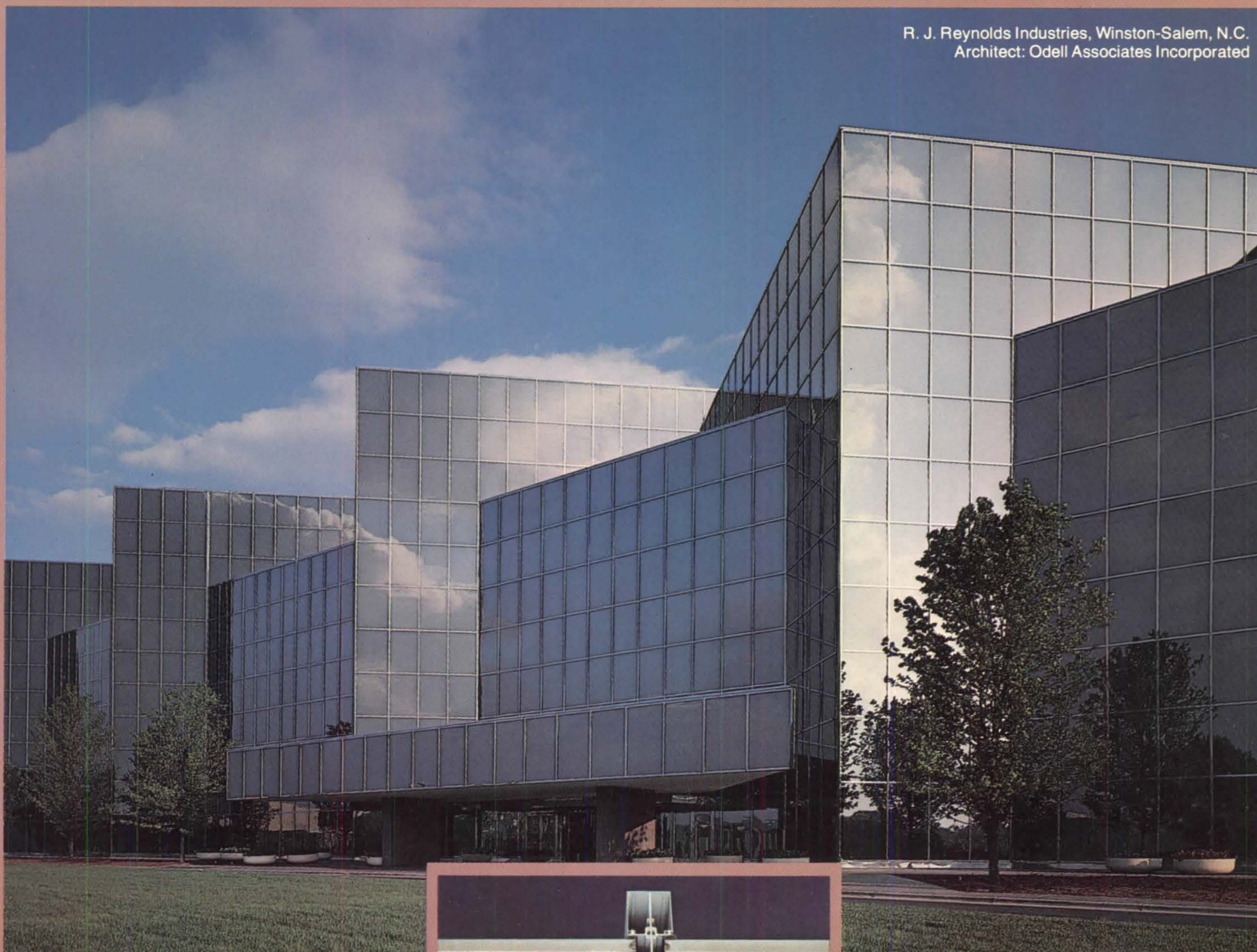
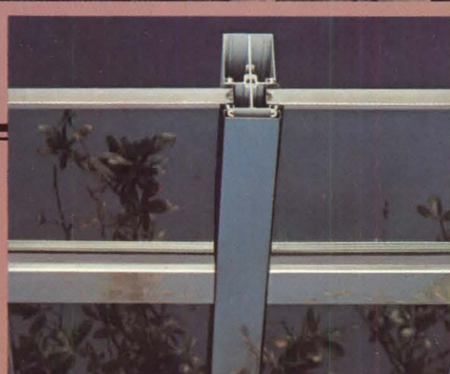
AIA JOURNAL

R. J. Reynolds demanded a mirror-like facade. Howmet's answer was an aluminum curtain wall with a stainless steel face.





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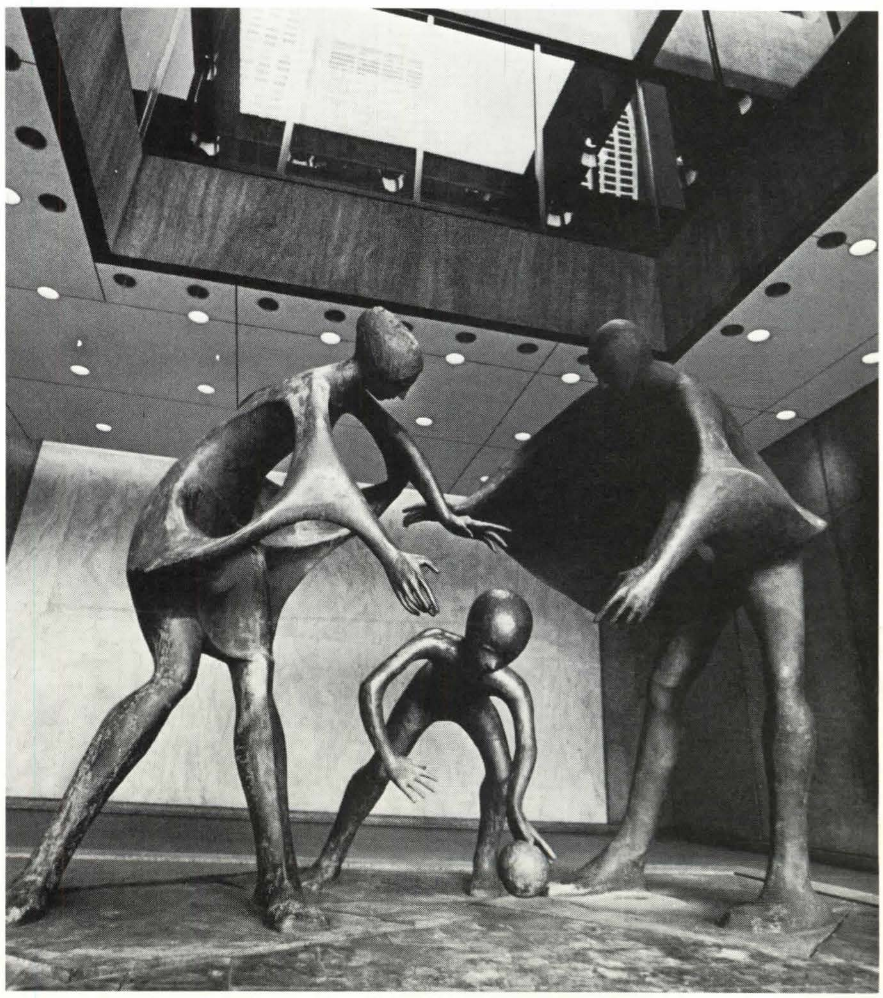

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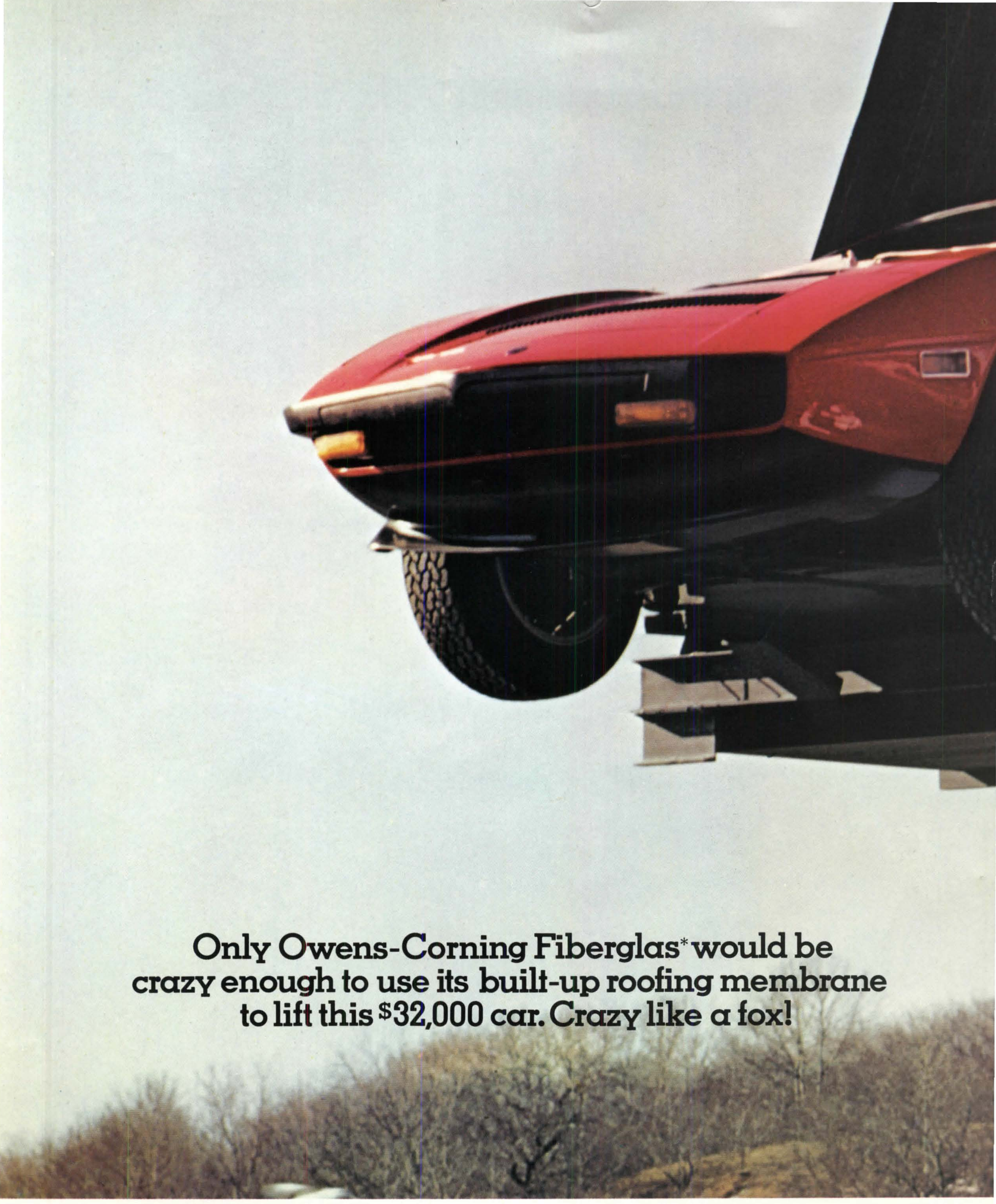

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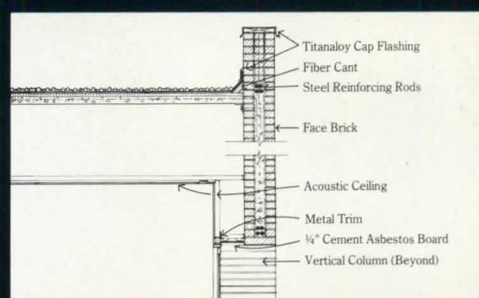
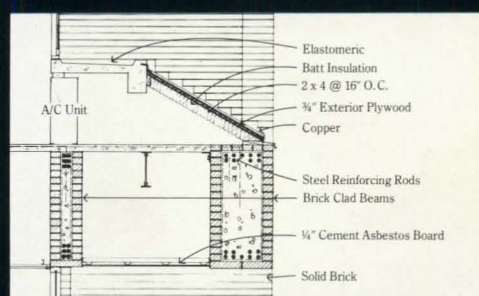
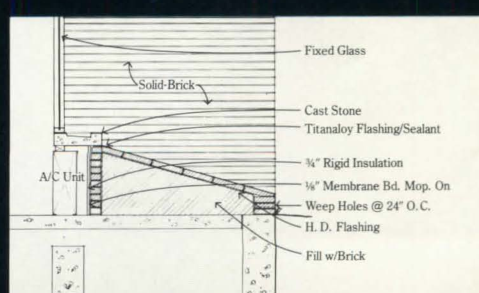
General · Masonry Contractor: Pickens-Bond Construction Company, Little Rock, Arkansas



The tower is terminated by a flush reinforced Acme Brick parapet beam supported on loadbearing walls.



A reinforced Acme Brick clad beam carries the load of the recessed loadbearing walls above and offers a transition element.



Sloping Acme Brick sills soften the effects of the deep set voids at the building's entry.

Circle 4 on information card

CONTENTS

Cover: Photograph by Steve Rosenthal of the City Slice exhibit, John Sloan, AIA, designer, in the Boston Children's Museum (see page 62).

Donald Canty, Editor; **Suzy Thomas,** Art Director; **Carole Palmer,** Associate Art Director; **Nory Miller,** Assistant Editor; **Mary E. Osman,** Senior Editor, Departments; **Andrea O. Dean,** Senior Editor, Articles; **Allen Freeman,** Managing Editor; **Nora Richter,** Associate Editor; **Michael J. Hanley,** Publisher; **Michael M. Wood,** National Sales Director; **George L. Dant,** Production and Business Manager; **Gladys O. McIntosh,** Circulation Manager; **Lisa Moore,** Administrative Assistant.

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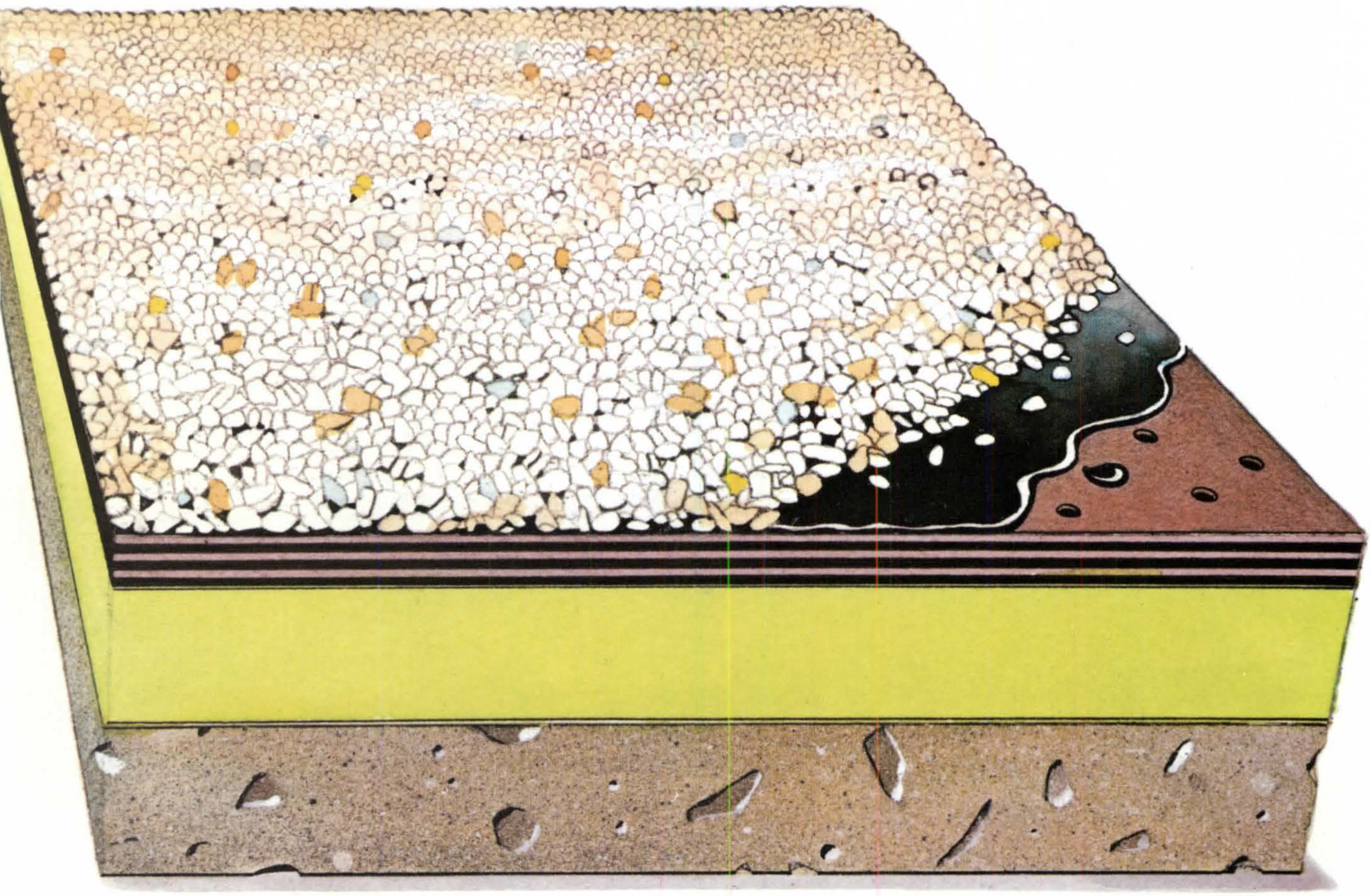

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Designing with photography. Check into it.

We use Kodak paper... for a good look.

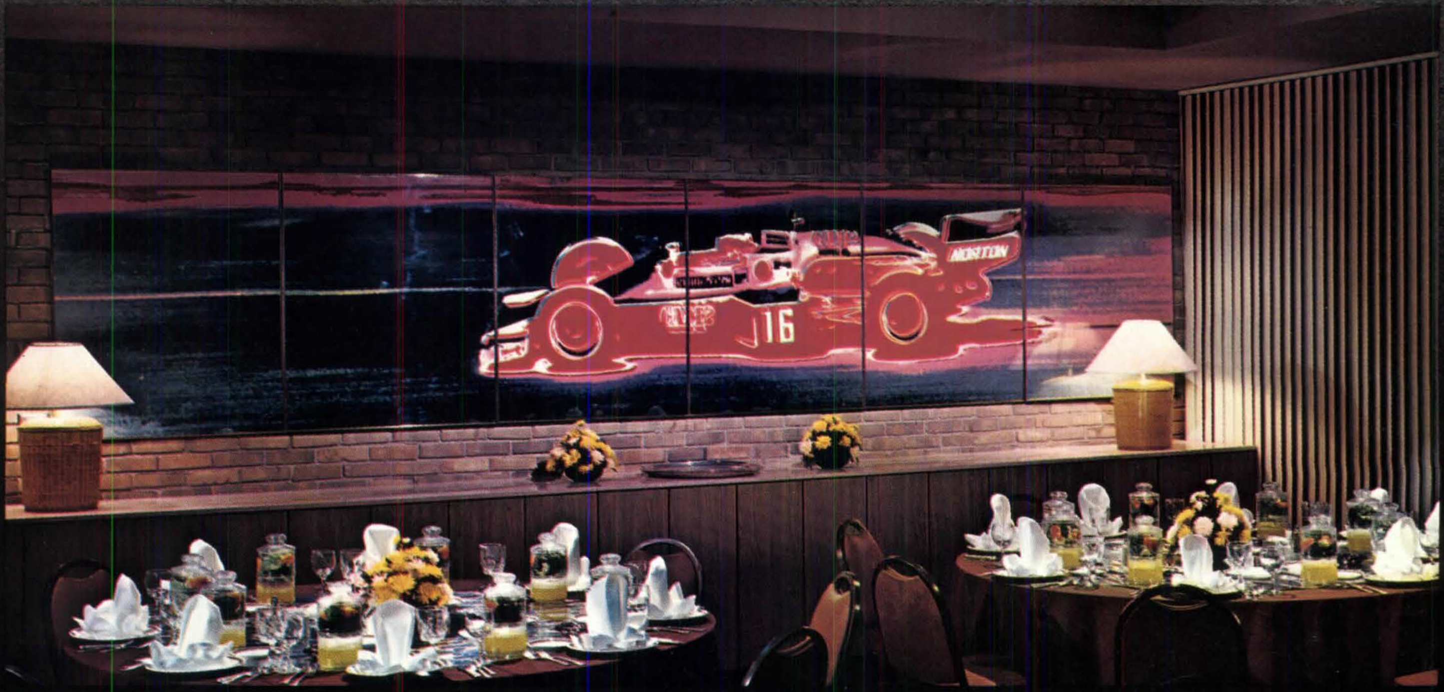
The Hyatt Regency in Dearborn, Michigan, did. Ford Motor Land Development Corporation, owner and developer, wanted to give Hyatt's guests something to remember the hotel by. So they chose photo decor to highlight their restaurants, meeting rooms, guests rooms—even their business offices.

More and more, photography is playing a key role in the interior design of office buildings, retail stores, even industrial plants. For one thing, photography allows the freedom to customize the decor of a specific room to evoke precisely the right mood. And this helps create a great new, creative outlet for you. Because designing with photography leaves plenty of room to make statements of your own through your work.

The Hyatt in Dearborn is a good example. Through inspired use of photography, the interior designer is able to remind guests that they are someplace special. Someplace unique and memorable. Someplace worth coming to again and again.

Why not consider the possibilities of photo decor in your next job. And when you do, remember to specify Kodak paper for your images. It helps bring out the best in your design. For more ideas on photo decor, send for your free copy of a new book on designing with photography. Write: Eastman Kodak Company, Dept. 412L-161, Rochester, NY 14650.

Kodak



EVENTS

Nov. 1-2: Construction Contracts and Specifications Institute, University of Wisconsin, Madison.
Nov. 1-2: Seminar on Daylighting Designs to Conserve Energy, University of New Hampshire Conference Center, Durham, sponsored by the Northeastern region, Illuminating Engineering Society. Contact: Thomas M. Lemons, TLA-Lighting Consultants, Inc., 72 Loring Ave., Salem, Mass. 01970.
Nov. 1-3: New Jersey Society of Architects/AIA annual convention, Boardwalk Regency Hotel, Atlantic City, N.J.
Nov. 1-4: Georgia Association/AIA annual convention, Pine Mountain, Ga.
Nov. 1-4: Architects Society of Ohio/AIA annual convention, Nassau, Bahamas.
Nov. 2-3: Seminar on Design and Analysis of Subterranean Structures, Sheraton International Conference Center, Reston, Va. Contact: Oklahoma State University, Architectural Extension, 115 Architecture Building, Stillwater, Okla. 74074.
Nov. 2-4: Energy Fair '79, Long Beach Convention Center, Long Beach, Calif. Contact: Energy Fair, Inc., 15915 Asilomar Boulevard, Pacific Palisades, Calif. 90272.
Nov. 5-6: Course on the Effective Use of Building Insulation, University of Wisconsin, Madison.
Nov. 5-6: Seminar on Energy Management in Buildings, Seattle, sponsored by the Association of Energy Engineers. (Repeat seminars: Nov. 7-8, Los Angeles; Dec. 3-4, Denver; Dec. 6-7, New Orleans; Dec. 10-11, Washington, D.C.; Jan. 22-23, Dallas; Jan. 24-25, Detroit; Jan. 28-29, Boston.) Contact: AEE Energy Seminar, 150 Broad Hollow Road, Melville, N.Y. 11746.
Nov. 7-9: Conference on the Architect in the Public Sector, Tallahassee Hilton, Tallahassee, Fla. Contact: Mark Hall, AIA Headquarters, (202) 785-7384.
Nov. 7-9: Course and Conference on Synergy in the Building Sciences, Grossgates Inn, Pittsburgh. Contact: Advanced Building Studies, Carnegie-Mellon University, CFA 319, Pittsburgh, Pa. 15213.
Nov. 7-9: National Energy Forum 7, Houston. Contact: U.S. National Committee, World Energy Conference, 1620 Eye St. N.W., Suite 615, Washington, D.C. 20006.
Nov. 8-9: Automated Procedures for Engineering Consultants, Inc., annual meeting (theme: "Computer-Aided Design: The Bottom Line"), Twin Bridges Marriott, Washington, D.C. Contact: APEC, Miami Valley Tower, Suite 2100, Dayton, Ohio 45402.
Nov. 8-9: Building Seismic Safety Council annual meeting, San Francisco. Contact: BSSC, 1730 Pennsylvania Ave. N.W., Suite 425, Washington, D.C. 20006.
Nov. 8-9: Institute on Preventing Building Design and Construction Failures, University of Wisconsin, Madison.
Nov. 9-10: Conference on Interior Architectural Practice, Pacific Design Center, Los Angeles, sponsored by the AIA committee on interior architecture. Contact: Maurice Payne, AIA, Institute Headquarters, (202) 785-7364.
Nov. 11-14: International Hotel/Motel & Restaurant Show, New York Coliseum, New York City. Contact: IHM&RS, 141 W. 51st St., New York, N.Y. 10019.
Nov. 12-13: Course on Architecture: New Trends in Building Design, Hartford Graduate Center, Hartford.
Nov. 14-17: California Council/AIA annual conference, San Francisco.
Nov. 15-16: Course on the Government Official and A/E Contracting, Hilton Head Inn, Hilton Head Island, S.C., sponsored by the Committee on Federal Procurement of A/E Services. Contact: Catholic University of America, School of Engineering and Architecture, Washington, D.C. 20064.
Nov. 15-16: Seminar on Life Cycle Costing, Houston. Contact: Association of Energy Engineers, 464 Armour Circle N.E., Atlanta, Ga. 30324.
Nov. 16-17: Seminar on Spec Writing, Pittsburgh. (Repeat seminars: Jan. 25-26, Washington, D.C.; Feb. 15-16, Dallas; April 25-26, Richmond, Va.; May 23-24, Syracuse.) Contact: Constructions Specifications Institute, 1150 17th St. N.W., Washington, D.C. 20036.
Nov. 18-20: Conference on Large Scale Earth Sheltered Construction, Holiday Inn-Downtown, Minneapolis. Contact: Underground Space Center, 11 Mines & Metallurgy, 221 Church St. S.E., Minneapolis, Minn. 55455.
Nov. 25-30: Inter-American Conference on Housing, Panama City. Contact: Ignacio Mallol III, Apartado Postal 6-3843, Estafeta El Dorado, Panama, Republic of Panama.
Nov. 25-30: Course on Fundamentals of Solar Energy Systems for Buildings, Hartford Graduate Center, Hartford.
June 1-4, 1980: AIA annual convention, Cincinnati.

LETTERS

Researchers and Designers: Ellen Perry Berkeley's report in the August issue (p. 56) on this year's EDRA (rhymes with Phaedra) conference is a concise and refreshing commentary. Considering the succinctness of the article, it is not clear why she chose to quote Lorraine G. Hiatt's statement that a *Progressive Architecture* award for research was once "withdrawn prior to formal announcement. Apparently, one of the review criticisms was that the 'design was not worthy of the research.' " Since this was reported, however, I feel obligated to correct it.

P/A has never withdrawn an award, for any reason. It was the *submission* that was withdrawn, by the firm that entered it. They contended that the research report was an addendum to a submission in the category of architectural design, for which they would be receiving no award and some public criticism. If the researchers had submitted their own report, there would have been no obstacle. The chief researcher in this case was fully aware of the situation and accepted it gracefully. If Hiatt, as a researcher, had checked with him or with me, either of us could have set her straight.

John Morris Dixon, FAIA
Editor, Progressive Architecture

I quoted from Lorraine Hiatt's paper because I was startled by her statement and because it seemed to exemplify so neatly some of the conflicts (presumed and actual) between researchers and designers. I see now that there is some ambiguity in her original statement about precisely what was withdrawn. This is what she wrote:

"In addition, the project was submitted to *Progressive Architecture's* annual design competition. It capped an award in the research category—but it was withdrawn prior to formal announcement. Apparently, one of the review criticisms was that the 'design was not worthy of the research,' a criticism which one would do well to share between designers and behavioral scientists."

I'm still startled that the submission was withdrawn (*after* "it capped an award"), but I am very sorry to have misled readers about the circumstances, which were not mentioned by Lorraine Hiatt in her paper. *Ellen Perry Berkeley*
Shaftsbury, Vt.

Unity Temple: We applaud the efforts of the Unity Temple Restoration Foundation to restore Frank Lloyd Wright's church in Oak Park, Ill. (see June, p. 32).

There are some 200 local chapters in AIA. If $45,000 more is needed to achieve the goal to restore the temple, that would mean approximately $225 in donation by each chapter.

I, as president of the Las Vegas Chapter/AIA, cannot guarantee our chapter's total participation, but we will surely try to come up with our $225 share. We challenge all other chapters to do the same. *Harry E. Campbell, AIA*
Las Vegas

Letters continued on page 95

Addendum: Harris Sobin, who contributed the article on Le Corbusier's use of natural light to the September issue, is a member of AIA.

Hold a meeting

in Chicago. From L.A.

Problem There's never been a construction job that didn't require some mid-course adjustments in design, schedules, or materials. And since several parties are involved, to discuss and agree to the changes, a meeting is often needed.

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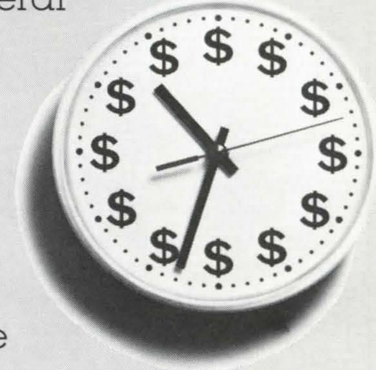

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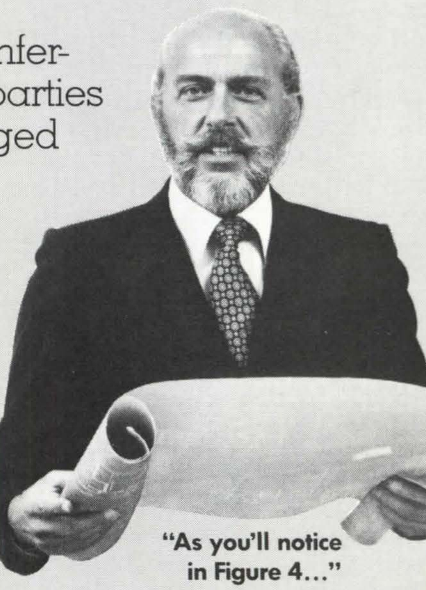

"As you'll notice in Figure 4..."

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NEWS

Government

U.S. Should Build, Not Lease, Says Newly Appointed GSA Team

GSA's program for new construction, relatively dormant in recent years, will receive new emphasis under recently appointed Administrator Rear Adm. (retired) Rowland Godfrey Freeman III and his appointed commissioner of the public buildings service, Albert R. (Mike) Marschall. During Jay Solomon's reign as administrator, priorities shifted to restoration and reuse of federal buildings. Although both Freeman and Marschall support adaptive use, they say new construction offers the best long-term benefits for the government and, in turn, the taxpayers.

"I would like to see a much healthier building program within the GSA public building service," said Marschall. "We have for too long depended upon leasing buildings as opposed to building them ourselves, with the net result being that we have collected more rent reciepts than the average fare and nothing to show for it. . . . There is a place for leasing, but not to the extent we have let it go at this time."

