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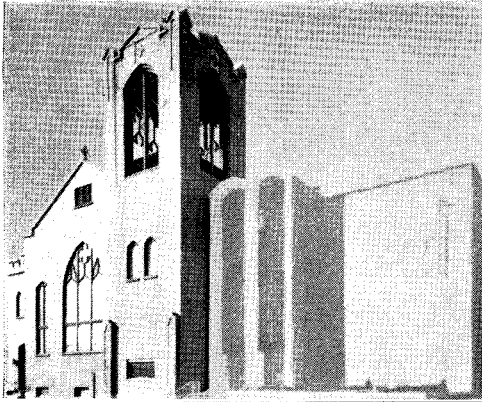
Journal

March 1965

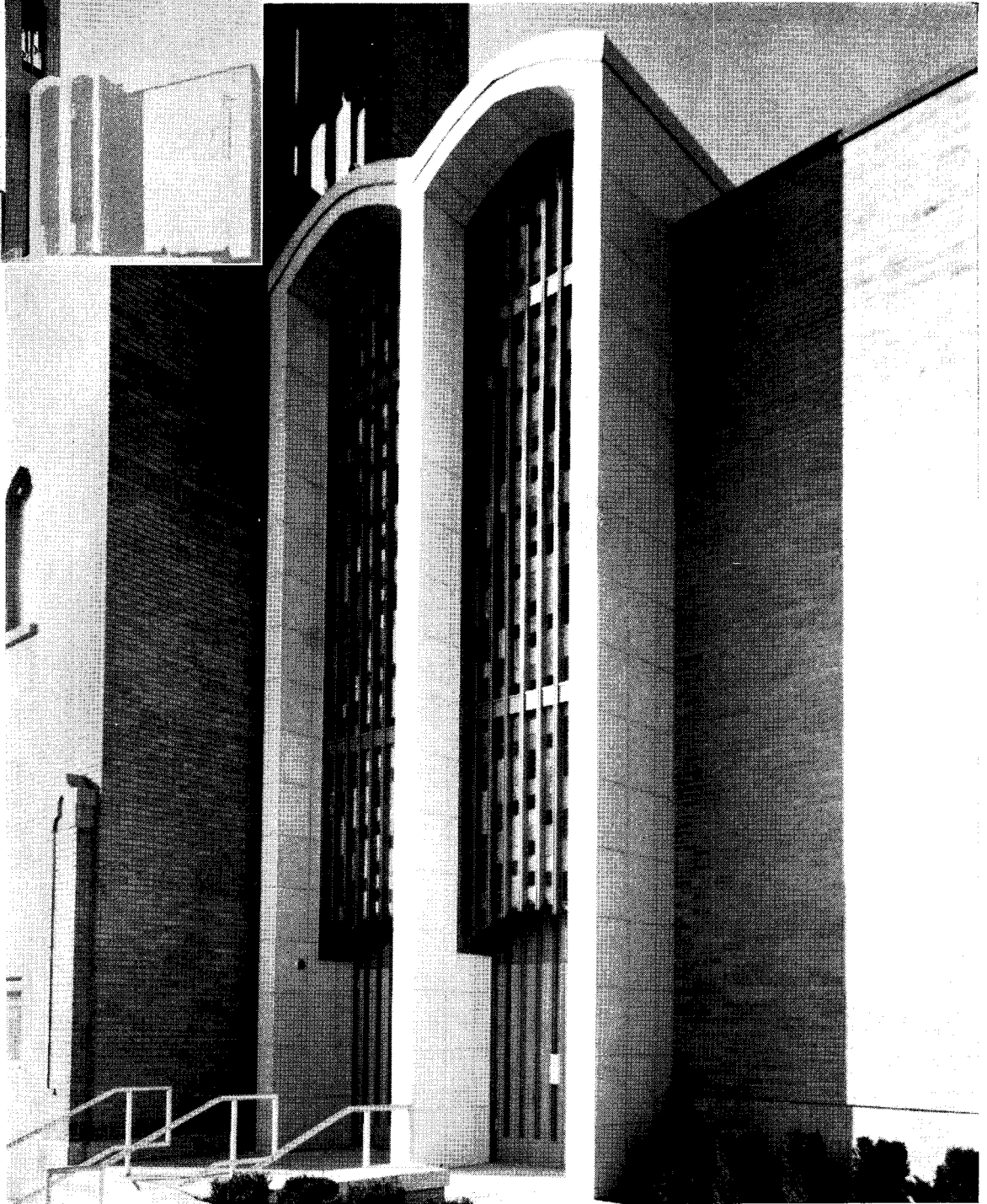
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Cover: Johnson Residence, designed by A. O. Bumgardner & Partners, Seattle (see Practice Profiles, p 27). Don Normark photo

LOOKING AHEAD TO APRIL

Some Antidotes for Ugliness

Cities, as Dr John Ely Burchard so eloquently points out, are like ladies. "There have been beautiful, well-turned, courteous ladies all through history whose enchantments concealed their vices and poisons, and plain, dumpy, badly dressed ladies whose lives were full of grace." Copies of his address should be on the desk of every municipal official who cares about the appearance of his city

What Is the National State of Architecture?

Raymond D. Reed AIA posed this challenging question upon assuming his duties as head of the School of Architectural Engineering at Iowa State University. He minced no words nor spared a single sacred cow in his provocative answer

Politics, Architecture and World's Fairs

This is a timely topic indeed, what with Robert Moses' show soon to resume in Flushing Meadows and Seattle's much-smaller, less-publicized exposition (though it did make money and had some quality about it too) only recent history. Arthur Cotton Moore AIA doesn't specifically treat those two in his discussion of the architecture of fairs as a propaganda tool, but inferences surely will be made as he considers four others

How High to Rise: A Computer-Aided Study

Can the coldly practical computer increase design freedom? Charles Thomsen of Caudill, Rowlett & Scott says yes and proves his point with a case study of an analysis to determine the optimum economic height of a high-rise building. "The computer was an enormous help, but it didn't make law," the author hastens to add. "It gave a thoroughly analyzed answer, based on many small approximations and estimations. It provided information, but it did not produce architecture. That's still a job for men."

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Re: Criticism and Integrity

LAST month on this page I discussed the matter of the public "image" of an institution or a corporation—or a profession. I said there were some architects who are so concerned about the public image of their profession that they would not want any hint of self-criticism to appear publicly, and that there are even some who feel architectural criticism should be discouraged, lest we present a somewhat less-than-perfect face to the world. This month I want to forget the "image," as a false god, and further discuss criticism.

Many of those same architects who would discourage criticism are sincerely concerned about the general low level of architectural design as produced by members of the profession. They cannot, or will not, however, face the fact that surely the greatest impetus to an artist who practices a public art—and certainly the architect is such an artist—toward improving his skill in his art, is to be held responsible to his public, and to know that whatever he is producing will have to run the gamut of his professional critics, to say nothing of a myriad of amateurs.

What are other arguments against the public criticism of architecture? I have heard an architect say that public criticism serves no useful purpose, for once a building is built, no amount of criticism can change it. This is perfectly true, of course, as far as it goes, but it ignores the very important little point that although the executed building can't change, the architect can—and probably will.

Some architects have told me, "Nobody can criticize architecture but an architect!" Others have said, "An architect can't criticize a fellow professional's work"—and it must be admitted that there is a difficult problem of ethics involved there. Many architects say, "Architectural criticism is all right as long as it's *constructive* criticism." Just what is "constructive criticism"? I confess, I don't know. Is it just describing and praising a building? Or is it stating that the building is OK, but it would have been better if the architect had done thus-and-so—in other words, redesigning the building for him? To me, neither of these approaches is true criticism.

It is often said that the only valid criticism of a building is "criticism in depth"; that the critic must acquaint himself with the program, the difficulties of the site, the demands of the owner, the problems of budget and scheduling, and all the countless heartaches and triumphs that go into the designing of a building. This type of evaluation certainly has its uses, and should be helpful to another architect faced with a similar problem. But it is not criticism of architecture as art, and the critic can only too easily find himself condoning poor design as being the best compromise in a difficult situation. That's

not criticism, it's commiseration. The artist is expected to be master of his medium.

The profession of architecture needs the severe discipline of critical evaluation. To repeat, if every architect faced the prospect of public criticism by an accepted observer in his local newspaper, as well as the criticism of his peers in the nationally-circulated architectural press, he would indeed design more thoughtfully. Would not this do much to elevate the standard of design of the profession—a goal toward which the Institute is striving?

Perhaps, after all, the principal value of architectural criticism is not so much the opinions, however brilliant, of the critic himself, but the fact that they stimulate others into thinking and talking about architecture. Even a poor critic can help bring the discussion of architecture out into the daylight where it belongs; it has suffered too long from discussion only by the experts. This, too, is a goal toward which the Institute is striving. The Huxtables, Von Eckardts, Clays and McCues are doing much to help overcome this inbred dialogue—and people like it. We need more of them.

Finally, I would like to suggest that there may be another approach to the criticism of architecture: Every building—every urban building, at least—is a part of a community; it is one of the elements which make up its visual aspect. Thus the architect should carefully consider its impact upon both its immediate neighborhood as well as its larger community. A building should be a good neighbor. This would seem to rule out the "positive personal statement." Perhaps so; that would depend upon the taste and skill of the designer. Certainly, the Guggenheim Museum, regardless of its merits and faults, is not a good neighbor to its Fifth Avenue companions.

Thus perhaps the primary approach to the evaluation of a building should be from the visual standpoint, regardless of whether it works or not—such consideration could be reserved for the study in depth, if it is desired. For whether a building works or doesn't work, it has to be seen by tens of thousands of passers-by; it has to be lived with by hundreds or thousands who work or live in the neighborhood. It can give them pleasure and satisfaction—even elation; or it can give them displeasure and disharmony—even depression. So perhaps buildings should be assessed from the standpoint of whether or not they make a welcome contribution to the environment. The architects who lambasted the hotel I referred to last month were criticizing its *appearance*, not its planning; they were concerned solely with its visual aspect—and rightly so.

Is this heresy? I hope not, for it is a very important matter.

J.W.

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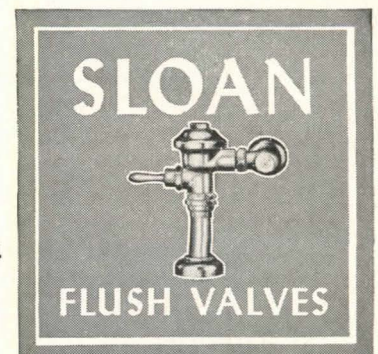
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New Approaches to Liaison



THE diversified and fragmented building industry is notable for its many dialects which hinder a common understanding. This situation isn't good for an industry that functions as a major sector of the nation's economy and needs all the unity it can muster for creating a better physical environment for modern society. The national organizations which represent the professions and businesses of the building industry keep working at the job of mutual understanding through a variety of liaison mechanisms. For a number of years the Institute has collaborated with engineers, contractors and manufacturers through three national committees: the AIA-Engineers Conference Committee, the AIA-AGC Liaison Committee and the AIA-PC Liaison Committee.

The scope of work of the three liaison committees has encompassed matters which found their final results expressed in the standard documents of the Institute—the various forms of contracts, general conditions, etc. Such work is of great importance to the several organizations. Its value to our profession was indicated in a recent survey of the membership when they placed the AIA documents first in their judgment of the value and importance of the Institute's many services.

The scope of problems of mutual concern to architects, other design professionals, contractors and producers continues to increase and expand beyond the purview of the working liaison committees mentioned above. For example, the increasing concern with Federal legislation and government relations develops many matters too broad and overlapping for consideration by separate liaison committees. In the field of professional practice, the subject of liability for professionals and contractors has similar breadth. Many of the problems require the most direct forms of communication between the decision-makers of the several national organizations.

The Institute therefore has acted within the past few months to strengthen its liaison with other organizations in the building industry through two new approaches to collaborative work.

The first is to establish liaison at the executive level with the organizations previously engaged with us in liaison committee work—the NSPE and CEC, the AGC and the PC.

A Vice President of the AIA (currently First Vice President Ketchum) and the Executive Director will

maintain liaison with officers designated by these associations. The primary purpose of executive liaison is to define and evaluate all problems of mutual concern and determine courses of action for their solution.

Undoubtedly many matters will require study in depth. These will be referred to task forces resembling in their make-up the previously described liaison committees. In their place the Institute now has three national committees preparing for such task force assignments: the Committee on Professional Consultants, the Committee on Building Construction and the Committee on Building Materials and Systems. Other committees will be tapped for task force manpower when studies require other talents.

The second new approach to more effective liaison is through the Institute's participation in two new groups developing as forums for top-level examination of common problems.

One of these, the ICED (Interprofessional Commission on Environmental Design), is a liaison mechanism for the design professions. Its membership comprises the AIA, AIP, ASCE, ASLA, CEC and NSPE. Each society is represented (at its option) by its president, president-elect or past president and its executive director. The ICED brings together for the first time the professional societies concerned with architecture, building engineering, urban design and landscape architecture.

The other, BCCC (Building Construction Coordinating Committee) is constituted to deal with a full cross section of the problems of building construction with the exception of housing. The representation is also by top officers and executive directors for the AGC, AIA, CEC, CMSCI, NSPE and PC.

Some of the state and chapter components of the national organizations have already established counterparts of ICED and BCCC. Such liaison work is greatly to be desired at all levels.

Most certainly the new approaches to interprofessional and intra-industry liaison are healthy developments which argue favorably for the eventual elimination of the dialects which have hindered progress in the great building industry.

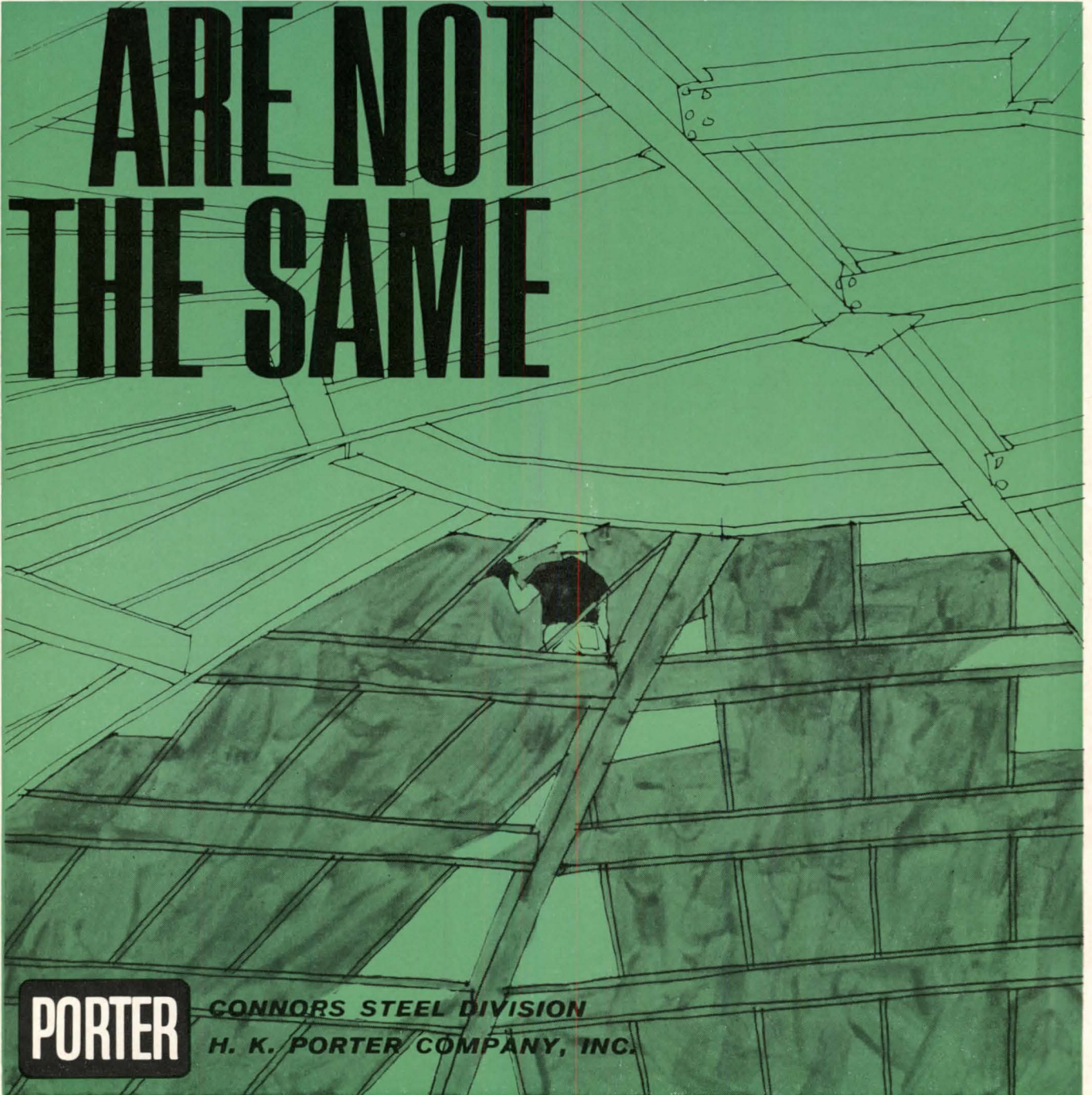
WILLIAM H. SCHEICK AIA
Executive Director

NOTE: Alphabets in this article: AGC—Associated General Contractors of America, Inc; AIP—American Institute of Planners; ASCE—American Society of Civil Engineers; ASLA—American Society of Landscape Architects; CEC—Consulting Engineers Council; CMSCI—Council of Mechanical Specialty Contracting Industries, Inc; NSPE—National Society of Professional Engineers; and PC—Producers' Council, Inc.

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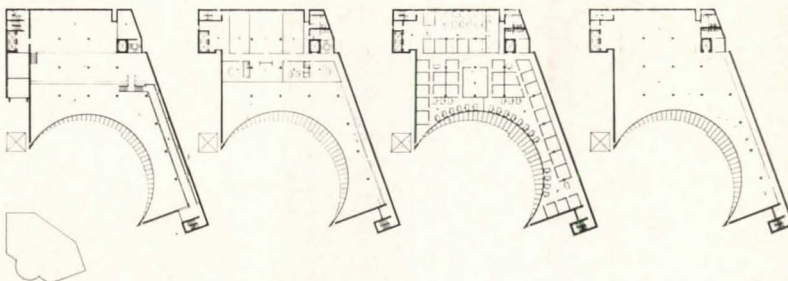
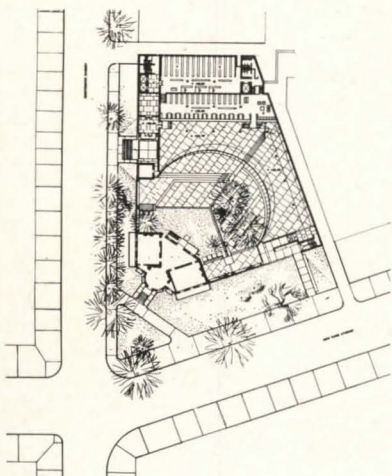
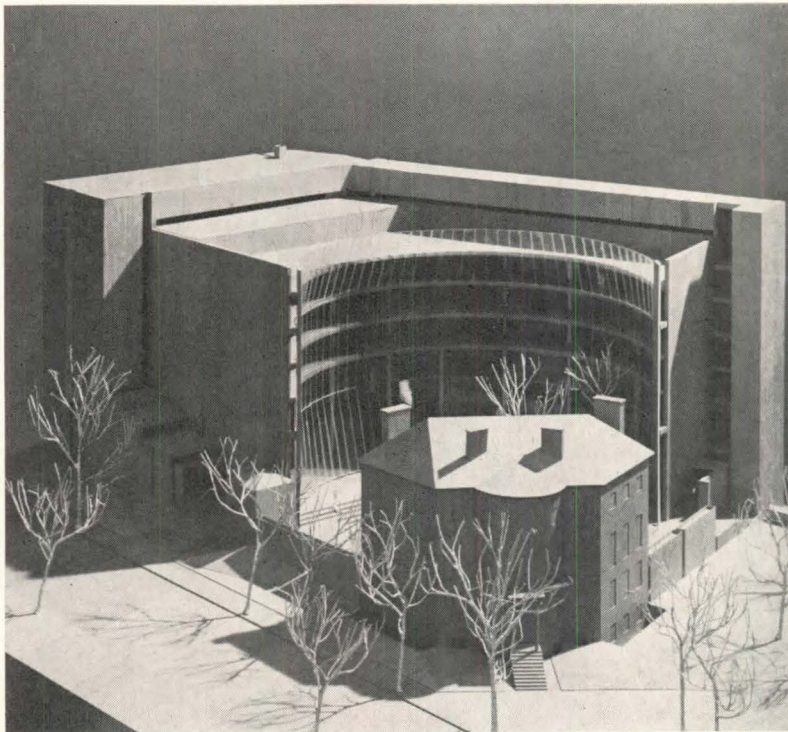
OCTAGON OBSERVER

AIA HEADQUARTERS COMPETITION / Winner and Three Runners-up Go on Public Display

Models and plans of the winning design and three runners-up in the AIA Headquarters Building competition have gone on public display in the Octagon House.

Details on the winning concept and its architects—Mitchell/Giurgola Associates of Philadelphia—were presented in a four-page article in the January AIA JOURNAL. The runners-up (excerpts from their statements follow): I. M. Pei Associates, New York; the Perkins & Will Partnership, Chicago; and Jean Labatut FAIA and Carr Bolton Abernethy, Princeton, NJ.

The four were selected from seven finalists. The professional adviser, A. Stanley McGaughan AIA of Washington, DC, commented that a good many top architectural firms from all parts of the US were represented in the two-stage competition, which originally drew 221 submissions.

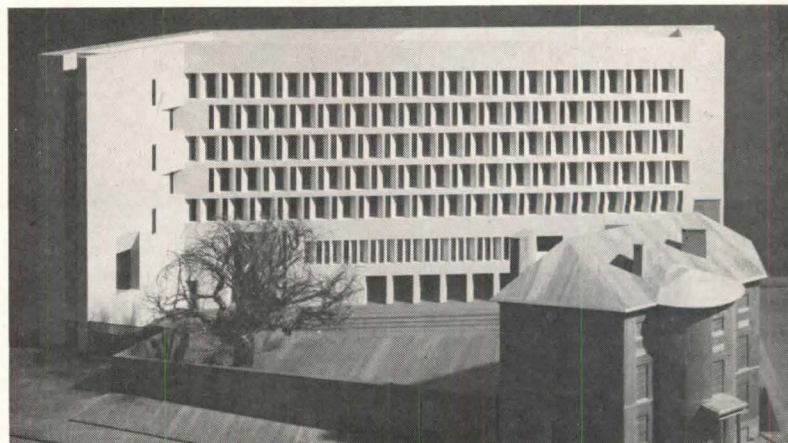


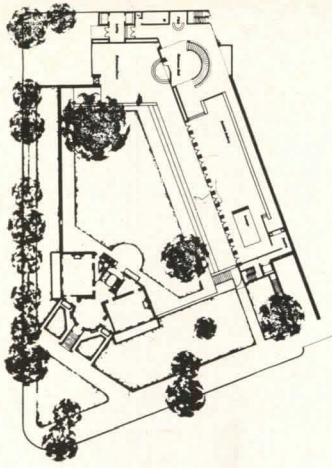
Mitchell/Giurgola Associates: "The building order develops naturally from the condition of the site, oriented toward the garden and facing the Octagon, a form completed only by its presence. The garden is . . . a meeting ground of the historically traditional and the contemporary."

I. M. Pei Associates

"All existing walls and structures except the Octagon itself are to be removed. New brick for garden walls and paving will be selected to harmonize with the Octagon. Exterior walls of the new building will be poured-in-place concrete, lightly sandblasted. Through careful selection of aggregate, sand and cement, a buff limestone color will be achieved.

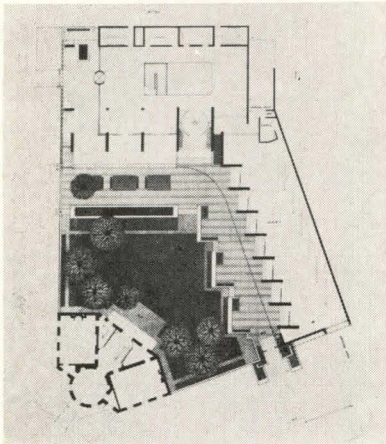
"The garden wall will be regraded and replanted, with two specimen trees as the major land-





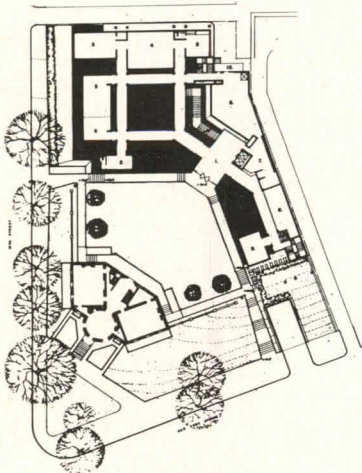
The Perkins & Will Partnership

“Since the architectural character of the Octagon House is different from the street than from the interior court, the new building



Jean Labatut FAIA and Carr Bolton Abernethy

“In scale and height the buildings are similar. In color and value, the Octagon’s brick will be matched by a dark, warm-hued aggregate and matrix in the cement panels of the



scape elements. The larger of these—a copper beech—will be planted in the lawn near the new main gate, and the smaller—a flowering tree of delicate foliage—at the other end of the garden, just outside the exhibit gallery. Ivy will be trained along the garden walls and on the rear walls of the Octagon. A major work of sculpture is proposed as the central feature of the entrance court.

“Oxidized-steel gates will be installed at the New York Avenue and Eighteenth Street entrances. An ornamental screen of the same

material will separate the entrance court from the public sidewalk.

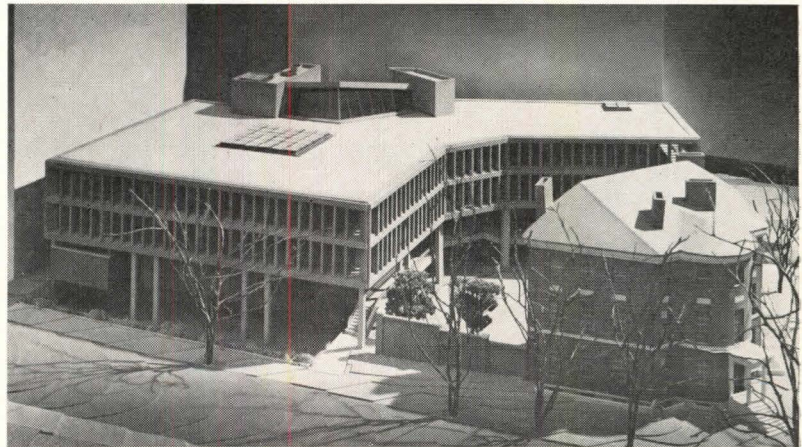
“The structural frame of the new building will be of reinforced concrete, with a single-span ribbed floor, poured-in-place. Airconditioning, lighting, electrical and telephone distribution systems will be integrated into the floor system. Vertical structural members on the garden face of the building are shaped and oriented so as to respond to the major axes of the Octagon House and site, while at the same time providing protection against the summer sun.”



should acknowledge such a difference. From the streetscape, the composition should be a unified whole, and the new building must enhance the historic residence. From the court, the new building should have a more significant visual impression, while the inti-

mate character of the existing garden should be preserved.

“The lower portion of the base consists of brick piers interrupted by a horizontal band designed to maximize the dimensions of the interior court and permit the free flow of space to the lobby-exhibit areas.”



new structure. Together the buildings will assert their own familiarity within . . . higher structures.

“The garden . . . is the link which binds them, ie, the garden space flows uninterrupted into the exhibition and entry level of the Headquarters Building. The entrance

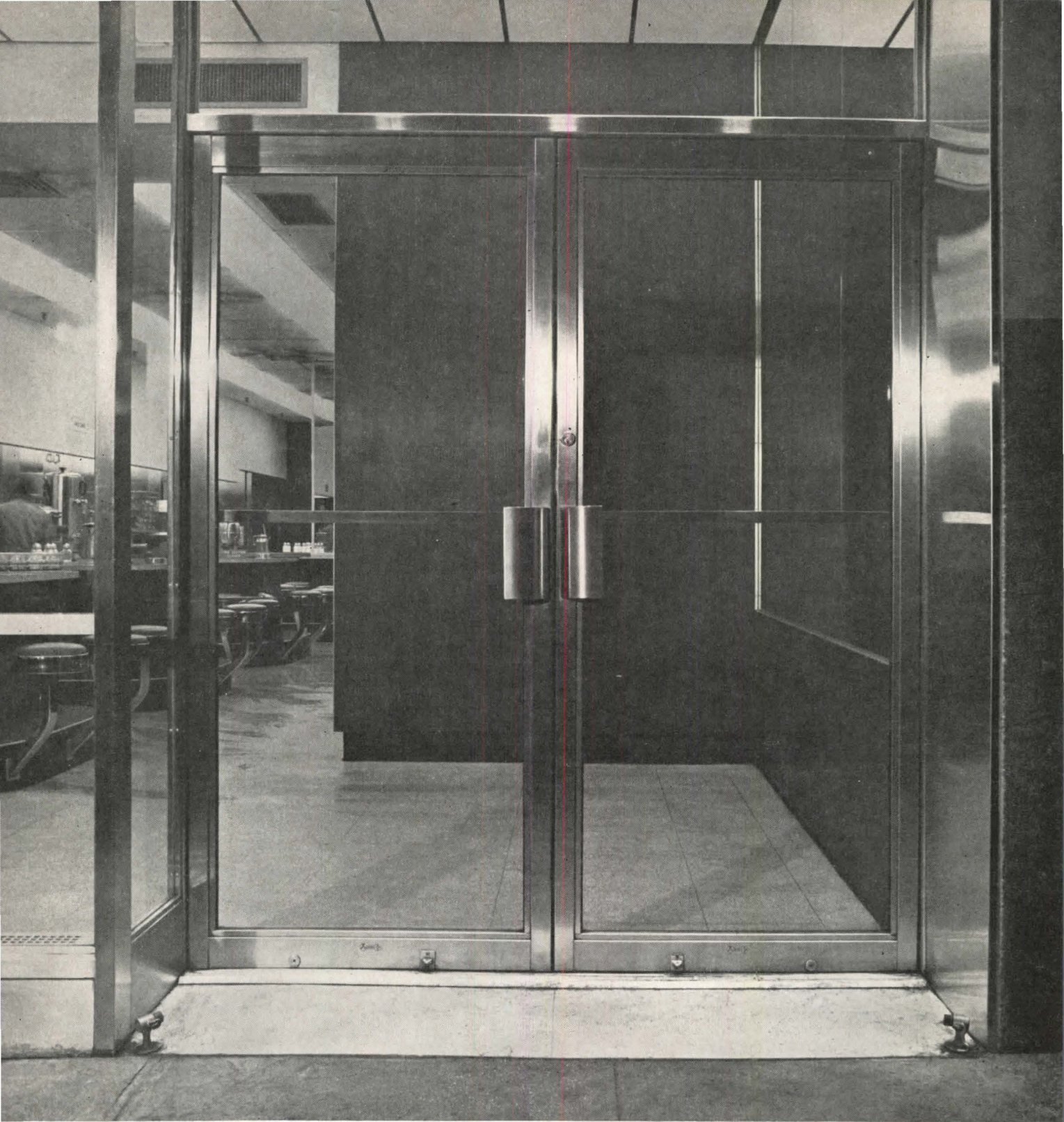
bridge provides a protected entry into the mezzanine level from which a visitor can experience but be apart from the garden space and its activities. After office hours, tenant entry is accomplished through the escape stair at New York Avenue.”

Cont'd on p 14



This trim beauty





stops 'em cold

Steel vs. Steal . . . and the challenger lost. This is the door to a restaurant in one of New York's most successful chains—Chock Full O'Nuts. You'd never know that would-be burglars tried to jimmy it a few days before these pictures were taken. The door is stainless steel. The burglars didn't get through because of the toughness of this fine architectural metal. The minor damage was repaired the next

day without removing the door. Today it's as good as new.

The problem of good design and maximum safety has always been a challenge to owners and designers of entrances for commercial and monumental buildings. This restaurant found the practical answer in low-cost stainless steel doors and frames, manufactured by The Alumiline Corporation, Pawtucket, R. I.,

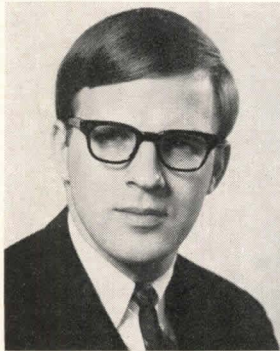
from stainless steel provided by Jones & Laughlin Steel Corporation.

If you have a design idea that involves stainless doors and entrances, contact The Alumiline Corporation. For further information concerning stainless steel, let us refer you to our Architectural Services.

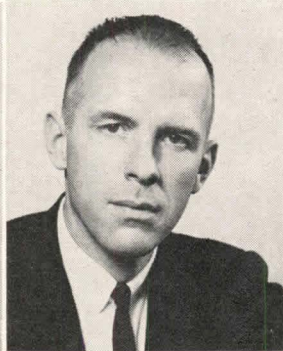
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Steel Corporation**
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INSTITUTE PERSONNEL / Four New Faces

Four men have been named to Institute staff positions by Executive Director William H. Scheick AIA. The appointees are:



Gaio



Whitaker



Stitt



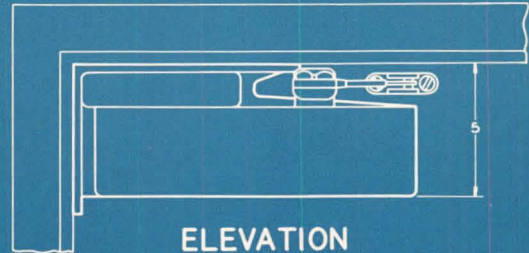
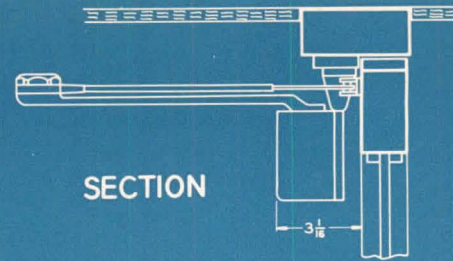
Gallagher

• Raymond L. Gaio of Washington, DC, Director of State and Chapter Affairs. He fills a new post created to expand the coordination of activities performed by the Institute's 155 chapters and state organizations throughout the nation. Gaio is a graduate of the University of Notre Dame, where he was elected national president of the Association of Student Chapters AIA. He has been employed by three architectural firms: the Perkins & Will Partnership, Washington, DC; Leo A. Daly Co, Omaha; and Spangler, Beall, Salogga & Bradley, Decatur, Ill.

• Richard R. Whitaker Jr of Berkeley, Calif, Director of Educational Programs. He succeeds Maurice William Perreault AIA, who has joined the staff of the Perkins & Will Partnership, Washington, DC. As one of his major duties when he joins the staff in May, Whitaker will work with the national Committee on Education in a newly established project intended to seek and implement better methods of educating architects and others involved in the design of man's physical environment. He served on the faculty of the University of California Department of Architecture from 1962 until present and has been a partner in the firm of Moore, Lyndon, Turnbull & Whitaker for three years.

• Richard S. Stitt of McLean, Va, Director of Information Services. He succeeds James Bailey, who leaves the Institute after 2½ years to become a senior editor of *Architectural Forum* in New York. Stitt

Cont'd on p 78



Application Details

for Series 4010 SMOOTHIE® door closer
shown on opposite page
(See drawings above)

Here a bracket mounting of the door closer was desired. The LCN 4010 series closer on a No. 4010-16 bracket uses only 5", in depth, of head room.

The closer is in excellent position for leverage. Spring power and back check are adjustable, as well as main swing and latching speeds. The reversible shoe gives added power at the latch where needed. Maximum door opening with regular arm closer, 125°; with H90 hold-open arm, 100°.

Viewed from the lobby with doors closed, the closers are not conspicuous.

