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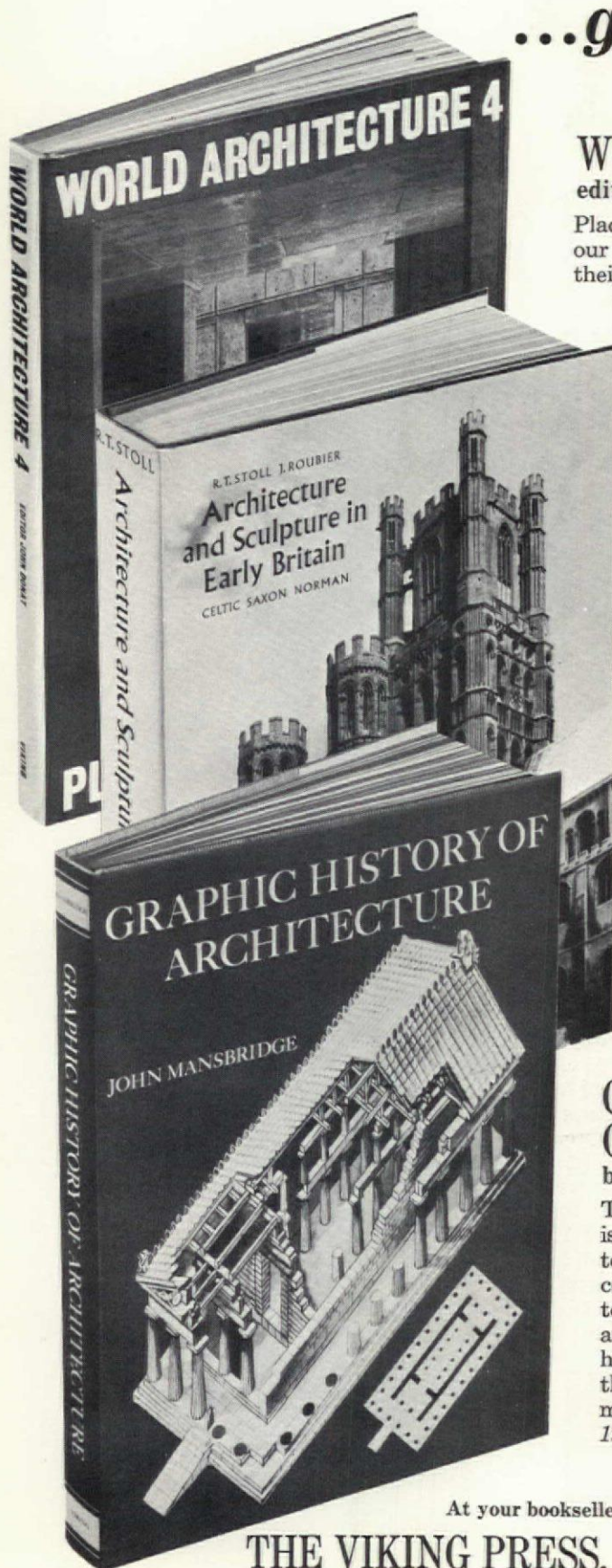
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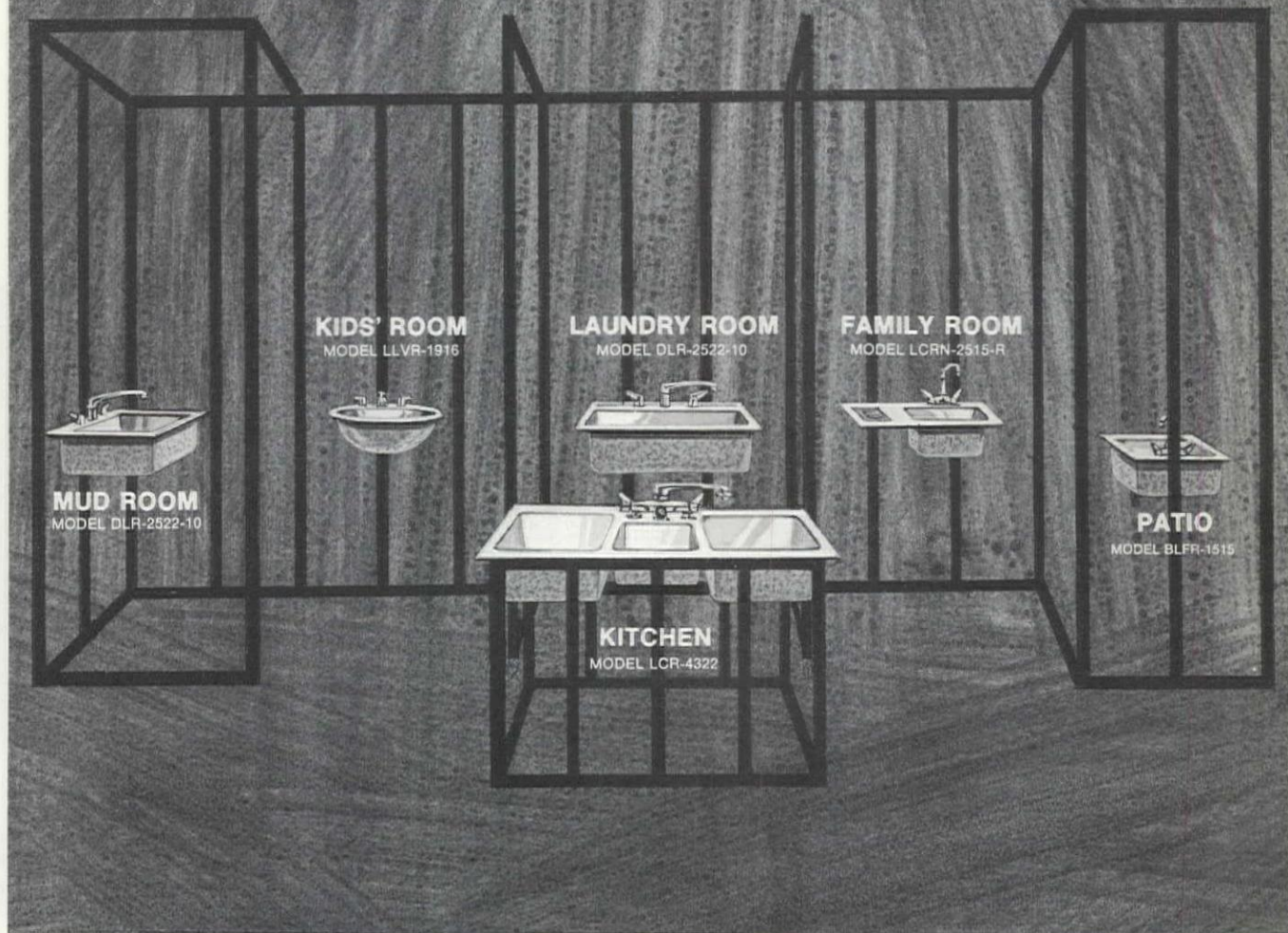
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VOL. XLVIII, NO. 5

Comment & Opinion

Hurrah for Holiday: Beautification efforts—Lady Bird's included—across the land have been met with a good deal of cynicism. A growing number of architects, as indicated by personal conversations and by correspondence, feel that many of the activities in this area have been superficial and that cosmetics have become confused with sound planning and design. But more about that in a later issue.

Meanwhile, with the expansion of its Awards for a Beautiful America to encompass the public, *Holiday* magazine's program is worth more than a passing mention. For the guidelines are indeed broad and should have significant public relations value, with side benefits for the architectural profession itself, which was deeply involved in the initial competition this year.

"Beautification," in the words of Editor Caskie Stinnett, "can be improving a slum or conserving a canyon or beach, designing a new structure or saving a historical one."

Nominations, by the way, must reach *Holiday* at 641 Lexington Ave., New York, N.Y. 10022, by Jan. 1. There are no specific entry forms, but submissions must be supported by material to give the jury a clear picture of the project.

An Architect on Top: The 1967 program, for which entries were accepted only by state governors, had considerable professional import; in fact, the only individual to receive one of the top six awards—16 honorable mentions also were presented—was Victor Steinbreuck, FAIA (shown in photo receiving his

award, a bronze cast sculpture, from Washington's Governor Daniel J. Evans). The Seattle architect was cited "for his efforts to preserve historic structures and for creation of distinguished contemporary architectural examples and, most recently, as co-chairman of the Friends of the Market, for leading a drive to prevent demolition of Seattle's Pike Place Market."

Also honored was a group of New York City practitioners, the Architects Renewal Committee of Harlem, whose members have volunteered time and talent to revivifying large slum areas.

A review of the other four winners suggests the substances upon which the *Holiday* program is based:

- The City of Berkeley, Calif., for voting a \$12 million bond issue to bury underground the new Bay Area Rapid Transit system.
- The Carolina Mountain Club of Asheville, N.C., and the Great Smoky Mountain Hiking Club of Knoxville, Tenn., jointly for efforts to de-

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Cover

Immersed in professional concerns, do architects give short shrift to their own pocketbooks?



vises an alternative to bulldozing a highway through the Great Smoky National Park.

- The Tuesday Committee of Main-stee, Mich., a semiformal group of local businessmen, for its cleanup and beautification campaign there.
- The State of Wisconsin for general excellence in the enhancement of the state environment, particularly comprehensive programs to safeguard its landscape through highway billboard control, purchase of easements in scenic areas, legislative protection of rivers and efforts to curb blight and pollution.

On Other Fronts: There are many other programs of a similar nature on a smaller scale, of course, in all corners of the United States that are making their own contribution to the overall cause. One, for example, consists of the annual architecture and landscaping awards made by the Falls Church (Va.) Village Preservation and Improvement Society with the blessing of the AIA and the American Society of Landscape Architects. A municipal lot that is screened from view by a little park got one of the awards in the first program last year, along with a five-columned headline over an article which ran in Washington's *Evening Star*.

Says Louis T. Olom, staff director, about the Falls Church activity: "All of us are well-motivated in seeking to recreate some of the lost charm of the city. We think it can and will be done. The public authorities are receptive. And we believe the technique of establishing annual awards will encourage architects, builders and others to pursue principles of good design."

The arteries of beautification often begin where ugliness leaves off, and it is there that "architects, builders and others" must join for a total commitment. Making America pretty is hardly the heart of it.

ROBERT E. KOEHLER

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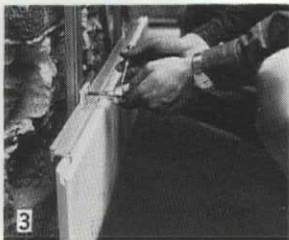
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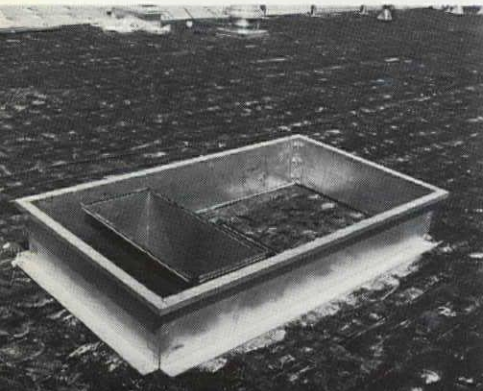
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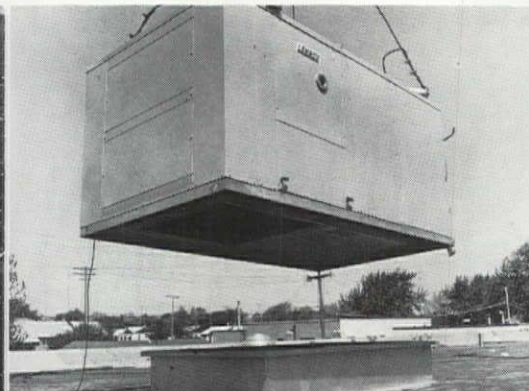


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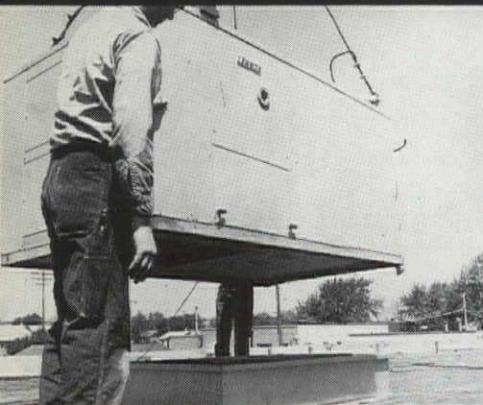
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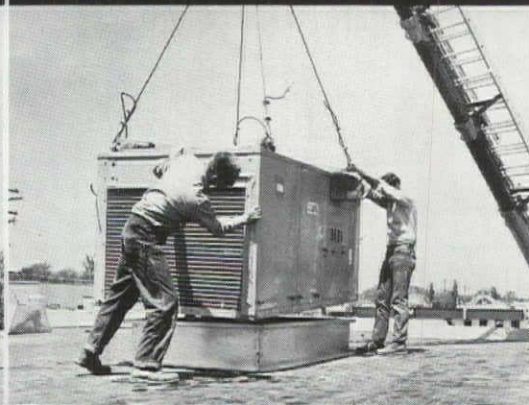
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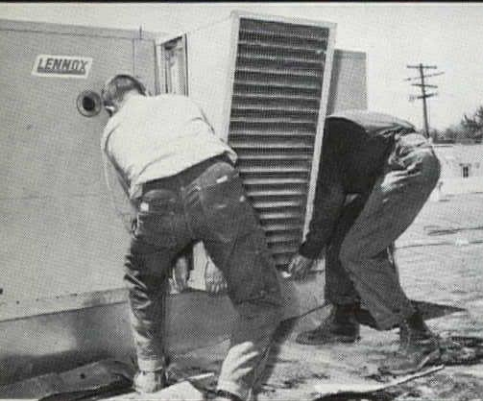
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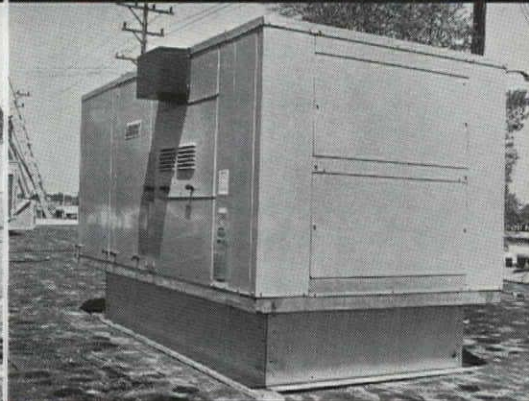
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Young Architects Search Meaning and Application Of Young Idea: Advocacy

Advocacy design? One of the architects said he hadn't even heard the term until a bare month before last month's Octagon workshop.

But the youngish practitioners in the workshop examined—or better, perhaps, searched—the young concept, seeking to pin down what it is and how it is to be used.

One thing was certain: Poverty pocket design is different from vestpocket park design and, man, you can keep your vestpocket parks pocketed.

"You don't see the essence of the question," a perspective student of architecture at Howard University charged. "Money talks... So give us a park—and we have no time for it. It gives us no power."

Workshop participants, invited because they have had experience with design for the poor, did not "want to see the problem," added the student, Wilbur Jackson.

Nathan Smith, AIA, is with the Architects Renewal Committee for Harlem, but spoke as a Negro: "You are missing the boat. Forget the whole thing if we cannot face facts... The name of this game is power, and we want it."

Smith describes himself as a community organizer who happens to have architectural skills. He seems perpetually on the brink of a smile. And he made a prophecy: "Last summer was bad, next summer will be worse, and the summer after that is it."

Two Strong Powers Meet: The Advocacy Urban Design Workshop, one of an information-gathering series held by the Institute's Committee on urban Design, seemed at moments to be a confrontation between the power of construction and the power of destruction—the latter, according to Smith, "the only power the Negro has."

Institute Director Max O. Urbahn, FAIA, of the New York Region, present for the second of the two-day conference, told attendees that "we on the board look for some very challenging ideas to come out of these seminars."

Archibald C. Rogers, FAIA, Committee chairman, told of his efforts in integrating an interstate highway with Baltimore's neighborhoods and of plans for a linear city, using such a highway as the spine, in Brooklyn.

The fact that the big federal roads program is, in its final years, moving heavily into urban areas provides "precisely the take-off point for advocacy design," Rogers said.

The highways, he said, are "a fact of life," so the highway, therefore, must be bent to serve as a "catalyst" for design and planning improvements. He spoke of a new, process-oriented design and insisted that the highway creates opportunities as well as problems. And he talked of a new architecture, neutral and unattributable, "coming out of the fingers of a multidisciplinary team."

Advocacy: Enter, But Where? But suppose the community doesn't want the highway? At what point does advocacy enter? Does the architect join in community resistance?

Such questions were not resolved. There was no extended quarrel, on the other hand, with Rogers' observation that the highway network is, after all, a defense network, and is also, moreover, the result of national policy set in the normal, democratic manner.

But there was also the view of architect Jack Dollard of Hartford, urging that the architect contribute to the community his expertise, show alternative solutions and serve as a resource for the articulation of arguments and counter-proposals against what the community feels foisted upon it.

One of the crucial questions emerging throughout the conference was whether the artifact is to be imposed upon the poor community or woven into it, acknowledging unique life styles and values.

It was indeed suggested that if architects find it difficult to design good things for the middle class, they can't expect to readily do good design for the lower class.

Wondered Rogers: "Is there perhaps a role then for community interpreters to serve as consultants to the architect?"

The workshop was the third in the urban design series of a half dozen or so, and Rogers said the committee "will interrelate the output of them all." Embedded in "the muddy matrix" of the third, he said, "are some specific jewels."

Many Facets, Many Views: The workshop attendees spoke from a multitude of views of a multifaceted problem and the discussion as a consequence bore the burden of considerable fragmentation. Some bits and pieces:

- There is a terrible lack of communication.
- What is needed is a more continuing effort than student participation. Communities are fed up to the gills with students using them as laboratories.
- We represent the other half of the profession... Young architects don't look at it (Constitution Plaza, Southwest Washington and other prestigious redevelopment efforts) with any glee.
- If there is a 20th century architecture it is in those people right now, the people in the ghetto.
- Architects need to get involved in initiation at the community level.
- Don't listen to government paternalism (says the architect), listen to my paternalism.
- You don't have to go to bed in the community to understand the community.
- The community is going to test you (your commitment and fraternalism, as opposed to paternalism). They're going to shove a plate of chitlins under your nose. If you don't make the scene you might as well get out.

New HQ Design Ordered; Octagon Architect Chosen

The AIA's proposed new headquarters will be redesigned. The design shown to members at the New York convention in May, and turned down by Washington's Fine Arts Commission the following month, is the second Mitchell/Giurgola, Associates concept to succumb to events.

The Philadelphia firm was selected for the project in a 1964 nationwide competition. The site for the headquarters was later ex-

Continued on page 12

eurhythmic



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Newslines from page 10

panded with the acquisition of the Lemon Building next door to the present headquarters, and the firm was asked to come up with a second design.

The latter, unanimously approved by the AIA Board of Directors, was rejected by the Fine Arts Commission, 6 to 1. No compromise on the design was reached at a September meeting between commission and Institute representatives.

Mitchell/Giurgola is seeking to overcome commission contentions of incompatibility between the new building and the Octagon House and its garden.

The architect for the Octagon's restoration has been selected. He is J. Everette Fauber Jr., AIA, of Lynchburg, Va. Fauber was selected from three finalists chosen from 11 firms applying for the commission.

Mrs. Cary M. Parker, Washington, D. C., landscape architect, was selected to supervise the maintenance of the Octagon garden and front plantings.

AIA chapters, in the meantime, were asked to step up their fundraising efforts so that the new headquarters/Octagon restoration campaign goal of \$993,000 is reached by the year's end. As of last month, cash contributions and pledges topped \$900,000 but were still shy of the goal. Most contributions were in cash, but some \$375,000 is in pledges receivable over the next two years.

Institute President Robert L. Durham, FAIA, termed the headquarters design concept that was disapproved by the Fine Arts Commission an "excellent" one but emphasized the AIA's "belief in the need for the Fine Arts Commission and comparable design review boards throughout the country."

So, he said, "we are going to undertake the review of our current design."

The restoration of the Octagon House and its garden will begin in the meantime, Durham said.

The restoration will be under the direction of the AIA Foundation in whose name the funds drive is being held. Less than two-thirds of the drive's goal is being applied to the foundation's purchase of the Octagon from the Institute, with the remainder going toward the restoration.

The Institute is applying the proceeds from the sale to increase its equity in the headquarters building project. Estimated cost of the new building is \$3.9 million.

**Architect Views Gathered
On Turnkey Approach**

A developer with a site lays his proposal before the local housing authority. He will build housing for low-income families, using his own plans and specifications, and sell the completed job at a certain price to the authority.

If his proposal is acceptable, he and the authority enter into a letter of intent, followed by a contract of sale.

With this commitment the developer obtains his financing through normal private lending channels and builds in the normal manner, although periodic inspections are made by an inspecting architect engaged by the authority.

In determining the fairness of the price, allowances are made for reasonable profit and overhead costs.

The procedure is called turnkey and at least three variations have unfolded so far—Turnkey 3, for example, also provides for private management of the housing in addition to private construction.

The Housing Assistance Administration of the Department of Housing and Urban Redevelopment last month held six regional conferences across the nation. The AIA was told beforehand that turnkey processes were not final and that suggestions were being sought in order to develop a program that was satisfactory to all concerned.

The AIA through its chapter mechanism arranged for the collection of information on the program through architect attendance at the regional sessions. Chapters in closest proximity to the conference cities participated in the Institute effort.

On first look there appeared to be a number of uncertainties and possible hazards for architects involved with turnkey. Architects attending the conferences were asked to focus on these areas especially.

Information gathered by the conference attendees will be used by the Institute to develop a turnkey posture.

H. Ralph Taylor, Assistant Secretary for Demonstrations and Intergovernmental Relations, HUD, told the Producers' Council's annual meeting in September that turnkey is one HUD method to "do everything possible to stimulate large-scale markets to get costs down."

Turnkey, Taylor said, "provides the financial tools by which private initiative, private construction and private management can be used in

Continued on page 14

my general knowledge of the proportions in the American economy, I draw the conclusion that the costs would amount to trillions."

Sixty-nine-year-old Gunnar Myrdal, who all his adult life has fought an almost lone campaign for planning to avoid human disasters, admits to have lost much of his hope and enthusiasm that his ideals can come about.

There is one bright note, however. At last the world's rich nations—rich in both money and brainpower—are beginning to think along lines of international collaboration. Last September, Norway was host to the International Future Research Inaugural Congress, convened by Mankind 2000 with headquarters in London. Seventy representatives from 18 nations attended.

No problems were solved at this conference, nor at the AIP convention—that was not the purpose of either. The purpose of both was to evaluate forecasts and to find guidelines into the future. The feelings of the participants both in Oslo and Washington ranged from optimism to pessimism.

To solve the issues, however, Myrdal felt that "we need not the courage of illusory optimism but the courage of almost desperation."

NAHRO Thinks Priorities, But Rep. Mills Would Pare

As the American Institute of Planners conference came to a close, another priority-oriented session was opened by the National Association of Housing and Redevelopment Officials.

Gathered in Portland, Ore., for its 31st national conference, NAHRO set out to address itself to such matters as:

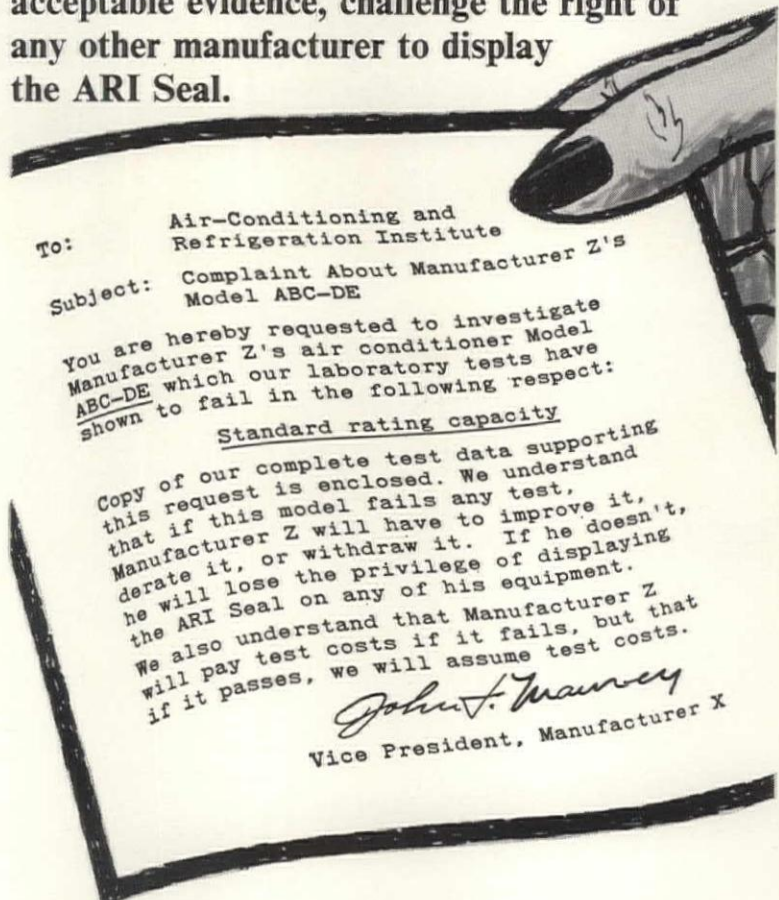
What priority position should urban housing, redevelopment and improvement programs hold in a national budget that must also support the Vietnam war? What responsibilities must be borne by local, state and federal administrators of housing, urban renewal, code enforcement and related programs in times of domestic riots and unrest? What emergency short-term actions are available to cities to cope with urban problems?

While NAHRO pondered such questions as these, President Johnson was conceding that his proposed 10 percent surcharge tax was not exactly popular.

Continued on page 24

challenge

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"I know it is not a popular thing for a President to do—to ask anyone for a penny out of a dollar to pay for a war that is not popular either," was the way Mr. Johnson put it.

But the President insisted the tax would be less oppressive than the "inflation tax" he said would result from inaction.

Rep. Wilbur D. Mills (D-Ark.), chairman of the House Ways and Means Committee, labeled the President's proposal "dead."

Mills said the White House should review all government programs and decide which can be eliminated and which, though desirable, can be set aside during war-time.

Local Community Problems Focus of Slide Contest

The creation of slide shows by AIA state and chapter organizations showing the good and the bad—and what could be—in communities across the nation is being encouraged through a competition of

the Institute's Task Force for the War on Community Ugliness.

At least 60 percent of the shows' content must be about the community that is the subject of the show. The shows, according to competition requirements (see AIA MEMO #359) are to be aimed primarily at laymen.

A jury will select the best three entries about a month prior to the AIA's June convention in Portland. Each winning state or chapter unit will receive two round-trip airline tickets from Portland to Honolulu, where the convention will wind up.

Producers' Council Names New Managing Director

John K. Bowersox, director of the Building Contractors Division of the Associated General Contractors of America, will become the new managing director of the Producers' Council.

He succeeds John L. Haynes who at age 65 is retiring from the post he has held since 1953.

Bowersox, 44, will assume his duties with the council early next month. He has been with AGC's national headquarters staff since 1952.

Business Seen in Vanguard Of Rebuilding; Gulf Takes Reins of Simon's Reston

The contemporary businessman in the context of urban problems, wrote columnist Joseph Kraft, "emerges as the man with the resources and know-how to rebuild the cities, the chief hope for progress and innovation, the hero of the avant-garde."

W. L. Henry, vice president of corporate development for Gulf Oil Corp., which has assumed a greatly expanded role at Reston, Va., commented:

"Our primary corporate interest remains to obtain an adequate return for Gulf's shareholders. But we believe the nation's expanding urban population requires the development of such 'new communities' as Reston, planned and built from the ground up.

"If this job is to be done, we feel industry must provide capital for this type of investment over the long term, to supplement the more traditional money sources."

Gulf, Henry said, "will give to Reston the long-term patience and capital investment which such a bold and far-reaching project demands."

Continued on page 32



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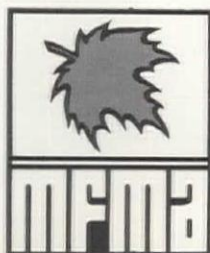
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Newslines from page 24

In taking control of the project, Gulf named Robert E. Simon, Reston's developer, chairman of the newly formed subsidiary, Gulf Reston, Inc., and brought in Robert H. Ryan, Pittsburgh real estate consultant, as president.

The move was made to accelerate development of the new town, Gulf said.

The John Hancock Mutual Life Insurance Co. also has an interest in the subsidiary. Both Gulf and John Hancock became involved in Reston's development several years after Simon's 1961 acquisition of the 11-square-mile site 18 miles from Washington.

Gulf has invested more than \$15 million in the project, and John Hancock has provided financing totaling \$24 million.

Elsewhere in the nation, new towns and "planned communities" experienced varying degrees of financial success—or, and not infrequently, failure.

Huge infusions of patient money, lead money, make the ventures financially adventuresome. Yet some are making it. James W. Rouse, developer of the new town of Columbia, made a quote that is likely to knock around for awhile.

"The worst that can happen to us," said Rouse, "is that we'll get rich slowly."

Architecture Head Named For Washington Subway

Sprague Thresher, AIA, has made a subway transfer, moving from San Francisco to Washington, D. C.

Staff architect for the San Francisco Bay Area Rapid Transit District since the first of the year, Thresher has been appointed director of the Office of Architecture for the Washington Metropolitan Area Transit Authority.

The office is parallel to the Office of Engineering.

Harry Weese & Associates are general consulting architects to WMATA, and architects commissioned for transit facilities will operate within the general conceptual ideas of the Weese firm, a WMATA spokesman said.

Thus, WMATA will have what he termed a "family of stations—so that you'll know you're in the same experience in going from one station to another."

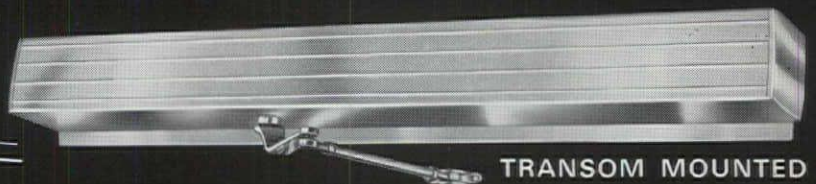
WMATA, an interstate compact agency of the District of Columbia, Virginia and Maryland, is respon-

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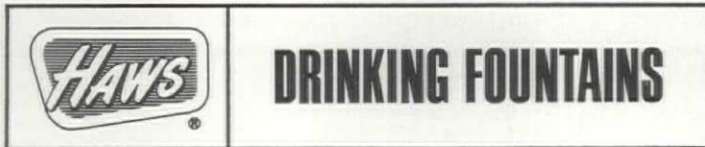
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sible by Congressional authorization for constructing a basic rapid rail network and for developing a regional rapid rail system.

Thresher, 48, was with the general engineering consultants to BART, Parsons-Brinckerhoff-Tudor-Bechtel, before joining the BART staff.

Yale Has New Program; Acting Dean Is Named

Yale University's department of architecture has introduced a program leading to a new, advanced degree called the Master of Environmental Design (MED).

Charles W. Moore, AIA, department chairman, said the program is a two-year master's program of advanced study.

The basic three-and-a-half-year graduate course for holders of B S or A B degrees will from now on lead to a Master of Architecture degree in lieu of the former Bachelor of Architecture ranking.

In the MED program, the student, who is required to have a degree of architecture, will do advanced graduate work in an area of his individual interest.

The appointment of Howard Sayre Weaver as acting dean of Yale's School of Art and Architecture was also announced. During the one-year term of his appointment, Weaver will continue with his duties as associate secretary of Yale University and assistant to the president for external relations.

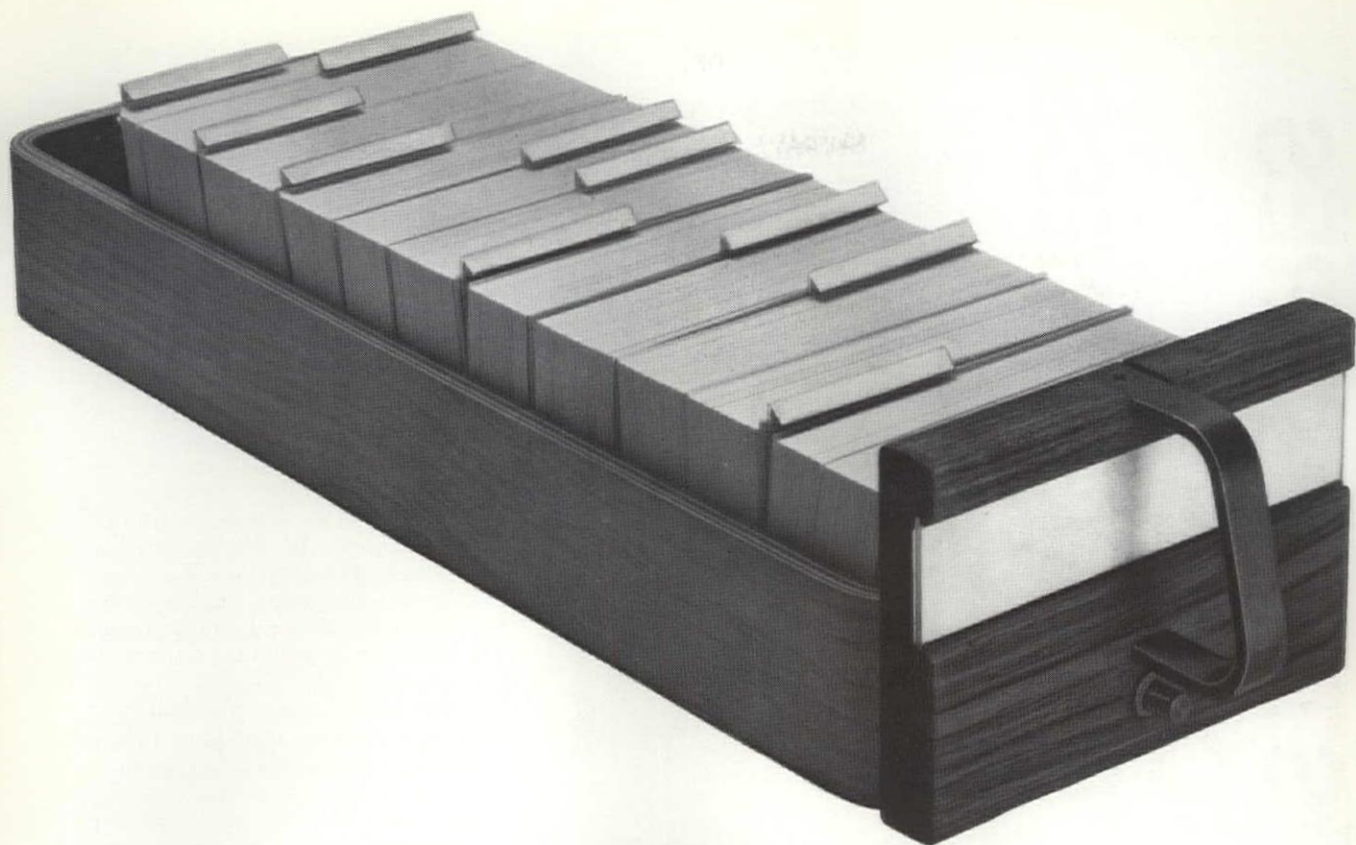
Modern Art Museum Shows 70 Recent Designs

"The esthetic counterparts of his chair are to be found in much recent painting and sculpture, rather than design, and it remains to be seen if further developments in the use of plastics will follow his lead."

Arthur Drexler, director of the Museum of Modern Art's department of architecture and design, was talking about Gunnar Aagaard Andersen's work of poured urethane foam.

"Part of its significance is technical: The underlying idea is that certain plastics promote a free and highly individual approach to the fabrication of furniture. There is no reason for its shape to imitate forms achieved by more conventional means."

The Danish designer's chair does,
Continued on page 36



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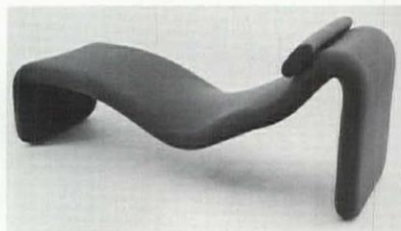
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Newslines from page 34

in fact, resemble "a chair," albeit something that a guardian of a fudge-making slumber party might concoct in his terrified dreams.

At any rate, it is one of the objects on view at the museum through Jan. 1 in an exhibition called "Recent Acquisitions: Design Collection." The show includes 70 objects, most of them acquired over the past four years.

Drexler, who organized the exhibition, said the wares were chosen according to their design quality or historical significance. Latter category objects, he added, "may



From top: Mourgue's chaise, the urethane foam chair of Andersen, and wood chair, by Joe Colombo.

or may not be beautiful" but were chosen as contributors to the development of design.

A strong contrast to Andersen's chair is Oliver Mourgue's chaise which resembles early modern but, Drexler points out, conceals structure and technique rather than revealing and elaborating it. "The beauty of his design does not depend on our knowing how it was made," said Drexler.

Reject Myths, Taylor Tells Producers' 46th Meeting

"One of the major reasons for the productivity of American industry (is that) decisions are based on the real world, seen realistically."

Before the audience at the Producers' Council 46th annual meeting in Houston could drink in the compliment, the speaker, H. Ralph Taylor, went on to ask:

"Why, then, do you so often base other decisions—those affecting your outlook on government and society as a whole—on myths rather than reality?"

The Assistant Secretary of the Department of Housing and Urban Development saw a split-level psychology: arriving at one decision on the basis of fact, at another on the basis of myth.

Get down to realities, Taylor urged his listeners, for America, too, is split today between affluent dreamers and poor realists, and we have to make our nation one "in which the American dream is real and meaningful to all our people."

Referring to urban renewal and related subjects, Taylor continued: "I suggest that you can apply to the problems of the public arena the same cold realism, unfettered by myth and value-laden symbolism, that you apply to your own business affairs."

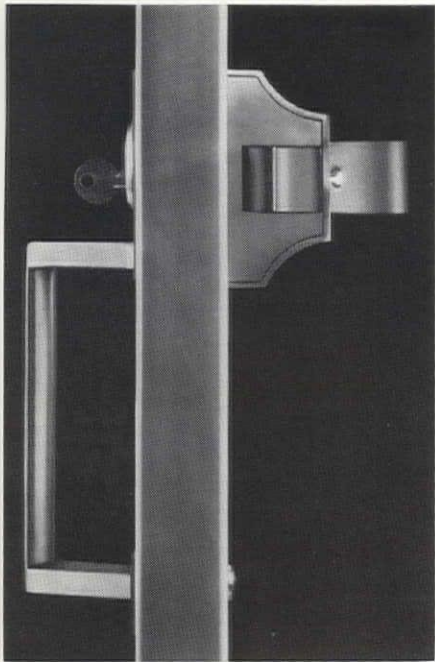
He invited a wider participation by private industry in the most "ambitious cooperative effort in urban affairs the country has ever known." Drawn together in the effort, he said, will be federal, state and local government and private business and nonprofit organizations.

Taylor gave his audience of 300 building products executives more food for thought when he raised the question of whether private enterprise has done as well as it says in its special field of research and development.

