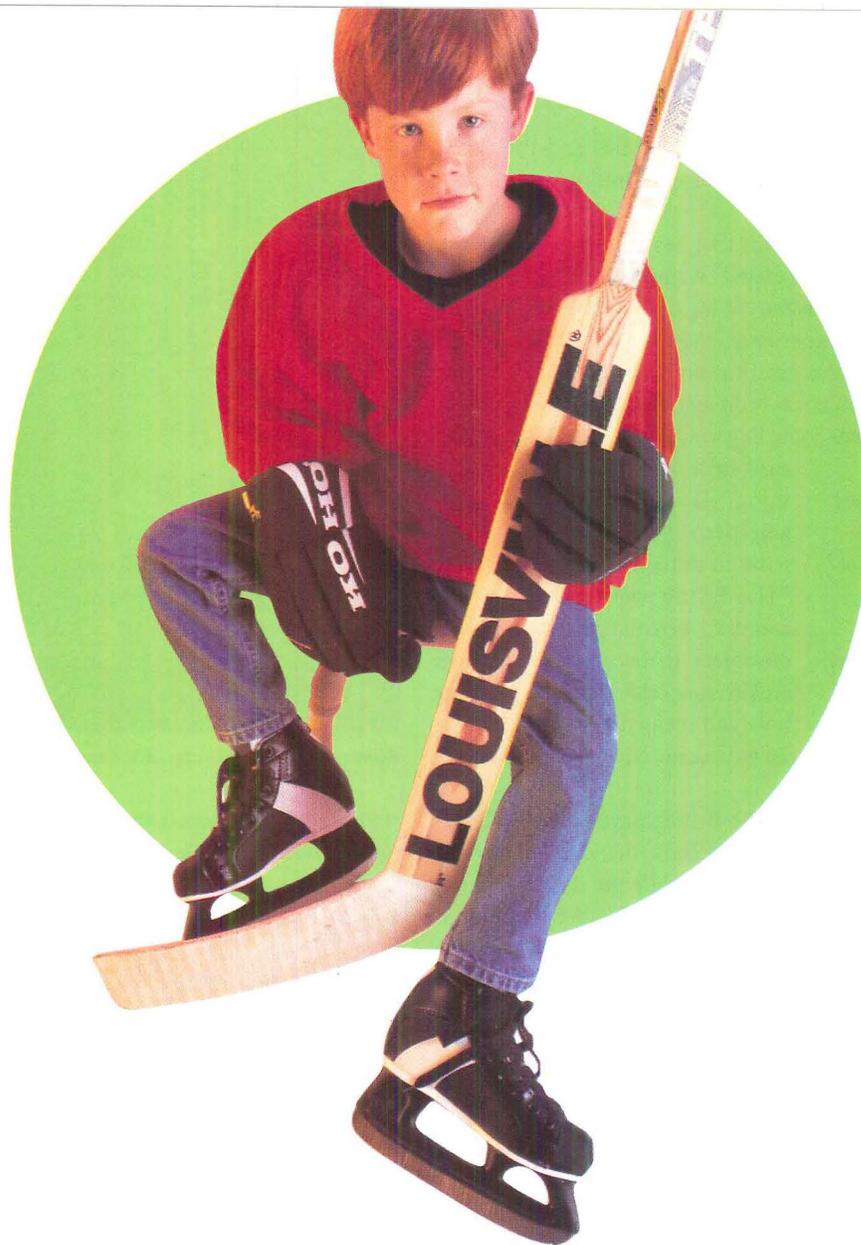
“The real measure of any planning process must be the quality of the resulting buildings. I am not convinced that, considering the exhaustive process, the quality of buildings in Britain is significantly better than it is in the U.S. Everything just takes a lot longer.”

“In Europe, art, architecture, and music are embedded in the culture. Therefore, people involved in those professions often have a higher standing than they do in the U.S.”

—Stephan C. Reinke, AIA, Director, HOK International

Furthermore, because of the leasehold and freehold processes, most buildings and land are owned twice over, which “means that architects have twice as many people to deal with on the owner’s side,” explains Susan Shoemaker, who worked in Britain for over a decade for firms like SOM and RMJM but recently returned to the States.

Land is also more expensive. Property costs in Britain are among the highest in the world. The *Economist* recently reported that “London’s Oxford Street is the third most expensive shopping mile in the world after New York’s Madison Avenue and Hong Kong’s Causeway Bay . . . On average, selling-space in Britain is 40 percent more expensive than in America and 20% more than in France.” The article cited property costs and the strictness of planning laws as the reasons for the high cost of doing business in London and suggested that the relatively small size of



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“There aren’t many women in the construction industry in Britain. It is much harder and rougher here than it is in the States.”

—Lorraine King, AIA, self-employed

projects makes building in Britain less efficient and more expensive. Shoemaker thinks that the British frequently suffer from a “crisis of business confidence,” meaning that if the economy stumbles while a project is tied up in the planning offices, the project is likely to be terminated

or stalled. “There are many potential project stoppers in Britain,” she says.

Appreciating architecture

One of the reasons for this extended, difficult process may be that the British imbue their architecture with great importance. “The British public has a very high awareness and appreciation of architecture,” says Steve Steimer, AIA, an associate in Gensler’s London office. Reinke says, “buildings in the U.S., particularly commercial buildings, are largely an assembly of a standard kit of parts. In the U.K. and Western Europe, designing a building allows you to create a one-off thing. Architecture is a more craft-driven effort, and buildings must be designed with longevity and the user in mind.” Buildings in Europe, even commercial ones, must fulfill civic, cultural, environmental, and social obligations. M.J. Long of Long & Kentish says, “I came to Britain, initially, because architects were involved in a social program.” Many firms working in Europe spend their own time

“There are many potential project stoppers in Britain.”

—Susan Shoemaker

THE RECIPROCITY DEBACLE

The most worrisome issue for Americans working in Britain is licensing. In 1972, the National Council of Architectural Registration Boards (NCARB) established an interrecognition agreement with the Architect’s Registration Council of the United Kingdom (ARCUK) based on its finding that requirements for registration in the U.K. were comparable to those in the U.S.

NCARB unilaterally terminated this agreement in 1989—without explanation to the British—at exactly the time when so many U.S. architects were moving to London to tap the international market.

Carl Sapers, who acts as general counsel to NCARB, explains the reason for this action: “In 1988 NCARB had an applicant for certification who had graduated from school, gone to London, and, one year later, was on the ARCUK register. It was clear that the process by which architects were getting registered in the U.K. was considerably less rigorous than our own.”

According to Sapers, between the early 1970s, when reciprocity was established, and the late 1980s, when it was canceled, “the disparity between the licensing systems in the U.S. and U.K. had widened considerably.” In the early 1980s, NCARB undertook a task

analysis to examine whether or not its four-part Professional Exam (as it was then called) tested architects for the skills they needed to practice. From this process came the modern nine-part Architect Registration Exam (ARE), “a more rigorous, more carefully compiled exam,” says Sapers. Also, at about the same time, NCARB instituted its Intern Development Program and professional degree requirements.

The title act and a lawsuit

The cancellation of reciprocity means that Americans who went to Britain after 1989 (and most did) have had to endure an infinitely more complicated process to become licensed than those who went before them. So, many just haven’t bothered. And that could prove to be problematic.

Architecture in the U.K. is protected by a title act, making it possible to practice without being registered, as long as the unregistered practitioner does not call himself an architect. Recently, the Architects Registration Board (ARB), the organization that replaced ARCUK, successfully sued British architect Ronald Baden Hellard for using the initials FRIBA after his name after his registration had lapsed. The High Court ruled that

Baden Hellard had committed an offense by using a “name, style or title” containing the word *architect*. In response, the Royal Institute of British Architects issued a press release advising its members not on the ARB register to “refrain from the use of the word architect and the affixes RIBA, ARIBA, or FRIBA.”

Good intentions

Americans architects working in Britain, particularly AIA members, are concerned about what this judgement means for them. But most seem hopeful that the issue will be resolved soon. In what was described as a “fact-finding meeting,” representatives of NCARB and ARB met in Washington in October 1998 and “agreed to continue to explore strategies, maintain regular communication, and define the steps that could lead to mutual recognition of architectural licensure standards between the countries,” according to a joint statement. The national AIA, the AIA London/U.K. chapter, and the RIBA are also working together to establish international standards of professionalism. While there has been a long history of exchange between the AIA and NCARB about domestic standards, NCARB has acted unilaterally in the international arena. “We at the AIA wonder why, if there was a reciprocity agreement for 17 years, there can’t be one now, especially with

global trade expanding as it is,” says Russell Keune, FAIA, director of International Relations at the AIA.

NCARB’s position seems to stem from its belief that the American system of education, examination, and experience is “the best in the world,” in the words of NCARB’s current president Susan May Allen, AIA. As a federation of 55 member boards (50 states, the District of Columbia, and 4 U.S. territories), NCARB cannot deliver a national policy. It can only make recommendations that member boards can then choose to adopt. According to Sapers, “The only way we can assure that our member boards will accept foreign applicants is if other countries adopt the ARE as their examination.”

A global issue

Because of the global economy, interrecognition agreements are at issue all over the world. The U.S. has recently reached such an agreement with Canada, and NCARB has sent draft agreements to Mexico and China that “basically explain what these countries will have to do for their architects to work here,” says Allen, suggesting that these countries will have to make changes to their systems.

Americans working in Britain can only hope that NCARB will soon find room for compromise so that their situation becomes slightly less precarious.



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and resources to research environmental issues and new technology; due to the high cost of energy and interest in the environment, these matters are of paramount importance to European clients. According to Kohn, “to win competitions, your design must be technologically and environmentally innovative.”

Hero worship

As both a cause and a result of this dynamic, a strong architectural culture thrives in London. The number of good architectural publications and the strong sense of architectural community promoted by organizations such as the Royal Institute of British Architects, the Architecture Foundation, and the Architectural Association both prove and engender the existence of this culture. Shoemaker also suggests that “British archi-

tects are linked together by their interest in social, design, historical, and theoretical issues and by their strong sense of pride in the country’s leading ‘hero’ architects, such as Foster, Rogers, and Grimshaw.” (It bears mentioning that Foster and Rogers are both American-trained, with

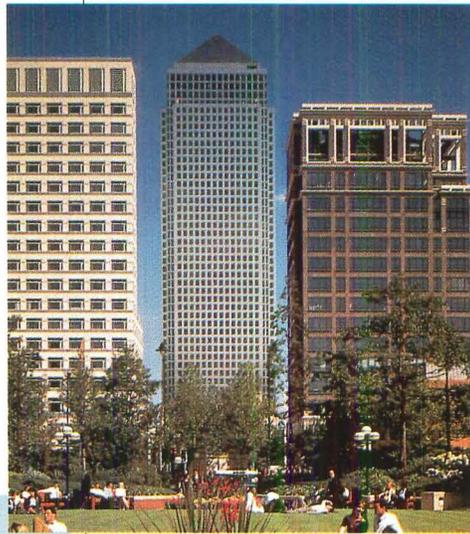
“I have not acquired my license yet because I have been anticipating a resolution of the reciprocity negotiations between the ARB and NCARB. As President of the AIA London/U.K. chapter, I hope that all our 167 members will be registered in the U.K. in the near future.” —Steven M. Steimer, AIA, Associate, Gensler

master’s degrees from Yale.) The identification with these heroes supports a still-strong tradition of the gentleman architect in Britain. Shoemaker explains, “a lot of profiling still goes on. The British can hear an accent and know where the speaker grew up, how educated he or she is, and what kind of family he came

KPF’s Thames Court, a spec office building in the City of London



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Canary Wharf, master planned by SOM with buildings by several U.S. firms

from. Americans sometimes have an advantage in this regard because the British cannot categorize us based on hearing us speak.” She adds that while “class structure is being eroded in Britain, the profession is still largely populated by white males. Women can have an advantage because they do not fit the stereotype of the gentleman architect.” Still, women are something of a rarity in the British architectural community. One young woman, who asked not to be named, says, “the British are 30 to 40 years behind the Americans in terms of women in the workplace. I had clients treat me like a secretary even though I was designing their projects.” Lorraine King, AIA, who is self-employed as a construction troubleshooter, says, “there are even fewer women in the construction industry here than in the U.S. It is a lot harder and rougher.”

Playing catch up

While Foster, Rogers, Grimshaw, and Hopkins championed the British High Tech movement in the 1970s and 1980s, their work was widely criticized for the disparity represented between the industrial aesthetic and the actual construction methods. But, today, the British heroes are beating the Americans at their own game. According to Lipton, “British architects have now surpassed the American practices. They have a technical knowledge and design expertise that is far superior to [that of] the Americans.”

“It’s difficult to compete with architects such as Foster and Hopkins,” admits Swanke Hayden Connell’s Walker. Some American clients, who could once be counted on to hire an American practice, are favoring British firms. Citibank, for example, chose Foster to build its new headquarters at London’s Canary Wharf.

The romance of going global

Because the Americans have, for the most part, expanded their practices to reach far beyond Britain, the increased (continued on page 174)

Making Connections

Tracing the British Architectural Line

by David Jenkins

Who begat whom? If only it were that easy. Looking at the many offspring of British architecture over the last 30 years, it is easy to detect genealogical connections but quite difficult to trace consistent lineages in anything resembling a family tree.

It is not simply a question of who worked for whom. There are many throwbacks and illegitimate children in this regard: The arch-Classicist Quinlan Terry was an assistant to the late James Stirling, but there is no trace of this influence in his work. Tony Fretton, a hard-line minimalist, worked for both Neylan and Ungless and Chapman Taylor—both at the red-brick end of the spectrum—but you would never know. And who would guess that Michael Hopkins, whose work is a throwback to the 19th-century iron masters, was once the partner of Norman Foster, whose studio has been consistently at technology's cutting edge.

In fact, architects in Britain seem to delight in sloughing off their histories as they develop their personal styles. So while one might detect common characteristics through the generations, it is near impossible to track precise strains of stylistic DNA and, perhaps, more profitable to trace other connections.

Most notable, the majority of British architects now enjoying considerable reputations at home and abroad were schooled at the Architectural Association: Richard Rogers, Michael Hopkins, Nicholas Grimshaw, John Pawson, Will Alsop, Zaha Hadid, Nigel Coates, and Alejandro Zaero Polo and Farshid Moussavi (both of Foreign Office Architects) have the "AA" chromosome.

The Bartlett school in London and Cambridge University are also dominant lines. The Bartlett is headed by Peter Cook—former AA habitue, enfant terrible, and founder of Archigram—who has breathed new life into what had been a dull school. A coming generation of young practices is emerging from beneath Cook's wing, among them Sarah Featherstone, partner in Hudson Featherstone, and Allford Hall Monaghan and Morris (aka The Gang of Four). Both practices offer a colorful updating of European Modernist themes.

Cambridge, on the other hand, is a place of stolid tradition. Elder statesmen such as Colin St. John Wilson, Edward Cullinan, and Richard MacCormac have followed in the substantial footsteps of Leslie Martin, patriarch of the school and one of a small group of English architects practicing in the 1960s to have established an international reputation. They are joined by relative youngsters Eric Parry; Graham Morrison, of Allies and

Trained as an architect, David Jenkins has worked as buildings editor at The Architects' Journal and as editorial director at Phaidon Press. At present, he is project director in the communications department at Foster and Partners.



60s ELITE

ARCHITECTURAL
ASSOCIATION

THE CLASSICISTS

Morrison; Sarah Wigglesworth; and Jeremy Till.

Today, the British scene is fragmented and dynamic. But back in the 1960s, when Leslie Martin occupied the position in English architecture that Philip Johnson has long held in the U.S., a small number of architects dominated: Denys Lasdun, Alison and Peter Smithson, Team 4, Stirling and Gowan, Lyons Israel and Ellis, and Yorke Rosenberg and Mardall (YRM, the English SOM). Some of them produced significant heirs (Simon Allford's father David was a partner in YRM; and the Smithsons' son Simon works with Richard Rogers).

James Stirling and James Gowan, for example, met in the offices of Lyons Israel and Ellis—a fertile breeding ground for young practices; Leslie Martin gave them their first big break, recommending them for the Leicester Engineering Building commission. Richard Rogers and Norman Foster, two of Team 4, were students together at Yale, where Stirling was occasionally their tutor. Gowan, in turn, was a tutor at the AA, along with Peter Smithson, and exerted a powerful influence over a generation of students who would themselves come to prominence.

Fifteen years ago British architecture was dominated by three giants: Norman Foster, Richard Rogers, and James Stirling. Foster and Rogers are still preeminent, but the scions of these two practices are also becoming or have become key players. From the Foster office come Richard Hordern, Chris Wilkinson, Ian Ritchie, David Chipperfield, and Jan Kaplicky, the latter a founder of Future Systems, whose name provides a clue to the NASA-meets-Barbarella style of its architecture.

Rogers' extended architectural family is smaller, though his influence is pervasive in other ways, and there is much cross fertilization with Foster. David Chipperfield, Jan Kaplicky, Alan Stanton, and Jamie Troughton have all worked in both studios, for example. Alan Stanton, co-founder of Stanton Williams, is unique in being the first employee of Foster Associates and a member of Piano and Rogers' Pompidou Centre team.

Stirling's studio has produced fewer descendants. Except for Edward Jones of Dixon Jones, only Alfred Munckenbeck of Munckenbeck and Marshall and Andrew Birds, Richard Portchmouth, and Michael Russum of Birds Portchmouth Russum have made an impact on the English scene, the latter group with an idiosyncratic style that sadly exists more in drawings than in buildings. Meanwhile, Stirling's inheritor, Michael Wilford, keeps the family flag flying and has overseen the posthumous completion of some of Stirling's best—and worst—work.

English architecture has always had both rational and rebellious strains, and Stirling combined both: A mongrel in the happiest sense. The English eccentrics, while charmingly irreverent, have never matched the wild excesses of their American cousins; there is no English Herb Green, for example. The work of iconoclasts such as Nigel Coates, Piers Gough, and John Outram is rather naughty-but-nice, in the tradition of such great turn-of-the-century wits as Edwin Lutyens and Clough Williams-Ellis. It is a playful idiom that goes down well with English audiences, still largely disdainful of the foreignness of European Modernism.

In a similar vein, one should not forget the Classicists (however tempting it might be). With the blessing of Prince Charles, this happy band of brothers briefly held sway in the mid-1980s. Alongside Quinlan Terry are Robert Adam (no relation to the great 19th-century architect), John Simpson, and Demetri Porphyrios. They have jointly conspired to make theme-park Britain a reality, but with limited success.

Finally, if English architecture really is a family—and the longer one looks at it the more compelling this thesis becomes—then, like all families, it has its fair share of black sheep: The idiot cousins, shady uncles, and dissolute aunts that hover in the background of every family wedding. But this is probably not the place to mention them. ■

Dramatic days for the U.K.

BRITISH DESIGN IS FLOURISHING IN A CLIMATE OF CREATIVITY AND GOVERNMENT SUPPORT.

by Hugh Pearman

So much has changed in British architecture in such a short time. A new generation is making a name for itself while the one-time high-tech radicals—represented by Richard Rogers and Norman Foster, both now ennobled as Lords and thus significant players in government—have become the new establishment, with direct access to policymaking. The British National Lottery, started in the mid-1990s, has financed a boom in cultural buildings across the U.K. British architects continue to do well in competitions overseas; in return, some of the best architects from elsewhere in Europe are building in the U.K., alongside the many American practices based there. A broad-based, even pluralist, Modernism now prevails, along with a healthy

tolerance for minority styles. The picture is of a flourishing and confident architectural climate, open to the world. And whereas the reality isn't so rosy as all that, it is a remarkably different situation from that which prevailed 15 years ago.

In the mid-1980s, British architecture came perilously close to losing its way. The postwar confidence had gone, International Style Modernism was discredited, public-sector patronage was in full retreat, the economy was lurching between recession and boom. There was an enormous stylistic and qualitative gulf between a few feted "personality" modernist practices—Nicholas Grimshaw, say, or Michael Hopkins or Richard MacCormac—and the run of largely anonymous "commercial" practices that received the lion's share of U.K. commissions.

Many of the best modern architects were confined to interiors or working overseas. It was at this point that Prince Charles involved himself in the architectural debate, ushering in a battle of the styles in which Modernists in particular were pilloried in the media as unfeeling ogres, foisting concrete monstrosities upon a helpless pub-

Hugh Pearman is the architecture and design critic of The Sunday Times, London. His book Contemporary World Architecture is published by Phaidon.



Benson and Forsyth's new Museum of Scotland (left); the recently completed Royal Victoria Dock Bridge by Lifschutz and Davidson (near right); Paxton and Locher's wholly top-lit house with a glass roof in Clerkenwell (far right).

lic. Despite the completion of one of Britain's key modern buildings in 1986—Lloyd's of London by Richard Rogers—the profession's self-esteem hit an all-time low. It is necessary to remember that extraordinary time because, without that catharsis, there could have been no resolution. In effect, war had been declared. It was necessary to take sides.

But gradually, a change of mood crept over the nation. Charles acquired other interests; his public pronouncements on architecture ceased. His followers bickered among themselves. It became apparent that few, if any, buildings of merit were going to emerge from the Charles camp. Indeed, there is really only one: The Sainsbury Wing of the National Gallery on Trafalgar Square in London, by Robert Venturi, FAIA, and Denise Scott Brown. Even that suffered from the then-prevalent mistrust of architects and was compromised, as Venturi reveals in his own published writings. Nor was the largely anti-Charles British architectural press kind to the erudite Anglo-American partnership.



New, younger architectural practices were starting to build with conviction during the economic boom years of the late 1980s: David Chipperfield, John McAslan, and Bennetts Associates among the Modernists, Demetri Porphyrios and Robert Adam among the pro-

IN THE 1980S, BRITISH ARCHITECTURE CAME CLOSE TO LOSING ITS WAY.

gressive Classicists. But the deep recession of the early 1990s knocked everyone on the ropes. There was a huge shake-out in the profession. Massive redundancies were made from the larger practices, even those insulated to some extent by overseas work. Other newly qualified architects had to employ themselves rather than work for a while in bigger firms. Many went to France, Ireland, Germany, and Japan. But when the economic upturn came, a new crop of hungry and talented young architectural firms was ready and waiting. And in this new order, both Prince Charles and the Postmodern era were ancient history. In the late 1990s, Enric Miralles from Barcelona can win an architectural competition to design the new Scottish Parliament in Edinburgh, and that famously cautious city is capable of absorbing both that and the excellent new Museum of Scotland by Benson and Forsyth. Both are buildings of an ambition inconceivable in the recent past.

Through the 1990s new names have emerged. A reservoir of excellence appeared in Manchester, where Stephen Hodder came to attention in 1992 with a small but ambitious public swimming-pool building. He has since become nationally renowned, especially for his university buildings in Manchester and Oxford, and has opened an office in London. In London, Lifschutz Davidson sprang from the high-tech Foster/Rogers stable to develop a strand of Scandinavian-tinged red brick modern designs, such as the Thames-side Oxo building of shops, homes, exhibition galleries, and restaurants. The firm is now moving into other areas, such as the Hungerford Bridge design, a pedestrian link across the Thames to the South Bank cultural quarter.



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Richard Paxton and Heidi Locher have taken urban living an important step forward—especially in their own wholly top-lit house in Clerkenwell, London, a tour de force. In the countryside, the enduring spirit of Californian Case Study homes lives on in the glass and steel houses of Jonathan Ellis Miller—including a recent home/studio in Cambridgeshire for the artist Mary Banham, widow of the great architecture critic Peter Reyner Banham.

Arts buildings are well served by two very different new talents. Edinburgh-based Richard Murphy is in the “romantic pragmatist” tradition of his mentor Richard MacCormac and has built unique layered and textured art galleries in both Edinburgh and Dundee. Glenn Howells,

NOT SO LONG AGO, THE ARRIVAL OF SUCH A BUILDING WOULD HAVE CAUSED OUTRAGE; NOW IT IS CELEBRATED.

from Birmingham, is responsible for an ultramodern, Foster-influenced concert hall in Hereford and has just won an international competition for new canalside urban housing in Manchester.

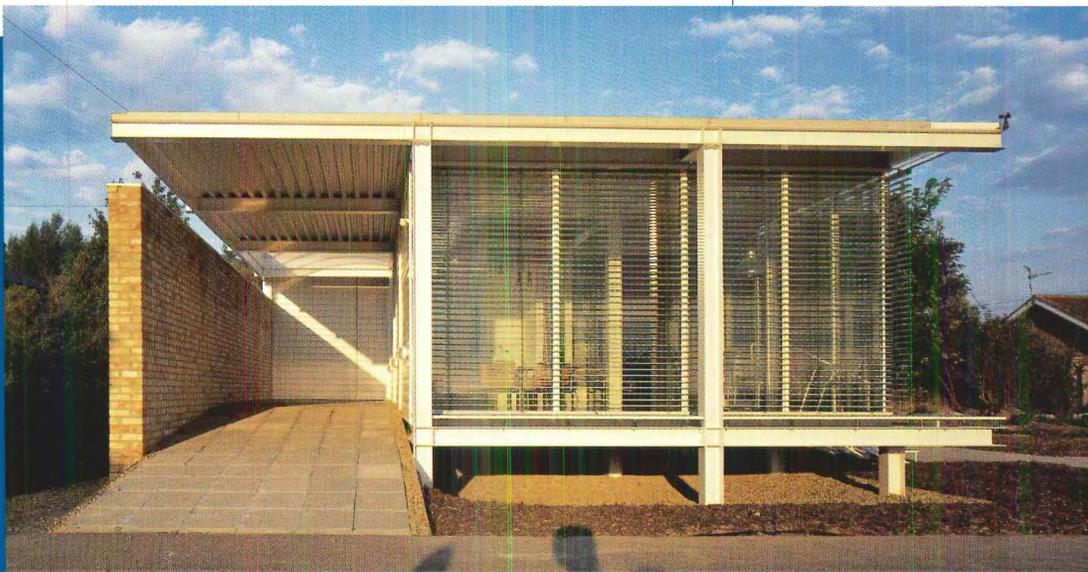
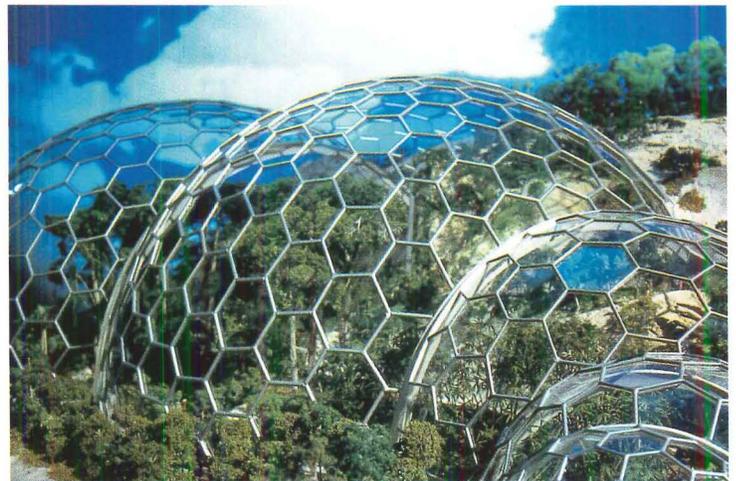
Chris Wilkinson has enjoyed perhaps the most rapid leap to prominence—and in practice growth—in the 1990s. A few years ago, few had heard of him apart from colleagues and ex-colleagues. Today, he has made a name for himself in two very different fields: The supershed, represented by his stunning depot for underground trains in East London, and bridges, for which he constantly wins competitions.

Bridges, in fact, have become something of a launching pad for newer practices. The program of bridge-building in London’s former Docklands, for instance, has yielded commissions not only for Lifschutz Davidson and Wilkinson but also for Future Systems. Once an Anglo-American theoretical practice run transatlantically by Jan Kaplicky and David Nixon—carrying out feasibility work for NASA, amid much else—Future Systems has now mutated into a British-based partnership between Kaplicky and Amanda Levete. Their elegant tethered-pontoon Royal Victoria Dock Bridge—like some beautiful water insect—has been followed by their most prominent built work to date, the media center at Lord’s cricket ground.

The opening of this building in May was the final evidence that a sea change had occurred in official attitudes toward architecture. Lord’s

may look simply like a sports ground, but the sport in question is cricket, and Lord’s is the base of the Marylebone Cricket Club (MCC)—the spiritual home of British clubbishness, conservatism, and exclusivity. Yet paradoxically, it has been a good patron to adventurous architecture over more than a decade, starting with the Mound grandstand—designed by Michael Hopkins in 1986 with daring cantilevers and tensioned-fabric roofs—when such a choice was brave indeed. The building program continued with another pair of lower-key stands by Hopkins, with a clutch of ancillary buildings by a promising newcomer, David Morley, and with another landmark structure, the Grand Stand, by Nicholas Grimshaw, opened in 1998. Future Systems added the media center as the final touch. The center is a semimonocoque aluminum structure—its imagery more akin to spacecraft than buildings—made in sections by a boatbuilder. It is perched high on two columns/service towers, preserving ground views of some famous trees. Its glistening, curvilinear flanks reduce its apparent bulk and respond to the curve of the site. And its forward-tilting glass facade looks down the the cricket field like a giant camera lens, a metaphor for its function.

Not so long ago, the arrival of such a building would have caused outrage in some sections of the media; now it is celebrated. But much else has happened in Britain to change attitudes. Once-despised postwar buildings such as Sir Denys Lasdun’s Royal National Theatre—



Jonathan Ellis Miller's recent home/studio in Cambridgeshire for the artist Mary Banham (left); Nicholas Grimshaw's Eden Centre in Cornwall, a linked series of geodesic “biomes.”

The Steinberg Pavilion
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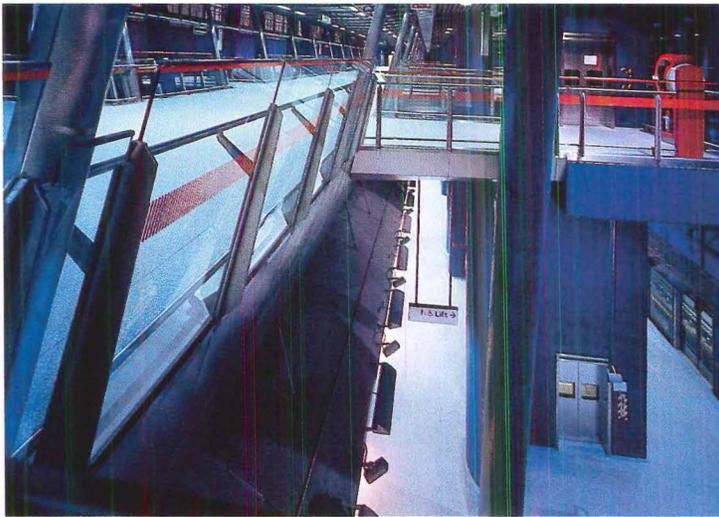
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CIRCLE 41 ON INQUIRY CARD



designed and built in the 1960s and 1970s—are now officially “listed,” which means officially designated and protected as architecturally important. Even some of the better high-rise social housing, once a byword for architectural failure, is now refurbished rather than dynamited. And the international competition to find a new master planner for London’s South Bank cultural center, adjacent to the Royal National Theatre, has produced a winner: Oregon-born, London-based Rick Mather, who appreciates the virtues of the once-hated brutalist concrete of the early 1960s Hayward gallery on the site.

Then we have, of course, the British Millennium Projects. Most international attention focuses on the giant Expo building that is Richard Rogers’ Millennium Dome in Greenwich, but a cultural building boom is taking place nationwide. Key projects include the Eden Centre in Cornwall by Grimshaw and a linked series of climatic “biomes” in a dramatic former quarry, their geodesic structure infilled with inflated transparent cushions of ETFE foil (a pure Teflon material). In Manchester, Michael Wilford is building the Lowry Centre, a huge opera house and art gallery. In London, Herzog and de Meuron from Switzerland are transforming the enormous old Bankside Power Station



into the new Tate Gallery of Modern Art, and Sir Norman Foster is linking it via a slender footbridge over the Thames to St. Paul’s Cathedral. Foster, fresh from completing his revamped Reichstag in Berlin and now with the Pritzker Prize to add to his laurels, is also redesigning the heart of the British Museum.

Perhaps, however, it is at the regional level that the funds provided by the National Lottery have had the most effect. Both Glenn Howells and Richard Murphy, for instance, received commissions for arts building projects that would simply never have come the way of such young architects in the 1980s. Similarly, Haworth Tompkins in London,

THE NEW GENERATION HAS FOUND WAYS TO COPE WITH TOUGH ECONOMIC TIMES.

another up-and-coming new firm, were slowly making headway with a well-regarded small rural factory but received an enormous fillip when they won the complex lottery-funded job of rebuilding London’s famous Royal Court Theatre. They were then invited to enter a competition for a large complex of urban housing behind the South Bank—and won. In the past, even the best emerging practices went for years without a sniff at jobs of that caliber.

The outlook is bright, but there are clouds on the horizon. The lottery money is starting to dry up as the government siphons ever more of the proceeds into lower-profile repair and non-building-related activities. Bottom-line-oriented organizations, in both public and private sectors, increasingly regard quality architecture as an avoidable short-term expense rather than as a long-term investment: Architects who used to play the leading role in the building team now find themselves cast as bit-part players. Competition for jobs, including fee-bidding by architects, has never been keener. Some maverick architects, such as the highly individualistic Will Alsop, still find it easier to build overseas than in Britain—though the subway station for the Millennium Dome is his.

But the good news is that the new generation has found ways of getting on in a tough economic climate. Government policy is now officially to encourage new talents and to invest more in the life of cities, where they have the most to offer. ■



Will Alsop’s North Greenwich station, adjacent to the Millennium Dome and the largest station on the Jubilee line (above); inside Richard Murphy’s Dundee Arts Center in Scotland.

