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## EDITORIAL

## What Are Our Ethics?

BY ROBERT A. IVY, FAIA



**H**ow can we elevate architecture in the public consciousness, share its value, and promote architects' skills? Part of the answer lies in spreading the word, but a more important component lies in our own actions, distinguishing this profession from a mere career. In addition to mastery of technique and knowledge, architects are called to public service. Many of us entered the field not only for glory or gain, but to improve the world we live in. Our motivation, more than sentimental, was based on a strong belief in our collective ability to make a difference.

Yet making a living in architecture can be hard; we have our own families to feed, our own partners and accountants and bankers to satisfy. What begins in idealism can congeal, immediately on emerging into the marketplace, into pure business. Part of our armor against the competitive, abrasive unknown is our own design-centric culture: As a profession, we can be accused of being self-referential, giving awards to our peers, speaking in our own jargon, niggling over arcane matters that the public doesn't fully understand. But we cannot fool the public. If our architecture is perceived as purely business or purely art or merely self-congratulation, then won't our potential clients judge this profession exclusively on those terms?

The time has come for architects to redefine their professional ethics, the tenets that guide their behavior. In our age of cultural relativism, the debate will not be clean or easy. No single ethic will emerge. The conversation should be multilayered, involving everything from the rules of doing business with our clients to larger issues like the profession's relationship to society and to the larger world.

What can we agree on in 1997? Isn't public service, or what the Carnegie Foundation report labels "civic engagement," a shared goal? Many of us already serve on code and standards boards. As contentious as we sometimes are, can we agree on energy consumption goals or development guidelines for our own communities or the environmental implications of the

building materials we specify? We plan housing superbly. What should be our posture toward pro-bono residential work? How should our cities evolve? What will keep this ethical imperative from fading with the fluctuating economy, as advocacy architecture withered in the late 1970's? What are the implications of what we do?

The discussion is already taking place across the country and is often transformed into action. AIA members in New Orleans, Louisiana, together with the national organization, leaped beyond conversation to form a partnership with a local agency. "The Legacy Project 1997" will provide emergency shelter and social services for the homeless on a 7.5-acre campus near the downtown. A real place. A real need. A real answer.

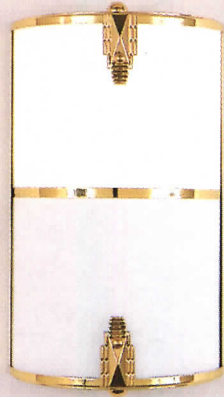
In New York, educator and architect Robert Geddes, FAIA, is co-directing what he calls a "civic triumvirate," a coalition of three interest groups—the profession, the academic community, and the public. The project, centered in Harlem, uses architects' skills to develop the Upper Manhattan Empowerment Zone. All the participants, whether students, architects, or the public, benefit.

As architects, we are trained to listen well, to translate multiple points of view into ordered thought, and to build. The moment has come to agree on what constitutes public service and to act individually and as a body from that shared belief. Some of us will consequently design skyscrapers that minimize reliance on fossil fuels; some will look into the shadows of those highrises and devise shelters for the homeless. There is room for all our skills.

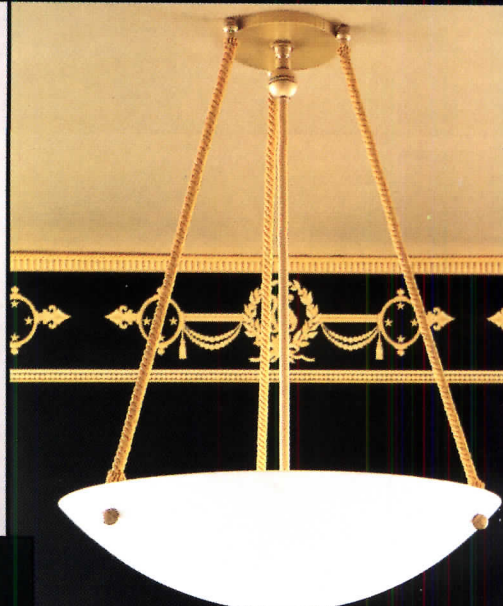
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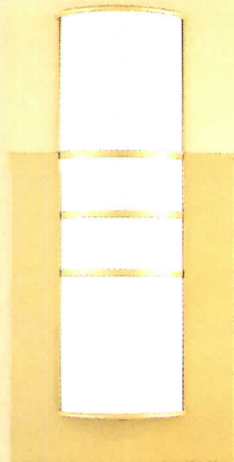
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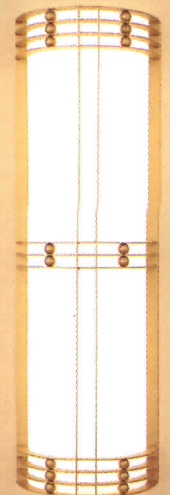
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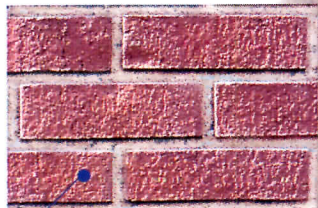
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## LETTERS

**The certification debate**

I read with dismay Robert Clough's response to the "designer" who, in an attempt to pass the Architecture Registration Exam (A.R.E.), took the design section 30 times [RECORD, April 1997, page 28]. While I am sympathetic to the designer's frustration, given the subjectivity of the exam, it is Clough's disclosures as chairman of the AIA's National Licensing Committee that I find disturbing. Clough states, "The trend in licensing is to allow less opportunity for those who do not follow the path of obtaining an accredited degree, IDP training, and passing the A.R.E." As an architect who became licensed under the apprenticeship clause with a B.A. in art history and 11 years of practical experience, I must speak for those individuals who follow alternative paths on their way to achieving design excellence.

As Robert Frost, our poet laureate, penned in one of his most famous poems, "Two roads diverged in the wood and I, I took the one less traveled by, and that has made all the difference." It is often that less traveled road that leads one to a greater diversity of experiences, hence greater grist for one's architectural mill. It also happens to reflect more accurately the profile of those who pursue the American dream. I have observed with sadness and regret the profession's relentless quest to close the doors on those who for various reasons learn their craft by taking alternative routes. The doors that are closing are being shut primarily in the faces of those who may not have the means to incur the debt associated with a conventional architectural education: minority students; foreign émigrés who have an architectural degree from a school in their own country that is not accredited by the National Architectural Accrediting Board; or women who may not have attended or dropped out of architecture school to raise a family but who have apprenticed part-time for years

while performing domestic duties.

What I find equally disturbing in Clough's response is his statement that "NCARB recently voted to require an NAAB-accredited degree in architecture to qualify for an NCARB certificate." While I procured mine some years ago, if NCARB chooses to make this requirement retroactive, I will be forced to take the exam in every state in which I wish to practice, assuming I would qualify to do so based on my background. Although I have built across the country, this would limit my practice to my own state because I belong to the generation of architects whose computer literacy stretches only as far as the word processor but who seems to survive nicely using pencil and paper to sketch concepts and plans that the younger generation commits to the computer.

I would argue for an A.R.E. that tests competency and creativity rather than computer literacy. As one who took the exam after an 11-year apprenticeship in the Interior Design Department of Skidmore, Owings & Merrill and passed it the first time, I would lobby for a qualifications system that is open to all aspirants and an examination that is tough but fair. In a world where architects are increasingly required to be creative in seeking diverse careers, we should allow that trend to be reflected in the applicant pool for the A.R.E.

My partner, Stanley Tigerman, FAIA, is also licensed under the apprenticeship clause. We only hope that the firm of Tigerman McCurry does not become disenfranchised because the profession, as represented by NCARB, chooses to restrict the practice of architecture to those who follow the conventional route, thereby alienating those who break new ground and build new roads.

—Margaret I McCurry, FAIA  
Tigerman McCurry, Chicago

Robert K. Clough's reference to the current "trend" in licensing is of concern to me. Of the four interns in my

office, an A & E firm in Utah, I am the only one with a professional degree. These individuals do not meet the requirements to take the A.R.E. in Utah, but each is testing via proxy from the State of California, which allows candidates to fulfill the requirements with experience and/or "some" formal education. Once licensed in California, they can petition other states, including Utah, for reciprocity.

Ten years ago, I began the process of becoming a professional architect. I have "done it by the book" every step of the way, only to find out that I didn't have to. How can NCARB allow a person who is not a resident of a particular state and who is not working on projects in that state to sit for the A.R.E.?

My gripe is not with the other interns in my office. It is with a system that allows "some" to embark on the journey by means of a different path.

—Thomas E. Danks  
Ogden, Utah

The A.R.E. is not a "design" exam. It is designed to test minimum competency in the health, welfare, and safety areas determined by state boards of architecture. The exam does not test and has never tested pure design ability.

—Lenore M. Lucey, FAIA  
Executive Vice-President, NCARB,  
Washington, D.C.

In response to the question posed by Bracken Raleigh in your *Mentors* column about the number of times a prospective architect should have to take the design portion of the licensing exam in order to pass it, the answer, as many of the architects in this office will testify, is one.

—Michael Lee  
Dreyfuss & Blackford Architects  
Sacramento, Calif.

**Taking on NCARB, Texas-style**

I'm glad to know of the current showdown between the Texas Board of Architectural Examiners and NCARB [RECORD, April 1997, page 40]. I am a registered architect in

Texas; I passed the exam the first time I took it. Prior to architecture school, I owned and ran a masonry business for nearly 10 years. Last year, I tried to obtain reciprocal licensure from the State of Louisiana, but was turned down. Louisiana is an "NCARB state" and I was approximately four weeks short of the required work experience to qualify and do not have a professional degree from an accredited school.

I have yet to see one student come out of a graduate school program that is better prepared to be a registered architect than someone who has been active in the profession for five, ten, or twenty years. NCARB has sold many states a bill of goods that says NCARB is what we need to "protect the integrity of the profession." Meanwhile, NCARB counts its millions of dollars in processing fees and raises exam fees to fatten its checkbook. I support stringent requirements for those desiring to be architects, but let's be reasonable.

—Thomas P. Wilkins, AIA, CCCA  
Dallas, Tex.

Justifying the increased fee for the A.R.E. is not the real point of the debate in Texas or elsewhere. The soft costs saved by the added convenience of being able to take the exam "anytime, anywhere" were, in the past, just that: soft costs. In 1997, they are hard costs. Every day we make choices between convenience and expense, whether we drive or walk to work, use the telephone or send an E-mail message. The point is that NCARB should not have been allowed to incur such a great expense for what, in the end, is minimal added convenience.

To take a little heat off the NCARB, a separate issue connected to the debate is that architecture interns are not compensated at a level commensurate with their education or their professional training. Compensation is clearly an issue profession-wide, and the best long-term solution we have heard is for

(continued on page 198)

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**CIRCLE 12 ON INQUIRY CARD**

# SPEAK OUT Joint ventures: "It doesn't have to be a dirty word."

BY DAVID R. DIBNER, FAIA



*David R. Dibner, FAIA, was vice president and principal of Sverdrup Corporation from 1989 to 1992. Prior to that he was senior vice president of Bernard Johnson, Inc. from 1982 to 1989, and assistant commissioner for design and construction with the General Services Administration in Washington, D.C. He is the author of, among other titles, Joint Ventures for Architects and Engineers, which was published in 1972 by The McGraw-Hill Companies.*

It was almost 30 years ago, when at AIA headquarters, I overheard an official of the AIA tell a group of practitioners during a lunch break, "Joint ventures, that's a dirty word around here!" I was surprised to hear that because, at the time, I had been engaged in several very successful joint ventures. I attempted to convince the group that it doesn't have to be a dirty word, if it is properly structured and managed. But they just shook their heads. Recently, I heard a prominent architect state that his firm "would never joint venture." And my old feelings about the subject welled up again. To me, it is like saying marriage is not an acceptable institution because there are some divorces. So here I am again describing and defending joint venturing as an acceptable form of practice.

First of all, let me make it very clear that if you feel that your firm can obtain and produce the project by itself, or with the help of consultants, then by all means go right ahead on your own. But the following are some reasons you may want to joint venture:

To obtain the project, you need a firm with greater experience, recognition, or a firm with more background in a specific field, different talents, better contacts with the particular client, more political clout, or closer proximity to the site.

To produce the project, you need another firm to provide broader services, greater depth of manpower, management skills, financing, etc. In effect, a joint venture complements the strengths of

your firm with the strengths of other firms.

A joint venture is a temporary contractual association to obtain and produce a specific project. It provides the opportunity to get in where the action is and do larger or specialized work, without the necessity for permanent change to your firm. Since the joint venture is for that project alone, if you don't like the new type of practice, you can return to your old ways. Or, with the new project in your brochure, you might want to continue in the new field or level of practice.

Like any other form of interaction, the success of a joint venture is dependent upon the careful choice of partners and the degree of understanding, organization, and management that is developed. There are two major forms of joint ventures:

(1) Each firm assumes the responsibility to produce a specific portion of the work, e.g. firm A is responsible from inception through design development stage; while firm B pursues the work through completion of construction.

(2) All parties agree to share the work and responsibility from beginning to end, operating under clearly defined guidelines for performance of the work.

Each form has advantages and disadvantages and depends upon the firms and the project involved. However, what is essential is that each firm's tasks and responsibilities be carefully defined and recorded in writing prior to securing the commission. This early and comprehensive agreement as to

each firm's contribution to the effort is the nucleus of a harmonious and successful joint venture. There are standard forms of agreement available to joint venture participants to serve as the basis for their association. As an alternative, in most states, a Limited Liability Company (LLC) may be formed. In any case, an attorney should be consulted.

Of course there are other aspects of joint venturing that should be considered. However, I continue to maintain that this form of practice has many advantages to both small and large firms. It allows both to obtain and produce very large projects without straining their capabilities. It also provides a chance to learn new technical and management skills. Also, it assures the client that a full complement of talents is available for the project. With proper preparation and wise partner selection, better architecture can be produced than the mere sum of the firms' skills might suggest. The overriding theme must be a mutuality of interest leading to the highest goals of service to the client. It can work well, I know. ■

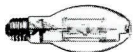
**Contributions:** *If you would like to express your opinion in this column, send submissions: by mail (with a disk, if possible) to Speak Out, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; fax: 212/512-4256; or E-mail: rivy@mcgraw-hill.com. Essays must not exceed 700 words. The editors reserve the right to edit for space and clarity. Where substantial editing occurs, the author will receive final text approval.*



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CIRCLE 13 ON INQUIRY CARD

# MENTORS NCARB certification in one state does not ensure reciprocal licensure in others. Should everyone be on the same page?

*Michiel M. Bourdreuz, AIA, has been director of operations of the National Council of Architectural Registration Board (NCARB) since 1990. Prior to joining NCARB, he was in private practice for 25 years in New York, New Jersey, and Germany.*

*D. Wayne Rogers, AIA, owner of Catalyst Architects in Columbia, South Carolina, serves as vice-chairman of the National AIA Licensing Committee. He is secretary of AIA/South Carolina, and created the chapter's Licensing Task Force and political action committee.*



**I received a degree in architectural technology from a nonaccredited school in 1986, completed a five-year internship, and passed the NCARB exam in 1995 in New York. I relocated my family to South Carolina late in 1995 and submitted an application for reciprocal licensure to NCARB, which was rejected.**

**When individual states set their own eligibility rules for an exam administered by a national organization, many problems arise. I support a national standard for architects, but the rules must be standardized at the state level. These rules should be enacted simultaneously, with a grandfather clause for previously registered architects to receive their certification/blue book. I am licensed in New York and can obtain reciprocal licensing in California, where, in theory, I could be responsible for the safety of thousands of people, but I cannot practice in South Carolina. How can NCARB or a state require that a practitioner 10 years out of college get a professional degree before receiving certification?**

**A related problem arises when obtaining AIA membership. Without reciprocal registration, I would not be able, were I a dues-paying member, to use "AIA" after my name in South Carolina. When is everybody going to get on the same page?**  
—Eric R. Hubbs, R.A. (N.Y.), Charleston, South Carolina

*Michiel M. Bourdreuz, AIA, responds:* Collectively, state architectural registration boards constitute NCARB and set the education, training, and examination requirements for the certificate. It is important to understand, however, that individual boards are autonomous and can set requirements, as they deem necessary for the public's protection, for initial registration within their jurisdictions. The different education and training requirements in New York and South Carolina illustrate this point, but both states accept the NCARB certificate as evidence of an architect's eligibility for reciprocal registration. The Architectural Registration Exam (A.R.E.), its development funded by NCARB, is the only leg of the three-legged stool (education, training, examination) on which all boards agree as a requirement for registration.

As of July 1, 1984, architects are required to have a degree accredited by the National Architectural Accreditation Board (NAAB) to obtain their NCARB certificate. Applicants for the certificate who demonstrated that they had met the old education standard or who were registered in one of the 55 jurisdictions prior to this date were "grandfathered." The "grandfather" provisions end June 30, 2000.

NCARB maintains that the 130 degree programs accredited by NAAB at 105 schools offer sufficient diversity for meeting the educational requirement while assuring a measurable standard for the certificate.

*D. Wayne Rogers, AIA, responds:* Your situation reflects a common

concern for many U.S. architects who are licensed—without an accredited degree—via the A.R.E. To receive an NCARB certificate one must have an accredited degree or meet NCARB's Broadly Experienced Architect provision. NCARB's plans to "sunset" this alternative route are opposed by the AIA.

The AIA supports NAAB-accredited programs as the standard educational foundation for practice and the use of uniform criteria for evaluating candidates for licensure in the areas of education, training, and examination. The danger develops when NCARB certification is the sole avenue for reciprocal licensure. Uniformity should not negate flexibility.

The AIA Licensing Committee is nearing the completion of a set of legislative guidelines on reciprocity that propose a few alternatives to the NCARB certificate. These alternative routes are not designed to lower licensure standards, but to recognize that they may be achieved through other means.

Concerning the use of "AIA" after your name, the initials may be used by any architect in good standing with the AIA, without regard to licensing status within a state. ■

**Questions:** *If you have a question about your career, professional ethics, the law, or any other facet of architecture, design, and construction, send submissions by mail to Mentors, Architectural Record, 1221 Avenue of the Americas, New York, N.Y. 10020; by fax to 212/512-4256; or by E-mail to rivity@mcgraw-hill.com. Submissions may be edited for space and clarity.*



dream things that never were;  
and I say, "Why not?"

— George Bernard Shaw

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**GRAND MANOR**  
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# PULSE RECORD readers were asked: Do gated communities have value?

YES: 50%

NO: 50%

**Yes:** This world is so full of shades of gray that it is nearly impossible to define where you are, what you are, or who you are. Although arbitrary in implementation, gated communities provide black and white lines by which people can define where they are, who they are, and what they want their community to be. These simple lines collect and empower people to implement and build upon what they want. I'd much rather see a section of a city comprised of gated communities working together to improve their common environment, than a vast wasteland of individual groups and homes with no real connection to one another vying for power. Gated communities have at their roots organization, definition, compromise, and accommodation. They succeed because this does not change at whim. —*Emil A. Slavik*

**Yes:** We used to lock our front doors and cars, and put on the alarm system. And we would forbid our children to play in the street. Today we live in a gated community. For retired persons as well as for young families like ours, security is what brings us together. And when people get involved in their communities, such as the one where we live, the results are absolutely amazing. Retired persons find new jobs, keep themselves busy through dozens of organizations, and fathers get involved with their children's activities. Today, our doors are unlocked and there is no need for an alarm system. The kids? Well, they play on a safe street. Would we go back to the old house? I don't think so. —*Michelle Meunier, 4th-year architecture student, Savannah, Ga.*

**No:** Gated communities are antithetical to the American ideal of democracy. I would argue that the money and resources that are allocated by such private enclaves for security guards, road maintenance, and self-government would bring a much greater return if they were invested in the larger community. The mechanism for doing so already exists in the form of city councils and civic organizations. Unfortunately it is a more daunting task to engage in and raise the level of civic discourse than it is to wall oneself off. Either the patrons of gated communities are slouching along the path of least effort, or perhaps the terms "security" and "community spirit" are merely euphemisms for a thinly veiled desire for social and economic segregation. Allowing such clusters of homogeneity to exist

merely exacerbates the divisions underlying our society, and makes it increasingly impossible for the consensus of the melting pot to emerge. As architects, we must ask ourselves if we are to be willing partners in this process. —*Art Lohsen, Associate, AIA, Washington, D.C.*

**No:** Gated communities have a perception of safety. If someone wants to rob a home or commit some other crime, they will find a way. The sense of community is somehow lost in the planning of these developments. I see gated communities as the downfall of community. When one puts up the walls, community is lost. —*Alex Lee, Planner, Arlington, Va.*

**This Month's Question:**

Should the AIA Gold Medal and other awards presented to individual architects be broadened to include collaborators?

"The nature of who an architect is, and what he or she does, has changed from master builder to spirited collaborator," says Robert Ivy, FAIA, editor in chief of RECORD. Of a different opinion is L. William Chapin, II, FAIA, who notes that "...while the substance of architecture is the result of collaborative effort, its soul comes from the spirit of the individual" [RECORD, May 1997, pages 29 and 32, respectively].

**Do you think that the AIA Gold Medal and other awards presented to individual architects should be broadened to include collaborators?**

Yes  No

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**Let us know your opinion:**

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**May an editor contact you for further comments?**  Yes  No

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## TADAO ANDO WINS FORT WORTH MODERN ART MUSEUM COMMISSION

With surprising speed and unanimity, the Modern Art Museum of Fort Worth has chosen Japanese architect Tadao Ando to design its new building. The announcement came only two weeks after six finalists presented their designs for one of the most prestigious architectural commissions of the decade.

Ann Marion, chairman of the museum's architecture review committee, said the members were "very moved by the beauty of Mr. Ando's concept, his responsiveness to our program, and his poetic handling of the site."

The announcement concluded six months of frenetic activity in which six architects (Richard Gluckman, Arata Isozaki, Carlos Jimenez, Ricardo Legorreta, David Schwartz, and Ando) competed to build across the street from Louis Kahn's Kimbell Art Museum. The scope of the project, and its proximity to one of the most significant buildings of the late 20th century, made for a coveted prize.

The new Modern, Ando's first significant public American commission, consists of six rectangular concrete-and-glass pavilions surrounded by a shallow reflecting pool. Temporary galleries, an education wing, offices, and public spaces will

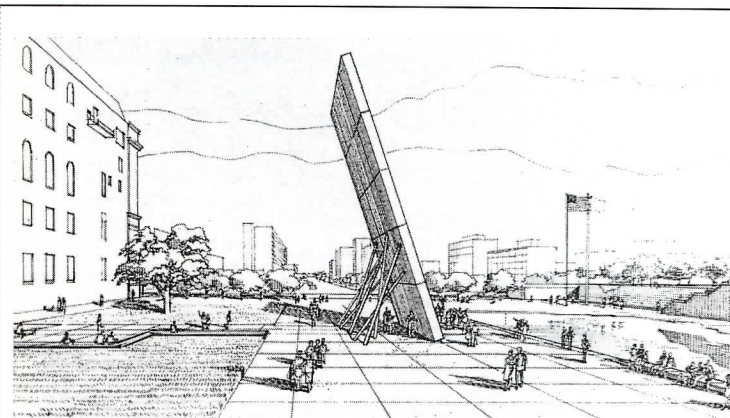
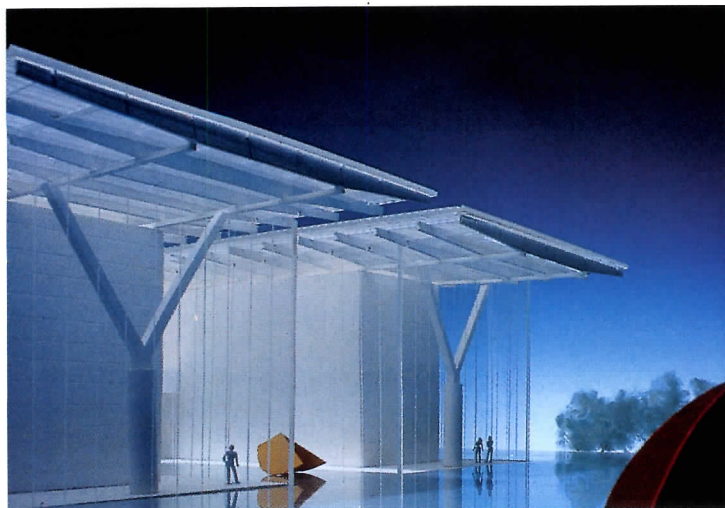
occupy the ground level, with the permanent collection and sculpture courts on the second. The pavilion roofs are broad and flat and supported at the ends by dramatic Y columns of approximately the same height as the Kimbell's vaults. The northeast corner of the 11-acre site will be a forest that both screens out the city and marks an oasis within it.

Ando's preliminary design calls for 230,000 sq ft of space, 75,000 sq ft for galleries. There is a possibility that both numbers might shrink once the museum staff reviews its programs and future needs. No budget or completion date was announced, though \$70 million and the year 2002 are considered plausible estimates.

"When we all first met in Osaka," said the Modern's director, Marla Price, "the first thing Ando said was that he wanted to design a building that inspired artists and brought joy and inspiration to everyone who visited it. He set out right away to address those issues. The competition model shows that he continued to hold on to that vision."

*David Dillon*

**The Modern Art Museum of Fort Worth: designed to "inspire artists."**



## OKLAHOMA MEMORIAL COMPETITION HELPS TO HEAL COMMUNITY

All design competitions have drama, but none can match the emotional intensity of the Oklahoma City Memorial competition. Five finalists were announced April 19, the second anniversary of the bombing, in the presence of several hundred survivors and relatives of the victims. The announcement came five days before the opening of the Timothy McVeigh trial in Denver, which could wind up just as the winner of the competition is named.

"The competition has had a powerful healing effect," explained Kari Ferguson, communications director for the Oklahoma City Memorial Foundation. "The process has broken down all kinds of racial and economic barriers. People who had never talked to one another came together over this event."

The finalists were chosen from 624 entries from 50 states and 23 countries. They include young architects just out of school and seasoned professionals.

The competition called for a memorial "to commemorate those who were killed, those who survived, and those changed forever." The memorial will occupy a three-acre site formed by the footprint of the destroyed Alfred P. Murrah building and adjacent structures. A visitor center and an Institute for the Prevention of Terrorism and Violence will be added later.

The proposals of the five finalists range from spare, minimalist designs to intricate landscape and garden schemes.

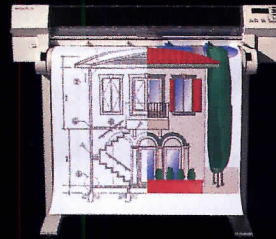
J. Kyle Casper and Brian Branstetter of Dallas designed a long, narrow chamber containing 168 boxes inscribed with the names and birth dates of the victims. At noon on each victim's birthday, sunlight penetrates openings in the chamber wall and illuminates the individual memorial. Susan Herrington and Mark Stankard of Ames, Iowa, created an intricate sequence of lawns and gardens that terminates at a glass wall etched with the names and ages of the victims. Personal objects chosen by the families would be pressed between the layers of glass.

The centerpiece of the submission from the German firm Locus Bold Design is a field of 168 chairs, symbolizing the victims and providing a place for families and friends to leave personal remembrances.

Hanno Weber & Associates, Chicago, created a circular space at the epicenter of the bomb blast, with a lawn and spring inside the wall and 168 columnar cypresses on top of it. Richard Scherr and James Rossant of Brooklyn, N.Y., designed a 60-ft-high tilting wall (pictured above), inscribed with the names of the victims and symbolizing both the collapse of a building and the erection of a new one.

The finalists have until June 19 to refine their designs, including a model showing that they can be built within the \$10 million budget. The winner will be announced July 3, with completion expected within two years. *David Dillon*

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## AIA DELEGATES 'SHOOT DOWN' DUES HIKE AND TV ADVERTISING CAMPAIGN

Delegates at the AIA national convention in New Orleans voted in a one-time \$10 dues increase for 1998 and rejected a three-year assessment of \$50 per year that would have funded a major television advertising campaign.

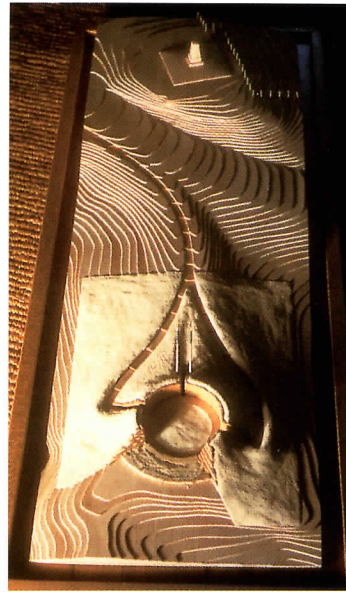
Despite a strong presentation of the dues assessment proposal by AIA Chief Executive Officer Terrence M. McDermott, Hon. AIA, and exhortations on the floor from four past AIA presidents, and the American Institute of Architecture Students president, the measure failed to get the two-thirds majority vote needed for passage. The \$50 assessment would have paid for a \$2.5 million-a-year television schedule of ads promoting the value of architects.

Swayed by arguments that the ad campaign needed more planning and by opposition from the AIA California Council (AIACC), more than a third of the delegates shot down the proposal. California delegates are fighting their own battle, a proposed amendment to their state constitution that would effectively allocate all public design work to state-employed designers [RECORD, May 1997, page 50]. AIACC, which

recently raised state dues and wants to raise \$1.2 million to fight the amendment proposal, was concerned that the national dues assessment would harm their membership recruitment/retention program. It was announced at the convention that the national AIA has committed \$100,000 to the AIACC campaign against the state constitutional amendment.

In other convention business, delegates voted unanimously to support the Legacy Project, a program designed to leave something of lasting social value behind in the convention host city. This year the Legacy Project is a joint effort of AIA New Orleans, the city government, the national AIA, and local charity groups to build a shelter and support center for the homeless.

The total attendance of 8,700 AIA members and related professionals is considered high by AIA officials. Much of the increase was attributed to the 1998 AIA membership requirement for continuing education. The convention featured nine theme speakers, 84 seminars, and 22 tours among its continuing-education offerings.



## HUSBAND AND WIFE DESIGN NEW LITTLE BIGHORN MEMORIAL

A husband-and-wife team of Philadelphia architects has won the national design competition for an American Indian memorial to be built at Little Bighorn Battlefield National Monument in Montana. Alison J. Towers and John R. Collins, principals of Towers Collins Architects, received \$30,000 for their entry, one of 554 submissions.

The memorial—a circular earthen berm with a ceremonial

**This new memorial at the Little Bighorn Battlefield is for the American Indians who died there.**

gathering space in the middle—will honor the Sioux, Cheyenne, and Arapaho Indians who fought against the U.S. Army in the Battle of Little Bighorn on June 25–26, 1876, as well as the Crow and Arikara Indians who fought with the army.

The site already contains a granite obelisk honoring Lt. Col. George Armstrong Custer and some 225 members of the 7th Cavalry who died in the battle, popularly known as "Custer's Last Stand." For years, Native Americans have argued that the victors should be recognized, too.

When Congress voted in 1991 to change the name of the site from Custer Battlefield National Monument to Little Bighorn National Monument, it authorized such a memorial.

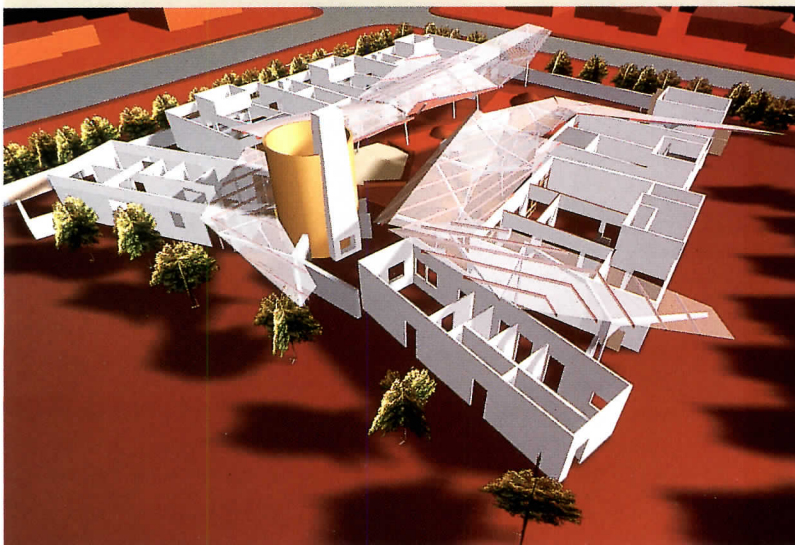
Collins and Towers call their design "an elemental landform, recalling the ancient earthworks found throughout the continent." Visitors will enter the grass-covered berm from the east through a narrow passage. To the north, through an opening in the circle, they will see three larger-than-life sculptures of Indian warriors on horseback. On the southern rim will be a narrow gap cut through a stone wall. Through this "weeping wound," as the architects call it, visitors will be able to see the Custer obelisk, about 75 yards away, before exiting through a narrow passage on the west side.

"I like the concept of the weeping wound," says Dennis Sun Rhodes, president of AmerINDIAN Architecture in St. Paul, Minn., and one of the competition's seven jurors. "If it comes off right, I think it will have the same impact as the Vietnam Veterans Memorial in Washington, D.C."

The National Park Foundation, which put up the prize money for the competition, will now raise funds to pay for the memorial.

*David Hill*

**LOS ANGELES AIRPORT EMPLOYEES MAY BRING THEIR KIDS TO WORK SOON** A \$1.6 million Los Angeles Child Care Center designed by architects Marmol & Radziner of Santa Monica, Calif., will provide care for children of Los Angeles International Airport employees when it is completed later this year. Two blocks of playrooms for children six weeks to five years of age, an administrative wing, and a dining services building form a



small village-like campus around a central playground and an entrance tower. The shape of the project is reminiscent of an aircraft ready for flight. A series of translucent canopies hover over the playground's grassy hills, sandboxes, and tricycle track, protecting the center's small charges from the Southern California sun. The client for the project is the City of Los Angeles Department of Airports.

## ARE MEIER, VIÑOLY, AND OTHER STARS COMPETING TO DESIGN STREET FURNITURE?

Few architects fantasize about designing public toilets. But when the stakes are high, as they are in the \$1 billion superbowl of public street furniture contracts shaping up in New York City, even superstars will apparently compete.

"To enhance quality of life," New York City's Department of Transportation issued a request for presentation (RFP) in January 1997 for a coordinated franchise to install, operate, and maintain street furniture and to sell outdoor advertising.

The 20-year contract calls for a private company to be responsible for over 3,300 bus shelters, 330 newsstands, and at least 30 automatic public pay toilets. Over \$100 million will likely be invested to build and maintain the furniture, with an estimated \$50 million needed in the first few years, according to the RFP. The winner will sell advertising on each site, with the city collecting a percentage of the earnings, which could reach \$1 billion over 20 years.

Several international outdoor furnishing companies have teamed with prestigious architects to design the street furniture. None of the proposers are talking publicly about participation for fear of ruining their chances. And city officials have also refused to discuss the matter or divulge names of submitting companies, their architects, the number of submissions received by the April 18 deadline, or the identities of those on the evaluation committee.

However, at least three major contenders and their "star architects" have been identified in local press reports and confirmed by people involved, speaking off the record. Adshel, Inc., the British-based company, has enlisted Richard Meier; Paris-based JCDcaux USA has hired a stable of stars including Peter Eisenman, Rafael Viñoly, James Stewart Polshek, Gwathmey Siegel, and Tod Williams and Billie Tsien; and Wall City Design, a German company, has tapped Josef Paul Kleihues.

While the selection will be made by city officials, a nonvoting design advisory committee, consisting of representatives from the AIA New York Chapter, newspaper, real estate, and civic organizations, will also review submissions.

Unlike the selection process for Manhattan's new Columbus Circle—where renderings of each developer's proposal have been made public—no information will be forthcoming on the street furniture designs until after the city awards the contract.

The local Municipal Arts Society will mount "21st Century Streetscape" from June 20 to September 12, an exhibit timed to coincide with the city's proposal.

*Barbara A. Nadel, AIA*

## CHANGES AND CONFUSION MARK MADRID AIRPORT TERMINAL COMPETITION

Frequent changes and confusion are causing dismay among some participants in a competition sponsored by the Spanish government to design a new terminal at Madrid's Barajas Airport. Among the 21 competitors are architects Richard Rogers, Santiago Calatrava, Ricardo Bofill, Frank Gehry, Rem Koolhaas, and Cesar Pelli.

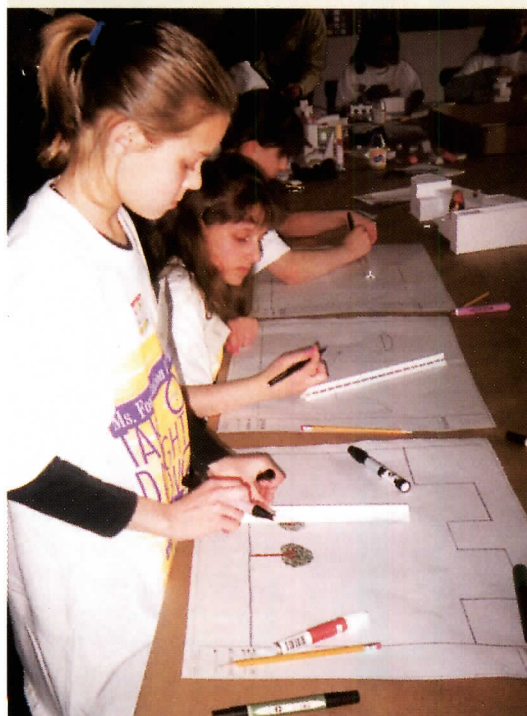
Designs were to be presented in late May for a preliminary selection of finalists, although the schedule for awarding prizes and beginning construction has not yet been announced.

The contest threatens to repeat the confusion of the Ministry of Culture's competition to enlarge the Prado Museum last September, which failed to produce a clear win-

ner. In the case of Barajas, this is the third competition brief presented to participants, incorporating changes that followed the victory of President Jose Maria Aznar of the conservative Popular Party, in national elections in March 1996.

The construction area has been reduced from 2 million to 1.4 million sq ft. While previous briefs specified differing terminal configurations, formal typology is left open in this edition. And most disturbing to those on the already long list of pre-selected participants, the contest has been open to other qualified contenders.

The changes have led at least one prominent contestant, Sir Norman Foster, to drop out of the competition. *David Cohn*



**DAUGHTERS DESIGN BETTER CLASSROOMS** On the fifth annual "Take Our Daughters to Work Day," held April 24, Perkins & Will Architects in Chicago hosted 30 girls ages 7 to 15, and promptly put them to work designing classrooms and hospitals.

"The day was a good way to show girls how to apply math skills and creativity in the real world," said Jessica Halem, a spokesperson for Perkins & Will. "The girls seemed particularly heartened to see growing opportunities for women in architecture," she added.

For the classroom prototype, the girls drew layouts, worked on computers, and chose color palettes, considered carpet samples, paint chips, flooring, and decorative laminates that would make classrooms not only attractive but conducive to learning. For the hospital design, they created three-dimensional models out of foam.

The 30 girls were the daughters and friends of female architects and support staff. And while the consensus among the young women was that their "fun" designs would result in better classrooms and hospitals, the verdict was unanimous that "all classrooms would be better without boys."

## MICHAEL STANTON TO HEAD AIA IN 1999

Michael Stanton, FAIA, of Michael Stanton Architecture, San Francisco, is the American Institute of Architects' new president-elect for 1999.

Stanton says he has three goals for the AIA: leadership, advocacy, and vision. He is committed, he says, to providing architects with "tangible benefits" from their AIA membership, to integrating his goals into Institute decision-making, and

to focusing on practitioner issues "first and foremost."

Stanton won a runoff election against L. Duane Grieve, FAIA, of Grieve & Ruth Architects, Knoxville, at the AIA Convention, May 18 in New Orleans.



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## ARCHITECT PRINCIPAL IS WASHINGTON, D.C. SMALL BUSINESS PERSON OF YEAR



**Deryl McKissack comes from a long line of architects and builders.**

Deryl McKissack, president and CEO of McKissack & McKissack (M&M) of Washington, D.C., was named the Small Business Person of the Year for the Washington metropolitan area by the U.S. Small Business Association (SBA). It was the first time the award was made to the principal of an architecture firm, said Anita Irving of the SBA.

McKissack, who graduated from Howard University in 1983 with a degree in civil engineering and training in architecture, opened her firm in 1990 with one employee (herself), no clients, and \$1,000 of her own money. Her firm's early years were lean; her accountant, she said, was appalled that she only cleared two to three thousand a year for the first three years of oper-

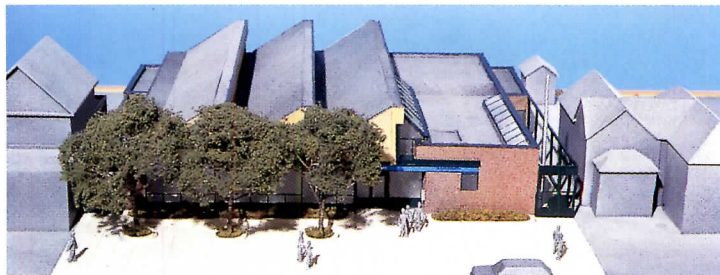
ation. "It's tough to get a line of credit until long after you need one," she explained. Today her line of credit is \$330,000, and M&M employs 38 architects, engineers, computer specialists, an interior designer, and support staff. Estimated revenue is \$7 million for the upcoming fiscal year, and there's a \$100 million backlog of contracts, she said.

M&M is currently working on three separate contracts at the U.S. Treasury Building in Washington, D.C., which is being renovated following a 1996 fire. Other clients include Nationsbank; Georgetown, George Washington, and Howard Universities; the U.S. Department of Labor; the National Institutes of Health; and AT&T.

What advice does she have for architects and engineers considering opening their own shops?

"You have to bring other things to the table besides design and technical skills. You have to market aggressively. One of my favorite bits of wisdom from a CEO I admire is that the three keys to success are 'get business, get business, and get business.'"

McKissack comes from a distinguished family of architects and builders. In fact, she took the name of her firm, McKissack & McKissack, from the firm started by Moses McKissack, her great-grandfather and the son of a slave, in 1905 in Nashville, Tenn. *Julie Moline*

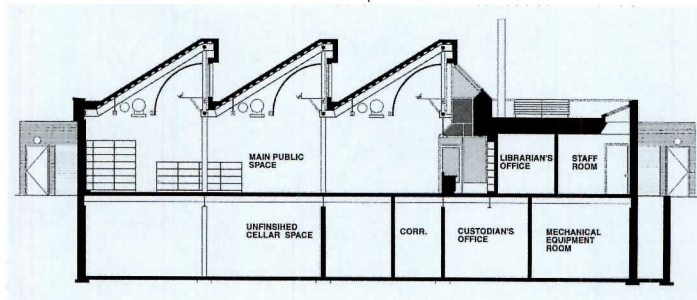


## QUEENS, N.Y. LIBRARY TO SHOW 'GREEN' BUILDINGS BELONG IN PUBLIC SECTOR

A new library in South Jamaica, Queens, N.Y. has been designed to show that environmentally sensitive design has as much a place in the public sector as in the private—and that it can be as cost-effective as it is politically correct.

The 7,500-sq-ft South Jamaica Library, designed by The Stein Partnership, is part of a demonstra-

**Natural light will enter library through three clerestories.**



tion project sponsored by the New York City Department of Design & Construction (DDC) to help develop higher environmental performance standards in new and renovated municipal buildings, according to

DDC spokesperson Hillary Brown.

"What public sector groups are coming to realize is that it's possible to commit to being a good steward of the planet and still be economically realistic," said Carl Stein, FAIA, partner of The Stein Partnership. "Less strain on operating expenses means funds can be used for programs, like hiring staff, or in the case of the library, buying books and computers," he added.

To save on energy costs, the

library employs what Stein calls "a series of very conventional technologies" and uses them "in an integrated, interactive way." The roof uses lightweight steel trusses instead of conventional column and beam construction, which saves on materials and also reduces the load the roof carries. Natural light enters through three clerestories made of high-performance glazed materials. Control systems constantly adjust to take advantage of passive solar gain. Over two-thirds of lighting will come from daylight on a sunny day, Stein said. The building also is designed to separate hot air from cooler air before it is recirculated, saving on air-conditioning costs in summer and heating in winter. The library will open in spring 1999.

**TWO AIA DOCUMENTS UNDER REVISION** Attendees at the AIA convention in New Orleans had the opportunity to examine two major AIA documents that are in the process of being revised. The revisions to Document A201, the General Condition of Construction Agreement, and Document B141, the Owner-Architect Agreement, are intended to accomplish four main objectives: emphasize dispute resolution using mediation prior to arbitration; increase flexibility to suit specific client project-delivery needs; increase the opportunity for clients to choose from an expanded array of architectural services; and provide a mechanism to limit consequential damages to all parties. Drafts of the new documents received generally favorable reviews from members, according to Mark McCallum, associate counsel for the AIA contract documents program.

McCallum stressed that the process of reviewing the documents is ongoing and that AIA members who were unable to attend the convention but wish to see the documents can have that opportunity by writing to the AIA at 1735 New York Avenue, NW, Washington, D.C. 20006. Comments must be received by July 1. The AIA Documents Committee, client groups, and other construction industry representatives will continue working on the documents through the summer. It is expected that the documents will be published in the fall.

## NEW BILINGUAL LIBRARY AND RECREATIONAL CENTER FOR SAN JOSE

The largest Spanish-language collection of materials in Northern California will be housed in a new bilingual library and recreational center to be built one mile south of downtown San Jose. The two buildings, Biblioteca Latinoamericana and the Washington Area Youth Center, were designed by Steven Ehrlich Architects of Santa Monica, California, and will share a 75,000-sq-ft, T-shaped site in a neighborhood of commercial and residential streets.

To identify the complex as a focal point of community activity, the

buildings employ similar materials and forms, and share a shaded central courtyard, accessible from both structures via roll-up glass doors. Each building comprises three masonry masses of concrete block and brick that are unified by metal and glass cladding on the lower portion of the walls.

The executive architect for the project is the local firm of Garcia Teague Architecture + Interiors. Patricia O'Brien Landscape Architecture is the landscape architect. The buildings will be completed by October 1998. *Abby Busset*



The two buildings share a 75,000-sq-ft, T-shaped site one mile south of downtown San Jose.

## WOOD MANUAL OFFERS TOUGHER DESIGN FOR HOUSES TO WITHSTAND HURRICANES

In the wake of the massive destruction wrought by Hurricanes Andrew in 1992 and Hugo in 1989, a dozen states in the South are expected to approve a new manual for designing wood-frame houses to withstand 90- to 120-mile-per-hour winds. The manual is published by the American Wood Council.

In January, Florida became the first state to approve the manual, which provides wind-load prescriptions that are alternatives to those in Standard Building Code 1606.2, published by the Southern Building Code Congress International.

The manual was published in March in the Standard Building Code 1997 edition as a recognized reference document, said Jeffrey Stone of the American Forest and Paper Association, of which the Wood Council is a division. Stone

said there is a "good chance" the manual may also be included in a planned unified design code, which could consolidate by the year 2000 the Standard, National, and Uniform Building Codes.

The manual offers design solutions to reinforcing structural systems in one- to three-story buildings against gale-force winds. It examines ways of "transferring wind loads from the structure to the soil via connections, uplift, and shear walls," Stone said. Using the manual adds about 5 percent to the cost of a house, if it is not already being designed to withstand wind load.

The full title of the manual is "Wood Frame Construction Manual for One- and Two-Family Dwellings, 1995 SBC High Wind Edition (WFCM-SBC)." It is available by calling 800/890-7732.

## ARCHITECTURAL PRESS ROUNDUP

### PARIS IN LAS VEGAS

*U.S. News & World Report, April 21, 1997* In case you missed it amid the hullabaloo surrounding the opening of the New York-New York Hotel and Casino, another city, Paris Las Vegas is being built just down the road. Columnist Stephen Budiansky is underwhelmed by this "city of lights" in the desert: "The planned groundbreaking later this month for Paris Las Vegas, a half-scale replica of the city of lights complete with Opera House, Seine, and a 50-story-high Eiffel Tower, is unlikely to make much of a dent in the overall weirdness quotient of Las Vegas. (From the Great Pyramid, pass King Arthur's castle and downtown Manhattan on the left and look for the first European city on the right; if you hit a British naval battle, in progress, you've gone too far.)" When the French find out about this, they may pull out of NATO.

### WILL DETROIT RISE AGAIN?

*The Detroit News, April 13, 1997* For anyone who has ever lived in Motor City and still feels affection for this tormented town, news that it's on the way back can only be greeted with a mix of skepticism and hope. According to a *Detroit News* analysis, the current wave of investment in the city is unprecedented in the last three decades and "adds up to a \$5.5 billion building boom that is transforming neighborhoods from the Grosse Pointe border to the Cass Corridor to the Ambassador Bridge."

### THE ROYAL FAMILY BLUES

*The Irish Times, April 10, 1997* The British royal family just seems to have a thing for the macabre. Consider this report after a cousin of the Duke of Norfolk and part-time sculptor tutor at Prince Charles's Institute of Architecture was arrested in possession of 30 human body parts. "Mr. Anthony-Noel Kelly, a butcher turned sculptor, won critical recognition for his molds of heads, feet and torsos. Some of his works gilded in silver and gold, sold for thousands of pounds. . . . Police launched an investigation. . . . after an art lover allegedly recognized a deceased man in one of Mr. Kelly's sculptures exhibited at the Contemporary Art Fair in a London gallery. The sculptor had used a mold of the man's head showing part of his brain cut away."

### MOST INFLUENTIAL FOLKS OF 1997

*Time, April 21, 1997* Of course, Tiger Woods made it, and so did Don Imus, Rosie O'Donnell, and Andrew Weil. We're talking about *Time's* Most Influential People in America for 1997. Others on the list include Steve Coz, editor of the *National Enquirer*, Chris Carter, creator of "The X-Files," Robert Earl, CEO of Planet Hollywood, and Dilbert, the cartoon character. Not a single architect was selected. Are the editors of *Time* trendy conformists? Or is the profession in need of good P.R.? Or are architects just not influential?

