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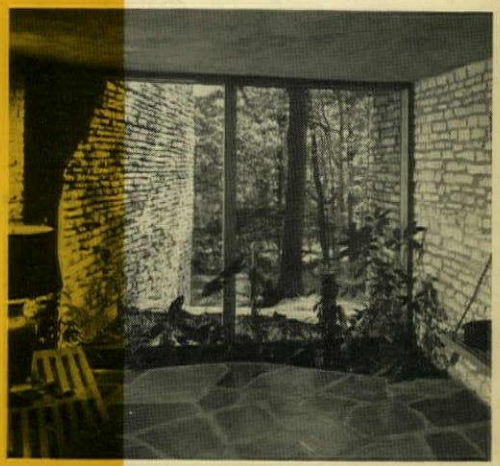

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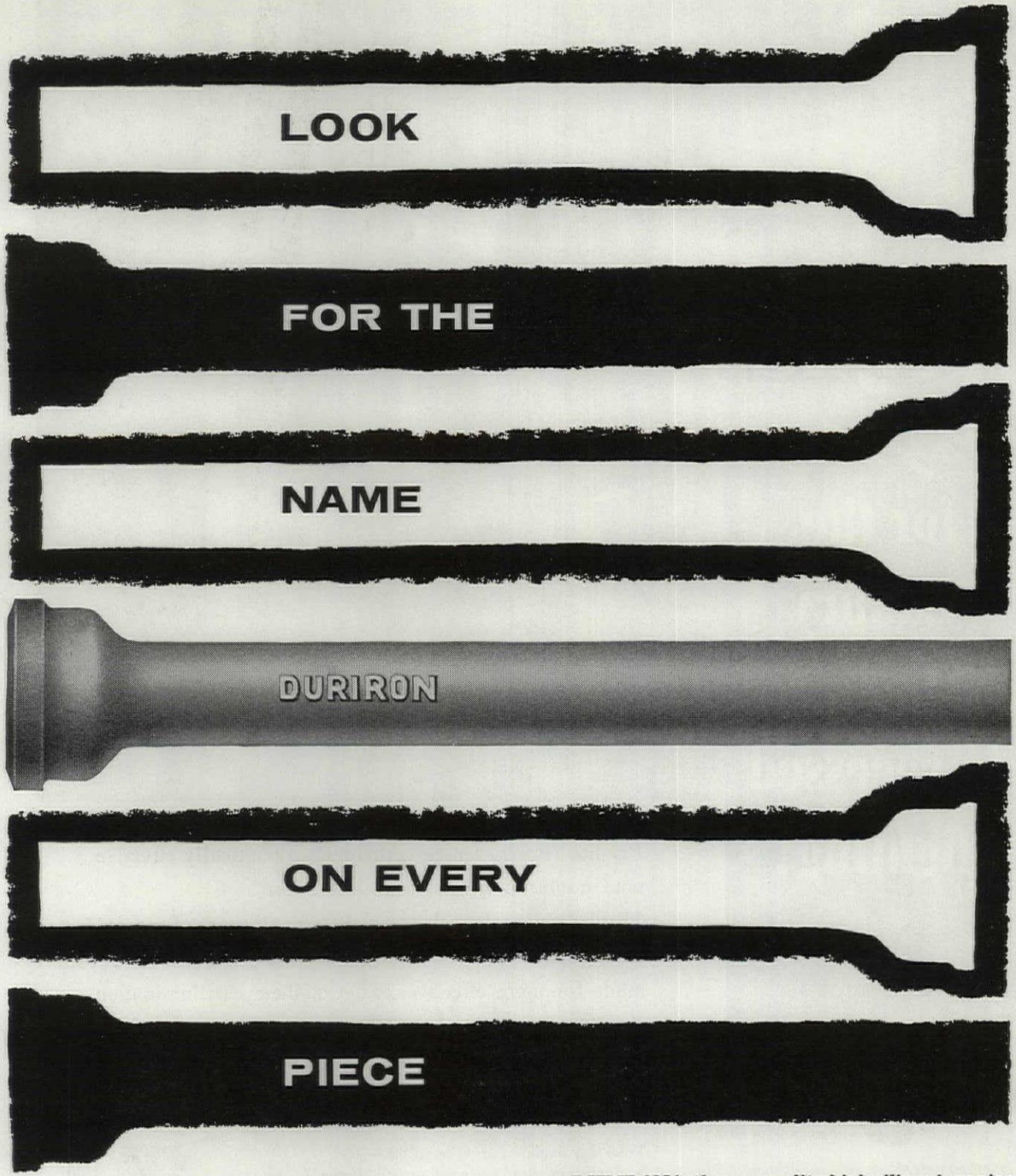

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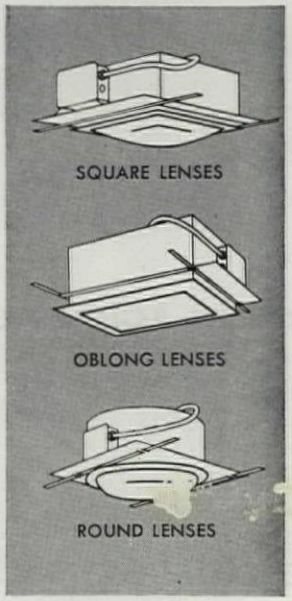

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PROGRESSIVE ARCHITECTURE

December 1955

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Volume XXXVI, No. 12

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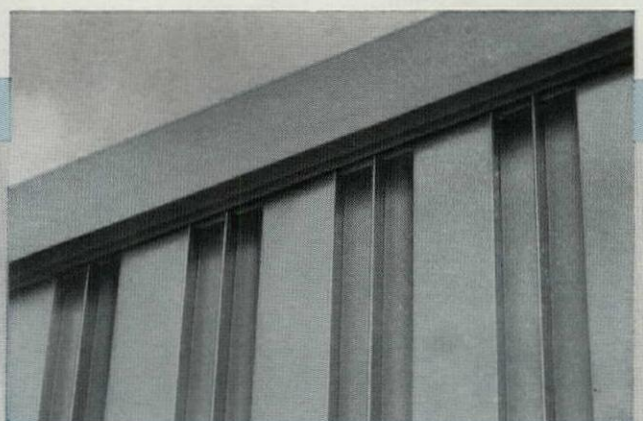


Top illustration shows Greyhound Bus Terminal, Chicago. Directly above is a new plant for Champion Spark Plug Company, Cambridge, Ohio. Mahon Aluminum Insulated Metal Wall of the Fluted Pattern was employed on this project. Banks, Lieghtbourn & Associates, Architects. Campbell Construction Co., General Contractors.

MAHON

It's the Law by Bernard Tomson

P/A Office Practice ***article on the legal aspects of the investigation into the causes of the collapse of concrete work in the New York Coliseum.***

On rare occasions there is dramatically demonstrated the vital service which the architect renders. Such an occasion may advance the architect's cause with more effect and with more impact than carefully planned public relations programs, extensively financed and pursued.

Such a situation occurred on May 9, 1955, when the temporary structural support of the New York Coliseum collapsed, causing the death of one laborer and injuring more than fifty.

The investigation into the cause of the collapse by the District Attorney's office revealed the inadequacy of present Building Code Regulations and recommended a requirement that plans for temporary structures be drawn by a registered architect or engineer.

The District Attorney's inquiry showed that metal jacks resting on 4"x4" timbers were used to support the main floor where concrete was being poured. These timbers were braced horizontally, but there was little cross-bracing and no bracing at all on the jacks. In the opinion of the District Attorney's report, the temporary support was apparently designed only to sustain the dead load of reinforced concrete and collapsed under the thrust of pressures exerted by the activity of motorized buggies transporting cement, concrete-agitating machines, and other construction operations going on at the same time.

To pour the concrete, motorized buggies weighing about 3000 lb fully loaded were used to transport fresh concrete to the main floor. When dumped, the concrete was spread and vibrated by concrete-agitating machines. Just before the collapse, there were about eight such buggies transporting concrete, several of which might dump their contents at the same time. In addition, other construction work in various phases was being speeded in order to meet the schedule on the project's completion.

The District Attorney's report also found that the inspector assigned to the project by the Department of Housing & Buildings did not have an engineering background, but rather had been a bricklayer. It further reported that this inspector visited some 15 building sites each day in a wide city area and had last inspected the Coliseum site four days before the collapse.

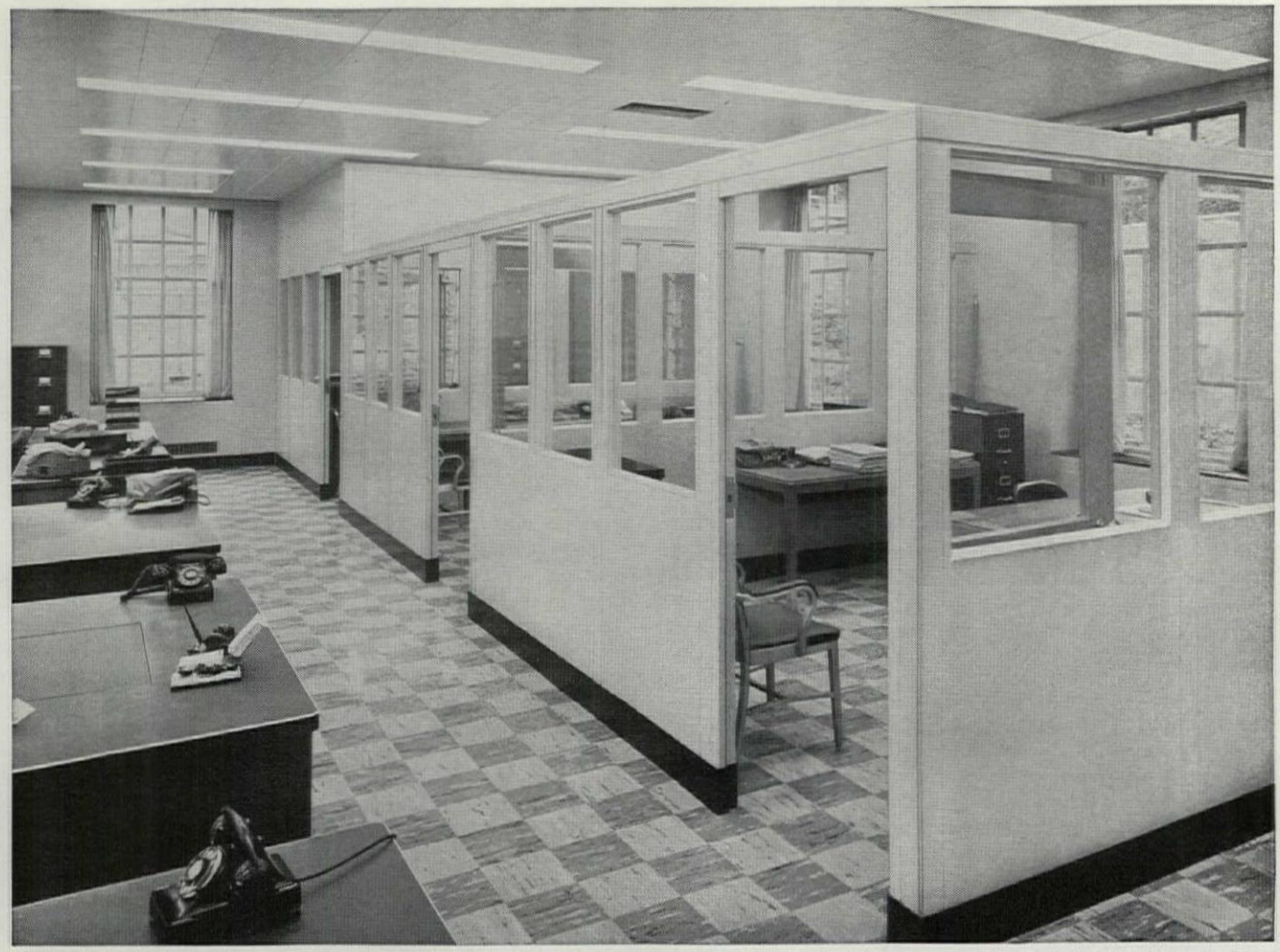
The report concluded that the Contractors had not been guilty of criminal negligence. It found that the applicable New York City Building Code and Charter provisions did not afford adequate protection to workmen and the public, in certain respects. The New York City Building Code presently provides that, in the pouring of concrete, "forms shall be substantially and sufficiently tight to prevent leakage of water; and shall be properly braced or tied together so as to maintain position and insure safety to workmen and passersby." It was recommended that this be changed to require that an engineer or architect design the temporary structure and that the plans be filed with the Department of Housing & Buildings to insure compliance by the builder.

The New York City Charter requires that the Inspector of Carpentry & Masonry shall have at least five years' experience as a mason, carpenter, architect, or engineer, at salaries ranging from $4200 to $4800. The report called for the presence of a properly compensated *engineer* to inspect projects which involve great quantities of reinforced concrete.

Although revision of building codes will provide an added safeguard, such revision is a long process and one which rarely reaches every community. In the meanwhile, there would seem to be a professional obligation on the part of architects and engineers to try to prevent such costly losses of life and property as occurred in the collapse of the New York Coliseum. Such an obligation depends on whether it is enough for the architect simply to design the structure, or whether he should also have a professional concern for the construction hazards created.

If the architectural profession is properly concerned with these hazards, then perhaps the immediate solution is to insist on a clause in builders' contracts requiring the use of professional services on the design of temporary supports. Such a clause would be an excellent stop-gap measure until such time as building codes are revised. And, if such a clause becomes a widespread and standard provision, it may even obviate the need for revision of existing regulations.

What is even more important, is that the public be made aware that the architectural profession is deeply concerned with the essential problems involved and that it, as well as the New York District Attorney, is making, and will make, specific recommendations to the Legislature, to those concerned with the drawing of contracts, to contractors' groups—to all those involved. In this way, the public will know that design of construction, the problems of construction, and construction itself, are the concern of the architect.



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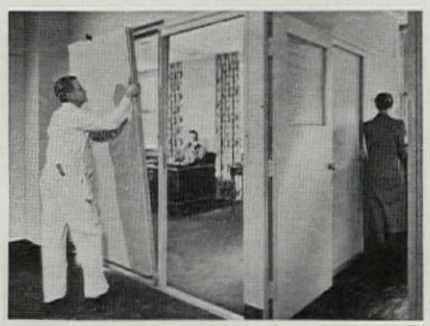

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Mechanical Engineering Critique *by William J. McGuinness*

P/A Office Practice *column on mechanical and electrical design in architecture is devoted this month to the subject, Decentralized Heating.*

The improved efficiency of small heating units and the new geometry of school planning have combined to challange the superiority of a central-heating plant.

When Architects Ketchum, Giná & Sharp received bids on the Julia Traphagen School in Waldwick, New Jersey, early this year, the estimated budget was exceeded by approximately 12 percent. The need to cut costs gave the designers the opportunity to test a new idea; they believed that a saving could be effected by eliminating the boiler house and central-heating plant and substituting, instead, a furnace in each of the 10 buildings.

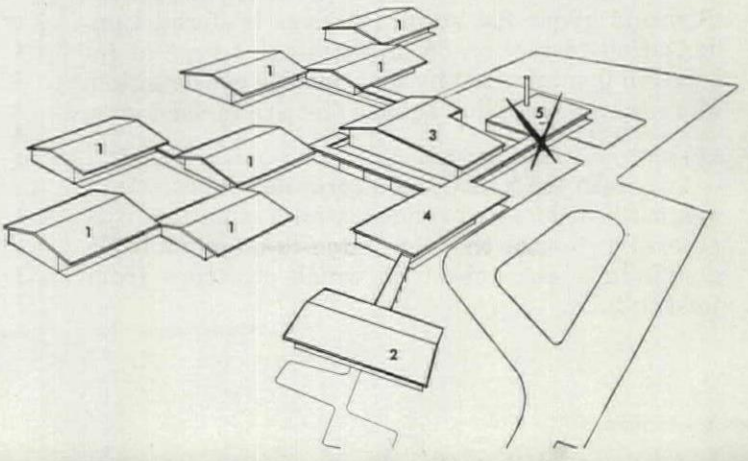
The original scheme called for two oil-fired hot-water boilers (using No. 2 oil for fuel) and two circulators. Distribution of water would be accomplished by means of a reverse-return system having the two insulated pipes laid in trenches. At each two-room building, hot water would rise to a small "attic" above the common entry and toilet space. Through heat exchangers, warm air could be produced and, by means of a fan, circulated down to a perimeter warm-air system with registers below windows. Air flowing through grills in the classroom doors would return through one grill in the entry. Domestic hot water would be heated in the boiler house by coils connected to the boilers and distributed through a pattern of pipes similar to that of the heating system.

By decentralizing the system—the boiler house, the heating plant, mains, insulation, heat-transfer coils, a 7500-gal oil-storage tank, and the domestic hot-water generator with its distribution system, were all eliminated. This new scheme retains the perimeter air system but substitutes local, forced warm-air furnaces for the heat-transfer coils as well as the octopus of supply and return mains and boilers to serve them. Gas, which competes closely with No. 2 oil in operational cost, was chosen. It was the first time that the State of New Jersey Department of Education permitted its use in such close proximity to classrooms. (Authorities were convinced, after some study, that gas is quiet, clean, and safe.) Free maintenance of gas euipment by the utility company was an added inducement for its use as was the prospect of natural gas, in the future, to reduce fuel costs further. Attic heater rooms in each building remained the same size and retained the concrete-slab floors already planned. Because of the presence of a firing unit, the walls of these attic spaces were changed from stud and plywood to gypsum-block and plaster; steel-deck ceilings were surfaced with vermiculite plaster as an additional safety measure. Gas piping, plain steel pipe with a light water-resistant cover, was installed to serve all furnaces. A $60 electric, plug-in, hot-water generator supplies domestic hot water at each building.

The original bid for heating—including trenches—amounted to $62,000; the bid for the revised scheme was only $31,000—a saving of $31,000 plus additional savings on the contracts for electricity and plumbing. The elimination of 600 sq ft of boiler house and 400 sq ft of covered walk to serve it, also represented considerable economies, slightly mitigated by the cost of fire-protective construction at the individual heater rooms and the relocation in another building of a small custodial office, which had been planned for inclusion in the boiler house.

Nothing was lost in convenience or efficiency as a result of these changes and the final scheme has a number of interesting features that contribute to economy and to the effective control of environment. Electronic controls—considered sensitive, compact, and inexpensive—are used instead of pneumatic controls. Modulated air temperature is achieved by mixing air that flows through the heater with cooler return air that is by-passed around the heater. The legal ventilation requirement of 10 cfm of fresh air per student is met (each furnace fan can circulate three times this amount). During the heating season, even when outdoor air temperature is as low as 40 F, cooling is sometimes needed to relieve the heat gain from sun and occupants; this is done by the circulation of unheated room air to which varying amounts of cooler outdoor air are added. When the classroom temperature rises to a range of 72F-74F, air is circulated with the legal minimum of 10 cfm of outdoor air per student. When room temperatures are between 74F and 76F, air is circulated with outdoor air varying in content from the legal minimum to 100 percent. Combustion air, fresh air, and flue gases travel a minimum distance because of the location of heater rooms directly below roofs. The perimeter-air duct is fed by only one radial duct because the engineer has found that slab temperatures seldom drop below 68F in any case. A truly remarkable achievement is the fact that the ratio of teaching area to total building area is 68 percent; in conventional schools using central-heating systems, this ratio is sometimes as low as 50 percent.

David Tukey, of Ketchum, Giná & Sharp's office, was project architect on this school; Robert Hanle represented Tectonic Associates, the Consulting Engineers.



1 classrooms (two in each)
2 two kindergartens
3 multipurpose building
4 administration, bus platform
5 boiler plant and custodial space (eliminated)

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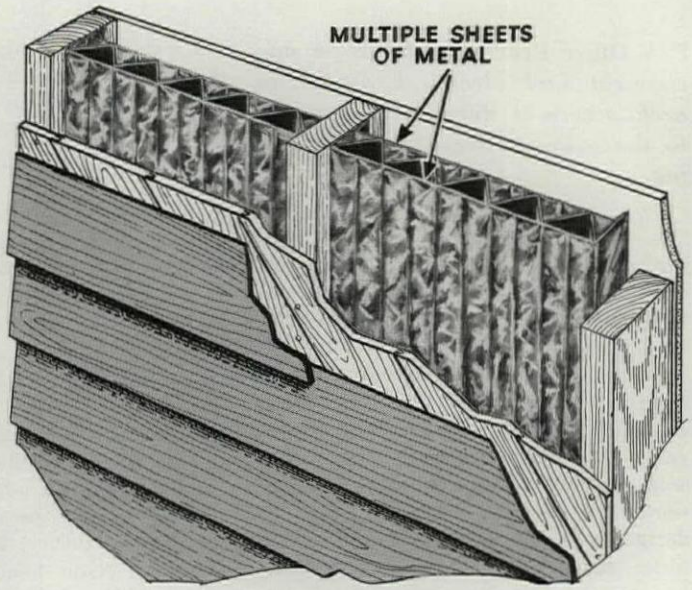
*Patent applied for.



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The Candidate-In-Training Log Book

P/A Office Practice ***article describing the Log Book system being tested by AIA as part of a candidate-in-training program.***

The relationship of a practicing architect, or an architectural firm, to the employes in the office is most important in the growth of a profession. For this reason the "gap" between architectural education and registration to practice architecture has been a troublesome one —to both employer and employe. The most complete study yet made of this relationship* prefaces its recommendations with this comment:

"For nine out of ten practitioners the practice of architecture involves the assembly of a staff of assistants to aid him in producing the professional services desired by the community he serves . . . as in all enterprises which utilize the co-operative efforts of many individuals, the act of employing is inevitably linked in large degree with the provision of in-service training. . . .

"Thus the enlightened architect cannot conduct his office—even if he wished —solely for personal convenience or profit. Indeed, if, as an employer, he neglects to cultivate a concern for his employes' maximum growth in competence, he loses the most potent possible appeal for their maximum effort, loyalty, and personal interest in his own work. Without such motivation the best-intentioned staff suffers low morale and rarely achieves the quality of performance for which the employer himself should strive."

For some time, the Education Committee of AIA has been working on the production of a Log Book which might be the key to a carefully considered, tried, and generally approved program of candidate-in-training for architecture. The Institute's Department of Education and Research and the Committee on Chapter Affairs assisted and advised. In tentative form, the Log Book has now been produced, and during the Fall months was tested in several regions. Log Books were sent to last June's graduates of Architectural schools in New York, Alabama, Colorado, and Oregon for a "pilot run," with the aid of local Chapters and State organizations of the AIA. The test has the wholehearted support and good wishes of the Association of Collegiate Schools of Architecture and the National Council of Architectural Registration Boards—although just how fully the various State Registration Boards will "accept" the documentation in a candidate's Log Book remains to be seen.

It seems to P/A, however, that architects generally should be familiar with the system that is being tested. Perhaps you are practicing in an area where the tests are going on, and will be called on to help an architect-in-training fill out his reports. Perhaps other local Chapters—or even individual firms—may want to try the same or similar systems, and report findings to the Institute. In any event, some such method of evaluation of training and experience will surely be adopted on a nationwide basis in the near future, and at that time co-operation of the profession will be essential.

The present Log Book consists of three parts: an introduction, explaining the basis of and methods for implementing the training program; a series of record sheets, carefully documenting quantity and type of experience; and a bound-in set of documents, bibliographical matter, and so on which might be useful as reference during training.

In the introductory pages, the Log Book spells out the steps of the program. "The program is not mandatory," the preface states. "The AIA sponsorship should in no way be construed to mean that membership in or affiliation with the AIA is necessary for participation."

Once a candidate has been accepted as an "Architect-in-Training" he is given a Log Book by the AIA, from the Octagon in Washington. He keeps it up to date himself, and at the end of each quarter he has his employer sign in the space provided, indicating that the record is a true "logging of the candidate's experience."

As the book explains, "while experience by work task, building type, or size of project cannot always be gained in proper proportion, the candidate is urged to try to arrange for reasonable variety . . . the employer is urged to try to average the work assigned, to this end, within reasonable limits of projects currently active."

It is further explained that an assigned advisor to the architect-in-training should keep tabs on the Log, and that a yearly conference should be arranged to evaluate the year's experience.

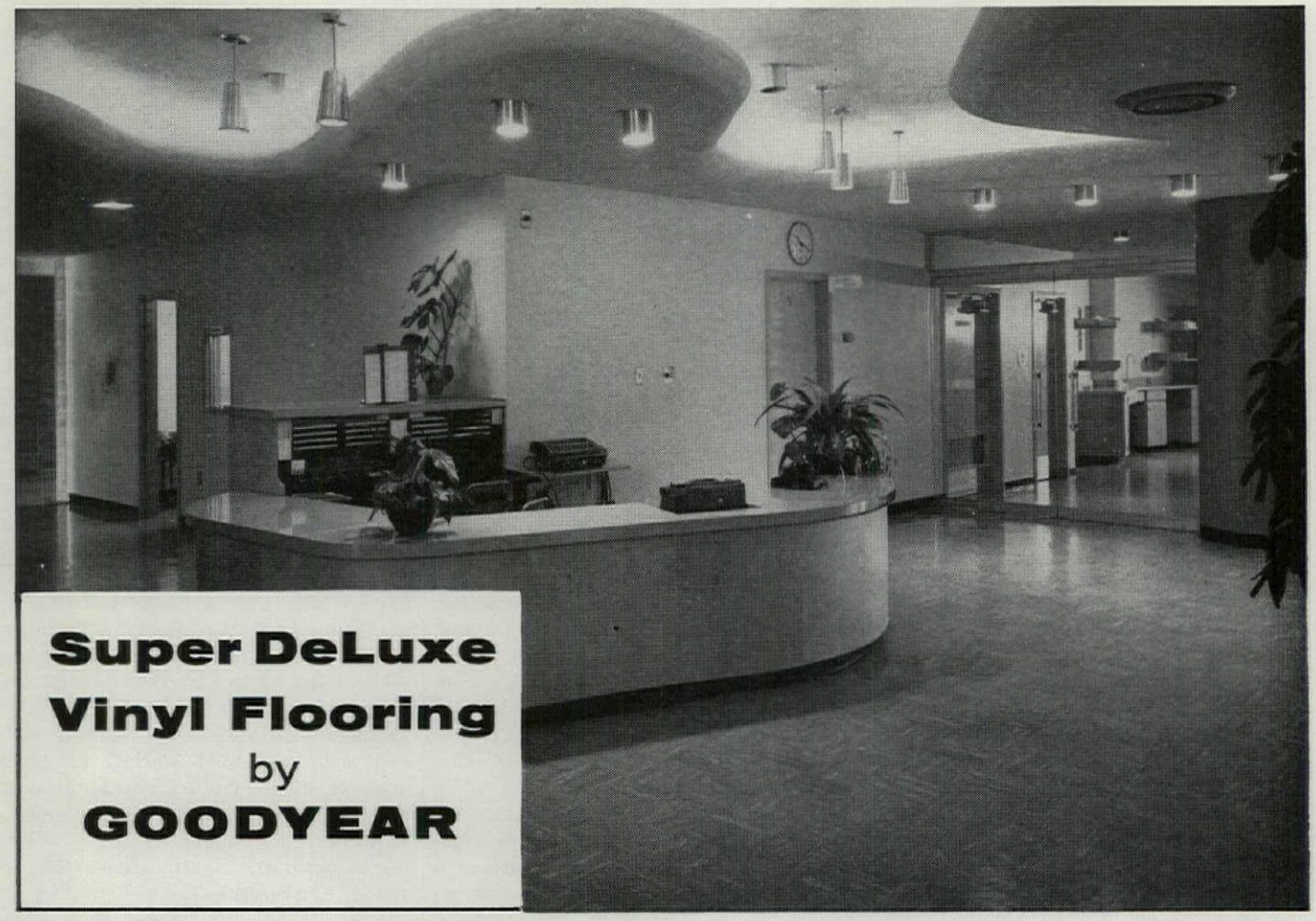
Finally, although "the licensing of candidates is not dependent upon the architect-in-training program," it is recommended that the Log Book "be presented to the State Board of examiners at the time of application for examination. . . . The State Board may ask NCARB to verify the record, prior to acceptance. . . . If the Candidate so desires, the experience record sheets may become a part of the NCARB's file."

Entirely aside from help in securing registration, it seems obvious that the value of such a "logged experience" to any architectural employe, and thus to any *employer* of Architects-in-Training, is very great. The log sheets themselves —the meat of the booklet—are of two types. First there is a running weekly "Experience Log"—week ending such and such a date I worked on these projects, of a certain approximate cost, with X hours on each of five aspects of work: Preliminary Sketches, Working Drawings, Specifications, Supervision, Conferences.

Next there are "Experience Summaries" where the weekly logs are reduced to bar chart form, to show visually the amount of time spent on various categories of work: the five *work tasks* listed above; *project size* by cost (under $50,000; $50,000 to $250,000; over $250,000); and, on the final sheet, *types of buildings* in 10 categories.

There will be difficulties and resistance in carrying out this program, of course. What does the young man do, whose advisor sees that he has had no experience on certain types of buildings; too much on working drawings and none on supervision; not enough on large projects? Does he *insist* on that experience, even, as the book suggests, "at the cost of changing employment to achieve it"? Will employers co-operate, so that this violent expedient isn't necessary, believing that "advantages accrue to both the office and the whole profession through the enhancement of capabilities"? And finally, will the State Boards of Examiners be convinced that the program has been seriously followed, so that they can give the Log Books maximum weight? Flaws in the present system will undoubtedly show up in the testing period, and revisions will be made. When it is launched on a national scale, the profession will have a carefully considered training program which will deserve its sober attention and co-operation.

* The Architect at Mid-Century, *Vol. I (Reinhold) p. 331.*



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New Service To Home Builders

P/A Office Practice ***article reporting a new approach to architectural design and supervision of operative builder developments.***

Although there has been much improvement in the relations of home builders and architects in recent years, and a consequent raising of design standards in some parts of this field, the architectural profession generally finds it difficult to establish a professional, rewarding working basis with the home builder. Top firms who would *like* to do more of this work (recognizing the responsibility of the profession to improve design of the total environment) describe the difficulties as: desire by most builders for incomplete services; inability to enforce specification standards; lack of control over site planning; interest of too many builders in flash sales appeal rather than solid values; transient nature of much of the home-building industry, implying inexperience not only in technology and planning, but in management, merchandising, and efficient business operation as well.

The responsible architect, in other words, has such a concern with the end product of his services that he cannot afford to lose control over the implementation of those services, nor can he afford (for his peace of mind and his future reputation) to deal with a client who in any way lacks business competence or has less business responsibility than the architect himself.

A recently announced service for home builders, called ambitiously *The Corporation of the Twentieth Century*, indicates a new approach to the relationship which might point to a solution of these problems. The essence of of the idea is this: a team of experts, from management counsellors, merchandising specialists, and economic analysts to architects, planners, landscapers, and engineers, will provide a "packaged service" for a home builder at a fixed charge per house. The charge, of course, depends on the size of the project. The Corporation will serve only noncompeting builders.

The services offered begin with market research. Housing needs in the area, as well as psychological, emotional, and practical factors influencing the buying of homes will be studied. As the brochure of the new organization points out, other industries "can't afford to be without" such market research data. Except on a very sketchy basis, or in academic sociological terms, it has not been available to the merchant home builder. Hal Dunleavy, an expert in marketing research, will direct *Twentieth Century's* work in this field.

Next the organization offers advice in community and site planning. "Good planning in this phase of home building is relatively simple to achieve, and need not be done at the expense of efficient land use," the group points out. Here, Harold F. Wise, planner, and Edward Williams, of the landscape architectural firm of Eckbo, Royston & Williams, are the staff members in charge.

"Good architectural design is the single most important key to continuing success in home building," says the Corporation's literature. Architectural services are full: working drawings and specifications; "exclusive special design features for beauty and livability"; color planning; advice in materials and methods of construction; supervision. Making the point that the "I'm selling all I can build" attitude will soon be replaced by a "much more selective and competitive market," the *Corporation of the Twentieth Century* has a most impressive design team to offer the builder: Architect William Wilson Wurster, and his partner Donn Emmons; William A. Cyre, Lighting Expert; Don Knorr and Ann Knorr, Interior Designers; Matt Kahn, Industrial Designer; and C. W. Smith, for many years Director of the Division of Construction Technology of the Southwest Research Institute. George S. Nolte, Civil Engineer, is consultant.

Merchandising, including advertising, use of model homes, setting up a sales staff, and publicity and sales promotion, is next on the list of services. Two experts in this part of the business head the department. And finally advice and guidance on financing, FHA and VA commitments, and relations with planning commissions and other government agencies are included in the "package."

Management staff of the Corporation consists of James San Jule, builder and merchandiser; Delbert E. Becker, realtor; and Hal Dunleavy, research consultant.

This extremely impressive group, or "team" as they prefer to call themselves, would not be an easy one to duplicate in other parts of the country. And yet, it seems to the Editors of P/A, the idea behind the organization is such a sound one that it will inevitably be tried elsewhere, and architects, engineers, and planners who are concerned with this aspect of design may want to consider seriously the advantages of becoming part of — or even stimulating the formation of — such planning, design, and merchandising teams.

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REINHOLD

the "test edition"

Dear Editor: Your P.S. coverage of *At Home With Architecture* (*October 1955 P/A, page 244*) was almost as baffling as it was, on the whole, uncomplimentary. However, I do thank you for calling the first part (Kindergarten—2nd Grade) "excellent"; for your comment on the handling of the 5th and 6th school years as done "sensibly"; and labeling the entire book as "a good try." I am also happy to see you agree that the photo-kit that accompanied the manual is "a good selection."

On October 28, 1954, at a meeting of the National Public Relations Committee at the Octagon in Washington, D. C., you, as an advisory member of this Committee, were present when fourth-draft copies of the teachers' manual were distributed. At that time it was made clear that I, as Account Executive, Ketchum, Inc., was writing the manual with the aid of educators, the Public Relations Committee, and subject to review by the Subcommittee on Education. Since you had the opportunity at that time of reading and commenting on the manual and knowing that I was responsible for it, that seemed an appropriate time for some definite statement concerning this publication's content and intent.

Two things you have overlooked in your critique of the manual:

1. It has been pointed out, time and time again, that this is a "test edition" and not the completed revised edition. And so it seems highly unfair to review a book in such a working stage. I might add that due to budget limitations, only 3000 copies could be made available to the Texas Education Agency although the request was for many thousands more. Because of the limited run, we have also had to turn down innumerable requests from firms, schools, associations, and individual architects.

2. *At Home With Architecture* is only one-half of a project which will include another manual directed toward the high school years and paying more attention to what the Commission report suggested as emphasis: " . . . the importance, influence and appeal of good architecture in community living." The committee was quite cognizant of the fact that town planning, housing, etc., was more suitable to this latter half of the project.

I agree with you most heartily on one point and I am joined in that agreement by George Bain Cummings, President of AIA, and John Wellborn Root, Chairman of the Public Relations Committee. This involves the floor plan used in the 5th and 6th school-year level. In fact, in a letter to Mr. Cummings back on August 17th I explained: "The artist had three things to consider before turning this (plan) out:

"1. The plan must be simple enough for a fifth-sixth school-age child to understand; simple enough that a teacher can draw the illustration on the blackboard.

"2. The plan must conform to the cover picture and illustrations of 'on the job progress' plus descriptions of the Jones Family home included in manual copy.

"3. The plan must take into account some earlier conversations with educators who were somewhat fearful that the home and plans used to illustrate this manual would be too grandiose and make the lower income bracket child feel inferior.

(Continued on page 14)

(Continued from page 13)

"Frankly, I am not wholly in agreement as to what the artist came up with in this particular plan, but it did answer fairly well the three requirements mentioned above."

I repeat, this *is* a test but even so, at this stage on September 28th, a telegram from our Texas testing area included this bright phrase . . . "Reception wonderful." In fact, this has been somewhat the general consensus of educators and architects, who have seen the manual. There have been many expressions citing a real need for such a book. The main criticism was, "Why hasn't one of these been published before?" or "Why not one for the upper grades beyond ninth?"

Although there are return test-questionnaires out to the 3000 teachers who will receive this manual, and even though the University of Texas is running an evaluation measure on it, we would welcome your specific revisions to *At Home With Architecture*. As you pointed out yourself, " . . . it's only through incomplete first attempts that a fully satisfactory answer will be found to this important business of getting *people* concerned about good design."

ANSON B. CAMPBELL
Ketchum, Inc.
Pittsburgh, Pa.

difference noted!

Dear Editor: In October 1955 P/A (*page 141*) you have an article about "banks." I presume Louise Sloane wrote your article on bank interiors.

We would like to call your attention to the fact that your magazine does not recognize the difference between banks and savings and loans or building and loans.

It is not proper to use the word "Banks" when you are really talking about savings and loans or building and loans. A savings and loan or a building and loan is *not* a bank. They do not accept deposits. The law clearly states they are not allowed to use the word "deposits" in their advertising or in any other manner. In a few rare cases in the United States, building and loans and savings and loans are chartered to receive deposits but 99 percent of them do not accept deposits.

