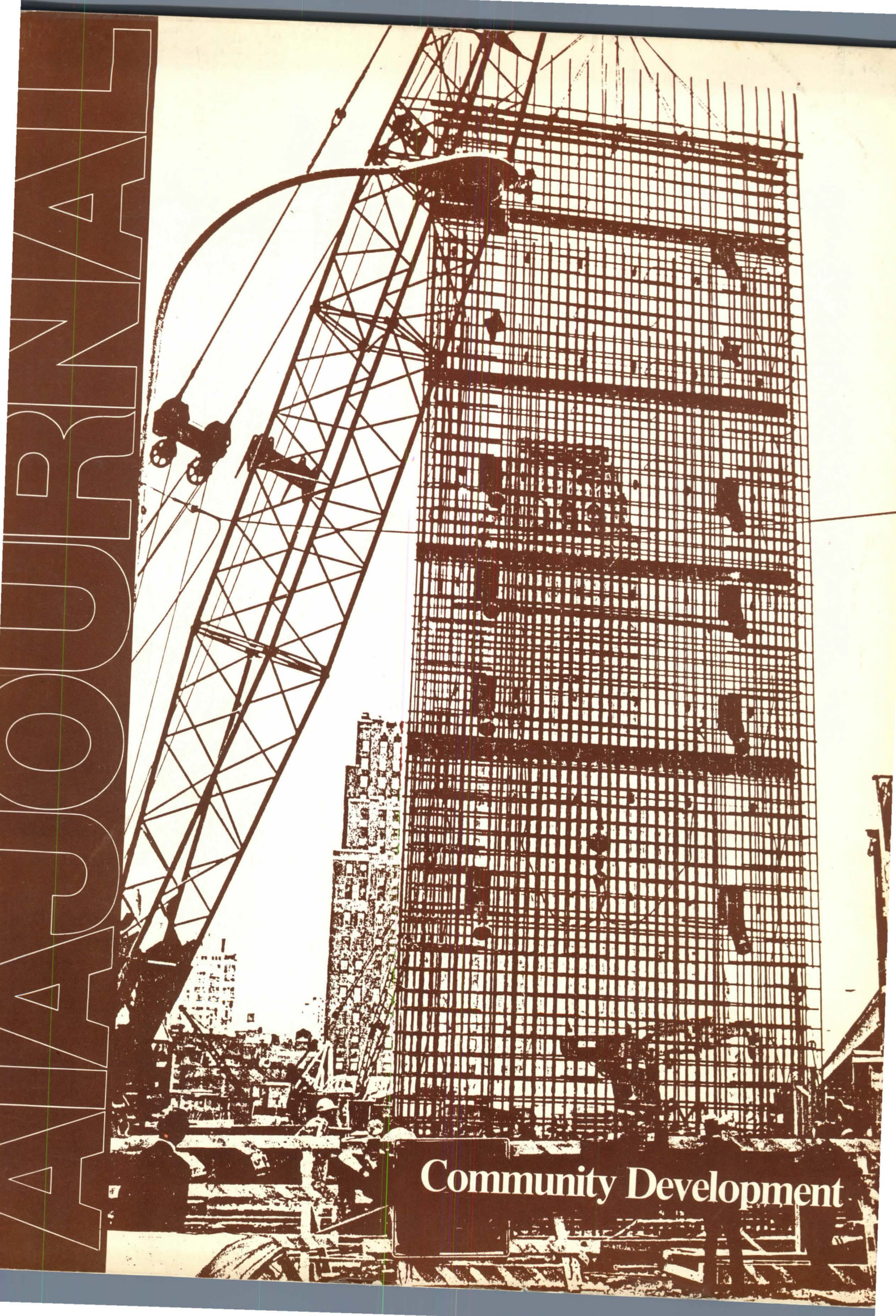
MAJOURNAL



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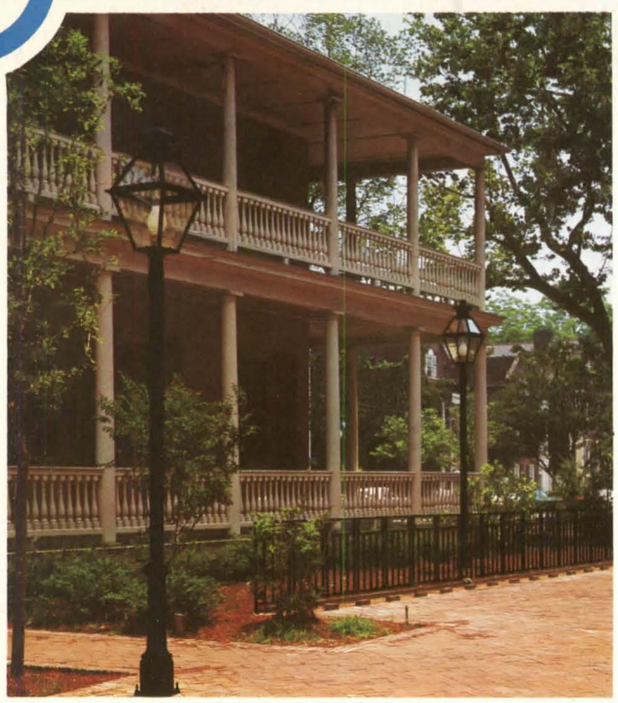

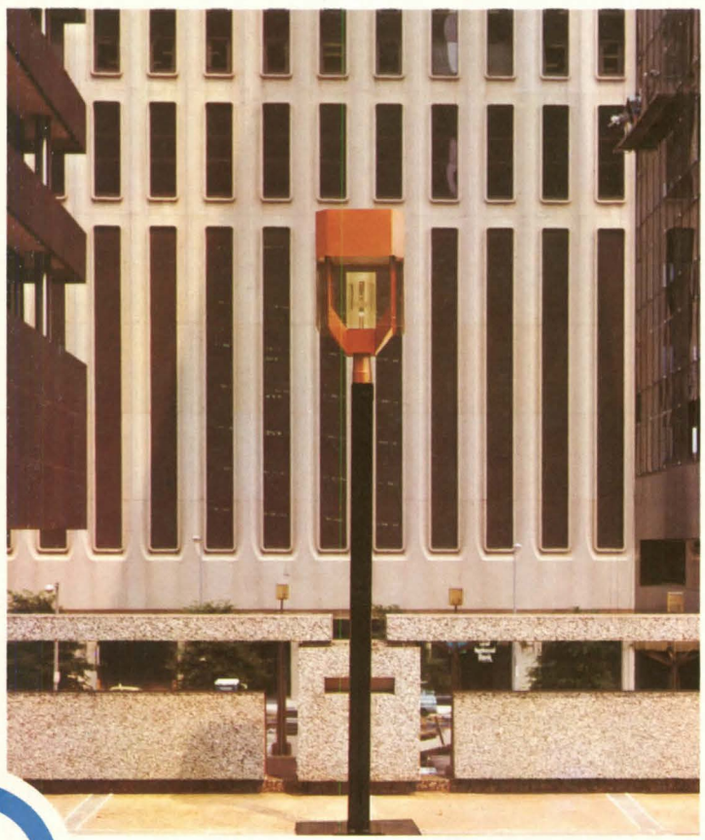

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VOL. 65 NO. 2

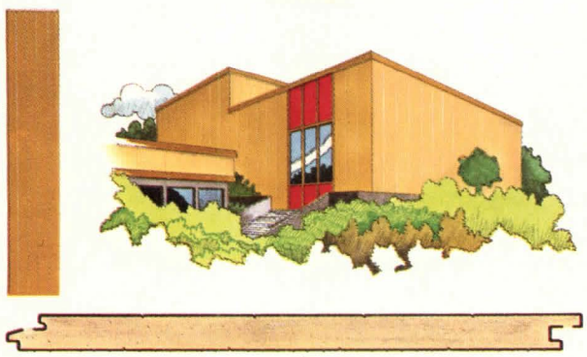
BPA

Pre-insulated

Inryco

Three new options for energy-saving design in wall construction

1



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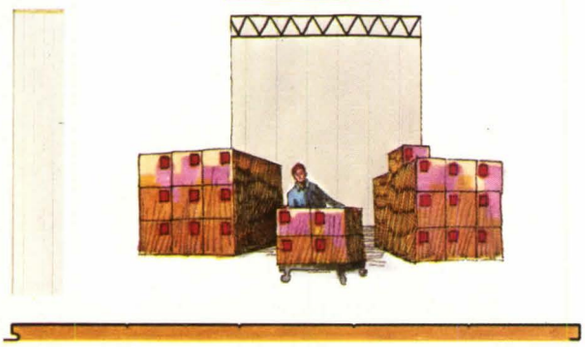

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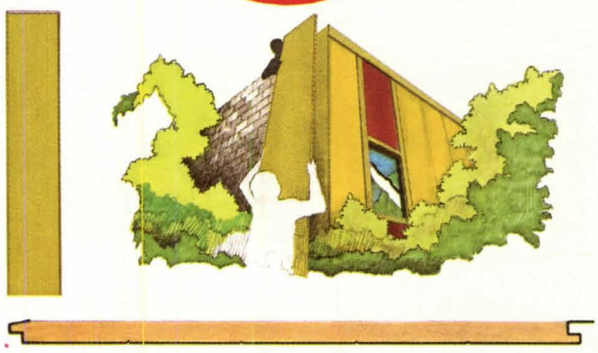

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Exhibition of Capitol Competition Drawings Opens in the Octagon

Drawings from the first federal architectural competition held in the U.S. are being shown for the first time in a bicentennial exhibition called "Designing the Nation's Capitol" at the Octagon through June 13. The 1792 competition was for the design of a capitol for the new nation; the prize was $500 and a lot in the city of Washington.

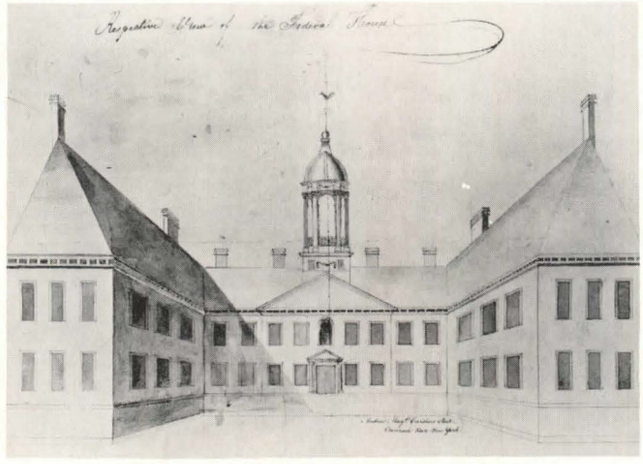
As George M. White, FAIA, architect of the capitol, points out in his introduction to the catalog, "The biographies of those early competitors . . . are a fascinating insight into the capacity and state of the design professions in the late 1700s." Only one of the competitors was a professional architect, and he, Stephen Hallet, was a Frenchman trained in Paris. The competitors included politicians, a school teacher, a former soldier and builders. The winner of the competition, William Thornton, was a physician.

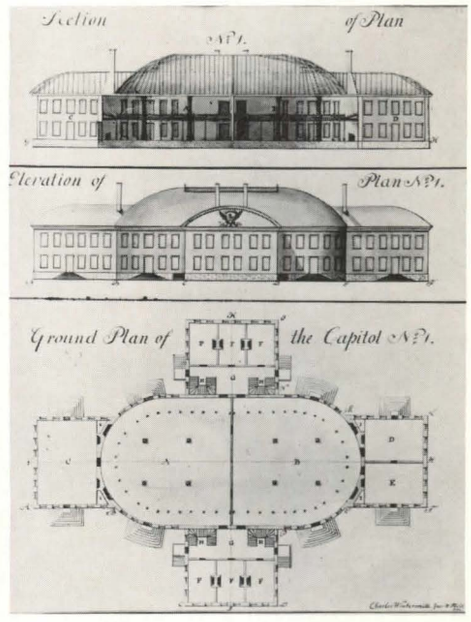
The designers' diverse backgrounds are reflected in the broad range of competence and sophistication among the drawings. Philip Hart's designs, for example, are delightful for their naiveté of detail, with primitively-drawn beings perching on roofs and cornices. In a design by James Diamond, an eagle twice the size of the front entrance perches on the cupola of the capitol. An unsigned drawing shows a cross at the top of the proposed capitol building. By contrast, Stephen Hallet's design for the competition was called his "fancy piece" and criticized by Thomas Jefferson as "too extravagant." Also among the drawings is one by Andrew Carshore, which is thought to be the first perspective drawing in the history of American design. Carshore labeled his drawing "a respective view of the Federal House." According to Jeanne Butler, Octagon curator and author of the exhibition catalog, Jefferson himself did not attempt a perspective drawing until as late as 1820.

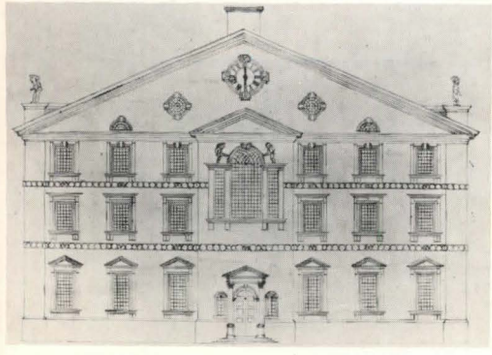
In addition to the drawings, the exhibition contains portraits of several of the competitors and original commissioners, newspaper accounts of the competition, architectural pattern books that influenced the designs submitted and other artifacts. The drawings are owned by the Maryland Historical Society and have been restored for the exhibit by the Library of Congress under matching grants from the National Endowment for the Arts and the Morris and Gwendolyn Cafritz Foundation.

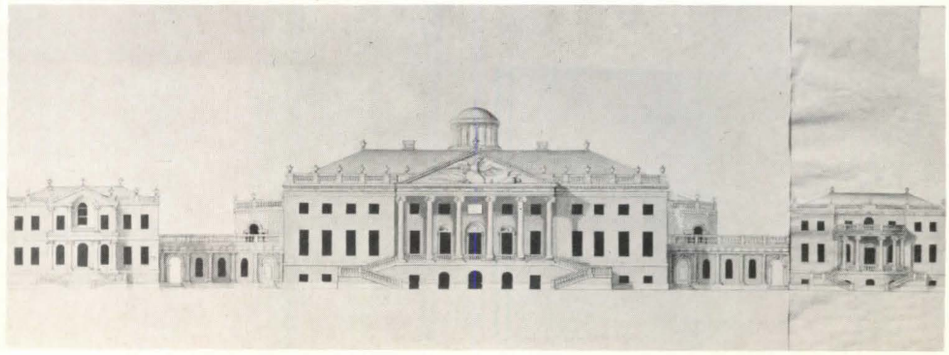
continued on page 8

Left to right, top: Dr. Thornton; Carshore's perspective view; submission by Charles Wintersmith. Lower left, Philip Hart drawing; right, probably drawn by Thornton in 1792 on Tortola, West Indies.









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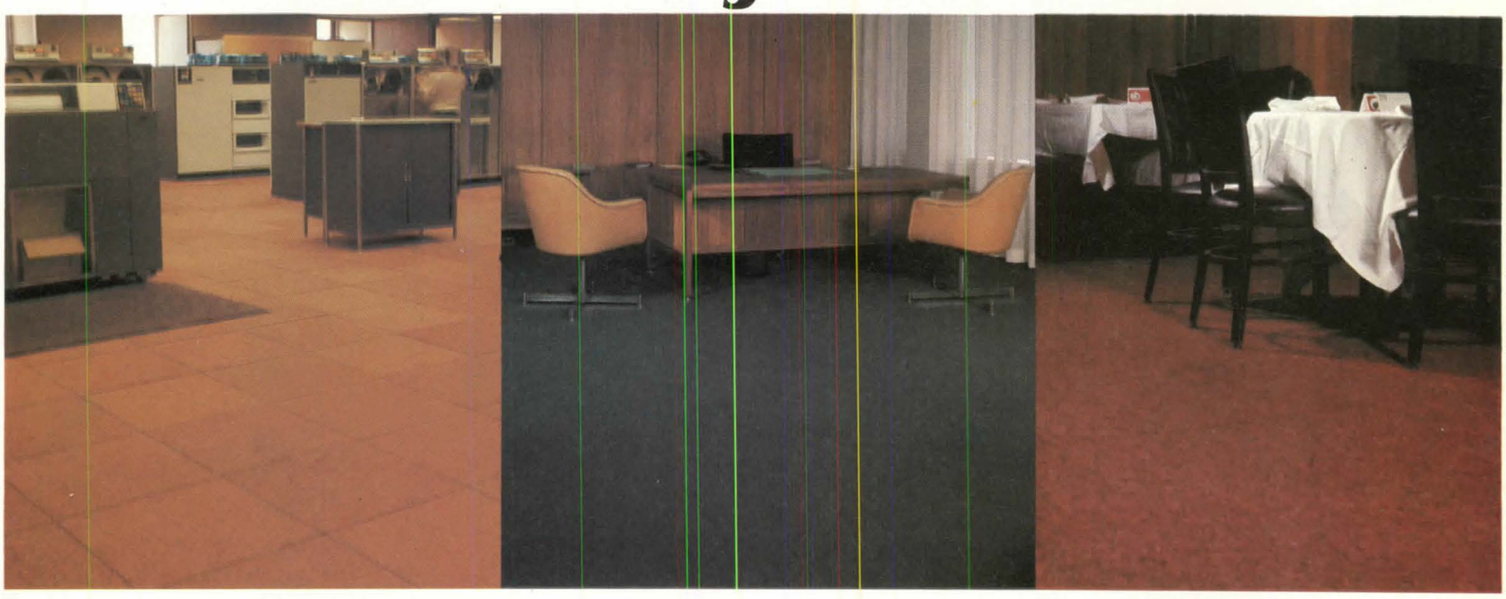

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Going On from page 6

Congressional Roundup: Picketing, Preservation, Public Works and Airports

Some of the legislation which occupied AIA effort and on which testimony was given in 1975 has reached what the Institute views as a satisfactory conclusion. President Ford on Jan. 2 vetoed the common situs picketing bill, which AIA had opposed as legalization of secondary boycotts at construction sites. And on Dec. 23, the President signed into law the Metric Conversion Act of 1975, which calls for voluntary conversion to the international metric system. As amended, the bill includes representation of the construction industry on the national Metric Board, an aspect of the legislation which had been recommended by AIA.

On the same day, President Ford signed the fiscal 1976 appropriations for the Interior Department. The historic preservation grants program, endorsed by AIA, is funded at $24.7 million for fiscal year ending June 30, plus a three-months transition period.

AIA's recommendation for Capitol Hill master planning was included in the legislative appropriations for the budget of the architect of the capitol. AIA also supported a $5 billion federal grants program for state and local public works as an aid to economic recovery. The legislation, now out of a House-Senate conference committee, does not include AIA's recommendations for energy conservation considerations, but the bill includes $2.5 billion for public works projects, $1.9 billion for "other job-creating programs" and $1.6 billion in aid to cities. In early January, however, there were predictions that the bill would be vetoed.

Nicole Gara, director of Congressional liaison at AIA, reports on a new Institute initiative which involves the multibillion dollar Airport and Airways Development Fund. The House bill authorizes $4.76 billion for airport development over a five-year period. The legislation, says Gara, revises the formula "for distribution of money from the Airport and Airways Trust Fund to place new emphasis on development of small and medium airports. The 'gut' issue is that design of terminals can be federally financed. Trust fund money, for the first time, would be available for terminal development. An amendment would preserve safety priority by requiring that an airport be certified before it can receive money for terminal development." AIA is working with the Federal Aviation Administration to clarify the language in the legislation regarding terminal areas eligible for federal funding.

During the second session of Congress, there will be other legislation considered that will have impact on the architectural profession. Among the issues:

- Energy Conservation and Conversion Act of 1975. AIA, as reported previously, recommends tax incentives for energy-efficient buildings. Legislation is still pending.
- Building Energy Conservation Standards Act of 1975. AIA supports federally developed and promulgated performance standards which would be incorporated into state and local building codes. Such recommendations are in the Senate bill, and a final version of the legislation will be determined in conference.
- Federal-Aid Highway Act of 1975. Legislation in the House contains amendments to the Highway Beautification Act which are detrimental, according to AIA. The Senate bill would fund the beautification program by the Highway Trust Fund rather than by the general treasury. It may be decided in conference whether beautification amendments are in the final bill.
- Public Buildings Cooperative Use Act of 1975. AIA supports adaptive and multiuses of public buildings. AIA-suggested amendments are in the Senate-passed bill.

Tax reform will also be considered by Congress, and AIA has created a tax law task force to examine pending revisions in the tax code which affect the construction industry.

AIA's board also has approved an Institute policy on workers' compensation. AIA's aim, says Gara, "is to amend pending legislation that would establish minimum federal standards to provide adequate state compensation for injured workers so that employer immunity from third-party lawsuits is extended to all those involved on the construction site, including designers. If accepted, this language should result in a lessening of architect liability problems."

Delay Asked in Change On Barrier-Free Code

AIA's task force on barrier-free policy has recommended to the Building Officials and Code Administrators International that BOCA wait a year before incorporating into its building code proposed revisions aimed at making structures more accessible to the physically handicapped. Despite BOCA's "intense effort" and the fact that structures built in the meantime will be less than fully satisfactory to the handicapped, the task force urges delay in BOCA changes in order to achieve a single, universal set of standards, thus "ending an era of proliferation of different standards."

Over the years, BOCA has included in its code provisions that were intended to make buildings more accessible, but, says James R. Dowling, director of AIA's codes and regulations center, "The requirements were based on an obsolete national standard, and the provisions were less than satisfactory. Recognizing the need for updated and improved provisions, a BOCA committee has held preliminary hearings to review and evaluate 29 suggested changes that pertain to the accessibility of buildings." BOCA membership will consider these changes at its annual meeting in June and will come to a decision about their inclusion in the BOCA 1976 code.

The suggestion by AIA's task force on barrier-free policy that BOCA wait a year before making changes is due to the fact that work on the revision of the American National Standard Institute's "Specification for Making Building and Facilities Accessible to, and Usable by, the Physically Handicapped" (A117.1-1961) is in progress and should be completed in 1976.

The work on the ANSI revised standard has been conducted at Syracuse University under a $256,000 contract awarded by HUD.

The purpose is to replace the old A117.1 with a standard that will cover residential as well as public buildings. HUD, says ANSI, "plans to apply the resulting standard to single and multifamily dwellings financed under Federal Housing Administration-insured loans." The 1961 A117.1 is termed by ANSI as "one of the most widely used" of its standards, and it is incorporated, in whole or in part, "in the codes of all 50 states and referenced by many federal agencies." Research at Syracuse on a new standard has included exhaustive tests conducted under the leadership of Edward Steinfeld, professor of architecture.

Edward Noakes, AIA, chairman of the AIA task force on barrier-free policy, says that nearly every element of BOCA's proposed revisions "is currently the subject of investigation and testing" at Syracuse. "We see no logical course of action than to recommend that the BOCA proposed revisions be remanded for further study.

"AIA is deeply committed to the development of both better and broader based design criteria related to an accessible and usable environment for handicapped people," Noakes says. Members of the task force "place primary emphasis upon the updating of the present ANSI standard, based on the process of research and experimentation carried through the consensus method, or modified by the consensus method, to become a truly nationally accepted set of requirements."

By waiting a year to make revisions in the BOCA code, he says, "The confusion and frustration that would be generated by one more set of criteria will be avoided and the ground laid for widespread acceptance of the new revised ANSI standard."

More than 100 of AIA components have codes and standards committees, and Dowling reports that such committees will

continued on page 13

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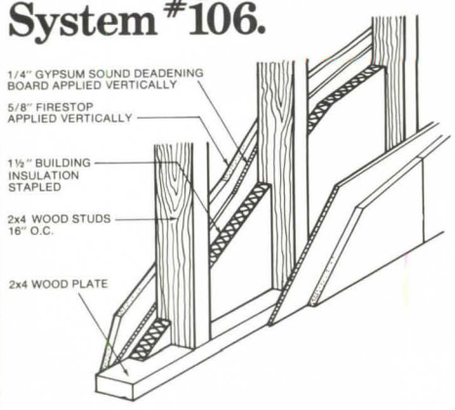

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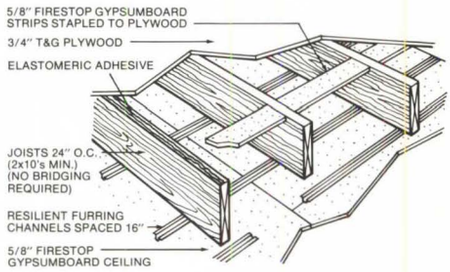

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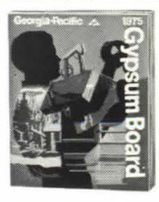

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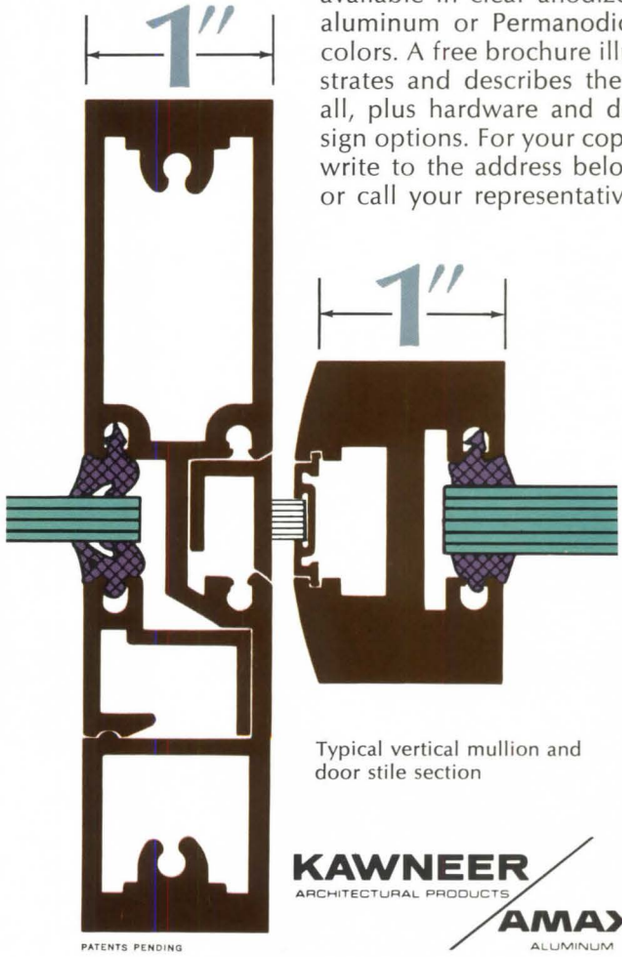

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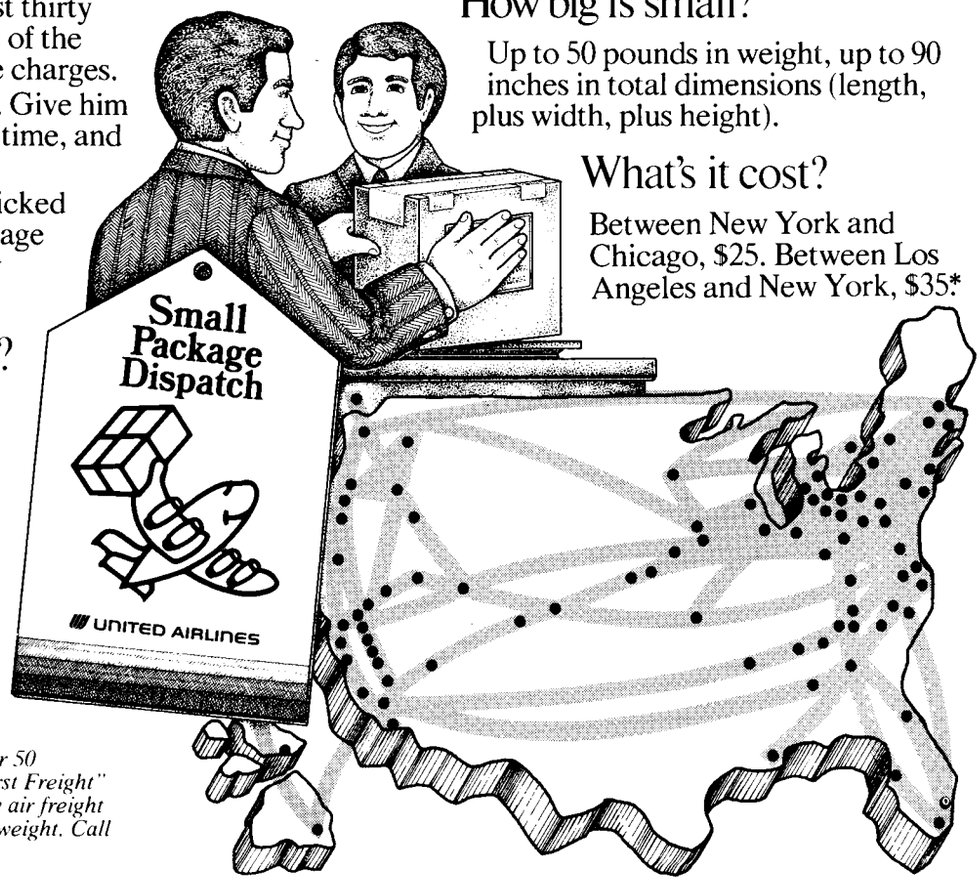

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Going On from page 8
be informed of AIA's position on the BOCA revisions to insure total uniformity throughout the U.S.

Clearinghouse Established For Barrier-Free Design

The National Center for a Barrier Free Environment, headquartered at 8401 Connecticut Ave. N.W., Washington, D.C. 20015, aims to coordinate the national effort to make this nation free of barriers that restrict the mobility of disabled people. Its president is Edward H. Noakes, AIA, chairman of the Institute's barrier free task force and a member of the President's Committee on Employment of the Handicapped. Among its board members are Joseph A. Wilkes, AIA, who represents the National Easter Seal Society, and A. Stanley McGaughan, FAIA, who represents the Institute.

The center has just begun the publication of a bimonthly newsletter titled *Report,* which describes activities throughout the country concerned with elimination of environmental barriers. The January issue of the new periodical reports on the center's first annual meeting held in November, containing extracts of presentations made at the forum.

In addition to serving as an information clearinghouse, the center's program also includes sponsorship of national design competitions for adaptable housing and educational seminars.

The center is seeking a broad public base for its activities and welcomes membership from organizations and individuals. Membership dues are tax-deductible. Information about the center and the latest issue of *Report* may be obtained upon request from the center.

Producers' Council Looks To Construction's Future

By 1977, construction products fabricated from wastes we now discard will likely be in use, including synthetic gypsum, recycled wood products and compacted garbage construction blocks. By 1980, there will be laws to limit energy consumption in all probability, and buildings will be designed to consume 20 to 25 percent less energy than now. In the years just beyond 1980, condominiums will likely account for more than one-half the multifamily housing starts, and as we approach the year 2000, robot machines will probably replace human beings on dangerous construction jobs.

These and other projections into the future are made in the Producers' Council's 1975 "Delphi" study. The study, conducted by PC's marketing research committee, is titled "Forecast of Events Influencing the Construction Industry," and is available from PC (1717 Massachusetts Ave. N.W., Washington, D.C. 20036) at $5 per copy.

A 100-member panel was asked to indicate when a number of events affecting the future of the construction industry would probably take place. Each person was asked to explain his thinking on each topic, and the results were compiled. On the basis of this data, the panel was asked to "rethink its position" in light of the differences of opinion. The 60-page booklet tabulates the responses to each question on bar charts and gives a summary of comments on such topics as material shortages and substitutions, energy, housing activity and federal legislation.

As the booklet says, the aim of long-range planning is to "match up" expectations about the future "with present and future resources to generate a long-term maximum profit." It asks the question: "How many of these events have you considered in your planning?"

Some comments from the booklet:

- "Life-cycle costing is expected to be a factor in commercial construction prior to 1980 but will not be important to residential construction until much later. However, effective life-cycle costing in residential construction could occur prior to 1980 if the Building Energy Conservation Act proposed in April 1975 is enacted."
- "While there is a wide difference of opinion, there is a three-in-five chance that at least 10 percent of new construction will be lost because of environmental restrictions by 1980."
- "Wage and price controls are expected by 70-plus percent of the panel at some future time."
- "Restrictions on height and type of structure will be implemented in at least 10 percent of the areas that do not now have them. Many zoning ordinances and local codes are currently easing into height and type restrictions. Solar energy, later will cause additional limitations."

AIA Headquarters Staff Appointments Announced

Marshall E. Purnell has been promoted to the position of administrator of minority affairs at the Institute. He has been co-director of the federal agency liaison program since 1974. Prior to joining the Institute staff, he was in private practice and taught at the University of Maryland in 1973-74.

Purnell holds a bachelor's and master's degree from the University of Michigan where he was also the recipient of several awards. As administrator of minority affairs, he succeeds Robert T. Coles, AIA, who has returned to private practice.

Other new staff appointments at the Institute include:

Peter J. Wood, director of continuing education, formerly assistant professor of architecture in the school of architecture and environment design at the University of Texas at Arlington. Wood, an architect who has done graduate work in languages and public administration, has also worked as assistant to the director of the planning research and design center at the University of Texas at Arlington.

Michael D. Green, director of public relations projects, who for the past eight years has been a Washington newsman and Congressional staff member. In addition to working for three Congressmen, Green has been Washington correspondent for California newspapers and was a reporter for the *Washington Daily News.*

Patricia Parker, assistant director of the federal agency liaison program. An architect, Ms. Parker formerly worked in the department of general services of the District of Columbia government.

David Caney, assistant director for Congressional liaison. Caney is an architect and a lawyer, and has worked for the Senate committee on appropriations.

In addition, William W. Aird has been named director of Production Systems for Architects and Engineers' mechanical and electrical programs. An engineer, Aird has most recently been product manager and principal engineer for Control Data Corp.

The Employment Exchange

The JOURNAL publishes employment notices for AIA members and firms without charge. Only one notice will be published for any individual member or firm in any given issue; each notice will be limited to 24 words, exclusive of address; copy should be received between the 1st and 15th of each month for publication in the following month's issue; notices will be published on a first-come, first-served basis.

Positions Wanted

Architect, NCARB, long yrs. diversified private practice; medical buildings specialist; will relocate, consultant or steady. Victor Bohm, AIA, 31 N. Lake Shore Drive, Rockaway, N.J. (201) 627-2959.

Architect, registered MI, IN; design/production experience; interest, career expansion potentials; 32 yrs. old. William W. Cameron, AIA, 1217 Rynearson Road, Buchanan, Mich. 49107 (616) 695-9942.

Positions Available

Architect or architect-in-training; minimum 4 yr. degree, 2 yrs. experience in working drawings. Twelve-man office. Contact: Michael Newman, AIA, Newman Van Etten Winfree Associates, 865 W. 4½ St., Winston-Salem, N.C. 27101, (919) 724-1503. *continued on page 16*

VULCRAFT IS NOT AFRAID OF SCALING NEW HEIGHTS.

The job was the six-story Cities Service Building in Houston, Texas.

The plans called for a framing system using precast concrete beams and columns, plus steel joists.

But the plans changed. That's when Harvey Construction Company, the general contractor, asked Vulcraft to rise to the occasion.

The first thing Vulcraft did was assist in the redesign of the multi-story building to incorporate joist girders rather than precast concrete beams.

Once the redesign was completed, Vulcraft joist girders and steel joists gave Harvey Construction a number of advantages.

Both Vulcraft products were delivered quickly. On March 7, 1975, the approved drawings were given to Vulcraft. By March 14, the joists and joist girders had been delivered to the job site. All 329 tons of them.

At the job site, the joists and joist girders were easily erected, saving valuable time. In fact, they were all in place only one month and two days after they were brought to the site.

But time wasn't the only important thing saved. Money was saved too, because joist girders were less expensive than precast concrete beams.

That's how Vulcraft helped Harvey Construction make short work of a six-story building. And Vulcraft can help you do the same.

Just contact your local Vulcraft representative. Or write Vulcraft, P.O. Box 17656, Charlotte, North Carolina 28211 for your Joist & Joist Girder Guide. (See Sweet's 5.2/Vu.) Or call (704) 366-7000.

You'll find out we're not afraid of tackling tall orders.

VULCRAFT

A Division of Nucor Corporation

Building Owner: Gerald D. Hines Interests. General Contractor: Harvey Construction Company. Architect: Richard Fitzgerald & Associates. Consulting Engineers: Mitchell Systems and Krahl & Gaddy. Steel Fabricator: Nu Way Steel, Incorporated.

Vulcraft joists and joist girders played an important part in the fast construction of the Cities Service Building, which was occupied only five months after the general contractor started the job.