### 100 AMERICANS FOR THE NEXT CENTURY

*Newsweek, April 21, 1997* The ubiquitous Tod Williams, 53, and Billie Tsien, 47, turn up as the only architects among *Newsweek's* "100 people to watch as America prepares to pass through the gate to the next millennium." Not that we are swayed by the inclusion of this husband-and-wife team, but in the battle of newsmagazine-lists-that-sell-copies, we think *Newsweek* is the clear winner.

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## F.W. DODGE RESTRUCTURING TO MEET NEEDS OF CHANGING INDUSTRY

F.W. Dodge, the largest provider of construction-project news in the country, is reorganizing much of its reporting system and will consolidate its news-gathering network into six regional sites and approximately 35 reporter locations.

The reorganization is in response to changes in the way construction projects are being delivered and to new technology, explained Rock Rickert, director of editorial methods, strategies, and planning for F.W. Dodge. Dodge is a part of The McGraw-Hill Companies' Construction Information Group, which also includes RECORD,

*Engineering News-Record*, and the Sweet's Group.

New factors are changing the construction scene. The growing use of design-build, and other construction delivery systems, together with the increasing penetration of computers and the Internet into the construction industry are transforming the way Dodge's customers do business, said Rickert.

Dodge will increase its coverage of design-build projects, private-sector projects, and projects during the predesign phase. The company plans to report on pre-design and early life-cycle stages in

90 percent of projects it covers, up from 4 percent.

Dodge has also developed a new personal, computer-based information system that it calls DodgeNet, replacing the Dodge Construction Information System (DCIS), which was mainframe-based. "The new technology will allow us to automate more news gathering," explained Rickert. It will also allow the company to support on-line retrieval and delivery of construction information.

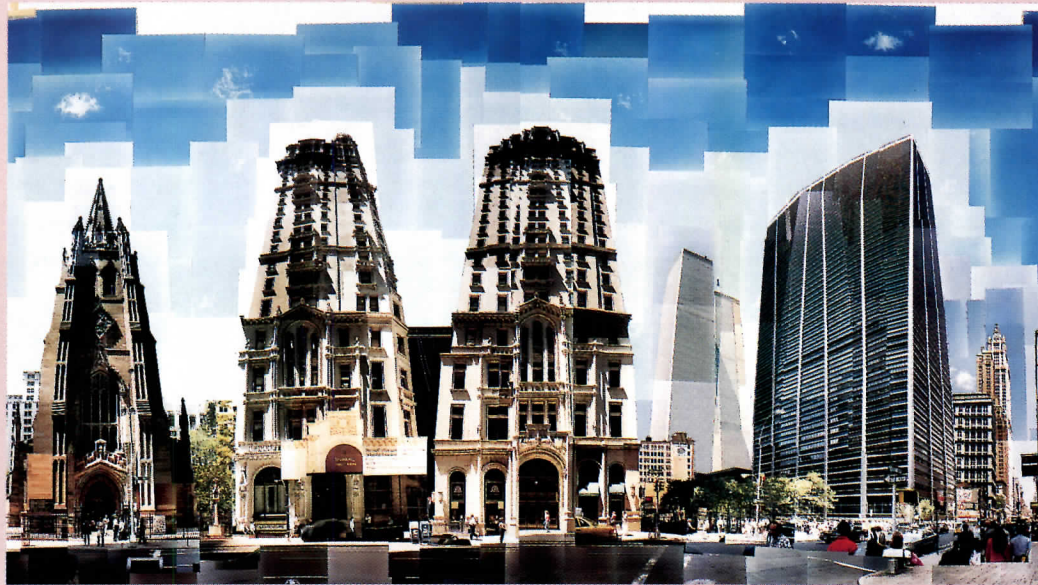
The new system will organize information by the 16 construction industry standards categories and may eventually allow architects supplying information to Dodge to be able to check and update that infor-

mation at their convenience.

"We retooled our sourcing strategy," stated Rickert, "so we have more face-to-face time with the top 1,000 architectural firms and the 6,000 most active private owners in the country."

Dodge will roll out the changes on a region-by-region basis, starting in June and finishing in early 1998. The changes will reduce the number of Dodge reporters from about 620 to approximately 460 in January 1998.

The company expects to spend about \$4 million on new technology for the system and between \$8 million and \$10 million for the changeover as a whole. *Clifford Pearson*



**FIRST SKYSCRAPER MUSEUM OPENS IN NEW YORK** The first museum devoted to the skyscraper opened in lower Manhattan last month, amid some of the tallest and best-known examples of the building type.

"The most famous New York monument is the skyscraper," says Carol Willis, the founder and director of the Skyscraper Museum. "It's the reason why people come to visit lower Manhattan." Nearly two million people visited the observation deck of the World Trade Center last year, just a few blocks from the new museum.

Housed in a vacant banking hall on the ground floor of 44 Wall Street, a 1926 skyscraper by Trowbridge and Livingston, the museum features an inaugural exhibition entitled "Downtown New York: The Architecture of Business/The Business of Architecture." The 5,000-sq-ft exhibition space is being donated, at least through the end of August, by The New York Life Insurance Company, which owns the building. The museum may have to move after that, depending on the owner's ability to rent the space.

The debut exhibition includes scheduling charts and bidding books from contractors, a 60-ft-long photographic "mosaic" of lower Broadway by Claude Samton (pictured above), and models of several New York towers. The exhibition was designed by Lynne Breslin.

Willis, adjunct professor of architecture at Columbia University and author of *Form Follows Finance: Skyscrapers and Skylines in New York and Chicago*, has been the driving force behind the museum. Her favorite skyscraper? "The Empire State Building," she says. "It's the most extraordinary, and at the same time, most typical of skyscrapers." *Clifford Pearson*

## GREAT AMERICAN MAIN STREETS ARE HONORED

The National Trust for Historic Preservation presented its annual Great American Main Street Awards™ to five communities at its 1997 National Town Meeting on Main Street™ held in Portland, Ore.

Sponsored by the financial services firm Edward Jones, the awards recognize civic and economic revitalization efforts in towns and cities of all sizes.

The winners were Burlington, Vt., for the redevelopment of its commercial district; DeLand, Fla., in recognition of initiatives that decreased the town's office and retail vacancy rate from 75 percent to full occupancy; Georgetown, Tex., for a revitalization program that involved the adaptive reuse of Victorian buildings and other historic structures; Holland, Mich., where the refurbishment of its crumbling infrastructure was enhanced by the installment of the country's largest heating/cooling system under streets and sidewalks; and Libertyville, Ill., for the transformation of its downtown from a landscape of neglected and vacant buildings to a high-occupancy, retail urban core.

## IS THE LAVISH ARCHITECTURE BOOK AN ENDANGERED SPECIES?

Are large-scale, lavishly produced coffee-table books on architecture going the way of hot type? A recent shakeup in the once-rarefied world of art-and-architecture publishing has some people concerned.

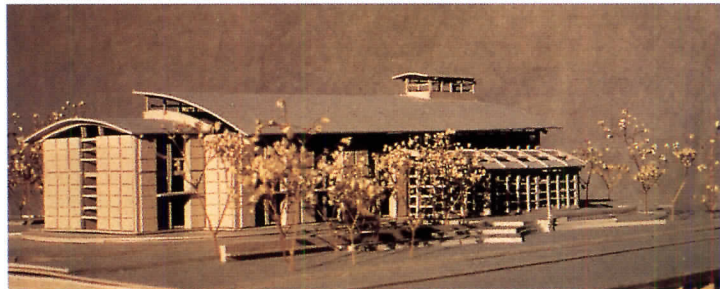
In the past three years, there have been several major sales, including the recent purchase of Harry N. Abrams, Inc., formerly owned by Times Mirror Company, by French publishing concern Groupe Lating; plus several would-be sales, such as Academy Editions, which has been on the block for more than a year; and a few reorganizations, including Stewart Tabori & Chang, which went on a hiatus in 1995 before resuming publishing following its purchase by U.S. Media.

Publishing experts are mixed on the significance of the reshuffling. John Ray Hoke, Jr., publisher of AIA Press, thinks that the price points for lavishly illustrated, con-

sumer-oriented books are too high, and the field is too crowded. "The only way to eke out a profit is either to concentrate on reference books or on text-based books that don't require much color," he said.

But others disagree. "The Abrams sale was an isolated event," said Judy Quinn, book news editor of *Publisher's Weekly*. "There was a change in regime, and the new publisher expected a 12 to 13 percent profit for books that typically averaged between 3 and 4 percent. Meanwhile, there are plenty of other publishers doing popular books on architecture. We haven't seen any reduction of books in this category."

Harry N. Abrams's CEO, publisher, and editor-in-chief, Paul Gottlieb, concurred. "I don't think the architecture book is a dying breed," he told RECORD. "But I do think that the audience has become more and more discriminating." *Julie Moline*



## OBERLIN TO GET CUTTING-EDGE ENVIRONMENTAL STUDIES BUILDING

A new environmental studies facility, conceived as a model of advanced ecological design, is planned for Oberlin College in northeast Ohio. Designed by William McDonough + Partners of Charlottesville, Va., the \$5 million Adam Joseph Lewis Center for Environmental Studies is to be "a laboratory for closed-loop sustainability and a model for what the human role in the natural environment ought to be," explained Professor David Orr, chair of the Environmental Studies Program.

Predicated on the idea that, as

in nature, "waste equals food," the facility's building systems, according to the architect, will have both "products of consumption," materials designed to decompose safely, and "products of service," materials and systems that are returned to the manufacturer for disassembly and reuse.

There is no question that there are still technical limitations that will prevent a total completion of a "sustainable loop," Orr acknowledged. However, the building will incorporate many experimental

COMPOSITE FLOOR SYSTEMS

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*clear span*



Oberlin's new building will be a "lab for closed-loop sustainability."

technologies along with more proven ones. A natural waste-water treatment facility called the Living Machine will be monitored and maintained by students. The roof's rising curve will improve the performance of photovoltaic panels by tilting them toward the sun. It is expected that nearly half of the building's energy needs will derive from this source. The lower portion of the roof on the north side of the building will be covered with grass for fast absorption and slow release of storm water, while providing thermal and acoustical insulation.

The project team includes Lev Zetlin Associates, New York City; Steven Winter Associates of Norwalk, Conn.; and landscape architects John Lyle of Pomona, Calif., and Andropogon Associates of Philadelphia. Groundbreaking is set for this year with completion by spring 1999.

## CLOCK TICKS AS ARCHITECTS FILE FOR AIA CONTINUING EDUCATION LEARNING UNITS

As of April 30, transactions by architects filing for AIA Continuing Education Credit Learning Units through the self-report, question-and-answer forms in RECORD had totaled 8,946. The system requires architects to answer questions in response to designated articles in each issue of the magazine.

"The AIA is very pleased at the overwhelming response to the RECORD /AIA Education Series," said Mark Scher, the AIA's director of professional education.

Practitioners who have not fulfilled their learning unit requirements to date may complete the self-report forms associated with RECORD articles dating back to May 1996. The submission deadline is December 31, 1997. Each article is worth two continuing education learning units for AIA members. Continuing education articles in past issues of RECORD are the following:

- May 1996** "Defensive Glazing" (page 34)
- June 1996** "Community Buildings" (66, 68, 88, 96)
- July 1996** "Pacific Rim" (28, 34)
- August 1996** "Overcoming Pitfalls in Product Literature" (50)
- September 1996** "Quiet Progress in Managing Environmental Toxins" (48)
- October 1996** "Merging Virtual Technologies Changes the Rules of Collaboration" (46)
- November 1996** "Is There a Quiet Place in the Alternative Office?" (54)
- December 1996** "Knowledge-Based Production Facilities" (23)
- January 1997** "High Performance from Start to Finish—Marvin Windows" (147), "Designing and Engineering the Future—APA/Engineered Wood Association" (158), "Metal Roofing Fundamentals" (161)
- February 1997** "Specifying Wood Windows and Doors" (121),

"Prudential Healthcare: An Office Lighting Case Study" (154), "How Do We Wire the Ever-Changing Office" (173)

**March 1997** "Restoring Wright's Wingspread" (80)

**April 1997** "Designing Houses" (133)

**May 1997** "Offering Unique Contributions to Health, Safety, and Welfare in Architecture—National Wood Window & Door Association" (189), "New Tools in Fire Protection" (207)

To order back issues, send a check or money order and designate the month and year of issue(s) requested to ARCHITECTURAL RECORD Order Desk, Room 4188, 1221 Avenue of the Americas, New York, New York 10020-1095. Each issue is \$8 (add \$3 for shipping in North America and \$10 for shipping abroad for each copy of the magazine).

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CIRCLE 28 ON INQUIRY CARD

## NEWS BRIEFS

**Rome Prizes announced** The American Academy in Rome has announced the winners of its 101st annual Rome Prize Competition, with 24 prizes going to practitioners,

**Jeff Sydness' winning design for an office tower in Shanghai, China.**



artists, and scholars in 10 arts and humanities discipline areas. Fellowships in architecture were awarded to Daniel Castor of San Francisco, and Catherine Seavitt of Detroit; design arts fellowships went to Paul Davis of New York City, and Mark Schimmenti of Knoxville, Tenn.; fellowships in historic preservation and conservation were won by Shelley Fletcher of Washington, D.C., and Frederick Steiner of Tempe, Ariz.; and in landscape architecture, prizes were awarded to Elise Brewster of Berkeley, Calif., and Mary Margaret Jones of San Francisco. Prize winners receive stipends, as well as living accommodations and work opportunities in Rome for periods of six months to two years.

**Former Johnson Burgee partner wins Shanghai project**

Jeff Sydness, a former partner at John Burgee Architects (the successor firm to Johnson/Burgee Architects), has won an invited com-

petition for a 25-story office tower in Shanghai, China, beating out Norman Foster Associates of London, and two other firms. The 500,000-sq-ft Lujiazui/Itochu Building will occupy a site in the heart of the Lujiazui Finance and Trade Zone in the Pudong area.

**American Academy announces winners**

The American Academy of Arts and Letters presented its annual architecture awards to Daniel Libeskind and Henri Ciriani at an award ceremony in New York City. The Peruvian-born Ciriani, who has practiced in Paris since 1964, received the academy's Brunner Prize. Libeskind, who practices in Berlin, received the Academy Award in Architecture. Jurors were Henry N. Cobb, Frank Gehry, Charles Gwathmey, Ada Louise Huxtable, and Richard Meier.

**Mies van der Rohe award goes to Bibliothèque Nationale**

The Bibliothèque Nationale in Paris,

the city's new central library by French architect Dominique Perrault, is the winner of the fifth Mies van der Rohe Pavilion Award for European Architecture, a biannual prize honoring works of conceptual and technical merit.

**FDR memorial now in cyberspace**

From its design to its content, the new national memorial to Franklin Delano Roosevelt, dedicated in Washington, D.C., last month, has been the subject of much debate. Designed by Lawrence Halprin and five artists and located on a 7.5-acre site between the Tidal Basin and the Potomac, the memorial has been criticized for its failure to acknowledge the late president's disability, and for the scale of the 12-ft granite walls that form its four outdoor rooms. The National Park Service has produced an on-line tour of the memorial at <http://www.nps.gov/fdrm/index2.htm>.

(News Briefs continue on page 46)

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(Briefs, continued from page 44)

**Resource center for innovative materials opens**

Material ConneXion™ is a new resource center with an ambitious agenda: to be a comprehensive clearinghouse for new materials, finishes, and processes, and to be a "catalyst for cross-disciplinary dialogue and creativity among professionals."

Founded by George M. Beylerian of Steelcase Inc., and located in New York City, Material ConneXion hopes to attract architects, interior and industrial designers, facility managers, manufacturers, research and development managers, engineers, fabricators, building owners, artists, educators, and students. For more information, call 212/445-8825.

**Young architects competition winners**

Responding to the theme "Vision Medium Culture," nine architects were honored in the 15th annual Young Architects Competition, which is sponsored by the Architectural League of New

York and open to designers 10 years or fewer out of school. The winners, are David Guthrie of Houston; Kelly Shannon of Denver; Kyna Leski of Providence, R. I.; partners Monica Ponce de Leon and Nader Tehrani of Boston; partners Frederic Levrat and Zolaykha Sherzad of New York City; and David Lewis and Paul Lewis, partners, New York City.

**New leader for New Urbanists**

Shelley R. Poticha has been named executive director of the Congress for the New Urbanism (CNU), succeeding Peter Katz, the founding executive director, who is stepping aside July 1 to pursue new career opportunities. Selected from a field of 15, Poticha will serve a two-year renewable term. "The Board is unanimous in its enthusiasm and support for Shelley," said Elizabeth Plater-Zyberk, chairperson of the CNU Board of Directors. Poticha was

**The Science Museum in St. Paul is scheduled to open New Year's 2000.**

an urban planner for seven years with Calthorpe Associates in Berkeley, Calif. More recently, she has worked for CNU as a policy coordinator.

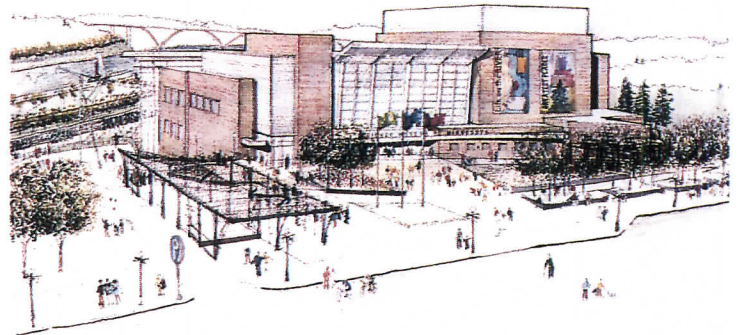
**Science museum breaks**

**ground in St. Paul** Construction of the new Science Museum in St. Paul, Minn. is under way. Scheduled to open on New Year's Eve 2000, the new building was designed by Ellerbe Becket of Minneapolis for a 16-acre site on St. Paul's riverfront. The seven-story building will house

exhibition spaces, a collections vault, lab spaces for cleaning and restoration work, classrooms, facilities for data storage and CD production, and an IMAX/Omni theater.

**Schuller Corporation renamed**

**Johns-Manville** Returning to its roots, the Schuller Corporation of Denver, Colo., founded in 1858, has decided to rename itself Johns-Manville Corporation, following a recent brand-identity survey of its customers. ■



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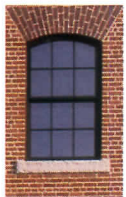
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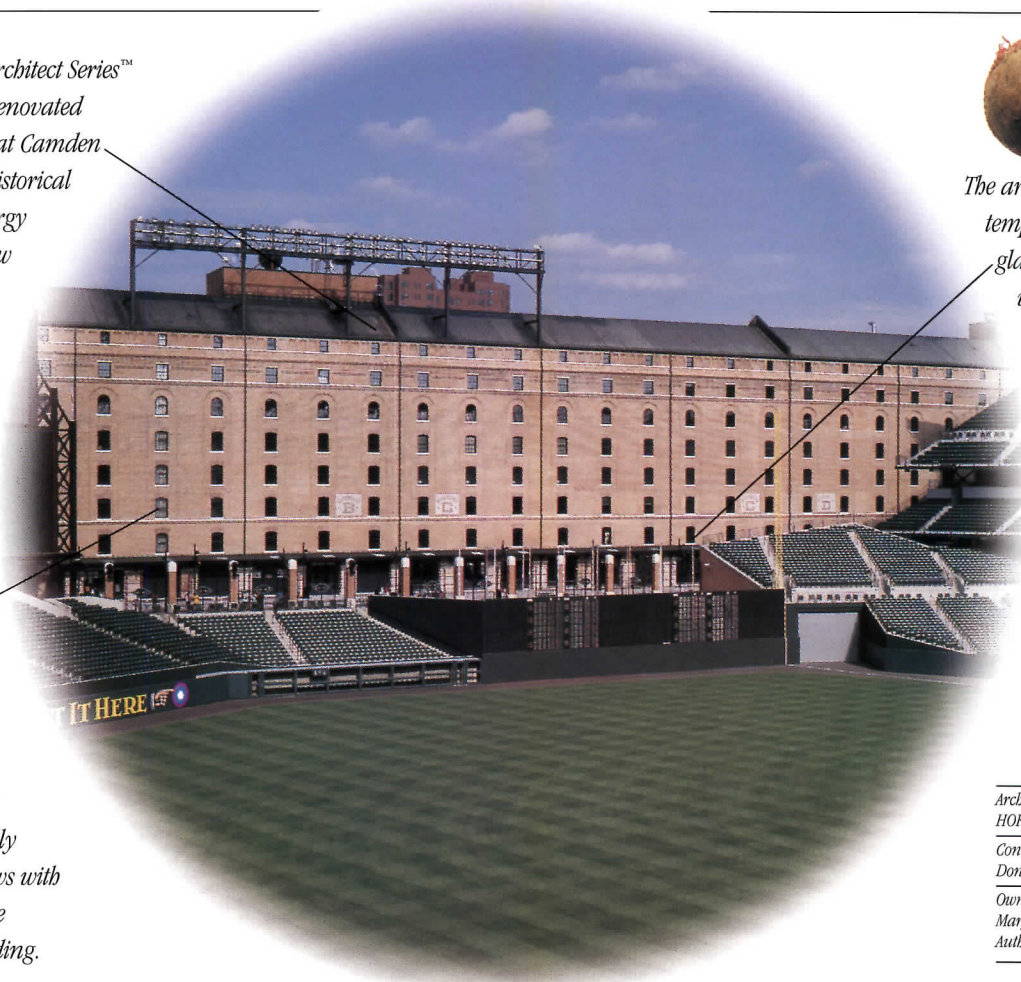
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CIRCLE 26 ON INQUIRY CARD

# DATES EVENTS BOOKS

## Calendar

June 16–19

### **Pennsylvania Convention Center Philadelphia**

A/E/C Systems 97, billed as the largest computer show for design and construction, will be held in conjunction with Construction Technology 97 and other building-industry events. Call 800/451-1196 or 610/458-7689, fax 610/458-7171, or visit <http://www.aecsystems.co>.

June 24–October 19

### **Cooper-Hewitt Museum New York City**

“Do-It-Yourself Architecture for the Great Outdoors” looks at the advanced materials and innovative tectonics of tent design; ten commercially available tents will form an “urban campsite” on the museum’s grounds. Call 212/860-6868 or visit <http://www.si.edu/ndm/>.

June 25–28

### **Hyatt Regency Minneapolis Minneapolis, Minnesota**

The Annual Meeting and Conference of the National Council of Architectural Registration Boards (NCARB) will include regional meetings, workshops, and business sessions. To register, contact NCARB, 1735 New York Avenue, N.W., Suite 700, Washington, D.C. 20006, tel. 202/783-6500, fax 202/783-0290.

June 25–September 14

### **Whitney Museum of American Art New York City**

Five unbuilt projects presented through original drawings and newly constructed models are on view in “Frank Lloyd Wright: Designs for an American Landscape,” a traveling show. Call 212/570-3600.

June 26–29

### **Orange County Convention Center Orlando, Florida**

The Construction Specifications Institute has announced its 41st annual convention and exhibition. For registration and exhibitor information, call 800/689-2900.

Through July 8

### **Museum of Modern Art New York City**

“Toward the New Museum of Modern Art: Sketchbooks by Ten Architects” presents the

results of an invited competition initiated by the museum for its planned expansion and renovation. On view are portfolios, sketchbooks, and models by the three competition finalists (Bernard Tschumi, Yoshio Taniguchi, and Jacques Herzog and Pierre de Meuron) as well as the seven other participants (Wiel Arets, Steven Holl, Toyo Ito, Rem Koolhaas, Dominique Perrault, Rafael Viñoly, and Tod Williams and Billie Tsien). Call 212/708-9400 or fax 212/708-9889.

August 8–10

### **AIA Chapter Headquarters Seattle, Washington**

The Fourth Annual Diversity Conference unites architects, designers, students, educators, AIA leaders, and allied professionals in an exercise to expand mutual understanding, explore cultural issues, and activate an appreciation of diversity in the people and policies of the AIA and the profession. Call 800/242-3837.

Through August 10

### **Wexner Center for the Arts Columbus, Ohio**

The traveling exhibition “Viewing Olmsted: Photographs by Robert Burley, Lee Friedlander, and Geoffrey James” examines work by the most influential landscape architect of the 19th century. The result of a seven-year project organized and commissioned by the Canadian Centre for Architecture (CCA), the show presents 150 photographs selected by curator David Harris from the CCA’s collection, which includes more than 900 images of 74 Olmsted projects. Call 614/292-0330.

August 18–20

### **Westin Hotel Seattle Seattle, Washington**

The annual conference of the Illuminating Engineering Society of North America (IESNA) will include more than 50 author-presented paper sessions on the latest research in design theory, measurements and controls, photometry, daylighting, energy, calculations, and roadway lighting. Educational seminars will cover topics from indirect lighting techniques for the office to design and construction costs. A new products and services display is scheduled. Contact IESNA, 120 Wall Street, 17th floor, New York, N.Y. 10005, tel. 212/248-5000, fax 212/248-5017.

Through August 24

### **National Building Museum Washington, D.C.**

Sponsored by the Washington Chapter/AIA, “Capital Visions: Architects Revisit L’Enfant” offers proposals by more than 20 local architectural teams who were invited to reinforce or reinterpret their city’s master plan. Call 202/272-2448 or visit <http://www.nbm.org>.

Through August 29

### **The Skyscraper Museum New York City**

“Downtown New York: The Architecture of Business/The Business of Building” at 44 Wall Street is the inaugural exhibition at the Skyscraper Museum, which was founded by architectural historian Carol Willis. The show, which was curated by Willis and designed by architect Lynne Breslin, looks at the skyscraper, both historic and contemporary examples, as a real estate investment, a product of the building industry, a symbol of corporate identity, and a place of work. Call 212/968-1961.

Through September 2

### **Montreal Museum of Decorative Arts Montreal, Quebec**

With more than 200 objects from around the world, “Designed for Delight: Alternative Aspects of Twentieth-Century Decorative Arts” attempts to document “the diverse aesthetics, beyond functionalism and rationalism, that have informed and designed modern design.” The inaugural exhibition in the museum’s new building, designed by Frank O. Gehry & Associates, will travel to museums in North America and Europe. Call 514/259-2575.

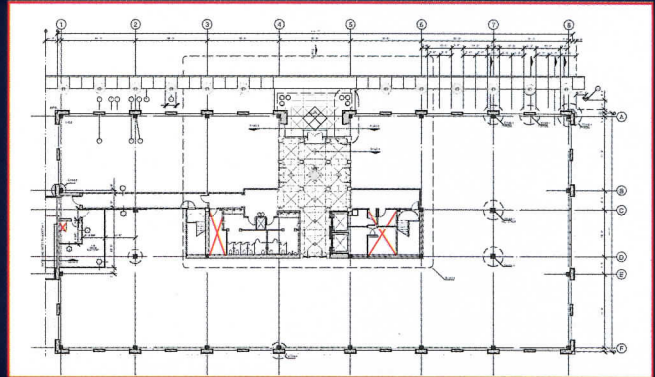
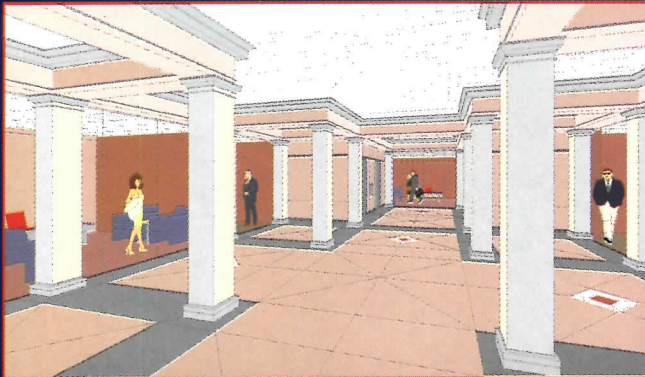
Through January 4, 1998

### **National Building Museum Washington, D.C.**

Visitors to “Main Street Five-and-Dimes: The Architectural Heritage of S. H. Kress & Co.” will see re-creations, through photo-murals and artifacts, of a lunch counter and merchandise display cabinets, as well as company documents and architectural drawings of the stores. Kress maintained an in-house architecture division that designed standardized interiors and site-specific exteriors for each store. *America’s 5 & 10 Cent Stores: The Kress Legacy* (Preservation Press, a division of John Wiley & Sons) by Bernice L. Thomas is published in conjunction with the show. Call 202/272-2448.

(continued on page 196)

# The Easiest, Most Cost-Effective



## Way to Design

—Audience Vote at the Designers CAD Shoot-Out

MiniCad went toe-to-toe against architecture-specific CAD programs nearly six times as expensive—and came out on top—at the first-ever Designers CAD Shoot-Out for Architectural CADD Systems. In this advent of “architecture as a spectator sport,” the audience at Boston’s World Trade Center awarded MiniCad 6, fittingly, six first-place awards:

- Most Cost Effective
- Easiest to Use
- Best at Cross-Platform Operation
- Best Floor Plans
- Best Elevations
- Best Sections

MiniCad also placed a close third in the Overall Winner category (garnering 21% of the audience vote compared to Arris’ 25% and ArchiCad’s 24%), beating out AutoArchitect, Microstation Triforma, AllPlan, Architron, and DataCAD. Even more impressive: MiniCad was the only software program running on both a Macintosh and a Windows machine during the event.

This recent success is not surprising. For years

MiniCad has been the top-selling CAD program on the Macintosh, winning industry awards worldwide. And the reviews for the recently released Windows version have all been emphatic.

To find out more about the CAD Shoot-Out or how A/E/C professionals in more than 80 countries have used MiniCad to build everything from a luxury high rise to a hockey arena, houses, decks, hotels—even to help reconstruct Shakespeare’s historic Globe Theatre—check out our web page ([www.diehlgraphsoft.com](http://www.diehlgraphsoft.com)) or call 1-800-873-5076.

Special offer for readers of *Architectural Record*: For a limited time, you can purchase MiniCad 6 direct for \$595. You’ll also get 18 months of free tech support and a 90-day money-back guarantee. MiniCad 6 supports Windows 95, NT, 3.1, and Macintosh OS.

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**CIRCLE 32 ON INQUIRY CARD**

# RECORD's 4th Annual COMPUTER DELINEATION AWARDS

ANIMATION TOOK CENTER STAGE  
IN THIS YEAR'S AWARDS FOR THE USE  
OF THE COMPUTER AS AN IMAGING TOOL.

**T**hree-dimensional computer-imaging tools—modeling, rendering, and animation—have been among the most demanding and challenging of computer technologies, but the 1997 ARCHITECTURAL RECORD Computer Delineation Awards show that mastery of these technologies is increasingly common. RECORD began the awards program a short four years ago to see if the powerful tools then under development would really change the way architects designed or the buildings they produced. Indeed, winners in this year's contest (this and following pages) have offered evidence that computers help architects realize design in new ways. It now appears that designers are applying their skills to the design of World Wide Web sites and to virtual modeling. Is the computer-design world that architects inhabit seeing yet another sea change? The awards commentary, page 66, asks whether architects—the design heirs-apparent for the increasingly three-dimensional virtual world—are up to the challenge.

## Animation Category Winner

**Project:** Professional Football Facility

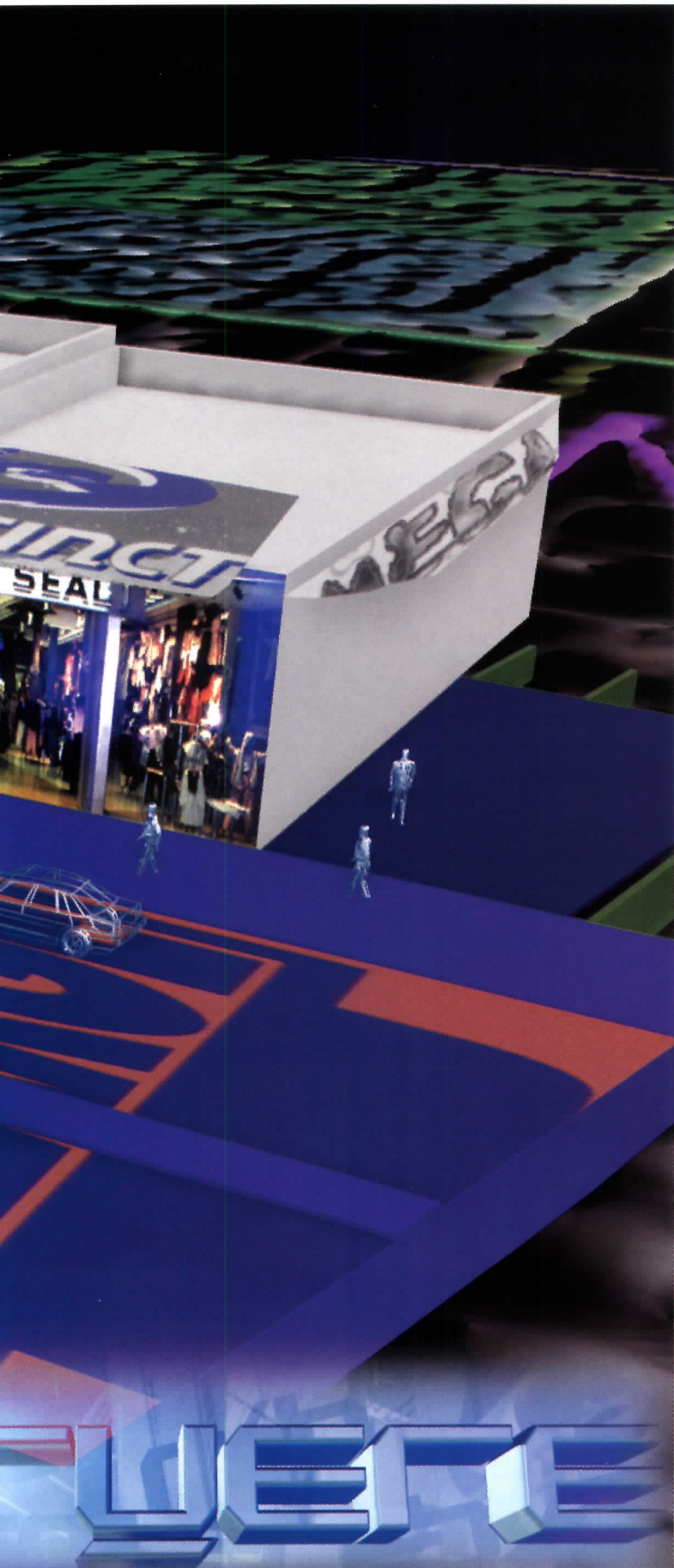
**Delineator:** Digital E/Ellebe-Becket—Stan Chiu, Jon Niemuth, Mike Hnastchenko. Jon\_Niemuth@ellerbebecket.com (E-mail)

**Computer:** Compaq DeskPro 120-133, Micron Millennia Pro2 400 Plus

**Software:** Autodesk AutoCAD R12 and R13, Autodesk 3D Studio R4, FAST VM Non-Linear Plus System

When computer animation is combined with television-commercial-style graphics and jump-cutting techniques, the result is a very powerful selling tool, which the jury found this entry to be. The animation was created to show a preliminary proposal for a sports stadium in hopes of landing the job. The viewer moves from a long night shot of the glowing facility across a river, along a suspension bridge, and into a slowly circling aerial tour amid searchlight beams. The animation then takes the viewer into the floodlit playing space past full-motion video billboards and screens. The entrant intercut television scenes of triumphs past (montage at top of image right). The panel found such video-editing techniques to be very persuasive. "We saw a lot of stadium entries," commented juror Charles Capaldi. "This one really built anticipation." Also, noted juror James Carpenter, "It was a better design." The design team did not win the job, however, but it was not for lack of audacity. The music soundtrack combined selections from Guns and Roses with the climatic moments of the choral work *Carmina Burana*.





### Animation Category Winner

**Project:** *E-space*

**Delineator:** *Struere—Hraztan Zeitlian, principal designer, team leader, video art director; Karnig Ohannessian, project manager; Michael Amaya, designer, CAD delineator, animator, video editor; Rashmi Vasavada, designer, computer model-maker; Jason Sweers, designer, graphic designer; Michael Lutz, physical modelmaker*

**Computer:** *Dell Pentium Pro 200*

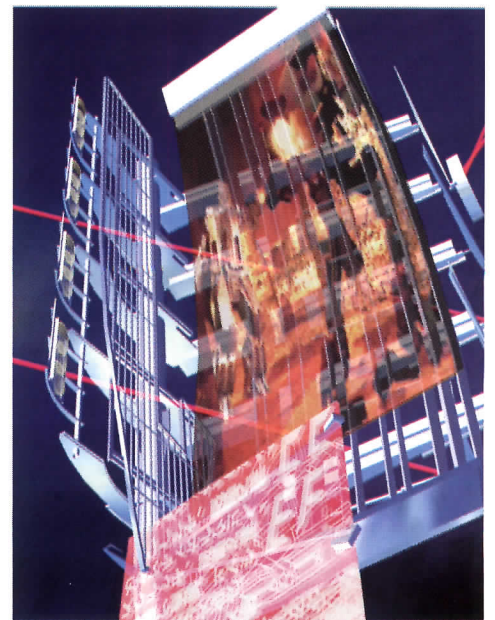
**Software:** *Autodesk AutoCAD R13, Autodesk 3D Studio, Adobe Premier, Adobe After Effects*

Struere calls itself “a group engaged in experimental research as a non-commercial extra-curricular activity.” The team developed this entry from a design for a UCLA architecture-school competition for a new kind of public space, and acknowledges NBBJ Sports and Entertainment for making software and hardware available. (The animation itself, however, was not entered in the UCLA competition.) The jury gave this project an award because of its success in using the capabilities of computer rendering and animation to explain the project.

Designer Hraztan Zeitlian calls the entry “a public space for the age of digital technology and the age of Internet space.” The scheme relies on elegantly detailed video billboards erected above conventional one-story strip commercial buildings. Inspired by the gigantic but static billboards of Hollywood’s Sunset Strip, “the animated information is framing the space,” Zeitlian explains. The “storefronts” are simple, collaged images; the neighborhood is rendered as a lighted grid, reminiscent of the patterns of a video chip, and laser beams stab into the sky, which flashes in apocalyptically bright colors. On the billboards themselves, video images are translucent and move as the “camera” wheels around the site and pans around the individual objects. The montage (bottom) conveys a sense of the way the scenes were constructed. The video goes beyond the design in depicting a slightly menacing yet atmospheric place. “It’s a hyper presentation,” commented juror Capaldi, “but it fits the project.” Juror Sean Daly agreed: “The hyperrealism effectively conveyed the project. It approaches music-video production values.”

“The hyperrealism effectively conveyed the idea of the project. It approaches music-video production values.”

—juror Sean Daly



**Animation Award (honorable mention)**

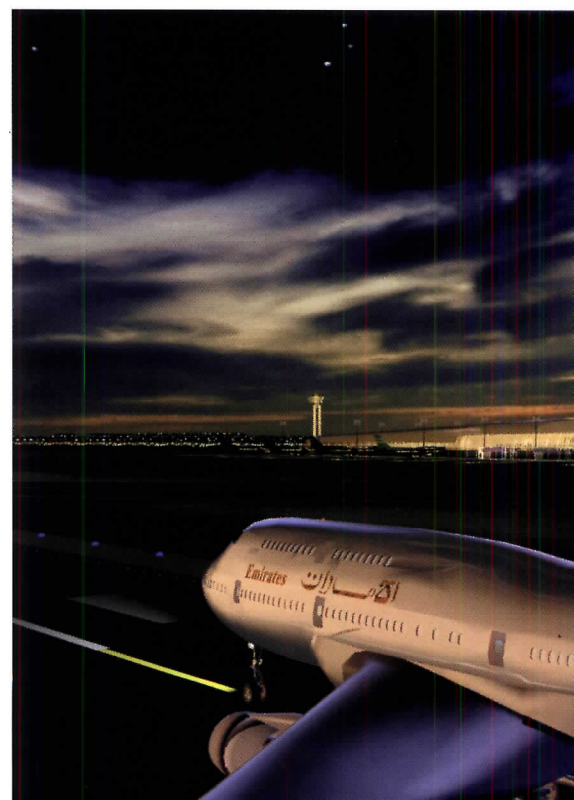
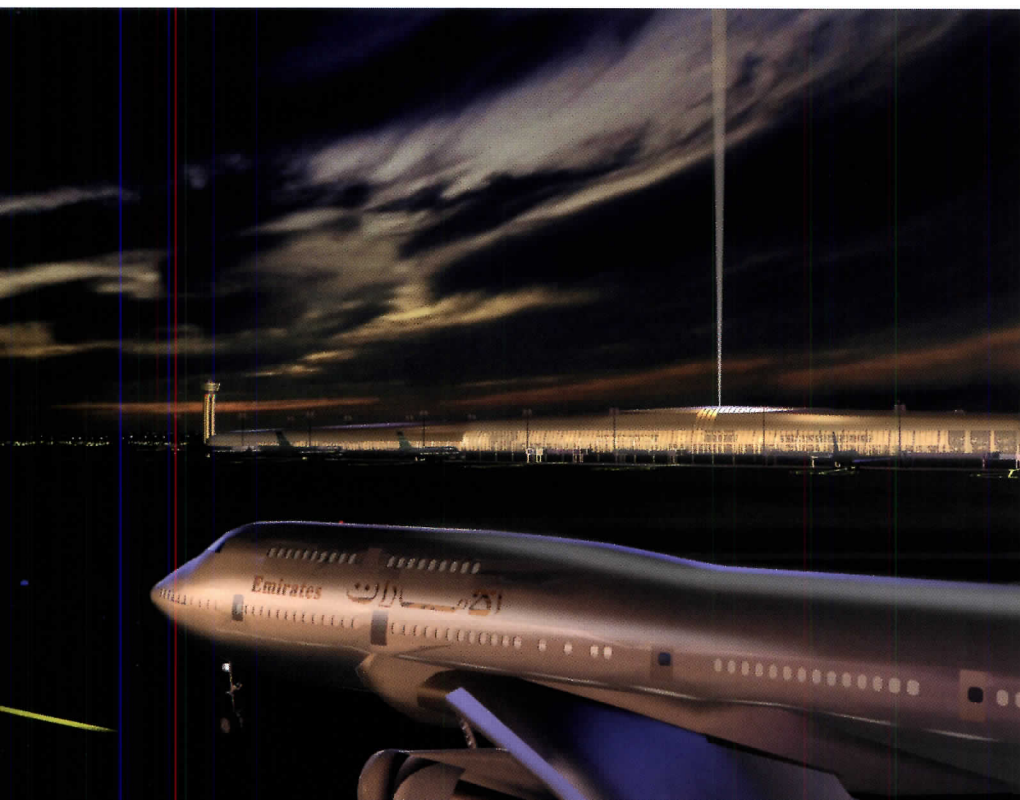
**Delineator:** Michael Sechman Associates—Michael Sechman; Production City (production services); Curtis Sly (audio). [www.msechman.com](http://www.msechman.com) (Web site)

**Computer:** IBM P6

**Software:** Autodesk AutoCAD R12, Autodesk 3D Studio R4

This winner's Orinda, Calif., business is to provide imaging services to design firms, having animated the work of architects including Cesar Pelli and Kaplan McLaughlin Diaz. It seems ironic that such firms rarely win in the Computer Delineation Awards, but the reason is that juries often find a slick sameness in these presentations. What the jurors admired most in this entry was a sequence describing an airport terminal designed by Bechtel for Dubai, in the United Arab Emirates. The terminal's ovoid shape is intended to reach across the desert landscape, and the animation inventively portrayed the idea by having the "camera" follow a plane as it lands (sequence, bottom), then taxis to the gate. The animation then follows the path of a passenger through a lofty atriumlike concourse (opposite middle and top) and up to a ticketing area under the vaulted roof (right).

This sequence was one of several animations the entrant submitted, and the jury found that too many looked assembled from today's 3D kit of parts. One walk-through beautifully captured the sunlight- and shadow-dappled quality of a skylit airport terminal, but house plants and too-standard scale figures made it hard to focus on the inventive spaces and sequences being portrayed. Likewise, jurors appreciated the rendering of semitransparency in glass and the reflective quality of metal on a skyscraper, but an animated helicopter added a gratuitously distracting touch. What set Dubai apart, commented juror Capaldi, is that the airplane point of view, "with the lights flashing, and circling around the building," drew the viewer in. "So many entries simply panned around the building. It's the kiss of death." Added juror Daly, "Dubai was appealing because it was done in the evening, which conveyed the architectural idea well." The panel awarded the entry an Honorable Mention, because as Daly observed, "It wasn't as sustained" as the other animation winners.







"Dubai was appealing because it was done in the evening, which conveyed the architectural idea well."—juror Sean Daly





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CIRCLE 33 ON INQUIRY CARD



**Still-Image Award**

**Delineator:** David Quenemoen

**Project:** Times Square hotel/retail complex

**Computer:** Zeos Pentium 133

**Software:** Autodesk AutoCAD R12, Autodesk 3D Studio 4, Adobe PhotoShop

**Output:** Tektronix Phaser 480 printer

A much-discussed entry by a student from the Harvard Graduate School of Design, this rendering was appreciated for being softer and more impressionistic than most. (It is for a Times Square hotel and retail complex in New York City.) “It’s a simulation rather than a rendering,” commented juror Daly. “If there is one thing computer renderings do well,” he continued, “it’s that level of precision—how materials meet and are bathed in light.” He admired this departure from the norm.

The entrant softened the hard-edged quality that comes naturally to computer renderings, which caught the attention of panel members. They felt this entry began to take on some of the artistry in mood and idea that had too rarely been seen in others. This image was discussed in tandem with several others that were much more saturated in color and more literal in their depiction of materials and light. “In terms of photorealistic presentation,” argued Daly, “you expect a nuanced and sophisticated presentation of materials, and some others conveyed that better.” Replied juror Capaldi: “I liked this one because I am finding I’m tired of the kind of ‘chrome’ renderings we’ve seen. It’s more suggestive than purely descriptive.”

**Still-Image Award**

**Delineator:** Mark K. Zimmerman with Chris Heinz, architect

**Project:** Save a Connie Air Museum

**Client:** Save a Connie, Inc.

**Computer:** Tri-Star Starstation

**Software:** Autodesk AutoCAD R13c4, Kinetix (Autodesk) 3D Studio Max, Adobe PhotoShop 3.05

**Output:** Management Graphics Sapphire, Encad Novajet Pro 50

The entrant delineated an interior space of a proposed museum devoted to aircraft history. The museum will honor the Lockheed Constellation (or “Connie”), a popular commercial airliner of the propeller-driven era. The site is the downtown airport in Kansas City, Missouri.

Jurors admired the descriptive qualities of the rendering, because of the thoroughness and accuracy of its depiction of artifacts as well as space. But they also felt there was a subtlety in handling the many sources of light that caused this entry to rise above others. The rendering combines outdoor light filtered through an airframe with indoor electric light used to illuminate artifacts. Unlike so many other entries, the reflections are limpid rather than too obvious, too icy and hard-edged. The jury thought this quality helped the viewer appreciate the design. “You feel the real quality that the exhibition is intended to have,” commented juror Carpenter. The panel also felt a real “hand” at work: Elements and objects were rendered with the amount of detail best suited to their importance in understanding the image.

Times Square hotel/retail complex



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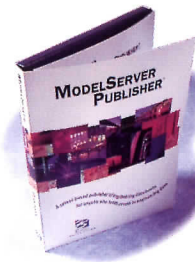
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**CIRCLE 34 ON INQUIRY CARD**



Save a Connie Air Museum

**Still-Image Award**

**Delineator:** Eric Brightfield/Image Fiction

**Project:** Frances W. Parker School

**Client:** Dirk Danker of Nagle Hartray Danker Kagan McKay, Inc.

**Computer:** Power Macintosh 8100

**Software:** Virtus VR, Adobe PhotoShop 3.0

**Output:** Fiery/Ricoh 5006

This image was probably discussed more by the jury than any other. While critical of some aspects of the rendering, panelists felt that it used imaging tools well to convey the idea of the architecture. "Letting the building be in the background was probably successful in terms of what the client sought," said juror Carpenter. "Others we looked at were less successful because the hyperrealism so often depicted is not how you actually see."

"It's among the most instructive renderings," commented juror Capaldi, "because it shows the shadowy, quiet, cloisterlike quality of the space. It's suggestive and gives a representation rather than just being a rendering." The delineator's evident skill in the use of the technology (his imaging business was formerly a subsidiary of Chicago architectural firm Holabird & Root) caused jurors to question those elements that didn't quite measure up. The dappled quality of the foliage was admired, but the sometimes too-contrast shadows cast on the paving were not. Panelists appreciated the long view afforded through the building opening but thought the placement of the figures with bicycles was unfortunate.

**Frances W. Parker School**



**AWARDS COMMENTARY: Have Designers Not Set Their Aspirations for the Computer High Enough? By James S. Russell**

A kind of technological conservatism came over the nearly 200 entrants in this, ARCHITECTURAL RECORD's fourth Computer Delineation Awards. Entries resembled more those one sees in the American Society of Architectural Perspectivists' awards program than the cutting edge of digital imaging. Especially in the Still-Image category, entrants were searching for ways to use computer-imaging technology to closely convey the look of a project once completed. There is nothing wrong with using the computer as a tool in this way. Indeed, the basic competence of nearly every image submitted suggests that the technology has become much easier to master.

But our jurors hoped for more, and generally didn't find it. "We looked for projects that transcended technical ability, that reached a level of artistry or communicative rendering of the project," commented Sean Daly, a principal at Windtunnel, an imaging and animation firm based in New York City. "We saw very few." Too many entries, said Charles Capaldi, a Philadelphia-based principal of architecture and design firm B5 Studios, "almost looked like tempera renderings." James Carpenter, of Manhattan, a designer known for his stand-alone artworks in glass and metal as well as collaborations with architects, admired projects that used the computer to show a progression or transformation but found many entries wanting "in their lack of materiality."

There was other evidence of the maturing of these technologies—their more accessible tools and affordable sophistication—and architects' ability to use them. In both the Still-Image category and the

indeed the uniform look of many entries suggests that some tricks and tools have already become computer-visualization clichés. The powerful hardware needed to render and set images in motion is also far less costly, so more architects have become adept at creating animated tours of projects.