Norman Conquest

An Exclusive Interview with Lord Norman Foster

by Robert Ivy, FAIA

Foster and Partners is power-wired. Situated on London's South Bank, this modernist, intellectual factory surveys the glitter and power of mammon across the historic Thames, exhaling its own stream of late 20th-century energy like cool air.

Aside from the work the firm accomplishes for a worldwide clientele, the ensemble of site, structure, and style of Foster's physical setting radiates its own force, a calculated equation, constantly in flux and reconfiguring itself. A walk up the monumental stair can be intimidating. Certain personalities seem coordinated with the decor: All the secretaries, severe-looking, brisk, and reed-thin, look as if they stepped out of Wallpaper magazine; the architects seem more casual and imperfect, leaning over computer screens, oblivious to the accumulating rush and jangle of approaching evening. Things are getting done here.

Early this January, on a drizzling day, RECORD's editor in chief, Robert Ivy, dropped in for coffee with Foster and his partner, David Nelson. The three sat at a round table away from, but close to, the buzzing work. Foster—fit as a marine—perched on a sleek chair, took a moment to settle in, then focused on the conversation, occasionally interrupted by a cell-phone call from a remote project.

He had not yet heard that he had won the Pritzker Prize but seemed generally ebullient. Ivy suggested that his lack of reserve about the state of British architecture seemed counter to the attitude of his British peers. Most tended to decry the state of architecture and the difficulty of getting anything built at all. Foster remonstrated.

ARCHITECTURAL RECORD: Many British architects have a tendency to talk down at the mouth about working in Britain. You don't. Why?

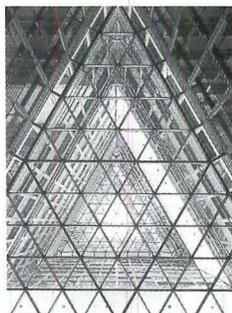
NORMAN FOSTER: Well, first of all, I'm not very British. And the office isn't very British. I once described this place as being like a sort of island in the middle of London. It has its own currency, and it has its own sort of internal language. I don't know how many languages we actually embrace. At last count, I know it was more than 30.

I remember saying at a Yale reunion here at the Mellon Center, earlier this year, that the way that this office is run—in terms of its hours and its attitudes and so on—is like the School of Architecture at Yale. It is open seven days a week, 24 hours a day. It doesn't close.

AR: How does this attitude translate to the work itself?

NF: The Reichstag will be open soon—the paintings were commissioned,

PHOTOGRAPHY: © (LEFT TO RIGHT) NIGEL YOUNG, IAN LAMBOT, RICHARD DAVIES, GMI/JEREMY YOUNG, RICHARD DAVIES



the sound systems are being commissioned—and it has become highly symbolic, the emblematic image of the city. There isn't a day that goes by, either on television or in media, where it isn't featured as the symbol of the elections. It was the background to the elections. It has become completely absorbed into the culture of the place.

AR: What are the issues driving your design today? What really inspires you? What makes your brain kick? What do you care most about?

NF: I have a passion about design in the rightest sense. So it's sort of simultaneous interest and curiosity in what generates a building, which is the social dimension, and in the way in which it comes together, the technological dimension. It's really seizing opportunities with the site, too. But it is something that moves the spirit, or creates some memorable occasion, or gives an added dimension beyond the utilitarian.

AR: You're known for invention, for innovation. Is that a primary responsibility of the architect?

NF: I think you must not pretend that you can innovate on every project. That would be impossible. But I think there is a very strong interest in innovation. If you take Stanstead Airport, it has led to a whole new generation of airports. Whoever has done airports since Stanstead, they all follow that model. It doesn't matter what you pick up. It is about bringing services from the lower levels and creating structural trees or similar devices that would create relatively large-span structures that bring in natural light. Before Stanstead, that didn't exist.

Or, take the work we did for IBM in the 1970s. The computer had never been inside the office; it had always been in a hallowed shrine [of its own]. To demystify that and bring it onto the office floor was a radical departure. Willis Faber was similarly radical in the sense that it anticipated the information revolution before it hit, before there were any signs [of it]. Access floors, large spans, central spaces, atria—all those were absolutely radical and revolutionary in the mid-1970s. Now, they are absolutely standard practice for development.

AR: You speak frequently about sustainability. Is that just lip service, or do you put it into practice? If so, how and where?

NF: Sustainability depends on improving what we build, rather than just talking about it. We need to substitute new technologies for environmental attitudes, which really accomplish very little.

The Reichstag is driven by renewable energy sources. It brings pollution down 96 percent. The most radical things there that we're using are aquifers, underground lakes to establish storage tanks that reclaim heat in the winter. The photovoltaics in that equation are probably the least radical; they are more symbolic. They do need to be funded by cash injection. To that extent, they are rather the icing on the cake. The real technological breakthroughs are in the main systems—a powerhouse not just for the Reichstag itself but also for the whole project.

Willis Faber and Dumas, Ipswich, U.K. (right); Hongkong and Shanghai Banking Corporation, Hong Kong (far right).



AR: What is the greatest challenge that you're facing now as a firm? What is hard to do? What is difficult to achieve? What do you find frustrating or demanding?

DAVID NELSON: Building buildings is difficult, whatever and wherever they are. We try to get a sense of the approach of the burning issues all over the world, but there is a whole lot of resistance.

AR: Is London uniquely difficult to build in?

NF: There is a huge amount of talk and that's surprising on a small island, where in a way, the quality of life has a lot to do with managing the quite intense urbanization going on in a city like London.

And the countryside that remains in Britain has been very well served by the concept of the greenbelt. It is relatively recent, if you think about it. Despite the worst sort of excesses of advertising, it is still surprisingly well-protected compared with a lot of other societies.

I think there is a myth that high density equals poor quality of life. The real difficulty is having the opportunity in this country to demonstrate that you can achieve a high quality of life within the urban environment. You can get all your servicing—the heavy trucks, the deliveries, the refuse, the ambulances, the taxis, the meters—belowground; you can get a mixture of uses; and you can get an array of incredible privacy and good quality urban spaces.

But you have to do that at urban densities and not suburban densities. Whether through ignorance or prejudice, there is a resistance to explore that. So the most interesting schemes do get called into question.

DN: They have all become suburban ideals.

AR: What about the status of clients, the clientele these days? How would you characterize them? What is their receptivity to architecture and to your ideas, which are pushing the envelope in terms of sustainability and technology?

NF: It's impossible to generalize about our clients. I think we go to extraordinary lengths to explore the meaning and implications of each project; to try to get beneath the skin of our clients. We do have extraordinary curiosity about what makes a client tick.

We do an incredible amount of research. It's instrumental in terms of breaking down barriers; it's a very revealing process. If you get it right, it commands a tremendous amount of respect from the people who commissioned you because they never expected you to do that. On the other hand, it's very demanding, because if you get it wrong, then you are preaching to somebody whose business it is.

AR: Can you cite an example?

NF: Take the Reichstag. Now, our starting point was not, "That's your brief, that's the Reichstag; this is our response," which would have been the legitimate thing to do. What we did was look at really forefront ideas, the role of democracy, the expression of democracy, particularly in a reunified Germany. What should be its general expression?

We suggested a number of conclusions, one of which was that the [parliamentary chamber] should be a public space, should be open to the people. You

should be able to look down into the democratic process. We also had a view about history: We felt that the building should be a museum of memories, that history was important and had an active role; it just wasn't a historic show. But we suggested that in [taking] that attitude that you didn't cover up. You revealed.

AR: And the sustainability question?

NF: We also had an attitude toward energy. We asked how much their house costs to run a year, and they didn't know. So we demonstrated the relationship between what they might expect and how they might expect it. We had a philosophy about the ecology of the building and suggested that if they could not do it on moral grounds, seeing as German legislation is arguably the most responsible in terms of attitudes toward the environment and the reduction of energy consumption, then they should do it on deutsche marks.

Basically, we challenged their thinking, their preconceptions. That is the most difficult client breed that we will ever come across, politicians of every flavor from government parties to minority causes who traditionally have to disagree because that's their job.

AR: We hear so much conversation these days about the architect's diminishing leadership role. You seem to be proof against that trend.

NF: That can also work against you. You can take that line and somebody can turn around and say, "Well, thank you very much, but we don't want anybody who is going to give us a hard time. We know what we want, we just want somebody to draw it out."

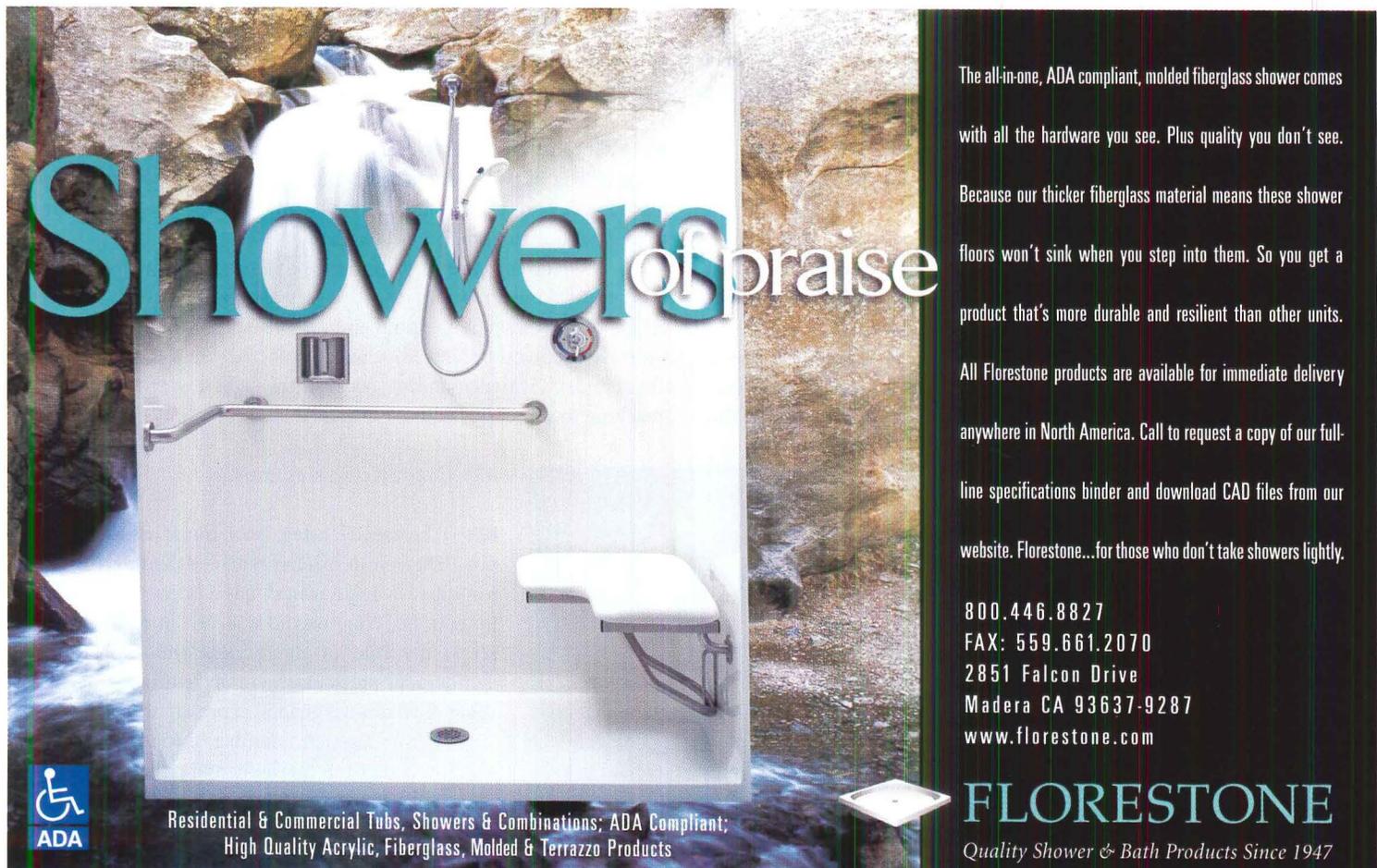
AR: Younger architects say you get all the work in London. Do you ever say no to a client?

NF: Yes. Though I think that most practices, perhaps all practices, are probably born out of hard times. So you are always very sensitive at whatever stage, whether you're flush with work or not. I think you're very sensitive to the importance of any project. It follows that we have to turn down more competitions than we can accept. We think very hard about turning a project down. But sometimes we do.

For example, at one point, we hadn't done an airport. We were under consideration for the third London airport. A person at the other end of the phone was saying everything on paper is fine, everything is fine, but how can we really be sure that you have the capacity to do it? You seem to be very busy.

I said, "The only thing I can say is that you last approached us for your headquarters project. It was a very important project, but it was agony. In the end we had to say no because we didn't believe we could do it justice." The guy at the other end burst out laughing and said, "I forgot about that! It created an incredible upheaval here because nobody had ever turned us down before." So as it turned out, I couldn't have given them a better answer.

Foster chuckles as the interview wraps up, excuses himself as Nelson and Ivy continue to chat, then tours the room in shirtsleeves, catching up on the project work he has missed. As dusk settles, Lord Norman whips on a sportcoat and dark glasses and rushes out into the evening, talking to an associate on his dash to the car, as the office hums along. ■



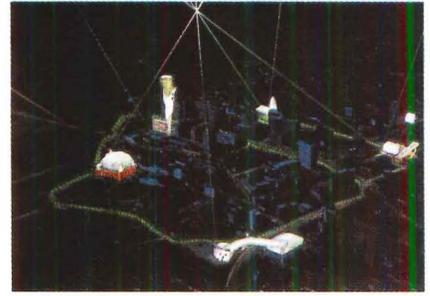
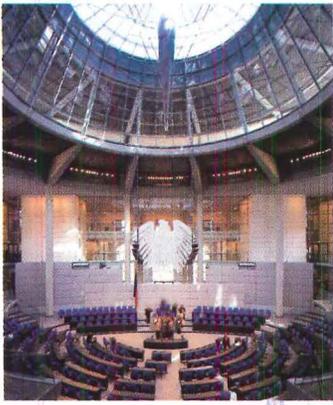
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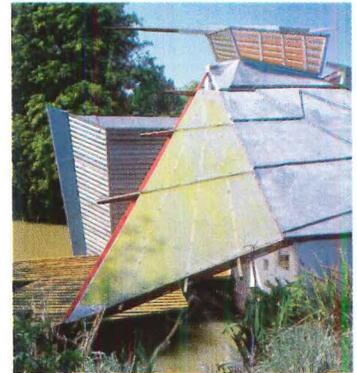
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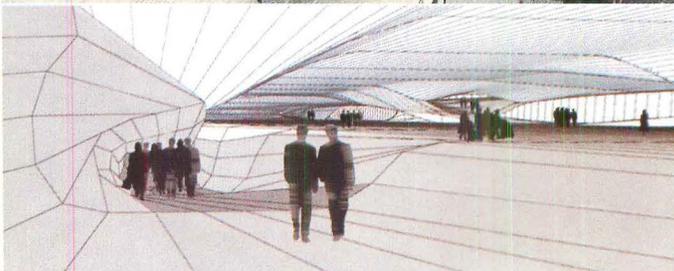
CIRCLE 43 ON INQUIRY CARD



PROJECTS



FOSTER REIGNS WHILE OTHERS RISE, COMMENCING BRITISH ARCHITECTURE'S CHANGING OF THE GUARD



The Reichstag? How does that qualify as British architecture? We open our overview of architectural projects with an exported example—Norman Foster's triumphant revitalization of the German parliament building. His work on the historic structure that once housed anti-aircraft artillery is transformational, lending new meaning to old stones.

You may not have heard of Chris Wilkinson, but he follows in the Foster tradition. Elegant bridges have been his signature, but he brings that same honed sensibility to even modest building types, such as tube stops and train sheds.

Who's hot? Five new firms have positioned themselves at odds with the techno-establishment. Unlike the grands, this iconoclastic group favors community-based design, context, and sometimes whimsy.

This is a selective grouping that bypasses a burgeoning list of fascinating work. It will be our challenge in the upcoming months to continue to bring you more of the best.



The glittering dome of Foster's Reichstag now dominates Berlin's skyline, supplanting the quadriga (four-horse sculpture) atop the

Brandenburg Gate, an 18th-century symbol of imperial ambition. Opposite middle: A burnt hulk neglected in the wake of war.

With his sleek, ecological design, LORD NORMAN FOSTER imbues the REICHSTAG with Germany's new self-image.

by James S. Russell, AIA

Deep from within the squat, fire- and bomb-battered shell of Berlin's 1894 Reichstag rises the crystalline envelope Lord Norman Foster, HON. FAIA, has constructed. Within this new seat for the Bundestag, the German parliament, one cannot help but be impressed by the sheer glass walls, dramatically suspended walkways, crisp geometries shaped in aluminum and stone, and four-story-high glass of the western side. The squashed visages of visitors peering through the reflections disturb the hushed decorum; they are of a public that wonders what it will witness, now that Foster has put united Germany's chief deliberative body under literal scrutiny by its electorate.

It is heartening that people will act on such an opportunity, because it is easy to conclude in our cynical age that politicians do nothing of consequence in public view. But the swarms of visitors that already line up to see the

Reichstag, reopened only this April, also want to judge for themselves whether the new seat of united Germany realizes its extraordinary ambitions. Can it really represent a new generation's vision of Germany as profoundly democratic, peace-loving, and dedicated to ecological sustainability? Can a building help a people remember the sins of the past and dedicate themselves to a less pathological future?

The Reichstag is not alone in its mission to change the image of Germany in its own and the world's eyes. All around it an entirely new quarter of offices is rising to support the Bundestag and the many ministries that are relocating from Bonn. Geographical, political, and economic reality may have made the city an inevitable choice for the reunited country. But as the erstwhile nerve center of two world wars, a city designed for the easy movement of troops and festooned with bombastic architectural paens to a militaristic past, the government's return to Berlin inevitably causes discomfort—both in and out of Germany. Berlin is not, and perhaps never will be, an ordinary capital city.



Each of the architects participating in the rebuilding of Berlin is walking the same tightrope, trying to develop a design that is appropriately open and dignified without resorting to devices that inspire comparison to Fascist or imperial monumentality.

But Foster's duty was the most charged, because the Reichstag will remain the most prominent government building and because he had to deal with the structure's tragic history.

The Reichstag's original architect, Paul Wallot, weighed down the mighty bulk of the original 1894 building with torchlike finials and bellicose statuary. Democratic government's failure to form deep roots before the end of World War II meant the structure only rarely played much of a role in the nation's life, according to Michael Z. Wise, in *Capital Dilemma: Germany's Search for a*

Project: *Plenary Building in the Converted Reichstag*

Client: *Bundesrepublik Deutschland*

Architect: *Foster & Partners; Lord Norman Foster, David Nelson, Mark Braun, Christian Hallmann, Ulrich, Hamann, Dieter Muller, Ingo Pott (team leaders)*

Engineers: *Leonhardt Andrä & Partner, Ove Arup Partnership,*

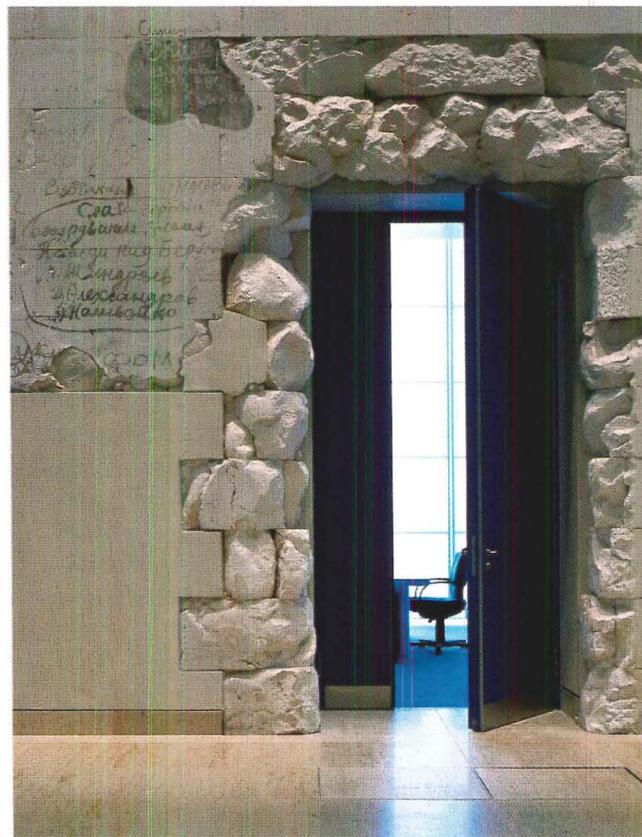
Schlaich Bergermann + Partner (structural); Kaiser Bautechnik, Kuehn Bauer Partner, Fischer-Energie + Haustechnik, Amstein + Walthert, Planungsgruppe Karnash-Hackstein (mechanical, electrical)

Consultants: *Müller BBM, IKP Ingenieur Büro Knothe and Prof. Dr. Georg Plenge (acoustics); Claude Engle (lighting); Acanthus (conservation)*



A mezzanine for visitors circles the building above the main floor (above). Foster's office exposed the structure's great vaults but only cleaned up the exten-

sively damaged surfaces. Russian soldiers' graffiti remain next to stones spalled by fire (right). **Opposite: The new Bundestag chamber.**



New Architecture of Democracy (Princeton Architectural Press, 1998). Even that role came to an end in 1933, when fire swept the building, an event Hitler, attributing the fire to a terrorist act of arson, used as a pretext to consolidate his power. Further damaged by bombardment during the war, it remained as a semiruin through much of the postwar era, even with a modest restoration in the 1960s by architect Paul Baumgarten. Because the Berlin Wall passed immediately to its east, the German Democratic Republic regarded any important use by the West as a provocation.

Though dogged by much controversy throughout its seven-year gestation, the new Reichstag opened with its high ambitions intact. Removing some one-third of the original construction and almost all of the 1960s additions, Foster's office organized the Bundestag's new functions straightforwardly within the structure's old stone walls. The architect located the chamber for the Bundestag with related support functions on the raised main level; press, guest galleries, and invited-guest reception rooms in a mezzanine; rooms for the president and council of elders on the second floor; caucus and meeting rooms for political parties surrounding a press lobby on the third floor.

But work on the building collided with uncomfortable aspects of history every step of the way. Foster had conceived much of his new work as a light, clean, modern insertion, clearly separated from the lugubrious but impressive heft of Wallot's envelope. But as demolition proceeded, the design team found that much of the obscured historic

fabric had been irreparably ruined by fire and bomb damage. Contractors had chipped many of the remaining cornices and moldings when affixing the new surfaces of Baumgarten's renovation. Also uncovered were graffiti left behind by Russian soldiers who had stormed the building at the end of World War II. After much debate, recon-

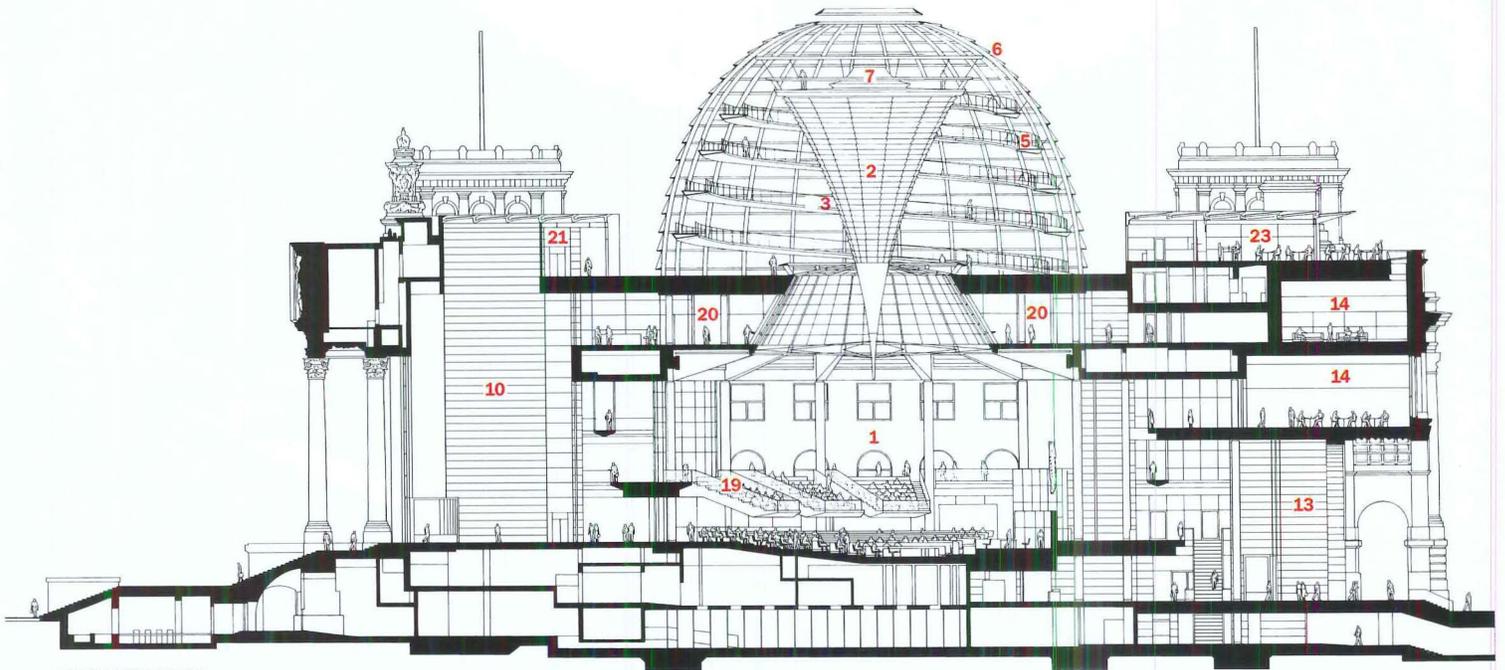
UNCOMFORTABLE ASPECTS OF HISTORY SURFACED EVERY STEP OF THE WAY.

struction of these areas was ruled out in favor of recognizing the depredations of history: Damaged areas have only been stabilized and cleaned up; plain plaster covers missing surfaces. Some of the graffiti were retained even though its subject matter would otherwise be thought unsuited to august corridors of power.

The building's tour de force is the dome. Its skin looks delightfully delicate from a distance. A futuristic, double spiral of ramps spins lightheartedly within. It has already become the city's new icon, visible everywhere among the skyline of new glass-and-metal office towers and the dour domes and spires of the imperial past.

Ironically, Foster's competition-winning design had no dome. His first scheme envisioned a vast translucent canopy stretching over and well beyond the existing Reichstag. Jurors in the first competition gave first prizes to Foster, the Dutch architect Pi de Bruijn, and Santiago Calatrava, whose scheme did have a dome. With a much

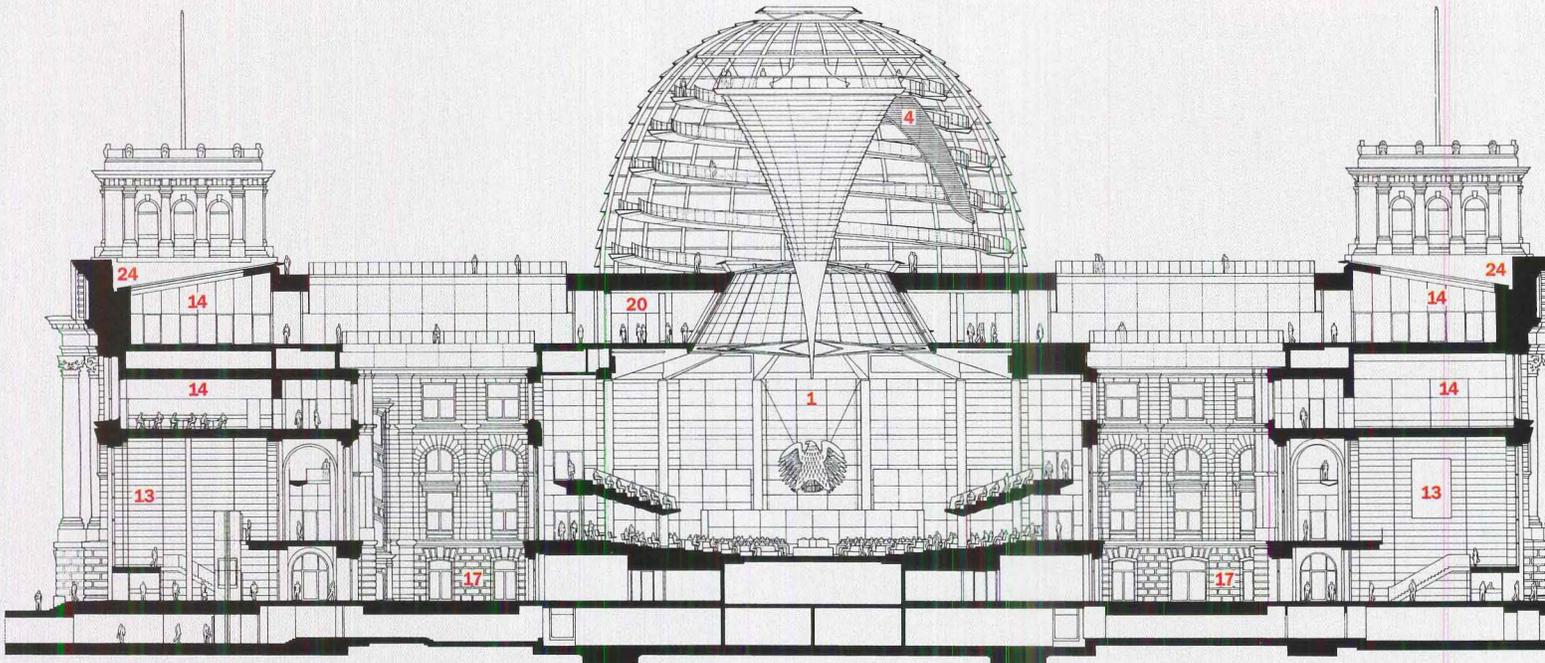




EAST-WEST SECTION

Legend refers to this page
and opposite page.

- | | | | |
|---------------------------|-------------------------|-------------------------|-------------------------------|
| 1. Bundestag chamber | 5. Ramp | 12. Members' restaurant | 19. Visitor and press gallery |
| 2. Natural-exhaust cone | 6. Faceted-glass dome | 13. Lobby | 20. Press lobby |
| 3. Mirrored surface | 7. Exhaust | 14. Meeting | 21. Visitor roof access |
| 4. Revolving glare shield | 8. West (main) entrance | 15. Library | 22. Roof terrace |
| | 9. Security | 16. Chapel | 23. Public restaurant |
| | 10. Visitor lobby | 17. Courtyard | 24. Glazed roof |
| | 11. Visitor elevator | 18. Open to below | |



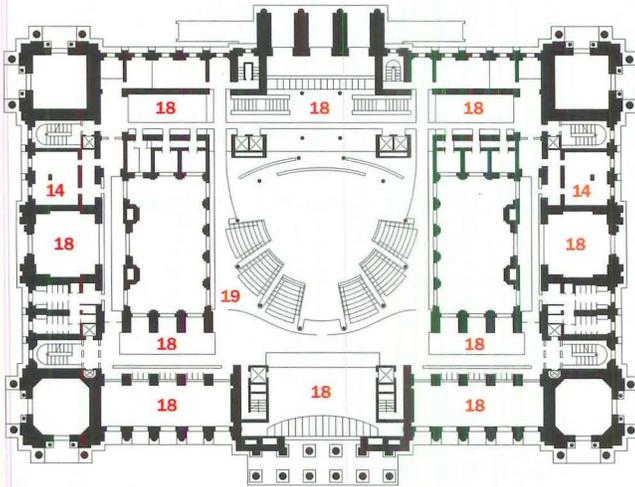
NORTH-SOUTH SECTION

Foster became a finalist in the competition to design the Reichstag by proposing a vast canopy stretching over and well beyond the old Reichstag building as a new, more benign symbol for Berlin. Although he was ultimately awarded the project, parliamentarians

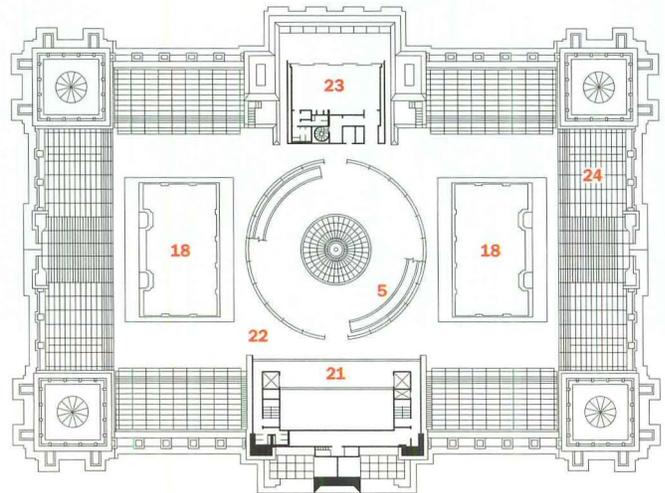


wouldn't accept the truss-supported dome-less flat roof the architect conceived for the deliberative chamber. Instead, a month-long series of studies for an appropriate dome ensued (left), with Foster initially favoring nontraditional dome shapes. The team

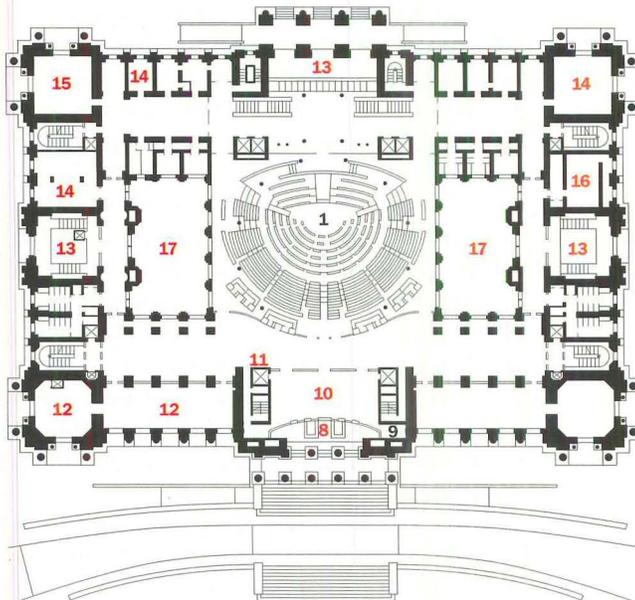
undercut the usual empty symbolic rhetoric of a dome by facing a conelike chimney that vents exhaust air with mirrors to reflect daylight into the hall. A double-helix spiral ramp for public access winds around the inside of the dome (sections opposite).



