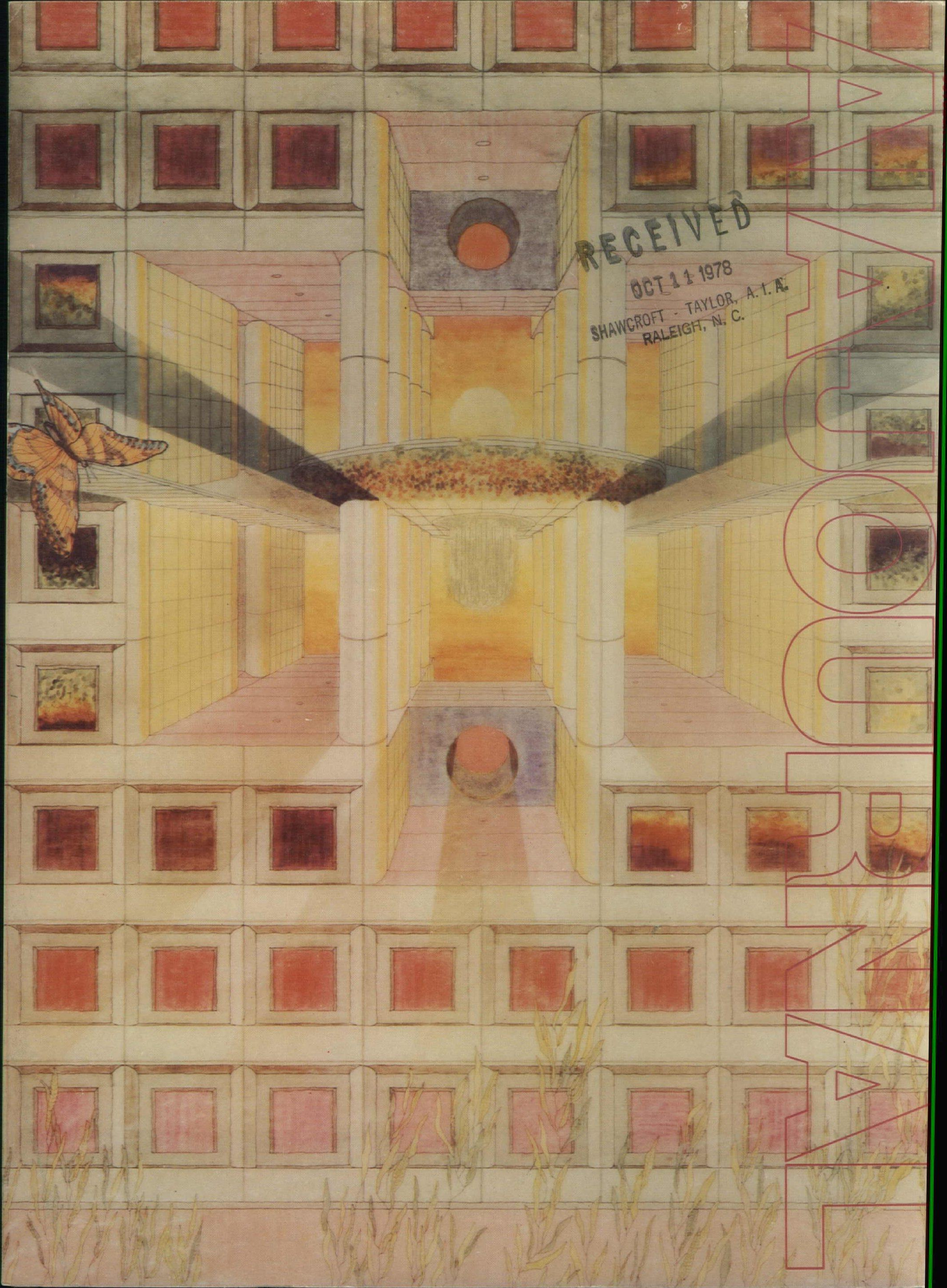

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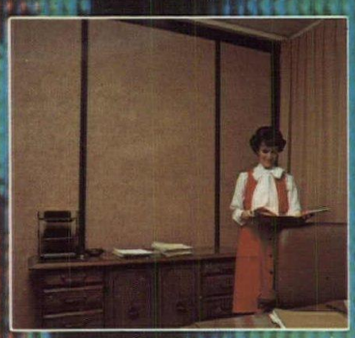

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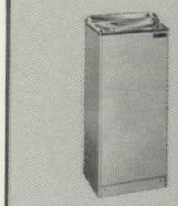

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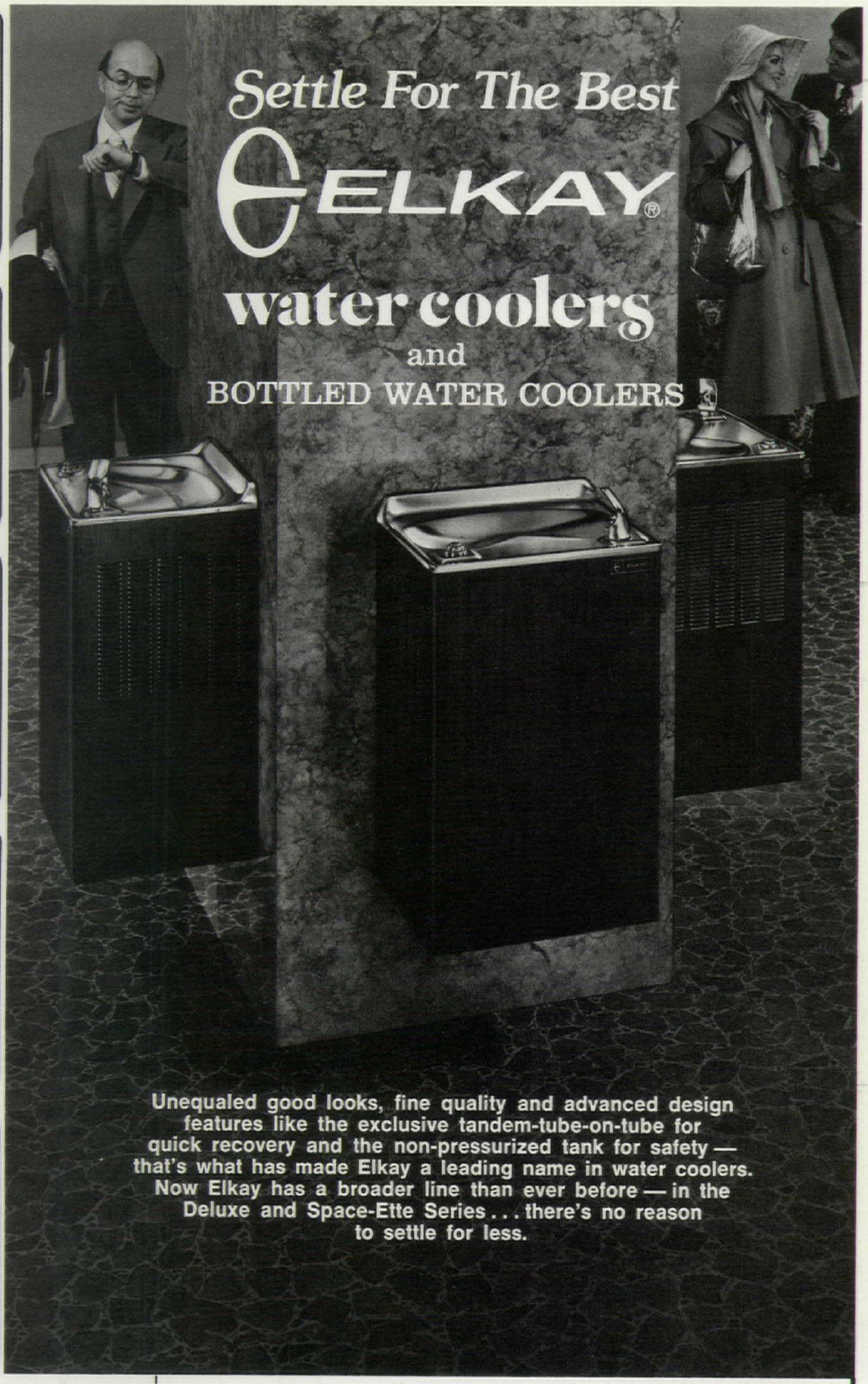

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AIA JOURNAL

Color in Architecture

A special issue on its history, use and impact 39

Cover: Tri-State Center, a speculative office building now under construction in Northbrook, Ill., designed by Hammond Beeby & Babka. Thomas Hall Beeby's drawing shows the porte-cochere and its retaining pond reflection. *See* page 53.

Departments

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,** Editorial Assistant; **Michael J. Hanley,** Publisher; **Michael M. Wood,** National Sales Director; **George L. Dant,** Production and Business Manager; **Gladys McIntosh,** Circulation Manager; **Lisa Moore,** Administrative Assistant; **Richard H. Freeman,** General Manager.

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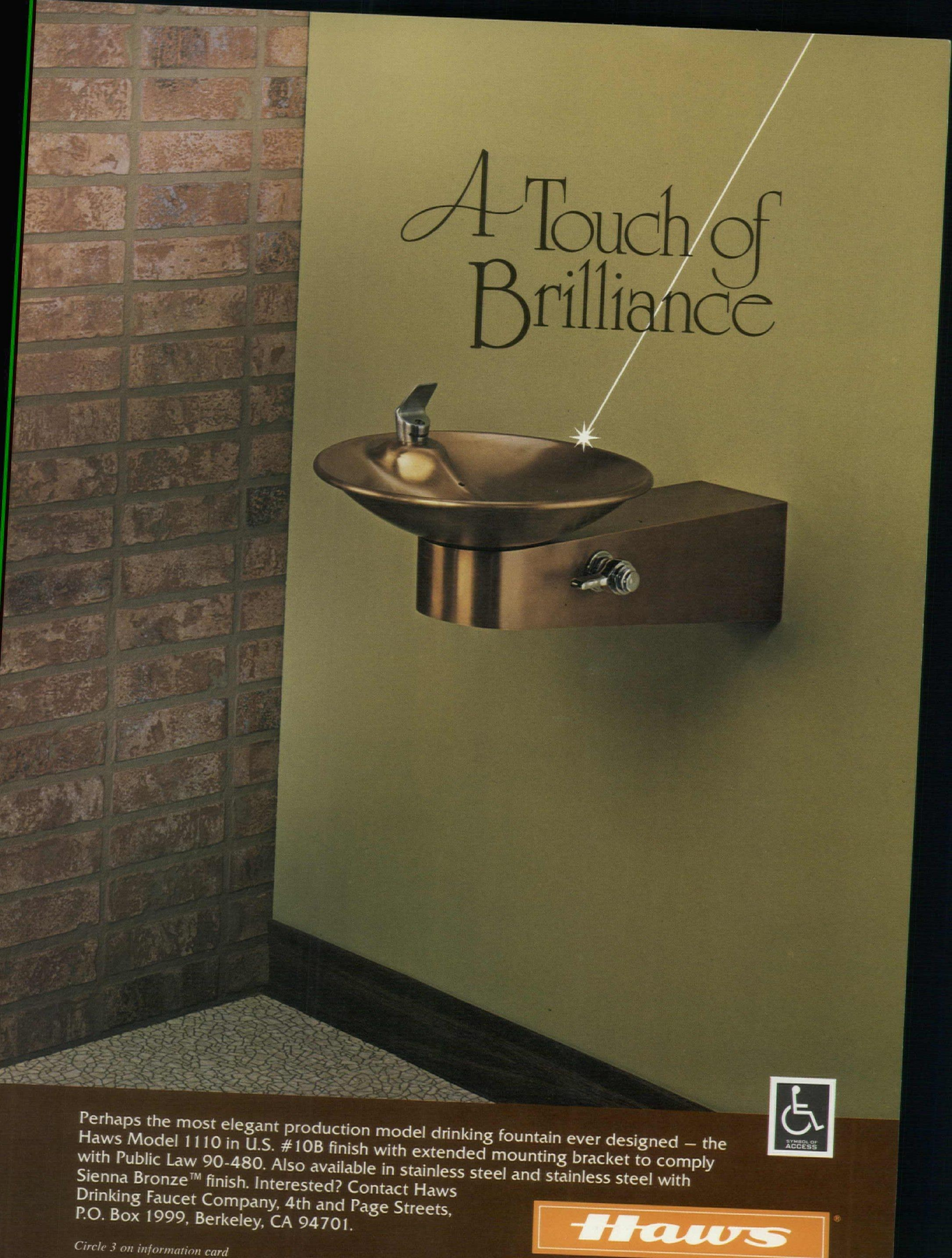
VOL. 67, NO. 12.



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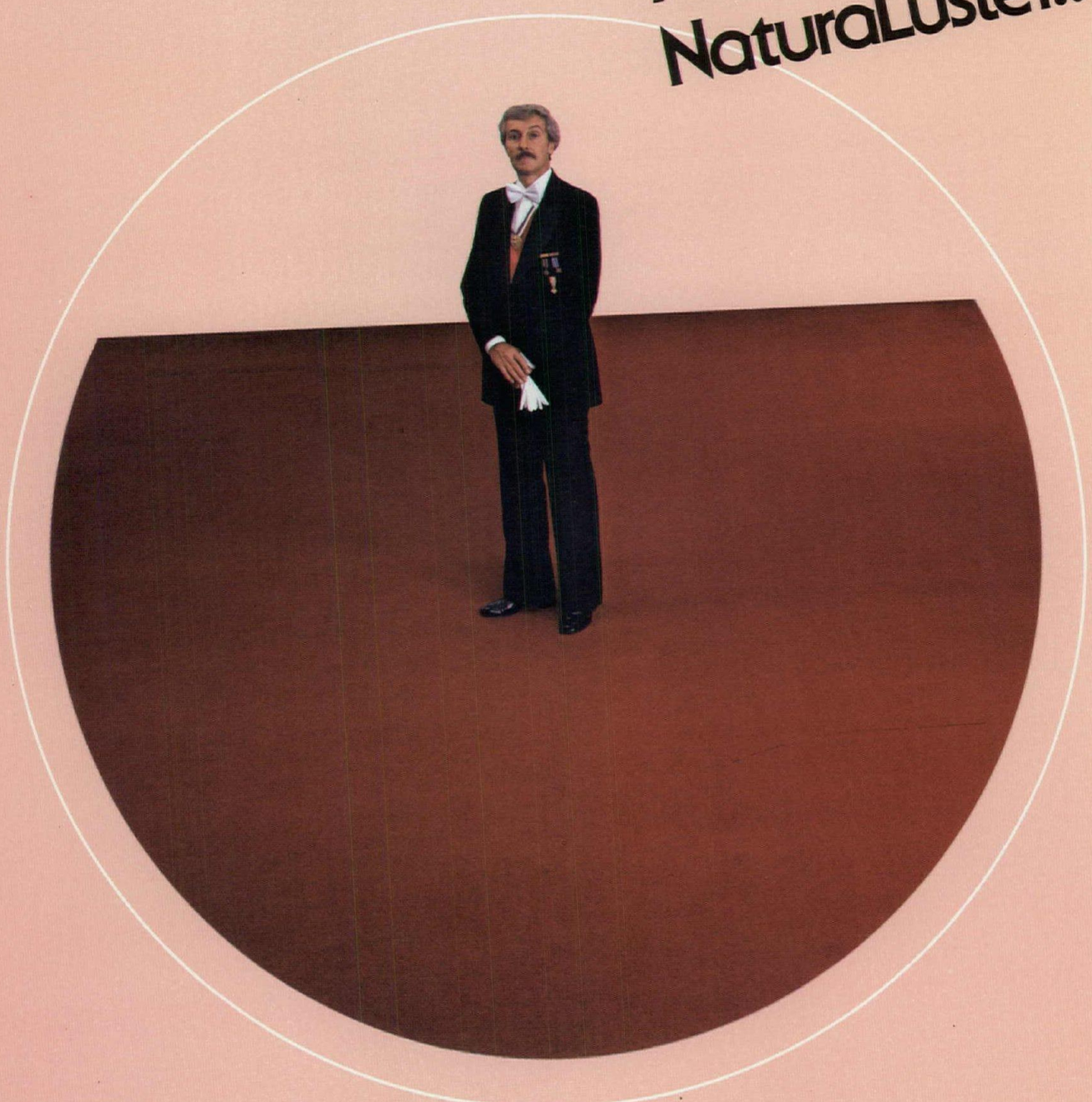

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EVENTS

Oct. 31-Nov. 2: World Energy Engineering Congress, Atlanta. Contact: Association of Energy Engineers, 464 Armour Circle N.E., Atlanta, Ga. 30324.
Nov. 1-3: Texas Society of Architects/AIA annual meeting, Palacio del Rio Hotel, San Antonio.
Nov. 2-3: Professional Services Business Management Association annual conference, Bel Air Hilton, St. Louis. Contact: PSBMA, St. Louis Conference, Environmental Science & Engineering, Inc., University Station, Box 13454, Gainesville, Fla. 32604.
Nov. 2-3: Annual environment and safety briefing sessions, conducted by the Bureau of National Affairs, Arlington, Va. (Repeat sessions: Nov. 16-17, Los Angeles.) Contact: BNA, 1231 25th St. N.W., Washington, D.C. 20037.
Nov. 2-3: Conference on Offshore Oil: Challenge and Change, Hyatt Regency Hotel, Dallas. Contact: Energy Bureau, Inc., 101 Park Ave., New York, N.Y. 10017.
Nov. 2-3: Seminar on Business Planning for the Metric Conversion, Los Angeles, sponsored by New York University. (Repeat seminar: Feb. 1-2, Chicago.) Contact: Heidi E. Kaplan, Department 20 NR, New York Management Center, 360 Lexington Ave., New York, N.Y. 10017.
Nov. 2-3: Institute on Construction Contracts and Specifications, University of Wisconsin, Madison.
Nov. 2-5: California Council/AIA annual conference, Newport Beach Marriott Hotel, Newport Beach.
Nov. 3-5: Kentucky Society of Architects/AIA annual convention, Hyatt Regency, Lexington.
Nov. 5-8: International Hotel/Motel and Restaurant Show, New York Coliseum, New York City. Contact: M. Silver Associates, Inc., 360 Lexington Ave., New York, N.Y. 10017.
Nov. 9-10: Course on the Government Official and A/E Contracting (AIA among the sponsors), Hyatt Embarcadero Hotel, San Francisco. Contact: Arnold Prima, AIA, Institute Headquarters, (202) 785-7374.
Nov. 9-10: Institute on Preventing Building and Construction Failures, University of Wisconsin, Madison.
Nov. 9-11: New Jersey Society of Architects/AIA annual convention, Howard Johnson's Regency, Atlantic City.
Nov. 10-11: Architecture for Commerce & Industry Programming Seminar, Little Rock, Ark. Contact: Harold Glover, AIA Headquarters, (202) 785-7229.
Nov. 13-14: Seminar on the Federal Procurement Process, New York City, sponsored by the University of Chicago. (Repeat seminar: Mar. 26-27, Houston.) Contact: Heidi E. Kaplan, Department 20NR, New York Management Center, 360 Lexington Ave., New York, N.Y. 10017.
Nov. 13-14: Course on Construction Cost Estimating, Bidding and Optimization, Hartford Graduate Center, Hartford, Conn.
Nov. 13-15: Seminar on Building Investment Analysis (Life Cycle Costing) for Architects and Engineers, University of Texas at Austin.
Nov. 13-16: National Urban Forestry Conference, International Inn, Washington, D.C. Contact: School of Continuing Education, State University of New York, College of Environmental Science and Forestry, Syracuse, N.Y. 13210.
Nov. 15: Applications deadline, Rome Prize Fellowships for 1979/80. Contact: American Academy in Rome, 41 E. 65th St., New York, N.Y. 10021.
Nov. 15: Applications deadline, White House Fellowships. Contact: President's Commission on White House Fellowships, Washington, D.C. 20415, (202) 653-6263.
Nov. 15-17: Workshop on Life-Cycle Cost Application, Anaheim, Calif., sponsored by AIA and the American Consulting Engineers Council. (Repeat workshop: Dec. 6-8, Denver.) Contact: ACEC, 155 15th St. N.W., Washington, D.C. 20005.
Nov. 15-17: Construction Research Council annual meeting, Monteleone Hotel, New Orleans. Contact: CRC, 1000 Vermont Ave. N.W., Washington, D.C. 20005.
Nov. 26-Dec. 1: Exhibition of Architecture for Radiology, held in conjunction with annual meeting of the Radiological Society of North America, Inc., McCormick Place, Chicago. Contact: George F. Schuyler, RSNA, 1415 W. 22nd St., Suite 1150, Oak Brook, Ill. 60521.
Nov. 28-29: Conference on Water Conservation and Municipal Wastewater Flow Reduction, Ramada-O'Hare Inn, Chicago O'Hare Airport, sponsored by the U.S. Environmental Protection Agency. Contact: EPA, c/o Enviro Control, Inc., P.O. Box 1687, Rockville, Md. 20850.
Nov. 28-Dec. 1: Conference on Solar Heating & Cooling Systems Operational Results, Broadmoor Hotel, Colorado Springs, Colo. Contact: Solar Energy Research Institute, 1536 Cole Boulevard, Golden, Colo. 80401.
Nov. 30-Dec. 1: Conference on Energy, Washington, D.C. Contact: Energy Magazine, Box 2070C, Stamford, Conn. 06906.
Dec. 1: Entries deadline, plywood design awards program sponsored by the American Plywood Association and *Professional Builder* magazine. Contact: APA, P.O. Box 2277, Tacoma, Wash. 98401.
June 3-7, 1979: AIA convention, Kansas City, Mo.

LETTERS

The Biloxi Library-Museum: With reference to the article in the mid-May issue entitled "An Evocative Enclosure of Luminous Space," which is about the Biloxi, Miss., library and city museum (p. 96), there are several erroneous statements to which we take exception.

On page 99, it is stated, and I quote, "Mississippi architects, however, had not changed gears. There was a campaign (unsuccessful) to fire McMinn from his academic post." Let me say that you are in total error on this statement. There was never a statement, much less a campaign, against Dean McMinn concerning this project. In fact, the local architects and the Mississippi chapter/AIA did everything possible to protect Dean McMinn's position in this matter.

In your next statement, and again I quote, "And somehow Turnbull didn't get licensing reciprocity from the Mississippi State Board—on which several Biloxi and neighboring Gulfport architects sat—nor could he get his application forwarded to the National Council of Architectural Registration Boards." First, let me say that there were not several architects from the Coast sitting on the board at that time. There were two: myself, from Biloxi, and Charles L. Proffer, AIA, from Gulfport. The reason Mr. Turnbull did not receive licensing under reciprocity was because he came into the state, took the commission for this project, did preliminary work and collected a fee before he even applied for registration in Mississippi. Of course, at that time he was not associated with any firm in the state, or a firm licensed to practice in the State of Mississippi.

In the next paragraph, you state, "In 1977, Mississippi passed a law requiring architects not licensed in Mississippi to associate with resident Mississippi licensed firms." You are in error again on this statement. The law requiring that anyone practicing architecture in the State of Mississippi must be licensed has been in effect, as in most other states, for some 40 years.

Another paragraph states, "Complaints from local architects and their allies kept up throughout the construction." This is a completely false statement, inasmuch as the local architects did try to cooperate with the city in every way once the project was awarded to the Turnbull firm.

H. F. Fountain Jr., AIA
Biloxi, Miss.

Our intention in the article in question was not to regenerate old antagonisms but to report fully on a building almost

continued on page 98

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NSPE Lifts Ban on Bids After Six-Year Battle; Advertising Now Allowed

The National Society of Professional Engineers has changed its code of ethics, removing prohibitions on competitive bidding and on advertising. The action on competitive bidding is a response to a unanimous Supreme Court decision on April 25 that NSPE's ban on competitive bidding was a restraint of trade and in violation of the Sherman Antitrust Act (*see* Mid-May, p. 66). In the six-year, $600,000 legal battle, NSPE had fought the Justice Department over the issue of whether its ban deprived clients of their rights of free and open competition. AIA was not affected by the court's ruling, having entered a consent decree on the subject with the Department of Justice in 1972.

Some professionals claim that the change in NSPE's ethical code will not affect the acquisition of engineering services; others contend that corners will be cut and that engineers will engage in "defensive" engineering. Milton F. Lunch, NSPE legal counsel, said that it is too early to predict the long-range effect of the ethical change. He added that many NSPE members had been disappointed with the Supreme Court decision and the subsequent change of the 100-year-old tradition which banned competitive bidding. "Basically, competitive bidding is geared to the lowest price, lowest quality," Lunch said. "It is a disservice to the clients for they only get what they pay for."

NSPE's changes in its ethical code involved Section 11 (C) which had contained the bidding ban. The code now reads: "An engineer shall not request, propose or accept a professional commission on a contingent basis under circumstances in which his professional judgment may be compromised, or when a contingency provision is used as a device for promoting or securing a professional commission."

NSPE dropped from its code any mention of minimum fee schedules and a former provision which stated that engineers cannot undercut fees prevailing in a geographic area. This also was in response to the Supreme Court ruling.

The change in the ethical code to permit advertising evidently was not as much concern to NSPE members as competitive bidding, Lunch said. Advertising is now permitted, although exaggerated, misleading or deceptive statements are prohibited. In June 1977, the Supreme Court ruled that to ban all advertising by lawyers of the availability and prices of their services was in violation of the Constitution's First Amendment on free speech. At AIA's convention in May, 82 percent of the delegates voted to lift the Institute's long-standing ban on advertising (*see* June, p. 8).

AIA, Canadian Architects Declare Common Interests

Meeting in joint session for the first time on Canadian soil, AIA's board of directors and the Royal Architectural Institute of Canada's council passed resolutions aimed at strengthening professional ties between the architects of the U.S. and Canada. The joint meeting, held in September in Toronto, was preceded by three days of individual board meetings of the two organizations.

"Recognizing the differences between the political and professional situation in the U.S. and Canada," the representatives of the two organizations discussed the issue of practicing architecture reciprocally across the two countries' borders. They agreed to study the problems of reciprocal practice in an effort to alleviate the trade restrictions that now exist. They also concurred that professional bodies concerned with certification should agree on common standards of licensing of practitioners.

Architectural schools, it was stated, should work toward the establishment of common standards for the first professional degree, in consultation with the professional bodies, but without interference with academic freedom. "Constructive and continuing contact between the profession and the schools should be facilitated by all possible means, and be considered a high priority," it was agreed. One practical step toward achieving this end would be the attendance of architectural students at professional assemblies on both sides of the border.

Members of AIA and RAIC also identified barriers to research in both countries. In order "to contribute to the well being of the national economies and the built environment of both nations," it was proposed that an RAIC research institute be established and that there be a "vehicle of exchange of information, data and agendas" between the proposed Canadian institute and the American Institute of Architects Research Corporation. It was noted that energy should be a priority research effort. AIA agreed to assist its Canadian colleagues in this endeavor, offering the services of the AIA/RC, now in its fifth year. The architects proposed that a joint meeting of the two research organizations be held in a year in Boston.

It was noted by the Canadians that the failure of the U.S. to rapidly achieve metrication was creating problems in the use of U.S. building products in Canada. The Canadians offered to assist their U.S. counterparts in making a transition to metrication.

The two organizations, united in a "common interest in making architecture of consequence and improving the quality of the human experience through excellence in design," will undertake a coordinated program to expand public appreciation of architecture. Canadian architects will join AIA in 1979 in a year-long "celebration of architecture."

United as well on other matters of mutual concern, it was agreed that the two organizations would exchange documents, exhibits and educational materials. It was decided also that the two organizations would meet together once yearly in 1979, '80 and '81 to evaluate the results of the resolutions.

Irving D. Boigon, president of RAIC, and Elmer E. Botsai, FAIA, president of the Institute, presided at the plenary session. Passage of the resolutions at this

continued on page 12

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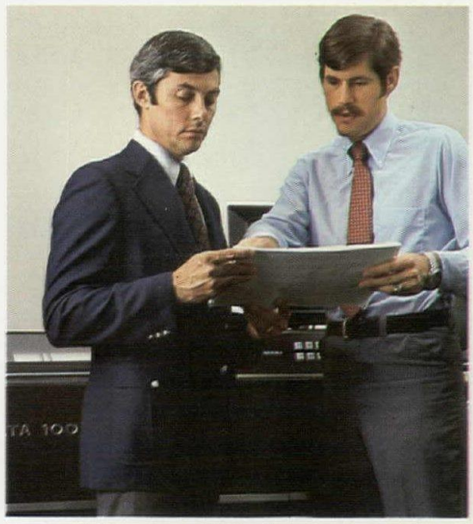

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Going On from page 8
session followed a day in which there were eight individual workshops on such issues as research and energy, government affairs, practice and design, education and professional development and public relations.

Ethics Interpretations Accepted by AIA Board

At its meeting in Toronto, AIA's board of directors approved interpretations of ethical rules 204 and 205 on advertising and endorsements, presented by Secretary Robert M. Lawrence, FAIA. The interpretations state that "delineations, plans or other graphic representations of the project" are in the same category as photographs and "are not permitted in purchased advertising." Members are allowed to use a project photograph in a directory of firms "where the standard format is designed for photographs." Members "may be quoted in an advertisement or endorsement about a generic product which contains no brand names, but the use of the member's photograph or likeness . . . is prohibited." Members may permit the use of their names, quoted statements and photographs in client advertisements and brochures in connection with a project, "but not with products or systems used in the project."

The board also:

- Approved Secretary Lawrence's interpretation of rule 605 on supplanting: "In the selection process,several members may be interviewed concurrently by a client for a project."
- Took action to raise AIA member dues by $5 in 1979 in light of escalating costs of legal challenges to AIA's ethical code. The increase will be used for a legal defense fund.
- Approved a proposal by the commission on education and professional development regarding continuing professional development requirements for AIA membership. The plan which may be returned to the membership for action at the 1980 or '81 convention calls for a comprehensive study of professional development, capabilities and credentials rather than the isolation of a single issue of requirement for membership.
- Endorsed the American National Metric Council's design section on voluntary metric conversion, directing that the membership be informed of metric developments affecting architecture.
- Approved changes to broaden the eligibility criteria of the AIA minority disadvantaged scholarship program to make this program more flexible.
- Endorsed a proposal creating the Louis I. Kahn architectural archives at the University of Pennsylvania (*see* Sept., p. 39).

AIA Contracts with HUD To Study Housing Claims

As an adjunct to its effort to encourage homeownership in declining urban neighborhoods through Federal Housing Administration mortgage insurance, HUD in 1970 began a warranty program to pay for repair of serious defects in the insured dwellings that had gone undetected in the original pre-insurance inspections.

Before the program was terminated in August 1977, some 104,000 claims of such defects were filed. Of this number, 22,000 were considered valid and HUD paid out $19.3 million for repairs or reimbursement to owners who had made repairs. 44,000 claims were rejected.

Some of the owners whose claims were rejected have filed suit and the program has been reviewed by the General Accounting Office, which was critical of its administration and the handling of claims.

Last month, HUD announced a contract with AIA whereby the Institute will independently review the rejected claims covering homes located in 10 older urban areas, purchased between August 1968 and August 1976. Under the initial $120,000 contract with HUD, the Institute will develop plans and administer a comprehensive review of about 12,000 rejected claims.

The first 15-week phase of AIA review started in August. During this period, review procedures and criteria will be determined and training programs for review personnel developed. Also, HUD will invite persons considered to have eligible claims to ask for a review by AIA of their cases.

The second phase, which will involve the actual reviews, will begin after the first phase and will continue for six months under a second contract which will be negotiated and signed later this year.

About half of the work performed initially by AIA field teams will be made up of claims in Chicago. Other cities in the third party AIA review include Boston, Cincinnati, Cleveland, Detroit, Indianapolis, Los Angeles, Newark and New York.

Funds for Neighborhoods

Neighborhood projects received the largest share of the second round of grants awarded under the federal urban development action program. The awards totaled $111.9 million for 35 cities.

Neighborhood awards amounted to $48 million, $12 million more than the next largest category, commercial grants. Projects range from $3.5 million to revitalize Denver's Hispanic community to a $100,000 improvement program in Pico Revera, Calif. The second round of awards also includes several adaptive reuse, rehabilitation and historic preservation projects.

HUD Secretary Patricia Roberts Harris noted that mayors succeeded in arranging and submitting significant numbers of neighborhood projects without compromising the quality of industrial and commercial proposals.

The action grant program is aimed at urban areas experiencing severe economic and physical decay. In order to qualify for an action grant, a city must demonstrate a strong private commitment to the project submitted. The current round of awards is part of 39 public private development projects. They are backed up by $465 million in private commitments. Cities must also meet certain minimum standards of distress as evidenced by high poverty and unemployment rates, low job and per capita income growth and a high percentage of older housing.

The program is authorized for $400 million each fiscal year through 1980.

Long-Range National Growth Strategy Sought

The final report of the White House Conference on Balanced National Growth and Economic Development held in February (*see* Mar., p. 8) has been published. The conference was called to examine the national government's growth policies and to suggest recommendations to the President and Congress on such issues as regional divisiveness, structural unemployment, tensions in the federal system and conflicting energy, water, environmental and economic objectives. The 500 invited participants spoke through 24 workshops, general sessions and more than 200 public forum statements.

The recommendations, prepared by an advisory committee, read as a list of dos and don'ts: what the federal and state governments should do for "balanced growth and economic development" and, correspondingly, what the governments have failed to do.

The report criticizes the short-range outlook of the government: "The fragmented processes through which Congress currently addresses national growth policy issues make coherent and consistent policy making difficult, particularly for mid- to long-range issues." The list of don'ts is long: Shortcomings of the federal government include inadequate ability to anticipate future problems and trends; inadequate attention given to mid- and long-range issues and the mid- and long-term implications of responses to immediate problems; inadequate coordination among the levels of government within the federal system; inadequate recognition of

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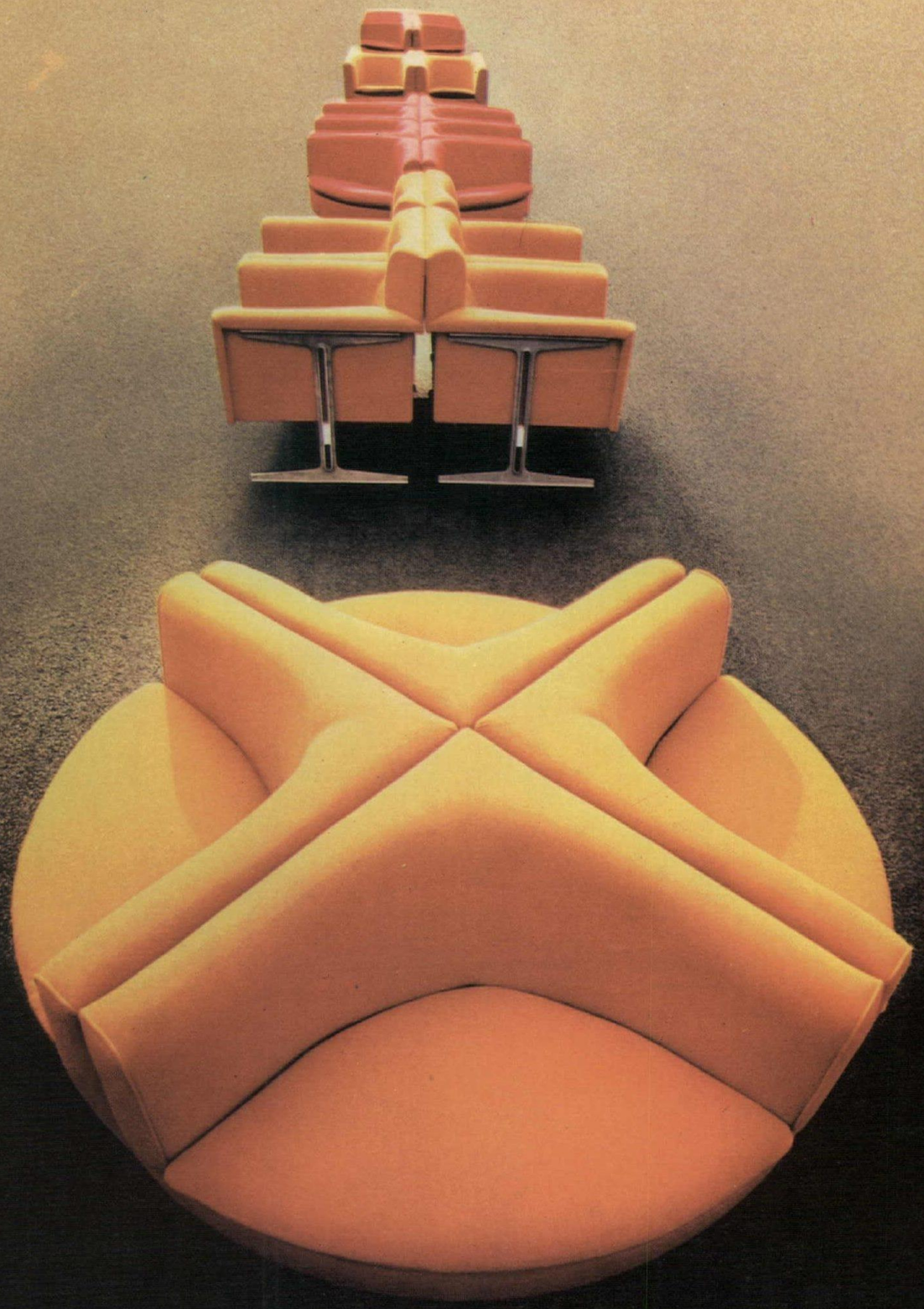

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tructural steel "system" uts cost of Boston area schools.

