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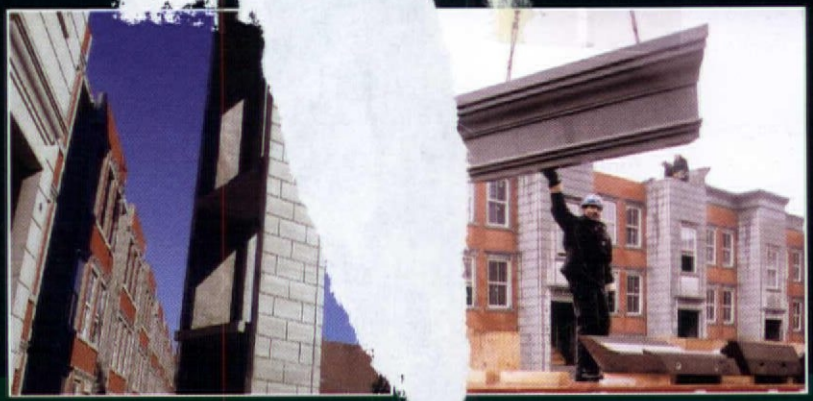

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ArchitectureBoston

September/October 2002

Health

yone who has recently shopped for a chair has noticed it. Residential furniture s transmogrified to Brobdingnagian proportions; a single sofa now occupies a square otage roughly equivalent to the 1950s FHA standards for an entire bedroom. The en-Xers' craze for "classic Modern" furniture is very likely driven by the fact that it is e only furniture that will fit into the tiny apartments that they can afford. While me salespeople suggest that the outsized furniture is appropriate for the outsized cMansions of their more affluent customers, others offer a reason that sounds closer the truth: Americans today are larger than they used to be. They are also far more formal than they used to be: the posture required to balance precariously in Breuer's 25 Wassily chair is closer to the pressed-knees-and-ankles perch of a Chippendale air than the spread-eagle sprawl of a contemporary "sectional."

day's outsized furniture is one reasonably benign manifestation of the relationship tween the body, behavior, and the built environment. Others lurk more malevolently the public's consciousness: allergies, auto-immune syndromes, even miscarriages amed on "sick" buildings; lead-poisoned toddlers; buildings that cannot shelter us om biochemical terrorist attacks.

buildings are commonly perceived as passive agents of ill-health, it does not seem nreasonable to suggest that they can also promote good health, healing, and well-ing. And yet designers have failed to seize the opportunity not only to win cognition for what many already do well, but also to champion the kind of research at can provide irrefutable evidence that investment in the built environment can also an investment in public health. Even the designers who are already hard at work in lated efforts such as indoor air quality and sustainability have failed to adequately osition their work on the frontier of public health. Indoor air quality, or IAQ, has ver shaken free of its defensive identity relative to sick building syndrome. Sustain-ility, often going by the "green building" moniker, has allied itself with the high oralism of environmentalism rather than the immediacy of the everyday issues fecting parents of children with behavioral problems or office workers with maladies fying diagnosis or sympathy.

he popularity of feng shui, the acceptance of alternative medicines, and openness to ontraditional therapies suggest that the public would be receptive to initiatives romoting good design as an agent of good health. Already, nationally recognized ublic-health experts including John Spengler of the Harvard School of Public Health nd Andy Dannenberg and Chris Kochtitzky of the Centers for Disease Control are aking the case that designers have failed to make for themselves. Their attention to ealth issues is drawing attention to the human issues in design: how people react hysically and psychologically to the spaces they inhabit.

hese ideas are not new; they enjoyed an academic vogue in the 1970s and can claim me successes, such as design for Alzheimer's patients. But today's needs and pportunities are even greater. Health is a significant problem, and architects like to ink of themselves as problem-solvers. Sounds like a natural.

lizabeth S. Padjen FAIA
ditor

2002: Health
Volume 5: Number 3

ArchitectureBoston is published by the Boston Society of Architects/AIA
52 Broad Street
Boston, MA 02109
Tel: 617-951-1433 x221
Fax: 617-951-0845
www.architects.org

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We invite story ideas that connect architecture to social, cultural, political, economic, or business trends. Editorial guidelines are posted at: www.architects.org

The views expressed in *ArchitectureBoston* are not necessarily those of the editorial staff or the Boston Society of Architects.

ISSN 1099-6346

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Subscriptions
ArchitectureBoston is mailed at no charge to all members of the Boston Society of Architects. Subscription rate for all others is $19 per year. For more information, call 617-951-1433x228 or e-mail inquiries to architectureboston@architects.org

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Letters

Willy Sclarsic's article, "Architecture and the Pro-Forma," [Summer 2002] provides valuable insight and clarity, distinguishing between the demand for architectural services and the demand for architecture — and the relative values placed on them by various audiences. His analysis is incisive and compelling, but his conclusions incomplete.

It is true that most contemporary architectural production seems culturally marginal, but the absence of valuable content in design is not merely a stylistic disconnect with popular audiences. The fact is the domain of cultural production itself has both changed and exploded — architecture competes for attention (and therefore money) with other forms of cultural expression that are mobile, self-perpetuating, relatively inexpensive, and often disposable. Architecture has none of these qualities, the product being heavy, expensive to produce, relatively permanent, and not easily able to achieve a continuous sense of novelty.

Architecture cannot really compete as a commoditized product or experience with the likes of pop music, SUVs, Michael Jordan, CNN and the drama *du jour* — designers certainly don't have the same media budgets to hawk their wares. Some notable architects are taking up this challenge, but I seriously doubt that it is a sustainable (or desirable) proposition for more than a few individual practitioners.

The larger profession needs to deal with the alarming disintegration of the civic realm, whether at the level of community or the centers of government. The lack of enlightened civic leadership actively seeking to express contemporary values and aspirations of society through the design of the physical environment leads to building becoming merely the by-product of our society's metabolic activities.

If architects are going to be relevant both culturally and economically, we need to become more realistic and less reasonable at the same time. More realistic in the sense that architecture isn't produced by taking the road of least resistance. The constant whining and complaining about the hardships of being an architect do not help the frame of mind necessary to accomplish what society requires of us — to generate and re-integrate relevant social, political, economic, aesthetic, and technical conten

Architects need to be more unreasonable in the sense that fundamental change seldom happens by reasonable people acti reasonably. What is "reasonable" is what normatively succeeds now, not what could be, should be, or needs to be. Architects, especially designers, need formal training i the political arts and negotiation to be able to operate effectively in the arenas of government, business, and the public domain. We need to be willing to overcome inertia, skepticism, inertness, even outrigh stupidity, and to do this every day without flinching. Moreover, we need to regain mastery over the process of building and b willing to accept calculated but significant risks. Our rehabilitation as players in the new century will not come from being more efficient vendors.

Paul W. Nakazawa AIA, Principal
Nakazawa Consultants
Wellesley Hills, Massachusetts

It was surprising to read Lior Couriel's opinion concerning the Israeli and Palestinian peace treaty in his "Letter from Jerusalem" [Summer 2002]. It is my belief that the magazine should not be a vehicle for personal opinions concerning international politics.

I admire the varied content of *ArchitectureBoston*, especially the views contained in your interesting interviews, and the ways i which our lives are affected by architecture It would be a shame to cloud that focus.

Marina Rendino
Sharon, Massachusetts

udos to *ArchitectureBoston*! I thoroughly njoyed the Summer 2002 issue on money, a pic that causes much anguish to many who bor in this profession. I'd like to comment n an aspect of that topic that I believe flects a series of ethical dilemmas facing ore than a few of our colleagues.

Vorking for public-sector and non-profit ients, our firm is constantly faced with the eed to be as "competitive" as possible with gard to our contract design fees. Often, e principal challenge to architects and their nsultants is to produce projects that sponsibly serve both owners and users with ficiency, dignity, and humanity, despite e limited resources available to support the esign professionals' efforts. Frequently, the eatest degree of satisfaction to be derived om a project's completion is the realization at this puzzle has been well solved.

Ve recently discontinued discussions with two cal charitable non-profit clients over terms n substantive design contracts. One client sisted that design fees be deferred until after e project was fully complete, a payment hedule they claimed was acceptable to nother local firm. The other client elected to vard their design contract to a local firm he same!) that agreed to do the entire project o bono.

bviously, in a market economy each of us is ee to price our services as we individually see . The US Justice Department's actions gainst the design professions in recent years s underlined the need for an arm's-length lationship between practitioners when it mes to setting contract fees. Nonetheless, I lieve there is an issue of ethics raised by ese recent occurrences, one that is worthy exploration by the profession at large.

n architect's responsibility to the client goes yond a strict interpretation of the words cluded in the design contract. There is an ligation to the eventual users of the built vironment (and to the public in general) at is shortchanged when insufficient fees are ailable to support thoughtful, coordinated forts by the design professionals. Entering to a contract without sufficient resources to ecute the work properly is an abandonment these obligations. Architects have responsility to their consultants and staffs to pay fair ages and fees for services rendered, and to ovide reasonable support and infrastructure r them during execution of their responsibiies. Architects entering a financial arrangeent similar to that outlined above would forced to transfer a major portion of the nancial burden onto those who work for them. I believe an architect has an obligation to the profession — to uphold its legal and ethical standards, and to avoid actions that will detract from the profession in the public's eye, or to obscure the potential value of fellow practitioners to potential clients. I suggest that business strategies such as those outlined above cheapen the profession and tend to encourage predatory practices against other design professionals.

D. Michael Hicks AIA
Executive Vice President
Domenech Hicks & Krockmalnic Architects
Boston

I read the roundtable, "Moving Forward: The Future of History," [Spring 2002] with great interest. George Thrush's ideas that the preservation and environmental movements represent the "only shared non-market values we seem to have codified" and that preservation and historical authenticity have emerged as default expressions of shared meaning is worth more exploration. Is it true "we don't have any focused criteria for evaluating newer buildings?" The issue to me is one of focus on *local* investments in long- and short-term social, economic and cultural values versus "foreign aid" that promotes controversy, competes with local activities, induces crisis-driven decision making, raises infrastructure costs and sets up "take the money and run" images that entice attention away from other criteria.

The controversy over Hans Hollein's design for 90 Mt. Auburn Street in Cambridge, Massachusetts was only peripher-ally about architecture or historic preservation. Hollein's design was a political statement. Harvard Real Estate (like a very spoiled child) is determined to do whatever it wants no matter what anyone says. The program and design thumbed its nose even at Harvard's wealthy alumni. Harvard Real Estate's idea to use the University's $40-billion endowment to compete with everyone wanting to build in Boston and Cambridge is raising the price of property and development — to its own as well as everyone else's disadvantage. Instead of using its endowment to help local citizens create residential properties and local businesses that support University needs, instead of helping address and resolve transportation, energy, water, and waste infrastructure problems, instead of listening to its alumni, teachers, students, start-up business leaders and neighbors, Harvard Real Estate said, through Hollein's design, that it is proud to be out on a limb by itself and delighted to stick it to everybody.

There's a pretty good reason neighbors like red brick. It's a very tolerant material that requires minimum maintenance and when used artistically is very beautiful. Brick was made locally in Cambridge and Boston until it became fashionable to use more expensive foreign materials to support fossil-fuel industries. The screen on Hollein's design needed to be heated to keep from dripping ice or wet snow on the necks of passers-by. The Georgian buildings surrounding the site, such as Lowell House, express the intimate urban scale that has drawn people to Harvard for years and still does.

Peter Roudebush, President
Association for Public Transportation
Cambridge, Massachusetts

It was very insightful to read the letter from Theodore Szostkowski AIA of Kallmann McKinnell & Wood Architects [Summer 2002] defending their presentation of Boston's World Trade Center West project before the Boston Civic Design Commission.

In the letter he states, "Since this element [a substantial cornice integral to the design], *as we came to learn*, would have required a building code variance..." (Italics are mine.) Why is it with many architects that design comes first and code compliance is an afterthought, or as appears in this case, is brought to the architect's attention by others? Is it not our professional responsibility to our clients to ensure that our designs, from first schematic to occupancy, are in total compliance with all applicable codes?

The AIA Building Performance PIA [Professional Interest Area], in its role as educator of codes to architects, always stresses the need to do code reviews early during project development to ensure compliance and to avoid costly redesign, lost time, project delays and embarrassment to clients. Not only is it our professional responsibility, but it is also good business practice.

Jerry R. Tepe FAIA
Building Performance PIA Advisory Group
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Letters may be edited for clarity and length and must include your name, address, and daytime telephone number. Length should not exceed 300 words.

WATER & FIRE

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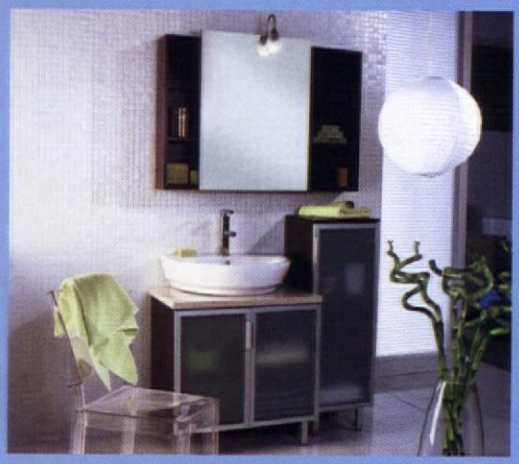

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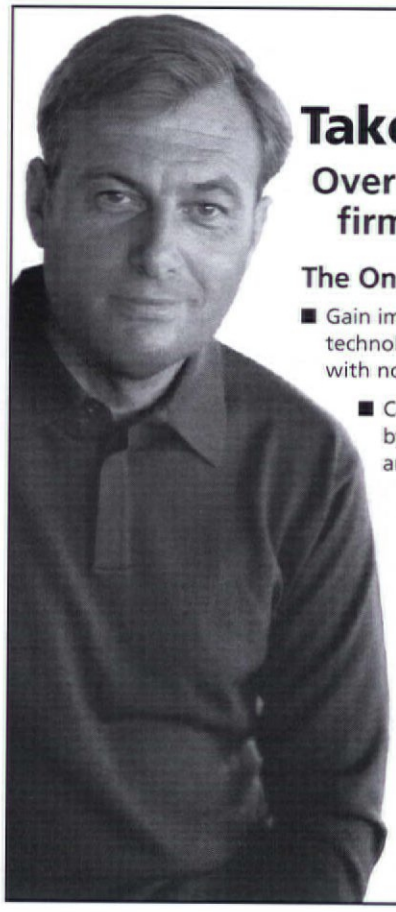


Body-Building:
Buildings, health, and well-being

Participants:

Elizabeth "Zibby" Ericson FAIA is a principal of Shepley Bulfinch Richardson and Abbott in Boston.

Valerie Fletcher is the executive director of Adaptive Environments, an educational non-profit in Boston, and the former deputy commissioner of mental health for the Commonwealth of Massachusetts.

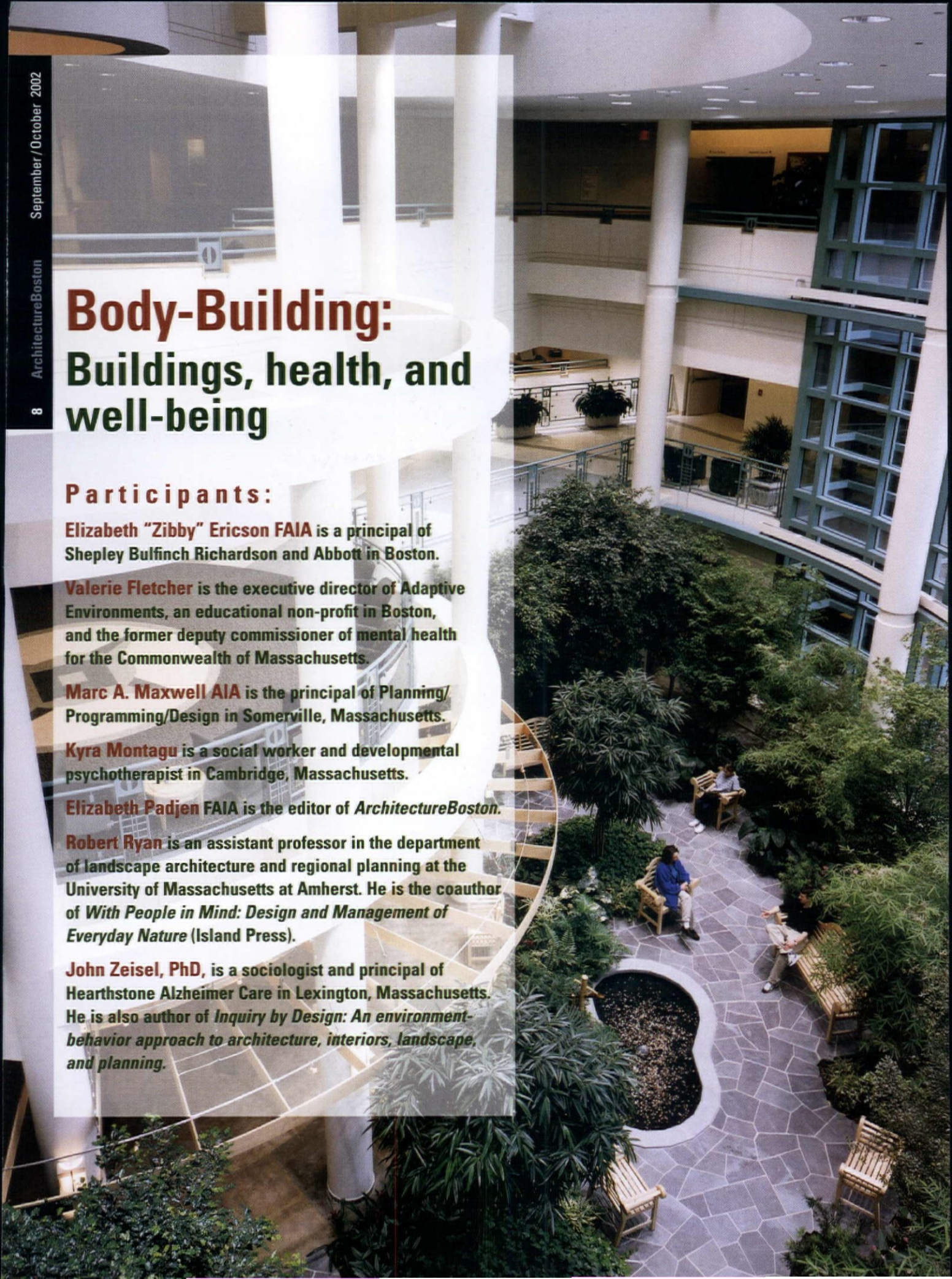
Marc A. Maxwell AIA is the principal of Planning/Programming/Design in Somerville, Massachusetts.