GSA manages some 10,000 buildings, 72.2 percent of which are now leased. New construction, of course, involves a greater initial investment, and these funds are not immediately available. An increase in new GSA construction will not come in 1980. "With only a $16-17 million budget, we could buy two post offices to rehab and build a little outhouse or something like that," said Marschall. "There are many contractors who wouldn't even bid on a job that small. And yet it is our whole program."

Both Marschall and Freeman are optimistic, however. They plan to prepare a five-year analysis of space needs and determine the cost benefit of new construction versus leasing and historic preservation. Marschall strongly suspects that an economic analysis will tend to favor new construction over the ever-growing leasing commitments. (The government now needs 2.5 million square feet in Washington, D.C., area alone, and about 12 million square feet nationwide.) Marschall says the public building service could handle a budget of at least $400-500 million a year: "I think it would take every bit that much for the next five years to provide us with the space that we need now." The funding, of course, must come from Congress, and Marschall expects a hard battle if U.S. economic conditions remain as they are or worsen.

The public building service is only part of GSA, which has 10 regional offices and 36,000 employees and spends $5 billion a year as the government's purchasing agent. A major task for Freeman will be to clean up his agency, which is involved in more than 60 recent federal court indictments—what Freeman calls "too many people sticking their hands into the cookie jar." Private suppliers, GSA employees and former employees have been accused of corruption in charging for work not done or supplies not delivered, or in outright theft. Total losses have been estimated at $70-100 million a year. Freeman says he believes good procedures and constant internal audit will help. "There is nothing that good management practices can't cure," says the admiral, who just previously headed the Defense Systems Management College where procurement specialists are trained. He earned a reputation as a strong-willed, by-the-book administrator who won't tolerate concealment of embarrassing problems (see Aug., page 26).

While Freeman is busy at "restoring credibility" to the scandal-plagued agency, the main responsibility of GSA's concerns with the built environment falls to Marschall. Also a retired rear admiral, Marschall was vice president of the George Hyman Construction Co. (Bethesda, Md.) for two years before joining GSA. His last 10 years with the Navy were spent in senior executive positions, including commanding officer of the Southern Division of the Naval Facilities Engineering Command, officer in charge of construction in Vietnam and chief of civil engineers of the Navy.

In separate interviews, Freeman and Marschall had the following comments on aspects of design and construction.

A/Es will be selected by the "time honored system," says Marschall, of a screening board, a slate selection board and a selection board instead of level three design competitions. He explains, "I do not like level three competitions. . . . The A/E selection process, regardless of how hard someone tries to make it objective, is a basically subjective procedure, and the necessity for level three competitions has never been made clear to me. Now, Dave Dibner [FAIA, assistant commissioner for construction management] thinks there are certain cases where it would be very important. In those cases, I would certainly go to level three competitions." Asked about competitive bidding, Marschall said, "absolutely not."

Marschall hopes to incorporate the use of solar energy in future GSA buildings. "It is here," he says. "We just have to take advantage of it." GSA is working on a blueprint for a solar program, which among other things, may use money from the Department of Energy. Retrofitting buildings for solar energy will have high priority. The agency is also very conscious of conservation. Marschall says that conservation efforts, begun prior to 1975, have led to a reduced energy consumption of 30 percent. All buildings GSA has constructed since 1976 have been designed for energy efficiency, which is expected to result in an annual cost avoidance of $4 million a year. They were designed and

continued on page 17

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This shaved the costs. Not just because the lightweight nature of steel joists and joists girders makes them easier and faster to erect than other, heavier systems. But also because supporting columns can be placed further apart. And foundation size can be decreased.

All of which makes the Vulcr
system more economical than a tr
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system. Simply because it's light
And faster.

So much faster, that building
like those constructed for Hewle
Packard can be delivered to the

Because electrical and mechanical systems can pass through the open web of the joists and joist girders, installation goes quicker. And changes can be made more easily when needed.

The high strength to weight of steel joists and joist girders can provide increased clear span areas, because supporting columns can be spaced further apart.

Although the Hewlett-Packard buildings using th
Vulcraft system have basically the same structura
design, the exterior features vary.

Architects: Ehrlich, Heft & Rominger. Structural Engineers: Rinne & Peterson. General Contractors: Rudolph & Sletten, Inc., Jacobsen Construction Company, Vik Construction Company, E.A. Hathaway, Nielson Construction Company. Steel Contractors: McLean Steel, Inc., Western Steel Mfgr., Bannister Steel, Inc.

Government *from page 12*
constructed with conventional hardware and systems at no additional cost—better insulation, wall design and double glazed windows.

There is disagreement on GSA's art in architecture program. Even Freeman, Marschall and Dibner are at odds on this one. Marschall is unsure of its merit, mentioning such local comments as "we don't like your sculpture, and furthermore, we think it is a waste of federal tax money." Freeman supports the program, saying "buildings shouldn't be sterile," but says that the art should relate better to local environments. Dibner is on record as strongly supporting art in architecture. Some arguments are based on the merits of the program while others relate to specific pieces of art. "It is a very difficult program to administer," says Marschall.

The cooperative use act calling for "mixed-use" in federal buildings earns praise from both Marschall and Freeman. "There is something very sterile about a big bastille without shops," says Freeman. Marschall comments, "I see nothing wrong with it. . . . As taxpayers, each and every one of us should have an opportunity to use the fruits of his tax money. . . . Our only concern is that it is not overdone."

All things being equal, Freeman says, government buildings should be located in downtown areas. Marschall agrees: "Let the federal government be the leader in revitalizing the downtown areas. . . . It's a good healthy approach whether we succeed or don't succeed."

Life cycle cost analysis will remain an important determinant in building design. "Anybody in this business has to be conscious of life cycle cost analysis. . . . Anybody who is not conscious of it is a fraud or a speculator," Marschall says.

U.S. Register of Natural Areas Proposal Is Sent to Congress

Interior Secretary Cecil D. Andrus has sent to Congress a legislative proposal which would identify and protect the nation's important natural and cultural areas, such as Walden Pond, California missions and the Oregon Trail. Entitled the National Heritage Policy Act of 1979, the legislation would establish a National Register of Natural Areas similar to the existing National Register of Historic Places which currently includes structures, districts, sites and objects. The proposed register would list natural areas which contain geologic features or plant and animal communities that are representative of and valuable to the nation's natural heritage.

Secretary Andrus emphasizes that the legislation is not a "land acquisition or takeover program." Resource-oriented, it would identify major areas worth preserving and provide information "early in the planning process to developers of energy facilities and other major projects, both public and private, so that potential damages to significant natural areas and historic places can be avoided."

Under the legislation, states would be encouraged to participate voluntarily in a nationwide system of state natural heritage programs by making available technical assistance and limited financial aid from the Interior Department's Heritage Conservation and Recreation Service.

The legislation would add new categories to the National Register of Historic Places. Also, the historic preservation fund would be extended through 1983, providing matching grants through state governments for the acquisition and rehabilitation of historic properties and for related planning. A council on heritage conservation would be established for the review of proposals by federal agencies that might adversely affect natural areas and historic places listed or eligible for listing in either the National Register of Historic Places or the proposed National Register of Natural Areas. It is further proposed that the Council on Heritage Conservation advise the President and Congress on matters related to the conservation of natural resources and historic preservation.

Energy

Portland Passes Far-Reaching Energy Conservation Ordinance

Without funds from either the federal or state governments (except for an initial HUD contract to develop a methodology), the City of Portland, Ore., has put into action what may be the nation's most comprehensive and aggressive local energy policy. Marion Hemphill, the city's energy adviser, says that Portland expects to implement the policy passed by the city council "with or without outside help." Federal aid would help get things going more rapidly and would enable documentation for other cities to use, but Portland isn't waiting. What's more, the energy policy has not been dictated by city politicians; its formulation was guided by broad based citizen participation.

Portland started on its energy conservation plan back in 1975 when it received a HUD contract for the development of a methodology for use by municipalities to determine citywide energy consumption, to forecast future energy consumption and to come up with a plan to reduce demand through various conservation measures. More than 100 cities have already made use of the methodology, presented in an 11-volume series completed in June 1977. "Our methodology," explains Hemphill, "is not a sophisticated computerized model, but one which can be adopted by cities of various sizes with either large or small planning/ economics staffs."

Despite widespread praise of the study, the Portland city council was concerned that the effort had been carried out by staff and consultants without citizen participation. Consequently, the council called for the programs affecting city government to be reviewed by a task force of city bureau managers to verify the data, draft a preliminary energy conservation policy and monitor the policy's implementation. Also, it asked that a citizens group be formed to review the technical, economic and political feasibility of the various programs and to develop an energy policy for adoption by the council.

As Hemphill explains, during the two years required by the citizens group to produce a proposed policy, the city government took action. A city energy management task force was formed and prepared various policies adopted by the city council. The policies range from life cycle cost analysis purchasing techniques to the phased replacement of street lights with more energy efficient ones. Also, energy audits were completed in 128 city buildings, and it was concluded that such city owned properties could operate efficiently with 45 percent less energy.

Mayor Neil Goldschmidt (now U.S. Secretary of Transportation) appointed 15 citizens to serve on the energy policy steering committee, and another 60 were appointed to a series of six technical advisory task forces. Hemphill says that the citizens "proved to be remarkably diligent, volunteering over 3,500 hours during the 15 months of their work." Prior to the submission of the proposed energy policy to the city council, the steering committee held about 40 meetings with citizen and interest groups, with more than 1,500 people participating in the review process.

By a 4-1 vote, the city council passed the energy policy in August. The policy is in six parts, five of which had received

continued on page 20

Owner/Developer:
Martin Selig, Seattle, WA
Architect: Chester L. Lindsey, Architects, Seattle, WA
General Contractor:
Howard S. Wright Construction Co., Seattle, WA
Structural Engineer: KPFF—Consulting Engineers, Seattle, WA
Steel Fabricator:
Atlas Iron Works, Inc., Portland, OR
Steel Erector: Atlas Erection Co., Portland, OR
Mechanical Consultant: Aungst Engineering, Inc., Bellevue, WA

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The new 25-story Fourth & Blanchard Building in the Denny Regrade district is the most ambitious project conceived by Seattle office-space developer Martin Selig—a name synonymous with first-class planning design.

It was decided that steel design would best provide the freedom to incorporate all the proposed architectural features. Several designs were presented, the final choice being a parallelogram floor plan with angled upper stories. The steel design also helped keep the weight of the structure to a minimum. This was important for the design in seismic Zone 3. A glass curtain wall was dictated by the form of the building which demanded a clean, smooth, flush, monolithic surface—in no way competing with the upper lines.

Maximum usable space

The $33-million building has two interconnected towers with 45-degree angled roofs. The roofs—a striking design feature—offer prime office space with spectacular views. A minimum of interior columns helps maximize use of the 531,000 sq. ft. of floor space, including the 3-level garage.

Conservation of energy was a key consideration, and an electric-hydronic heat pump system connected to a main circulating water pipe provides heating and cooling which is both energy efficient and economical to install. In addition, the roofs were designed to accommodate solar panels in the future.

Steel speeds construction

The new building was erected on a narrow site—just half-a-block—and over 2,650 tons of A-36 and A-572 grade 50 steels were supplied by U.S. Steel. The fabricated steel was trucked from Portland at night and erected during the day using a single truck crane having a 280 ft. tower topped by a 170 ft. boom. This eliminated traffic congestion in a busy downtown area with a minimum of storage space. And the structural framing was completed one month ahead of schedule!

This handsome structure, incorporating the latest in building systems technology, is one more example of the design flexibility and practical economy of using structural steel.

To find out more about this building, and for information regarding the many applications for structural steel, contact a USS Construction Representative through your nearest U.S. Steel Sales Office. Or write for the USS Building Report (ADUSS 27-7642-01) to P.O. Box 86 (C-1211), Pittsburgh, PA 15230.

USS TRADEMARK **United States Steel**

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Energy *from page 17*
unanimous approval earlier in the month as an emergency ordinance. The section to receive a negative vote concerns mandatory energy conservation improvements in buildings five years after passage. This forced the resubmission of the section of the policy as a regular ordinance, which requires unanimous approval. The council made some alterations in the policy presented them and added a provision for periodic review of the cost effectiveness of energy conservation measures.

The ordinance, passed by the council on Aug. 15, says that the energy conservation goal of the city is to "increase the energy efficiency of existing structures and the transportation system of the city through policies and programs which encourage conservation of nonrenewable energy resources. . . ." Policies designed to accomplish this goal include:

• Retrofit of existing buildings: "All buildings in the city shall be made as energy efficient as is economically possible as determined by costs of conservation actions and price of energy." The retrofit programs "must be cost effective, comprehensive and have the most equitable impact possible on all sectors of the community."

• Land use: "The city shall develop land use policies which take advantage of density and location to reduce the need to travel, increase access to transit and permit building configurations which increase the efficiency of space heating in residences."

• Renewable resources and alternative energy systems: Removal of administrative obstacles to the installation of solar and waste heat systems is described as one objective of a policy which calls for reduction of the "consumption of nonrenewable resources for residential and business use" and encouragement of "the application of renewable and alternative energy sources." Also, in both private and public construction projects where codes require the use of a registered architect or engineer the owner or designers must certify that application of alternative energy technologies "was evaluated during the preliminary (schematic) design phase of the project."

• Transportation: "The consumption of nonrenewable fuels for transportation shall be reduced through actions which increase the efficiency of the transportation system operating within the city." Individuals will be encouraged to choose the most fuel-efficient method of travel, incentives will be provided for the use of fuel-efficient vehicles and the energy-efficient movement of goods will be promoted.

• City government: "City bureaus shall reduce energy consumption by investing in energy conservation opportunities and changing operational procedures to the most energy and cost effective extent possible." One of the more stringent objectives outlined for this particular policy concerns the journey to work by city employees, who will be required to change their place of residence if necessary to reside within the city. This directive will be carried out by the proposal of a city charter amendment at the next general election.

Window Economics Evaluated

Twenty-seven million residential windows are installed each year and millions more go into commercial buildings. To evaluate their cost and energy effectiveness, researchers at the National Bureau of Standards have developed a test model and method for comparing window sizes, orientation, accessories such as Venetian blinds and insulating shutters and uses in different areas of the country.

A booklet entitled "Economic Evaluation of Windows in Buildings: Methodology" describes the method in depth and provides step-by-step guides for applying the technique in a residential building and an office structure in the Washington, D.C., area. Also discussed are the life cycle costing and the computer program formulated to implement the economic model. (A companion report with 18 regional analyses using the method is to be published later.)

Copies of the 118-page booklet (stock number 003-003-02042-7 in Building Science Series 119) are available for $3 each from the U.S. Government Printing Office, Washington, D.C. 20402.

Learning from Europe, Japan About Foreign Oil Independence

The U.S. is so caught up in its own proposals for solving the energy crisis that it may overlook efforts by other countries. Denis W. Thompson, director of research and public education for the Alliance to Save Energy, writes in ASE's information brief (Aug. 1979) that noncommunist industrial nations are determined to halt their dependence upon imported oil. Europeans and the Japanese "will be setting the trends because their greater dependence on imported oil compels action. They are already trend setters in the efficient use of energy," Thompson says.

Already, Europeans and Japanese have more fuel efficient automobiles and extensive mass transit systems. "Their homes and offices are comfortable using less energy per square foot, and airconditioning is more of a rarity than in the U.S.," Thompson writes.

He reports that Japan "is considering a $23 billion investment in alternatives to its 99 percent, 5.4 million barrel a day dependence on imported oil." Solar power is one option being investigated by the Japanese, and Japan has announced a breakthrough in photovoltaic research, according to Thompson. Scientists in Japan have learned that something so humble as the spinach plant provides photosynthesis lessons "which they say promise to double the efficiency of photovoltaic cells in converting sunlight to electricity."

West Germany, Great Britain and South Africa are among the nations looking to synthetic oil products made from coal. In World War II, Germany ran its military with the aid of synfuels, with a ton of coal yielding five gallons of liquid fuel. Now, West Germany has four pilot plants under construction for the production of synfuels, and expects to gain 100 gallons of liquid fuel from a ton of coal.

France is working on solar energy, and Sweden "is experimenting with the use of wood chips, forestry waste and peat as sources of industrial heat and energy for generating electricity," Thompson reports. Denmark sets an example of energy productivity through its use of district heating.

The U.S. will be learning a great deal from the experiences of other nations, Thompson predicts, "and they will be expecting us to move rapidly in the same direction."

Residential Energy Use

Residential energy use grew at an annual average rate of 4.6 percent in the 1960s, but since 1970, that growth rate has been reduced to 2.6 percent. The primary motivation for the reduction in energy use in households is the desire on the part of the consumer to reduce rising energy costs—achieved principally through a change in energy habits (turning down the thermostat) and investment in conservation measures (insulation).

Energy costs now consume about 15 percent of the average annual cost of homeownership, approaching the monthly mortgage payment in heating and cooling seasons. In the 1970s, the residential consumer of energy has seen a 65 percent increase in oil-heating bills, a 37 percent rise in natural gas costs and a 25 percent increase in electricity bills (in constant 1976 dollars, with current dollars making the cost increases even more horrendous). And many low-income people, living in substandard housing, spend as much as 50 percent of the household budget on energy during the heating season.

Although the 1970s have seen a dramatic drop in residential energy use, matters could be greatly improved through the use of existing technologies, with no
continued on page 25

Most builders and architects will agree that floor tiles are tough, their beauty far outlasting other types of residential flooring. But, up until now, there was just one thing that kept them from being at home in apartment buildings. They were noisy.

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But energy savings aren't the whole story. Tenants are. And Sixty State Street's tenants like the spectacular views of Boston harbor that the large-sized glass affords. Other tenant benefits include brightness reduction of as much as 75 percent in the building interior, precision temperature and humidity control, and excellence as an acoustical barrier.

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PPG: a Concern for the Future

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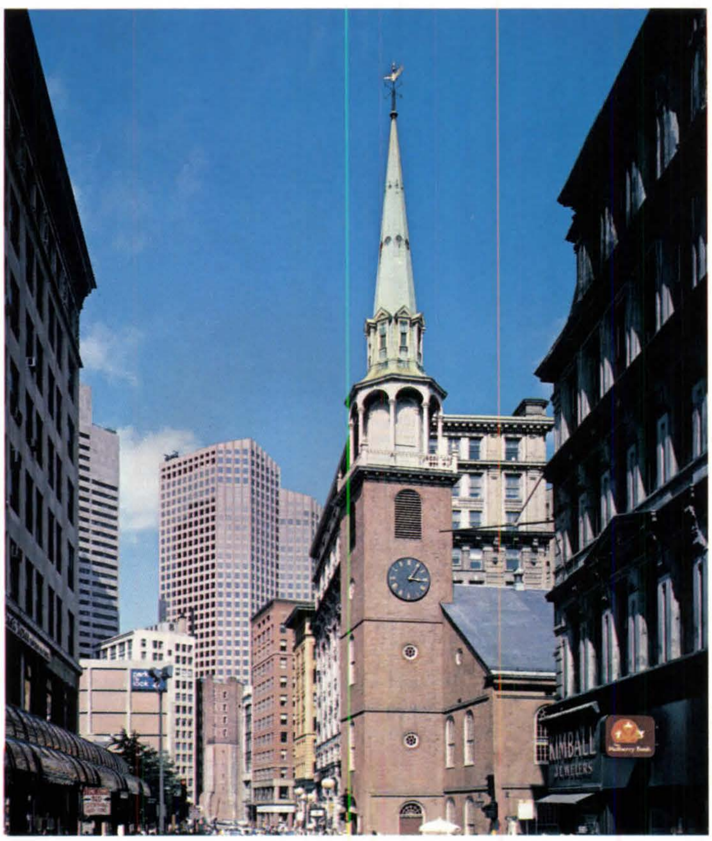


Circle 13 on information card

Energy *from page 20*
change in life style or comfort and with substantial dollar savings for homeowners, says a study, prepared by the Office of Technology Assessment, entitled "Residential Energy Conservation, Volume 1." Addressed to congressional policy makers, the report points out that policy decisions are made difficult by such things as diversity of housing in the U.S., the plethora of decisions involved in planning, building, buying and operating a residence and the consumer's basic desire to be given maximum freedom of choice.

By the year 2000, the OTA study says, a lower consumption level could be achieved "through an optimal economic response—one in which all residential consumers made the maximum investment in conservation technologies that they could justify through paybacks in reduced energy savings over the remaining lives of their dwelling units." But currently, consumers are unsure about what changes would be most effective. They "have more trust in information from their locality or state than from remote institutions. The information provided by the federal government and by large oil companies is not well received."

Also, it is "unreasonable" to assume, says the report, that consumers will make major housing or behavioral choices based solely on energy consumption. Other important values to the consumer include adequate space for growing families, being near schools and shops and feeling assured that a home will be warm enough to ensure health and comfort. The OTA researchers say that the policy maker's ability to select successful motivational strategies would improve with more research on actual household energy use patterns, as well as on attitudes and behavior. Data currently available on attitudes and behavior "indicate that information programs that emphasize economic benefits of conservation are more likely to show results than those based on ethical urgency."

Efforts to relieve the poor have taken two approaches—provision of home improvements to reduce energy needs and of financial help in meeting energy bills. But neither of these approaches "has been totally satisfactory or adequately deployed." It is suggested that a policy which subsidizes energy efficiency rather than price may be a better approach.

The homebuilding industry, the report says, is responding to consumer demand and taking advantage of opportunities to improve energy efficiency in dwellings. The design and construction industries can respond quickly and readily in re-adapting designs and methods, says the study, once the economic and technical feasibility of new housing features or construction techniques are proven and accepted in the marketplace.

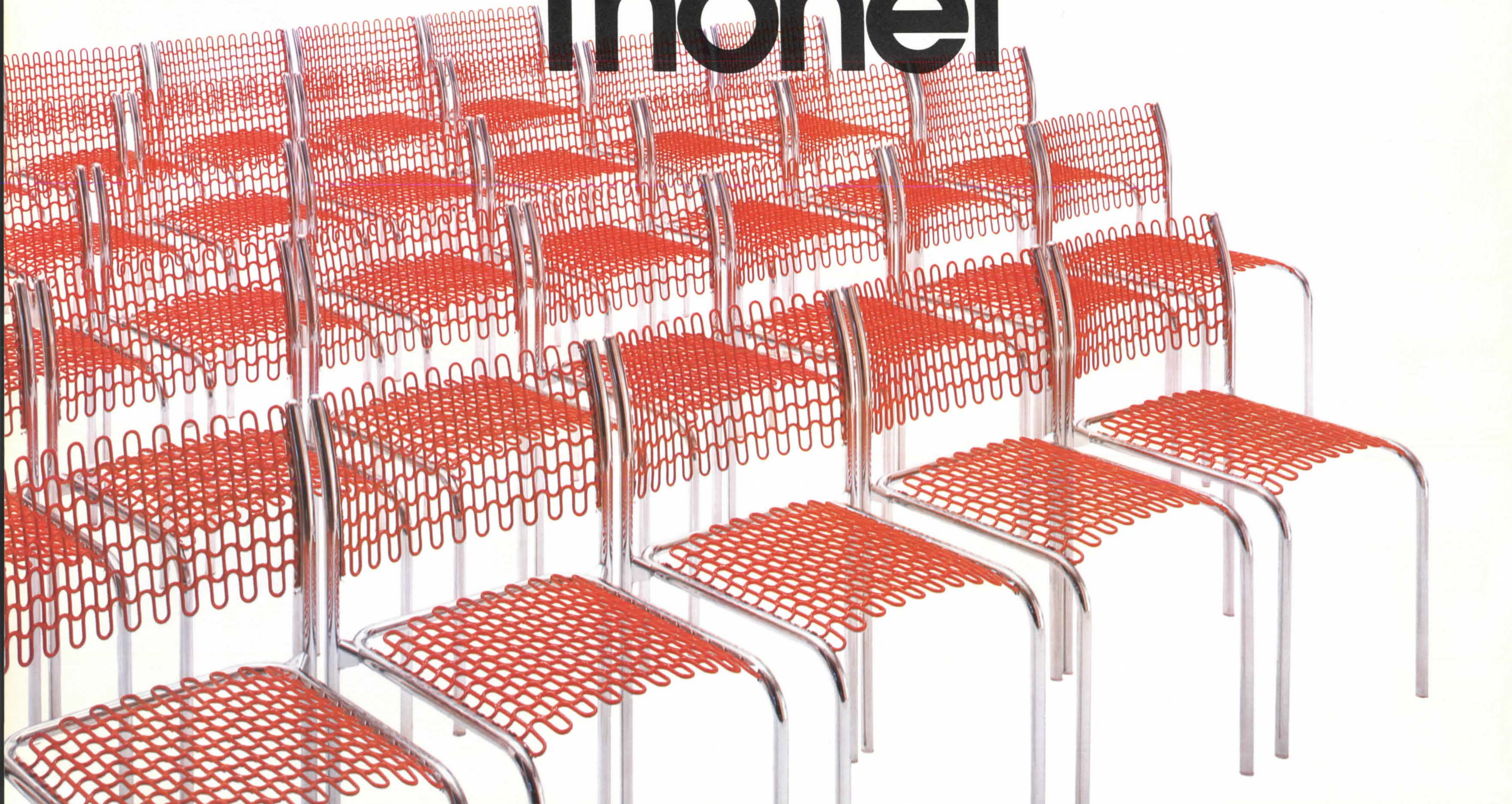
The OTA researchers say that performance standards, now being drafted by the federal government, "are needed to allow for flexibility and experimentation in construction. Application of performance standards in housing may be particularly delicate, because of problems of methodology and the resources of builders." The average U.S. homebuilder constructs fewer than 20 homes a year, does not use sophisticated architects or engineers and prefers a simple code that can be readily followed by carpenters and laborers, the study concludes.

The report says that energy-conscious homes "are neither expensive nor outlandishly designed, and need to be encouraged by government action. However, policy actions are difficult to develop because energy-conscious design is part of the fabric of the building itself. Unlike discrete, technological add-ons, energy-conscious design features cannot easily be listed in a tax regulation or building code. Special policy focus by government on such designs may be particularly appropriate because there are few natural market forces to promote such building choice."

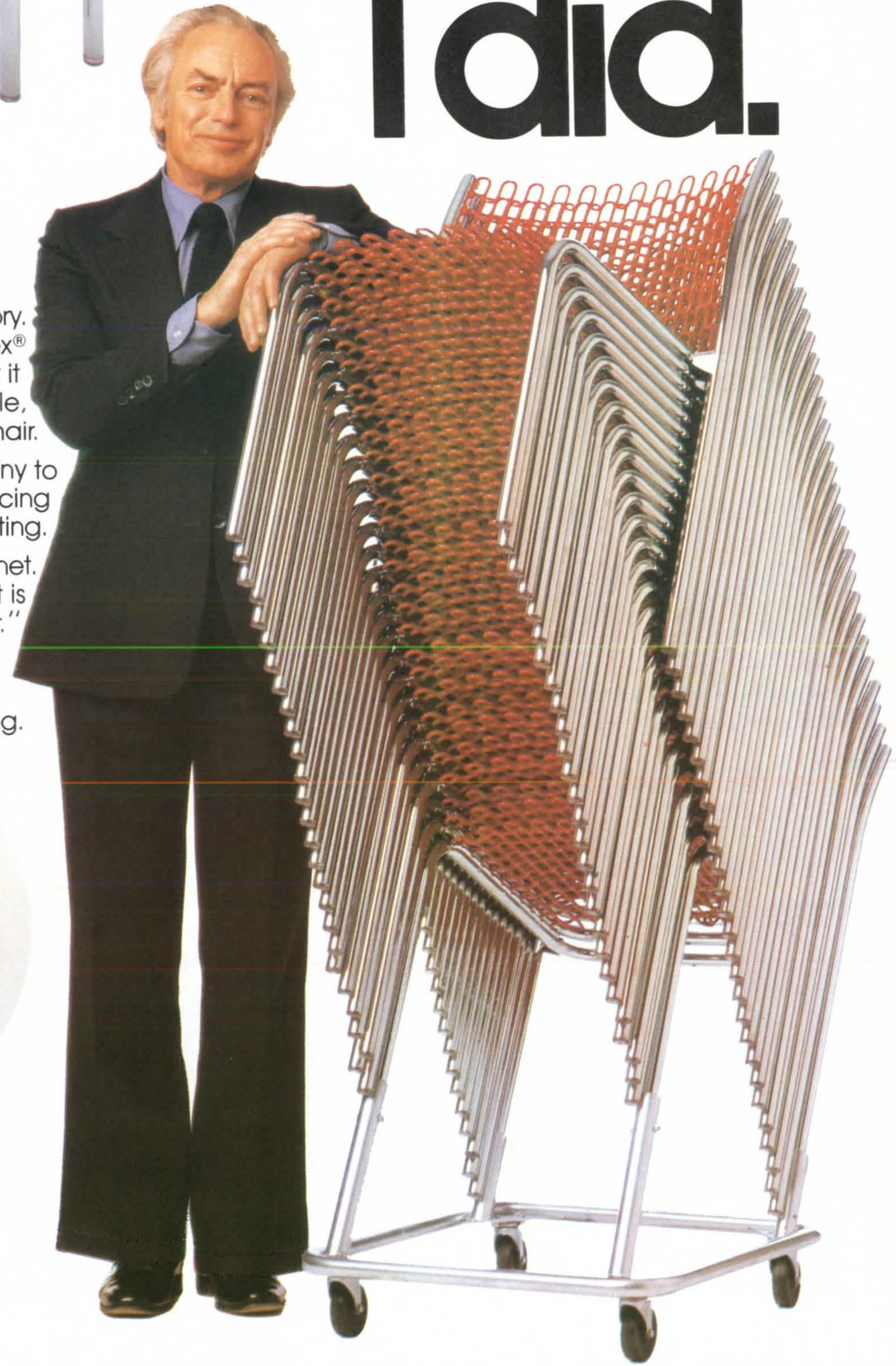
The report is for sale by the U.S. Government Printing Office, Washington, D.C. 20302 (stock no. 052-003-00691-0).

News continued on page 29

Rethink Thonet



I did.



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Designed for Thonet by David Rowland

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Confusion, Discontent Reported Over State and Federal Roles

There is "widespread discontent with many of the programs, policies and procedures that guide the preservation movement," says the Advisory Council on Historic Preservation in its recently issued report to the President and Congress on the year 1978. The discontent is revealed in reports submitted to the council by federal agencies and state historic preservation officers. These reports suggest "overlapping authority or at least a difference of opinion concerning one another's duties in the policy making area. The lack of clear division of responsibility and confusion over who should lead and who should follow is a refrain oft repeated. . . ."

Both federal agencies and the states "see the need for consolidation in many areas—in legislation, in procedures and in administration," the council says. Also called for is clarification of roles and responsibilities of the council, the Heritage Conservation and Recreation Service and the National Trust for Historic Preservation, as well as codification of preservation laws "or an interpretation explaining the meaning of each in the context of the whole," the council says.