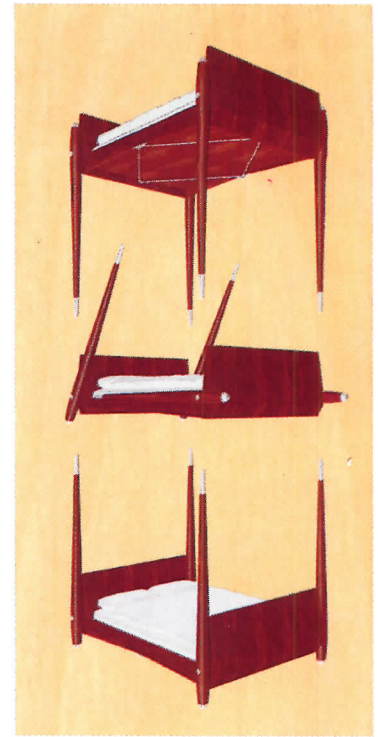
**Measuring up**

Since so many entries were clearly intended as delineations in the classic sense—that is, they are meant to describe as clearly as possible projects that the client intends to build—jurors judged them largely on such criteria. For example, jurors appreciated Eric Brightfield's winning rendering of the Frances Parker School because it expressed the architect's apparent intention to make a background building, but they also found shortcomings in the placement of scale figures and the evident inaccuracy of some of the light and shadow effects.

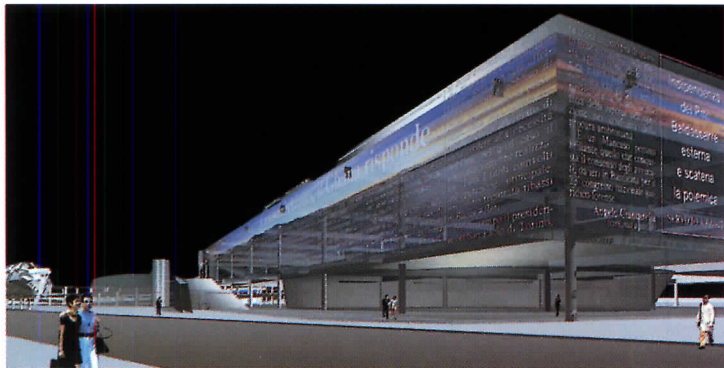
One project discussed at length was for a courthouse, which was immaculately rendered but "could have been made 30 years ago with traditional means," according to juror Daly. Typifying reaction to many entries, juror Capaldi commented, "It doesn't do anything wrong. But it doesn't do anything right, either. It's a little stillborn, which goes with the building depicted."

Another project debated by the jury was a proposal for a convertible bed (above). Jurors admired the straightforwardness of the rendering and its description of the way the furniture piece is capable of being transformed. With its careful attention to materials, it little resembles a "computer" rendering.

This kind of image begs the question of where architects are willing to take computer imaging, especially as other possibilities open up, such as three-dimensional Web sites and "places" made by virtual reality modeling language (VRML). Since working in three dimensions is where architects' skills lie, will they be players in these emerging technologies or sidelined because they can use computers only to imitate older presentation styles? ■



**"Phelan Four Poster," (convertible loft bed) delineated by Lee Montana of InFORM design.**



**"Outward Boundaries," delineated by Luke Fox, Kevin Kennon, and Peter Moore.**

Animation category, many of the entries had been created essentially for sales purposes—to assist the client in understanding a project, to lure potential buyers (or, in the case of one convenience-store walk-through, potential franchisees), or to build community or political support for a project. Jurors found more invention in the Animation entries; indeed, animation is so powerful a tool of persuasion that the editors created a separate category for it, as judges increasingly have found it difficult to compare animations to still images. (The contest also received many more Animation entries than ever before.)

**Imaging becomes a powerful selling tool**

One is forced to hypothesize, but the less-exploratory nature of many of this year's entries tells us something about the way architects are using computer technologies in their practices. When the magazine began the contest, modeling, rendering, and animation software was just beginning to reach a cost-to-functionality ratio that made it accessible to a wide range of architects. Now, much of the software is well established—

**Sponsors** Winners in both the Animation and Still-Image categories chose from among software prizes offered by companies who kindly sponsored this year's contest.

**Nemetschek:** ALLPLAN FT, a fully integrated, object-oriented building-design software

**Lightscape Technologies:** Lightscape 3.0, a realistic rendering and lighting package

**Graphisoft:** A three-application software package that includes ArchiCAD (object-oriented 2D/3D CAD software), PlotMaker, and Artlantis Render

**Bentley:** Microstation TriForma, a 3D modeling and 2D documentation program

**Autodesk:** AEC Professional Suite, Release 2, a set of CAD tools, including AutoCAD R14, WalkThrough, DesignBlocks, and View

# For Office Buildings, Now Is The Right

# TIME

- THE MINI-BOOM IN SPECULATIVE OFFICE BUILDINGS
- A "GREEN" TOWER SET TO RISE IN TIMES SQUARE
- HOW SUSTAINABLE ARCHITECTURE RESTORES INTEGRITY AND INFLUENCE TO THE PROFESSION

# FOR CHANGE

## Three Articles Explain Why

### CONSTRUCTION IS UP, BUT DEVELOPERS ARE CAUTIOUS

by Peter Slatin

**T**here's good news and bad news. The good news is that construction is up practically across the board. The glut of office space that blanketed the nation in the wake of the 1980's development frenzy has, more quickly than had seemed possible, been overtaken by demand. From Boston to San Francisco and Dallas to Minneapolis, new, largely speculative office construction is under way. The bad news is that architectural design is down. Indeed, the design of most of the spec-office development going up is of the cookie-cutter variety.

Thanks to a resurgent economy, the return of the office building market is not an isolated phenomenon. New multifamily housing, hotel, and even retail projects have begun to crop up as well.

#### New projects remain small to keep risks low

Still, real-estate analysts are refraining from applying the boom label at present, pointing out that in most cases new projects remain small in scale and are somewhat isolated, with relatively little other construction taking place around them.

The developers on the scene are also changing their approach to design in concert with the scaled-down risk and proportions of their projects. And, of course, budgets have shrunk as well, eliminating large lobbies, expensive materials, and, in many cases, innovative design.

A good example of the kind of development going

*Peter Slatin is a regular contributor to "The Ground Floor" column in Barron's and reports on commercial real estate for the New York Post and the Urban Land Institute. A former RECORD editor, he has also written for The New York Times and Historic Preservation.*

up these days is a group of office buildings on a large site in southeast Denver's Tech Center neighborhood. Eventually, say the developers, they will put up a half-dozen 100,000-sq-ft spec office buildings on the land they control, but only as need arises.

When work began this spring, not a single lease had been signed by the Miller-Global Company, the joint venture that is developing the land. Yet by proceeding with care and spreading the risk over several buildings and a number of years, the builders believe that they have minimized the financial danger. Although putting up one large building would be less costly on a per-sq-ft basis than this piecemeal approach, it would also invite catastrophe in the event of an economic downturn.

Mitchell Rutter, the president of Essex Capital Partners, a New York City development firm, says he and others are indeed likely to be more cautious as they proceed. Rutter is rebuilding what he describes as "one of the largest spec sites on the East Coast," in downtown Rockville Center, Md. Rutter says the development will be built to fit more basic programs reflecting more stripped-down business strategies.

"In the past, buildings were larger, basically fueled by the availability of capital," says Donald Dupree, the president of Cousins Properties, an Atlanta-based real-estate investment trust (REIT) that is developing a suburban site by building six office properties in a way that echoes the Miller-Global project in Denver.

# BOOM

## THE BUILDING

## SPECULATIVE OFFICE CONSTRUCTION

METRO		1995 TOTAL SPECULATIVE NEW CONST. (SF)	1996 TOTAL SPECULATIVE NEW CONST. (SF)	1997 TOTAL SPECULATIVE NEW CONST. (SF)
MOST ACTIVE MARKETS	ATLANTA	185,875	1,119,705	2,465,600
	CHARLOTTE	575,000	854,262	1,652,220
	RALEIGH-DURHAM	465,760	812,467	483,411
	PORTLAND	231,329	407,625	685,500
	DISTRICT OF COLUMBIA	490,000	405,000	252,182
LEAST ACTIVE MARKETS	FAIRFIELD COUNTY	0	17,904	0
	SAN ANTONIO	0	13,000	0
	NEW YORK	0	0	0
	NORFOLK	0	0	0
	PHOENIX	0	0	0

Source: The REIS Reports, Inc., March, 1997

The area he is building on is called Northpoint, which “didn’t exist 18 months ago,” he says. “It’s far and away the most active area in Atlanta,” notes Dupree. “There is some spec development now, but it’s different than in the past because the measurement of the risk is a lot smaller,” and so are the buildings, he adds.

Builders and lenders have all learned to be “a little more careful, more intelligent,” says a commercial mortgage broker who arranges financing for projects around the country. “Historically, banks used to never look at what popped out of the ground as a result of their lending.”

### Vacancy rates may be going up again

Now, he says, “We’re back where we were 16 years ago, but I don’t foresee the lenders being as generous as they were.” Lloyd Linford, president of REIS On-Line, a real-estate database, believes there is good reason for banks to be cautious. Linford says his data indicate that if building continues at current levels, vacancy rates will go up to 15 percent within four years. “Historically, that’s not too bad. A year ago there wasn’t sufficient

Most of what is getting built, though, is generic product geared to suburban office parks. These buildings, says John Cavanagh, an executive with Morse-Diesel, are intended not as corporate headquarters requiring signature design, but are instead back-office types of product. “There are corporate parks being put up for small and intermediate companies, and a lot of people trying to build second and third offices. But you will never see the demand we had in the past for commercial space.”

“You still have the problem of major corporate downsizing and outsourcing,” says Cavanagh. “The downsizing phenomenon, however, has led to increased amounts of interiors work as companies restructure their offices and move to consolidate.” This work is also fed by commercial vacancy rates in major business centers. Companies look to cut costs dramatically by reconfiguring older office buildings.

This trend is somewhat confused by what can best be described as “fluid” building classifications. Building owners like to point to shrinking supplies of so-called Class-A buildings—the newest, most technologically sophisticated, best-located, and best-serviced properties—when they describe rising occupancy rates. But these figures often mask much greater availability in Class-B buildings: older-generation properties that in many cases can be retrofitted and can often end up costing tenants less than a “market rate” rent in a much newer building.

Paul Whitman, a commercial real-estate broker at the Staubach Co. in Dallas, notes that while most reports on the city’s vacancy rate place it at around 15 percent, that number soars to more than 30 percent when second- and third-tier buildings are added to the mix.

In New York City, Credit Suisse First Boston, the investment banking house, took advantage of the availability of second-tier real estate by relocating offices from a variety of buildings into a 2-million-sq-ft 1920’s structure. This involved an investment of \$300 million from First Boston and \$200 million from the building’s owner, Metropolitan Life.

In cities such as Chicago and New York, what began almost two decades ago as a fad for the conversion of older industrial buildings to loft-style apartments has taken the next turn. Office buildings, both older and newer, are being converted into apartments.

In lower Manhattan, a full-scale push—backed by tax abatements from New York City and State—has led many big developers and some new players as well to buy buildings for residential conversion. Similar projects in largely abandoned, major office buildings in Dallas’ central business district have also taken root, notes Whitman.

Thomas Black of the Urban Land Institute in Washington, D.C., sees another change rippling through the office-building market. “The pattern of building seems to be moving back toward metropolitan centers,” said Black. “Instead of driving the ring further out, there’s more activity toward downtowns.”

In addition, there is the return of large institutional investors such as pension funds and insurance companies, many of which said less than five years ago that they were swearing off real-estate lending. Because many large private investors, including so-called opportunity funds, fearing a slide in stocks, are switching to

real estate as a hedge, there’s added pressure to put cash into construction.

Not all of those projects will go forward based on sound projections of their viability, of course. But if the pressure to spend money gets fierce enough, perhaps some will have budgets for more innovative architecture, sophisticated curtain walls, and upscale finishes. ■

activity for anyone to be concerned about overbuilding.”

According to REIS figures from 50 major metropolitan areas, new spec-office projects that are no more than 50 percent preleased at the start of construction more than doubled from 5.1 million sq ft in 1995 to 10.7 million sq ft in 1996, and should reach 13.8 million sq ft this year.

# MARKET SPEC OFFICE BUILDING



## DEVELOPER BRINGS GREEN IDEAS TO THE SPEC MARKET

by Clifford Pearson

Neither Times Square nor speculative office buildings are normally associated with “green” architecture. So if the eco agenda behind 4 Times Square, a 48-story office tower starting to rise at 42nd Street and Broadway in New York City, becomes reality, the project will break new ground. Whether other developers and the spec-office market will follow is an open question.

Up to now, most environmentally friendly buildings have been designed for particular clients—usually companies or organizations whose business or mission is associated with the environment. For example, the National Audubon Society and the Natural Resources Defense Council [RECORD, October 1989, pages 128–33] have both worked with the Croxton Collaborative to convert old buildings into new offices, using design approaches that reduce energy consumption and specify environmentally correct products.

Since a large part of any green-design strategy is directed at the interior spaces and the products used there—which are determined by tenants—most developers of speculative office buildings figure they can exert only limited influence in fostering eco-friendly construction. And economic realities tend to reinforce this attitude. Green construction sometimes costs more up front (though it can save money in the long run) and almost always involves more research and thought on the part of designers. If tenants want to follow this design path, they can always do so in their own space and on their own nickel.

### Passing energy research on to tenants

Bucking this way of thinking, the Durst Organization, the developer of 4 Times Square, decided it wasn't going to wash its hands of responsibility for the tenant spaces inside its new building. By passing along to its tenants the research on green design that its architects, engineers, and consultants had done on the building envelope, and by providing a set of guidelines for tenants to follow in building out their own spaces, Durst figured it could encourage the occupants of 4 Times Square to apply these principles to the building's interiors. If the developer could make it much easier for tenants to create green offices, then it could create a building whose base architecture and interior design work together to maximize the benefits and long-term payoffs of sustainable design and construction. “If the tenants don't continue the effort we've made in developing an environmentally conscious building, then a lot of the benefits are lost,” explains Jonathan Durst, vice president of the Durst Organization.

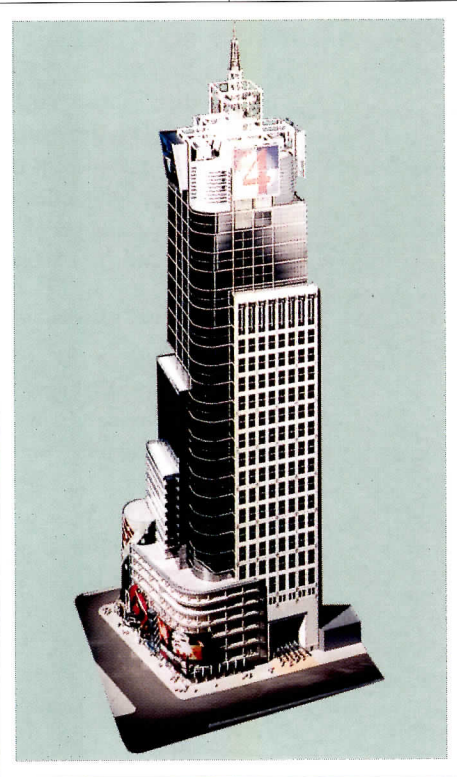
Green architecture can result in healthier office spaces and ones that cost tenants less to heat, light, and operate in the long term. But what's in it for the developer? The answer to this question is not easy to quantify. According to the Dursts, being environmentally responsible is part of their personal and business philosophy. Establishing green credentials for 4 Times Square also helps give the building a distinctive identity that is attractive to many upscale tenants.

But it's unclear how important this was in convincing the Condé Nast publishing empire and the law firm of Skadden Arps to move into the building. (These two tenants together will occupy about 80 percent of the building's office space.) Douglas Durst, president of the Durst Organization, admits “there isn't much hard demand for green office space right now,” and that his company “is leading the market” rather than responding to market forces.

On the other hand, “Tenants are looking at the big picture more these days,” states Daniel Tishman, president of Tishman Construction, the construction manager of the project. “They're looking at long-term costs as well as initial costs.” Indeed, leases for some large users of office space are now 20 years long, says Tishman.

“We hope this project creates demand” for environmentally conscious office buildings, says Douglas Durst. “The idea is to create a product that everyone will have to follow.”

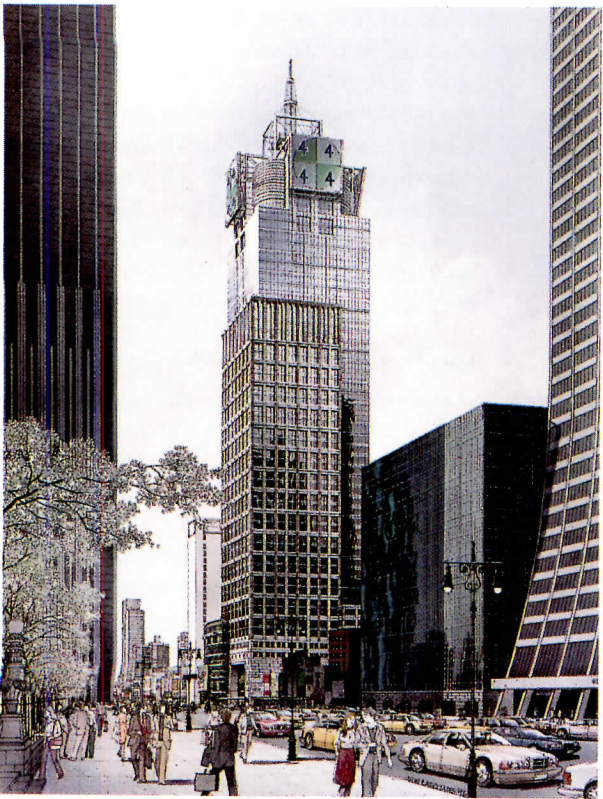
The benefits of such buildings include reducing energy consumption, minimizing damage to the environment, and developing workplaces in which people are healthier and more productive. “The public is becoming more aware of indoor-air quality,” states Bruce Fowle, a principal of Fox & Fowle Architects, which is designing 4 Times Square. “Some studies show a 15 percent increase in productivity” for workers in offices that are healthier and have more daylight, notes Fowle. According to research done by the Building Owners and Managers Association and the Electrical Power Research Institute, rent on office space represents only 13.5 percent of average annual commercial expenditures, while employee costs are 83.4 percent of the total. So making workers more productive can have a big impact on a company's bottom line. “If you get a 10 percent increase in productivity” from a healthier office environment, says Fowle, “you can pay for all of the features” needed to make a building green.



### Location, location, location

After years of decline and endless debate on plans to revive it, Times Square is red hot once again. Under the auspices of the 42nd Street Development Corporation (a state agency), grand old theaters have been reborn as the New Amsterdam [see pages 112–19] and the New Victory [RECORD, February 1996, pages 66–71], and a bevy of glitzy new stores have moved into buildings vacated by peep shows and porno shops. A few blocks north of 42nd Street, a crop of office towers designed by Skidmore, Owings & Merrill, Gwathmey Siegel, Kevin Roche, and Fox & Fowle shot up in the boom years of the 1980's, transforming the area from America's original urban entertainment zone into a mixed-use, commercial district.

Reflecting the new mix of uses in the neighborhood, the 1.6-million-sq-ft 4 Times Square project will be an office tower with 120,000 sq ft of retail and giant swaths of billboards and signage wrapping around much of the first four floors. On top of the building, 60-ft-square signs on all four sides will be readable from Grand Central Terminal to the east and even New Jersey on the west, says Fowle. These signs aren't just fun, they're serious business. According to current estimates, the street-level signs could bring in about \$2.5 million each year in rent and the megads on top of the structure may contribute another \$3 million a year.



To reflect the more sedate character of the neighborhood to the east, the building will have more stone and

less pizzazz on this facade (above), while its Times Square side will have more glass and signage (top).

Now that 4 Times Square is mostly leased out even before its metal frame has started to rise, there is talk of development starting soon at one or perhaps two of the other corner sites at the “crossroads of the world.” These are where the infamous four towers designed by Philip Johnson and John Burgee in the 1980’s were supposed to rise. Although the towers have been on hold for years, the sale of development rights to the sites funded much of the revival of 42nd Street.

Some critics have warned that too many office towers in Times Square will rob it of its unique identity as an entertainment district. But high-rise development here makes environmental sense in terms of taking full advantage of all the subway, rail, and bus lines existing in the vicinity. Office buildings in suburban or exurban locations, on the other hand, require most people to drive long distances in vehicles run by internal-combustion engines—often defeating any energy-saving or environmentally conscious strategies applied to the buildings themselves.

“People are starting to realize that you need face-to-face interaction for business, and cities are where you get this,” states Douglas Durst. “The trend to the suburbs is slowing down.” Says Fowle, “There’s a renewed commitment to big cities like New York,” although smaller cities, such as Hartford, Conn., and Buffalo, N.Y., are hurting. Lower crime rates, reinvigorated economies, and business improvement districts that provide a higher level of services such as street cleaning and security are all helping to attract office development to downtown locations.

#### Working as a team

From the beginning, 4 Times Square has been a team effort, with the developer, architect, engineers, construction manager, and a wide range of environmental consultants working together. “Each decision affects every other building component,” explains Tishman, whose company will build the tower. A change in glazing, for example, might require rethinking the amount of insulation needed, which could affect the thickness of wall cavities and the building’s structural system. While environmental concerns were factored into almost every decision, the project had to meet strict budgetary limits set by the price of rents prospective tenants could reasonably be expected to pay.

In addition to Cosentini Associates, the mechanical engineer, the list of environmental consultants is extensive: the Natural Resources Defense Council, the Rocky Mountain Institute (RMI), Steven Winter Associates, Eley Associates, and independent consultants Asher Derman and Pamela Lippe. Even in their own operations, the design and building team conserved resources—communicating electronically instead of on paper. “This is the first time all steel shop drawings were sent electronically,” notes Tishman. “And there are 18,000 steel beams in this building.”

Taking advantage of two grants, one received by the RMI, the project was able to use the most sophisticated computer technology available for energy analysis, the so-called DOE-2. Developed by the Department of Energy, this energy-simulation-modeling software helped the team design all hvac and lighting systems, and exterior cladding materials and techniques. DOE-2 technology and the data gathered from analyzing the base building are also being offered to tenants of 4 Times Square to help them determine the most efficient lighting and lighting-control systems for their own spaces, as well as the impact of daylight penetration on energy usage, and the most effective floor-by-floor hvac distribution, control, and exhaust systems.

#### Designing an environmentally correct base building

In a high-rise building such as 4 Times Square, glazing is one of the most important components affecting energy consumption. The best kind of

glazing filters out ultraviolet and near-infrared light, which create heat, while letting in visible light. "The trick is to achieve the right balance" between light transmission and heat gain, and between light transmission and glare, says Adrian Tuluca, a principal at Steven Winter Associates, which does energy, indoor-air, and environmental consulting.

One of the goals of the design team for 4 Times Square was to bring daylight deep into the office spaces, so the amount of light provided by fixtures could be reduced. To provide deep penetration of daylight into floors that average 35,000 sq ft, the team designed oversized double-glazed windows with a low-E coating. This double glazing will have a center-of-glass U factor of 0.30 (measuring the amount of heat loss), a shading coefficient of 0.30, and a visible transmittance of 0.40. Energy consumption will also be reduced by using 4.5-in.-thick exterior-wall insulation, instead of the standard 2 in. used in most office buildings in this part of the country.

The building will use two alternative sources of energy, in addition to traditional electricity. Solar energy will be generated from photovoltaic cells in spandrel panels on all four sides of the building. According to Tishman, 1.5 percent of the base building's energy needs will be provided by a thin film of photovoltaic cells applied to spandrel panels. (One drawback of this system is the extensive wiring needed to hook all of the spandrel panels to the building's electrical system.) The other alternative source of energy will be eight large (10 ft by 10 ft by 10 ft) fuel cells set on the roof and generating electricity from natural gas. "Fuel cells like these have never been used in an urban area before," notes Tishman.

#### **Environmentally friendly mechanical systems**

In terms of mechanical systems, 4 Times Square will utilize CFC- and HCFC-free natural-gas-fired absorption chillers, instead of conventional fossil-fuel-driven electrical systems. To optimize the efficiency of hvac equipment, all pumps, fans, and motors will have variable-speed drives with direct digital monitoring and control. Fresh air will be supplied to interior spaces through a "state-of-the-art" filtration system at a rate 50 percent greater than the current code requires, claim the architects. Floors will have individual air-handling units controlled by tenants so the system will be used only as needed. An oversized outside-air shaft will periodically purge interior air from each floor.

To ensure better indoor-air quality, the building's managers will monitor and control contaminants and particulates inside the building. A dedicated exhaust shaft will also allow direct exhaust of all smoke, fumes, and heat generated inside the building. In addition, all materials specified for the project will emit few, if any, volatile organic compounds (VOCs).

The building's structural system—a composite of steel and concrete—incorporates a "hat truss" at the top of the tower that maximizes its efficiency and reduces the amount of steel needed, say the architects.

To ensure that all of the building's systems and controls have been properly installed and are functioning correctly, the building will be put through a process called "commissioning" as soon as construction is completed. Every control device, fan, motor, pump, valve, and exterior wall component, for example, will be tested to make sure it meets the performance criteria set during the design phase. Tuluca is a big advocate of commissioning, saying it can catch problems and errors made during construction or caused by on-site changes.

#### **Bringing the green message to the construction site**

Not satisfied with using environmental principles on just the building itself, the team behind 4 Times Square is applying these ideas to the construction process as well. This involves developing a waste-management plan that calls for salvaging and recycling as much material as possible during demolition and using recyclable and nontoxic packaging materials during construction.

Construction waste will also be minimized by using modular, prefabricated, or preassembled building systems. By paying attention to scheduling and ensuring on-time deliveries, the construction manager expects to minimize vehicular idling, which causes traffic congestion and air pollution. Construction procedures will also reduce the amount of airborne dust and debris on site. All materials and products used in construction will be prequalified to ensure they are manufactured in environmentally responsible ways.

#### **Passing the environmental message to tenants**

To help the future tenants take full advantage of its green infrastructure, the architects and consultants of 4 Times Square prepared guidelines that cover energy efficiency, lighting, office equipment, indoor-air quality, resource conservation, and construction practices.

By designing interiors so daylight can be shared, rather than monopolized by private offices, the use of electrical light can be minimized and energy bills reduced sharply, says Charles Eley, whose firm was an energy consultant on 4 Times Square.

Sensors that turn lights on only when someone is in a room are another simple way of keeping energy costs down. Tenant guidelines help companies reduce lighting loads to 1.0 watts per sq ft from the typical 1.5 to 2.0 watts. "Most offices today are overdesigned for electrical lighting," states Eley.

By purchasing energy-efficient computers, printers, and copiers, and following other guidelines, tenants can limit their plug load to 1.0



watts per sq ft, rather than the 4.0 watts used in conventional offices. "Tenants can reduce their power loads by 30 to 40 percent just by changing their office equipment," says Eley.

Other parts of the guidelines help tenants select furniture, carpeting, materials, and finishes that emit few if any VOCs, and select products made with recycled contents.

While many of the items recommended in the guidelines are small steps and some are already well known, together they represent a significant amount of research offered to tenants at no charge. But since the entire program is voluntary, there is no way to tell at this point how thoroughly tenants will follow them. And only time will tell whether 4 Times Square becomes a model that other developers feel they must follow or just a well-meaning anomaly in the real-estate world. ■

## SUSTAINABLE DESIGN OFFERS KEY TO CONTROL

by Randolph R. Croxton, FAIA

**T**he time is long overdue for architects and the public to stop employing the term “green architecture” like a 1970’s “save the earth” sound bite and see it for what it is: a fundamental reconsideration of the way architecture is currently taught and practiced in this country.

The term was never intended to refer to design, or a look, or a few politically correct add-ons to make corporations and nonprofit organizations feel good about their buildings. Rather, it was meant to encompass a comprehensive reordering of priorities for what constitutes a successful design. It is the precondition to good design, not the determinant.

“Sustainable,” “environmental,” and “humanistic” are all better adjectives than “green” to describe the attributes of this reconsidered architecture, and to stand in contrast to the values and objectives that currently drive the built environment. Practiced competently, sustainable/environmental architecture reverses the trend of construction on the cheap by making visible the lost qualities of buildings. In doing so, it places the architect at the center of a quality revolution that produces massive savings for the client.

### How we got where we are

How did we get to a time and place where waste, inefficiency, marginal functionality, and false economy dominate the building industry model for project delivery—the construction manager/design-build development model?

Three watershed events in the 1960’s are responsible for the state of architecture today and the diminished role of the architect. The first was the elimination of the architect’s fee schedule by the U.S. Justice Department. The traditional architect “authority” model was embedded in that fee/scope and its related documents. The second turning point was a retreat by the profession from the liability associated with schedule and budget issues which was institutionalized in the form of new AIA contract language. Both of these events transpired against the backdrop of a shift in architectural education that placed disproportionate emphasis on design theory over basic science, technology, and management.

The almost instant response to this professional turning away from responsibility in the 1960’s was the emergence of the construction management model. The general contractors of the day, such as Morse-Diesel and Turner Construction, saw the authority/responsibility void and sought to supplant the architect in the owner-architect relationship as the primary model for the building team.

These builder/contractors were going after a core asset of the architectural profession, the fiduciary role. Although there were clear conflicts of interest, the builder/contractors passed themselves off as

*Randolph R. Croxton, FAIA, is a principal of Croxton Collaborative Architects in New York City, which has pioneered sustainable architectural design. His projects include the Natural Resources Defense Council Building in Washington, D.C., and Audubon House in New York City.*

disinterested parties who could protect the owners’ best interests. The potential for corruption and self-dealing were the worst consequences. The use of low-cost building materials and systems in the pursuit of lowest first cost at (essentially) any cost became widespread.

### Architectural fragmentation

The “design” architect’s role in this “one-note symphony” devolved into that of a “stylist” in support of marketing, while other, often separate, “production” architects and interior design “stylists” did the rest of the job. This maximum fragmentation of the design disciplines and disordered pursuit of cheaper alternatives destroyed the potential for integrated, high-performance design.

As a result, the 1980’s brought a high-style bonanza of snazzy-looking curtain walls and glitzy lobbies with marble, stainless steel, and exotic wood paneling, while the underlying building quality, long-term performance, and occupant comfort often fell to the minimum.

The developer’s standard line of defense became, and often still is, “This building meets every code.” A more accurate statement would be: “If we built this building any worse, it would be against the law.” In the design-build program, appearance became everything.

This massive devaluation of intellectual equity (architectural, engineering, and interior design) could only occur if the client/owner could at least be pacified into believing that economizing in nonvisible areas would not result in a significant reduction in the quality and efficiency of the building.

By contrast, the sustainable/environmental approach can demonstrate in dollars and cents how unseen quality pays off. Measurable and immediately achievable economies include a 50 percent reduction in energy consumption, often translating into a \$1/sq ft/yr savings, \$1.50/sq ft/yr savings in maintenance, operations, and replacements, and productivity savings that exceed \$10/sq ft/yr over standard practice.

# QUALITY A REVOLUTION IN

So why has the sustainable/environmental approach to architecture been adopted by so few practitioners? There are several reasons. The rush to and subsequent failure of solar technologies in the 1970’s has had a “hangover” effect on anything remotely environmental. For architects, there is the seduction of spending money on surface design, the typical focus of award juries and architectural magazines.

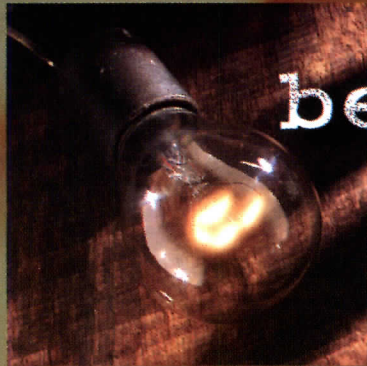
In addition, in an environment of downward spiraling fees and authority, there is fear of change, especially when it requires additional investment of resources in the knowledge base of the firm.

Still, the greatest cultural barrier to the adoption of a fully integrated, high-performance design approach may be the tendency for architects to see issues of performance as technical or “engineering” issues, and as a drag on artistic freedom. The myth that you can be good artistically or good technically—but not both—lives on.



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## The big picture

There is no question that the sustainable/environmental approach is more demanding. The architect can no longer leave the “uncool” technical and performance issues and code compliance to others. Far more than that, the approach expands the reach of architectural concerns to the building’s entire life cycle, from the extraction of raw materials, through habitation, operation and maintenance, to the disassembly and reuse of the materials. It is the understanding of this process—the complete picture of actions and their consequences in the built and natural environment—that becomes the domain of the architect. Only from this perspective is it possible to begin to quantify the importance and large-scale economies that flow from a thoroughly considered design. What is the impact on the planet, the region, the municipality, the site, the building? It becomes possible to focus on the “big dollars” and to demonstrate the massive returns made possible through an investment in intellectual equity. The “fast and cheap” model is easily seen for what it is.



**At the NRDC Building, the Croxton Collaborative brought daylight in from a skylit atrium (left). At Audubon House, the firm used glass partitions to allow sunlight to penetrate deep into the offices (below).**



In addition to this expanded overview, the design team must make some basic shifts in its priorities and methods to get to a sustainable/environmental model. An ongoing process of constant quality improvement must be integrated in the firm and in the design team. Rather than a few visible “green add-ons,” the design process must capture

# SKILLS

## ACQUIRE NEW ANALYTIC

hundreds of incremental quality enhancements that are both cost-effective and dependable, and that add up to massive improvements in performance. Here are four methods for accomplishing this goal:


1. Aggressively integrate research and the available knowledge base of building science and the environmental sciences into the design process.
2. Develop cross-disciplinary teams with a self-critical process of systems development and constant quality improvements. These teams should consist of such professionals as industrial hygienists, energy-simulation specialists, and chemists.
3. Acquire or hire skills in the analytical tools of building performance: DOE 2.1 energy simulation, radiance/daylighting, infrared testing, air-infiltration testing, computational fluid dynamics, and so on.
4. On your completed projects, harvest all the performance data from users and systems in order to create the feedback loop necessary for constant quality improvement.

## The good news

The good news is that the technology is out there. For the past 15 years, while building performance has limped along with a “building as product” mindset, numerous key building technologies have matured to high levels of performance. As a result, a large gap has opened between the accepted code-compliant building and the massive cost-beneficial margins of performance that characterize buildings delivered by a quality-entered team using a sustainable/environmental model.

Architects have the intellectual and educational framework and the team-building skills to conceive buildings in an integrated fashion with high intellectual equity, employing multidisciplinary teams. These “architectural traits” are profoundly different from the reductive thinking that characterizes the scientific/engineering approach.

One further opportunity to raise effectiveness concerns the relationship between architects and the public. There is an often-stated lament that we must educate the public. (Small wonder that in opinion polls, people frequently characterize architects as arrogant.) The reverse attitude is more enlightened: Architects need to be educated by the public. We need to develop a human-centered design approach that solves real problems in the marketplace of human endeavor (indoor-air quality, daylighting, energy efficiency, worker comfort, safety, well-being, productivity, operational efficiency, and maintainability). Sustainable/environmental design is so much more than another trend or style; it is the opportunity for architects to restore the integrity of the built environment and, in doing so, to return the profession to its historic strength. ■



# Signs of the Times

by Charles Linn, AIA, photographs by Peter Aaron

A few years ago, observers of the urban scene were pounding nails into Times Square's coffin. The district had fallen into a squalid torpor where porno shops, triple-X-rated movie houses, and seedy coffee shops had overwhelmed the hotels and theaters that had once given the place an international reputation as "the crossroads of the world." Those tourists who had the courage to come here came to be titillated at how dark things had become, not to see the lights of the Great White Way. Like any great actress, Times Square, the 12 square blocks that form the "bow-tie," that area where New York City's Broadway intersects Seventh Avenue at a sharp angle, has reinvented herself to fit the times once again. With infu-

sions of cash from corporations such as Disney, and the revival of musicals such as *Les Misérables*, and *Phantom of the Opera* in the theaters that flank the streets along Broadway and Seventh, tourists jam the district in yellow taxis, buses, and on foot. Restorations of theaters such as the New Victory and the New Amsterdam have been architectural hits, and the great office towers built in the 1980's, which stood empty for almost 10 years, have been gradually leased, giving this great urban place, the Grande Dame of theater districts, good reasons to turn up the lights. But it is the great walls of signage that really give what old-timers call "The Canyon" its new sheen. Behind the signs are (text continues on page 91)

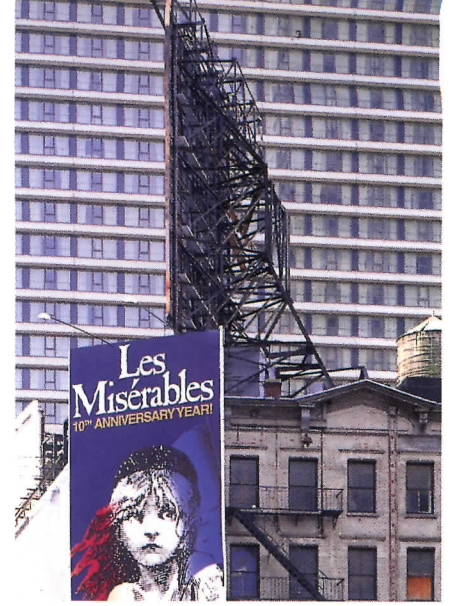


Ezra Stoller's photograph (previous page) of 1949 shows a scaled-down, more dignified view looking north over the Square than the photo taken recently.





Most of the spectacular signs in Times Square are supported by complicated trusses (left and right). The Square's signs are a museum of current cultural icons.





A panorama at night looking north up the canyon captures the rapid, non-stop movement of traffic through the Square (above). One of the best views

of the Square is behind glass at Foley's Fish Market in the Renaissance Hotel, which provides a 220-degree view of the signs at eye level (opposite).

**WHETHER ONE ADORES TIMES SQUARE BECAUSE IT IS A UNIQUE PLACE, OR DESPISES IT BECAUSE IT IS A CONCENTRATED LOCUS OF TACKY COMMERCIALISM, ONE THING IS CERTAIN: TOMORROW IT WON'T BE THE SAME.**

Painted plywood disguises abandoned 42nd Street porno shops (below). A statue of Ethel Barrymore as Ophelia that graced the Show Folks Shoe Shop (bottom) is upstaged by signs. Sign painters

(right) alter the visual landscape the old-fashioned way. Gleaming billboards are crammed together tightly here, but part of an old brick wall peeks through the message mlange (opposite).



busted parapet walls glued together with liberal coatings of roofing cement, layers of old tin punched for glass neon stand-offs, tiles and enameled panels, and conduit torched off at the walls. Remnants of long-gone sign trusses peek out from between the signs. Without the decorated flats that spatially define the Square, the collection of curtain wall and ragtag brick and terra-cotta buildings that line it could be almost anywhere. As great planes of color, these sign panels redefine the building walls as a great outdoor room. As billboards, the amount of information they present almost overwhelms the senses, shouting out logos and pictures of products. Some take a subtle approach, featuring a label's name, a photograph of a model, and nothing else. Viewers are left to draw their own conclusions about what the meaning might be. A Japanese pharmaceutical company, almost unknown in the U.S., presents its logo in

two-story-high letters, simply for the exposure, which is not insignificant. Millions of people from all over the world will see the sign in a given year, and millions more will see it whenever a television or movie camera pans the Square. The rental value of the vertical real estate on the side of a building here is, in some cases, greater than the horizontal. Whether one adores Times Square because of its audacity, and the way the variety and ingenuity of it all coalesce to create a unique place, or one despises it because it is a concentrated locus of tacky commercialism and home to some of the most bizarre creations ever to come out of a signmaker's shop, there is one guarantee: tomorrow it won't be the same. Almost every day, something is being dismantled and something new is being installed. The composition of light, forms, and colors that make up the architecture of Times Square is never static. ■

# The Forecast Looks Solid



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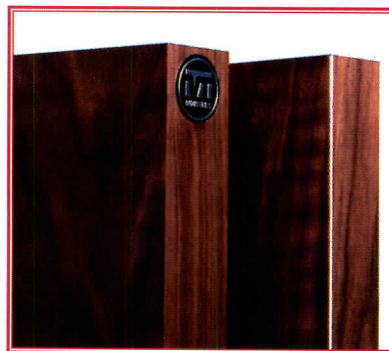
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CIRCLE 44 ON INQUIRY CARD

# PROJECT DIARY: The story of two thirty-something architects and their ideal commission, the **ATLANTIC CENTER FOR THE ARTS**, in an unlikely setting, the Florida “jungle.”



by Karen Stein

fledgling practice. Putting their own firm on hold, they join the Cambridge, Mass., office of landscape architect Michael Van Valkenburgh Associates. Thompson had been an assistant to Van Valkenburgh while at Harvard's Graduate School of Design; Rose was a student in his class. Thompson's father, retired in Florida and a board member of the Atlantic Center for the Arts (ACA), tells the duo that the institution, founded in 1978 by local sculptor Doris “Doc” Leeper as a working retreat for artists, is planning an expansion. On his recommendation, the architects are added to a list of some 10 potential firms for the project. Ted Potter, executive director of ACA, is wary of a family recommendation. “It’s usually a minus,” he says, but after reviewing their portfolio he is genuinely “intrigued.” Thompson's father recuses himself from any decisions regarding the commission. On a family visit to Florida, Thompson and Rose tour the site in New Smyrna Beach, a community of 18,000 people outside Daytona, and acquaint themselves with the place and the project.

**MARCH 1992** Thompson and Rose are one of five firms invited by ACA to interview for the commission. Provided with a thorough six-page document called a “Space Needs Evaluation” that outlines the center's mission—“a unique environment wherein creative experimentation is pursued in a protected atmosphere”—and physical requirements—workspaces for dance, drama, painting and drawing, sculpture, music, and writing—the architects begin intensive research into the program and the site knowing that they have less built work to show at the interview than the other candidates. Rose says the strategy is to “excite the client with a deeper

When Maryann Thompson and Charles Rose started practicing architecture, they were as eager for work as many and perhaps more focused than most. Even before finishing graduate school—Rose in 1987 and Thompson, with a joint degree in architecture and landscape, in 1989—the husband-and-wife team already had a project of their own. Commissioned to do a master plan for the Hartsbrook School in Hadley, Mass., they were on their way to securing their professional reputations well before either celebrated a thirtieth birthday. While the scope of the project—from landscape design to architecture—was ideally suited to their vision of a multidisciplinary practice, their involvement was drawn out over years. A subsequent commission for an arts center seemed ideal for Thompson, a painter, and Rose, an accomplished pianist, though its realization, too, was less than immediate. This project was to provide the lesson that more seasoned architects than Thompson, now 36, and Rose, 37, still struggle with: Architecture takes time.

**1989-1991** Work on the Hartsbrook School is at a lull by the winter of 1989, and Maryann Thompson and Charles Rose have no major projects to sustain their

**Project:** Leeper Studio Complex, Atlantic Center for the Arts New Smyrna Beach, Florida  
**Architect:** Thompson and Rose Architects—Maryann Thompson and Charles Rose, principals-in-charge; Michael Grant, Joseph McDonald, Warren Van Wees, Michael Breau, Francisco Thebaud, Patrick Maguire, Tim Downing, Lisa Iwamoto, Dana Weeder, and Julie Kline, project team  
**Engineers:** Oemulgee Associates—

Wayne King (structural); Jerry K. Finley (civil); M-Engineering—Shige Moroi and Brad Shaffer (mechanical, electrical); PSI-Jammal Associates—Don Stites and Don Budnovich (geotechnical)  
**Consultants:** Hanson Taylor Bellomo Herbert—Glen Herbert (landscape); Cambridge Acoustical (acoustical)  
**General Contractor:** Epoch Properties—Dean Sandroni, construction manager

understanding of the site.” To counter what they perceive as their underdog status among local firms with principals up to twice their age, the architects produce five alternate schemes for the presentation to “generate credibility and show enthusiasm,” says Rose.

The schemes preserve the site’s low scale, jungle-like thicket of palmetto shrubs and twisted scrub-oak by proposing individual pavilions for each creative discipline. The buildings are joined by a boardwalk that appears to hover above the dense vegetation. The schemes interpret the 67-acre parcel as a spatial experience: a labyrinthian place where buildings are invisible 30 ft away. The lost-and-then-found quality is reinforced by the forms and materials, which are based on interpretations of the Southern vernacular Cracker style of architecture. Their youth is “not a concern,” says the ACA’s Potter, who feels an instant rapport for Thompson and Rose’s approach—a mystery of architecture that is obscured, then gradually revealed—pronouncing their ideas “a conceptual work of art.” Driving back to the Daytona airport, the architects stop to phone home, and learn they got the job.

## SPRING-SUMMER 1992

With their baby son asleep on the studio floor, Thompson and Rose work late nights developing their plan for ACA. Rose calls the design process “a total collaboration.” Thompson elaborates: “We both sketch for awhile and then come together and figure out which ideas we like.” After establishing an overall strategy for the complex of six buildings inserted into the lush landscape, “We each take a building to develop, then we trade and work on each other’s buildings,” explains Thompson. What accounts for this seemingly effortless sharing of ideas? Thompson has a theory: “We did one of those around-the-world tickets where we traveled [from September, 1984 to August, 1985] with one set of clothes and backpacks full of sketchbooks. When we say it’s like [17th-century] Katsura [the Imperial Palace in Kyoto, Japan], it’s understood.” The ease of collabora-

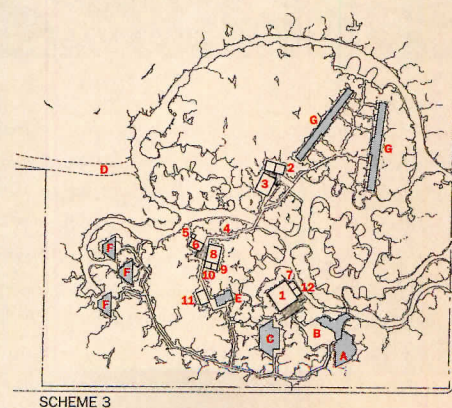
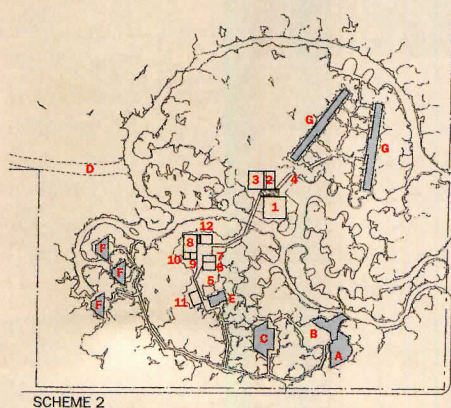
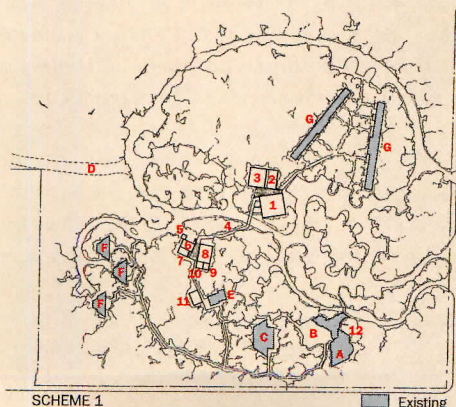
tion on this project is reinforced by the appeal of the program, which Thompson describes as “the [idealistic] kind you get in school.”

For this project, however, they credit additional collaborators. Working in drawing and model, the architects meet regularly with Potter and an advisory committee, including playwright Edward Albee, choreographer Trisha Brown, photographer Jack Mitchell, and poet Charleen Swansea, to understand the intense nature of the ACA’s artist-in-residence program, where mid-career artists apply for the opportunity to interact with “master artists,” who are recognized leaders in their field. The sense of synthesizing that characterizes ACA’s mission influences not only the site strategy but also the detailing and materials of the individual buildings. Thompson pays her client what she considers the ultimate compliment, by saying of the back-and-forth between architect and client: “We’re treated like artists.”

Gradually, the individual buildings become emblematic of the disciplines contained within. In the painting studio, wood louvers and giant light monitors slicing through an expressionistic array of wood beams cast painterly layerings of light and shadow. The nearly windowless but high space of the music room is purposely “insular and uplifting,” say the architects. The upper walls of the dance workshop are splayed outward like a ballerina’s uplifted palm in the downward arc of the *port de bras*. The roof of the sculpture studio hangs over an outdoor work area to reinforce a flow of space where inside and outside blur. The theater is cloaked in a mysterious wood box with a protruding glass lobby, and the library, hidden at the back of the site, is “antisocial” to the grouping, but has the only view out of the site toward nearby Turnbull Bay.