Comprehensive brochure on request—no obligation or see Sweet's '65, Section 19e/Lc

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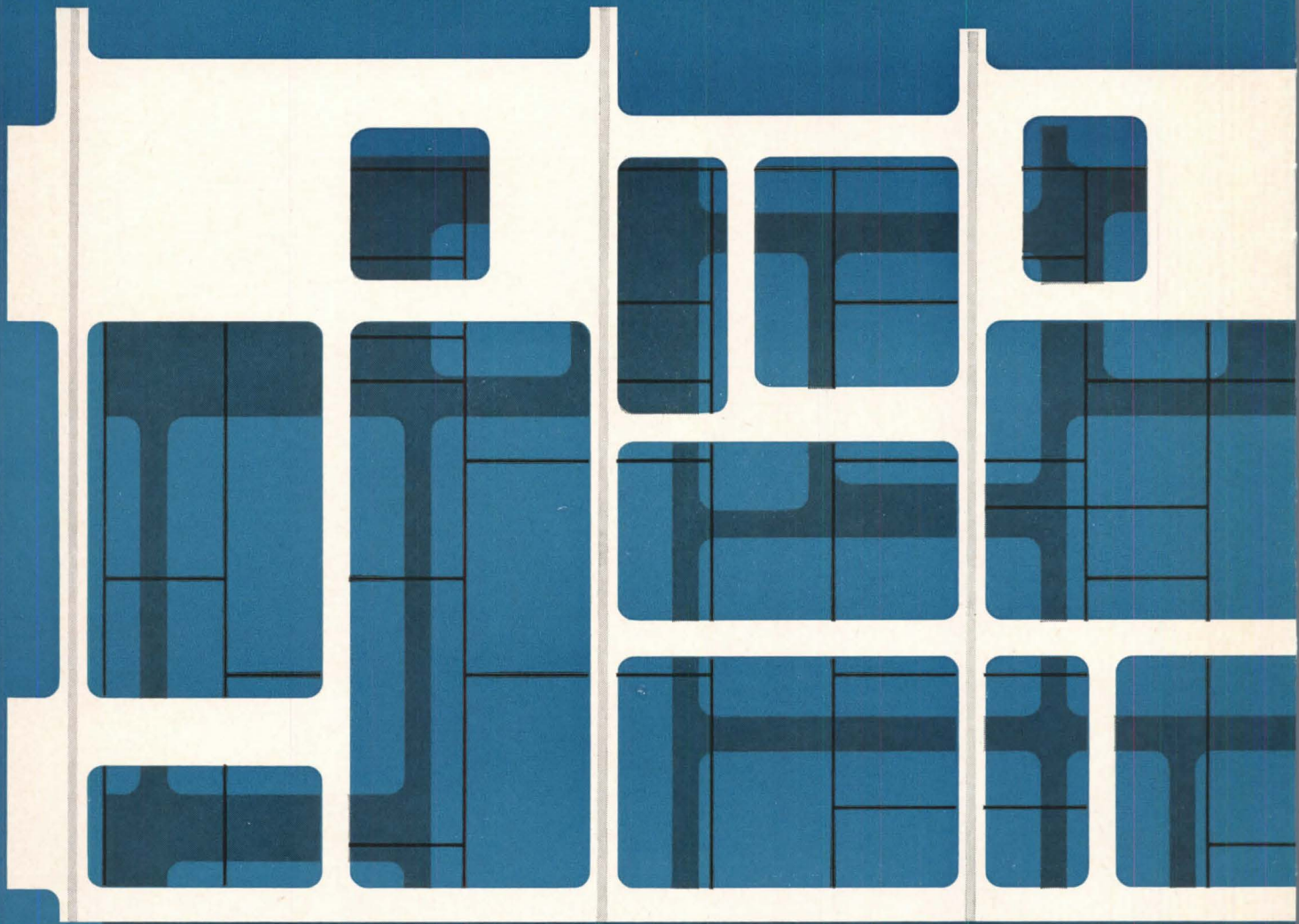
SMOOTHEE® Door Closers

University Center Building
Northern Illinois University
De Kalb, Illinois

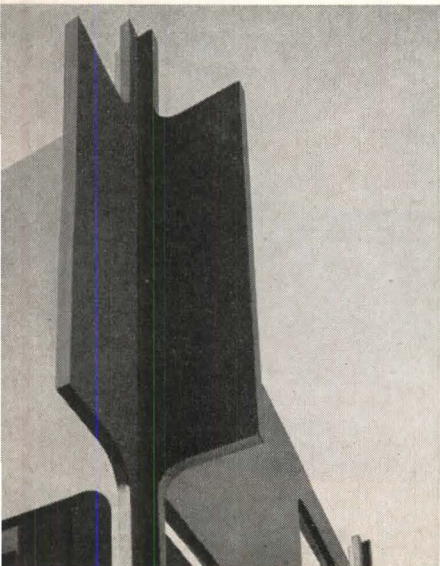
Gilbert A. Johnson, Kile, Seehausen
& Associates, Architects

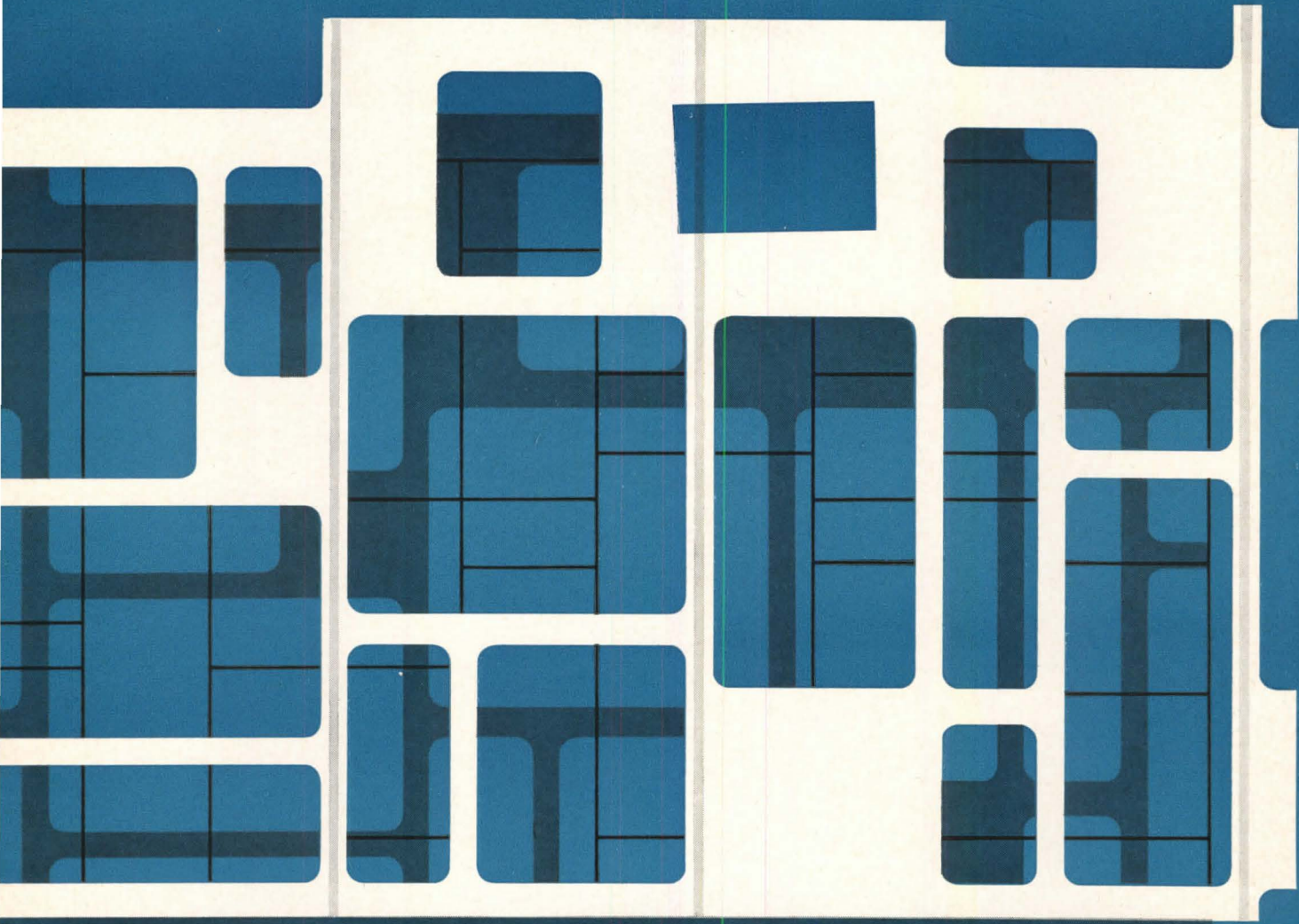
LCN CLOSERS, PRINCETON, ILLINOIS
Application Details on Opposite Page





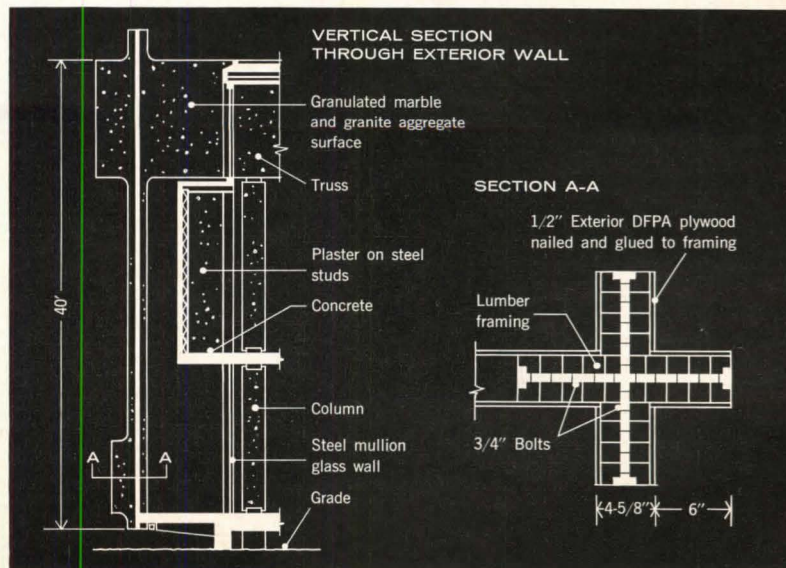
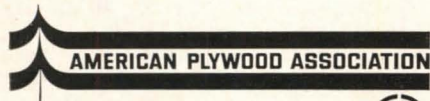
the most exciting ideas take shape in plywood

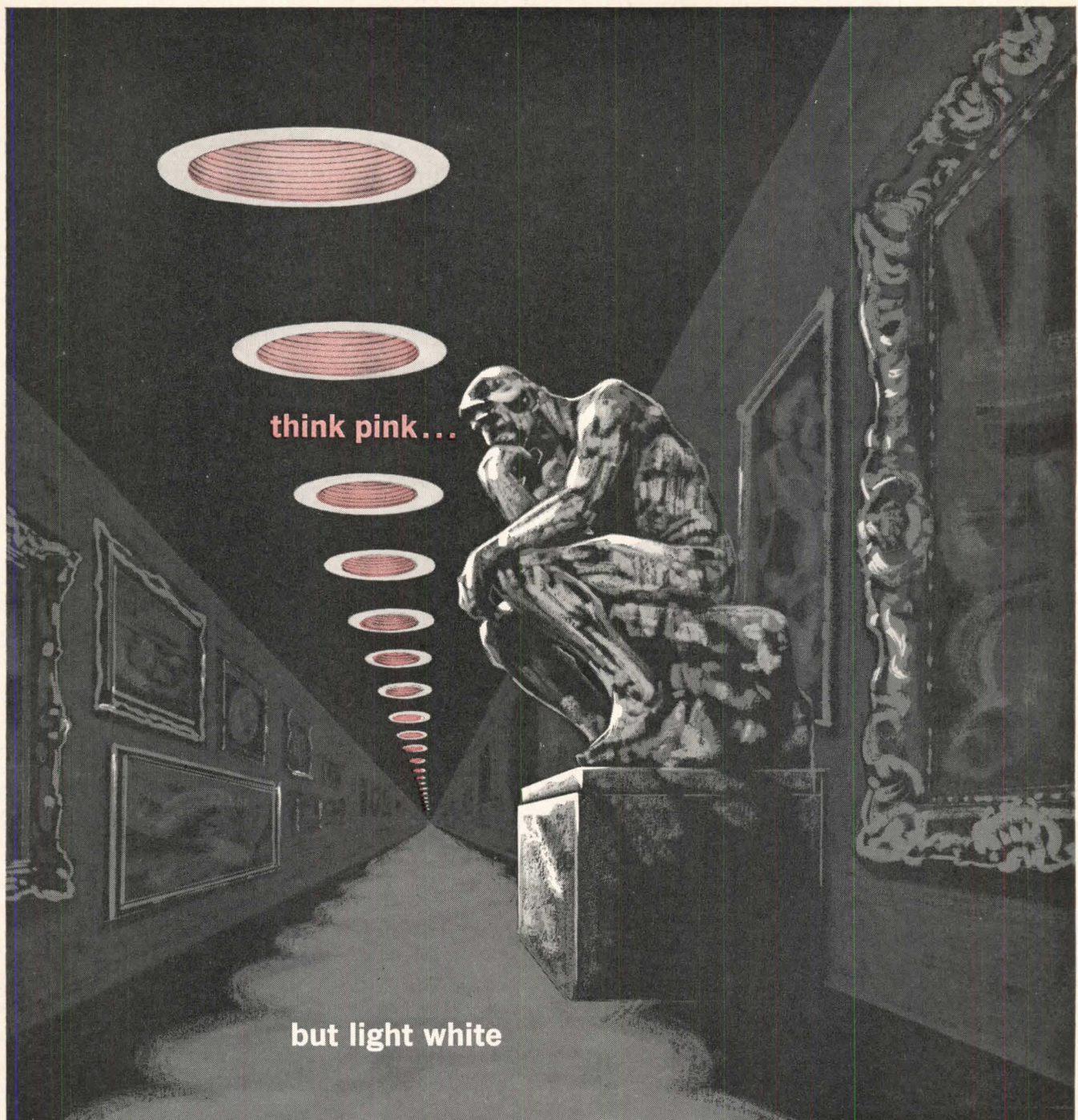




Tyrone Guthrie Theater, Minneapolis, Minn. / Architect: Ralph Rapson, A.I.A., Architects, Inc. / Structural Engineers: Meyer & Borgman / Contractor: Watson Construction Co.

This unusual screen forecasts the mystery and excitement to be found within the theater itself. And it is a good example of how plywood can help achieve unusual design effects without exaggerating costs. The screen is composed of thin sheets of Exterior DFPA plywood nailed and glued to a lumber frame. This construction — which works like a stressed skin panel — is light, strong and very low-cost. In fact, plywood cost less than steel, metal lath and plaster, or solid laminated wood. For more information on plywood structural systems, write us at Tacoma, Washington 98401 (USA only).





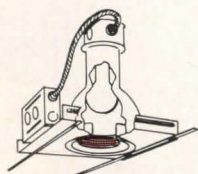
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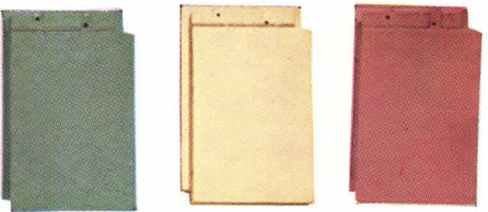
AIA Journal



SMOOTH GREEN

SMOOTH CORAL

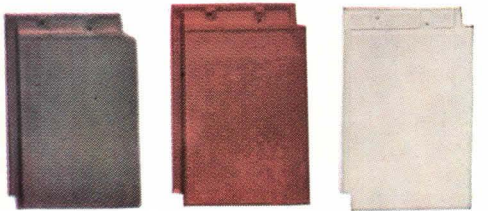
SMOOTH GRAY



WEATHERED GREEN

SMOOTH BUFF

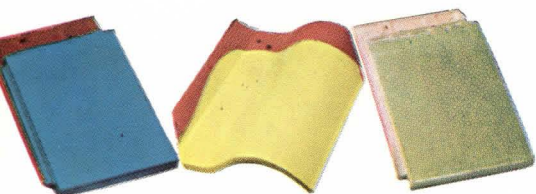
WEATHERED RED



WEATHERED BLACK

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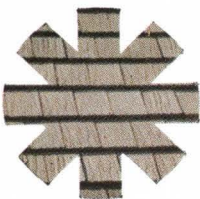
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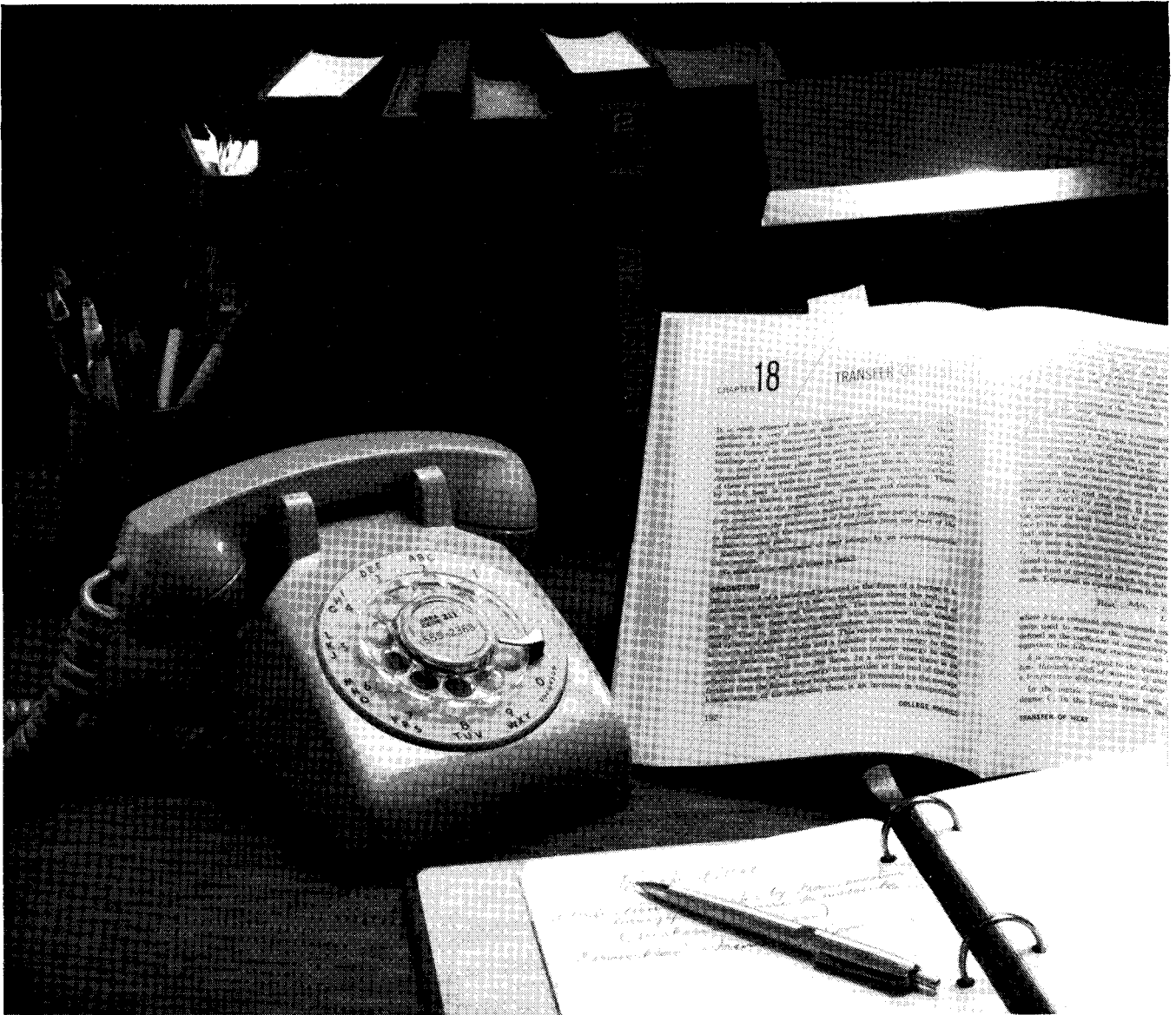
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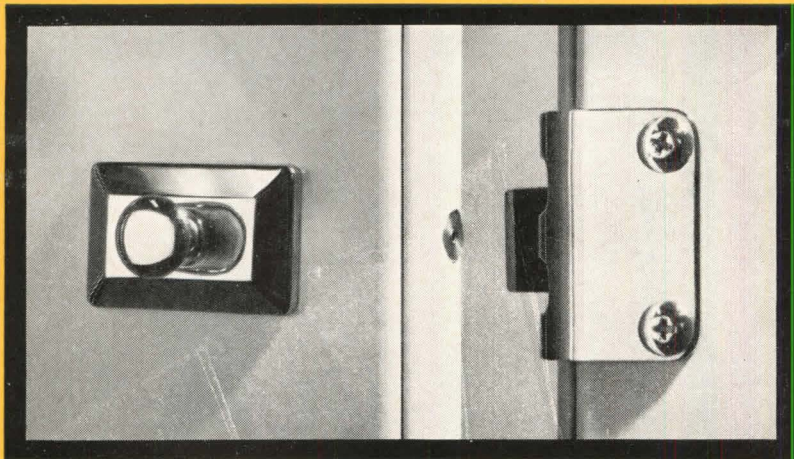


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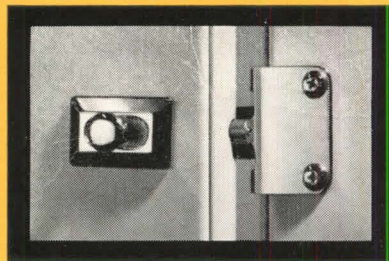
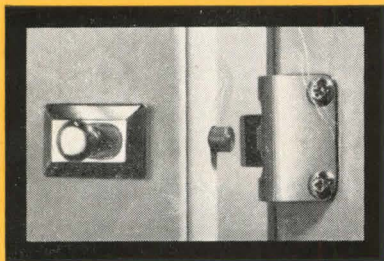
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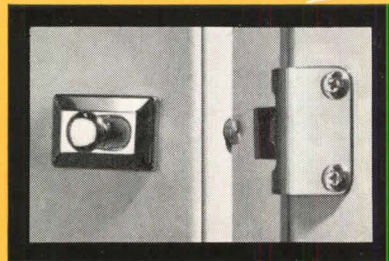
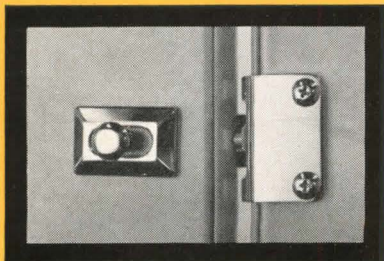
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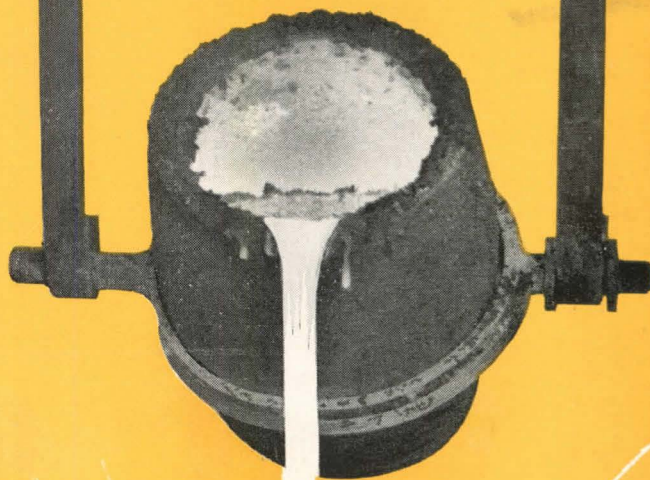
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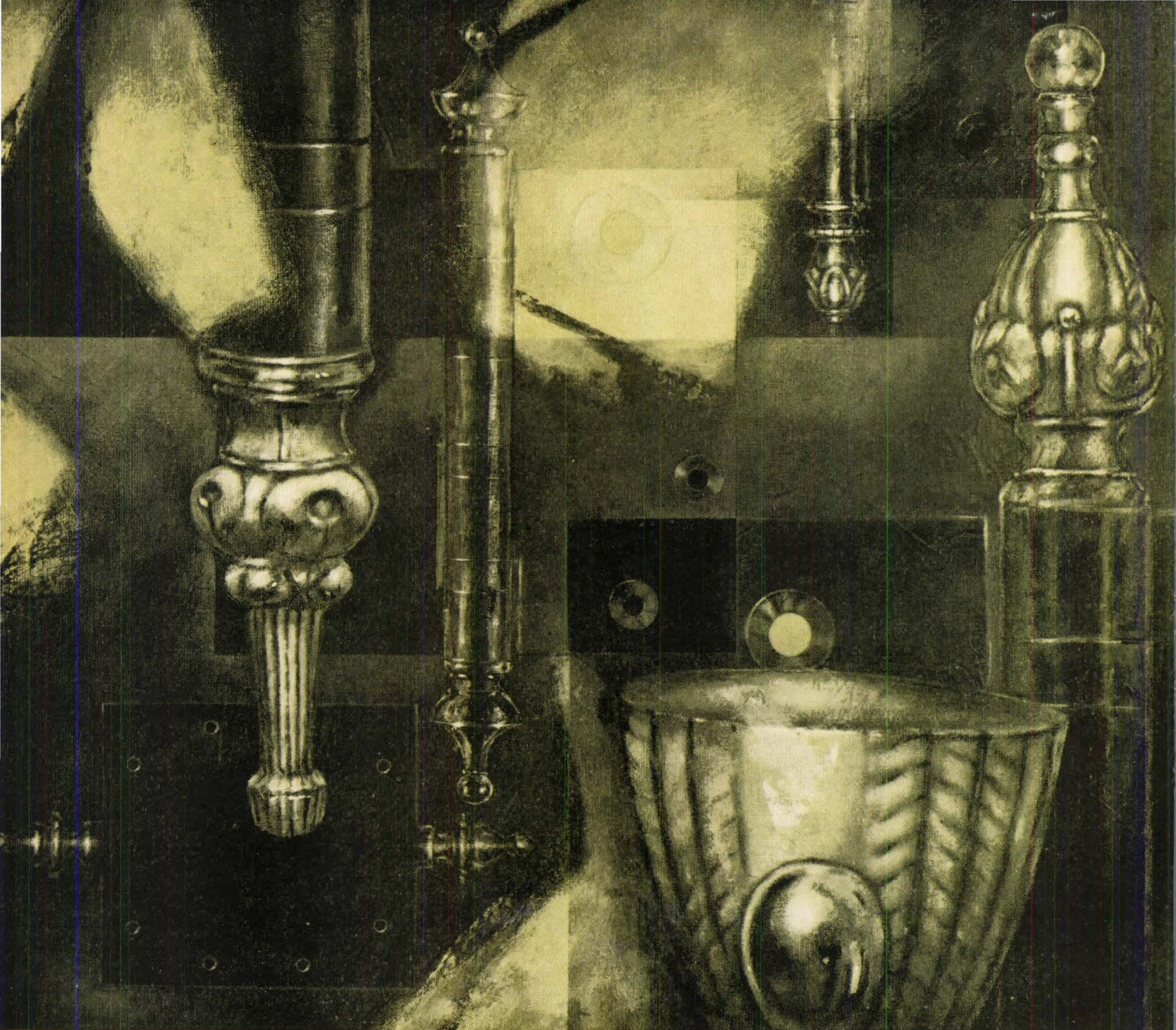
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IF DOOR IS SLAMMED

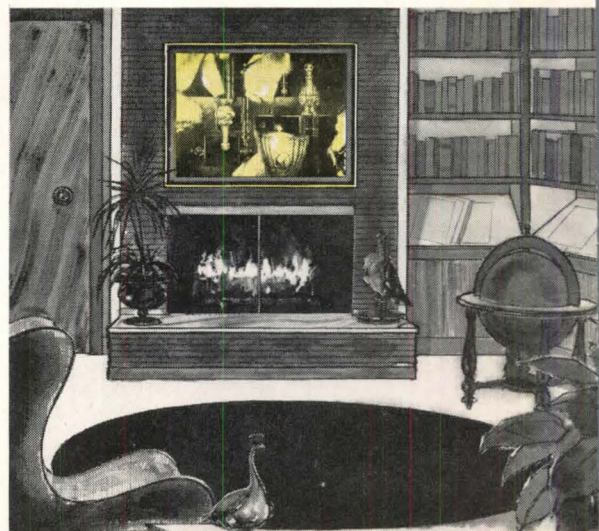


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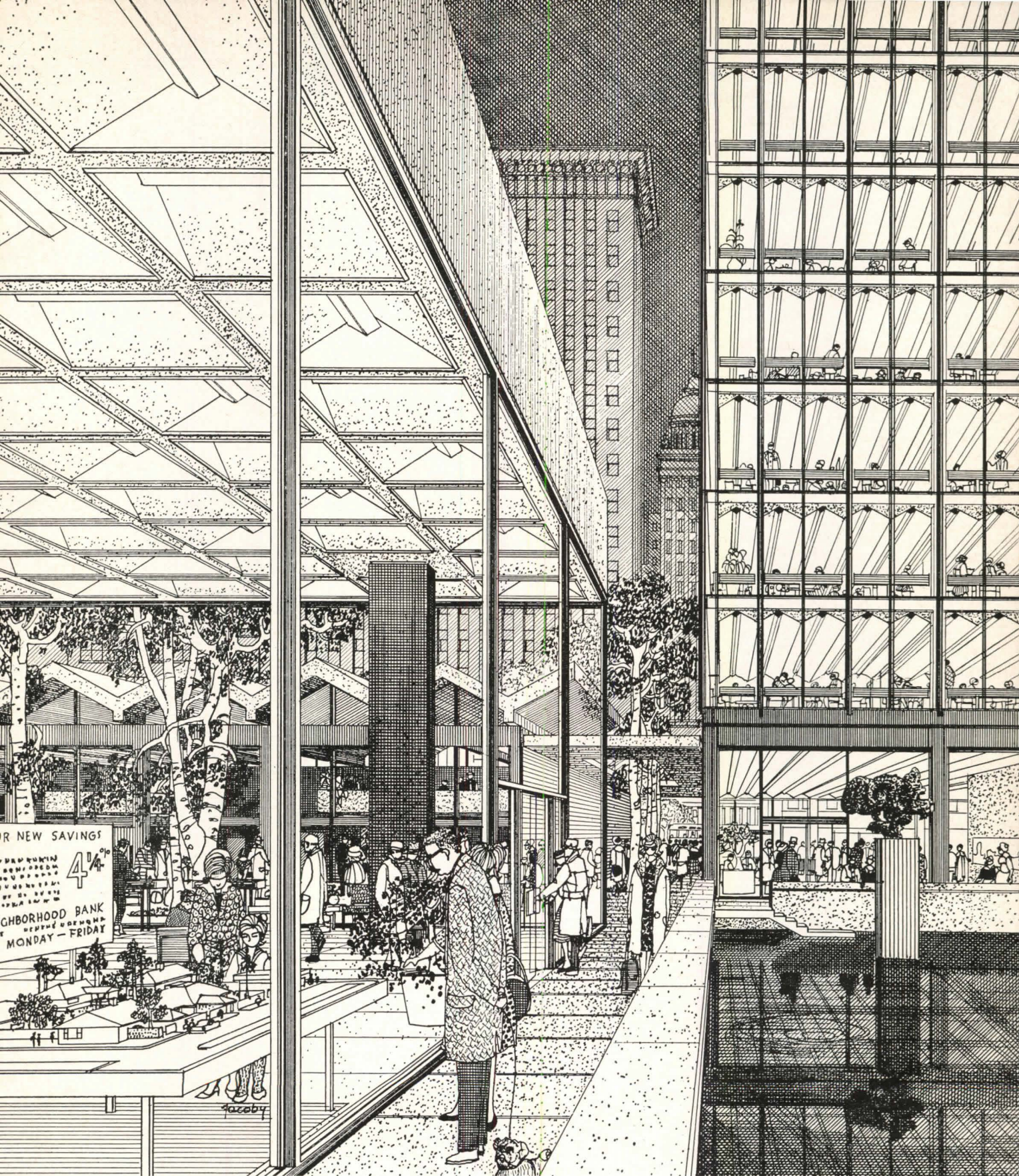


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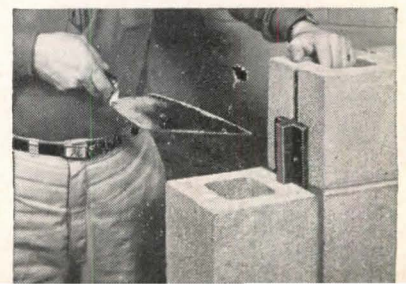
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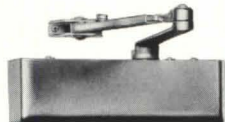
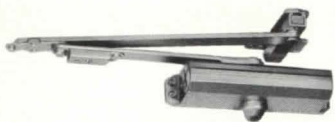
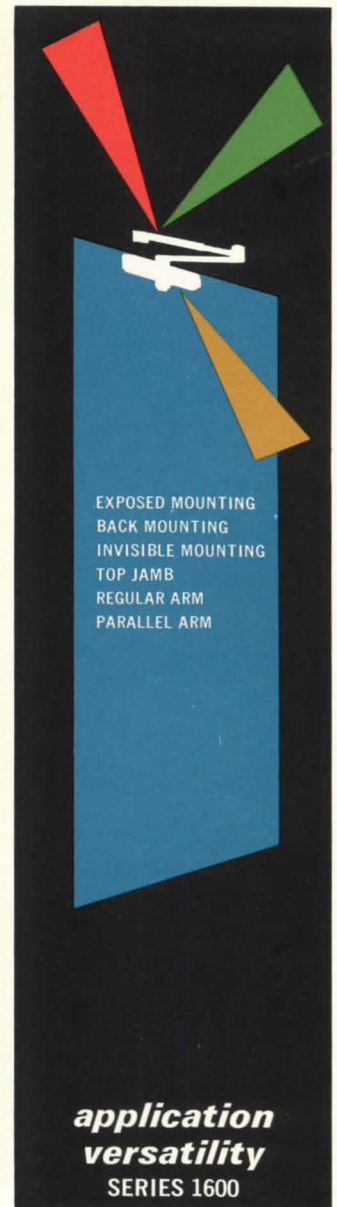


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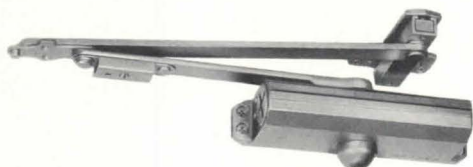
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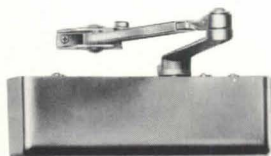
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Journal

PRACTICE PROFILES 1

A. O. Bumgardner & Partners of Seattle is a young, vigorous firm that is making an A-1 reputation, and money too, designing houses

Residential Work Can Have Its Rewards

BY ROBERT E. KOEHLER



WHEN you dial EA 5-8178 in Seattle, one of three young men will answer, "Al Bumgardner's office"; and when you turn into Broadway East, only the street number on a sculptured wooden sign will let you know you are at the right address: a combination house-office where Chester the cat will probably greet you as soon as you enter the door.

The firm of A. O. Bumgardner & Partners translates this seemingly informal, casual mode of operation into an efficient architectural office whose level of design performance, by any standards, is consistently high. Here, from the house which has been in a constant state of remodeling since its 1957 purchase, bachelor Bumgardner conducts his practice with partner Peter R. Parsons, who supports a growing family of four. Both men maintain a fairly comfortable standard of living and pay the draftsman-designer a salary that meets the prevailing scale in the area.

From the drafting boards each year come an average of six or seven new houses, one nonresidential project and varying amounts of remodeling work; and for these efforts the partners have earned a half dozen Honor

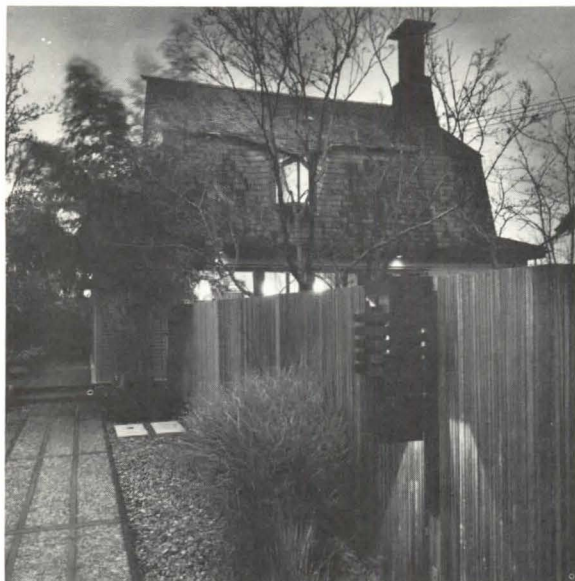
Awards from the Seattle Chapter AIA. But let's go back to the beginning and see how this practice began.

Born forty-one years ago in downstate Illinois farm country, Bumgardner was graduated from the University of Illinois in 1949. Intrigued by what he had read and heard about the growing Pacific Northwest, whose lack of tradition is reflected in its architecture, he went to Seattle for the first time following his graduation. He joined a small office, and during the next few years he was able to do some work on the side—mainly assistance on do-it-yourself residential projects with the owner acting as contractor.

In 1953, with \$1,000 in the bank and his automobile free and clear, Bumgardner decided to strike out on his own, working from his apartment. About the same time, through a previous client, he obtained his first nonresidential commission: a fire station for a volunteer district. It seemed inconsequential indeed—a \$17,500 budget—but won for the architect an Honor Award and a local masonry prize—and an amazing amount of publicity. That fire station has a moral which the designer will never forget: "Do a good job on small projects." Thus, from the very start his office set a pattern, and earned a reputation (if not much money), for attention to detail. Income tax return for the first year of full-time practice showed \$462 profit!



Condition of house, as purchased in 1957



House-office as it exists today. Joint development on either side includes screened fences and street trees

View from upstairs living-sleeping floor shows relationship to working areas below



Don Normark photos except as otherwise noted

Emergence of a Practice

Having received the impetus he needed, Bumgardner discovered more and more clients and his apartment quarters more and more inadequate.

This prompted the move to the house-office setup, for which he gives several reasons:

- Convenience—A residential practice often demands evening or Saturday conferences to accommodate both husband and wife. The house also has a good location via arterials and the new freeway to most outlying areas.
- Economic factors—A very low down payment coupled with a private contract purchase has allowed the architect to live on the premises and remodel from current funds, not to mention tax advantages.
- Personal design considerations—“Somehow it seems easier to change an older building as needs develop, to use it for an architectural experiment, as it were,” Bumgardner observes. “If designing a new structure, it would have to make a positive architectural statement and this might inhibit continuing change.”
- Social values—The architect is a strong believer in the redevelopment of urban areas (not yet slums) by the individual action of interested homeowners. His firm has done some work, ranging from color schemes to major remodeling, on six houses in the seven-block-long street.

A PARTNERSHIP EVOLVES

Bumgardner took his next big professional step in 1961 when he formed a partnership with Parsons and Alvin Dreyer, who withdrew last year to design and build custom lighting fixtures. Both had been with the office since their graduation from the University of Washington four years earlier, and Bumgardner is quick to give them credit for the level of design work maintained during their association with the firm.

The partnership ordinarily does not take on additional help unless there is reasonable expectation of at least a year's work from both the standpoint of usefulness to the office and of benefit to the individual. This results in periods of evening and Saturday work (as in almost any architectural office), “but it keeps a better-functioning staff familiar with our way of doing things.”

Local architectural students sometimes are hired on a part-time basis to serve as office boy or to do presentation sketches. But Bumgardner feels strongly that students should not be employed as draftsmen prematurely. “In the UW College of Architecture and Urban Planning,” he explains, working drawings are taught in the fifth year, and

for students to attempt drafting work before realizing the rudiments of construction and detailing assembly may prejudice their approach to this part of the job as a 'back office operation' rather than as a very definite, logical development of the design concept."

This brings to mind one of the architect's pet theories: "You can judge the concern which an office holds for the work it produces by the character of the drafting room. Here, in the heart of the office, working conditions, view and outlook seem most important to me. The 'front office approach' with high-style furnishings and all the rest to impress clients is diametrically opposed to this philosophy. I do not imply that the drafting room should be over-orderly or overdesigned, but it should reflect the interested involvement of those engaged in working there."

WHAT ABOUT CONSULTANTS?

Bumgardner puts his high school typing course to good use just about every day, for the office employs no secretarial or accounting help; and he has benefited from his Air Force duty as a personnel sergeant major. "Doing your own secretarial work is a good positive restraint on an overburdensome amount of paper work," he says.

Consultants for residential work are employed for the more complex problems in heating, structure and soils.

Bringing in the Work

The majority of commissions result from the clients' having seen a house designed by the firm or publication of its work in the local newspapers (Sunday rotogravure section in particular) and a lively regional press (both shelter and architectural magazines). Another important source of reference has been other architects who do not accept residential commissions.

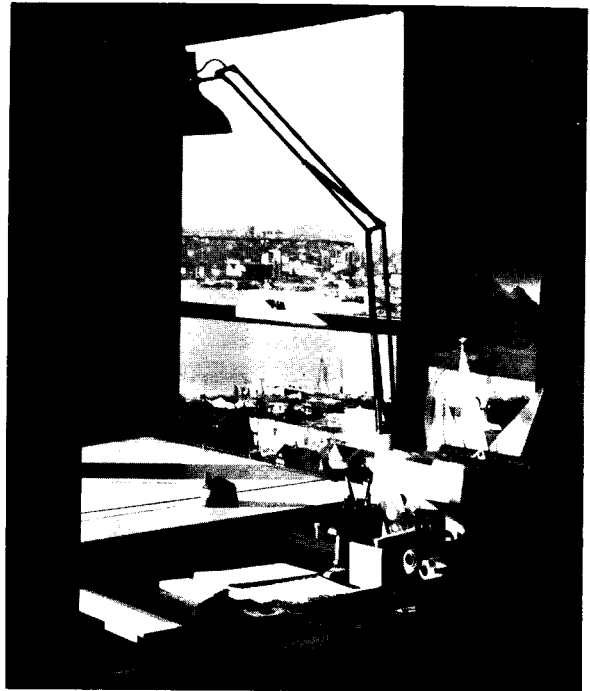
Bumgardner, as well as his partner, does not belong to any fraternal or social clubs, but he admits his extensive activity in The American Institute of Architects locally has been a big help. He has held several offices in the Seattle Chapter, including the presidency, and has just begun a term on the Institute's national Committee on Housing.

"AIA participation, it seems to me, denotes recognition of the individual professionally by his fellow architects," he declares. "I am always surprised that more beginners in practice do not involve themselves in their professional society."

Two other recent appointments indicate the architect's growing involvement in public affairs.



Current staff consists of partners Peter R. Parsons and A. O. Bumgardner AIA and draftsman-designer David M. Hewitt. *Silex* detail opens and closes day's business



"In the heart of the office," Bumgardner declares, "working conditions, view and outlook seem most important"

He is on the Housing Committee of the Governor's Council for Aging and, as a member of the Washington Roadside Council, is helping to draft a model sign ordinance for use in smaller towns.

In addition, Bumgardner has been a visiting critic at the University for two quarters and since 1957 has served as consulting editor of *Architecture West*, which occupies space in the publishing-printing plant designed by his firm. He is an avid reader of US history, current events and politics (*The Reporter*, *New Republic*, *Harper's* are just a few magazines he peruses regularly).

The Region: Its Clients

Observers generally refer to the strong Northwest regional character of the partnership's work, although Bumgardner is not aware of this ever having been a conscious goal. Still he adds: "It is true that the largest share of our designs are executed in wood, a material with which local craftsmen are most familiar. It sometimes seems that a stranger can sense or recognize the particular qualities of an area better than a native. Thus, the mild but rainy climate is an overriding influence; the second is the character of the site. I can count on my hand the number of flat sites with which we have worked; they are the ones which I find hard to deal with designwise."

