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This pendant fixture, movable to many points in the room, provides both quality task lighting and substantial energy savings.

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**The Synercon™ 60 Ceiling System from Armstrong.  
A new standard of design flexibility produces  
a new high in energy savings.**

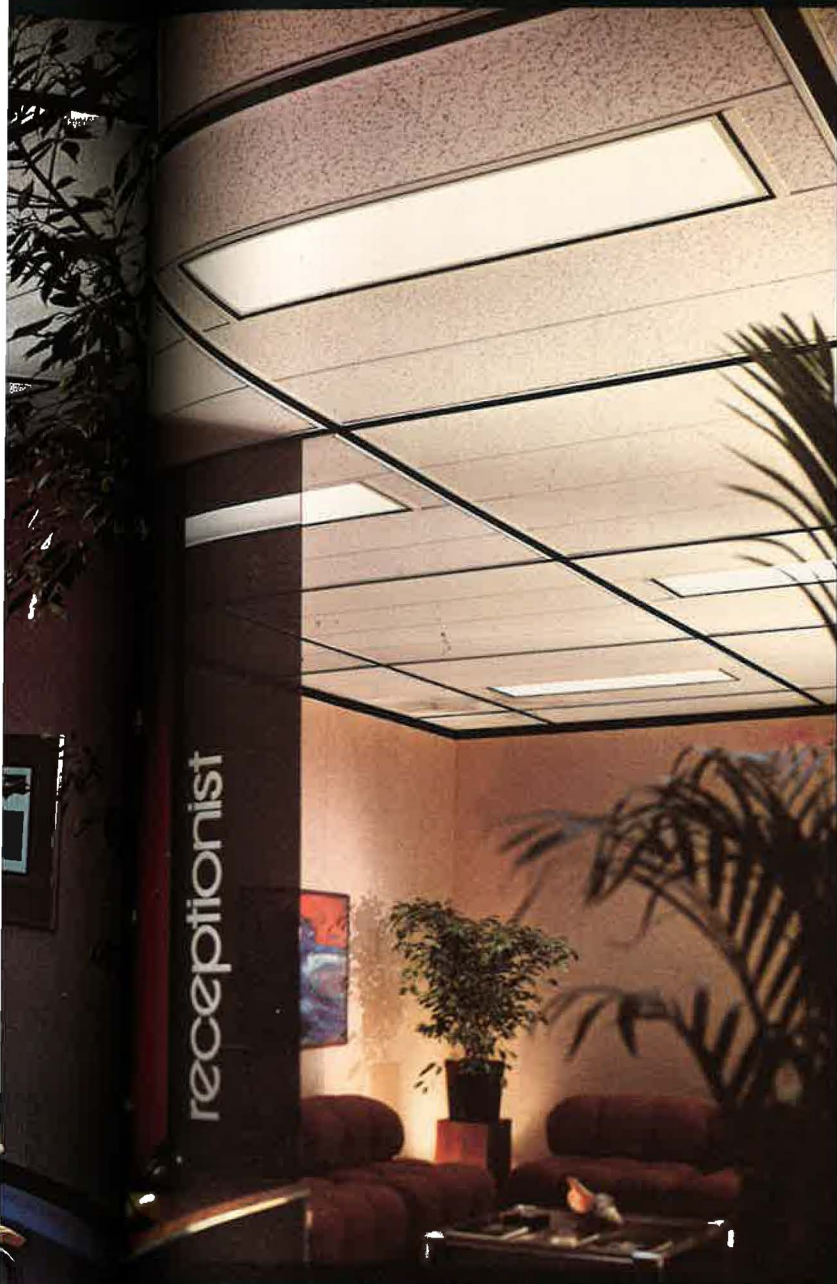
The Synercon 60 Ceiling System from Armstrong is all new from the grid to the board, from the lighting options to the air handling. More important than even its newness, however, is its innovation. Innovation that serves to increase design flexibility, decrease energy consumption, and enhance lighting quality.

The new lighting starts with a pendant fixture designed to provide highly efficient task lighting that can save as much as 65% in electrical costs when compared to conventional-type recessed troffers. It accommodates two 40-W lamps which result in 70 or more

footcandles at the work surface and is offered with a special double lens that controls brightness and effectively beams the light exactly where it's needed. What's more, with the fixture suspended, the ceiling is 100% acoustical material.

With the Synercon 60 Ceiling System, however, that's only the start. Because there are two other lighting options as well. The newly designed recessed troffer you see above that also saves energy because it normally requires fewer fixtures than competitive systems. And the energy-efficient sodium fixture has been

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Lighting includes 14" x 48" troffer (2- or 3-lamp) with standard or polarized lens; parabolic louvered fixtures (8- or 16-cell).



Further lighting is this 29"-square fixture with high-pressure sodium lamp, offered with standard or polarized lens or parabolic louver.



Air-handling options include air boot and bar for constant-volume systems as well as two variable-volume systems designed for energy savings.

specially designed to control brightness without seriously reducing the lamps' efficiency. Optional polarized lenses\* with these fixtures can further lower energy requirements as well as improve lighting quality by reducing ceiling reflections.

With all three systems, the lighting efficiencies result in both immediate and long-term cost reductions. To deliver 70 footcandles, the pendant fixture can require only .9-1.0 watts per square foot; the high-pressure sodium, only 1.4-1.5; the standard troffer, only 1.9-2.0.

**The new grid** is three inches wide, with a flat flange, and features a 1 5/8" black reveal that extends down the side of the recess and takes partition studs. It has a five-foot on-center hanging capability and can be 100% slotted for air distribution.

**The new board** is nondirectional Cortega™ which, combined with the flat grid design, produces a subtle, unobtrusive look. A new super acoustically ef-

ficient board called Silok™, shown in main illustration, is also available for use in open plan spaces.

**The new air handling** gives you a choice of a high-capacity five-foot-long air bar designed for constant-volume systems as well as two variable-volume systems—each with two options—that save energy in several ways. They require no reheat, thus saving the cost of reheating cooled air. They need no external power to operate either valves or thermostats. And by reducing air quantities, they allow a reduction in the size of ductwork and fans.

With all its newness, innovation, and energy efficiencies, the Synercon 60 Ceiling System gives you a sum total of flexibility you've never had available before. In fact, this new system offers so much, we think you'll want to read about it in depth. Write us now for all the technical details. Armstrong, 4202 Sage St., Lancaster, Pa. 17604.

\*Product of Polrized Corporation of America

## EVENTS

**Mar. 1-2:** Seminar on Energy Management in Buildings, sponsored by New York University's school of continuing education, Los Angeles. (Repeat seminars: Apr. 5-6, Chicago, and June 14-15, Boston.) Contact: New York Management Center, Department 14NR, 360 Lexington Ave., New York, N.Y. 10017.

**Mar. 5-7:** National Housing Conference annual convention, Statler Hilton Hotel, Washington, D.C. Contact: NHC, 1126 16th St. N.W., Washington, D.C. 20036.

**Mar. 6-9:** Construction Industry National Legislative Conference, cosponsored by 23 national construction associations, Hyatt Regency Hotel, Washington, D.C. Contact: CINLC, 815 15th St. N.W., Suite 902, Washington, D.C. 20005.

**Mar. 8-17:** Short course on principles and techniques in preparing construction specifications, George Washington University, Washington, D.C. Contact: Construction Specifications Institute, 1150 17th St. N.W., Washington, D.C. 20036.

**Mar. 10-11:** Institute on Developing Effective Field Administration in Building Construction, University of Wisconsin, Madison, Wis.

**Mar. 11-13:** LABASH, international forum for landscape architecture students, Virginia Polytechnic & State University, Blacksburg, Va.

**Mar. 14:** Entries deadline, American Society of Landscape Architects professional awards. Contact: ASLA, 1750 Old Meadow Road, McLean, Va. 22101.

**Mar. 17-18:** Virginia Society of Architects annual meeting, Omni Hotel, Norfolk, Va.

**Mar. 21-23:** American National Metric Council annual conference and exposition, McCormick Inn, Chicago. Contact: ANMC, 1625 Massachusetts Ave. N.W., Washington, D.C. 20036.

**Mar. 22-24:** Exhibition of architecture for health at annual meeting of the Mid-West Health Congress, Bartle Exposition Hall, Kansas City, Mo. Contact: John H. Lind, AIA, Hansen Lind Meyer, Inc., 116 S. Linn, Iowa City, Iowa 52240.

**Apr. 2-3:** Symposium on Positions in Architecture II, Rhode Island School of Design, Providence, R.I.

**Apr. 6-9:** Symposium on "Progress in Criminal Justice—By Whose Standards?" Fairmont Hotel, New Orleans. Contact: James Taylor, National Clearinghouse for Criminal Justice Planning and Architecture, 505 E. Green, Champaign, Ill. 61820.

**Apr. 17-20:** Environmental Design Research Associates annual conference, University of Illinois, Urbana-Champaign. Contact: Sue Weidemann, EDRA 8, 106 Architecture Building, University of Illi-

nois, Urbana, Ill. 61801.

**Apr. 19-24:** American Subcontractors Association annual convention, Sheraton Harbor Island Hotel, San Diego. Contact: ASA, 815 15th St. N.W., Suite 902, Washington, D.C. 20005.

**Apr. 26-28:** Wisconsin Society of Architects convention, The Abbey on Lake Geneva, Fontana, Wis.

**June 5-9:** AIA convention, San Diego (reconvened convention and study mission to Guatemala and the Yucatan and Cancun, Mexico, June 9-19).

## LETTERS

**City Walls:** The news story about putting designs on walls in eight cities (Nov. '76, p. 22) might become an advertisement for this idea if not countered. I feel I must protest the possible spread of this movement which began in New York City. It is one of our least worthy exports.

The idea has sputtered to a virtual halt amid much criticism, including that of the *New York Times*, in New York City, where the organization City Walls has sponsored and funded the painting of walls, with the help of some foundations. To many here, these painted walls are ersatz-pseudo art that neither "revitalizes urban environments" nor improves "drab urban areas," to quote the news story. Proof, I think, is in the before and after photographs that were published.

The before photo of the Louisville, Ky., wall is infinitely more touching and poetic (also better art) than the fifth rate, even silly and boring wall painting that has replaced it (shown in the after picture). As party walls go, the brick wall, with its fine signs, its weathering and shadows, brings a sense of time, life, ancient enterprise and change to the urban scene. While it is no AIA honor award winner, it still is a wall of a building honestly made and marked.

The second before and after example in Kansas City features a hard-edged abstract painting that is no match for the forthright sign proclaiming "Globe Storage and Warehouse," which it replaces. Let us not dishonor our sign painters. Cities are, above all, communication centers. Walls can be beautiful, honorable, proud and tragic.

If the National Paint and Coatings Association and City Walls, Inc., want to support the trend toward using painted walls, let them go to architects and artists who know and love buildings, neighborhoods and cities. The wall pictures in New York City do not enhance their neighborhoods. On the contrary, they are a poor substitute for fundamental neighborhood change, and they tend to show up or mock,

or are condescending to areas which may have had a stunning past.

The same paint, however, can be well used to enhance neighborhoods. The Richard Haas trompe l'oeil painting on Prince St. in Soho is a good example of significant wall painting on several levels. Alexander Girard's facade painting in Columbus, Ind., is another brilliant job, as well as the painting program in numerous towns and cities; best known perhaps, but typical, is the Wooster Square area in New Haven.

There is nothing so insulting to both the architecture of cities and the noble use of painting in cities as these painted city walls so empty and devoid of meaning, context and spirit. These wall paintings are an outdoor version of motel room art. Let us have no more of them.

James S. Rossant, FAIA  
New York City

**The Registration Examination:** The critique of the architectural registration examination by Ron Shattil in the November issue (p. 78) is excellent. His remarks strongly echo criticisms of multiple-choice tests that I have been making for the past 30 years and more.

It is encouraging to see these criticisms applied in the field of architecture. Surely Shattil's article will give rise to serious, and justified, misgivings, and I suggest that a distinguished committee of outstanding creative architects be formed to study the situation. The committee should be independent of the groups engaged in making and administering the tests, and it should avoid falling into the statistical trap that, having ensnared the testers, is used by them to intimidate their critics. The basic function of the committee should be to examine the *actual tests* and render an opinion of their quality. *Banesh Hoffmann*

Department of Mathematics  
Queens College of CUNY  
Flushing, N.Y.

**A Picture Speaks 1,000 Words:** On behalf of the project staff of the AIA Research Corporation responsible for *Architects and Earthquakes: A Primer*, we congratulate the AIA JOURNAL for its fine coverage of the report in the Dec. '76 issue (p. 38).

We would like to point out, however, that credits for the photographs were omitted. Since so much valuable time and effort was spent by those who contributed to the photographs, we would like to give appropriate credit to: Henry J. Degenkolb for photos on pages 38, 40 bottom and 41 top; Karl V. Steinbrugge for page 39 top right; Henry J. Lagorio for page 39 bottom right, and the National Bureau of Standards for the others.

Lucy C. Leuchtenburg  
AIA Research Corporation

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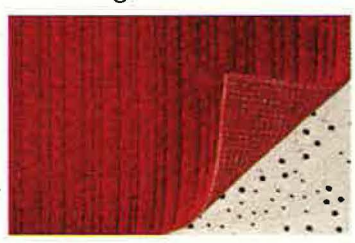


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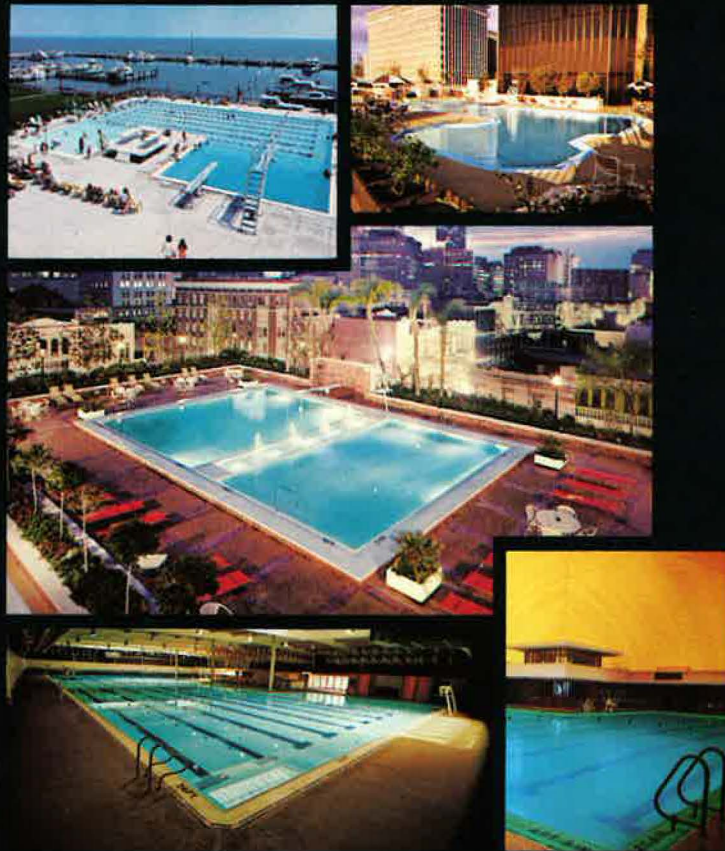
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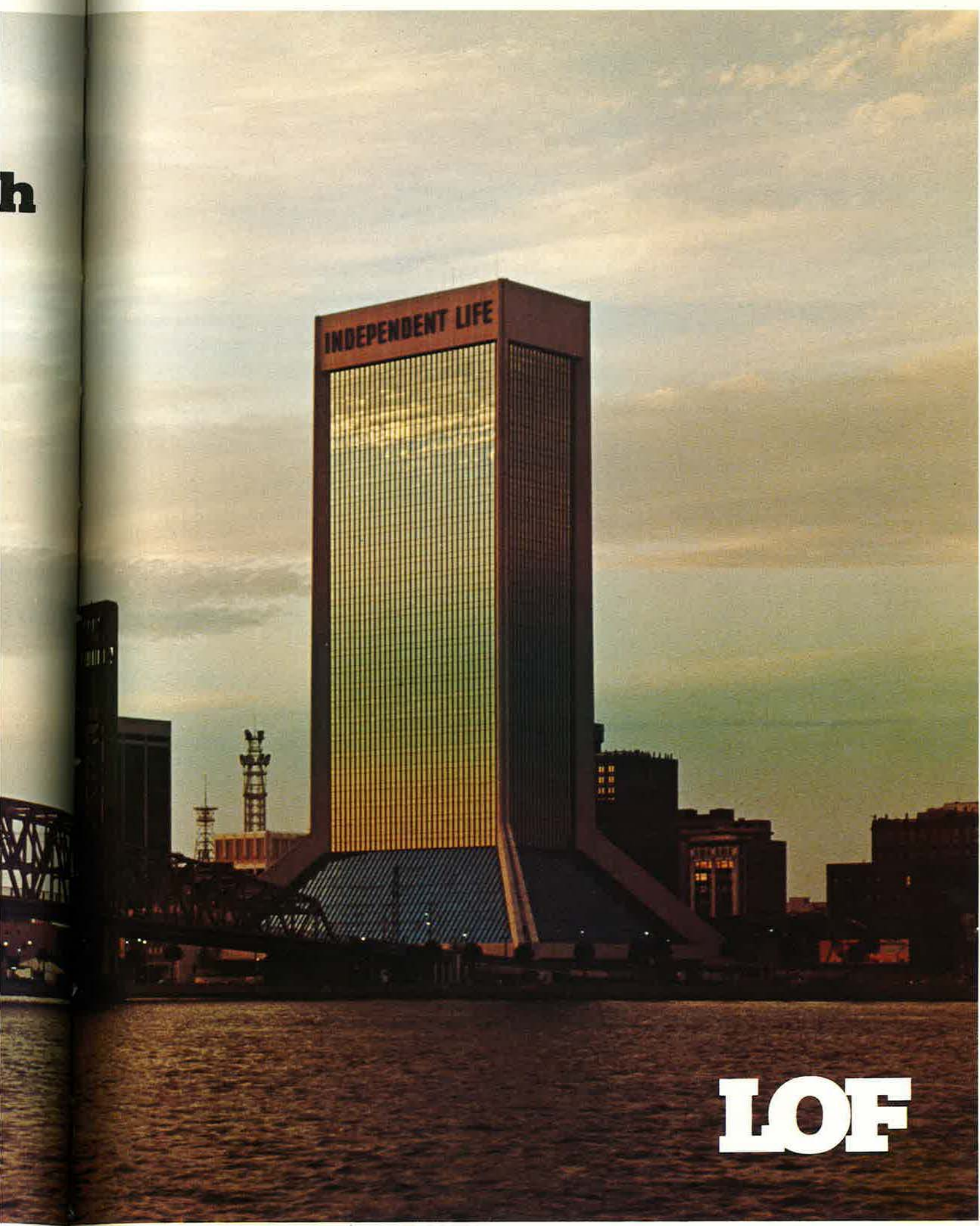
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## Mayors Hear Commitment To Urban Problems from Harris and Blumenthal

President Carter did not mention the specific problems of cities in his inaugural address, but his remarks set forth the values which will determine the goals and policies of the new Administration. High among those values which promise to be the driving force for the future are those dealing with the social and human concerns confronting the cities of the nation.

"We have already found a high degree of personal liberty, and we are now struggling to enhance equality of opportunity," the new President of the U.S. said. "Our commitment to human rights must be absolute, our laws fair, our natural beauty preserved; the powerful must not persecute the weak, and human dignity must be enhanced. ". . . We will fight our wars against poverty, ignorance and injustice, for those are the enemies against which our forces can be honorably marshaled."

Two days prior to the inauguration, Mr. Carter dispatched eight cabinet-level appointees to the midwinter meeting in Washington, D.C., of the U.S. Conference of Mayors. Patricia R. Harris, HUD secretary-designate, told the mayors that "the White House is now in the hands of a friend of the cities." She said that the new Administration "will not just produce housing, but housing programs that will work in the cities." Promising that the new Administration would avoid turning off and on the "spigot," she said that a new stability would be brought to urban programs, with Mr. Carter supporting the key programs desired by the mayors.

W. Michael Blumenthal, Treasury secretary-designate, said that "there is probably no issue that will concern this Administration more and concern the President more than the question of jobs and the question of cities." Stuart E. Eizenstat, Mr. Carter's campaign issues director, was reassuring to the mayors as well, saying, "This will be an Administration with a commitment to urban

America and America's cities."

The mayors, also concerned about the way in which urban programs will fare in Congress, heard Rep. Jim Wright (D-Tex.), new majority leader in the House, predict that Congress would speedily pass an enlarged and improved public works bill. He also promised that mayors would be consulted more in an attempt to improve the "labyrinthine systems" now used for federal aid.

Easy access to the White House had been one of the major recommendations of the mayors when the conference met in an emergency session in Chicago last November. "Whether this be a vice president as an urban ombudsman or a domestic council . . . with real urban clout is not the issue. The issue is that in order to make the federal bureaucracy responsive, mayors must have access to the White House if the federal-state-local system is to be made workable," the group concluded in a statement.

The mayors at that time also offered the President-elect a new "national urban investment policy" whereby tax breaks would make the rehabilitation of cities more attractive. They also called for the creation of more jobs in central cities and for an emergency antirecession program to aid cities in deep fiscal trouble and for the establishment of an urban development bank that would make funds available for direct low-interest loans to local governments.

Whether the new Administration will enact any of these recommendations is not clear, but the conference appeared encouraged by what Mr. Carter's representatives told the group just prior to his inauguration. Mayor Beame of New York said "they are going to cooperate and work with the mayors, which has not been done for some time." Mayor Kenneth A. Gibson of Newark, president of the mayors' conference, said that the message from Mr. Carter "reinforces our optimism for the recovery of our cities in the weeks and months ahead." He termed it "the beginning of a new relationship" in which mayors would be "consulted before—and not after—executive decisions have been made."

## Museum of Building Arts Proposed for Washington's Historic Pension Building

A committee of distinguished leaders in architecture, education, engineering, business and labor has been formed to establish a national museum of the building arts. The museum would be located in Washington, D.C.'s historic Pension Building, which will become vacant in about two years when its present occupants—the District of Columbia courts—move into new quarters.

Designed by Gen. Montgomery C. Meigs and built in 1883, the Pension Building encloses what has been called "the most astonishing room in Washington"—a huge, light-filled hall supported by eight Corinthian columns. This was the scene of a gala ball at AIA's 1974 convention and the inaugural balls of Presidents Cleveland, Harrison, McKinley, Theodore Roosevelt and Taft.

The committee has received \$85,000 in grants from the National Endowment for the Arts, HUD and the L.A.W. Fund to work out a program for the proposed museum. The museum's purpose, says Cynthia Field, an architectural historian and president of the committee, "is to advance public knowledge about building construction, architecture and urban planning at a time of increased concern about the environment and citizen participation in city planning."

Plans are for the museum to have displays that emphasize the nation's historic and regional architectural and engineering accomplishments. Also, there will be an archive of drawings and documents, a library and reference service and a study center.

In addition to Dr. Field, members of the committee are: Buckminster Fuller, FAIA; Robert A. Georgine, president of the AFL-CIO building and construction trades department; Martin Meyerson, president of the University of Pennsylvania; Kevin Roche, AIA; Chloethiel Woodard Smith, FAIA; Marietta Tree, former U.S. delegate to the United Na-

*continued on page 10*



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tions, and Beverly Willis, AIA.

Wolf Von Eckardt, Hon. AIA, architectural critic of the *Washington Post*, has taken a leave of absence to direct the committee's study. The group will work out a program that would make best use of the resources of the Department of the Interior, the Library of Congress, the Smithsonian Institution and the building industry and design professions.

Additional information may be obtained from: The Committee for a National Museum of the Building Arts, 1525 New Hampshire Ave. N.W., Washington, D.C. 20036.



## Billion-Dollar Market Foreseen for Solar Heat

Solar hot water and heating systems now being developed for mass production will create an annual U.S. market of from \$800 million to \$1.5 billion by 1985, predicts Arthur D. Little, Inc., a Cambridge, Mass., consulting firm. This is, at a minimum, a 20-fold increase over the estimated 1976 solar market.

These findings are included in the second part of a study made to assess markets for solar heating and cooling which was funded by 50 manufacturers, utilities, energy companies and venture capital groups from 10 countries.

According to the Little report, acceleration in market growth over the next nine years will be influenced by such factors as government incentives. "The proposed federal government tax credit would assume up to 40 percent of the cost of a new solar system," says Martin M. Glesk, the solar project's marketing consultant. "This legislation, if passed, will give industry decision makers the push they need to launch serious marketing efforts."

Another factor for marketing acceleration is the spiraling cost of energy. The economics of solar climate control, says Peter E. Glaser, vice president of Little and director of the project, "is not yet competitive with other energy sources in most areas. However, each increase in the price of fuels will further enhance solar climate control as an economically attractive energy alternative, bringing it within the reach of the consumer."



It is expected that the early market will be dominated by single-family residences. "Solar heaters, designed to provide 40-70 percent of hot water requirements, will range from \$1,000-1,500," the firm says. Solar water heaters "could be offered by mass merchandisers" within three to five years. A large retrofit market opportunity exists, says the firm, represented by more than 70 million housing units in the U.S.

Combined solar hot water systems and space heaters will have higher costs initially, "in the range of \$3,000-5,000." The most economical will be "relatively small, on the order of 200-300 square feet of collectors with 200-300 gallon storage tanks." Combined systems in the South will take care of a substantial part of the total heating requirements, the firm says, but in the Northeast they would account for only about 25 percent of the combined hot water and space heating load.

Little does not expect direct solar cooling using heat-actuated equipment to be "cost competitive with conventional vapor compression airconditioning equipment in the near term." Conventional energy costs "will have to be considerably higher" and improvements must be made in performance before solar cooling is "economically attractive."

Despite the fact that solar heating technology is relatively simple in concept and application and that "its economics is improving," the construction industry's widespread acceptance of solar heating systems "will be less straightforward," says the firm. "A consensus must be reached among the diverse groups influencing the decisions to use solar systems." Such groups as architects, developers, code officials and financial institutions "all have special requirements which must be met. These groups will be looking to the solar industry for reliable, cost effective

and durable solar systems which are architecturally acceptable and can be efficiently integrated into building construction. The manufacturing, distribution, marketing, installation, financing and maintenance of these systems by established firms will also be necessary prerequisites for major solar industry development," Little says.

## Arts Endowment's Lacy To Take Academy Post

After five years as director of the National Endowment for the Arts' architecture + environmental arts program, Bill Lacy, FAIA, is leaving to become president of the American Academy in Rome. The 43-year-old former Texan explains his decision in saying that after three to five years of building a program and establishing its credibility, it's time to move on and "let in a new person with new ideas."

That is precisely what he did in taking over the chairmanship of the Rice University's school of architecture in 1961, when it had lost its accreditation, and in leaving five years later once the school had regained its good standing. In 1965, he went on to the University of Tennessee to establish an architectural school there, and he moved on to NEA in 1970. Lacy takes over the presidency of the American Academy, the only privately supported venture of its type, at a time when it desperately needs new funds and increased recognition.

He regards his move not as a new departure, but rather as a natural progression in his career, viewing the American Academy as a small-scale version of the combined National Endowments on the Arts and the Humanities. It includes archaeologists and other scholars in various disciplines, as well as artists, architects, musicians and others in its one-year fellowship program in Rome.

Since Lacy took over the architecture + environmental arts program, it has grown from a two-person staff occupying a cluttered room with one desk, which Lacy brought with him, to a staff of 25 working in large, open-landscape office spaces. The program was established at a time when "every architectural office was filled to overflowing with the milk and honey of pell-mell tear-it-down and build-it-up," says Lacy. "Land, steel, energy and egos—we had plenty of everything to go around except concern for the future." Then inflation and the realization of dwindling natural resources forced a "new look at the purpose of it all," which he regards as much to the benefit of both society and architecture. He says he is fortunate to have led the program during this period of transition, so that he could "assist when the assistance was most

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# Wind-Tunnel Tests and Electric Heat Recovery System Make Glass Curtain Walls a Practical Choice for Auto Maker's New Headquarters

Made wary by the poor experience of some all-glass skyscrapers, designers of the AMC corporate office tower devised a curtain wall system that can shrug off hurricane-force winds.

Southfield, Mich. Car buffs familiar with the sporty little Pacer manufactured by American Motors Corporation may see a family resemblance in the company's new office structure in this Detroit suburb. The Pacer is noted for its generous expanses of contoured safety glass that give the driver an extraordinary degree of visibility. Glass, too, is the most striking architectural feature of the office tower. Virtually the entire structure—even mullions and spandrels—is sheathed in a mirror-like skin of chrome reflective glass.

That its sponsors would want an all-glass building in the first place is not hard to understand. To cite just one reason, it provides an extremely pleasing work environment. The ever-changing panoramic views of the Michigan terrain are a delightful diversion during a routine workday.

In these days, however, the decision to actually build such a structure is not lightly made. For one thing, there is the matter of heat losses and gains and their effect on energy consumption. Then, there is the more dramatic, almost frightening problem of recurrent wind-shattered glass that has plagued some high rises recently. These are added concerns for the architectural and engineering sciences and beyond the state of the art of just a few years ago.

American Center may well be the first new project in which these concerns are fully met thanks to a double-thrust design strategy. The architects developed a window system with high structural integrity that keeps heat loss to a minimum. Then, the engineers followed up with a sophisticated electric



Truncated corners of tower add interest to square format chosen to conserve energy.

HVAC system that largely offsets the reduced heat loss with "free" energy recovered from the building's core areas.

**Different Model.** Unlike the Pacer, which is classified as "subcompact", the American Center complex is full-size. Set on a 33-acre site, the office tower contains 440,000 square feet of floor space. A contiguous two-level retail shopping mall encloses an additional 70,000 square feet. The 25-story tower rises 338 feet above grade and is one

of Michigan's tallest buildings outside of Detroit itself.

The top eight floors of the tower accommodate the executive headquarters of AMC. The remaining 15 levels are available for lease to outside firms. In anticipation of this joint tenancy, the entrance lobby was carefully planned to identify strongly with the business image of AMC while providing subtle, logical separation between corporate and tenant traffic.

Floors and walls of the lobby, which

\*One of a series of reports giving recognition to the efforts of architects and engineers on behalf of resource conservation.