Kyra Montagu is a social worker and developmental psychotherapist in Cambridge, Massachusetts.

Elizabeth Padjen FAIA is the editor of *ArchitectureBoston.*

Robert Ryan is an assistant professor in the department of landscape architecture and regional planning at the University of Massachusetts at Amherst. He is the coauthor of *With People in Mind: Design and Management of Everyday Nature* (Island Press).

John Zeisel, PhD, is a sociologist and principal of Hearthstone Alzheimer Care in Lexington, Massachusetts. He is also author of *Inquiry by Design: An environment-behavior approach to architecture, interiors, landscape, and planning.*



adjen: As I began to research the subject that e're calling the "body-building connection" — the elationship between buildings and human health nd well-being — I was startled to realize that this pic has not received much academic attention in is region. Here we are in one of the world's great edical research centers and in one of the great enters of architectural education. Isn't it odd that here doesn't seem to be much cross-fertilization etween them? Can you suggest any reasons for is disconnect?

yan: I can offer one reason why I think it's issing in design education. Most design awards, both architecture and landscape architecture, em to come to those who give beautiful form to aces and not to beautiful places for people. o I think the neglect of the physical and mental enefits of design on people is a reflection of the ct that the professions — or at least the people ho give the awards — don't value the design of laces that are really good for the people who are oing to inhabit them. A lot of environmental sychologists, architects, and environmental-design esearchers have worked on these issues at institu- ons in other regions. For example, researchers illiam Sullivan and Francis Kuo at the University f Illinois at Urbana-Champaign did some really roundbreaking studies of public housing to nderstand the benefits of having trees and open aces. And they found that buildings that had ees and open space had less crime and violence an those that did not; they had more sense of mmunity, less Attention Deficit Disorder among e school children. We as planners, architects, nd landscape architects can learn a lot more from ese kinds of studies.

adjen: I'm curious about the history of this eld of study. How far along is it in its maturity?

Zeisel: This is actually a very old field — it had a presence in all the design schools in the Boston area in the 1970s. Environmental psychology actually had its birth here. The first environmental psychology conference — what later grew into EDRA, the Environmental Design Research Association — was in 1969 at MIT. The interesting question is, Why isn't it here any more? I believe two things happened. First, it was a fad. People said, "We want to have those environmental psychologists around" — that was when I was hired to teach at the Harvard Graduate School of Design. Then the fad changed, and designers moved on, saying, "Let's not have sociologists and psychologists; let's have computer experts." The other thing that happened is that we were successful. Lots of designers studied these issues and put what they learned into practice. They're just no longer calling themselves environmental psychologists. It's gone into the design mainstream.

Maxwell: It may be in the mainstream, but from a practice standpoint, it takes a very special client who allows a designer to explore environmental issues and the connection between the occupants and the space that you create. In my experience, the average client thinks that this will slow the process down. I've had the same reaction from other architects. When you start being specific about how environments fit users, you're talking about non-standard solutions, spaces that might not, for example, fit into repetitive bays as easily as they did before you started this level of conversation. You really have to have someone who is obsessed with quality and the fit between the product and its users.

Padjen: Who drives this kind of discussion when it does occur? Is it the client? The architect? The building occupants?

It takes a very special client who allows a designer to explore environmental issues and the connection between the occupants and lthe space that you create.

—Marc Maxwell AIA

Facing page:
Bronson Methodist Hospital
Kalamazoo, Michigan

Architect:
Shepley Bulfinch Richardson and Abbott

The light-filled atrium alleviates the stress and anxiety often associated with the hospital setting.

Ericson: I'm going to put a plug in for architects because I think we operate out of intuition about making places. We are a learning lab. Our biggest problem is how to communicate this information — how to talk to clients in a way that's believable. It's hard to find hard data. Trying to quantify intuition is very difficult. When I start to design a hospital, I say, "What's really necessary is a garden." Literally a garden. And then I work hard to explain that this is a source of healing. Sometimes I succeed and sometimes I don't.

Maxwell: I agree with you, in that a lot of what we portray to our clients is anecdotal — we've had a good experience doing something and we think we can replicate it in another project. But when you say we can't quantify it, I disagree. It just takes an extraordinary amount of time and analysis to do it. And then the question becomes, What do you do with the information once you have it?

Ericson: True. But it's hard to find the data in the first place.

Maxwell: And it's hard to find a client who's willing to pay you to go out and get it.

Ryan: There's already 30 years of research on the very issues that Zibby mentioned. It shows, for example, that prisoners with garden views get out sooner for good behavior. Office workers with daylight and views of nature are more productive and have less absenteeism and job turnover. And there are health benefits in hospitals where patients have green views. But it takes time for practicing architects and landscape architects to go through the journals to find all this.

Zeisel: Designers tend to misuse the word "experiment" when they say they've tried something. An experiment requires measurement; otherwise, it's an adventure. But it is interesting to consider how an idea gets introduced. First of all it has to be in the general culture. In other words, 35 years ago when we all did this stuff, we were fighting an uphill battle. But popular culture now generally accepts the fact that good environments are healthy environments. The second way is through design professionals who embrace this information, not marginalize it as the work of specialists and consultants. And there is a growing number of such designers. The third is what Marc described — the organizational champion, somebody in the organization who says, "You mentioned gardens. I like that stuff. I saw it on CNN." With that, you can then say, "Let's look at the research." And then there's good and bad research. Probably 99 percent of it is anecdotal. But that's good enough for many design situations it's better than none.

Designers tend to misuse the word "experiment" when they say they've tried something. An experiment requires measurement; otherwise, it's an adventure.

— John Zeisel, PhD

Ericson: I'll share a success story of a project I worked on, because I think it's an example of all those. It's a large community hospital in Michigan. The hospital decided it was going to completely reinvent its culture and its mission. And so we started talking about holistic design. Nobody quite knew what that meant. But to them and to us it came to mean "mind, body, and spirit" and how that might infuse the design. The idea went beyond the physical building. It went into the community. We all asked, How can we address the needs of the individual, the family, and the community? One of their biggest decisions was to stay downtown. Then they decided to rehab some houses on the site and move them to another place in town and make them affordable housing. And then they decided that the street system around the hospital was a killer. Literally — people took their lives in their hands trying to find the front door. The hospital took on its environment — not just in terms of what would make the doctors or nurses or even the patients happy, but in terms of what would make the community well. What would make the community thrive? That kind of thinking began to infiltrate the program for the new facility. I used that argument to make my case for a garden — for a while, I was known as Sister Joy. When I told them I would like 5,000 square feet for a garden, they said, "Which cures the patient more? The physician in the OR or the patient in the garden?"

Zeisel: And I hope you said, "the patient in the garden."

Fletcher: Who set the course for all this?

Ericson: It was an example of the organizational champion, initially the president, Pat Ludwig. Unfortunately, he died in the early stages of the project; you could feel the air go out of the balloon. But people stepped up. An administrator became the new champion. Then the new president, who initially worried about details like whether there was enough wainscoting, got to the point where he couldn't care less about wainscoting and instead wondered if there would be joy in the building. The result was an amazing

Office renovation, DEGW London

Architect: DEGW

DEGW is a large architecture, planning, and interiors firm whose founders include Francis Duffy RIBA, a pioneer in the application of behavioral and environmental research to the workplace. DEGW's own office has served as a laboratory for examining the design process and for evaluating POE (post-occupancy evaluation) methodologiesl).

photo: Dennis Gilbert / View, courtesy John Zeisel

stitutional transformation that was carried rough even into details like clothing. If you are nurse, you wear one color, a doctor, another lor, an orderly, yet another color. It's not a class stem — it's a demonstration of respect for e patients, to help them make sense of a very nfusing environment.

letcher: I think part of the problem is that e lack a shared language for these kinds of scussions — whether they are discussions with lleagues or clients. Post-occupancy evaluation — udying the building in use — is probably the ost significant research piece that can be done, mething that might provide information of mmon interest. But there's no emphasis on its lue or on the potential of rapid replication of od ideas in new buildings. I am always looking cross-cultural differences in perspective on these sues. I note our American colleagues, particularly architecture, have fallen short of being able to mbrace a notion of human-centered problem-lving. Because architecture here is regulated by mpliance codes, the unintended consequence is at designers feel that their duty to provide eative solutions to user-centered problems is mehow relieved, or perhaps overridden, by the rden of their obligations to meet the requirements the law. It seems to shoot down the user terface with the environment as a source of eativity.

ricson: I agree. Standards can be valuable, t they can "dumb down" our thinking. We ould think more about performance measures d less about arbitrary regulations. A successful sponse to performance standards requires a fferent kind of knowledge and creativity. I'll offer example from my own experience. Elaine Ostroff, the former director of Adaptive Environments, invited me to participate on an awards jury for successful adaptive environments. Elaine wouldn't let us simply look at photographs. She said, "Oh, no. You are going out to meet these people, and you're going to test all these places with them." And what an education I got — I've never forgotten it. I went with a blind person to a building that had a circular interior corridor, and she could not find her way in that building at all. She said, "I can't hear" — because all of the sounds of people walking on the hard surfaces were bouncing off the curve and creating acoustical noise that she could not navigate through at all. It had nothing to do with lack of sight; it was an acoustic battle that the architect had created. Frankly, I would not be sensitive to that condition at all if I hadn't had this learning experience.

Maxwell: I'd like to amplify that. I gave a eulogy recently for a friend who had great physical disabilities and was a brilliant and gentle person. Before he died, I met an architect from a major firm who was doing some very specific design work for this person, an ADA-compliant private

Bronson Methodist Hospital
Kalamazoo, Michigan

Architect:
Shepley Bulfinch Richardson and Abbott

Natural light filters through in specially designed patterns to create clear wayfinding.

photo: Peter Mauss/ESTO

restroom for him. At the beginning of my conversation with th architect, I asked him if he'd met the gentleman for whom he was tailoring this space. He had not — he was getting his information through the facilities manager of the law firm who was getting it from…. You know how these things get handed off. If you looked at this individual, you would change your entire approach to the design. Facilities managers are charged with meeting the letter of the law and doing it fast and cheap. But how can we do this work and not say, "What's the issue fo *this* individual?"

Montagu: People have to know the population for whom they're designing. Even if you look only at healthcare facilities, there are great differences between designing for someone in a traumatized state and designing for someone who's beginning t recuperate. The requirements in both cases are quite different. One demands safety and protection; the other demands inspiration and stimulation.

Padjen: How well do you think architects understand that

Fletcher: I'd say there are some great successes and some great failures. We see successes in Alzheimer's care, where we have people who are exceptionally vulnerable. The power of the environment to shape their daily existence is something that ha come to be accepted. We see excellent outpatient design, particularly in oncology centers, and we see it in maternity centers, because we know that women think carefully about the experience of childbirth and choose where they want to be. But think any one of us could spend time strolling through the general hospitals in this town and be very disappointed by the lack of attention paid to the experience, from walking in the door to making our way through the hospital. There is persiste inattention to the user experience in our healthcare settings. An these are powerful places that touch each of our lives.

Zeisel: It's more than a question of design when it comes t large institutions like hospitals. It's a problem within the medic profession, within the healthcare system, with the client. These are large institutions that have no organizational champion for

igh-quality, human-centered design. It's an uphill attle. By contrast, developers of office buildings ow talk about the relationship between the quality f the office building and the productivity and the ealth of the tenants. It's marketing. Hospitals don't nake that argument because the medical profession oes not see itself as a business culture. With the xception of the special services you mention, where ompetition is strong and consumers have clear hoices, healthcare culture generally is not oriented oward the individual or the consumer. It's oriented oward illness and the tasks of treating illness.

adjen: We've been talking about designing or special needs and for people who are healing. Vhat about designing for well-being? What are the essons of designing for special needs or healthcare nvironments that can be applied to the broader nvironment?

yan: I used to tell my students, if you can design or children and the elderly, then you've got a lot etter chance of designing well for the spectrum in etween.

Montagu: One of the defining characteristics f the natural environment is diversity. But we don't ully understand what that means and what it might nean in the built environment. One of the flaws n most hospitals, it seems to me, is that they have a nonolithic character that makes them very nfriendly to users.

letcher: That is a really central point. At daptive Environments, we are zealots and roselytizers for two things. One is the power of esign to fundamentally alter our daily human xperiences and the second is the mutability of the uman condition. There could be nothing more rdinary than the inherent diversity of being human, hether that is cultural diversity, diversity of ability, iversity of age, appetite, whatever. There is nothing nore human than variety. How do we translate that uman vitality to our environment through design?

adjen: Think about two words or phrases that ntered the vocabulary of designers at about the same ime. One is "sustainability," the other is "universal esign." They both represent changes in thinking, oward what might be called a more ethical, esponsible kind of design. Universal design is specially interesting because it represented a undamental change in attitude from "design for the andicapped" — where the handicapped population vas "the other" — to an understanding that we all have limitations in varying degrees at varying points in our lives. Suddenly we all got to a point where we realized "the other" could be us.

Maxwell: I think there have been many unanticipated good outcomes from what was "handicapped design." The seniors housing and assisted-living projects that I work on today are entirely different from what they were 15 years ago. Fifteen years ago, I argued with every client about 36-inch-wide doors. They all had doors that were 30 inches and bathroom doors that were 27 inches because that was considered "residential." Architects fought about including ramps 10 years ago; now they are everywhere. I actually think that the skateboard park came out of ADA — the ramps that we build can be joyful. And so there are many things that have changed, and of course, lots of work still to be done.

We've seen some crossover between the trend to design more environmentally friendly buildings and the design of healthful buildings that respond to the physical needs of the occupants. Firms that focus on sustainability are more likely to also focus on universal design. I believe that much of the interest in these fields initially came from people with particular health issues. Attention to indoor air quality started because some people got sick who had the resources or the tenacity or the knowledge to go out and say there's a problem here, what's the root cause, and how do we solve it? And that kind of thinking became a trend. Green architecture was once a fringe movement and now it's mainstream.

Zeisel: I would like to make an argument for how we should address these issues. It's a matter of strategy. Buckminster Fuller told the story about how he intended to kill himself at an early age because he was spending so much time trying to convince others to be an audience for his ideas, but people weren't listening to him. He went to the edge of the ocean and was going to drown himself. Then he realized that if he was willing to kill himself, he should be able to live just talking to people who *wanted* to listen to him. And he made a commitment to himself, which has changed my life since I heard him talk about it many years ago, that he would never talk to anybody who didn't want to listen. And that was the way to his success. We can either continue talking about all the people who aren't doing what we consider to be important, or we can build on the stories of the success of the people who are. There are countless examples. Wolfgang Preiser and Elaine Ostroff just edited the *Universal Design Handbook* — it has a totally different perspective on

There is persistent inattention to the user experience in our healthcare settings. And these are powerful places that touch each of our lives.