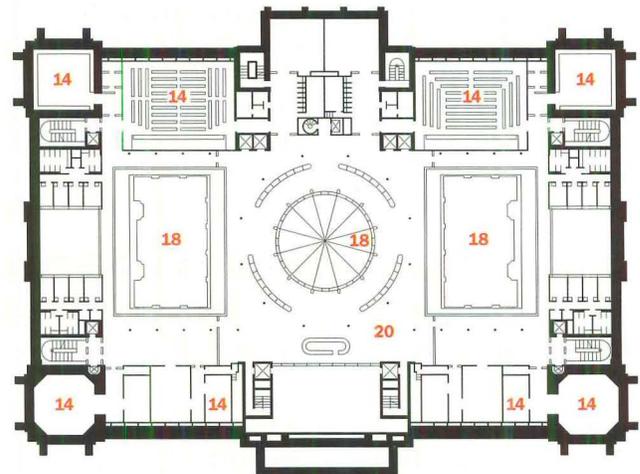
MEZZANINE



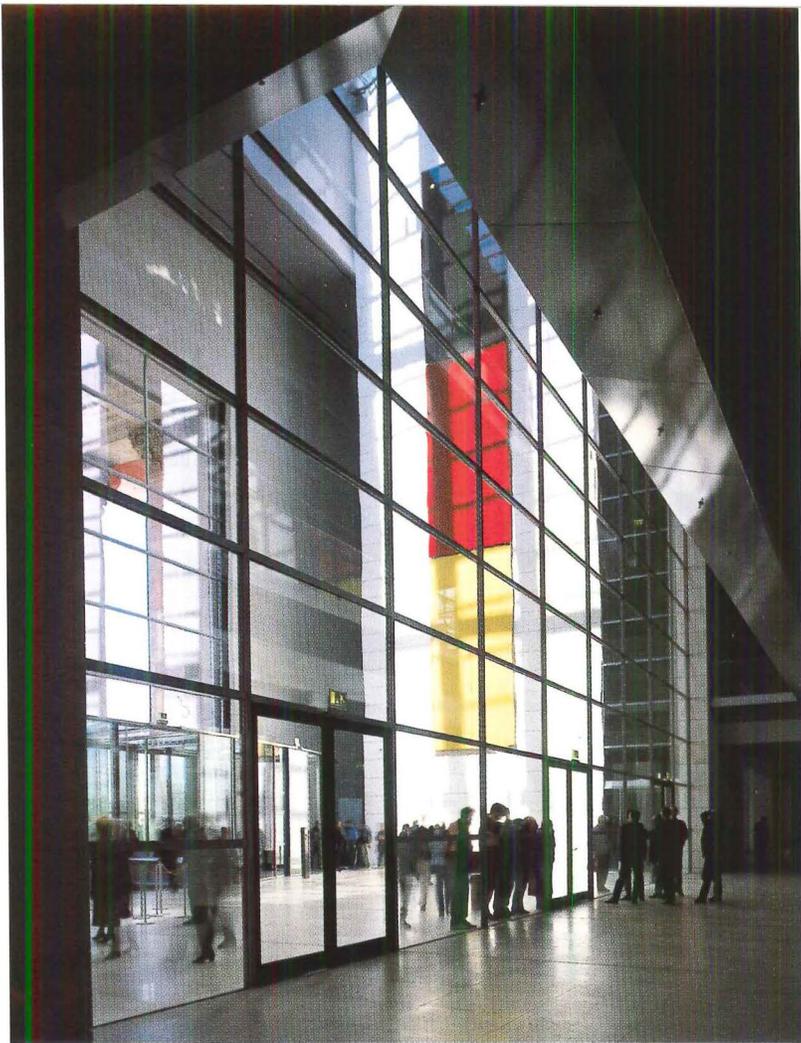
ROOF LEVEL



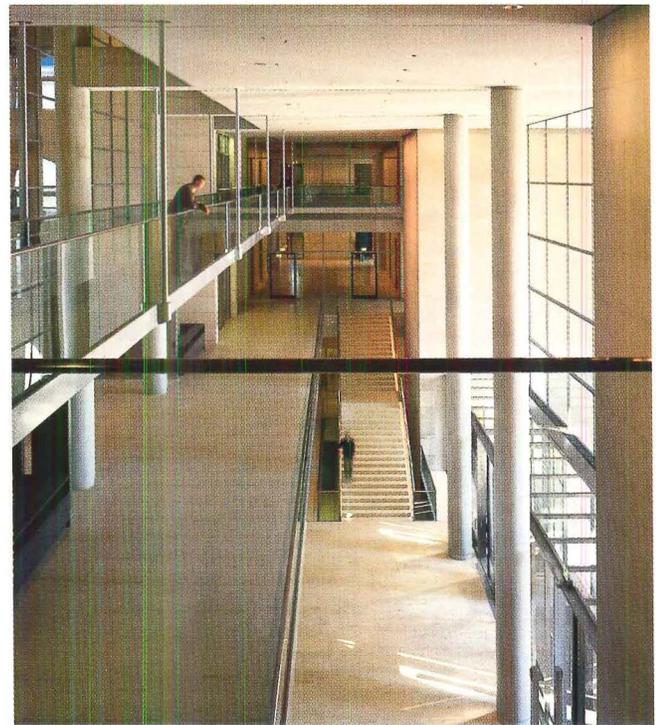
MAIN FLOOR



THIRD FLOOR



Visitors enter the heroically scaled west portal, pressing their faces to the glass for a view of the deliberative chamber (left). The mezzanine overlooks the east lobby (below). Opposite: The ramp hangs from the dome.



reduced program—many functions were transferred to the adjacent government strip, the design of which had been awarded around the same time to Axel Schultes and Charlotte Franck—Foster won a second round, still with no dome. After Foster got the job, conservative political and architectural factions argued for restoration of Wallot’s dome, which Foster calls “an empty, vacuous historic statement.” He threatened to resign if a recreated dome was forced on him. But he

THE REICHSTAG’S SUSTAINABLE DESIGN IS ONE OF ITS “MOST INTRINSIC EXPRESSIONS OF OPTIMISM.”

pushed for some kind of external expressive element because “the internal transformation became so far-reaching.” After considering many variations, he found a way to undermine the rhetorical aspect of a traditional dome by making it the symbol of publicly accessible government and the focus of an ambitious ecological-design scheme.

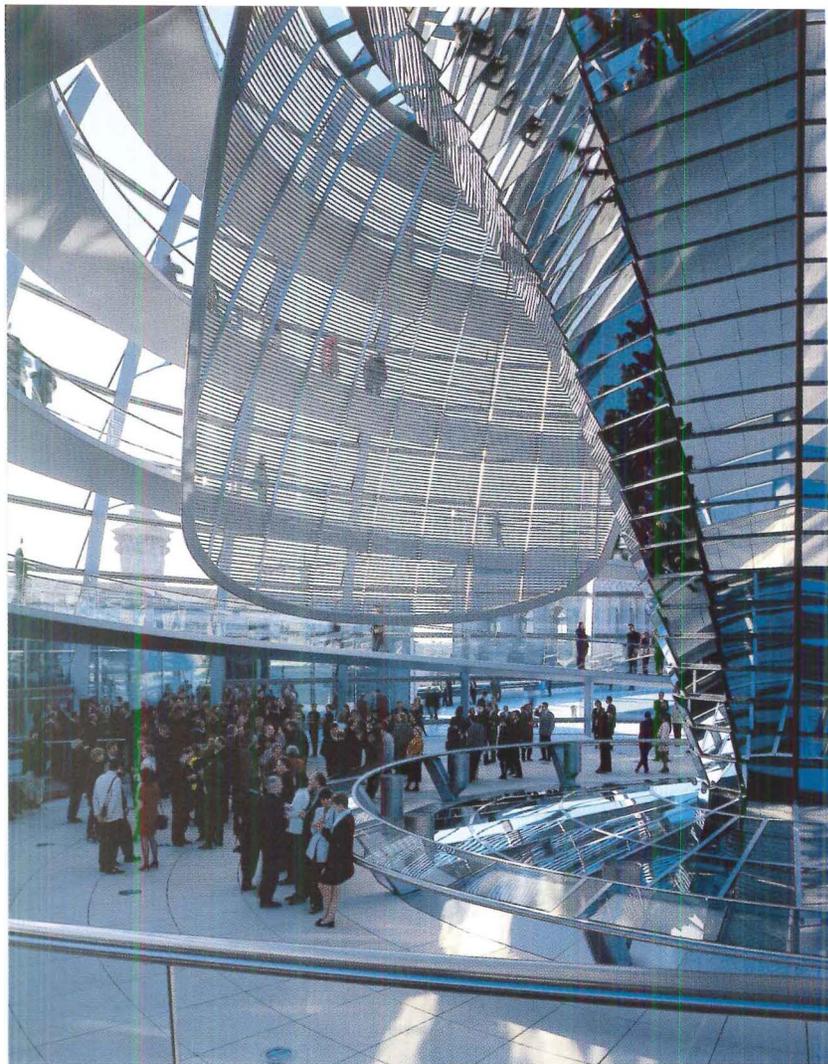
Indeed, the entire Reichstag project is a demonstration of sustainable-design innovation. The heating and cooling plant is pow-

ered by oil derived from renewable date palm, rape, or sunflower seeds. Excess heat can be stored in a natural aquifer 1,000 feet below the surface or used to operate an absorption-cooling plant. The thickness of the original stone walls adds useful thermal mass, and the old window openings have been filled with new insulated, thermally broken windows that can be opened manually or by the building’s energy-management system to vent excess heat. There is a separate, fixed, outer glazed layer on these windows with a gap around the edges for ventilation. It acts primarily as a thermal buffer, but where needed, the glass light is strengthened to resist bullets and other projectiles.

Foster’s office claims such strategies turn the building into a producer rather than a consumer of energy. (Excess energy can be routed to adjacent structures.) The building also reduces emitted carbon dioxide to just 440 tons annually, compared to 7,000 tons (energy enough to heat the homes of 5,000 people) emitted by the building prior to its renovation.

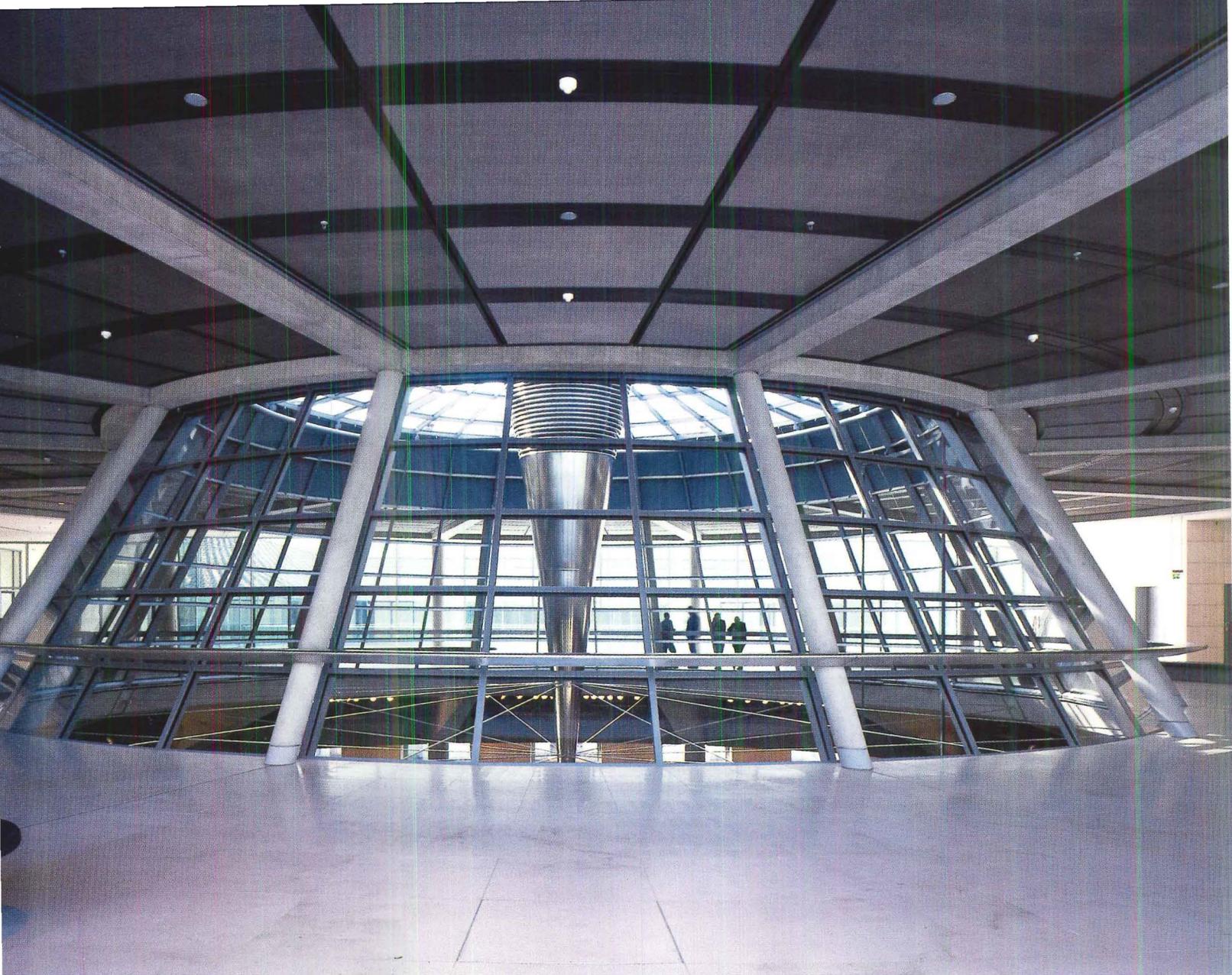
The Bundestag willingly collaborated with Foster’s office in the provision of these costly technologies. As Foster’s office put it, the ecological regime is “one of the Reichstag’s most intrinsic expressions of optimism.”





Foster harnesses technology to expressive, technological ends within the dome. Acting like a chimney, the funnel—without mechanical aid—draws hot air out of the legislative chamber (stabilized by cables, bottom). Mirrors refract daylight downward through roof glass, and a solar-glare shield of horizontal rods revolves to follow the sun (left). Opposite: View from the press lobby.





Another guiding metaphor at the Reichstag is architectural transparency as an expression of political accessibility. Indeed, this has been the reigning metaphor in post-Fascist West Germany, most eloquently rendered in the glass-walled pavilion architect Behnisch & Partners had erected for the West German Bundestag on the banks of the Rhine. Completed only in 1992, its history as the country's chief deliberative chamber has already ended.

THE NEW REICHSTAG HAS ESCAPED THE ANTITERRORIST BUNKER MENTALITY: NO HIGH WALL SURROUNDS THIS BUILDING.

In Berlin, Foster houses legislators in a four-story-high fishbowl. Not only do people press in from the west portal, but also they can, if invited, gain access to the entire mezzanine level and balcony. Reporters can spot potential interviewees from the press lobby that overlooks the deliberative chamber. (When the chamber is full, however, the view from the lobby is sacrificed to sound-absorbing blinds.)

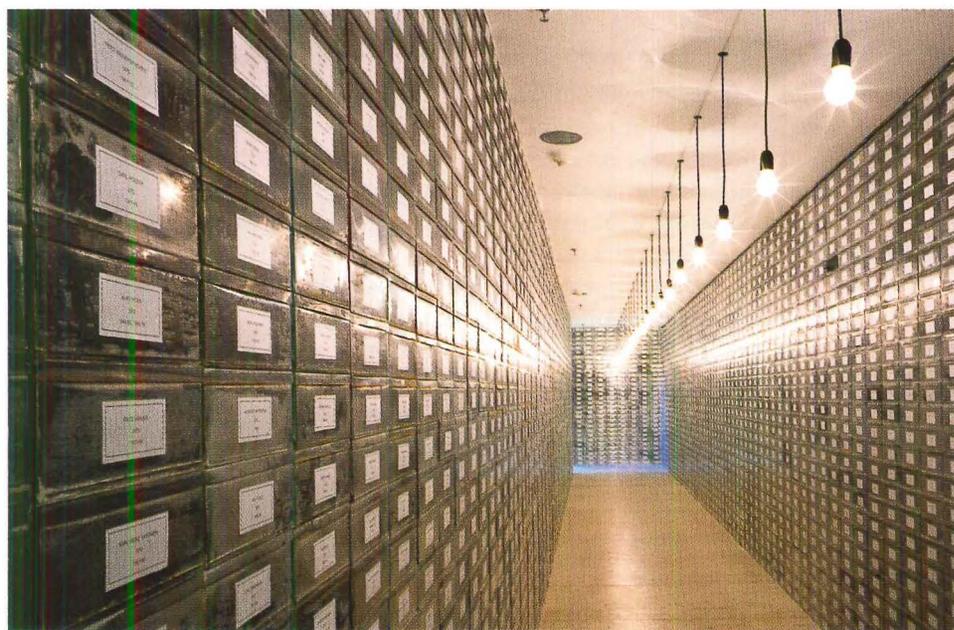
Daylight filters in from every side through Wallot's heroic doorways and from overhead, reflected downward by the mirrored facets affixed to the exterior of the massive exhaust-air funnel. Even these reflections bring awareness of the presence of the people the Bundestag serves. Roof visitors' fragmented images are refracted into the chamber along with daylight.

Contrast this with the bunker mentality that has afflicted the design of prominent American government buildings. If the Reichstag design had to follow current American security standards, it would have been surrounded by a high wall. Wallot's broad window openings would have been shrunk to slits, and the transparency Foster has struggled so hard to achieve would have been torpedoed in the first client meeting.

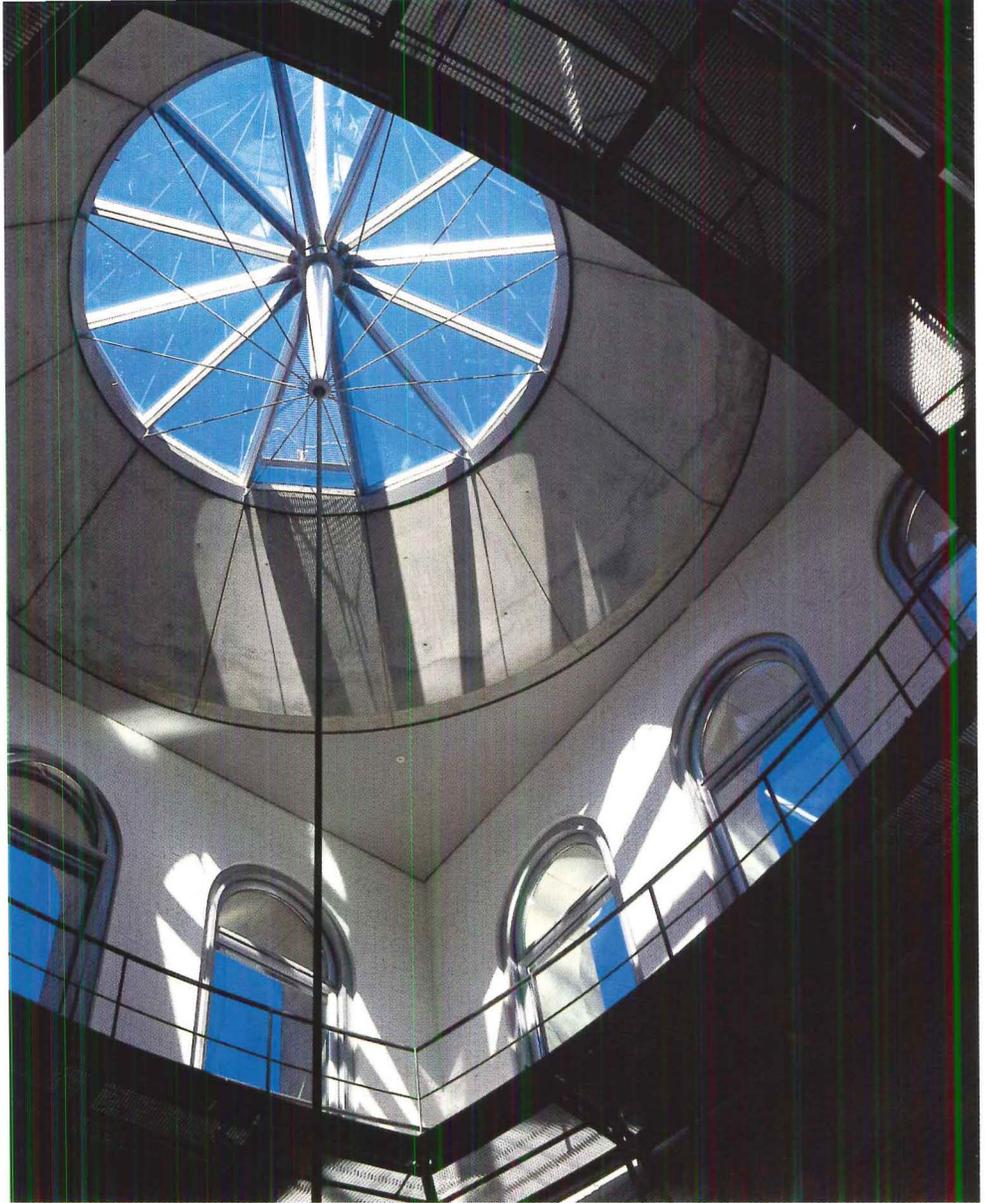
Despite their emphasis on openness, however, the Germans have hardly ignored security. Hefty bollards prevent automobiles from approaching. Visitors must pass through an airport-style X-ray inspection station. And, reportedly, visitors will not be allowed into the west portal or onto the roof when the Bundestag is sitting, although it was Foster's intention that they should be. The degree of public access, Foster says, "is obviously tunable." Although plazas well-suited to the popular presenta-



Bands of color in a meeting room (left) and in the members' restaurant (below) are intended for orientation within the building and to denote new surfaces. A corridor through the archives (bottom left).



A concrete-framed shallow dome diffuses top light in a meeting room within the existing corner roof towers (this page). The catwalk is for maintenance. The neutral color of the upper walls recalls the original building fabric.



tion of grievances have been built, their use by protesters may be strictly limited, perhaps undercutting the transparent-government metaphor.

In designing the building, Foster found that he had 669 individual clients—the number of Bundestag members. “Everything was debated in infinite detail,” Foster says. “Meetings would go on for hours.

FOSTER HAD 669 CLIENTS—THE BUNDESTAG MEMBERS. “EVERYTHING WAS DEBATED IN INFINITE DETAIL.”

Night would fall. Dinner would be served. They would end in the wee hours.” Each step and controversy was covered exhaustively by the press and discussed endlessly by the public. “If the Reichstag is the city in microcosm,” Foster adds, “it is also democracy in microcosm.”

Out of this came not the usual architectural camel, but what is probably the most psychologically complex building ever to be made for a seat of government. Inevitably, such an architectural statement has remained controversial. Some youthful critics see the memories recorded by the building as a kind of wallowing in another

generation’s guilt. Others see it as easy expiation. Having acknowledged the tragic past in such an official way, these critics argue, individuals need no longer reflect on those aspects of national character that have proven so historically disastrous.

That such a charged design came from Foster is almost as surprising, since emotionally evocative architecture is not commonly associated with his work. Acknowledging not only the intense commitment by his own staff, but also the addition of numerous works of art by internationally regarded artists, including the shrouding of the Reichstag prior to reconstruction by the artists Christo and Jean Claude, Foster says, “the building has been metaphysically lightened. By that, I don’t just mean the addition of glass here or there. The reality is that Germany has become an incredibly wonderful sort of open society. I can’t think of any country in the world that could have handled a project of such national significance with such conviction and courage.” ■

Sources

Light/ventilation cone, special windows and curtainwalls: Götz, Waagner-Biro

New interior stone: Kiefer-Reul-Teich
Lighting: Erco, Bega, MP Pesch
Chairs: Lindner (debating chamber), Vitra

Setting the pace for innovative transit design, CHRIS WILKINSON advances his station on the English architecture scene.

by James S. Russell, AIA



A pedestrian bridge at London's Canary Wharf development will be halved in length when future development proceeds (above). Opposite: Stratford station (top), Stratford Market Depot (bottom).

The design of a train maintenance shed may not seem like a career-launching kind of project, but it has proved to be so for Chris Wilkinson. The project is the Stratford Market Depot, a maintenance facility for London Underground's new Jubilee Line (bottom opposite). It has won a slew of awards.

Wilkinson is among a number of promising architects that have emerged in the U.K.'s newly energized architectural scene. It took 10 years of hand-me-down projects "before we got hold of a reasonable-sized project that went ahead," he explains. That project was Stratford, and Wilkinson credits Roland Paoletti, the chief architect of London Underground, for making his selection possible. "He understood that if you give emerging talent half a chance, they'll go all out," Wilkinson explains. But the firm's emergence has also come by winning competitions for the design of public buildings, a route almost unavailable to architects in America.

Wilkinson, like his better-known British peers, is comfortable

working closely with engineers. His collaborations include several bridges, most notably the South Quay Footbridge (above, with engineer Jan Bobrowski). In the Stratford Depot project, Wilkinson's firm worked feverishly over a two-week period under structural engineer Richard Fenton Associates (formerly Acer Consultants) to come up with a winning concept.

Wilkinson is now working on innovative natural ventilation and next-generation cooling schemes as Europe increasingly defines building performance in environmental terms. An emerging heat-pump cooling technology is under consideration for a science museum project, Explore at Bristol. It uses a chemical substance, eutectic salts, and harvests heating or cooling from the dramatic temperature change the material undergoes as it changes from solid to liquid—requiring little energy in the process.

Wilkinson prefers simple, shedlike structures, recognizing that their flexibility serves the ever-changing needs of clients. In the long term, Wilkinson sees a move to buildings that automatically react to changes in external climate or internal use. "It's easy to make solar shades react to the sun's position," he says. "But a lot of new, even more sophisticated technology is coming along." No doubt clients will trust him to try them out. ■



SOPHISTICATED SHED UNITES FOUR RAIL LINES

Nominally just the terminal station for London Underground's Jubilee Line, the straightforward shedlike structure of the Stratford Regional station untangles a very complicated rail interchange. Wilkinson won a limited competition for the project in 1994, making it onto the short list on the basis of his earlier design for the Stratford Depot (previous pages). Design might have been neglected amid this leftover landscape of rail lines, but London Underground chief architect Roland Paoletti was able to convince the system's management that stations deserved to be treated as important architecture that appeals to travelers and serves as a civic symbol.

The design spans the North London line (which runs at grade between the Jubilee Line tracks and the passenger access point) with a mezzanine (axonometric).

The curving profile of the shed is framed with steel-box ribs springing from the northern side of the mezzanine to the roof edge, where they are propped by a giant truss that spans the tracks.

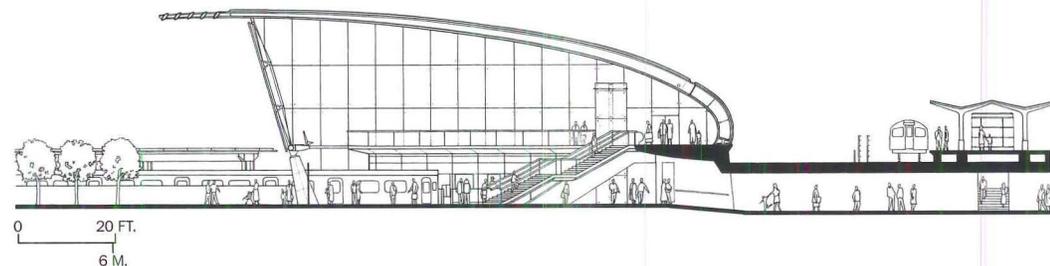
A nonmechanical scheme vents excess heat through the stack effect of hot air rising. As the

sun heats the roof, the warmed air is expelled at the rooftop, drawing air from the occupied space above the mezzanine.

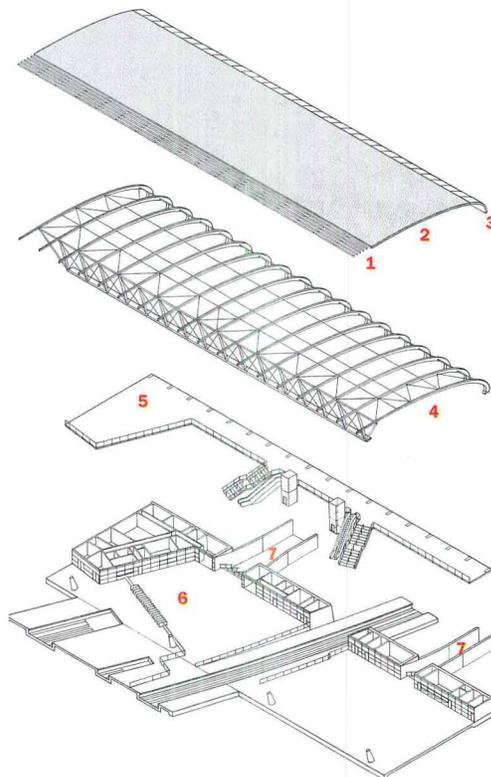
Architect: Chris Wilkinson
*Architects—*Marc Barron, Stafford Critchlow, Jim Eyre, Chris Poulton, Robert Troup, Oliver Tyler, Geoff Turner, James Parkin (team)

Engineer: Hyder Consulting

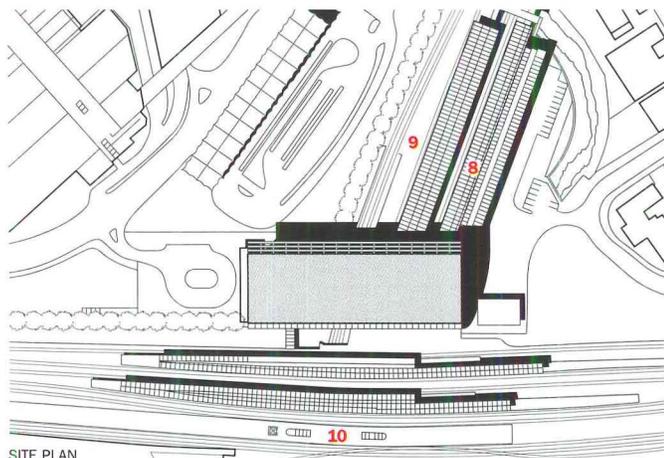
Contractor: Kvaerner Construction



1. Sunscreen
2. Aluminum roof
3. Curved glazing
4. Roof support ribs
5. Access mezzanine
6. Ticketing
7. Passage to other lines
8. Jubilee Line
9. North London Line
10. Regional rail lines

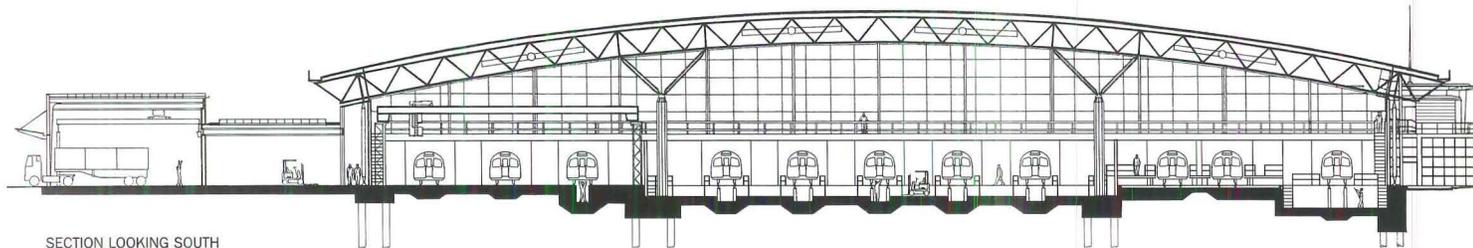


The entire canted south elevation (opposite) acts as a track-spanning truss. The spidery cables and stainless-steel forks support the glass as a truss within the larger tube and tension-rod system.



SITE PLAN





SECTION LOOKING SOUTH



A SPIDERY SPACE FRAME ECONOMICALLY SPANS 11 TRACKS

A structural-engineering solution is the basis for the architectural design of this massive train maintenance shed. Because of space limitations and required track geometries, the Stratford Market Depot had to fit within a rhomboid footprint. Wilkinson joined the engineers in a competition, which the firms won.

The designers sliced the north elevation across the tracks at about a 30-degree angle to allow turning trains to clear. They decided to align spanning trusses to this angle to avoid special fittings at the skewed end. To keep the truss depth shallow, they made a space frame, laying in another grid at a 30-degree angle to the first, leaving an elongated diamond-shaped gap between the grids (about 30 feet on center in both directions) in plan.

To assemble the frame, the contractor bolted it together, section by section, at its nodal points. Intermediate support is provided by two rows of columns, aligned to the tracks, which branch at the top to connect to the space-frame nodes (section top). A clear-span arch would have required a much higher vault.

This “diagrid” is just under eight feet deep but is so efficient

that its flat and round welded tubes seem almost spindly (bottom right). Sunlight filters through the space frame from narrow skylights fitted perpendicular to the tracks. They have operable hatches for ventilation and emergency smoke removal. Additional natural light enters via the frameless clear north-elevation glazing, clerestories, and translucent fiberglass on the south elevation.