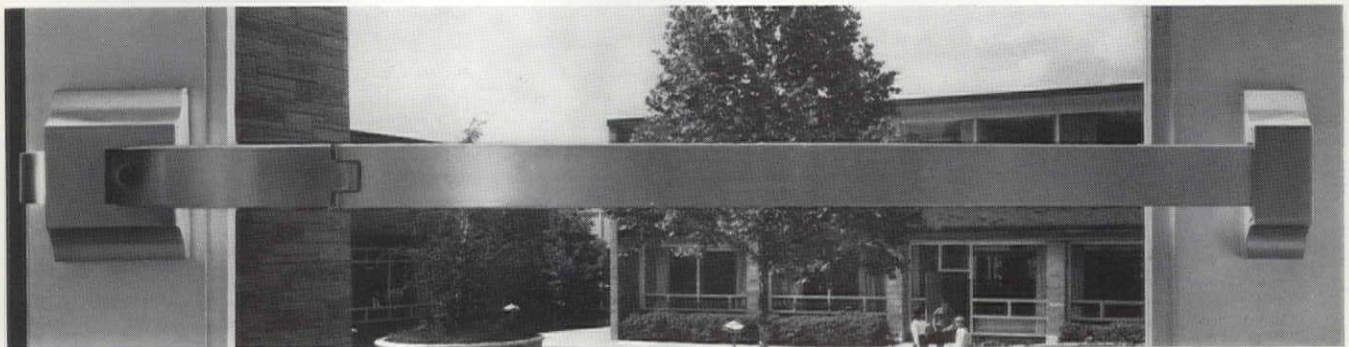
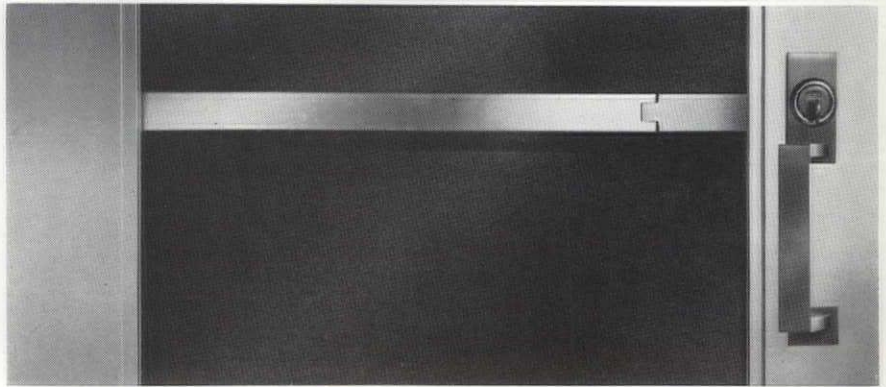
As far as the private homebuilding industry is concerned, Taylor contended, the producers have set an enviable record of accomplishment during the past 25 years. But now is the time to face realities and put this experience to good use while tackling today's housing and community development needs, he said.

Other speakers during the three-day meeting, the theme of which was "Planning for the '70s . . . Will Today's Products Meet the Needs?" included Institute President Robert L. Durham, FAIA; Leo Cherne, ex-

Continued on page 38



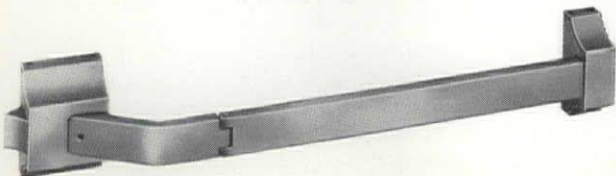
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Newslines from page 36

ecutive director of the Research Institute of America; and Ezra Ehrenkrantz, AIA, president of Building Systems Development.

Earl F. Bennett was re-elected president of the Council. Bennett, who begins a second one-year term, is manager of Architectural Sales, Koppers Company, Inc., Pittsburgh.

Shortest Distance Between Two Points 'Not Much Fun'

The "function conquers all" philosophy of design is suspect and must be reexamined, believes industrial designer Dave Chapman of Goldsmith & Yamasaki, Inc.

Chapman, speaking at an Institute of Business Designers symposium in Chicago, urged architects and designers to recognize that although a functional approach may produce efficient, straightforward schemes, it ignores human emotional needs.

"The shortest distance between two points may be a straight line, but it's not much fun," Chapman said. "We must design what people can love. The designer who understands human emotional needs can give people back to themselves, can help them achieve the personal fulfillment so sorely needed in this age of business machines and computers."

In a discussion on basic environmental factors, several speakers agreed that uniform lighting generally provided for office interiors is not the most economic, the most pleasing or the most functional solution. People are more comfortable with lighting that gives dramatic, nondirectional variety, they felt.

AIA Discontinues Unit On Religious Architecture

The Institute has dissolved its Committee on Religious Architecture, the work of the committee now being carried out by the Guild for Religious Architecture.

The guild and the committee had been attempting jointly to avoid duplication of effort, and this approach resulted in a decision to discontinue the committee.

The guild has been an affiliate of the Institute since 1965. AIA chapters which have a committee on religious architecture and want to coordinate their programs with the guild were asked to contact Mrs. Dorothy Adler, executive director, GRA, 1346 Connecticut Ave. N.W., Washington, D. C. 20036.

Texas Architects Suffer Loss of John Flowers

The death of John G. Flowers, Hon. AIA, of Austin, Tex., has imposed the loss of one of the ablest executives in the Institute's state and chapter network.

Mr. Flowers, 49, executive director of the Texas Society of Architects, was fatally hurt in a September traffic accident.

The mishap followed by a year and a half the road crash that claimed the life of another Austin resident prominent in Texas architectural circles, Charles Granger.

Mr. Flowers, who only last year was named an honorary member, was also executive secretary of the Texas Board of Architectural Examiners

He is survived by his widow, Mrs. Margaret Flowers, and two sons, John G. III and Richard Stewart Flowers, both of Austin.

Necrology

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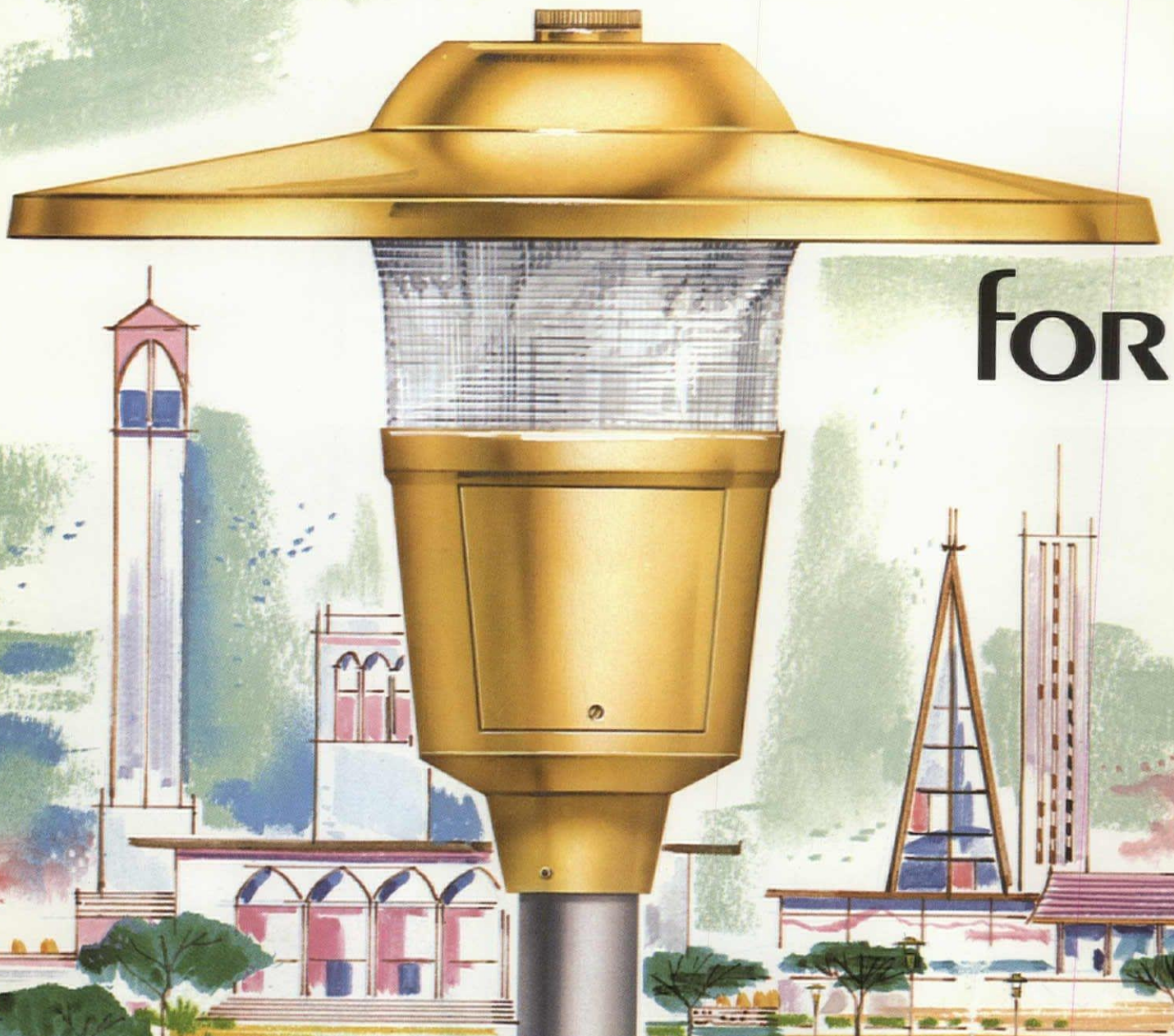
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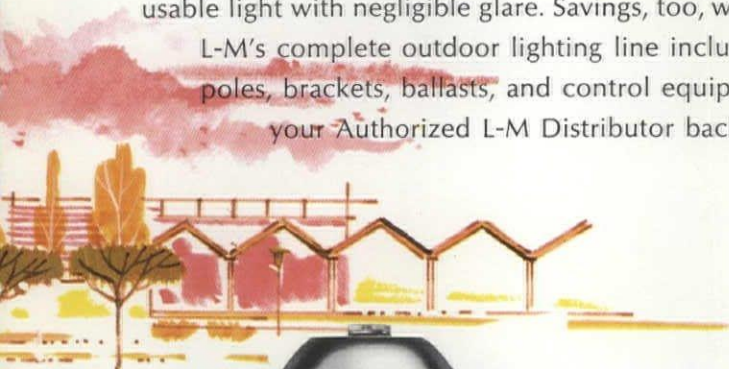
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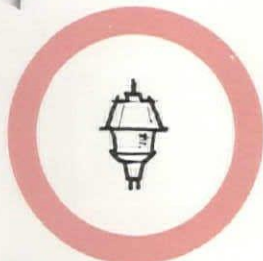


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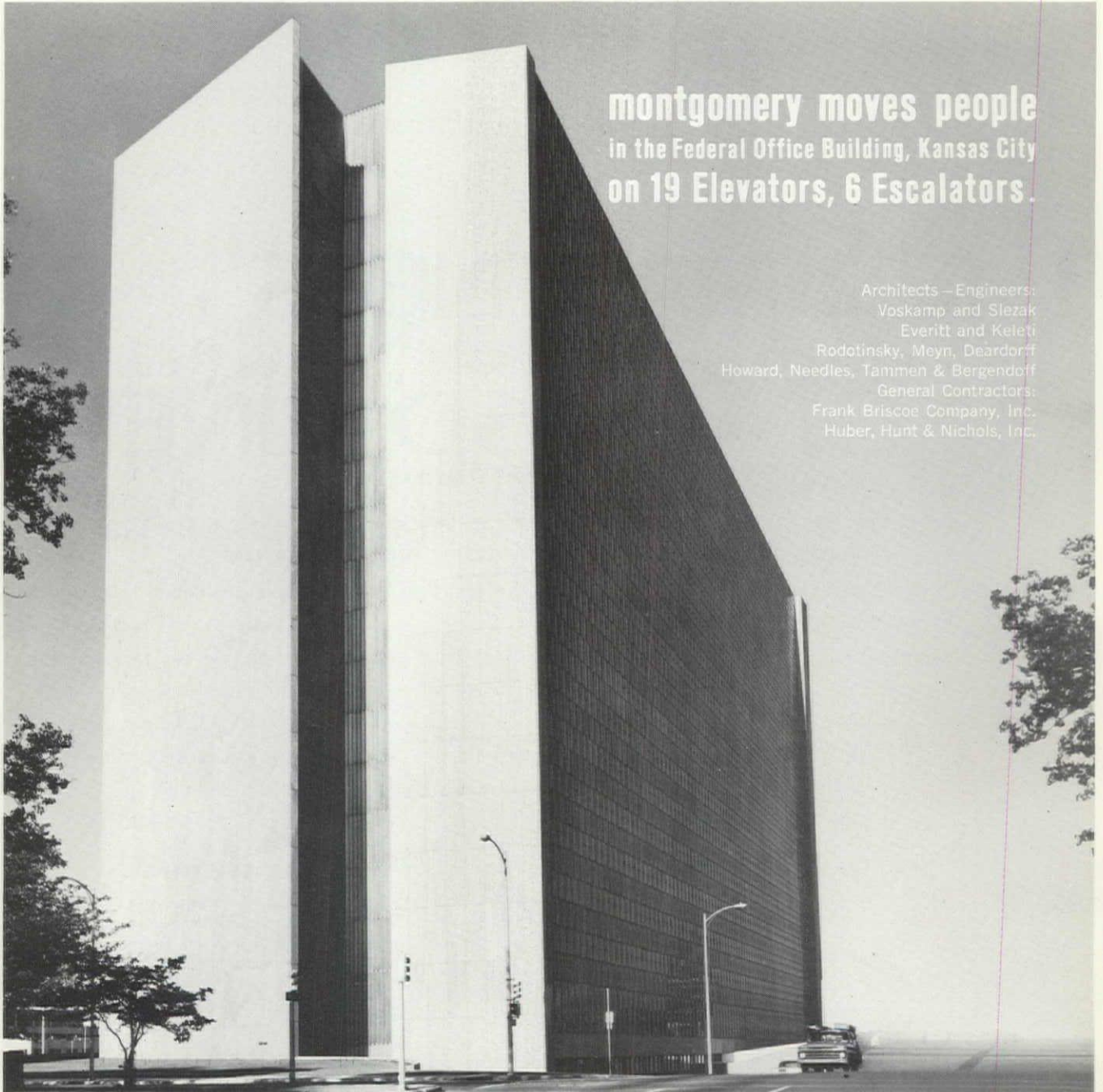
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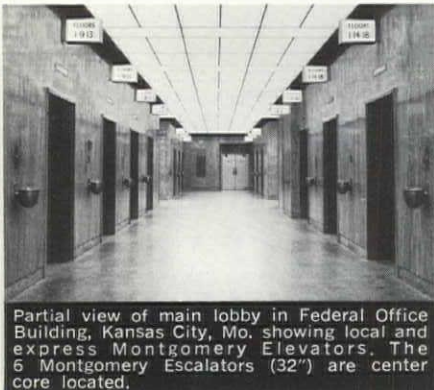


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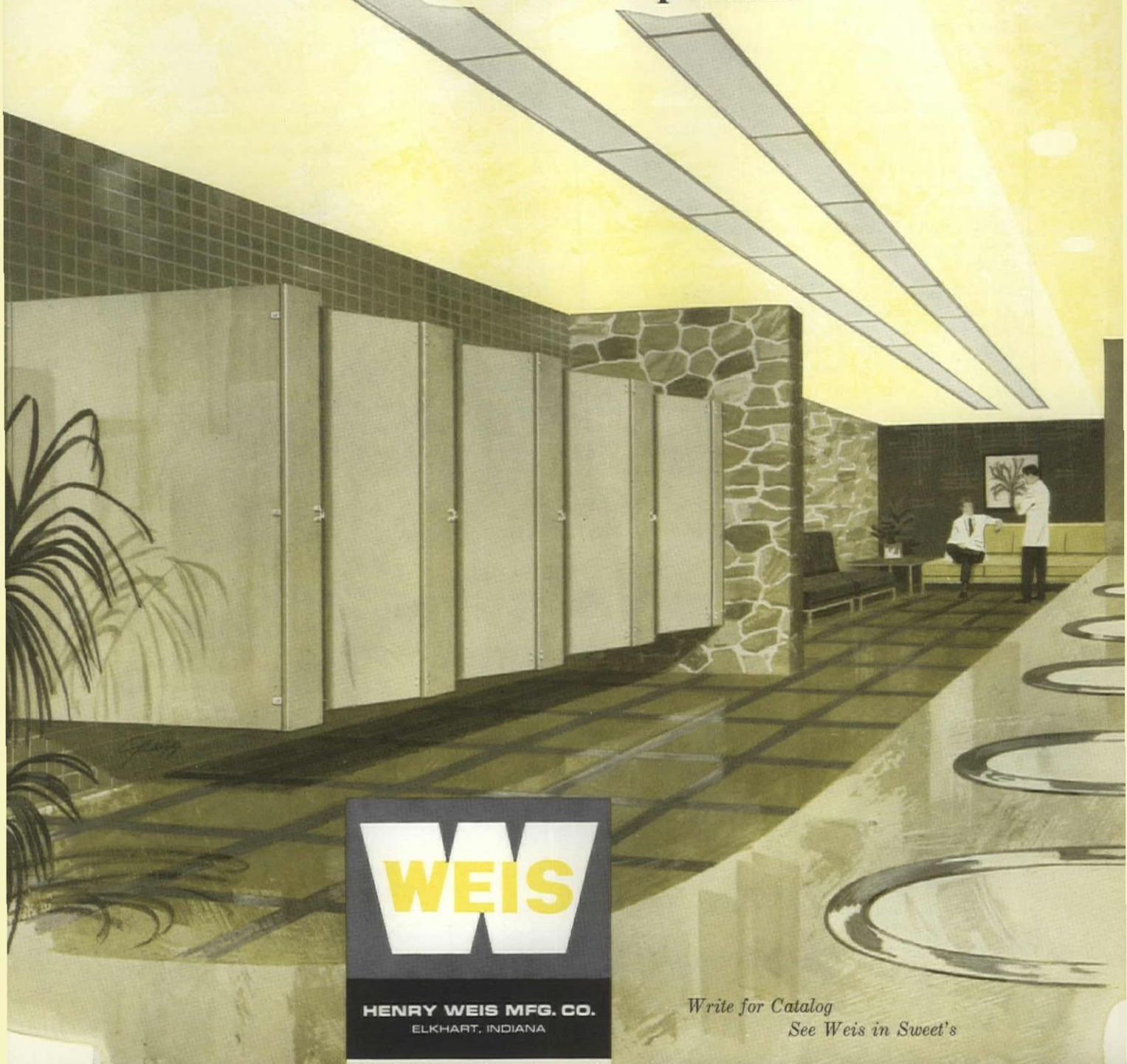
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UNFINISHED BUSINESS

BY ORIN M. BULLOCK JR., AIA

The New American Hobby

The preservation of our national heritage has ceased to be a hobby of the few!

The silk stocking group in America has been joined by the taxi driver, the banker, the real estate broker and the business man in raising cries of agony as significant examples of our architectural heritage crumble in the path of progress. No longer do the history buffs fight alone the losing battle to save the "dear old house" where "he" slept or where "the paper" was signed. The people have joined forces with the esoteric antiquarians to see that character-making buildings will continue to enhance our cityscapes.

Urban designers and city planners have come to recognize positive values in architectural masterpieces and the importance of colloquial architecture expressed in groups having but few, if any, examples of "high style."

The banking and business industry together with the taxi driver have begun to notice the changing faces of our cities as redevelopment and expressways "liberate" forever the quaint, the familiar, and the unique from their surroundings; all at a cost far in excess of that of rehabilitating and adapting the old to present-day uses.

Sparked by the public demands, legislation was passed by the Congress of 1966 which encourages preservation, assists in making of surveys of significant American buildings, authorizes the appropriation of funds for their restoration, and strongly suggests that historic values be taken into serious consideration when developing renewal programs. The Planning Commission of Baltimore City, acting in response to public interest and encouraged by federal legislation, has published a "position statement" on landmarks. "Baltimore, Preservation of the City's Character" was signed by Mayor Theodore R. McKeldin in February

1967. It will be an inspiration to municipalities across the country and provide a guide line for other local authorities in implementing the federal legislation.

The statement points out that "since not every structure or site with historic and architectural

This month's guest author, who practices in Baltimore, became a restorationist when he joined the original staff of architects who started the restoration of Colonial Williamsburg in 1929. Mr. Bullock is a corresponding member of AIA's Committee on Historic Buildings.

value can be preserved without seriously inhibiting the necessary city growth and development, we must have a comprehensive plan of action for selective preservation. The best and most significant structures, sites and areas should be preserved and enhanced, while at the same time we encourage development of the new and necessary in buildings and facilities in alternate locations."

The position paper sets four specific categories of preservation:

1. Sites identified with the history of the city and the nation

2. Buildings of unique or characteristic architecture

3. Whole neighborhoods, groups of buildings, and street facades

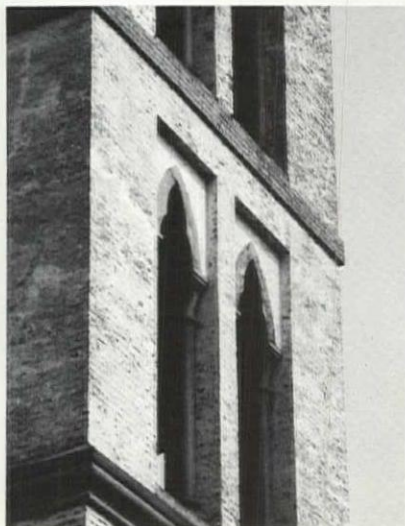
4. Smaller sites and single buildings that are symbols of the many social and ethnic groups who built the city.

It then goes on to enunciate policies necessary to achieve the goals and in the following pages enlarges upon each and outlines programs for their implementation.

Such a position statement would not be as significant if issued by a city which has capitalized for years on its architectural history. But, Baltimore's architecture is not colonial; no great treaties were signed in its mansions; it has been a commercial city, sometimes called a "branch office" city, and it has taken but little notice of the architecture which establishes it as more than a place of brick row houses with white marble steps. The critical illness of blight and deterioration in Baltimore, which the core areas of almost every city share, brought on the radical treatment of redevelopment, leaving gaping vacant spaces on which once stood landmarks, or resulted in the building of unfamiliar new structures which would be as much at home in any city. Baltimore has suddenly become aware of its rich architectural heritage and is determined to perpetuate it.

Countrywide, the AIA Urban Design Committee and the Committee on Historic Buildings are mounting campaigns which need the expertise of the entire profession to see that the important, significant and character-making buildings are identified and then not wantonly destroyed. Only through the combined efforts of the design professions can individual character, the unique personality of each American city, be retained.

Congratulations to the Planning Commission of Baltimore City for taking a positive first step. □



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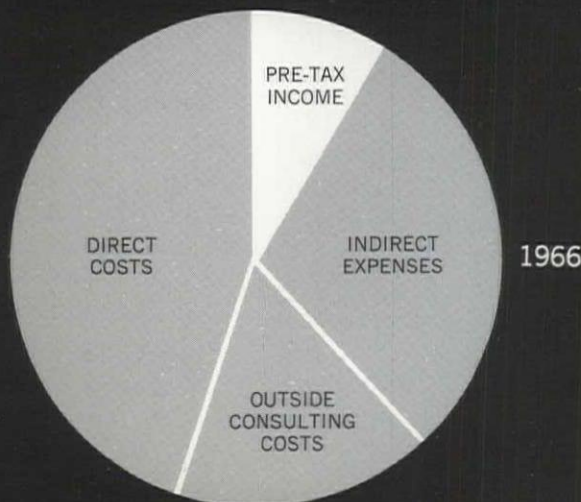
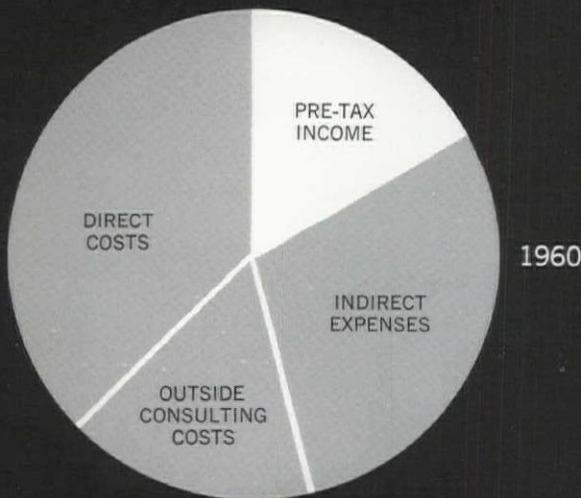
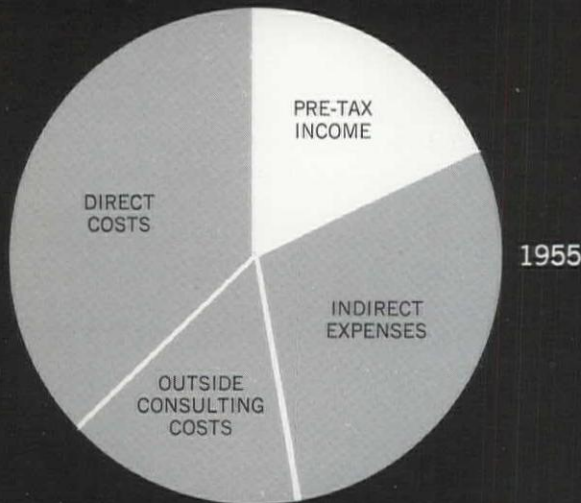
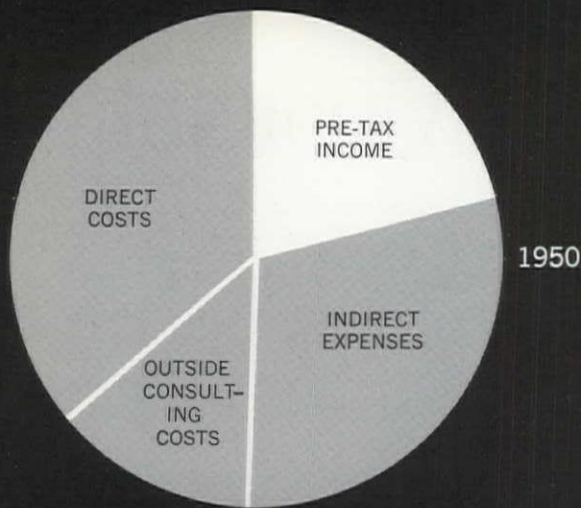
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THE Not-So-Great PROFIT CHASE



The architect's concentration on good design and professional ethics frequently induces inattention to effective management of the business side of his practice, often resulting in client reactions ranging from confusion to serious misunderstanding. Moreover, the scope of architectural services, contracting procedures and business practices varies widely from firm to firm, further confusing clients. Under such circumstances, establishment of equitable compensation for professional services is difficult and complex. The first step in assisting the architect with the business management aspects of his practice is the compilation of accurate cost information. Some pertinent information from the recent AIA Comprehensive Study of the Cost of Architectural Services is presented and interpreted here.

Can you design a profit as well as a building?

If you can, you may not be unique in architectural circles, but you are a member of a distinct minority.

That the average architect is a poor businessman is a truism about which architects themselves have joked for many years, even as they ran their offices on wishful thinking and wondered, without great concern: Where did the money go?

The time for concern is hard upon us. This is pointed out clearly by the Comprehensive Study of the Cost of Architectural Services. Architects' costs are rising significantly faster than project fees and their profit margin is shrinking steadily, the study shows.

What architect can be told, with figures to prove it, that the average

architectural firm in 1950 made a profit of over 22 percent of its gross receipts, and in 1966 less than 9 percent, without doing a mental double-take and making a quick review of his own situation?

Every architect will agree that the primary function of an architectural firm is to design buildings which meet the client's needs and ability to pay, and to see that they are properly built. Everyone will agree, also, that if an office does not operate at a reasonable profit, it will not remain in existence to perform this primary function.

The question was asked: Can you design a profit as well as a building? This is not semantics, but a very serious and pertinent question because profits do not just happen. They are designed. You do not merely take in some money, pay bills and wages, and then look hopefully to see if anything is left.

Profits are the result of specific planning—planning which takes into account the salaries and wages in an office, the overhead expenses, the office capabilities in doing work to established schedules, and the amount of work which is required for the office fee structure to produce sufficient funds to meet all expenses with a given percentage remaining as profit. On the basis of this planning, the office then systematically sets about acquiring that work.

This type of formal, maximum profit planning, the core of good business practice, is done by few architectural offices. One reason is

that accounting procedures of many offices are so haphazard that the principals do not know what their basic costs are. Another is that profit is elusive not only as a tangible item, but as a concept, and there is considerable confusion over what constitutes "profit" to an architectural firm.

For purposes of clarification, the study defines profit as pre-tax income, which is the margin remaining when the sum of direct and indirect expenses is deducted from gross project income. Gross receipts are the annual revenue, including reimbursable expenses.

This all seems simple enough. However, there is no clearly defined relationship between income and profit. On some projects a substantial profit may be counted even though the total fee is relatively small. On the other hand, a large fee may result in a small profit or even a loss.

This condition varies from project to project, and from office to office, and makes of profit a very nebulous thing. There are a number of reasons for this but the major one lies in the fact just pointed out in the definition of profit, that between income and profit lies a third item: cost.

The vagaries of costs, and architects' lack of familiarity with them, are responsible for the fact that low fees can result in high profits, and high fees can result in low profits or losses. A low-fee job may be very simple and straightforward, moving through the office and

through construction to completion smoothly and quickly. The result is that less of the fee is expended on the work and more is left in profit.

Conversely, a high-fee job may be extremely complex and difficult to solve and may run into slow-downs and delays.

These factors relate primarily to direct costs in an office. These are costs directly incurred in connection with a specific project, including such items as design, engineering, estimating, writing of specifications, renderings, reproduction and supervision.

Direct cost items are familiar to most architects and are apt to receive more of their attention, and to be handled more efficiently, than indirect expense items.

But careful review of the study reveals the importance of indirect expenses. These are all items of cost incurred in the operation of the business, but which are not directly associated with, or chargeable to, a specific job. Often referred to as "overhead," they include taxes, insurance, dues, fees, services, miscellaneous travel, auto, rent, utilities, supplies, miscellaneous telephone, maintenance, payroll taxes, employee benefits and indirect salaries.

In the smaller firm, in particular, indirect expenses can take almost as much of the income dollar as direct costs. When it is realized that together, direct and indirect costs averaged over 93 percent of gross receipts in 1966 for small firms, as shown in Figure 1, the necessity for

FIGURE 1—COMPARATIVE FINANCIAL ANALYSIS BY SIZE OF FIRM

Direct Costs, Indirect Expenses and Firm Pre-Tax Income as Percentages of Gross Receipts

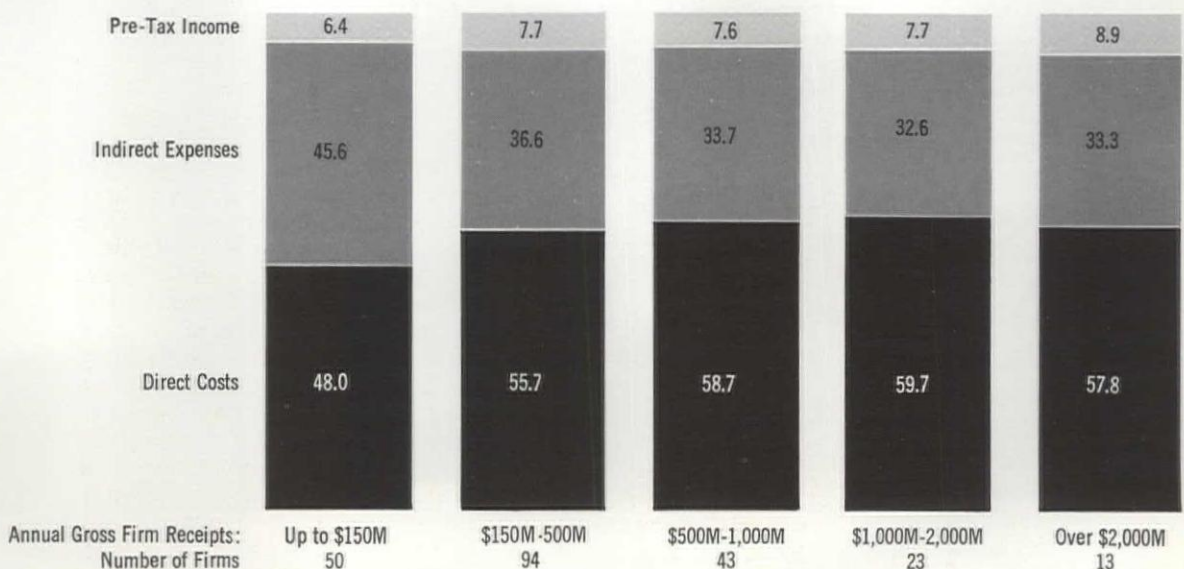
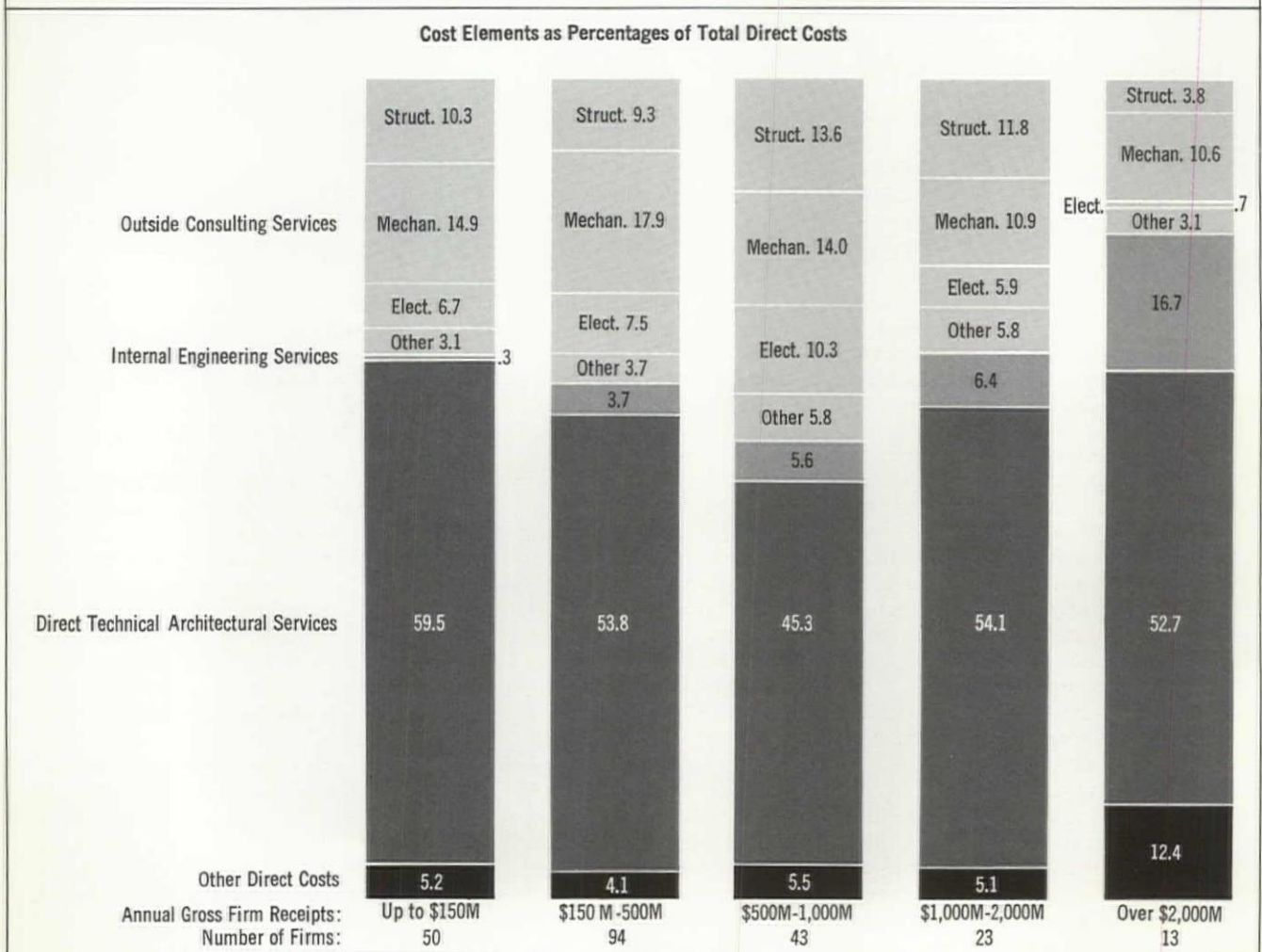


TABLE 1—ANALYSIS OF AVERAGE ANNUAL DIRECT COSTS BY SIZE OF FIRM

	Under \$150,000 50 Firms		\$150,000- \$500,000 94 Firms		\$500,000- \$1,000,000 43 Firms		\$1,000,000- \$2,000,000 23 Firms		Over \$2,000,000 13 Firms		All Sizes 223 Firms	
	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent
GROSS RECEIPTS	\$87,500		\$288,530		\$729,345		\$1,330,200		\$4,676,680		\$691,710	
DIRECT COSTS:												
Consulting Services:												
Structural	4,313	10.3	14,997	9.3	58,089	13.6	93,524	11.8	102,202	3.8	34,094	8.5
Mechanical	6,261	14.9	28,771	17.9	59,887	14.0	86,843	10.9	286,568	10.6	50,742	8.5
Electrical	2,832	6.7	12,027	7.5	44,167	10.3	47,016	5.9	18,062	0.7	20,123	5.0
Other	1,290	3.1	6,010	3.7	24,942	5.8	46,171	5.8	84,674	3.1	17,331	4.3
	\$14,696	35.0%	\$ 61,805	38.4%	\$187,085	43.7%	\$ 273,554	34.4%	\$ 491,506	18.2%	\$122,290	30.6%
Internal Engineering Services	146	0.3	5,928	3.7	23,909	5.6	50,921	6.4	451,107	16.7	38,692	9.7
Technical Labor:												
Principals	6,038	14.4	17,305	10.8	24,883	5.8	50,867	6.4	75,590	2.8	23,099	5.8
Others	18,951	45.1	69,089	43.0	168,970	39.5	378,805	47.7	1,347,452	49.9	183,574	46.0
	\$24,989	59.5%	\$ 86,394	53.8%	\$193,853	45.3%	\$ 429,672	54.1%	\$1,423,042	52.7%	\$206,673	51.8%
Other Direct Costs	2,179	5.2	6,598	4.1	23,343	5.4	40,356	5.1	335,685	12.4	31,502	7.9
TOTAL DIRECT COSTS	\$42,010	100.0%	\$160,725	100.0%	\$428,190	100.0%	\$ 794,503	100.0%	\$2,701,340	100.0%	\$399,157	100.0%
TOTAL AS A % OF GROSS RECEIPTS	48.0%		55.7%		58.7%		59.7%		57.8%		57.7%	

FIGURE 2—COMPARATIVE DIRECT COST ANALYSIS BY SIZE OF FIRM



maintaining tight control over every aspect of indirect expenses becomes apparent.