— Valerie Fletcher

Library, Hillsdale College, Hillsdale, Michigan

Buildings providing views of nature promote more sense of community, less crime and violence, and less Attention Deficit Disorder among school children.

photo courtesy Robert Ryan

universal design. There is of course, Clare Cooper Marcus' newest book, *Healing Gardens: Therapeutic Benefits and Design Recommendations* and her classic text, *Housing As If People Mattered*. The International Academy for Design and Health, of which I'm chair of the Advisory Board, is having a conference in Montreal in June 2003. There's the "Synergy" conference in Sydney, Australia on art, design and health in February 2003. The International Federation on Aging is holding a conference with a focus on universal design in Perth, Australia in October 2002. This is a huge amount of information – it's out there. There are thousands of people attending these events from around the world. What's important now is to recognize that there's a whole movement out there. We can carry on, and we don't need to talk to the people who are not interested.

Fletcher: I think the one area where I would take issue with you is design education.

Zeisel: Absolutely. I agree that major work still needs to be done in education.

Fletcher: If young people who are passionate about design are not given the appreciation for where this fits into their sense of professional and personal values, then we will have missed a generation. We'll miss the integration of these values into their sense of self and their professional expertise, and that's a tragic gap. And unfortunately, I think we're still seeing a presumption in the schools that design quality is somehow diminished by a focus on the user experience.

Maxwell: There's often a disconnect in the schools, a focus on design that does not value the participation of people other than designers, administrators, and politicians. The only place you get away from that is in planning or urban design programs.

Ryan: And yet, if we involve the users in the design process, the final product will be something they have a stronger attachment to because it fulfills their needs, so they'll be better stewards of it.

Ericson: I think that by using the word "user," we're not really conveying our message. It's a very one-dimensional word. And now we're talking about the user and the designer, so we've got two people involved. But in fact there is also a world that is involved. We need to come up with a different way of talking, because we live in a very multidimensional, interconnected world.

Maxwell: One of the issues that we really have o address is the fact that the "users" — the residents, he occupants — are often not the paying client. The ffice worker, the school child, the hospital patient — all these people are the ultimate users of our paces. They're hardly ever the architect's direct lient, but they are the ultimate client. And so we do ave to broaden our definitions and our nderstanding of who it is that we work for.

ricson: One way to do that is by building lliances. We could work with organizations like daptive Environments, as people to talk to egularly. We could have resource groups of people vith various disabilities to talk to about our designs. Ve could then create a community of learners, earning about how we live, and how we want to mprove our environments, and how design nfluences our lives.

Montagu: It seems that you're advocating hifting the politics of the design process. How do ou communicate to potential clients the need to ring more players to the table?

Maxwell: The organizational champions nderstand that. When Zibby was describing her ospital project, my thought was that either the uilding committee included a lot of people who ere not only board members, or that the board nembership was very broad. There were lots of ifferent people with varying perspectives in that rocess. You are right — it is political at one level, lthough I think the politics vary with the type of uilding.

yan: But I do think we need to broaden our hinking beyond the people who physically inhabit he space — the office workers or the residents. I've one it in park research, where I try to look at what I all the "involvement continuum" — the people who ust drive by the park or see it from their house ersus those who are actually using the park, jogging, r planting flowers. Similarly, I would think of the sers of a building as including the people who drive r walk by it every day but never set foot in it. omehow that building has an impact on their ndscape. You might also include people who are nked to a building conceptually but don't inhabit it. or example, parents whose kids go to school. The arents never physically inhabit the space, but they're ery concerned about what kind of building their ids inhabit.

Fletcher: And, to complicate matters, there is the question of life span. Our life spans are much longer on average than they were 100 years ago, which has implications for how we interact with our environment at different points in our lives. We as individuals are always changing. And there is also the question of building life span — one building may touch many lives in many different ways in the course of its history.

Montagu: And that makes a fundamental difference in our expectations. Based both on architectural details and on our own memories and associations, we encounter these environments with specific expectations, which are often culturally determined as much as achieved through design.

Maxwell: Different populations expect different things. Office workers expect ideal lighting and room temperature, that the piston on their chair will work every time they sit down, that their monitor turns on every time they hit the switch. It's a 100-percent expectation. I don't think we have that level of expectation in our homes. In our home environment, a crack in the wall is not the same thing as it is in a hotel room.

Ryan: And expectations vary around the world in terms of culture and regulation. In Germany, every office worker needs to be within something like 30 feet of a natural daylight source. So they consider natural daylight to be a right, not a privilege.

Zeisel: We still have to invest in research to prove the value of some of these assumptions. We believe them, which is fine. We're in a country where a lot of people believe in weird stuff these days. I'm not sure, for example, that the German belief is better than our belief. What we don't have is all the research that proves it. There's a huge difference in the amount of money that is spent on drug research compared to the amount that's invested to look at the impact of the physical environment on health.

Maxwell: Is that because we don't have the methodology to study it? These are questions that are hard to administer to a double-blind, placebo-based, longitudinal study of 2,000 people.

Zeisel: You're right — we can't, for example, prove the case for daylight by providing daylight for 1,000 people and providing no daylight for another 1,000 people. But we can find appropriate methods, and we're working on changing the paradigm for research. One thing is to build on the success stories, as I said earlier. The second is to start putting

I think of the users of a building as including the people who drive or walk by it every day but never set foot in it. Somehow that building has an impact on their landscape.

— Robert Ryan

forward the idea that architects, designers in general, as one of their volunteer efforts, should do evaluations and collect data and share it. We now have the tools to do it and we know that they work.

Ericson: And I suspect there are questions that we are just beginning to ask, let alone devise research strategies for. I, for example, am interested in the concept of environmental memory. To take an example, if you are in a building where you know there have been four different restaurants that you can remember by name, and the person next to you only knows it as a new restaurant, what's the difference in how you feel about your environment? Does knowing the history of a place give you a more stable viewpoint of the world or not? It has fascinating implications. Let's say, for example, that you're in a ravaged area, like Bosnia, where the environment has been obliterated — will that in itself induce traumatic stress syndrome?

Montagu: Are you familiar with cultural mapping? It's very interesting. There was a project sponsored by a group called Eco-Trust who studied an aboriginal group in British Columbia who finally regained control of their land. It was one of the few land re-settlements ever to happen in British Columbia. But nobody had a memory of what had been there, just what they could reconstruct from a few vestiges. So they did a wonderful project to map all the uses of this land that could be recollected. Young kids interviewed elders and their memories were layered individually on top of the topographical map and later used for planning ecosystem reclamation for ecotourism. This process is now being replicated everywhere. You mentioned Bosnia — it's now being used with refugees who return to places where there are conflicting claims about whose house was where. And it's a very interesting approach to the kind of research you're talking about that might have physical or mental health implications.

Zeisel: Neuroscience is also looking at these questions and I believe this effort is going to be a big part of the future of what here is being called "the body-building connection." There are some questions we can't yet answer, for example, do our brains work differently if we're living in an elderly housing project in the building where we attended elementary school? But today we know a lot more about how the environment supports the function of the brain. There is a connection. We now know that if you put children with Attention Deficit Disorder into physical environments that work better for them — that are more understandable and safer — they won't have ADD any more.

Fletcher: There's an implication here for the research funding issue we discussed earlier. There is a lot of funding focusing on the technology of mapping what's going on in our brains, applying digitalization to the way information is processed in the brain. We can actually measure the "firings" of the brain. That has not been applied to our environmental response, or specifically to the power of design on our response to our environment.

Zeisel: That's because it's easier to test people lying down for an MRI scan. But clearly, MRI and PET scans are the future in terms of the kind of research we're talking about. We know about the connection between ADD and physical environments. We know there's a relationship between Alzheimer's and the environment. This is just the beginning.

Ryan: A lot of the research I've seen has to do with the importance of plants and temperature and natural environments for limiting ADD and similar conditions. I think the jury's still out on how well — or how much — the environment needs to be "designed." It's the natural environments that make a difference. The research has not yet demonstrated a need for designed environments.

Fletcher: But the time is coming when we will know the answer to that. We'll be walking around with chip technology implanted in our brains that will allow researchers to do the kinds of measurements we need. And as we move toward performance measures and away from regulatory standards, we'll be better able to integrate new research with the designed environment.

Ericson: Technology aside, at some level, we're talking about experiential design — understanding the experience of the people we are designing for and responding creatively to specific circumstances.

Zeisel: And I believe there's a large group of people who already believe in these things. It's taken 30 years to get here. But it's here. ■■■

Technology aside, at some level, we're talking about experiential design — understanding the experience of the people we are designing for and responding creatively to specific circumstances.

— Zibby Ericson FAIA

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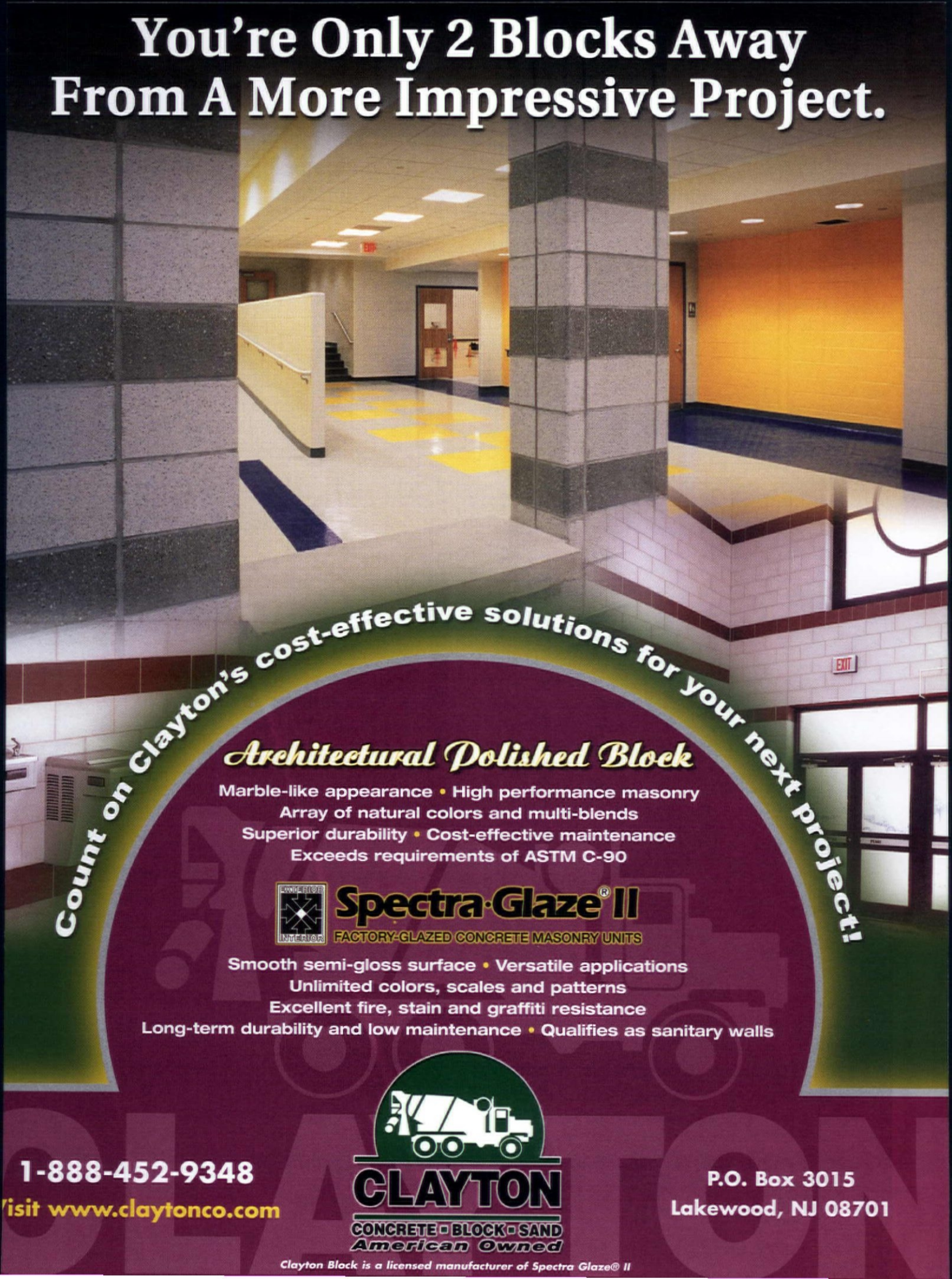

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Building the Bunker:
Defensible space and defensive behavior

by David Dixon FAIA

By failing to understand the complex ways that buildings affect human behavior — both good and bad — we risk poisoning our own way of life as effectively as would the greatest dreams of the terrorists who threaten us.

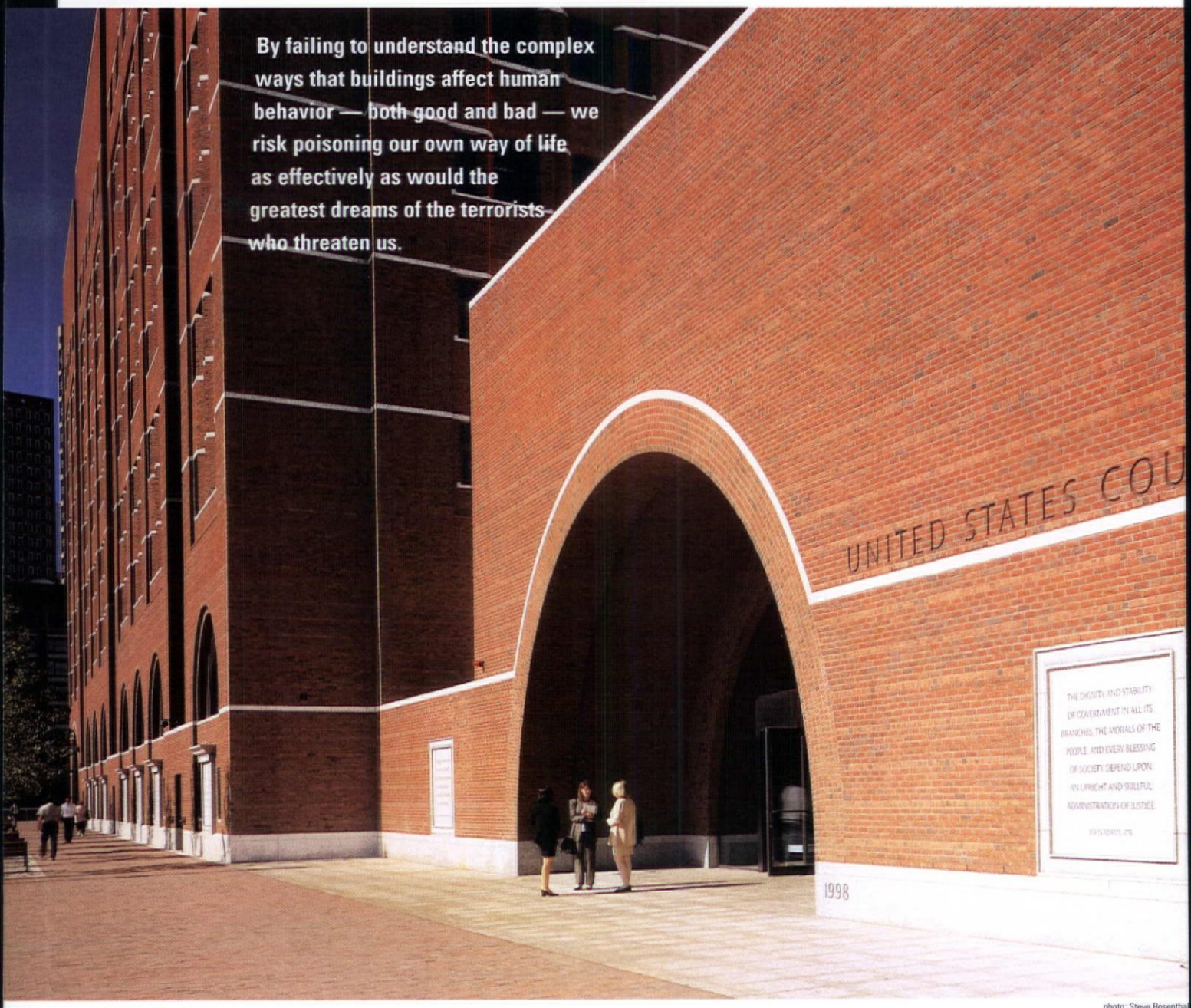


photo: Steve Rosenthal

America's sense of vulnerability following September 11 threatens to convert a war against terrorism into a war against the livability of America's own cities.

Our current sense of unease is not a new phenomenon. The 1973 oil embargo unleashed a profound sense of vulnerability in America. A colleague recalls, without fondness, her quaint Connecticut community's response to the embargo: joining many other communities in banishing windows from new schools. To a society single-mindedly focused on conserving energy, that windowless school symbolized patriotism and civic responsibility. In retrospect, that school also symbolized an aberration, a sense that energy conservation trumped the qualities that make schools nurturing places for learning.