All Vulcraft joists and joist girders were erected easily and quickly. In fact, they were all in place only one month and two days after they were brought to the construction site.

Going On from page 13

St. Louis Construction Industry Groups Unite

Before PRIDE, St. Louis' construction industry had a singularly poor image, created by strikes, occasional violence and costly union work rules. PRIDE—an acronym for Productivity and Responsibility Increases Development and Employment—was formed in 1971 to revitalize the area's depressed economy and improve the image of the construction industry by welding together all facets of the industry: labor, management, buyers, architects and engineers.

The first action taken by PRIDE's leaders, who represented the five basic industry groups, was to sign a memorandum of understanding which set forth principles and goals each group pledged to fulfill. These included ending wildcat strikes, picketing and jurisdictional disputes; holding down overtime; eliminating work slowdowns and featherbedding; insuring greater economy and efficiency through improved design; establishing realistic job completion dates, and increasing responsibility and improving coordination of job progress by prime contractors.

The PRIDE memorandum of understanding was reportedly the most influential factor in Proctor & Gamble's decision to build a $30 million addition to its manufacturing facility in St. Louis.

Since the inception of PRIDE, there has not been a single major work stoppage due to a jurisdictional dispute, and there have been major work rule changes designed to keep AFL-CIO contractors competitive with nonunion contractors. Says Richard Mantia, executive secretary-treasurer of the St. Louis Building and Construction Trades Council, AFL-CIO and co-chairman of PRIDE, "That's a record every working man, every contractor can be proud of."

Component Executives Named Honorary AIA

Three executives of AIA state and local component organizations have been named honorary members of the Institute in recognition of their "outstanding service to the architectural profession." They are Marie Laws Farrell, executive vice president of the Northern California chapter/AIA; Jay C. Leavell, executive secretary of the Alabama Council, and Ann Stacy, executive director of the Michigan Society of Architects and the Detroit chapter/AIA.

Marie Farrell, a graduate of the University of California at Berkeley, became executive secretary of the Northern California chapter/AIA in 1966 and was named executive vice president in 1972. Her professional responsibilities include editorship of the chapter's *Bulletin*. She is director for the Western region, Council of Architectural Component Executives.

Jay Leavell, active in civic affairs and a talented artist, has served as executive secretary of the Alabama Council/AIA since 1963. He is also president of the advertising and public relations firm of Leavell, Wise & Techeli. He is a member of the Alabama Council on the Arts and Humanities, a director of the Landmarks Foundation and secretary-treasurer of the Montgomery Riverfront Commission.

Ann Stacy, a graduate of Wayne State University, serves a dual post as executive director of both MSA and the Detroit chapter/AIA. Among the major programs carried out under her direction have been the campaign to save Detroit's Orchestra Hall, an architectural awareness program for the public schools and public architectural tours in the Detroit area. She is editor of all MSA and Detroit chapter publications.

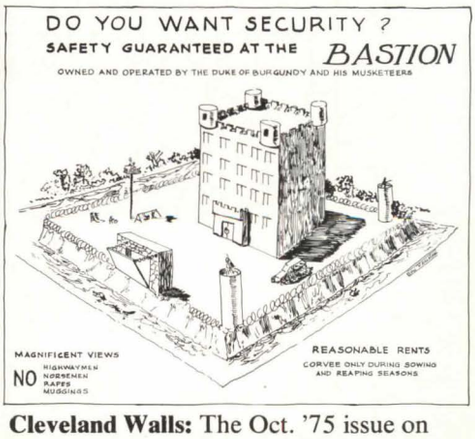
Honorary membership in the Institute is awarded to persons who are not eligible for corporate membership. Not more than 10 persons outside the Institute may be so honored each year; additional honorary memberships may also be awarded to staff members at AIA headquarters or component organizations in recognition of distinguished service to the profession.

LETTERS

Crime Doesn't Pay: The fact that the Law Enforcement Assistance Corporation held a seminar on the subject of designing for crime prevention and that the AIA JOURNAL saw fit to report it *(see* Nov. 75, p. 48) is a sad commentary on the state of our society.

History has a way of repeating itself, and I fear that we shall soon see circulars such as the one depicted below.

Leon Rosenthal, AIA
Babylon, N.Y.



Cleveland Walls: The Oct. '75 issue on environmental graphics was exciting and thorough. The idea of "city canvases," "urban walls," or call it by whatever name, has certainly taken hold.

The Cleveland chapter/AIA was one of three groups that sponsored the Cleveland City Canvases project. Eleven downtown walls are now completed; all artists were commissioned by a group representing Cleveland AIA, the New Organization for Visual Arts and the Cleveland Area Arts Council.

Specifically, Cleveland AIA was responsible for the selection of the walls to be used and for giving presentations that were essential in the beginning to convince wall owners to participate in the commissioning process. Funding has come from the National Endowment for the Arts, Ohio Arts Council, Greater Cleveland Growth Association and the Cleveland Foundation, as well as from wall owners and corporations. Also, AIA chapter member spouses have been helping to sell 24x34-inch quality silk-screen prints of the designs to help finance the program.

We are proud of the quality of the designs on these walls and feel that they have made a substantial contribution to the urban environment of downtown Cleveland. In a spin-off of the program, new wall murals have been created in neighborhoods and by other wall owners outside the downtown area.

James G. Herman, AIA
President, Cleveland Chapter/AIA
Cleveland

EVENTS

Mar. 2-May 4: Course on Solar Energy for Buildings, Hartford Graduate Center, Hartford, Conn.

Mar. 10: Postmark deadline, LeBrun Traveling Fellowship, for six months travel and study of architecture outside the U.S. Contact: New York Chapter/AIA, 20 W. 40 St., New York, N.Y. 10018.

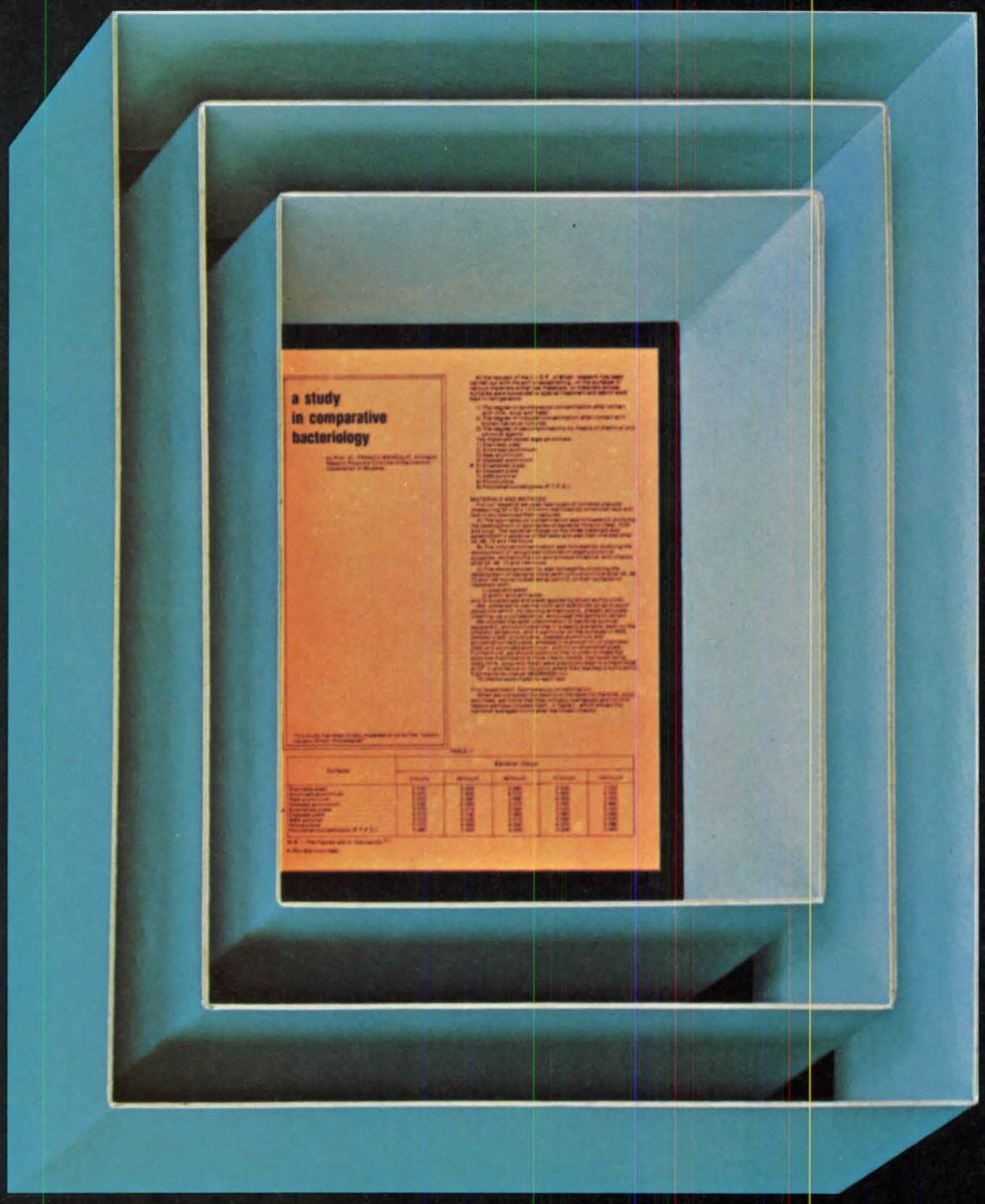
Mar. 10-11: Seminar on New Techniques for Life and Fire Safety in Buildings, Statler Hilton, Dallas (repeat seminar: Mar. 24-25, Holiday Inn Downtown, Cleveland). Contact: American Society of Heating, Refrigerating and Air-Conditioning Engineers, 51 Bank St., Stamford, Conn. 06901.

Mar. 10-12: Conference on Capturing the Sun Through Bioconversion, Shoreham Americana Hotel, Washington, D.C. Contact: Washington Center for Metropolitan Studies, 1717 Massachusetts Ave. N.W., Washington, D.C. 20036.

Mar. 11-12: Institute on Rehabilitation and Reuse of Your Community's Existing Buildings, University of Wisconsin, Madison, Wis.

Mar. 15-16: Annual Downtown Mall conference, Hotel Warwick, New York

continued on page 21



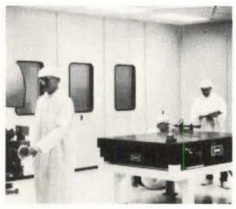
NOW! A NEW WALL COVERING THAT FURTHER INHIBITS THE GROWTH OF INFECTIOUS BACTERIA.

Bacteria never did have much of a chance for staging a population explosion on porcelainized steel. And now, with the introduction of Vitriform 90, bacteria have even less chance for survival.

This amazing new material, with its non-porous, glass-smooth surface, requires no moldings in its installation. And only a minimum number of groutlines (1 every 4 feet on vertical joints). Elimination of moldings means the bacteria have virtually no place to nest and multiply.

Vitriform 90 can be formed at 90° angles with the porcelain already applied - - without spalling, chipping or crazing. Panels butt right up against each other. A special adhesive is used for installation that supplants the need for moldings. Vitriform 90 can be installed over existing walls; is guaranteed for 50 years, and never requires painting or expensive maintenance.

Laminated to Type X fire-coded gypsum board, Vitriform 90 creates a fire-proof barrier that won't degenerate like woods, plastics, vinyls and resins.



Recommended For Interior Walls And Ceilings Of: Hospitals, operating rooms, doctors' offices, clinics, nursing homes, infirmaries, restaurants, kitchens, dining rooms, food processing plants . . . anywhere control of bacteria is essential.

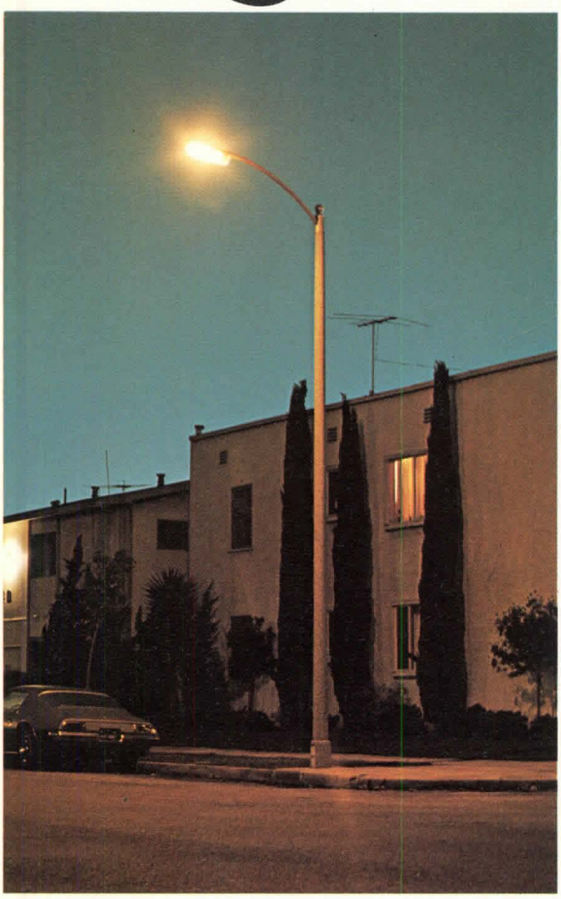
Send For Your Free Copy. The Clinical Research Department, Hospital Institute of Modena, Italy has issued a detailed report on the growth of bacteria on various building materials. Titled "A Study in Comparative Bacteriology," reprints are being offered free by the AllianceWall Corporation.

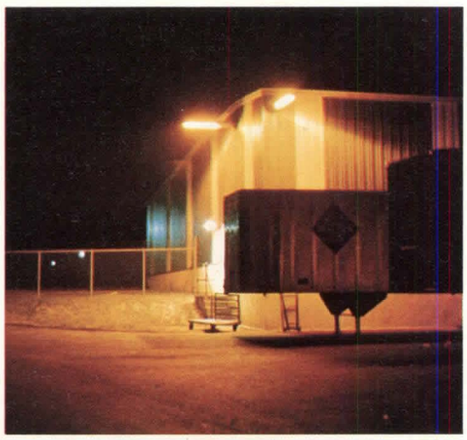
AllianceWall® Corporation
Box 247, Alliance, Ohio 44601

Manufacturing plants in Alliance, Ohio; Okmulgee, Oklahoma; Odense, Denmark and Genk, Belgium.

Circle 10 on information card

Do your client a big favor:





What customer wouldn't be turned on with the energy and cost savings he'll get with the Norelco low-pressure sodium "SOX" lamp.

It's the most efficient light source ever developed by anybody, anywhere. Our low-pressure sodium lamp is three times more efficient than mercury vapor lamps. And 50% more efficient than high-pressure sodium lamps.

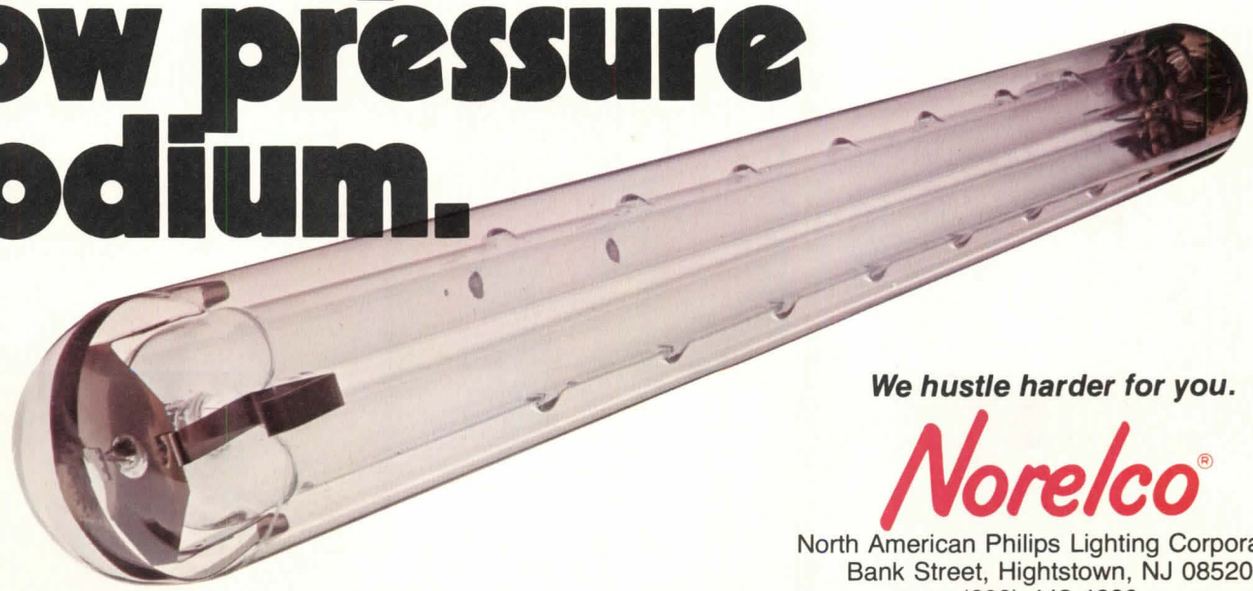
Norelco SOX delivers up to 183 lumens per watt. And it's built for longer life—up to 18,000 hours with 100% lumen maintenance.

Where can you use SOX? It's ideal for such applications as parking lots, malls, streets, tunnels, bridges, highways, and security lighting. In other words, any place that needs lots of light and where you want to hold operating costs to a minimum.

So do your client a really big favor: Next time specify low-pressure sodium from Norelco. We promise: He'll appreciate the savings in money and energy.

Your Norelco distributor or representative is waiting for your call. Contact the one nearest you today.

Specify low pressure sodium.



We hustle harder for you.

Norelco®

North American Philips Lighting Corporation
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(609) 448-4000

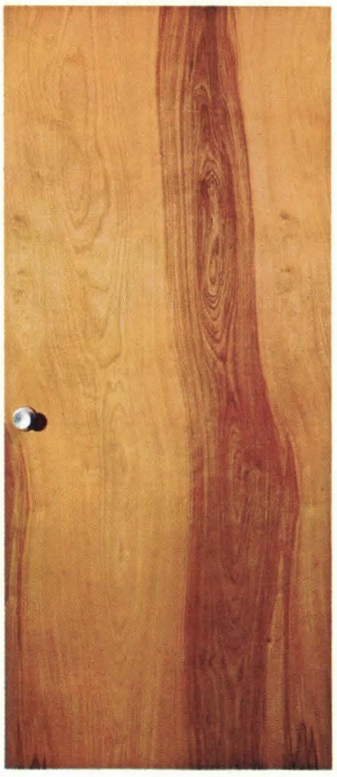
113

Circle 11 on information card

IN CASE OF FIRE, PICK THE FIRE DOORS THAT WON'T TRANSMIT HEAT LIKE HOLLOW METAL DOORS.

1.

2.



3.

4.

Weldwood® Fire Doors have an extra degree of protection. They won't transmit heat like hollow metal doors. So, the unexposed side doesn't get hot enough to be dangerous.

U.S. Plywood's insulation is the reason why. It's Weldrok,® an amazing incombustible mineral core that retards heat transmission.

Covering this built-in safety feature are some of the world's most beautiful wood veneers.

Look at doors numbered 1, 3 and 4. They come in cherry, birch and walnut. Perfect for executive offices, hotel lobbies, restaurants and apartment buildings.

While door numbered 2 is ideal for schools, hospitals or wherever a colorful but tough laminated fire door is needed. Besides vermillion, they're available in blue, gold, black and yellow plastic surfaces.

U.S. Plywood makes Weldwood Fire Doors in a complete range of time ratings including ¾ hour, 1 hour and 1½ hours.

When your specifications call for a fire door, ask for Weldwood. And make sure to look for this label on a Weldwood Fire Door. It's your proof that you're getting an extra degree of protection.

For everything else you need to know about Weldwood Fire Doors, call your local U.S. Plywood Branch Office.

WELDWOOD FIRE DOORS

U.S. Plywood
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WHY IS EGP THE BEST "ENERGY SAVING" GLASS?

Lanham office building

Product . . . GOLD INSULATING GLASS

Environmental Glass Products uses ***REAL GOLD*** in its reflective glass. ***REAL GOLD*** stops radiant heat gain and conductive heat gain and loss, better than other metals applied to glass.

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Environmental Glass Products

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Circle 13 on information card

Events from page 16
City. Contact: Downtown Research and Development Center, 555 Madison Ave., New York, N.Y. 10022.
Mar. 16-17: Architects-Engineers Public Affairs Conference, Mayflower Hotel, Washington, D.C.
Mar. 19: Entry registration deadline, Beauty Salon Interior Design awards program, for design school students. Contact: Bonnell Irvine, AIA, Professional Adviser, Seligman & Latz, Inc., 666 Fifth Ave., New York, N.Y. 10019.
Mar. 29-31: Energy Technology conference, Shoreham Hotel, Washington, D.C. Contact: Government Institutes, Inc., 4733 Bethesda Ave. N.W., Washington, D.C. 20014.
Apr. 5-7: American National Metric Council annual conference and exposition, Washington Hilton Hotel, Washington, D.C. Contact: ANMC, 1625 Massachusetts Ave. N.W., Washington, D.C. 20036.
Apr. 5-8: Design Engineering conference, McCormick Place, Chicago. Contact: Banner & Greif, Ltd., 369 Lexington Ave., New York, N.Y. 10017.
Apr. 5-8: National Material Handling Show, McCormick Place, Chicago. Contact: Material Handling Institute, 1326 Freeport Road, Pittsburgh, Pa. 15238.
Apr. 7-9: Conference on Creative Play Environments for Children, University of Wisconsin-Milwaukee campus, Milwaukee.
Apr. 12-13: Annual symposium, Washington Paint Technical Group, Marriott Twin Bridges Motel, Washington, D.C. Contact: Mildred A. Post, Washington Paint Technical Group, National Bureau of Standards, Washington, D.C. 20234.
Apr. 14-17: Symposium on Criminal Justice Planning, New Orleans. Contact: Jim Brown, National Clearinghouse for Criminal Justice Planning and Architecture, 505 E. Green St., Suite 200, Champaign, Ill. 61820.
Apr. 14-15: Annual APCA Government Affairs seminar, Mayflower Hotel, Washington, D.C. Contact: Air Pollution Control Association, 4400 Fifth Ave., Pittsburgh, Pa. 15213.
Apr. 15: Applications receipt deadline, Kate Neal Kinley Memorial Fellowships, for graduates in architecture, art and music. Contact: Dean Jack H. McKenzie, College of Fine and Applied Arts, 110 Architecture Building, University of Illinois, Urbana, Ill. 61801.
May 1-June 11: Habitat '76, Vancouver, Canada. Contact: Habitat Information, 485 Lexington Ave., New York, N.Y. 10007.
May 2-5: AIA annual convention, Sheraton Hotel, Philadelphia (reconvened session, May 7-18, London and Edinburgh).
May 2-6: Architectural Secretaries Association annual convention, Holiday Inn Penn Center, Philadelphia.

Deaths

Rolly A. Andrew, Los Angeles
John W. Briggs, Rochester
Parker J. Brown, Revere, Mass.
Pendleton S. Clark, FAIA, Lynchburg, Va.
Samuel T. Dubitsky, Barrington, R.I.
Malvin Foster, AIA Assoc., Norwood, Mass.
Donald C. Goss, Marblehead, Mass.
John Gray, Boston
Walter C. Hansen, Columbus, Ohio
Leroy A. Hatton, Orlando, Fla.
Frank Horton, Hickory, N.C.
F. Eugene Jones, Oklahoma City
Wilfred L. Keel, Atlanta
Arthur Kriehn, Shawnee Mission, Kan.
Kenneth N. Lind, Los Angeles
Ramon Schumacher Sr., Shawnee Mission, Kan.
Thomas J. Tully, Columbus, Ohio

Howard H. Battin, AIA: Designer of the Eleanor Roosevelt Library in Hyde Park, N.Y., the New York Athletic Club building in Manhattan, the award-winning Olympic Theater in Bogota and many churches, industrial plants, commercial structures and residences, Battin was also active in community affairs in White Plains, N.Y. He died there on Dec. 31 at the age of 80. He was a former leader in the affairs of the Westchester chapter/AIA and served as editor of the architectural publication titled *Blue Prints*.

Newslines

I. M. Pei, FAIA, of New York City, has been elected a member of the American Academy of Arts and Letters, the nation's highest honor society in the arts. The academy, chartered by Congress in 1913, limits its membership to 50 persons, each new academician being assigned a chair vacated by the death of another member.

M. Paul Friedberg, landscape architect and urban designer, has been named by the International Design Conference's board as program chairman for the 1976 conference to be held in Aspen, Colo., next June. Friedberg says that the theme of the conference will be "Exploring Change."

J. Roy Carroll, FAIA, of Philadelphia, former president of the Institute, has been elected a Benjamin Franklin fellow of the Royal Society of the Arts in Great Britain. The fellowship, instituted in 1959, commemorates Franklin's association with the society, and honors a "selective number of Americans."

Fundamentals of wind-load design are reviewed in a recent report from the Architectural Aluminum Manufacturers Association. Titled "Design Wind Loads for Aluminum Curtain Walls," the booklet may be obtained from AAMA, 35 E. Wacker Drive, Chicago, Ill. 60601. Also available is another new technical report titled "Fire Resistive Design Guidelines for Curtain Wall Assemblies."

Walter Lewis, AIA, of the department of architecture, University of Illinois at Urbana/Champaign, was awarded the National University Extension Association's professional service faculty award for "his pioneering work in helping to establish and carry through the code administrators' school."

Harvard Graduate School of Design, department of architecture, is seeking a chairperson to begin duties in Sept. 1976. The department enrolls about 240 students and has a faculty of approximately 40. Candidates may submit a brief resume by Mar. 1 to: Dean, Graduate School of Design, Gund Hall, Harvard University, Cambridge, Mass. 02138.

An upswing in housing production is seen by the National Association of Home Builders in 1976. The forecast is predicated upon the number of building permits issued in Nov. 1975, which was 45.2 percent above the number issued in Nov. 1974. NAHB economists warn, however, about expectations for dramatic recovery. Rather, they "foresee a gradual increase in production in the months ahead, with starts reaching an annual rate of 1.5 to 1.6 million units by the end of 1976."

The Architectural Secretaries Association will hold its annual national convention in Philadelphia on May 2-6. The theme of the conference, to be held at the Holiday Inn Penn Center, is "Achieving Professionalism—through Education, Communication and Opportunities." More information may be obtained from Thelma Imschweiler, Adrian Wilson Associates, 621 S. Westmoreland Ave., Los Angeles, Calif. 90005.

Frank Matzke, FAIA, associate commissioner for project management of the Public Buildings Service of the General Services Administration since 1972, has been selected as executive director of the Illinois Capital Development Board. The board oversees all state-financed public construction, except roads and bridges.

The Association of Student Chapters/AIA recently elected officers to assume their responsibilities in July. Gerald R. Compton, student at Southern California Institute of Architecture in Santa Monica, will be president. The newly elected vice president is Robert Rosenfeld, a graduate student at the University of California at Berkeley. □

What's ahead for '76?

An interview with Chief Estimator Richard L. Patch.

Q. What trends will affect construction costs during 1976?

A. Four factors traditionally determine cost trends. They are: *Money, Material, Manpower* and *Machinery.*

Q. What about *Money?* How will that change during '76?

A. In an election year, we don't think the present official hard line on credit availability will continue in the face of large Government borrowing. We forecast Federal actions that will increase the cost of borrowing by about 4%.

Q. How about *Material?*

A. Here, costs have stabilized because of sluggish demand for basic materials. But fabricated products prices have actually *declined.*

In view of the considerable inventory of uncommitted residential units plus approximately 20% excess industrial capacity, we don't foresee strong material demands until the second or third quarters of 1976. This could cause an increase of about 5%.

Q. And *Manpower?* Or should I say *Peoplepower?*

A. Very funny. Two groups of men—*people* if you will—will influence our economy in '76: the group controlling money costs, *i.e.,* reserve requirements, interest rates and availability of money; and the group controlling labor costs.

Of the two, the management-labor group appears most likely to cause inflationary pressures. Many of the collective bargaining agreements negotiated during late '73 to early '75 were of short duration and contained wage raises that didn't keep pace with the rampant inflation of the period.

It appears probable that as these agreements expire, overpowering rank and file pressure will generate pay increases averaging perhaps 12%.

Q. How will *Machinery* affect '76 costs?

A. There are no longer long lead times on machinery and equipment orders. In fact, some suppliers are offering attractive discounts and terms to move inventories.

An assumed upturn in demand in the last two quarters could mean an increase of about 5% for the year.

Q. What will be the overall effect of these four factors?

A. We predict a 6.5 to 7% increase in '76.

Q. Let's look at the future of building *Contract Awards.* Up or down in 1976?

A. Up *and* down. Residential activity could reach a million units if funds for construction and financing remain available. Non-residential, capital-based construction will probably increase with inflation. But physical capacity will remain, we think, at 1975's depressed level. Energy-related projects will not hit last year's level as the Alaskan pipeline project winds down.

Q. What can we look forward to in *Design Awards?*

A. An increase of 6% over '75 is the most we can see, with acceleration occurring in the last two quarters.

"Four factors determine cost — Money, Material, Manpower, Machinery."

"Costs will escalate about 6.5 to 7% in '76."

"It looks like an increase of about 6% in Design Awards."

Members American Association of Cost Engineers/National Association of Construction Cost Cons

AIA JOURNAL

Any magazine worth its salt must speak for itself, issue by issue. Nevertheless, it is helpful from time to time for the editors to share their concept of what they are trying to do. This seems an appropriate time to deliver such an accounting, since the JOURNAL has been under its present editorial management for about two years. This also seems an appropriate issue in which to do so, exemplifying in many ways the nature and mix of the JOURNAL's content.

Our basic concept of the JOURNAL is that it is an AIA service to the profession. As such its mission is to enrich the literature of the profession, bringing to its readers ideas and information not available elsewhere.

While in this sense the JOURNAL is an AIA program, it is also a magazine. As such, if it is to be read and respected, it must speak with its own voice, and speak directly to the reader and his interests. We are grateful to the AIA leadership for its recognition of this fact, and for the independence with which it has allowed us to operate the JOURNAL in these two years.

The readers' interests, as best we can fathom them, constitute the basic criterion by which we choose the contents of each issue. Since architecture is an enormously diverse profession, so are the interests of our architect-readers, and so must be the magazine's content.

That is the sense in which this issue is exemplary. In it we deal with the future of the profession, in terms of both design and practice; we analyze a major public program that is helping to establish the current context of architecture; we examine a set of AIA programs and summarize a major new AIA report, not to "publicize" them but because they meet the test of reader interest; we present another in the series of how-to-do-it "practice aids" and we take a somewhat irreverent look at history (on the theory that a magazine doesn't have to lose its sense of humor to prove its seriousness).

This last comment has to do with the JOURNAL's style, its characteristic ways of approaching and presenting content. This is something so individual as to defy analysis. Suffice it to say that we pay particular attention to the visual impact of the magazine, architecture being primarily a visual profession. We also work hard at making the magazine literate, on grounds that one reason that architects have the reputation of being nonreaders may be that they aren't given enough that is worth reading. *D.C.*

Architecture and Energy: The Need For a New Esthetic

John P. Eberhard, AIA

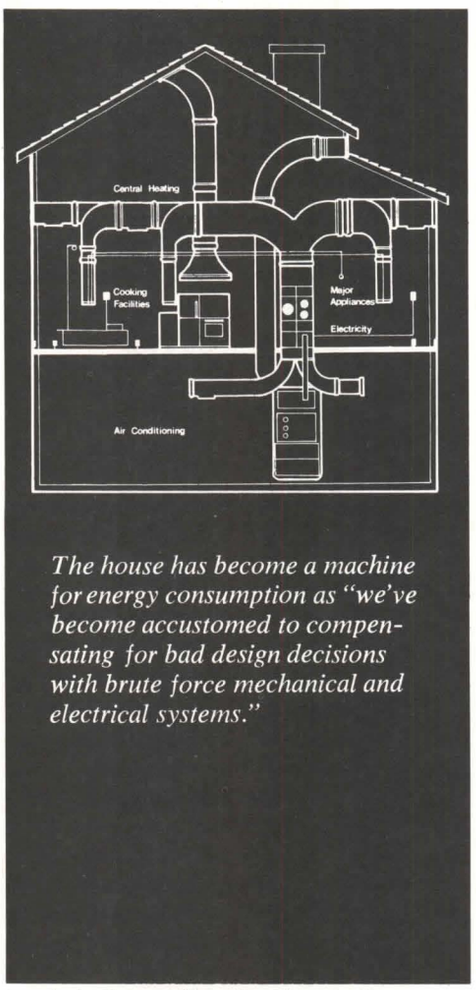
"Like so many other American institutions, colleges and universities in the United States have already gone as far as they can with turning down the thermostats, posting little 'turn me off' stickers over light switches, installing dimmer bulbs and locking up buildings when they are not in use.

"Now, with another season of cold and darkness upon them and with fuel prices still rising, campus planners, administrators and students are busily looking for new ways to save heat and electricity." Iver Peterson, in *The New York Times,* 12/7/75.

"We live under the illusion that technology will solve everything. It's like a person who is overweight but keeps on eating, hoping someone will invent a pill to make him slim. The answer, of course, is to stop eating so much." Travis Price, quoted in *The New York Times,* 12/7/75.

How well these two quotations frame the architectural energy dilemma! Most of us act as though buildings are generally well designed and effectively used and that all we need do to conserve energy is call in a mechanical engineer to adjust the systems to a lower setting. A recent study for the Educational Facilities Laboratories, Inc. (a pioneer in innovative thinking about school buildings) which lists energy conservation measures for schools, concentrates on modifying heating, ventilating and lighting systems, while suggesting a few adjustments to the skin of the building to avoid infiltration or reduce heat loss. The much publicized energy conservation standards developed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (so-called 90-75 Standards) deal almost entirely with mechanical, lighting and hot water systems specifications plus giving some criteria for a well-insulated shell. We've become so accustomed to compensating for bad design decisions with brute force mechanical and electrical solutions that we accept the concept that conservation is the equivalent of a reduction in brute force.

It's high time that we face the architectural challenge directly. The challenge may make many of us uncomfortable because it points out how badly we have at times designed our buildings in blind adherence to some stylistic dogma. But it also contains the basis for a new esthetic, or perhaps more correctly—a return to sound principles once learned and since forgotten.



The house has become a machine for energy consumption as "we've become accustomed to compensating for bad design decisions with brute force mechanical and electrical systems."

Travis Price suggests that as with personal gluttony the first step toward a sensible approach to energy conscious design is a determination to stop consuming so much. The U.S. with one-sixteenth of the world's population uses one-third of the world's energy. Many people believe the world will exhaust its supply of petroleum and natural gas in this century. Even if we have enough reserves to last considerably longer than that, we certainly have no right to continue to squander finite resources at this rate. Long before our fossil fuels are depleted, there will be serious conflicts over their ownership and use, and already now the economic implications of scarcity are beginning to make us aware of the wastefulness of our energy use patterns.