In order to establish a significant picture of annual revenue, costs and profits, the 1966 annual income statements of 223 architectural firms were studied. Of these, 178, or 80 percent, use a "cash basis" for their income reporting. The remaining 45, or 20 percent, use an "accrued basis." No basic differentiation was made in analyzing the reports.

Figure 1, referred to earlier, presents direct costs, indirect expenses, and profits (pre-tax income) as percentages of the gross receipts of the firms analyzed in the study, after they were separated into five size categories.

Eighteen of the firms reported that they lost money. Most of the losses were relatively small, averaging about 5 percent of the gross revenue for these firms. The remaining 205 firms reported profitable operations for the year.

Firm Profits

The reason for much of the confusion about profit as a concept stems largely from differences in types of firms. In the case of firms which have been incorporated and the principals, in effect, are officers and employees of the corporation receiving regular salaries, profit is the net pre-tax income remaining after all costs, salaries and expenses have been recovered. This net income may be distributed to principals and key employees, carried over as a surplus after taxes are paid, or paid out as dividends to stockholders.

In firms which are partnerships or sole proprietorships, the principals are not truly employees but owners. Regular salaries are not customarily paid to the principals in such firms. Instead, the principals periodically take draws against net income remaining after all costs and expenses, other than draws, have been provided for.

The total amount of these draws varies depending upon what the principals anticipate will be the pre-tax income for the period. If the pre-tax income falls below the draws which have been taken, the principals may be obligated to pay back the difference into the firm.

Since the amount of the draw is arbitrary, and since the principals

Size of Firm (Gross Annual Receipts)	Average Direct Technical Services as Percent of Total Direct Costs		
	Staff	Principal	Total
Up to \$150 M	45.1%	14.4%	59.5%
\$150 M to \$500 M	43.0	10.8	53.8
\$500 M to \$1,000 M	39.5	5.8	45.3
\$1,000 M to \$2,000 M	47.7	6.4	54.1
Over \$2,000 M	49.9	2.8	52.7
Average All Firms	46.0%	5.8%	51.8%

have devoted time, talent and effort to the practice during the period, it is inequitable to consider the sum of the draws and any pre-tax income remaining as profit. Had the principals contributed this same time, talent and effort as employees of a corporation, they would have received salaries.

In the study, the respondents reported separately the amounts paid to principals as salaries or draws for the fiscal year. Where a portion of these payments was shown as a cost for a principal who provided direct technical labor through his own efforts, it has been included as part of the total direct cost of architectural services. The remaining portion of principals' salaries or draws has been included as an indirect expense making up part of the overhead.

Analysis: Firm Size

Direct costs, indirect expenses and pre-tax income do not vary greatly between groups of architectural firms of different size, although there may be wide variations between individual firms. Differences in the larger firms, when grouped by size as in Figure 1, are relatively minor. Only the smaller firms, in the left column, show any appreciable variation. Their direct costs average 48 percent of gross receipts as compared to 55.7—59.7 percent for the groups of larger firms.

Indirect expenses, however, run higher for the smaller firms, 45.6 percent in the study, compared with 32.6—36.6 percent for the several groups of larger firms.

Pre-tax income, as a percentage of gross receipts after direct costs and indirect expenses are account-

ed for, shows considerable uniformity for all groups.

Direct costs and indirect expenses are analyzed in more detail in subsequent paragraphs.

Direct Costs

Figure 2 is a comparative analysis by firm size of direct costs incurred. On this chart, the individual components of direct cost are portrayed as percentages of total direct costs.

Table 1 compares the individual percentages shown in Figure 2 with average dollar costs per firm in 1966 for each of the components making up the architect's total direct costs.

1) Direct Technical Labor

The direct cost of technical architectural labor represents the largest element of the architect's cost, ranging from 45.3 percent to 59.5 percent of total direct costs. This includes the cost of principals' time devoted specifically to a project. The costs of employee benefits, fringes and payroll taxes paid on technical salaries are not included in these costs.

Table 2, showing more concisely certain material taken from Table 1, indicates the proportion of staff and principals' technical labor cost making up the total direct architectural services percentages for the five size groups illustrated in Figure 2.

As would be expected, a greater percentage of principals' time in a small office is devoted directly to work on a project than in large offices. Obviously, the total annual dollar amounts, shown in Table 1, are less because of the smaller size of the total gross receipts.

Size of Firm (Gross Annual Receipts)	Outside Consulting Services as Percent of Total Direct Costs				
	Structural	Mechanical	Electrical	Other	Total
Up to \$150 M	10.3%	14.9%	6.7%	3.1%	35.0%
\$150 M to \$500 M	9.3	17.9	7.5	3.7	38.4
\$500 M to \$1,000 M	13.6	14.0	10.3	5.8	43.7
\$1,000 M to \$2,000 M	11.8	10.9	5.9	5.8	34.4
Over \$2,000 M	3.8	10.6	0.7	3.1	18.2
Average All Firms	8.5%	12.8%	5.0%	4.3%	30.6%

Size of Firm (Gross Annual Receipts)	Internal Engineering Services as Percent of Total Direct Costs	Number of Firms Performing Internal Engineering Work
Up to \$150 M	0.3%	4 out of 50
\$150 M to \$500 M	3.7	19 out of 94
\$500 M to \$1,000 M	5.6	15 out of 43
\$1,000 M to \$2,000 M	6.4	8 out of 23
Over \$2,000 M	16.7	6 out of 13
Total		52 out of 223
Average All Firms	9.7%	

Size of Firm (Gross Annual Receipts)	Average Indirect Salaries as Percent of Total Indirect Expense		
	Staff	Principal	Total
Up to \$150 M	15.6%	43.6%	59.2%
\$150 M to \$500 M	19.8	34.4	54.2
\$500 M to \$1,000 M	25.0	25.5	50.5
\$1,000 M to \$2,000 M	24.9	21.1	46.0
Over \$2,000 M	30.8	11.8	42.6
Average All Firms	25.9%	21.5%	47.4%

2) Outside Consulting Services

The next largest element of the architect's direct costs is the payment for outside consulting services, primarily to structural, mechanical and electrical engineers. According to study returns, however, other types of outside consulting services are being used increasingly by architects as buildings and equipment become more complex.

On the average, for all reporting firms, almost 31 percent of the architect's total direct costs is paid out for consulting services of all kinds. The range of costs for these

services was 18.2 to 43.7 percent for the five sizes of firms.

Individual percentages are shown in Table 3.

The average dollar amounts for each of these types of engineering services are shown in Table 1.

3) Internal Engineering Services

Many architects have added engineering staffs to their organizations because the cost of outside engineering services represents such a large percentage of the architect's overall costs. Other considerations are availability, economy, and better control of quality.

Some or all of the engineering work on projects in their offices was done by 23 percent of the firms in the study. The number of firms performing engineering work in each size group, and the cost of the work as a percentage of total direct costs, are shown in Table 4.

The largest firms, in which some of the principals often are primarily engineers and head up large engineering staffs, show the highest percentage of internal engineering work, 16.7 percent of total direct costs. The average small firm does very little of its own engineering work, mainly because the total volume of work done in a year is not great enough to generate full-time employment of the required engineering personnel.

Dollar amounts for the percentages in the table above are listed in Table 1.

4) Other Direct Costs

The last and smallest cost element comprising direct costs in an architectural office is made up of such items as models, renderings, typing of specifications and similar items not properly included with architectural labor or consulting services.

In the firms surveyed, these other costs averaged 7.9 percent of total direct costs in 1966. Except for the largest firms, which averaged 12.4 percent, the percentage of other direct costs was fairly uniform.

The breakdown by percentage and related dollar amounts for the 223 firms is presented in Table 1.

Indirect Costs

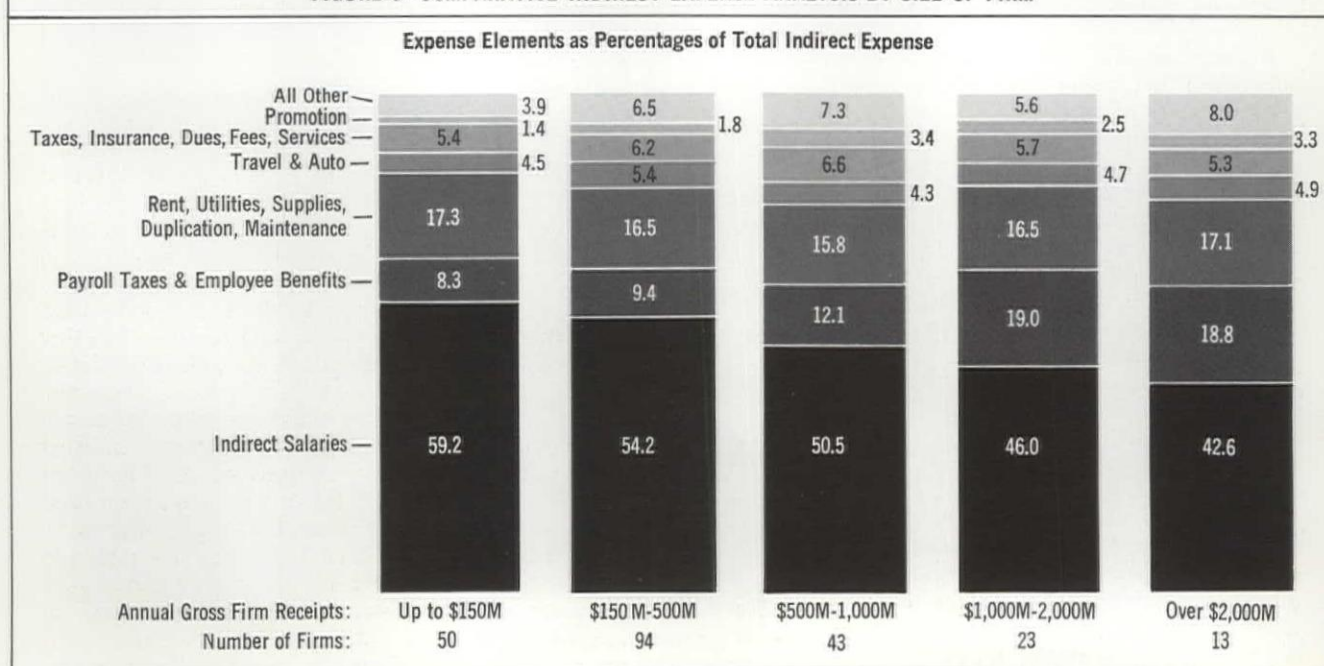
The amount and nature of indirect expenses, or overhead, vary considerably among architects' offices. Figure 3 is an analysis of annual indirect expenses by firm size. In this chart the various overhead elements are grouped to facilitate comparison. The following table, Table 6, gives detailed average cost data for the reporting firms for each element of indirect expense. Of the several elements, only indirect salaries are discussed.

The largest single item of indirect expense in firms of all sizes is indirect salaries. These are composed of that part of staff and principals' salaries or draws not chargeable to direct costs. The proportion of staff and principals' salaries making up the indirect salaries of the reporting firms is shown in Table 5.

TABLE 6—ANALYSIS OF AVERAGE ANNUAL INDIRECT EXPENSES BY SIZE OF FIRM

	Under \$150,000 50 Firms		\$150,000- \$500,000 94 Firms		\$500,000- \$1,000,000 43 Firms		\$1,000,000- \$2,000,000 23 Firms		Over \$2,000,000 13 Firms		All Sizes 223 Firms	
	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent	Average \$ Per Firm	Percent
GROSS RECEIPTS	\$87,500		\$288,530		\$729,345		\$1,330,200		\$4,676,680		\$691,710	
INDIRECT EXPENSES:												
Principals' Admin.	17,394	43.6	36,268	34.4	62,756	25.5	91,283	21.1	170,815	11.8	50,392	21.5
Other Salaries	6,219	15.6	20,900	19.8	61,329	25.0	108,046	24.9	480,462	30.8	61,182	25.9
	\$23,673	59.2%	\$ 57,168	54.2%	\$124,085	50.5%	\$ 199,329	46.0%	\$ 651,277	42.6%	\$111,574	47.4%
Payroll Taxes	1,786	4.5	5,272	5.0	9,330	3.8	19,357	4.5	76,164	4.9	10,858	4.5
Employee Benefits	1,551	3.8	4,703	4.4	20,283	8.3	62,970	14.5	217,501	13.9	25,415	10.9
	\$ 3,337	8.3%	\$ 9,975	9.4%	\$ 29,613	12.1%	\$ 82,327	19.0%	\$ 293,665	18.8%	\$ 36,273	15.4%
Rent and Utilities	3,417	8.5	7,668	7.3	16,872	6.9	31,699	7.3	142,430	9.5	18,824	8.1
Office Supplies	1,633	4.1	4,274	4.0	9,893	4.0	17,274	4.0	47,146	3.2	8,605	3.7
Telephone	906	2.3	2,492	2.4	6,111	2.5	10,743	2.5	42,288	2.9	6,005	2.5
Maintenance	279	0.7	834	0.8	2,253	0.9	4,217	0.9	12,556	0.8	2,015	0.8
Duplication	640	1.6	2,128	2.0	3,758	1.5	7,943	1.8	22,364	0.7	3,888	1.6
	\$ 6,875	17.3%	\$ 17,396	16.5%	\$ 38,887	15.8%	\$ 71,876	16.5%	\$ 266,784	17.1%	\$ 39,337	16.7%
Travel	957	2.4	3,561	3.4	5,976	2.4	16,876	3.9	63,644	4.1	8,319	3.5
Auto	851	2.1	2,163	2.0	4,557	1.9	3,698	0.8	12,734	0.8	3,105	1.3
	\$ 1,808	4.5%	\$ 5,724	5.4%	\$ 10,533	4.3%	\$ 20,574	4.7%	\$ 76,378	4.9%	\$ 11,424	4.9%
Taxes and Licenses	300	0.7	1,062	1.0	1,978	0.8	4,348	1.0	12,226	0.8	2,058	0.9
Insurance	838	2.1	2,722	2.6	7,538	3.1	9,229	2.1	21,647	1.4	5,003	2.2
Dues and Fees	686	1.7	1,381	1.3	2,406	0.9	3,766	0.8	7,967	0.5	2,053	0.8
Services	346	0.9	1,351	1.3	4,389	1.8	7,364	1.7	39,725	2.5	4,568	1.9
	\$ 2,170	5.4%	\$ 6,516	6.2%	\$ 16,311	6.6%	\$ 24,707	5.7%	\$ 81,565	5.3%	\$ 13,682	5.8%
Promotion	570	1.4	1,899	1.8	8,281	3.4	10,738	2.5	52,286	3.3	6,681	2.8
All Other	1,571	3.9	6,857	6.5	17,868	7.3	24,303	5.6	125,172	8.0	16,492	7.0
TOTAL INDIRECT EXPENSES	\$39,944	100.0%	\$105,535	100.0%	\$245,578	100.0%	\$ 433,854	100.0%	\$1,547,127	100.0%	\$235,463	100.0%
TOTAL AS A % OF GROSS RECEIPTS	45.6%		36.6%		33.7%		32.6%		33.3%		34.2%	

FIGURE 3—COMPARATIVE INDIRECT EXPENSE ANALYSIS BY SIZE OF FIRM



In the smaller firms, a greater amount of the principals' time is paid as indirect salaries because of administrative time required. In larger offices, much more of the general administrative duties is performed by employees rather than principals.

Analysis Firm Type

The same annual cost and income data which is analyzed above by size of firm are regrouped here according to type of firm: proprietorship, partnership and corporation. The data is from 221 of the 223 reporting firms since two firms indicated "other" as their form of organization.

Figure 4 presents direct cost, indirect expense and pre-tax income percentages of gross receipts for the three major types of firms. These are summarized in Table 7.

This analysis indicates that the corporate type of architectural firm incurs somewhat higher indirect expenses than do the other types. This may be explained by the finding that corporate principals receive more of their annual personal income in the form of salaries, much of it charged to indirect expense.

Principals in partnerships and proprietorships usually take lower draws than the salaries of corporate principals.

Findings

A broad review of the financial data submitted, along with personal interviews of many of the respondents, indicates a number of pertinent facts which help to bring this phase of architectural practice into sharper focus:

1. Approximately one firm out of 12 participating in this study lost money in 1966. Such losses average about 5 percent of annual gross revenue for these firms.
2. There is considerable confusion as to what constitutes "profit" in an architectural firm.
3. Pre-tax income, or "profit," ranges from 6.4 to 8.9 percent of gross receipts, according to size of firm, and from 5.4 to 10.5 percent according to type of firm. The overall average is 8.3 percent of annual gross receipts of the reporting firms.
4. Firms expend between 48 and 60

percent of gross receipts for direct costs, and between 32 and 46 percent for indirect expenses, depending on firm size.

5. Direct architectural services (labor) represent approximately 54 percent of the total direct costs on the average (not including fringes and payroll taxes); outside consulting services about 31 percent on the average; and internal engineering services almost 10 percent of total direct costs.

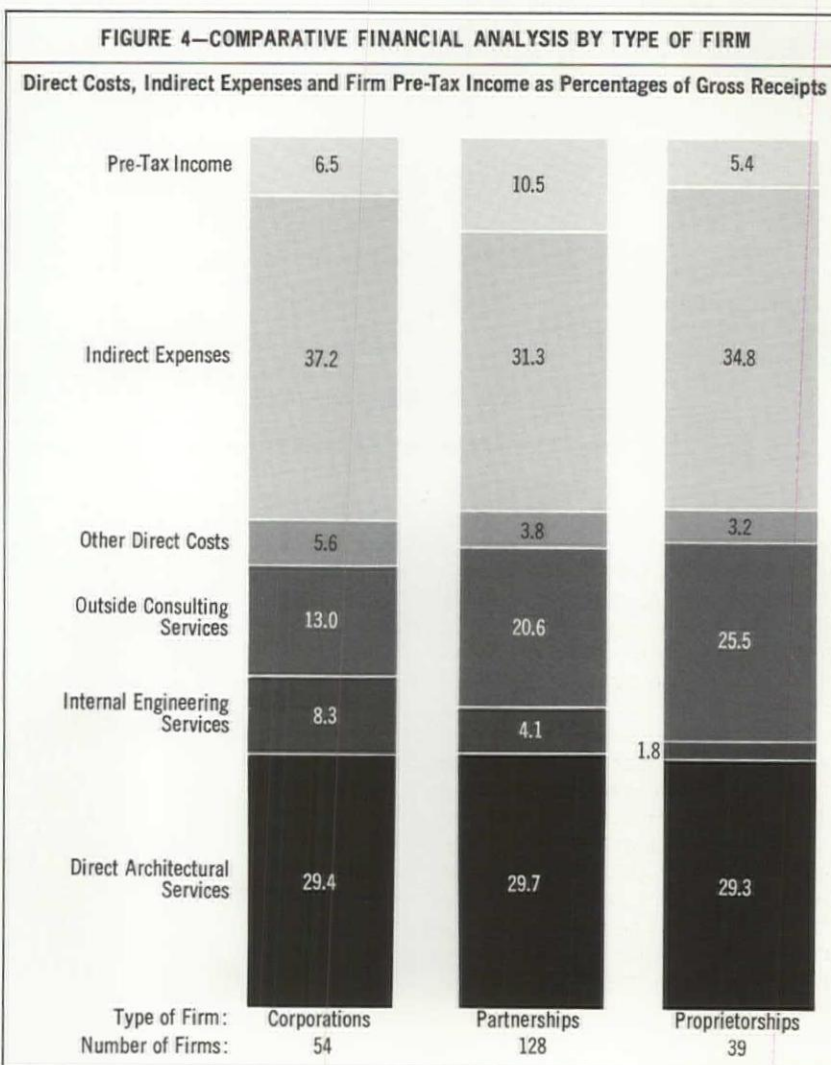
6. Twenty-three percent of the firms maintain internal engineering staffs to perform some or all required engineering services.

7. Most architects do not follow the recommended accounting system as outlined in the AIA Accounting Manual. A more consistent method of recording costs and income is needed in order to make subsequent analyses of this kind, and to facilitate the architect's task of controlling costs and maximizing professional income.

8. Very few firms do any formal, comprehensive profit planning of their practice in order to determine:

- the volume of work required to break even
- the volume of work required to

Type of Firm	Direct Costs	Indirect Expenses	Pre-Tax Income
Proprietorship—39 firms	59.8%	34.8%	5.4%
Partnership—128 firms	58.2	31.3	10.5
Corporation—54 firms	56.3	37.2	6.5
Average All Types	57.6%	34.1%	8.3%



attain the profit goals desired for principals and associates

- the types of projects which best utilize the talents of the firm
- the level of compensation which must be received from clients for various kinds of work
- the best way to bill clients for services rendered
- the most effective procedure to use in budgeting and controlling indirect expenses.

9. Some architects do not have a clear understanding of the difference between direct costs and indirect expenses, nor is there uniform agreement on how some of these costs should be treated. For example, some architects include payroll taxes on productive technical labor, and related employee benefit costs, as part of direct labor cost. Others put these costs in the indirect expense category, expecting to recover them through their overhead allocation factor. In the study such costs have been included in indirect expenses and are separately shown.

10. The principals in many firms do not keep accurate records of the time they devote to client projects. In the study, principals were requested to estimate their time and cost on jobs if this information was not accurately known.

11. The quality of the accounting skills employed by architects varies greatly.

12. Only 13 percent of the firms reported that they used computers (electronic data processing equipment) to aid in accounting and cost control.

These 12 facts reinforce the meaning behind the original question: Can you design a profit as well as a building?

Other sections of the Comprehensive Study of the Cost of Architectural Services lend substantial support to claims by many architects that fees are not high enough. Before there is any significant improvement in this direction, however, the full potential of current office practice must be accomplished. This means running an architectural office according to the strictest rules of cost control and other good business practices.

Any architect who believes it beneath his dignity to concern himself with money when there is creative work to be done is cutting himself off from the very commodity that allows his creativity to continue unhampered.

Architects must be able to design profits as well as buildings. □

This article is based on material from a forthcoming book to be published by the AIA and to contain the report of the Institute's Comprehensive Study of the Cost of Architectural Services.

The article was prepared by Robert P. Darlington, AIA, who also edited the report.

The study was developed by an AIA task force under the chairmanship of Gustave R. Keane, AIA, a partner in the New York architectural firm of Eggers & Higgins, and was carried out early in 1967 by Case & Company, Inc., management consultants of San Francisco.

The basic purpose of the study was to determine the actual cost of rendering various types of architectural and related services. A further purpose was to break these costs into their various components and to relate them to profit.

In order to collect the required data, it was necessary to establish a sample of adequate size which would be representative of architectural practice in every area of the country.

"All firm" averages in tables and figures accompanying this article are weighted to reflect varying numbers of firms in the different size and type categories.

The chapter structure of the Institute was used to obtain information from firms of all sizes performing the wide variety of practice characteristic of today's American architecture.

Through letters to each of the 166 chapter presidents, in 50 states and Puerto Rico, the president of the Institute requested the names of firms representative of sound, local practice. As a result, a group of 223 firms participated in the study. Each was furnished with a description of the kinds of data needed and with forms to be completed, along with detailed instructions to help insure both completeness and uniformity of data.

Personal visits to most of the firms by the management consultant personnel supplemented the written materials and helped to guarantee accuracy and consistency. The interviews also provided additional information as well as pertinent comments and observations from many architects.

Serving on the task force along with Chairman Keane were William G. Lyles, FAIA, Philip J. Meathe, AIA, Edward A. Killingsworth, FAIA, Jack D. Train, AIA, John Wright, AIA, and Ben H. Evans, AIA, director of Education and Research Programs for the Institute.

BLENDING THE PAST WITH THE PRESENT

The trend in preservation is to make old, worthwhile buildings compatible with present-day uses and to incorporate them in our daily life.

In Illinois, after years of **Sleuthing the Mid-1900s**, there is underway in Springfield an imaginative team's project to bring a Lincoln shrine—greatest of them all—the old State Capitol, back to its original form but with the addition of an underground garage. In Los Angeles, the fight to save the Dodge House and its three-acre oasis from being developed into just so many concrete blocks was won in the nick of time.

Green

Between the Gray

is the motif, and the project will be completed in the spring of next year.

Also in Los Angeles, the Bradbury Building is turned into

A Hall of Light and Life

for plush charity balls, creating new interest in its preservation.

Indeed, the building may well become the main beneficiary and emerge from relative obscurity, bringing its neighborhood along with it to new glory and life.

But in Tokyo,

The Stubborn Hotel Is Shaking.

The Imperial, which refused to be toppled by the horrendous earthquake of 1923 now seems doomed by the more relentless forces of "progress" and neglect unless a last-minute idea can save it.

Sleuthing the Mid-1900s

BY EARL W. HENDERSON JR., AIA

How does an architect achieve the restoration of a historic building for which no drawings or specifications are available? That was the challenge our firm, Ferry & Henderson, faced when we were commissioned to investigate the feasibility of restoring the former State Capitol Building in Springfield, Illinois, to its original design. Before we could sit down at the drawing board, we had to assume the role of a modern-day Sherlock Holmes and launch a well-organized research program to ferret out information about materials, details and methods of construction.

The building is a Lincoln shrine; within its halls, much of the drama of the President's life was enacted. It was here that young Abraham, as a frontier lawyer, argued before the Illinois Su-

The author: Mr. Henderson is a partner in the Springfield, Illinois, firm whose participation in what is known as the Design Center was described in the AIA JOURNAL for December 1966.

preme Court and later, as a state legislator, debated the political issues of the day in the House of Representatives. It was here, on June 16, 1858, that Lincoln delivered his famous speech in which he said, "A house divided against itself cannot stand. I believe this government cannot endure permanently half slave and half free. I do not expect the house to fall, but I do expect it will cease to be divided." It was here, after his nomination as the Republican presidential candidate in 1860, that he used the governor's office for campaign headquarters. And it was here that his body lay in state on May 4, 1865.

It has been said that this building is one of the three most historic structures still standing in the country, the other two being Independence Hall in Philadelphia and Faneuil Hall in Boston.



The building, designed by architect John F. Rague, housed the Illinois State Legislature from 1839 until 1876; during that year, when the state offices were moved into a new capitol building, the structure became the Sangamon County Court House.

By the 1890s, the expanding services of the county required additional space. Various proposals to provide the expanded facilities were hotly discussed in the Springfield town square. Some citizens were in favor of razing the existing structure and constructing a new county building on the same site. Other citizens, aware of the Lincoln heritage, were adamantly opposed to any desecration of the historic building.

At the height of the debates, a bold solution without precedent was conceived by architects S. J. Haynes and Samuel A. Bullard. They proposed that the entire building be raised 11 feet to permit insertion of a new ground-level floor under the building, thus essentially preserving the exterior of the building which Lincoln knew and, at the same time, providing the additional space. The plan was accepted, and the major feat was performed in 1899.

To raise the building, small wooden hand jacks were spaced every 4 feet around the structure. Each workman was in charge of 10 jacks. When a giant gong was struck (which could be heard 3 miles away), each man would turn his jacks a quarter turn. In this way, they raised the whole building 11 feet in 12 days.

In 1961, after Governor Otto Kerner had spearheaded interest in preserving the historic shrine, the State of Illinois repurchased the building and began to develop the program which was to culminate in the present reconstruction.

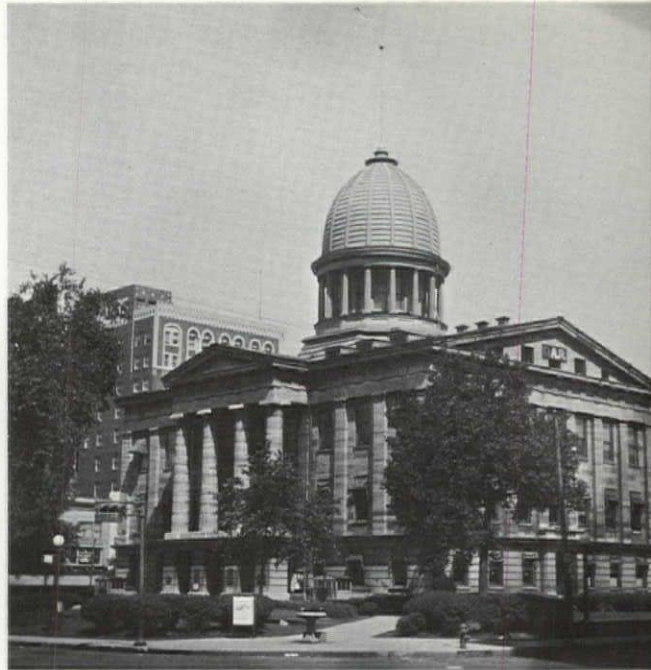
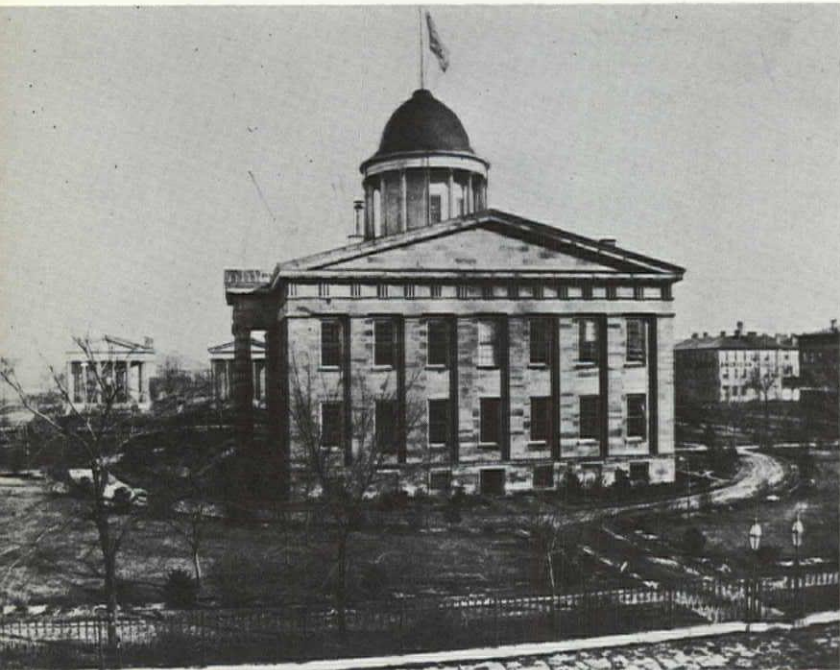
Our sleuthing began in 1963, when we were directed to begin the feasibility studies. Nor-

mally, our source of original architectural drawings would have been the archives of the Illinois Department of Public Works & Buildings, Division of Architecture & Engineering; but because a major fire during the 1930s had destroyed all drawings of the original building, we drew a blank there. However, our other prime sources of information, Clyde C. Walton, then state historian, and the State Historical Library, gave us such enthusiastic cooperation that we were soon faced with the task of sifting through huge quantities of assorted material, ranging from entries in ledgers and bills of material to personal letters and minutes of committee meetings, dating from 1837 to beyond the Lincoln period—all containing references to the old Capitol Building.

To tackle the monumental task, we chose four of the firm's staff members, each a registered architect, to function as a research team. In addition, we devised a "time line," a chronological file, into which all potentially pertinent material was inserted according to its date. Our time line began with 1837, the year the decision was made to move the government seat from Vandalia to Springfield, and terminated with 1865, the year of Lincoln's death. Our time line enabled us to develop a running account of the construction activities.

Throughout the exhaustive investigation, the team members independently evaluated all of the material and then together interpreted the formation. It was very much like solving a jigsaw puzzle. Each fragment was insignificant by itself but, related to other fragments, could help us piece together the whole fabric of Rague's original design.

Our research goals were twofold: gather the known facts and discover leads to other sources of information. As our research progressed, we



Evolution of a building: the State Capitol as it looked in 1858 and prior to the preservation project now underway.

consulted other sources such as the Historic American Buildings Survey, the Library of Congress, Columbia University and the AIA Library at the Octagon. Additionally, many interested local citizens, who had taken the time through the years to record their thoughts and impressions, contributed to our files.

In many cases, these personal recollections confirmed data that we had already obtained from various archives. For example, a sketch prepared by a Mr. Conkling in 1920 (who noted thereon that he had sat at Lincoln's feet on the occasion of the "House Divided" speech) corroborated written descriptions made in the 1850s by visitors to the "magnificent new Illinois Capitol Building," thereby locating significant dimensions that had been mentioned in contractors' billings.

Local citizens sometimes provided unexpected glimpses of the era. One farmer called to say that he had some stones in his field that, according to his father, had been quarried for the Capitol Building. We went out to see them and, sure enough, there they were. It seems that if an axle broke, causing the stones to slip off the wagon en route from the quarry to the building site, there was no choice but to leave them where they had fallen because the only means of lifting them was the cranes at the quarry or the site.

Of course, we did not ignore the building itself; but, because the original interior spaces had been so drastically remodeled through the years, we were left with no direct physical evidence of Rague's original floor plan. However, during the tremendous engineering feat of lifting the building in 1899, a series of progress photographs was

made of the lifting method, giving us valuable information about the physical structure before and after the lifting operation. Unfortunately, no one had thought to photograph the interior spaces, and the subsequent restructuring of the building in 1900, from the original timber and wood system to a fire-protected flat arch/steel frame system, removed the remaining visible evidence of the original rooms.

We expanded our research to include an investigation of Rague's career and background. Although Talbot Hamlin, in his *Greek Revival Architecture in America*, credits Town and Davis as the architects of the Illinois Capitol Building, the newspaper accounts in our files describe the selection of Rague as the architect and report the progress of the work under his direction.

Rague had studied under Minard LaFever in New York before establishing his office in Springfield in 1836. Assuming that LaFever's influence would be evident in Rague's work, we hunted for material on LaFever. Fortunately, he was one of the early writers on architecture, and we were able to locate three of his books in the Rare Books Library of the University of Illinois; the AIA Library was kind enough to loan us copies of these books so that we could study them in depth. Sketches and photographs of the period, together with the details illustrated in LaFever's books, clearly substantiated the source of many of the ornamental details used by Rague in his Capitol Building design.

American architectural expression in the mid-19th century was not especially creative. That it, in fact, produced "copybook" architecture, simplified our research. We visited a number of mid-

19th century classical buildings including the former Capitol Building in Frankfort, Kentucky and the Old Courthouse on the river front in St. Louis, Missouri (built two years after the Illinois Capitol Building). Although the original details of the millwork, ornamental plaster, stone and molding in the courthouse had been considerably modified, they were sufficiently similar to the details already verified to further confirm our research.

Many architects of that era, including Rague, could produce a building that incorporated any classical order of architecture that the client might wish. He makes a selling point of this ability in his advertisement, dated March 27, 1837, in the January 19, 1839, *Sangamo Journal*:

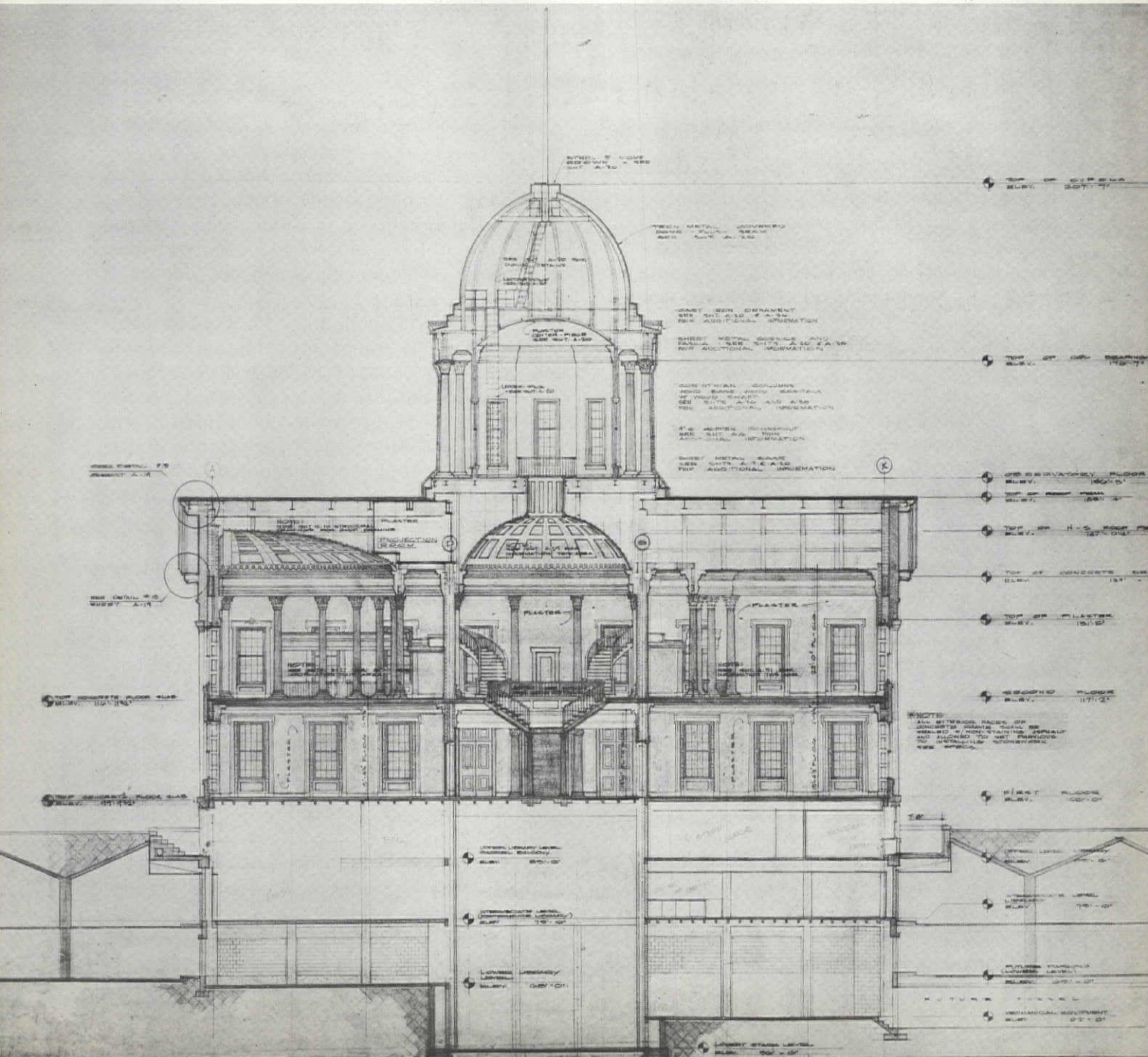
"The subscriber recently returned from New York, and having had ten years' experience as a builder in the city, now offers his services to the

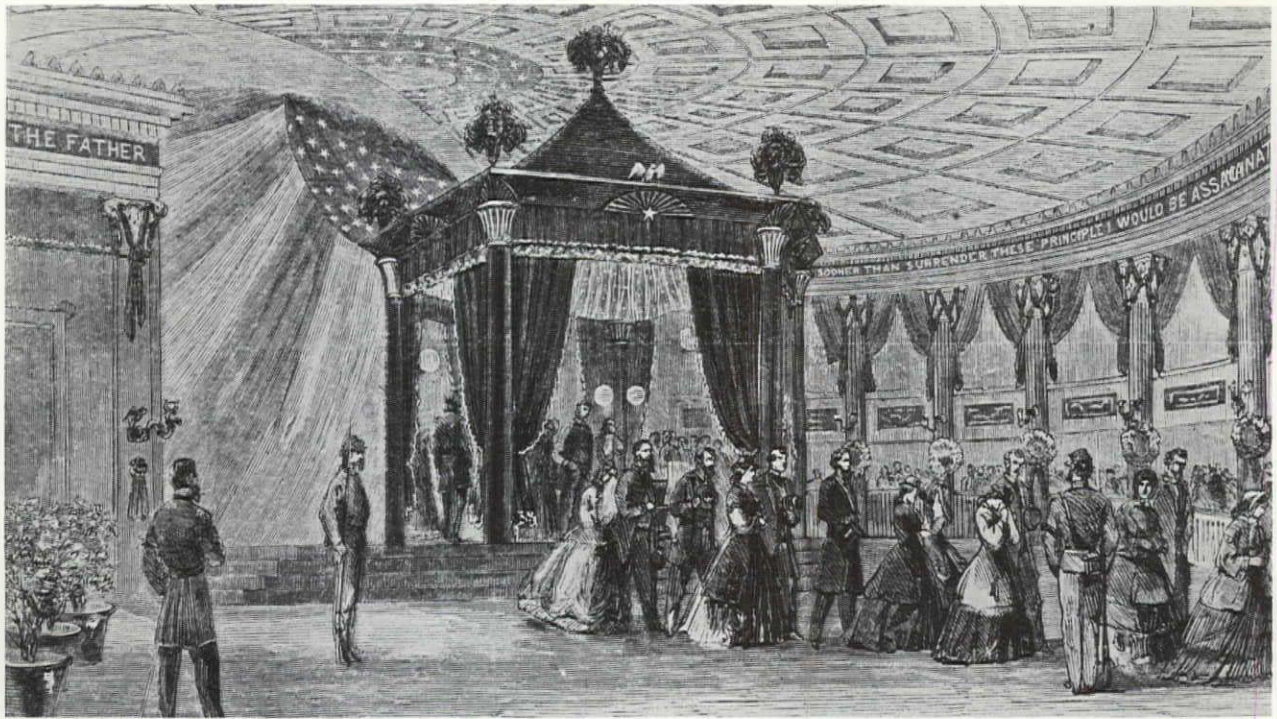
citizens of this country. He will execute plans and elevations for buildings in any of the orders of architecture—write specifications, receive estimates, (and superintend any work of sufficient importance to require it) and construct foundations in such a manner that the buildings will neither settle or crack.