September 11 unleashed a new sense of American vulnerability. Federal agencies, city and state governments, insurance companies, and other players are busy spinning a web of planning and design regulations intended to help defend against terrorism. The goals are benign: reduce the likelihood of terrorist attacks and the resulting loss of life and property. The means are straightforward: create 100-foot "security perimeters" around buildings free of vehicles or people (who might carry bombs); control access to targets by eliminating multiple entries; "harden" buildings to withstand blasts by measures such as requiring thick walls with fewer windows and eliminating most windows at street level.

By failing to understand the complex ways that buildings affect human behavior — both good and bad — we risk poisoning our own way of life as effectively as would the greatest dreams of the terrorists who threaten us. New regulations threaten to endow America with a new generation of buildings like the windowless school in Connecticut: civic icons hidden behind solid blast-resistant walls; important cultural and commercial landmarks isolated within lifeless zones free of vehicles or people; and government offices and courthouses scattered to low-density suburban and rural sites. The public realm will suffer, too, if city streets and squares become less safe by eliminating the windows and doorways that promote interaction between buildings and streets. And since no one can define what constitutes a potential target, America faces an endless list: courthouses, embassies, landmarks, city halls and state houses, iconic office towers and other highly visible symbols; important institutions like museums and universities; popular attractions like theme parks, athletic events, and festivals; and key infrastructure, including airports, water systems, power grids, and bridges. Because the list is endless, the impact of new regulations can be limitless.

Over the past two decades, American cities have emerged from a long night of defensive planning and design in which fear of crime, decay, and unfamiliar diversity reshaped the heart of many great cities into bleak, unwelcoming environments. In contrast, the 1980s and '90s were marked by projects like Boston's revitalized South Station and Rowes Wharf, which broke down the barriers between public and private. In the wake of the Oklahoma City bombing, Senator Daniel Patrick Moynihan went a step further and urged Americans to commit themselves to creating buildings and public spaces that embody this country's civic and democratic values. The response to September 11 threatens to undermine this commitment in three key areas:

Fostering community. Henry Cobb FAIA, the architect of Boston's new federal courthouse, which occupies a magnificent waterfront site at Fan Pier, designed a winter garden overlooking the harbor and downtown to house public events. I was asked at a conference of architects whether the events of September 11 had diminished public use of this space. The immediate answer was: Yes. The more important answer, however, was that the courthouse already symbolized how security concerns diminish a lively public realm that fosters community. Sitting on the principal pedestrian route between the Financial District and the new Seaport District, the courthouse turns a blank wall to the street for an entire city block, placing the building in splendid isolation, dampening nearby public life, and severing the two districts it was meant to connect.

In sharp contrast, the Massachusetts State Transportation Building in Boston, which opened in 1983, embodies community-friendly design: a mix of uses, including shops, services, and restaurants to revitalize Boston's Park Square; parking hidden below the building; and a fully public interior "square" enlivened by cafés, entertainment, and steady pass-through traffic from multiple entrances. These qualities also happen to be the hallmarks of "defensible space" — Oscar

Facing page:
The John Joseph Moakley US Courthouse, Boston

Architect:
Pei Cobb Freed & Partners in association with Jung/Brannen Associates

The US Courthouse in Boston already symbolizes how security concerns diminish an architecture that that fosters community and a lively public realm.

Newman's term for his respected observation that an active, people-filled public realm is a powerful tool for promoting public safety. Eli Naor, a California architect who grew up in Israel, told me that throughout its years of crisis, Israel has remained committed to buildings and public spaces that promote community. Faced with terrorist bombings, cities like Madrid and Paris have not closed important public buildings off from streets and squares.

Fighting sprawl. Last October, "Today Show" co-host Katie Couric asked George Thrush AIA, director of Northeastern University's architecture program, whether "the war on terrorism means the end of towers." In December, Steven Johnson, writing in *Wired* magazine, suggested that "if there are to be new rules for the new warfare, one of the first is surely this: Density kills." And in a recent issue of *Architectural Record*, noted architect Leon Krier suggested that the high death toll associated with the attack on the World Trade Center argues for lower buildings.

George Thrush answered Katie Couric by pointing out that "we are also fighting another war, on sprawl" and that "towers represent an important alternative to sprawl because they help achieve urban densities." In most regions, sprawl is also a threat. The number of miles people drive each year in metropolitan Boston has increased more than 15 times faster than population growth since 1970. Suburban shopping centers continue to drain life from older Main Streets, and sprawl is reinforcing racial and economic segregation. These trends are being repeated across the country. Security-driven steps such as decentralizing public employees, placing large, empty setbacks between buildings and sidewalks, and avoiding height when land is scarce, all undermine essential tools for fighting sprawl: focusing growth toward developed areas and reestablishing the traditional densities necessary to support urban Main Streets and public transit.

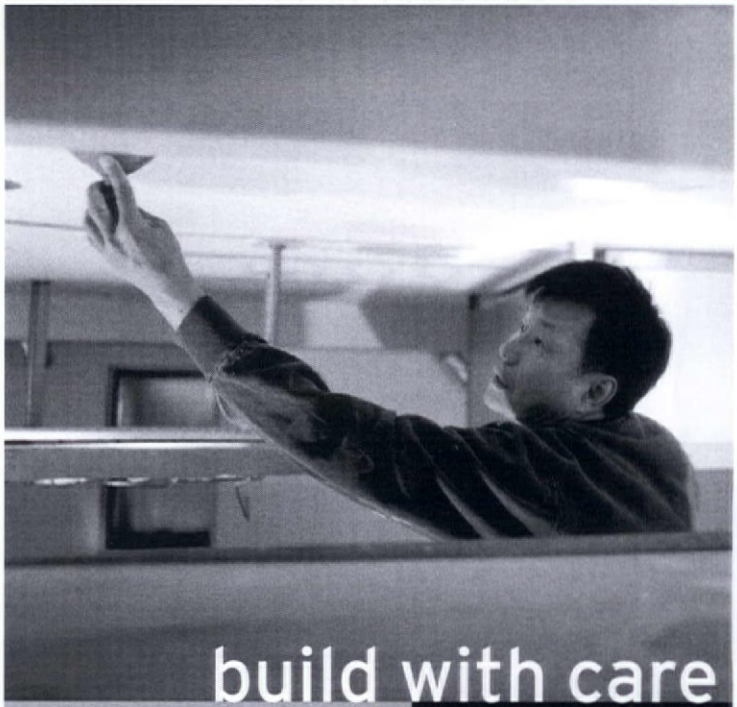
Revitalizing older communities. For years, the federal General Services Administration (GSA) has been the sponsor of the only significant new investment in many older communities, because of its policy of locating post offices on older Main Streets, courthouses and federal office buildings in older downtowns, and federal office buildings in high-unemployment communities. In Boston, the O'Neil Federal Office Building led the way to revitalization of the Bulfinch Triangle in the 1980s. For many older downtowns, new public buildings represent the only hope for new investment.

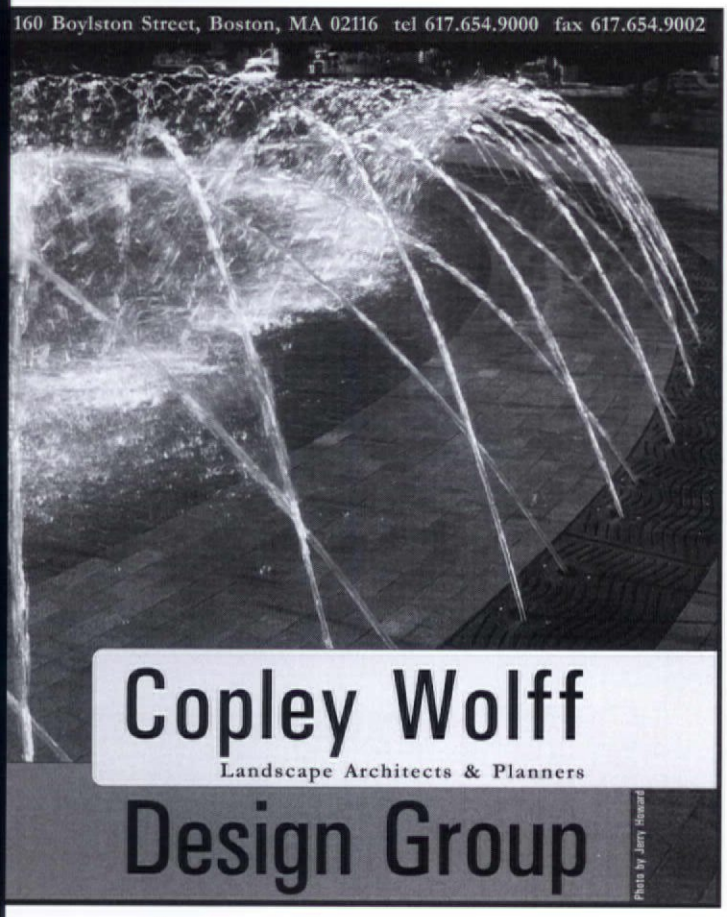
The Bureau of Alcohol, Tobacco, and Firearms committed to building a new office building in a depressed part of downtown Washington, DC. Following September 11, the Bureau added a security requirement: a 100-foot *pedestrian-free* perimeter zone. Although the continued commitment to an urban site is commendable, this setback and similar security requirements spell the end of locating public offices, courthouses, and other buildings with significant security concerns in older downtowns. These buildings — along with their associated jobs, disposable income, and demand for housing, indirect tax revenue, and many other benefits — will be forced outward to remote suburban sites.

Postscript: Where do we go from here?

Following Oklahoma City, architects designed artful "hardened streetscapes" for the Federal Triangle in Washington, DC. Innovative benches, bollards, and streetlights, together with more street trees (a "hardened" tree presumably is a larger tree) will protect civic buildings and enhance the public realm, pre-empting far more drastic proposals to ban vehicles and people and erect walls around public buildings. To date, the debate about our physical response to terrorism has been dominated by security professionals and others with backgrounds in designing embassies and other buildings for which security is a paramount issue. The key to the Federal Triangle outcome was participation by a far wider array of architects, planners, preservation advocates, and people whose focus is the quality, character, and vitality of cities. We need a similarly broad-based national dialogue to ensure that we maintain our society's commitment to building livable communities as we respond to terrorism and that we avoid the single-minded response that brought a small Connecticut town its windowless school. ■■■

David Dixon FAIA is an urban designer and principal of Goody, Clancy & Associates in Boston, designers of many public buildings, including the Massachusetts State Transportation Building. He is the president-elect of the Boston Society of Architects.





A Green Grand Tour:

Lessons from Europe's best green buildings

by Bruce Coldham AIA

photo: Bruce Coldham

In April of 2000 I stumbled into a small exhibition at the Urban Center in New York City. Called "Ten Shades of Green," it featured a collection of elegantly designed buildings with ecological intelligence and integrity, almost all of them European. It proved to be an epiphany. Six months later, in the company of four friends, I spent three weeks touring 34 of the most celebrated green buildings in four European countries — Germany, Switzerland, Holland, and England. Our goals were to understand real design innovation as an architectural expression of ecological and environmental building; to unearth innovative, practical, and transferable green building strategies; and to separate the hype from the heroic.

Caveats

There are important differences between northern Europe and the US Northeast that affect building design. The climate of northern European is more moderate: temperatures seldom drop below freezing nor rise above 90 degrees Fahrenheit, and summer relative humidity is significantly lower.

Depending upon the location, buildings in the US Northeast need cooling and/or dehumidification during 6 percent of the hours of the year to retain comfortable conditions (and 4 percent of the hours represent conditions that are beyond the capability of passive design or passive technologies). In contrast, buildings in Frankfurt require cooling or dehumidification (either passive or mechanical) for fewer than half of 1 percent of the year.

There are important political and social differences, too. Europeans consider the control of carbon dioxide emissions to be a serious issue — one that receives the attention of government, the civil service, business and industry, and the electorate. They also have a greater

understanding of the value of long-term investment and, accordingly, buildings are designed and constructed to be more durable. **And Europeans appear to have a higher expectation that buildings will and should be healthful, pleasant, comfortable, and uplifting places.**

Observations

Most of the buildings we visited featured reinforced-concrete structural systems that were left exposed in otherwise finished, occupied spaces. Probably stemming from postwar shortages of steel, reinforced-concrete is commonly used in European buildings, which consequently have higher structural mass than their equivalents in this country. Buckminster Fuller asked "How much does your building weigh?" with an eye to shaming architects into designing low-mass structures. In Europe, the mass appears to earn its keep.

We were struck by the complete absence of suspended acoustic tile (SAT) ceilings. Elements such as air ducts, cable trays, conduits, and receptacle boxes were all commonly mounted and exposed in the finished space.

Not surprisingly, acoustical control is frequently a problem. There were interesting, and sometimes desperate, measures to introduce sound absorption elements, and there appears to be no consensus on how to manage sound attenuation — it varies according to the size and function of the space and the design sense of the architect. However, sound control is less of a challenge with the narrow plan forms (a high proportion of exterior wall to floor area) that we mostly encountered than it might be with the large, wide floorplates that are typical in many American office buildings.

A common feature of many buildings we visited was the complexity of façades, which routinely included exterior shades or brise-soleils (both fixed and movable), as well as interior blinds — all of which tended to suppress the interior daylighting levels. We initially found this curious in a part of the world with significantly lower solar intensity than in the US, but we gradually deduced the rationales behind them: the lower sun angles, the absence of winter icing, and a desire to diminish the high contrast between perimeter and internal daylighting levels — dispelling the perception of relative darkness and the consequent urge to turn on lights.

We saw some cleverly and carefully designed mechanical systems that reduced fan energy (a surprisingly big energy user in commercial buildings) to as little as one tenth that of typical US buildings. Some buildings use ventilation systems relying on gravity and wind for the power to move air — several using only these natural forces, while others combined mechanical and natural power.

The Queens Building (the School of Engineering) at De Montfort University in Leicester, England, uses ventilation towers to induce a natural air flow, producing dominant architectural elements in the building design and massing. In a different strategy, the Cable and Wireless building, in nearby Coventry, relies on cross ventilation because studies by consulting engineers at Arups found it to be a more effective ventilation strategy. That insight produced a sinuously curvaceous roof and a predominantly horizontal building form, avoiding the expensive ventilation towers, and demonstrating the architectonic opportunities associated with this natural ventilation strategy.

photo: Bruce Goldham

Wessex Water

Architect:
Rab Bennetts

Systems Engineer:
Buro Happold

Facing page:

Jubilee Campus of Nottingham University

Architect:
Michael Hopkins and Partners

Systems Engineer:
Arup

Below:

Cable and Wireless

Architect:
MacCormac Jamieson Pritchard

Systems Engineer:
Arups

Right:

Jubilee Campus of Nottingham University

Architect:
Michael Hopkins and Partners

Systems Engineer:
Arup

photo: Bruce Coldham

photo: Bruce Coldham

The Jubilee Campus complex of Nottingham University is an especially interesting building. It is not ventilated by natural means alone, but instead by a "mixed mode" system, which exploits a combination of three natural ventilation strategies (cross-ventilation, the stack effect, and a wind-capture technique), supplemented by fan power. The significant achievement of the Jubilee Campus is the reduction in fan power requirements to approximately one-tenth of what would be expected in a conventional building system. This is achieved by using the corridors, stairwells, and other large architectural spaces as "ducts" through which the supply and exhaust air moves, as well as by designing air bypasses for the cooling coils for the 99 percent of hours of the year when cooling is not required. The "mixed mode" allows for heat recovery which is impossible with fully natural ventilation systems. This approach probably has the greatest significance for integrating natural ventilation strategies in buildings in the United States.

Lessons

High-performing green European buildings have no unifying design character — other than the absence of SAT. They range in appearance from the highly resourceful glass box (Mader School in Austria) to the colorful and organically overgrown buildings by Joachim Eble — equally resourceful, though by different means.

The British building analyst Bill Bordass classifies buildings as either reliable "robust plateaux" or problematic "optimized pinnacles." The former are generally characterized by well insulated, airtight envelopes, façades that are glazed on less than half of their surfaces, significant interior mass, and few moving parts (as in sun-control devices). Bordass' second classification includes buildings that typically feature an excess of glazing requiring shades, operable windows, and the consequent complexity of controls necessary to avoid glare and interior temperature extremes.