Any way you look at it, the wooded sites—even in the city—with a variety of views are an architectural blessing in disguise, for no stock plan or magazine clipping could begin to do the trick. Likewise, the clients themselves, many of whom are newcomers to the area (attracted by Boeing), are receptive to new ideas and in general have given support to the profession.

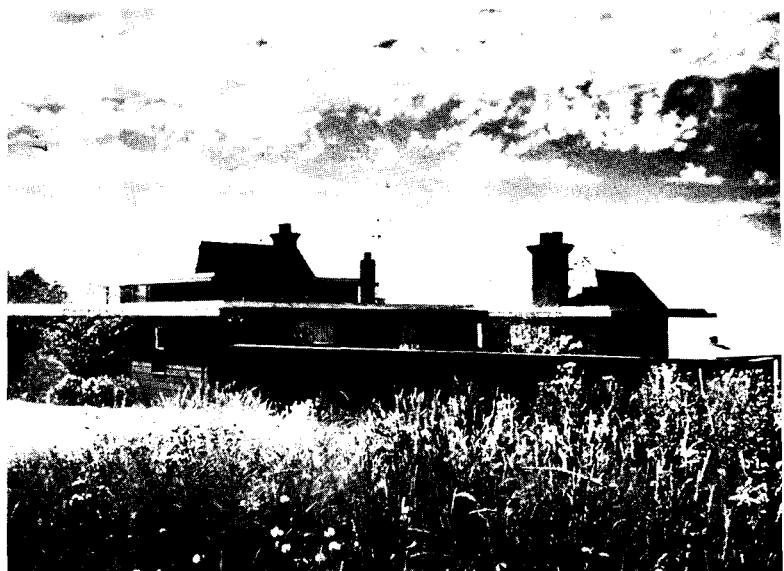
PROGRAM DEVELOPMENT: A CASE STUDY

To get a better insight concerning the firm's handling of the client-architect relationship, let us take the case of a couple in their late twenties—the Michael R. Johnsons—whose house (cover photo) was completed two years ago.

The Johnsons, during the typical shopping-around period—Bumgardner finds that most of his clients interview two or three architects—ap-

Seattle, originally built on seven hills, abounds in views of mountains and water, such as the one from the architect's living area. Civic Center and Space Needle (not shown) are at the left. Leaded windows are from a freeway house





Scope of practice is indicated by Passow Residence (\$22,000, 1962) and Dr Smith Residence (\$75,000, 1960)

proached the office after seeing a house it had designed. At the initial meeting, Bumgardner explained the scope of the firm's architectural services; discussed the fee—standard is 10 per cent unless circumstances warrant otherwise; remodeling, 15 per cent—along with the method of payment and bidding; and reviewed a set of blueprints and photographs of previous work. Finally, arrangements were made for the prospective client-couple to visit, on their own, two other houses planned by the firm.

The Johnsons returned to sign the AIA B-131 Owner-Architect Agreement, which Bumgardner uses for all new work. (For very small remodeling jobs, he writes a letter confirming the fee basis as discussed earlier.) He feels, however, that B-131 is "extremely complex, and its many ramifications occasionally frighten a residential client into running to his attorney with it."

The architect further believes that the payment schedule stipulated in B-131 is not realistic for the design development of a residence. "Schematic development is so closely tied to the three-dimensional expression of that scheme that these phases can scarcely be split." As a consequence, Bumgardner employs a modified version of the old AIA breakdown by billing on a four-time basis at 1) completion of the preliminary drawings; 2) half-way through the working drawings; 3) completion of the latter and specifications; 4) completion of supervision.

At this second interview, the Johnsons were encouraged to prepare in writing a summary of their needs and desires. In cases where clients are lukewarm to pinpointing the particulars of their requests, Bumgardner, in a lengthy conference, draws them out by questions and attempts to arrive at basic program requirements together.

Meanwhile, the architects visited the hilly site

and ordered a topographical survey showing tree locations, etc (paid for by the clients). And, as is his custom, Bumgardner observed the couple firsthand in their then present habitat.

A DESIGN PHILOSOPHY

Parsons became the project architect on this job, carrying it all the way through supervision, but everyone participated in the design process within the office. And it is in order here to spell out Bumgardner's design philosophy:

"The architect is the designer, and *his* synthesis of the problems presented should form the final solution. However, I do think the owners, once certain conclusions are reached, should be apprised of these and kept informed of one's design thinking. I firmly believe in their being cognizant of why their house is designed as it is; I deplore those who would accept a design (as many buy modern art today) not because they have any basic appreciation or sympathy but because it's the reigning style or 'the thing to do.'

"I believe that the house should appear to belong *only* in that place where it is built and that it must seem to be the right house for the particular client. This is the opposite pole from Mies' 'universal space,' and I admit that not every client is at home in an architectural gem, designed in whatever idiom. But nothing seems more inappropriate than a pristine glass box furnished with chintz and maple or what have you.

"For this reason, we find it very difficult to stop short of getting involved in major decisions in the interiors. Perhaps because of the lush natural growth hereabouts and its appreciation by homeowners, we find it much easier to convince them to have a landscape architect than an interior designer; we often do work in this latter field more by default than for any other reason."

Contracts and Contractors

When the clients had put their OK on the preliminary sketches, the architects employed a technique which has worked satis-

factorily on all their jobs. It involves the requesting of preliminary estimates based on the plans, sketches, a small-scale section and a brief outline specification of major finishes from three contractors with whom the office has worked. These are prepared without payment to the contractor, who is not asked to make any real takeoffs; furthermore, he gets an idea of what jobs the firm has coming up for bids and a first insight into them.

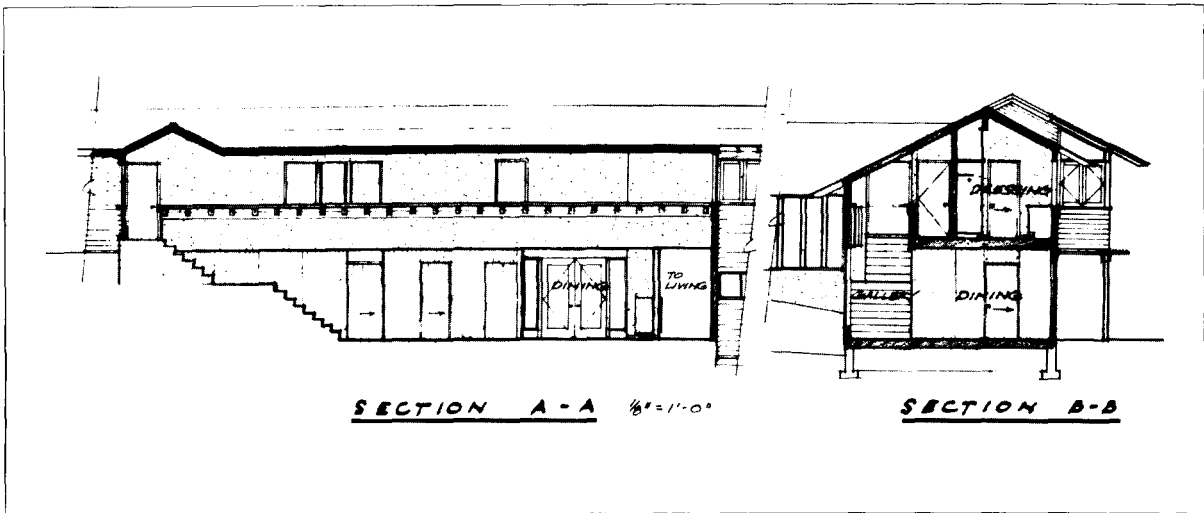
As Bumgardner points out, the estimates are "educated guesses," but the average of the three generally is a good indication of the price range of the house. At the conclusion of the basic design stage then, provided the figure is not in line with the budget, the client can decide to spend more money to get what he wants or the architects can approach the problem by a less ambitious tack. The Johnsons found they could proceed on a bit more elaborate scale.

Finally, six contractors, including those who had made preliminary estimates, were invited to bid. Three contractors came within \$3,000 of the low bid (\$43,000). One or two design changes were agreed upon, and the short-form (A-107) contract was signed for \$41,403. The office also

Johnson Residence (\$41,400, 1963) "is beautifully placed in its grove of madronas; is handsomely detailed, mature in its understanding of wood," reads award citation from Seattle Chapter AIA

Across page: Sketches of Carratt Residence (\$50,000 estimate) are typical of the manner in which the firm presents preliminary drawings rather than one overall perspective

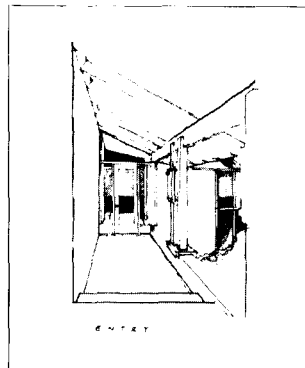
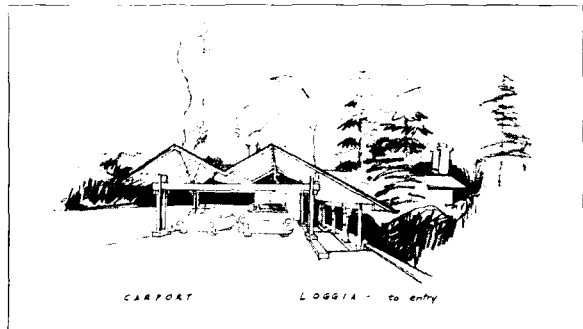




uses these Institute documents: Change Order (G-701), Application for Payment (G-702) and Certificate for Payment (G-703). Simple forms are mimeographed to cover Instructions to Bidders, Bid Form, Supervision Report and Estimate of Preliminary Design.

The Seattle area is fortunate in having a fair number of reasonably good custom contractors available for work in various price ranges and is unusual in the number of custom cabinet shops.

Generally, the architects have found painting and finishing to be one of the most troublesome areas in competitive bidding. For the past five years, the firm has dealt exclusively with one small painting contractor. Painting is not an item for bid; it is either stated as a predetermined allowance in the specifications or, more often, is handled as a separate contract. The office uses many special finishes and colors, often articulating the structural detailing with a range of values, and these painters can sense the architectural idiom and follow through without hand-holding guidance.



Expansion and Exploration

Bumgardner feels that the field of residential design will continue to be a real challenge to the firm. However, like most architects, he prefers to work with a variety of building types, such as smaller-scale commercial structures.

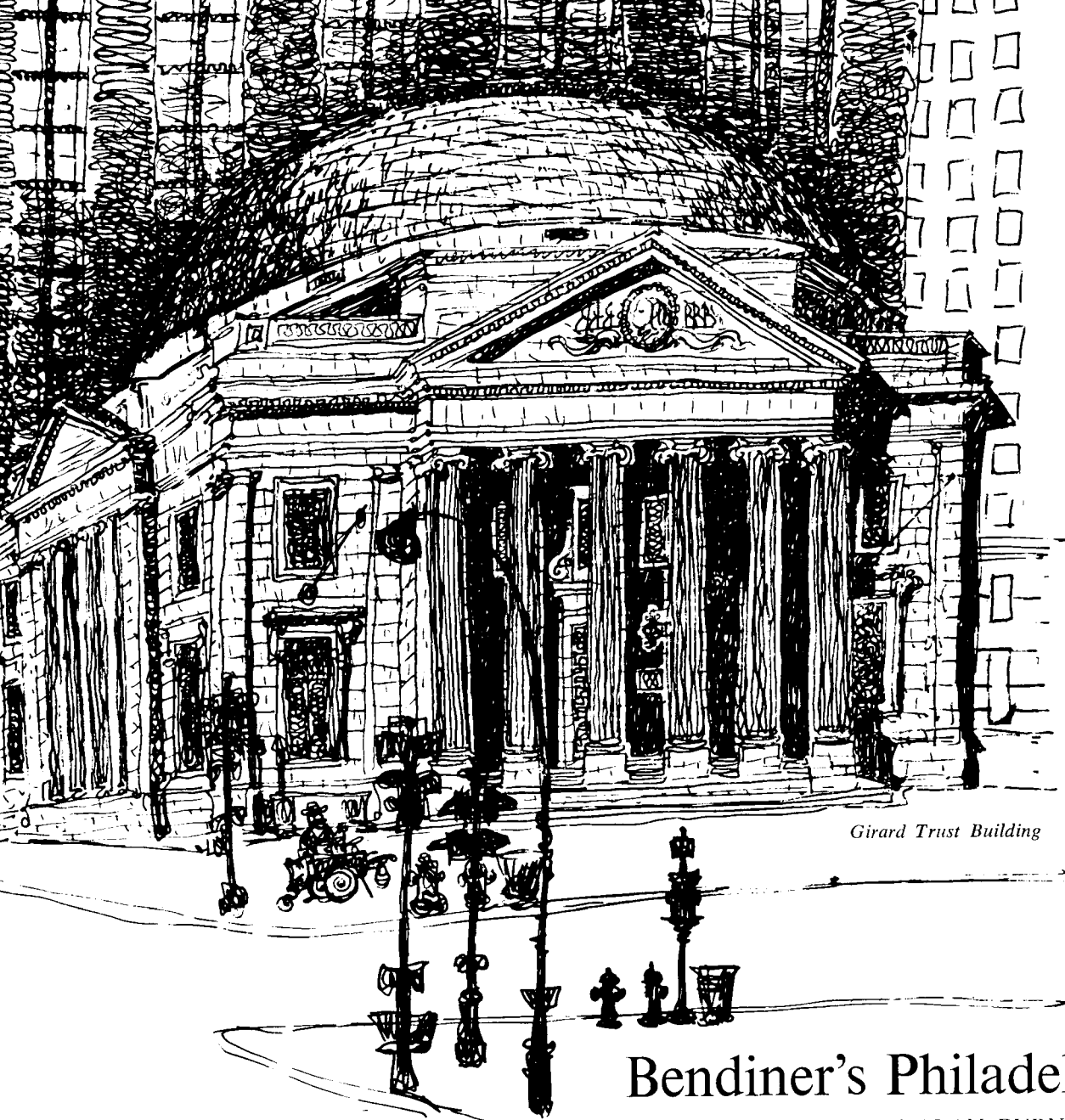
The most provocative area for expansion of the practice, as Bumgardner sees it today, involves larger-scale complexes of living units, either apartments or row housing, etc. where some of the amenities of private residential design can be made available. One ten-unit apartment project has been successful esthetically and economically. An award-winner, it was built for about the same price as most of the poor quality done locally (about

\$9700 per unit), and last year's occupancy had a record of twelve days' vacancy.

But the architect has little illusion about the development of practice in this area, since present tax and lending policies encourage the speculative developer in apartment and other multihousing projects. "Generally speaking," Bumgardner declares, "few developers would be caught living in one of their speculative jobs."

Thus far, the office has done no work for builders in the speculative field, but the partners have no objection "to working with them within their limitations *provided* they are seriously interested in the long-range livability of their work and manifest some conscience for social values."

It seems certain that this "conscience for social values" will continue to guide the practice of A. O. Bumgardner & Partners whichever way it goes. ■



Bendiner's Philadelphia

BY ALAN BURNHAM AIA

It is with great humility that one attempts to review the work of a distinguished artist, architect and architectural historian, but above all of a friend. Those who knew Alfred Bendiner can imagine him laughing at the efforts of us poor earthbound creatures, because, even when he was so vitally living and working among us, he had that Jovian quality of regarding us all as his children who needed instruction in the happy and amusing things of this life, which are right here for us to see if we could but look beyond the urgency of our daily affairs.

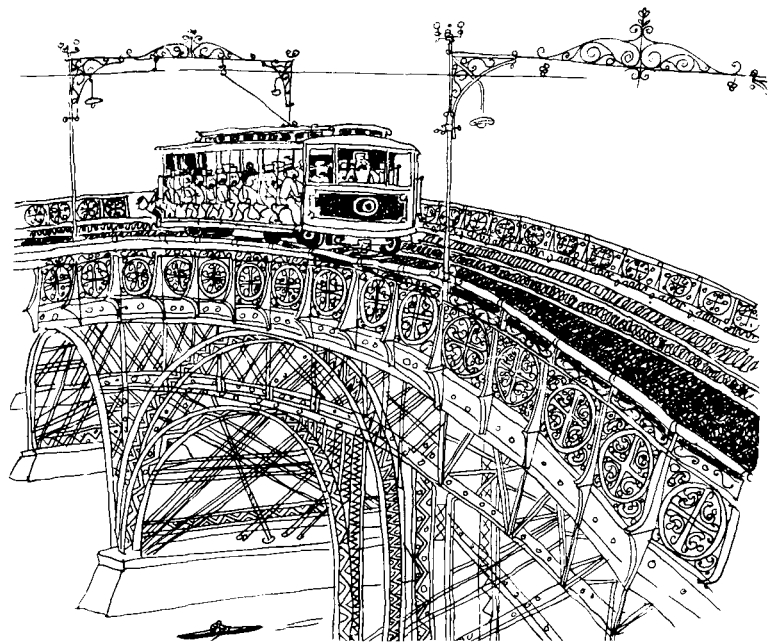
Russell Lynes describes him as a dilettante, in the original sense, of one who takes delight in life. It was this delight, with knowledge and a sane philosophy, which is so well imparted to us in "Bendiner's Philadelphia."

"Bendiner's Philadelphia," Alfred Bendiner. New York A. S. Barnes & Co, 1964. 175 pp \$4.95

The author takes us gently by the hand and says, in essence, follow me and I will show you all my favorite haunts in Philadelphia, and all that is worth seeing in this city of William Penn and Benjamin Franklin, for he never forgot history even though he brings us down to the world of today—humorous, anecdotal, yet serious and intent on imparting his knowledge and his unerring sense of what will spark the joy of living.

This joy of living manifests itself in a series of pen-and-ink drawings, covering a wide range of interests, which include not only architecture, sculpture and town planning, but boxing, the circus, the zoo, baseball, horse racing and the horse show, to mention but a few. The inimitable drawings, recognized at once as pure Bendiner, are supplemented by a text which, in each case, provides a description almost as baroque as the curlicues of the drawings themselves.

A year ago this month, Philadelphia, the architectural profession and the AIA JOURNAL lost their laureate, Al Bendiner. A few months ago, his series of Philadelphia sketches, verbal as well as graphic, which appeared in the Sunday Magazine of the Bulletin, were published in book form. Appearing here is an appreciation of the book, written by Alan Burnham AIA, whose book "New York Landmarks" was reviewed in these pages last April by Al Bendiner



Strawberry Mansion Bridge

Whether seen through a martini glass or not, the drawings strike a familiar chord with most of us, and it is the masterful understatement of both text and drawings which endear us to the man.

What is best for both architect and layman is the spoofing which runs, like a theme, throughout the book. Philadelphia's most respectable bank, the Girard Trust, is introduced thus: "Long ago when people lived in the city there was a saloon on every corner and some joyful architecture. But prohibition changed all those wicked thoughts. Now there is a bank on every corner waiting to be merged or embezzled"—after which follows the sugar-coated pill of historical fact, name of architect and a commentary which only Bendiner could render palatable to the general public.

Probably no one has ever written a better description of the Academy of Fine Arts than this: "It is one of the greatest conglomerations of artistic hand-me-downs ever put together into a building and it maintains a consistency inside and outside of foliated nothing in brick, marble and cast iron"—yet, we all know how he loved it and respected its architect; so, when he concludes by telling us to go look at it, most of us will probably do just that one day. Here he has sown the seeds which make for a broader cultural understanding and an appreciation of our architectural heritage.

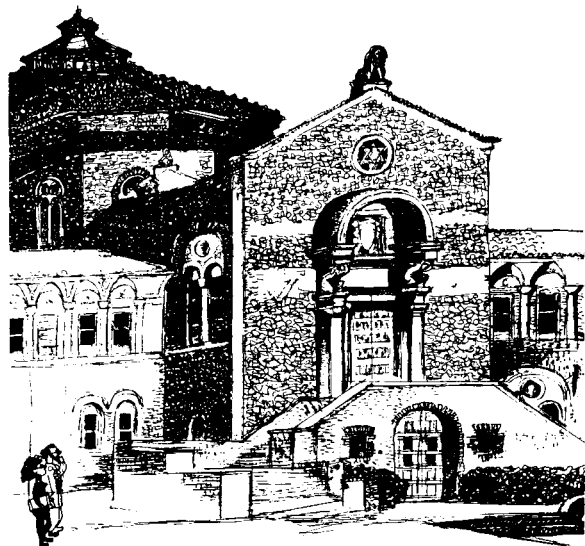
He also introduces us to the architect, Wilson Eyre, and asks us to consider, when looking at the University Museum, what our parents demanded of their architects and to try to count all of the things that Eyre did to please the eye.

Whether he is describing the best contemporary architecture in a poor setting, as in the case of the Philadelphia Savings Fund Society building, or an old friend, such as the Art Alliance, in a good setting, he imparts to us his feeling that buildings are not to be described as isolated things set down by caprice, but that, by the very fact of their being

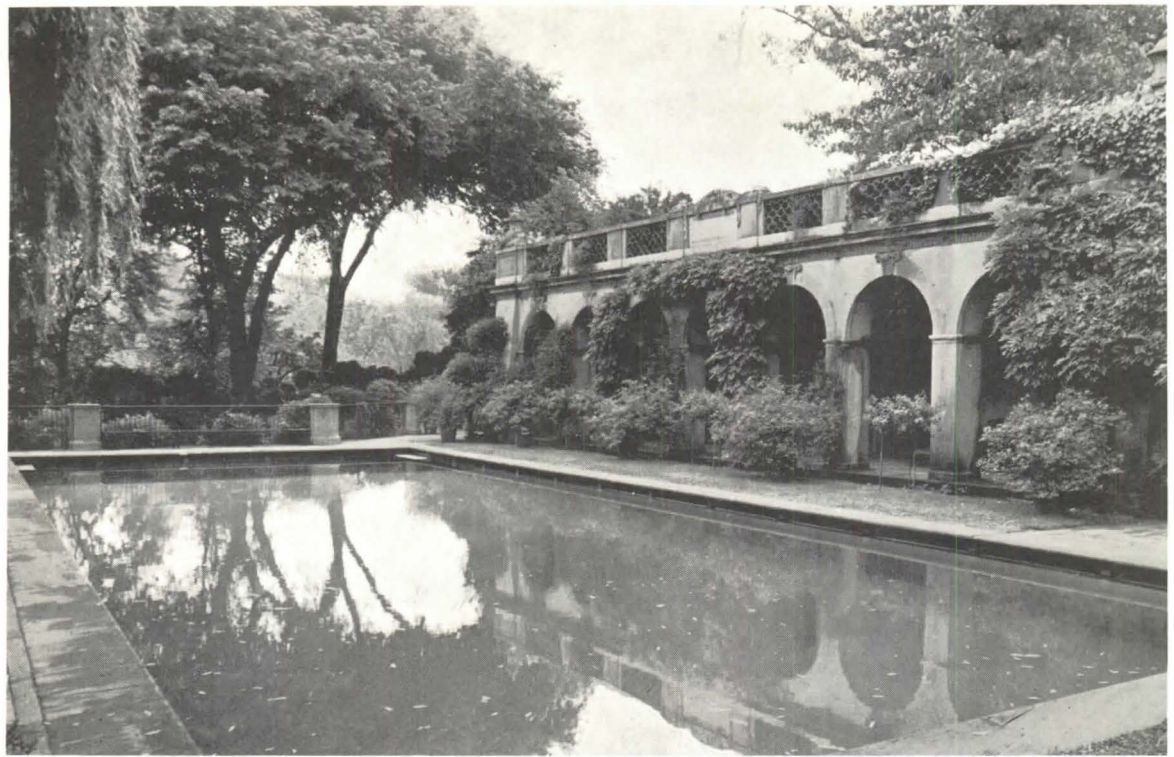
set down where they are, they have become a vital part of the city and of the lives of their users.

When Al wrote about architecture he knew, as a practicing architect, whereof he spoke; and when he wrote about art he usually took pen or brush in hand and drew it, and the results spoke for themselves far better than words ever could.

Although his family may have wanted him to become a musician, he preferred to scribble and draw on his music sheets. Nonetheless, he retained one important quality of the musician: he always played to his audience and, despite the vernacular which he used as a means of expression, he never played down to them. There was always something to be learned, something elevating in the realm of ideas and almost always a real lesson, a factual lesson, hidden away in the humorous, witty, delightful text so that one came away enriched and captivated by Bendiner. ■



University Museum



UNCOMMON GROUND: DUMBARTON OAKS

BY STANLEY M. SHERMAN AIP

Dumbarton Oaks is an estate in the Georgetown section of Washington. The post-Georgian house was built in 1801, altered in 1846 and again in 1920, when it was acquired by Mr and Mrs Robert Woods Bliss. In 1940 they gave the property to Harvard University to serve as a research center for scholars working in the Byzantine and medieval humanities—at the same time giving twenty-seven acres to the city for parkland. The most recent addition is the little jewel box of a museum designed by Philip Johnson to house Mr Bliss' collection of pre-Columbian art, completed since the latter's death in 1962

THE NEW pavilion for pre-Columbian art at Dumbarton Oaks provides observers with a twofold phenomenon; a building little like any other in a setting unlike any other. Description alone will do neither the museum nor its surroundings justice, but one observer's reaction to both and their useful lessons may perhaps serve as a stimulus to continued critical viewing by others, remembering that the brief comments on the place and its parts can hardly give a complete picture of the whole.

The viewing stroller at Dumbarton Oaks perceives his surroundings through the eyes of the late Robert Woods Bliss and his surviving widow.

It soon becomes evident that in satisfying their own standard of visual delight as the long-time owners of the estate, since 1940 a part of Harvard University, the Blisses touched a felicitous note. For it is rarely that one leaves without being in some way affected. Few know or care that the Blisses' wealth was tied to the success of Fletcher's Castoria, nor that scholars labor over obscure texts in the modified Georgian mansion, nor give a mind to the constant labor necessary to maintain the varying delights of this special place. Nonetheless, it is this combination of wealth, thought and constant attention that mark the contribution of patrons. Patronage such as the Blisses lavished at Dumbarton Oaks implies responsibility; a willingness to assume a task of some proportions. It is surely as much of a task to create beauty as to build washing machines or any other utilitarian object. We recipients of the results of the effort to create a beautiful place must readily acknowledge that responsibility has its rewards; to the pleasure of achieving a self-imposed task is added the knowledge that the resulting product is an object of beauty. The gardens are without doubt one of Washington's and Georgetown's special attractions; they are truly uncommon ground.

The visitor to Georgetown soon realizes that part of the character of this special section is the

result of an adaptation to hillside living. From the Potomac River northward to the rock of Dumbarton, a distance of about three-quarters of a mile, the land rises nearly two hundred feet. Then, in a distance of an eighth of a mile, the ground plummets down nearly the same vertical distance to Rock Creek. By leveling and grading sections of varying size, connecting them to each other and to the existing topography, utilizing special details throughout, and doing all with style and taste, the ambience that marks these gardens was created. Beatrix Farrand, the landscape architect primarily responsible, clearly heeded the advice of her mentor, Charles Sprague Sargent of the Arnold Arboretum, "to make the plan fit the ground and not twist the ground to fit a plan."

Although the original estate at Dumbarton Oaks was nearly twice the present sixteen acres, the land deeded to the city remains a park. In point of fact this area acts as a relatively untouched wooded surrounding and provides a foil for the careful design of the gardens. At the same time this public background is an important consideration in the design of the grounds. The neo-Georgian house is at the highest point of the site; and adjoining terraces and overlooks were a logical means of taking the most advantage of it. Near the house, if one may use so plain a word to describe what is now a complex housing many scholarly activities, the landscaping was conceived largely in formal terms. Clearly, a transition between this formality and the untouched surrounding park was needed, and one which was also allied to the slope of the site. Each step down the hillside, by terrace, grading and steps is, therefore, almost literally a lessening of formal and symmetrical bounds. No other solution could reasonably be defended, and it is a measure of its successful execution that the method is hardly noticed. As one penetrates deeper into the wooded area, he can sense the change from classic to romantic.

Perhaps this sense of being in a place apart, a unique breathing space in a world that seems too busy to create one, is what helps make the buildings and gardens the obvious attraction they are. The evidence of utilization is particularly vivid when the grounds are open to the public. On a spring or fall weekend one is hard put to find parking space in the vicinity, as nearly everyone comes to view the plantings. The topography and dense foliage absorb large numbers; and there is fortunately never any sense of crowding at the feast. And a feast it is: The semicircular sweep of forsythia and flowering cherry trees on the lower slope, the white magnolia near the entrance, the rose terraces, fountains, arbors, fruit trees, the chrysanthemums in the fall, all are gathered here

and offered to delight the senses. There is a sense of rare privilege in partaking of all this; like being given a precious gift which is the highest compliment to both donor and recipient. Dumbarton Oaks cannot be used as a park or recreation area. One comes only to view a beautiful place, and perhaps in response to some inner need. If it can be recognized, there is no reason why this need shouldn't be met and an environment created, to which the sensitive individual can respond, particularly in cities. If need be, the citizenry must become patrons, so long as they remain aware of the allied responsibility for knowledge and taste.

That the appearance of the grounds changes with the seasons, and to a lesser extent with the day, is accepted so easily that to state it is a tautology. But equally important, not alone for this essay but for the wider implications of city building, are the changes that take place from year to year within the larger framework. For example, two major additions have been made to the older house recently, and in such disparate ways that it is hard at first to realize that they were both informed by the same spirit that tends the grounds. One new building is a wing near the western boundary of the site, in the same style as



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the original mansion, to house Mrs Bliss' library on landscape architecture and gardens; the second is a small pavilion, set in a green frame of planting which virtually conceals it, designed by Philip Johnson AIA to exhibit Mr Bliss' collection of pre-Columbian art. Both take their place as belonging to Dumbarton Oaks, but clearly for different reasons. It is worth examining why.

Before doing so, however, the matter of building in Georgetown deserves a brief digression. An Act of Congress designates this section as a historic area and requires that all proposed building or rebuilding undergo review by the Commission of Fine Arts. The Commission's approval is not mandatory prior to the issuance of a building permit, but one is rarely issued without it. This has meant, for the most part, that the Commission's heretofore general disinclination to approve any design not considered "in keeping" with the character of Georgetown has resulted in no markedly contemporary buildings being built. The pavilion is, one is bound to say, of considerable interest to contemporary architects, not the least reason being that, unlike the new library addition, it does not repeat the older style. Is there then a contradiction here with the indicated stylistic preferences of the Commission of Fine Arts, or a sign that the Commission took a broader interpretation of their expressed aims? Unfortunately, there is no unequivocal answer to either question.

The new museum and library were each approved by the same Commission members; their different styles are explained by their different situations. The glass pavilion is north of the existing complex of buildings, in a small corner of the site

hitherto little visited by the public as it was close to the director's quarters and on a relatively undeveloped portion of the downhill slope. The library, by contrast, occupies the space formerly devoted to the entrance at the southwest corner of the property and is a prominent feature of the new entrance. Despite the fact that both additions are one story, the library wing, with a height in excess of twenty feet, is nearly twice as high as the pavilion. Since the latter is surrounded by foliage, and the former has a considerable cleared space before it, the conclusion may be drawn that a building unlike the Georgian surroundings of the area can only be approved by the Commission of Fine Arts if it is hidden.

The impression of ease and sumptuousness one has on viewing the rich profusions of the gardens finds its equivalent in the buildings at Dumbarton Oaks, new and old. The sense of luxury can be achieved in many ways, and we see the same goals attained in the new wings, despite different purposes, situation and approaches. The library utilizes spaciousness and furnishings—an uncrowded setting, high ceilings, tall bay windows and meticulous craftsmanship all combine to set off the rich bindings in a handsome arrangement. Thus, it is quite literally "in keeping" with the impression of stately living conveyed by its surroundings. Toward the same end the museum utilizes materials and form in a rare combination; the knowledge that floors, walls and ceilings are all made of costly materials in a seldom-conceived arrangement heightens the impression of wealth in a relatively small space, which is a common reaction at Dumbarton Oaks.

Johnson has followed a line of development from the emphasis on structure associated with Mies van der Rohe FAIA to one which, according to Ada Louise Huxtable, in describing the Johnson-designed New York State Theater at Lincoln Center, "... doesn't give a hoot about structure, except to make things more sumptuous, elegant, sophisticated and sensuously beautiful." It would be curious to speculate how such a development occurred, from spartan to sumptuous, and I suspect this will be done some day, probably because Johnson's known interest in architectural stylistic antecedents will strike a responsive chord in an architectural historian.

The plan of the museum pavilion is that of nine equal, slightly overlapping circles whose circumscribed outline is a square approximately eighty feet on a side. A narrow passageway, centered on one axis, links the complex to the main house and provides the major access. All but the central circle are roofed with shallow concrete domical sections. The roofed circular areas, except for that nearest the link which acts as an entry lobby, are for the exhibited objects, usually small and contained within clear plastic cases. Between the circular enclosures and the central portion featuring a single jet fountain, are areas with four curved wall planes, resulting from the adjacent circles, which contain tubs of large philodendron plants set in beds of dark gray Japanese pebbles. Within and without, greenery recalls the setting.

The diameter of each of the major circles is roughly twenty-five feet. In the circumference of each there are eight columns, four of which are also common to adjoining circles. These columns, sheathed in Illinois marble which resembles travertine in color and markings, but without the striated pores, are about three feet in diameter, and give a pronounced impression of massive support. Actually, however, these columns do not support; they conceal. For within their hollow centers are lally columns which carry the roof loads. Evidence of this is visible on a number of the columns. These have small metal doors, painted to match the surrounding marble, which open to reveal telephones in substantial recesses. Awareness of this strikes a false note, as an incorrectly struck key might in an otherwise carefully performed piano sonata.

Explanations for the emphasis on the marble columns, rather than the actual structure, do occur to one. There is often a psychological need to recognize the supporting members of a building, and this may mean making those parts larger than they actually need be for the loads imposed upon them. Larger columns are also often used to help conceal necessary services, though it is questionable whether this is true for the large number here, or whether it explains their size. Another possible reason, in this case, is a need to clarify the junctions between what are, in effect, intersecting drums. With thin lally columns two opposing curved glass walls would probably intersect in



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an awkward fashion. But with substantial columns, the junctions are relatively simplified and the glass, framed in bronze, meets the marble at almost as near a right angle as two curved surfaces permit.

I dwell on these details, for it is on them, inevitably, that attention is often concentrated. The pre-Columbian artifacts are not only small but in many ways remote as objects of interest, except to those with inordinately sensitive tastes or specialized knowledge. They speak of a time and place that has little in common with the here and now. This is not to say they may not repay close scrutiny, but as these items are shown in a building so insistent in its detailing and form, the ordinary reaction is to observe the enclosure and not the things enclosed. Even the teak floors, carefully cut as spokes of a circle, with green Vermont marble surrounds, are more often observed and commented on than many of the ostensible exhibits of the museum. If the building excites wonder as a special place, it is not surprising, though it would seem this excitement is not one specifically related to its supposedly prime function.

For as a museum, one can undoubtedly find faults. Seating for leisurely viewing was clearly not considered, for the provision of green leather benches introduces an element that is out of place and appears makeshift. The glass walls are refractory both for failing to provide wall hanging space and in allowing sunlight to penetrate despite dense foliage outside and thin curtains within.

These comments leave aside the larger question: whether a museum should be primarily an enclosing frame or a work of art in its own right, for this is not a matter that can be fruitfully discussed with a single building. Despite the lapses mentioned, there is little doubt that most visitors, attracted by the fact that the museum pavilion resembles little in their experience, unless they are familiar with Byzantine church plans, will carry from a visit the impression of opulence and other-worldliness that the designer probably wished to convey. That this is true is largely due to the excellent taste and skillful assurance shown by the architect.

The sequence of nearly similar places, seen of necessity in circular movements, reminds one of a stately dance like the pavane, or a later novel by Henry James. Each movement is slow, calculated and precise, following an ordered sequence (in the case of the pavilion a chronological and geographical development), and all done with subtlety and style too. Perhaps I make this analogy because I can't escape the feeling that the pre-Columbian museum might be a better building if it served an alternate purpose; and the one that strikes me as most appropriate is as an aristocratic pavilion for a masque or like event. This, on the face of it, is hardly a pressing twentieth century

need, but then the ways of measuring needs undergo constant re-evaluation.

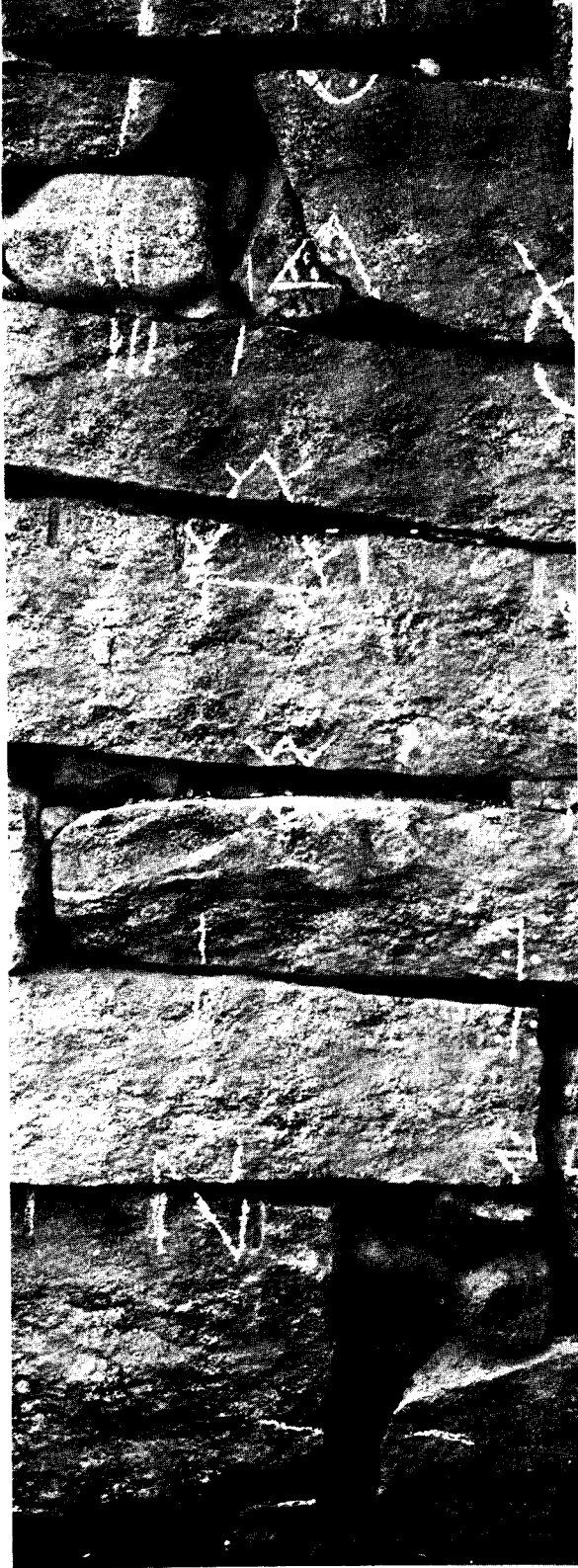
The unique quality of the Johnson building is perhaps appropriate in view of the nature of its program and setting. It shares with the gardens a common characteristic of having undergone considerable thought prior to its creation. By comparison with the gardens, however, the building is unchanging, repetitive and rigid, which are objections to continued satisfaction. The truly great works of art are continually rewarding as they are continually revealing; no matter how often contemplated a viewer will still find gratification in further study. The Johnson pavilion has an undoubted immediate effect, but seemingly holds no further secrets.

Perhaps it is impossible for every part of the complex whole that is Dumbarton Oaks to come up to the high standard maintained there. The gardens are fascinating in their profusion of details, though no single one is of the magnitude and isolated nature of the Museum so as to remain so clearly in memory afterwards. The parts on the ground are all carefully related to some specific concern—pedestrian traffic, shelter, planting settings, exploration of the possibilities of materials, provision of scale.

It is because of such details that Dumbarton Oaks has an immediate as well as cumulative effect on an observer. One is caught up in it as in viewing a painting; close study of details, colors, brushwork and juxtaposition of forms and textures augment the initial emotional sweep: out of literal raw materials a place of uncommon beauty.