"He is also prepared to execute Rough Casting in imitation of granite, or any other stone, warranted to stand firm—also Stucco work with enriched cornices, centre pieces, &c.

"As wood carving for buildings has in a great degree been superseded in the Eastern Cities, the subscriber will furnish to order, and send to any part of the State composition egg and dart mouldings, stair bracketts, etc. etc. warranted to resist the influence of all weather for less than half the cost of carving."

The bold plan: to disassemble the building, add an underground library and garage and restore it to its original form.





President Lincoln's funeral: the catafalque in City Hall, Springfield. Sketch by the contemporary artist W. Waud.

Because of Lincoln's national prominence, a wealth of published sketches and photographs of the Illinois Capitol Building existed from which we could draw. We were able to identify and refine details from artist's sketches that appeared in such publications as *Harper's Weekly* and *Leslie's Magazine*. After Lincoln was elected to the Presidency in 1860, staff artists of contemporary news media were sent to Springfield (photography was still in its infancy) to record the activities and milieu of the President-elect. In 1865, artists—on this occasion accompanied by a photographer—traveled with the body of the martyred President to Springfield and made an accurate, detailed graphic record of the ceremonies and surroundings as the body lay in state in the House of Representatives.

By comparing these photographs and sketches with the LaFever illustrations and other material that was available to builders in the early 19th century, we were able to determine that the ornamental detail was a variation of the classical orders of the Monument of Lysicrates in Athens. We were then able to fill in details and proportions that had been out of camera range.

Searching for other buildings designed by Rague, we discovered that two years after construction began on the Illinois Capitol Building, the Iowa Territorial Capitol Building (now the Administration Building for the State University of Iowa) at Iowa City was constructed using plans prepared by Rague. We visited the building and obtained from the university architect much helpful information about the architectural and structural details. Although the two buildings

are dissimilar in many respects, it was apparent that many of the influences and disciplines that guided Rague's design for the Springfield building were of importance in his Iowa City solution.

At one point in our research, conflicting descriptions of the House of Representatives created an enigma. We could not determine whether the ceiling of this handsome classical space was part of an elliptical form or a coffered hemisphere. Our projections of photographs did not give us a clear answer, but we were able to fall back on the rationale of mid-19th century construction in which we had been steeping ourselves. We reasoned that, since the elliptical shape (similar to one-fourth of a football) would be a three-dimensional form, it was doubtful that the ability of the frontier craftsmen would permit a successful execution of such a complicated form. Such a form is, even today, difficult to illustrate and to construct. However, we should have known better. As our research progressed, we came to respect the talents of the frontier builders who were capable of great and beautiful construction without the aid of heavy-duty equipment of computers. Our respect was confirmed when we discovered a page in one of LaFever's books that illustrated how to "throw" a double ellipse using a string! (Eventually, our research indicated that the ceiling in the House of Representatives was, indeed, an elliptical form.)

An interesting facet of mid-19th century construction that helped us in our research work was the practice of inserting specifications in the newspaper describing the quantity and quality of required work. Usually these public specifica-



Restoration in progress: Careful stripping of plaster from interior walls reveals important features of original design.

tions ended by noting the date and hour when the architect would be present at the job site to answer the questions of interested contractors. The *Sangamo Journal* carried such a specification in its April 22, 1854, issue.

Our search through newspapers for public specifications, as well as an examination of the records of contractors and suppliers, enabled us

to achieve an understanding of the building techniques of the era and an awareness of the available materials. Our time line method, combined with our knowledge of techniques and materials, enabled us to reasonably pinpoint the time during construction when certain material lists would have appeared. We would then search the data of that particular date for a specific record of the materials involved.

Our in-depth knowledge of the era came to our aid, too, when, during the development of our preliminary drawings, we discovered that certain logically necessary structural elements had not been described in any material listings we had seen. Again, our chronological files yielded scraps of information that, when properly related to each other, solved the problem.

We wrote to the contractors who had executed the 1899 remodeling, hopeful that they, or their suppliers, might have a record of the existing conditions of the building. We were particularly interested in the shop drawings for the structural iron and steel, which would have been prepared by the Chicago Bridge & Iron Company. However, we were disappointed to learn from the firm that no records remained other than bills of material, the shop drawings having been discarded.

The records of the legislature of the 1840-1841 period revealed that a question was raised about the competence of the commissioners who had been charged with the development of the building from July 4, 1837, when the cornerstone was laid. The ensuing investigation resulted in 1841 in a shake-up of the building committee, assignment of construction record keeping to the state

Helping the sleuths were newspaper announcements.

**TO STONE CUTTERS
AND IRON FENCE MANUFACTURERS.**

SPRINGFIELD, ILLINOIS, April 3, 1854.

SEALED PROPOSALS will be received by the undersigned at the State Treasurer's office until 4 o'clock P. M. on Thursday, the 27th of the present month, and awards will be made to the lowest responsible bidder, upon entering into bond with sufficient security, for furnishing all materials and the completion of a fence around the public square in this city. The stone work to be completed by the 15th day of September, and the iron by the 15th day of October next. Separate bids are invited for the excavation and rubble work, and for the bush-hammered coping course, and for the iron work.

Furnishing materials and laying up about thirteen hundred feet running measure of foundation wall, as follows: the earth excavation to be made, and the wall laid with rubble limestone, two feet and six inches below the grade surface, two feet wide at the bottom, and at least twenty inches at the top, the upper surface and edges to be finished to a line, and the whole to be laid in good lime mortar, upon which will be laid a coping course of limestone eighteen inches wide by twelve inches thick, the blocks for this course will be from six to nine feet in length, the sides and top to be of good bush hammer-work, with two bevelled edges of six inches each, to be of single drove work, the whole course to be well doweled and laid in good cement.

Also, for a fence of wrought iron, including gates, lamp-posts, &c., the fence to be at least four feet six inches in height, to be firmly set in the coping course, and to be fully equal in quality and ornament to the iron fence around the court house in the city of Chicago.

Plans and further specifications of the whole work can be seen at the state treasurer's office in Springfield, after Tuesday the 11th inst.

J. A. MATTESON,
ALEXANDER SFARE, } Com'rs.
JOHN MOORE,

dawtd.

auditor, and, in addition, the dismissal of Rague. Subsequent construction was placed under the direction of a former craftsman on the project.

So the musty, 120-year old files of the state auditor became the focus of our attention. In his records, we found meticulous accounts of costs, bills of material, and other documentation of construction—no doubt compiled with special care after the furor of the preceding dispute.

A study of available documents and manuscripts produced a kaleidoscopic array of information, varying from a Senate appropriation for candles in 1843, to personal letters written by craftsmen who found themselves during the winter of 1840 in the midst of a dispute over the \$2.25 daily wage they had been promised but had not received. But, however interesting, fragments of knowledge require a cohesive thread to provide a valid basis for reconstruction of history. Few records were found from which architectural information could be interpreted directly, but our chronological filing system enabled us to solve the fascinating jigsaw puzzle.

Having reached a point in our research where we could begin to relate the bits and pieces into an intelligent whole, we at long last sat down at the drawing board. It had been a year and a half since we began our research; now it was time to develop the preliminary plans and sections that would help us to shape our recommendations and solution. To insure that our solution was indeed historically valid, we asked Professor Ernest A. Connally, a noted historian and member of the University of Illinois history department, to join our research team to evaluate our work. (Professor Connally is now on a sabbatical leave, serving as chief of the Office of Archeology & Historic Preservation, National Park Service, Department of the Interior.)

In 1964, we reported to the State of Illinois that a reconstruction of the old Capitol Building was feasible. Since the building program had been expanded to include subterranean spaces for the State Historical Library and underground parking facilities for 450 cars, we recommended that what remained of the original building, i.e., the exterior walls, be carefully dismantled and reassembled subsequent to the on-site construction of a modern structural system. This solution will protect the documentation of the past, permit integration of modern utility systems, and preserve the Lincoln heritage. Our recommendation was accepted and we were directed to begin final working drawings for the project.

Our solution was influenced by several major factors. Foremost was the problem of removing the first floor and lowering the building eleven feet to its original elevation. To lower the building by the same method with which it had been

raised in 1899 would be expensive and would prevent inclusion of the new library and parking facilities for economic reasons. Economy-minded citizens, who did not understand the extreme modifications that had occurred within the building nor the expanded program requirements, had suggested that the base of the building be covered by an earth mound 11 feet high, leaving only the familiar exterior of the old Capitol Building exposed. But this solution, however simple and direct, ignored the problem of how to integrate modern utilities into the 42-inch-thick stone and brick bearing walls without destroying original room dimensions.

Another important factor was the need to provide maximum fire protection for the spaces that would house the world's most extensive collection of original Lincoln manuscripts and documents: a priceless treasure.

Our 1964 recommendation was based solely upon the written and photographic information available, since the building was, at that time, still occupied by county personnel. However, when the county vacated the building on January 1, 1966, we had six weeks in which to go over the building with a fine tooth comb before the dismantling began. During that time, we carefully stripped away plaster from the two original walls; needless to say, we were delirious when we found, for example, traces of original wall partitions, bricked-up door and flue openings, places where the Franklin stoves had been breached into the walls, and the anchor holes for the main entrance doors—and found them just where our research had led us to expect them!

Our solution, then, in effect, involves construction of a modern structural system upon which a "skin" of the original exterior stones will be applied. Each of the 3,300 stones has been catalogued to expedite the reassembly on the new structure.

In summary, our experience on this project has taught us that to establish a historically authentic reconstruction successfully the professional must engage in a thorough effort to understand not only the forms involved but the influencing factors that led to the original design decisions, the limitations (and the abilities) of the craftsmen, the use and limitations of materials and, finally, an understanding of the background of the original architect and the source of his knowledge. Such total understanding can only be achieved by total immersion in the historical period; to achieve it, we vicariously became 19th century architects and builders.

We take pleasure in the knowledge that when the project is completed in August 1968, this classical structure will be truly a Lincoln shrine—for this and future generations. □

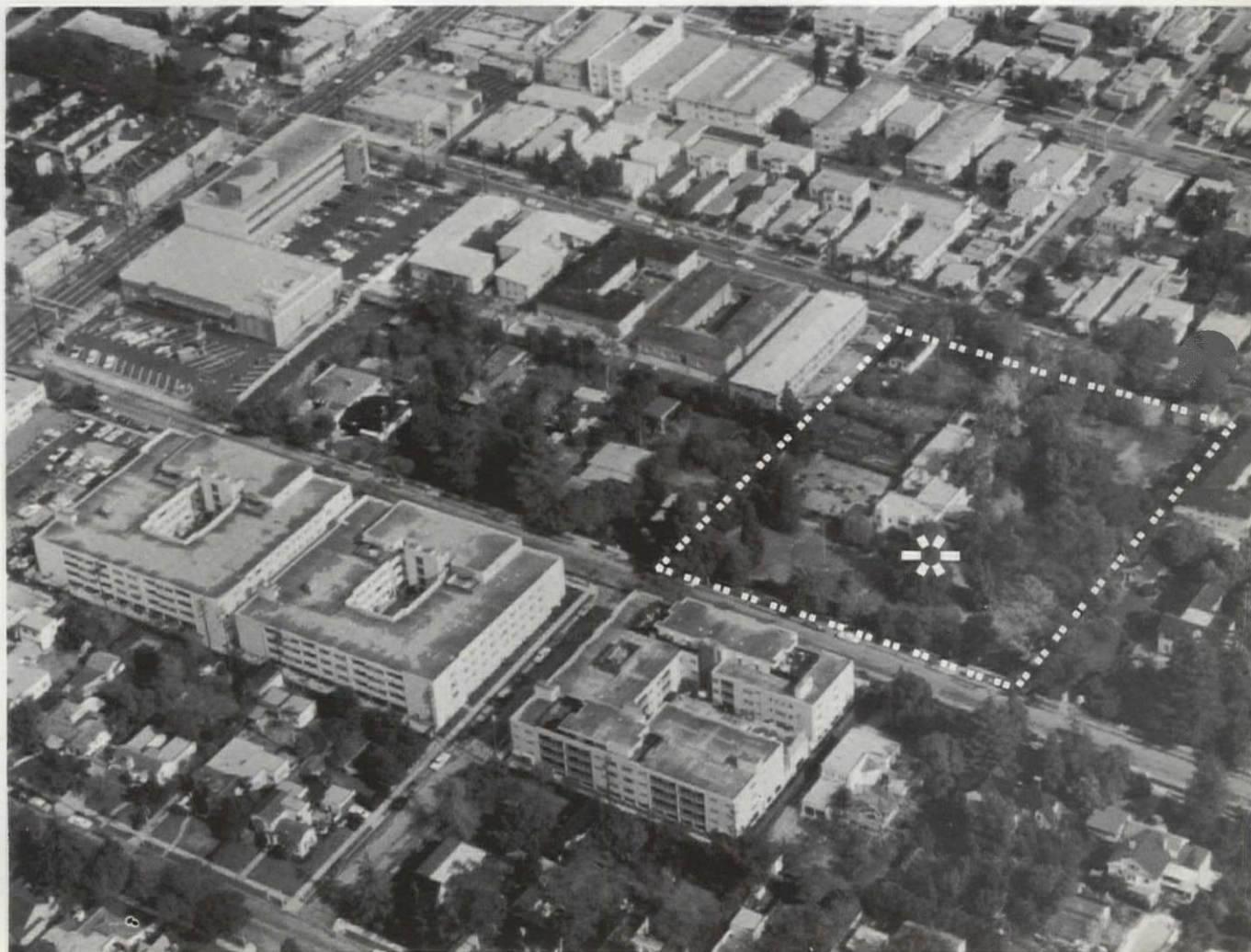
BLENDING THE PAST WITH THE PRESENT

Green Between the Gray

In 1914, when Walter Luther Dodge commissioned Irving Gill to design him a house, a wealthy Californian could live pretty much as he pleased. It pleased Dodge, who had gotten comfortably rich off the proceeds of a foot remedy, to live in a rambling white concrete house set in the midst of three manicured acres on Los Angeles' North Kings Road.

The house he got from Gill—acknowledged to be one of the best examples of “modern” residential architecture in the West—was to figure half a century later in a zoning battle, instigated by people who contended that, whatever its architectural merit, a house that hogs three acres of expensive close-in land is a luxury which today's urban structure simply cannot afford. A rezoning

A green oasis in a high-density Los Angeles area—at one critical point it had all the appearances of a white elephant.





ordinance permitting much higher residential densities for the area passed in 1963.

Philip Johnson protested, Lewis Mumford protested; deans of architectural schools protested, the Southern California Chapter AIA protested. A *New York Times* headline mourned, "Landmark Faces Perilous Future—Rezoning Appears to Doom House by Gill on Coast."

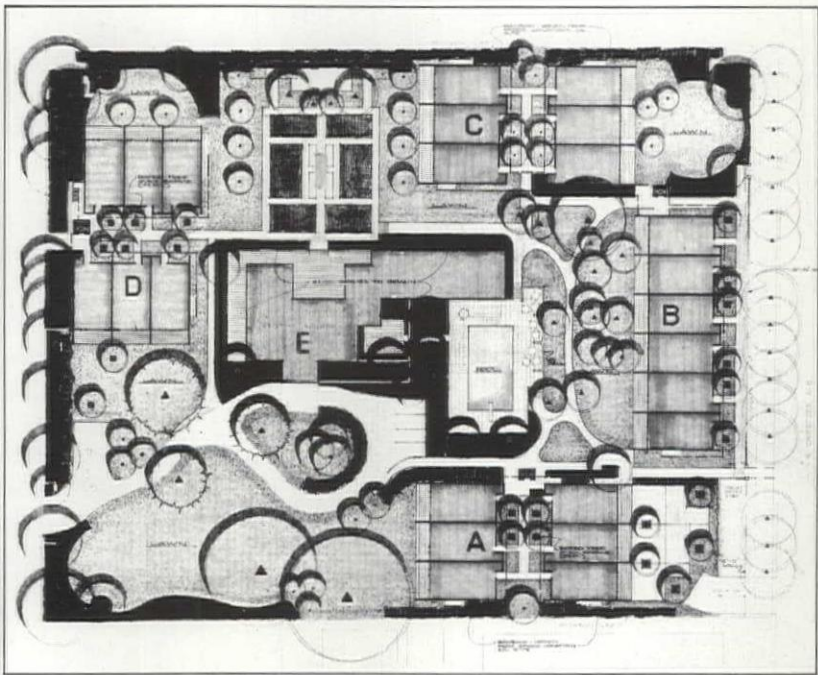
The Dodge property, which the *Times* had called a "green oasis," was beginning to look

more and more like a white elephant—an expensive anachronism in Los Angeles, where population is dense and getting denser, and automobiles require over 50 percent of the available land for freeways and parking lots.

In the nick of time (and in the finest western tradition) a hero appeared, in the person of Bart Lytton, president and board chairman of Lytton Savings & Loan Association. The bank acquired the Dodge property (owned at the time by the



The site plan for a quality residential development which respects Irving Gill's early contribution to modern architecture and is fitted compatibly into the existing landscape that includes many specimen trees and plants. Plan shows four groups of houses, A through D, surrounding the Dodge House, E. Added benefit for all four groups is a swimming pool. Exciting vertical spaces between the new structures contrast with the free-flowing landscaped areas. The total composition of townhouses, existing residence and the landscaped spaces create an open-space village in a dense urban area.

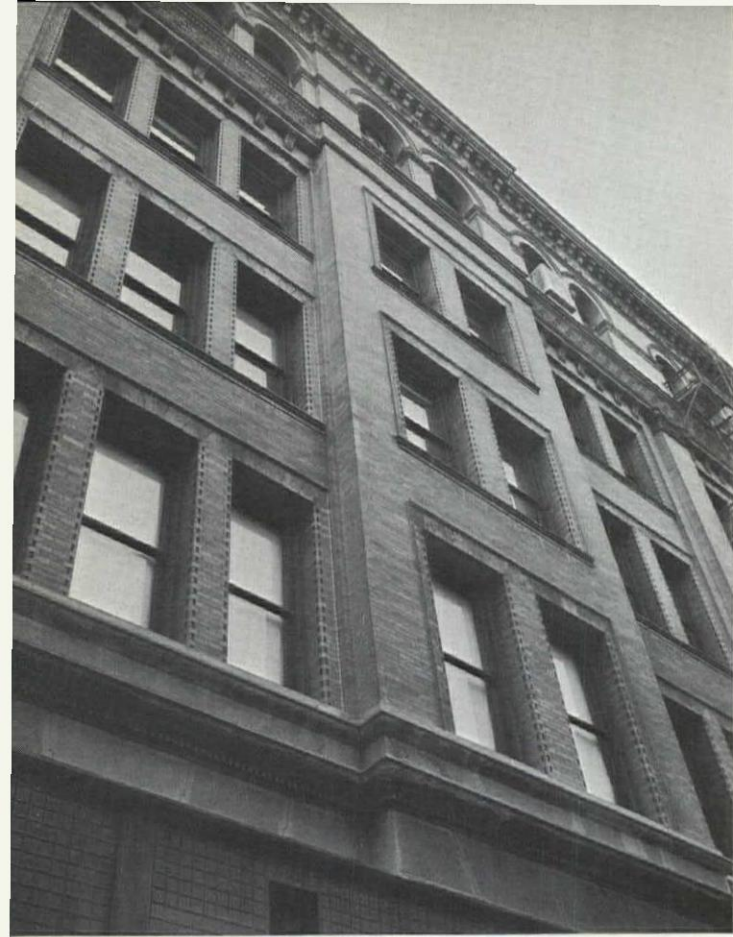


school board), and Lytton commissioned Kurt Meyer, AIA, to work on a development scheme which would save the house and as much of the grounds as possible, while still providing quality, multifamily residential buildings which would command sufficient rents to make the venture economically feasible.

The new condominiums, facing inward toward the Dodge House and its grounds, consist of two-story townhouses with studio units above. Much

of the original landscaping—including large numbers of irreplaceable specimen trees and shrubs—will be saved; the undisturbed areas will provide parkland for the tenants.

Deed restrictions insure that the original house will remain unchanged and that the grounds will not be overbuilt with additional units. The house, in fact, will provide an architecturally historical cultural center that may be enjoyed by the public as well as the occupants of the development. □



BLENDING THE PAST
WITH THE
PRESENT

A Hall of Light and Life

The excitement of the Bradbury Building on Third and Broadway in Los Angeles is behind its not-so-exciting sandstone and brick facade. Enter, and you're in a world of light and life.

Light is in the central court, pouring from the glass roof and filtering through wrought iron balustrades and elevator cages, leaving lacy shadows and silhouettes on its way. Life is in the flights of stairs and the elevator shafts rising toward the light, giving a graceful, yet strong rhythm to the 74-year-old structure.

Designed by a man with no formal architectural or engineering education, George H. Wyman, the Bradbury is a work of inspiration and love—an ode to natural light.

Louis Bradbury, a mining tycoon who had commissioned it as a monument to himself, had turned down one plan, finding it undesirable. He accepted that of Wyman, possibly seeing the strength of the interior as a symbol of himself.

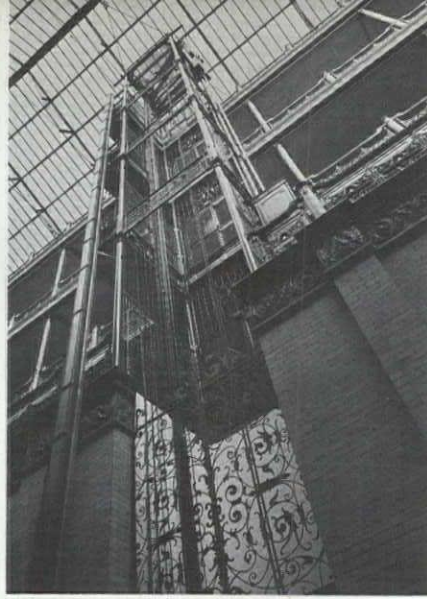
The Bradbury, which has been designated by the Los Angeles Cultural Heritage Board as a historical landmark, was once *the* address for law firms. Spanish speaking members of the garment industry now make up 75 percent of the tenants.

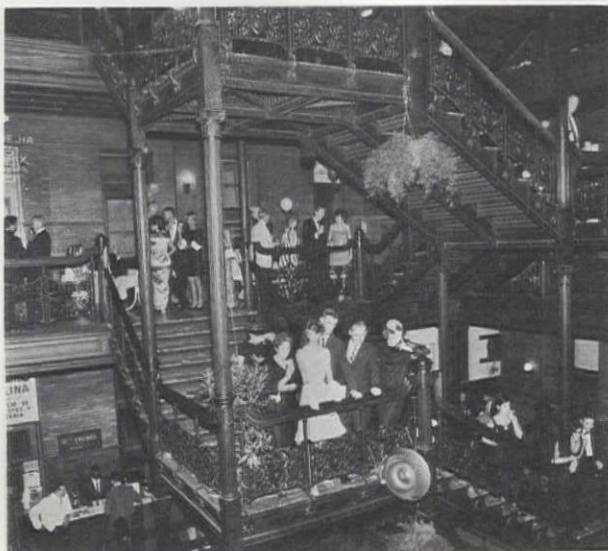
The future function of the Bradbury is uncertain at this point. There is a marked distinction, however, between the future function of a building and the future of a building. Lately attention has been focused on the old structure. In a strange twist of fate or, more properly, through creative thinking by civic-minded people, the Bradbury is now emerging from relative obscurity because of the part it plays in efforts to fund an apartment complex for families of deprived children.

Twice now have the Bradbury's hall and marble stairways been the setting for the annual ball held by the Board of Governors of the Maud Booth Family Center, a community service program, to raise money for this project.









After last year's ball one guest, fascinated with Wyman's masterpiece, rented an office with a view of the central court and decorated it in the grand Victorian manner in keeping with the style of the building. This opened the eyes of other tenants to the unique beauty of their surroundings and set off a trend among them to do likewise.

The price of the Bradbury, though presently not on the market, has gone up. It is expected that its immediate neighborhood also will make an up-swing.

One proposal for future use is to make the Bradbury an abode for outstanding citizens and celebrities, with a restaurant or two of the very highest order. It is hoped that the famous landmark will bask in its glory not only once a year, but the year around. □

BLENDING THE PAST WITH THE PRESENT

The Stubborn Hotel Is Shaking

BY KARL KAMRATH, FAIA

The Imperial Hotel is scheduled to be demolished just a few weeks from now. In its 44-year history the famous Frank Lloyd Wright-designed building has commanded the acclaim and respect of world travelers for its charm, dignity and mystery and for its individuality of design and construction. The Imperial is one of the few prestigious hotels left, but soon it will, in all probability, disappear from the Tokyo and indeed from the world scene.

There appear to be two valid reasons for its demolition. First, the ground alone, approximately 300x500 feet facing the Imperial Government Garden Park, is currently valued in excess

The author: Mr. Kamrath is a principal in the firm of MacKie & Kamrath of Houston, Texas. He was chairman of the recent AIA Committee on the Memorial for Frank Lloyd Wright.

of \$30 million. Being privately owned, the Imperial must produce more income than is now possible from the current structure condition. Second, substantially all of both the three-story wings is beyond repair because the exterior is disintegrating in Tokyo's polluted air and because ill-advised subway construction, coupled with earthquakes, create foundation problems.

Last March, my wife and I spent several days at the Imperial on our first visit to Tokyo. I was especially interested in making a firsthand inspection of the building because of the many conflicting reports on its condition.

I have been involved with considerable correspondence from many countries and sources regarding the imminent destruction. Consequently I have been in touch with the Japan Architects Association, the Emperor's Palace, the head of Japan's cultural and historical buildings, the US ambassador to Japan, certain well-known and influential Japanese architects, current business

tenants of the Imperial and the family now owning the hotel. I must reluctantly report that there seems to be only one inevitable answer: The Imperial will have to come down.

However, one thought developed as I concluded my inspection of the structure. The important and glamorous central core of the building could possibly be saved. This significant part seems to be in a condition that would allow it to be retained and restored. This central core contains the three-story split level lobby and meeting rooms, the main dining room flanked by galleries facing the beautiful Japanese gardens, the elegant private dining rooms, the lobby-galleries to the rear, a theater and the amazingly beautiful Great Peacock Room on the top level.

On the other hand, both 500-foot-long three-story hotel room wings appear irreparable and contains areas which do not meet the standards demanded by present-day world travelers. Looking down the long corridors, a drop of 3 or 4 feet is quite evident in the center. This is apparently settling caused largely by adjacent subway construction and by continual earth shocks of various intensities. On our first morning at the Imperial, we were awakened by a tremor that shook our rooms noticeably. It made me wonder how this structure has behaved as well as it has throughout these 44 years, undermined as it has been and floating on a jelly pad.

Good judgment indicates that these wings should be demolished. In their place could be built new spaces of sufficient volume to provide a proper balance of new rooms and support facilities, making a sound business venture possible. The new structures could be of multistory heights and planned so that full use could be made of the restored central core area, in the same graceful manner as the present obsolete wings.

Putting it simply: It would be most desirable to save and restore the portion of the Imperial that it is possible to save and to replace the portions that cannot be saved.

Wright received the commission to build the Imperial Hotel in 1915. The official grand opening, attended by the imperial family, occurred one September evening in 1923. Merely hours later the most terrific trembler in history wiped out Tokyo and nearby Yokohama. The Imperial remained undamaged and in full function.

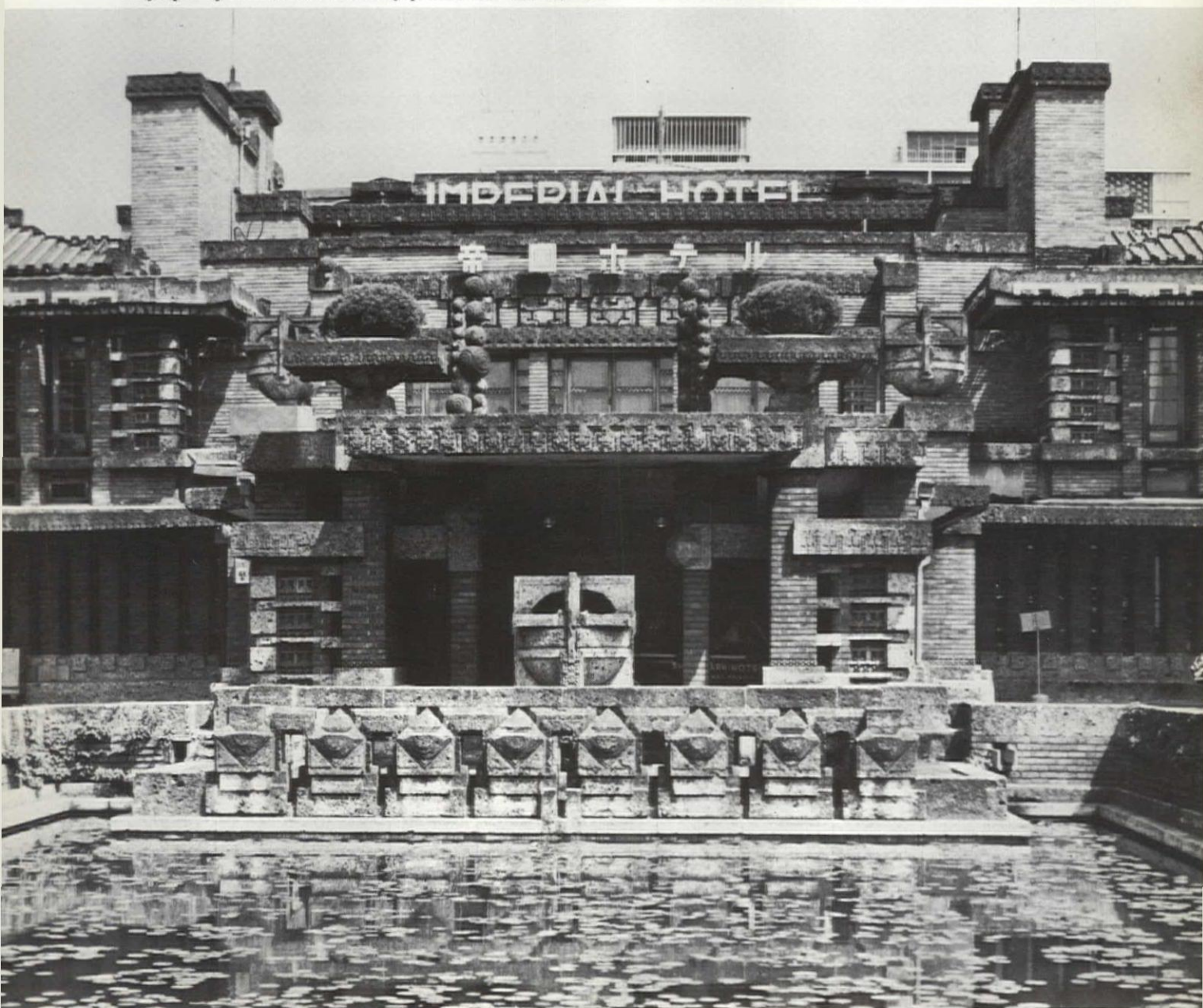
Wright often referred to the hotel as a social clearinghouse. A new hotel had, he explained, become necessary in Tokyo because no foreigner, no matter how cultivated, could live on the floor with any grace or comfort as do the Japanese. The hotel was necessary for still another reason: Japanese gentlemen do not entertain strangers, however gentle, within their family circle. Consequently, the building would be a place for entertainment, with private supper rooms, banquet hall, theater and cabaret, more than a hotel.

Wright explained that while making this building "modern" in the best sense, he meant to leave it as a sympathetic consort to traditional Japanese structures. He believed he could show the Japanese how to construct an earthquake-proof masonry building, and he wanted to help Japan make the transition from wood to masonry and from her knees to her feet.

The plot was composed of 60 feet of mud overlaid by 8 feet of fill soil of a consistency similar to hard cheese. The perpetual water level stood within 15 inches of the level of the ground. The site was a filled in arm of the bay when Tokyo became capital of the empire.

Wright reasoned that the mud beneath the fill would be a good cushion to relieve earthquake shocks: A building would float upon it like a battleship. He designed the hotel flexible and inter-

A symphony in stone is what the Japanese call the Imperial. However, the hotel is out of tune with modern demands.





Although decaying and neglected, the Imperial still bears witness to its former elegant and relaxed atmosphere.

locking, yielding to movement, yet resilient enough to return to position when force exerted upon its members and membranes ceased. He thus outwitted the quake.

The exterior of the Imperial in its existing condition appears old and sad and uncared for against the newer, brighter and taller neighboring buildings. One must exert special observation to see the beauty of the once warm white, carved lava trim, now crumbling, dingy and nearly black. Likewise, the once warm brown brickwork, so beautifully executed, is smoky and dull. The roof shelter eaves are of exquisitely carved lava stone capped with copper turned turquoise and pierced to let the daylight filter into the upper level rooms. Today, they are crumbling and spalling, causing leaks and general disintegration at this critical structural area. The turquoise tile and copper roof areas have held up well and generally look fine by comparison.

Exposed electrical conduits crawl over many of the exterior upper level walls, installed at random to service the various electrical equipment gradually added to the building. Window type unit airconditioners puncture the attractive fenestration.

A few random repairs have been made which do not conform to the original design. Crude, elevated passages have been added at the east second-floor level, connecting the original structure to the multistory Imperial annex, completely destroying the eastern facade.

Some of Wright's carpets, woven in China from his brilliant designs, are still in use. They are laid directly over the unlevel square tile floors in the main lobbies. I noted other original rugs rolled

up and stored in an upper lobby. All the rugs needed cleaning, but looked in quite good condition considering 44 years of service with little or no attention.

Most of the original light fixtures are still in use, but colorful Japanese lanterns now hang in the three-story lobby to give added illumination.

In 1922 when the Imperial Hotel was nearly finished, a large delegation from The American Institute of Architects passed through Tokyo. The delegates took notice of the new hotel and declared in Tokyo newspapers that the work was an insult to American architecture and that the American architect, Wright, was mad. In their articles, they notified his clients as well as the world in general that the whole thing would come down in the first quake with horrible loss of life.

Also, the Western Society of American Engineers gratuitously warned Wright that his "scheme for foundations was unsound."

How well the Imperial stood the great 1923 quake and how universally the brilliant architectural design has been acclaimed is a matter of record. The irony of the 1922 attacks was all the more gratifying to Frank Lloyd Wright when he was awarded the Institute's highest honor, the AIA Gold Medal, in 1949.

Several of Wright's Japanese apprentices in Tokyo who aided in the eight years of research and preparation of the Imperial's plans and construction are now banding together in an attempt to plan some memorable "funeral" for the famous building. At last report they had not come to any conclusion, but they feel that there must be some special way to mark the end of the great building. □

To Save the River

America is about to destroy the worth of its river heritage. The central issue for saving American rivers is public policy.

Joe L. Evins (D-Tenn.), a chairman within the House Committee on Appropriations, has declared that the nation has suffered two major crises—the Civil War and the Great Depression—and is on the brink of its third: “the crisis of our cities.” We know what this means well enough—something in the order of social values and environment. If we boiled this down further, then lakes and rivers are part of our nation’s third greatest crisis—a crisis of public policy.

American civilization has come to life out of its rivers—from Henry Hudson, Marquette or Lewis and Clark to Abraham Lincoln and Mark Twain. Today, however, our greatest rivers might be best described as the world’s largest open sewers. Gouged, scoured, silted and slimed, these resources have been exploited as though they possessed no intrinsic value whatever.