The money that you invest in a building and loan or savings and loan is an investment, not a deposit. This means that you have purchased stock and you cannot get your money back on demand if they do not wish to pay it to you. They do not have deposit insurance because they do not have deposits.

They have their own insurance fund which provides for the eventual safety up to the amount of the in-

(Continued on page 16)

(Continued from page 14)

surance but this is Federal Savings and Loan Insurance on a long term investment.

Bank deposit insurance means you will get your money right away. We have to point out this difference because in many cases the building and loans and savings and loans use unfair advertising methods and get unfair publicity by making use of the word "deposit" and the people who are investing their money in them think they are making deposits when they are not.

On page 141 of your October 1955 issue and in the next few pages you refer to the Western Savings & Loan Association as a bank, and refer in it to their teller's cage for personal contact with depositors. Unless the Western Savings & Loan Association is chartered as a bank to receive deposits, the statements are incorrect.

Therefore, in your articles and statements on banks you should clearly separate them from building and loans and refer to them in their proper classification.

You may verify these statements by checking with the Financial Public Relations Association headquarters in Chicago.

RUSSELL B. STEWART
Yellow Springs, Ohio

notices

appointments

PRATT INSTITUTE School of Architecture announces appointment of IRVING MOGENSEN as graduate assistant. Appointment was based on an international competition.

UNIVERSITY OF ILLINOIS, Urbana, Ill., announces the following appointments in the Department of Architecture: HAROLD J. HORNBEAK, Associate Professor of Architecture; NORMAN D. TAYLOR, Instructor in Architecture; JAMES E. MACKEY, Assistant in Architecture; NORMAN H. MEYER, Assistant in Architecture.

BOYD M. SMITH has been appointed to the newly created post of Associate Dean of the new School of Architecture and Design, YALE UNIVERSITY.

HOWARD J. SULLIVAN, New Haven, Conn., and WALTER R. FUREY, Thompsonville, Conn., were recently appointed to CONNECTICUT ARCHITECTURAL EXAMINING BOARD. At the same time the following officers were elected: HAROLD H. DAVIS of New Haven, President; J. GERALD PHELAN, Bridgeport, Vice-President; and BRADFORD S. TILNEY, New Haven, Secretary.

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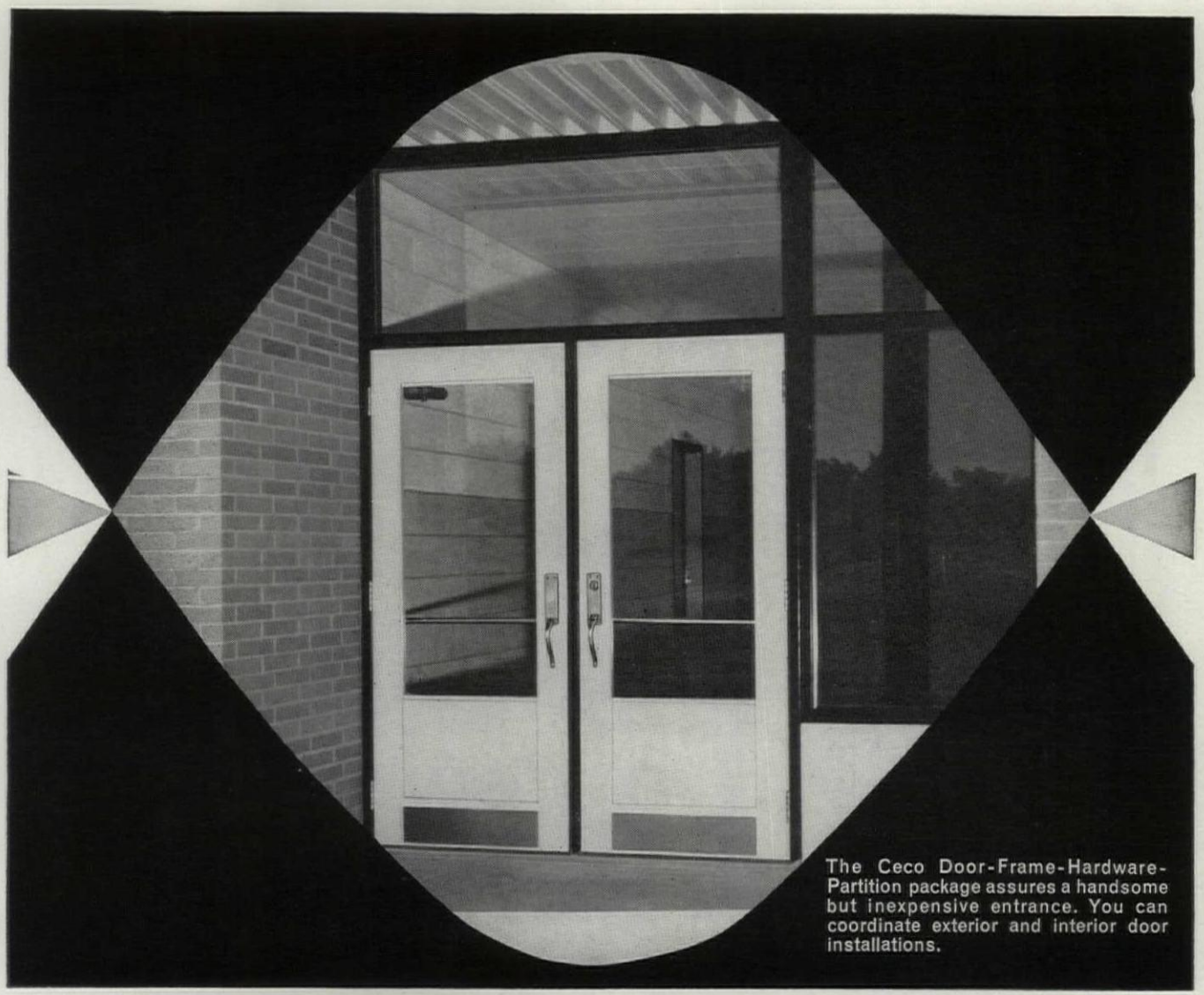

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New uses are turning up every day. Already a list of buildings where *ii-TV* has applications is practically a list of the places where people work: schools, hospitals, office buildings, factories, warehouses, department stores, prisons, power stations, laboratories, libraries, banks, supermarkets, railroad stations, airline terminals—everywhere that man wants to see something that is out of sight, or show something to a distant viewer, instantly and accurately.

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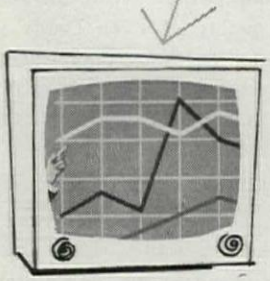

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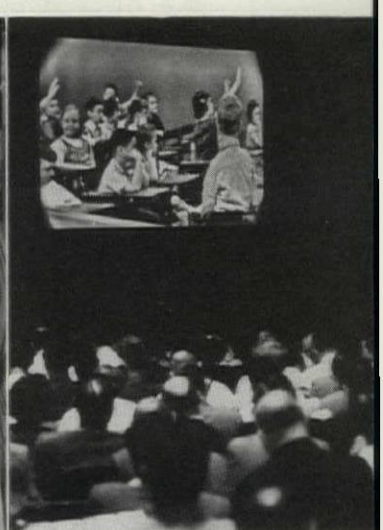

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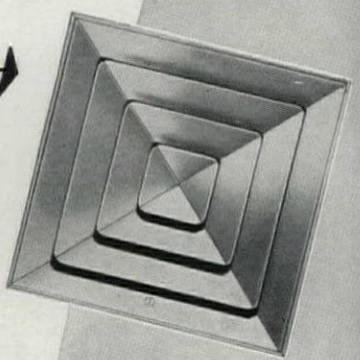

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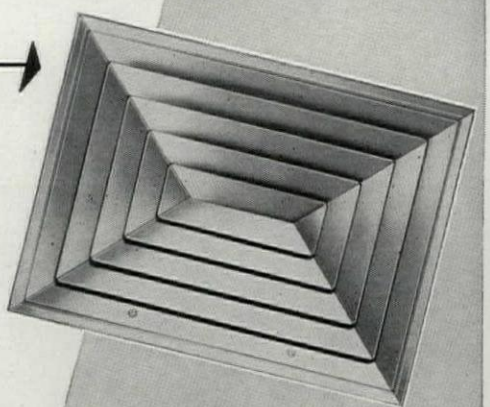

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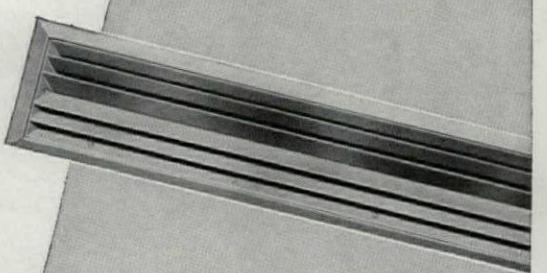

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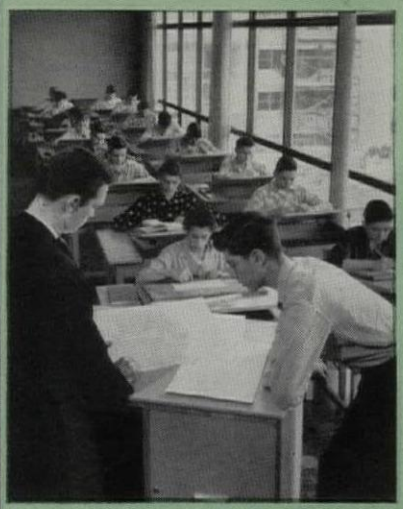

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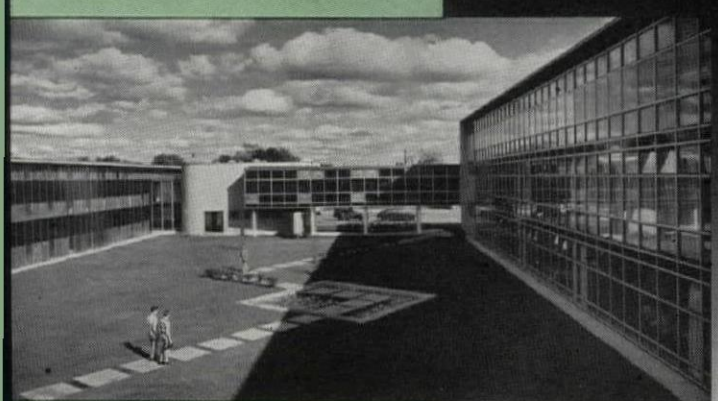
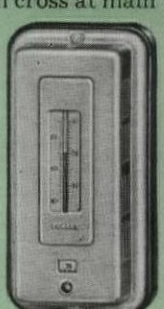


Quadrangle with reflecting pool. Faculty building left facing south has blue porcelain enamel panels, clear glass and blue green fibre glass drapes. Chapel, in center, with plastic sky domes is connected by stained glass cloister to school building right. North exposure of the school has clear glass and gold colored fibre glass drapes.

Dramatic 70 ft. high cross at main entrance is stainless steel. Drapes behind clear glass windows are blue green fibre glass. Yellow terra cotta panels have religious insignia in black. Colors thruout the buildings including the gym are attractive.



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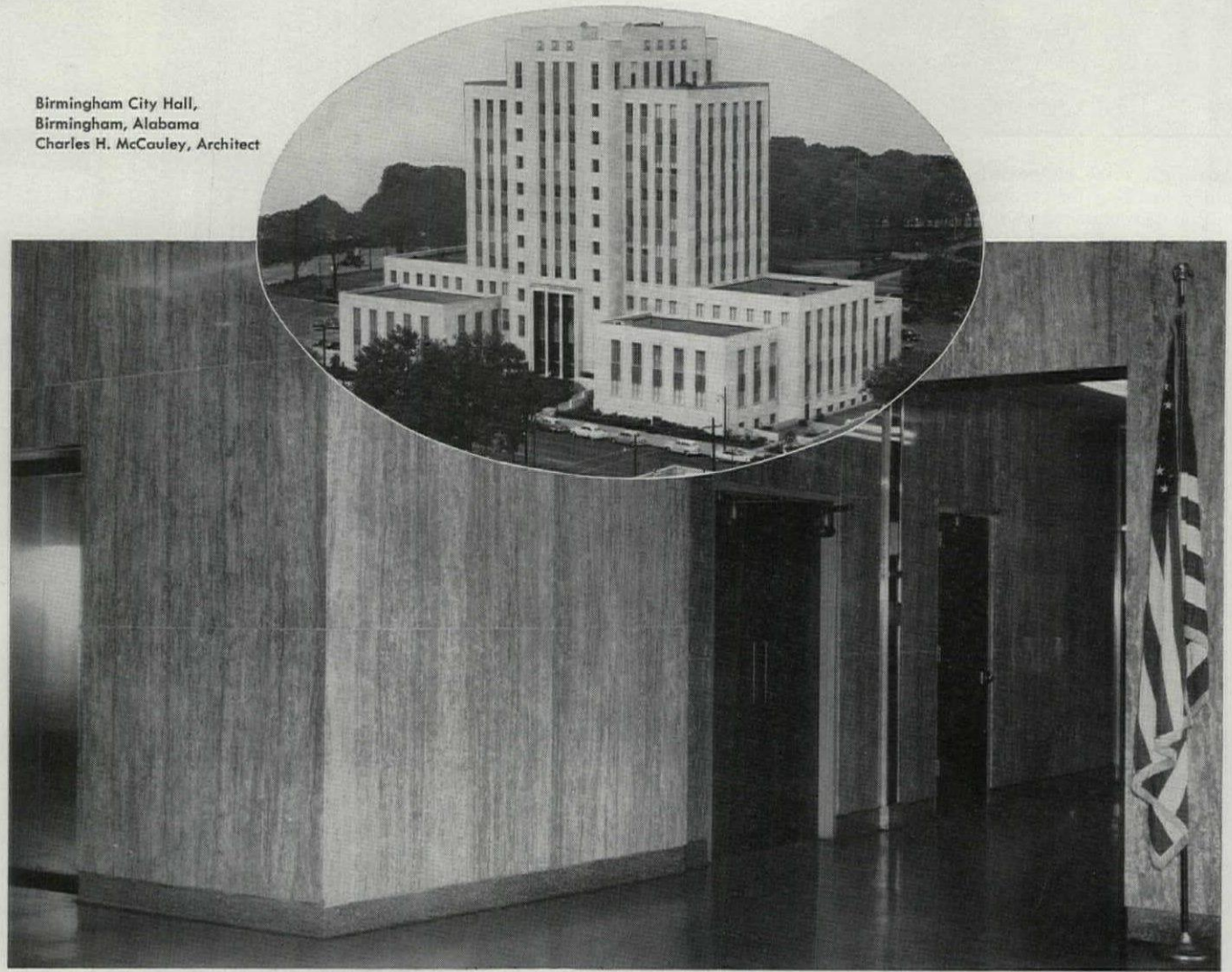

Birmingham City Hall,
Birmingham, Alabama
Charles H. McCauley, Architect

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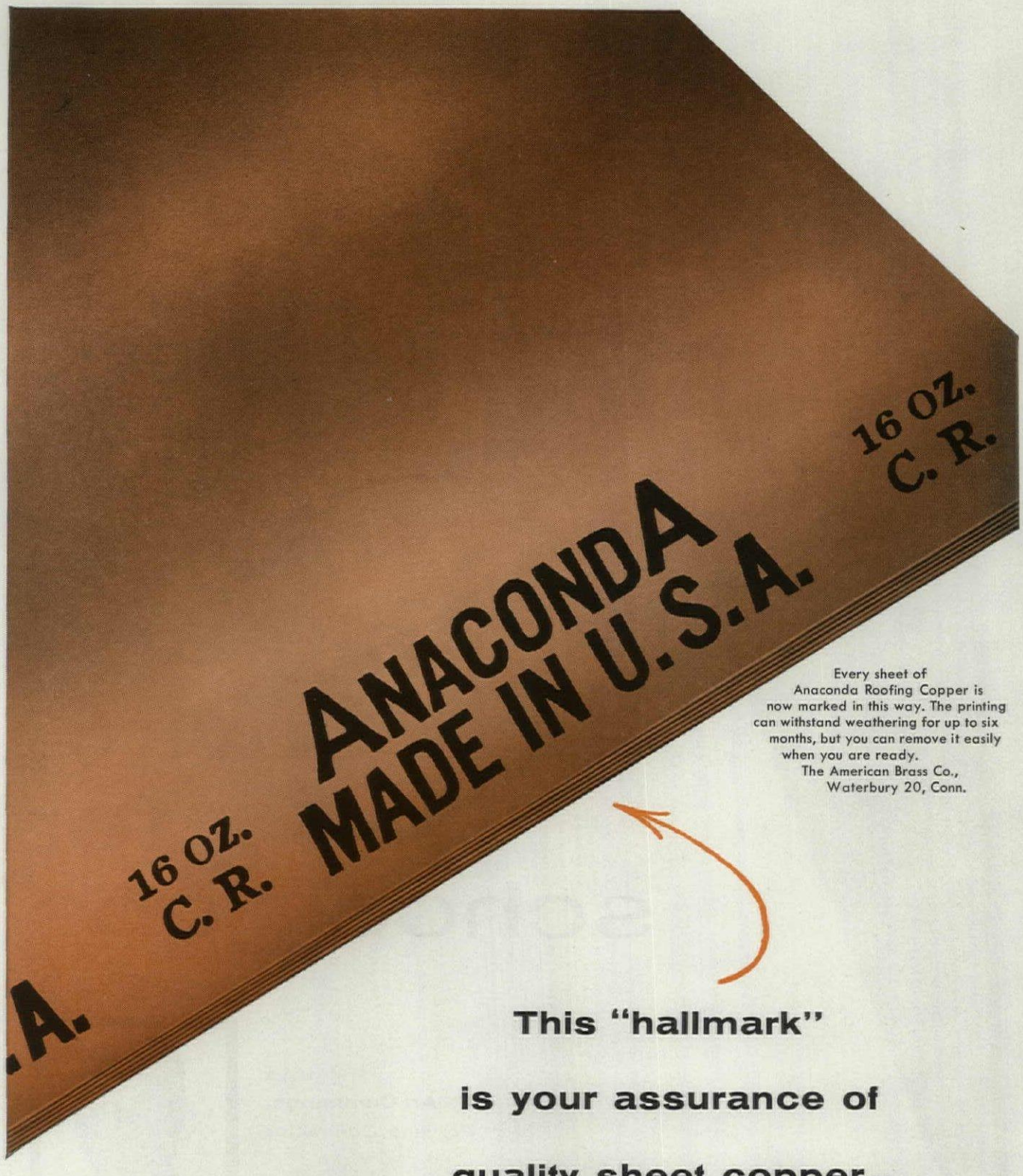

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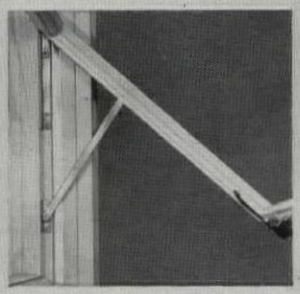

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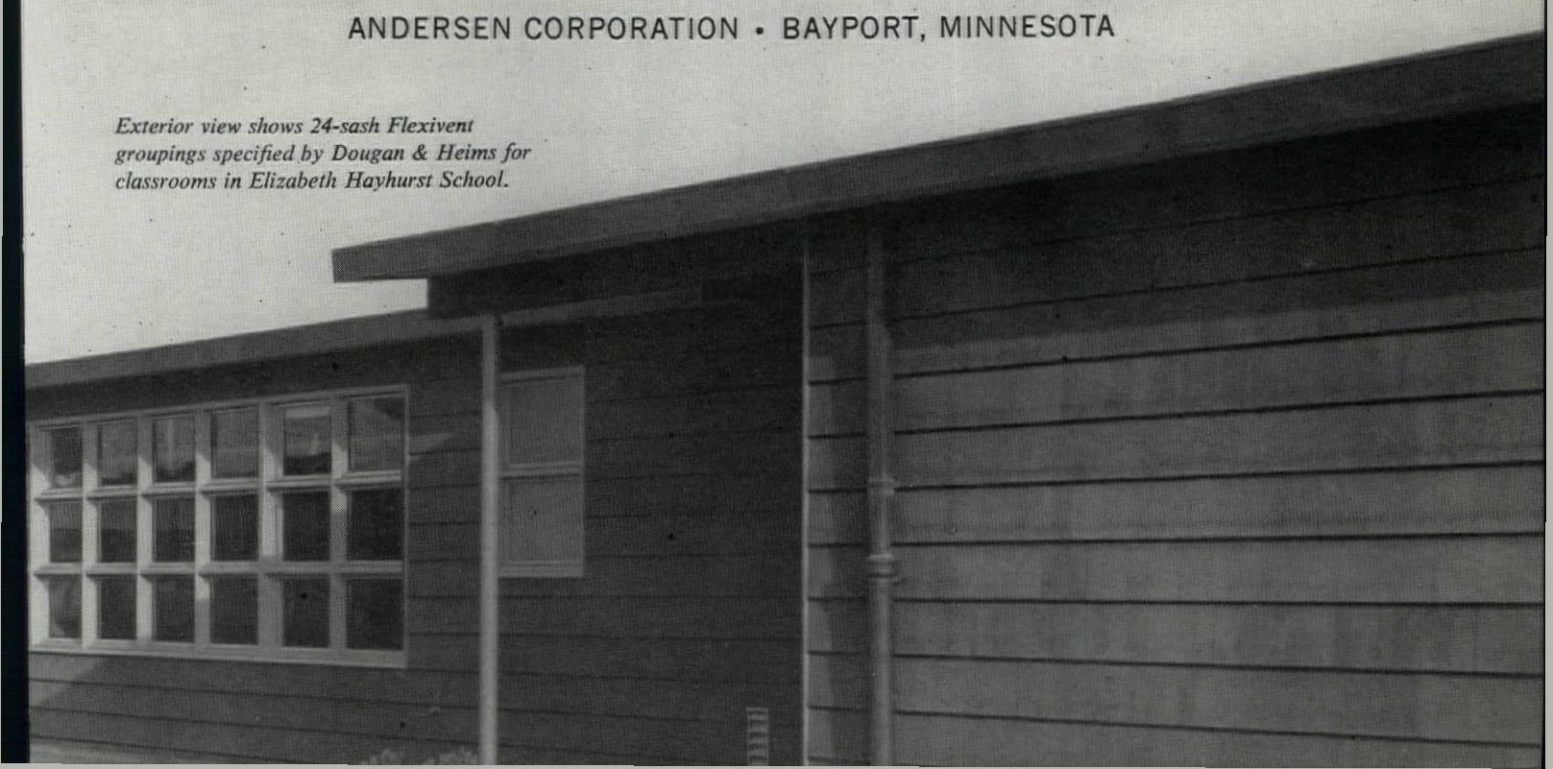
Exterior view shows 24-sash Flexivent groupings specified by Dougan & Heims for classrooms in Elizabeth Hayhurst School.



Under Toughest floor traffic and service conditions...

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville
TERRAFLEX®
Vinyl-Asbestos Tile Floor

More than a million people use the Miami Terminal of Eastern Air Lines each year. After several years of service, Terraflex has proved its durability . . . looks colorfully new . . . and has cut maintenance time and cost. Floor installed by Lotspeich Flooring Co.

provides beauty, color and wear with minimum care

IN THIS BUSY AIRLINE TERMINAL, Johns-Manville Terraflex Tile retains its sparkling, look-like-new appearance in spite of day-in, day-out abuse . . . and meets stringent requirements for heavy-traffic service at the lowest possible cost.

Made of vinyl and asbestos, J-M Terraflex is exceptionally tough and resistant to wear . . . defies grease, oil, strong soaps and mild acids.

Terraflex can reduce maintenance costs one half. In actual use, tests showed Terraflex maintenance expense to be approximately 50% less than the next most economically maintained resilient flooring. Its nonporous surface requires no hard scrubbing . . . damp mopping usually keeps it clean and bright . . . frequent waxing is eliminated. Through years of economical service Terraflex pays for itself.

Available in a wide range of marbleized colors, J-M Terraflex vinyl-asbestos tile is ideal for restaurants, public areas, schools, hospitals . . . wherever reliable floor service, long-wearing beauty and long-time economy must be combined.

For complete information about Terraflex vinyl-asbestos floor tile, write Johns-Manville, Box 158, New York 16, N.Y.

See "MEET THE PRESS" on NBC-TV, sponsored on alternate Sundays by Johns-Manville

Johns-Manville

GOLD COAST CHERRY

a *Beautiful* buy....

. . . any way you look at it!

SURE, it's beautiful to look at . . . in grain and figure, in warm, light, *modern* color. Glamorous rotary-cut Gold Coast Cherry is the *new* beauty star in flush doors.

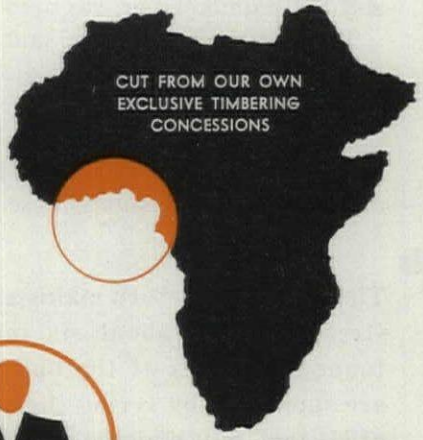
More good news! Gold Coast Cherry cuts finishing costs: its beautiful color makes stain unnecessary — its smooth, close texture requires no filler.

Price? *Actually lower than many domestic hardwoods!*

That's Mengel rotary-cut Gold Coast Cherry — eye-appeal, *buy*-appeal — any way you look at it.

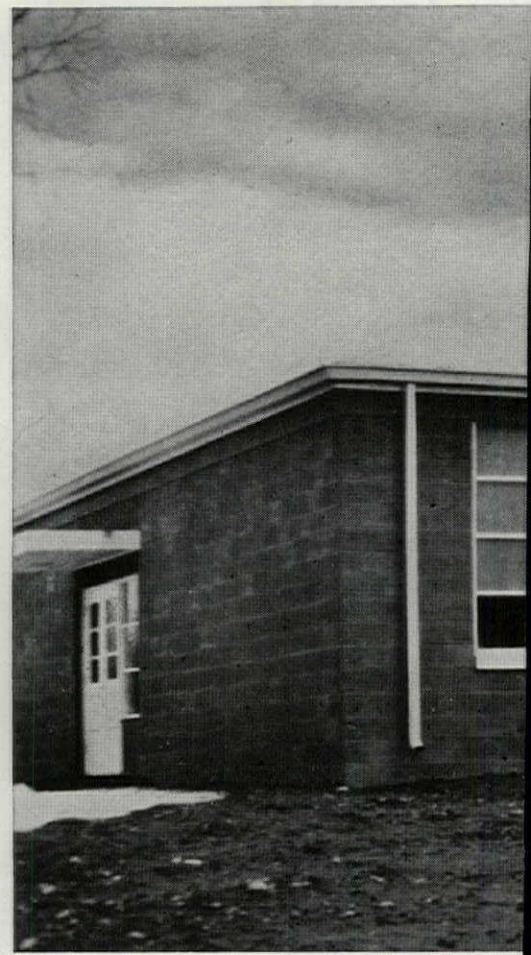
See for yourself: order an inspection lot from your distributor. Why not phone or write him . . . *this very profitable minute?*

Door Department, THE MENGEL CO., *Louisville 1, Ky.*
World's Largest Manufacturer of Hardwood Products
(Mengel Permanized Furniture, Doors,
Kitchen Cabinets, Wall Closets)



MENGEL *Flush* **DOORS**

Wisconsin School builds 5 modern



GILSULATE® for hot underground pipe insulation helps keep costs low

"The installation of this material is so simple that it is almost unbelievable."

E. F. Klingler & Associates, Eau Claire, Wis.

Recent surveys of schoolroom needs estimate construction costs at well over $30,000 *per classroom*, exclusive of land costs. Yet at Cadott School, Cadott, Wisconsin, E. F. Klingler & Associates successfully completed a modern 5-*classroom* addition for only a little over $54,000! Each classroom accommodates 30 pupils and measures 23′ x 31′ x 10′... and 100% union labor was used on the job.

The outstanding design and construction features of this unique job are discussed in *Weather Magic*, a publication of The Trane Company, La Crosse, Wisconsin, (Vol. 18, No. 5, Jan. 1955). Here, from this article, is what E. F. Klingler & Associates say about the insulation used at Cadott School:

"The steam and return mains are standard black steel pipe, run about six inches *outside* the foundation lines of the building. These pipes are supported by laying them on short lengths of 1¼ inch pipe which were set into the foundation walls at right angles to the foundation, at elevations to get proper pitch to the lines. The insulation material used is a product of the American Gilsonite Company, and is an asphaltic ore marketed under the trade name of GILSULATE. The material resembles pulverized coal in appearance. The installation of this material is so simple that it is almost unbelievable. We merely backfilled the foundations with earth fill up to a point about four inches below the bottom surface of the steam-lines, poured in all the GILSULATE to a depth to afford four inches cover on all sides of the pipes, tamped it thoroughly, and covered it over with earth. At the highest point in the lines there are six inches of earth cover over the insulation and at the low point, about two feet. This material is completely impervious to water and is effective enough as an insulation so that at no time during the last winter was the heat loss great enough to melt the snow directly above the pipes, or for that matter, even thaw out the earth cover."

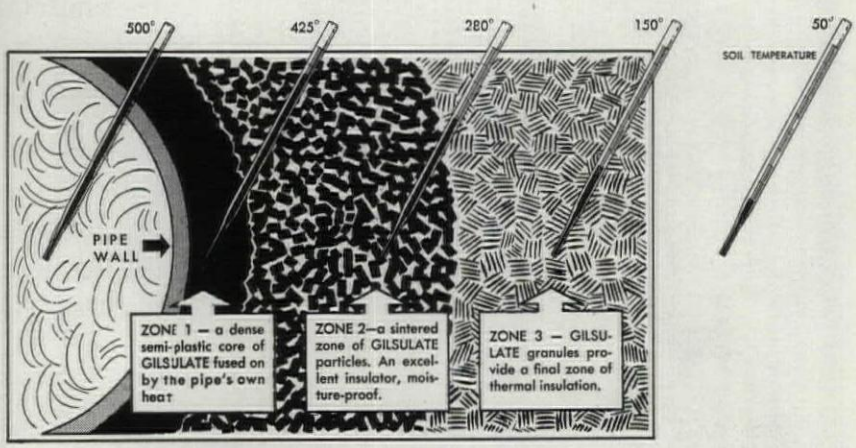
No other method for insulating and protecting hot underground pipes can match this performance—*Triple-Zone* GILSULATE *shows the lowest installed cost providing efficiency and permanence.*

Investigate the value of easily installed, low-cost GILSULATE. Use the coupon for complete information, or see your local GILSULATE distributor.

classrooms for less than $55,000

FACTS ABOUT GILSULATE

1. **Easy to use**...just pour and tamp... pipe heat does the rest.
2. **Forms 3 zones** of protection against heat loss and all hazards commonly encountered by hot buried pipes.
3. **Needs no housing or mechanical sheaths:** no mixing, special handling or equipment.
4. **Only needs normal pipe spacing:** for multiple pipe or cramped conditions.
5. **Three types available:**
   Type A for 220°-310° F. temp. range
   Type B for 300°-385° F. temp. range
   Type C for 385°-520° F. temp. range



THE TRIPLE-ZONE INSULATION FOR LIFETIME PROTECTION OF HOT UNDERGROUND PIPES

GILSULATE®

AMERICAN GILSONITE COMPANY, SALT LAKE CITY 1, UTAH
Affiliate of Barber Oil Corp. & Standard Oil Co. of California

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AMERICAN GILSONITE COMPANY

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Modern Hospital Uses JAMISON Stainless Clad Doors for Sanitation Plus Beauty

Jamison Stainless Clad Doors maintain a tight seal on the deep freeze and on four separate rooms for meats, vegetables, dairy products, and garbage.

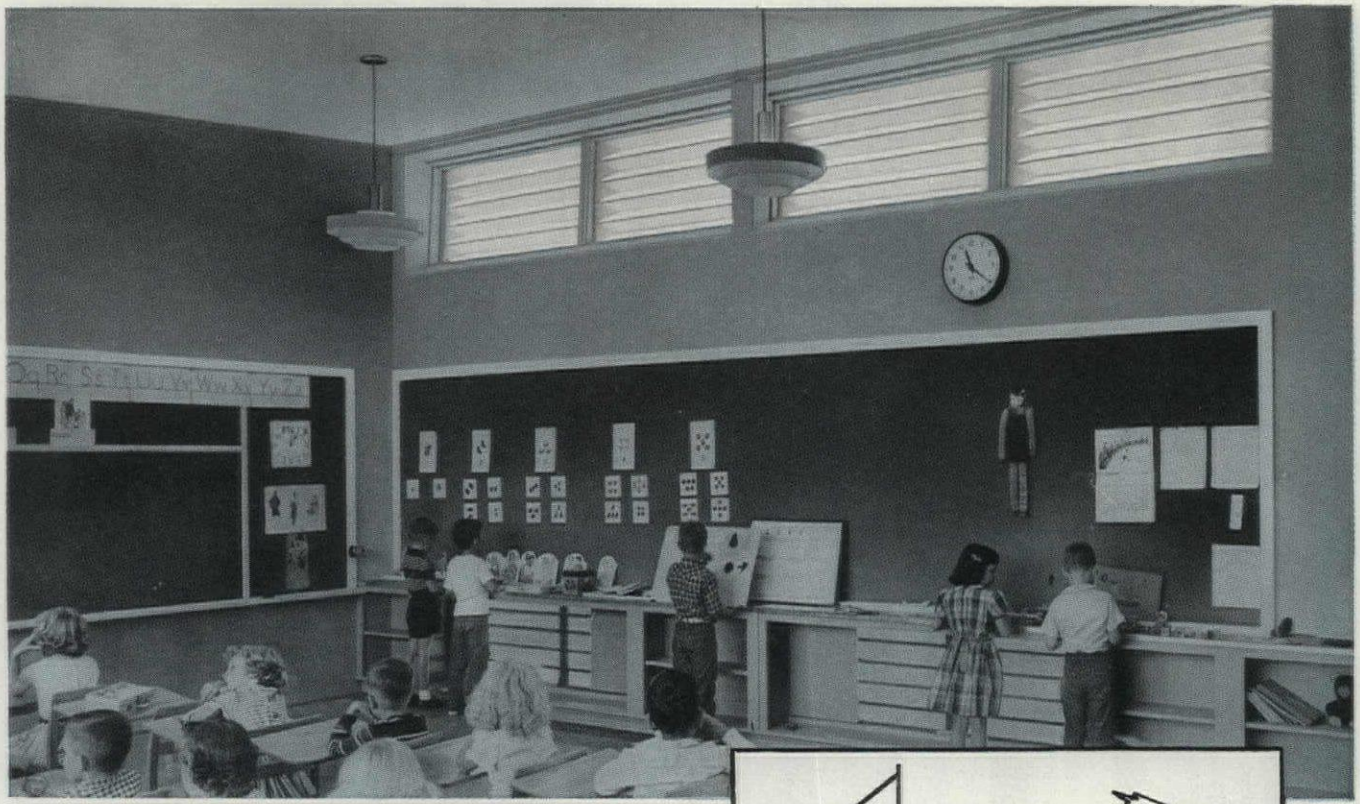
Architect: Charles H. McCauley, Birmingham, Alabama
Insulation Contractor: Armstrong Cork Company, Birmingham, Alabama

Druid City Hospital of Tuscaloosa, Alabama, combines sanitation and beauty by using five Jamison Stainless Clad Doors for refrigerated rooms in the Dietary Suite.

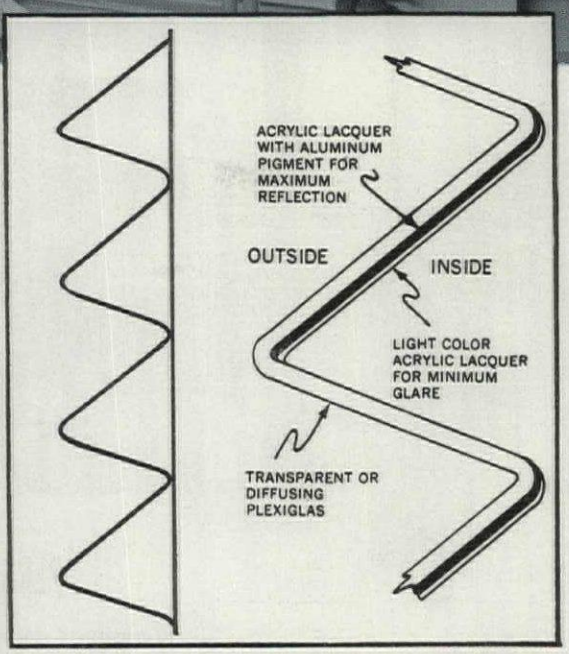
These doors are easy to clean . . . give lasting beauty . . . and withstand frequent washdowns. For additional information about Jamison Doors, consult your architect or write to JAMISON COLD STORAGE DOOR CO., HAGERSTOWN, MD.