For this reason description alone hardly suffices to convey the ambience of buildings and gardens. The observer must look to his reactions to sense how the ordinary and familiar are transformed into the extraordinary yet even more familiar. The transfusion is a measure of how a public or communal setting may elicit an esthetic response. No surprise in that, of course, except that occasionally one must belabor the obvious for fear it may be forgotten. The difference between uncommon and common ground lies in the heart and mind of man. If our cities are common, with all the possible meanings of the word, though "unclean" seems the most appropriate in this context, despite ingredients of buildings and open space like those of Dumbarton Oaks, we have no one to blame but ourselves. Someone, many, must care if we would rearrange a city's raw materials into settings worthy of praise.

Few trees reach their full maturity in a single generation; and it is perhaps too much to hope that the necessary reorientation to transform urban ugliness, even if already begun, would bear fruit in our time. But if never begun, never achieved. ■



Moving Historic Buildings

BY JOHN O. CURTIS
*Curator of Architecture
Old Sturbridge Village*

Although the moving and restoration of historic buildings may violate Article 9 of the "Venice Charter" (Jan '65, p 59), it is becoming an increasing practice in the US with the growing popularity of "museum villages," such as at Coopers-town, New York; Shelburne, Vermont; and Old Sturbridge Village in Massachusetts. It takes great skill and ingenuity, as Mr Curtis' story reveals

THE WELL-KNOWN Mrs Frances Trollope observed in her "Domestic Manners of the American" that: "One of the sights to stare at in America is that of a house being moved from place to place. . . . The largest house that I saw in motion was one containing two stories of four rooms each; forty oxen were yoked to it. The first few yards brought down the two stacks of chimneys, but afterwards all went well."

This occurred in Cincinnati in the early 1830's. Some years later, Charles Dickens was similarly surprised in the town of Lebanon, near St Louis. "During one halt," he wrote, "I walked into the village and met a dwelling house coming downhill at a good round trot, drawn by twenty oxen."

About fifty years earlier, French military officers stationed in Newport, Rhode Island, expressed similar amazement at the apparent ease with which houses were moved. Louis, Baron de Closen, wrote that: "To one unfamiliar with the sight, it seems extraordinary that wooden houses built on stone foundations, when entirely finished are often moved from one quarter to another and even moved into the country. The frame as it is, is placed on little carts attached to one another. I have seen them drawn by thirty or forty oxen or horses."

It would seem that things were easier then. It is one thing to merely move a building from one location to another, whether by team or truck, but to move a structurally weakened historic building and preserve intact all important elements of the original fabric is quite another. Preservation of original materials is all-important for, after all, is that not the reason for which the structure is being moved to a museum?

During the past year Old Sturbridge Village has moved two dissimilar structures with considerable success. The first, a wool carding mill (a frame building with a stone basement and watercourse), was moved about 260 miles. The other, a small brick bank with wooden trim, came *intact* approximately 46 miles.

Because it was in some respects the simpler of the two, let us look first at the problem of the mill (Fig 1). Built in South Waterford, Maine, some time in the 1830's, it was used as a carding mill as recently as 1955. Over the years it had sustained numerous alterations and additions, and in late



Photos by the author, H. C. Darbee and J. C. Ward

FIGURE 1

years was powered by electricity. The 1938 hurricane had swept away sections of the milldam and altered the topography of the land in its immediate vicinity. It had also seen use as a creamery and a wood turning shop, and residue of both these pursuits were very much in evidence. Before even a preliminary survey could be made of the structure, it was first necessary to clean out the accumulation of more than a hundred years' occupation. Seven large truckloads were removed from the mill, sorted and taken to the dump.

With the housecleaning accomplished, the next step was to learn as much as possible about the mill's past appearance and history. Our research department concentrated on a search of both local town records and the deeds and probate records at the county seat. A thorough architectural survey was made to determine the extent of original material remaining and to earmark for elimination those obviously later accretions. Detailed notes and photographs were made and compiled in a large loose-leaf ring binder. Architectural evaluation continued throughout dismantling and subsequent re-erection of the mill, since much information comes to light only as overlying layers of a building are peeled away.

At the same time an archeological survey was made of the mill's surroundings and basement area through which the watercourse originally flowed to power a turbine. Elevations were established, a grid laid out and test trenches made to determine areas deserving of concentration (Fig 2). This was done for several reasons: first, to enlarge our knowledge of waterpowered mills in general; and second to enable us to subsequently create a suitable "period setting" for the mill. A third and more practical reason was to attempt to learn how much the land had changed over the years and to what extent the fall or "head" of water may have decreased (Fig 3). It would seem that such an archeological survey would be valuable in almost any building-moving project, providing one intended to attempt to recreate an original setting.

Distance and the building's size precluded the possibility of moving it intact. However, it did not seem desirable to completely dismantle it, for we had learned through past experiences that by such a process much original fabric is invariably lost or altered. Simple frame construction and the fact it was fairly small suggested a technique whereby, after removal of the roof and gable ends, the wooden pins securing the mortise-tenon joints at plate and sill level could be pulled and thus free the four walls. In this manner the building could be handled in six major segments: the four walls and the two gable ends (Fig 4).

A tin roof and underlying course of deteriorated wooden shingles were removed and discarded. It was noted that roofer boards bore evidence of two prior courses of shingles, clearly indicated by remaining nails. Roofer boards were numbered on their upper surfaces with a felt-tipped "magic marker," which proved to be both easy to use and permanent—so permanent, in fact, that care must be exercised to use it only on surfaces that will subsequently be covered by finished work. After numbering, roofers were removed, carefully denailed, and orderly stacked for eventual transportation to Sturbridge (Fig 5). Rafters, attic-floor boards and joists, first-floor boards and joists were handled in a similar manner. Summer beams were left *in situ* until supporting staging could be erected outside the mill (Fig 6). Window sash were marked and removed, and interior plasterwork was cushioned with battened sheets of Homasote, a resilient insulating board.

Gable ends had previously been removed as complete units. Holes were drilled through the plates to receive large specially fabricated ringbolts to which steel cables could later be attached. Temporary supports were erected against the four walls from the outside, and finally the pins were driven out of the mortise-tenon joints where plate and sill joined the corner posts. For added strength, the corner posts came along with the longer front and rear walls, while temporary braces were fastened to stiffen the short end walls. A splint was secured to brace the rotted front sill. With all bracing and protective covering in place, the four walls were then lifted by a crane to a waiting flatbed trailer, and half of the moving job was done.

Early in the project it was decided that the basement of the mill would be of equal importance as an exhibit area, since here would be installed the motive power for the carding machinery on the first floor. The archeological survey uncovered remains of early timbers and flooring buried far beneath the silt of the filled-in watercourse. This evidence was sketched, measured and photographed in anticipation of its loss through removal

of the cellar walls. Faced with the obvious necessity of marking the stones to insure proper reconstruction at the new site and also faced with the problem of subsequently being able to remove the marks, chalk was decided upon as an expedient measure, since the speed dictated by the cost of the crane rental would not allow painting of the numbers on the top surfaces of the stones as we had first planned. A makeshift series of symbols and marks was devised as we went along, and all stones were carefully marked, particularly at their joints or where the breaks had occurred through settling of the foundation (Fig 7). Overlapping photographs were made both in black and white and color. Course by course, the walls were dismantled and loaded on four tremendous flat-bed trailers.

Upon arrival at Sturbridge, stones were re-marked on their top faces (which would be covered by successive courses) with permanent red lead. A simple combination of Roman and Arabic numerals sufficed to indicate position within a given course, and acetate overlays bearing matching figures were superimposed on enlargements of pictures made prior to removal.

A site had been prepared at the Village, while moving was in process. The sidewalls of the mill were stacked in two piles on either side.

During the early winter the foundation was re-laid under the supervision of the same man who had dismantled it, using the photographs and notes as a guide. Simultaneously, necessary repairs were made to the sidewalls, so that by the first week of January it was possible to raise them into position atop the completed foundation (Fig 8). The entire reassembly process took only three days. Additionally, much labor was eliminated since the major portion of the original fabric remained undisturbed throughout the move. This is important, both from a cost standpoint as well as from the aspect of authenticity.

Despite weather problems, the end of the month saw the replacement of the rafters and, shortly

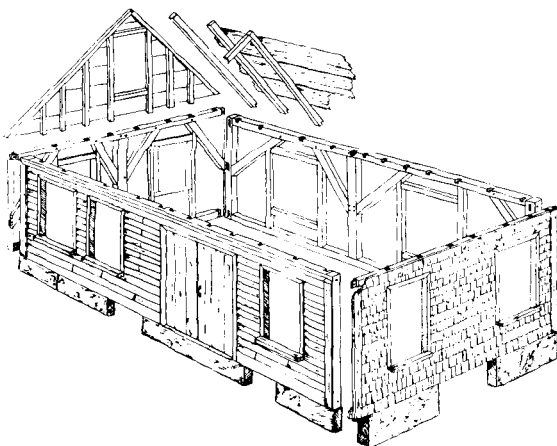


FIGURE 4

March 1965

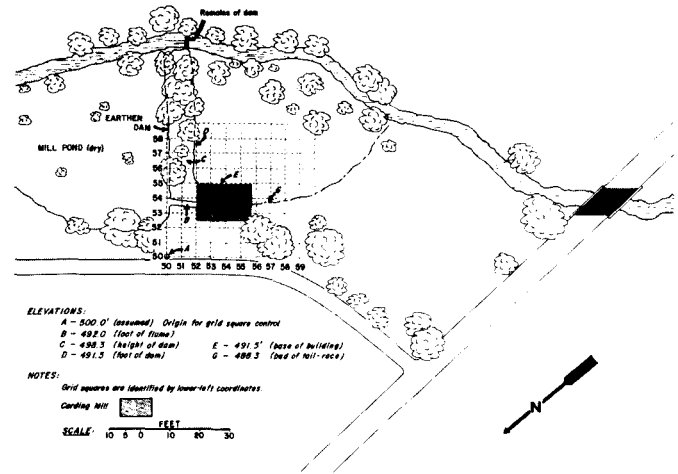


FIGURE 2

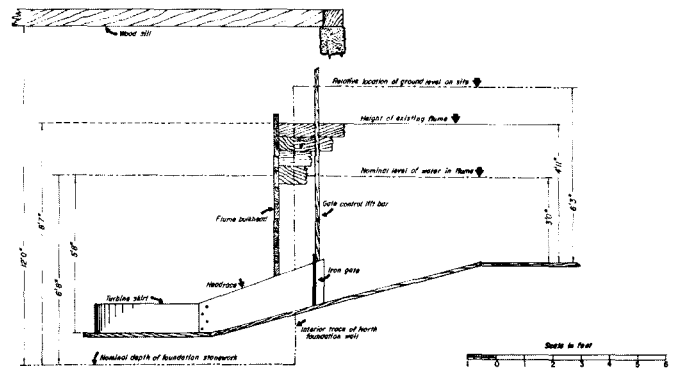


FIGURE 3

FIGURE 5



thereafter, the roofer boards. With the mill thus closed in against the weather and protected by a plastic tarpaulin, work could progress in a more leisurely fashion on the replacement of the floors and interior (Fig 9). Much remains to be done with respect to the watercourse and machinery, but the major problem—the move—was over.

The Thompson, Connecticut, Bank was built in 1835 and served that community until 1893, when it became the town records office. Most recently it had been a meeting hall for the local Boy Scout Troop (Fig 10). Due to the building's cramped location and past use, it was not felt necessary to undertake an archeological survey as in the case of the mill, but a detailed architectural study was made prior to and during dismantling of the roof and portico. Peculiarities of original construction—a tin roof and inadequate ventilation in attic and cellar—had resulted in deterioration of frame members in these areas which were not apparent until commencement of the architectural survey. Again photographs and notes were compiled in a large ring binder to serve later as a restoration guide and permanent record of removal and restoration.

Through study of the structure itself and the fortunate discovery of several old photographs, as well as the original field sketches for John Warner Barber's "Connecticut Historical Collections" of 1839, it was learned that the original handling of the pediment had been considerably different. Measured drawings were made and a scale model prepared as an aid to the restoration.

Due to the pressure of the building movers' schedule, the involvement of the Connecticut and Massachusetts Highway Departments, the necessity for cooperation from the power and light companies, and the simultaneous moving of the Carding Mill from Maine, much desirable field research on the building such as paint analysis and the like had to be deferred until after the building arrived at Sturbridge.

As with the mill, obviously modern accretions were first stripped from the building's interior. A massive fieldstone fireplace, installed by the Scouts, was removed from one corner, exposing excellent evidence for the dimensions of the granite vault which had survived until 1949. A hung ceiling was pulled down to uncover large runs of elaborate plaster cornice, original ceiling lath and evidence for the usual Greek Revival ceiling rosette. Several interviews with local elderly people furnished additional information and clues as the work proceeded.

By late September, work commenced on the dismantling of the columned portico and roof since load size and height (18 ft) limitations, as well as their weakened conditions, dictated re-

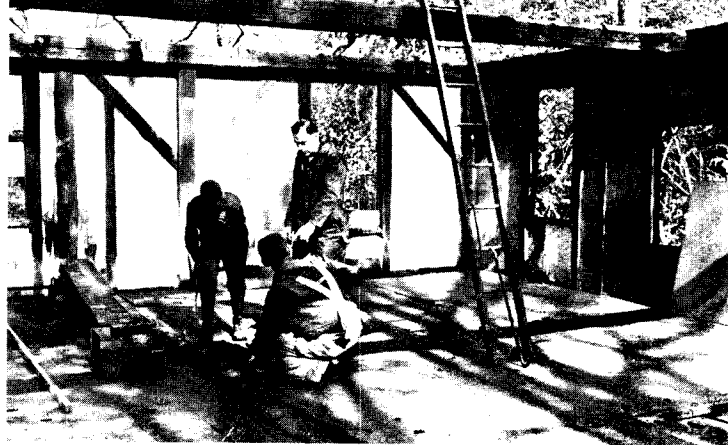


FIGURE 6



FIGURE 7



FIGURE 8



FIGURE 9

moval. All original material was carefully marked, de-nailed and transported to Sturbridge for temporary storage. Nonoriginal material which would serve to give patterns or dimensions for stylistically suitable replacements was also retained. With dismantling work completed, what remained was essentially a brick shell covered only by an attic floor carrying a thin skim-coat of lime plaster which the unknown architect had hopefully specified as a sort of primitive fire-stop.

Since any further dismantling of the building would sacrifice virtually all the remaining original fabric of brick walls, interior plaster and finish work, not to mention our budget for the entire project, a satisfactory alternative had to be devised. Loren Manbeck, our superintendent of maintenance, developed a dramatic scheme for crating the entire building, inside and out, in such a manner as to completely cover and cushion all brick and plaster work (Fig 11). A series of half-inch holes were first drilled with a masonry drill through the brick and plaster at four-foot intervals, vertically and horizontally, all over the four wall surfaces. Through these were passed lengths of threaded steel rod which were allowed to project six or seven inches beyond interior and exterior wall surfaces.

These served as anchors to hold two-by-fours run at four-foot intervals from sill to plate level. Over this progression of vertical two-by-fours around the building was next placed a "skin" of sturdy $\frac{3}{4}$ -inch plywood. Finally, two-by-fours were run horizontally around the building and nuts tightened securely on the threaded rods to insure rigidity of the packaged building. This procedure was followed on interior walls as well, thus making a "double-decker sandwich" of the brick and plaster walls. As additional precaution, some 2,310 pounds of insulation material was blown under great pressure into the voids created by the placement of the first course of two-by-fours beneath the plywood skin. In final preparation, a series of eight interior cross-braces were constructed of two-by-four and two-by-six timbers, each unit bolted together so as to form ten rigid triangles—a total of eighty.

Upon completion of the crating job, all was ready for the movers to commence excavation beneath the building for placement of timbers (Fig 12). Granite veneer stones were marked as to position and joint-width and removed. The brick foundation was pierced at regular three-foot intervals, and massive timbers placed to support the building on house jacks. After sufficient height was gained, steel I-beams were positioned under the timbers, and beneath the I-beams three ponderous wheeled dollies installed. These resembled nothing quite so much as landing gear for ex-

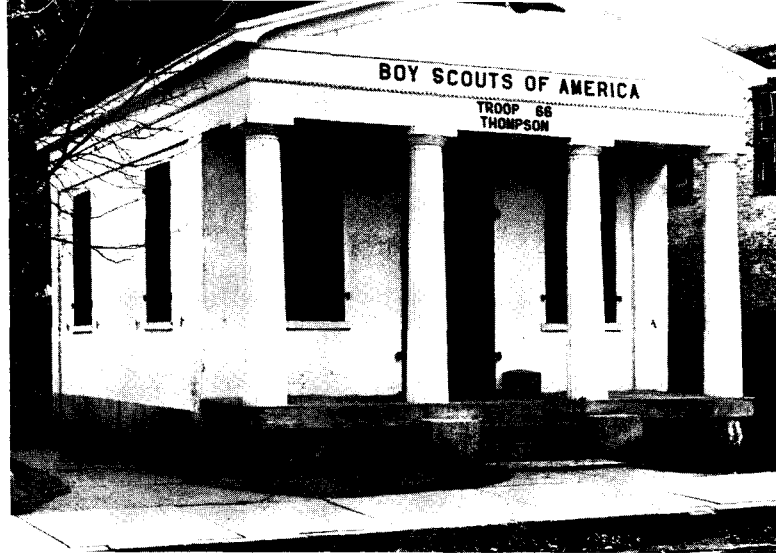


FIGURE 10

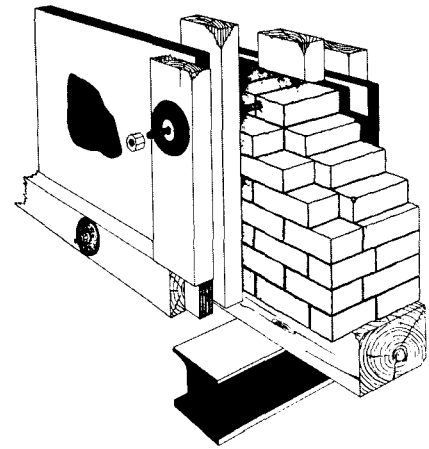


FIGURE 11

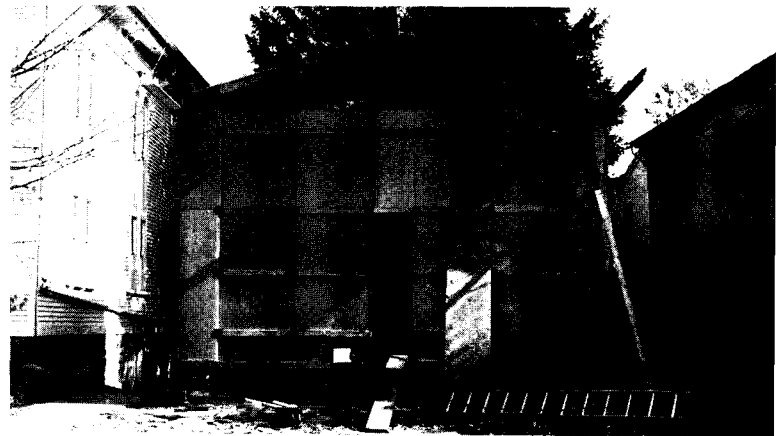


FIGURE 12

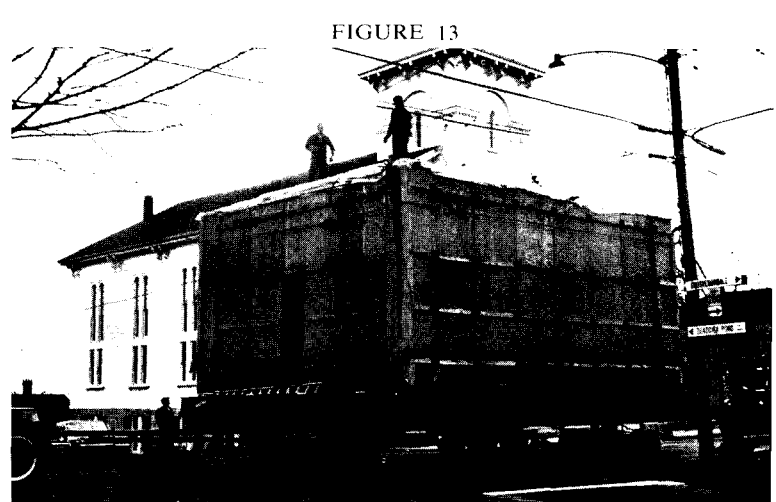


FIGURE 13

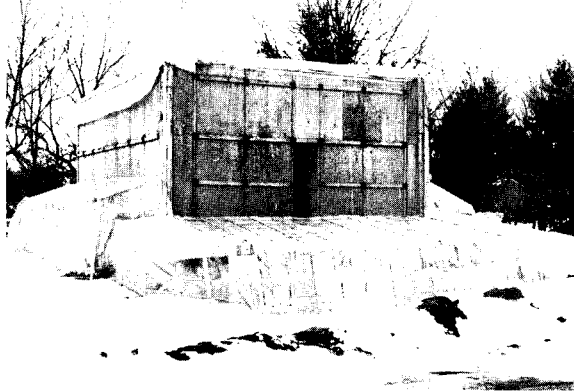


FIGURE 14



FIGURE 15

tremely large aircraft and were arranged two at the back of the bank and one at the front as a pivot to allow for maneuverability.

On November 12 all was ready. Travel permits had been secured from two state highway departments and four towns. Police escort had been arranged for and utilities companies were ready to follow the route and raise wires and tree limbs as necessary. The travel route had long since been carefully planned to avoid narrow roads, overpasses and underpasses and congested areas if possible. In so doing, it was necessary to travel 46 roundabout miles instead of 17 direct miles. Shortly before noontime the bank was eased down over the curbstone on a prepared runway and was on its way to the Village (Fig 13). It was to take 4½ days to make the trip. Cooperation was excellent, and only one major crisis was met when we attempted to avoid an underpass by utilizing an access ramp of the Massachusetts Turnpike.

Best travel speed was about four miles an hour. On level stretches, one large truck sufficed; on hills two usually worked in tandem. Descending hills was a nerve-racking procedure as a single truck traveled in front while two acted as anchors.

Once in the Village, plank roads had to be laid to protect the lawns, and the moving crews were constantly busy placing planks in front and retrieving those passed over. A cellar hole had been excavated and extra wide footings poured in anticipation of a possible miscalculation of a few inches or so on the final positioning of the bank. No cellar walls were constructed at this time. Rather, timber cribbing was placed to support a temporary plank runway out over the cellar hole.

Two more days' labor saw the bank eased off solid ground and out onto the temporary cribbing. Then, house jacks were placed, and gradually the cribbing was removed as a substantial cinder block foundation was built up to meet the underside of the sidewalls. This technique was used to preclude any possible cracking of the walls as they were lowered onto a ready-made plumb and square foundation. A masonry building obviously cannot shift and settle to conform to a new foundation as can a frame structure.

To facilitate progress of the foundation reconstruction during the cold winter months, a scantling framework was built and covered with plastic around the bank's base (Fig 14). This was then heated by a portable oil burner.

Winter weather and the pressure of other exhibit and nonexhibit projects at the Village necessitated a deferral of additional work on the bank until mid-April. Rather than uncrate the building and expose it to possible damage from placement of large framing timbers at plate level and above, it was decided to hold off until this phase of the job was completed. Field notes and photographs served as a guide for reconstruction of roof framing, and this was accomplished in about two-weeks' work. The rear brick gable end, which had been dismantled for the move, was rebuilt. Finally, the roof was sheathed-in and covered with roofing paper preparatory to installing the tin (Fig 15).

Nuts were removed from the through-bolts and the horizontal two-by-fours stripped away. Upon removal of the nuts, the plywood panels of the "skin" popped their nails a quarter of an inch or more, indicating the firmness of the constant cushioning exerted on the brick walls. Workmen commenced removal of the panels, and the insulating material fell in a shower onto a plastic drop cloth arranged to catch it for subsequent reuse as insulation in the attic of our clock museum. Compression had been so great in the window voids that the insulation had to be raked out by hand. With uncrating completed, a careful inspection was made of the walls and to our delight we discovered that the only crack was an old one nearly filled by paint.

Work is now continuing on the restoration of the porch floor, portico and pediment. It is hoped that the exterior will be completed by late June. ■

DELOS *The Second Symposion to Explore the Problems of Human Settlements*

BY JOSEPH WATTERSON FAIA

For the second year, architects, sociologists, planners and geographers met on shipboard in the Aegean Sea to work toward a formal approach to one of the most pressing problems of our times—housing and creating communities for millions of new people

"THE FAILURE of cities is an intellectual's failure. It is a failure to define the issues in terms that can be acted upon by the political processes. It is a failure to grasp the evolving settlements as functional and organic entities, a failure to see them as a living whole, a failure to conceive what they should become."

These words were spoken by Edmund N. Bacon AIA, director of the Philadelphia City Planning Commission, during the second Delos Symposium in Greece last July. For the second year, a group of thirteen architects and planners; four economists; three lawyers; two each of sociologists, political scientists and geologists; and a psychiatrist, an anthropologist, a biologist, a research scientist and a writer met and talked for a week on board a ship cruising the Greek islands. Their topic: human settlements and how to define the content of this new discipline, how to train men and women to work in this field, and some of the political and economic obstacles likely to impede an integrated approach to it.

We Americans dislike coined words—yet we have coined more in the past twenty years than any other nation, particularly in the fields of the electronic, nuclear and space

sciences. So we might as well accept the word *ekistics*, coined by Constantinos Doxiadis for the science of human settlements. Studies of human well-being have too long been fragmented. Health, nutrition, education, transportation, housing, are all considered separately. Ekistics endeavors to draw them together within the framework of man-in-community—a new discipline.

The 1963 Delos Symposium, or Delos I, met to underline, with all possible urgency, the crisis that has overtaken the world's cities under the impact of modern science and technology. After a week of discussions, its thinking was crystallized in "The Declaration of Delos," signed by all participants in the ruined and ancient Greek theater on that historic island (see AIA JOURNAL, Dec 1963). Furthermore, they agreed that the Symposium should be an annual affair even though its participants might vary from year to year. Hence Delos II, which is reported herewith.

Early in the discussions it was pointed out that the time-lag between theory and practice has become a danger. In a period of rapid urbanization, with totally new problems and mechanisms, governments are almost forced to adopt obsolete criteria—for example: New Town programs in England and Israel were based upon inadequate, half-century-old data. As a result, too much government money was spent, and planned sizes of the New Towns were found to be too small—although the greater sizes now proposed are also based upon limited research. Obviously, we need a system which feeds in quickly all new data and decisions, good or bad.

"Since we are moving more and more to a total urban society,"

pointed out Dr Leonard Duhl, chief of the planning staff at the National Institute of Mental Health, "we cannot as our primary objective plan for any geographic area such as a city. Our concern should be for the needs of a people who are living an urban life." Thus, he questioned, what are the needs of people? Do we have cross-cultural knowledge of their needs? Is there a need to maintain group identity with a historic tie, as well as the need to cope with the modern complex world? What is needed when there are breakdowns in our system; and what is needed to prevent a sense of alienation? Dr Duhl felt that answers to these questions would lead to further questions, as to the modification of existing institutions and the creation of new ones. "Out of human needs can come the creation of an urban landscape." But there will also be the creation of new educational, political and economic programs and institutions. These are not utopian goals, he pointed out. The answers to these questions are simply the determination of in which direction planning shall go. The moves toward these goals, he said, should not be made by the planner, but by the ultimate decision-maker. It is here that the planner can aid the decision-maker: "If the decision-maker can both have the facts, and be subject to the demands and complaints of citizens in power, he can make better decisions."

To quote Dr Duhl further: "My personal preference is that the planner not be a showman nor an orator, but one skillful in using knowledge and putting it into the communications system in the most effective manner possible. If he understands communications and its relationship to the political process, he will in-

deed have power. But the planner need not be a public figure, nor claim credit for new developments. His very success may come from his anonymity and the credit given to the decision-maker for 'his wisdom.'"

Although civic authorities, planners and the general public are now well aware of the desperate situation in our ever-growing and sprawling megalopolises, little is being done about it, according to Arie Sharon, Israeli architect and planner. Even in those cities being replanned and rebuilt after World War II destruction, the mistakes of the past are being repeated. So, he asked, what was the role of the architects in this fateful situation, and what should we be doing about it in the future?

"I would like to point out," said Sharon, "that the architects today should be, but are not, the main factor in city planning and housing. They themselves are not even aware of their decisive role in this field and of the basic importance of architecture as such in planning of housing estates, neighborhoods and cities.

"I think that 95 per cent, if not 99 per cent, of our architectural activity all over the world is devoted to the design of single buildings, to working drawings and details of houses, flats, offices and public buildings, and that comparatively little, if any, architectural thought and design goes into detailed layouts of the three-dimensional relation between the vertical buildings and the horizontal areas and piazzas in between; into architectural consideration of space relationship between building groups, streets and gardens.

"And all this despite the old truth, which we study and know from the past, that a street space is more important than even the most beautiful single houses; that a piazza space is more important than even the outstanding public buildings around it (such as the Piazza San Marco); that a good old town, combining streets, piazzas, open spaces, city walls and integrating them architecturally with local features of hills, valleys, woods and rivers, was decisive for the living atmosphere and cultural level of its population."

Political Implications and Obstacles

In a session devoted to the political implications of the science of ekistics, Barbara Ward, the noted British economist, came right down to details. "To a catastrophic growth in urban population, must be added . . . an equally rapid growth in the number of automobiles men try to stuff into the cities with them . . . This combination of men and machines is made more lethal by the degree to which their movements are not coordinated." Nothing in this chaotic confusion is self-correcting, she said. Most policies seem to be making it worse: The large-scale building of expressways to the city center precipitates more and more cars to the center, which either chokes up, as in London or Manhattan, or tries to accommodate the cars and disappears in the process, as in Los Angeles, where 70 per cent of the city center is given over not to men but to the automobile.

"Have any ideas emerged for dealing with these causes of urban crisis? . . . Perhaps three, two static and one dynamic . . . merit attention: To the old idea of the neighborhood, as a place which is stable and safe enough for the proper nurture and education of children,

has been added another idea which links the neighborhood with the growing problem of city movement. Professor Buchanan asks the man in the street to reflect on what he expects from a home, and to ask himself whether he wants streams of people going through the bedroom or expects to drive his car into the garage through the living room. The concept of rooms and corridors is perfectly clear inside the house. But it has been lost sight of in the city.

"The Buchanan Report is an attempt to work out for a number of cities the implications of attempting to restore neighborhoods—or rooms—in which life can be lived on a human scale, while at the same time constructing means of communication with other neighborhoods and with the world beyond. . . ." Since growth cannot be checked, alternatives must be found to fit the neighborhood into a dynamic situation. One is the concept of the linear city, in which growth is permitted and encouraged in one or two directions. Another is the concept of the "magnetic field," in which the overgrowth of one city is checked by the complementary growth of other cities in the region. Both of these concepts have some unavoidable implications: The principle of pur-

C. H. Waddington, British biologist, speaking; in foreground, l to r: Waldemar Nielson, US economist; Buckminster Fuller, John Riley, US sociologist



positive planning, with its corollary of control of land-use, has to be accepted. The other is that it is impossible to work out any coherent version of these principles of control if economic and social forces press too heavily against the ideas involved in the plan.

Miss Ward said there was not time for a detailed discussion of the obstacles to planning, but picked out a few points for discussion: "The first obstacle is cost: We do not know too much yet about the costs of redeveloping whole regions. . . . No estimates exist either of the cost of doing nothing about urban congestion." But based upon the Buchanan figures, the cost of redesigning a small town like Newbury would be about 90 million pounds. So in a fully industrialized city like Leeds, the cost of replanning the roads to introduce the "room-corridor" concept would be over 250 million pounds. These are clearly formidable sums.

A second obstacle, she said, lies in the number of strong interests at stake in the present unplanned city growth. Enormous profits are made from selling land for development; to regulate these interests without checking dynamic growth has been a problem for fifty years. Another range of difficulties

lies in the problem of working out the administrative structures which alone can make regional planning practicable. In New York City, for instance, there are between four and five thousand jurisdictions in the required area, many with strong vested interests in their own authority and in their ability to build defenses against the wider community of which they are really a part. It is significant that the reaction of the British government to the Buchanan report has been to announce that it is a splendid report but nothing will be done about it.

This brings out the indifference of public opinion to the possibilities of positive planning, reinforced by a considerable lack of interest in local politics—even to the point of contempt for those who engage in them.

Yet Miss Ward saw possibilities for the future. In the developed world, cost need not be a total obstacle. If arms expenditures become stabilized, and economic growth remains at 4 to 5 per cent a year, it is likely that truly large-scale urban renewal and a far more ambitious approach to the problem of human settlements can be realized—few activities would promote so wide a variety of domestic industries and services; few have such a

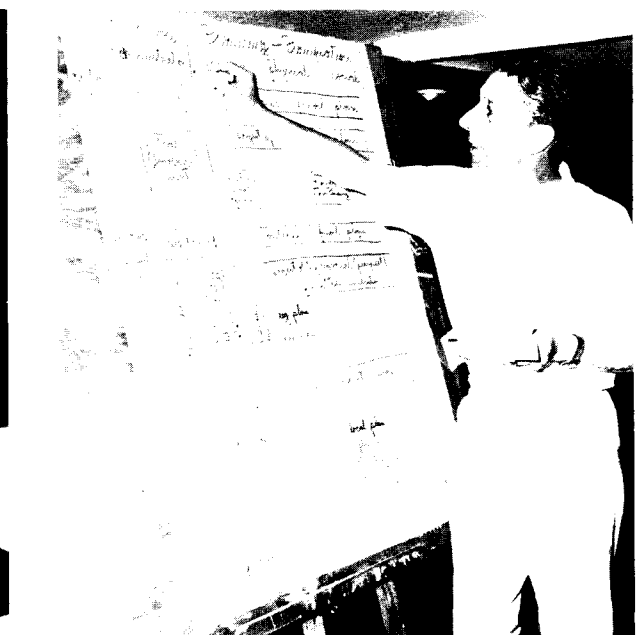
chance of becoming to a considerable degree self-financing. Moreover, the cost of doing nothing grows all the time.

However, reasoned Miss Ward, this is not true in the developing world. But if foreign aid could be used to stimulate the growth of regional centers as markets and poles of attraction, modernization would spread to rural areas, goods would be available to tempt farmers to greater productivity, food would be available to the cities and the drift to the megalopolitan areas might be slackened. The magnetic field concept would thus become a large factor in creating a dynamic market as a basis for economic growth.

The Relationship Between Planners and Decision-Makers

Does the planner have a claim to a special role in the decision-making process? This question was asked by Lyle C. Fitch, economist and president of the Institute of Public Administration in New York City. "Some urban planners have thought so," he said, "and have asserted that planners themselves should have power over the community's affairs—that they should make the decisions in the areas of their specialties, while enjoying a protected status as

Ed Bacon explains the relation between the city planner (the man of ideas), prevailing community sentiment and the leadership group. (Right) Juliusz Gorynski, architect-planner, describes the organization of planning in Poland





Margaret Mead as chairman of one of the sessions. Others, l to r: C. A. Doxiadis, Llewellyn Davies, British architect-engineer; Robert Matthew, British architect; Mohamed S. Makiya, Iraqi architect

government servants, to the end that planning might be freed from the interests of politicians and special interest groups." It is argued that planners can speak for certain interests which are not ordinarily adequately protected—such as the interests of future generations, or esthetic values, which in the democratic process are usually undervalued at the policy-making stage. On the other hand, some political analysts tend to regard planners as only another special interest group, to contest in the political arena along with the others.

It would appear, said Mr Fitch, that the reasonable view of the planner's role lies somewhere between these two extremes. The proposition of ultimate power in their special spheres assumes greater professional unanimity and greater capacity to divine the public welfare than planners have ever been able to demonstrate. Certainly the planners' claim to the greatest wisdom would be challenged—at least by the theologians and social philosophers.

"If the planner is given power to make policy recommendations to a council, independent of the chief executive, the executive power is thereby divided. . . . The anomaly of divided controls is even greater if the planner has power to act independently of both chief executive and council, which would imply the power to raise money to finance projects. The most modern thinking on local government

organization holds that *the planner should be a staff resource to the executive, and should not exercise independent policy-making power.*" (Italics are Mr Fitch's.)

Least successful are planning agencies without counterpart decision-making and implementation organizations, as is so common in the US. Such rootless planning agencies may yield certain educational values, but they have a history of little success in bringing about solutions to metropolitan problems. The considerations which argue for a professional administrator as chief executive also argue for planning. The trained administrator, who understands the language of the planner and can fit his contributions into the context of a legislative program may be at least a partial answer to the planner's problem of how to exert influence on the governmental process. (Robert Deland, in the *AIP Journal*, has said, however, ". . . many planners bridle at the thought of 'subordinating' city planning to the city manager. . . . The concentration of authority to make an applied decision below the legislative level means to the planner arbitrary, irrational and non-technical decision-making. . . .")

Education in the Science of Human Settlements

"Planning is essentially a task for men who are *educated*, not technicians who have been *trained*," said Lord Llewellyn Davies, British architect and engineer, and Sir

Robert Matthew, president of the RIBA and also of the UIA, in a joint paper. "This is a vital distinction. Traditionally most professions have, until recently, relied on training by apprenticeship to a master. Even when professional training was transferred to a university setting, the old system persisted. . . . The fatal weakness in this system is that it has a built-in time-lag. If teaching the young is based on the practical wisdom of the old, a profession dooms itself to obsolescence. Only by basing education on fundamental subjects and on research, can we produce men who can keep pace with the changing needs of society and the advances of science and technology. Abraham Flexner pointed this out in relation to medicine fifty years ago, and since then medical education has been transformed."

The spectrum of activities involved in ekistics is very wide, the British architects pointed out, ranging from national and regional planning at one end to the design of individual buildings at the other. At one end the leading members of the planning team may be geographers, sociologists and economists; while at the other end they may be architects and engineers; again, they may be altering geographical features, creating cities or renewing old ones. For this they must be *designers*—indeed, design ability of the very highest quality is needed for these tasks.

The need is for a more effective

education for the men who will work in planning in the future. As far as national and regional planning are concerned, we shall need men educated in a range of subjects including geography, economics, mathematics and the social sciences. In addition they will need a postgraduate course which will expose them to the other subjects they will come in contact with in their work. But this education will not produce men able to work as designers unless their previous discipline has been architecture. At any other level than regional planning—as soon as the ordering of the physical environment is involved—the leading part must be played by men who are first-rate designers, and the numbers of such men needed will be very large. In England a strong and established planning profession has come into being, but it is now accepted that planners who were not originally educated as architects are generally unable to act competently as urban designers.

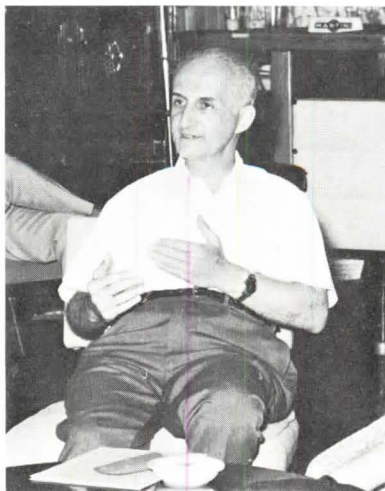
Continuing the discussion of education, Dr Duhl issued a warning to the universities. He said the university must look at itself: Where is it going, where has it been; how is it educating its students; why is it in business; *who else* is educating the people? "Educators have talked to educators, practitioners to practitioners, and experts again meet experts. . . . Neither the dialogue that has been called for nor the simple answers to complex problems that practitioners want, have been anything but barely touched upon. The practitioner pleads with the educator, 'Come out and see the real world. Get your hands dirty. See what politics are like; what is involved in developing sewer systems, water supplies and automatic traffic controls.' The student cries out, 'See the realities of segregation, of poverty, of the back wards of mental hospitals. Nothing I learn in school prepares me for this world.' And the student goes out himself; the professor becomes consultant to practitioners. . . . And at the same time the practitioner turns elsewhere. He is turning to the private sector for answers. Big industry involved in economic conversion from

defense is asking how to enter the arena of the new cities, of operations research on social and human problems, on education of the poor, and of the creation of new jobs."