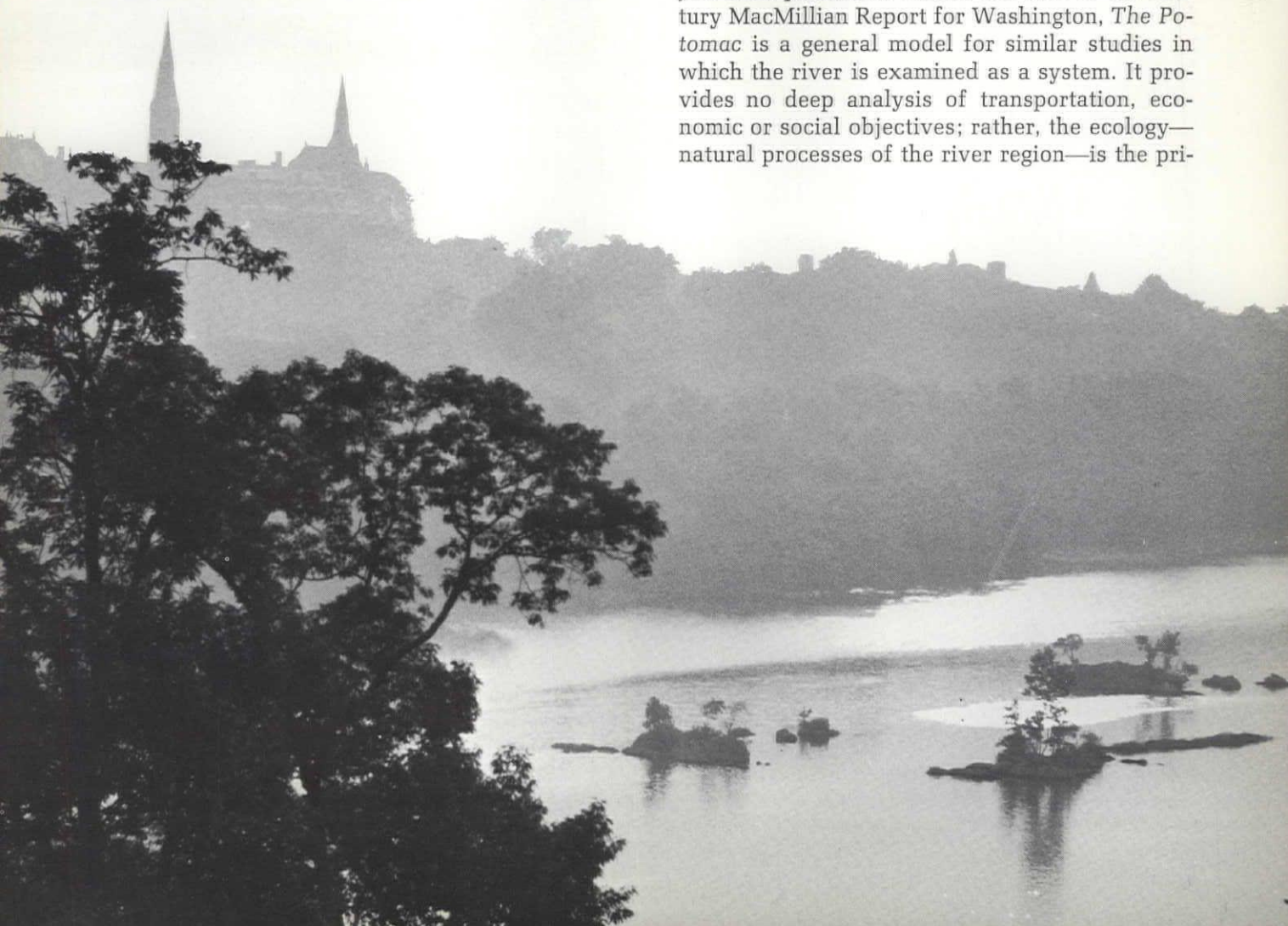
Furthermore, it has been estimated that should we start today, we would still need 100 to 150 years to restore several of this nation’s Great Lakes to their original ecological health. Some of

our rivers may never be the same. The Potomac, the country’s one truly national river, may also be plundered into irreparable disuse unless a halt is declared to its present destruction.

This concern was the motivation behind the President’s Potomac Planning Task Force, a

The Potomac Planning Task Force: Arthur Gould Odell Jr., FAIA, chairman; Dr. Edward A. Ackerman, executive officer, Carnegie Institution of Washington; Edmund N. Bacon, AIA, executive director, Philadelphia City Planning Commission; R. Max Brooks, FAIA; Grady Clay, Hon. AIA, editor, *Landscape Architecture*; Donn Emmons, FAIA; Frederick Gutheim, Hon. AIA, planning consultant; Francis D. Lethbridge, FAIA; Ian L. McHarg, chairman, department of landscape architecture, University of Pennsylvania; Thorndike Saville, dean emeritus of engineering, New York University; Dr. M. Gordon Wolman, chairman, department of geography, Johns Hopkins University. Joseph Watterson, FAIA, special assistant to the Secretary of the Interior, assisted in editing the report of the Potomac Planning Task Force.

multidisciplinary commission of 11 men (including five architects) appointed by Secretary of the Interior Stewart L. Udall. *The Potomac*, a report of its conclusions after two years of study, has just been published. Unlike the turn of the century MacMillian Report for Washington, *The Potomac* is a general model for similar studies in which the river is examined as a system. It provides no deep analysis of transportation, economic or social objectives; rather, the ecology—natural processes of the river region—is the pri-



mary concern, planning and management of which are dealt with directly and concretely.

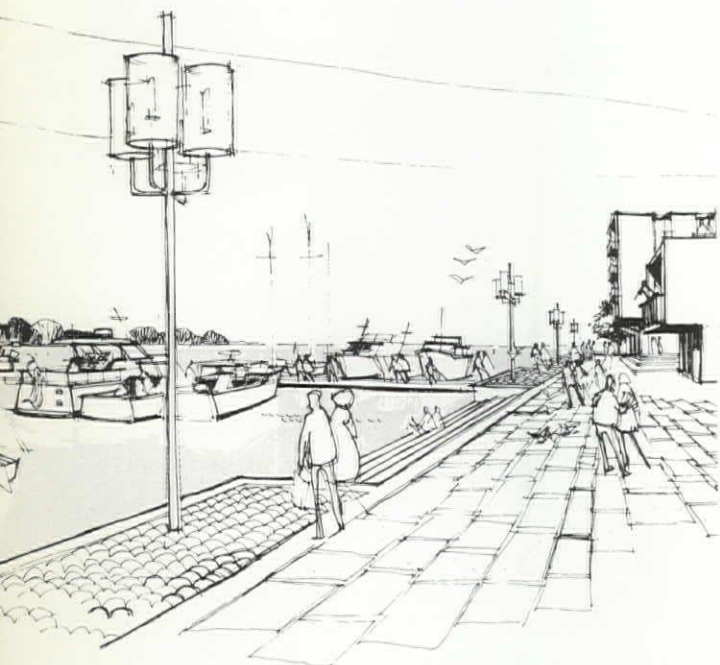
The report sets its general purpose by first stating that "the river must be treated as a unified, indivisible whole." This necessarily includes the components of the entire river corridor: the river flow, riverside and the setting. The approach,

This article is an interweaving of the criticisms of George N. Hall, AIA, and Andrew F. Euston, AIA. Hall, a former member of the AIA Urban Design Committee, has been an active participant in the Indiana Dunes Conservation Program. Euston is the Institute's director of Urban Design Programs.

then, is an environmental one, described in the report as starting with "the recognition that nature contains intrinsic resources which may be utilized to our benefit. . . . Interaction between water and rocks, soil and vegetation, makes a river what it is. If we are to manage the river we must also manage the land."

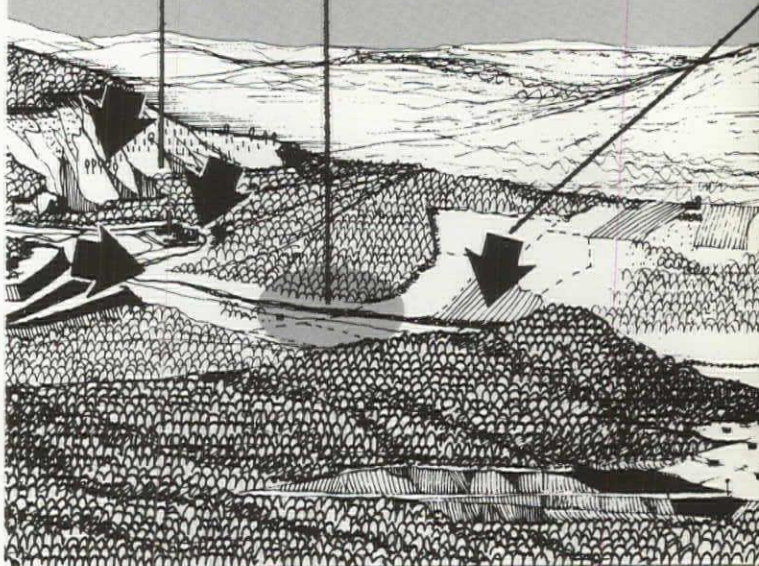
By treating it as a system, the report brings the river into a new perspective: The corridor is no longer relevant just in relation to the issue of sewage. Its significance now encompasses the land and the entire surrounding environment.

Moreover, the report recognizes pollution as the basic problem of our rivers—water pollution and visual pollution—and it is unflinching in recommending an effective cure. *The Potomac* makes clearer than any earlier sources how land use policy is the key to water pollution control. This was largely understood, however, as far back as 1934 when the National Resources and Planning Board began its decade of brilliant policy formulation, which was only to be irresponsibly



Erosion and effluents from strip mining, deforestation and pulp industries

Polluted mountain streams

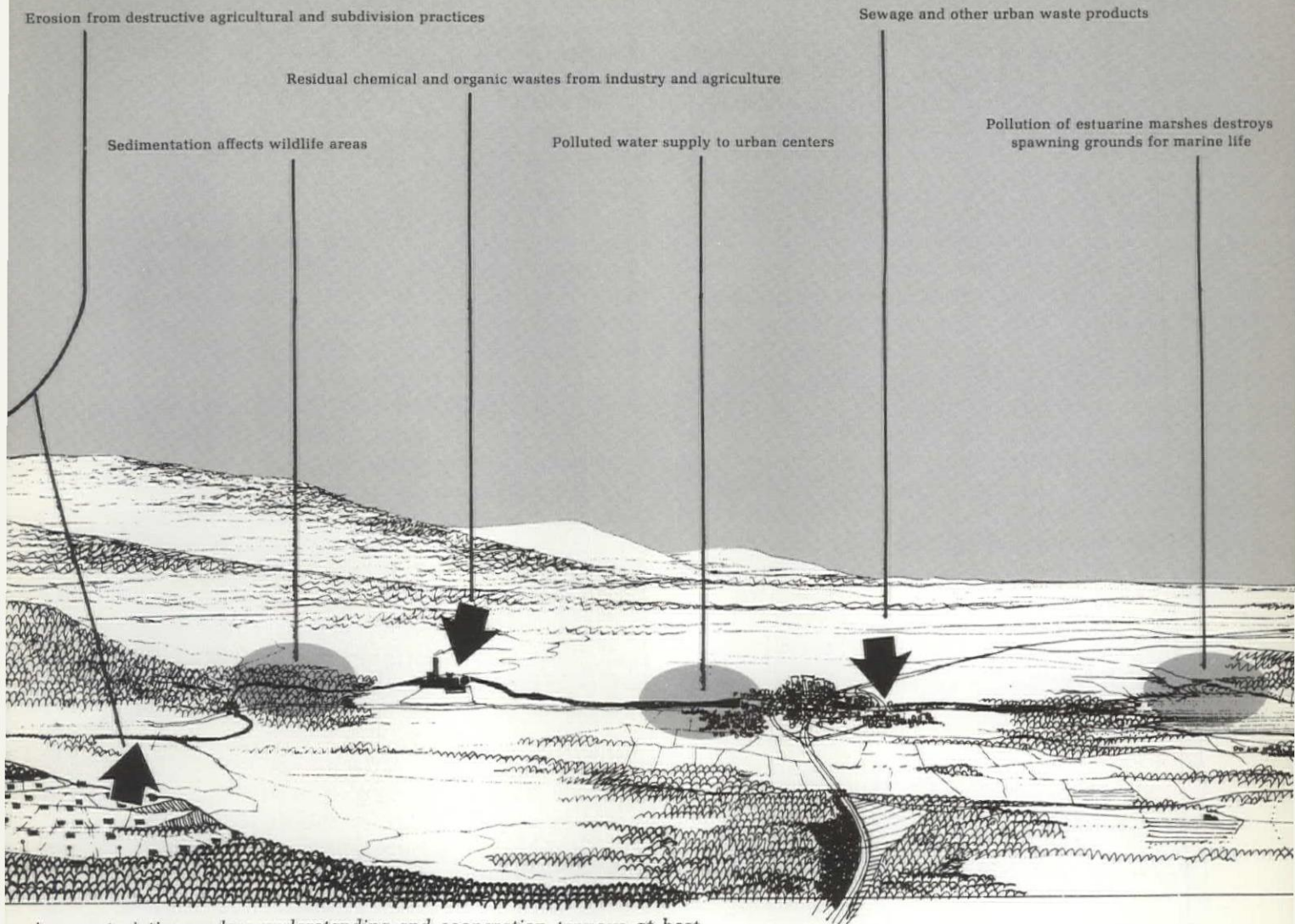


Mere physical separation of the creator of a nuisance from his

crushed following the death of President Roosevelt. Nothing has emerged as a substitute for the board's systematic interprofessional examinations of the disastrous misuses of our land. Instead, along with the consequences of inaction, what one finds is fragmented federal attempts at public policy development. Today, for example, five federal departments with sewer assistance programs cannot operate from common ecological policy assumptions, for there are none.

The specific ecological policies of *The Potomac* are stated as follows:

1. Conservation of existing values, both social and physical, must be an essential element of creative planning and design.
2. All development of land and related resources must preserve and improve the supply and quality of water available to the basin's citizens.
3. The entire valley and all of its natural processes must be considered a unit, with the energy systems of rivers and land, or nature and man, coming together.
4. We can learn from nature where man and his works are best fitted to go, with least damage to



innocent victim renders understanding and cooperation tenuous at best.

the present environment and with most concern for the future. This will require precise knowledge of the region and its processes, far beyond what we now know.

5. Some resources of the region should be preserved from exploitation, for some qualities of the environment can be altered by man only at great peril. Someone must say, "Thus far and no farther!" to shortsighted men who would plunder the environment of future generations. Certain places have a limited capacity for human traffic and intervention, and that capacity must not be exceeded.

6. All water-related structures and developments should serve multiple benefits to society. Here new methods must be found to measure all the benefits of environmental quality.

7. Planning and architectural development in the urban areas of the region must be guided to respect objectives that reflect high quality of design.

The task force defined goals needed for the realization of opportunities inherent in our great river basins. These goals, to be realized over the next 30 to 40 years, comprise the concept of the

ideal region. The achievement of these goals will provide "a region of carefully managed landscape and soils, of well-regulated streams supporting an abundance of wildlife and fish, of urban and recreational development that will meet both the needs and the hopes of its residents and visitors from throughout the land."

To achieve these goals, we must:

1. Provide cities, industries, farms and recreation areas with water.
2. Control disposal of sewage, industrial wastes and sediment so as to maintain clean water.
3. Diminish the hazards of floods and the consequences of drought.
4. Maintain farmland and forests to assure continuing productivity and landscape protection.
5. Identify and preserve for future use sites for new towns, dams, recreational areas and transportation arteries.
6. Protect and conserve wildlife and its habitats.
7. Preserve all important physical manifestations of the nation's historical heritage.
8. Promote land use compatible with opportunities and constraints inherent in the landscape.

9. Provide adequate open space within walking distance for all urban and suburban residents.

10. Promote and demand efficient industrial enterprises compatible with a healthful and pleasant environment.

11. Insure throughout the region planned vistas, unmarred by eyesores and using new structures designed in harmonious relation to the landscape.

To implement the foregoing considerations, the report proposes "a sharply accelerated program of rehabilitation through planning and management." Financial considerations, critical to the final accomplishment, should include funds for other joint-venture programs. The task force recommends, therefore, that a Potomac Foundation be established with power to accept tax-exempt contributions from private sources but endowed by Congress with a Potomac Fund appropriation of \$50 million a year for five years to:

- purchase scenic easements, recreation and other crucial sites
- support the preparation of basinwide plans for environmental administration
- stimulate basinwide development programs through research and coordination.

The report is, in fact, an illustration of the urban design process submitted earlier this year by the AIA before Senator Abraham Ribicoff's subcommittee hearings on the urban crisis. It is a call for the "new designer," the multidisciplinary team that assesses and synthesizes all factors into its designs, and the "new sponsor," an equally multifaceted team representing the public and private institutions involved in the region. Further steps in the design of the Potomac River basin will require continuation of both kinds of team involvement.

In relating *The Potomac* in a broader sense to the rest of the United States, of great significance is its concept of a "regional ecological inventory." This is a prerequisite to any further urbanization of natural landscapes (and is particularly pertinent in light of the fact that most of our major cities are sited on the foundation of a water resource). Enormous benefits would come from this, both through savings and through unforeseen design opportunities. This means that social and ecological cost benefit analysis should now help to guide our nation's future development.

It is here that a great virtue of *The Potomac* stands out. This document as a broad, detailed conceptual framework is still fully adaptable to new technology in land use planning. Excellent new concepts may be readily applied to it such as the Metropolitan Open Space from Natural Process Report prepared for the Department of Housing and Urban Development at the University of Pennsylvania, the 1964 statewide landscape analysis for Wisconsin, etc. Certainly it is evident that

the report's recommendations are among our nation's most vital and urgent challenges.

Government has by far the greatest impact on the Potomac. In their turn the Pentagon Building, military base construction, federal highways, power plants, unrestrained commercial development and the Washington Sanitary Commission have eroded the riverscape. Despite Secretary Udall's relentless campaigns to hold back thoughtless changes affecting the Potomac, even his own department's handling of problematic issues has resulted in ecological setbacks.

As an illustration, a further examination of recent Interior Department decisions suggests where *The Potomac* can be applied immediately. It identifies Washington's waterfront and surrounding public open spaces as opportunities for maximum use by the millions of annual visitors. Interior presides over major park systems through the District of Columbia and its surroundings. It has sporadically determined that the Washington Mall, which adjoins the Potomac, shall not be for people. It opposed skating on the Reflecting Pool. Now, near the Smithsonian, skating is to be introduced, but the plans provide no permanent toilet facilities. In a very recent decision the department destroyed any hope for workable visitors' parking to serve the new southwest waterfront, which will include the National Aquarium, the Hains Point recreation facilities, a proposed Rialto-type bridge and a quarter mile of marinas, excursion piers, restaurants, etc.

Secretary Udall set forth his conservation ideals in *The Quiet Crisis*. It tells how nature is being relentlessly destroyed in the United States. Like Representative Evins' crisis, this is one of public policy. Quietly, Washington hired Arthur D. Little, the research firm, to justify an inner-belt freeway. The Little report did not find the investment necessary. So quietly the Little report was disregarded, and the highway was to be shot across the Lincoln Memorial's bow. Quietly the approval of Interior for a new bridge across the Potomac wilderness was traded with the Bureau of Public Roads so that the river loop could be tunneled below the Lincoln Memorial. *The Potomac* makes clear that the proposed bridge would irrevocably pollute the untainted image of the Potomac's natural course just above Washington.

These foregoing examples provide even more reason why the constructive principles set forth by the task force should be implemented, for the good of Washington and the nation. Our governors, mayors and congressmen must be brought to understand the conceptual framework which *The Potomac* makes so clear. For all these leaders, this landmark ecological report is "must" reading. Moreover, to secure our river heritage

it is imperative that a means be found to circulate this lucid, beautifully written and brilliantly illustrated document beyond the limited distribution customary with its publisher, the Government Printing Office. It should properly become a basic text in our nation's high schools and colleges and its libraries, wherever one may seek to understand the ecological consequences that our way of life imposes upon what remains of this natural environment.

The context of *The Potomac* in America's environmental policy development is worth noting. It is a cross between the concepts of the Tennessee Valley Authority and the Appalachian Trail. When Benton MacKaye put forth the latter in the *AIA JOURNAL* in the '20s, he introduced the very concept of regionalism into planning, which the Burnham Plan for Chicago had previously estab-

lished as related only to a large metropolis. John Wesley Powell, the conservationist, prepared his notable report on the arid region in terms of soil, climate and irrigation. And Patrick Geddes had written on rivers, but as urbanist rather than as geographer. *The Potomac* is the synthesis of these sources. Like its immediate predecessor, *The Hudson*, it speaks for region on a geographical basis. Its unique contribution lies in its conceptual framework for the river itself—as a system. Now with *The Potomac* we no longer may treat rivers merely as undifferentiated watersheds but as river, riverside and setting.

The Potomac Foundation is put forth as the means for returning the major waterway to the public benefit. This differs significantly from precedents like TVA on one hand or the Hudson River Valley Commission on the other. The foundation, unlike TVA or the Port of New York Authority, would not dominate, yet it would possess adequate funds and protective tools to be influential. Like the regional commissions for Appalachia, Upper Great Lakes, etc., the Potomac Foundation would incorporate a general "comprehensive" authority for relating the federal contributions of urbanization.

What has been most distressing up to the present is the lack of instrumentalities to cope with the crisis which the voter shares in common with Representative Evins. While the Secretary of Health, Education and Welfare puzzles over the generalities of *A Strategy for a Livable Environment*, a report delivered to him in June of this year, the government as a whole can do some very specific things that *The Potomac* has outlined for it. While the "performance design" methodology of the environmental design professions continues to evolve with or without federal support, government is supposing out loud that the computer technician is a policy maker. "Gigo" (garbage in, garbage out) is thus far better understood by the programmer than by the policy maker.

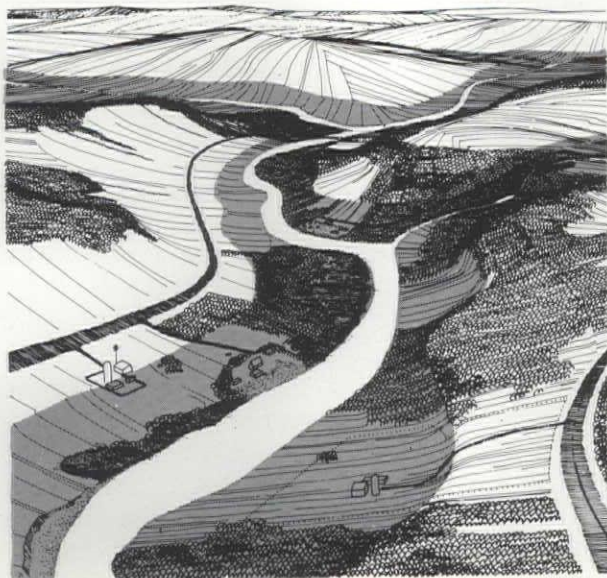
Interior Department has been particularly insistent upon "systems," yet in its own 12-point National Water Resource Policy no mention of "land use" yet appears. The sad truth, as spelled out in *The Potomac*, is that there are other places besides flood planes where suburban construction, tillage or mineral extraction should not occur. This must be faced or, where our rivers are concerned, talk about pollution control will remain empty.

Out of respect for the ecology of our environment the answer can no longer merely be sewage treatment plants. The task force on the Potomac has done its work. The issues are spelled out clearly enough in their report—the issues that underlie river pollution, water or visual. Now, Congress must be reached with these facts. □



The setting.

The visual corridor.



The Building Committee or Designing Camels for Fun and Profit

BY ROBERT I. HOYT, AIA

When I was a little lad, I was taught to say what I meant and to mean what I said.

This worked splendidly in the fine schools which needed the tuition and with the wonderful architects who were generous enough to attempt to train me—and pay me

The author: Mr. Hoyt, who is practicing in Santa Barbara, California (in all seriousness), also did the sketches.

as well. I still feel it is a proper and rewarding way of life. My wife understands and tolerates me, and clients find me actually helpful.

But doing business with the Building Committee can be like shaking hands with an octopus, and it takes more than sincerity to succeed. Perhaps the architectural schools should give courses in psychiatry, mindreading, double talk and committeemanship. The expert from afar may manage to snow the committee, but the hometown architect does business with his neighbors who somehow have smarter kids in school, and this awkward information is common knowledge.

Many of us have gained an immense experience with committees, some of the happiest of which we may appear to have forgotten. This is written neither as boast nor complaint but in all proper modesty and a wry hope of appearing cheer-

ful and helpful. Some readers will just lean back in doleful recollection and realize, with a sigh, that they are not alone in some of their experiences.

It is axiomatic that the quality of building is directly proportionate to the quality of the architect and the client. A few sensitive architects have been gobbled up by committees (although it is likely that they were found to be indigestible, tough and tasteless). No architect gobbles a committee. Frank Lloyd Wright had little appeal to committees and likely would have gotten along poorly with them, for his genius, as well as his manner, demanded the sympathy and courage to be found only in a single person. This should be a warning, but then some of us just cannot accept them.

Various methods of handling a committee are available. Early submission results in compromises, and it is well to remember that the camel is a design for a horse as compromised by a committee. Individual conniving with members can backfire when intracommittee loyalties become stronger. Fielding a team outnumbering the committee often works, and the corporate treatment, featuring rotational speakers, pushes the committee about, but its resilience and perseverance can be startling. Honest persuasion, sound appraisal and fine design can often be a handicap, for some committees suspect a gimmick. If there is any *best* method, it is probably examination of the committee members as individuals, and speaking to them in their own language.

How Many Are There?

We recognize that the committee of one is probably best; yet our society seems dedicated to spreading risks, credits, responsibility and authority. The executive with overcooked spaghetti for a spine appoints a committee to enjoy the glories of the construction program. He knows that he can hide behind them in case of failure, yet claim triumph, if any, for himself.

The committee of two for whom the architect works on residences has the great asset of high interest in the product itself. Even they may war over the origin of funds or ideas. The architect may expand his services to incorporate those of family counselor, confessor or referee in debate or marital hairpull.

He is handicapped by lack of clinical study in psychiatry, but he gains an intimate in-service train-

ing that would make a practicing headshrinker blush with envy. Tender in his "patient relations," he must be hardmindedly loyal to the project and tough in his estimating. If this sounds a bit schizophrenic, it is. Doctors are warned in school not to become emotionally involved with their patients; yet the architect *must* become emotionally involved in his creativity without losing his professional attitude.

Of course, the architect whose client is the lonesome wife of an overworked husband learns that architects are supposed to be romantic, but that is a story not only of architecture.

It is entertaining to observe that some architects avoid residential work because they want to avoid people; it is these same people who make up building committees.

Larger projects, involving the hairshirt called the Building Committee, are the reward for fine work or longevity of practice. They often provide continuity of employment that make profitable office accounts. Committees often select the architect, and their reasons are invariably substantial:

- The architect has a relative on the committee.
- He wears a pretty tie.
- He promises to save more money than any one else promises to save.
- He has a lovely wife.
- He is so sincere.
- He talks so well.
- He talks so poorly that he must draw well.

Assuming that the committee picks the architect, who picks the committee? Committee members for clubs, private schools, churches, corporations, foundations and semipublic buildings are appointed for various reasons. Those connected with the building industry are often chosen; others volunteer out of generosity or self-interest. Proven fund-raisers and prospective large donors naturally are included and catered to. Some committee members are elected, as in governmental agencies, including school boards.

An architect who gets a fine committee with a strong friendly chairman, high mutual interest, sound communication and enthusiasm can get so carried away he loses money on the job—but he will render a fine service and turn out a useful and handsome piece of architecture.

A study of those who serve and their motives may be revealing. Let us look at the elected school board

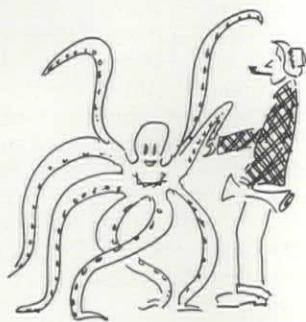
members who feel responsible to constituents. They handle sums in construction sufficiently large to put most of them in a state of deep shock—at the beginning, anyway. Experience may change them remarkably. They may be divided roughly into 10 (printable) categories, although each architect may add a few more of his own.

1. *The Young Professional* is the businessman who gained a loyal following by attending two public meetings each night, waiting through the arguments and then agreeing with everybody, politely ignoring the fistfight between old friends in the corner of the room. He makes a fine committee member until his contacts bring him too much office business; if they do not, he is a dud and will so behave in committee.

2. *The Established Businessman* is the individual who feels the pressure of the competition and finds that frontpage reporting is cheaper than paid advertising in the local newspaper. He may be a professional joiner, even a professional president, who collects presidencies by remaining noncontroversial and never rocking the boat.

3. *The Corporate Counterpart* of (1) and (2) is the house-assigned representative of the corporation, partnership or institution. He may be young and, if not bored, will go along with anything that looks as regimented as the environment in which he works.

4. *The Frustrated Malcontent* seeks satisfaction outside his own work. He gave up golf because his friends could not tolerate his bad temper and his wife does not wish him home evenings, drunk or sober.



Shaking hands with the committee.

The reasons for his business problems follow him to the committee, where his elliptical theorizing, expounding, dogmatizing and general talking when he should be listening combine to guarantee another frustration for himself and a liability to the construction program.

5. *The Gregarious Outlet-Seeker*

hopes to meet new and interesting people; he keeps running out of friends. He is likely to preface his irrelevant remarks with "Speaking as an individual . . ."

6. *The Entertainment-Seeker* serves because he is bored, perhaps for reasons about which we should in politeness not inquire. He finds committee meetings livelier than television or church socials and cheaper than the movies. He may have a point; an objective view of school board meetings can be very amusing. The Entertainment-Seeker always votes with the consensus for proper sociability.

7. *The Special-Interest Promoter* may come from any area and crosses all boundaries. As a silent partner in a real estate deal, his interest is only money and he conceals his identity. He may even be the unknown uncle-in-law of a prospective architect, unwillingly responsive to his wife's pressures to do his duty to the clan. He may be a political or business loser about to see that his successor has an even thornier path than was his. His special interest might even be that of being a fine committeeman.

8. *The Causist*, interested in a racial or social minority, is readily identified and in his loyalty to his cause will offer little for the building program. He is persistent, ingenious, tenacious, even vicious, in his dedication to the cause. Here, as in other categories, power may make a tyrant of a humble beginner.

9. *The Space-Age Genius*, who has been rewarded with a splendid salary upon obtaining his engineering degree in compass and thumbtacks, is dogmatic, accurate and as mechanical as the machine for which he programs endless minor information. He is identifiable by his narrow black tie, short-sleeved white shirt, plastic pocket liner with many pencils—and a clipboard. He knows that it is not the fault of his children that they have trouble in school.

10. *The Worthy Do-Gooder* outshines all the rest. Some are irrelevant and apologetic ladylike nuisances, but the fine ones are generous, openminded, intelligent, courageous and willing to pursue detail to support concepts. They are relentless in their sacrifices of other, more pleasant activities, and they possess the tenacity of the dedicated. They may be demanding, but they are grateful for performance and possess persuasive powers which any man may envy. Their presence also serves as a

constraint on the sort of language used on the architect.

Committeemen's ages may make a striking difference. Historical societies, which naturally attract objective as well as subjective, preservationists, can become set in their ways. They hold their opinions as dear as their social loyalties, and they know how to trade favors in swaying policy.

It seems reasonable that people naturally find vocations suited to their talents and personalities and then develop more clearly within the disciplines of that way of life. Let us study a few natural patterns.

Lawyers early demonstrate sufficient intelligence and perseverance



Refereeing a marital hairpull.

to finish law school. Those accustomed to courtroom work like to put on a verbal show, for they are natural hams. They like to ask leading—or misleading—questions to test the architect and his ability to fence. They have well-disciplined legal minds and seldom understand the wild workings of the architectural brain. Firmly entrenched in the ditches of legal reason, they never see the broad plains above. The wise architect appeals to professional brotherhood and makes them valuable allies.

Doctors, our only titled neighbors, diligent as well as smart enough to store all that anatomy and medicine away and get through tough schools, have become accustomed to becoming instant experts in many fields. Brainwashed by ambitiously competitive wives to think that they are poor businessmen (have you noticed?), they compensate with high fees and various business enterprises. Intellectually responsive to the diagnostic process and reciprocally automatic prescription, they do not recognize the intuitive response of the architect as being any different from their own and see no reason why their judgments are not better than those of the architect.

However, as busy and useful people, they recognize the desira-

bility to progressive procedures and the dangers of indecisive delay. The committee wholly composed of doctors is another thing, for they bring their medical hierarchy with them and pull rank, brilliance and ego on one another, with the architect as referee in a major dogfight. Chloroform is likely the proper treatment—not for the doctors, but for the architect.

Brokers and employed salesmen have a singular concept, "Close the Deal," and do not understand or patiently tolerate an objective goal. They are thus in direct conflict with the very nature of most architects. They cannot make decisions, nor do they care to. They wish happiness for all, and the thought of voting against someone makes them squirm with pain. They may vote with the last person they talked to, but their utility in compromise and peacemaking can be a blessing when things get really bad.

Druggists and grocers, schooled to the 2-cent markup, are great watchers of the budget, at least the matters of smaller dimension within their grasp. They panic like a new car buyer over the larger sales slips.

Teachers of lower grades are naturally bossy, especially those who have not married. Drafting teachers may be treated with kindness to advantage. Many educators are not educated (nor educable, although fully trained), and in all kindness the knowing architect, without being condescending, must tolerate them.

Morticians are naturally preconditioned to dealing with two classes of people. One they gently reassure, and for the other they order a hole dug. In simple consequence they are insulated from the normal world, are relatively incapable of discussing an issue and are so nonplused at becoming involved in a debate that they usually get frustrated and shout.

Planners and historians become theoretical and end up "on-the-other-hand"-ing.

Housewives become very practical and frequently tell the architect so, with great authority—or apology. Frequently they are heard to say, "I don't understand it, but I know it is wrong."

Clergymen, of all people, are capable of the most astounding hypocritical appraisal. The architect must watch them closely.

Contractors and building tradesmen, according to their nature, may appear to be repaying a lifetime of hate for architects, or they may, as

experienced insiders, lead even a poor committee to splendid achievement.

Committee Behavior

It is comforting to remember that a fool can ask more questions than a wise man can answer. Committeemen expect equal voice with their hired professional, but not equal responsibility. They insist on a technical point, but when proven in error, brush off a major dilemma with a demure acquiescence and a gentle "Just a thought, you know." Others demand a blood-brother pact, promising to cover up mistakes if allowed a few of their own.

There is no substitute for faith, hope and charity, and the architect who applies these early may solve most committee problems. His very idealism will be suspect by some, and the car salesman who gets a 50 percent commission for extras must be forgiven for not understanding an architect's sincere efforts to control costs.

Communication is the best architectural tool, but one might almost as well be speaking Russian to



Trading votes, pre- or post-meeting caucuses.

corporate types, for prodigious amounts of energy are expended upon the problems of communication and precise understanding. One must thus be precise about detail and a normally disdainful attitude toward a small matter must be avoided with great care. Humor or wit can backfire, and the nimble-minded architect who sends his ponderously spoken partner to meetings saves himself much pain.

It is a sure sign of trouble when the committee caucuses outside the architect's office before and after meetings—and in different groupings, making their swaps and trades for votes on pet ideas. When members start checking in before or staying after meetings, trouble is brewing.

Graft and other hanky-panky are pretty much out in governmental committees, but the price of clumsiness, individual ego and committees checking on committees make

one wonder if totalitarian government might not be worth the inherent risk. Small mistakes are exposed and the buck is passed to the architect, but large blunders are buried with startling ease.

Grandmother told me that a politician who said yes meant maybe, one who said maybe meant no—and that one who said no was no politician. (She applied the same maxim to ladies, only in reverse.) Infiltration of the committee by brainwashing a member or two can work wonders, but it can boom-erang when a member appears too loyal to the architect and is suspected of treachery to the committee. The architect should never appear to agree with an individual member's mumblings when he does not truly understand, let alone agree. Similarly, the executive director who is to work with the architect is often too modest to push for the man he wants and ends up with an incompatible architect.

A sound job denies elected officials an opportunity to gain votes by faulting and correcting. Architects have been known to include obviously expensive features as a ploy for political face-saving and dollar savings, but that can backfire too and should be used only by experts.

If the architect can work it, he should try to select the committee with whom he is to work. This often proves easier than suspected. He can ask, even threaten, to turn loose his entire team of consultants if they field too large a committee. Perhaps the best ploy, and one used often and very successfully, is reverse infiltration, taking one or more of the client's people into the office operation through programming, feasibility studies and schematic designs. The client's man is then booted out to dazzle his boss with the definitive results of one's remarkable talents.

Then we have the early pessimists, who have become embarrassed by their initial pessimism and joined the finishing with enthusiasm. They wish to leave their mark of genius and prove their loyalty by making changes.

Finally we have the decoration committee, and the architect has to start all over. He must defend his early actions and explain his every move. He never knows whether the chairman may speak for a wife who hates any shade of a specified color but is picking up the large cost differential between early estimates and final project cost out of her own pocket. □



Charting Costs for the Life of Buildings

BY KING ROYER & BRAD HOWES

Cost control extends beyond the erection stage, as is explained by the authors, both professional engineers and assistant professors in the department of building construction, University of Florida. This article ends a series adapted from "Creative Control of Building Cost," a McGraw-Hill book.

A person, when he buys a building, purchases only a portion of what he requires. The building represents a large part of the cost necessary to provide shelter and other needs; the remainder of the cost is in the annual costs of labor, material, insurance and other items necessary throughout the life of the building.

If, as is usual, a building loan is being repaid over a long period, the owner analyzes the cost of the project in terms of annual cost. The original cost of the building by itself is not important. If the owner uses his own funds, he expects to gain a return on his total investment as great as though he were a lender.

The architect, therefore, should be familiar with the method by which he may transfer costs between original building costs and other annual costs, reducing the annual cost for the benefit of the client. The best source of information for the architect is the client who has bought a number of buildings, has operated them with an adequate cost control system and therefore knows the types of construction which are economical. Such a client is a source of cost information which the architect may utilize for the benefit of less-informed clients.

What is the equivalent immediate cost of a-dollar-a-year maintenance or tax expense? This depends on the rate of interest paid by the

client (or income foregone) and his tax situation.

Interest Rate

The applicable interest rate, in general, will not be the mortgage interest rate on the building. If a structure's additional feature will cost more initially but will lower the maintenance cost, the applicable interest rate is on the funds for the *addition*, not on the original loan. Usually loans are obtained for as large an amount as possible, and the lender is not disposed to increase the loan because of an added detail. If the original request for a loan is based on a justification of annual cost, it may be that a reduced annual cost will increase the amount of money available, but this is unusual. It must normally be assumed that the additional funds will come from the owner, either by his obtaining additional funds or by his reducing the amount he would recover for other investment from the mortgage money.

This rate of interest, therefore, is the amount the owner could obtain on his additional funds if invested in another project with the same risk—equivalent to a second mortgage. Furthermore, by increasing his investment, the owner may be foregoing capital gains, but the income he gains may be ordinary income. A 20 percent interest rate is not unusual for commercial second mortgages, to the extent they are marketable at all; and if a capital gains income is lost, the interest rate to the owner would have to be twice as great to pay the additional taxes, or 40 percent interest.

If the owner has unlimited credit, however, and is not a profit-making organization, the circumstances are entirely different. A public agency, for example, pays the same interest rate on its original loan as on additions to it. If a bond issue is in-

volved, the effective interest rate may be as low as 3 percent. Consequently, it is not to be expected that the economical type of construction would be the same for the two kinds of owners.

To take a concrete situation, suppose that you have an item on a building which will cost the owner \$100 more if installed. What is the annual cost of this investment, considering "cost" as the amount his profit will be reduced? Assume he could invest \$100 of his own money elsewhere and obtain \$20 per year in capital gains, of which he could retain \$15 per year after taxes, at the same risk. The risk, in general, is proportional to the equity an owner has in a development: By making an improvement you are increasing not only the *size* of the job but are increasing his *equity* thereby increasing his risk. After all, he isn't even sure he can use the building when completed; any future income is a hope, and the increase you have made, which does not increase the gross income, is even less certain. If the corporation is in the 40 percent tax bracket also and increases its profit \$33.75, dividends are increased \$22.50; and of this dividend, the owner retains \$15. In other words, a \$100 addition to the project must save over \$33.75 annually to be economical. The original/annual cost ratio is 3 to 1.

The risk of loss rather than profit in the project must also be considered. The ratio, in this case, depends on more complicated factors, particularly concerning what the loss may eventually be charged against. It is unlikely that the advantages of the added construction would be any greater than with a profit job.