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Boston's Public Facilities Department has sponsored the development of a pre-designed, pre-engineered structural steel system that has been adopted for more than $180,000,000 of new school construction in the Boston area. Known as the BOSTCO system (see box), it establishes guidelines in advance for structural framing, snow loads, fire proofing, and many other structural details. Developers were the Engineers Design Group, Inc. of Cambridge.

The BOSTCO system has been successfully used by a number of schools in the Boston area. Two schools are illustrated here, one in the city and one in an outlying area.

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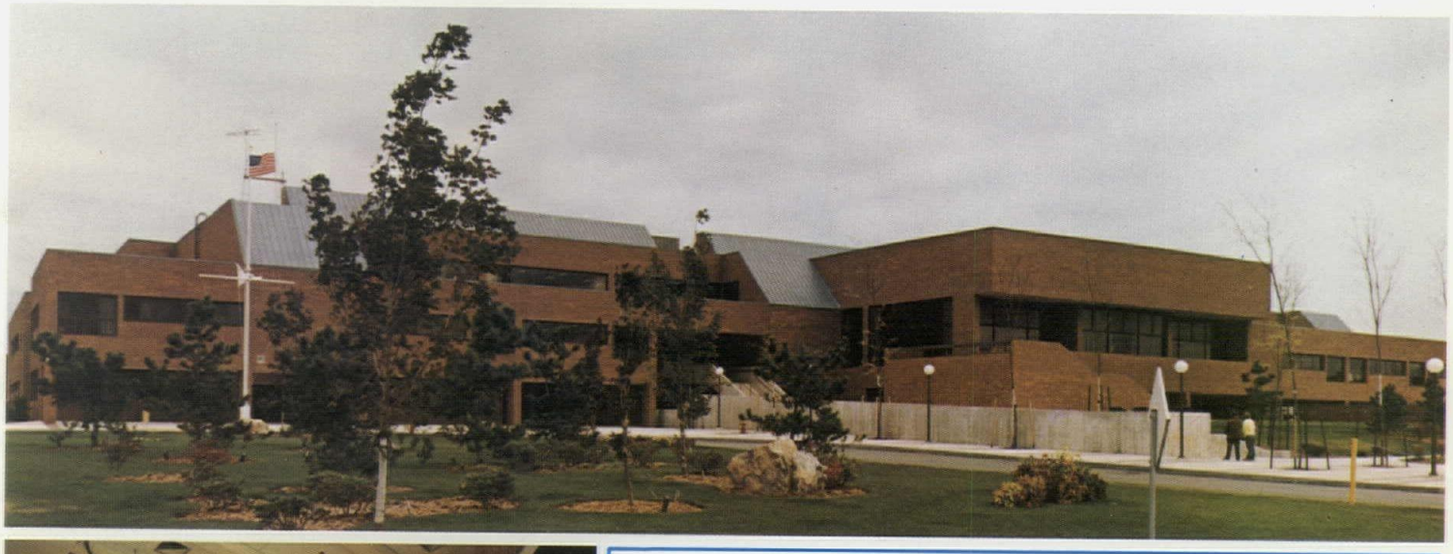
Andrew Jackson/Horace Mann Community Schools, Boston (Opposite Page)
Architects: Peirce, Pierce and Kramer/
Korslund, Lenormand & Quann, Inc., Boston, A Joint Venture
Engineer: Engineers Design Group, Inc., Cambridge
Steel Fabricator: Antonelli Iron Works, Quincy

Cape Regional Technical High School, Harwich (Below)
Architects: Drummey Rosane Anderson, Inc., Wellesley
Engineer: Engineers Design Group, Inc., Cambridge
Steel Fabricator: A. O. Wilson Structural Co., Cambridge



The BOSTCO System.

This structural system is based on a structural grid consisting of steel columns, one to six stories in height, and steel beams. The grid utilizes secondary members 10 ft on center to produce structural bays which may vary from a minimum size of 20 ft by 20 ft to a maximum of 30 ft by 50 ft. A 5¼-in. composite slab spans the beams. In order to provide a stiff floor system without paying an undue cost, the beams have been designed for composite action with the slab. Holes in the webs of all of the internal beams allow smaller piping and electrical distribution to be placed within the layer of the floor-ceiling envelope occupied by the structural system.

Long-span structures (clear spans exceeding 50 ft), such as gyms, pools, and auditoriums, are supported by beams and columns and long-span joists at 5 ft on centers. Bays are restricted in width to 20, 25 or 30 ft in the primary direction. The length of the bays is determined by the requirements of the individual projects; however, the bay length is a multiple of 5 ft.

Foundations, other below-grade work, and grade slabs are not strictly part of the system; however, their design must be accommodated to the constraints of the system. Stairs, stair towers, and other similar secondary structural elements are also non-system, but must also obey system constraint insofar as their design affects the system's work. The external appearance of the schools is not affected by the system, and can, therefore, widely vary.

Going On from page 12

possible conflicts among multiple national objectives, with the resultant inability to make careful trade-offs; insensitivity and lack of responsiveness of government as evidenced by over-detailed regulations, and the pervasiveness of red tape.

The following are some of the participants' recommendations to the government that would enable it to anticipate better and to address more clearly change and growth. "National policies must recognize the diversity of the nation's regions, states, cities, rural areas and tribal governments." For full employment, programs must be targeted to subnational areas which experience particularly acute unemployment, programs which would "reduce unemployment without creating excessive new inflationary pressures." And federal and state economic and community development funds should be targeted on distressed places, regardless of region, that are affected by rapid and disorderly economic growth.

As to the state and federal government relationship, the conference participants called for greater decentralization. "The federal government should move toward a system that would permit, whenever possible, greater local discretion and evaluation through performance standards rather than lengthy application procedures and rigid administrative guidelines. . . . The state government has the primary responsibility for rationalizing and reforming local government structure."

Further, the participants suggested a shift in balance between the federal, state and local governments. "The federal government should assume greater responsibility for financing welfare and medicaid, thereby removing an onerous fiscal burden from state and county governments (and some cities); in return, state governments should assume a greater portion of the cost of local public education, thereby removing an onerous fiscal burden from local governments." In addition, the states should assume greater responsibility for the fiscal conditions of their local governments through increased aid targeted to fiscally distressed local governments.

Will the recommendations have any impact? The conference was mandated by an act of Congress, which means that Congress will at least review the report. And President Carter promised at the conference's closing session: "Your work will not be in vain. There have been too many reports compiled by well-meaning and competent conferees and planners which have never been read or used. We are determined that the work that you have done this week will bear rich fruits." Under terms of the authorizing legislation (PL 94-487), the White House has 90 days in which to develop administrative and legislative proposals for submission to Congress. *continued on page 20*

SOME PEOPLE THINK OUR HYDROPHOBIC TREATMENT FOR CONCRETE IS NOTHING LESS THAN A MIRACLE.

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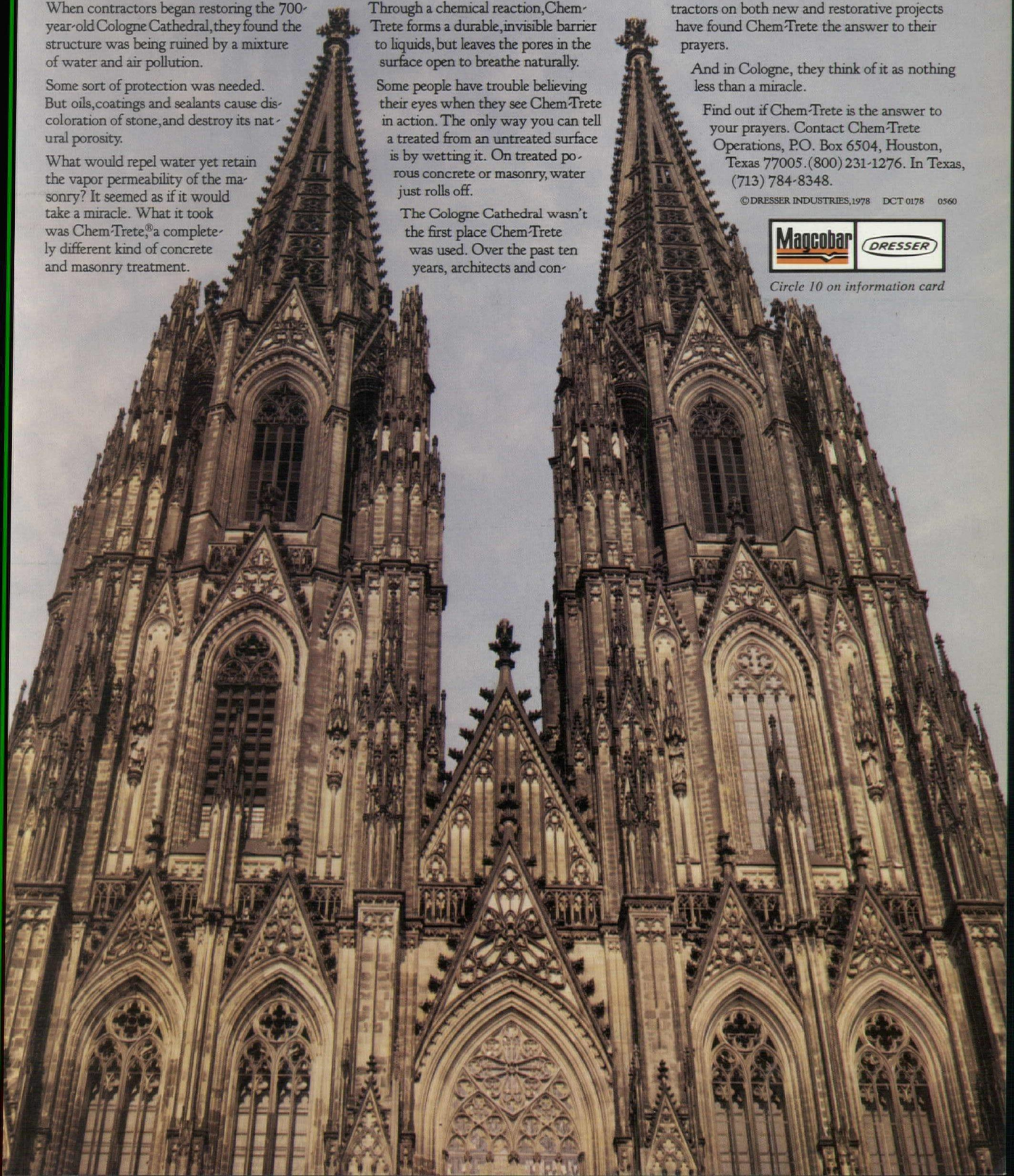

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Left: Westinghouse Research Center—Administration Building, Pittsburgh, Pa.
Architects: Skidmore, Owings and Merrill Chicago, Ill.

Right: Morgan Center—Butler, Pa.
Architects: Burt Hill Kosar Rittelmann Assoc. Butler, Pa.

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The report (two volumes plus six volumes of transcripts) is for sale by the Government Printing Office. Sales information may be obtained by writing the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Mixed-Use Willard Site Brings in Nine Proposals

Ten years ago, Washington's historic Willard Hotel was headed for the wrecker's ball. Once known as the "hotel of presidents," the Willard had long since lost its exclusive clientele, and its financial status had been shaky for several years when the 1968 riots finally dealt the death blow. Whether the 1901 building would be replaced by a huge federal plaza, as government planners hoped, or by an office building, as the hotel's owner intended, the Willard's days were numbered. A vocal minority protested the proposed demolition, but no one could figure out what else to do with the Willard.

Times have changed. Today, nine different developers are bidding to renovate the Beaux-Arts shell of what is suddenly one of the hottest properties in town. As the downtown area slowly revived, the Willard's Pennsylvania Avenue location became an asset rather than a liability. The National Square plan, a relic from the early '60s, fell from favor. What Pennsylvania Avenue needed, according to the new thinking, was activity and people. The Pennsylvania Avenue Development Commission called for a mixed-use project, with a deluxe hotel and related services, to be constructed with attention to demands of innovative design and the needs of historic preservation.

Designed by Henry Janeway Hardenburgh, the architect of New York City's Plaza Hotel, the Willard boasts an ornate facade topped by an elaborate mansard-roofed penthouse. On the corner, a rounded cupola creates a sort of observation tower looking across Pennsylvania Avenue. Since the construction of the monumental, neoclassical Federal Triangle office complex in the '20s and '30s, however, there has been little to look at. Too, the concentration of single-purpose government buildings has sacked much of the life from Pennsylvania Avenue and created a barrier: Shoppers keep to the F Street district to the north, federal employees stick close to their buildings on the avenue and tourists remain near the monuments to the south. There is little reason for anyone to cross Pennsylvania Avenue.

The area's problems are exacerbated by the empty site between the Willard and the Washington Hotel on the same block. "It's like a gap between two teeth," said Lance Bird, AIA, of Hellmuth, Obata & Kassabaum, architects for one of the nine firms vying for the project. "The area has no center, no focus." Although the land between the two hotels does not belong to the Pennsylvania Avenue Development Commission, the agency is empowered to condemn the lot and award it to the Willard's developers if the owners refuse to sell.

The proposals submitted would begin by restoring the hotel's deteriorating exterior facade. Most emphasize open space to invite pedestrians to enter the block and a selection of retail, cultural and dining facilities to engage them within. Hardy Holzman Pfeiffer's design would extend an abstraction of the original masonry volume across the stepped facades of the new construction. The changes in plane would create a park-like walkway that would wind through the property and provide pedestrian access from F Street to Pennsylvania Avenue. The area would be surrounded by a selection of boutiques. A 600-room hotel would be developed by Stuart S. Golding and operated by Fairmont Hotels.

Graham Gund Associates' Willard Place plan would also retain substantial amounts of open space on the street level. The design calls for the construction of two new buildings, both lower than the original Willard in order to pre-

continued on page 25

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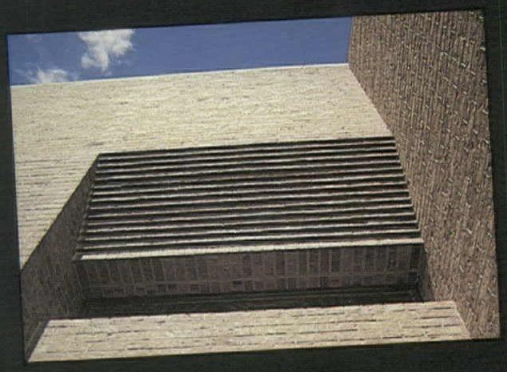

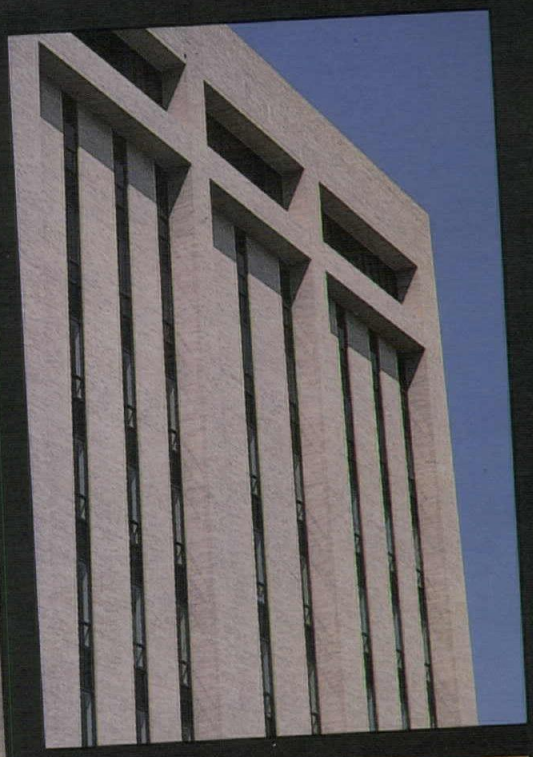

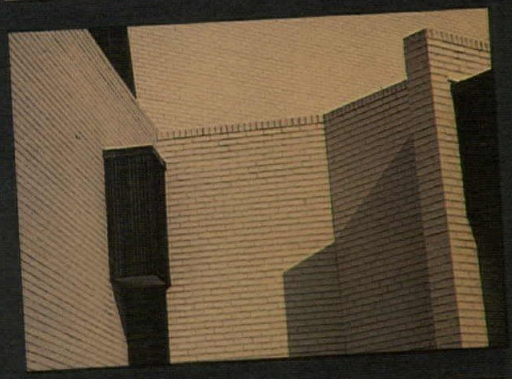

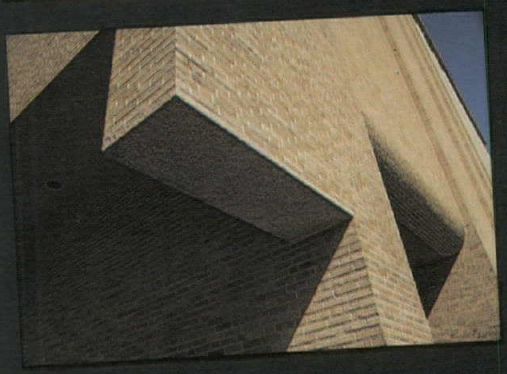

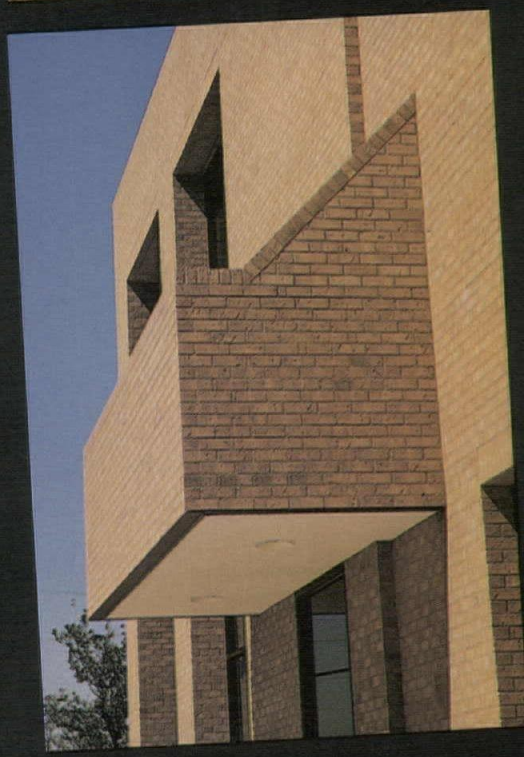

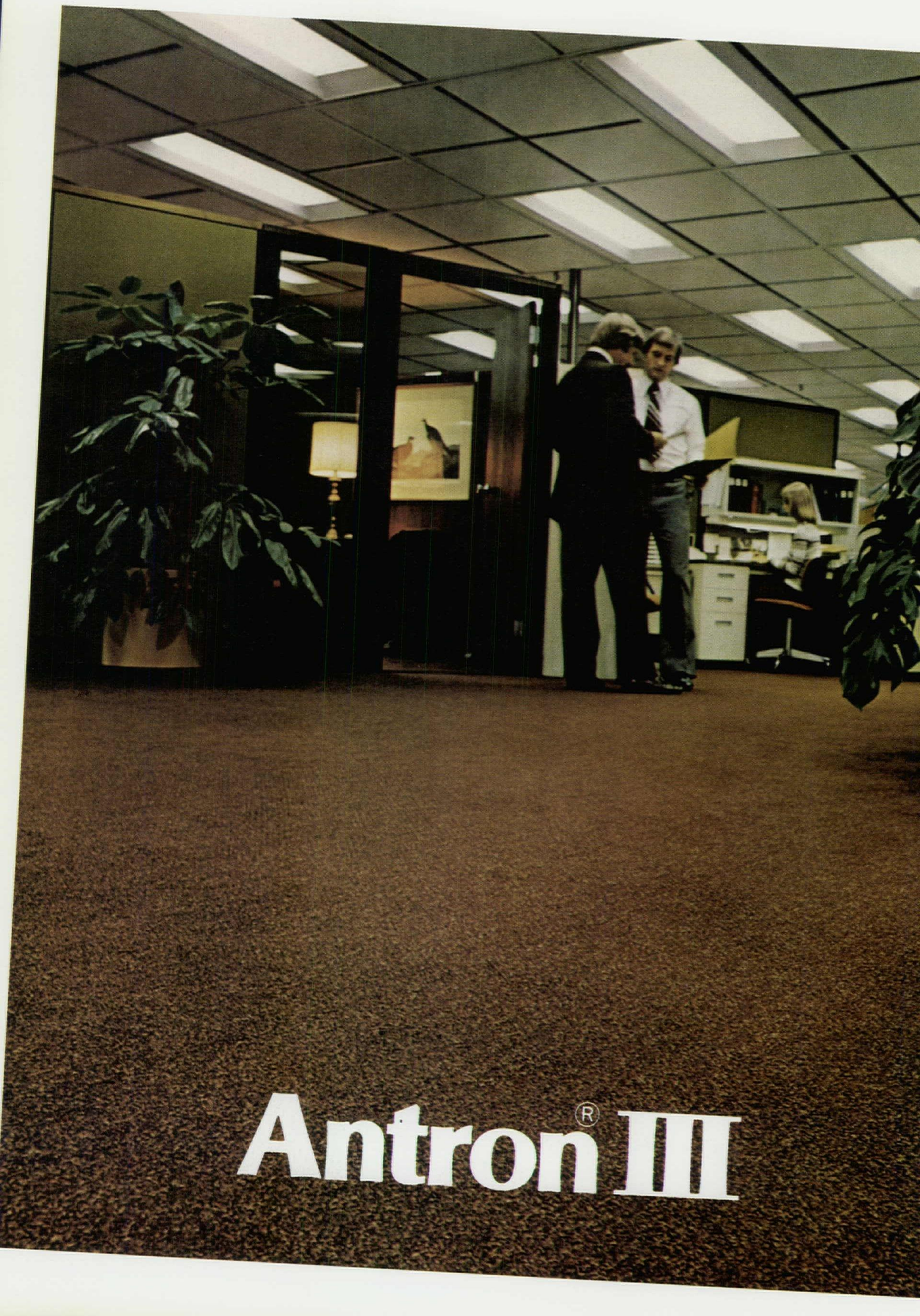
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"Antron" III hides soil. Antron* III hollow-filament nylon is designed to mask the presence of soil. You can see the remarkable hollow-filament structure of this fiber in this 250X electron micrograph. The four microscopic voids optically scatter light to hide soil. This configuration also creates the effect of blending soil concentrations into the overall carpet look. The smooth exterior shape minimizes soil entrapment to facilitate cleaning.

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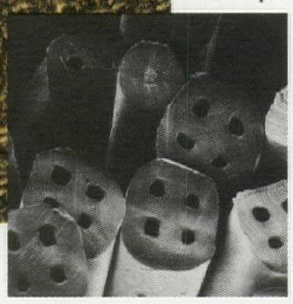

Magnification of 250X "Antron" III nylon showing hollow filaments and round, anti-static filament.

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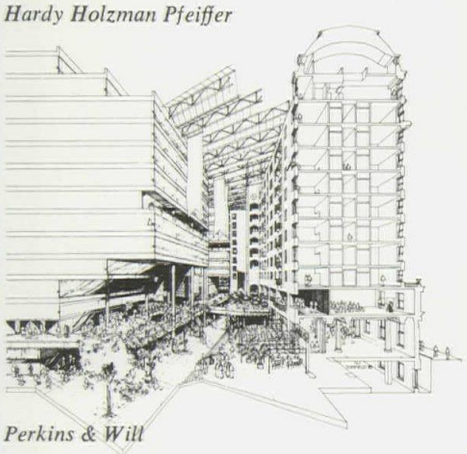
Going On from page 20

serve the dominance of the older building. The F Street side of the space would be angled to provide maximum court space for the hotel. Willard Place would include a 400-room hotel, a residential wing, office space and retail facilities. The project would be developed by Forest City Enterprises and operated by the Dunfrey Family Corporation.

The design by Arthur Cotton Moore & Associates goes beyond the standard dining and retail areas in the search to bring life to the avenue. Working with Hyatt Hotels, Moore would convert the Occidental Restaurant, on the same block as the Willard and almost as historic, into a major new performing arts center. The ambitious project would include office space and condominiums, as well as shops, restaurants and a health club.

Two of the proposals would add a contemporary office building on the lot west of the Willard and would create multistory interior courtyards within the block. Perkins & Will, architects for the Radisson Hotel Corporation and the Radnor Corporation, would include in their National Square plan a glass-covered atrium with a 15-foot waterfall, a circulating pond and a sculpture garden. Hellmuth Obata & Kassabaum's design for the Oliver T. Carr Co. is similar. The

Hardy Holzman Pfeiffer



Perkins & Will

Carr team can also offer the possibility of a passageway under F Street to the old Garfinckel's department store, which Carr is also renovating.

Also competing for the project are: Hartman-Cox Associates, with Boston Properties and Loews Hotels; Welton

Graham Gund Associates

Becket, with MAT Associates and Trust Houses Forte; Vlastimil Koubek, AIA, with the Holywell Corporation and Canadian Pacific, and 3-D International, with A. Cal Ross.

The Pennsylvania Avenue Development Commission will make its decision in early December. "When we decide on the Willard, we're looking at the street as a whole," said Rita Abraham of the commission. "Pennsylvania Avenue is a local street, important to the community, as well as the main street of a capital city. We're trying to work on both levels, to make it truly a national street."

Going On continued on page 28

Danbury Hospital solar collectors

When Danbury Hospital decided to top its existing four-story diagnostic and treatment center with an eight-story tower, they decided to top that with LOF SunPanel solar collectors.

"Hospitals everywhere are concerned about rising costs," reports Frank J. Kuszpa, Jr., the Connecticut hospital's assistant director of engineering. "The factors behind most escalating costs are beyond our control. So we're doubly certain to seek out the conditions we can control. Like lower-cost building systems. And energy conservation."

When the sun is shining, the hospital's 890 SunPanel collectors are designed to provide most of their space-reheating needs. And the system can simultaneously supply hot water for the hospital's huge laundry and domestic needs. On sunny days the solar system could save 163 gallons of oil, or 5,186 kilowatt hours of electricity. For a predicted annual savings of about $35,000. And the system gives the hospital the flexibility to reduce its oil or electricity requirements as costs or shortages dictate.

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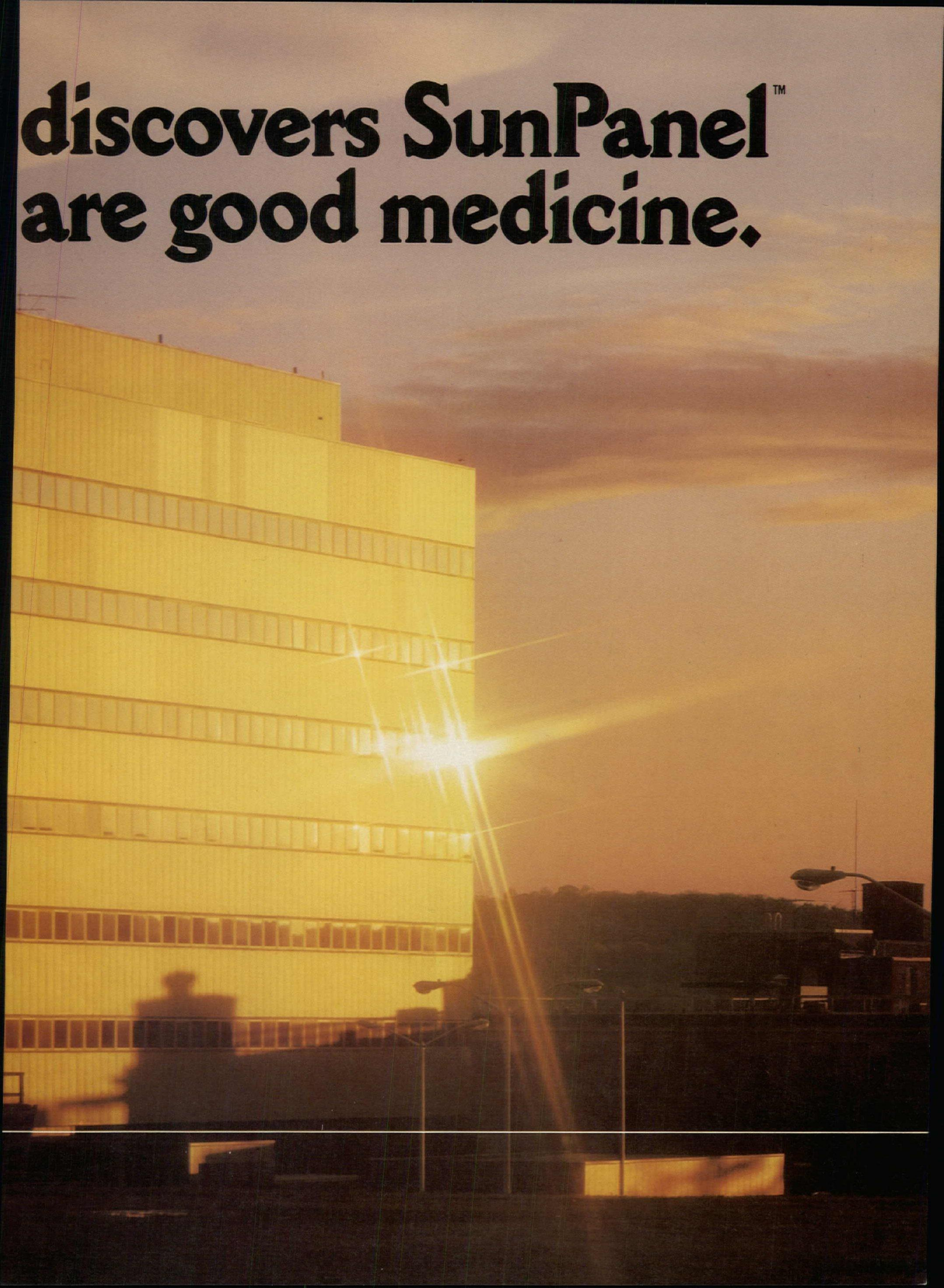
discovers SunPanel™
are good medicine.

Going On from page 25

AIA Membership Climbs To Record-Level 30,000

AIA's membership recently surpassed 30,000 for the first time in its 121-year history. As of August 31, there were approximately 30,600 members, an increase of nearly 15 percent since December 1977. There are approximately 60,000 registered architects in the U.S.

David Olan Meeker Jr., FAIA, executive vice president, attributed the record enrollment to the Institute's success in providing services requested by the members. "Never before has AIA offered its members as many services as it does today," Meeker said. "These include professional growth workshops, continuing education, communications and information exchange, a comprehensive energy office, design competition/awards programs, a government information clearinghouse and many others."

The increase comes primarily from small firms with 10 or fewer architects. Eighty percent of the membership falls in this category.

"It is my sincere belief that the new figures reflect an increased commitment by AIA members to provide public services beyond laws governing architects that stipulate only minimum protection of health, welfare and safety," Meeker said. "As members of the Institute, they are committed to a code of ethics and conduct unparalleled in professional services."

Federal Energy Use Down, According to DOE Report

The U.S. government has reduced its energy use by 3.7 percent over the last two years, according to the first annual report on "Energy Management in the Federal Government," submitted to President Carter by the Department of Energy. DOE says that this represents an energy savings equivalent to more than 27 million barrels of oil and a cost savings of more than $400 million from 1975 through 1977. National energy consumption in the same period increased by 7.3 percent.

The federal government is the largest energy consumer in the nation, using 2.2 percent of all energy consumed in 1977. The goals of the federal program, established by executive order in July 1977, are to reduce energy usage by 1985 by 20 percent in existing federal buildings and by 45 percent in new structures.

According to the DOE report, the four top federal energy users are the Department of Defense which accounts for about 80 percent of federal energy usage in its operation of air, water and ground vehicles and in the maintenance of facilities for the military force; DOE which uses about 5.2 percent for its various research programs aimed at new energy technologies and supplies and in the operation of facilities; the Postal Service, which expends 3.6 percent for the operation of vehicles and buildings nationwide, and GSA which accounts for 2.6 percent of the total government energy used, almost all of it in federally owned and leased buildings.

The report may be obtained for $1.80 from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Refer to the document by title and stock number (061-000-00149-2) and DOE publication number (DOE/S-0005).

Water Tower Place Credits

In the article "Shopping Centers: Moving Inward and Upward" in the July issue (p. 42), we regret that we did not give complete architectural credits for the Water Tower Place in Chicago. Architects were

continued on page 32

Concept: The Shop/Park. Open space within the urban community.

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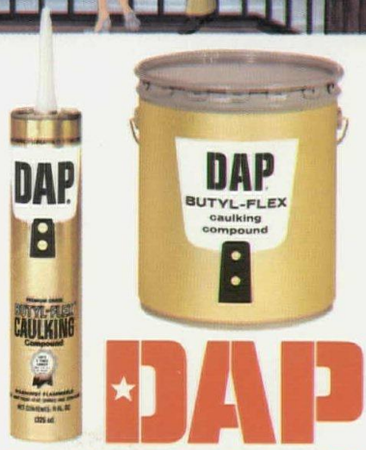

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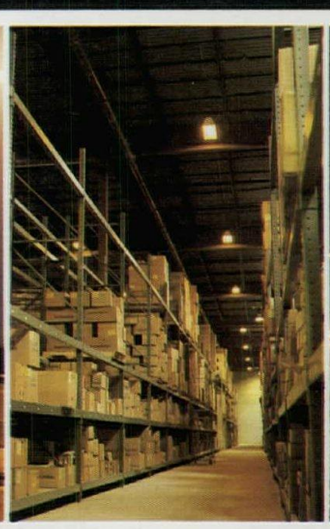

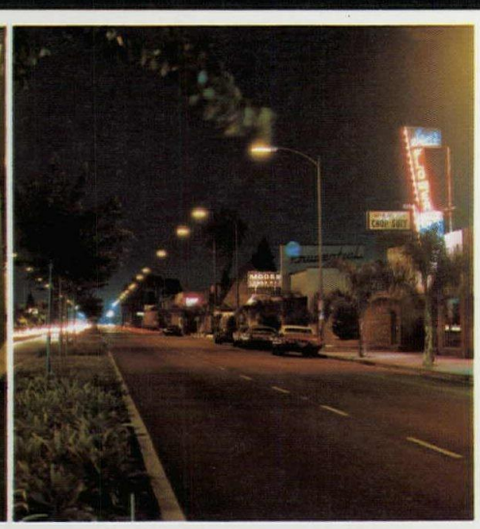

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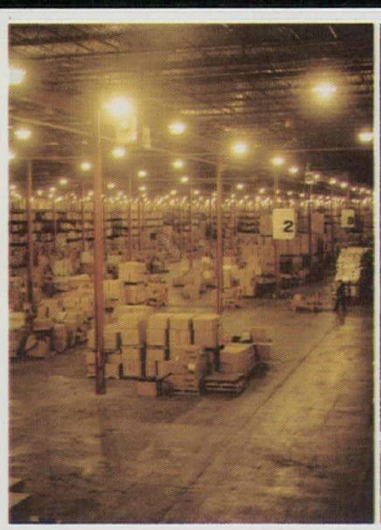

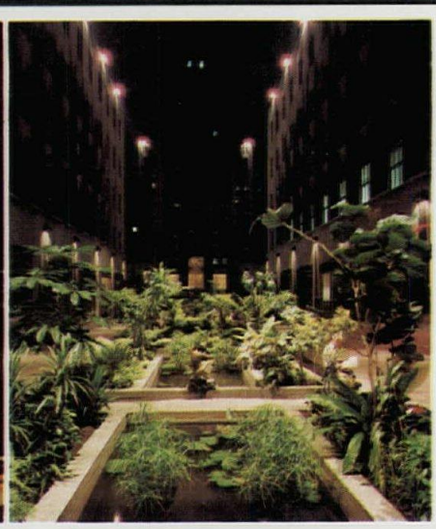

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Going On from page 28
Loebl, Schlossman & Hackl and C. F. Murphy Associates, both of Chicago. Consulting architects were Warren Platner Associates, New Haven.

Lowering Use of Energy In Historic Buildings

Operable windows to provide natural ventilation and light are the most pervasive energy-saving characteristics of historic buildings, says Baird M. Smith, AIA, in "Preservation Briefs, No. 3," issued by the Office of Archeology and Historic Preservation/Heritage Conservation and Recreation Service's technical preservation services division. Entitled "Conserving Energy in Historic Buildings," the brief describes some inexpensive and sensible ways to achieve maximum energy savings without jeopardizing the structure's architectural or historic qualities.

Besides operable windows, historic buildings also often have other energy-saving features, including interior light/ventilation courts, roof-top ventilators, clerestories or skylights. In warmer climes, heat gain is minimized by such design aspects as balconies, porches, wide roof overhangs and awnings. Also, as Smith points out, many such buildings were designed with the living spaces on the second floor "to catch the breezes and escape the radiant heat of the earth's surfaces."

In colder climes, heat loss was minimized by heavy masonry walls, a minimum number of windows and the use of dark colors on exterior walls.

Smith says there are two ways today to reduce heating and cooling expenditures of historic buildings. The first way is to make use of passive measures; the second is to accomplish appropriate preservation retrofitting "with the least intrusion or impact on the character of the building."