JAMISON
HAGERSTOWN, MARYLAND, U. S. A.

More JAMISON Doors are used by *more* people than any other Cold Storage Door in the world.



New way to control Sun Glare— use daylight louver panels of PLEXIGLAS



Cross-section of a daylight louver panel, and close-up of one louver.

Daylight Louver Panels, formed from PLEXIGLAS acrylic plastic, provide nearly optimum visual environment in daylighting systems. As shown in the cross-section drawing at the right, they combine opaque louver slats, light transmission and weather closure in one continuous surface. The design results in—

- Effective shielding from sun and sky glare.
- Improved distribution of daylight—an "indirect daylighting" system for evenly distributed diffused daylight.
- Reduction of solar heat gain inside buildings through reflection of a high proportion of direct sunlight striking the window area.

The daylight louver panel system is based on the formability, strength and weather-resistance of PLEXIGLAS, and was developed at the Daylighting Laboratory of Rohm & Haas Company. The names of suppliers of stock and custom-formed panels, and our new brochure—"Daylight Control with PLEXIGLAS"—containing data and recommendations on the use of daylight louver panels, are available on request.

Chemicals for Industry

ROHM & HAAS COMPANY

Washington Square, Philadelphia 5, Pa.

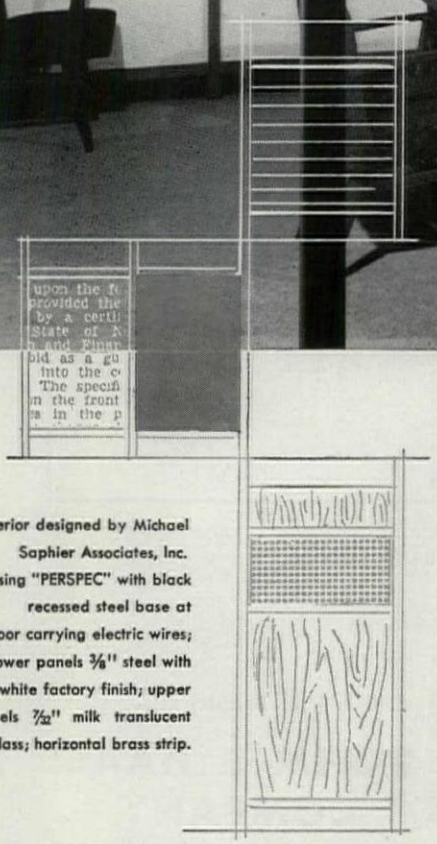
Representatives in principal foreign countries

PLEXIGLAS *is a trademark, Reg U.S Pat. Off. and in other principal countries in the Western Hemisphere.*

Canadian distributor:
Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada.

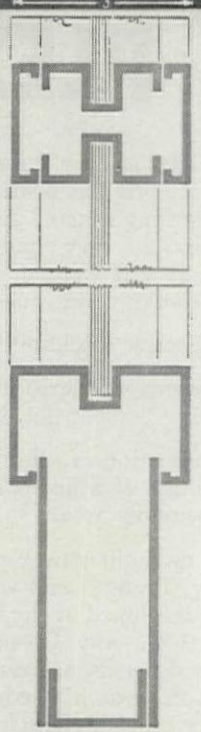
Custom variety in pre-fab partitioning with "PERSPEC"

Installation:
Conference room,
New York Convention
and Visitors' Bureau,
42nd Street and
Park Avenue,
New York



Interior designed by Michael Saphier Associates, Inc. using "PERSPEC" with black recessed steel base at floor carrying electric wires; lower panels 3/8" steel with white factory finish; upper panels 7/32" milk translucent glass; horizontal brass strip.

"PERSPEC", an entirely new idea in partitioning, consists of stock pre-fabricated steel frames, carrying electric wires and allowing complete freedom in the choice of colors, forms, textures and materials for panel inserts within the frames. Different heights, widths or a horizontal strip of brass positioned at the discretion of the user add to the possibilities. "PERSPEC" offers the architect or designer all the economy and efficiency of modern steel partitions, plus variety of effects.



AETNA STEEL PRODUCTS CORPORATION

*Pat. Pending †Trade Mark
††Licensed under DuPont Patent

E. J. BOYLE DIVISION
730 Fifth Avenue, New York 19, N. Y.

AETNA ALSO PRODUCES
The new Arnot PARTITION-ettes*†, modular office furniture, desks and OFFICE-ettes††. Elevator enclosures, convector enclosures. Hollow metal doors and frames. Marine joiner work and bulkheading (aluminum and steel). Ships' interior outfitters.

A MODEL FOR EVERY TYPE OF DOOR IN ANY TYPE OF BUILDING

DOR-O-MATIC

CONCEALED-IN-THE-FLOOR DOOR CONTROLS

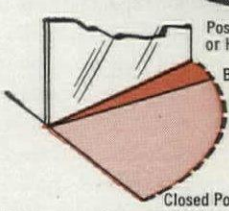


Diagram shows how door is controlled as it opens. Accidental openings are eliminated . . . as are accidental hold-opens. The control also cushions the closing of door.

- BUILT-IN HOLD-OPEN DEVICE
- POSITIVE BACK STOP
- POSITIVE CENTERING
- BUILT-IN LEVELING DEVICE
- NO ACCIDENTAL HOLD-OPEN
- TWO SPEED CLOSING ACTION
- PERMANENT HYDRAULIC OIL SEAL
- POSITIVE UNIFORM CONTROL
- NO SEASONAL ADJUSTMENT
- EASY INSTALLATION

Precision-built Dor-O-Matic door controls are at work in thousands of buildings from coast to coast . . . where they are providing more positive door closing action. There are twenty-five models in all. Each is designed for long service life under all conditions and complete adaptability to contemporary design and function. Only Dor-O-Matic provides all ten of the service advantages listed at left.

Write for Detailed Information and Literature

MADE BY THE BUILDERS OF THE INVISIBLE DOR-MAN AUTOMATIC DOOR CONTROL

SEE SWEET'S ARCHITECTURAL FILE

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IN CANADA: Dor-O-Matic of Canada, 550 Hopewell Ave., Toronto 10, Ont.

EXPORT REPRESENTATIVES: Consultants International, 11 West 42nd St., New York 36, N.Y.

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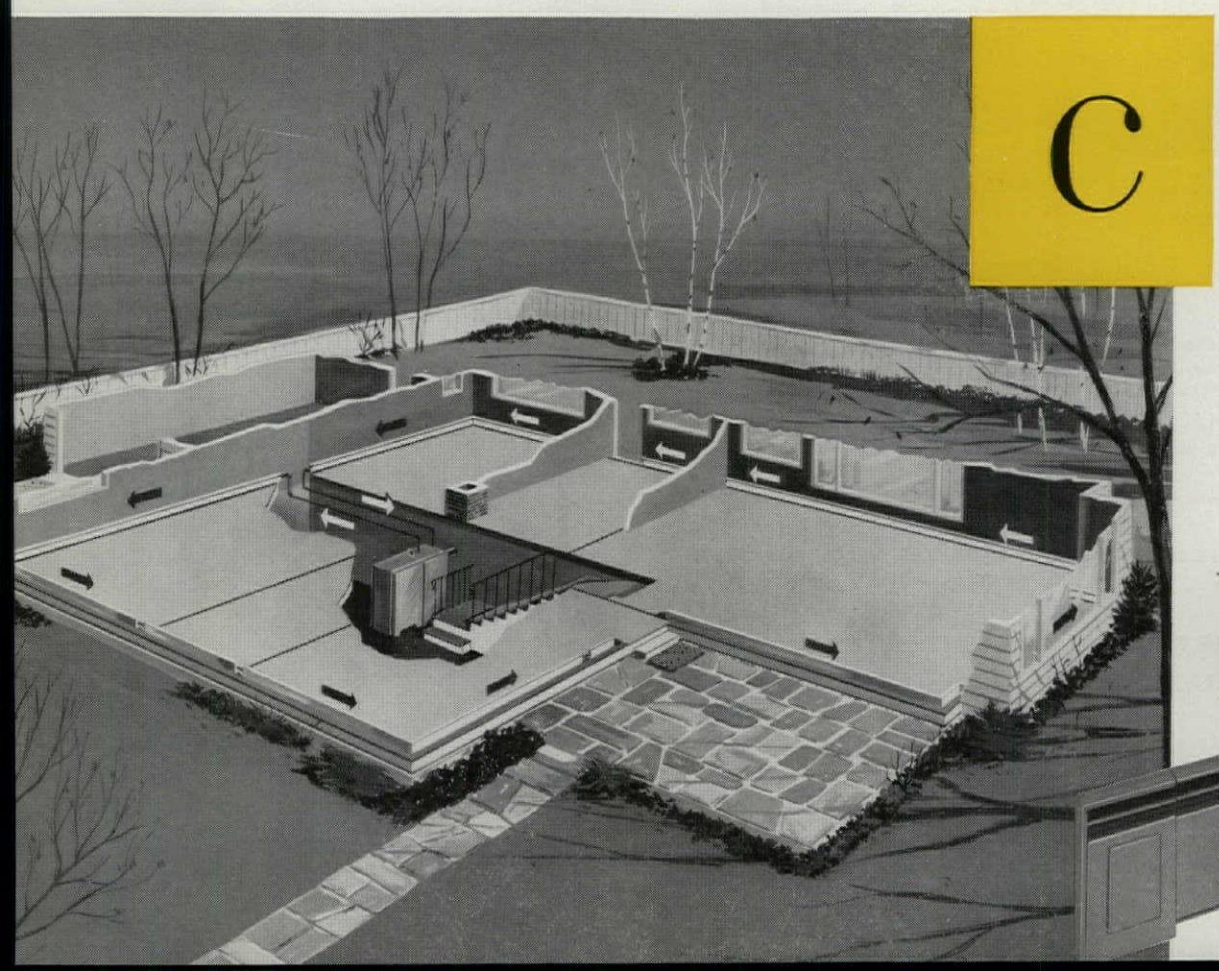
Picture studies in function and



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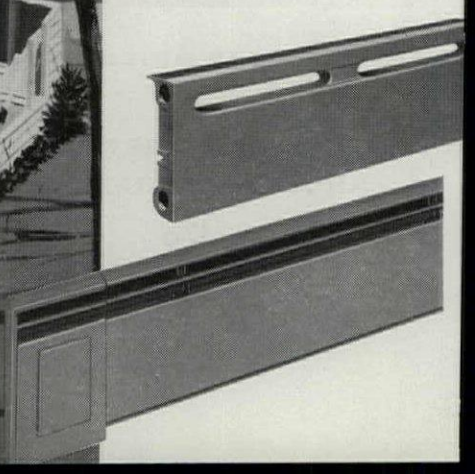
Hidden Heat Blankets
Room. American-Standard B
board Panels eliminate b
radiators . . . don't steal valu
floor space. These compact h
ing panels hug the wall . . .
ject only a couple of inches
the room . . . and provide qu
even, clean heat. Ameri
Standard makes two type
baseboard panels: Heat
(copper tubing with alumi
fins), and Radiantrim (a
piece, cast iron finned unit)



, NEW Merrilyn Counter Top Lava-
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lasting beauty . . . and it comes in all
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Merrilyn is the latest addition to
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ter top lavatories for use in homes,
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-Fired Boilers are of modern, compact
gn, with integral drafthoods and mani-
s neatly enclosed in handsome, 20-
ge steel jackets. In spite of their space-
ng construction, the boilers have high
ing capacities. The G-4 is for large
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; the G-6 heats hotels, schools and
artment stores. Both boilers require
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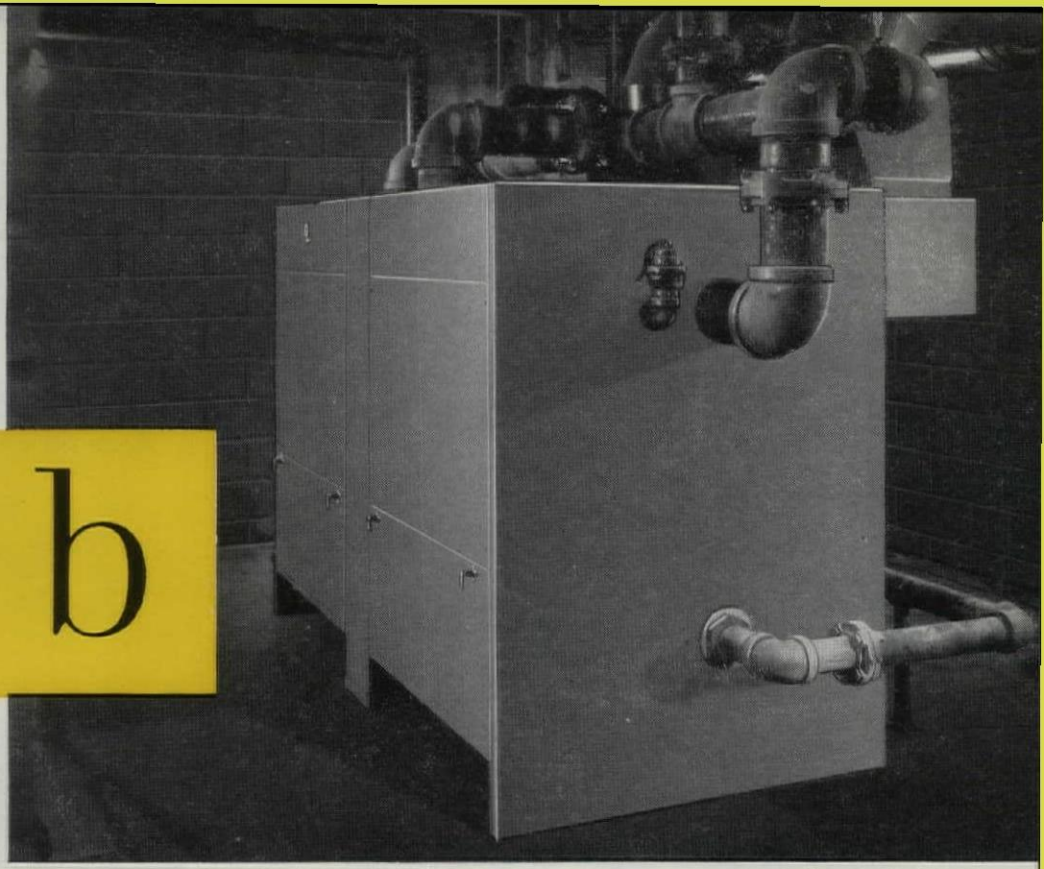
cost installation and operation.



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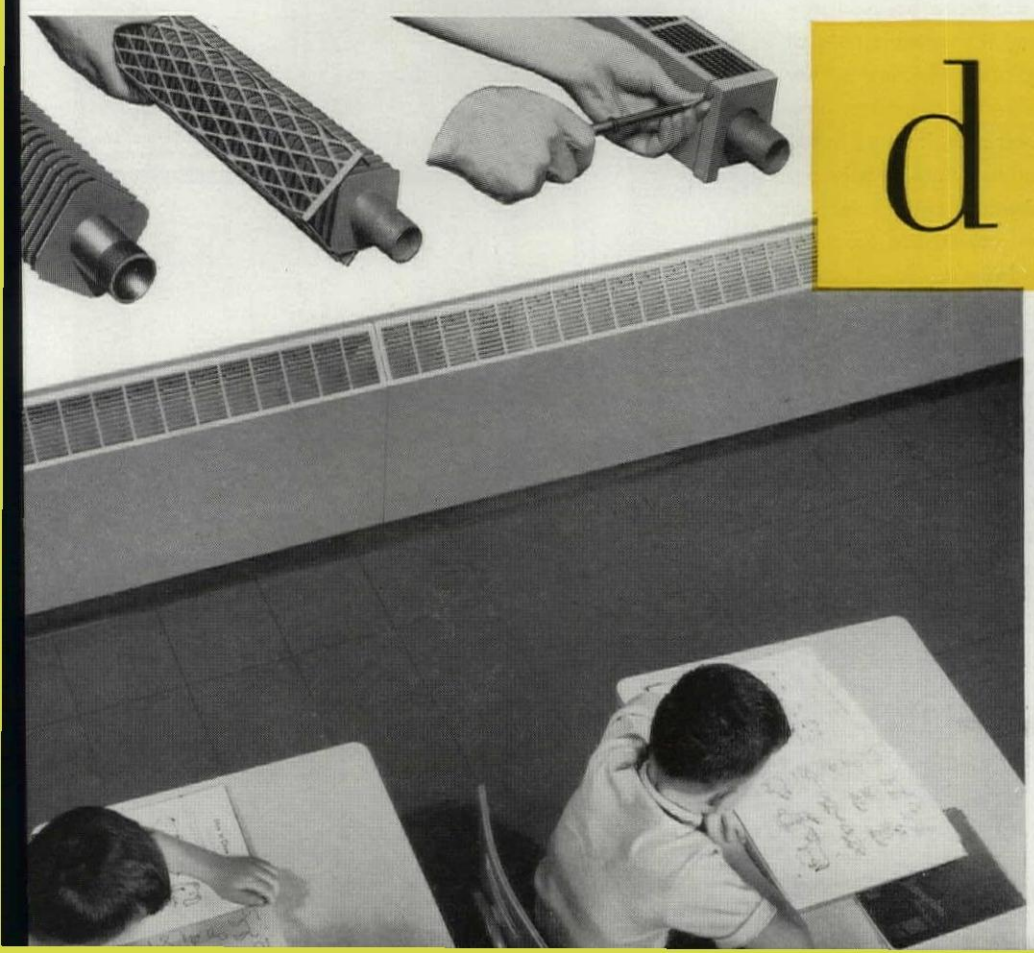

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Hang Your Heating On The Wall. Temtrim Finned Tube Radiation is low in cost, easy to install and allows great flexibility in layout. Temtrim is made of tough steel pressure tubing with steel fins. It can be hung on the wall at any level, from ceiling to floor, in single or multiple tiers. Temtrim is perfect for new buildings or in modernizing existing structures with two-pipe steam or hot water systems. Economical Temtrim heating, with fins exposed or with one of three attractive covers, can be installed in factories, gymnasiums and classrooms or office buildings.

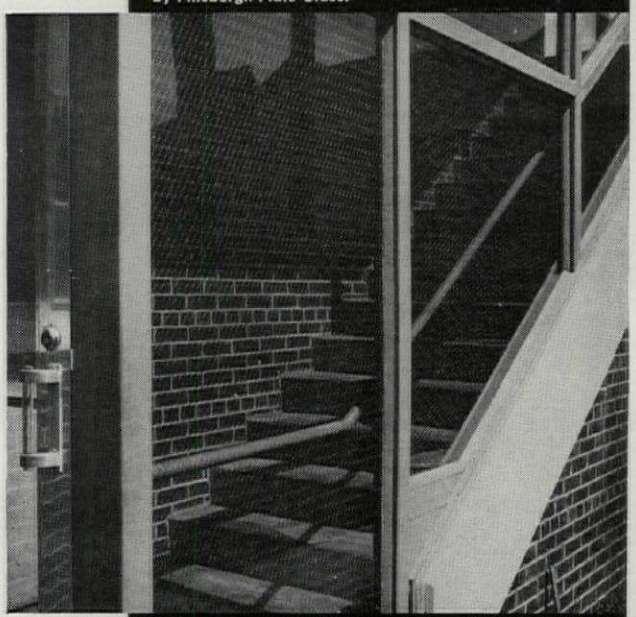
These are just a few of the many plumbing, heating-cooling and kitchen products made by AMERICAN-Standard PLUMBING AND HEATING DIVISION, American Radiator & Standard Sanitary Corp., P. O. Box 1226, Pittsburgh 30, Pennsylvania.

AMERICAN-Standard

Installation of ¼" Polished Misco beneath stair and balcony railing, Lerner Shop, Memphis, Tennessee. Installation by Pittsburgh Plate Glass.

in Step with TODAY'S TRENDS

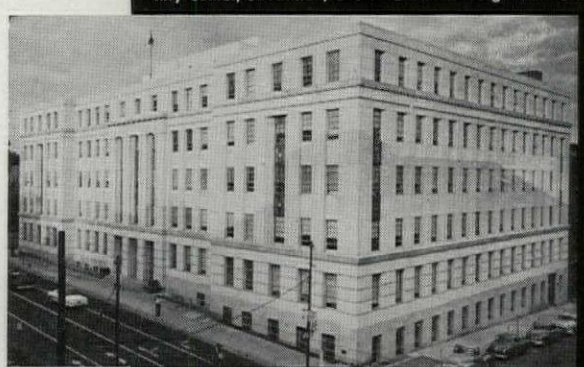
Strength and Beauty of Mississippi Wire Glass Adapts It To Variety of Architectural Uses



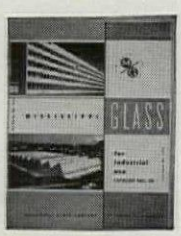
Exterior fire stair of ¼" Polished Wire in Hellenic Community Center, Savannah, Ga. Glazier: Pittsburgh Plate Glass.

Modern design achieves beauty as well as utility with clean lines. The highly interesting patterns of today's wire glass, combined with positive strength and protection make it the ideal modern material. This rugged glass can be used in a variety of ways. On an inside stairway it creates a note of high drama as well as an arresting and effective safety barrier. Enclosing an outside fire stairwell, it guards against flame and accident. In building sidewall sash, it helps bottle up fire, aids in preventing costly conflagrations. Mississippi wire glass protects beautifully at minimum cost in vertical shafts, windows, doors and all other vulnerable locations where fire or breakage protection is desired.

Give your buildings beauty plus utility. Specify Mississippi Wire Glass, with either Misco or hexagonal wire netting. The original solid wire glass on which the Underwriters' Standard was based in 1899, it is the standard today by which all others are judged. Available in polished or obscure patterns through distributors of quality glass everywhere.



Exterior windows of the North Carolina State Highway and Public Works Commission, Raleigh, N. C., are glazed with ¼" Polished Misco. Architect: Allen J. Maxwell, Jr., Installation by Pritchard Paint and Glass Company.



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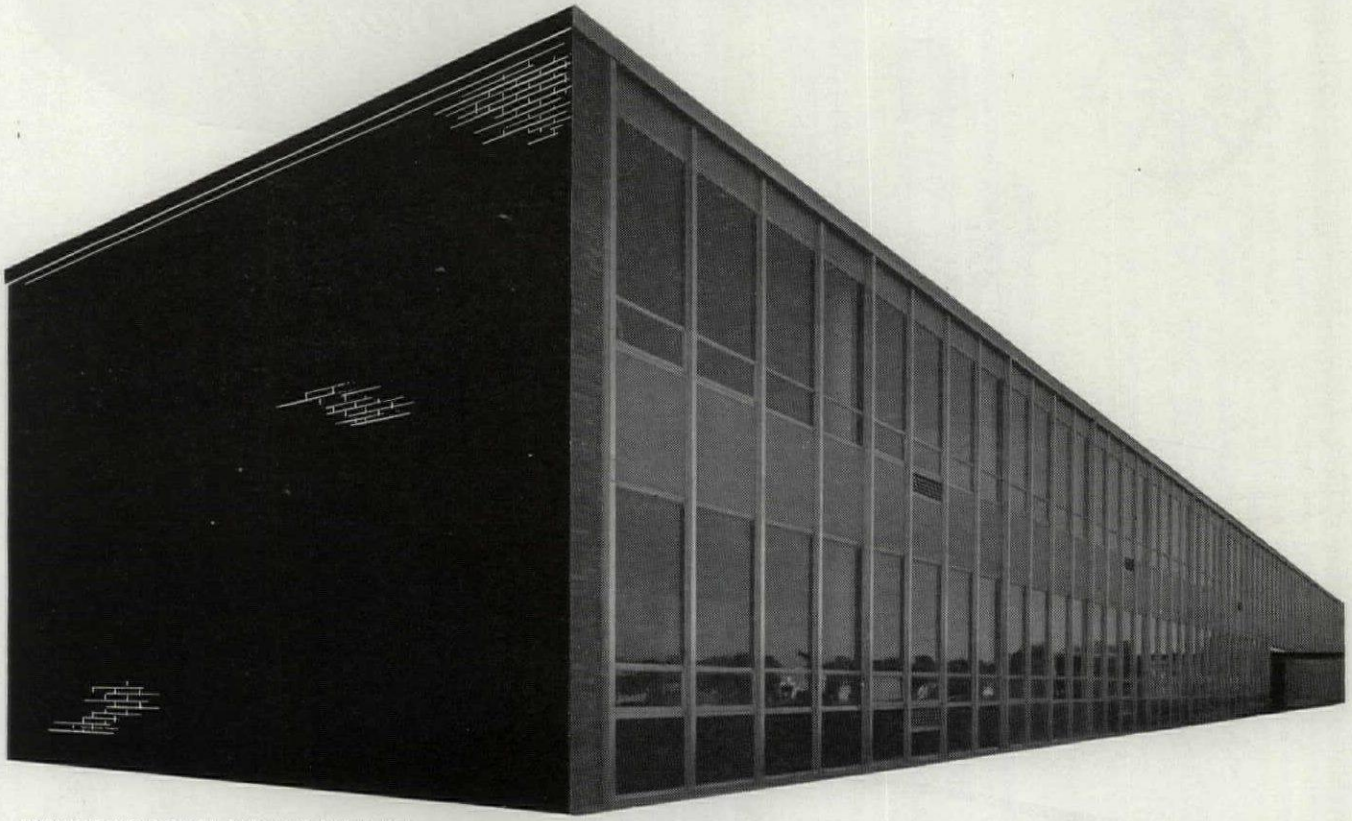
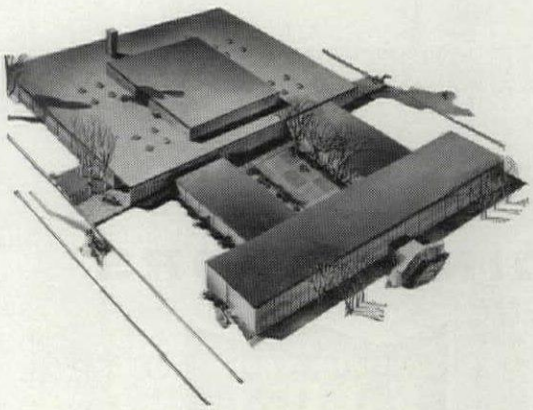
WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

CUPPLES

ALUMINUM CURTAIN WALLS GO TO SCHOOL



FAIRMONT HIGH SCHOOL, FAIRMONT, MINNESOTA
Hills, Gilbertson & Hayes—McClure & Kerr, Architects
Orville Madsen Construction Co., Contractor



The trend to clean, simple lines in modern school design points up the desirability of sound "skin" construction.

Fairmont High School was the first school in the Northwest to use this practical, economical construction method. Its aluminum curtain walls by Cupples employ vertical mullions, varied in size for design effect. Tubular weather-stripped windows are projected or fixed. Horizontal tubular sill finishes off the base. Composition panels, in slate gray or desert sand, make a durable inside wall for classrooms.

From skyscrapers to schools, Cupples is a pace-setter in "skin" development, fabrication and erection. Cupples, also, is one of the nation's largest manufacturers of commercial and residential aluminum windows, doors, Alumi-Coustic grid systems for suspended ceilings and special ornamental products. Our catalogs are filed in Sweet's.

Cupples PRODUCTS CORPORATION
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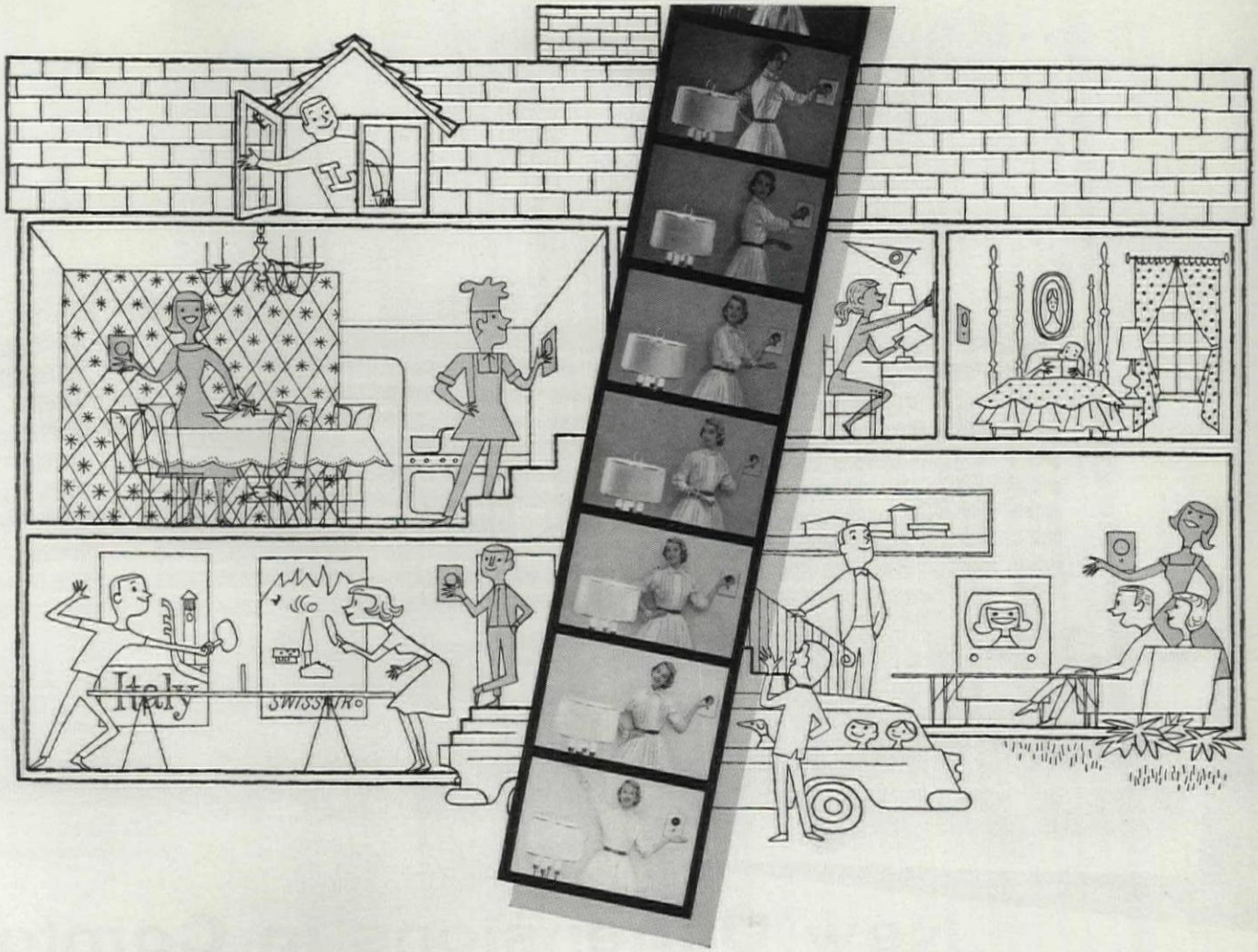


You can turn a dial and make your competition look old-fashioned! **NEW LUXTROL** light control

Here's a new, easy, *practical* way to set your homes apart from competition . . . to make them beautifully, profitably *different*.

It's an entirely new concept in home light control. New LUXTROL Light Control!

LUXTROL brings to homes, for the very first time, light that is truly *controlled*. Light that glides from dark to bright, bright to dark, *at the turn of a dial*. Gone are old-fashioned "on-off" switches. Gone is "all-or-nothing" lighting.

In living room or TV room, bedroom or nursery, dining room, bar or den, LUXTROL offers your prospects *the perfect level of light for every occasion, every activity, every mood.*

LUXTROL *is not a rheostat*. Instead it is a soundly engineered autotransformer type unit. It has both fuse and thermal overload protection. It controls fluorescent and incandescent and cold-cathode lighting. It operates smoothly, silently, safely, is approved by Underwriters' Laboratories.

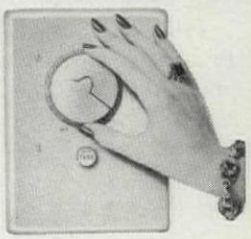
Best of all, LUXTROL is priced surprisingly low *and requires no complex wiring*. It replaces ordinary wallswitches, is just as easy to incorporate in your plans, *just as easy to install* — not only in homes but in nonresidential applications too.

SEE NEW LUXTROL FOR YOURSELF. ARRANGE A PERSONAL DEMONSTRATION. We'll send you the name of the nearest distributor and full technical data, just send us the coupon.

New LUXTROL Light Control requires no complex wiring, is as easy to install as an ordinary wallswitch!

THE SUPERIOR ELECTRIC COMPANY
4125 Demers Ave., Bristol, Conn.

Please send me the name of the nearest distributor and full design data on new LUXTROL Light Control.



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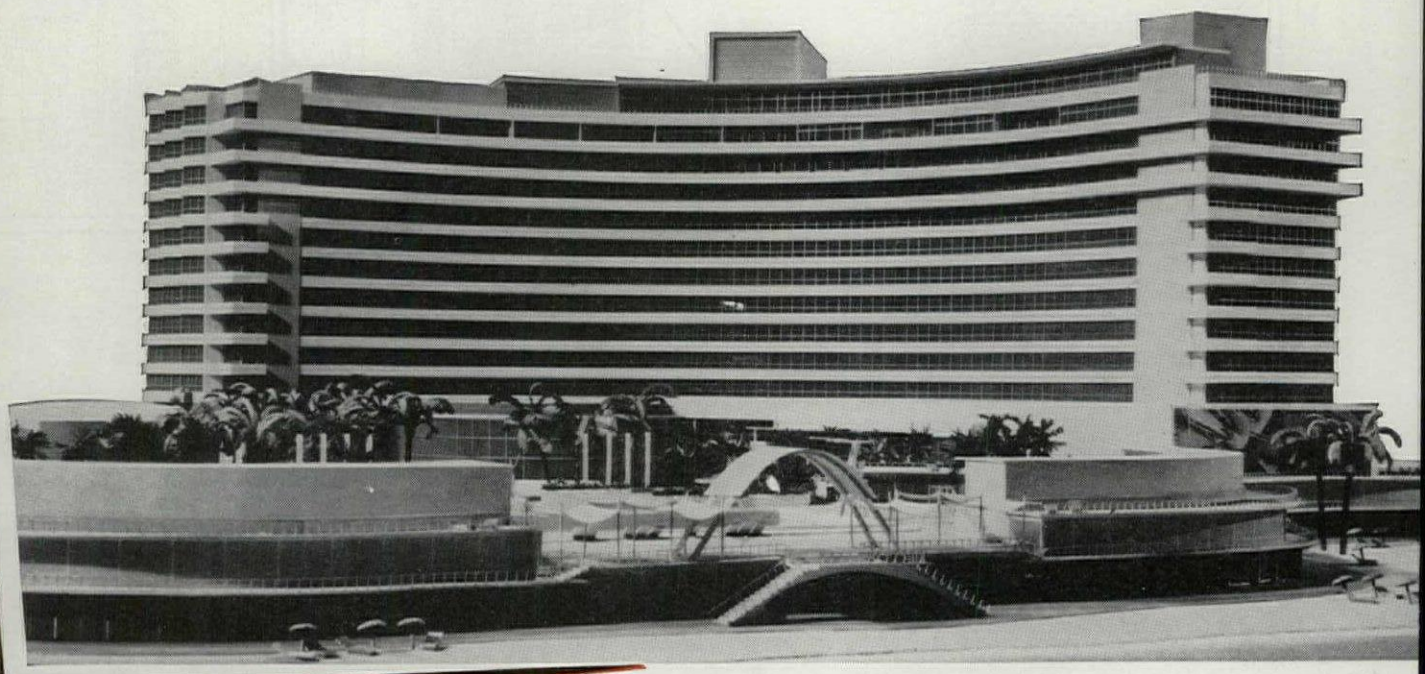
Watch for our mobile display, "a mansion on wheels," with the latest on lighting in actual room settings.



New Dimensions in Comfort

Only one standard—*perfection*—guided the creators of this magnificent luxury resort. Here is comfort on a scale rarely experienced and never to be forgotten.

Emphasizing the enjoyment of The Fontainebleau's matchless splendor is a made-to-order indoor climate that's better than Nature's best! Ideal, perfectly regulated temperatures are constantly maintained throughout the entire building by a specially designed system of Johnson Automatic Temperature Control.

Highlights of this pace-setting control system include finger-tip selection of temperatures through Johnson Thermostats in each of The Fontainebleau's 565 guest rooms, all of which are equipped with Johnson-controlled air conditioning units.

The comfort requirements of the public areas are met with equal satisfaction by other Johnson thermostats, valves and related apparatus controlling 22 York "Recold" air conditioning units, ranging from 4.86 to 118.4 tons. These spaces vary in size from small shops to large dining rooms, cocktail lounges, the 17,000 sq. ft. Main Lobby and a Grand Ballroom accommodating 1,800 people.