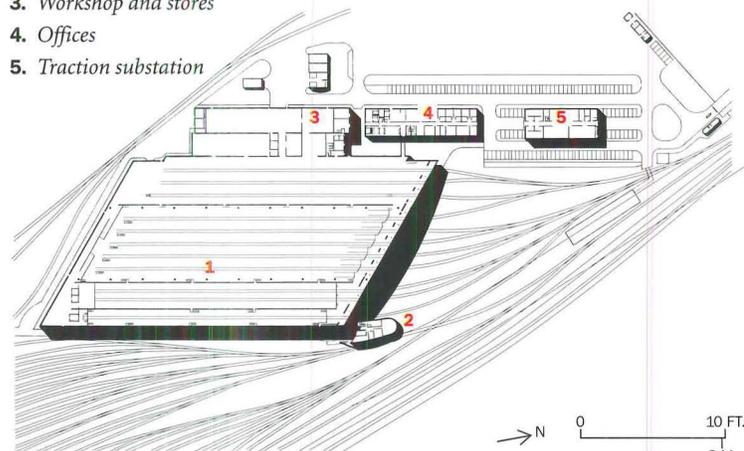
Why lavish such design attention on a structure stranded in a sea of railyards and industrial tracts? “It was the first Jubilee project to be finished, so it established the status and importance of the project,” Wilkinson explains—not an idle consideration for a costly and politically fraught project.

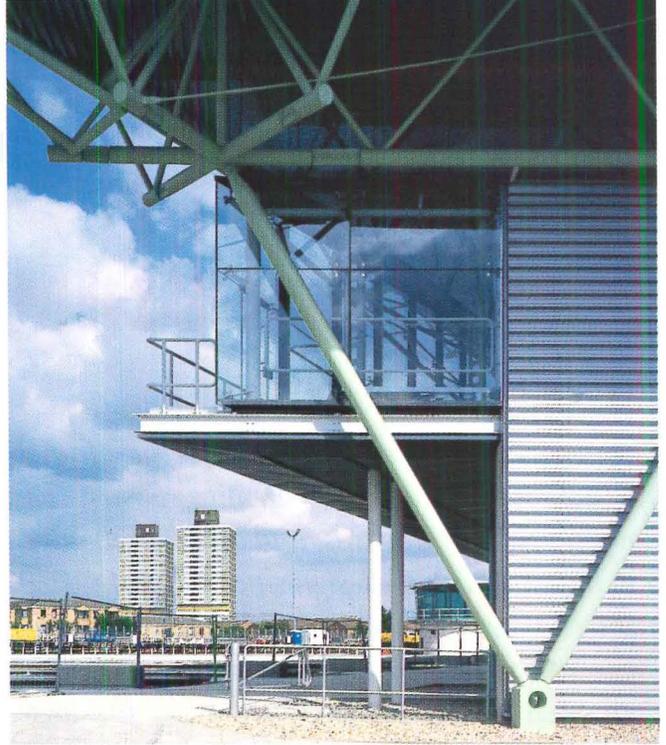
Architect: *Chris Wilkinson*
Architects— *Jim Eyre, Chris Wilkinson, Simon Dodd, James Edwards, Paul Baker, Zoe Barber, Dominic Bettison, Keith Brownlie, Stafford Critchlow, Stewart McGill, Nicola Smerin, Oliver Tyler, Jonathan Woodroffe (team)*

Engineers: *Hyder Consulting (structural); Hurley Palmer Partnership (mechanical, electrical)*

Contractor: *John Laing*

1. Main shed
2. Control Building
3. Workshop and stores
4. Offices
5. Traction substation





Generated by site conditions, a diagonal-grid space frame allows a low, arched form. View of train-entrance elevation from control

structure (left); the structure within (below). Clear, frameless glazing is supported on its own subtrusses (above).



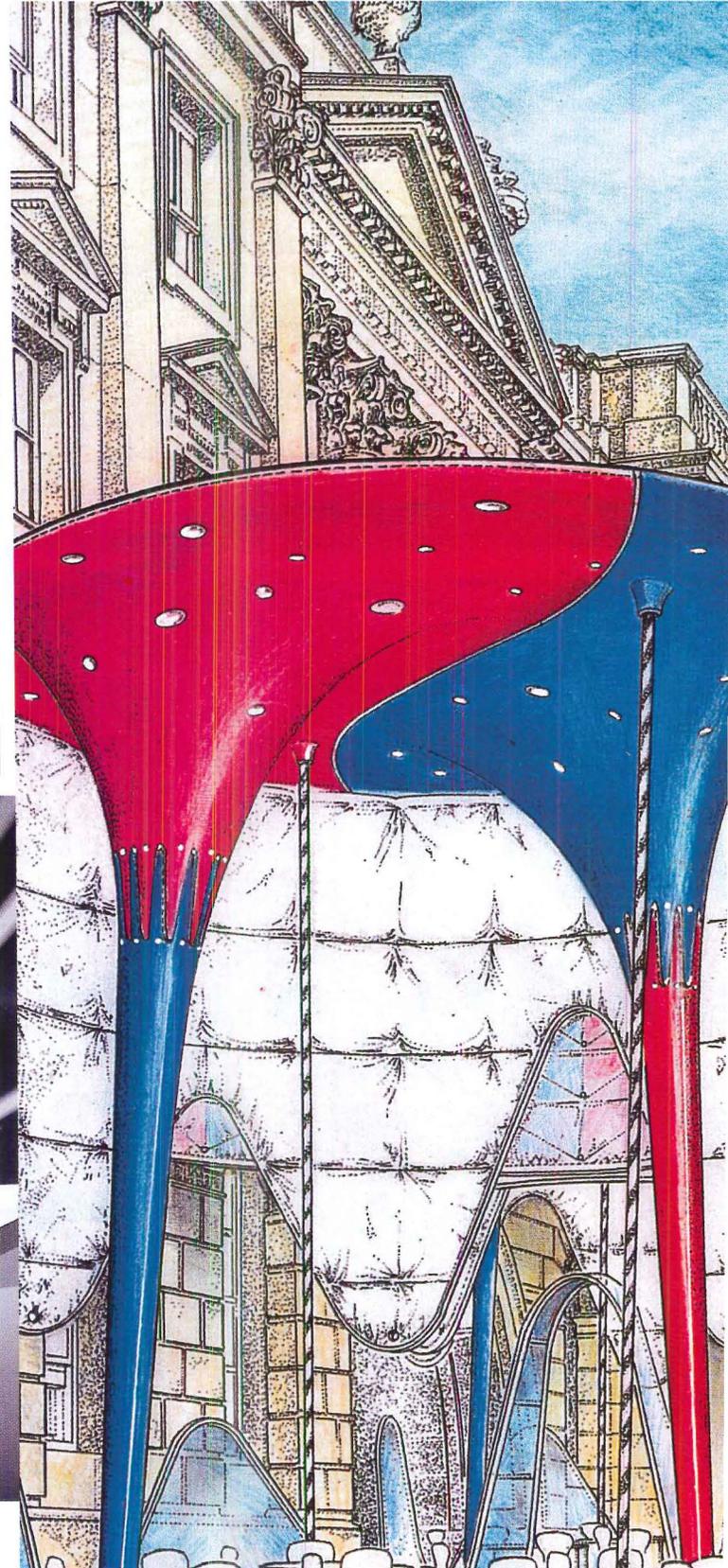
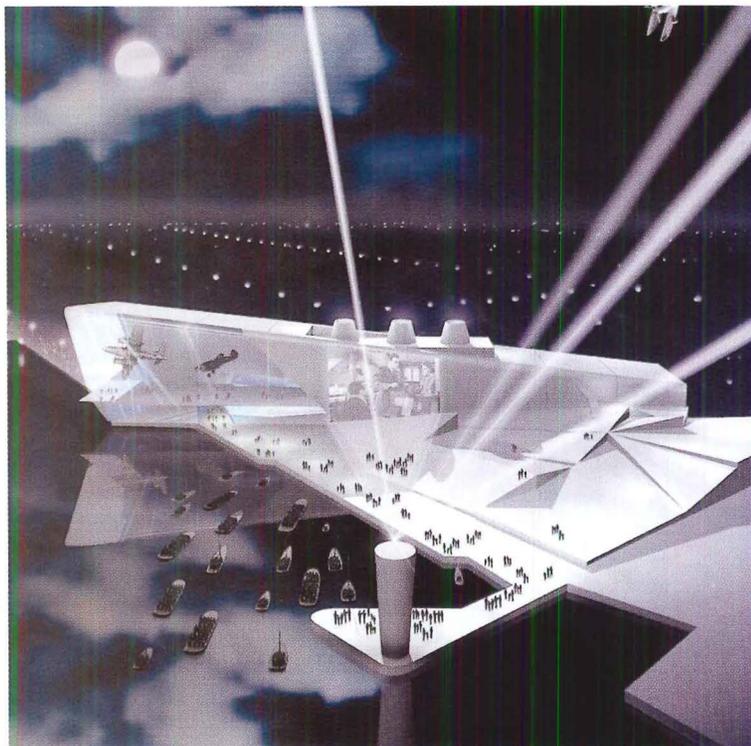
5 BRITISH FIRMS: The Next

by Rory and Barbara Ann Campbell-Lange

The British architectural scene is dominated by high-tech practices. Norman Foster, Richard Rogers, Michael Hopkins, and others of their generation have influenced design since the early 1970s and inspired many highly competent young practices. In the tradition of the great English designer-engineers, their architecture is concerned with the logic and clarity of structural expression. Its detailing and rationality is extremely photogenic.

Yet Britain is also host to other approaches, as illustrated by the five practices we have chosen to present. All five explore space and mood or inventive strategies for complex programs. And these architects are all involved in researching their ideas through teaching and building.

Rory and Barbara Campbell-Lange, partners in the Campbell-Lange Workshop, write about, teach, and practice architecture in London. Their book on John Lautner is due to be published early next year. Both are in practice at Michael Hopkins and Partners.



Generation



BIRDS PORTCHMOUTH RUSSUM

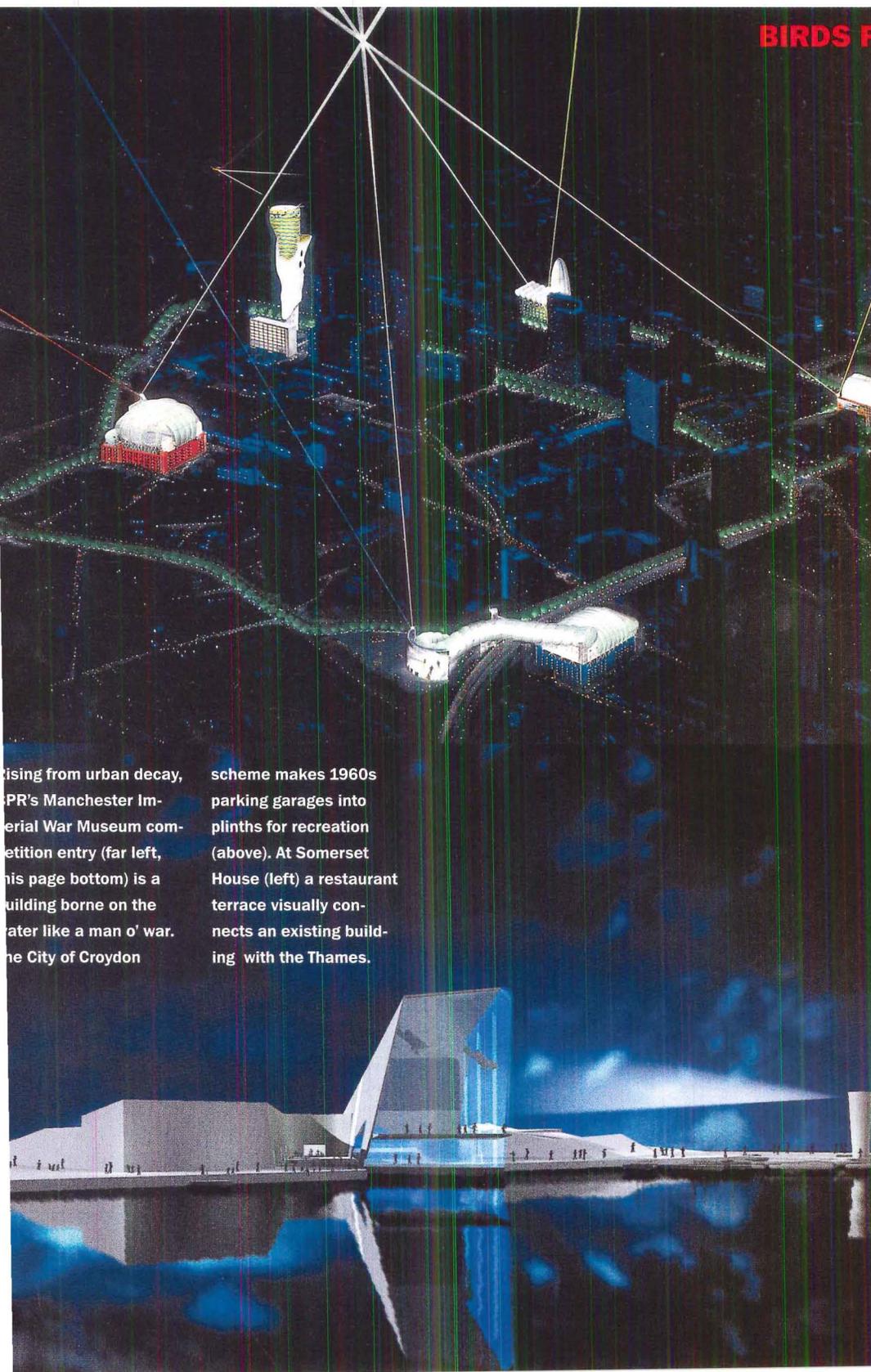
The work of Birds Portchmouth Russum (BPR) recalls the imaginative qualities of Archigram, underpinned by the practical experience that partners Andrew Birds, 39, Richard Portchmouth, 43, and Michael Russum, 43, gained as project architects with James Stirling.

Their ability to find delight and pageantry in the most prosaic projects marks their Chichester parking garage, which remakes a breached city wall and lost portal. The building's inventiveness reflects a concern with improving or commenting on urban conditions. This approach characterizes their provocative image of London buses topped with inflatable Christmas decorations—pumped up by exhaust gasses. (See this issue's cover.)

In BPR's City of Croydon scheme, 1960s multistory concrete parking garages encircling the city become a series of plinths for major recreational facilities, linked by a new rail system.

For Somerset House, one of London's many riverside buildings that failed to make a meaningful connection to the Thames, the architects created a restaurant terrace above the river. In light-hearted counterpoint to the existing building, quilted canopies furl or unfurl with seasonal changes.

BPR's Manchester Imperial War Museum competition entry, which placed second behind Daniel Libeskind's scheme, rises among disused World War II maritime structures like a man o' war borne on the water in a gesture of regeneration and ceremonial display.



rising from urban decay, BPR's Manchester Imperial War Museum competition entry (far left, this page bottom) is a building borne on the water like a man o' war. The City of Croydon

scheme makes 1960s parking garages into plinths for recreation (above). At Somerset House (left) a restaurant terrace visually connects an existing building with the Thames.

PHOTOGRAPHY: © CHRISTOPHER BARKER

CARUSO ST. JOHN

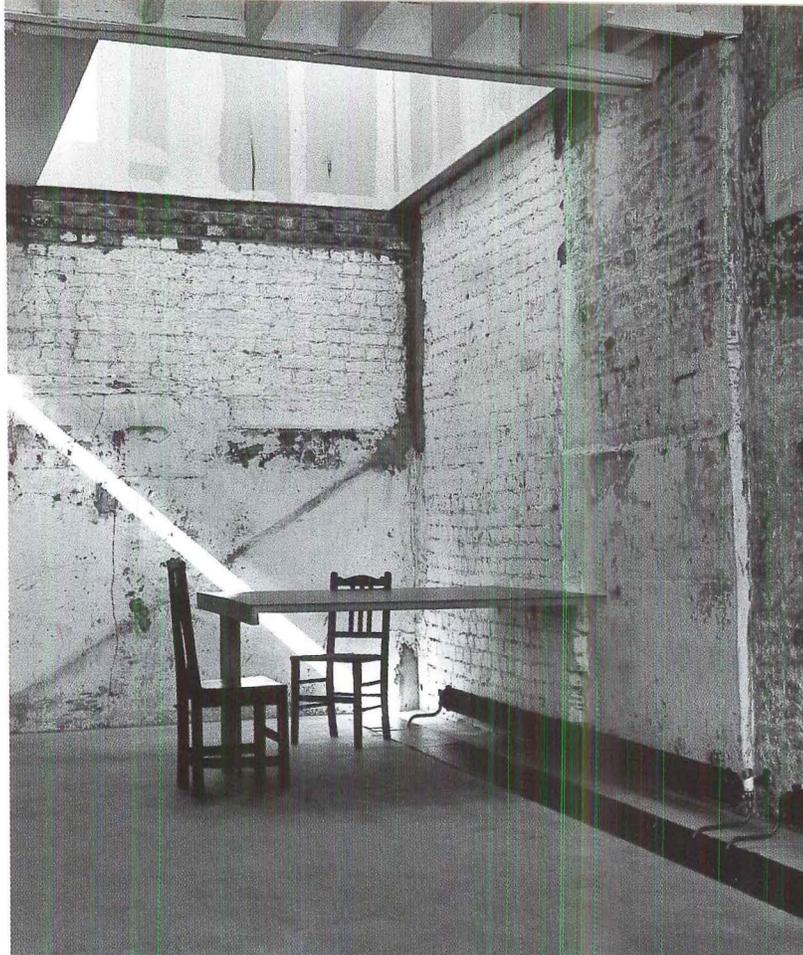
A primary concern of Caruso St. John Architects is the relationship of buildings to everyday life. Partners Adam Caruso, 37, and Peter St. John, 39, reject the notion of architecture as an abstract conveyor of theories; instead, they concentrate on the feeling and tangible effects of the spaces they create. Their aim is to make buildings that suit social purposes, as well as required functions. Proportion, materials, and the quality of light all play essential roles toward this end.

Their work also considers the ways in which separate rooms, each with its own character and scale, can be balanced within a building's larger composition. Caruso St. John gives the position of these rooms greater importance than the structural arrangement, and so interior walls do not always align with the load-bearing supports of the spaces below them. Further accentuating each room's individuality, journeys through the building do not follow predefined routes.

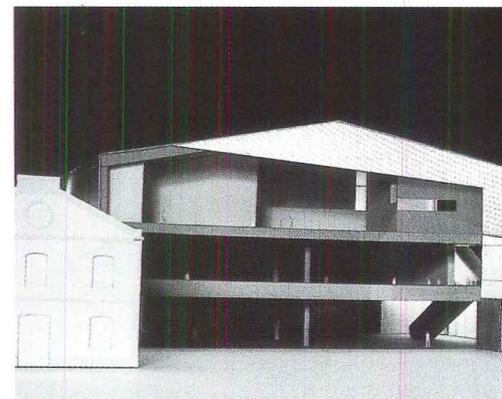
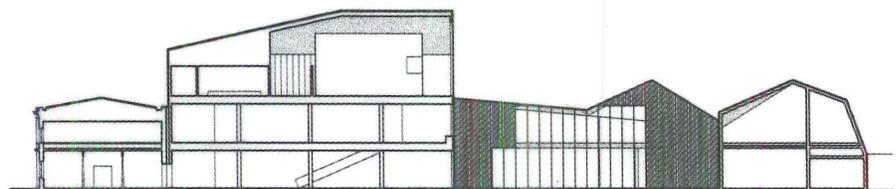
Caruso St. John's first major public commission, the Walsall Art Gallery, near Birmingham, England, is like a large house, containing the idiosyncratic Garman Ryan collection of sculptor Jacob Epstein's work and his own collection of 20th-century art. Street-level spaces allow the public to watch resident artists at work.

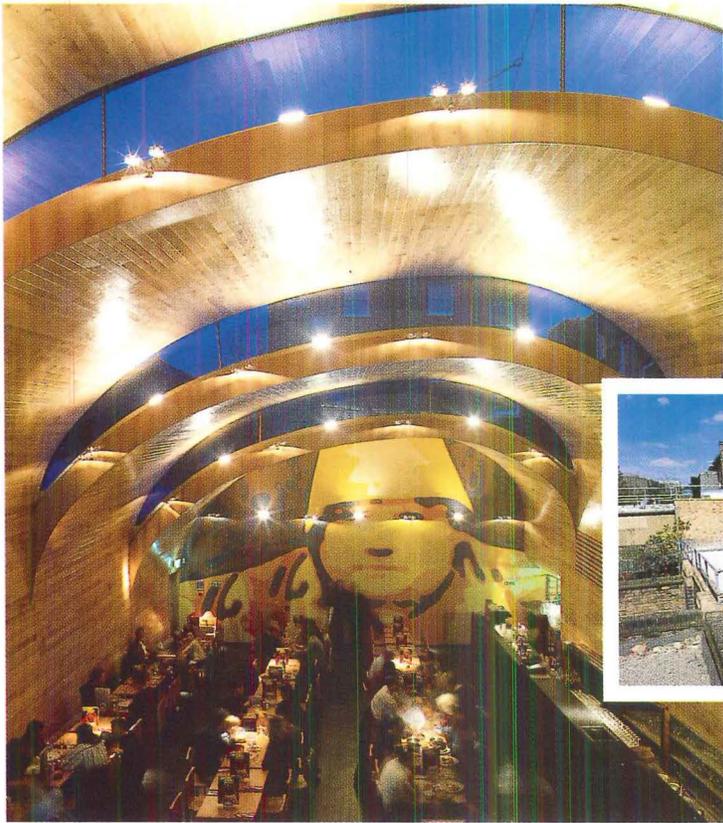
Accepting the site as an informant for design, Caruso St. John eschews demolition, preferring to "make a project of what is there," as Caruso puts it—adding, rather than erasing, connections to what already exists.

The practice takes inspiration from the juxtapositions and sometimes beautiful chance alliances of buildings in London, extracting from them an understanding of the vibrant patterns and eccentricities of city life. With this connection to London, it is ironic that Caruso St. John currently draws more publicity in Europe than in the U.K.

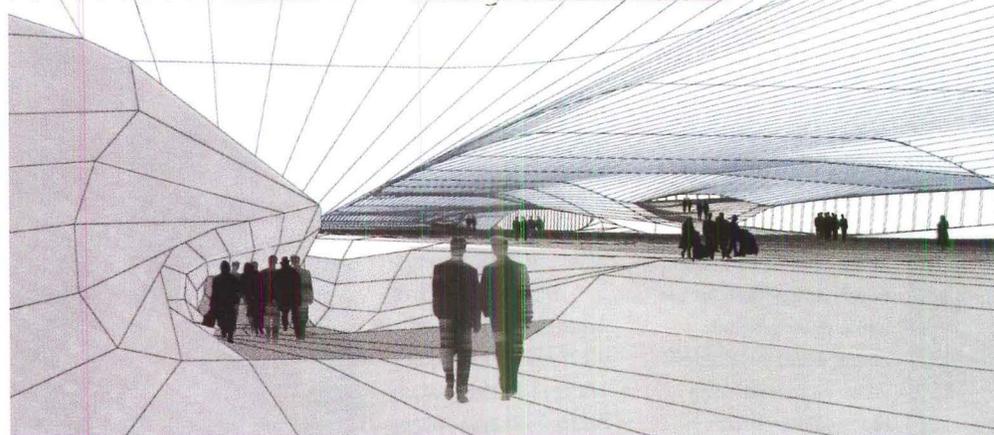


Emphasizing architecture's tactile qualities, Caruso St. John's London Studio House acknowledges, instead of obliterates, what already exists. The architects' interest in the individuality of separate spaces within a larger composition influenced the firm's design for the Walsall Art Gallery (drawings and model, below), as well as their house in Lancashire, England (bottom left).





In the Belgo Restaurant in Notting Hill, London, (above, left and inset), a virtually kaleidoscopic series of roof shells yields a cavernous yet rhythmic interior. The Yokohama Ferry Terminal's undulating quality (left and below) echoes the forms of the port's ships and serpentine highways.



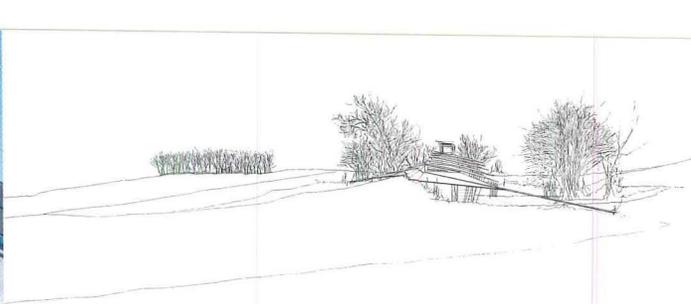
FOREIGN OFFICE ARCHITECTS

For Foreign Office Architects (FOA), London is at once anonymous and strange: A prototypical city and launching pad to the East, Europe, and America. Through teaching at the Architectural Association, partners Alejandro Zaera-Polo, 36, and Farshid Moussavi, 34, research and promulgate what they call “adaptive organizational techniques” for negotiating complex urban problems.

They manage complexity by embracing changeability, as reflected in their Iranian Cinema project, where wall becomes roof, roof becomes wall, and distinctions between outside and inside blur. Through such manipulation, says Moussavi, they aim to make buildings that are “invisible . . . somehow plural and unnameable,” merging with the city topography, rather than standing foursquare to the street.

This spirit of adjustment is not merely formal (and where the site or program lacks dynamic forces, the architects provide their own). The partners’ apartment was adapted, in part, through complex legal negotiations with neighbors—producing a space that seemingly opens out of the five properties that interlock with and adjoin it.

FOA’s Yokohama Ferry Terminal, due for completion in two years, is not a conventional “gateway” building. Instead, this self-reflexive structure winds around itself to create its own internal-external landscape. Its ramps and moving side-walks suggest a world in restless limbo between sea and shore. The architects are ever responsive to changes in budget, program, or structural requirements, manipulating forms to meet their functional principles, which remain paramount.



NIALL MCLAUGHLIN

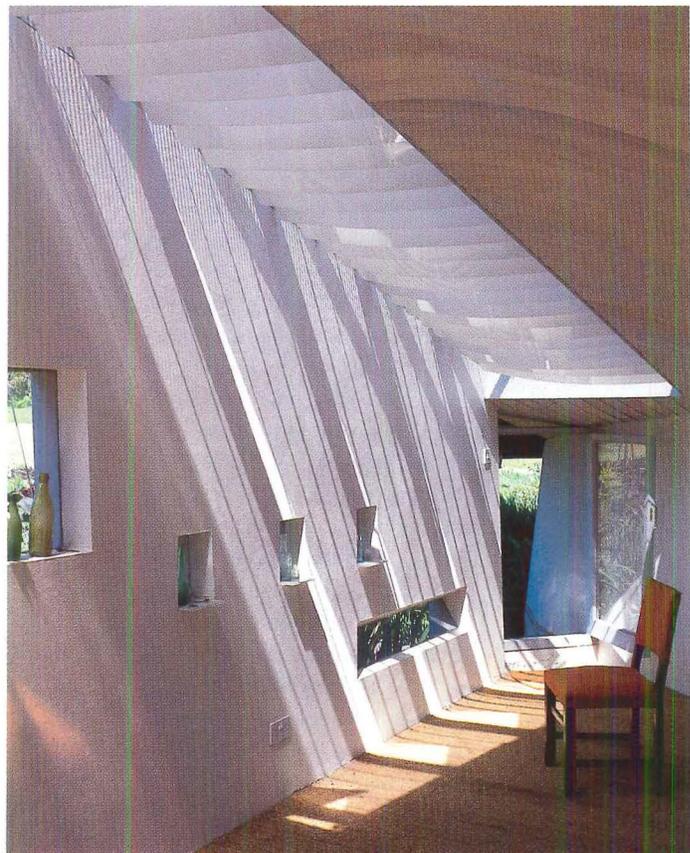
The form of Niall McLaughlin's Shack, a photographer's pondside retreat in Northamptonshire, England, grew from ideas about abandoned military machines in the neighboring aerodrome, as well as the insect and aquatic subjects of the client's camera lens. Metal canopies extending from the roof flex in the wind as if readying for flight, while the Shack appears to hover at the water's edge. The sense of place created by the building, the pond, and the clustered trees and plants recalls the English notion of genteel countryside. Like a folly in a Picturesque landscape, the building draws the eye.

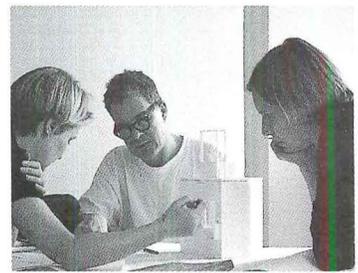
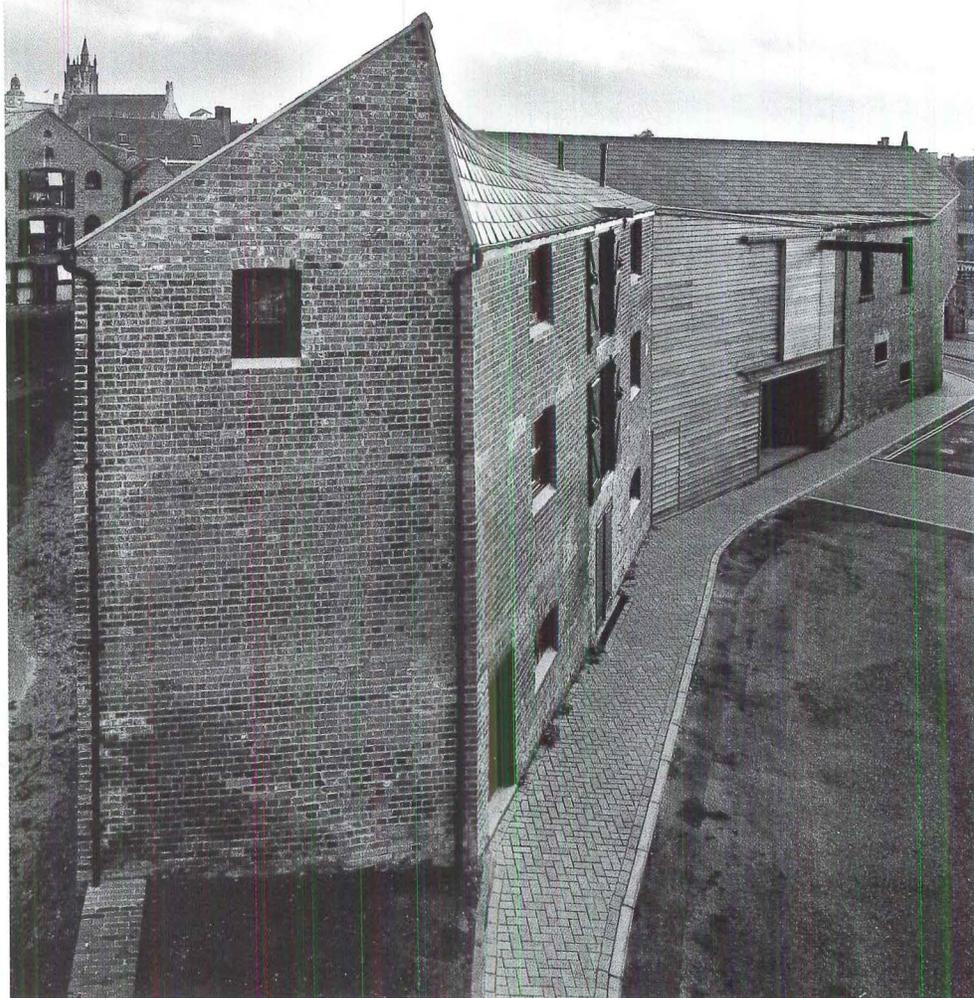
The builder agreed to construct the Shack for £15,000 (\$24,000) on the condition that the architects prepare no construction drawings. Instead, McLaughlin, 37, placed a large model on the site.

The building's luminous interior is lit from multiple sources that leave overlapping patterns on the walls. Square apertures open toward the reflective pond and serve as photographic sets for tiny plants and creatures.

Niall McLaughlin's other projects include a 1997 house in Knightsbridge, London, and an addition to a Carmelite monastery in Kensington, London, completed between 1991 and 1997. His extension to the De La Warr Pavilion in Bexhill, England, recently won a competition, and he was named Young British Architect of the Year in 1998 by *Building Design* magazine.

The Shack (above, left and right) evokes insect and aquatic forms, as well as abandoned military machinery. Apertures create a luminous interior (left), ushering in rays reflected off the pond's shimmering surface. Reflectivity also plays an important role in the architect's London house and garden for the same photographer client. Here, key garden views culminate at an electroplated totem, a free-standing object set within the lush foliage (right).





TONY FRETTON

The thin lines of Tony Fretton's sketches—usually made on a computer—describe buildings that, says the architect, aim to “create believable places” and give the onlooker a sense of being “amazingly alive.” Previously a performance artist, Fretton, 50, now tries to capture the unique moment in his architecture.

His addition to the Sway Art Gallery in Hampshire, England, balances the forms of the original Edwardian building. The pyramidal roof, cut at an angle to create a skylight, seems recognizable yet startlingly new. Both tactile and abstract, the construction is of familiar timber framing and unpainted boards.