The primary passive measure is to control how and when a building is used. If the building owner knows the sums spent over a year on electricity, gas and fuel oil and surveys how and when each room is used, he can initiate such passive operational controls as adjusting the temperature in rooms actually used; reducing the level of illumination; using operable windows, shutters, awnings and vents as originally intended to make the interior more comfortable; having mechanical equipment serviced regularly, and cleaning radiators and forced air registers for maximum efficiency. Smith estimates that such control can save as much as 30 percent of energy consumed.

Retrofitting may produce an additional 20 to 30 percent in savings. Smith says that retrofitting must be well considered to avoid harming a historic structure and that care must be taken that the costs of retrofitting do not outweigh the anticipated energy savings. He discusses the pros and cons of 14 retrofitting measures: air infiltration, attic insulation, storm windows, basement and crawl space insulation, duct and pipe insulation, awnings and shading devices, doors and storm windows, vestibules, replacement windows, wall insulation of a wood frame, wall insulation of a masonry cavity, wall insulation installed on the outside and waterproof coatings of masonry. Some measures, he warns, may cause irreparable damage.

Smith has words of caution for each retrofitting method. For example:

- Weatherstripping of doors and windows and caulking of open cracks and joints will reduce air infiltration, but take care that infiltration is not reduced to the point where the building is completely sealed and moisture migration is prevented.
- Interior storm windows can be thermally effective, but there is "high potential for damage to the historic window and sill from condensation."
- Insulation of the basement or crawl space should have high priority in retrofitting, but be sure adequate provision is made to ventilate unheated space, perhaps even installing an exhaust fan.

continued on page 36

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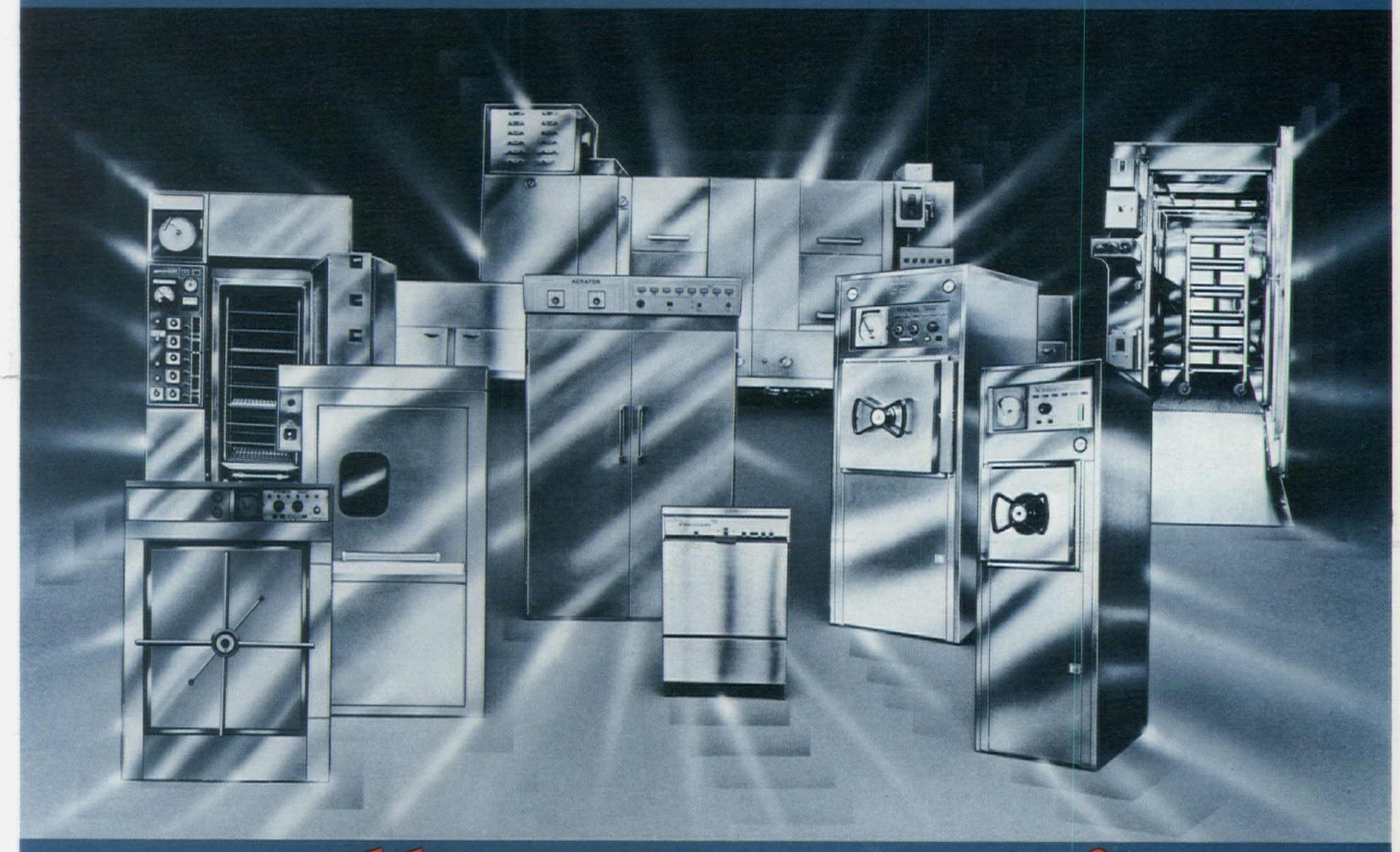

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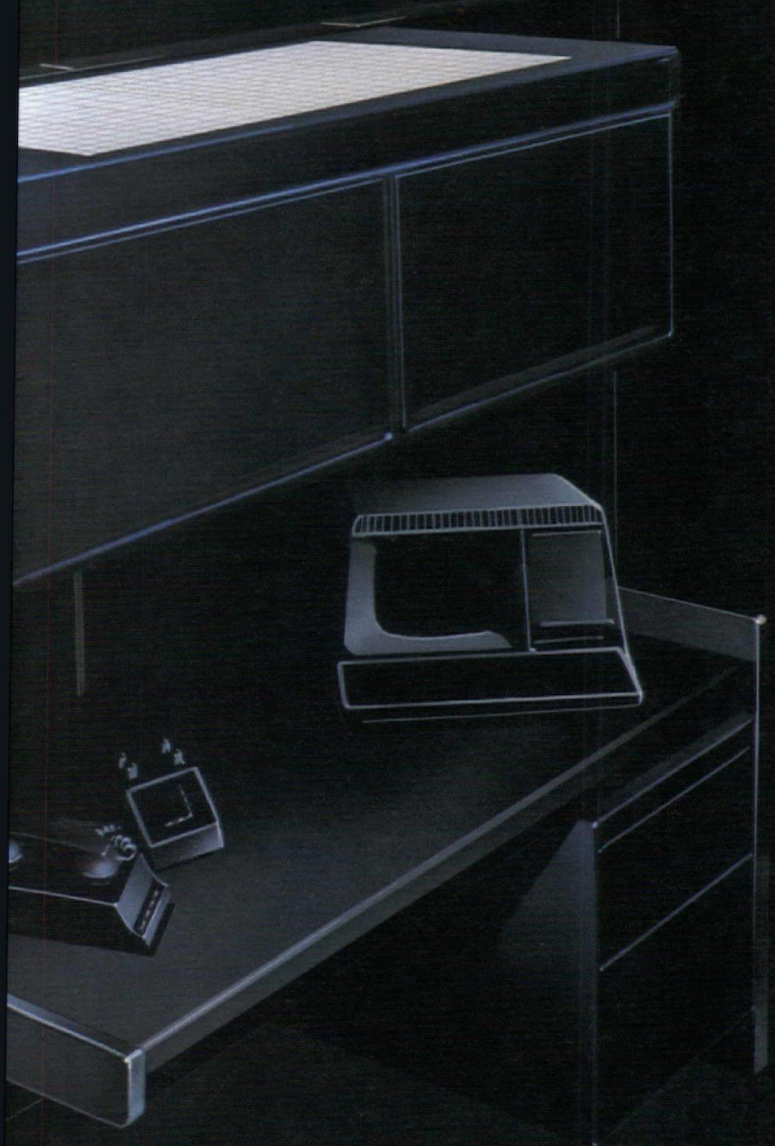

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Going On from page 32

- If awnings are installed, be sure they do not damage the structure or impair its architectural character.
- If trees are planted, they should be no closer than 10 feet to the building to avoid damage to the foundations.
- It is not good practice to introduce insulation into masonry cavity wall construction. Condensation problems will probably result.
- Despite the fact that some owners of historic buildings use waterproof coatings on masonry to improve the thermal performance of the wall by keeping it dry, this method is not recommended "because the coatings actually trap moisture within the masonry, and can cause spalling and severe deterioration during a freezing cycle." Paint, however, is an "excellent preservation treatment for brick."

Typical of a minimum use of windows in a colder clime is the residence of Abraham Hoxie, Sandwich, Mass., built about 1637.

In warmer climes, living spaces were often on the second floor 'to catch the breezes,' as shown in Mme. John's Legacy, an early house in New Orleans.

Copies (single or in bulk) of this brief, as well as others in the series, may be obtained free by writing Lee H. Nelson, AIA, Technical Preservation Services Division, Heritage Conservation and Recreation Service, Washington, D.C. 20240.

HUD Gives $60.6 Million For Small-City Projects

The first awards designed to meet the specific needs of smaller cities—mostly under 50,000 in population—have been made by HUD under the urban development action grants program. The program embraces joint public/private development projects. The first grants to 65 projects in 61 cities in 23 states amount to $60.6 million. The public grants are supported by more than $581 million in private commitments.

HUD estimates that the projects will open up more than 18,000 new permanent jobs, will save 2,220 existing jobs and will create about 9,500 construction jobs. Robert C. Embry Jr., assistant secretary for community planning and development, says the action grant program is "probably the most efficient in its use of tax dollars of any program today in government, and at least equals any other in its long-range impact."

The grants program, signed into law in October 1977, requires strong private sector participation and an area must be considered "distressed." The small cities segment currently provides $100 million per year in grant funds and $300 million is

continued on page 102

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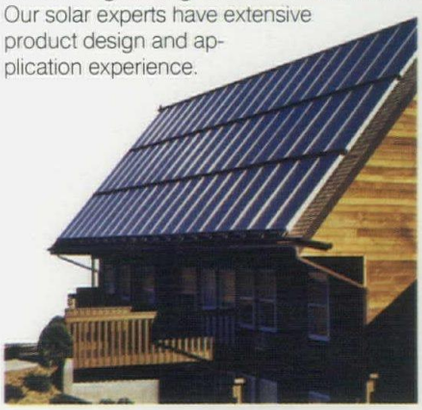

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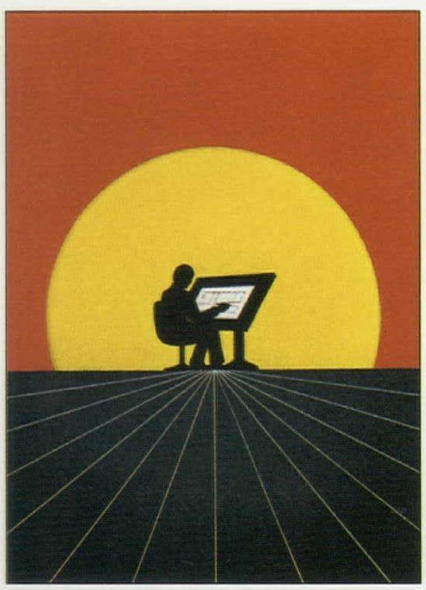

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The heart of a masonry construction firm is a group of able, experienced craftsmen—like the men of Knuth Masonry, Inc., Milwaukee. Allen Knuth, president, (front left) and his general superintendent, Clarence Burkart (left rear) were apprentice bricklayers together. Men like Robert Neumer, Roger Spahn and Rudy Rudzinski (center to right) have worked with him nearly as long.

To this intim..e knowledge of masonry Knuth adds managerial skills. Most mason contractors were bricklayers first, mastering their craft before acquiring their business skills.

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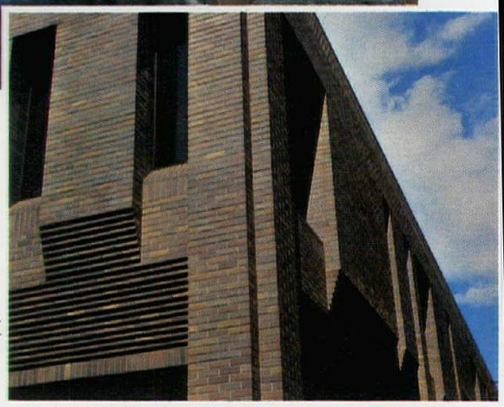

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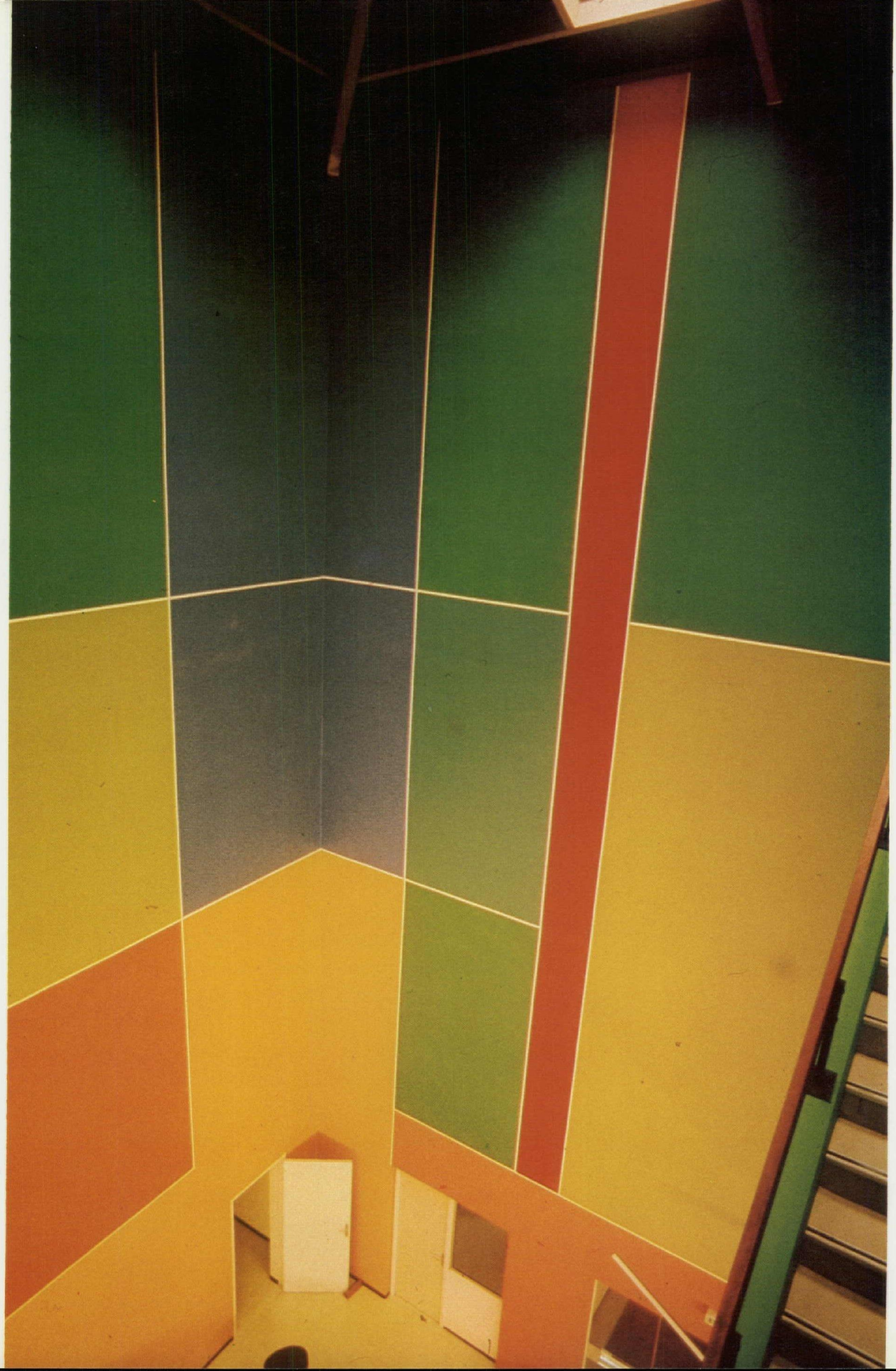
AIA JOURNAL

Color in Architecture

There is a strong prejudice that colored architecture is somehow fine for children, the lower classes or constituents of primitive cultures but monochrome or at least restraint is suggested for those of us with intellectual or social pretentions. The interdiction is centuries old, at times involving bright color; at other times, any color at all. It is a prejudice rooted in the puritan reformations of northern Europe, transplanted in, if anything, intensified form to America, and reinforced by the more Calvinist aspects of certain modern architectural theory.

Along with the reconsideration of other aspects of that theory recently (as well as a less severe attitude toward children, the "masses" and other primitives), colored architecture has gained if not respectability, then at least prevalence. More and more architects are investigating its possibilities both on the interior and exterior of buildings.

We have put together some examples from both sides of the Atlantic, along with a brief historical perspective and some introspective comments by a few architects on their own work. Color consultant Anna Bliss addresses the myths and misconceptions which she finds rampant in the literature of color. Architect Mary Oehrlein discusses the techniques of color restoration for historic buildings. And lastly, we include some eye-opening pictures by Morley Baer of those "outrageous" Victorians. For one thing is clear: Color has become as integral to the vocabulary of many architects now as it was in the Victorians' heyday. *Nory Miller*



The Re-emergence of Color as a Design Tool

The mostly pale postwar decades give way to the exuberant explorations of the '70s. N. M.

"A fundamental truth: man needs color. Color is the immediate, spontaneous expression of life . . . it takes possession of the entire wall and gives it the power of blood, or the freshness of the prairie, or the brilliance of the sun. . . ." *Le Corbusier, 1937*

Sigfried Giedion scarcely mentions color, even in reference to Corbu. The critical silence is matched by decades of black and white illustrations in magazines and books that have done nearly as much to whiten our images of architecture as have the wind and rain. Color has been ignored, even maligned, but it has only rarely been missing.

Today, many architects here and abroad are showing a renewed fascination with it. All aspects of color seem fresh and promising if only because 15 years ago the subject, in all probability, would not have been raised. Certain generations seem to have to rediscover color. But perhaps never again with the unsullied passion engendered when the early archeologists released the unimaginable truth about the great antiquities. Architects and theorists alike turned to the suddenly pressing question: What should be the role of color in architecture?

Johann Winkelmann found Pompei and Herculaneum almost intact beneath the dried lava in the 18th century, and changed the picture of Roman architecture forever. Others were beginning to publish their discoveries that Greek statues and temples had flecks of paint on them. When C. J. Hittorff went even further by including color lithograph reconstructions in 1829, it not only touched off a whole new attitude toward current architecture but fueled, as well, a whole new research into the past and into non-Western cultures. While many blathered in protest, more and more brilliant images were turned up.

The current fascination with color was ushered in about 10 years ago with supergraphics and high-tech design. Left: Foyer Pour des Jeunes Travailleurs, Le Vaudreuil, France (H. Beauclair, architect; Jean-Philippe Lenclos, color consultant). Above: a swim/bowl center in Vienna by Austrian Roland Rainer.

The pristine, luminous Greek temples had originally been painted in greens, blues, reds and yellows, each element a vivid and contrasting hue. Gothic cathedrals like Notre Dame, hardly the awesome gray stone sanctuary that remains, had been covered inside and out in brilliant colors and patterns. Owen Jones publicized the dazzling Byzantine and Moorish mosaics. Egyptian coloration, Persian, Venetian, Chinese and Turkish were explored. Even the recent past, the delicate pastels of the French baroque and rococco, were re-examined.

Any and all of this was revived. William Butterfield's All Saints' Church for the Ecclesiastical Society, which had become evangelical on the subject of architectural color, was Pisan or Venetian revival. Using the color of natural stone or glazed brickwork to make patterns, it was hailed as the first permanent or constructional polychrome building. Polychromy became the principal hallmark of the High Victorian Gothic architecture of the mid-19th century. Not consistently favored—Butterfield's Balliol College at Oxford was described as being in the "streaky bacon style"—it had already begun to ebb by the 1860s.

In France, Henri Labrouste, among others, was putting his interest in history and color to use on the interiors of his famous libraries. In America—whether in imitation of European styles, an uprising of popular taste, a tool to show off the fancywork of the new jigsaw machine, or all three—highly painted Victorian wood and brick houses were showing up where white-painted and green-shuttered Georgians stood before. At first, as Andrew Jackson Downing prescribed, houses were painted neutral fawns and beiges with perhaps darker trim. But soon pastels were acceptable, and then bright, lively shades and finally even rich, dark colors and more and more decorative treatments.

Permanent polychromy was short-lived but interest in color was not. The Crystal Palace was painted every which way to

The Corbusian palette and monochrome modernists.

show off its structural members. Turn of the century Art Nouveau architects worked sparkling color effects into rooms and hallways while more isolated artists like Antonio Gaudi and Louis Sullivan let color ride, as mosaic and glazed terra cotta, respectively, on the facades as well.

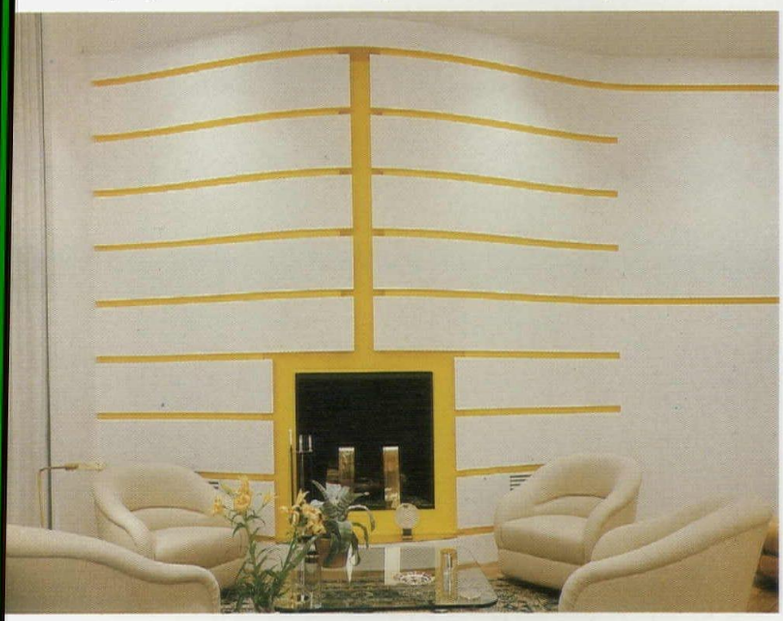
The so-called modern period produced one of the deftist colorists of all, of course, Le Corbusier, whose alter ego, the painter, led him to explore color's many perceptual effects. At the chapel of La Tourette, recessed rims of red, yellow and blue tint inpouring light from the skylights as if it were shining through stained glass. At the Marseilles block, the colors of balcony side walls play a rhythm in syncopation with the massing of the wall itself. Inside Villa Savoye, Le Corbusier chooses the palest of pastels to heighten the sweep of curved surfaces by holding shadows where bright colors would thrust them off. The curves are further accentuated by having their silhouettes drawn in one tone against another at the corners.

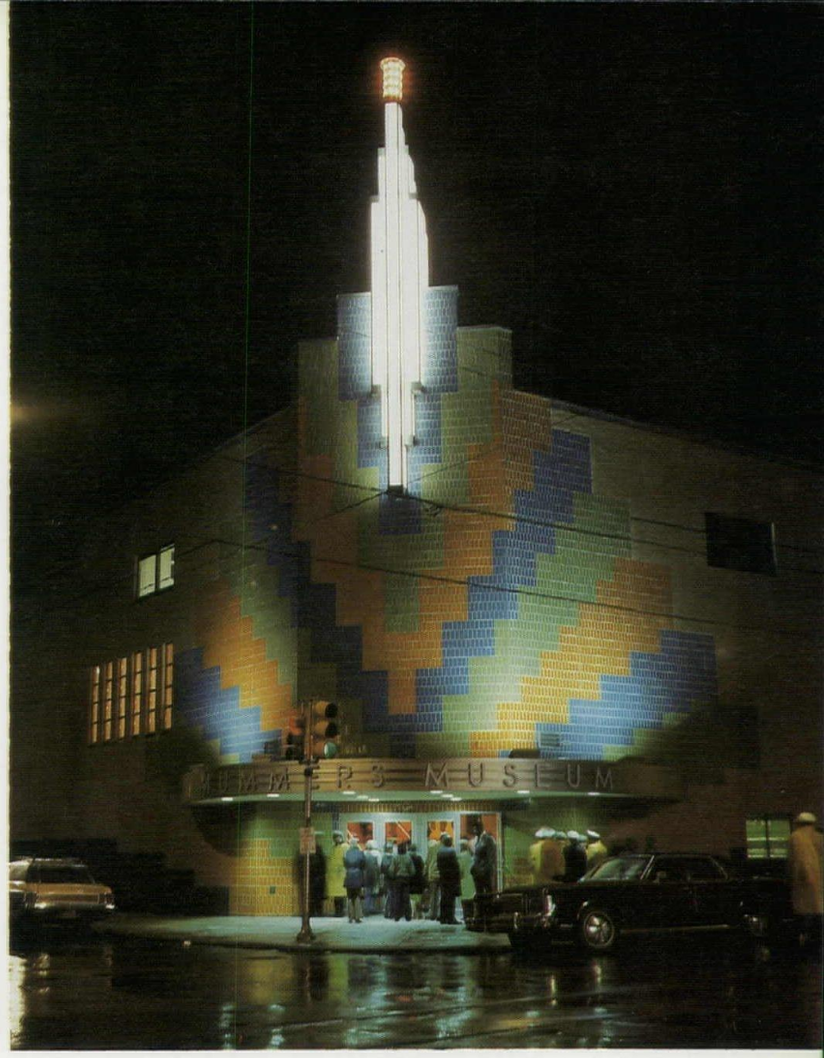
Corbu could transform boundary to object or object to subject with a touch of hue as emphasis. He could "dynamite" unsatisfying spaces with flat planes of bright color—approaching in warm tones, fleeing in cold ones—putting, as he said, "the architectural house back in order." And, at Pessac, he used earthtones to allow recognition and individual scale within the mass of workers' housing.

The Dutchman Gerrit Rietveld not only worked in color but proclaimed it. He was a missionary for the use of color in architecture, but he himself restricted its use to establishing planes in space. Yet another missionary, Paul Scheerbart, and his disciple Bruno Taut, exhorted: "Colored glass destroys hatred."

Yet there were a number of characteristics of the modern

The assertive yellow of Playa del Rey duplex (across page) by Eric Owen Moss and James Stafford of Los Angeles is explicitly contemptuous of its developer-built surroundings. Increasingly bright shades locate the door. Painted triangles indicate diagonal tension in the shear panels. Curved, rectilinear and oblique geometries are emphasized by color as are the building's allusions to nearby sailboats. Robert Stern uses color and pattern to recall historic styles and achieve their niceties of scale, invention, delineation (below, Park Avenue town house). Right: Ueland and Junker's Mummers Museum in Philadelphia, in keeping with the Mummers' famous New Year's parades.





period that mitigated against the use of color. Adolf Loos made it a moral issue by suggesting that decoration, and this included color, was all very well for cannibals but civilized man was scarcely in need of such palliatives. Frank Lloyd Wright—though he happily made patterns of stucco and dark wood, used as his signature a simple square of "Cherokee red" and turned boisterously to color in the deco/pop fantasies of his later years—inveighed so heavily on the side of "honesty" that generations turned away from the "cosmetic" of paint in righteous asceticism. (Even in the 19th century, of course, the question of the integrity of material in the face of decorative onslaught had been a thorny problem. Pugin essentially let the matter rest as long as no illusionary effects were sought while Ruskin was emphatic that as no one was "fooled" by surface embellishments, there was little to rant about.)

The identification of architecture with engineering and programming—that is, structural expression and "functionalism"—made color seem irrelevant. Color, when used at all, was frequently justified as a spatial coding device. And the replacement, in the schools, of drawings with models and history with nothing encouraged *disegno* at the unlamented expense of *colore* as well as the conception of buildings as monumental sculptures. These developments have led to unwitting ironies such as Werner Hofmann and Udo Kultermann's 528-page *Modern Architecture in Color* in which the photographs are in color but the buildings are in black and white.

There are exceptions. Aalto would not touch paint but he made a whole building of blue tile. Peter Behrens, once a painter, did a factory interior of richly colored brickwork. There is Haring's Gut Garkau farm and Van Doesburg's l'Aubette cinema and the early experimentation with neon gas tubes, among other things. But there are also many, many white houses and dark bronze curtainwalls.

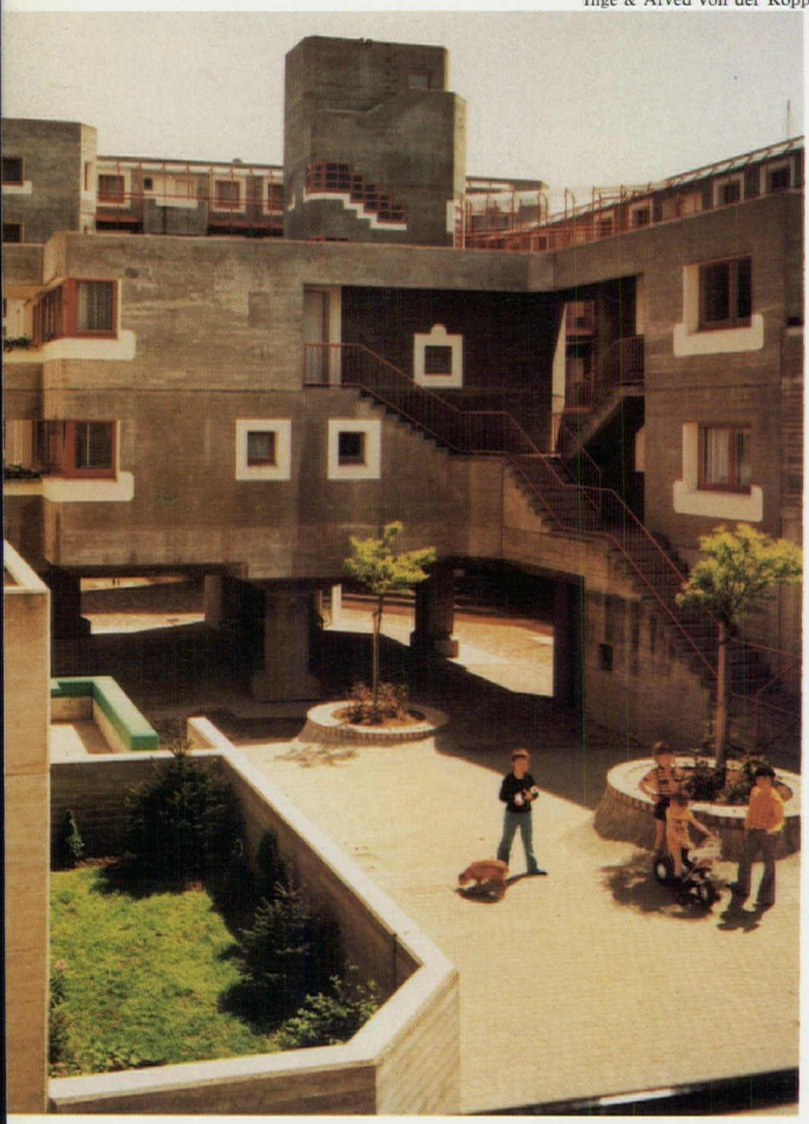
Much of the modern movement was known in the U.S. through magazines but Hitler, of course, was to bring it even closer. By the late '30s, quite a few of the leaders had become esconced in American universities and American practice. The America they found was a combination of Beaux-Arts, some early International Style experiments and Art Deco/Moderne. Color was no stranger to any of these. The Chicago World's Fair of 1933 even hired a color consultant, architect Andrew Rebori. But in the next decades, two things happened. One was a technological/merchandising "breakthrough" making color a focus for businessmen and designers alike. And the other was the slowly growing influence of the European masters.

The 1950s experienced a kind of color explosion in the marketplace. All kinds of paints and other finishes became available and suddenly there were two-toned automobiles, pink refrigerators, "decorator-designed" aqua air fresheners and orange-roofed Howard Johnsonses. Builders' homes were turned out in various shades of pastels, apple green, warm beige, sunshine yellow, up and down the street. And inside, both color and patterned wallpaper. Color, it had been discovered, helped sell things. Architect designed buildings were part of this. Not only the turquoise-glazed brick and tinted glass spandrels of a branch bank in Manhattan, but Eero Saarinen's General Motors technical center in Detroit, with its accent brick walls of bright primaries or his IBM factory in Rochester, Minn., surfaced in several shades of seagreen aluminum panels. Interiors were also furnished in kind, with mustard carpets or turquoise upholstery or salmon-color, kidney-shaped tables.

It took the 1960s to eliminate color, as a matter of course, from interior design. From the tertiary hues of the '50s, we grew accustomed to a palette that spanned antique white to charcoal gray. In addition to predictable changes in fashion, the revolution in postwar architectural schools from Beaux-Arts to Bauhaus had finally taken effect.

America did not inherit the modern movement in toto; it inherited certain German and Austrian refugees. Le Corbusier, Rietveld and Taut had stayed in Europe. Through the accidents of history, it was the monochromes—Gropius, Mies, Breuer, Schindler, Neutra—who came here. And over the next decades not only did the sweet hues of '50s popular taste go out of fashion, all color for "high class" architecture did. Color became

Inge & Arved von der Ropp



Currently, everything is being tried at once.

associated with shlock—spurned as much for its association with successful merchandising as by its academic disfavor. By the mid-60s, this had trickled down to the furthest reaches of architectural practice and even to builders' homes, whose interiors were now quite white, with wallpaper restricted to, at most, the powder room.

Such uniformity of assumption begged to be overturned, and predictably there were a number of rebellions. Card-carrying modernist José Luis Sert, FAIA, preached the healing properties of Mediterranean architecture, by which he meant balconies, inflected wall and bits of bright color (harking back here more to Corbu's Marseilles block). Sert not only preached, he built—married student housing at Harvard, the law school at Boston University. Another blow was dealt by the late '60s supergraphics movement. The big, bold patterns were imposed as an argument from accessibility and responsiveness—the very opposite of Loos' "I am preaching to the aristocrat."

By the 1970s, the eyes cast variously to folk traditions, architectural history (especially the 19th century), early Le Corbusier and middle-class "shlock" made the rediscovery of color as inevitable as the underlying motivation for all of this—a search for an expanded visual and emotional vocabulary—made it imperative. Typically, color now has its evangelists. Oscar Newman is as adamant about vivid hue since his experiences with Clason Point housing (where he offered color choices to the low-income residents) as he is about defensible space. And British believer Tom Porter has turned up scientists and studies that suggest that not only do people like color but they need it to properly exercise their neural systems.

Meanwhile, architects here and abroad have taken an across-the-board interest in the design possibilities of this reclaimed tool. Most of what color can and ever has done is being explored by someone somewhere. Applied color is being used to adjust the color values of lighting and it is being used to foster joy and excitement. Opportunities for integrating the artistic efforts of painters and architects are being rethought.

Some are using color to give a heightened legibility to details, either as information, or more frequently today, ornament. The examples are as different visually as Piano & Rogers' high-tech airducts at Place Beaubourg in Paris; Robert Stern's banded Westchester County house (where color change substitutes for three-dimensional form); or Viertel, Gages, Thiessen's purple window frames at Markisches Viertel, Berlin. Others are using color in much the same way to give heightened impact to the whole. A tall red metal bank by the Spaniard Ramon Vazquez Molezun rising suddenly amidst the stone of Madrid is as arresting a sight as one can imagine. British architects Foster Associates, who work exclusively in "new" materials and industrial imagery, describe their intentions as follows: "If our response to the site is to make a more imposing statement, we tend to use vivid color externally . . . the building looks as if it recently landed. . . . If we want to design nondominant buildings, we tend to use glass as the main material."

On the other hand, some use color to blend into the landscape. I. M. Pei, FAIA, had the concrete of his labs at Boulder, Colo., color-matched to the native mountain rocks. Italians Portoghesi and Gigliotti (page 54) and the French Aillaud (page 47) weave the colors of sky, earth and trees for patterned facades "in harmony with their surroundings." Peter Bohlin (page 56) actually uses the word camouflage for his work but, unlike the Europeans, adheres to overall color, not pattern.

Color as pattern can have the effect of denying and even fragmenting mass and volume. And it is being used to just this purpose by architects who are concerned over the anonymity of large housing projects, such as Jean-Claude Bernard and Wladimir Mitrofanoff at Creteuil new town (color consultant Jean-Phillippe Lenclos), Carlo Santi at his Casala apartments in

Isolde Luckert

Gottfried Bohm's elegant auditorium (above) at Bocholt, Germany, and apartment house in Cologne-Chorweiler (opposite page, bottom). Use of strong, contrasting colors for window trim has become quite common in German design. Opposite page, top: MLTW:Moore-Turnbull's Kresge College, University of California at Santa Cruz, colors by Mark Treib.

Bologna, or Esherick, Homsey, Dodge & Davis at Banneker Homes in San Francisco, among others.