With this Johnson-engineered Control System, The Fontainebleau enjoys not only the benefits of the finest in modern comfort control, but also is assured of the maximum return on every heating and cooling dollar spent.

The fact that The Fontainebleau—and the great majority of the nation's other better buildings—depend on Johnson Control is your assurance of its unmatched superiority. Johnson can provide the same high standards of comfort and economy for *any* building, small or large. An engineer from a nearby Johnson branch will gladly discuss your temperature control problems and give you his recommendations without obligation.

Johnson Service Company, 507-G East Michigan Street, Milwaukee 1, Wisconsin. Direct Branch Offices in Principal Cities.

Hotel Fontainebleau, Miami Beach. Morris Lapidus, architect, New York and Miami Beach; Sasnett & Bennett, mechanical engineers, Miami; B. A. Jacobi, air conditioning engineering advisor, New York; Taylor Construction Co., general contractor, Miami; Hill York Corp., air conditioning contractor, Miami.

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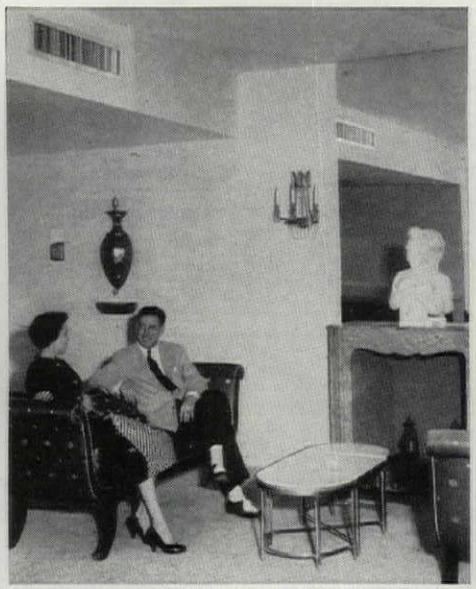
TEMPERATURE ↕ AIR CONDITIONING

PLANNING • MANUFACTURING • INSTALLING • SINCE 1885

For America's Finest Luxury Hotel . . .
Indoor Climate that's Better than Nature's Best!

Spacious size presents no comfort problem in The Fontainebleau's impressive lobby or other public areas. Strategically located Johnson Thermostats insure refreshing, even temperatures regardless of the outdoor weather.

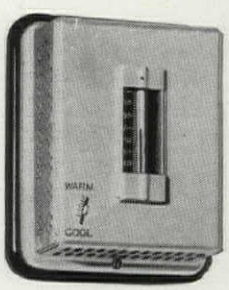


Johnson *Individual Room* Control allows the occupants of each room to select their own personal weather. Thermostats regulate the supply of conditioned air furnished by units mounted above the entrances.

In La Ronde, the hotel's smart supper club, as many as 500 guests are entertained in perfect comfort. Johnson Thermostats easily compensate for changing occupancy levels to maintain an ideal temperature.

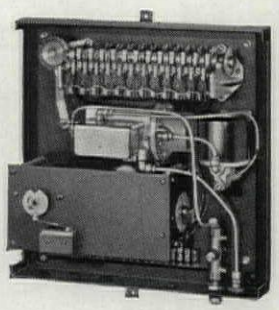
. the Fabulous Fontainebleau

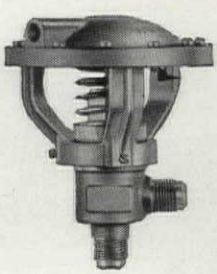
Interesting Applications of JOHNSON CONTROL . . .



Room temperatures to suit the individual preference of guests are provided through Johnson T-432 Heating-Cooling Thermostats controlling Johnson Water Valves on room units. This sensitive, fast-acting thermostat permits occupants to enjoy ideal temperatures at all times—never feel a need for more or less heating and cooling. For complete description of operating features, write for Bulletin T-432.

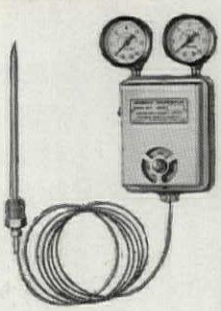
Capacity control of the Fontainebleau's seven refrigeration compressors is accomplished automatically by a Johnson Pneumatic Step Controller. The unit starts compressors in proper sequence to maintain the set chilled water temperature. A time delay assures the proper interval between successive switch operations on start-up or after current failure. Send for Bulletin G-180.





Air conditioning units in guest rooms are equipped with Johnson V-152 Water Valves to regulate the hot and chilled water supply. Designed especially for this type of application, this compact valve provides smooth, accurate response to the demands of the Room Thermostat. Features include V-ring self-sealing packing and molded rubber diaphragm. Write for Bulletin V-152.

Comfort control in some of the public areas is provided by the highly accurate Series T-800 Johnson Thermostats which sense the temperatures of the return air and maintain the temperature of the conditioned air at the proper level. Series T-800 Thermostats are available in a variety of models and are adaptable to many applications. Send for Bulletin T-800.



Davies Building, New York City
Architect: Emry Roth & Sons

York Laboratory, York, Pa.
Architect: Buchart Engineering Corp.

Pennsylvania State Office Building, Pittsburgh, Pa.
Architect: Altenhof & Bown

These buildings and hundreds like them cost less,

Mayo Clinic (Diagnostic Building), Rochester, Minn.
Architect: Ellerbe & Co.

Henry C. Beck Building, Shreveport, La.
Architect: Neild-Somdal Associates

Republic National Bank Building, Dallas, Texas
Architects: Harrison & Abramovitz

less maintenance because they are constructed

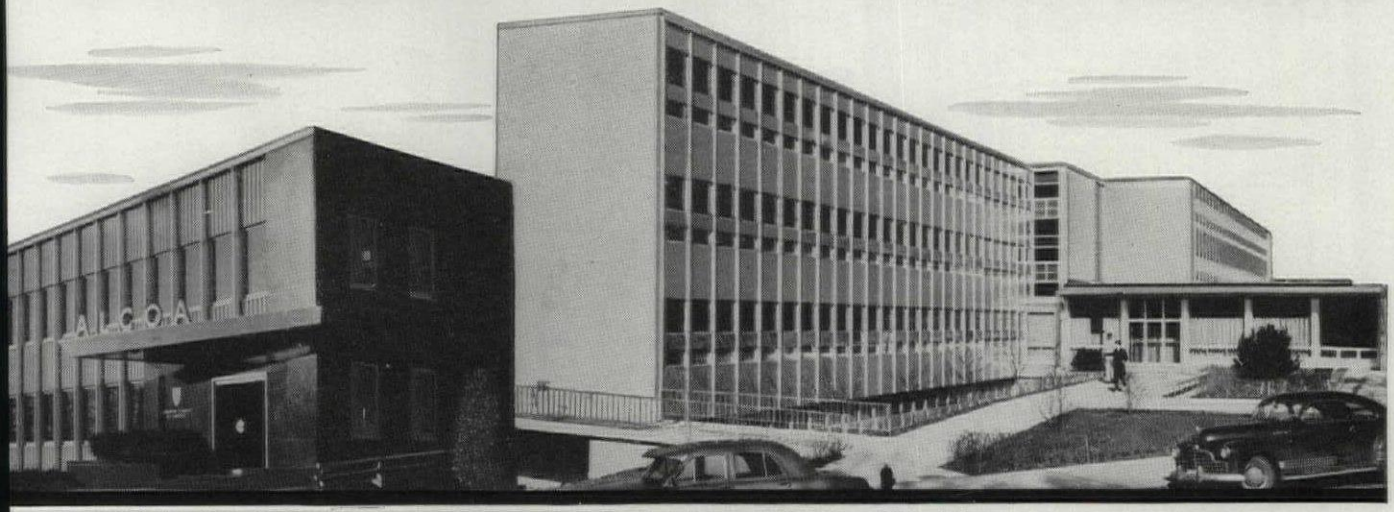
Missouri State Office Building, Jefferson City, Mo.
Architect: Marcel Boulicault

Prudential Building, Chicago, Ill.
Architect: Naess & Murphy

Fort Couch School, Allegheny County, Pa.
Architect: Button & McLean

Wyatt Building, Washington, D. C.
Architect: A. R. Clas

were erected faster, occupied earlier, and require



Alcoa Sales Office, Cincinnati, Ohio
Architect: Schell & Knabe

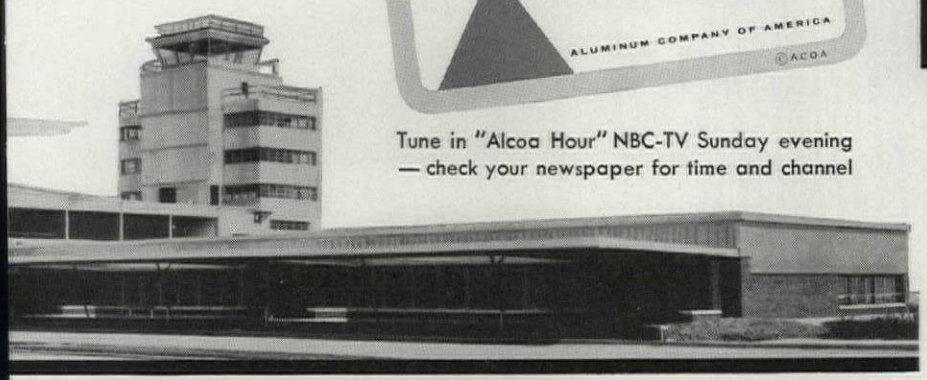
Carnegie Tech Donner Hall Dormitory, Pittsburgh, Pa.
Architect: Mitchell & Ritchey

largely of Alcoa® Aluminum

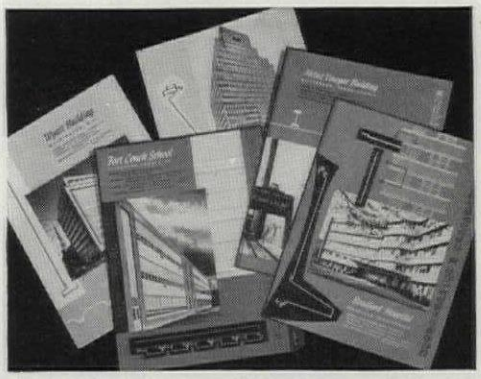
Your Guide to Aluminum Value

ALCOA ALUMINUM
ALUMINUM COMPANY OF AMERICA
ALCOA

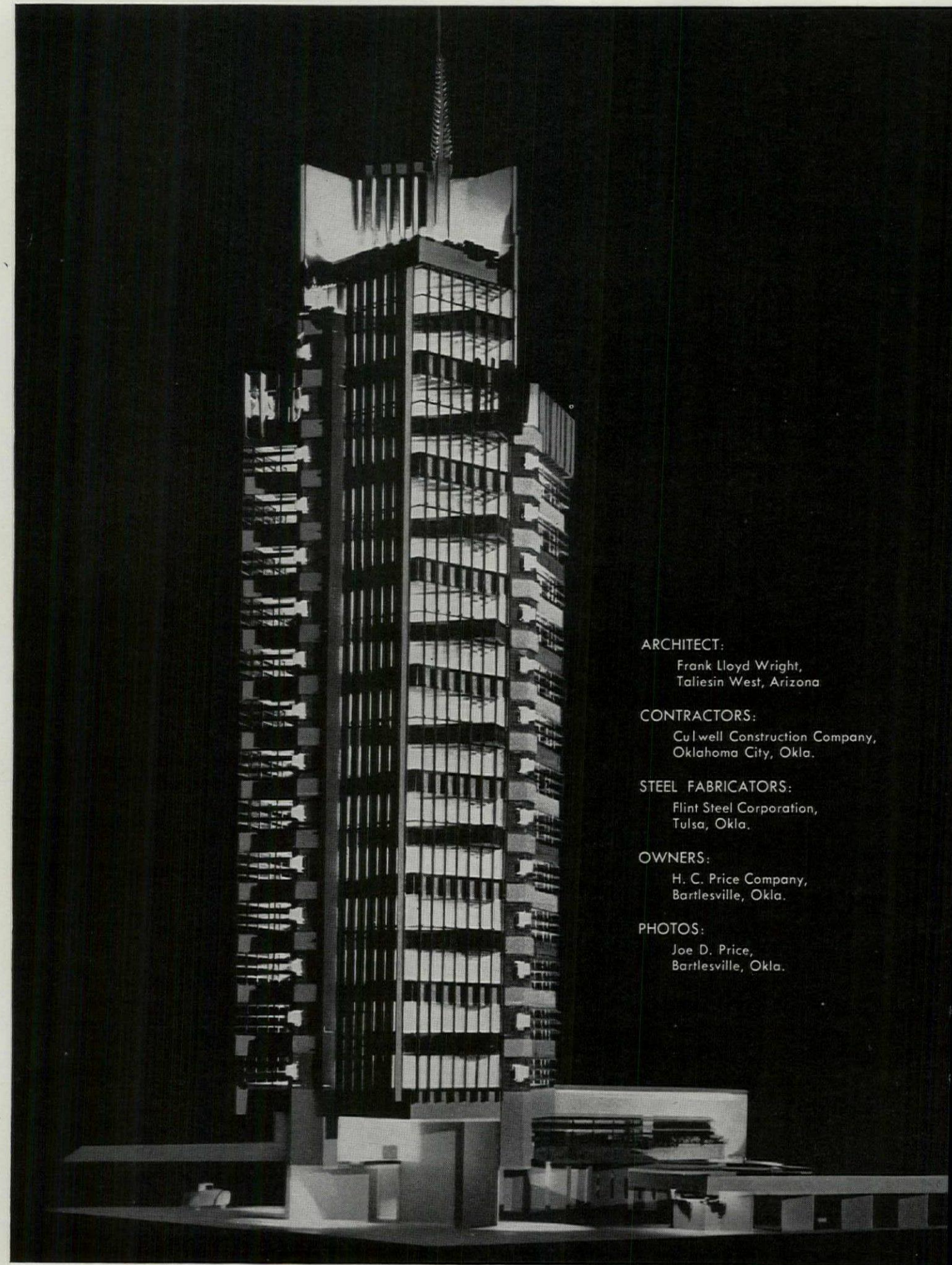
Tune in "Alcoa Hour" NBC-TV Sunday evening
— check your newspaper for time and channel



General Mitchell Field Airport Terminal, Milwaukee, Wis.
Architect: Milwaukee County Architect's Office



Details of these and other buildings where architects have exploited the outstanding advantages of aluminum are available on request. Write for your copy of *Alcoa Architectural Achievements* and see how aluminum has progressed from ornamentation and minor applications to its full stature as a primary *structural* material. Aluminum Company of America, 1890-M Alcoa Bldg., Pittsburgh 19, Pa.



ARCHITECT:
Frank Lloyd Wright,
Taliesin West, Arizona

CONTRACTORS:
Culwell Construction Company,
Oklahoma City, Okla.

STEEL FABRICATORS:
Flint Steel Corporation,
Tulsa, Okla.

OWNERS:
H. C. Price Company,
Bartlesville, Okla.

PHOTOS:
Joe D. Price,
Bartlesville, Okla.

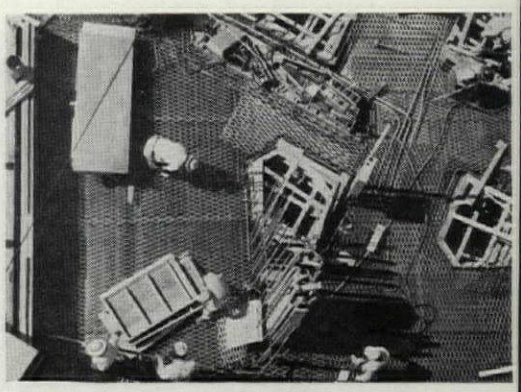
For the new Price Tower in Bartlesville, Oklahoma

—IT'S WHEELING STEELCRETE!

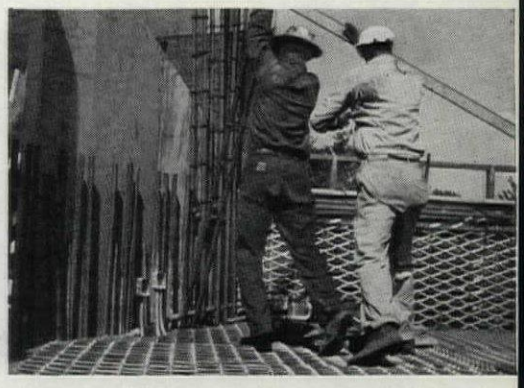
Aside from its striking appearance, probably the most unconventional feature of the new Price Tower is the inclusion of one quadrant of apartment units along with its three quadrants of offices. And yet, because of its design and versatility of materials used, the entire 186-foot building is only one-seventh the weight of similarly sized buildings in New York City's Rockefeller Center.

Cantilever construction is achieved with floors and walls suspended from four vertical reinforced concrete supports . . . reinforced with over 395 tons of Wheeling Steelcrete Expanded Metal Reinforcing . . . solid steel mesh expanded from 3/8" carbon steel plate. Steelcrete is one of the many dependable Wheeling products specified and used with confidence by architects and builders.

The complete line of Wheeling Building Materials includes Steelcrete Reinforcing Mesh, Expanded Metal, ExM Gratings, Metal Lath and Accessories, Tri-Rib Steel Roof Deck, ExM Angle Frame Partitions, Steelcrete Bank Vault Reinforcing, and SoFTite Cop-R-Loy Galvanized Sheets.



Floor plan showing reinforcing steel in place. The STEELCRETE *reinforcements assure proper distribution of steel at low placing costs.*



Heavy STEELCRETE *reinforcing mesh in floor can be used as a working level until concrete is poured. No special catwalks or temporary "bridges" for concrete buggies are required.*

Wall area using a combination of STEELCRETE *and bars to obtain desired reinforcements. Produced in 3" x 8" diamond shape,* STEELCRETE *offers up to 1½ sq. in. of area to the foot of width.*

Wheeling
CORRUGATING COMPANY

WHEELING CORRUGATING COMPANY, WHEELING, WEST VIRGINIA

BUILDING MATERIALS DIVISION

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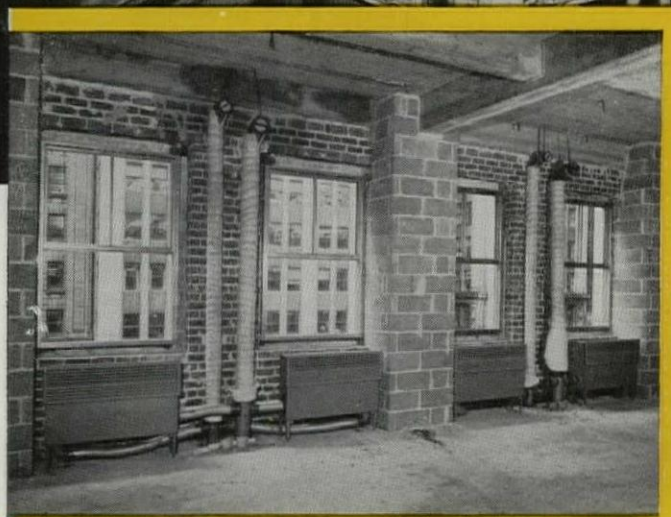
LOUISVILLE MINNEAPOLIS NEW ORLEANS NEW YORK PHILADELPHIA RICHMOND ST. LOUIS

TUTTLE

High

Seaman's Bank for Savings . . . First entire building in New York City to use *double duct mixing plenum high pressure system* features complete flexibility of heating/cooling zone control.

Architects: Halsey, McCormack & Helmer
Consulting Engineer: Edward E. Ashley
General Contractor: William L. Crow Construction Co.
Air Conditioning Contractor: Alvord & Swift



Photograph taken during construction of Seaman's Bank for Savings showing installation of Tuttle & Bailey Type MPW Double Duct Mixing Plenum Wall Units.

Typical view of a general office area in Seaman's Bank for Savings showing how Tuttle & Bailey Type MPW Units blend with modern architectural design and decorative scheme.

ENGINEERED PRODUCTS FOR AIR CONDITIONING

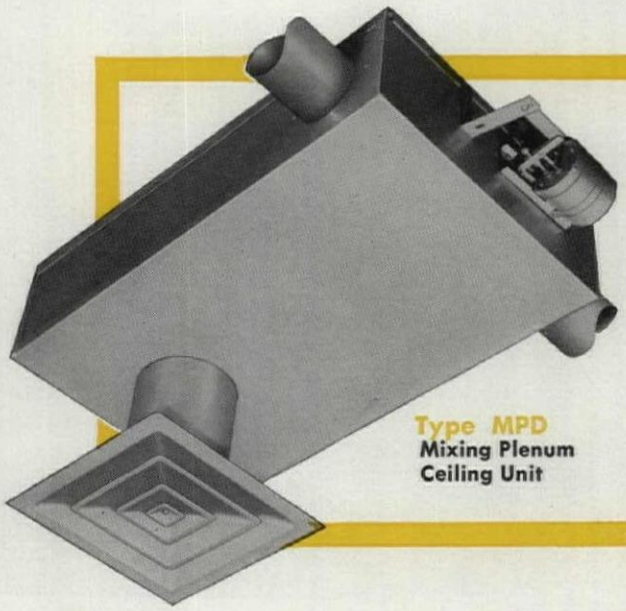
& BAILEY
Pressure Units

give **SEAMAN'S BANK** for **SAVINGS**

indoor weather that satisfies everybody!

IN THIS modern twelve-story addition to Manhattan's financial district, Tuttle & Bailey High Pressure Units will provide efficient, economical year-around heating and cooling comfort . . . Type MPW Wall Units are located under all windows throughout the building, in banking areas and private offices . . . Type MPD Ceiling Units are installed in the dining areas.

Operating on an all-air system, these double duct units mix and discharge varying proportions of heated and cooled air to provide a constant volume at the exact temperature desired in individual areas. This flexibility means one area can be heated while another is cooled regardless of time of day or season.



Type MPD
Mixing Plenum
Ceiling Unit

Type MPW
Mixing Plenum
Wall Unit

Savings in overall building and installation costs were effected by the use of conduit risers and branches which reduced floor-to-floor dimensions . . . a single primary equipment room resulted in more useable space . . . and the need for supplementary equipment required for the operation of other types of systems was eliminated. In addition, utilization of 100% outside air for cooling when temperature permits will save the cost of operating compressors, pumps, and cooling tower during such periods.

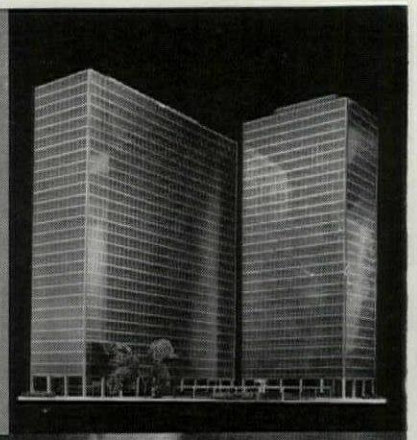
For complete information on the advantages of a high pressure air distribution system in new construction — or for remodeling — get in touch with your nearest Tuttle & Bailey Representative or write for Catalog No. 109 and Bulletin No. 110.

TUTTLE & BAILEY INC

NEW BRITAIN, CONN.

VENTILATING AND HEATING

AMERICA'S TALLEST
REINFORCED CONCRETE BUILDINGS...
COST COMPARISON PROVES THEIR ECONOMY



"900 Esplanade Apartments" and "Commonwealth Promenade Apartments" Chicago, Illinois

Ludwig Mies van der Rohe (Friedman, Alschuler & Sincere, Associated) Architect

Frank J. Kornacker Structural Engineer

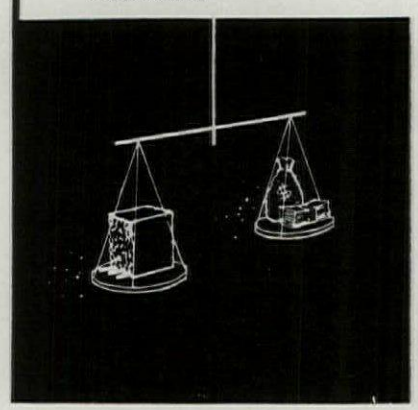
Herbert S. Greenwald General Contractor

Sumner Sollitt Company Subcontractor

On the lake front of Chicago's near north side, the nation's tallest flat-slab reinforced concrete buildings are rapidly rising. They make up a $25,000,000 project of six 28 and 29-story apartment buildings—luxury "glass house" type—designed by the internationally renowned Ludwig Mies van der Rohe.

Mr. Frank J. Kornacker, structural engineer, said, "Reinforced concrete was chosen for economy reasons after a cost comparison with other structural methods. Another deciding factor was that materials were readily available."

Each year, an increasing number of buildings of all types are going to reinforced concrete construction. Reinforced concrete produces a rigid structure, highly resistant to wind, shock, and quake. Furthermore, materials and labor are readily available from local sources. On your next job, design for durability at low cost . . . design for reinforced concrete.



CONCRETE REINFORCING STEEL INSTITUTE CRSI FOUNDED 1924

Compare...

YOU'LL SAVE WITH REINFORCED CONCRETE

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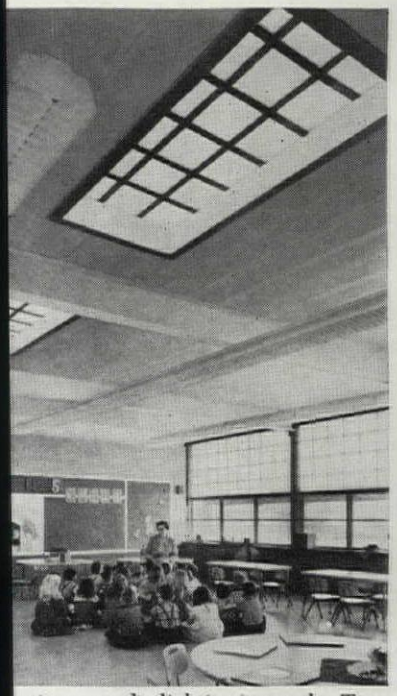
CONCRETE REINFORCING STEEL INSTITUTE

The combination of light-directing glass block and vision strip keep brightness at comfortable levels, provide vision and ventilation.



Acting as a daylighting team the Toplite Panels and glass block provide sufficient daylight during normal days without need for artificial lighting.

Michener School, Adrian, Michigan. Louis Kingscott, Architect. W. N. Bjorklund, General Contractor.

Near the windows, or far from them, good daylight is everywhere

Light-Selective Toplite Roof Panels transmit cool, desirable daylight; reject hot, glaring sun. No longer is it necessary to confine close detail work to the area nearest the windows. Toplite Roof Panels permit daylighting of all building areas regardless of location or distance from exterior walls.

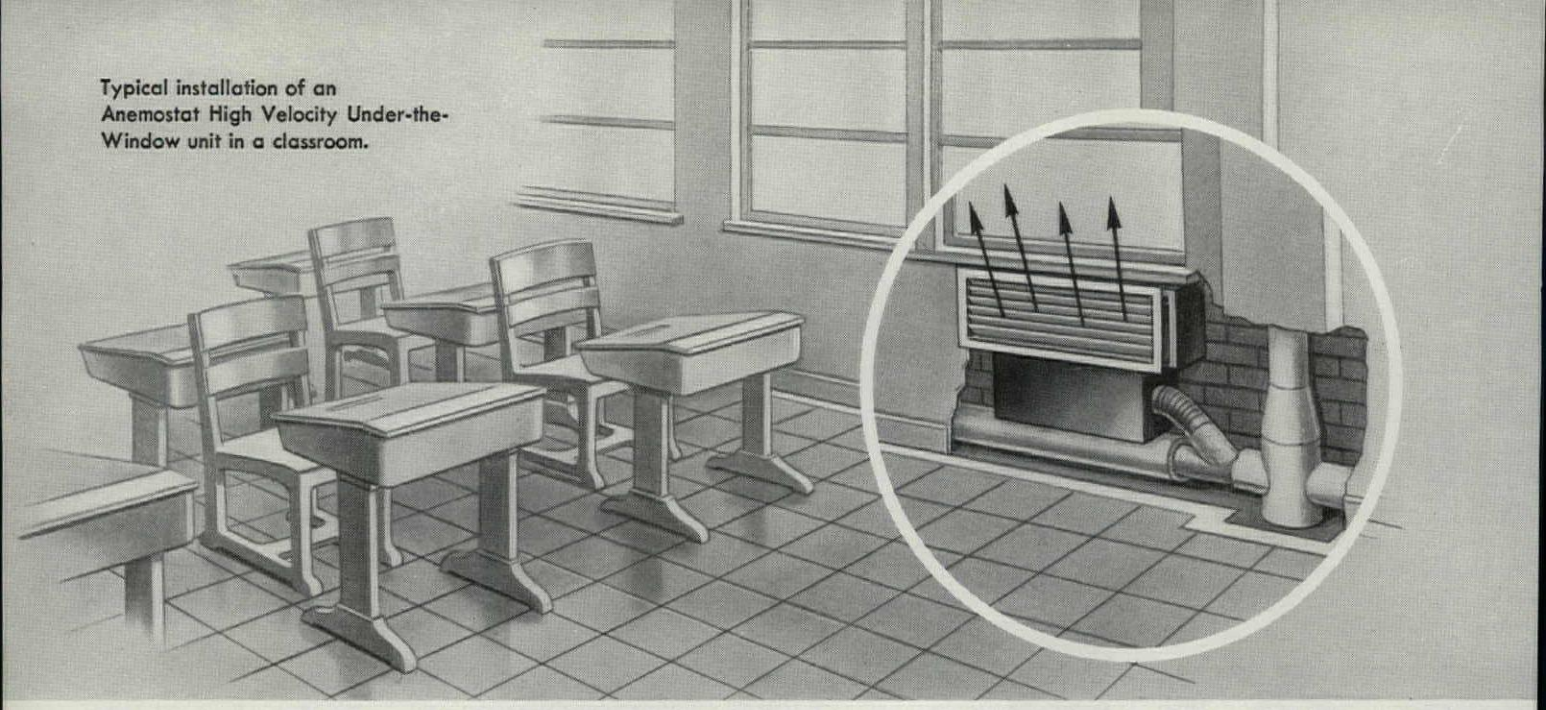
The prismatic glass units in O-I Toplite Panels "think" before they transmit the sun's rays. Needed North light and the soft low rays from the South are readily accepted. But rays from the high summer sun are rejected. Glare and heat of old-fashioned skylights are eliminated.

Toplite Panels may be installed in continuous strip, pattern, or in individual panels. Use a Toplite Panel as you do a lighting fixture.

The complete story of this great new advance in efficient utilization of free daylight is available in a new booklet on Toplite Roof Panels. For your free copy, write today: Kimble Glass Company, subsidiary of Owens-Illinois, Dept. **PA-12,** Toledo 1, Ohio.

TOPLITE ROOF PANELS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO



Typical installation of an Anemostat High Velocity Under-the-Window unit in a classroom.

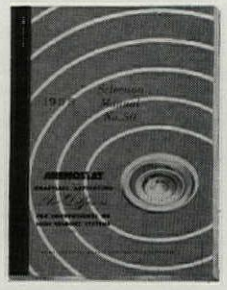
How to deliver

high velocity air to schoolrooms

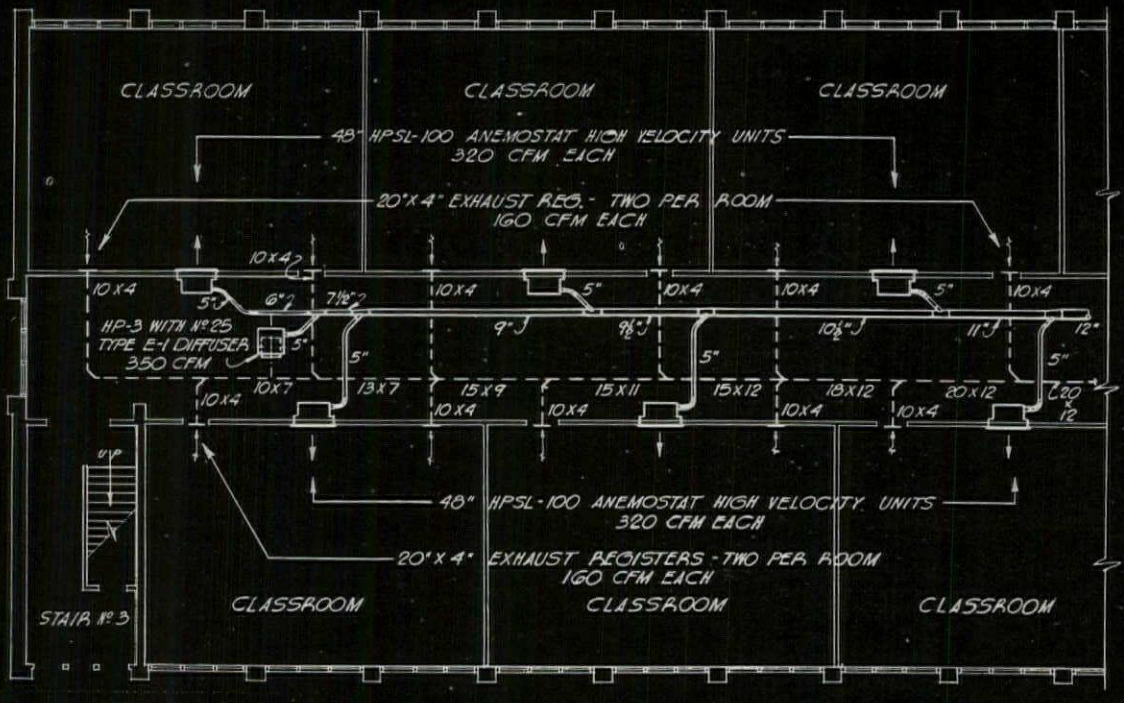
Shown here are two ways of using the Anemostat All-Air High Velocity system of draftless air distribution for heating and ventilating schools. Under-the-Window units (above) are the most practical for colder climates. Corridor distribution (below) is preferable in warmer climates.

Advantages:

- All-Air High Velocity units require smaller than conventional ducts, thus save space and money.
- All-Air HV units can be used for individual or zone control, in single or dual duct installation.
- Since air is supplied from the main equipment room, there is no need to break through the outside of the building for prime air make-up. This eliminates grilles, dampers, possibility of leaks.
- The Anemostat All-Air HV system can be simply installed by the sheet metal trades. No supply or return pipes are required. Units are quiet, need a minimum of maintenance from custodians.



For latest data on All-Air High Velocity units, write on your business letterhead for new Selection Manual 50 to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N. Y.



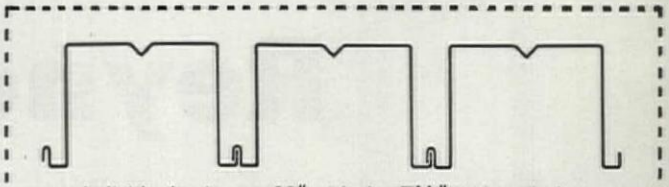
Diagrammatic layout shows corridor distribution of high velocity air for wing of school.

Now Span 32 Feet

with Robertson Long-Span Q-Deck

LIGHT WEIGHT • GREAT STRENGTH • EASY TO INSTALL • GOOD LOOKING

After considerable testing and research, H. H. Robertson Company is pleased to announce the availability of a new product much needed in modern construction—a steel deck that will span great distances with the required load-carrying capacity. This new *Long-Span Q-Deck*, now in production, carries with it all the basic qualities and advantages of Robertson's well known Standard Q-Deck. Tight side laps become standing seams and are caulked and mechanically fastened at regular intervals to act as a vapor barrier and for structural stability. Units are easy to handle and erect with a minimum crew. They install quickly and tightly because of precision manufacture. *Long-Span Q-Deck* fills a long felt need in schools, supermarkets and other buildings where longer single spans bring construction economies and design flexibility. Any standard insulation and built-up water-proofing can be used. Use the coupon to write for technical literature about this new Robertson product.



Individual units are 12" wide by 7½" high, rolled from metal-coated steel in 18, 16, 14 and 12 U.S. Gage. Standard lengths up to 32 feet maximum.

For supermarkets and schools much greater latitude of design is allowed by increasing deck span. Considerable saving in structural steel is made possible, and time and labor are cut down in the erection of the deck itself.

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Offices in All Principal Cities — World-Wide Building Service

Please send free information on Long-Span Q-Deck.