**Features such as heat recovery and "free" cooling in combination with glass that insulates and reflects enable this all-glass structure to minimize the use of energy.**



*Architect William Jarratt was convinced that the aesthetics of the building should be representative of his client's products.*

occupies the entire ground level of the tower, are of dark gray natural cleft slate. This low-maintenance material serves as a purposely bland backdrop for the brightly hued assortment of new and antique cars on permanent display. The 23-foot high ceiling of highly polished near-black anodized aluminum sheets reflects the display and activities below. Elevators serving the lower tenant floors start at this level.

**Overview.** Two escalators lead to a 4000-square-foot mezzanine. This carpeted, richly furnished area is the reception and information center for American Motors. It is a vantage point for viewing the show cars and has comfortable seating groups for quiet talks between visitors and company personnel. The six elevators serving the ten highest floors leave from the mezzanine.

The gray slate of the lobby is carried through onto the outside walls of the shopping mall. There, the slate's contrasting color and texture provide a restrained accent that relieves the forceful brilliance of the gleaming tower.

The retail mall houses a variety of stores and services including the main office of Detroit Bank—Southfield. Clustered on the mall's second level are the eating facilities: a Marriott restaurant and cocktail lounge, cafeteria and fast-food counter. Some other commercial tenants are specialty clothing stores,

barber and beauty shops, a brokerage office and a gift shop.

All of the office tower services—elevators, washrooms, stairwells and utilities—are housed in the compact central core. The core structure and exterior steel frame provide all needed support for the rugged floor joists. Thus, office spaces are completely free of interior columns so there is complete flexibility in partition layout along the outlines of the standard five-foot by five-foot modules. Within each module there is easy access to connections for HVAC, electrical, telephone and lighting services.

**A Pretty Face.** A fixed glass curtain was selected for the exterior of the building because of its aesthetic qualities, ease of construction, light weight (thus overall reduction in building costs), and the pleasant environment that visibility and dramatic views would bring to the building occupants.

"Aesthetics was possibly the most important reason," recalls project architect William Jarratt of Smith, Hinchman & Grylls Associates, Inc. "The building was to be the most prominent structure for miles around and, hopefully, would stand as a symbol of the beauty and quality the client puts into its products. And, once we opted for the glass curtain wall, other aspects of the project quickly fell into line. These were the basic features that would have to be provided to make the overall design consistent with today's energy conservation objectives."

To minimize heat loss and solar heat gains a square floor plan was selected. A square building offers the greatest amount of usable interior space for the least amount of exposed exterior wall. "But we softened the severity of the fundamentally square structure by truncating the corners. This beveling—plus the fact that we covered spandrels and



*C&W's William Allen hoped to make the building manager's job a bit easier by writing some of the window specifications.*



*Engineer Hem Gupta helped make glass curtain wall construction a reasonable choice with energy-conserving HVAC systems.*

mullions with reflective glass as well—moves the building's perspective away from that of a simple shaft and in the direction of a multi-faceted prism, which visually is a lot more interesting.

**Glass Watchers.** The tower's skin incorporates two types of reflective insulating glass which appear identical from the outside. The floor-to-ceiling "vision" sections consist of two ¼-inch thick layers separated by a ½-inch dead air space. One surface of the glass is coated and acts as a one-way mirror reflecting over 80 percent of the direct solar heat load. The double glass covering the steel beams, on the other hand, forms an opaque mirror and is backed by compressed mineral fiber insulation.

One firm having a great direct interest in all of this glass is Cushman & Wakefield, Inc. The company was retained by AMC as project consultants and given overall responsibility for developing American Center. Cushman & Wakefield participated in site acquisition, architect selection, evaluating bids and supervision of design and construction. They continue on today as managing agents.

"Looking ahead to the time when we'd assume the role of building managers," recalled C&W's Bill Allen recently, "we wrote into the window system specifications some provisions that would help us with the job. We asked, for example, that fixed glass be installed for a number of reasons. It would assure a minimum of air leakage and consequent energy loss. It would permit us to maintain a highly manageable inside environment, not subject to the vagaries of windows being opened and closed at random with the inevitable unbalanced air distribution problems that would result. Fixed sash would also facilitate efficient mechanical

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**Perils of Par** responsibility system was stand up to noted for. W any of the occurred rec scrapers."

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Current suited for t wind tunne shear layer For one th usual aeros enough to a of a tall b terrain. An Boundary l siderable le and down stream sp "roughnes create thr simulating in real life ¼-mile ra stream the enough to a homogen the model.

With thi completed, showing th tower surf a 95-mph to 85 pound

cleaning of the exterior by means of automatic equipment."

**Perils of Panorama.** "But our most vital responsibility concerning the window system was to make sure that it could stand up to wind conditions this area is noted for. We certainly wanted to avoid any of the serious mishaps that have occurred recently in some all-glass skyscrapers."

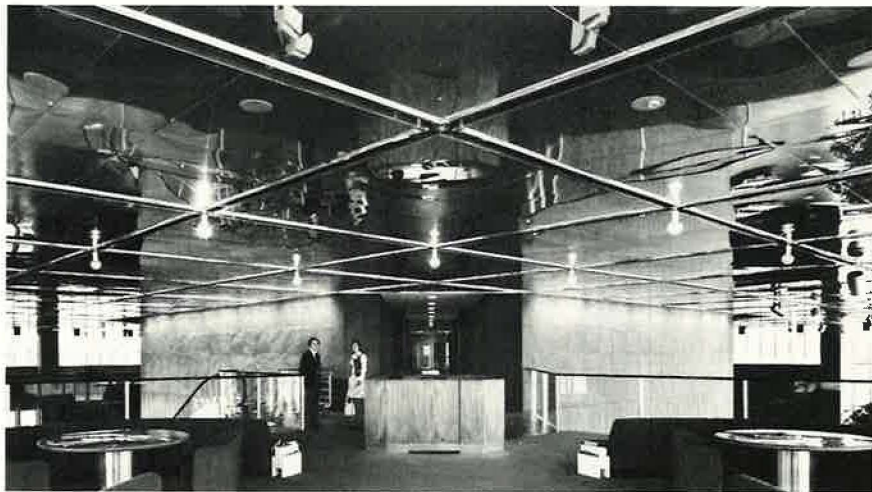
On the recommendation of the architects and C&W, Peter Corsell Associates, specialists in curtain wall troubleshooting, were called in to consult on the design of American Center. "The first thing we did," says Corsell's Russell Buczkowski, "was to determine exactly what wind velocity we could expect. By statistical analysis we extrapolated U.S. Weather Service data for the preceding 10-year period to predict the strongest winds that could be expected locally for the next 100 years.

"The peaks we were interested in are not those recorded during momentary gusts but those that will be sustained continuously for at least a minute. The one-minute maximum we computed for our tests was 95 mph at an elevation of 30 feet."

**Not Just Any Tunnel.** The next step was to build a 1 to 200 scale model of the American Center tower. The model was instrumented, then tested in a wind tunnel capable of simulating wind effects in the boundary layer (the layer of the earth's atmosphere extending to an altitude of 3000 feet).

Currently there are few facilities suited for this type of work. Aerospace wind tunnels, which are designed for shear layer testing, aren't of much use. For one thing, the cross section of the usual aerospace wind tunnel isn't large enough to accommodate a scale model of a tall building and its surrounding terrain. And they aren't long enough. Boundary layer testing requires a considerable length of space both upstream and downstream of the model. Upstream space is needed for placing "roughness elements," devices that create three-dimensional turbulence simulating the type that will be caused in real life by the topography within a ¼-mile radius of the tower. Downstream the tunnel has to extend long enough to allow the airflow to resume a homogeneous pattern after buffeting the model.

With this phase of the testing process completed, Buczkowski prepared a table showing the various pressures that the tower surfaces will be subjected to by a 95-mph wind. These ranged from 10 to 85 pounds per square foot. The tabu-

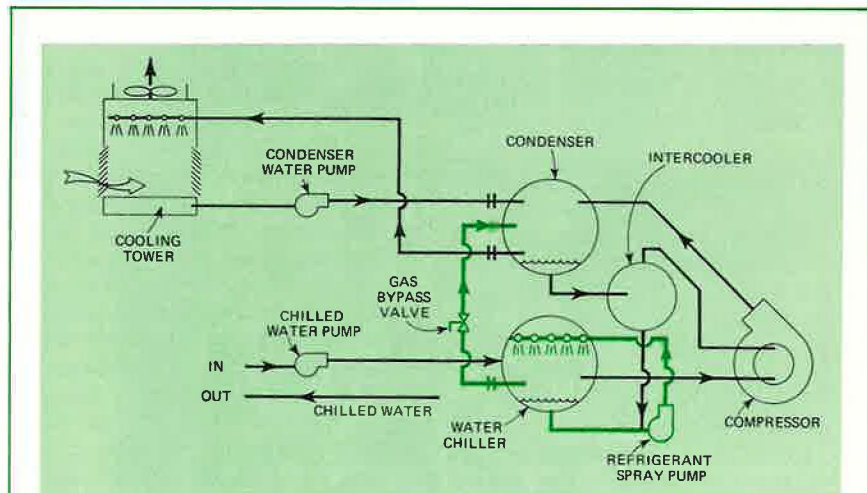


Mezzanine elevator lobby doubles as reception area and informal conference lounge.

lated data were given to curtain wall manufacturers to use as the basis for appropriate designs and bids.

As a final precaution the manufacturer who was awarded the contract submitted a prototype section of window wall for performance tests. For this procedure, the unit outfitted with strain gages was installed in one side of

a sealed box-like chamber. When the chamber was evacuated, atmospheric pressure stressed the prototype to the specified values. When the design team was satisfied that the prototype met the specifications, it was tested to destruction. Breakage did not occur until pressures exceeded those that would be caused by a 180-mph wind.



#### OPERATION OF THERMOCYCLE ECONOMIZER

Thermocycle is an energy-conserving feature that provides a means for reducing the cooling load on the central plant whenever outdoor wet bulb temperature is 5 to 10 deg F lower than the chilled water design temperature. In most areas of the country this situation exists on a great number of days during the year. Outdoor wet bulb temperatures are about 10 to 15 deg F lower than dry bulb temperatures.

The schematic diagram shows how the feature works. Assume that core areas are calling for cooling amounting to about 25 percent of rated chiller output, chilled water temperature of 55 F and an outdoor reading of 45 F wbt. Now, assume that the chiller compressor is shut down while chilled-water and condenser-water pumps continue to run. Operating under partial load, the cooling tower can cool condenser water to within a few degrees of wet bulb temperature. The relatively warmer chilled water causes the refrigerant to evaporate whereupon it migrates through the inoperative compressor to the lower-pressure area created by tower water in the condenser. There, the refrigerant condenses to a liquid and returns by gravity to the chiller to repeat the cycle.

In a conventional installation, this is a slow and inefficient process. Thermocycle speeds the process by adding a pipeline which allows the refrigerant gas to bypass the tight clearances of the compressor rotor. The other essentials are a refrigerant pump of 3 to 5 hp and an array of nozzles installed above the coils of the chiller. When the pump is activated, refrigerant liquid is foamed over the chiller coils in much the same manner as it would be were the compressor in operation. Cushman & Wakefield engineer Thomas Imperatore, who developed this feature, claims that with the right combinations of weather conditions and building cooling load, a 5-hp refrigerant pump can substitute for a 1000-hp compressor running at light load.



Enclosed two-level shopping mall in left foreground connects directly with both ground and mezzanine levels of tower lobby.

**HVAC System.** Two 150-hp air handling units deliver a total of 300,000 cfm to the ducted-air system that heats and cools the building. Interior and perimeter zones of the single-duct system are separate and treated somewhat differently.

The air delivered to the interior areas—which require cooling even in winter—remains a constant 55F year around. Two reheat coils within the ductwork on each floor temper this air as necessary to provide a comfortable environment. The reheat coils carry hot water from the heat pumps or boilers. Exposure-located thermostats operating in conjunction with flow-control valves in the reheat coils regulate zone temperature.

To provide ventilation as well as some conditioning effect, a limited quantity of air is supplied to the perimeter spaces. Air flow through a perimeter diffuser is about one-quarter that provided by an interior diffuser to the same amount of floor area. Heating and cooling coils in the main air handling units vary the temperature of the perimeter air supply in accordance with outdoor temperature.

The major part of the task of conditioning perimeter spaces is handled by a two-pipe fan-coil system. Individual fan-coil units mounted beneath the windows at 10-foot intervals are supplied hot or cold water depending on outdoor weather conditions. An independent thermostatic control valve in each unit regulates the flow of water as required by temperature conditions in the nearby space.

**Heat Recovery.** “Because we can regulate the temperatures of fan-coil water and perimeter air independently,” says

HVAC engineer Hem Gupta of Environmental Systems Design, Inc., “we get close to four-pipe control flexibility with the economy of a two-pipe system. We wanted some kind of fan-coil system because it would make direct use of the hot water (110F) generated by the heat recovery machines. At the same time we needed positive ventilation for perimeter spaces. The ducted-air and fan-coil systems proved to be an ideal combination.”

Three 600-ton centrifugal chillers are located in the basement mechanical room. All three are capable of supplying hot and cold water simultaneously. In the heating season, these machines operate as heat pumps, recovering heat from the interior spaces which require constant cooling and transferring it to perimeter fan-coil units. In this way heat losses through the glass skin of the building are offset by “free” heat recovered from the interior.

When the building is occupied, lights on, and office equipment working, recovered heat is sufficient to handle heating requirements in all but the coldest weather. Two 2000-kw electric boilers supply supplementary heat during weather extremes and at night when the building is unoccupied.

In the interests of energy conservation, functioning of the entire HVAC system is optimized by means of a Johnson JC-80 computer installation. Among the many options in the computer program are those involving economizer features built into the system. At certain times the computer can elect to use cool outside air for conditioning the inside environment, thereby reducing the cooling load on the central plant. Or the computer could energize “Thermocycle” pumps (see box) installed on two of the refrigeration machines to obtain 25 percent of rated cooling effort from the chillers without having to run the compressors.

**Falling Object.** The performance specifications for American Center’s window system are well ahead of building code requirements in most U.S. cities. Typically, these stipulate 45 psf or less as the design pressure for curtain walls. And, indeed, on a tranquil day in Southfield it is difficult to imagine the gleaming tower being assaulted by a 95-mph

**DESIGN SUMMARY**

**GENERAL DESCRIPTION:**  
 Area: 510,000 sq ft  
 Volume: 7,150,000 cu ft  
 Number of floors: 25  
 Types of space: private and general offices, conference rooms, display lobby, mezzanine reception lobby, restaurants, cafeteria, kitchens, employee lounges, medical suite, computer rooms, retail shops, bank, mechanical rooms, storage

**CONSTRUCTION DETAILS:**  
 Glass: double chrome reflective  
 Exterior walls: mullions and spandrels faced with double opaque glass and backed with mineral fiber insulation (R-4); composite U-factor: 0.2  
 Roof and ceilings: built-up roof on rigid insulation (R-7), concrete deck, suspended acoustical tile ceiling; U-factor: 0.12  
 Floors: concrete slab  
 Gross exposed wall area: 205,000 sq ft  
 Vision glass area: 120,000 sq ft

**ENVIRONMENTAL DESIGN CONDITIONS:**  
**Heating:**  
 Heat loss Btuh: 13,500,000  
 Normal degree days: 6300  
 Ventilation requirements: 64,500 cfm  
 Design conditions: 0°F outdoors, 70°F indoors  
**Cooling:**  
 Heat gain Btuh: 21,000,000  
 Ventilation requirements: 64,500 cfm  
 Design conditions: 92F dbt, 76F wbt outdoors; 75F, 50% rh indoors

**LIGHTING:**  
 Levels in footcandles: 75-125  
 Levels in watts/sq ft: 3-5  
 Type: fluorescent

**CONNECTED LOADS:**

Heating and Cooling	4,800 kw
Lighting	2,400 kw
Air Handling	800 kw
Elevators	1,650 kw
Other	2,850 kw

**PERSONNEL:**  
 Owner: American Motors Realty Corp.  
 Architects and Engineers: Smith, Hinchman & Grylls Associates, Inc.  
 Consulting Engineers (curtain wall): Peter Corsell Associates, Inc.  
 Consulting Engineers (HVAC): Environmental Systems Design, Inc.  
 Project Consultant: Cushman & Wakefield, Inc.  
 General Contractor: R. E. Dailey & Co.  
 Electrical Contractor: John Miller Elec. Co.  
 Utility: Detroit Edison Company

**ENERGY MANAGEMENT PROGRAM**

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needed—in providing opportunities for planning and public discussion, and in helping to plant seeds that are now taking root all across the country.”

Under no illusion that his program has been one of uninterrupted successes, Lacy says that “some of the projects we supported yield more value in what they were unable to accomplish” by giving a clearer understanding of unforeseen problems. “And some simply fell flat on their good intentions.”

Among the accomplishments he cites are the program’s role in helping consolidate the fragmented interior design profession into one national organization, in spurring 33 government agencies to revise their publications and graphics, initiating legislation encouraging adaptive use of old buildings for federal offices and mixing private uses into public buildings.

Without a research grant from the program, adds Lacy, Ralph Knowles, AIA, of the University of California would not have received the first AIA national medal for research for his work in energy conserving architecture, another 555 individuals would not have had funds to pursue environmental studies and “some 350 organizations and cities would not have been able to develop imaginative plans for revitalizing their towns and cities.”

The main challenges for the program in the near future, says Lacy, are to prevent the mounting quantity of grants and the attempt to distribute them evenly throughout the country from diluting their quality, to continue backing high-risk projects (not just those with predictable results) and to continue to grow as a program without losing flexibility and accessibility.

## Entire Community Relocated in Nebraska

The third oldest town in Nebraska has now been completely moved and relocated at a new 112-acre site. The town of Niobrara, located in the northeastern part of the state in the fork of the Missouri and Niobrara Rivers, suffered seepage and drainage problems when the Gavins Point Dam was constructed. The dam, built by the U.S. Corps of Engineers, was constructed downstream from the town to alleviate flooding of the Missouri and to increase barge traffic. The Lewis and Clark Lake which resulted caused a slower flow in the rivers and a rise in the water table.

In 1971, Congress authorized \$7.8 million to be spent in finding a solution to the town’s problems. The townspeople considered alternative solutions, and then voted to move the town. Kirkham, Michaels & Associates, headquartered in Omaha, was hired as architects, engineers and planners for the move.

The firm conducted a site survey to determine the best location, and the decision was made to move southward. Businesses and homeowners were surveyed to see how many wanted to move, and finally 400 residents decided to relocate. Others moved out completely.

The firm worked with committees to study where buildings would be erected and to decide on traffic patterns. The firm constructed new wells, an elevated reservoir and a retention lagoon. “Transition to the new water and sewage system was smooth,” says Barry Ling, project manager for the firm.

A shopping mall has been constructed in the new commercial district. The firm has also designed the town’s new civic center, has made preliminary plans for the relocation nearby of the Niobrara State Park

and has drawn up plans for the relocation of U.S. Highway 12. About \$4.3 million has been spent to date in completed construction, with the massive relocation paid for by the Corps of Engineers.

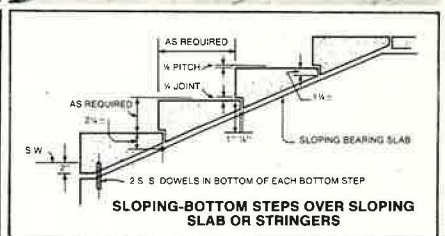
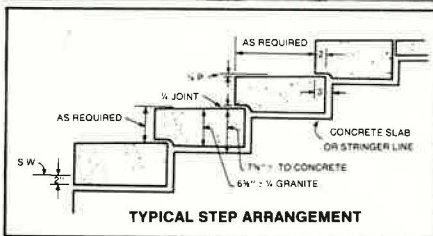
## Second Report Published On Earthquake Research

The AIA Research Corporation has completed a report on “Architects and Earthquakes: Research Needs,” the second in a series developed under a grant from the National Science Foundation. (See Dec. ’76, p. 38, for note of a design primer for the mitigation of earthquake hazards, the first report in the series.) Much of the information in the second report resulted

continued on page 66

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# AIA JOURNAL

## A Post-Inaugural Message to Mr. Carter

Everyone is offering advice to the new President, so why shouldn't we? The advice here will be limited to a single suggestion in the field of urban policy, offered unofficially, of course, not on behalf of AIA (a new set of AIA recommendations in the field of housing is summarized on pages 38-39 and is also commended to the attention of the new Administration).

The change in administrations comes at a time when things are looking up for the American city. After decades of physical decay and economic decline, the city is looking better to developers, investors and potential residents other than those drawn there because they have no other choice. Visible signs of positive change already can be seen in rising downtown towers, shiny new transit systems and spontaneously reviving residential neighborhoods.

Behind these things are some demographic and other factors which could yield even more positive results in coming years. The nation is in the midst of a rapid rise in new household formations. These households are smaller than before, comprised of more singles and smaller families, which means that they are better suited to urban town-houses and apartments and less likely to be drawn by the child-oriented attractions of suburbia.

New or mature, fewer families than before can afford to live in the suburbs, with their soaring land and housing costs. And as development moves ever farther outward in the familiar suburban pattern known as sprawl, life gets less and less convenient out there, and the varied and compact offerings of the city can begin to look better.

The 1973 gasoline shortage, brief as it was, dramatized the dependence of suburban life on the automobile. The threat or the reality of protracted shortages could further enhance the attractiveness of the city and slow, if not reverse, the flight of the white middle class.

Doing so has become the primary goal of urban policy at both the local and federal levels, as it was in the 1950s. The improvement, conservation and "stabilization" of relatively sound urban neighborhoods not only is the favored use of community development money but the favorite topic of planning conferences. Downtown also is getting a great deal of attention, in the form of public embellishments and incentives to private development.

All of these things are to the good, but there is one large omission that is also reminiscent of the 1950s—concentrated attention to the city's slum-ghettos and their residents. Without it, the new potential of the city will not be realized. For one thing, these are the breeding grounds of the crime that makes much of the city a place of fear, and so long as the fear persists many will continue to flee from it.

For another, the slum-ghettos are a primary cause of the city's fiscal malaise. Their concentrations of the poor and problem-ridden impose impossible service costs on the city's dwindled resources.

These are reasons enough for making the first priority of urban policy the improvement of the conditions of life of those in the slum-ghettos, which is the basic suggestion offered here. But there is another reason, and that is compassion. For these are the places where human need is most concentrated, and we will not be true to our most basic beliefs if we let them stay as they are. *D. C.*

# HUD Secretary Patricia Harris: Credentials vs. Commitment

Andrea O. Dean

The January Senate confirmation hearing on Patricia Roberts Harris, the new President's choice for secretary of HUD, drew attention largely for the acerbic questioning by Sen. William Proxmire (D-Wis.) and the spirited replies of Harris. Less widely noted was a series of specific commitments made by Harris on matters of national housing and urban development policy.

The sharpest exchange between the senator and the secretary-designate was prompted by reports that some civil rights and women's advocates felt, in Proxmire's words, that Harris "has not always been there when needed."

Proxmire asked: "Press reports indicate . . . you are not an of, by, and for the people person. . . . They indicate that you are not one who has gone out to seek the position and opinion of the average citizen. . . . Will you really make an effort to get the views of those who are less articulate and less represented and certainly less likely to be knocking on your door with outstanding credentials?"

Harris angrily shot back: "Senator, I am one of them. You do not seem to understand who I am. I am a black woman, the daughter of a dining car waiter. I am a black woman who even eight years ago could not buy a house in some parts of the District of Columbia."

Proxmire: "I'd like to know whether you disagree that it is not enough to be black or to be a woman or to be poor or to have any particular disability to understand the problem of the many people who don't get listened to."

Harris: "If my life has any meaning at all, it is that those who start as outcasts may end up being part of the system. I assure you that while there may be those who forget what it meant to be excluded from the dining rooms of this very building, I shall not forget."

Harris' lack of experience and credentials in housing and urban affairs posed a still more fundamental problem for Proxmire and was the main issue focused upon by the Senate committee on banking, housing and urban affairs.

Proxmire alleged: "You have no real record on which we can judge your per-

formance. . . . We have tried twice now—for four years—to turn the management of the department of housing and urban affairs to brilliant and scholarly lawyers who were amateurs in the housing field with appalling results."

Proxmire characterized housing and urban development as a "disaster area" and HUD as a "shambles, because we didn't have in HUD a secretary with sufficient knowledge and experience and a solid enough proven record in housing to be able to go to the President and win a vigorous and successful housing program. . . . We need cabinet officers to handle these multibillion dollar agencies who are able to hit the ground running; to start right out with the confidence that they won't need years of on-the-job training."

Because they shared such views, the U.S. Conference of Mayors, the National Association of Home Builders, the National Association of Housing and Redevelopment Officials, the Senate subcommittee on housing and other housing

## Harris to Proxmire: 'I am not a housing expert, but I am a professional.'

organizations had greeted the appointment of Patricia Harris with a marked lack of enthusiasm. At HUD itself, the nomination was perceived as a ticket-balancing exercise, and as evidence that the department and its mission rank low on the new President's list of national priorities. "Lawyers tend to be bad managers," was a typical early comment at HUD, "and now we have another inexperienced and probably bad manager."

At the confirmation hearings, Proxmire allowed that the secretary-designate's accomplishments in law and business are indeed compelling. Patricia Harris obtained a law degree with honors from George Washington University; has received over 30 honorary degrees; served briefly as dean of the Howard University law school; has been a partner in the prestigious Washington-based law firm of Fried, Frank, Harris, (Sargent) Shriver & Kam-

pelman; served as the first U.S. black woman ambassador (to Luxembourg); was the first black member of the board of directors of Chase Manhattan Bank (she is also a director of Scott Paper and IBM); was chairman of the 1972 Democratic credentials committee (against the opposition of the reform elements of the party); is on the board of the NAACP Legal Defense Fund; is a member of the Council on Foreign Relations. . . . Her accomplishments go on and on.

Most generalists in Congress and elsewhere are impressed, as was evident at the confirmation hearing. Proxmire was the sole committee member to oppose her confirmation, and by the time the hearings ended, even he had characterized her performance as "smashing."

Harris told the committee, "It is not absolutely true that I've had no housing experience." (She was active in fair housing efforts during the early '60s, was an advocate of the 1949 housing act, gave particular attention to housing as a board member of the NAACP Legal Defense Fund and was a manager of university housing while associate dean of students at Howard). She admitted, however, "I am not a housing expert, but I am a professional, senator. I am a professional lawyer, and lawyers as you very well know are trained to find the relevant and significant and go immediately to the determination of what needs to be done. . . . I would not accept a responsibility unless I believed in the goals, unless I believed that I was able to bring together people who would agree with me on the importance of the commitment and lead them. . . . It is also my belief that my 30 years of concern with public policy will inform me of ways in which to persuade this Administration and to persuade our new President, who needs very little persuasion in this area, I might say, because he is deeply committed to a program which will increase housing stock in this country, increase the access of individuals of all levels to good, decent, safe and sanitary housing and result in the revitalization of our country."

If Mr. Carter is indeed convinced of the importance of such a course, then why, asked committee chairman Proxmire, did he announce a two-year economic stimulation program during the first week of January which did not include housing "as an integral part of it, as a cornerstone, in fact? . . . The right kind of program vigorously administered can provide more jobs at less cost with less inflationary pressure than any other action the government can take, and it gets results now, this year," said Proxmire. Harris fully agreed, but Proxmire wanted know, "Will you press for inclusion of [such] views?" Harris answered that she had already started to do so by speaking with Charles

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Schultze, chairman-designate of the Council of Economic Advisers.

On the subject of public housing, Patricia Harris told *U.S. News & World Report* last November that "subsidies given to individuals to help them provide their own shelter should be a substitute for public housing or government house building. I would rather have people in the marketplace purchasing their own shelter—with the encouragement that this would give to private development at all levels—than have the government put up the kind of public housing monstrosities and the overly costly subsidized building programs that we've had in the past. We should make it clear that we are abandoning the whole notion of public housing."

This statement has caused a good deal of consternation among housing advocates. In January, Harris told a *Washington Post* reporter that if she had known she would be appointed as HUD secretary she "would have phrased that statement differently."

At her confirmation hearing she explained, "I am in favor of public housing so long as there is physical disequilibrium between housing supply and housing demand. The government must be the houser of last resort, so long as the private sector will not provide housing for low- and moderate-income persons." She conceded that this "disequilibrium" is likely to last into the foreseeable future.

When asked how many new housing units she would favor adding during the coming year and coming three years,

Harris answered, "I hope to recommend a program of housing starts and housing building that will not only make it possible for us at long last to arrive at the 2.6 million housing units that this body [Congress] set as the annual goal, but also within a reasonable length of time make up for the shortfalls [of past years]."

The following were some of her other statements on specific HUD programs and policies:

- On the community development block grant program (which comes up for reauthorization in March): "A flexible means of pursuing urban revitalization. . . . I have asked that a task force present to me a formula that tries to crank into the entitlement criteria the issue of need more adequately than . . . is done now."

- On Section 235 and 236 programs: "I do not know why the present [Ford] Administration has been so negative about these programs. I have asked for documents that will indicate to me whether in fact there is a reason for us not to revive these two important programs that have meant so much in housing or could have meant so much in housing our citizens."

- On Section 8 subsidies: "[I will] give serious consideration to a supplemental budget for Section 8."

- On the 202 program for housing for the elderly: "It's one of the most attractive programs that we have . . . and one to which I certainly am committed."

- On design: "Housing is something that remains good or bad much longer than people building it really think, and it seems to me that design quality is something we ought to consider a matter of right for people's shelter."

- On middle-class housing: In the *U.S. News & World Report* interview Harris said, "Despite the potential inflation problems, subsidies should be available to middle-class families as well. Any program that does not help the employed, middle-class family find decent, safe and sanitary housing will be doomed to failure." At the hearings she said, "There is no doubt where my priorities are. They are with lower-income and moderate-income persons."

- On tax incentives: "I think we ought to consider very carefully before we eliminate any kinds of incentives that encourage homeownership, that encourage people to invest in housing."

- On homesteading: "The speeding of the homesteading process may be a way to eliminate the sources of problems."

- On rehabilitation: "I would expect HUD to pursue the path of rehabilitation and respect for our communities in order to revitalize existing communities. . . . I would hope to eliminate some of the disincentives that now exist."

- On racial and ethnic integration: "It seems to me that the goal of our society

ought to be one in which individuals are accepted on the basis of their interests and preferences and, therefore, the existence of monoracial, monoethnic communities presents us with a failure of goals."

