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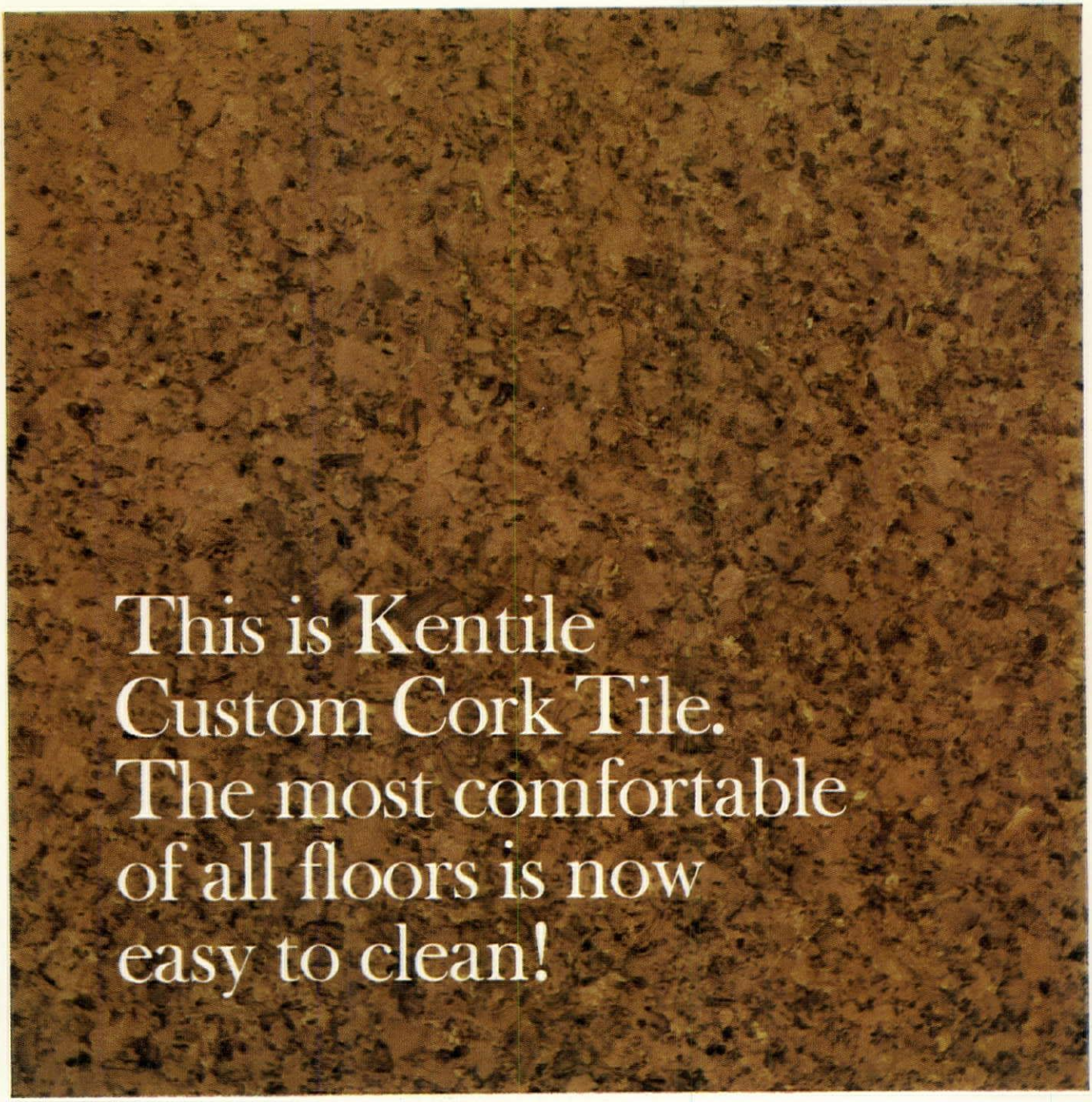
Journal

OF THE AMERICAN INSTITUTE OF ARCHITECTS

October 1962

PSYCHOLOGICAL IMPACT OF SCHOOL PLANTS · CHRISTIAN CHURCH BUILDINGS

ACSA—EDUCATION · CHARLES LUCKMAN ON BUDGETING AND COST CONTROLS



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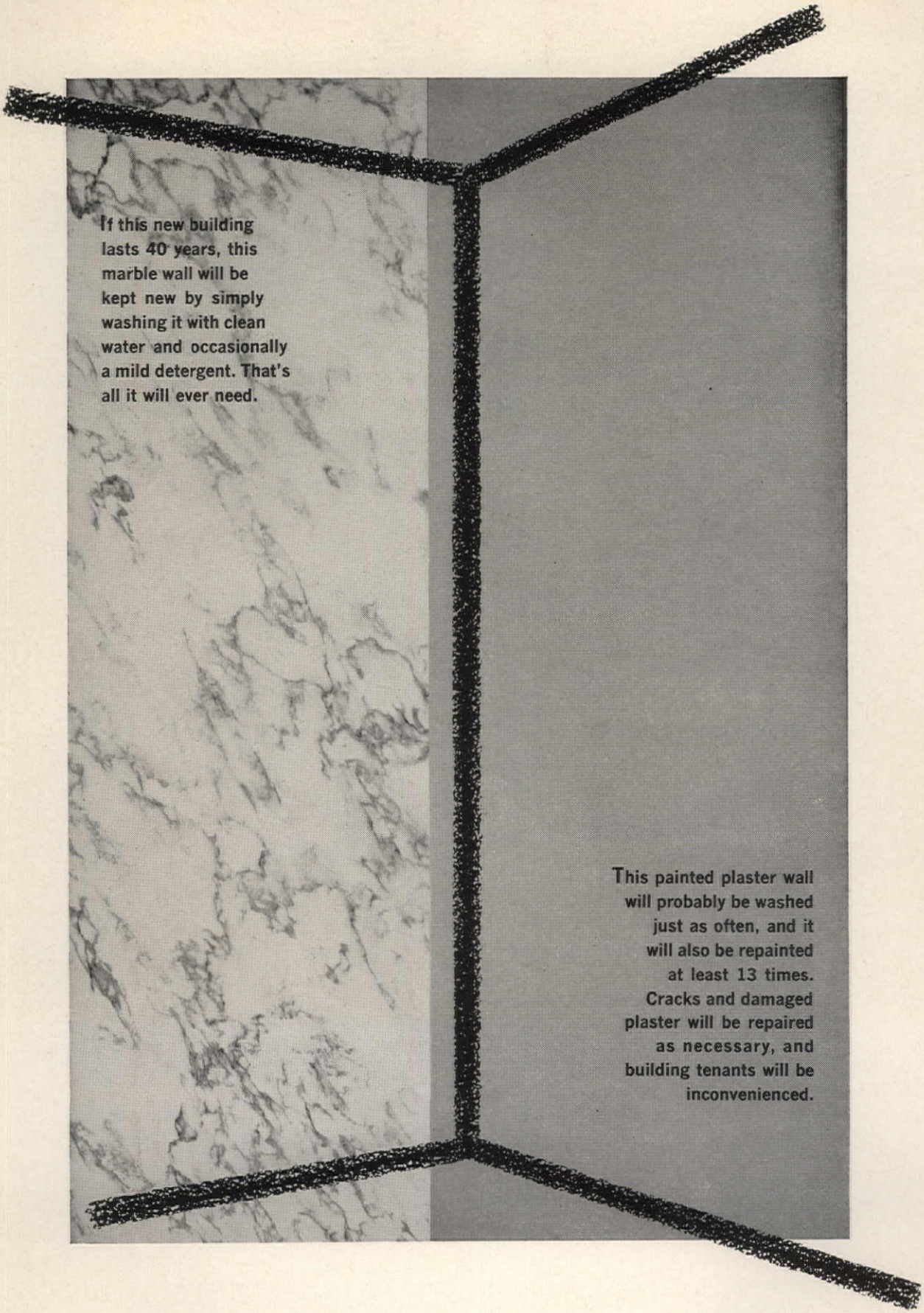

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Journal

VOLUME XXXVIII, NO. 4 OCTOBER, 1962

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L. G. Hanscom Elementary School, Bedford, Massachusetts, designed by The Architects Collaborative (see p 27). Louis Reems photo

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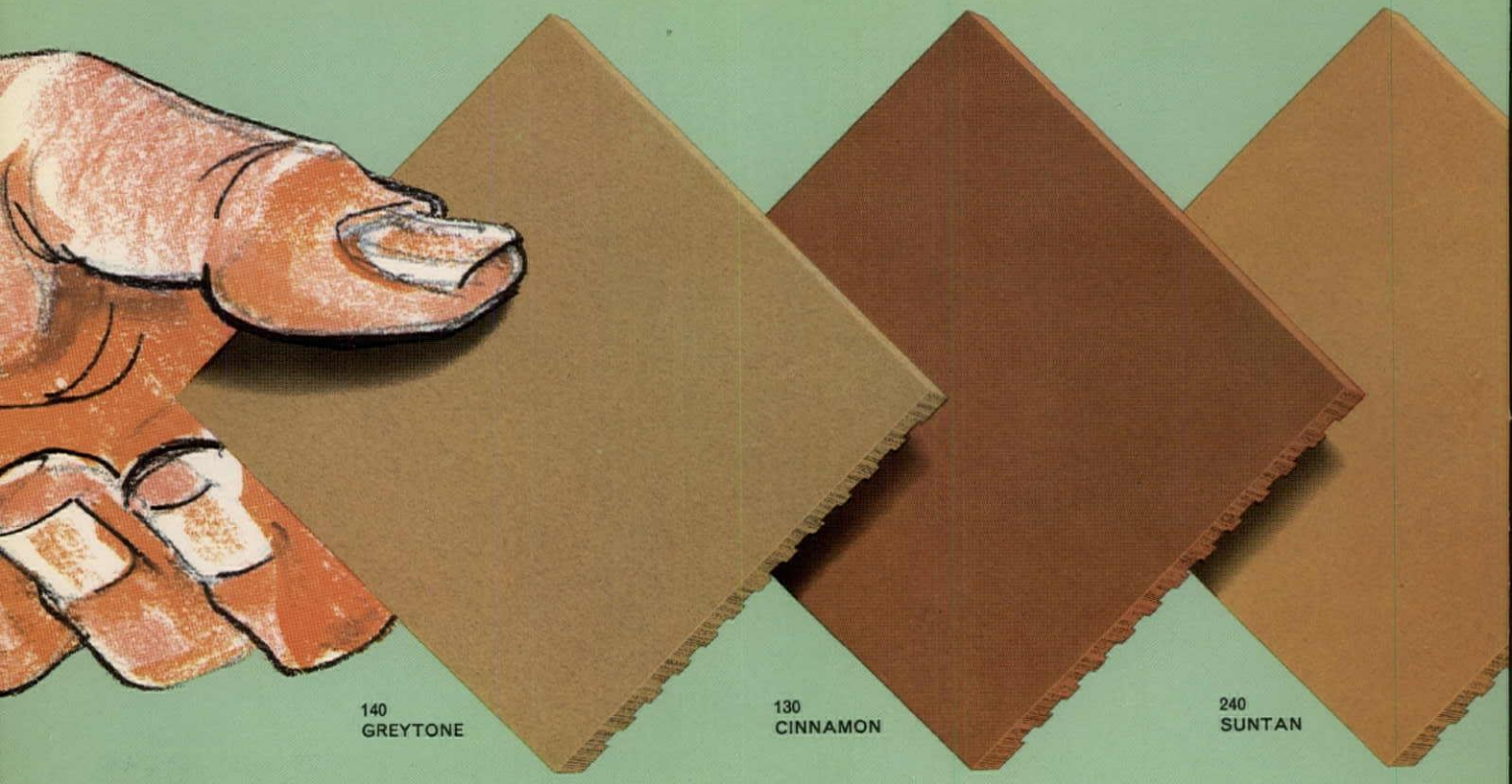

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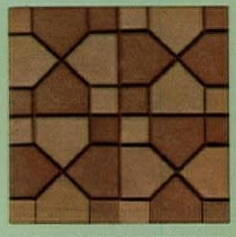

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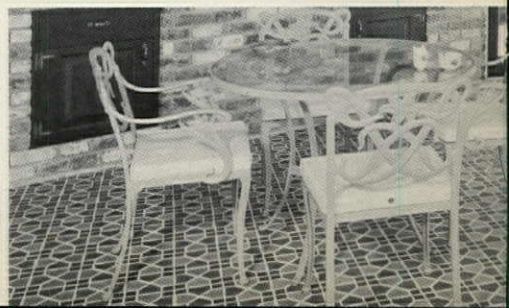

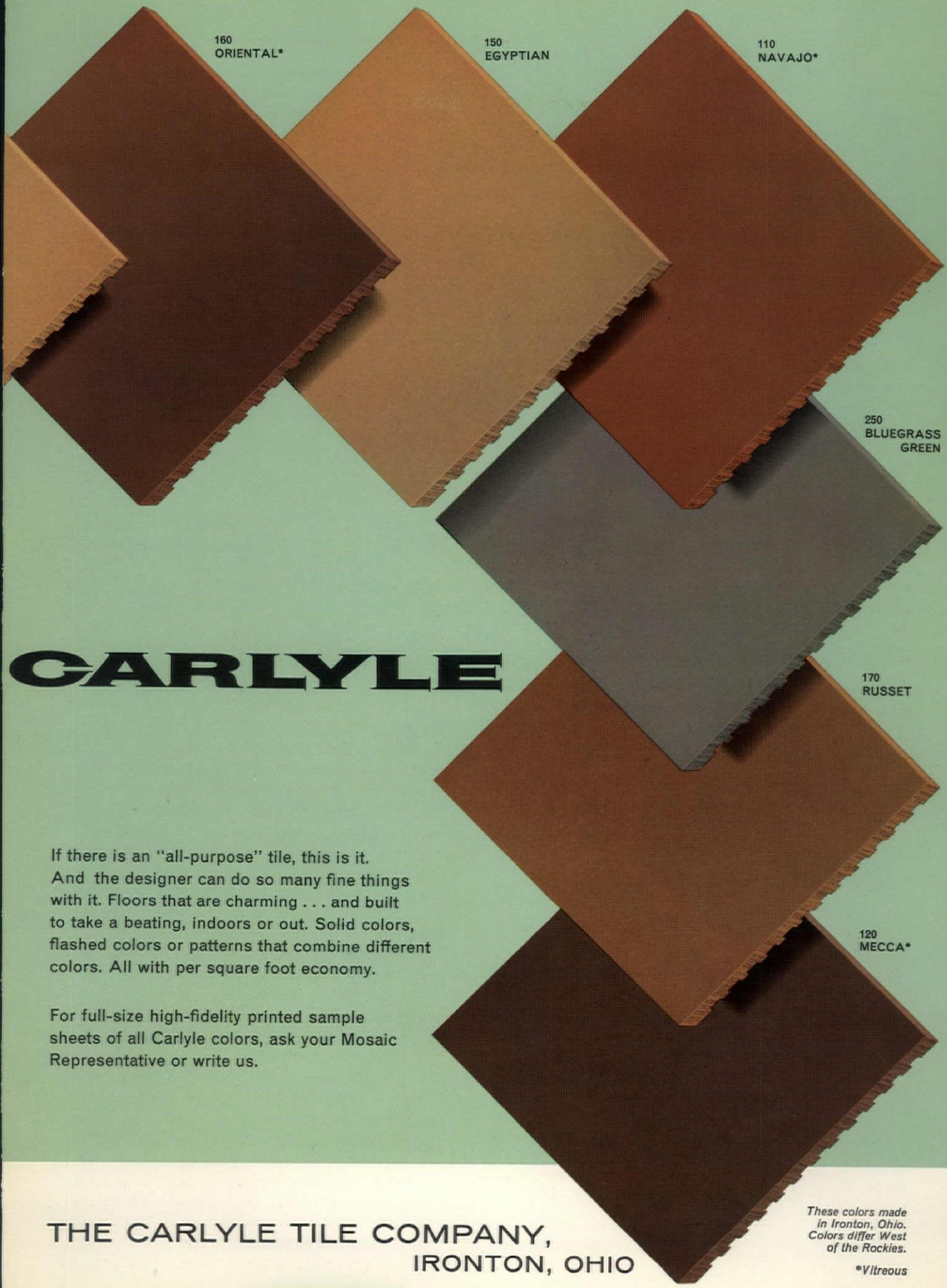

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Letters

Congrats on Convention

EDITOR, *Journal of the AIA:*

Just a note to tell you how very much I enjoyed the coverage of the Dallas convention. We, of course, looked carefully at the Little Rock portion of it and think you did an absolutely terrific job in reproduction of slides and following our script. This is professional journalism at its best, and please accept my sincerest congratulations for a terrific job.

GORDON G. WITTENBERG AIA
Little Rock, Ark

PR Begins at Eight

EDITOR, *Journal of the AIA:*

Your "Architecture for Eight-Year-Olds" is fascinating. Architect Arthur Fehr, I am sure, is appreciated by the entire profession for setting such an example. As he puts it, children have "seen houses being built without an architect in sight." Yet they have always had a need, real or imaginary, for a doctor and see one frequently enough. Children will not forget what an architect can do to enrich their surroundings if they are exposed to one and see his work explained. They will do the rest of public relations.

MEIR SOFAIR AIA
Philadelphia, Pa

Reactions to Mr Reed

EDITOR, *Journal of the AIA:*

In the August issue there appears an article entitled "A Few Words on the Dilemma of Modern Architecture" by Henry Hope Reed. This has needed saying for a long, long time, but I must admit I had lost all hope of seeing it in the *Journal.*

Let me say also that I appreciated Bill Scheick's remarks of a few months ago in which he poked a little fun at masonry grilles that had appeared everywhere, in the least appropriate places, because of their beauty in one appropriate spot—the New Delhi Embassy.

So much of the big stuff going up these days deserves the remark credited to President Grant upon being shown through the then new Pension Building: "It's too bad it's fireproof."

RICHARD W. ALGER AIA
Arlington, Va

EDITOR, *Journal of the AIA:*

If it had been anyone other than Henry Hope Reed, I would have resented being quoted out of context in the August *Journal.* Those who know my views and my commitments can testify on my unbounded optimism regarding the future of the city. Surely cities, as other bodies, continually die, but also are reborn—happily not in the embalmed images of Mr Reed.

PIETRO BELLUSCHI FAIA
Cambridge, Mass

EDITOR, *Journal of the AIA:*

What is needed today is an approach to architectural design somewhere between Henry Hope Reed's apologia for classicism and the unbridled romanticism of the "self-declared genius." More specifically, we need architects who can live without front-page publicity, who can concentrate on the particular architectural problem at hand and who can resist the many whimsies such as the "Wide World of Glass."

WILLIAM LYMAN AIA
Birmingham, Mich

More on FDR

EDITOR, *Journal of the AIA:*

As one of the designers of the FDR Memorial I should like to answer Mr Ostwald's letter of criticism in the June issue of the *Journal.*

First I would like to comment on what Mr Ostwald calls the "colossal" scale of the memorial. The over-all size of the memorial and the heights of the steles were not arbitrarily arrived at. The design was created and refined in movable model form. The scale of the spaces within the memorial was closely studied and constantly adjusted, working within the memorial at eye level. Particular attention was directed to the scale of the human figure within the complex. A careful look at the sectional drawing will show that the people are not dwarfed nor are the slabs disproportionate to the surrounding landscape, especially the circumferential elm trees on the site. As to the over-all height of the slabs, critics have charged that our memorial would "tower" over the adjacent Lincoln and Jefferson Memorials. Although our tallest slab is twenty-five feet higher than the Lincoln Memorial, ours is open in form and is simply a vertical plane; it does not define a volume in space. With further refinement it may be found that this height can be reduced without changing the basic spatial and formal relationships.

As for lettering, we have studied engraved lettering on many buildings. It is our opinion that letters of this size (approximately 10″ high) may

(Continued on p. 10)

NERAL CATALOG OF COMPLETE BLUMCRAFT LINE AVAILABLE ON REQUEST

Letters *(Continued)*

be read at this distance, at the angles shown and at the heights proposed. I do not say that all the inscriptions may be easily read in any light at any time of day from any place on the memorial. No doubt it would be less difficult to have them close by at eye level, or even better yet to have them projected from micro-film onto a library viewer as has been suggested. But we believe that the significance of the quotations will be most thoughtfully communicated by reading them in a unique environment. If this requires unusual effort, so much the better.

As to the comment about the unarticulated and repetitious forms we can only wish that all our critics would view the models, as no photos can communicate the form or the spatial experience of movement within it. On the question of detail treatment of surface, color and texture we would be the first to admit that much study will be required including sample sections.

JOSEPH WASSERMAN AIA
New York City

The Bad and the Beautiful

EDITOR, *Journal of the AIA:*

"Why Must Architectural Lettering Be So Bad?" by Wolf Von Eckardt is a timely article bringing out the deplorable fact that too many of our architects do not seem to realize that attractive letters on the drawing mean that the viewer is more favorably impressed and is inclined to look at the drawing the second time.

The average school of design does not seem to impress upon the student the fact that lettering as well as general neatness is of such vital importance in making the drawing appealing and attractive to the viewer. This comment comes from an old-timer in active practice for fifty years.

We need to put more time and thought on the titles and lettering of our drawings. They will produce good results and much favorable reception.

LESLIE N. BONEY AIA
Wilmington, NC

Query from an Author

EDITOR, *Journal of the AIA:*

For a biography of Louis H. Sullivan (1856–1924), I would appreciate data on unpublished letters by Sullivan or his partner, Dankmar Adler

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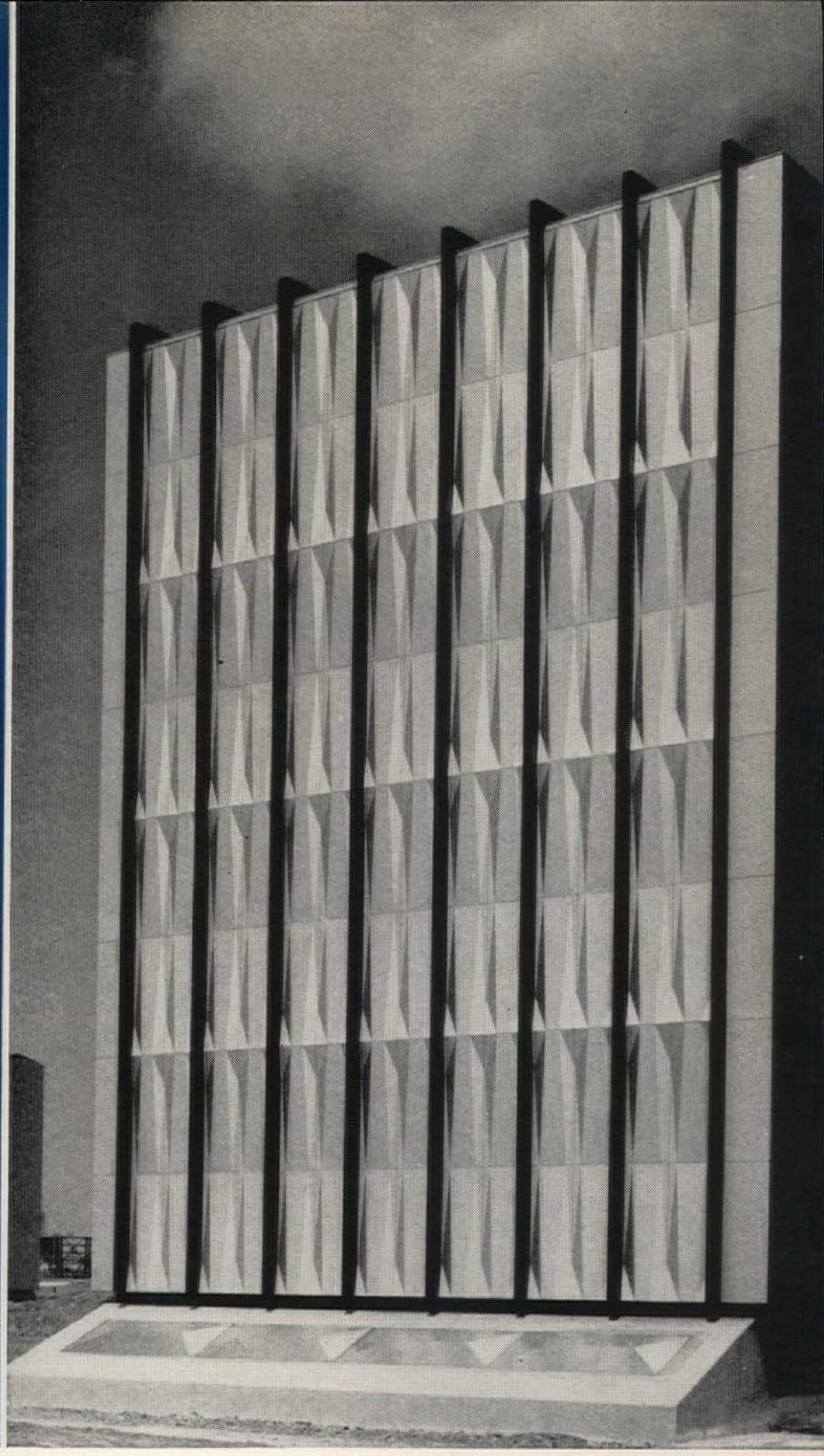

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URBANISMS

A regular column by our specialist on urban affairs, Matthew Rockwell, Director of Urban Programs

Perceptive Help Needed

A well-read Washington architectural critic recently wrote, apropos of making city neighborhoods attractive to people, "now would seem to be the time, at long last, to seek the perceptive help of experienced architects."

For some time now the Rehabilitation and Conservation Branch of the URA has been working with us specifically in the direction of the above quotation. Their major objective under Section 221 of the revised Housing Act of 1961 is to refine the techniques for changing unattractive city neighborhoods into attractive ones, where rehabilitation rather than renewal is the chosen program.

In the words of the URA it was the "Georgetown treatment" which was a desirable architectural end result. Their theory: If applied elsewhere than in the Georgetown section of Washington (where new colonial doorways and shutters were the prerequisite) and if applied as successfully, any unattractive neighborhood could be transformed overnight. The problem seemed to be twofold: first, how to find an architect who agreed with this concept; and second, how to find funds to pay the architect.

With tongue in cheek, the URA accepted the possibility that other styles might be acceptable. They studied the results of a pilot contract they made with Institute members in Cincinnati where "the Georgetown style" was abandoned. This pilot attempt was triply interesting. One section considered residential improvements, a second involved changes to the commercial district, while the third studied the aspect of the street itself—its furniture (mailboxes, hydrants, lamps, etc) and the treatment of the street-side itself. The results were visually favorable but the economics were questionable. For example, with the typical family able to spend $3,500 per rehabilitated residential unit, the family was faced with two or three times this expense, not including the architect's fee.

In another city, New Haven, the redevelopment agency placed an architect on its staff who serves the overall function in a way which must appear to the agency to be very efficient.

But to the independent architect, the secret of the fee problem lies in facing up to it as a completely different architect-client relationship than is traditional. Remodeling work *is* expensive for the architect. One of the non-traditional ap-

(Continued on p. 14)

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proaches would permit the use by the city building departments of rough sketches, rather than finished drawings. Further, if several design units could be combined to make a project sufficient in volume to justify lower individual unit fees, this would be an inducement. Also as an interesting possibility: To ease the time involvement by architects in the making of measured drawings, we discussed with photogrammetrists the possibility of obtaining "contour" maps of building facades. Accurate within a few inches, these would be usable at least for sketch purposes, where building fronts were continuous, as they are in many older cities. Obviously they would not be the whole answer but they would tend to reduce costly man-hour charges.

But the prospect as a whole is dark. Not only are the problems formidable, but it seems that the general public is apathetic to this opportunity, and even in the few cases where they were not, their tastes ran more to imitation stone skins than to integrated design changes. The design aspect strikes us as less serious than the possible indictment that the public—or that our neighborhoods—cannot afford the services of an architect. Or conversely that the architect cannot afford to serve a conservation need!