At the end of 1993, with fundraising under way, Potter leaves for a new job in New Orleans and Suzanne Fetscher, who had been with ACA in various posts since May, 1990, is made the new executive director. The

**New Smyrna Beach, south of Daytona, is developing a reputation as an artists’ community. The Atlantic Center for the Arts owns some 67 acres adjacent to Turnbull Bay, a tidal estuary.**

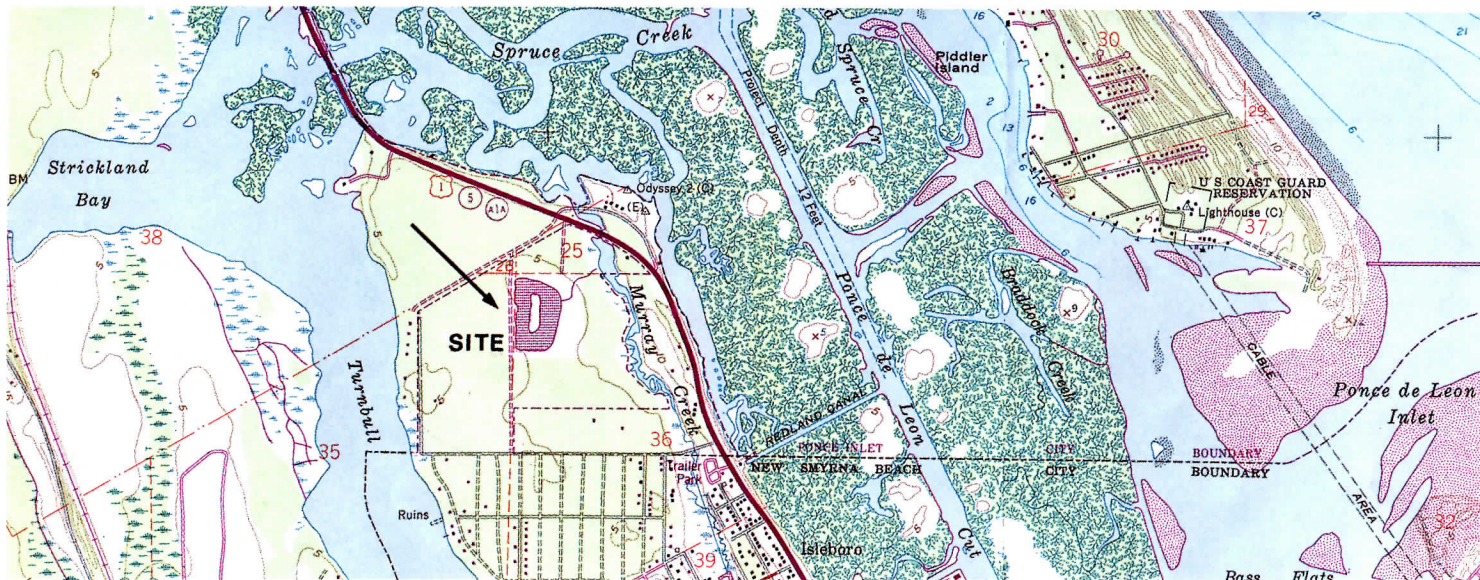


### ONE IDEA, FIVE OPTIONS

**When Maryann Thompson and Charles Rose** went to New Smyrna Beach to interview for the ACA commission in March, 1992, they came equipped with five alternate conceptual proposals. While all

of the proposals show the various parts of the program—drama work space, dance studio, sculpture studio, painting studio, music studio, and library—scattered along a boardwalk, each has a different

relationship of parts. Since the ACA provides a three-week or longer working retreat for artists of all disciplines and is not a performing institution, there is no stark public-private delineation. However, several

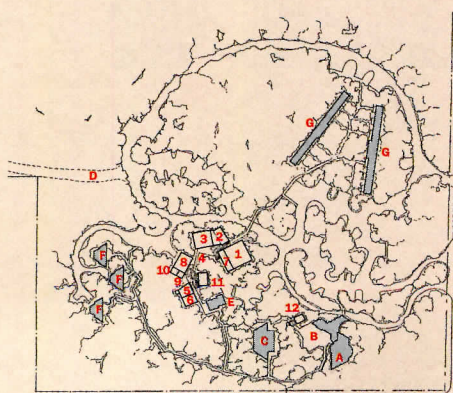


architects worry that Potter's departure will delay the project and, more importantly, that the removal of a strong design ally will force them to revisit what they consider to be resolved aspects of the scheme. Their fears are unfounded as Fetscher proves to be firmly committed to the design. She shares the architects' vision and says of ACA, "We're about risk-taking; we're about providing opportunity to artists." A challenge grant from the National Endowment for the Arts is denied, but state funds and private donations from Leeper's many friends are raised.

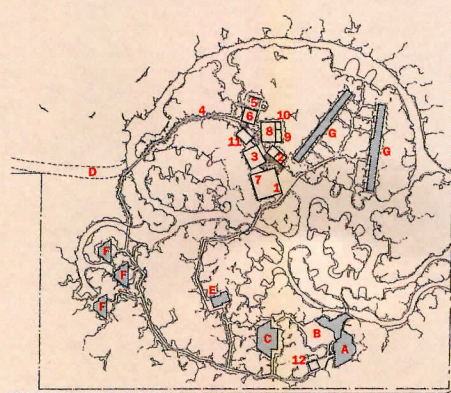
**1994-1995** The first phase of construction, which consists of the black-box theater, the painting studio, and the music studio, begins in September, 1994. Thompson and Rose provide a set of 101 construction drawings done by

hand. Dean Sandroni, the construction manager, admits that it took "awhile to get the vision in my head." He is in constant communication with the architects regarding the project, which at 16,000 sq ft, has a budget of \$2.5 million. Some unresolved building parts are drawn by the architects in the field; other issues are handled by phone or fax. Sandroni calls the continuous routing of detail questions from the sub-contractors to him then to Thompson and Rose and back to him "correspondence through shop drawings." Materials are debated from a cost point of view. In the case of the lead-coated copper cladding and roofing, for example, the architects argue convincingly for the life-cycle cost benefits.

By sprinkling the site with only three of the planned six buildings, the character of the discrete forms is visible, but not the overall intent of creating hybrid indoor/outdoor space in between. *(text continues)*



SCHEME 4



SCHEME 5

- A. Administration
- B. Amphitheater
- C. Dining/meeting
- D. Future driveway
- E. Field house
- F. Master artists cottages
- G. Associate artists
- 1. Black box theater
- 2. Dance support area
- 3. Dance studio
- 4. Existing walkway
- 5. Outdoor work area
- 6. Sculpture studio
- 7. Film/video studio
- 8. Painting studio
- 9. Dark room
- 10. Storage
- 11. Music studio
- 12. Library

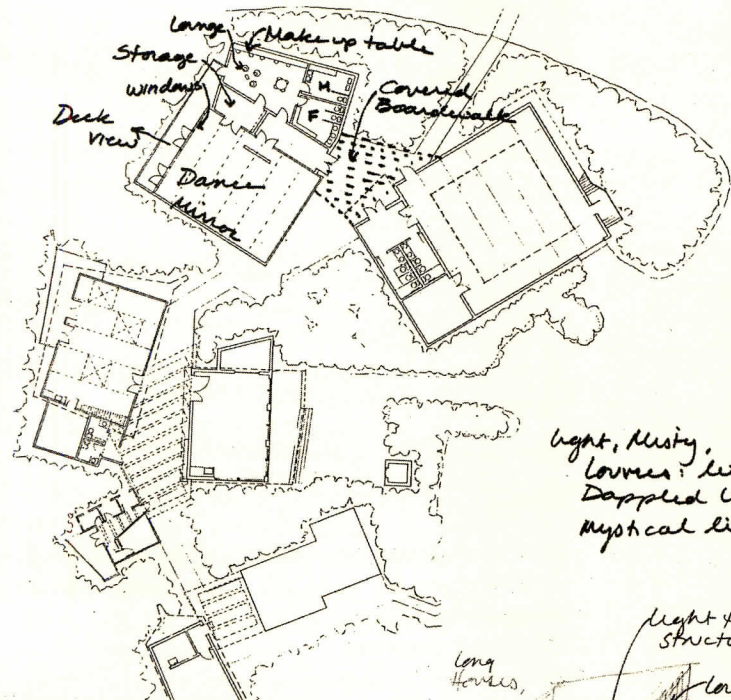
of the schemes interpret the "performance" spaces—the dramatic artists' black-box theater and the dance workshop—as the ACA's frontispiece, placing them between the existing artists' living quarters

and the existing administration building. All schemes show studios grouped together to encourage collaboration across disciplines. Another strategy, not shown here, was also presented at the interview.

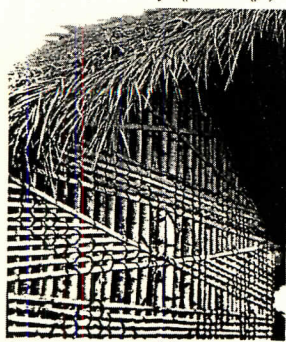
The option of grouping all the program functions into a single, large-scale building was presented by the architects as a "don't" since they considered it disruptive to the site's ecology.

In their research for their job interview, the architects studied buildings at the same

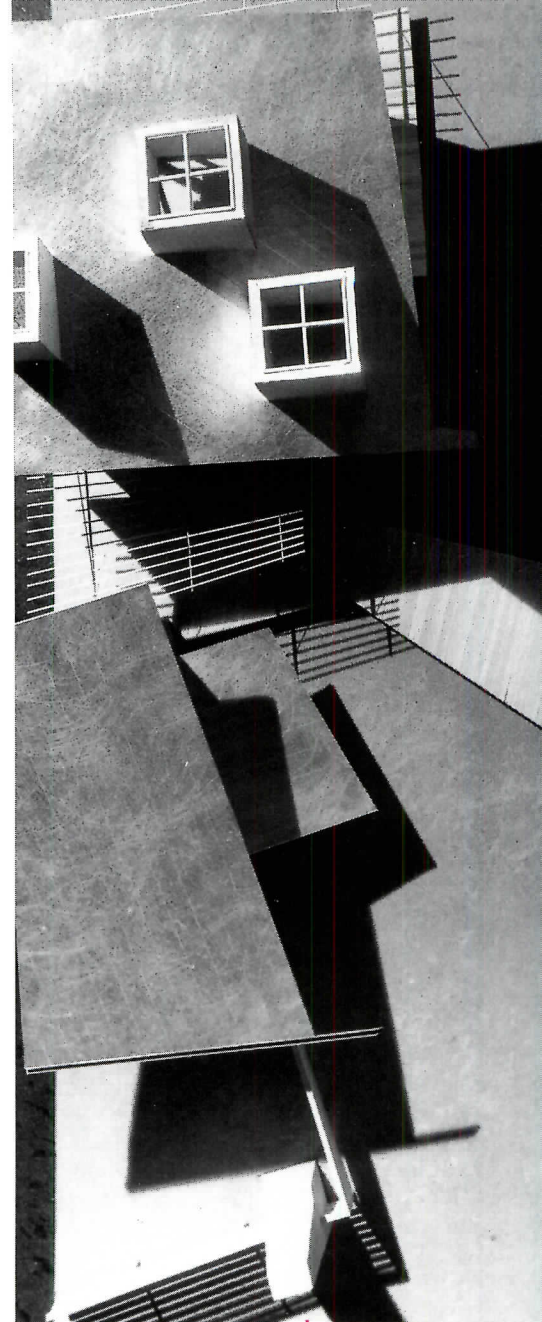
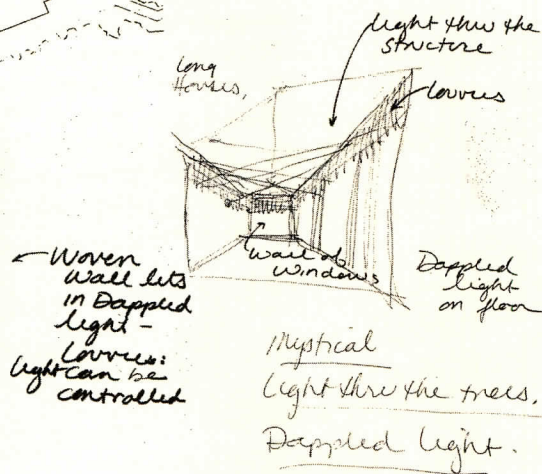
latitudes or more tropical regions like Africa (below) for ideas on materials and shading.



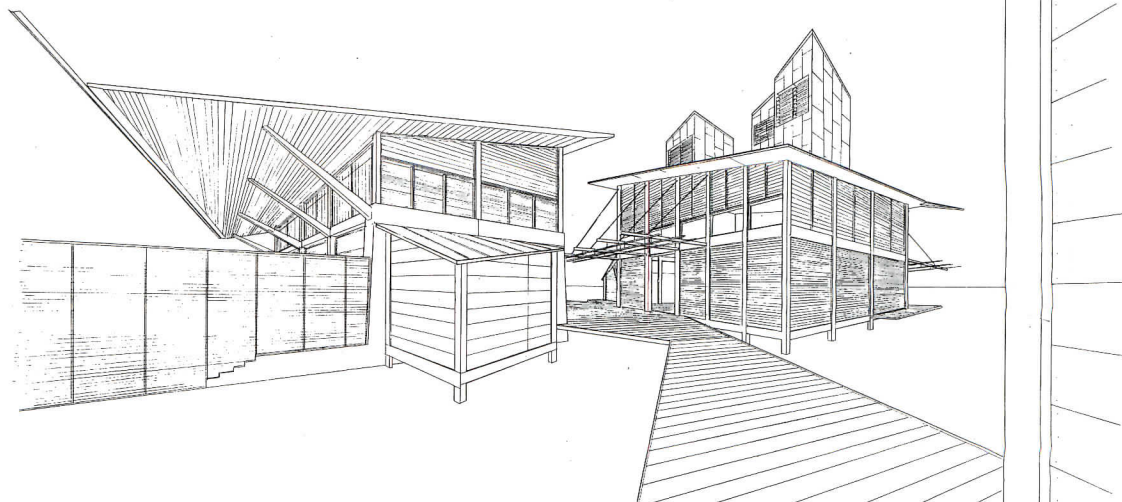
light, misty,  
louvers: lets in  
Dappled light.  
Mystical light



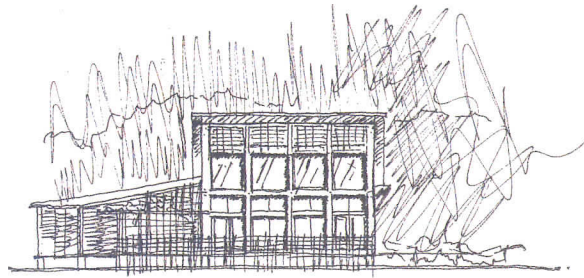
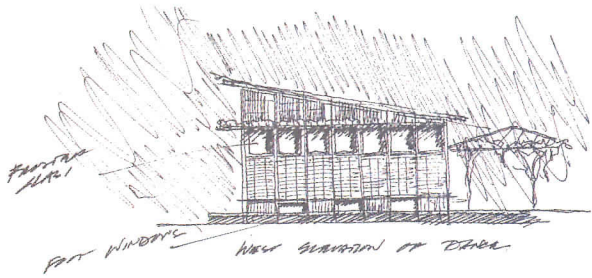
Africa



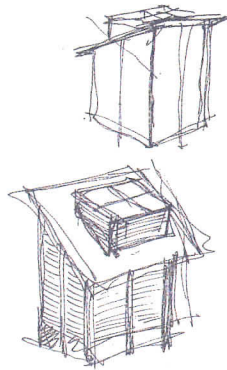
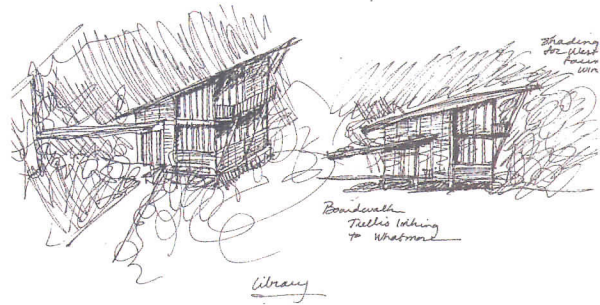
The buildings are set on concrete footings so that they barely touch the ground. The boardwalk is laid on pilings.







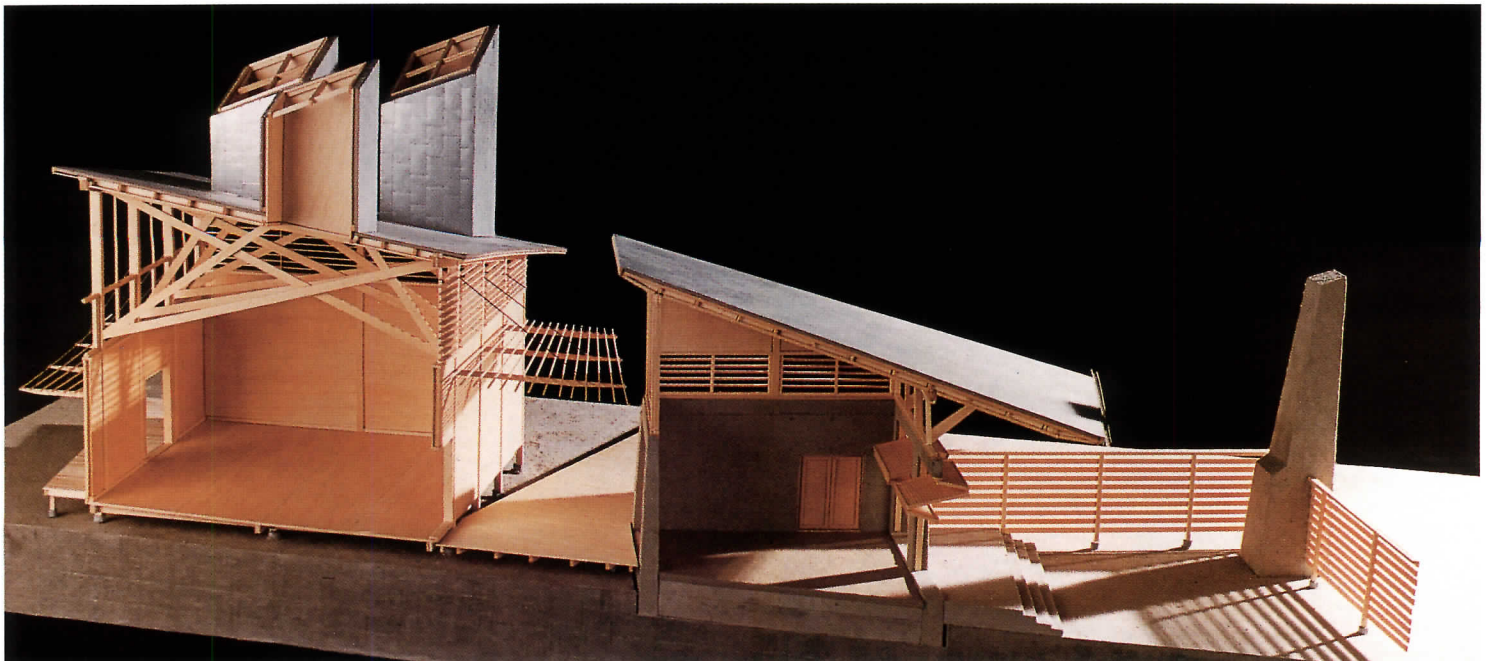
A series of schematic design sketches documents the way Thompson and Rose studied roof overhangs to create a visual dialogue between buildings. Trellises over the boardwalk are intended to further define communal gathering areas.



*Revised Manne*



A sectional model of the painting and sculpture studios shows what Rose calls the “structural exhibitionism” of wood trusses.





Lead-coated copper roofs poke out over the foliage (above), but from ground level the buildings are always surrounded by scrub oaks and palmettos (left). The boardwalk widens at the entrance to the theater, creating a gathering space between it and the dance studio (opposite). Each building has its own rhythm of Mahogany panel proportions and lead-coated copper inserts.

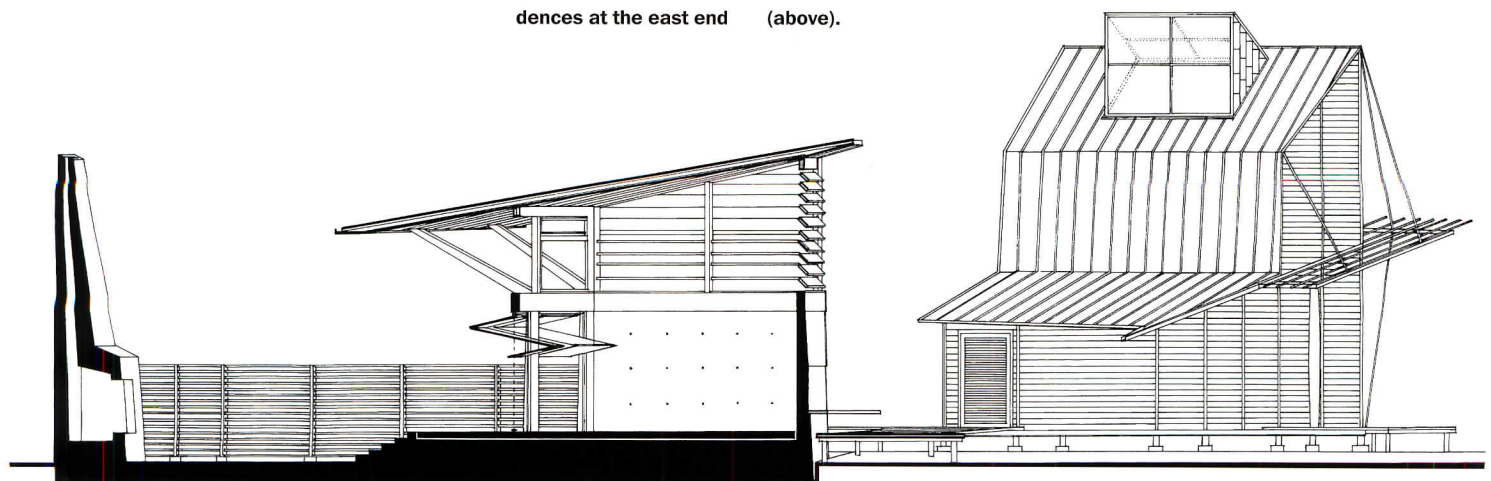


- 1. Black box theater
- 2. Gallery/reception
- 3. Dance studio
- 4. Dressing room
- 5. Sculpture studio
- 6. Outdoor work area
- 7. Painting studio
- 8. Audio room
- 9. Music room
- 10. Library



The boardwalk makes the shape of a loose "C" through the dense foliage, linking the associates artists' residences at the east end

of the ACA grounds with the master artists' cottages and the administration building at the west end (above).



SECTION THROUGH SCULPTURE STUDIO WITH MUSIC STUDIO



Roofs tilt toward one another and the jungle, suggesting views and relationships among the artistic disciplines. The painting and sculpture studios have parallel profiles (above). The upper portion of a dance studio wall leans almost 10 degrees toward the jungle (far left), while the library rises over Turnbull Bay for a mezzanine level view (near left). Painted steel trellises will eventually be covered with foliage.

# CLIMATE

## Responding to the elements

New Smyrna Beach, on the east coast of central Florida, may seem like an unlikely place for an artists' community where people in disciplines from painting to music come for residences of three weeks or longer. "Why New Smyrna Beach?" jokes Doris Leeper, a sculptor and environmentalist who founded ACA after her own Rockefeller Foundation-sponsored residency in Winston-Salem, N.C., in 1977. "Because I live in New Smyrna Beach and because I thought of it." Client and architect were equally concerned about preserving the site's native growth of scrub oaks, palmetto bushes, and pineforest.

Trees and other foliage were removed only as buildings were going up in their place, says construction manager Dean Sandroni. Snow loads are not a concern, but hurricanes are, so the striking roof forms were studied for potential uplift. Cables help hold them down, as do extra-sturdy fasteners. Thompson and Rose used a sun-angle calculator to measure the precise position of the sun relative to each building. Although air-conditioning is a must in summer, deep southern overhangs and screened sliding-glass doors and windows provide enough cooling for part of the year. The painting studio has operable louvers to induce natural

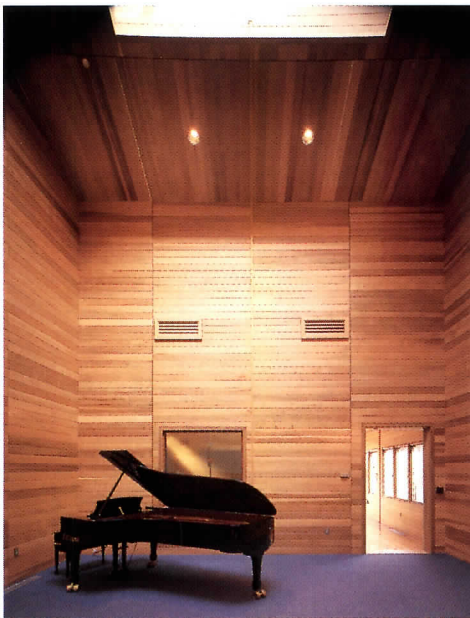


exhaust of paint odors. With torrential downpours common, the architects made the most of what can be a water show: Each roof dis-

charges to one dramatically attenuated lead-coated copper scupper, which pours, waterfall-like, into the dense foliage (above).



The sculpture studio, grounded by a battered concrete wall (foreground of photo left and opposite bottom left), opens to an outdoor work area. The music studio (background of photo left and opposite bottom right) is inward-looking. The boardwalk provides vistas through the buildings and into the dense foliage. The boardwalk also serves as a utility corridor: Wiring and plumbing conduits are hung underneath.



The sliding glass doors of the dance studio open to a semi-private deck (above). The sculpture studio faces north and louvers shade east and west sides (far left). The music room is lined in cedar (near left).







Windows of sand-blasted glass line the upper edges of the dance studio, while dancers' feet can be seen from the outside through clear bands of glass (left and below). "The dancer, moving in the zone between these two [types of] windows, hovers between earth and sky," wrote the architects of their intention. In the painting studio, light is filtered through louvers and skylights (opposite).



"We could take elevation shots" for the architects' portfolio, says Rose. "We have buildings supporting an idea," explains Rose. "But the idea isn't there." The architects are concerned that the second phase will never come, its timing determined by the flow of financing and the contractor's schedule since Epoch Properties, as a donation to the ACA, is doing the job at cost. And so was Fetscher, who later admits: "I was worried we'd build one phase and lose momentum. In fact, the reverse happened."

**MARCH 1996** Six months later, with the expectation of soon receiving a \$250,000 state grant, the second phase of construction begins. These three buildings go up quicker because, says Sandroni, by now he knows what the architects are looking for. Oversized wood doors are covered in lead-coated copper for extra rigidity. They are similar to doors in the first phase that Rose says hadn't met specifications and warped from the extreme heat and humidity. The concrete base of the sculpture studio, intended to be "of the earth" like the discipline itself, is a challenge for the construction crew because of its unusual detailing. A mock-up is done of the intricate formwork, which tapers as it rises, to achieve the battered look desired by the architects. A glass canopy over the dance studio entrance is deleted from the design by Fetscher, who is worried about upkeep. It's replaced with a black-painted steel trellis similar to others in the project. An off-the-shelf spiral staircase rather than a custom stair is the only significant change to the library.

**FEBRUARY 1997** The project is dedicated as part of a celebration of the ACA's 20th anniversary, with artists who have completed residencies paying tribute to the program and the newly named Leeper Studio Complex. Leeper herself calls it "a remarkable job: More than we envisioned when we started." With an endowment of \$2.7 million, Fetscher says her ongoing task of approaching potential donors for the money to cover her annual operating budget of nearly \$1 million is made easier by her new showpiece. "People will invest more easily in our future," she says. "They now know we're serious. We have our history and now we have our buildings." ■

*Manufacturers' Sources*

- Mahogany windows, central-pivot and sliding glass doors:** *Duratherm Window Corp.*
- Sandblasted glass:** *Solar Seal Co.*
- Stainless-steel locksets, hinges:** *Sargent Mfg. Co; Stanley Commercial Hardware*
- Aluminum-finished closers:** *LCN*
- Stainless-steel exit devices:** *Von Duprin (5500 Series)*
- Stainless-steel pulls:** *H.B. Ives*

**Stainless-steel cabinet hardware:**

- Häfele America Co. (Rafix)*
- Birch, maple-veneer plywood:** *Custom by Royal Cabinets, Inc.*
- Interior finishes:** *Southern Paint*
- Resilient flooring:** *Forbo Industries (Marmoleum)*
- Exterior lighting:** *Nightscaping (Duoliter)*
- Interior high-bay lighting:** *General Electric*
- Downlights:** *Lightolier, Inc. (1002PI)*



The seating boxes of the New Amsterdam Theater had to be completely recreated from old photographs. The originals were removed to make room for a wide Cinerama screen.

# A spectacular Broadway revival, the **NEW AMSTERDAM THEATER** glows on 42nd Street once again.



by John Margolies

**The New Amsterdam's greatest years were from 1913 to 1927, when Florenz Ziegfeld ruled the stage. In 1937, the Art Deco marquee was added when the New Amsterdam became a movie house.**

the greatest years of the New Amsterdam didn't begin until 1913, when Florenz Ziegfeld began his long affiliation with the theater by staging his renowned Ziegfeld Follies there until 1927. In 1937 the theater, designed for stage productions, was sold and converted into a movie house. A new and very up-to-date streamlined marquee and entry were added, and further altered in 1947, and the relatively shallow and wide auditorium, well suited to live stage productions, became a not-so-effective place to see movies—later movie houses usually had narrower and deeper auditoriums better suited to the dimensions of film projection. The 12 seating boxes in the auditorium, six on each side, were torn out in 1953 to make way for a wide Cinerama screen. The New Amsterdam then became a second-run movie palace as both it and the Times Square area declined over the next decades. The New Amsterdam closed in 1982, and was then acquired by the Nederlander Organization. It was abandoned altogether when the new owners discovered structural problems in the roof. New York State bought the New Amsterdam from the Nederlanders in 1992 for \$275,000 and invested more than \$1 million to stabilize the structure. When New York City and New York State each provided low-interest loans of \$13 million to the Disney Company, its architecturally enlightened chairman and CEO, Michael Eisner, commissioned New York architect Hugh Hardy to undertake the massive restoration of the theater, which cost some \$36 million.

As a building, the New Amsterdam Theater is a marvel of its time, hailed by one turn-of-the-century source as being “beyond question

**A**s a visitor enters Disneyland in Anaheim, California, the first of the theme areas encountered is a romanticized recreation of Main Street USA. There, lines of slightly underscaled interconnected buildings, including a small theater, celebrate the glory which once was the commercial center of every town, both large and small, across America. Over 40 years later, the Walt Disney Company has come full circle. It became involved with a real “main street” in the center of Manhattan as it leased and then restored the once and once again glorious New Amsterdam Theater on 42nd Street near Times Square, as a venue to present its own spectacular stage productions and movies.

The old theater had fallen on hard times after its auspicious start as a place to stage “spectaculars” from the entertainment circuit run by impresarios Marc Klaw and Abraham Erlanger. Klaw and Erlanger, who usually took over older existing theaters to stage their productions, envisioned the New Amsterdam as the flagship in their chain. They commissioned theater architects Henry B. Herts and Hugh Tallant to undertake the project, and allowed a liberal budget for creation of a grand theater. The 1750-seat New Amsterdam opened on October 26, 1903, with a production of *A Midsummer Night's Dream*. It cost \$1.5 million, double or possibly triple the budget of typical facilities built at that time.

During its first 10 years, the New Amsterdam presented a wide variety of entertainment: operettas by Victor Herbert and Franz Lehár; more Shakespeare; George M. Cohan's *Forty-five Minutes from Broadway*; and kiddie fare, including “Mother Goose” and “Humpty Dumpty.” But

*John Margolies is a nationally renowned photographer, chronicler, and lecturer on American popular culture and design. He is the author of Home Away From Home, Ticket to Paradise, and Pump and Circumstance.*

**Project:** *New Amsterdam Theater*  
New York City

**Client:** *Walt Disney Theatrical*

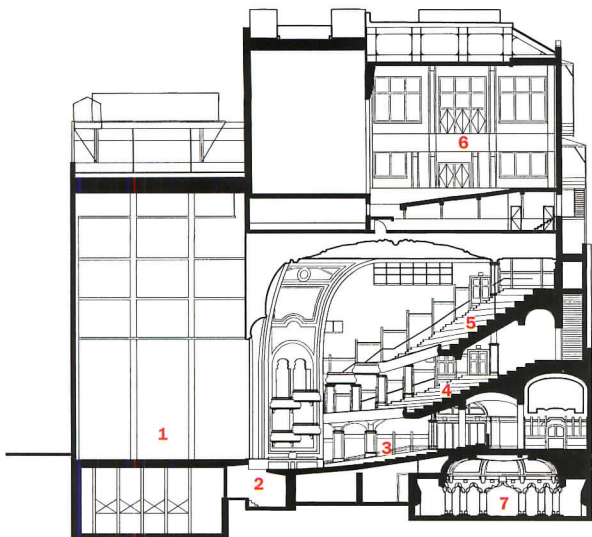
**Architect:** *Hardy Holzman Pfeiffer Associates—Hugh Hardy, FAIA, partner-in-charge; Stewart Jones, AIA, project director; Maya Shali, project architect; John Mueller, construction architect; Kristina Walker, interiors*

**Consultants:** *DeSimone Chaplin and*

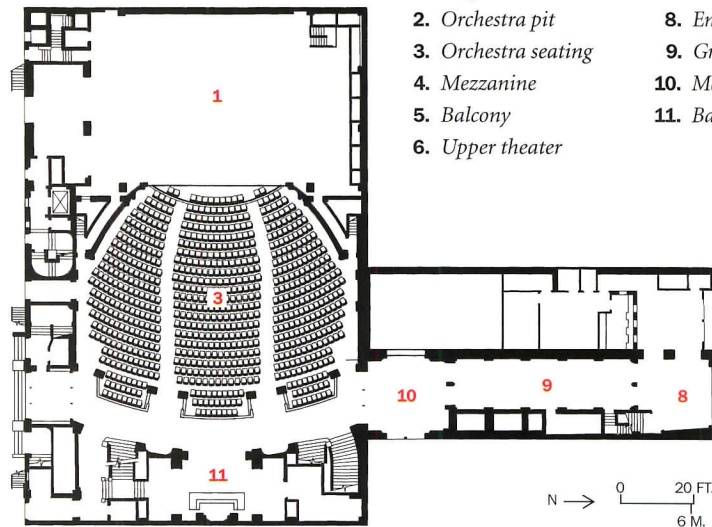
*Dobryn (structural); Edwards and Zuck (MEP); Theater Projects Consultants (theater); Jaffe Holden Scarbrough Acoustics (acoustic); Fisher Marantz Renfro Stone (lighting); Building Conservation Associates (historic restoration consultant); Jerome S. Gillman Consulting Architect (code)*

**Construction Manager/General**

**Contractor:** *Tishman Construction*



SECTION THROUGH AUDITORIUM

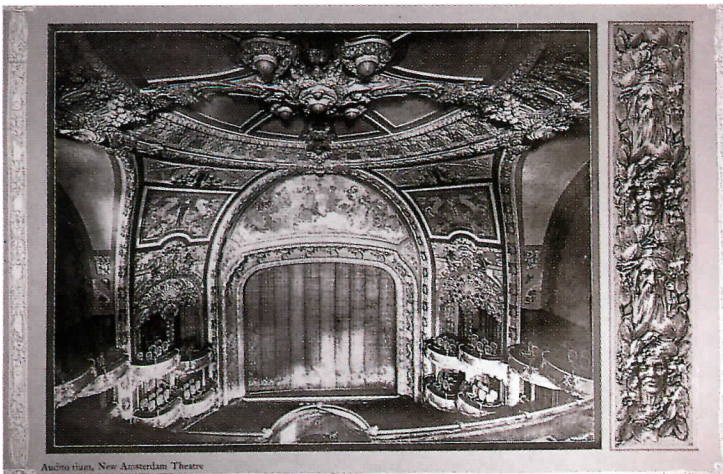


ORCHESTRA LEVEL PLAN

- 1. Stage
- 2. Orchestra pit
- 3. Orchestra seating
- 4. Mezzanine
- 5. Balcony
- 6. Upper theater
- 7. New Amsterdam room
- 8. Entry foyer
- 9. Grand promenade
- 10. Main foyer
- 11. Bar

N → 0 20 FT.  
6 M.





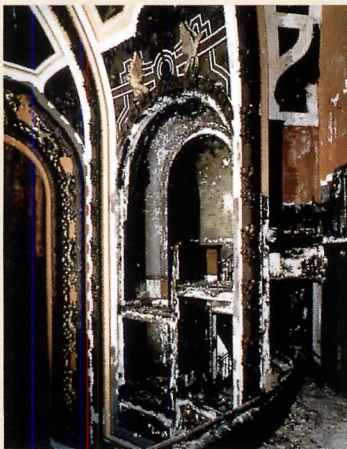
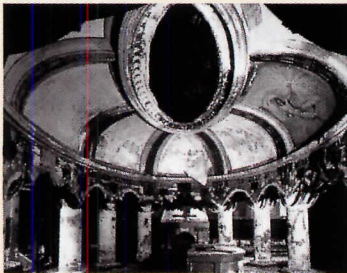
Architectural Record, New Amsterdam Theatre

The Grand Promenade leads from the entry foyer to the main foyer (opposite). Panels adorned with scenes from Shakespeare and Wagner in bas relief are located above the wainscoting. Lighting

pendants were recreated for the space. Period postcards, such as the one at left that dates to 1908, were invaluable in showing how the theater and its extensive decoration originally looked.

## The Decline and Revitalization of a Great Urban Theater

In 1937 the New Amsterdam was converted ad hoc into a movie house, complete with an Art Deco marquee, and later became a second-run movie house as both it and the Times Square area declined over the next decades. The seating boxes had been ripped out in 1953 to make way for a wide Cinerama screen. It became *the* place to see double features, a dubious distinction that at least allowed the theater to survive. In 1982, the theater finally closed. Later the Nederlander Organization acquired



the theater intending to use it for stage productions, but abandoned it when structural problems were discovered in the roof. For five years it sat with the roof partially opened to the sky, and to corrosive decay and water damage.

Before anything else, the theater had to be stabilized by repairing the roof and installing temporary heating to help dry out the plaster and woodwork, and the dilapidated structure was repaired.

Instead of restoring and recreating the theater to its original 1903 spic-and-span splendor, architect Hugh Hardy decided to undertake an “interpretive” restoration. “I didn’t

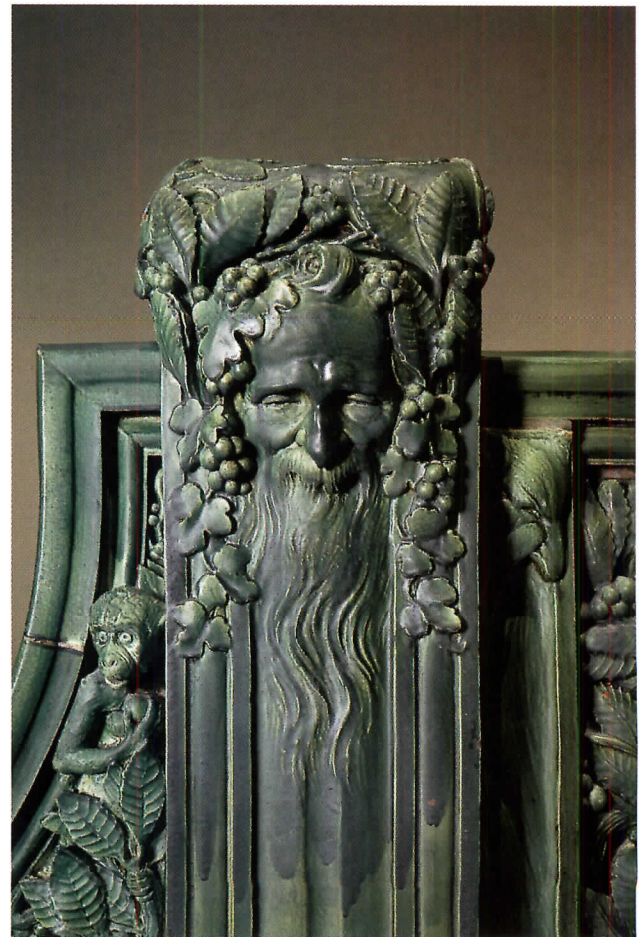
want to rob the theater of its own history,” he explains. “The rule that guided us was to make a seamless whole, which acknowledged the passage of time.” So, for example, the facade with its Art Deco marquee was retained instead of recreating the original from 1903. The extravagance of the decorations on the interior—original decorative murals and interpretations of missing murals; terra-cotta balustrades



(below right); decorative panels (top right), and bas reliefs—were rendered in more subdued tones (see “Progress” mural and stained glass “skylight,” opposite) befitting the passage of time.

Some of these decorative elements were in relatively good condition, however, compared to the spaces like the Lounging Room, (top left), and the auditorium (below left and above). In addition to recreating long lost murals and woodwork, the 12 seating boxes, each named for a flower, were rebuilt based on historical evidence. One original lighting fixture—a “Dream Maiden” (above right)—mysteriously stashed in a crawl space 35 ft above the stage and serendipitously discovered—was reproduced to decoratively light the orchestra level. Carpeting, seat coverings, and stage curtains are modern interpretations of what might have been.

The original color scheme was even brighter than the restoration, partially because the original lighting in 1903 used direct-current, and was much dimmer, therefore bright colors were needed to offset the lack of house illumination. The new and much brighter house lighting prompted Hardy to keep the newly interpreted colors mellow and resonant so that a balance similar to the overall effect of the original would be achieved.





The “Progress” mural was restored to muted tones, rather than its bright original colors. The “skylight” had been painted over and also was restored.

the theater was housed in a wider and deeper structure built on the less expensive land along 41st Street. This larger structure contained the oval-shaped main auditorium, framed by seven arches, that seated a total of 1,750 people in the orchestra, 12 seating boxes, a cantilevered mezzanine, and a second balcony hung from the roof trusses. The seating capacity was increased to 1,840 in the restoration. A second smaller rooftop theater is no longer in use.

The auditorium itself is a mind-boggling extravaganza of splendor, which Hardy describes as an “enchanted forest” with nearly an infinite amount of decoration. It is said to have been one of the first uses of the Art Nouveau style in the United States, but although there are many curvilinear Art Nouveau flourishes, the sum of the decorative treat-

the most gorgeous playhouse in New York. Architecturally it is near perfection.” It is a rather complex building, or pair of buildings actually. A narrow 11-story structure extends out to the facade front located along the expensive real estate of 42nd Street, and contains an entrance vestibule at ground level and office space above. Most of the scope and grandeur of

ment is an encyclopedia of eclectic styles. Sophisticated theatergoers might be overwhelmed by the “more is more” philosophy which enhanced this “palace for the people.” The swanky sumptuousness was intended to impress, to instill awe, and to create a fantasy world, an overture to the dramatic presentations that were but a short inductive leap from the physical atmosphere of the house. The theater was structurally innovative as well. It used skeleton-steel construction throughout instead of masonry, and this provided a maximum amount of interior space. A cantilevered balcony—another innovation in the theater’s design—allowed unobstructed views of the stage from nearly every seat in this house. The interior color scheme, rather than the usual red and gold used in most theaters of its time, was and is what Hardy calls a “pastel effect” achieved with tones of mother-of-pearl, violet, green, pink, and ochre. Commenting upon the color scheme in *The New York Times* in 1903, Charles DeKay waxed poetic about it having “a subdued, yet gay effect like a meadow in Springtime sowed with daisies, violets, and flowers of slightly stronger hues.”

In the middle decades of the 20th century, there was also a taste prejudice against such buildings. The theaters, built both before and at the same time as the structures of the stripped-down Modern movement in

## REBORN GEMS ACROSS THE U.S. ALSO HELP REBUILD DOWNTOWNS

The renovation and reuse of the New Amsterdam Theater is just one of the latest examples of an old theater being saved in the U.S. Earlier this year, Peery's Egyptian Theater in Ogden, Utah, had a grand reopening after years of fund-raising through a broad-based community effort. In the past quarter century, nearly 200 old movie theaters have been restored. The benefits from saving old theaters are greater than just adding a theatrical auditorium to the community. They also serve as an impetus for the resurgence of downtown areas.

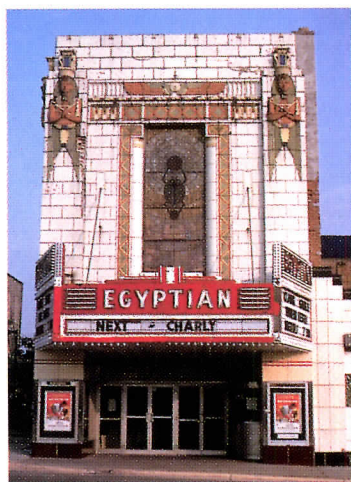
These quaint and sometimes garish buildings became an endangered species, and as the commercial cores of cities began to stagnate, they were abandoned. Theaters themselves were even more vulnerable than many of the other downtown buildings because their very reason for being came into question. Some remained pretty much as they were, and became halls for religious worship. Other reuses, such as antique malls, bowling alleys, and supermarkets, left the exterior shells intact, but resulted in the destruction of the interior spaces.

Downtown movie theaters were supplanted by the faceless suburban multiplexes, the advent of the VCR for home movie viewing, and finally the nationwide spread of cable television systems that allows viewers to order up any movie by telephone. None of this bodes well



for the old movie theaters. The carnage of the euphemistically named "urban renewal" targeted many of the old commercial streets where the theaters were located.

Finally, after so many of these great "palaces of the people" had succumbed to the wrecking ball, interested groups began to come together to rescue the finest remaining examples, not only because the buildings are important architecturally, but also because they are artifacts of a time not long ago when American culture was very different. And there is the realization that entertainment events at



**The Strand, Shreveport (left), sports a Baroque dome and fanciful neon marquee. The Al Ringling, Baraboo, Wis. (above) has a terra-cotta facade.**



**The Dakota, Yankton, S.D. (above), has an Art Deco facade added in 1941. The Egyptian, De Kalb, Ill. (left), features likenesses of Pharaoh Ramses II.**

these theaters can help give people reasons to go downtown instead of to the cineplex.

The St. Louis Theater, now called Powell Hall, was one of the earliest to be restored, and now houses the St. Louis Symphony Orchestra. Other early successes include the Fox in Atlanta, the Kimo in Albuquerque, and the Warner in Erie, Pa. The restoration of the Capital Theater in Yakima, Wash., became a process of authentic reproduction when the theater burned down as it was being restored.

In fact, there is now a national movement in the U.S. to save and restore at least some of the survivors. Two organizations founded in the past 30 years are dedicated to providing information and expertise to people in communities interested in saving their old theaters: the Theater Historical Society of America in Elmhurst, Ill., and the League of Historic American Theaters based in Baltimore. These organizations provide historical research and access to organizational and technical expertise to help communities set about creating their own landmarks.

The theaters shown here are just a few of the rescued survivors. They have become the pride of their

communities, and show that even smaller communities can restore their theaters.

Shreveport's Strand (bottom left) was designed by Emile Weil and opened in 1925. Its facade is now dominated by neon and an elaborate Baroque dome. After a long renovation process, it reopened in 1984 as a performing arts center.

The Egyptian (top center), in De Kalb, Ill., was built by architect Elmer F. Behrens. It features twin depictions of Pharaoh Ramses II on its glazed terra-cotta facade and a scarab stained-glass window. The 1,500-seat theater opened in 1929, and movies were shown there until the 1970's, when it was remodeled into a performing arts center.

The Al Ringling Theater, in Baraboo, Wis., was designed by Rapp and Rapp and built by the oldest of the Ringling Brothers of circus fame as a gift to the citizens of Baraboo. The 800-seat theater is considered to be the first real movie palace, and has been in continuous operation for movies and live events since 1915.

The Dakota (top right), in Yankton, S.D., was built as an opera house around 1900 by D. W. Rodgers, and was given an Art Deco facade of ceramic tile in 1941 in its glory days as a movie theater. It has been bought by community volunteers and is being restored as a performing arts center.

Now residents of these towns have a splendid reason to come back downtown and once again experience the urbanity and excitement that Main Street still offers.





**The New Amsterdam Room, in the basement below the theater, was originally the “Lounging Room.”**

so-called “design.” The New Amsterdam was praised from the beginning for having “developed an increasing tendency to meet this happy evolution of the general taste.” The theater is impressive, it was said in 1908, because “mere gorgeousness in itself brings neither pleasure nor satisfaction to the cultured mind, but here we have the restfulness of change in the harmonious combination of color, form, and general design, in which flowers, fruits, and animal types have been skillfully combined, that does not meet the eye in the everyday walks of life and which the true artist in decoration learns to turn to account.” Whether one agrees with this rose-colored commentary or not, eye-catching decor and exotic names were nearly always a part of the theater’s function. Entrepreneurs needed to attract customers willing to pay for “entertainment” as well as for the “real” necessities of life.

architecture, became a source of ridicule for those who thought they knew what “good taste” was all about. Taste for *whom* was always an issue in the design of such buildings. Theaters were designed not for the cultural elite, but for everyday people unaware of the finer points of

The New Amsterdam renovation is as important to the New York City of today as the original was. For years, city, state, and community groups marshaled their resources to use new development to provide funds to renovate the old theater row along 42nd Street. Areas such as this are essential in providing vitality to an urban environment. The success of New Amsterdam bodes well not only for New York, but as an object lesson for cities across the country trying to revive their own downtowns. ■

*Manufacturers’ Sources*

**Roofing:** Siplast, Inc.

**Windows:** Pella Windows

**Leather-clad metal doors:** Acme Door Co.

**Security grilles:** McKeon Rolling Steel Door

**Door hardware:** Atlantic Hardware Co.

**Paints and stains:** Benjamin Moore

**Seating:** Country Roads

**Upholstery:** Maharam

**Elevator:** Armor Kone Elevator Co.

**Carpet:** Bloomsburg

**Lighting fixtures:** Baldinger; ET Controls; C.W. Cole; Nulux, Times Square

**Custom millwork, paneling:** Midhattan Woodworking

**Plasterwork:** Donaldson Acoustics; The Balmer Studios, Inc.

**Painting:** Evergreene Studios

**Exterior restoration:** M & G Waterproofing



Smith-Miller and Hawkinson's amphitheater roof has already withstood Hurricane Fran. Seating for movies is informal: on the grass or atop the raised, sloped letter "I," which is imprinted with the North Carolina state motto, "To be rather than to seem."

# A multidisciplinary team comes together at the **NORTH CAROLINA MUSEUM OF ART** to create a picture-perfect combination of art and architecture.



The state-sponsored museum is on a sprawling 167-acre parcel of donated land in suburban Raleigh next to a juvenile correctional center and a veterinary training facility. The outdoor amphitheater and cinema is southwest of the museum entrance.

Picture this: The North Carolina Museum of Art (NCMA), an agency of the North Carolina Department of Cultural Resources and the first state-sponsored museum in America, solicits entries for a competition for a new master plan for its 167-acre site. Teams of architects and artists from around the world compete to present their ideas to the museum's selection committee, and the ultimate winner of the competition, sponsored by a \$250,000 grant from the National Endowment for the Arts (NEA), is the team of architects Henry Smith-Miller and Laurie Hawkinson, artist Barbara Kruger, and landscape architect Nicholas Quennell, with a proposal they call "Imperfect Utopia," or more informally "an anti-master plan." They propose that the landscape, unlike the fortress-looking museum with its impressive collection of Renaissance and Baroque paintings, be unstructured, relaxed, interactive, and completely indigenous. Sound like an unlikely confluence of public funding and visionary thinking? Not when this project began, some 11 years ago, when the NEA was more generous.

While the master plan remains to be fully realized, a three-acre excerpt containing an amphitheater and outdoor cinema just celebrated its public opening, complete with singing, dancing, and some 6,000 revelers. Calling this first phase "The Textualized Landscape," Smith-Miller, Hawkinson, Kruger, and Quennell have spread the phrase "Picture This" rendered in three dimensions across the site, each individual letter made up of intermingling layers of landscape, architecture, and art.