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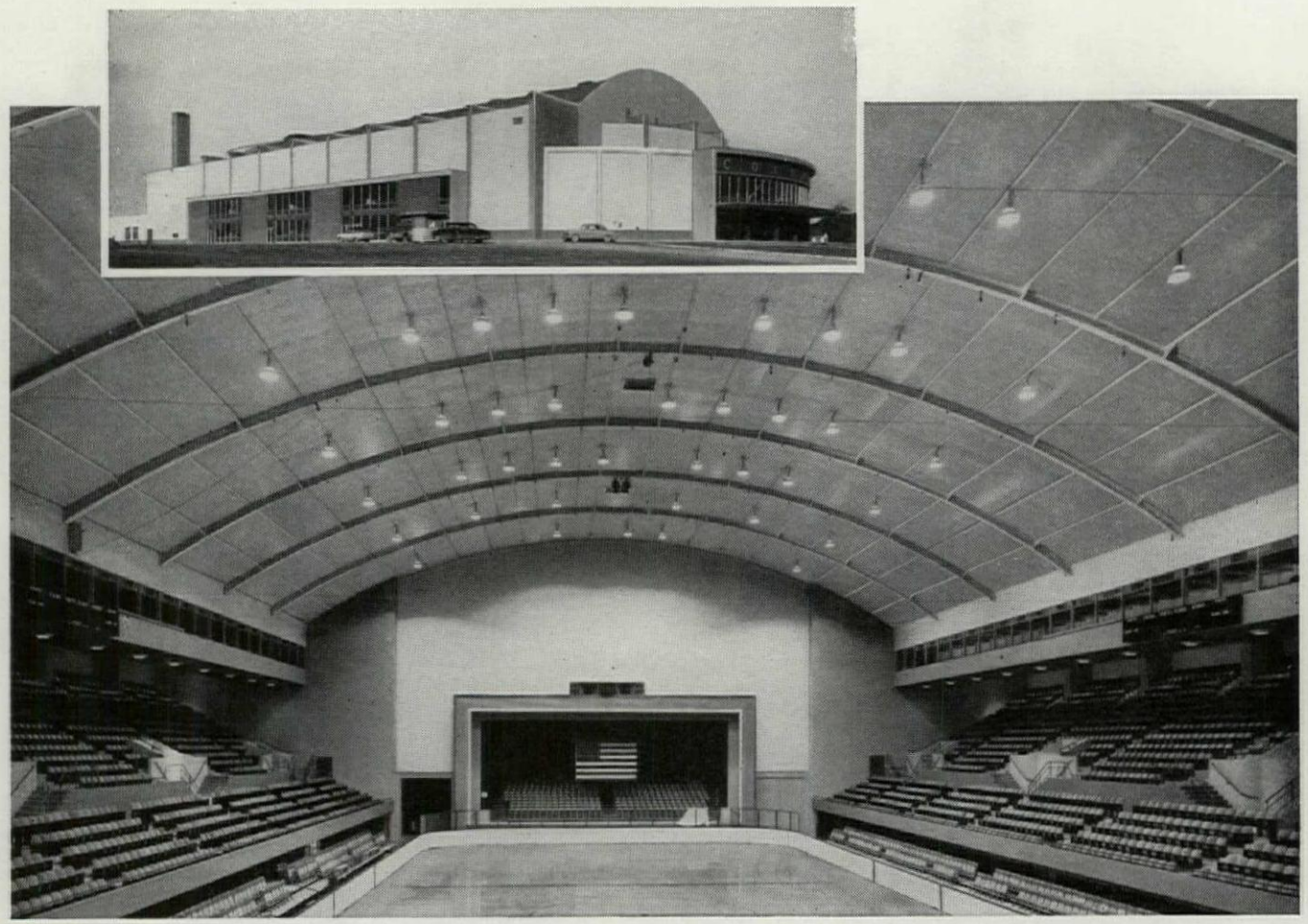
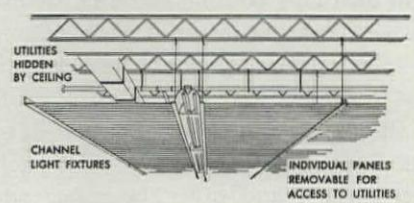


Spokane Coliseum proves efficiency of ReynoCoustic

Performers and spectators have attested the high acoustical efficiency of ReynoCoustic in the Spokane Coliseum. And this installation demonstrates other advantages of the system no less dramatically. The virtual elimination of maintenance is important in a ceiling difficult to reach. The brightness of aluminum makes lighting more effective, less expensive. And it is vital, in a public place, that this acoustical system is incombustible. Each shipment carries Underwriters' Laboratories label. Available in either natural aluminum or soft-white baked enamel finish.

A complete installation service is available. For name of nearest franchised acoustical applicator, call the Reynolds office listed under "Building Materials" in classified phone books of principal cities. For literature, write to Reynolds Metals Company, Building Products Division, 2014 South Ninth Street, Louisville 1, Kentucky.



Typical installation showing method of support for ceiling members and lighting fixtures. This system provides a noise reduction up to .90- uniformly high at all frequencies.

See "FRONTIER." Reynolds great dramatic series, Sundays, NBC-TV Network.

REYNOLDS ALUMINUM

BUILDING PRODUCTS

close ALL the doors

with RIXSON DOOR CLOSERS

a type and size for every door closing need
and door hanging style . . . exterior and interior . . .
from the heaviest lead-lined x-ray room door
to the lightest office rail gate

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NEW YORK, N.Y.	*Fred G. MacKenzie, 107 Reade St.*
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CLEVELAND, OHIO	*K. A. Klaasse, 364 Lake Forrest Drive, Bay Village*
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WASHINGTON, D.C.	*Lloyd R. Anderson, 4318 Rosedale Ave., Bethesda, Md.*
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Uniform high quality for over 55 years

THE OSCAR C. RIXSON COMPANY

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LONGSPAN JOISTS GIVE DINING ROOM MAXIMUM COLUMN-FREE SPACE

The new Oberlin Inn at Oberlin College in Ohio replaces the original college inn, built in 1867. The new inn has 48 bedrooms, public and private dining rooms, and lobby, and there is an adjacent shopping center. Most of the main building is two stories high, built on a framework of structural steel.

The large public dining room is one story high. To obtain maximum column-free space, Bethlehem Longspan Joists were used in the roof of this room, thereby making the best possible use of every square foot of floor space.

Over the other public rooms in the inn Bethlehem Shortspan Joists were used, both in the first floor ceiling and second floor roof. Here, as over the dining room, the joists were used in combination with a poured roof slab and plastered ceiling which, depending upon the type and thickness of the materials, provides a construction with up to four hours' fire-safety.

In addition, Bethlehem Joists helped to hold down building costs. They reached the job site fully marked, ready for immediate placing, without falsework. Installation of ductwork and wiring was simplified by running them right through the open webs.

Oberlin Inn, Oberlin, Ohio. *Architect:* Eldredge Snyder, New York; *Structural Engineers:* Barber and Magee, Cleveland; *General Contractor:* Knowlton Construction Co., Bellefontaine, Ohio.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

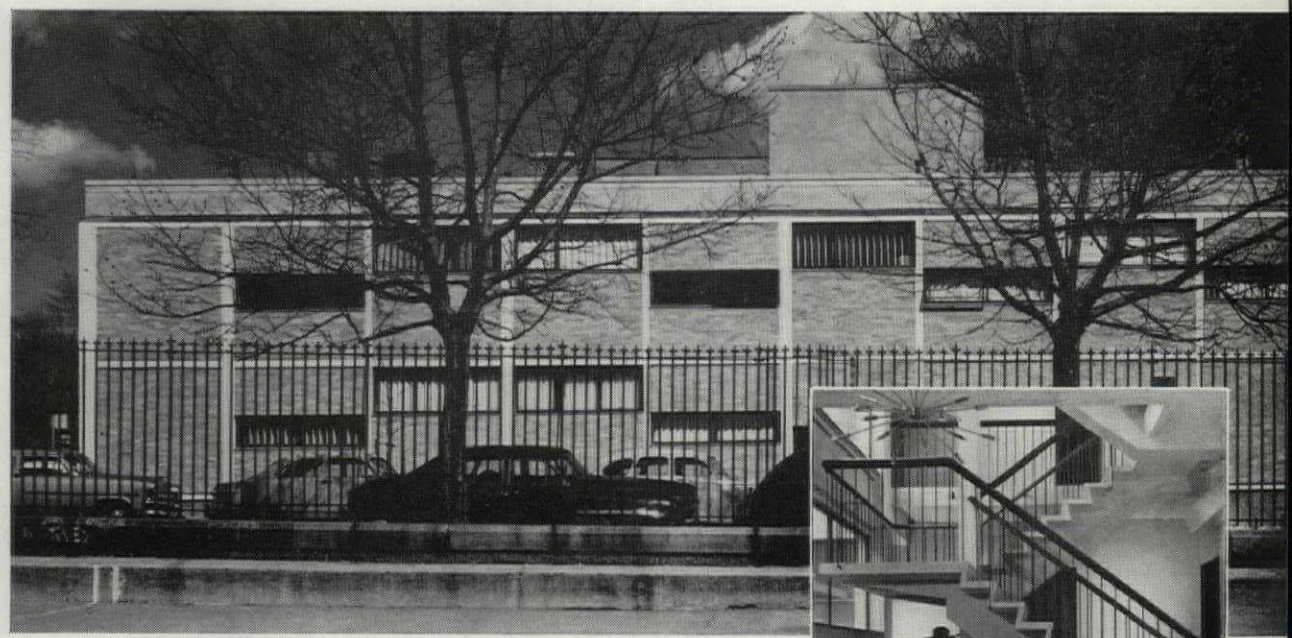
BETHLEHEM OPEN-WEB STEEL JOISTS

BETHLEHEM STEEL

MATICO Confetti®

PAT. PEND.

meets every hospital flooring need
— with the rare "plus" of cheerful styling



Upper Manhattan Medical Group, Health Insurance Plan Clinic New York, N. Y.

ssociated Architects: George Nemeny, Abraham W. Geller, Basil Yurchenco

General Contractor: Adson Builders, Inc.

Flooring Contractor: Sidney Fenster, Inc.

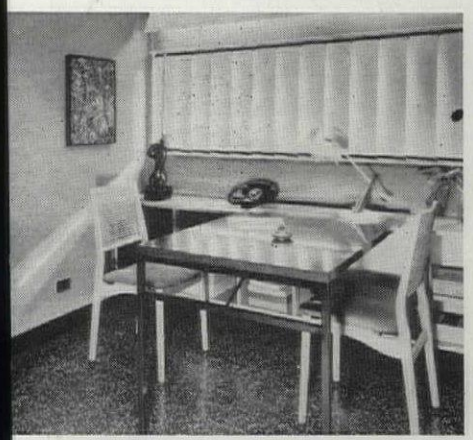
Widely acclaimed, New York's Upper Manhattan Medical Group Clinic integrates the highest standards of architecture, function and decor in an ideal union . . . in which MATICO Confetti tile is an essential specified element.

In these light and lifting circulation areas the Confetti floor of white with black mottle contributes to the air of buoyancy and lightness. Even under heavy traffic conditions Confetti's bright colors last and last.

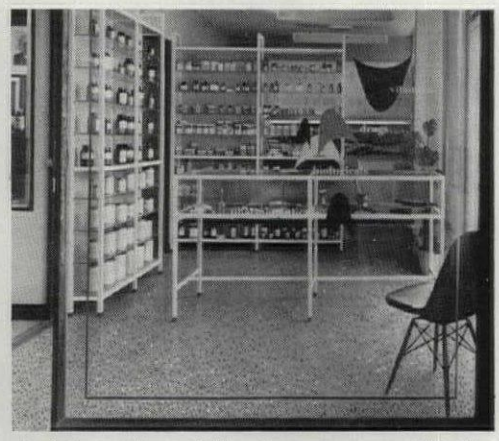
's easy to see why more and more archi-cts are specifying MATICO Confetti le Flooring for hospital projects.

asically, it's because Confetti satisfies ery need, every rigid requirement of e modern hospital. First, it is sanitary, rable and quietly resilient. But more an that, it is also fire-resistant and low cost for both installation and maintenance. And, in addition to all these utility values, Confetti's gay dots-of-color styling lends new charm and cheer where past custom dictated hygienic coldness.

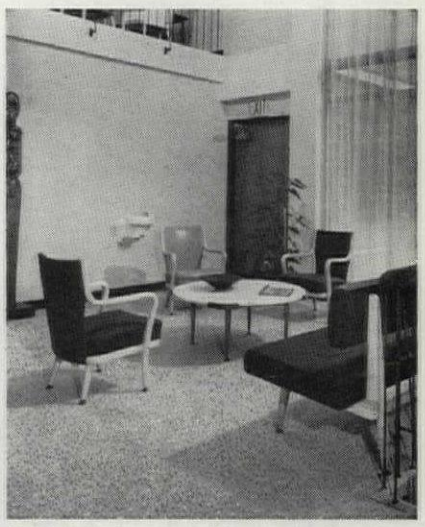
— Good reasons, all, why you can specify Confetti tile flooring not only with confidence, but with justifiable enthusiasm, in your next hospital project as well as other types of projects.



consultation rooms for doctors and patients nfetti was specified also — this time in black h white mottle. (In addition, Confetti is also ilable in nine other color combinations).



Architects planned the pharmacy as a "display piece" near the Clinic's entrance, where it can be seen through a wall of glass. Here, too, Confetti in white with black mottle was specified.



In this intimate waiting room, the decor is one of colorful furnishings, restful lighting and more of MATICO'S airy, bright Confetti flooring.

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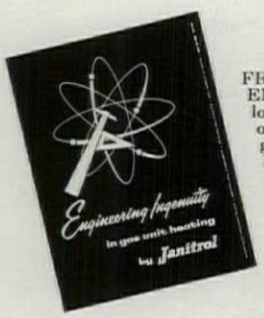
Gas unit heaters may look alike, but those built by Janitrol have a reputation for quality and performance you can stake your reputation on. They deliver the *extra* comfort and fuel economy that brings favorable comment to those responsible for specifying them. A complete line of Janitrol unit heaters fit every requirement—from small shop to mammoth industrial plant. There's good reason why you should specify Janitrol for your client's *lasting* satisfaction. See why in booklet below.



FREE TO ARCHITECTS AND ENGINEERS — this booklet loaded with vital information on unit heating. Be sure you get this data for your A.I.A. File 30-C-43. Write for your copy today. Address Department PA-512.

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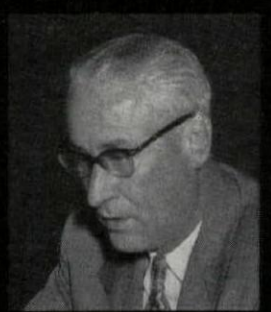
"Janitrol engineering made 10 units do the job of 15 . . . saved ⅓ on equipment investment." H. M. Watkins, Manager, Layne-Bowler Pump Co., Montebellow, California.



"Our Janitrol unit heaters save up to 40% in fuel costs." J. C. Mayle, President, Fremont Tool & Die Co., Fremont, Ohio.

"Shopping center designers boast trouble-free service, high efficiency and minimum maintenance after 12 years' experience with Janitrol units." Irving Berger, Berger-Tilles Projects, Levittown, L. I., New York.

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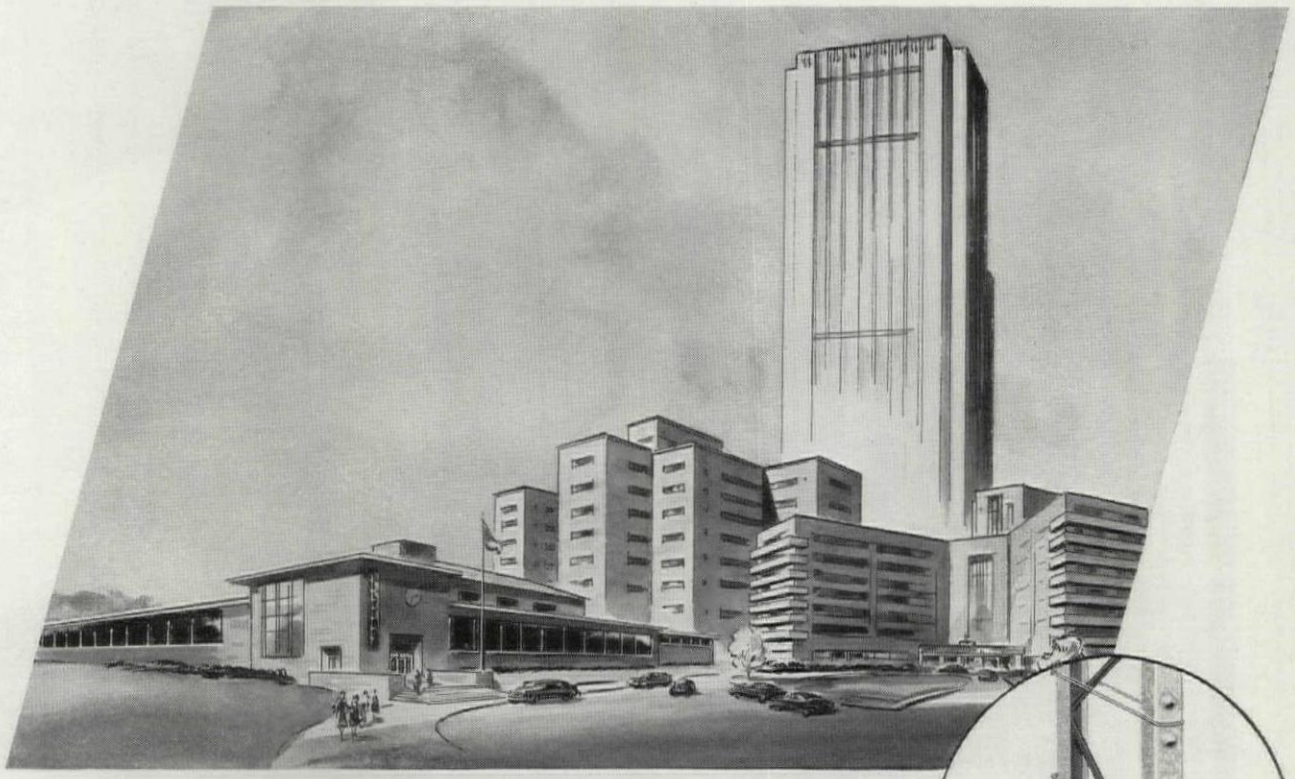

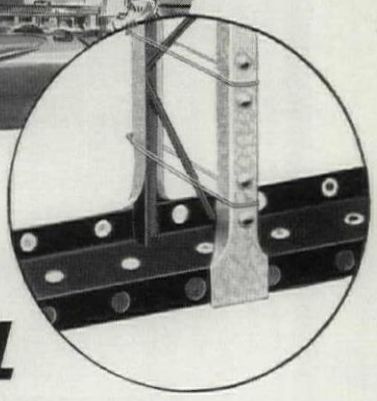

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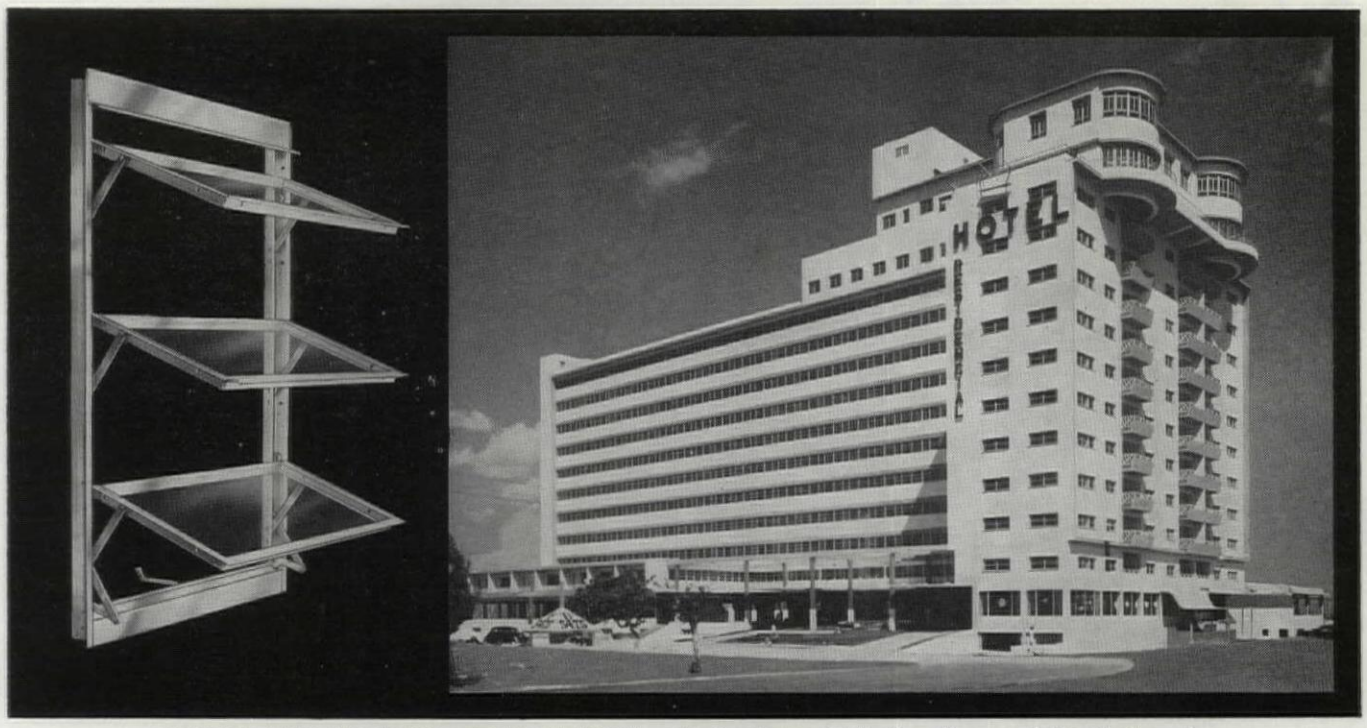

HAVANA, CUBA Hotel Residencial, "Rosita" de Hornedo. Arquitectos: C. Martinez Marquez, Isidro Cordoves Jr.

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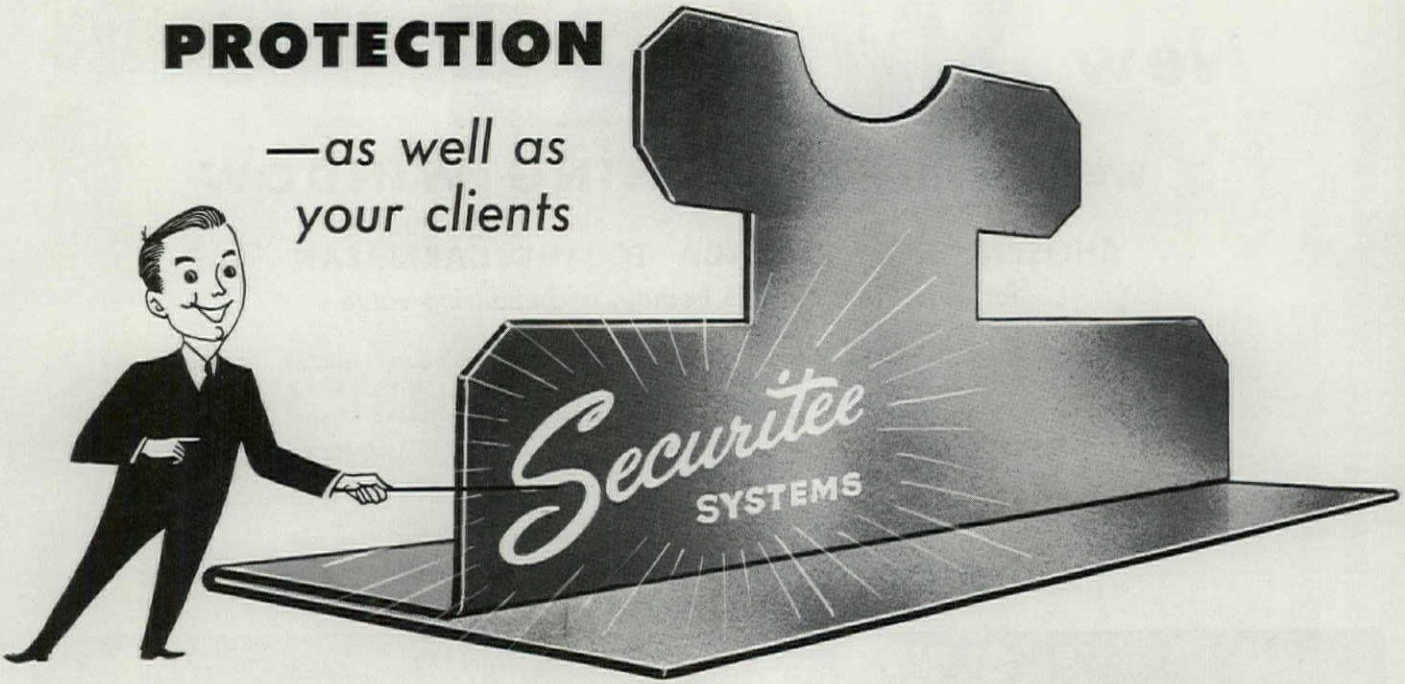

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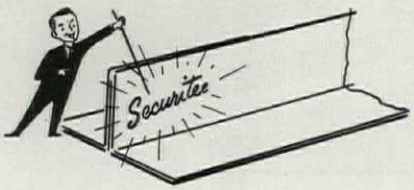

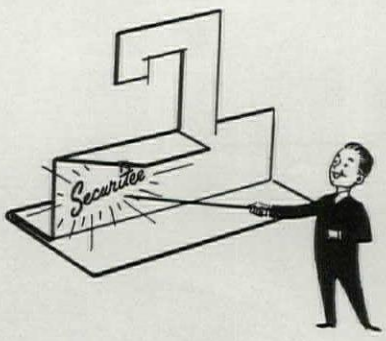

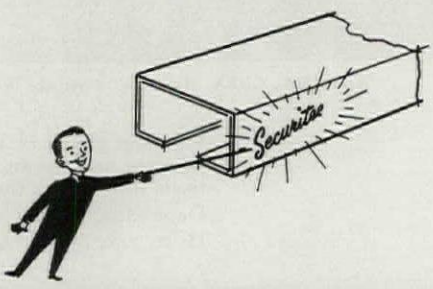

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ARCHITECTS, DESIGNERS, CONTRACTORS, APPLICATORS, *all.*
may we take this opportunity to extend to you greetings of the season and our thanks for making this the most successful year in our brief history.
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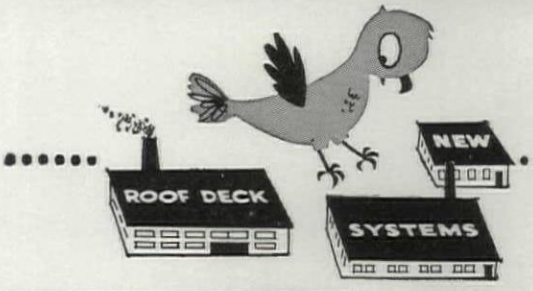

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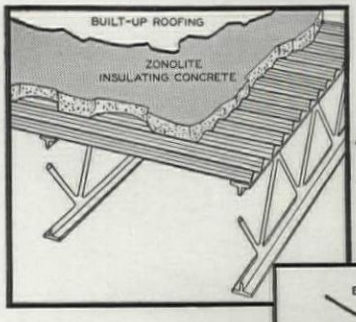
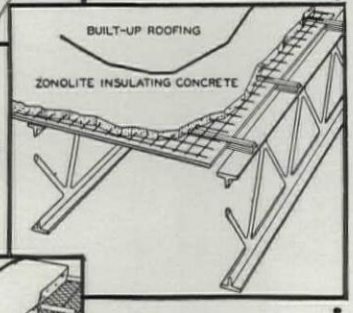
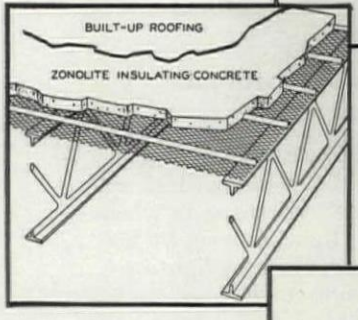


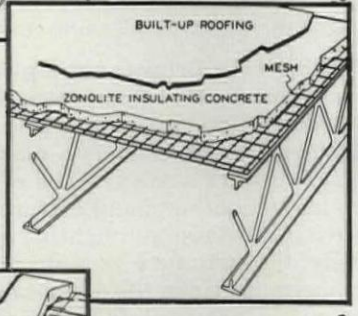
ZONOLITE Concrete over Corrugated Metal



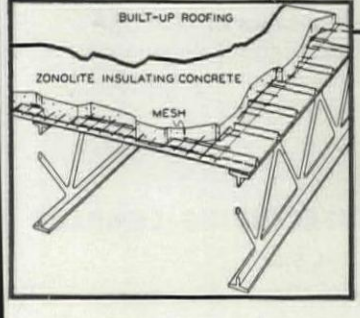
ZONOLITE Concrete over Various Form Boards



ZONOLITE Concrete over High Ribbed Metal Lath



ZONOLITE Concrete over Paper Backed Wire Mesh



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Nowhere in the construction industry is there to be found an equal to Zonolite systems of lightweight roof construction. They are simple in design, lightweight, firesafe, insulating, speedy in erection, strong, durable, have good appearance. Yet in spite of these added benefits, *they are low in cost.* The systems of construction shown here are *only a small portion of the combinations* now made possible by the use of Zonolite vermiculite concrete. To make your next roof deck job —or any job—outstanding, we suggest you send for Zonolite's manual on roof systems.

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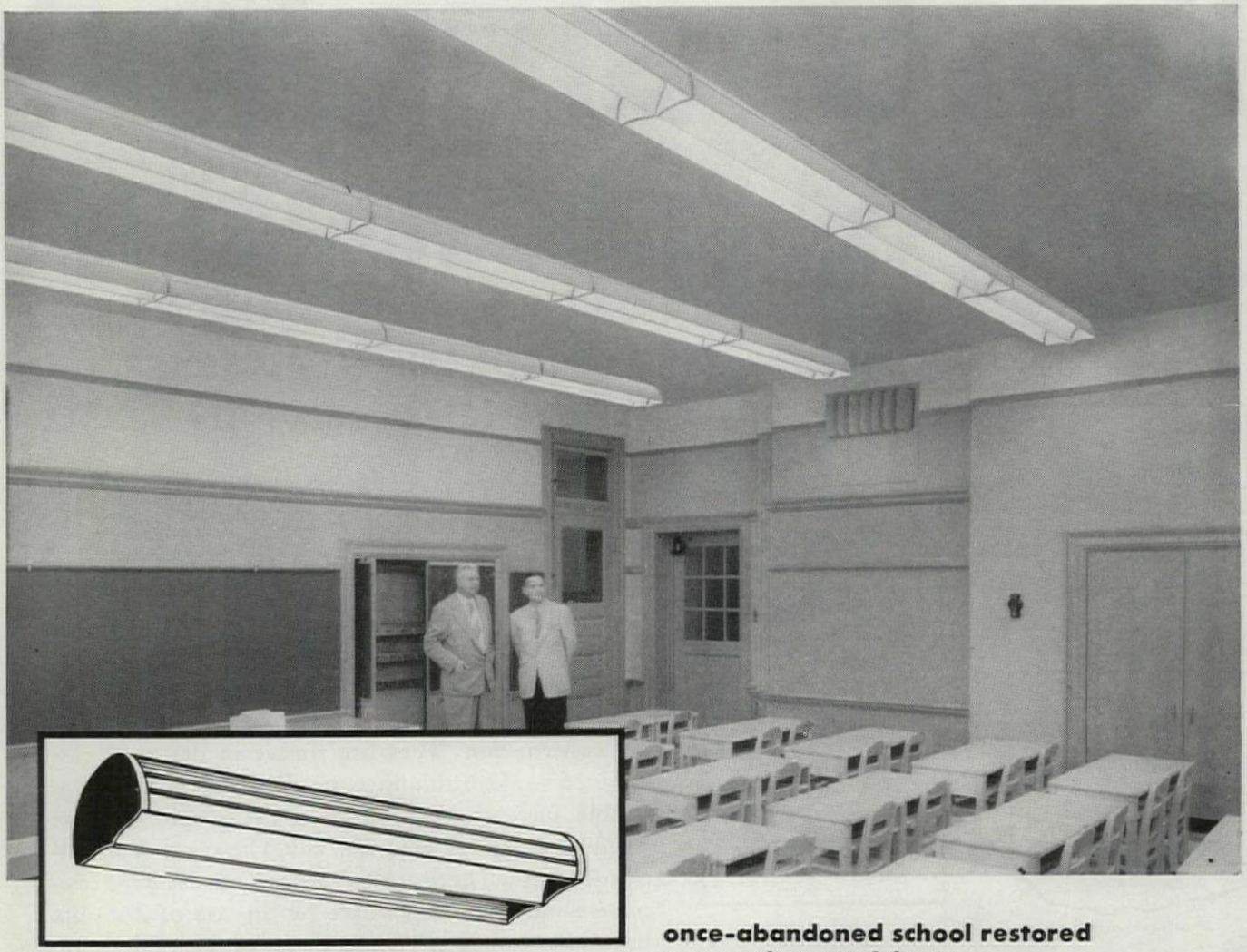
MITCHELL lighting modernizes 60 year old school

LIGHTING LEVEL UP 600%...



MITCHELL LIGHTS ANOTHER SCHOOL

Sixth Ward School
Washington, Pennsylvania

Architect: C. Garey Dickson, Washington, Pa.
Electrical Contractor: Glenn Yoder, Hollsopple, Pa.
Distributor: Ward Electrical Supply Co., Washington, Pa.

INSTALLATION:
Approximately 200 MITCHELL "Low Brightness" Luminaires (Model 3245), flush-mounted in continuous rows throughout. Footcandles before relighting: 10. Footcandles after modernization with MITCHELL "Low Brightness" Luminaires: 60. Increase in lighting level: 600%.

once-abandoned school restored to complete usefulness

A remarkable difference... the renovation program of this 60 year old school cost less with MITCHELL "Low Brightness" fluorescents which have increased the overall lighting level by 600%. More than any other factor, the new lighting imparts the effect of pleasing modernity.

MITCHELL Low Brightness Lighting makes the modernization complete: The exclusive MITCHELL Elliptical Reflector, utilizing Low Brightness lamps, delivers a maximum of glare-free light to all work surfaces. The resulting freedom from harsh contrasts and disturbing shadows creates ideal classroom lighting conditions. Finally, the MITCHELL Low Brightness Luminaire provides the advantages of beautiful appearance, practical design, high efficiency and simplicity of maintenance at a most reasonable cost.

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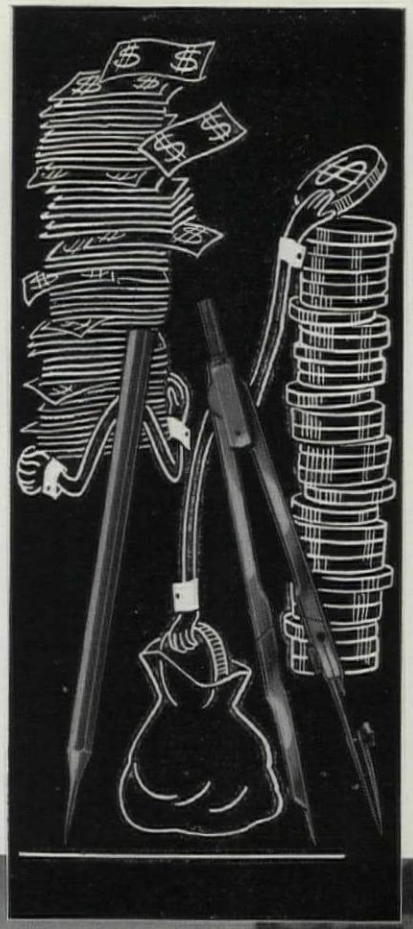
Are glass blocks "TOO EXPENSIVE"?



A panel of glass blocks *does* cost somewhat more than a corresponding area of single glazed wood or metal sash. And an installation costs even more when glass blocks are combined with other fenestration materials.