Our thoughts toward a solution move in the following direction:

1 The design clinic can and must become a workable device for encouraging wider use of architectural services within a conservation area. It should include the concept of approaching design on a neighborhood-wide basis for maximum legitimate reduction of architectural fees;

2 A way must be found to help residents of conservation areas take suggestions received at the clinics through working drawings. Otherwise there is a dead end at the point of preliminary design;

3 The New Haven program may be efficient, but the character of its conservation area depends almost solely on the talent of a single architect retained by the agency. Cincinnati has benefited from involvement of the entire architectural community, if only indirectly. Means should be sought to more closely involve the total architectural resources of the city in such programs;

4 In both cities, conservation projects have been supported by well-coordinated public information programs. This is indispensable.

Ultimately, it is hoped that there will be developed techniques which can be applied to the interiors of buildings as well as their facades. Only when professional design services are applied to the entire building can a total conservation program be said to exist. Neither blight nor building values stop at the front door. ◄

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News

Architects Directory Nears Publication

The second edition of the American Architects Directory, to be published this fall in cooperation with the AIA, personifies within its 900 pages of documented evidence the changes in and growth of the profession since the issuance of the first volume six years ago. At the same time, Editor George S. Koyl FAIA points out, it provides a responsible statement concerning the competency of America's finest architects for continued distinguished service to society.

The "Who's Who" character of the initial edition continues to be maintained. In addition to listing all AIA corporate members, it also includes the biographies of a few non-members who have been deemed worthy of inclusion from information gleaned from various sources as to their professional standing in their own communities. Of the 15,000 listings in this edition compared with the 10,800 of the original, biographical data has been received from 9,400 as against 7,250 last time. Approximately 1,800 previous entries, for which no new data was submitted, have been updated, making a total of 11,200 biographical sketches, an increase of some 4,000.

Mr Koyl regrets that all of the 14,600 AIA members did not respond to any of the several requests circulated for biographical data. Those who did not respond, or for whom there was no previous data available, are represented by two-line entries in order that the roster of members be complete, as desired by the Board of Directors.

New to this edition is the listing of multi-principal firms with the names of present partners or legal principals in the biographical index. For ease of identification, a symbol (the dagger) appears on the second line of each single or multiple principal firm listing. In harmony with recommendations of the AIA Executive Committee, only those firms which include an architect among its principals and which claim to be architectural firms have been deemed eligible for inclusion.

Partners or principals who are not architects have their respective professions indicated by the initials "CE," "NE," "PE," etc, after their names and otherwise are not included in the biographical index. Since this is a directory for architects, all descriptive material such as "architect," "architects and engineers," etc, is omitted after firm names. Firms which do not include the name of an architect in the firm name are omitted unless, in the judgment of the editor, the name sufficiently implies an "architectural firm."

Another feature new to this edition is the chart of conventions and officers of the AIA since its founding in 1857. Appearing in the front matter of the volume, it was compiled by Henry H. Saylor FAIA, Institute Historian, originally for his publication, "The AIA's First 100 Years," issued for the Centennial Celebration. It has been revised and brought up to date, including the Dallas convention. Authorized for use in all membership lists by the Board, it appears first in this edition of the directory.

The most-often needed information is found in the first two lines of each biography. On the first line, following the full name of the architect, are given "AIA" and the year of joining, "FAIA" and the year of advancement to Fellowship (when applicable), and the chapter with which affiliated. His or her status as a Member Emeritus or Life Member is indicated. For biographees who are the architects of single principal firms, the second line begins with a dagger. For these as well as for all other biographies, the name of the firm with which associated as a principal or employee is given with the office address. For architects who are not AIA members, the first line omits all references to societies or memberships in professional organizations; the second line is uniform for all biographees.

Another important feature of this second edition is the key on general types of work executed at the beginning of the biographical index for the meaning of number in all biographies listed under this heading. A footnote at the bottom of each page in this index interprets the numbers from 1 through 20 as to general types. The key can be referred to when one wishes fuller details as to what types are included under general headings. In this edition, landscape design, interior design and restorations have been added as general types to those previously listed in the 1956 edition.

The necrology in the appendix lists deceased AIA members who were biographees of the 1956 edition as well as those who joined the Institute after compilations for that volume had been completed, going through May 31, 1962, as reported by the Octagon. It does not include deceased non-member biographees who may or may not be among those who did not respond to requests for information updating their previous entries. For lack of guidance, all such biographies or listings in the necrology are regretfully omitted, explains Editor Koyl, who is Emeritus Professor of Architecture, University of Pennsylvania.

The directory is available to AIA members for $15 if the order is accompanied by payment and $17 if charge is billed. Address orders to R. R. Bowker Company, 62 W 45th St, New York 36, NY.

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News *(Continued)*

Regional Seminars

As part of its major program to aid the architect in further increasing his competence in design and improving his competitive position in today's economy, the AIA is conducting seminars on "Comprehensive Arichitectural Services" at 11 of its regional conventions this fall.

AIA Executive Director William H. Scheick says the seminars are expected not only to serve as a means of professional education, but also as a stimulant for member response which will guide the Institute in revising its standards of professional practice as the ethical guide for the practitioner serving today's society.

"The seminars are being scheduled in the knowledge that the membership expects the AIA to concern itself with competence and competition," Mr Scheick explains. "They are one of the new projects made possible by the supplemental dues program."

A variety of speakers are participating in the seminars, but each program has the same basic format. A speaker discusses one of three subjects: 1) the overall concept of comprehensive architectural services, 2) the performance of these services in actual practice, 3) the relationship of comprehensive services to the mandatory standards of the Institute. A panel discussion follows under a moderator.

Park Named for an Architect

Robert and Ruth Work Park was dedicated recently in Chicago, as a memorial to the late Robert Work and his wife, who had for many years been active in garden and conservation work. Mr Work had been a partner of Howard Shaw, later of David Adler, and then of Russell Walcott, finally practicing independently until his death.

A Correction

The listing of President Kennedy's appointees to the Advisory Committee on the Pennsylvania Avenue Redevelopment as they appeared on p 50 of our August issue was in error. The membership should read: Chairman Nathaniel A. Owings FAIA, Charles Eames, Frederick Gutheim, Douglas Haskell FAIA, Dan Kiley AIA, Daniel P. Moynihan, Paul Thiry FAIA, Ralph Walker, William Walton, Minoru Yamasaki FAIA. Polly Shackleton, Hon AIA is acting as secretary.

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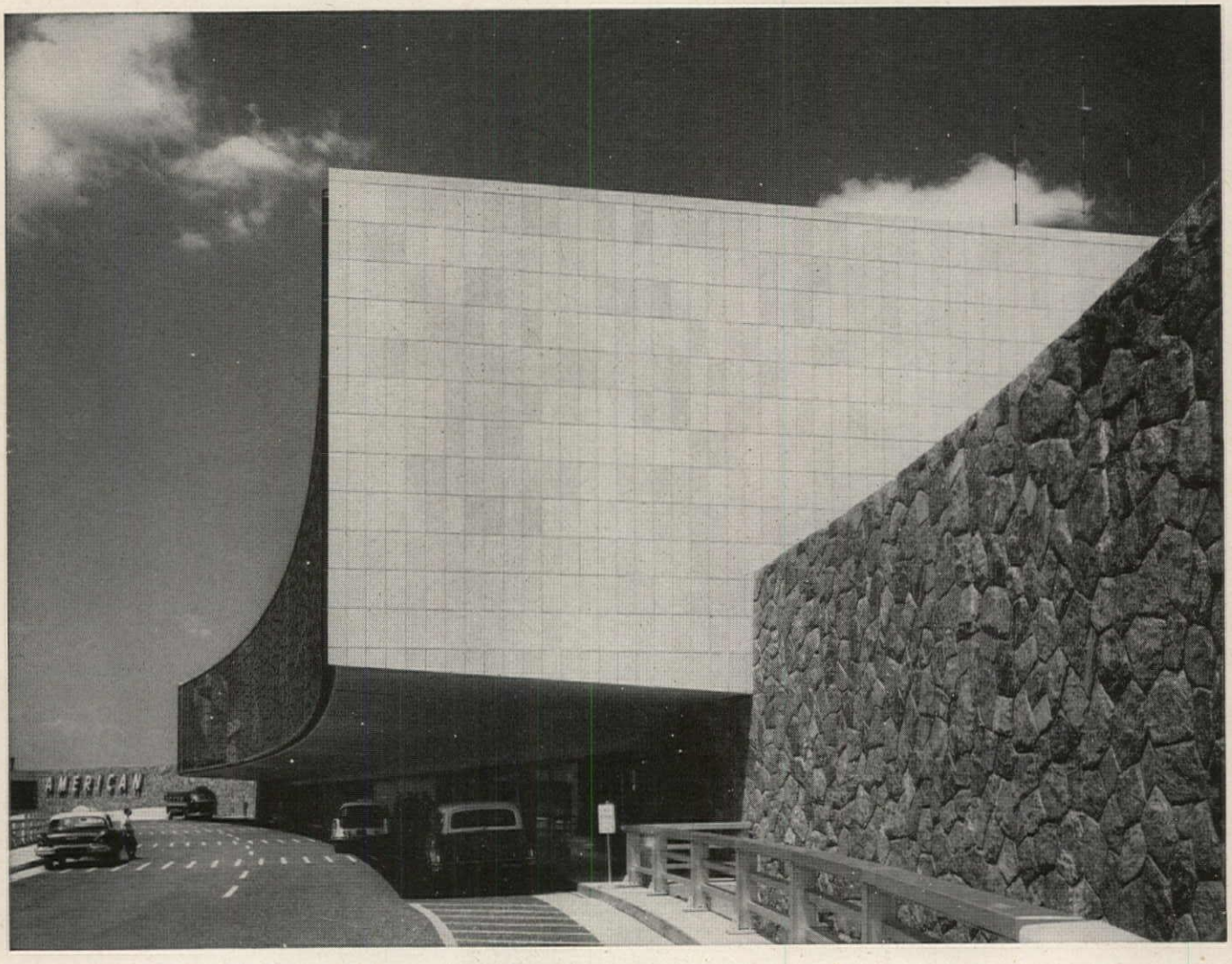
Kahn and Jacobs—*Architects;* **John B. Kelley, Inc. of New York**—*Masonry Contractor;* **Turner Construction Co.**—*Contractor.* Walls on both sides of stained-glass facade are antique ivory Ceramic Veneer in 12″ x 24″ units. Piers, sills and window surround are black Ceramic Veneer.



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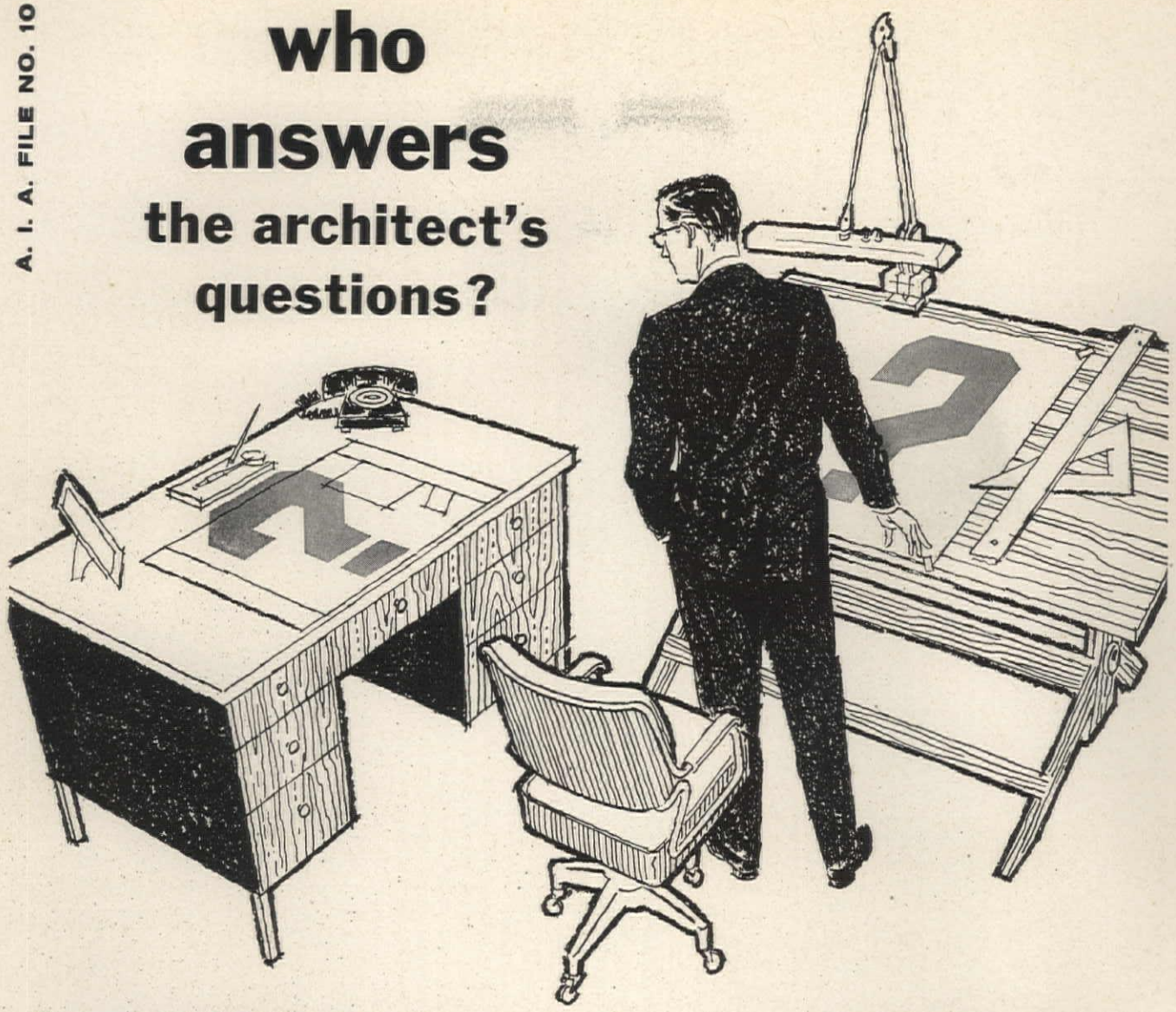
A. I. A. FILE NO. 10

who answers the architect's questions?



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A.I.A. FILE NO. 10

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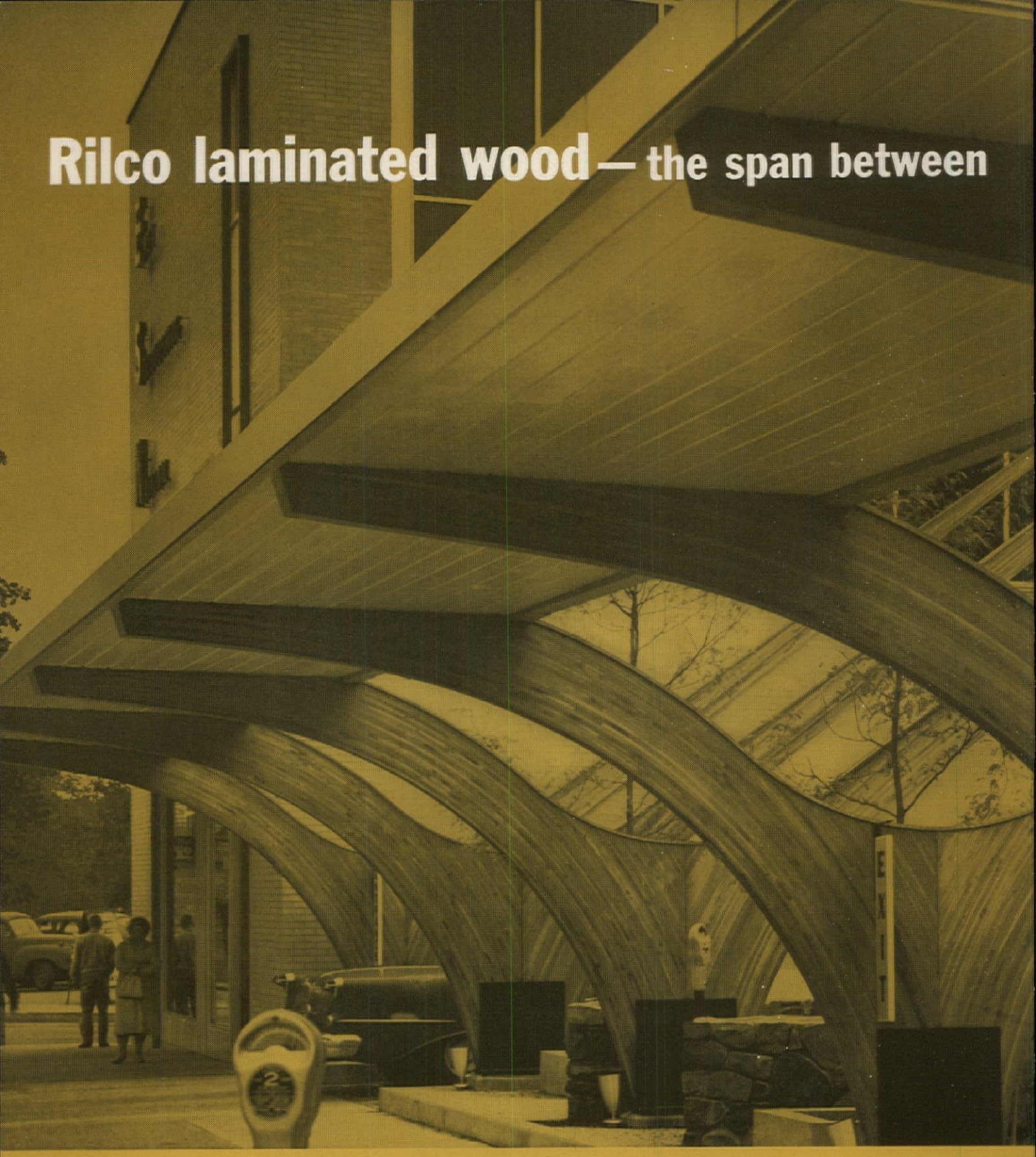
Rilco laminated wood—the span between



Rilco moved outdoors to solve this unique canopy light standard problem. With laminated wood arches, the architect was able to depart from traditional exterior forms and still keep costs within a modest project budget. Dramatic beauty came naturally. Structural efficiency and practical function were simultaneously achieved. Simplified erection held labor costs to an absolute minimum. The entire Rilco structure was up in just six hours. Weathertight construction will insure lasting attractiveness and low maintenance through the years. Assisting the architect on structural specifications, design details and installation of the arches was a team of Rilco engineers. For your own projects, either outside or inside, Rilco structural systems offer

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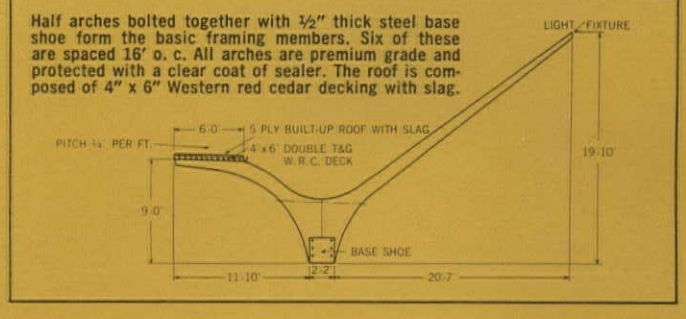
Half arches bolted together with ½" thick steel base shoe form the basic framing members. Six of these are spaced 16' o. c. All arches are premium grade and protected with a clear coat of sealer. The roof is composed of 4" x 6" Western red cedar decking with slag.



The American Institute of Architects

The American Institute of Architects Foundation, Inc.

AIA·AIAF SCHOLARSHIP PROGRAM

1963-64

The American Institute of Architects has funds available for scholarships in architecture for the academic year of 1963-64. They are derived from general scholarship and education funds, trusts of The American Institute of Architects, and grants to The American Institute of Architects Foundation, Inc.

Eligibility

Undergraduate Scholarships: present third and fourth year students in Member and Associate Member Schools of the Association of Collegiate Schools of Architecture.

Graduate Scholarships: present fifth year and graduate students in Member and Associate Member Schools of the Association of Collegiate Schools of Architecture.

Post-Graduate Scholarships: practitioners and educators in architecture and the allied arts.

How to Apply

Undergraduate and Graduate Scholarships: a limited number of applications are available in the office of the Head of each School of Architecture.

Post-Graduate Scholarships: applications available by writing to the *Scholarship Program, Department of Education, The American Institute of Architects, 1735 New York Avenue, N.W., Washington 6, D.C.*

Applications are to be completed and returned as instructed on each form *no later than November 19, 1962.*

Selection

Awards will be based on *need* and *scholarship* as selected by the AIA Committee on Education.

Number of Awards

Funds are allocated in proportion to the number of applications received.

Announcement of Awards

April 1, 1963.

AIA-AIAF SCHOLARSHIPS

The American Institute of Architects Funds

Henry Adams Fund for fourth and fifth year undergraduate or graduate students in architecture, primarily for studies related to ecclesiastical architecture.

Delano and Aldrich—William Emerson Fund for French architects, sculptors, painters or students for travel in the United States. (Applications should be made directly to M. L. Arretche, Comité Francais pour L'Attribution de la Bourse, Institute des Architectes Americains, 6 Rue Jules-Chaplain, Paris, France.)

Edward Langley Fund for residents of the United States and Canada. Awards made to fourth and fifth year undergraduate or graduate students for the study of architecture.

Milton B. Medary Fund for graduate students who have received as undergraduates the "School Medal of The Institute" for graduate study in architecture.

Carl F. and Marie J. Rehmann Fund for graduate students, practitioners and educators in architecture for travel and research; and for aid to artists and craftsmen who are pursuing their arts with an architectural point of view.

Louis H. Sullivan Fund for fourth and fifth year undergraduate or graduate students in architecture.

Dan Everett Waid Fund for fourth and fifth year undergraduate or graduate students in architecture "to serve education in architecture which shall be interpreted broadly so as to include the promoting, knowledge and appreciation of the fine arts."

AIA-AHA Joint Fellowship Program in Hospital Design for graduate study at universities which have schools of architecture and hospital administration.

The American Institute of Architects Foundation, Inc. Grants

Blumcraft of Pittsburgh Scholarships to aid fourth and fifth year undergraduate students in their study of architecture.

International Association of Blue Print and Allied Industries Scholarships for students in their fifth year of architectural education.

National Board of Fire Underwriters Scholarships for students who are attending one of the collegiate schools of architecture in the United States, preference given to those students completing their fifth year.

The Ruberoid Company Scholarships (Mastic Tile Division) for fourth and fifth year undergraduate students attending one of the collegiate schools of architecture in the United States.

A·I·A
Journal

Ezra Stoller

Mind, Body and Stimuli

by **Gyo Obata AIA**

The main section of the AIA Journal *this month is given over to Mr Obata, of the AIA Committee on Schools and Educational Facilities, for a brief article (a "School Plant Study") and a selection of photographs which illustrate his emphasis on the need for considering the psychological impact of the school buildings on the pupils and their teachers*

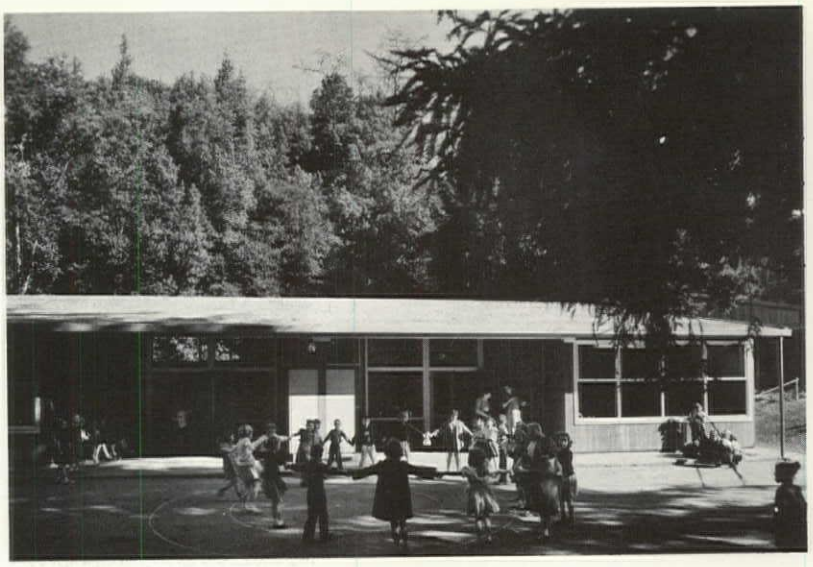
Ulric Meisel photos

San Angelo Central High School, San Angelo, Texas. Caudill, Rowlett & Scott, Architects. Pleasant alternation of space, water, plants and pavement provide relaxing atmosphere. Library reading room faces toward quiet, undisturbing view of Concho River. Buildings are well related to each other and to site—pool collects drainage

Bristol Primary School, Webster Groves, Missouri (photo on p 27). Hellmuth, Obata & Kassabaum, Architects. Four-room clusters preserve beautiful trees.

Deer Park Elementary School,
Fairfax, California (right and across page). Reid, Rockwell, Banwell & Tarics, Architects.

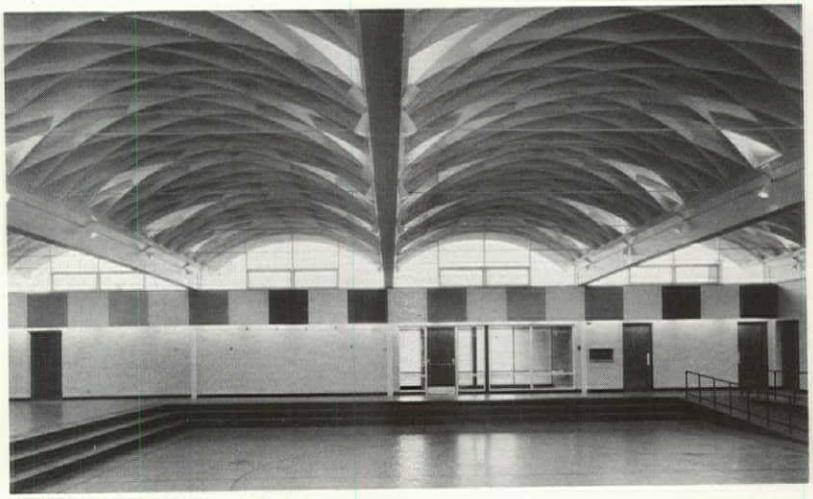
Richness of redwood of child-scale buildings plays against full greenery of Marin County



Roger Sturtevant photos

Warson Woods Elementary School,
Webster Groves, Missouri.
Hellmuth, Obata & Kassabaum, Architects.

Multi-purpose room shows unusual emphasis on structure, color, levels



Hutchinson

Sonoma Elementary School,
Sonoma, California.
Mario J. Ciampi FAIA;
Paul W. Reiter, Assoc Architect.

Covered passageways lead to multi-purpose glass box

Sleepy Hollow High School,
Tarrytown, New York.
Perkins & Will, Architects.

Various-level buildings connected by enclosed corridors fit well on rolling site above Hudson River. Good natural bilateral lighting is employed for special classroom

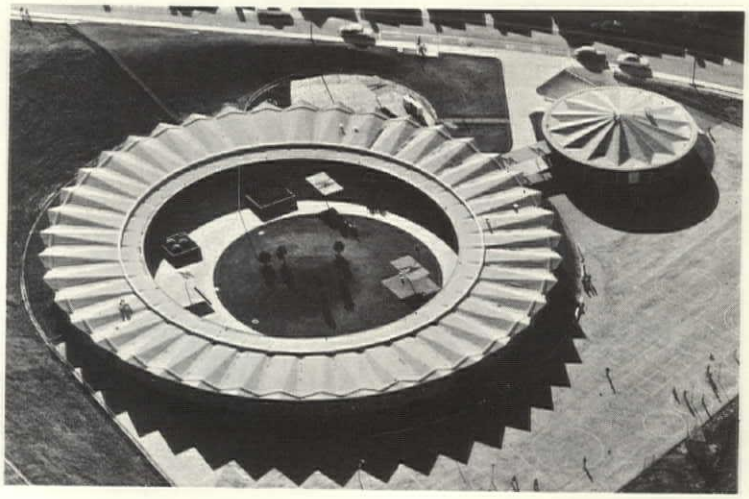
Suter, Hedrich-Blessing

AIA *School Plant Studies*

BT 1-50

Mind, Body and Stimuli

by **Gyo Obata AIA**



Remarks before the 46th annual convention of the National Association of Secondary School Principals Kiel Auditorium, St Louis, February 27, 1962

One of a series of papers prepared by members of the AIA Committee on School Buildings, 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 non-technical 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.