That the different artistic disciplines play off each other is clear. So did the roles of the team members throughout the years-long process.

by Karen Stein

"It's uncategorical," says Kruger of the perceived stereotypical roles each team member played. "It's not as if Laurie [Hawkinson] and Henry [Smith-Miller] had the T square, I had the beret, and Nicholas [Quennell] had the shovel. It didn't work out that way." Ideas were shared and then developed individually. Each participant's own design process benefited the group. On team visits to Raleigh, for example, Kruger, who is known for overlaying words and images in provocative combinations, combed used-book stores to pore over such things as eighth-grade histories, remembers Frank Harmon, the amphitheater's associate architect. The other team members were inspired by the way she, as Harmon puts it,



**Project:** Amphitheater and Outdoor Cinema, North Carolina Museum of Art, Raleigh, North Carolina

**Architect:** Smith-Miller + Hawkinson Architects—Laurie Hawkinson and Henry Smith-Miller, principals-in-charge; John Conaty, project architect; Annette Fierro, Ingalill Wahroos, Elizabeth Alford, Brian Oster, Bennett Dunkley, Virginia Navid, Michael Hirsch, Greg Du Pasquier, project team

**Landscape Architect:** Quennell Rothschild and Associates—Nicholas Quennell, principal-in-charge; Mauricio Villarreal, Andy Moore, project team

**Artist:** Barbara Kruger

**Associate Architect:** Frank Harmon Architect

**Engineers:** Ove Arup & Partners/New York City (structural); Adcock Engineering (mechanical, electrical, plumbing); Dennis K. Hoyle and Associates (civil)

**Consultants:** Dan Gottlieb (museum project director); Claude Engle and Associates (lighting); Jaffe Holden Scarbrough Acoustics (acoustic); Judy Harmon (horticultural); SE Systems (sound); Barbizon Systems (theatrical);

**General Contractor:** Clancy & Theys Construction

“bores into history,” and joined in. The written words were a point of contact for the multidisciplinary team, observes Hawkinson, because “the text served as a way we could all integrate what we did.” Harmon, a former colleague of Smith-Miller at Richard Meier’s New York City office who now has a practice in his native Raleigh, is convinced it was this type of research and discussion that got the team the master plan job in the first place. “A group of mostly outsiders [Smith-Miller, Hawkinson, and Quennell are based in Manhattan, Kruger in Los Angeles], came here and helped show the committee that ‘North Carolina has a rich history.’”

The programmed uses for this parcel, a combination of outdoor concerts and performances and a movie series, provided the most tangible way of getting started on the master plan, reports Dan Gottlieb, the project director for the museum. Gottlieb says the entire project was in jeopardy just as the team completed a 19-month design process in 1989, when the state announced that it would do its own plan for the region. By focusing on what he calls “a spot on the map of the master plan,” the museum was able to carve out new venues for its curators and bring new attention to NCMA by doing its first site-specific work of art, all without doing something at odds with the state, its major benefactor.

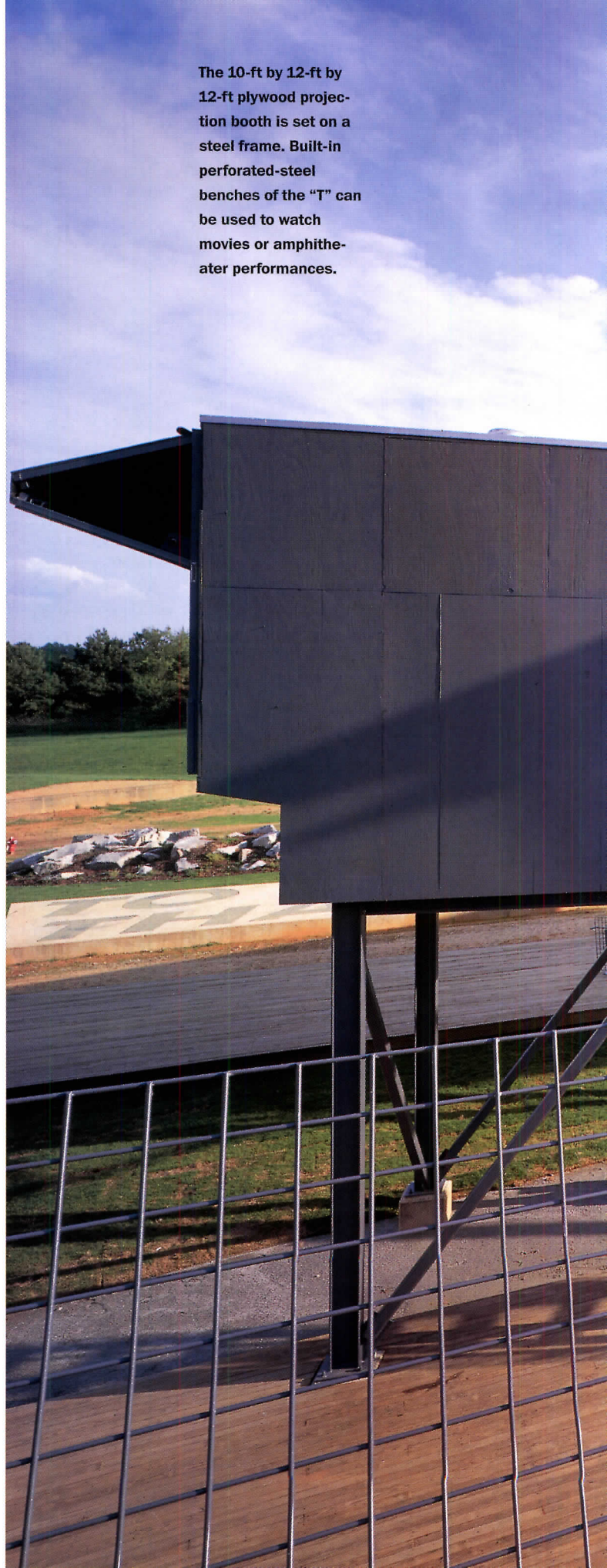
These benefits were not lost on Larry Wheeler, who became director of NCMA in October, 1994, just as construction bids for the amphitheater started coming in. Though Wheeler certainly had the prerogative to cancel a project conceived during the tenure of his predecessor, he considered the project’s approach “right on.” He admits that he had his reservations about proceeding with the amphitheater, but only because he had plans of his own: to expand the museum. Once he determined that the proposed location of the amphitheater to the south of the building did not interfere with the logical extension of galleries to the east or west, Wheeler was eager to begin construction, having recognized that the languishing of the master plan had its effects on staff moral and the museum’s public persona. Says Wheeler of his decision to give the go-ahead, even with construction estimated at slightly more than an initial \$1.5 million budget: “It was important for the momentum of the museum to have some dirt flying around here.”

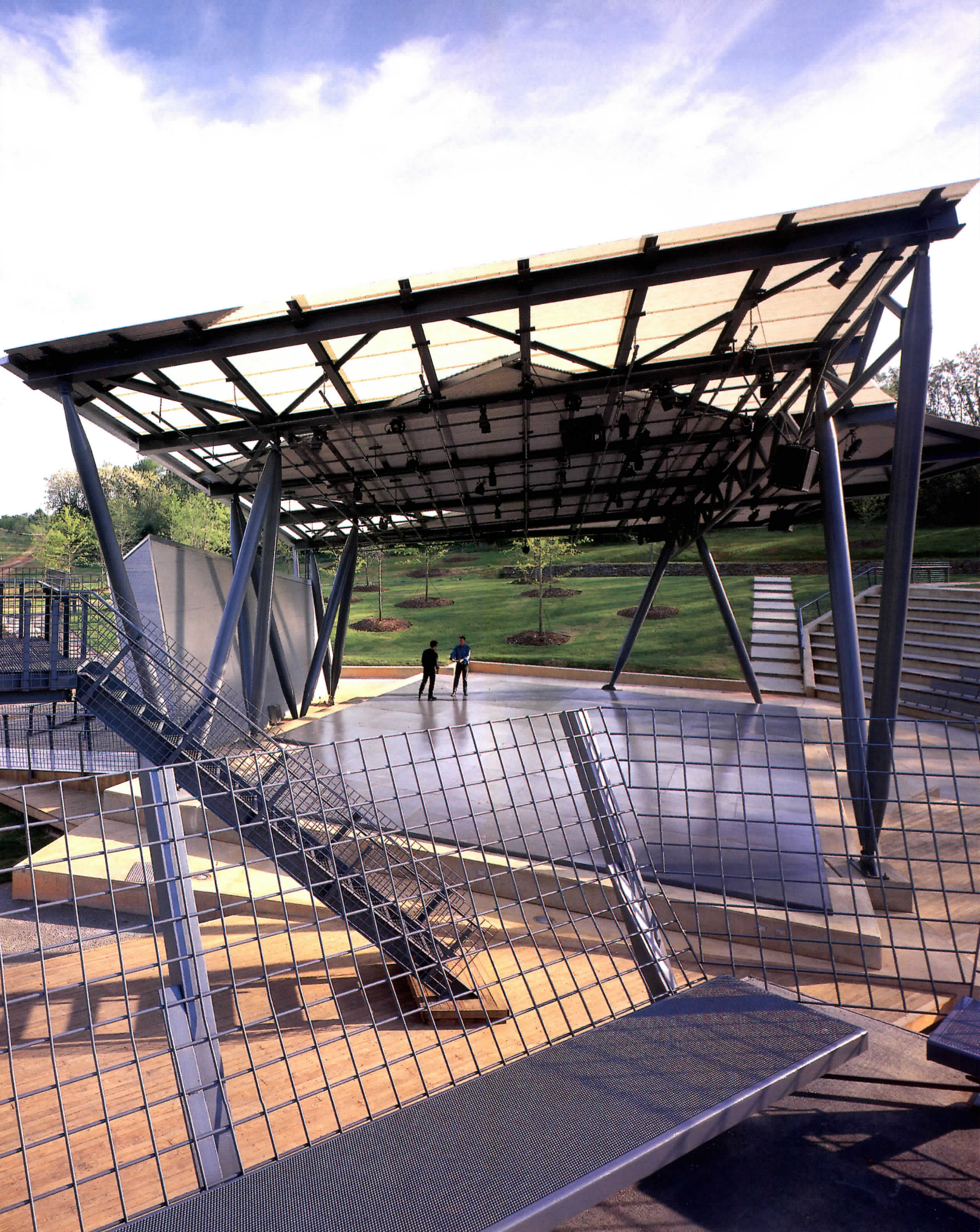
And that’s exactly what happened, though at times the dirt started flying in unexpected ways, since construction occurred during what many locals say was the wettest winter they could remember. “It’s a giant site work and the site kept falling down,” recalls Gottlieb of the attempt to stabilize the ruddy clay soil and heighten the existing contours of the site’s natural bowl. The project’s biggest setback came on the eve of its public dedication and in an unexpected form: Hurricane Fran, which swept through Raleigh on September 6, 1996, knocking down fieldstone walls and eroding the site in \$150,000 of damage, Gottlieb estimates.

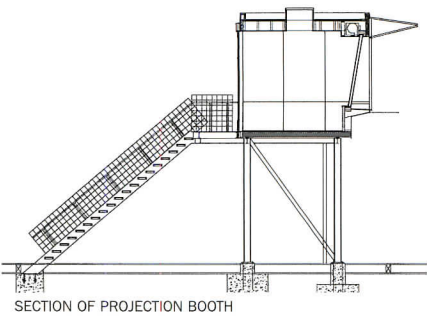
The initial master plan proposal had focused on the need to reforest what landscape architect Quennell terms a “denuded site,” and the attempt at some type of healing seems to reverberate through all aspects of the amphitheater scheme from earth to art. Smith-Miller and Hawkinson were faced with the daunting form of NCMA itself, a 1960’s structure by Edward Durell Stone so compromised in its realization that it now stands as a massive, almost undifferentiated stone mass, which the team nicknamed “the big boulder.” The architects joke that the group’s first idea was to cover the building in ivy. Smith-Miller explains: “The movie screen [imbedded into a museum wall] is a parasitic device.”

Although it does not cloak the building, the screen, like the amphitheater complex, is meant as a contrast in exhibition form as well as content. Kruger’s carefully selected phrases and quotable quotations, whether inscribed on the concrete wall that forms the vertical line of the letter “P” or etched in aluminum on plaques that dot the *(text continues)*

The 10-ft by 12-ft by 12-ft plywood projection booth is set on a steel frame. Built-in perforated-steel benches of the “T” can be used to watch movies or amphitheater performances.

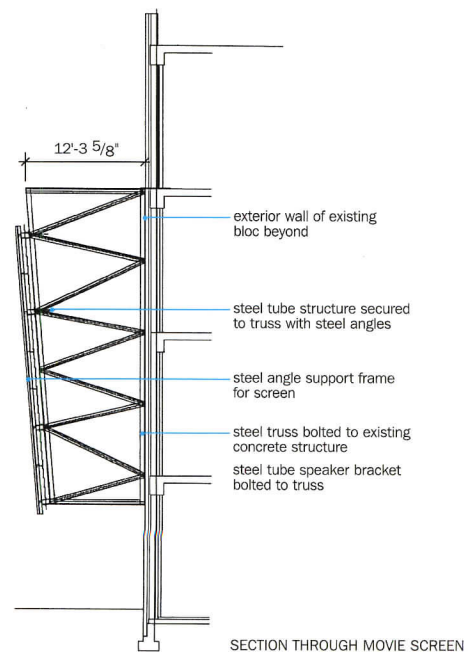






A late addition to the design, the sound and lighting equipment pavilion behind the stage, is a wood structure clad mostly in steel siding (above).

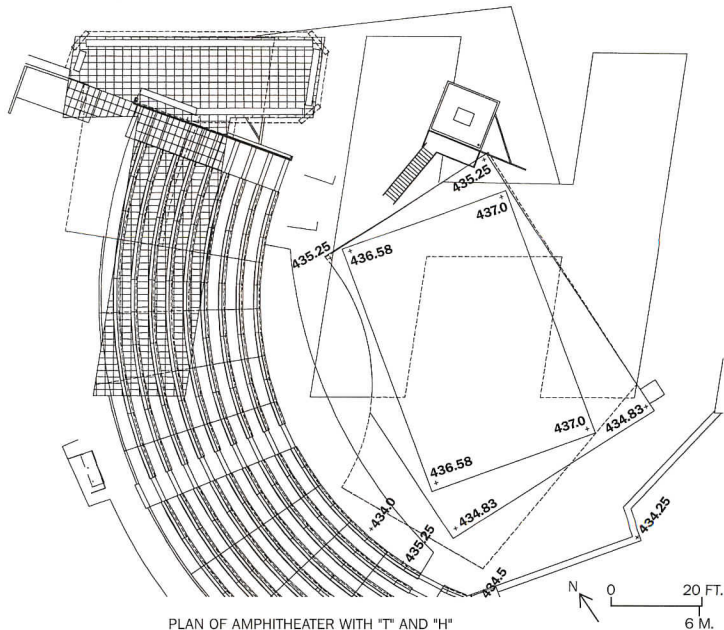
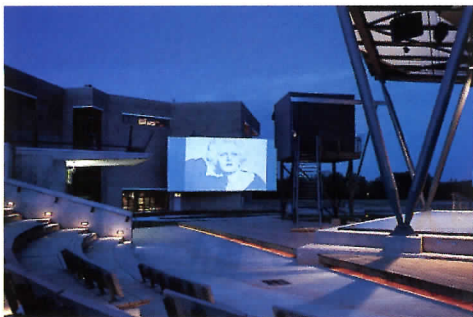
The amphitheater roof is corrugated fiberglass and aluminum on a steel frame supported by splayed steel columns (above, below, and opposite).





The movie screen is particle board on a steel frame, which is embedded into a museum wall. The location provides acoustic privacy from suburban

neighborhoods to the north. The "T" and "H" of "this" in the phrase "Picture This" are set into the slope of the amphitheater and its roof (right).



PLAN OF AMPHITHEATER WITH "T" AND "H"

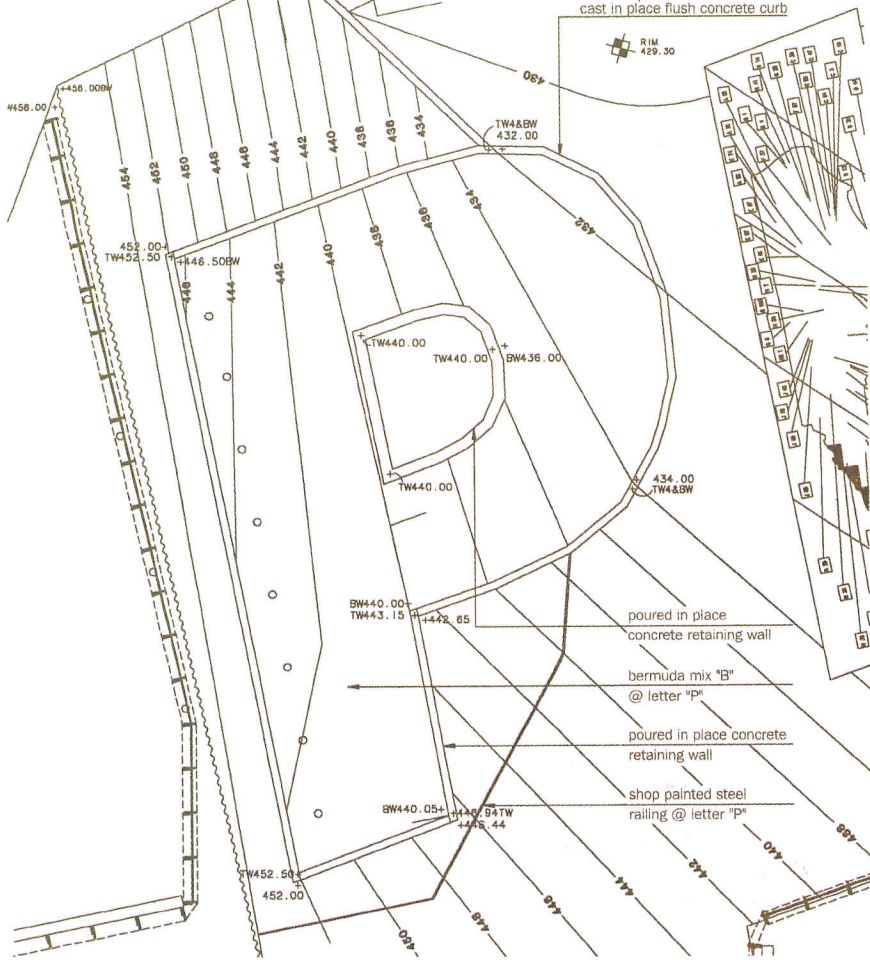






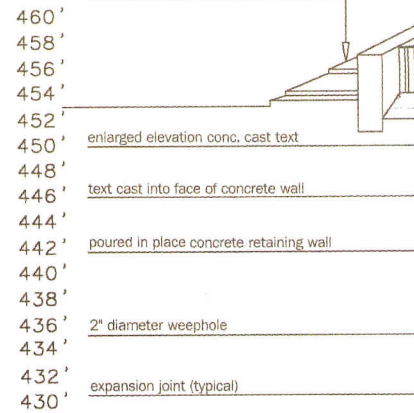
cast in place flush concrete curb

The "P" is an 83-ft-long, 1-ft-thick cast-in-place concrete retaining wall that rises to a maximum height of 12 ft. It is inscribed with such phrases as "Please read the writing on the wall," "Please please me," and "Please let empathy change the world." The letters had to be set backwards into the formwork, which could only be done once, so museum curators and bystanders joined the construction crew in a spell-check.



dry stone retaining wall @ ramp

stepped ramp



- 460'
- 458'
- 456'
- 454'
- 452'
- 450'
- 448'
- 446'
- 444'
- 442'
- 440'
- 438'
- 436'
- 434'
- 432'
- 430'

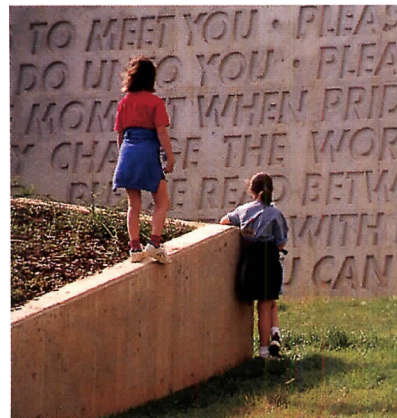
enlarged elevation conc. cast text

text cast into face of concrete wall

poured in place concrete retaining wall

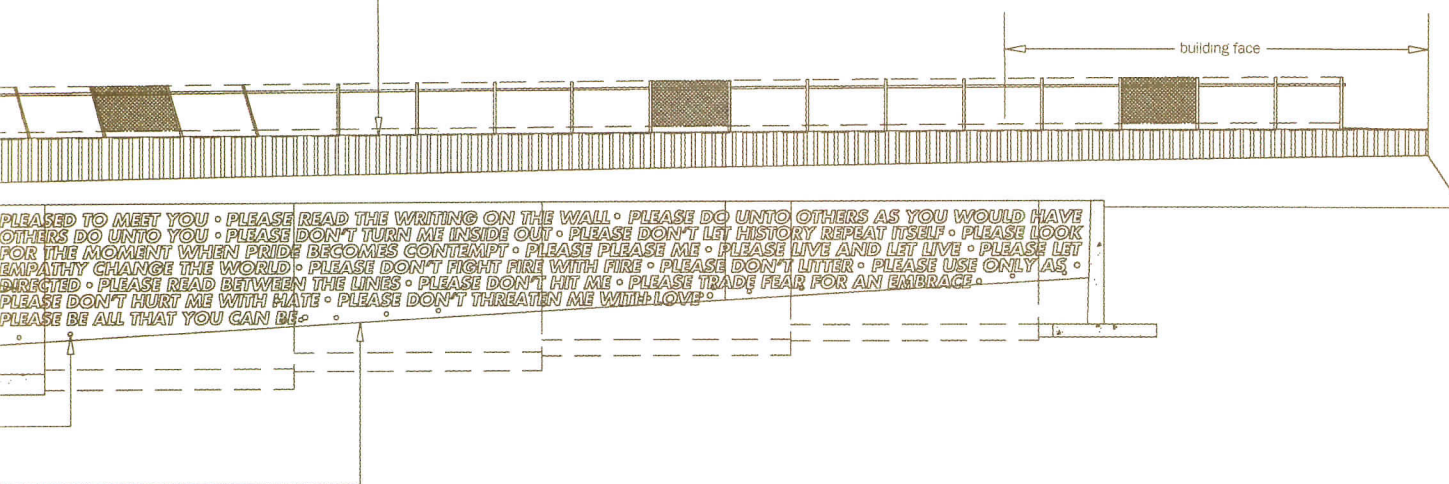
2" diameter weephole

expansion joint (typical)



The "P" wall (top), a surprising Malcolm X quote on the "E" (middle), and a kid hops from plaque to plaque on "I" (bottom).





The "I" in "picture" is dotted with historical plaques, facsimiles of markers throughout the state (far right and opposite bottom and left). The sandy "C" is a play area for children and soft movie-watching seating. The asphalt "T" is a parking lane for equipment trucks.



concrete block walls of the letter "E," deal with some of North Carolina's most historically sensitive issues—tobacco, slavery, self-expression—all this in Senator Jesse Helms's home district. One plaque, attributed to Ralph Waldo Emerson, reads, "The believing we do something when we do nothing is the first illusion of tobacco." No attempt was made to "soften" such statements in a state where tobacco is still a principal industry—a pleasant surprise to Kruger, who has faced opposition in other public projects. Wheeler says that the text was executed in its unexpurgated form because of the balanced presentation of issues throughout the project, observing, "In virtually every case, there are two points of view."

Two points of view also characterize the centerpiece of the Smith-Miller and Hawkinson design, the amphitheater and outdoor cinema. The different site-line requirements of a movie theater and a dance/musical performance space made the architects' initial idea of a single, multipurpose performance space impossible on closer examination. The two separate areas—one with a covered stage and built-in seating, and one with a lawn for more casual gatherings—create an overlay of geometries that pivot at the lifeguard-tower-like projection booth. While the contours of the site were gently modified so that the path that

circles the amphitheater meets handicap requirements, the booth posed an access problem. The Governor of North Carolina requested an exemption, which was approved. Perhaps the most poetic convergence of art, architecture, landscape, and pragmatics is the letter "I" in "this." It is a 21 1/2-ft-wide, 83-ft-long, 18-in.-high integrally colored concrete rendering of the state motto of North Carolina, "To be rather than to seem," and the handicap ramp runs through it. Jumping from one side of the motto to the other, children have integrated the ramp into a made-up game the designers didn't anticipate. As this team would say, and does so eloquently somewhere in the "P" wall, "Please read between the lines." ■

*Manufacturers' Sources*

**Amphitheater structure:**

*North State Steel*

**Corrugated fiberglass and**

**aluminum roof:** *Resolite, Div. United Dominion Co.*

**Theatrical lighting:**

*Bitting Electric*

**Sloped, sliding projection**

**booth window:** *Häfele America Co.*

**Upward-acting bi-fold projection**

**booth door:** *Schweiss*

**Galvanized corrugated steel**

**cladding:** *Copper Sales, Inc. (Una-clad)*

**Integral colored concrete:** *Davis*

*Colors*

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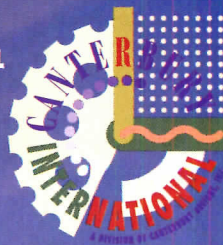
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## OFFICE BUILDINGS

## The New Generation

DEVELOPERS MAY BUILD OFF-THE-SHELF “PRODUCT,” BUT OWNERS AND TENANTS INCREASINGLY SEEK HEALTHIER AND MORE STIMULATING ENVIRONMENTS.

by James S. Russell, AIA



1

**Seattle, Washington**

*A 40,000-sq-ft office and bank branch building shows that an energy-conserving agenda can be consistent with an urbane expression and a high-quality workplace.*



2

**Essen, Germany**

*A 30-story tower is among the most ambitious recent attempts to minimize energy consumption while giving workers a high level of individual environmental control over their workspace.*



3

**Toledo, Ohio**

*A low-rise corporate headquarters at the edge of downtown responds to a corporation's restructured, more fluid working methods while offering garden, downtown, and river views.*

**T**he long drought in office building is over. But as Peter Slatin reports elsewhere in this issue, the consensus among real-estate analysts is that the new growth in office buildings will come from, as the *Wall Street Journal* reports, “a crop of boxy, non-descript buildings that are throwbacks to designs typical of the 1970’s and early 1980’s.”

While such cookie-cutter “product” might suit businesses where least-cost-per-employee is the primary consideration, the way business is done has changed a great deal during the office downturn (indeed, has contributed to it), and many companies seek a better-fitting facility.

In this issue we offer a sampler of office buildings that address business’ new realities. Many remain within the cost envelope dictated by speculative norms. Techniques pioneered in high-end corporate facilities, such as RWE, in Essen, Germany (page 144), are being widely adopted more quickly than could be anticipated less than two years ago when the building’s cutting-edge innovations were first published [RECORD, October 1995, pages 72–73]. Indeed, interest in facilities that support restructured work has escalated rapidly, evidenced in the huge response to the *Business Week/Architectural Record* awards for designs that help businesses achieve bottom-line objectives. Companies have reduced layers of management and want managers to stay closer to the communication loop, for example, so corner offices—even private offices—are eliminated. (At the NW credit union, page 140, open-office areas share daylight and views; private offices are on the interior.) While many businesses outsource more tasks, Swiss Bank is bringing its traders together—all on one vast 50,000-sq-ft daylighted floor (page 138). Workers with white and blue collars may even share the same space [RECORD, December 1996, pages 23–49]. Owens Corning (page 152), like many other companies, recognizes that interaction takes place in both formal and informal meeting places, and have given such areas architectural focus.

Above all, companies need flexibility. The time it takes most companies to move office walls is the time in which SEI (page 139) can assemble a team, get a task done, and disband. It regards this speed as a key competitive advantage. Accommodating fast-changing technology also remains important, and, as Stewart Brand has noted in *How Buildings Learn*, the daylighted, high-ceilinged, rectangular loft building—with its long history—may be as flexible a paradigm as any. Witness Pennsylvania’s SEI, the long, narrow profile of which differs little from the mill buildings found for more than 200 years in the same area. ■

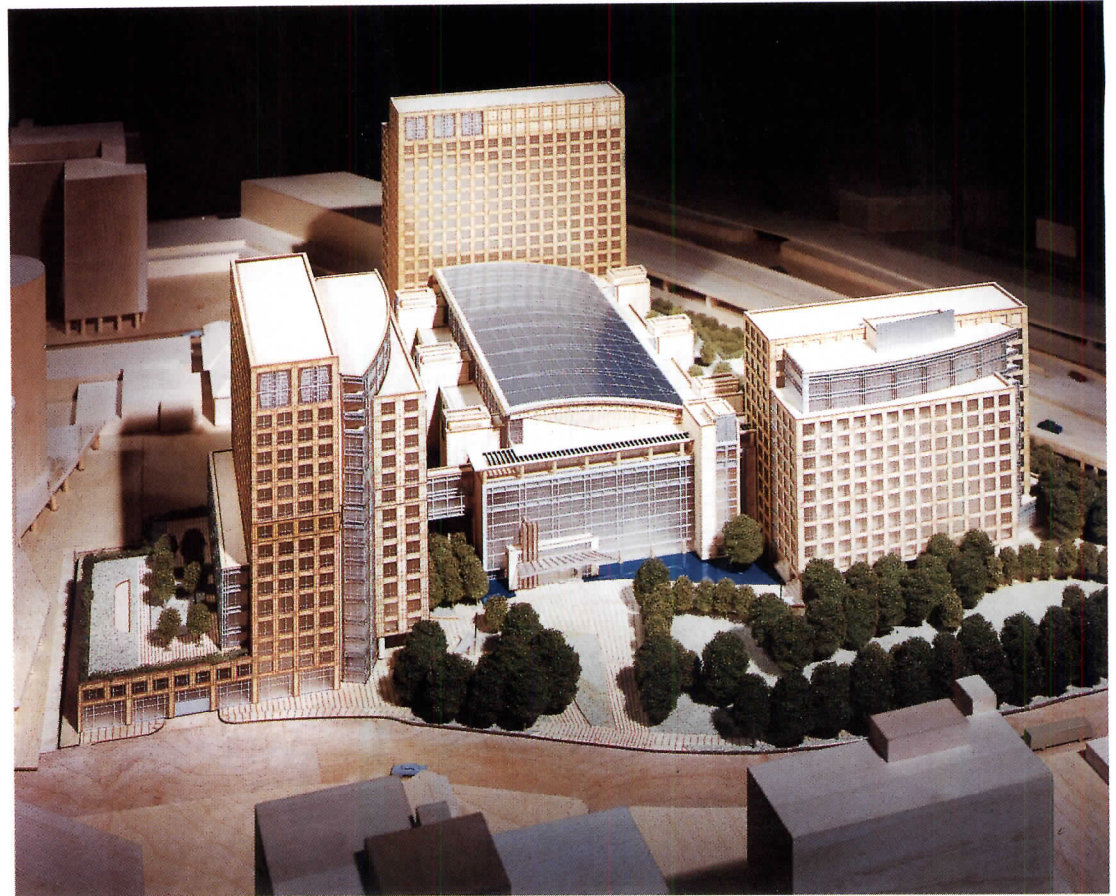
**Project:** *Swiss Bank*  
*Stamford, Connecticut*

**Architect:** *Skidmore, Owings & Merrill*

In theory, banks shouldn't need trading floors anymore. Financial-trading data and news, instantly updated, is available even to individual investors sitting by their modem-connected laptops.

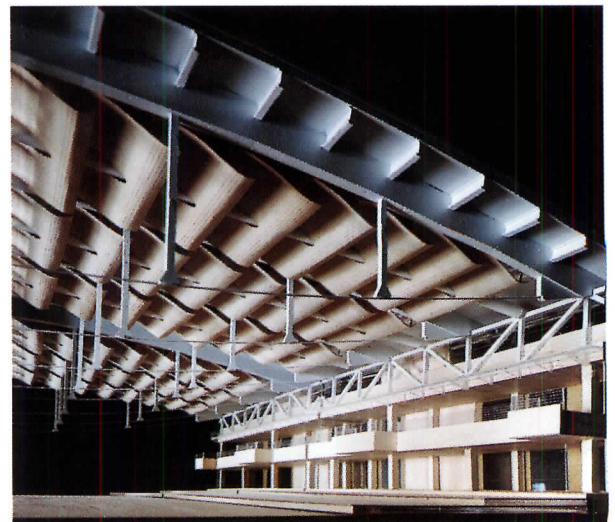
Though many financial businesses are scattering facilities, Swiss Bank is bucking the trend. Not only has it concluded that it is important to keep traders together in a single room (where even tiny movements in far-flung world markets can be tracked and reacted to), it is making one of the biggest trading floors ever—50,000 sq ft—under construction in a new campus in Stamford, Conn. (right).

Swiss Bank's is, however, a very high-tech trading floor, where each of 600 workstations (below) is equipped with air handling to remove the huge amounts of heat generated from computer monitors (some traders will have two). Tensile bottom chords of the room's roof-support system will be exposed. A baffle system distributes glare-free daylight and electric light and helps lower noise levels (far right). SOM partner-in-charge is John Winkler.



Swiss Bank's 132-by-210-ft trading floor is in the curved-roof structure at the center of the rendering above. Three towers surrounding it are to be built in phases, and include

parking and additional trading-floor area. The office building will have 40-ft clear spans in order to accommodate a variety of work-group types and adapt to future change.



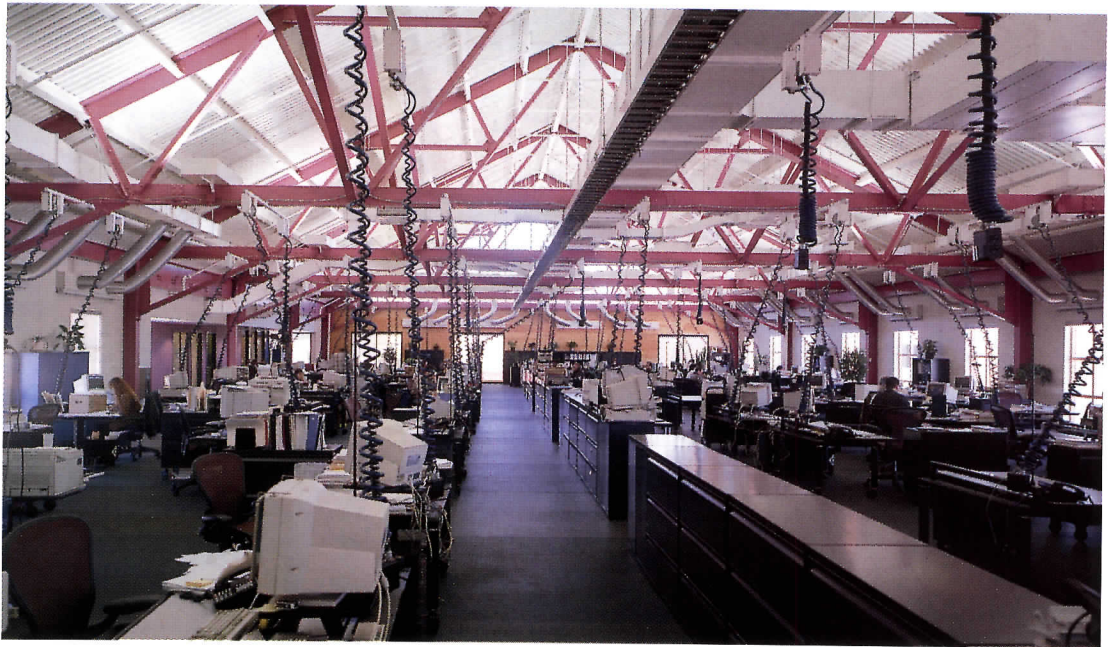
**Project:** SEI

Oaks, Pennsylvania

**Architect:** Meyer, Scherer & Rockcastle

SEI, a financial-services company that does information support and asset management for banks and private clients, found it could serve clients better if the projects it took on could be turned around more quickly. Since these projects often require intense collaborative effort, the company decided to build a new facility to make teamwork easier. It brought in Minneapolis-based Meyer, Scherer & Rockcastle, who developed four similarly laid-out loft-like buildings in suburban Philadelphia (middle photo).

To form project teams, users simply push their wheeled desks (a custom alteration of a Vitra model) into whatever arrangement they find suitable. They remain connected to power and vital financial data through specially designed umbilicals (office view, top). High ceilings, ample interior and garden break areas, indirect lighting, and daylight from the narrow floorplate make up for the loss of private offices.



Though built to suburban cost norms, the floorplate of SEI is much narrower than that of standard buildings, allowing for a considerably brighter interior.

**Project:** EMC Insurance Companies

Des Moines, Iowa

**Architect:** Brooks Borg Skiles

Because of high internal heat loads, conventional wisdom is that well-insulated office buildings are often not cost-effective. This insurance company looked to a longer performance term and asked for superior energy performance. The firm adapted a Pohl wall system: Metal cladding is backed by 40-lb-density mineral-fiber insulation, then an air cavity, rainscreen system, and precast-concrete backup. The system does not require gaskets or sealants. A Visionwall window system suspends two films to create three air spaces between its outer glass lights, gaining the glazing an insulation rating of R8. The building uses an ice-storage system to lower power costs and low-temperature air to reduce duct volume and size. It has just been completed (images, however, are model shots).



# 1 NW Federal Credit Union Seattle, Washington

**INTEGRAL TO A DAYLIGHTING SCHEME, A SMALL BUILDING'S EXPRESSIVE ROOF FORMS ALSO MAKE AN URBAN PLACE AT CITY'S EDGE.**

by Trevor Boddy

**Project:** NW Federal Credit Union  
Seattle, Washington

**Owner:** NW Federal

**Architect:** The Miller/Hull  
Partnership—David E. Miller, partner-  
in-charge; Sian Roberts, Scott Wolf,  
Aiden Stretch, project architects; Steve  
Southerland, Holden Withington, pro-  
ject managers

**Engineers:** H.K. Kim Engineering—  
H.K. Kim (structural); SvR Design  
Co.—John Rundall (civil);  
Wood/Harbinger—Bob Axley, Dave  
Porter (mechanical); Sparling—Joe  
Virnig (electrical); Geo Engineers—  
Larry Peterson (soils)

**Consultants:** Paladino Consulting—  
Tom Paladino (sustainable design);  
Jongetan/Gerrard/McNeal—Art Seidel  
(landscape); Genette Voynow—Sidney  
Genette (lighting); Greenbusch  
Group—Julie Weibusch (acoustical);  
Mark Smith (branch bank construc-  
tion)

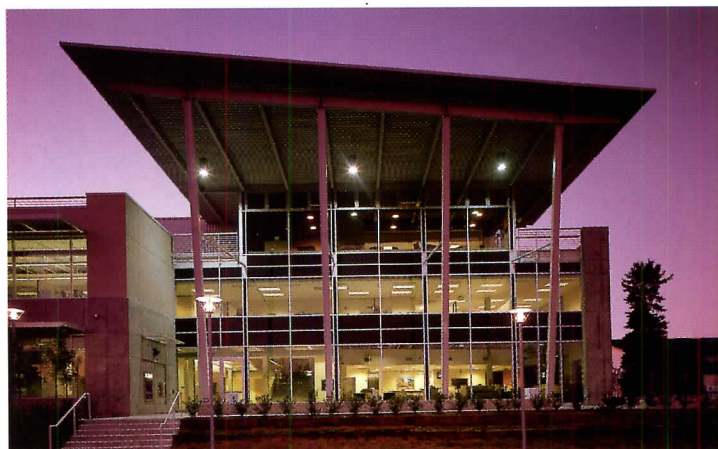
**General Contractor:** Lease, Crutcher,  
Lewis—Jim Burk

Though it is merely a bank branch and office building, the NW Federal Credit Union, by Seattle's Miller/Hull Partnership, has a dignity and presence unpredicted by its 40,000-sq-ft program, its modest budget, or its site. NW is a credit union for federal-government employees in the Puget Sound area, and most of its nine other branches are without architectural identity, being invisibly accommodated in sprawling federal buildings or compounds. The north Seattle site was chosen because of the ever-northward growth of the metro area, and the need for NW to create a headquarters identity independent of specific federal-government workplaces.

While proximity to the adjacent Northgate Mall, expanding employment centers, and easy freeway access were all factors, it was the natural splendor of a site edged with forest, ravine, and carefully trimmed cemetery that brought NW here. Yet the site also faces a large collection of bulky big boxes, instantly forgettable institutional constructions and professional buildings, not to mention a bursting menu of fast food franchises, that spill indiscriminately across the buzzing barrier of I-5, Seattle's north-south spine.

Miller/Hull was selected as designer largely because of its

*Trevor Boddy is a Vancouver, B.C.-based architectural historian and critic.*



established expertise in green architecture—not just in terms of energy-efficient, minimum-impact construction, but, broadly considered, a healthy and stimulating work environment. According to key client representative and NW Vice President of Finance John Zmolek, “Our board was committed to demonstrating green building principles.”

Making the most of views and microclimate orientation were the key elements in architectural-design choices made by partner David Miller. Nearly every workspace boasts a view of either grassy cemetery, densely treed ravine, or downtown Seattle's distant skyline.

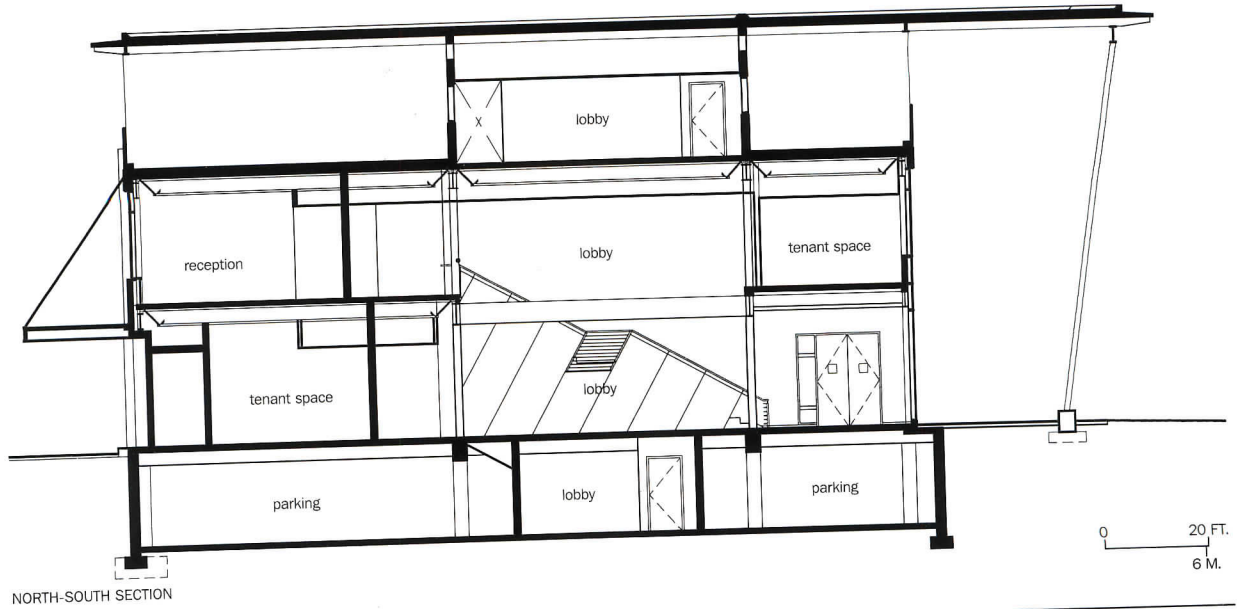
With its aggressive roof form and broadly extended porch, the “head” of the building's massing is cranked southeast from the cardinal street grid to face a point

midway between the natural landmark of Mount Rainier and the urban reality of the much-nearer Northgate Mall. It's a way of acknowledging both, say the architects. The splayed geometries and heroic detailing of the sunshades and cantilevered roof are reserved for the urban faces to the south and east. Similarly, the angled bracket for the porch is echoed at finer scale in the smaller, angled tubular-steel sections which support the sunscreens. This strategy—what Miller calls “a box with attachments”—results in a dialogue of major with minor order, “a closet Classicism,” he calls it, evident in such other Miller/Hull projects as Olympic College Shelton [RECORD, November 1996, pages 90-94].

The scaled-up porch and brises soleil that dominate the east and south elevations are not only a

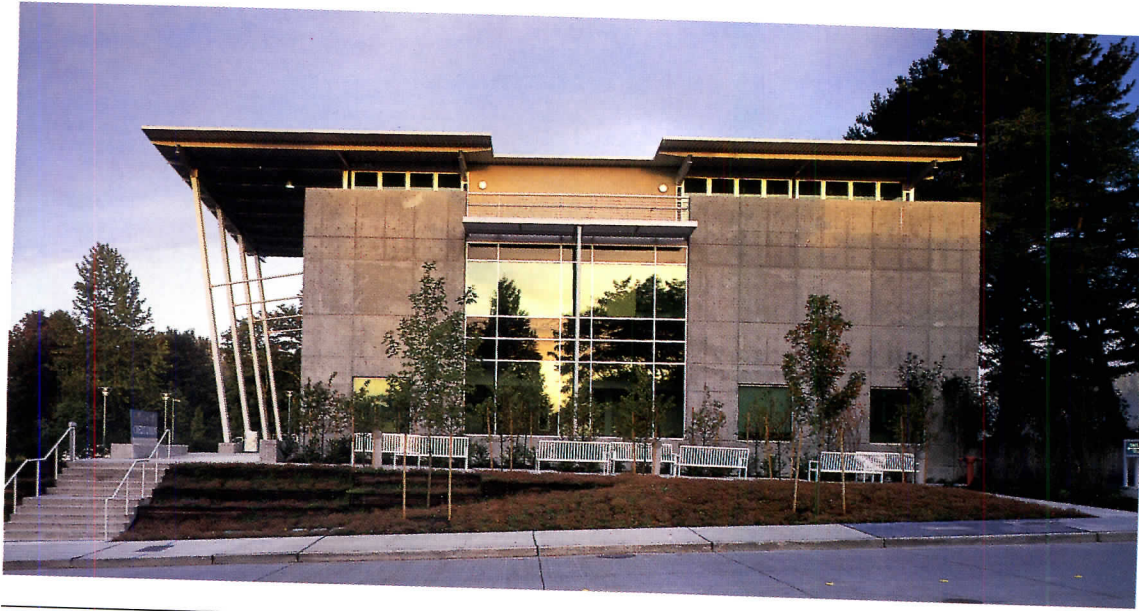


The scaled-up roof overhangs and brises soleil allow extensive areas of glass, which draw in weak light on the frequently overcast days. Some areas can be naturally ventilated.

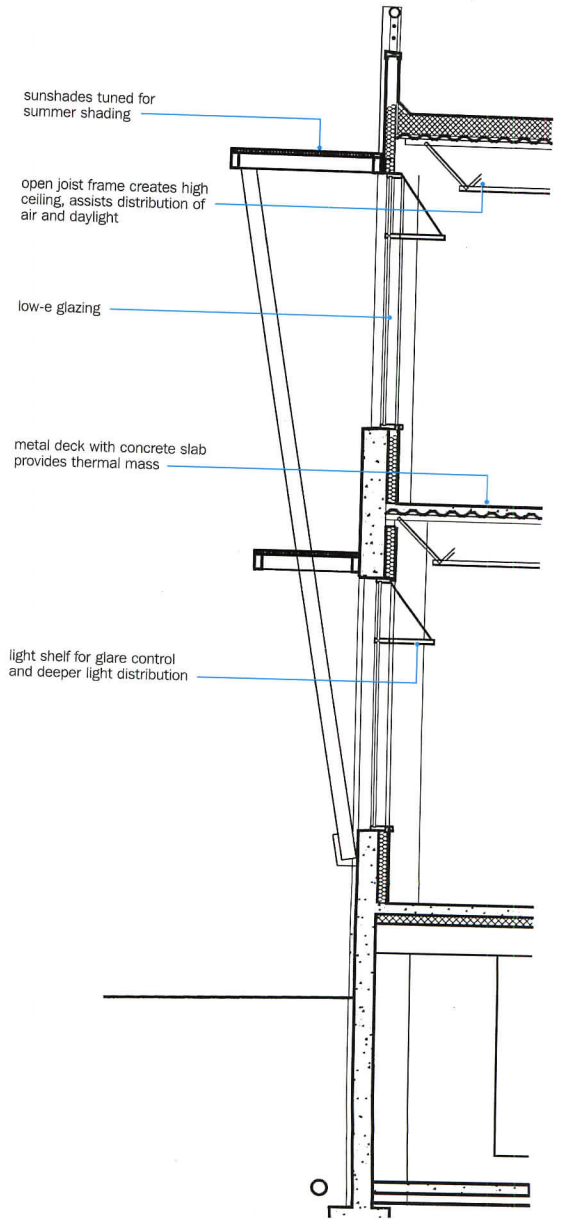


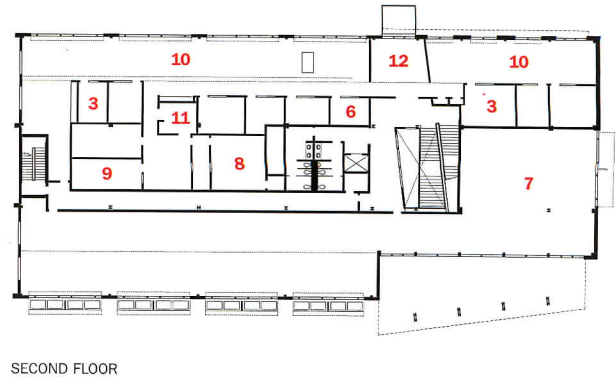
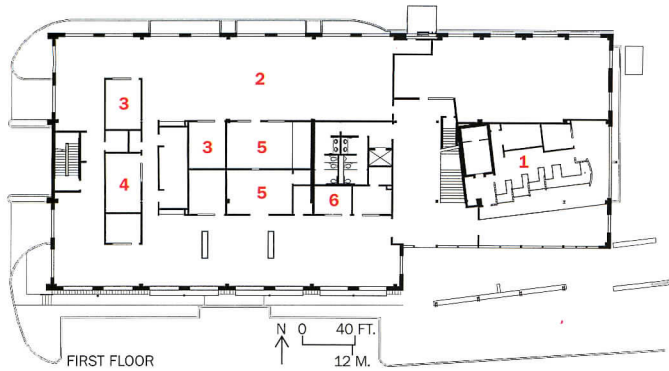
The splayed geometries of the sunshades and cantilevered roof are reserved for the urban faces to the south and east.