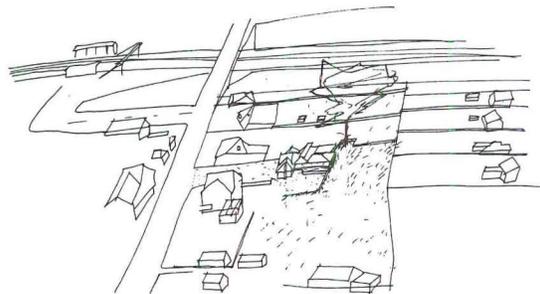
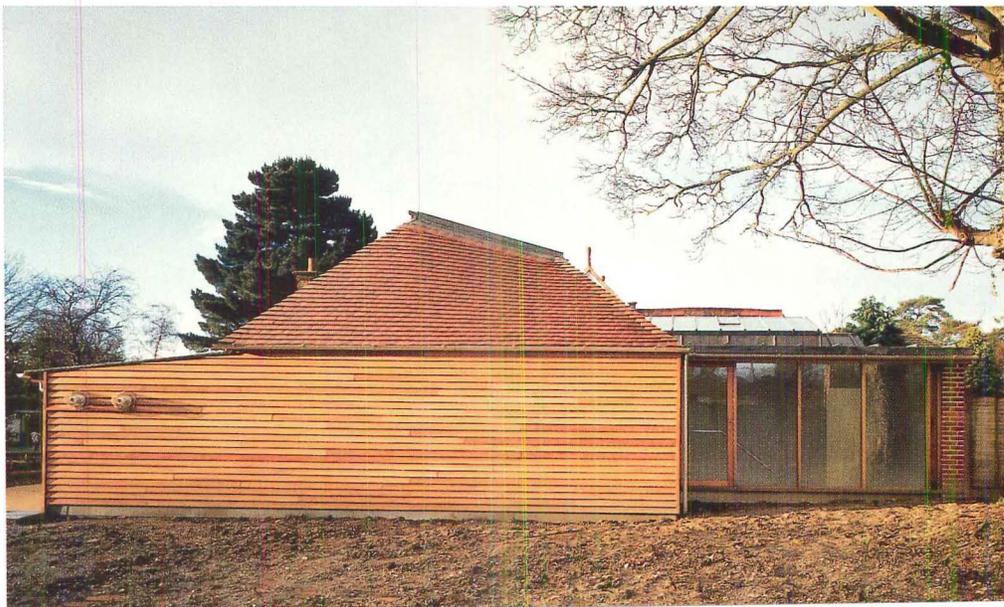
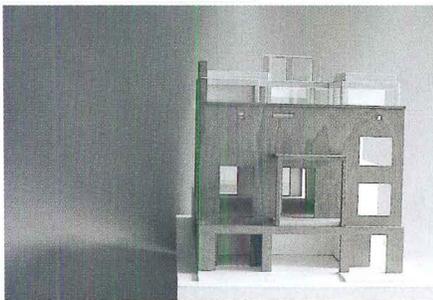
The Chelsea House in London is at once a terrace house engaging the street, a Modernist pad opening to the garden, and a Venetian

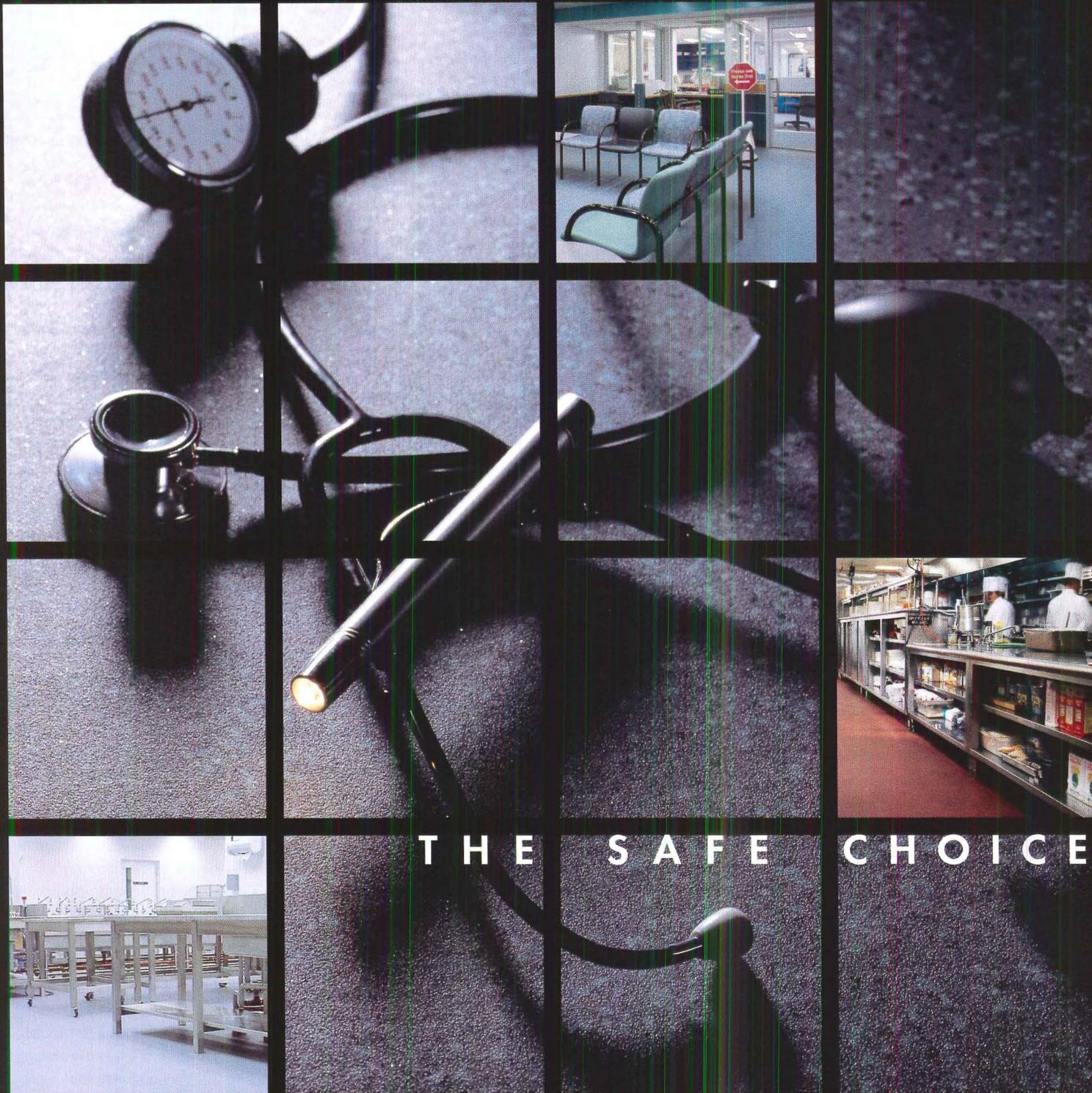
palazzo with magnificent fresco-adorned rooms. These eclectic references are not literal but allusive, brought about, in part, by views through planted courtyards. Surprising conjunctions, such as the stair from the grande salle to dining room or the rooftop sleeping pavilions set in a grass-and-bamboo garden, encourage intimacy and chance interactions.

Fretton's enigmatic drawings, and the unique spaces they represent, reconfigure places and architecture that we already know.

Both familiar and startlingly unfamiliar, Tony Fretton's buildings play off of longstanding conventions. The Quay Arts Centre on the Isle of Wight (above) and the Sway Art Gallery (below) both incorpo-

rate innovative variants on traditional roof forms. The Chelsea house (right) brings together allusions as far ranging as Modernist and Venetian Renaissance architecture.





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HOSPITALS

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THE LATEST HOSPITALS BRING IN THE PERSPECTIVES OF PATIENTS, THEIR FAMILIES, AND THE LOCAL COMMUNITY, IN ADDITION TO THOSE OF DOCTORS AND STAFF.

by Clifford A. Pearson



1

Portland, Oregon

A children's hospital by Zimmer Gunsul Frasca and Anshen + Allen helps connect a sprawling medical campus and brings families into the healing process.



2

Celebration, Florida

Robert A.M. Stern Architects and NBBJ teamed up to design a general hospital that serves as an important civic institution in a new town.



3

New York City

A psychiatric hospital by Peter Pran of Ellerbe Becket combines research and treatment in a building that modernizes the image of mental health care.



4

Chicago

Daylight and modern design make this freestanding AIDS center by Perkins & Will an attractive place to combat a deadly disease.

Look at recent changes in the design of hospitals and you begin to see the future of health care in America. Under attack by many groups—from patients to insurers—hospitals have adapted to a rapidly evolving health-care environment by becoming more inclusive places. Rather than focus primarily on the needs of physicians and service providers, the latest generation of hospitals incorporates the perspectives of the people being served, their families, and even the surrounding communities. As a result, the sterile, intimidating settings of the past have given way to buildings where sunlight, color, natural materials, and enticing social spaces have evolved from design anomalies into standard design elements.

While hospital construction, as a portion of the total health-care market, dropped from about 50 percent in the early 1980s to 25 percent in 1997, it rose last year for the first time since 1992, according to the F.W. Dodge division of the McGraw-Hill Companies. This upswing may end up being temporary, but new hospitals are needed in rapidly growing parts of the country, such as the desert Southwest and central Florida, where the new town of Celebration has emerged under the aegis of the Walt Disney Company. Even in older cities such as New York, Chicago, and Portland, Ore., specialized facilities must be built to treat diseases such as AIDS or provide focused care to children or the mentally ill.

Because hospitals are still the flagship facilities of most health-care systems, they usually benefit from a greater level of design input than neighborhood clinics, medical office buildings, or other medical buildings. And in an increasingly competitive industry, architecture is often seen as an important tool in attracting the best doctors and nurses, the most successful HMOs and insurance plans, and the most patients.

The projects shown in the following pages represent the range of what is being built today, from a general hospital to specialized facilities. The design styles and geographic locations also vary, but all exhibit concern for the needs of the patients, whether that means seats and counters built at kids' height or great views for people hooked up to infusion machines. The clients and architects of these projects understand that people don't stop needing to socialize just because they're ill, and as a result, these hospitals include spaces where patients can interact with other patients, with medical personnel, and with their families. Rather than get in the way of treatment, this interaction helps people heal faster. Finally, each of the projects also makes connections with neighboring buildings and contribute to its community's civic well-being. ■

Doernbecher Children's Hospital, Portland, Oregon

HELPING KIDS AND THEIR FAMILIES HEAL TOGETHER, THIS HOSPITAL BRINGS MORE THAN MEDICINE TO ITS BEDSIDE MANNER.

by B.J. Novitski

Project: Doernbecher Children's Hospital, Portland, Oregon

Design architect/Architect of record: Zimmer Gunsul Frasca Partnership—Robert Packard, Assoc. AIA, partner-in-charge; Robert Frasca, FAIA, design partner; Bill Hutchinson, AIA, project manager; Allyn Stellmacher, AIA, senior designer; Jan Willemse, project architect; Sharron van der Meulen, Terri Johnson, senior interior designers; Bob Snyder, AIA, Karl Sonnenberg, AIA, Ron Gronowski, AIA, Susan Kerns, Carl Freeze, AIA, Kitty Myers, AIA, Heather Lindeen, Kathy Berg, Brian Stevens, project team

Associate architect: Anshen + Allen—Derek Parker, FAIA, Felicia Borkovi, AIA, Annie Coull, AIA, Gary Marshall, AIA, Craig McInroy, AIA, Ian Lawlor, AIA, Gary Lukaszewski, project team

Engineer: KPFF Consulting Engineers (structural/civil)

General Contractor: Hoffman Construction Company

Sources

Metal cladding: Keith Panel Systems

EIFS: STO

Aluminum windows: Kawneer/Benson

Acoustical ceilings: USG

Resilient flooring: Mannington, Tarkett, Flexco, Armstrong

Contributing editor B.J. Novitski is the author of the book *Rendering Real and Imagined Buildings*.

Doernbecher Children's Hospital turned a difficult site into an asset, bridging the gap between two existing buildings on opposing hillsides and knitting together a sprawling medical complex. Part of the Oregon Health Sciences University (OHSU) campus in Portland, Ore., the hospital soars above its access road while presenting an elegant face to its neighbors. For the young people who spend time in its care, Doernbecher incorporates many of the latest strategies for treating children, acknowledging that patients do better when they feel secure and are surrounded by their family.

The architecture team of Zimmer Gunsul Frasca Partnership (ZGF) of Portland, Ore., and Anshen + Allen of San Francisco did more than pay lip service to these new approaches to healing. Inspired by ideas put forward by Ronald Rosenfeld, chair of OHSU's Department of Pediatrics, the architects sought input from dozens of user groups, including parents and children, and built accommodation for families into the design in many different ways.

Extra beds in patient rooms, for example, enable parents to stay with their children around the clock. And the extensive display of art throughout the hospital is specifically designed to appeal to both children and adults. As Anshen + Allen's senior principal

Derek Harker, FAIA, explains, "It's important to remember that when you hospitalize a child, you hospitalize a family."

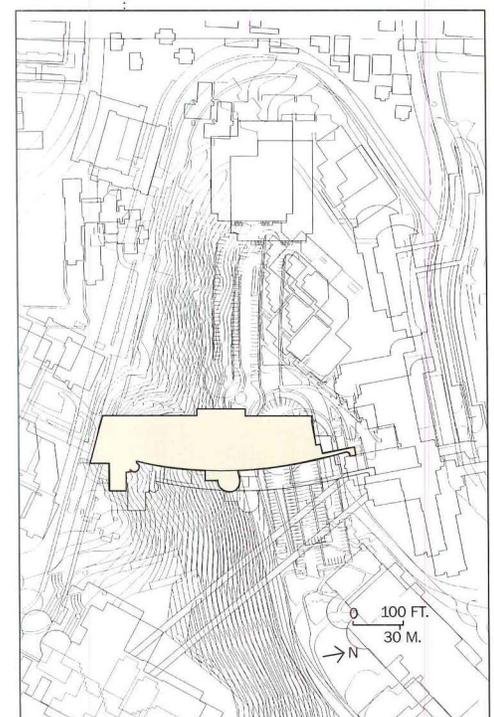
The building was intended to bring together functions that had previously been distributed throughout the medical-school campus. One early design proposed building on one hillside and connecting to the facing hill with an aerial walkway. From that scheme evolved the idea that the building itself should be the bridge, with direct connections to emergency rooms in the existing hospital to the north and to the existing Child Development and Rehabilitation Center to the south.

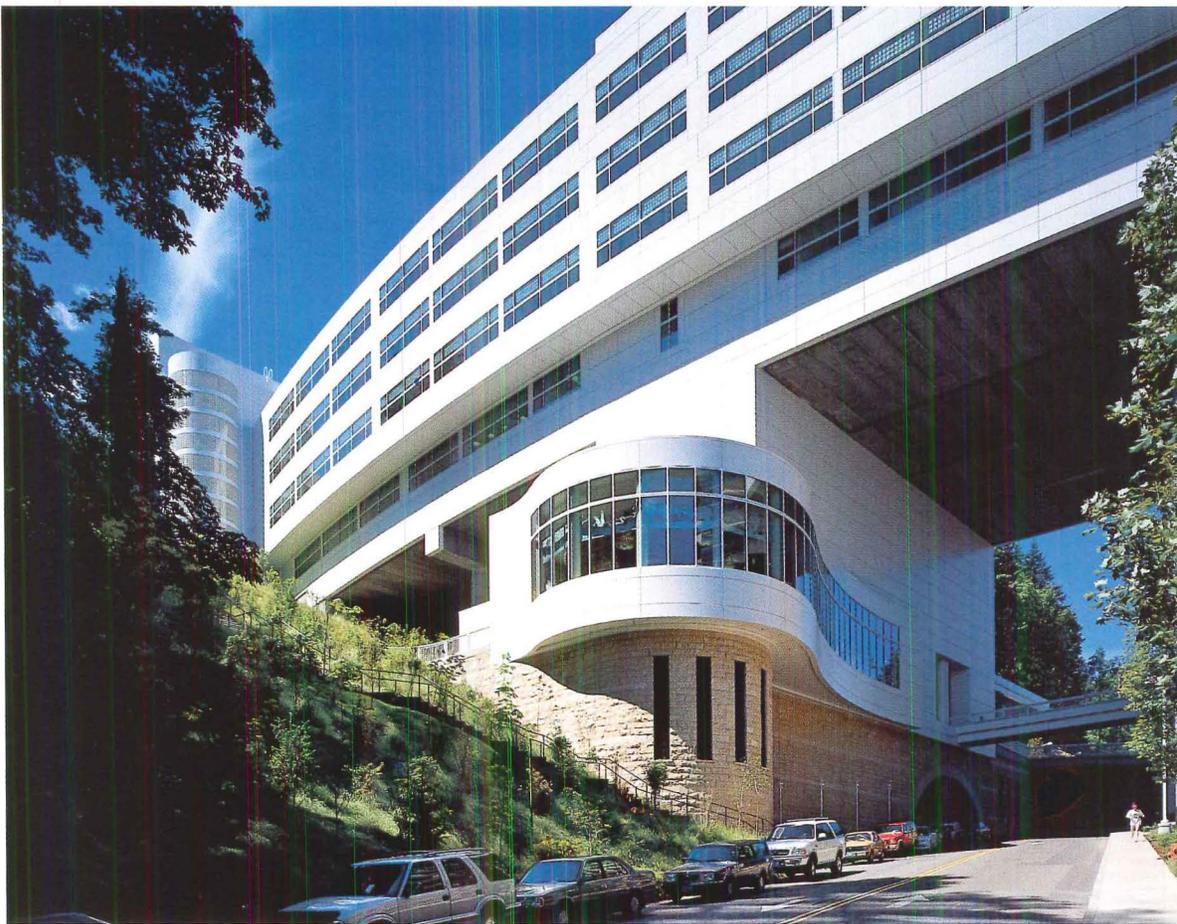
Stacking functions

As built, the hospital has only its entrance lobby at ground level. An elevator ride takes outpatients up to the first clinical floor (called the seventh level to correspond with floors of connecting buildings). Here outpatients are segregated from the more seriously ill children on higher floors. The eighth level, housing surgery and intensive-care units, connects to

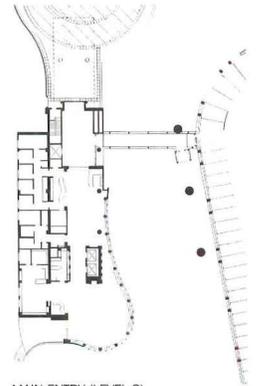
shared imaging and surgery services on the eighth floor of the neighboring University Hospital. The 9th and 10th levels are reserved for inpatient rooms, each of which enjoys a view either to the outside or to an interior courtyard. Thanks to the steep terrain, the 10th level also connects to a service road that extends along the hilltop. At every level, a public corridor runs along the curved east facade, offering views to downtown Portland, to Mount Hood beyond, and to the ravine below.

Despite there being mostly





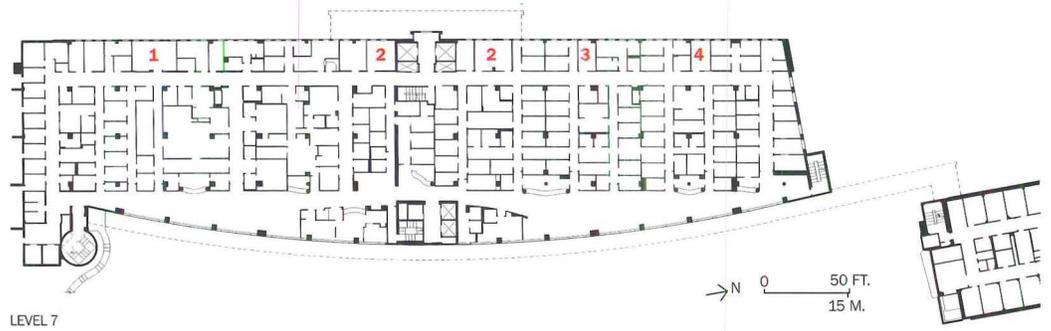
The curved east facade (left) offers views to the mountains, while only the circular lobby (plan below) is at entry level. The hospital connects existing buildings on the OHSU campus, spanning a steep ravine (bottom).



MAIN ENTRY (LEVEL 3)

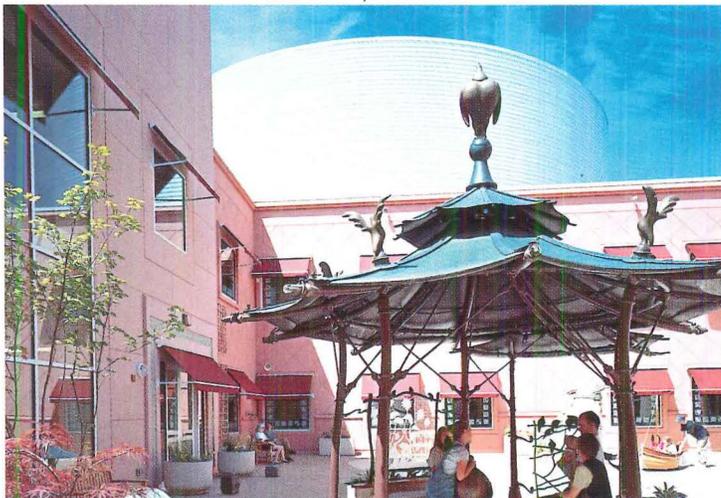


1. Speech/audiology therapy
2. Radiology
3. Specialty clinics
4. Psychiatry
5. Sterile processing
6. Quiet courtyard
7. Surgery unit
8. Play courtyard
9. Staff courtyard



Windows of the patient rooms on the west facade (left) have decorative etchings around their perimeters. The top floors of the building enclose three courtyards, each designed for a different kind of activity; these include the play yard (below left) and the staff yard (opposite).

thing about Doernbecher is its quiet, unimposing atmosphere. A casual observer might mistake it for a day-care center. From the space planning to the artwork, the building has been designed to make children and their families feel comfortable. ZGF design partner Robert Frasca, FAIA, notes: "Children's hospitals used to be designed by doctors, whose idea of efficiency was to keep parents out of the way. Now we know that children who don't feel abandoned heal faster." Adds Anshen + Allen's Harker, "Some may think you need less space because the patients are small, but the reality is you need more."

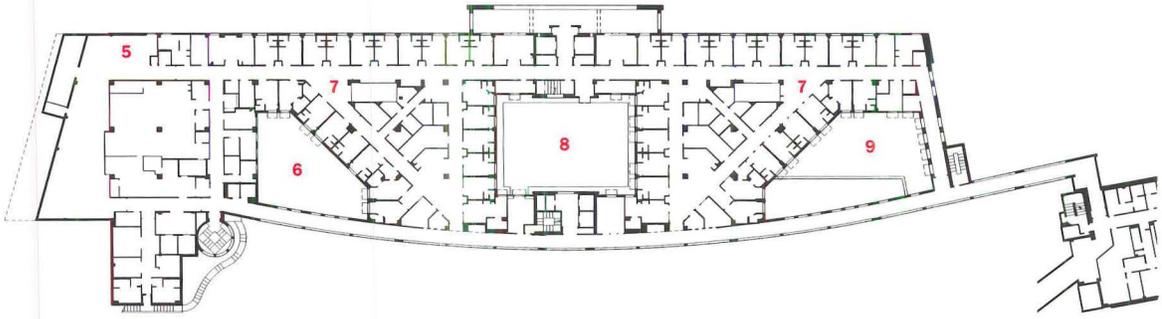


brick buildings on the OHSU campus, the architects chose metal cladding for easy assembly and maintenance. The long-span steel structure that forms the bottom of the bridge also served as the principal staging area for construction because the road directly below had to remain open to traffic. [For the full story on building challenges on this difficult site, see RECORD, May 1998, page 239.]

Designed for families

Apart from the unusual physical configuration, the most striking

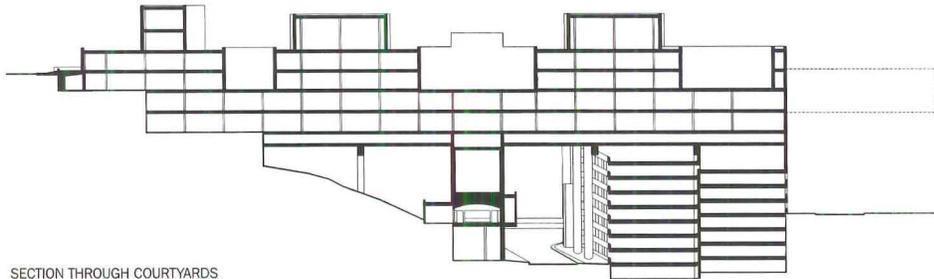
Spatial accommodation for families is visible everywhere at Doernbecher. Parents have their own beds and showers in patient rooms, kitchens and laundries make their extended stays more comfortable, and visiting siblings have play areas. A medical library, a classroom staffed by public-school teachers, a game room for teenagers, and numerous small lounges, all with tasteful yet upbeat



LEVEL 9



The hospital bridges a ravine, sitting above a parking structure (lower right in section) and connecting to medical buildings to the north. Three east-facing courtyards offer outdoor spaces on the building's ninth level (section left).



SECTION THROUGH COURTYARDS



furnishings, contribute to the non-institutional atmosphere. Low window sills afford outside views to even the youngest patients.

To bring daylight inside the building and provide easily accessible outdoor spaces, the upper patient floors are organized around three landscaped courtyards: One for children's play, one for the hospital staff, and the third for patient families. A meditation room on the

10th floor has sculpture and colored glass animated by daylight and serves as a quiet retreat.

Where the animals are

Throughout the hospital, art with nature as a theme is on display. Teams of artists were commissioned to work on spaces such as lobbies, waiting areas, and courtyards. The work ranges from bronze animal sculptures that children can

safely climb on, to plants and animals etched on exterior windows and stenciled on exam-room walls, to ceiling murals in elevator lobbies on stretchers. "We wanted all our art to be whimsical but respectful," says hospital administrator Suzanne Banz. "That's why, instead of the usual Disney characters, we have work by local artists that doesn't patronize the patients or

their parents," explains Banz.

Deference to families is becoming more common in children's hospitals, but Doernbecher may have stretched the frontier in accommodating parents even in intensive-care units. Although some doctors are wary of bringing family members into critical-care areas and some parents choose not to use the opportunity, each ICU bed has a parent bed nearby.

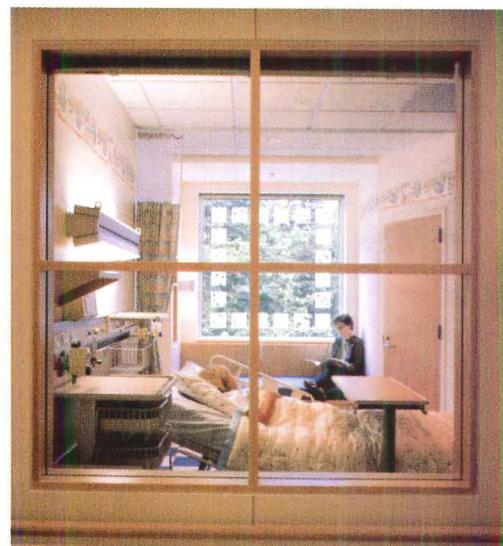
Innovative layout

The architects made this arrangement work by moving the utilities (medical gases, power connections, and so on) from their traditional location on the intensive-care-unit wall to a ceiling-served column near the center of the space. The layout leaves room for an alcove with a parent bed along the wall and also improves the nurses' ability to respond quickly to crises because the patient's head is accessible from all sides. Moreover, the utility column has room enough to accommodate future changes in medical technology.

The 260,000-square-foot, white, metal-clad building had every opportunity to show an intimidating face to its young visitors. But through child-oriented detailing, it instills a friendly confidence instead, while accommodating serious medical technology in a compassionate environment. ■



Plenty of daylight and curving forms help soften the institutional aspects of the hospital, such as a nurses' station (left) and a long corridor (opposite). Windows with mullions add a residential touch to a patient's room (below). A lobby (below left) and a reception area (bottom right) are filled with play sculptures by local artists.



Celebration Health Celebration, Florida

ATTRACTING THE HEALTHY AS WELL AS TREATING THE SICK, A FLORIDA HOSPITAL TAKES ITS PLACE AT THE CENTER OF THE COMMUNITY.

by Beth Dunlop

Project: Celebration Health
Celebration, Florida

Architects: Robert A.M. Stern
Architects—Paul Whalen, AIA, partner; Michael Jones, project associate; Ferenc Annus, Marina Annus, John Saunders, Michael Wilbur, Jennifer Wlock, assistants; Christopher Powell, interiors assistant; Brian Sawyer, landscape associate

NBBJ—Peter Bardwell, AIA, principal-in-charge; Timothy Fishking, AIA, project manager; Jack Cleary, Peggy Reed, Jonathan Wilch, project architects; Ron Clensy, senior medical planner; Mary Ziga, senior interior designer; Jill Brengman, Scott Campbell, Pete D'Amico, Jeanette Dean, Russ Fredette, Ryan Hullinger, Dave Mancino, Chandra Risher, Nikolina Sevis, Kurt Smith, project team

Engineers: Dyer, Riddle, Mills & Precourt (civil); Newcomb & Boyd (mechanical/electrical); Peller and Associates (structural)

Landscape architect: EDAA

General contractor: Brasfield & Gorrie

Sources

EIFS: Senergy

Aluminum windows: Moduline

Glazing: Viracon

Resilient flooring: Armstrong

Contributing editor Beth Dunlop is the author of *A House for My Mother: Architects Build for their Families*.

The name Celebration Health has the sound of wellness not illness, and that is intentional. Though this full-fledged hospital includes the standard emergency room, acute-care department, surgery unit, and maternity ward, it also serves as a model for forward-looking health centers that go beyond the traditional array of medical services.

Located at the entry to the Walt Disney Company's new town of Celebration near Orlando, Fla., the hospital's 265,000-square-foot first phase assumes an integral role in the community. The concept of a civic institution serving both the healthy and the sick is "amazing" says Robert A.M. Stern, FAIA, whose New York City firm designed the hospital in conjunction with NBBJ's Columbus, Ohio, office. "There isn't even a word for it in our lexicon yet."

The design began with the idea that a hospital must go beyond the old notions of prevention—check-ups and diagnostics, sometimes called *well-patient care*—and become a part of residents' daily lives, offering opportunities for physical and nutritional fitness and more. So this "hospital" has a full-scale health club with a swimming pool and a basketball court. It also has a cafeteria offering healthy meals and occasional cooking demonstrations and nutrition lectures.

Celebration Health is a collaboration between the Walt Disney

Company and Florida Hospital, the state's largest private hospital. As a Seventh-Day Adventist institution, Florida Hospital was already known for its holistic outlook and progressive approach to health care and, thus, was a good fit with Celebration, which itself stands as a model of New Urbanist planning and community building. Though the hospital's plan and architecture incorporate traditional prototypes, its institutional facilities aim to offer examples of new ways of teaching and healing.

The hospital and adjacent office park sit apart from the residential portion of Celebration, separated by an access road to the town, but there's a strong visual connection between the hospital

and the town. Hospital patients (who, in the tradition of both Florida Hospital and Disney, are called "guests") and employees can look out across Celebration's golf course into the town, and residents can see the hospital—or at least its tower—in the distance across the greens.

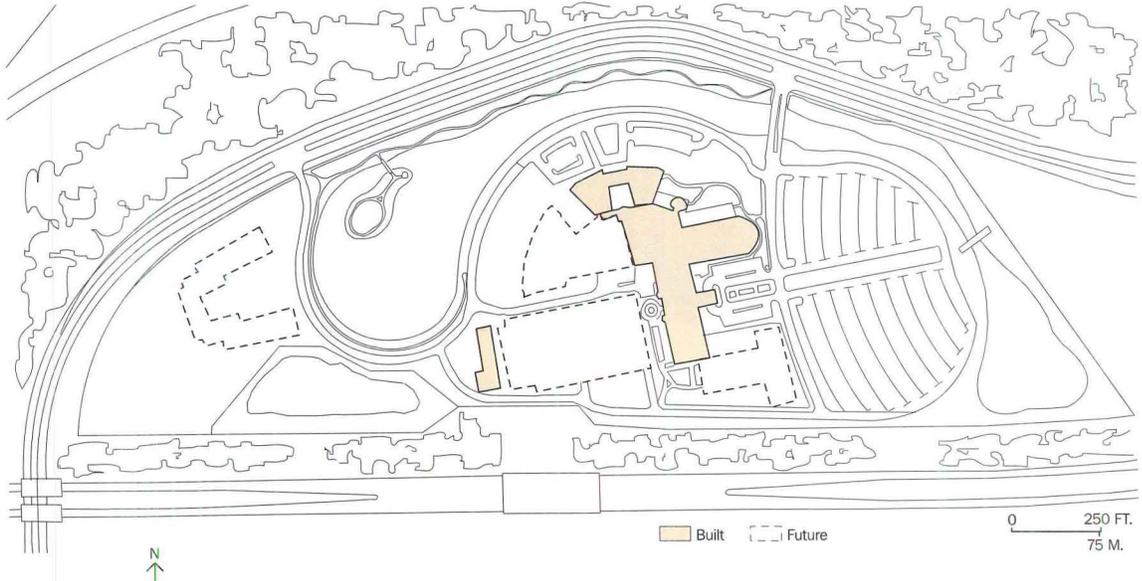
A civic presence

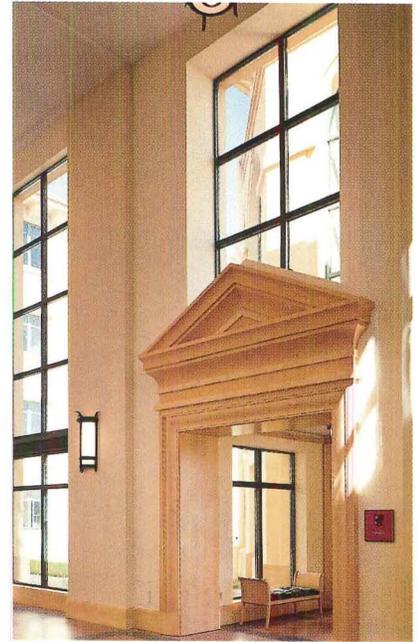
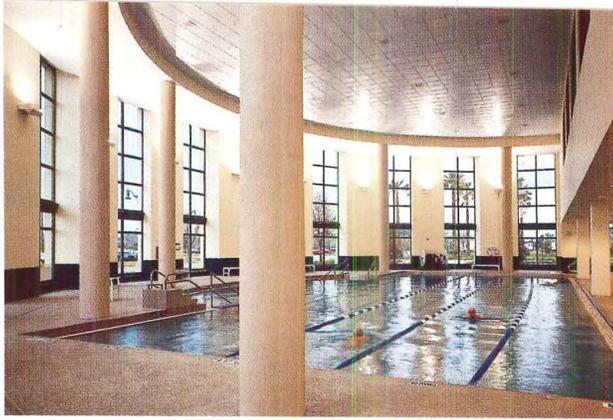
The building's architecture tries to establish the hospital as a symbolic presence in the community. "We wanted it to have certain civic properties," says project architect Paul Whalen, AIA. "The Mediterranean style we used is the traditional architecture for civic buildings and campuses in Florida."