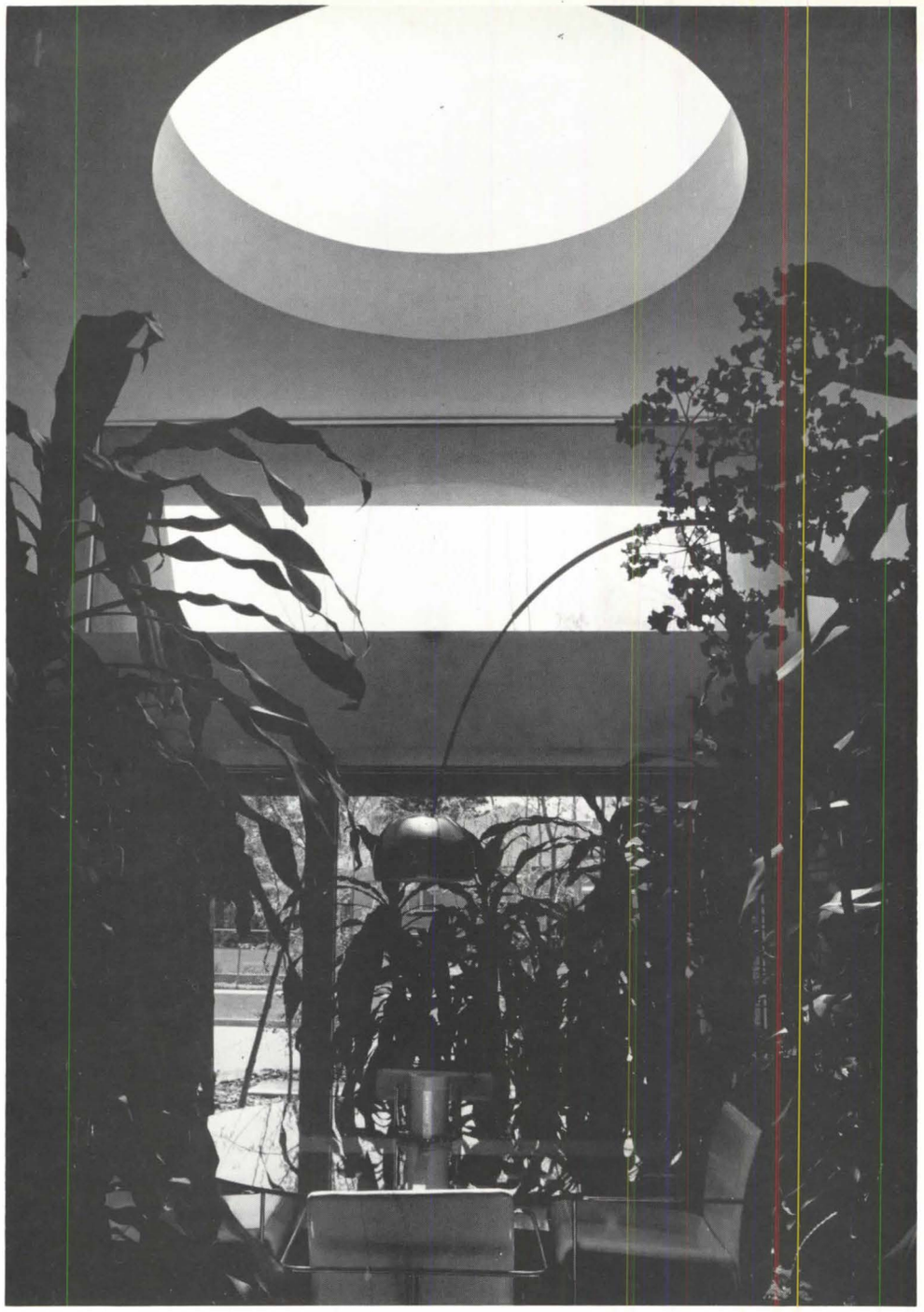
New laws emerging from Congress are going to force us to be more conscious of how we design our buildings. New pressures from our clients are going to require us to rethink our designs in terms of the life-cycle costs of operations that depend on energy use. New pollution and atmospheric thermal problems, created by our recent excessive use of fossil fuels, as well as the potential dangers of using nuclear generating plants, are being pointed up by environmentalists.

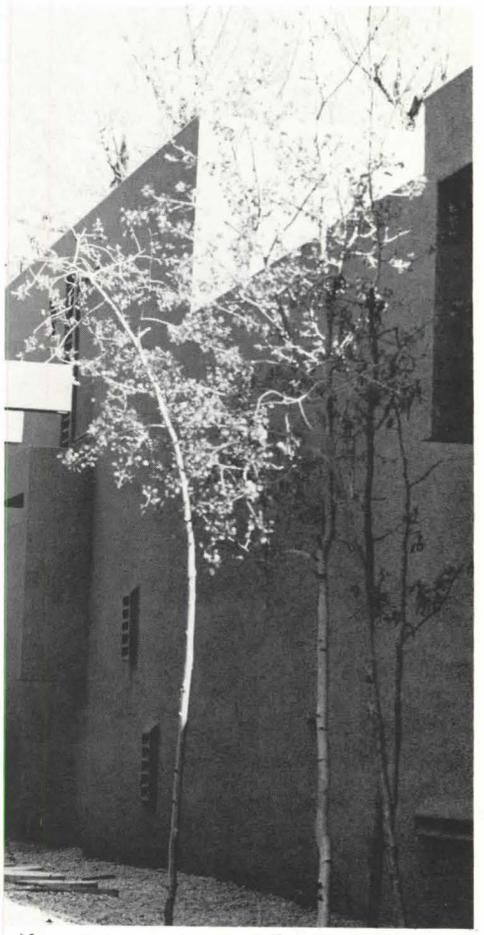
All of the above arguments are now well known and often repeated to the point of causing us to "tune out" their messages or turn away in apathy in the belief that they are just the latest on a long list of crises. While they do bear repeating, my appeal here is to a different challenge.

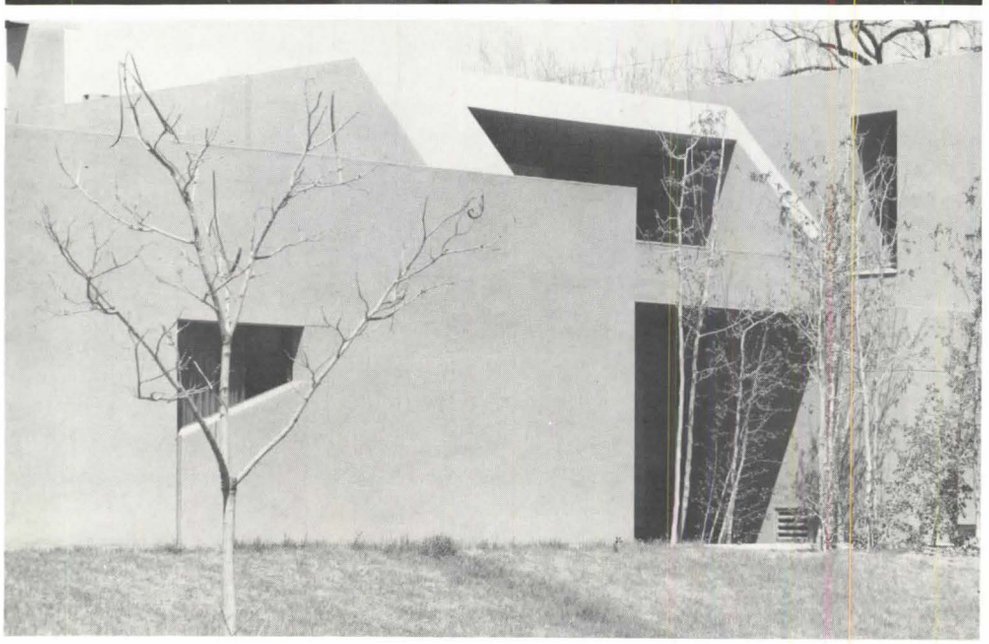
I believe we are moving rapidly towards a new accommodation by the man-made environment to nature—a *renewed* discipline to challenge our architectural creativity, a positive and welcome opportunity to provide spaces for human use that are responsive to an ethic of worldwide conservation and exploit renewable sources of energy which are nonpolluting. The energy of the sun, of the wind, of the ocean's thermal gradients are there for us to think about in new ways. The use of natural sites, of water, wind and trees challenge us again, as they have in the past, to capture their delights for all to use. It's too bad that it took an "energy crisis" to awaken us to this challenge, but it's going to be exciting to be thinking again about design in creative terms.

To respond to this new—or renewed—opportunity, we first must get past a major misconception. Most people, including most architects, believe that buildings use energy because they have heating, air-conditioning and ventilating systems and because we use electricity for lights, elevators and other appliances. This misconception lingers on because we often fail to

Mr. Eberhard is president of the AIA Research Corporation.







Almost every aspect of the duplex residence that Richard Crowther, AIA, designed for his own use in Denver was based on the twin goals of conserving finite sources of energy and exploiting those that are renewable: the siting along an east/west axis; the low-profile configurations; the size, shape and location of windows (there are none on the west elevation), and the use of skylights and "skyshafts" to bring in supplementary natural light. The house itself acts as a passive solar collector. Sun-heated roof stacks induce upward air motion from exterior wall vents (above) for summer ventilation.

Energy conscious design should start with the first client conferences.

ask the more fundamental question: Why do we use such energy-consuming equipment in our buildings? The question poses its own answer: because buildings are designed to shelter human activity and because human activities are best conducted when we are comfortable. In a large countary such as the U.S., we have widely divergent climates and often great fluctuations in climatic conditions from season to season. For thousands of years, architects have been challenged to design buildings to provide a measure of protection against the climate. But only in the recent past have we had the mechanical equipment to fine-tune the interior comfort conditions within a narrow range of temperature and humidity boundaries. Consequently, it has been only during the last few decades that we have been able to abandon doing all the sensible things we have always had to do to make our buildings comfortable under fluctuating climatic conditions.

If we accept the challenge of energy conscious design, we will design new buildings or redesign existing buildings by taking the following steps:

- We will work with our clients to make sure that their perceived space requirements are reasonably related to their actual needs, and are not excessive.
- We will work with our clients to make sure that their design specifications for comfortable conditions are reasonably related to human needs. Humans are capable of comfortably enduring fairly wide fluctuations in temperature, humidity and light. We have had a tendency in recent years to assume that we are required to design mechanical systems that allow only a very narrow fluctuation in comfort conditions even during short periods of abnormal climatic conditions.
- Next we should do all of those things we once did to make our buildings adjust to climate. Orient the buildings toward the prevailing breezes; protect the openings or glass areas from excessive heat with shading devices; provide natural light where it is needed; screen the building from raw north winds with earth berms or planting; increase the mass of the walls and roofs to act as a buffer against excessive heat or cold, etc.
- Having done all of the sensible things we can in designing the building itself, we should then attempt to use renewable sources of energy, such as solar and wind. Many new ways of using the sun's energy and the wind will be developed over the next few years, and we should make an effort to know about new concepts, understand them and use them.
- Finally, we will turn to mechanical systems for the supplemental conditioning that is required. But we will use them only sparingly and with a delicate touch, not as we used the brute force systems of the recent past.

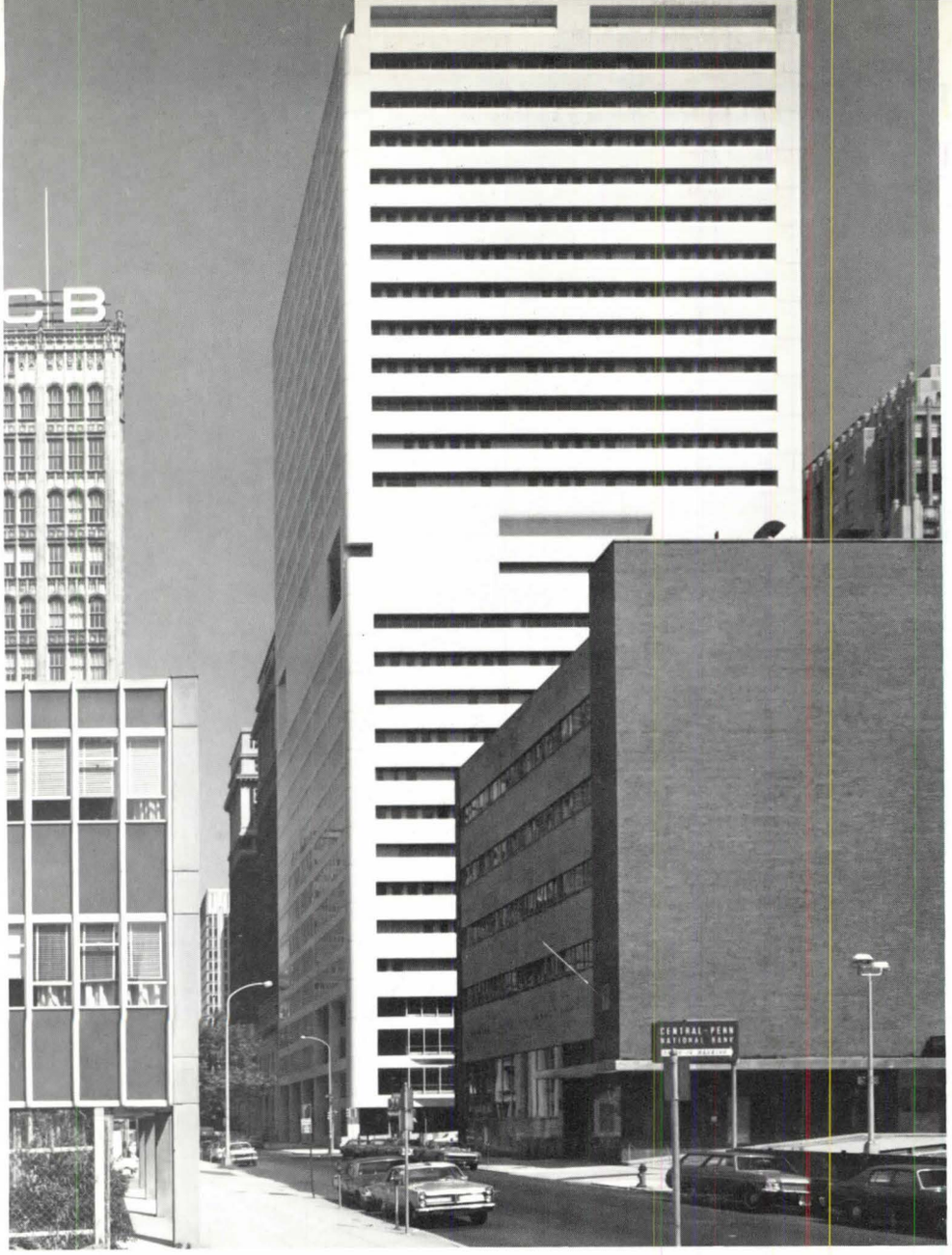
But we can go beyond these sensible steps to provide that quality of design that Vitruvius called "delight"—esthetic qualities that generate in the observer a response that is emotional.

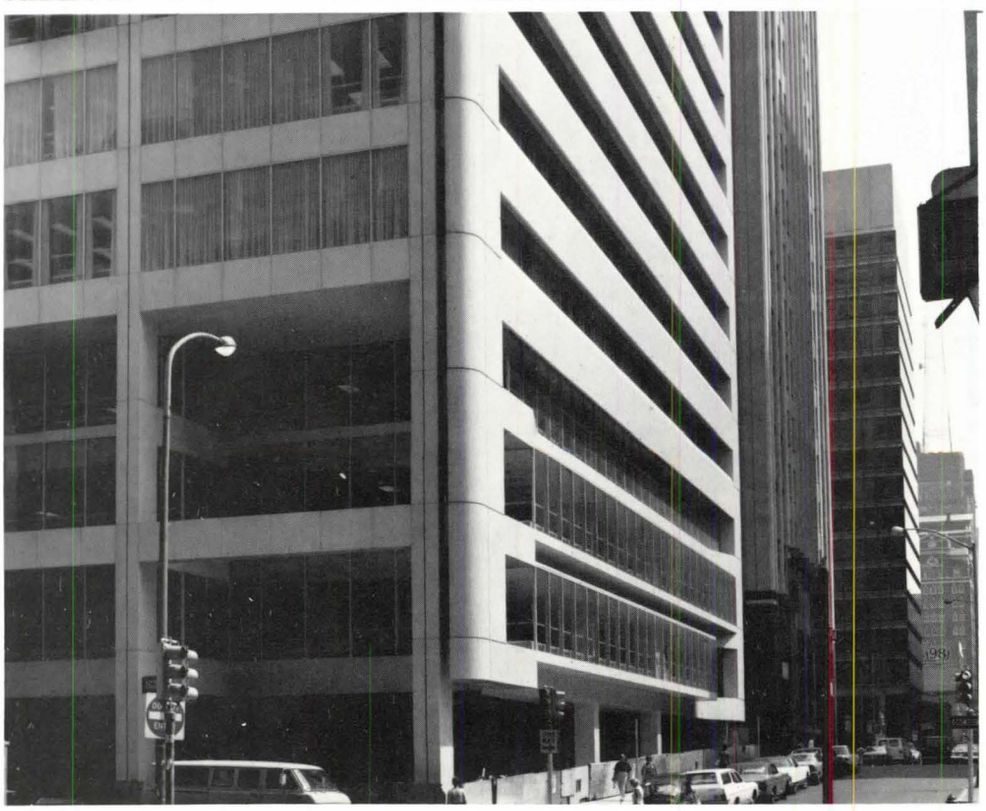
The relationship between sail and power boats comes to mind as an analogy. If we had nothing but gasoline-powered motor boats around and some one told us we had to find a new solution because we were going to run out of gasoline, we might think about trying to harness the wind to run a motor. We might even invent all sorts of clever devices to capture the wind to drive the propeller under the water. If at that point someone were to invent a sail to capture the wind, how foolish it would be not to redesign the boat itself to accommodate the sail. The designers who redesigned the boat to provide new concepts of hulls and keels and rudders and masts to utilize sails would be creating not just a slightly revised concept of a motor-powered boat, but a total new design with an entirely different esthetic experience for the user. The challenge of energy conscious design for buildings, especially buildings which harness solar energy and wind, are like that—not just a slight revision in our concept of "building" but a new esthetic. And in much the same way that those who enjoy the experience of sailing are not willing to buy a motor-powered boat at any price, the choice of design solutions will be emotional as much as rational. (In fact, our studies of solar energy houses have shown that clients are reacting to the use of solar energy more on an emotional level than on a rational level having to do with saving energy costs.)

There is one more bit of history that is worth reviewing in this connection. Beginning in about the 12th century, a fireplace was used in most buildings as a means of providing heat in cold climates. The fireplace was an architectural feature of all major and many minor rooms in houses across the world from Siberia to colonial America. As a visible part of the house, it was a focus of design in the simple English cottage as well as the great hall of a French palace. When at the end of the last century the coal-burning furnace was invented, it was hidden in the basement. All of the subsequent developments of central heat (oil- and gas-fired units) and central cooling systems were hidden in basements, in utility rooms, closets or attics, as were all of the ducts and pipes which connected the central furnace to the radiators and registers.

Solar energy is being thought about by many people as the simple substitution of a solar collector on the roof for a boiler in the basement. Everything stays hidden except the collector. But architects should be thinking about solar energy in different terms: It's an opportunity to make the methods of heating (and cooling) visible again—to make the solar energy concepts architectural features. Solar heat comes in the same package as sunshine and sunlight. This highly visible quality provides us with an architectural challenge of enormous potential.

If architects begin to assert themselves as energy conscious designers, and if a new esthetic begins to emerge from these efforts, then we will have a whole new set of opportunities and challenges. Almost every building constructed since World War II could be redesigned to make it more energy efficient and to utilize the new concepts of heating, cooling and lighting which will emerge. We will need to reeducate ourselves in the basic principles of good climatic design, to learn more about the new concepts of solar and wind energy and to learn how to think about design based on a new esthetic. It should be an exciting period of development in architectural schools and architectural practice. It's not going to be easy, but it's going to give a lot of us a new sense of purpose and a new source of satisfaction. □





The four facades of the Insurance Company of America's 27-story Philadelphia tower by Mitchell/Giurgola Associates were individually designed according to their orientations. Except for the expressed structure, the north wall is entirely glass. The west elevation and most of the east and south consist of deeply recessed longitudinal openings with curved spandrels enclosing induction units (see sectional model below). The lower portion of the east facade is a party wall abutting the company's original building. The lower portion of the south is shaded by an adjacent building, so it too is glass. The building has a steel frame and a painted aluminum membrane skin.

The Housing and Community Development Act of 1974: A First-Year Review

The federal community development program—born in the confusion of Richard Nixon's last months and the first major legislation signed by his successor, Gerald Ford—has just celebrated its first birthday. In this legislation, Congress welded together a potpourri of old urban programs, and, under the guise of "new federalism," allowed cities to spend the money with a minimum of red tape or bureaucratic interference. The results from the first year have just started to dribble in, and the program so far has made more friends than enemies. But even some of its best friends—those who fought to get the legislation enacted—have begun to conclude that community development, standing by itself, cannot do what its creators set out as its primary objective: "the development of viable urban communities by providing decent housing and a suitable living environment."

"The Housing and Community Development Act of 1974 is a reflection of the state of public policy," said Robert W. Maffin, executive director of the National Association of Housing and Redevelopment Officials (NAHRO). "It brings together a mixed bag of needed public programs and applies a single-shot answer. It was born out of distrust, out of a rhetoric of failure and a disdain for some solid achievements. It was constructed from a lot of preconceived ideas, untested in a laboratory of experience."

"Community development is not the product of a considered effort to solve urban development problems. It is a compromise between an Administration desiring to restructure federal relationships with local governments and a Congress desiring to combine a number of categorical grant programs," said Arthur F. Evans, executive director of the San Francisco Redevelopment Agency, in an open letter to HUD Secretary Carla Hills.

Indeed, the program is a child of compromise. Its legislative history dates back to 1971 when the Nixon Administration proposed it as one form of "special revenue-sharing," basically a no-strings, no-application check from Uncle Sam for community development purposes. That failed, and the Congressional counter-proposal was a much more complicated, comprehensive urban development program. What ultimately evolved was a block grant program with fast implementation but requiring both an application and more stringent after-the-fact reviews than the Administration would have liked.

The block grants wrap up in one package elements of some controversial old federal programs like urban renewal, model cities and rehabilitation loans, and some uncontroversial ones like water and sewer facilities, open space grants and loans for neighborhood and other public facilities. Instead of the so-called categorical programs with reams of regulations, Congress gave local governments $8.4 billion over three years to meet seven objectives, serious in intent but loose in definition.

The first among these is the elimination and prevention of slums and blight. The other six follow from that and are: the elimination of those conditions detrimental to health, safety and public welfare; the conservation and expansion of the nation's housing stock; the expansion and improvement of community services; the more rational utilization of land; the reduction of isolation of lower income people by dispersing housing opportunities, and the restoration and preservation of historically or architecturally significant buildings.

The funds to accomplish these objectives are allocated by a formula taking into account population, poverty and the extent of housing overcrowding, and, in the first year, almost 3,000 communities were eligible for a portion of $2.5 billion. More than 70 percent of this ($1.8 billion) went to 521 cities with populations over 50,000 and urban counties. Some of these cities received their funds on the basis of past HUD funding levels rather than by formula, under a provision known as hold harmless which maintains the level of prior federal funding for five years. In addition, 770 smaller communitise divided $440 million under the hold harmless provisions, and another $100-plus million was divided among 1,500 other small communities.

The act stresses that the principal beneficiaries of the program are to be persons of low and moderate income. To ensure this, mayors are required to certify in their applications to HUD that they have given "maximum feasible priority" to programs aimed at benefiting lower income people and eliminating and preventing slums and blight.

Statistics released in HUD's first report on the community development program seem to show that about two-thirds of the $2.5 billion dished out this year was in keeping with the lower income emphasis of the act. Using a sample of 151 cities and matching those cities' planned expenditures with census tracts, HUD concluded that 65 percent was being spent in neighborhoods where average incomes were below 80 percent of the national median; 24 percent was to go to areas where incomes fell between 80 and 100 percent of the median, and 11 percent was allocated to areas above median income.

The HUD report, submitted to Congress in December, is far less precise about the purposes for which the money (a total of $370 million and an average grant of $2.4 million) is being spent in the 151 cities. Instead of a detailed statistical analysis, it presents a largely narrative account of where the planned expenditures fall under the act's broad objectives. Nevertheless, there are some revealing figures sprinkled in with the narrative.

The report shows, for example, that the average amount spent for social services is relatively low—about 5 percent. Only a few cities planned any sort of historic preservation program, and a negligible amount of money was allocated for this. Overall, these cities planned to spend 8 percent of the money they received on central business district revitalization.

However, the 151 cities planned to spend, on an average, 17 percent of their funds for housing rehabilitation, and 18 percent for what HUD termed "neighborhood improvement activities." The single largest average expenditure—27 percent—was being spent on urban renewal programs.

NAHRO is conducting a separate study of 150 other cities, and this study provides a somewhat clearer breakdown on which cities are engaging in what kinds of activities. For example, NAHRO found that of

its 150 cities, 78 percent are using funds for a housing rehabilitation program, and 64 percent of them are doing public works and capital improvement projects—streets, sewers, curbs, sidewalks, street lights. Only 34 percent of NAHRO's cities said they intended to purchase land for the construction of new housing, and even fewer—29 percent—said they were completing ongoing urban renewal projects.

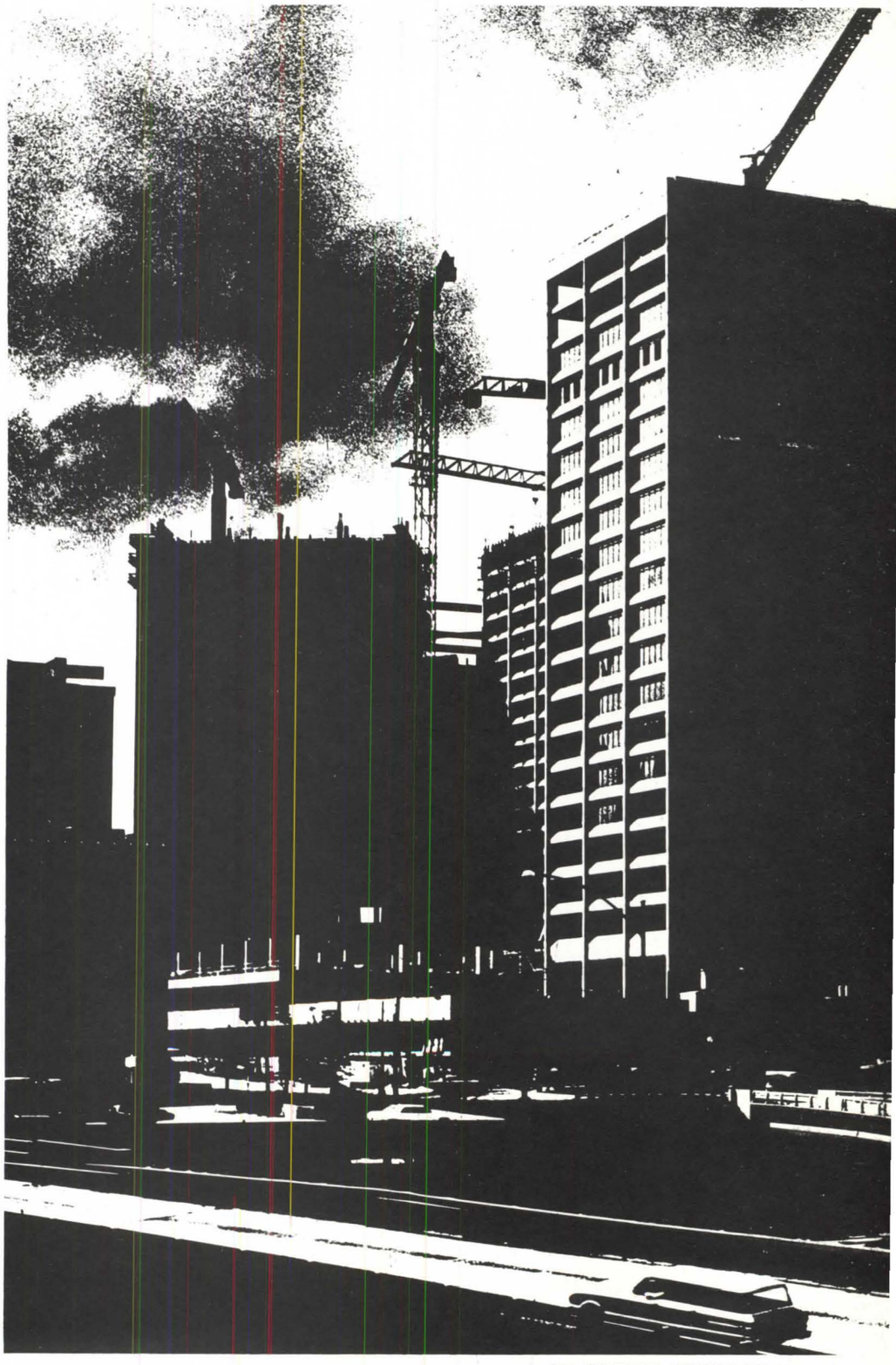
The NAHRO statistics compared with the HUD statistics provide a clue that heavy expenditures for urban redevelopment may be concentrated in relatively few cities. Other HUD statistics support this thesis: The report notes that between 1968 and 1972, urban renewal programs accounted for 66 percent of all HUD funds received by cities, under community development only 34 percent went to urban renewal-related activities. And, said the HUD researchers:

"In place of urban renewal . . . localities are using what might be termed 'neighborhood improvement programs' that are directed to blighted areas, but which do not involve the use of eminent domain to acquire and clear properties and which do not commit communities to large-scale undertakings; and which require no legally established boundaries." (Under urban renewal law a specific neighborhood had to be legally certified as blighted.)

The HUD report went on to detail what kinds of neighborhoods were recipients of these kinds of programs:

"There is greater emphasis on preventing and eliminating blight in the early stages of decay. In terms of typology of neighborhood conditions used in evaluating local urban renewal projects, community development block grant recipients are placing greater emphasis on activities in neighborhoods beginning to decline and those with decline clearly in progress. Those neighborhoods accelerating into major decline, and nonviable, heavily abandoned neighborhoods receive less emphasis."

At the same time that HUD researchers are detecting this trend, cities are being encouraged to adopt a "neighborhood improvement" strategy by both a well-respected urban economist, who has frequently served as a major HUD consult-



ant, and by Secretary Hills herself. Essentially, both are advising cities to engage in a holding pattern in the most deteriorated neighborhoods and instead focus their efforts on neighborhoods where results are easier to obtain.

In a study on community development planning done by the Real Estate Research Corporation for HUD, economist Anthony Downs recommends that cities use a modified form of triage in approaching neighborhood renewal. (Triage is a form of military medicine in which combat surgeons, faced with more cases than they can handle, divide the wounded into three parts—those who will get well without surgery, those who will not get well with or without surgery and those who need surgery to recover—and then treat the third group, giving pain-killers to the others.) In adapting this to cities, Downs suggests:

"Local governments should use the smallest amount of available community development resources possible to produce high-visibility effects in healthy neighborhoods, and then divide the remaining resources (which would be the vast majority of them) so that most are used for major upgrading of in-between neighborhoods, but some are used for in-put benefits and limited other actions in very deteriorated neighborhoods."

Downs contends that despite the fact that the need is greatest in the worst slums and that these neighborhoods have received the most funds in the past, "neither great intensity of needs nor past receipt of funds alters the harsh fact that concentrating further upgrading efforts in these areas is not likely to work."

He also stresses that the opinions expressed in the document are his, not HUD's. But in a speech at the National League of Cities annual convention in Miami last December, Secretary Hills picked up Downs' theme in encouraging mayors to try to attract people back to the cities with community development funds:

"You have the option of dispersing them (the funds) in a highly visible manner over as much of the city as possible, which may have few lasting effects because the amount available is inadequate to make a decent dent.

"Or, you can focus your funds on fewer selected neighborhoods, often in less visible forms, but in a concentration sufficient to make a difference.

"And, if you decide to focus your funds in a few neighborhoods, you must decide which ones: the most blighted, which may mean major clearance and redevelopment —or those in a transitional state, which will provide more rehabilitated homes for fewer dollars.

"Many of our old categorical programs required you to focus on your most seriously deteriorated areas and you collided with the problems of poverty, unemployment, high crime rates and vandalism—often too difficult to be solved with the dollars available.

"Urban blight, like a cancer, spreads so rapidly it can eat up improvement placed in its midst. And, it is difficult to lure back the people necessary to maintain the restoration when you offer them an island surrounded by blight."

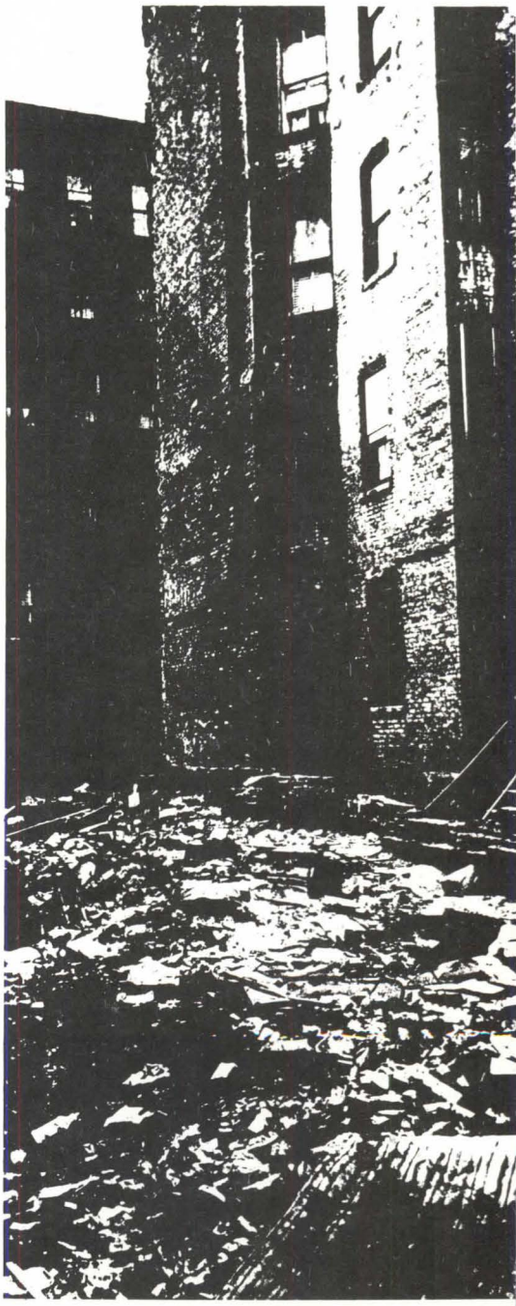
Many people may feel that this kind of urban strategy may be in conflict with a community development act which names as its first objective the elimination and prevention of slums and blight. However, Edward Silverman, director of NAHRO's information center, believes that this is all that can be expected, given the compromise nature of the act and its constraints, particularly the formula used to allocate funds.

"You didn't have to gaze into a crystal ball to say that community development isn't going to do any large-scale redevelopment. It can't," he said. "For most cities, you're spreading the same money thinner and expecting it to do twice the job."

What this means, said Silverman, is a "new definition inherent in the law. The definition always was the prevention *and* elimination of slums and blight. Now it means prevention alone."

Many analysts of community development feel the short-term approach to urban programs is as inherent in the legislation as the focus on less seriously deteriorated neighborhoods. The funding allocated by Congress is for three years. And city planners and redevelopers have just emerged from an era in which they saw first housing funds suspended and then urban renewal funds cut back and other funds dispensed in droplets by HUD. Although they are assured of funds through 1977, nothing is certain after that.

"The present design is such that it is not surprising that cities are converting a long-term approach to a quick-fix public works program," said attorney Herbert Franklin, who co-authored a major new



A long-term approach versus a 'quick-fix public works program.'

study of the community development program for Potomac Institute, a Washington human rights and poverty group.

"Community development sets out to meet both long-term and short-term development needs. But the 1974 act provides for only short-term financing," said NAHRO's Maffin. "Short-term financing is appropriate to meet the maintenance and operating needs of local government: Street lights can be installed; sidewalks repaired or replaced; some public facilities constructed; technical and social services provided. But, if there is need for major modernization or redevelopment, then short-term financing can hardly do the job."

Political factors also are likely to work to push the community development away from hard core slums and ghettos. The two largest programs replaced by the block grants—the multibillion dollar urban renewal program and the shorter-lived model cities program—were aimed primarily at the worst of bad neighborhoods.

This targeting, and requirements for citizen participation in these and other categorical programs, created a new and direct relationship between the federal government and slum residents. With Uncle Sam as a sometimes ally, these neighborhoods began to do better in the competition for government funds. Previously, since these neighborhoods were poor and usually black—and therefore lacking in political clout—they had been passed by, so much so, in fact, that federal intervention became necessary. The Kerner report and numerous other analyses have documented their perennial disadvantage in dealing with city hall in particular.

The untargeted and relatively stringless community development block grants, despite the legislative imperatives that the money be spent in poor neighborhoods and despite citizen participation requirements, are likely to dilute the impact of the poor on city halls.

Uncle Sam is now all but neutral, and in the interest of the new federalism, mayors have been freed to dispense the money as they see fit. Under the old programs, the money *had* to be spent in poor neighborhoods, and residents of those neighborhoods had a legally constituted voice in how the money was spent. Now these same people are in citywide competition for funds, pitting their needs against other worthy and not-so-worthy requests for money.

This being the case, it is not surprising that cities are focusing their money on less deteriorated neighborhoods, where the tasks are easier and the results are showier, rather than addressing the extremely complex and difficult problems posed by seriously deteriorated neighborhoods.

It is also not surprising that civil rights and poverty groups are complaining that HUD has moved too fast to get the community development money out, with too little attention to whether it will reach those whose needs are greatest. Especially in terms of housing, there has been "uncritical acceptance of inadequate plans," according to a recent analysis of community development by the Potomac Institute (*see* following story).

HUD Assistant Secretary for Community Planning and Development David O. Meeker, FAIA, admits that the department acted quickly, but cautions that this was not with malevolent intent. One of the aims of the act was to eliminate federal red tape, and, in fact, Congress allowed HUD no more than 75 days to process applications. And, said Meeker:

"We made a clear and conscious decision to move the community development program at exceptional speed. We thought that rather than trying to create a program that was a piece of polished glass, we would seek high-speed implementation and learn with the recipients."