Dr Duhl said the university has become involved in the urban community in diverse ways, but principally by just *being* there—being in the middle of a slum, being a slum landlord, requiring more space for expansion. "How many universities did not know there was a community until a secretary was mugged or a professor beaten? How many didn't face the problems of our cities until new dormitories or new classrooms had to be built? . . . When and if the university honestly faces the problem of planning and space . . . it finds that renewal is people, is economics, is education of the poor, is health, housing and the other amenities of life. When a university turns to the neighboring community, and sees in it a laboratory for increased understanding, as well as a place to expand into, it sees . . . the issues."

During a discussion of living at high densities with Dr Jean Gottmann of the University of Paris and the Institute for Advanced Study at Princeton and author of "Megalopolis," the study of the high-density area foreseen from Boston to Richmond, it was brought out that urbanization and urbanism are different things. Urbanism can be defined as the distribution in space of a cer-

Jean Gottmann, French urban geographer, presents the problems of living at high densities



tain amount of material equipment. Unfortunately, the people handling this are not competent to handle urbanization. France has twenty-eight communities dealing with national planning. One of these handles urban equipment. It found itself unable to work for lack of adequate knowledge of the changing economic, cultural and social patterns which affect not only the urbanism of cities but the economics of entire countries. Surely, our present legislation is not adequate for living the good life at high densities. High densities mean another way of life.

Regional Planning in an Urbanizing World

In a paper with the above title, Charles Abrams, lawyer and housing consultant, said master planning was a valuable tool in regional planning, since it set goals and scheduled procedures, as well as informing and educating the public. But it has a limitation in that it is subject to "constant discomposure by intruding events" and, furthermore, its very publication brings out the opposition simultaneously and in full force, which can endanger the entire plan. The most constructive master plan is one which envisages such great improvement in the region as to bring obvious and inevitable benefits. This is most readily accomplished, of course, in the developing countries. Due to the population surge, the countries of Asia and Africa, and most particularly of South America, are faced with enormous housing problems which are becoming worse with the passing of years. "These nations lack capital to finance industries; squatters are overrunning both public and private lands, and it is a sobering fact to know that 45 per cent of the population of the planned city of Ankara is squatters. . . . Regional planning in the less-developed areas should anticipate and prepare for these squatter movements, or the best-laid plans may fail. In Santo Tome, I recommended a 'squatters welcome' policy under which the plan reserved areas for them, utilities were laid out for them in advance, a small loans program was set up, and they were permitted to put up whatever houses they wished."

DELOS

He mentioned another aspect of the problem which seems to have been ignored, the regional role of the United Nations: "There are many projects which can create international river valleys and make water, power, communications, transportation and industry a multinational dividend of compact and cooperative effort. . . . Unfortunately, most of the international agencies concerned with regional problems are separated from actual development." He listed the major needs: An up-to-date inventory of potential international projects; initiation of a few viable pilot projects—with the hope of their being contagious; development of a pool of experts; enrollment of private investment; provision of ample funds; refinement of corporate and administrative international mechanisms to give proper representation to the nations involved and a reasonable distribution of costs and dividends. The World Bank makes loans for such international projects, but it is not engaged in construction and operation. That leaves a challenging gap indeed.

"The least explored and most fruitful potential would be a regional development corporation set up by the United Nations itself. Possessing technical skills it would not exact a predatory price for harnessing them. It would not demand a military alliance in return for a loan. To gain this objective, however, a transition must be made by the UN from 'consultation, research, study, advice and recommendations,' to actual financing, building and operating. . . . No government, and even less an international government, can ever acquire sovereignty or even influence without spending power. Oddly, the UN was granted war power in Korea and the Congo, but no funds for developing its influence for peace. The potential for using the UN as an instrument of regional progress highlights the international vacuum and is perhaps the most challenging regional frontier of all."

Philosophy and Fun

It is possible here to refer to only a few of the individuals who took part in the Symposium, and quote or paraphrase only a fraction of

their words. Each morning for seven days, the group met for three hours in the salon of the cruise ship "Philippos," listening to a paper prepared by one of the group on an assigned topic and discussing it roundly. In the afternoons and in the evenings they went ashore—at Delphi, Sparta, Patmos, Mycenae, Mykonos, Delos, and it was while climbing rocky hillsides, surveying splendid ruins and sipping *ouzo* and *retsina* in village tavernas on the white-clad Greek isles, that the most stimulating discussions—and even arguments—took place. And there was fun and entertainment too: One night, after climbing by torchlight up the steep hill to the ancient theater at Delphi, they found the Greek Art Theater Company ready to give them a special performance of Aristophanes' "The Birds," and a few evenings later, in the theater at Epidaurus they were given a performance of the same ancient playwright's "Peace" by the Greek Royal Theater troupe. There was dancing with the villagers in the town square—and nonsense from Bucky Fuller and Margaret Mead. In fact, there were moments of pure corn, even from such an intellectual group: Picture Arthur Koestler, the English writer, standing on a table in Antoninis' tavern in Mykonos, reading his "Ode to Ekistics":

Come on board and take your stations
developing and other nations.
Whether you are fat or famished
all your worries will be banished.
Squire, squatter or commuter
trust your fate to the computer—
the universal trouble-shooter.
In the solemn Alma Mater
we shall feed it gorgeous data;
never mind your urban cancers
we will give you all the answers
on the spot—or a little later—
in the lingo of ekistics
well-belov'd by urban mystics.
In the world's immensity
you'll find your proper density.

Nymphs and shepherds dance no more
anywhere along the shore.
Hills and woods are now outdated,
and soon they will be amputated.
So come on board, emerge from Hades,
and join the fun with Doxiadis.

So What Has Been Accomplished?

Perhaps some of the participants can best answer that question:

In a letter to Doxiadis, Martin Meyerson, dean of the School of Environmental Design at the University of California, said, "I just heard from the Institute of Contemporary Arts in London that they are planning to hold two sessions based on the Delos Symposium.

Jose-Ramon Lasuen, Spanish economist, speaking from the floor; left: Margaret Mead, US anthropologist; behind her, A. Olumide Craig, Nigerian architect-planner; C. A. Doxiadis; behind him, Albert M. Cole, president of ACTION Council for Better Cities; Konstantin Trapeznikov, Russian architect; Mrs Olga Smirnova, Russian architect-planner





Charles Abrams reads the final report of the Symposium in the ancient theater on the island of Delos

This is another example of the fruitful influence of the program last summer."

Sir Robert Watson-Watt, presently of the Sterling Forest Research Center, Tuxedo, New York, said that he considered the Delos Symposium "the most satisfactory form of international conference that I have ever experienced—this in a career studded with international conferences." And Sir Robert Matthew declared: "Last year was a foundation year at Delos. This year we have gone on; we have not been repetitive. We have done two things: We have indicated the general direction of an academic discipline and also put out some urgent calls to the outside world for understanding and action. I look on these calls as of great importance and trust they will be heeded."

Dr Leonard Duhl, in a conversation with the writer, said that although the behavioral sciences are much more a part of the common language in the US than they are in Europe, few if any American architects and planners make use of them in their practice. The Symposia are an effort to ground planning thoroughly in these social sciences. And in a letter, Edmund

Bacon said to the writer, "The most remarkable thing about the Second Delos Symposium is the fact that it was held at all. It is a tribute to the strength of the original idea that the participants, after formulating a lofty, global statement of principle at the first Symposium, were willing to reconvene to grapple with the much harder task of following it up with some statistical material.

"There were two things about Delos II that impressed me very much: The first is that the new people, coming for the first time, so quickly caught the vision which had pervaded the first Symposium and, with such enthusiasm, plunged into the joint effort to make effective their special offering. The second is the rapidity with which the decision was reached to work toward the establishment of a permanent world organization to work on the problems of human settlements. The design of human institutions is at least as interesting as the design of physical structures, and the Delos Symposium as design of an environment for thought is brilliant."

So preparations are being made for Delos III, to be held on board

the m/s "Semiramis," cruising the Greek islands from July 12 to 19. The specific topics for discussion will be "Problems of Density," with papers prepared by Professor C. H. Waddington, Dr Edward T. Hall (who spoke at the AIA convention in Miami), C. A. Doxiadis, Dr Jean Gottmann and J. M. Fraser; and "The Practice of Regional Planning," with papers by Edward S. Mason, Roy I. Wolfe, Rafael Pico and Doxiadis. In addition, there will be a paper entitled "Human Unsettlements" by Buckminster Fuller and a guest lecture by Dr Arnold Toynbee.

In the meanwhile, a committee drawn from Delos II is meeting to follow through with the resolutions adopted last year to be submitted to the UN; that human settlements be recognized as a separate sector of activity within the UN and that organizational measures be taken to set it up and to provide it with funds; and to take the initiative in preparing plans for a world association of ekistics, to bring together individuals concerned with the problems of human settlements and to act as a clearinghouse for information and a stimulant to greater activity and study. ■

Is Accreditation the Answer?

BY C. THEODORE LARSON AIA

Here is a school man who is very much concerned with architectural practice. Professor of architecture and architectural research coordinator in the College of Architecture and Design at the University of Michigan, he says "The general public has not yet been educated to an acceptance of the fact that it is good economy to spend more money to obtain a better and more comprehensive service. But even if clients were made aware of this, how can they find firms qualified to give them the kind of planning and design service they want?"

HOW CAN architectural firms expand and improve their range of professional service and at the same time receive adequate recognition and compensation for doing so?

More work on the client's behalf means less net return to the individual firm if fees continue to be based on a fixed percentage of building costs. But even where cost-plus schedules prevail, how are clients to know which are the more progressive design firms and whether the fees demanded are commensurate with the services to be rendered? Some new formula for distinguishing professional differences in the scope and quality of architectural service appears needed.

Is professional accreditation—a classified rating service—the answer to this dilemma?

The suggestion comes out of the field of architectural education. Architectural schools are not licensed or registered. Instead, they are accredited—and accreditation is deeply cherished by each institution as a public recognition that its own performance has met certain standards of quality.

Periodically, every five years or so, a visiting committee from the National Architectural Accrediting Board comes around to see whether the school still matches up to the established standards for architectural education. These standards, it should be noted, become more and more demanding as time goes on as a direct reflection of advances in the organization and performance of the architectural profession itself. If the school is found seriously deficient in any respect, warnings are issued; and if the deficiency is not soon corrected, the school loses its accreditation.

A discredited institution can continue to operate if it so desires, for no architectural school is compelled by law to be accredited. From this point of view the system of accreditation is voluntary

rather than mandatory. Once accredited, a school will do everything within its power to avoid losing its accreditation; no great powers of imagination are required to foresee the uproar from students and alumni that would ensue from any such event.

In this wider sense the system of accreditation must be considered a compelling force. To the extent that the visiting NAAB committees are conscientious and do a good policing job, they guarantee quality in architectural education. If they are culturally enlightened, they can also exert powerful leverage in raising standards still higher.

So far the system of accreditation has worked quite well for the advancement of architectural education in the United States. Why then, isn't the same system being applied to the performance of the architectural profession itself? Why shouldn't planning and design firms be given the privilege of applying for suitable accreditation so that the general public may have some kind of index as to the quality of professional service being offered?

Let us explore some of the implications and problems involved.

A probable objection to any proposed system of professional accreditation is the thought that it would duplicate, if not actually compete with, the already established systems of professional registration for architects and engineers.

This should not necessarily be the case. There is no good reason why an accredited firm could not be made up entirely of individuals who are registered architects, engineers, planners, accountants, plumbers, economists, decorators, and other types of specialists. The firm would still be accredited even if it had only one or two registered specialists, or perhaps none at all, although presumably the more members in the firm who have individual registrations, the better would be the firm's own chances for becoming accredited. In short, registration bespeaks an individual's fitness as a specialist, whereas accreditation should be looked on as a token of quality covering the services of a group or team of specialists.

Group practice is quite different from individual practice. A firm made up of many different specialists can obviously offer a much wider range of planning and design services than any single individual, no matter how clever or versatile he may be. But just as in the case of the architectural schools, where there may be striking differences in performance because of basic differences in faculty capabilities as well as in physical facilities and

in educational philosophies, distinctions can likewise be made in the services offered by different groups of specialists operating as integrated planning and design firms. Some may be "strong" in certain departments or areas of specialization, relatively "weak" in others. It should be the objective in any system of accreditation to indicate such distinctions and to make sure that a firm is capable of meeting the current standards of quality for practice as an integrated group of specialists before it is granted full accreditation.

The existing systems of professional registration cannot be expected to do this job. In many states the registered architects and the registered engineers are waging open war as to which profession should have the right to design and supervise the construction of buildings. As written, the registration laws are vague and wide open to evasion: even sanitation and highway engineers whose areas of specialization have little to do with a building as a designable totality in itself are permitted to undertake such responsibility. This dispute, while it may be professionally significant so long as the emphasis is put on individual practice, dwindles into a Tweedledee-vs-Tweedledum controversy when the emphasis shifts over to group practice. It matters little to a firm whose letterhead boldly announces that the organization comprises both architects and engineers whether the law gives exclusive responsibility to any one profession.

The really significant fact is that there has been an enormous increase in group practice in recent years. The bulk of planning and design work in this country is now being done by firms whose members represent a large array of specialized talents. More development in this direction can be anticipated.

The general public, however, has as yet no way of distinguishing qualitative differences in the range of services being offered by the integrated planning and design firms. Clients may be impressed initially by firm members who boast of being registered, but such assurance rapidly fades away when it is discovered that the systems of professional registration have permitted practitioners to become licensed under such hoary dodges as the "grandfather clause." Even if candidates do pass their "state boards" and acquire licenses, there is no guarantee they will continue to develop professionally as demanded by our rapidly evolving society. The blunt truth is that a great many registered architects and engineers have long since passed into what must now, by contemporary standards, be considered a state of professional rigor mortis. Very clearly a more dynamic measure of professional competence is needed in the public interest.

One of the main arguments in support of a system of accreditation for integrated group practice

is the built-in limitation of time. No firm could be accredited for more than a specified number of years. At the end of this period it would have to requalify; renewal of the original accreditation would not be automatic. If, in the interim, the standards of group practice had advanced, as undoubtedly they would, the firm might find it difficult to qualify for a continuation of its accreditation, particularly if any firm members had failed to keep up with advances in their individual areas of specialization. Failure to requalify would be professionally embarrassing—but so is it for any architectural school that the visiting NAAB committee thinks has developed shortcomings or has not kept up with the times.

Accreditation is not, like registration, a vested right that continues as long as the individual specialist, once qualified, is willing to plank down an annual license fee. It is a privileged token of esteem that has to be merited and earned, continuously and repeatedly, for the public good.

The Nutcracker Squeeze

Desirable as professional accreditation may be from the standpoint of society, it is even more so when viewed from within the architectural profession itself.

Architects operating in the traditional manner are caught in a vise. On one side is the prevailing formula of charging for professional service according to a fixed percentage of the building cost. On the other is the expanding range of professional services which architectural firms are expected to render—research, diagnosis of client needs, committee conferences, property appraisals, site selection, the programming and scheduling of operations, all in addition to the usual planning and design work and the supervision of construction, to say nothing of the continuing professional advice demanded by the client after the building is erected and occupied.

As the range of professional service continues to expand, the more oppressive becomes the squeeze in which the architectural profession finds itself. Fees are not easily increased. Indeed, a fixed percentage of a building's cost tends to become an upper limit for all practitioners. This maximum makes no allowance for differences in the quality or scope of the service being rendered. Whenever competition tightens, the tendency is for the less capable firms to start shaving their fee schedules, and the more qualified practitioners face the alternative of doing likewise or losing out on new commissions.

But fees can only be cut so much before an office goes into the red. The alternative then becomes a choice of going out of business or cutting down on the quality and scope of professional

service. When design services are cut, building costs go up—and the client foots the bill. Eventually the client discovers he has been the victim of a snare and a delusion—and the public image of the architectural profession gets another black eye. In the long run it is society, the sum total of clients, that pays the price for all this obsolete professional fee tomfoolery.

To repeat: The only way that buildings can be made more effective and their costs reduced is by improving and extending the range of architectural services. Under the prevailing system of fixed percentage fees a conscientious firm stands to lose, the more so the harder it strives in the client's behalf. It is a self-defeating system, professionally suicidal as well as socially corrupt.

Professional accreditation appears as the bright hope for helping the more progressive architectural offices to break out of this impasse. By setting up standards of practice which distinguish different kinds and levels of competence, it should be possible to persuade the general public that a service of recognized superiority merits a distinctly higher remuneration.

Organizational Problems

Assuming general agreement as to its desirability, how can a system of professional accreditation be brought into existence?

Certainly it will not be an easy task. Even in the case of the architectural schools, relatively few in number, the accrediting process is complex enough. If the process is applied to the many hundreds of architectural firms that presumably would be seeking accreditation, the complexity will be compounded many, many times.

Topmost is the question of who would do the evaluating—by what authority and on what basis? Unless the standards of evaluation are scrupulously established and the evaluators are themselves beyond any shadow of self-interest or any doubt as to their own competence, the whole system will fall flat and become itself discredited.

The NAAB was created by The American Institute of Architects, the National Council of Architectural Registration Boards and the Association of Collegiate Schools of Architecture for the sole purpose of keeping a close check on the performance of the architectural schools. It exists as a completely autonomous unit, with headquarters in Washington. The visiting NAAB committees are usually three-man teams selected to represent each of the founding organizations. As anyone who has seen these evaluating committees in action will testify, their behavior varies considerably. Some are hard-working and deeply penetrative in their thoroughness; others are content with a superficial inspection and a few martinis.

None can be said to be any better than the level of understanding, imagination and integrity represented by their individual members.

Although free-wheeling evaluators produce value judgments that seem to work well enough for the architectural schools (at least to date), a similar range of variation in standards and procedures obviously could not be tolerated in any system of accreditation applied to professional practice. Too much of a strictly dollar-and-cents nature would be at stake. But who is to evaluate the evaluators—and how are we to be sure that all standards of evaluation, both for the evaluators and for those whom they evaluate, will be consistently fair and objective, as well as socially progressive, in the eyes of everyone concerned?

A “big brother” type of bureaucracy could very easily come into existence, with all that this implies for the perpetuation of an uninspired architecture such as we have seen in government-sponsored housing and urban redevelopment projects. There would have to be a companion program of continuous research for new and higher standards of performance if sterility in building design and community planning is to be avoided.

It seems clear that some kind of organization similar to the NAAB is called for, but it would have to operate in a more disciplined fashion and on a much broader, more dynamic scale. The AIA should, of course, be involved in its creation, but so also should the various engineering societies and all the other professional groups, including the landscape architects and interior designers and town planners, whose members have become integral parts of integrated planning and design firms. Just how far the proposed organization should go with the inclusion of other specialists in community planning and development is itself a moot point. The suggestion that it might well include even social scientists and experts in finance and business administration, in order to have the broadest possible base for setting up proper standards of professional evaluation, usually brings a “whoa there” from the more orthodox planners and designers.

Whatever form the accrediting organization might take will depend on the answers to many other questions dealing with potential memberships and the underwriting of anticipated operational costs. All this should be brought out in a general debate within the various planning and design professions prior to its establishment. This paper simply suggests that the architects, since they have the largest and oldest interest of all the specialized groups concerned with the raising of standards of practice in architecture and community development, should seize the initiative and open the discussion. ■

An Approach to Budgeting for the Architect

BY THOMAS J. EYERMAN

The author obtained a B Arch at Ohio State in 1963 and is currently a candidate for a master's degree in business administration. A resident of Brighton, Mass, he has worked in architectural offices in Boston and New York

THE ARTICLE "Budgeting the Architect's Fee for Basic Services," by Robert J. Piper AIA, appearing in the AIA JOURNAL for July 1964, has illustrated one side of the complex, and at times frustrating, job of establishing a meaningful budget. However, at the beginning of each project, the practitioner must not only consider such a fee-budget but must also consider a method whereby he can periodically compare the actual cost of producing that job with his initial fee-budget figures. For a fee-budget to be of real value to an architect, he must be able to compare his actual cost of producing a project to his initial budget.

In developing his fee-budget, the architect estimates how much of his total fee should be allocated to each phase of the project. Exhibit 1 illustrates a typical case.

EXHIBIT 1

Fee-Budget

- 50 to 55% of architect's fee for drafting
- 10 to 15% of architect's fee for contract administration
- 10% of architect's fee for profit
- 25% of architect's fee for consultants

One-third of drafting time is for preliminaries
Two-thirds is for working drawings

By multiplying his fee by these percentages, the architect can develop standards or targets of performance expressed in dollars for each phase of work. These targets serve both as a goal for attainment and as a basis of comparison with actual costs in checking the practitioner's production performance.

It is to be noted that the fee-budget discussed here does not parallel the schedule of fee payments stipulated in the owner-architect agreements, AIA Documents B-131 and B-311. However, just be-

cause these documents stipulate that 15 per cent of the architect's fee is due at the end of the schematic design phase, for instance, does not necessarily mean that the architect should budget this same percentage for this phase of his work. The budget percentage of the fee, as determined by the practitioner, should take into consideration past experiences with similar projects, the cash balance of the firm, the number of employees in the office and a variety of other influences.

It is important to mention that in determining the fee-budget, the architect must consider the consequences of such a budget system if the contract is terminated some time before its completion. The compensation due him upon termination will obviously be something less here than if the project had been completed. Therefore, the practitioner might wish to reflect his budget percentage of the fee for each phase of work in the schedule of payments in the Owner-Architect Agreement.

Having completed the fee-budget, the practitioner continues his work by developing a method of collecting the actual cost of rendering his services. A procedure based on the cost/project hour is a good basis for comparison to the practitioner's original fee-budget. To calculate this cost/project hour figure, the costs of producing a project are separated into direct personnel expense, direct material expense and indirect expense.

Direct personnel expenses are recorded on the standard AIA time card, AIA Document F-601. The draftsman each week lists the direct time he worked on each project, ie, the actual time spent on drafting, sketching, conferences, etc. Thus, each week the practitioner should have the total direct hours spent on individual projects as well as the total direct project hours worked by the draftsmen for that particular week. In some architectural offices the principals charge their own time directly to projects, and thus their wages could be considered in this direct personnel expense. In many firms, however, the principals choose to have their wages included in the indirect expense. The cost of direct personnel/project hour can be established by the following equation:

$$\frac{\text{Total Direct Personnel Expense}}{\text{Total Weekly Project Hours}} = \frac{\text{Direct Personnel Expense}}{\text{Project Hour}}$$

EXHIBIT 2

<i>Project Cost Report</i>						
Week	Cost/Project Hour	Project Hours	Weekly Cost Sub-Total (2 x 3)	Material Cost	Total Weekly Cost (4 x 5)	Accumulated Weekly Cost
June 4	\$6.10	30	\$183	\$10	\$193	\$ 193
11	6.50	40	260		260	453
18	7.20	50	360	50	410	863
25	6.50	60	520		520	1383

Materials that have been bought for a particular project should be charged directly to that account. However, for firms of less than 40 employees, this material cost can be combined with the indirect expense. By doing this, some projects will have higher actual costs, although over a period of months and with several projects the deviation will certainly be very minute. In offices where this material expense is extremely high, then the practitioner should separate the materials cost from the indirect expense.

Indirect expenses are those costs which cannot be easily identified with one particular project, i.e., rent, insurance, secretary's salary. There are many and varied opinions on how this indirect expense should be allocated in an architectural office, and it is impossible to set down any type of rule to follow. Regardless of whatever manner this indirect expense is allocated, the practitioner must check at some point whether or not he is completely covering his indirect expense with his fee. The anticipated yearly indirect expenses, including material expenses, for firms with under 40 employees is divided by 52 weeks to arrive at a weekly indirect expense. This figure can be accumulated and quarterly compared to the actual indirect expense. The architect can then adjust his estimated weekly indirect expense in line with the actual indirect expense. The indirect expense/project hour can thus be established:

$$\frac{\text{Weekly Indirect Expense}}{\text{Total Project Hours}} = \frac{\text{Indirect Expense}}{\text{Project Hour}}$$

Therefore, by adding the direct personnel expense/project hour and the indirect expense/project hour, the cost/project hour is derived:

$$\frac{\text{Direct Personnel Expense}}{\text{Project Hour}} + \frac{\text{Indirect Expense}}{\text{Project Hour}} = \text{Cost/Project Hour}$$

This hourly cost can be multiplied by the total amount of hours spent on each project and added to the direct material costs—if material costs were not included in the indirect expense—to arrive at the actual cost of producing a project for that particular week as shown in the next column:

EXHIBIT 3

<i>Weekly Cost/Project Hour</i>			
Total Weekly Project Hours	Men in Office		
	8	9	10
250	\$9.45	\$9.95	\$10.50
260	9.10	9.60	10.10
270	8.75	9.25	9.70
280	8.45	8.90	9.35
290	8.15	8.60	9.05
300	7.90	8.30	8.75

$$(\text{Cost/Project Hour} \times \text{Project Hours}) + \text{Material Cost} = \text{Weekly Cost of Project}$$

Generally, a form is maintained called a "project cost report" on which the weekly costs of a project are accumulated as work progresses. Exhibit 2 illustrates a typical report.

This entire approach to budgeting can be placed on graphs and charts so that calculations can be done in a matter of minutes by the office secretary. Exhibit 3 illustrates one of the charts that can be easily used to determine the cost/project hour for any particular week. The practitioner, by knowing the total project hours and the total number of men responsible for the direct personnel expenses, can determine the cost/project hour for the week in a matter of minutes.

When each phase of work is completed, the architect can check the actual accumulated project cost against his initial fee-budget. A difference between actual cost and the budget can be established. The cause and responsibility for this difference can be determined and the practitioner can take effective action. Other apparent advantages:

First, this approach can be easily tied into the financial reports by the use of subsidiary ledgers. The AIA Instructions for Standardized Accounting for Architects, AIA Document F-100, is a helpful guide in accomplishing this.

Second, this budgeting approach can be tied to wage incentive plans, profit sharing plans or more sophisticated levels of programming the work flow in the office, such as the critical path method. ■

Owner-Architect Agreements for Religious Buildings

BY MILTON L. GRIGG FAIA

Edited by the AIA Committee on Documents Review and staff executive Robert J. Piper AIA, this article was originally drafted by the author, a member of the AIA Committee on Religious Architecture (Kenneth E. Richardson AIA, Chairman), under the Commission on Architectural Design (Robert L. Durham FAIA, Chairman)



THE FURNISHING of comprehensive services by the architect is more firmly an established tradition in the area of religious buildings than perhaps in any other type of practice. Historically architects have considered that their further responsibility existed in

such matters as the correlation of furnishings and fine arts, and more recently basic services frequently extend to site utilization studies, financing problems, master plan projections, program counseling and other fields. These services are compensated for in many and varied ways, and these are not covered by normal recommended fee schedules of the various AIA chapters nor by any implications of the most recent recommended forms of agreement published by The American Institute of Architects. These matters have left to the individual architect the option as to form, degree of responsibility or, indeed, the actual undertaking of these extended services and the fees to be properly charged for basic services and for the extended services.

The Committee on Religious Buildings originated a study of this situation several years ago. There was enthusiastic and helpful cooperation from a number of offices throughout the country which supplied copies of their forms of agreement, outlines of their procedural practices, and suggestions as to the possible role of the Institute in rendering more uniform these standards of special services and compensation.

Contract Modifications

It was concluded that no attempt should be made to substitute a new document for the stand-

ard AIA forms of agreement between owner and architect, but rather that suggested uniform phrasing of contract modification should be developed and made available to the membership.

The subsequent development of AIA Document B-131, with its modified format and numbered paragraphing, has made possible the fullest utilization of this method of modification with comparatively minor insertions.

Following are two suggested insertions clarifying scope of services. One covers comprehensive services as they have come to be accepted in the religious building field, and the second covers the services on projects involving multistage construction requiring the development of a master or alternate building plan at the same time basic services are being furnished for a first unit. The other permissive modifications provide for several optional means of establishing the architect's compensation for these extended services.

Note that the insertions may be added to modify either Article 3 or Article 4 of AIA Document B-131. The choice of the article to which the insertion should be attached is up to the individual practitioner as he determines whether or not these services described in the insertion should be considered basic services (Article 3) or additional services (Article 4). Of course, his compensation for the services described in the insertion will be affected by this choice.

The following additional provision under Article (3) or (4) are agreed to by the owner and the architect.

(3.2.3) or (4.11) The architect shall advise the owner on furnishing the structure including but not limited to artwork, stained glass, sculpture, furnishings, pulpits and similar ritual equipment, seating, carpeting and hangings, musical instruments, fixed kitchen equipment, and classroom and office fittings. The architect shall review and advise the owner on the acceptability of objects or furnishings, such as memorial gifts, proposed for the project whether or not specifically designed or obtained through the architect's services.

(3.2.4) or (4.12) The architect shall prepare comprehensive site utilization and ultimate facilities plan, hereinafter referred to as the master plan. This shall be based on research carried out by the owner under the direction of the architect,

establishing anticipated needs, purposes and broad solutions and the projection of these on the required master plan. These services shall further include the preparation of a statement of probable project construction cost and either a model or a rendered perspective or both as authorized by the owner for promotional use, and the architect shall further prepare lantern slides or other similar interpretative aids and make presentation in behalf of the owner of the master plan.

(Optional insertion: After the final word "plan," place a period and continue:)

The architect shall receive a fee for the master plan, except that the prorated portion of the compensation due the architect for services under this article (3.2.4) or (4.12) shall be credited to the fee for basic services subsequently performed as each stage of the construction is undertaken.

Professional Policy

Contract law varies in the several states and the laws of the states which will govern the contract should be ascertained from counsel. The standard AIA Owner-Architect Agreement forms should be modified, or new forms devised, with the assistance of legal counsel.

The AIA has no policies, other than those indicated in AIA Document B-131, regarding the nature of the architect's services to the owner. Nor is any AIA policy implied by the above materials. The Institute welcomes comments on its contract studies. These should be addressed to the Director, Professional Practice Programs, at AIA Headquarters. ■

Stephen Francis Voorhees FAIA 1878-1965

STEPHEN F. Voorhees FAIA, one of the profession's most distinguished members and one of the Institute's most outstanding presidents, died January 23 in New York. Graduating from Princeton in 1900 as a civil engineer, Mr Voorhees soon joined the staff of the architectural firm of Eidlitz & McKenzie, which became McKenzie, Voorhees & Gmelin in 1910—the beginning of one of the great firms of the past two generations. In 1959 Mr Voorhees retired from Voorhees, Walker, Smith, Smith & Haines, and the firm continues as Smith, Smith, Haines, Lundberg & Waehler.

Many great buildings came from the firm's drawing boards, one of the earliest being the New York Telephone Company Building at Barclay and Vesey Streets—the first building to be built under New York's "set-back" zoning laws of the 1920's, and still one of the finest. Others were the Prudential Insurance Company Building

in Newark; the Irving Trust Building at 1 Wall Street; and many buildings at Princeton, Harvard, MIT and Rensselaer.

An outstanding administrator, Mr Voorhees was one of the founders of the New York Building Congress in 1921, chairman of the committee that recommended reorganization of the City Board of Standards and Appeals, chairman of the Construction Code Authority of the NRA during the depression, and chairman of the Board of Design of the 1939 New York World's Fair.

Always active in New York Chapter and Institute affairs, Mr Voorhees was elected President of the Institute in 1935 and again in 1936, and when he retired as president of the New York Chapter in 1944 he was awarded its Gold Medal of Honor. His 49 years as a principal in a great firm can be matched by few; his services to his profession and to society can be matched by none.

Edward Lawrence Wilson FAIA 1899-1964

EDWARD L. Wilson FAIA, for fifteen years an active and loyal member and officer of the Institute, died in Fort Worth on December 31. Born in Chicago, Mr Wilson received his architectural training at the Armour Institute of Technology, going to Fort Worth in 1925 to join the staff of Wyatt C. Hedrick. In 1939 he and Joseph J. Patterson formed the firm of Wilson & Patterson, which gradually expanded into the present firm of Wilson, Patterson, Sowden, Dunlap & Epperly, Architects & Engineers.

During the past twenty-five years, Mr Wilson participated in the design of many notable buildings throughout the Southwest, among them a large number at North Texas State University and at Arlington State College, the Texas Highway Department buildings, the Children's Museum and Second Church of Christ Scientist at Fort Worth, and numerous school buildings throughout the state. At the time of his death, he

was one of the architects selected to design the Fort Worth Federal Center Building which is now under construction.

A charter member of the Fort Worth Chapter AIA, he served as vice president in 1946 and as president in 1954-55. He also served as president of the Texas Society of Architects from 1950 to 1954 and as president of the Texas Architectural Foundation in 1955-59. Becoming active in the Institute's national affairs, Mr Wilson served as Director from the Texas Region from 1951 to 1954, and was then elected Secretary of the Institute, which office he held through 1959.

Quiet, courteous, thoughtful and considerate, Ed Wilson was at the same time firm and efficient as a national secretary. He will long be remembered, not only among his associates in Texas, but in Institute circles in Washington, as a good architect and a hard-working and loyal officer of the Institute.

BOOKS

Capitol Story. Cecil R. Roseberry, photographs by Arthur John Daly. Albany, NY State Library, 1964. 120 pp illus \$1.00 paperback. (Check to NY State Education Department)

It is encouraging to see the publication of books like this history of New York State's fabulous old Capitol. Such buildings are rich regional monuments and form a vital part of the fabric of our cities and villages.

This well-told tale, profusely illustrated, is full of interest to architects as well as to New York State history buffs. The great granite pile was begun in 1867, from designs by Thomas Fuller, who had just completed the Parliament building in Ottawa. By 1874 the cost had exceeded the \$4 million limit set by the Legislature and only two stories of the building were completed. An investigating commission was appointed and ended up being hired to finish the building. This commission was composed of Leopold Eidlitz, H. H. Richardson and Frederick Law Olmsted. Thus the design passed into the hands of three of the great men of the day. Much of the actual construction was carried on by Isaac Perry, a practical builder-architect from Binghamton, who was appointed by Governor Grover Cleveland in 1883. After Richardson's death in 1886, Perry continued with his designs, adding greatly to the richness of the stonework and designing many final features himself, until the building was finally declared completed in January 1889.

Mr Roseberry has done a thorough job of research and has written a detailed and sprightly account, full of anecdotes about the political figures of the day and in particular about Eidlitz and Richardson. The Capitol today is a magnificent assemblage of Italian Renaissance, Romanesque, Gothic and French Renaissance details—and somehow it gets away with it. Its stonework, staircases, polychromed vaulted ceilings and carved mahogany woodwork are of almost unbelievable richness and of the greatest interest. And now this great rugged granite mass, with its gables and dormers, chimneys and pediments, is to preside over a new concourse, with fountains and a half-mile-long reflecting pool, flanked by tall shimmering state office buildings designed in the sleek and almost expressionless vernacular of this century. J.W.

Korean Arts. Vol III: Architecture. Won-Yong Kim, editor. Seoul, Republic of Korea, Ministry of Public Information, 1963. 242 pp illus

This volume, part of an illustrated history of the arts of Korea, contains 105 plates—many of them in color—and is an approach to an understanding of Korea's cultural history through its surviving architectural monuments. The first section is concerned with wooden architecture, which "progressed" after AD 372, we are informed, with the adoption of Buddhism as the national religion. Great temples and

pagodas were erected everywhere. Many of these monuments, destroyed in the sixteenth century by the Japanese warlord Hideyoshi, were restored after the war. The examples here are primarily from the Yi Dynasty (1392-1910). The second section, a study of Korea's stone monuments, includes pagodas, stupas and lanterns, examples of Korea's best preserved cultural monuments. Beginning with an early seventh century pagoda the selections given conclude with the icehouse of Kyongju constructed in the eighteenth century. Although the text lacks sparkle and vivacity, this panoramic survey of an architecture which has usually gone unnoticed or has been included only briefly in studies of Chinese and Japanese architecture is a welcome addition to the literature of architectural history. MARY E. OSMAN

Art of Egypt. Irmgard Woldering. New York, Crown 1963. 261 pp illus \$6.95

Another volume in the Art of the World Series, this title maintains the useful character of earlier issues with only a slight increase in price. The seventy-nine marginal line-illustrations are adequate, but the sixty-two color photographs remain a principal reason for buying the book. They are excellent, for the most part, and show items of great significance held in museums abroad. Each subject is carefully dated and located, and most of them dimensioned. This volume includes considerably more architecture than others in the series—the building plans, however, lack graphic scales. The text, in a fair English translation, covers in necessarily summary manner the tremendous span of 5300 years from neolithic prehistory to the Romans. Maps are diagrammatic but the text is well supplemented by an eight-page chronological table, by selected references, glossary and index. ERIC PAWLEY AIA

Pre-Columbian Architecture. Donald Robertson.

Western Islamic Architecture. John D. Hoag.

New York, Braziller, 1963. 128 pp each. illus \$4.95 each

Here are two of the twelve volumes of the Great Ages of World Architecture series. The authors are both PhDs in art history from Yale. Dr Robertson now teaches at Tulane and has traveled extensively in Middle America. Dr Hoag is Yale art librarian and has had foreign office duty in the Near East.

These books were produced to the same generally attractive standards as others in the series. Photographs in the pre-Columbian volume are for the most part excellent—not so good in the Islamic one. The traditional difficulties of photography in Muslim countries may account for this.

Over thirty pages of the brief text on pre-Columbia are given to Middle America, only seven to Andean areas. The weighty introduction (called Prolegomenon!) is loaded with polysyllabic, cosmological names such as *Tlahuizcalpantecuhli*. The text, however, with subdivisions devoted to temples and pyramids, palaces, architectural sculpture and painting, and city plans, moves along with intelligent and illuminating comment. While it is tempting to see textile patterns behind the wonderful stone mosaics

of Mitla, we understand they may have the additional significance of family or village identification. This would be a striking parallel with the tartans of Scottish clans.

Dr Robertson makes a good point, in his section on city plans, that development in these areas showed a notable regard for total effect due to "a consistent series of architectural decisions made in response to architectural problems continually arising when each subsequent building was to be built." His analysis of Monte Alban tends to place too much faith in the conventional axis of traditional Western planning. No one could dispute the masterful handling of this site, perhaps one of the world's greatest large-scale plans, but its greatness is surely based on subtle alignments, asymmetries and polar perception, rather than the remedial masking of deviations from banal axes.

Dr Hoag, in the companion volume on Western Islamic architecture, has obviously packed into his forty-page text a massive amount of information on early Islamic work, on that of North Africa, Spain, Egypt, and architecture under Turkish patronage. His comments on architecture and planning are perceptive but almost smothered under dynastic data.

It would seem time for publishers of books of this sort, with this good start toward providing concise, well-illustrated texts, to realize how much better they could be with more thought given to *information design*. In each of these volumes a comprehensive chronological table would have helped to clear away such encumbrances. The brief table in Robertson's book helps with chronology but the cosmologies could have been handled in a similar manner. Dr Hoag's has none—and why such poor maps? Cartography is an art too and not for amateurs with ball-point pens. Then there would be more time and space for useful and sensitive evaluations such as Dr Hoag's final comments on the quality of light in Islamic architecture. We no longer have time for the doubtful "good English" of the scholastic paper or the dogmatism of an editor's obsolete stylebook. It is a great waste of time and reader's patience to put dynastic or cosmological data in the text in paragraph form.

E. P.

Surrey. Ian Nairn and Nikolaus Pevsner (The Buildings of England Series). Penguin Books. 501 pp illus, \$7.50 cloth, \$4.95 paperback

England has done so much more than we have in the US to record regional architecture. This little book is one of a series which will record, when completed, the significant buildings of all the counties of England. For the Anglophile, or the architectural tourist motoring through Britain's byways of a summertime, the series is a natural. And what more erudite and witty guides could one wish than Messrs Nairn and Pevsner?

It is a true guidebook, taking up village by village, in alphabetical order, and assessing each building which has any claim whatever to attention. For example: "GRAFHAM—2 m NW of Cranleigh—ST ANDREW. Apsed chapel of 1864, designed and paid for by *Woodyer*. He lived in and presumably de-

signed GRAFHAM GRANGE nearby, which is big and oddly dull and mechanical considering *Woodyer's* talents. Unlike most other architects, perhaps he did not enjoy designing for himself." As you see, the comments are worth the price of admission. J.W.