With three distinct components—the hospital, medical

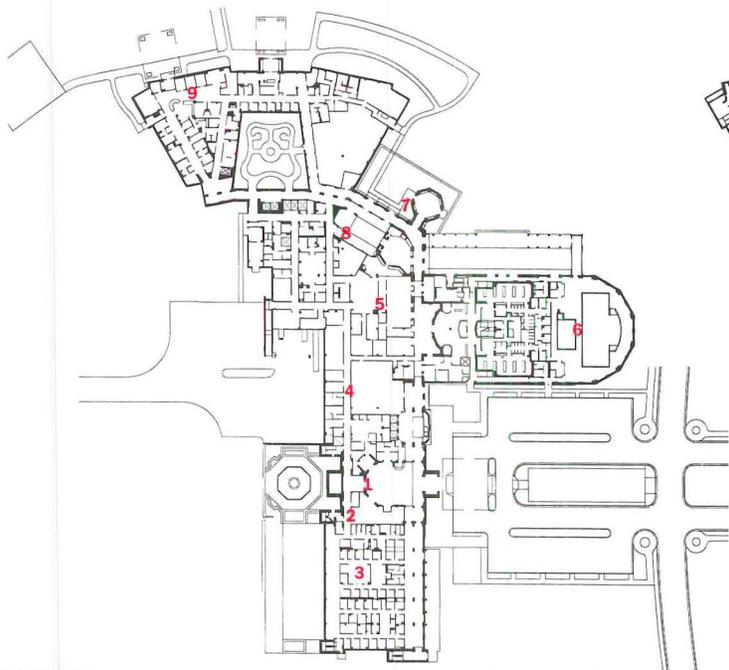


The first phase of the hospital (below) sits on a 60-acre site and establishes a civic presence for the project. Future phases will provide additional outpatient and inpatient services (site plan, right). An arched portico serves as a grand entrance to the hospital (opposite).

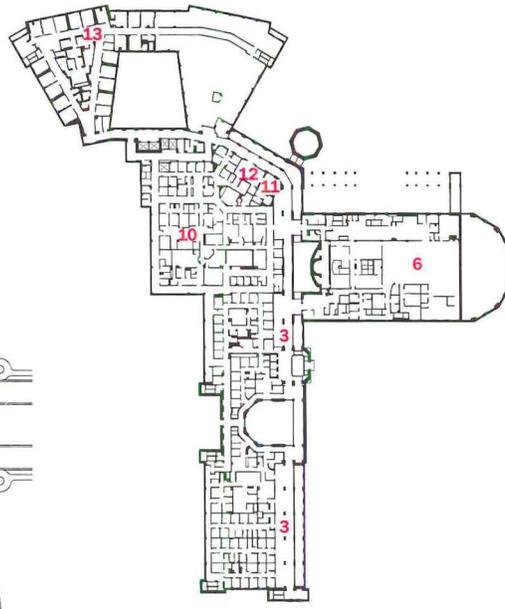




Public spaces such as the central rotunda (top left), the main stair (left), the multi-story corridors (opposite left), and the fitness center (top right) have a sense of grandeur often lacking in hospitals. The corridor leading to the chapel (above) and patient rooms (opposite right) are more intimately scaled.



GROUND FLOOR



SECOND FLOOR

1. Rotunda
2. Pharmacy
3. Medical offices
4. Administration
5. Education center
6. Fitness center
7. Chapel
8. Food services
9. Emergency department
10. Imaging center
11. Library
12. Women's center
13. Acute care



offices, and health club—to integrate into one complex, the architects used a campus approach for the project's plan. Each component has its own wing and its own architectural form. Linking everything together, an octagonal, light-infused rotunda acts as both the main entrance and lobby.

The rotunda was conceived as

a little town square circled with shops. Although only one store ultimately moved into the area, there are offices, an information desk, and a nine-screen video installation on one wall.

The hospital component of Celebration Health is U-shaped in plan so that it wraps around a courtyard garden. Patient rooms, all



single occupancy, have views either into the courtyard or out onto the hospital grounds. They also have windows (with blinds to close) into the corridor, a solution intended to reduce the isolation that patients often feel during hospital stays.

An indoor street with views

Hallways leading from the central rotunda to the rest of the health complex are double- and triple-height spaces, like gallerias, and run along the periphery of the building to bring daylight inside and make strong connections with the outdoors. In the medical-office wing, the wide corridor provides enough space for loungelike waiting areas that look onto landscaped gardens. "The idea," said Whalen, "was to create a continuous street and let the various parts work like buildings along it."

In plan the three-story health center resembles a basilica, with an apsidal end and a series of five gables rising above the long facade. The swimming pool sits behind double-height windows in the apse, and at night, lighted, the building emerges as a large lantern.

Down to the last detail,

the design of Celebration Health intends to, as Stern said, "have a positive psychological quality, one that relies on both the environmental and artistic aspects of design." Stern's firm designed upholstery fabrics in a Matisse-like pattern that uses recognizable symbols of the Creation—land, water, sky, plants, animals, birds; the design is used in carpets, as well. Signage and directional graphics from graphics design firm Pentagram rely on similar kinds of motifs, using, for example, a dolphin for the fitness center and a pineapple (the symbol of hospitality) for the inpatient wing.

Explaining the project's goal, Stern says, "the building tries to express human values, community values. The tower identifies it in the landscape, and the design helps people link it with the idea of wellness in their community." ■

New York Psychiatric Institute, New York City

WITH PUBLIC INPUT AND LOTS OF GLASS, THIS BUILDING LETS THE LIGHT SHINE ON CONTEMPORARY MENTAL HEALTH CARE.

by Clifford A. Pearson

Project: *New York Psychiatric Institute, New York City*

Architect: *Ellerbe Becket—Peter Pran, AIA, design principal; Michael D. Jones, AIA, team leader; Jill Lerner, AIA, project director; Timothy Johnson, AIA, design director; Dan Jacoby, project designer; Laura Ettelman, AIA, project manager; Dave Rova, Jimmy Chin, project architects, Al Zgolinsky, Stuart Math, construction administrators; Gabriela Fitzpatrick, Maria Wilthew, job captains*

Engineers: *STV/Seelye Stevenson Value and Knecht (structural and mechanical/electrical/plumbing)*

Consultants: *GPR Planners Collaborative (laboratories); McKissack and McKissack (health-care planning); Ethan C. Eldon Associates (environmental)*

Construction manager: *HRH Construction*

Sources

Low-E glazing: *LOF*

Anodized aluminum panels: *IDA*

Precast concrete panels: *ARTEX*

Resilient flooring: *Armstrong*

Laboratory millwork: *Blickman*

Just as mental health care today has emerged from the shadows of shame and denial, the New York Psychiatric Institute's (NYPI) new building near the northern tip of Manhattan proudly offers a modern face for treatment and research. While psychiatric hospitals were once hidden within larger medical complexes or placed in buildings resembling fortresses, NYPI's new 312,000-square-foot home cuts a graceful profile on a prominent site looking onto the George Washington Bridge and the Hudson River.

"It's at the gateway to Manhattan and the client wanted a building that would position it for the 21st century," says Peter Pran, AIA, who designed the building along with Jill Lerner, AIA, and Tim Johnson, AIA, when they were all at Ellerbe Becket. (They now work for other firms.)

Located across Riverside Drive from the institute's previous building, the new site caused much controversy when the project was announced in 1992. Because the site was park land, many people opposed any construction there, while others wanted to preserve views to the river from the higher land just to

the east. But squeezed between the heavily trafficked Henry Hudson Parkway and Riverside Drive, the site was anything but bucolic; in fact, it was notorious in the neighborhood for drug deals and was sometimes called "Dead Dog Park."

Public input improves design

An arduous approval process ensued, during which the design evolved and public sentiment made a 180-degree turn from general opposition to overwhelming support. "I went to 52 community group meetings," remembers Lerner. Thanks to the acquisition of an adjacent parcel of land to the south

and public criticism of a three-story wing bridging Riverside Drive, the architects were able to stretch out the building from north to south and turn the overhead wing into two slender pedestrian bridges connecting the new facility to Columbia-Presbyterian Hospital and an NYPI laboratory building. "Community involvement made the building better," states Johnson.

Because the institute includes both research labs and clinical treatment programs, the facility acts almost like two buildings with a 100-foot-tall sloping glass atrium in between. The building's east side (facing the city) expresses the institute's major functions with different



A curving glass elevation faces the Hudson River and parkway (right). To the east, the institute is connected by bridges over Riverside Drive to Columbia-Presbyterian Hospital and an existing NYPI lab building (opposite).



materials: Precast concrete panels for inpatient rooms, glass curtainwall for activity areas, and aluminum panels for support spaces.

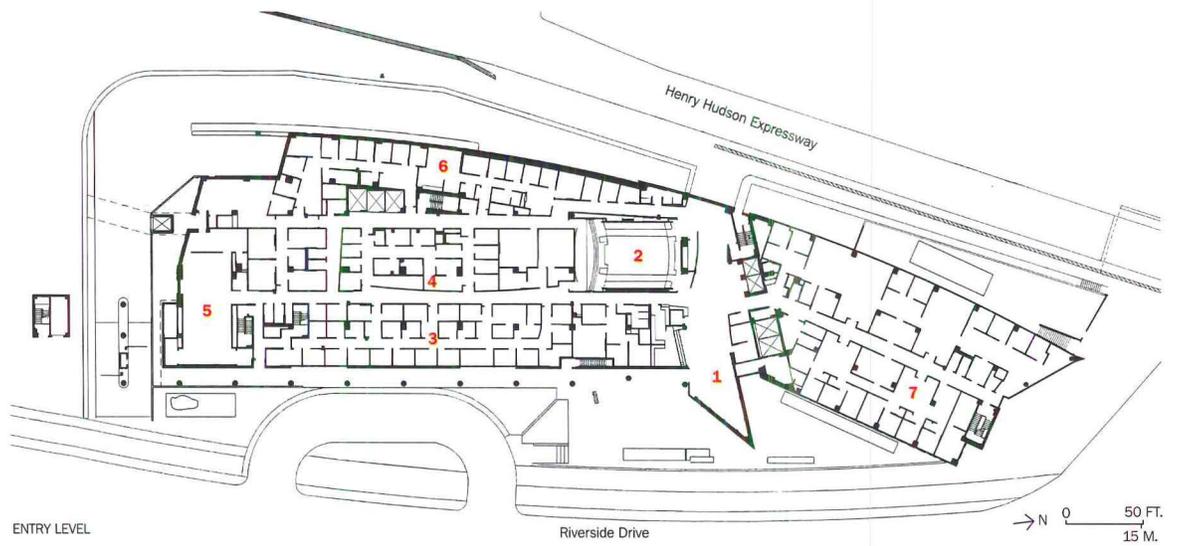
On the west, though, the building presents a more unified, curving glass face—a gesture to the traffic moving along the parkway. Laminated low-E glass and opacifying white spandrel glass reduce the impact of the sun and the sound of cars on the building's interiors.

Access to the building is from three different levels with a driveway and main entrance off Riverside Drive, parking for 100 cars one level belowgrade, and the two pedestrian bridges connecting with the institute at the sixth floor. Indeed, an important function of the atrium—in addition to serving as a grand orienting space—is to resolve these changes in levels.

Inpatient, outpatient, and labs

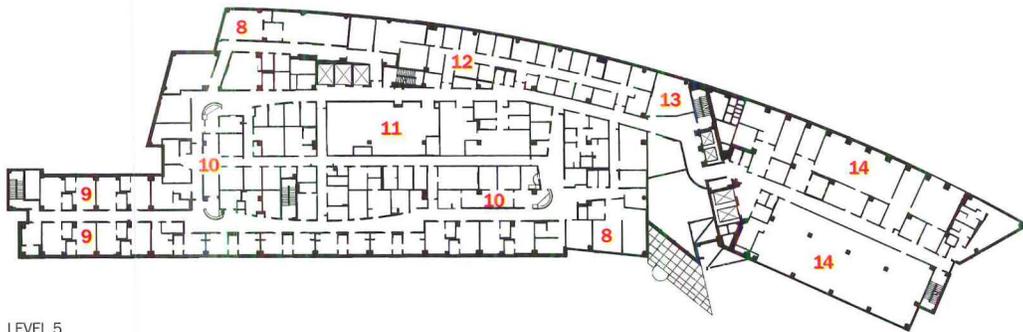
Programmatically, the building is rich, providing space for classrooms for children being treated at the institute, a small gymnasium, an auditorium, various clinics (for treating problems such as depression, anxiety disorders, substance abuse, and eating disorders), offices for faculty members and institute administration, 58 beds for inpatient treatment, and research labs. In general, public spaces such as classrooms, conference rooms, and a cafeteria cluster around the





The 100-foot-tall atrium (opposite) connects the research laboratories (above) in the north part of the building (right in photo left) to clinical and treatment components in the south wing (left in photo left). A conference room overlooks the atrium (top).

1. Lobby atrium
2. Auditorium
3. Education
4. Clinic
5. Gymnasium
6. Faculty offices
7. Business offices
8. Patient day space
9. Patient bedroom
10. Nursing station
11. Nursing support
12. Office
13. Classroom
14. Research labs



LEVEL 5

atrium. Labs reside in the northern portion of the building and clinical areas are in the southern wing.

While the atrium is a steel-and-glass structure, the rest of the building has a concrete frame with floor-to-floor heights of just 13 feet, 4 inches. Keeping six floors of building under 85 feet high allowed the architects to preserve views from the neighborhood east of Riverside Drive. Another strategy used to keep the neighbors happy was to gather laboratory vents into one common exhaust element rather than have them pop up all over the building.

Architecture's impact

According to John Oldham, the director of NYPI and the driving force behind the project, the \$83 million building has had a powerful impact on the institute. For example, the number of patients who needed to be restrained has dropped dramatically because they have felt less stress in the bright, open spaces, says Oldham.

The architecture has also sent an important message to people in the mental health profession, helping NYPI recruit and keep the best researchers and employees. In addition, research grants to the institute have gone up with the building. "Grants are dependent on who's here, which is dependent on what's here," explains Oldham. ■



The CORE Center Chicago, Illinois

A PIONEERING HIV AND AIDS CENTER ADDRESSES CHANGING PHYSICAL AND EMOTIONAL NEEDS FACING PATIENTS COPING WITH THE DISEASE.

by Cheryl Kent

Project: *The CORE Center, Chicago, Illinois*

Architect of record: *Perkins & Will—Ralph Johnson, FAIA, design principal; Jocelyn Frederick, AIA, managing principal; Jerry Johnson, AIA, senior designer; Kurt Smith, Amy Yurko, project team*

Associate architect: *Wendell Campbell Architects*

Engineers: *Primera Engineers (electrical); Terra Engineering (civil)*

Landscape designer: *Shen & Associates*

General contractor: *Power Construction Company*

Sources

Curtainwall and aluminum windows: *Tube Lite*

Glazing: *HGP Industries*

Resilient flooring: *Mannington*

Reception furniture: *David Edward*

Office furniture: *Knoll*

Chairs: *Steelcase*

Interior ambient lighting: *Monarch*

Downlights: *Lithonia*

There were no models from which to work when Perkins & Will got the job in 1994 to design a freestanding outpatient clinic for people with HIV and AIDS. Completed last summer, the CORE Center—as the building is called—may not represent an altogether new building type but a new subspecies.

Set between the massive Cook County and Rush-Presbyterian-St. Luke's health-care campus and an adjoining residential area on Chicago's southwest side, the four-story, 60,000-square-foot CORE Center strikes a balance between institutional and domestic scales.

One-stop care

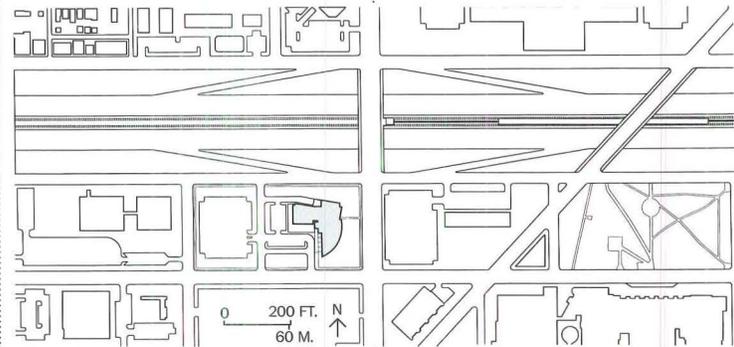
Before the CORE Center was built, there were HIV/AIDS clinics at Cook County and Rush-Presbyterian-St. Luke's hospitals, each having roughly 2,000 square feet. The spaces were overcrowded and patients were forced to shuttle to different buildings to get all the services they required. Today, the new center provides the services the patients need in one place, including pharmacy, screening, dental care, diagnostic testing, pediatrics, mental-health counseling, and chemical dependency treatment. Research

and clinical trials are also conducted at the center, making the newest experimental treatments available to patients.

Perkins & Will and Wendell Campbell Architects, the Chicago-based firms involved in the project, expressed the center's various functions with different architectural elements. For example, an upward angling roofline animates the central atrium and the top-floor infusion rooms, while a one-story curving form pulls away from the rest of the structure to

house the screening clinic, the first stop for most clients.

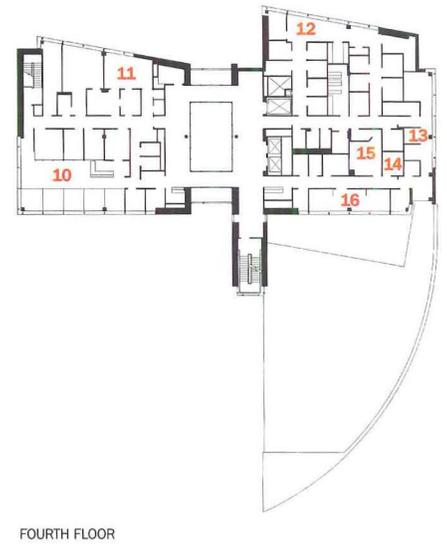
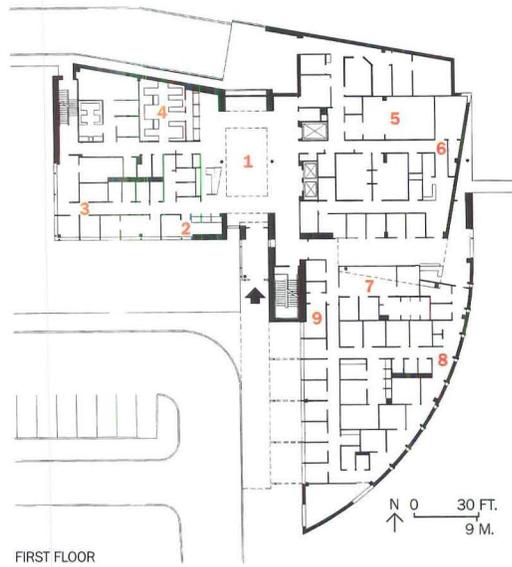
The building's design evolved in response to comments from various groups—financial contributors and board members, patients, and selected staff. An early scheme featuring a two-story glass-topped circulation spine flanked by examination rooms on one side and support services and public spaces on the other, met the clients' request for a bright environment but was criticized for having walking distances deemed too long for patients

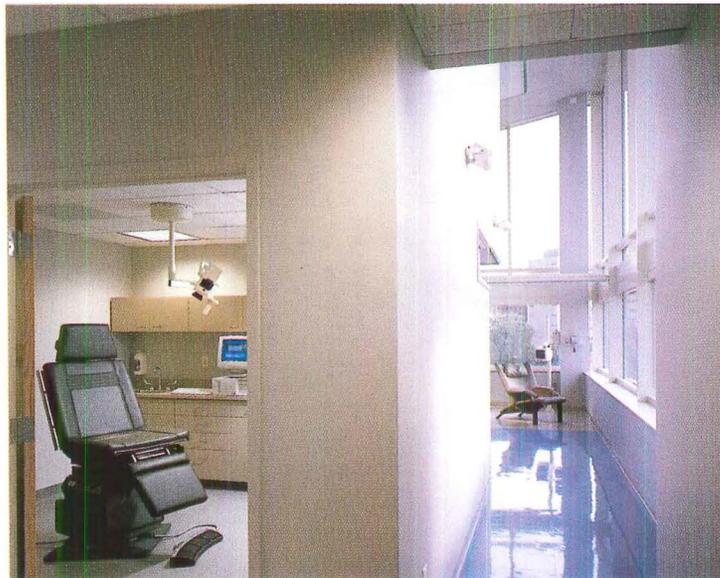
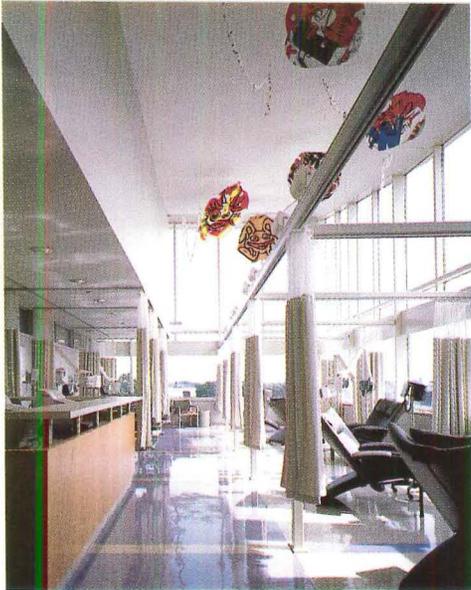


The HIV-screening clinic is housed in a one-story wing (right in photos), while treatment for people with the AIDS virus is in the taller structure.

Cheryl Kent writes about architecture and design from Chicago.

1. Lobby
2. Registration
3. Volunteers
4. Pharmacy
5. Medical records
6. Chemical dependency
7. Library
8. Screening clinic
9. Counseling
10. Infusion therapy
11. Procedure room
12. Mental health
13. Dental
14. Ophthalmology
15. Imaging
16. Lab





Patients receive infusion therapy, which often lasts several hours, in a soaring room with great views (far left). Daylight helps enliven a four-floor corridor (left). A central atrium (below) brings sunlight into the interior of the building and helps orient patients as they move through the complex.

weakened by AIDS. Eventually, the linear design was folded onto itself to form an atrium plan, retaining the advantage of plentiful daylight while shortening distances.

Early detection of HIV is an

important mission of the CORE Center. Because many people fear being tested for the disease, the architects gave the HIV-screening clinic an identity separate from the treatment portions of the facility.

The result is a wedge-shaped, one-story structure that seems to stand by itself. Originally, the screening clinic was to have had a separate entrance to reinforce its status as an independent component of the center, but security concerns led to a design with a single point of entry.

The best views for the sickest

The architects organized the main building into several zones to provide specialized services and to respect the feelings of patients as much as possible. For example, the most intensive treatments, including intravenous infusions and minor surgeries, are performed on the top floor. Secluding these patients—who are very ill or in the final stages of AIDS—shields those who are less ill from a depressing vision of the ultimate course of this physically ravaging disease. At the same time, the plan gives those who are sickest the most pleasant place in the building. Infusion treatments, which can take as long as four hours to administer, are given in a double-height room—divided into cubicles by curtains—with views of the sky through clerestory windows.

Reflecting today's health-care climate, which discourages hospitalization, the CORE Center provides only outpatient care and has no space for overnight stays. But the 120-square-foot examination rooms

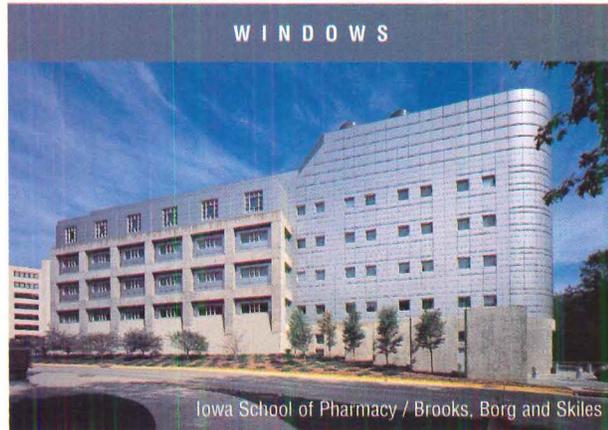
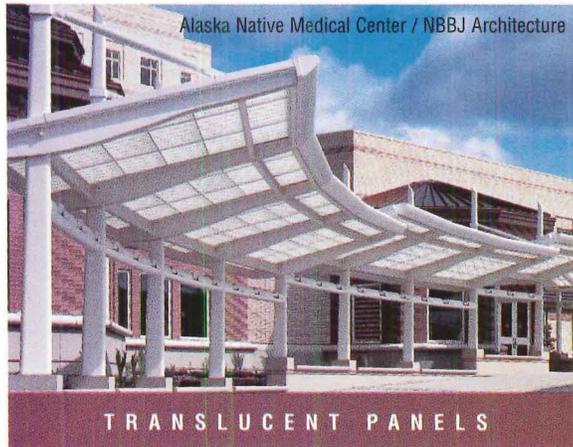
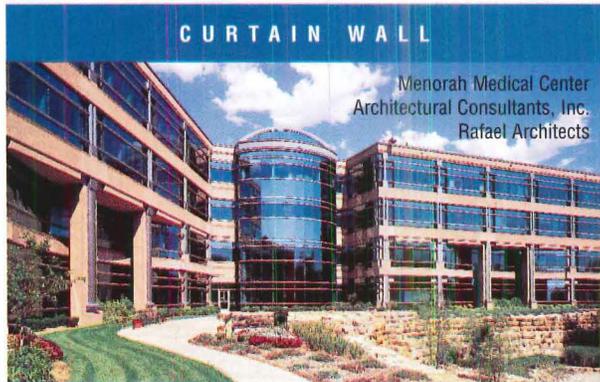
are about 25 percent larger than those at a typical physician's office so they can accommodate both patients' families and—since the center is a teaching facility—physicians in training.

Because the CORE Center is a specialized facility, the architects could tailor many of its elements to the community of patients being served. For example, daylight is an important element throughout the project, helping to compensate for loss of vision experienced by patients whose sight has been impaired by AIDS. For the same reason, each floor was given a designated color, helping people identify their location and find their way. To serve female patients with children, the center provides a playroom on the third floor. Also, air is not recirculated but vented out of the building owing to the susceptibility of AIDS patients to infectious diseases, such as tuberculosis, which is prevalent among them.

While there are at least two other clinics dedicated to treating HIV infection and AIDS elsewhere in the country, they reside in buildings renovated—as opposed to designed and constructed—for the purpose. As the first facility to be designed expressly for treating people with this illness, the CORE Center points to a future when specialized care will occupy a larger place in the health-care landscape. ■



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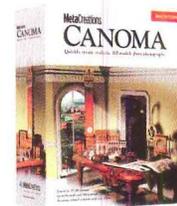
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CIRCLE 48 ON INQUIRY CARD

Timber Trusses for Big Spans

FROM RUSTIC TO MODERN, THESE HEAVY-DUTY, FIRE-RESISTANT TRUSSES ARE OFTEN MADE OF ENGINEERED, SOLID-SAWN, OR RECYCLED LUMBER PAIRED WITH STEEL TIES OR WEBBING.

by Eliot W. Goldstein, AIA

Trusses made of heavy timber or hybrids of timber and steel can be remarkably efficient assemblies for spans ranging from 25 to more than 200 feet. In houses, restaurants, churches, museums, and commercial structures, timber trusses offer advantages over other types of trusses or conventional framing. As illustrated by the many aging covered bridges standing today, timbers can withstand weathering if sheltered from precipitation or treated with preservatives. Heavy timbers can have a fire resistance of up to an hour—better than steel trusses, which lose their strength in high temperatures. Timber trusses may be part of a timber-framed building, or they may be married to conventional framing. Either way, they visually convey warmth, solidity, and durability.

The timber components of a truss may come from logs of virtually any species, though Douglas fir is often favored. Unseasoned wood will shrink and twist as it dries, pulling the attached parts of the frame along for the ride. “Even with seasoned wood, the structure must be detailed to handle movement—by building in tolerances and even slip joints,” says Ben Brungraber, an engineer with Benson Woodworking Company, truss fabricators, erectors, and timber framers in Alstead Center, N.H. “A relaxed attitude in the client is also helpful. If they ask for solid wood, they should appreciate its propensities,” including some twisting and checking, he says.

The trusses at the New Public Library in Montville, N.J., are unique in that each is three dimensional. A custom connector joins the 10 members, which converge at the midspan of the bottom chord. Each truss, made of three-by-seven glulams, spans 30 feet. The library was design by The Goldstein Partnership, West Orange, N.J.



Glulams, commonly made from select two-by boards of Southern yellow pine or Douglas fir, also qualify as timber. For their size, glulams are stronger than solid lumber because of the arrangement of the wood: The best-quality laminations are reserved for the top and bottom of a member, where most of the stress is applied. Parallel strand lumber (PSL), which consists of slender veneer strips that, pressed together, form a sort of loaf of wood, is also used. Like glulams, PSL is less wasteful and destructive to the environment than solid timber since the low-grade raw materials yield a homogeneous end product. Both types of engineered lumber are stronger and more dimensionally stable than sawn timbers of equivalent size and, as a result, are less likely to twist or check. They are also more expensive, and their availability varies by region.

Recycled timber of virtually any species often comes from dismantled industrial buildings. These timbers start out less expensive than solid or engineered varieties, “but by the time they are detailed, debugged, planed, patched, cleaned, and cut to size, they wind up costing a lot more,” Brungraber says. Recycled wood, however, is dimensionally stable and has a priceless patina. “It also doesn’t require cutting down a new tree and adds ‘karma’ to the space,” he adds.

Though timber trusses tend to appear solid and heavy, they can take on a more delicate look when steel cables or rods are substituted for tension members. The tensile strength of steel is much greater than that of timber. Steel components can simplify the connections in a truss and reduce its actual and visual heft. While adding steel creates a pleasing mix of materials, it adversely affects the fire resistance of the truss. Also,

Eliot W. Goldstein, AIA, is the author of Timber Construction for Architects and Builders. His company, The Goldstein Partnership, is in West Orange, N.J.

CONTINUING EDUCATION



Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA Continuing Education article. To receive credit, turn to page 152 and follow the instructions

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe the characteristics of timber trusses.
2. Explain the differences between solid timber, glulam, parallel strand lumber, and steel hybrid trusses.
3. Explain how trusses operate differently than beams.
4. Describe how timber trusses effect the aesthetics of a space.
5. Understand timber truss connections and how they control the design of the truss.



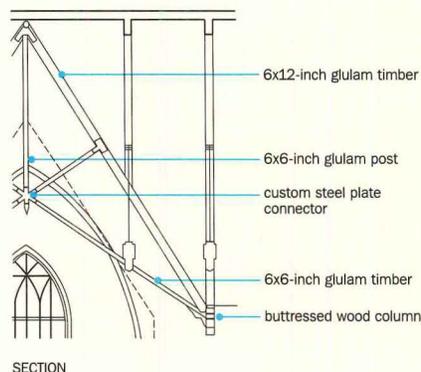
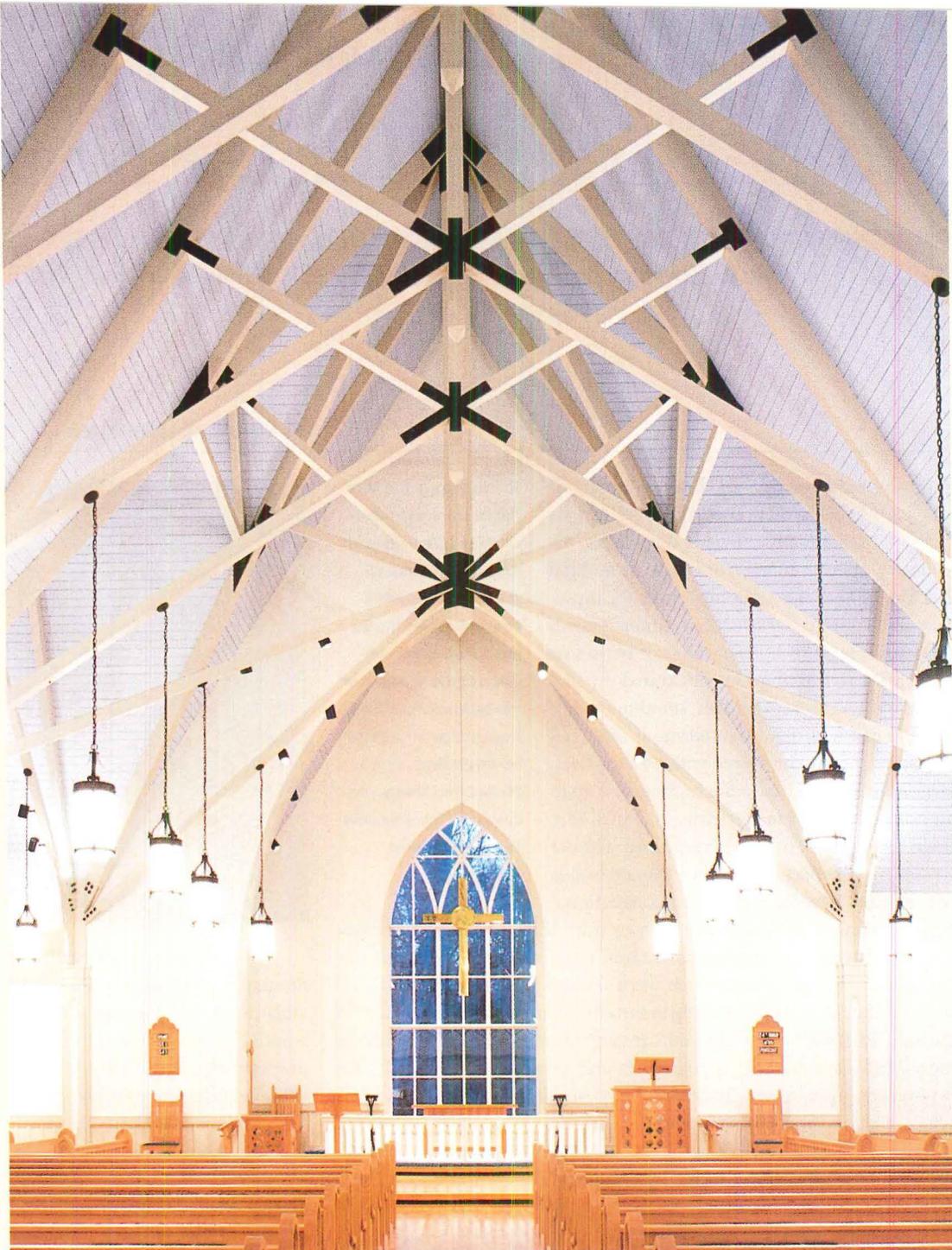
CASE STUDY

Timber has a long and distinguished history in framing the roofs of religious buildings, such as the structure between the inner and outer domes of St. Paul's Cathedral in London. In the 19th century, American carpenters began applying Gothic motifs to exposed-wood framing, giving rise to the Carpenter Gothic style.