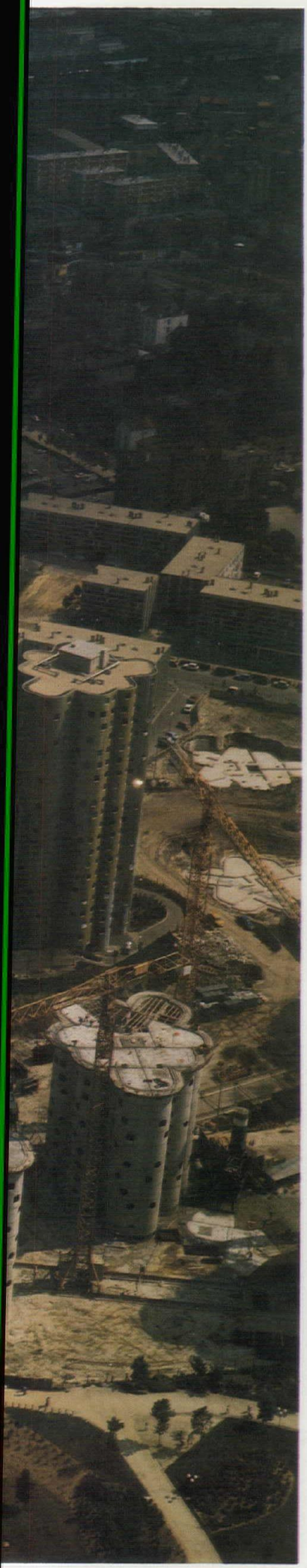
The repossession of history has led to revivals of both Victorian and romantic classical color. Yet, though it is employed frequently for much the same reasons, the transition from then to now has generally led to transformations where designs are exaggerated, such as Charles Moore's Burns house in Santa Monica, Calif., with its 17 different colors on the exterior, or out of context, as in Thomas Beeby's "neo-classical" suburban spec office building (cover and page 53).

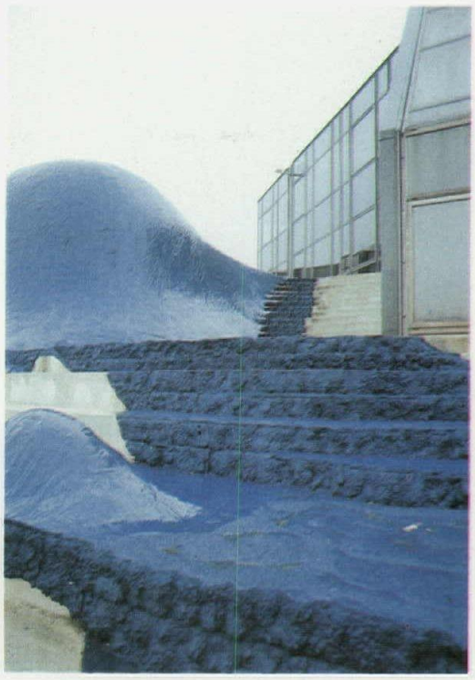
Along with the repossession of history has been a repossession of folk architecture, especially outside this country. Ricardo Legoretta's brilliant orange IBM factory in Guadalajara takes a lesson from Mexico's vivid streets of anonymous stucco houses. Guido Canella's Service Center at Incis Village in Milan is a Gaudiesque organic gesture encrusted in mosaic tile, keeping company at once with Ravenna and potshard street art. In Barcelona, the Taller de Arquitectura, a natural descendant of Gaudi and the Moorish tradition, involves both brilliantly colored materials and tile patterns in its apartment complexes with utopian names—Xanadu, Walden 7 (page 49)—and one titled, simply, La Muralla Roja. There are far too many examples to mention even all the most significant by name.

So far, much of what has been discussed is the use of exterior color, not because it is all that is being done, but because it is the most startling departure from the previous decade and the clearest demonstration of revised architectural expectations. Together with the ubiquitous high-tech adventures into uproarious profusions of polychromed metal (a design idea that is found even in the unlikely settings of Finland, Singapore and Bangkok), the experiments with facades have tended to lead the architectural plunge into color. There has also been a certain predilection for the most vivid hues.

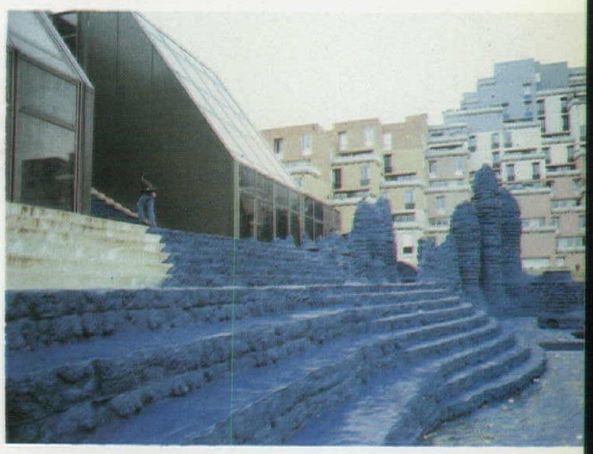
But most recently, this is being joined by subtler investigations into the manipulation of spatial perceptions through color; color as an element of composition to activate or delineate space; the suggestion of more complicated moods. And much of this is taking place inside buildings. Concurrently, some architects—especially the younger ones—have been looking more seriously at a wider range of color choices. Not only the bright pigments of high-tech and supergraphics. Not only the eggshell pastels of Beaux-Arts. And not only the woodsy rich tones of High Victorian. But even the sweet seagreens of the '50s.

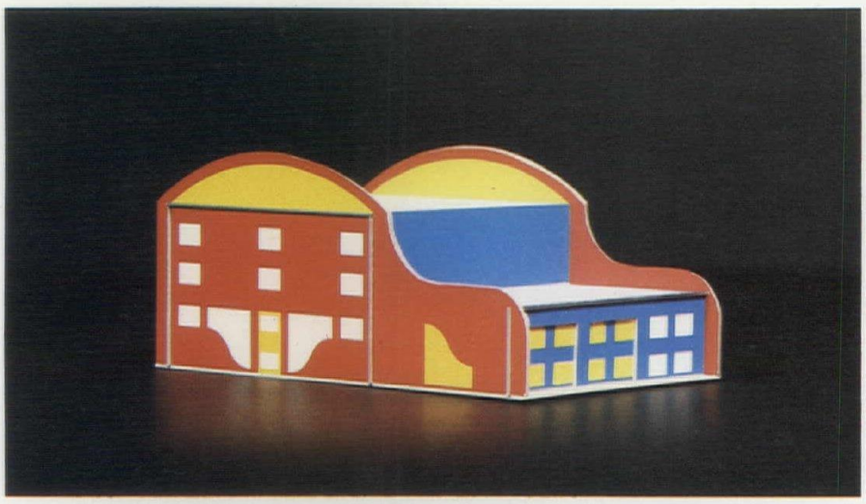
There is nothing very profound about the turns of the architectural wheel. Nor even particularly surprising. It is almost comic to think of color as corrupting, and even more comic to think of it as redemptive. Color *is*. Our world is in color, our television programs, magazines and snapshots. And with the reaction against minimalism, so is our architecture. □



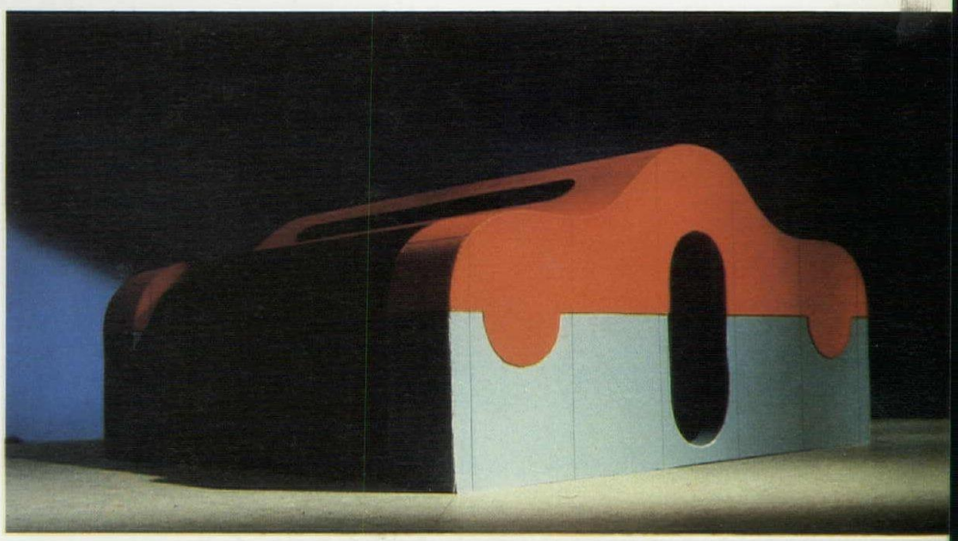


Emile Aillaud is perhaps the foremost, and a highly controversial, designer of public housing in France. For him, the basic reason for color is differentiation. In a long facade, he says, successive colors distinguish one "house" from another; "one inhabits the green or blue unit, not a cage fatally similar to every other" (Chanteloup les Vignes, bottom right, a 2,400-unit housing complex near Paris). Similarly, his towers at Nanterre (at La Defense, just outside Paris, photos left and directly below), are covered in mosaic patterns for the same reason. Aillaud eschews vivid hues which "clash with the plain air and prevent buildings from situating themselves into the landscape." At Nanterre, the mosaics are abstracted landscapes, some cloud-filled skies, some forest, others variegated earth tones—almost as if their assertive forms would permit camouflage. At Evry new town, also outside Paris, Aillaud groups varying shades of muted colors around a series of courtyards and then, for the children's amusement, there is an ink blue "oil slick" clambering down the steps to a lake (top and middle right). Aillaud collaborates on these projects with painter Fabio Rieti.





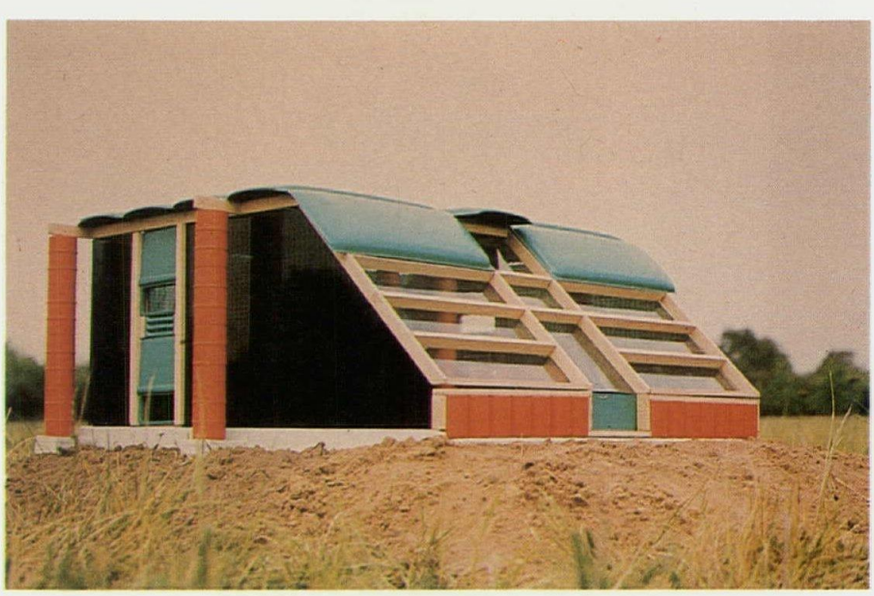
For some years, Chicago architect Stanley Tigerman, FAIA, has been exposing and painting architectural entrails in Mondrian primaries, to appreciate the conduits, ducts and pipes as ornamental patterns against neutral ground. In the past few years, color has become a far stronger element in his work, with overtones of pop art. His design for one house (model, top), he suggests, alludes "at once to a calliope, a box of Animal Crackers, or even a Volkswagen backed onto the property." The childlike quality of the cookie box color pattern is intentional. As it turns out, the client is building that shape, but in neutral tones of stucco and wood. The Illinois Regional Library for the Blind and Physically Handicapped (Stanley Tigerman, design consultant; City of Chicago Bureau of Architecture, architects; bottom photo; its garage, middle photo) was built in color. Bright color, notes Tigerman, is the last thing a blind person sees. Structure is yellow, metal walls are red and all mechanical and electrical parts are blue. The color coding is typical of Tigerman's work but it is merely a regulatory device, without outside reference and inconsistent from project to project. Tigerman has also been experimenting with paler tones—sky blues, flesh pinks—in an effort to explore a wider range of associations.



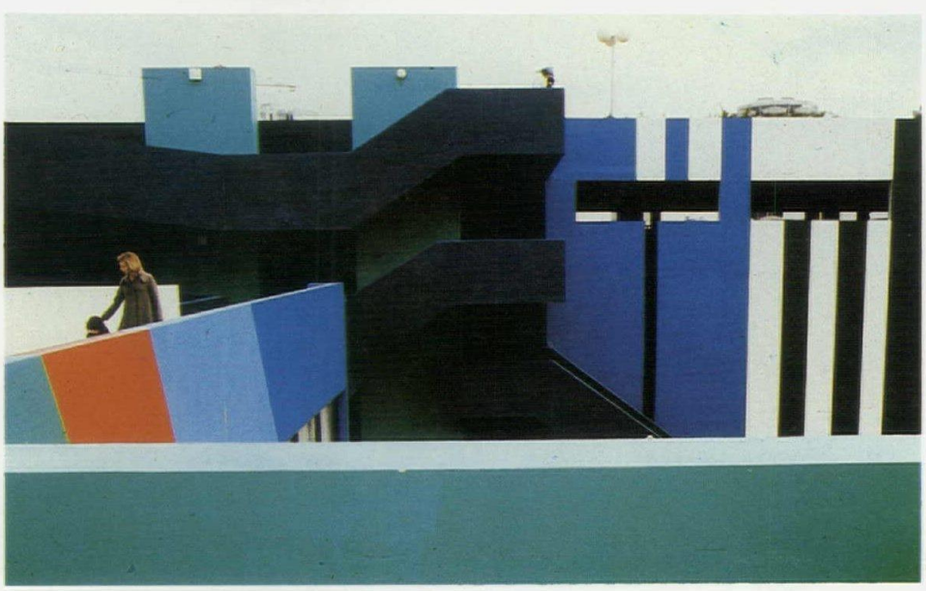
Philip Turner

"Through color, architecture can be brought to life, a living breath to animate the coldness of the building," writes Ricardo Bofill, head of Taller de Arquitectura, an unusual firm in Barcelona in which mathematicians and musicians are partners along with architects. Their apartment buildings are immediately recognizable not only by the sculptural and faceted forms but by color. One is painted in pale greens and grays to blend into the landscape. Another is a brilliant blood red. Walden Seven (left), is built of pale reddish stone and revives Moorish traditions in the azure blue tile patterns sheathing its open-air courts.

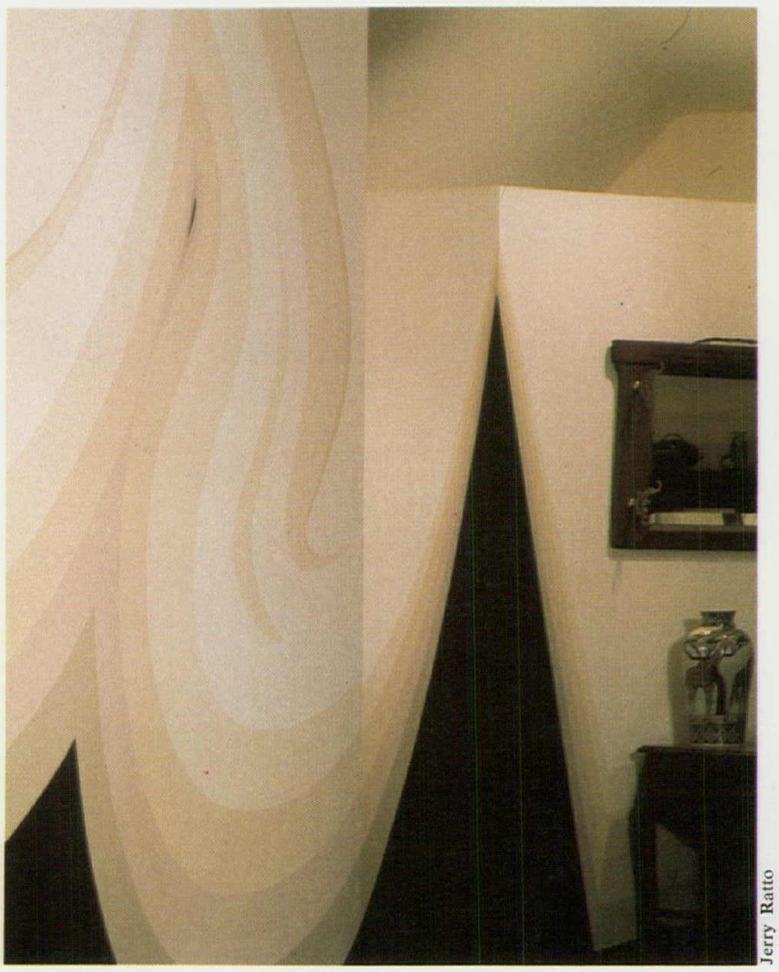
Garbage housing by SAR (right), a Dutch foundation for architectural research in Eindhoven. Called the Wobo project because the walls are made of green Wobo bottles, it has columns of red oil drums and roofing of light green Volkswagen camper roofs. In the end, however, the project was not built.



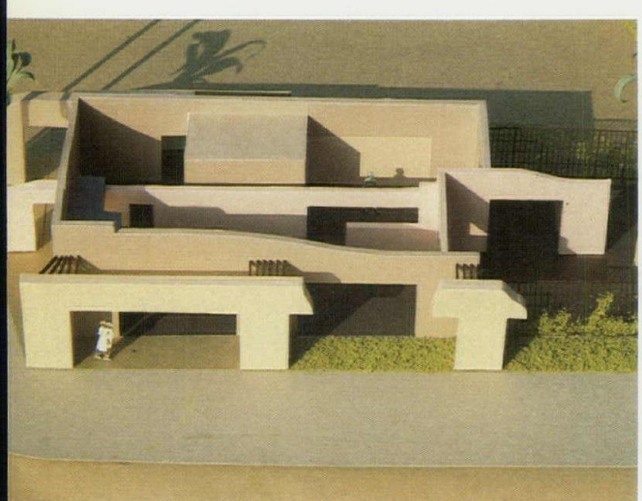
Jean-Philippe Lenclos has for many years conducted studies of "typical" local palettes (both in France and Japan) in search of systematic ways to create "a diversity of landscape." He has also made a career of architectural consulting and carrying the message of *ces cites polychromes*. For Chateau Double in Aix en Provence (left, architects: Siame & Besson), Lenclos found the local terrain suggested ochre as the point of departure for developing a "chromatic alphabet." Color expresses the architectural identity of each apartment (in sympathy with the staggered massing), yet makes subtle connections between apartments. The designers express their aims in terms of rhythm, harmony and avoidance of the monolith. For Ecole les Madradas in Cergy-Pontoise new town (immediately below, architect: Jean-Pierre Georges Pencreac'h), Lenclos chooses glowing, playful tones "like crayons" to encourage enthusiasm from the children. At Creteil new town, Lenclos explores supergraphics in, for example, Groupe Scolaire de la Haye, Moines a Creteil (bottom, architect: J. C. Bernard).

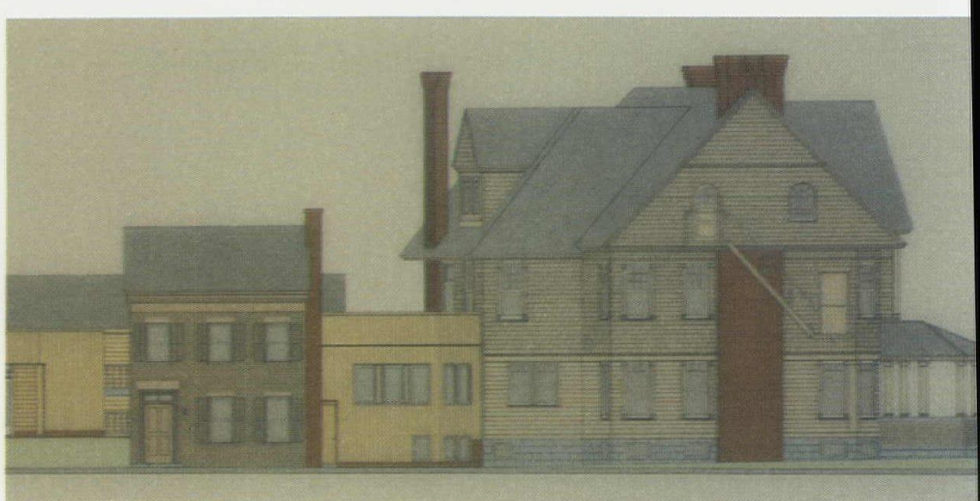


Dick Fosselman, a painter who has worked with architectural firms, is one of a handful of artists who are interested in the possibilities of *trompe l'oeil* in architecture. At Woodside Book & Bean, a coffee shop and bookstore in Woodside, Calif., he warps a perfectly ordinary corner into a kind of glowing portal (right). At Quercus, an antique furniture store in San Francisco (below), Fosselman sets off the American oak collection with a billowing wall design—soft, floating, drifting out into the room and back into the wall. Color has become pattern and pattern shape as a means of transforming space. Fosselman's firm is Flying Colors, San Francisco.



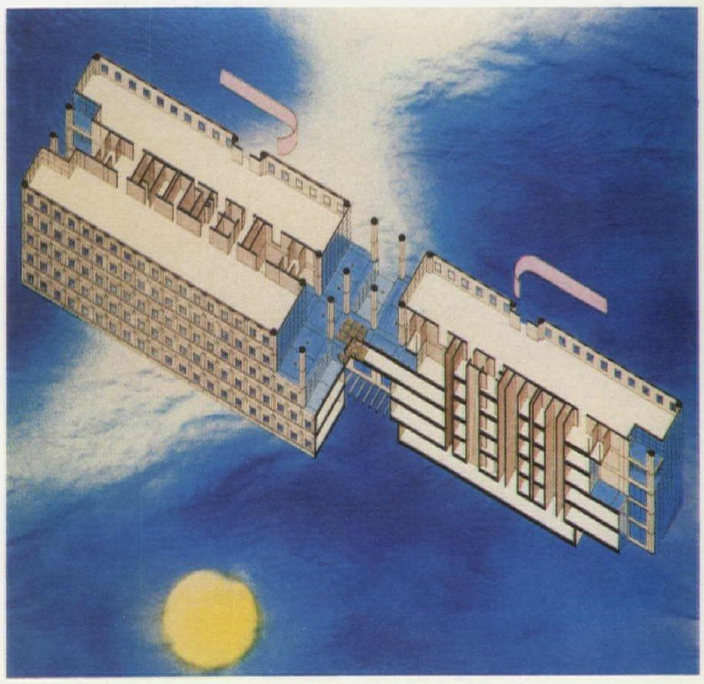
Jerry Ratto





Jerry Ratto

Hammond, Beeby & Babka's Tri-State Center, a speculative office building in Northbrook, Ill. (right and cover), follows the color scheme of romantic classical paintings. The facade is white like a temple, the exterior soffits are sky blue, exterior garden walls are rose and interior floor patterns are floral abstractions, as if a formal garden. The scheme is repeated in miniture in the elevator cabs, with blue vaulted ceilings and colored walls and floors. Two circular windows in the porte-cochere are aligned on the axis of sunrise and sunset to celebrate the most colorful spectacles of nature. Victorian revival marks R. M. Kliment & Francis Halsband's YWCA in Kingston, N.Y. (near left). Two existing buildings were renovated and 4,000 square feet added, with the whole painted in the spirit of the largest volume, an 1895 frame house. Each element is painted a different color, responding to the markedly differing shapes and openings of each, with lavender trim and white doors common to all. Far left: Daniel Solomon's Me & Me Middle Eastern restaurant in Berkeley, Calif., an "ersatz-quasi ruin in receding planes of muted pinks and browns." Color reinforces the layered organization for the building to appear "planar and abstract, vaguely Middle Eastern and vaguely decayed." All three are under construction.



Italian architects Paolo Portoghesi and Vittorio Gigliotti's Casa Papanice in Rome (opposite page and below) carries on a "dialectic with nature," explain its architects. Over a mostly white facade, green lines "emerge" from the trees and brown from the earth alternating with blue stripes "descending" from the sky, mixed with "light" (gold), modulated according to musical rhythms. Instead of the monotonous panorama of modern Rome, it is transformed into a "luminous and transparent thing." Only a face of colored lines is perceptible, only diverse fragments. In contrast, the horizontal bands of color at their prefab elementary school at Asti (left) holds the overall shape but continues a lively interaction between form and color at the level of detail. □

3 Architects, 3 Approaches To Color Use

The following essays were in response to our invitation to the authors to discuss why and how they use color in design. Ed.

Peter Bohlin, AIA

In the mid-'50s, I had a design teacher who in discussing the use of color in buildings said that most basic colors were fine, but not green. Green, he said, would "conflict with nature." The only green structures I remember seeing in those days were unpretentious stained and painted summer camps, painted bridges and postcards of green-shingled resort hotels from the turn of the century. Modern architects occasionally used green, but their buildings never "read" green.

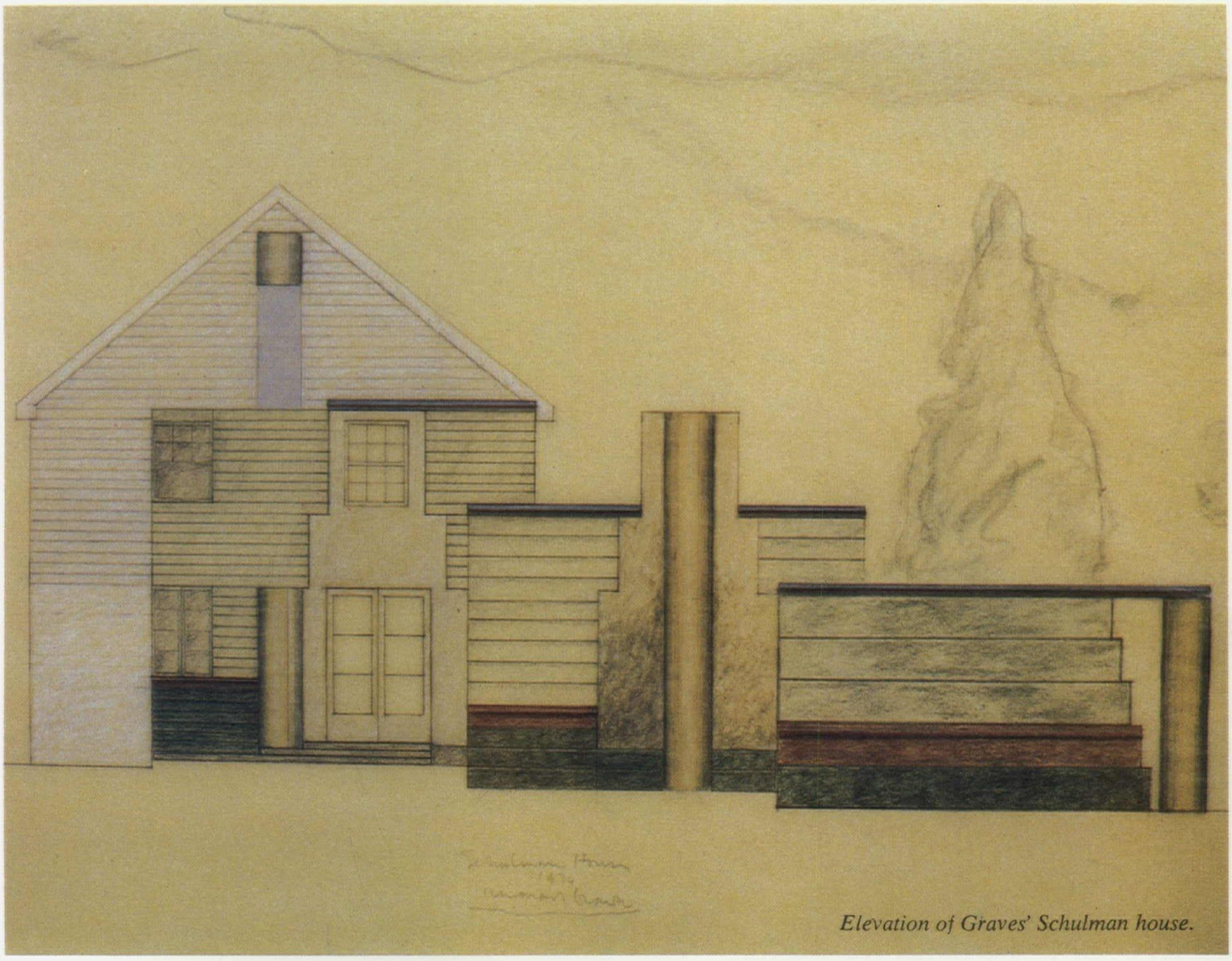
Fortunately, we are shedding many of our preconceptions regarding color as well as many of the stylistic mannerisms we have carried over from the early years of the modern movement. I think the broader our tastes and means are, the better. I prefer a "soft" no-holds-barred approach. As cost increasingly restricts our options, requiring us to simplify forms, spaces and details, and to use less expensive materials, I believe we will make a simpler, more humble architecture. As we are forced to simplify our means, remaining elements within the architecture take on added importance. One of the most underused and potentially most emotive elements is color.

When our firm built a summer house in Connecticut for my parents, we stained it green, giving it a chameleon-like quality in the forest. Viewed from a distance, the house tends to disappear, and its aluminum roof floats like a parallelogram in the forest. The gray-stained decks match the forest's weathered granite boulders. A pipe-mounted rim fixture at the beginning of the entrance deck/bridge is painted dark red and marks the house's territory as would a gate along an entrance walk. Three concrete columns that extend up through the house are also painted dark red.

Enrico Ferorelli

Summer residence for Mr. and Mrs. Eric Q. Bohlin, northwestern Connecticut.

Mr. Bohlin is a principal of Bohlin & Powell in Wilkes-Barre and Pittsburgh, Pa. **Mr. Graves** practices and teaches in Princeton, N.J. **Mr. Hardy** is a principal of Hardy Holzman Pfeiffer Associates in New York City.



Elevation of Graves' Schulman house.

These three red columns, along with the rim fixture, red-painted entrance door and frame and the large red-painted steel window, mark the progression from dark evergreen forest at the approach through the house to the sunlit deciduous woodland at its far end. The three red, round concrete columns, with the spiral pattern of their cardboard formwork intact, are placed at potent positions in the building. They play with the images of ancient painted columns, children's colored blocks and modern architecture's predilection for slender white columns. The remainder of the house's interior has been painted shades of neutral gray, which changes color as the light and foliage in the surrounding forest changes. In the summer the interior reads soft gray-green.

We have continued in recent projects to emphasize potent elements with color to heighten their symbolic or allusive qualities and to strengthen elements marking territory or movement. We are using color to emphasize or change the apparent scale of elements, masses and spaces. We are finding masonry buildings particularly susceptible to variations in color through striping or banding to modify their scale or perceived form, as well as alluding to past building mannerisms. We are using shifts in the color of masonry units to accomplish tasks traditionally handled by cornices, watercourses and entablatures. We are becoming increasingly interested in optical illusions and the physiological and psychological effects of color.

Many of our colors are becoming softer and stranger, carrying with them a range of associations with the past as the forms of a number of our recent small buildings have become more eclectic in their reference to "house" forms, rural imagery and Beatrix Potter. We are thinking a good deal more about colors that people have always used but that architects threw away when they began to make white buildings.

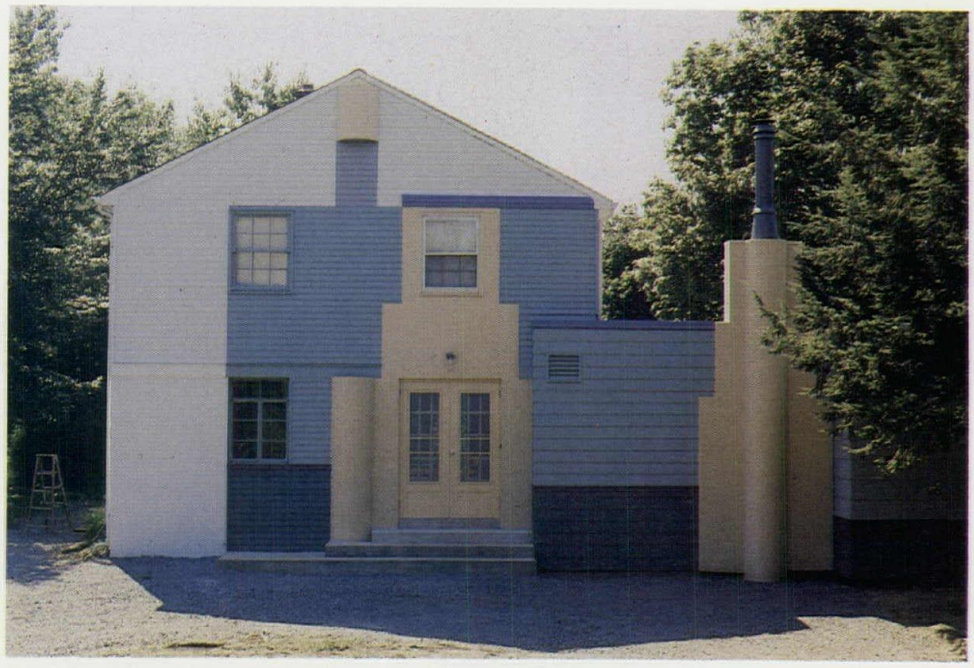
We have just started peeling away the layers of our habits and preconceptions, and I suspect we have a long way to go toward a balanced approach, based on an appreciation of the wealth of possible alternatives and a willingness to use any means to make our buildings truly responsive to their circumstances.

Michael Graves, AIA

I regard architecture—both in form and color—to be derived primarily from symbolic sources, to be a replica. Although color is two-dimensional, we understand it in terms that are three-dimensional. If a surface is painted terra-cotta in order to allude to brick, our first reaction is to brick, in its full depth. No matter how one might know color to be an application to a surface, we see color first as representational. To some degree, therefore, it possesses the quality of an object, an artifact.

If color, as representation, is seen as other than arbitrary, we must assume a logic to its placement or use. I think that we give rather simple and straightforward assignments to color either as it refers to itself as the natural color of its own material or as it is painted to refer to nature or to another material. We are as observers, I think, aware of the location and formal logic of color. The architect can use this aspect to involve us as participants.

The thematic basis of color is not quite the same as that of form. The basis of



Street facade (top) and garden facade (bottom) of Schulman house.

form has traditionally—that is, in the classical tradition—been derived from two things: nature and man. The floor is ground, ceiling sky, columns trees. At the same time, the orders are derived from the partitions and symmetry and geometry of the human body. The classical language of color, however, is derived only from nature and nature's materials, not from man.

In the Schulman House, an attempt was made to root the building in the ground by placing the representation of the garden, dark green, at the base of the facade. Next, a terra-cotta band or belt coursing has been employed to register the idea of the raised ground plane or ground floor within the house. The green facade is continued above to suggest the addition as a garden room. To reinforce this ephemeral aspect, the color has been given a lighter value so that it appears to have been washed with light when seen in contrast to the darker green base. The composition is capped by a blue cornice with a second minor belting of terra-cotta, suggesting the juxtaposition of the second "ground" (ceiling and floor) next to the reference to the soffit or sky.

While the existing white clapboard house is a representation of its neoclassical origin as a stone surface, the new entrance and fireplace refer more specifically to the likely color of the antecedents, travertine or limestone.

The color of the garden wall is similar to that of the evergreen tree in the garden, as the stepped form at the edge of the wall refers to its specific shape. The wall as receptable of its form and color gives the tree a significant position it otherwise would not have. The position of the tree is seen as parallel to the position of man in his vertical stance, which it resembles. The garden wall in this case physically separates and yet metaphorically combines man and nature through its surface and formal treatment.

It is the polychromed wall as artifact that allows the full range of thematic significance. It is because the wall has lost its neutrality, has taken on figural qualities through the elaboration of form and color that we are able to make the connection between ourselves, the architecture and nature.

Hugh Hardy, FAIA

Nature has enhanced this planet with such profusion of color it seems strange that for 30 years architecture had so little of it. When in atonement for 19th century excesses the profession attempted to purify itself by becoming more geometrically abstract, the use of color was all but abandoned. Because revisionist architects believed utopia was near at hand in the form of buildings whose imagery and technology came from the machine, color was used as a coded applique; something to explain the difference between A and B.

It is now emerging, again becoming free to pursue its traditional role as an extension and clarification of design. Much credit for this rediscovery belongs to work in reuse, where architects are faced with structures which so fearlessly combined natural light with color. Also, there was the 1960s' sudden and violent display of colors, used as an act of aggression against traditional values.

Now that energy costs are forcing the most progressive ideas about buildings to include some of the most traditional building materials (masonry) and fenestration (the operable window and awning), building exteriors again become a framework for pattern-making instead of a quest for a seamless skin. Color will no doubt form part of these explorations. If future buildings cannot indulge themselves with single-thick mullionless glass their interiors will be more self-contained and will again offer the opportunity to assemble man-made images of decoration.

Throughout all these professional gyrations, popular culture has continued to indulge itself in unbridled uses of hue. Theorists have suggested that architects look to popular culture for inspiration; those who do will find the use of color a central design issue.

For a variety of reasons color has returned to architecture just in time to enliven design with its large palette of choice. Different situations require different solutions. Sometimes color is a way to reinforce the different parts of architecture. What can't be afforded in different materials can often be budgeted as paint. At the Eye Institute at Pennsylvania College of Optometry in Philadelphia, different use areas are painted different colors. The same is true of the Mt. Healthy school in Columbus, Ind., where different colored and patterned carpets reinforce the geometries of "pods" and circulation path.