And, he said, while HUD liberally accepted applications at the start, the review will be more stringent. "What we've done is change our relationship with the cities from the front end to the back end, and the monitoring will be very, very strict." Not only does HUD monitor the program, but the cities are required to evaluate themselves.

It will probably take several years to assess the full impact of the community development program. Even HUD expects the first-year results to show little. "Our assessment is that progress will be slow in the first year because of the institutional changes necessary," said Meeker. "We don't expect to see a high level of performance, but things will get started and be under way. By the third year, the programs will be off and running."

Few of the country's community development watchdogs would disagree with that assessment. But many have begun to question the kind of programs which are getting under way, and where. They are also asking what happens to the neighborhoods which get left behind.

The evidence is not all in yet, but the pieces seem to be fitting together. And the whole is beginning to look this way:

By all accounts, the community development program works well providing short-term funds which can be used for the reclamation of older, declining neighborhoods. But it does not do the job of the programs it replaced, whether or not they were successful. It provides help for people and neighborhoods which need help, but not for the people and neighborhoods which need help the most.

"If you want to go back and say this is a neighborhood rehabilitation program, fine," said Edward Silverman. "Then you're going to have to come up with another extensive program which addresses the country's redevelopment needs."

Maffin believes that what is most needed is a national public policy aimed at "saving and rebuilding cities," and contends that this requires three, not one, programs: a neighborhood conservation program, "a clear, unmistakable program aimed at conserving housing, public facilities, industrial and commercial buildings that still have an important useful life"; an urban redevelopment program, "a program that encourages and supports reinvestment in the city . . . aimed at those areas within cities that require long-term financing and heavy front-end investment . . . (that would) rid cities of physical conditions that debilitate human life, blight urban living and discourage private investment," and a housing program, "that encourages and assists homeownership, that helps low and middle income families conserve and modernize the existing housing stock . . . that creates new housing for all income levels on recycled urban land."

Beth Dunlop

The Housing and Community Development Act of 1974: 'Deconcentrating' the Poor

Jane A. Silverman

"The most important part of the legislation is the linkage between housing and community development," says Melvin Mister of the National League of Cities/U.S. Conference of Mayors and former Washington, D.C., redevelopment director. "For the first time there is a chance to tie these two things together."

The principal instrument of the linkage is the requirement that any locality seeking community development block grants submit a housing assistance plan (HAP) for HUD approval. Among other things, the HAP is supposed to "accurately survey the condition of the housing stock in the community; assess the housing assistance needs of lower-income persons "residing or expecting to reside in the community"; specify a "realistic" annual goal for such housing assistance, and "indicate the general location of planned housing construction."

The HAP is also required to meet the objective of "promoting greater choice of housing opportunities and avoiding undue concentrations of assisted persons in areas containing a high proportion of lower-income persons." This requirement is a somewhat diluted reflection of one of the legislation's major objectives, as stated in the preamble to Title I, which is "the reduction of the isolation of income groups within communities and geographical areas and the promotion of an increase in the diversity and vitality of neighborhoods through the spatial deconcentration of housing opportunities for persons of lower income. . . ."

HUD's seriousness about achieving this objective, and its rigor in examining the first-round HAPS, already have come under several challenges. One is a lawsuit brought by the city of Hartford whose essential point is that efforts to "deconcentrate" lower-income and minority people must be made on a regional scale rather than community by community.

The test case challenges HUD's approval of community development block grants to seven surrounding suburbs. The plans of these suburban communities are deficient, according to Hartford, because they do not accurately reflect regional housing needs, especially those of the inner city. At stake is $4 million in community development block grants to the seven towns—Farmington, Windsor Locks, Vernon, Enfield, East Hartford, West Hartford and Glastonbury. On October 1, 1975, a federal district court in Hartford temporarily enjoined the defendant communities from spending any of this money until an opinion was handed down. The opinion came on January 28 from Judge M. Joseph Blumfeld, making the injunction permanent unless appealed.

The predominantly white, middle-income towns which are the defendants in the case form a collar of affluence around Hartford, a city with the typical catalog of urban problems—deteriorating housing stock, a large low-income population and declining city services. The community development applications of the seven towns give little indication that this disparity will be reversed. West Hartford was granted $999,000 in block grant funds to be used primarily for interior street construction; its housing assistance plan calls for only 40 units, which are to be used exclusively for the elderly. Enfield, a predominantly white middle-income community, located strategically between Springfield and Hartford, plans to use half of its $1.2 million block grant for recreational purposes, even though the town is the site of substantial employment opportunities for minority and low-income workers.

Hartford, in contrast, contains 16,000 units that require either replacement or substantial rehabilitation. The city estimates that its 7,500 units of assisted housing for low- and moderate-income families fulfill less than half of its current subsidized housing needs. "Of the 12,000 subsidized units for lower- and moderate-income people in the entire Hartford metropolitan area, 61 percent are located in Hartford," according to the memorandum in support of a preliminary injunction filed by the plaintiffs. "Seventy-one percent of all low-rent public housing units are located in Hartford," the memorandum points out. "In large part, subsidized housing units in the suburban areas are exclusively for the elderly.

"The city of Hartford and its suburban towns constitute the type of metropolitan area to which the 1974 act is addressed," the memorandum maintains. "This area is characterized by the concentration of low-income and minority persons within the inner city of Hartford. These persons are experiencing serious housing problems and shortages, which are exacerbated by a lack of appropriate housing opportunities in the suburban towns. The population of the Hartford metropolitan area is becoming increasingly segregated by race, income and age."

Another suit may be brought on similar grounds in the Detroit region. The Coalition for Block Grant Compliance, an association of 13 nonprofit groups in the Detroit area, has filed an administrative complaint objecting to HUD's approval of community development block grants to 26 suburban communities surrounding Detroit. The administrative complaint, which was filed by the National Committee Against Discrimination in Housing (NCDH) on behalf of the coalition, alleges that 19 of the applications are "plainly inconsistent with the regional goals" for housing related to employment opportunities for minority group workers and others throughout the region. These goals had been adopted by SEMCOG, the officially recognized regional planning agency for the area. Although several other suits have been brought against HUD challenging its administration of Title I in the areas of citizen participation, environmental review and civil rights, the Hartford suit and the Detroit action are the two that most directly raise the question of whether the law is intended to address regional disparities in housing distribution.

The challenges base their arguments on the language about "deconcentration" in the preamble to Title I and also on the requirement that HAPs assess the housing needs of lower-income persons "residing or *expected to reside* in the community." (Emphasis mine.) Both the Hartford and Detroit arguments largely rest on the assertion that suburban communities have not taken those three words—"expected

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

to reside"—seriously in analyzing their housing needs.

East Hartford, for example, is the site of a United Aircraft factory, and has the highest concentration of manufacturing employment for blue collar workers in the Hartford region, according to the plaintiff's memorandum. Yet, "East Hartford has failed to provide for the housing and social needs of its existing and expected workers in its application, thus effectively blocking many low- and moderate-income persons from seeking job opportunities in East Hartford." Seventeen of the suburban applications in the Detroit region "are plainly inconsistent" with facts and data generally available to assess the housing needs of low-income families "expected to reside in the community as a result of planned or existing employment facilities," according to the NCDH complaint.

Congress apparently expected HUD to take the "expected to reside" language seriously. In the House report on the legislation, the committee on banking and currency wrote: "The committee wishes to emphasize that the bill requires communities, in assessing their housing needs, to look beyond the needs of their residents to those who can be expected to reside in the community as well. Clearly, those already employed in the community can be expected to reside there. Normally, estimates of those expected to reside in a particular community would be based on employment data generally available to the community and to HUD. However, in many cases, communities should be able to take into account planned employment facilities as well, and their housing assistance plans should reflect the additional housing needs that will result. . . ."

The "expected to reside" language is the entrywedge for using Title I to encourage regional distribution of housing. The House report notes that "with respect to comprehensive areawide planning, the bill contemplates only that areawide planning be fully recognized by each applicant as a guide to governmental action, which the committee believes is consistent with the objectives of the comprehensive planning program carried on under section 701 of the housing act of 1954. Applicants would not be rigidly bound by comprehensive plans. . . . The committee intends, however, that areawide plans be given careful consideration whenever applicable and relevant to individual community development needs and objectives."

In a preliminary evaluation of HUD's implementation of the 1974 act, the Washington-based Potomac Institute's metropolitan housing program asserts that the "momentum for regional 'fair share' allocation plans that began in 1968 appears to be dissipating under the 1974 act. The A-95 review process by regional and metropolitan clearinghouses has been pro forma, with little impact on HUD's decision making even where negative comments were elicited. The housing allocation policies pursued by local HUD offices, the provisions of local HAPs and the programs of state housing finance agencies appear to have little or no coherence from the standpoint of the housing dispersal objectives of the 1974 act."

Communities are obliged, under the legislation, to certify that their applications have undergone review by an A-95 regional clearinghouse, usually a regional planning agency or council of governments. Both HUD and its critics agree that A-95 review has generally left something to be desired, but in some cases this scrutiny by areawide planning agencies raised substantial questions about the extent to which local communities were contributing their share to meet regional housing needs, as evidenced by local hous-

Are the carrots big enough to overcome suburban resistance?

ing assistance plans. According to the Potomac Institute report, HUD "appears to have adopted a policy of approving local housing assistance plans submitted during the first year of the community development program routinely and almost without exception, despite negative comments on the plans from regional or statewide agencies and negative reviews from within HUD itself.

"Some of the approved plans used grossly inadequate data to describe lower-income housing needs; many plans adopted lower-income housing goals only or primarily for the elderly, rather than for families; some plans made no provision at all for any subsidized housing and some plans ignored the statutory requirements to avoid concentrating such housing in low-income or minority areas," the report contends.

"None of the plans describes how the locality proposed to implement its housing plans, because HUD deleted that requirement from its HAP instructions. This deletion reveals that HUD places no premium on local *action* to meet housing needs, as distinguished from local paper plans to justify the dispensing of community development block grants."

"The tradition of bureaucracy," says Martin E. Sloane, NCDH general counsel, "has a reluctance to reject. The case has to be pretty blatant." One such blatant case was that of the city of Parma, Ohio, near Cleveland, whose block grant application was turned down by HUD on the grounds that its housing assistance plan was "plainly inappropriate." The community estimated an unmet housing need of some 1,537 households, yet included an annual goal for housing assistance of zero units. Parma has a history of civil rights violations and has been the subject of a Justice Department suit on the basis of a "pattern or practice" of racial discrimination in housing. But Parma is only one of three community development block grant applications that HUD has rejected during the first year—out of a total of 1,350 communities.

That figure is somewhat misleading, according to Warren H. Butler, deputy assistant secretary for community development at HUD. He notes that about 25 percent of the housing assistance plans submitted by communities during the first year were sent back for revision. One principal reason for requiring rework of the plans, according to Butler, was that communities ignored housing needs in their assessments.

Says HUD Assistant Secretary David O. Meeker, FAIA, "In the first year, cities were dealing with a new and volatile issue. This year we are going to be more stringent about meeting the requirements of the act. For example, in terms of human equity, you can't postpone dealing with the housing problems of large families."

"HUD is taking the 'expected to reside' requirement very seriously," notes Zina G. Greene, an equal opportunity official at HUD. But she points out that there are thorny problems in defining the term in a fair, objective way. "It's really a judgment call," she says. "We have to be able to tell whether a community is taking us seriously or playing games." HUD singled out "better methods for communities to estimate present and future housing assistance needs, particularly for families 'expected to reside in the community,' " as among the areas "needing the most creative responses" in its recently issued first annual report on the community development block grant program.

HUD has recently made public an initial effort to clarify the "expected to reside" requirement. In proposed regulations printed in the *Federal Register* on January 9, HUD sets out several data requirements for local housing assistance plans. These include the number of low-income families expected to be employed in the community as a result of "known commercial, industrial or service employment to be generated by new or expanded development," and the number of low-income families with workers already employed in the community but living elsewhere, "who could reasonably be expected to reside in the community if housing they could afford were available." HUD is also analyzing the potential of census data and social security statistics to come up with a usable formula for "expected to reside."

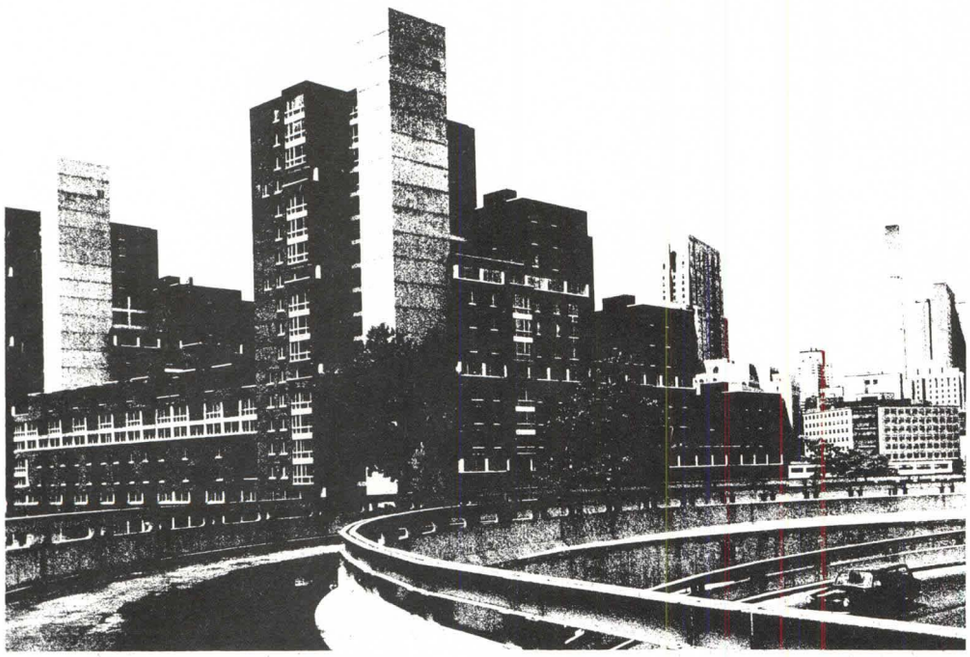
Butler notes other steps that HUD is taking to beef up the quality of housing assistance plans. For one thing, the housing elements required as part of all 701 comprehensive plans "will have to contribute substantially to the housing assistance plans," he says. "We are going to judge the funding of 701 grants against that contribution." Although Butler concedes that A-95 review "has not been of much value," HUD's use of A-95 comments in evaluating housing assistance plans has also fallen short. He hopes to improve consideration of clearinghouse comments by HUD staff in the hopes that this will also upgrade the A-95 review in the field.

There are positive signs that, in some metropolitan areas, community development block grants are being used to help meet regional needs. According to Butler, there are about 15 locales where "area-wide activity resembles a fair share housing plan," and he estimates that as many as 60 other metropolitan areas are moving in that direction. For example, the Miami Valley Regional Planning Commission in Dayton, Ohio, which developed what many believe to be the original model for fair share plans, drafts the individual housing assistance plans for each community, with the concurrence of the local jurisdiction. The local HAPs are thus sure to be in accordance with the regionwide housing allocation plan.

In the Washington, D.C., metropolitan area, all local housing assistance plans are consistent with the regional program established by the Washington Council of Governments, and HUD has agreed to direct the local area office to distribute Section 8 funds according to the plan. Though such cases remain rare, Butler hopes that HUD will try to encourage more instances where local housing assistance plans help to further regional housing goals.

The HUD Secretary has a $55 million special fund, amounting to 2 percent of the total block grant allotment, which can be used for demonstration purposes. The encouragement of regional housing plans would be a natural pilot project for the fund, according to Butler.

Herbert M. Franklin, a Washington attorney and one of the authors of the Potomac Institute's initial report on the community development program, says that



Title I of the 1974 act "creates a tension between the dynamic of planning for mobility (expected to reside) and a static formula" for funding communities on an individual basis. That tension could become more and more problematic in those metropolitan areas—which is to say most—where there is a wide disparity between the inner city resident and his suburban counterpart.

Can the crucial linkage between housing and community development, which is one of the watershed contributions of the 1974 act, help to reverse this disparity? A lack of resources alone make that impossible. Title II of the 1974 act provided a new housing program, Section 8, (*see* May 1975) to fill the gap left by previous housing subsidy programs which had been suspended in January 1973. But HUD was as dilatory in implementing Section 8 as it was expeditious in approving HAPs. Few new units are under construction.

Moreover, a large percentage of Section 8 new construction subsidies were set aside for state housing finance agencies. And the state housing agencies have found themselves in trouble, unable to float bonds at reasonable interest rates. Likewise, private proposals for Section 8 have not been well received by traditional lending institutions.

For the next fiscal year, HUD has programmed 400,000 units of Section 8 leased housing, but only 125,000 of these will be new units; the remaining subsidy will go to rehabilitation of existing units. Thus, the potential of Section 8 still remains in the inner city and the older suburbs, where there is certainly an enormous housing need. Nevertheless, the impact of new subsidized housing which could turn suburban housing assistance plans into housing assistance realities is likely to be minimal.

"What you have here is a situation of faulty plans which would have no effect anyway," says Melvin Mister. "The housing linkage is important, but it's sort of a Catch-22. The situation is this: On one hand, the case is being made that we want to get Section 8 out and make it work. But that's not the whole thing. We need to make it work for the people who need it most desperately where it's needed most desperately."

The Potomac study put it this way: "The HUD record in stimulating subsidized housing production since 1973 continues to reflect a confusion and tentativeness that, if not changed, will ultimately call into question the entire structure of community development policy."

Adds Franklin, "If you look at the history of federal community development, it seems to me that we've had the sad irony that as community development programs flower and reach their zenith, they do so at a time when housing subsidy programs are in their sorriest shape."

Meeker terms the housing issues—ranging from problems in HAPs to problems with getting Section 8 going—"far and away the most difficult issues for the department to face." But, he says, Secretary Hills is "driving to get housing."

The problem of resources aside, there remains the much larger question of to what extent the community development block grants be used as a lever to fit local housing assistance plans into a regional fair share pattern. In the case of school desegregation, billions of dollars were held out as carrots to local communities to foster integration. The rules were pretty clear: Integrate your schools, and you'll get the money; if you don't integrate, then no money.

This raises two questions about community development: First, is the carrot juicy enough and, second, are the rules clear? Right now, both HUD and its critics agree that the incentive to most suburban communities is probably not big enough to induce those which have been unwilling to accept low-income housing to accept it in exchange for community development funds. But this could then change as some $1.2 billion in discretionary funds become available in the next few years for both metropolitan and nonmetropolitan areas. These funds are now tied up in meeting entitlement and "hold harmless" commitments for communities under the old categorical programs.

So far only 16 communities, mostly in the Midwest, have been sufficiently put off by HUD requirements not to file applications for block grant funds. But it is not at all clear that HUD has sent out a strong signal to communities that if they didn't take the requirements of the housing assistance plan, especially its "expected to reside" mandate, seriously, then funds would be denied. "We just don't know yet how important these funds are to communities," says Franklin, "but that makes it all the more important to deny funds to those that don't want assisted housing and give them to those that do." □

Nostalgia for a Past We Never Had

Forrest Wilson, AIA

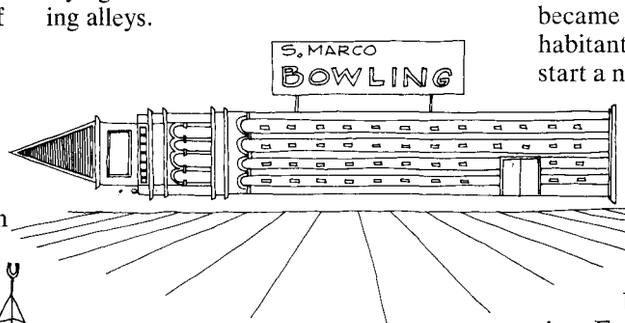
Yesterday's leftovers are tomorrow's archaeological treasures. What we know of prehistoric man was gleaned from the garbage he left behind on the floor of his caves or casually discarded in the fissures of nearby rocks. What we know of ancient civilizations is pieced together from potshards, building remnants and broken artifacts.

The clay pot that slipped from the clumsy fingers of primitive man and the ruins of the coliseum survived to acquire historic significance as cultural indications because potshards and abandoned sports arenas had no practical use. A pot that does not break is used forever. Buildings that are adaptable are used for all sorts of purposes until their original form disappears.

The best way for an artifact to survive intact throughout the ages is for it to be designed as useless from the beginning. Triumphal arches are in this category. They last forever. Who needs a door from the outside to the outside? Obelisks also have a high survival rate. Not only are they difficult to spell but are only useful for warding off low flying elephants which are not overly prevalent in urban areas where obelisks are located.

A highly cultured age leaves useless objects in abundance. For a people to be truly cultured they must expend a great deal of energy on useless work. Not all societies are capable of this. It requires a cultured person to recognize and evaluate useless work. Not all societies are capable of this. Practical-minded common people are indifferent to it, as witness the average person's reaction to modern art and architecture.

Cultural artifacts are time capsules put down in their time hoping to be preserved for posterity. To do this, absolute uselessness is essential. Campaniles, a form almost as useless as the obelisk, have survived only because no one has considered laying them on their sides to use as bowling alleys.



Of course, useless leftovers do not provide a complete picture of a culture, only the cultured few, but this does not bother historians. The discards of the past serve their purpose very well for they perpetuate the discard theory of the present, thus assuring there will be a cultured image of our age for the future. The system works well enough until it comes to an event such as the bicentennial year.

This year, the nation will hark to the dinging and donging of countless liberty bells, with painted cracks. We will admire authentic nubile colonial drum majorettes, leading fife and drum corps. A plethora of gorgeous Georges will smile benignly at the proceedings through their wooden teeth. All of these rituals will be performed to substitute for the lack of genuine cultural artifacts.

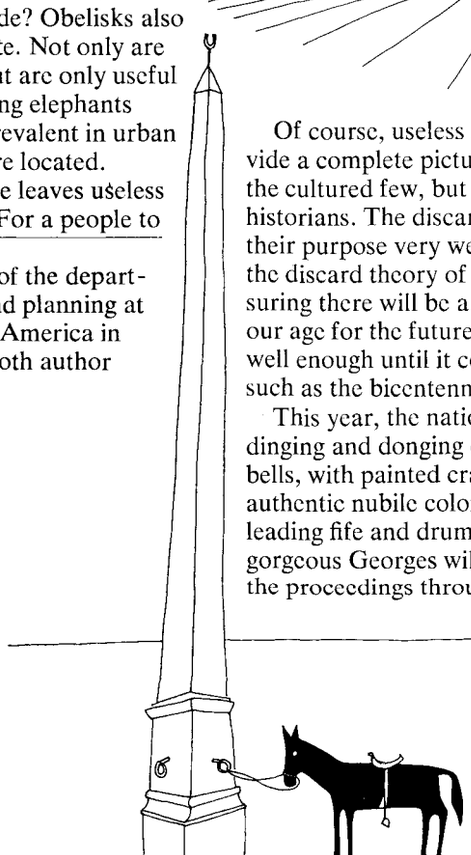
The truth is that during almost 300 years of our formative history, from the landings on Plymouth Rock to the end of the free land in the West, Americans have been a remarkably uncultured people. We have simply not devoted a lot of time to useless work.

The first settlers were not only men and women of questionable antecedence, but they brought with them a medieval system of town planning that assured that the population of future towns would be failures like themselves. When village space became congested, the least successful inhabitants were exiled to the frontier to start a new one. Successful farmers, politicians, merchants and preachers stayed behind.

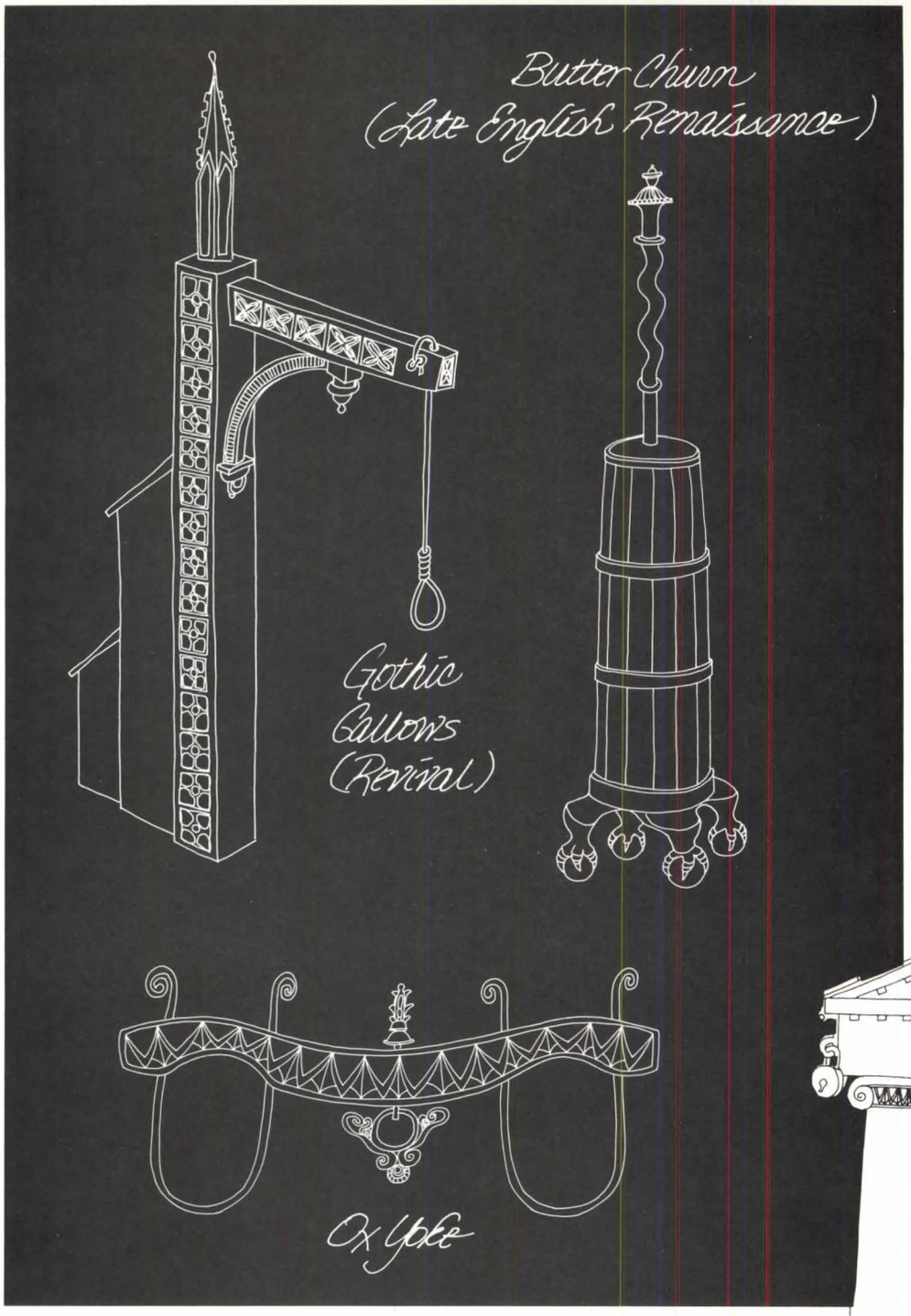
The frontier was populated by the inexperienced, the inept, the maladjusted and the discontent. Their numbers were swelled by those sentenced to transportation. England found, early in our history, that the New World was a very convenient dumping ground for her criminal overflow.

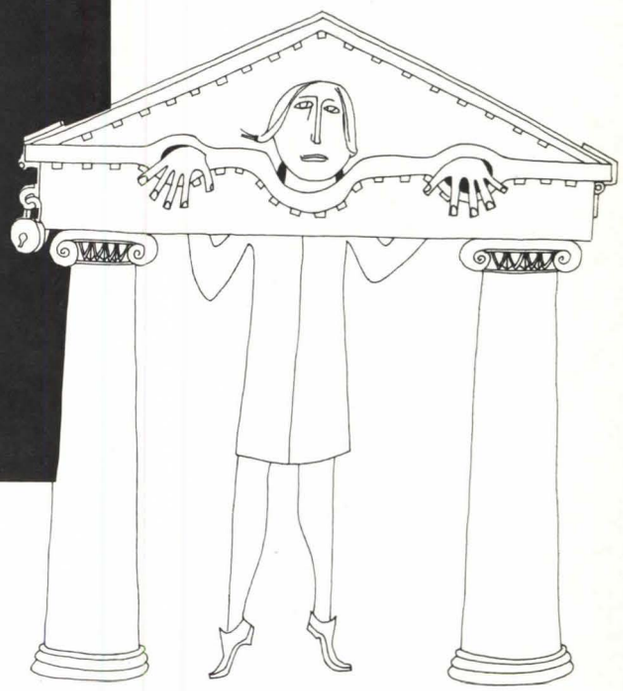
The drawings submitted are an extrapolation of the artifacts and attitudes that might have resulted had the settling of our country been more high-minded and serious and undertaken by cultured ladies and gentlemen.

They are offered here for the bicentennial celebration to help fabricate the past we never had. □



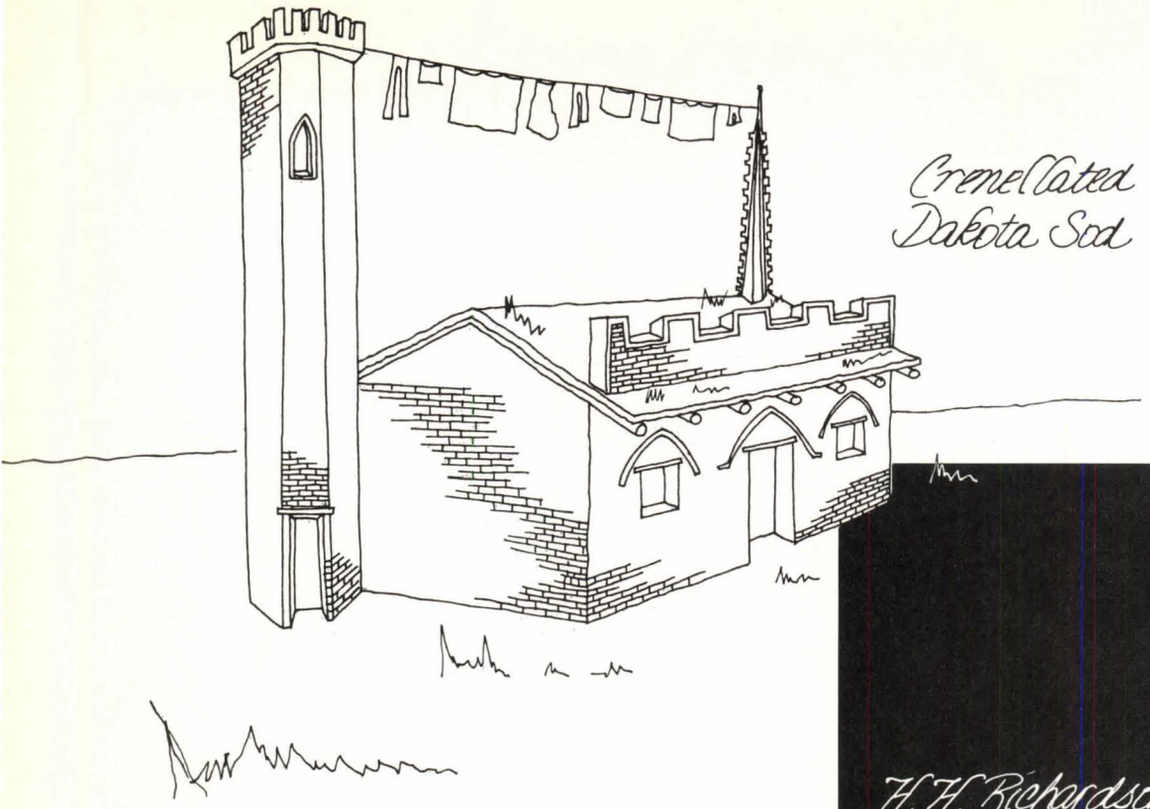
Mr. Wilson, chairman of the department of architecture and planning at Catholic University of America in Washington, D.C., is both author and artist.



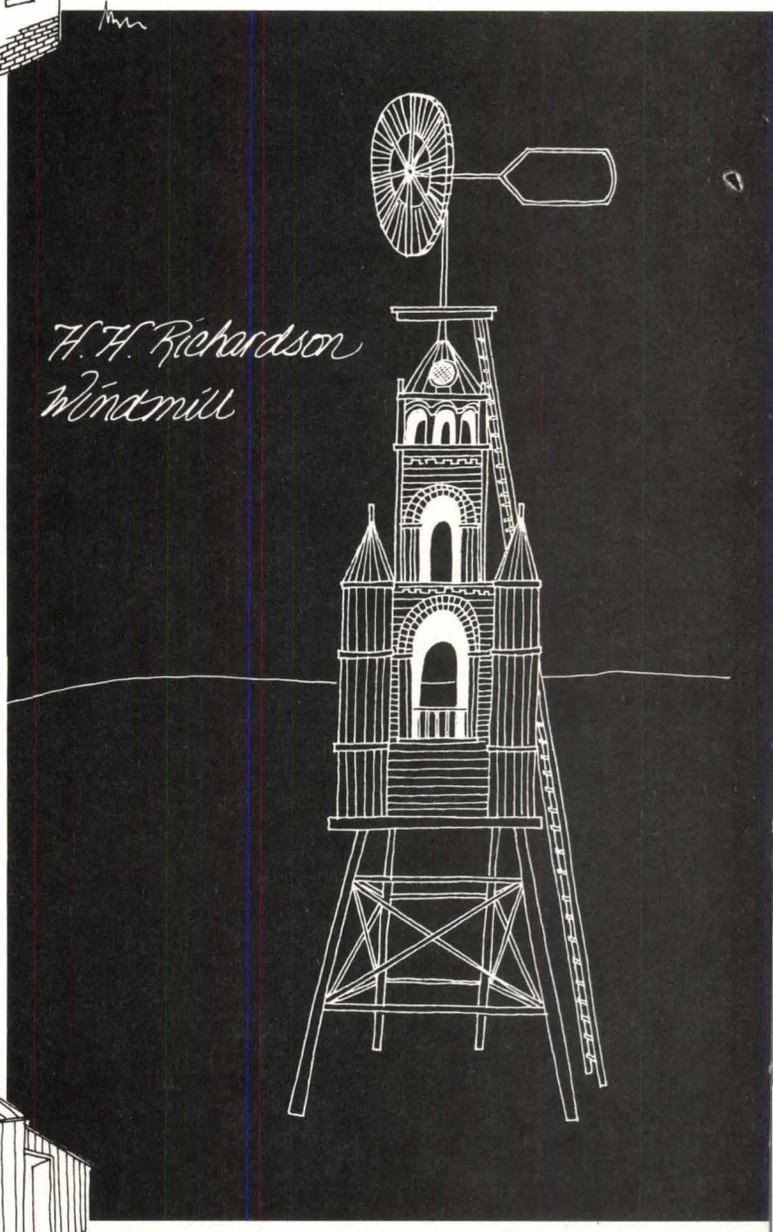


Palladian
Pillory

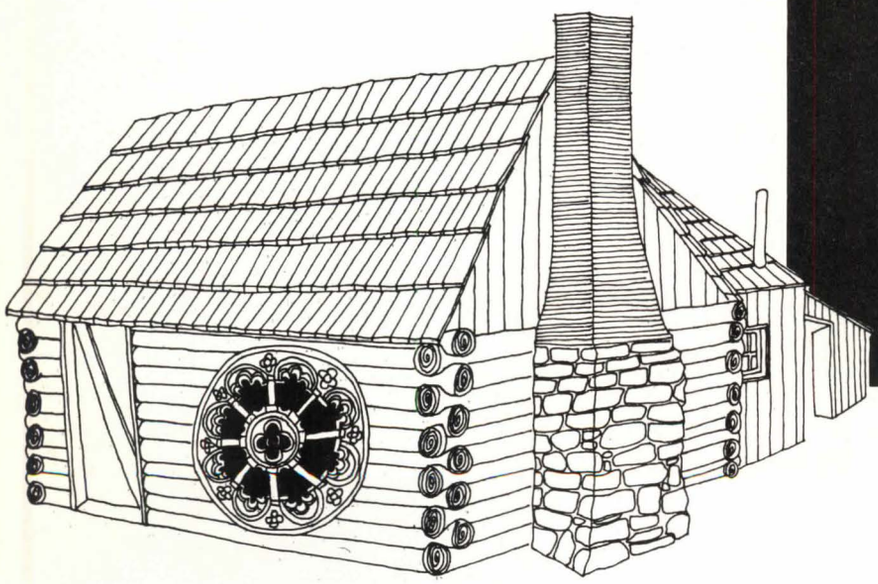
Pillory
After Piranesi



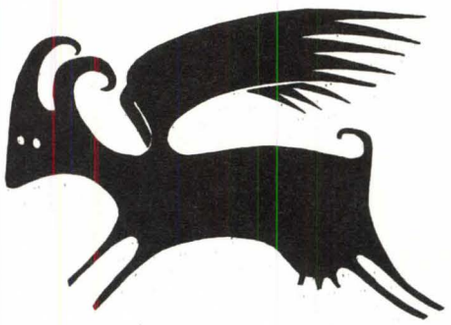
Crenellated Dakota Sod



H. H. Richardson Windmill

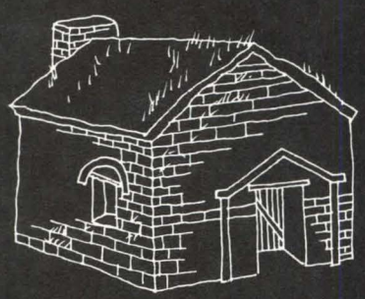


Our Lady of Tennessee Rose Window

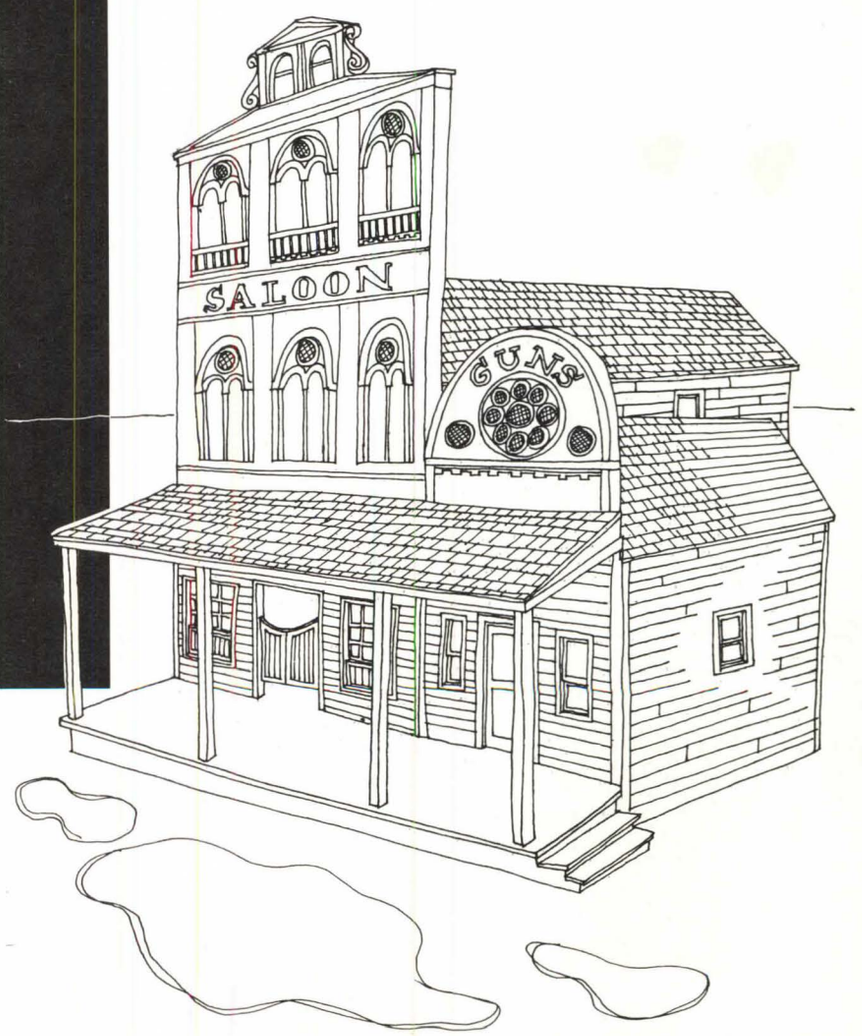


Flying Buttress

Pioneer Kansas Comfort Station



Byzantine Sod



Palazzo Oklahoma

A Progress Report On AIA's Financial Management Tools

Romantic notions to the contrary, architects had problems about adequate compensation for services rendered and other aspects of financial management even when princes and popes were patrons of art and architecture, as Michelangelo's well-known troubles testify. The fact that architects, regardless of patronage, have always had to combine good management with good design in order to achieve a successful practice is reinforced by a recent book about another of the world's great architects. The book, *Jacopo Sansovino: Architecture and Patronage in Renaissance Venice* (Deborah Howard, Yale University Press, 1975), tells of Sansovino's singular career as architect for Venice's most powerful institutions and citizens.