At St. Mary's Church in Richmond, Va., Heimsath Architects of Austin, Tex., reinterpreted that style, used in the existing church, for a sanctuary addition. The trusses in the new sanctuary, which are made of Southern pine glulams, are wider and taller than those in the main church. Still, the new room is clearly reminiscent of the old.

The sloping bottom chords of the simple scissor trusses, which span a distance of almost 44 feet and are spaced about 8 feet on center, draw the eye upward. This geometry is structurally appropriate: The roof is so steep (with a pitch of 19 in 12) and the trusses so deep that the slope enables the trusses to be lightweight, despite their considerable span. They were, however, too large to ship, so they had to be assembled on-site. Temporary bracing was required between the trusses until the top chords were stabilized by the roof decking.

Each column is laterally braced by a stepped shear wall that is expressed as a buttress on the outside of the building. Although the sizes of the timbers and the thickness of the deck are great enough



to classify this building as heavy-timber construction, the 7,000-square-foot structure is small enough to permit conventional un-sprinklered wood-frame construction.

The trusses provide the framework for the lighting scheme: Custom Gothic-style pendants hang from trusses. Decorative brackets ease the visual transition from the tops of the columns to the trusses, and the bottoms of the kingposts are pointed. The result is a quiet and inspirational interior, perfectly suited to spiritual contemplation.

The trusses are an integral part of the church lighting scheme (left). The architects selected glulam timbers because of their strength. As a result, the ceiling is delicate, almost wiblike (above).

bers at each connection. Tongue-and-groove sawn-timber decking spans the distance between trusses. Decorative brackets ease the visual transition from the tops of the columns to the trusses, and the bottoms of the kingposts are pointed. The result is a quiet and inspirational interior, perfectly suited to spiritual contemplation.

At Sharon's California House II in Manhattan Beach, Calif.,

designed by Chicago-based Holabird & Root, the top chords of the trusses are arched three-by-eight-inch mahogany timbers. Although this spanning device is not exactly a truss, it behaves like one. The timber arches bear fully on steel plates perpendicular to their cut ends.

While the overall span of the trusses is 17 feet, the tie is only about two-thirds that length. The untied portion at each end of the frame consists of a sculptural steel-plate connector, bolted between the pair of steel channels that compose each column. The trusses are spaced three feet, four inches on center.

The curved top chord is made up of two pieces, joined by a steel-plate midspan connector. A welded assembly of steel plates below it is triangulated to resist the compression induced by the shallow vee of the bottom chord. The lower ends of this assembly are welded to a short,

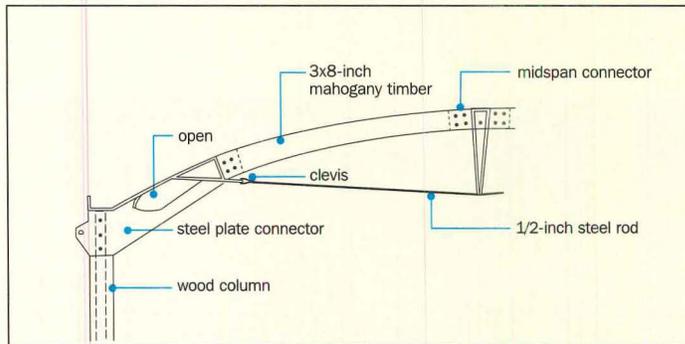
slender length of pipe, which provides an ideal bearing surface for the bottom chord.

The architects selected a 1/2-inch steel rod for the bottom chord, which provides strength without making the trusses appear clunky. The ends of rod are screwed into clevises—horseshoe-shaped iron pieces that allow the length of each bottom chord to be fine tuned.

To keep the arches from shifting, each pair is bolted through a steel plate projecting from the adjacent connector. The bolts and their associated nuts and washers stand out from the timber arches to which they are fastened.

The timbers are finished with a clear sealer, while the steel connectors are painted. The hollow boxlike design of these connectors transforms the joints into dramatic and unanticipated voids. Daylight streaming in through the clerestories between the trusses accentuates their rhythm and form.

Though not fully triangulated, curved trusses (right) perform like standard trusses: All the members act in concert to support the roof. The custom steel-plate connectors (below) are almost sculptural.



because steel expands and contracts with temperature changes, architects must look carefully at the connections to wood members. This is especially important when a hybrid truss is part of a building's exterior.

Truss technology

A truss is a framework of linear elements, triangulated for stability. The strength of this assembly is a function of its geometry, connections, and members. Architects know that a triangle will hold its shape under load. The superstructure's appearance should be a function of both the framework—the trusses plus their lateral bracing—and the degree to which it is exposed to view. Once the members are sized to accommodate the various live and dead loads, the aesthetics are up to the architect.

To understand how a truss behaves, one must comprehend the stresses it undergoes. The structural behavior of each member in a timber truss differs from that of a solid-timber beam or girder. A downward load

along the length of a beam will cause it to bend. But such a load on a truss generates tension or compression that is shared by each of its members in concert. For that reason, timber trusses are structurally much more efficient than timber beams.

Even if a specific truss member acts as a column or collar tie, the overall truss still functions as a unit. So a truss can be lighter than a beam for a given span and load. In addition, the rate at which member weight rises with increasing span is generally lower with a truss than with a beam. For short spans and light loads, however, the expenses of engineering and fabricating timber trusses make them too costly to compete with beams.

Truss fasteners and connectors are usually steel—galvanized if intended for exterior applications. Holes, grooves, and recesses, ranging from 1/2 inch to one inch or more in diameter, are required for some types of fasteners. These voids reduce the structural capacity of the member. Unfortunately, the fasteners with the greatest structural capacity—bolts,

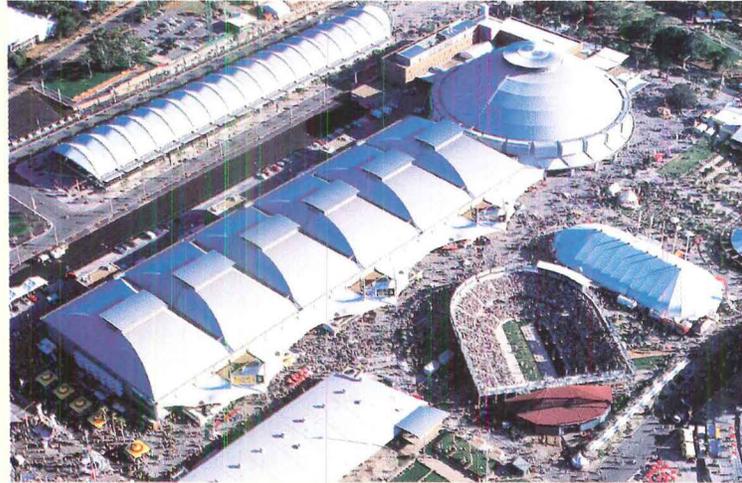
It is difficult to comprehend the enormity of the trusses in the 237,000-square-foot New South Wales Royal Agriculture Society Exhibition Hall, outside Sydney, Australia. Each spans a distance of 220 feet. The timbers, made of radiata pine glulams finished with penetrating oil preservative, are 32 inches deep, and range from 7 inches to 10 inches in width. The trusses are arranged in pairs, each sharing a bottom chord, and are spaced at 120 feet on center. Each pair defines the boundaries of the six sections that make up the exhibition halls that will house sporting events, including volleyball and gymnastics, during the Summer Olympics in 2000.

The project engineers, Ove Arup & Partners, compared the costs of all-steel trusses to timber hybrids and concluded that, while the latter were slightly more expensive, they offered environmental advantages. The wood for the glulams is new-growth timber from a pine plantation in New Zealand. The efficiency of the glulams, which con-

sist of finger-jointed two-by material, also required less wood than conventional trusses. Even so, the scale of the project was such that, during peak production, six laminating plants were involved, taking material from four different mills.

The behavior of these trusses is more complex than that of conventional vertical trusses. They act, in unison with the purlins, columns, and other components of the structural grid, as part of the vaulted roof design, carrying different loads and offsetting different forces than those normally encountered in truss construction. The truss pairs are rotated 45 degrees about their longitudinal axes, putting them at 90-degree angles to one another. This configuration enables them to help support the weight of the structure while resisting both horizontal and vertical forces.

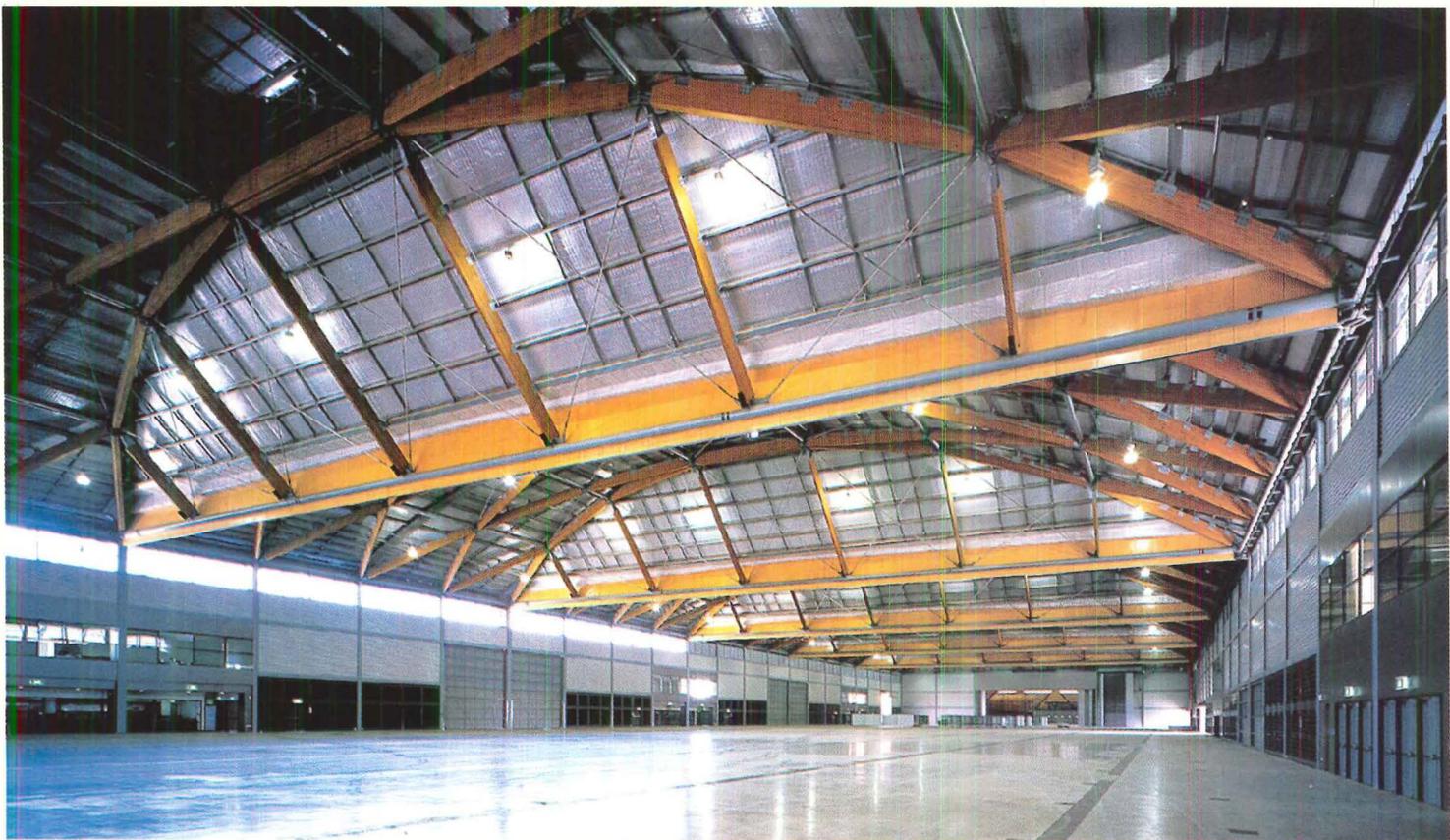
Sydney architects Ancher Mortlock Woolley incorporated steel rods, ranging from 1 1/2 inches to 2 1/2 inches in diameter, for the web members. Triangulated in both directions, the rods handle stress



reversals from tension to compression forces. Turnbuckles enable careful adjustment of the rods. A continuous 16-inch-diameter steel rod works with the bottom chord to increase overall truss stiffness. Custom steel-plate connectors were used at the joints.

The bottom chords of some of the trusses support rails for operable acoustic doors. These doors allow for subdivision of the hall, thus accommodating different sporting and agricultural society events.

The Royal Agriculture Society Exhibition Hall in Sydney, Australia (above), will house sporting events during the Summer Olympics in 2000. The hall is subdivided into six sections by enormous timber trusses (below), each of which spans 220 feet.





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CIRCLE 49 ON INQUIRY CARD

split rings, and shear connectors—require the largest holes. As a result, such connections often control the structural design of the truss and necessitate the use of larger timbers. For example: Four 1/2-inch holes across the width of a four-by-six will reduce its net width by two inches, thereby limiting its carrying capacity to that of a four-by-four. Fasteners that require few or no holes are recommended wherever the objective is to minimize member sizes. Building codes, however, set

Connectors for trusses with long spans are usually custom made because the heavy loads they carry need greater connection capacity than off-the-shelf products can afford. Whether the connections are concealed or exposed drives the design of the truss. Visible joinery—in the form of big steel plates and bolts—is desirable in some settings. “We have a project in which a simple K-shaped connection would work, but the architect wants a big, bold connector,” says Paul

BUILDING CODES SET MINIMUM TIMBER SIZES THAT QUALIFY AS HEAVY-TIMBER CONSTRUCTION TO ACHIEVE FIRE RESISTANCE.

minimum timber sizes to achieve a reasonable degree of fire resistance. To qualify as heavy-timber construction, these members can't be smaller, even if they would meet structural requirements.

Determining aesthetics

The shapes of roof trusses are a function of the shape of the roof and the character of the room below it. The bottom chord of a truss becomes, in effect, the ceiling of a room. A flat-bottom chord is static; an angled one is dynamic. The arrangement, size, and quantity of web members also affect the look. Other considerations—whether the members are curved or straight, painted or stained, or treated with preservatives or fire retardants—also determine the style of the truss. Chamfering softens the appearance of the members and enhances their fire resistance. (Rounded corners are less flammable.) Pressure-treated wood is more difficult to finish, because paints and stains don't adhere well to saturated wood.

Swanson, heavy timber specialist for TrusJoist Macmillan. “Concealing the connection can mean larger members—a larger portion of the member is chewed up for counterbores.”

Truss members and connectors must be able to accommodate loads not only of different magnitudes, but also from different directions. A truss member that is in compression under a heavy snow load might be in tension under an uplifting wind load. The structural engineer must determine which load combination induces the highest forces in each member. The structural engineer's findings, in conjunction with analysis of the connections, will establish the minimum structural size of each member.

Designing and erecting a timber truss takes longer and often requires more engineering than conventional framing. “But in the end, you have a strong, durable building,” Brungraber says. “And the timbers themselves can be reused when the building has outlived its purpose.” ■



AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- ◆ Read the article “Timber Trusses for Big Spans” using the learning objectives provided.
- ◆ Complete the questions below, then check your answers (page 176).
- ◆ Fill out and submit the AIA/CES education reporting form (page 176) or file the form on ARCHITECTURAL RECORD's Web site at www.archrecord.com to receive two AIA learning units.

QUESTIONS

1. How do glulam and parallel strand lumber differ from solid timber?

2. What are the advantages of timber trusses?

3. How do trusses operate differently than beams?

4. What is the effect of fasteners on trusses?

5. How does the appearance of the truss affect the space below?

NEW PRODUCTS

TECHNOLOGY AND COLOR WORK TOGETHER IN EIF DESIGN

StoDesign is an international team of multidisciplinary design specialists offering owners and architects specialized color and design services. A comprehensive system of 390 colors and user-centered tools, the StoColor System was developed to simplify the color-selection process for EIFS. Sto has been offering the design service abroad for the past 25 years in the U.S. and for the past 3 years.

While many computer programs offer a similar process, none is actually connected with a color system that works with a product line, says StoDesign team member Jane Dye. The color system is 100 percent compatible with Sto's products.

To develop a color solution, all StoDesign needs from the designer are the CAD Elevation on disk (blueprints if CAD is unavailable); the color of railings, glass, or any other predetermined materials; an understanding of the purpose or intent of the project;

pictures of the surrounding environment; and color direction. Once Sto develops the color solutions, they provide the design team with color palettes, computer-generated color concepts of the elevations from a set of plans, and a brief explanation of why the palettes were chosen. Firms who have used StoDesign's services in the past include Perkins & Will, Ricardo Legorreta, and Moore Ruble Yudell.

The StoDesign system can be used to help marry an old building with a new building or to enhance a company's corporate identity by bringing it to the outside of the building. Color can also be used to preserve the historical nature of the building and its surrounding architecture, as demonstrated by the restoration of the Guest House Krone (below) in Ueberlingen, Germany by Sto AG's StoDesign division.

404/349-5765. StoDesign, Atlanta. **CIRCLE 200**



Developed in Europe after World War II and introduced to the North American market as a commercial cladding in the late 1960s, external insulation finishing systems (EIFS) provide insulation, weatherproofing, and aesthetics in an integrated composite. While there has been some controversy concerning water drainage in the residential segment of the industry as of late, there is no argument that EIFS offer architects a wide variety of design capabilities for cladding exterior walls, as highlighted in the two stories below.—Rita F. Catinella, Products Editor

EIFS GIVE JERSEY CASINOS THEMED LOOKS

EIFS can help create elaborate surface treatments inexpensively, especially with themed commercial projects. Known for pushing the envelope in terms of theme design, casinos demonstrate the capabilities of this product, as proven by two recently redesigned projects.

Last year, the Taj Mahal Hotel and Casino commissioned Jersey Panel Corp. of Vineland, N.J., to prefabricate and install an intricately designed EIFS entryway consisting of two 25-foot high by 150-foot-long front and rear walls and accent



pieces. The project entailed the prefabrication of some 9,000 square feet of curved EIFS panels, according to Dominic Baruffi, president of Jersey Panel.

Management at the Taj Mahal wanted the EIFS entryway to project a marbleized, textured look. This required that each of the panels and special shapes be brush-coated with a smooth, color-coat finish.

"We've worked on hundreds of high-rise projects and other large EIFS installations, but none that involved walls of such complex shapes," recalled Baruffi.

Another recent project entailed the complete upgrading and reimaging

of the exterior of the Caesars Atlantic City Hotel and Casino. A singular classical Roman look for the entire Caesar's complex was specified. The prefabricated panels, made by Eastern Exterior Wall Systems, Inc., of Bethlehem, Pa., resulted in limitless designs, particularly important with the fluted columns, cornices, and freestanding colonnade called for in architect Cope Linder Associates' design.

800/355-3397. Eastern Exterior Walls Systems Inc., Bethlehem, Pa. **CIRCLE 201**
609/691-7200. Jersey Panel Corp., Vineland, N.J. **CIRCLE 202**

CURRENT CEILING OPTIONS

While aesthetics remains a priority for ceiling specifiers, other issues include durability, ease of installation and access, seismic restraint requirements, and proper installation of light fixtures in relation to fire rating. Specialties include ceilings for high moisture areas and for sensitive environments such as clean rooms.

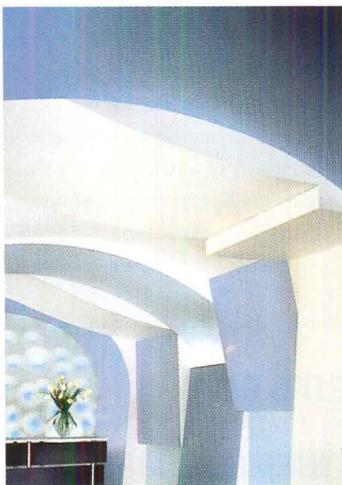


▲ Longer spans, fewer joints

The long spans of the Luxalon wide-panel metal ceiling system are available in a variety of colors and finishes in either a slightly beveled or reveal edge. 800/366-4327. Hunter Douglas Architectural Products, Inc., Norcross, Ga. **CIRCLE 203**

▼ Ceiling plane as a canvas

New Armstrong metal ceilings provide a broad range of sizes and



▲ Drywall suspension system

The USG drywall suspension system, from USG Interiors, Inc., enables specifiers, designers and contractors to use pre-engineered, integrated components which reduce installation time and costs, while allowing for the practical creation of a wide range of unique ceiling treatments. This includes everything from elegant curves to sweeping vaults and valleys to boxed, curved, and even serpentine soffits. Components allow for easy transition to acoustical ceilings, while knurled components help securely attach gypsum panels. The system features more than 30 U.L. fire-rated designs. 312/606-4122. USG Corporation, Chicago. **CIRCLE 207**

edge detail, and are available in corrosion-resistant electrogalvanized steel with a global white finish that matches other Armstrong ceilings and either silver grey or gunmetal grey. MetalWorks products are lined with acoustical fleece, allowing them to provide acoustical performance.

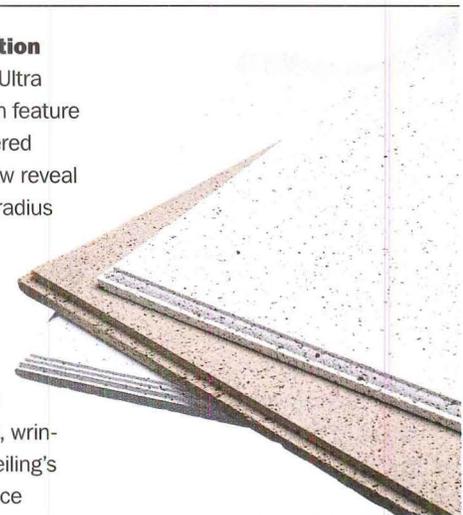
Metalworks Narrow Reveal panels create a clean, classic architectural reveal between panels, while the beveled concealed panels, available in a broad range of sizes, provide a monolithic metal-ceiling visual. 717/397-0611. Armstrong World Industries, Lancaster, Pa.

CIRCLE 204

► Acoustical ceiling option

Celotex has developed the Ultra 90+ ceiling products, which feature edge detailing such as tapered reveal, narrow reveal, narrow reveal screw slot, tier reveal, and radius reveal. Ultra 90+ products also feature a 10-year limited warranty against scratches, nicks, punctures, indentation, and visible sag. A nonlaminated surface helps avoid tearing, wrinkling, or peeling, and the ceiling's light reflectance helps reduce energy costs.

In addition to traditional white, Ultra 90+ products are available in haze, manilla, parchment, platinum,

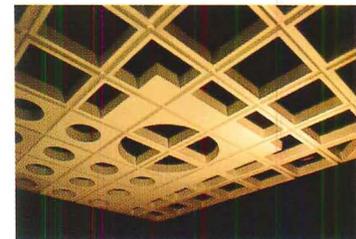


sandstone, taupe, and gold, copper, and pearl metallic. 800/CELOTEX. Celotex Corporation, Tampa, Fla.

CIRCLE 208

► Glass-reinforced gypsum

Cut-Outs glass-reinforced gypsum ceiling panels are available from Chicago Metallic. The two-foot-by-two-foot lay-in panels are individually cast from fiberglass-reinforced gypsum and designed for use with standard 1 $\frac{5}{16}$ -inch t-bar suspension systems. Cut-Outs panels are cast in 14 design patterns and a variety of finishes. Panels are

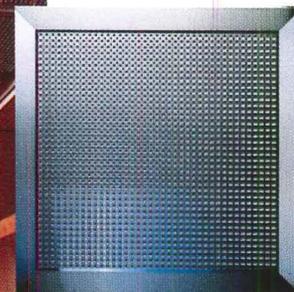


also available in glass-reinforced cement. 800/323-7164. Chicago Metallic, Chicago. **CIRCLE 206**

▼ Custom decorative metal

The Gage Corporation, Intl., designs and manufactures a collection of

decorative metal ceilings. The design shown is an example of selective two-directional brushing with custom perforations. All Gage panels are made from 50 percent recycled aluminum. Most designs can be color adapted to specifier requests. 800/786-4243. The Gage Corporation, Sparta, Wis. **CIRCLE 205**



PRODUCT BRIEFS

► Bathroom of his dreams

Ever-present architect and product designer Michael Graves, FAIA, has now designed his first bathroom, in collaboration with Duravit, Dornbracht, and Hoesch, called Dreamscape.

All of the products work together in a playful yet refined design. The collection includes tap fitting and accessories by Dornbracht; ceramics, bathroom furniture, and accessories by Duravit; and baths, shower trays, and whirlpools by Hoesch.

The Dreamscape bath (below) by Hoesch, available in the U.S. through Duravit, rests on pedestal columns like a work of sculpture. The freestanding model features outer paneling (both bath and feet are made of versatile sanitary acrylic), and adapters enable the bath to retain its freestanding look when



installed in front of a wall or in a corner. Hoesch offers four whirl systems for the built-in models and air-inject jets for the freestanding model.

The sphere also forms the basis for the design of the tap fitting and accessories, such as the soap dish by Dornbracht, shown above. 888/DURAVIT. Duravit, Atlanta. **CIRCLE 209** 800/774-1181. Dornbracht, Atlanta. **CIRCLE 210**



▼ A Leap ahead, for backs

At last month's NeoCon in Chicago, Steelcase introduced a new seating technology developed in response to four years of research on spinal

motion and back support conducted in conjunction with the University of Vermont, Michigan State University, and Cornell University. The Leap chair features a live back, which changes

shape to mimic the way a person's spine changes shape throughout the day. In addition, a seat-edge-angle control allows people to ease pressure on their legs and widen the angle between legs and torso without feeling that they

are sliding out of their chair. Leap has 90 different styles and features. 800/333-9939. Steelcase Inc., Grand Rapids. **CIRCLE 211**



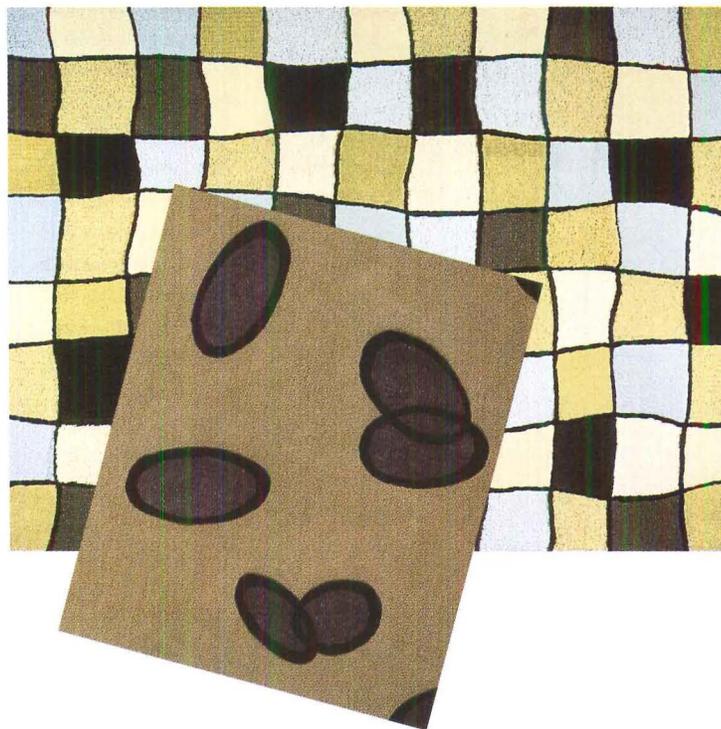
▼ 20th-century mindset

Angela Adams unveiled her State of Mind collection at this year's top national design shows, including the International Contemporary Furniture Fair, held May 15-19 in New York City.

Obtaining inspiration from mid-20th-century designs, State of Mind explores all the shapes, colors, and textures that Adams came to know growing up on a

small island off the coast of Maine. Homes filled with Formica dining sets, shag rugs, and linoleum floors provide the basis for the collection.

Constructed of pure New Zealand wool, the series comprises 12 designs, including Bruno (shown) and Pooky (detail shown), tufted by hand in Adams' studio. 800/255-9454. Angela Adams, Portland, Maine. **CIRCLE 214**



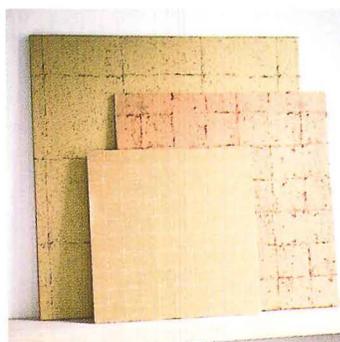
► Rustic porcelain tile

Alcalagres America has introduced a new series and major additions to existing collections. Decorative complements for the Sierras Series of rustic porcelain tile include Pisano, a collection of carved decos that appear to be fashioned from multiple modular tiles and carved borders. 877/640-0555. Alcalagres America, Miami, Fla. **CIRCLE 213**



◀ Building blocks

Block Series is a new wallcovering designed exclusively for J.M. Lynne by Patty Madden. Block Series is available in a metallic color group that resembles handmade gold-leaf finishing and is also colored in soft neutrals that create a tone-on-tone effect. The wallcovering is produced from 20-ounce vinyl and is 54 inches wide. 800/645-5044. J.M. Lynne Co., Inc., Smithtown, N.Y. **CIRCLE 212**

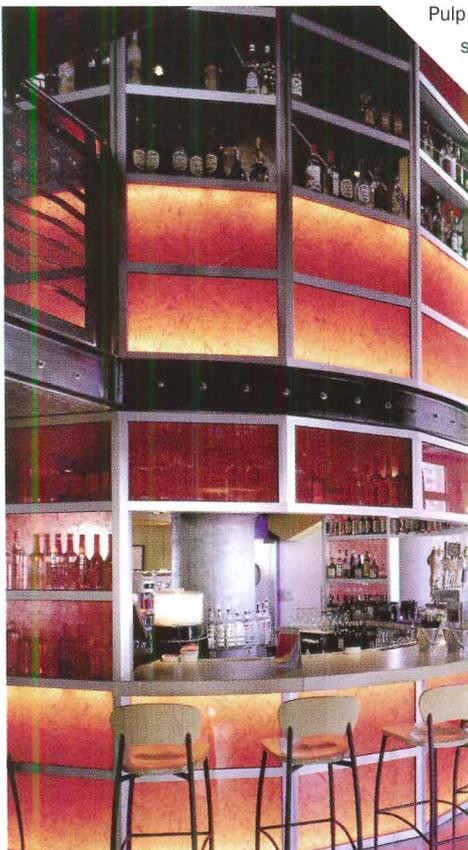


PRODUCT BRIEFS

▼ Pulp nonfiction

Pulp Studio Glass is laminated safety glass with a variety of decorative and graphic interlayers. All substrates are sandwiched between two thermoplastic interlayers and two pieces of glass. By exposing this configuration to heat and pressure, Pulp Studio permanently fuses it into a single panel that will comply with all major safety standards for glass. In addition to the fiber series, which was used in Elroy's restaurant in San Francisco (shown), Pulp Studio can also provide glass that includes textures, colors, graphics, photographic elements, and a variety of other substrates. 310/815-4999. Pulp Studio, Inc., Los Angeles.

CIRCLE 215



► Metallic textured finishes

Keeping with this month's British focus, Tactiles is a selection of textured aluminum sheet from England available in five contemporary designs for the interiors market. One benefit: These relief styles do not produce the undesirable reflections normally associated with flat surfaces. +81/692-2255. Gooding Aluminum Ltd., London. CIRCLE 216

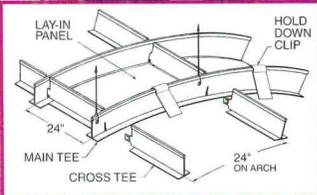


▼ Flexible curves

Curved walls, ceilings, and other structures are easily built with Flex-Ability Concepts' new Flex-C Trac. Flex-C Trac allows contractors to avoid flat spots or uneven curves. It is available nationwide in drywall yards in three widths; 2 1/2 inches, 3 5/8 inches, and

6 inches. 405/302-0611. Flex-Ability Concepts, Edmond, Okla.