Very different is the use of color in the Boettcher Concert Hall in Denver. Color is the organizing element of design, tying everything together. A large plaid ceiling pattern (which repeats 32 feet from

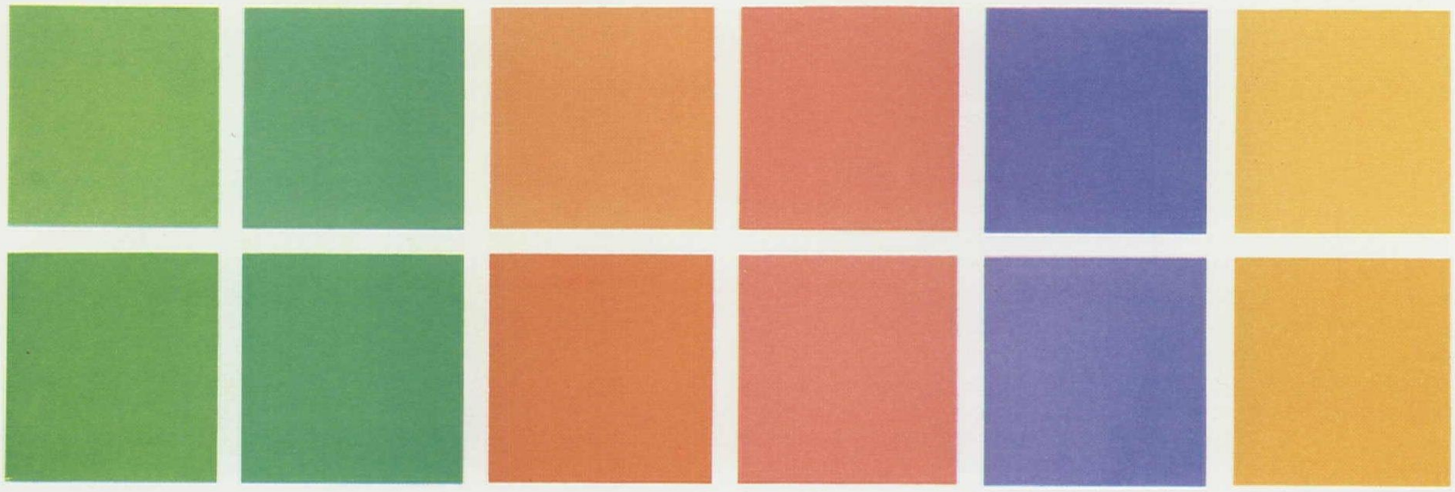
Norman McGrath

Detail of plaid 'blanket' enveloping the Boettcher Concert Hall in Denver (above). Right: the Eye Institute at Pennsylvania College of Optometry, Philadelphia.

square to square) establishes the basic ceiling volume and diminishes the apparent size of the room because of its large scale. At the same time, this giant "blanket" contrasts with the undulating fascias of the fragmented seating sections to give greater intimacy. The "blanket" spans the full ceiling and comes down the walls wrapping both in the same kind of color to create an environment, within which the differently colored seating is set. Outside, in the foyer, colors are light beiges and browns so that the walls and exposed ducts form a neutral background to the people.

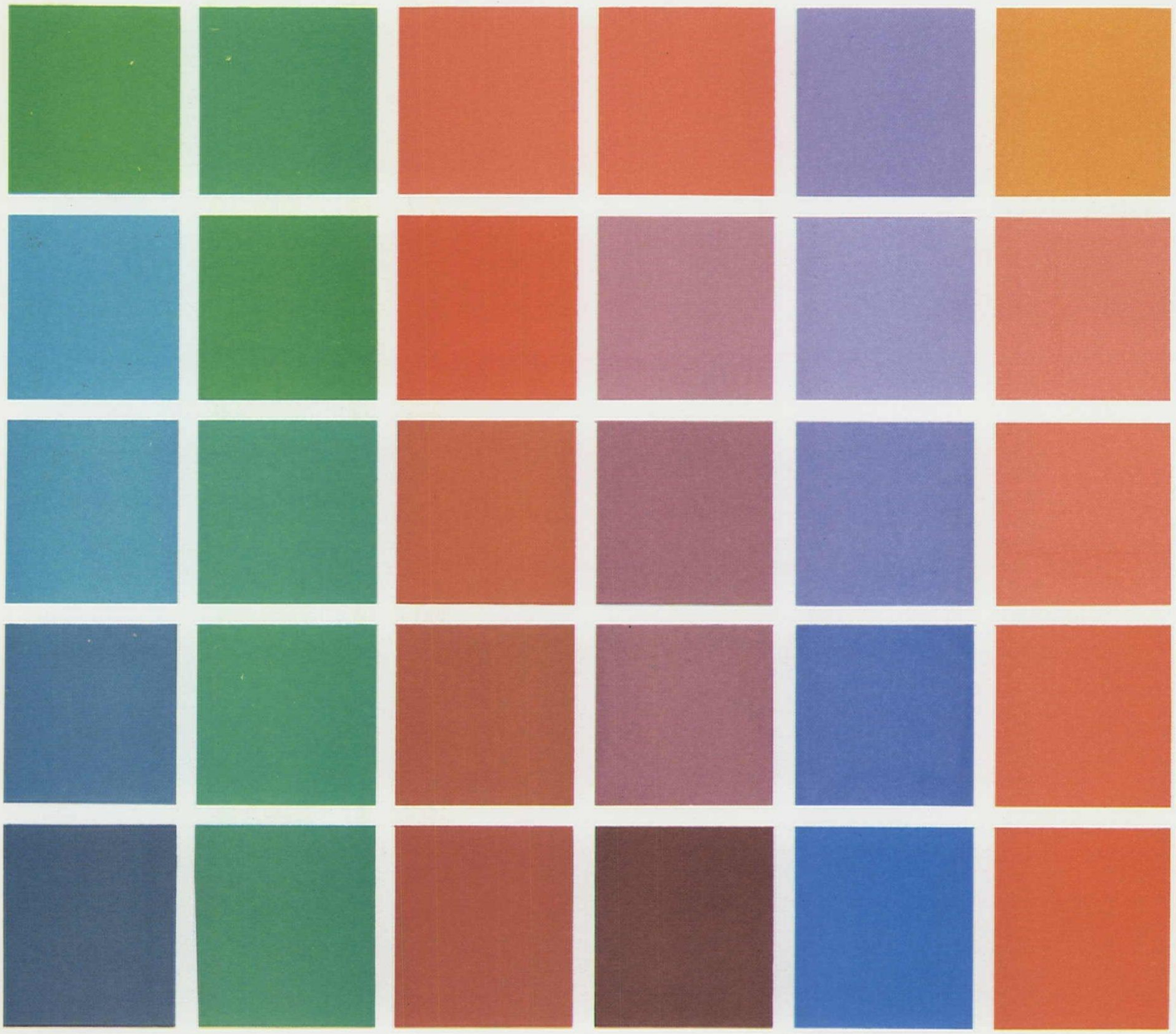
Such examples are but the beginning of a new interest in color. Many seeds have been planted in the bright garden of architecture. Some may yield highly unusual results, but it is fortunate that professionals are being made aware of the subtleties of color and light. The results are sure to enrich an emerging definition of contemporary architecture. □

Norman Mc Grath



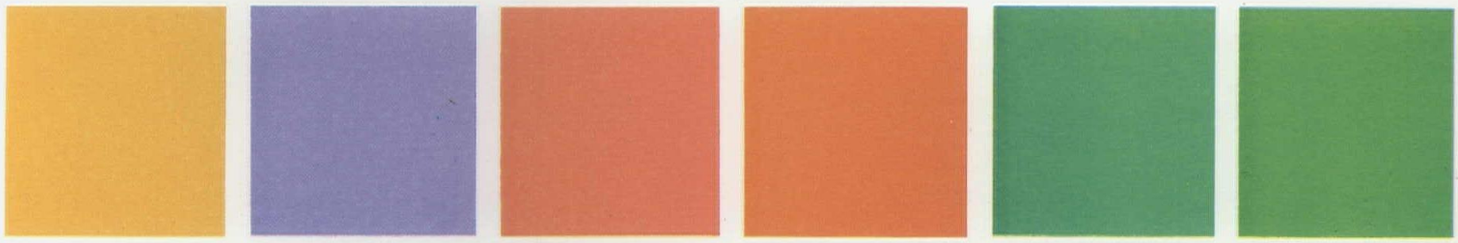
Color Selection as a Design Decision

It needs a sounder base than popular fantasies or spurious rules of thumb. By Anna Campbell Bliss



Some time ago I listened to a skillful presentation of a paint company's color system. It involved dividing all colors into A and B groups. One could choose with confidence any color from the A section and know it would be compatible with others in that group. It was a marvel of simplicity that everyone would like: to reduce a tremendously complex subject to a simple A or B solution. Color continues to mystify the public and confuse the designer because there are so many variables, and because we see it in many contexts.

Among the many claims for color, in the popular literature devoted to it, myths and fantasies compete with clichés and misconceptions. We are told to expand the space with blues and greens, avoid the deprivation of white and are warned of the possible dangers of red. The elderly are said to prefer blue and children a riot of color, all with the support of "scientific" studies by psychologists. But how much is psychology and how much extravagant nonsense?



One highly regarded writer describes yellow in this manner: "Yellow is a diffuse and luminous color. It tells of imagination, novelty, nervous drive and a search for self-fulfillment. There is no doubt that intellectuals and idealists are especially attracted to yellow." In a later reference he quotes the statement of a psychiatrist: "Yellow is the proper intrinsic color of the morbid mind." In another context, a psychologist states that if you like yellow ". . . you are pseudo-intellectual and would like everyone to think you're absolutely brilliant, which you may be. You're a bit morbid, superficially cheerful (and) pretentious." So, lovers of yellow can be either intellectual, idealistic and imaginative, or pseudo-intellectual, morbid and pretentious. These descriptions sound like palmistry or astrology. There is enough that is familiar to tease one's credulity.

In one of the final chapters of his book, the first author makes a very revealing comment: "In the general gestalt of seeing, it is most difficult to isolate psychic factors from physical or physiological ones. . . . Because practically all color experience is likely to be qualified and judged in personal terms, objective data are not easy to gather."

Most of the popular literature confuses personality types with the influence of color. One's reactions to color may offer some clues to personality disorders, but beyond that, diagnosis is too complex for generalizations. In practice we occasionally discover that a client has strong prejudices against a particular hue or color range. It is often due to unpleasant past association, or in some instances to partial color blindness.

In the '40s and early '50s, research in color preferences attracted many psychologists who later abandoned it. They recognized that there were too many variables involved. One could not infer from the results that people will have the same reactions when the color takes the form of an automobile, a new refrigerator or the walls of a room.

Twenty years ago, one could test students and older groups and expect to get a few standard associations with color such as black for mourning or sadness, white for purity, yellow for sunlight or cowardice. Today, white as a symbol of purity has little meaning and black can suggest anything from Black Panther to black vinyl, a popular selection of Hell's Angels. The reactions of students generally reflect the colors used by a favorite rock artist, or those featured in the latest movie. Predictions for ethnic and age groups are equally hazardous. Members of ethnic groups vary in their identity with cultural roots and exposure to its influence. To generalize on this basis today is ludicrous. It is time to discard the meaningless clichés we have collected about color.

Since we see color by virtue of light, the nature of the light source becomes an important variable. In a darkened room we may be able to distinguish only light-dark relationships. With increased light we begin to see individual hues and color intensity (saturation). Adequate illumination is necessary to develop subtle color relationships, but there is also an optimum level beyond which we begin to "wash out" or lose detail.

The quality of the light source also affects our perception of color. We have a wide selection of lamps today that vary in their spectral characteristics. Most of us are well adapted to incandescent light because we use it extensively in our homes. Its warmth is closer to what we think of as daylight. But even daylight varies with atmospheric interference, as we notice on an overcast day or in the light of the setting sun.

Through experience we have learned to compensate for the deficiency of incandescent lamps in the cool area of the spectrum. We are less well adapted to fluorescent light despite its widespread application. Here we find a greater variety of lamps used, but equally important is their lack of focus or beam, which fails to develop the color quality inherent in textures. Wood grain and stone masonry, for example, appear flat and lifeless. Few people think of shadow as color, but the contrast in values gives richness to our textures. We can create white light in a variety of ways. The composition of that light, however, may shift a color from what we expect. It is true that some colors, particularly primary hues, may remain constant as our eyes adapt to the illumination. Radical changes often take place in the red violet to blue violet range, blue greens and neutrals achieved by a mixture of complementary pigments.

Color selections should be made under lighting conditions similar to those in which they will be used. Too often an architect working under fluorescent lamps will select building materials which will be subjected to the strong light and shadows of natural daylight. Interior designers can be equally thoughtless, selecting fabrics in fluorescent lit showrooms for use under incandescent light. When more than one lighting situation will be encountered, as in combinations with daylight, it is wise to consider both sources.

An amateur photographer may note with some surprise that a photograph of a white boat appears blue or a white building may appear green due to the reflected light from water or from grass areas. The average person is not aware that part of the building is green because he sees various aspects of it and experiences it as a white building. In a more restricted setting, reflected color from flooring of a strong red, for example, could shift a delicate wall color to a point that may be objectionable. As a design device it could also provide subtle color changes.

How color modifies space naturally concerns the architect. In the literature of color we find frequent reference to the advancing qualities of warm colors and receding qualities of cool colors. We know from physics that one can measure the radiant energy wavelengths of the visible spectrum. The "cool" green-blue-violet range approaches the short wavelengths of ultraviolet energy and the "warm" yellow-orange-red range approaches the longer wavelengths of infrared.

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Above and right, the palace at Jaipur: subtle tracing of rhythmic elements. Across page, Katsura Villa: blending of the colors inherent in materials.

In real life, color is never seen in isolation.

In practice we work with pigments and materials that reflect wavelengths. We find that we can make warm colors appear cool and cool colors warm by the choice of adjacent colors. In similar ways we can make warm colors recede and cool colors advance. The basic reason is that hue alone does not determine the spatial position of a color. Contrasts of light (value) and color intensity (saturation) are equally important and are frequently the controlling elements. In general, all that one can accurately say is that warm and cool are relative terms for color, and under certain conditions warm colors tend to advance spatially while cool colors tend to recede. When a number of colors are involved, the intervals between colors will determine their spatial position in relation to one another.

We do not see color in isolation except under specially controlled conditions. We see it in relation to other colors, forms and textures; that is, within a particular context. When viewing a small area of color in a larger visual field, as one does in elementary studies, some fundamental aspects of color are revealed that relate to a simple plane in space. A red violet will appear more red on a blue ground and more blue on a red ground. A middle value (in terms of light and dark) will appear lighter on a dark ground and darker on a light ground. In a comparative study of the second example, the lighter sample will appear slightly larger and nearer to us spatially, while on a dark field it will appear smaller and more distant spatially.

If we change the context or scale of our color field to architecture, we cannot always predict on the basis of small studies a color's spatial position because other variables enter the picture. If we have one colored wall in a light field, say a saturated blue, does it follow that, being dark and blue, it will expand the space? In a small, confined room the answer would be negative. It would tend to condense the space in comparison to a very light color, but would be a better choice than a brilliant, saturated red orange. If all the walls are painted either hue, the room would appear more confined than with white because of the area or quantity involved.

For average size interior spaces light colors tend to expand the sense of space while dark or highly saturated colors compress it. The advancing or receding qualities of the hue will reinforce the spatial illusion and, where other factors are equal, may dominate.

Changing size or area of color can be deceptive in relation to varying spatial conditions. A designer can easily create a beautiful and subtle scheme with small swatches of color and materials that will be ineffective at a larger scale. Colors will be too strong or too weak for the space involved. Having narrowed the range of selections, it is advisable to test large samples for ultimate lighting and spatial conditions.

By changing the context of our colored wall to a large office, department store or similar space, we increase the visual field. A single wall may be only one very minor event in a series. The advancing or receding qualities of the hue may be less important than contrast with surrounding areas. To attract attention to the wall in a generously light field, we would need a dark or saturated color. In a large space our viewing distance changes. Flooring and ceiling treatments will become more important as part of our visual field.

In the average shopping mall, where people are subjected to a barrage of visual events, one brilliant color scheme may cancel out another, or tend to neutralize its effectiveness. In this instance a large area of one color may be more important by contrast. The more serene environment of some high-fashion stores often provides a respite from too much stimulation.

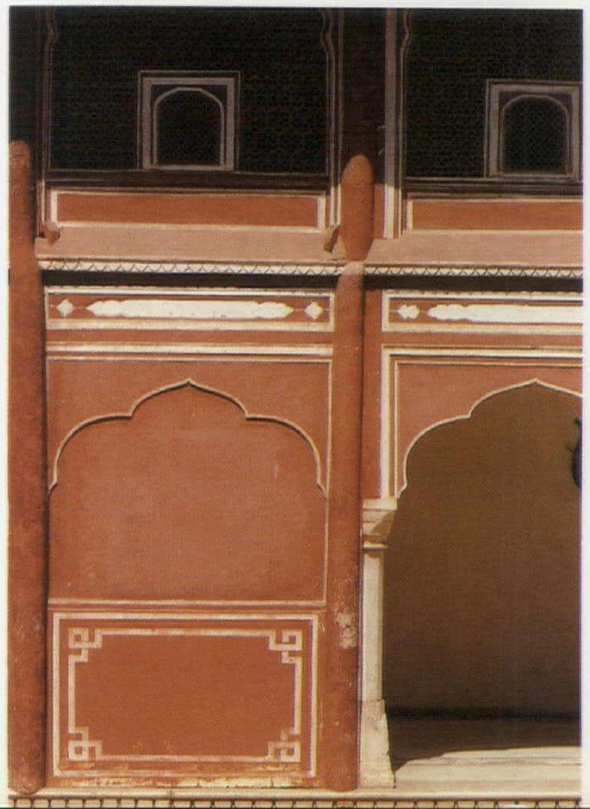
The outdoor environment again changes the scale and context in which we see color. One of the hazards of communication today is the speed with which architectural news travels. The color scheme of a new building in New York City or Chicago may quickly travel to San Francisco or Seattle where the setting

and general color climate are very different. A black painted steel and gray glass skyscraper that attracts little notice in the canyons of New York City could seem overpowering on the Seattle skyline. Fortunately, a few neighboring buildings of comparable scale have joined it to somewhat balance its visual impact.

How large an area or how often a color is repeated are very basic decisions for organizing color in a building. In the palace at Jaipur in India, the repetition of white decoration and trim is very important in articulating the rhythmic structure of the building. If more white were used, it would be too competitive with the reddish stucco. A good balance has been found here but it is often lacking in Victorian structures where the trim overwhelms the facade.

When architects think about color, it is often in terms of a blast of saturated hues. They look upon concrete, brick or wood as neutral backgrounds but each of these materials has color. Beige can be found in hundreds of variations as can gray, white or black. In one context they will exert a very strong influence while in another they will permit more saturated hues to dominate. A study of the Katsura Villa in Kyota is a revelation of subtle coloring and a careful balance of quantities.

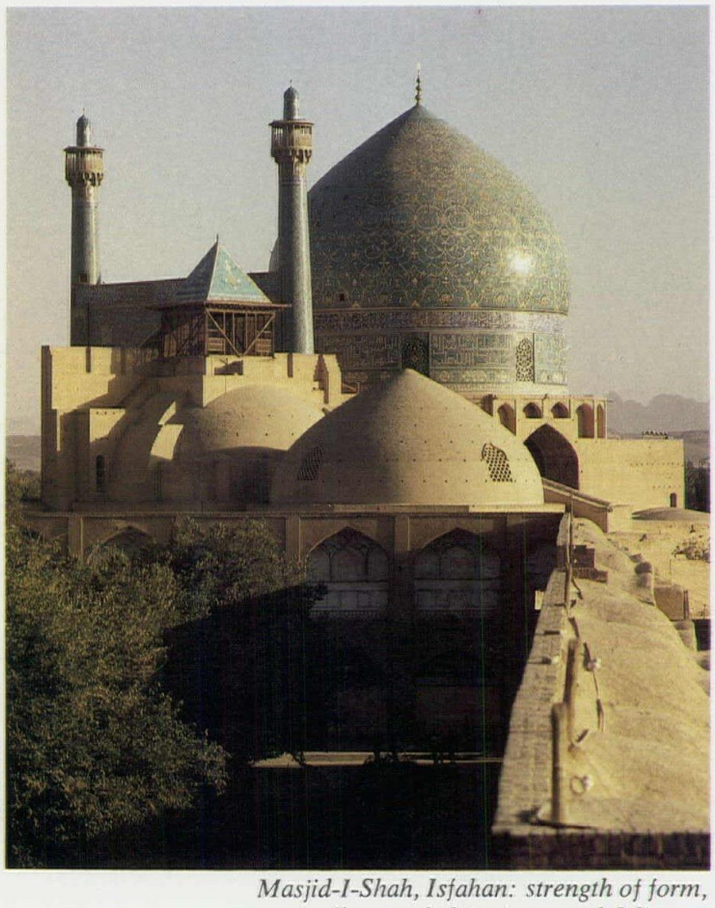
Attempts to organize and systematize color have a long his-



tory but gained impetus in the 19th century. Goethe, Ostwald, Pope and Munsell stand out among theorists who sought to bring information about color into comprehensible form. Space does not permit a detailed discussion of these systems. The double cone of Ostwald and the cylinder of Pope are helpful to students as conceptual models, while the Munsell system, being more accurate quantitatively, has been widely adopted by industry. Color eludes systemic formulas because there are so many variables. Existing systems are limited to the basic distinctions of hue, light, intensity and saturation. They do not reveal observable phenomena such as simultaneous contrast, optical mixing and illusions of transparency, as these are products of context.

In trying to expand their concepts to embrace color harmony, the theorists part company with most artists and designers. Comparisons of the work of Mondrian with Bonnard or de Kooning with Louise Nevelson would be fruitless in developing a concept of harmony. Tastefulness is a matter of fashion and pleasantness is not the goal of the painter. Paul Klee expressed well the suspicions of the creative artist about systems in *The Thinking Eye:* "Aside from the murderous effects of such harmony, it is ridiculous to claim that this sort of tone painting free from dissonance is musical. . . . The resulting chords would be comparable to the yodeler . . . for it is an old story that beautiful with beautiful soon gets dull. . . . I can only regard it as a practical aid, like the color scale of the chemical paint industry."

The great influence of Gyorgy Kepes and Josef Albers as teachers comes from their emphasis on training the eye to see what color actually does. Neither created a system. Albers in the *Interaction of Color* revealed the classic exercises he developed for students to stimulate observation and experimentation. Many of them can be compared to the classic dance exercises of Martha Graham. They are designed to stretch the imagination as well as train the eye. For Albers, like Klee, an understanding of color interval was very important for the creation of illusion, additive and subtractive mixing, an understanding of space, and above all, the relativity of color.



Stanley Hallet

Masjid-I-Shah, Isfahan: strength of form, gradually revealed intricacy and delicacy of color and detail.

Many of our changing attitudes toward color have come from the experimentation of painters. Their color vision stimulates creative designers through whose work the circle gradually widens in the fashion, advertising and home furnishing fields. One thinks immediately of the liberating influence of Matisse and Mondrian and the importance of their work for interiors and textile design.

Art offers a great resource for our buildings and one that has never been fully developed in contemporary architecture. In the CBS building interiors, individual works have a strong impact by their placement and contrast with the walls. But art need not always be a postage stamp applied to a wall—it can become the wall or enrich the entire space as in Islamic architecture. Masjid-I-Shah in Isfahan reveals itself gradually. Seen from a distance, its delicate coloring and architectural form are impressive. Moving closer, one observes the varied color and intricately detailed design.

Under normal circumstances there is wide latitude in our use of color. There are many special purpose activities where movement is limited and our visual field is restricted. Here color, and the way it is used, can either support or discourage productivity. Sitting at a computer all day can be exhausting. Strong, vibrating colors or extreme light contrasts in your peripheral vision would be intolerable. While more restrained selections would be desirable, we need not eliminate all bright colors. They can be used in small amounts or locations outside the immediate work area to provide variety. An assembly line is another example where one's working area is confined. Color used within the immediate work station must be carefully selected for safety as well as productivity. But the latter will also benefit from well placed areas of livelier color to help counteract the boredom one experiences in this work.

Color selections are critical in buildings or spaces where people are confined for long periods of time or are subject to great stress, as in hospitals, nursing homes, jails and spaceships and stations. Hospitals require analysis of each area because they include so many functions. Determinants of color use in each include the amount of critical work being performed, the degree of stress of the occupants and the length of confinement. Coming out of anaesthesia after surgery, one tends to be disoriented as well as very uncomfortable. Exposure to vibrating color schemes or startling graphic experimentation could be very upsetting and even harmful. A bland interior is not the answer. One can introduce more saturated wall colors and small areas of bright colors in furnishings.

The average nursing home is a dreary place devoid of visual interest. If people have loved a colorful environment throughout life, one can't assume that age has suddenly changed their tastes and interests. Confinement to the typical eye-rest blue or green environment is enough to depress any active person. Because the occupants are more limited in their movements and activities, visual stimulation is desirable.

Architects cannot accept inflated claims for color nor neglect its influence. We need a reliable basis for designing, and that comes from understanding color's complexities. In addition to the basic distinctions of hue, light intensity and saturation that identify color, there are the visual and perceptual variables such as the quality of light, the interaction of the visual field and the importance of quantity. Formulas based on historical systems are inadequate to include observable phenomena, because the latter are also modified by the field. When we read about the influence of color—red, for example—which one of a thousand reds are we considering and how much red is involved? Our responses vary according to the way the color is used and its context. Color can reinforce and enrich our experience of architecture. The use of color is also art. □

Color Selection as Part of Preservation

It can involve simple appropriateness or painstaking research. By Mary L. Oehrlein, AIA

The dramatically expanded interest in preservation, no longer limited to "the home of Robert E. Lee" but now including courthouses, museums, railroad stations and more, has created the need for new skills. One seemingly simple task that arises in almost all projects is that of repainting. Finally, there is a rallying against such travesties as covering Victorian "gewgawdery" in Georgian white paint.

How one goes about deciding what colors to use, however, depends on the nature of the project. If someone simply wants to repaint the delightfully eclectic town house in which his family lives, it would be foolish to go to the expense of discovering what colors were used by the original owners. It is only required to choose colors that are appropriate to that style and time, a task aided considerably by the number of pattern books published in the last half of the 19th century. Some offered only general exhortations, like this epigrammatic admonition in *Palliser's Model Homes* of 1883: "It requires as much judgment and taste to paint a house, so as to bring out the detail, and give the desired effect, as it does to design one."

Others went much further, often prescribing specific color theory and choices. For example, *Exterior Decoration,* originally published by paint manufacturer F. W. Devoe & Co. in 1885 and recently reissued by the Athenaeum Library of Philadelphia, instructs: "Many colors are entirely unsuited for exterior decoration, notably the primary colors in their lighter shades. Light colors require handling with the greatest care if lifeless harshness, a hard outline and chilling effect are to be avoided, while all contrast of very light with very dark colors, with either predominating in quantity, are equally objectionable." Most pattern books showed drawings of various houses, sometimes even in color, accompanied by detailed descriptions.

In another type of situation, my firm was hired to suggest colors for Percy Cottage, a house being reconstructed from the ground up by the Rugby, Tenn., restoration association. There was nothing left to suggest what the original color scheme had been, so we surveyed the rest of the 1880s town to develop an appropriate palette.

But when restoration is the goal, the proper colors must be ascertained scientifically. Previous paint coatings must be examined not only for color but for texture, degree of glossiness and basic composition, all of which are necessary to recreate the coating with modern materials.

The process of paint analysis is relatively simple but painstaking. A shallow bevel is cut through all of the paint layers with a surgical scalpel and the layers are then examined with a handheld microscope. The layers can often be distinguished by the accumulated dirt that keeps one layer from bonding with another perfectly. The amount of dirt can also be used to determine how long a given layer remained exposed before repainting.

There are a number of reasons to determine each layer instead of just the original one and to do so for each painted surface instead of only one per room. In the first place, all parts of a room were not necessarily painted the same color. The trim or sash was frequently painted a different color from the wall. Some paint layers may be stripped or deteriorated. The layers may be missing from one place, yet be found elsewhere. Unlike today, when people strip paint completely off woodwork as a matter of course if they can afford it, in the past only paint that was badly deteriorated was stripped.

There is also the problem of additions and alterations. Not only will making a complete layering sequence of paint help avoid mistakes such as painting a room the color of a later alteration, but it can be an archeological tool as well. Those elements missing paint layers, having inconsistent layering sequences or having excessive paint layers are immediately identified as alterations. In situations where the chosen restoration date is later than the original construction date of the structure, recording of all layers becomes imperative.

Examining the layers is important to document what kinds of decorative painting was done. Painting of a surface to imitate wood grain or marble was common throughout the 18th and 19th centuries, not only for trim but on walls and floors as well. Sometimes it was used as an all-over pattern, sometimes separated into panels with painted moldings or divided with color changes to imitate marquetry. Stencil work and murals often consist of several layers of paint built up to create the desired colors and patterns. Another technique called glazing or scumbling put a regular coat down first, then used thinned paint for an overlayer that would let the underlayer partially show through.

When the layer or layers to be reproduced are determined, however, there is still the question of how much the original paint has changed from its original color. The color may have faded or darkened (all paints containing oil have a tendency to darken and yellow). The most extreme color changes generally occur with the blues and greens. The yellow and red pigments used in most cases were pigments such as French ochre, yellow iron oxide, red iron oxide and red lead—all of which are relatively stable. The major blue pigment used was Prussian blue, which fades easily in sunlight but regains some of its color in darkness. When blue yellows, it can often be mistaken for green. And, on the other hand, a green color consisting of Prussian blue and chrome yellow can appear blue through the fading of the yellow. The degree of color change depends on the type of oil used, the pigments, the presence of glazes, the build-up of dirt and, in some cases, exposure to pollution.

It is common practice, therefore, to search out paint coatings thicker than normal, such as drips or runs, edges of doors and crevices of moldings, where the interior of the paint film has not been exposed to light. By examining many samples, it is possible to measure the degree of color change. It is also possible to bleach some of the darkened colors or reduce the yellowing through exposure to ultra-violet light. But this is risky and can result in washed out colors.

When the color is determined, it must be translated into a modern equivalent. My firm uses the Munsell System of Color Notation for its large variety, over 1,600 color chips. The match-

Ms. Oehrlein is a principal of Building Conservation Technology, Inc., a Washington, D.C.-based consulting firm for restoration and rehabilitation.

The dining room ceiling of the 1850s San Francisco Plantation in Reserve, La., required scraping away three layers of paint to find the original pattern (immediately above) before it could be restored by the author's firm to its glory (top).

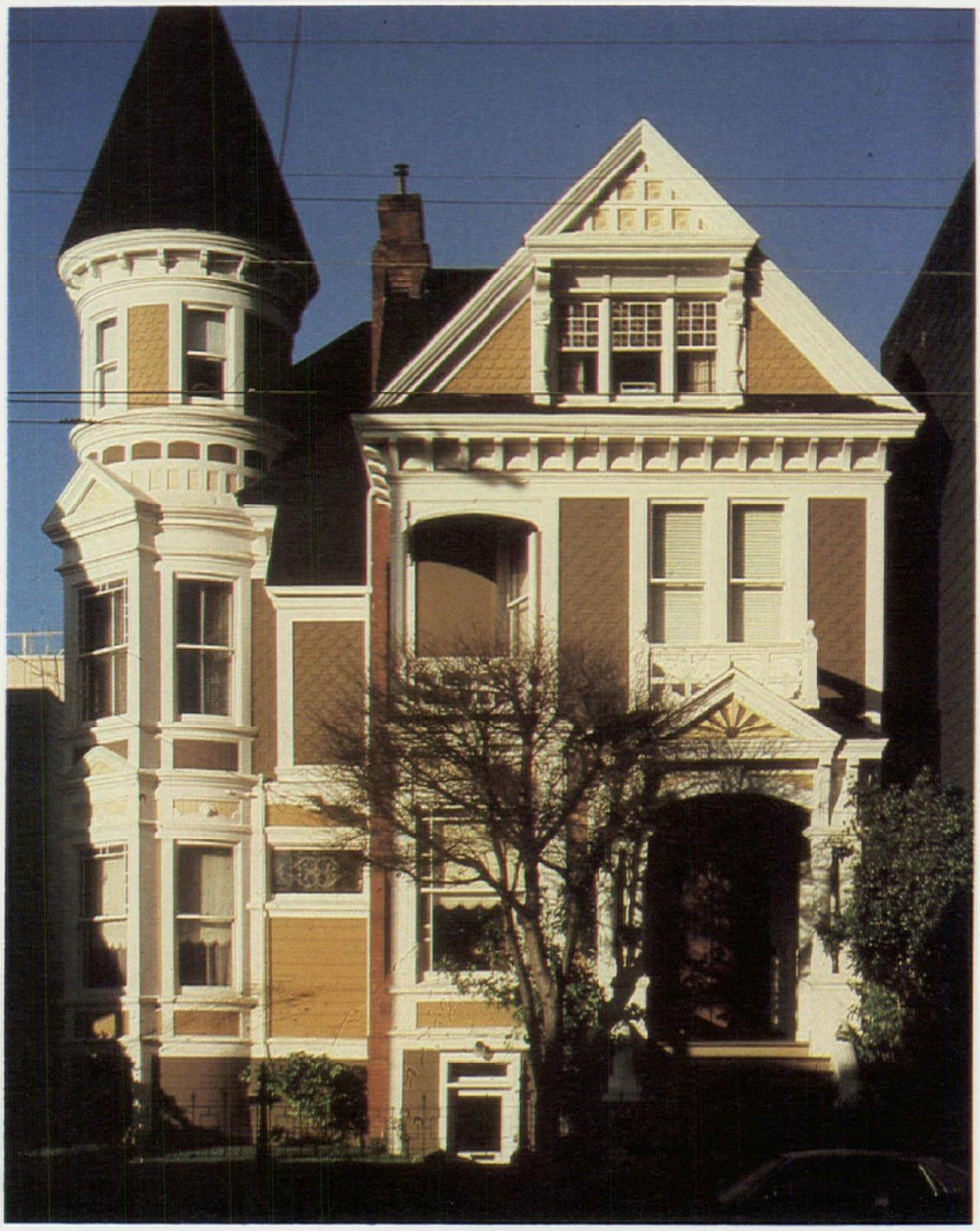
ing process should be done under natural light or a light source with color balance near natural light. Modern pigments in particular change appearance under different light sources. In addition to color, the other qualities of the paint must be considered. It was not uncommon for an exterior paint coating to have a sand finish in an attempt to imitate stone. One late 19th century frame house we worked on had its entire exterior painted with a sand finish to imitate limestone with brownstone trim. Interior finishes, on the other hand, often retain brush marks due to the use of "short" paint, one which contained little oil. These finishes tend to have a flat rather than glossy finish. The degree of gloss can be difficult to ascertain, as paints often change their reflectance through time and exposure.