Karl H. Riek

Vista Mar Elementary School, Daly City, California. Mario J. Ciampi FAIA; Paul W. Reiter, Assoc Architect. School turns in upon itself to escape monotony of suburbia

L. G. Hanscom Elementary School, Bedford, Massachusetts. The Architects Collaborative; Louis A. McMillen, Partner-in-Charge. Glass makes most of good view on fine site. Photo by Louis Reems

Mind, Body and Stimuli

by **Gyo Obata AIA,** *Hellmuth, Obata and Kassabaum*

► Our concern in these few minutes is with the psychological impact on students and their teachers of the architectural design of schools.

In taking up such an important topic, it should not be necessary to point out that not every school building has succeeded in obtaining proper architectural design—from a standpoint of scale, site planning, interiors or structure.

Minds—in Packages, Pyramids & Procrustean Beds

The typical high school, the kind we find everywhere, has corridors with lockers on both sides with green glazed tile up to four feet high, walls painted pastel green above; classrooms of twenty-four-foot depth and thirty-six-foot length on both sides of the corridor, with dark brown asphalt tile and acoustical ceiling, sixteen feet of chalkboard with eight feet of tackboard. The great masses of the gym, auditorium and cafeteria are piled at the end of a long corridor. The school is red brick with punched-out windows on the outside. It is lately fashionable to have miles of curtainwall of glass and shining aluminum.

Once you pass through one of these high schools, you have gone through dozens more—a school building drawn up from the very first program with no relationship to the totality of a school, its educational program or its visual impact on the students and teachers who will use the building. As Bill Caudill has put it so well: "Warehouse for learning—to store people in a dull package." A school is treated all too often as a mere machine for learning, and the human value is by that fact neglected. I am not urging, of course, that a school building be unable to perform the function expected of it. What I am saying is that there is great danger of losing track of the fundamental purpose of building a school at all, if we are limited in forms to what Lewis Mumford calls "The Package, The Pyramid or The Procrustean Bed."

The Package is the external envelope. Most people now realize—some of them to their dismay—that there is precious little opportunity for a sense of comfort and well-being to live, to work, or to learn inside a goldfish bowl or a glass box. Formalism—mere formalism—is not enough.

The Pyramid is the monument that, as Mumford puts it, "demands a sacrifice of important human needs to empty pomp and vanity."

The Procrustean Bed is not the mere use of the machine, but the displacement of man as the responsible agent—over-mechanization—the expansion, really, of lack of purpose. Thus functionalism is not only not enough, either; it can be distinctly destructive of the aims of education.

Body—Its Needs

I have said, in effect, that proper architectural design of schools presupposes good site planning and functional use of spaces. It should also include thoughtful attention to such exterior visual impacts as open courts, such interior impacts as control of natural and artificial light, avoidance of undue contrasts. Auditory impacts and noise control are important in corridors, classrooms and quiet areas such as libraries. Architectural design should include—since spatial flexibility is greatly affected by it—structure. It even includes the choice of materials and their texture and color, since the materials contribute to the total auditory and visual impact. It includes heating and cooling. Effective teaching is difficult in an uncomfortable environment. In short, architectural design includes the visual, the acoustical and the thermal environment.

For want of a better term, I shall add another element to this round-up: the spatial environment. It is present in the elements already mentioned. A space must not be too tight, too spread out, too live or too dead.

Architectural design also includes proper scale. It is easier to *feel* proper scale than it is to talk about it. Aristotle mentions in "The Poetics" the impropriety of a tragedy "a thousand miles long." A school building a thousand miles long or a classroom a thousand miles high would be equally improper. But it is not necessary to take such an extreme example. It is well known that most corridor ceilings are too high. Lower corridors would implicitly stress the greater importance of classrooms with higher ceilings.

Beyond all of these considerations—as important as they are—we come to that aspect where the architect makes his main contribution, namely in thoughtfully putting the spaces together so that a person using the building will have an enriching and enhancing experience. Students and teachers will then interact with the environment around them, and will feel alive in the school. The environment will help the learning process.

Roger Sturtevant

Deer Park Elementary School, Fairfax, California. Reid, Rockwell, Banwell & Tarics, Architects. Original trees and slopes, harmonizing with school's wood exterior, stimulate through warmth and changing pattern of color and light

Stimuli and the Design Process

The architect—just like any other human being—is constantly bombarded by external stimuli, chiefly in the form of vibrations and radiation of different wave lengths. Included here are sound, light, and as a result of the light waves, sensations of masses, spaces and boundaries of all sorts of objects. All of these stimuli are presented to us willy-nilly. If our eyes are open we must of necessity see what is in front of them. Our role at the outset, then, is rather passive.

As consciousness comes into play, however, the hearer's and viewer's mind is quickly activated. We form impressions from these stimuli. We remember the blush of a rose on a spring morning, the friendly bustle of a space like Piazza San Marco, the shriek of a jet engine lifting its cargo miles into the sky.

So it is with designing a building. Stimuli reach the architect from many sources. Among them are his conversations with the client to find out exactly what the aims, needs and objectives are, a careful determination of the possibilities offered by the site, an evaluation of the design possibilities in the light of such limitations as building codes and the budget. The architect then searches his memory and experience, bolstering both with research that may take weeks. What began as a relatively passive process has become very active indeed!

At the end of it all, the architect will explore the possibilities for a grand architectural design that will encompass all the structural, functional and formal requirements. He may consider more than one, of course. In my own experience, on some projects I have worked out as many as a dozen architectural designs, before selecting the one that I myself believed was "best" for the client.

How do I determine what is best? I "take the tour" in my mind's eye, having laid out the sketches and plans before me. I walk from room to room and from space to space. I envision how I react to a building which as yet exists nowhere else than in my own mind. It may sound a little mysterious, but I can tell, after taking that tour in my mind's eye, whether a building will or will not be meaningful. Once the building is built, it is my warmest hope that it will in turn provide the stimuli for other people to gain the same pleasurable and meaningful experience in walking through it and using it that I gained months or even years before. This is communication from artist to viewer.

Such communication goes on all the time through books, poems, music and painting. I am only stating that it can happen architecturally as well.

The humanizing qualities of architectural space are just as important as the tangible assets. Too many times the very spaces that enhance the community of a school are thrown out as being not essential or too expensive. To me, this represents an example of the old maxim "penny wise and pound foolish."

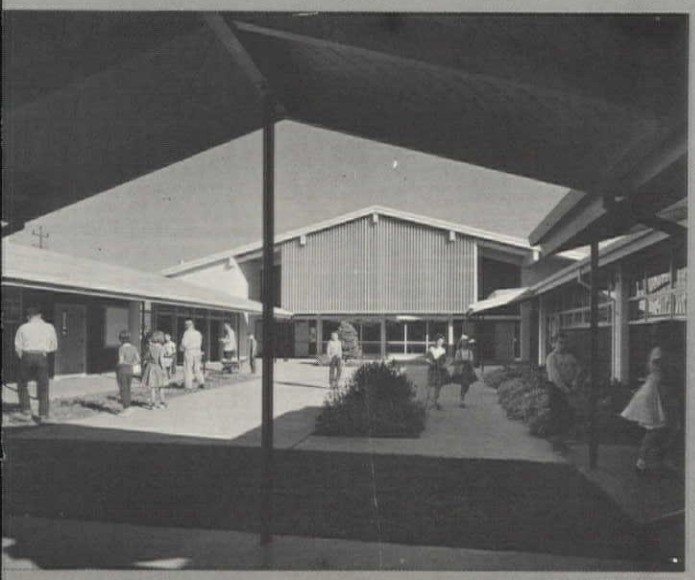
In an age of crowded core cities and sprawling suburbs, schools of the highest quality architectural design may be the very and perhaps the only element that will lead the children of what up to now has been a very materialistic society to understand and create a better environment for the world. ◄

Horace Greeley High School,
Chappaqua, New York.
Perkins & Will, Architects.

Deep overhangs protect long expanses
of glass from strong mid-afternoon
sun and permit wide and handsome outlook

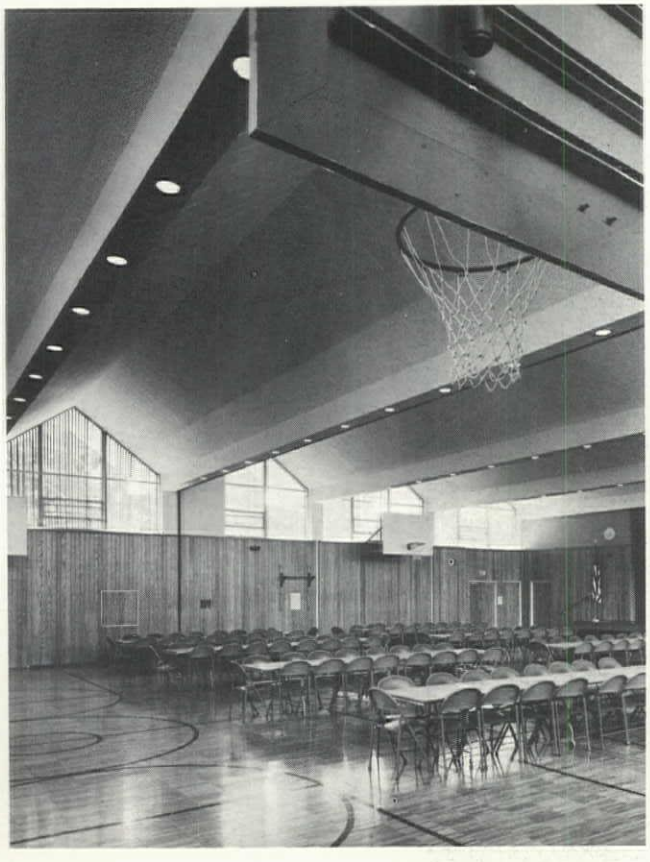
Garfield Elementary School,
Carmichael, California.
Reid, Rockwell, Banwell & Tarics,
Architects.

Textures and sun control are
achieved on strict budget



Roger Sturtevant

Joseph W. Molitor



Louis Reems

L. G. Hanscom Elementary School,
Bedford, Massachusetts.
The Architects Collaborative;
Louis A. McMillen, Partner-in-Charge

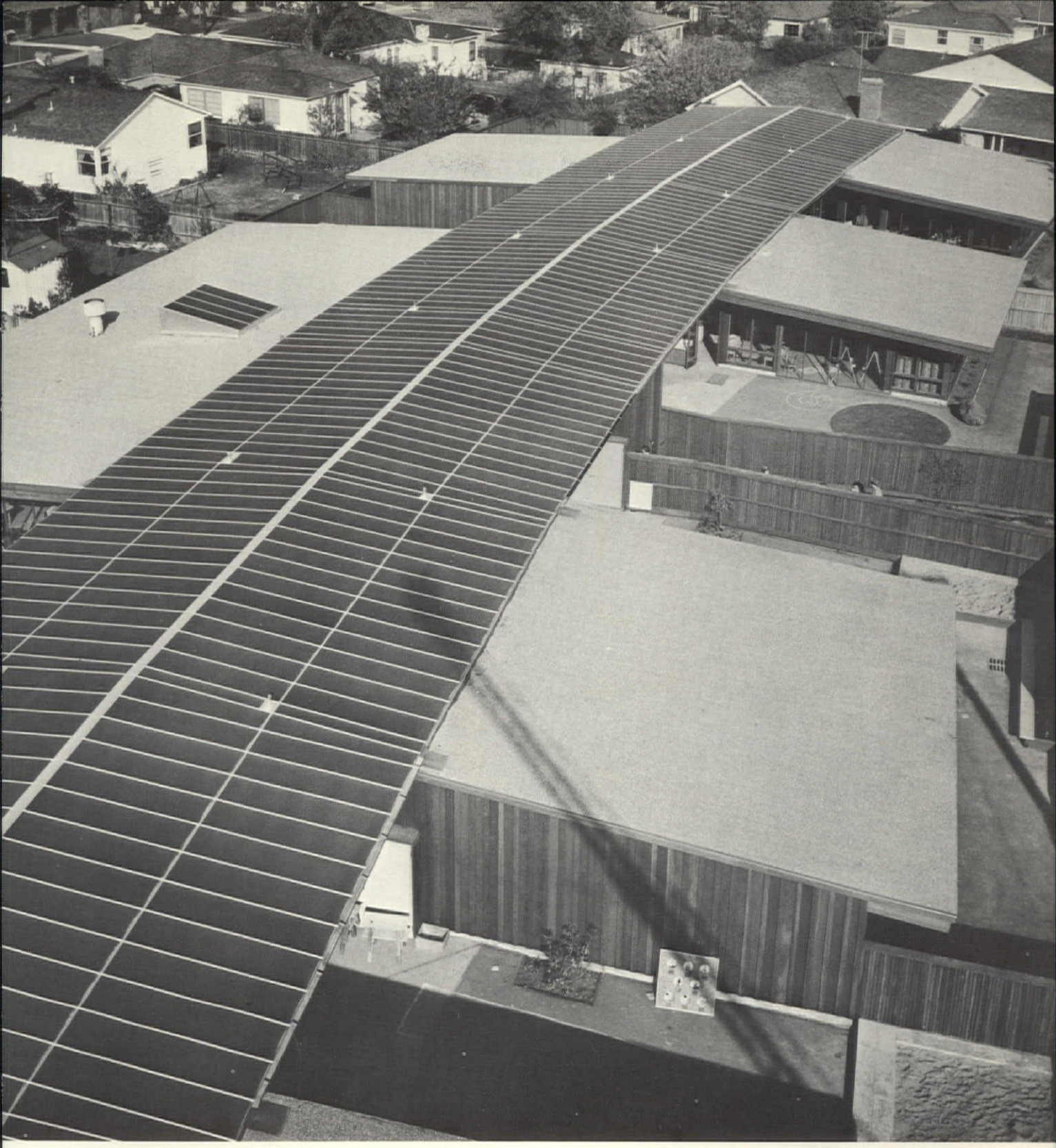
Sparkling glass corridors connect four-room clusters in New England. Gymnasium's folded plate roof provides generous lighting

Louis Reems

Rudy Kahn

Rondal Partridge

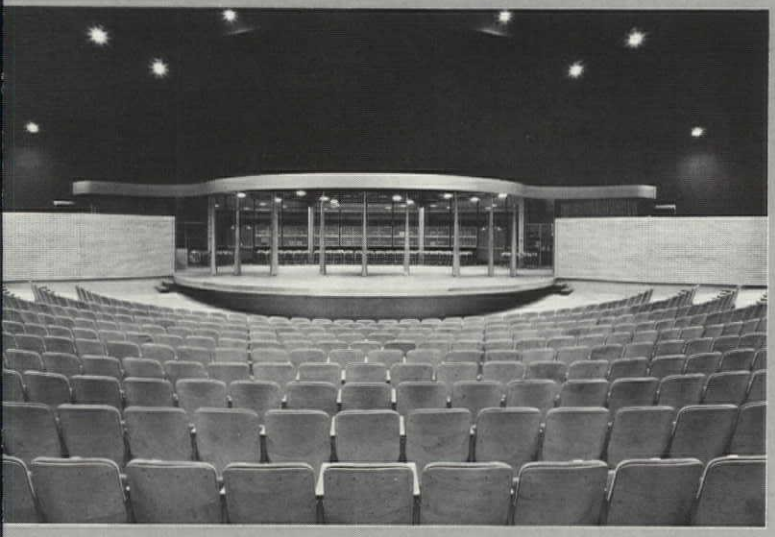
Rondal Partridge



White Oaks Elementary School Annex, San Carlos, California.
John Carl Warnecke FAIA, Architect

Wonderful indoor-outdoor space is afforded primary children. Indoor "main street" lit by glare-reducing, heat-absorbing skylights ties small units together. Individual classroom units with part-covered, part-open area assure protected use of limited space

Roland Chatham photos



A & M Consolidated High School,
College Station, Texas.
Caudill, Rowlett & Scott,
Architects

Multi-purpose auditorium has
continental seating. Unconfined classrooms
(photo across page) without
permanent corridor walls
insure bonus of exterior light

Art Fillmore

Priory High School,
Creve Coeur, Missouri.
Hellmuth, Obata & Kassabaum,
Architects

Trussed ridge forms skylight
in gymnasium

Karl H. Riek

Fernando Rivera Elementary School,
Daly City, California.
Mario J. Ciampi FAIA;
Paul W. Reiter, Assoc Architect.

Fun and fancy greet these fortunate children every day

Rondal Partridge

Manor Elementary School,
Fairfax, California.
Reid, Rockwell, Banwell & Tarics,
Architects.

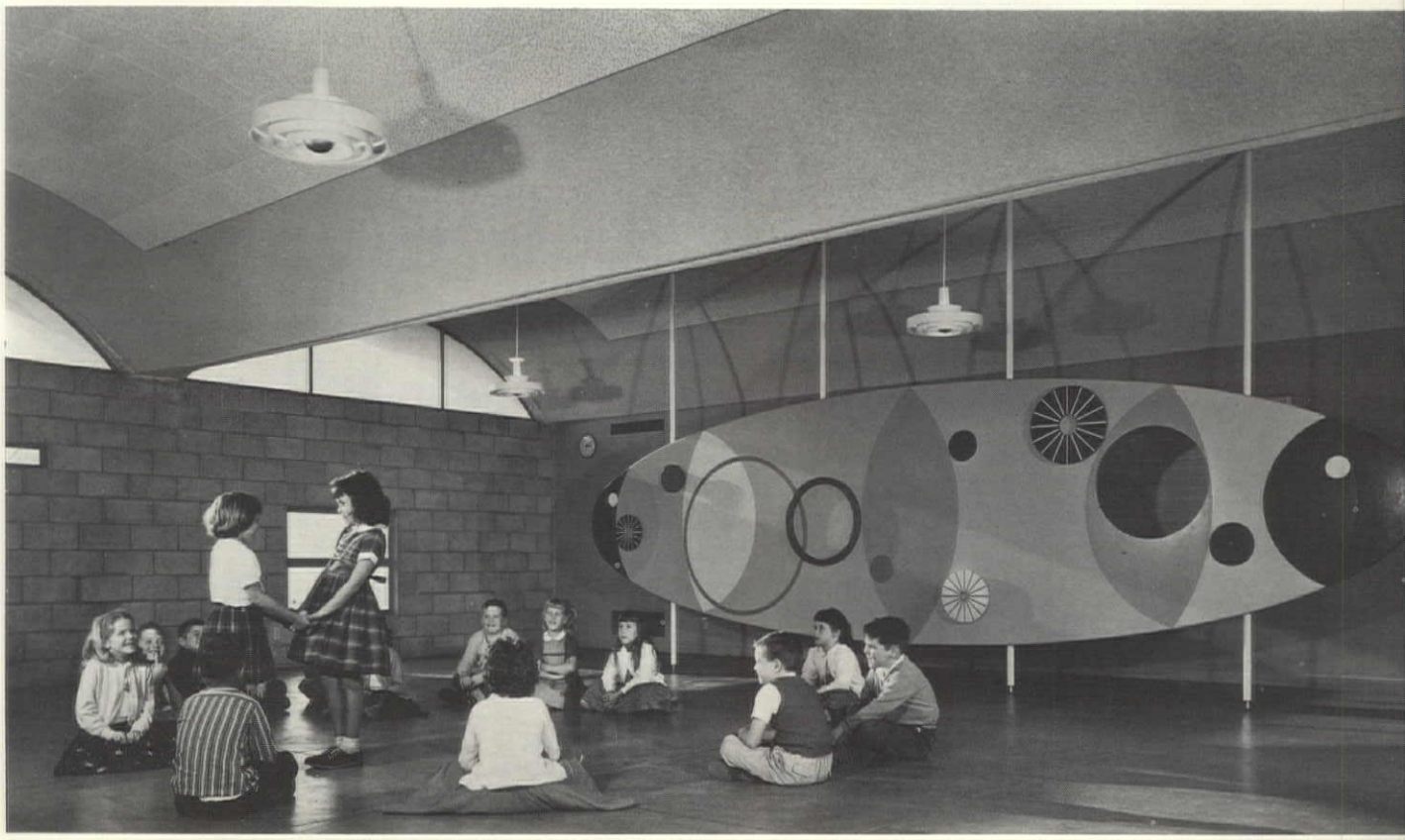
Exposed structural system adds
strong design interest

Roger Sturtevant

Vista Grande Elementary School,
Daly City, California.
Mario J. Ciampi FAIA;
Paul W. Reiter, Assoc Architect.

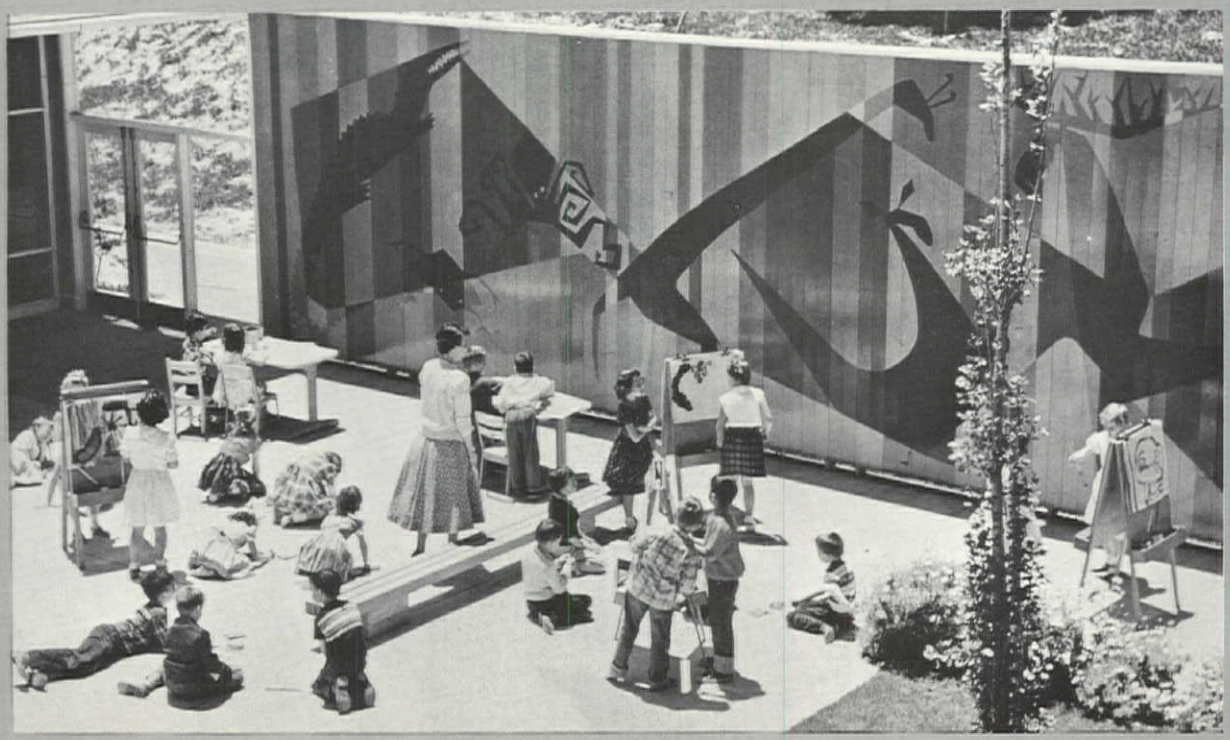
Delightful mural becomes part
of customary environment

Karl H. Riek



Rondal Partridge photos

Olympia Primary School, Daly City, California. Mario J. Ciampi FAIA; Paul W. Reiter, Assoc Architect. Courtyards are filled with amenities for young pupils—plenty of grass, trees and mural paintings—for outdoor classes and play



Committee on Religious Buildings
Kenneth E. Richardson AIA, Chairman

A Guide for Planning Christian Church Buildings

(DISCIPLES OF CHRIST)

by **Harold R. Watkins BD** and **Charles J. Betts AIA**

Another in the series of reports prepared by the AIA Committee on Religious Buildings intended as guides for the architect faced with planning a building for a religious faith other than his own

► The Christian Churches (Disciples of Christ) —the largest Protestant religious body originating on the American soil—had its beginning in the early years of the nineteenth century. It began as a "movement" to restore New Testament Christianity—not as a duty, but as a means for the promotion of Christian unity. There were two movements arising almost simultaneously, and with similar objectives, that brought about the Christian Churches (Disciples of Christ).

The one, developed in Kentucky and Ohio under Barton W. Stone, had its origins when, in 1803, five ministers withdrew from the jurisdiction of the Presbyterian Synod of Kentucky. This resulted, in 1804, with the writing of "The Last Will and Testament of The Springfield Presbytery" —a document which concerned a presbytery organized to be dissolved so that it might be merged in the larger body of the Church of Christ. This group was known as "Christians."

In 1809, by a different route, Thomas and Alexander Campbell, in Western Pennsylvania, came to similar conclusions. Thomas, the father, a Presbyterian minister, wrote his "Declaration and Address," calling for the unity of all Christians in independent local congregations. The Campbell movement, guided by the son, Alexander, maintained a relationship with Redstone Baptist Association until 1830, when it withdrew. They became known as "Disciples."

These two concurrent movements merged in 1832 because of their affinity in belief and identity of purpose. Since neither had any general organization, by which union could be voted, the actual unification came about as local churches united.

In the early years, there was no organization beyond the local congregation. There were some "conferences" covering small areas. These were for ministerial gatherings to provide mutual encouragement and edification. In time, "County Cooperations" began for the purpose of sending out evangelists. The natural consequences of such "cooperations" were state meetings. In 1849, the first national convention was held. This resulted in the organization of the American Christian Mis-

sionary Society—a voluntary and unauthoritative society.

While the Missionary Society was heatedly discussed, it received little support and thus was able to do only limited work. Therefore, in 1874-75, the Christian Women's Board of Missions and the Foreign Christian Missionary Society were organized. A great era of missionary expansion followed. Controversy over the missionary societies and instrumental music resulted in a separation of the group now known as "Churches of Christ." This name was first noted in the Federal Census of 1906.

Today there are some 8,000 congregations of the Christian Church (Disciples of Christ) representing approximately 2,000,000 people. The majority of these are related by voluntary association in State or Area Associations, as well as District, State, National and World Conventions.

Since the Disciples are congregational in their government, actions taken by conventions or suggestions made by agencies are not mandatory upon any individual, local congregation or mission board, but they do carry the prestige of the judgment and thinking of a number of persons.

The majority of the congregations support the various agencies which have been created through the years. The majority of the agencies, in turn, appeal unitedly to the local churches for support of their work through "Unified Promotion."

Basic Beliefs

The importance which members of the Christian churches have attached to Christian liberty, together with the natural outcome—diversity of opinion, make it difficult for anyone to describe accurately what Disciples believe. Thus, the following reflects that which this writer "thinks" are the basic and most commonly accepted beliefs:

1 Recognition of Jesus Christ as Lord and Saviour. Open confession of this faith, together with baptism, is all that may be asked of a candidate for admission

2 Recognition of the Bible as a source and guidebook, sufficient for faith and practice

3 Acknowledging the nature of the church of Jesus Christ on earth as essentially, intentionally and constitutionally one. Disciples of Christ do not claim to be the only Christians but "Christians only"

4 Baptism (by immersion) is a believer's baptism, stressing the individuality of conversion. It is to be administered "in the name of Jesus Christ" and "for the remission of sins"

5 Open communion is practiced each Lord's Day, as a command of Christ, and is the central act of worship. They hold that a Christian's right to communion is a matter for his own conscience.

6 Recognition of the priesthood of all believers, which is generally understood to mean that we are, as Christian individuals, involved in a mutual ministry of concern and helpfulness to one another, and that there is no order of priests or functionaries in the church which has an exclusive right to administer communion or baptism or which holds prerogatives of authority denied to any sincere Christian in any or all congregations. Ministers usually administer baptism. Lay men or women usually administer communion

7 Recognition of congregational autonomy. Thus, all matters of fundamental importance must ultimately be decided by the individual congregation.