- On counseling for HUD clients: "I think we must not only provide more money for counseling but find innovative ways to see to it that people find it easy to use counseling services."

More generally, the secretary-designate promised that "the Department of Housing and Urban Development will in the next Administration provide the leadership and coordination which is essential to overcome the housing shortages and urban blight which are afflicting our nation. . . . It will be my purpose to eliminate all administrative roadblocks to implementation of that legislation and to

### Design quality as 'a matter of right for people's shelter.'

make the Department of Housing and Urban Development the foremost advocate and promoter of an aggressive housing and community development policy."

At HUD just after the hearings, a frequent comment was "she's a quick study," a quality which may prove little for the future. But the sense of gloom, which was so pervasive just after Harris' appointment, seemed to have changed to a feeling of "maybe this will be a lot better than we thought."

All in all, most observers at the confirmation hearing felt that Harris had a better understanding of HUD programs, policies and problems than did either of her two predecessors at the time of their confirmation hearings.

Several noted that her testimony was perhaps premature, if not ill advised, in promising 2.6 million new housing units before President Carter had committed himself to any such course. Throughout his Presidential campaign, Carter had in fact carefully avoided making any commitment to a specific level of housing production.

Another criticism was that the secretary-designate tended to promise much to many while giving insufficient consideration to budgetary constraints.

Above all, the new secretary is still an unknown quantity and will be for some time. So some claim that Patricia Harris' Senate testimony shows that she is in the pocket of the housing industry, and will "go hog wild building." Others believe, with equal conviction, that she still opposes public housing.

If nothing else is certain, "she will be a presence," as one long-time acquaintance put it. □

# Evaluation: A Subsidized Housing Development Designed to Turn Inward upon Itself

Back in the early 1960s, the Boston Redevelopment Authority decided to clear a 6.5-acre site in Allston, Mass., just across the Charles River from Harvard Square in Cambridge, and replace the rundown working class dwellings located there with high rent, highrise apartments. Public protest succeeded, however, in blocking the proposal in favor of what was to become the Charlesview housing development for low- and moderate-income families. A nonprofit corporation, made up of local religious and civic leaders, acted as the project's sponsor, and in 1966 selected a Boston-based architectural firm with no prior experience in subsidized housing to design the development. Now called Mintz Associates, Architects/Planners, the firm had the name of PARD Team (Planning Architecture Research & Development) during design and construction of Charlesview housing. According to the firm's president, Samuel Mintz, AIA, the selection commit-

tee was impressed with "our willingness to work closely with a nonprofit sponsor and our commitment to create within the tight costs constraints of the HUD 221(d)3 program a physical environment that would contribute to a better life for people who would live in the housing."

The project did not begin smoothly. Six families who lived in dwellings marked for demolition refused to move, tried to take their case all the way to the U.S. Supreme Court and finally had to be evicted by the sheriff's office. The resulting delay of construction raised the project's costs, and even after the architects and contractor agreed to give up a portion of their fees, there still remained a shortfall of \$60,000.

This relatively small shortfall—out of a total budget of \$4,168,215—taken together with seemingly inconsequential and unforeseen decisions made by clients and users, was eventually to subvert the architects' overall concept for the project.

At least that was the conclusion of a postoccupancy diagnosis carried out in the spring of 1973, two years after completion of the development, by environmental sociologist John Zeisel and one of his seminar groups from the Harvard graduate school of design. A published report called *Charlesview Housing: A Diagnostic Evaluation* is available for \$5 from: Architecture Research Office, Graduate School of Design, Harvard University, Cambridge, Mass. 02138.

The design solution arrived at by the architects is a 212-unit, four-story duplex development containing 72 one-bedroom, 40 two-bedroom, 60 three-bedroom and 40 four-bedroom units. On all eight buildings stair towers providing access to buildings are pulled out and bearing walls staggered to create variety in the facades. By using precast concrete and other cost-saving measures, the architects provided units that exceed HUD space requirements at a cost of \$17.50 per square foot.



Both the team agreed of the project, the attempt having some of its own, as well as their apartment limited his calls "oriented Charles site surrounding streets commercial buildings and playing



Both the architects and Zeisel's research team agreed that the dominant features of the project were the site plan and the attempt to give residents a sense of having some outdoor territory of their own, as well as privacy inside and outside their apartments. Accordingly Zeisel limited his inquiry to three issues which he calls "orientation, territory and privacy."

Charlesview is located on a triangular site surrounded by heavily trafficked streets containing industrial and commercial buildings, as well as Harvard stadium and playing fields. Since "there was no

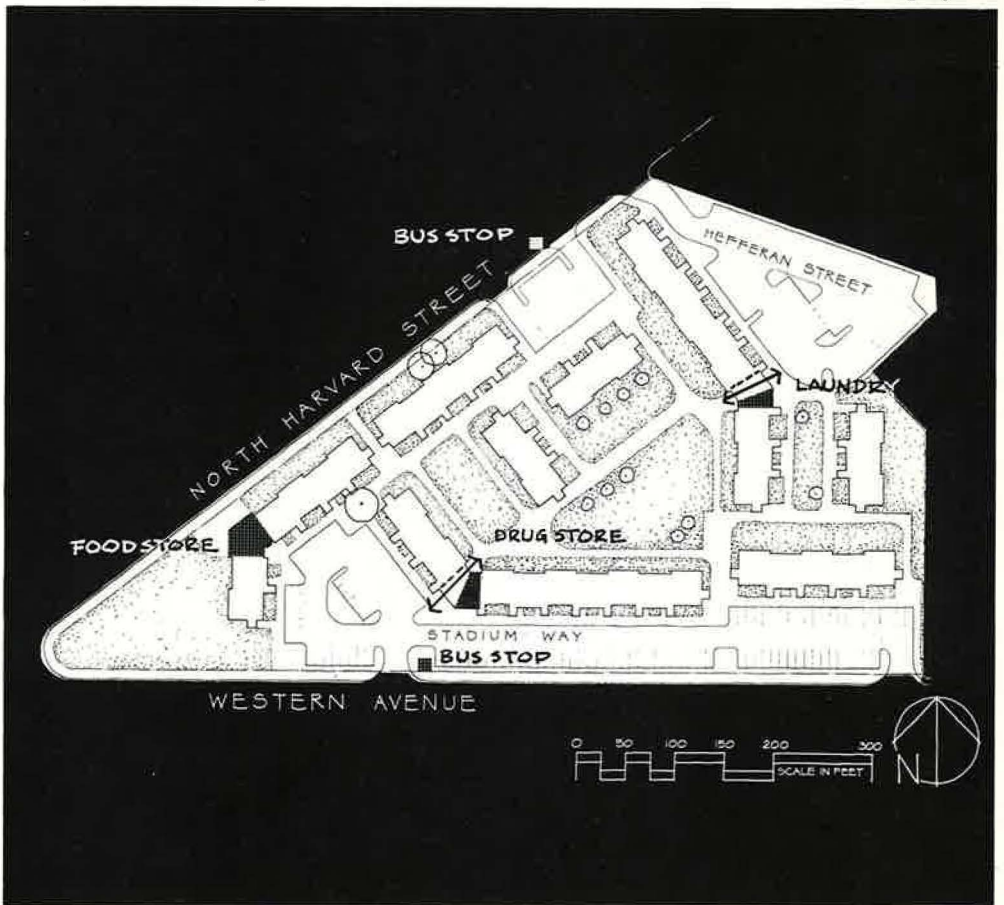
real neighborhood to relate the housing to," says architect Mintz, his team tried to create a neighborhood out of the development itself by placing the buildings along the periphery of the site and giving the development an inward "orientation."

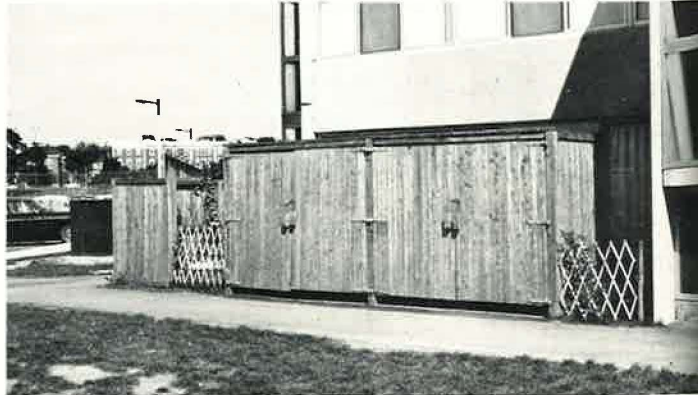
PARD Team defined a "hierarchy of spaces," including a large open space at the interior of the site for various communal activities; smaller "cluster spaces" shared by a number of apartments, where people would "sit out, let their children play and get to know one another," according to Mintz, and private fenced-in

patios adjacent to ground floor units for families to cook, relax and socialize. He expected this activity at the interior of the site to pull people inward and create a sense of neighborhood.

In their diagnosis, Zeisel and his students found that the purposes for which the site plan was devised were not apparent to the residents. Over 80 percent did not perceive the buildings to be purposefully grouped at all, and "pedestrian traffic through the central space is minimal," according to Zeisel.

The main reason for this is that play





*Charlesview's surroundings are nonresidential. Where there are setbacks or storage boxes for demarcation, residents mark off little yards adjacent to glass-covered living areas.*

equipment, benches and landscaping were cut out of the budget as "extras," leaving the interior common and "cluster" areas as dead space. Nor did "No Ball-playing" signs put up by management help. And because fences to enclose ground floor patios were also eliminated in the budget crunch, many of these little yards intended for family use became just adjuncts to the betrampled public domain.

Other "activity spots"—a drugstore, child care center and laundromat—were located at the three "knucklepoints" where buildings meet and turn a corner, with doors opening to the interior as well as the street. The intention, once again, was to draw people inward. But after completion of the project, the child care center was leased as a food store, and the owner closed the door to the interior of the site in order to gain storage space and make control easier. As a result, residents now detour in front of sliding glass doors of ground floor apartments next to the food store, intruding upon people's privacy and wearing down their grass. Mintz says that if he had known that the space he designated as a child care center would be used for a food store he would have cut a passageway for the door through the "knucklepoint" to permit entrance from both the interior and the street, as he did at the drugstore.

A more important deterrent to the successful "orientation" of the project as envisioned by Mintz was the architects' decision to locate most apartment entries along the periphery, and not the interior, of the development. For residents living along Western Avenue and Hefferan Street where unit entries face the street, cutting through the interior court to the

### **Budget 'extras' were cut, leaving common areas as dead spaces.**

food store or the drugstore would be a roundabout route under any circumstances. While Zeisel fails to make this specific point, he stresses that "designers must not underestimate the potential for entryways to provide a constant and dependable flow of traffic, to generate some social activity and to offer convenient and safe places for children's play."

Except along North Harvard Street, where there is only 20 feet between buildings and street, the architects placed parking areas along the periphery of the project in 50-foot setbacks required by the redevelopment authority. For the sake of convenience and surveillance, they located entries to apartments as close as

possible to parking, with the expectation that the balconies and patios off living rooms would reinforce the interior "orientation" of the site.

Zeisel regards Mintz' placement of entryways as a miscalculation, observing that it is now on sidewalks near building entries that older people sit in folding chairs, little children play and teenagers hang out. He notes that these sidewalk spaces, along with the laundromat located at a busy "knucklepoint" near entries on the Hefferan Street side, now play the role that the architects had envisioned for the interior "cluster spaces."

In order to have turned apartment entries along Western Avenue to face inward and still be convenient to parking, explains Mintz, his team would have had to cut additional passageways through the building, which would have been a costly procedure, consuming needed unit space, making surveillance of the street more difficult and reducing privacy.

Zeisel's analysis of the effect of the location of entryways is also problematic. He briefly notes that the greatest amount of activity on the interior of the site occurs along the path parallel to North Harvard Street where entries face inward, but his report gives the impression that all other entrances are turned toward the street. One has to search carefully before

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*The laundromat and sidewalks near building entries play the role intended for interior 'cluster spaces.' Stairways leading to entryways give Charlesview residents more 'turf' and provide a sense of control.*

discovering that as many as one-third of all entries actually do face inward. Nor did he try to determine whether there is really more activity in spaces where entries turn inward and face each other (as they do adjoining and southeast of the laundromat), than where they are back to back.

Zeisel explains that his methodology accounts for the omission: Out of a total 212 families living at Charlesview, his team interviewed 56 living in a cross section of unit types. In order to find out if placing entries on the interior of the project did indeed create an inward orientation, he would have had to question all residents living in units with entryways facing inward and compare their responses and behavior with those of all tenants whose dwellings back one another. For similar reasons he did not examine the effect of having some (16) entries to four-bedroom apartments on the sides of buildings. Nor did he speak to the manager to find out which unit locations are preferred by tenants. Zeisel explains that management discouraged his study in the first place, and his team did not want to appear to be "flunkies of management" to the tenants.

Although Zeisel did not specifically ask tenants whether they regarded their development as a neighborhood (as Mintz hoped they would do), he did find that

residents were "somewhat dissatisfied with the empty interior spaces." The tenants complained of a lack of planning for the elderly, of there being no place on the interior to "sit around and watch." One might add, there's nothing to watch. And the fact that neither elderly nor young

### **Patios show signs of use and care only where they are somehow demarcated.**

children have any place they can claim as their own seems to have exacerbated normal conflicts between the two groups.

In his examination of "territory," Zeisel notes that the architects arranged dwelling units to open onto a shared stairway, in order to extend residents' "turf" beyond their apartments and avoid one scourge of highrise apartment buildings: long hallways that become a no-man's land where residents feel they have no control and for which they accept no responsibility. Zeisel and his team found that Charlesview tenants do view their stairs as an area under their control, that the arrangement helps them feel safe and that large families living in upper level apartments use stairways to store toys, bicycles, boots and the like.

The architects had also hoped, however, that the sharing of a stairway would encourage friendships and the formation of small neighborhood groups. This did not happen, according to Zeisel's findings, and he submits that "unless residents have many interests and characteristics in common, physically planned meeting places are not sufficient catalysts to engineer social contacts."

The ground floor patios (with missing fences) were regarded by both Mintz and Zeisel as key to all three of the issues focused upon by the researchers, namely, "orientation, territory and privacy." Zeisel found that when given an opportunity to carve out little outdoor patio spaces of their own and personalize them, residents did so. Some ground floor patios are screened by storage boxes, and although quite small and often shaded, a full 80 percent of these little yards are planted with grass or flowers. Also decorated are about 70 percent of small, 4x8-foot areas, shared by two families, which are shielded by two small fences from stairwell entries and marked off by sidewalks. But open space off ground floor living rooms, which was intended as "turf" but was left totally undemarcated—contrary to the architects' plans—remains bare and anonymous-looking.

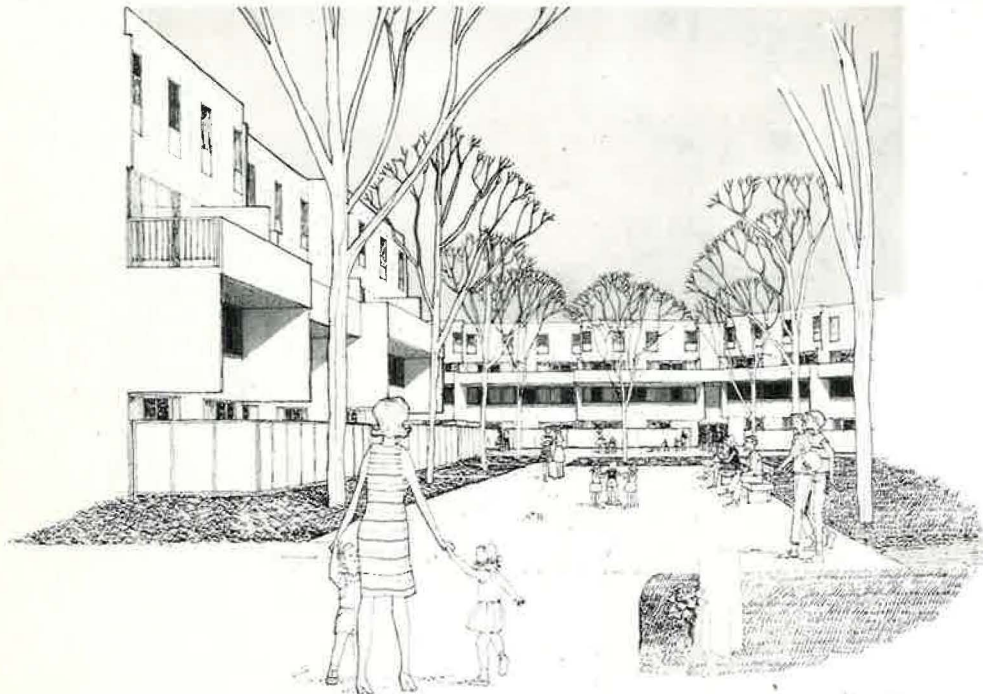
Observes Zeisel, "The same residents

who cultivate spaces on the side of the units where there is some demarcation have rarely tried to use or personalize the open spaces adjacent to their living rooms. . . . Architects might try to provide some form of demarcation—a fence, a pathway, a jog in the building edge, a difference in ground level—since even the slightest demarcation can be sufficient boundary marker to give residents a feeling of territory.”

However, Zeisel did not examine the manner in which residents living along North Harvard Street, where there is a long fence separating units from street, use their patios. Few of these have, in fact, been demarcated from one another. Charlesview manager Max Lefkowitz explains this by saying that most belong to units occupied by elderly people “who adjust more easily to one another.”

Zeisel also found that the lack of fences on the ground floor patios has substantially reduced the residents’ feeling of privacy; people used upper floor balconies more frequently than patios, whether enclosed or unenclosed. (But, once again, he made no attempt to find out whether this differed on the Harvard Street side.) Says Zeisel, “Indications that residents both desire and need privacy can be seen in part in the many changes they have made to increase privacy of their outdoor space. The greater the privacy in the family open space [patio], the more satisfied residents seem to be with those spaces.” Lefkowitz agrees that every unit should have outdoor privacy, and regrets the lack of fences.

The architects included sliding glass doors covering an entire wall on the ground floor in order to make the interiors



*Apart from the interior ‘street’ (rendering left), the interior of the site at Charlesview is largely devoid of activity.*

of units appear larger. But mainly because of the absence of fences, most residents keep curtains drawn over their glass doors; some even have chains on them for security. A representative complaint: “Why don’t we just have some normal windows so we can see out without showing off our whole house?” Although Mintz defends his lavish use of glass at Charlesview and feels there would have been no complaints about it if fences had been provided, his most recent housing project has less glass.

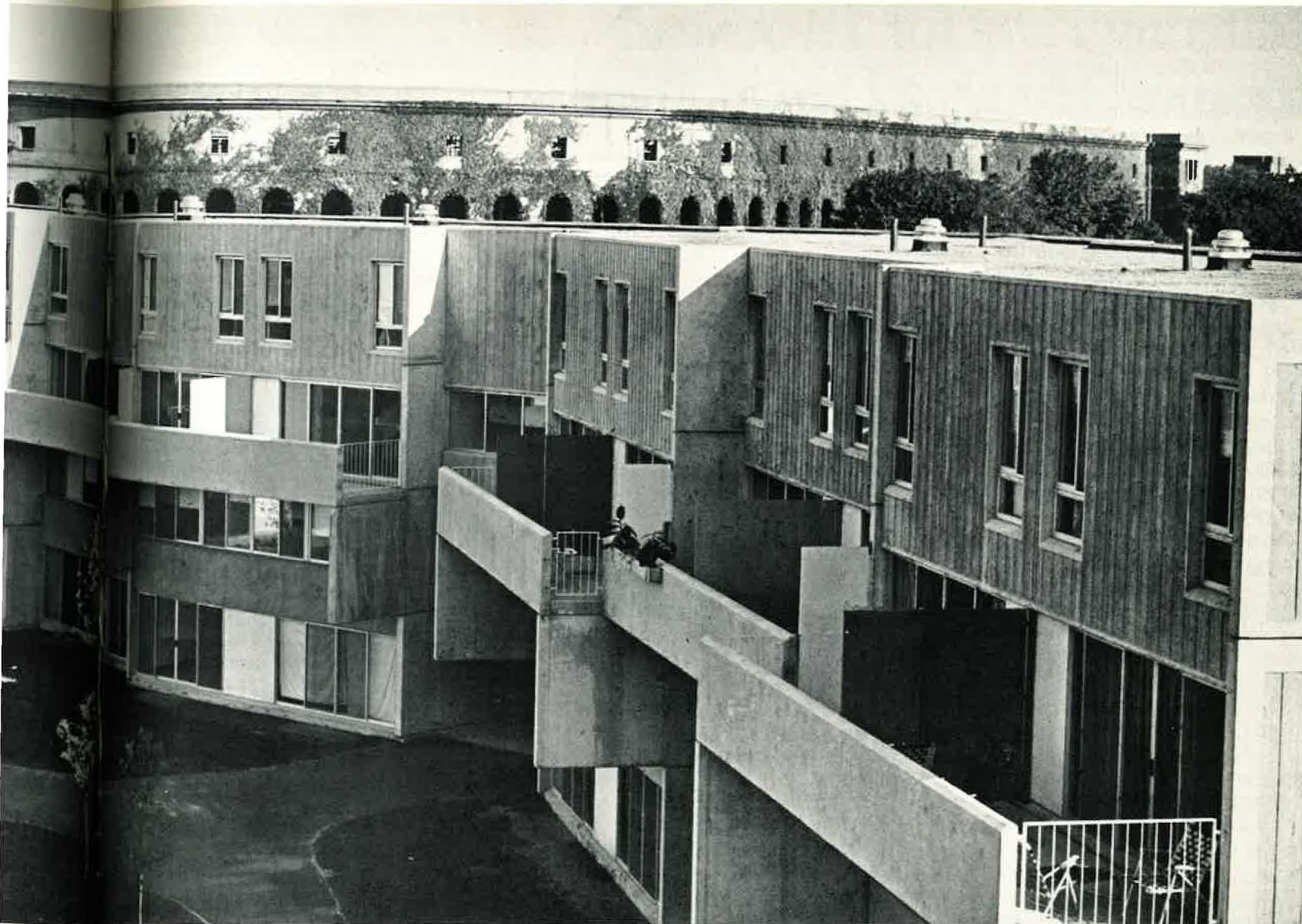
From such failed attempts to create a feeling of outdoor privacy, Zeisel concludes that administrators and architects should begin to view certain amenities such as fences not as “extras” but as necessities. Says Mintz, “If it were a B-1 bomber, you would be allowed all sorts of overruns. By cutting insignificant amounts for important amenities out of housing budgets, projects deteriorate, go into default and then HUD ends up spending millions to rescue them.”

Zeisel suggests that architects should

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develop strategies to ensure inclusion of so-called extras, such as giving prospective residents a stronger voice in the decision-making process and designing elements that build privacy into the actual physical structure of buildings, so that they are not seen as dispensable elements by the builder. Recent housing projects designed by Mintz include all the important amenities missing at Charlesview.

Most successful at Charlesview have been Mintz' attempts to design opportunities for privacy into the basic floor plans of the units—which were affected by neither budget cuts nor management decisions.

The architects opted against an open space configuration, since, according to Mintz, it "can cause conflicts between family members because different activities cannot be separated." The duplex plan separates a private level for bedrooms from the main living area, and the latter is divided into two areas and into distinct rooms. The front door opens onto a foyer, an arrangement which provides the living area with privacy from the outside, and helps to keep outside dirt and mud out. The eating area is attached to, but not part of, the kitchen. The living

### Few residents felt the stigma of living in a subsidized 'project.'

room is separated from the eating area and can be closed off from the kitchen, allowing families to have a more formal space.

PARD Team's efforts to design in "options for privacy" seem appreciated by Charlesview residents, according to Zeisel. Over 80 percent preferred a foyer entry over a kitchen or living room entry for reasons of "privacy, convenience and avoiding mess." Nearly two-thirds said they like a living room completely separated from the eating and kitchen areas, and more than 90 percent wanted at least a semiseparated living room. As the architects correctly anticipated, residents liked being able to have different activities take place at the same time in their units without interfering with each other.

Zeisel comments that the architects' success in this area resulted from their sensitivity "to the needs of the specific type of families they were planning for, and . . . insights PARD Team gained by

walking through and discussing existing open plan apartments with prospective Charlesview residents before beginning the design."

Despite its apparent deficits, Charlesview residents "are highly satisfied" with the development. Somewhat to their surprise, when the researchers asked residents "What do you like most about living in Charlesview housing," a full third mentioned something about the location. They liked the fact that it is convenient to bus lines, shopping centers and Harvard Square. Few mentioned being bothered by busy streets and having business and industrial buildings for neighbors. Mintz believes "this is partially explained by the inward focus of the site arrangement, which gives a sense of neighborhood and security." Only 11 percent of the tenants called Charlesview a "project," indicating that few felt the stigma often associated with subsidized housing.

For Samuel Mintz the diagnosis of the development carried out by John Zeisel and his group showed "how valuable it would be to have Zeisels on the design teams when neighborhood housing developments such as Charlesview are being planned and developed." *A.O.D.*

# Differing Fates for Two Nearly Identical Housing Developments

Louis Sauer, FAIA

Many architects seem to believe that physical design alone determines the ultimate success of a housing project. If the constructed project doesn't work socially, the architecture is to blame. But some of us are letting go of the idea of architectural determinism and learning that there are factors beyond physical design that can dramatically affect the way in which the physical environment supports or does not support human life. In fact, I believe these nonphysical factors to be preconditions to a more humanly responsive and lasting architecture.

This became most evident to me in connection with two small housing projects in New Haven, Conn., for which my firm won several design awards. They are quite similar: The unit plans are identical, the building plans are much the same and the site plans vary only slightly. Yet today the atmosphere of the two projects is quite different: One seems to be reaching a dead end, while the other has a strong sense of vitality. Since the projects are so similar in design, the causes for these differences might well lie elsewhere.

To look for the causes, we have to go back to the beginning of the two projects. When I was retained as architect in 1967, the sites had been selected; both were in urban renewal areas, a couple of miles apart on the same street. Two nonprofit, church-affiliated sponsors were on board, and the projects were to be developed by the New Haven Redevelopment Agency (NHRA), with one, Harmony House, to be financed with the HUD 221(d)3 program and the other, Canterbury Gardens, to be built under the HUD 236 program.

It was agreed that for economy one would be a prototype for the other. The same contractor was used for both projects.

In planning, I did not insist strongly enough on a couple of features that would have improved Harmony House, the prototype: A through street rather than a cul-de-sac would have better integrated the new development to the neighborhood, and the project should have encom-

passed some nearby deteriorated housing to reduce the difference between the old and the new.

While working on the problems of the site and adjacent housing, I visited all the other 221(d)3 and 236 projects in New Haven. Several patterns had formed. Large green spaces had become badly beat up by children at play, and there hadn't been enough maintenance money to keep them up. Parking for most was provided in lots, and houses weren't often related to the streets. Yet the residents said they preferred to park their cars where they could keep an eye on them—out on the street in front of their homes. Many mothers didn't like either the typical arrangement of the living room at the rear of the house overlooking the backyard (which was also used for storage and utility purposes) or the small galley kitchen just inside the front door. My informal research led to a lot of arguments with the programmers at NHRA.

During the schematic design phase, the city agreed to my recommendation of townhouses for the larger families, and after some site studies we arrived at a maximum of 22 units for the one-acre site. But the city insisted on its typical

## The 'bad vibes' felt at one project were totally absent at the other.

floor plan with kitchen at the front and living room at the back. As the design progressed, it was reviewed with NHRA, HUD and others, but there was no contact with the sponsor or potential inhabitants.

Halfway through the construction documents, the contractor decided he had made a mistake in his figures and wanted out of the project. While the city looked for another contractor, my firm did some research on the room arrangements. We interviewed six families who qualified for our subsidized housing, using a cardboard model to help them understand relationships and dimensions. These people preferred an informal kitchen-dining-den area in the rear as a focus of family activi-

ties, keeping the living room for the grownups to the front. They also wanted private yards and parking at the front of the house—the exact reverse of the city's favored plan.

Six families is a small sample, but it was large enough to validate my impressions of other subsidized housing projects and large enough to give me the edge in dealing with NHRA. The NHRA programmers finally agreed to putting parking spaces in front of units and accepted the switch in room arrangements for Harmony House—kitchens at the back, living rooms at the front—and the units were redesigned. The same changes were incorporated in the design for Canterbury Gardens.

The second project was completed 18 months after the first. Their exterior colors were different—a single hue for Harmony House and several lighter combinations for Canterbury Gardens. The play areas were also different, designed and built after the projects were completed, with the tenants having a say in their location and in the type of play equipment.

On my first visit back to the New Haven projects, I took a delegation of Europeans. We saw Harmony House first. It was, in the word of one of the visitors, a "mess." Garbage and trash were strewn around the area, buildings and site furniture had been vandalized and an abandoned car sat in the middle of the site. At Canterbury Gardens, we saw many of the same signs of wear and tear, but no trash. Kids were playing and there weren't the pervasive "bad vibes" that we got at Harmony House.

My most recent visit, late last summer, confirmed these impressions. At Harmony House, the residents were inhospitable and the project was in worse physical shape than before. At Canterbury, on the other hand, people were more friendly, and if they pointed out building damage or other problems, the troubles were described as things that should or could be fixed, not problems that had to be lived with.

My associate David Brossart, who had not worked on either project, went to New Haven with a camera to gather some impressions. At Harmony House, people typically asked who he was and what he was doing and then unloaded a few complaints. One mother, when she learned that David worked for the architect of the project, asked him to ask me why I "made the place so ugly." Another woman volunteered, "These houses are on their way down." They wouldn't last, she said: "Fallin' apart."

At Canterbury Gardens, the residents ignored David. In a few cases, he felt that courtesy demanded that he introduce himself, and in some others, he felt comfortable enough to start a conversation. When

Mr. Sauer's firm is Louis Sauer Associates in Philadelphia.

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he did, he got positive responses about life in Canterbury Gardens. It's okay," one person said when asked how he liked living there. Another said, "Fine, but it's a shame the wood ain't gonna last." Another remarked that it was "better than the new place across town," and still another said, "It's nice here."

David's impressions tallied with mine, but when we looked at the slides both of us had taken, the camera's objectivity made it clear that physical conditions were pretty similar at both sites: routine weathering, wear and tear, augmented by lack of maintenance and vandalism. Why then do the two projects feel so different?