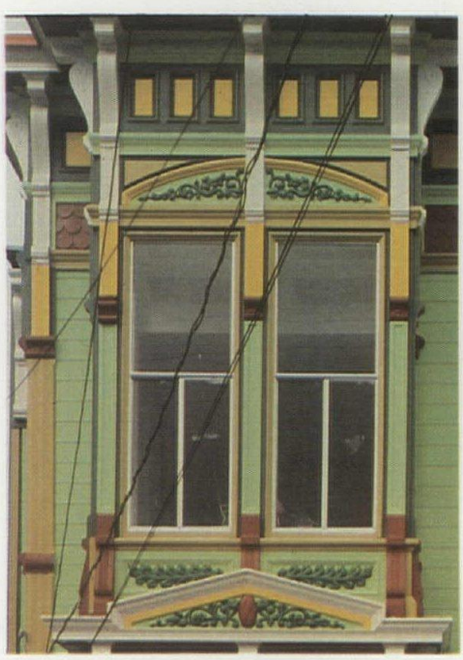
Testing for paint composition is quite simple and involves dropping a small fragment of the paint into muriatic acid. Water mediums will totally dissolve, while oil will be unaffected. But to make old paint look authentic, especially if the building predates the 1860s, it is necessary to duplicate the qualities of hand-mixed paint in which often there were left large particles of undispersed pigment giving the paint surface a variegated color and sometimes translucent appearance. Machine-mixed paint with homogenous colors similar to modern paints became available after the 1860s. The last stage, of course, is the actual repainting. Paint is oil or water based, depending on the original, but it should never be latex. Paint is applied with brushes, not rollers or sponges. Most important, the process of matching the color chip to actual new paint is done as arduously as matching the historic color. Unfortunately, the game can be, and too often is, lost in the last inning. □

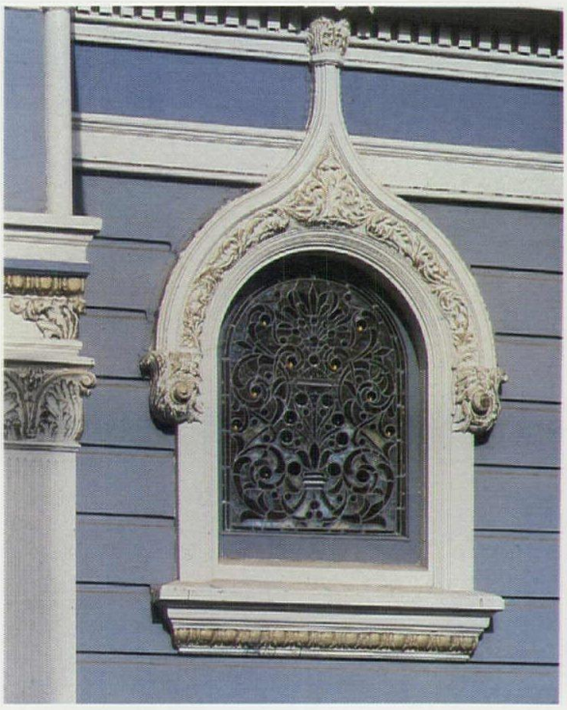
The 'Painted Ladies' Of San Francisco

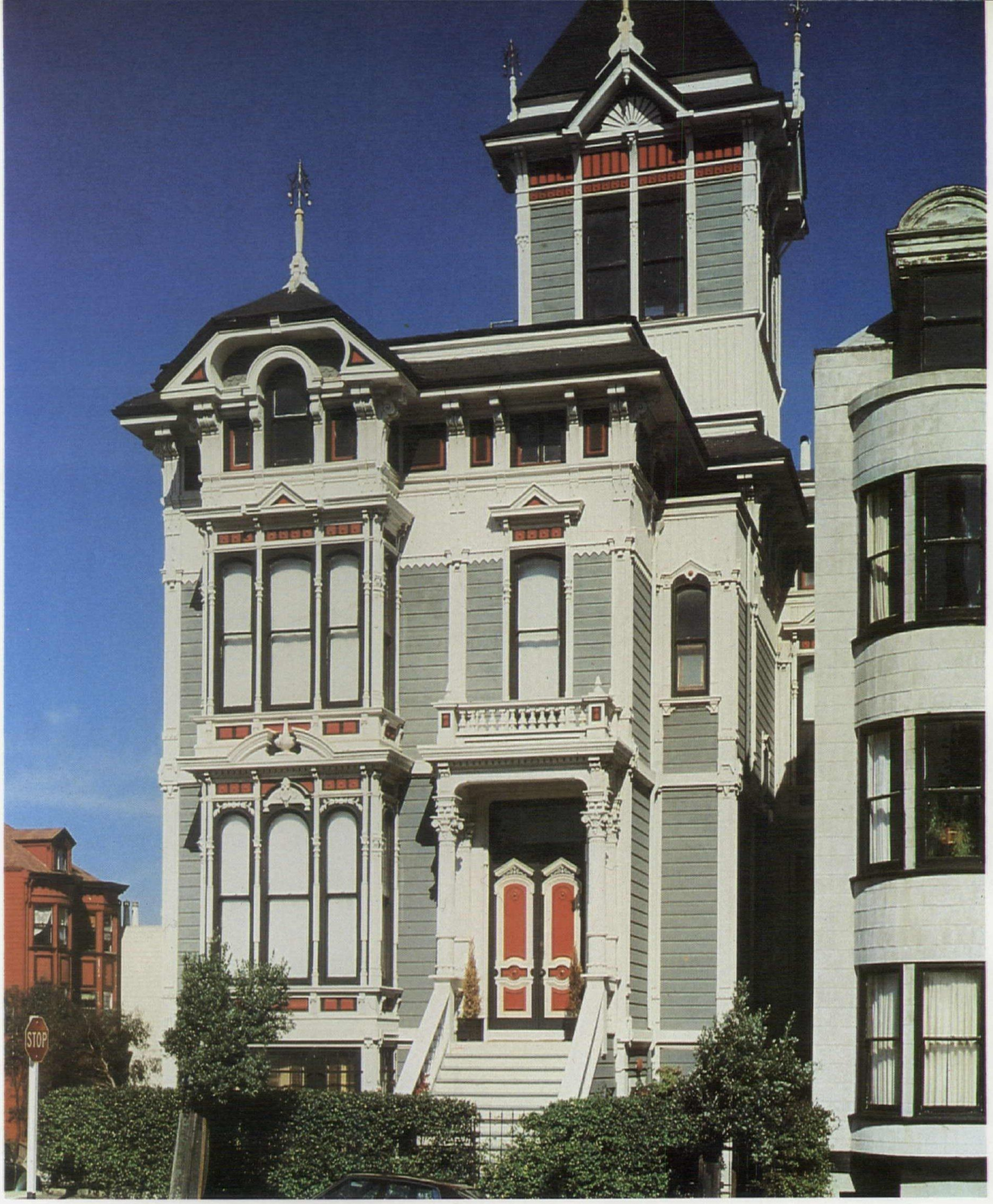
In the half century or so following the California Gold Rush, more than 16,000 Victorian houses are said to have been built in San Francisco. There was new wealth, the steam-powered jigsaw and *color*. Even at its height, this raised eyebrows. The *California Architect and Building News* of April 1885 complained: "We have from time to time called attention to the crazy style of architecture adopted by a few of our young would-be architects. One of the principal ingredients . . . is to cover the buildings . . . with a bountiful supply of paint, using more colors by far than the tailor who designed Joseph's coat. . . . Everything that is loud is in fashion. . . . The upper stories are . . . painted into uncouth panels of yellow and brown, while gables and dormers are adorned, not with tasteful picturesque designs but with monotonous sunbursts and flaming fans."

For the past 10 years, the San Franciscans have been repainting them, salvaging what were referred to in post-World War I Bay Area as "McKinley's stinkers" and were covered with war surplus gray paint, asbestos shingles and aluminum siding. Some are redone according to historical research, some by personal taste or "artistic vision." Some the best have been documented in a slim, coffee-table volume called *Painted Ladies: San Francisco's Resplendent Victorians,* to be published this month by E. P. Dutton. Architectural photographer Morley Baer took the pictures and collaborated with Elizabeth Pomada and Michael Larsen on the text.





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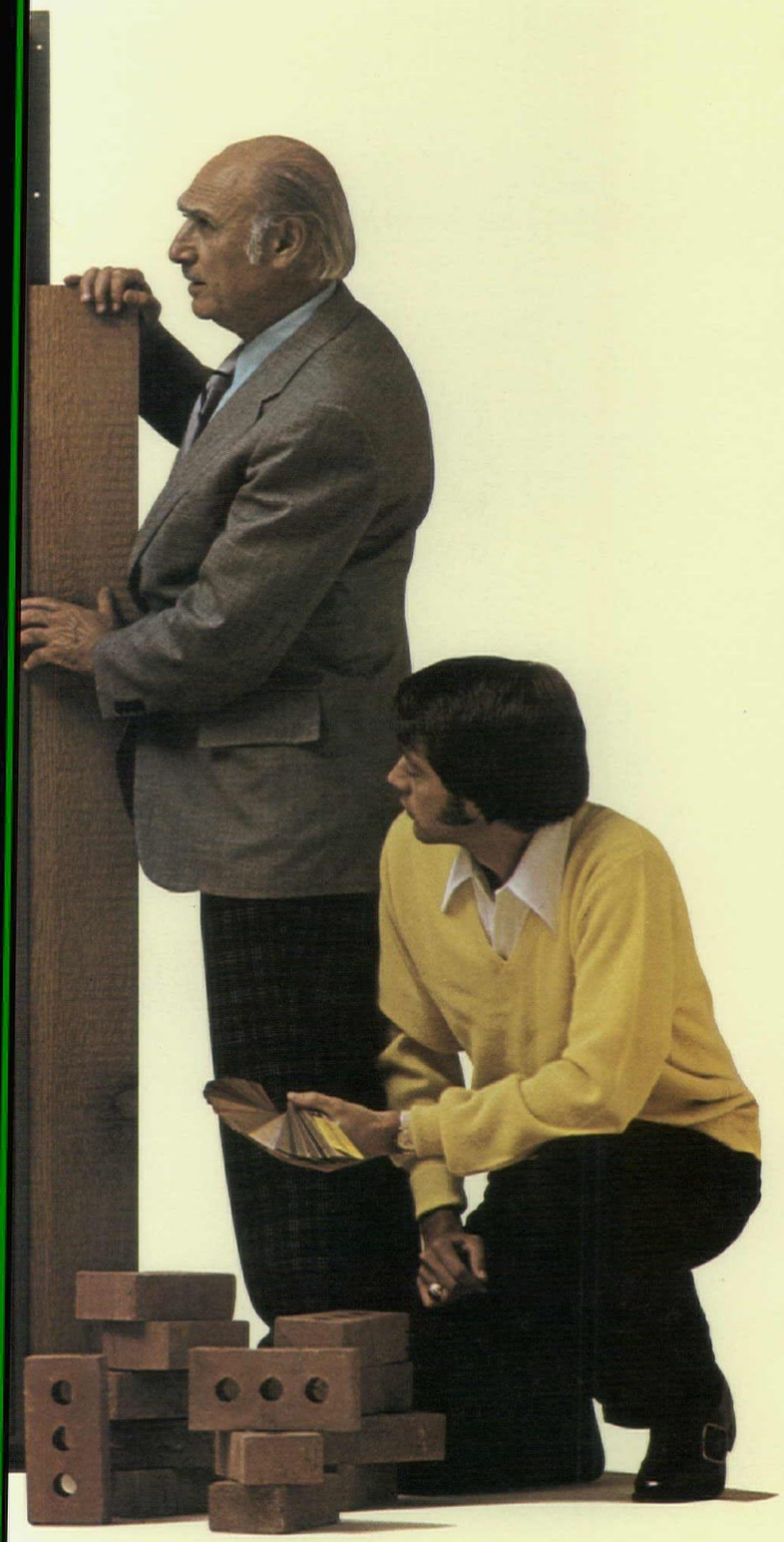

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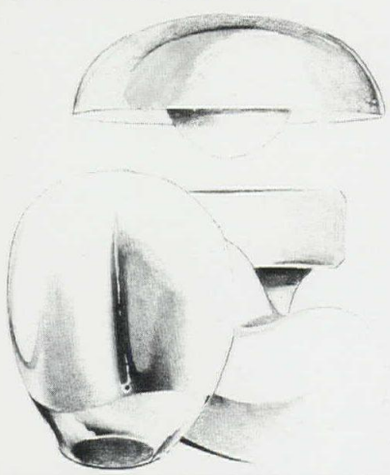

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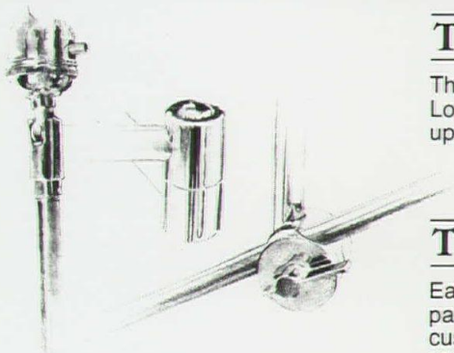

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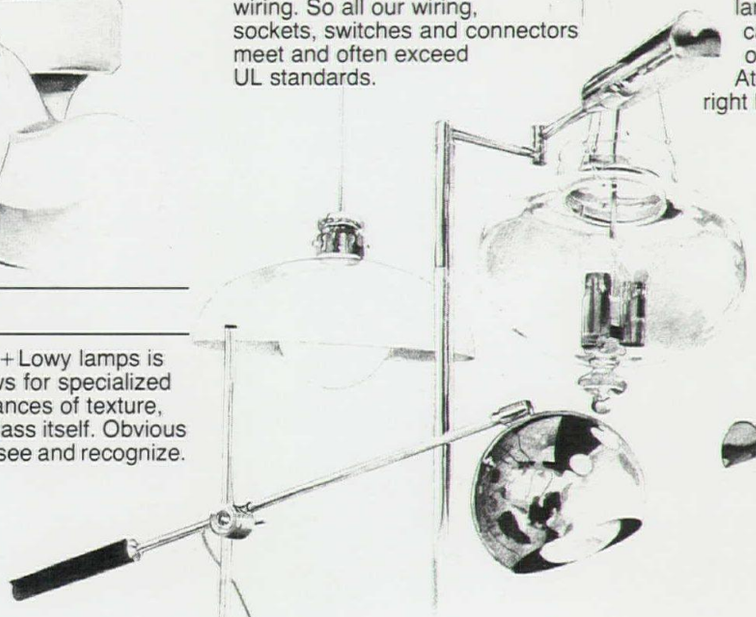

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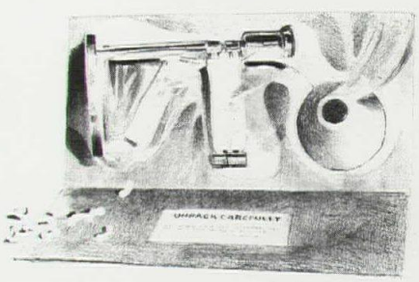

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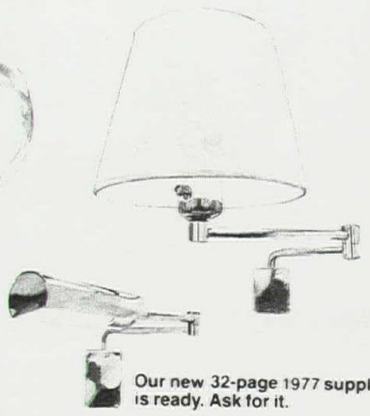

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The Design Log: A New Informational Tool

By Mayer Spivack

In the past dozen years, clients have come to demand more sophisticated approaches to programming and design, especially of buildings with complex social and physical requirements. As specialization increases, so does the volume and complexity of information the architect must manage. It thus becomes necessary for the modern architectural firm to have some formal means of controlling, recording and retrieving successful and unsuccessful solutions for current problems or similar to those it may face in the future.

The design log method is such a tool. It is a systematic approach to design which integrates information about user needs with traditional architectural programming and design. The design log is a record of observations, diagnoses, prescriptions and performance specifications for each space. These specifications, when transformed into question form, can later be used in making postoccupancy evaluations. The more projects conducted under the design log method, the more easily information can be transferred from job to job (so long as they are similar), and the faster will be the learning curve of both architect and client.

The design log may be employed either to generate and document an architectural program which includes behavioral information, or to record design decisions in response to a preexisting architectural program. It may not be used as a substitute for an architectural program. Program requirements may be enriched in later design phases, while the new material is documented in the design log.

The log itself is a simple thing: It consists of sheets of paper clipped into a binder which together give a verbal picture of the design and its user requirements. The design log excerpts which follow are from an interior renovation project. The log for a new construction effort would include more categories, and if begun as a preprogramming system, the scale, scope and kind of recorded information would change and evolve as the design process advances, perhaps beginning with the feasibility studies and site evaluations.

The architectural task is divided into subsections by any useful set of functional categories. Each subsection is addressed in the following sequence:

- Observations are made about the space as it is conventionally used. This will include information from other job experiences and expert knowledge.
- Behaviorally related performance requirements and objectives are listed.
- Generic design specifics are outlined that allow the designers a range of options.
- Exact design and/or materials specifications are recorded.

A recent interior design log for the "quiet room" of a pediatric psychiatry unit of the New England Memorial Hospital, Stoneham, Mass., produced the example abridged below. (Materials specifications had not yet been provided.)

Mr. Spivack is director of the unit of environmental analysis and design at the laboratory of community psychiatry, Harvard medical school. As a private behavioral consultant, his office is initiating a national design log data bank.

Observations (diagnosis): The strategy of isolation in the quiet room is currently employed for any of the following purposes: to calm an overexcited child; to reduce sensory input; to separate fighting children; to contain hostility with impunity; as negative reinforcement in behavior therapy; to make things easier for staff; as punishment which the child may feel is unfair, or at the request of the child.

The existing seclusion room, the "blue room," carries a behavioral message in its design and furnishings. It is indestructible, barren, hard and uncomfortable. A child confined there is "told" that this is not a refuge, that he (there are no girls in residence) is bad or impotent and incapable of positive interactions with others, that he is rejected. He is expected to be destructive, to have no soft emotions requiring warmth and comfort, no gentleness. The room forces the child toward antisocial, asocial or self-involved behaviors, which resemble the behaviors and symptoms his hospitalization was intended to cure.

Performance requirements (prescription): A quiet room should replace the existing blue room. Considerable staff dissatisfaction with isolating a child in a punitive environment led to the suggestion that if isolation is the option of choice, it should be done in the "best room in the house."

The quiet room should be cozy, soft, sparsely and safely furnished so as to seem simple and uncluttered, but not barren.

Injecting user needs into design decisions and recording them for subsequent reference and use.

Whereas the old blue room was unfriendly, the new quiet room should appear inviting and comfortable, a place of refuge and recuperation, where a child can escape sensory overload, find protection, read quietly, nap, be near an observer or sit intimately with an adult protector. When brought to the quiet room, a child should feel, "Oh, she (he) saved me," rather than, "Oh that meanie has locked me up again."

A good place for the quiet room is adjacent to the director's office, the person with the most responsibility. It assures that the room will not be misused for punishment, and that no child will be purposely or accidentally locked in or kept there beyond a reasonable time.

Generic specifications (treatment): The quiet room is a space just large enough for one adult and one child without necessarily invading the child's personal, intimate space. It should be visible from the director's office, through an observation window. It should have a bench, horseshoe-shaped and well padded, with under-bench locked storage in at least two compartments. One of the storage spaces should be permanently locked and used as storage; the other may be locked or left accessible to the children. The accessible compartment should be divided so that it is too small to hold a child. The dividers must be permanent. The

other compartment must have at least two two-inch diameter (no larger) air holes.

All exposed surfaces of the bench seat should be upholstered in foam-padded carpeting. Carpet must meet carpet to avoid smashed fingers and slamming lids. Carpeting should continue around edges and fasten from within. There should be no tacks, staples or nails in places that are accessible to children. Seating surfaces should receive at least two layers of undercarpet foam padding.

Fitted cushions of polyurethane foam should be four inches thick, covered with nonabsorbing removable washable covers, and there should be a minimum of six throw pillows, made of durable materials, easy to replace. There should be storage in the locked side of the bench for fitted cushions, throw pillows, a few books and approximately one cubic foot of additional movable materials.

Wall to wall carpeting should be continuous with the bench, extending upward on the window wall to form a window seat or window shelf. To avoid disorientation and to hide stains, floor/bench/window seat carpeting color should be a darker shade and hue than carpeting on walls and ceiling. The latter should be acoustically nonreflective.

The room should have a solid door with good sound insulation characteristics (equivalent to 1.5 inches of solid wood), and be well gasketed at sides, top and bottom. The door should open inward and have low-torque handles on both sides. No lock.

There should be dimmer-controlled incandescent lighting in inaccessible wall washing ceiling fixtures and an earphone jack outlet so that a child may listen to music through earphones or a small removable accessory speaker.

Quiet air circulation can be furnished by an air circulating system within the building or by a window airconditioner. Windows should be openable.

As a result of relocating the quiet room and staff room, a new space will be created, called the quiet room extension. It will serve as the entryway to the director's office and a quiet nook just outside the quiet room. When the quiet room is not in use, its door may be left open providing a continuous, somewhat protected quiet end of the activities room, a place for reading, watching fish in the aquarium, quiet talk, resting and escape without isolation.

Generic specifications of the quiet room extension will include giving a sense of connection between the activities room and the quiet room through materials and colors; providing a sense of protected shelter and semiprivacy through partial visual barriers (a laboratory grade unbreakable aquarium, 50 gallons or larger; a planter large enough to enclose one 18-inch plant pot and several 12-inch pots; a built-in bookcase; one giant bean bag chair with sealed seams; one additional child-size bean bag chair if space permits; low-level wall-washing lighting, plus incandescent reading light on a dimmer switch). Carpeting should be the same as that in the activities room. (End of log.)

An advantage of the design log is that the design process and its progress may be examined at any stage in the writing of the log, allowing greater control for management. The job captain can quickly evaluate progress, the designer can know where he left off, after an interruption of weeks or days, and the client can confirm assumptions and choices.

In developing the log for any setting, the architect must become deeply familiar with the daily round of life in the population which is to be "fitted" by the new design, so that the resulting log verbally communicates an image of the building for the client which enriches the client's understanding of the occupants' requirements in precise and practical terms. This requires the log writer to interview occupants in order to understand and predict their moment to moment behavior, and then reassure the client that the appropriate environment is not more expensive than one which throws users into conflict with their settings.

As the observers, architects and client collect information about the probable uses of the new space, they should try to predict those uses in the greatest possible detail: mapping, role playing and behavioral modeling (a technique in which the designers go through motions attributed to the users in an attempt to see through their eyes, feel through their limbs and sense their needs.)

Because information will tend to come in unevenly, the design team may begin schematics as early as possible on several fronts, while other parts of the design log are still in earliest stages. The same people who produce the design log (or as many of them as possible) will participate in schematics.

As the schematics are produced and specifications are translated into drawings, designers make decisions. For every line drawn, there is at the bottom a reason, which can always be expressed in words. An example, for the design of a hospital, a design log reads: "Include a small kitchen and eating space for each service, so that patients and patients' families may have the opportunity for normal-seeming interactions over the hospitable and tension-releasing coffee pots, teacups and light food. Being a patient or a visitor is an anxiety-ridden state. Having ordinary things to do in an ordinary place makes it possible to relate in an ordinary way, for a while forgetting the disease and feeling more healthy. A service designed around these principles will produce healthier patients with brighter outlooks sooner than those without."

Use of the log can help clear up misunderstandings that arise during the construction process.

As the design log and the schematics grow together, it is wise to consider calling in, or recalling, a behavioral consultant to review the information in the log. At this point, a talented consultant can save the client money and help the architect produce a more effective building by suggesting simpler and less expensive solutions to chosen behavioral goals.

Any changes which emerge from the meetings are incorporated into the schematics, and architect and behavioral consultant meet with the client, who reviews the minutes of the architect/consultant meeting and the design log, while looking at the schematics and commenting on the outcome. In these meetings, the client and the architect can consolidate their thinking about the new space, largely eliminating last-minute misunderstandings and changes.

The design team now proceeds on its own, just as in ordinary practice. During construction crises between client and contractor, the design log can serve as a valuable reference for the architect. If misunderstandings occur, they will tend to be seen by the client as true misunderstandings, not as a withholding of information or incompetence on the part of the architect. Since the client has been included in each step of the conceptual process, there can be no argument that he was not informed or asked his opinion. Should serious disagreements arise, the behavioral consultant may be called upon to offer opinions about the behavioral outcomes of conflicting design preferences.

After the new occupants take possession of the building and move in, they will often interpret the space in their own ways, arranging furniture according to their experience of other buildings and their expectations of how this one will work.

To increase the likelihood that the building will be used as intended, and will therefore best support the behavior of its occupants, the new users should be provided with operating manuals, which can be derived from the design log. Each room

should also be provided with a damage-resistant sheet describing the use of that space. The architect can also hold a few orientation question and answer sessions for the whole staff or other occupants in the first week, explaining the use of the manual and why the novel procedure has been adopted.

In the first months of occupancy, many unanticipated problems may arise. For this reason, when negotiating the original architectural design contract, the client should be encouraged to contract for several months of collaborative final tuning of the building. Any postoccupancy tuning should be entered as a postscript to the design log. During this period, the architect should be held blameless (by written agreement) for the changes desired by the new occupants or the client, and should be restricted to superficial ones. During this stage, the building has a real chance to adapt to the needs of the users rather than forcing users to adapt their behaviors to the needs of the building.

After at least one year has passed, the building will have begun to acquire "a behavioral patina." People have established their niches, and feel comfortable (or uncomfortable, as the case may be). Furnishings have settled in their places. It is time to go back and take a second look. For the architect who has the intention of building more buildings of this type, albeit with variations for different clients, this may be the most important use of the design log.

By turning the original design assertions into questions, each category of the design log may itself be turned into part of a schedule of questions with which to evaluate the building. The form of the evaluation document will exactly parallel the form of the design log.

It is preferable to have a disinterested person or team perform the evaluation rather than the architect. No architectural firm can be truly unbiased about its own work, and the firm will usually learn more from an outside investigation. A trained behavioral scientist will do the most effective job given the information-cum-questionnaire provided by the design log.

The evaluation should result in a space by space analysis of the intentions of the client and architect. All of the original generic specifications should be reconsidered as working hypotheses, and the performance requirements which precede them reinterpreted as questions. For example, in the quiet room log, the performance requirement describes the environmental qualities the new space should achieve. Behaviors associated with these qualities are defined: "Read quietly . . . nap . . . sit intimately with an adult protector."

The evaluator might ask, do children ever read in the new quiet room? Can an overexcited child be calmed enough in this setting to actually nap, or is this specification too optimistic? Do children allow or invite the close comfort of adult "protectors" in this space, or is the room too small, making them feel smothered, trapped or claustrophobic and making the adult seem an intruder?

Going back to the observations for more questions is also valuable. What are the staff/patient interactions that result in the use of the new quiet room? How do they compare with the original space? What are the implications of these uses (or therapeutic strategies) for the child, and how do they affect him? Was a "best room" strategy appropriate? Why? Why not? What has been the result of this decision on the functioning of the therapeutic program?

The generic specifications give rise to more evaluation questions. "Provide horseshoe-shaped, well padded bench, covered in carpet. . . ." Do children urinate when upset, regressing under stress, damaging the carpeting and foam padding? "Provide . . . carpeting . . . extending upward on window wall to form window seat. . . ." Do children use the window seat and window? Are they typically inwardly or outwardly focused when in the quiet room?

The potential list of evaluation questions would cover many more pages. It would include evaluations of materials specifications (not yet provided by the architect at this writing), perhaps resembling: Does the carpeting selected retain urine odors after shampooing? Do children experience roughness or itchiness on elbows, chin or knees when lying on the bench? Is the acoustic absorbancy of the carpeted space too dead-feeling? Does it feel like a closet and frighten children?

A significant and useful aspect of the system is that it allows information to be recorded in book form and easily stored and processed by a work processing minicomputer. The whole log may be organized, produced and recalled at the same minicomputer terminal. Vast amounts of data can thus be stored and cross-referenced from job to job, put into similar categories and recalled at a later time. A national design log data bank is being initiated to store and distribute design log evaluation and specification information.

By combining the information-generating and recording process of the design log with the information manipulation and retrieving potential of the word processing computer, significant benefit may accrue both to the architects and to architecture. As more projects are conducted with this proposed system and stored centrally in a national data bank, the learning curves of architects and their clients will accelerate. Experience shared through evaluation will rapidly build the expertise of architects, government agencies and institutions, creating more effective and better architecture. □

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*Engineering News-Record, May 18, 1978

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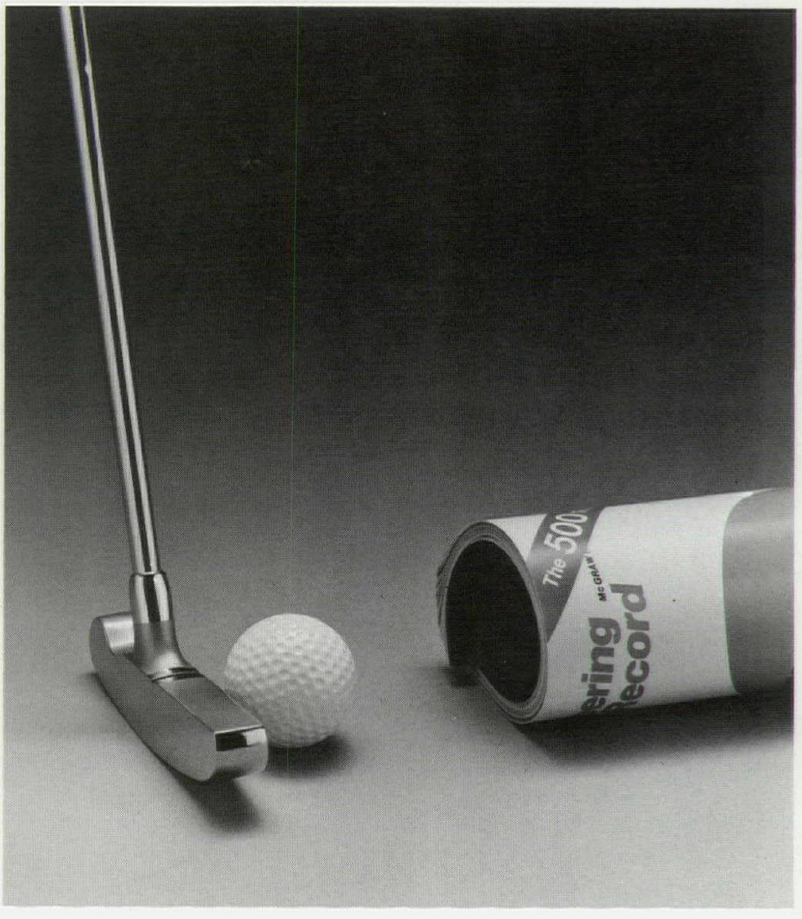

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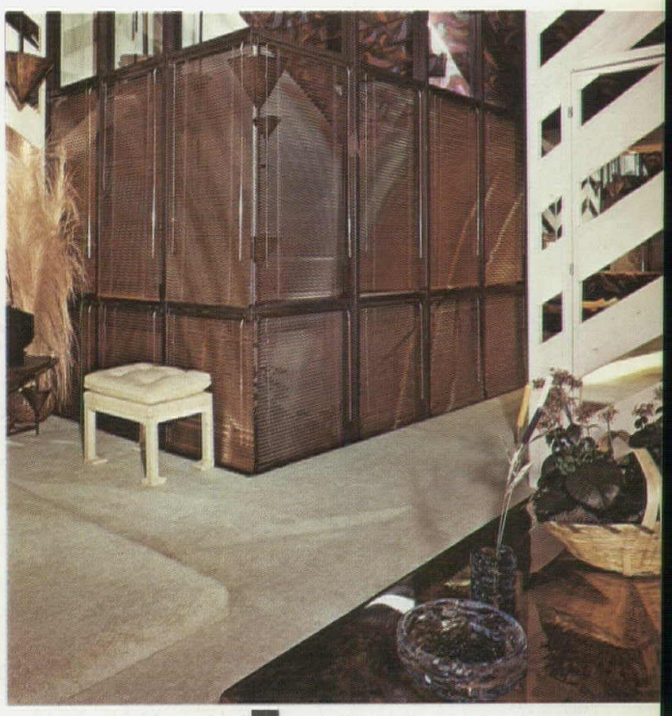

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Powerful 'Little Steps' to End Destruction 'Nonsense'

Earthscape: A Manual of Environmental Planning. John Ormsbee Simonds. New York: McGraw-Hill, 1978. 340 pp. $24.95.

Probably the most remarkable thing about this fabulous book is that it exists. That is, it is about *total* environmental planning and design as an art, and by a master who actually works at that art daily and has already spent years at it—and at big scale for clients public and private, while during all that time the critics of our civilization were saying that it is an incurable mess. They have said this is "not really" the responsibility of architects or of anybody else, but we ought to take "an interest."

In consequence of this general attitude, the monuments (and ordinary marks) of civilization are so utterly defenseless that in 1978 we witness the dismantling of the Parthenon against utter destruction in consequence of the new technological barbarians, thus losing, so to speak, the architectural flagship of all Western "civilization," and with hardly a squawk. But with the appearance of John Simonds' book, we know that positive, organized "environmental planning and design" are here and that we can begin to stop this kind of criminal nonsense of destruction.

What the book brings home to us is how unusual it is to just be sane. Simonds started in 1935 as a landscape architect, became a highly eminent one, but found that his landscape plans were losing out against a generally disintegrating earthscape all around them and through them; so he decided to work on *that*. And since this work is a several times larger assignment, he decided he had to meet it not with bigger words but in an organized way, *step by step*. (Most illuminating is the power of *little* steps.)

The first of these steps was to organize, with others, a firm called the Environmental Planning & Design Partnership. It gave him enough positive and successful experiences to write a book, thus recruiting allies into the ranks. But just in describing it, he found he had to strip for action, cutting down an initial literary essay to the clean bones of a "manual" or "primer." It gives the picture beautifully by describing what has to be done and how and in what order and with what resources that exist.

And before Simonds even begins, he sets a positive tone. Along with specific admission of all the difficulties of contamination and blunders and despoliations and waste and sprawl and the rest, his introduction declares that "these are times of great promise" and in effect gives notice that we simply have "not yet begun to fight."

So he systematically divides the book into 10 main chapters (and a couple of auxiliaries). Of the 10, each deals with some basic element or factor that has a way of getting into most or all of the projects that we plan. Things like earth, air, water or movements of planned community, urbanization or conservation. Of each he gives you a wonderfully succinct but rounded description and for each he gives you experienced steps to take, ex-

continued on page 84

Tallgrass Prairie: The Inland Sea. Patricia D. Duncan. Kansas City, Mo.: Lowell Press, 1978. 113 pp. $20: "Long ago America's mountains found their champion in John Muir. The sea, too, found its interpreter much later in Rachael Carson. And now give thanks, what some have called 'the inland sea' has, at last, acquired its own authentic voice in the person of Patricia Duncan," says Stewart L. Udall in the foreword to this most beautiful book. The author/photographer (the wife of Herbert E. Duncan, FAIA) has devoted almost a decade to her subject. She created a major exhibition for the Smithsonian Institution on the tallgrass prairie which has toured the country for two years (*see* July '76, p. 172). In this book, replete with stunning photographs, she adds word pictures, describing the prairie's people and their interactions with the land, its sunrises and sunsets, sounds and smells, clouds and winds, moods and forms (a native schoolhouse, ca. 1880, near Strong City, Kan., depicted above). When Duncan walks the prairie, she says that she's "an excited child on an Easter egg hunt." The prairie, she says, is "my theater, my stage, my drama." The book conveys her excitement, wonder and love and her deep desire to make the grasslands into a national park. The temptation is just to look and look again at Duncan's fascinating photographs, but the admonition is to read and ponder her words as well. The book would make a welcome Christmas gift.

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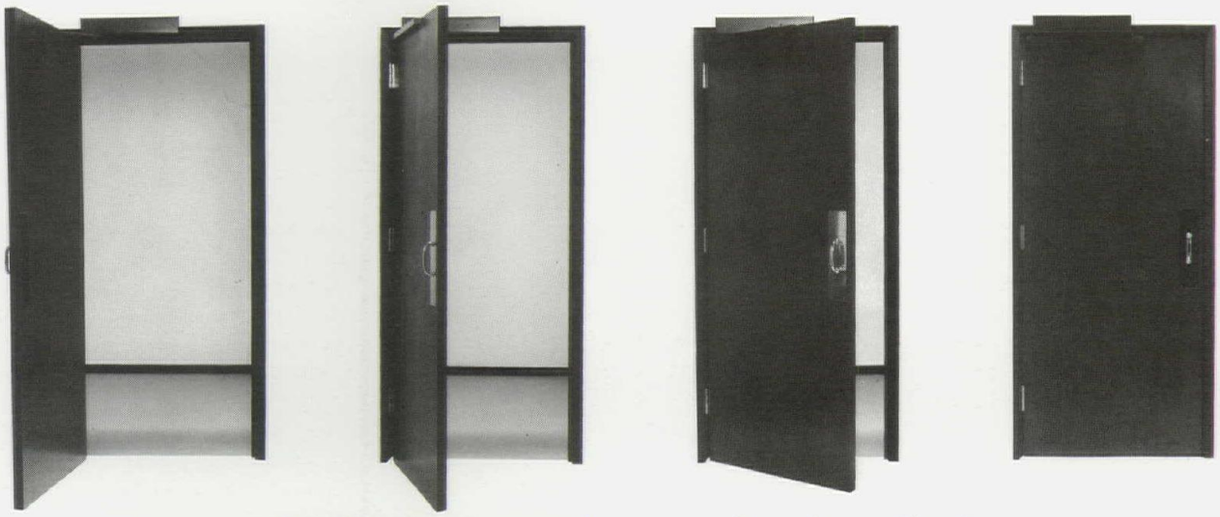

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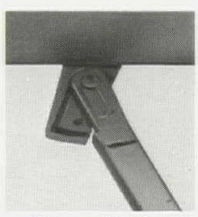

any desired position.

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Books from page 82
pedients to use, right people to consult and all at the proper time. With all this, he manages, by association with a genius designer, Tom White, to run in a combined bibliography, commentary and inspiration along the margin of the page. Case studies are a clincher, and he uses eight. Pages are generous and uncrowded, and you are tempted to read chapters, such as the 40 pages on water, to your wife. Some "manual" that.

And there is a lot of tact. Jobs to do are described but with no prescription as to which profession grabs which of them; government departments are described as "helpful" to get you to convey to them your self-fulfilling expectation that they will be just that.

Perhaps what I have said will give the main characteristics of a wonderfully inspiring book, all based on fact. But one wonders what the architectural profession as a whole will do to share or take the leadership. For there are negative attitudes to be forgot. Thus in a recent magazine some leading architects are described as agreeing to "accept architecture as an art and to *reject* it as a tool for the creation of a social Utopia." Well, under some interpretations that could be all right. But if anything like Simonds' view of total surroundings is to be regarded as a dreamy Utopia, *that* can be all wrong.