Whichever model American architects follow, they would benefit from one characteristic that does unify all the projects we visited. Cost-effective, green buildings depend on interdisciplinary teams of mutually respectful design professionals. **The most successful projects were the products of thoroughly integrated design teams who had worked together through a succession of projects, fully engaged from the outset of each one.** The team approach eliminates the cost premium of creating green buildings by expanding the functional capabilities of various building components. Success requires innovation, which in turn requires design-team members to be fully supportive and trusting of one another. American architects are recognized internationally for their team-management skills. If we apply those skills to design collaboration, we will eliminate the need to buy a plane ticket to see outstanding examples of sustainable architecture. ■■■

Bruce Coldham AIA is a principal of Coldham Architects in Amherst, Massachusetts. He is an Australian who has practiced architecture in Australia and the UK before moving to the US. He has an MED from Yale and established his own firm in 1989, specializing in green buildings.

More information about the Green Grand Tour, including detailed performance reports on many of the buildings visited is available on the Web at www.coldhamarchitects.com.

"Ten Shades of Green," the exhibition that inspired Coldham's Green Grand Tour, will be on view at the Boston Architectural Center, 320 Newbury Street, Boston, from September 23 to November 1. For more information, call 617-262-5000 or go to www.the-bac.edu.

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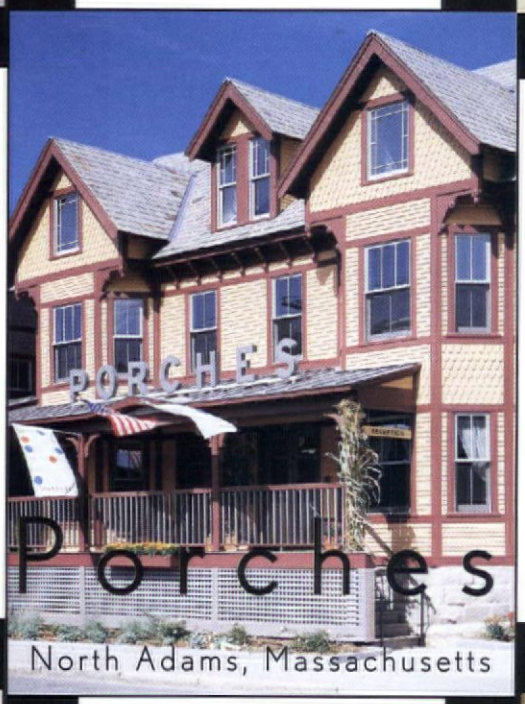
The spectacularly located and formerly overlooked city of North Adams is being revitalized through art – cutting edge, contemporary art. A block of seriously dilapidated but sturdily built, beautifully detailed Victorian row houses located across the street from MASS MoCA's Building Five were earmarked for renovation by Berkshire Hills Development. With the proximity toMASS MoCA and other cultural events and venues, it made good economic sense to rehabilitate these Victorian row homes into a retro-edgy, industrial granny chic bed and breakfast.



The Porches started out as a replacement project that would utilize either custom Marvin Tilt Pacs or a competitor's insert windows. A.W. Hastings was consulted on behalf of the dealer's representative, Rod Puppulo from H. Greenberg & Sons in North Adams, Massachusetts.

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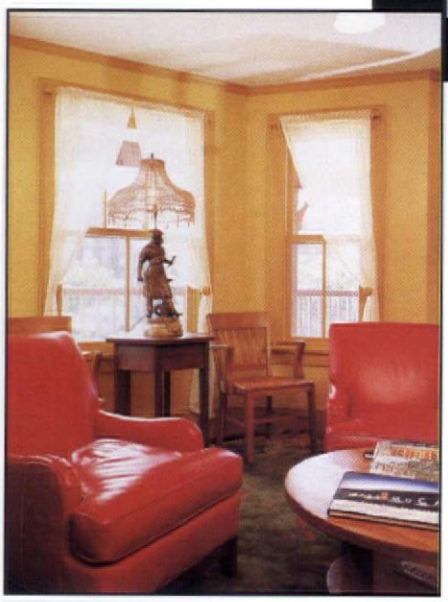
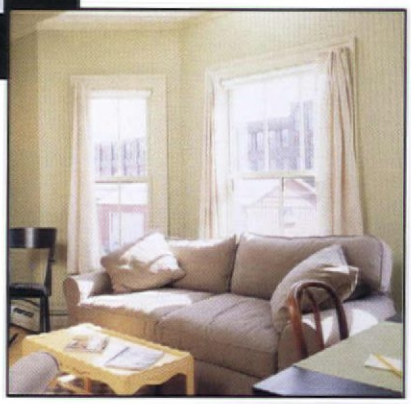
The Porches Inn

North Adams, Massachusetts



At the site, a custom Marvin Tilt Pac and a competitor's insert window had been installed. The Tilt Pac truly represented the original window and was picked as the window of choice. While measuring for the Tilt Pacs, it was discovered that the original windows and frames were found to be in a far more serious state of decay. Upon further review, it was decided that Tilt Pacs were not the answer. All concerned parties felt there was a better way.

The better way came in the form of standard Marvin wood double hung units with the following: no exterior trim, units would be trimmed in the field to meet the existing siding conditions, sill horns were sent long to tie into the existing siding, 2" built up sill, single hung to give an all wood finish to the exterior, 7/8" simulated divided lites in patterns to match the original windows, low e with argon gas, primed exterior, bare wood interior and half screens.



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Where Am I?

The city as a place of healing

by Joan Wickersham

"Where am I?" That is the classic line, the question movie characters murmur when they wake up from comas. For days after my friend Keith fell fifty feet while hiking with his wife Jenny and their children, I dreamed of him waking up and asking that question. Someone had even hand-lettered a sign and hung it opposite his bed in the neurosurgery intensive care unit. It said:
"YOU FELL AND HIT YOUR HEAD. YOU ARE AT THE HOSPITAL."

But he wasn't waking up. He was tossing on the bed, tethered to it by a straitjacket. He didn't recognize Jenny or his friends. He didn't respond when spoken to. His swollen head lolled back, forward, sideways. He was like something in orbit, abandoned, a piece of space junk.

Visitors came, cautiously cheerful, holding out flowers. They left looking gray and stunned. They were prepared to see him exhausted, confused, maybe flickering in and out of consciousness. They knew he would not be quite himself — but they hadn't understood that his self was absent, wandering in some inaccessible wilderness, gone. They came in hoping that their faces, their voices, their nervous, kind, nostalgic pep talks ("We've got to get you out of this bed in time for the history department softball game") would spark some recognition in him, remind him of who he was. But there was no one there to remind. The visitors left muttering about what horrible places hospitals are. He lay tied to the bed, his eyes rolling in his head, his old favorite Dylan song wailing out from the cassette player Jenny had brought in for him: *How does it feel / To be on your own / With no direction home / Like a complete unknown / Like a rolling stone?*

If he did actually wake up, and by some further miracle was still able to read, that sign was unlikely to clear up his confusion about what had happened to him. "You're in the hospital" wasn't an answer — it was a metaphorical restatement of the problem. Just as the injury to the left temporal lobe of his brain had struck at his individuality, so did the hospital. The depersonalization that is inherent in the hospital experience was an eerie mirror of the physical trauma he had suffered. A hospital is nowhere, cutting us off from everything that anchors us in our own identities: our families, jobs, possessions, routines, even our own particular annoyances and interruptions. How could anyone, waking up with a scrambled, wounded mind in a hospital, possibly figure out where he was?

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The doctors were cold, noncommittal. Will he get better? we kept asking. They shrugged. One day he raised two fingers on command. We begged to be told that this was a good sign. The doctor shrugged. "A year from now he could be fine, or he could still be raising two fingers."

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Suddenly, he smiled at a friend. "I thought you were in Torontosaurus."

These were the first words he had spoken in the three weeks since the accident. "Thailand," she said gently. "I was in Thailand. I'm sorry, I'm crying."

"That's all right," he said drowsily. "I know they are tears of relief."

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It was time to move him to rehab. Our neurologist friends all said it was important to find a sophisticated program. He was a history professor. It would take a lot of work to restore him to full function. If some of the circuitry of his brain was permanently damaged, he'd need to learn to compensate, to reroute the same mental challenges along new pathways. He was talking a little more each day, but he was still "off," a set of brilliant bits and pieces that needed to be knit back together into an entire person.

He was flown from Tennessee up to Boston, where he had once lived and still had many friends. The doctor in the great rehab hospital watched him keenly, asked many questions, treated him with respect. Then, just as we were relaxing at having delivered him to a safe haven, she kicked him out for the evening. "Take him home for dinner."

Driving with him was terrifying, like taking a newborn home from the hospital. Every pothole felt lethal; he seemed breakable. He sat in the back seat, wrapped in Jenny's arms. She had to show him how the seatbelt worked. "This is so weird," he kept saying, in his new speeded-up, faded voice. "I was walking with my family in the woods, and then the next thing I know, I'm in this place and they tell me I've had this huge injury. It's unreal. Like if I woke up and they said, 'You're pregnant. You're a man, but you're pregnant.' And then they say, 'Not only are you pregnant, but you're a policeman.' And I just think: My God, how did I get to be a pregnant policeman?"

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He hated his hospital room. He prowled the halls, sat for hours in the cafeteria drinking coffee. He took illicit satisfaction in using the stairs, knowing patients were supposed to take the elevator. "I like to think no one knows I'm a patient," he said. "I want them to think I'm an employee." He raised his fingers to the shaven, clotted, swollen side of his head. "Of course, the disguise has a few flaws…"

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They sent him out into the city. To a grocery store, to a coffee shop. But his doctor was more ambitious for him. "You're a professor, we've got to get you back into that environment. Take the T over to Harvard." This directive puzzled him. What was he supposed to do at Harvard once he got there? "I guess," he said, "she wants me to go into the library and just sort of . . . look things up?" The next time I visited, the doctor took me aside and said, "Listen, this might sound kind of pushy, but can he come live with you?"

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At our house, he helped with the dishes. He played with our kids, missing his own. (Jenny flew up for weekends, but it was too complicated, and too expensive, to bring their two small children each time.) Every morning, he walked through the foul February weather to the T, like a commuter, only he went to the hospital. Or he went to Harvard, to attend lectures or work in the library. He kept a datebook, crammed with appointments for occupational therapy and brain scans, and lunches with friends, and the names of his doctors. He juggled dates and times and commitments, keeping careful track of where he needed to be when. Slowly, his mind was clearing. What helped to reorient him was a daily dose of chaos.

As Anatole Broyard wrote, "The sick man needs the contagion of life." You can't always design for healing. Sometimes what heals is the very absence of design. What heals is the subtle, complex set of jostling patterns and places and rituals we all cope with, expertly and unthinkingly, every day of our lives.

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Two months after the accident, Keith went home to his family. Within a year, he had made virtually a full recovery. Gradually he went back to teaching and writing. He had a lousy sense of direction when driving, but then, he always had.

Who can say why he was lucky enough to recover? Maybe it was because when he lay on that ledge for two hours before the EMTs reached him, his head rested on a patch of snow, which slowed the swelling. Maybe it was the family and friends who kept talking to him when he was too lost to respond. Maybe it was the smart doctor at the great hospital, who kept shoving him out into the world.

But I believe that a big part of his healing was the world itself, the city, with all its stimulating disorder. It wasn't a careful, rational piece of healthcare design. It was a noisy, haphazard, filthy, brilliant mess. It challenged him. It pushed him to be competent, to manage complexity. It said — rudely, irresistibly — "Hey! Wake up. Pay attention. You are here." ■■■

Joan Wickersham lives in Cambridge, Massachusetts. She is the author of *The Paper Anniversary* (Viking) and is finishing a new novel.

John Spengler, PhD, is the director of the Environmental Science and Engineering Program at the Harvard School of Public Health, where he is the Akira Yamaguchi Professor of Environmental Health and Human Habitation. Known to many design professionals for his work on indoor air quality, his research focuses on the public health implications of contaminants in the urban environment, dwellings, schools, hospitals, offices, and transportation systems.

Kira L. Gould, Assoc. AIA, is a freelance writer in Boston with an interest in sustainable design.

Photo: Greg Premru Photography

To Your Health:
Public health and the built environment

John Spengler, PhD,
talks with Kira Gould, Assoc. AIA

Facing page:
Harvard School of Public Health, Landmark Center, Boston

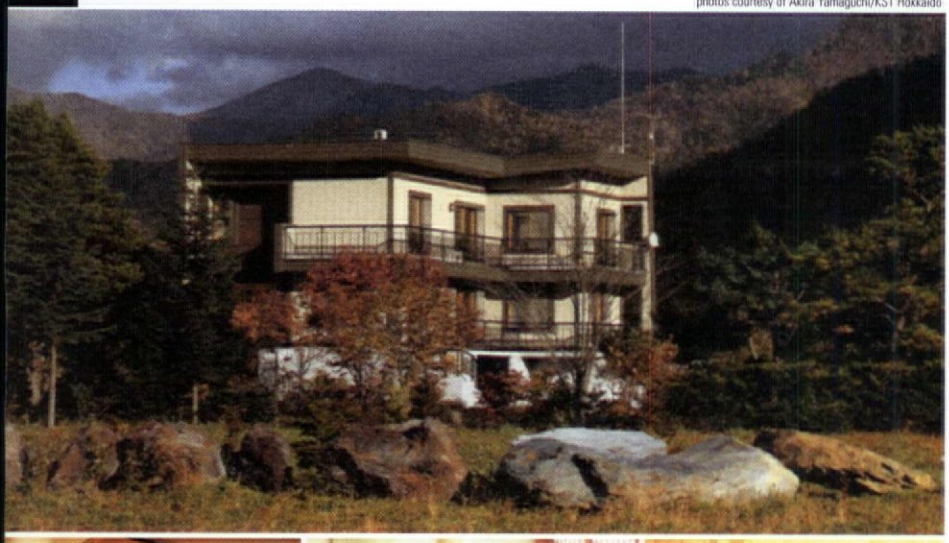
Architect:
Janovsky/Hurley Architects

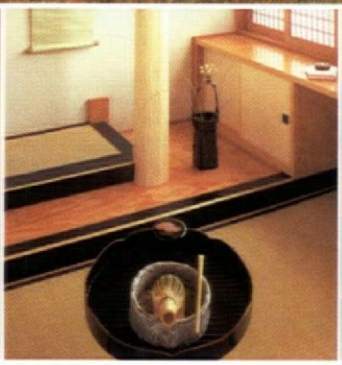
New offices for the Environmental Science and Engineering Program incorporate cutting-edge systems and materials promoting environmental health.

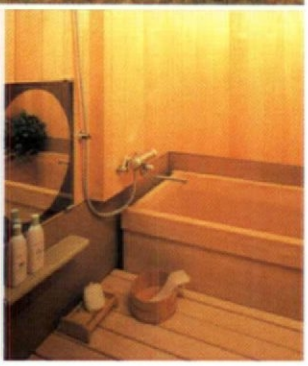
Gould: You've spent more than 25 years researching and thinking about the relationship between architecture and public health and you've said that you've recently made a shift from studying problems to studying and articulating solutions. What have you discovered about the relationship between design and health?

Spengler: In some ways, I think we're rediscovering what people have been doing for millennia. Back in the 1800s, we saw the development of architecture that was designed to promote health — spas, health retreats, and TB sanitariums, where fresh air was part of the cure. It seems as though each generation rediscovers how intertwined housing conditions are with health. People have recently focused on molds and allergens in houses. In fact these are related to both design and lack of maintenance, which can lead to ill health. And there's a lot more to be discovered in defining the problems. But we know enough in some areas of science and engineering to offer solutions. So why isn't it being done? Why isn't that knowledge migrating from the curators of that information to the people who are designing and the people who are housekeeping? We're just beginning to see health emerge as a design objective. Manufacturers of vacuum cleaners, for example, now talk about efficient, healthy vacuum cleaners with HEPA filters that can get rid of allergens. Manufacturers of bedding talk about allergy-free fibers. Manufacturers of ventilation systems are really thinking about what it means to have good filtration and heat recovery and saying that this will promote health. But when you come to the issue of why this isn't integrated into how we design and operate and manage our public housing, then you're into complicated social, political, labor, and management issues. So even though we can say we know the right thing to do, how do we implement it? It's a challenge

photos courtesy of Akira Yamaguchi/KST Hokkaido







that I found intriguing, and so I decided that this is where I'm going to put my effort.

Gould: You and your team are trying to address the solutions to these problems on multiple levels — from the residents to management and through various levels of our culture and society.

Spengler: That's right. If you dissect the problem, you discover all kinds of barriers to incorporating the health intent into design criteria. Maybe there's a materials and equipment component to it — what are you and I going to do if we don't have vacuum cleaners? The barriers can range from inspections that aren't thorough to bad contracts for pest control to management processes that don't accommodate new design and renovation. I'll give you an example that shows the complexity of the problem. We're well aware of cases of children whose families walk into the ER as their primary care, who are hospitalized because of severe allergy or asthma attacks. They might spend two or three days in the hospital at a rate of $1,500 a night with repeat visits. Those are public dollars that are being spent, and yet we can't transfer that over into preventative, therapeutic attention to the triggers that put them in the hospital in the first place.