But he had his problems. An outbreak of war with the Turks in 1537 caused rampant inflation; architectural projects were halted; new commissions were hard to get. Despite Sansovino's enviable patronage, every design had to be adapted "to a tightly defined set of physical, financial and sociological conditions." How, then, did he cope so well?

The answer to this question contains some lessons for the contemporary architect. The author of the book says that Sansovino's success was due to three things: his skillful way with clients, his eloquence in defending an opinion and his "grasp" of financial matters.

Helping architects to achieve this grasp has been a major concern of AIA almost since its inception, and today the Institute offers practitioners a comprehensive and highly integrated system of financial management aids. This is a progress report on that system and its continued development.

The forthcoming AIA book *Current Techniques in Architectural Practices* says that "financial management requires establishing financial objectives, especially profit; planning the firm's practice to generate that profit, and controlling activities to ensure it."

Basic to achieving profit—indeed to the survival of an architectural firm and its ability to deliver quality design—is adequate compensation for the firm's services. Hence AIA's most recent major addition to the system of financial aids, published in 1975, *Compensation Management Guidelines for Architectural Services*.

Gestation of the 1975 guidelines can be traced back to three studies done for AIA by Case & Co. in the late 1960s. The first of them, *The Economics of Architectural Practice,* contained some "sobering" findings: Architects surveyed by the company lost money on one out of four projects, many principals kept no accurate records of time spent on projects, very few firms did any profit planning at all.

Robert Allan Class, AIA, director of the Institute's management division, relates these findings to the profession's long-standing reliance on established percentage fees. "Over the years," he says, "AIA components published percentage fee schedules for various building types, and it was a simple matter to pick from a fee schedule when making a decision about compensation. This was really a crutch. In no way did it accurately relate the cost of providing services to an equitable compensation for the architect."

Establishing this relationship is the core purpose of the 1975 guidelines. They were developed *en charrette* by an AIA task force, building upon earlier publications of state components in California, New York and Ohio, and they call for the establishment of compensation in four sequential steps:

1. The manual lists and describes 120 separate services in nine categories: predesign, site analysis, schematic design, design development, construction documents, bidding or negotiations, construction contract administration, post-construction and supplemental services. Architect and client study the list and come to a joint decision on the services required for the project, establishing the responsibilities of owner, architect or consultant for each item.

Parenthetically, Wesley A. McClure, AIA, points out a use of the list of services which may be especially pertinent in helping the architect find new work. In an article titled "Expanding Services May Help to 'Beat the Crunch' " *(NC Architect,* Nov./Dec. 1975), McClure says that the compensation management manual "significantly outlines several new phases where architects can become involved in providing services." He writes that architects are familiar with "elements that constitute basic services, but many architects may be less familiar with the various activities that can be included in the predesign, site analysis, post-construction and supplementary services." He calls upon the architect to go beyond what are usually considered as "traditional skills," especially in site analysis and pre-design. The list of services in the guidelines, then, helps show that "architects have much to offer the public beyond the skills directly needed in putting buildings together."

2. After an agreement has been reached about the services to be rendered, the architect estimates the number of hours required to perform each item of service that he will provide. The hours are multiplied by salaries, then factors are added for benefits, overhead, etc. This yields total in-house expense.

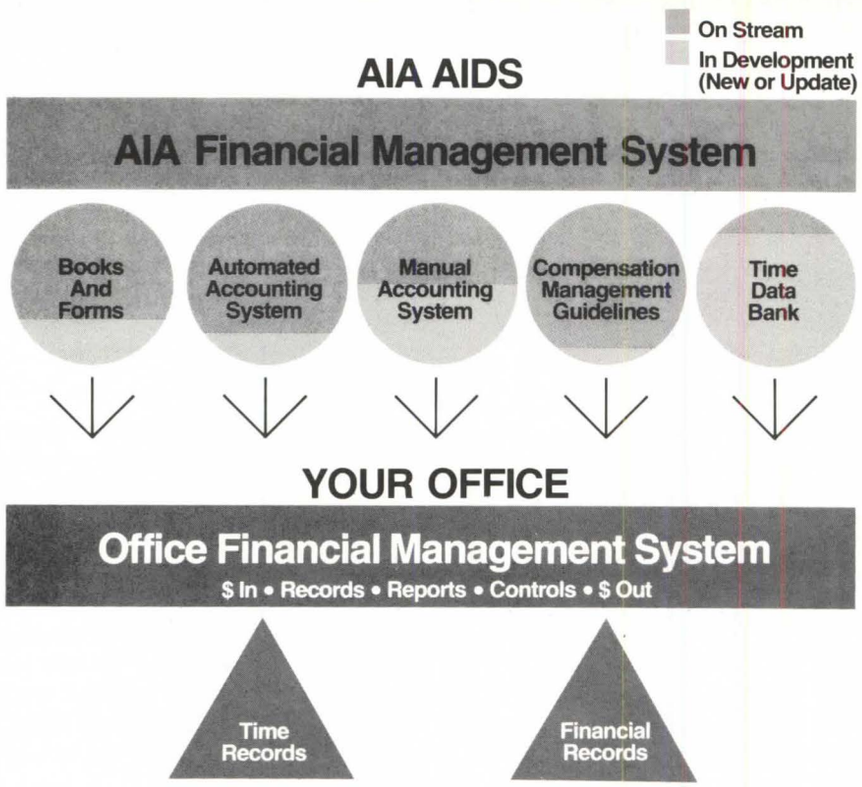
3. To this total are added costs of outside services and the professional fee (anticipated profit). This yields the amount of compensation required for each item of service. Reimbursable expenses are estimated separately.

4. Architect and client review a summary of the figures and arrive at an amount of compensation for the project.

The guidelines already have come into wide use. Between their publication in April 1975 and the end of the year, 4,355 copies had been ordered from AIA headquarters—making the compensation management manual the Institute's best seller at the moment.

The guidelines also have been well received by clients. The New Jersey division of building and construction has turned to cost-based compensation in negotiation of A/E contracts. Leonard DiDonato, director of the division, commented in a letter to the New Jersey Society of Architects that "the old system of determining fees as a percentage of the final cost estimate or of the actual construction costs had no direct relationship between the services required of the professional and the compensation received by him."

Basing compensation on actual costs of time and services, of course, makes an



This illustration is one of the visual elements included in a 15-minute slide/cassette presentation currently being circulated through AIA state components to introduce the concepts of cost-based compensation. Half-day and full-day continuing education laboratories, with trained instructors, are available for further exploration into the subject. For scheduling, contact J. R. Kirkland, deputy administrator of Institute and component affairs, at AIA headquarters.

accurate and responsive accounting system more essential than ever. AIA's efforts in this area date back to 1950, when it published the *Standardized Accounting Manual for Architects*. The manual was revised in 1954 and a new version specifically designed to dovetail with the compensation management guidelines has been approved by the AIA board and is nearing publication.

Alan B. Stover, AIA, director of the Institute's documents division, calls the new manual "a vast improvement" over its predecessors and of special value to small offices. A key purpose, he says, "is to let the architect know on a current basis if he's making a profit, rather than his having to wait until the end of a year. The manual encompasses basic cash flow analyses so that the small firm can budget and plan its income."

A well-received accounting aid prepared for AIA in 1970 by Arthur Andersen & Co. was *Financial Management for Architectural Firms: A Manual of Accounting Procedures*. The company termed the manual "a new management approach," going beyond the "recording of history" in accounting terms to the supplying of management reports for future planning and the monitoring of current activities.

The Andersen manual became the basis for AIA's computerized financial management system, administered by Harper & Shuman Inc. of Cambridge, Mass. Subscribers to the system send data to its central processing facility, by mail or computer-to-computer, and get back official accounting records and management reports tailored to the firm's needs.

Since one of the things the system can report upon is individual hours and dollars expended for each phase or service on a project-by-project basis, it obviously fits hand in glove with use of the compensation management guidelines. Donald J. Stephens, AIA, an Institute director who has been deeply involved in the fashioning of recent financial management aids, believes that "the AIA computerized system has advantages for even a small firm."

This system, he says, "is designed to give both the architectural firm and its accountants the financial management tool they need—and there are differing needs. The system can also tell the firm on a timely basis about its overall profitability, what is happening to its overhead and about its net worth. It can be an aid in increasing office productivity and can help pick up the money that usually 'falls through the cracks.' "

Stephens believes that "when a firm achieves a gross income of $150,000 annually for services generated *in-house,* it can economically use the AIA computerized financial management system. At this point, it becomes more costly to prepare reports manually—if timely and meaningful information is the objective. For an office with 10 or more staff members, the savings in total costs to the firm for financial management can be dramatic."

However assembled, an individual firm's time data is a limited base for estimates of compensation needs. This is particularly true of a small firm, but it also applies to a large firm entering new areas of practice.

This limitation has led to the idea of systematically pooling time data for various types and sizes of projects. One such pool, or "bank," has been established by AIA state components in California, Oregon, Washington, Hawaii and Arizona. Headquartered in San Francisco and called ManHourDataBank Inc., its aim when fully operational is to provide a subscriber with "an accurate index by which to estimate time and probable costs," using the firm's own wage scale.

National AIA has assisted the Western effort as a pilot project, and since the fall of 1974 has had a task force working on development of a national information bank "on the amount of time spent to do various tasks and to render specific services," in the words of Institute Vice President Carl L. Bradley, FAIA. Bradley, who has chaired the task force, says it is studying several approaches, "working with selected firms in a continuing test of the elements which appear appropriate for a national data bank."

The work is continuing in tandem with production of a second edition of the compensation management guidelines under a joint compensation management/time data bank task force, headed by Ward W. Deems, FAIA.

Concurrently, the AIA computerized financial management system is being adjusted to become completely integrated with the concepts of compensation management and a time data bank. A new task force has been formed, chaired by Peter A. Piven, AIA, which will work to further mesh all the various parts in a single, comprehensive financial management system. *Mary E. Osman*

Coping with the Trend Toward Specialization Within the Profession

Willard C. Pistler Jr., AIA

The idea of specialization in architecture seems to sit uncomfortably in the minds of most architects. It goes against the grain of our stereotype image: the all-purpose architect who with a partner or two and a half dozen draftsmen-helpers (who all hope some day to be principals) runs a general practice of average-sized projects while helping to lead his community to a better way of life through civic involvement.

Not a bad picture, and not too far from reality either. Many of us are conducting our professional careers very much along these lines. But the picture is not complete until we have considered trends for the future, and this is where specialization comes in.

The fact is, most architects do engage in specialization to some degree and collectively we are doing more of it than in the past. We just tend not to talk much about it, maybe figuring that it will not grow in importance if we keep quiet. For the subject of specialization leads to some complicated basic questions such as:

- Who ought to be allowed to call himself an architect?
- What does a professional license really mean and who needs one?
- Is more specialization needed or wanted?

Meanwhile, we keep on specializing more and more. For example, that venerable institution, the architectural partnership, is generally founded on the concept that partners have differing and complementary abilities, frequently the "Mr. Inside—Mr. Outside" combination. Today, we might also add a managing partner, an engineering partner, a behavioral scientist, or a construction management expert according to our particular persuasions; and although it may have begun casually, even accidentally, many firms eventually tend to emphasize certain building types in which they claim special competency. They might also get involved in urban design, landscape architecture or interiors.

Mr. Pistler is chairman of the AIA commission on environment and design and a vice president of the firm of Dalton, Dalton, Little, Newport.

Beyond all this, there is the individual architect who chooses to teach either full or part-time, or finds his way into a career in government service or with a large corporation requiring in-house architectural skill. He is still an architect after all, but has chosen a specialized way to use his knowledge and competency.

And so it goes. Each of these specialties, as well as others, has emerged in response to a recognized professional need. In an age of growing complexity, it is not surprising that this should happen; however, we do a disservice to the profession of architecture and to the public if we allow the nomenclature of this emerging specialization to be used indiscriminately, or if we tend to ostracize some architects from the profession because of their specialization.

Some important realities about specialization in architecture are evident from the accompanying matrix chart. To begin with, a dozen categories of specialization are identified. Some deal with aspects of private practice, while others represent entirely different career paths. To some extent, the categories overlap one another and several cover an extensive list of subcategories. Arrayed against these categories of specialization are the factors which define the means by which one trains for and becomes qualified in any of these areas of competency.

The matrix serves to illustrate my initial proposition that architects *do* specialize and to emphasize the rather casual means by which we tend to train and qualify ourselves in a specialty.

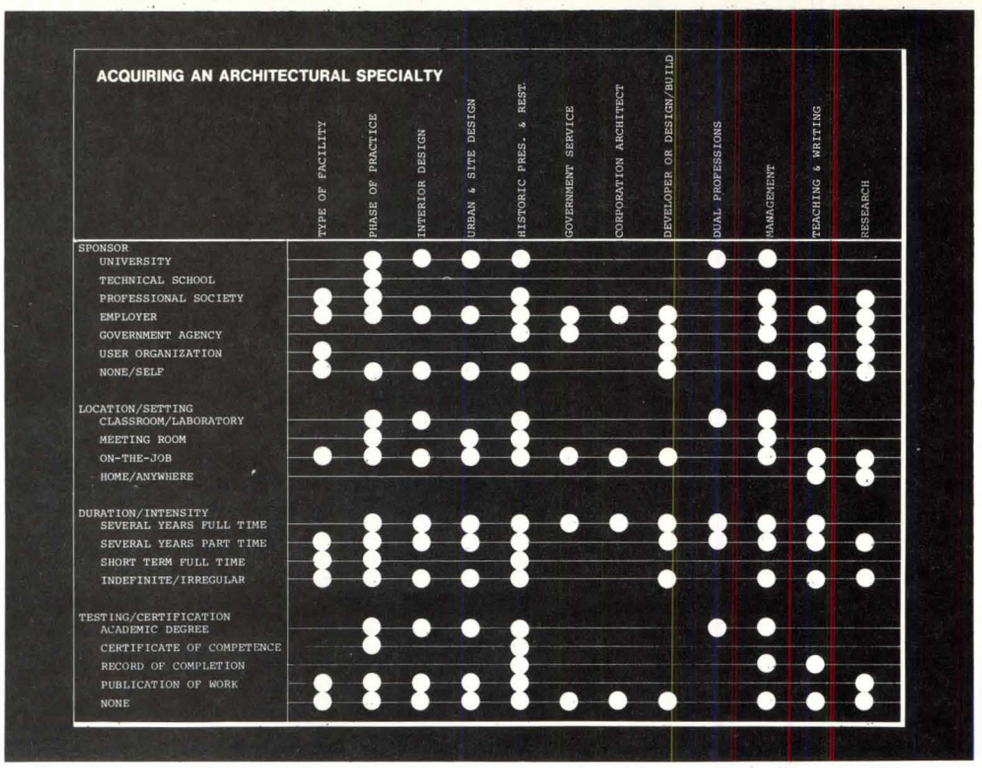
It also highlights our reliance on self preparation and on-the-job training as opposed to academic study. Despite their variety and abundance, continuing education seminars and similar "short courses" provide training in only a limited number of specialty areas. It is clear that the most common means of getting qualified in a specialty is just doing it, although in several instances academic degrees and recognition through publication are alternative means of establishing qualifications.

So what? Isn't real world competition the ultimate test of usefulness and qualification? And if so, why should we be concerned about formalizing preparation and certifying qualifications? In its simplest form, the answer has to do with making the most of what we already know and gaining new skills with maximum efficiency. When we have a specialized competency, it would be beneficial to be able to prove it readily; and when we want to acquire one, we ought to be able to do it efficiently and with some assurance of throughness. That is just good business, and there are some side benefits as well. All this can be supported by discussion of some specific situations.

The collegiate schools of architecture began to acknowledge the need for specialized training at least 20 or 30 years ago and have gradually increased the extent of differentiation in course offerings and general thrust, especially at the graduate school level. Degrees in specialties such as urban design, hospital planning, or structures have become available, baccalaureate degrees tend to remain very general, although architectural science is a separate degree program. Another important gap is now being filled through the combined efforts of AIA and Florida Atlantic University. A program is being offered which leads to an MBA in architectural management.

Bertram Berenson, current president of the Association of Collegiate Schools of Architecture, has reported that his organization feels there will be a reduced need in the future for architects in traditional private practice but increased need for architecturally trained people in other areas of activity. This is leading to consideration of joint degrees in two fields, one being architecture. In general, academia has recognized the need for specialized degrees and has responded fairly well.

Yet there are few programs presently geared to the needs of architectural professionals who in mid-career wish to further their knowledge of a specialized area through additional academic training. The AIA/FAU Program, by meeting this need, could prove to be an important breakthrough. It is so organized that most of the work is accomplished in one's own community in a series of two-day intensive meetings not unlike the continuing education seminars now widely offered, except that these are coordinated to provide



comprehensive training and credit toward a degree. Such access to a variety of graduate level specialized degrees by working architects could significantly increase the quality of specialist skill and speed the process of gaining it.

The National Council of Architectural Registration Boards and the several state licensing boards appear to take no interest in the credentials of architects not engaged in traditional practice, being content to note that many architects seem to do well in such nonpractice careers. Perhaps that is as it should be, but these groups evidently have also not given consideration to the possibility of specialist licensure for those who are involved in practice but in a specialized way.

For example, a specialty license in construction technology might be reassuring to a building owner if held by the architect who will be responsible for doing field observation of his new building construction. Again, a specialty license in health care facility design might be a means of measuring the competency of architects in this very complex building type. Admittedly, the thought of adding to the bureaucratic complexity of the licensing process is not at all appealing, but neither is the present situation wherein licensure as an architect provides the users of our services with very little indication of our actual individual capabilities.

Since AIA makes professional licensure a condition of full membership, the irrelevance (even unattainability) of such licensure for those architects not in traditional practice tends to alienate such architects from the Institute, to the detriment of both. Traditional practice is no longer the only legitimate activity of one who is trained as an architect. Berenson of ACSA tells us that as many as 40 percent of architectural graduates will be going into other kinds of activities. These activities constitute specialized career paths that need to be recognized professionally for the benefit of our colleagues who have chosen them, and for the benefit of AIA which needs their involvement and unique insights.

As a matter of fact, in recent years the programs and policies of the Institute have been broadened to incorporate many of the concerns of these nonpracticing architects so that in a practical sense the present membership limitation is already an anachronism. The only question is: what standard of membership should AIA use in its place? Perhaps membership should be open to all who have a demonstrable concern for and professional involvement in improving the quality of the built environment. This might well lead to the formal identification of several kinds of professional activity, of which traditional practice is only one.

A derivative advantage to AIA of such a broadened membership policy might be the gathering in under AIA auspices of several presently autonomous organizations such as the Guild for Religious Architecture and the Society for Marketing Architectural Services, and the establishment of similar groups for architects in government, industry, health care facility design and so on. These latter groups could be developed out of several of the present national AIA committees, but with the difference that they could be opened to a larger group of like-minded architects who could set group membership standards which would in themselves become a form of qualification in a professional specialty.

Finally, there is an ethical problem which could be affected by the way in which specialization is handled. Prohibitions on advertising by architects may soon be declared in restraint of trade under antitrust laws. Under present conditions, that could leave an unscrupulous architect free to make almost any claim of skill or competency without fear of contradiction. Obviously recognition of specialized skill by way of academic diploma, governmental licensure, or professional group membership would help greatly in providing measures of competency against which such claims could be compared.

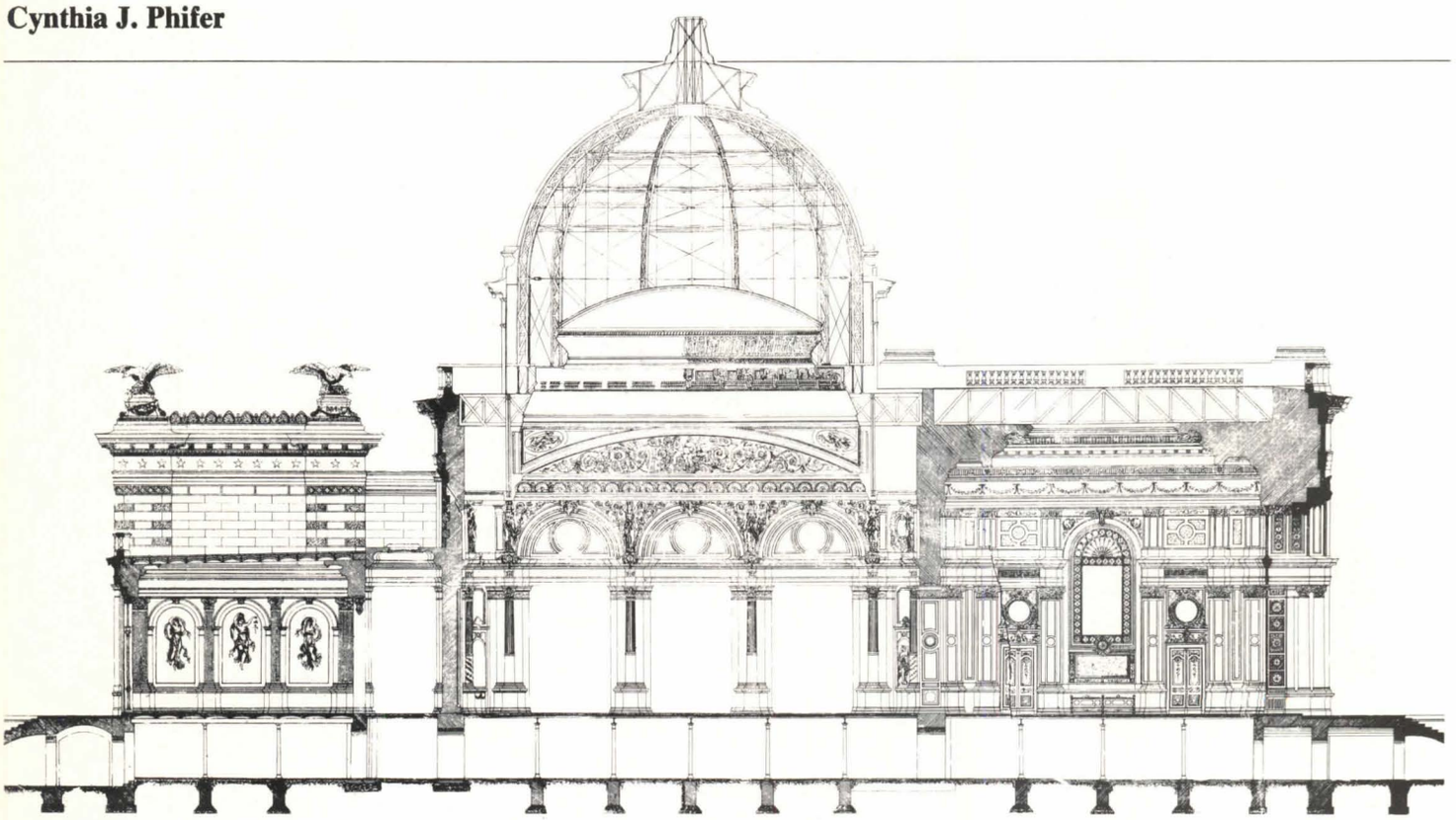
Basically, what I am advocating is that AIA—as the only organization with the breadth of viewpoint and sense of comprehensive mission to do so—take the lead in an effort to define and acknowledge specialties within the field of architecture. This effort would involve:

- Working through ACSA, to develop a commonly accepted framework of specialization in academic training for architecture, including a definition of what training should be common to all collegiate architectural education;
- Working through NCARB to reexamine the purposes of professional licensure and the validity of relating each license to specific academic credentials;
- Increasing the correlation of continuing education programs (both academic and AIA sponsored) with achievement of specialist qualifications;
- Adjusting the AIA standards of ethics to eliminate inhibitions on extending the range of architectural activities, at the same time requiring evidence of competency in specialty skills claimed;
- Modifying the membership requirements of AIA to embrace equally all who work in the field of architecture, and providing worthwhile programs for each specialty subgroup within the general membership;
- Providing categories of AIA membership which will acknowledge specialty interest and establishing credentials for such memberships which will cause them to be recognized as definitive evidence of specialist competency.

These tasks ought to be undertaken soon, as the outside forces for change are increasing and will not be denied. □

Using Photographs in Contract Documents On Restoration Work

Cynthia J. Phifer



With the bicentennial year now well under way, the preservation and restoration of some of the nation's historic landmarks is proceeding apace. Requests for speedy plans and documents for these projects have resulted in the development of new techniques in documentation of proposed remedial and restorative action. Photo-documentation, in use for about four years, is now gaining greater popularity in the preparation of restoration and rehabilitation project construction documents.

Photo-documentation is a process by which design decisions are communicated by direct photographic reference to existing building conditions. Traditional hand-crafted documents take from 80 to 150 man-hours per standard size sheet of architectural details. With the use of the photographic technique described below, each drawing sheet of the renovation project took only 24 man-hours to complete.

The restoration project was for Memorial Hall, built for the Centennial Exposition of 1876 in Philadelphia. The structure has great historic interest for the celebration of the nation's bicentennial. It was long in need of significant repairs to make the dome weather-tight.

Memorial Hall is located in Fairmount Park. In the tradition of the international expositions at London (1851 and 1862), New York (1853), Paris (1855 and 1867) and Vienna (1873), the Commissioners of Fairmount Park decided to sponsor an International Exhibition of Arts, Manufacturers and Products of Soil and Mine. To that end, a competition was held for the design of a permanent structure, Memorial Hall.

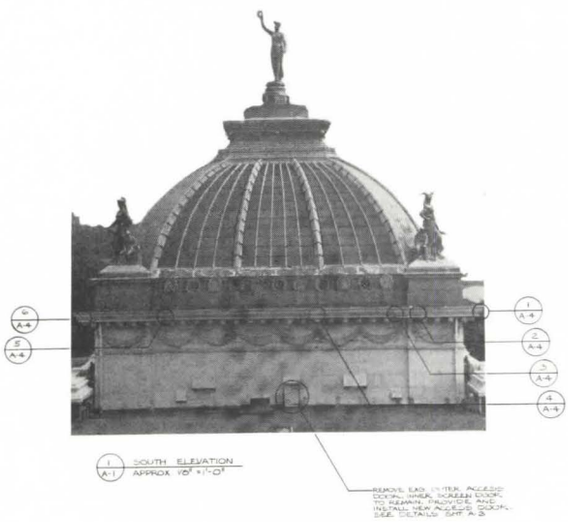
Winner of the first prize in 1873 was the Philadelphia firm of Collins & Autenrieth. Upon investigation, however, the committee found that the structure would cost nearly $8 million to construct. Meanwhile, a young engineer, Herman J. Schwarzmann, was appointed chief engineer and architect of buildings and grounds. He prepared a design which was accepted, and the building was finished in 1876 at a cost of $1.5 million.

In August 1975, Fairmount Park commissioners asked the Philadelphia firm of Geddes Brecher Qualls Cunningham to provide restoration plans for the dome, setting a construction deadline of May 1976. Time limits were set at three weeks for preliminary design and six weeks for construction documents. The firm began work in September 1975.

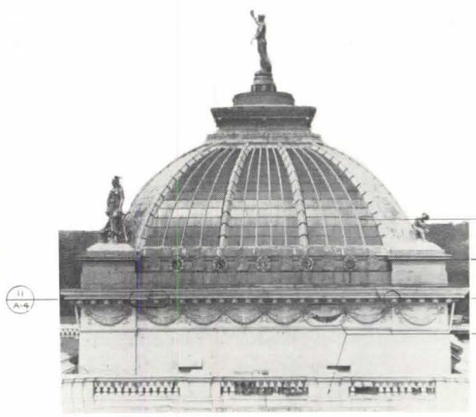
Associate-in-charge Wesley M. Heilman, AIA, and project architect Steven Gatschet decided that in order to meet the severe time limitations, alternatives to conventional preparation of construction documents should be sought. In cooperation with a reproduction house, the Campion Co., Heilman and Gatschet began to lay the ground work for producing the necessary documents utilizing the technique of photo-documentation.

The first step was to acquire the existing drawings of Memorial Hall. Then drawings were edited for quality and suitable information for current documentation. An inventory of problem areas in the dome was followed by planning for the photographic survey. The architects began with overall elevation views and progressively narrowed the field of vision to areas requiring detailed work. The photographic survey was designed to pre-

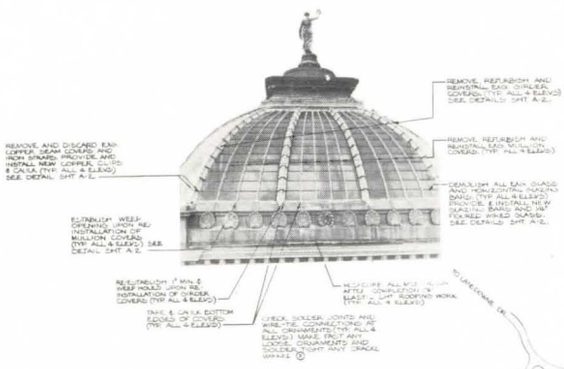
Ms. Phifer, development coordinator for Geddes Brecher Qualls Cunningham, is located in the firm's Princeton, N.J. office.



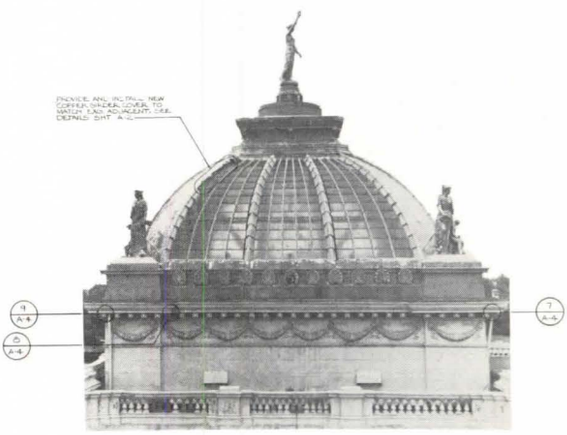
1 / A-1 SOUTH ELEVATION
APPROX. 1/8" = 1'-0"



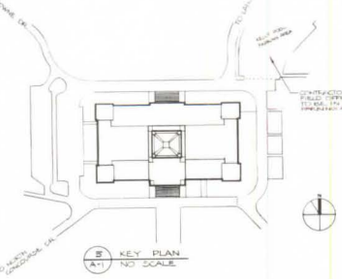
2 / A-1 EAST ELEVATION
APPROX. 1/8" = 1'-0"



3 / A-1 NORTH ELEVATION
APPROX. 1/8" = 1'-0"



4 / A-1 WEST ELEVATION
APPROX. 1/8" = 1'-0"



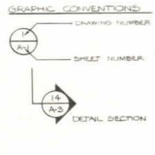
5 / A-1 KEY PLAN
NO SCALE

GENERAL NOTE:
ALL DISSIMILAR MATERIALS ARE, TO BE ISOLATED FROM EACH OTHER, INTERIOR JOINTS NOT EXPOSED TO WEATHER TO BE SEPERATED BY ASPHALTUM & EXTERIOR JOINTS CAULKED SEALED BY BUTYL TAPE AND CAULKED CONTINUOUSLY.

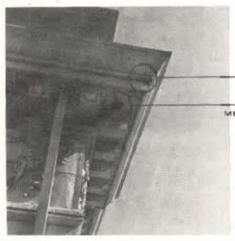
ABBREVIATIONS

AGG.	=	AGGREGATE	SST.	=	STAINLESS STEEL
APPROX.	=	APPROXIMATELY	STR.	=	STRUC.
BLDG.	=	BUILDING	SIM.	=	SIMILAR
BUR.	=	BUILT-UP ROOFING	TYP.	=	TYPICAL
COMP.	=	COMPRESSION	WD.	=	WOOD
CONST.	=	CONSTRUCTION			
CONT.	=	CONTINUOUS	⌀	=	DIAMETER
CP.	=	COPPER	#	=	WITH
EA.	=	EACH		=	PLATE
EQUIC.	=	EQUATIONS	L	=	ANGLE
EXIST.	=	EXISTING			
FHMS.	=	FLAT HEAD MACHINE SCREW			
GA.	=	GAUGE			
GALV.	=	GALVANIZED			
GSK.	=	GASKET			
MAX.	=	MAXIMUM			
MIN.	=	MINIMUM			
O.C.	=	ON CENTER			
PB.	=	LEAD			
PSF.	=	POUNDS/SQUARE FOOT			
REQ.	=	REQUIRED			

GRAPHIC CONVENTIONS



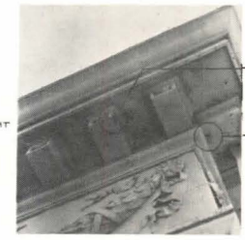
Clarity, accuracy and significant savings in time.