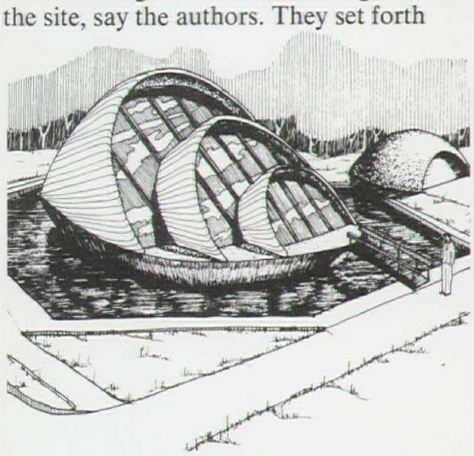
His actions are in the tradition of big actions in the past. Thus even Pharaoh's pyramid was a public works project which was thought to be of indispensable use to the state. The Parthenon gave a beautiful home to Athena, "the dear Koré that lives among us," but she was expected to protect the town. That women and children helped to move stones to the site of the cathedral was because the cathedral so beautifully prefigured Heaven as the Utopia of all. A healthy, realistic environmentalism promises a beautiful scene on a far larger stage. And it's coming, because of intense desire all around. No more fouled Parthenons, or "Love Canals" that malform the kids. Those about to fall behind on this biggest expedition ever will lose influence as well as standing, and had better catch up! They'll love the fun! *Douglas Haskell, FAIA*

Passive Design Ideas for the Energy Conscious Architect. Walter M. Kroner, AIA, and David Haviland. Rockville, Md.: National Solar Heating and Cooling Information Center, 1978. Variously paged. Free.

If an architect "fully understands natural energies such as sun and wind" and is able "to respond to them, through passive design, in all phases of planning, design and construction," he can extend energy savings far beyond those achieved in such construction improvements as upgrading insulation and adding weatherstripping.

Kroner and Haviland illustrate their energy-saving proposals by comparing the concepts for an "energy conscious" house with a hypothetical but typical two-story, three-bedroom "standard practice house," comprising 1,600 square feet of living space.

Energy conscious design, which uses natural energies to the fullest, begins with the site, say the authors. They set forth



some rules of thumb for orientation for solar gain. They present passive design concepts in "packages," discussing building configuration, atriums and greenhouses, using earth to save energy, dynamic structures, building envelope, windows and passive solar collectors and interior subsystems.

Among the many suggestions for an energy conscious house are such ideas as using closets against exterior walls to provide insulation, the use of individual hot water systems, round windows to reduce infiltration losses through cracks, an enclosed entry, double roof construction, a circular floor plan and a revolving (sketch above) or telescoping house.

Kroner and Haviland have also prepared accompanying booklets directed to the builder and to the consumer. Single copies of all three are available free from the Information Center, P.O. Box 1607, Rockville, Md. 20850.

Hospitals and Health Care Facilities. 2nd edition. Edited by Louis G. Redstone, FAIA. New York: McGraw-Hill, 1978. 193 pp. $24.50.

There are more than 40 examples of new and renovated hospitals and health care facilities in this second edition of a work originally published in 1960. The materials are from the pages of *Architectural Record*.

In the introductory overview, Louis G. Redstone, FAIA, comments that the planning approach to hospitals has changed in the last decade because of "important medical advances resulting in a variety of patient treatments, a broader approach to preventive medicine, federal government financial involvement, health insurance programs including Medicare and Medicaid, the hospital-based approach to group practice and the recognition of the necessity of bringing health facilities nearer to the changing population cores." This compilation reflects such changes and their effects on architecture.

Solar Heated Buildings of North America: 120 Outstanding Examples. William A. Shurcliff. Harrisville, N.H.: Brick House Publishing Co., 1978. 295 pp. $8.95.

The examples of solar heated buildings in this country and Canada presented in this book represent, says the author, "the best thinking of more than a hundred solar architects, engineers and inventors." He kept certain questions in mind in making his selection: Is the system effective? Easy to operate? Durable? Cost effective? Esthetically attractive? Technically interesting?

He includes an array of building types, including educational facilities, office buildings, community buildings, arboretums, low-cost houses. His brief descriptions cover such matters as collection, storage, auxiliary heat source, domestic hot water, cooling in summer and problems and modifications.

The book may be obtained from Brick House Publishing Co., Church Hill, Harrisville, N.H. 03450.

Dallasights: An Anthology of Architecture and Open Spaces. Edited by Alan R. Sumner, AIA. Dallas: Dallas chapter/AIA, 1978. 191 pp. $12.95, plus $1 postage and handling (Texas residents should add 5 percent tax).

The reader is reminded in the preface to this commendable guidebook to the architecture of a major American city that there has not been a comprehensive book on Dallas architecture since *The Prairie's Yield* was published for the 1962 AIA convention. It is pointed out that Dallas has changed dramatically in those intervening years. This book "is a record of those developments as well as a selective chronicle of our architecture, which began with the 1840 settlement on the Trinity River."

Prepared for AIA's 1978 convention in Dallas, the profusely illustrated guidebook contains authoritative essays by Dallas architects and others who know whereof they write. Sumner, the editor, has contributed the essay on Fort Worth, Dallas' "companion city."

About 10,000 copies of the guidebook were published. Of that number, about 4,000 copies remain for sale by the Dallas chapter/AIA, 2800 Routh, Dallas, Tex. 75201. Certainly, every architectural, university or public library of any size will want to buy one of those remaining copies. *Books continued on page 88*

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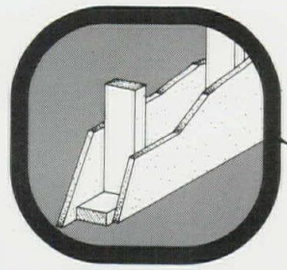

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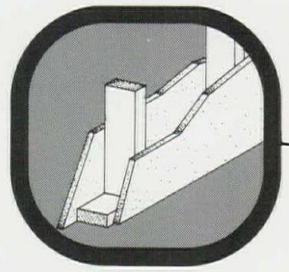

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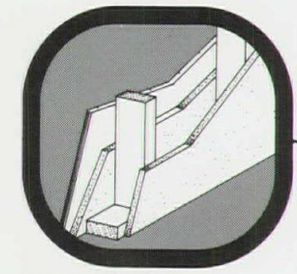

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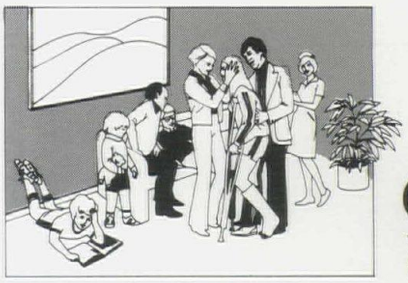

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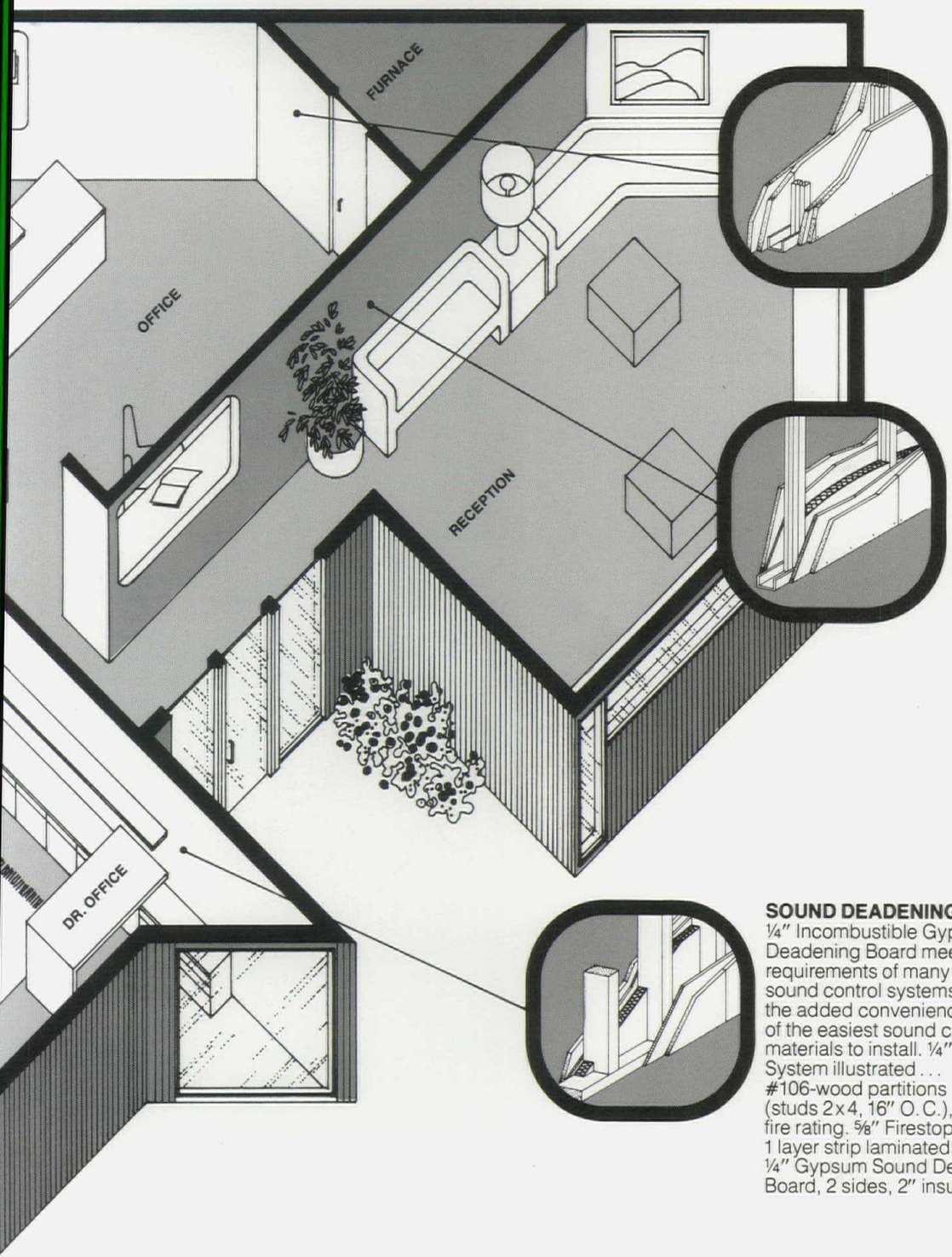

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Books from page 84

Morality and Architecture: The Development of a Theme in Architectural History and Theory from the Gothic Revival to the Modern Movement. David Watkin. New York: Oxford University Press, 1977. 126 pp. $7.50.

Revisionism which has caused a certain havoc in political and social history has, in general, stayed away from architectural history, although there has been some cutting at the edges in the form of so-called postmoderns. David Watkin changes this; his book proposes a full-scale revision of the history and theory of the "modern movement." Arriving on this side of the Atlantic with the boost of several rave English reviews, Watkin's book will undoubtedly be controversial.

At the outset, Watkin notes that his purpose is not to write a comprehensive study of 19th and 20th century architectural history and theory. His basic intention is to unravel some of the main threads of the determinist theory which became the foundation of "modern" architecture. Starting with Augustus W. N. Pugin's major book of 1836, *Contrasts,* Watkin considers some of the principal writers such as Eugene-Emmanuel Viollet-le-Duc, William Lethaby, James Richards, Sigfried Giedion, Le Corbusier, Walter Gropius, Bruno Taut, Herbert Read, Lewis Mumford and Nicholas Pevsner.

Though Pevsner's *Pioneers of the Modern Movement,* published exactly 100 years after Pugin's book, is considered the capstone of the tradition, Watkins continues into the 1960s and '70s, considering the later works of Pevsner, Furneaux Jordan and others.

Watkin identifies as three of the major interpretations by which modern architecture has been promoted: (1) religion, sociology and politics; (2) spirit of the age or the *Zeitgeist,* and (3) rationalism and technology. He observes that, despite seeming objectivity, these interpretations were generally personal and at variance with the facts.

Behind the arguments for a new architecture were conflicting ideals that appear in one form or another in many of the proponents. Most believed that a rational way of building unrelated to prior styles could be evolved—one that would be a direct response to the needs of society (as they should be) and the materials and techniques of construction at hand. But alternatively in the minds of men such as Pugin, Le Corbusier and Pevsner, they already know what the architecture should look like! And, of course, they knew that society should be collectivist, either feudal or Marxian. The Marxian vision that runs through so many of the modern theorists was falacious since it was believed that man could be regenerated through design. Revolution could be avoided.

In the search for a new architecture, the traditional was ignored, leading to a loss of the art of image-making. Or in the words of Pevsner: "The artist who is representative of this century of ours must needs be cold, as he stands for a century cold as steel and glass. . . ." The answer for Pevsner was Gropius, though the cleaned-up Gropius of the Fagus Factory or the Bauhaus at Dessau, and not the messy expressionist.

Certainly, a great deal of what Watkin writes is not new, though few have attempted to trace the consistency of the arguments through a century and a half of writing. Probably the most important section will be his unraveling of Pevsner's work, a major corpus of writing that has informed several generations of modern architects, critics and historians.

Pevsner's position has been basically that of a sociological determinist, believing in the "oneness" or unity of an age and that art and architecture must conform to the idea of the epoch. Individuality loses importance and architecture is seen as expressing either the lofty ideals or the debasement of the period. The ambiguities of Pevsner's scathingly rejecting Victorian architecture as a product of debased capitalism only to later waveringly accept some examples, or how William Morris (a Victorian if there ever was one) could be a father of the modern movement and still absolutely reject the machine, are amply noted by Watkin.

Morality and Architecture is in some senses a historian's book, not only because a general acquaintance is needed with the range of books and ideas noted, but also because Watkin considers most of the writers as historians rather than as theorists or architects. The question of the relation between words and architecture, or theory and practice, is left aside. How much words, and in particular the words of historians, play a role in creating architecture is an issue that could stand some consideration. This is a book of words based on words and not on images; there are no illustrations. In spite of Watkin's claim of the importance of architecture as an art of images, few images will come to the reader's mind. Essentially avisual, it is a very English book.

That historians manipulate history, or in more gentle terms select facts and reinterpret the past, should come as no surprise. There is, of course, the old saw: Each generation uses history for its own purposes. But the investigation needs to go further: Why did (and have) so many architectural and art historians feel it was their duty to become protagonists and advocates of styles or movements, especially the "modern?" Certainly, many reasons can be advanced, including the anomalous position of the teaching of architectural history in schools of architecture or history of art departments, the issue of the historian wanting to be creative, the "progressive" notion of modern thought and, finally, the almost Messianic appeal of "modern" architecture as the art of the new, the forward-looking, tomorrow. Who wanted to stay behind? But ultimately there are deeper reasons for historians and architects that must be examined before a fuller understanding of the modern movement will be available.

In spite of the book's title and the labeling of most of the arguments as "false," "arbitrary," "misleading," "inaccurate," etc., Watkin's own strain of morality comes through. He is going to tell the true story; they were wrong and have created a "brave New World" that nobody wants to live in.

Whether Watkin has an alternative is difficult to determine. He is a historian at Cambridge University and has written extensively on late 18th and early 19th century British neoclassicism, specifically on Thomas Hope and C. R. Cockrell. There is one figure, however, who is a brooding presence throughout the book; although he makes only one brief appearance, Geoffrey Scott and his book *The Architecture of Humanism* (1914; revised edition, 1924) is the tradition in which Watkin is writing. Scott rejected all the various modern analogies (biological, mechanical) and interpretations of architecture in defending the classical ideal, though in the end he did assert that classicism had a certain empathy with the human body. Watkin could be considered as an updating of Scott.

For the American audience, it should be noted that *Morality and Architecture* is almost exclusively concerned with English and continental developments. Only brief references are made to Mumford, Wright and Hitchcock. This is correct since the arguments for, and theory of, modern architecture are almost exclusively European, of which selected parts were imported into the U.S. in the 1930s and after, in the best American eclectic tradition. Sullivan, Wright, the Chicago school and the West Coast progressives are important but different. It takes a great deal of under-the-table card shuffling to present any coherent American theory of modern architecture in the same sense as did the English and Europeans. The American story is still to be told.

The book is difficult and dense in places; and unfortunately Watkin lacks a certain grace in writing. The case is certainly overstated, but the book deserves to be read, thought about and discussed. *Richard Guy Wilson, Associate Professor of Architectural History, School of Architecture, University of Virginia*

Books continued on page 91

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Books from page 88

Chautauqua: Its Architecture and Its People. Pauline Fancher, Miami: Banyan Books (P.O. Box 431160, Miami, Fla. 33143), 1978. 120 pp. $7.95 hardbound, $4.95 paperbound.

Chautauqua Institution, which goes back in history to 1872, is peculiarly American. Over the years, it has drawn thousands of people annually to the center, sited on a lake in western New York state, to participate in programs of art, music, theater, religion and education. Chautauqua was placed on the National Register of Historical Places in 1972. This action led a year later to a movement to have it become a New York State Historic Site. To accomplish this aim, a site survey was made of its more than 700 buildings. This book, by the chairman of the site survey committee, is based on materials gathered.

As Fancher says, Chautauqua's architecture is typically American. The reader learns how Chautauqua came to be, where the people who flock there meet, learn, worship, shop and conduct business. There is information about typical Chautauqua structures and how changes have occurred over the years. There is even more information about the people who have participated in Chautauqua. The 200 photographs included show the buildings—from tents to gingerbread cottages to the interiors of manor houses. There are photographs as well of the people who have participated in Chautauqua happenings, including such celebrities as President Theodore Roosevelt and suffragette Frances Willard.

The Form of Housing. Edited by Sam Davis. New York: Von Nostrand Reinhold, 1977. 282 pp. $24.50.

The best ingredients in this potpourri by different authors are the two chapters that deal with user needs research and with mobile homes. That is good, since they tackle two of the cardinal issues facing housing today: appropriateness and cost.

The first of the two, by Clare Cooper Marcus—using a historical perspective, the skeleton of Pruitt-Igoe and some good suggestions—solidly nails down the thesis that housing isn't much good if the people cannot put up with it. The second, by Sam Davis, who is also editor of the book, ably deals with the mobile home, which is about the only brainchild of our modern housing production thinkers successfully to make a dent in that huge unfilled market, the low-cost home. And it did this by exploiting modern industrial methods of financing, design, engineering, production, marketing, distribution and, yes, service.

The other chapters add a few sharp needles to the growing haystack of writing on housing. Gerald Allen writes about the preservation and reuse (for housing) of our older buildings. Roger Montgomery brings into good perspective the trends toward high-density, lowrise housing. Richard Bender and John Parman trace the rocky road of industrialized housing.

All in all, the book is a good guide to the subject of form in housing, and I recommend it, but with some reservations: Surely it could have been presented with greater sparkle. Chapter headings are vague to the point of meaninglessness ("Housing Struggles and Housing Form," "Housing and Urbanism"). Every one of the chapters could have been edited down by at least 25 percent (there are just too many *words*) and still have kept their message intact. And the book designer to our advantage could have left the constrained Swiss World of Graphics long enough to have thrown in a graphic bombshell or two, some surprises—anything to relieve the grayness.

Most serious is the absence of people. In a book about housing, that most intimate of building types, not 1 percent of the illustrations show any people—and those that do are mostly Alan Dunn's reproduced cartoons. Yes, there is one shot of a planner pointing with what looks like a cue stick at some houses on an urban redevelopment model.

That is all. What a pity that the useful message could not have been clothed in a more endearing medium. *Stephen A. Kliment, FAIA*

Arabia Felix: A Land of Builders. Paolo M. Costa and Ennio Vicario. New York: Rizzoli International Publications, 1978. 184 pp. $30.

The ancient Romans, we are told, once called Yemen "Arabia Felix," or "Happy Arabia." This handsome book by archeologist Paolo Costa and photographer Ennio Vicario reveals a culture and architecture little known to most Americans. The text and photographs complement each other. Costa provides the informative insights through his prose and Vicario the rich beauties through his photographs.

Following an introduction to the architecture of the Yemen, there is a more detailed study of four cities. Sa'dah is the first, and, says Costa, "is the only large city in the Yemen that has so far managed to remain completely uncontaminated by modern development." Manakha, on a high mountain pass, is viewed as a typical example of stone-built architecture. Zabid, on a sandy plain, is important as a cultural center. San'a is the Yemeni civilization's "most outstanding monument," says Costa. "Its quarters, mosques, gardens, palaces and markets constitute an almost unspoilt environment with few rivals elsewhere in the world."

Books continued on page 92

Books from page 91

Public Transportation and Land Use Policy. Boris S. Pushkarev and Jeffrey M. Zupan. Bloomington, Ind.: Indiana University Press, 1977. 242 pp.

Have you ever wondered why public transportation does not work in the U.S.? Have you ever marveled at how well transportation works in most European cities? Have you ever wondered what our national options are in regard to gas guzzling automobiles and urban sprawl? If these questions have been on your mind, this is the book for you.

The authors have done an exceptional job in assembling the most current factual information on the relationships between land use, density and transportation. The material is presented in a way which architects, urban planners, urban designers and if I might add, public decision makers can understand. The book is particularly timely because of the federal government's efforts to produce a national urban policy which incorporates land use, housing, transportation and environment.

There has always been a great gap between the political rhetoric spurred by the imperative to stay in office and the logic and actions necessary to build better cities. If you want the technical information, this book provides it. Let's hope the Carter Administration begins to provide the political leadership. The fact remains, however, that if the American people want low density sprawl and good public transportation at the same time, it will take political courage and a sensitive public to see that the goals conflict. Once this is clear, a political and public consensus can be developed to bring us eventually to workable public transportation. The Arabs have shocked us into starting this educational process.

The U.S., with one-tenth the urban density of European cities, can never hope to have an effective public transportation system over the long haul until land use patterns and urban densities are controlled to make the urban system work better. Even if federal, state and local policy is supportive of moving the urban physical plant toward densities which are supportive of public transportation, it will take decades of adjustment.

In this regard, perhaps the most unique contribution of this book is to show the economic and physical breaking points for various alternative public and semipublic transportation systems. For example, at what urban density can van pooling, or buses, or taxis, or dial-a-ride, or fixed rail become cost effective? This book answers these question in easy to understand prose.

Finally, many of the conclusions expressed in the book were shared by the 1976 Denver R/UDAT team which evaluated the efficacy of a fixed rail transportation system in the Denver metropolitan region. This team visit contributed to the curtailment of a fixed rail system for Denver because such a capital intensive system was unjustified due to urban sprawl and the lack of any prospect of changing the land use pattern to make such a transportation system viable. *Michael B. Barker, AIP, Administrator, Practice and Design, Institute Headquarters*

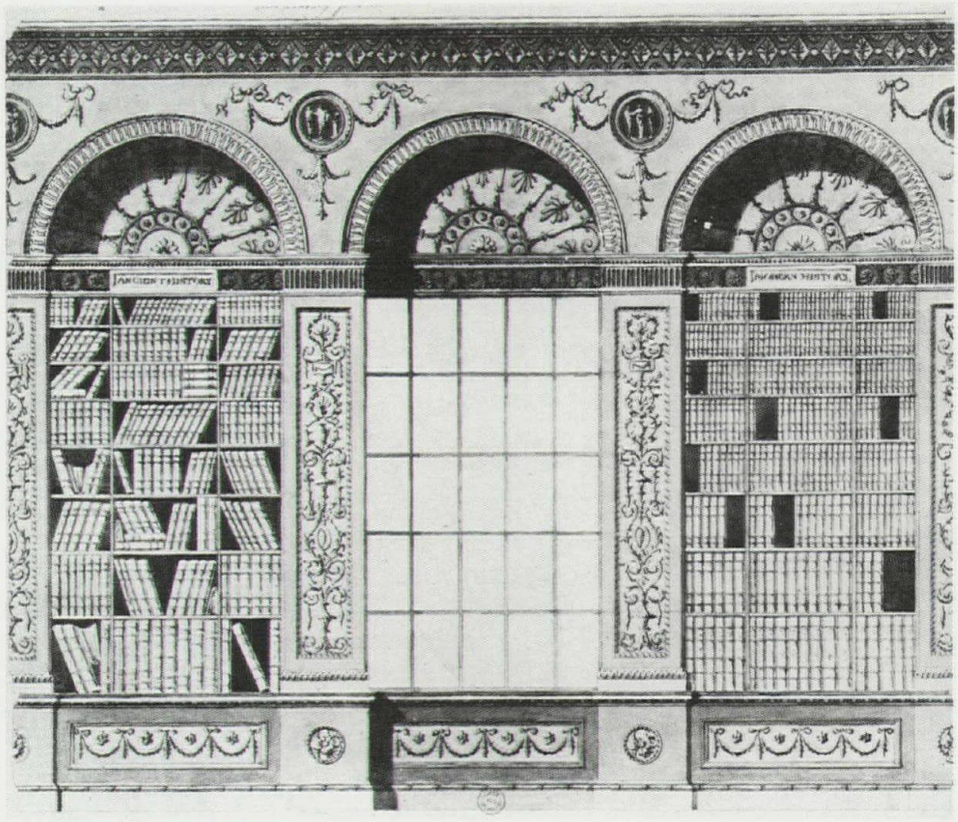
Geometry and the Liberal Arts. Dan Pedoe. New York: St. Martin's Press, 1978. 296 pp. $10.95.

Geometry, one of the seven liberal arts, has always generated keen historical interest. This book, which the author calls a "diversion into the byways of history," tells how enormously important geometry was to such people as Vitruvius, Albrecht Dürer and Leonardo da Vinci.

Vitruvius turned his attention to geometry in working out ways to avoid the howling of winds down certain city streets. The Roman architect wrote his *Ten Books of Architecture* hundreds of years before Euclid. He thought every architect "should be skillful with pencil, instructed in geometry, conversant with history, should have followed the philosophers with attention, should understand music, have some knowledge of medicine, be interested in the opinions of jurists and acquainted with astronomy and the theory of the heavens."

As the author explains and describes, geometry was also of tremendous interest to Albrecht Dürer, who wrote treatises on descriptive geometry and books on human proportions. And Leonardo da Vinci, that amazing artist and scientist, said in his notebooks, "Let no man who is not a mathematician read the elements of my work."

Against this background of three great figures in human history, Pedoe turns his attention to form in architecture, curves and spaces, to Euclid's *Optics* and *Elements of Geometry* and to Cartesian and projective geometry. He provides exercises at the end of each chapter for "those who would wish to experience the esthetic appeal of geometry by carrying out simple constructions, inventing patterns, drawing and stitching curves and envelopes, and finally venturing into the exciting domain of mathematical proof." He says he greatly enjoyed writing the book, and this is evident. *Books continued on page 96*



The Work of Robert Adam. Geoffrey Beard. New York: Arco Publishing Co., 1978. 244 pp. $16.95. This book is a visual survey of much of the work of Robert Adam (1728-92), one of Britain's most celebrated architects. He was equally talented as a decorator and designer of furniture and art objects, and his influence spread as far as Russia and this country. The book contains 181 plates in black and white, as well as 60 in color (all with notes by Beard), the latter revealing particularly the elegance of Adam's designs. Above is a drawing for a library (1768), probably never executed. It shows Adam's "attempts at proportion and elegant decoration," says Beard.

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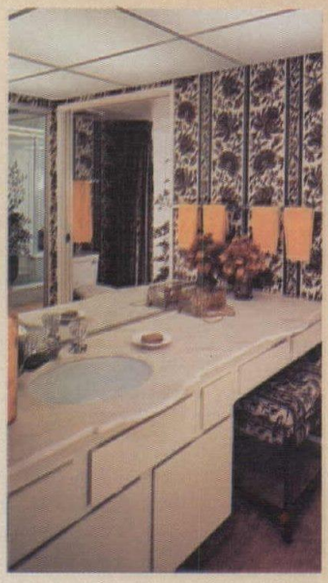

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ENERGY MANAGEMENT VIEWS FROM NECA - THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION VOL. II NO. 5

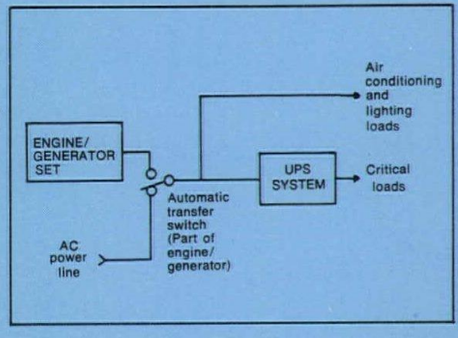
PROVIDING FOR POWER OUTAGES.

Where were you when the lights went out? Perhaps you were in the emergency room of a major hospital. Maybe you had just loaded a new program into the memory of your recently installed computer. Perhaps you were just riding the elevator past the 15th floor. Maybe you were standing in the aisle of a crowded commuter train. Many people have been caught in these unlikely but, nevertheless, possible situations caused by unexpected power failures.

During the recent blackout of a major American city, the headquarters building of a large company remained lighted, one of the few shining examples on an otherwise darkened horizon. Although somewhat incapacitated, the building remained operational and served as a shelter for several hundred people who were otherwise stranded. The source of the building's crucial life support was emergency power. Such a system was not required by every building in that city, but the latest Life Safety Code published by the National Fire Protection Association (NFPA #101 and ANSI A9.1) and many local codes do require some form of emergency lighting and power in the unlikely event of a disruption in utility service.

The Life Safety Code recommends the following applications for emergency power systems: **Places of Assembly**—All facilities with occupancies over 300 people; **Educational Facilities**—Flexible and open plan buildings and those used for night occupancy and portions of buildings with interior and windowless areas, rooms, corridors; **Institutional Facilities**—Each hospital, nursing home and residential custodial care center shall be provided with emergency lighting; **Hotels**—Any hotel with over 25 rooms; **Apartments**—Any apartment building with more than 25 living units shall have emergency lighting (which presumably includes condominiums); **Dormitories**—Any dormitory subject to occupancy by more than 100 persons; **Mercantile Facilities**—Every store with more than 3500 sq. ft. with selling floors above or below the street level; **Industrial Facilities**—Emergency exit lighting shall be provided. OSHA also requires emergency lighting in certain types of industry: **Business Facilities**—Any office building subject to occupancy by 1,000 or more persons; **Underground and Windowless Structures**—If subject to occupancy by more than 100 persons in any room or fire area; **Production Areas**—Many areas in plants and offices containing computers, assembly, fabrication, and processing operations needing power to sustain operations in an emergency.

TYPICAL UPS SYSTEM WITH ENGINE/GENERATOR SET BACKUP. (UPS HANDLES CRITICAL LOADS ONLY.)



The Life Safety Code calls for emergency lighting on the floors of the means of egress at not less than 1.0 footcandles, but preferably 5.0 or more. The lighting should be so arranged "as to provide the required illumination automatically in the event of an interruption of normal lighting..." Acceptable equipment includes unit devices with self-contained batteries, central battery systems, or motor-generator sets. In some situations, uninterruptible power systems (UPS) may be needed to insure that commercially provided power sine waves are not broken when the emergency occurs.

Significant advances have been made in maintenance-free batteries, and new, more appealing designs. Self-contained equipment ranges from small 20-watt single lamp exit illuminators to complete battery and charger packs powering up to three 25-watt lamps and several remote fixtures. New developments in centralized inverter systems include battery powered devices operating high frequency ballasts or 60 Hertz systems that duplicate the utility power supply. In the UPS systems, load current runs through the equipment under normal conditions, enabling it to supply continuous power with imperceptible disruption to critical needs that cannot tolerate even momentary outages.

Code requirements make it absolutely essential that wiring for these emergency systems be kept separate from normal commercial wiring circuits. The most highly skilled and qualified electrical contractors should be contacted for applications and installation aid. For a complete, 18-page analysis of emergency power applications, write for a free copy of EDL monograph 3/74, Emergency and Standby Power Systems.

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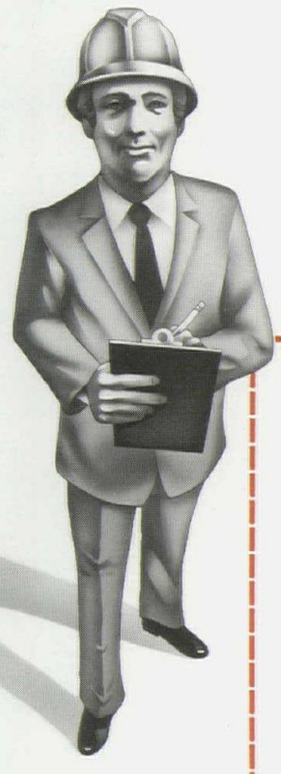

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Books from page 92

Architecture and You: How to Experience and Enjoy Buildings. William Wayne Caudill, William Merriweather Peña, Paul Kennon. New York: Whitney Library of Design, 1978. 176 pp. $16.50.

Bill Caudill, to one who has heard his color-slide talks, is such a shaggy, lovable, fun character that it is difficult to review a whole series of these audiovisual chats in printed form (280 black and white illustrations with marginal comments). One misses the darkened room, the brilliant projected color, the freehand graphics and, above all, the sound effects: an Oklahoma drawl punctuated in a uniquely effective manner by hesitating before certain syllables.

Long before candidate Jimmy Carter and Senator Sam Ervin made big-time political hay with the "country boy" image, Will Rogers from Oklahoma entertained the nation, twirling his lariat on stage as he twanged out penetrating political punitries. Bill Caudill, from Hobart, Okla., is Will Rogers' architectural counterpart.

Armed with similar ingratiating wit and a master's degree from Massachusetts Institute of Technology, Caudill has been winning commissions while purveying his own blend of basic building and planning technology to clients all the way from College Station, Tex., in the late 1940s to Saudi Arabia and points east in the 1970s.

Space for Teaching was his book, intended to help other architects build better schools, but school board members who read it naturally sought out the author. The publication was so successful as "job-getter" that Caudill decided to quit playing professor at Texas A&M College and to form his own teacher/practitioner team with John M. Rowlett, Wallie E. Scott Jr., William Merriweather Peña, et al. His method from the first has been to take the mumbo-jumbo out of architectural planning and design, with heavy emphasis on technical rather than esthetic solutions.

With mounting professional success, and Caudill Rowlett Scott growing in recent years into a publically held corporation with stockholders and offices abroad, Caudill attempted to unhorse the impression of the practicing architect as "prima donna" and to replace it with the concept of *Architecture by Team,* published in 1971. To some historical-minded architects, this seemed to be a semantic switch; it simply updated the well-known office organization composed of dedicated specialists calling upon outside consultants when needed, and, as always, coordinated by the "leader." By strange coincidence, the Spanish word for the leader is "el caudillo."

In its structure, *Architecture and You* seems to string together loosely several slide presentations—visual sermonettes—that simplify architectural esthetics for prospective clients.

Perhaps CRS realized that the firm may have overplayed its role as technologists in a new day when to enjoy is "in." As experienced authors, CRS sees that today how-to-get-the-most-out-of-everything books sell like enchiladas.

Caudill, however, takes no chances. At the outset he warns the reader against people who "describe buildings as works of art. That characterization," he cautions us, "is bad." And then, avoiding pejorative terms like "art" and "esthetics," he proceeds to explain the *art* of architecture, depending upon well-established euphemisms: appreciation, creativity and examples such as emotional response (to a Herman Miller chair designed by Charles Eames).

For professional architects, this newest book from the CRS team is best described as a Caudillized primer for clients and others on a subject known in most architectural schools for more than a generation as "basic design." The authors depart from an academic approach in their own sequence of dealing with abstract visual elements: space (two kinds), form (three kinds), color (but no line) and the various design principles: composition, proportion, etc.

After a brief introduction to basics, using music—not the visual arts as an analogy, the Caudill team disarms readers by interspersing the abstract visual basics in short chapters bearing well-fumigated titles such as envelope, style, environment —both physical and psychological— societal needs, time quality and economy. The final chapter is a one-page "wrap-up." This layman's primer does not risk offending casual, coffee table samplers by exposing him to the sight of floor plans or sections. Instead, there are many large diagrams with directional arrows to explain the abundance of superb photographs.

The Caudill team of authors preserves the chatty, informal slide-talk style by retaining as much slang as possible in a family-hour picture book. One encounters "that old bastard," used pungently to describe a young architect's contempt for his elders, and "the cat's meow" to evoke another era's superlative for pot-bellied stoves. Innocent space is "damned" like water! Aphoristic primers commonly overindulge in generalizations, and this one is no exception. The authors protect themselves by frequent disclaimers. They state explicitly that this primer is for laypeople, not professionals: "It's a book for students of architecture, families of architects, members of building committees [especially?], users of buildings . . ." as well as structural, civil, mechanical and electrical engineers and other technological consultants on the architect's team. They add, however, "If architects who read it see their mission in life more clearly, we won't say, 'We're not surprised'; just, 'We lucked out.' " Remembering Caudill's first book, competitors will recognize his irrepressible sense of humor when he says, "It's the kind of book we hope architects will like to give their clients."

Among a total of 161 photographs in the primer, about 135 are of buildings designed by living architects. The prints are exquisite, made by the country's foremost architectural photographers, in color and black and white. About three out of five buildings "from the living" were generously selected from firms *other than* CRS.

Also, the authors appended to the glossary a select list of 31 architects—names to remember in boldface type—16 "immortals" and 15 living, with short résumés like an architects' who's who. Caudill Rowlett Scott follows Callicrates and Charles Eames follows Leonardo da Vinci. As a token of magnanimity, some 13 other contemporary practitioners have been honored by listing them along with François Mansart, Mies van der Rohe, Sir Christopher Wren and Frank Lloyd Wright. Possible "prima donnas" appear in both groups.

Following the mini-who's who, the Caudill team has included a number of unusual bonus items. These extras include two modified CRS question sets, intended as "quantifiable evaluation criteria." They cover four major factors: function, form, economy and time. One set requires full sentences, the other answers key words.