Private vs. Public Buildings

The foregoing illustration is an extreme one; it is only here to show



that no assumptions can be made without investigation. Public buildings can readily justify a 33 to 1 original/annual cost ratio in comparison with the 3 to 1 ratio above. Other differences are that public buildings are depreciated at rates independent of income tax considerations; maintenance costs would be higher on public buildings; insurance rates may be lower and utility rates less. Public schools are frequently in an even more extreme position. Due to school taxation limitations which permit bond issues for new construction while severely limiting taxation for current maintenance expenses, an original/annual cost ratio as high as 50 to 1 may be advisable—for practical, if not for economic, reasons.

Few owners analyze costs in such detail. The architect, in order to justify the construction or to determine the most economical construction, may make such an analysis or request it of his client.

Maintenance Costs

Unfortunately, maintenance costs are seldom available in the same detail as are construction costs. Owners may assume that their own maintenance force is of a fixed size, and therefore that there is no variation in labor cost with minor variations in construction. This is not a reasonable assumption unless it is actually known that the work to be done is less than the capacity of the work force that will actually be engaged, i.e., if it is definite that time will be wasted. Otherwise, adding a small item of work may require employment of another man, who is underemployed in the job. The reasonable assumption is that the cost of maintenance is the cost of actual labor required. No assumptions should be made in advance about an unchanging work force.

Maintenance Conference

When a project is to be designed for a client with an existing maintenance organization, the person in charge of maintenance should be consulted early in the design. Line supervisors in charge of operations often have little to do with building maintenance, and it is not unusual for the same design errors to be re-

peated on successive buildings. Such obvious errors will occasionally occur, such as specifying toilet paper and towel holders which do not use the paper standard with the organization.

The maintenance supervisor, however, is frequently inclined to request building features which minimize or simplify maintenance, without regard to actual economic cost. Such items should be first discussed between the architect's representative and the maintenance supervisor privately, not in an open meeting, so that the architect will not be forced into agreement or disagreement on items until he has had a chance to study the matter and to obtain information from the supervisor without appearing to cross-examine him.

Weather Protection

Construction details necessary for protection against atmospheric water are generally accepted; the extra cost involved is incurred in the inspection which is necessary to ensure that the plans are followed. Often, however, details are designed for initial appearance, with little regard for possible weathering and discoloring, as in the use of window sills flush with the outside face of walls and other details which allow water to flow down the face of buildings or into the walls.

Masonry and concrete shrink after being placed, and no care in workmanship can avoid a possibility of leaks due to this shrinkage. For this reason, it is recommended that all masonry and concrete structure be considered porous and that flashing be provided at the bottom of walls which may leak into finished spaces. Good practice is well established, but there is a tendency to use short cap flashing stuck into exterior walls rather than through-wall flashings in lower portions of walls, often with resulting water damage. Leakage through walls may occur infrequently in normal construction, not because the walls are tight but because water runs down through the walls and into the ground. This same construction, used where the lower portion of the wall is over a finished space, shows its faults quickly. In such locations, the source of the leak may be difficult to find, so that responsibility may not be accepted by the builder.

Partially Complete Construction

Some types of construction make it possible for a less expensive

method to be used initially, but maintenance work increases during the first few years of use. This maintenance work is currently deductible as repairs on income tax returns. For example, asphaltic concrete is normally laid in two layers—a base course and a finish course, totaling about 2 inches in thickness. By laying the base course slightly thicker than usual and omitting the finish course, the pavement is sufficient for several years; when it begins to need repairs, the second course is applied. The original construction would have to be paid for out of past profits and depreciated over a period of years; the same material applied later is charged against current profits before taxes or, in effect, is depreciated all at one time. There may be no difference in taxes in the long run, but tax payments are delayed a number of years and original cost is reduced.

Other Tax Factors

The architect, in performing his services, is also designing the income tax deductions for years to come. If portions of leased construction are designed specifically for a tenant, as is often the case, these portions may generally be depreciated on the assumption that they will be required only by that tenant, not on the basis of total life. (Recently, a contrary decision was made: If renewal of the lease is "reasonably certain," the building life must be used.) This may make a difference in allowable depreciation of central airconditioning systems in shopping centers as compared to individual store units. The central systems are not designed for particular tenants, and therefore their life is determined by actual life; the individual system is designed for a particular tenant and has no value as an installed unit after the lease has expired. The same reasoning would apply to longer-life components of the building, such as partitions.

The attainment of maximum depreciation rates for tax purposes are often essential for developers; taxes are not necessarily paid out of cash profits, and it could therefore be necessary to borrow money to pay them. This comes about because with a large proportion of the project covered by a mortgage, profits may go into amortization, leaving no cash to pay income taxes.

Ideally, therefore, depreciation will equal profits so there is no tax liability. In one case, the owners

of a concrete-frame building were given a depreciation rate so high it exceeded profits, and the rate was reduced to avoid a loss situation.

Traffic Conditions

A building needs to be checked specifically to find all possible sources of high maintenance cost due to the people and automobiles using the area. Features which appear useful on the plans or in the completed building may be entirely valueless due to interferences by traffic. For example, narrow strips of lawn, as between sidewalks and parking lanes, are expensive to maintain and nearly impossible to keep alive because of heavy foot traffic. If grass interferes with the passage of pedestrians, it will be trampled, and maintenance crews will eventually pave these areas.

In areas where parking is at a premium (and this is nearly everywhere), it should be expected that drivers will occupy all available space. Grass areas must be protected by fences; it may be necessary to install posts between the columns of exposed canopies to prevent cars from driving through them. This is particularly important in the neighborhood of sports stadiums. There should also be no construction near driveways which can be damaged by vehicles; columns should be set back from drives, and masonry walls protected by corner guards.

The destructiveness of the public, particularly where persons must wait at one location as at a bus stop, should not be underestimated. When "whittling" was a more common leisure sport than it is today, power poles at small-town intersections had to be replaced because of damage by pocket knives. They were then covered with sheet metal, as if to protect young trees from rabbits. Schoolchildren can flatten sheet metal downspouts and even break tops of cast iron drains. Under heavy traffic, concrete or terrazzo stairs not protected by steel edge strips will break off in pieces, leaving disfiguring marks.

Water and Gas Distribution

Construction costs can also be reduced at the expense of increased annual costs by installing as small a part as possible of utility distribution systems as a part of the construction work. Since water and sanitary drainage is normally a function of public agencies, it is to the advantage of the owner that public agencies install these facilities, even if the financial arrange-

ment made does not necessarily appear to be profitable on the basis of total cost; tax considerations may override greater total cost. Tax payments are expenses, and an arrangement which will transfer cost from construction to tax accounts is to the benefit of the owner. This may require individual meters and even a complicated right-of-way description if a city is to install public lines on private property.

Because of the tax consideration previously outlined, the owner should not attempt to go into the utility business by distribution of utilities bought wholesale, unless an analysis which considers the tax effect is made. Also, the utility companies often use nonunion labor, and even if union this labor is more skilled at the work and less costly per man-hour than construction labor.

When the architect is to provide supporting structure for utility lines, he should fully investigate not only the construction preferred by the utility company but the minimum construction they actually require. For example, years ago transformers were filled with inflammable oil and had to be installed in substantial fireproof vaults; now noninflammable fluids are used and such vaults are not necessary. Nevertheless, many vaults are installed by repeating old designs. Gas lines do not need to be run underground merely because they are the property of the utility company; the company can run them above ground or indoors.

Depreciation Schedule

There are three common ways of determining the life of buildings for depreciation purposes: by a single life for the entire structure; by using different lives for each portion, such as structure, painting, heating equipment, etc.; or by a combination of the latter method with lease life for those items which pertain to a particular lease.

The separation of the project into parts for determination of depreciation lives or preparation of the depreciation schedule can usually be done from the records of division of the work for payment purposes. The architect should find out what is needed, however, and assure himself that the specifications are definite enough that he can require the necessary breakdown of the contractor. Care must also be taken that a weighted breakdown used for payment purposes does not cause the owner to receive a misleading cost break-

down which will reduce his allowed depreciation. For example, when making up a cost breakdown, the contractor will charge as much as possible to the first work to be done, often the site work. But the owner can only depreciate this portion of the work over a very long period if at all; it is to the owner's advantage to have the mechanical portion of the work, particularly equipment, valued as high as possible. This work, if installed last, may be reported by the contractor at cost or even lower.

Fire Insurance

Consideration of the fire insurance rate on a building being designed is of special importance since the annual cost of insurance, unlike other costs, can be accurately forecast and because apparently minor details of design or workmanship can greatly affect the insurance rate. In addition, the architect is seldom notified of the penalties assessed on his design and has no readily available method of determining what should be done.

Rating Bureaus

Insurance rates for larger buildings are set not by the insurance companies, but by a separate company organized for that purpose. This company, a rating bureau, serves nearly all companies in its state, providing rates for particular buildings on request, based on examination of the plans and specifications and of the construction itself. This bureau itself determines which items affect the rate, independently of the national underwriters' organization, and it is not required to conform to any other standards.

The rating bureau does not define standards of construction as such but assigns risk values to differing kinds of buildings and to different details. There is no necessary relationship between this bureau and the National Building Code, which is used by many cities, or to any city code. Consequently, construction which does not comply with the national code in some particular may be assessed a lower insurance rate than other types of construction which do comply. Sprinklered buildings, for example, receive the lowest rate regardless of structure, but the national code does not mention a modification of area requirements if the building is sprinklered. Noncombustible construction, therefore, may not be used in some large buildings, even if sprinklered.



The national code is recommended by the National Board of Fire Underwriters, controlled by the same insurance companies who use the rating bureau for determination of rates.

The bureaus use a schedule book and a rule book to determine rates; these books set the adjustment to be made to the rate for various kinds of construction details. These books are available only to insurance companies and agents; as a practical matter, the insurance companies themselves may not have a copy. The copies examined by the writers were not copyrighted. Lack of a copyright would indicate either that it is intended for free reuse (the National Building Code is uncopyrighted) or that it is a private publication, and the issuing office does not want a copy available to the public. The latter appears to be true. (In one case, the state office of an insurance company was provided with a copy of the schedule book, but the information on all buildings except those with wood floors and roofs was omitted.)

The architect can approach these agencies only if armed with a proposed plan, as representative of the owner. He will probably have to be quite persistent to find out the actual changes in the rate. One bureau, in response to a request for information, replied, "We are not prepared to furnish material which will be used as a basis for articles for magazines or professional journals." In general, the complications of their system of rating is emphasized and they may claim to be unable to determine the effect of construction changes on the insurance rate. Part of this complication is due to the fact that the results of changes in construction are given in the schedules as cents per hundred dollars of insurance, but this results in a rate which is later cut by percentages for various other factors, i.e., some corrections are in cents per hundred and some corrections are percentages applied to the rate. Once a complete computation is made, however, correction for minor construction changes can be readily made.

Buildings are first given a base

rate according to construction—whether fireproof, noncombustible or combustible—and according to degree of fire protection offered by the local fire department. Cities have a numerical rating which expresses the estimated efficiency of the fire department, and a different insurance rate is given for each such numerical fire department rating. The base rate is also dependent on occupancy and on the number of tenants occupying the building. The occupancy rate is determined by the most dangerous use being made of the building, as a whole or in part.

A "building" is an area similar to that defined by building codes—an area set off by fire walls or by separation of structures—but the rating bureaus use a less rigorous definition of walls necessary to separate one building from another. In general, separation for their purposes may be obtained by structure which is less expensive than that required by building codes. "Buildings" may therefore be one size so far as building officials are concerned, and a different size for determination of fire insurance rates.

After the base rate is determined, protection and contents are considered. There are numerous corrections applied, for example, for columns if fireproof; for exterior columns, independently of interior columns; for size of building; for type of ceiling, existence of wood paneling and partitions in various places as around openings in floors and around areas with furnaces. If the building is sprinklered, an entirely different schedule is used, and the rating is made by different persons.

Applications

In general, it is not economical to make changes in design to gain a lower insurance rate; the least expensive construction allowed by local codes is usually the least expensive from the standpoint of annual cost. However, there are a number of situations which may make a design unusual in this regard, as:

1. Where there is high-risk occupancy in all or part of the structure. Use of division walls may reduce the rate materially.
2. Where there is a high-risk occupancy or several occupancies in part of an area, as a paint shop adjoining a department store. The paint shop rate would apply to the whole area without a separation.
3. Where there are contents of

high value and the owner of the building directly or indirectly pays insurance on it. The structure affects the rate on contents, therefore, the rate saving on the contents may be several times the saving on the structure itself.

4. Where necessary changes in structure to provide additional fire protection are of small cost. For example, a masonry bearing wall for steel joists need be only as high as the bearing of the joists, according to code requirements. By filling in with masonry between the joists, 2½ inches high, the wall becomes a division wall for insurance purposes. (If the deck is noncombustible, a parapet wall is not usually necessary.)

5. Where original/annual cost ratio is unusually high, as for public construction already mentioned.

If there is no applicable building code, as in public work or in isolated areas, the most economical design from a standpoint of insurance rates would probably be similar to that required by the National Building Code, but sprinklered buildings would be more frequently used in multistory buildings. Since by the use of sprinklers insurance rates are cut much further than by use of structural improvements, sprinkler cost is often compensated for by the saving in structure, and the insurance saving is a welcome byproduct. Concrete is expensive for roof structure, but is often required, by codes, for large buildings. The national code allows the building official some discretion in this regard, but he is not always willing to exercise it. Substitution of steel joists and noncombustible roof construction will usually save enough money to pay for a sprinkling system to serve not only the roof structure but additional areas as well.

There is a tendency to install plaster ceilings, as compared with noncombustible acoustical or fiberglass panel ceilings, where not needed for code purposes because of a conviction that there is a saving in fire insurance rates. In modern construction, a plaster ceiling is seldom useful as a fire membrane because of the openings required for recessed lighting and for ventilation; if not substantially without such openings, it is of no value. Openings in part of the area will disqualify the entire area; if there are few openings, it may be economical to install fire shutters in them to obtain the protective value of the plaster ceiling.

A comparison was made between

an effective plaster ceiling and a panel glass fiber ceiling (the latter just does not exist, so far as the rating bureau is concerned). Using 20 percent as expected return on investment, the original saving in construction cost more than offset added insurance cost.

Protection of steel columns is probably not justified on the basis of insurance rates alone, but if columns are to be plastered for appearance, it is economical to fire-proof them. This means that the detail of covering used must be one which complies with the minimum requirements of the rating bureau (it is not difficult to exceed their requirements), and the protection should go up to the bottom of the beam above. If plans do not clearly specify otherwise, the plasterer may stop the coating just above the line of a suspended ceiling, leaving several feet of column unprotected. Also, it is necessary that all columns be protected; if a warehouse or utility area is included in the same building, these columns must get the same treatment to qualify for a lower insurance rate.

Walls which could serve as division walls should be checked carefully for compliance with requirements. There must be no small openings, as between joists or for ventilation. Fire doors must be properly installed, with concrete block, if used, filled around the openings. Metal-covered fire doors must have a small opening cut through the metal to allow gases from the wood core to escape when heated, which is seldom done at the factory.

Since a high percentage of windows in exterior walls may raise the rate, addition of windows may be not only an increased initial cost but may cause an increase in insurance fees as well.

Provision of a specified number of fire extinguishers may reduce the rate sufficiently to repay the cost, depending on the factors previously mentioned, such as original/annual cost ratio and valuation per square foot of floor space. In one instance, such an installation was found to be economical in a department store, with an original/annual cost ratio of 5 to 1.

Method of Rating

A designer who repeats the same type of construction for the same type of owner (in terms of original/annual cost ratio) can afford to investigate the type of construction he is using and to determine the most economical construction from

a fire insurance cost standpoint. On single jobs, this is possible only for major substitutions, such as determining the type of ceiling or type of roof construction on the entire project. It is important that the designer study the actual rating sheet for the building and become familiar with the method of rating in order to choose the construction methods to be used.

Mechanical Installations

Recent trends toward a basic structure of low cost and increased facilities for airconditioning and lighting result in a higher proportion of construction cost due to mechanical installations. Mechanical and electrical work may cost from 20 to 50 percent or more of the total cost of building, depending on the type of construction; the proportion of annual cost of mechanical installations is even greater.

Airconditioning equipment is becoming less costly, but has lower efficiency and shorter operating life. Because of this trend and because of the trend toward more and better equipment of all types, the annual cost of such equipment is an important item of overall cost.

Obsolescence

Mechanical equipment is often discarded and replaced while still adequate for its original purpose; commercial buildings in particular often require major alterations or are used for different purposes a few years after construction. In this way, mechanical equipment may be abandoned.

In selecting equipment, the possibility of such future changes must be considered; any anticipated major revision will make obsolescence a major item of estimated cost. Selection of proposed systems may depend on the cost of revision to them for accommodation of changes.

Maintenance

The maintenance cost depends both on the actual cost required and the maintenance policy of the owner. For example, compare two similar office airconditioning systems: one in the office of a large industrial plant and one in a commercial office building.

The industrial plant owner can be expected to establish an elaborate maintenance schedule for airconditioning equipment, in line with the plant equipment maintenance, possibly involving regular inspection several times a day as well as weekly or monthly lubri-

cation and adjustment operations. The commercial building owner is more likely just to let the equipment run until someone complains he is too hot, and then call a servicing contractor.

The maintenance cost will be higher in the industrial plant, and the equipment may last no longer anyway. The elaborate maintenance program of the plant may not be justified, but if it is to be maintained anyway, less expensive equipment can be used. The engineer should specify equipment adapted to the maintenance organization if there is a saving to be had.

Provision for ease of maintenance of mechanical equipment requires cost studies; it is all too common to consume extra building space and to spend unnecessary money by providing ladders, catwalks, access panels, platforms and walkways which are rarely used. On the other hand, if space or an access panel is not provided to allow retubing a heat exchanger, for example, the estimated annual cost should include the cost of removing an entire exchanger or the necessary cutting and patching for retubing.

Selection of Equipment

The choice of equipment may be between an inexpensive throwaway unit and an expensive unit with lower maintenance costs and simple replacement of parts. The decision to use the throwaway or the serviceable unit may depend on the available maintenance force, or the size of the force to be used may depend on the type of equipment selected. The throwaway unit requires a relatively unskilled maintenance man or on-call service by a maintenance contractor.

Since the trend of equipment design is rapidly toward the inexpensive throwaway unit, an increasing premium is being paid to obtain serviceable units. Since, in some lines, it is no longer possible to obtain units which meet former specifications for ease of maintenance, specifications requiring them are not reasonable.

Under some conditions, equipment units will be replaced frequently, even in comparison with other parts of the same system. For example, finned heat exchange surfaces now have fin spacings as close as 14 per inch with .008-inch aluminum fins, on copper tubing as thin as .015-inch. If the atmosphere is corrosive, dirt loadings high or other conditions are adverse, the equipment may be useless in a few



years. The original cost of such a standard unit is low enough in comparison to special units that its regular replacement is justified, particularly for higher original/annual cost ratios.

Probability of Failure

An architect or engineer is loath to design work which may be inadequate, even though the savings on the equipment will more than offset the rare occasion of failure. A designer is remembered too often by his work which was unsatisfactory rather than by the fact that the cost of the project was low. It is to be expected, therefore, that an experienced owner who expects an occasional failure can obtain a design of lesser overall cost than can an owner who is inexperienced in the relative cost of avoiding failure.

On two midwestern shopping centers, for example, the consulting engineer would consider only activated sludge sewage treatment plants, similar to municipal plants. The owner's own engineer designed and built septic tanks with sand filters which were adequate, at a cost of less than half the consultant's design. The consultant, however, did not want the septic tank to appear as an example of his work; and, in addition, it was quite possible that the septic tank would have been inadequate. In such a case, the more expensive system would have had to be installed anyway. The septic tank design would have been more economical, however, even if the septic tank had been inadequate in a third of the installation in which it was used; that is, if it had but a 67 percent chance of success.

Drainage systems for large parking lots are usually designed by arbitrary, usually unnecessarily conservative standards which do not take local conditions and conditions of occupancy into account. For example, capacity of systems may vary from 2 to 4 inches of rainfall per hour. The latter figure is used to provide the same degree of protection desired for streets, but parking lots do not have the same amount of traffic or such essential traffic, as do streets. Portions may be allowed to flood occasionally,

particularly those areas where there is no pedestrian traffic or which are set aside for employee parking.

For example, how much water can be tolerated, and how often, on the least-used portion of the parking lot? Such an area may be used but six hours a day for 30 days a year—the peak periods—for a total of 1/50 of the time. If we are willing to allow a little water in the low spots once in 10 years, then the design rainfall would be that which would occur every 10/50 or 0.2 years. A rainfall that occurred each six months would have one chance in 50 of occurring at a time which would be damaging to that particular area. Different portions of the lot may have differing requirements, as the occupancy rate will vary. If there is ample fall for the drainage system, this saving would not be important.

But if there is very little fall in a parking lot drainage system, or when rock excavation is required, use of water-surface pipe design, rather than assumption of pipe running full, offers savings. On all but very short lines, pipes are designed to run full of water, so the water surface will be at the top of the pipe. By assuming the water may be allowed to back up to the surface of the ground, additional fall is obtained, which will reduce the required slope or size of the pipe. At the highest pipe elevation, the pipe need be placed only as deep as necessary to avoid traffic damage, and it may be level for some distance; this saving of several inches raises the entire drainage system a similar amount. If the pipe is designed to be under pressure, it may be laid at any convenient slope, including level. Except for the accumulation of water during dry periods, such pipes could be laid uphill, as occurs in an inverted siphon.

Millions of dollars have been unnecessarily spent to avoid something that might happen when it would have been cheaper to correct the condition when and if it did happen. Examples are insulation of airconditioning ducts over hung ceilings and in equipment rooms, stainless steel ducts for corrosive exhausts when aluminum would have been adequate, insulation of water lines to prevent condensation (particularly in airconditioned spaces) and insulation of outdoor water lines to prevent freezing in mild climates. In northern Ohio the ground may be frozen in winter as deep as 4 feet, but an 8-inch water-

line placed 8 inches under pavement has given satisfactory service. In this instance, the choice was whether or not to remove a main which had been installed at this depth in error.

On a large airconditioning project, a saving of \$100,000 was made by omitting insulation on discharge ducts, except in inaccessible locations, assuming they could be readily insulated later if condensation should occur. In a location where the outdoor temperature seldom falls below 20 degrees, several hundred thousand dollars were cut from the cost of an industrial plant by omitting freezing protection. Subsequently, annual costs of repairs, wasted water and extra labor during cold weather proved to be 10 percent of the amount saved. In this instance, the omission of insulation was justified, as the original/annual cost ratio was 4 to 1. As might be expected, the maintenance staff was very dissatisfied with the design.

Annual Cost of Airconditioning

The greater part of annual airconditioning cost is usually due to the original construction cost; cost of power, water and maintenance is small in comparison. The first cost of airconditioning is in the range of \$400 to \$1,200 per ton, so with an average original/annual cost ratio of 5 to 1, the annual cost from investment will be in the range of \$80 to \$240 per ton.

It is common for annual power and water cost to run as low as \$20 to \$30 per ton, and annual maintenance cost for a small commercial installation will average about \$6 to \$10 per ton per year.

When high efficiency air filtration is required, consideration should be given to the new high efficiency dry type filters, rather than the better known electrical precipitating filter. The installed cost of an electrical precipitating filter will be about \$50 plus \$150 per 1,000 cubic feet per minute of air capacity, but the dry type filter can be installed for as little as \$40 per 1,000 cfm, as compared with \$20 to \$40 for the dry type. From this comparison, the added initial cost can be justified only when the original/annual cost ratio is 5 to 1 or higher.

Fuel

For large boiler installations, consideration should be given to provisions for use of alternate fuels. These provisions allow

Continued on page 92

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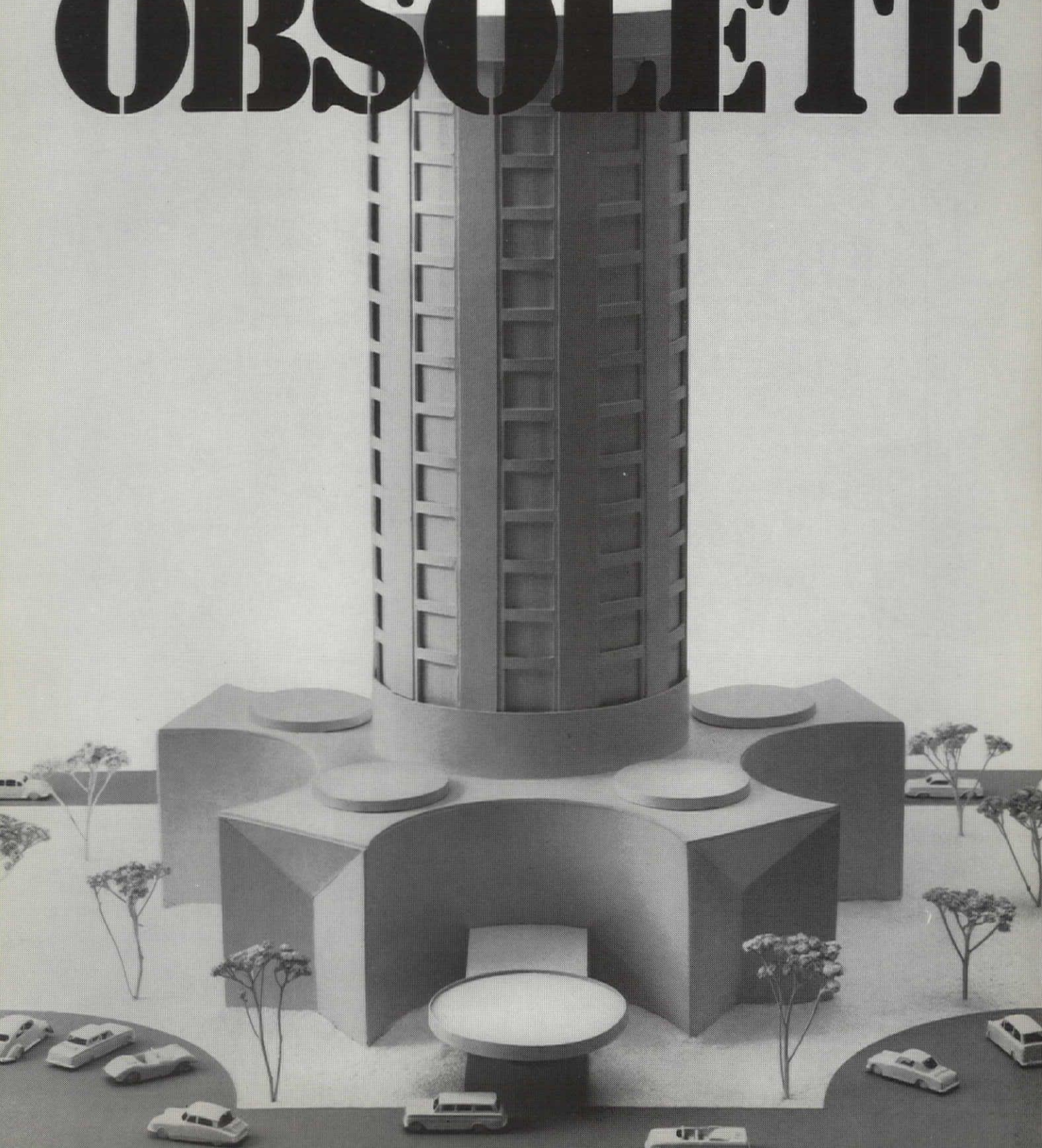
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Fascinating

Herman A. Hassinger, AIA, has made over 30 appearances in Philadelphia area schools giving slide talks on architecture.

Since his talks are keyed to the junior and senior high levels, it was with some uneasiness that he

agreed to speak to a fourth grade class in Philadelphia's Greene Street Friends School.

He tried to keep the talk simple and among other things showed a local site plan which he designed, familiar to some of the children.

The teacher had the class write thank-you letters, some of which are presented here. "The consensus of these letters is that my talk was simply fascinating," says Hassinger. "I think 'fascinating' was the big word of the day." □

Dear Mr. Hassinger,

The Fourth Grade enjoyed your extraordinary lecture. That play ground you design is one block away from it. I think the way you made that structure with foam rubber was fascinating. I thank you very much for coming.

Your friend,
Kevin Lynn

5/25/67

Dear Mr. Hassinger,

Your lecture very much. You told us some very interesting about being an architect. I think that the playground was very interesting. I hope you can be an architect because I want to be one when I grow up.

Sincerely,
Mary Bullock

May 25 1967

Dear Mr. Hassinger,

The Fourth Grade enjoyed your lecture very much. I liked the way you explained Architecture very much. I thought your pictures were of good suggestion. You taught me more than I thought you would. I never thought about building as ~~right~~ I never knew about form, color, structure and so on.

Your friend,
Mark Sinn

May 25, 1967

Dear Mr. Hassinger,

The Fourth Grade enjoyed your lecture very much! I thought it was very different. Your photography was very colorful. It was a lot of fun building and designing that plastic bridge. When you talked about the structure and the movement of the Empire State Building it was fascinating.

Sincerely,
Red Starob

May 25, 1967

Dear Mr. Hassinger,

Thank you for coming to show the slides of architecture. I had no idea that City Hall was made with out a skeleton or that the Empire State Building swayed about an inch. Thanks again.

Sincerely,
Michael

Dear Mr. Hassinger,

The Fourth Grade appreciates your lecture very much. I thought it was very fascinating. And I thought the film strips were very amazing. I also thought that it was fun watching the children build the building. Thank you very much.

Sincerely,
Shawn Shanker



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A Sliver of Slevin

The latest status symbol is to have the "Made by Hand" label on your roof, says roof thatcher Peter Slevin of Ireland. Thatching, once used only on the homes and buildings of the poor, is now *the* thing in Europe. An interest in it is apparent in this country also.

Thatcher Slevin was working on the roof of the Anne Hathaway Cottage in Stratford-on-Avon last year when semi-retired California builder Carl Bensberg happened by. Bensberg caught Slevin's attention long enough to convince him that he must come to Carmel and thatch the roof of his guest cottage.

So Slevin showed up in Carmel with 1,200 bundles of Norfolk reeds, enough to cover the 1,100 square feet of the Bensberg cottage roof. The job took him two months,

since protruding dormer windows from a steep-pitched surface required special handling. How much of the time he spent chatting with onlookers is not estimated, though Slevin figured that around 500 persons would stop daily, many of them asking him to do their roofs for them.

Peter Slevin's father, who raised sheep and cattle in Donegal and did thatching in his spare time, initiated his son in the craft. Peter then went to England to learn more under the Rural Industries Program, which is sponsored by the British government in an effort to preserve time-honored rural crafts. This again contributes to the preservation of historic landmarks.

Slevin received his certificate of proficiency and is now among the

200 or so persons actively thatching in the British Isles. "Most people say it's a dying craft," says Slevin, who firmly refuses to give his age, but not for reasons of vanity: "Were I to tell you, you might get the idea that only older men can thatch." Actually, many young men are entering the profession these days because of the renewed interest in thatched roofs.

The beauty of such a roof is probably the dominant reason for its increasing popularity. In addition, it sheds water, offers excellent insulation, and is long-lived—lasting 70-80 years, according to Slevin. All of which should be enough not to fret about the cost.

Three types of material are used for thatching: Long straw, Devon combed wheat reed, and Norfolk reed. (Circle nothing on information card!)

For the Bensberg cottage Slevin chose Norfolk reed. Because it grows in salt water and therefore is impregnated with salt it has a tendency to repel insects, rodents and even birds. It is relatively fire resistant, but can be fully fire-proofed by modern methods without damage.

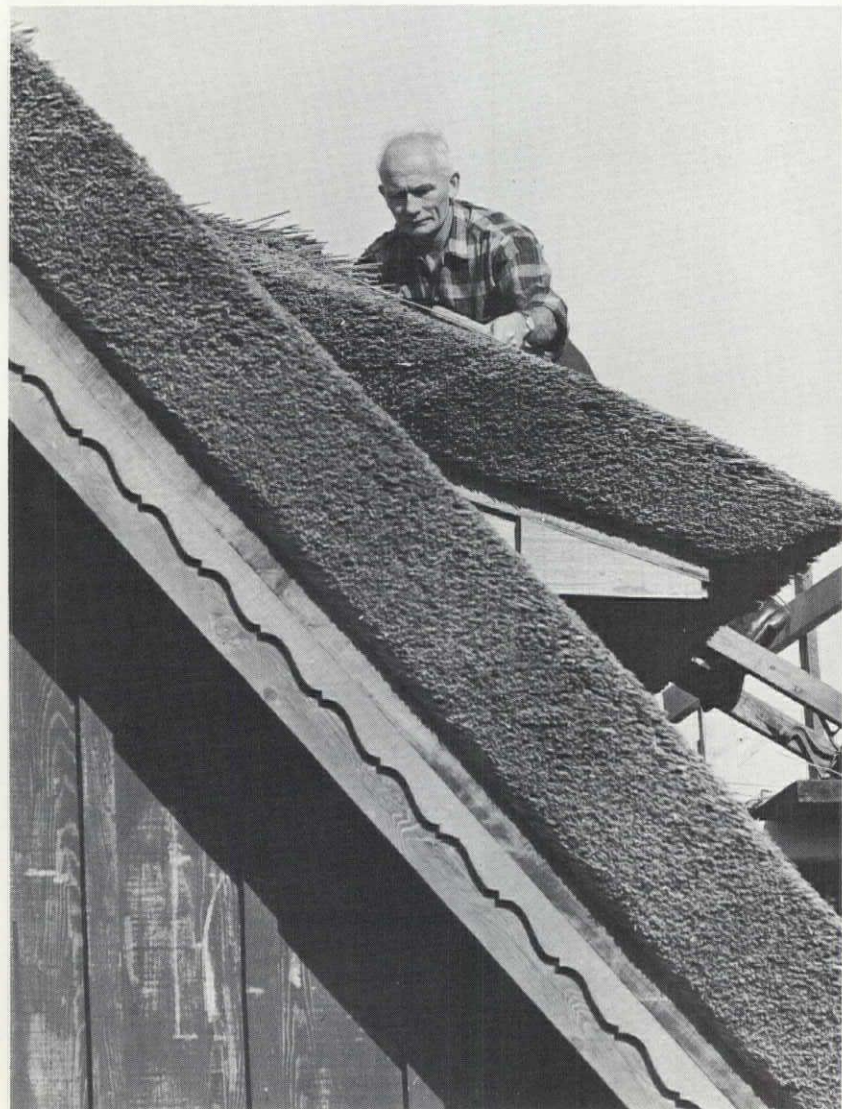
Starting at the bottom of the roof, the reeds are put in rows with a handcrafted iron hook, the rows then anchored by pegs driven through the thatch into the rafters. When the ridge of the roof is reached, the reeds are cut in a design and secured with more pegs, or with lengths of willow strips forming a pattern. The layers have a thickness of 14 inches when finished.

From Carmel, Peter Slevin went to Victoria, B.C., to do some repair-work on a replica of the Anne Hathaway Cottage there. He finished that job last May and then went to Pilgrim Village in Plymouth, Mass., to repair the roofs of four old houses. He expects to return to England and Ireland in the fall.

He is not turning down American jobs, however. He wants to see as much of this country as he can before returning home, he says.

Slevin also mentioned birdhouses with thatched roofs, charming in any garden. For the real status seekers, though, thatched birdhouses are strictly for the birds. They want the real peasant—not pheasant—thing! □

Slevin caught the attention of no few passers-by while on this California job.



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Life of Buildings from page 86

changes in the fuel source as the market changes and provide an improved bargaining position for the fuel or power purchaser. A design using alternate fuels is more likely to be economical for buildings designed for relatively long life and for a high original/annual cost ratio, as for public buildings, particularly schools. It is not necessary for these purposes to actually install storage, burners and other alternative equipment, but to provide space and construction that will allow them to be readily added later.

The current effort of utility companies to contact owners directly with biased reports of the efficiency of their products requires the architect or engineer to make a study of the total heating costs for each particular building or type of building.

Even at unusually low electric rates, the relative cost per heat unit is at least twice as great for electricity as for fossil fuels. The utilization efficiency of fuel oil seldom exceeds 70 percent, and 50 percent is not unusual, compared with 100 percent for electricity. The electrical heating system may be less expensive initially, and the operating cost may be less as well, but these circumstances rarely occur.

Let us consider a case where electrical heat proved to be economical: a two-story windowless department store. Insulation in such a building may be "perfect" in the sense that fuel cost is not reduced by added insulation.

This comes about because the lighting load is sufficient to heat the building; in fact, airconditioning may be required when the outside air temperature is in the 30s at design occupancy of the building. At these temperatures, therefore, a reduction in insulation will help to cool the building, reducing the airconditioning load. An increase in outside air intake, of course, would do the same. At lower temperatures, heat loss consists of loss through building walls and loss in exhausted ventilating air; the large proportion of salesroom space requires large volumes of ventilating air and therefore re-

quires large quantities of waste heat, so most of the heat loss is even then independent of the amount of insulation. In such a building, separate heaters are required in many locations because there is no correlation between heat requirements and ventilation requirements; salesroom spaces require air and other spaces require heat. This can readily be obtained by electric heaters at less expense than by steam piping. Consequently, there is a considerable saving in initial cost which is not fully made up for by added fuel cost.

The Heat Pump

Under ideal conditions, a heat pump can produce heat from electricity with a 5 to 1 ratio; this would indicate that the power cost would be less than the cost of fossil fuels, even at normal rates. However, heat pumps with air sources of heat cannot operate at this efficiency at lower outdoor temperatures when the greatest amount of heat is required. To compare the operating cost of a heat pump with other heat sources, a seasonal coefficient of performance must be determined—and this coefficient is not always available.

The efficiency of heat pumps can be improved by the use of well water, at greater cost. Even if lower fuel cost is obtained, it would be very unusual for the original cost to be lower than for competitive units, except for one-piece residential units in subtropical locations. Maintenance costs are greater also, and equipment life is shorter than for conventional heating units.

Heating by Lighting

Large multistory buildings with high lighting levels require cooling of the interior areas, even at lowest outdoor temperatures. The excess heat produced in interior areas can be utilized for heating of perimeter areas; buildings have been successfully operated on this basis, even in the northern United States and Canada. For successful operation, the building perimeter must be designed for minimum heat loss (extra insulation, minimum fenestration and double glazing), the lights must be operated continuously in cold weather, and relatively expensive heat pumps are required for transferring heat from interior to exterior locations. This sort of system would be justified only for a very large building, planned for long life and with low interest rates and favorable electric power rates. In all electric heat in-

stallations, the possibility of a subsidy payment from the power company should be investigated.

Total Power

Gas utility companies propose that gas driven generators produce the electric power for a building as well as heat it, which the companies call the "total power" concept. A number of public schools have been built with this system, the choice being influenced by their high original/annual cost ratio and high cost of power in the area.

Fuel is saved with this arrangement because waste heat from the engine, from both the exhaust and the cooling system, is utilized for either heating or cooling. Maintenance costs are high, stand-by equipment is often required to assure a continuous power supply and equipment life must be considered relatively short.

Annual Power Cost

A number of recent improvements may lower the cost of lighting. Lower power rates can often be obtained by purchase of power at high voltage, but at the cost of greater investment in transformers and related structure. There is also always a possibility that increase in power requirements may make the installation inadequate.

Peak demand charges for electric power can be substantial; the operation of a 600-horsepower refrigeration compressor for only 30 minutes during a normally cool month can add over \$300 per month to the power bill. Since most commercial buildings will require occasional cooling even during the winter months, this is an important factor in design. This added cost may be avoided, but at increased original cost, by installing multiple refrigeration compressors, including at least one small one for such loads. This is another argument for a 100 percent outside air intake for cooling, minimizing the necessity for refrigeration during winter.