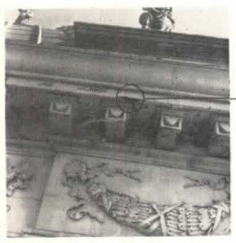
1 / A-4 DETAIL VIEW

3 / A-4 DETAIL VIEW

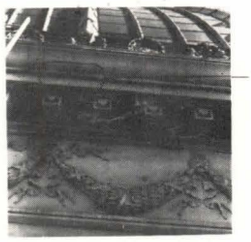
5 / A-4 DETAIL VIEW



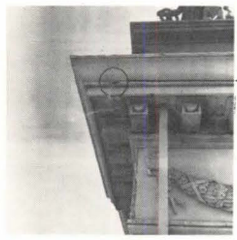
7 / A-4 DETAIL VIEW



2 / A-4 DETAIL VIEW



4 / A-4 DETAIL VIEW



6 / A-4 DETAIL VIEW

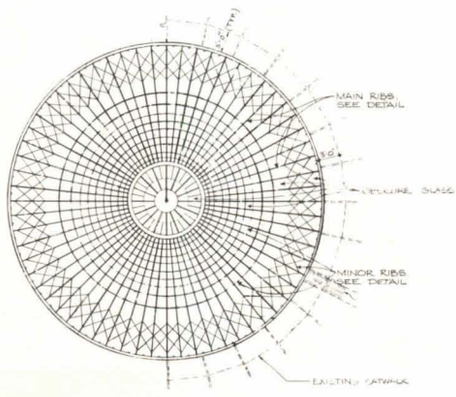
8 / A-4 DETAIL VIEW

9 / A-4 DETAIL VIEW

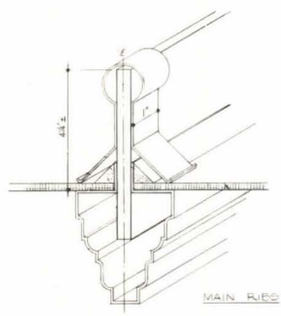
10 / A-4 DETAIL VIEW

11 / A-4 DETAIL VIEW

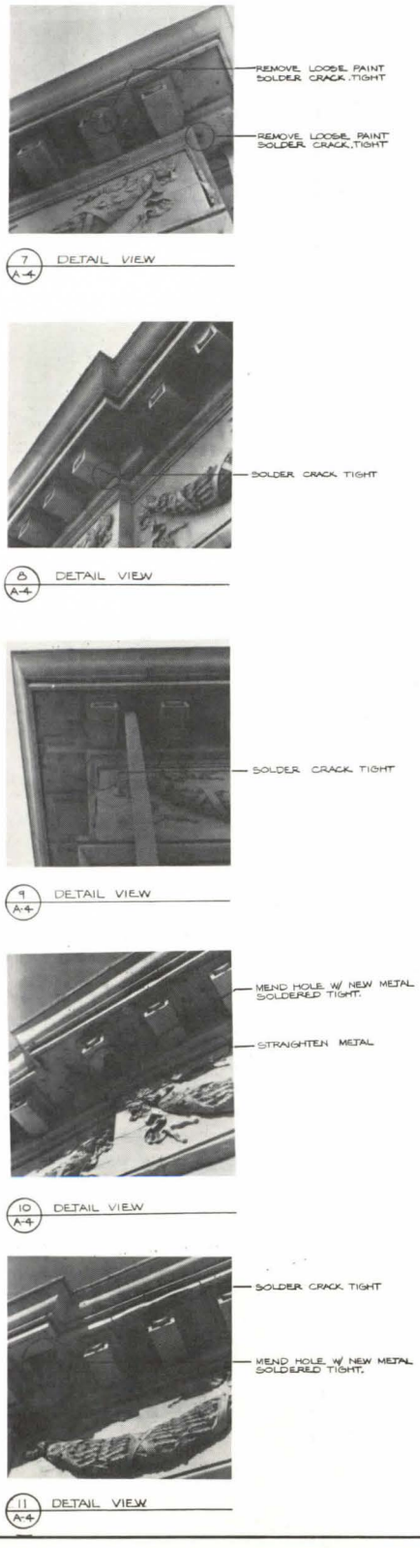
ADD ALTERNATE NO 2
CLEAN GLASS OF INNER DOME.



12 / A-4 PLAN OF INNER DOME
SCALE 1/8" = 1'-0"



13 / A-4 INNER DOME GLAZING DETAILS



sent an organized hierarchy of views of the building.

The next step was to visit the site and conduct the photographic survey. Exterior photographs were taken on an overcast but medium bright day, in order to maximize detail in areas in shade or shadow. Tri-X film and a 2¼ x 2¼ format view camera were used to take photographs with good detail and a minimum of perspective distortion of long-range elevation views. All photographs were bracketed, and a log was kept to record exact views keyed to previously prepared plans. Far more photographs were taken than were actually used in the final documentation. The unused photographs have become a valuable part of the survey record.

Contact sheets from the photo survey were processed and views were selected for inclusion in the construction documents. Next, the sheet layouts were designed, with each sheet including selected photographs and line drawings. Line drawings, such as construction details, were drawn by hand, then photographed for inclusion in the set of documents. Gatschet and Heilman found it desirable in some cases to have certain elevation photographs produced to scale. A one-quarter size mock-up of each sheet indicating the location and size of each photograph was prepared.

The one-quarter size mock-up, appropriate photographic negatives and corresponding contact sheets and line drawing originals, with additional instructions on a diazo print of each, were given to the reproduction house. The architects specified wash-off mylar with a drawing surface on both sides and a reverse printing of the material to be photographed onto the mylar. The reverse printing process enables the architects to add further instructions directly onto the photograph without danger of damage from erasures. Also, it has been found that reverse print mylars produce better diazo prints.

The reproduction house prepared for the architects' approval photographic prints to be used for producing negatives for the final mechanical artwork. The photos were printed with a uniform value of lights and darks. The uniformity of contrast value is important in that all photographs on the same sheet will be reproduced onto the photo-sensitive mylar in a single exposure.

For the Memorial Hall project, the reproduction house composed full size negatives on to the sheets as specified in the quarter-size mock-up. Dust marks and deletions were opaqued on the negatives in preparation for printing them directly onto the mylar. Final sheets were produced from the full-sized negatives contact printed on the mylar. The mylars were then used to produce multiple diazo prints for bidding.

The photo-documentation procedure is most appropriate for use in restoration and renovation projects as well as for the "alterations" portion of "additions and alterations" projects. The procedure is somewhat inflexible. It requires early decisions regarding scope since additional documentation after initial sheet composition cannot be photographic.

There are, however, a number of mutual benefits to the owner, architect and contractor in the use of photo-documentation. For the owner, who may be unfamiliar with drafting conventions, the photographic documents can be clearly understood. Public agencies find that the accuracy afforded by photographs is helpful in speeding the review process. Bidders on the Memorial Hall project reacted favorably to the specificity and clarity of the documents. Architects Heilman and Gatschet found that the procedure generally expedites all phases of documentation through the bidding period. In fact, preconstruction work was originally scheduled to take six weeks. With the use of photo-documentation, all client review meetings, surveying, drawings and specifications were produced in five weeks. Less than three weeks were required to produce the drawings.

With ongoing improvements in reproduction technologies, difficulties in the diazo reproduction of the mylar photographs will be eliminated. With a possible drafting time savings of 40 percent to 90 percent, and with technological advances in reproduction techniques, photo-documentation will become a valuable aid in cutting costs in restoration/renovation projects. □

Pros and Cons of Various Project Delivery Approaches, Traditional and Otherwise

"As projects become larger and more complex, as building technology changes, as costs rise dramatically and unpredictably, as the 'time is money' truism begins to pinch, as shortages and uncertainties in the marketplace demand more responsive planning, as the amount of litigation grows and as the general level of difficulty involved in accomplishing even simple projects seems to increase at an increasing rate, almost all owners—private and public—are taking pause before moving ahead too rapidly." As a result, says the new AIA report, *Project Delivery Approaches,* "there has been renewed interest in all delivery approaches—traditional or not."

The report has been researched and written for the AIA project management systems task force by David S. Haviland, director of the center of architectural research at the school of architecture of Rensselaer Polytechnic Institute.

It begins with an introductory overview of delivery methods, intended to help the practitioner define and plan his project and to impress upon him the importance of selecting the project approach "consciously, carefully and early. Once the project is underway, it's often too late to change approaches (for example, once construction documents have begun, it is too late to easily break the construction contract into separate 'packages' in order to meet conditions in the marketplace."

In this, as in subsequent sections, checklists and charts are provided as practical aids. The remaining chapters detail the problems, necessary trade-offs, risks and rewards, as well as the consequences for the architects' and clients' roles of each of the following project delivery approaches:

- The traditional design-award-build method
- Adding construction expertise to the design phase
- Overlapping design and construction so that construction can begin before design is completed
- Integrating design and construction via "design-build" methods. (Some of the legal, ethical and other implications of the newer delivery approaches for architects and for the practice of architecture are discussed in a final section.)

As the report points out, in the familiar design-award-build approach, the major phases of design and construction are accomplished according to consecutive steps, which cannot be overlapped. Construction contract options may include single responsibility, multiple time contractors with specialty trades or multiple contracts that are later assigned to a single general contractor. The roles played by the owner, the owner's site representative, architect and contractors are the traditional ones.

The main risk of this approach, according to the report, is that "the owner invests a good deal of time, energy and capital in planning, design, documents and bidding (or negotiating) *before* project price is established. Usually, the owner bears all major project risks (including the risk of the price being too high) up to the point where construction contracts are signed and the major share of the project's risk passes to the contractor(s)."

The so-called traditional approach is applicable, says the report, mainly where clearly defined, linear phases are required for purposes of financing and/or approvals; where the complexity or uniqueness of the project dictates that design details be fully developed before construction is begun; where the owner puts a premium on maintaining conventional roles and relationships and ways of doing things; where cost and time are not overriding concerns, and "where there is some timidity about abandoning traditional ways of doing things."

Time (and therefore cost) problems are the most serious drawbacks of the traditional approach, since construction cannot begin before design is completed and design cannot be started until planning is finished. "The time problem," says the report, "is compounded by another factor: Even with effective design cost control, the price that will be paid for the project is generally not known until proposals are received. If it's too high, more time may be added through redesign-rebid or through extended negotiation. Redesign is difficult because the construction contract documents now have to be taken apart and put back together again. Doing it may well reduce the levels of quality desired and cause problems of extras and corrections later." Such loss of time is especially disastrous during periods of high inflation, such as the present.

Another problem of this approach, also aggravated by inflation, is that the entire project must be put out to bid at one time, and the appointed time may well be a difficult or impossible one for mobilizing all the needed resources at reasonable cost. And while the conventional approach offers the advantage of having complete documents before beginning construction, this very fact greatly reduces flexibility in responding to problems that may arise. "It should always be recalled that *final* level of quality, and *final* cost are known only after all changes in the work have been made and prices negotiated, and after all claims, disputes, liens, etc. are resolved."

Finally, the usual one-to-one allocation of responsibility in the early phases of work may rob the project of important teamwork. "Construction expertise can be valuable in the early going," observes the report. "It can provide assistance in understanding (and responding to) the marketplace, it can address the cost question, it can detect construction sequence problems, it can provide recommendations for early purchase of specific items, and so on."

The second form of delivery approach differs from the first

Ed. Note: *According to its chairman, Richard G. Jacques, AIA, the project management systems task force which developed this report was intentionally kept small in size but made broadly representative of various types of private practice and also government, industry and education. The members were Edward Janke, AIA; Jonathan King, Hon. AIA; Frank Matzke, FAIA; Robert I. Silverman, and Donald J. Stephens, AIA. Advisory members were John P. Andrews, AIA, architects in industry committee; William S. Black, AIA, architecture for health committee; Institute Vice President Carl L. Bradley, FAIA, design-build-bid task force; Herbert E. Duncan Jr., FAIA, design-build-bid task force; Arthur H. Hoag Jr., AIA, architecture for commerce and industry committee; Patrick E. Loukes, AIA, consulting member; Ewing H. Miller, FAIA, design-build-bid task force, and Willard C. Pistler Jr., AIA, commission on environment and design.*

only in adding construction expertise to the design team before construction actually begins. The step-by-step sequence of events of the traditional approach is still adhered to.

The report observes that the utilization of a construction consultant during the planning and design phases of a project can be particularly valuable if "constructability" is a major concern—as in a complex facility; if useful new projects and technologies are being considered which may cause "constructability and marketplace problems," and if cost and time constraints are important considerations. Potentially at least, when an architect and construction consultant work amicably together, "design decisions can be tested for their cost and schedule implications. The inevitable trade-offs can be developed and evaluated jointly."

To avoid problems in the relationship between construction consultant and architect, says the report, the team should be established as early as possible in the project; the responsibilities and roles of each should be carefully spelled out at the start; the construction consultant should provide input *before* design decisions are made, rather than just making evaluations after the fact; the architect and construction consultant should resolve conflicts before making a presentation to the owner, and the owner should be willing to actively participate in the project and to assume ultimate decision-making authority.

The role of the consultant who acts as an agent of the owner during the planning and design phases may terminate before construction begins, or he may continue as general contractor or construction manager. In the former role he assumes direct responsibility for delivery of the project at specified compensation, while in the latter he remains as a professional adviser to the owner throughout the project.

If he assumes the role of general contractor, the construction consultant may negotiate specialty trade contracts as subcontracts, or he may take over already-awarded specialty contracts, or he may become one of the several prime contractors to the owner (where the law prescribes that there must be more than one prime contractor).

The main advantages of having the person who is construction consultant during the planning and design phase assume the role of general contractor in later stages are that: "Cost, scheduling, marketplace and constructability recommendations take on heightened significance when the firm making them is going to have to live with them; the general contractor can begin active planning for construction, possibly procuring long lead-time items early, entering into negotiations with key trades or suppliers, etc.; protracted and complicated bidding or negotiating activities may be avoided, and the owner is provided with a contractor who assumes a major fraction of the risk early on (if the construction contract is executed during design)."

The owner may also sign one construction contract with a general contractor and place it under a construction manager. This method is especially useful, says the report, if the project is so large and complicated as to require much coordination.

Alternatively, the owner may sign many prime contracts with separate specialty trade contractors and place them under a construction manager. He may do this because multiple prime contracts are mandated by law or because multiple primes are seen as a better way of responding to marketplace problems. They may stimulate more competition for the work; "eliminate some of the tiers of contractors on the job"; allow the owner to obtain each contractor's best price; permit the isolation of high-risk, long lead-time problem areas, and facilitate phased design and construction.

A principal problem of separate contracts is the difficulty of overall coordination with many different entities—monitoring progress, scheduling work, defining contractor responsibilities, reviewing health and safety programs. "This has led many owners to seek the services of construction managers who are knowledgeable in the ways of building and contractor relationships," says the report, adding that separate contracts also mean more work for the architect. For "breaking construction documents into separate contract packages without omissions and overlaps is no easy task; and one of the construction manager's required services should be to assist in coordinating the construction documents." Another is to coordinate the bidding or negotiation phase of the project.

Even with construction management, says the report, "it is general practice that the architect continue to accomplish design-related functions during construction." These may include "interpretation of construction documents, review of shop drawings and applications for payment, change orders, observations to assure conformance to drawings, and approvals related to project close-out."

The greatest advantage of separate contracts under construction management can be gained if the traditional, linear, "lock-step" approach is abandoned and contract awards are phased, so that design can proceed before the completion of planning, construction before the completion of design.

'Phasing a project places great emphasis on planning and early decisioning—by both the owner as well as the design and construction personnel on the project team.'

The main advantage of the "phased approach," in which design and construction processes overlap, is that it saves time without sacrificing quality. Other benefits of this method are that individual contracts for portions of the work can be awarded at the most propitious times. Items requiring long lead time can be awarded early; trade contracts required at the end of the job can be delayed; the best price can be obtained by awarding contracts

as close as possible to the time of purchase and installation; when necessary, portions of the work not yet awarded can be redesigned and rebid without derailing the entire project, and "changeable" design decisions may be delayed until later in the project.

Phasing is most useful in situations in which one or more of the following conditions exists: the owner can commit to design decisions early; time is of the essence; "pre-integrated industrialized subsystems" are desired on a competitive basis; the project must be broken into phased contracts; "all participants are willing to 'march to the tune' of the contract sequence."

Among the problems of the "phased approach" are that construction commences before the entire cost of the project can be known, and the owner must live with initial design decisions, or remake them with change orders. "Phasing a project, therefore, places great emphasis on planning and early decisioning—by both the owner as well as the design and construction personnel on the project team." As the report also points out, "where public money is involved, legal requirements may require that comprehensive and detailed project documents be available as the basis for construction approvals. Local building regulations likewise may require full documents before a building permit will be issued. The person or institution providing the financing may also require complete documents before allowing any construction work to proceed."

Because of the complexity of phased construction, the owner will usually engage a construction manager to overlook and coordinate the process. The composition of the separate contract packages will depend on the design sequence, with the most basic design decisions (usually involving structural and mechanical systems) generally being among the first packages on the construction sequence. Their composition also can be influenced by problem items requiring long lead times and by marketplace conditions.

The report suggests some ways of minimizing the risks of "we-don't-know-what-it's-going-to-cost-until-all-the-contracts-are-awarded": Award the lion's share of the work early; set targets for each portion of the work and hold to them; attempt to transfer the risk to a general contractor by "awarding the construction contract at a firm (or maximum) price."

In its concluding remarks about the phased approach, the report observes that in general the risks inherent in this delivery method can "be minimized if the project, and the resulting facility, are reasonably straightforward and predictable. General-purpose type buildings (e.g., rental offices, loft-type schools, commercial space, warehousing) are prime candidates."

'The essence of the design-build approach lies in transferring control (and the risks) from owner to design-build entity very early in the project.'

In "design-build," the last project delivery approach discussed by the report, "the owner procures both design and construction services at one time, from one entity, based on a statement of requirements. The proposal and award tasks are moved 'up front'—directly following planning."

The overriding risk is that the owner commits to price without a fully detailed design, and he may have little influence over the continued development of the design after awarding the design-build contract. However, because it integrates the design and construction processes, the design-build method has the advantages of generally minimizing communications problems, allowing construction expertise to be factored directly into design and shortening delivery time. Also, by establishing a firm price very early, this method can eliminate much uncertainty. And because the design-build entity has freedom in selecting products, systems and contruction approaches, it can readily respond to changing marketplace conditions and "lends itself to the use of fully integrated proprietary building systems."

There are three different methods by which design-build contracts can be awarded and each has significant consequences for the delivery process:

- In the competitive bidding option, the design-build entity is chosen through negotiations. The owner may either develop a formal statement of performance requirements and then approach one or more possible design-build firms, or develop a proposal jointly with the chosen firm. The design-build entity may develop a custom-designed solution, or it may propose a pre-engineered building system. The owner may ask an architect to handle the negotiations and later administer the contract, or even to oversee the design-build entity to assure that established levels of quality are met.
- In the competitive bidding option the design-build entity is chosen on the basis of competitive proposals. The need to establish a firm cost *early* is the main reason for choosing this method. However, "if the cost is firm and cannot be changed, only quality and scope can be 'adjusted' if the initial statement of requirements turns out to be inadequate," says the report.

It goes on to observe: "There is also the matter of a (legally) defensible basis for competition and contract award. If lower cost is to be the criterion, then proposals must still be evaluated for technical responsiveness. If cost is fixed and the owner is seeking the most performance for the money, then a more elaborate evaluation system will have to be designed. This usually involves an evaluation team (with the full range of expertise needed), some sort of point system and an impartial administrator."

This method also poses a need for compensating unsuccessful bidders for their costs and time, especially since compensation "is one key to attracting—and maintaining—interest in design-build-bid projects from a range of firms, small to large."

- In the "turnkey" variation, "the client usually enters into a fixed-amount sales contract with the design-build entity." That entity then becomes a total project developer. Although there are numerous modifications to the basic concept, in most cases the critical interim financing responsibility rests with the design-build entity. Thus turnkey involves considerable risk for both owner and designer-builder, for if the project cannot be completed for some reason, the design-build entity must carry the burden of continuing short-term financing while the owner ends up empty handed. However, the method also has much to recommend it. Since the design-build entity carries the financing load it has extra incentive to complete the project early, and since the owner doesn't accept the project until all requirements are fulfilled, it has extra incentive to produce quality work.

In discussing roles played by participants in design-build projects, the report says: "For design-build to be effective, it is necessary that the owner fully develop performance requirements for the project before the design-build contract." It suggests that many owners can make good use of the services of an administrative architect ("or executive architect, or consulting architect, or professional adviser, whatever the role is to be named") to assist the owner in making some of the project delivery decisions, in preparing the performance documents, in soliciting and evaluating design-build proposals and in administering the design-build contract for the owner. "The existence of the administrative architect in the project hierarchy provides the owner with an agent throughout."

The design-build entity itself may take a number of forms: It

may be an "integrated services firm," providing package design and construction services. It may be a general contractor, "operative builder" or developer who subcontracts for the necessary resources (including design) to create a design-build entity. A design firm may choose to participate in this type of entity either as a prime contractor (subject to possible legal, liability and ethical restraints) or more likely as subcontractor for design. In the latter case, the architect functions more nearly in the traditional role, except that the client is the prime contractor and not the owner. The design-build entity may also be a joint venture or an association of two firms, each with an independent contract with the owner.

The report offers the following "applicability guidelines" for design-build approaches:

- "The owner must be in a position to state all requirements—early and explicitly. . . . For this reason, design-build has been most frequently used in those situations where needs are reasonably straightforward and can be stated in explicit, quantifiable terms.
- "The owner must be willing to accept what is proposed—possibly without the opportunity for continuing major influence on design. The essence of the design-build approach lies in transferring control (and the risks) from owner to design-build entity very early in the project."
- "The owner must be in a position to commit funds without having 100 percent construction documents."

'Almost one-to-one allocation of responsibility to phases may be straightforward, but it may also deprive the project of some important teamwork, particularly in the planning and design phases.'

In a final section, the report discusses the general implications of the so-called nontraditional design delivery approaches. It stresses that they add "emphasis to the front end," which usually means additional investments of time, money and energy at the start of the project. These approaches also require "more intensive project control and management throughout," says the report. "The project team will have to be carefully structured, and appropriately compensated. Controls on quality, time and cost will have to be established and the developing project measured against them at all stages. Early decisions about marketplace conditions and their impact on design and contract packaging, for example, will have to be continuously reviewed and modified as conditions change."

Another consequence of the nontraditional approaches is that the "careful segregation of a project into neat phases and responsibilities begins to disappear," which can create a number of problems, such as duplication, omissions and confusion.

The nonconventional delivery approaches also can have implications affecting the architect's liability, ethical standards, cost compensation and the professional practice of architecture. "If at any time the architect assumes responsibility for delivery (by signing a contract with the owner agreeing to deliver the project at a specific price) the architect's legal status as a professional may be in jeopardy," says the report. It warns that the architect should carefully check the relevant laws before entering into a contract.

"As long as the architect maintains a traditional role as an owner's agent for design and construction contract administration, the liability position is clear. Once the architect begins to move away from this role, though, questions of liability arise," says the report. For example, an architect/construction manager who becomes involved in contracting for construction work cannot expect professional liability insurance to cover that activity. "An architect serving as a subcontractor to a design-build entity is in a position to maintain an insurable role," says the report. But the language of the contract with the design-build entity is important, and the architect should be watchful for clauses which may indemnify an owner through an architect's contract with the constructor; may force him to assume responsibility for specific project completion dates and costs, or for job-site safety, or for omissions or errors when "requirements of the program are not met in the plans; may certify that the project has been built in strict accordance with all codes, regulations and standards." When the architect holds the design-build contract on a sole basis with the owner, he will probably not be able to secure liability insurance, says the report.

When it comes to ethical standards, a potential conflict of interest between the architect and owner may come into existence as soon as the architect takes a financial interest in the project. Such a question may arise, for example, when an architect serving as a construction manager contracts with the owner for any construction work. In design-build situations, says the report, "an architect participating as a subcontractor to a design-build entity (and with no contractual relationship with the owner) should take care to fully disclose the nature of his relationship with the design-build entity to the owner and to any other who might be inclined to believe that an owner-architect relationship exists." The most difficult potential conflict of interest situation, observes the report, is that of the architect with an ownership interest in a design-build entity.

Professional compensation can also be affected by nonlinear delivery approaches. The specific services offered by any one of the professionals involved in any of the nontraditional approaches may vary greatly, depending upon: the delivery method and the options within that method; the owner's own approach to project management; the type, size and complexity of the project, and the specific constraints involved in delivering the project. "For these reasons," says the report, "any formula approach to compensation for professional services will rarely be valid, and a cost-based approach is strongly recommended."

In the construction management and phased approaches, the potential for fewer redesigns and rebids may reduce costs for the architect. On the other hand, his costs may be increased by the need for piecemeal redesigns, extra work "in carefully delineating separate contracts packages and inefficiencies inherent in compressing production schedules." Additional possible sources for increased costs to the architect are found in poor working relationships with a construction consultant or construction manager and in the need for added coordinating, communicating and negotiating time.

In design-build approaches, observes the report, the cost of architectural services will depend on the roles played by architectural firms in the project, the number of firms being compensated and whether or not an administrative architect is used.

"There is a strong probability that the total cost of professional services to the owner will be greater as one moves away from the design-award-build-bid approach," says the report. "In general, these costs are part of the increased investment required to obtain effective project control—and *they may be small in comparison to potental overall cost savings.*"

The overall effects of new project delivery approaches on the practice of architecture will be salutary, concludes the report: "Too much of our built environment is of poor quality, and too many good projects never get built at all, because of failures to come to grips with the realities of project delivery."

Andrea O. Dean

The Usefulness of New Delivery Methods To the Smaller Firm

Richard G. Jacques, AIA

Although much has been published during the past five years on a variety of so-called "nontraditional building delivery approaches," the guide summarized on the previous pages represents the first effort to bring these techniques together in a way that is meaningful to the smaller architectural firms—that group of organizations which constitutes over 80 percent of the membership firms in AIA.

During the course of developing the guide, it became evident that considerable amounts of mysticism surround most of the nontraditional techniques, and that these improved approaches to planning, design and construction are more often used only by very large professional organizations. If this new guide is to be of greatest and most immediate use to the AIA membership at large, then it is essential to strip these techniques of their mystical flavor and to clearly demonstrate that the application of these approaches is indeed within the grasp of even the smallest firms in the country.

Another myth which tends to surround nontraditional delivery techniques is that these approaches invariably produce a building of unacceptable design quality. In actual fact, it is probably out of a fear of these techniques caused by a lack of understanding of their real significance that many architects have chosen to not consider using them in their practices. A careful analysis of the techniques explored in the new AIA guide indicates that the successful use of these approaches is not so much dependent upon the sheer size of an organization applying them, but rather on the basic philosophy of the particular organization.

Since our own firm was established in the late 1960s, we have been intrigued by the notion of applying widely different delivery approaches as an integral part of our practice. We were deeply committed to the idea that a smaller organization (fluctuating somewhere between five and 20 professionals) could utilize these delivery approaches in order to allow the firm to undertake large and complex projects that were traditionally viewed as the domain of the largest firms. As do the vast majority of architectural offices practicing today, we felt that certain clients, given the option, would prefer to work with a smaller, more intimate, more responsive organization in undertaking a building program.

Based on our early assessment of client attitudes, it was clear to us that our objectives would not be achieved if we could not demonstrate a capacity to effectively manage the complex project elements of time, quality and cost. In the course of our own development, we found that whereas most clients would agree that even massive projects can be designed well by smaller organizations, they felt that these firms generally did not have the capability to effectively manage the overall delivery of the project from inception to completion. It was therefore our decision to explore ways in which, as a smaller office, we could in fact develop the ability to effect this overall project management control.

In order to reach this goal, we developed an organization of professionals with diverse backgrounds in design, planning, research and management. We sought people who were deeply committed to quality design, but who also had the interest and capacity to explore more effective ways of producing this design within the confines of the changing marketplace.

As our organization developed, the composition of skills and areas of responsibility tended to diverge from those in firms that practice architecture in a "traditional way." For example, we found a higher proportion of senior staff was required and a corresponding decrease in the technical staff normally engaged in the activities of document production and drafting. During this period, much of our effort was concentrated on the design of improved communication tools that would lead to significant reductions in the amount of documentation required for building construction.

The increased utilization of performance documents, the utilization of detail books and the use of simplified tape graphics on mylar sheets for the larger-scale drawings and plans not only resulted in substantial reduction time, but also led to improved communications with the building industry, which in itself reduced the time requirements of both our own organization and the contractor in bidding and in field operations.

One of the most promising project delivery approaches we have utilized is a combination of phased design and construction (fast-track scheduling) and construction management. In addition to having the advantages of time and cost savings to the client, these methods have enabled our firm to undertake large and complex projects with a moderate-sized staff. A case in point is the New Albany High School project.

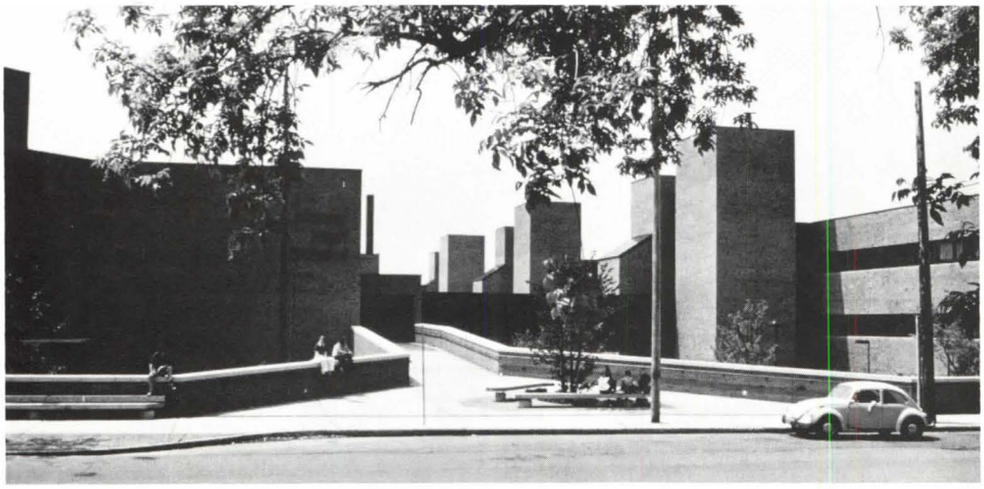
If this project had been done in a traditional way (that is by the linear design-bid-construction process), we would have required very large-scale staff efforts at several points in the project: for the production of bidding documents, for the handling of shop drawings and related data and for final close-out of the project. The selection of the phased approach allowed us to break the project into smaller discrete packages, each having its own production, shop drawing and close-out schedule.

The result was that our manpower requirements were leveled out in such a way that the entire project effort could be handled by a significantly smaller staff than is customary for this size project.

In addition to enabling a smaller organization to handle the complex problems of the New Albany High School, the reduction of manpower produced other benefits to both our organization and the client group. Most significant, by avoiding the usual "production crunch" before a project goes to bid, we were in a position to make careful and timely decisions which is usually not possible when the final phases of a large project are ground out.

In a further effort to ensure the highest quality building performance for our client and to make most efficient use of our own resources, we chose to utilize performance

Mr. Jacques is a partner in Richard G. Jacques Associates of Albany, N.Y., and chairman of the AIA project management systems task force. He was formerly director of research and development of the New York State University Construction Fund.



The New Albany High School houses 3,000 students in a series of structures arranged around a large open courtyard used by the community as well as the school.

specifications as a basis for bidding a number of building systems. Through the use of performance specifications we were able to draw on the greatest potential skills and experience of the building industry at-large. The effect of this approach was to significantly "multiply" the technical capability of our firm.

In retrospect, although we achieved savings of staff on the New Albany High School in areas such as production, there was not a reduction in overall manhours allocated to the project. The real payoff (and a benefit to both owner and architect) was that we were able to allocate a greater proportion of our scarce resources to the essential tasks of the project—the continuous management of design quality, cost and time.

The example of the New Albany High School (a $17 million project delivered in 29 months from start of planning to occupancy) should not suggest that the use of improved delivery methods are limited to projects of this magnitude. A variety of techniques may be used on projects of varying size, scope and complexity. We have, in fact, successfully applied these methods on renovation work and projects less than $250,000 in cost.

Another area of activity of our firm which shows great promise and should be of significant encouragement to the smaller architectural firms is that of playing the role of "building delivery consultant." As an example, we are currently working as primary consultants to the joint venture of Davis-Brody Associates/Large & Moger for the new Federal Correctional Facility at Otisville, N.Y. For this project (which is still in the preliminary initiation stage by the Federal Bureau of Prisons and General Services Administration/Public Building Service), the role defined for our firm is one of consultation in the areas of evaluating the most efficient way of delivering the project in order to achieve the highest quality in terms of design and program innovation and in terms of cost and time.

Although this kind of consultation may be attractive to a limited number of firms, it again allows a smaller organization to become involved in large and significant building efforts.

It is our experience that apart from having practice, organizational and staffing implications, alternative project delivery approaches also bring about some realignment of the traditional separation of design and production activities of the firm. The successful implementation of these techniques requires the highest degree of interaction between the planning, design and construction technology skills right from the inception of each project.

Although the term is overused and worn-out, this interactive process may best be described as a "team approach." One of the implications of this approach is that the traditional role of the omnipotent designer is blurred and the design becomes a much more significant contribution on the part of the primary members of the team and the organization.

But don't forget the most significant participant in the team—the owner—for without the client's commitment to and support of improved delivery techniques, their use will become impossible at worst and a nightmare at best. □

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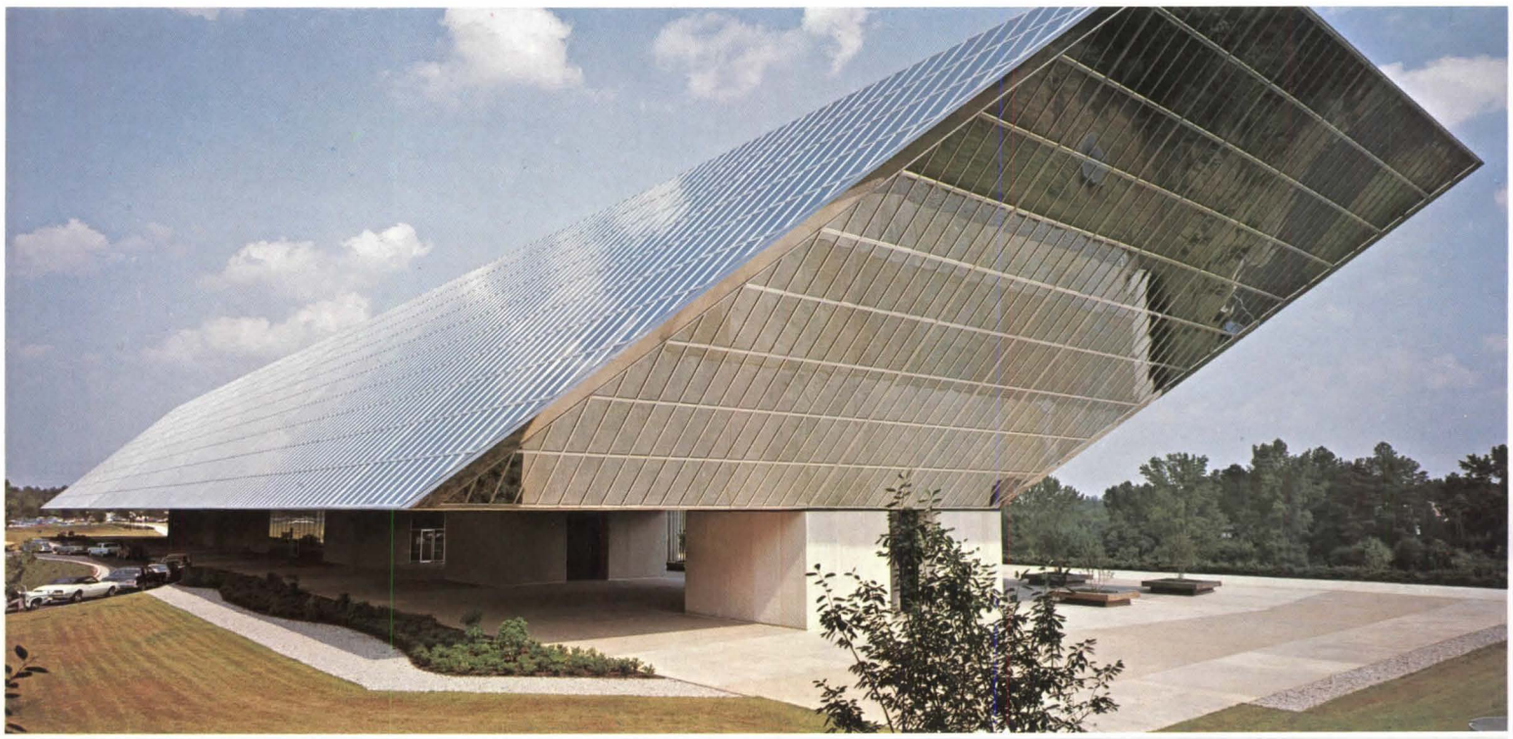

Upper left: Blue Cross and Blue Shield Service Center, Durham, North Carolina.
Architect: Odell Associates, Inc. Glass: Vari-Tran 1-108.