Although they are nearly identical, even down to their present physical conditions, there is something about one that makes people want to improve it and about the other that makes people not care.

Then I asked James Drazen, director of housing for the NHRA and coordinator-developer for the projects, to help me explore the wider contexts in which the projects were designed, built and operated. In reply, he asked a very simple question: "Why is an architect that important?" and confirmed my feeling about things outside the architect's control that accounted for the differences between those two projects.

Jim said that the higher bedroom density; the physical, social and economic characteristics of the neighborhood; the high percentage of single head of household families, and the lack of facilities in the Dwight urban renewal area where Harmony was built all combined to put greater pressure on that project. "When we did Harmony House," he said, "we created a little island there, almost like a little park, that drew people from the neighborhood into it. So besides the even greater density of children programmed into the project, it also became a magnet to the rest of the community." There just wasn't anywhere else for the children to play.

The Newhallville area, location of Canterbury Gardens, was a stable, well-established neighborhood, with a variety of facilities for children and adults, Jim pointed out. But more critical than the pre-existing residents in the neighborhoods were the people in the projects

### Looking for reasons in factors other than the physical design.

themselves, and the way in which they were chosen, he said. NHRA, in trying to reduce the number of families to be relocated, placed in Harmony House a lot of what might be described as "problem families"—particularly large households headed by women on welfare—which in turn led to a high concentration of three- and four-bedroom units in the project program and a large number of children. For Canterbury Gardens there was less pressure to reduce NHRA relocation workloads, so fewer three- and four-bedroom units were provided. Therefore, Canterbury Gardens was more balanced with fewer children.

A related factor was management. Decisions concerning management, during design and construction as well as after completion, determine the types of people who will live in the projects and the way in which they will be selected. At Harmony House there was no management voice to check the NHRA's pressures to reduce its own workload; at Canterbury, management was more closely involved in tenant selection. Management's willingness to make prompt repairs and to carry out routine maintenance also has an effect on tenant attitudes, and the presence or absence of a resident manager has a lot to do with the way tenants feel about management and the housing.

From my talk with Jim Drazen and from my observations of the two projects, I'm convinced that the differences between them are not differences in physical con-

*continued on page 48*



*Harmony House (top) and Canterbury Gardens just after construction.*

# Analyzing the Gropius House As Energy-Conscious Design

Nevin Summers

At the beginning of the 20th century, Walter Gropius was one of the first to challenge the unquestioned borrowing of styles. Cautious not to be misinterpreted as advocating a break with the past, he said he sought "... rather to introduce a method of approach which allows one to tackle a problem according to its peculiar conditions," precisely what indigenous builders for centuries had been doing. Tradition for Gropius meant not the copying of bygone forms but the struggle for essential design "... derived from the environment, the climate, the landscape, the habits of the people."

The Gropius family arrived in Boston from London as expatriates from Hitler's Germany, in March 1937, in response to a request from Dean Hudnut of Harvard University to assist in rejuvenating the graduate school of design. For their first year in this country, the family rented a house in Lincoln, Mass. As Mrs. Gropius recalls, "Then something extraordinary happened. An architect friend of ours, Mr. Harry Shepley of the famous firm of Coolidge, Shepley, Bulfinch & Abbott, who had designed most of the newer Harvard University buildings of colonial style, talked to a lady of his acquaintance, Mrs. James Storrow, and told her that the new German professor at the Harvard school of design would very much like to build his own house, but lacked the financial

means to do so. He suggested that she offer him one of the sites she owned in Lincoln, that she finance the house, and then rent it to him. After the briefest of conversation, Mrs. Storrow agreed because one of her principles was that a newly arrived immigrant should always be given a chance to show what he could do best.

"Mrs. Storrow was a fairly old lady at that time and she had never heard of modern architecture or seen European samples of it, but she had supported her husband through the many years when he had fought with the citizens of Beacon Hill for the installation of the Charles River basin and dam at the beginning of this century and she had learned to be far-sighted and independent in her judgment. Without her help my husband would not

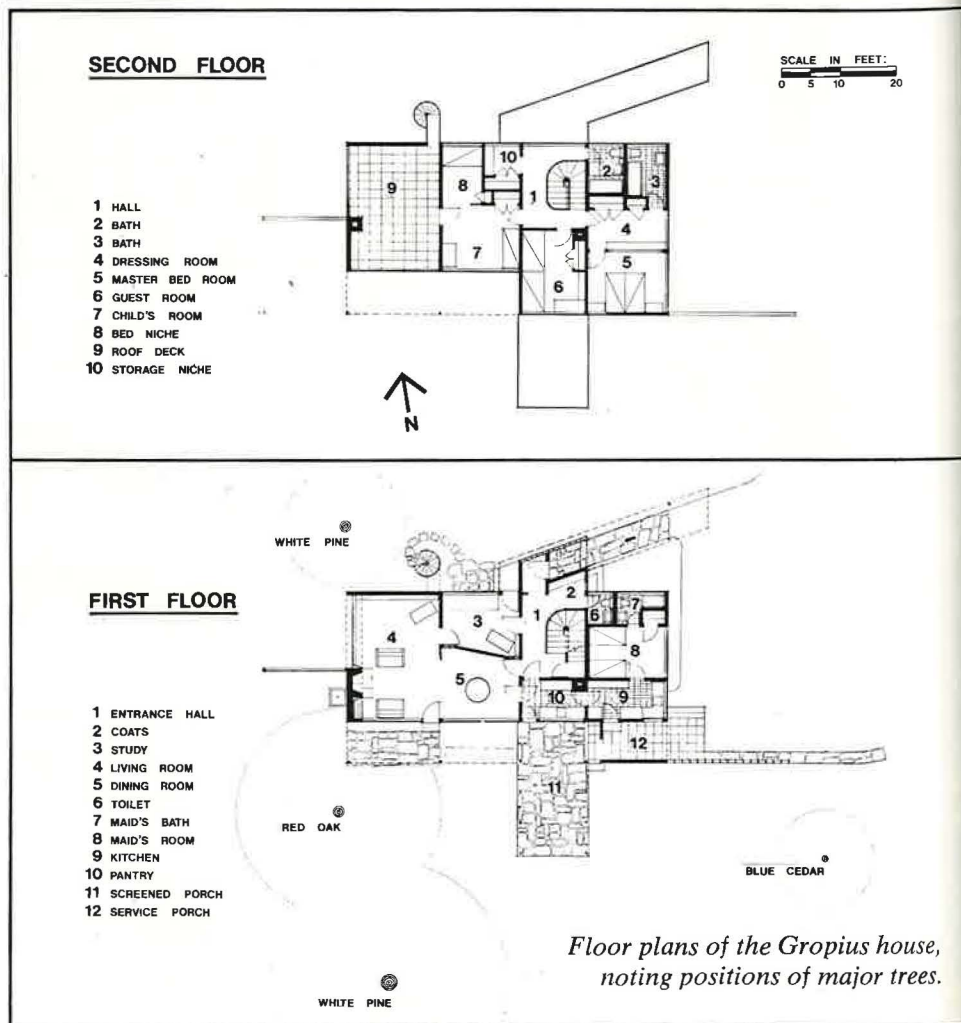
have been able to even get a mortgage on a house of such 'outrageous design' as he finally produced.

"During the succeeding months we went on many trips through Massachusetts, New Hampshire and Vermont to study the lovely old colonial houses which, at that time, filled almost exclusively the New England countryside. My husband was impressed with the changes which had been made to adapt the English Georgian style to the American climate and resources. He planned to retain in his own house some of these successful features that were still valid contributions to living under one of the most extreme and trying climatic conditions anywhere in the world.

"Among the building sites Mrs. Storrow offered to us, we chose a small hill, surrounded by a large apple orchard, with a beautiful view of Mount Wachusett and within walking distance from Lake Walden, famous throughout the world through the writings of Henry Thoreau.

"Mrs. Storrow gave use good, practical advice on how to cope with snowfalls in winter and catch the cooling breezes in summer. . . .

"Our hill was almost completely bare of trees or any other growth at its crest, and we decided that planting trees was just as important as planning the house which was going to be exposed to the relentless impact of sun and wind with



Mr. Summers, while studying solar and climatic design of buildings at the Massachusetts Institute of Technology, made an analysis of Walter Gropius' attempts to "use architecture to passively temper weather extremes" in the house that Gropius had designed in 1937 for himself and his family in Lincoln, Mass., which was conceived by the architect as a teaching aid throughout its design, construction and occupancy. Summers' article contains valuable historical material written by Mrs. Gropius that has not appeared in print before. An extensive technical report of Summers' findings will appear later in the *AIA Energy Notebook*. No part of this article may be reproduced in any form without consent of the author, who is now a master's degree candidate at the Harvard University graduate school of design.

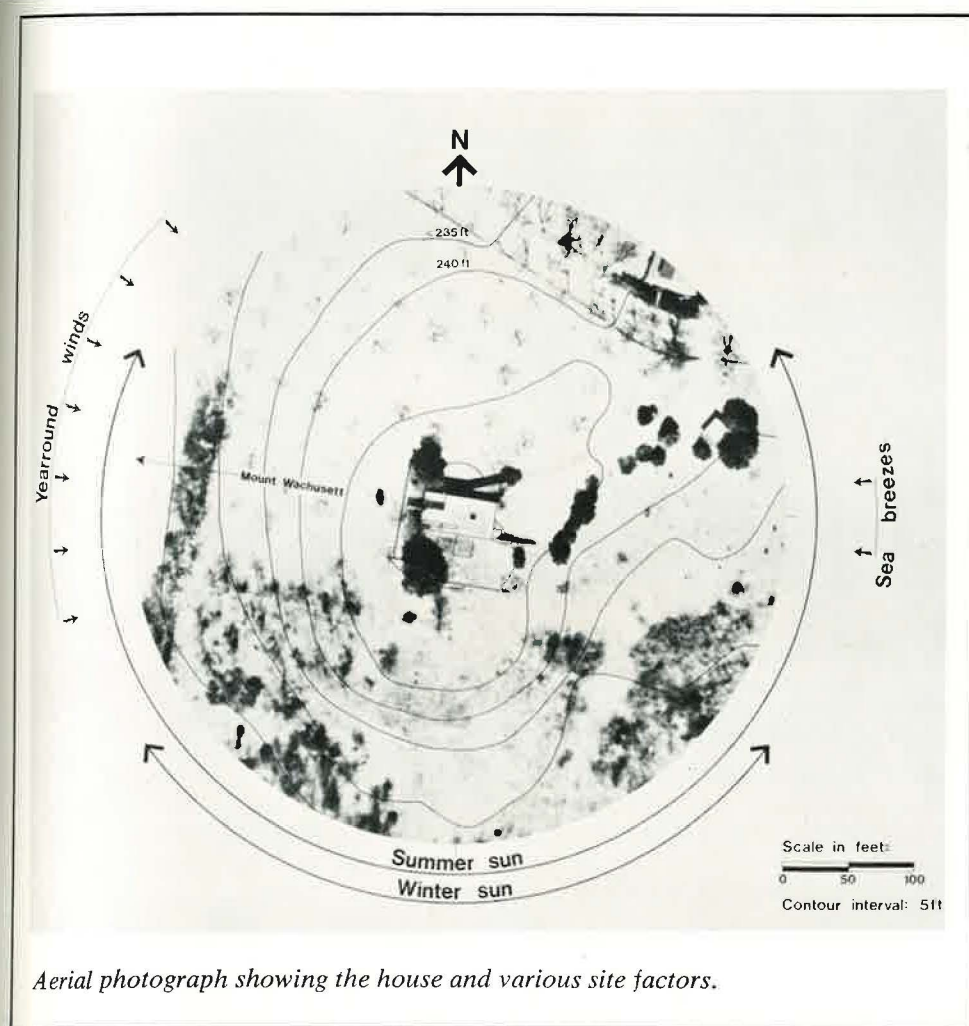
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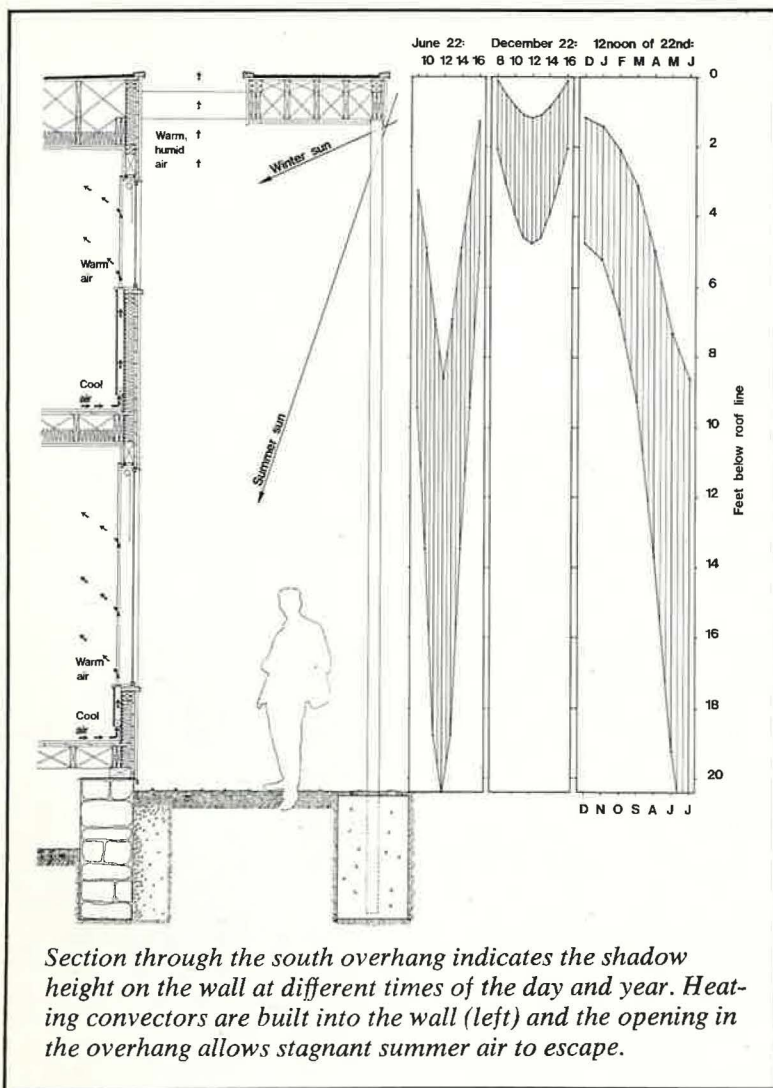
Aerial photograph showing the house and various site factors.

temperatures between 6 degrees below zero and 106 above.

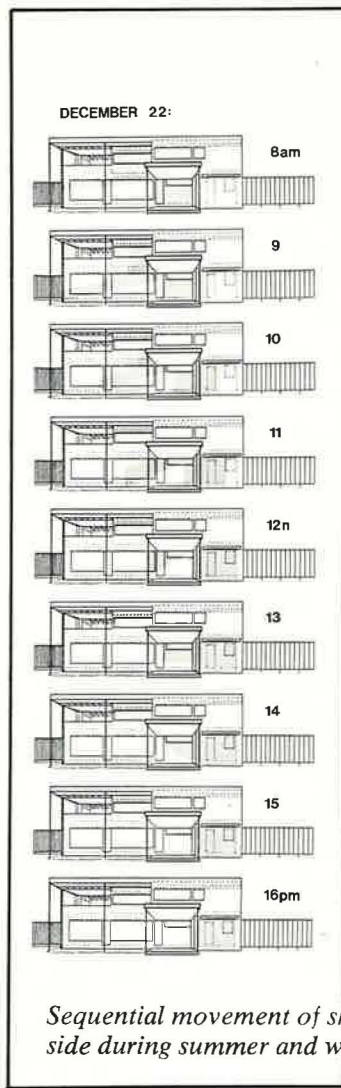
"Every evening we would wander to watch the sunset from our new property and would plot which way the windows would have to face to take best advantage of the views and the heat of the sun. My husband was used to thinking in frugal terms from the long experience he had had in impoverished Germany after World War I and also because it had always been one of his prime motivations to create maximum results with minimum means. In fact, he considered this a main factor in the production of good architecture.

"Massachusetts is on the latitude of Rome, though not blessed with the Roman climate. Gropius wanted to build a compact house, able to withstand the rigors of a climate that tended to erupt in extremes of heat or cold, creating arctic conditions part of the year while the rest produced almost tropical growth. . . ."

The average air temperatures in Lincoln are moderated somewhat by the ocean 15 miles away, which acts as a gigantic global heat storage and transfer medium. Winters are cloudier than summers: July is the sunniest month with an average of 64 percent sunshine possible under totally clear skies, while January receives only 47 percent, thus setting a critical limit on the solar energy available for domestic heating. The humidity and cloud cover keep the air temperature



Section through the south overhang indicates the shadow height on the wall at different times of the day and year. Heating convectors are built into the wall (left) and the opening in the overhang allows stagnant summer air to escape.



Sequential movement of shadows cast on the south side during summer and winter solstice days.

swing between night and day relatively flat, about 15 degree F, a characteristic of temperate climates. A bio-climatic analysis using Victor Olgyay's method (*Design With Climate*, Princeton University Press, 1973) revealed that cooling of rooms by sun-shading and cross-ventilation is necessary for comfort about 15 percent of the hours of the year. During the remainder, heat from the sun or elsewhere and wind protection are needed. Easterly sea breezes that have a year around mellowing effect on temperature occasionally reach the house and hill in the afternoon though they are blocked in part by the larger and higher Storow Hill to the northeast. Westerly and northwesterly winds prevail year around at the site.

The overall shape of the Gropius house (2,300 square feet interior) is a rectangle with its broad sides facing north and south. (The actual siting was rotated 9 degrees west of true south for the view to Mount Wachusett.) In order to take advantage of the winter solar heat impact, the total exterior surface area facing south was given the greatest amount of glass, 29 percent, compared to 17 percent on the north, 21 percent on the east and 15 percent on the west. Winter solar impacts on the sides other than south are not very

large. Since each square foot of window carries with it a substantial lifetime upkeep cost for heating, the glass areas on these sides were kept down to a minimum necessary for view, illumination and ventilation.

Summer solar impacts are greatest on the east, west and south sides. Throughout the year, some sun penetration on the east side is desirable to warm up the house in the early morning hours. But on sum-

### Glass on three sides was minimized to keep down fuel costs.

mer days, south and west glass should be shaded. Protection from sun on the west side in the afternoon is particularly critical as the air is hottest at that time.

Most of the windows in the house can be shaded from the summer sun by light-colored roll shades hung on the interior side of the glass. Once the sunlight is inside the house, only that portion of the radiant energy that can be transmitted back through the glass can be eliminated; the remainder radiates inward and also warms up the air between the window and the roll shade which is then convected to

the interior. On the south and west exposures, there is a shading device that intercepts sunbeams *before* they reach the glass surface.

Over the west living room window there is an exterior aluminum blind that is operated by two draw cords leading indoors, one for raising and lowering and one for controlling the pitch of the blades. When fully closed, a reflective metal shield is formed which can keep 90 percent of the solar impact out. The blind is mounted in guiding tracks to secure it in strong winds and can be raised when the full view is desired.

On the south side, the glass is protected from the summer sun by an overhang. In winter, when the sun is low in the sky because of the earth's tilt away from the sun, the solar rays are free to enter where about 60 percent of the incoming energy is actually used for space heating.

The south overhang is perforated for several good reasons. While the upper level bedrooms do get a small amount of direct sunlight through the opening during the overheated period of the year, they also get diffuse sky light throughout the year, allowing them to "see" enough of the sky and not be dark. The opening in the overhang also allows heated air and

humidity the ground important otherwise into the b they shou ing the ov structure through c Another that is eff heated pe key posi highest in is striking Gropius p the south and west noons; he



humidity coming from the building and the ground to escape, which is especially important on muggy summer nights; otherwise, stagnant air would back up into the bedrooms at the very time when they should be cool. In addition, separating the overhang from the rest of the structure reduces the winter heat loss through conduction.

Another important means of shading that is effective during the entire overheated period comes from trees planted in key positions. The daily air temperature is highest in the mid-afternoon when the sun is striking both the south and west sides. Gropius planted a broad-leafed red oak at the southwest corner to shade both south and west and part of the roof in the afternoons; he also planted a needle-leaved

white pine to further shade the south glass in summer and provide greenery in winter. Since the red oak is deciduous, it loses most of its leaves in mid-autumn and does not interfere much with the desirable direct winter sun; the white pine, however, must be trimmed at the middle branches to let the low winter sun in. The pine tree also screens the house and nearby ground from glare year around.

About the perception of glare, Mrs. Gropius writes, "Most people thought that the amount of light admitted to the rooms would cause constant irritation for the eyes. They were not aware of the fact that the dazzling effect of bright light in a room does not originate from the light source itself but from the contrast between window space and the wall next to it

which appears dark to the eye. When the whole wall becomes a window and is shaded, it creates an even, unglaring, pleasant glow because all contrasts are removed."

The prevailing wind flow at the Gropius house is westerly, but winds gust from the northwest and sometimes the southwest as well. This fluctuation can occur in a period of hours, minutes or even seconds. Natural ventilation through the building thus cannot be accurately predicted.

Still, wind puffs most frequently from the west. Wind gusts build up positive pressure (+) on the west side and create suction or negative pressure (-) on the east side; this causes the air to generally flow eastward through the house.

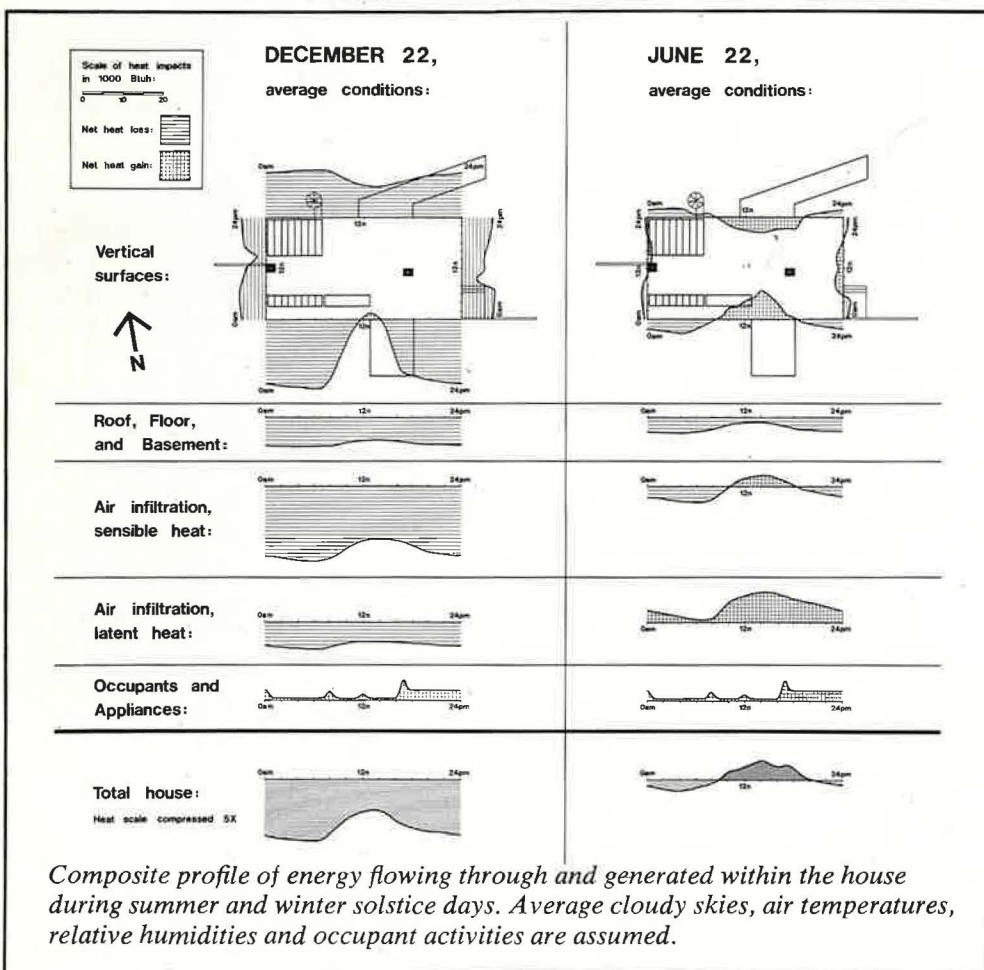
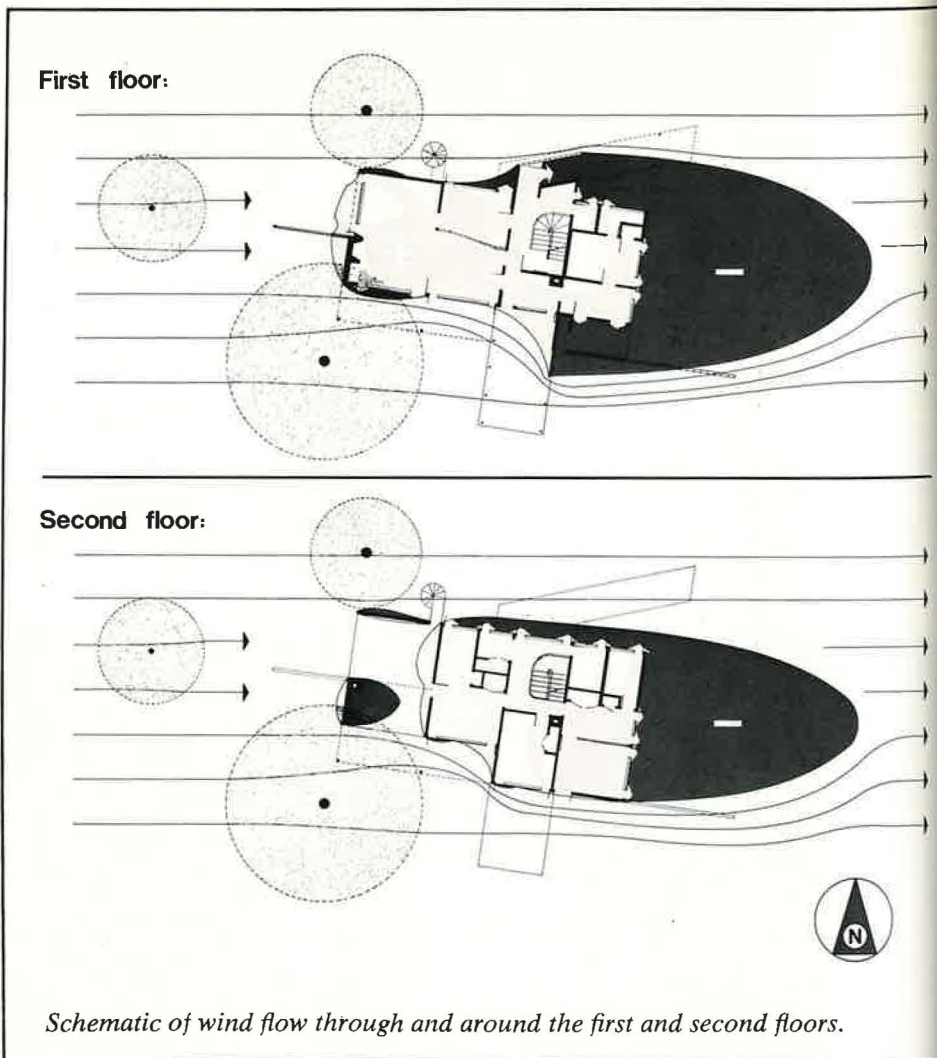
The activity area (living, dining, study-



ing) is located on the prevailing windward side of the house, and the service area (kitchen, pantry, service porch) is on the leeward; heat and odors associated with cooking can thus be exhausted by the fan over the oven without coming back in the open doors and windows. The hall, leading from the front entrance on the north side to the porch on the south, was placed on a straight axis to encourage cross-ventilation, as in traditional New England houses.

When it came to the screened porch, however, Gropius departed from traditional house design and extended it at right angles from the back side of the house. Mrs. Gropius says on the subject: "Normally the porch is always arranged in front of the house alongside the living room, because in the early times without cars, people liked to sit there after working hours and watch the street scene and greet neighbors. This habit has persisted though people now only see passing cars and suffer from the resulting pollution. Also this position of the porch keeps the living room behind it dark and often dank while we were intent to catch every bit of breeze the hot summer days and nights could offer."

All rooms are given some windows that can be opened, to allow for fine tuning of ventilation and changing weather. Adjustable windows are screened to exclude insects and placed to the side of a larger fixed window so that the view is not



blocked. The treatment of windows is also sensitive to the issue of privacy. For instance, the large expanses of glass in the living and dining rooms are on the back side of the house, while the shoulder height ribbon windows on the north side provide light and ventilation for the private bathing and sleeping areas (the child's room), which face the public street 175 feet away.

Another mode of heat control important in keeping the interior of the Gropius house cool in summer is "capacity insulation" where solar energy is stored as heat in a structural element and released at night when it is needed. The west brick wall, in which the fireplace and chimney are built, performs such a function. The sun hitting the gray-painted brick in the afternoon raises the outer surface temperature above that of the surrounding air. This heat is absorbed by the mass of the brick. Since the wall is a minimum of eight inches thick, it takes about seven hours for the heat impact to pass through to the interior, by which time it is late evening and the outside air, which ventilates the house, has dropped in temperature, making the warming effect of heat from the brick beneficial.

According to Mrs. Gropius, the location of the fireplace on the west side of the living room was for spatial, not solar,

reasons. The brick wall t... sun and fro... a happy co... layering of... tural buildi... passive sola... focused pur...

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reasons. The combined functions of the brick wall to store radiant heat from the sun and from the burning of wood is only a happy coincidence. And yet it is such layering of multiple functions on structural building elements that distinguishes passive solar architecture from narrowly focused purely mechanical solutions.

Extensive use of thermal mass in exterior building surfaces is not advisable in a climate like Boston's because the difference between day and night air temperatures is not very great and because occasionally passing weather fronts often make the timed heat release a liability rather than an asset. When the thermal mass is used inside buildings, as in the walls and floors of south facing rooms with overhangs, the solar "charging" and subsequent release of heat can be better controlled.