Increasing demands for higher lighting levels require increased consideration of alternate lighting systems. Incandescent lighting operates with less efficiency than does fluorescent and therefore with higher power cost, but the annual cost of incandescent lighting, due to lower original cost, can still prove to be lower in some cases. The use of incandescent lamps in low-usage areas, such as those for storage and maintenance, will normally be economical.

Continued on page 94

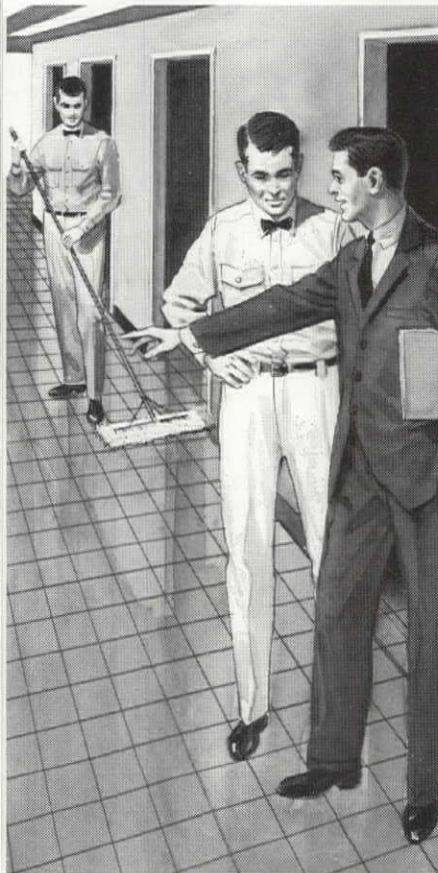
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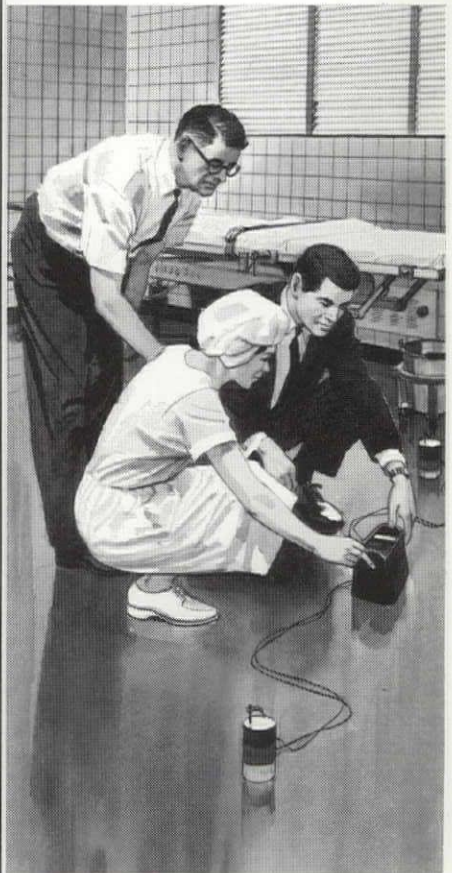
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Life of Buildings from page 92

Relamping of fluorescent fixtures is necessary less often than for incandescent, but the lamp cost is higher and accessibility is an important consideration in labor cost. Cost of replacement of lamps, including both materials and labor, may be obtained from contractors who specialize in this service. In cases where replacement is difficult, as high lamps in industrial areas and on outdoor poles, the higher cost of quartziodine lamps may be justified by their longer life.

An example of the necessity for cost analysis is illustrated by floodlighting of sports arenas, where the lower cost of incandescent lamps is justified in spite of high operating cost and difficulty of lamp replacement. For this application, lower annual cost is obtained by operating the lamps at higher than rated voltage, obtaining higher efficiency at the expense of operating life. This situation is due to the very short operating hours of the installation. However, a recently developed ceramic arc tube vapor discharge lamp of very high efficiency (over 100 lumens/watt, or about $\frac{1}{3}$ higher than most fluorescents) may be more economical than either of the older types of lamps.

Cost of Increased Light Levels

High lighting levels currently recommended require more than a corresponding increase in cost, and the actual level required should not be exceeded. High lighting levels usually demand year-round airconditioning for all interior areas, which limits airconditioning design to systems which can offer year-round cooling. This drastically increases both original and annual cost.

For example, increasing the light load by 3 watts per square foot of floor area (which can be consumed by an increase in the lighting level of 20 to 40 footcandles) requires additional airconditioning, and the total annual cost may be:

- increase in original airconditioning cost, at \$1 per sq. ft. or an annual cost of 20¢ per sq. ft.

- annual operating cost of added airconditioning 15¢ per sq. ft.
- increase in original cost of electrical work for added lighting, as annual cost 30¢ per sq. ft.
- additional annual operating cost, for added lighting 25¢ per sq. ft.
- total annual cost 90¢ per sq. ft.

This is a substantial proportion of the added rents to be obtained from such buildings, and lease negotiations should take into account the costs assumed by each party. Many landlords specify that virtually all of these costs be borne by tenants.

When estimating annual power costs of lighting, it should be anticipated that lighting will be used outside the normal operating hours of the building occupant. Cleaning and maintenance workers use an unnecessary amount of lighting, usually outside of normal working hours, and building occupants will rarely turn off lights even when their use is not required.

The use of high frequency ballasts can provide savings in cost of large fluorescent light installations; however, the added cost of providing high frequency power may be less than the savings in costs of ballasts. The high frequency ballast is far less expensive, consumes less current and is devoid of stroboscopic effect. Annual costs are reduced because of lower replacement costs of ballasts as well as lower power costs.

Combined Trade Changes

The foregoing examples have emphasized those choices in design which affect primarily one trade or even one item. Most savings are made as a result of much more complex changes, and the cost savings by such changes are difficult to determine. For example, let us consider the factors involved in the substitution of 3-inch fiber deck for 2-inch deck in a retail store with steel joist roof structure.

Ignoring minor items such as possible increase in parapet height, increase in edge blocking and in dripstrip width, principal items of cost are:

1. Cost of roof deck material. This difference will vary with different manufacturers, and previously low supplier may not be able to furnish the new thickness.
2. Installation of deck. To the architect, cost is usually the contractor's estimate; the comparable cost of two operations (installation of light vs. heavy decking), involving a 50 percent increase in material but no increase in the number of

pieces or number of fasteners, will vary from 1 to 1 to 1.5, depending on the method of estimating used by the contractor.

3. Steel joists. The increased weight may require a heavier joist, but an increased joist spacing, with reduction in the number of members, will usually result in lower cost. The heavier joist may be a more readily available item and therefore lower in price because of increased competition. If the 2-inch design required T-bar purlins, their elimination would reduce costs.

4. Joist erection. Fewer joists should be less expensive to erect, but this is not always true. The heavier joist may require more men or a crane not previously necessary, and therefore may result in higher cost.

5. Attachment of hung ceilings to joists. The number of wires supporting ceiling runners depends both on the minimum spacing of wires on the runner and on the spacing of joists. The change may result in either more or fewer wires. If 24x48-inch lay-in panels are being used, a change in joist spacing may require a change in direction of main members, with resulting cost changes.

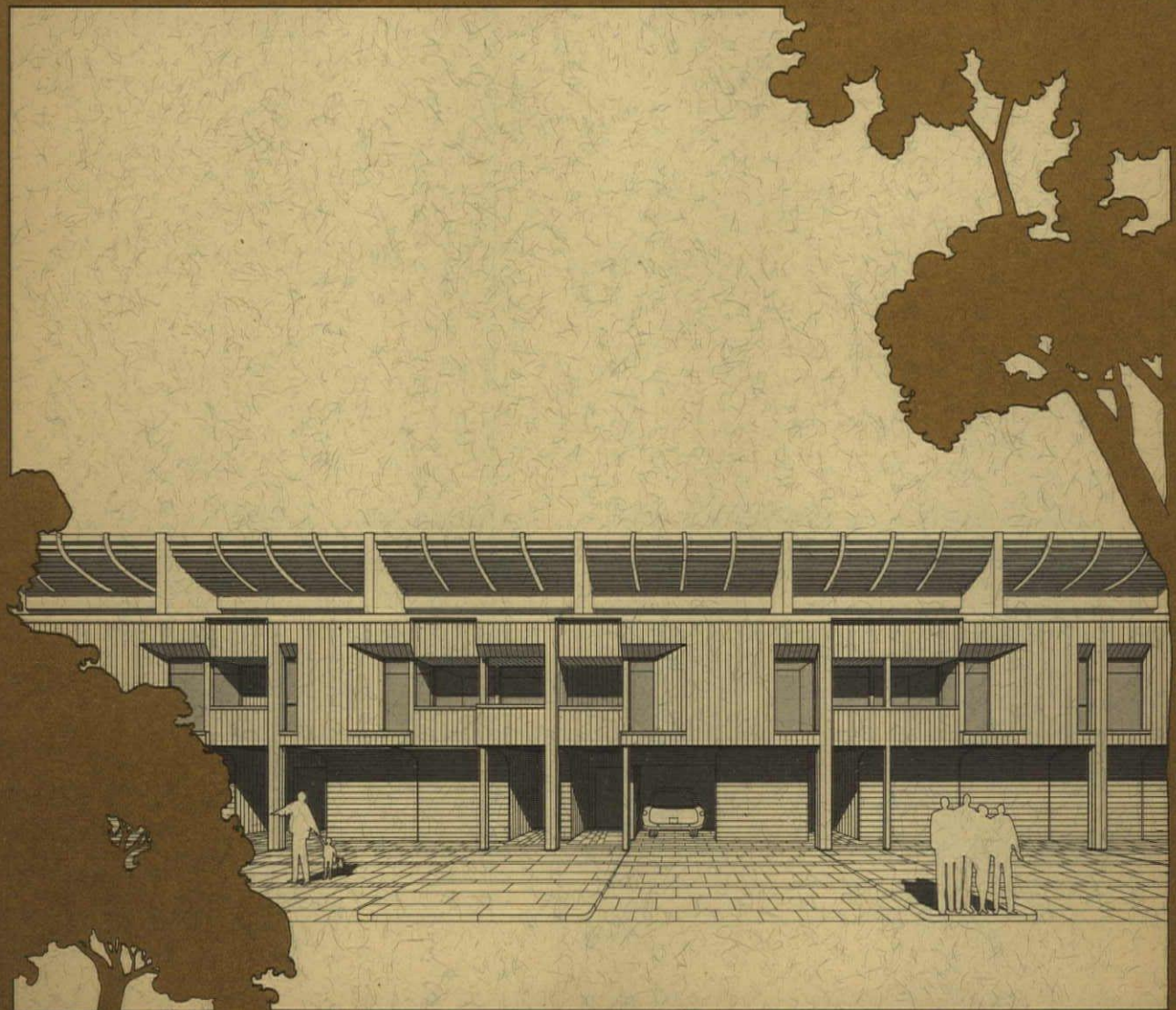
6. Heating and airconditioning. Required capacity will be decreased, which reduces both original and annual cost; but as previously pointed out, under some conditions of lighting the insulation change is not important.

7. Duct insulation. With an increase in roof insulation in comparison to ceiling insulation, the cost of airconditioning the space between roof and ceiling may be reduced. This may make the omission of duct insulation permissible, with consequent savings.

It is difficult to obtain true costs of changes of this type, as the subcontractors themselves may not know what the labor cost differences are. Major items can be determined by alternates on bids, but it is a burden on the general contractor to require alternates whenever a choice is to be made. If alternates are bid once for each kind of construction, these results can be used in design for a considerable period with some confidence that the economical construction is being installed. It is suggested that such information should be made available to all architects in each area through local AIA chapters or state organizations. The usual publicized information of this type lacks sufficient detail to be useful.

Continued on page 96

CLOVIS HEIMSATH
USES NATURAL LIGHT
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IN HIS CONDOMINIUM
TOWNHOUSES



One of a series of design innovations commissioned by Weyerhaeuser Company

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"Excitement is a ceiling open to the sky, allowing north light to flood the interior rooms.

"Control comes from the adjustable, laminated wood louvers which ride above the glass and filter the light.

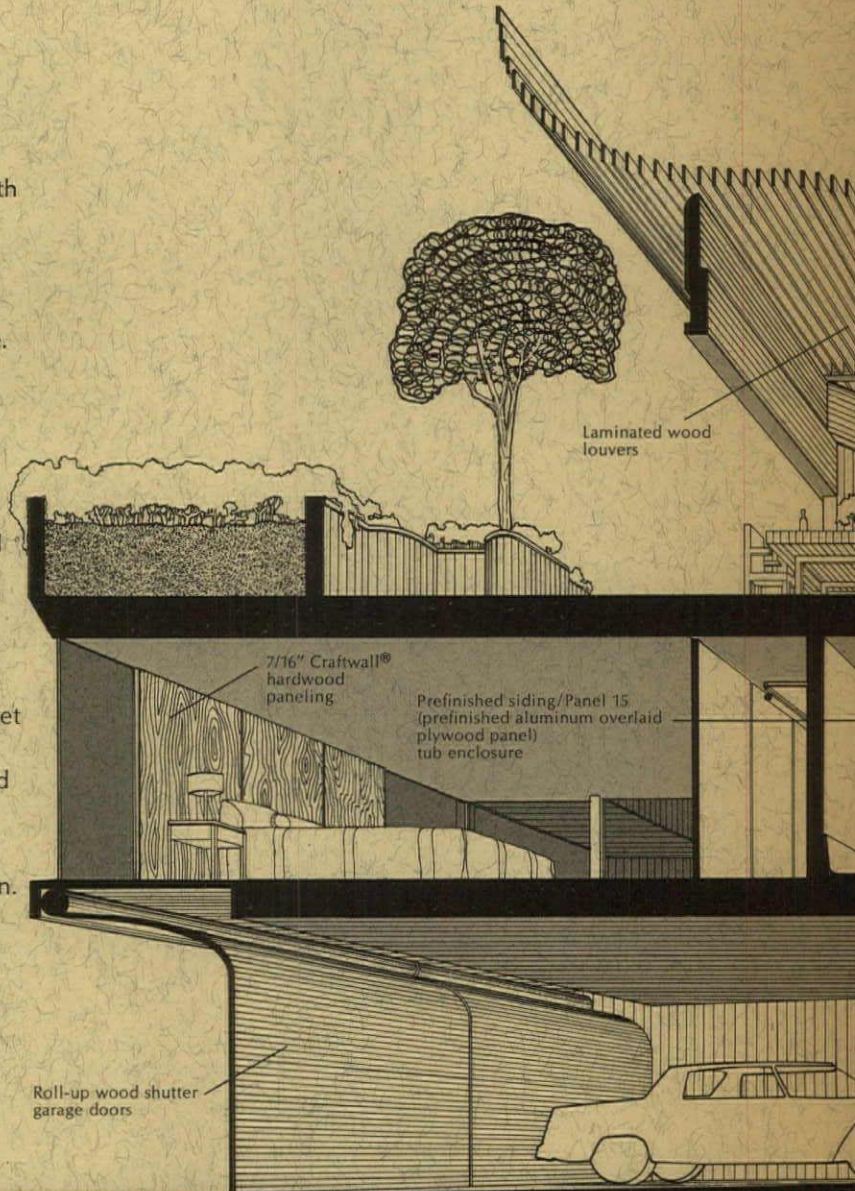
"The major laminated roof beams are double purpose. On the underside they carry glass set in neoprene gaskets; on the curved laminated wood member they carry the undulating line of wood louvers, adjustable by motor control.

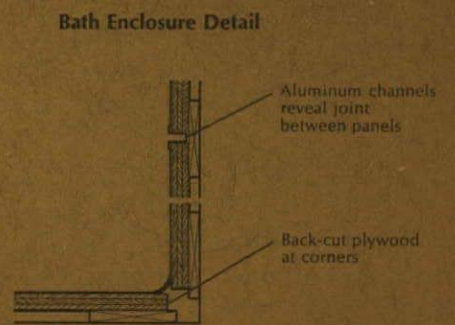
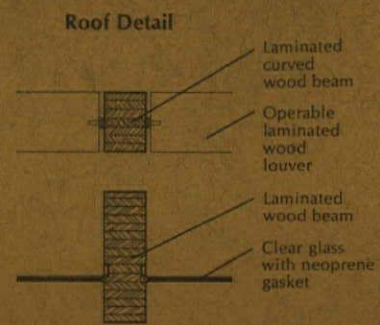
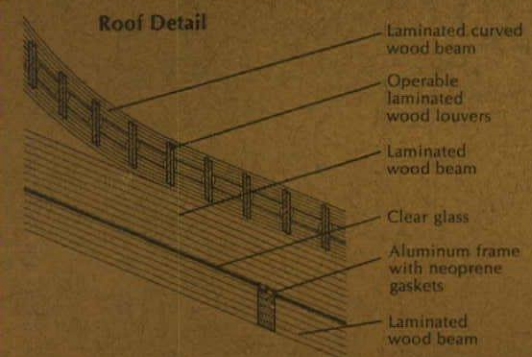
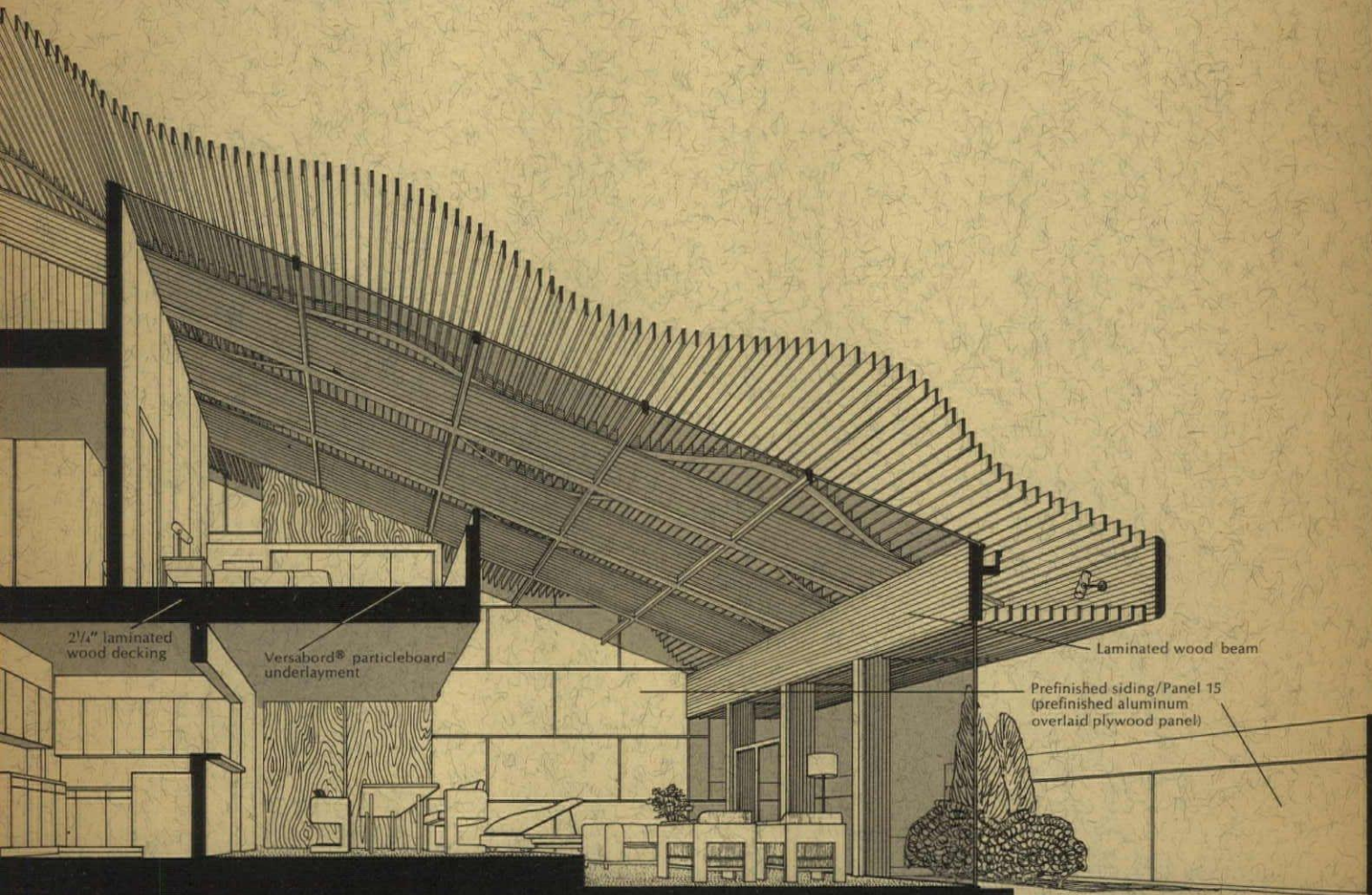
"To give the side walls a durable finish and large scale, a prefinished aluminum overlaid plywood panel is used with the staggered joints expressed. This paneling is also a logical choice for a tub enclosure and a garden wall enclosure.

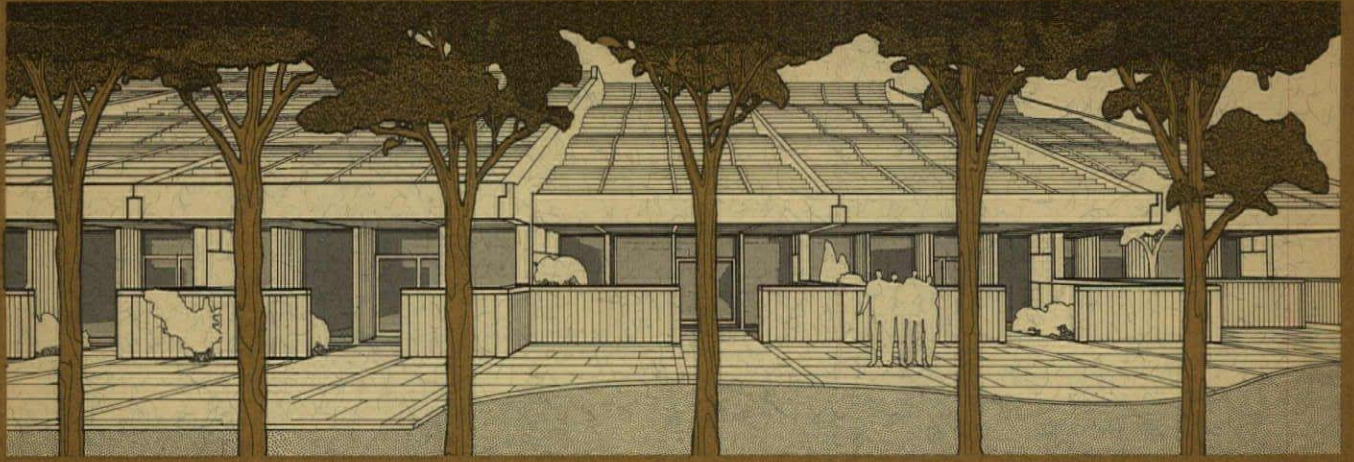
"The second floor structure is laminated decking on beams. Carpet is used throughout for sound control, set on particleboard underlayment. The roll-up wood garage door is designed to be compatible when closed with the vertical wood siding of the front facade.

"Cars are parked in the front of each unit so that the living room in the rear will open onto the private garden. The walk beyond leads to the common pool and recreation space, a center of interest for the whole complex."

Clovis Heimsath







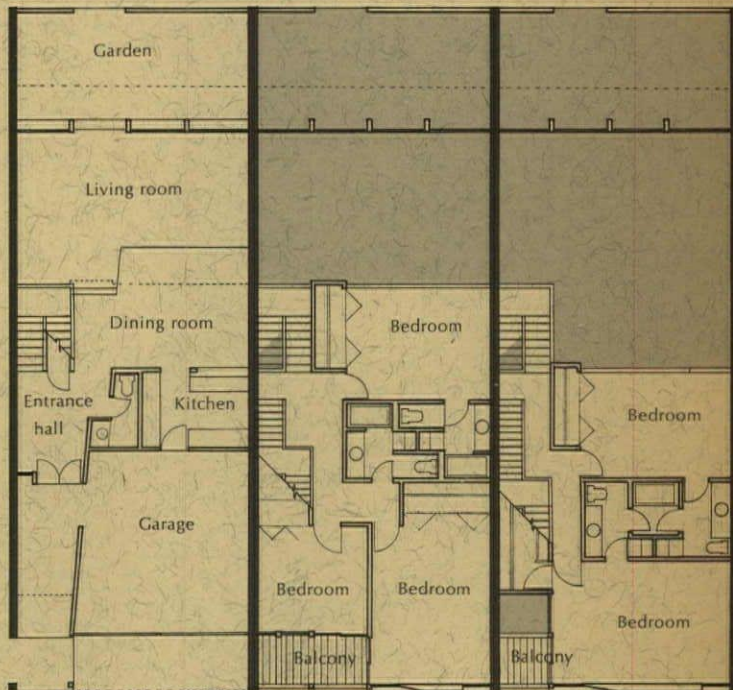
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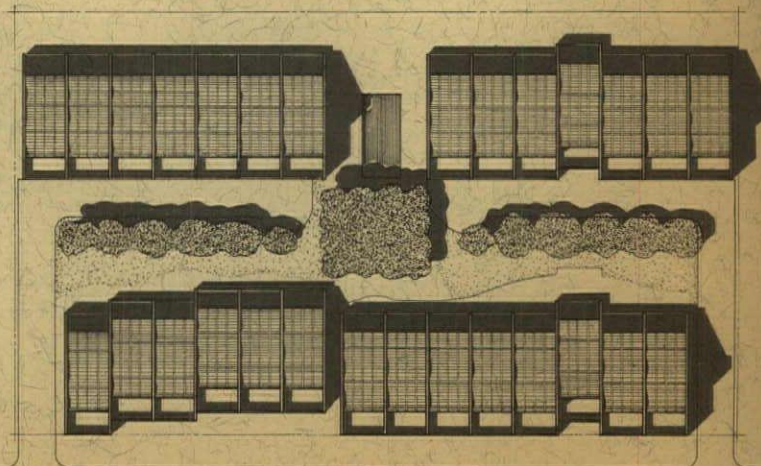
First floor plan
typical townhouse

2nd floor
3 bedroom townhouse

2nd floor
2 bedroom townhouse

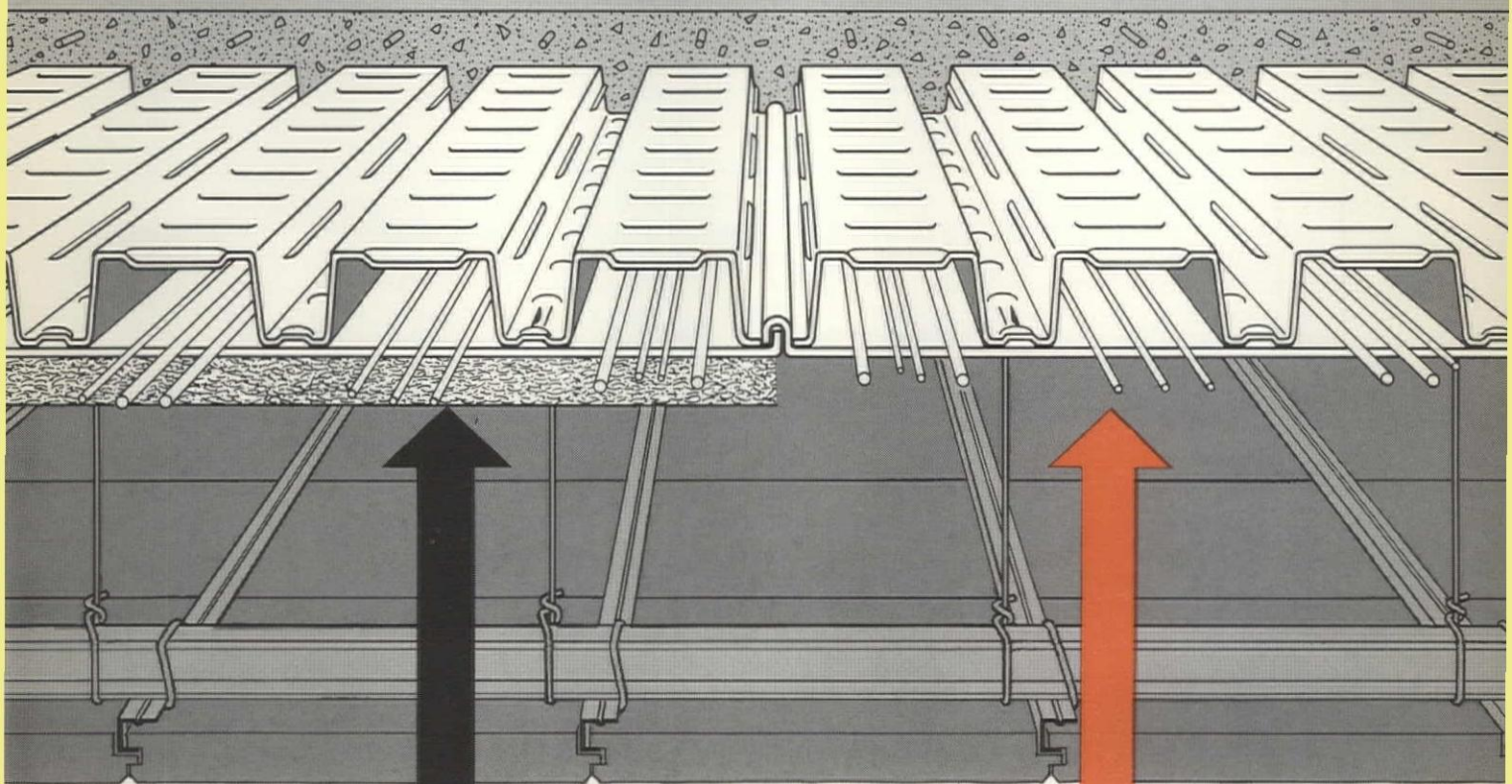
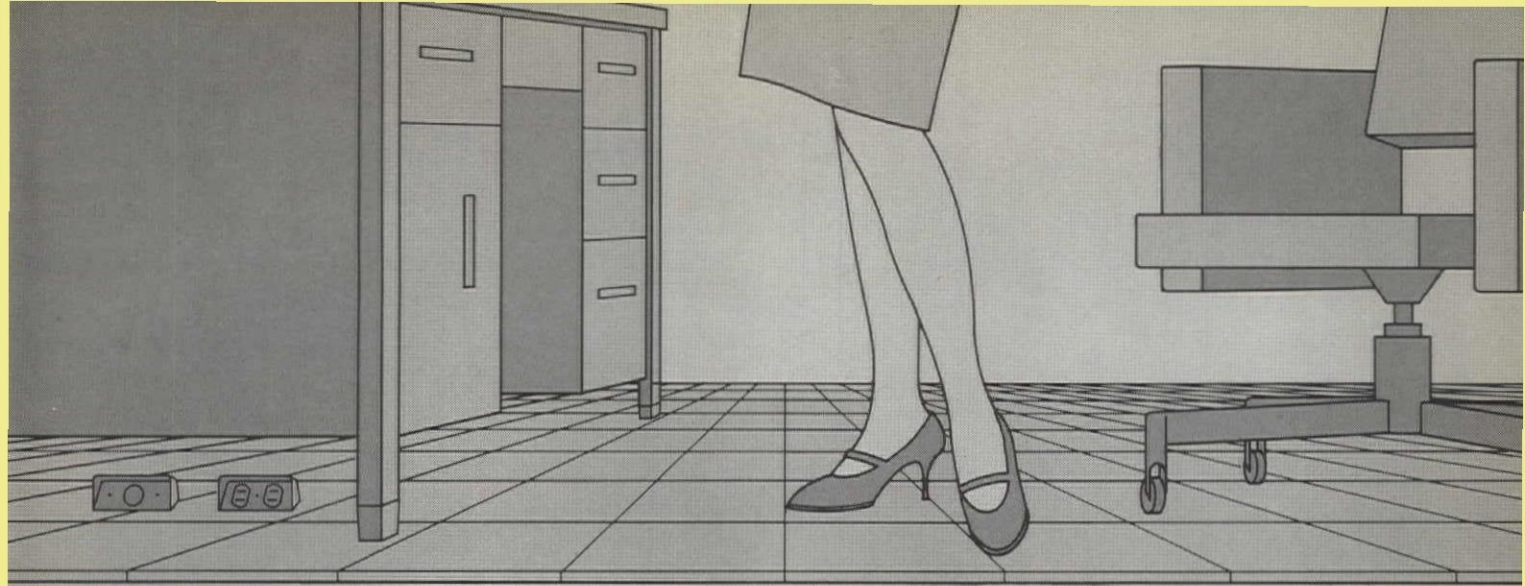


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Site plan

For more technical data circle 212 on information card.




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Books

José Luis Sert: Architecture, City Planning, Urban Design. Knud Bastlund, ed. New York: Praeger, 1967. 244 pp. \$20.

Sigfried Giedion has provided an introduction to this volume, in which he states: "Sert's talents are closely bound up with the organization of the city, with an architecture that has its roots in Mediterranean culture and, inseparable from these, with an intensive relation with art."

This survey of Sert's distinguished career bears witness to Giedion's words. Bastlund, a Danish architect and friend of Sert and editor of the book, has arranged the monograph in three parts, supplying many photographs, plans and sketches, as well as a succinct account of the continuous development of Sert's work and concise notes on the works and projects included. Sert informs us in a brief foreword that Bastlund "makes use of texts summarized from articles and lectures given by the architect."

The first part of the book deals with Sert's years in Barcelona (1927-1936) when the majority of

the projects and buildings were influenced by the principles formulated by the International Congresses for Modern Architecture. This phase was concluded by the Spanish Civil War when Sert left Spain and came to New York. The latter years (1939-1953) comprise the second part of the book. During this time Sert devoted much of his talent to city planning and urban design, working with the Town Planning Associates.

In 1953 Sert was appointed dean of the Graduate School of Design, Harvard University, and this marks the beginning of the final period covered by the book (1953-1965). The work in this section includes large buildings and complexes for Harvard and Boston Universities. As Giedion puts it, the buildings are "always deliberately linked to an articulation of the urban structure."

This period also continues to reveal the Mediterranean spirit in Sert's architecture, and the delightful houses he has designed are illustrative of this quality.

Katharine McNamara is credited by Sert with the preparation of the selected bibliography with which the book is concluded.

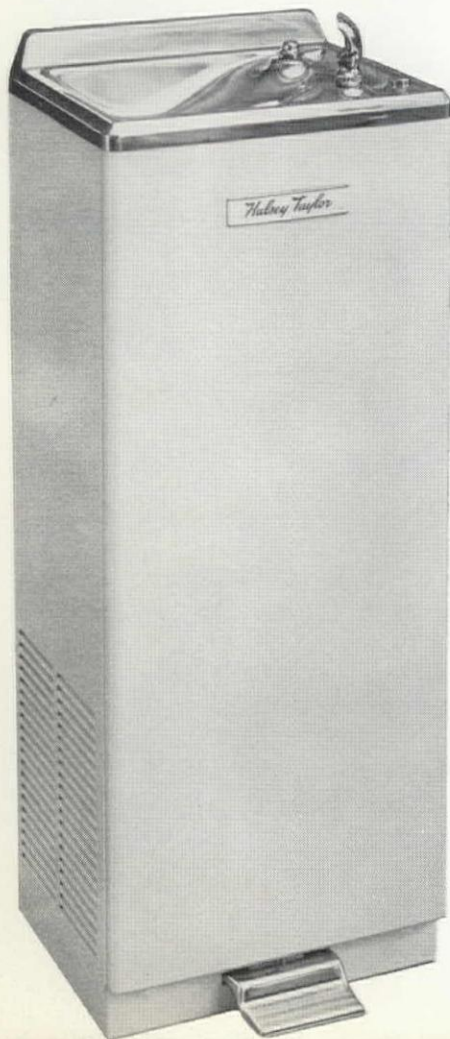
MARY E. OSMAN

The Myth of the Machine: Technics and Human Development. Lewis Mumford. New York: Harcourt, Brace & World, 1967. 342 pp. \$8.95.

"If we do not take the time to review the past," writes Mumford, "we shall not have sufficient insight to understand the present or command the future: for the past never leaves us, and the future is already here."

In this new work Mumford takes his own words to heart and looks to the past to survey the course of human development from prehistoric times to the modern era, about the 16th century. This is not the usual chronologically arranged book, however, for in each chapter Mumford has a way of looking both backward and forward.

Mumford's contention is that the machine is not the central fact in human life; man himself is primary. He questions the theories that present man is distinguishable from other animals by his technical proficiency and concludes that man is "preeminently a mind-making, self-mastering and self-designating animal; and the primary locus of all his activities lies first in his own organism, and in the social organization through which it finds fuller expression."



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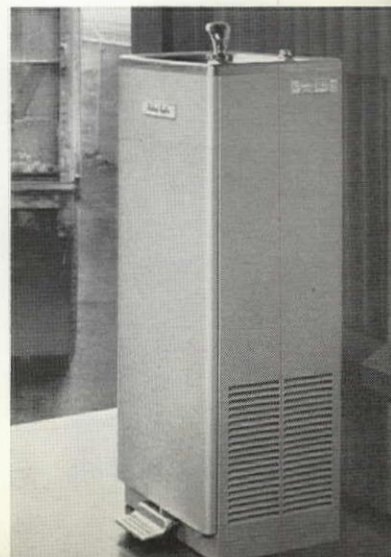
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This is Mumford's 22nd book, and in the annotated bibliography at the end of the volume he cites four of his other works, pointing out that *The Transformation of Man* (New York, 1956) is the "best summation" of his general outlook and that the first 11 chapters of *The City in History* (New York, 1961) intertwine with and supplement *The Myth of the Machine*.

Houses of Boston's Back Bay. Bainbridge Bunting. Cambridge: Belknap Press of Harvard University, 1967. 494 pp. \$12.50.

Boston's Back Bay district is of considerable interest to the historian of American architecture because it gives one an opportunity to examine a variety of architectural

styles which flourished in the 19th century. This truly fascinating book is a detailed chronicle of a district rich in meaning for architect, planner, historian, sociologist and lover of Americana.

Bunting, professor of art and architectural history at the University of New Mexico, developed his study of the Back Bay as a doctoral dissertation, but the resulting book now available is anything but dry and pedantic. At the same time, one is well aware that a great deal of scholarly research, attention to detail and keen personal interest came before words were committed to paper.

In the geographical sense, records Bunting, the Back Bay is all the filled land along the Boston side of the Charles River estuary, and it contains mansions, universities, skyscrapers, slums, churches and parks. In the sociological sense, however, the Back Bay refers to the more narrowly contained residential district where for so many years well-to-do Bostonians lived.

It is to the townhouse built during the period of 1840 to 1917 that Bunting addresses his attention. He describes faithfully and carefully the development of each architectural style and tells about the things

that caused a gradual evolution from one style to another. Beginning with the formative era (1857-1869), there were modified Greek Revival houses, succeeded by the period of the French academic and disciplined manner which held favor from 1857 to 1869.

Then came the era of "boisterous individualism," and the experimentation of this period extends from about 1869 to 1885, in turn to be succeeded by the "dignity and impeccable erudition" of the years from 1885 to 1917 when architects returned to the "safer ground of the Authentic Revivals."