Gould: That makes a case for public investment in that type of work.

Spengler: The greatest thing that could happen would be that we could prove the economic case and the medical case for prescribing interventions for housing. Then a physician could say that these are cost-recoverable items and there is a system in place to make sure that housing units are brought up to a healthful standard.

ould: Do you think that is a potential utcome of your current work?

pengler: That's what is driving our study. If his works, it could have a national impact.

ould: I'd like to talk about Akira Yamaguchi, ho endowed the chair that you hold at the Iarvard School of Public Health. He is a Buddhist arpenter with what you call a broad "bio-regional" ision, who applied traditional Japanese building echniques to housing. Maybe you can talk about ow his work has shaped your studies of human ealth. You have said that he emphasizes that uildings are here to nurture society, families, and ature. I think that is a really nice encapsulation f how architecture fits into society.

pengler: He's a fascinating individual. He rew up in a small village in a remote area of Japan. guess it would be the equivalent of some remote reas of upstate Maine — that's how different it is nd how far it is from the central power base of okyo. He has incorporated these beliefs into tanible concepts, from how he runs his company to ow he thinks about the housing system in order o nurture families and effectively nurture Japanese ociety, which he claims has been disrupted by the ransition to the nuclear family and the separation f elders from grandchildren. Japan suffers from nany of the ills that we've now come to recognize n our own Western society. He really hit on some undamental truths through observation, through hilosophical thinking and experimentation. He ays attention to materials and pays attention to ocal systems, the local economy, and the local cosystem. He's trying to accomplish a tremendous mount through the design and building of homes.

ould: Are there specific aspects of his holistic iew that you have tried to bring to certain efforts hat you're working on here?

Spengler: My decision to move toward solutions, rather than to focus on the problems, is greatly influenced by the hopefulness that he presents. And I think the lack of personal fear of stepping into another discipline reflects his holistic thinking. So often, we limit ourselves by saying, "Well, I was trained in this and I'm not an expert in that," but that's not the case. You can always reflect on other disciplines in a more philosophical, tangible, intuitive way that lets you draw knowledge out of them. He led me to think in terms of a more systems-based approach, and that's reflected in our research in public housing.

Gould: You're talking about a multidisciplinary approach. One of the things I think is the strongest component of sustainable design is its focus on that approach, having everyone at the table at the outset and really having an interchange among different fields.

Spengler: Let me tell you something I learned recently. I was at a meeting in Cincinnati of a group called Affordable Comfort, which has been around for maybe 15 years. Most of the people who come to these meetings are the "weatherization" people, who seal and insulate homes, the energy conservation people, and people working in the public sector on utility assistance. This year, we had a series of workshops related to healthy housing. We had HUD people, we had energy people, we had housing authority people. But we also were joined by 12 women who were residents in Cincinnati's public housing. We talked with them about tenant rights, tenant responsibilities, high performance, and health standards for new structures. What I learned by listening to these women talk about their lives, their attempts to work within their housing-authority structure, and how they have been marginalized in the process will stick with me for a long time. One woman spoke up and said, "Well, I recommend that the people who are going to design our new housing come down here and live for about a week, live in one of the units, and then you'll learn about our lives and you'll learn about our community." This is basic stuff. But does this ever happen? I think it's probably rare for a public housing administrator to live in a public housing unit even for a short time.

Facing page:
Details of houses by Akira Yamaguchi, who endowed the chair held by John Spengler at the Harvard School of Public Health. A Buddhist carpenter with a broad "bio-regional" vision, Yamaguchi applies traditional Japanese building techniques to housing.

Gould: You recently had the experience of being a client, when some of the departments of the School of Public Health moved from the main campus on Huntington Avenue in Boston to the renovated Landmark Center building on the Fenway.

Spengler: Even though we're the occupants, it wasn't initially clear to the school or the architect that we were the clients. They approached the project with the standard business model: The client is the one who pays the bill, in this case, the facility dean. And the typical process is: design it quickly, get it out to bid, build fast, and keep within budget. We entered the picture and wanted to espouse our views. We are, after all, a department of environmental health — studying indoor air, ergonomics, health, and safety in the construction industry — and to not take the knowledge that we ourselves were generating and put it into the design of our space would have been an opportunity lost. So that's why we became more assertive and promoted various goals: Indoor air quality was clearly one of them. Trying out, testing, and promoting new materials and ways of construction was another. We were willing to take a chance with some of these design ideas in the US, although we knew that these things were working elsewhere, so it wasn't as though we were far out on the frontier.

Gould: The bamboo flooring is an example of that.

Spengler: Yes. And when our offices were first built, we were the largest under-floor ventilation installation in the country. Perhaps what is most significant about this space for us is that we have the ability to learn something. We issue questionnaires to our own people. We do organic pollutant measurements. We're going to start to measure light levels to find out what people really need. We're pursuing certification under the US Green Building Council LEED [Leadership in Energy and Environmental Design] program and Energy Star ratings, so we will track its performance. And we'll be writing a case study.

Gould: One innovation is the "digital addressable lighting interface." Perhaps you can explain that.

Spengler: This is a system that allows the facility manager and, eventually, individual staff to control the light levels. The light level can be adjusted up on cloudy days and down on sunny days. Eventually, we will have icons on our individual computers that will allow us to make adjustments. You might say, I need contrast to perform a task, not necessarily a lot of lumens. Different people will have different needs. We hypothesize that this will save a tremendous amount of money.

There's a downside to this; this is again part of the learning experience. We've been so good at reducing our heat load with flat-screen computers, low-energy lightbulbs, and occupancy sensors that we have had to add heat into the building. Most buildings have enough excess heat from people, computers, and lights to offset the heating needs. Fortunately, we had commissioning consultants involved early in the design process, and they told our engineering firm to put in a reheat coil in our air-handling system. Not many people have had experience with these new systems.

Gould: You've been involved with the Harvard Green Campus Initiative. What are some of its goals?

Spengler: We're really fortunate to be at a point where the university is showing a commitment to move systematically toward more sustainable goals. It's a commitment to engage in deliberate, well-understood, cost-effective — sometimes maybe not cost-effective — environmentally beneficial courses of action. We're using our strengths as a learning organization — doing case studies with real projects such as the Landmark Center, for example — and we have a system for feeding information back to property managers so that they know what to expect of contractors and architects. It's amazing what's happened already, but no one's telling the big story. Because it's a lot of little stories — things like recycling, lawn care, powering vehicle fleets.

Gould: It seems like a really broad mission.

Spengler: Yes, but we haven't yet taken on a project with high symbolic value. And we have the opportunity to do that with the development of the Allston campus. I was told this is the biggest building burst in the history of the university, one and a half million square feet of new building slated for the next ten years. That's big.

ould: At a time when government budgets are nder duress and security concerns are taking a lot f attention away from issues such as sustainability, an public-health concerns be quantified enough to et the attention of the government?

pengler: Maybe there are some benefits of oing with the flow. Right now, we have national ttention on security and protection of occupants f buildings. You can then look for co-benefits. I'll ive you some examples: If we're serious about the ature of biological threat, then what are our lines f defense? One is to limit access, which means nore thoughtful placement of air intakes. Another ne would be disinfection of air, and still another enefit might be better detectors for contaminants n the air. And that could stimulate, as has already egun, new design for schools. Communicable espiratory diseases are spread by children, through heir schools. If we really were to pursue public-ealth benefits to our society, we would figure out ow to provide cleaner air in our schools. You vould knock down infection rates, you'd knock own transmission to parents, and you'd keep the vhole populace healthier. If there are going to be efense dollars that are spent on security issues, hen we ought to look at the derivatives.

ould: A few illustrations of that kind of ystemic understanding can be really powerful. To vhat extent can you expect the private sector to ush that kind of thinking?

pengler: I'm both encouraged and fearful. ncouraged when I look at the growth of mem-ership in the Green Building Council and the umber of design firms that now claim they have EED-certified staff. The fearful side is that we are ringing people up to code minimums. Training nd certification are based on consensus-driven uidelines and that means they are not pushing the rontiers. The bar has to be raised. We don't need actors of two. We need factors of ten. Factors of wo are effectively what LEED is getting us to: ecrease energy by 50 percent. And that's impor-ant. But I think we shouldn't be complacent.

ould: Leading sustainable-design architects alk about the idea that doing something "less bad" s not good enough. It's good to use LEED as a hecklist, but it doesn't embrace the ultimate goal, vhich is a more holistic approach.

Spengler: I think what happened on the Harvard campus is a case in point. Some friends in the School of Design were, I would say, very disappointed with the university promoting the Green Building Council, to the point where they wouldn't participate in the Green Campus Initiative anymore. They aspired for Harvard to be more thoughtful rather than just follow LEED ratings for building design. Which was a loss because, even though I believe absolutely that we have to do better, the Council really has made a difference because people understand the concept; they can work with the checklists. That's a very important first step. Now there is broader acceptance of the concept of higher performance and sustainability for new buildings.

Gould: What is the role of technology in solving some of these issues?

Spengler: I ask my students whether they are optimistic or pessimistic about our place and time on this planet. It usually works out that those who are optimistic are on the side of technology — they believe that we have always risen to the challenge and we can design our way, invent our way, out of any problem. And those who are pessimistic say that we can never fully appreciate or understand the foibles of human societies, our cultural conflicts, and the complexity of ecosystems. I think the high dependence on technology in Western society, in our buildings, is a manifestation of that. Yamaguchi designs houses that are safe and comfortable but don't have mechanical systems. He refuses to put them in — they are counter to his philosophy. He has a house that would never pass our energy certification, but it outperforms other buildings. And the other perspective on this comes out of my work as a consultant to the Dutch government. I've watched them go through several phases of their national environmental plan, the policy act that they passed 12 or 13 years ago. First they established covenants among industrial sectors to establish performance goals and acceptance of environmental standards. All branches of the federal government worked with their private sector counterparts. Then they started to fold municipal governments into the planning process. And now they face the biggest problem: consumerism.

So the answers lie in values. In attitudes. In consumption. Technology can't solve that problem. That is the thing that we've got to realize in trying to find where the answers lie. ■■■

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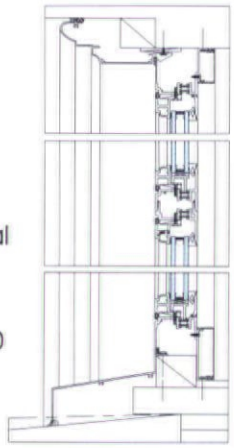

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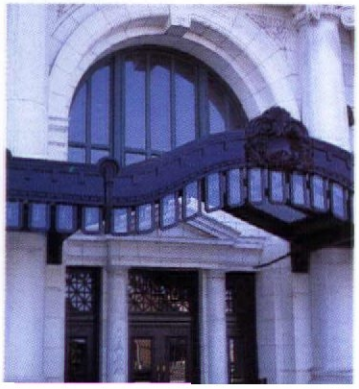

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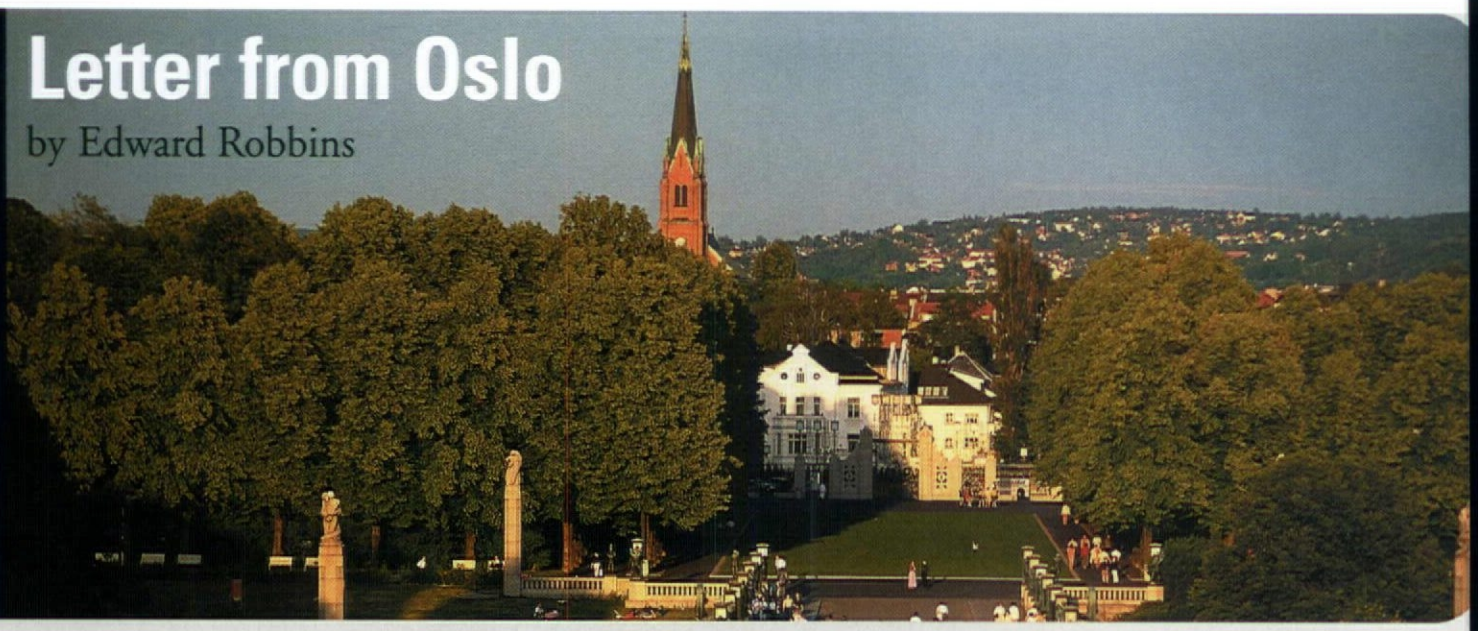
Letter from Oslo

by Edward Robbins



Oslo is a city of contrasts and a city in throes of change. At its core, it is a dense, mostly 19th-century city of four- and five-story neo-classical buildings, broad avenues, and sweeping vistas: a model of the best of 19th-century city-making. If it is not as large as the great cities of Europe (Oslo has only 500,000 or so inhabitants and a million in its metropolitan region), it is clearly urban. Cafés, restaurants, theaters, nightclubs, and bars dot the streets of Oslo's inner core and continue to proliferate in the city. Much of this growth has happened over the last five years.

Even as Oslo experiences rapid change, it remains wedded to a natural landscape that has changed little over the centuries. On its outskirts, and even in parts of the core, virgin forests and wooded hills, uninhabited islands and lonely beaches dominate much of the landscape. The municipality is roughly 60 percent forest and farmland with over 2000 km of trails, which form a striking and dramatic contrast to the built-up core of the city. Yet the natural landscape and built core are in an easy marriage with each other. It is a constant wonder to me that when I jog along the Oslo fjord near my home in the city center, I find myself running along a wooded path bordering a working farm — the king's farm, as it turns out. The vista as I run with its grazing sheep and cows amid wooded fields is closer to a 16th-century European painted landscape than a contemporary city. Yet my home is part of a dense residential and commercial fabric as urban as one finds in Boston.

Although Oslo is architecturally mostly 19th-century, it has some of the best and worst examples of contemporary urban design and architecture. In its center lie a number of large, cold, unused, and empty public spaces. At the same time there are large residential/commercial developments that are wonderfully inventive and architecturally detailed. An example is Äker Brygge, next to the harbor and one of the most densely used public areas of Oslo. Happily, though, Oslo has been able to avoid too many of the worst examples of contemporary development.