The small, ground-floor credit union branch faces the intersection and mall beyond, with a staff lunchroom and training rooms stacked above (left). Metal supports frame sunscreens into poured-concrete walls (bottom). Offices are arranged in two floors over the required 33 interior parking slots. Nearly every work-space boasts a view of either grassy cemetery or downtown skyline.





- |                   |                 |                     |
|-------------------|-----------------|---------------------|
| 1. Bank branch    | 5. Workroom     | 9. Check processing |
| 2. Open office    | 6. Interview    | 10. Project room    |
| 3. Private office | 7. Tenant space | 11. NWFCU office    |
| 4. Meeting        | 8. Computer     | 12. Reception       |



visual marriage of attitudes toward the natural and the urban environment. In addition to being a crucial part of the daylighting strategy for the building (about which more will be found below), they reduce summer solar gain (the third floor is not even air conditioned) and glare, while inviting in the low, southern light of winter. These gestures met with initial resistance from the client and Kathleen Scott, the project manager appointed to represent the client's interests. But the details survived the rigors of cost accounting. The elevations facing the cemetery and ravine are orthogonal and severe. The lack of shading here recognizes the need to draw in northern light on the many glower-

ing raincoast days and the screening by trees of low, western, afternoon light.

With only a small banking space off the lobby, one drive-thru teller on the north side, and a single cash machine, this is principally an office building. While the main offices of NW are up the stair, 10,000 sq ft of currently leased commercial space at ground level is available for further growth. Office spaces for NW are open and airy, with a small number of private offices set along the service core at the center of the plan. This reverses the conventional office-building layout, but is readily accepted by credit-union executives because of the quality and quantity of their bor-

rowed natural light and views. Steel joists, lighting fixtures, and mechanical runs are largely exposed, both to cut costs and as part of the daylighting strategy.

Realizing that NW's space needs at their required per-square-foot budget could only be achieved by avoiding fire-resistive enclosure of the steel floor framing, Miller/Hull took careful advantage of code provisions to lay out a building as large as possible without triggering these significant extra costs.

The daylighting scheme was tested and revised through design development by Tom Paladino, the sustainability consultant. The external horizontal sunshades made of steel grating are supplemented inside the glass line by horizontal light shelves which further reduce glare as well as soften and extend interior distribution of natural light. These design features permit interior direct and indirect fluorescent and task lighting to average only 0.85 watt per sq ft (compared to many conventional structures that average well over 1 watt per sq ft), and many of these are set on photo-sensor lighting controls for automatic dimming when daylighting is sufficient. The design was awarded a special citation by the Bonneville Power Administration. Operable windows permit natural ventilation in third-floor, training and board rooms, and in the lobby.

The hvac system has a night flushing cycle that draws out daytime heat accumulated by the concrete-slab floors, in the process also improving indoor-air quality by diluting off-gassed and day-to-day pollutants. All of this meant energy loads could be designed 30 percent below already-strict Washington State standards. Building materials, such as steel, insulation, and fly ash in the concrete, were also selected for their recycled content.

Even with such strictures, NW's interiors are hardly austere. The most striking area is the lobby. Dominated by the white-painted members of the steel framing, the floor is tiled in English slate and the stair is trimmed in diagonally set Canadian maple.

NW Federal Credit Union is evidence of a mainstreaming of green building: past the era of pop-on gizmology to full integration. Also, NW isn't gold-plated; it was built within mid-level construction norms and improves upon widely accepted design and comfort criteria. ■

#### *Manufacturers' sources*

**Built-up roofing:** Johns Manville Corp.

**Window-wall system:** Efco

**Hardware:** Adams-Rite; Corbin

**Flooring:** DLW Linoleum

**Carpet:** Prince Street Technology

**Lighting:** Lite Control; Elliptipar;

Lampas; Bega. Lutron; GE (controls)

**Office furniture:** Haworth

# 2

# RWE AG Hochhaus Essen, Germany

**RWE IS THE FIRST OF AN AMBITIOUS CROP OF TOWERS THAT SET NEW STANDARDS FOR ENERGY CONSERVATION AND WORKER COMFORT.**

by **Mary Pepchinski**

**Project:** RWE AG Hochhaus  
Essen, Germany

**Owner:** HOCHTIEF AG

**Architect:** Ingenhoven, Overdiek, Kahlen & Partner—Christoph Ingenhoven, Achim Nagel, Klaus Frankenheim, Klaus J. Osterburg, Martin Slawik, Elisabeth Viera, Peter-Jan van Ouwkerk, Imre Halmi, Claudia de Bruyn, Jan Dvorak, Norbert Siepmann, Regina Wuff, Martin Röhrig, project team

**Engineers:** Buro Happold, HOCHTIEF AG (structural); HL-Technik (mechanical)

**Consultants:** Weber Klein Maas Meerbusch (landscape); HL-Technik, Lichtplanung (lighting); Trümper + Overath, Bergisch Gladbach (acoustical); Dr. Klingsch (fire protection)

**Contractor:** HOCHTIEF AG

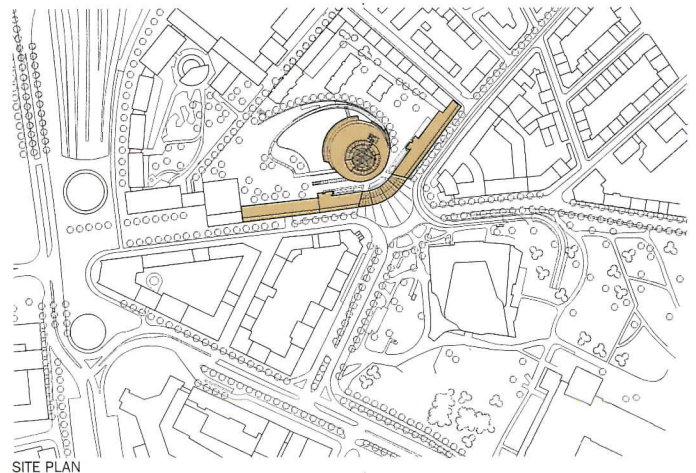
Compared to the United States, tall buildings are still an anomaly in Germany. When it is announced that one or more are to be built, critics typically decry what they view as an “American” type: one that squanders energy and resources and offers a poor-quality workplace. It is not surprising, then, that architects here have finally responded to these charges: a number of midrise and highrise office towers, which integrate new energy-saving and environmentally oriented technologies, are currently in construction.

Among these are Foster & Partners’ just completed Commerzbank in Frankfurt; the GSW headquarters in Berlin, designed by Sauerbruch + Hutton [RECORD, October 1995, pages 80–81]; the Debis Building C1, also in Berlin, by Renzo Piano Building Workshop; and the Stadttor (by Petzinka Pink and Partner; Victoria Versicherung, Hentrich-Petschnigg and Partner) in Düsseldorf. One of the most sophisticated, the RWE AG Hochhaus, designed by Ingenhoven, Overdiek, Kahlen & Partner, was completed before the rest, in December 1996.

**Symbol of a revitalized city**

RWE is a corporate headquarters located in Essen, across from a the-

*Mary Pepchinski is an architect, teacher, and writer based in Berlin.*



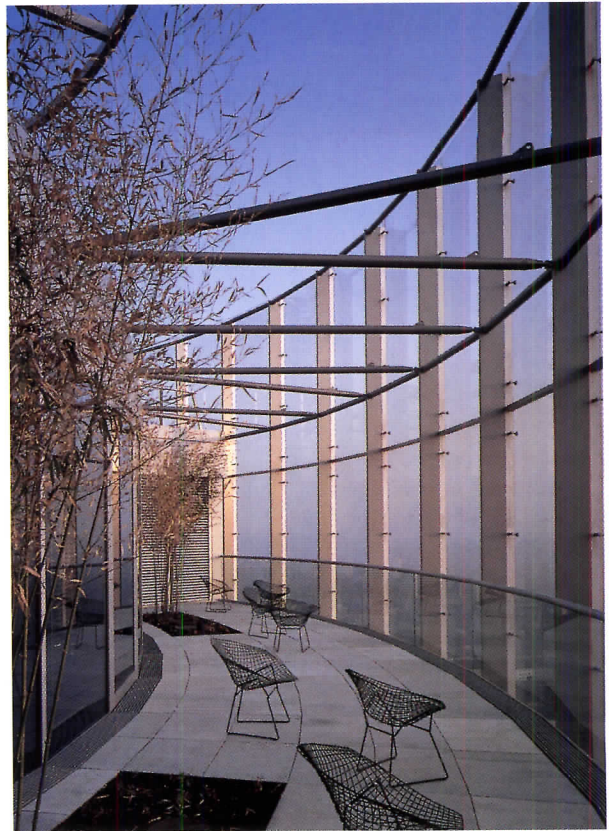
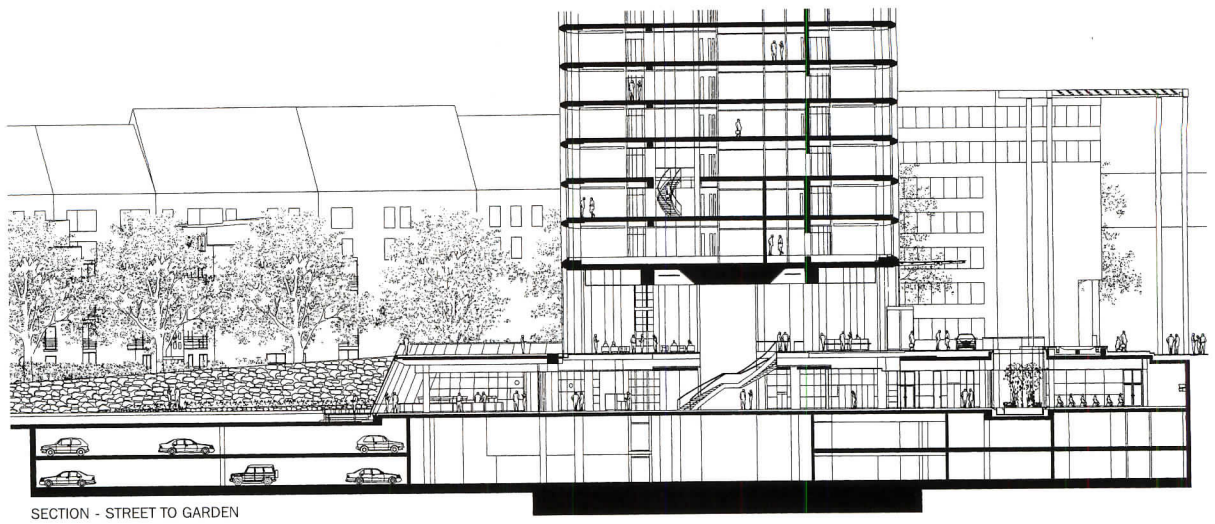
ater designed by Alvar Aalto (foreground, opposite). It has become a centerpiece of this city’s revitalizing downtown. Essen itself is a major regional city of the Ruhr industrial belt, which is rapidly transforming into a center of white-collar ser-

vices. Until recently, however, a drive through downtown Essen left the impression that there was no “there” there. Heavily damaged in World War II, its uninspired reconstruction, which included slicing a heavily used regional (text continues)

A landmark in its low-rise city, RWE is the first realized project in an ambitious downtown revitalization plan.

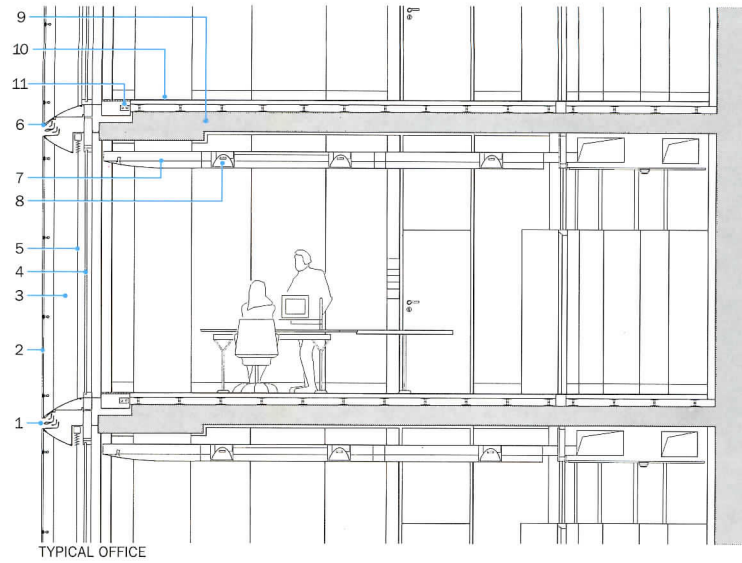


The lower-level cafeteria opens to a garden within an existing low-rise city block. It covers parking.



A trellis over the entrance (left) holds an array of photovoltaic cells. At a rooftop terrace,

a glazed wall screens landscaping against the wind (above).



1. Fresh-air intake
2. Single-pane clear glass
3. 20-in.-wide buffer zone
4. Operable (sliding) insulating-glass unit
5. Internal blind
6. Fresh-air exhaust
7. Integral radiant cooling/lighting unit
8. Adjustable down-light
9. Exposed "thermal" slab
10. Raised access floor
11. Supplementary heating



Horizontal slots visible in the curtain wall are part of the ventilation scheme.



The external elevator core (left) offers expansive (and for some, giddy) city views. Lacking a core of elevator shafts, the lobby (below) offers a clear view through to the garden.

highway right through the middle of town, had made the city a cold and unappealing place.

Roughly a decade ago, sorely needed civic improvements began to be realized, which included the completion of the long-delayed Aalto theater. In 1991, an urban design competition was won by the Düsseldorf-based architects Ingenhoven, Overdiek & Partner (now Ingenhoven, Overdiek, Kahlen & Partner), who proposed a “green” connection between the city park surrounding the Aalto theater and the center city and main train station only a few blocks away (site plan, page 144).

The plan includes a cluster of office towers. (Though not shown in photos, the city now has a few high-rises.) The architects argued that this was an environmentally appropriate solution because the open spaces would enhance the urban environment, while the towers would concentrate development in the existing downtown, close to well-provided mass transportation, thereby deterring sprawl from erupting at Essen’s periphery.

The client, Germany’s largest producer of electricity, is one of the first owners to sign on to the new plan with a skyscraper. But they agreed to the architect’s proposal to augment the plan by building a skyscraper of unusual energy-saving ambition. The design of RWE

attempts to move conservation and sustainability to a new level without compromising the access to natural ventilation and daylight that German workers regard as a near-birthright.

#### Integrated design

To realize the project required a total systems approach. The 125-ft-dia. floors of the 30-story

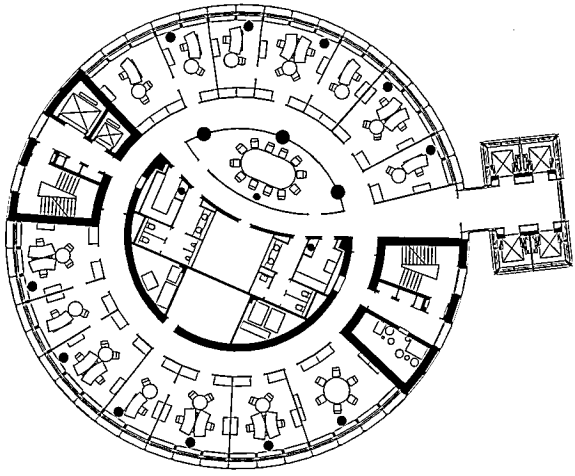
reinforced-concrete structure are small by American standards but allow typical floors to contain naturally lit and ventilated offices along the periphery. Indeed, the form was chosen for its optimal relation of surface to volume. (The windowless cubicle landscapes of American office buildings are virtually outlawed in Germany.) The elevator core is attached to the cylinder,

while meeting rooms, fire stairs, and atriumlike convenience stairwells link floors at the center.

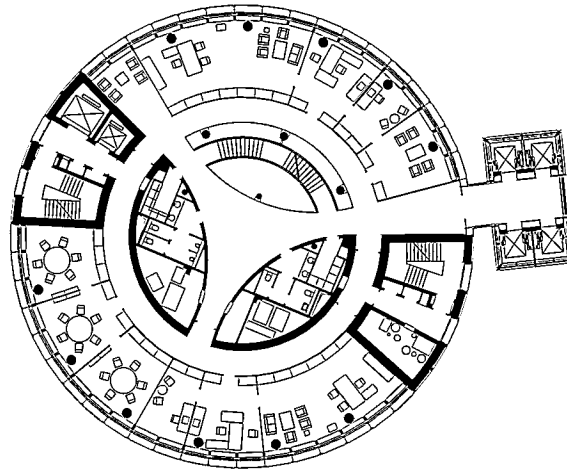
Lower levels contain entry and public areas; a mechanical floor occurs at two thirds of the cylinder’s height. An elevated ring tops the tower and supports the window-washing apparatus, while an antenna is attached to the elevator block’s roof.





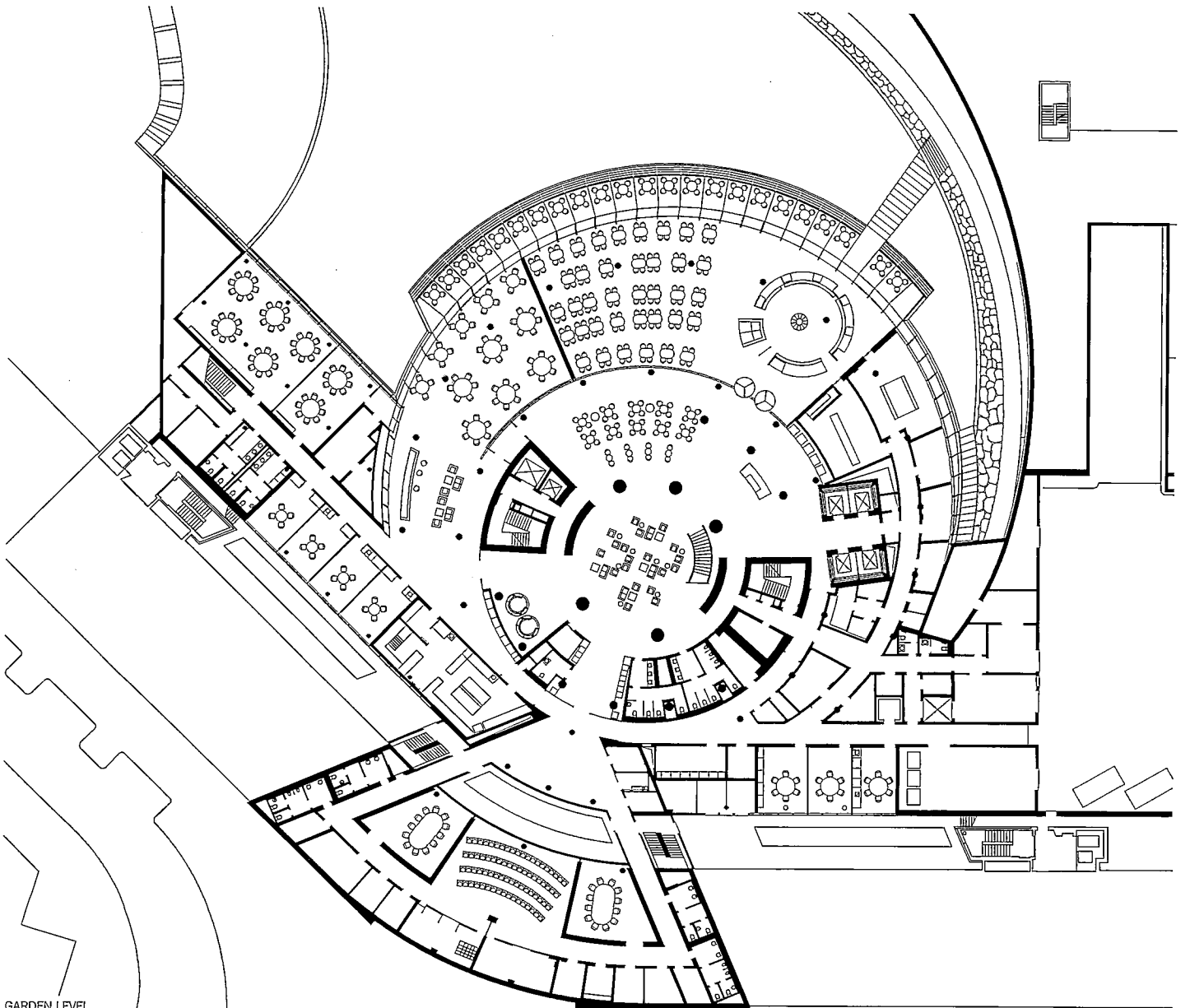


TYPICAL OFFICE FLOOR

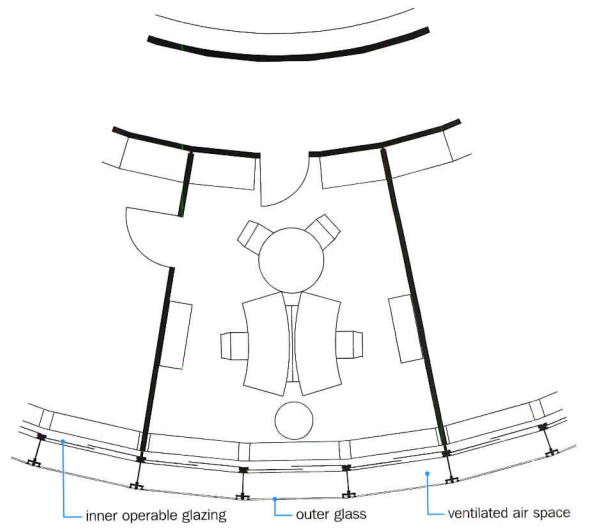


TYPICAL FLOOR WITH MEETING ROOMS

Locating the glazed elevators externally frees the core for meeting rooms and communicating stairs (typical tower plans, left). Additional meeting and dining rooms face a garden one level below the entry (bottom).



GARDEN LEVEL





Natural light and ventilation are accessible from nearly every office (opposite top). Communicating stairs on typical floors borrow light from office clerestories (left). Another curving stair (opposite bottom) brings visitors from lobby to meeting and dining rooms one floor below.

### A “ventilated” wall

Such a high ratio of exterior wall to internal space meant that the curtain wall had to be extremely efficient to counter winter heat loss and summer solar-heat gain. Added to this, the desire to permit natural ventilation and minimize use of electric lighting drove the design to a sophisticated double-glass facade.

From outside to inside, the system is composed of, first, exterior safety glazing, fixed by bolt-through fittings; a 50-cm-(20-in.) wide airspace, separating it from the interior glazing layer, which is composed of fixed and movable floor-to-ceiling, double-glazed panels (page 147).

A horizontal metal extrusion at each floor slab was formed into what the architects call a “fish-mouth” louver, which can be opened to admit fresh air at the bottom of the gap between the glazing layers or to exhaust air from the top of the airspace of the floor below. (To avoid short-circuiting, intake or exhaust is open, not both.)

The insulating-glass interior light slides open 15 cm (about 6 in.) wide, giving users control over how much ventilation is admitted. This double-wall system, besides offering high insulating value (venting or collecting accumulated solar heat as needed), overcomes the shortcomings of operable highrise

windows by protecting against noise and controlling dust-laden gusts. Perforated aluminum blinds located in the airspace between the glazed inner and outer wall protect against sun and glare.

Because of the wall’s insulating properties and its high admittance of daylight—reducing the need for electric light—the architects were able to further minimize cooling loads (and thereby equipment and capacity) by exploiting the thermal lag of the ceiling’s exposed concrete slab. It absorbs excess heat during the day and radiates it at night, assisted by perforated holes in the ceiling panels. Mechanical cooling is provided by cold-water radiators integrated into the ceiling in a strip that also contains acoustical absorption, sprinkler heads, loudspeakers, and fixtures for ambient and adjustable task lighting (opposite top).

### Users control environment

While miserly with energy, the design actually gives individuals a high level of control over their environment. Using a keypad wired next to the door jamb, users can regulate an office’s temperature, lighting, power-operated shades, and external ventilation louvers.

What is this brave new office environment like? Though the skin is very uniform, and the outer clear layer of glass is very transparent, it

does reflect changing atmospheric conditions. During my visit on an overcast day, the glass facade appeared gray and muddy. But since the inner layer reflects slightly too, it makes the outer layer look like a diaphanous veil, giving the wall an incredible visual depth.

On a typical office floor, occupants were using the controls to set rooms to different temperatures. The movable facade panels were easily unlocked and slid open with a crank. When opened, however, wind noise was extremely loud. The natural-ventilation scheme appeared to deliver air that was both cool and fresh. The offices were very bright thanks to the floor-to-ceiling glazing, which also provided spectacular views over the city. Light pours into a boardroom and upper-level communicating stairs from rooftop skylights. But this is not a building for the agoraphobic.

The modest size of the floorplate (about one-third the size of typical American “developer specials”) means that this 30-story tower is not the hulking presence that skyscrapers often are.

An array of photovoltaic power-generating cells intended to demonstrate the potential of the technology was reduced from the ambitions of the original design; they are mounted only on the trellis above the entrance. At any rate, the efficiency of today’s cells and the

cloudy climate made the potential power generated small. But such demonstration projects do help commercialize the technology.

Much of the detailing, such as the double facade, required extensive research and testing as well as special permissions from local authorities before construction. According to the design team’s analysis, RWE will consume 22 percent less energy than a conventional tower, which already must meet strict criteria. Indeed, the architects argue that the additional costs of the facade will have a quick payback. But independent testing has not yet been done, nor do we know over the long term whether such a complex facade can be readily maintained. Considering that back-up cooling and ventilation systems were also installed, the “American” type has not yet been surpassed. In Essen, at least, they were willing to try. ■

### Manufacturers’ sources

**Curtain walls, skylights:** *Josef Gartner & Sons*

**Glass:** *Vegla*

**Interior finishes and acoustical ceilings:** *Schmid*

**Elevators:** *Thyssen*

**Lighting and controls:** *Siemens*

**Technical equipment:** *Rudolf Otto Meyer*

**Furnishings:** *Vitra, Cassina, Bene, Tecno, Knoll*

# 3 Owens Corning Toledo, Ohio

**A COMPANY CHANGES ITS MANAGEMENT STYLE AND GOES HORIZONTAL WITH ITS NEW HEADQUARTERS.**

**by Cheryl Kent**

**Project:** Owens Corning World Headquarters, Toledo, Ohio

**Architect:** Cesar Pelli & Associates—Cesar Pelli, FAIA, design principal; Fred W. Clarke, FAIA, project principal; Mark R. Shoemaker, AIA, design team leader; Phillip G. Bernstein, AIA, project manager; Mihaly Turbucz, David Chen, Axel Zemborain, Julann Meyers, David Coon, Anne Haynes, Jane Twombly, Karen Koening, William Truill, designers

**Architect of record:** Kendall/Heaton Associates

**Interior designers:** Harley Ellington Design; Steelcase, Inc.

**Engineers:** CBM Engineers (structural); Cosentini Associates (mechanical/electrical/plumbing); Avca Corp. (civil); Epic USA (telecommunications)

**Landscape architect:** Balmori Associates

**Consultants:** Cosentini (lighting); Cerami & Associates (acoustics); Thomas Patti (art glass); Acentech (audio/visual); Bowser Morner (geotechnical); Douglas/Gallagher (signage and graphics)

**General contractor:** The Lathrop Company

The Owens Corning headquarters in Toledo, Ohio, is management style made manifest. This three-story, 400,000-sq-ft building on the Maumee River—its massing recalling suburban office campuses of recent decades—is a fairly literal interpretation of the flattened hierarchy and teamwork orientation that Owens Corning, like so many companies today, is adopting.

For design architect Cesar Pelli & Associates, a firm more accustomed to skyscrapers, the job presented challenges: how to sup-

*Cheryl Kent writes about architecture and design from Chicago.*

port Owens Corning's intended internal changes and convincingly insert the resulting large, low building into a downtown setting.

Toledo, which had lost many jobs in recent years, was eager to keep Owens Corning and worked to upgrade the riverfront site and connect it to existing city streets. Pelli says the building feels like “[It is] in the city, but outside the city, as though it were in a ship that anchored downtown.”

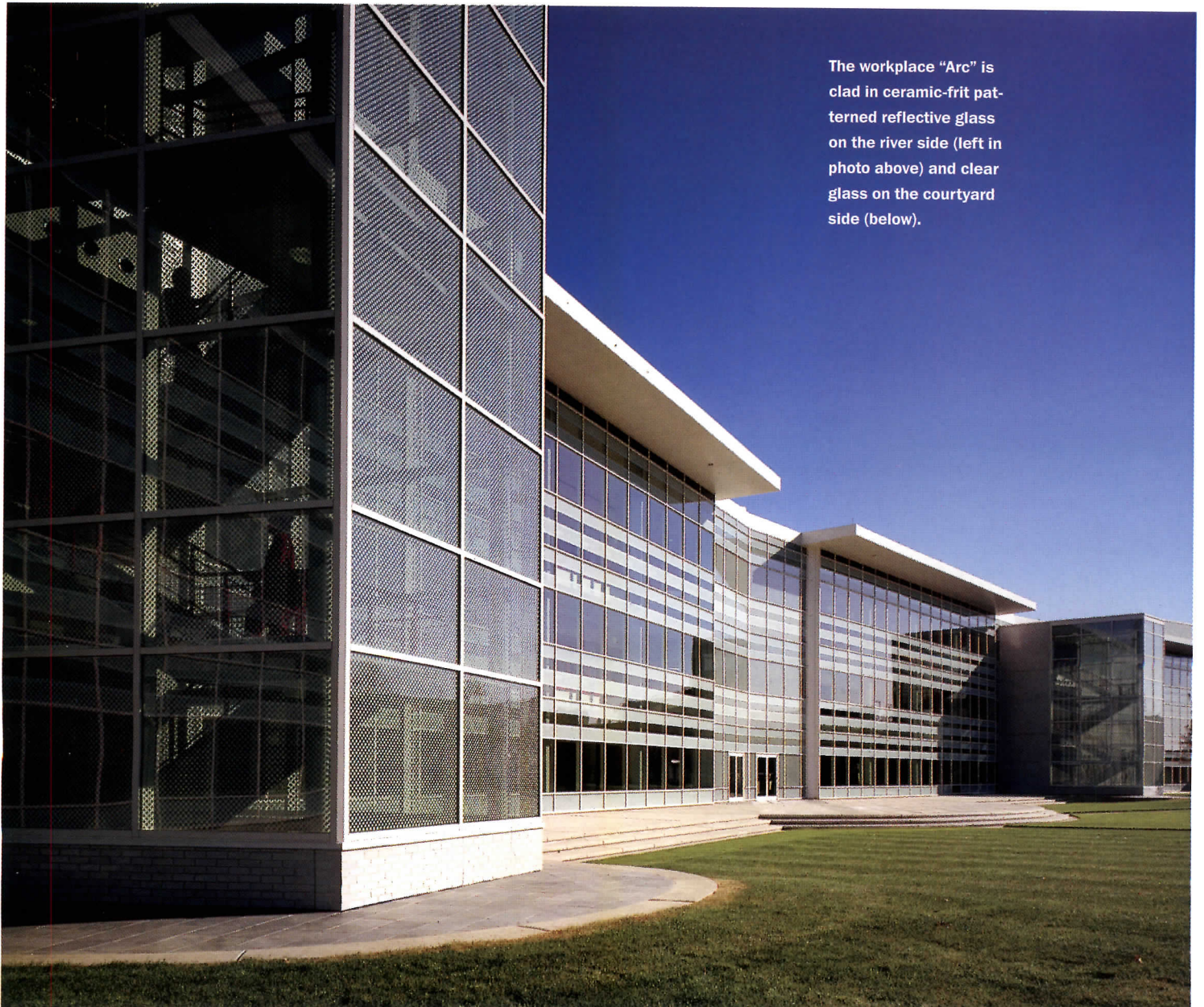
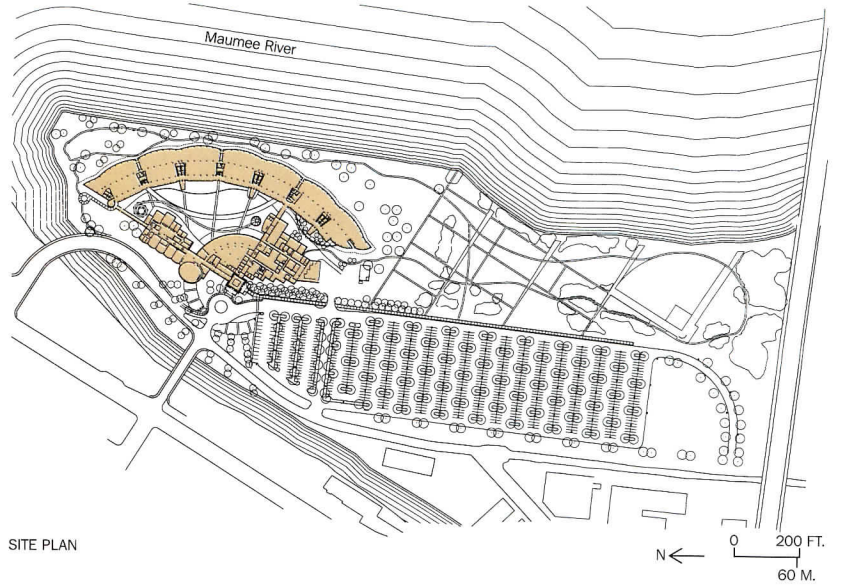
Before moving into the new building, Owens Corning had its headquarters in a highrise nearby. Jim Eckert, the company's project director for the new facility, explains

that the old building's small (10,000-sq-ft) floors and outdated wiring were creating problems. “Our thinking was bumping up against the walls of that building,” says Eckert.

With a 45-acre site right on the river, the architects and client could explore new directions. The new headquarters has two main parts: the “Arc,” where individual workstations and collaborative team spaces are located, and the “Village,” which contains support areas. Here “support” is used in the most generous sense, for the Village includes a spacious cafeteria, a bank, a fitness club, a mental health and medical facility,



Set on a 45-acre site on the edge of downtown, the campus (left) blends a lowrise suburban building form with urban strategies such as connecting to existing streets and allowing public access.





Common areas have comfortable chairs to encourage impromptu meetings (left and opposite). The dining room (right) is part of a complex of support services that includes stores, a dry cleaner, and a health club.



a continuing-education center, a “general store,” and a dry cleaner, in addition to the more conventional conference rooms and boardroom. Important elements are highlighted from the exterior and interior with fanciful forms in primary colors. A red tower that echoes the Owens Corning logo marks the entry, a blue tower points to a stair, and a yellow oval encases the learning center.

This is a building for walking. Pelli says, “In a three-story building, people will take the stairs. If they see one another, they will stop to talk. Elevators disassociate; people tend not to communicate in them.” So elevators are tucked away to encourage employees to use the stairs—which are wide, welcoming, glass-clad, and pulled out from the building into the courtyard where they are bathed in sunlight. The company hopes these and other common spaces will spark serendipitous encounters, casual talk of work, awareness of others’ work, and creative thinking.

What the company wanted was a highly flexible office space that would encourage collaboration; this meant creating a level of warmth, *comfort, and ease, which accounts for the building’s essentially sunny, playful disposition.* The courtyard was an early and key part of the strategy. Pelli says, “[It does] what a quadrangle or courtyard in a monastery does. [These are]

ancient forms to create collegiality and community among a group of people with diverse interests.”

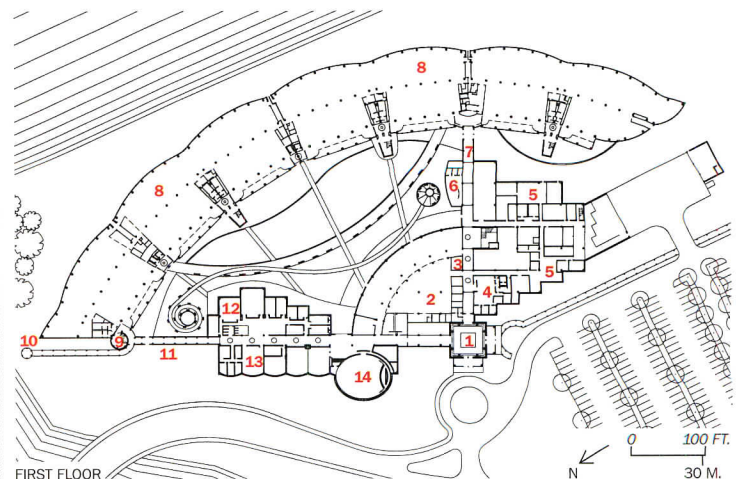
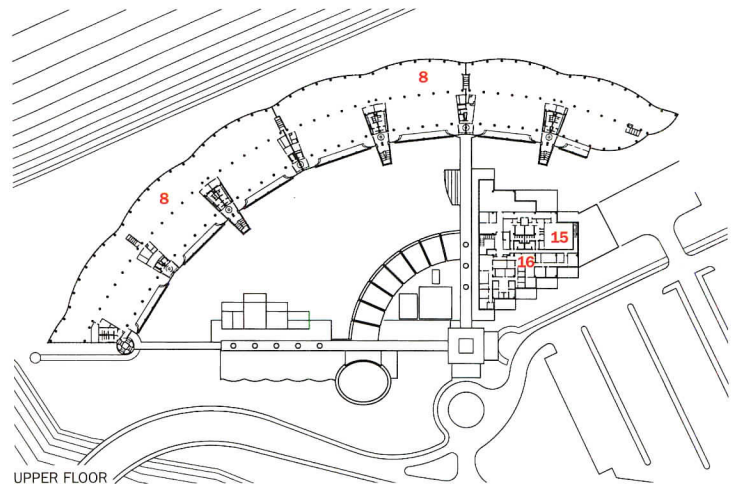
The Arc is 120 ft deep at its widest and tapers at either end. With daylight admitted from both the river and courtyard sides into mostly open-plan space, few employees are without views or sun. A 10-ft ceiling height allows light to angle deep into the office areas.

While Pelli’s firm designed the Village and the public areas of the Arc, the office interiors were left to an unusual, if not unique, and intensive collaboration between Harley Ellington Design and Steelcase, Inc. (which went beyond its traditional role as a furniture supplier).

Steelcase sees itself in a new role as a knowledge-based company, says Scott Siegel, who was the “process leader” on the project. “We’re accumulating much more knowledge than can be packed into products,” states Siegel. And for the first time, it acted as a consultant in the design process. Using computer-based analysis tools, the Steelcase team conducted sample surveys with employees to study then-current work habits, and to suggest ways to adapt the office environment to management’s goals for collaborative work.

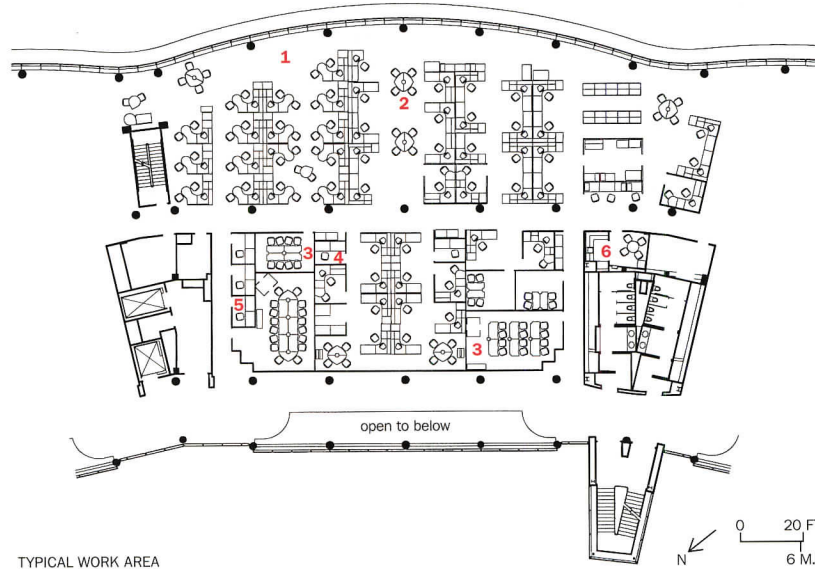
About 90 different styles of working emerged from the study. “That was a snapshot,” says Diane

- |                       |                          |                    |
|-----------------------|--------------------------|--------------------|
| 1. Reception          | 8. Workplace             | 15. Medical        |
| 2. Dining             | 9. Stairs                | 16. Fitness center |
| 3. Market             | 10. Gazebo               |                    |
| 4. Credit union       | 11. North-south corridor |                    |
| 5. Building services  | 12. Meeting              |                    |
| 6. Learning center    | 13. Conference           |                    |
| 7. East-west corridor | 14. Auditorium           |                    |



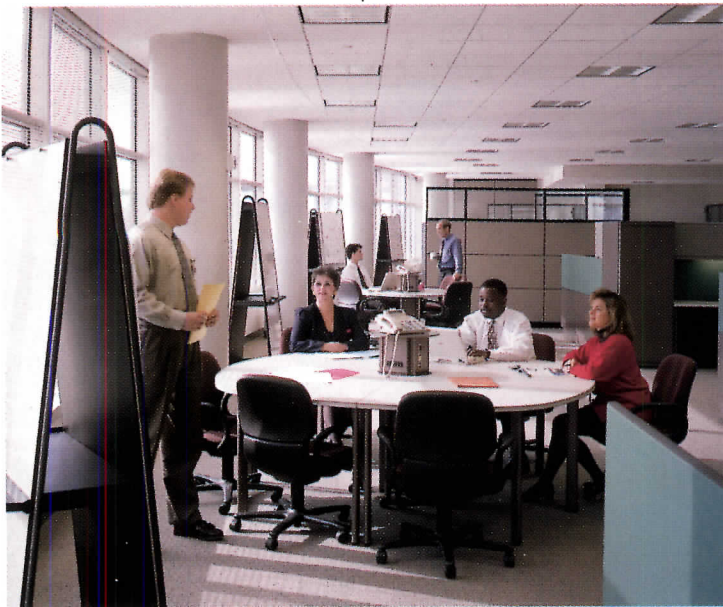


To change the way employees work, the interior architecture provides a variety of work spaces, including "teaming" areas (below), open workstations (bottom), and corridor break areas (previous page).



TYPICAL WORK AREA

1. Open work area
2. Teaming table
3. Teaming room
4. Office
5. Quiet room
6. Kitchen



Lammers of Harley Ellington. "It was not in alignment with what the company leaders wanted and that's where the design creativity came in"—getting the new space to reflect cooperative work styles encouraged by the company yet accommodate, as much as possible, employee needs such as privacy and quiet.

"We knew going in that this would not be a conventional space," Lammers continues, "but we didn't know what it would be. We knew 90 different workstations was not the answer either. The mantra became, 'Shifting focus from the individual to the group.'" The workstation may be smaller, but each employee gets more collaborative work space.

The interiors team was told to practice the corporate collaboration credo. Both Steelcase and Harley Ellington stayed on-site full-time for nine months, as they worked on the design—creating a studio in the existing headquarters where they built and rebuilt mock-ups. Owens Corning employees were encouraged to stop in, survey the work, and make comments. CEO Glen Heiner was a frequent early-morning visitor. It wasn't the design process Harley Ellington was accustomed to, but the client insisted on it and the results are better for it, Lammers says.

To achieve the necessary flexibility in this technology-driven

company, the architects employed a raised-flooring system throughout the building. Within the foot-deep floor are the air-circulation system and cable distribution for phone lines and computers. Access lines can be brought up through the floor at almost any point in the building.

Taken as one measure of the interiors' success is the number of people—about 500—who have moved around since it opened last year. In this environment, flexibility is everything and the space is working if it's changing.

Before Owens Corning moved into its new facility, it was using 15 different information systems, and private offices took up 95 percent of the space. In the new offices, there is a single technology platform off of which are launched the laptops 70 percent of the employees use and the desktop computers used by the rest of the employees. The amount of space in the new building devoted to private workstations has dropped to 70 percent, while collaborative work spaces are up to 30 percent; the respective targets are 60 and 40 percent. ■

*Manufacturers' sources*

**Glazed brick:** *Ceramitec*

**Aluminum-and-glass curtain wall:** *Waltek (6000 & 7000 Wall)*

**Demountable partitions:** *KI; Steelcase*

**Office furniture:** *Steelcase*

**Carpet:** *Interface; Bentley*



# Color in Architectural Concrete

DESIGNERS CAN BE CONFIDENT NOW OF GETTING HIGH-QUALITY WORK WHEN THEY SPECIFY COLORED FINISHES. HERE'S HOW TO GET ANY COLOR YOU WANT — AS LONG AS IT'S IN CONCRETE.

by Michael Chusid, AIA, and Nick Paris

The inventor of portland cement named his material after the cream-colored stone which it resembled, quarried in Portland, England. From its very beginning, then, concrete has been thought of in chiaroscuro terms of light to dark, providing a white or light gray background for the interplay of light and shadow. But while this attitude facilitated the exploration of the plastic potential of concrete by reducing design to pure form, it no longer satisfies many contemporary designers, who favor much richer surface treatments and the creative use of color. As a consequence, architectural interest in concrete color and texture has increased dramatically in the past few years.

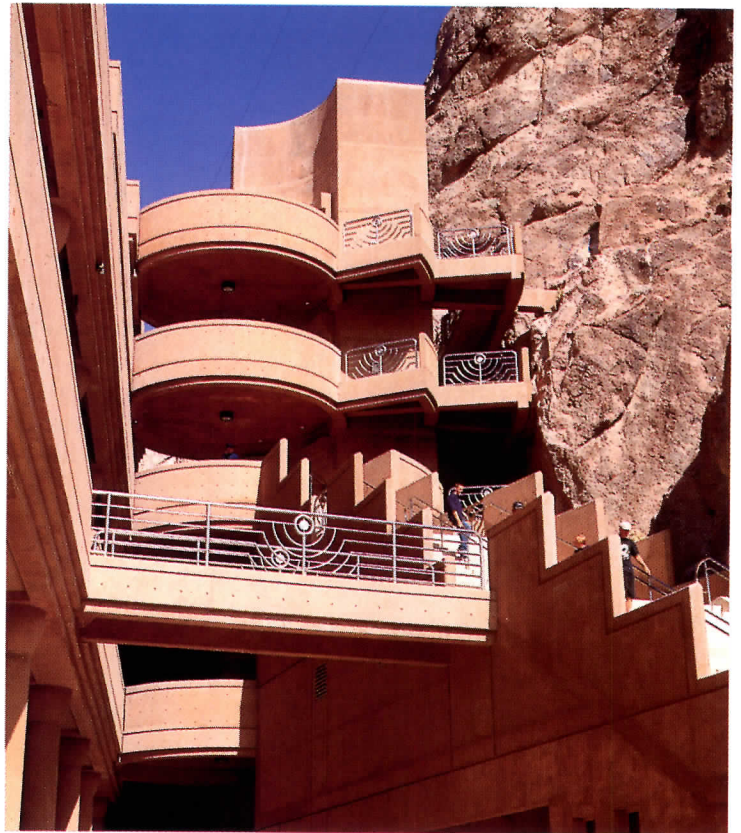
Probably the most important factor behind the growing use of colored concrete is the increased availability of pattern-stamped or embossed concrete flatwork, virtually all of which is colored. Over the past few decades, the companies that manufacture stamping tools have trained a generation of concrete finishers in the craftsmanship necessary to do colored-concrete work. Designers can be more confident now of getting high-quality work when they specify colored finishes.

This demand has also stimulated more companies to get into the business of producing coloring materials for concrete, creating competition that has led to a decrease in the cost of coloring concrete compared to a number of years ago. Many architects first used colored concrete as an alternative to more-expensive finishes like natural stone and ceramic tile, and found that colored concrete substantially reduces construction cost, because one material provides both structure and finish. While the use of certain bold or intense colors may require a premium, many popular colors add less than a dollar per square foot to the material cost of concrete, and subtle shades of colors can fit almost any budget. Overall, colors add from 75 cents to \$2 per sq ft to the cost of the concrete work. Added installation costs are minimal because many integrally colored finishes are installed the same way as uncolored concrete. Furthermore, the durability of colored concrete makes it attractive from a life-cycle-cost perspective.

**Continuing Education** This month's installment of the ARCHITECTURAL RECORD/AIA continuing education series covers concrete as a color medium. Use the following learning objectives to focus your study. After reading this article, complete the questions (page 200) and check your answers (page 202). AIA members may fill out the self-report form (page 202) and send it in for two AIA Learning Units.—Mark Scher, Director, AIA Continuing Education Programs and Products

**Learning Objectives** After reading this article and completing the questions, you will be able to discuss colored-concrete specification by:

1. Offering seven practical rationales for designing with colored concrete.
2. Citing three economic considerations.
3. Identifying specific coloring techniques, pigment and mixture tips, modeling considerations, and two forms of admixtures.



Designers have also discovered that, instead of being just a faux substitute for stone or other materials, colored concrete has a natural beauty all its own. Depending on forming and finishing techniques, colored-concrete texture can range from glossy smooth to as rough as a rock-strewn beach. It can be molded, embossed, or sculpted into almost any form or relief. Exposed aggregates in a range of hues yield further visual and textural effects. Colored concrete also has a natural appeal as an environmentally appropriate material. Concrete is produced from abundant raw materials and tinted with pigments, primarily iron oxide, which are inert and nontoxic. The most common method of coloring concrete, integral coloring, is as durable as the concrete itself, and will not weather or fade over time.

**Architects Spencer Associates matched the color of a cast-in-place Hoover Dam structure to blend with surrounding rock cliffs.**

Michael Chusid, AIA, CSI, CCS, is an architect and certified construction specifier and specializes in building-material evaluation. Nick Paris is vice president of Davis Colors, a manufacturer of pigments for colored concrete.



A low-budget use of colored concrete: the drive and walkway of a Hawaiian bungalow are tinted to blend with the red volcanic soil.

Craftsman Buddy Rhodes colored this chimney piece with liquid pigments, and cast the concrete with a random-vein pattern.



Unlike paints or other applied coatings, integrally colored concrete does not require periodic repainting or recoating.