Lower left: Blue Cross Building, Seattle, Washington. Architects:
Maloney, Herrington, Freese & Lund. Glass: Vari-Tran 1-208.

Circle 15 on information card

HE COUNTRY, UNDER LOF GLASS.

ove: Maryland Blue Cross, Baltimore, Maryland. Architects:
erson & Brickbauer. Glass: Vari-Tran 1-108.

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BOOKS

Time, Cost and Architecture. George T. Heery, AIA. New York: McGraw-Hill, 1975. 212 pp. $16.50.

Sometimes brilliant, sometimes plodding, this book is an important glimpse of the future of the profession. Targeted squarely at the primary concerns of the client (i.e., cost, time and architecture), it focuses on many practical approaches to improved delivery of architectural services.

Chapter 2 on "A Management Approach to Construction" is a very clear and concise statement of construction management. The analysis of the styles of construction management is helpful to any firm with thoughts of venturing into CM. The four basic approaches outlined are practical patterns which apply to almost any situation where CM would be an asset to a prospective client.

Much of the book is devoted to a detailed description of what the author refers to as the time/cost control system. This system is defined as a series of interrelated, common sense procedures that have evolved from the author's research and experience. The system, if, indeed, that is what it is, involves seven basic components: predesign project analysis; systems approach to design; integrated cost control system; time control contract provisions; scheduling and information systems; bid and negotiation management, and management of contracts and construction.

A chapter of the book is devoted to each component of the system, with the exception of the last on contract and construction management, which is covered in two chapters.

As space provided for this review is not sufficient to discuss each component of the system, the reviewer has elected to concentrate on the cost control component.

Any effective cost control regimen requires three elements: administration, methodology and analysis.

Administration includes both in-office handling of the estimating process and field management of the bidding/negotiating process. Management of the documents preparation process to insure that documentation facilitates the monitoring of construction costs in the manner which the specific client needs is also an aspect of administration.

Methodology is the system for data manipulation, including the data to be manipulated, and the indices and factors applied to the data to produce reliable output information in a useful form.

Analysis is the in-office process of exploring alternatives in order to *control* costs as opposed to only forecasting costs.

The cost control system outlined by the author touches on the three elements of an effective cost-control regimen. He describes various practical procedures for controlling cost escalation while the project is in predesign, design and documentation stages. Analysis of potential cost-savings, potential cost problems and establishment of budget targets are all described clearly.

If there is a weakness in the system, I feel that it is in the "methodology." In the early phases of the project, the estimating is either based on "square footage" or "use units" (i.e., number of beds, number of students) determined from historical data. In the later stages, the defined system is a survey of material and labor quantities. None of the systems describes costs in terms of the elements with which a designer works, i.e., floor, wall, roof, etc. This could present problems for a smaller office without a full-time estimating department or even a large firm when the project load is heavy.

The book contains a lot of practical information on management of the construction project delivery process and should be read by every architect involved in projects for both government and industry. *James Y. Robinson Jr., AIA*

Spatial Synthesis in Computer-Aided Building Design. Charles M. Eastman, Editor. New York: Halsted Press, 1975. 333 pp. $37.50.

If heuristic algorithms turn you on, or if you are titillated by contemplating the flexibility of the Least Mean Squares Fit Relaxation method of optimally choosing values for an indeterminate set of variables, then this book is for you. Nine scholarly papers contributed by authors from around the world form the bulk of this volume on qualitative computer approaches to the design process, particularly in the schematic design phase.

The editor's scope chapter sets the stage for papers on space allocation, architectural design, furniture layouts and site planning. Other papers discuss such subjects as an information system for component buildings, interaction in the planning of buildings and a set of Fortran routines for space planning programs. A concluding paper on style in design ranges widely among the creative arts. Over 350 bibliographic citations on computer aids to architecture complete this work.

The old-school flowing tie set committed to designing intuitively with soft pencil and yellow sketch paper will probably not enjoy this book. But those who perceive a glimmer at the end of the tunnel will recognize it for another kilometer-stone on the march toward rational architectural problem-solving and communication. *Robert Allan Class, AIA, Director, AIA Management Division*

The Florida Experience: Land and Water Policy in a Growth State. Luther J. Carter. Baltimore: Johns Hopkins University Press, 1974. 355 pp. $15.

This highly recommended book describes one state's efforts to come to grips with the land use issue. Carter has made an important contribution to the subject of land use planning by carefully examining what he calls "Florida's land crisis." The pressures of growth and development being experienced in the state are more intense than those felt in most other states, particularly because of the fragile ecological balances between the natural and man-made environments.

The tremendous, unplanned, uncoordinated growth in Florida, the fastest growing state in the union, calls for strong public leadership and action to protect the quality of life which attracted people to the state in the first place. Environmental planners conclude that only a third of the state can be developed safely. Water supply seems to be the basic problem; yet, this links so closely to land use and transportation that they are really reflections on one single large issue revolving around the control and shaping of growth. Carter examines various kinds of economic activity found in the state and assesses their

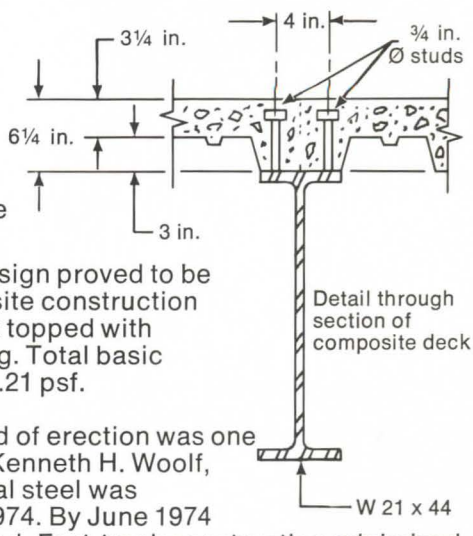
continued on page 60

depend on Bethlehem

Preliminary frame analysis pinpoints most economical steel frame

A preliminary frame analysis, conducted by Bethlehem's Sales Engineering Buildings Group helped the owners of this Pensacola office building achieve optimum steel frame economy. The project's structural engineers, Phillip R. Jones & Associates, Inc., requested the computer analysis be based on a structure having 5 supported levels.

The analysis considered four basic framing schemes employing ASTM A36 steel in composite and non-composite construction; ASTM A572 Grade 50 high-strength steel in composite and non-composite construction.



The most economical and efficient design proved to be a high-strength steel frame in composite construction with a 3-in. composite steel floor deck topped with 3¼-in. of lightweight concrete topping. Total basic steel frame weight was estimated at 7.21 psf.

Designed and built in 9 months. Speed of erection was one of the primary reasons the architect, Kenneth H. Woolf, A.I.A., favored steel framing. The initial steel was delivered to the site in mid-January 1974. By June 1974 the office was completed and occupied. Fast-track construction minimized the effects of escalating costs. Steel framing easily accommodated changes during the design/construction phase with the erection schedule closely following the finalization of floor plans.

Steel framing also permitted generous spans ranging from 26 ft, 9 in. to 32 ft. The increased strength achieved with composite construction allowed the steel beams to be spaced 10 ft on center.

Early involvement helpful. Our preliminary frame analysis program can be most beneficial to you and your client if the study is conducted before finalization of architecture parameters. This way, our Buildings Group and your structural engineer can develop an optimum frame design with minimum restrictions.

We'll be happy to tell you more about our preliminary framing analysis program along with the many other technical and advisory services we offer. Just ask for the sales engineer at the Bethlehem Sales Office nearest you. Bethlehem Steel Corporation, Bethlehem, PA 18016.

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Bethlehem BETHLEHEM STEEL

The project's architect (right) reports, "The steel framing was quickly erected, easily plumbed, and by pouring one floor each day, the building was ready for the mechanical work within a week. We were delighted with the economy and speed of erection."

Owners: Baptist Hospital, Inc.;
Architect: Kenneth H. Woolf, A.I.A.;
Structural Engineer: Phillip R. Jones & Associates, Inc.;
Fabricator: Bell Steel Company;
General Contractor/Erector: Dyson & Company.
All of the firms are located in Pensacola, Fla.

Books from page 56

growth on the delicate environmental balance. He examines the retirement industry, agriculture, manufacturing and, most importantly, tourism.

Carter skillfully uses case studies to highlight the political struggle to cope with the problems. These include: "Dade County: The Mini-State," "The Jet Port: Misplaced Responsibility," "Saving the Big Cypress," "The Barge Canal: The Uses of Power," and several others.

In March 1972, the Florida chapter/AIA conducted a "Red Flag Charrette," which was intended to point out areas that were environmentally threatened. The role of the Florida architects is impressive in helping the public to understand the serious growth and development issues faced by the state.

This book is not without bias. The bias, however, is not due to lack of objectivity by the author; rather, after having studied the situation, he has been led into the environmentalists' camp by his observations. He refers to "careless, uncontrolled development which does harm wherever it occurs." He points out that a "single ill-designed, misplaced structure can mar an entire landscape." Although these thoughts hardly seem radical to architects, they are radical in a state where land development has been basically a laissez-faire, up-for-grabs system.

Florida has adopted a great deal of the American Law Institute's model state planning code, but despite this fact, there are two major issues which remain to be decided upon before many of the problems that Carter describes can receive attention in a way that would lead to solutions.

First, the question of governmental responsibility, particularly at the state level, has not been clearly articulated. The local governments are still in the driver's seat. Many of these local governments remain booster clubs for development at any cost. Standards vary widely. The regional councils and the state are still not in a position to override poorly conceived local development controls.

Second, there is the very fundamental question of equities, of who gets what out of a land use control system. Obviously, some people will hold property that is unsuitable for development. Others will hold property that is designated for growth. Who will have the windfall profits from land whose value is largely bestowed by public regulation? Who will bear the burden of marked losses of land value when public regulations render it useful only for open space or agriculture? There is no more highly charged question of equities surrounding the land use system than this. Until the use of development-rights-transfer, capital gains, taxes on land or some other techniques are created to solve these inequities,

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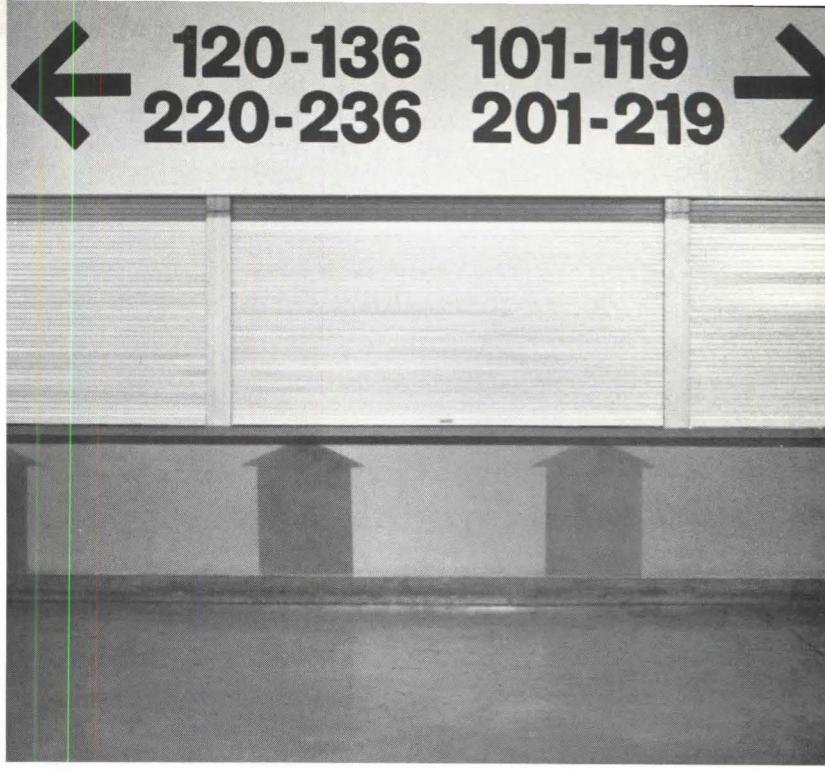

Even a half-time business needs full-time protection.

When the Golden State Warriors or California Golden Seals play at home in the Oakland Arena, hot dog and beer sales go way up. As soon as the Cookson counter doors go up. And when the Oakland A's or Raiders play next door at the Coliseum, the same thing happens.

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They're easy to roll up and down because they're counter-balanced and equipped with lubricated ball bearings.

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Circle 19 on information card

Pittsburgh's Golden Triangle now boasts a new 34-story jewel with 14 glimmering facets. (The two octagons share a side, if you're counting.)

It's the twin towers of the Equibank Building, at Oliver Plaza, sheathed entirely in PPG Solarban® 550 Twindow® reflective insulating glass.

The glass adds to a fascinating, unconventional design and makes it an incredible visual drama that teases the passer-by with eye-boggling reflections.

It's an inviting building. Warm and welcoming. And a welcome relief from the cold, impersonal bank buildings of the past.

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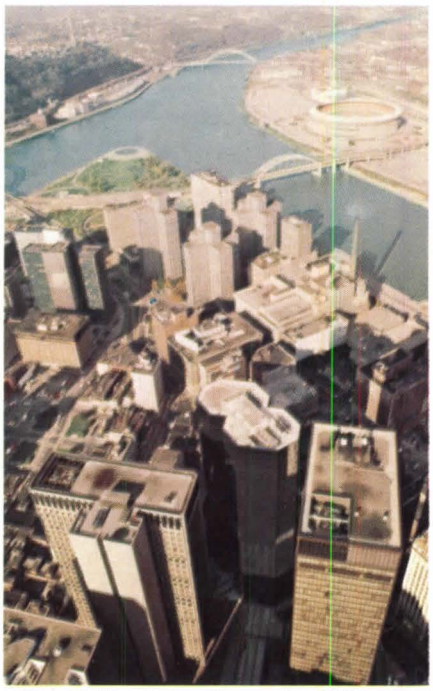

Owner: Oliver Tyrone Corporation, Pittsburgh
Architect: Skidmore, Owings & Merrill, Chicago

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PPG GLASS HELPED TWIN OCTAGONS FIT BEAUTIFULLY INTO A TRIANGLE.

Books from page 60
effective land use planning at any level of government in the state of Florida will be crippled.

The author concludes with an analysis of the governmental system and proposes a substantial number of reforms. The value of the chapter titled "Finding the Way" is the commonality between the states in these problems. The issues have been put just a little more forcefully in Florida. Many of the author's recommendations are also found in AIA's 1972 "Report on the National Policy Task Force: A Plan for Urban Growth." This book raises a new level of specificity to AIA's own recommendation—a task which is perhaps done best state by state. *Michael B. Barker AIP, Administrator, AIA Department of Environment and Design*

Architect: Yellow Pages Career Library. Editor, Richard Saul Wurman, AIA; writer, Alice McGinley. Philadelphia, Pa.: Murphy Levy Wurman (distributed by National Association of Elementary School Principals, 1801 N. Moore St., Arlington, Va. 22209), 1974. 32 pp. $2.25, plus postage.

This copiously illustrated booklet should be read by any young person who has a yen to be an architect. For those without this aspiration, the booklet may instill the desire to become a practitioner of this "unique art." The reader is given helpful information about "what you do and where you work," "people you work with," "a day in the life," "learning to be an architect" and "costs and benefits."

Other features of the publication will appeal to even a seasoned practitioner. There is a succinct essay on the development of architecture in America and another on the future of architecture. Particularly interesting is a section titled "What Architecture Means to Me," and here are brief comments by such notables as Louis de Moll, AIA's new president. He says that the two facets of architecture that he finds most meaningful are "satisfying human need and orchestrating the work of others for the best possible end product."

The career guide ends with a list of learning resources that the reader may pursue to learn more about architecture as a life work. A minor cavil: Why wasn't the AIA JOURNAL listed among the journals available for the professional architect? Many public and college libraries subscribe.

A New Life for the Abandoned Service Station. A. L. Kerth, AIA. Massapequa Park, N.Y.: The author, 1974. 83 pp. $15, plus $1 postage.

The American Petroleum Institute estimates that up to 60,000 filling stations will be abandoned by 1980. Kerth suggests that such abandoned stations may serve a purpose if they are converted and adapted for other uses. He presents many low-cost renovations, such as drive-in banks, laundrettes, snack bars, day care centers, gift and novelty shops and small community churches. He offers techniques for renovation, supplying complete working drawings. He shows that renovation is a relatively inexpensive procedure and one that could relieve a blight which cityscapes can ill afford.

The book may be bought from the author/publisher: Albert L. Kerth, AIA, P.O. Box 142, Massapequa Park, N.Y. 11762.

Building Design for Maintainability. Edwin B. Feldman. New York: McGraw-Hill, 1975. 232 pp. $12.50.

How long does it take for a "new" building to become an "old" one? Fairly quickly if the designer has not thought of maintenance problems early in the planning stage. Feldman urges that consideration be given to ease of maintainability, which he defines as the "condition of an item or a surface that permits its repair, adjustment or cleaning with reasonable effort and cost." Some "nonmaintainable" surfaces, for example, are raw concrete block walls; embossed resilient tile; solid-color carpets; low-grade latex wall paint.

Feldman recommends that the designer not wait until construction begins, or has been completed, to consider maintainability, pointing out that the amount of money

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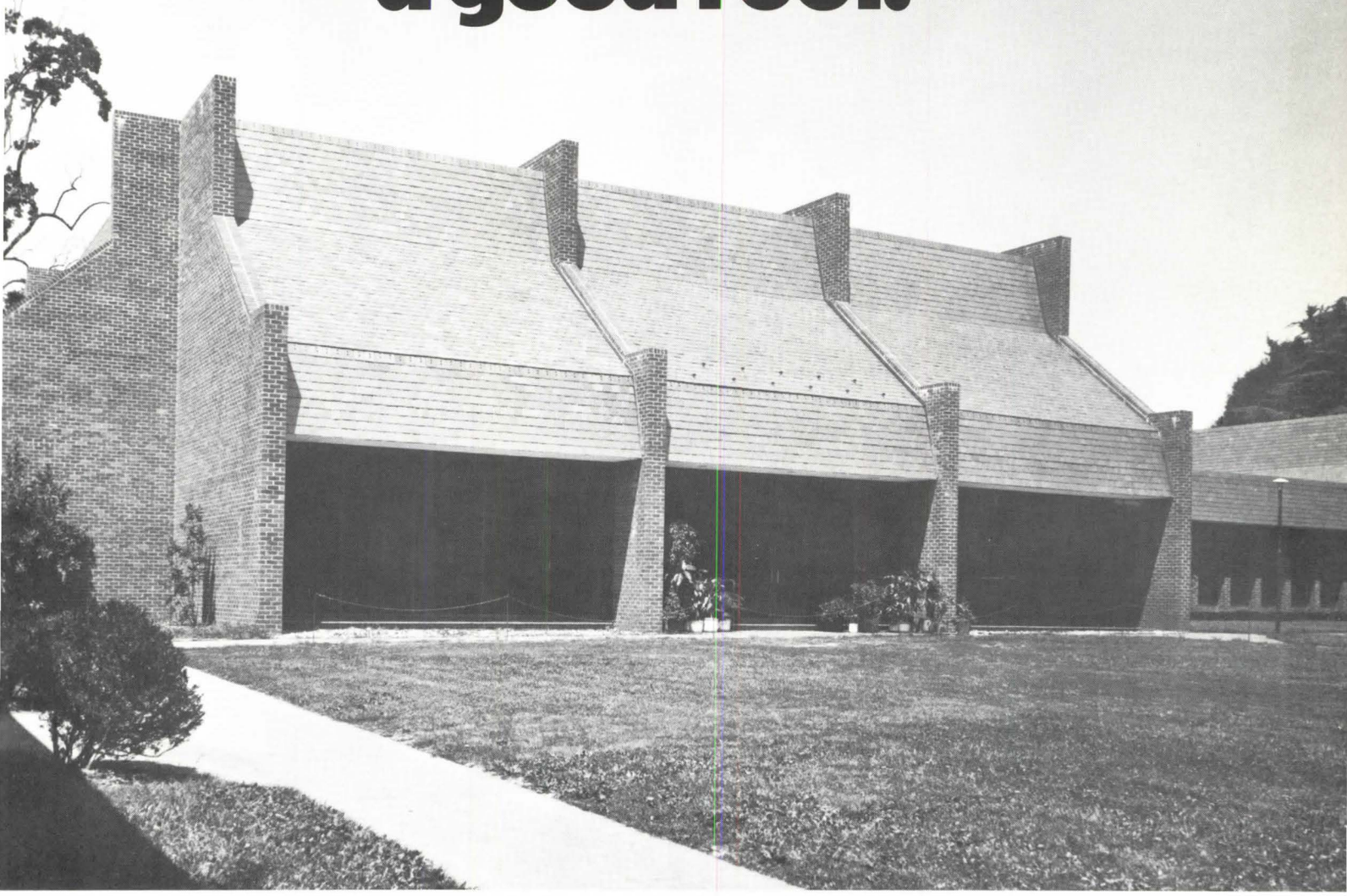
Above all a good roof.



Library/Chapel building, St. Catherine's School, Richmond, Virginia • Architects: Hardwicke Associates, Inc., Richmond, Virginia
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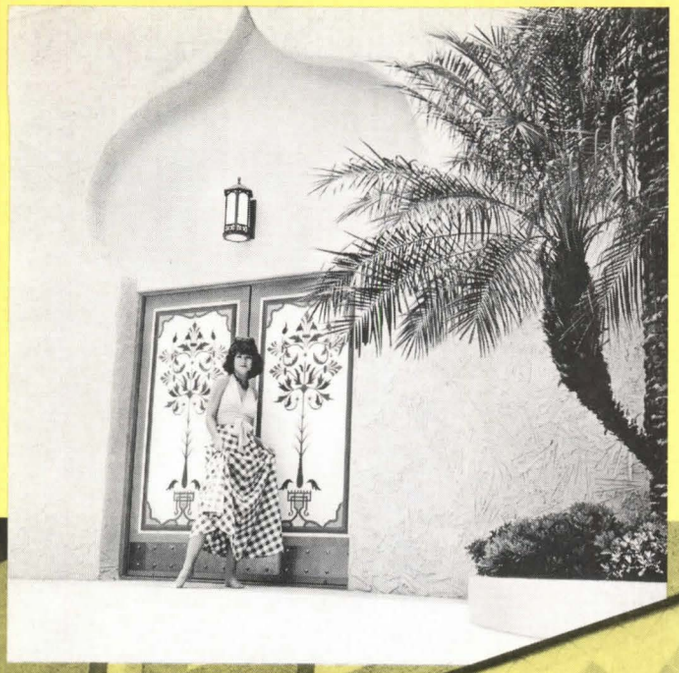

Arched doorways; entrances to exotic shops.

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Louis I. Kahn

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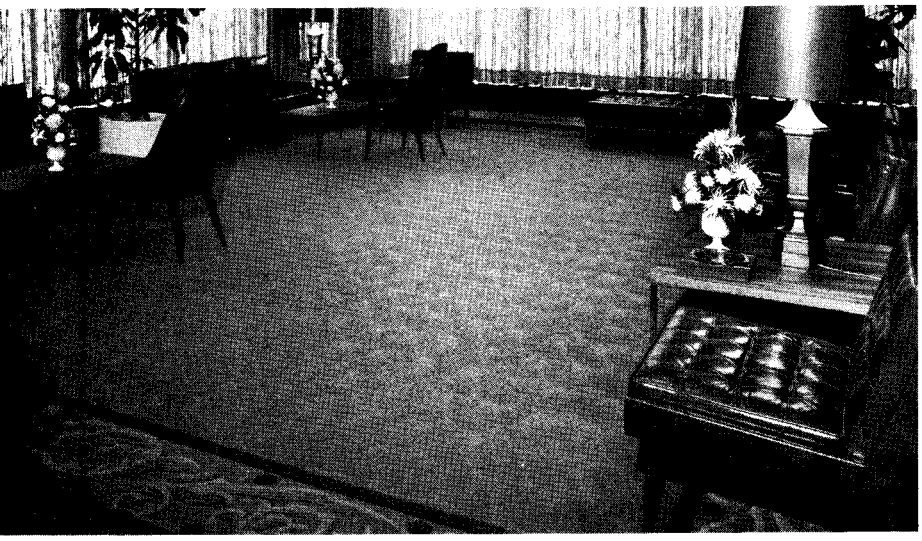

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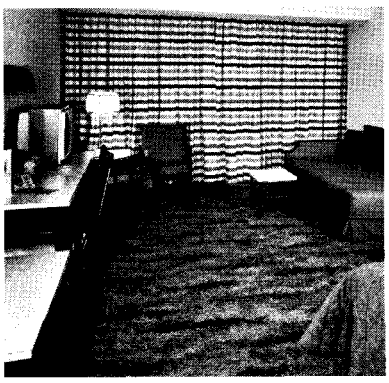

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The day, April 19, 1775. A small group of Minutemen gather at the Lexington Common to intercept a superior British force on its way to Concord. Seven Minutemen fall, the first American casualties of "the shot heard round the world."
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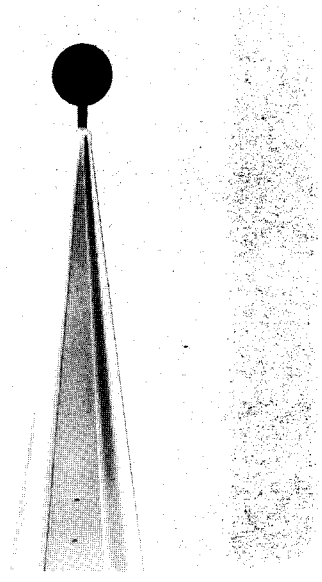
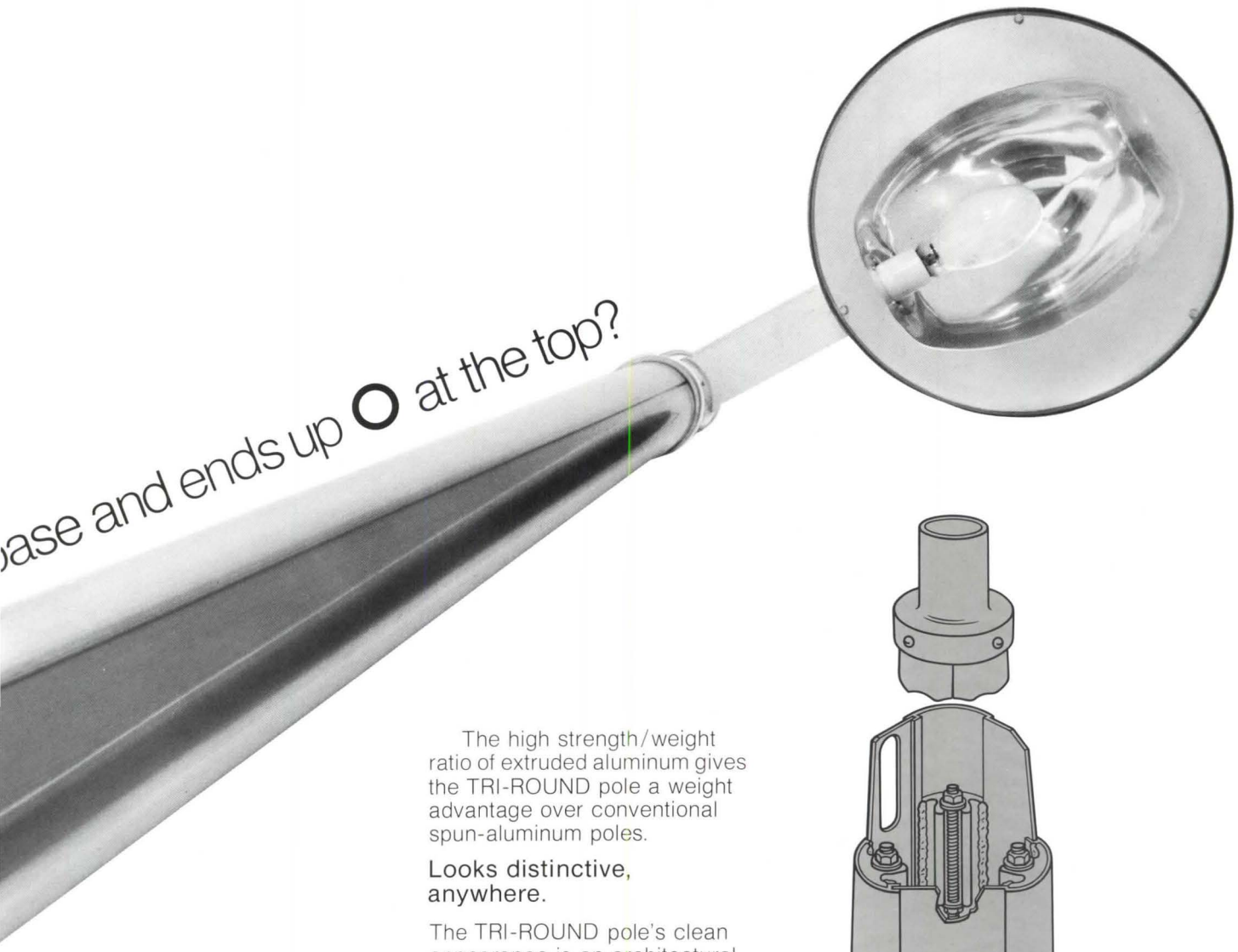


FROM CROUSE-HINDS

How do you extrude a pole that starts out △ at the



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CROUSE-HINDS

In Memory of Benton MacKaye, 'Father of The Appalachian Trail'

Hugh B. Johnson, AIA

Benton MacKaye, Hon. AIA, who was called the "Father of the Appalachian Trail," died December 11, 1975, at his home in Shirley Center, Mass., at the age of 96. His professional life of over 70 years was dedicated to regional planning and the conservation of natural resources for social goals.

MacKaye was graduated from Harvard University in 1900 and received a master's degree from the Harvard Forestry School in 1905. He joined the U.S. Forest Service in 1905, the year it was organized under Gifford Pinchot. We might ask what was taught in forestry courses at the turn of the century to produce men with the breadth of vision of Benton MacKaye, Aldo Leopold and Gifford Pinchot, along with many others who became the advance guard of the conservationists or what we now call "environmentalists."

"You asked what Benton considered most important in his life work," Miss Lucy Johnson, whom Benton MacKaye in recent years referred to as "my good caretaker," wrote. "I have heard him say many times that he thought his most important contribution was a survey early in the century of the forest cover of the watershed in the White Mountains in New Hampshire which provided a basis for the establishment of the White Mountain National Forest." She places second his association with the Regional Planning Association of America, particularly his long friendships with Clarence Stein and Lewis Mumford; third, his work with the Wilderness Society, and fourth his conception of the Appalachian Trail.

MacKaye's government service extended over a period of 40 years from 1905 to 1945 and included, in addition to his years with the Forest Service, work with the Department of Labor after World War I in land colonization planning; planning of highway systems in Connecticut, including an original concept of the "townless highway plan"; planning studies for Indian reservations in South Dakota, New Mexico and Arizona; regional planning for the Tennessee Valley Authority; planning the "Bay Circuit Project"; a series of state parks encircling Boston; work with the Department of Agriculture on flood control policies; work with the Rural Electrification Administration, and, finally, in 1944 and 1945, a study of development under the proposed Missouri Valley Authority.

The Appalachian Trail idea was developed in conversations among MacKaye, Clarence Stein and Charles Harris Whitaker, then editor of the *Journal of the American Institute of Architects.*

Stein was chairman of the AIA commission on community planning, and Stein and Whitaker suggested that if MacKaye would write up his proposal, Whitaker would publish it in the magazine. This resulted in the article "An Appalachian Trail: A Project in Regional Planning," which was published in the October 1921 issue of the now AIA JOURNAL.

MacKaye, in the article, envisioned workers taking a two-week vacation in the mountains which "would be a little real living for thousands of people . . . before they died." He proposed that they use their leisure time in the mountains to operate cooperative farm camps to raise their own food; and he suggested that other camps undertake small-scale lumber production within the national forest. The camps were to be planned as a series of recreational communities throughout the Appalachian Mountains from New England to Georgia, connected by a walking trail.

Many of the social thoughts of MacKaye have been forgotten, but the idea of a walking trail along the mountain tops caught the imagination of people from all walks of life. They have made the 2,050-mile-long Appalachian Trail a reality.

The Regional Planning Association of America was organized in 1923 by Stein, Mumford, MacKaye and a few others who met formally to discuss the planning of entire regions with natural resources conserved for the benefit of the people. In 1935, MacKaye was one of eight members of the organizing committee that established the Wilderness Society. MacKaye was president of the society for five years and on its governing council for 17 years. Miss Johnson says that he "kept in *close* touch" until the end.

MacKaye's writings included "Employment and Natural Resources" (1920), a publication of the Department of Labor, and the book *The New Exploration: A Philosophy of Regional Planning* (1928). He was co-author with Mumford of the article "Regional Planning" for the 14th edition of the *Encyclopaedia Britannica.* Another title, almost an essay in itself, is "Democracy in Flood Control, Regional Building in the River Valleys: Upstream Community vs. Downstream Slums." He wrote the book *From Geography to Geotechnics* in 1968. Geotechnics is defined as the applied science of making the earth more habitable. In 1969, the Wilderness Society published a collection of his essays under the title *Expedition Nine: A Return to a Region* and presented it to MacKaye on his 90th birthday. He recently spent several years writing *Geotechnics of North America,* not yet published.

MacKaye's 70 years of service have produced many important contributions to planning, conservation and social goals. Lewis Mumford has said of him: "No man in his generation ever worked more devotedly to insure that our country should meet what Thoreau before him called 'The Expectation of the Land,' and no man could have done so with less concern about his personal advantage or public appreciation."

Nothing brought MacKaye more satisfaction than the concept of the Appalachian Trail. In his later years, all of the leaders of the Appalachian Trail Conference visited him at Shirley Center, and he constantly received communications from friends and strangers regarding the trail.

Miss Johnson has forwarded one 1975 Christmas greeting to MacKaye from a young man whom he did not know. The following typical message is quoted from this greeting: ". . . I am sending you this card to express my gratitude to you for your vision of a trail along the Appalachians and your work in getting it started. I hope that all of us who love this trail will hold your vision in our hearts and minds and work to keep the trail the wonderful place it is." □

Mr. Johnson, a partner in the Washington, D.C., architectural/planning firm of McGaughan & Johnson, is former chairman of the AIA regional development and natural resources committee.

Economical steel joists provided flexibility in installing mechanical, electrical and telephone systems for Mission State Bank.

For the Mission State Bank, Mission, Kansas, economy and flexibility were just two of many good reasons for selecting steel joists. Steel joists also facilitated installation of the bank's versatile bronze glass curtain wall. Erection during the winter months was made easier by the use of steel joists.

The attractive five-story bank used H-Series joists, mostly 16 and 18 inches deep. The general contractor was John M. Fogel Construction Company. The Architect was William M. Conrad, A.I.A., of Team 1—Architects, Engineers, Planners. The steel fabricator was The Bratton Corporation.

Aside from economy, flexibility and ease of installation, steel joists aid fast occupancy and design flexibility in construction.