Two big new projects, however, cast doubt about the city's future: the Opera House, under design by Snøhetta, an Oslo architectural firm; and the development of the "Vestbanen" area near the harbor, the subject of a competition with design proposals by Foster, Nouvel, and Koolhaas, among others. The Opera House is a potentially wonderful building, but the changes that will accompany it in the surrounding neighborhood — which are still being fought over among planners, architects, and developers — are worrying. Oslo may well end up with a homogenized, gentrified, and boring commercial/residential development. What the design for Vestbanen will do to a part of the city that on one side has the estimable Äker Brygge and the other two sides cold and unused streets fronting modern speculative office buildings is open to question. Will it soften the ugly edges of its two sides, or will it try to compete with the drama of Äker Brygge and the nearby City Hall with its stark brick forms punctuated by statues celebrating social democracy?

n the built outskirts of the city, you find every-
ing from out-of-context Modernist buildings and
onderfully designed buildings like the new church
Mortensrud by Jensen & Skodvin. But what in
e end saves Oslo from being scarred by bad
esign is its landscape. The woods and hills, which
rround the center, are able to absorb the worst
f suburban development, softening whatever
chitectural abominations are built.

slo is a prosperous and increasingly cosmopolitan
ty and for the most part looks it. While gentrifi-
tion has increased, it has not yet become the
ominant force that entirely changes the character
f urban neighborhoods, as in Boston. It is ques-
onable how long this will last. Along with
entrification, Oslo has experienced significant
nmigration. In the past ten years or so, Oslo has
ndergone a sea change through the growing
umbers and influence of new immigrants from
e Third World. Today, immigrants number over
00,000. Their presence has opened up what
ad been a very homogenous city to a diverse
nge of cultural influences, slowly transforming
usical tastes, food, street life, and cultural and
eligious practices.

lthough not openly hostile to immigrants, the
ty is quite segregated. In the wealthy western core
f the city, you rarely see people of color. There is
n invisible dividing line through the city center.
s you walk from west to east, you come to a point
here the color and class of people changes radi-
ally from wealthy and white, mostly Norwegian,
o working class and diverse, with a large
roportion of immigrants.

here are no obvious tensions on a daily level. But
urking behind all this is a strong anti-immigrant
entiment within a small but significant part of the
opulation. Last year, neo-Nazis murdered a young
oy of color. To the credit of the citizens of Oslo,
ver 45,000 people marched in protest and in
upport of immigrants. Yet, what the future holds
n this regard is unknown. Immigrants and
orking-class residents are leaving the central city
nd moving to the outlying suburban develop-
ents. There is real potential that Oslo will
ecome a divided city — with a gentrified, homo-
eneous, white, middle-class core surrounded
y working-class and immigrant enclaves in the
uburbs.

What stands out most about Oslo is the light: it is a bi-seasonal city. The contrast between winter and summer is not so much the weather — the climate is temperate — but the yearly cycle of light and dark. In summer, there are 21 hours of daylight and a short 3-hour period of dusk. In winter, there are about 6 hours of daylight when the city is not overcast. The contrast is not just between light and dark. It is a difference between a season of lively urbanity and public sociability and a season of an almost mournful, mostly inward-looking, privatized sensibility.

In summer, Oslo is a joy. People are out at all times of the day and night. Outdoor cafés and restaurants are full of people, the streets crowded with activity, the woods full of hikers, and the parks and beaches are a blanket of bodies seeking the sun. In winter, streets are mostly empty, with a few exceptions, and life moves inward into people's homes. What sociability there is, revolves around private and indoor activities. In January and February, if there is snow, the city brightens a little and people come outdoors to participate in winter sports like skiing and skating.

Oslo is a city waiting to be discovered, most of all, by its own residents. People in Oslo see the city as a small and not particularly interesting or commendable place. As a friend from Buenos Aires living in Oslo observed, there is a poignant division between what Norwegians who live in Oslo think they have and what they do have. "In Oslo," he said, "the air is clear, its setting beautiful, its design full of wonderful urban vistas, beautiful architecture, a wonderfully human scale, and easy urban sociability. It is a profoundly livable city. Oslo is a mini-paradise. The wonder is that its inhabitants don't know it." ■■■

Edward Robbins is a professor at the Architecture School of Oslo. An anthropologist, he taught urban social theory at the Harvard Graduate School of Design for more than a decade. He is the author of *Why Architects Draw* (MIT Press).

Art direction Barazzoni design. Foto Gionata Xerra. Styling Paola Pastorini

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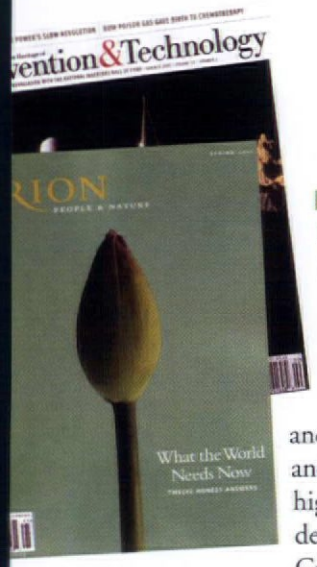
Covering the Issues

Periodical roundup

y Gretchen Schneider, Assoc. AIA



New definitions of green... In "The New Economy of Nature" (*Orion*, Spring 2002), Gretchen C. Daily and Katherine Ellison argue that ecological systems function as pieces of infrastructure, and should be valued, paid for, and regulated as such. They highlight New York City's 1997 decision to invest in the Catskill/Delaware Watershed stead of constructing a new water treatment plant. For nturies, the watershed has cleaned New York City's tap ater naturally; it's never passed through mechanical filters. t to make this type of natural infrastructure work affects w and where we build roads, houses, offices, cities. atiently, clearly (and thankfully without environmentalists' pical doomsday-is-upon-us fervor), the authors outline the rger economic and ecological issues: "We lack a formal stem of appraising or monitoring the value of natural sets, and have few means of insuring them against damage loss." In understanding ecological systems as economic ngines, Daily and Ellison offer serious food for thought.

lternative careers... An architect inspired the space rogram? Remember, you heard it here first. OK, second. on Miller celebrates the career of Chesley Bonestell in To Boldly Paint What No Man Has Painted Before" *nvention & Technology*, Summer 2002). Bonestell, a olumbia architecture graduate, designed the façade of the hrysler Building and worked with Joseph Strauss on the olden Gate Bridge before he painted Hollywood scenes r *Citizen Kane* and the 1939 *Hunchback of Notre Dame* f course! the flying buttresses!). Ultimately, Bonestell mbined his knowledge of perspective, light, and shadow nd his skill in architectural rendering with his childhood ve of outer space. In 1944, he took his first set of sketch-ook paintings of an imaginary journey on Saturn to *ife* magazine. With photographic quality, Bonestell's widely ublished visions made the planets seem like real places. cientifically accurate and technically precise, his paintings opularized the fledgling space program, demonstrating at space flight was not so far-fetched. The rest is history.

The little house that could... Or many little houses: *The Economist* claims that "houses saved the world" (March 30-April 5, 2002). The cover story observes that the American economy survived the dot-com crash and September 11 far better than expected due to the strength of the housing market. In a new feature, to be updated at least annually, *The Economist* provides a set of global house-price indices, compiling house price data, interest rates, and income-to-mortgage ratios for a dozen countries and cities worldwide. Home sweet home.

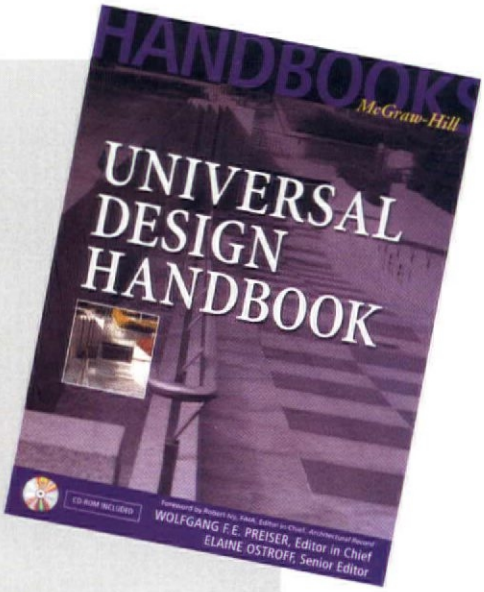
A wolf in sheep's clothing?..."Your AAA dues fuel pollution and sprawl," cries Ken Silverstein in *Harper's* "Annotation" feature (May 2002). On the plus side, AAA changes flat tires, gives tows, hands out countless Triptiks, and provides bail bonds (for that run-in with the local sheriff). It was a major force in creating our national road system. On the minus side, it employs the Darth Vader-style tactics and the DC lobby necessary to do so. Silverstein decries the club's non-elected governing board and its unpublicized record of supporting opponents of environmental, smart growth, fuel economy, and auto-safety legislation, all "on behalf of [its] millions of members." Are you a member?

Start spreading the news... What comes next at New York's Ground Zero? As cleanup shifts to construction, a trio of articles address the complex issues about building on this "most contested ground in America." *Time*'s special report (May 27, 2002) gives an overview, highlighting the major players, agencies, and design discussions currently under consideration. *The American Enterprise* (June 2002) interviews a series of Big Apple luminaries, including architecture advocate and former senator Daniel Patrick Moynihan. Moynihan insists that the first step must be rebuilding the city's transportation infrastructure at Pennsylvania Station. Meanwhile *Forbes* (May 27, 2002) highlights the money trail, wondering aloud how Mayor Bloomberg should divide the $21 billion bailout, too little and thus inherently unfair, and what that might mean for buildings and open space on the ground. How does one build civic consensus yet also create stellar design for the most significant construction project in the city's recent history? Sound familiar?

Gretchen Schneider, Assoc. AIA, teaches the architecture studios at Smith College and maintains a practice in Boston.

Books
Universal Design Handbook

Wolfgang F.E. Preiser, Editor in Chief
Elaine Ostroff, Senior Editor
McGraw-Hill, 2001



Reviewed by A. Vernon Woodworth AIA

Perhaps most people have had a similar experience: Late for a meeting, I hurriedly parked my car in the underground garage of an urban shopping mall. After the meeting, I was unable to find my car. The garage had numerous entrances and exits and multiple levels, but every elevator bank and stair entrance looked identical. After an hour of searching, I was beginning to lose it. I felt inadequate, I was convinced that I was not up to the stress of my job, I began to feel powerless and bleak. The security guard who was by now accompanying me regarded me with suspicion when I suddenly panicked that I had also lost my keys somewhere during the search.

We found the car by leaving the building and carefully tracing backwards the route I had allowed to go to my meeting. More than a little embarrassed, I asked the guard if this happened often. He replied that an average of five to seven people a day seek help from security in locating their cars.

The minor inconvenience of this experience rattled me. A therapist would have explored these feelings, perhaps encouraging me to trace them back to my childhood or relating them to my fear of the challenges of middle-life. However, because I was immersed in the *Universal Design Handbook*, I was able to recognize that I had been dis-empowered by the disorienting design of the garage. If the garage had provided a legible and coherent sense of place, I would not have lost an hour of my day or been subjected to the humiliation, however minor, that this event engendered.

What is "Universal Design"? One author describes it as follows: "a design approach that places the user on center-stage and seeks to create an open, accessible, and integrated world for the future through design that is age-friendly, barrier-free, and inclusive." This is achieved, according to another author, through a "high level of input from end-users." Universal Design's slogan could be, in the words of still another contributor, "Good design enables, and bad design disables, irrespective of the user's abilities."

Universal Design was conceived by Ronald L. Mace FAIA, who sought to expand the lessons of accessible design. Because the full developmental spectrum of the human life-span incorporates varying levels of ability — both inherent (physical and cognitive) and acquired (through learning) — any environmental feature can be enabling or disabling based on the match-up between ability and environment. Universal design, therefore, does not define disability based on physical or cognitive functioning, but rather as a "mismatch between ability and environment." People are "disabled by design rather than their particular abilities."

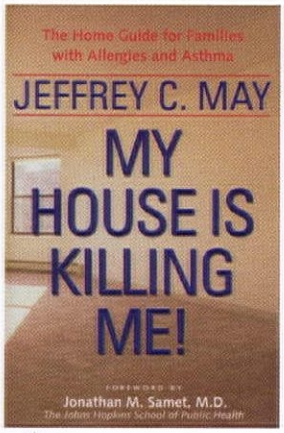
Because Universal Design is a young idea, the overwhelming impression imparted by this collection is one of promise and potential. The bulk of the articles in this volume point to the many directions designers can pursue to enable rather than disable. The concept is so broad that the scale of endeavor is irrelevant: from industrial design to urban planning, enabling users across the developmental spectrum is the objective. Seventy articles explore the various applications of this approach. Some contributions, like the several articles written or co-authored by mobility research pioneer Edward Steinfeld, build on the methodologies of the accessibility movement, while many others explore new paradigms and approaches. As a result, although each article is similar in format, the practical uses of these contributions will vary widely. Some articles will provide valuable research and practical data, while others only hint at what may become an important new direction for research and application. For example, Singanapalli Balaram's article on "Universal Design and the Majority World" explores how the role of mythology in Indian culture informs attitudes towards the elderly and the infirm. John Zeisel's article on brain development employs Maslow's model of need hierarchies and self-actualization to explore the design of healing environments for Alzheimer's patients. Several articles explore the issue of sustainability as an aspect of Universal Design.

Missing from this volume is a good critique of the limitations of design in resolving social and economic inequalities. There is also no discussion of the inherent conflict between the social goals of maximum accessibility and historic preservation. Nevertheless, Universal Design is an idea that deserves to be incorporated into the mainstream of designer education and practice. Unlike accessibility codes, which are generally viewed by the design community as legal requirements complicating the design process, Universal Design can enrich the design process. It is quite likely that the publication of this volume will go a long way towards making this possible. And while Universal Design may not be able to eliminate stress from our lives, reverse the effects of aging, or create equal opportunity for all, at the very least it can guide us towards making the world more user-friendly, and help us find our cars. ■■■

A. Vernon Woodworth AIA is chair of the BSA Codes Committee and a member of the Sullivan Code Group in Boston.

Universal Design Handbook is available from the BSA: 671 951 1433 x221.

Books



My House is Killing Me! The Home Guide for Families with Allergies and Asthma

by Jeffrey C. May

The Johns Hopkins University Press, 2001

Reviewed by Wagdy Anis AIA

Molds, mildews, mites. What were once invisible are now stories on the nightly news as Americans battle allergies, asthma, and chemical sensitivities. Bad indoor air quality is affecting both our health and our pocketbooks, in terms of productivity, healthcare, and lost wages. Indoor air quality (IAQ) is also becoming a leading basis of injury lawsuits against the design professions. That is why this book is so timely for those who design buildings as well as those who occupy them.

Jeff May is an indoor air quality troubleshooter based in Cambridge, Massachusetts. Early on, he grabs the reader's attention with some compelling statistics:

- Women and children suffer from the consequences of bad IAQ at twice the rate that men do.
- One in four people has allergies.
- One in 14 people has asthma.
- More than one in 20 people have multiple chemical sensitivity.

Perhaps most startling, anyone can become afflicted at any time.

In the introduction, May describes a voice-mail message left by a woman who was suffering from breathing difficulties in every room in her house but one. She ended her message, wailing, "My house is killing me!"— hence the title.

The book is divided into four parts. Part I describes "the cast of characters"— pollutants such as dust, dust mites, mold, mycotoxins, mildew, bacteria, and yeast; and pests such as carpet beetles, moths, cockroaches, and ants. May then describes the "stage and set" that are their sources: carpet, plants, pets. Each condition is supported by an example encountered in his investigations; it is a clever and entertaining technique to explain the issues.

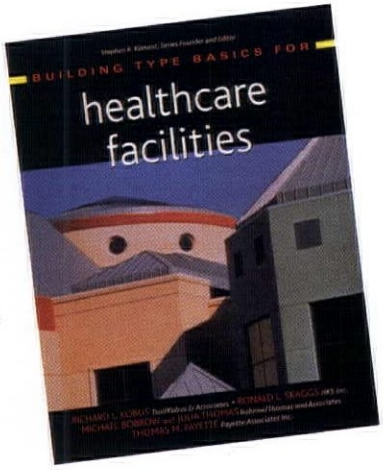
Part II covers "Daily Life" and explores the hazards attributable to each room of a house, again with May's case-study method. Potential evils can lurk in bedrooms, living rooms, kitchens, laundries; don't even ask about bathrooms. But May provides an education, with specific tips on how to avoid health and IAQ problems.

Part III covers the more obviously hostile spaces such as basements, crawl spaces, and attics. Here May focuses particularly on water migration and condensation, as well as problems that might be associated with various heating and cooling systems.

Part IV explains the pollution associated with new construction and renovation, including dust, lead, asbestos, paint, insulation as well as problems that can attributed to cleaning systems and products. Here, May also reviews problems that might be found "away from home," particularly in schools and offices.

May concludes each chapter with a checklist of recommendations and has included an excellent glossary of those pesky chemicals as well as a resource guide. The book is illustrated with photos of scenes such as mold-covered living rooms and microscopic views of mites, which will horrify adults and delight their children. May has made a timely, helpful — and even entertaining — contribution to a field that demands attention.

Wagdy Anis AIA is co-chair of the BSA Indoor Air Quality Committee and a principal and director of technical resources at Shepley Bulfinch Richardson and Abbott (www.sbra.com).



Building Type Basics For Health Care Facilities

by Michael Bobrow, Richard Kobus, Thomas Payette, Ronald Skaggs, Julia Thomas

John Wiley, 2000

Reviewed by Bob Humenn AIA

In the preface of *Building Type Basics for Healthcare Facilities*, Stephen Kliment FAIA writes, "It is not a coffee table book, lavish in color photography but meager in usable content. Rather it contains the kind of instant information architects, consultants, and their clients need in their various kinds of work, where, inevitably time is scarce." Kliment, who edits the "Building Type Basics" series, accurately describes the focus of this book, which is a collection of essays prepared by noted healthcare architects and organized by program type.