Church Government and Authority

The Christian Churches are congregational in their form of government. Thus, the individual congregation is the ultimate and final authority, with the organizational structure relying on its will.

Traditionally the structure of congregational organization among Christian Churches has been quite simple, recognizing from the New Testament the offices of elders, deacons and deaconesses. The elders were assigned responsibility for spiritual matters, the deacons were assigned responsibility for temporal affairs, and the deaconesses were assigned certain responsibilities related to pastoral and relief services. In practice these came to be merged into "the official or general board" which became responsible for directing the affairs of the congregation. The individual congregation owns its own property, selects and calls its own ministers, and controls its own affairs. Contracts with architects and contractors are made by the elected trustees and/or officers of the individual congregation.

Beginning in the early 1920's churches began to develop along an organizational basis which has come to be known as the "functional church organization." The majority of Christian Churches now are thus organized. While the congregation still maintains the ultimate authority it elects "an official or general board," consisting of elders, deacons, deaconesses, together with representatives of fellowship groups. This board in turn appoints functional departments and committees (program-planning bodies) who are responsible to the official or general board, but who plan and carry through the program of the church.

While it is true that every church makes it own decisions, it may and often does seek guidance and counsel from the various agencies created by the churches through the years.

Further, the majority of the churches are loosely united through various convention organizations—district, state, national and world-wide.

The "International Convention of Christian Churches (Disciples of Christ)" is *the* annual assembly of this group of congregationally-minded Christians. Its actions are gleaned from the cross-section of thinking on the part of its various congregations, members and groups. These actions, however, are not mandatory upon any individual, local congregation or agency.

Buildings

As the Christian Church originated on American soil, the design of buildings developed with the growth of the country and the movement for Christian Unity. The needs of a congregation dictated the plan while the designs were contemporary according to the times. Christian Churches for the most part have constructed buildings that would meet the program needs, and function without regard to tradition in design. A few individual congregations may have distinct prejudices and opinions arising from their particular and limited traditions.

A *Types of Buildings:* All Christian Churches, large or small, should include space for four basic functions: Worship of God, Christian Education, Fellowship, and Administration. The plan arrangements: for Worship, are completely flexible; for Christian Education, are flexible while consistent with good teaching principles; for Fellowship, are open to any good arrangement; for Administration, are in accord with good administrative procedures.

B *Mandatory Planning Requirements:* The Christian Church does not have any mandatory planning requirements; however, the following are usually included in a building program:

1 A nave, narthex and chancel including the following:

a Pulpit

Located for good visibility

b Baptistry (for immersion)

To be visible to the congregation

c Communion table and elders' seat or chairs (for three persons, usually behind the table)

Communion is served by the deacons to the congregation (usually while seated in the pews). The deacons receive the emblems (cup and bread) from the elders at the communion table

d Sacristy for communion preparation

Locate near the communion table area

e Baptismal dressing rooms

Separate rooms for men and women

f A choir and choir room

The choir location is flexible. It may be in the chancel, at the side of the chancel, a part of the congregation, or in a balcony at the rear, etc. It is normally not over 10% of the nave seating capacity

g Musical instrument (organ and/or piano)

2 Christian Education space for each age group from cribs through the senior citizens

3 Administration—minimum of two rooms

a Church office

b Minister's study

4 Fellowship hall and kitchen

Portable platforms are preferable to permanent fully equipped stages

5 Parking

C *Other Planning Suggestions:*

1 Worship:

a Pew spacing of 32″ back-to-back minimum

Kneelers are not used

b 21″ per person minimum

c Baptistry sized for the minister and the candidate and for total immersion of the candidate

d Adequate center aisle in nave for weddings and funerals

2 Education: Minimum standards as established by the Department of Church Building and Architecture of the National Council of Churches. Visual aids are used extensively. The following table should be used as a guide in planning proper space requirements:

	Recommended area per person	Maximum per room or space
Cribs, 3 feet between cribs		12
Toddlers, Age 2	25-35	12
Age 3	25-35	15
Age 4-5	25-35	20
Grades 1-2-3-4-5-6	20-30	25
Grades 7-8-9	15-18	20
Grades 10-11-12	12-18	25
Adults	10-12	25

NOTE: Add 10% to areas given above for storage

3 Administration: In addition to the minimum, a mimeograph and work-room is desirable as well as additional offices as staff requirements indicate

4 Parking: It is desirable to have one parking space within at least 500 feet of the church building for each two persons in attendance. Outdoor activities such as basketball may be included in parking area

5 General: The Christian Church building should be designed for use at any time of the day or day of the week, as program requirements vary from day to day. Proper sound insulation should be provided between facilities that are near each other and that may be used simultaneously

Consideration should be given to the following: a day nursery, scouting, senior citizens, women's groups, pastoral counseling, youth programs, etc,

including outdoor play and recreation areas. Provide for a zoned heating system

6 Planning assistance can be secured from:

Charles J. Betts AIA
Consulting Architect
Board of Church Extension of
Disciples of Christ
110 South Downey Avenue
Indianapolis 7, Indiana

Glossary

Nave: The portion of the structure where the congregation sits or stands for worship.

Chancel: The portion of the structure where the communion table and pulpit (and a lectern if used) are located and usually elevated about three average steps.

Narthex: The area immediately adjacent to the nave from which the congregation enters the nave.

Sacristy: A small room near the communion table area in which the wine and bread are prepared and stored and where the individual cups are washed.

Baptistry: A tank with one or two entrances and large enough for the total immersion of the candidate and for the minister.

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An American Religious Movement, by W. E. Garrison

Building and Equipping for Christian Education, by C. Harry Atkinson

Planning Guide—Board of Church Extension of Disciples of Christ ◄

Committee on Housing for the Elderly
George E. Kassabaum AIA, Chairman

Housing for the Elderly
—FUNCTIONAL PROGRAM

by **George E. Kassabaum AIA**

This check list and bibliography completes Mr Kassabaum's valuable series of articles

► All areas set forth are subject to great variation depending upon location of unit, size of the project, services to be rendered, rules of the management, etc, and should be used only in the rough preliminary stage.

Living Accommodations

A Bathroom facilities
- ( ) private
- ( ) semi-private
- ( ) group

(1 toilet and 1 lavatory per 6 residents and 1 tub or shower per 10 residents)

B Food facilities
- ( ) group kitchen
- ( ) kitchen within unit

C Type of unit
- ( ) apartments
- ( ) row-houses
- ( ) cottages
- ( ) combination
- ( ) _____

D Size of unit

( ) Efficiencies	525 sq. ft.
( ) One-bedroom	675 sq. ft.
( ) Two-bedroom	1,125 sq. ft.

Administration

( ) Superintendent's Office	250 sq. ft.
( ) Superintendent's consultation room	120 sq. ft.
( ) Assistant superintendent's office	200 sq. ft.
( ) Business office	1.5 sq. ft./DU*
( ) Meeting room (Board of Directors)	320 sq. ft.
( ) Mail Room	0.5 sq. ft./DU
( ) Reception Room	0.5 sq. ft./DU
( ) Work Room	150 sq. ft.
( ) Waiting Room	1 sq. ft./DU
( ) Superintendent's Living Quarters	
( ) Switchboard	
( ) Vault	
( ) Toilets for Office Staff	
( ) Cashier's Window	
( ) Garage	

* Hereafter "DU" shall mean "dwelling unit," whether efficiency, one-bedroom or multi-bedroom unit

Social

( ) Snack kitchen	
( ) Multi-purpose space	6 sq. ft./DU
( ) Library	2 sq. ft./DU
( ) Chapel	6 sq. ft./DU
( ) Organ	
( ) Study	
( ) Hobby Shop	3 sq. ft./DU
( ) Craft Room	3 sq. ft./DU
( ) Plant Room	1 sq. ft./DU
( ) Game Room	4 sq. ft./DU
( ) Lounge	2 sq. ft./DU
( ) De-centralized lounges	2 sq. ft./applicable DU
( ) Club Room	5 sq. ft./DU
( ) Smoking Room	0.8 sq. ft./DU
( ) Music Room	3 sq. ft./DU
( ) TV Room	
( ) Coat Room	
( ) Toilet for Visitors	
( ) Sewing Room	3 sq. ft./DU
( ) Bar	
( ) Gift Shop	
( ) Canteen	

Management

( ) Linen Room	2.5 sq. ft./DU
( ) Soiled Linen Room	1 sq. ft./DU
( ) Dry Cleaning Storage	0.5 sq. ft./DU
( ) Household Supplies	0.7 sq. ft./DU
( ) Maintenance Shop	3.5 sq. ft./DU
( ) Mech. Equip. Room	
( ) Staff or employees' Lounge	1 sq. ft./DU
( ) Staff or employees' showers and lockers	
( ) Staff or employees' dining	15 sq. ft./person
( ) Staff or employees' housing	
( ) Staff or employees' toilets	
( ) Staff or employees' living quarters	
( ) Transformer Vault	
( ) Storage for Lawn Equipment	
( ) Trash Disposal	
( ) Furniture Repair Shop	
( ) Storage	

Service

( ) Dining Room	15 sq. ft./person
( ) Visitor's Dining Room	
( ) Central Kitchen	2 sq. ft./person served
( ) Office	80 sq. ft.
( ) Loading dock	60 sq. ft.
( ) Garbage can storage	
( ) Dry storage room	0.8 sq. ft./person served
( ) Walk-in refrigerator	
( ) Dishwashing area	150 sq. ft.
( ) Toilet and locker facilities	3.5 sq. ft./employee
( ) Trash area	50 sq. ft.

( ) General storage for belongings of occupants — 25 sq. ft./DU
( ) Psychiatric Consultation — 120 sq. ft.
( ) Dental services
( ) Occupational Therapy — 200 sq. ft.
( ) Physical Therapy — 240 sq. ft.
( ) Beauty Shop
( ) Barber Shop
( ) Pharmacy
( ) Medical Examining Room — 100 sq. ft.
( ) Medical consultation room or doctor's office — 100 sq. ft.
( ) Isolation Room — 100 sq. ft.
( ) Infirmary — (5%-10% occupancy)
  ( ) Single rooms — 100 sq. ft.
  ( ) Double rooms — 160 sq. ft.
  ( ) 4-bed wards — 320 sq. ft.
  ( ) Recreation and occupational activities and dining — 25 sq. ft./bed
  ( ) Nurses' station
  ( ) Nurses' toilet
  ( ) Treatment room — 100 sq. ft.
  ( ) Diet kitchen
  ( ) Bedpan facilities
  ( ) Utility Room (unless provided adjacent to room) — 1 WC/8 bed
  ( ) Training toilet — 5′ x 6′
  ( ) Shower or tub — 1 per 10 beds
  ( ) Laboratory
  ( ) Dressing Rooms for Staff
  ( ) Sterilizer
  ( ) Storage for wheelchairs, etc.
( ) Central Laundry
  ( ) Clothes Chute
( ) Laundry for Residents
( ) Tailor Shop
( ) Telephone Equipment Room

Miscellaneous

( ) Public toilets
( ) Public telephone
( ) Covered entrance
( ) Parking

Bibliography

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State of New York
Division of Housing and Community Renewal
270 Broadway
New York 7, New York

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American Public Health Association
1790 Broadway
New York 19, New York

Background Paper on Housing, White House Conference on Aging (Limited number of copies still available) (no charge)
Special Staff on Aging
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Washington 25, D.C.

A Check List for Retirement Houses ($1.00)
Small Homes Council—Building Research Council
University of Illinois
Mumford House
Urbana, Illinois

Basic Consideration in Physical Planning of Housing for Older People, by Joseph D. Weiss (A chapter in the larger publication "Building for Older People, Financing, Location, Construction, Administration") ($4.95)
The National Committee on the Aging
49 West Forty-fifth Street
New York 36, New York

Builder's Guide to the Retirement Market (no charge)
Special Products Department
Douglas Fir Plywood Association
1119 "A" Street
Tacoma 2, Washington

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President's Committee on Employment of the Physically Handicapped
Washington 25, D.C.

"Architect's Check List" (no charge)
Public Housing Administration
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Washington 25, D.C.

Facilities for the Aging and Infirm, AIA Building Type Reference Guide (25 cents)
The Octagon
1735 New York Ave., NW
Washington 6, D.C.

COMING IN THE NOVEMBER JOURNAL

Fourth Annual Book Supplement
Twenty-four pages of authoritative reviews of current books of interest and value to the profession

Freeways in the Urban Setting
Morton Hoppenfeld AIA

Important Factors in the Location, Design and Amenities of Urban Freeways
Arch R. Winter AIA, AIP

Esthetic Lion-Taming in the City
Chloethiel Woodard Smith FAIA

What Can Be Done to Improve Urban Freeways
Matthew L. Rockwell AIA, AIP

The New Expressway Image
George E. Kostritsky AIP

Five addresses directed to the architectural profession, delivered at the "Conference on Freeways in the Urban Setting" held in Hershey, Pennsylvania, in early June

The Architect and the City
The 1962 AIA-ACSA Seminar Discussions at the Cranbrook Academy of Art—Part I

This Series is a Project Financed by Your Supplementary Dues

Comprehensive Architectural Practice

Design and Planning Services

by **Dudley Hunt, Jr AIA**

Design and planning of buildings and their environment and of the operations to take place in buildings and the environment, together with analysis, programming and construction administration, make up the basic framework of comprehensive architectural practice

Basic architectural services in the design and planning phases have often been considered, in the past, to consist only of schematic design and design development, working drawings and specifications. And these services only for buildings and their sites. Today, services of such limited scope in the design and planning phase would appear to be less than adequate for even the simplest of architectural projects. At the present time, there exists, within the profession, a widespread conviction that architectural services in these areas should not be so limited, but must be expanded if the profession is to serve the needs of clients and society.

One reason that many in the profession consider the services named inadequate is that they believe architecture is no longer concerned only with individual buildings and their sites. Rather, the concern of architecture today is with buildings, together with the environment that surrounds them. This concern is directed not only to the architecture of single buildings, but to groups of buildings and the architecture of cities and to spaces even larger than cities.

The concept of comprehensive architectural practice derives from the complex requirements of such a total architecture. It would seem reasonable to expect that architectural services in design and planning must be not only of high enough caliber, but of broad enough scope, to meet the needs of such a total architecture.

Within such a comprehensive concept, the design and planning services would surely include construction budget estimating and

cost controls. The day of square foot or cubage, rule-of-thumb, estimates that were little more than guesses has undoubtedly passed. Even "reliable estimates," though important, are not enough today. What is required of architects today, both to satisfy their clients and to assure mastery of the entire architectural process, are cost procedures that are not only reliable, but are orderly, efficient and creative. Some architects may cavil at the suggestion that cost procedures can be creative; on the other hand there are a number of others who have found that control of costs can contribute, in a positive manner, to the whole architectural process: By giving direction to design, before the design concepts are frozen. By reducing changes in working drawings. By eliminating the destruction of design concepts that only too often occurs when working drawings must be radically altered after the bids come in too high. By instilling in clients a degree of confidence, not otherwise attainable, in the phases of the architect's work that are farthest removed from the knowledge and experience of laymen.

Architects who have organized their offices for efficient budget estimating and cost controls have found that they receive at least two additional and inestimable benefits from these services. They obtain more new commissions than otherwise. And they keep their clients. Needless to say, architects who are knowledgeable and able in these areas find themselves in a greatly enhanced position in the battle against package dealers and all others who covet the role of architects for themselves. No other weapon is more powerful, particularly with potential clients.

Another example of an area in which the basic services of design and production are insufficient for today's needs is operational design and planning. In a school, the educational process to be pursued is a fundamental consideration in its design and planning; in a retail store or shopping center, the merchandising of goods to customers is basic; an industrial plant is likely to be designed around production; in a hospital, the central purpose is the care of patients. In order to serve the best interests of their clients and the users of such buildings, architects ought to be deeply involved in the decisions made in the operational planning and design stages. Yet all too often, these functions are performed by others.

In this fundamental area where the creative and organizational abilities of architects can undoubtedly be of great value, all too often the commission comes to the architect after the operational design and planning have been completed. When this happens, the architect's role may shrink to that of clothing the production line or the educational process in a protective shell. In such cases, the great opportunity for comprehensive architecture will have been missed. For the operational decisions in these cases *direct* the architectural solutions. Better to have the latter *derive* from the former, and all under the coordination of an architect, skilled in the relationships between the two.

Operational and cost functions are, perhaps, the most important aspects of the basic design and planning services expanded under the comprehensive architectural practice concept. Other aspects, such as efficient time scheduling, might very well lend themselves to improvement.

This Series is a Project Financed by Your Supplementary Dues

Budget Estimating and Cost Control

by **Charles Luckman AIA**

In order to take full advantage of the expanding challenges and opportunities of today, architects must be able not only to control construction costs but to cause cost controls to become useful tools for the shaping of better buildings through comprehensive services

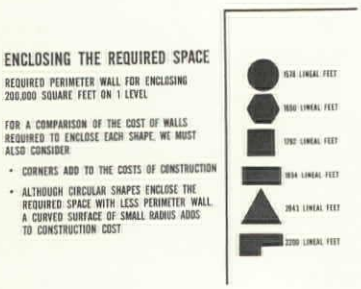
Purpose:
An analysis of the major elements of costs in building construction; subject—a 200,000 sq ft office building

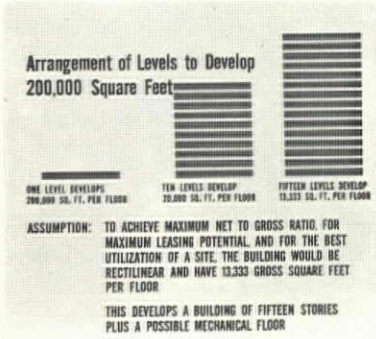
Procedure:
A study of ways and means of enclosing the required space; a study of alternate structural systems; development of a building structure that achieves the optimum in economy by combining the most efficient means of constructing the first two factors

Approach:
Evaluation of costs of elements of a building—the shape, number and arrangement of levels, structural systems, elevator core location, vertical transportation, exterior treatment, airconditioning electrical, interior architectural treatment, space division. Consideration of the influence of use and maintenance

Architects have a moral and ethical responsibility to stay within their clients' budgets. On numerous occasions, the courts have ruled that architects also have a legal responsibility regarding construction costs. Most government agencies, at all levels, stipulate in their contracts with architects that drawings must be re-done at the architects' own expense if bids do not come in within budgets. For these reasons alone, it is necessary for architects to be knowledgeable and efficient in budget estimating and cost controls. With such knowledge comes an important added benefit—the ability to handle the costs of construction, not as obstacles, but rather as useful tools of creative design.

The cost system described here is the result of a year-long study. While it is based on an analysis of the costs of an office building, the principles can easily be applied to other building types. In the study, there are a number of places which might seem to warrant greater detail. In individual cases, this might well be so. At the present time, it seems better to concentrate on the important principles of cost controls rather than risk the confusion that often results from minute detail. In any case, the study should have value for architects who are determined to control construction costs not only in order to avoid legal tangles but to make cost controls a creative element of comprehensive practice. The system can also contribute to better understanding between architects and their clients.





Clients today want design that fits into their budgets, as well as design for the other values architects can provide. Clients expect their buildings to "be right." Architects can make them so, but only if they remember that to clients this means the costs of buildings as well as the other elements of architecture. Only too often, clients bypass architects for the services of package dealers or others because they believe architects to be "creative but expensive."

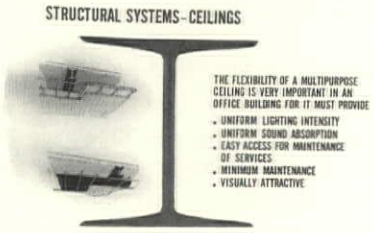
Good architecture and reasonable budgets are not necessarily incompatible. If cost analyses indicate that a change must be made in a wall finish from marble to plaster, this may be regrettable but scarcely a serious problem. On the other hand, if it should become necessary to shrink the building 10 per cent to bring it within the budget, the problem is not only serious but one that could be financially disastrous to the architect.

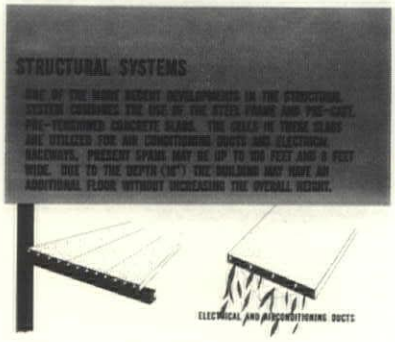
The most important thing is that architects must know how to control costs; they must be able to base their controls on knowledge—facts and figures. The system discussed here provides a framework for acquiring such knowledge and applying it to building construction. The approach used is an evaluation of the elements of a building based on costs, along with the factors that all clients seem to want—flexibility and efficient maintenance. The report deals with the usual considerations in the design of a building, with the emphasis on procedures for better cost analysis.

The present study is based on an office building containing 200,000 sq ft. First, one level of the building was studied to obtain a comparison of the costs of walls to enclose each of several shapes. In the illustration may be seen some of the facts that can be learned from such a study. A circle can enclose 200,000 sq ft with 1,578 lineal feet of wall while a square requires 1,792 lineal feet, and a simple L-shape, 2,200 lineal feet. A number of comparisons of the various shapes can be made; for example, the difference between the walls for the square and those of the L-shape is over 400 lineal feet. Thus the L-shape requires about 25 per cent more wall area than the square to enclose the same amount of area. Of course, the circle requires the least wall area, but because of the great cost of constructing curvilinear walls, this shape was discounted for the purposes of this study.

Other than the circle, hexagon, or square, the rectangular shape encloses the required area with less wall than any other shape. The rectangle is less costly to build than the L-shape or hexagon because it has fewer corners, less costly than the circle because of the problem of curvilinear walls, and has the added advantage of lending itself to the best ratio obtainable between gross and net floor area. It goes without saying that a rectangular shape seems more normal than some others to most clients. For these reasons, a rectilinear plan was chosen to illustrate the costs of constructing the office building in this study.

The next step was to decide on the arrangement of levels to develop the 200,000 sq ft. Obviously, this area can be placed on one floor, on ten levels of 20,000 sq ft each, on fifteen levels of 13,333 sq ft each, or any of a number of other combinations. In order to achieve the maximum net to gross area ratio for maximum leasing potential, and for the best utilization of the site, the decision





STRUCTURAL SYSTEMS - STEEL DECK FLOORS
MATERIAL: STEEL DECK, 2 1/2" LIGHTWEIGHT CONCRETE

BAY SIZE	DIAGRAM	BEAM	GIRDER	AVG. COLUMN	COST PER SQ. FT.
20' X 30'		18 WF 45	18WF 45	14 WF 119	$3.53
		14 B 22	21WF 55	14 WF 119	$3.14
25' X 30'		18 WF 45	21 WF 62	14 WF 150	$3.71
		16 B 26	24 WF 68	14 WF 150	$3.23
30' x 40'		24 WF 68	27 WF 94 24 WF 100	14 WF 228	$ 4.23 $ 4.25
		18 WF 45	30 WF 116 24 WF 130	14 WF 228	$ 3.97 $ 4.00

STRUCTURAL SYSTEMS - CONCRETE SLAB FLOORS
MATERIAL: 4 1/2" CONCRETE SLAB

BAY SIZE	DIAGRAM	BEAM	GIRDER	AVG. COLUMN	COST PER SQ. FT.
20' X 30'		18 WF 45	18 WF 55	14 WF 158	$3.21
		14 B 26	21 WF 82	14 WF 158	$3.08
25' X 30'		18 WF 50	21WF 73	14 WF 176	$ 3.30
		16 WF 36	24 WF 68	14 WF 176	$ 3.21
30' X 40'		24 WF 76	24 WF 100	14 WF 287	$ 3.99
		18 WF 45	33 WF 118 24 WF 145	14 WF 2 87	$ 3.83 $ 3.81

was to make the building rectilinear with 13,333 sq ft per floor. This means a fifteen-story building, possibly with an additional floor for mechanical equipment, as shown in the illustration.

Following this, studies must be made of the structure. As an example, the flexibility obtainable with multi-purpose ceilings is most important in office buildings, since they provide uniform lighting intensities, uniform sound absorption, easy access for maintenance of services, minimum over-all maintenance, and attractive appearance. The illustration shows some of the types of ceilings now available. Some of these ceilings have chambers above for air-conditioning. In order to prevent the airconditioning space above the ceiling from becoming an echo chamber, it is necessary to extend partitioning up through the chamber itself.

A further example of the considerations that must be made in the study of structure is the growing use of precast, pretensioned concrete floor slabs in steel frame buildings. These slabs may be utilized for airconditioning ducts and for electrical raceways. The slabs can be made to span up to 100 ft, in up to 8 ft widths. Since the slab depth is not over 18 in, a building can often have an additional floor without increasing its over-all height. The illustration shows a slab system in which pretensioning permits the upper and lower areas of concrete to be only 3 in thick, or a total of 6 in, leaving a full 12 in inside for electrical and airconditioning ducts.

Next comes an investigation of floor systems of various kinds. In the first instance, the assumption is that steel decking with a 2½ in slab of lightweight concrete will be used. Since much discussion with clients seems to be concerned with bay spacing, a breakdown is made of three different bay schemes—20 by 30 ft, 25 by 30 ft, and 30 by 40 ft. For the 200,000 sq ft, fifteen-story building of this example, the average beam, girder, and column sizes were computed and priced, for spans in both directions. From this information, it is possible to compute the cost per sq ft for each situation, and tabulate the costs as shown in the illustration.

With such information in hand, it is possible to answer the client who says, "Wouldn't it be nice to have a 25 by 30 ft bay . . ." with, "Yes, but that size will cost $3.23 per sq ft for the structure as compared to $3.14 for the 20 by 30 ft bay." This principle might well be extended to all of the other component parts of the building.

In the next part of the study, information similar to that for the steel deck and slab floor structure was developed for a building with 4½ in concrete slabs without steel decking. The same bay spacings were studied, structural members were sized, and the costs per sq ft of floor area developed. As may be seen by a comparison of the two illustrations, the costs of the all-concrete floor system average below the costs of the steel deck and concrete system.

Information of this sort is readily available in the experienced architectural office, but it is well worth the digging-out and tabulation. When arranged in some form similar to that of the illustrations, the information may prove invaluable not only in analysis of costs, but in working with clients. While such information may be a little harder to develop for the architect who is just beginning to

work with office buildings, it should prove to be of even greater value.

The next consideration in the study of the office building was that of vertical transportation. First established were what appeared to be the three basic elevator core locations—central, offset, and detached. The central core allows full utilization of perimeter space on all floors, and makes it possible to centrally locate utilities. With this scheme, corridors are held to a minimum and the plan lends itself to subdivision of floors into areas for small occupancies.

The offset core limits the utilization of perimeter space, since the core itself occupies a part of the perimeter. Longer runs for utilities are necessary with the offset core; more space is required for corridors. This scheme lends itself best to large occupancies.

The detached core, which has come into some favor in certain instances in recent years, requires even longer utility runs than the offset core, and more space for corridors. However, the detached core does allow almost full utilization of the perimeter of the building, and it works well for large occupancies.

After the consideration of various elevator core locations came a study of the basic differences between elevator systems of varying degrees of quality. Assuming three degrees of quality—minimum, average and excellent—the figures shown in the illustration were derived. The factors considered in the comparison of quality included speed permitted, passenger capacities per car, and number of cars required. Another important factor is the interval, in seconds, of response to the control system. For each of these three degrees of quality, approximate costs were determined.

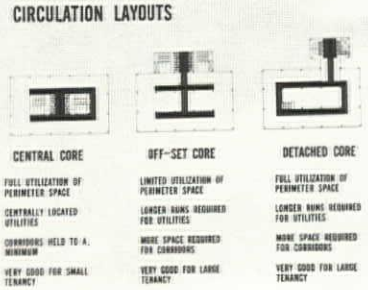
It is not easy to convince clients or others not familiar with office building work that within the same fifteen-story building, there can be a range of costs for elevators between $425,000 and $700,000, as shown in the illustration.