The figure below left is a composite profile of energy flowing through and generated within the Gropius house during the 24-hour periods of June 22 and Dec. 22. Each curve is an indicator of a distinct mode of energy flow which, when added together, give an estimate of fuel consumption. Interior comfort conditions of 50 percent relative humidity at 75 degrees F on the summer day and 35 percent relative humidity at 70 degrees on the winter day are assumed.

The data for the vertical surfaces represent the combined heat flows through all the building materials that make up a given elevation. As the sun moves around the house on June 22, there is a period of heat gain on the east side as the house is warming up in the morning. While this is happening, the south side is still losing heat. Then, when the sun comes around to the south side, there is a gain through that surface. This calculated heat gain on the south side does not include the effect of the pine and oak trees. It took some 15 years for the trees to grow to a size and height to be effective as shading, and during that time the overhang and roll shades had to do the passive job alone.

The west side of the Gropius house, where in summer the heat of the air and the sun combined can create almost unbearable conditions, is splendidly designed. The relatively flat heat flow curve for this elevation demonstrates the effectiveness of the exterior aluminum blind, the limited window exposure and the brick wall in balancing the daily heat flow.

Except for a short time in the early morning and late afternoon when the sun hits the north side, heat flow through this surface essentially follows the difference between indoor and outdoor temperatures.

While ventilation provides desirable air movement during most of the summer, it can also bring heat and humidity into the house. Though it is not common practice, the indoors can oftentimes be kept more

## Airconditioning was never added simply because it was unnecessary.

comfortable by closing the windows and doors and keeping the hot, humid air out. Some air infiltration will still occur but at a reduced rate through cracks in windows and doors. As seen in the composite energy profile for June 22, sensible heat gain, perceivable as hot air, is not very great and can be controlled this way, but latent heat gain, perceivable as humid "sticky" air, is considerable and not so easily controlled by passive techniques. The latent heat curve represents the amount of heat that would have to be removed from the infiltrating air to condense out the moisture in excess of the comfortable relative humidity. At present, only conventional airconditioners can do this.

The roof is very subject to the variations of climate and, more than any other surface, to the extremes of the overhead summer sun. Regarding the roof, Mrs. Gropius writes, "The idea of having a flat roof startled many because that simply was never done in the countryside, though the houses on Beacon Hill were frequently flat-roofed. But since the roof was concealed by parapets, most people weren't aware of it. Anyway, the problem of creating a leak-proof flat roof had long since been solved and Gropius wanted to get rid of the constant repair problems of peaked roofs with their shingle covering and the necessity of providing drain pipes in a place where rainfalls could be tor-

rential and snowfalls were apt to ice up any pipes. But he took the precaution to slant the roof slightly towards the center where a drain running down through the middle of the house where it cannot freeze took care of any run-off of rain or melting snow. In the 40 years of its existence, no trouble has even arisen from this arrangement."

The roof is weatherproofed with a built-up bituminous membrane finished with light-colored gravel that helps reflect some of the sun's rays. The roof deck is similarly constructed but finished instead with wood flooring spaced for drainage. Both the roof and roof deck joist spaces are insulated with a four-inch blanket of fiberglass. The resultant summer heat gain through roof, roof deck and exposed floors (similarly insulated) is never greater in magnitude than the heat loss through the basement, -3,000 BTU/hr, an approximate year around constant.

The Gropius house does not rely on a mechanical airconditioning system in summer, since it was designed and built in an era when such equipment was not even available. An airconditioner was never added to the house in later years simply because it was unnecessary.

For the typical winter day of Dec. 22, the heat losses for the house are understandably much larger. Of interest is the solar gain afforded by the extensive south glass which can completely heat the house during the midday hours if the sky is clear and the winds are not strong. Of course, this is not possible on average cloudy days.

Heat loss through windows is always one of the most significant sources of





winter fuel consumption, accounting for 42 percent of the house's entire heat budget. Gropius did not use double pane insulating glass because the technical problems of water condensation between the panes had not been adequately solved in 1938. Calculations demonstrate that substitution with double pane would by itself reduce the winter energy budget for the entire house by about 20 percent.

Heat loss by air infiltration is the second greatest source, the sensible plus latent components accounting for 36 percent of the total heat budget. There is one air change every 45 minutes, a rate which could be slowed down if the windows and doors were weatherstripped. The metal frame windows are in themselves quite tight-fitting. While the metal does expand and contract somewhat with temperature,

### The fireplace is there for emergency use and psychological benefit.

it is not influenced by the humidity which causes wooden frames to swell in summer, making them difficult to open, or to shrink in winter, leaving even larger cracks for air leaks. It is not desirable to decrease infiltration too much, since it provides fresh air and relieves the house of cigarette smoke and other odors.

Because they are, for the most part,

made of well insulated wood frame construction, the walls (all types combined) account for only 12 percent of the total heat loss.

The roof and deck are also well insulated and lose only 5.2 percent of the total. The basement and exposed floors lose 5.5 percent; if it were not for the tempering effect of the relatively warm ground water, this loss would be much much greater. Still, the basement and crawl space could be better insulated. The exterior wood doors are the most poorly insulated opaque building elements in the house; for their small area, they lose a considerable 2.2 percent.

Occupants and their appliances can only produce enough heat to balance 2.5 percent of the loss of the house.

The remainder must be made up by the mechanical heating system. According to the builder of the house, Casper Jenney Jr., Gropius' house was one of the first in the U.S. to combine a piped hot water convector system and a forced warm air blower system. The hot water convectors, located along the perimeter in wall cabinets under windows, are effective in balancing the relatively constant winter heat demands. They are also advantageous in blocking cold drafts from windows and preventing moisture condensation. The forced air blowers, whose feeder ducts open at the floors, are good at checking the more rapidly fluctuating loads, as when the house is warmed up in the morn-



Living room (top), porch and second-floor sun deck (right).

ing or when there is a sudden weather change.

In addition to this mechanical system, there is also the fireplace. Mrs. Gropius: "Lots of people asked us why in a modern house, when you have all the other heating systems there, why a fireplace? That is partly for practical and partly for psychological reasons. We love a fireplace, which in Germany was almost totally unknown; we learned to like it in England. It does not do so much for heating a room, but it has very encouraging social aspects. Somehow people can sit quietly around a fire not feeling that they have to speak. The fire speaks. It is relaxing and people

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look beautiful in the flickering light. But for my husband there was another compelling reason and that was he always liked to provide a house with the basic means to keep things going even in emergencies. Our fireplace turned out to be a very practical thing during the many hurricanes we had when we were completely cut off, sometimes for a full week, from all electric current. We simply had to cook in it and stay warm by it."

There are two general areas where the solar and thermal performance of the Gropius house design could be improved. One is the reduction of heat loss by improved insulation, most notably in the windows, and by reduced air infiltration around doors and windows. The other concerns increased storage and utilization of incoming solar energy. The large south windows admit tremendous amounts of solar radiation on clear days, often causing the living and dining rooms to warm up to 80 degrees F. The floors in these rooms are finished with dark brown car-

## Mrs. Gropius: 'The house was built for our comfort and our enjoyment.'

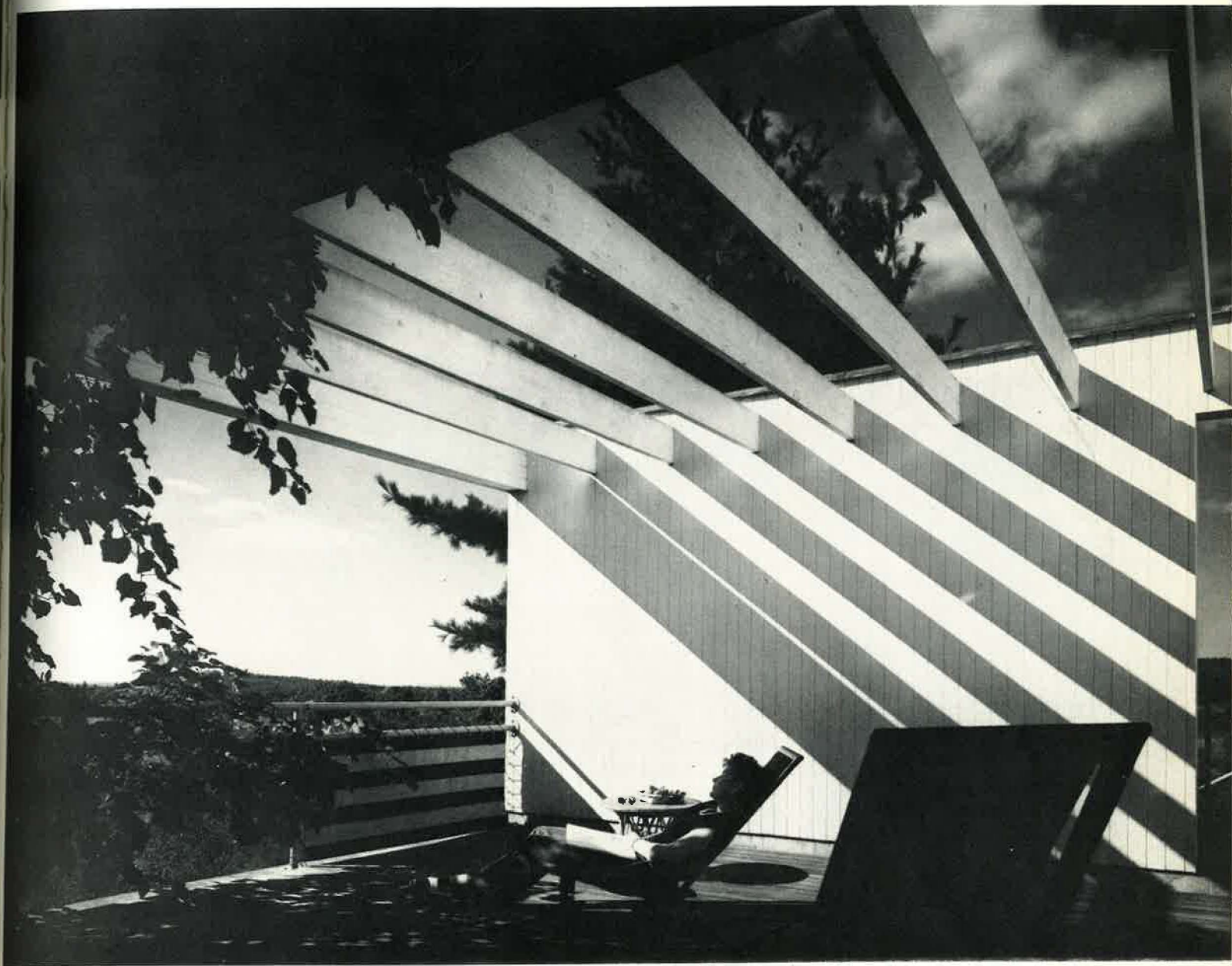
pets, which are effective solar absorbers. But because they have little thermal capacity, they cannot store the heat, so it is quickly dissipated. If the floors were brick, for instance, the absorbed heat would be stored and slowly released, thus reducing any overheating and allowing the rooms to stay warm longer with less fuel consumption. The carpet in the living and dining rooms, however, facilitates daily movement of the tubular chairs designed by Marcel Breuer, FAIA, to slide over a soft floor surface.

Gropius always advocated a balance in architecture between utilitarian, esthetic and psychological needs. His emphasis was not on making the house into a climatic machine for living, an incubator of sorts, but instead on using appropriate

mechanical means to back up a self-tempering house that is completely responsive to the user's total needs.

Mrs. Gropius: "My husband is always identified with the functional style—only the way functionalists are thought of nowadays is a very narrow, almost materialistic view of it. This house was built for our comfort and our enjoyment, our amusement, just as any Victorian house would have been built for such purposes. It fit our life like a glove.

"Then, in the course of time, we find that our eyesight has gotten worse, that our children have grown up and left the house, and that lots of other changes have occurred. Therefore, we have kept the house extremely flexible. But the basic features are functioning just as well as they did in the beginning. 'Functional' to us is a very different word than it is to most people who think of it as a very narrow, useful, practical approach. It has a lot of psychological overtones which we want to see satisfied just as much." □



# A Self-Help Housing Rehabilitation Effort Capped by Energy Consciousness

Allen Freeman

Eleventh Street between Avenues A and B is typical of many blocks on Manhattan's Lower East Side. Immigrants made their first homes there in five-story walk-up tenements built around the turn of the century. As many as possible were housed as cheaply as possible in railroad flats with little light and ventilation.

Seventy years later, the block seemed hopeless. Seven buildings stood as burnt-out hulls, abandoned by the owners and marked as unsafe by the city. The habitable structures were dilapidated and getting worse.

Mostly Spanish-speaking people lived there, many of them out of work. Tenants lived in constant fear of fires in vacant apartments, some set by absentee landlords who found the buildings unprofitable. Families moved from tenement to tenement, seeking out buildings with the highest occupancy to lessen the chances of being routed by arsonists or mugged by junkies. The lightly traveled street, littered with stripped cars and trash, was the playground for truant children and the hang-out for unemployed teenagers and men.

It is still that way in much of the Lower East Side, as it is in Harlem and East Harlem, Ocean Hill-Brownsville, South

Bronx and Manhattan Valley. But in each of these neighborhoods, a concept of multiple-family cooperative homesteading since 1972 has made small but tangible inroads on blight.

The building at 519 East 11th Street exemplifies self-help homesteading and also has become a showcase for the use of alternative energy sources and energy conservation in a low-income urban setting. The tenants of 519, some of whom had grown up in the neighborhood and are committed to remaining there, banded together after 13 fires broke out in their building during a two-week period in 1972. The police attributed most of the fires to arson. Residents, helped by Michael Freedberg, a community activist, formed an association to buy the building, obtaining assistance from Ruberto

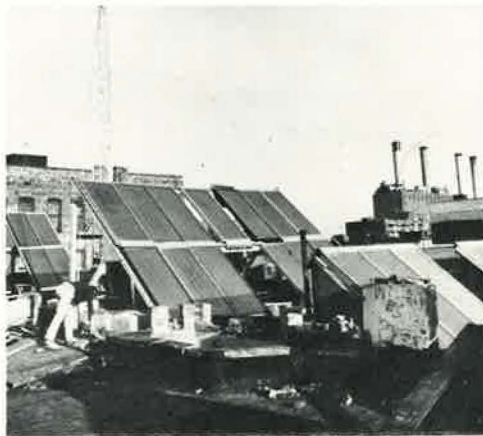
which was unpaid and represented the worker's investment—his sweat equity—in his apartment.

Sweat equity has proved out to be the only way of producing low-income housing involving either rehabilitation or new construction without massive federal subsidy. The \$177,000 loan to 519 represents a saving of \$189,000 over what a conventional job would have cost, producing rents of only \$35 a room, way below any other rehab program.

While sweat equity was providing places to live, revitalizing the neighborhood and putting people to work as they learned building trades, skyrocketing energy costs were creating problems. About the time renovation began on 519, Travis L. Price III, an architect who had worked on solar energy projects in New Mexico, began examining the 519 project from the standpoint of energy-conscious design. Renovation was more than half completed when it was decided to incorporate a solar energy collector system to heat tap water, and to add extra insulation and storm windows. A \$43,000 federal community services administration grant was obtained to finance these improvements, produce a film about the project and write a manual for groups considering similar projects. To carry out the work, Price gathered a staff of bright young men—three architects, a mechanical engineer and a wind energy specialist—and formed an energy task force.

They estimate that weather-protection materials, including abundant full batt insulation plus rigid insulation over the wood studs, storm windows, weather stripping and caulking, plus installation costs, came to \$11,000 in the 519 prototype, but could be reduced to about \$9,000 in future projects. The use of extra insulation increases the average apartment's rent, or mortgage payment, by an estimated \$1.50 per month, but saves as much as \$14 monthly in fuel for that same apartment.

The solar energy system, which supplies 85 percent of the building's hot water requirement (supplemented by an oil burner), cost \$15,000 for the prototype but could be reduced to about \$11,800



Nazario, a member of a Lower East Side community housing and services group called Interfaith Adopt-A-Building.

Gutting and reconstruction began in October 1974 when a \$177,000 municipal loan came through. Because the major asset at 519 and similar projects was the labor potential of the owner-tenants, this type of urban homesteading was called sweat equity. In 1974, the Urban Homesteading Assistance Board, associated with the Episcopal Cathedral of St. John the Divine in Manhattan, began helping the 519 project (and other sweat equity projects around the city) by providing financial packaging. The tenants became shareholders and each worked at least 40 hours a week. They received \$3 an hour except for one eight-hour day each week



in subsequent projects, according to the task force. There are 600 square feet of solar collector surface on the roof and hot water storage capacity of 550 gallons in the basement. The water heating system increases the average rent by about \$5.50, but saves an estimated \$13.50 per month. (Estimates assume a 7.5 percent mortgage rate, a 30-year mortgage and a conservative escalation in fuel costs.)

One facet of the energy task force's work—a windmill to light common spaces—has generated a recent spate of publicity about 519. The symbolism of a free-spinning wind machine atop a low-income tenement building has not been lost upon journalists, and the opposition of Consolidated Edison has made a good story better. As chance would have it, a few blocks away from 519, by the East River, stands a Con Ed power plant with huge smokestacks (photo across page).

This particular windmill, built in the 1920s and used in the Midwest before rural electrification made it obsolete, was recently restored to use by a Wisconsin firm and sold to the project for \$4,000. Neighborhood volunteers helped install it. The small power output, a maximum of 2 kilowatts per day, is converted to 110-volt AC and fed into the building's lines. Any surplus goes back into the Con Ed system through the meter, so that in strong winds, the meter actually reverses.

A Con Ed spokesman claims that a "number of potential problems, including harmonic disturbances" in the electrical flow of the grid, produce adverse effects on Con Ed's equipment, and hazards to repair crews working on the same grid. Architect Price dismisses such assertions as absurd and attributes them to Con Ed's

### **A giant utility claims to be threatened by a lone urban windmill.**

opposition to development of alternative energy sources.

The energy task force has had to stretch limited funds for an ambitious undertaking, as have the Urban Homesteading Assistance Board and a third organization, born out of the 519 project. The third group is El Movimiento de la Calle Once (or the East 11th Street Housing Movement). El Movimiento is working on restoration of three other buildings on the block and has lined up three more after those are completed. It is also planning economic development for the neighborhood. As 519 was a building prototype, so El Movimiento wants to demonstrate effective block renewal. Together, the three complementary organizations are seeking funds to reverse urban decay from the inside out. □

# New AIA Recommendations On National Housing Policy

A new full-scale AIA report on national housing policy reviews trends since World War II, assesses current needs, identifies goals and recommends priorities.

The 1976 statement builds upon earlier Institute statements on urban growth and development, and comments that failures to satisfy U.S. housing needs and to halt the spread of blight and racial segregation in "old areas of central cities are primarily failures of the economy and of national purpose and priorities, rather than failures of one industry."

There is wide consensus, according to the report, that housing goals should include:

- "the conservation of our present stock of good housing";
- "the upgrading or replacement of remaining occupied substandard housing units in both urban and rural areas";
- "the renewal of slum and blighted neighborhoods, and
- "the production of new housing built to standards which are likely to be acceptable to future generations, at costs which most consumers can now afford, and in a volume adequate to meet the needs of our growing and mobile population."

It is anticipated that debate about these goals will focus on the speed with which "we should move and the sacrifices which should be made" to realize them; the means which should be employed to fight segregation; the conflict between providing shelter quickly and inexpensively and preserving the natural and urban environment, and the conflicting claims on the nation's resources of housing production and other segments of the economy.

Differences of opinion on these issues will be reflected, says the report, in disagreements over the number of dollars to be spent and the number of housing units to be built. Experts already differ substantially in estimating the number of needed new housing units. Estimates for the 10-year periods ending in 1978 and 1980 have varied from 1.8 million to 2.9 million new units annually. In mid-1975, HUD projected that from 1.9 million to almost 2.4 million new housing units would be needed each year just to accommodate newly formed households,

increased family mobility and housing inventory losses.

Even if agreement can be reached on basic goals, other complicating and potentially contentious factors remain, says the report. For a house has many often conflicting functions. It is "an extension of the occupant's personality that should reflect individual needs and life styles and provide emotional and esthetic satisfactions." It is also, says the report, part of a neighborhood, a community and the natural environment, and is affected by, and affects, all three. Housing is also a product of the real estate industry and the overall economy. It may, in addition, be affected by changing political and legal developments.

Although the Institute is interested in all the interrelated aspects of housing, it is "primarily concerned with housing as

## Among them: Modification of Section 8 and monitoring of revenue-sharing.

shelter, as an expression of the users' needs and preferences and as a part of the urban and natural environment," says the report. Therefore AIA's formulation of housing policies and programs "focuses on housing standards and on the process by which the standards may be changed in response to changes in technology, life styles and the physical environment."

The first set of recommendations deals with "persistent and recurring problems," first among which are the wide fluctuations in housing credit availability and housing production, which contribute to inefficiency, higher costs and lower quality.

"The housing industry may well find it prudent, and of benefit to consumers," says the report, "to resist rising interest costs by postponing a reasonable proportion of planned construction until credit costs are lower." But this assumes moderate, not extreme, reductions in the flow of housing credit, and "unfortunately national policies for combating inflation have all too often been adopted without bal-

anced consideration being given to the devastating impact that extreme and sudden withdrawals of credit have on housing production and on vital housing needs," says the report.

It therefore recommends that federal policies and programs be designed to induce a steadier flow of residential mortgage credit and a minimum annual level of housing starts through fiscal and budgetary measures designed to reduce general inflationary pressures; income tax incentives for investment in residential mortgage loans; timely use of federal secondary mortgage market supports under which mortgage purchase commitments could be made during periods of mortgage credit shortages at prices favorable to the borrower; increased use of housing subsidies for low- and moderate-income persons whenever housing starts fall below an agreed-upon annual level, and restoration of the federal government mortgage insurance to spread the risk of loss for investments in low income areas.

The second "persistent and recurring problem" the report considers is the inability of persons of low income to obtain housing that meets minimal standards. It recommends that the current Section 8 program (see May '75, p. 24) be modified or supplemented "in whatever ways are necessary to make it work. It should be made capable of utilizing the housing production capabilities of profit-motivated private enterprise, nonprofit organizations (including those which serve the elderly), local public housing agencies and state housing agencies. Alternatively, the program should be supplemented or replaced by restoring earlier suspended programs or adopting new ones."

Concerning rapidly growing areas, the report observes that "primary reliance must be placed on production subsidies for new housing so that lower income persons are not denied the mobility enjoyed by the population at large and fresh employment opportunities that come with mobility."

In addition, the report recommends that housing subsidies be made available to lower income families in varying amounts "with the deepest monthly subsidies going to the poorest and largest families and the most shallow subsidies going to those who need only a little financial help to enable them to obtain minimally decent housing." Also recommended is a program of subsidies to permit "lower income families who are able to benefit from home ownership to do so," with counseling being provided as needed. Special attention, adds the report, should be given to the housing problems of rural residents, members of minority groups, the elderly, the handicapped and large families.

The third and last "persistent and recurring problem" dealt with by the report

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is that of urban slums and blight and the spread of economic and racial segregation. To more effectively do battle in these areas, the report recommends that Congress undertake an evaluation of the success of revenue sharing and monitor the revenue sharing program to determine whether the formula for allocating funds is actually channeling monies into areas of greatest need. It also recommends that Congress monitor the community development block grant program. If insufficient funds are provided for improving public services, rehabilitating housing in blighted areas and carrying out local assistance plans, says the report, Congress should take corrective action, perhaps earmarking a portion of the block grant funds, or else

**'It is no longer only the poor who are unable to afford a new home.'**

reenacting categorical loan and grant programs specifically designed to serve these ends. For now, says the report, Congress should extend and generously fund community development block grants.

State, local and federal laws and programs affecting investment in center city areas should also be frequently reviewed, says the report, with a view to finding ways to encourage coordinated public and private conservation and renewal efforts. "Mortgage lenders can spread the risk of loss among them by creating pools of mortgage funds for high risk loans in support of renewal efforts. The risk of loss can also be spread between private lenders and governmental lending or mortgage guaranteeing agencies," says the report.

It also recommends that abandoned urban properties be improved and reoccupied or else demolished before they cause entire neighborhoods to deteriorate. State property and foreclosure laws and local housing ordinances should be modified as necessary to permit municipal officials to take early appropriate action, says the report.

Then there are the "newer problems." The first dealt with by the report is "resistance to needed development." Says the document: "Some opponents of development are motivated by a desire to preserve the natural environment, familiar or historic neighborhoods or low population densities. Others are motivated by a desire to exclude their fellow citizens on the basis of race or income." It points out that needed construction may be blocked under outdated zoning or subdivision regulations or by failure to provide needed sewer, water or other supporting facilities. Or development may be permitted to go forward, but only under onerous conditions that greatly add to the cost. And some-

times harmful development that should be stopped will go forward because there is no forum for discussion provided by local law.

The report suggests that federal grants be made to state and metropolitan planning agencies to undertake comprehensive land use planning; that states adopt authorizing legislation and administrative machinery to permit localities to make land use decisions (to be reviewed at the metropolitan or state level); that localities staff their zoning, subdivision control and public facility offices with professionally trained personnel; that additional school, welfare and environmental protection costs be funded from federal and state revenues to lessen the burden on local real estate taxes, and that AIA chapters join with local civic, consumer and environmental protection groups to create forums for discussing competing claims.

The report also makes recommendations for dealing with the recent rise in housing costs, saying: "It is no longer only the poor who are unable to afford a modestly designed new home in a growing locality of their choice." It urges identification and elimination of requirements or standards imposed by local laws, codes or regulations that needlessly add to the cost of housing.

In an effort to find ways to increase productivity, it recommends a review of practices of builders, land developers, mortgage lenders, real estate dealers, title companies, suppliers of materials and equipment, construction trades, planners, architects, engineers, lawyers and local agencies that provide public facilities and services to housing.

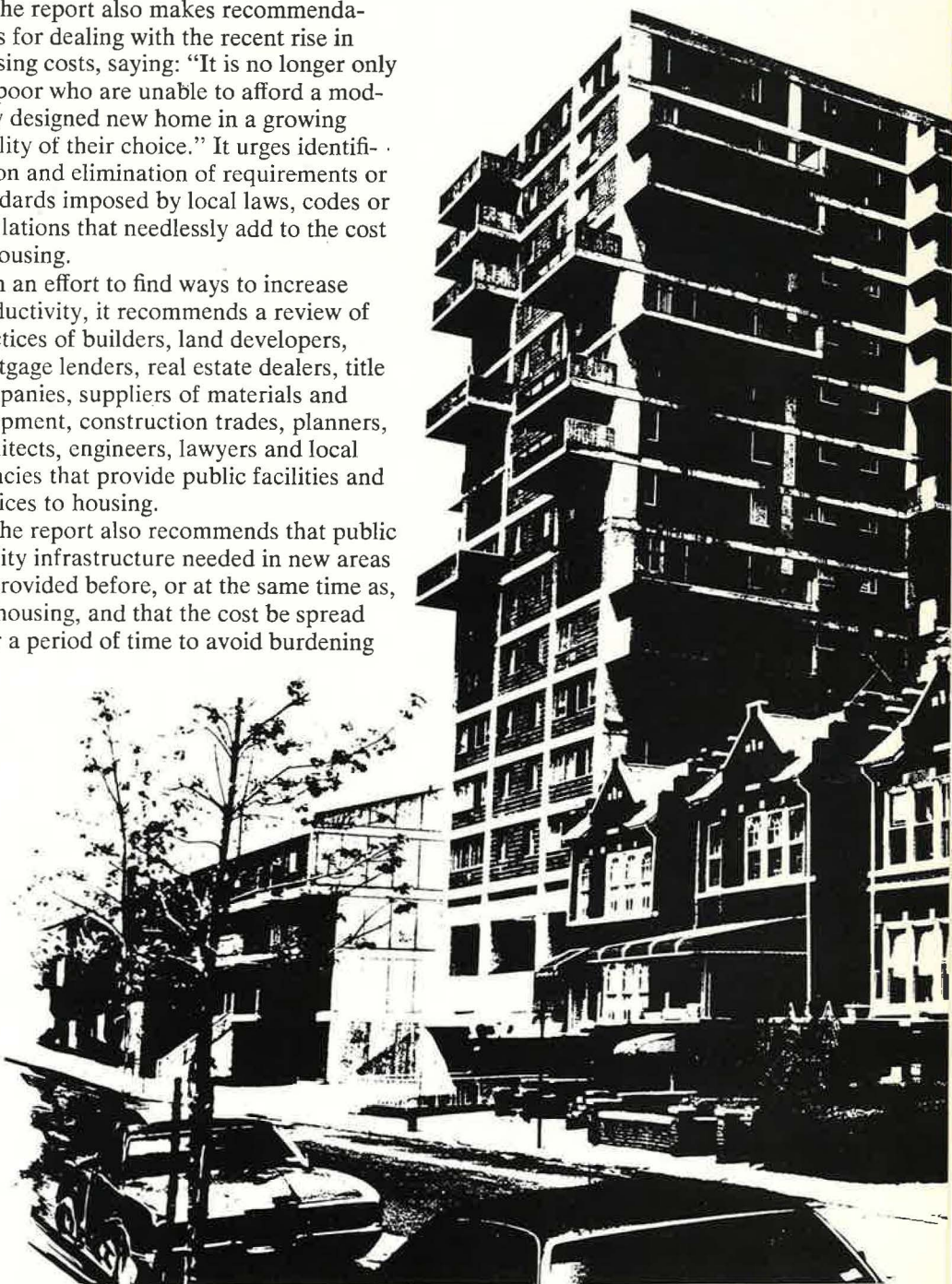
The report also recommends that public facility infrastructure needed in new areas be provided before, or at the same time as, the housing, and that the cost be spread over a period of time to avoid burdening

the first occupants, or already existing residents, with a steep tax increase.

In addition, the report recommends that "the federal government should adequately fund experimentation and research concerning housing and community betterment."

Finally there is the matter of overcoming what the report calls "widespread disillusionment concerning the nation's ability to deal with its more difficult problems. . . . Unlike skepticism, which tends to inhibit hasty action, disillusionment tends to inhibit all action.

"Major resources can be wasted if there is a failure or even a partial failure in a national housing program. But not to act at all will surely condemn millions of American families to housing conditions that are intolerable by any civilized standard." *A.O.D.*



# HUD's Biennial Awards Stress Conservation Over Construction

The seventh biennial HUD design awards premiated 24 entries. "Each and every one," said HUD program officer Andrew Euston, AIA, "carried water on both shoulders—first as a design effort and second as a vehicle for other public objectives" such as neighborhood conservation, downtown revitalization and communication of environmental issues.