The council report also maintains that despite progress, federal agencies "are still reluctant to embrace preservation fully and make it an integral part of their programs." Such lack of commitment is evidenced in several ways:

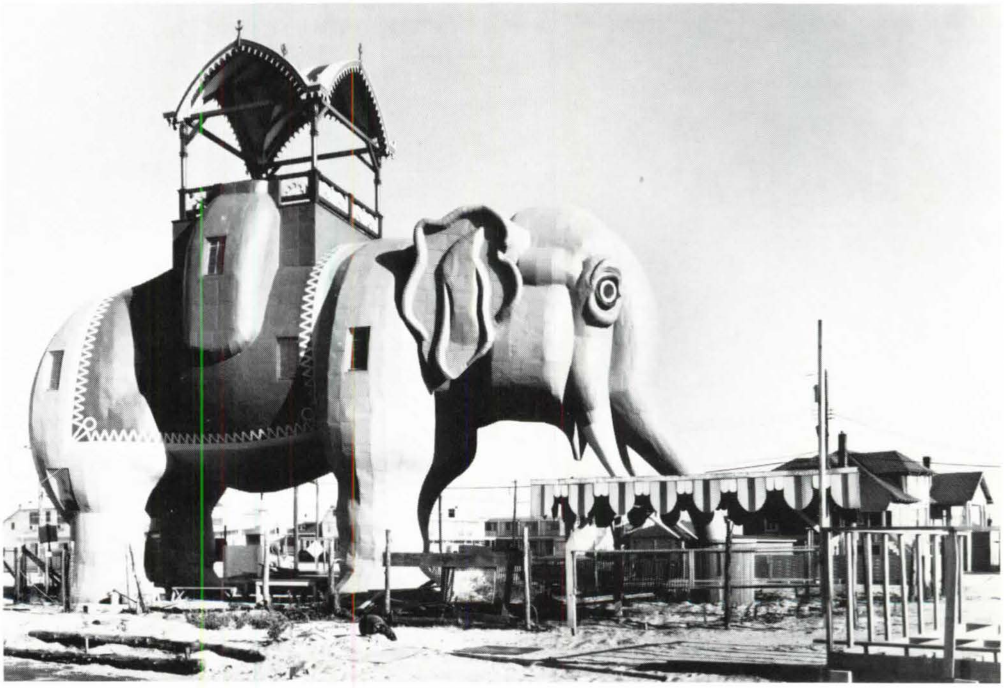
- Budgeting: No specific amounts are set aside by the agencies for the identification of historical and cultural properties under their control, nor for maintenance and restoration. In competition with other activities, preservation receives "low priority." Agencies believe additional funding is required for preservation, and lacking funds, they would prefer to have their responsibilities handled by others, such as the council, state preservation officers or the National Trust.
- Staffing: The report reveals that few agencies have professional staffs trained in the disciplines associated with preservation. Consequently, they are "dependent to a large degree on outsiders who may not understand national goals and objectives and may not even be competent to perform the work." As a result of lack of professional staff, many agencies delegate review responsibilities to general environmental offices and provide training through workshops and seminars. Decisions are made by "paraprofessionals at best." Although training is paramount, there is no organized national program.
- Planning: There has been improvement in planning for preservation in recent years, the report says, "but efforts fall short of what preservationists deem satisfactory." In an examination of federal procedures that control or guide agency action, the council reviewed in 1978 a total of 220 such procedures for new or modified programs. Of this number, 130 "proved unsatisfactory because they did not provide adequate coordination with the council's review process or otherwise ensure that historical and cultural values would be considered in decision making."
- Funding: The council says that agencies say that funding to carry out the duties imposed upon them by legislation and Presidential directive has not been forthcoming. "States complain that they are being asked to do more by the federal government, especially in the certification of historic structures for tax purposes, without compensation." But even more important, the report says, in the influence of attitude "is the discrepancy between authorization and appropriation" for programs concerned with preservation activities.

Among the areas of particular concern to federal agencies and to the states is the lack of a comprehensive inventory. It is estimated that the National Register of Historic Places is only 10 percent complete. To avoid damaging historic and cultural resources, agencies must know "what is there." They can best modify projects in the earliest stages of planning. They strongly endorse the comprehensive survey program of the Department of the Interior, but "all agree that if this program is to be of much use, it has to be expedited."

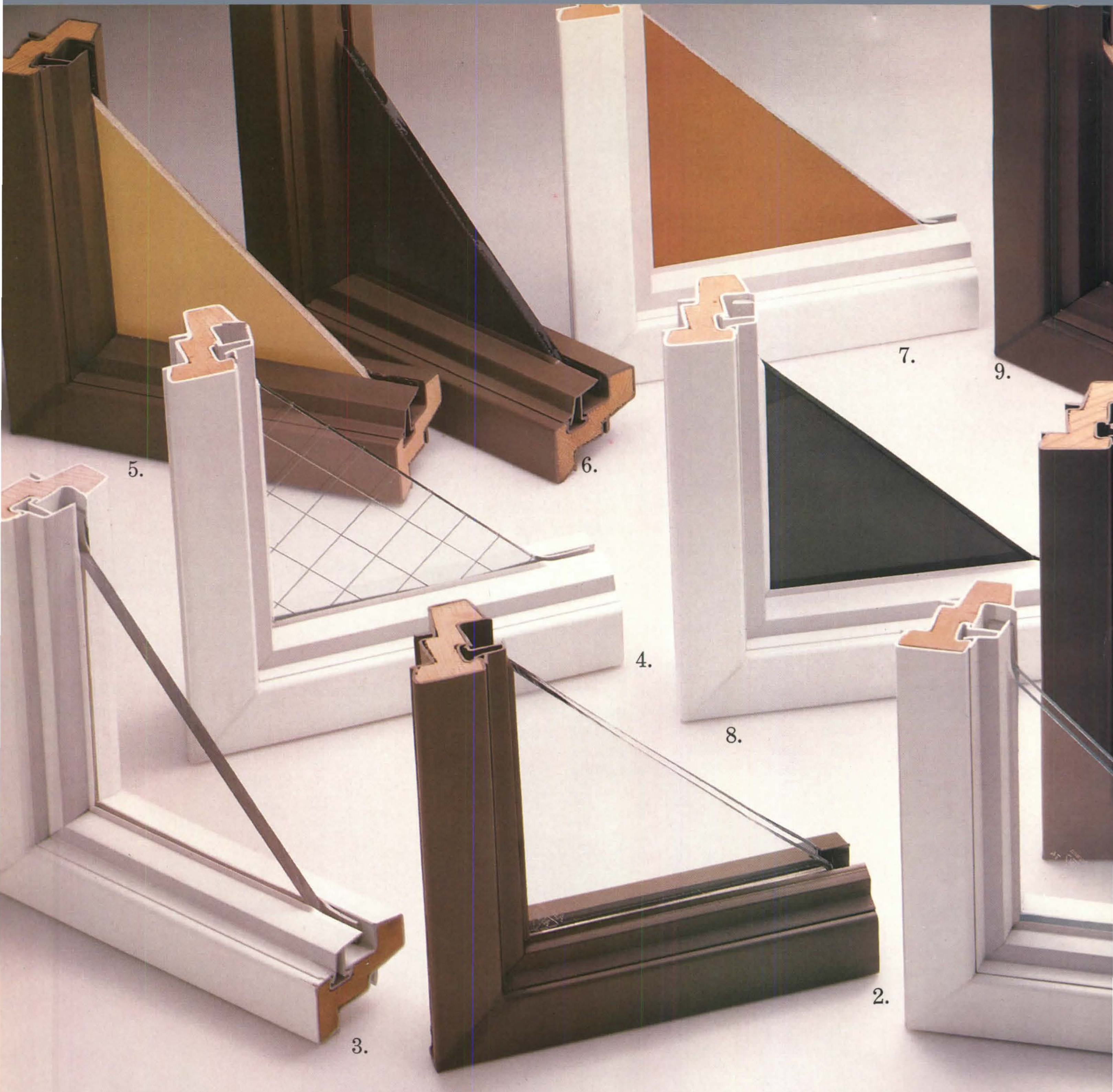
The states, the council says, have a number of concerns, and lack of cooperation by some federal agencies in the National Register compliance process is one of them. Also, a recurring question of concern is social displacement when neighborhoods are restored.

The council reports that preservation is proving to be highly beneficial in economic terms, and a special section of the report deals with the economics of preservation and describes as well techniques developed for reuse and revitalization projects. An assessment is made as well

continued on page 33



Lucy the Elephant, who stands more than six stories tall on the Atlantic Ocean beach in Margate, N.J., is now a state and federal historic landmark. She's been spruced up for her centennial birthday party (she's now a youthful 98 who weighs 90 tons). She has a new terne hide, with about 20,000 square feet of steel involved, and her feet are tide-proofed by sheet lead "booties." Architect for Lucy's rejuvenation is John D. Milner, AIA, of West Chester, Pa. Structures such as Lucy, called follys, were popular in the Victorian era when she was built by a real estate promoter to attract prospective customers for summer cottages. She was given to Margate in a dilapidated state in 1970, but a "Save Lucy" rescue committee was formed, and through private gifts and federal grants, money was raised for her to be the glorious creature she now is.



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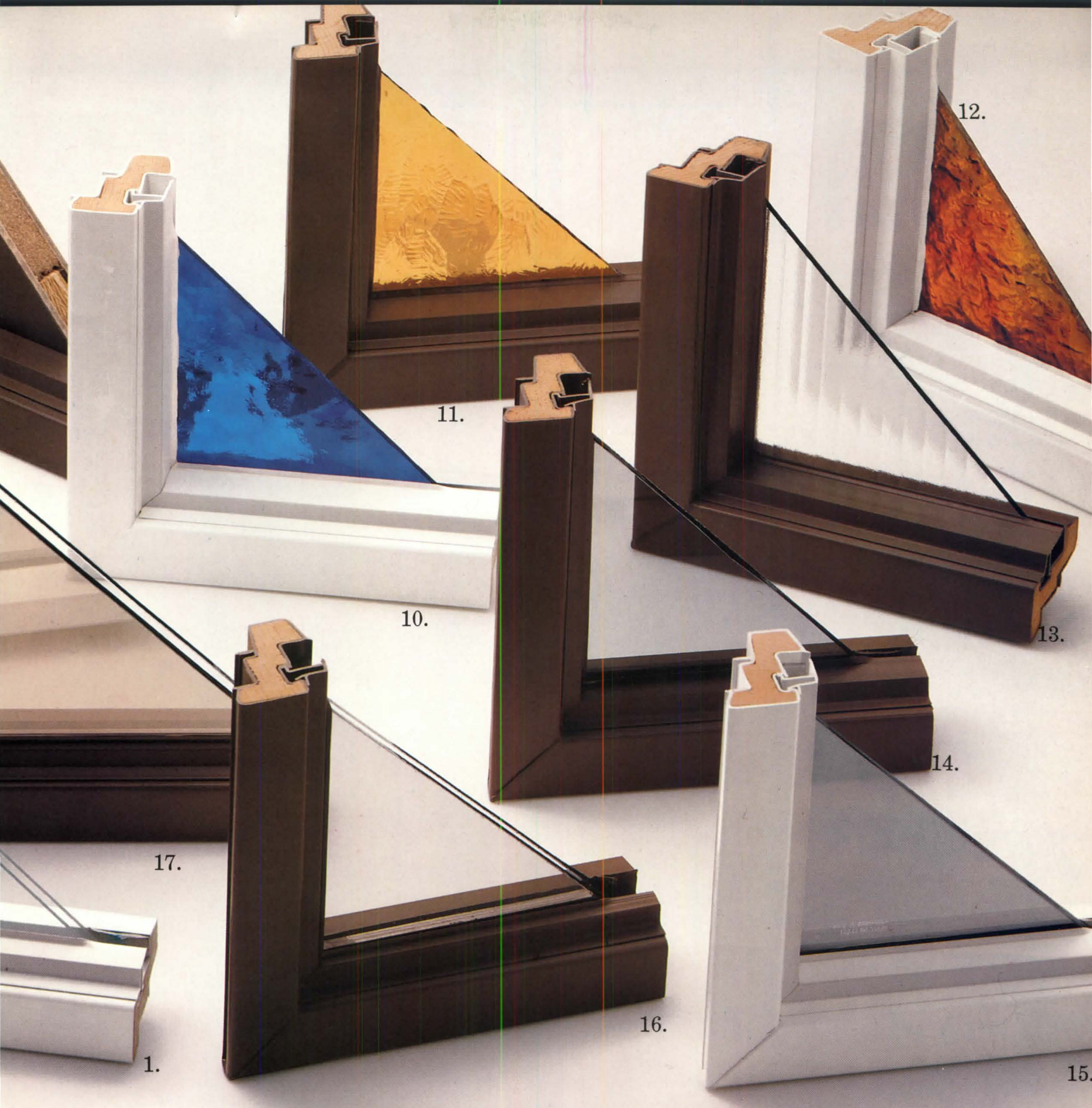
11. Amberlite Pattern Glass by Combustion Engineering. Decorative effect in hammered amber patterns. Tempered or untempered.



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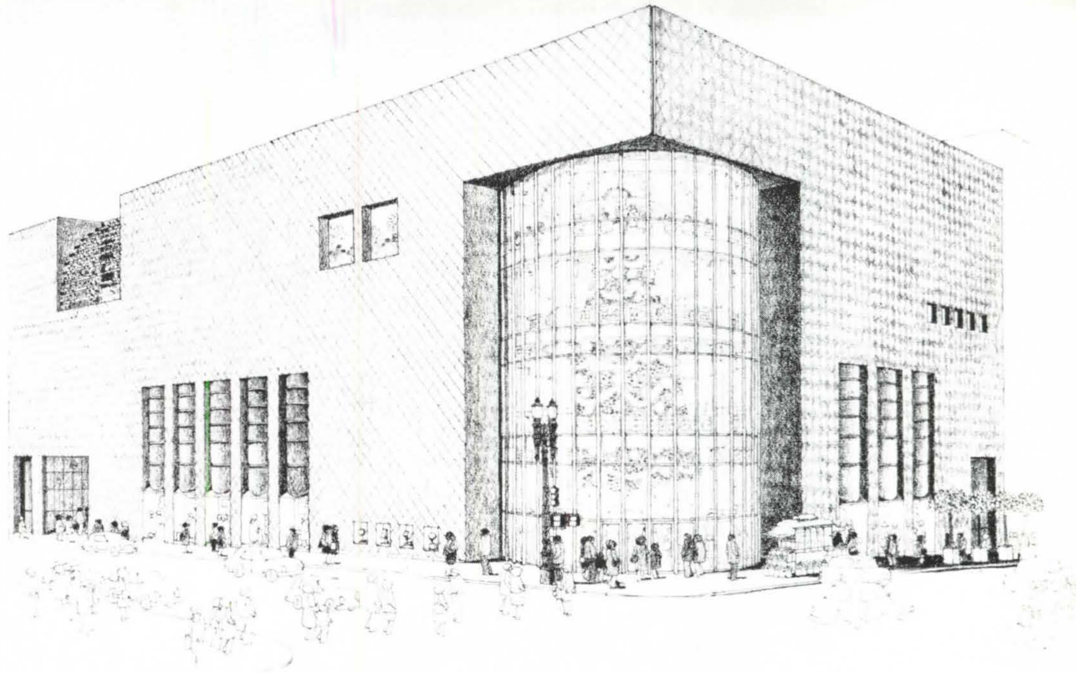
Preservation *from page 29*

of the tax policy for preservation and the roles played by mortgage and insurance companies in restoration efforts. The report takes into account how preservation can deal with such national needs as the housing shortage, energy conservation, employment and urban revitalization.

And yet, the council says, preservation is still a promise. "More than ever before, direction and leadership at the highest federal level are essential to shaping a comprehensive national effort that can respond to national needs."

The Report to the President and the Congress, 1978, is available from the U.S. Government Printing Office, Washington, D.C. 20402. It is recommended reading for anyone concerned with the national preservation effort. It comes at an opportune time, says Richard H. Jenrette, chairman of the council, when the Department of the Interior and the National Trust for Historic Preservation "are re-examining their programs, and the congressional committees are conducting oversight reviews."



City of Paris Building Demolition Gets Approval in San Francisco

The wrecking ball may yet bring down the City of Paris building in downtown San Francisco, despite valiant attempts by preservationists to stop its demolition for a Neiman-Marcus store designed by Johnson/Burgee. The building, a state landmark, is listed on the National Register of Historic Places. The fight has attracted attention, says the Foundation for San Francisco's Architectural Heritage, one of the five groups fighting to save the structure, because of the "significance of the legal issues raised and its potential to contribute to the development of preservation law nationally." A landmark's preservation is involved, but also a "serious failure of government to act fairly, within its own laws, and without favoritism to special interests," the foundation says.

In August, Neiman-Marcus was issued a permit to demolish the Union Square building, designed by Clinton Day in 1896. Preservationists protested, but the board of permit appeals recently approved demolition plans. This action was pursuant to a decision in January by the city planning commission approving the construction of the store on the site. Reasons given for demolition were that the new building would provide both construction and retail workers with employment, that the old building was not architecturally significant, that the Neiman-Marcus store would help revitalize Union Square and that there was no assurance that another developer would save the art glass dome, which Neiman-Marcus intends to do. The preservationists contend that the building is a "significant landmark which deserves preservation for its own architectural, historical and cultural merit" and that feasible use could be made of the building.

Neiman-Marcus bought the building in 1970, with the intent of preserving it. It was decided in 1974, however, to demolish the structure on the grounds of structural inadequacy in meeting seismic codes (although the building withstood the earthquake of 1906 with only slight damage). The city planning commission approved the Johnson/Burgee design (drawing of revised version, above). The plan calls for the retention of the glass skylight, which would be placed at the top of a glass silo carved into a corner to form the major entrance. The commission asked that the Johnson/Burgee proposal be altered by adding more surface texture to the exterior, by changing the proposed reddish colored granite in the exterior diaper pattern to gray and by having the exterior express the interior structure. Speaking of the dome, Philip Johnson, FAIA, says the design "is as neutral as possible to emphasize this jewel that we have inherited."

The planning commission's decision to approve the new building and not to issue city landmark status has been criticized by the preservationists as being more receptive to economic arguments than to preservation concerns.

The preservation groups have filed a lawsuit and will appeal to the court to stop demolition until the legal issues are solved. They maintain that demolition is prohibited by the California Environmental Quality Act and by city laws which prohibit demolition of historic buildings if there are feasible alternatives for use, according to Robert Berner, executive director of the Foundation for San Francisco's Architectural Heritage. The other groups fighting to save the City of Paris Building are Californians for Preservation Action, the Citizens' Committee to Save the City of Paris, San Francisco Tomorrow and the Victorian Alliance. Legal costs are being borne by contributions from individuals and by several grants.

The Institute

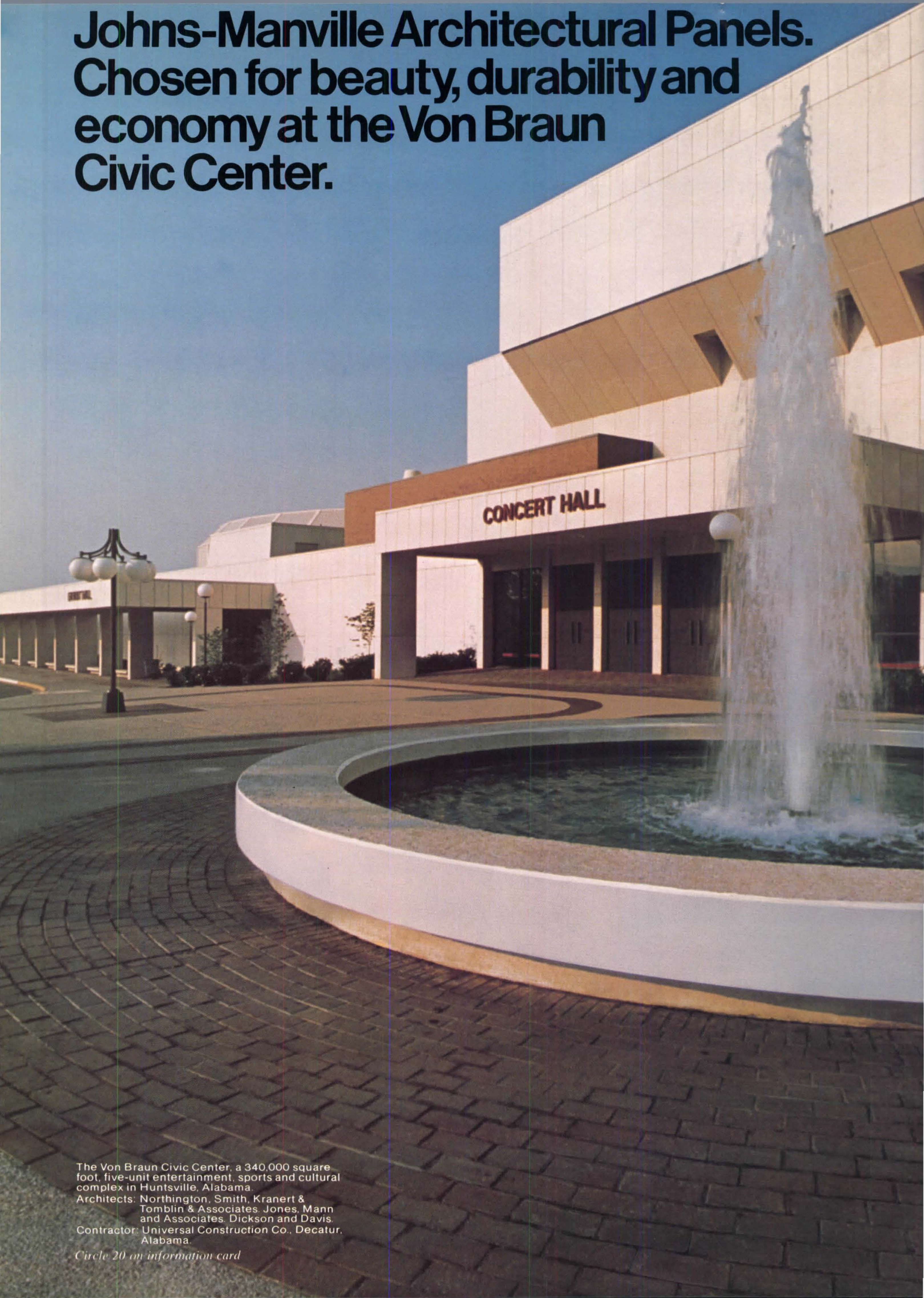
Board Drops Supplanting Ethic

At its meeting in Boston on Sept. 10-13, AIA's board of directors formally repealed the Institute's ethic which prohibited "supplanting" (rule 605), effective retroactively to May 1. The supplanting ethic had stated that AIA members should not "attempt to obtain, offer to undertake or accept a commission for which they know another legally qualified individual or firm has been selected or employed" until there was evidence that the agreement had been terminated and written notice had been given.

Previously, the AIA executive committee had placed an emergency "hold" on all cases and prospective complaints involving former ethical standard 9 and rule 605, its successor, until the board reviewed the problems and status of en-

continued on page 35

Johns-Manville Architectural Panels. Chosen for beauty, durability and economy at the Von Braun Civic Center.



The Von Braun Civic Center, a 340,000 square foot, five-unit entertainment, sports and cultural complex in Huntsville, Alabama.
Architects: Northington, Smith, Kranert & Tomblin & Associates. Jones, Mann and Associates. Dickson and Davis.
Contractor: Universal Construction Co., Decatur, Alabama.

Circle 20 on information card

The Institute *from page 33*
forcement of these rules (see Aug., p. 21). The executive committee action took place after an interim order by Judge John F. Sirica in June in the U.S. District Court for the District of Columbia. Judge Sirica's ruling was that the supplanting ethic was in violation of the Sherman Antitrust Act.

In other action, the board withdrew a policy related to ethical rule 209 that AIA members cannot staff architectural exhibitions approved by the Institute. As a result, architectural exhibitions that call for potential staffing by AIA members are eligible for approval by the Institute.

Also, the board rescinded the AIA/American Bar Association "statement of principles," approved by AIA and ABA in 1968 subsequent to isolated instances in which lawyers voiced concern that architects in unauthorized practice of law may have advised clients regarding construction contract documents. The statement said in part that the "architect is cautioned not to furnish legal advice and not to appear in a representative capacity as an advocate before a quasi-judicial or administrative agency when substantial questions of law or legal procedures are involved."

Since that time, AIA has indicated on its contract documents, in the *Handbook of Professional Practice* and elsewhere that consultation with an attorney is advised for the use or modification of contract documents. Before the action at the September AIA board meeting, ABA had moved to disband the inactive National Conference of Engineers and Lawyers, a liaison committee initially formed to monitor compliance with the statement of principles with design professionals.

AIA's board found that the statement of principles "has outlived its usefulness" due to the fact that there appear to be no difficulties concerning architects engaging in unauthorized law practice nor lawyers practicing architecture. Hence, the AIA board approved the rescission and directed that ABA be requested to take similar action.

In other action, the AIA board:

- Recommended no dues increases for 1980 and that $5 per member of the regular dues continue to be used solely as a legal services fund.
- Adopted two resolutions passed at the 1979 AIA convention. The first concerns the intern development program, and the resolution asked for the continuation of AIA's coordination with the National Council of Architectural Registration Boards in the improvement of a voluntary program, but expressed opposition "at this time" to adoption by individual states of the intern development program criteria developed by NCARB as a "mandatory prerequisite for licensing." The second resolution supports passage of the Alaskan National Interest Lands Conservation Act of 1979.
- Directed the practice and design commission "to review AIA professional liability activities and to submit an evaluation and recommendations for most effectively serving membership needs in this area to the board at its December 1979 meeting."
- Created the Rio Salado Chapter/AIA in Arizona, to serve suburban areas around Phoenix.

Citations for Faneuil Hall

AIA has cited Boston Mayor Kevin H. White and Benjamin Thompson, FAIA, of Cambridge, Mass., architect for the restoration of the historic Faneuil Hall Marketplace in Boston. The redesign of the marketplace received an AIA honor award last year (see Mid-May '78, p. 132). The citations were presented during the meeting of AIA's board of directors in Boston in September, the city having been chosen as the site of the meeting as a special tribute during the Institute's year-long Celebration of Architecture.

The citation to Mayor White recognizes the "important role the city has played in the preservation of its historic buildings while simultaneously encouraging new architecture of significance." The citation to Thompson states that the Faneuil Hall Marketplace "has enhanced the city of Boston and provided a worthy site for celebration."

Commission Heads Appointed

Charles E. Schwing, FAIA, first vice president and president-elect of the Institute, recently announced AIA's 1980 commission chairmen appointments. They are: Ray K. Parker, AIA, Little Rock, Ark., education and professional development; Donald L. Hardison, FAIA, San Francisco, practice and design; Paul D. Bowers Jr., AIA, Grand Rapids, Mich., government affairs; William H. Trogdon, AIA, Spokane, Wash., component affairs; Michael D. Newman, AIA, Winston-Salem, N.C., communications; David A. Holtz, AIA, Silver Spring, Md., Production Systems for Architects and Engineers, Inc.; Harry W. Harmon, FAIA, Long Beach, Calif., AIA Foundation, and William A. Rose Jr., AIA, White Plains, N.Y., AIA Research Corporation.

Tile Competition for Students

A student design competition "The House of Tiles" is being cosponsored by the Tile Council of America, Inc., and the Asso-
continued on page 80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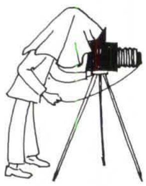
AIA JOURNAL



As the JOURNAL has become more heavily illustrated, we have come more and more to value the skills of the photographers, particularly the architectural specialists. They are not merely suppliers of illustration, but collaborators in conveying the ideas that are the magazine's stock in trade—especially in those frequent cases where we commission photographs for a particular article.

It seems to us that the art of architectural photography has advanced considerably in recent years. It has grown more flexible, more human in approach, more skilled at conveying the experience of a place (a good example of these directions is Steve Rosenthal's treatment of the Boston Children's Museum on pages 62-67), while maintaining its traditional technical skill and its sensitivity in the interpretation of form.

At any rate, our collaborators, the photographers, have our admiration and gratitude.

Speaking of illustrations gives us a good excuse to acknowledge the growing contribution to the magazine of the drawings of Carole Palmer (pages 39, 41 and 67), our associate art director. Like the best of the photographers, she has an unusual ability to capture ideas in images. *D.C.*

Caution: The Office Environment May Be Hazardous to Your Health

The need for an ecological approach to its design. By George Rand

In many respects, the future of our urban way of life depends on creating more white collar jobs in service industries for an increasingly broad sector of the economy. Department of Labor figures show that 25 percent of the nation's work force can be found in offices, and this number is still expanding. There are already more than 3.5 million secretaries in the U.S.

To meet demands, millions of square feet of new space are being built and millions more are being renovated to meet standards of appearance and function developed over the past 15 years. The advantages of the new systems of office design are many, especially to managers. With the standard open office components—space dividers that do not reach the ceiling, industrial carpet, acoustic tile and a host of office subsystems—management can more easily adapt as new, more efficient automated data processing systems are invented.

Curtain wall structures make this all possible, with their large, open bays serviced by centrally integrated, delicately engineered HVAC systems maintaining air flow through elaborate ducts or plenum devices with the mechanical sophistication of a large philodendron leaf.

Of course, these construction and interior design systems depend on large, comprehensively designed and engineered mechanical systems for pumping, mixing and circulating air and large electrical systems for distributing power. Now, with energy costs multiplying, there has been a strong impulse to try to engineer these systems to produce greater economies. Research is under way to develop methods of sealing large office building envelopes to prevent infiltration of unconditioned air from outside and to eliminate losses of treated air.

But there may be a price to pay for our zeal to save energy by sealing windows and our attempts to add efficiency by turning offices into electronically wired environments. There is a wide body of research now emerging to suggest the need for a cautious appraisal of the whole idea of the "new office building" and its fittings. It may be that we have overestimated our technological skill at reconstituting the complexity of the natural environment. Like many of our foods laced with salt, sugar and preservatives, the use of synthetic materials in offices may constitute an ecological threat and be responsible in part for hypertension, depression, pulmonary diseases, alcoholism and other illnesses linked to office work. Right now these are only partial hypotheses, but collected data are beginning to suggest that the current kit of office parts is not as safe as we think.

Air fresheners, solvents, adhesives in building products, cleaning fluids, fire-retardant chemicals, chemicals to prevent aging of paints and finishes—all these may be turning the inside of sealed buildings into virtual gas chambers. To add to the problem, seemingly innocuous office furniture, carpets and curtains may contain formaldehyde, asbestos and other harmful substances. Copying machines can produce ozone which results in headaches and upper respiratory infections.

Dr. Rand is a psychologist who teaches environmental design at UCLA's school of architecture and urban planning. He is collecting good and bad accounts of environmental quality in offices. If you have such a report or are interested in further information on office hazards, write to him at UCLA.

Toxic solvents used for printing and typing errors and carbonless paper contain chemicals which may be sullying the atmosphere in enclosed structures. A recent Harris poll on offices says that more than 54 percent of the office work forces uses automated data processing in their work. These people spend a large portion of their lives in a "wired environment" which has unknown long-range effects. Use of cathode ray tubes and video display devices can produce everything from simple eye strain and headaches to cataracts and long-range neurological problems. In highrise buildings, this "wired environment" is compounded by the presence of invisible microwaves and other sources of nonionizing radiation which have unknown effects on the human organism.