In structural applications, colored concrete can be used with cast-in-place, precast, and tilt-up construction to create walls and structures. Used in landscaping, concrete can match or complement the colors of the earth, reduce the glare of surfaces, create historical patinas, and unify a site. With the wide variety of forming and finishing techniques

This should not be seen as a defect in the coloring technique. Indeed, even uncolored concrete exhibits variation in color due to variations in moisture content, forming, finishing, and curing. When a completely uniform look must be achieved, painting and coating should be considered in lieu of a natural-concrete appearance. To minimize color variation, all concrete used on a project must be consistent in materials, water-to-cement ratio, and workmanship. Color variations are most noticeable

## ARTISANS WHO FABRICATE AND INSTALL THEIR OWN DESIGNS HAVE PUSHED THE LIMITS OF CONCRETE AS A MEDIUM.

available, colored concrete can transform a plain wall or pavement into a canvas for graphics and patterns.

As the antithesis of concrete's utilitarian heritage, colored concrete is increasingly being used as an interior finish material, for flooring and countertops, shower and bath fixtures, furniture, and other specialty fabrications. Artisans who fabricate and install their own designs have pushed the limits of concrete as a medium by blending several colors in a single pour, embedding found objects into the surface, using innovative aggregates, and exploring the potential of the wide range of modern admixtures and fibrous reinforcing. As the results of their investigations diffuse into the rest of the design profession, today's experiment will become a standard part of tomorrow's palette of construction processes.

### Coloring techniques

As with any natural material, all concrete-coloring methods can exhibit some variation in shade across the face of a concrete structure or slab.

with smooth form finishes or hard-troweled surfaces; rough surfaces such as broomed slabs or sandblasted walls scatter the light and minimize the impact of color variation.

There are several techniques for coloring concrete. First, the color of the concrete itself is determined by the hue of the portland cement, sand, and aggregate in a mix. Portland cement varies in shade from white to medium gray, and is also available in a buff tone. The sand and aggregate in a concrete mix also affect its shade. With a smooth form or trowel finish, these materials are covered with cement paste, and may have only a minor effect on the color of the concrete. But sand and aggregates can have a significant impact on the concrete's appearance if they are exposed to view.

Exposed aggregate, the second method for coloring concrete, can be created by sandblasting or mechanically abrading a cured-concrete surface, or by scrubbing fresh concrete to remove the cement paste covering the aggregate. Chemical set-retarders make it easier to expose



**Bold graphic on a restaurant floor is an integrally colored concrete overlay of an existing slab, finished with a clear sealer.**

**Formed al fresco with colored concrete, giant orbs rest on the colored-concrete plaza of St. Mary's Park in New Orleans.**



aggregate, and can either be applied to the surface of flatwork or to the inside of formwork before placing concrete. In slabs and paving, exposed-aggregate finishes can also be created by seeding selected aggregate onto the surface of freshly placed concrete and working it into the surface with a trowel. Aggregates should be selected to achieve the appearance desired, and are available in a wide range of sizes, colors, and blends. A monolithic appearance can be created by using aggregate that matches the background color of the concrete; a different effect is created by using an aggregate color that contrasts with the concrete matrix.

The most widely used technique for coloring concrete is to add color additives right into the concrete mix. These additives contain pigments that are finely ground to achieve maximum tinting strength and that bond tenaciously with the cement to achieve a permanent coloration. Because the color extends all the way through a pour, minor chips, cracks, or spalls that may occur in the concrete surface will be less noticeable. Integrally colored concrete is the most versatile form of coloring, as it can be used in both vertical (formed) and horizontal (flatwork) applications; with all concrete-finishing techniques including form liners, exposed aggregate, and embossed or pattern-stamped finishes; and in concrete products such as masonry units, interlocking unit pavers, and roof tiles.

For coloring slabs and paving, the dust-on coloring technique is also an option. In this technique, proprietary blends of pigments, cements, and fine sand are dusted or broadcast over a freshly placed concrete slab. The material is then worked into the concrete surface by troweling. Some proprietary blends obtain a strength greater than ordinary concrete, and are used as colored hardeners over industrial floors. In other applications, several shades of dust-on colors, or dust-on color in

combination with an integral color, are used to create variegated surfaces that resemble the look of natural stone or other faux materials.

The decision to use integral or dust-on color in a slab can be based on economics, the experience of local concrete finishers, and esthetics. On first glance, integral colors might appear to be more costly because enough pigment must be used to tint the entire thickness of a slab. In practice, however, integral colors in a typical 4- to 6-in.-thick slab cost about the same as or slightly less than dust-on colors used at the manufacturer's recommended coverage rate. A further economy results from the ease with which integral color can be installed; concrete can be delivered from the ready-mix producer with color already mixed in, and then placed and finished using the same skills and techniques required with uncolored concrete.

Dust-on colors, on the other hand, can require additional labor to apply, and not all concrete finishers have experience applying them. Dust-on colors may be more economical with certain dark and intense colors that would require an inordinate amount of pigment to achieve with integral coloring. Dust-on colors are also indicated for slabs with complex designs or graphics, since the dust-on colors can be used in conjunction with masking to form complex patterns. They may not be practical on large pours, however, where the concrete can begin to set before the dust-on colors can be worked into the fresh concrete surface.

Recently, techniques for staining concrete have also grown more popular. Stains generally result in a mottled patina. There are two types of concrete stains. The first type contains solvent-borne pigments or dyes that penetrate into the concrete surface in much the same manner as stains used on wood. The other method uses chemical treatments to etch

**Concrete-finish options.**

As different surface profiles scatter light differently, the texture of concrete greatly affects the color appearance of the finished wall or floor. Texture also improves slip-resistance on floors exposed to rain. Some popular finishes include:

**1. Broomed.** Made by pulling special brooms across stiff, freshly floated or troweled surface. For variety, broom texture can be heavy or light, or in straight or wavy lines. This two-tone checkerboard is made by brooming adjacent panels in alternating directions.

**2. Stamped.** A powder release agent or plastic sheet is placed on the colored-concrete surface after floating. Special stamping tools are pressed into the concrete to create a pattern and then removed. Follow recommendations of the stamping-tool manufacturer.

**3. Salt-pocked.** Rock salt is pressed into the surface after finishing. After 24 hours, the surface is washed with water and a brush to remove all traces of salt. Allow concrete to dry before applying curing compound. A salt finish is not recommended in climates where water could collect and freeze in pockets.

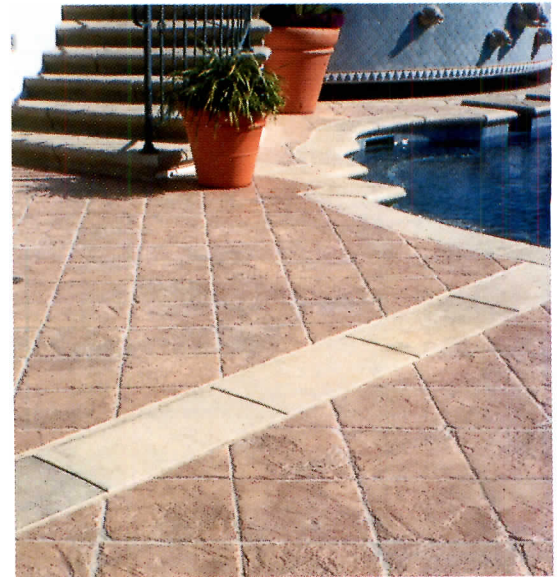
**4. Mechanically abraded.** Aggregates, such as this fractured green-quartzite on a tilt-up wall, are exposed by removing the surface cement using a high-pressure water wash, sand-blasting, grinding, or bush-hammering. Exposure level can vary from barely revealing fine aggregate ("brush") up to one-third the diameter of coarse aggregate ("heavy").

**5. Exposed aggregate.** Aggregate is exposed by "seeding" the fresh concrete with aggregate, or spraying a surface set-retarding compound and scrubbing cement "paste" from the surface of the concrete. If retarders are used, exercise caution and follow manufacturer's instructions explicitly. Aggregates can be colored or sparkling, fractured or smooth.

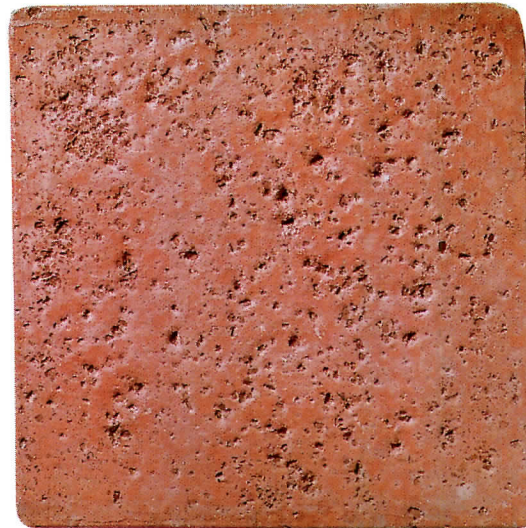
**6. Form liners.** Liners allow endless design possibilities for texture, pattern, and relief. They are available in a wide range of standard patterns as well as custom designs. ■



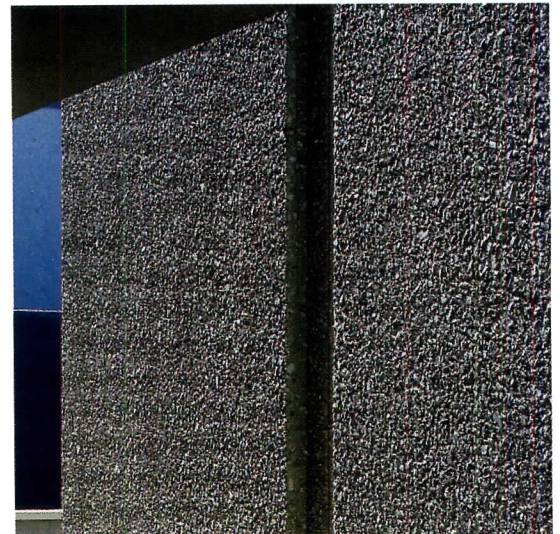
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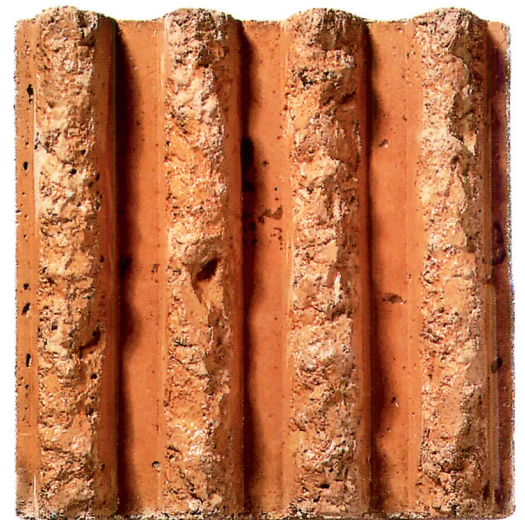
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the surface of the hardened concrete and chemically change the color. Stains are most useful for coloring existing concrete where the other methods of coloring are not applicable.

### Achieving excellent colored concrete

The keys to successful concrete, whether colored or not, include consistency in materials and craftsmanship, and careful planning and detailing of the project. It is important to follow industry guidelines, such as the American Concrete Institute (ACI) standard appropriate to the type of work. The design and specification process should observe the following recommendations.

**Pigments.** Typical color additives are made from metal or mineral oxides, either recycled from iron or refined from the earth. Specially processed carbon blacks can also be used as an economical alternative to black-iron oxide to create gray and black shades, but cannot be used in air-entrained concrete, and surfaces must be sealed against water damage. All colorants should comply with ASTM C979—Pigments for Integrally Colored Concrete.

**Mix design.** Colored concrete is available ready-mixed from most concrete producers. The architect should consult the pigment manufacturer or concrete producer for advice about the type of pigments and dosage rate to be used to achieve the desired shade or hue. But the maximum amount of colorant should not exceed 10 percent by weight of cement content. For consistent color throughout a job, each component of the concrete should be from a single source, uniform in color, and consistently proportioned. Maintain 5-in. maximum slump unless otherwise specified. If greater workability is required, use water-reducing or plasticizing admixtures instead of added water. A low water-to-cement ratio minimizes shrinkage and cracking, maximizes hardness, and promotes a richer, darker concrete color. Adding water causes concrete to pale or “wash out.” In locations subject to freeze-thaw conditions, specify an air-content range of 5 to 7 percent for improved workability and durability.

Some pigment producers offer “color-conditioned” admixtures. These are pigments preblended with plasticizers that are intended to help the pigments disperse throughout a mix. The same result, plus greater economy and control of the mix design, can be achieved with pure pigments by using them together with admixtures that are stocked by, and familiar to, the ready-mix concrete producer. These admixtures can be mixed separately, as required, into the concrete batch.

**Mock-ups.** On large or complex projects, specify a mock-up to establish that proposed materials and construction techniques provide the visual effect desired. These should be built at least one month before the start of construction, to allow the concrete sample to cure before final inspection. Use the same materials, placement, and finishing techniques that will be used in the field. For smaller jobs, most specifiers are satisfied with selecting or approving colors from a pigment manufacturer’s standard chip set of colored-concrete samples. Under complex or critical job conditions, such as a historic-preservation project, trial batches (either field or lab samples) may be justified even for small-size projects.

**Preparation of slabs-on-grade.** Sub-slab moisture can affect the slab’s color and appearance. Industry standards recommend that sub-grade be uniformly graded, compacted, and dampened, and that it be free from standing water, hard or soft spots, ice, frost, and muddy areas. Add a 2-3-in. layer of compacted sand, gravel, or crushed stone. If a vapor barrier is used, overlap the sheets and tape holes in the barrier, then place a 3-in. layer of granular, self-draining compactible fill over the sheet to reduce shrinkage cracking. Grading should be sloped so that water drains away from the slab, and fill should be uniformly compacted and free of

self-draining water at the time of concrete placement. Forms should be positioned to achieve uniform slab thickness. Follow ACI standards for reinforcement and joint placement to control cracking.

**Preparation of formed concrete.** As the porosity of the form will affect the eventual color, absorbent forms should be avoided. Steel and high-density overlaid plywood forms and plastic form liners are recommended. Specify tight joints; surface blemishes occur when water containing cement is allowed to leak from forms. Use a release agent to assure forms can be removed without damaging colored concrete; non-staining, chemically active agents are preferable to oil-type form coatings. Remove forms in accordance with ACI 347. Different color hues may be expected between two surfaces where adjacent formwork is stripped at different ages, so this practice should be prohibited in spec. A prepour, pre-installation conference can be used to review the scheduling of form removal.

**Placing concrete.** As the transit-mixing time and cure rate will affect color, schedule deliveries for consistent mixing times for each load, so that trucks arrive just before concrete is required. Schedule placement and finishing of paving and exterior slabs to minimize exposure to hot sun before curing materials can be applied, and postpone concreting until windy conditions pass. Do not pour concrete if rain, snow, or frost is forecast.

**A paving design by artist Lynn Konecki was created using selected aggregate seeded into yellow-pigmented white portland-cement concrete following plywood stencil outlines.**



Place in accordance with ACI 301. Keep concrete temperature consistent; temperatures between 65 and 85 degrees F (18 to 29 C) will normally produce more uniform color. Prevent segregation of mix ingredients. Concrete should be placed near its final location and moved with shovels; don't move the material with vibrators. Deposit concrete in lifts 12 to 18 in. (300 to 450 mm) thick. Insert vibrator at about 18 in. (460 mm) on-center, depending on the concrete mix and vibrator used; the vibrator should penetrate at least 6 in. (150 mm) into preceding layer. Do not over-vibrate.

concrete, other types of coatings may produce a gloss that will change the appearance of the color.

**Joint sealants.** Joint sealants used at construction and control joints in concrete are available in colors to match and blend in with concrete colors.

**Efflorescence.** A white, powdery salt deposit that can appear on the surface of concrete as a result of water evaporation, efflorescence is more noticeable on colored surfaces, as it makes the colors look faded. Reduce efflorescence by specifying a low water-to-cement ratio, using cur-

## THE KEYS TO SUCCESSFUL CONCRETE INCLUDE CONSISTENCY IN MATERIALS AND CRAFTSMANSHIP AND CAREFUL PLANNING AND DETAILING OF THE PROJECT.

**Finishing.** A variety of attractive finishes is possible (see Up Close). Textured surfaces produce more uniform-looking concrete than a smooth-troweled or formed surface, because the roughness of the material scatters light reflecting off the concrete. Textured surfaces are also more slip-resistant when wet than smooth-troweled floors and paving.

For most paving and slab finishes, wood bull floats and darbies (straight-edged smoothing tools) work better than magnesium tools. The installer should wait for bleed water to disappear before starting floating and troweling. Over-troweling or starting troweling late can lead to burns and dark spots. Do not fog the colored concrete with water or add water to tools or brooms; adding water causes the surface to pale or discolor.

On formed surfaces, sandblasting, high-pressure water jet, bush-hammering, and surface retarders can be used to texture the surface and expose the fine or coarse aggregate. Sandblasted finishes can be brush, light, medium, or heavy, depending on texture desired.

**Patching.** Fill holes and defects in a formed-concrete surface within a few days after form removal, to let patches and surrounding concrete age together and reduce the possibility of color variations. Use the same patching materials and techniques that were approved on mock-up. Make patches with materials from the same sources as the concrete. Because the stiff mortar used for patching typically has a lower water-to-cement ratio than the rest of the concrete, it will normally dry darker. To overcome this, white cement should be added to the mortar mix. Determine mix proportions by trial and error; a good starting mix is 3 parts sand, 1 part gray cement, and 1 part white cement. Add enough color to create the same color/cement mix rate used on the job. But do not include the white cement used to lighten the patch when figuring the color/cement mix rate for patching. If necessary, add aggregate to mortar mix so patches will have the same texture and appearance as adjacent concrete.

**Curing.** Uneven curing equals uneven drying equals uneven color. Use only curing compounds specifically recommended for colored concrete. Curing with water, membranes, or unapproved compounds can discolor concrete. Maintain concrete temperature between 65 and 85 degrees F (18 to 29 C) in most applications during the crucial first days *after placing*. Dark or black-colored concrete will be exposed to additional heat in sunny conditions and may require extra protection during curing.

**Water-repellents and other coatings.** The use of a high-quality sealer, anti-graffiti coating, or water-repellent treatment may help preserve the beauty of colored concrete by reducing efflorescence and staining such as that from highway soot. While some penetrating compounds, such as silanes and siloxanes, will have no effect on the color of

ing compound, and designing concrete mix for less permeability. Seal concrete against water penetration and leaks, and keep de-icing salts away from paving that is not fully cured. Remove efflorescence with mild detergent or mild acid cleaners as soon as possible. If removal is delayed, deposits convert to calcium carbonate, which is permanent. Follow cleaner instructions and test in a small area to make sure cleaner will not etch or discolor surface.

With the growing availability of coloring techniques, architects no longer have to settle for gray concrete. Instead, concrete can be red, tan, black, buff—almost any color your design requires. And if gray concrete is what is wanted, colored concrete can make sure you get just the right shade. ■

### For more information on concrete and colored architectural concrete:

- **American Concrete Institute**  
P.O. Box 9094  
Farmington Hills, Mich. 48333  
313/532-2600
- **Portland Cement Association**  
5420 Old Orchard Road  
Skokie, Ill. 60077  
847/966-6200  
800/868-6733  
<http://www.portcement.org>  
"Color and Texture in Architectural Concrete," Pub. SP021. Portland Cement Association.  
"Finishing Concrete Slabs with Color and Texture," Pub. PA124. Portland Cement Association.
- **Precast/Prestressed Concrete Institute**  
175 W. Jackson Boulevard  
Chicago, Ill. 60604  
312/786-0300  
312/786-0353 (fax)  
Architectural Precast Concrete, Pub. MNL-122. 352 pp.; \$75.  
Architectural Precast Concrete—Color and Texture Selection Guide. Pub. CTG-40. Binder format; \$40.

"Architectural Precast Concrete—The Solution of Choice for Shaping the Future," a short video demonstrating applications and installation techniques. Pub. SPV-11. \$60.

All of these PCI technical resources are offered to registered architects without charge on receipt of a request on professional letterhead.

- **Architectural Precast Association**  
PO Box 08669  
Ft. Myers, Fla. 33908  
941/454-6989
- **Concrete Reinforcing Steel Institute**  
933 N. Plum Grove Road  
Schaumburg, Ill. 60173  
847/517-1200
- **National Ready Mixed Concrete Association**  
900 Spring Street  
Silver Spring, Md. 20910  
301/587-1400
- **Tilt-Up Concrete Association**  
P.O. Box 430  
Horseshoe, N.C. 28742  
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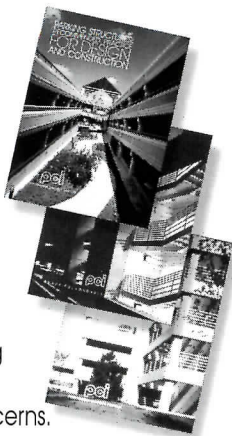
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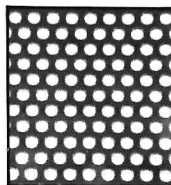
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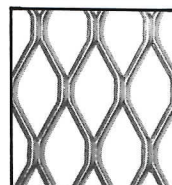
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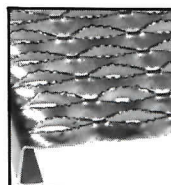
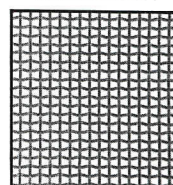
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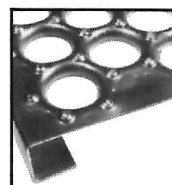
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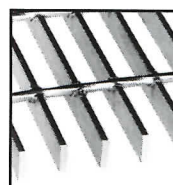
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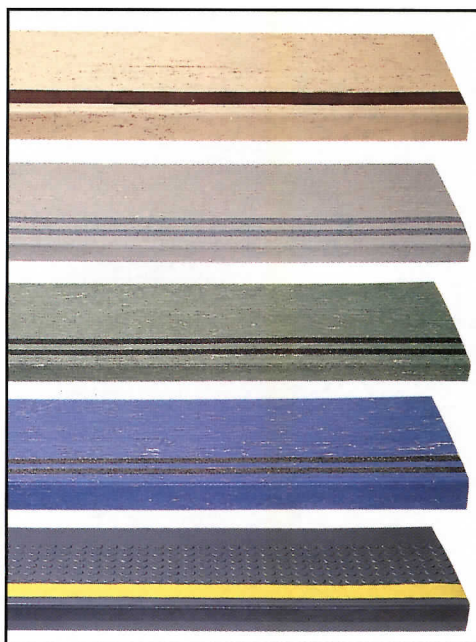
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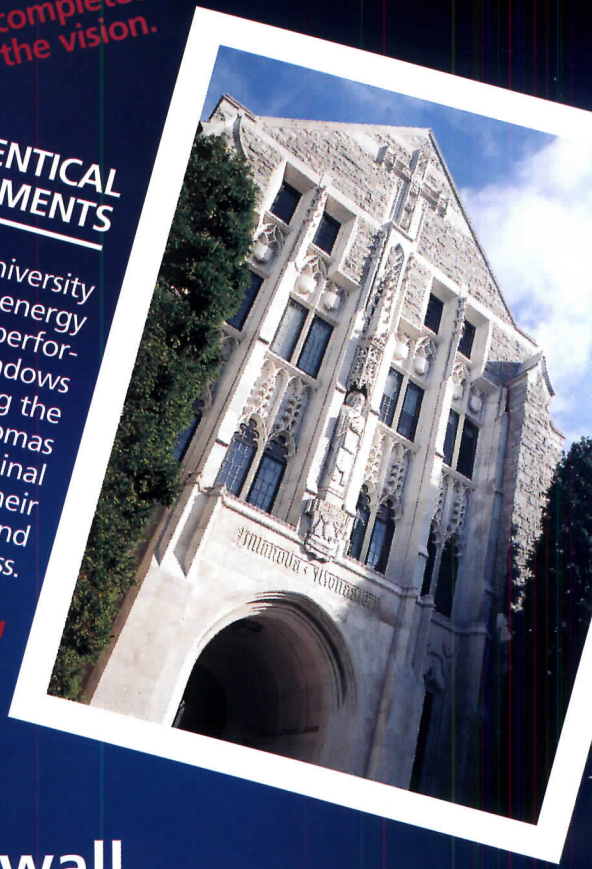
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# Copyright Law in the Age of the Web

**WHILE RECENT CHANGES IN COPYRIGHT OFFER ARCHITECTS MORE PROTECTION, THE INTERNET MAKES DOCUMENTS MORE VULNERABLE.**

by B.J. Novitski

Now that digital technology makes it easier for architects to share drawings with consultants and clients, that benefit is backfiring in an unexpected way. The same characteristics that make electronic documents easier to share—accessibility and changeability—also make those documents easier to steal. Moreover, recent changes to copyright law have far-reaching implications for architectural practice, which are only beginning to be understood.

Although reports of outright theft are relatively rare, architects and their lawyers are beginning to imagine worst-case scenarios. What could happen if a client used a set of drawings for a second, unauthorized building? Or if a layperson found design drawings on the Internet and used them for his or her own purposes? The architect would not only be deprived of the income that might be forthcoming from the additional work, but could be liable for any dangerous conditions created by building a structure on a site for which it was not designed. Placing a copyright notice on drawings may discourage but does not prevent such theft scenarios. In theory, anyone could download a drawing, modify it so it is unrecognizable from the original, then add their own name and copyright notice. Without the telltale erasures that might be clues on paper drawings, it could be impossible for the original creator to prove ownership of the design.

To strengthen the protection offered by copyright law, architects also need well thought-out contracts and a good dose of common sense. They should be concerned about limiting their professional liability in cases where their drawings are distributed to authorized users but subsequently misused. Architects should also be mindful of ways they can reduce the chances that their designs or drawings can be stolen and used for unauthorized purposes.

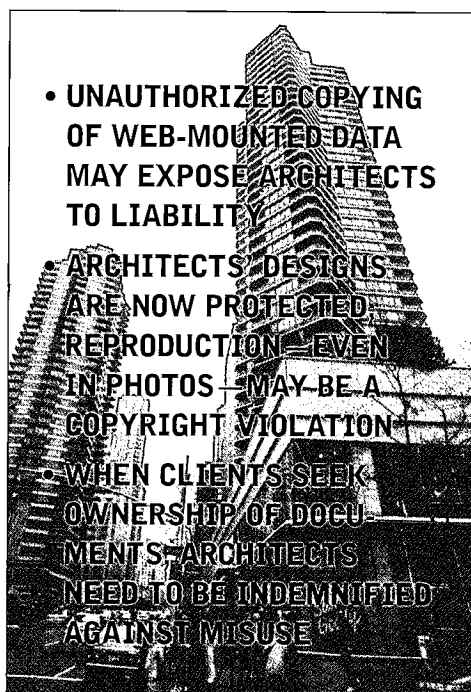
## Who owns design documents?

The first, most important step is to write contracts that spell out exactly how electronic files are to be used and who owns which rights to them. The federal copyright law states that all rights to any drawing or design belong to the creator unless the rights are explicitly signed over to another

party. In other words, an owner may pay the architect for services, but does not own the drawings, which are an instrument of service owned by the architect. Unless a written agreement says otherwise, the architect retains rights to the intellectual property of both the drawings and the underlying design. Through language in the owner/architect agreement, an owner licenses the rights to drawings for construction and facilities

management, but such a limited license does not give the owner the right to reuse the same drawings for a second building, for example. During the course of design development, it may seem that ownership of the drawings is blurred as multiple architects, consultants, and others contribute to the design. Although joint ownership is certainly a legal option, this should be specified in writing before the project gets underway. To maximize their control over the design, architects may want to specify that they retain all rights in spite of any contributions by others. Alternatively, architects may specify that consultants retain the copyrights to the drawings and specifications they themselves prepare. Carol Patterson, of Zetlin & De Chiara, a New York law firm that specializes in design and construction law, advises her architect clients to retain as many rights as possible. At first, she says, building owners may demand all rights including copyright ownership, but it is often possible to negotiate a limited license for reuse, which will satisfy their needs for facilities management or future renovations. Such limited licenses do not change the architect's ownership of the copyright. "As part of the original agreement," Patterson says, "there should be an indemnification clause protecting the architect against any claims that arise from later changes in the work. At the end of the project, when the drawings are turned over to the owner, the architect can remove the title block to avoid responsibility for another party's future work."

The precaution of putting copyright notices on all disks, files, and title blocks is not necessary to establish copyright ownership, Patterson notes, but it is advisable. The notice serves as an important reminder to those who may see or receive the drawings that they cannot copy them without permission. Similarly, registration is not required to establish a copyright, but it is necessary to file with the copyright office



Architect Philip Birnbaum redesigned the Savoy (right tower) after a lawsuit alleged he copied his own design for Trump Tower (left tower).

B.J. Novitski is a freelance writer based in Eugene, Ore., who specializes in architectural technology, practice, and education. She can be reached at [bjn@efn.org](mailto:bjn@efn.org).

before beginning a copyright lawsuit. And early registration offers additional benefits in the form of increased damage claims in the event of litigation related to copyright infringement. An architect working on renovation projects should be sure to investigate the legal status of existing drawings before using them for subsequent work.

#### Copyright now extends to design

The Architectural Works Copyright Protection Act of 1990 made architectural design—as well as drawings—copyrightable. In theory, this has improved protections for an architect's intellectual property because it provides more grounds to litigate against infringement. Kansas City architect and attorney Gregory Hancks, AIA, says: "Historically, the courts have not provided much teeth in the law when someone does something

Now that some municipalities are allowing electronic documents to be submitted for building permits, additional concerns are emerging. Such permit information has always been part of the public record, but until now has been difficult to copy. In New York City, permit application information is accessible through public electronic kiosks; in other locales, it is already being exchanged via the Internet. According to New York architect and design-management consultant Jerry Albert Laiserin, AIA, review agencies and architects all appreciate the convenience, but these electronic submissions make proprietary design work more vulnerable. "Imagine a big-name architecture firm," Laiserin says, "that has invested the time, energy, and collective experience of hundreds of people over the years. If their signature details are available for anyone to copy, where is the firm's unique advantage? Their copyright may not be

## THE NEW PROHIBITION AGAINST COPYING DESIGN ELEMENTS APPLIES TO BOTH INTENTIONAL AND UNCONSCIOUS COPYING

with an architectural drawing they've misappropriated. But now that the design itself is protected, the content of an architect's work, as well as the drawings, cannot be copied. The big change is that the architect now retains rights to certain design solutions even when they are made public in completed buildings or published drawings." The new law protects only designs that were built (or published) after 1990. Thus there have been as yet relatively few opportunities for such designs to be copied in a later building, so it is too soon to know how the courts will interpret infringement.

Nevertheless, Hancks warns that the new law may have unintended consequences that could prove harmful to architects. The new prohibition against copying design elements applies to both intentional and unconscious copying, and is at odds with the long-standing tradition within the profession of responding to historic precedent (or imitating it outright). Moreover, the distinctions between illegal copying and legal conformance to industry standards or local design regulations could be cloudy. If architects cannot agree among themselves about these design issues, it is unlikely that a court of law, lacking architectural sophistication, will be able to make judgments that architects will be happy with. Anticipating such legal uncertainties, owners and developers are beginning to ask architects to indemnify them against design infringement.

#### When "borrowing" becomes stealing

Even architects confident that their own work is original are burdened with carefully overseeing the work of employees and consultants to make sure they do no improper "borrowing" from other designs. Yet it remains uncertain how the courts will eventually interpret similarities between designs. The few examples to date suggest that court cases will not be limited to high-profile architectural masterpieces but will more commonly involve judging the uniqueness of more mundane construction. In one of the first lawsuits brought under the new law, the court bypassed the original intent to protect great works and awarded damages for infringement of the copyright in the design and drawings of tract housing.

The good news, Hancks notes, is that now architects can go after thieves not only for stealing drawings (whether paper or electronic) but also for stealing designs. This may be especially beneficial now that electronic distribution makes the drawings so much more vulnerable. The architect need only prove that the design was copied without having to demonstrate how—or even if—the drawings themselves were misappropriated. But exactly what will constitute that proof will likely depend more on a body of legal opinions that has yet to be developed.

infringed by others studying their millwork details, but even without direct copying, they've still suffered some degree of competitive loss." What's worse, Laiserin notes, is that, although some degree of protection can be provided in architect-owner or architect-consultant agreements, architects do not sign agreements with the general public. The only protections for electronically available information is the public's respect for the copyright notice and the threat of future litigation.

#### Layering promises to limit leaks

Fortunately for architects, technology can partially seal some of the leaks that technology creates. Increasingly, Laiserin predicts, architects will remove proprietary information from the drawings they submit for public review. By turning certain CAD layers on or off, they can include the minimum amount of information needed for officials to review code, health, safety, and welfare issues but withhold casework or custom lighting fixture details. Laiserin adds: "Different subsets of construction documents will be created for different purposes. The permit set will include just enough to get approval; the set that goes out to bid will be more complete. The set for the client will be different from the one that's retained for internal review and different still from the final record set that goes back to the client at the end of the job for use in facilities management. Technology makes it easy and affordable to tailor the documents for the intended audience."

Copyright and liability issues surrounding electronic documents are currently under consideration at the AIA, where the Standard Form of Agreement between Owner and Architect, AIA Document B141, is being revised. In past editions of the contract, paper drawings, other documents, and their copyright remain the property of the architect. The owner licenses them for specified construction and facilities-management purposes. The new edition will most likely extend that policy to CAD files, and will include a guide for modifying the model language to suit particular projects. The new edition will also address the question of whether a design professional is entitled to rely on the validity of existing electronic documents any more than they rely on existing paper drawings. A final version of the document is expected in the fall.

This decade has brought dramatic changes to both technical and legal frameworks in which architects share their work with their clients, consultants, and the general public. Maintaining rights to the intellectual property will require both technical and legal strategies. This means architects will need to be increasingly vigilant about the electronic data they release and the contracts they craft.

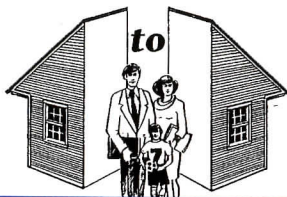
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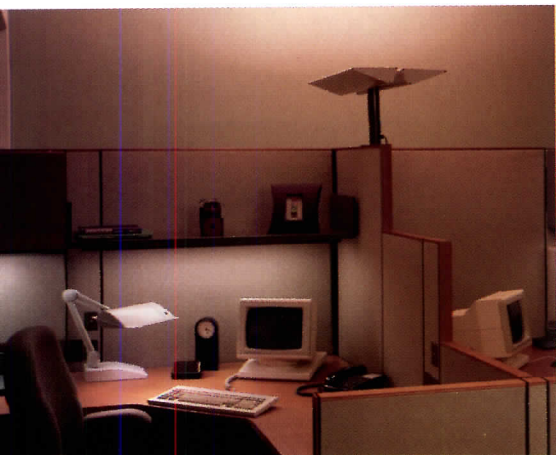
**LEARNING**

**OBJECTIVES**

*After reading the accompanying article, answering the questions, and reviewing the answers, you will be able to:*

- Contrast traditional ambient lighting approaches with a two-component lighting strategy.
- Describe the advantages of, and barriers to, using indirect lighting as a key element in lighting plans.
- Cite at least three benefits of new technical developments in indirect and task lighting systems.

UNLIKE ORDINARY LIGHTING, VARIABLE PANEL HEIGHTS, OVERHEAD STORAGE CABINETS AND WORKSTATION ACCESSORIES POSE NO PROBLEM WITH A TWO-COMPONENT SOLUTION.



**TWO-COMPONENT LIGHTING, THE TOTAL SOLUTION FOR GLARE-FREE ILLUMINATION**



*The Intelligent Alternative to Glare-Induced Problems*

American corporations lose three billion dollars in pain-induced absenteeism, a recent report of a Louis Harris & Associates survey states. The National Lighting Bureau attributes much of this to office lighting no longer suited to the tasks employees perform and to the employees themselves.

The NLB notes that there is a direct link between poor lighting and eyestrain, headaches and similar pain-causing problems. Human eyes, which have to adapt to working under daily conditions of lighting glare, often become strained and are forced to remain that way.

Adjusting the angle of the body to avoid lighting glare only compels the employee to assume an unhealthy, ergonomically incorrect posture, straining neck and back muscles.

Why are corporate offices, places which usually pride themselves in today's globally competitive economy on their productivity,

responsiveness and computerization, willing to put up with improper, inadequate lighting?

The NLB indicates that poor office lighting exists because frequently the tasks employees perform are different from the past. Namely, the switch from paper-based work to that which is computer-based. Far too many people, including corporate management, simply assume that "light is light," which is not the case at all.

Computer-based tasks require employees to look into a mirror-like screen with comparatively poor contrast. Further, the characters of words on a computer screen are not as sharply defined as those on paper. As lighting design professionals intrinsically understand, the type of lighting needed for computer-based tasks is quite different than the lighting needed for paper-based tasks, and requires a different solution.

**FACTORS AFFECTING OFFICE LIGHTING STANDARDS SINCE THE 1980S**

If architects and professional lighting designers learned anything from the decade of the '80s, it is that corporate building and staffing priorities change rapidly when events dictate.

Profligate spending on corporate "monuments" was rapidly curtailed beginning with the stock market fall of October, 1987, and went into high gear two years later with a second major drop in market prices and corporate (or personal) profits. "Downsizing" entered the corporate vocabulary here and abroad for the first time, and now appears to have become a lasting part of everyday terminology.

Since that time, and spurred

on by increasing global competition, the drive by corporations has been on cutting operating costs and overhead. Building renovation in the late 1990's continues to outpace new construction. When a corporation moves into "new" office space today, it is more often than not likely to be a renovated or vacant existing structure, rather than a new building.

Inside those renovated office spaces, the ostentation common to the '80's has been replaced by an emphasis on productivity and flexibility. One exception to the more practical emphasis of the '90's has, somewhat curiously, been office lighting. It, more often than not, remains largely unchanged inside office environs. When it has *changed*, such change is often only a partial one. The result is office lighting that is not only incorrect, but likely to cost a corporation millions of dollars in productivity losses and compensable health claims.

This last statement is especially relevant, given the continuing proliferation and increasingly wide-spread use among all strata of office employees of desktop computers. Computers are viewed quite literally as an aid to controlling corporate costs, speeding workflow and boosting productivity. Computer literacy, thought in the 1980's to be the province of specialized knowledge and task workers, is today mandatory for office employees in virtually every position, including management.

**OFFICE LIGHTING AS VILLAIN**

Most office lighting is still thought of as largely comprising a single component: ambient lighting, in row after row of recessed or suspended ceiling fluorescent "troffers." The reasons for this appear to be logical. An office

space being constructed or expanded requires necessary illumination. Since office lighting has not achieved the brand identity of office furniture and is considered to be a commodity product, the routine solution is to specify product with the lowest initial cost, as part of a total lighting "package," and often have an electrical contractor install ceiling fluorescents from one end of a space to the other. Little regard may be given to the layout of workstations and individual offices in the space - to say nothing of who among the people occupying the space will be using desktop computers and who will not!

An inescapable reason why a one-component approach to office lighting continues today is attributable to the natural inclinations of building architects, professional lighting designers who must follow the instructions of their clients.

The specifying architect or professional lighting designer, when devising a lighting plan for a given office space, is concerned primarily with the "main" lighting in the building or space. That main lighting is the ambient or overhead lighting which illuminates the broad expanse of employee office space, corridors, training rooms and other specialized areas.

Because such lighting may be wired and installed early in today's "fast track" interior renovation or construction process, it is often times ordered before individual floor plans have been developed or finalized. Most ceiling fluores-

cents when installed, are still aimed directly down into the workspace. That's where the work that needs illumination is taking place, isn't it?

Glare, reflections and shadows on the computer screen are frequently considered a "minor" problem, affecting only those employees who use computers heavily. Once the design plans for the lighting and the space have been approved, employees who experienced glare problems can gerrymander their own solutions: They can play with reangling their computer terminal in an attempt to minimize screen "washout" and distractions caused by shadows and reflections; reangle the position of their heads, necks and torsos in relation to computer screens; or, the all-too-frequent last resort, tape cardboard around the perimeter of the computer screen in an attempt to shield it from overhead glare and reflections.

Once specified and installed, most ambient lighting is unchangeable without changing an entire lighting layout; adding greatly to lighting costs and disrupting productivity. All of the foregoing is the nature of a one-component approach to office lighting.

#### TASK LIGHTING AS STEPCHILD

Although most ambient lighting is not easily changed, for years there has existed a well-known "second component" that is inherently flexible and adaptable to lighting needs at the workstation itself: Portable, adjustable task lighting. Why isn't this important second component, a supplement to the ambient lighting in an office, employed more often to help overcome the localized problems of glare, reflections and



shadows on worksurfaces and computer screens?

The problem task lighting typically faces, if it enters the office lighting equation at all, is

#### *Symmetric Versus Asymmetric*

that it occurs near the end of the office specification process. After the "main" lighting, after the office furnishings. Task lighting is often categorized as an "accessory" - easy to overlook as an unnecessary frill, especially if the corporate client does not mandate it as a requirement of the office or lighting design plan.

As previously noted, the professional lighting designer, if included in the space design and lighting specification process, is primarily concerned with the "big picture" the overall area or building lighting; not the task lighting. If lighting is the province of the building architect, and if task lighting is included in the specifications, it is often an afterthought, separate from the ambient lighting plan in time, in responsibility and in fact.

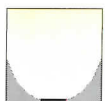
Clients who have not mandated task lighting as a requirement of the design plan and budget at the outset, usually realize the need only after all work is complete - and the lighting designer and space architect have moved on. In such cases, it is the

Two distinct forms of adjustable task lighting can be specified, symmetric or asymmetric. Symmetrical task lighting casts its light in an inverse conical shape.

Modern units employ a choice of either compact low-wattage fluorescent, tungsten halogen or incandescent light sources, positioned inside the reflector, above eye level, and generally protected by a clear shield. The light they emit should be infinitely adjustable, employing counter-balanced spring arms with dual pivot points and rotatable lamp-heads.

Asymmetrical task lighting casts its light obliquely, across work surfaces at obtuse right or left angles with a sharp beam cut-off. Shadows on worksurfaces or computer screens can be completely eliminated with asymmetrical task lighting. Whichever form of task lighting is selected, symmetric or asymmetric, it should embody the same concealed light sources and adjustability that allows it to adapt to its user, rather than the other way around.

Because task lighting is always completely portable, it moves readily with the changing workplace; to accommodate, different workstations or private office layouts as well as the increasing number or size of VDT screens.



INDIRECT LIGHTING



TASK LIGHTING

**LUXO**



A POPULAR CHOICE FOR CONTEMPORARY INDIRECT LIGHTING IS LUXO'S RONDA CEILING PENDANT FIXTURE.

The more astute specifier, however, may recall a landmark study of a Xerox Corporation office facility, begun in 1989 and completed in 1990. The study was designed by an acknowledged specialist in office ergonomics and human factors - Dr. Alan Hedge, a professor at Cornell University's Department of Environmental Analysis, part of the New York State College of Human Ecology.

The Cornell study showed that an alternative form of ambient fluorescent office lighting, indirect, cut the number and frequency of reported employee visual- and health-related problems affecting job performance by approximately 50%. Employees at different job strata, working in open-plan partitioned spaces, or in windowed or windowless private offices, shared positive results equally.

Secondly, when indirect fluorescent lighting was compared to those direct fluorescent lighting fixtures employing superior parabolic reflectors, which aim and direct light at proscribed angles, there was still unanimous preference for indirect lighting.

## The Cornell Office Lighting Study

most vocal individuals or department heads within the office who make it known that they need task lighting for their workspaces. That leaves the corporate facilities manager having to quickly react - to go out and get lighting from a catalog, a local office supply store or from the first manufacturer's sales rep who may come to mind.

In any case, again, it is an afterthought, purchased and installed separately from the ambient lighting already in place. The result is two distinct examples of one-component thinking. Unfortunately for those who have to work in such an office space, it is "the norm" when it comes to lighting design and specification.

### AMBIENT LIGHTING (PART II)

From an architect's and client's converging interests, and because of today's greater than ever pressures to bring a project in on time and under budget, ambient lighting, employing linear fluorescent tubes aimed directly down into the space, is still often thought to be the most cost-effective solution to office illumination, as it was in the 1980's. Such lighting units can be purchased at deep discounts from many large lighting manufacturers.

It is true that new, more energy-saving versions of linear fluorescent tubes have been introduced to the market in the last few years. Ballasts that power these units are now available in compact electronic models that, while they do cost more up front, operate more efficiently over a longer life-span and without the annoying hum of standard magnetic ballasts. It is

easy for end users to think they see a cost/value relationship it would seem foolhardy to ignore, by moving away from the routine approach to specifying lighting and potentially encountering resistance.

If indirect fluorescent lighting provides a demonstrably better solution to glare and other problems attributable to direct office lighting, why hasn't it become the universal standard against which all office lighting solutions are measured?

and most suspended units are equally inflexible once installed - whether direct or indirect in design. Installed in long rows, they remain immovable without incurring substantial costs and employee disruption, regardless of the changes or needs occurring in the office spaces below.

A third reason indirect lighting lags in replacing direct units is the least understood, yet most obvious to lighting specifiers and corporate clients alike.



There are three answers. Perceived cost is one. Indirect lighting does cost more than direct lighting, *initially*. At the time of specification and purchase, thought is usually

given to the impact of direct ambient lighting on employee health and productivity. Corporate America is geared towards a "Buy now, pay later" mentality, rather than one of "Buy now, save later."

A second reason indirect lighting hasn't overtaken direct is that most indirect lighting luminaires are no more flexible or adaptable to today's changing office configurations and work methods than their direct counterparts. Recessed ceiling troffers

It is but a single component of what requires a two-component solution to achieve glare-free, productivity-enhancing office lighting, that offers the greatest long-term economy.

Such a two-component solution is ideally found when the newest, most advanced forms of indirect fluorescent luminaires are paired with portable, personally adjustable symmetric and asymmetric task lighting.

These new forms of indirect luminaires may be specified in a range of flexible mounting options, lamp configurations and outputs that employ state-of-the-

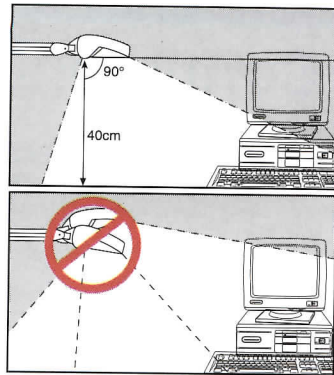
## Why Man Can Not Live by Indirect Lighting Alone

**LUXO**

art computer-enhanced parabolic reflectors. They are the antithesis of long, monotonous rows of ceiling troffers, still so commonly specified.

As the first component in a two-component approach to glare-free office lighting, new ceiling-suspended indirect models offer a range of high-performance, yet economical light outputs, to match changing employee densities and the degree of desktop computerization in the office space below.

Wider spacings are possible between fixtures with these indirect units. In many cases, fewer fixtures need be installed, resulting in greater economy of



is personally adaptable task lighting. As with the newest indirect units, an exceptionally broad selection of compatible models is now available. The range of task lighting mounting options can parallel those of indirect lighting.



purchase, installation and maintenance, whether for a new building or retrofit.

Further, ceiling-suspended models can be supplemented with matching indirect wall units, and floor, panel- or worksurface-mounted luminaires. All can be of like design for continuity, and can be specified model by model with office-specific, task-specific efficiency.

The second component in a two-component lighting solution

There are desktop models with weighted bases; edge-clamp models that attach to worksurfaces or panels; models that affix to tool rails or panel connectors above the work-surface; and floorlights that articulate or can be positioned to provide glare-free illumination of papers, books and computer keyboards.

Lighting specifiers should seek those indirect units which offer both high-performance and more economic light levels.

**INTENSE USE OF VIDEO DISPLAY TERMINALS SHOULD HAVE THE ANGLE OF THEIR AMBIENT LIGHT IN RELATIONSHIP TO VDT SCREENS 45° (OR HIGHER, TO MINIMIZE GLARE ON THE SCREENS.)**

Personally adjustable task lighting, used in conjunction with the indirect area lighting, completes the two-component system.

Specifying architects and professional lighting designers should consider communicating the benefits of a two-component lighting solution to their clients, whenever a new lighting plan is conceived or a present lighting problem addressed.

Upgrading building and office lighting systems to an energy-efficient, glare-free two-component approach does not always require removal of lighting presently installed. Manufacturers, such as Luxo, offer complete families of indirect lighting that comprise a range of wall fixtures, floor lights and furniture-mounted designs, which allow existing glare-causing ceiling fixtures to simply be turned off and left in place.

Since ceilings are most often replaced in office-building renovations, however, and an electrical contractor is already part of the design/build team, direct lighting systems can be removed for replacement with two-component systems.

Because the best indirect units employ high-performance, compact fluorescent light sources, energy-efficient, even illumination can be attained with fewer

fixtures while meeting Illuminating Engineering Society of North America (IESNA) recommendations for lower, more economical light levels. The new forms of indirect lighting can be positioned where they provide even, proper area illumination without glare, reflections or shadows on work

surfaces and computer screens. With the addition of portable, adjustable task lights, the lighting designer and end-user have a fully functional, economical and glare-free two-component system.

## Upgrading Present Lighting Systems With Two-Component Lighting

*All Lighting Is Not Created Equal*



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TWO-COMPONENT LIGHTING, OR A PERSONAL PRESENTATION OF THE SUBJECT, READERS ARE INVITED TO CONTACT THEIR LOCAL INDEPENDENT LUXO LIGHTING SALES REPRESENTATIVE; OR LUXO CORPORATION, 36 MIDLAND AVE., PORT CHESTER, NY 10573. TELEPHONE: (914) 937-4433. FAX: (800) 648-2978. IN CANADA, CONTACT LUXO CANADA, 1957 LE CHATELIER, LAVAL, QUEBEC H7L 5B3. TELEPHONE: (800) 361-3993. FAX: (800) 567-9215.

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# AIA/Architectural Record Continuing Education



## CONTINUING EDUCATION

The preceding section *Two-Component Lighting, The Total Solution for Glare-Free Illumination*, sponsored by Luxo Corporation, is part of the AIA/ARCHITECTURAL RECORD Continuing Education Series. You can receive continuing-education credits by reading the section, studying the learning objectives and answering the questions below. Check your answers against those provided on the bottom of the page and return the self-report form as indicated.

## LEARNING OBJECTIVES

After reading the accompanying article, answering the questions, and reviewing the answers, you will be able to:

- Contrast traditional ambient lighting approaches with a two-component lighting strategy.
- Describe the advantages of, and barriers to, using indirect lighting as a key element in lighting plans.
- Cite at least three benefits of new technical developments in indirect and task lighting systems.