Annual of Architecture, Structure & Townplanning. Calcutta, Publishing Corp of India, 1963. Vol IV illus

An article by N. Kurokawa on "Metabolism in City Planning" introduces the reader to this always lively annual from India. There is not the diversity of subject matter in this volume that has been present in previous years, although such topics as buildings and projects, a review of the life and works of Le Corbusier, research, housing, community buildings, planning, educational buildings, and new materials and equipment are covered. One may gain little knowledge about new materials and equipment from the scant two pages devoted to these subjects; this international tropical review is of value for its presentation of such architecture as Claude Parent's theater at Dakar, Pierre Dufou's Presidency of the Republic of the Ivory Coast and Le Corbusier's stadium at Baghdad. Of use, too, is Aladar Olgyay's article on "Shading and Shading Devices," as well as the discussion of the plans for a new Calcutta. There is much to stimulate the mind in this volume. M.E.O.

Photographing Architecture and Interiors. Julius Schulman. New York, Whitney Library of Design, 1962. 154 pp illus \$14.95

While this book laudably tries to tell almost everything that happens inside and outside the little black boxes essential in this business it is only partly successful. Many tricks of the trade are here, gleaned from twenty-five years of working at it. Mr Schulman believes that architects and architectural photographers should learn more of each other's problems and procedures and he has obviously striven to do this in his own work with some success. This book is offered to further the cause of understanding.

Unfortunately, sales of photographs to architects are only a part of the market, and the picture editors of magazines and advertising agencies which make up another large and profitable part of it are only rarely concerned with the same criteria and objectives as the architect.

Purity to Mr Schulman might be expressed by the wonderful kind of expertness which makes him speak out against bracketing exposures in the words ". . . the habit of taking 'one more' shot should be eliminated from the photographer's practice . . ." Other purists would be more bothered by the portable garden idea of dressing up inadequately landscaped, or premature, *views with propped-up branches and the tops of potted plants in order to get the photos under a magazine deadline*. This leads to other curious excesses such as the view in which he tries to take the curse off Lever House by finding a branch of a tree on Park Avenue.

Another personal obsession seems to be his denial of any values of what the pros call "available light" in photographing interiors (called "existing light"

herein), and heavy reliance instead on supplementary flash, spot or floodlights. His examples are not too convincing in reproduction. Neither are the heavily manipulated black skies produced for picture editors (dodged—not infrared).

The text could have been much improved by the kind of editing and proofreading a \$15 book should have—but this might have deprived us of the other-English of Neutra's introduction: "A lens is chosen not simply to get an interesting shot. It is a battle to simulate wide sweeping living eye impressions as an architect serves and provides for." He has been at it twenty-five years too.

E. P.

The Place of the Ideal Community in Urban Planning. Thomas A. Reiner. Philadelphia, University of Pennsylvania Press, 1963. 194 pp illus \$8.50

First volume of a proposed series on city planning to be issued by the Institute for Urban Studies at Pennsylvania where the author is a lecturer and research associate. This is a documented monograph based upon a master's thesis (MIT), describing and comparing, on the same bases, some twenty utopian plans (1896-1947) selected from several hundred examples. "Community" includes neighborhood, town, city and metropolis.

The remaining half of the book is divided between comments on physical planning aspects of and areas of agreement in the examples, and extensive annotated bibliographies.

E.P.

Urban Life and Form. Werner Z. Hirsch. New York, Holt Rinehart and Winston, 1963. \$5.00 cloth, \$2.95 paperback

"What are the opportunities that are offered by cities and suburbs? What kind of life do American urbanites and suburbanites want to live? What objectives should we plan and help our cities attain? Can we at least identify alternate objectives and programs? Which are more attractive policies for executing promising plans?" There are just some of the questions posed and discussed in Mr Hirsch's book.

The Urban Pattern: City Planning and Design. Gallion and Eisner (2nd ed). Princeton, NJ, D. Van Nostrand Co, 1963. 435 pp illus \$14.00

This volume provides a realistic survey for architects, city planning officials and interested citizens concerned with the future of American cities. It is a synthesis of the city planning process, its consequences and objectives.

In this second edition, the authors have placed new and added emphasis to the planning function. Topics such as zoning, open space and off-street parking are discussed in the light of the ever-increasing growth rate of population and vehicular traffic. Each phase of city planning, design and construction is thoroughly discussed and presented in focus with 1) its related physical problems and 2) its relation to the expressed needs of the whole citizenry, social and economic.

A Place to Live. (Yearbook of Agriculture 1963) Washington, DC, Dept of Agriculture, 1963. 548 pp illus \$3.00

A disclosure of the new economic order which is taking shape on American farms, in rural America and in cities. It is a product of a technological-scientific revolution which began 200 years ago and has speeded up tremendously in the past few years. It poses and discusses the questions: "What kind of rural America do we want, and how do we get it? What tools of government need to be revamped to modern challenges? How must Federal, state and local governments work with people to develop programs that will meet our goals for improved living and working conditions? What are our goals, objectives and values?"

The following books have been received in the *Journal* Office. This listing does not preclude the possibility of future review.

Urban Real Estate Research—1962. Jerome P. Pickard and Arlene G. Balaban. Washington, DC, Urban Land Institute, 1963. \$4.00

A Housing Manifesto: Residential Housing Problems—Diagnosis and Treatment. John H. Haas. Washington, DC, Workshop 221, Inc, 1963 \$2.00

The Dollars and Cents of Shopping Centers. Washington, DC, Urban Land Institute, 1962. 63 pp illus \$10.00

Architecture: Forms and Functions, Vol IX, 1962/1963. Anthony Kraft. New York, Wittenborn, 1963. 287 pp illus \$7.50

Gestaltendes Handwerk 1963. Edited by Dr H Kolenschlag. Bonn, Germany, Deutsches Handwerks Institute, 1963. 235 pp (no price quoted)

Fundamental Theory of Structures. D. Allan Firmage. New York, John Wiley & Sons, 1963. 330 pp illus \$8.50

Building Construction: Materials and Types of Construction (2nd ed). Whitney C. Huntington. New York, John Wiley & Sons, 1963. 734 pp illus \$12.50

Symposium on the Design of High Buildings. Edited by Sean Mackey. Hong Kong University Press, 1963. (Dist by Oxford University Press, New York. \$16.00)

Structural Steel Design. Collaborative. New York, The Ronald Press, 1964. 829 pp illus \$12.00

Plywood: Properties, Design and Construction. Nelson S. Perkins. Tacoma, Douglas Fir Plywood Assn, 1963. 126 pp (no price quoted)

High-Alumina Cements and Concretes. T. D. Robson. New York, John Wiley & Sons, 1963. 248 pp illus \$7.75

Concepts of Structure. William Mark. New York, Reinhold, 1963. 78 pp 9" x 6" \$5.95

Handbook of Structural Design. I. H. Morris. New York, Reinhold, 1963. \$25.00 ■

NOWHERE are the physical problems of transporting valuable executive and scientific brainpower from urban to urban and urban to suburban locations more vexing than in sprawling Los Angeles County, where many of the nation's largest space and defense corporations are located.

Every minute of transit delay caused by jammed freeways and crowded streets adds to the final cost of a project, whether it is the Apollo program or inspection of a jet aircraft hydraulic modification awaited by the Defense Dept.

Roof-to-roof helicopter travel is receiving increasing consideration as a workable solution to the problem, not only in Los Angeles, but in similarly afflicted urban areas in the Midwest and on the Eastern Seaboard.

However, we had little design precedent to draw on when retained by North American Aviation Corp to design several new buildings in widely separated locations.

Rooftop helistops which had been added to existing buildings in

Rooftop Helistops

BY KENNETH NEPTUNE AIA

*The future is already with us,
as this article out of
Los Angeles indicates!*

downtown Los Angeles presented several unsatisfactory aspects, not the least of which were noise and structural vibration.

Factors we studied included the effect of landing load impact and weight on structural members, safety requirements established by the Federal Aviation Authority, the surrounding areas and prevailing winds to establish flight patterns in relation to the projected structure, the interior arrangement

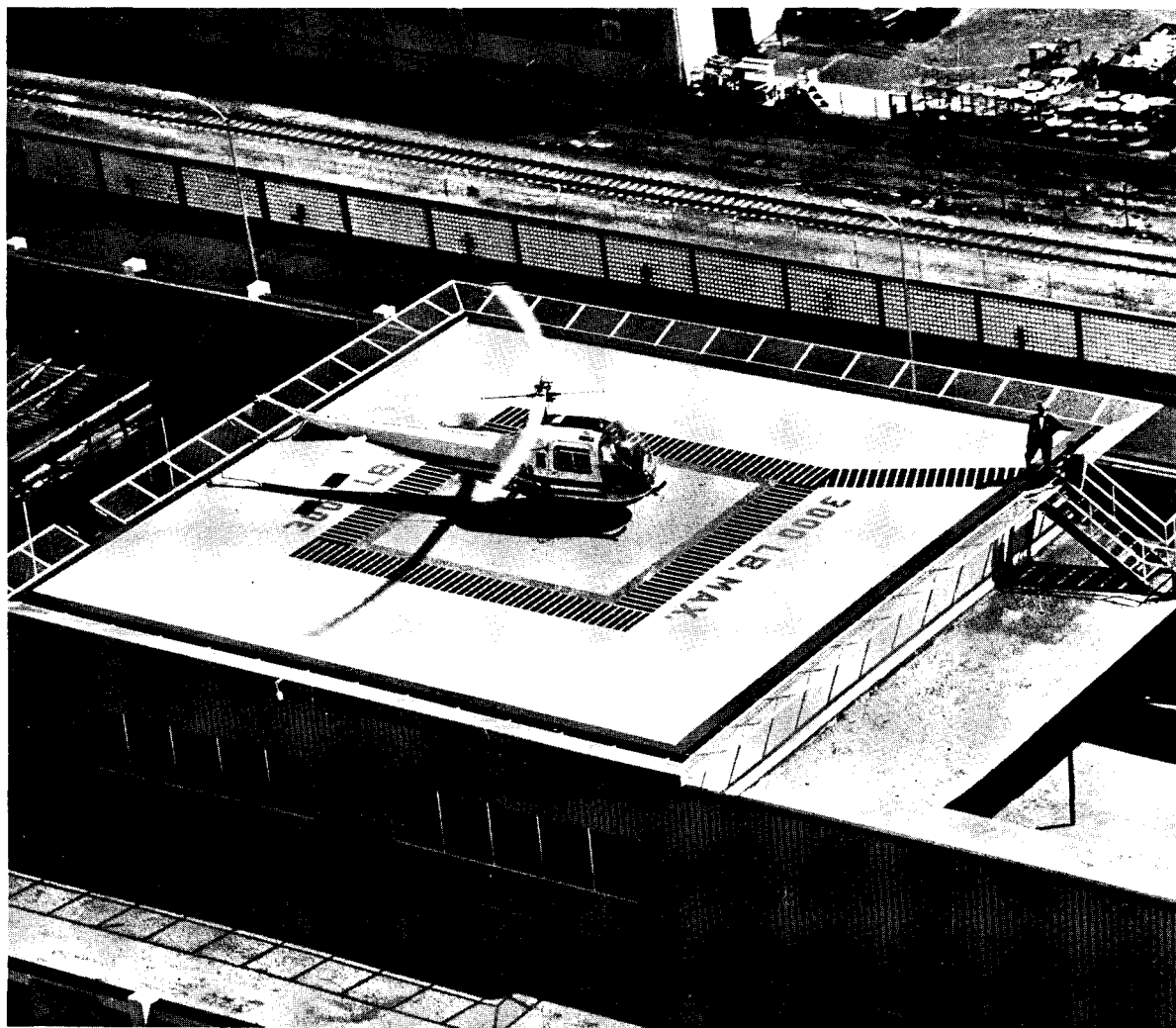
of the structure to minimize inconvenience to the building's normal activities, and the over-all esthetic appearance of the buildings.

Since a helistop differs from a heliport in that it doesn't provide fueling and maintenance facilities, an unobstructed flat roofdeck was ideal. Design must consider, however, that the roof now becomes an entrance to the building, in addition to the normal surface approaches.

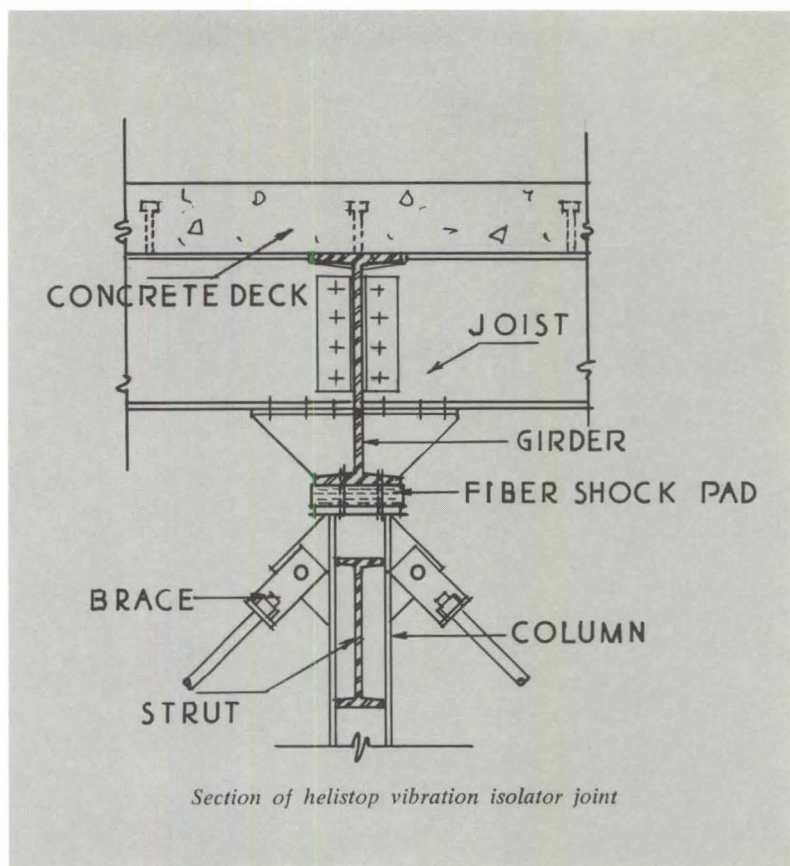
FAA safety regulations and the Los Angeles Building Code state that two entrances, or exits, remote from each other, must be provided. As a safety measure, we devised a security-control system to prevent unauthorized people from ascending the stairs to the flight deck, thus eliminating any need for a full-time guard.

This sort of security is not possible for a helistop located on ground adjoining the building—ground that is becoming more valuable all the time.

Although we are not yet satisfied with the surface material for rooftop landing pads, we have found a



Across page: Striped boundary and walkway markings stand out boldly against the helistop pad and surrounding surface to guide the pilot as well as debarking passengers who frequently suffer temporary disorientation



two-component polyurethane elastomer roofing material sprayed over a concrete deck to be the most resistant to abrasive action of metal and wood helicopter skids and to petroleum-induced deterioration.

The size of the landing surface varies by weight of the using helicopters. The Code divides helicopters into four general weight classifications, runnings from Class I (up to 3,500 pounds) requiring a landing pad 20x20 feet, to Class IV (from 12,500 to 20,000 pounds) requiring a landing pad 60x60 feet.

In designing the roof structure, sufficient mass should be provided for prevention of excessive deflection, which might become harmonic under the pulsating loads of the aircraft rotor. For this reason, concrete roof slabs or metal decks with masonry fill material react better than thin metal decks.

We also found that the touchdown area should be isolated from the roof diaphragm either by locating the deck above the roof structure or by providing an isolation joint between the roof deck and the landing deck.

At North American's executive headquarters, the steel frame helistop deck was isolated from the structural building columns by

fiber isolators. At the Rocketdyne Division, 20 miles away, a reinforced concrete landing deck was integrally attached to the reinforced building columns by means of a slip joint detail.

Vibration isolators, by eliminating transmission of the rotor vibration into the building structure below the landing pad, also serve as an effective noise damper.

Of greater importance in noise suppression, however, is acceptance of the fact that some rotor noise is bound to penetrate the top floor immediately beneath the landing pad. To minimize its effect without going into prohibitively expensive acoustical treatment, we located the kitchens, storage rooms and executive dining room of the headquarters building directly beneath the helistop. Flight activity during the noon-hour use of these facilities is practically nil.

At the Rocketdyne plant, we placed the general accounting area under the touchdown site, because it has a high noise level.

Where possible, the helistop should be located away from the exterior walls so the actual landing pattern will be over a greater amount of roof surface.

By regulation, the landing pad must be safety-fenced, but vertical

fencing interferes with the glide pattern of the helicopter, which does not rise and descend vertically on takeoffs and landings. We employ horizontal, splayed fencing around the landing pad.

In addition to the two rooftop exits required, the FAA demands that fire fighting equipment, lighting and specific marking be included at each helistop.

Our designs for North American helistops are built to Code I specifications, for design live loads of 2,525 pounds and weights up to 3,500 pounds. The Code defines design live load as a concentrated load covering one square foot in area and placed in position to cause maximum moment and shear in the member under consideration, or a uniformly distributed load of 100 pounds per square foot—whichever may produce the greater moment or shear.

Scheduled helicopter travel in Los Angeles and Orange Counties has been operating for many years, primarily on a ground-to-ground basis.

Los Angeles Airways, oldest scheduled helicopter service in the West, operates its entire passenger schedule ground-to-ground between the airports in the two counties and to other locations such as Disney-

land and the passenger docks at Los Angeles Harbor.

Its only rooftop operation is a twice-a-day mail flight between downtown Los Angeles Terminal Annex Post Office and International Airport. For this it uses the two remaining seven-passenger helicopters in its fleet, which is primarily composed of 21-passenger turbopropellers.

The Statler Hilton Hotel in downtown Los Angeles added a helistop to its roof in 1960. According to the hotel manager there have been no complaints from guests in top floor rooms, primarily because the rooms are generally vacant during the daylight hours of helicopter operation.

Helicabs Inc, a Los Angeles helicopter taxicab service, leased the Statler Hilton helistop, and helistops built later on the roof of the Biltmore Hotel and on the grounds

of the Ambassador Hotel. The Beverly Hilton Hotel helistop has been used only by Presidents of the United States, as the city of Beverly Hills has an ordinance prohibiting the landing of helicopters within its city limits.

Helicab is operating from an increasing number of helistops atop downtown commercial office buildings in and along a 20-mile stretch of Wilshire Boulevard.

Altogether, there are about 30 rooftop helistops in the Los Angeles basin area, which includes Orange County. Several more are included in the architectural plans for new office buildings and hotels being built in the area.

There are no hard-and-fast rules concerning linear distances between helistops on rooftops, but it is generally accepted that distance apart is not a limiting factor. The Statler Hilton helistop is about 1,000 feet

from the helistop on the roof of the Signal Oil Building in downtown Los Angeles.

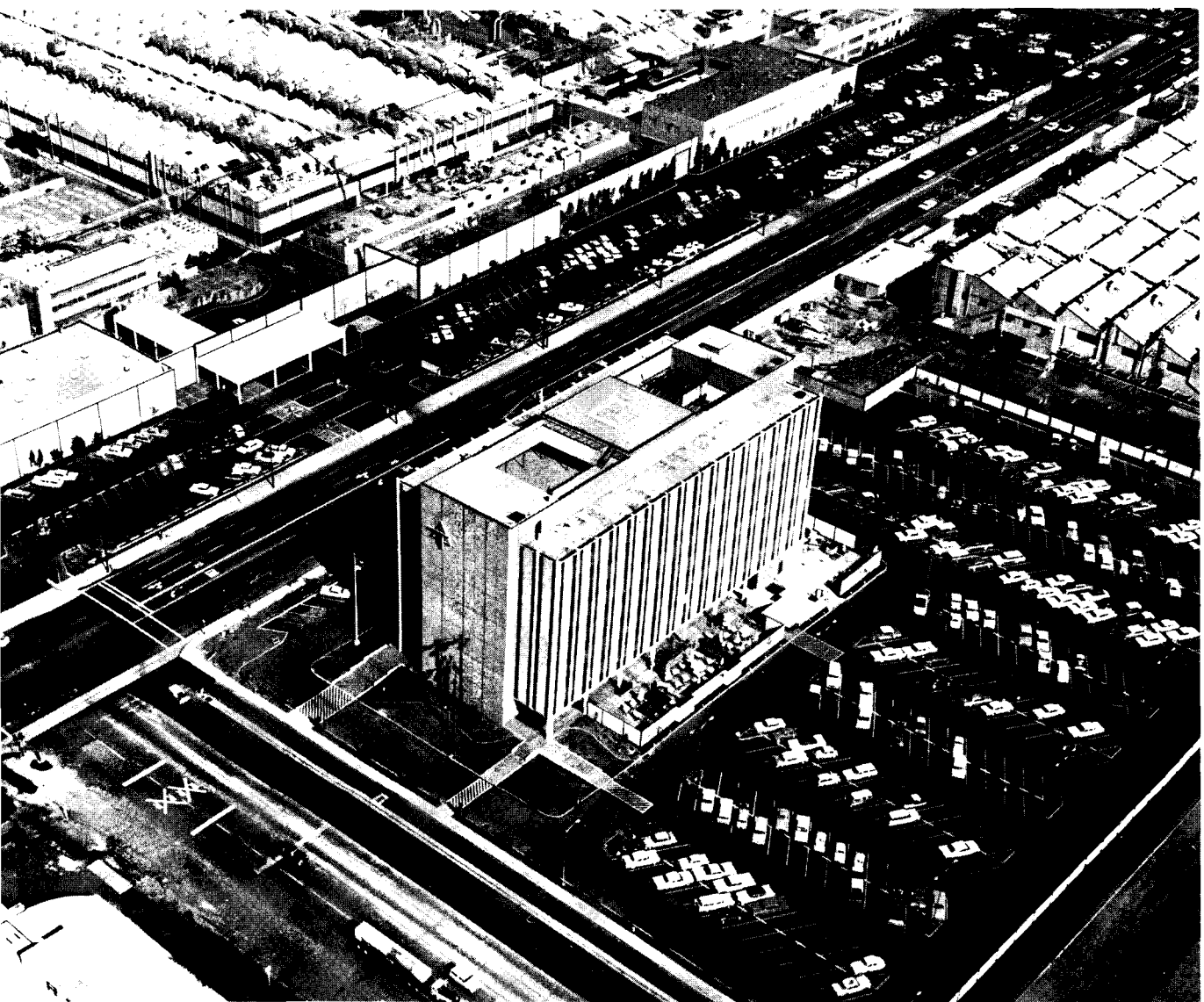
There are nine rooftop helistops now in operation in downtown Los Angeles, with two more planned for buildings nearly completed and an additional two included in the plans of high-rise buildings to be constructed.

It is entirely conceivable that the day is not far off when helicopters will become a significant factor in commuter and shopping traffic, and the re-establishment of the central downtown district as the urban hub of the entire municipality.

When this takes place architects will be planning entirely new "enter-from-the-top" roof designs to handle rush-hour traffic, shoppers and even freight delivery.

With surface and subsurface traffic becoming increasingly jammed, the only place to go is up. ■

Helistop is centered on the roof of North American Aviation's divisional headquarters to reduce noise within building



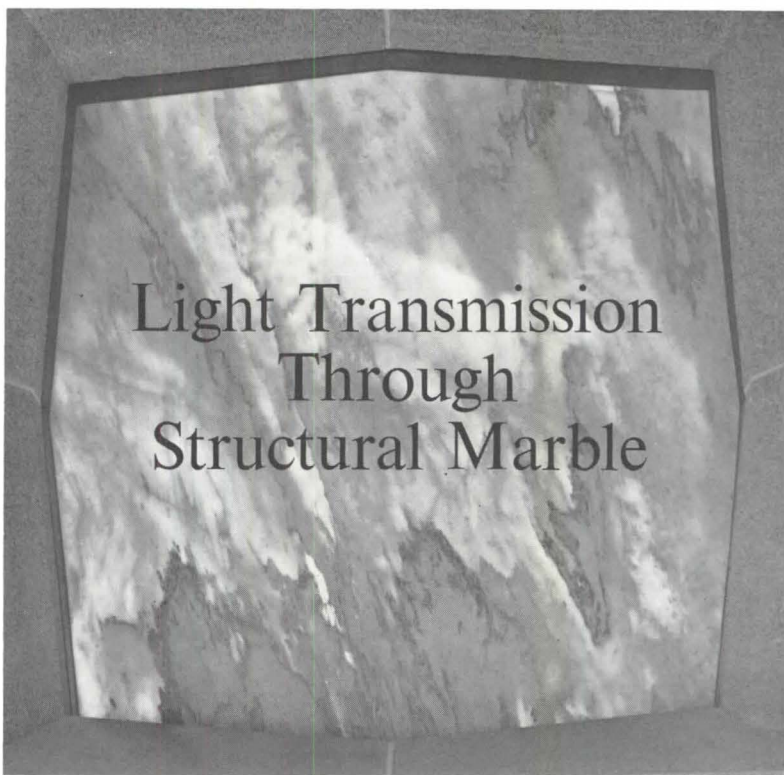
BY E. M. WINKLER
and G. J. SCHNEIDER

*Department of Geology
University of Notre Dame*

THIN panels of translucent stone have been used as a substitute for glass windows in the Mediterranean area since ancient times. The alabaster windows of Galla Placidia's mausoleum in Ravenna, of St Paul's in Rome and others have not only provided subdued interior lighting, spreading hues of white, buff, pink and light green, but also lend an atmosphere of distinction and warmth.

The excellent heat insulation provided by marble contributes to interior comfort. Translucent colored marble panels are again fashionable, resembling stained glass windows with nature's manifold designs. Today, libraries, churches and office buildings appear to be the best application for the use of colored, translucent marble panels. Vermont's Montclair Danby marble with its vivid coloration of gold, green and pink finds an excellent application in the new Yale University Beinecke Rare Book and Manuscript Library in New Haven, with marble panels each one-and-one-fourth inch thick and seven feet square. The Mexican Onyx marble panels for the Library of the American College of Surgeons in Chicago is another example of the use of translucent stone in modern architecture.

Only a few crystalline marbles transmit enough light through thin panels to be considered for this application. A systematic investigation was performed at the Department of Geology of the University of Notre Dame to find the best orientation of marble for light transmission. Most crystalline marbles were subjected to crystal re-orientation and recrystallization under the influence of rock pressure and heat some time during the geologic past; therefore, most marbles do have a preferred crystallographic orientation which is easily discernible by the parallel orientation of flaky micas and mica-like minerals. The optical axis of the flaky minerals runs approximately perpendicular to the plane of the mica flakes; this is independent of the grain size. The optical axis of the calcite runs about parallel to those of the micas.



Light Transmission Through Structural Marble

Seven commercial marbles of different grain size and accessory minerals were cut to slabs of different thicknesses and surface finishes. Testing for light transmission was performed with both dry and wet fine-ground surfaces. A wet surface approximates a surface polish; a dry surface, fine-ground. The following were investigated:*

1) Etowah Pink, Georgia pink marble, Tate—a coarse-grained calcite marble with veins of brown phlogopite-mica

2) White Cherokee, Georgia white marble, Tate—a coarse-grained calcite marble of white color

3) Danby Mariposa, and Danby Moss Green, Proctor, Vermont—a fine-grained calcite marble with thin bands of light green sericite and chlorite-mica

4) Danby marble, Proctor—a fine-grained white marble

5) Yule Golden Vein, Colorado—a fine-grained white calcite marble with veins of sericite-mica

6) Aztec Onyx, Zacatecas, Mexico—a very fine crystalline, gold-brown, banded aragonite marble

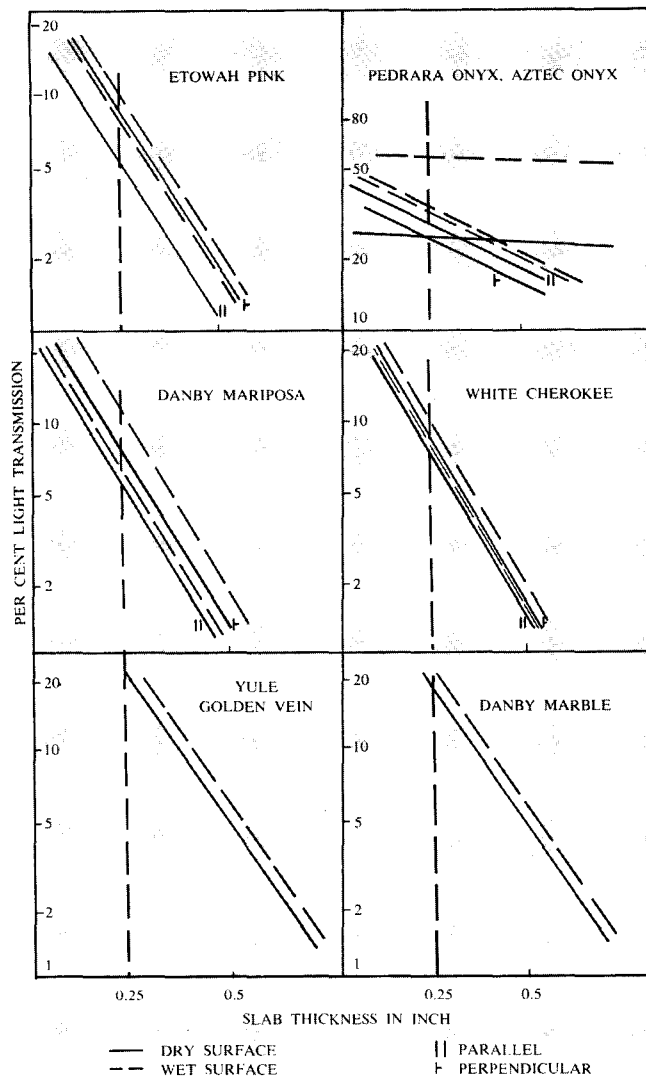
7) Pedrara Onyx, Baja California, Mexico—a very fine crystalline, pale-green, aragonite marble

* Oriented blocks of Danby Moss Green and Danby Mariposa were kindly supplied by the Vermont Marble Co., Proctor; Mexican Banded Onyx from the Carthage Marble Co., Carthage, Mo. The research was in part sponsored by the Undergraduate Research Participation program of the National Science Foundation.

The specimens were cut with a small diamond saw to slabs of different thicknesses; several different widths were chosen for each marble. The marbles were cut both parallel and perpendicular to the banding where visible. The light source was a photographic Albert printer with a light-scattering ground glass, and the transmitted light was measured with a sensitive photometer, a photographic dark-room Photovolt model #200 M. A grid was drawn on the ground glass of the printer for orienting each slab so that measurements were taken at the same intensity. Light transmission was determined at various spots for each slab, and the readings were averaged; where concentrations of less translucent or opaque accessory minerals yielded unusually low readings, those readings were disregarded. The light transmission was measured with dry and wet specimens.

The Results

The chart presents results as graphs for each marble, in per cent of light transmission on a logarithmic scale versus slab thickness on an arithmetic scale. The semi-logarithmic plot of light transmission, expressed in per cent of the available light, versus the slab thickness in inches as the ordinate, is a straight line of constant slope for all crystalline calcite marbles measured within certain limits. Assuming that marble behaves like a ho-



puted directly off the figures for each one of the marbles, since it is merely the slope of the line. The light-transmission figures are scaled off the diagrams for all the samples for a one-quarter-inch slab thickness. The light transmission of marble slabs of any desired thickness other than one-quarter-inch can be easily read off the diagrams for each marble. A single slab may be sufficient to extrapolate to other panel thicknesses as the slopes are apparently the same for all the calcite marbles. Onyx marbles behave differently. In the chart at the left the results for seven different marbles are given for 1/4-inch slabs.

Conclusion

The amount of transmitted light through crystalline calcite marbles, depends on the optical orientation of calcite, aragonite, and micas with relation to the slab. The scattering of light occurs along the crystal boundaries, by inclusions of tiny gas and liquid bubbles, and by pigments.

The relation between light transmission and slab thickness is exponential and varies with the crystallographic orientation; it is higher perpendicular to the optical axis—into the rock banding—than parallel to it. Mexican Onyx is an exception, as it is more translucent perpendicular to the banding, which is parallel to the optical axis. A wet, fine-ground marble surface disperses less light than a dry surface. The average mineral grain size appears to have little influence on the rate of light transmission; therefore light-transmission factors do not influence the strength of marbles, which depends mostly on grain size and intensity of grain orientation. ■

mogeneous substance such as glass, the optical equation can be applied $I = I_0 t^x$, whereby t is the light transmittance, I_0 the intensity of light entering the slab, I the in-

tensity of the transmitted light, and x the thickness of the slab. The formula can be reduced to $\log t = (\log I - \log I_0)/x$, which defines the slope of the line. It can be com-

Light Transmission Through Marble, in Per Cent of Total Transmitted Light for 1/4" Slab

Marble	Dry Surface			Wet Surface			Grain Size (in mm)
	// to axis	⊥ to axis	no orientations	// to axis	⊥ to axis	no orientations	
Etowah Pink	4.25	6.75	—	6.50	8.0	—	.07
White Cherokee	7.50	8.50	—	8.00	13.0	—	.10
Danby Mariposa & Danby Moss Green	5.75	7.00	—	6.75	10.0	—	.012
Danby White Marble	—	—	19	—	—	22	.01
Yule Golden Vein	—	—	15	—	—	21.75	.012
Aztec Onyx	27	24.75	—	32	31	—	less than .005
Pedrara Onyx	—	—	23.75	—	—	53.50	less than .005



BT 1-58

AIA SCHOOL PLANT STUDIES

School Site Selection and Utilization

By WILLIAM W. CHASE
*Specialist, School Plant
Administration, US Office
of Education*

The success and practicability of a school plant depends to a certain extent upon the site on which the plant is situated. During recent years, more thought and planning have been devoted to the site. Former methods of site selection and planning, however, followed no definite patterns. In the early years of public school education in the United States, the essence of a school plant was the building which housed the pupils and the ground on which the building was situated. Education was conceived of as taking place wholly within the walls of the building. Gradually, consciousness of the necessity for some outside space for recreation of pupils during recess periods began to awaken, and the need for a limited space other than that essential for the building itself was slowly recognized. Even today, though, the general public often limits its idea of school-ground areas to space needed for buildings and for recreation.¹

The Problem of School Sites

School administrators in recent years have been adopting more carefully planned programs of school plant development. The success of this change depends on the awareness of the community of

the need for continuity of planning and technical training of those connected with the school system, and upon the development of standards and techniques applicable to this field of educational administration. What every community needs in its schoolhouse is a structure, and a setting for it, which will enable the community to have the best educational program today's wisdom can devise, and at the same time keep the way open for the improved programs which will be developed in the future.² Frequently recurring criticisms in the report of school building programs are:

1) Sites have been chosen without due concern for the desirability of the immediate environments and without careful analysis of population growth and population changes.

2) Small buildings have been built with greatly overlapping and tributary areas.

3) Buildings have been erected with only slight attention to the requirements which the safety and health of children dictate.

4) The health and play programs of the public school have frequently been entirely ignored in the selection and preparation of sites.

5) Traditional educational practice rather than the more recent trends in educational thinking and practice has dictated the space relationships.

6) New school buildings have been erected without allowing for

the possibility of future additions, thus adding unnecessary costs.

7) Because of character, construction, inadequacy of planning, or faulty location, large sums of money have been spent on school buildings which could be used for but a few years and which proved to be poor community investments.³

The importance of selecting a good school site, then, cannot be overestimated. The site is being increasingly recognized as just as much a part of the total school plant as the building and equipment. Building and site together provide the setting for the development and successful operation of a good educational program. Efficient utilization of the site is equally important. This depends on, 1) a well-defined statement of educational needs; 2) selection and acquisition of a site to accommodate those needs; and 3) development of the site to facilitate efficient and effective operation of the program.

This over-all type of planning is detailed and should be done on a continuing basis. There are, of course, instances when emergencies arise and quick decisions have to be made. If, however, a program of

¹ H. L. Smith, "Why We Need Large Sites" *The Education Digest*, 20:20-22, January 1955

² American Association of School Administrators, *American School Buildings*, 27th Yearbook, p 5. Washington: The Association, 1949

³ N. L. Englehardt, *School Building Programs in American Cities*. Teachers College, Columbia University, New York, 1928, p 6

One of a series of papers prepared by members of the AIA Committee on School and College Architecture, and by selected specialists, to make laymen aware of school building problems and trends and to stimulate discussion. They are not intended to be definitive last words and carry only the authority of their respective authors. New subjects are being worked on, and contributed articles are welcome. Reprints of these nontechnical articles are widely distributed to educators and interested laymen. One copy of each current issue will be sent free of charge—additional copies 10¢ each.



The 107th Street School, Los Angeles, has outdoor work areas which can double as passageways or supplementary classrooms for arts, crafts or construction. Typical playground in the physical education area is blacktop paved, but safety cushioning is provided under play equipment. Court and game areas are marked on the blacktop. Faxton, Gray & Saylor, architects

long-range planning is practiced in a school district and community, even the emergencies can be taken more or less in stride. As a matter of fact, many can be forestalled or at least minimized by adopting the series of study steps suggested by the AASA School Building Commission¹ in their 1960 publication. These are:

- Review and redetermination of the district organizational pattern
- Comprehensive land-use study
- Enrollment estimates and placement
- Review of grade-grouping patterns in terms of district growth and development
- Determination of the types of formal school facilities and extended community services and their implications for site characteristics
- Selection of the specific site for specific purposes

Criteria for the Selection of School Sites

A successful educational program in each community is the result of careful and prudent planning with goals and objectives clearly under-

stood and stated. Its continued success will also be dependent upon projected programs not only of the school but of the community as well. Since the school site is such an integral part of the over-all educational program and may either enhance or impede its success, there are a number of measurements by which the site may be judged. Among them are factors of health and safety, suitability, economy and environment.

Health and Safety

Inherent health and safety factors of the school site are the most important of all. A school should be situated in a pleasing environment, in a desirable neighborhood, free from excessive noises, smoke, dust, unpleasing odors and congested traffic. Good teaching situations within the school and on the grounds demand quiet surroundings, clean air and proper lighting. Ample school grounds promote good health by making it possible for pupils to participate in an invigorating physical educational program. An attractive school site, functionally planned for recreation and physical education, invites participation. Congested activity areas, particularly if different age groups

are on the grounds at the same time can, on the other hand, contribute to the number of student injuries unless playground areas are large enough to accommodate several activities and groups safely and simultaneously. Approaches to the school grounds which are traveled by pupils should be carefully planned to avoid dangerous intersections and rapid through-traffic patterns.

Suitability

The functional aspects of a school site encompass several different factors which contribute to the success of the educational program. In addition to providing a place for the building and land for landscaping and beautification, the planners should consider the provision of space for future educational programs, physical education and recreation, drives and walkways, community projects and many other worthy endeavors.

The school grounds are usually utilized more for after-school play and recreation than any other space in the school plant. As a result, many schools are providing supervision for this. Joint use of facilities necessitates common planning to meet program needs, selection of equipment and surface finishes to withstand exceptional amounts of wear, and provision for proper storage of equipment needed. Factors requiring consideration include safety, ease of supervision, utility and beauty. Space to accommodate the following features are considered desirable:

- 1) Isolated area for pupils of pre-school age
- 2) Free play or low-organization games area
- 3) Area for handicrafts and quiet activities
- 4) Area for field games for both boys and girls
- 5) Area for adults
- 6) Area for playground apparatus
- 7) Multiple-use paved areas for court games, dancing, etc
- 8) Science and nature study area
- 9) Gardening space
- 10) Landscaped area (site beautification)

Economy

Since the primary purpose of a school site is to facilitate the educational program, it is good economy to select sites which will provide the proper setting for desirable programs, both present and future. A school site should be planned for

¹ American Association of School Administrators. Planning America's School Buildings, 1960

maximum possible utilization. Consideration should be given to both in- and out-of-school activities of students, as well as to community activities. A site which may seem excessively high in original cost may prove in the long run to be most economical when all factors are considered together.