Francis Silver, a student of toxicology and gas-engineering, cites an example from his own history. He recalls working in an engineering office finding himself stuporous toward the middle of the day. He looked around him and found other draftsmen in a seemingly stuporous state. After repeated efforts to draw attention to the environmental conditions, he finally climbed atop the roof of the building and found the following: On hot days, the tar on the roof was off-gassing chemicals. The air vent for the HVAC system was drawing in these fumes and circulating them throughout the system. Somehow, the mild stuporousness of employees was not a cause for alarm or concern. Perhaps it was expected that their performance level would always be average and nothing more. While this was obviously a special case, we may be producing similar outcomes in schools and offices around the country.

We have been designing work environments largely on the basis of shape studies of the outsides of buildings, along with engineering economies and construction shortcuts. With all the new materials and substances being incorporated in building, there is need to approach architecture as an ecological science. There is little knowledge of the precise ecosettings to which workers are being exposed 40 or more hours a week for many years of their lives.

Research on the indoor environment has been extensive in Sweden, Denmark and West Germany, possibly because they are cold climate countries which built large numbers of well insulated, tightly sealed structures before we did in the U.S. Birgitta Berglund, a Swedish research psychologist, reports that several recently built preschools in the Stockholm school district have been closed down due to bad air quality. Symptoms include eye irritation, strange odors, asthmatic spells and skin irritation. Several office buildings in West Germany have been closed for similar reasons. The building managers intend to keep them unoccupied for one or two years while they raise the heat level in them to the maximum and try to "bake out" whatever chemicals and toxins exist in furnishings, walls and floors.

In San Francisco, a recently opened, tightly sealed government office building has been having similar problems. Employee unions in the building have begun to accumulate reports of discomfort and distraction of employees which they attribute to the new environment. In a survey of more than 250 employees in the building, the vast majority complained of symptoms they have acquired since moving in less than six months ago. The largest complaint concerns headaches and sinus conditions. Many workers developed allergic skin reactions. Four employees had reactions so severe that they sought and obtained transfers on the advice of physicians. Workers complain that the air stands still in the building, that by afternoon it doesn't pay to be there because the atmosphere is not fit for work requiring mental concentration.

These reports are not presented to suggest that the problems exceed the capacity of our technological systems. In fairness, representatives of building products industries and the engineering professionals may have alternative explanations for the same facts, or easy ways to resolve the problem with existing technologies. For example, the problems of the San Francisco office may be simply solved by shifting to a three-stage filter instead of a two-stage system, or introducing more "fresh" air into the building. But such steps all cost energy dollars, and studies are needed to assure the working public that their health interests are not beging traded off for cost efficiencies.

Part of the problem in the field is that people do not respond uniformly to these conditions. Some office workers are highly allergic, others are not. Many workers, such as a secretary interviewed at University of California, cover up their allergies for fear of being labeled as malingerers. Many feel there is nothing to be done and find themselves part of a growing group of people in our society whose immune systems have been injured or overtaxed.

In designing offices to uniform standards, we imagined some "average person" for whom it was an ideally suited setting. A uniform external environment creates functionally unequal places for people with different physiologies. Certainly, there is now sufficient evidence on the consequences of these mismatches of people and places to demand a full investigation of these effects.

Instead, these concerns are often treated as insignificant. Colds, arthritis, allergies, eye irritations, etc., have enjoyed widespread recognition as occupational diseases. Yet as long as their symptoms remain within limits treatable by self-prescription, they are discounted. In no small measure, part of the reason for this discounting process is the fact that most occupants of offices are women, who are suspected in the culture of hypochondria, and the suggested unreliability of their complaints.

Health records are not kept diligently on office-related illnesses in the U.S. One major reason is that the nature of illnesses is not sufficiently severe to require toxicological studies. In short, no one keels over dead from these effects. The impact on productivity, however, is potentially powerful. The midafternoon yawning of office workers is ascribed to the repetitiveness of the work or to large lunches. Could it entail a minor form of anoxia due to plasticizers, fire-retardants and maintenance fluids in the office environment?

In fact, there may be a large group of impoverished indoor office environments, as well as small pockets of contamination in otherwise well designed and operating office buildings. Needless to say, these implications are fraught with great complexity. There is the danger that environmental concerns will become the subject of malingering of employees as the source of implausible demands on the part of the clerical unions. At the same time there is need to begin to study these conditions.

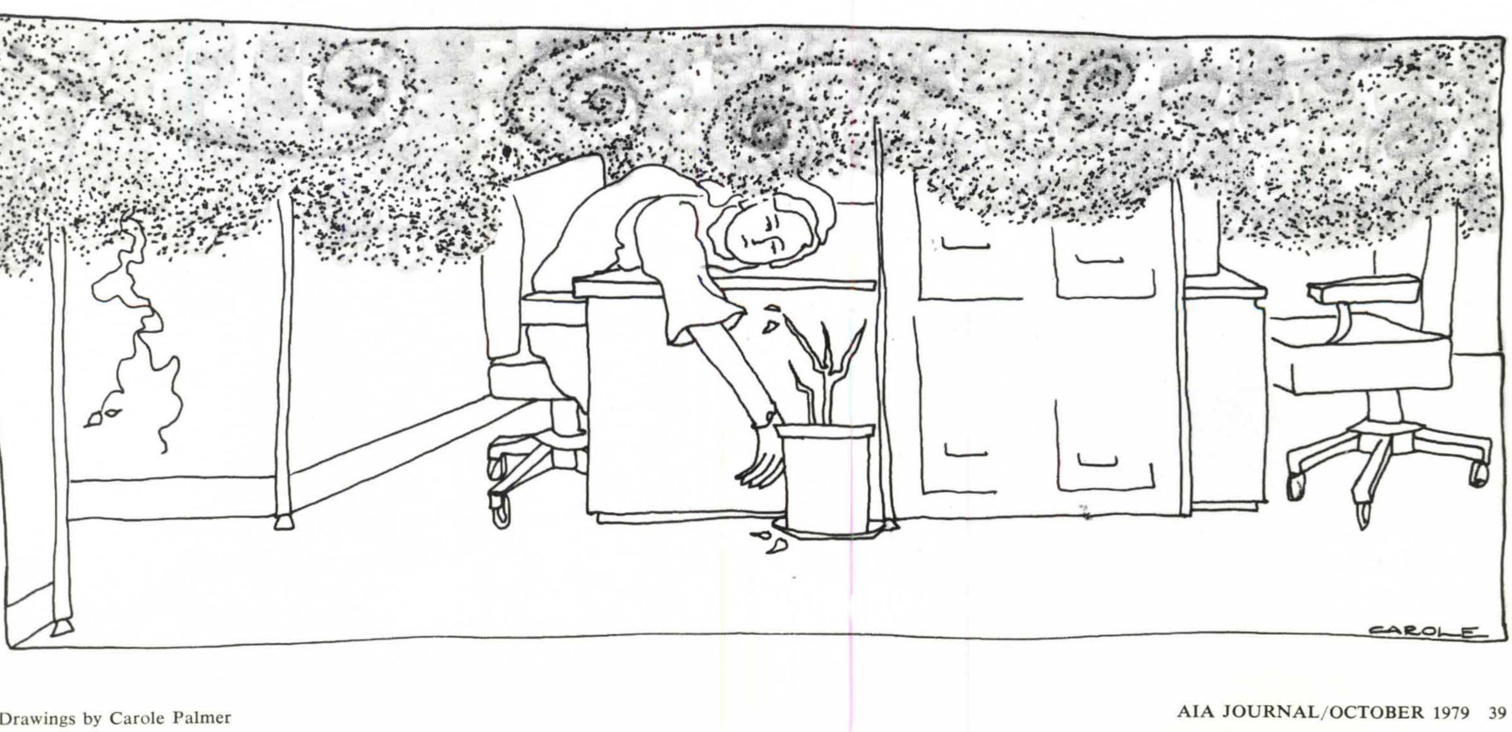
Typically, we run to the coffee machine or imbibe a symptom-masking drug before thinking to blame it on the handsomely engineered environment. Who could accuse the friendly softly hissing HVAC outlet of delivering anything other than cool, refreshing air?

Millions of dollars have been spent recently to transform hundreds of thousands of work stations from traditional to open office plans in order to improve worker productivity. Yet not a single study has been devoted in the U.S. to determining whether some of our institutionalized illnesses in offices—depression, tiredness, low-level pulmonary infections—could be traced directly to the physical environment.

Air pollution research has virtually neglected the indoor environment. But recent evidence suggests that the concentrations of some pollutants in office buildings can exceed those levels commonly occurring in the outdoor environment.

Chemical and biological contaminants, released into indoor environments, are unavoidable byproducts of human activity. Typical indoor contaminants include gaseous and particulate pollutants from indoor combustion processes (heating, cigarette smoking), toxic chemicals and odors from cleaning activities, odors and micro-organisms from humans, odor-masking chemicals used in several activities which are themselves pollutants, and a wide assortment of chemicals released from indoor construction materials and furnishings (asbestos, formaldehyde, vinyl chloride).

These contaminants in excessive concentrations may impair the health, safety or comfort of the occupants. The introduction of outdoor air by infiltration, by opening doors and windows or by ventilation with fan and duct systems of varying complexity was the usual way in which occupants were protected. New engi-



Drawings by Carole Palmer

A variety of pollutants of the interior air.

neering controls of indoor air quality use the controlled flows of air to reduce levels of air contaminants by diluting them in fresh outside air, or via use of recirculation systems that incorporate chemical and physical contaminant cleaning devices.

In recent years, there have been several reasons for re-examination of the indoor atmosphere of buildings. Researcher Craig Hollowell and his colleagues at Lawrence Berkeley Laboratories have shown that under certain circumstances "fresh" air may be more contaminated than indoor air. It may even be dangerous. Once indoor air is heated or cooled, exhausting it for ventilation purposes alone represents a major energy loss, and suggests minimal ventilation as a means of conservation. As less fresh air is introduced into building, the quality of the indoor air decreases. Ultimately, measures are needed to reduce energy consumption as much as possible without compromising health and comfort of occupants. At present time, there are major gaps in the understanding of what steps need to be taken to assure good air quality in buildings, in light of reduced ventilation.

In particular, the complex mix of indoor air pollutants has only recently been even recognized as a subject. Most studies of indoor air pollution have assumed that it arises from and is related to outdoor sources. These studies have been concerned mainly with SO_2, SO, O_3 or particulate matter. Surprisingly little work has been concerned with other important indoor air pollutants such as NO, NO_2, nitrates, sulfates, metals and organics. Even more surprisingly, indoor-*generated* air pollution has been neglected, although a number of air pollution *sources* exist inside buildings, such as combustion from heating and smoking.

Ventilation of buildings with outside air is required to establish a satisfactory balance between the metabolic gases (oxygen and carbon dioxide) in the occupied environment, to remove moisture from internal sources, to dilute human and nonhuman odors and to remove contaminants produced by human activity, building materials, etc.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has developed a ventilation standard giving recommended and minimum ventilation rates for several types of buildings spaces. This standard (ASHRAE 62-73) has been adopted by many states and local governments and is widely accepted in the U.S. A more recent standard, ASHRAE 90-75R, Energy Conservation in New Building Design, specifies that the minimum ventilation rate given in ASHRAE 62-73 for each type of occupancy shall be used for the design of new buildings.

ASHRAE 62-73 specifies five cubic feet per minute per person of outside air as the minimum allowable ventilation rate for most occupied spaces. It appears that this minimum ventilation rate is based largely on odors research performed by C. P. Yoglou more than 40 years ago, based on the need to limit carbon dioxide (CO_2) concentrations to less than 5,000 parts per million (ppm). The accompanying chart offers a quaint portrayal of the level of refinement and social prejudice involved in the research data underlying these standards.

In addition to metabolic gases and odors, moisture and contaminant removal must be examined in setting ventilation requirements. Recent research in residential buildings has shown that air exchange rates less than one air change per hour may allow the concentrations of certain contaminants (formaldehyde, nitrogen dioxide, carbon monoxide and radon) to reach levels at which there is a health risk to occupants. In institutional and commercial buildings, CO and particulates from tobacco smoking and emanation of formaldehyde and other organics from certain building materials could provide a substantial risk at these low ventilation rates. Since there are no metering devices in offices and schools, we must rely on hearsay accounts of health effects of poorly vented environments.

Ventilation standards for buildings with different functional uses have been in existence for more than half a century. A comprehensive effort is now under way at several institutions in the U.S. and Europe to establish a scientific basis for existing standards, to measure the actual levels of indoor air contaminants in several categories of buildings and to provide a consistent set of recommendations for energy-efficient ventilation standards. But there is scant information available on indoor air quality standards needed for establishing ventilation requirements in buildings. This information gap is partly due to the complex nature of indoor air pollution. In particular, the biological, chemical and physical mix of indoor air pollutants has been recognized only recently. Some of the most prevalent are:

• CO/NO_2. A recent study in England has compared respiratory illness of children living in homes in which natural gas and

Table 1. Minimum Odor-Free Air Requirements to Remove Objectionable Body Odors Under Laboratory Conditions

Type of Occupants	*Air Space per Person Cu Ft*	*Odor-Free Air Supply CFM per Person*
Heating season with or without recirculation. Air not conditioned.		
Sedentary adults of average socio-economic status	100	25
	200	16
	300	12
	500	7
Laborers	200	23
Grade school children of average socio-economic status	100	29
	200	21
	300	17
	500	11
Grade school children of lower socioeconomic status	200	38
Children attending private grade schools	100	22
Heating season. Air humidified by means of centrifugal humidifier. Water otomization rate 8 to 10 gph. Total air circulation 30 cfm per person.		
Sedentary adults	200	12
Summer season. Air cooled and dehumidified by means of a spray dehumidifier. Spray water changed daily. Total air circulation 30 cfm per person.		
Sedentary adults	200	<4

electric stoves were used. The investigators concluded that elevated levels of nitrogen dioxide from gas stoves might have caused the increased levels of respiratory illness found to be associated with homes using gas stoves. A study in progress in six cities in the U.S. has reached similar conclusions.

• Formaldehyde. An inexpensive high volume chemical, formaldehyde is used throughout the world in a variety of products, mainly in urea, phenolic, melamine and acetal resins. These resins are used in large quantities in building materials such as insulation, particleboard, plywood, textiles and adhesives.

Formaldehyde has a pungent and characteristic odor which can be detected at levels well below 0.5 ppm by most humans. Its toxicity is evidenced on contact with the skin and the mucous membranes of the eyes, nose and throat. Exposure to formaldehyde may cause burning of eyes, weeping and irritation of the upper respiratory passages. High concentrations may produce coughing, constriction in the chest and a sense of pressure in the head.

Indoor sources of formaldehyde include combustion processes (tobacco smoking) and various building materials. Particleboard and urea-formaldehyde foam insulation have recently received the most attention, although many other building materials which contain formaldehyde through the use of phenolic- and urea-formaldehyde resins and are also potential indoor formaldehyde sources.

Field tests indicate the half life for formaldehyde found in particleboard typically used in home construction is about two years. The concentration can be reduced to half by chemical treatment or coating with a formaldehyde absorbent paint.

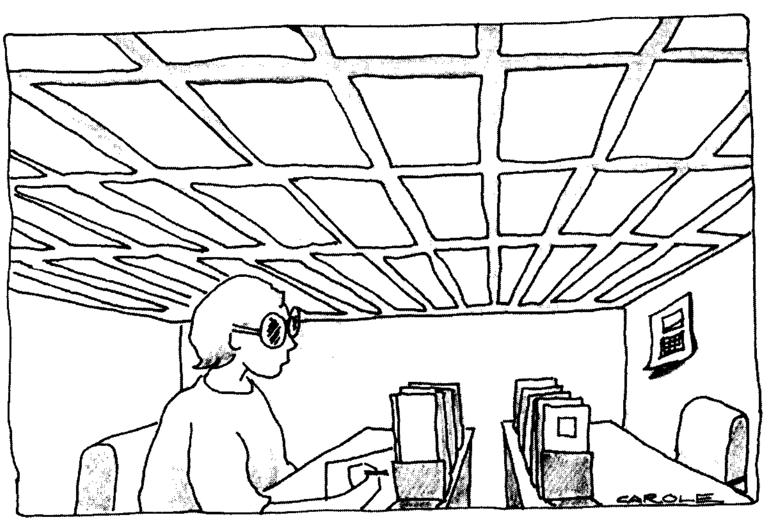
It is evident that indoor air, in general, has higher formaldehyde and aldehyde levels than outdoor air. Residential buildings, mobile homes and office trailers have indoor formaldehyde and aldehyde concentrations that can exceed known health effect thresholds.

• Radon. This gaseous chemical element and its decay "daughters" are known to contribute a significant portion of natural background radiation exposure to the population. Scattered observations have shown that indoor concentrations of radon typically is higher than outdoor concentrations, presumably because building structures confine radon entering the indoor environment from various sources. Conservation measures, particularly reduced air exchange rates, may lead to elevated radon concentrations, resulting in increased radiation exposure of occupants.

Radon-222 is an inert, radioactive, naturally occurring gas which is part of the uranium-238 decay chain. Any substance that contains radium-226, the precursor of radon, is a potential emanation source. Since radium is a trace element in most rock and soil, sources of indoor radon include building materials, such as concrete, or brick, and the soil under building foundations.

Another poorly understood area is that of airborne infection. We know that ventilation protects us from micro-organisms transmitted by air by dilution, but critical rates of ventilation are not known. Years ago, concern with airborne infection led to efforts to employ ultraviolet lights for disinfection of army barracks and school classrooms where influenza, streptococci and upper respiratory tract disease were rampant. Later epidemiological studies pointed more and more toward the importance of close personal association rather than the air in the spread of this group of infections in hospitals and barracks. Environmental studies gave way to extensive laboratory studies using experimental animals. Following the outbreak of legionnaire disease in 1977, it became evident that bacterial infections could indeed be nurtured and transmitted via HVAC systems. Many systems were dismantled for cleaning and new steps taken to ensure regular maintenance.

The indoor environment is laden with a variety of bacterial organisms which pass in and around us without any major impact. To those in weakened conditions—ill and in a hospital, or a frail child or older adult at a social service agency—it is conceivable that airborne bacterial infections can be passed along. More pertinent, insulating materials used in ducts and walls for energy conservation are made from newsprint. The starches in this raw material may provide a setting for undetectable fungal growth under certain conditions. The fungi could represent a health hazard just as asbestos insulation became a "time bomb" for those who were exposed to it. There is the general feeling that we may be too oriented toward physical testing of the structural properties of building materials (capillary action, infiltration rate) and not sufficiently aware of their properties as biological host media and the ecological conditions they create.



Lighting also has health implications. The past 25 years have seen a growing trend away from the use of daylighting and toward a dependence on manufactured or artificial light. A great part of the feasibility of systems-engineered office buildings has been based on specifying the modular fluorescent light as a key component.

Meanwhile, growing evidence has cast doubt on the health value of narrow band fluorescent lights for those who work in spaces illuminated by them. It has been shown that they can lead to mental and physical stress, that their use results in a significant reduction in strength and motor skills. Studies performed under controlled conditions have linked ordinary fluorescent lamps to hyperactivity in children. Fluorescents have been tied to the growth of anomolies in plants and animals. Plants grown in hothouses under fluorescent bulbs grow roots up instead of down, or produce strange mutagenic reactions. We also know that the human body has a need for an ecology of light to absorb chemicals (e.g., calcium), and maintain healthy body functions. According to Berkeley researcher Kate Bernier, we each need a daily diet of full-spectrum light. With eyeglasses, windshields and darkrooms distorting this spectrum, our pituitary and normal functions may be affected. Light may be as potent as a drug in these instances and the absence of adequate light could be hazardous.

Researcher John Ott's one-man crusade against the harmful effects of fluorescent lights and TV X-rays (his experiments in 1965 persuaded the government to lower the amount of allowable TV radiation) has begun to win favorable scientific attention. The potential consequences of positive findings in this area are so great that systematic research is being pursued only reluctantly.

The situation may get worse if plans for the office of the future proceed apace. It is not that these plans are misguided or particularly malintended. In fact, the computer revolution is likely only to improve our life style. What is worrisome about these plans is that they do not suggest building considerations to extend these benefits to the people who use the equipment.

Currently, more than 50 percent of all office workers use automated data processing of one kind or another. More than 25 percent use computers in their work. The long-term trend is toward a great expansion of these functions, including use of telephone video monitors with conversations automatically transcribed and printed, word processing equipment on every desk with hook-ups to reprographic or micrographic systems, electronically transmitted memos and complete dependence on electronic files. Such improvements in the intelligence of office systems are likely to increase the gross amount of electronic hardware in offices with many work stations operating off cathode ray tubes and micrographic readers.

The problems are not likely to occur in IBM's corporate headquarters, but rather in the offices of less self-conscious firms who use equipment for ordinary management and data-processing needs. As far as I know, there are no studies under way in the U.S. on the behavioral consequences of long-term exposure to these electronic environments.

Research on radiation in the U.S. has lagged far behind efforts of Soviet-bloc countries. The Russians, whose alleged microwave bombardment of the U.S. embassy in Moscow became a recent diplomatic sore spot, have been studying the physiological, neurological and behavioral effects of excess long-term, low-intensity electromagnetic radiation for the past 40 years. The Soviet studies, and those recently undertaken in the U.S., cite numerous possible ill effects: cataracts and other forms of eye damage and strain, emotional instability, partial memory loss, diminished intellectual capacity, loss of appetite, loss of hair, cardiovascular dysfunctions, thyroid hypertrophy,

continued on page 78

Much of What Glitters Is Glass

It is finding a variety of uses in interior design.

Visitors cross through the middle of this 30-foot-diameter stained glass globe, an unexpected feature of the Christian Science Monitor's *publishing headquarters in Boston. Built in 1935, the 'mapparium' is backlit by 300 electric lights.*

There is a change in the way glass is being used now to create interiors. There is an upsurge of glass block, a wider experimentation with mirror. And serious designers are beginning to patronize the machinists and artists who color, carve and scratch plate glass.

There is an irony in the middle of this, of course. Glass in the heroic modern period was one of the most potent symbols of what was put forth as a new age. Bruno Taut wrote in his *Down with Seriousism*: "In the distance shines our tomorrow. Hurray, three times hurray for our kingdom without force! Hurray for the transparent, the clear. Hurray for purity! Hurray for crystal! Hurray and again hurray for the fluid, the graceful, the angular, the sparkling, the flashing, the light. . . ." Adolf Behne went even further: "Glass architecture," he said, "is going to eliminate all harshness from the Europeans and replace it with tenderness, beauty and candour."

Today, the interest in glass has more to do with recovering some of the richness of the architectural past: its texture, overt symbolism, spatial ambiguities, craftsmanship. Even more ironically, that past includes the early modern period in which the use of glass still had much to do with the sensibilities of the Victorians, before technology and Mies' hegemony succeeded in the dematerialization that the early theorists dreamed of.

Glass fits neatly into contemporary rhetoric. It is inherently ambiguous; it can be surface or void, abstract or representational, high-tech or craft, sensual or nostalgic. Along with the many possibilities of wall that it can pull back into the vocabulary, glass is endlessly manipulable in terms of light.

Glass block, invented at the turn of the century, but made popular by Pierre Chareau's Maison de Verre of 1928, has gained a new following. Etched glass, associated more with the Victorian period, and stained glass, associated with every period since the Middle Ages but secularized by the Victorians, are newer manifestations of revival. Mirror is the third major category, first explored architecturally by the French in the 17th and 18th centuries but relatively dormant as an architectural material through the postwar decades.

One last footnote: Paradoxically, just as glass block has become more and more common, it may be about to disappear. Pittsburgh-Corning, the one U.S. firm that still manufactures the block, is discontinuing production as of Dec. 31. Despite the resurgence of demand, it is still apparently far below that of the 1950s when it was specified for many schools and factories. Today, says the company, it supports only 50 percent of its equipment and is so energy-intensive to produce that the increased cost of oil has forced the issue. At deadline, the company was negotiating with other firms possibly interested in buying its machines and supplying the American market.—*The Editors*

Photographs by Warren Schwartz

Making Much of Little

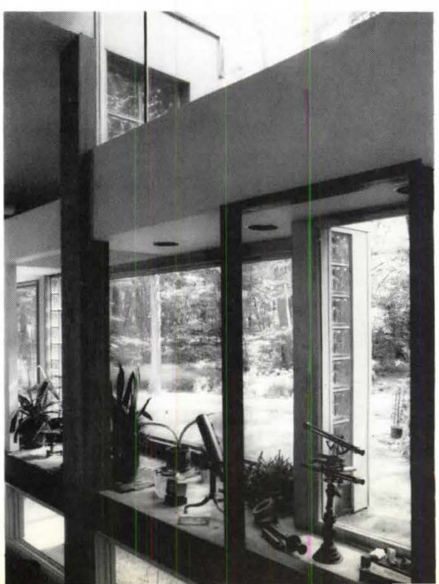
"Glass has for so much of my education been used just as voided wall, as the absence of matter," explains Peter Waldman, AIA, whose education has also, tellingly, included the tutelage of Michael Graves, FAIA, at Princeton, where Waldman now teaches. In and around the town of Princeton, Waldman has done a series of house additions for clients "who wanted a quality of space and light they didn't have." The additions, often one room at a time, are experiments in surface, mass, "daytime and nighttime effects, the sounds different materials give to a room." His use of glass block hovers, like his use of other architectural elements, between anarchy and regimentation. "I like different kinds of materials, different sizes, textures, complexity, making as much out of almost nothing as possible," he says, but at the same time, "Cartesian logic, centers, clarity."

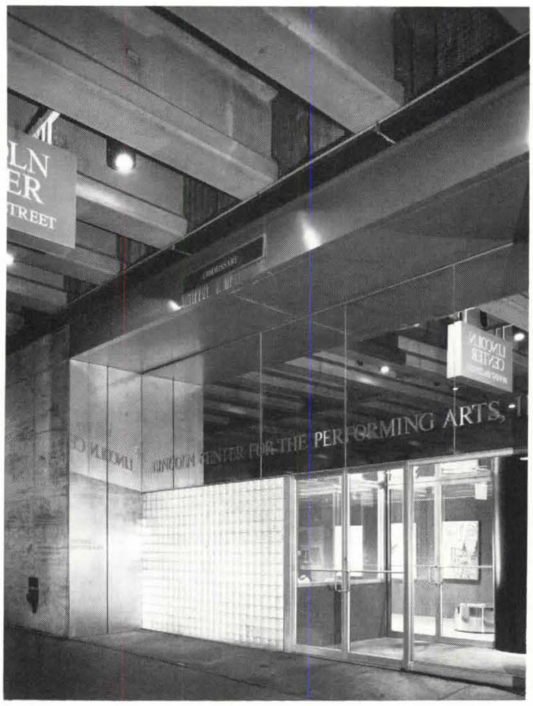
The kitchen Waldman did for the Smalls (below) weaves clear and textured block, small-paned double-hung windows

and picture window expanses with the grids of two different sizes of tile organized within a third grid; the patterning of a wood plank floor; layered structural demarcations, and carvings of wall and ceiling. Different sizes of glass block underneath the desk produce not only a figural motif but a dematerialization that allows the object to maintain an ambiguous relationship both to exterior wall and gravity. What interests Waldman is that he can use the grid both to complicate and maintain order; can find so much differentiation within a limited palette and still rely on that value of limitation.

His Kosinski addition (photo below) had a mathematician client as interested as he in intricate systems. One whole side of the house (bottom left) is a composite wall of glass and wood and dry wall that folds in and out in an overlapping series of layers. Elaboration and ambiguity are at least part of the idea as glass block, to consider just one element, takes on one connotation after another—an archetypal cross-mullioned window, pilaster, windowsill. . . . At the entry to the house (below and bottom right), around the corner from the complex wall, the doorway is centered between two large stepped expanses of glass block. Subtle manipulation of textured and clear blocks makes windows within windows, provides peekthroughs at eye level to see who's coming, defines corners and keeps the symmetry slightly off balance.

At his house for the Wolperts (far left), Waldman experiments with reflective materials as well, and in much the same vein. The serpentine marble is both border and flue; the black tile is both wall and column and perhaps even a secondary chimney. The actual mantlepiece turns out to be the least demandingly horizontal of the various competing possibilities. The composition is constructed of four luminous materials of graduated substantiality, with mirror playing the most ambiguous role. It is both trim and reveal as it lines the marble core; and a play on edge and echo above. — *Nory Miller*





Gwathmey Siegel's Lincoln Center for the Performing Arts offices use glass block, mirror and other shiny surfaces to brighten basement lodgings (immediately below and right).

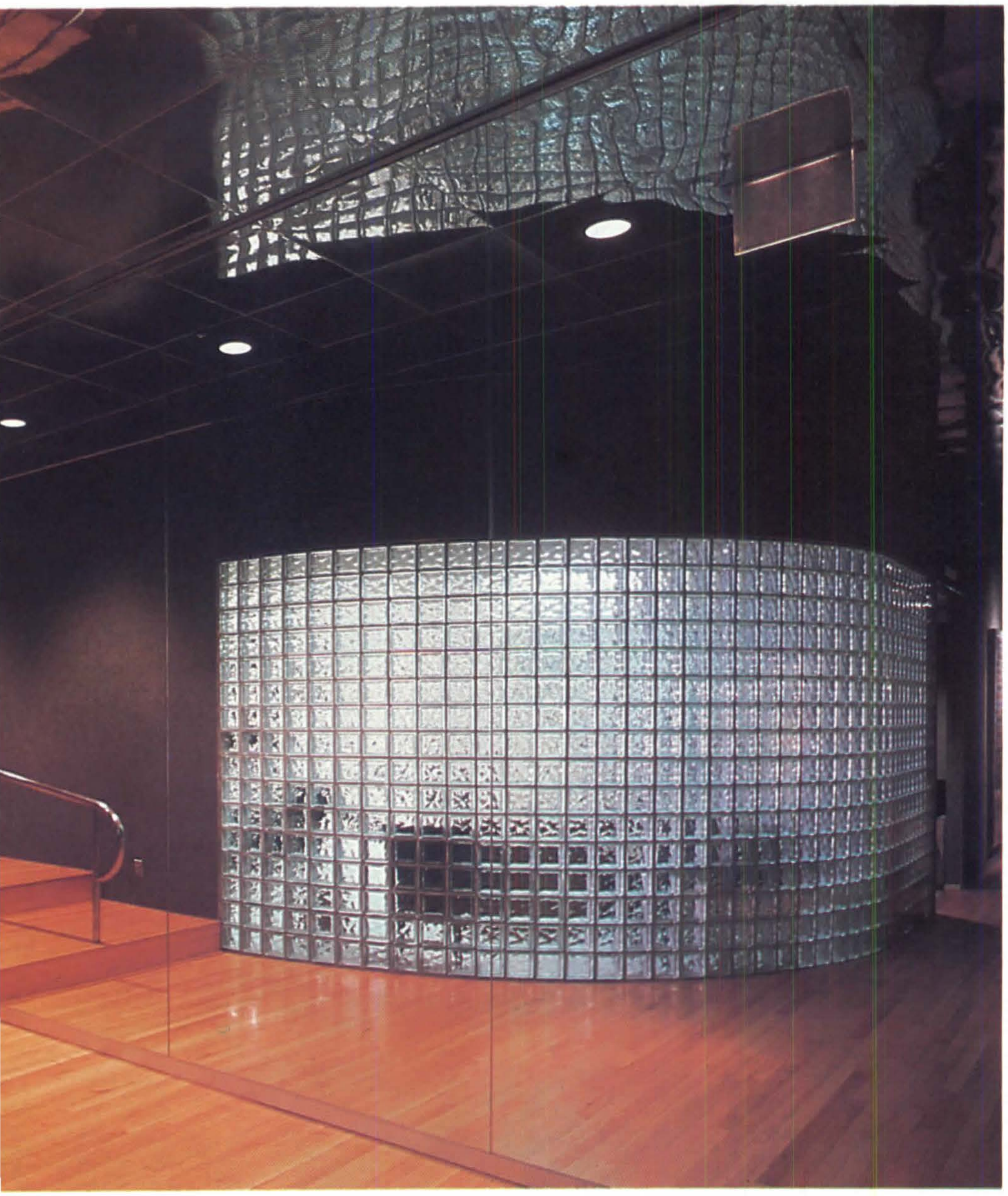
Brightening Dark Corners

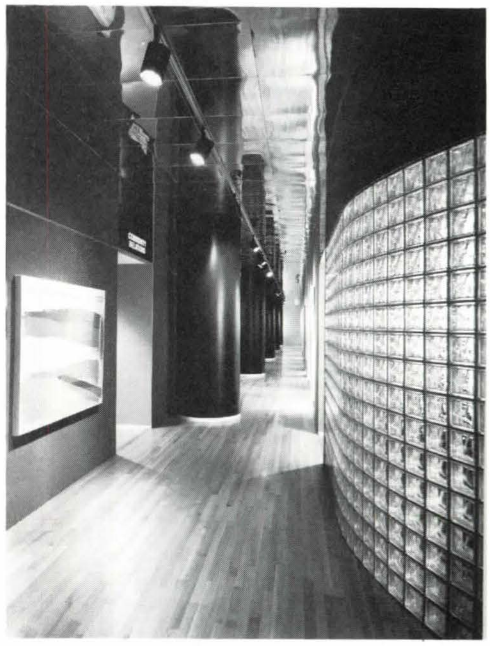
Gwathmey Siegel has used enough mirror and other reflective materials to arouse enough dark corners and dreary basements, focused and layered enough simple geometric spaces with simple geometric glass blocks in enough projects that its work is almost recognizable through this vocabulary alone. The most recent work is, in Charles Gwathmey's words, "The wildest yet." Why glass block? "I like it," he says, "because it's so composite, glass and masonry, a summary material. I like its scale, its self-gridding, its tech look. It's also a fantastic light refractor." The surface qualities of mirror draw the designer to it as much as its illusionary potential. "Mirror is a material that is self-finishing—color, texture, sparkle."