As Bunting provides precise information about the architecture of each of the four periods, he also includes details about the furnishings and equipment of the homes. With it all, insights are gained into the mores of those marvelous Bostonians and their equally marvelous city.

A final chapter deals with the Back Bay as an example of city planning. Many photographs enhance the text.

Lost New York. Nathan Silver. Boston: Houghton Mifflin, 1967. 242 pp. \$15 (\$12.50 through Dec. '67).

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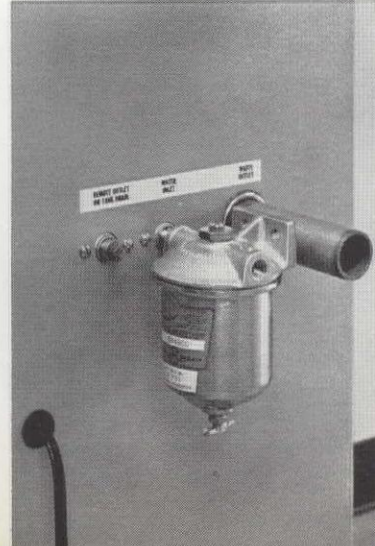
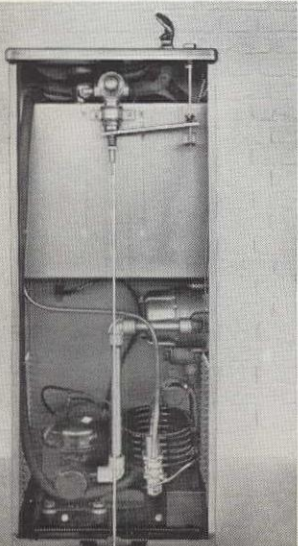
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city that has vanished—not covered by the lava of volcanoes, not wrecked by fire and mortar—but a city lost through deterioration and replacement. Perpetual change, which may be New York's destiny, writes Silver, need not be "at the cost of such devastation and blood-letting." He has some practical, and what seem to be sensible, solutions to prevent further destruction.

The book is a pictorial record of New York of yesterdays, and as such it is a valuable historical document. Silver spent two years tracking down the material, searching through museums, libraries, archives and private collections.

The book is also an eloquent plea for intelligent and sensitive conservation of significant architecture. Silver is well aware that cities have to adapt and change, but his plea is that they not change "in a heedless and suicidal fashion" and that the "essential form" remain.

"What needs to be sought and conserved," he says, "are the basic things in the city, the truthful things measured by human experience, though not necessarily those most clear and well-ordered and visual. These should be the things

that state the case of the city from its birth."

The book's general arrangement is interesting. There are sections on the urban scene and public places; private gathering places; civil architecture; great houses; the row house; apartment houses; churches; movement (he includes here the double decker bus, Hudson ferries, train sheds, subway entrances); commerce; public amusements; and a final section dealing with landmarks in danger, including the Custom House, the Singer Tower and the Metropolitan Opera House, the latter having been wiped out already.

"Architecture provides," says Silver, "the only measurable way to discover the past in the urban environment, and its conservation is therefore not only expedient but vital. A city can be complete and unique only in relation to its own history and essential form, and this must be reawakened, discovered anew, or sought and defended."

Silver has lived in New York for 29 years. He was both an urban design and historical buildings subcommittee chairman of the New York Chapter AIA. He is presently

on the faculty of the School of Architecture, Cambridge University.

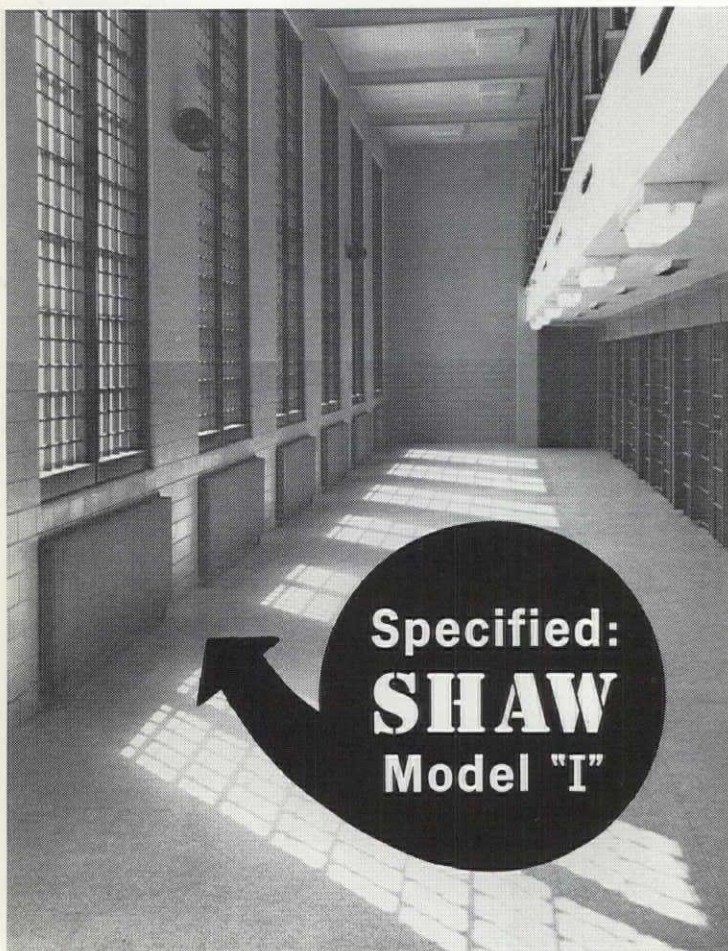
New Towns in Israel: Urban and Regional Planning and Development. Erika Spiegel. New York: Praeger, 1967. 192 pp. No price given.

Since May of 1948 when Israel became a state, 30 new towns have been built there, which house 16 percent of the Israeli population. Eighteen of the towns were founded, up to 1951, in order to take care of the hundreds of thousands of newcomers as rapidly as possible. Between 1952 and 1957, 10 other towns came into being, and in 1962 two more were started.

This book is a thoughtful study of these new towns, built to further the geographical dispersal of the population away from the coast and the big city concentrations and to provide, hopefully, for regional centers that would "serve the rural hinterlands as foci of trade, industry, social and educational activity and seats of administration."

Every aspect of the new towns is considered including the structure of the population; employment and

Continued on page 106



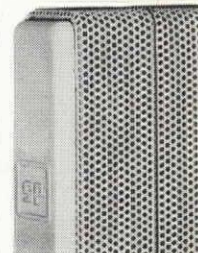
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industry; land use; culture and education; housing construction; financing and administration; and the relation of the town to the region. As examples of planning and development, eight of the new towns are analyzed in detail.

The author writes, "In view of the smallness of the country and the circumstances under which building took place—war, mass immigration and an economy only in its infancy—the planning, design and building of such a number of

new urban communities represents an achievement the scope and quality of which can hardly be measured against similar attempts of Western industrial nations, but rather against the forms population growth and urbanization takes in the majority of developing countries, with slums, shanty towns and cave dwellings on the outskirts of the big cities."

No extravagant claims are made, certainly, for Israel's new towns, but even with a modicum of understanding about what Israel has accomplished one feels the deepest

respect. This is a thorough, detailed and seemingly objective analysis of a singularly interesting urban phenomenon of our times.

Urban Development in Southern Europe: Spain and Portugal. E. A. Gutkind. New York: Free Press, 1967. 534 pp. \$25.

Those who care about cities are again in debt to Dr. Gutkind for another volume in the series he is preparing on a worldwide survey of the evolution of cities.

This third volume is concerned with the cities of Portugal and Spain. The illustrative material is stunning: old maps, engravings, paintings, aerial views and beautiful photographs. Dr. Gutkind emphasizes, however, that this is not a picture book. It is a work (as have been the volumes on cities of central Europe and of the Alpine and Scandinavian countries) in which the intricate problems of urban development are diagnosed "so they can be interpreted by what we can still see and by what we can still read about them."

In dealing with Portugal, the author discusses first the land and then the history of this remarkable country before he begins the city survey. There are 41 cities to which individual attention is given, selected not for architectural achievements but because something about them—layout, growth or origin—is of particular interest in a study of urban development. The arrangement of the city survey is geographical, roughly from north to south.

The same general plan is followed for the section on Spain which occupies the major portion of the book. There are chapters on the land, history and environment, the people, the rural background and the urban civilization followed by the city survey in which 74 cities are considered. There are contrasts between the Islamic and Christian cities of Spain, and this makes for provocative comments.

This volume is a worthy addition to the series on which Dr. Gutkind has embarked, and we salute him for the remarkable undertaking.

The Art and Architecture of Medieval Russia. Arthur Voyce. Norman: University of Oklahoma Press, 1967. 432 pp. \$9.95.

An amazing diversity is seen in the art and architecture of ancient and medieval Russia. Voyce, a native Russian now living in San Francisco and the author of several books on Russian culture, writes,

Continued on page 110

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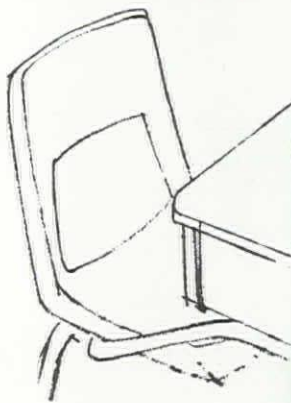
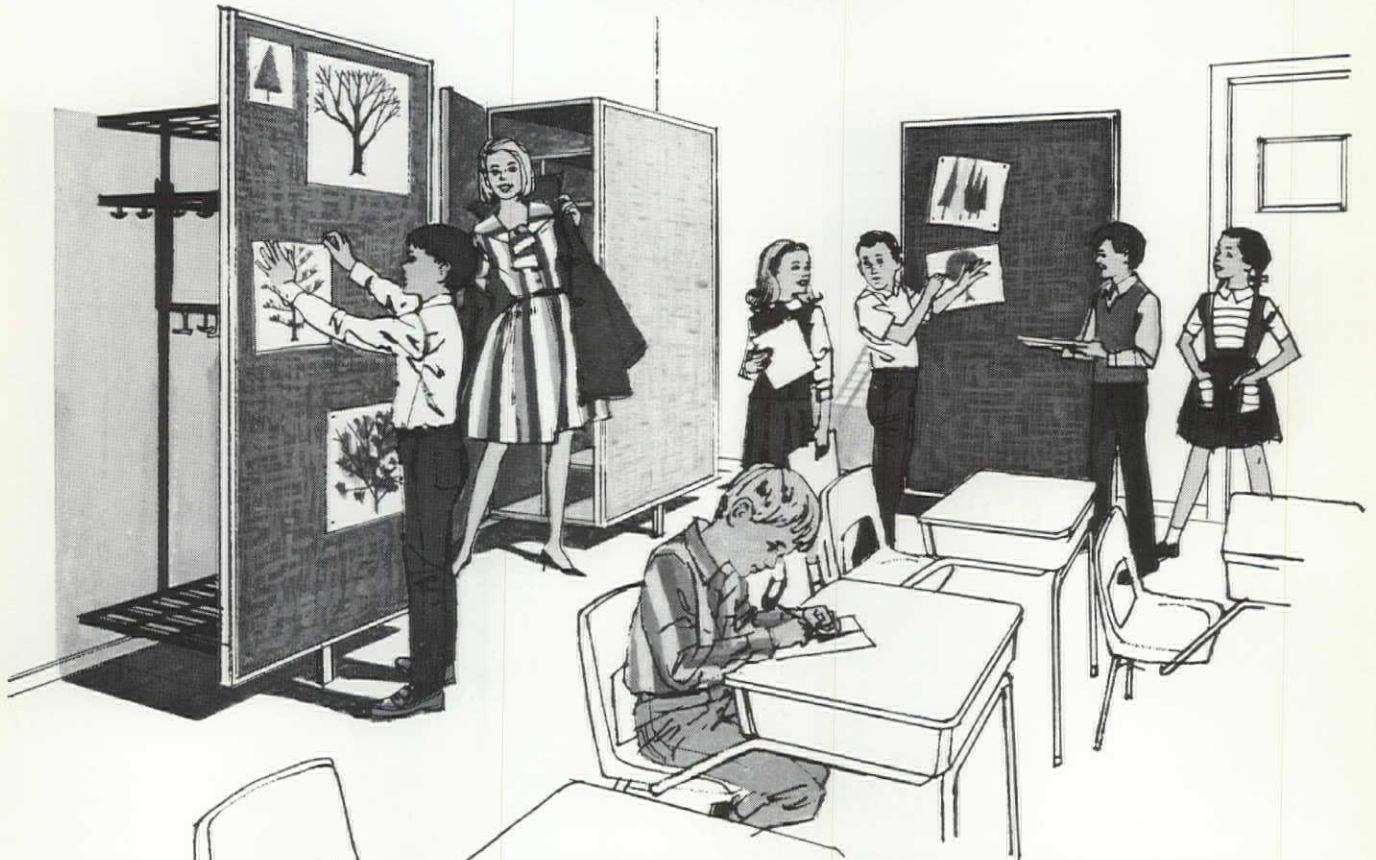
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Voyce leads his reader through the pre-Christian era to the Byzantine period and finally to the Moscow national art of the 18th century, always emphasizing that architecture reflected the Russian

artistic character and revealed that the Russians were never content simply to copy but always were adapting and changing architectural styles to suit their own needs and traditions.

Not only does Voyce pay attention to the major monuments of architecture and painting but he also considers the decorative arts—wood carvings, church thrones, ceramics, etc.

The book is enhanced by 188 plates; a chronological table giving important events and dates in Russian ancient and medieval art history; a glossary of Russian words; and a bibliography extending over 11 pages. The book provides the reader with an introduction to an extremely interesting field, one that has been generally neglected by Western historians.

Prospector, Cowhand, and Sodbuster: Historic Places Associated with the Mining, Ranching and Farming Frontiers in the Trans-Mississippi West. National Park Service. Washington: US Government Printing Office, 1967. 320 pp. \$3.

Going west, young man? Then this book would guide you to some interesting sites and buildings of our rough and tumble western heritage.

The third published volume in the series of the National Survey of Historic Sites and Buildings by the National Park Service, this is a record of historic places associated with the mining, ranching and farming frontiers in 18 states. The book is a cooperative venture with the research and writing done by members of the National Park Service personnel.

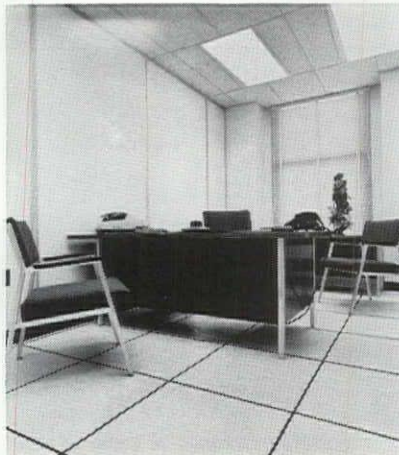
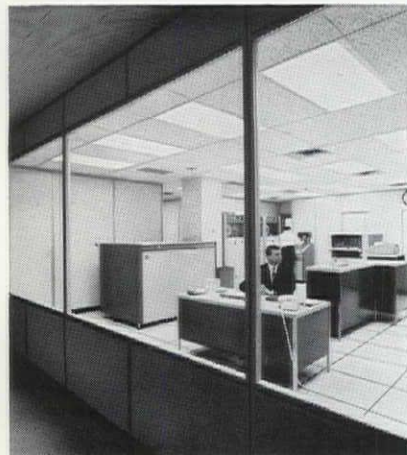
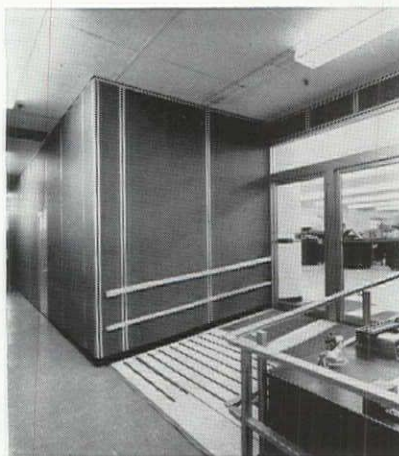
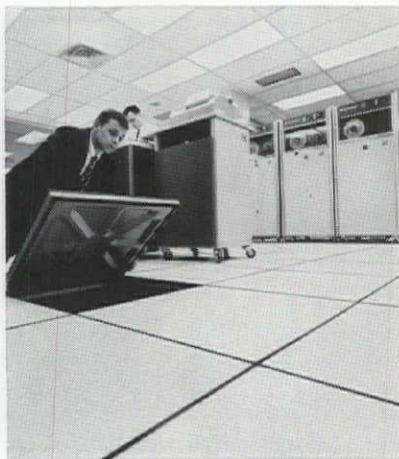
There is much folklore and many a movie and television show about the hearty, courageous men who conquered the West, and, yet, as this book points out, we can only dimly appreciate the hardships they met and overcame. The first section of the book is the story of these men—prospectors, cowhands, sodbusters, soldiers, buffalo hunters, outlaws, fur trappers, traders, railroad builders, lawmen.

The second section, which comprises more than half the book, is a descriptive survey of 206 sites, with major emphasis placed upon the 29 sites declared eligible for designation as Registered National Historic Landmarks. The sites are arranged alphabetically by state. Information is given for the landmarks regarding location, ownership and administration, historical importance and appearance. □

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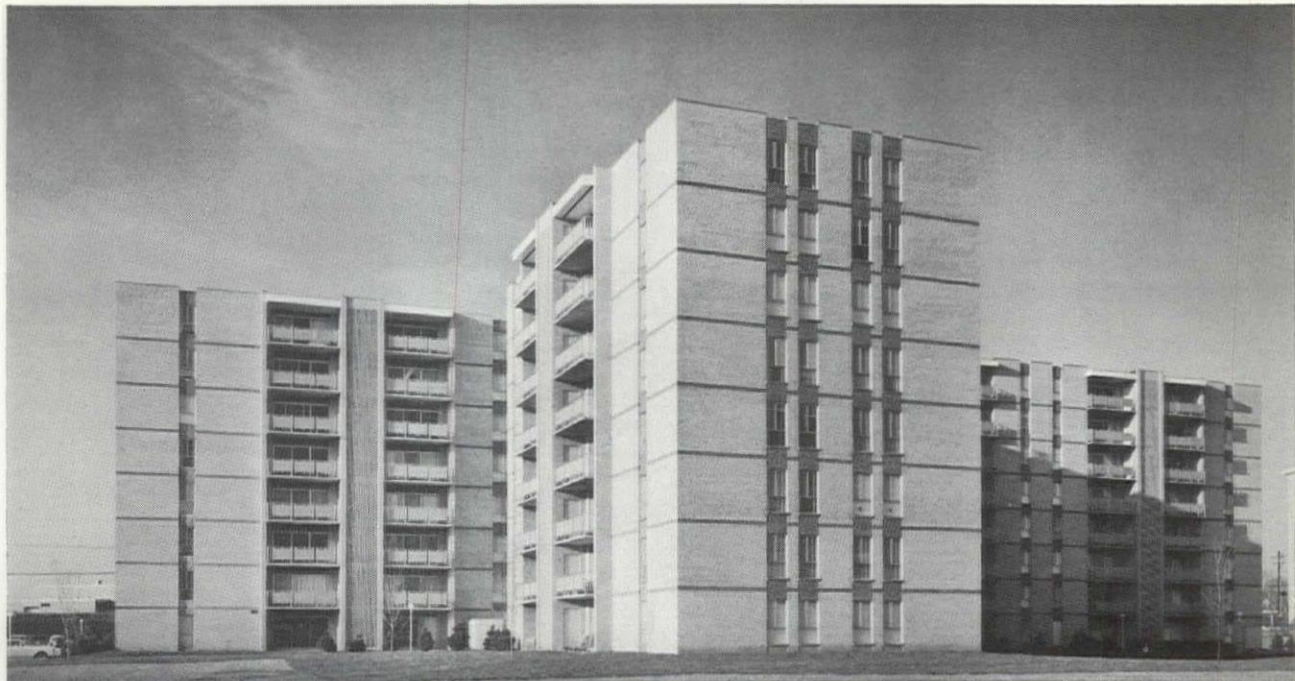
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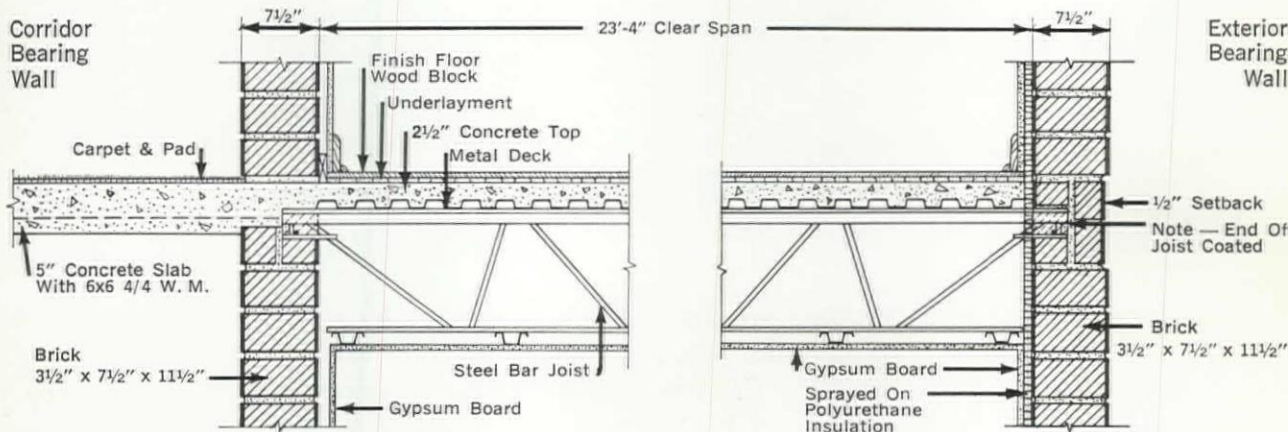
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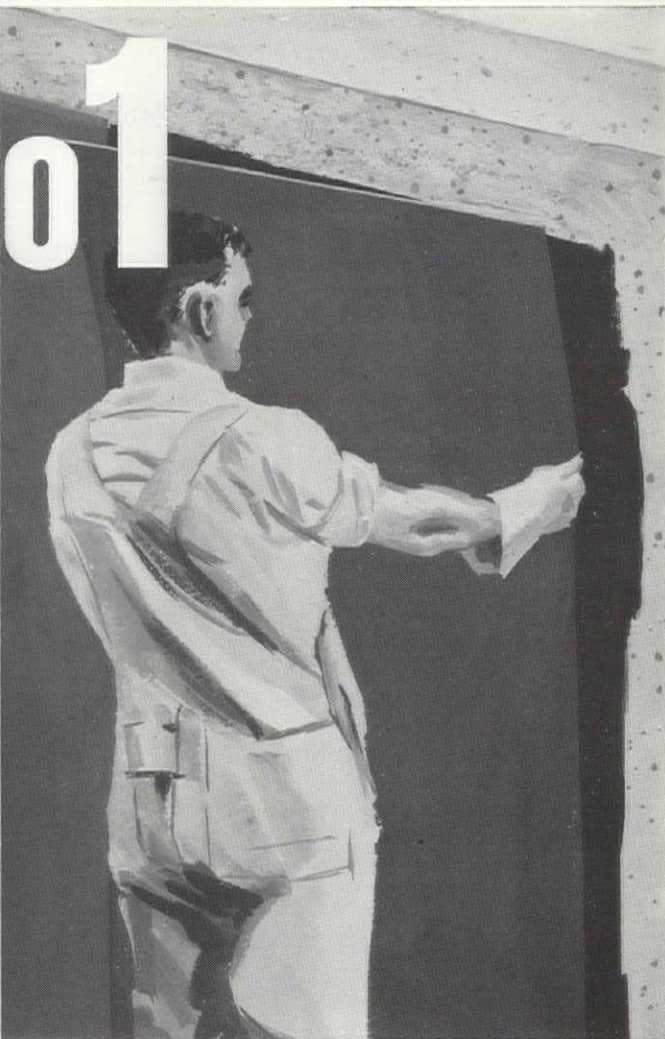
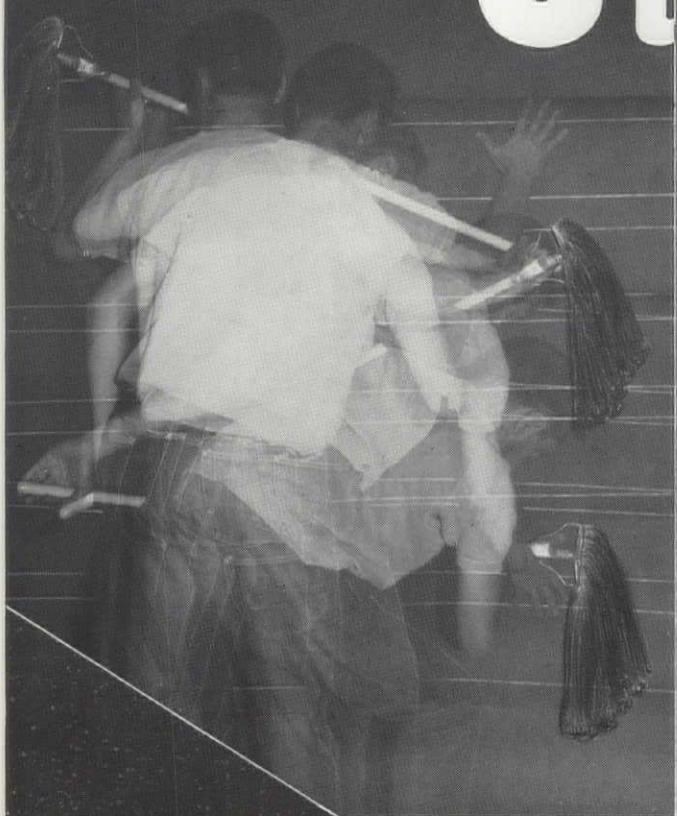
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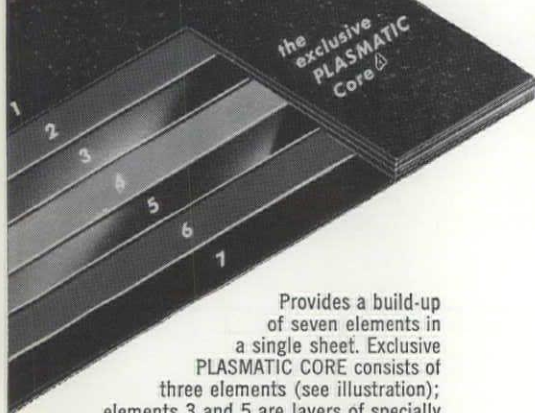
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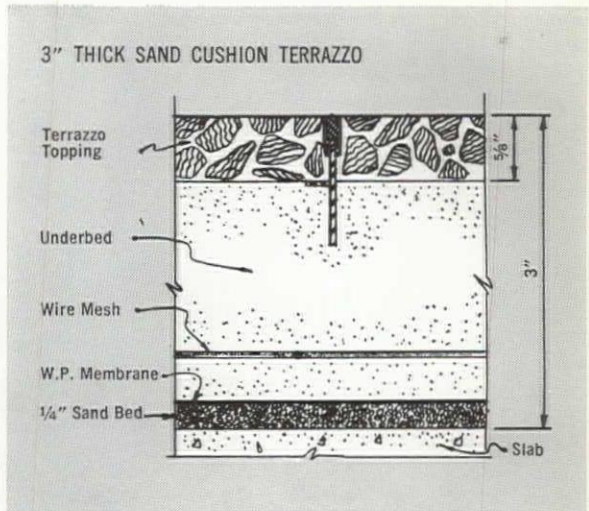
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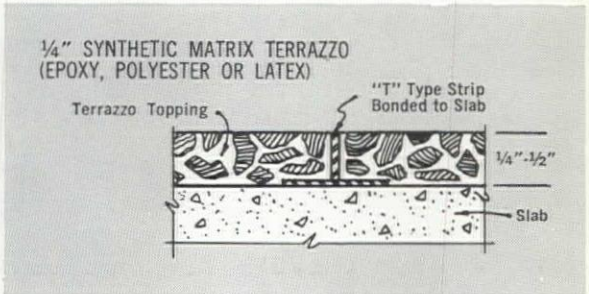
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- Nov. 7-9:** Symposium on Design and Esthetics in Wood, State University College of Forestry, Syracuse, N. Y.
- Nov. 12-15:** Community Junior College Facilities Planning Conference, Michigan State University, East Lansing
- Nov. 14-16:** Building Research Institute Fall Conferences, Mayflower Hotel, Washington, D.C.
- Nov. 15-17:** Consulting Engineers Council of the United States Semiannual Meeting, Olympic Hotel, Seattle
- Nov. 30-Dec. 1:** Seminar on Metallic Materials in Architectural and Structural Applications, Polytechnic Institute of Brooklyn
- Dec. 1:** National Conference on Facing the Union Problem, Co-sponsored by AIA, LaSalle Hotel, Chicago
- Dec. 3-7:** National Association of Home Builders Annual Convention-Exposition, International Amphitheater, Chicago
- June 23-29:** AIA Annual Convention, Portland Hilton Hotel, Portland, Ore., and Ilikai Hotel, Honolulu (June 28-29)

AIA Regional and State Conventions

- Nov. 5-7:** Western Mountain Region, Broadmoor Hotel, Colorado Springs, Colo.

AIA Committees and Related Meetings (At the Octagon unless otherwise noted)

- Nov. 16:** Building Construction, New Orleans
- Nov. 17:** AIA/AGC Liaison Commission, New Orleans
- Nov. 17-18:** National Student Professional Organizations
- Nov. 19-22:** Student Forum
- Dec. 4-6:** Board of Directors

International

- Nov. 16-17:** International Commission on Environmental Design Interprofessional Conference, Education Center, University of Maryland
- Nov. 30-Dec. 2:** International Conference on Masonry Structural Systems, Terrace Convention Center, Austin, Tex.

Awards Program

- R. S. Reynolds Memorial Award. Applications available from AIA. Registration closes Feb. 1.

Tours

- Around South America Architectural Trek, 21 days, departing Jan. 30. Repeated March 26, 1968. Arranged for AIA members with special group fares by United Travel Agency, Inc., 807 15th St. N.W., Washington, D.C. 20005.
- Mexican Architecture and Interior Design Seminar-Tour, meeting Mexico City, Feb. 25, 14 days. Repeated Sept. 15. Reservations accepted in order received with deposit of \$50 per person toward cost of \$358, airmailed to T. H. Hewitt, Apartado Postal 5-251, Mexico 5, D.F. □

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Letters

Under the Umbrella

EDITOR:

With regard to Lawrence Anderson in the ACSA section of the September AIA JOURNAL, his clear and succinct statement entitled "The Environmental Design Umbrella" is a masterpiece of precise logic. The facts support his contention that it is "undesirable, unrealistic and unrealizable to hope to achieve the Three-Man Commission's prescribed goal of 'a single group of professionals' [who] must be educated and qualified to assume central responsibility for the increasing present and future needs of the expanded urban planning concept."

The "umbrella" theory is indeed a most specious goal. Once again one visualizes the arrogant architect firmly grasping the handle of the umbrella with one hand and, with the other, constantly herding the "lesser disciplines" under this precarious protection. The new and very vocal leaders of our schools could well ponder the clarity of the author's reasoning.

Finding ourselves in agreement with this thesis in the School of Architecture at Virginia, we have recently appointed the distinguished engineer, Dr. Lev Zetlin, as the university professor of architecture and engineering. Prior to this appointment, Dr. William Zuk, well known for his research work in structures, was appointed to the architectural faculty.

These actions follow Dean Anderson's logic that "we should spend our efforts attracting gifted engineers in preference to producing inferior captive technicians and labeling them engineers."

THOS. K. FITZ PATRICK, FAIA
Professor of Architecture
University of Virginia
Charlottesville, Va.

In Defense of Supervision

EDITOR:

Forrest Holly, a builder and a contributor to the *Christian Science Monitor*, is an unusual person. Perhaps the fact that he is blind has given him greater insight into the construction industry. I have been impressed as I watched him "look over" the workmanship on his jobs, running his fingers over connection, miter or finish.

I believe the accompanying "Ask a Builder" column merits publication in its entirety.

SAMUEL WOOD HAMILL, FAIA
San Diego, Calif.

The following* is reprinted with permission from the *Christian Science Monitor* for Aug. 11, 1967:

Q. Dudley S. Ingraham of Litchfield, Conn., writes: "If a builder is known to be completely reliable, do you consider it necessary or desirable to pay an architect to supervise the work?"

A. Even when a builder is reliable, architectural supervision may be desirable but not necessary on small jobs, both necessary and desirable on large work.

Acquainted with the owner's needs, the architect knows what even the reliable contractor must learn regarding the intent of the plans. Architectural supervision during the course of construction is therefore a help to the builder as well as a protection to the owner whom the architect represents.

While every design office strives for perfection in its plans and specifications, construction problems arise requiring judgments which may well affect the strength or esthetics of the work.

The builder may have neither the engineering training nor the esthetic refinement to make such decisions in keeping with the intent of the design. Into this breach the architect steps with responsible and relevant judgments or interpretations.

Most artists conceive an idea, transmitting their conceptions to the canvas, the marble or the instrument. The architect, no less an artist, conceives the idea of the building detailing this conception in printed plans and paper specifications.

Unlike other artists, he then turns to the builder for the actualization of his concept into a finished product.

The builder, more businessman than artist, may produce the building in a manner sometimes without enhancement to the architect and owner. The architect completes his service to the owner by rendering construction supervision, assuring maximum disciplines, even when the builder is known to be completely reliable.

The small fee charged for architectural supervision, in most cases, is in the interest of the owners.

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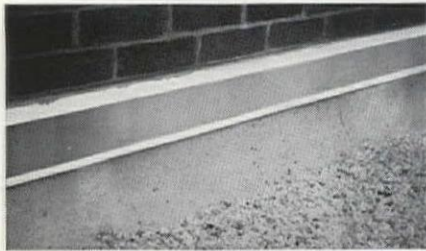
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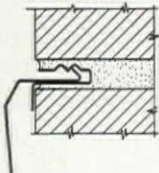
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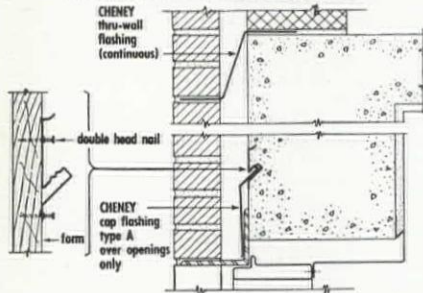
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120 AIA JOURNAL/NOVEMBER 1967

Next Month

The US City Rediscovered: Thousands of words have been written about our urban centers in recent months, and a good many of the authors have taken a dim view. The AIA JOURNAL's major presentation in April asked the question: "Cities: What's the Matter?"

But the potential for city building is greater today than ever, says Robert C. Wood. In an unusually creative and scholarly yet communicative statement, the Under Secretary for the Department of Housing and Urban Development explains how "the principles of reason and problem solving are now being applied to urban affairs."

The Educational Park: The concept is so new, as the architect-author points out, that he is allowed "some poetic license with the definition, since so many have been advertised and so few have been partially constructed." Be that as it may, he believes certain generalizations can be made at this early stage and certain patterns can be distinguished.

More Than Castles in Spain: Returning to the country after a five-year interval, a US architect was amazed at the amount of building construction going on and at the variety of architectural styles. The experiences of one enterprising contractor may provide a lesson or two right here at home.

Communication and Design: The AIA-ACSA Teacher's Seminar moved from Cranbrook to Chicago this year, but the sessions provided the same lively discussion which has characterized most of the previous meetings. A leadoff workshop examined existing methods of communications used by designers, structured them according to their characteristics into some comprehensive framework and established a context for the more specific workshops that followed. A pair of articles extend rather than repeat those deliberations.

PHOTO & ART CREDITS: P. 12—Jan Schreuder; 36—The Museum of Modern Art; 59—Ferry & Henderson, Architects; 61—Ward Johnson & Associates; 63, 64 & 65—Julius Shulman; 65 (lower right)—Kurt Meyer & Associates, Architects; 68 through 69—Julius Shulman; 71—Japan National Tourist Organization; 72—Karl Kamrath, FAIA; 73—M. Woodbridge Williams; 74—Gerald C. Taylor; 75 & 77—Wallace, McHarg, Roberts & Todd; 90—Robert A. Isaacs



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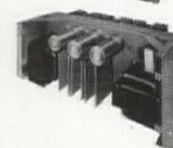
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housing low-income families now out of the effective market."

For the federal government, according to a HUD publication, turn-key represents lower construction costs (by 10 to 15 percent), reduced construction time, a greater supply of low-income housing and "unlimited diversification of construction design, method and locations."

Planning Dearth Scored; 'Courage of Desperation' Needed, AIP Meeting Told

"We won't live that long, anyhow," said someone in the audience when the year 2017 was mentioned during the American Institute of Planners convention that looked ahead to "the next 50 years."

A certain French king put it a different way: "Après nous, le déluge."

Gunnar Myrdal, whose attitude toward the future differs from the above, had this to say to the 2,400 persons attending the meeting in Washington last month: "Foresight, and planning action to improve the outcome of the development we foresee, particularly action to avert dangers ahead, is the essence of whatever rationality there is in human life."

The Swedish social philosopher who a quarter century ago warned the US against the very riots we experience today, did not have the I-told-you-so attitude when he remarked: "How different things might have developed if the rich countries in the beginning of this century had seen the writing on the wall and set out to prepare the colonial peoples for the responsibilities of independence."

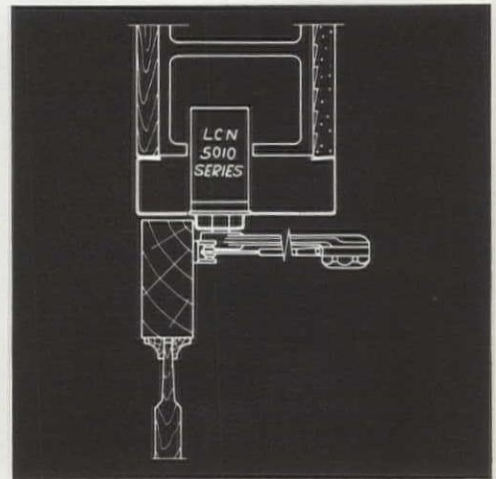
He stressed that it should not be necessary for each generation to struggle in the trap set for it by the previous one, all for a lack of planning. "The world has changed greatly," Myrdal said, "making planning and reform ever more difficult. . . . There are staggering difficulties, and we need the will to grapple with these difficulties."

Myrdal regards the US as his second home and therefore feels free to speak out the same way he does in his native country.

There is an almost total absence of planning in regard to international relations in the US, he charged, cautioning that the haphazard development of international events limits and distorts all efforts at planning even in the more

Continued on page 18

LCN for modern door control



Detail at head for LCN overhead concealed closers on entrance doors shown in photograph

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- 4 Easily adjustable general speed, latch speed, back-check and spring power (may be increased 50%)
- 5 Fully hydraulic, with highly stable fluid giving uniform operation over a wide range of high and low temperatures
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Full description on request
or see Sweet's 1967, Sec. 16e/Lc



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PHOTO: First Congregational Church, United Church of Christ, Wisconsin Rapids, Wisconsin; Robert L. Rowland, Architect



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