CIRCLE 217



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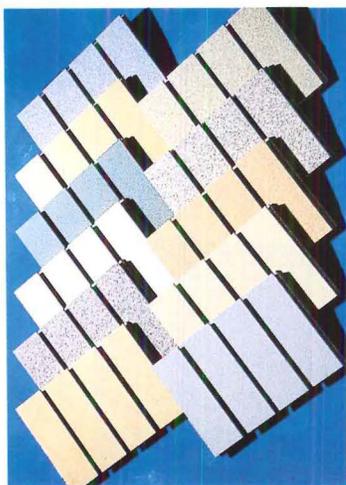
CIRCLE 56 ON INQUIRY CARD

DESIGN
WITHIN
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PRODUCT BRIEFS

▼ Working well under pressure

Jefferson Mack uses traditional black-smithing techniques to produce distinct pieces of functional art, such as this Pacific Heights balcony. Each piece is forged at temperatures in excess of 2,000 degrees and hand hammered. 415/550-9328. Jefferson Mack Metal, Inc., San Francisco. **CIRCLE 218**



▲ More colorful display

Marlite introduces 11 new finishes to the Displawall product line, which fall into the Woodgrain, Earth Hues, and Corda series. Marlite Displawall is a slotted panel system for retail merchandise displays. The system's T-groove was engineered to distribute the weight of merchandise evenly. With the addition of the new finishes, Displawall is now available in 23 colors. 330/343-6621. Marlite, Dover, Ohio. **CIRCLE 219**

► Resistant fabric addition

Crypton, which merges the look of luxury fabric with the performance of vinyl, will now be available through Kravet Contract. Crypton is moisture resistant and stain resistant and has strength and breathability, making it appropriate for a variety of facility types, from health-care to hospitality. 800/645-9870. Kravet Contract, Bethpage, N.Y. **CIRCLE 221**



▼ Once in a blue moon

Featuring dynamic curves, the Retro

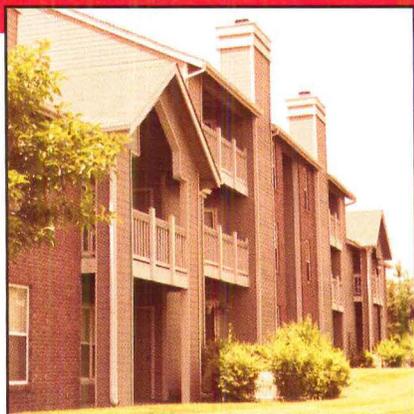
Luna sofas are constructed of molded foam over wood frames and feature

brushed or polished aluminum legs. Designed by Miles Keller for Allseating, Retro Luna is available in one-, two-, and three-seater configurations. Along with the company's Polarity sofa line, Retro is appropriate for upscale office or hospitality environments. 800/563-3502. Allseating Corporation, Mississauga, Ontario.

CIRCLE 220



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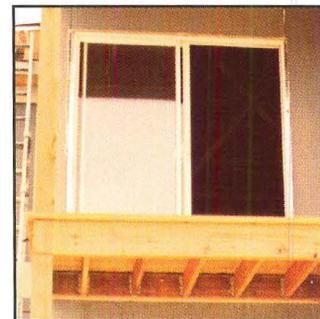


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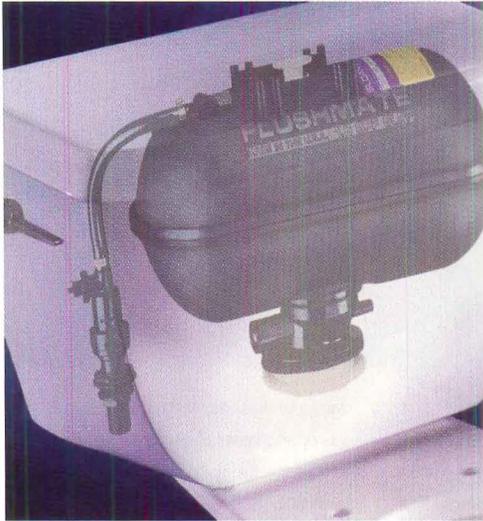
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A Tale of Two Water Closet Technologies



by Joseph M. Smaul, P.E.

It was while working as the head of plumbing engineering and overseeing the HVAC for hotels on the East Coast that I became involved with pressurized water closets. We just finished a 600-room facility and we were preparing to go to work on the next 400-room project, when a letter crossed my desk from the major fixture manufacturer for the new project. This fixture manufacturer — who was different from the one we used on the 600-room hotel — suggested that we do not use gravity-flushing closets in the hotel we were engineering. Instead, the manufacturer recommended his line of pressure-assist water closets for a variety of reasons.

The question immediately arose in my mind: why? If pressure-assist is the standard for hotels, why didn't the other manufacturer for the 600-room hotel recommend it?

I was assigned the task by the principals of my company to find out what this was all about, so I called the head of maintenance engineering at the 600-room hotel where we had specified and had 1.6 gravity-flush water closets installed. I asked him how these gravity units were working out.

I still recall how matter-of-fact he was when he calmly said, "I'm really glad you called. We get about 75 to 100 calls a week to unclog these toilets. It has become pretty routine now. I think ever since they limited the water usage to 1.6 gallons per flush, that's when the problems started. We leave plungers right in the rooms now, so we don't have to be carrying them down the halls in front of the guests. I guess there isn't much we can do about it!"

I was looking at the other manufacturer's letter that recommended pressure toilets on my new project as I listened to his comments. He continued, saying, "We are experiencing tremendous guest dissatisfaction over this clogging, double flushing, and poor performance. But say, I've heard of something that might be worth investigating as long as I have you on the phone. I think they call it pressure toilets. Can you find out if there's anything to this? I've called the fixture manufacturer, too, and they said they are looking into the situation for us. There might not be anything we can do except live with it."

I said I would see what I could do, and hung up the phone. I then called the original manufacturer we used at the 600-room hotel. It turned out that he was already well aware of the clogging problems at the hotel...that he was in the process of re-engineering his fixture, and that he would step up and resolve the situation for the maintenance engineer's and my own satisfaction.

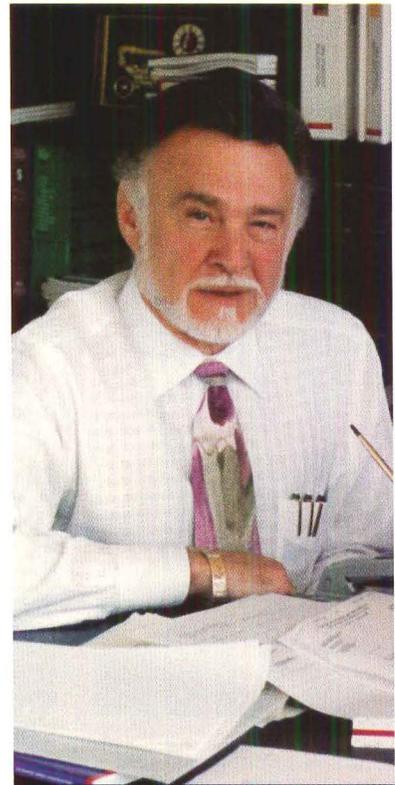
I decided I needed more information before I made our final recommendation between gravity and pressure-assist, so I researched further by calling maintenance engineers around Las Vegas hotels. I found out that they were either installing pressure-assist, or replacing gravity with pressure-assist. One of the casinos actually took out ALL of their gravity toilets and replaced them with pressure-assist! Since they started using pressure, they were able to reduce their service factor on toilets to zero.

I asked around some more, and I heard from people who bought new homes that were disgusted with the 1.6 gravity because of flushing two or three times. Then I remembered that my own relative had a closet off the den with 1.6 gravity that even the kids were not allowed to use because of performance problems. They actually have to go upstairs to the second level toilets.

Well, all of this made our decision easy, and we recommended pressure-assist toilets.

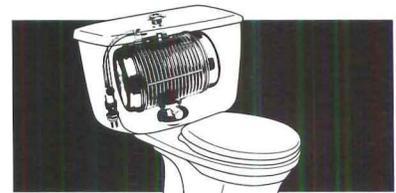
But I also came upon something from my study that was truly amazing: it didn't matter which fixture manufacturer was specified for pressure-assist toilets. All the manufacturers were using the same pressure-assist technology in their pressure-assist fixtures. That technology? Sloan's **FLUSHMATE**® pressure-assist operating system.

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About Joseph Smaul, P.E.

With 44 years of experience, including the first 13 as a pipefitter, Joe Smaul has done it all — from running his own mechanical design contracting company for 16 years to doing consulting engineering for some of the most well-known engineering firms. He has patented energy conservation systems in office systems, and is a member of and frequent speaker at major trade associations in the United States. He is currently doing engineering work at Marvin Waxman Consulting Engineers in Glenside, PA. To contact, or for more information on Sloan **FLUSHMATE**, call: 1-800-875-9116.



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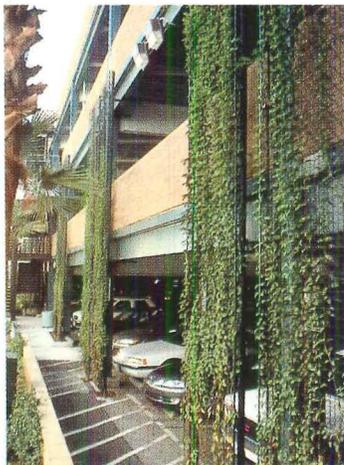


▲ Custom-brick finish system

Brian Tolles made "The Windcatcher," with Dryvit's Custom Brick finish system, which creates the look of brick on interior and exterior walls. 800/556-7752. Dryvit Systems, West Warwick, R.I. **CIRCLE 222**

▼ Green architecture

Greenscreen is an architectural modular trellising system that can be used to create freestanding screens and fences or mounted directly onto a building facade. The main component of the system is a 3-D, welded-wire trellis panel with a full complement of mounting hardware. Greenscreen's applications range from mixed-use venues to parking structures to residences. 800/450-3494. greenscreen, Los Angeles. **CIRCLE 223**



▲ Historic ventilation

Developed primarily for historic renovation projects, Epic Series windows, from Wausau Window and Wall Systems, feature a beveled exterior face to replicate the glazing used on classic steel and wood windows. They feature a broad

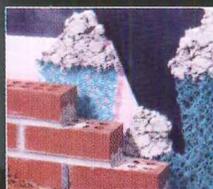
range of finishes, white bronze hardware, and beveled muntins. For energy efficiency, the windows are designed with Wausau's poured and debridged thermal break system. 715/845-2161. Wausau Window and Wall Systems, Wausau, Wis. **CIRCLE 224**



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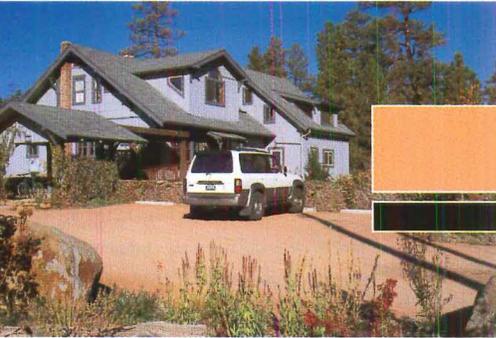
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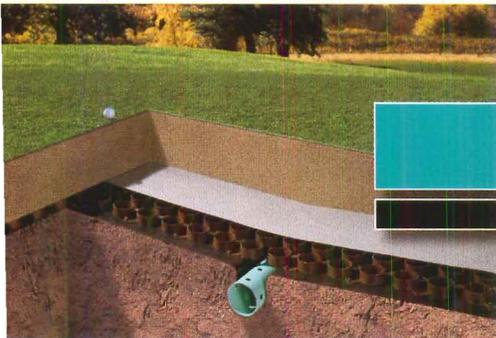
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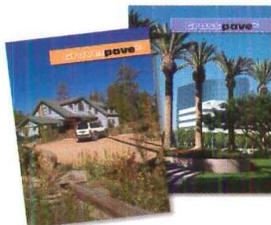
Rainstore³

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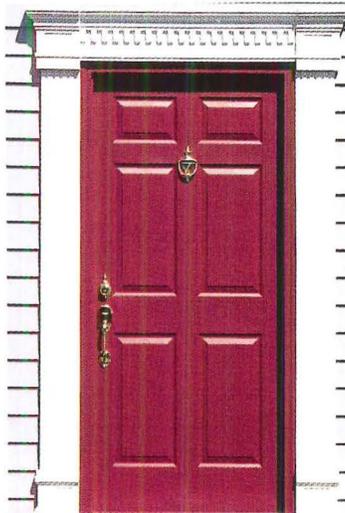


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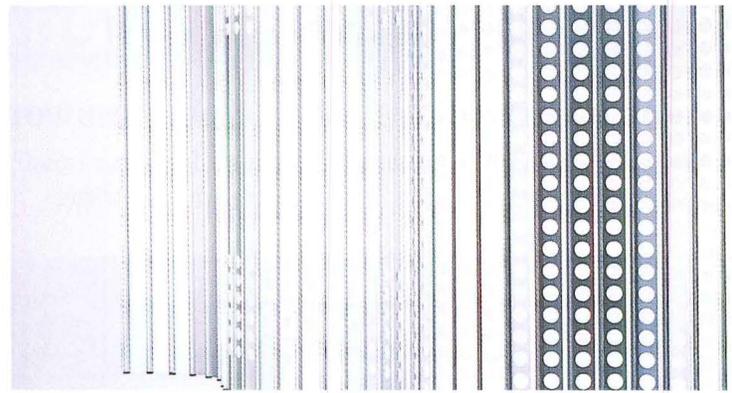
▲ Columns and door surrounds

Builders Edge colonial columns and door surrounds were developed as an inexpensive alternative to traditional entranceway renovation products. Surrounds are made of a UV-stabilized advanced copolymer material. 800/969-7245. Builders Edge, Inc., Pittsburgh.

CIRCLE 225

▶ Privacy partition

New York City-based architect and designer Ali Tayar will produce four new products for ICF: A screen, chair, book-case, and table. The Plaza screen consists of a series of interlocking aluminum extrusions, which form undulations when attached and remain fixed once put together. Panels are available completely smooth or partially or completely perforated. 800/237-1625. The ICF Group, Valley Cottage, N.Y. CIRCLE 226



▼ Save energy more visibly

The high visible-light transmission of Heat Mirror insulating glass minimized the need for electric light at a California McDonald's restaurant. Southwall Technologies, Palo Alto, Calif. CIRCLE 227



◀ Aerated alternative

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PRODUCT LITERATURE

Mosaic tiles

"The Bath According to Bisazza Mosaico" is a 128-page catalog featuring bathroom installations illustrating the possibilities of Bisazza Italian glass mosaic tiles. 305/597-4099. Bisazza Mosaico, Miami, Fla. **CIRCLE 229**

Industrial/specialty lighting

Waldmann Lighting's 36-page catalog features extensive machine-tool, magnification, and specialty lighting products and modifications. 800/634-0007.

Waldmann Lighting Company, Wheeling, Ill. **CIRCLE 230**

Vinyl sheet flooring

Armstrong Residential Vinyl Flooring introduces a consolidated brochure covering its Designer Solarian, Solarian, and Fundamentals flooring collections.

888/ARMSTRONG. Armstrong World Industries, Lancaster, Pa. **CIRCLE 231**

Space-saving solutions

Spacesaver Corporation's new literature for specifiers seeking storage solutions includes a brochure featuring modular

drawers and door systems and a library-shelving catalog. 800/492-3434. Space-saver Corporation, Fort Atkinson, Wis.

CIRCLE 232

Steel joist products

The Steel Joist Institute continues to offer a 28-minute videotape that serves as both an introduction to steel joists and as a tool for the proper selection and specification of steel joist products.

843/626-1995. Steel Joist Institute, Myrtle Beach, S.C. **CIRCLE 233**

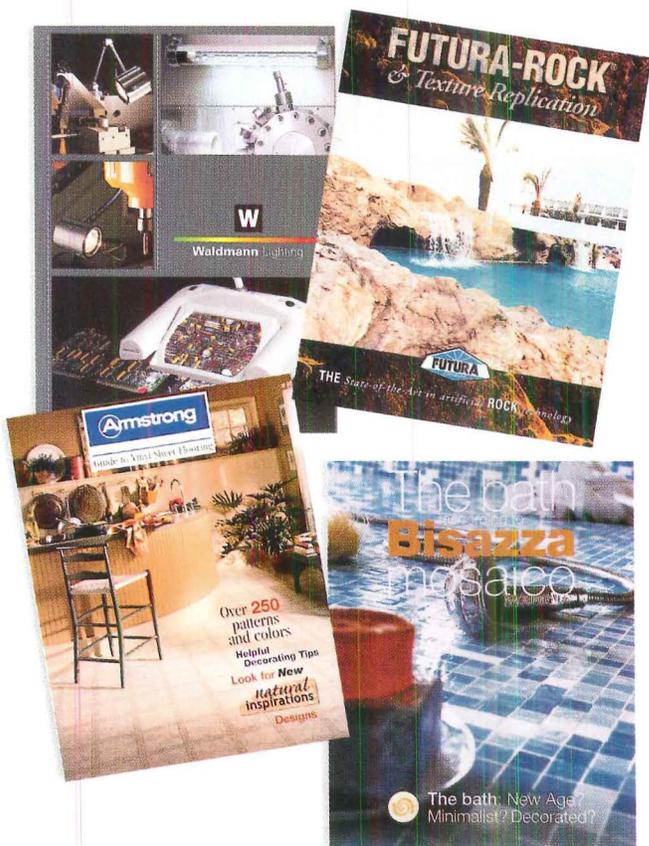
Rock replication system

Futura Coating new brochure offers an explanation of the Futura-Rock system, a process that uses polyurethane molding materials and technology to replicate an artificial rock texture. 314/521-4100.

Futura Coatings, St. Louis. **CIRCLE 234**

Entry-door catalog

Stanley's new entry-door catalog includes new steel and fiberglass entry doors, mirror doors, and wall-decor products. 800/521-2752. The Stanley Works, Doors Product Groups, New Britain, Conn. **CIRCLE 235**



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PRODUCT LITERATURE

Storefronts and entrances

Tubelite Inc.'s revised design manual is now available in both print and CD-ROM versions. Included are CAD drawings and details for Tubelite's storefront framing systems, entrances, and curtainwall/ribbon windows. 616/832-2211. Tubelite, Inc., Reed City, Mich. **CIRCLE 236**

Entrance flooring

Pawling Corporation offers a new, full-color, 22-page brochure to detail the company's line of Pro-Tek entrance protection systems designed for a wide range of interior and exterior building systems. 800/431-3456. Pawling Corporation, Wassaic, N.Y. **CIRCLE 237**

Hardwood floor designs

Historic Floors of OshKosh's 16-page catalog features border, medallion, and parquet designs to customize hardwood floors. 920/582-9977. Historic Floors of Oshkosh, Winneconne, Wis. **CIRCLE 238**

Fabric air-dispersion products

Literature is available for DuctSox new

Comfort-Flow Series, a fabric air-dispersion system. The literature includes line drawings of six different suspension systems and fabric color charts. 800/553-5560. Frommelt Safety Products, Dubuque, Iowa. **CIRCLE 239**

Exterior systems

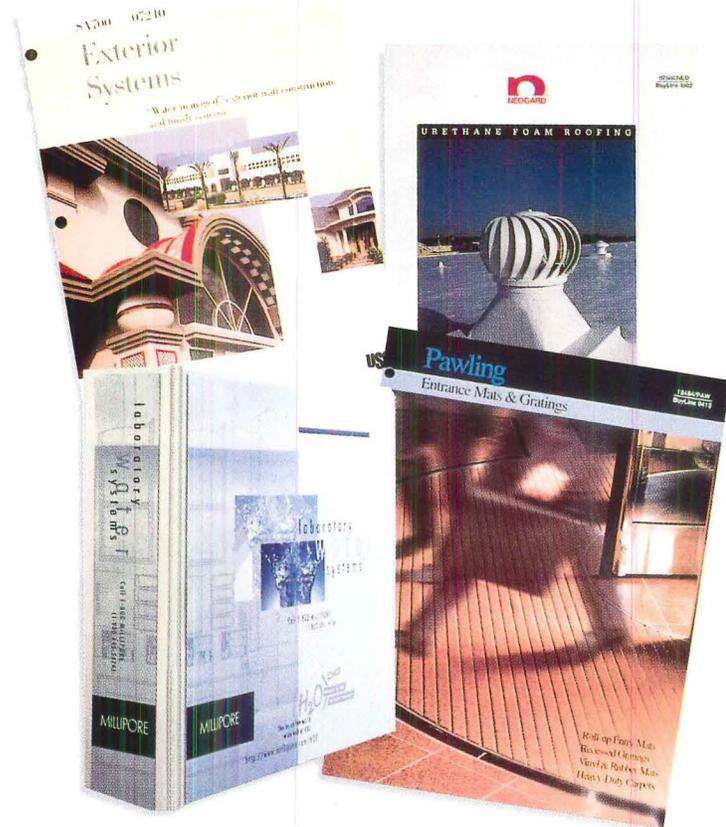
A new 28-page brochure on USG's water-managed stucco-look exterior systems is now available from United States Gypsum Company. 800/USG-4YOU. United States Gypsum Company, Chicago. **CIRCLE 240**

Heat reflecting glazing

A new bulletin from Polygal U.S.A. describes new Primalite Heat Reflecting Glazing that allows less heat transfer and more light transmission for energy cost savings. 608/757-1313. Polygal U.S.A., Janesville, Wis. **CIRCLE 241**

Roofing and coatings

Neogard's 1999 brochure details the company's complete line of roofing systems and specialty coatings. 800/321-6588. Neogard, Dallas. **CIRCLE 235**



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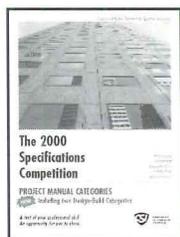
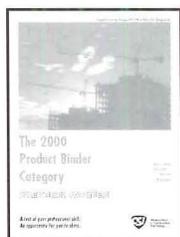
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CROSSING THE POND (continued from page 85)

competition from British firms has not dramatically affected their businesses. By 1991 the British economy was in recession and the real estate market had softened dramatically, prompting American practices to expand their business to the rest of the continent. American firms view London as a springboard into Western Europe and all points east. HOK's Reinke says, "if you are fascinated by other cultures, this is the place to be." He routinely travels on business to Europe, the Middle East, Africa, and India and says, "there is a romance in working all over the world that makes my job great fun."

London itself is an international city that acts as a crossroads for numerous cultures and attracts young talent from all over the world. As a result, architectural offices are melting pots. "Practically my whole office is European," Walker says. "There are only one or two other Americans besides me." HOK has only about 12 American employees out of a total of more than 200. And Polisano of KPF says, "Of the 100 people in our London office, only 7 are Americans. We have 32 different nationalities in our office right now. We have assembled a multicultural group of people that reflects the nature of our work and the global nature of our practice." While most architects view this cultural exchange as an asset, Lipton, the real estate developer, disagrees. "The attraction of hiring an American firm is to have American architects," he says. "There is really no point if the people working on your project do not have experience on a U.S. building project. We are hiring the Americans for their implementation skills." But Kallman of SOM points out, "it would be financially impossible to staff an office with expatriated Americans," because of the high cost of relocating people and the difficulty of obtaining work permits.

A way of life

London's notoriously expensive housing market is another reason why American firms are reluctant to transfer their staff there. But most seem to mention the high cost of living in passing, as if it is a small price to pay for the experience of living in such a wonderful city. Bruce Danzer, AIA, managing principal of Studios Architecture's London office says, "Life here feels like a challenge sometimes. London is expensive, and it is hard to find a nice place to live. Still, the quality of my life is good. I have a different cultural experience every day here." Reinke concurs, "Without question London is the most international city on the planet. It is experiencing a great renaissance in terms of food, fashion, and the arts. It is a great place to live."

Remaining sanguine

The decision that so many firms made, almost a decade ago, to establish themselves in London appears to have been sound business. In May 1999, HOK International moved into new offices to house more than 200 employees, the largest staff ever in its London office. "We are very bullish on London," says Reinke. Gene Kohn says KPF's fees and volume of work are higher today than they were even in London's heyday of the late 1980s.

But the real test, according to Kohn, is not profiting financially but being ahead professionally. Opening a practice in London has worked to the advantage of American firms in this regard, too. "The great advantage of a global practice is that we learn a great amount from the exchange of ideas and the exposure to a foreign culture. I truly believe that our work is better as a result of having an office in London." ■

CIRCLE 67 ON INQUIRY CARD

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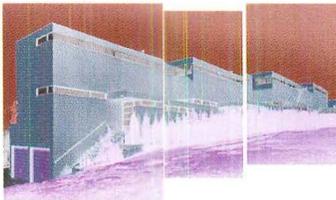
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What in the World?



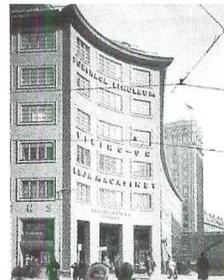
Each month, RECORD's site features photos and clues to the identity of a unique and remarkable work of architecture. The winner,

selected from the entry forms, receives a free one-year subscription to the magazine. Go online and test your knowledge!

This month's challenge: The architect of this project was ahead of his time when it came to understanding the importance of natural light and energy conservation. He was masterful at creating beautiful buildings on

terrible lots; this one is so close to street, one entire facade is blank, except for small openings, to provide the occupants with some privacy.

Solution #6-99: The project featured last month is the Centrum Building, designed by Cyrillus Johansson, an architect whose work is well known in Scandinavia but not as familiar to



Americans. The retail and office complex, which fills an entire block in Stockholm and is across from the Sveagen, was completed in 1924.

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ANSWERS

Questions appear on page 152. To receive CES credits, fill in the education reporting form below or on our Web site (www.archrecord.com).

1. Glulams are made from select two-by boards of Southern yellow pine or Douglas fir. For their size, glulams are stronger than solid lumber because of the arrangement of the layers of wood and the added strength of the glue. Parallel strand lumber consists of slender strips of wood that are pressed together to form a loaf, then sawn to size. Both of these engineered wood forms are less wasteful and destructive to the environment than solid timber. Low-grade raw materials are used to create a homogeneous end product. Both types of engineered lumber are also more dimensionally stable than sawn timbers of equivalent size, and, as a result, are less likely to twist or check. They are also more expensive.
2. Timber trusses have many advantages over other types of trusses. They can be used outdoors if sheltered or treated with preservatives. They outperform light-wood and steel trusses when fire codes are strict, offering a fire resistance of up to an hour. Timber trusses can be made of recycled wood, often gathered from old buildings. Recycled wood offers an aged patina, is more dimensionally stable than new timber, and doesn't require cutting a new tree.

3. Trusses are different from beams because they are made up of linear elements in triangular formations to carry loads efficiently. The strength of a truss is in its geometry, connections, and members. The structural behavior of each member in a timber truss is different from that of a solid-timber beam. A downward load applied along the length of a beam will cause it to bend, but such a load applied to a truss generates tension or compression that is shared by each of its members in concert. Even if one truss member acts as a column, the overall truss still acts as a unit. For that reason, a truss can be lighter than a beam for a given span and load. Also, the rate at which member weight rises with increasing span is generally lower with a truss than with a beam.

4. Fasteners require holes, grooves, or recesses. These voids reduce the structural capacity of the member. The fasteners with the greatest structural capacity require the largest holes. As a result, such connections often control the design of the truss, necessitating the use of larger timbers if there are multiple voids required in the wood. Fasteners that require fewer holes are recommended wherever the objective is to minimize the size of the member.

5. The shapes of trusses are a function of the shape of the roof. The bottom chord of a truss becomes the ceiling of a room. The arrangement, size, and quantity of web members also affect the look. Whether the members are curved or straight, painted or stained, or treated with preservatives or fire retardants also determines the style of the truss.



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"Timber Trusses for Long Spans" (page 147)

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THE FUTURE America is growing older, and new technologies will allow the aging to live where they want—at home.

BY RITA F. CATINELLA



In his 1954 short story *Tomorrow and Tomorrow and Tomorrow*, Kurt Vonnegut envisioned a housing crisis that would occur if future society developed a way to stop aging: “The year was 2158 A.D., and Lou and Emerald Schwartz were whispering on the balcony outside Lou’s family’s apartment on the 76 floor of Building 257 in Alden Village, a New York housing development that covered what had once been known as Southern Connecticut. When Lou and Emerald had married, Em’s parents had tearfully described the marriage as being between May and December; but now, with Lou 112 and Em 93, Em’s parents had to admit that the match had worked out well.”

While Vonnegut’s vision of the future may for now be pure fantasy, this much is true: People are living longer and are healthier than ever. As a result, designing for the aging is a dynamic and growing sector of the architectural profession. According to the U.S. Department of Health and Human Services’ Administration on Aging (AOA), during the next three to four decades we can expect a dramatic increase in both the number and proportion of elderly persons in the population.

Whereas until recent years *elderly* referred to those 65 and older, the term now means those persons 85 and older, a reflection of the increasing number of people living to 100 and beyond. Elderly persons now represent 13 percent of the population, a record propor-

tion that may rise to 20 percent by the year 2030, when the number of elderly is expected to double. According to the U.S. Bureau of the Census, as of July 1999 there are approximately just over 4 million elderly people—and this age group is predicted to increase to almost 6.5 million by 2020. The number of centenarians will more than triple in the same period, from 66,000 to 214,000.

Aging in place

The AOA encourages the development of special housing and communities that meet the needs of people as they grow older so that they may age in place and not be forced to relocate. Industry experts contend that most older people prefer to remain in their own homes as they age. Therefore, architects need either to build new homes and facilities that allow aging in place or to help develop solutions that can be applied to existing homes to make them more aging friendly. Aging and design leaders see a variety of technologies and products in their crystal balls that will make the lives of tomorrow’s elderly population easier.

Richard Duncan, director of training at the Center for Universal Design, School of Design, North Carolina State University, noted that the mission of universal design is to improve the built environment and related products so they are usable by everyone, regardless of age or ability. Duncan said that several

design technologies, including residential motorized door locks and video cameras placed at the doors of the home, are now affordable for the elderly. His center is currently trying to develop an audible thermostat with a digital readout and easy-to-read controls.

The price of security

One way to offer more freedom to residents with “a propensity for elopement,” or those with a tendency to stray away, is a GPS type of technology, similar to the electronic mapping available on some cars, says Victor Regnier, FAIA, who holds a joint professorship at the University of Southern California School of Architecture and the Leonard Davis School of Gerontology. One startling scheme actually takes a chip and embeds it in the resident, while others track residents by way of bracelets or pieces of clothing, depending on the patient’s state of dementia.

“Some of it is a little ‘1984-ish,’” admits Regnier, “but if the outcome is that you make that person easier to find, then it’s easier to give residents in facilities a bit more freedom.” A friend of Regnier’s suggested that for a mere \$1,000 he could install cameras in every room of his mother’s house to monitor her and her caretakers 24 hours a day via the Web. Cornelia C. Hodgson, AIA, a partner with Dorsky Hodgson + Partners Architects and Planners, who began designing for the elderly 22 years ago, contends that the nursing home of the future

will not have nurse call systems. Instead, residents will simply have cell phones.

Technology solutions

Regnier believes that money should be spent on product design, which will not only complement architecture, but also offer an alternative to redesigning a space.

“We are trying to rebuild the world,” says Regnier, “but if [industrial designers] would just figure out how to build a more compact wheelchair, it would be a bit more effective.” Regnier is hopeful that with advancements in robotics, wheelchairs will have more flexibility and, one day, be able to climb stairs. For people with dementia, a type of preprogrammed robotic device may even help to prepare food and serve it to the resident.

Not getting any younger

Whichever predictions come true, there is no doubt that technological and medical advances, combined with a new attitude toward universally designed products, will have an important effect on the elderly.

“I think we are going to find there are fewer people that will need to be in specially designed environments in the future,” says Regnier. “There will always be a need for assisted living and nursing homes, but we are pushing the envelope, and people who would be thought of as candidates for assisted living today, won’t be 20 years from now.” ■

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CHARLIE WHITE – AIA

Computer technology and its impact on architects is at a fascinating crossroads as we go into the 21st century. On one hand you have a majority of firms still organized around very basic 2D CAD software systems. On the other you have a new breed of architects who are adopting radically new processes and methodologies based on the new high-performance 2D/3D architectural workstations that are now available. AutoCAD will not be our future.

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I am an architect. Our firm started out in 1985 with our first CAD station which cost us well over \$100,000. Using this as our benchmark for technology acquisitions, it is mind boggling that we can now buy complete CAD systems that are thousands of times more powerful for **as little as \$125 per month**. At the proficiency that our office uses the computer, we can earn this back in the first hour we use the system. The issue is no longer whether or not we can afford to upgrade our office.

In addition to being a practicing architect, I am the CEO of Sigma Design International, developer of ARRIS, one of the most award winning architectural solutions on the market. Yes, you read correctly, **an architect is in charge of developing software for architects**. In my role as CEO of Sigma Design, I have had the privilege of visiting thousands of architects around the world. It is my observation that most architectural firms are still lagging far behind in taking advantage of computers. It is rare to discover a firm where the owners and senior management know how to access the CAD files within their office. Many firms still do not have effective office standards, layer guidelines or aggressive training programs for their employees. Architects have yet to realize the power of the computer as an essential tool in the design process. Our profession has been slow to leverage the true capabilities of computers.

The rapidly decreasing costs of adopting new technology and the increasing ease of use of modern software will be major factors in **changing the way architects work**. Already the Internet allows me to travel anywhere in the world and collaborate with my office as though I were only across the hall. In our firm the client participates in interactive design charrettes where complete 3D models are projected on a large screen while they watch. New advances in hardware now allow us to walk through and fly around these models with incredible ease. It is an intriguing new process and methodology that would not be possible with only pencil and paper in our hands.

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