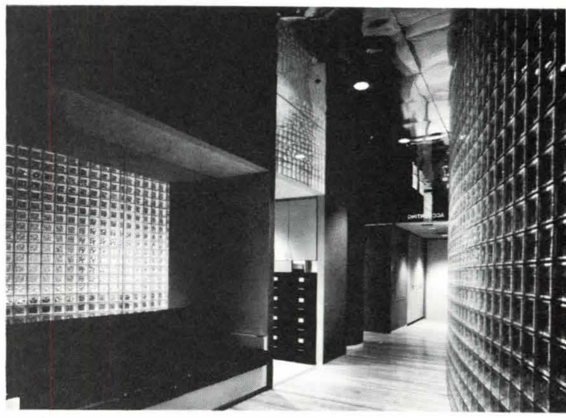
The 1,600-square-foot offices for the Lincoln Center for the Performing Arts were relegated to a basement. Gwathmey Siegel arranged the offices along an interior street without natural light but in which the neutrality of the other elements underpin the sunny tones of the wooden floor. The corridor is shaped as a right-angled "Z," with the turns facilitated by arcs of glass block. The first leg of the corridor is the lobby and a gradual stair down to the rest of the space. The left side, lined in mirror, gives hints of the turn to come, while the right side—the curved block—eventually affects it. At the opposite end, the other leg serves as lobby for the board room which is enclosed by another sweep of block. Along the corridor are doorways to the various departments, each one labeled in opaque letters on a mirror background. Mirrors appear systematically behind sofas and stripped between file drawers and wall cabinets to alleviate quarters that are both cramped and crowded with furniture. The facade repeats the elements, both as a sign that this is not a loading dock and as a clue to the interior.

Most of what goes on at Gwathmey Siegel's office for The Evans Partnership, a New York City construction firm, goes on at the entrance. It is a dim corner, on the interior of the building, in which the architects have set a series of luminous materials—black glass along one wall, glass block along the other, green marble on the floor, aluminum on the ceiling and a canted mirror across the turn. From the outer corridor, a hint is given through the glass side panel.

Inside, the curved glass block wall crowds the space and moves visitors around the bend as the materials crash into one another, both literally and in reflection. "We are interested in intersections," says Gwathmey. "Evans is an intense knuckle idea." Within, mirror is used to extend the perception of brightness and breathing space, most dramatically in the president's office where one wall and half of the window recesses are coated with mirror for the light and view of a modern curtain wall highrise through the punched openings of a Deco one. —*N.M.*

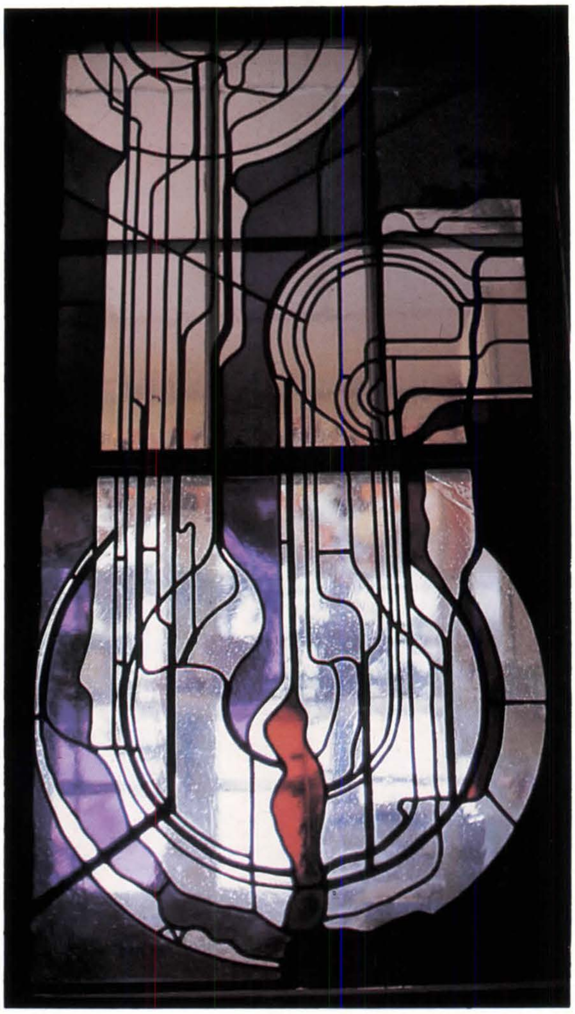






At The Evans Partnership, an elaborate orchestration of reflection transforms a drab turn into spectacle (left).

Photographs by Otto Baitz



Jaime Ardiles-Arce

Renaissance in Stained Glass

Renewed interest in surface, decoration, symbol and the legitimizing of traditional crafts as serious art forms make the mutable quality of glass particularly attractive. Glass can be embossed, etched, painted, engraved, molded, blown. Its first architectural use was decorative, in the mosaics of ancient Syria. Like most things decorative, such techniques were far more common in the 1950s than afterward, and by the late 1960s glass that wasn't transparent was either "beer-barrel-polka-steak-and-ale" kitsch or the wavy green frost of GSA partitions. Stained glass has been undergoing a virtual renaissance, with America led by the convictions and activities of the Europeans, and increasingly it appeals to architects.

The attitude of Kenneth von Roenn, a glass artist in Branford, Conn., and a student at Yale architectural school, is typical not only of the new stained glass artists but of workers in clay, fabric, photography and other traditionally minor arts: He is determined to transcend the category of craft. His own work concentrates on textural differentiations and subtle coloring to combat "the cacophony of colors and images" of the contemporary world. "In so doing, it is hoped that the viewer will begin to turn back on all of his senses that he has had to switch off because of the demanding physical stimuli imposed on him every day," he explains. Von Roenn's Lane residence (above) and Koeberman residence (top left), both in Kentucky, use antique glass exclusively.

Decoration and historicist cachet were the motivations for interior designer Michael de Santis' glass fire screens in this town house in New York City (bottom left). The screens were hand etched by Dennis Abbe with an Art Deco motif in mind.—*N.M.*

Robert Perron

Objects and Illusions

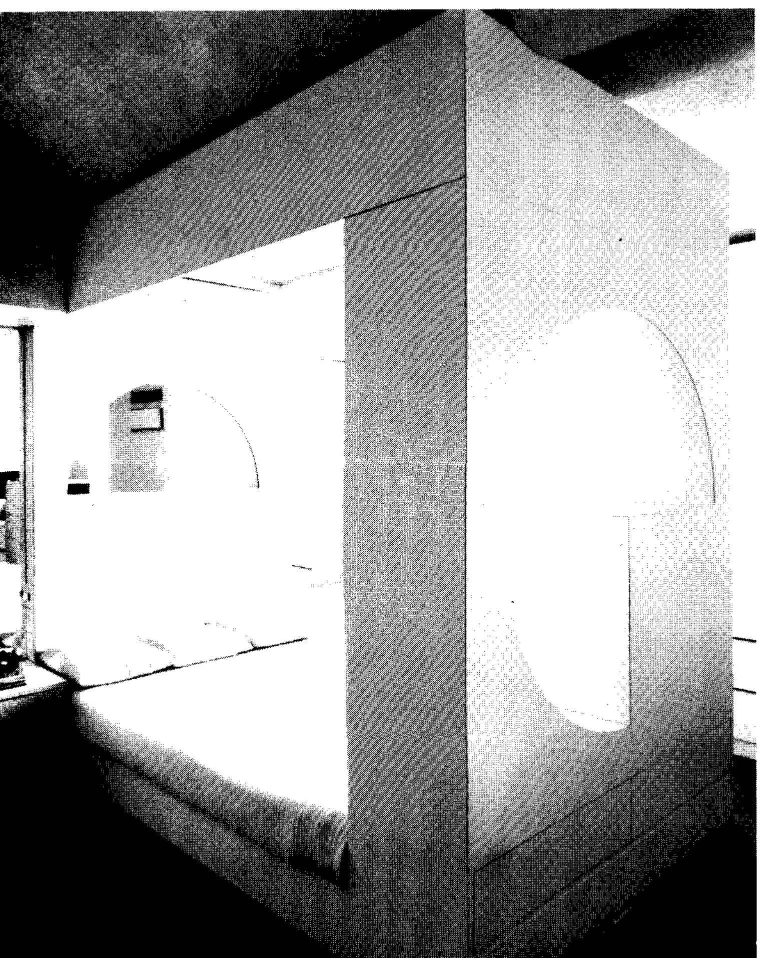
Gamal El-Zoghby's architectural position could be called "beyond Mondrian." Mondrian could abide no signs of nature; El-Zoghby proposes to eliminate even furniture and accessories as being signs of the associative, mundane and warm. He carries total design one step further and refuses to touch a project for which he cannot design each and every element as a built-in part of the space. Like all crusaders for abstraction, his argument is based on communicating what is conceptual through what is phenomenal. Mirrors operate in two ways: At a practical level, they expand interior spaces which are invariably too small in the New York City town houses El-Zoghby renovates. And by creating spatial illusions, they render simple reality suspect. The edges of the mirrors are always concealed to camouflage their existence as objects.

The "fourposter" at his Trettin apartment (opposite page) uses four mirrors. The side mirrors make an ambiguous connection between bed and room. The headboard mirror creates a confusion with the three-quarter circle cutout across. The ceiling mirror, edged with lights, suggests, among other things, the reversability of gravity. The Deygosse bathroom (above), on the other hand, is a kind of combat of grid and mirrors versus fixtures. "If there is a space with objects in it," says El-Zoghby, "you see the objects first; they have control. The compartmentalization and illusion are there to tame the lions."—*N.M.*

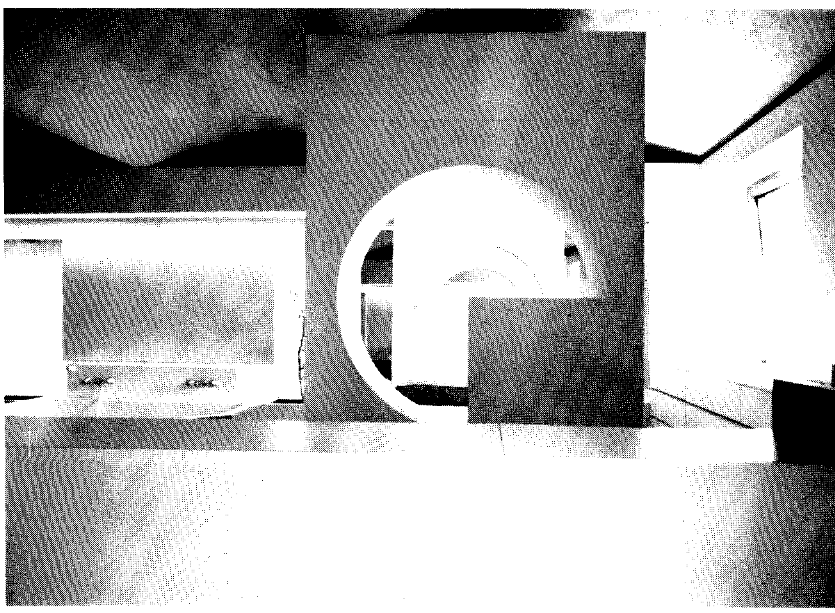
Ed Steocklein

Mirrored 'Main Street'

Robert Stern's small showroom for Erbun Fabrics in New York City is a nostalgic reference to the American Main Street, with a certain deflection. By slipping mirror into the small panes of the shop windows, Stern allows the wall of little stores to do what it is really there to do: cover the workroom behind. Meanwhile, the mirrored panes reflect what is really for sale in the showroom—the colorful fabrics on the carousels across the corridor.—*N.M.*



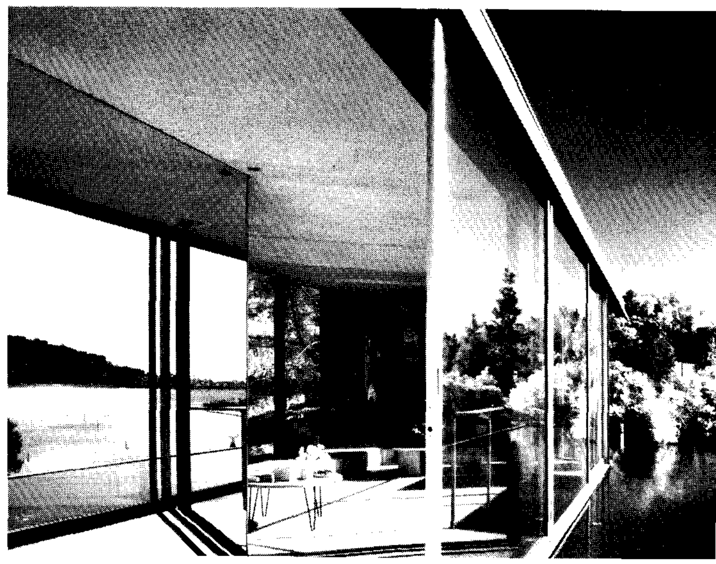
Robert Perron

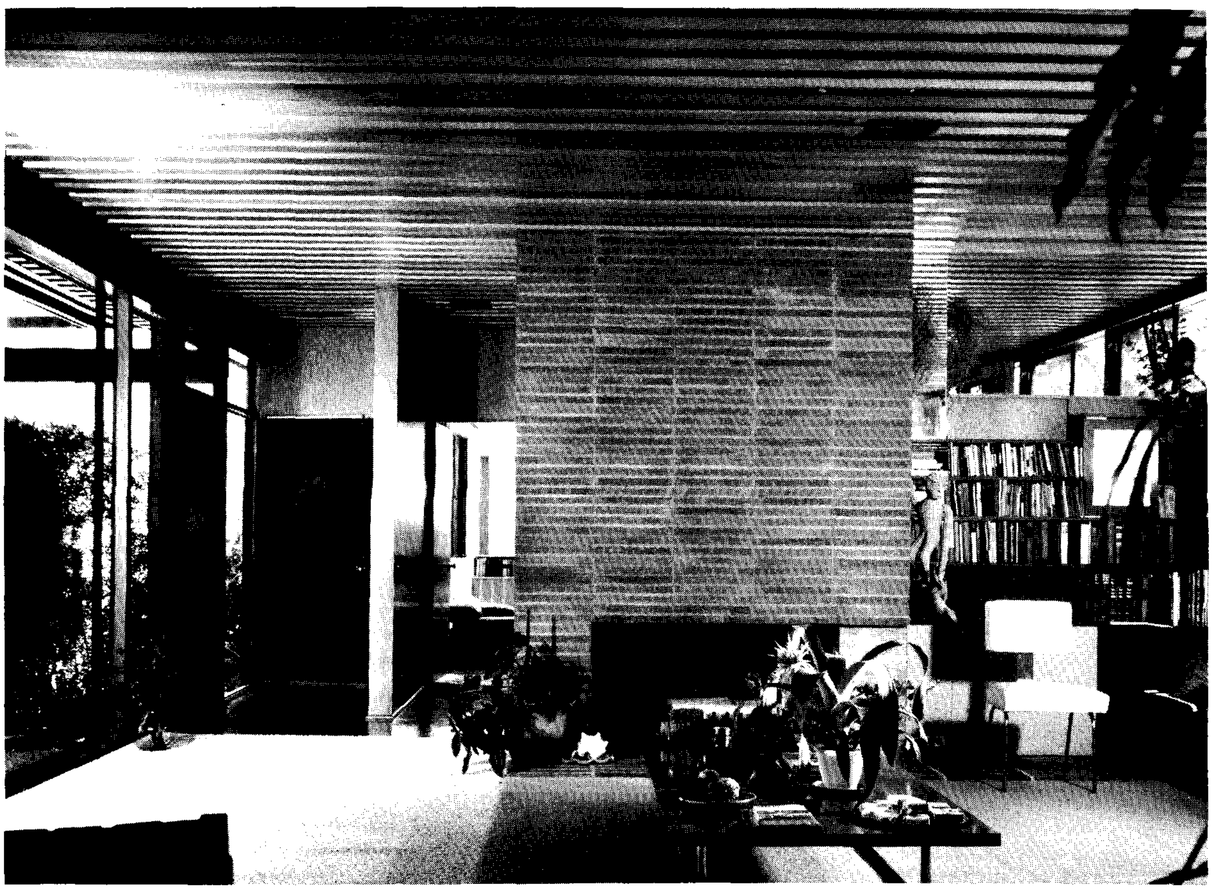


Master Manipulator of Glass

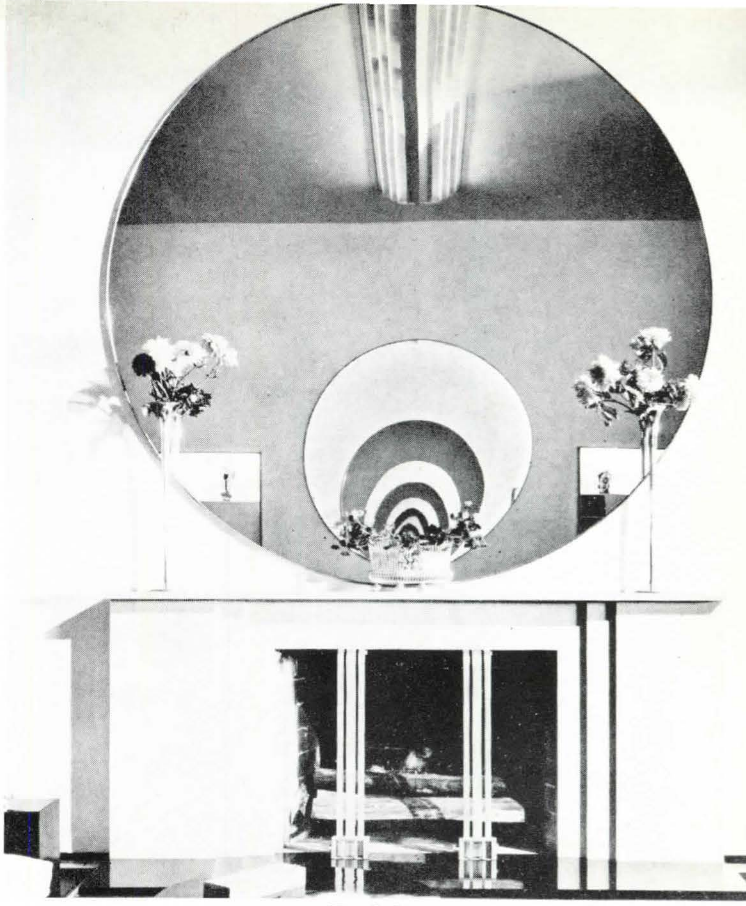
Richard Neutra and his son Dion were among the very few architects seriously exploring mirrors in the 1950s and '60s, always to open up space, frequently to shift vistas, and often in subtle intersections of mirror, clear glass, opaque glass and, sometimes, shallow pools. The panes are held within the same strict constructivist discipline wrought from other materials, very much a part of the composition. Interestingly, some of the best examples are the architects' own houses. In 1963 when Richard Neutra's house burned, the family moved into his 1949 Earl Street residence and began a series of remodelings. Among those remodelings were a ribbon of mirror above the bookcase (below) for a Frank Lloyd Wright motif without sound transmissions, and a full wall mirror next to the bed in a tiny children's bedroom (above right).

Dion stayed in that house where he lives still, but Richard and his wife, Dione, moved around the corner in 1966 when their new home was finished. There, large panes of reflective glass bring the outside in and inside out, amplifying the range of transition between the two. The mirror beside the front door brings you inside before you have rung the bell (left), and expands the garden view from within. Across from the mirror, clear glass and translucent glass keep the view hovering between penetration and reflection. Another mirror within the enclosed roof deck provides a view of Silver Lake from all directions (right).—*N.M.*





Photographs by Julius Shulman



An art moderne fireplace by Joseph Urban. Its futuristic time tunnel image replaces the gilded 'portrait' mirrors of French Empire. Facing page, Hall of Mirrors, Windows of the World restaurant, designed by Warren Platner Associates, on the 107th floor of the World Trade Center, New York City.

Fay S. Lincoln, Courtesy *Architectural Record*

Using Mirrors to a Variety of Effects

A resurgence for 'the chameleon of architecture.' By Pamela Heyne

"But now the walls might disappear, the ceilings too, and—yes—the floors as well. A mirror floor. Why not? In certain cases. Nicely calculated effects of this sort might amplify and transform a cabinet into a realm, a room into bewildering vistas and avenues: a single unit into unlimited areas of color, pattern and form." Frank Lloyd Wright, 1928.

The mirror is the chameleon of architecture. It can look quite different at different times—flashy, illusionary, ambiguous or complex. Yet, it is not a complicated material, just a smooth and bright metallic surface. Traditionally that surface was applied to glass in order to provide stability. But today, with new methods of manufacture, that surface can adhere to plastic, paper or wood.

The mirror was seen rarely from the '40s through the mid-'60s in the work of serious designers. Wright, himself, kept the mirror confined pretty much to the dressing room. Though Mies used materials of high luster, the mirror rarely appeared in his work. And a generation followed.

Now, a half century after Wright's positive assessment of the mirror, designers are intrigued with its potential. It can be seen in churches, kitchens, offices and banks. The mirror wraps around columns and glides over ceilings; it is canted, fragmented and multiplied. It sparkles and shines, or it becomes so illusionary that it disappears completely.

Some techniques that architects are using are new, some are older than they realize. Some originated in palaces, some in county fairs and expositions, some in magic shows. Even the submariner's periscope has been given architectural scale.

Recent interest in the mirror began in the mid-'60s as the avant-garde sought formal ambiguity. Some covered attics and lofts with silver mylar and crinkled silver foil. They did not want a smoothly decorative mirror but a warped mirror to emphasize its duality. It was surface, yet it conveyed a distorted and confusing depth. Like a funhouse mirror, it was a direct challenge to what was considered straightforward and tasteful.

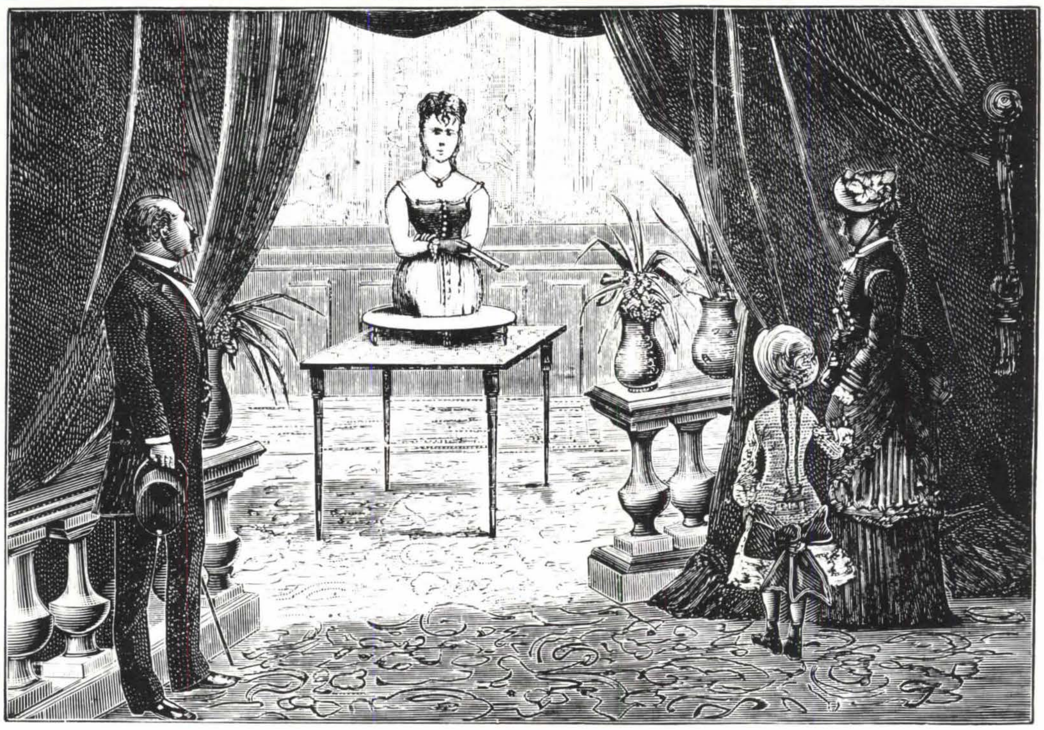
As the '60s merged into the '70s, the warped mirror gave way to the smooth mirror. The installations of the '70s have been intended less to disorient than to amplify and ornament.

Several things account for the widespread use of mirrors today besides changes in architectural values. A wide variety of reflective products is available, ranging from metallized plastics that can be cut, shaped or stretched with ease, to lightweight acoustical ceiling panels, to one-way mirrors. And due to the economic downturn, more architects have turned to remodeling work. Says Charles Gwathmey, AIA: "When the container is given, one has to rethink one's notions about space."

For the mirror is an aid in the dematerialization of form. In 17th and 18th century France, when the mirror first emerged as an architectural tool, it was used in precise ways to eliminate the visual massiveness of palace walls. It was placed on piers between windows to make them seem less dominant. It was used over fireplaces to lighten a side of the room with few windows. Often the mirrors were placed face to face, resulting in the multiple reflections which the French called *glaces á répétitions*. By the 1950s, the ubiquitous glass curtain wall dematerialized the wall more effectively than any interior mirror. Today, with the emphasis on renovating older buildings, the energy requirements of newer buildings and the general retreat from the glass box, the mirror wall has returned and found a new popularity.

Though today's mirrored installations look quite different from each other, they are bound together by the law of reflection. It states that the angle of incidence of a light ray is equal

Ms. Heyne, a Washington, D.C., architect, has written a book on architectural mirrors (interior, exterior and solar) for Van Nostrand Reinhold to be published in spring 1980.



THE LIVING HALF OF A WOMAN.

Courtesy Library of Congress

Deception as 'a serious architectural tool.'

to the angle of reflection of that light ray. We see images "in" a mirror because light which emanates from people and objects will strike the mirror's surface and reach our eyes with minimal distortion. One-way mirrors differ from regular mirrors in that they contain a thinner reflective coating; hence some light will be transmitted and some reflected.

The potential of mirror has to do with the ability of the emergent light ray to be shifted, focused or multiplied. The French treated their mirrors so that they appeared to be windows. They developed plate glass which resulted in mirrors of large size, minimal distortions and few joints. They recessed the glass in the wall, often embellishing the surrounds.

New York interior designer Gamal El-Zoghby (page 50) treats mirrors similarly. Though they are without the elaborate frames of the French installations, they are recessed in the wall, in a sort of battle against smallness. Says El-Zoghby: "Mirrors in my designs are neither bevel-edged, framed nor jointed. They have to be recessed to deny the mirror as an object of reality . . . in the continually diminishing function of overcoming the effect." For El-Zoghby, deception is a serious architectural tool, and he combines mirrored cutouts with real cutouts of the same general size and shape for a hierarchy of voids.

For Washington, D.C., architect Hugh Jacobsen, FAIA, mirrors are also deceptive tools. Jacobsen puts it: "A mirror is a mirror when you can see yourself. Otherwise it is an illusionary device for expanding space." He places his mirrors in odd locations so that one will have difficulty seeing a reflection of a person. A transom area that once might have received clear glass might now receive the mirror. He mirrored the solid side supports of a bay window, making them disappear in a mirage of Virginia forest.