To these costs can be added certain alternates such as escalators at $81,000 per floor, a freight elevator at $35,000, or a basement elevator, when parking is required on that level, for $54,000. The last-named figure is an answer to the not unusual question, "Wouldn't it be just as well to have the elevators run down to the basement to take care of the parking under the building?" With the aid of this study, it is possible to answer this question with, "Yes, it would be fine, but it will cost $54,000."

One recent development in vertical transportation that should be considered in cost studies of office buildings is the computer controlled elevator. These units are equipped to scan calls for elevator service and direct the nearest cab to respond. This advance in technology can actually reduce the number of cabs required in an office building.

At this point, the exterior walls of the office building were studied. Exterior wall treatment, of course, holds very exciting possibilities for design today. With reinforced concrete and steel construction, very light exterior curtain walls are possible. As is well known, these walls can be constructed of virtually any material. They are frequently prefabricated to reduce on-site construction time and costs.

ALTERNATE ELEVATOR CORE LOCATIONS - CIRCULATION LAYOUTS



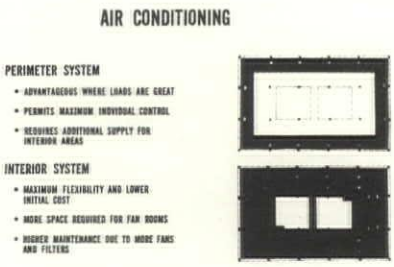
VERTICAL TRANSPORTATION

	MIN. QUALITY INSTALLATION	AVERAGE QUALITY INSTALLATION		EXCELLENT QUALITY INSTALLATION	
FLOORS SERVED	1 - 15	1 - 15		1 - 15	
SPEED-FEET/MINUTE	500	500		700	
CAPACITY - POUNDS	2500	3000		3000	
NUMBER OF CARS	5	5	6	6	7
INTERVAL IN SECONDS	28	32	26	26	22
APPROXIMATE COST	$425,000	$450,000	$530,000	$600,000	$700,000

ADDITIVE ALTERNATES:		
	ESCALATORS - PER FLOOR	$ 81,250
	FREIGHT ELEVATORS	$ 35,000
	BASEMENT ELEVATORS WHEN PARKING REQUIRED	$ 54,000

In studying the costs of exterior walls, attention must be paid to all of the details of construction—glazing, gaskets, panel-edge sealing, insulation, drainage and vents, and the inner skin as a possible interior finish. All of these factors have a bearing on the total cost of the wall. As elsewhere in the building, costs of exterior walls need not inhibit good design.

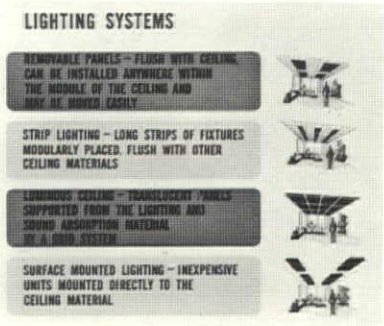
After the walls, the airconditioning of the office building was studied. There are two basic systems in use today—the perimeter system and the interior system. The perimeter system handles the heat loads generated on the outside of the building at the same point at which the loads are generated. This system offers the maximum degree of individual control, but it requires additional supply for interior areas. On the other hand, the interior airconditioning system has the maximum degree of flexibility and is lower in installation cost. With this system, more space is required for fan rooms, and, of course, there is a higher maintenance factor due to the need for an additional amount of servicing of fans and filters.



Here, when working with clients, it is usually necessary to clarify the relationships between esthetics and standardization, and point out how the two can be effectively blended. The questions of curtains and their effect on airconditioning, the possibility of using combination light fixture-diffusers, tube type diffusers, exterior sun controls—all of these relate both to appearance and function.

Lighting systems were next studied. Some of the types in existence are shown in the illustration, along with their major characteristics. The costs of these systems vary greatly.

Then studies were made of various methods of partitioning. All of the problems and costs of the many systems possible must be taken into consideration—fixed vs movable, full-height vs medium- or low-height, baffle or screen partitions, the many materials available, the possibilities for decorative design.



At this point, in the study of the office building, it becomes possible to begin putting the information developed heretofore to work for constructive purposes. Accordingly, a table was compiled showing cost analysis summaries for three degrees of quality—minimum, average and excellent. This table reflects the information contained in three complete outline specification forms prepared at this time—one for each of the three degrees of quality. The preparation of these specifications was necessary in order to avoid confusion as to exactly what kind of building was being analyzed in each of the three cases. Also the specifications, along with the cost analyses, make it possible to demonstrate to clients that in building construction they get exactly what they pay for.

In all three grades of quality, the office building would have approximately the same basic structure. It is well known that costs in this area of construction vary only in a limited way. In the case of the minimum quality building, the outline specifications show it to have exterior walls with standard aluminum frames, painted concrete or rigid asbestos spandrels, surface-mounted light fixtures, minimum elevator service, one electrical outlet per 1000 sq ft, and standard packaged airconditioning units with one zone per 1000 sq ft.

COST ANALYSIS SUMMARY

15 STORY BUILDING 200,000 SQ. FT.

	MINIMUM QUALITY	AVERAGE QUALITY	EXCELLENT QUALITY
BASIC STRUCTURE	$1,120,000	$1,120,000	$1,120,000
EXTERIOR WALLS	340,000	390,000	420,000
INTERIORS	120,000	130,000	150,000
CEILINGS	40,000	50,000	60,000
FLOORS	16,000	16,000	20,000
LIGHTS	32,000	36,000	44,000
SUN CONTROL	180,000	190,000	200,000
ELEVATORS	395,000	485,000	615,000
PLUMBING & SPRINKLERS	81,000	112,000	146,000
HEATING, VENTILATING & AIR CONDITIONING	356,000	388,000	552,000
ELECTRICAL	107,000	208,000	388,000
SITE WORK	85,000	100,000	177,000
BASIC BUILDING COST PER SQ. FT.	$14.18	$16.63	$19.83

TYPICAL TENANT FINISH ALLOWANCES

MINIMUM QUALITY

	QUANTITY	UNITS	UNIT COST	TOTAL COST
PARTITIONS	14,170	LINEAL FT.	$12.23	$177,000
DOORS, FRAMES & HARDWARE	750	UNITS	100.00	80,000
CEILING	170,000	SQ. FT.	.50	85,000
LIGHTING - 50 FOOT CANDLES	2,000	FIXTURES	31.00	62,000
TELEPHONE OUTLETS - 1/1000 SQ. FT.	170	UNITS	13.00	2,210
CONVENIENCE OUTLETS - 1/1000 SQ. FT.	170	UNITS	13.00	2,210
AIR CONDITIONING - 1 ZONE / 1000 SQ. FT.	170	ZONES	95.00	16,150
PAINTING	226,220	SQ. FT.	.09	18,337
FLOORING	170,000	SQ. FT.	.25	42,600
VENETIAN BLINDS	170,000	SQ. FT.	.18	30,600
LIGHT SWITCHES	595	UNITS	15.00	8,385
COST OF FINISH PER SQ. FT.			$3.12	$530,400

TYPICAL TENANT FINISH ALLOWANCES

AVERAGE QUALITY

	QUANTITY	UNITS	UNIT COST	TOTAL COST
PARTITIONS	14,170	LINEAL FT.	$13.26	$187,864
DOORS, FRAMES & HARDWARE	750	UNITS	135.00	101,250
CEILING	170,000	SQ. FT.	.75	127,500
LIGHTING - 80 FOOT CANDLES	2,425	FIXTURES	34.00	82,642
TELEPHONE OUTLETS - 1/500 SQ. FT.	340	UNITS	13.00	4,420
CONVENIENCE OUTLETS - 1/500 SQ. FT.	340	UNITS	13.00	4,420
AIR CONDITIONING - 1 ZONE / 750 SQ. FT.	230	ZONES	120.00	27,800
PAINTING	226,220	SQ. FT.	.09	20,404
FLOORING	170,000	SQ. FT.	.28	47,600
VENETIAN BLINDS	170,000	SQ. FT.	.22	37,400
LIGHT SWITCHES	700	UNITS	20.00	14,000
COST OF FINISH PER SQ. FT.			$3.86	$656,210

TYPICAL TENANT FINISH ALLOWANCES

EXCELLENT QUALITY

	QUANTITY	UNITS	UNIT COST	TOTAL COST
PARTITIONS	14,170	LINEAL FT.	$ 14.82	$ 209,696
DOORS, FRAMES & HARDWARE	750	UNITS	150.00	112,500
CEILING	170,000	SQ. FT.	.80	136,000
LIGHTING - 80 FOOT CANDLES	2840	FIXTURES	34.21	97,167
TELEPHONE OUTLETS - 1/350 SQ. FT.	490	UNITS	13.00	6,370
CONVENIENCE OUTLETS - 1/350 SQ. FT.	490	UNITS	13.00	6,370
AIR CONDITIONING - 1 ZONE/500 SQ. FT.	340	ZONES	125.00	42,500
PAINTING	226,220	SQ. FT.	.10	22,622
FLOORING	170,000	SQ. FT.	.31	52,700
VENETIAN BLINDS	170,000	SQ. FT.	.23	39,100
LIGHT SWITCHES	1,000	UNITS	21.00	21,000
COST OF FINISH PER SQ. FT.			$ 4.34	$ 737,795

In the average quality office building, the specifications show anodized aluminum exterior wall frames with porcelain enamel panels, flush-mounted light fixtures, average elevator service, one electrical outlet per 500 sq ft, and a high velocity airconditioning system with one zone per 750 sq ft.

The excellent quality building has special anodized exterior wall frames with choice of colors and spandrel panel materials, flush-mounted light fixtures and luminous ceilings, excellent elevator service, electrical outlets—one per 350 sq ft, and a double-duct high velocity airconditioning system with one zone per 500 sq ft.

In all other respects, the quality of materials, equipment, and finishes varies in more or less direct proportion with the quality of the building.

In the cost analysis summary illustration may be seen a tabulation of the various cost items for buildings of all three qualities. The basic structure is the same for all three; therefore these costs are the same. There are some differences in the costs of exterior walls, but within a reasonably modest range. These costs might actually show less or more variation depending on the particular building being studied. Interior costs vary within a modest range. The range of costs of ceilings is quite large between the minimum and excellent qualities. However, the quality of the ceilings seems to be quite important to the client.

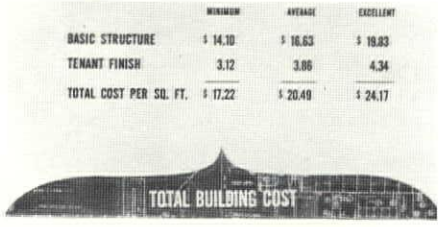
Floor costs vary only slightly. Lighting costs vary considerably, from a low of $32,000 to a high of $44,000. Sun controls, depending on the location of the building, can be a very important cost factor. Elevators show a great range from $395,000 to $615,000. Plumbing and sprinklers show a very substantial range, as do heating, ventilating, and airconditioning. Electrical work ranges from a low of $107,000 to a high of $388,000. Site work has a considerable range from the minimum to the excellent building. The basic costs per sq ft give the picture of building costs, but the figures from which these are derived tell *why* costs range so far. And the breakdowns enable architects to gain control of these various costs and explain them to their clients.

After developing the basic building costs, studies were made of the costs of typical tenant finish allowances. Again the costs for minimum, average, and excellent quality buildings were determined. For all three qualities, the quantities of materials are the same except in the case of telephone and electrical convenience outlets and the number of airconditioning zones provided. In the illustrations may be seen the tabulations of the tenant finish costs for the three qualities of buildings.

In the minimum building, the total tenant finish costs for the fifteen-story office building are $530,400 or $3.12 per sq ft; in the average quality, $656,210 and $3.86, and in the excellent quality $737,795 and $4.34. As over-all quality moves up from the minimum building through the average to the excellent, the quality of all elements of the construction is improved. The numbers of telephone and electrical convenience outlets provided in the minimum building is doubled in the average building, and almost tripled in the excellent quality building. Airconditioning costs range from

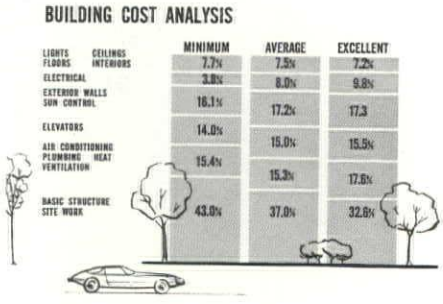
$16,150 in the minimum building, through $27,600 in the average, to $42,500 in the excellent building, a staggering increase of 160 per cent over the cost of the minimum quality system.

As has been shown, there are significant differences in the costs of both the basic building and tenant finishes when similar buildings of varying quality are compared. To complete the analysis of the office building used as an example in this study, it was then necessary to prepare a tabulation of the total costs of construction of buildings of the minimum, average and excellent qualities and an analysis of how these costs break down according to the types of work involved.



The illustrations show the result of this tabulation and analysis. The total building cost illustration effectively demonstrates the vast differences in costs—the great per sq ft price-spread between various qualities of the same basic office building. In the improvement of the quality of this building from the minimum to the excellent, it may be seen that the cost per sq ft has risen from a low of $17.22 to a high of $24.17, the one building costing almost 1½ times the price of the other.

In the cost analysis illustration may be seen the relative amounts of the total building costs attributable to various portions of the work. One of the most critical areas is the cost of electrical work. These costs range from 3.8 per cent of the total for the minimum building up to 9.8 per cent of the cost of the excellent building. Another area of surprise for most clients—and possibly for some architects—is the range of costs of the elevators. Here, the excellent building requires an expenditure of 15.5 per cent of its budget for elevators, while the minimum building requires only 14 per cent.



It may also come as somewhat of a surprise that the costs of the basic structure and site work range downward as the quality of the building is improved, from a high of 43 per cent of the total cost of the minimum building to a low of 32.6 per cent for the excellent quality building. This is the usual case. However, it should be remembered that these are percentages of the total costs; the actual dollar costs would remain approximately constant for buildings of all three qualities.

In the case of the present office building study, it would seem to have been adequately demonstrated that the quality of certain elements of construction determines in large degree the total cost of the building. Certain other facts have been uncovered in the course of the study—facts that are useful in the control of construction costs and useful in the design of buildings. Similar information can—and should—be developed by architects for their other buildings, both as an invaluable aid in their own work, and as an aid in explaining their work to their clients.

The next logical step might be that the architectural profession, as the leaders or coordinators of the design and construction team effort, should take the lead in establishing some sort of coordinating council on costs among all of the design and construction professions and businesses. Such an organization could collect and disseminate information not only on *what* makes buildings cost what they do but *why*.

NCARB

NCARB Circular of Information 3-62

(Continued from September issue)

Section F—Equivalents

Other educational qualifications and/or practical training may be substituted for the requirements set forth under Section E, as follows:

1 *Education Equivalents.* Other qualifications may be substituted for Requirement 3 under Section E as set forth in Table F-1, subject to the following conditions:

(a) College or university credits must be from an institution which is accredited by the regional association of colleges having jurisdiction.

(b) For the purpose of Table F-1, 32 semester credit hours, or 51 quarter credit hours, with a passing grade is considered to be one year. Fractions greater than one-half year will be counted as one-half year and smaller fractions will be disregarded.

(c) When credits are submitted from more than one college or university they will be evaluated on the same basis as by the school last attended.

(d) Periods of practical training will be measured in calendar years.

2 *Practical Training Prior to Graduation.* Practical training in the offices of registered architects who are practicing as principals, when had prior to graduation, may be substituted for Requirement 5 under Section E as set forth in Table F-2, subject to the following conditions:

(a) Training prior to graduation from high school will not be accepted.

(b) For the purpose of Table F-2, "employment period" means the continuous length of time during which the applicant is employed prior to attending college, or between periods of attending college, whether such employment be in one or more offices.

(c) For the purpose of Table F-2, "3 years college" means three years net, after reduction by application of the percentage factors contained in Table F-1.

(d) Employment of less than 40 hours per week must be converted to equivalent 40 hour weeks. No additional credit will be allowed for employment in excess of 40 hours per week.

(e) At least one year of the required practical training shall be attained after termination of academic training.

3 *Other Acceptable Training.* Other qualifications may be substituted for Requirement 5 under Section E as set forth in Table F-3, subject to the following conditions:

(a) At least one year of the required practical training shall be attained in one or more offices of registered architects who are practicing as principals.

(b) Training in any category listed in Table F-3, to be acceptable, shall be for a continuous period of not less than six calendar months.

(d) For the purpose of Table F-3 one year of teaching is considered to be a total teaching load of 20 semester credit hours or 30 quarter credit hours.

4 *Other Qualifications.* Other education and training may be substituted for requirements 3 and 5 under Section E only insofar as the NCARB Board of Review considers them to be equivalent to the required qualifications or the equivalents defined under Sections F1, F2 and F3.

Section G—Criteria for Evaluation of Eligibility

For the purposes of this Circular of Information the following definitions and procedures will apply:

1 Credit will be pro-rated between education and training, and between training in multiple categories, when acquired simultaneously, the total not exceeding one week of credit per calendar week.

2 Practical training acquired in offices of firms composed of registered architects and engineers will be classified as architectural experience when it is acquired under the direct supervision of a registered architect who is practicing as a principal.

3 Organizations engaging in both the design and construction of buildings, whether by the same or by affiliated organizations, will be considered to be contractors rather than architects. Architects employed by such firms will not be considered to be practicing as principals. Practical training received in the employ of such firms will not be considered as training in the

Table F-1 Education Equivalents

	Description	Percentage Credit allowed for each year completed		Maximum credit allowed (years)
		First 2 years	Succeeding years	
1–1	Architectural school Accredited by the National Architectural Accrediting Board	100	100	5
1–2	Non-accredited	100	67	4
1–3	Architectural Engineering School Accredited by the Engineers' Council for Professional Development	100	67	4
1–4	Non-accredited	100	50	3½
1–5	Civil, mechanical or electrical engineering school Accredited by the Engineers' Council for Professional Development	100	50	2½
1–6	Non-accredited	100	40	2
1–7	Other college or university work credited toward an AB or BS degree	75	0	1½
1–8	Practical training in the office of a registered architect who is practicing as a principal. This training to be after graduation from high school	50	50	5
1–9	Other practical training	0	0	0

office of a registered architect who is practicing as a principal.

4 Architects employed by organizations which perform architectural services in connection with buildings to be used or owned by that organization will not be considered to be practicing as principals. Architects employed by governmental agencies will not be considered to be practicing as principals. Practical training received while in the employ of such organizations or agencies will not be considered as training in the office of a registered architect who is practicing as a principal.

5 A stockholder, director or officer of a corporation which is authorized to engage in the practice of architecture will not merely by reason of such position be considered to be practicing as a principal. On the other hand no employee of the corporation will be considered to be practicing as a principal unless he is a stockholder of the corporation.

6 In the case of firms composed of general partners and limited partners only the general partners will be considered to be practicing as principals.

7 Requirement 3 under Section E provides that applicants must have certain practical training prior to admission to the NCARB examinations. However, the Council recognizes the prerogative of State Boards to admit applicants to part or all of the State examinations prior to fulfillment of this requirement, and will accept satisfactory results of such examinations toward justification of Council certification, but any deficit in this requirement prior to admission to the examinations must be fulfilled before a Council Certificate will be granted.

Table F-2 Practical Training Prior to Termination of Academic Training

	Duration	Percentage credit allowed
2–1	Employment periods of 12 months or greater	100
	Employment periods of 3 months to 12 months	
2–2	After completion of 3 years college	75
2–3	Prior to completion of 3 years college	50
2–4	Employment periods of less than 3 months	0

Table F-3 Other Acceptable Training

	Description	Percentage credit allowed	Maximum credit allowed (years)
3–1	Teaching 3rd, 4th and 5th year architectural courses in an NAAB accredited school	50	1
3–2	Other teaching	0	0
3–3	Employment by government agencies, engineers or general contractors, when such employment is directly related to construction work	50	1
3–4	Employment by organizations which have employees who perform architectural services in connection with buildings to be used or owned by that organization, when such employment is directly related to architectural work and is performed under the direct supervision of a registered architect.	50	2
3–5	Practice as a principal, during which time one or more members of the firm were holders of an NCARB Certificate	100	3
3–6	Other practice as a principal	50	3

Section H—Examinations

The syllabus of the examinations required under Section E is as follows:

1 Written Examination, formerly called Junior Examination, consisting of 9 parts, as follows:

Examination A—Academic and Practical Training. Value 100 points. Passing 75 points.

Records of education, employment, experience, and ethical standing. The examining body shall scrutinize and grade the candidate's record in preparatory school, cultural and technical college, employment experience, and professional society affiliations.

Examination B—Personal Audience. Value 100 points. Passing 75 points.

The candidate shall appear personally before the examining board so that it may have an opportunity to judge his natural endowments for the practice of architecture, his ethical standards, and by questions gain further knowledge of his fitness. The time for this audience may be set by the examining body.

Examination C—History and Theory of Architecture. Value 100 points. Passing 75 points. Time: 3 hours.

No reference material permitted.

Subject Matter: The development of architecture; the effect of geography, climate, and material resources; the factors of site and orientation; the influence of science and technology. The varying response to the needs and desires of the changing social pattern; the evolution of design, methods of construction, structural systems, and building equipment; the influence of tradition and law. Typical historical examples.

Examination D—Site Planning. Value 100 points. Passing 75 points. Time: 5 hours.

No reference material permitted.

Subject matter: A short design problem involving a group of public or private buildings of any type, intended to demonstrate the candidate's ability to safeguard the interest of both client and public with respect to land value, obsolescence, traffic; to develop a functional arrangement of buildings and site which will also result in a visually satisfying composition of forms in space.

Examination E—Architectural Design. Value 200 points. Passing 150 points. Time: 12 hours.

No reference material permitted.

Subject Matter: A specific practical problem involving application of the principles of space design to solution of the program for a building such as might be found in architectural practice. The solution shall be submitted in drawings of specified number, kind, and scale to present an efficient arrangement, logical structural organization, compliance with basic codes for health and safety; also appropriate economy and satisfying aesthetic quality.

Examination F—Building Construction. Value 100 points. Passing 75 points. Time: 3 hours.

No reference material permitted.

Subject Matter: The use of materials and methods of construction. The selection of appropriate materials and knowledge of how they are combined for use under given conditions, considering their practicality and durability, also the factors of safety, economy, and architectural expression. Supervision of construction; detection and correction of defects; sequence of construction operations.

Examination G—Structural Design. Value 100 points. Passing 75 points. Time: 5 hours.

Reference material is permitted.

Subject Matter: The knowledge of various structural systems; when, how, and why each would be used; the determination of safe and efficient sizes of structural elements and arrangements of combinations of such elements as slabs, beams, girders, trusses, columns, walls, foundations, and footings, designed in various materials by either graphical or mathematical analysis.

Examination H—Professional Administration. Value 100 points. Passing 75 points. Time: 3 hours.

No reference material permitted.

Subject Matter: Questions relating to the ethical, legal and administrative responsibilities of the architect; relationships between architect, owner and contractor; building laws, lien laws, specifications, contracts, bonds, insurance, certificates and arbitration.

Examination I—Building Equipment. Value 100 points. Passing 75 points. Time: 5 hours.

Use of handbooks permitted.

Subject Matter: Principles of design and detailed knowledge concerning heating, ventilating, air-conditioning, plumbing, electric wiring, refrigeration, fire protection, and vertical transportation; taking into account scientific, technical, economic, and practical factors; also compliance with codes for public health and safety.

Conditions of Written Examinations

(a) A proctor will be present to insure individual effort by each candidate.

(b) No information will be given candidates in advance, except the general subject of the Design Problem.

(c) Grading of papers is the responsibility of the State Boards.

(d) Except when such procedure is in conflict with state laws or regulations if a candidate passes four (4) or more of the seven (7) individual written examinations, he may elect to retake only the subjects in which he failed, provided that:

(1) Only two (2) retake examinations are permitted in any individual subject.

(2) All retake examinations are passed within three (3) years of the original examination, unless the State Board under whose jurisdiction the written examination is held certifies waiver of this rule.

Otherwise, the candidate must retake all subjects if he elects to try again.

Procedures in regard to retakes shall operate as nearly as possible in this manner according to the state laws and regulations of the individual Member Boards.

2 *Senior Examination* consisting of 5 parts, as follows:

Examination J—General Cultural Education. Value 100 points. Passing 75 points.

An evaluation of the applicant's education in high school, liberal arts courses, travel, self-study in the humanities, and participation in cultural activities.

Examination K—Technical Training. Value 100 points. Passing 75 points.

An evaluation of the applicant's training in architectural school office, or in independent research and investigation.

Examination L—Record in Practice and Professional Relationships. Value 100 points. Passing 75 points.

An evaluation of the applicant's record of activity in professional societies, relations with clients, ethical standards, civic activity and journalistic contributions.

Examination M—Exhibits and Oral Discussion. Value 300 points. Passing 225 points.

Explanation by candidate of his approach to architecture, his personal contribution to the work shown in his exhibits, and his relations with clients, contractors, and public.

Examination N—Oral Thesis. Value 400 points. Passing 300 points. Time: At least 30 minutes.

A demonstration of the candidate's philosophy and procedure, based on some project or projects which he has executed, or which are in an advanced state of study, illustrated by sketches, working drawings, and photographs. Grades in Examinations J, K and L are based upon information contained in the candidate's Council Record.

For Examinations M and N, the candidate is required to appear before the examining body with complete sets of plans and specifications for at least three different examples of his executed work plus any sketches or photographs desired.

For inclusion in his Council Record, the applicant will prepare and submit an exhibit containing at least 18 photographs of at least 10 of his completed buildings to the Executive Director who will establish and prescribe the method and format of submission.

Section I—Fees

1 For preparation of a *Council Record:* $50.00.

2 For processing an application for *Council Certification:* $25.00. This fee is in addition to the fee for the Council Record.

3 For transmittal of Record or Certification to another state upon request of the holder thereof: $25.00.

4 For *transfer of State of Basic Registration:* $10.00.

5 For *appeal to Board of Review:* None.

6 For *appeal to the Council Board* from the decision of the Board of Review: $50.00.

7 For *Periodic Review of Council Record* prior to issuance of an NCARB Certificate: $10.00 for each year which has elapsed since the date of application for preparation of the Record, or, if the Record has been given a previous Periodic Review, since the date of application for the most recent Periodic Review, but in no event to exceed the sum of $50.00.

8 For *Annual Renewal of Council Certification:* $10.00. The renewal fee is due on January 1 of each year following the granting of the Certificate.

9 For *Periodic Review of Council Certification:* No additional fee required if Certification renewal fees have been paid annually and the required annual affidavits have been returned in response to statements and affidavit forms submitted annually to each Certificate holder from the Council offices.

10 For *reinstatement of Council Certification* which has lapsed due to non-payment of annual Certification renewal fees: $25.00. This reinstatement fee is in addition to the payment of the annual renewal fees that are in arrears to the date of receipt of the reinstatement fee. ◄

Congratulations and Introductions

► It's a ticklish thing to congratulate a lady publicly on the occasion of twenty-five years of service. Jimmy Gambaro solved this for me in the case of Mrs Mabel S. Day when he recalled that she started with the AIA as a girl of fourteen.

Mrs Day has been the Secretary to three Executive Directors: Edward Kemper, Ned Purves and me. As every Officer, Director, committeeman or other member-visitor to the Octagon knows, Mrs Day's title of "secretary" is a gross understatement of her duties and her importance to the smooth functioning of the national headquarters.

It was twenty-five years ago that Mabel Day joined the Octagon staff. Technically her tenure has not been continuous due to a "leave" for the responsibilities of early motherhood. But she has been in the AIA picture for twenty-five years, enjoying the friendship and taking care of many matters for an unbelievably wide circle of eminent members.

We all join in expressing our admiration, affection and congratulations to Mabel Day.

Mrs Mabel Day is a graduate of Templeton Business College in Staunton, Virginia, her native city. Her work with Senator Barbour and Congresswoman Jencks brought her to Washington in 1936. A year later, she joined the Octagon staff. Mrs Day's favorite leisure activity is gardening around her home in Falls Church

Continuing my pleasant custom of introducing new staff members on this page, we give you the photographs of Jim Bailey and Bob Koehler.