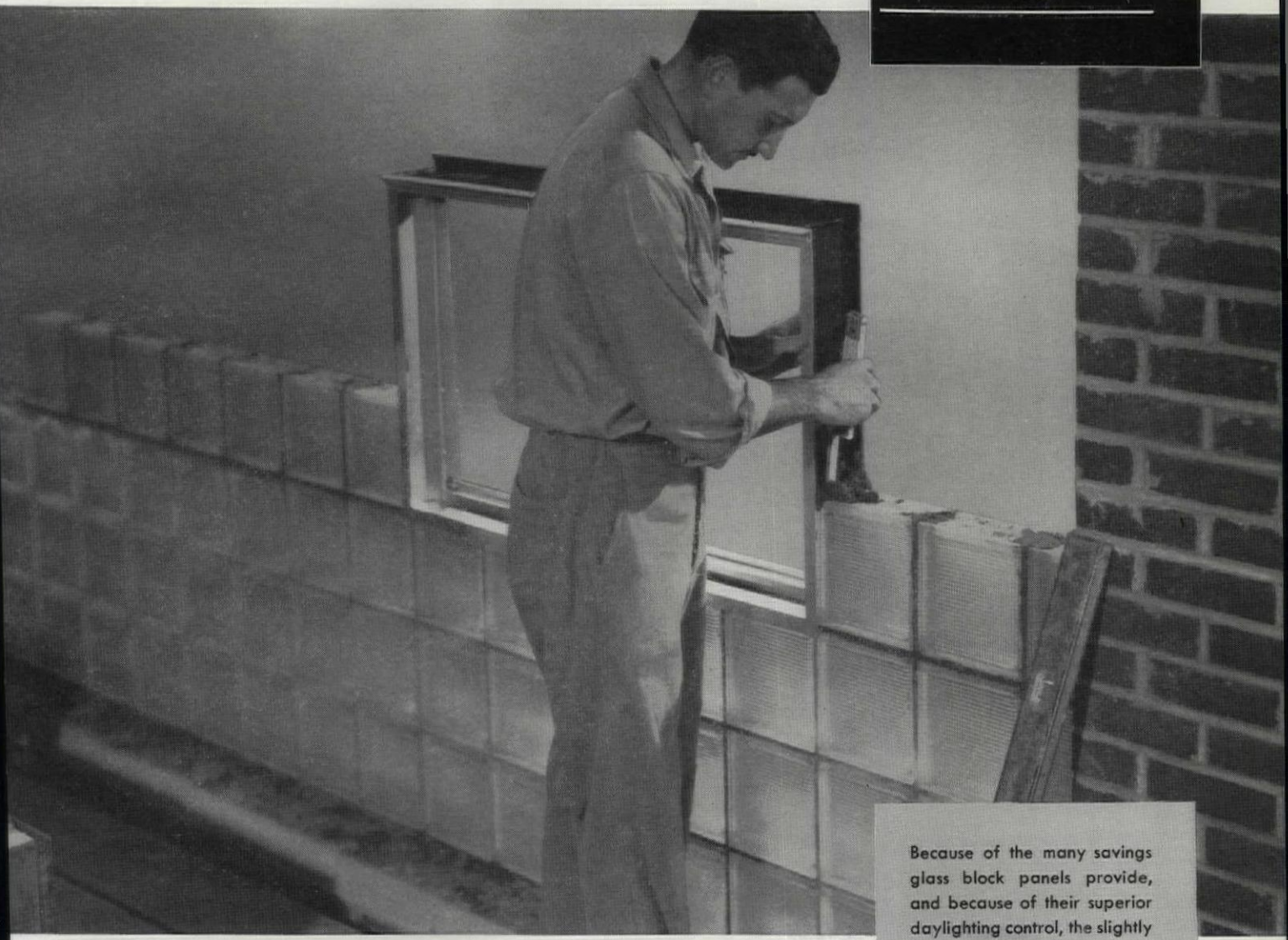
But let's look at these costs more closely. We came across a school* in which the old wood sash had been replaced with PC Glass Blocks, set above a vision strip. The installation cost about $10,000 more than ordinary sash would have cost. But look at the savings:

ITEM	COST PER YEAR
Paint sash every 5 years @ $1000	$ 200
Wash windows 3 times per year @ $700 per year	700
Replace 350 lights of glass per year @ $6 per light	2,100
Replace window shades every 10 years @ $2,700	270
Total window maintenance cost per year	$3,270

These costs have been practically eliminated since the PC Glass Blocks were installed. Annual return on the additional investment for glass blocks has been about 33%, or, the additional investment will be paid for in *three* years. On top of this, there has been an estimated 10 to 15% savings on the heating bill.

All this is in addition, of course, to the superlative daylighting made possible with the PC Glass Blocks. Next time you're thinking about fenestration costs, remember these figures. Check with your PC representative.

**Name and location of school available upon request.*



Because of the many savings glass block panels provide, and because of their superior daylighting control, the slightly higher initial cost of glass blocks will be quickly paid for. Your client will continue to make these savings year after year.

PC Glass Blocks

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Curtain Wall Systems

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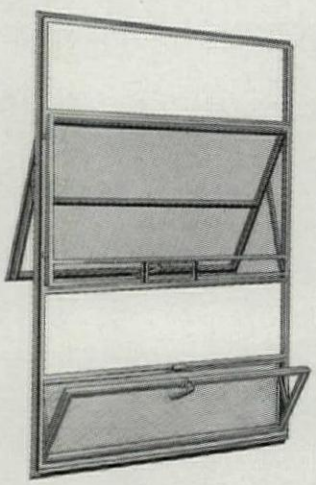
Think of it! Many Bayley engineers are *lifetime specialists* in curtain-wall window construction! For Bayley's 76 years of progress in metal fabricating and window making includes 30 years in the design and production of *window curtain-walls!* And Bayley protects your confidence with a record for quality production, thorough pre-engineering and follow-through services, integrity, and financial soundness (ask those who have dealt with Bayley). When you want to be sure, be *sure* it's Bayley.

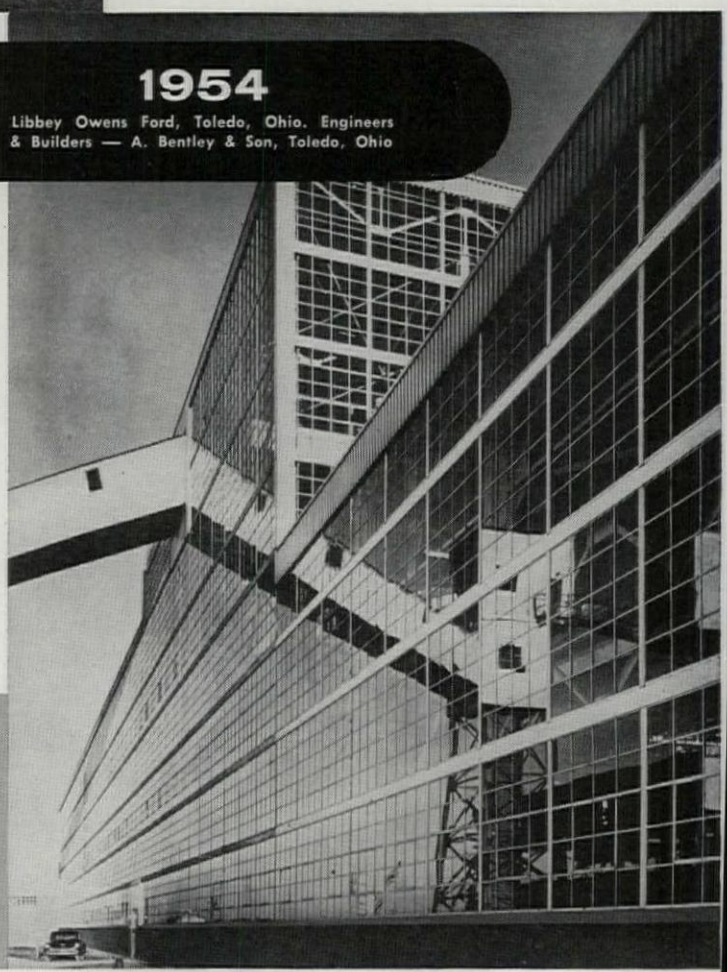


The Bayley Intermediate Projected Window (steel or aluminum) is the basic element in Series 150 Curtain Wall Systems. It is also built into separate prefabricated panels composed of deep-sectioned framing members in the 450 Series. This permits wide flexibility in combining any of the newer wall-panel materials and design trends with both fixed and ventilating window areas, to meet any need for light, air, vision, and beauty.

See Bayley in Sweet's. Complete catalogs on aluminum windows, 16a/Bay; steel windows, 16b/Ba.

1954

Libbey Owens Ford, Toledo, Ohio. Engineers & Builders — A. Bentley & Son, Toledo, Ohio



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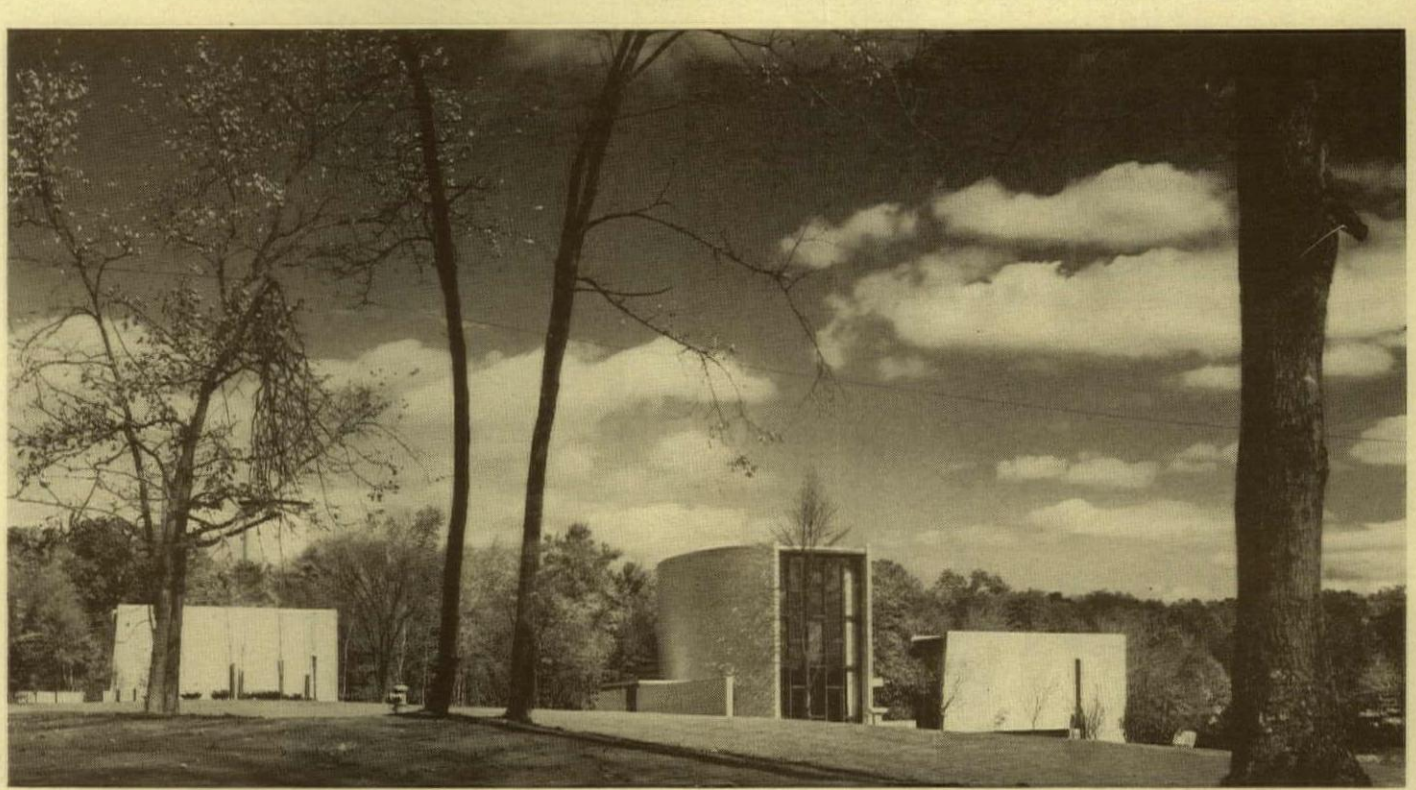
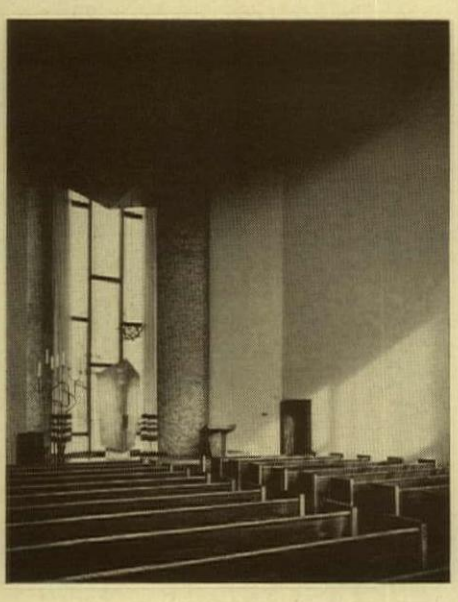
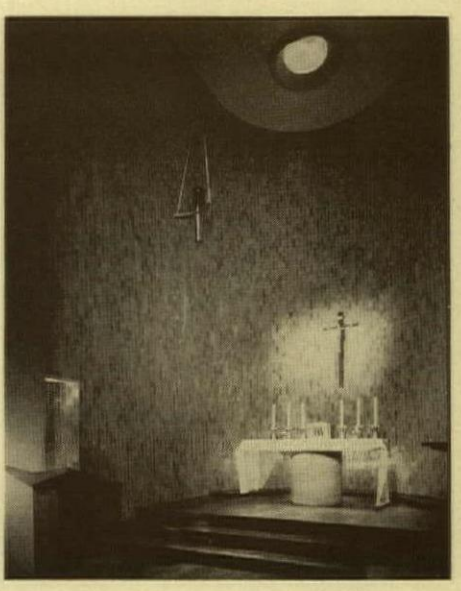
P/A NEWS SURVEY

December 1955

THREE CHAPELS FOR ONE UNIVERSITY







Photos: Ezra Stoller

WALTHAM, MASS., Nov. 4—One of the most exceptional provisions by an educational institution for the religious needs of its student body was dedicated here at Brandeis University this week—three chapels, one each for the Catholic, Jewish, and Protestant faiths. The buildings, designed by Harrison & Abramovitz, Architects, are disposed around a woodland pool on a hill apart from other buildings on the 200-acre campus. Traditional campus practice has either studiously ignored religious differences or provided one strictly sectarian house of worship. Nonsectarian Brandeis, though sponsored by the Jewish community, early determined that each faith should be granted free and full expression—and in such a manner as to eliminate the implication of minority status for any group.

Max Abramovitz, of the Architects' firm, comments: "Each Chapel was developed around its ritualistic requirements, and placed around the pool to develop a composition wherein the units would be subordinate to the idea of the group. To maintain a sense of the group, similar materials were used, and the mass of each Chapel, though different in plan, is approximately the same in volume." Photos above show a general view and *(left to right)* the sanctuaries of the Protestant, Jewish, and Catholic Chapels.

SOLAR HEATING AND COOLING:

by Louise Cooper

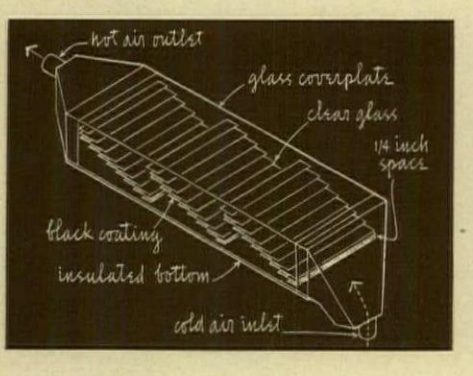
PHOENIX, ARIZ., Nov. 12—Solar heating may soon be economically competitive with systems using conventional fuel, if it is combined in an installation also providing summertime cooling. Promising new methods of linking solar energy installations to cooling systems now on the market have been developed, and work on experimental models is underway. This new work may take solar heating and cooling out of the realm of research and make it a cost-saving reality in many parts of the United States—and a far-from-theoretic design problem for architects.

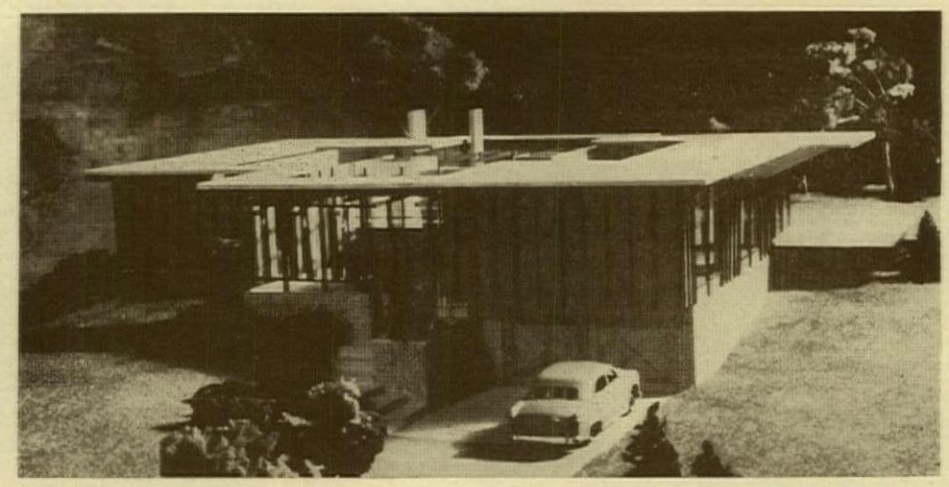
These are among the many new facts reported by researchers this week to some 900 scientists from 30 countries, here to attend a world symposium on solar energy. The conference was sponsored by the Association for Applied Solar Energy, the University of Arizona, and the Stamford Research Institute.

New Solar Collector

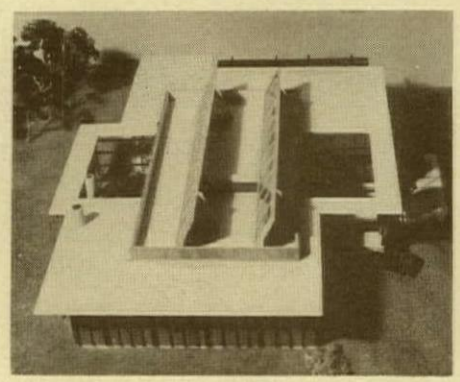
A partial solution to the architectural problems created by solar heating was presented to the conference by Dr. George O. G. Löf, Denver, one of the foremost authorities on solar heating and cooling. Dr. Löf has developed an overlapped flatplate solar collector, based on a scheme first proposed by K. W. Miller in the course of war-time government-sponsored research in which Dr. Löf also participated. The unit provides plate collectors with tilt built-in, thus making it unnecessary to plan for steeply tilted roofs to which flat-bed collectors can be attached. Except for the innovation of the series of ideally tilted collector strips, the unit follows the well-known principles of the solar-heat trap (*drawing below*).

Overlapped-plate solar collector, designed for factory production by Dr. George O. G. Löf. Black-coated glass strips are set at ideal tilt in overlapping series, mounted in airtight glass box.





Research house to be built in Denver; James M. Hunter, Architect. Solar-heated air from roof collector is piped to storage unit, then distributed to rooms through floor piping. Hunter says that his plan meets family living needs and is not distorted by requirements of the solar-heating system.



Research Houses

Dr. Löf plans to use the collector unit in connection with a forced hot-air heating system in a $35,000 research house soon to be built in Denver, designed by Architect James M. Hunter, Boulder, Colo., who presented a model of the house to the conference.

In the research house (*above*) solar heating will take care of about 75 percent of heating requirements. Like most of those working in this field, Löf believes this is the most practical way to use solar heating. The Denver house system will use an auxiliary gas heater and will cost about $2100. A conventional heating system for tnis one-story, 2100 sq ft house would cost about $1300. Löf believes, however, that the solar installation will mean a fuel saving of about 60 percent. Mass production of the collector unit will produce further economies which may bring solar heating within striking distance of first-cost competition with conventional systems in many parts of the country. Some 21 companies are already commercially producing solar collectors of various types. Löf's work is supported by the American Window Glass Co., Pittsburgh, Pa., which continued research support initiated by the Federal government during the last war.

The other essential part of a solar heating installation—heat storage to take care of the days when the sun doesn't shine—is accomplished in the Denver house by 10 tons of gravel, stored in three 16-ft-high vertical tubes, 3 ft in diameter. This storage stack is placed in a stairwell leading to a basement utility area. Hot air from the solar collector is directed by dampers, through a floor piping system, to rooms of the house and back again to the collector for reheating. When thermostats in the collector and gravel storage tube indicate insufficient temperature at these points, dampers will shift and the auxiliary gas heater automatically comes into operation.

The Denver house heating system differs from the somewhat better-known system designed at MIT (where research in solar energy use has for many years been supported by the Cabot Foundation) in its use of air in the collector unit and of gravel storage. (*See May 1955 P/A for a description of MIT system.*)

solar collector heat pumps

Bridgers & Paxton, Albuquerque, N.Mex., engineers responsible for the ingenious heat pump installation in the Simms Building at Albuquerque (*September 1955 P/A*) are backing complete solar heating. Members of the firm showed a model of an office building which the firm expects to build early next year, partly for its own occupancy (*plan* and

A REALITY?

photo below). This will be, so far as known, the first completely solar-heated nonresidential building in the world. It will cost about $60,000, of which some $16,000 represent mechanical work and equipment. These engineers believe that a heat-pump installation makes complete solar heating practical in many parts of the United States.

The heat-pump principle, they say, reduces the need for heat storage by a factor of 10. Their system uses a flat solar collector of 850 sq ft, with absorbed radiant heat transported by water and distributed through floor and ceiling radiant panels.

Further research in the use of a solar collector with a heat pump initiated by the American Gas and Electric Service Co., New York, some six years ago, was described to the conference. Among findings reported were that proper design can raise heat recovery from the solar trap to 100 percent; that the collector must be able to use outdoor air as well as direct sunlight as a heat source; that a solar collector can also be used as a heat sink for summer cooling; and that a solar-collector heat pump has considerably higher operating efficiency than heat-pump systems using only outdoor air as the heat source.

Solar Cooling

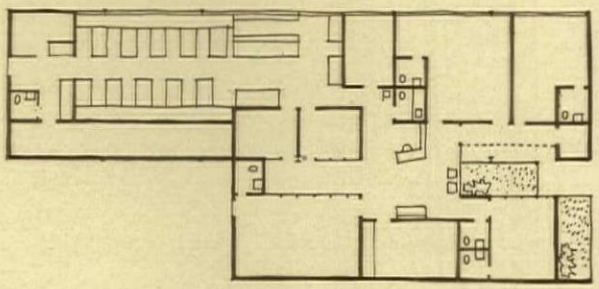
Space cooling by the use of solar energy has for a long time been an alluring prospect, because solar radiation is at a maximum in the months when cooling is needed. Dr. Löf reported experimental work on two systems, at least one of which promises, technically and economically, to make a combined solar heating-and-cooling system cheaper in some areas than an absorption cooling-and-heating system fired by gas. It is a solar-operated dehumidification and cooling installation, suitable for use with solar heating and which can supply most or all of the air conditioning required in an average house in many humid sections of the U.S.

Architectural Problems

A round table of architects, moderated by Lawrence B. Anderson, head of the Department of Architecture at MIT, faced many of the forbidding questions as to what solar collectors may do to the looks of houses. Winston A. Close, Minneapolis, predicting that the existing street pattern would outlast our fossil-fuel reserves, recommended inward-facing houses, built around garden courtyards, with solar collectors mounted in the garden, as a means of avoiding annoying east-west reflections from the collectors in typical subdivisions. Robert H. Dietz, Seattle, said that schools, frequently located on spacious ground and with their hours of use those when solar energy output is at a maximum, are good candidates for solar-heat installations. Solar collectors, he pointed out, could be designed to absorb enough of "yesterday's energy" to meet the critical morning warming-up requirement. Moderator Anderson proposed a possible design for solar collectors in flexible glass fibers, which might be produced as an all-in-one extruded panel, perhaps in five layers with a blackened film as the heat absorption surface at the center.

•

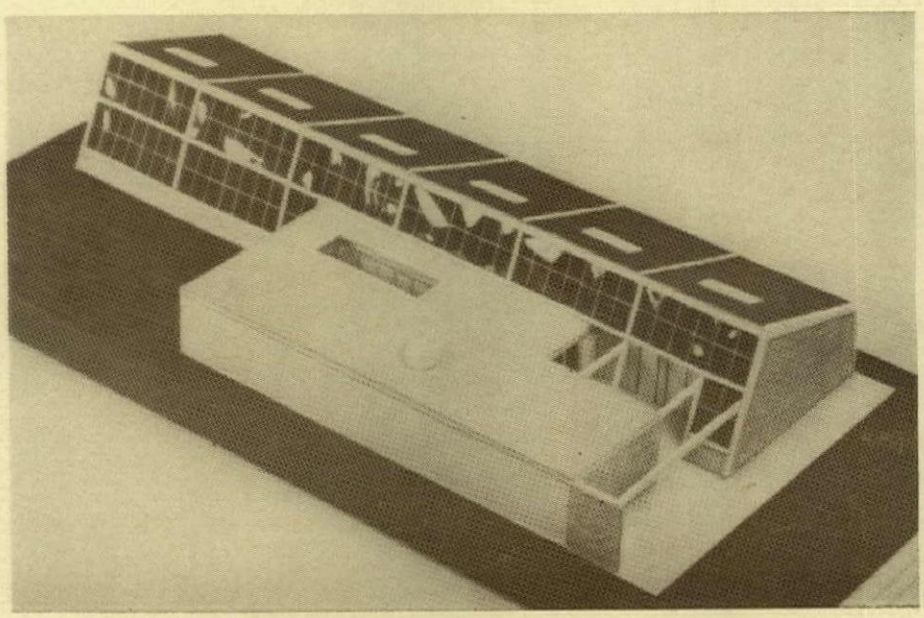
Thermal uses of solar energy presented at the conference and displayed at the accompanying exhibit ranged from ultra-high-temperature industrial furnaces to portable barbecue cookers (*below*). The Conference also considered the conversion of solar energy to electricity (the first solar battery was recently tested in Georgia) and various chemical, biochemical, and biological conversions. One of the most promising among the many discussed is the use of a sunbeam to shatter water to hydrogen and oxygen.



Office building (left) *for Bridgers & Paxton, Mechanical Engineers; Stanley & Wright, Architects. Building will be completely solar-heated, may also be cooled by solar energy.*

Below. *Architects at solar-energy round table:* (left to right) *Winston A. Close, James M. Hunter, Robert H. Dietz, Lawrence B. Anderson.*

Bottom. *Two versions of solar cooker:* (left) *Mrs. Adnan Tarcici, Beirut, Lebanon, demonstrates design by her husband;* (right) *umbrella-like design by Dr. George O. G. Löf. Concentration of sun's rays from reflective surface cooks meat in short time.*



Stanford Photo

Phoenix Chamber of Commerce Photos

News Bulletins

• Construction expenditures in 1956 will climb to unprecedented peak of $44 billions—5% above $42-billion record estimated for 1955. Forecast—by U. S. Dep'ts. of Commerce and Labor—is based on moderate increases in overall economic activity.

• Reports on construction outlays in October '55 show 4% seasonal dip from September, but 11% gain over October '54. Cuts in residential construction accounted for most of decline to $3.9-billions total; however, private commercial and industrial building continued to advance and Air-Force expansion boosted military-construction outlays to postwar high of 1952.

• U. S. Architects are invited to round-table seminar on "An Exploration of Architectural Ideals and New Contemporary Approaches," directed by Richard J. Neutra. Sessions will be held at Banff School of Fine Arts, Jan. 12-19. Reservations from: Dept. of Extension, Univ. of Alberta, Edmonton, Alberta.

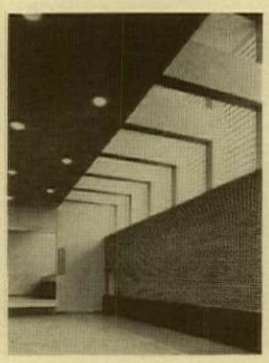
• Entries for 59th Gold Medal Exhibition of Architecture and Related Arts at The Architectural League must be filed by Jan. 12. Write: The Architectural League of New York, 115 E. 40 St., New York 16, N. Y. . . . Entry blanks for exhibition of school buildings erected since Jan. 1, 1951, to be shown at National Convention of American Association of School Administrators in February, are due Jan. 16. Write: American Assn. of School Administrators, Attn: Dr. Shirley Cooper, 1201 16 St., N. W., Washington 6, D. C.

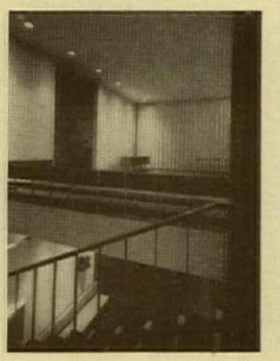
• Frank Lloyd Wright's design for a glass-and-marble palace on the Grand Canal has been rejected in Venice by Artistic and Technical Commission. . . . Construction on Wright's Guggenheim Museum, on Manhattan's Fifth Ave., is expected to start in February 1956, according to Dr. Jacob Feld, Consulting Engineer for the project.

• Applications for 1956 Lloyd Warren Scholarship, $5,000 award for travel and study in U. S. or abroad, are due Jan. 2. Write: Lloyd Warren Scholarship, Beaux-Arts Institute of Design, 115 E. 40 St., New York 16, N. Y. . . .

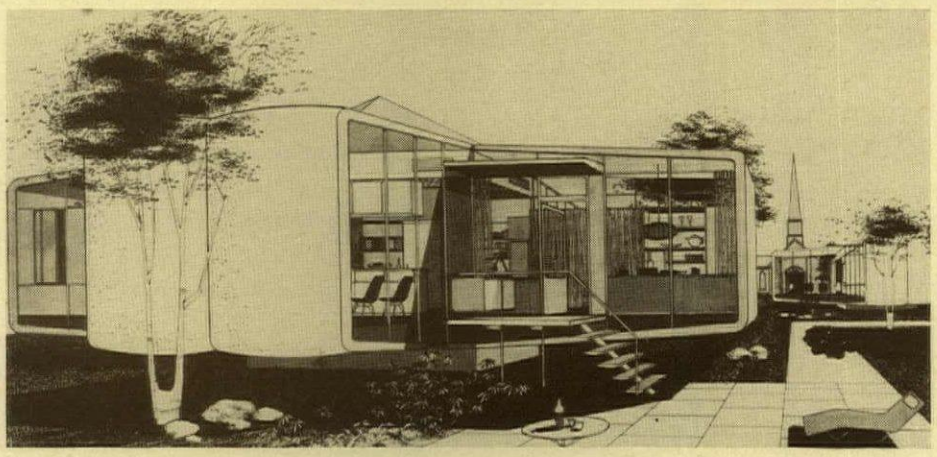
• Architect William Lescaze's first skyscraper since Philadelphia Saving Fund Society building is nearing completion at 711 Third Ave., Manhattan, while the El is being demolished. The 20-story office building (left) of blue, white, and gray glazed brick will include a mosaic mural and stainless-steel sculptures in its lobby. . . . Cleveland's first new skyscraper (right) will be a 22-story aluminum- and glass-sheathed office building designed by Architects Carson & Lundin. Located on the Public Square, it will feature an open plaza with reflecting pool.

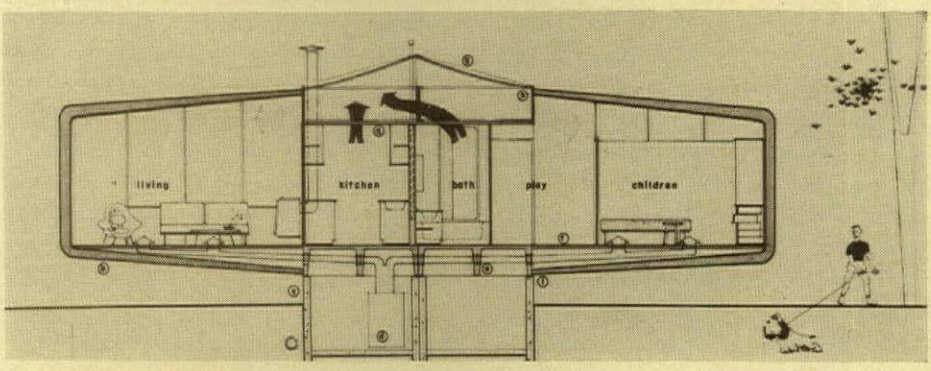
• Reopening of the AIA's historic Octagon House on November 10, after extensive repairs, was highlighted by the first American showing of an exhibition of FINNISH CONTEMPORARY ARCHITECTURE. Sponsored by the Finnish-American Society in Helsinki and assembled by a special committee from Association of Finnish Architects, the collection of models, plans, and photo enlargements presents a comprehensive survey of postwar Finnish architecture. The development of contemporary architecture in Finland is traced from the periods of Eliel Saarinen's Railway Station in Helsinki, 1914 (left), Alvar Aalto's Sanitorium for Tuberculotics, Paimio, 1933 (bottom, left to right), and Erik Bryggman's Burial Chapel, Turku, 1940, up to the recent works of several well-known architects and many younger men, including: High School, Rovaniemi, 1952, by Jorma Järvi; Primary School, Helsinki, 1953, by Rewell & Sipani; and The Little Theater, Helsinki, 1954, by K. & H Siren. . . . FINNISH CONTEMPORARY ARCHITECTURE is being circulated by the Smithsonian Traveling Exhibition Service.





Monsanto-MIT Molded Module





SPRINGFIELD, MASS., Oct. 11—Another step toward the true "production-line house" was revealed here today by the Plastics Division of Monsanto Chemical Company. Molded modules—8′x16′ and bent to form ceiling, wall, and floor *(left)*—provide the basis for this new concept of house construction. The modules — cantilevered in pairs from a central utility core containing baths, kitchen, laundry, and heating facilities—will be occupied principally by living, dining, sleeping, and recreational areas. Combinations of these design components, including twin cores, allow a variety of floor plans. Changing space requirements of the growing or diminishing family can be easily accommodated by the flexible molded modules. As these units are cantilevered from the basic core, it was also pointed out that excavation requirements are radically reduced.

The designers do not wish this structure to be thought of as just a "plastics house." New and traditional materials not only can but also should be used to equal advantage in houses of this kind.

Currently, the design is being refined at MIT by Architect Marvin Goody under direction of Richard W. Hamilton.

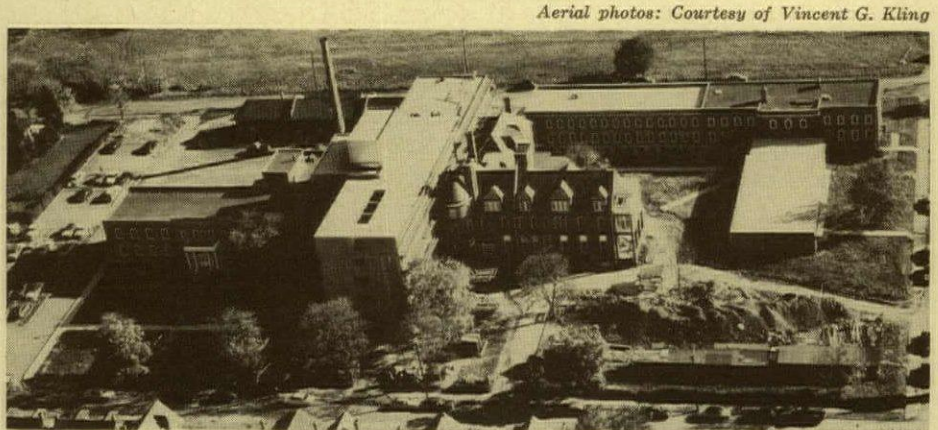
INDIAN RED STEEL SHEATHES HOSPITAL

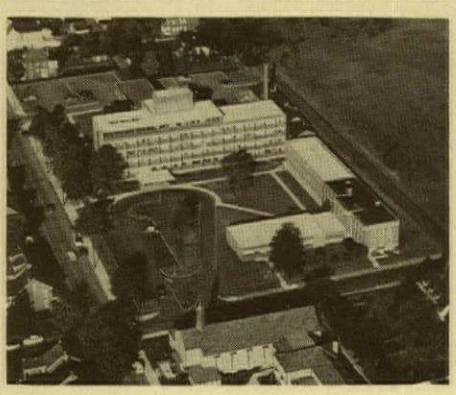
POTTSTOWN, PA., Nov. 13—Dedication ceremonies were held here today for the new Pottstown Hospital. The work of Architect Vincent G. Kling, it is a most remarkable solution to the problems of an existing hospital plant, involving the retiring of obsolete facilities while providing in their place the most up-to-date techniques in patient care and hospital planning.

As the pictures show, the new hospital was constructed directly through the center of the old plant—the only logical placement, both Architect and members of the Board of Trustees agreed. The old building, divided in half, continued to operate during the two construction years. When the new hospital was finished, the obsolete units were torn down and replaced with a landscape courtyard.

To minimize noise during this difficult construction feat, the structural steel frame was bolted instead of riveted. Also for this reason, as well as providing a clean building operation and a maintenance-free finished surface, wall panels are of heavy-gage steel with glass and Indian red pigment fused to the face. The sun-control grid protecting southeast-facing patients' rooms is also of porcelain enamel panels, joined with cellular lightweight steel roof decking.

Aerial photos: Courtesy of Vincent G. Kling





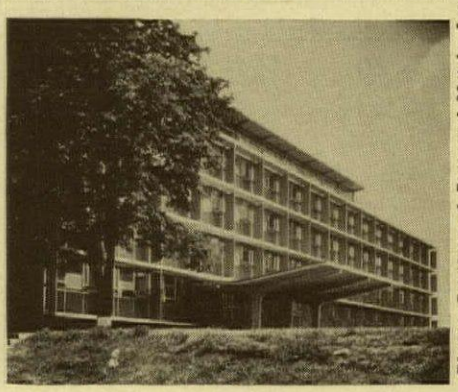


Photo: Courtesy of Seaporcel Metals, Inc.