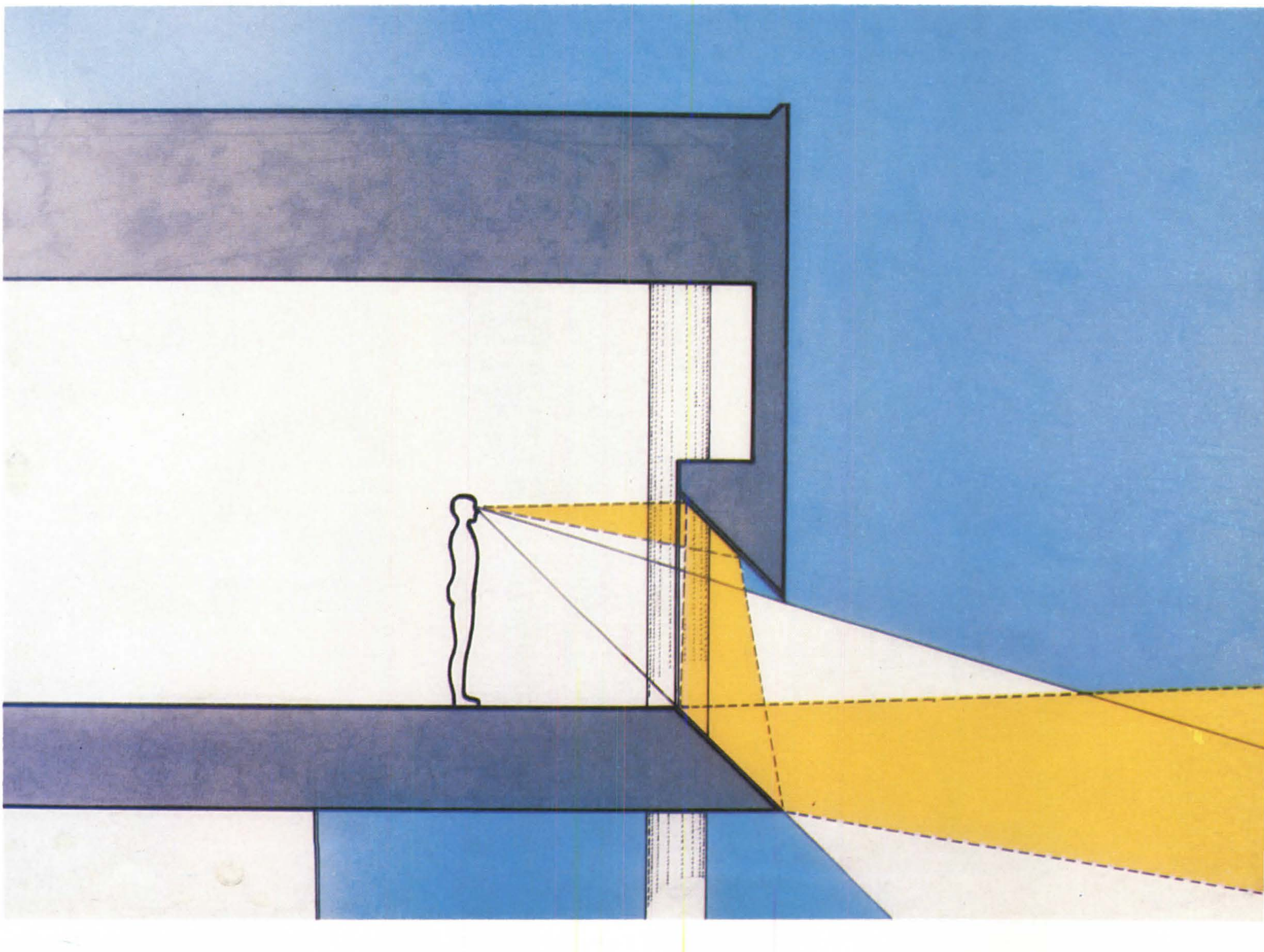
Charles Gwathmey, AIA, (page 44) uses mirrors with a different attitude. For him they are a means of embellishment rather than deception. He says: "I want people to know it is a mirror. There is no intent to fool. There is an intent to enrich."

In the '30s, mirrors were treated as surfaces, often round, frameless, attached to the wall rather than being recessed. With today's interest in designs of the '30s, the round mirror, a modern version of all the framed mirrors in domestic interiors of past centuries, has reappeared.

More glittery than moderne are the fragmented mirrors in today's discotheques. Disco mirrors are sometimes combined

Norman McGrath

The angled magician's mirror hides half his model from the audience (opposite page) while Robert Stern's variation on an infinity mirror in the bath of this New York City town house makes a celebration of insideness. Gunnar Birkerts uses two angled mirrors, exactly as a periscope but at window scale, in his Corning Glass Museum (below), now under construction. The idea is to shield the glass from the sun without depriving patrons of light and view.



Mirrors that conceal, magnify and enrich.

with direct beams of flashing lights. Since the mirror's surface is fragmented, the light is reflected back from what is in essence numerous small mirrors. Images are distorted, the surface shimmers. It has the look of the carnival.

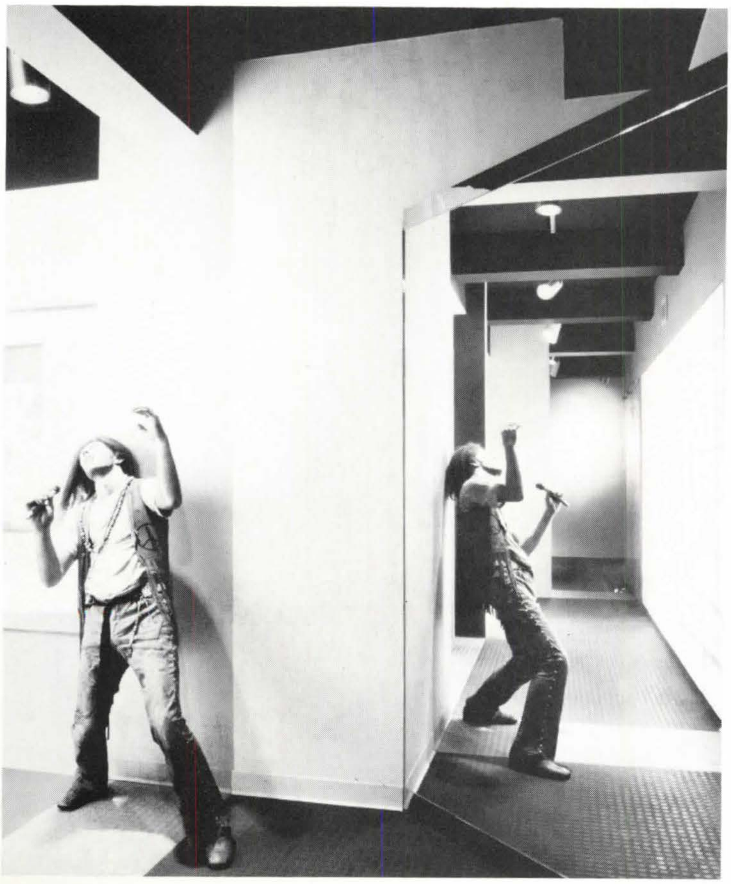
The mirrors used by magicians (as in "It's all done with mirrors") were intended more than any to be invisible. They were angled at 45 degrees so that the audience would not see its own reflection. Instead it would see the reflection of neutral carpeting and draperies at the side of the stage. Since the reflection was identical to the materials at the back of the stage, the effect of transparency was achieved. Such mirrors covered up convenient portions of thousands of magicians' assistants, resulting in such tricks as talking heads floating in space or resting on a table. The magicians were careful to keep such mirrors clean, to conceal the edges of the glass and to keep the ambient lighting dim and diffuse so as to avoid any telltale flashes of light from the mirror's surface.

The 45-degree mirror has been adapted to architecture. Humphrey Repton, the 19th century landscape architect, used angled mirrors to see around a corner. He said: "I have made use of mirrors so placed to introduce views of scenery which could not otherwise be visible from a particular point of view."

Susana Torre used 45-degree mirrors in a law office in New York City. According to Torre, "The two mirrors placed at 45-degree angle in the corners of the U-shaped corridor 'straighten' the corridor visually. The idea is *not* to disorient the observer but to make him/her realize what the circulation space actually is."

Combined mirrors in the past often formed the basis of optical tricks. A popular exhibit at turn of the century expositions was a triangular room lined with mirrors. When participants entered such a room, they would be entertained by the effect two or three persons would make in resembling a surging mob in the reflected surfaces.

Combined mirrors have often proven quite decorative, particularly when juxtaposed with small scale light sources. The



Roche/Dinkeloo's cafeteria at the Richardson-Merrill headquarters in Connecticut (above) uses mirror to bring the outside in and act as a canopy. A canted mirror in the New York City law offices by Susanna Torre (left) doubles Duane Hanson's sculpture and tells the viewer more than could otherwise be seen about the next corridor.

French placed lighted chandeliers in the midst of their *glaces á répétitions,* resulting in an expansion of light into infinity. Kevin Roche/John Dinkeloo & Associates' U.N. Plaza ceiling is a dazzling example of multiple reflections achieved with relatively simple means: canted mirrors, small lights and trellis. The results are so complex that people walk in off the street merely to figure out the ceiling.

Paul Rudolph, FAIA, has been quite fond of multiple reflections, combining ceiling and wall mirrors with bundles of tiny lights. Rudolph has also experimented with one-way mirrors as infinity chambers. The infinity chamber is a shallow box consisting of inner surface of regular mirror rimmed with tiny electric lights and an outer surface of one-way mirror. When the lights are turned on, one will look at the mirrors and see the reflections of the two repeating into infinity. But, since one is on the dark side of the one-way mirror, one will not see one's own reflection. Though this effect seems quite modern, variations of it were popular in fairs and expositions of the past. Typically, a fairgoer would enter a darkened room and look at what appeared to be a mirror. When lights were turned on behind the mirror, one's reflection would be replaced by something unexpected, like a laughing devil.

Kevin Roche has used one-way mirrors in subtle and elegant ways. He has covered tables and countertops with them so that they become transparent and partially reflective. At Roche/Dinkeloo's addition to John Deere, he placed one-way mirrors on an interior partition. For the most part, the glass appeared as a regular mirror, reflecting an interior garden. Yet, at one point a tapestry placed immediately behind the glass was spotlighted, causing it to emerge from the reflections in the mirror, making one question which was real, the reflections or the tapestry.

Though a generation of architects ignored the mirror, many designers today realize that an illusionary material is not necessarily a frivolous material. It is being used to make small spaces seem larger, to take the curse off too massive walls or columns, to maximize views and to enrich surface texture. And it is no longer limited to domestic motifs. The chameleon of architecture has re-emerged to become a useful supplement to the design vocabulary. □

Thoughts About Architectural Education

Prompted by the Cranbrook teachers' seminar. By Peter Collins

The major challenge which faces all professional schools is: How can students best be prepared for the *future* of their chosen profession? Medical schools presumably have relatively little difficulty dealing with this problem, since their basic subjects of study (namely human beings and human ailments) have changed little during the course of history. But the architectural and legal professions face additional pedagogical challenges. First, there is the fact that both the practice of architecture and the practice of law have changed rapidly during the present century and show every sign of continuing to change rapidly. Second, there is the fact that the most junior members of the teaching staffs of law faculties and architectural schools are generally very recent graduates: persons with outstanding academic records but with modest and brief experiences in professional practice. This is highly desirable; but it may explain why the emphasis in law schools has changed from "how to practice law" to "how to reform the law" (a subject which would seem more relevant to legislation than to litigation), and why similar trends have developed in schools of architecture.

In schools of architecture this reformist zeal is far more influential, because architectural principles are harder to identify and justify than legal rules. Moreover, the law is, by its very nature, conservative. It is clear that a stable society can only exist if the laws which govern that society are readily ascertainable, and hence basically stable. Architectural schools have only recently begun to appreciate the social implications of a relatively stable urban fabric. But the spirit of radicalism dies hard in academia. Divorced as they are from the harsher realities of life, architectural students tend to follow without restraint the prophets of every new Instant Utopia publicized in the professional media.

For the last quarter of a century, annual seminars on architectural education have been organized by the Association of Collegiate Schools of Architecture in conjunction with AIA. Most of them have been at the Cranbrook Academy of Art, near Detroit, which offers unmatchable facilities for such meetings. The participants all teach at schools in North America. Some have attended at regular intervals for more than 20 years.

The most striking aspect of this year's meeting was its gratifying evidence of the basic stability of architectural education in North America. By stability, I am not implying either absence of change or absence of argumentation. On the contrary, architectural education is still as controversial as it ever was among those professionally involved in it, and disagreements are still as violently expressed. But there is still that same basic orthodoxy of approach which has been a feature of architectural education since American architectural schools were first instituted.

Everyone agrees in condemning architectural clichés, in condemning the architectural establishment and in lamenting the absence of meaningful architectural criticism. Regularly, cyclically, at 50-year intervals, the meanings attached to the words "cliché," "criticism" and "Establishment" change. These meanings are the myths of architectural education and seem to have a life of their own. They change independently of the basic educational disciplines which constitute nine-tenths of the course content in every school.

Mr. Collins is a professor of architecture at McGill University in Montreal and author of *Changing Ideals in Modern Architecture* and *Architectural Judgment*. He participated in the Cranbrook teachers' seminar which was the impetus for this article.

These myths are not useless. On the contrary, they provide the essential stimulus to all thought and controversy concerning architectural design. But it becomes more and more apparent, as the years go by, that the controversies about architectural design tend to revolve artificially around quite arbitrary mythical contrivances. It is perhaps time for the mythology of the 1970s to be specifically identified as such.

The most important myth is that which would have us consider every shift in architectural fashion as a military operation (involving an "avant-garde" and "strategies"), wherein a group of dedicated revolutionaries fight "the Establishment." The present decade has been classified as The Age of Postmodernism. It is managed by a group which has now achieved undisputed command of the lecture room circuit, and which is tending to take control of all the media, just as Le Corbusier and those associated with him did 50 years ago. The corresponding group a century ago was called Art Nouveau. A hundred and fifty years ago it was called Gothic Revivalism. Two hundred years ago it was organized by E.-L. Boullée and friends. Today, the only basic change in pattern is that the currently dominant group is the first in over 200 years to accept Vitruvius unchallenged. Its leaders now appeal to that pioneer propagandist and spiritual ancestor of them all, Palladio.

Considered as an abstract proposition, there is probably nothing fundamentally wrong with a struggle for power. But it seems to me important to see the literature of postmodernism as essentially that. Its propaganda is aimed at dethroning the present Establishment and establishing itself in its place. The techniques are old, well established and most powerfully described in Orwell's *Animal Farm*. Revolutionary change is effected in architectural education by creating new definitions of who and what henceforth is to constitute the Establishment. The Establishment is thus a fictitious image created by revolutionaries, a man of straw; a target for their shafts. The image is modified every half century to suit each new brand of revolutionary utopia which has a potential market value.

Architects who began their training before the end of World War II must be astonished by the unqualified adulation accorded nowadays to Sir Edwin Lutyens. Forty years ago he was the arch enemy of every self-respecting architectural student: the personification of the Establishment of the late 1930s and the Anglo-Saxon equivalent of Le Corbusier's famous bugaboo: "The Academy." But there has been a gradual change in attitude during the last decade. Ten years ago, a lecturer who expatiated upon the genius of Lutyens would have felt obliged to justify his choice of topic by pointing out that Lutyen's *Oeuvre Complète* was the only textbook used by Frank Lloyd Wright at Taliesin West. Today, no justification whatsoever is considered necessary. On the contrary, details of the Viceroy's Palace at New Delhi are presented as the model of excellence, and as an authoritative, unquestionable precedent for current creativity.

This rehabilitation of Edwin Lutyens is in contrast to the persistent neglect of Auguste Perret; but it is obvious why such a distinction should have to be made. As in political revisionism, the major cult heroes must be retained, even if this requires the falsification of history. Our major cult hero is Le Corbusier, and Lutyens' principal retrospective virtue is that he never quarreled with Le Corbusier. Moreover, it has recently been shown that the Acropolis at Chandigarh was surreptitiously modeled on the Viceroy's Palace at New Delhi. Perret's retrospective vice is that he was rebuked by Le Corbusier in *Vers une architecture.* He thus remains in the architectural Inferno reserved for deviationists, since his technical mastery of modern structural materials would still embarrass the modern revolutionaries, who are just as dedicated as Le Corbusier to painting facades when they cannot afford to model their surfaces. They, like Le Corbusier, consider structural systems tiresomely irrelevant.

The revived academic enthusiasm for Palladio will also bewilder the older generation of architects; but its motivation was disclosed with engaging frankness by Robert Stern, AIA, the chairman of this year's Cranbrook seminar. When asked shyly why he expended so much arcane erudition and intellectual obscurantism on small houses in the remote countryside, he retorted, with disarming candor, that country cottages were all his clients ever asked for. I imagine that Palladio would have made an identical reply to a similar question. But Palladio's clients not only demanded small houses in the remote countryside, they also demanded that these be reconstructions of Roman temples, the essence of the humanistic archaeological research in which they were engaged.

The image of neo-Palladianism now being marketed as a brand of postmodernism is certainly different from the neo-Palladianism with which Lord Burlington and his Whig friends assaulted the 18th century Establishment after Queen Anne's death. By some perverse intellectual legerdemain, it is now related to mannerism, though Palladio's only conspicuously mannerist building, the Palazzo Thiene, was in fact designed by Giulio Romano. It is also related to such heady intellectual adventures as French literary criticism, anthropology and structural linguistics.

The linguistic analogy has served architectural education well in the last two centuries, and there is no reason to abandon it now. Neither lawyers nor architects have had difficulty in adjusting to archaisms and neologisms: to the fact that some words change their original meaning or die of obsolescence, and that new words must be invented to describe new ideas.

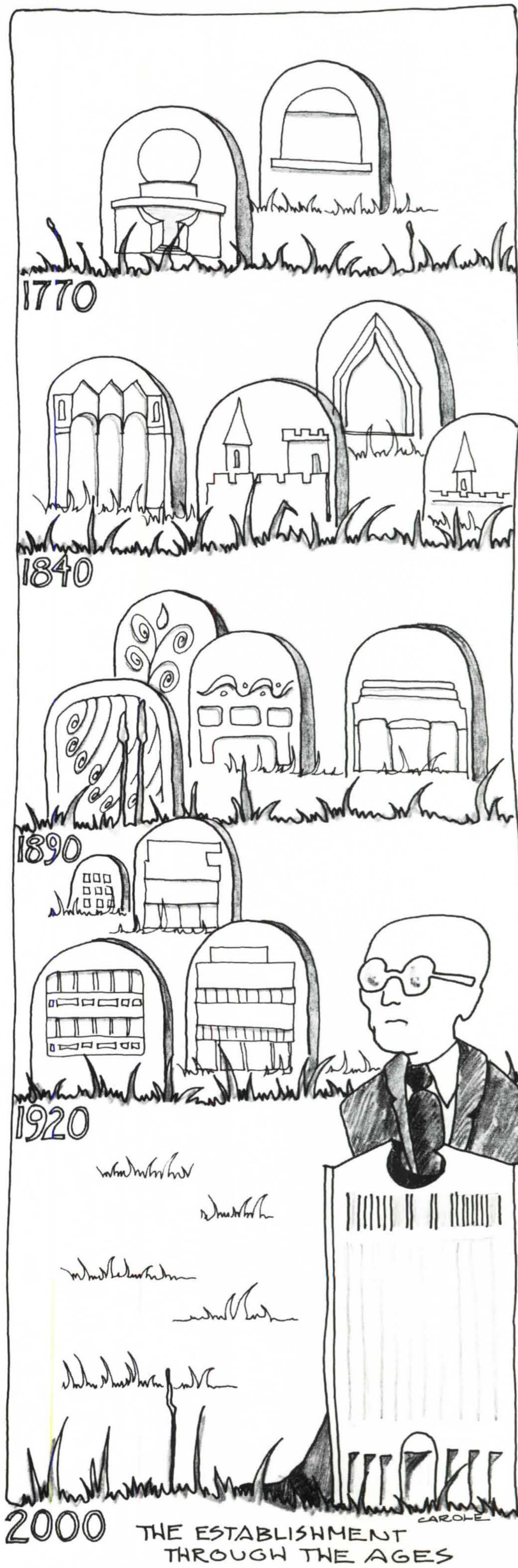
Lawyers, in particular, have been plagued by neologisms for almost two centuries. Soon after the first French Republic overthrew the Bourbon monarchy, the question arose: "Is it lawful to include, in statutes, words which are not published in a dictionary, and whose meaning is therefore not readily ascertainable by the general public required to obey them?"

Genuine tectonic neologisms are familiar to us all. "Tectonic" is used here to distinguish new building forms from the purely verbal neologisms of eager architectural critics and art historians who seem to delight in inventing witty obfuscatory stylistic subclassifications with eccentric names. Among tectonic neologisms, an obvious example is the column developed by P. L. Nervi in the Unesco auditorium. Here, the transitions from top to bottom are not achieved by discrete transitional elements but by a gradual transformation within the column itself. Once invented and built, this tectonic neologism became part of our architectural vocabulary; a precedent to be adapted to similar conditions by other architects elsewhere.

The notion of a vocabulary of tectonic elements has a long history and is well understood. It is therefore difficult to see why Charles Jencks feels obliged to use the term "cliché" to indicate the fact that an architectural language must use known units of meaning. "Cliché" is defined in the dictionary as "a hackneyed phrase or opinion." It has nothing to do with the basic relationship between lexical units and the rules of syntax, either linguistically or architecturally. Similarly, neologisms, whether verbal or tectonic, are used initially for strictly functional purposes by members of a professional body before they are eventually absorbed into the vernacular. Distorted archaisms employed as witty metaphors are seldom meaningful except to a self-constituted intellectual elite.

Another example of this taxonomical eccentricity is Charles Moore's use of the term "vernacular." According to my dictionary, this means: "of one's native country, native, indigenous, not

continued on page 68

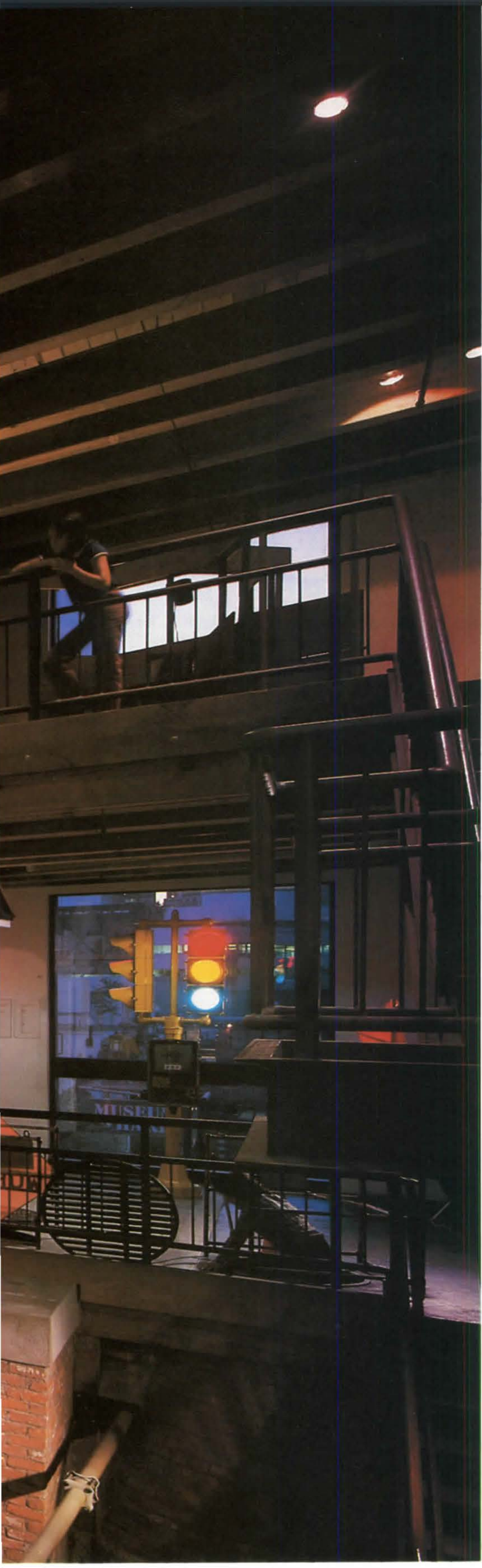


Drawing by Carole Palm

Photographs by Steve Rosenthal

A Slice of the City in Cross Section

It is the centerpiece of Boston's new Children's Museum. By Lois Craig



Above, inside the museum where the 'Grandparents House' is sliced. At right, a 40-foot-high Hood milk bottle, originally built in Taunton, N.J., in the 1930s as a dairy stand and moved to the museum site in 1977.

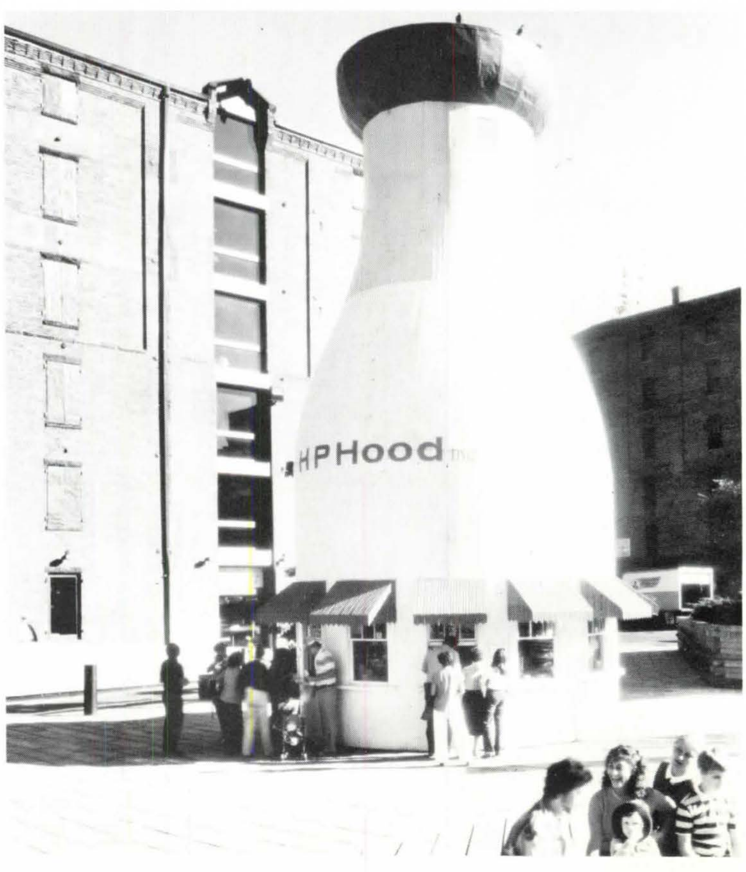
In a world of places and processes that often seem ever more remote and secretive, the Boston Children's Museum has built an enthusiastic audience for what's inside, what's behind, what's under and how it works. Today, the museum's new quarters in a refurbished 1888 brick and timber warehouse on Boston's waterfront provide the expansion of space and funds to take this point of view to the scale of a remarkable participatory exhibit called City Slice.

Before their eyes, underfoot or overhead, visitors experience a three-story exhibit of a house, street and yard with cross section views that reveal changing needs and design issues over the century from Victorian Boston to the present. Like an urban archeological dig, City Slice exposes hidden systems, discontinued systems and complex, interconnecting systems—starting with those designed first and then modified or replaced by evolving urban life styles and technology. Visitors can literally enter this X-ray picture to explore the "Grandparents House," furnished and decorated to recall the way its inhabitants have lived.

Back in the early 1960s, Michael Spock, museum director, installed the first "What's Inside?" exhibit in a small house-turned-museum in the Jamaica Plain neighborhood of Boston. In the confines of a wall and a freestanding cube were mounted sliced-in-half and opened-up everyday elements of toaster, washing machine, toilet, thermostat, car engine, sewer pipe. This popular attempt to break through exhibit case settings eventually went into storage to make way for other experiments that tackled the traditionally static quality of museum presentations. Exhibit planning was based on the assumption of testing and refinement for later full-blown installation in larger quarters.

This year the Children's Museum and the Museum of Transportation moved from outlying locations to share a renovated in-town warehouse and an updated philosophy about cities. "The story both museums want to tell," said Spock, "is about the city, to help people understand it and learn how to manage it and use it for their own education." Museum Wharf demonstrates the lessons learned. The ground floor features a lively urban mix—

Ms. Craig is a writer and historian in Boston.



From top, the grandparents' cellar, with R2D2-like coal furnace, and the parlor, where 'Grandfather' tunes in a floor-model radio. (Costumes for children are stored in the attic.) At right, the kitchen sink.

Much that is usually buried is revealed.

two commercial restaurants and shared lobby and museum store. An exterior glass elevator, which serves both museums, offers magnificent views of the harbor and city skyline. On a larger scale, the transformation of the 144,000-square-foot industrial building has boosted the city's waterfront development and prompted a new interest from developers in a once-dormant warehouse area.

Inside, the two museums have each designed permanent exhibits that emphasize a city focus. The Museum of Transportation contributes Boston—A City in Transit, which traces the development of transportation through modern times. The Children's Museum has reassembled some earlier exhibits in City Slice, a new and striking container for learning about the city.

To architect and City Slice designer John Sloan, AIA, went the challenge of accommodating the functions and bulk of a life-size Victorian mansard cottage with its basement, attic, first floor and adjoining street to the existing structure of the warehouse, then sorting out what parts went to X-ray exposure. Advice for the building intricacies of a structure that typically would have had no architect and no plans came from historian Max Ferro. To Sylvia Sawin of the Children's Museum staff went the task of furnishing the house to show how grandparents lived not cut in half.

Up to 10,000 children and their parents visit the new Children's Museum each week. And City Slice is a crowd pleaser. Peering through the deliberately exposed framework, one visitor said, "I think they shouldn't finish it. It looks great the way it is." Children line up for the faintly guilty pleasure of clambering around inside "real" telephone and sewer manholes. The grown-up "kids" mutter and exclaim their way through the memory-evoking spaces of the grandparents' house where the basement accommodates a clunky coal furnace next to its later oil and gas counterparts, where the kitchen attests to the era of the ice box and the parlor to the radio that once beamed fireside chats to worried listeners.

For the patiently curious, there is an education to be had in the evolution of wiring, roofing, plastering, carpentry, plumbing, masonry. These trades have star billing in City Slice. Duct work usually buried within walls is revealed; remnants of gas piping stand near the newer knob and tube wiring and the still later BX, Romex and Greenfield electrical systems. Nineteenth century plastering is peeled back to reveal the horsehair scratch coat, the brown coat and the finish coat. An attic display traces the changes from wood to wire lath and then sheetrock. Rough-sawn 2x4s with wire-cut nails accommodate later changes made with today's smooth, so-called 2x4s that actually measure less. From the backyard one can examine the exposed mechanisms of an old window without sash cord or weight, a later window with cord

Above, Grandparents' attic and, at left, a couple of manholes, one for the sewer and another for the telephone system cables.

Above, a view into the kitchen. Facing page, the cut-away bedroom (actually off limits to children) with a view into the kitchen, and above, the attic.

The slicing extends beneath street level.

and weight, and a still later window with a pneumatic spring system. Plumbing shows the changes from galvanized to brass to plastic pipe. Carpentry can be seen from hand-cut to mill work; the exposed rabbited-stringer and cut-stringer stairs can be compared.

Eventually, the halved toilet seen through the house framing will flush into a pipe opened to reveal the route from bathroom to sewer. Home-canned goods will appear on basement shelves. The yard will sprout a full-size tree. An empty wall next to the now cut-in-half Volkswagen Bug will display the facade of a triple-decker house to place the exhibit into the visual context of a typical street.

The most anticipated coming attraction is "earth slice," a below-grade cross section of the street. Here visitors will be able to examine in safety the armature and concrete construction of a tunnel that will contain a seven-foot section of a subway car. The Massachusetts Bay Transportation Authority will provide—for slicing—a 1951 car from its Blue Line system.

In time, a graphics system, funded by the National Endowment for the Arts, will assist guides in explaining the intricacies of City Slice. Slides and movies will show what tradespeople can really do—seldom-seen performances that during installation attracted an admiring audience from the construction workers employed on the warehouse renovation. The smoothly finished rosette on the parlor ceiling will be seen evolving through its many stages of application by skilled plasterer Caleb Jackson. The after-hours, volunteer work of Bob Beal will demonstrate the intricacies of telephone cable splicing. Manholes, which in the real world have been precast for the last decade and a half, will be shown taking form under the trowel of Eddie Dailey, a mason who reportedly built half of the manholes in Boston and came out of retirement to do one last manhole for humanity.