Environment

Schools, so much a part of the daily life of children and young people, should be located in an environment that stimulates appreciation. Beautiful functional buildings placed in attractive surroundings help to create in children an appreciation for the schools, and in adults an added civic interest and respect for the dignity of education. Aside from purely physical considerations, the wholesome cheerfulness and beauty of the school site will be reflected in countless ways in the attitude and accomplishments of the children. A school site, to be attractive, should be large enough to accommodate functional buildings designed to fit the school grounds and in keeping with good architecture in surrounding structures.⁵

Characteristics of Good School Sites

It is generally understood that there is no single or standard pattern by which all school sites may be judged—nor should there be, if educational programs are rightfully designed for the individual needs of each community. As each building is designed to accommodate a certain type of program, so should the site be evaluated in terms of how it can best and most efficiently provide required spaces. There are, however, certain basic characteristics each with its various facets which will aid in the selection and future value of it. These are, 1) the location of the site; 2) its size; and 3) its physical features.

Location

Consideration of the location of a school site involves several closely related aspects. The first is its relationship to the present and future school population to be served. The best site from the point of view of accessibility alone is the one which permits the greatest number of pu-

pils to travel in comfort and safety over the shortest routes to and from the school.⁶ Reasonable walking distances to school for pupils are: elementary schools—three-fourths of a mile; junior high schools—one and one-half miles; senior high schools—two miles. Reasonable one-way travel times on conveyances for transported pupils are: one-half hour for elementary school pupils and one hour for secondary pupils.⁷ Central location is important, but there may be other factors or considerations which outweigh this feature. A more centrally located site may be educationally inadequate, or may have physical features on the site which would require expensive modification. It might be much wiser, in some instances, to consider a site which is educationally superior, even though it may not be centrally located, and added transportation costs may be involved.

Size

Factors to be considered in determining the optimum size for a school site are:

- 1) Type of vertical organization of the school (K-3, K-6, 7-9, 9-12, etc)
- 2) Educational activities and school services to be housed in the buildings and provided on the grounds
- 3) Basic building design—one story or multi-storied; single- or double-loaded corridors; campus plan; school-within-a-school; and related concepts
- 4) Anticipated enrollments and the ultimate maximum size of the school
- 5) Architectural setting of the building—its location on the site,

landscaping, approaches, and relation of the boundaries to the site

6) Space requirements for community recreation

7) Provisions for driveways, school and community parking needs, walks and service areas

8) Anticipated future expansion of the building and recreational areas

The problem of site needs and sizes have been studied from various aspects, particularly in the fields of physical education, recreation, landscaping and in numbers of pupils enrolled or to be accommodated. Few efforts have been made, however, to combine the results of these studies. Most acreage standards for school sites advocated by professional organizations and adopted by several state departments of education are considered to be minimal, and usually assume that certain educational program needs will be met.

In a study to determine sizes of elementary school sites, Chase⁸ combined the space needs recommended for, 1) out-of-door educational and recreational needs at the kindergarten, primary, intermediate and upper grade levels; 2) school buildings and requisite service needs for each of these levels; and 3) community recreation and activities. The out-of-door educational and recreational activities considered in this study were free play, gardening, nature study, organized out-

⁷ National Council on Schoolhouse Construction. Guide for Planning School Plants. East Lansing, Michigan: Michigan State University, The Council, 1958, p 21

⁸ William W. Chase. A Study to Determine the Sizes of Sites for Elementary Schools with One Room Per Grade, Two Rooms Per Grade, and Three Rooms Per Grade. Unpublished Doctoral Dissertation, Indiana University, January 1956

Corridors, assembly space and student lockers go outdoors at Carson High School, Los Angeles. Austin, Field & Fry, architects



LOS ANGELES CITY SCHOOL DISTRICTS

⁵ J. L. Taylor. School Sites—Selection, Development and Utilization. US Department of Health, Education, and Welfare, Office of Education, Washington: US Government Printing Office, p 29-36

⁶ John H. Herrick, and others. From School Program to School Plant. Henry Holt and Company. New York, 1956, p. 238

Total Space Requirements for Elementary Schools With One Room Per Grade, Two Rooms Per Grade, and Three Rooms Per Grade

Type of Area	Vertical Org.	K-6				K-8		
	No of Rooms	4	7	14	21	9	18	27
	Enrollment	120	210	420	630	270	540	810
Activity Area								
Free Play Space		12,000	12,000	24,000	36,000	12,000	24,000	36,000
Gardening & Nature Study		4,000	4,000	4,000	4,000	4,000	4,000	4,000
Outdoor Class Activity		4,000	7,000	14,000	21,000	9,000	18,000	27,000
Phy Ed & Recreation		10,000	10,000	20,000	30,000	10,000	20,000	30,000
Court Games Area			30,000	30,000	30,000	30,000	30,000	30,000
Field Games Area			30,000	60,000	150,000	90,000	120,000	180,000
Playground Apparatus		10,000	10,000	10,000	10,000	10,000	10,000	10,000
Community Use		87,120	87,120	87,120	87,120	87,120	87,120	87,120
Buildings & Service Area		22,216	38,333	71,003	100,624	47,480	84,942	123,275
Total Area in Square Feet		149,336	228,453	320,123	468,744	299,600	398,062	527,395
Total Area in Acres		3.43	5.25	7.35	10.76	6.88	9.15	12.11

door class activity, physical education, recreation and playground apparatus.

The amount of land space needed is affected by aspects of building design such as single- or multi-story types, split-levels, campus type and others. The location of the building with its setback and orientation determines space requirements for delivery and service drives, sidewalks and other pedestrian approaches, bus loading areas, teacher parking, community and patron parking and areas for landscaping and site beautification.

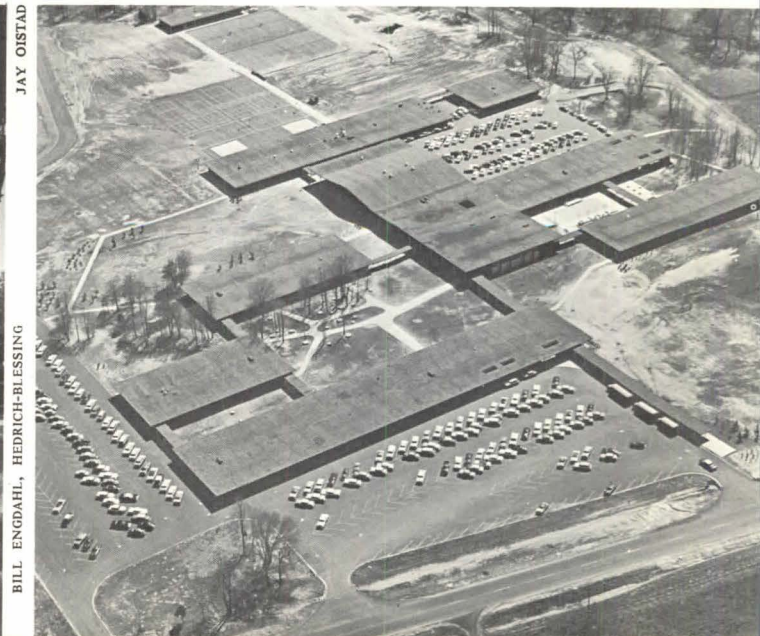
Total space requirements for all of these uses were determined and

then combined to arrive at the amounts of land space needed for schools of varying enrollments. A table of acreages (shown above), based on the results of the study, was prepared to show the space needs for various elementary schools housing kindergarten and grades 1-8 with one room per grade, two rooms per grade, and three rooms per grade. It may be seen from this table that a site of 3.43 acres is needed for a primary school housing kindergarten and grade 1-3 with an enrollment of 120 pupils. In the K-6 situation, with an enrollment of 210 pupils, 5.25 acres are needed; with 420 pupils, 7.35 acres and with

630 pupils, 10.76 acres. In the cases of the K-8 with one room per grade and an enrollment of 270, 6.88 acres are needed; with two rooms per grade and 540 pupils enrolled, 9.15 acres are needed; and with three rooms per grade and an enrollment of 810, 12.11 acres are needed.

There are situations, particularly in metropolitan areas, where high property values and limited space prevent acquisition of sites adequate to meet the acreage requirements shown in the table. Scarcity of suitable land in the proper location may also pose problems. A small site tends to restrict or dictate building

Loy Norris High School, Kalamazoo, Michigan, is designed to take advantage of site contours. Academic units are linked to auxiliary spaces by bridge across road. Perkins & Will, architects. (Right) Zoned campus-plan school in Tyler, Tex., connects units with covered walkways. Sixty per cent of students, plus faculty, drive to school, dictating need for ample parking. Caudill, Rowlett & Scott, architects



JAY OISTAD
BILL ENGDALH, HEDRICH-BLESSING

design; however, there are a number of attractive buildings designed to compensate for the lack of land. One method has been to construct the building on stilts to provide a covered play area. In other schools, the play area has been placed on the roof, conserving the land space.

Even though a site may be favorably located and of adequate size, it may still have serious drawbacks which make it unsuitable or extremely expensive to adapt to school use. Disadvantages of such a site must be weighed carefully to determine whether it can be used despite its limitations, or whether it should be completely excluded from consideration.

Topography, soil conditions and the general shape of the site should be such as to permit placement of buildings and the other facilities in proper perspective. Sloping contours can be advantageous in designing split-level buildings, but care must be taken to prevent flooding and soil erosion. Although these problems are not insurmountable, it is essential that total development of the site be considered during the early planning stages. The services of a competent architect or engineer are valuable in determining the potential of a proposed site and are well worth the additional expense.

Woods, streams and hills can provide excellent laboratories for outdoor science, mathematics, and other courses as well as for school and community recreational purposes. These features also lend themselves well to the future landscaping program and should be retained insofar as possible.

Water, sewage disposal, electricity and telephone services are es-

sential for the successful operation of a school plant. If these utilities are not immediately available to the potential site, additional costs to provide them must be anticipated prior to the final selection.

Development of School Sites

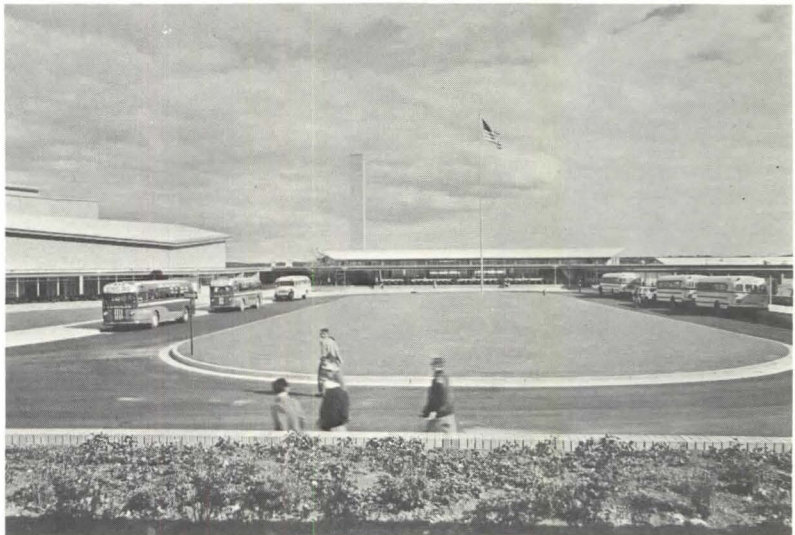
The actual development of the school site should be a regular step or phase of the master planning. Major contributions in the planning and development are: building location and orientation, traffic patterns and service areas, and site beautification. A well-designed and developed site will be an efficient one which enhances the total program. Cooperation between and among the various school and community groups, and the processes of educational planning and architectural designing are just as important in site planning as in building planning.

Building Location and Orientation

Buildings properly located and oriented result in more economical and efficient utilization of the entire site. Taking advantage of the contours of the land may reduce the need for excessive excavation, footings and foundations. Proper placement of the building will reduce the length of service drives and walks, utility lines and drainage, and will permit better opportunities for planting of grass, shrubbery and trees in front of or surrounding the building.

Traffic Patterns and Service Areas

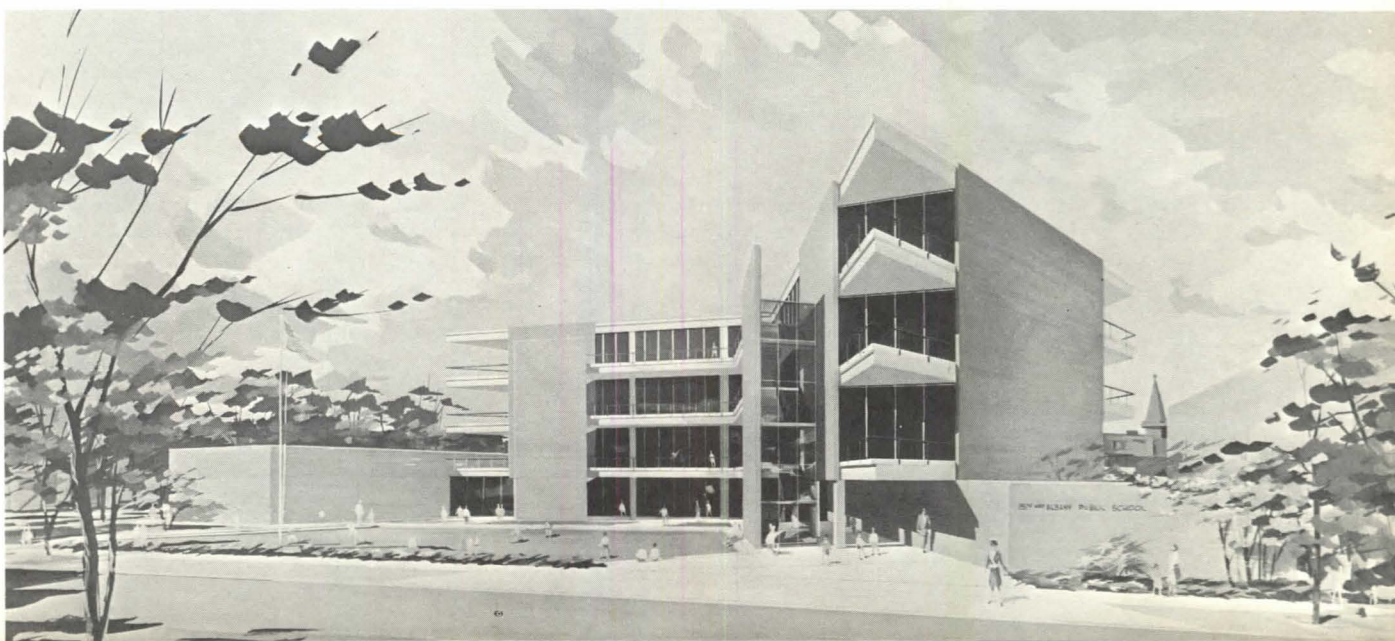
The school site should be easily accessible from roads, streets and sidewalks, both for pupils walking to school and for those transported in school buses and other vehicles. A limited number of properly con-



JOSEPH W. MOLLITOR

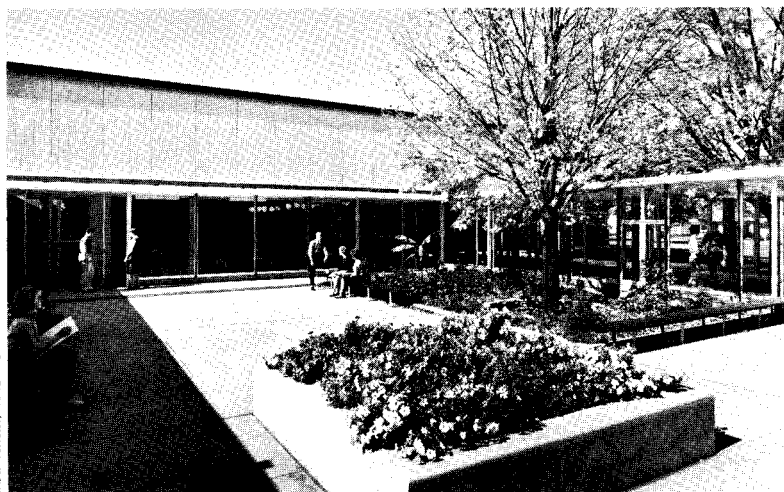
Many students at Butler Area High School, Pennsylvania, rely on bus transportation; therefore, this circular drive is important. In bad weather, students can await buses in covered cloister walk. Perkins & Will, architects. (Below) Johnson Elementary School in Chicago occupies very small site. Wedge-shaped classrooms open into central commons area on each floor, with individual study, library and lunch facilities. Caudill, Rowlett & Scott, architects.

CHICAGO PUBLIC SCHOOLS





Four-acre pond on this site for Waverly Schools, Lansing, was retained and serves as an outdoor classroom and science laboratory. Lane, Riebe & Weiland, architects. (Below) Flowers, trees and benches enhance the court at Indiana's LaPorte High School. Court is entered from the cafeteria corridor or the library. Perkins & Will, architects



trolled points of entry to the site will facilitate traffic control and minimize hazards. The purpose of walks and driveways is not only to serve the traffic to and from the school building, but also to direct and regulate it for safety.

Drives should not also serve as walks; drives and walks should be distinctly and effectively separated either by rows of hedges, fencing or some other means. Insofar as possible, service drives should be

kept completely separate from bus and passenger drives. Provision should be made for one-way traffic with separate entrances and exits, to eliminate the necessity for vehicles to turn around or back up on the school grounds. No driveway should encircle the building, and all intersections of drives and walks should be avoided if possible.

The contemporary educational program requires the use of the outdoors as well as the indoors for gen-

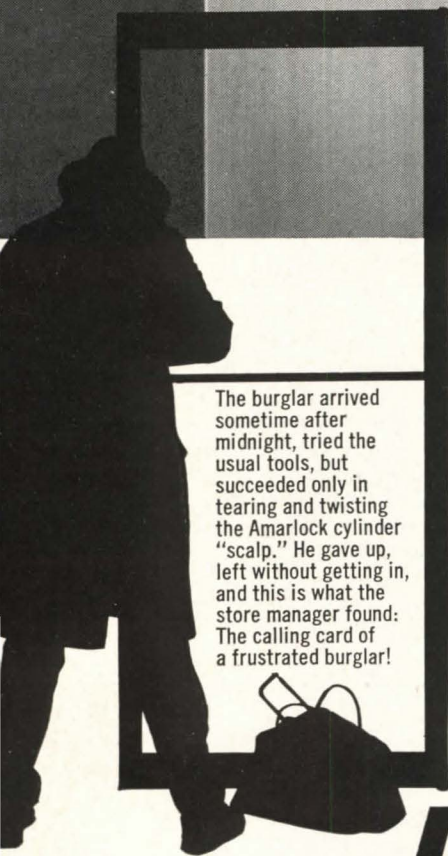
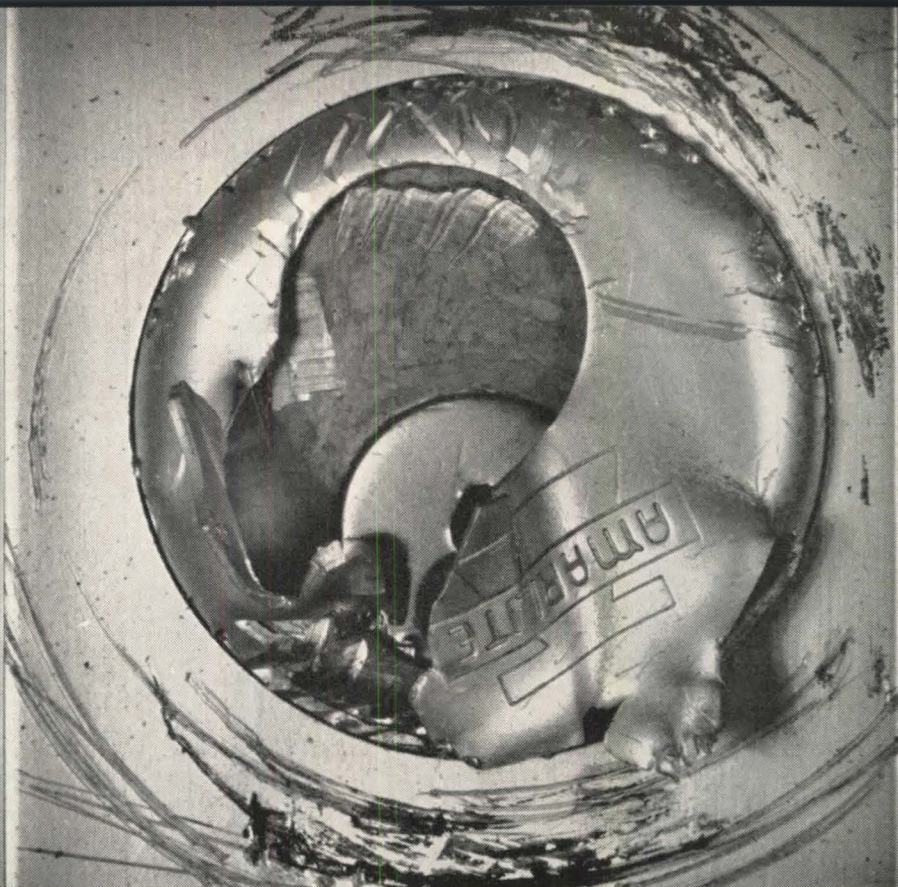
eralized and well-rounded activities. At one time the outdoor area was regarded as solely the domain of physical education programs, and to be used only during the regular school hours. The classroom teacher now uses the outdoors for much more than just group games. Classes in science, conservation, health, agriculture and other subject matter fields are utilizing various outdoor spaces very effectively.

The physical education and recreation programs of both the school and the community are still extremely important, and proper provisions for them should be made. In order to provide for the various groups and the activities best fitted for particular needs, careful planning is essential and adequate space is needed to do this. Children in different age groups have different abilities and interests; therefore, precautions should be taken to see that there are protective but attractive barriers separating the areas designed for each.

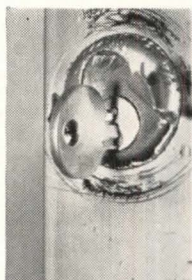
Site Beautification

Like the school building, the grounds should be attractive and appealing. Beauty in color and design of the surroundings add to the success and educational value of play. Pupils, teachers, patrons and even casual passers-by develop more of an appreciation for the school and its objectives when the school site is neatly arranged and maintained. Grass plots and shrubs along the borders and in corners are effective. Shade trees and vines help to break the monotony of bare ground and dull play apparatus. It is possible that too great an emphasis placed on landscaping might interfere with the original purpose for which the area was intended, but most playgrounds could be beautified without sacrificing their usefulness.⁹ ■

⁹ J. L. Williams and C. L. Brownell. Administration of Health and Physical Education. W. B. Saunders Co, Philadelphia, 1934



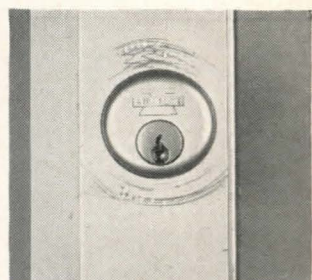
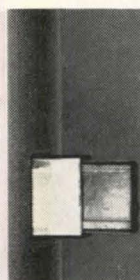
The burglar arrived sometime after midnight, tried the usual tools, but succeeded only in tearing and twisting the Amarlock cylinder "scalp." He gave up, left without getting in, and this is what the store manager found: The calling card of a frustrated burglar!



After break-in attempt, lock still worked like new, opened for business as usual.



Amarlock long-throw bolt shows deeper penetration length. Chrome-plated steel sleeve is armored reinforcement.



New cylinder was installed in one minute flat, and the Amarlock stands guard—strong and reliable as the day it was new! Installed and serviced by Binswanger Glass Co., Charlotte, N.C., R. B. Williams, Manager.

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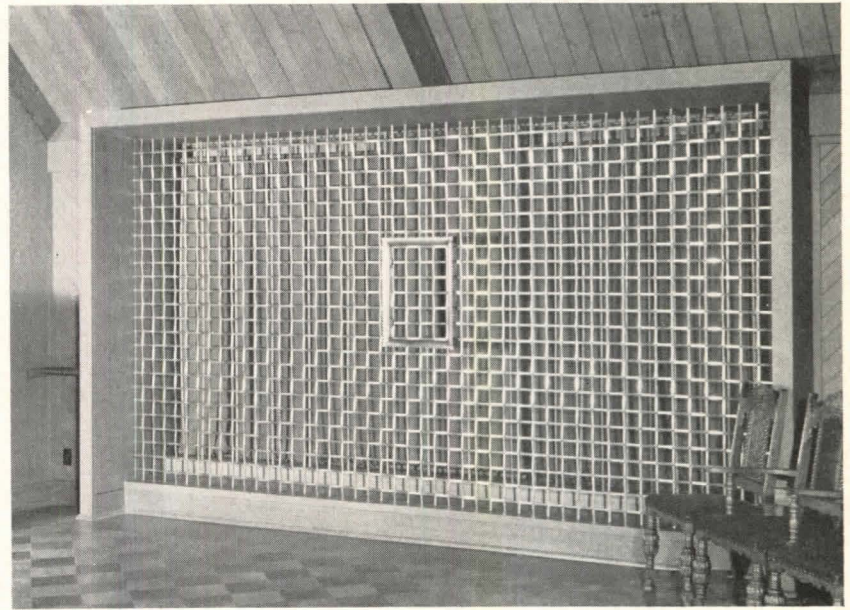
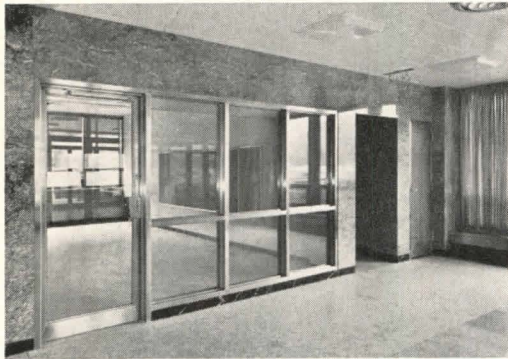
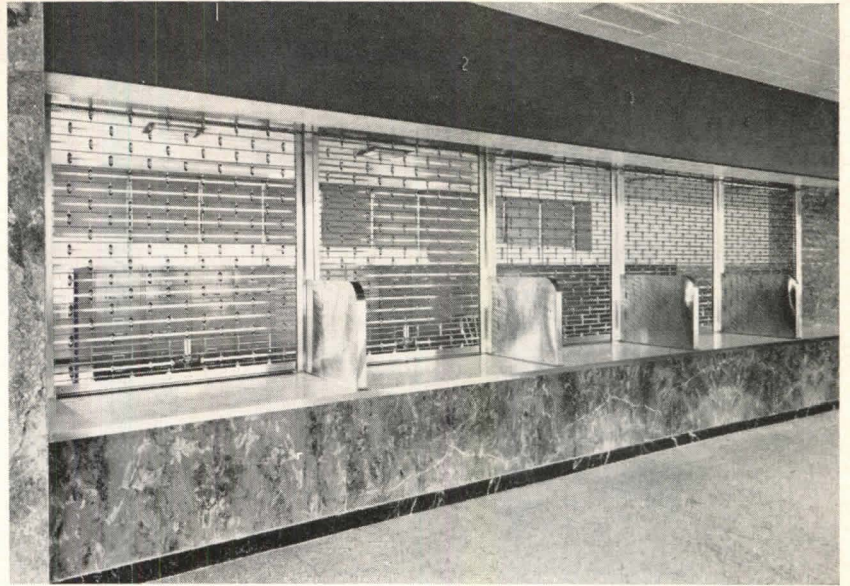




When you think of stainless steel, think of more than beauty and durability

More often than not, architects select stainless steel primarily because of its richly attractive appearance and lifetime durability. But its other unique and valuable properties also make stainless an especially useful and versatile architectural material.

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strength enables you to give structural components grace and beauty.

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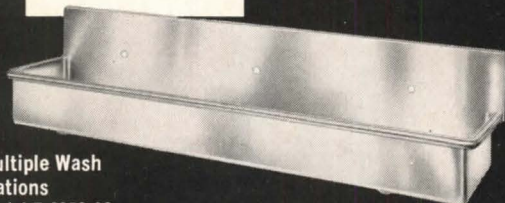
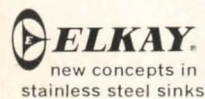
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Octagon Observer Cont'd

comes to the AIA after serving a two-year assignment with the Peace Corps as associate director of its university division. He is a former associate director of the news bureau of Arizona State University and was a contributor to *Arizona Architect* for five years.

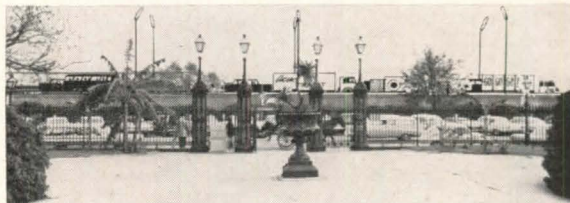
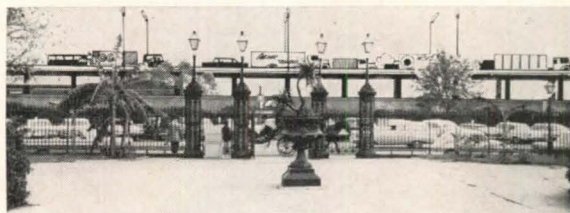
• Neil E. Gallagher of Kendall Park, NJ, Assistant to the Director of Information Services. He occupies a newly created position which will strengthen the Institute's program for both the public and the membership. He has had nine years of reportorial experience, the most recent being with *The Home News*, a New Brunswick daily, where municipal government, public housing and urban redevelopment were among his assignments.

PUBLIC AFFAIRS / Battle of New Orleans

It would hardly classify as a revolution, but a good many architects, planners and other civic leaders are up in arms in New Orleans because of an elevated freeway which would separate the Vieux Carré or French Quarter from the Mississippi River.

Representatives of the Vieux Carré Commission, a state agency charged with preservation of the Quarter, the Louisiana Landmarks Society and the Vieux Carré Property Owners Association have made their stand known through a series of actions, including a citizens' protest meeting and a letter addressed to President Johnson.

The opponents, who believe that an elevated freeway across the riverfront will be ruinous for obvious reasons and who are told an expressway at street level is impossible from an engineering point of view, are petitioning the State of Louisiana, through the Department of Highways and the New Orleans Mayor and Council, to block the project altogether.

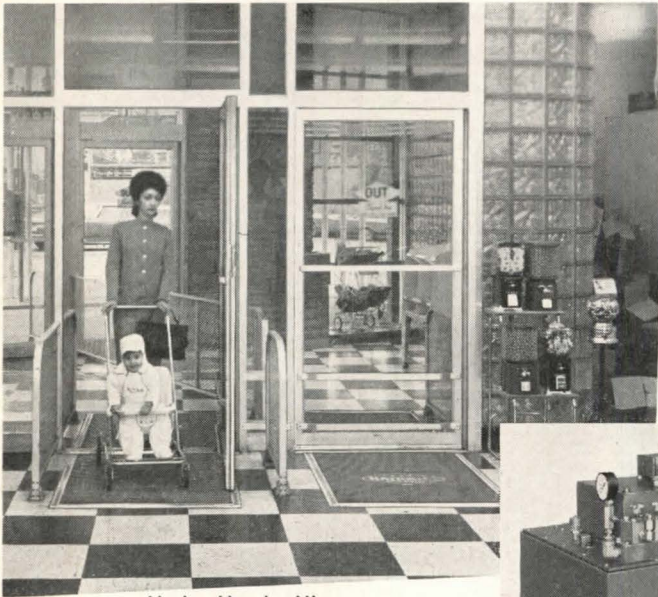


The High and the Low Road: These two photographs show the proposed high-level expressway and a low-level version as interpreted by architect Mark P. Lowrey.

At the January 29 meeting, Mark P. Lowrey AIA, a French Quarter property owner, introduced the superimposed photographs which appear here, showing the view of the proposed expressway as it will look from Jackson Square. He explained that his renderings were based "upon the only plans . . .

Cont'd on p 82

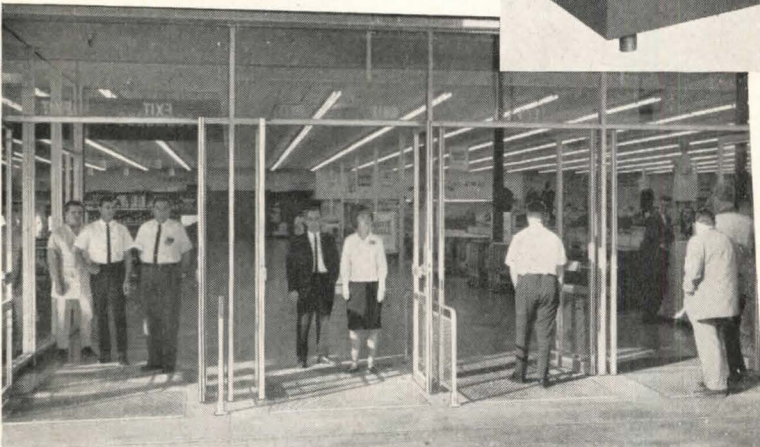
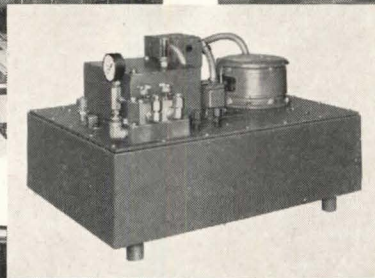
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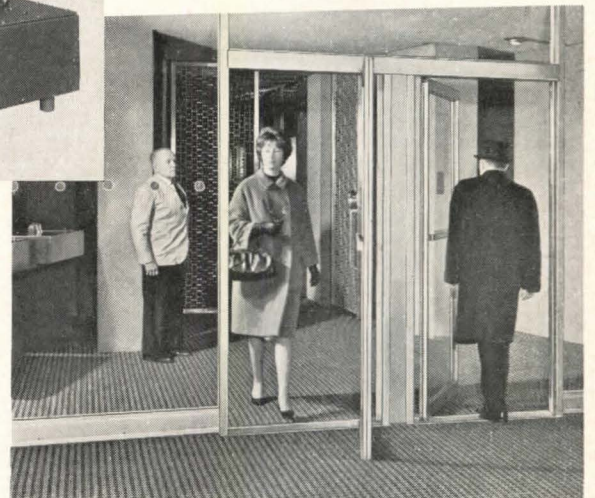
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Slide-N-Swing Controls



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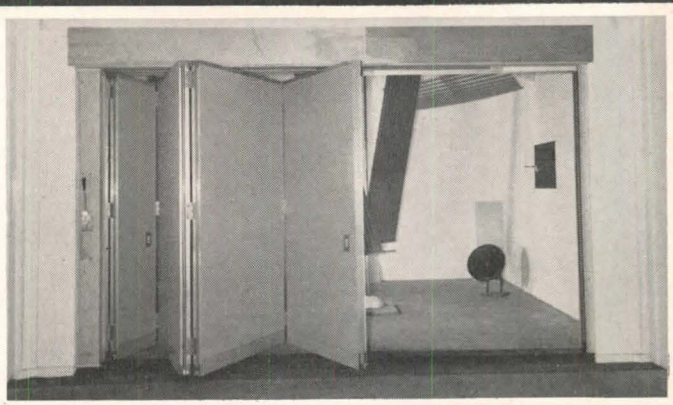
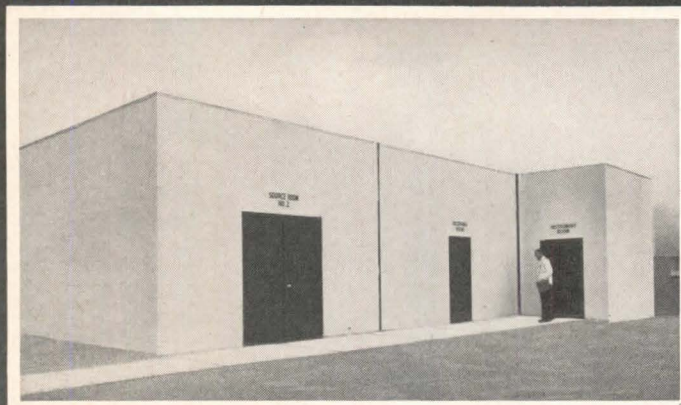
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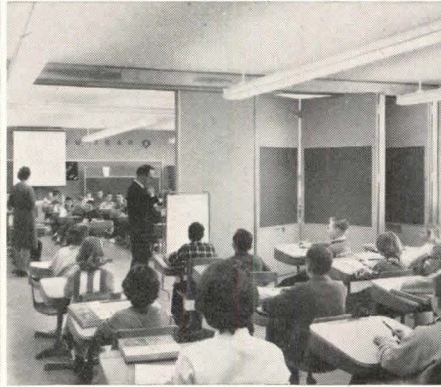
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Typical installations of Richards-Wilcox Folding Partitions

New sound laboratory permits a continuous research program to improve sound retarding techniques

The photos, left, illustrate an important new Richards-Wilcox customer-service facility—a Sound Testing Laboratory constructed to meet ASTM requirements. It was built under the consulting guidance of the Riverbank Acoustical Laboratories of the Illinois Institute of Technology, Research Institute. After completion the laboratory was calibrated for sound tests by Bolt, Beranek and Newman Inc.

Another R-W First . . .

To our knowledge, this Sound Testing Laboratory is the only one ever built by a manufacturer of folding partitions to assure customer satisfaction in the sound retarding qualities of his product . . . and is one of only three test labs in the United States where tests of this magnitude can be conducted.

Documentary Film Available . . .

A full color, 10 minute documentary film showing how sound tests are conducted has been produced and is available for your viewing. Test sequences and sounds were filmed and recorded just as they were generated for the tests.

The short time required to view this film should prove to be of definite value to anyone involved in the specification and purchase of a Folding Partition or Movable Wall.

One very interesting sequence was filmed with the front or receiving chamber in complete darkness and the adjoining source chamber brightly lighted. As the mechanically actuated perimeter seals are released you can almost see as well as hear the sound coming through the resulting cracks.

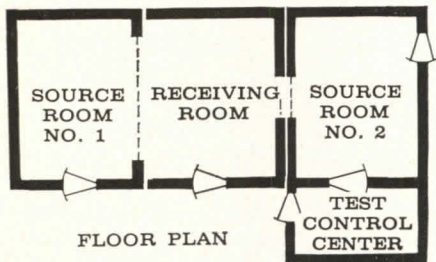
ASTM Test Standards . . .

Without exception, sound tests for product evaluation are conducted to conform with ASTM testing procedures. All sound tests for product certification will be conducted and certified by recognized independent testing organizations such as those previously mentioned.

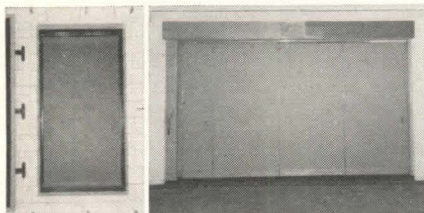
Why a sound laboratory . . .

The constant availability of a test facility such as this enables R-W Engineers to conduct immediate, scientific tests on individual panels and prototypes of assembled walls to determine their true sound retarding qualities. In addition it provides a laboratory large enough so that an independent testing organization can move in and make tests for certification of complete R-W Folding Walls and their very important perimeter seals to evaluate the on-the-job sound retarding quality.

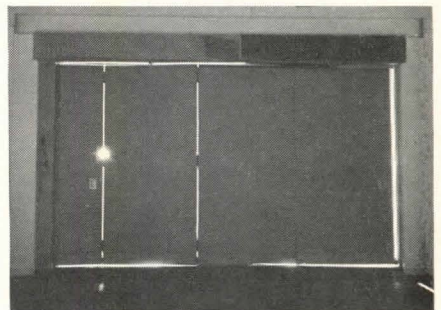
Sound Test evaluations permit the design and construction of R-W Folding Partitions that are custom-engineered to provide the sound retarding quality desired and compatible with the surrounding construction for each specific installation.



This floorplan illustrates how the laboratory is actually three individual buildings separated by insulating air spaces to eliminate sound transference from chamber to chamber. The major purpose of this modern up to date facility is to, by development-testing, improve the sound retarding qualities of the individual panels used in the construction of Folding Walls . . . and



the complete Folding Wall installed as it would be on-the-job to meet sound barrier requirements.



This exciting sequence offers graphic evidence that over and above sound-retarding panels the complete Folding Wall must be equipped with a positive perimeter seal to effectively retard sound transmission.