Indeed, these objectives and the processes by which they were carried out predominated in the program. The awards emphasized rehabilitation and restoration over new construction, and community and neighborhood endeavors over individual works of architecture. They included only a handful of housing developments, fewer still for low- or moderate-income residents.

In part these emphases undoubtedly reflected the conservationist mood of the cities themselves. But they also mirrored the priorities of HUD in recent years of moratorium, retrenchment and revenue sharing. The reduced level of HUD subsidies also had something to do with the fact that there were 227 entries in 1976 as against nearly 400 in 1974.

A special bicentennial feature of the 1976 program was the awarding of citations to every state as well as Puerto Rico and the District of Columbia for an even more diverse set of "accomplishments marking 200 years of achievement in the building of American cities."

Jurors for the HUD awards were architects Howard Sims, AIA, of Detroit and Paul Muldawer, AIA, of Atlanta; landscape architect and city councilman Randolph T. Hester Jr. of Raleigh, N.C.; social scientist Sandra Howell of Cambridge, Mass.; planner-urban designer Weiming Lu of the Dallas city government; Norman Marcus, counsel for the New York City planning commission, and Richard Mitchell, former Los Angeles urban renewal administrator.

Members of the bicentennial citations selection panel included Charles Blessing, FAIA, of Detroit, and G. E. Kidder Smith, FAIA, of New York. A full list of the 1976 design awards is on page 72. *A.O.D.*

## A Farmer's Market With a Festive Flavor

Located on a 1.25-acre, industrially zoned site on the outer edges of the city's central business district, the Gary, Ind., farmer's market was intended to satisfy a desire on the part of residents to replace a market demolished by urban renewal to which farmers had formerly brought their produce every day for sale directly to the consumer.

The architects, Whitley/Whitley, Inc., wanted to create a market which would have the festive flavor of traditional marketplaces throughout the world, and also be a monumental sculpture "to make the city a little less ugly." They chose steel as their primary material in an effort to enlist the steel industry's interest in the city's redevelopment.

The basic structure consists of three triangular, baked-on-enamel open steel frames, which enclose a large open plaza. Stalls, kiosks, banners, lights and roofing are hung from the steel frames. Around the southern and western periphery of the

market are 20 stalls; on the outer edge is a screened service drive, which acts as a buffer between the market and adjacent vacant lots and a railroad.

Additional less expensive stalls are scattered on the interior plaza space. They can be easily disassembled and stored to create a large, open space for skating, outdoor cultural events and public meetings.

The design is intended to give enough flexibility for farmers and concessionaires to expand and change their spaces by adding, subtracting and moving walls and roofing where necessary. "The type of commercial activity is limited only by the imagination, ingenuity and interest of small entrepreneurs with goods to sell or promote," say the architects.

The cost of the project was \$125,000, and all materials, such as standard steel shelving materials and connectors, were chosen for easy, low-cost maintenance.

The jury remarks that "Gary's institutionalization of a local farmer's market signals a concern for people and their need to make cities enjoyable and diverse," while letting people carry out "normal, utilitarian functions."

## A Speedy Rebirth for a Flood-Ravaged Downtown

In June of 1972, hurricane flood waters inundated the small community of Painted Post, N.Y., covering 80 percent of the village with up to 16 feet of water, causing three deaths, \$26 million worth of damage and devastating the downtown shopping area. "As village residents dried out their homes and clothing, local leaders began a series of intensive planning discussions focusing on the problem of rebuilding their community," write architects Liebowitz/Bodouva & Associates.

Since speed was of the essence and Painted Post had neither an urban renewal agency nor professional staff, the town turned to the New York State Urban Development Corporation. Within 23 days the \$5.8 million plan was prepared, presented to the community, endorsed, sub-

mitted and funded. Just 28 months later, most of the major elements were completed.

The project expanded downtown retail space by 40 percent, population by 10 percent and the tax base by 300 percent. It focused on a two-block, 26-acre downtown site, and included a 70,000 square foot shopping center built around a pedestrian mall, new housing for low- and moderate-income families and new offices and civic facilities, all linked by walkways. Existing businesses were temporarily patched up to keep the downtown alive during construction.

Rapid completion was made possible in large part because UDC had the necessary legal and financial capacity to immediately begin operations: It provided front end funds to assemble an interdisciplinary redevelopment team to prepare plans and develop applications for funds, and, upon approval of the plan by HUD, furnished

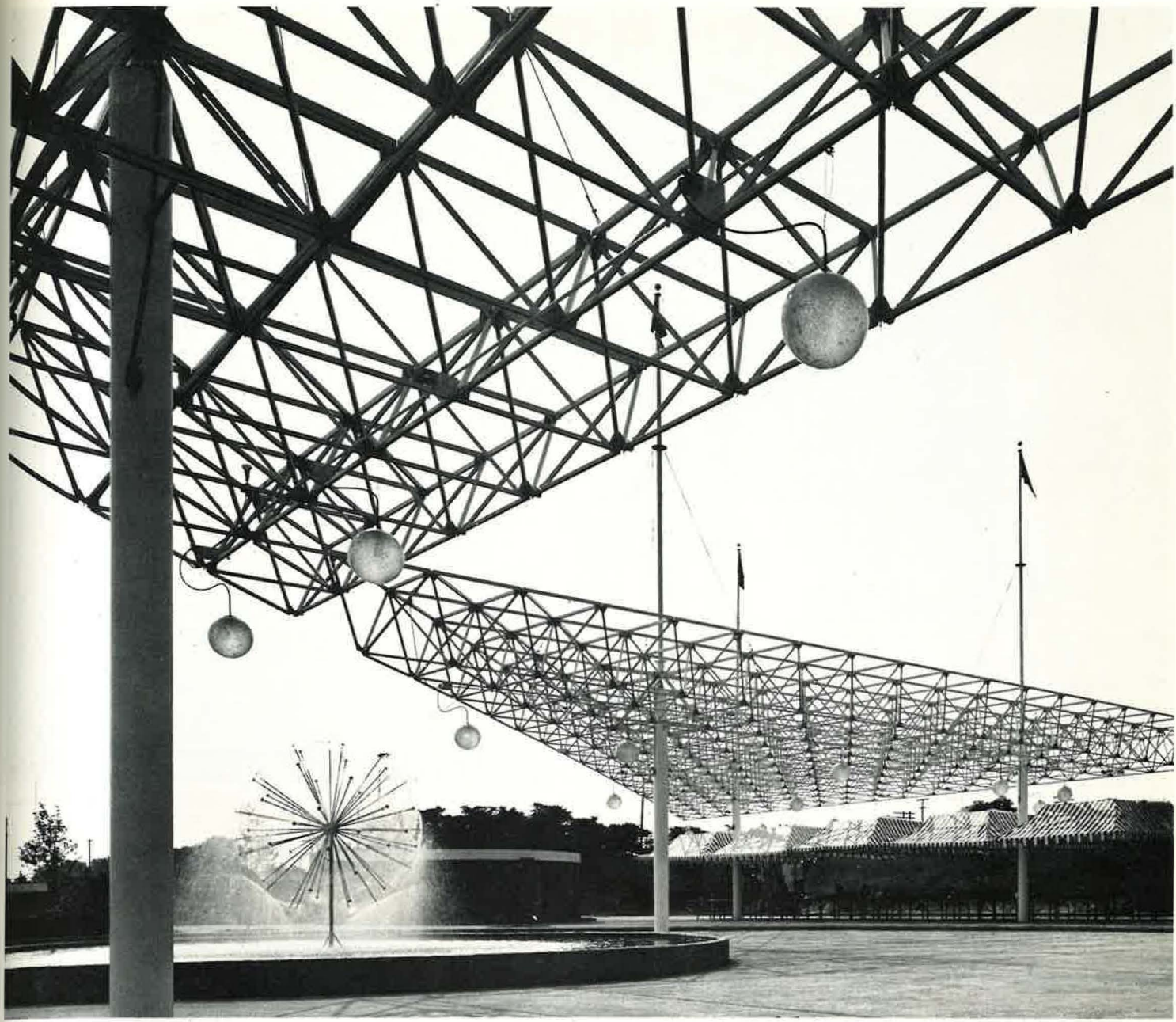


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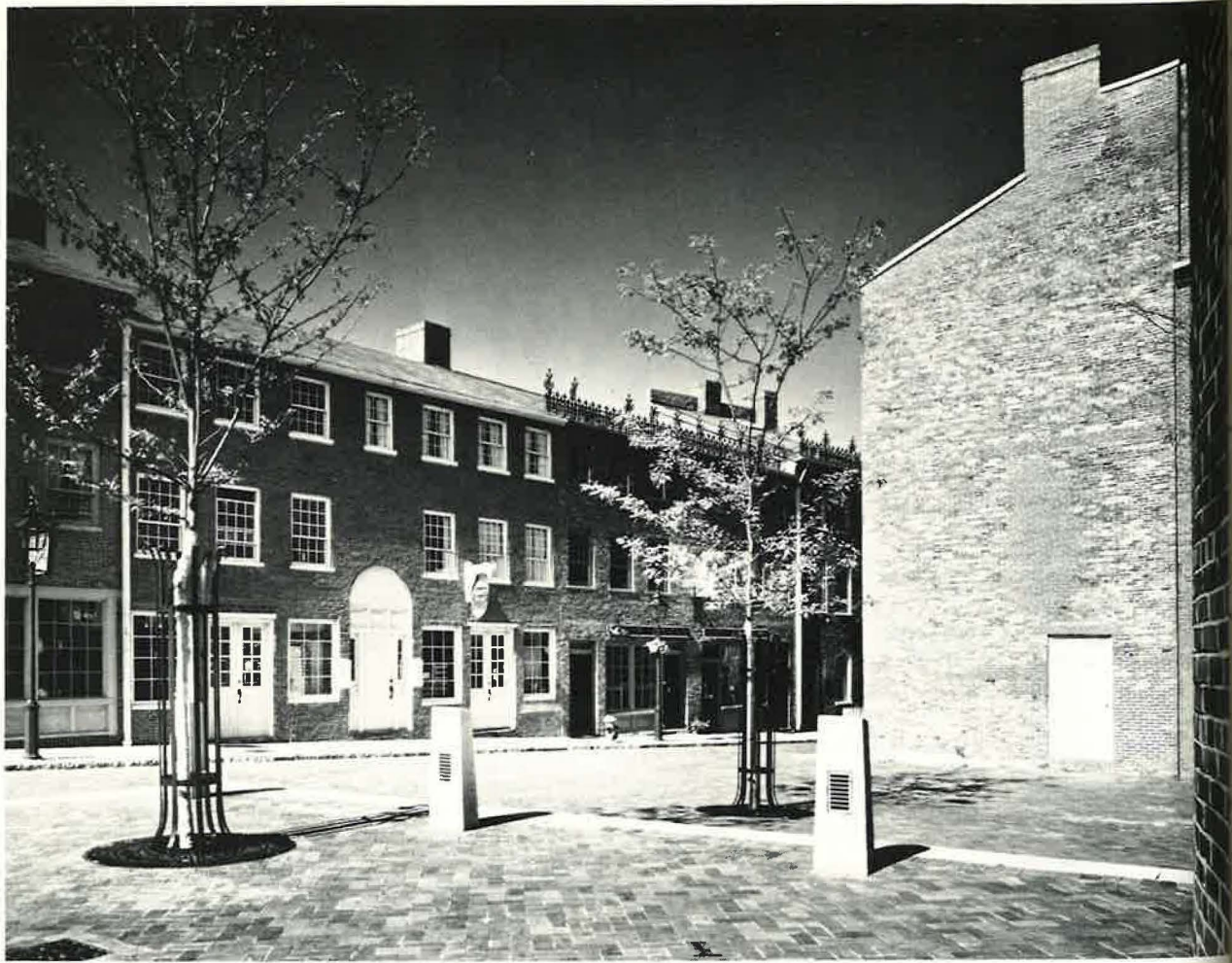
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funds for land acquisition and detailed plans for the proposed new homes and shops. Over \$500,000 was secured from the Small Business Administration's displaced business program. A special merchants' association was established to operate and promote a new village mall.

The jury applauded Painted Post for "the resourcefulness of public officials who conducted a thoroughly resolved design implementation process in record time to great benefit of a disaster struck community."





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## Conservation, Restoration In a Collaborative Venture

"The conservation and rehabilitation in Cambridge, Mass., of the seven Linwood Court multifamily apartment buildings is a nonprofit housing textbook example of all-around collaboration and appropriateness," remarks the jury.

The project began years ago after a speculator occupied the property and raised rents and the tenancy changed to mainly single occupancy and unrelated individuals living together. Activism among residents grew as the condition of the property deteriorated until they finally staged a rent strike and court battle to force repairs. A citywide rent control program resulted from the litigation.

Shortly thereafter, Linwood Court was purchased by the Cambridge redevelopment authority, which decided to rehabilitate the property for low- and moderate-income families. It selected a community based, nonprofit corporation as developer, which, after assembling a development team, took their housing program and architectural plans to the neighborhood and negotiated a final concept. It consisted of

half moderate, half low income housing, with a tenant selection plan that gave preference to local residents and encouraged cooperative ownership. Says the jury, "Several city agencies, a religious charity, the local historical commission and the state's housing finance agency all assisted an award winning Wellington-Harrington citizen's group in restoring the old frame structures to use."

Among the more interesting features of the project are use of stain on reversed clapboards, which reflect a return to materials and colors of the past and require minimum maintenance; the retention of rear porches; the creation of "scissored-duplex" units on the third and fourth floors of two buildings, which avoids the need for elevators, and provision of four and five bedroom units for large families. The development includes basement storage areas, a community room, on-site parking and passive and active recreation areas.

The jury calls this project by R. D. Fanning Architects, Inc., an example of "what can be done in neighborhood conservation when a community and its government are organized to accomplish things together." □



## An Old Seaport's Fabric Restored to New Luster

The restoration of Newburyport, Mass., town center, the last intact example of an early 19th century American seaport, "reversed a plan for total demolition of federalist period buildings for a parking lot," according to the jury.

Under a renewal plan developed in the mid-'60s, the historic and economic center of the city would have been sacrificed for open parking and new one-story commercial buildings having no relation to their surroundings and little economic benefit to the city. The award-winning plan preserves the fabric of the old city and "has provided economic rebirth to the town's business center," says the jury.

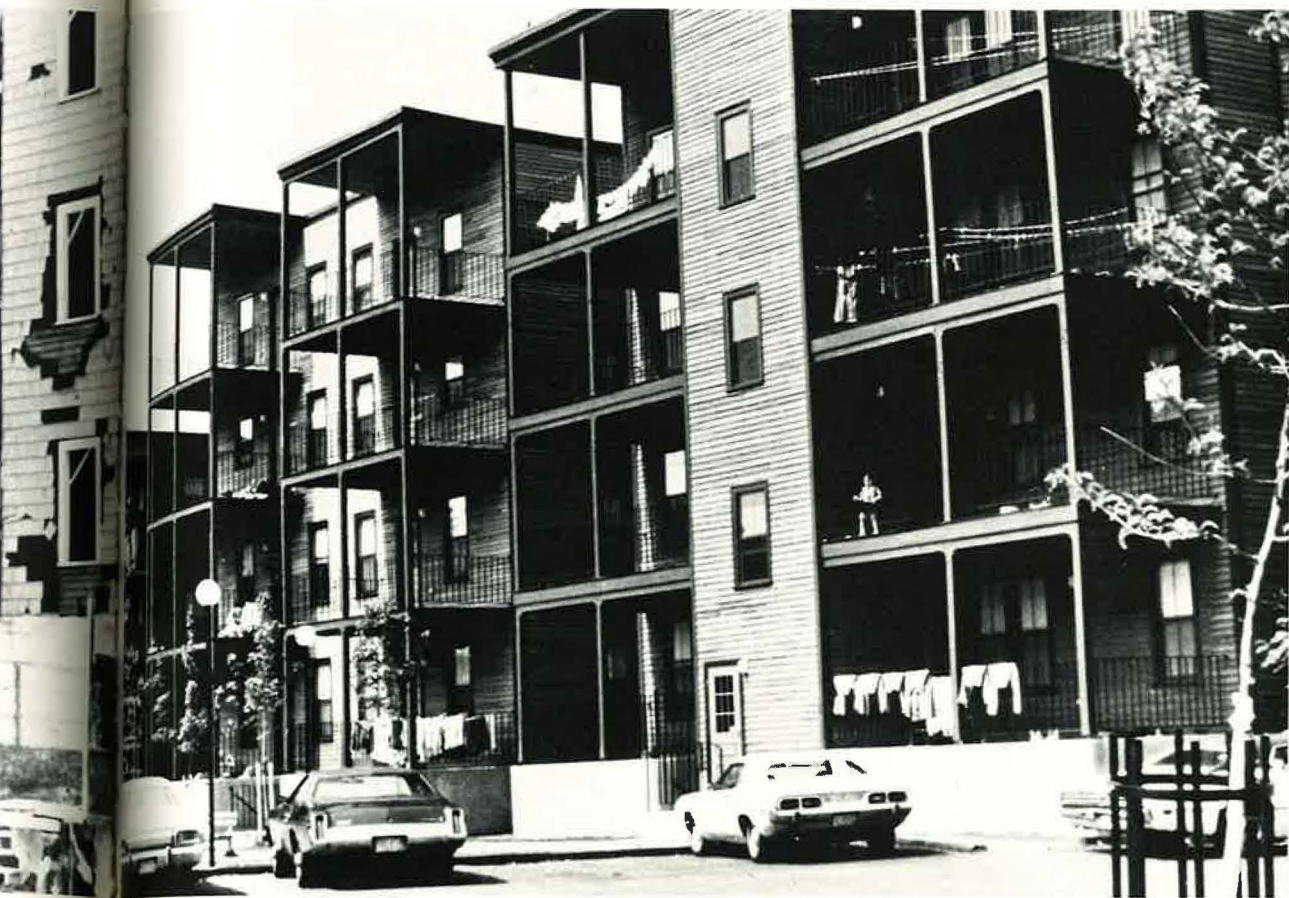
The main features of the project are overall storefront restoration and a compatible graphics system; a circulation system that emphasizes the pedestrian while accommodating traffic needs; a public elevated walkway and courtyard system that solves difficult code problems; underground utility systems, and low-level lighting that preserves the character of the historic district. Indigenous materials, mainly granite and brick, were used throughout, and a brick paving system was developed that duplicates the original



and is less expensive and more durable than laying brick in concrete.

The jury cited especially the "cooperative effort of state and local government agencies" which made a success of the project. In order to encourage private investment in restoration of old structures, the town's renewal agency provided funds for paving, landscaping and the like, prepared detailed restoration standards, solutions to structural and code problems, along with schematic plans. Street and sidewalk improvements were developed with help from a Department of Transportation grant. A single contract, involving HUD, the renewal agency, the city, DOT and the state department of public works, covered all improvements.

A most unusual aspect of this project is that architects Anderson Notter provided overall coordination for this interdisciplinary effort.



# Creating a Community out of a Collection of Private Projects

Jane A. Silverman

Whereas Reston, Va., and Columbia, Md., are virtually household words to many Americans who have read about new towns, a third new community in the Washington, D.C., area remains unfamiliar. It is Germantown, Md., and roughly one out of every six new residents in rapidly expanding Montgomery County, on Washington's northwestern edge, will come to live in Germantown in the next 15 to 20 years.

The concepts embodied in the Germantown plan have national implications for the way we look at growth policy and new community development that may far outweigh the new town's impact on the Washington region. Germantown is a highly unusual public/private partnership and may provide a model for new community development that is feasible in terms of cost, timing and scale. John Otto Matthias, the Germantown planning coordinator for the Montgomery County planning department, describes it as an "innovative instance in which a local government is taking an active and continuing role in the development of a new community." The county does this by "actively" guiding the pace, location and scope of development through the use of some typical city planning tools—zoning, subdivision regulations and capital programming. What makes the process unusual is that the new town acreage is not primarily owned by the county or some other public body, nor has it been acquired by a single large developer. Instead, the land is owned and will be developed by multiple private interests, which is the typical way that most development (although not most new towns) occurs.

The Germantown plan represents an unusually active and positive approach to growth management by a local government. It is active because the county is managing the urban growth that it surely can expect before it gets out of hand. It is positive because, unlike many other mu-

**Mrs. Silverman**, a city planner, is editor of *Environmental Comment*, a monthly magazine published by the Urban Land Institute in Washington, D.C. She is a frequent contributor to the JOURNAL.



nicipalities which have tried to slow down growth or shut it out altogether, Montgomery County is encouraging growth, but when and where it is best suited. Metropolitan Washington has had one of the highest growth rates in the nation in the past few decades, and Montgomery County has assumed its share of population expansion. It grew by about 53 percent between 1960 and 1970 and expects a somewhat slower, but nevertheless significant, rise in the next 15 years. In addition, Montgomery County has a different configuration from its neighboring Virginia and Maryland counties, and, to a great degree, its growth has occurred in a radial direction from the center.

The result is that development is now beginning to occur in exurban, semirural settings within the county, rather than in a suburban one. Germantown is such a setting, located about 25 miles northwest of Washington, along the I-270 corridor. The Germantown planning area is about 11,000 acres, and in 1974 had a population of some 4,200. Surrounded by farms, the small, rural center of Germantown is more than 200 years old. "Many people moved out here because of the rural character," says Pat Olson, a past president and now a board member of the Germantown citizens association. "We are just beginning to see congestion and other signs that the area is changing."

While recognizing the attractive rural character of the Germantown area, Montgomery County planners also were highly conscious of the pressures for growth on the region. Already research and light industry is expanding along I-270, and the federal energy research and development administration and several private com-

panies have located major facilities along the highway. A bicounty plan for Montgomery and neighboring Prince George's County was adopted in 1964 and revised in 1969. The plan recommends such development along transportation corridors and rural use of the "wedges" in between. Germantown was one of the "corridor" cities identified in the plan for intensive development.

There are about 7,000 residents in the Germantown planning area now and slightly under 2,000 dwelling units, most of which are single family homes. In the next 25 years, the population is expected to grow to 110,000. Under the county master plan, the new community will be organized along a basic neighborhood unit of no more than 5,000 residents. Up to five such units will form a village, and the total new town will consist of six villages. A town center, as well as smaller commercial facilities for the villages, is being programmed and about 700 acres are set aside for industrial development. The neighborhoods and villages will be linked through a system of roads, bike and pedestrian pathways, and a mass transit system.

A major portion of the master plan is devoted to preserving the natural environment, which provides so much of the richness of the Germantown area. For example, a 2,730-acre reserve outlining the perimeter of the new town has been desig-

## Germantown, Md., is in process of becoming a new kind of new town.

nated for public parkland. The plan also calls for a system of greenways and lakes for open space, recreational use and storm water control.

Another basic structural feature of the plan is the identification of areas where development is *not* to occur. These are chosen for environmental reasons, and include flood plains, wooded areas and slopes of more than 15 percent. Although by law, development is prohibited in the 50-year flood plain, development in the other critical areas is not, provided the project meets existing standards of the appropriate federal, state and county regulations. Under the master plan there is a powerful incentive, provided through density bonuses, to developers not to build on these fragile acres.

The master plan will be completed according to a comprehensive staging program designed to coordinate land development with publicly financed improvements and to ensure that new building does not exceed the carrying capacity of the area, especially in terms of sewers and roads. There are four stages: Stage 1 (the current phase) consists of existing development

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and new building that has a commitment for sewage treatment capacity. Stage 2 will commence when additional sewage treatment capacity is available and stage 3 will be triggered by additional traffic capacity. Stage 4 will commence with the construction of major sewer mains and sewage pumping stations.

The development sequence program, as it is called in the plan, is carried out through a series of sophisticated planning tools in the county's regulatory kit. These include:

- A six-year capital facilities program, which sets up a schedule of capital planning based on the general staging plans of the Germantown project.
- The comprehensive 10-year water and sewer plan, updated annually by the county and approved by state and regional agencies.
- An ordinance which requires a developer to show that adequate public facilities are in place or are programmed to serve a project, before the planning board will approve it.
- Zoning regulations, including typical subdivision review, incentives for cluster and planned development and zoning by sectional map amendment. This last establishes rezoning on a stage-by-stage (rather than lot-by-lot) basis. The sectional map amendments designate areas as "original zoning," which by Maryland law can only be changed by proving that the nature of the area has changed or that a mistake was made. Land outside the development area which is programmed for a later stage is zoned at a base density of half-acre lots.
- Mandatory referral of public building plans to the planning board to ensure that public developments are in accordance with the Germantown program.

"The coordinated application of these existing tools," said Matthias in a presentation before the American Institute of Planners, "enables the planning board and the county council to strongly influence the location and pace of development." Especially important, he notes, is the adequate public facilities ordinance, which "combined with a coordinated review of capital projects is fundamental to the implementation of the Germantown master plan."

Another essential ingredient of the Germantown approach is the commitment by county government to provide the nec-

### County planners use a variety of tools to shape its development.

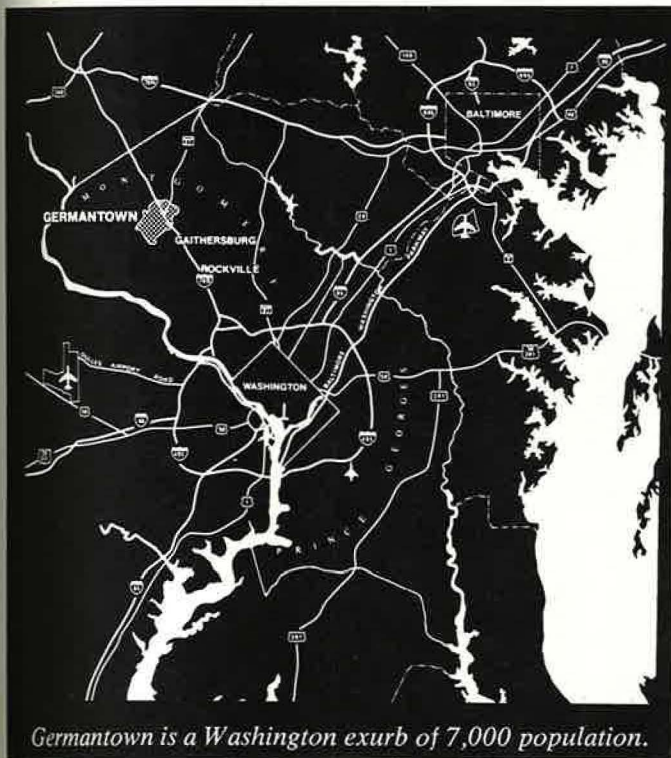
essary public facilities and to ensure that development can proceed without major disruption. The vagaries in public approvals and the change in political faces with the resulting reassessment of commitments have been a major hazard to new community development. In fact, the Montgomery County council has been remarkably supportive of the Germantown plan. For example, the Germantown district, whose population is still low, has both a fire station and a police station, the latter largely because of the county's commitment to a planned community, says Olson. Equally important is the location of a branch of the Montgomery County community college in Germantown. Although the county executive recommended against building the college, the council voted in favor of it by a three-to-four margin. The college is one of the few major institutions in German-

town, and will be for some time. There are plans to use its library as a community resource, and to offer community-oriented courses.

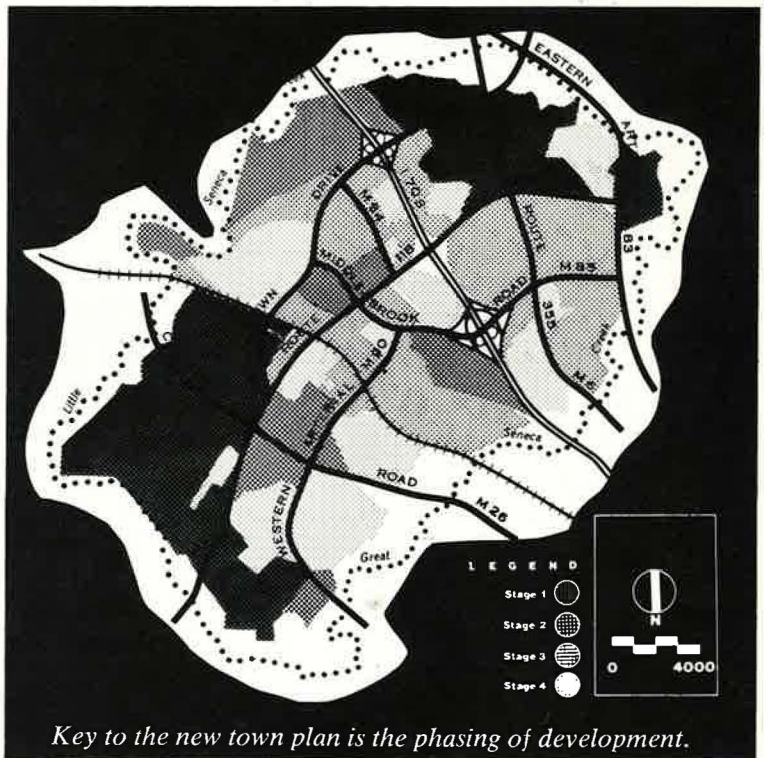
Whereas new town developers such as the Rouse Corporation often have staff designated solely for institutional development and human services, it is difficult to justify such an expenditure in the county budget, according to Royce Hanson, chairman of the county planning board. To fill this void, the planning board has designated Matthias to oversee *all* aspects of Germantown's development, not just the institutions. Matthias is working hard to get the Germantown alliance, an umbrella group of county agencies and community groups, off the ground to help meet some of the human service needs of the planning district.

County commitments are not the only ones necessary to implement the Germantown plan. Equally important are certain state inputs, especially for roads. Under the master plan, two interchanges off I-270 are programmed, but these cannot be built without state funding. State money would also be needed to renovate and expand several of the other roads that are an integral part of the master plan.

One of the major issues being addressed by the Germantown planners is establishing an identity for the new community. "The concept of Germantown is different for different people," Matthias notes. "For some it is a rural village, for others it is a ZIP code." But for very few is it a community in the sense that residents of Reston or Columbia feel those communities to be. Doris Wright, a consultant who did a study of resident needs in Germantown for the county planning board, says, "Germantown is a figment of the planning



Germantown is a Washington exurb of 7,000 population.