A tribute to the authenticity of City Slice was the reported appearance in the sewer manhole of the only rat encountered during the entire work on Museum Wharf. Here was a rat who, inside or outside, recognized a proper manhole. Two-legged visitors will recognize that City Slice, like the museum itself, implies that the city can be understood and managed. And acquiring competence with what's inside and how it happens can lead to the crucial questions why? and what if? □

Collins *from page 61*
of foreign origin or of learned formation." Similarly, "vernacular architecture" is defined as "concerned with ordinary buildings, not cathedrals. . . ." Neither of these meanings was the subject of Moore's lecture at Cranbrook entitled "Vernacular." It took some time to appreciate that he was in fact talking about the kind of architecture which John Summerson, in *Heavely Mansions,* more aptly termed "Artisan Mannerism."

The eccentric use of ordinary words makes architectural criticism unnecessarily difficult; but some design teachers, when explaining at Cranbrook their teaching methods, seemed to like this kind of terminological obscurantism, and used it with ostentatious delight.

Despite all that has been written on the subject of meaning recently, I would contend that literary studies of "meanings" are architecturally futile, however profitable they may be philosophically, anthropologically or linguistically. For example, Martin Heidegger's elaboration on the etymology of the word "building," and on its derivation from a prehistoric Germanic word meaning "dwelling," seems to me of little relevance to an understanding of how Western architecture has evolved during the last 2,000 years.

This evolution, since the dawn of the Middle Ages, has been that of essentially *corporate images.* Virtually every surviving medieval building (apart from fortifications) which we now recognize as typical was originally either monastic, collegiate or episcopal. In other words, it was built either for a "corporation aggregate" (such as a medieval guild) or a "corporation sole" (such as a bishop). Architecture as an image of royalty is an invention of the Renaissance. The concept of a monarch or a prince as a "corporation sole" is postfeudal, and did not occur until the early 16th century. Renaissance buildings thus expressed the corporate image of *il principe* (whether he be emperor, pope, prince-bishop, king, duke or doge) and it is interesting to note that recent scholars, such as Heydenreich, have now recognized that Renaissance architecture was essentially the creation of patrons like Pius II, Frederick of Urbino and other humanist princes: men who had begun to constitute a new type of corporate patron.

The problem of creating a new architecture arose in 1793 when Louis XVI was beheaded, and when all corporations were suppressed. It was first tackled by Boullée, who had long been experimenting along these lines, and whose drawings and manuscripts show the difficulty of designing public images before the purposes of the buildings have been fully articulated and their functions fully understood.

French architecture was in fact little affected by the problem of projecting a revolutionary architectural image, since Napoleon soon replaced the republic with an empire (for which architectural images were readily available), and this empire was followed by the restored Bourbon monarchy. In Britain at this time, the Bank of England began showing the way toward a new conception of corporate imagery, though monarchy still set the tone, and both the aristocracy and the church still followed it. It was in America, in the First Bank of the United States, that the essence of the modern corporate image was born. When limited liability companies were legalized half the century later, the dominant corporate image became that of the big industrialists. Their architects argued fiercely among themselves as to whether the ideal paradigm was a church, a temple or a palace; and the puzzle was only resolved by the technological revolution in the building industry which occurred after World War II.

Recently, the big industrial corporations have come to realize that their architectural image is losing the prominence it requires. Now that Lever House has been mirrored, mocked and submerged by similar but cheaper buildings of the new vernacular, its identity as a corporate image has almost evaporated. Perhaps the new Renaissance revival will recreate the prestige image for the corporate buildings of the future. This is certainly what the promoters of postmodernism hope to achieve.

Even if these assertions are only partially true, they help to explain some of the current uncertainties in architectural education. There is really only one element of ambivalence, and this has been of relatively recent growth.

Until the 1930s, it was accepted unquestioningly that architectural students should be primarily concerned with designing public buildings: government buildings, ecclesiatical buildings or educational buildings which would fulfill public expectations as to how their political, religious and cultural establishments should be made visible. But by the 1930s, the publications of Le Corbusier and the Bauhaus had created a diversion which was to be of crucial importance in the history of architectural education. Its main significance was that it caused housing to displace public buildings as the paradigm of "architecture."

Both Le Corbusier and Gropius were always in fact striving for the patronage of wealthy corporate clients: of A.E.G., Voisin, Citroen and so on. But the strategy was to obtain financial backing for mass-produced low-cost housing, and they were not initially concerned with the images of the corporations themselves. Meanwhile Le Corbusier's only clients were usually impecunious artists who wanted studios or rich connoisseurs who wanted small houses in the remote countryside. By making the most of these (thereby reverting to the precedent set by Palladio), he and all the other pioneers of the modern movement helped create the real ambivalence which besets us today.

The problem thus remains: Can the architectural image of powerful multinational corporations be reconciled with the exigencies of small domestic buildings designed for an elite clientele in rural environments? Perhaps the renewed interest in the Ecole des Beaux-Arts (which was paradoxically disbanded at the precise moment when postmodernism began to emerge) will resolve this problem. In the meantime, students in our schools of architecture are expected to deal with domestic buildings and corporate images on the basis of a single set of theoretical assumptions, using the same rhetorical jargon to explicate them both. □

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BOOKS

Of Politics, Symbols And Architecture

Art and Architecture in the Service of Politics. Edited by Henry A. Millon and Linda Nochlin. Cambridge, Mass.: MIT Press, 1978. 382 pp. $35.

The political activism of the late '60s was reflected in a brief flurry of architectural activism. In the late '70s, politics are about symbolism (in the "Doonesbury" comic strip, Carter's Secretary of Symbolism defects to Jerry Brown), and now architecture is about symbolism, too. Academics, as some may remember, made awkward activists, and seem more comfortable in the present state of affairs. Here is James H. Mayo Jr., in his introduction to the November 1978 *Journal of Architectural Education* issue on "Politics and Design Symbolism":

"Little attention has been paid to architectural symbolism as it relates to political action. During the late 1960s and early 1970s, architects began asking how they could become effectively involved through their personal actions. Considerable writing activity [sic] has been devoted to architectural advocacy, but these works tend to focus on political behavior rather than the political nature of architectural results. Few articles have been devoted to politics and design symbolism, yet it is rich with possibilities."

To judge from current "writing activity" (and presumably, reading activity and thinking activity), attention *is* being paid, not only in small journals like the *JAE* and *Oppositions,* but in blockbusters like Lois Craig's *The Federal Presence.* Now Henry Million and Linda Nochlin's *Art and Architecture in the Service of Politics* suggests more of the rich possibilities of politically conscious architectural history, and offers some rich realities as well.

The book's 17 articles originated in a two-stage colloquium held at the Massachusetts Institute of Technology in 1972 and 1974. Thus, in the middle of the economic slough that dealt with the coup de grâce to '60s' activism, a small band of art historians was laying the groundwork for symbolism's big comeback, well in advance of most architects (and somewhat in advance of even Jerry Brown).

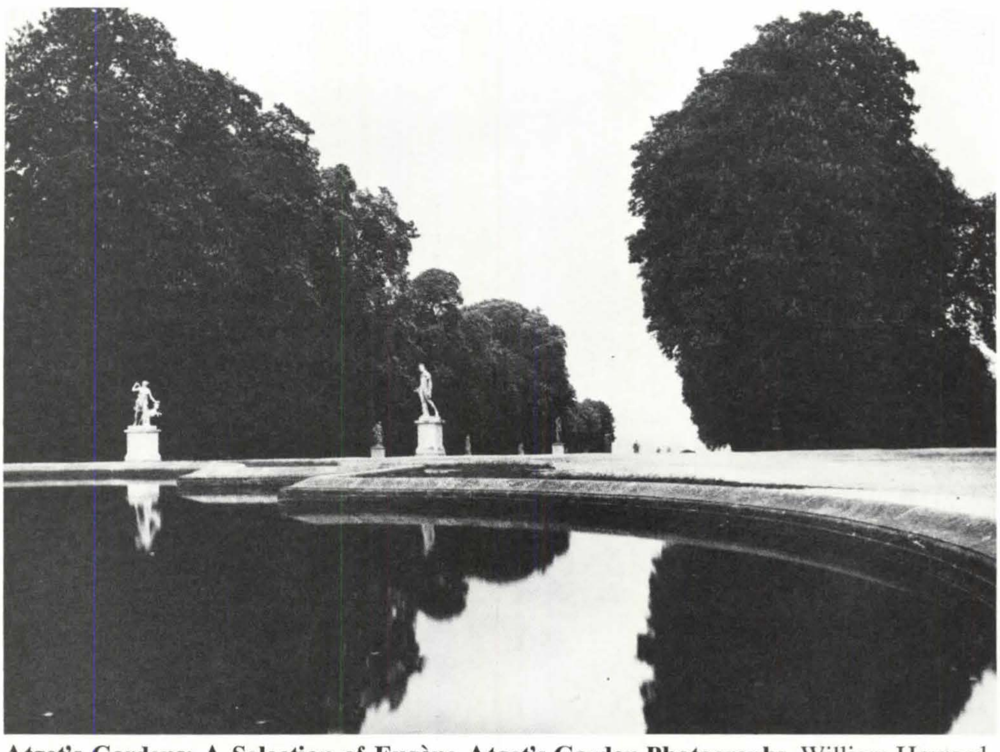
The resulting book is intentionally diverse in subject matter, methodology and point of view. What the articles have in common, explicitly, is being about political premeditation—the clear artistic intention to serve a specific political purpose. Implicitly, they share the belief that the resulting works of art and architecture are politically important—that is, that the artwork itself is to some extent a political act.

In writing on everything from suffragette posters (Paula Hays Harper) to Fascist urban design (Spiro Kostof) to Diego Rivera in Detroit (Max Kozloff) to worker housing in Amsterdam (Helen Searing), the contributors demonstrate convincingly, and sometimes surprisingly, the presence and purpose of political content in art. One of the book's most striking political statements, however, is an apparently unintentional one conveyed by the table of contents.

The 10 articles on painting, graphic art and sculpture treat 19th and 20th century artists. Excepting the earliest, Ingres, and noting the eclectic politics of sculptor Rude, all support leftist and progressive causes.

Six of the seven architectural examples, on the other hand, leaving out the Amsterdam housing, deal with the imperial and

continued on page 72



Atget's Gardens: A Selection of Eugène Atget's Garden Photographs. William Howard Adams. Introduction by Jacqueline Onassis. Garden City, N.Y.: Doubleday, 1979. 120 pp. $19.95. Jacqueline Onassis and William H. Adams organized the first exhibition of Eugène Atget's garden photographs, searching for them in Paris, New York City and Washington, D.C., as well as assembling them from collections in Canada, Chicago and Philadelphia. The exhibition and this resulting handsome book mark "the first time that a selection of his photographs of the royal parks and gardens of France have appeared together," says Mrs. Onassis. She writes that Atget, universally known for his photographs of the Paris urban scene at the turn of the century, "was at ease with beauty wherever he found it, in the damp city streets, among scraps of old ironwork or on the surface glass of a shop window." But his images of gardens, as Adams remarks, are "marvelous poems composed of trees, earth, marble, water and sky." Depicted above is one of Atget's "most celebrated garden photographs," the garden at St.-Cloud. His photographs of St.-Cloud "have in close-up a sensuality and in long view a stark architectural quality," says Mrs. Onassis. "As we look at the iconography of architecture, sculpture and fountains recorded by the honesty of Atget's vision, the ancient mysteries of the places return to haunt us. . . ."

WATTS NEW

ENERGY MANAGEMENT VIEWS FROM THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION **VOL. III NO. 6**

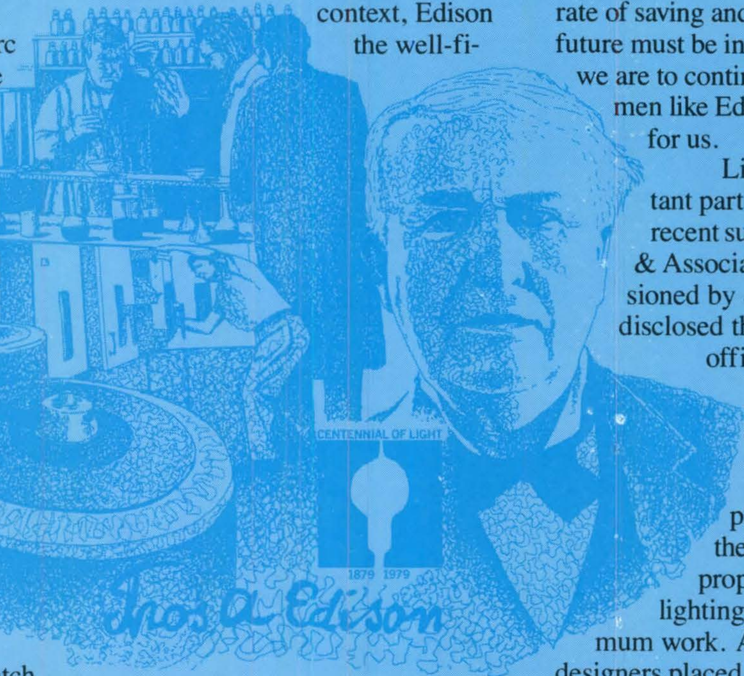
THE CENTENNIAL OF LIGHT — FINDING A BETTER WAY OUT OF DARKNESS.

When Thomas Alva Edison threw the switch to light Menlo Park on New Year's Eve, 1879, he became a national hero. When we think of Edison, we may think that he found the world in darkness and brought it into the light. Not so. There was plenty of light in 1879. The gas utility companies had lighted every major city in America. The streets of Paris were aglow in the brilliant illumination of electric arc lamps. Yes, electric lamps. There was even an electric lighting company providing street lighting in California. And there were many others who worked on developing incandescent lamps.

What Edison actually did was find a more ecomomical system. He had figured to the penny the cost of providing a single gas flame in a single home. This cost was his target for electric lighting. For he knew quite well that his electric lamp would never succeed unless he could match or exceed the economy of gas light.

When he went to work on his electric lamp, Edison was not laboring under divine inspiration to roll back the darkness. He was attempting to produce light in a more convenient form and at a lower cost than others were then able to provide.

Another failing in our perspective is the belief that Edison alone was responsible for the lights of Menlo Park. It's true that as a young man, Edison was strapped for funds and made do with crude instruments and inadequate supplies. But, by the time he was designing his first electric generating utility, he had strong financial backing from some of the wealthiest investors in America. He used that backing to employ the finest scientists and technicians, and to build the best laboratory. In this context, Edison the well-financed industrialist is much more significant than Edison the struggling inventor.



While the idealized Edison can give us inspiration, the practical Edison can give some answers to today's problems, too. We can all agree with President Carter that inflation is the greatest danger facing the United States in 1979. The list of reasons to explain its persistence includes high government spending to finance unproductive activity, excessive government regulation, the push and pull of labor-management policies, and the critical increase in energy costs. But inherent in all of them is a serious decline in productivity of American workers compared to other leading countries and the failure of increasing investments to improve that anemic productivity. What we need are more people like Edison willing to make major investments in new industries, based on new technology and new inventions. And more effective ways to increase the output of existing facilities. Our rate of saving and investment in the future must be increased rapidly if we are to continue enjoying the life men like Edison helped create for us.

Lighting is an important part of that future. A recent survey by Louis Harris & Associates, Inc. commissioned by Steelcase, Inc. disclosed that 94 percent of office workers consider how their workspace looks and functions to be important to their output. A majority of the workers pointed to proper furnishings and lighting for turning out optimum work. Architects and designers placed the importance of lighting for the work to be done right after HVAC and access to tools, equipment and materials.

NECA has recently published a comprehensive designer's guide to current "Office Lighting Practice." If you would like all the details, write and ask for Index No. 302524. And if you are planning a new lighting installation, remember that a qualified electrical contractor does it right the first time.

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Books *from page 70*
papal tradition of Rome, from Constantine to papal Urbino and Julius II through Victor Emmanuel to Mussolini.

One explanation of this lineup of artists on the left, architects on the right, granting more than coincidence, is the nature of the respective media: Posters are cheap and very handy in revolutions, while buildings are expensive and bulky and often require the attention of popes, captains of industry, graft-ridden bureaucracies and other traditionally conservative forces.

Despite the recent revival of interest in 19th century academic painting and sculpture, there is always the risk that an art historian who spends too much time on Bougereau or Alma-Tadema won't be taken seriously. The struggles of the constantly renewed avant-garde with the—in retrospect—amazingly implacable bourgeoisie still seems by nature more significant and, because of the conflicts involved, more fun to write about.

If the preceding is another possible explanation for this collection's choice of topics, why does it not apply equally well to the early heroes of architectural modernism, and why do their explicitly revolutionary ideas appear nowhere among these and other current writings on architecture and politics? There is certainly no lack of ideological, if not political, writing by and about Corbusier, Wright, Mies and their compatriots, and so one explanation is simply that of exhaustion. Beyond this, there is a widely shared feeling that as revolutionaries—artistic, political or otherwise—these prophets ultimately did not deliver. Without denying that many of their buildings retain a fresh, inspiring quality as works of architecture, by now it is possible to say that the "political nature of architectural results" was at best pretty standard stuff, symbolizing nothing more challenging than the progressive corporate and civic pride, and the well-heeled, liberal good taste that architecture is usually about.

Some claim, more broadly, that modern architecture has eschewed symbolism because it has had nothing much to symbolize. Be this as it may, for most art historians of this generation, a building without symbolism is like a skating rink without ice.

What are their alternatives to orthodox modernism? One is to write about *really* radical 20th century architects, like those of the Russian Revolution, whose work is laden with political symbolism but is also, unfortunately, mostly unbuilt. A second, related choice is to record the architecture of contemporary activism: squatter settlements, counter-culture outposts, storefront communes. These artifacts, however, wear their ideals on their sleeves, and offer

continued on page 74

Books *from page 72*
neither the intriguing puzzles nor the manifest artistic significance of the Renaissance monuments that most art historians were trained to explicate. Still a third alternative is to dig into academic and reactionary architecture of the recent past, the story of which is often rich in symbolism but usually lacking in conflict and thus usually soporofic (e.g., Eberhard Schroeter's piece on Rome's Palazzo delle Finanze, a pile with all the charm of the Rayburn House Office Building but none of the surrounding controversy).

Ultimately, it is hard to escape the conclusion that architecture, seen as an art in the company of other arts, necessarily reflects moderate conservative values. The responsible critic tries to modulate these values toward the progressive and humanistic and away from the totalitarian (for instance, to convince J. Irwin Miller to hire Aldo Giurgola and not Gordon Bunshaft). Beyond this, architecture is just not sensitive or flexible enough to embody wide political swings. The activists of the '60s were at least partially correct in urging architects interested in political change to start with personal action outside the profession.

Several of this book's essays touch on a topic that is at least as interesting as the political content of completed works of architecture, namely, the politics of the design and building process itself, the sort of thing Douglas Davis called "artpolitics." It is here that architects as idealogs really come to the fore, with the result that "architecture in the service of politics" is often superseded by "architecture as alternative politics." Architects are the only visual artists who seriously propose utopias, and in this they become political leaders, of however limited influence. On another level, the politics of the profession, and of the profession within the construction industry, are surely deserving of study, by an investigative reporter if not by an art historian. Coauthor Henry Millon is just now taking charge of the academic wing of Pei's new East Building at the National Gallery of Art in Washington, D.C., and one looks forward to his future perceptions of the architecture of politics and the politics of architecture.
R. Leonard Miller, Washington, D.C.

Designing with GRC: A Briefing Guide for Architects. John Young. London: Architectural Press, 1978. 33 pp. 2.95 pounds.

GRC is glass reinforced concrete, a new technology which the author of this book calls an "ideal marriage between brittle materials, cement, sand and glass, to produce a tough composite." Because it's a new technology, he says, it's easy to forget that glass fibers, which constitute only about 5 percent by weight of the material, are added to sand and cement and not the other way around. GRC may resemble reinforced concrete, he points out, but its advantages are its high strength to weight ratio, its flexibility and its readiness to combine with other material to form insulated, semistructural elements "of great strength."

This manual by a partner in the London firm of Piano + Rogers discusses GRC's properties, design and specification. It also contains case studies of its use, one case study being about Courthouse 1 in Ballgame Centre, Conn. (D.E.W. Architects). In this instance, a two-story sports center was constructed entirely in dry laid masonry surface bonded with GRC. "The playing surface of the finished courts is claimed to be superior to alternative forms of construction for accuracy of ball returns off walls," says Young. Among the other case studies are a computer center in Milton Keynes, England, and a flower hall in Stuttgart, West Germany.

"Finally, it is worth remembering," says Young, "that when a building constructed in established materials fails, it is always the fault of the cowboys who built it, but with a new construction technique, it is the technology itself which is condemned—a sobering thought." Nonetheless, he believes GRC will become an established construction material. The address of the publisher is 9 Queen Anne's Gate, London SW1H9BY, England. □

WOULD YOU RISK
TO SAVE A FEW

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Some promise you "the best door at the lowest price." Others say "quality at a competitive price." Then there's the claim, "we will not be undersold."

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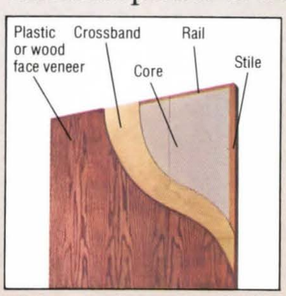
Hint: Stick with the door people with a solid reputation.

Suggestion: Weyerhaeuser.

Quite frankly, we aren't the only people in the door business with a good background. But we are the only door supplier with seven essential points of difference.



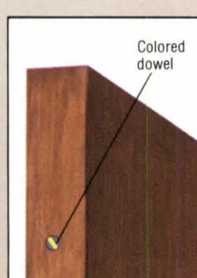
The quality goes all the way through.

They run like this:

1. Weyerhaeuser has the broadest line of flush wood doors in the world. Interior and exterior. Fire doors rated from 90 minutes to 20 minutes. Sound retardant. X-ray. You name it, we make it.

2. Weyerhaeuser fabricates all our own core components. Hollow. Staved. Timblend® Mineral. We pay as much attention to the part you don't see as the part you do.

3. Weyerhaeuser extra touches set us apart as well. Hardwood side edges to match faces. Stiles and rails bonded to the core. Type I fully waterproof glue. Permanent identification with colored dowels for easy verification and reference.



Our finishing touches make the difference.

Rand *from page 41*

sterility, impaired white-blood cell formation, heart seizure, leukemia and genetic abnormalities.

Hal Levin, a researcher at the University of California college of environmental design, has reviewed the international research on the effects of "wired environments." He says, "If you look at basic research on molecular linkages in biological systems . . . neurological and genetic information transfer . . . the impact of living in electronically wired environments spreads to everything from brain function to chromosomal characteristics of our offspring."

It is only a matter of time before we recognize the connection between the electronic office and the process of desensitization that has gripped our culture in this century. By the time we recultivate sensuous concerns—joy in the sights, sounds and odors of nature—we may find that a large portion of our culture has lost these sensibilities. Visual form and color have substituted for the organic complexity of natural settings. Creation of our designed settings depends on control of perception and reduction of the work place to rationally defined elements. The rest of the organism may suffer in these overly rational settings in which sexual appetites, olfactory pleasures and other biological needs are made to fit work-schedule requirements and are limited in expression to the electronic equivalents of a Skinner box.

Instead of controlled environmental conditions—using room deodorants to mask odors and fluorescents to mask movements of the sun and weather—there is a need to build work settings which exploit these effects positively. In effect, the concept of environmental control may be backfiring. The enclosed office building was designed to increase productivity by eliminating concern with external environmental conditions providing uniformly "perfect" work settings 365 days a year. Simple irritants, like dust, and the blowing of papers when the door was opened, were eliminated.. The new interest in solar design, attention to building envelopes with possible storage uses for "coolth" or warmth, use of atriums, all suggest revival of concern with a more ecological approach to office design.

Because of the low level nature of office health effects, a very special set of studies is needed. Since most people are in an office some of the time, exposure history of people to toxins cannot be traced simply. This has stymied epidemiologists because they cannot trace illnesses to a specific substance or toxin which can then be eliminated or reduced.

Probably the only way to attack this problem is for large companies with many employees or health insurers with large number of clients to provide health histories for analysis in relationship to large number of different work environments—large and small offices, new and old, automated and conventional data processing. Likewise, there is a series of minor (and major) illnesses which could be correlated with office settings or at least investigated to determine the environmental component in their creation: low-grade pulmonary, digestive, opthalic, dermatological diseases.

Obviously, any activity in life brings with it certain risks and rewards. Office work brings stability, ease of performance, communication, rapid response and many other pleasures. The payment for these benefits may be long hours in environments which are not as healthful as desirable. The question is whether a different kind of architecture could product healthful settings as well as functional ones. If we could demonstrate that productivity would increase, that absenteeism and turnover would decrease, would this be an incentive to explore still further the implications of daylighting design, task lighting, radiant heating, natural ventilation, selective monitoring and treatment of indoor air quality, reduced use of chemically contaminating building products and office supplies?

This is one issue that affects rich and poor almost equally. In new office settings, the healthfulness of the indoor environment has not yet become a prerequisite of top-level management. ☐

The Institute *from page 35*
ciation of Student Chapters/AIA. Prizes totaling $5,000 will be awarded for the eight most innovative architectural and decorative uses of ceramic tile in a functional, buildable, easy to maintain, energy efficient house.

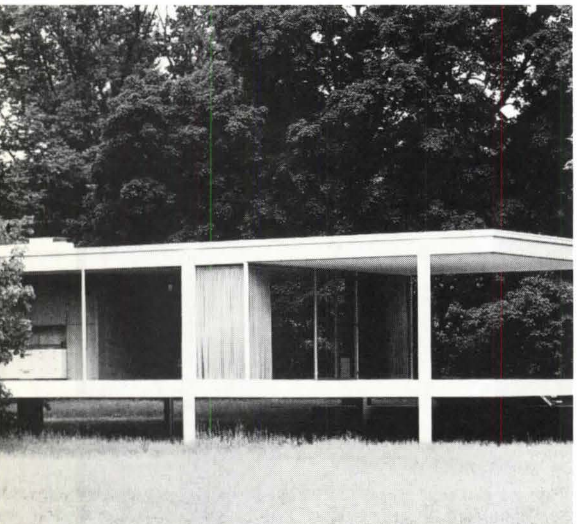
The competition is open to students enrolled full or part time in architectural schools with ASC/AIA chapters in good standing. Members of the jury will include William Turnbull Jr., FAIA, Robert A.M. Stern, AIA, Susanna Torre, Susan Lewin and an architectural student, not named at this writing. Entries are due by Nov. 14. Awards will be given at the ASC/AIA national student forum in Houston on Nov. 21-24. For more information, contact Richard L. Martini, president, ASC/AIA, at Institute headquarters.

Mies' Farnsworth House Receives 25-Year Award in Chicago

The Chicago Chapter/AIA recently celebrated the 25th anniversary of its annual distinguished building awards program and took the occasion to establish a 25-year award. The first recipient is the Farnsworth house, Plano, Ill., designed by Ludwig Mies van der Rohe (photo below).

The Farnsworth house, built in 1945-1950, was planned as a weekend retreat at the edge of the Fox River. It is a rectangular steel and glass structure measuring 29x77 feet.

The jury, composed of Ralph P. Youngren, FAIA (chairman), John I.



Schlossman, FAIA, and James Nagle, AIA, commented: "The Farnsworth house, due to the simplicity of its design and the quality of its materials, remains a timeless and enduring example of its era. Since 1949, it has stood as a flawless meeting of architecture and engineering. Elements of the plan, structure and detailing have entered the vocabulary of modern architecture."

News/Practice

Author Argues for Competitions; Advisory Service Proposed

Architectural competitions in this country have long played a part in design practice, but their role has been minor at best, says Paul D. Spreiregen, FAIA, in a newly published book entitled *Design Competitions* (McGraw-Hill, 1979). Competitions are "far from universally advocated" among either practitioners or public officials. There is even disagreement about so-called level three competitions for A/E selection among the officials of that mighty client, GSA (see page 12).

Although such notable structures as the U.S. Capitol, the White House, the Boston City Hall, Nebraska's state capitol and the gateway arch in St. Louis resulted from competitions, those in opposition to them are more inclined to cite past failures. An outspoken advocate of competitions, Spreiregen finds a decided relationship among "competitions, quality and the frequency of fine architecture." In societies where design competitions have been widely accepted and used, he says, the quality of design is "both high and widespread."

According to Spreiregen, competitions operate as well as the society in which they occur operates. "They operate at their best, as do other human enterprises, when they are free to concentrate on the main purpose of design, which is *design.*" Such open competitions, he believes, stimulate a public dialogue about design, with the public made aware of design's costs and its effects. This public dialogue, he says, is after all the major benefit of competitions. "It is also a major guide to the very objectives of architecture."

Currently pending before the National Endowment for the Arts is an application for matching funds to allow AIA to establish a design competition advisory service. A proposal to do so was drafted by Spreiregen and John Paul Carlihan, FAIA, of the Institute's design committee and approved by the board in June.

The proposal says that the advisory service would perform the following functions: constructive response to inquiries regarding competitions; assistance in the appropriate management of competitions through the provision of technical advice, documents and other pertinent information; the organization and operation, when appropriate, of a "compensated service to private clients and public agencies"; the establishment and maintenance of communications with architectural societies in other countries, with professional and industrial organizations and with AIA components; the establishment of a competitions reference archive, and the initiation and maintenance of a public information program on imminent, current and completed competitions in the professional press.

Ehrman B. Mitchell Jr., FAIA, president of the Institute, has said that during his tenure of office he has dedicated his efforts to the elevation of the public's awareness of architecture through AIA's year-long celebration of architecture. "Properly run competitions," he said, "can also serve this goal."

Michael J. Pittas, director of NEA's design arts program, has also pointed to the need for information on architectural competitions, saying that this would have a "positive influence on the public awareness of good design and the future quality of design." The establishment of a "responsible, objective monitoring service for competitions clearly indicates a role for AIA. It is my conviction that this service is essential, and I believe AIA can provide the best professional judgment and advice for those who wish to pursue competitions as a means of encouraging innovative design solutions."

In his book, Spreiregen points out that a "good competition code is the foundation of a good competition and consequently of an open and fairly practiced design profession." It was in 1870 that AIA issued its first "Schedule of Terms" regulating the conduct of architectural competitions. The code was revised over the years until the "Code for Architectural Design Competitions" (J331) was issued in December 1972. This document, shortly afterward, was challenged by the federal government as a violation of laws concerned with restraint of trade, because the code stipulated that AIA members could participate only in Institute-approved competitions. Subsequently, in March 1976, the Institute issued its "Guidelines for Architectural Design Competitions" (J332), which omits the mandate of AIA approval for participation by its members. Currently, as Spreiregen says, AIA's "only power is that it will not publicize any competition . . . unless recommendations of the guidelines are met by the sponsor."

U.S. Slips from First to Fifth In Overseas Construction Jobs

American construction and engineering firms "are rapidly losing their grip on contracts abroad," says Arthur Andersen & Co. (*Construction News Briefs,* no. 79-4). The U.S. construction industry dropped from first to fifth place in market share among competing industrial nations in the last three years, slipping to 7.9 percent for new overseas contracts in 1978 from 15 percent in 1976.