Jim Bailey began his career as a newspaperman and became interested in architectural writing when he went to work for *Daily Pacific Builder* in San Francisco nearly eight years ago. While executive assistant to the California Council AIA, he edited *Book of Homes*, a semi-annual magazine of western residential architecture

Jim Bailey has taken the job of Head of the Department of Public Information filling the vacancy created by Don Canty's going to the *Architectural Forum*. Jim is another product of the "Mel Ferris School" of the California Council of the AIA, which is now demonstrating its value as a producer of trained men for national assignments. Jim has been at national headquarters since June eighteenth, and is already up to here in his work.

Bob Koehler, a journalism graduate of the University of Wisconsin, steered the editorial development of *Pacific Architect and Builder*, which became *Architecture/West* last April. He was the magazine's associate editor from its inception in 1954, becoming editor two years later. Before that he held editorial positions for two industrial publications and served as a publicity director

Bob Koehler became Associate Editor of the *Journal* on August sixth. He fills a very exacting job specification which called for extensive experience in *both* the editorial and production aspects of publications work. Add to this the requirement for strong exposure to architectural journalism and you find yourself trying to locate a rare fellow indeed. Bob Koehler's success with *Pacific Architect and Builder* (now *Architecture/West*) identified him as the right man for us. W.H.S.

Editor's Page

Steps Toward an "Educated" Public

I wonder how many read Arthur Fehr's article "Architecture for Eight-Year-Olds" in the August *Journal?* And I wonder how many recognized, as they read it, that therein lay one of the mightiest tools available to the profession with which to achieve the goal of full public recognition and appreciation of architecture and the profession that produces it? There are only two tools. They are outstanding service to the public, which automatically includes excellence of design; and the education of the public to an intelligent awareness of their architectural environment and of the men who control it—or *can* control it.

By "education of the public" I *don't* mean just "public relations." PR is a professional gimmick that has its place. It is a highly useful tool that is used by the Institute and many architectural firms to achieve certain ends. It possibly can create awareness, but it can't produce appreciation.

There is a portion of the public which is fortunately gifted with a natural sensitivity toward things esthetic. Upon this sensitivity can be built a good structure of knowledge. There is another portion which was exposed to courses of a cultural nature in highschool and/or college. Perhaps in fifty per cent of these, it "took." This group too will have accumulated a certain amount of knowledge. With knowledge, in the intelligent person, comes observation; and observation will develop a critical eye, and with all that will come —*should* come—appreciation.

Catch 'em young. Nobody learns quicker than an eight-year-old, and what is learned then is rarely forgotten—it is ingrained. Put a youngster with a French family for a few weeks and he's bilingual for life. Make children aware, while still in the primary grades, of their environment, including everything from hydrants to buildings, from species of birds to the strata of mountains, and you will have alert, observant, critical and appreciative adults. And what better public could we want?

Alert chapters of the Institute, or, lacking that, alert individual members, should take hold of Arthur Fehr's idea and carry it into their own communities. And it can be expanded and carried further. For instance, with the cooperation of the teachers—and probably the PTA—a chapter could prepare a syllabus for the teachers' use, outlining the presentation of a series of group studies and projects covering the entire environment, as affected by the architect, with special emphasis on buildings, accompanied by visual material such as drawings, models, slides, movies and even field trips.

This is nothing new. Buried among my books at home is a now-mildewed little green volume entitled "Children and Architecture," which was published thirty years ago by Teachers' College of Columbia University. It outlined just such a procedure, based upon the work of a teacher or two in one of the "progressive schools" of the day.

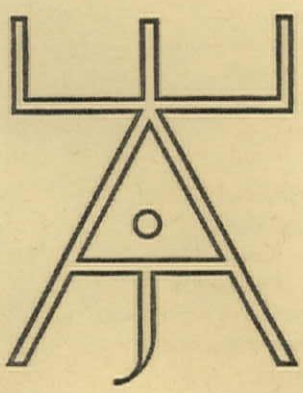
(As I write, I am handed a note from Arthur Fehr thanking me for sending him "tear sheets" of his little story, and saying "I have been surprised to receive fan mail. Maybe a new lecture series is in order throughout USA." Maybe it is, Arthur—and about time.)

So much for the coming generations. As to reaching the present adult generation I can suggest nothing better than the "Cities Are Funny" method, as presented in the July 1960 *Journal.* This too can be either a chapter or an individual effort. Take slide pictures of your city, some of what's good and beautiful about it, and plenty of what's dreary, cluttered and commonplace about it. Make up a running commentary, wise and witty if it lieth within you, and present the show to groups—any kind of group will welcome it. It will open their eyes, and if their eyes are opened perhaps they'll start thinking.

Another tool for reaching the present generation, of all ages, is the "walking tour." Henry Hope Reed, Jr has been conducting such tours on Sunday mornings in New York for some years; Ada Louise Huxtable is now doing it too. And it seems to me I've heard of such a tour being organized in Chicago. A carefully mapped and properly conducted walking tour can be a veritable education in architecture and the esthetics of the city to people who have hitherto been only vaguely aware of their urban surroundings. Such tours need not include only the beautiful and the historical buildings of the city, they can also include the hopelessly decayed neighborhoods and the pleasant back streets which are now decaying but ripe for renewal. Much depends upon the breadth of information, as well as the sense of humor and personality, of the tour conductor.

So there are three specific suggestions for activities which can be initiated by any chapter with a minimum of effort, or by any individual with a heart full of enthusiasm and a bit of spare time.

JOURNAL OF ARCHITECTURAL EDUCATION



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Washington State University
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Washington University (St Louis)
Western Reserve University
Yale University

Fifty Years of the ACSA

by Harlan E. McClure, Clemson College

The Association of Collegiate Schools of Architecture will be fifty years old in December. In this article Dean McClure, immediate Past-President of the Association, traces its history from foundation to the present, describes some of the recurrent problems with which it has been faced and its handling of them, examines its relationship to other bodies and to American architectural education in general, and discusses some of the activities in which it is engaged now and which will carry it forward into the next half-century upon which it is about to enter

Fifty years may seem a trivial time span and by many standards it is nothing. In American architectural education it includes the establishment and development of about two-thirds of our existing schools. When in 1865 MIT launched the universities into architectural education it started a century of transformation from the apprentice and atelier systems to the patterns familiar to us today. In the latter half of the nineteenth century new architectural schools were added to the roster with ever increasing rapidity, bringing the number to fifteen by 1900, by 1912—fifty years ago—to twenty-six.

In those early days the architectural schools varied greatly in approach, curricula, and quality. Born of this diversity was a generally felt need for communication and the setting of minimal standards. Among those who felt it most keenly were the eight professors of architecture[1] who in December 1912, met in the New Willard Hotel in Washington, DC. Out of their sessions emerged the Association of Collegiate Schools of Architecture, generally called ACSA. To use the founders' own words the purpose of the organization was simple: "To promote the efficiency of architectural education." During its fifty years of existence the ACSA has sought to do just that. As might be supposed, however, the very considerable services of the Association to architectural education have been the result of scores of dedicated individuals spending countless hours on many projects rather than of simple "group action." The proceedings of the earliest meetings, as well as committee reports and accomplishments in more recent years, have consistently pointed to contributions of devoted individuals. I have written to many of these people and been guided by their assessments of ACSA history.

Before World War I and immediately thereafter the Association was small, but very active, and from all accounts the meetings were pleasant and interesting, conducted on a club-like social level. The leaders of the schools were rarely deans in those days and the meetings had relatively few formal rules. Business was business, but detailed attention was also

[1] Ash of George Washington, Howard of California, Laird of Pennsylvania, Lorch of Michigan, McGoodwin of Carnegie Tech, Mann of Illinois, Martin of Cornell, Taylor of MIT

given to proper dinner wines. Warren P. (Popsy) Laird of Pennsylvania served as the first president of the Association and continued in office until 1921! (Since that time presidents have served a two-year term.) An early secretary has told me that in those wonderful days before stenotyping, when the architectural schools were just beginning to flex their muscles and ask questions of one another, the secretary simply took brief notes of the important things that were said at meetings and then wrote it all up at his leisure in such polished prose as made the minutes good reading and the speakers very pleased with themselves.

Between the wars

In this early organizational phase the names of Warren Laird, Emil Lorch, Ellis Lawrence, William Emerson, F. Hunt Bosworth, Goldwin Goldsmith, and Everett Meeks were frequently in evidence. They had strong and highly personal ideas. Although the Beaux Arts Institute of Design, a child of the Society of Beaux Arts Architects which had been established in New York in 1894, was exerting a formidable influence on architectural education in America in the early days of the ACSA, not all the schools represented by the founding fathers were affiliated with the movement because of philosophic grounds; and many of the others recognized existing and potential problems arising from its system. Its assets included the improvement of standards through competition, the fostering of the problem method, and the provision of a common meeting ground for emerging schools. On the debit side of the ledger, programs were at best "canned" and uncorrelated with the school's other offerings—often ethereal. It was the vogue at that time for schools seeking respectability to have a French design critic. Many of these professors made important contributions and were dearly loved and respected. Several decades of students trained by Paul Cret at Pennsylvania, Grapin at Carnegie, Haffner at Harvard, Despradelle and Carlu at MIT, Arnal at Minnesota, and Hebrard at Michigan will vouch for the soundness of their methods. Nevertheless, excessive competition between the schools began to outweigh the advantages. As the middle 'twenties approached, "architectural football" became a real problem. The Association after much consideration took action which, coupled with the general fostering of a more functional approach to design in many schools, led to the gradual solution of that problem.

It was not until 1930-31 that the architectural schools of the United States and Canada were comprehensively surveyed, although a self-study had long been needed. The idea was formally proposed to the ACSA by William Emerson of MIT, Everett Meeks of Yale, and Goldwin Goldsmith of Texas. Funds were made available by the Carnegie Corporation of New York, and F. Hunt Bosworth of Cornell and Roy C. Jones of Minnesota were invited by the Association to carry out the study. Their findings were the result of an intensive year's work and were published in book form by Scribners in 1932. This report had a very considerable effect on subsequent affairs in the ACSA and on the development of architectural education.

In the late 1930's the young schools of architecture were the progeny of heterogeneous parental unions and had a wide quality range. The general anxiety to establish some sort of threshold standards to correct their wild divergencies involved the Association for a very considerable time (from Frank Bosworth's administration to that of Sherley Morgan of Princeton) with discussions of standards and curricula. The standard-minima, as they were called, were arranged by the member schools as a presumed guide for the new schools. It became apparent that these standards tended towards the arbitrary and forced the ACSA into the role of watchdog over a formulation which, though started as a useful guide, became an ever more limiting strait jacket inhibiting freedom for experimentation. The Association had from its beginning wanted to provide architectural educators with a true forum, and this was being destroyed by preoccupation with standards.

At this same time architectural registration boards in the several states found themselves faced with the problem of assessing the quality of the education of candidates for registration. Fortunately Emory Stanford Hall and Samuel Perkins had conceived of the National Council of Architectural Registration Boards, which despite its embryonic and unrecognized state could give voice to the state board's need for a list of approved schools. Clarence Zantzinger of Philadelphia, then Chairman of the AIA Committee on Education, is generally credited with understanding the desire of the ACSA to rid itself of pseudo-accrediting functions, and the vital need of NCARB for some accrediting agency. It was he who suggested a joint board representing the schools, the profession, and the state boards. Sherley Morgan of Princeton was then president of the ACSA, and his

endorsement of Mr Zantzinger's proposal caused the NAAB to be established. It has been the official accrediting agency since 1940.

In those years, as the ACSA was seeking to fulfill its basic purpose, there was a great deal of study and discussion, both at the national meetings and on more parochial levels, of the advisability of a five-year professional curriculum. The schools with limited resources and those rigidly dominated by engineering administrations tended in general to favor retaining the four-year curriculum, and some schools were genuinely concerned with delaying the educational experience to be achieved in offices. Strong arguments were advanced supporting the five-year curriculum on the grounds that more time would be available for the general studies so necessary in making the architect a "whole man." Although some four-year curricula have persisted until quite recently, ACSA recommendations and NAAB implementation have generally resulted in the five-year curriculum being a minimal standard. Some of the leaders of the period of these curricular debates have complained that the assumption of five-year curricula gave many schools another year to fill with additional technical courses. This is unfortunate, but then the range of the architect's technical tools has expanded fantastically in the past two decades. There is now a body of opinion in ACSA favoring either the conduct of architectural education exclusively on the graduate level or the establishment of six-year combined liberal arts and architectural curricula, to enable the architect to be both generally and professionally educated.

School evaluation

A second survey-study of American architectural schools made in 1938 was the result of the ACSA's wishing to keep current in developments in architectural education. This survey was detailed and factual and was entirely the work of two dedicated men—George Young Jr of Cornell and Goldwin Goldsmith of Texas. By 1940 the newly established Accrediting Board made great use of the data in the Young-Goldsmith report in establishing criteria for the evaluation of schools.

In reviewing the ACSA store of published material one is struck with the recurrence of subjects of discussion and study, however varied the clothing in which they turn up. Grumblings were mouthed in the earliest meetings about the excessive use of questionnaires to obtain information, the poor preparation of students for professional education, and the disorganized gap which occurs between formal education and licensing to practice the profession. Interestingly, these are all matters of current concern and study in ACSA. The period of architectural internship was particularly actively debated by the Association in the late 'thirties and early 'forties. A joint committee was set up at that time, and with the aid of architects such as Charles Butler and Clarence Zantzinger the first system proposed to solve the problem was devised. It was called the "mentor system," and it worked no more effectively than a more recent project—the architect-in-training "log book." It is to be hoped that subsequent developments will result in a solution to this persistent need. One thing is certain—the internship problem cannot be solved by AIA alone, any more than by ACSA or NCARB acting unilaterally. The schools will in the long run be responsible for launching the graduate in the right orbit, the practitioner for collaborating in continuing education in the office, and the state boards for insisting on adherence to whatever system is developed as a requisite to taking the registration examinations.

Although the years of World War II gave NAAB a chance to become established—it made its first accreditation visits to schools in 1945—and although the schools and ACSA continued to function during the national emergency, architectural education could obviously not travel under full sail. The academic year 1945-46 brought the first wave of returning veterans to the architectural schools, and veterans with fresh ideas and typical impatience joined the ranks of the faculties. The problems of the time were manifold, and missionary enthusiasm for contemporary architectural design and a new look at architectural education ran strong. William W. Wurster, who had become Dean of Architecture at MIT after an eminently successful California practice, brought imagination and real zeal to the ACSA meetings—as indeed did many others. Since the Association meetings were still relatively small, and since the schools were all seeking solutions to their pressing problems, ACSA affairs in the years 1945-50 tended to foster lively comparison of methods and consultations on mutual problems rather than more formal programs, such as have developed since. Confronted with expanding enrollments, committees at the time studied selective admissions policies, methods for coordinating junior college programs, ways to teach basic design, and student guidance material. The ACSA in those days served some of the functions of the Teacher Training Seminars today, providing a lively means of communication between teachers. In Paul Weigel's term as President, ACSA meetings on a regional level were just beginning and Elliot Whitaker chaired a committee to promote their establishment. Some regions and particularly the southeast have had notable annual success with these since that date.

In the late forties ACSA administrations struggled with the need for a redefinition of purpose and the setting of specific goals and tasks. Ralph Walker, as President of AIA, conceived the idea of a survey of architecture at mid-century—to be the third in the series of studies of architectural education, but the

first survey of many professional areas. Perhaps his services to the profession in envisioning the breadth and scope of this enterprise have not been sufficiently understood or appreciated. The Houston convention of the AIA in 1949 authorized a survey of registration and the Board enlarged this to include education. Ralph Walker with the AIA Board, and the staff assistance of Walter Taylor, then Director of Education and Research in the Octagon, selected a Commission for the Survey of Education and Registration. Five members of the ten-man commission were affiliated with ACSA. Besides Turpin Bannister of Illinois, Kenneth Johnstone of Carnegie Tech, and Sidney Little of Oregon, there were Roy Jones of Minnesota for the NAAB and Clinton Cowgill of VPI for the NCARB. The organizational meeting of the commission was held at Allerton Park, University of Illinois, December 1949. The work of the commission extended over a four-year period, and was chaired by Dr Edwin Burdell, President of the Cooper Union. Turpin Bannister, then at Illinois, now Dean of the College of Architecture at the University of Florida, served as editor of Volume I which was the principal report. His was a monumental effort. Volume II of the survey reported a series of regional conferences with non-architect citizens. Walter Taylor acted as staff coordinator for the entire survey.

Program delineation

It can fairly be said that these two volumes, summarized in Boston in 1954 and published at the time of the Minneapolis Convention in 1955, and in particular the important specific recommendations of the survey, helped delineate the program and objectives which the Association has sought to follow since. These challenges included aptitude testing, training seminars for architectural teachers, the expansion of schools to better serve the building industry, the architect-in-training question, post-graduate studies, and many others.

The ACSA under Lawrence Anderson of MIT and Elliot Whitaker of Ohio State responded quickly to the recommendations. Before the ink of the report was dry the Association had a pre-convention session in Minneapolis on teacher-training seminars, and lively discussion followed in the regular meetings on such matters as aptitude testing and expansion of schools. Since the need for some criteria for student selection had long plagued the schools, ashamed of the excessive attrition rate in architectural education, the response to the aptitude testing proposal was immediate. It was specifically directed to the ACSA and carried out as a joint enterprise with the AIA. Alexander Cochran of Baltimore for the AIA Education Committee and Walter Taylor of the AIA staff spearheaded the program on the side of the profession and Lawrence Anderson of MIT, Thomas Fitz Patrick of Virginia, Robert McLaughlin of Princeton, and Leonard Wolf of Iowa served for the ACSA. Mr Solomon has represented the Education Testing Service of Princeton in the development of the program since its beginning. This project, as yet far from conclusive, has been financed about equally from AIA sources and ACSA levies on schools.

The proposal to expand the schools to better serve the entire industry at first met with cool response if not outright antagonism at the Minneapolis convention, but subsequent studies have pointed up the real needs in this area, and the schools' responsibility in meeting them. It has been the subject of joint ACSA-AIA meetings at Cornell and in Washington, and is currently assigned to a standing ACSA committee.

During the energetic administration of Buford Pickens of Washington University much was done to expand and give form to the programs of the Association. This lead has been followed by the two more recent presidents. For several decades the image of the Association was erroneously that of a "club of deans." Actually the rank and file of teachers of architecture have, since its beginning, assumed positions of leadership and performed notable service. It was not, however, until the Cleveland convention in 1958 that the idea of individual membership in the Association was officially sanctioned. As the name of the organization would suggest, school memberships form its very basis. But they cannot provide the actual service for the development of programs. The recognition of this fact in the form of individual membership embarked the Association on its latest phase.

No account of the evolution of the ACSA would be complete without a word on its contributions to the work of the American Institute of Architects and the National Architectural Accrediting Board. Although the ACSA is and will remain a completely independent organization,[2] and although some of its

[2] ACSA, unlike AIA, NAAB and NCARB, is an international organization, embracing seventy-eight schools of architecture in the United States, Canada and Mexico. Of the sixty-two schools which have been granted full membership, three are Canadian and one is Mexican. An additional two Canadian schools are in the Associate School category, which numbers sixteen

members are not affiliated with AIA, the greater number of its leaders have always been prominent in affairs of the Institute. In 1954 Clair Ditchy, President of the AIA, started fruitful inter-organizational collaboration with the first "Four Power Conference." The purpose was to bring together the principal officers of AIA, ACSA, NAAB and NCARB. Each successive year these conferences have helped achieve a clearer understanding of problems and of areas of responsibility. The immediate Past-President of the AIA, Philip Will, made a special effort to help in the coordination of the programs of these several organizations and to expand the establishment of joint committees.

As might be expected, the ACSA, dedicated to the improvement of architectural education, has played a leading role in the National Architectural Accrediting Board since its formation. Early presidents, Roy Jones and Sherley Morgan, were in on its establishment; Herbert Beckwith of MIT served it with imagination giving real form and stature to Board procedures. More recently Elliot Whitaker, Thomas Fitz Patrick, Arthur Gallion, Robert Dietz, and Sam Hurst have well represented the ACSA on the Board. Since at least one ACSA member is on each team making an accreditation visit, a great many ACSA members have served the accrediting board over the years.

Notable among Joint AIA-ACSA Committees is the R-17 Project, the Annual Program for Teacher Training. The Association has provided the leadership for these annual conferences under a three-man steering committee which includes the Chairman of the AIA Committee on Education, the Past-President of ACSA, and a R-17 Chairman selected by these two representatives. Many persons have contributed to the success of the seminars which have become an effective and unfettered vehicle for the improvement of architectural teaching. The success of the first such seminar was largely due to the efforts of Walter Bogner of Harvard, who has maintained a continuing interest in R-17. Walter Taylor aided materially in the beginning years by fostering AIA financial support, and Herbert Beckwith of MIT helped find the means to offer early conferences. To Harold Bush-Brown, however, must go the choicest accolades. Involved in R-17 almost from the beginning, Harold Bush-Brown had, until his resignation this year, devoted almost all his energies to this program after retiring as head of the School of Architecture at Georgia Tech. This was a labor of love. Much remains to be explored in the form and substance of new conferences, and for this job Buford Pickens has been selected to succeed Mr Bush-Brown.

The building industry has an obvious interest in architectural education. This has often taken the initial form of wishing to establish yet another external competition—generally foreign to school programs and educational needs. No person has been more influential a servant of ACSA in promoting effective relations with industry than B. Kenneth Sargent of Syracuse, bending industry's desires to educational requirements. Such excellent scholarship programs as those of the Tile Council have been in no small measure the result of his effort. The Producers Council Visual Aid Program, which has provided building materials slides to all ACSA schools, has been a project under Sargent's direction since 1946.

The recruitment of new teachers and the proper placement of those in the teaching fraternity has long been a matter of concern to ACSA. For a number of years the Association has published its employment bulletin with Harry Phillian of Ohio State as the editor.

Publication development

Aware of the central importance of communications, the Association has gradually developed several important publications. In the earlier years of ACSA proceedings of the meetings were distributed in mimeograph form; committee reports were often not recorded for posterity. Gradually the *Journal of Architectural Education* took form during the secretaryship of Buford Pickens. This new journal separated papers of significance from the mere reporting of proceedings. George Downs of California should be given much credit for launching a publication with reasonable standards. The writer had the honor of being chairman of the first ACSA Publications Committee, which has continued and is now under the direction of George Danforth of IIT.

Other ACSA publications have included an annual Roster of Member Schools, an annual Directory of Teachers of Architecture with their academic assignments, a statistical Survey of Enrollments and Teaching Statistics. These are widely sought by educational and other organizations. The past three presidents have written frequent newsletters, and the annual reports of the many ACSA committees are now printed and distributed to the membership. Recently the ACSA Committee on Research and Graduate Study has developed a means of fruitful exchange between the schools, and one of the sessions at the Dallas Convention was devoted to the work of this committee. Perhaps the most important committee of the Association in recent years has been charged with studying "The Advancement of Architectural Education." During his several years as chairman of the committee, Past-President Lawrence Anderson of MIT produced many thoughtful reports which are still being digested, and new explorations are being made under Walter Sanders of Michigan.

All in all, the Association does not suffer from the lack of a program of important specific projects.

It continues to provide a means for inter-school study, discussion and collaboration. It enjoys a now well established relationship with the AIA, NAAB, and NCARB which should permit a clearer focus on mutual problems. It lacks only enough hands to carry forward its expanded work in a frenzied but exciting world.

ACSA Presidents

Warren P. Laird	1912-21	Pennsylvania
Emil Lorch	1921-23	Michigan
William Emerson	1923-25	MIT
F. Hunt Bosworth	1925-27	Cornell
Goldwin Goldsmith	1927-29	Texas
Everett V. Meeks	1929-31	Yale
Ellis F. Lawrence	1931-34	Oregon
Roy C. Jones	1934-36	Minnesota
Sherley W. Morgan	1936-38	Princeton
George Young, Jr	1938-40	Cornell
Leopold Arnaud	1940-42	Columbia
Wells I. Bennett	1942-45	Michigan
Loring H. Provine	1945-47	Illinois
Paul Weigel	1947-49	Kansas State
B. Kenneth Johnstone	1949-51	Carnegie
Thomas K. Fitz Patrick	1951-53	Iowa-Virginia
Lawrence B. Anderson	1953-55	MIT
Elliot L. Whitaker	1955-57	Ohio State
Buford L. Pickens	1957-59	Washington Univ
Harlan E. McClure	1959-61	Clemson
Olindo Grossi	1961-	Pratt Institute

Unique Profession, Unique Preparation

by Philip Thiel, University of Washington

Architecture is the only art of habitable space; it is the business of the architect, and of the architect alone, to give to such space, experienced four-dimensionally, visual meaning. Therefore, says Philip Thiel, visual education should have a central place, next to design itself, in the curriculum of any school of architecture, and to be effective it must be enlarged beyond the time-honored exercises of freehand sketching and rendering. He goes on to show how a program in visual education using other graphic processes (notably photography) may be developed, in sequence and in depth, so as to supply the kind of unique preparation that an unique profession demands

To define an architect as "an artist engaged in the business of humanizing space" is to suggest the uniqueness of his profession. The point of distinction is his involvement with intangibility—the humanly occupiable space of a room, a building, a city or a landscape—the spaces which we inhabit and through which we circulate in the process of living. The architect (including here the interior, industrial, urban and landscape designer) is concerned with the sizing, positioning, establishing, and qualifying of these spaces, to the end that they may facilitate the living of a fuller and richer life. In the sense that spatial experience involves four dimensions, the architect thus deals with at least one more dimension than the painter, the photographer and the sculptor.

The human space with which the architect is concerned is established in two senses: one physical, and one perceptual. The physical space is formed by such structural elements as the column, wall, beam, truss, arch, plate, shell and cable, and these elements are organized according to recognized structural principles in terms of continuity and allowable stresses and deflections in tension, compression, shear, bending and torsion. The perceptual space (which is chiefly visual) has a visual structure composed of elements

with the attributes of position, size, direction, number, shape, color and texture; and these elements are perceptually organized in both time and space, according to recognized psychological principles in terms of visual rhythm, movement, continuance, closure, similarity, and proximity.

If the humanity the architect serves by his profession were blind, the perceptual aspects of space would be of negligible importance; society would be adequately served by an engineering or a building profession competent in economically sizing, positioning and physically enclosing and conditioning space. The fact that human beings can see (more or less), and that they place some value on the achievement of visual harmony in their environment, explains the existence of an *architectural* profession—an existence justified by its members' skill in the expressive handling of four-dimensional visual space. The architect may sub-contract almost everything else—the design of the physical structure, the heating, ventilating, airconditioning, plumbing, illumination, acoustics, landscaping and furnishing. The design of the four-dimensional visual space he always retains for himself, and here he demonstrates the difference between building and architecture.

This being so, the visual education of the architect is the crucial element in his professional qualification. Not the only element, obviously, for it takes its place alongside an understanding of other disciplines, to be synthesized with them in the process of architectural design. It is only one vector of the many that the architect is charged with resolving and equilibriating, but is the one vector that uniquely entitles the process to be called *architectural* design. Furthermore, because of the specific four-dimensionality of experienced human space, it is reasonable to expect that the visual education of architects will of necessity differ in kind from that appropriate to other fields of art. It is the purpose of this article to suggest the extent to which this is so, and thus to call attention to what may be the stepchild of the curriculum, but ought to have in it a place second only to the discipline of the synthesizing process of architectural design.

Two basic assumptions, both consequences of the humanizing objectives cited initially, must be mentioned at the start. One is that really human spaces can be designed only by a whole human being. The implication here is, of course, that a high degree of ability in professional skills alone is not enough, and that these skills can be meaningful and effective only when developed in the nexus of a liberal education. Where the quality of life-experience is at stake, the narrowness of only a technical specialism is clearly inadequate.

The second point is concerned with the delayed-action effect of education. Architectural training now is for practice in the future: The students of today will not come on the line as responsible principals until a dozen years or more in the future. In addition, architectural forms, and urban forms particularly, may well continue to have an extended life influencing more than one future generation. In view of this it would seem that architecture cannot exist as a mirror, passively reflecting the past and the present. It must assume something of the nature of a searchlight, courageously and competently lighting the way to a meaningful and vital future. In this role, as an educator or prophet, the architect discharges his obligations to society as an educated man. The implications of this to architectural education in general and to visual education for architects in particular is to underline the need for the professional education to be in terms of basic principles, historical perspectives, and against the background of a liberal education. The future is unknown, and the architect must have both an appreciation for change and the resources to cope with it imaginatively.