A hospital campus emerges from chaos. At right of the new five-story mass of the hospital (top) *is the existing three-story nurses' residence and a new, one-story wing for the school of nursing.*

Washington Report

by Frederick Gutheim

Should Peter A. Strobel have sold his interest in the New York firm of Strobel & Salzman, consulting engineers, before he became Commissioner of Public Buildings? He now knows the answer to this question, but the situation that led Rep. Emanuel Celler (D., N. Y.), Chairman of a House Judiciary Subcommittee, to investigate Strobel's alleged conflict of interest is an enduring one—and will be around a lot longer than was Strobel. The question that remains is: As between the Government Agency responsible for building and the Government Agency that gets what is built, who decides what is to be built?

In this case, the Central Intelligence Agency, which proposes a $36 millions headquarters for its 8000 employes on an outlying site near Washington, engaged Harrison & Abramowitz as architects, plus a battery of consultants that included Clarke & Rapuano. Earlier preliminary analyses of building need, as well as site studies, had been made for CIA by the Public Buildings Service. When CIA engaged Harrison & Abramowitz, PBS appears to have insisted that other architects be associated before they could consider the arrangement a satisfactory one. Strobel argued that, as contracting officer, PBS had the right and duty to impose such conditions, and cited CIA's lack of experience in construction to support its position. The ensuing hassle was not over an architectural fee (which Strobel estimated at between $1.5 and $2 millions) but for control of the choice of site and of the building itself, its character and its standards.

An analogous situation was faced by Congress in the rather smaller headquarters building of the Atomic Energy Commission (1400 employes) now being designed by Voorhees, Walker, Smith & Smith. That they decided in favor of letting AEC do its own building rather than obliging them to work through PBS was generally attributed to AEC's great construction experience, but qualitative factors of notable importance were also present. While CIA has a harder case to make for itself, there can be little doubt that the same motivations are at work here: they don't want the kind of building they know PBS would give them. And they know what they want!

While progress is being made with the PBS main building effort (the lease-purchase program), the continuing difficulties with program and design suggest that Congress would do well to reconsider the PBS role as a Central Building Agency. Government building is exposed to peculiar hazards and needs its own standards. All building needs cannot be satisfied at once, and programming is vital. The continuing nature of government building needs justifies higher quality construction to secure lower maintenance costs. Bureaucrats, no less than politicians, are monument builders, and safeguards against waste and whim are desirable. So is reasonable equity of treatment from one building to another. But if these conditions put public building in a strait jacket and frustrate the legitimate requirements they cannot be tolerated.

Under present circumstances, I cannot doubt that the cause of public building and its architecture will be served better if all dispersed Agencies and most other Government Agencies are allowed to select their own architects and are given control of their own building designs. The day of the "general purpose" office building, centrally located and adaptable to the needs of any Government Agency, on the model of the General Accounting Office building here, is passing. While there is a strong case for program co-ordination in Government building, and much to be said in favor of a perspective on public building longer than that of a single Agency, the PBS has shown on numerous occasions that it is unable to meet Agency requirements on sites, space standards, arrangement, and services; and that considerations of operations and maintenance are more significant than subtle adaptation of building design to occupant's requirements and needs. Probably this difficulty is less due to PBS policy than to the Budget Bureau, yet it remains to compromise whatever is designed. PBS wants to treat Government Agencies as a building owner or manager treats tenants; and Government Agencies want to operate as if they owned their own buildings. Only Congress can decide.

• The removal of the last of the temporary housing here and continued progress in the elimination of war-built structures that still clutter Washington parks, is satisfying evidence of a determination to maintain high architectural standards in the capital. Two of the most recent "tempos" to go occupied especially important sites north of the Department of Commerce and the District Building, facing Pennsylvania Avenue. Such changes do more than remove recrescences and restore the status quo ante: they also open up important architectural opportunities.

• A glance at the redevelopment plans drawn for Webb & Knapp for the 500-acre district project south of the Mall, where Government office buildings and massive parking provisions have been planned, clearly shows the obsolescence of the older parts of Washington's central area. Last month, after extensive review, the National Capital Planning Commission approved these plans in principle. A staggering amount of clearance has already been done in this district where notorious photos could once be taken, showing the city's worst slums against the nearby Capitol dome. New construction here should commence in the coming year, now that redevelopment agency officials have given the green light to Roger Stevens and James H. Scheur.

• Further Government props to sustain the volume of homebuilding are expected from the Congress this year. Extension of veterans housing benefits (only 3 millions of the 16 millions of eligible veterans have used their loan privileges); softpedaling recent credit restrictions; and expanding public housing are the most likely developments to expect from the four Congressional Committees now looking into various aspects of housing.

EUROPE BUILDS

by Thomas H. Creighton

PARIS, FRANCE, Oct. 24—Western Europe, an area which includes many countries and demonstrates many trends in contemporary architecture, continues to be conservative in its major reconstruction projects, slow by U. S. standards in general application of new design techniques but stimulating and surprising to the visitor in scattered, individual architectural achievements.

Today I visited with Paul Nelson, U.S. Architect practicing in France, a house he is just finishing in a Paris suburb. It is, to some extent, a realization of the "suspended house" principle he evolved some years ago. The second-floor slab is suspended from the arched, concrete roof form, in a structure that has proved to be most economical, and which contains a surprising amount of space. The sparkle in the wall panels, apparent even in a black-and-white reproduction, comes from "polychromy" by the late Fernand Léger, artist and close friend of Nelson's.

In northern Italy, at Cortina d'Ampezzo, the ice-hockey stadium for the 1956 Winter Olympic Games is nearing completion. Against the dramatic setting of the Italian Alps, the warped-roof, three-sided structure, designed by Enrico Calcaterra, forms a disciplined but variform focus.

In Switzerland, Interlaken's first motel has recently opened. In the fine tradition of Swiss hostelries, its 21 "cabins," each with shower (a luxury not always found even in Europe's best hotels), provide drive-in convenience. Architects are Eduard Helfer and Franz Fueg.

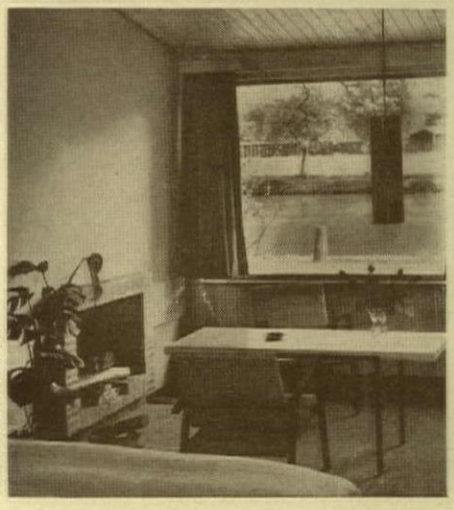
Authenticated News

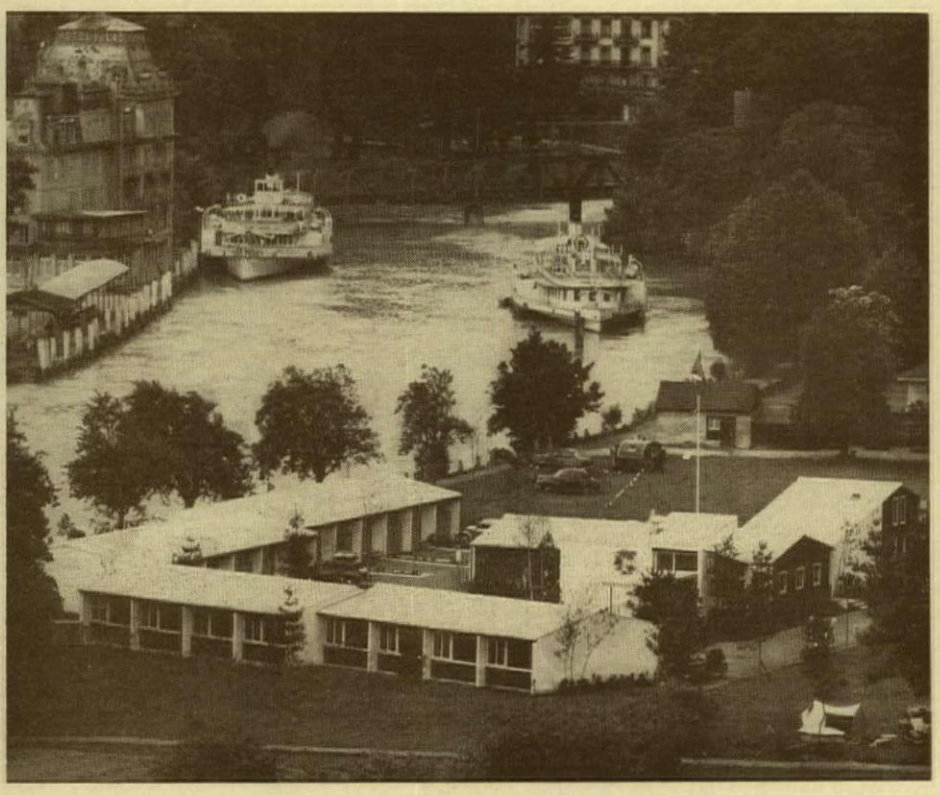
Italy: Olympic winter stadium

France: suspended house

Katherine Morrow Ford

Switzerland: motel





Authenticated News

Financial News

by William Hurd Hillyer

Architecture and banking are celebrating what might be termed a golden jubilee. Today's conditions have wrought a change in bank designing concept which is bringing money into bank vaults and commissions into architects' offices, through the erection of new banking edifices and the remodeling of present quarters. As financial columnist of P/A, the writer attended the "Bank Town U.S.A." financial editors' conference at St. Louis, October 21-22, sponsored by Bank Building & Equipment Corporation of America, largest in its field. That city was chosen because it provides outstanding examples of modern new buildings and face-lifted older ones. It also exemplifies the increased bank income resulting from architectural ingenuity.

The Manchester Bank, as an illustration, has shown spectacular growth since the completion of its new premises with their 11 drive-up and 2 walk-up windows. These facilities serve the car-driving 85% of its customers and, with the bank's planned addition of 9 more walk-ups, will further accommodate the pedestrians. First National is "doing business as usual" while its quarters are undergoing a $6½-millions transformation. At nearby Clayton, the American Investment Company needs neither walk-ups nor drive-ins, so its building incorporates an inverted-truss construction "to open up the corners." The essence of present-day and tomorrow's financial buildings is dually functional, in the sense of promoting the flow of business transactions, and at the same time meeting customers' needs, by drive-in and parking facilities.

Architecturally speaking, the emphasis for money-housing institution planning has shifted from a building wherein the financial firm uncomfortably ensconces itself, to one designed to fit that institution's employe and customer needs. With some 17,000 bank buildings, not to speak of several thousand more edifices for other financial businesses, and with all moneymen aware of the necessity for the new approach to proper bank housing, architectural possibilities are practically boundless.

• On the monetary front, two factors have conspired, since our last issue, to moderate the pace of general building activity. The first of these influences is a steadily rising cost, in interest rates, of funds. The Federal Reserve System continues to apply its "policy of restraint," adopted several weeks ago, and the resultant rate hike is now further boosted by a growing scarcity of short-time funds. "Free reserves" of commercial banks (excess reserves minus bank borrowings from the Fed) are below zero. The rate on such borrowings has been raised to 2¼%.

Banks have had to liquidate, during '55, some $6 billions of Government bonds to meet their customers' demands, and they may have to sell more, before Christmas, for year-end needs. The Government itself is compelled to pay more than twice as much interest on its Treasury bills (short-time loans) as it did this time last year.

Coincident with a tightening of VA and FHA mortgage terms, the lid has been clamped upon borrowings of savings and loan associations from the Federal Home Loan banks. Such mortgages are, in fact, being offered by brokers at a substantial discount.

The second slowdown factor in current construction is the rising cost of materials, which are up 8.4% since mid-'54, while the average of all prices has remained almost stationary. A "Wall Street Journal" roundup shows increases since 1950 ranging as high as 38% for Douglas fir and 33% for windowglass. During that period, the survey discloses, a 6-room frame dwelling in the St. Louis area which cost $13,800 five years ago to build (without land) is now cheap at $17,200.

These conditions, experts believe, will result in a 1956 decrease of nonfarm housing starts. The decline might go as deep as 10%, one eminent mortgage authority predicts, which would mean a reduction of 125,000 units. Total construction outlays went down $100 millions in October, to $3.9 billions from September's record top. At the first signs of a general slackening which might breed depression, the Federal restraints on lending will doubtless be loosened; if necessary, fresh credit will be injected into the economy. This contingency would heighten the inflationary peril previously warned against.

• In such well-informed quarters as the Federal Reserve Banks of Chicago and Dallas, and the Guaranty Trust Company of New York, livelier '56 hopes are drawn from tangible production and distribution totals than from any species of Government money creation or control. These authorities marshal, among other facts, the following:

Gross national product of goods and services, having passed the $392 billions record-breaking annual rate in the third '55 quarter, is projected above $400 billions for the full year;

Over-all activity is rising to the tune of $8 billions increase quarterly;

Federal cash budget surplus, perhaps $3 billions, will likely brighten the current fiscal year;

Consumers have more spending money—at a $256 billions annual rate, bettering last year's by some $17 billions—though a large part is installment-financed;

Corporation profits are up 35% to a near-record from this time '54, Wall Street announces, with every prospect that the upcurve will continue well in 1956;

Manufacturers' new orders and sales surpass mid-'54 by 30 and 20 points respectively on seasonably adjusted index of New York's First National City Bank. "Potential trouble spots in the economy," that institution declares, "are not running out of control."

Concluding tipoff as to 1956 by Federal Reserve Bank of Minneapolis: Deciding factors will be businessmen's decisions about inventory accumulations and new plant investment. At the moment, "expansion appears to be the rule."

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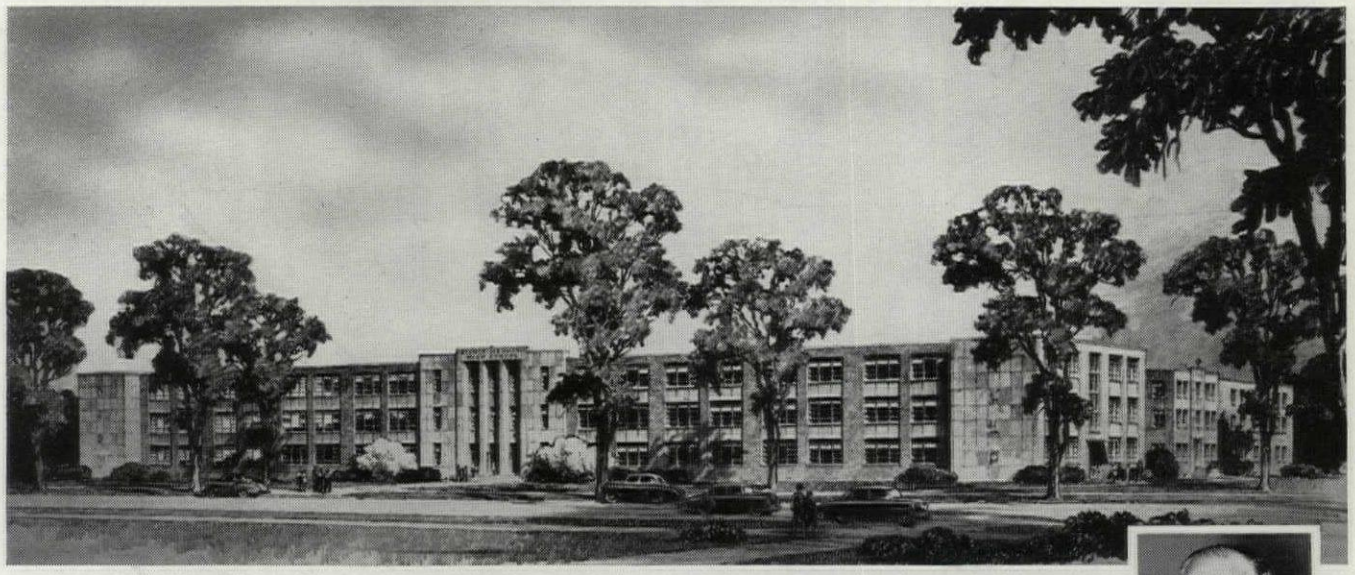

Architect's drawing of new Bishop Neumann High School, Philadelphia, Pa. Architects: Stickle & Associates, Cleveland and Philadelphia. General Contractor: James J. Clearkin, Philadelphia.

Architect George W. Stickle, who designed the new Bishop Neumann High School.

Firestop board specified to speed construction and reduce costs in new $1,925,000 Bishop Neumann High School

Previous experience with Firestop Bestwall in other areas was back of the architects' specifying this gypsum wallboard for the Bishop Neumann High School now under construction in Philadelphia. The Firestop board is being used in all classroom ceilings to furnish fire resistance. It will be finished with acoustical tile.

Architect Stickle tells why he used Firestop Bestwall Wallboard in the Bishop Neumann High School:

1. It gives the 1-hour fire rating which is required by the City of Philadelphia and most building codes for buildings of this nature.
2. You get a much more uniform base for the acoustical tile and a more uniform material for fireproofing, as it must come 5/8" thick in all places.
3. Acoustical tile can be glued most successfully to Firestop Bestwall Wallboard.
4. It makes for a clean job.
5. It goes up fast and is economical to apply.

Mr. Stickle concludes: "I believe that this material will be used in greater quantities as time goes on."

Firestop Bestwall was the first gypsum wallboard formulated to make 1-hour fire-resistive construction in single layer possible with no further treatment, over both wood and metal framing. Firestop is the first gypsum wallboard to be approved under the Philadelphia Building Code for 1-hour fire-resistive requirements over wood and in Type II buildings up to three stories. Firestop Wallboard meets F.H.A. and V.A. requirements and has been accepted under most municipal, State and county codes, and under the national model codes.

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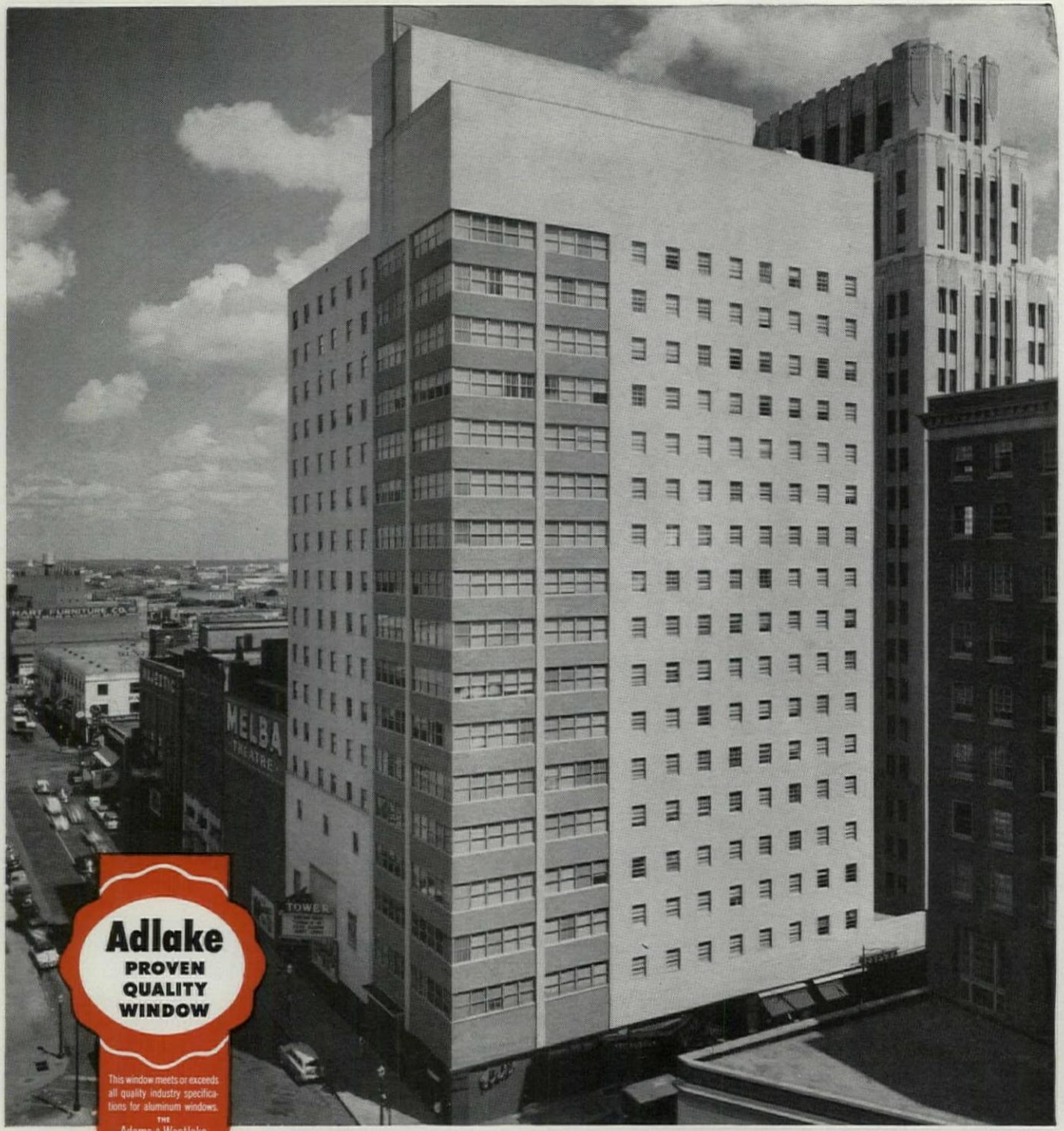

Corrigan Tower Building, Dallas, Texas. Architect: Wyatt C. Hedrick
General Contractor: J. W. Bateson Construction Co. Equipped with Adlake Double Hung Aluminum Window

Another Adlake aluminum window installation

Minimum air infiltration
Finger-tip control
No painting or maintenance
No warp, rot, rattle, stick or swell
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Adlake TRADE MARK
98th year of serving the transportation, building and control industries

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Dick Nichols

library

location	Cincinnati, Ohio
architects	Woodie Garber & Associates
associated architects	Samuel Hannaford & Sons

library

This main building for The Public Library of Cincinnati and Hamilton County is a happy exception to the stuffy architecture that cloaks so many public libraries. Not all interested parties were in favor of a contemporary design; in fact, a few would have preferred a Classic monument. It was mainly because of a limited budget, the architects believe, that a contemporary approach was made possible.

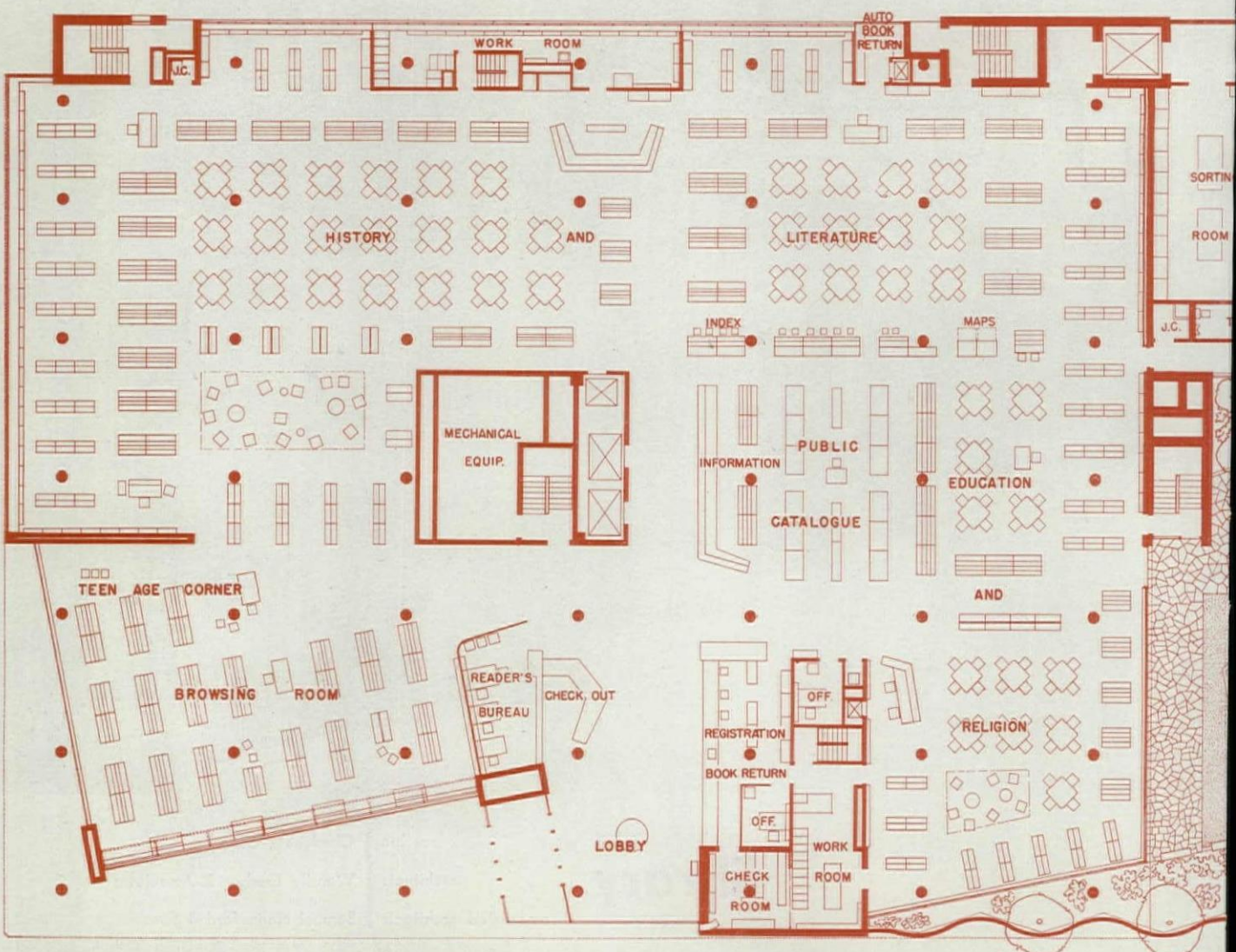
The director of the library, Carl P. Vitz, worked closely with the architects in developing the basic program—a "department store of knowledge" being his concept of a library's function. This is reflected in the departmentalization according to subject and in the wholly open plan, with infinite flexibility to meet changing needs. Vertical organization of the building, with two levels of stacks below the main floor and two more above the second floor, places books as close as possible to the pertinent departments, and a continuous vertical book lift serves the relatively light interdepartmental book-communication needs.

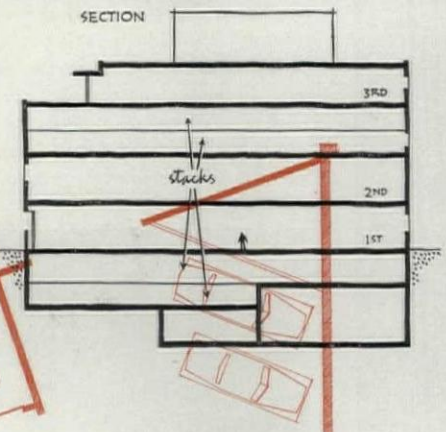
The ground floor houses history and literature departments, education, philosophy, and religion; a browsing room adjoining the main entrance *(bottom, acrosspage)*; information desk, general catalog, lending department, and library garden *(center, acrosspage)*. On the second floor—in addition to the science, industry, art, music, government, and business departments—there are a film and recording center and two meeting rooms; one to seat about 100 persons, the other, 35. Public rooms on the third floor are the children's room, and the memorial Rare Book Room near the southwest corner of the building which has the striking design feature of full-height operable, vertical stainless-steel louvers on the exterior. Remainder of the space at this level is devoted to processing departments, administrative and business offices, staff facilities, and rooftop terraces.

Except for occasional use of granite, exterior walls are of brick. Bright color accents occur in the surfacing of most prominent columns and the central service core of the building with Venetian-glass tile—yellow and gold for the core; and blue-green and gold on columns. All other columns (poured in round fiber forms) are painted blue-green. Continuous window stripping consists of double glazing, with heat-absorbing glass for the exterior panes, and inner panes of clear plate, sand-blasted on the sealed side, to control sky and sun glare.

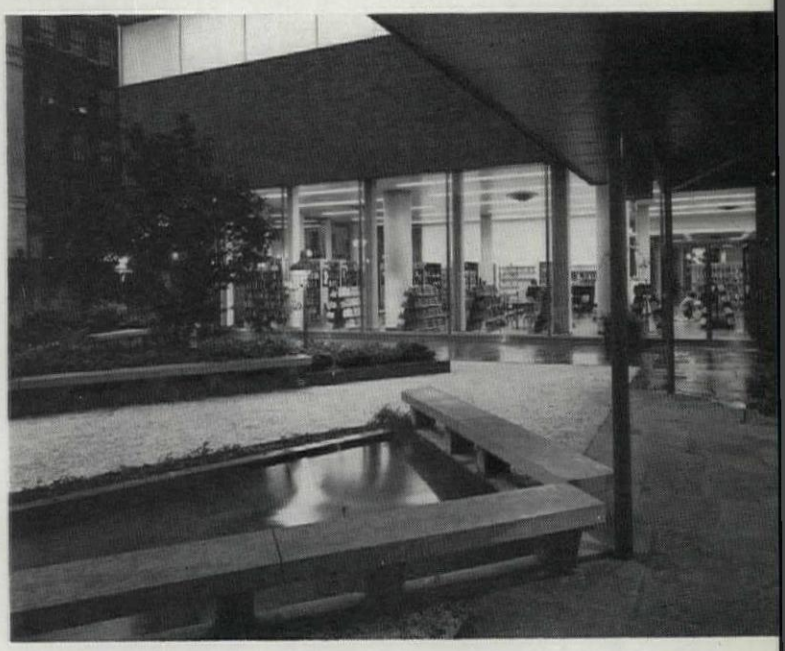
The fully air-conditioned, sealed building cost $2,850,000, of which $885,000 went for mechanical equipment and elevators—or a unit cost of $14.90 per sq ft. Site, fees, stacks, furniture, and moving totaled $4670.

Photos (except as noted): Bill Engdahl, Hedrich-Blessing



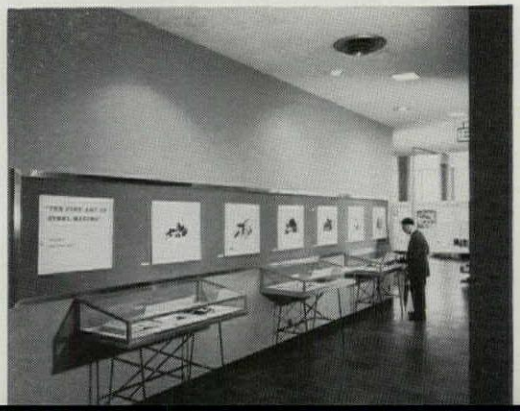

SECTION
3RD
stacks
2ND
1ST

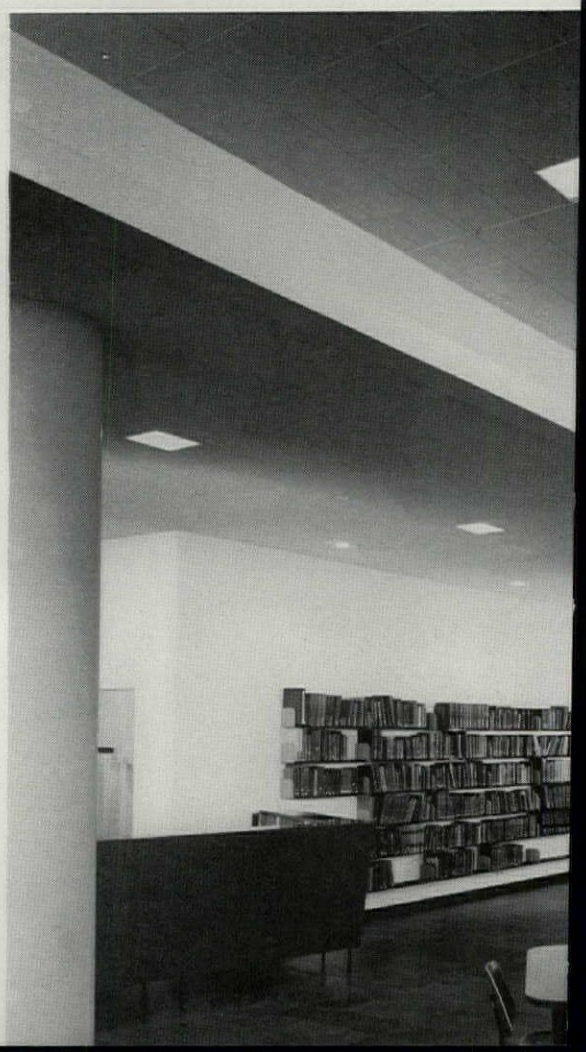
GARAGE
OFF.
first floor
PARKING AREA
POOL
TOOLS
scale 0 25 feet 0 5 meters
entry

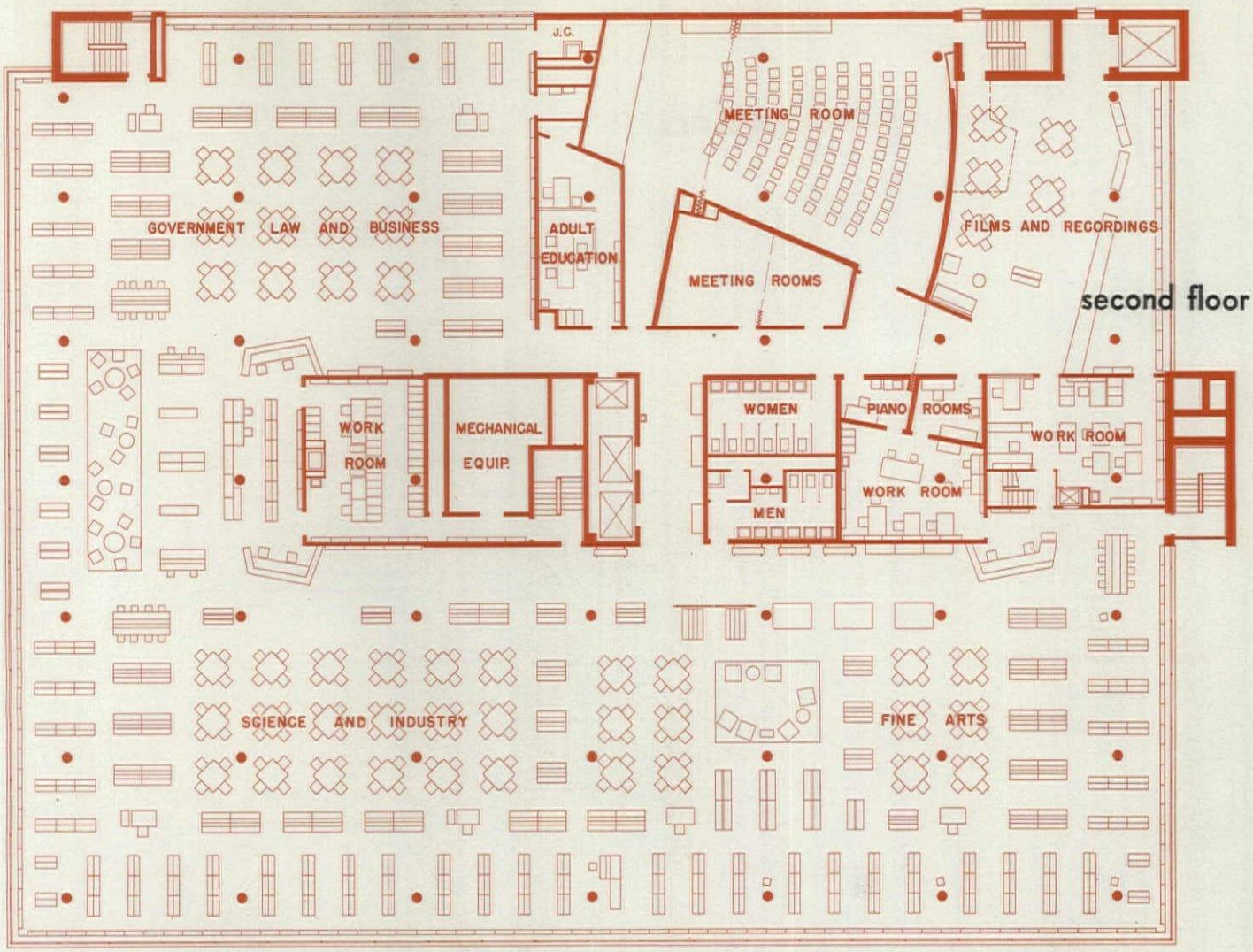


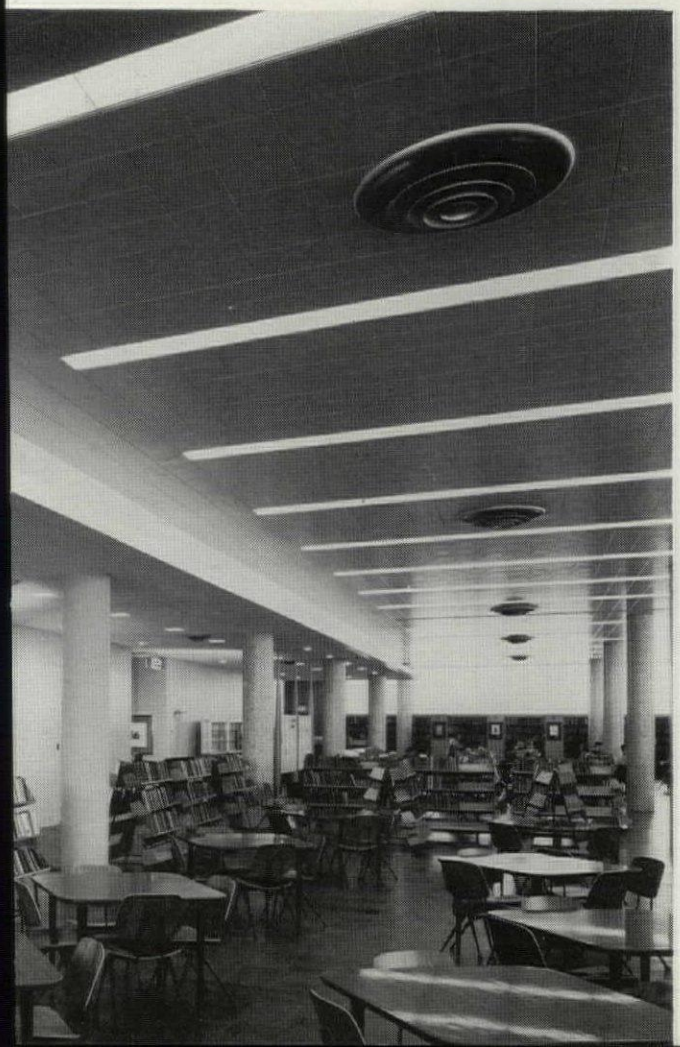
Immediately adjoining the main lobby (right) *is the browsing room with its window walls* (see SELECTED DETAILS). *Terrazzo and cork are the floorings used in this area. Both perforated-metal pans and acoustical tile surface the ceilings.*