The decline has been most dramatic in
continued on page 84

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Circle 32 on information card

Steel framing saved more than $150,000 in four-story retirement complex

Local code restrictions for wood frame construction would have limited Casa de los Amigos in Redondo Beach to only three stories, but four stories were needed to provide the desired 136 living units on the land available for this HUD approved senior citizens' project.

In seeking alternatives, a structure combining steel framing on the first floor with three stories of wood framing above was shown to have many problems. The accepted solution, a design prepared with the help of Inryco engineers, used Inryco/Milcor roll-formed steel stud and joist framing throughout. It solved construction problems and also reduced costs by $155,470.

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1. Architectural and structural design assistance from our experienced staff.

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Let us help you increase construction efficiency and reduce costs on your projects. See the information on our steel framing systems in Sweet's: General Building File, section 5.3/In, and Light Construction File, section 5.3/Inr. (Or write for Catalogs 37-1 and 37-2.) Then give us a chance to discuss their application to your projects.

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Casa de los Amigos, Redondo Beach, California
Architect: Arthur Hugh Kensler, A.I.A., Los Angeles, CA
General Contractor: J. R. Slaught Construction Co., Irvine, CA
Framing Contractor: W. C. Froelich, Inc., Buena Park, CA

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Circle 33 on information card

Practice *from page 80*
the Middle East. The Andersen report quotes an American businessmen's group in Riyadh, Saudi Arabia, as saying the U.S. share of construction contracts "has fallen from 9 percent of the total $10 billion of contracts awarded in Saudi Arabia in 1975 to 3 percent of the $23 billion the Saudis awarded in 1978."

The report says "European firms are . . . skipping much of the international construction cream. For example, a French company recently won a $430 million design-construction project package in Iraq. A British company picked up a $42 million job for a runway, road and parking area in Jordan. A Dutch combine took a $16.5 million job for construction of a harbor complex east of Doha, Qatar. And Kuwait's version of Disneyland, although designed by an American firm, was low bid by an Italian construction firm." Also, firms in Korea, India, Taiwan and Japan are gaining contracts.

Construction accounts for at least one out of six jobs in this country's domestic economy and for at least 18 percent of U.S. sales overseas, the report says. "Thus, the loss of construction contracts overseas widens the trade deficit and worsens unemployment in the U.S."

The Andersen report contends that U.S. firms are handicapped by tax laws "that are full of disincentives for export activity and that lack realistic incentives for capital investment in export sales." Also, Americans working abroad on construction projects must pay federal income taxes, while other countries do not tax nationals working outside their borders. Some competing countries also give subsidies as incentives for overseas work. The report remarks also on the numerous changes and confusions in U.S. tax law. "The essential difficulty is not the changes and confusions, however, it's the fact that most U.S. companies simply find it ever more expensive to send employees overseas."

The report says as well that this country is also held back by antitrust laws. The Webb-Pomerene Act, which permits companies to pool their resources in the formation of trade associations for export purposes, has been criticized by the construction industry because its "antitrust enforcement procedures are ambiguous, making companies reluctant to form export associations for fear of antitrust implications." Also, the service sector, which includes the export of "technological know-how, construction services and patents," has been excluded in the formation of export associations.

According to Andersen, another problem in international construction is providing the client with a way to finance his project. "Unfortunately, some of our country's eroding competitiveness in international markets can be traced to more readily available government-subsidized export financing in other countries, predominantly in Europe and Japan but increasingly in Korea and Taiwan. As a result, U.S. bidders often lose out on contracts to foreign firms that have access to more advantageous financing arrangements."

Nine-year NCARB Veteran Named Executive Director

Samuel T. Balen, FAIA, has been appointed executive director of the National Council of Architectural Registration Boards. He succeeds Hayden P. Mims, who retired in August. Balen came to NCARB in 1970, after having practiced architecture in Madison, Wis., for more than a decade. Before his appointment as NCARB's executive director, he was director of professional development. He was the first national director of the intern-architect development program (IDP), initiated in early 1976, with AIA and NCARB the primary collaborators. He has served as staff director for NCARB on numerous task forces and committees concerned with the develop-

continued on page 88

Circle 36 on information card


The new exit hardware look.

Practice *from page 84*
ment of professional rules of conduct, examination content and training criteria for intern-architects.

A native of Lincoln, Ill., and a graduate of the University of Illinois, from which he received a bachelor of architecture degree in 1957, Balen has written and edited many professional documents and publications. For the past six years, he has been technical editor of the *NCARB Architectural Registration Handbook.*

Architects Ask: Will Work Resume on Iranian Projects?

Some American architects are beginning to talk about their losses since Ayatollah Ruhollah Khomeini took over power in Iran after the ouster of Shah Mohammed Riza Pahlevi. Others are remaining silent, "citing the possibility, however remote, that work for their Iranian clients might get under way in the future," says James Barron in a recent *New York Times* article. He quotes a State Department spokesman as saying the value of abandoned projects is so "staggering" that it has been impossible to make an estimate of costs involved.

Barron lists several projects in the planning or construction process at the time of the Shah's departure. Among them: an 18-story skyscraper designed by I. M. Pei & Partners for the Industrial Credit Bank in Teheran; a 17-story, 25 percent completed Foreign Trade Bank, designed by John Carl Warnecke & Associates; a new town in Bandar-e-Shahpur and the Khaneh Center in Teheran, both designed by Skidmore, Owings & Merrill; a new town near Isfahan, designed by Gruzen & Partners for employees of the Bell Operations Corporation, as well as Zomorod, a highrise luxury condominium complex for the Starrett Housing Corporation, also designed by Gruzen.

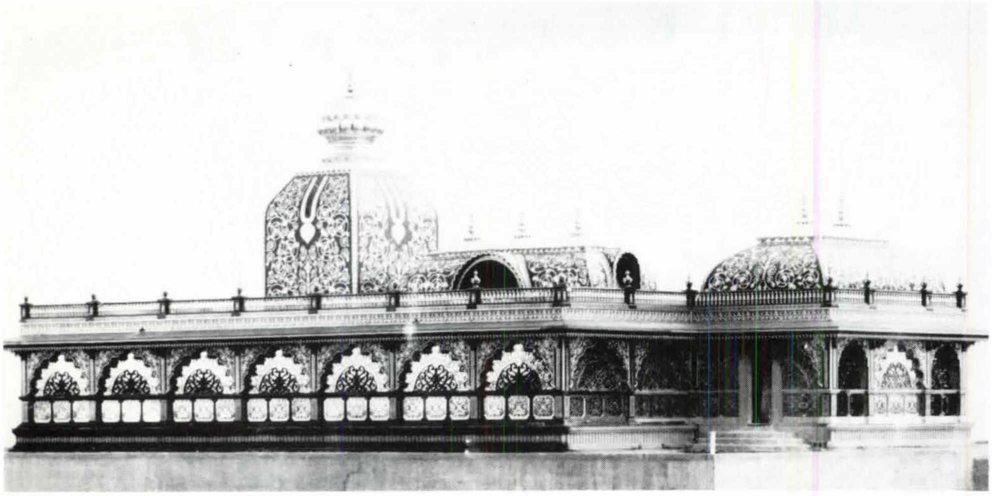
The firms are "out of a large chunk of money that they had already borrowed to pay their debts," said Terrance R. Williams, AIA, who chairs the New York Chapter/AIA's Middle East committee. He worked in Iran for Llewelyn-Davies International, a British firm which planned Shahestan Pahlavi, a $3 billion municipal center which would cover 1,400 acres in Teheran.

Jaquelin T. Robertson, AIA, who also worked with Llewelyn-Davies on the city center, is quoted as saying that the role of "thoughtful architects" was made difficult in Iran. "All they wanted was more glass boxes, like Chicago. Can you imagine the airconditioning load in the desert? Astronomical." The *Times* article notes that it is frustrating for architects to never see their work take shape. But they find, Barron writes, "that in many ways the philosophy of the Ayatollah's Islamic government is one that, ironically, regards unlimited development with much the same skepticism that [the architects] expressed when aides of the Shah of Iran wanted skyscrapers."

Krishnas Build 'America's First Spiritual Theme Park'

"Come find out why everyone nationally is calling this controversial building the most marveled at in the Western Hemisphere. . . . Find out why the opening of Prabhupada's Palace has been nationally acclaimed as the most newsworthy spiritual and artistic event of the century," says a press release from the International Society for Krishna Consciousness about the dedication last month of the palace (across page), the first of seven temples planned on Hare Krishna Ridge, nine miles southeast of Wheeling, W. Va.

The palace, designed, built and crafted by Hare Krishna devotees "as an act of loving devotion" for their late spiritual master, His Divine Grace A.C. Bhaktivedanta Swami Prabhupada, required 10 years to complete. The devotees taught themselves how to cut marble, pour concrete, make stained glass in "loving chastisement" for "wasting Krishna's time."



And before them in the completion of Krishnaland, "America's first spiritual theme park," are six other temples, a restaurant, a hotel, formal gardens, greenhouses, a school and all the other amenities of a resort which will combine religious and cultural activities.

His Divine Grace Kirtananda Swami Bhaktipada, leader of the Krishna devotees, says that the money for the palace (more than $500,000 to build) came from private donations. He is quoted in the *Washington Post* as saying that "$500,000 won't buy you a decent sized cathedral these days in most organized religions."

Stone's Estate Settles with U.S. In Kennedy Center Fee Dispute

Some five years ago, Edward Durell Stone, head of the New York City firm of Edward Durell Stone & Associates and architect of the John F. Kennedy Center for the Performing Arts in Washington, D.C., brought suit against the government for fees for the project that Stone thought were due. The government countersued for "erroneous and inadequate design." Stone died last year (see Sept. '78, p. 104), but his widow, executor of the estate, continued the suit. The legal battles have finally been settled, with Stone's estate agreeing to pay the government $248,451, and the government agreeing to pay the estate $223,451.

Stone initiated the suit to collect $295,789 in fees which he claimed were due in a project that was "extremely complicated." He claimed that the firm had earned $2.168 million in fees, but that costs incurred had amounted to $2.180 million. He would "have contributed six years" of his life, he said, "without compensation" for his services or "any profit" for his firm.

In its countersuit, the government asked for $1.975 million, reduced later to $699,398, for alleged design deficiencies. The government claimed, for one thing, that the roof did not have adequate drainage and that "serious ponding" caused leaks. Repairs were estimated to cost $4.1 million.

In late 1976 and early '77, the National Park Service spent $125,000 on the roof. But, as this magazine reported (see Feb. '78, p. 80), the building's horizontal surfaces continued to leak, causing puddles to form on the two terraces around the structure, in the restaurants' kitchen and even on the concert hall ceiling. Repairs have been required, as well, on the paving on East Plaza Drive. Other repairs are proceeding, Congress having appropriated $4.5 million to make them.

News continued on page 92

BEFORE YOU SPECIFY YOUR NEXT LAMP, CONSIDER THE FOLLOWING

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THE PAST, PRESENT, AND FUTURE OF MODERN LIGHTING

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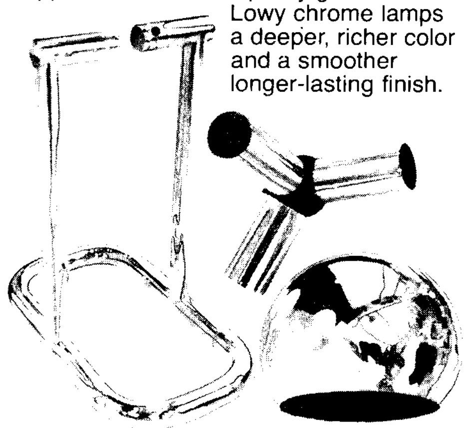
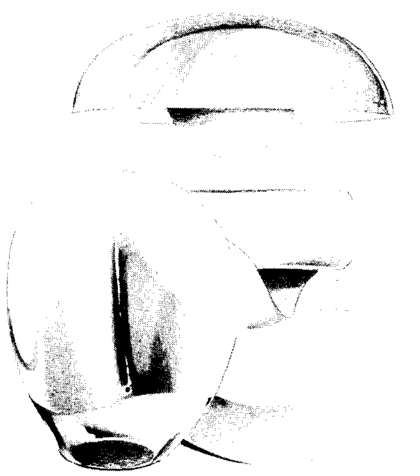
The Chrome Finish

There's only one right way to get a good, durable chrome finish on steel, and that's by applying a layer of copper and a layer of nickel under the chrome. With each layer thoroughly buffed before the next is applied. This kind of quality gives Koch + Lowy chrome lamps a deeper, richer color and a smoother longer-lasting finish.



The Brass Finish

Koch + Lowy lamps that look brass *are* brass. Thirty-one years of experience has taught us how to slow the natural brass tarnishing process. We coat the polished brass with a special clear lacquer, and then bake it to a hard finish.



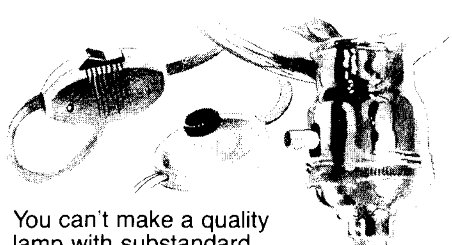
The Glass

All glass used in Koch + Lowy lamps is hand-blown. This allows for specialized design. And subtle nuances of texture, tone and color in the glass itself. Obvious quality your clients will see and recognize.

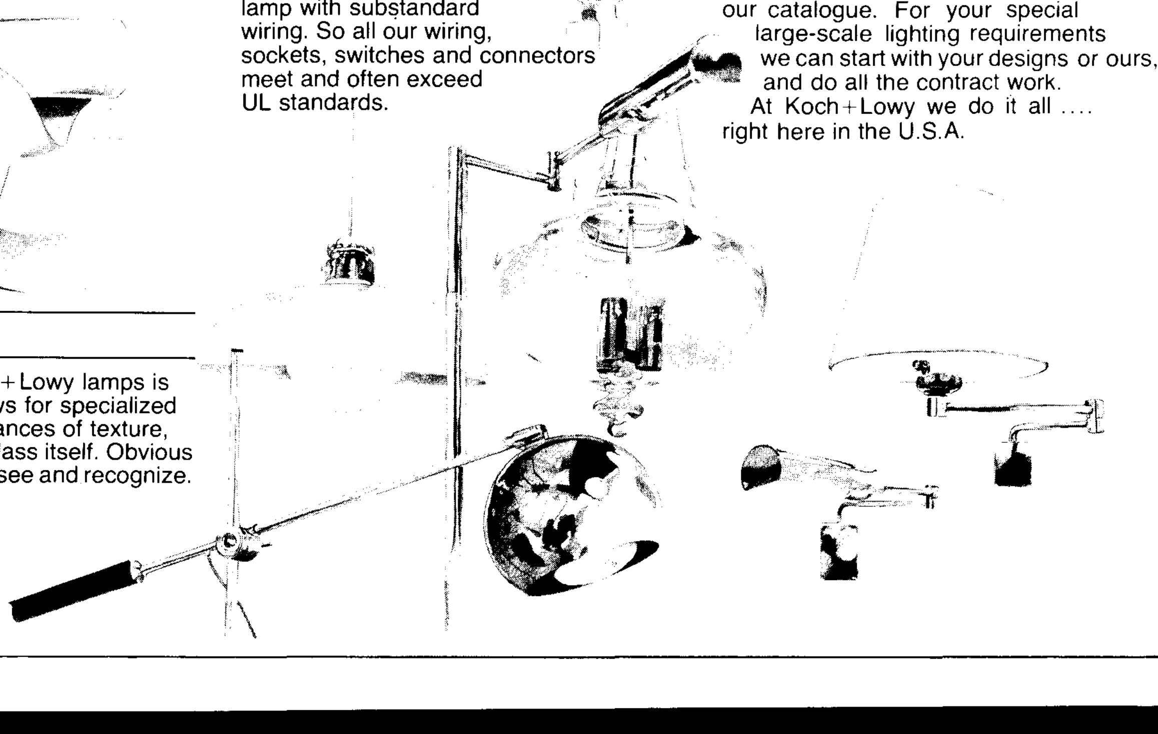
The Swivel

Koch + Lowy swivel lamps have a superb *enclosed* swivel. With all parts of solid brass. Completely machined so they're free of sand holes and cracks.
Koch + Lowy swivels are virtually indestructible. They will never sag, droop or flop. Never need adjustment. And they are noiselessly-smooth thanks to nylon seating-rings. One more reason why Koch + Lowy lamps are a lifetime value. As functional as they are beautiful.

The Wiring



You can't make a quality lamp with substandard wiring. So all our wiring, sockets, switches and connectors meet and often exceed UL standards.

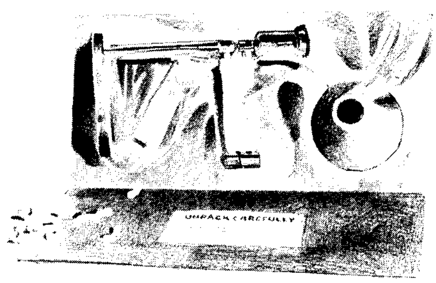


The Heft

The quality that goes into every Koch + Lowy lamp can be felt when you pick one up. Try the "heft-test" against one of our competitors. Feel which is heavier. Then judge for yourself.

The Arrival

Each Koch + Lowy lamp is specially packed in foam, shrink-wrap or other cushioning material. Then they're carefully boxed and shipped.



A Final Reminder

Don't confuse wattage with lighting. In the right lamp even 30 watts can provide sufficient lumens for reading. Proper lamp design can utilize the wattage to its fullest. For brightness. For special effects. Or as an art form. And no one does more with lighting than Koch + Lowy.

The Koch + Lowy collection of classic lighting is designed to coordinate with traditional and contemporary decor. Inspect it at our showrooms around the country or write under your letterhead for our catalogue. For your special large-scale lighting requirements we can start with your designs or ours, and do all the contract work.
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"Installing low pressure sodium provided a 70% saving in energy and related costs while meeting all our lighting requirements."

Dr. Paul Cavalli
Riverside General Hospital
Founder and President

"We compared the costs of mercury vapor and low pressure sodium for our new outdoor lighting installation," said Dr. Paul Cavalli, Founder and President of the Riverside General Hospital in Secaucus, New Jersey.

"The SOX installation required sixty-seven 135-watt lamps, while mercury vapor would have required fifty-two 400-watt and seventy 250-watt lamps to achieve the same lighting levels. Our decision to use SOX lamps has resulted in an annual operating cost saving of more than $6,000.

"Our SOX system is working well. According to our security people, the amber light has improved visibility for building surveillance and increased the effectiveness of our closed circuit television security system. In addition, it helps to identify the hospital for patients and emergency vehicles.

"From a management standpoint, our SOX lamp installation has clearly satisfied the requirements of operation, effectiveness and cost efficiencies."

To find out how Norelco SOX lamps can satisfy your lighting needs, and reduce your operating costs, contact Bill Attardi, Director of Marketing.

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DEATHS

Harold B. McEldowney, FAIA, Douglas, Mich.
Hugh Meriwether, Lexington, Ky.
Harris VerSchure, Grand Rapids, Mich.

A. Quincy Jones, FAIA: Design "in all of its manifestations came as natural as walking" to A. Quincy Jones, said Randell Makinson, curator of the Gamble house in Pasadena, Calif., upon the death of Mr. Jones on Aug. 3 at the age of 66. Serving for three years as dean of the school of architecture and fine arts at the University of Southern California, Mr. Jones returned in 1978 to the Los Angeles firm of A. Quincy Jones & Associates, which he headed for more than 33 years. In 1969, the firm won AIA's architectural firm award for "overall achievement in architecture." Mr. Jones personally was the recipient of more than 70 citations for excellence in design.

Art Seidenbaum said recently in the *Los Angeles Times* that Mr. Jones "converted the everywhere tract house from stucco box with dry walls to things of simple beauty with posts and beams and big windows and a conscious confusion between inside-out." He brought "drawing art into subdivision, accepting economic realities, housing needs, massive regulations and then decoding them into shelters that honored occupants while respecting land."

He also designed campus buildings, such as the Annenberg School of Communications at USC and the research library at the University of California in Los Angeles. He was consulting and master planning architect for the University of California at San Diego from 1965 to 1975, and for California State University, Dominguez Hills, from 1962 until the time of his death. Among his world-famous clients were Walter B. Annenberg, former U.S. ambassador to Great Britain, whose palatial estate Mr. Jones designed for the California desert. "Nothing received his second best," Makinson said.

Mr. Jones served as president of the Southern California Chapter/AIA in 1960 and received, in 1977, the California Council/AIA's distinguished service citation. He was a trustee of the Los Angeles Art Museum and on the board of directors of the Los Angeles Library Association. In 1936, he received a bachelor's degree from Washington University in St. Louis, returning to Los Angeles afterward and working for several architectural firms before enlisting in the U.S. Navy in 1942. Shortly after his discharge, he established his Los Angeles firm.

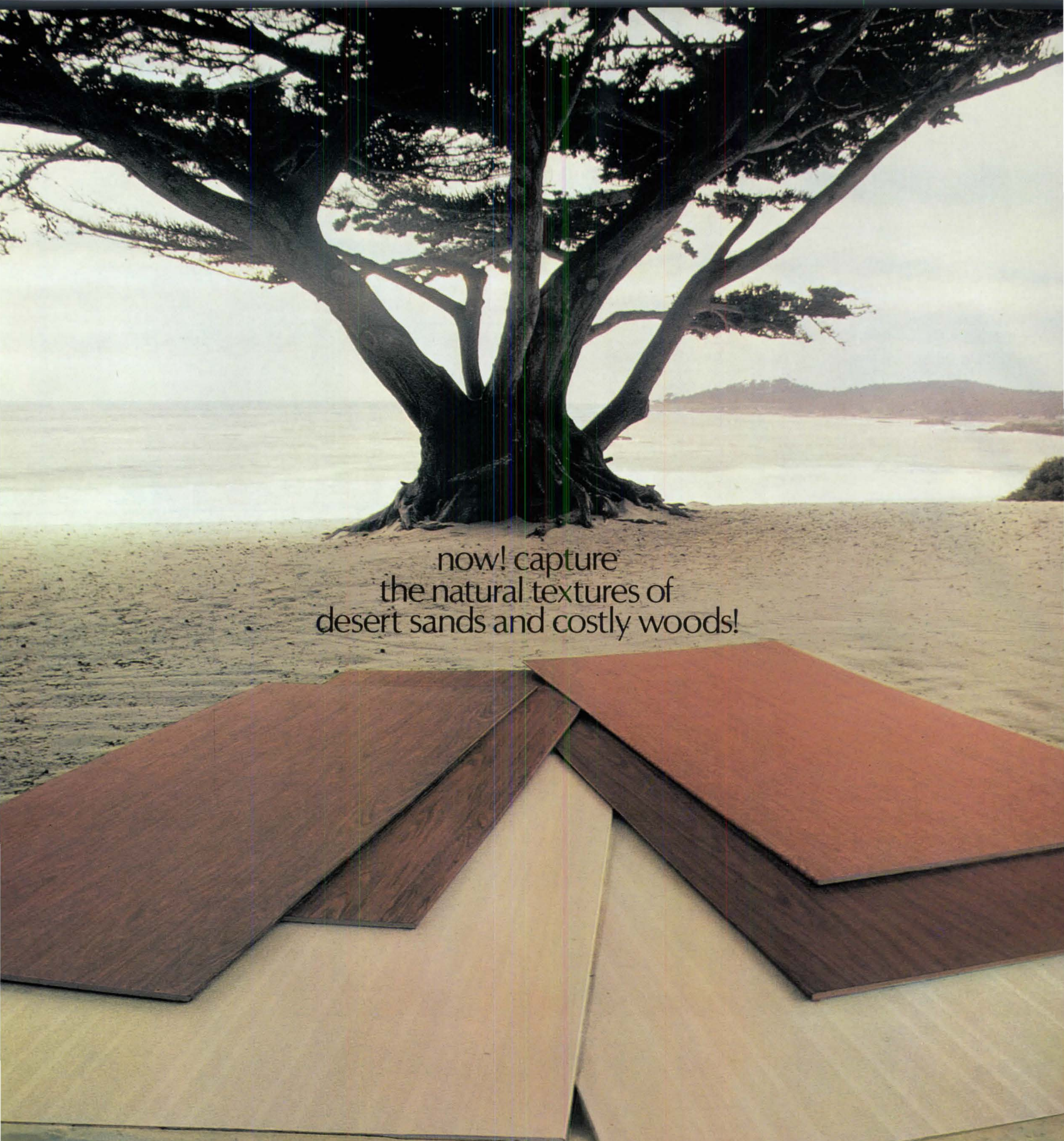
A tribute is paid to him by critic/author Esther McCoy in the *L.A. Architect*. She said Mr. Jones "was one of the few to bridge successfully that chasm between the custom-built and merchant-built house, and in so doing performed a great service to the community and to architecture." She wrote, "Oddly enough, a number of his institutional buildings are domestic in scale, as on the other hand, the interiors of his large houses are often heroic."

She remarked that the way he arranged offices around interior courts "reminded me of some of the regional solutions before airconditioning." And, "how lovingly" he designed ground levels of campus buildings, "with their patios facing gently upsloped landscaped banks."

Seidenbaum said in his article about Mr. Jones that Edward A. Killingsworth, FAIA ("himself a shaper of houses, campuses and communities"), had told him that "he wanted to make sure people knew how Quincy had honored the environment long before there was a movement in environment's name." And when Mr. Jones retired from USC, *Los Angeles Times* critic John Dreyfuss said that he could find no one "who had unkind words for Quincy; colleagues admired him, clients often loved him."

Floyd O. Wolfenbarger, FAIA: A member of AIA's board of directors (1969-

continued on page 94



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News *from page 92*
72), Mr. Wolfenbarger also served as president and vice president of the Kansas Society of Architects/AIA and on many Institute committees. From 1969 until his death on July 18 at the age of 74, he was a member of the advisory council of Kansas State University's college of architecture and design. In 1970, he was awarded Tau Sigma Delta's silver medal in recognition of his contribution in the fields of architecture, landscape architecture and the allied arts.

After having been graduated from Kansas State University in 1926, he was associated with two Boston architectural firms. In 1934, he opened his office in Manhattan, Kan., as the sole owner of F. O. Wolfenbarger Associates. In 1968, he entered association with Robert McCulley, AIA, and the firm became Wolfenbarger & McCulley. Upon his death, a Manhattan newspaper said: "Turn this community's compass in any direction and it probably will be pointing to a structure that is a tribute to the architectural skills and imagination of Floyd O. Wolfenbarger." The recipient of many design awards, he participated in the design of such buildings in Manhattan as schools, hospitals and the city building and auditorium, as well as many structures on the Kansas Sate University campus. He also was on the design team for the Eisenhower Library in Abilene, Kan., built in the early 1950s.

BRIEFS

Bill N. Lacy, FAIA, has been appointed president of the Cooper Union for the Advancement of Science and Art in New York City. He will assume his new post on Jan. 1, 1980. He most recently served as president of the American Academy in Rome, and previously was director, architecture and environmental arts, National Endowment for the Arts.

A series of 10 roofing seminars will be conducted throughout the U.S. in 1980 by the Roofing Industry Educational Institute. For information, write RIEI, 6851 S. Holly Circle, Suite 250, Englewood, Colo. 80112.

Esthetically pleasing signs can be beneficial to individual stores and entire shopping districts. A booklet called "Sign Language" may be ordered for $5 plus postage from Salem Redevelopment Authority, One Salem Green, Salem, Mass. 01970.

"Suggested Safety Standards and Guidelines for Public Playground Equipment" ($2); "What You Should Know About Playgrounds Before You Build One" ($3), and "Danger on the Playground" ($0.60) are reports to help in creating playgrounds for children. They may be obtained (unbound, typewritten copy) from: Friends of Bellaire Parks, P.O. Box 777, Bellaire, Tex. 77401.

The Association of Collegiate Schools of Architecture, Inc., is seeking qualified applicants for the position of executive director which becomes vacant in the summer of 1980. Contact: ACSA, 1735 New York Ave. N.W., Washington, D.C. 20006, (202) 785-2324. Formal applications must be received by Nov. 1.

"Considering a Career in the Construction Industry" is a booklet recently published by the National Association of Women in Construction. Contact: NAWIC, 2800 W. Lancaster, Fort Worth, Tex. 76107.

Louis de Moll, FAIA, former president of the Institute, and current president of the International Union of Architects, has received an honorary fellowship from the Hungarian Society of Architects, the first U.S. architect to be so honored.

Career position: The Virginia Society of Architects/AIA, located in Richmond, is seeking an executive director to direct the growing state organization of 640 members in four chapters. Experience required includes a knowledge of administration and management procedures and background in or knowledge of architectural practice. The salary, which is negotiable, is currently within the range of $18,000 to $20,000. Deadline for receipt of résumés is Nov. 1. Contact: Frederic H. Cox Jr., AIA, Virginia Society/AIA, 1501 N. Hamilton St., Richmond, Va. 23230.

Boston Architectural Center is seeking a chairperson for its school of architecture. Recommendations and letters of interest should be sent by Nov. 15 to: Fay De-Avignon, BCA, 320 Newbury St., Boston, Mass. 02115.

"Architecture Schools in North America" contains up-to-date information on each school's program objectives, costs, enrollment, admission requirements and faculty members. The most recent edition is now available for $8.95 from the Association of Collegiate Schools of Architecture, 1735 New York Ave. N.W., Washington, D.C. 20006.

Information is wanted for an exhibition on the life and work of architect John H. Duncan (1855-1929). The exhibition will open on Mar. 1, 1980, at Grant's Tomb in New York City. Contact: Christopher Gray, Office for Metropolitan History, 216 W. 89th St., New York, N.Y. 10024. □

LETTERS

Continued from page 9
'Fear of the Straightforward': In John Pastier's excellent analysis of Kresge College (Aug., p. 42), he describes the "tongue in cheek" facade architecture as a "way of sidestepping the visual challenge of a more straightforward design approach." It is just this fear of the straightforward that may explain the exaggerated forms and "deliberately awkward" proportions we have received from many talented hands in recent years.

As sensitive architects sought to return some of the color, texture and regional characteristics removed by much of the International Style, they were afraid of being grouped with the reviled traditionalists who had never paused in their imitations of past styles to consider the input of the 20th century.

Yet, the differences generated by today's programs, mechanical systems and even the small changes in our laggard construction industry are sufficient to produce an architecture distinct from past styles—even while utilizing those traditional forms and materials that still make sense in a given climate or topography.

These differences, and the architectural statements they produce, are not so dramatic (or as good copy) as the stage-set exaggerations of a Kresge. Beyond the self-consciousness that may make some architects feel that grace and good proportions are insufficient visual goals, the desire for recognition (and publication) is a further goad to the bizarre.

After lauding the sensitivity and self-restraint of the other colleges at Santa Cruz in several articles, you chose Kresge for the cover! *Joan E. Goody, AIA*
Boston

McKim Mead & White: Will wonders never cease! For the first time in more than 30 years, the AIA JOURNAL of March 1979 printed a statement on page 59 complimentary of the work of McKim Mead & White.

Has the pendulum started at long last to swing the other way? Is this another sign along with the new thinking of current, well-known architects?

It is gratifying to see some evidence of appreciation and justice displayed at long last to the memory of the most distinguished architectural firm that ever existed in this country.
John J. Loughnane, AIA
Manhasset, N.Y.

We welcome comments from our readers on articles published as well as on architectural topics in general. □

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