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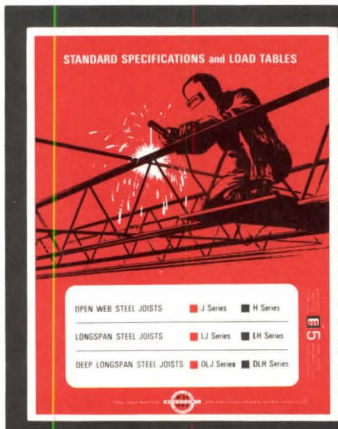

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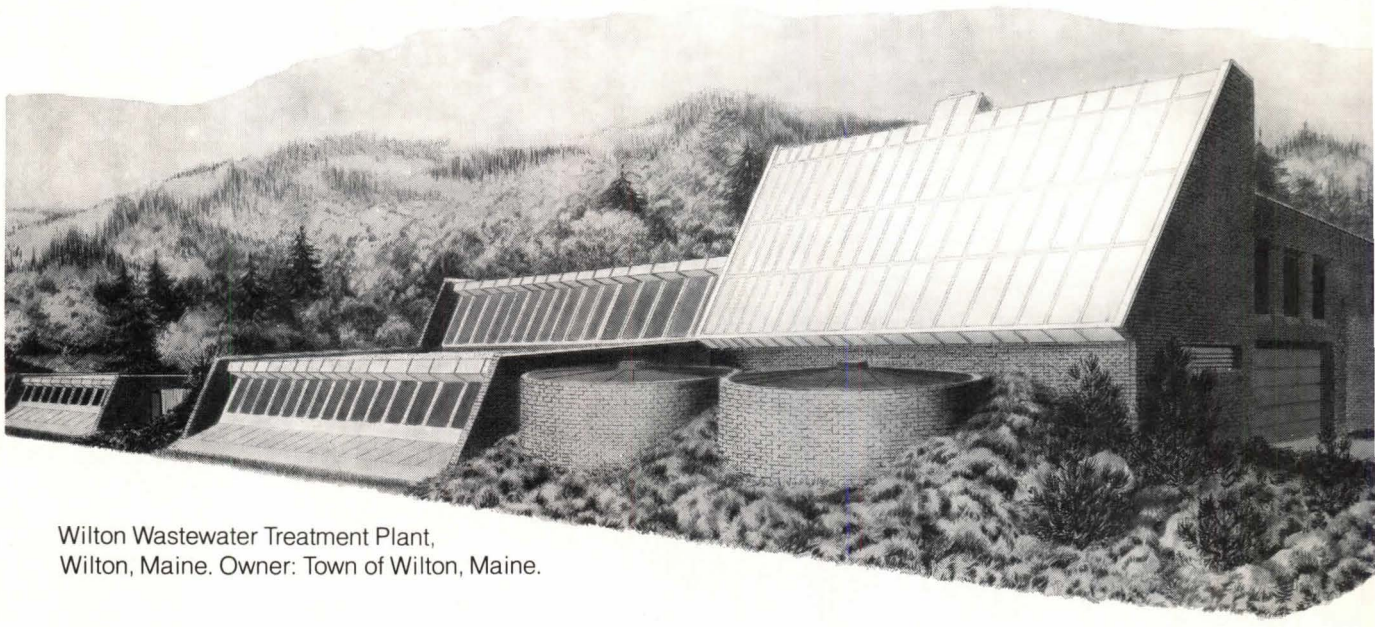
Announcing the 1975 Owens-Corning Energy



Wilton Wastewater Treatment Plant,
Wilton, Maine. Owner: Town of Wilton, Maine.

When Owens-Corning initiated its Energy Conservation Awards Program in 1971, our first year's winners conserved energy by concentrating on ways to be more energy efficient.

Our two winners this year—plus a third building receiving honorable mention—go beyond that. They set out to be *energy independent.* At most, only 20% of their power comes from outside sources.

Read on for details. You may find a way your company can save energy.

Wilton Wastewater Treatment Plant, Wilton, Maine

Three solar collectors set at 60° southern exposure supply a large portion of the thermal energy needed by the plant. In addition, methane gas, created as a by-product of the waste treatment process, is collected and stored to power a gas boiler and an electric generator on cloudy days.

The plant is built into a hillside. This provides gravity flow for the waste treatment process, reducing energy requirements. The hillside also maximizes solar energy gain and reduces heat loss.

The plant's unusually compact design helps retain heat.

Heating costs (using solar energy, methane gas and occasional outside sources) are estimated to be 80% less than for a conventional structure heated by oil.

Design by Douglas A. Wilke, Architect and Engineer, Glen Head, N.Y., and Wright, Pierce, Barnes, Wyman Engineers, Topsham, Maine.

Terraset Elementary School, Reston, Virginia

A 7,000-sq.-ft. solar collector plays a primary role in supplying energy to heat and cool this 60,000-sq.-ft. structure.

The solar collector is complemented by a double bundle heat reclaim water chiller plus a variable-volume air distribution system. In addition, a 60-ton absorption chiller will be connected in series to a 100-ton electric-driven reciprocating water chiller unit for maximum cooling efficiency in summer.

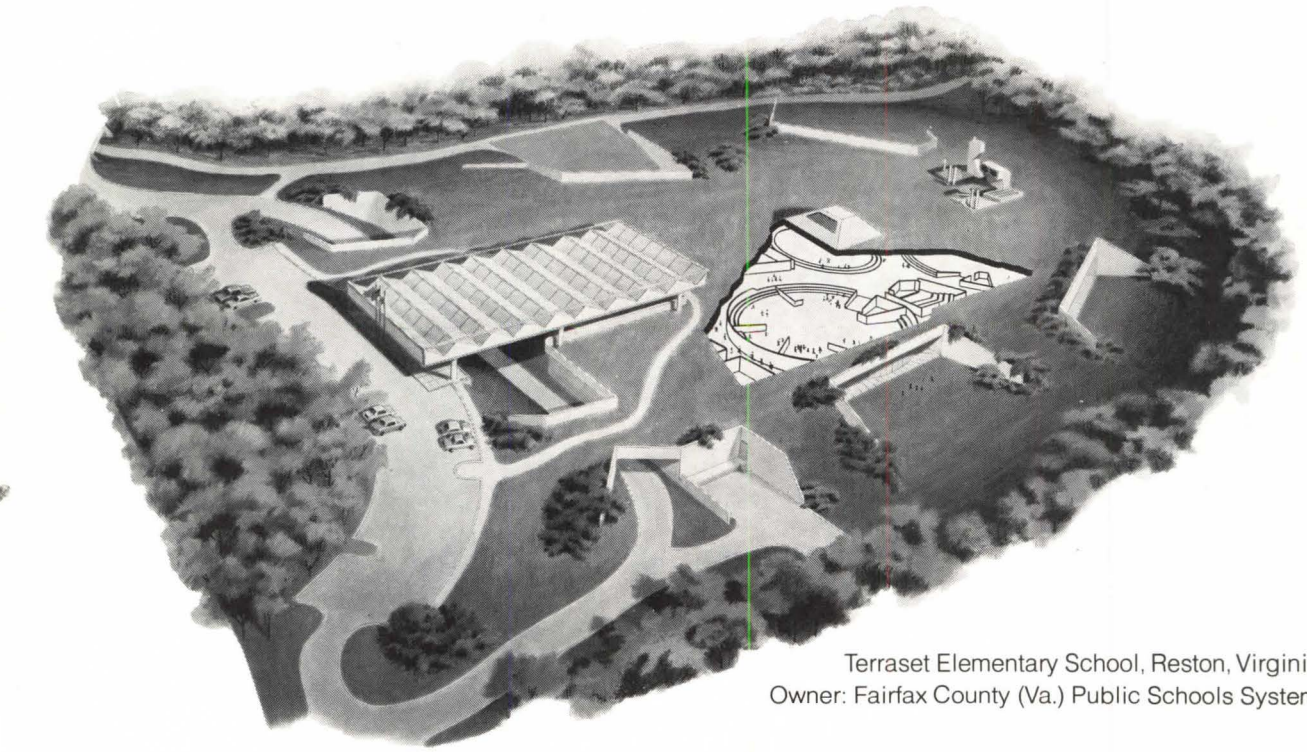
Both the solar and mechanical systems are computerized to optimize energy efficiency.

The structure is mostly below ground, which provides efficient, natural insulation. Only 20% of the wall area contains glass, with the glass recessed to minimize heat loss and gain.

Energy costs for the first year of operation are expected to be $31,600 *less* than for an all-electric system. And $19,400 *less* than for a fossil-fuel *system.*

Design by Davis, Smith & Carter,

winners of the Conservation Awards



Terraset Elementary School, Reston, Virginia.
Owner: Fairfax County (Va.) Public Schools System.

Inc., Architects. Mechanical system design by Vinzant Associates. Both of Reston, Virginia. Hankins and Anderson, Inc., Richmond, designed the solar energy system.

Honorable Mention

For the Princeton Education Center, Blairstown, New Jersey.

Solar collectors provide about 75% of heating load and nearly 100% of the hot water needs.

A 12-kw hydrogenerator on a nearby 12-acre lake, and a 6-kw experimental "sail wing" wind generator, provide 90% of electrical needs.

Design by Harrison Fraker, Architect, Princeton, N.J., and Flack and Kurtz, Consulting Engineers, New York.

The 1975 Energy Conservation Awards Jury

This year's winners were selected by:

Ken Mahal, President, L.K. Mahal Associates, Bloomington, Minn.

William L. Porter, Dean, School of Architecture and Planning, MIT, Cambridge, Massachusetts.

Robert R. Ramsey, V.P., Leo A. Daly Company, Omaha, Neb.

Richard E. Masters, Partner, Jaros, Baum & Bolles, New York, N.Y.

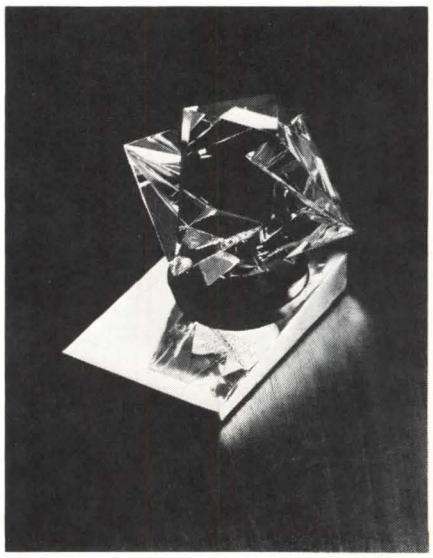
Dr. Robert Wehrli, Chief, Architectural Research Section, National Bureau of Standards, Washington, D.C.

Chih-Chen Jen, Principal in Charge of Design, Kahn and Jacobs/ Hellmuth, Obata & Kassabaum, P.C., New York, N.Y.

Free Energy Conservation Awards Program brochure

For more information about the winners and their designs, write:

Owens-Corning Fiberglas Corporation, Att. B.D. Meeks, Fiberglas Tower, Toledo, Ohio 43659.



The Owens-Corning Energy Conservation Award: "Triangles," a multi-faceted Steuben Crystal sculpture that captures and reflects light from triangular planes.

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Books from page 64
lost every year in maintenance "through improper planning and design is astronomical." In two to three decades, he says, the maintenance costs of most buildings will equal the original cost of construction.

Feldman outlines step-by-step the measures that should be taken to assure that a building can be effectively maintained at the lowest possible cost. He discusses grounds, exterior building surfaces and roofing; flooring, elevators and stairs; walls and ceilings; furniture, fixtures and fenestration; plumbing and piping; HVAC systems; maintenance facilities.

Easter Hill Village: Some Sociological Implications of Design. Clare C. Cooper; foreword by Herbert Gans. New York: Free Press, 1975. 337 pp. $15.95.

Herbert Gans' fluent foreword to this book explains the user-orientation of the study and its major nontechnical findings. For example, the author proves anew that the poor really are different, even when they have middle-class aspirations. At the end of the book, she includes a useful list of recommendations for *all* multifamily housing, with references and bibliography. This section will be republished separately, we are told. Without checking it intensively, I think that it is generally excellent. It should be used, however, with the author's warnings in mind and with one's own evaluation.

Between these two sections is a reworked master's thesis by Donald L. Hardison and Vernon De Mars on a study of residents' responses to a well-designed housing project in Richmond, Calif. The sociological text is difficult reading to obtain the useful information. Although the ideas and techniques are a major contribution, reading the summary seems quite sufficient for an architect's purposes, with the concluding recommendations kept readily at hand. *John Blanton, AIA*

Windows: Performance, Design and Installation. H.E. Beckett and J.A. Godfrey. New York: Van Nostrand Reinhold, 1974. 370 pp. $32.95.

Those who work in offices without windows know that they serve more of a purpose than the admission of daylight. Among other functions is the visual link to the outside. Windows also can enhance or detract from a structure's esthetic appearance, and improperly designed windows can cause glare, overheating and other discomforts for the building's occupants.

This comprehensive study of windows —intended for the practicing architect— is concerned with the performance of one of the basic components of a building.

The first major section of the book is on the functions a window is expected to perform. The utilitarian aspects of window design are discussed in chapters entitled daylight and view; sunlight; ventilation; safety from fire; dimensions; durability, maintenance and safety; strength and stiffness; exclusion of rain; airtightness; heat insulation and condensation, and sound insulation. A final chapter in this section concerns windows as design elements, and here is outlined the development of windows in architectural styles through the ages.

Part two is a study of various types of windows, aiming to give the architect guidance in the selection of windows for particular buildings and to help him avoid defects in performance. Such topics as glazing systems, fittings, shading devices, installation, access for cleaning and maintenance and testing for general evaluation are covered.

The book is written by two British authorities on the subject. The units used are metric. There are references for further reading at the end of chapters and a final classified bibliography. The book is copiously illustrated with plans, diagrams and photographs.

Psychology for Architects. David Canter. London: Applied Science Publishers, 1974. 171 pp. 4 pounds.

In the preface to this book, Canter expresses his intent to present "basic psychological concepts which are relevant to the practice of architecture or which are

continued on page 76

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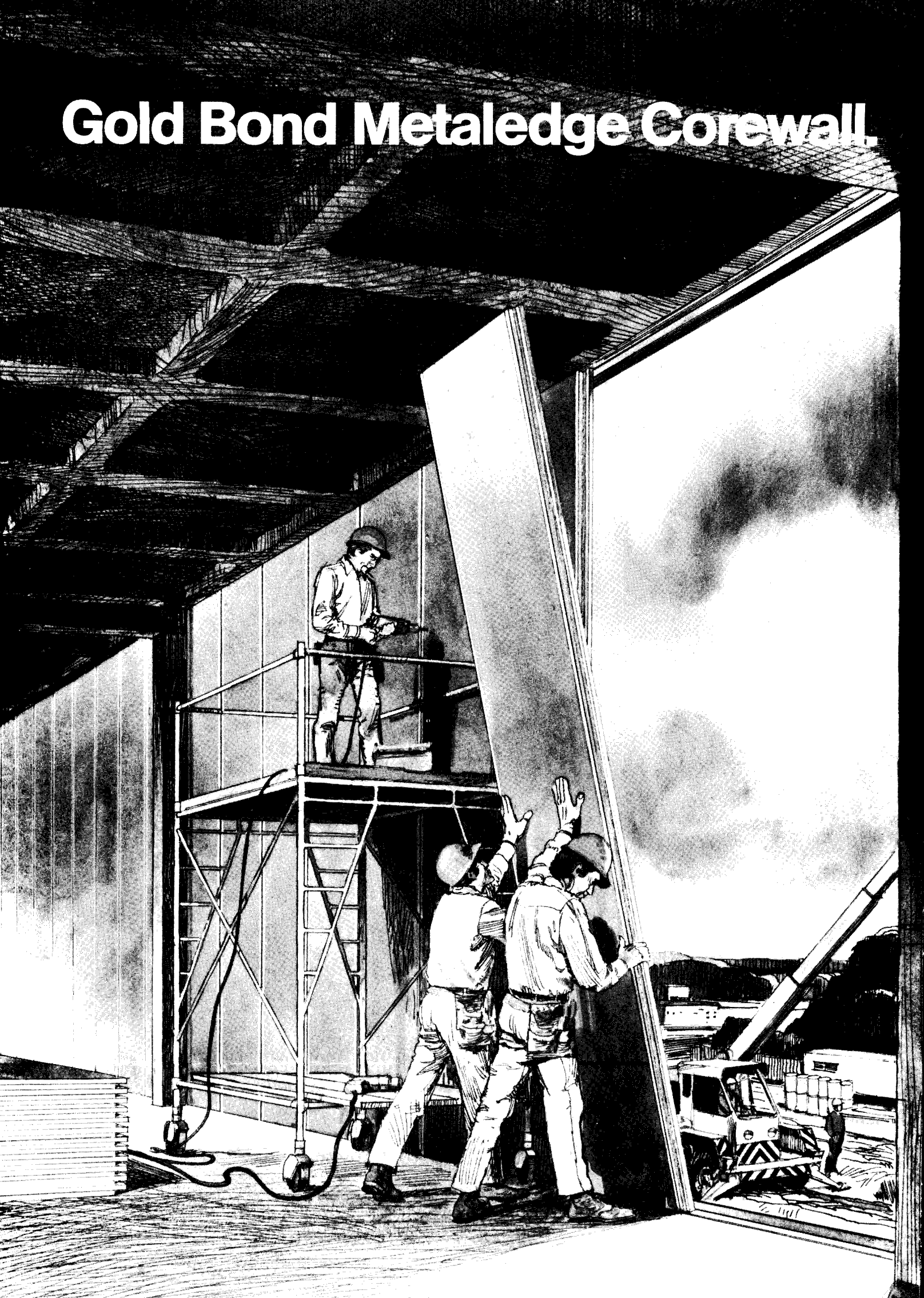
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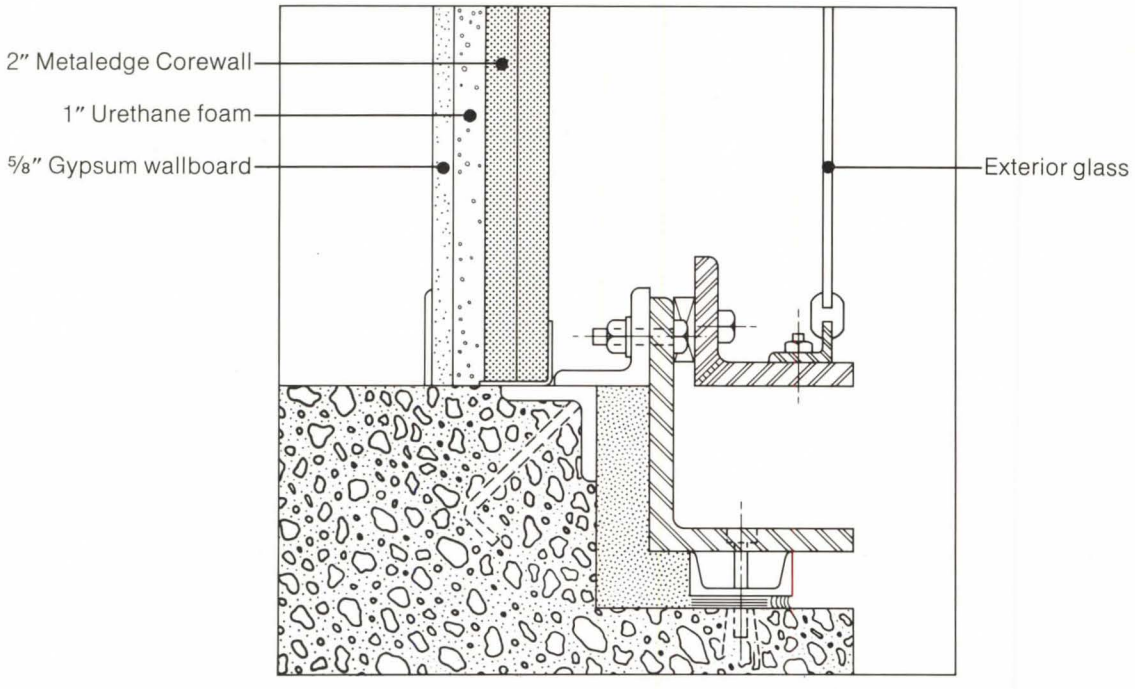

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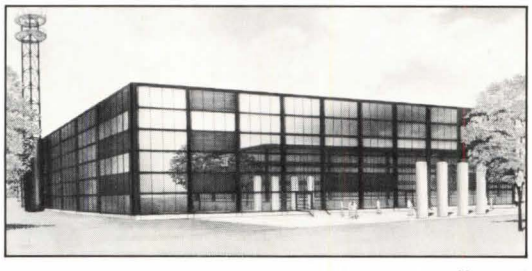

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Books from page 72
necessary for the comprehension of that research carried out with the aim of contributing directly to decisions about the built environment." As a psychologist with extensive experience in working with and teaching architects, as well as being himself involved in environmental research, Canter would seem to be in a unique position to meet these objectives. Although there is much of value in his book, this reviewer has serious reservations about the way in which some of the subject matter of psychology is handled.

Canter's summary presentations of basic concepts and problems in psychology are well stated and often insightful, but his discussions lack sufficient depth and detail to enable architects to understand them: His explanations and supporting arguments are, in fact, quite disappointing. For example, while no psychologist would deny a contribution of past experience to size constancy (size constancy may be roughly described as instances where the size of the image of an object on the retina of the eye changes—sometimes considerably—but we perceive the object's size as remaining about the same), familiar size cannot account for instances of size constancy which obtain for objects that be *any* size (such as geometric figures, balloons, etc.). There are, in fact, many important reservations concerning the role of past experience in the constancies and perception in general which deserve some recognition, even if discussion in depth is not appropriate in a book of this kind.

Similarly, Canter's discussion of the role of reinforcement in learning is simplified to the point where one might get the impression that learning cannot occur in its absence: Whether or not it can has been and is still the subject of considerable research.

These examples are not isolated cases and, given the purpose of the book and a specific rejection (in the preface) of a textbook orientation, Canter's wish to avoid unnecessary technical detail is perhaps understandable. However, simplification can be carried to the point of doing disservice to the subject matter, and it is this reviewer's concern that *Psychology for Architects* represents just such a case. Canter's target population—architects—could well end up with a misleading and/or inaccurate picture of the current "state of the art."

The book, however, can be highly recommended to psychologists who are beginning to seriously explore the field of environmental psychology or who are merely curious about what environmental psychology is all about. The objection to oversimplification is irrelevant to psychologists who are already familiar with the problems and research in their field; and although references to research and concepts which have emerged from environmental psychology are necessarily sketchy, the book, after all, was not primarily directed to the task of explaining environmental psychology to psychologists.

Psychology for Architects is, nevertheless, a first rate source of general information, suggestions and ideas concerning environmental psychology. Canter's experience and expertise as an environmental psychologist are reflected in his insightful comments about the relevance of psychology to architecture, and he is particularly effective, in this reviewer's opinion, in identifying problem areas in architecture and design to which psychologists might contribute. *Fredda Steinman, Ph.D., Department of Psychology, Trinity College, Washington, D.C.*

Energy Information Locator. New York: Environment Information Center, 1975. 187 pp. $27.50.

This is a reference tool, published annually, that tells the user where to find energy information. It lists government agencies and organizations that offer specific information and services, giving addresses, information on publications and products and specific persons to contact. It describes 71 energy-related indexing and abstracting services, 100 directories, 70 newsletters, 20 legal binder services, 200 journals and 750 recent books on energy. *continued on page 82*

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Additional information is detailed in *Sweet's Architectural Catalog File* and *Interior Design File*, reference 9.29/Du. For further information write Du Pont, Pneumacel Marketing, Christina Site, Wilmington, Del. 19898.

*Pneumacel is the generic term for pneumatic cellular polymeric cushioning material.

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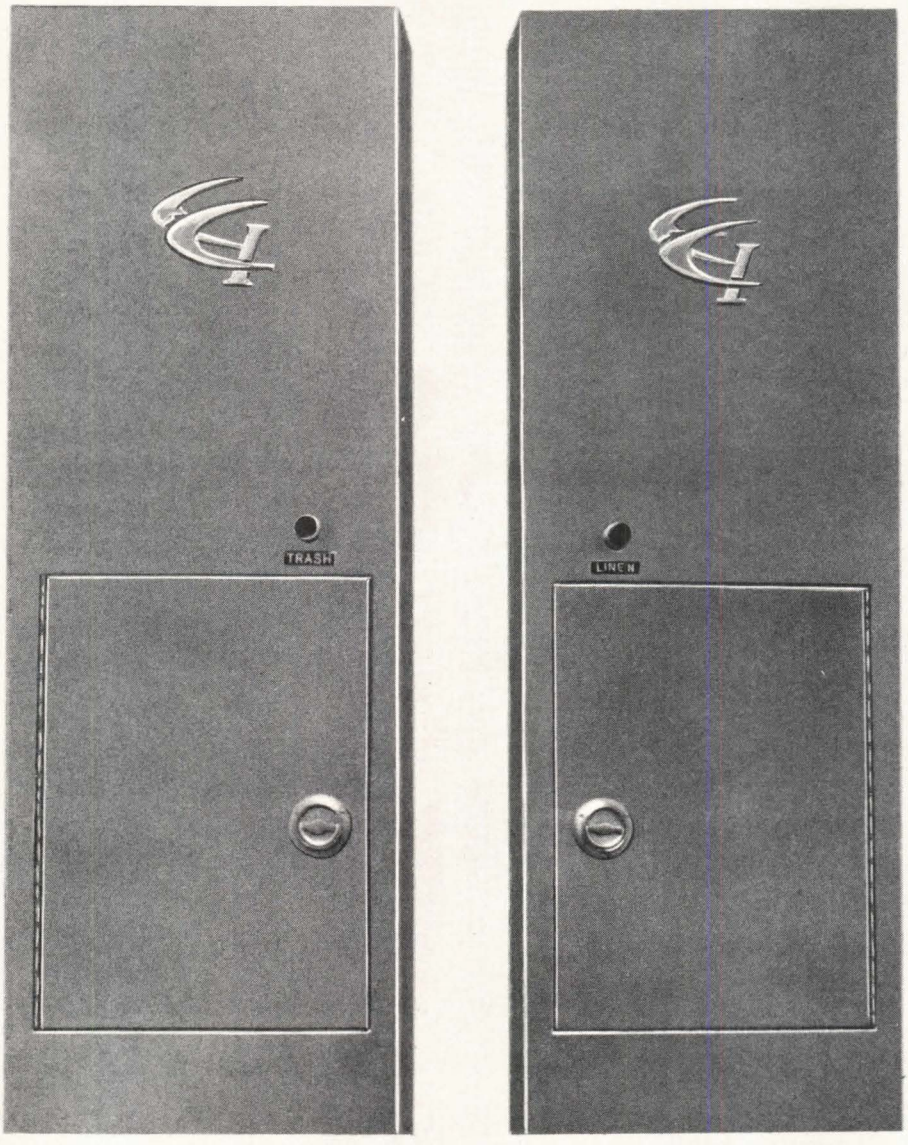

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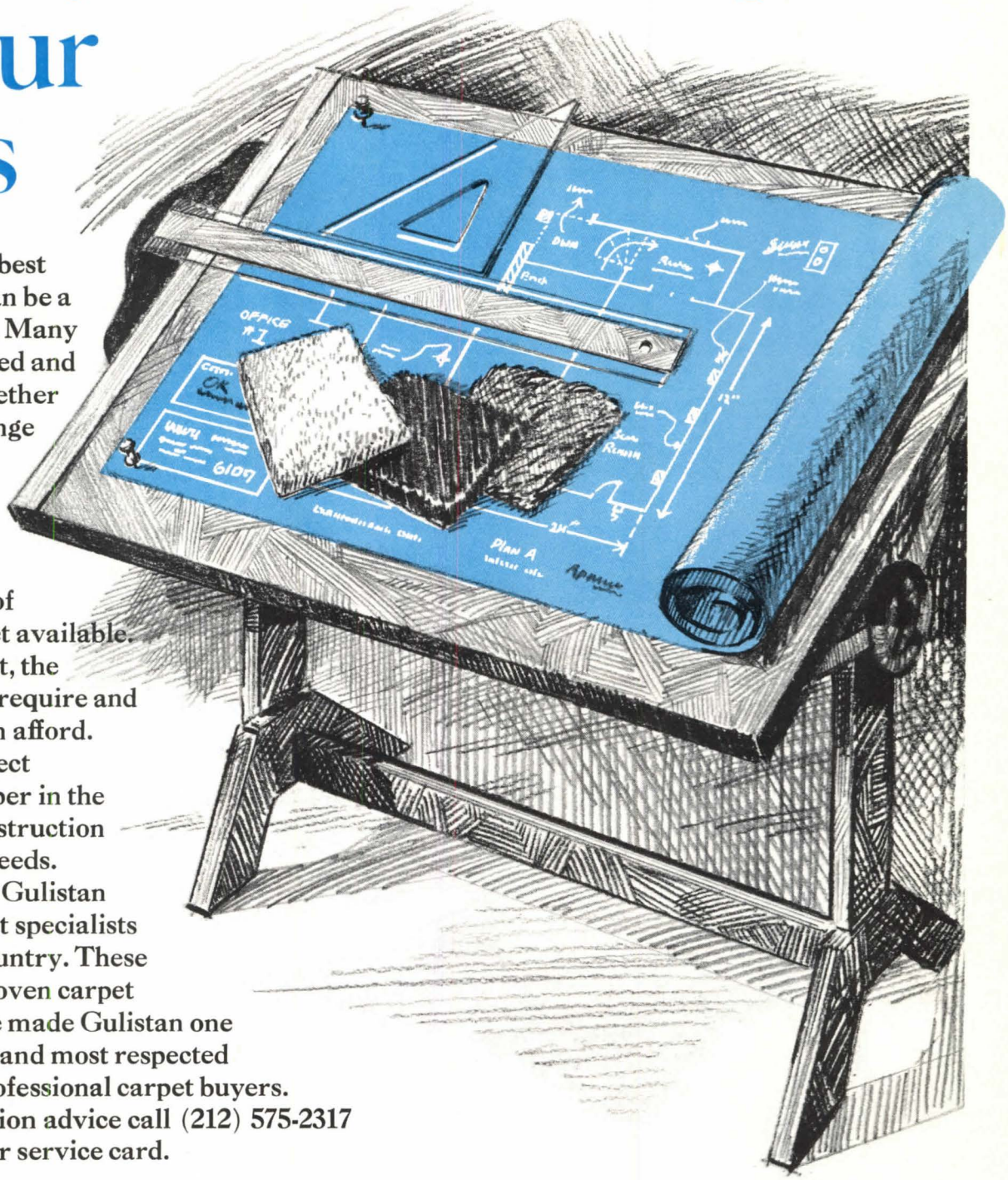

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The book is published by Environment Information Center, an independent research organization, which is located at 124 E. 39th St., New York, N.Y. 10016.

Design Methods for Energy Conservation in Buildings. Donald P. Grant, Editor. Berkeley, Calif.: Design Methods Group, 1975. 53 pp. $5.

In July 1975, the third international conference of the Design Methods Group was held, and during the conference there was a workshop on design methods for energy conservation in buildings. In anticipation of the workshop, a competition was held for the best paper on the subject. The winner was B. Paul Wisnicki for his contribution on "Buildings and Energy: Problems and Perspectives." The abstracts and papers submitted are collected in this volume, which may be obtained from DMG, Department of Architecture, Berkeley, Calif. 94720. The conference proceedings in their entirety (four volumes) may be bought for $20 under the title *The Application of Systematic Methods to Design.*

Design Criteria for Solar-Heated Buildings. Everett M. Barber Jr. and Donald Watson, AIA. Guilford, Conn.: Sunworks Inc., 1975. 66 pp. $10.

Although the principles outlined in this book may be applied to the retrofitting of existing buildings, its major emphasis is upon solar-heated new structures. Its advice is to "consider the general architectural implications of solar heating before commencing detailed design."

As the authors point out, solar collectors "dictate the massing, building orientation, roof angle and roof lines. Also interior spaces can be affected by the manner in which the collectors, storage and heat distribution system are handled."

There are chapters on windows versus solar collectors; applications of solar energy for buildings; components of a solar-heated system; building design and construction, and one called "miscellaneous" in which such things as building codes, tax assessment and insurance are discussed. There are also eight appendices, one of which tells how to compute the monthly output of a collector.

The American Energy Consumer. Dorothy K. Newman and Dawn Day. Cambridge, Mass.: Ballinger, 1975. 308 pp. No price given.

The Ford Foundation, in 1971, initiated the Energy Policy Project. This book is among the special studies commissioned by EPP which were integrated into the final report titled *A Time to Choose* (*see* Nov. '74, p. 6).

The purpose of *The American Energy Consumer* was to investigate the relationships between energy use and the consumer. Research was undertaken to correlate energy usage with the socioeconomic characteristics of individual households. A major finding of the study was that the more money the consumer has to spend, the more energy he uses at home and in his automobile, regardless of how far he has to commute to work, the size of his house, the number of people in his household or whether the house is weather-protected. The more money he has, the more likely he is to have house and equipment that use a great deal of energy.

Another finding was that the major appliances that a household buys separately —that are not built-in—are of less importance to the energy consumed than things about which the consumer has little to say, such as the basic features of a structure and the built-in equipment.

Lower-income and black households have even less choice than others about their dwellings and the energy-using features. "The inevitable conclusion is," say the researchers, "that households may be able to play only a modest role in energy conservation themselves. Possible exceptions are the well off, who have most options. But even they are locked into a given housing stock and certain transportation alternatives." The authors continue: "To a large extent the buck passes to commerce and industry, to state and local governments . . . to various arms of the federal government that administer and enforce housing laws and utility and environmental regulations and, finally, to the Congress." □

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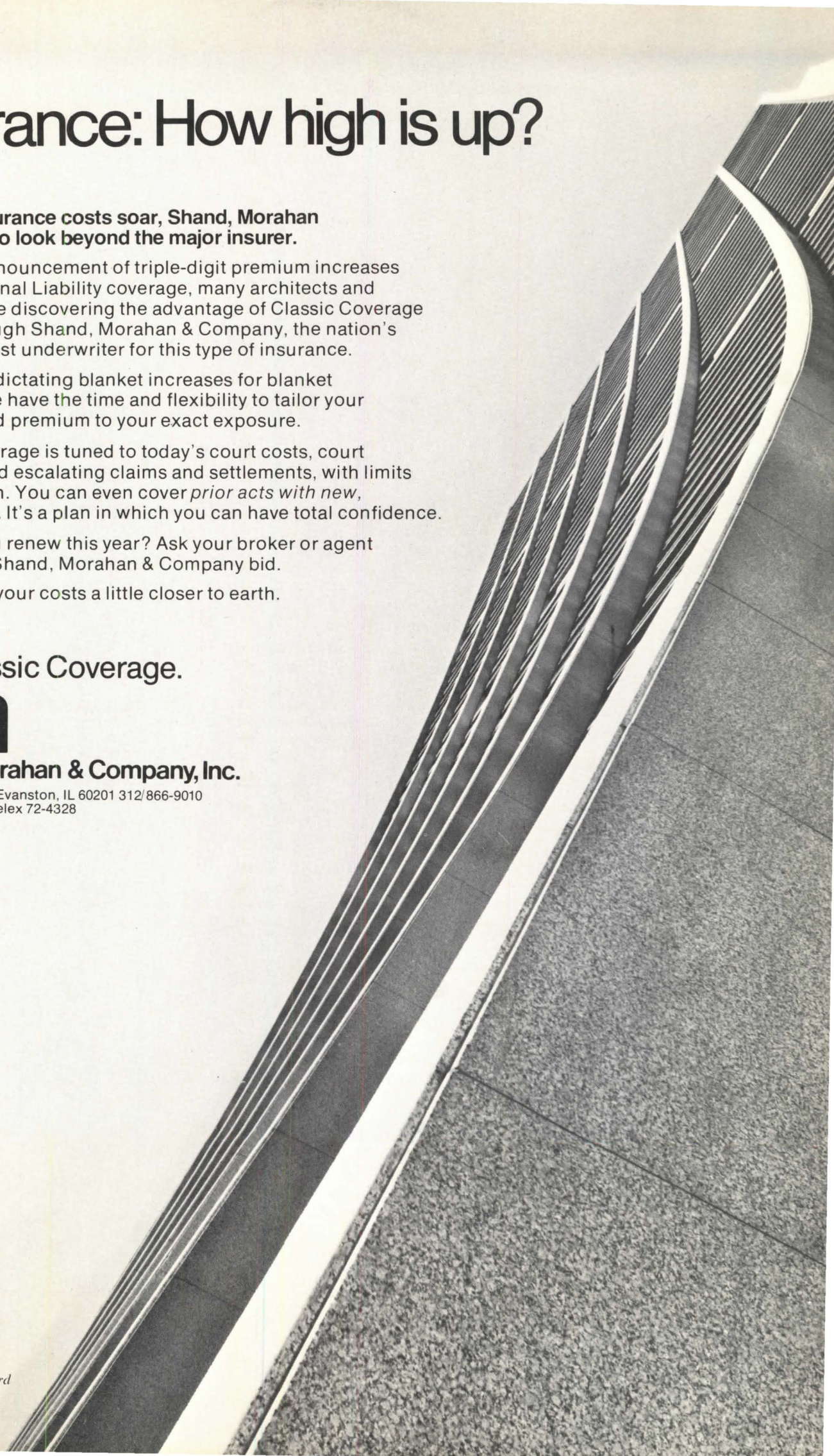

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