Key to the new town plan is the phasing of development.

board's imagination." Ninety percent of the residents surveyed had no idea that Germantown is a planned community, she found. At this point, in fact, there is "little visible evidence that it is a planned community," notes Olson. "Communication is our biggest problem," says Matthias, who is trying hard to establish an identity for Germantown. He points out that there are no signs saying "Entering Germantown," but he is trying to establish both literal and figurative signs, including a community newspaper, a community center and a welcome service for new residents. Equally important is an effort to have the many homebuilders and developers working in the planning district adopt a joint marketing strategy so that potential homeowners will be buying *into* a community identity as well as a house.

Developers seem to be reasonably satisfied with the Germantown approach. Even though its heightened regulatory control offers some initial obstacles and delays, much of the uncertainty in governmental regulation is eliminated by the specific criteria under which one builds. "It may be more laborious," says one homebuilder, "but if you're willing to go through the hoops, it's also more predictable. You know exactly where you stand." There are reasons why the Germantown approach is an attractive one to developers, and they have important implications for new community development. One of the major obstacles to such development is the large front-end costs for planning, land acquisition, infrastructure and carrying costs. A recent Urban Land Institute study of incentives for large-scale development notes that not only does the Germantown approach reduce the cost for developers, it also reduces the cost for the consumer, because the cost of public financing is invariably less due to tax-exempt, public debt instruments.

The hurdles of large-scale land assembly are also eliminated under the Germantown approach, since development is based on small landholding, coordinated by the county. This allows the typical small-scale development entrepreneur to

fit his proposal into the process more easily, and it enables the county to encourage a wide diversity and competition among different housing types, something that is a major objective of the master plan. The disadvantage is the loss in centralized control that one large developer would have over a new community project.

"Germantown appears most suited to suburban development situations where the market is basically sound but land assembly difficult and expensive," the Urban Land Institute report notes. Such situations exist in abundance around the nation, but there are several other factors that make the Germantown approach work. Perhaps the key ingredient is a so-

### 'Entrepreneurship in the public interest' is the crux of the plan.

phisticated set of planning tools, such as exists in Montgomery County, and a highly competent planning staff to implement them. A related factor is "a favorable local political environment," according to Matthias, and, of course, the commitment of the local governing body.

Another important element in the successful implementation of a Germantown-type plan is a strong tax base to support capital facilities. "Front-end costs are front-end costs no matter how you slice it," says Hanson. Montgomery County's assessed valuation is \$5 billion, so financing of the Germantown capital facilities is "marginal" in terms of the county's total debt structure, Hanson says. But he notes that that is not true in the case of many



Industry along I-270 and a Germantown residential development.

other communities.

With only 7,000 residents, it is much too early to know if the Germantown plan will be as good in actuality as it sounds on paper. But, at least on paper, the idea does sound like a good one and provides a useful framework for thinking about growth. Debates about growth policy often take place on the macro scale of national initiatives. When they descend to the local level, they are often couched in negative terms, that is, "Let's slow down growth or keep it out."

But the premise behind national growth policy is that growth will occur; the question is where and in what form. This is also a fact of life in most local or regional situations. Montgomery County has faced this issue squarely. The Montgomery County response to expansion pressures is replicable in many areas of the country, but how many are prepared to control their destiny instead of being controlled by it? The Germantown idea is not even such a new concept. The establishment of planned development zones was recommended by the National Commission on Urban Problems in 1969, and the American Law Institute model code includes a section on "mandated PUDs." *Growth Management Policies for the South*, a 1974 report of the Southern Growth Policies Board which Jimmy Carter chaired, recommends the establishment of "urban development zones" around the periphery of metropolitan areas."

If the "facts of life" of growth are perhaps best handled on the micro scale, there is, nevertheless, a significant role for the federal government. For one thing, the federal government could greatly influence and promote Germantown situations through its own capital facilities programming. Federal agencies make massive expenditures each year in sewage treatment facilities and highways. The relocation of a major federal installation can leave a deep imprint on a region. Why not program such decisions to encourage the establishment of planning districts, such as Germantown? Various grants under HUD's Title VII new communities program, including those for special planning assistance, public services and supplementary grants for open space and water and sewer, could also be used to help communities who might want to set up Germantown planning districts but whose finances are tight. Finally, the government could provide technical assistance grants for demonstration projects and training to develop some of the staff competence so vital to the success of a Germantown plan.

In short, all levels of government, federal, state and local, should have an interest in helping test out the "entrepreneurship in the public interest," which is what the growth shaping Germantown plan is really all about. □

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# Ethnic Differences in the Ways That We Perceive and Use Space

Michael Freeman

The space around us is basically neutral, but is experienced in profoundly different ways, depending upon the user's ethnic background. By frequent and repeated exposure from an early age, people learn to associate certain types of behavior, feelings, expectations and the like with certain spatial configurations. This is what we mean when we use the term "ethnic space."

Even the very young child internalizes enough of the culture's attitudes toward space so that, for instance, typical urban American youngsters use rectangular building blocks to lay out massive, grid-patterned cities, while typical Eskimo children create small, temporary villages based on round units.

The implications of such perceptual differences become especially significant

## Understanding them is crucial when designing for other cultures.

When members of different cultural groups are obliged to deal with each other. Consider, for example, the case of an agent from the Bureau of Indian Affairs who walks into the Lakota reservation one day. He finds all the old people contemplatively sitting around outside on the ground with their shoes off, despite the fact that the government has built and furnished new, box-shaped houses for them, and given them modern clothing, including shoes and socks. He reacts with irritation, not realizing that he and the Indians see the same environment differently.

For the BIA agent the outdoors is frightening. His culture has won "the battle against nature," and has little direct contact with the outdoors. The fact that the Indians choose to sit outside seems inappropriate to him. The Indians, on the other hand, love the earth and take comfort in it; they are unable to understand

Mr. Freeman has a degree in ethnopsychiatry, and is a social psychologist at the Langley Porter Neuropsychiatry Institute in San Francisco.

the government's attitudes and feel victimized by them.

The Indians' bare feet also offend the BIA man, in whose culture "cleanliness is next to godliness." But the Indians remove their moccasins "to walk with bare feet upon the sacred earth," according to their beliefs. The soil is seen not as dirty, but as soothing and cleansing. For them cleanliness is more than skin deep, and this feeling conditions their perceptions and uses of space.

The government either does not care about or is unaware of the consequences of these ethnic differences. The result is that the Indians are dealt with not in terms of their own cultural heritage, but as deviant heirs of the policymakers' culture and values. They are consequently considered dirty, lazy, primitive and so forth, and are continually forced into situations which have no precedent in their own history and seem ridiculous and meaningless.

When traditional methods of perceiving and using space are tampered with by outsiders, the fabric of life unravels. The world view and system of roles, obligations and interactions upon which the society is based and which are transmitted from generation to generation, fall apart and society itself can degenerate into anomie and deviance. This is expressed by Black Elk, a member of the Oglala Sioux, when he talks about his house on the reservation:

"All our people are now settled down in square gray houses, scattered here and there across this hungry land, and around them the Wasichus [Americans] have drawn a line to keep them in. The nation's hoop is broken, and there is no center any longer for the flowering tree. It is a bad way to live, for there can be no power in a square.

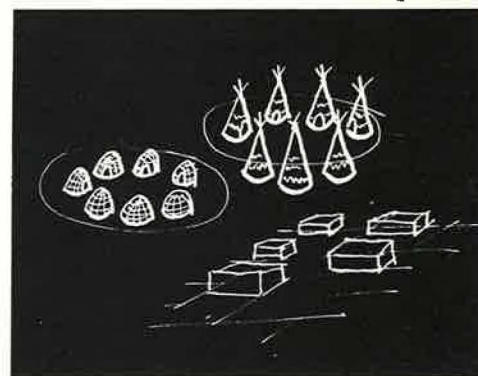
"You have noticed that everything an Indian does is in a circle, and that is because the power of the world always works in a circle, and everything tries to be round. The sky is round, and I have heard that the earth is round like a ball, and so are all the stars. The wind, in its greatest power, whirls. Birds make their nests in circles, for theirs is the same religion as ours. The sun comes forth and

goes down again in a circle. The moon does the same, and they are both round. Even the seasons form a great circle in their changing, and always come back again to where they were. The life of a man is a circle from childhood to childhood, and so it is in everything where power moves. Our teepees were round like the nests of birds, and these were always set in a circle, the nation's hoop, a nest of many nests, where the Great Spirit meant for us to hatch our children.

"But the Wasichus have put us in these square boxes. Our power is gone and we are dying, for the power is not in us anymore."

An understanding of the concept of ethnic space is of continuing importance to modern life for at least three reasons. It can be critical in preventing social pathology from developing within existing, stable subcultures; it can suggest workable and effective architectural and planning solutions to problems when the designers and users do not share the same ethnic background, and it can lead to better policy decisions on questions relating to minorities, especially where decisions are made by people outside the minority group involved. A hypothetical example will help explain:

An internationally renowned urban planner from Manhattan is commissioned by a third world country to solve a planning and design problem in the nation's interior. Since the government wants to invest some of its oil profits to "improve



the quality of life" of its people, it has decided to build a road to connect the Hachi tribe's village with a nearby lake on which the tribe depends for its fish and shells.

The most obvious and logical-seeming solution would have been for the planner to hack a direct path through the jungle to the lake. However, that would also drastically alter and perhaps destroy the life of the tribe.

The Hachi culture places strong emphasis on family life, and the entire family sets out each day to fish, taking a circuitous route to the lake. The object of these long walks is to meet as many other families as possible, stopping to see how others are getting along, impressing each other with their own families and making sure

that other families have caught enough fish. A family that catches more fish than it can use will always give some to a family with less, for this increases the status of the donor and reaffirms the importance of the receiver.

The daily journey to the lake thus supports the family and social systems upon which the culture is based and ensures the welfare of all the members of the community. To build a short, straight road would have been severely disruptive (unless the tribe decided to ignore the road altogether).

This imaginary scenario is not that far-fetched, as is made abundantly clear by

## The psychoses of the Ik and a public housing failure in San Antonio.

the actual plight of the Ik of Uganda, as reported by Colin Turnbull in his book *The Mountain People*.

When he arrived at their village, the Ik had fallen victim to a collective psychosis. Although they had lived harmoniously for thousands of years, murder, selfishness and mutual hatred were now a way of life for this tribe. Homemaking had deteriorated and incest, adultery and the prostitution of children was commonplace. Suffering had become an object of amusement; the weak and innocent were tortured and victimized.

How did this ancient and once-stable society change so rapidly? As with the American Indians, the Ik's traditional ways of perceiving and using space had been completely disrupted. Under the misguided direction of their government, their traditional homeland was transformed into a natural game reserve. The Ik, who were hunters, were taken from their large, sparsely populated valley to small, densely populated farming villages. They were prohibited from roaming across the ranges in their traditional hunter-gatherer fashion, and allowed to travel only for agricultural activities. When the first crops failed, the stress level rose to an unbearable point, triggering a psychotic break in the entire society.

The failure of a highrise, public housing project for the elderly in San Antonio, Tex., shows how the concept of ethnic space can affect everyday life in modern America. Villa Tranchese was designed to appeal to elderly Mexican-Americans who comprise a substantial subgroup in San Antonio. Despite a great deal of favorable publicity, only 20 of the first 500 applicants for residency in the building had Spanish surnames. The vast majority of persons who moved in were Anglos with incomes no higher than the Chicanos for whom the building was intended. The

Mexican-American's rejection of the project had a purely cultural basis.

A government-funded study by Frances Carp showed that the Villa Tranchese violated some of the most fundamental social norms of the Chicano community. In programming the project, the designers failed to ask the most important questions, which have to do with *ethnicity*, not with style. Instead of asking what the elderly Chicanos' barrio looked like, the planners should have asked how the intended residents viewed their barrio.

Carp found that the entire premise of age-segregated housing for the elderly seems to be inappropriate for Chicanos.

Their community places a strong emphasis on family and community ties, much stronger than the Anglo community of the same income bracket. She writes: "The old people perceived younger family members as wanting them to stay nearby. Failure to provide a home, companionship and care for the aged parents was, indeed, deviant among the families of the elderly people who were interviewed. Desire to remain with or near to family members and to old friends and neighbors was a strong determinant of satisfaction with present place of residence. . . . Family ties seemed to be warm and strong on both sides. Only two people (2 percent of the group) expressed any feeling that their children did not care about them. Old friendships were highly valued also. No move would justify the interruption of these human relationships."

"Old versus young" is a social distinction that does not exist for the Mexican-Americans of San Antonio, or else does not exist in the same way as with other Americans. The elderly Chicano lives not in a house; he lives in a network of houses, churches, stores, restaurants, bars, streets and relationships that take place in each of these locations. To cut him off, arbitrarily, from the broader physical and spatial context of the life in which these relationships take place would be to rob his life of its social meaning."

In her study of Villa Tranchese, Carp also found that Anglos and Chicanos have entirely different criteria for the evaluation of housing. She says: "Generally the Mexican-American elderly did not consider their present housing as really poor. In many cases the physical aspects of housing were substandard, inconvenient and even hazardous. The most typical description of an observer was 'a tiny shack.' The size may actually be an advantage. Anglos who owned their own homes usually had houses too large for them to maintain. However, the physical characteristics of housing were of little importance to most of these people in comparison with social contacts. The value system of these old people was centered in people, not in things." □

## Housing success and failure in New Haven: basic determinants.

*Continued from page 27*

dition but in attitudes. The physical product, or physical condition, is just a symbol of the attitudes: It would have been possible to design some sort of armor-plated housing that no one could have damaged, intentionally or unintentionally, but, as Jim pointed out, "By the time one gets to that way of thinking, one has already acknowledged that one is building a social failure."

The important point, of course, is to find out what can be done if these three basic factors—neighborhoods, populations and management—are so important to the success or failure of housing projects. There is still a lot we need to know about all of them.

Management is a good place to start because management is the memory bank. Management should know what works and what doesn't, whether we're talking about materials, maintenance, tenant selection or the makeup of populations in housing developments.

That knowledge should be brought into the programming and design phases of projects; management should be more involved in the design process than it has been.

However, the information I'm talking about doesn't just concern what works and what doesn't in terms of management problems. Management, along with city government and federal agencies, has a store of knowledge about neighborhoods and tenants. These sources should be able to give us some valuable insights into patterns of behavior, the effects of physical surroundings on the way people live and the ways in which current and intended populations are served by their physical environments.

Implicit in all of this is a call for increased research in management, neighborhood structure and tenant populations and how they affect housing products. I don't limit my plea to formal research. Just as I needed to validate my own intuitive insights about Harmony House and Canterbury Gardens, all architects need to validate what they intuitively feel. What I did in connection with my two projects, casual as it may appear, was a form of research and we architects should begin to recognize the work we do as such.

What we should do to ensure more successful housing is identify and understand the design implications of nonphysical factors that affect housing. In doing so we can be more certain of fulfilling the needs of people, especially the needs of those who have limited choices in places to live. □

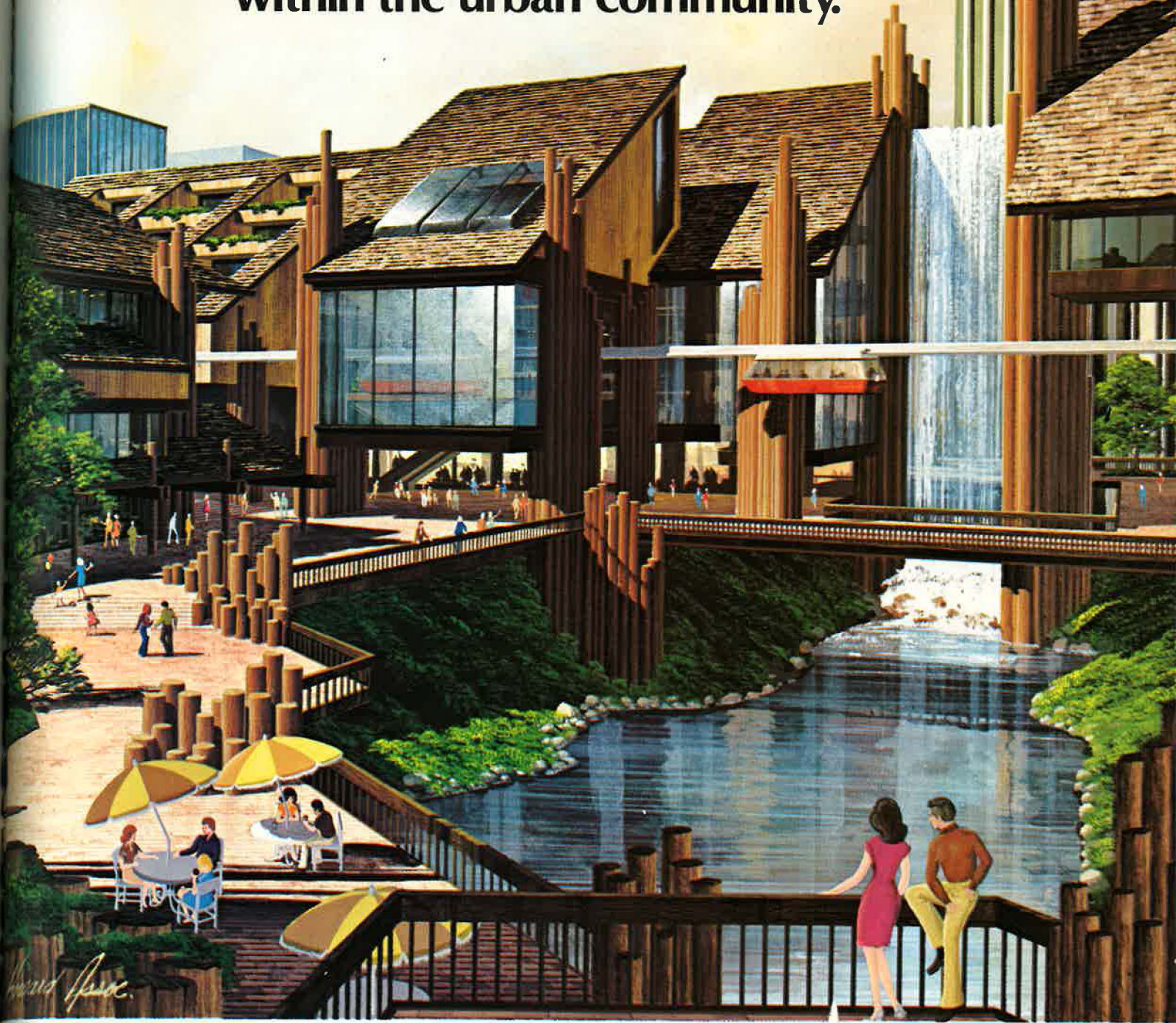


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**Boullée & Visionary Architecture.** Helen Rosenau. New York: Harmony Books, 1976. 158 pp. No price given.

By the end of the 1700s, the European cathedral style, which began as a play between basilica and dome, and continued for 1,500 years through early Christian, Romanesque, Gothic, Renaissance, Baroque and finally Rococo, had come to an end. After 1760, only revivals were possible within the cathedral style, and a new beginning was called for. The "crisis" in European history had begun.

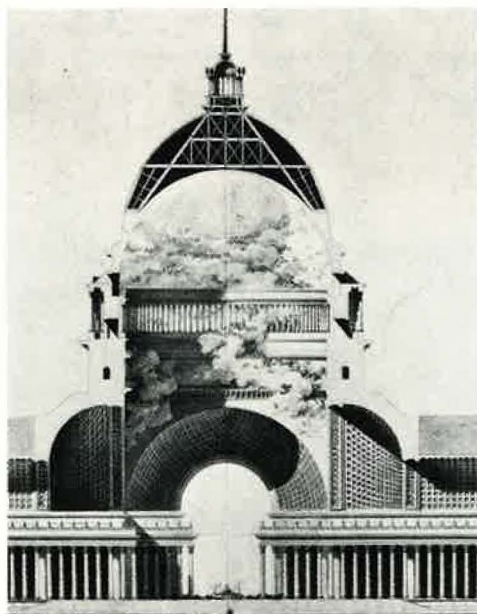
Facing such a crisis, the artist may either go backward to the proved rules which had supported his tradition or look within the self for new directions. The first is a "classicist" approach, as represented by Jacques Louis David in late 18th century French painting, and the second "romanticist," as represented by Eugene Delacroix somewhat later. A similar division had arisen earlier in architecture, with Etienne Louis Boullée choosing classicism and Piranesi choosing romanticism. Of course, in the end, both choices are romantic, and Boullée's work is as romantic in its conception as it is classical in its detail.

Rosenau's book is a handsome oversized volume which presents Boullée's visionary drawings, his essay on architecture and her own commentary. The drawings are available elsewhere, although not in reproductions this well done. Boullée's essay is presented in English for the first time. I found Rosenau's commentary to be of limited interest, especially to the architect. She is apparently an art historian, and like many art historians, she treats architecture merely as a three-dimensional visual art rather than as the bringing of order and meaning out of program and material and into experience.

This lack, however, is more than compensated for by the inclusion of Boullée's own writings on his work. It is interesting to note how modern the mid-18th century is, how close it is to us in its concerns with the place of humanity in nature, a problem which arises with the fall of strict Christian beliefs. Yet, we find no circles, squares or triangles (the forms which dominate Boullée's work) in nature. What

then did he mean by "nature?" Certainly not only trees and earth and sky. Did he also understand the mind as part of nature and did he find his geometric forms there? More serious study should be made of his theories of art, for they bear on our own.

Boullée was a "pure artist," more successful in the rendering of visionary projects than in the politics of obtaining commissions. As an artist, he defined architecture as not merely the art of building, but also the understanding of nature in its fullest sense and the manifestation of that understanding in built form. He continually speaks in terms of understanding



the "essence" of a thing before attempting to design it. His attitude was similar to that of Louis Kahn, and in reading Boullée and in looking at his work, one can see how Kahn was moved to say: "Because Boullée is, architecture is."

Finally, we must look at the work itself. We are struck by its geometric simplicity and its monumental size, both disturbing to us today because of associations between neoclassical architecture and totalitarian politics. But what I find even more disturbing is the loss of the Baroque complexity of the ellipse and subtleties of light and shade, especially as seen in Borromini. Are the circle, square and triangle really forms of nature, or are they abstract simplifications suitable for minds unable to

comprehend life's true complexities? Is Boullée's Metropole Cathedral, with its 600-foot dome but static geometry, really larger to the eye than Borromini's tiny San Carlo alle Quattro Fontanes, which is animated by subtle changing curvatures? I suspect that the way in which one answers these questions will determine one's personal evaluation of Boullée. *John Lobell, Associate Professor of Architecture, Pratt Institute*

**Building Early America: Contributions Toward the History of a Great Industry.**

Charles E. Peterson, FAIA, editor. Radnor, Pa.: Chilton Book Co., 1976. 407 pp. \$19.95 hardbound, \$9.95 paperbound. (Available to AIA members for \$17.95 or \$8.95 from the Institute's Department of Publications Marketing.)

This book is a welcome and inspiring contribution to the history of building and preservation, recording the deliberations of a symposium held in Philadelphia to commemorate the 250th anniversary of the founding of the Carpenters' Company of the City and County of Philadelphia. The book's 20 chapters are converted lectures presented at the symposium.

The first 12 chapters are devoted to history, appropriately beginning with a review of the first 1,000 years of British building. A general presentation on the use of wood in colonial America follows. The origins of the Carpenter's Company in Philadelphia and the second completion of building the U.S. Capitol in Washington, D.C., in 1865 are discussed.

The final eight chapters concern the preservation of architectural monuments. Examples of projects in the United Kingdom, the U.S. and in Canada are described and the programs and training of professionals are discussed.

The design, typography, manufacture, illustrations and general quality of the book make it one of the better coffee table conversation pieces, while the obvious scholarship upon which the text is based makes it a valuable reference book. The selection and coverage of material is certain to inspire further study and, it is hoped, more publication. Without histori-

*continued on page 58*

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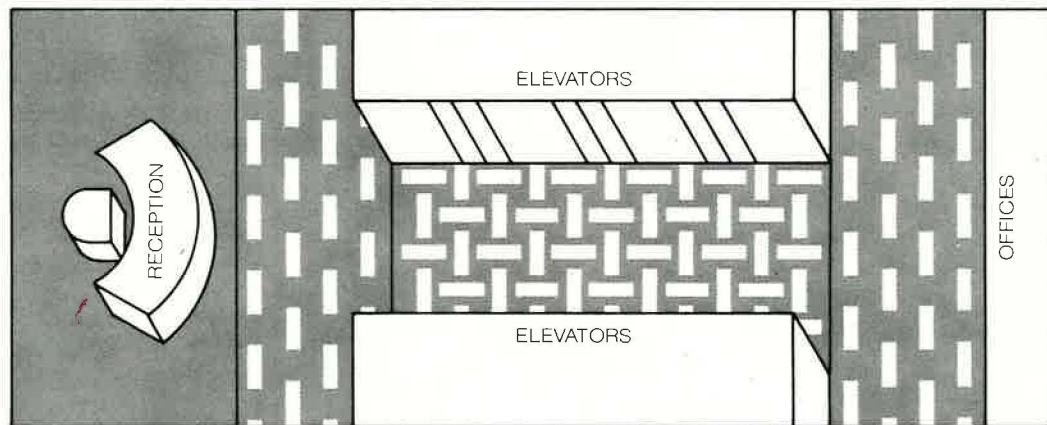
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*Books from page 52*

cal documentation, the building restorationist has only the mute evidence of a building to guide his interpretations of remains or to explain the reasons for the original work.

The contribution by Lorin S. Russell on 19th century lighting adds factual information about the subject and also presents the background of earlier lighting as well. The problem of adequate, authentic lighting of period rooms is almost insurmountable and is made even more difficult because so many people, even curators, find it difficult to understand that inadequate low-level illumination is correct; adequate lighting was not provided before the 20th century.

Early heating and ventilating is a subject no better understood than lighting, and Eugene S. Ferguson's paper should be required reading for all restorationists. It not only helps us understand the mysterious remains of early attempts at comfort control, but also provides an unusual insight into the reason, logic and semi-scientific approach of the salesmen of the 19th century. Their "itches" may be held accountable, it appears, for the generally accepted assumption that "fresh air must be swept up through a room in order to avoid any possibility of having the same air 'breathed over' or breathed twice."

Robert M. Vogel's paper on "Building in the Age of Steam" shows how long after steam engines were developed that manpower continued to be used for all manner of building construction tasks, except earthmoving. And, conversely, how early on the tower crane made its appearance. Such a crane was used in the construction of the U.S. Capitol. The number of man-days necessary for even modest projects was tremendous; to move 12½ yards of loose earth was an average day's work. The steam-powered shovel of 1837 moved 1,500 cubic yards in a day!

The British passed an ancient monuments preservation bill in 1882 which has been supplemented by additional preservation and planning acts over the years and provides the authority for a most effective program in the United Kingdom. Examples of the work of preservationists in building care, restoration, preservation, interpretation and grants-in-aid are covered in considerable detail. Their duties are not unlike our own National Park Service's.

The case studies in this part of the book cover a wide range of problems, solutions, building types, periods and locations and literary style and, as a group, are a valuable guide to the approach to problems.

The book has an excellent index, making it doubly useful to all who are interested in the history of buildings, their preservation or restoration. *Orin M. Bullock Jr., FAIA*

**JAE: The Journal of Architectural Education.** Washington, D.C.: Association of Collegiate Schools of Architecture. Published four times a year. Subscriptions to the general public, \$9 annually.

A definite "new look" distinguishes the last five issues of *JAE*, the official journal of the Association of Collegiate Schools of Architecture. The guest editors of these issues have presented articles of quality and of significance not only to educators but also to architectural practitioners.

The first of the five issues (vol. 29, no. 1) is devoted to humanist issues in architecture, with Kent Bloomer of Yale University as guest editor. As he points out, most of the contributors are designers and teachers of architecture, but there are articles as well by dancer Anna Halprin, philosopher Karsten Harries (who both write on the ethical function of architecture) and graphic designer Armin Hoffman. Bloomer says, "An early sign that the course of architecture may be moving away from a mechanistic episode toward a form of democratic 'humanism' is the tremendous build-up of interest in the last decade in the study and advocacy of architecture." He points to the 50,000 architectural students in North American schools, only a few of whom may be able to practice, but who accept architecture "as an open field of study."

Guest editor of vol. 29, no. 2, is Donlyn Lyndon, AIA, and the theme is "Describing Places." Each article, he says, "deals with the consequences of choosing a way to describe or present things. Together they begin to suggest the range of observations available to us and the care with which we must listen to the voices of our surroundings."

Douglas Shadbolt of Carleton University edits the next issue which is a composite view of Canada, "composed of a set of personal perspectives of people spread across this vast country. . . ." Critic Ellen Perry Berkeley edited vol. 29, no. 4. She comments in this issue devoted to "Architecture Criticism and Evaluation" that "some of the best 'architectural criticism' comes from people without credentials. . . . There is a profound criticism and evaluation, which the profession can ignore at its peril." What is required, she goes on to say, "is not a battery of new 'critics' preaching to the unconverted, but a new kind of professional . . . willing and able to understand how people respond to environment, what people want, and why."

All the articles in the fifth issue (Sept. 1976) deal with the American landscape, with John Brinckerhoff Jackson as guest editor. The environment, he comments, is something "we can change as we like, whether on the farm or in the city. Indeed, one of the challenges of the new landscape studies is to learn to see the city not as

the antithesis of the country but as another landscape."

*JAE* is commended to educators and practitioners alike. David Clarke, executive director of ACSA and executive editor, is eager to send information about membership in ACSA or about subscriptions to this provocative magazine to any who desire it. ACSA's address is 1735 New York Ave. N.W., Washington, D.C. 20006. *M.E.O.*

**Landscape of Industry.** Cliff Tandy. New York: Halsted Press, 1975. 314 pp. \$42.50.

Industry has long had a bad press for its destruction of the landscape. This book contends that industry can relinquish its "old bad reputation" in exchange for the creation of new landscapes. We can't expect these new landscapes to be but an "echo of the early agrarian countryside," says Tandy, but they "can be positive contributions to our daily scene, and not the gloomy, sordid, spoiled gray deserts" bequeathed us by the Victorians.

The book begins with a brief history of industry and its impact upon the landscape, and Tandy reminds us that industry didn't spring forth in full bloom in the 18th century; indeed, there were Neolithic flint mines.