A visual education for architects should have as its goal the re-opening of the eye to primary visual experience, the awakening of the mind to the structure of visual form, and the growth of the heart's ability to understand and speak to itself and other hearts in visual terms. This involves a profound transformation of the student on the perceptual, conceptual and emotional levels in terms of his visual awareness, his understanding of visual structure, and his skill in visual communication.

The need to inculcate an attitude of responsibility suggests that these attributes should all be factors in each problem; practicality suggests that some emphasis should be made separately on each level, in succession. To this end, the first phase might properly focus on visual awareness, the second on visual structure, and the last on visual expression. This phasing would correspond to the student's developing awareness of visual data initially, to his subsequent growth in ability to form them into coherent relationships, and eventually to his maturing need to use them to express social values and purposes.

In the initial development of awareness the pencil and other simple graphic tools hold a time-honored place of importance. Sketching and rendering from life, and from still-life set-ups, has always bulked large in the training, and with reason. The ability to make satisfactory graphic representations is a desirable skill and it both presupposes and certifies sensitive observation—an additional good. In addition, this training has been used as a means of inculcating precepts on "sheet composition" and "perspective drawing," which are also thought to be of value to the architect. But can this single vehicle of freehand sketching and rendering really carry all these loads, and take the student to some of the places he should and could now visit at an efficient rate of travel?

Use of these time-honored graphic tools inherently limits observation and representation to subjects that can be handled in one or two sittings, and this is a rather small part of the total visual world that properly concerns the architect. Happily, another graphic tool is readily available today for the purpose of fostering and certifying sensitive and imaginative awareness: the camera. With the camera (including the movie camera and color film) the student is not limited in time, space, or subject. The camera can assist in the promotion of awareness of a very much wider and richer range of visual data, effects and relationships. It can supply the visual documentation of the "face" of a specific urban area, of "as found" form, color or texture contrasts or analogies, of the visual consequences of various structural systems; it can be used to report on a specified building or space, to study scale or apparent size-relationships, to investigate form relationships in the natural landscape. The list is endless, the items in it quickly and freely available to the camera. The techniques of developing and printing are no obstacle; the maximum time is available for the play of the imagination in selecting a point of view and composing a shot.

All this should by no means suggest the elimination of freehand drawing from the curriculum. On the contrary, it should encourage a better understanding of freehand drawing's essential and unique role in architectural education. The camera, as a mechanical recorder, focuses on problems in awareness. Freehand drawing, involving a human recorder, concentrates on the issues of re-presentation.

The method of developing this ability involves drawing from life, the observation and representation of existing form qualities, as a means to an end. The value of a proficiency in freehand drawing for the architect lies not in the ability to render *existing* forms, but as a means of conceiving and clarifying *new* form ideas for himself, and of communicating them to others. In practice the architect uses his ability in freehand representation to record his inward, not his outward view—as a form-giver and not as a form-recorder.

This ability can best be developed by working with a carefully selected range of forms, both natural and man-made, in a sequence graded in form-subtlety. Such a sequence might start with a pile of cardboard cartons, and end, fifty class hours later, with the nude figure in motion. This is entirely possible of achievement, on a very high level of competence, if the work is carried out by a method which concentrates on the essence of the problem. This method is based on the use of the single "contour" line, and line only—a basic perceptual mode —employed in a once-drawn-never-corrected manner. "Sketching," or the repeated corrections of an observation that was poorly seen and poorly presented in the first instance, amounts to an evasion of the real problem, and a waste of time. The graded sequence of problems permits a satisfactory achievement at each stage and insures the growth of confidence. Use of the flexible crow-quill pen, or the ink-brush, with the requirement (for the first half of the program) of maintaining a uniform weight of line helps develop control. The drawings should be regarded as the records of individual research in form-communication. For this reason each student should work by himself, and never be shown a possible or preferred solution. There is no proper way: there are only good and better ways. It is an open-ended individual adventure. Nor should this representation study be burdened with questions of "composition" or "proportion" or "perspective"; all the effort should be devoted to the matter of graphic discovery in communication. The "distortions" that result are nothing more than unconscious expressions of value or feeling, and are best respected, not repressed. A requirement to conform to certain canons at this time will only compete with the basic issue, that of discovering the most economical way of conveying the most explicit form-information.

Adventures in awareness

The development of a heightened awareness of color, texture, form and scale by means of the camera has already been discussed. The visual attributes can be subsequently investigated in purposeful manipulation through the use of all the common and uncommon graphic tools, surfaces and media. Examples are the experimental use singularly and in combination of all these means, to produce a maximum variety of graphic effects, the use of these graphic experiments to qualify the appearance of identical space-models, the "rendering" of these models in color and then in equivalent grey scales, and the use of these graphic experiments to express (in the form of a simple mosaic, to eliminate the question of form) such abstract situations as moods, seasons or injunctions in terms of color and texture. All this work in sensuous awareness is properly part of a larger introductory program in awareness, in

such other categories as investigations of tool-material-process interrelationships in the wood, metal and plastic workshop, studies in elements of systems, studies in the performance of structures, and reports on the masters of architecture and related professions. Most of these studies have their visual consequences and implications, and here again the camera-as-reporter can play a part in extending awareness.

Having completed this first phase of the program, the students have in a sense reached a watershed. Those who go on with this professional education will subsequently deepen their sensibility by encountering an increasing intellectualization of the problems involved. Those who do not continue in the profession suffer no loss by leaving at this point, for through their adventures in awareness they have had an experience enriching any subsequent activity.

The second phase of the architect's visual education is centered on the issues of the visual establishment of form and space, on the tools by which they may be studied for design purposes, and on the principles which underly their perceptual structure, or meaningful organization in temporal and spatial experience. The historical means by which an understanding of these issues has been sought has been through their representation on the two-dimensional picture-plane. The translation of the four-dimensional space-time events of the physical world into the two-dimensional plastic world of the graphic surface has provided us with a slowly acquired collective insight, and an extensive record of this process. Illustrated lectures from this standpoint in the history of art, not excluding the oriental scroll nor the development of the cinema, are the history of man's perception of the visual world, and should serve as a preface or supplement to these present studies.

In the past the visual education of the architect has depended almost exclusively on studies in linear perspective-rendering, with the consequence that in education, design and practice the rendered surface has often loomed larger than the total visual actualities of the project and has even obscured them. At times it takes the form of a wishful or self-deceitful misrepresentation of the visual facts. This is a curious paradox of the profession—that those who claim the responsibility for a broad visual reality retreat behind a limited rendered symbol. In point of fact, the primary use of this rendered symbol is as a salesman's aid, with all that that implies. One doubts if the use of this form of "communication" is necessary or desirable in the practice of the profession, but certainly it is hardly sufficient in the process of both education and design. The historical review proposed above will help to place this particular stereotype of seeing in a broader context.

To place visual education and design on a broader foundation requires an understanding of the role of light as the form and space-creating agent, an ability to represent form and particularly space in a more dynamic frame of reference than is common at present, and a familiarity with the laws of perceptual organization. (Reflect, in this connection, that there are also "laws" of mechanics and physical structure, which also an architect may neglect only at his professional peril!) This understanding may be acquired by a number of studies.

The first involves a series of problems in a light and color workshop, where the work may take the form of the creation of rich light-displays using projected light, reflections, refractions, shadowings and filtering, the preparation of hand-drawn and painted abstract films keyed to music, studies of the modulation of light by various forms, comparisons of the mutations of forms with changes in light, and problems in the establishment and qualification of space by the interaction of forms with light. Light-sensitive media and the camera are the obvious means for the recording and study of these light-constructions. Having literally seen the light, the student has an adequate background for his studies in the means of representing conceived and not-yet perceived form and space, an extension of the previous work in freehand drawing.

Unlike most of the arts, architecture by reason of its size and extent is in most cases studied for design purposes not in its full size and tangible manifestation, but in reduced scale abstractions. To do this a number of systems for the representation of mass and space are necessary. Solid or object or mass representation, the lesser problem, is handled more or less adequately on a static basis by means of orthographic projections, linear perspectives and shade-and-shadow indications. Conventional training in these disciplines by professional craftsmen is of value at this time (or earlier, if necessary because of programming requirements). References to form emphasis or suppression as it occurs in nature in animal camouflage is of help in this work. Solid or object or mass representation on a dynamic basis is in a much less satisfactory state. We have of course the work of the cubist and futurist painters available for plastic suggestion as to the transformations in appearance of forms as we move around them, or as they move past us, but other than the use of stroboscopic and movie photography for observation studies, and separate coordinated representations of the form from successive viewpoints, the architect is really not served by competent tools for this job.

The greater and deeper problem lies in the area of space representation. It is space we live in, and monuments and landmarks only serve to furnish or articulate it. The problem of space representation lies in the intangibility of what we are to represent. We cannot show space: we can only show the elements which, in a particular relationship, establish a particular space. The more completely we can show

these space-establishing element relationships, the better we show the space. The usual camera lens and linear perspective drawings with their limitations on lateral scope are really not adequate for this job. Super-wide-angle cameras,* the use of spherical mirrors as "space-condensers," and systems of panoramic drawing are of some use here; but the simplest and most satisfactory means available is that type of isometric drawing based on an orthographic plan whose angular relationships are undistorted. By the use of this method the greatest number of relationships can be the most clearly indicated, with the least effort. For the static representation of space, it is second only to the three-dimensional scale model in effectiveness.

When we come to consider the dynamic representation of space, we touch the heart of the matter. For man lives in, and today increasingly moves through space, and unless the architect can think and feel and see and conceive in terms of this sequential experience of space, his efforts are pointless to the edge of absurdity. Architecture, interior design, urban design, or landscape design are all frozen music indeed until man as the sensing element moves through them, and by his motion brings them to life. Time thus is the medium in which the parts become a whole, and through which a dynamic expression becomes possible.

The continuous process of space-transformation involved in sequence-experience is difficult to represent pictorially: the problems transcend those of representing mass-in-motion because of the intangibility of space itself. Some recent studies indicate that a non-pictorial, notational method offers a promising approach to the problem. Limited teaching experience with this new tool shows that it is effective in both analysis and design.

With an understanding of the form and space-establishing role of light, and a grasp of the tools by which conceived form and space may be represented and manipulated for design studies, the final task is to provide an insight into the perceptual basis of visual organization. Here the services of a perceptual psychologist, in the form of lectures and demonstrations, are in order. Design problems now range over two, three or four dimensions in such chiefly visual areas as poster and typographic design, stage design, exhibition and display design, pedestrian network and scenic highway layout. And finally, at this stage, elective courses in painting, sculpture and movie-making now provide additional meaningful opportunities for the development of ability in expressive visual communication.

With preparation of this kind, the architect may embark upon the business of humanizing space at a more professional level than has generally been within his reach. This is surely a consideration of no little importance. For if the architect cannot qualify himself for the activity that makes his profession unique, to whom shall society turn?

* E.g., the "Widelux" 35 mm. wide-angle camera which possesses, by means of a rotating lens focused on a curved film-holder, a viewing range of 140° horizontally and 55° vertically. The manufacturer is Panon Camera Shoko Co., Azusawa-Machi, Itabashi-ku, Tokyo.

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The Bauhaus Revisited

by Howard Dearstyne, Illinois Institute of Technology

Architectural education as we have it today owes more to the Bauhaus than to any other single institution. Yet the history of the Bauhaus is by no means as fully documented as one might expect; for example, no detailed account of the last six years of its existence, under the directorship of Hannes Meyer and of Mies van der Rohe successively, has yet been published. Howard Dearstyne's book on the Bauhaus (under preparation for Paul Theobald and Company) will repair this omission, in addition to supplying a factual account of the school from its founding in 1919 and a critical analysis of its principles. Mr. Dearstyne was a student at the Bauhaus from 1928 until 1933 (and incidentally the only American to receive a Bauhaus diploma). Of these two excerpts from his forthcoming book, the first describes his arrival at Dessau, as a refugee from the rampant eclecticism of the School of Architecture at Columbia who had recently "discovered" modern architecture in Holland; the second re-assesses the contribution of Henry van de Velde to Bauhaus philosophy and pedagogy

It was Russell Shiman who, during those three weeks on the Lido in the summer of 1928, persuaded me that I should study in Germany; it was luck rather than calculation that took me, with another companion, to the Bauhaus for the first time. We were cordially received and shown around Gropius' impressive new building by a student who spoke good English. The first instructor I met that day was Josef Albers, who was also to be my first teacher, and he proved very persuasive, pointing out the advantages of studying at the Bauhaus over studying at any German technical institute whatsoever. So then and there I decided to enroll as a student at the Bauhaus in Dessau.

I visited the Bauhaus several times before beginning my new and exciting work there. After one of these visits, I wrote home to my mother a letter describing the aims and philosophy of the Bauhaus. My mother, as loving mothers will, saved this letter, along with those hundreds of other messages, often hastily scribbled on hotel notepaper, on the backs of picture postcards—in short, on anything that came to hand—which I sent home during my six years in Germany. On re-reading this material I find that I was fairly garrulous in those days, describing in detail persons and events which could hardly have interested my mother particularly but which were of moment to me. In the intervening period the value of original source material has been brought home to me by eleven years of historical research and writing at Williamsburg; and today the Bauhaus and the Germany of its time must seem nearly as remote, to those who did not know them, as the colonial period which I investigated so industriously there. (Even to me, who did know them, they often seem like a dream.)

I have in fact lived to see my own letters become historic documents, and it is as a historic document rather than for any intrinsic merit, that the following excerpt from one of them (written to my mother on October 11, 1928) is presented.

In a few days I will go to Dessau where around the first of November I'll start to study in the Bauhaus. The Bauhaus, they say, is the only place, not only in Germany, but also in Europe, where they teach the modern architecture I'm interested in. When I get to Dessau I'll send you some pictures of the Bauhaus. This modern style, I believe, is bound to have a great future. It is as simple as possible, without decoration, frills or unnecessary elements. It is the architecture of the modern mechanical age. Concrete mainly (with steel in the larger buildings). Its object is first to provide healthy dwellings full of light and air and properly temperatured. No wallpaper—metal window frames, simple pipe for railings, etc; plain surfaces painted in frank colors; furniture simple and square-cut to match the architecture; simple straight hangings of simple stuffs—everything simplified so that it can be made economically by machines. Architecture and furnishings of the machine age; the architects find their inspiration in the simple beauty of machines, automobiles, railroad engines, airships, etc. The nearest approach we have made to this new architecture is our simple, white steamship staterooms. We have one or two architects who have approached this architecture in the United States but they have not gotten very far with it. It is not yet widely accepted here in Europe (since the majority of people are always slow to grasp the importance of new things; can only slowly make radical changes in their ideas) and it is almost unknown in America.

But, nevertheless, tho I do not accept all of their ideas (they go too far, like all enthusiasts), I think it is the architecture of the future and will gradually make headway. At any rate, I want to know something about it. And the atmosphere at the Bauhaus is different and more free. They get down to the essentials of architecture and art, I feel. And, further, I can also study there without knowing German (or with what I have or will have). Doubtless I'll be given no credit at home for what I do at the Bauhaus because I must start here with the very foundations of esthetics, studying form and light effects, etc. I don't know whether I'll stay one semester or two or more. But at least I'll stay long enough to become acquainted with the spirit of the architecture.

It is interesting, too, one must learn a trade here—rug-making or iron-working or furniture-building. This will be (or would be if I stay long enough) very interesting for me also. Later, when the students have gotten along in modern design, they actually start to build. That is, they cooperate in the design of buildings that will actually be built. So one can get a start and a name. But I don't know too much about all this yet so I don't know how long I'll stay. At any rate, I promise to spend next summer at home.

My friend and I went through the Bauhaus together. We had as guide an advanced student from Vienna who spoke excellent English. He also took us through a new group enterprise (workmen's houses) that is building near Dessau [Gropius' Törten Siedlung]. All concrete blocks and plaster. Comfortable little houses which are built to sell for 9000 marks ($2250). That's one of the virtues of the modern architecture. Everything is standardized, materials, workmanship, labor, etc, so that things can be made cheaply. Everything is done in the course of building to eliminate cost (concrete blocks and beams are made on the spot, of the most economical and feasible sizes, and made where they are to be used so they must not be transported far). Europe has a great architectural future, I believe. Money is scarce, to be sure, but there is a pressing demand for buildings everywhere since none were built during the war. One can hardly find a dwelling here . . . .

When I arrived in Dessau the Bauhaus was already about nine years old, having been founded by Walter Gropius at Weimar in 1919. But its antecedents went much further back, and it is impossible to discuss them without discussing Henry van de Velde, who created the Arts and Crafts School, the predecessor of the Bauhaus, and who was the guiding spirit of that school for the eight or more years of its existence in Weimar. Alexander Dorner, in "Bauhaus 1919-1928," gives short shrift to van de Velde. Mies van der Rohe, on the other hand, in a statement honoring him on his seventieth birthday, called him "the strongest and profoundest of the creators of the new architecture." [1] An examination of his work and writings and a consideration of the extent of his influence in Europe, during the first decade of the twentieth century especially, should reveal which of the two appraisals is the sounder.

The arts in unison

Though not an architect by training, van de Velde in 1895 built for himself a house, "Bloemenwerf," in Uccle, a suburb of Brussels. This house may not appear very radical to us today but it must have seemed extraordinary to the people of that time and place, for van de Velde himself recounts how mourners, walking in a funeral procession past it soon after its erection, burst out into uncontrollable laughter. As a matter of fact the revolutionary aspect of the house was not so much its architecture, in which the curved forms of the *Art Nouveau* make their appearance in a restrained way, as its furnishings. Here, for the first time, van de Velde was able to realize his ideal of all the arts working in unison. He designed all the furniture, lamps, utensils, rugs, wallpaper, and even went so far as to create gowns for his wife which harmonized with the character of the interior. The art critic Karl Scheffler, in a laudatory address delivered at Weimar in 1913 on the occasion of van de Velde's fiftieth birthday, said in this connection:

What you always have in mind . . . is a great new unity of the arts in which each individual art acts in accord with the others and in which all things, the highest and the lowest, the greatest and the smallest, are pervaded by the same form principle. [2]

[1] "Henry van de Velde—1863-1957—Persönlichkeit und Werk" (Kunstgewerbe Museum, Zürich, 1958), p 34. This and all following quotations are translations from the German by the author

[2] Karl Scheffler, "Henry van de Velde—Vier Essays" (Insel Verlag, Leipzig, 1913), p 94

Van de Velde was called to Weimar for the stated purpose of acting as artistic advisor to the industry and handicrafts of the Grand Duchy. He was to establish, for the benefit of these domestic enterprises, an experimental laboratory in which new models would be designed and new forms of technology tried out. In this research institute, the *Kunstgewerbliches Seminar* (Arts and Crafts Seminar), van de Velde employed a pedagogic system based upon study and analysis of the project at hand, rather than the application to it of a preconceived formula. Of this system Hans Curjel says, "A direct line leads from this to Gropius' Bauhaus establishment of 1919, the pedagogic principles of which have become fundamental in the present-day education of creators of form."[3]

Out of the *Kunstgewerbliches Seminar* grew, in 1906, the Weimar *Kunstgewerbeschule* (Arts and Crafts School). To house this school van de Velde erected a new building, advanced for its day, the structure which later became the home of the Bauhaus. And he introduced here his radically new method of instruction. Karl Ernst Osthaus, in his biography of van de Velde published in 1920,[4] explains the teaching procedure as follows:

> A project from which van de Velde expected great things was now actually carried out. This was the school which had already been contemplated, in connection with the total art policy of the Grand Duchy, at the time of his appointment. Its purpose was to be the education of the younger generation of artists. In contrast to the other arts and crafts schools, van de Velde here stressed, above all else, the workshop system. . . . The whole system naturally depended upon the possibility of selling the products of the workshops and upon the acceptance of orders by the school administration. . . .
>
> The methods of the institution, developed from 1905 on, were later very often accepted and imitated. The workshop system, in particular, has met today with widespread approval. . . .

It should not be concluded from the fact that Henry van de Velde trained his students in various crafts that he expected handwork to continue as the prevailing method of manufacture. At many points in his writings he lauds the works of the engineer and extols the beauty of machine-made objects. One typical passage, from a lecture entitled "The Role of the Engineers in Modern Architecture" probably delivered in 1894,[5] should suffice to allay any doubts as to his attitude toward modern technology:

> There is a class of people from whom we can can no longer withhold the title of artist. Their work is founded, on the one hand, upon the employment of materials whose use was hitherto unknown and, on the other, upon an audacity so extraordinary as even to surpass that of the cathedral builders. These artists, the creators of the new architecture, are the engineers. . . .
>
> For them no doubt exists about the laws of which we have spoken [the laws, still valid, which guided creation in the Gothic period], and the effect of these laws is so certain, so undisputed (the only agency which is certain and able eternally to produce new and beautiful things) that they must be looked upon as the only ones which have bestowed new and beautiful forms upon mankind. The exceptional beauty which resides in the works of the engineers springs from the fact that this beauty was as little aware of itself as was the unconscious beauty of the Gothic cathedrals. . . .
>
> I have often mentioned locomotives, steamboats, machines and bridges; one should also not forget, among modern creations whose beauty has attracted us, the first English baby carriages, the various fixtures of laundries and bathrooms, electric lamps, surgical instruments, etc. . . .

Implicit in Henry van de Velde's praise of the products of the machine is an acceptance of the principle of mass-production. He made it quite clear, in fact, as early as 1897, that he designed his own furniture with a view to its multiple reproduction by industry:

> I by no means reckon it to my personal credit that I submit only to a strict logic and that the eternal dwells therein! . . .
>
> I could be prouder of the following surely more distinctive principle: systematically to avoid in furniture everything incapable of realization through *major industry*. My ideal would be a thousandfold multiplication of my creations, under strictest supervision, to be sure, because I know from experience how quickly a model can be debased in the course of mass-production and can become, through all kinds of dishonest or unintelligent manipulations, just as inferior as the thing which it is intended to oppose. I can hope for a decisive influence only from the moment when an increased machine productivity allows me an effectiveness commensurate with the maxim which has directed my social creed: viz, that a person is worth the more, the more numerous are those to whom his life work brings benefit or improvement. . . .[6]

Van de Velde, in his writings of a half century or more ago, left little unformulated of that which has become fundamental principle in our present-day philosophy of design. His penetrating insight led him unerringly to the rediscovery of basic truths and he shared these truths with his own and with later generations. Thus, concerning the essential role played by construction, he wrote in 1901:

> What I recognize to be . . . the crux of all the artistic endeavors of our time is a yearning for a new harmony and a new aesthetic clarity. I adhere to this by proclaiming in the arts and crafts the sole principle which, in my opinion, is valid—that of construction. And I extend this structural principle just as far as I possibly can —to architecture as well as to household utensils, to clothing and to jewelry. I strive to eliminate from the decorative arts everything which degrades them by making them meaningless and I wish to replace the old symbolic elements, in whose efficacy we no longer believe, by a beauty which is new and equally imperishable.[7]

Now that Henry van de Velde has passed away and the Bauhaus has been closed for more than a quarter of a century, it is time that certain misconceptions be swept aside and the record, distorted at certain points by a unilateral, partisan presentation of the facts—by the suppression of some and the magnification of others—be set straight. It was van

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[3] Hans Curjel, introduction, entitled "Leben und Schriften," to "Zum neuen Stil," a selection of the writings of Henry van de Velde (R. Piper & Co. Verlag, Munich, 1955), p 15

[4] Karl Ernst Osthaus, "Henry van de Velde—Leben und Schaffen des Künstlers," vol. 1 of the monograph series, "Die neue Baukunst" (Folkwang Verlag, Hagen, 1920), pp 47, 48

[5] Henry van de Velde, "Die Rolle der Ingenieure in der modernen Architektur," "Zum neuen Stil," pp 112, 113. This lecture was originally published in 1901 in the book "Die Renaissance im modernen Kunstgewerbe;" for reasons for assigning its composition to the year 1894 see N. Pevsner "Pioneers of Modern Design," (Museum of Modern Art, New York, 1949) p 13 and p 137, note 42

[6] Henry van de Velde, "Ein Kapitel über Entwurf und Bau moderner Möbel," "Zum neuen Stil," pp 64, 65. This was first published in *Pan* in 1897

[7] Henry van de Velde, "Was ich Will," "Zum neuen Stil," pp 83, 84. This article appeared originally in *Die Zeit*, Vienna, 1901

de Velde who laid the foundation for the Bauhaus, in both a physical and a doctrinal sense. He erected the building at Weimar in which it came to be housed. He enunciated many of the principles which it subsequently followed. He emphasized, for example, the need for a reunification of the arts long before Gropius became articulate on this subject and he actually brought this to realization—in the style, to be sure, that he helped to create, the *Art Nouveau*. He deplored the elevation of certain of the arts (the so-called "fine arts") above the others, as did the Bauhaus later, and, by working in all or most of them, proved the genuineness of his belief in their equal worth. He introduced the workshop method into his teaching in Weimar and this became the cornerstone of the Bauhaus system of instruction. He supported his workshops in part, at least, by the sales of their products and by the execution of commissions in them, an expedient to which Gropius resorted, first in Weimar and later in Dessau. Though van de Velde considered workshop training to be a valuable discipline, he had no illusions about the role of the handicrafts in modern society, as had Ruskin and Morris—and also, for that matter, Gropius, in the beginning years of the Bauhaus. The function of the handicrafts was to produce models for industrial mass-production because the instrument of the future would be, surely, not the hand tool but the machine. The engineer and the machine, he believed, were able to create a hitherto unknown kind of beauty, equal to that of the greatest works of the past, and this beauty would spring from logic and calculation and be based upon utility. This was pretty radical doctrine when van de Velde first enunciated it, in 1894. A quarter of a century later, in 1919, it was still too radical to be accepted by the Bauhaus, which at first embraced an antipodal viewpoint and pursued form at the expense of function.

Books

Space, Time and Architecture

By Sigfried Giedion. Fourth edition. Cambridge, Massachusetts: Harvard University Press, 1962. $12.50.

With what excitement and sense of revelation one read "Space, Time and Architecture"—speaking for myself, in a blacked-out train between Paddington and Gloucester—when it first appeared! Here was architectural history as it had never been written before, with the most unexpected and intriguing things shown to be relevant to what one still called Modern Architecture (with manifesto-like capitals). And what illustrations!

In the twenty-one years that have passed since then, one has, inevitably, had some second thoughts. One has had doubts about the theory of constituent facts. And of course one knows more than one did about some of the fields in which Dr Giedion pioneered. On the other hand, one has discovered in the book a practical virtue that only time could make known: it is *the book that students will read*. (And not only architectural students; they read it at Vassar.)

It would be wrong to say that the book itself has changed in those twenty-one years, but it has certainly grown. I would guess that this fourth edition must weigh half as much again as the first edition did. (Good for prizes.) It is larger than the third edition by a new foreword and a new introduction. The latter is entitled "Architecture in the 1960's: Hopes and Fears." Since everyone will want to read it for himself any summary here would be superfluous. But what, I cannot help asking, led Dr Giedion to think that in the Palace of Labor at Turin Nervi uses huge free-standing columns "of different heights"?

Dr Giedion, as he told us in the foreword to the second edition, does not believe in revising books. There is much to be said for his view. But facts are facts, and when a book is of the calibre of "Space, Time and Architecture," and is dated 1962, it is embarrassing to have to warn students that its accounts of certain central subjects, such as the balloon frame and the early use of iron columns and beams in cotton mills, are no longer to be accepted. One could wish that Dr Giedion would devise, for the next edition, some apparatus for indicating the discoveries of other scholars when they have superseded his original findings. A great book would thereby be made an even more useful one than it is.