Then follows the team's own preselected list of places to experience architecture. It is implied that, even after all the do's and don'ts in the primer, the authors cannot trust their readers to evaluate lower-case or vernacular buildings at random. This reviewer finds the idea of an "approved hunting ground" to be disappointing, inadvertently disclosing a major weakness in the book. Perhaps its title should be: "How to Enjoy Our Brand of Modern and Other Architecture with a Capital A."

In spite of all the minor flaws that professionals are still sure to find in the book, our Oklahoma "el Caudillo" rides again with his posse and recruits from Madison Avenue. They have programmed a sure-fire job-getter. But don't be surprised, y'all architects, if y'all also witness by Christmas an announcement of the first architectural best seller since *The Fountainhead,* or was it "Gone with the Low-Velocity Wind Currents?" *Buford Pickens, FAIA, Professor Emeritus, School of Architecture, Washington University, St. Louis.* □

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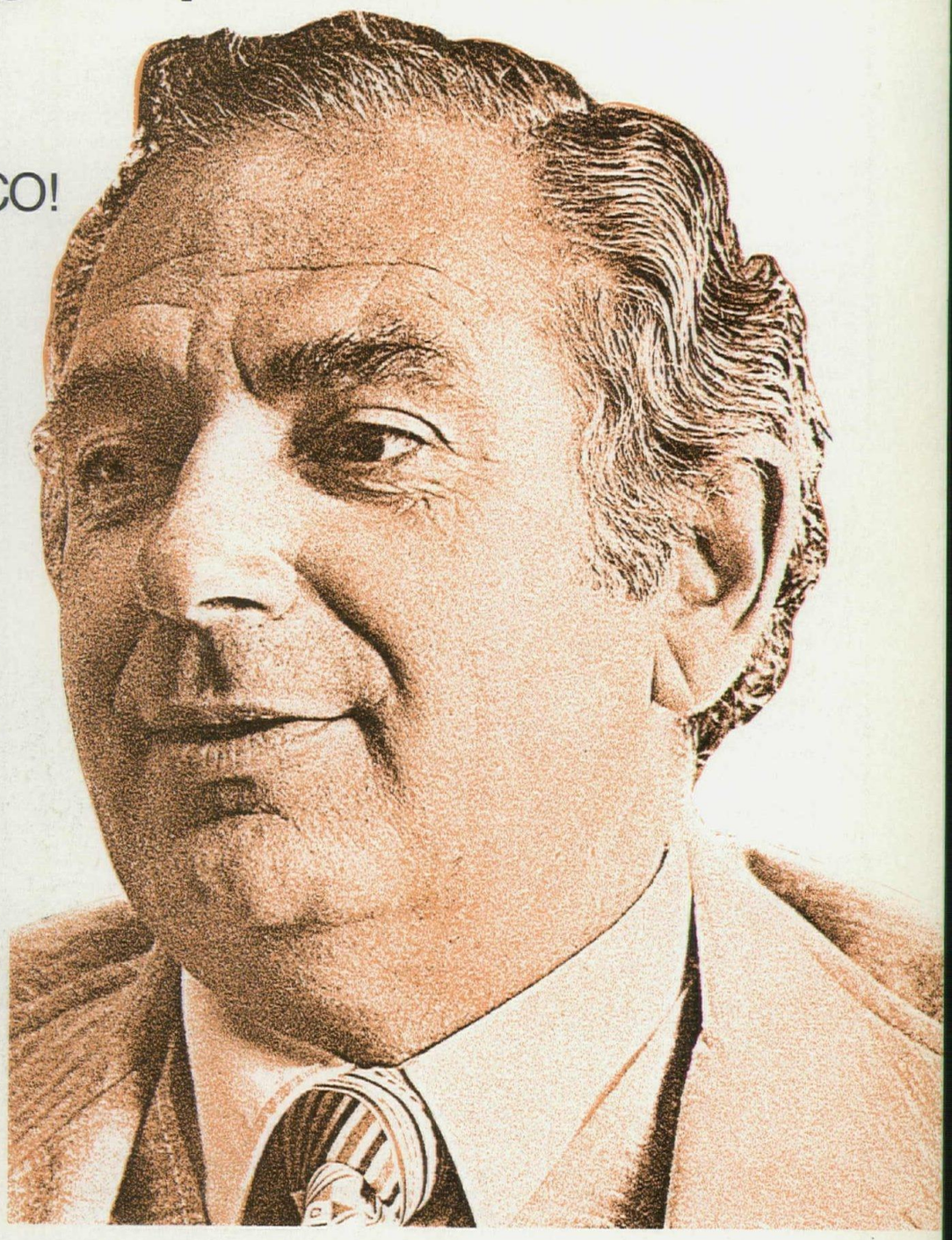

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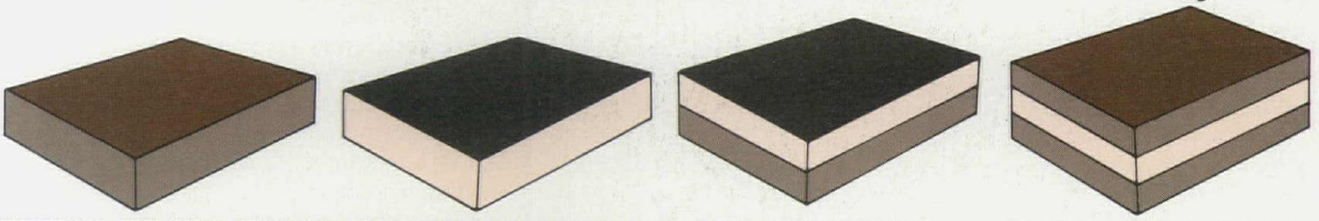

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Letters from page 6

as interesting for the circumstances of its birth as for its design.

Dean McMinn says he does not know of any efforts to unseat him. A rechecking of the original sources for the article confirms that there were heated criticisms of the dean over the outcome of the design workshop, that there was concern for his position, but it may have been an overstatement to characterize this as a campaign against him. Indeed, all parties agree that the relationship between the school and the profession in Mississippi is a close one.

Regarding the registration law, Mississippi has indeed long required architects practicing in the state to be licensed there or to associate with a firm that is. The change in the law that was discussed in the article was the requirement that the association be with a firm resident in the state as well as licensed there.

On the matter of Turnbull's registration, an official statement of the record has been formulated by the attorney for the Mississippi State Board of Architecture. The statement notes that Turnbull had his initial discussion about the project with city officials in December 1974, and applied to the state board for Mississippi registration the following month.

The board told him in April that its rules require that such applications be made through NCARB. He did so and the application along with his council certificate was considered at the board's July 1975 meeting. By then, the board had received "at least two complaints" that he was already engaged in the Biloxi project. The application was denied and Turnbull was invited to "present his position" at the board's October meeting. At that time he said that, having thought he had applied for licensing in January, he signed a contract with the city on Mar. 31. In April, he entered into a joint venture with The Architects Group of Mobile, Ala., which is licensed in Mississippi.

The board then "determined that although Mr. Turnbull was in technical violation of the registration law for a short period of time, at all times he was making a good faith effort to comply with the law." The application was withdrawn and the project proceeded under the joint venture.—Ed.

The 'Honoring' of Architects: As the mid-May issue indicates, architects are honoring themselves again. At a time when architects are being criticized more and more for their ineptitude, dishonesty and, indeed, esthetic talents, we architects have the audacity to honor each other with various awards programs for so-called distinctive work. Who in architecture can really be set up as a judge of someone else's work? What qualifications must such a person have to be such judges? Our society is brainwashed by various experts claiming this or that as outstanding, or the greatest works of art since the pyramids.

It is ludicrous for architects to honor one another for work accomplished. We are one of the few licensed professionals to pat ourselves on the back for work done in the past and present. Do doctors give awards for outstanding operations, or lawyers for defending much publicized cases, or accountants for keeping books perfectly straight? The ego of architects must be great to stoop to this level, particularly at a time when the work we are honoring is questionable indeed.

It would be far better if we eliminated all self-laudatory programs, which are no more than advertising for successful architectural firms. We should spend more time in refining our services to society than currently is being done. Architects have really become peddlers of their wares rather than artisans of building technique.

What will history say about the architecture of this country erected between 1950 and 1975? Not much, I fear, because little has been done but eclecticism in glass and steel boxes and cages.

Why can't we architects rise to the same level as doctors and lawyers, or even above? It is about time architects became leaders in our society instead of

continued on page 100

cambay

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Letters from page 98

followers. Why not let our works endure the test of time and be honored by the users of our buildings? Even Mies van der Rohe would not live in one of his own designs. I wonder why?

James R. Cronin, AIA
Palos Heights, Ill.

The Cannery: I enjoyed the article in the July issue (p. 50) on San Francisco's Cannery. It was accurate, straight and generous and gave credit to Leonard Martin who, in most articles I've seen, never received the credit due him.

I realize that in an article such as this one it sometimes becomes cumbersome to give all the people the credit they properly deserve, but there are several whose work was of particular importance. Techniques developed by Rutherford & Chekene, structural engineers, for dealing with old brick buildings remain to my mind still the most sensible approach with such structures in seismic hazard areas. Obviously, I didn't do the whole thing myself, even out of this office, and Peter Dodge, who was the project architect, and Charles Davis, who handled most of the construction administration, were very important in the project. Lew diSibio and Gerald Lee, who have left our office, also played major roles. And finally, somewhere in the middle of the project, we went from Joseph Esherick to Esherick Homsey Dodge & Davis.

Joseph Esherick, FAIA
San Francisco

'Unburdening' in Rest Rooms: There has been much talk of late, and action even, in the interest of making buildings and other public facilities accessible to the handicapped. So far, so good—the nation's architects have recognized their past insensitivity to such need and have taken steps to overcome it.

As a nonarchitect, however, I wish to protest an even more persistent perversity of the profession, a habitual offense that most designers commit unthinkingly and, therefore, have made no attempt to rectify.

Those of us who happen to be in a public rest room with any sort of parcel, book or other encumbrance must all too often juggle that encumbrance in one hand while conducting the business that brought us into the rest room with the other, the clumsiness of which must be evident to anyone who stops to think about it. This sort of situation must occur millions of times daily across the country to book-toting students, package-laden shoppers, memo-bearing bureaucrats, in fact, nearly all of us. And to discover a rest room designed in thoughtful anticipation of such an event seems to be the exception, not the rule.

Quite often in such situations, one finds a towel dispenser, oversized wash basin or some other appurtenance not intended to support anything but which nevertheless tempts the patron to precariously balance his parcel thereon. Chances are the item will have fallen, or at least will have gotten wet, during its owner's brief interlude of inattention. Better there were no appurtenances at all than the enticing but treacherous devices one usually encounters.

I should like to see a requirement that for every toilet or urinal in a public rest room that there be provided at least one square foot of level, dry, usable, adequately supported surface area that the patron might utilize to unburden himself while he relieves himself. *Grant R. Snyder*
Albuquerque, N.M.

Nevada Architects: The article entitled "A New Reference Source for the Profession" in the August issue (p. 66) leads the reader to believe that there are fewer than 25 firms in Nevada. Before concluding that Nevada is "underarchitected," the reader should consider the following: My sources indicate that there are approximately 75 firms practicing architecture in the state (42 of which are AIA firms), while registered Nevada architects number 655, including 113 who are also Nevada residents. We are relatively small in numbers, but not as small as indicated in the article. *Barbra M. Reedy, AIA*
Secretary/Treasurer
Nevada Society of Architects/AIA
Reno

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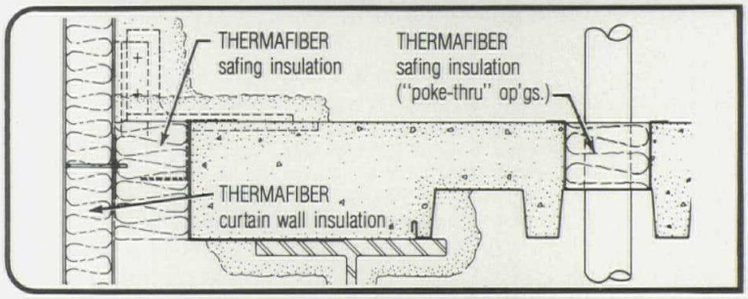

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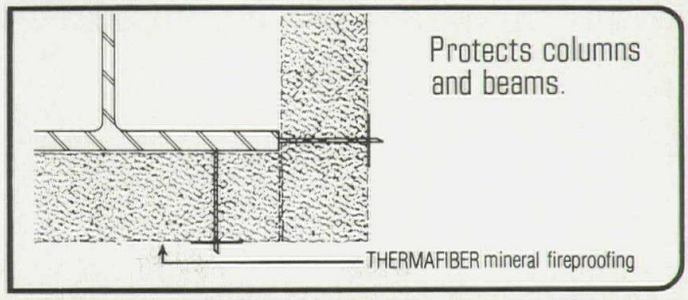

UNITED STATES GYPSUM
BUILDING AMERICA

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allocated annually for metropolitan cities and urban counties. HUD has awarded since April more than $261 million to metropolitan cities.

New applications from smaller cities are now being received, and the next awards will be made in early November. A fairly typical example of the first awards to smaller cities is one to Coachella, Calif., of $440,000, supported by $2.7 million in private funds, to extend a water main for private industrial expansion. It is estimated that 54 new jobs will be created, 96 jobs retained and there will be 114 construction jobs.

Melbourne Offers $115,000 For Design of Landmark

Sydney, Australia, has Jorn Utzon's Opera House; London, Big Ben; Paris, the Eiffel Tower; New York City, the Statue of Liberty. Melbourne, Australia's second largest city, wants such a landmark: "an international image." An international design competition for the landmark is expected to be launched early in 1979, offering a prize of about $115,000.

Recently, the premier of the State of Victoria, Rupert Hamer, announced the landmark project, which will be directed by a committee of businessmen, academics and community leaders. "We seek a concept for Melbourne which will be outstandingly distinctive, attractive and impressive," said Hamer, "an idea that will capture the imagination and custom of people across the globe. We aim to attract ideas of international significance, ranging from the world-ranked professionals to people who feel they have a once-in-a-life-time brainwave."

The proposed landmark, which need not be a building, will be located over the 74-acre railway yards on the southern edge of the city, bordered by the River Yarra and the parklands surrounding Melbourne Cricket Ground (photo below). There have been nine proposals for redeveloping the site since World War II.

Melbourne, with a population of 2.7 million, is known for its sensible street plan, formal parklands and handsome public buildings. It is regarded as the financial capital of the nation since many large companies and banks have their headquarters there. The city, however, has never been able to match Sydney, with its beautiful harbor and its identifying Opera House.

For more information contact the Melbourne Landmark Committee, 117 Collins St., Melbourne, Victoria 3000, Australia.

Billboard Control Bill

AIA is opposed to some of the proposed changes in the federal highway aid bill (HR 11733), which would reauthorize the highway beautification program. Certain provisions, said President Elmer E. Botsai, FAIA, in a letter to members of the House, "would be a step backward," reversing enhancement of the environment and hampering state, county and municipal efforts.

One of the changes that would deny local governments to control their own roadside environments, Botsai said, concerns the removal of offending billboards. Under existing law, a noncomplying billboard removed in accordance with the federal statute should be paid for in cash under a "just compensation" provision. Because the federal program has been

continued on page 104

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"sparsely funded," Botsai said, local jurisdictions in practice have taken the lead in billboard control and have used amortization to compensate billboard owners, allowing an offending billboard to remain for a specified time, in violation of law, until its economic value can be recovered.

Under the proposed legislation, local jurisdictions would lose this power and would be required to make cash payments for removed billboards. AIA contends that the necessary funds are not available at the local level and that local leadership would be denied.

Downtown Design Trends: Complexity and Unification

"Downtown design has finally matured into a science and an art," says the *Downtown Mall Annual & Urban Design Report,* recently published by the Downtown Research and Development Center. In nine articles, the report examines urban design ranging from auto restricted zones to pedestrian malls to enclosed urban shopping streets. Included are discussions of the urban design implementation process, urban mall design criteria, pedestrian behavior and pedestrian signs.

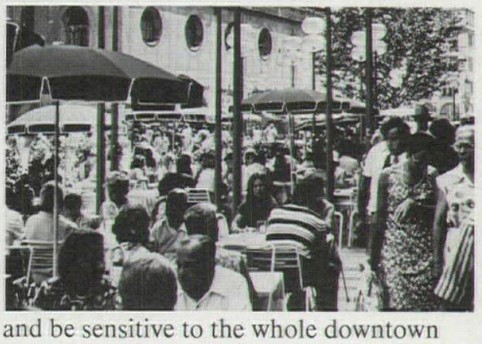
The report suggests that the trend is toward much more complex urban design. "The pressures toward compactness, to multiuse, to linkage, all demand more complex and often elaborately conceived and designed downtown spaces. The trends to more enclosed streets and alleys, more elevated skywalks and tunnels, to more canopy and to the covering system, to more gallerias and winter gardens are all part of this. Design appears to be steadily moving toward more and more unification of all downtown space—into mega-downtowns, in small and large towns alike."

Experiments in auto-free zones have been successful in many European cities, such as Munich (photo above), Copenhagen, Vienna, London and Milan. "Some pedestrian malls have come about not just from the notion of creating a more pleasant pedestrian shopping street, but also from efforts to find specific cities where many small streets are burdened with the ubiquitous automobile." Such malls or auto-restricted zones are found in Fresno, Calif., Kalamazoo, Mich., Louisville (street downtown shopping malls); Minneapolis and Philadelphia (pedestrian/transit malls), and Chicago's State Street (mall now under construction).

In both Europe and the U.S., the report states, pedestrian or auto-restricted malls have brought an increase in retail sales from 30 to 40 percent. "In the short range," says the report, "the street environment for thousands of downtown workers can be greatly improved; buses and bus passengers can be accommodated in adequate rights-of-way and shelters, and a rational system of good delivery becomes possible. In the long run, an auto-restricted program or pedestrian mall can tie together now isolated renewal projects into a network of improved public spaces, and can set up incentives for the preservation and reuse of older commercial structures."

Pedestrian malls or auto-restricted zones may not solve all urban ills, says the report, but they can serve to maintain or revitalize downtown areas with basic economic potential.

The report warns that the design of a mall must take into consideration the viability of downtown as a regional resource



and be sensitive to the whole downtown area. "Unless the mall is developed as part of a revitalized whole, together with buildings, reorganized space, adequate parking, unless the whole area is conceived of and designed as a unit, the mall may be easily only a temporary solution and a perpetuation of present disorganized conditions."

The report can be obtained from the Downtown Research & Development Center, 270 Madison Ave., New York, N.Y. 10016.

State Energy Regulations Analyzed in New Reports

Three new studies have been published by the National Institute of Building Sciences (NIBS) to help architects and others in the building community understand state energy conservation laws and regulations of the last few years.

NIBS was created by Congress in 1974 as a nongovernmental, nonprofit organization to promote order in building regulations and to facilitate the introduction of new and existing technology. The reports are entitled "States' Energy Conservation Standards for Building: Status of States' Regulatory Activities," "States' Energy Conservation Standards for New Construction: Development, Administration and Enforcement Processes" and "States' Energy Conservation Standards for New Construction: State Legislative Analysis."

For "Status of Regulatory Activities," contact was made in each of the 50 states and the District of Columbia. The information, presented in tabular form, answers such basic questions as: Which states have legislative or other authority to issue energy conservations standards? What types of buildings does the authority cover? Are standards mandatory? This report concludes with a state-by-state list of sources for building codes and standards, energy policy and standards administration and enforcement.

"Development, Administration and Enforcement Processes" is based on telephone interviews with officials in each of the 45 states and the District of Columbia with existing or pending laws concerning energy standards for new buildings. Among other things, this report cites and describes state laws; gives a rough outline of resources being committed by each state to implement energy standards, and lists the agencies with the responsibility to enforce laws and regulations.

For "State Legislative Analysis," the 29 states with legislative authority to enact energy standards were contacted. Some excerpts from relevant legislation are quoted and legislative prescriptions are described and analyzed. Among the information provided is whether the states' standards are prescriptive, based on performance or both.

The reports, $10 each or $25 for the three, are available from the National Institute of Building Sciences, 1730 Pennsylvania Avenue N.W., Suite 425, Washington, D.C. 20006.

Use of Color for Safety Examined in New Booklet

It's a matter of recorded fact that the use of color to mark danger spots has been an important factor in safety in industrial plants. "A decrease in personal injuries as great as 40 percent has followed the use of a uniform color program," according to a booklet entitled "Safety Color Code for Marking Physical Hazards and Pipe Identification." The safety index rises noticeably "when dangerous parts and objects are marked with attention-impelling colors, when aisleways are outlined with zone marking lines; when dark passageways and areas are made lighter with light-reflecting colors."

With the passage of the Occupational Safety and Health Act in 1971, it became mandatory that industry meet color code standards. In the same year, the American National Standards Institute brought out a revised version of a 1945 standard on safety color code for marking physical hazards in order to provide a coordinated standard for any plant in any industry. Wide use of the standard permits a worker to go anywhere—even to change employ-

continued on page 106

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ment—and read the color signals. As the booklet points out, there must be a logical pattern in accord with traditional color usage. Reaction to the color "should be immediate and positive," with no doubt as to the message conveyed.

According to the color code, red designates fire equipment, containers of flammable liquids, lights at barricades and obstructions and emergency stop bars and switches on machinery. Orange tells the worker that certain parts of machinery and equipment are dangerous; yellow (with the exception of white, the most visible of colors) marks a definite hazard such as place where one may stumble, fall or trip. Green is associated with safety and is used, for example, to locate first aid kits; blue warns that equipment is undergoing repair; purple is used for radiation hazards, and black and white for traffic and housekeeping markings.

Pipe identification is by color also. Red designates fire protection equipment; yellow or orange, dangerous materials; blue, protective materials, and green, white, black, gray or aluminum, safe materials.

"Safety Color Code for Marking Physical Hazards and Pipe Identification" is obtainable without charge from the Sherwin-Williams Co., 101 Prospect Ave. N.W., Cleveland, Ohio 44115.

Russian Embassy Rising But Red Tape Slows U.S.

The U.S. appears to be lagging in a race with the Russians to build new embassies. The Soviet embassy complex rising on Washington, D.C.'s Wisconsin Avenue is well along in construction, while the American counterpart remains a cleared and fenced-in site on the Moscow River.

The U.S. has wanted to expand its Moscow embassy since the 1930s, and the Soviets have said they have wanted to move, expand and consolidate since the early '60s. To accomplish each country's goal, a treaty was signed in two parts, one in 1969 and one in 1972. The complexes were to be built simultaneously on land leased in each other's capital.

But the schedule hasn't worked out to plan for the Americans because the State Department and the Soviet government haven't been able to agree on a construction contract. A State Department official told the *Washington Post* the Russians are draggin their feet and that a construction contract may not be signed until next spring.

He said that it may appear that the Russians are way ahead in the embassy race, but that in fact the buildings now rising are for a school, gymnasium and apartment house. Permission to build the chancery and administration building will be denied until the U.S. gets the go-ahead for the complex in Moscow. (The Russian complex was designed by Mikhail Posokhin, Soviet chief architect, with John Carl Warnecke & Associates. The Americans' design is by Skidmore Owings & Merrill and Gruzen & Partners.)

The Russians would appear to have a better site, too, atop Mount Alto, the highest point in the District of Columbia (the Washington Cathedral is a neighbor), overlooking Georgetown, a half-mile from the vice president's residence and unblocked for possible electronic surveillance of the Pentagon and State Department. In contrast, the U.S. site in Moscow is one of the lowest in that city and hemmed in on three sides by apartment houses. A State Department spokesman said the river site was chosen over a higher, less congested site in a Moscow suburb because it is only a mile and a half distant from the Kremlin and more convenient.

The District of Columbia government should benefit from the new Russian embassy location. The Russians, who have been among the most delinquent in paying parking tickets, will have all on-site, off-the-street parking.

Going On continued on page 108

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For more information, see Sweet's, File 8.26/Cy or write, Lou Cipriani, CY/RO Industries, Wayne, New Jersey 07470. He can provide additional technical data and design assistance. Can't wait? Call (201) 839-4800. In Canada, Chemacryl Plastics, Ltd., 73 Richmond Street, West, Suite 500, Toronto, Ontario M5H 2A2, (416) 869-0013.

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Big Cities Seen Showing Signs of Economic Revival

The nation's largest cities show signs of returning to economic self-sufficiency, according to J. Thomas Black's *The Changing Economic Role of the Central Cities,* an issue paper released by the Urban Land Research Foundation.

Based on statistics from 35 metropolitan areas with populations over one million, Black challenges the view that the South and West are growing at the expense of the Northeastern and North Central states. According to his study, all regions of the country are growing in income, jobs, income per capita and population. The Northeastern and North Central regions of the country still outpace the South and equal the West in growth, while in terms of employment, the frostbelt provided more jobs per 1,000 than the sunbelt in 1976. The Northeast, for example, provided 371 jobs per 100 as compared to the West's 355 and the South with 352.

All 35 metropolitan areas showed gains in total personal income from 1969 to 1975. The average 1975 income was $6,475, some $500 higher than the national average.

At the same time, however, the past 15 years have seen industries move to the suburbs in increasing numbers, leaving the central cities unable to support themselves. In general, the larger cities have failed to provide enough jobs for all of their residents, and unemployment rates in the central city have remained high. Black sees little good, however, in granting subsidies to poor families who would otherwise leave the city in search of work. Rather than turning the cities into "caretakers of the poor," he advocates capitalizing on the cities' expanding role as high-grade service, administrative and cultural centers. The economic future of the city depends on policy makers' ability to recognize and accommodate the changing function of American cities, Black concludes.

Copies of the report are available at $4 each from the Urban Land Institute, 1200 18th St. N.W., Washington, D.C. 20036.

RIBA Golfers Win Back Trophy from AIA's Team

AIA's unofficial "Golf Society" met its counterpart in the Royal Institute of British Architects in a golf tournament held recently on two courses in Westchester County, N.Y. The British came away winners, taking back the trophy won by AIA golfers in Scotland in 1977 (*see* Oct. '77, p. 32). Nearly all who participated in the Scotland event were present for the second tournament, with some added for good measure.

The British contingent was led by architects David Y. Davies and William Jenkins. American leaders Carter Williams, FAIA, and J. Winfield Rankin, Hon. AIA, were succeeded after the tournament by Robert Eddy, AIA, and Robert E. Clark, AIA, both of California. RIBA is planning a return match in 1980, and American architects hope to act as hosts in 1981, tentatively planned for the California area.

The Americans did not go down in complete defeat, however, for the women's team retrieved the trophy captured by the British women in 1977. The trophy will stay meanwhile at AIA headquarters until the next match in 1980.

AIA golfing members who are interested in future tournaments may ask for information from Robert E. Clark, AIA, 304 S. Broadway, Los Angeles, Calif. 90013.

BOCA Redefines Category For Architect Membership

At the recent annual conference of the Building Officials and Code Administrators (BOCA) International, Inc., changes were made in the association's bylaws. One change redefines the professional membership category to specifically include practicing architects and engineers licensed or registered in the state where they practice. Another change in the bylaws involves an expansion of code change committees to include representatives of relevant interest groups but requiring that majority of each committee be active (governmental) members of BOCA.

The convention also elected Glenn A. Erickson, city architect of St. Paul, Minn., as president of the association for the 1978/79 term.

Deaths

Alan Fisher, Denver
Juris Jansons, Reston, Va.
Henry S. Mowbray, Washington, Conn.
Arthur E. Stauder, St. Louis
Gerard A. Van Leeuwen, San Diego
F. Victor Wulff, Bonita, Calif.

Charles Eames: Winner this year, with his wife Ray, of AIA's 25-year award for their prefabricated steel house in Pacific Palisades, Calif. (*see* April, p. 11), Charles Eames also won other Institute honors. In 1957, he was the recipient of the craftsmanship medal for furniture design, and, in 1962, he was awarded the industrial arts medal. Mr. Eames died unexpectedly on Aug. 21 at the age of 71 in his native city of St. Louis where he was consulting on an architectural project and making a film on the French artist Claude Monet.

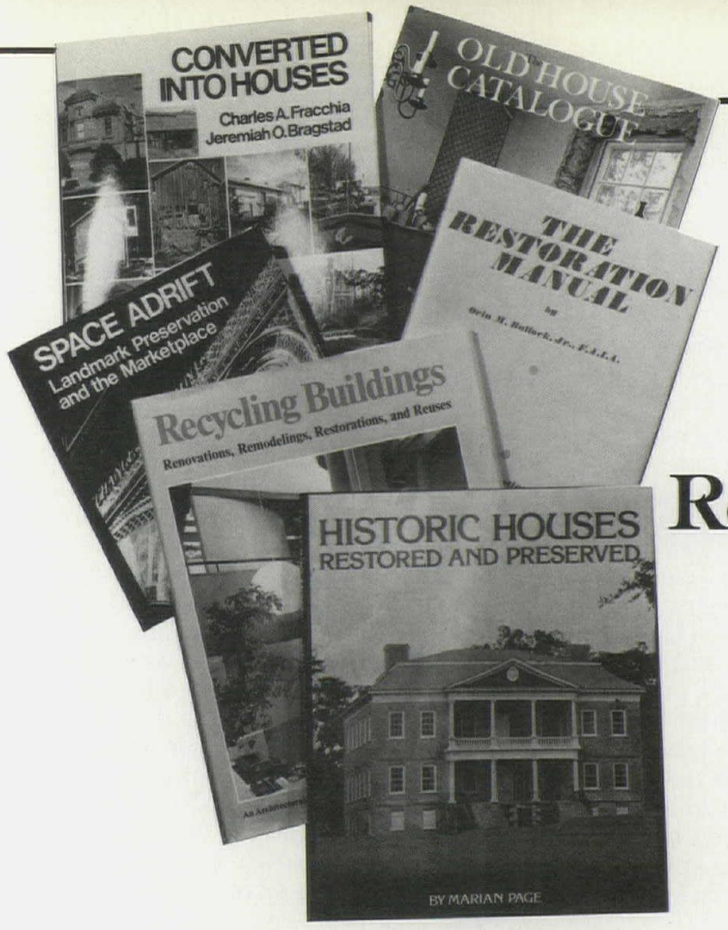
The *Washington Post* hailed Mr. Eames as "one of the two or three greatest mid-century modern designers," saying he "profoundly altered the way people learned through looking." David Olan Meeker Jr., FAIA, executive vice president of the Institute, said, "To properly assess Charles Eames' extraordinary contributions to contemporary design, we must also recognize his remarkable attitude toward his work. Eames was an architect, inventor, designer, poet and film maker, yet we can perhaps benefit most by understanding his professional approach. He had fun with each project he undertook and he looked at each new challenge with genuine enthusiasm. His brilliance as a designer is indisputable, his influence on 20th century design unparalleled."

Mr. Eames studied at the Cranbrook Academy of Art in Bloomfield Hills, Mich., under a fellowship awarded him by Eliel Saarinen. It was there that he met Ray Kaiser to whom he was married and with whom he collaborated on many designs and films. In 1940, with her help, he and Eero Saarinen won a chair design competition sponsored by the Museum of Modern Art, New York City. Perhaps he is best known to the public for his chair designs, including the award-winning molded plywood chair, the Fiberglas chair (1950), the classic "Eames chair" (1956) and his designs for tandem seating in airports. The sculptural chairs, produced by the Herman Miller Co., have been sold by the thousands.

In the 1950s and '60s, Mr. Eames became increasingly interested in film and multiscreen presentations. Collaborating with George Nelson, FAIA, he produced a multiscreen film for the U.S. exhibition in Moscow in 1959. This technique was elaborated upon for the U.S. science pavilion at the 1962 Seattle's World Fair. He and his wife made more than 50 films which critics have called works of art in themselves.

AIA's 1962 citation of Mr. Eames read: "His genius encompasses furniture, films, industrial and consumer products, exhibitions and graphics. Dividing his remarkable creative gifts among all of these specialities as well as architecture, poetry and several others, he has nevertheless succeeded in making contributions to each. In an age of narrow specialization, he is truly a Renaissance man."

Mr. Eames, the recipient of many honorary degrees, served on many committees, including the National Endowment for the Arts. *Newslines on page 110*



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*The Restoration Manual
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*Historic Houses Restored and Preserved (3-M268)

By Marian Page. Behind-the-scenes view of the restoration of 19 Historic houses—representing four styles of architecture—their philosophies of preservation and priorities. Hardcover, 208 pages, 200 photographs (1976). $25.00 Non-member, $22.50 AIA member

*Denotes books published by organizations other than AIA; may not be in accord with AIA policy.

*Recycling Buildings: Renovations, Remodelings, Restorations, and Reuses (3-M265)

Edited by Elisabeth K. Thompson. This lavishly illustrated collection of the most successful examples of recycling buildings will appeal to ecologists, preservationists, and most of all to architects, who will find a wealth of imaginative and innovative design ideas in the rapidly expanding area of the profession. Hardcover, 224 pages, 282 photographs, 32 in full color (1976). $22.50 Non-member, $20.25 AIA member

*Space Adrift: Landmark Preservation and the Marketplace (3-M172)

By John Costonis. Presents ''the Chicago Plan,'' an ingenious approach for protecting landmark buildings. Involves government purchase of a landmark's unusued development potential, followed by sale of ''development rights'' to a developer who can then make new buildings larger and more profitable than zoning regulations normally permit. Hardcover, 207 pages, illustrated (1974). $10.00 Non-member, $9.00 AIA member

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Newslines

"Barrier-Free Design: The Law," a publication of the Eastern Paralyzed Veterans Association, is directed to designers and building code officials to encourage compliance with code rules for the handicapped. Laws, regulations and code provisions for New Jersey, Connecticut and Pennsylvania are given. There are also illustrations to point out minimum requirements and recommendations for maximum accessibility. The publication is in loose-leaf binder to permit additions of amendments, etc. For further information, write: EPVA, 482 Park Ave. S., New York, N.Y. 10016.

Jurors for the McDonald Corporation and Associated Student Chapters/AIA competition for the "most innovative McDonald's of the future" are AIA fellows Aldo Giurgola, Stanley Tigerman and William Turnbull. Prizes totalling $9,500 will be awarded the 12 most innovative designs. Contact: ASC/AIA at Institute headquarters.

Claimed to be the first industry-wide metric (SI) publication of its kind, a manual entitled "Aluminum Standards and Data" represents more than six years of work on the part of the Aluminum Association's subcommittee on metrication. Use is made of "hard" or rounded metric values rather than restating inches and pounds in metric terms by use of conversion factors. A free copy may be obtained from AA's publications department at 818 Connecticut Ave. N.W., Washington, D.C. 20006.

The monthly cost of housing has increased by 305 percent in the past two decades, according to the National Association of Home Builders. In the same period, the median price of a new home has increased 191 percent and family incomes have gone up 217 percent. Many people, however, are priced out of the housing market by such increases as federal taxes (365 percent), mortgage payments (331 percent), real estate taxes (341 percent), insurance (321 percent) and heat and utilities (199 percent).

Office buildings erected after World War II use 72 percent more energy than those erected before 1914, according to a study released by the Department of Energy. The older buildings consume an average of 65,000 BTUs per square foot annually, while the newer ones use an average of 112,000 BTUs. The research took three years and covered 1,037 office buildings in New York City. Energy consumption in the overheated, overcooled and overlighted newer structures could be cut 22 percent by simple economies, the study says. Energy use was monitored by only 10 percent of the building owners.

"Concrete International: Design & Construction" is the title of a magazine to be published by the American Concrete Institute, beginning in January 1979. It will contain articles on construction, products and materials related to concrete.

Jorn Utzon, architect of the Sydney, Australia, Opera House, has been awarded the Royal Institute of British Architects' gold medal for 1978. According to the citation, the Danish architect has "achieved high excellence as well as international reputation" in his work.

The Caribbean Tourism Association has initiated an awards program in design, conservation and planning. For information, write CTA, 20 E. 46th St., New York, N.Y. 10017.

"Directions" is the title of a symposium to take place on Nov. 6-7 at Washington University's school of architecture in St. Louis. Participating in the program will be Peter Eisenman, AIA, William Gass; Michael Graves, AIA; Udo Kultermann; Nory Miller; Norris Kelly Smith; Robert A. M. Stern, AIA, and Stanley Tigerman, FAIA. □

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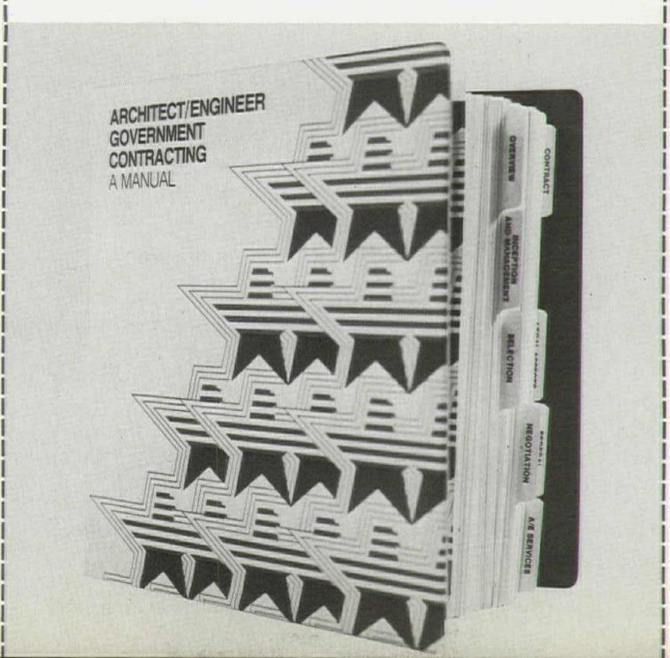

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