Tandy moves on to discuss the recent growth of eight major industries with marked environmental impact, such as coal, iron and steel; oil drilling; electrical supply, and copper ore production and refining. He then considers landscape planning problems arising from industrial use, taking into account planning controls. He classifies certain industries in terms of their landscape impact and problems under 12 headings, one of them being building and construction engineering. He reminds the reader of the nuisances of construction, such as dirt and noise, and also of damaged soil structure, trees damaged by spillage and swinging cranes, destroyed vegetation, etc.

The major portion of the book concerns the common and specific problems of landscape design for industry; industrial dereliction and reclamation, and solutions to the landscape aspects of engineering problems. There is a final chapter on the future. "If . . . there is to be any future, not only for landscape but for humanity itself," Tandy writes, "then every technological experiment, every new industrial process, every channel of commercial expansion, every form of development, exploitation or land use *must* be subject to stringent scrutiny on ecological terms."

It is unfortunate that a book devoted to such an important subject is so physically difficult to read. The type is too small for the amount of space between the lines, and the double columns are not conducive to easy scanning. *continued on page 64*

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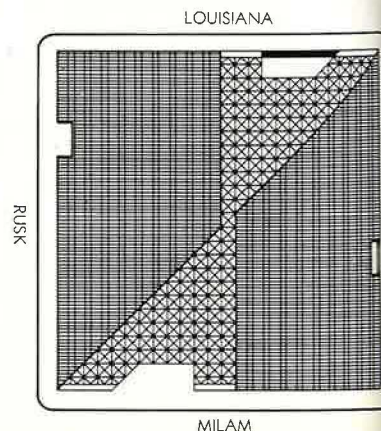
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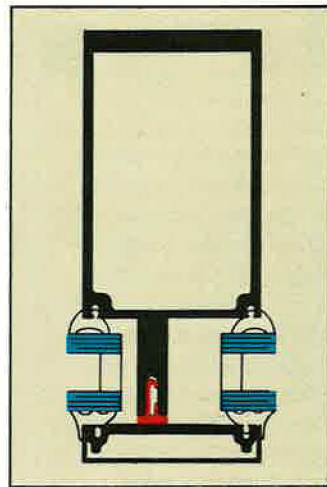
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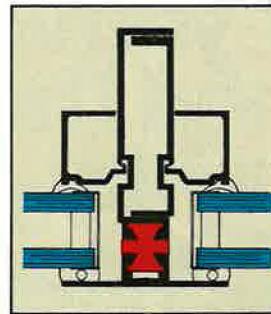
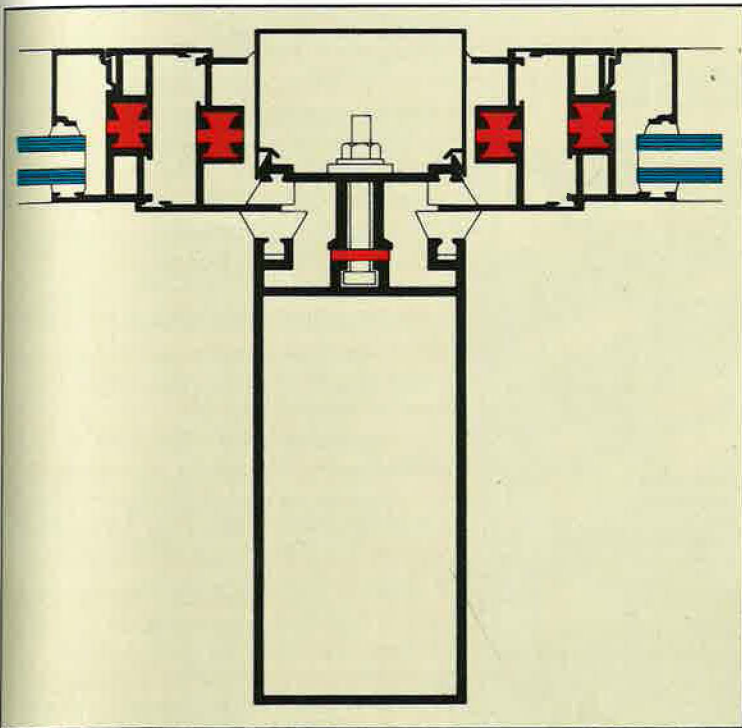


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Books from page 58

**Urban Planning Analysis: Methods and Models.** Donald A. Kreuckeberg and Arthur L. Silvers, New York: Wiley, 1974. 486 pp. \$15.95.

During the past two decades, a drastic change has occurred within both the architectural and planning professions with the introduction and subsequent adaptation of many seemingly highly sophisticated analytic techniques. These methods and procedures have been the result of a realization that the understanding and solution of urban planning and policy problems require theories and techniques far broader and more complex than those promulgated by the design professions.

The now familiar multidisciplinary team

has brought with it quantitative procedures necessary to deal with the more complex models of urban growth, development and change. Unfortunately, many of these techniques, while familiar to the economist, sociologist or geographer, have been developed outside both the realm and the traditional educational sphere of the design professions. This phenomenon has created, as the authors of this book point out, a condition where the once "very esoteric language—the traditional language of architectural taste and design (has been replaced) with another, the new language of mathematics and statistics" and that the "intellectual leadership within the field (of planning) . . . has . . . been transferred from one elite to another."

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In an effort to bridge the gap between practitioner and theoretician, the authors have sought to provide a means for introducing the concepts and methods of quantitative analysis to the planner and the applications and models of planning to the social scientist. They have sought further to introduce methods and applications that are in common use now, rather than those which might have future use or might someday occur.

The first part of the book provides a sequential treatment of the planning process from a basis definition and structuring of problems through data collection, specification of solutions and program evaluation to decision making and program implementation and management. In the course of presenting this process, Kreuckeberg and Silvers discuss the concepts and methods of probability theory and statistics, sampling methods and hypothesis testing, cost-effectiveness evaluation and program scheduling and critical path method techniques.

The second half of the text concerns various models commonly used to explain or project urban systems and behavior, including population projection models, location and travel behavior models and land use and transportation models. A slight digression from the basic format of the book provides an introduction to matrix algebra as a means of developing and understanding the regional income and employment analysis models and the concept of input-output analysis is presented in the final chapter.

The major emphasis of the text is on statistical techniques and data analysis more common to the social sciences. The concept of program planning policy as an outgrowth to the analysis of available and collectible information and the evaluation of such policies is a predominant theme. The more mathematical and complex optimization and predictive techniques and models are generally omitted. Thus, while the models that are presented in the second half of the book are valid, they tend to be explanatory models of behavior based upon analysis of observed social and physical phenomena and do not include models and methods which seek to achieve optimum solutions to stated objectives and constraints. Because planning is often a sequential decision process with multiple alternatives at every stage, it is unfortunate that neither this basic concept nor the means for dealing effectively with such problems efficiently is presented. For practitioners who seek to understand and evaluate the information that is both input to and output from the planning process and particularly for those who take the former view of that process, this book will serve as an ideal introduction to contemporary planning methods and urban analysis. *Elliott E. Dudnik, AIA* □

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Going On from page 15

from a workshop on seismic safety research, held in February 1976 under the auspices of AIA/RC. The experts at the workshop developed a list of specific concerns, research projects and recommendations. A limited number of copies of the report are available from Earle Kennett, AIA/RC, 1735 New York Ave. N.W., Washington, D.C. 20006.

AIA/RC is now working on another project under a grant from NIF. The purpose of this endeavor is to develop guidelines for use in the design of earthquake-resistant police and fire stations. Design firms with experience in this area are requested to communicate with AIA/RC.

## Institute Names Eleven To Honorary Membership

For "their distinguished contributions to the architectural profession or its allied arts and sciences" 11 persons have been newly elected to honorary membership in AIA. They will receive their honorary memberships at AIA's convention in San Diego, June 5-8.

The new honorary members are:

- Ernest A. Connally, associate director of the National Park Service, who is an authority on historic architecture and a former educator.
- Harold B. Finger, manager of the General Electric Center for Energy Systems and former assistant secretary for research and technology at HUD, who currently serves on the AIA Research Corporation board.
- Harold C. Fleming, president of the Potomac Institute and former official of the Southern Regional Council, who has advised AIA officers and staff on national growth policy and equal opportunity policies.
- Alfred Goldberg, a consulting engineer in private practice and until 1976 superintendent of the bureau of building inspection, San Francisco, who has been active in the development of many building codes and standards policies, particularly in the areas of fire and life safety and seismic design.
- Edward M. Kennedy (D-Mass.), a U.S. senator since 1962, who has sponsored major legislative proposals of concern to AIA, including energy conservation in buildings, more effective use of professional and technical resources and equitable federal tax policies.
- Tom McCall, governor of Oregon from 1966 to 1975, who was cited in 1974 by AIA for his activities in environmental protection and improvement.
- Lt. Gen. John W. Morris, chief of engineers, U.S. Army Corps of Engineers, who is credited with the development of numerous policies directed toward

environmental protection.

- Jo Ann Proppe, executive secretary of the Portland chapter/AIA, who is a member of the AIA continuing education advisory committee and serves on the executive committee of the Council of Architectural Component Executives.
- Nancy A. Runge, executive director of the Tulsa chapter/AIA, who has served for three years as a member of the city's community design center and is currently secretary of the Council of Architectural Component Executives.
- Richard C. Thevenot, executive director of the Louisiana Architects Association/AIA, who has written and helped implement the passage of many pieces of state legislation in the interest of the architectural profession and the public.
- Frank Whalen Jr., attorney in the Washington, D.C., law firm of Spencer, Whalen & Graham, who dates his association with AIA back to 1959 when his firm became the Institute's legal counsel; he has been an adviser on all AIA activities which have legal implications.

## County Passes Stringent Barrier-Free Legislation

Prince George's County, Md., has passed sweeping legislation for barrier-free architecture that is called "the best in the nation" by some experts. The measure, passed by the county council, covers new and substantially renovated buildings—both residential and commercial.

Among the new requirements:

- New sidewalks must be textured or scored to show blind people where doors are located.
- Offices and restrooms will have raised letters or Braille markings.
- New buildings will have visual fire alarms, such as flashing red lights, to aid the deaf.
- New apartment units must have 25 percent of the units with special features for the handicapped, and one in every 10 units in motels with 20 or more units must be so equipped.
- New library stacks will be placed 36 inches or more apart to accommodate wheelchairs.
- New auditoriums must have 2 percent of their seats for persons in wheelchairs where the view will be similar to that from other seats.
- At least 2 percent of new parking lot spaces, close to ramps, must be allocated to the handicapped.
- Swimming pools, either public or semi-public, as in motels, must have hydraulic lifts to enable the handicapped to enter and leave the water.
- New supermarkets will be required to have at least one lane wide enough to accommodate wheelchairs. And parking

spaces in "prime locations, closest to the stores" must be provided.

A plan to extend requirements of the law to subdivisions of single-family homes was dropped. However, Harvard Hollenberg, executive director of the National Center for Law and the Handicapped, is quoted as saying that he doesn't know of any legislation "that has touched so many bases."

## 1977 Postconvention Tour Centers on Mayan Culture

This year's AIA postconvention tour, from June 9-19, will be an architectural study trip to Guatemala, the Yucatan and Cancun, Mexico. The area is of especial interest as the cradle of Mayan civilization, whose beginnings—approximating those of ancient Egyptian culture—are believed to reach back as far as 2000 B.C. It was a far advanced civilization, especially in architecture, the arts and sciences. The Mayans had, for example, a calendar more complex than our own, astronomy observatories permitting daylight observation of the stars, a theory of evolution similar to Darwin's and the use of penicillin before the time of Columbus.

The tour, including seminars for information and discussion, will begin with Guatemala City, the economic, political and social hub of the nation. The second stop is Antigua, the 16th century colonial capital built by the Conquistadors, which for two centuries was a center of learning and the arts as well as the economic heart of Central America. Shattered in 1773 by an earthquake, its ruins and rebuilt areas have recently been declared a Western hemisphere historical monument.

From Antigua the tour proceeds to Tikal. This great ruined ceremonial center, in the rain forest jungles of Guatemala's northern province of Peten, was founded around 2000 B.C., reached its apogee between 500 and 800 A.D. and was abandoned and reclaimed by the jungle in the 10th century.

The study tour then goes on to the Yucatan, its capital city of Merida, Chichinitza, heart of Mayan culture, and Uxmal, another center of civilization.

There will be a full day of relaxation at the end of the tour in Cancun. The cost for all transportation up to Cancun, hotels and meals is about \$995. For further information contact Jacque Watson at AIA headquarters.

## Journal Publisher Cited

Michael J. Hanley, publisher of the AIA JOURNAL, has been named one of the five most outstanding magazine publishing executives of 1976 by the *Media Industry*

*continued on page 68*

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Going On from page 66

*Newsletter.* Hanley was commended for being a "David" among the "Goliaths" in magazine publishing, and for "taking their measure."

The newsletter interviewed more than 150 trade editors, Wall Street analysts, consultants and business executives in preparing its list of outstanding marketing and media executives. In all, 50 executives from 10 different fields were honored.

"From the hundreds of proposed candidates," says the newsletter, individuals were selected "who in the past year combined innovation, experimentation and expansion with good business arithmetic; who risked dollars and/or controversy to expand their businesses or presented a point of view that deserved to be heard. . . ."

## Deaths

**Lawrence A. Alexander Jr.**, Gulf Breeze, Fla.

**V. Leonard Brown**, Studio City, Calif.

**John Albury Bryan**, Chillicothe, Mo.

**Anthony S. Ciresi**, Cleveland

**Clarence Dahlquist**, Glenview, Ill.

**Lawson L. Delony**, Little Rock, Ark.

**Ernst Fischer**, Milwaukee

**Lewis W. Foster**, Pinehurst, N.C.

**James Gathercoal**, Salem, Ore.

**Earl T. Gilmore**, Jackson, Miss.

**H. Don Gochnour**, Yakima, Wash.

**Alvin E. Harley, FAIA**, Detroit

**John W. Huntington, FAIA**, Hartford

**F. Perry Johnston**, Houston

**D. Roderick Jones**, Munhall, Pa.

**Theodore D. MacBird**, Santa Ana, Calif.

**Jack Lee Nielsen**, Eureka, Calif.

**John H. Pritchard, FAIA**, Tunica, Miss.

**Richard P. Raseman**, Harrisville, Miss.

**Ronald Rennie**, Glen Ellyn, Ill.

**Erwin C. Schmidt**, St. Louis

**W. Stranahan**, Pasadena, Calif.

**W. R. Tappan**, Oradell, N.J.

**Thomas D. Watson**, Yonkers, N.Y.

**Harrison E. Woodard**, Hurst, Tex.

**Norman Karl Fugelso, AIA:** A past president of the Northeast Minnesota chapter/AIA, Mr. Fugelso was a partner in the Duluth, Minn., firm of Fugelso Porter Simich Whiteman. He practiced architecture in Duluth for 32 years, during which time he designed a number of structures for the University of Minnesota at Duluth, including the physics classroom and laboratory, the administration building, the library and the performing arts center. He also was project architect for such complexes as the Miller-Dwan Hospital and Medical Center, buildings at Bemidji State College and at the College of St. Scholastica and the Duluth YMCA. Mr. Fugelso,

who died on Nov. 19, 1976, at the age of 65, is praised by a partner in his firm as a "leader and outspoken champion of the profession of architecture" who had a "long and productive career."

**Sir Basil Spence, Hon. FAIA:** Architect of rebuilt Coventry Cathedral in England, Sir Basil's design is uncompromisingly modern. The original cathedral, bombed out in World War II, was in ruins, and Sir Basil won a competition for the design of the new cathedral. Consecrated in 1962, the structure was criticized bitterly at first by traditionalists. Now, however, it is universally praised for its dramatic impact and for the many opportunities it provided for work by contemporary artists. One of its vertical accents is the old steeple; also admired is Sir Basil's use of the old nave and chancel as a landscaped atrium. Sir Basil, who died on Nov. 18 at the age of 69, designed large country houses before the war; afterwards, in addition to the cathedral, he was the architect of many university buildings, housing projects and highrise office buildings in London. He designed as well the barracks in Knightsbridge for the Queen's cavalry and the British Embassy Chancellery in Rome. He was a professor of architecture at the University of Leeds and at the Royal Academy.



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(0 471 91305-7) 1976  
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## Newslines

**The Louis Skidmore room** was recently dedicated in the Rotch Library at the Massachusetts Institute of Technology. Mr. Skidmore, a member of the class of 1923, was cofounder of Skidmore, Owings & Merrill. The room's renovation plus an adjacent exhibit area are gifts from SOM in memory of Mr. Skidmore, and will enable the library to consolidate most of its visual resources into a central facility, where there will be space for study, work and display. The room now contains more than 200,000 items of visual materials in such subject areas as architecture, art history, building technology and urban planning. A remaining portion of the SOM memorial fund will be used to begin a file of contemporary architectural plans and drawings.

**The Producers' Council, Inc.**, recently elected Fred W. Rexford, vice president of Elkay Manufacturing Co., as its president for 1977.

**Employment Opportunity:** An assistant or associate professor in environmental technology, to begin work in Aug. 1977, is wanted by the University of Kansas. Registered architects/engineers with master's degree should apply by April 1. Contact: Dean Charles Kahn, School of Architec-

ture and Urban Design, University of Kansas, Lawrence, Kan. 66045.

**Beverly Willis, AIA**, principal in the San Francisco firm of Willis & Associates, is the first woman design professional to be featured on a cover of *Engineering News-Record* (Nov. 4, 1976). The ENR article about Willis tells how she developed a computer program for the firm's management (see AIA JOURNAL, Jan. '76, p. 48). The firm's primary resource, however, says ENR, is "Willis herself, who is an engaging combination of level-headed businesswoman, enthusiasm and boundless energy."

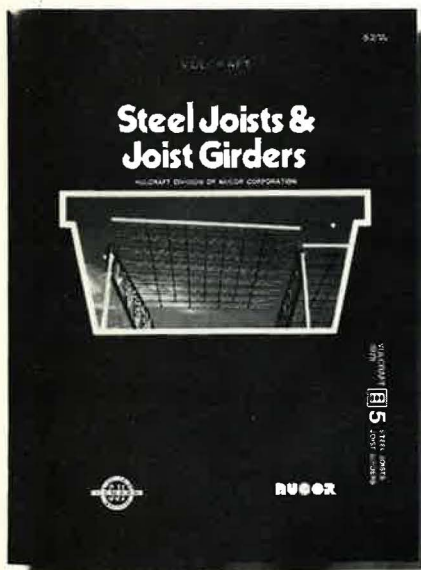
**More than 20 solar energy bills were enacted by state legislatures in 1976.** About half of them, reports the Bureau of National Affairs, Inc., mandate some form of tax incentives for increased use of solar energy in residential, commercial and industrial structures. BNA cites as well two laws "of major importance" signed by the governors of Arizona and Florida (see BNA's *Housing & Development Reporter*, Nov. 15, 1976). In Arizona, a measure provides for the amortization for expenses over a three-year period on solar energy devices as a deduction of state income taxes (in lieu of allowance for depreciation). Arizona law also now establishes "sun rights," providing "that

easements for unobstructed air rights may be conveyed for solar devices." In Florida, vendors will have to meet testing performance criteria for solar energy equipment sold in the state, with standards set by the Florida Solar Energy Center.

**"Louis Sullivan and Charles H. Whitaker Correspondence, 1922-1924,"** is the title of an AIA publication authored by George E. Pettengill, Hon. AIA, Institute librarian emeritus. The pamphlet contains two articles reprinted from this magazine (June and September 1975) and a third one, on Sullivan's friends, printed for the first time. Copies are available for \$3 each from AIA's department of publications marketing.

**A solar energy system is being installed** at the Mount Rushmore National Memorial's visitors center in Pennington County, S.D., to provide for 50 percent of the facility's heating and cooling needs and to inform the two million annual visitors to the center of the benefits of solar energy. The design of the system, to be completed by mid-1977, is by Honeywell's energy resources center in cooperation with the Energy Research and Development Administration and the South Dakota School of Mines and Technology. The A/E firm of Spitznagel Partners of Sioux Falls, S.D., is also working on the center's redesign. □

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The University of Toronto is seeking a Director for its School of Architecture, to take office 1 July, 1977. The School offers a five-year program leading to the B. Arch., and graduate programs leading to the M. Arch. A revision of the structure of the School's programs is under study.

Qualifications required are the abilities to give leadership in architectural education, and to relate effectively to the practicing profession.

Nominations and applications should be addressed to **Professor H. W. Smith, Office of the Provost, University of Toronto, Toronto M5S 1A1**, by **March 1, 1977**.



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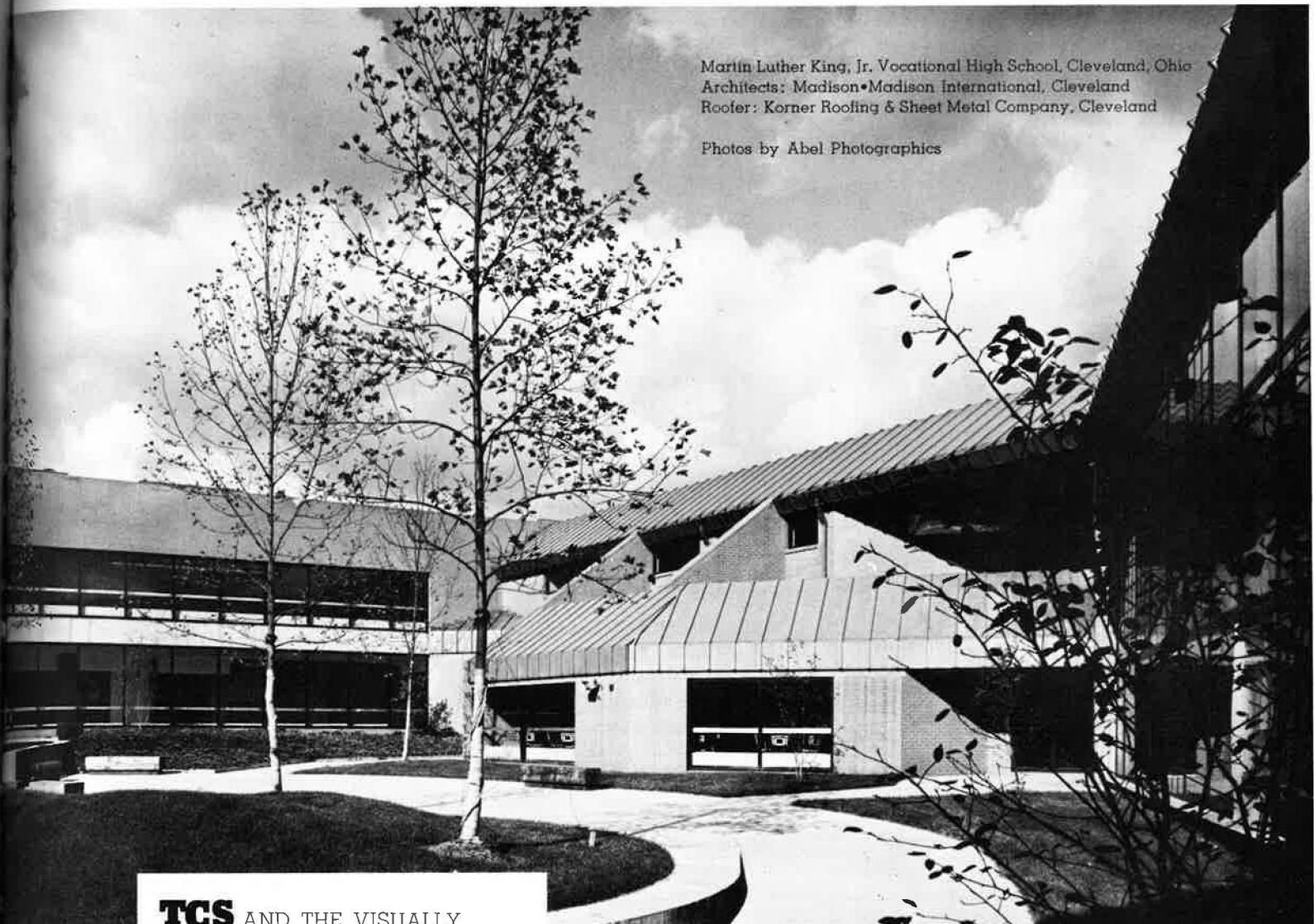
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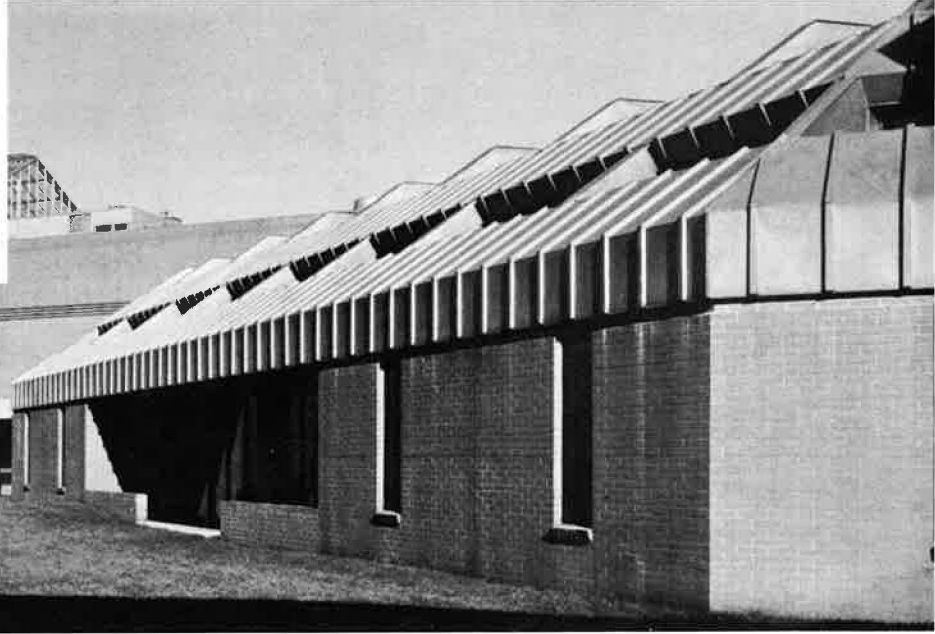
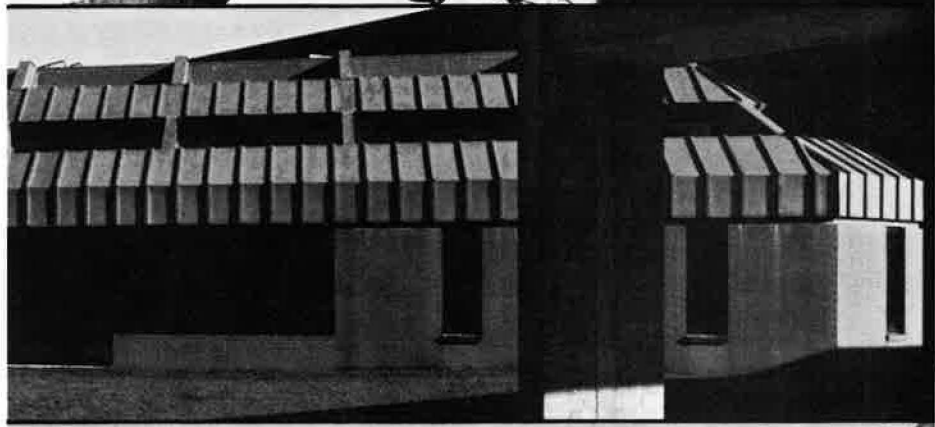
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**Honor Awards for Project Design**

Arts For Living Center, New York City  
Architects: Prentice & Chan, Ohlhausen, New York City

Gary Farmer's Market, Gary, Ind.  
Architects: Whitley/Whitley, Inc., Shaker Heights, Ohio

Lancaster Central Market, Lancaster, Pa.  
Architects: Haak, Kaufman, Reese & Beers, Lancaster, Pa.

Linwood Court, Cambridge, Mass.  
Architects: R. D. Fanning Architects, Inc., Boston; Paul G. Feloney & Associates, Cambridge, Mass.

Market Square Historic Redevelopment, Newburyport, Mass.  
Consultants: Anderson Notter Associates, Inc., Boston

O'Bryant Square, Portland, Ore.  
Architects/engineers: Daniel, Mann, Johnson & Mendenhall, Portland

Park Centre, Cleveland  
Architects/landscape architects/engineers: Dalton-Dalton-Little-Newport, Cleveland

Penns Landing Square, Philadelphia  
Architects: Louis Sauer Associates, Philadelphia  
San Francisco Redevelopment, San Francisco

**Honor Awards for Urban Design Concepts**

Buchanan Street Mall, San Francisco  
Landscape architects/designers: The SWA Group, Sausalito, Calif.

Mill Hill Historic Park, Trenton, N.J.  
City team: Architects/designers, Trenton

Over-The-Phine Community Center, Cincinnati  
Architects: Woolen Associates, Inc., Indianapolis; David Niland, Cincinnati

Queensgate II Town Center, Cincinnati  
Urban designs/planners: Urban Design Associates, Pittsburgh

**Honor Awards for Management Approaches**

Baltimore's Design Review Systems, Baltimore  
City of Santa Cruz Historic Preservation, Santa Cruz, Calif.

Planners: Joe H. Hall and Carole G. Nelson, Santa Cruz

Facade Easement, Hudson, N.Y.  
Architects: Raymond, Parish & Pine, Tarrytown, N.Y.

Greensboro Housing Management Improvement Program, Greensboro, N.C.

Housing for the Elderly Development Process, Lansing, Mich.  
Architects: O'Dell, Hewlett & Luckenbach, Inc., Birmingham, Mich.

Indian Township Housing: Phase Two, Indian Township, Me.  
Architects: Adams Associates, Inc., Deer Isle, Me.

Painted Post Village Reconstruction, Painted Post, N.Y.  
Architects/urban designers: Leibowitz/Bodouva & Associates, New York City

Philadelphia Garment Center, Philadelphia  
Architects: Nolen & O'Neill, Plymouth Meeting, Pa.

**Special Mention Awards**

Apalachicola-Economic Development Through Historic Preservation, Apalachicola, Fla.  
Architects/planners: Willoughby M. Marshall, Inc., Cambridge, Mass.

Downtown Aurora Decision Chart, Aurora, Ill.  
Urban planners: Ben-Ami Friedman and Estelle Kazman, New York City

Eastwood, Roosevelt Island, N.Y.  
Architects/planners: Sert, Jackson & Associates, Cambridge, Mass.

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