MARCUS WHIFFEN, Arizona State University

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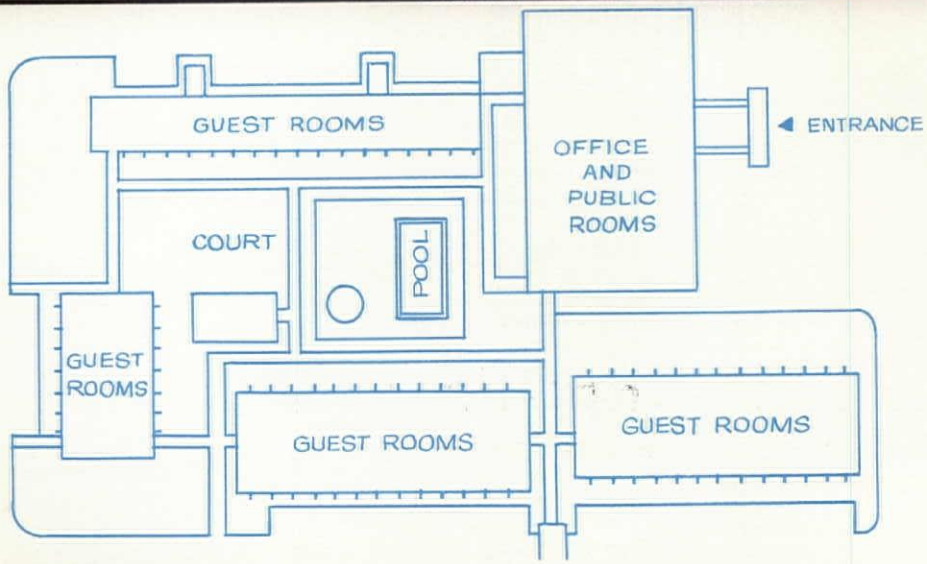

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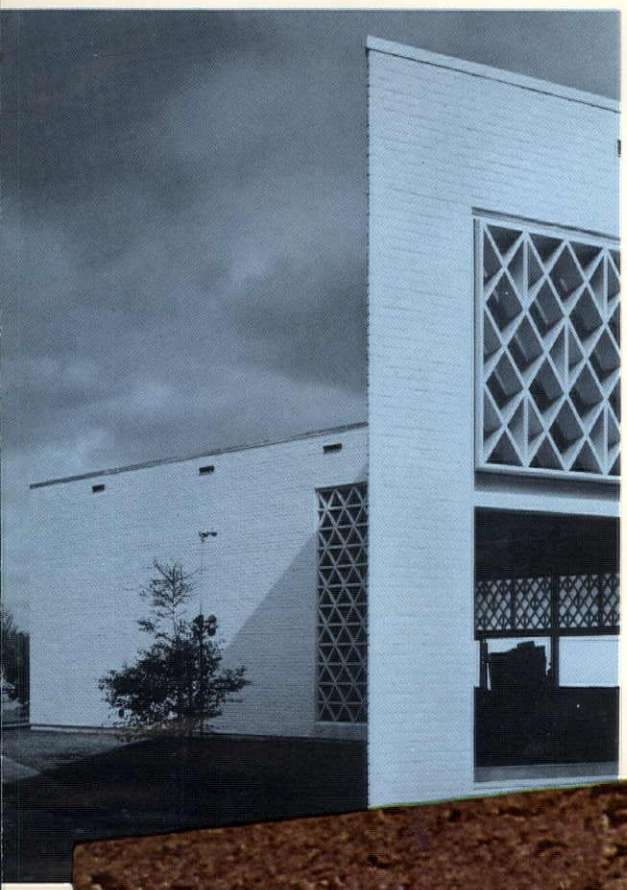
* Readmission

The remainder of those elected August 15 will appear in November.



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Calendar

October 4-7: National Trust for Historic Preservation, 16th Annual Meeting, San Francisco

October 6: Eighth Annual Architecture & Gardens Tour of Japan, 25 days. Write Kenneth M. Nishimoto AIA, 263 South Los Robles Avenue, Pasadena, Calif

November 27-29: BRI Fall Conference, Washington, DC

AIA State and Regional Conventions

October 3-7: California Region, Monterey

October 10-13: New York Region, Whiteface Inn, Lake Placid

October 11-13: Central States Region, Omaha

October 11-14: NW Region, Oceanlake, Ore

October 12-13: Illinois Region, Springfield

October 18-20: Pennsylvania Region, Hotel Hershey, Hershey

October 19-21: Louisiana Architects Association, Shreveport

October 24-26: Texas Region, Houston

October 25-27: South Atlantic Region, Atlanta

November 9-11: Florida Association of Architects, Hotel Soreno, St Petersburg

November 10-14: Gulf States Region, Nassau, Bahamas

International Meetings

October: UIA Housing Committee, Spain

November: UIA, Sport Constructions, Sao Paulo, Brazil

December 16-17: UIA Organization, Paris

Necrology

According to notices received at The Octagon between July 1, 1962 and July 31, 1962

ARMSTRONG, CHARLES E., Fort Worth, Texas
BALDRIDGE, DOYLE MCC., Austin, Texas
BROCKER, BODO A., Vicksburg, Mich
COOK, ARNOLD V., Ridgewood, N J
DEMORDAUNT, WALTER, Pueblo, Colo
HARRISON, WELDON J., Reno, Nev
KIMMEL, RABB T., Lubbock, Texas
LEIMKUEHLER, F. RAY, St Louis, Mo
LENON, PERCY H., Kalispell, Mont
MUHLENBERG, CHARLES H., SR, Wyomissing, Pa
NEVINS, ROBERT M., JR, West Palm Beach, Fla
PRICE, CHESTER B. FAIA, New York, N Y
ROSENBERG, KARL W., New York, N Y
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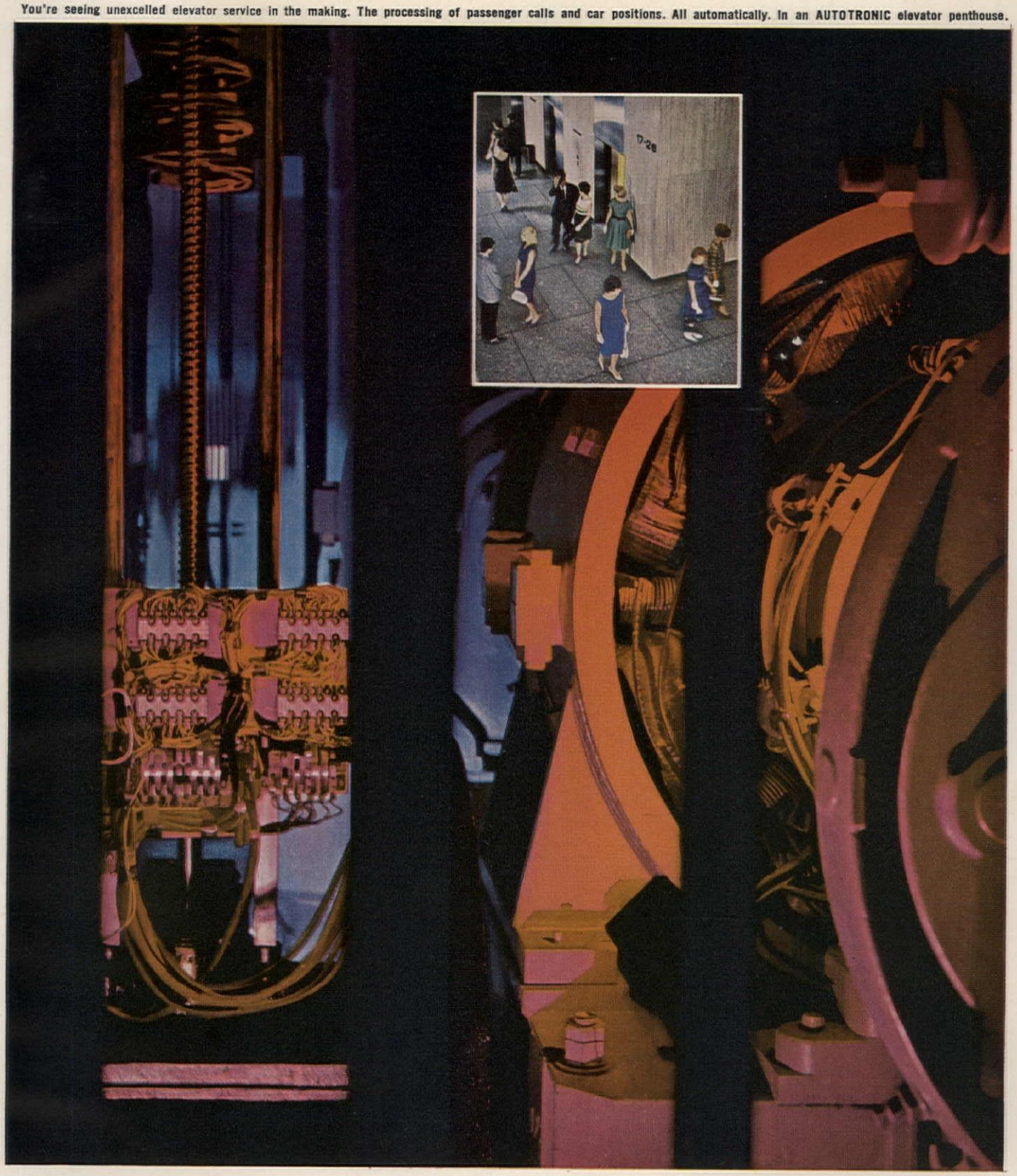

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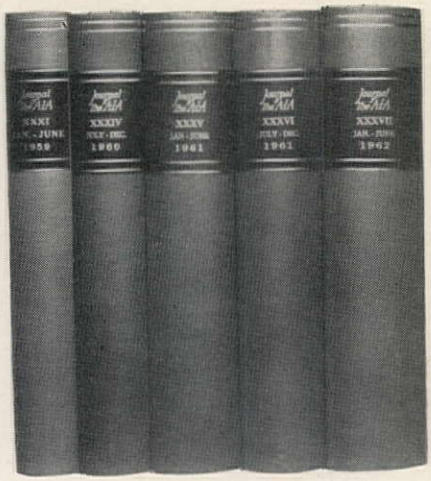

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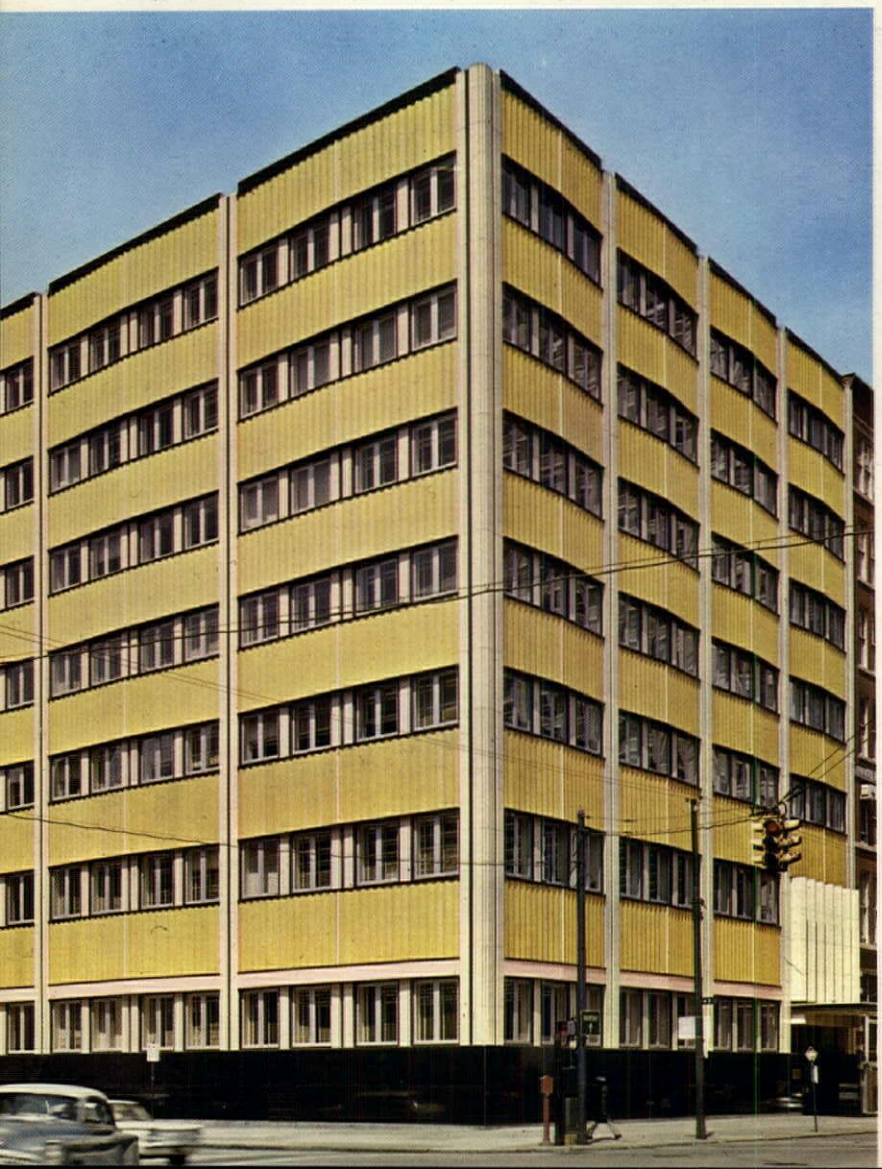

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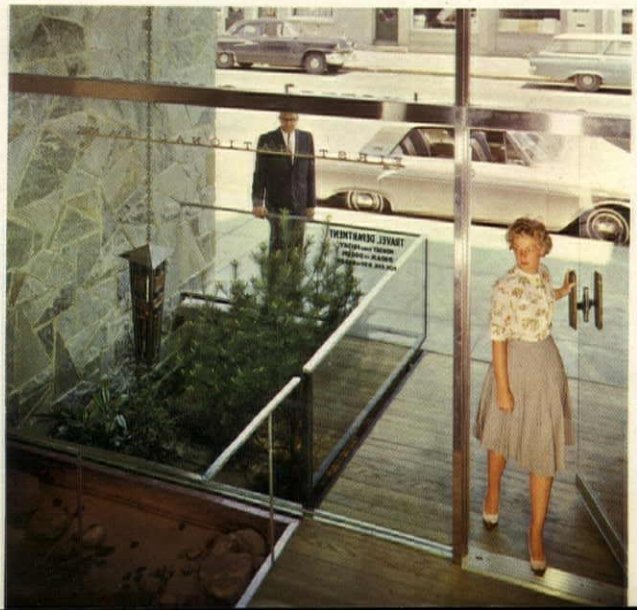

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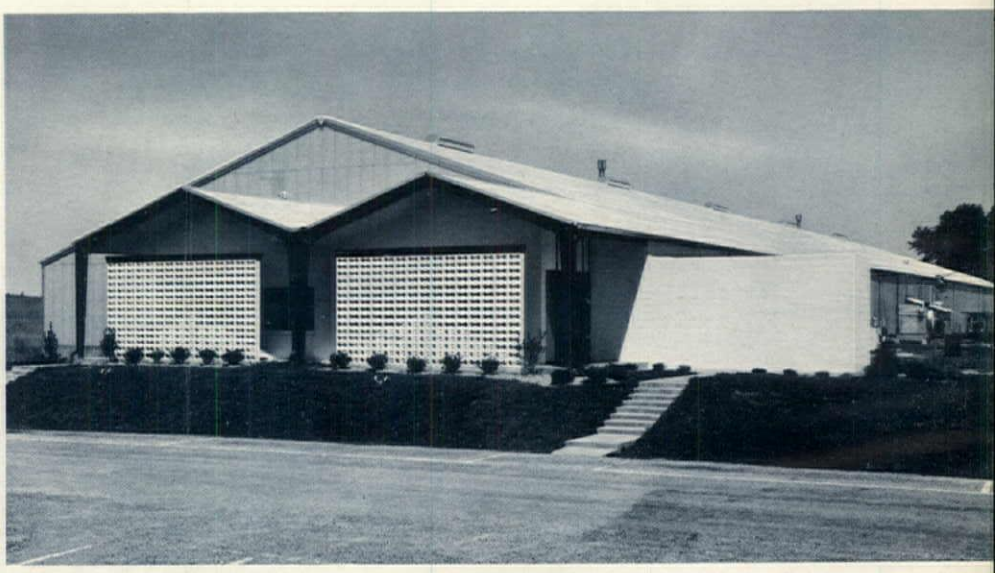

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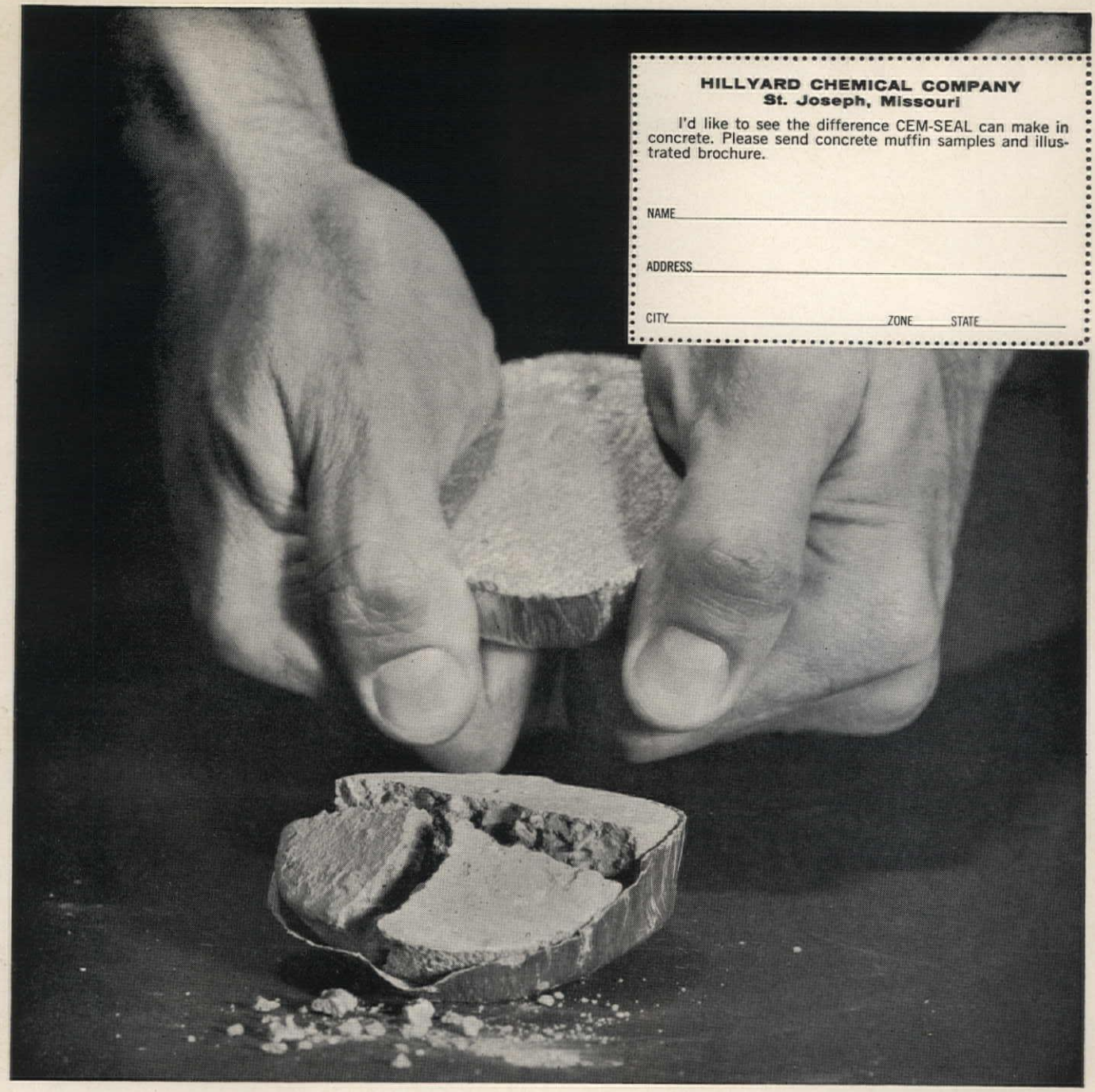

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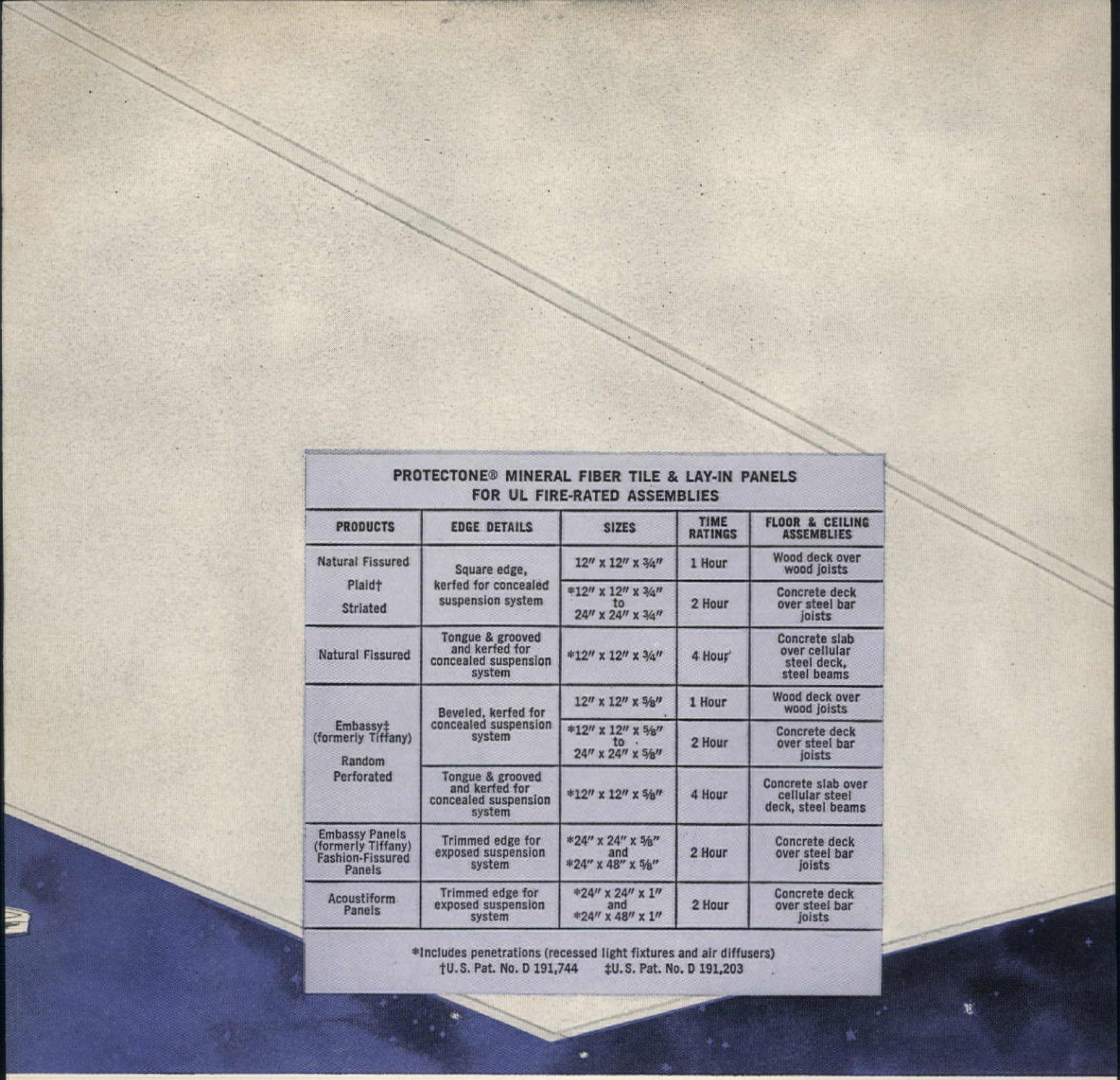

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Allied Arts

Travel Notes

by Wolf Von Eckardt

Rotterdam—I backed into him trying to get the full perspective of Coolsingle, the main thoroughfare, into my viewfinder. "Pardon me," I said. When I looked around, I thought I saw just the flicker of a smile on his haughty mien. It seemed due not so much to my photomaniac clumsiness than to my startled amazement to find this portly, imperturable citizen cast in bronze.

My guidebook introduced us. He's "Meneer Jacques," was created by Professor L. O. Wenckebach and has been standing, holding his hat behind his back, on a low stone curb framing a bit of lawn alongside Coolsingle's wide and bustling sidewalk, since 1959. Mister Jacques watches his Phoenix city rise with bemused pride. Typical Rotterdammers like him, says the guidebook, didn't much believe in public art and ostentation before the catastrophe. Now not only the city fathers but grateful individual citizens and firms have lavished sculpture, fountains, mosaics, reliefs and flower displays of all kinds on their reconstructed central business district. Never saw such flowers! It's a botanical garden, a sculpture court and an object lesson in the integration of art and architecture all in one.

The variety of the art is amazing. And the quality, too, justifies enhancing downtown with art works rather than billboards as our businessmen do. Most outstanding, as you'd expect, is the French sculptor Ossip Zadkine's memorial to the May 1940 bombing. It's magnificently sited overlooking the harbor. Pigeons swarm all over this contorted symbol of a city with its heart torn out. It reminds me a little of Picasso's "Guernica," but seems more literal, more intellectual. I have to think of the sculpture's *raison d'etre* before I'm really moved. Most conspicuous: "The Thing," as Rotterdammers call it, Naum Gabo's giant abstraction on the sidewalk in front of Marcel Breuer's Bijenkorf department store. It's poorly sited, the pigeons seem afraid of the wire strung eighty-five feet up and it says nothing to me in all its hugeness, except how lucky for Breuer. It casts a nice shadow on his forbidding facade. Much better than the pictures led me to expect: Henry Moore's famous brick relief on the Bouwcentrum. It's somehow more modest, more part of the total building than the close-ups indicate.

Yes, my delight stems not from these conspicuous art works but from the almost casual pieces right amidst the city's hustle and bustle. You'd expect it in Lijnbaan, that wonderful pedestrian shopping mall by van den Broek and Bakena. The kids climb all over Adri Blok's "Drummer" and Anne Grimdalen's "Little Bears," shrieking with pleasure. These sculptures seem just as alive as the clowning parrots and as gay as the flowers. Elsewhere, however, such sculpture without pedestals surprises. Mister Jacques' pride is justified.

Madrid—The new apartment buildings are surprising and so is some of the art: gay, colorful, up-to-date, in part outstanding in their modern design. There goes the snug notion that only a parliamentary democracy can produce good art and architecture! At a state-sponsored arts and crafts exhibition another thought cropped up to haunt me. Here typical tourist *kitsch*—endless bulls, flamenco dancers and Don Quixotes in every likely and unlikely medium and size—were unselfconsciously mixed up with some superb examples of highly sophisticated modern and even abstract artifacts. That way the good stuff really stood out and had a chance to appeal to people who would not normally seek it out. The thought: Why do we snobbishly segregate sophisticated art from the ingratiating, popular stuff? Our modern displays always seem labelled: "For Sophisticates Only—Ordinary Folks Keep Out!"

Ibiza—I try to console my local architect friend. His complaint is that the new villas that spring up all over the island are a mere pastiche of the marvellous, ancient, softly cubist, whitewashed peasant houses—the true Ibizenca architecture. He wants honest expression. He doesn't want arches copied from old churches used for contemporary porches.

But I am so delighted with the refreshing consistency of Ibiza's architecture, I approve even of phony arches. They'll build so much so soon, I tell my friend, that the pastiche will in no time blend into new conglomerations of white cubes. The new sections will become indistinguishable from the old town. Additions will crowd the new structures and laundry will flutter gaily from the flat roofs and balconies. It will all blend in with the rocks and the sea as everything always does under the Mediterranean sun. It's just too beautiful here for perfectionist gloom. Besides, I prophesy, the paucity of building materials will save Ibiza's architecture as surely as the wealth of building materials threatens to ruin ours. All people have here, thank Heaven, is plenty of stones, cement, men to build walls and women to whitewash them. Where would they get water except by catching it on the flat, tiled roofs into their cisterns? If I must worry about continuing this enchanting architectural harmony it's not because of misplaced windows or phony arches. I worry about affluence. ◄