Richard Kobus AIA starts things off with an excellent overview of the healthcare industry, which provides the context for building decisions and the challenges facing all of us. Ronald Skaggs FAIA follows with a chapter on "ancillary departments," which most resembles familiar resources such as *Time-Saver Standards* or the *AIA Guidelines for the Design and Construction of Hospital and Healthcare Facilities.* Organized by diagnostic, interventional, therapy, logistical, and support departments, Skaggs has the challenge of describing 20 departments in 120 pages. Like a whirlwind vacation, his text offers the excitement of seeing so much, but leaves the reader wishing there were a chance to linger in one spot.

Inpatient care has taken many fascinating turns during the 20th century, and Michael Bobrow and Julia Thomas do an excellent job of describing the evolution of nursing-unit design in a subsequent chapter on inpatient care. As a result of the trend toward ambulatory care, many hospitals significantly reduced their number of beds. Now hospitals are faced with a deficit of beds and cannot meet the needs of an aging population. This chapter is an excellent resource for hospitals that are considering bed replacement projects.

An essay by Thomas Payette FAIA on ambulatory care facilities is a series of case studies of a variety of facility types, including HMOs, emergency departments, women's health, and mental health facilities. Today, the health centers that combine primary and specialty care with diagnostic and interventional departments are commonplace, and the ground-breaking work of the Mayo Clinic and Kaiser is easily taken for granted. The development of the ambulatory care facility was responsive to both the patient and the care provider needs including wider access, and lower cost of care.

Although the chapters have their strengths, overall, a book such as this is a sum of its parts. Perhaps because of its structure, it never provides a holistic analysis of healthcare-facility design; for the most part it ignores strategic planning or environmental design issues that are faced by healthcare providers. The chapter on inpatient care is the only passionate plea for the creation of a healing environment in healthcare facilities. As Bobrow and Thomas write: "We urge the readers to internalize these humanistic concerns, and to create facilities that are not only highly efficient inpatient units but also restful, inviting refuges for the healing process."

Bob Humenn AIA is a principal with Steffian Bradley Architects in Boston and is the chair of the BSA Healthcare Facilities Committee.

EPHEUS : Living Comfort ithout Heating

Helmut Krapmieier and kart Drössler

ringer, 2001

eviewed by
ark E. Kelley III, PE

omfort without heating? ropean innovation? Passive ultifamily housing? Low-cost ergy efficiency? One can hope. is well-designed book reports results of the Austrian search effort of the CEPHEUS ost Effective Passive Houses as ropean Standards) program of European Commission. There a bit of misleading information this otherwise useful technolo- al review of systems and rformance. First, "without ating" really means "without nventional heating," since all e documented projects have ating systems, some of which both complex and expensive. assive" here generally means uperinsulated," though all the ojects have some solar input d some have more glass to the uth. Nevertheless, these are real sults for innovative buildings d as such can be very instructive.

pplemented with color notographs and detail drawings, e publication documents 14 fferent buildings built under e program, both single-family d multifamily. The Austrian imate range is similar to the nge from Boston to Bangor, so chnical solutions would be ansferable, theoretically. Most the documented buildings ve thick walls, high- erformance glass, good ventila- on, and lots of attention to rsealing — where most energy lost in well-insulated buildings. lany of the buildings combine tive solar systems with ground- urce heat pumps or pellet oilers, sometimes in complicated ays. In most cases, these proto- pical buildings didn't cost less an conventional construction, ith costs ranging from EU$95 EU$183 ($85-$167) per uare foot (obviously, correlated ith system complexity). The uropean building designs are quite different from what we are used to — few pitched roofs or clapboards, plenty of glass, stucco, and steel. As an engineer, I am not qualified to comment on the aesthetics — a reprieve for the designers.

I was particularly interested in multifamily ventilation systems, since the Europeans are more advanced in this area than Americans. I wasn't disappointed; all of the units had fresh-air supply systems, most with heat recovery, some with earth tube preheat. The "no heat" systems with 100 percent fresh-air supply and heating coils to provide all the necessary comfort heat promise a simpler combined heat and fresh-air system. The reality is that increasing fresh-air supply above health requirements only adds thermal liability, and if you try to deliver all of the heat in this air stream, the higher airflow rate raises the load considerably, even with heat recovery systems. There is no real advantage to this much fresh air — recirculating some of the interior air in standard fashion while bringing in 15-20 cubic feet per minute per person will save energy and provide high-quality ventilation. Even though none of the developers in these projects was brave enough to leave out the radiators, this approach could work very well with less than 100 percent fresh air.

This book provides a valuable lesson for architects and engineers: the simple things work best. The best systems proved to be those we are familiar with: good insulation, airsealing, high-performance windows, simple heating systems, simple ventilating systems. With better envelopes, simpler systems can lower costs — a simplified duct system for air delivery of heat, cooling, *and* fresh air is a real possibility. The key is working from the outside-in to minimize the need, then minimize the systems.

Mark Kelley is president of Building Science Engineering in Harvard, Massachusetts, and is principal investigator for the Hickory Consortium — part of the Department of Energy Building America Program.

Fat of The Land: Garbage in New York: the Last Two Hundred Years

by Benjamin Miller

Four Walls Eight Windows, 2000

Reviewed by
Hubert Murray AIA

Benjamin Miller, a former director of policy planning for the New York Department of Sanitation, has been immersed in his subject for most of his professional life. Through his tales of ambition and intrigue surrounding the disposal of the detritus of industrial and domestic production, Miller drags us down with him into the whole sloppy mess. The characters that populate his story are noble and nefarious, bureaucratic and buccaneering, each a player in the New York stakes, all consumed in the technology, politics, and profits generated by the city's garbage. No less than in other fields of capitalist enterprise, the waste industry of this great city has attracted, made, and broken, business moguls (W.R. Grace and William Randolph Hearst); reformers (Edwin Chadwick, Rachel Carson, Barry Commoner, and Ralph Nader); public servants (Frederick Law Olmsted, Fiorella La Guardia, and Robert Moses); and political hucksters (Al D'Amato, Rudy Giuliani, and Ed Koch), to name only a few.

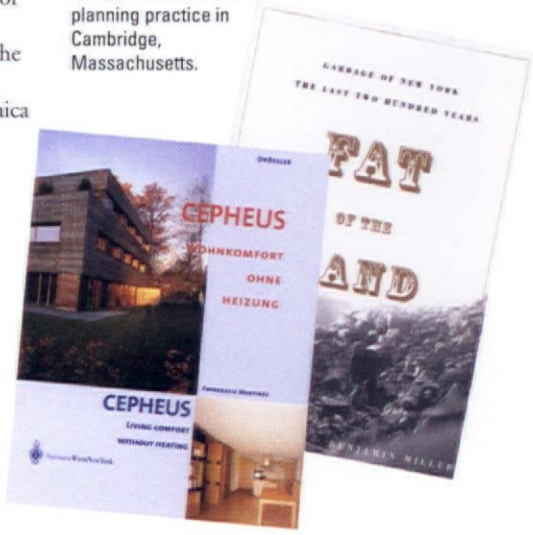
Thrilling as it is to wallow in the slurry of New York politics, picking up here and there the solid matter of the issues of the moment, rarely do we get our bearings from the coordinates of broader national or regional policy. We are taken through the narratives of landfills (Riker's Island, Corona Meadows, Jamaica Bay, Barren Island, and Fresh Kills) and incinerators (including the Brooklyn Ash network and the Brooklyn Navy Yard site), but it is only on page 268 that we get a wider picture of the technical and economic framework for waste-management policy in a large metropolitan area.

Miller compares policy formulation to a "three-dimensional jigsaw puzzle… one dimension represent[ing] the disparate waste materials generated…, the second the various … technologies for collecting, transporting, processing and disposing of those materials, and the third the economic and environmental effects of the alternative and interconnected… systems." Even so, one feels that the ex-director, immersed in detail, is unable to lift his gaze sufficiently to give us an overview of the garbage landscape in either national or global terms.

The United States and the European Union are both faced with increasing opposition to landfill and incineration, almost to the point of shutdown. While the Environmental Protection Agency has long shown the way in the development of standards, the EU has now adopted legislation based on the concept of Zero Waste, which integrates producer responsibility, ecodesign, waste reduction, re-use and recycling, all within a single regulatory framework. Waste management is no longer defined as searching for a place to dump or burn, rather as an integral phase of production and consumption.

Miller's narrative makes a good read. As a story, it would be greatly improved with a better map of the boroughs. As policy, the "map" needs to place New York within the community of industrial nations.

Hubert Murray AIA has an architectural and planning practice in Cambridge, Massachusetts.



Index to advertisers

Site Work

Web sites of note

Healthy People 2010
www.health.gov/healthypeople

Healthy People 2010 is the "prevention agenda for the Nation." You probably didn't know we had one. Featuring graphics that are remarkably cheerful for a government site, this site's most useful offering might be the "Healthfinder" — a screened guide to reliable health info on the Web.

Indoor Air Quality
www.dehs.umn.edu/iaq

Comprehensive information, courtesy of the University of Minnesota. Includes chemical sensitivities, guidelines for responses to flooding and water damage, and a nifty collection of photos of all sorts of disgusting fungi, from Absidia to Wallemia.

Healthy Flying
www.flyana.com

"A rare, no-holds-barred look at the multiple dangers of air travel." No kidding. Worried about developing deep-vein thrombosis and a nasty case of TB? This site is for you. Start with this little factoid: Airline pilots get ten times more oxygen than economy passengers get.

Building Science Corporation
www.buildingscience.com

Sure, this terrific site promotes BSC's services. But it also offers all sorts of free info, articles, and links about air quality and moisture in buildings. It's sometimes provocative and often entertaining. Check out the "Top Ten Dumb Things" to do in the South and in the North. "Houses That Work" offers technical information about building in your climate. Venting isn't always good for you.

What Poison Ivy Looks Like
www.poison-ivy.org

Scratch and ooze no more! Jon Sachs of Brookline, Massachusetts, has assembled the definitive collection of poison ivy pix showing the evil plant in all its nefarious forms. Buy the poster — maybe you can write off the expense. As Sachs notes, "I would think that architects are subject to attack from poison ivy during site visits."

Creating A Healthy Environment
www.sprawlwatch.org/health.pdf

The fight against sprawl has a new ally: The Centers for Disease Control. Read this report from the CDC to learn why sprawl is bad for you.

US Geological Survey, Earthquake Hazards Program
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Other Voices by Marcie Hershman

The House on Stanton Road

photos: Timothy Whitney

Over the years, my partner and I considered moving to a new house, but each time we returned home from the search, we felt as if we *were* home. True, we had tired of living in the six modestly proportioned rooms on the second floor, with tenants occupying five nearly identical rooms below, but it seemed as if the 1920s, wood-shingled, two-family colonial was where we were supposed to be.

Then I got sick. In rapid order, my vision, hearing, breathing, appetite, and stamina deteriorated. Blood samples, MRIs, neurology, pulmonary, ophthalmology, audiology exams — these procedures took over my days. People I'd just met became my semi-intimate companions. The teams of specialists engaged in seeking a diagnosis were devoted to their tasks, but they were just as surely individuals, and no less complicated for that. Often I was left on the sideline as they worked with each other, and to my exhausted chagrin, sometimes against each other. Diagnosis seemed far-off.

Then one afternoon, lying in bed, shades pulled to block the sun, I was startled to hear myself whisper: "I can't believe I'm going to die in a two-family house."

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The moment afterward, I had to laugh. Inserting a house into the life-death equation was absurd. Still, the disappointment I felt about where I'd ended up was real. There was no longer any use in denying it. Somehow I should have moved on, and hadn't. If health was restored to me, I'd celebrate its energy. I promised myself: I'd move on.

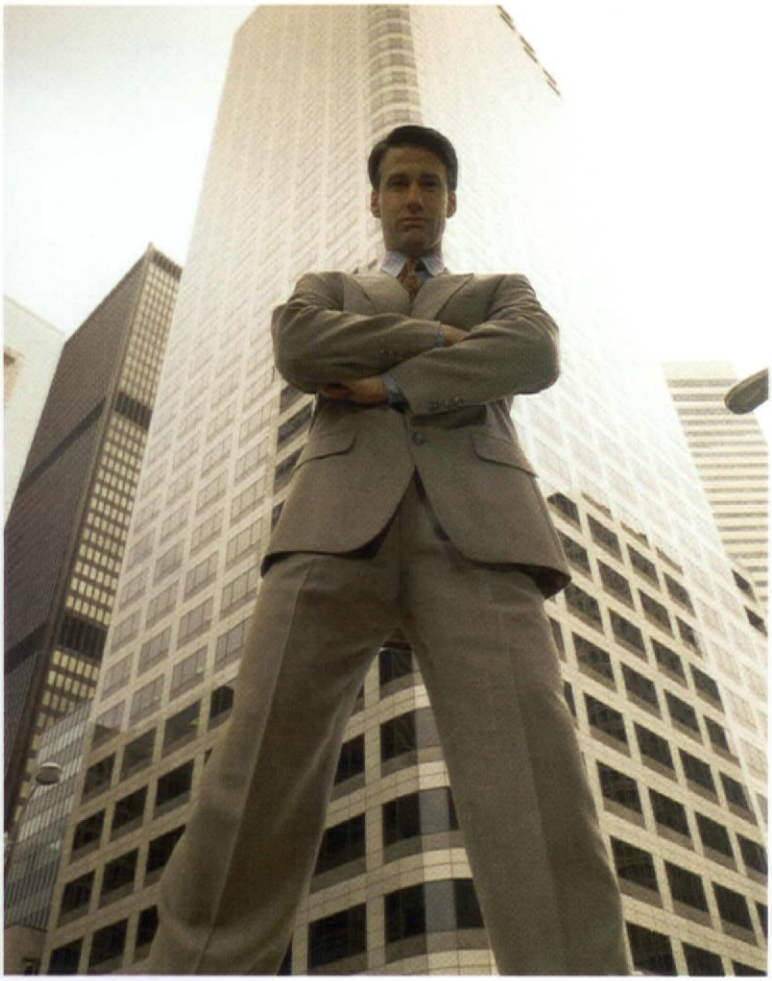
Ten months passed. By then, auto-immune illness in retreat, we began to make a list of what we wanted most in a house. The items read like a prescription for joy: light, a sense of flow, simplicity and elegance of line, a playful openness at its core — a unifying lightness in the center. Moreover, we wanted all this here, right where we lived. Could this place built as two separate living units become a single, graceful structure? We hoped to be able to find within our old house, which had sheltered us well for so long, a future home.

In architect Timothy Whitney, whose private practice focuses on residential architecture, we found someone able to listen, as well as guide us toward new ideas. Throughout the series of meetings, he gave definition and shape to wishes that once seemed vaguely possible. Yes, we would preserve the second-floor dining room's warmly burnished ceiling beams, because for seventy-five years they were the house's only proud-and-fancy architectural detail, only now, we'd tunnel upward between each and install large fixed skylights. Light would filter down via the tunnels and fill the heart of the house, even two stories below, because we'd keep only a third of the first floor's similarly beamed ceiling. We envisioned walls moved, taken out, or gentled into curves; and windows replaced, selectively added, re-sized, or covered. By reusing what we could from the two original units — french doors, cut-glass door knobs, small brass flourishes — the interior would have the sense of care and continuity we valued, and a level of intimat detail to both complement and set-off the new, more contemporary architectural lines. Except for a modest change in the direction the back porch steps, the house's footprint would stay the same.

The day the contractor's demolition dumps appeared like Goliath in the driveway, we moved out and Rocksteady Builders took over. For the next six months, teams of spec ists came through: contractor and subcontra tors, carpenters, HVAC techs, electricians, plumbers, plasterers, painters, floor refinishe Each group assessed the house's changing situation, debated the merits of various approaches, carted in tools and materials, a set to its tasks accordingly. Monitoring the destruction and progress nearly every day, I was reminded how so many people worked mend me back together when I was ill. The same unity of purpose, the same unavoidab rhythm of advances, setbacks, retrenchment support. Some days were easy, full of succes others were sparked by friction: anger over crossed efforts and missed communication. wander through, wondering about the end. knew it surely was possible that out of such seeming chaos, could come order. Out of so much hard work, little by little, and then — almost as if all at once — could come a stru ture made newly strong, and, because of tha in its own way also beautiful.

Then, one morning, the teams moved out and everyone who'd helped us left. We open the door to a space that was restored and renewed. Wherever we looked, light flowed serenely. The interior felt spacious and yet focused by quiet touches, never empty. We stepped inside, marveling. This brightness w ours, for at least this while: the construction of home and health. ■■■

Marcie Hershman is the author of the memoir, *Speak Me: Grief, Love and What Endures* (Beacon) and the novels, *Tales of the Master Race* and *Safe in America* (HarperCollins). She teaches at Tufts University.



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