We would appreciate the opportunity of showing you this film at your earliest convenience—just contact us indicating your interest. In addition, we would be happy to send you a copy of our latest Folding Partition Catalog for your file.

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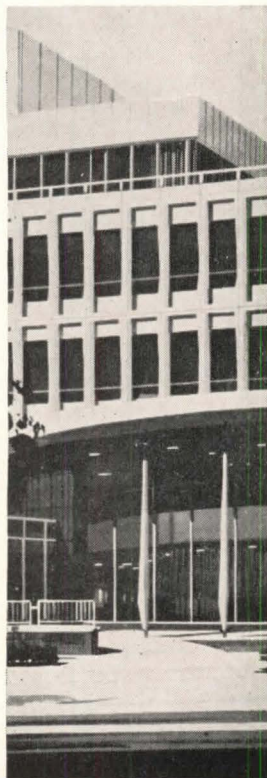
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Octagon Observer Cont'd

which its proponents and planners have so far seen fit to make available to the public."

The storage sheds on the wharves which formerly separated the Vieux Carré from the Mississippi have been removed by the New Orleans Dock Board from the riverfront in the Jackson Square area. The buildings here can now be viewed from across the river.

In his letter to the President, Raymond J. Beaudreaux declared: "It would be difficult for anyone with the slightest sensitivity to his physical environment to arrive at the conclusion that any expected advantage in traffic flow can justify that eyesore and visual barrier between the river with its colorful water traffic and one of the greatest man-made tourist attractions in the Western Hemisphere."

PRESERVATION / Rome's High-Sounding Name

"The International Center for the Study of the Preservation and Restoration of Cultural Property"—such is the flowing title of an organization with headquarters in Rome. Created by UNESCO in 1958 to encourage international cooperation in preservation matters, the Rome Center collects and circulates documents on the technical problems of preservation and restoration, publishes up-to-date information, institutes research through international meetings and exchanges of specialists, and advises on projects.

The staff of seven or eight is headed by the director, Dr Harold James Plenderleith, formerly of the British Museum; the secretariat is at 258 Via Cavour, Rome. With the assistance of the Gulbenkian Foundation, the Center has already established an excellent reference library, and furthermore has, since 1962, conducted a school in collaboration with the School of Architecture of the University of Rome. The courses train in conservation techniques, and now have a goodly number of students from a dozen countries. Inquiries should be addressed to the director.

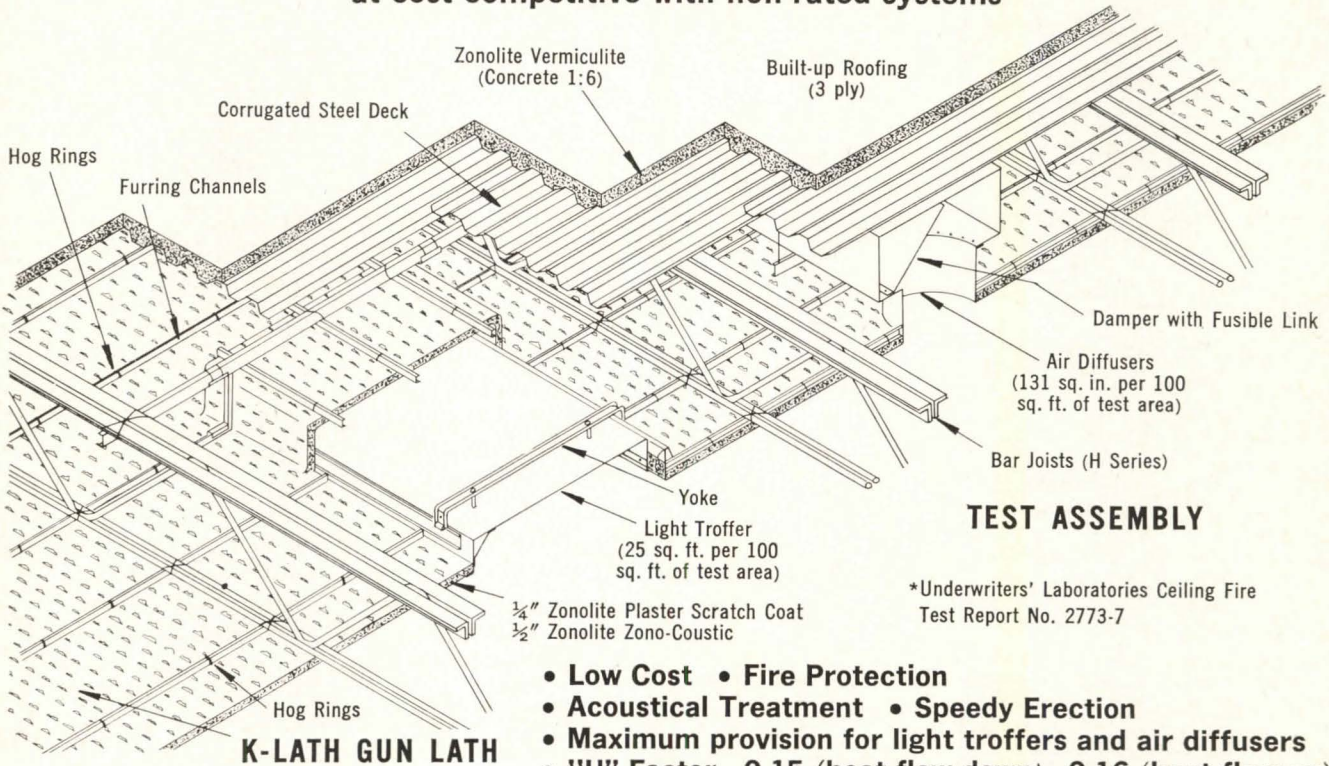
Dr Plenderleith is constantly receiving calls for troubleshooting, from Egypt, Burma and many other countries. The Center has consulted on the salvaging of the monuments of Nubia, the conservation of murals in Mexico, the airconditioning of a Thracian tomb in Bulgaria, reinforcing the foundations under a sinking Buddhist temple in South Korea, and even the conservation of the Dead Sea manuscripts of the Museum of Jerusalem.

Thirty-seven nations are members of the Rome Center, including most of the Western European nations—except Britain—and the US. It is supported by the member nations, their dues being 1 per cent of their annual contribution to UNESCO. Interested Americans (including Charles E. Peterson FAIA) are urging the AIA to persuade the State Department to enroll the US. The National Trust, the SAH and the American Association of Museums have already done so. Such letters should be addressed to Harry C. McPherson Jr, Assistant Secretary of State for Cultural Affairs, Washington 25; copy to Miss Annis Sandvos, Cultural Affairs Officer, Multilateral Policy Planning Staff, Bureau of Educational and Cultural Affairs, Department of State. *Cont'd on p 86*

NEW! 2-HOUR U.L. FIRE RATING*

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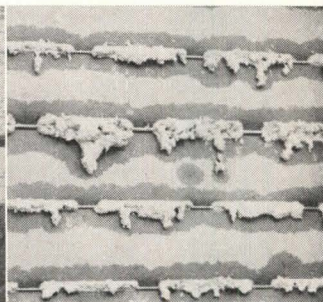
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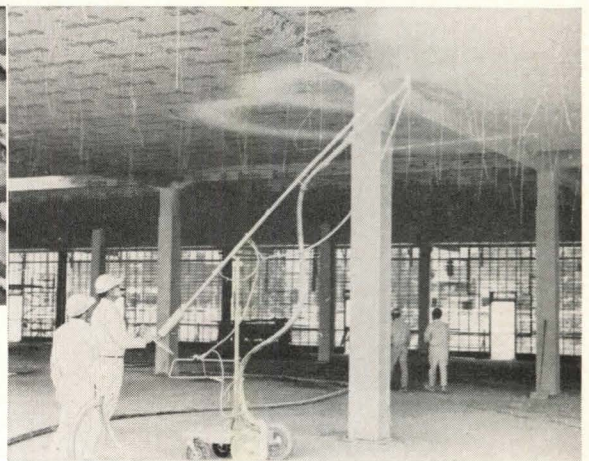
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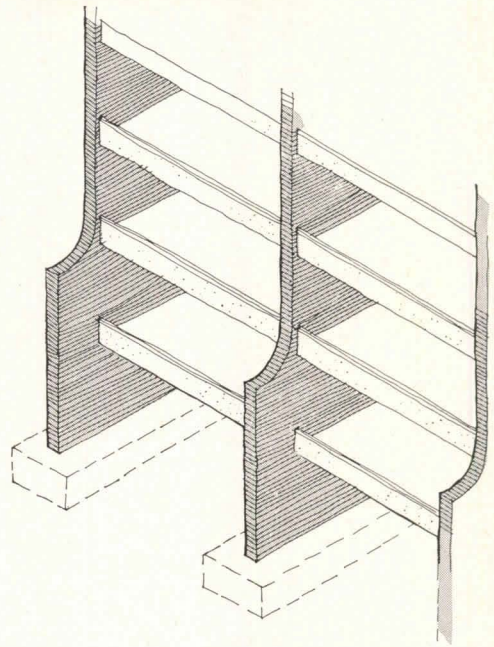
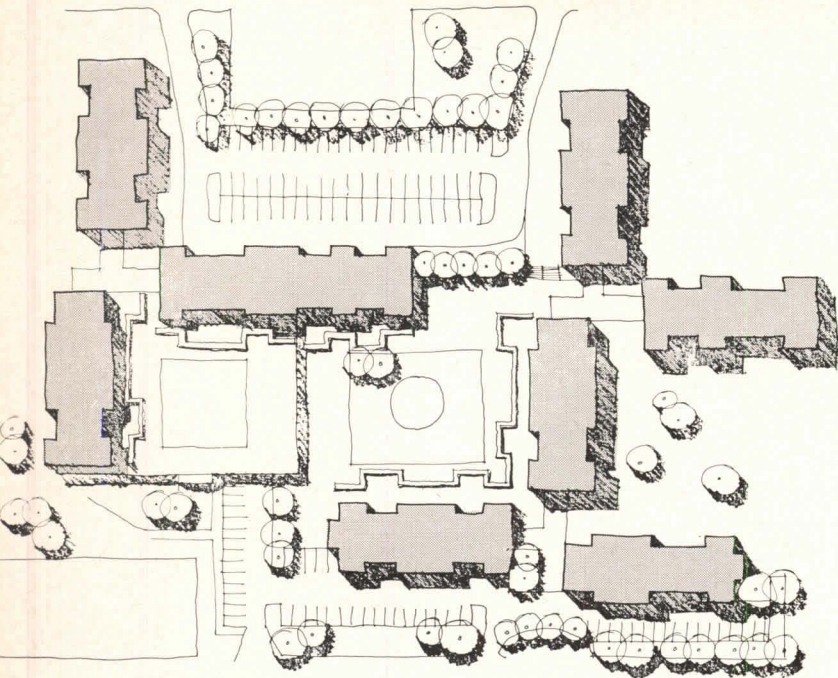
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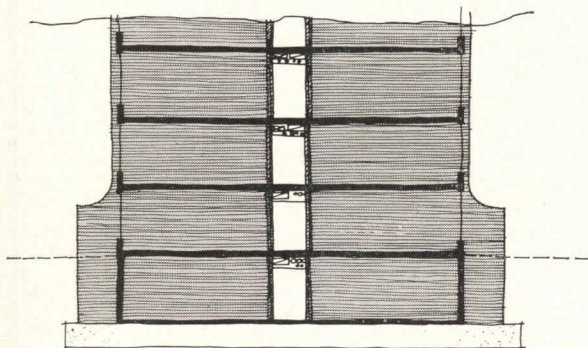
THE CONTEMPORARY BRICK BEARING WALL

as designed by Tasso Katselas

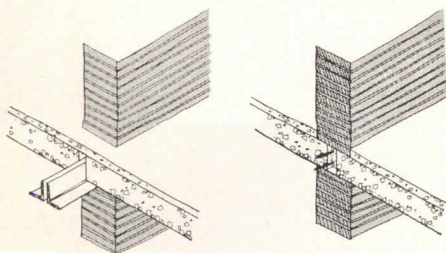


"The first phase of the Pennley Park urban renewal project in Pittsburgh involves 8 apartment structures ranging from 4 to 10 stories. Several factors influenced the choice of structural systems and materials. The program called for repetitive spaces with 20 to 24-foot spans. Subsoil was soft. We wanted a markedly residential character with pleasing scale, pattern, and texture. We wanted superior resistance to fire and sound transmission. We wanted economy."

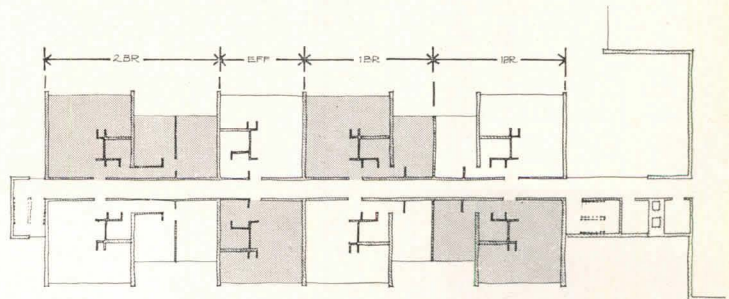
"**Solution:** Transverse walls of exposed brick bear the building loads. The walls interact with 8-inch precast concrete floor planks to create stiff diaphragms. Brick walls are 12 inches thick. Structurally, they could be thinner in the upper floors, but 12 inches provides a substantial sound barrier. The spread footings solve the soil problem and, sweeping inward and upward to form the cross bearing walls, express the structural concept clearly."



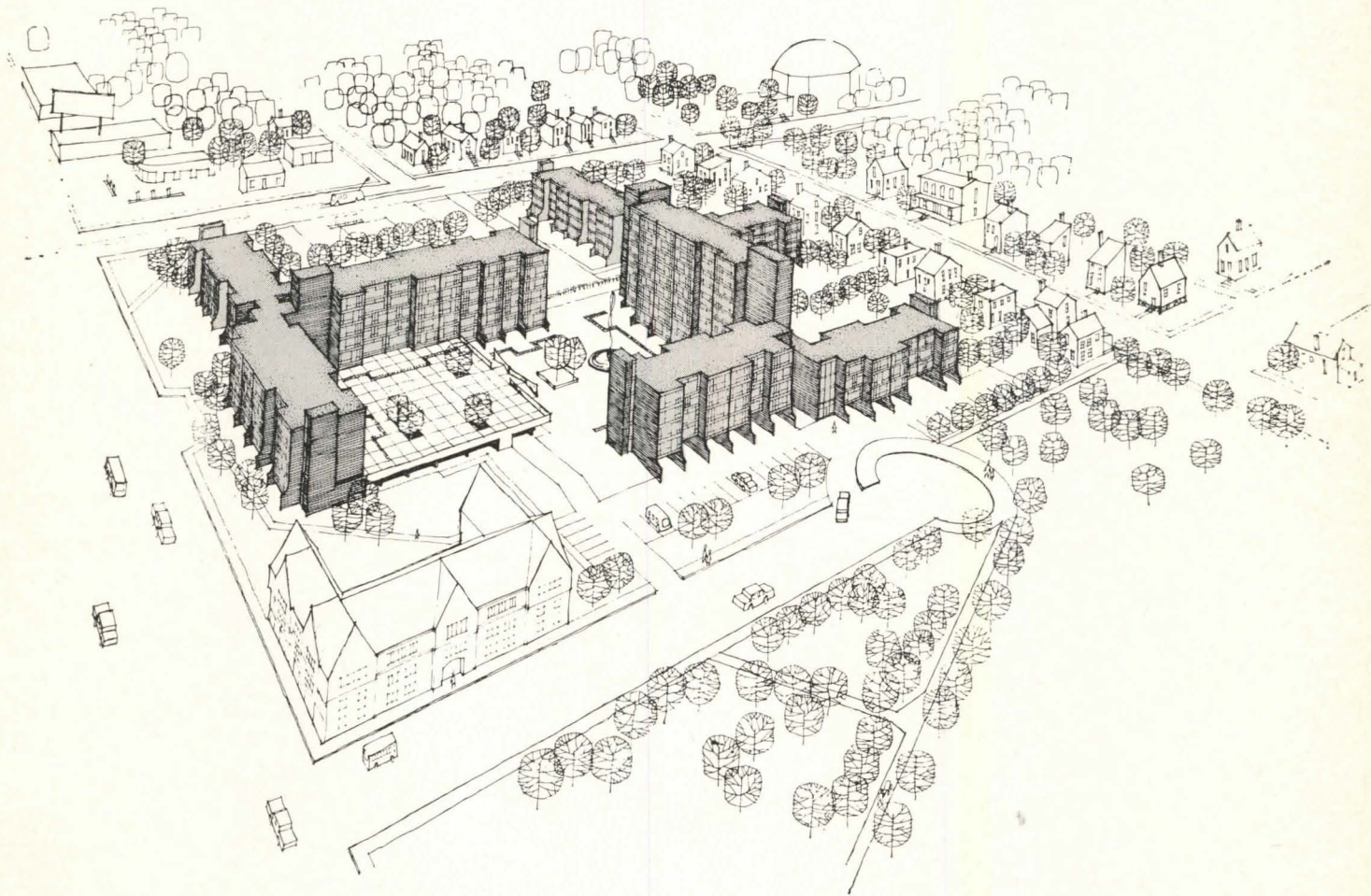
"This transverse cross-section shows relationship of walls and floors. The precast floor beams turn upward; the utilities are run through the corridors. On-site labor and materials handling are reduced. Total building structure is accomplished by a mason and precast concrete floor system. FHA requested a comparison of this system with steel frame and bar joist. The steel system, including necessary fireproofing, additional partitions, and painting, came in nearly 20 per cent higher in cost than the brick bearing wall. Concrete might have provided many of the same advantages, but it would have required finishing. The exposed brick bearing wall gave us six elements: structure, separation, economy, acoustics, fire protection, and finish."



"The section at left is through floor and corridor. At right, it is through floor and cross bearing wall. The precast floor system bears four inches on bearing walls; precast spandrels frame into bearing walls to carry corridor walls and exterior curtain wall."



"Typical floor plan shows how flexibility of plan and cross bearing wall structure can co-exist. Reading from left to right at top are a 2-bedroom, efficiency, and two 1-bedroom units. The 12-inch brick walls create superior sound barriers, not only between apartments, but between rooms in many apartments. We have 296 apartment units and 22 commercial units in the 8 buildings which constitute the first phase. A similar number of units will exist in the second phase, involving seven buildings. The brick bearing wall concept solved our problems very nicely. Faced with the same kinds of needs and problems, we will undoubtedly use this system again."



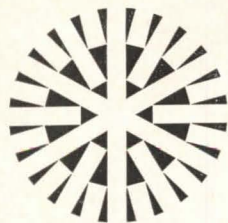
Architect: Tasso Katselas; Engineer: Richard M. Gensert; Owner: Vernon C. Neal, Inc.

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PAN AM / No 4: Stevenson Lends Support



The Hon Adlai E. Stevenson, US Ambassador to the United Nations, will serve as honorary chairman of the organizing committee for the XI Pan American Congress of Architects in Washington, DC, June 14-18. With the

"Cities of the New World" as the theme, it will meet concurrently with the Institute's 97th annual convention at the Sheraton-Park Hotel.

In accepting the appointment, Ambassador Stevenson said: "The nations of the Western Hemisphere share to a large extent similar problems of community growth and development. Virtually all the cities of the New World are concerned with combating the forces of unprecedented growth, deterioration and ugliness which are threatening to make our urban areas unfit places for the pursuit of the good life. The Congress will focus attention on these problems and, in the spirit of international cooperation, will explore ways in which the physical environment of our cities and towns can enhance the lives of our citizens."

More than 1,000 architects from 10 Latin American countries are expected to join twice that many US colleagues at the Congress-Convention, the first for which the US will be host.

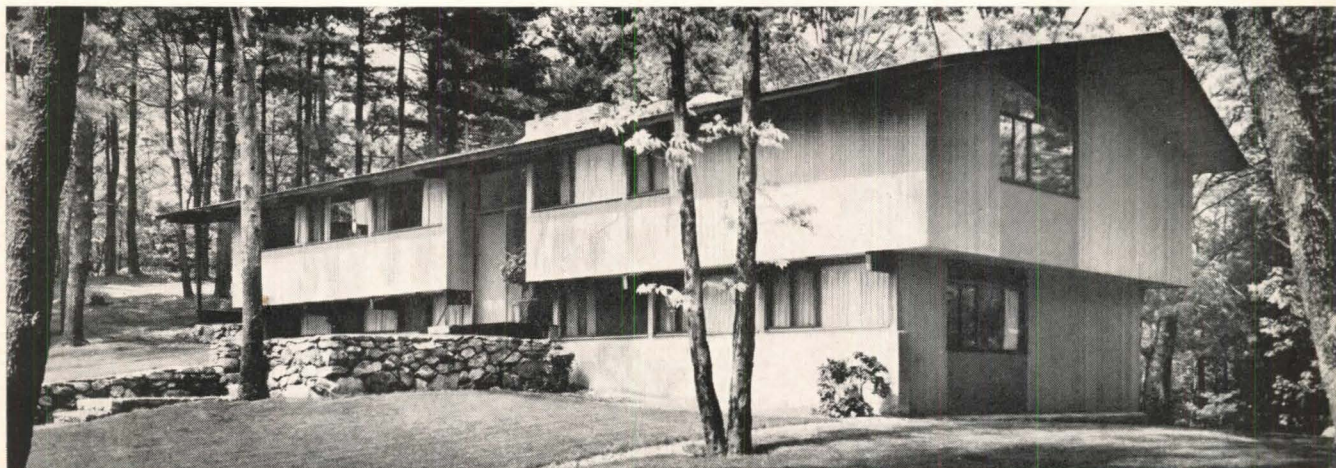
EDUCATION / Dean Dudley Is Headed West

George A. Dudley, Dean of the School of Architecture at Rensselaer Polytechnic Institute, has been appointed first dean of UCLA's new School of Architecture and Urban Planning, which expects to open in the fall of 1966. It will be housed in the Dickson Art Center when that building's present occupant, the Department of Art, moves into a new home currently under construction.

Dean Dudley went to the Troy, NY, campus in his current post in 1962 and in the same year became a trustee of the New York University Construction Fund. He is also planning coordinator for the state capitol complex in Albany and chairman of Rensselaer's Long-Range Planning Committee. Under Wallace K. Harrison FAIA, director of planning, he served as secretary of the board of international consultants for the design of the United Nations headquarters in New York City.

DEATHS / ASLA's Mr Martini

Eugene R. Martini, 49, a vice president and Fellow of the American Society of Landscape Architects, died January 22 in Atlanta, where he had been engaged in an extensive independent practice since 1946. A frequent contributor to the AIA JOURNAL, he was a native of Chicago and was graduated with honors from the University of Illinois in 1939. He was a land planning consultant with the Federal Housing Administration for six years. *Cont'd on p 88*



Deck House in Wayland, Mass.; Cabot's Weathering Stains on Exterior Siding. Designed by William Berkes, Wayland, Mass.

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(This advertisement appears March 17 in The Wall Street Journal. Free reprints available.)



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PROFILES / About a New Series

Whenever a publication introduces a new series, the editors generally are moved to outline the objectives; and so it is with Practice Profiles, the first of which appears in the current AIA JOURNAL. The reason why, in this particular case, can best be explained by an exchange of correspondence between the 1964 public relations chairmen of two AIA chapters: Colorado and Seattle, the latter, by happenstance, being the locale of the initial profile.

In his opening letter from Denver, George A. Thorson AIA said:

"Members from our Chapter who have visited the Seattle area return impressed with the quality and quantity of your architecture. It seems that most projects, including residences, are designed by architects, and the environment of your city is better for it. As this seems to be the exception rather than the rule in the nation, we feel you must be given credit for your accomplishments.

"Therefore, we would like to 'pick your mind,' learn and apply the ideas in our Colorado area. To state our problems may assist you in answering—as they may be common problems:

"1) Architectural laws have been contested and changed many times in the past several years. We have strong laws on requirements for architects but not too many on buildings requiring architects.*

"2) Although most projects are done by architects, many smaller commercial and industrial projects are not, and very few residences are designed by architects. This is also true of builders' residential projects.

"3) Architectural fees are held quite low (particularly governmental agencies and schools which set the scale—about 1 percent lower than recommended), but services desired and needed are high.

"4) There are many small architectural offices competing for the same few projects.

"5) Governmental agencies are

* In the case of Seattle, for example, building-permit procedure for all structures over \$500 requires drawings to be signed by either an architect or engineer unless the owner signs an affidavit that he drew them himself.

Cont'd on p 90



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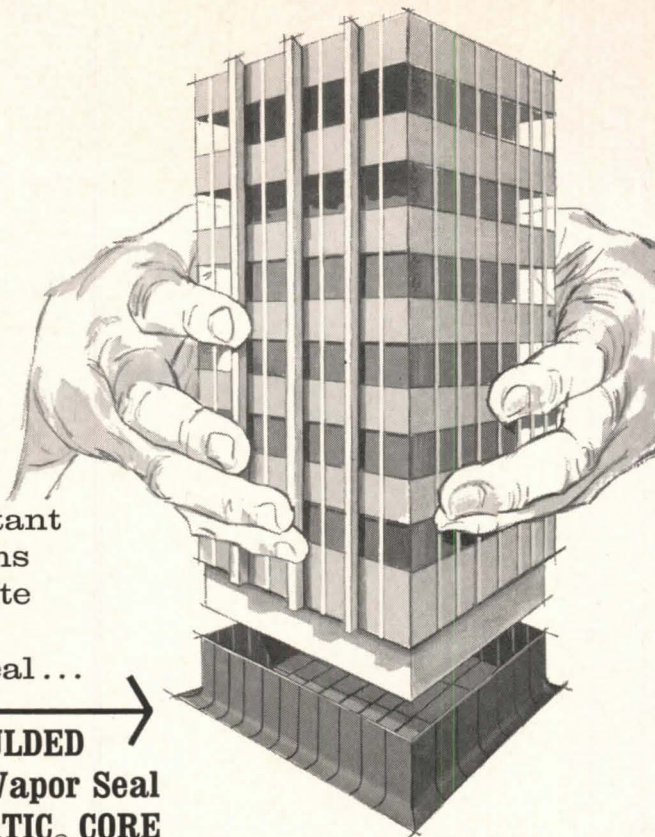


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Octagon Observer Cont'd

tending to want to take over supervision and maybe design.

"6) There is not a general acceptance of the value of the architect, particularly in the rural areas."

Norman G. Aehle AIA not only responded from Seattle but called a meeting of his committee to consider the "problems," one by one, in a roundtable discussion, which was tape recorded. Upon forwarding the recording to Colorado, he made this comment: "I didn't anticipate that we could come up with any positive solutions. It does represent, however, how six architects regard these problems as they specifically relate to themselves as individuals."

The Practice Profiles series does not intend to set out to solve any problems either; still, by analyzing a variety of offices, of all sizes, in all parts of the country, the articles can provide guidelines—and possibly a bit of inspiration.

QUOTES / Guggenheim & Others

Writing in *Museum News*, journal of the American Association of Museums, for October 1964, Arnold A. Arbeit AIA explained how his profession's services can best be utilized by the director-trustee clients. Among the New Yorker's comments in "The Architect and the Museum" which have more general interest are these:

"Recent museum architecture shows a great change. Tradition has been broken from the typical axial plan to an organized flowing plan; that is, circulation of viewers to a predetermined path, plus visual stimulation created by varying the observer's elevation and changing the perspective of the museum objects. This provocative visual effect is a departure from the traditional display where the observer's level is constant and art object viewing is monotonously confined to one plane.

"The most important contribution by an architect in the design of a museum, since it incorporates imaginative planning from the spectator's point of view, is the Guggenheim Museum. No matter what else has been said, one thing is certain: the structure is an attraction in it-

Cont'd on p 92

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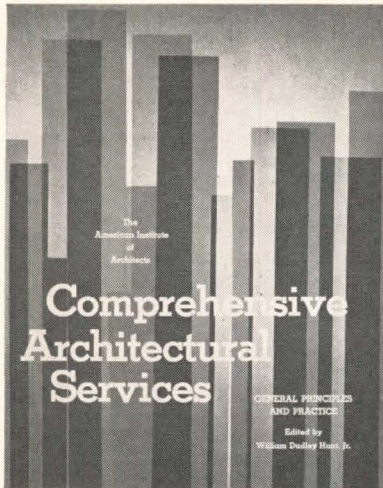
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Octagon Observer Cont'd

self. Inside, the museum fills the need for stimulation to the viewer who is projected along a predetermined path. Although it is true that critics feel that the museum detracts from the exhibits, no one can deny that the spectator is cognizant of the fact that he will have an opportunity to view all the exhibits. At no time during his visit will he experience a loss of direction or miss an important painting.

"The first object of design consideration should be the orientation of the building on the land. Harmony with surrounding areas and existing buildings should be discussed with the director and trustees in the early stages of planning. Unfortunately, many recently built museums have had little relationship to the surrounding area. The Guggenheim Museum, as we know, is surrounded with mediocre, nondescript structures, but a building which would have harmonized with the surrounding architecture would have resulted in a structure other than the outstanding example of architecture that it is."

Later in his article the Cooper Union faculty member discussed the selection process.

"Shall the committee consider an architect unacceptable because he has not planned a museum before? This decision would be an error. If the committee is satisfied in all respects as to his qualifications and his interest, the mere fact that an architect has never planned a museum should not disqualify him.

"There is nothing as tragic as a lost opportunity to do a unique structure, because the successful building depends on a fresh approach more than just experience with planning this type of structure. If previous experience with museum planning is required, where then did the experienced museum planner get his first job?

"The wisest course is to select a competent, enthusiastic and sensitive architect and then meet him halfway."

FOOTNOTES / "Crash" Comments

"It is always interesting and informative to see how other companies handle such programs," an executive of P. R. Mallory & Co,



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QUICK CALCULUS: A Short Manual of Self Instruction. By DANIEL KLEPPNER and NORMAN RAMSEY. "... should teach you the elementary techniques of differential calculus with a minimum of wasted effort."—from Preface. Starts with a review of algebra and trig, then goes on to the meat of the matter. The secret is in selection of material, which is short on theory and very rich in problems. 1965. Approx. 260 pages. \$2.25

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Indianapolis, wrote Institute President Arthur Gould Odell Jr, FAIA, upon reading a copy of the "Guide to Better 'Crash' Construction."

The writer was one of more than 25,000 industry leaders who received reprints of the article which had appeared in last November's AIA JOURNAL, prepared by the AIA Committee on Industrial Architecture as a supplementary dues project.

The chief structural engineer for the Wisconsin Electric Power Co, Milwaukee, was prompted to say "that the approaches which you mention are certainly the most expeditious that can be adopted for completing construction within the shortest period of time. It is a very difficult task to convince persons not familiar with planning, design and construction of facilities that planning time is necessary although it may be only a matter of a few days or weeks."

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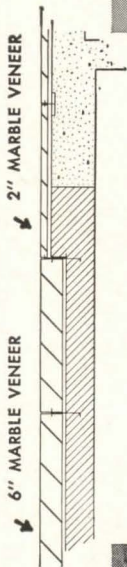
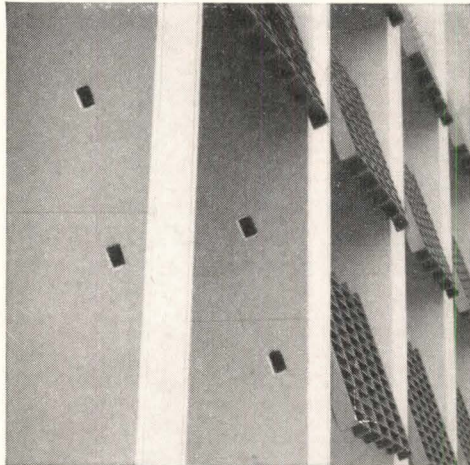
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April 27-29: Conference on Church Architecture and Architectural Exhibit, Pick-Congress Hotel, Chicago
April 30-May 2: US Institute for Theater Technology, Indiana University, Bloomington
May 24-26: CSI Convention, El Cortez Hotel, San Diego
June 9-11: ASCE Specialty Conference on Wood (one session co-sponsored by AIA), Pick-Congress Hotel, Chicago
June 11-12: NCARB Annual Meeting, Sheraton-Park Hotel, Washington, DC
June 11-13: ACSA Annual Meeting, Sheraton-Park Hotel, Washington, DC
June 14-18: AIA Annual Convention and XI Pan American Congress of Architects, Sheraton-Park Hotel, Washington, DC
June 27-30: ASLA Annual Meeting, Statler-Hilton Hotel, Hartford
July 2-3: UIA General Assembly, Paris
July 5-9: UIA World Congress, Paris

AIA Regional and State Conventions

- March 17-19:** Michigan Region, Statler Hilton Hotel, Detroit
March 24-27: Gulf States Region, Biloxi, Miss
Aug 18-21: Northwest Region, Glacier National Park, Mont
Sept. 9-11: New Jersey Society of Architects, Essex and Sussex Hotel, Spring Lake
Oct 6-10: California Region, Yosemite National Park
Oct 14-16: Ohio Region, Atwood Lake Lodge, New Philadelphia
Oct 21-23: Pennsylvania Region, Hershey; Western Mountain Region, Mountain Shadows Resort, Scottsdale, Ariz
Nov 3-5: Texas Society of Architects, Austin
Nov 3-6: Central States Region, Des Moines
Nov 17-20: Florida Region, Jack Tar Hotel, Clearwater

AIA Committee and Related Meetings

(At the Octagon unless otherwise specified)

- March 1-2:** Housing
March 3-5: Honor Awards Jury
March 11-12: Reynolds Memorial Jury
March 15-16: Historic Buildings
March 17-19: Insurance
April 2-14: Jury of Fellows

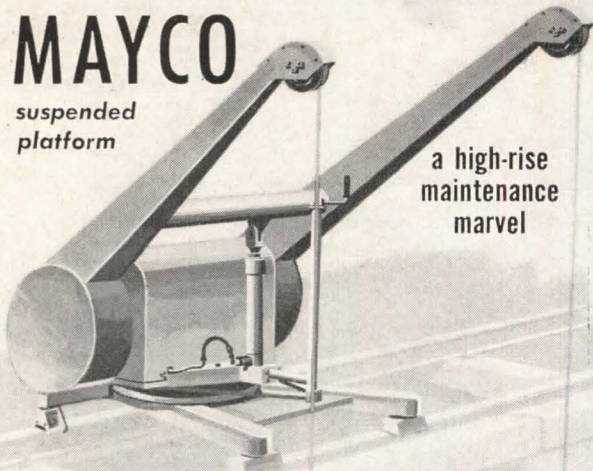
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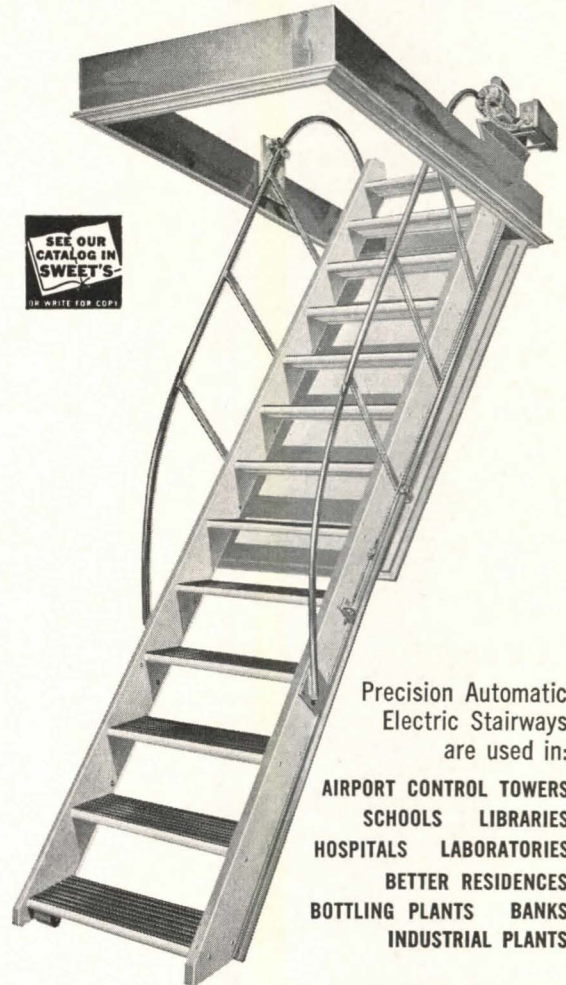
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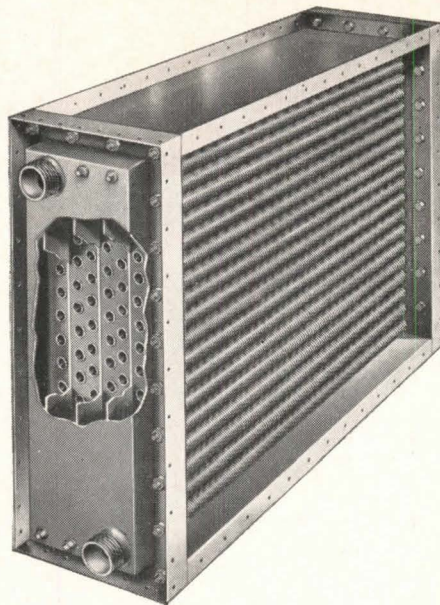
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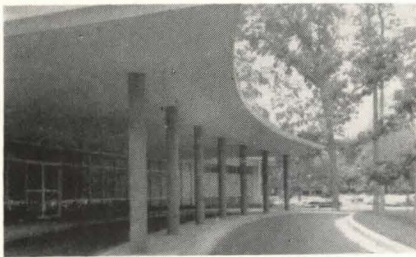
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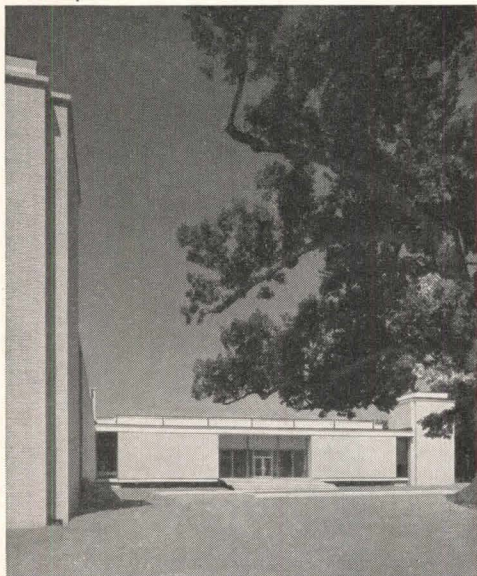
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Armstrong makes every kind of resilient floor. The best is the one that suits your design.

Westinghouse Molecular Electronics Laboratory,
Elkridge, Md. Architect: Vincent Kling, FAIA,
Philadelphia.



HERE, THE BEST IS TRAVERTEX EXCELON TILE.

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Because Armstrong makes every type of resilient floor, your Armstrong Architect-Builder Consultant can make expert and objective recommendations on floors best suited to your design. For more information on Armstrong floors, call him, or write Armstrong, 503 Sage Street, Lancaster, Pennsylvania.

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FLOORS BY

Armstrong



Installation: Trans World
Airlines Executive Offices,
605 Third Avenue,
New York City

Designers: Leonard,
Colangelo and Peters,
New York City

Building Architects:
Emory Roth & Sons,
New York City

Floor shown: VP-624
Smoky Onyx



Creative styling: an inherent quality of Azrock floors.

The growing trend toward resilient floors of vinyl asbestos tile is the result of better styling, better performance, better value. And in all these qualities, Azrock vinyl asbestos tile excels. Case in point: the floors of Azrock Pebbled-Onyx now serving Trans World Airlines in their executive offices in New York City. Pebbled-Onyx has a subtle texturing which helps conceal heel and scuff marks. Made of fine chips of actual marble encased in translucent vinyl, Pebbled-Onyx is notable for custom-floor elegance at down-to-earth costs.

an original floor styling by **AZROCK®**

Consult Sweet's Catalog or write for samples, Azrock Floor Products, 500A Frost Building, San Antonio, Texas 78205.