For Self-Report Form, turn to page 202.

## QUESTIONS

1. Explain some of the problems engendered by one-component ambient lighting and why this approach might be characterized as a process problem.
2. Task lighting is often used in an office to help solve overhead lighting glare problems. Why is task lighting itself not an ideal solution to ambient light problems?
3. List the pros and cons of the newer indirect lighting systems.
4. What are three reasons for the slow adoption by corporate clients of indirect lighting systems?
5. Your client wants standard overhead lighting with superior parabolic reflectors for lighting direction. These units are available from a supply house at attractive rates. How would you support a case for indirect ambient lighting?
6. Your client is a software company characterized by shifting and variable-number project teams. Outline the elements of a state-of-the-art, two-component lighting system that would meet their needs.

## ANSWERS

1. Ambient or overhead lighting of main areas often causes glare, reflections and shadows on work surfaces and computer screens, and may indirectly lead to ergonomic problems and loss of productivity. The flexibility of this lighting approach is limited through a process where ambient lighting is often specified before floor plans and occupant needs are finalized, and where various forms of indirect lighting costs more initially than many direct lighting methods.
2. Task lighting is often brought in after the fact or late during the design, and may not be properly budgeted or coordinated with the general ambient lighting.
3. Improvements include a complete absence of glare, long-term energy savings, more compact electronic ballasts with no hum. This form of lighting is generally more accepted by clients than direct lighting approaches. However, indirect lighting is perceived as more expensive due to its up-front cost.
4. Indirect lighting is perceived as more expensive due to its higher initial cost. Most installations are not any more adaptable to changing office uses than direct lighting. Alone, this approach lacks the combined strengths of a two-component lighting strategy.
5. Indirect lighting can solve workplace and workstation glare problems. The Cornell Lighting Office Study found that indirect lighting substantially reduced employee visual and health-related problems, and user preference was for indirect over direct lighting. These points can translate into productivity and economic benefits for corporate users.
6. This system would conserve energy with lower light levels (but still meet ADA guidelines). Glare problems would be eliminated through a combination of widely spaced ceiling-suspended indirect lighting and complementary adjustable wall, floor and workstation task lighting, based on office and task specific needs.



# NEW PRODUCTS

## OFFICE SYSTEM SOLVES SOME CABLE-MANAGEMENT PROBLEMS

The first production model of Office Specialty's Platform office-furniture system debuted at NeoCon 1996, and its wire-management capabilities have attracted a lot of attention in the year since. Intending to solve what it saw as cable-management deficiencies in the open-office environment, the company started with the wires, not with the desk, developing an open-architecture frame that puts voice, data, and electric-power cables at point of use.

The cutaway view below highlights the basic concept behind Platform: tubular-steel uprights connect to two-section steel tracks without creating an obstructing post. Face panels or "tiles" snap onto this framework in such a way as to create a continuous void over the length of the installation. Cables are supported at any height horizontally by "fishbone" wire managers that can slide along the connecting rail. Cables are really laid in; there are no holes or apertures through which fragile wire must be threaded. Assembly requires three parts: a long bolt (for straight runs); a shorter bolt, for right-angle connections; and a universal bracket, which supports work surfaces, storage bins, and shelving accessories from the steel uprights.

### Powering the system

Sales VP Ralf Miethner describes the wire-management issue as "not

how many cables you can handle, but how you handle them." Platform can work with both "home run" and "zone" wiring layout schemes, as electricity can be brought into the framework at the top of any panel, with a ceiling feed kit, or anywhere along the base, which is set just off the floor on self-leveling feet. Panels can also fit flush against a perimeter wall or support column to receive building power, fed directly into the face of a panel without needing a cumbersome offset space.

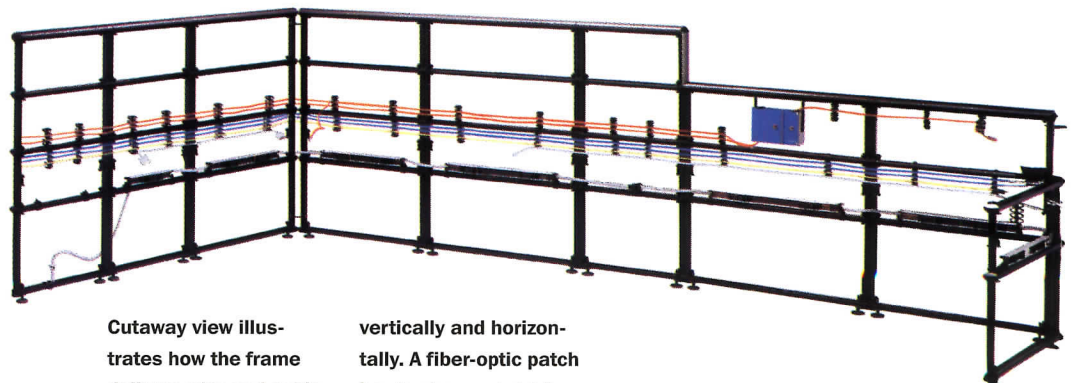
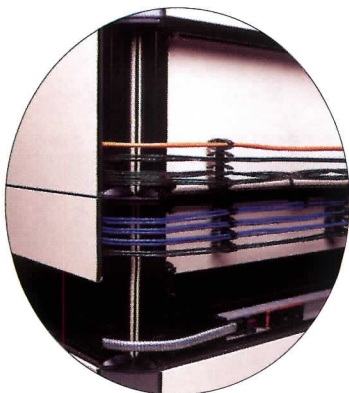
Once in the framework, AC is accessible where desired, below or above the desktop. Power can be furnished as four circuits, with two dedicated to computers, or in three individual circuits. The wire-management layout keeps fragile copper or

New Products in June covers the workplace and some new furnishings for it. Included: Platform from Office Specialty, a wire-distribution system that comes along with desktops, privacy partitions, and storage elements. There are workstation hvac components that let each employee control the heat, ventilation, task lighting, and masking sound at his or her own personal work space, and curvaceous desks that add swank to the home office. The Briefs pages include a look at some new contract seating as well. And office equipment is also featured in the Literature section.—Joan Blatterman

fiber-optic cables free of crimps and strain damage from pulling. The bend radius presents no problems, and the flexible placement options allow specific feeds to be located as necessary to maintain code-recommended separation distances from sources of interference. The wire-management space is large enough to allow for a "goof loop" of additional cable coiled inside the frame. Fiber-optic patch-connection panels can fit right inside the frame, then break out to individual zip cords, keeping the needed lengths of expensive fiber-optic to a minimum.

Platform can be specified with cabinets for any particular requirement, such as 7 1/2-in.-deep CD-ROM shelves, or 10 1/2-in.-high file drawers that let even wheelchair-height workstations have a full complement of file space. The snap-on panels that cover the framework can be specified in a solid face, plain or embossed; perforated for better air flow; open or glazed. There are 60 standard paint colors, and any shade can be custom ordered. 800/563-7128. Office Specialty, Holland Landing, Ont.

CIRCLE 250



Cutaway view illustrates how the frame delivers wire and cable

vertically and horizontally. A fiber-optic patch box is shown at right.

## CHANGE, TECHNOLOGY DRIVE DESK DESIGN

Currently, there is no legislation in force mandating ergonomic-design criteria for office furniture. Architects and designers concerned with the contents of eventual standards might contact the Human Factors and Ergonomics Society of Santa Monica, Calif. An accredited standards developer responsible for ANSI/HFES 100-1988, which deals with recommended illumination and sound levels as well as with furniture configurations, the society maintains a mailing list of those interested in participating in the public review of the document this fall. Copies of ANSI/HFES 100, referenced in some federal government procurement specifications, can be ordered from the society for \$25; phone 310/394-2410.



### ▲ Height-adjustable desks

A foot-button-operated torsion spring lets users move Generation IV computer desks from a lower, seated height up to 45 in. for standing applications. Platforms come in rectilinear, corner, and "organic" shapes; leg-mounted brackets hold the CPU. 603/432-4495. SIS Human Factor Technologies, Inc., Londonderry, N.H. **CIRCLE 251**

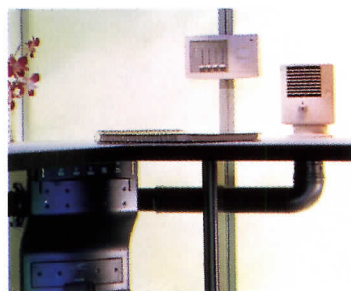
### ▶ Universal spine wall

A new stackable wall, Causeway works with both Haworth and other manufacturers' furniture to cut the cost of relocating voice, data, and power service. Modular base units in widths from 24 to 48 in. wide stack to create a utility corridor that allows unconstrained access at ADA-compliant, "beltline" level or at any other desired location. Work surfaces, storage bins, and shelves are held by universal brackets at any point along the Causeway. 800/344-2600. Haworth, Inc., Holland, Mich. **CIRCLE 252**



### ▼ Office productivity booster

Personal Environment workplace hvac aims to enhance an employer's bottom line by improving workers' comfort level. A new circulated-air version with telescoping ducts permits retrofit into existing spaces where conditioned air is supplied through conventional ceiling systems. Components allow employees to control the air temperature and flow, radiant heat, task lighting, and background-noise masking of their individual work spaces. 414/274-5412. Johnson Controls, Inc., Milwaukee, Wis. **CIRCLE 253**



### ▼ Into the wall

The Reasons workstation is based on an off-modular unit that permits overhead storage cabinets and other components to be placed anywhere along the system's horizontal rails. This frees up vertical surfaces to accept a flat-panel display screen wherever it would be most comfortable to view. Snap-on facing options include wood veneer, fabric, perforated, or glazed. 610/429-1400. Transwall, West Chester, Pa. **CIRCLE 256**



### ▲ Site-specific solutions

Newly created Options division specializes in customizing product to fit corporate needs, such as this multimedia storage cabinet that doubles as a locker. Meridian, Spring Lake, Mich. **CIRCLE 254**



### ◀ Desking for rapid change

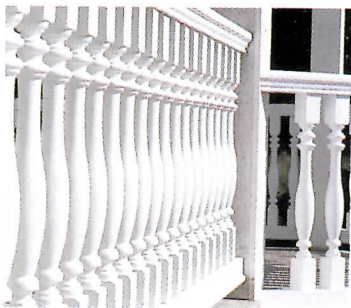
Vitra's Ad Hoc components include Multi Tables, easily turned and reconfigured for individual or team tasks, and the Mono Wall, which supports heavier, less-mobile equipment and serves as a base station for various rolling work surfaces and personal file carts. Designed by Antonio Citterio and Glen Oliver Löw to work as a production unit in either home or office, the furniture includes a "vertical desk" that is powered, with adjustable shelving for computers and reference materials. 212/539-1900. Vitra, Inc., New York City. **CIRCLE 255**

### ▼ Safe at home

Shown in its full wraparound "Oval Office" configuration, Atelier is a new cherry-veneer home-office line that features curved tops and rounded edges. Shipped ready to assemble, the components shown retail for \$3,099. 608/849-4181. Techline, Waunakee, Wis. **CIRCLE 257**

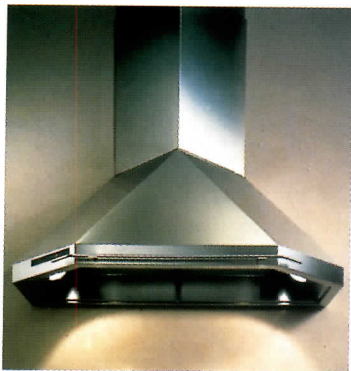


## PRODUCT BRIEFS



## ▲ Forever young

Part of an extensive line of weatherproof, molded-polymer architectural accents, this balustrade is a reinforced structural assembly. Balusters, posts, and rails come in several styles, such as Victorian and Georgian. Complete specification manual offered. 419/445-0116. Style-Mark, Inc., Archbold, Ohio. **CIRCLE 258**



## ▲ Cooking ventilation

A new line, chimney-style vent hoods come in curved shapes, or angled as shown above, and black, white, and stainless finishes. For either wall-mount or island applications, hoods conceal a four-speed fan and halogen or fluorescent lighting. The chimney section can be adjusted to fit different height requirements. 800/656-9226, x. 15. Thermador, Huntington Beach, Calif. **CIRCLE 259**

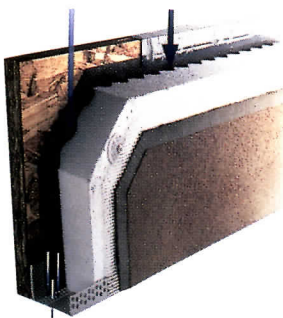
## ▼ Remodel-ready whirlpool

The Cetra bath offers a full complement of spa features in an "affordable," space-saving footprint that fits into existing tub alcoves. Tubs have six hydrotherapy jets, built-in back support, and armrests; an integral skirt has a built-in service panel. Unit is made of fiberglass-reinforced, high-gloss acrylic in either right- or left-hand versions. 510/938-7070. Jacuzzi, Inc., Walnut Creek, Calif. **CIRCLE 260**



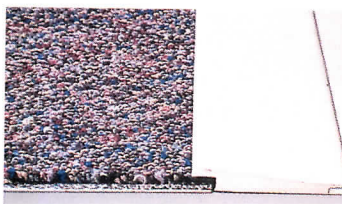
## ▼ Drainage-plane EIFS

Specifically designed for wood-frame construction, residential as well as commercial, Parex's Water Master exterior allows any incidental moisture entering behind the system to drain downward for release. Components include a vapor barrier and flashing membrane; a venting track eliminates backwrapping at bottom edges. Full details offered on disk. 800/537-2739. Parex, Inc., Redan, Ga. **CIRCLE 261**



## ▼ Sleek transition moldings

Designed to meet ADA change-of-level guidelines, new flexible transition pieces allow wheeled and foot traffic to move easily between different flooring surfaces with varying heights without tripping. Edges conceal cracks and carpet edges; trim comes in all of this maker's color options. 800/899-8916. Johnsonite, Chagrin Falls, Ohio. **CIRCLE 262**



## ▲ Post-war tripod

Designed in the mid-'40s by T. H. Robsjohn-Gibbings and George Hansen, a classic tripod lamp is being reissued in the two versions shown above: a 21 1/2-in.-high table lamp and a three-bulb, 47 1/2-in.-high floor model. Electric cord is hidden within one of the slim legs; a pull chain operates the lamp. Hinson & Co., Long Island City, N.Y. **CIRCLE 264**

## ▼ Break-resistant lights

A breakthrough-resistant decorative glazing is now offered with coming in clear or colors. A more-secure glass-light incorporates a pane of laminated safety glass to duplicate the effect of bevels and v-groove designs less expensively. Pease Industries, Inc., Fairfield, Ohio. **CIRCLE 265**



## ◀ Metal fabrication

A metal atelier specializing in furniture, display units, architectural details, light fixtures, and railings will execute commissions in steel, wrought iron, stainless steel, aluminum, copper, brass, and bronze. The firm offers a range of unusual surface patinas, such as this curved balcony rail done in steel with a sweet satin finish. Portfolio offered on request. 212/233-1192. Metamorphosis, Inc., New York City. **CIRCLE 263**

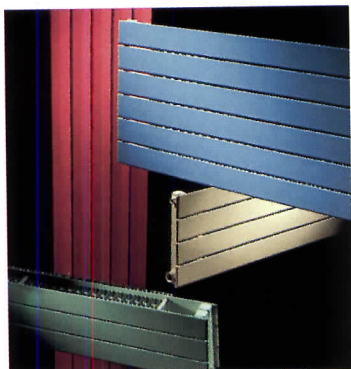


PRODUCT BRIEFS



▲ Built for extremes

Said to withstand winds up to 110 mph, new metal roofing panels combine the durability of metal with the aesthetic appeal of shingles. Available in solid copper and 25 different painted finishes, the roof is lightweight and resistant to oil-canning. 970/949-1078. Vail Metal Systems, Vail, Colo. **CIRCLE 266**



▲ Low-profile heating

An alternative to central heating, panel-style radiators heat hydronically. Available in four different styles, the radiators, 2 3/4 in. in height and 2 1/8 in. in width, have concealed plumbing and are compatible with solar-power and other hydronic systems. 716/648-3801. Panel Radiator, Hamburg, N.Y. **CIRCLE 267**

▶ Sheers and blinds combine

Providing both privacy and light control, vertical sheers accomplish the task of traditional horizontal blinds. Luminette Privacy Sheers feature fabric vanes bonded to an almost transparent face fabric. Rotating the fabric vanes controls the amount of light filtering through the cloth. Fully open, the vanes appear as an opaque sheer. A privacy-granting drape emerges with the vanes closed. Beyond just a translucent sheer or drape, the flexible vanes allow varying degrees of light control. Extending from a 5 in. header, the face fabric is available in 12 different shades from ivory to blue. The fabric vanes, in neutral white, present a consistent view from the outside. 201/327-8200. Hunter Douglass, Upper Saddle River, N.J. **CIRCLE 268**



▼ All about engineered wood

An interactive CD-ROM course teaches use of the building products in high-wind and seismic regions, as well as manufacturing and general application. In five hour-long modules, 10 CES learning units can be earned by AIA members. 206/565-6600. APA-Engineered Wood Association, Tacoma, Wash. **CIRCLE 269**



▼ Homey heavy-traffic floor

Meeting the need for cozier institutional settings, the CustomSpec II line of sheet vinyl expanded to include three new patterns and twelve colors. The new designs are said to look residential yet functional. 609/935-3000. Mannington Commercial, Salem, N.J. **CIRCLE 272**

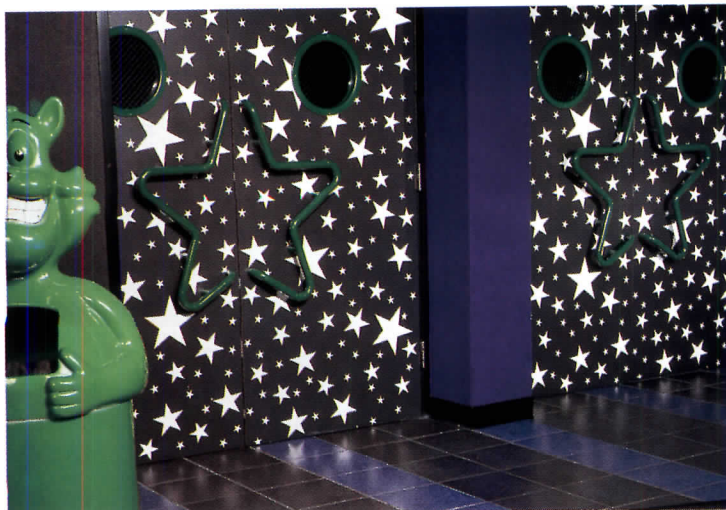


▲ Shine-free

Low-gloss finish transforms ordinary vinyl siding into a natural painted wood appearance. Compared to regular siding, the new Platinum, treated with the Duratron formula, is said to have less shine than other vinyl and aluminum sidings. 800/952-9226. Kaycan, St. Laurent, Que. **CIRCLE 270**

◀ More than movie stars

Cinemark Theaters decorated their Houston movie-theater doors in a star-studded laminate. The creator, Pam Taylor, used a custom laminate process as an alternative to paint. Two pieces of paper overlaying one another and covered in laminate achieved the starry look. With a cutout stenciled design, the top sheet creates the pattern and, in this case, the charcoal surrounding the stars. The lower sheet provides the contrasting white of the stars. 800/433-3222. Wilsonart Custom Laminate, Temple, Tex. **CIRCLE 271**



▼ Concrete: not just for streets

Breaking with tradition, concrete sinks, tables, countertops, and fireplaces enter the realm of custom interior design. Casts containing colored glass and hardware add variety to the multitude of colors available. 914/452-3988. Get Real Surfaces, Poughkeepsie, N.Y. **CIRCLE 273**

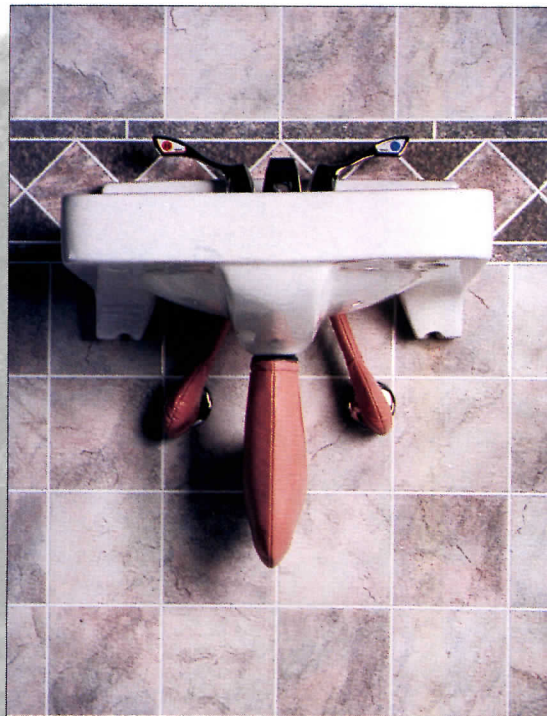




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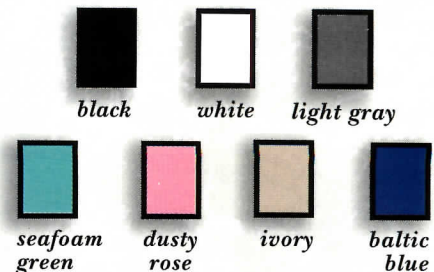
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## PRODUCT BRIEFS



## ▲ Comforting lounge

Designed by Spanish architect J. L. Perez Ortega, the Flavia lounge is made with molded-foam cushioning that hugs the body; meets all ANSI and BIFMA contract performance criteria. Kron USA, Pompano Beach, Fla. **CIRCLE 274**



## ▲ Flight delays

Created by KI's own design team, GateOne seating can withstand high-traffic airport use while providing long-term comfort (though it can't alleviate boredom). Built on a steel-beam frame, the moderately priced piece can be specified for two to five users, as well as with in-line or corner tables. 800/424-2432. KI, Green Bay, Wis. **CIRCLE 275**

## ▶ Dynamic sitting

A new office/task line, Xerra features a dynamic-synchronic mechanism said to let the chair adjust automatically to the user's weight and body motions: you lean back, it leans back. Models include a sled-based pull-up chair, a fully adjustable armchair, and a task seat with Xerra's signature keyhole-perforated molded-polymer back. 800/849-0545. Girsberger, Smithfield, N.C. **CIRCLE 276**



## ▼ Rock and roll

Designed by the California firm 5D to "stimulate" office workers, the Taz chair has a cutout helix pattern on the seat back said to create a suspension-like ergonomic support. The chair can flex left and right as well as forward and back: stay alert! 800/344-2600. Haworth, Inc., Holland, Mich. **CIRCLE 277**



## ▲ Ecological

The Gotham chair, designed by Peter Danko, uses a flexible webbing of extremely rugged automobile seat-belt material in lieu of foam cushioning that might off-gas. The frame is constructed of laminated maple veneer, in a stacking version, as shown, as well as a side-chair model and an armchair. Though black is the standard, the seat-belt webbing comes in many bright colors; frame can be specified in five wood tones and eight stain colors. 800/882-5300. Danko, Division of Persing Enterprises, Inc., Red Lion, Pa. **CIRCLE 278**

## ▼ Basic ergonomics

Made by a German furniture manufacturer with three factories in North America, Cosmos is a new ergonomic office chair said to offer "elegant" design at a competitive price. The seatback can be molded (pictured) or made of fabric stretched over a tubular frame. 800/631-1186. Dauphin, Boonton, N.J. **CIRCLE 280**



## ◀ Way down east

This Maine firm has used its hardwood expertise to produce comfortable, lightweight chairs that meet the price and performance requirements of the contract-furniture market. The Maine Counties Collection is made up of four designs offered in configurations and finishes appropriate for library and corporate use. Each of the four chairs, named Oxford, Franklin, Lincoln (pictured), and Hancock, have common elements that can be transferred—an Oxford seat platform with Lincoln arms, for example—creating 64 possible appearance variations. A spec guide gives wood-finish options and prices. 800/708-9710. Thos. Moser, Auburn, Me. **CIRCLE 279**

## ▼ Clean and trim

A stacking armchair suitable for residential use as well as institutional applications, Corpus has a seat, back, and (optional) arms cut and pressed from a single laminated shell of beech or birch. ICF Group, Norwood, N.J. **CIRCLE 281** ■



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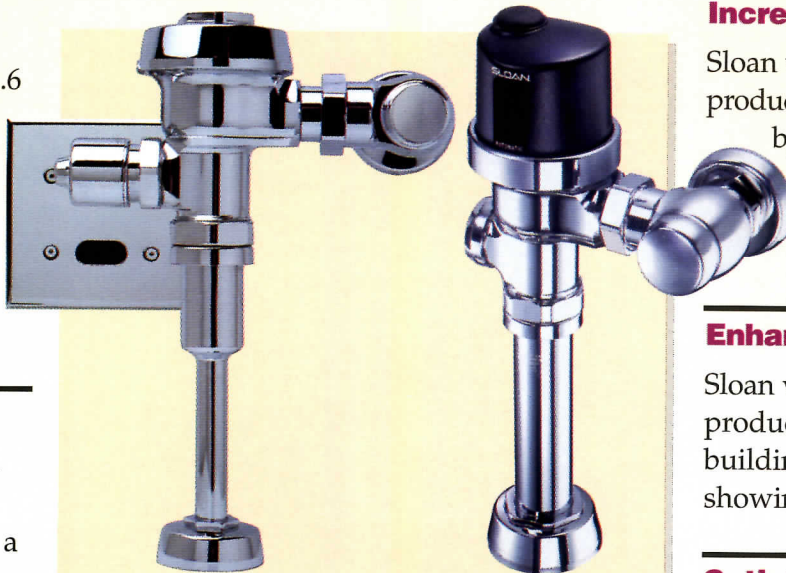


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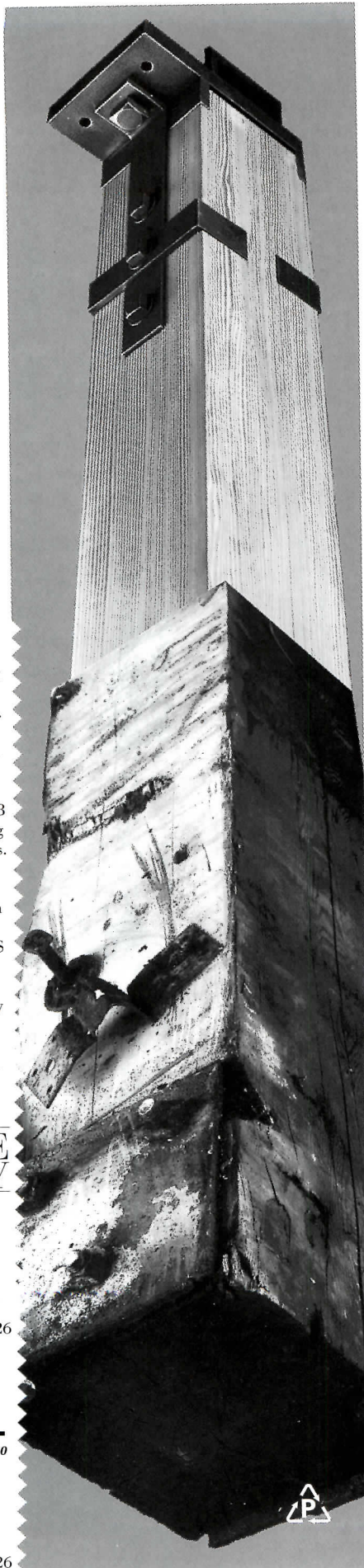
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## PRODUCT LITERATURE

### Computer ergonomics

A 34-page brochure addresses the health and well-being of computer users, describing keyboards, adjustable monitor supports, and other task accessories that reflect 10 years of research on the interaction of humans and VDT equipment. All components are shown in dimensioned drawings; price list accompanies the catalog. 860/282-9767. Ergo Systems, Inc., East Hartford, Conn.

**CIRCLE 282**

### Articulating-arm seating

Fact sheets demonstrate how Omnific ergonomic office chairs let users raise or lower the chair's arms for increased mobility or preferred working comfort. Other features include swivel/tilt control options, a range of dimension choices for different body types, and flexible support provided by a molded-urethane chair shell. 714/433-3385. Panel Concepts, Inc., Santa Ana, Calif. **CIRCLE 283**

### Interactive desking

A booklet explains Biomorph's furniture-design ideas, described as a unique solution for computer users in all fields. Based on a crescent-shaped work surface, the furniture provides a range of flexible positioning options for each user. The firm will custom-design a workstation without charge; layout possibilities are shown at [www.biomorph-desk.com](http://www.biomorph-desk.com) (Web page). I.D./Design, New York City.

**CIRCLE 284**

### Hardwood contract furniture

A new, binder-format source guide for architects, interior designers, school and hospital administrators, and other specifiers of contract furniture illustrates Vermont-made casegoods, seating, tables, and other pieces made of solid birch, oak, maple, cherry, and walnut. Recent contract customers are listed for reference. 800/841-6671. Pompanoosuc Mills Corp., East Thetford, Vt. **CIRCLE 285**

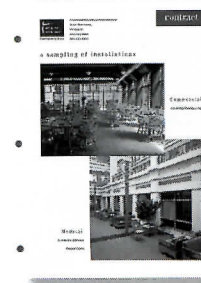
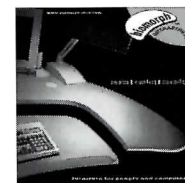
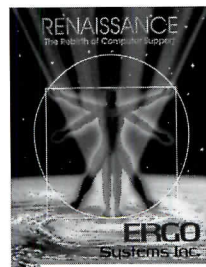
### Roll them out

Individual cut sheets illustrate wheeled furniture—computer desks, file carts, display boards—said to promote effective teaming and spontaneous communication. Built expressly to be on the move, product features include large casters, easy-to-steer handles, top-opening files, impact bumpers, and contemporary colors. 800/263-2387. Egan Visual, Woodbridge, Ont. **CIRCLE 286**

### Demountable wall system

An architectural binder holds case-study photography of recent SMED installations, showing how the partitions are able to integrate wiring distribution, workstation support, and storage equipment into site-specific interiors for medical facilities, schools, law offices, and similar corporate environments. Layout information and product descriptions are available in electronic format. 403/279-1400. SMED International, Calgary, Alta.

**CIRCLE 287**





## PRODUCT LITERATURE



### Window and door guide

The 1997 Membership Directory of the National Wood Window & Door Association lists sources for residential and architectural applications, and includes a selection guide to windows and doors offered by each firm. National Wood Window & Door Association, Des Plaines, Ill. **CIRCLE 288**

### Marble "swatch" book

Promotional items offered without charge to architects and other stone specifiers include a binder presentation of all 64 varieties of Greek marble currently quarried. High-quality photographs are printed on perforated sheets for easy removal for presentations. A trio of 8-in.-wide by 36-in.-high posters illustrates stones grouped by color family: whites, earth tones, and greens. Fax letterhead requests to 312/332-5127. Greek Trade Commission, Chicago. **CIRCLE 289**

### Low-flush and water savings

Prepared for architects and other building professionals, a "white paper" describes how 1.6 gallon-per-flush technologies are impacting water-conservation goals nationwide. It compares gravity- and pressure-toilet types, with survey and test data on low-consumption performance and user-satisfaction levels. It also explains the advantages of each technology, and provides a checklist to help evaluate the needs of a particular facility. Single copies available

free; fax 847/671-6944. Sloan Valve Co., Franklin Park, Ill. **CIRCLE 290**

### Digital reprographics

A printer/copier/scanner unit for high-volume (six E-size copies per minute) applications, the Océ 9700 is detailed in a four-page brochure. Said to achieve fast printing of even the most complex CAD/EDMS files, the multiple-function device works in most industry-standard emulation modes. Scan-mode features include file-size optimization, said to combine excellent image quality with significant savings in file sizes. 773/714-8500. Océ-USA, Inc., Chicago. **CIRCLE 291**

### Colorful light fixtures

RLM reflectors, mounting arms, poles, and hanging accessories are included in a fixture catalog. Suggested for merchandising and hospitality spaces, lights can be specified in any of dozens of glossy, industrial powder-coat finish colors. 216/851-3300. Spero Electric Corp., Cleveland. **CIRCLE 292**

### Graphics supplies

A 52-page product catalog includes items such as plotters and media, technical instruments, graphics workstations, and specialized storage equipment. All products are fully described, and are said to be offered at a significant discount from the manufacturers' suggested list price. 800/234-3729. GS Direct, Inc., Bloomington, Minn. **CIRCLE 293** ■

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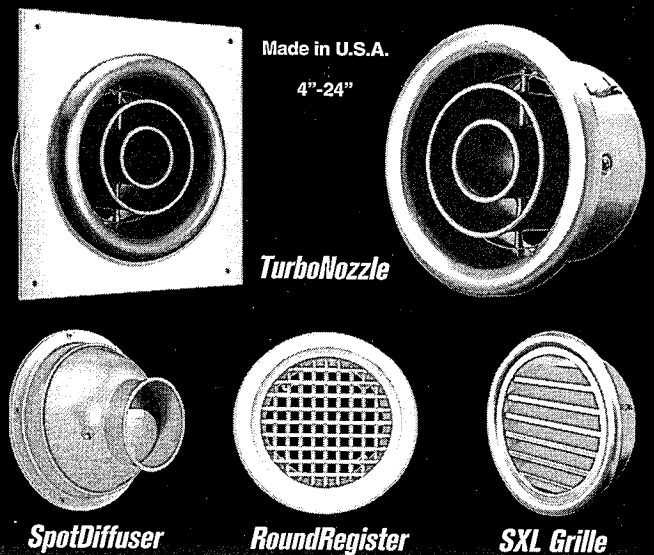
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(continued from page 48)

## Competitions

To increase public awareness of design excellence, the Chicago Athenaeum: Museum of Architecture and Design invites designers and manufacturers to submit industrial and graphic design projects, including office furniture, housewares, and lighting, to **Good Design@1997**. The deadline for this international competition is July 1. Winning submissions will be exhibited at the museum this fall and installed in the permanent collection. Entry forms are available from the Athenaeum at tel. 312/251-0175, fax 312/251-0176, or by visiting <http://www.chi-athenaeum.org/>.

**Toward a More Perfect Union: An International Design Competition for the Future of Union Square** "aims to generate innovative urban design concepts that are inviting to a wide range of users and that will make Union Square the renewed focal point for San Francisco's retail core." The jury will award \$10,000 in prizes, and the City of San Francisco, which intends to renovate the square, will interview the winners for retention as part of a design team. The deadline for submissions is July 7. Send requests for entry by June 6 to The San Francisco Prize, c/o SPUR, 312 Sutter Street, Suite 500, San Francisco, Calif. 94108 (include a check for \$20 payable to San Francisco Prize). For technical information contact Evan Rose, Competition Project Manager, San Francisco Planning Department, at tel. 415/558-6291, fax 415/558-6426, or E-mail [Evan\\_Rose@ci.sf.ca.us](mailto:Evan_Rose@ci.sf.ca.us).

The Center for Health Design has announced two design programs. **The Healthcare Design Competition** recognizes built or unbuilt projects/ideas that propose innovative design solutions for healthcare delivery; students, professionals, and educators may enter projects by September 19. Architects, interior designers, and healthcare executives may enter remodeling or new construction projects occupied by June 1 in the **Healthcare Environments Awards**, a program that honors projects with a demonstrated partnership between clients and design professionals and a concern for improving the quality of healthcare; the entry deadline is July 29. For more information, contact Debra J. Levin, The Center for Healthcare Design, 510/370-0345.

The MIT School of Architecture and Planning announces the sixth biennial competition for

the **Lawrence B. Anderson Award**. The \$12,500 award is given in "support of creative documentation as a valuable form of learning." Eligibility requirements include a professional-level degree and/or a recognized contribution to the built environment and full-time residence at the school for a two-year period. The application deadline is July 31. For information, contact Office of the Dean, School of Architecture and Planning, MIT, 77 Massachusetts Avenue, Cambridge, Mass. 02139, tel. 617/253-4401, fax 617/253-9417, E-mail [peggym@mit.edu](mailto:peggym@mit.edu).

The Boston Society of Architects invites entries in **Unbuilt Architecture**, an annual program open to practitioners, educators, and students. Submissions are due August 21. Submit entries to the attention of the program at Boston Society of Architects, 52 Broad Street., Boston, Mass. 02109-4301. Call 617/951-1433, ext. 232.

The **Shinkenchiku Residential Design Competition 1997**, an annual competition sponsored by *The Japan Architect*, will be judged by Swiss architect Jacques Herzog. The theme is "House of Collaboration." Entrants are asked to work in collaboration with an artist or art student to draw an exhibition space for contemporary art for any site. Use two sheets of paper; no electronic media. For entry requirements contact Tomoko Ochiai, Editor, *The Japan Architect*, at fax 8133/811-0243. Entries must be received by September 10.

The Urban Studies and Architecture Institute has launched an international ideas competition for ferry terminal buildings in Manhattan, Brooklyn, and Queens, connecting with La Guardia Airport; the competition is unrelated to the terminal for the Staten Island Ferry. **The Fluid City/Point by Point: Ferry Stations, New York** may be entered by practitioners who completed their terminal degree within the last ten years, as well as to architecture, urban design, landscape, and interior design students. Registration forms and fees are due September 15; entries are due January 15, 1998. Contact Urban Studies and Architecture Institute, 10 West 15th Street, Suite 1126, New York, N.Y. 10011-6826. Call 212/727-2157, fax 212/727-2159, or E-mail [Ldusainst@gnn.com](mailto:Ldusainst@gnn.com).

## Reviews

**Pavilions of Plenty: Exhibiting American Culture Abroad in the 1950s**, by Robert H. Haddow. Washington, DC: Smithsonian Institution Press, 1997, 272 pages, \$37.

**Space Calculated in Seconds: The Philips Pavilion, Le Corbusier, Edgard Varèse**, by Marc Treib. Princeton, N.J.: Princeton University Press, 1997, 312 pages, \$50.

Reviewed by Clifford Pearson

The flip side of America's Cold War policy of military containment of the Soviet Union was a cultural offensive that used World's Fairs and trade fairs as important staging grounds, argues Robert Haddow in *Pavilions of Plenty*. The idea was to export the American vision of material plenty to countries in Eastern Europe and Asia that were teetering on the edge of being Soviet satellites. Using refrigerators, blue jeans, canned goods, and prefabricated homes as weapons in this propaganda war, federal agencies such as the Commerce Department and the U.S. Information Agency teamed up with major corporations—including IBM, General Mills, and Walt Disney—to present alluring images of a victorious capitalism.

This fascinating book examines the role of architecture and exhibit design in communicating this message, including accounts of Buckminster Fuller's geodesic dome at a trade fair in Kabul, Afghanistan, in 1956 and Edward Durell Stone's American Pavilion at the 1958 Brussels World's Fair. Haddow, an art historian from Minneapolis, focuses our attention on an intriguing chapter of American history, but his book needs more and better photographs.

A completely different take on World's Fair architecture is provided by Marc Treib in *Space Calculated in Seconds*, which recreates in words and images a nearly forgotten building by Le Corbusier. Because it was a temporary structure and stayed up for only eight months, the pavilion for the Philips Company at the 1958 Brussels World's Fair is one of the architect's least known projects.

A multimedia collaboration between Le Corbusier, composer Edgard Varèse, filmmaker Philippe Agostini, graphic designer Jean Petit, and composer/architect Iannis Xenakis, the pavilion was a demonstration of Philips's latest sound and image technology in the service of the arts. The building was an eccentric structure made of poured-concrete ribs and precast panels forming hyperbolic paraboloid shells. Rather than being an event unto itself, the architecture was an integral part of a walk-through experience that included a 480-second film and Varèse's musical piece *Poème électronique*.

As Treib explains, "...the Philips Pavilion, with its spectacle of amplified sound and rhythmically orchestrated light and color, was a landmark in electronic media technology that

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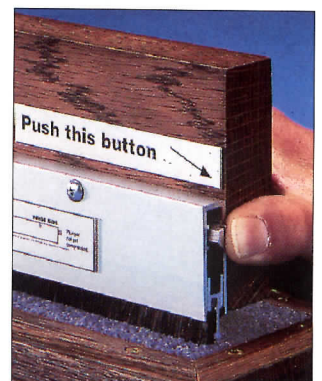


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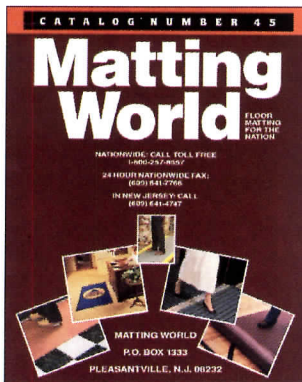


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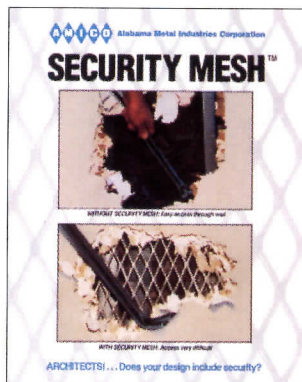


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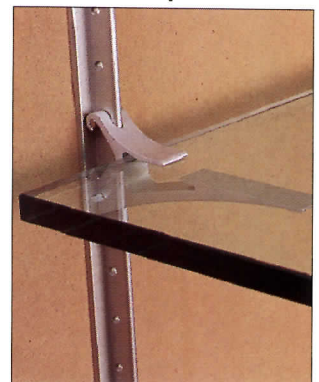


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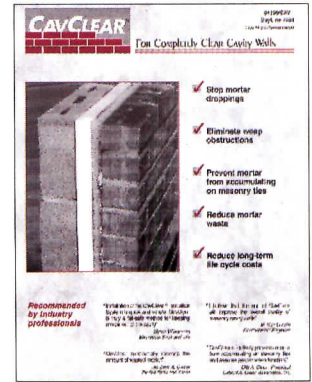


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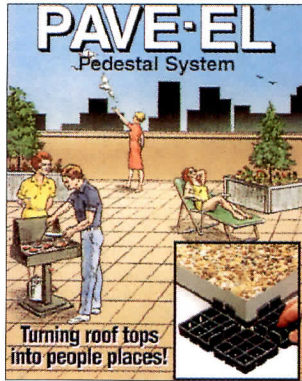


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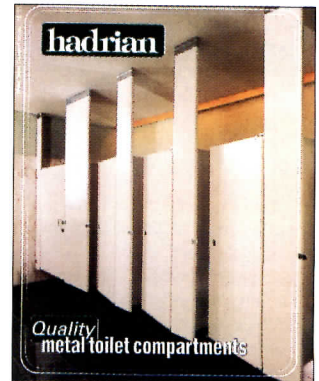


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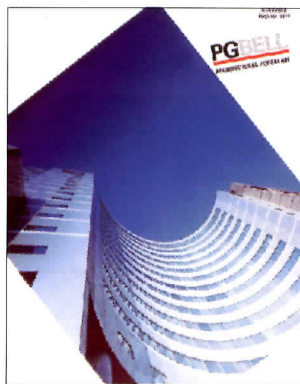


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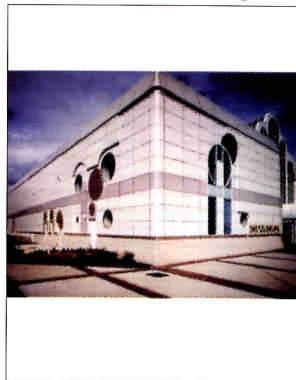


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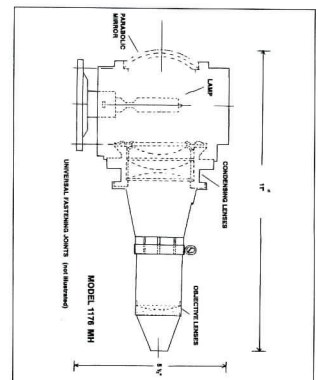


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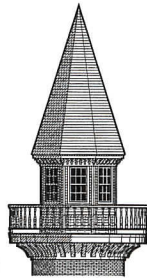
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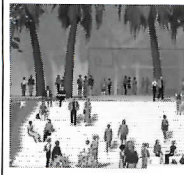


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# THE FUTURE: The earth does a slow burn— the process of global climate change becomes ever more apparent.

BY BILL MCKIBBEN

While visiting Costa Rica last month, President Clinton called (softly) for the reduction of greenhouse gases. He stated that “while there is some doubt about what increased greenhouse gas emissions are doing to the climate, no one doubts that they’re changing the climate, and no one doubts that the potential consequences can be very profound and severe.”

How profound and severe was recently documented by environmental activist Bill McKibben, in an Op-Ed article for The New York Times. We are reprinting this view of the future to reach our readership of architectural and design professionals. From the smog-choked streets of Mexico City to the standstill traffic of Bangkok or Jakarta, human-generated pollution is creating a truly global problem. Architects must be part of the solution.—Joan F. Blatterman

## Global warming: Now we can see it for ourselves

We live on a new planet. That’s what a string of recent scientific studies demonstrates. Because of global warming, caused by cars, factories, and burning forests, the earth is shifting beneath us with stunning speed and unpredictability. Consider:

- The number of “extreme precipitation events” (rainfall of more than two inches in 24 hours) on this continent has jumped 20 percent since the turn of the century, according to a study by the National Oceanic and Atmospheric Administration.
- Spring comes a week earlier in the Northern Hemisphere, according to



**A massive traffic jam in Bangkok caused by a traffic-light snafu.**

the Scripps Institution of Oceanography, which used carbon dioxide records to document its finding.

- Vegetation has increased 10 percent above the 45th parallel, which crosses Seattle and Milan, since 1980, according to Boston University scientists who analyzed satellite data to track solar radiation.
- The northern tundra may have warmed enough that in some years it adds carbon to the atmosphere instead of soaking it up, George Kling, a biologist at the University of Michigan, Ann Arbor, reported last winter.

Understand this about these changes: They are enormous. They do not represent small shifts at the margin, the slow evolution that has always occurred on earth. Spring a week earlier; 20 percent more storms, 10 percent more vegetation since 1980. These studies are like suddenly discovering that most Americans are seven feet tall. If we were looking through a telescope and seeing the same things happen on some other planet, we would find it bizarre and fascinating. If some-

one’s watching us, they’re doubtlessly bewildered.

With this level of warming, the Antarctic ice sheet could fail more quickly than previously believed. The most recent El Niño ocean warming lasted five years, not the usual two, which researchers at the National Center for Atmospheric Research think may result from the extra global heating. *Lancet*, the British medical journal, reports that yellow fever mosquitoes, previously unable to survive at altitudes above 1,100 yards, now live in elevated parts of South America.

Even news that sounds good probably isn’t; longer snow-free seasons in the Northern Hemisphere mean that soils start to dry out that much sooner. This and rising temperatures make drought much more likely.

Compared with the magnitude of the situation, the response of our politicians (and even most environmentalists) has been feeble.

Although the United States promised at the 1992 Rio conference that we wouldn’t be emitting any more carbon dioxide in the year 2000 than we did in 1990, we’ve done virtually nothing to meet our promise, and like almost every other developed nation on earth we will miss the goal, probably by more than 10 percent.

Now negotiators are trying for an agreement with more teeth—but the deadlines are far away and the targets modest. Instead of locking ourselves into a document that physics, biology, and chemistry are rendering instantly outdated, it’s probably better to convene the world’s leaders on the crumbling edge of the West Antarctic Ice Sheet. Maybe then we’d get quick action.

Eight years ago, James Hansen, the NASA scientist who has used his computer model of the climate to make the most prescient forecasts about global warming, predicted that by the late 1990’s the effects of global warming would become apparent. For eight years, I’ve believed this was true, and still this spring’s flood of new data shocks and scares me.

All those things that people said would happen if we didn’t clean up our act? They’re happening. This is a new planet, not the earth we were born on. ■

*Bill McKibben writes frequently for Audubon Magazine and other periodicals. He is the author of Hope, Human and Wild: True Stories of Living Lightly on the Earth. He lives in Johnsbury, N.Y.*





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Geoffrey Langdon  
CAD Shoot-out Organizer



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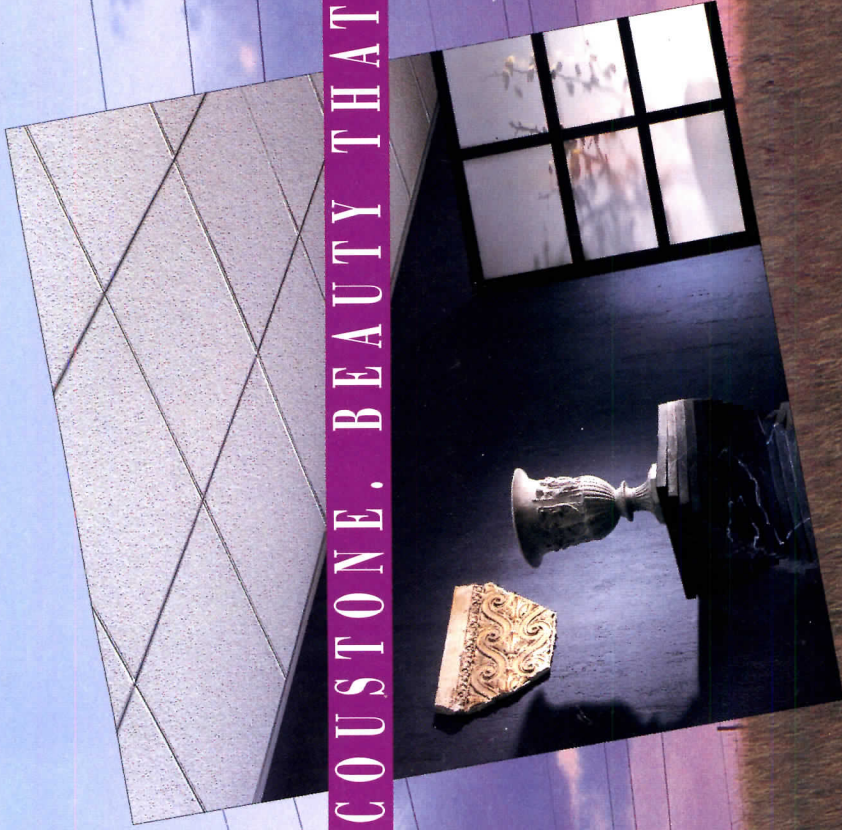
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