The elevator lobby of the second floor (below left), *used for exhibits, adjoins the reading room at this level* (below). *Column spacing of the reinforced-concrete structure is in 21'x27' bays to fit the 3' and 4'-6" standard library-stack module, for supports. Contilevers around the building perimeter allow continuous exterior wall-hung shelving (painted Chinese red) and carry over the perimeter columns.*

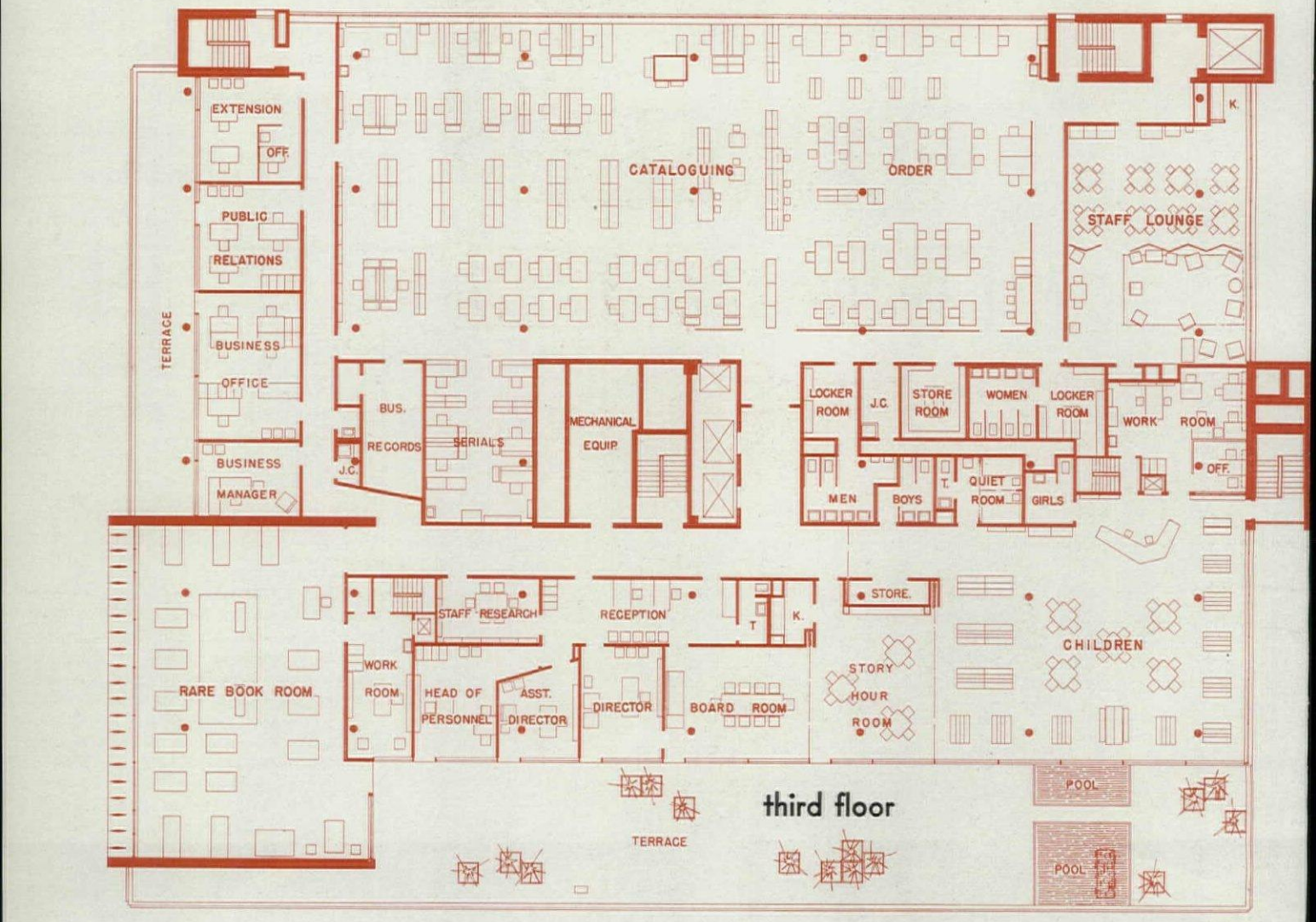


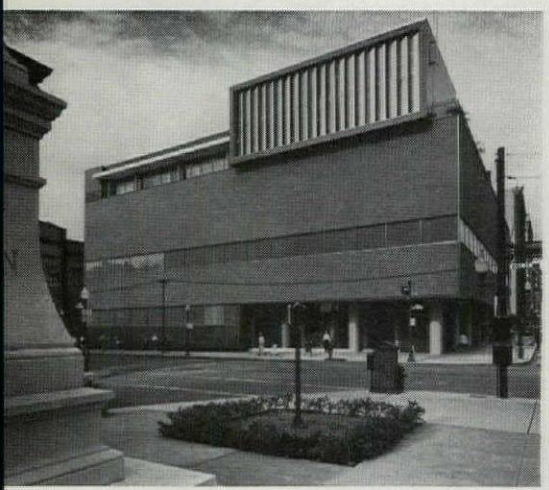


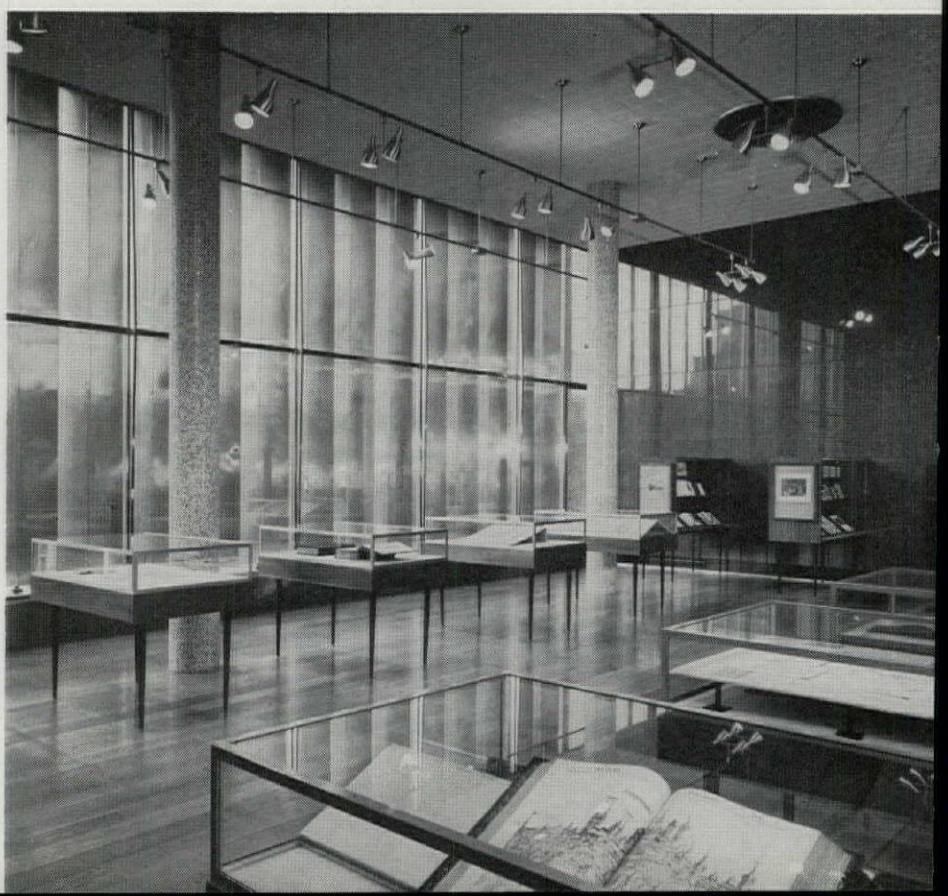




In the film and recording department on the second floor, one may listen to records at special tables equipped with earphones.

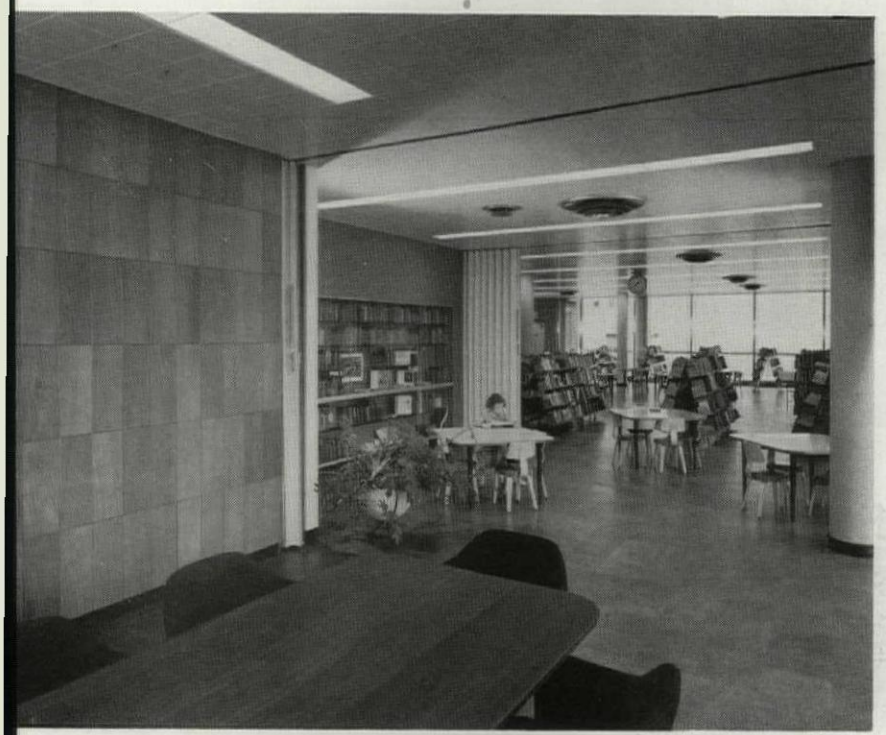






The Rare Book Room occupies a prominent corner of the third floor. The tall stainless-steel louvers are mechanically operated. Hardwood is used for the floor and polished red granite for walls. Columns are surfaced with colorful mosaic tiles from Venice. Interiors and many of the furnishings of the library were designed by Woodie Garber & Associates. Bodenstein & Schuster were Mechanical Engineers; W. W. Carlton & Associates, Structural Engineers; Frank J. Kornacker Associates, Special Structural Consultant; Frank Messer & Sons, General Contractor.

Adjoining the third-floor children's department (below) *is the board room (foreground) and south-facing, stone-paved terrace* (right) *with planting boxes, reflecting pools, and sculpture by Harry Bertoia.*



Materials & Methods

construction

Foundation, frame, walls, floors, roof: reinforced concrete: cement—Louisville Cement Company, Inc., Richter Concrete Company; reinforcing steel—Pollack Steel Company. **Wall surfacing:** exterior: brick—Hydraulic-Press Brick Company, west-façade louvers—Universal Corporation; interior and exterior: marble and granite—Vermont Marble Company; rest rooms, toilets: glass mosaic tile—Vetrum Tile Company, glazed tile—Cambridge Tile Manufacturing Company. **Floor surfacing:** cork tile—Kentile, Inc.; asphalt tile—Tile-Tex Division of The Flintkote Company; ceramic tile—Cambridge Tile Manufacturing Company. **Ceiling surfacing:** perforated-metal pans and mineral-fiber acoustical tiles—National Gypsum Company. **Roof surfacing:** built-up roofing—Philip Carey Manufacturing Company; quarry tile—Carlyle Tile Company; marble—Vermont Marble Company; copper—C. G. Hussey & Company, Revere Copper & Brass, Inc. **Waterproofing & dampproofing:** membrane waterproofing—Philip Carey Manufacturing Company. **Insulation:** glass fiber—Owens-Corning Fiberglas Corporation; perforated-asbestos board—National Gypsum Company; vermiculite—Indoken Perlite Company. **Roof drainage:** copper gutters and downspouts—Imbus Roofing Company; drains—Josam Manufacturing Company. **Partitions:** metal and rock lath—United States Gypsum Company. **Windows:** sash: pivoting and stationary—Truscon Steel Division of Republic Steel Corporation; glass: plate, polished wire, heat absorbing, clear polished, insulating, and mirrors—Pittsburgh Plate Glass Company. **Doors:** interior: wood fireproof—United States Plywood Corporation, wood—Kister Lumber Company, vinyl-covered folding doors—New Castle Products, Inc.; overhead: metal—Barber-Colman Company; elevators and dumbwaiters: Dahlstrom Metallic Door Company, Peelle Company; entrance: stainless steel—Reliance Art Metal Company. **Hardware:** lock sets—Schlage Lock Company; door closers—Oscar C. Rixson Company; hinges—Yale & Towne Manufacturing Company, McKinney Manufacturing Company; rolling door—Moeschl-Edwards Corrugating Company, Inc.; panic exit—Von Duprin Division of Vonnegut Hardware Company. **Paint & stain:** interior and exterior—Pratt & Lambert, Inc.

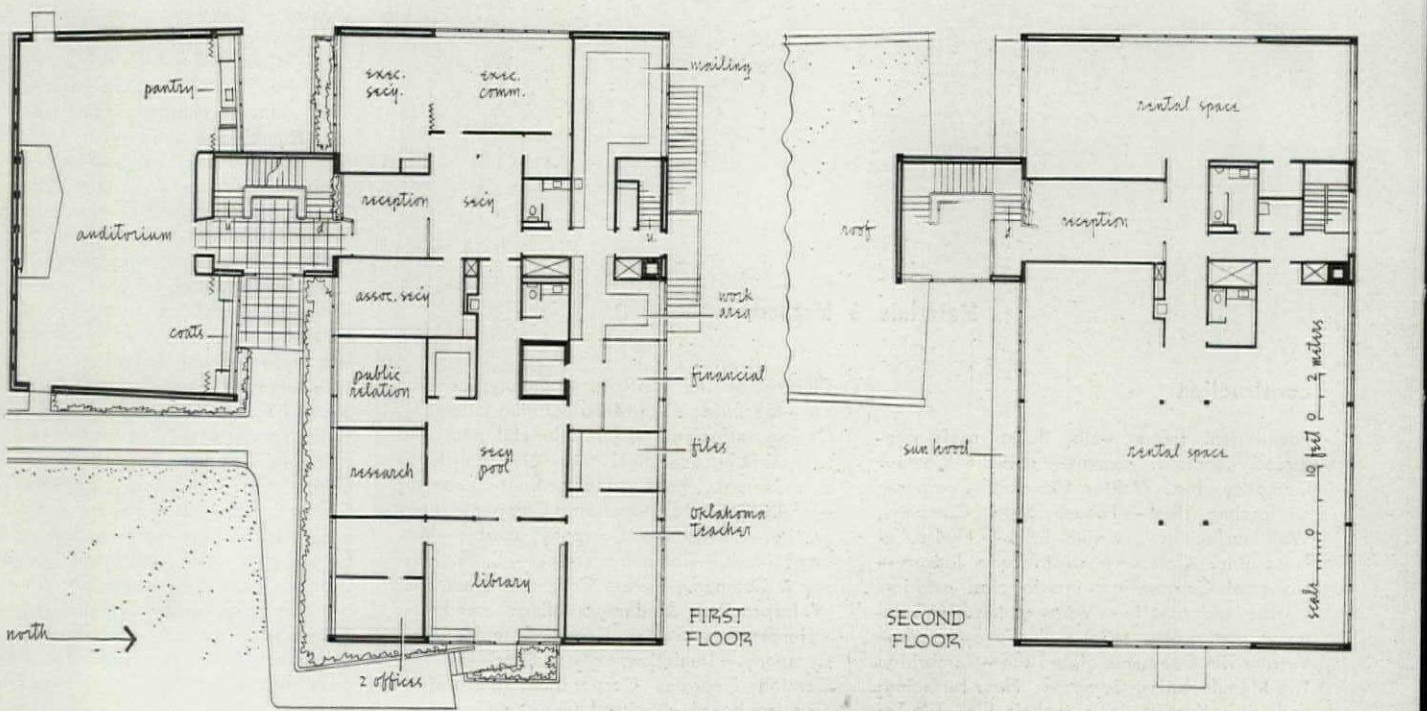
equipment

Specialized equipment: kitchen units—Dwyer Products Corporation; furniture—Backus Brothers, Brunswick-Balke-Collender Company; wood-patterned, laminated-plastic surfacing on tables and counters—The Formica Company; book stacks—Virginia Metal Products, Inc.; conveyors—Busch Lawrence Company, Virginia Metal Products, Inc.; window-washing machine—Economy Engineering Company. **Elevators:** passenger and dumbwaiters—Shepard Elevator Company; freight—Shepard Elevator Company, Warner Elevator Manufacturing Company; cabs: passenger—Globe-Van Doorn Corporation, freight—Cincinnati Metalcrafts, Inc., dumbwaiter—Peelle Company. **Lighting fixtures:** Day-Brite Lighting, Inc., Kirlin Company; stack-aisle fixtures—Pittsburgh Reflector Company; exterior fixtures—Revere Electric Manufacturing Company. **Electric distribution:** service-entrance switch, panelboards, and multibreaker—Cleveland Switchboard Company; duct system—Square D Company; wire and cable—Circle Wire & Cable Corporation; conduit—Republic Steel Corporation; wiring devices—Harvey Hubbell, Inc., Pass & Seymour, Inc. **Plumbing & sanitary:** water closets and lavatories—American Radiator & Standard Sanitary Corporation; toilet seats—C. F. Church Manufacturing Company; water heater—Ruud Manufacturing Company; flush valves—Sloan Valve Company; pipe—A. M. Byers Company, Bridgeport Brass Company; pipe fittings—Mueller Brass Company; shower controls—Symmons Engineering Company. **Heating:** type: direct radiation and warm air; boiler—Pacific Steel Boiler Division of United States Radiator Corporation; fuel: gas and oil-convectors and unit heaters—Modine Manufacturing Company; steel ducts—Armco Steel Corporation; black-steel pipe—National Tube Company; controls—Powers Regulator Company. **Air conditioning:** type: air-handling units for separate zones; units and cooling coils—Carrier Corporation; cooling tower—The Marley Company; grills and diffusers—Tuttle & Bailey, Inc.; blowers—American Blower Corporation; filters—American Air Filter Company, Inc.; controls—Powers Regulator Company.

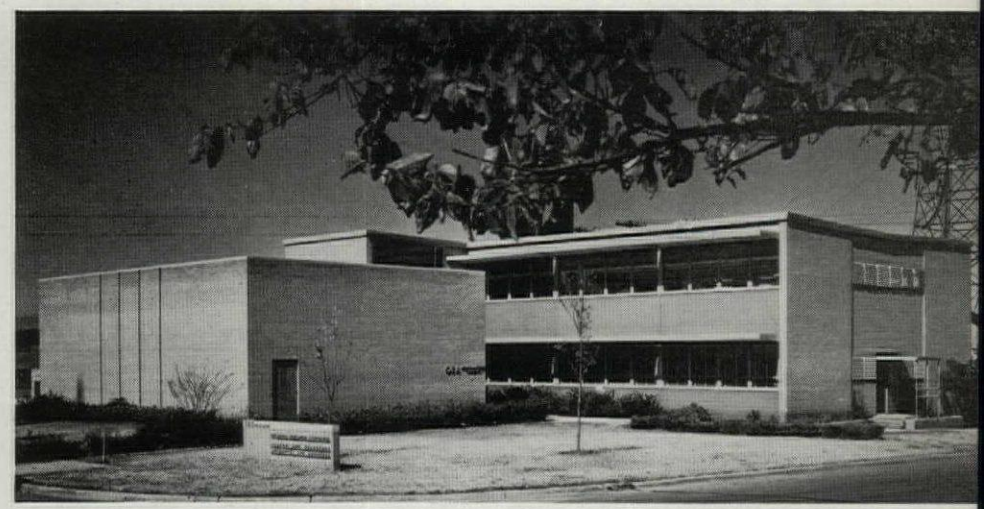
office building

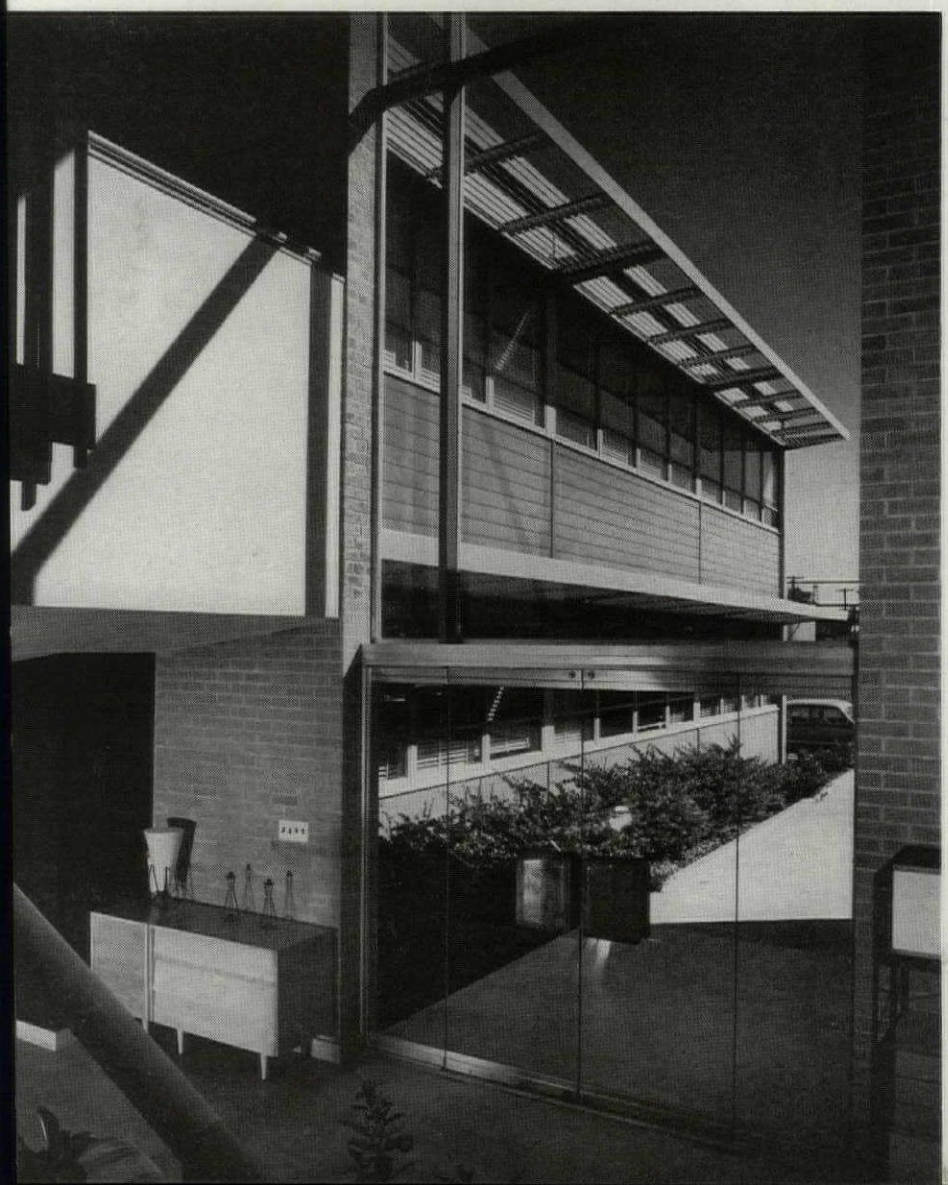
location | Oklahoma City, Oklahoma

architects-engineers | Coston-Frankfurt-Short



The first floor of this building contains offices, a library, meeting room, and a 200-seat auditorium for the Oklahoma Education Association. Rental space on the upper floor is presently occupied by Architects-Engineers Coston-Frankfurt-Short, who designed the building and supervised its construction. Located near the State Capitol, the structure is well sited on a corner plot, adjacent to residential areas, and close to the edge of the industrial district. The structural frame is of steel; walls are of brick or steel-framed panels. Floors of reinforced concrete are supported on steel joists. The roof framing employs steel joists and precast, insulated roof panels, topped with tar-and-gravel. Reddish-tan brick, blue steel spandrels, steel sash, with occasional use of blue-green heat-resistant plate glass, afford pleasant touches of color and texture on the exterior. Inside, major materials are gypsum tile and plaster, asphalt tile, and acoustical fiberboard ceiling tiles. A double-duct system has been installed for heating and air conditioning. Office areas are lighted by incandescent and fluorescent fixtures. General Contractor was Dunning Construction Company.



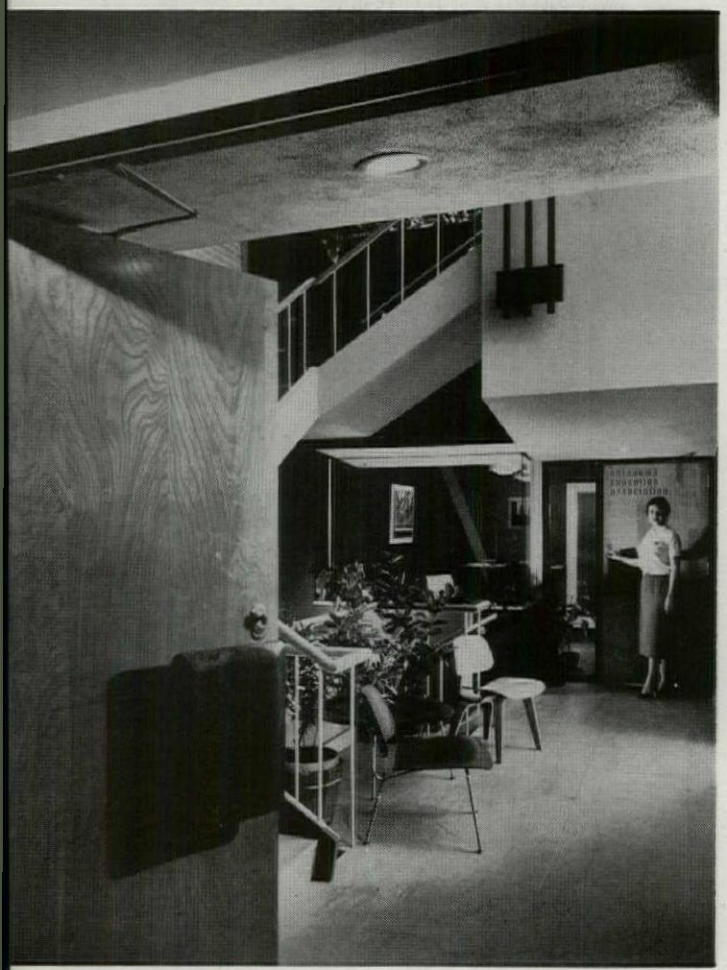


Entry to both offices as well as auditorum is from the central stair hall (left). *Auditorium* (*left of photo* above) *is a windowless rectangle of brick, containing some kitchen facilities, coat storage, speaker's platform, and space to accommodate 200 persons. Offices* (*right of photo* above) *receive daylight from all four exposures. South windows are shielded by metal louvers extending 4 ft beyond building line. East and west windows have adjustable, exterior, metal blinds.*

Photos: Julius Shulman

office building

Door at ground floor (foreground of photo below) leads from marble-floored entrance hall into auditorium. Meeting room for Oklahoma Education Association may be partitioned into two sections.



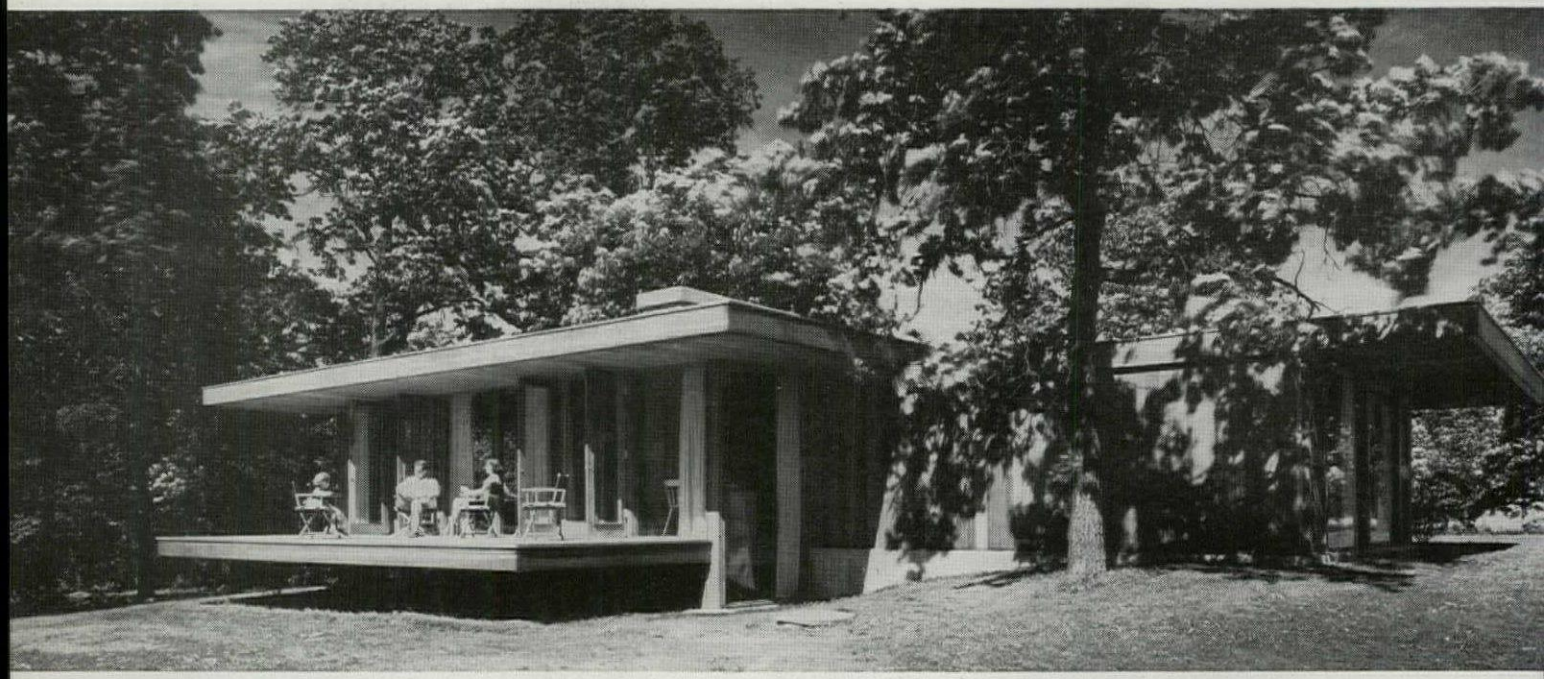
Reception room for architects' offices (top right) is located on the second floor. Conference room (right), at west end of building, also serves as office space for partners.

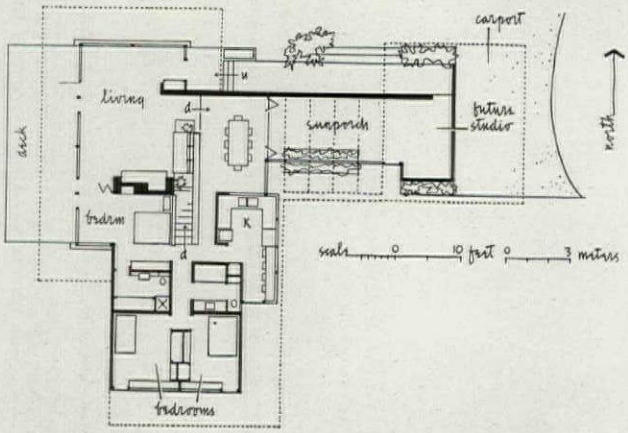
house: Illinois

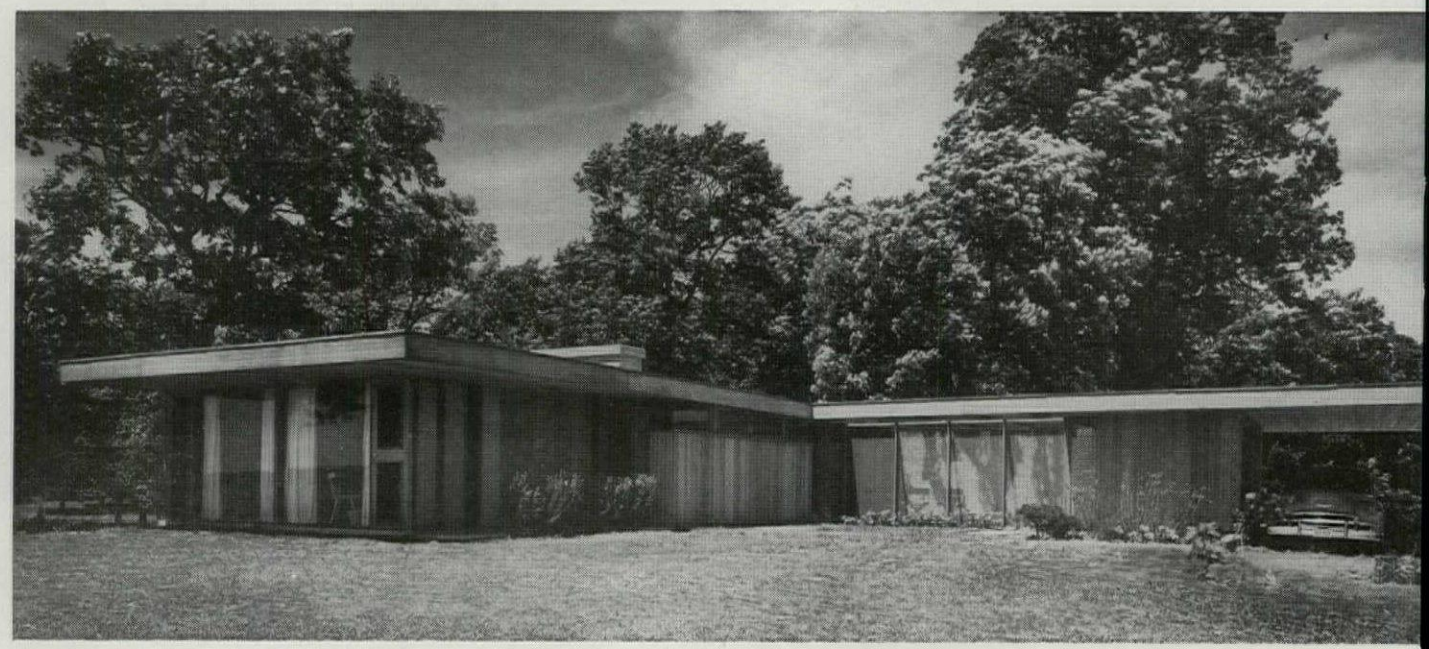
location | Barrington, Illinois

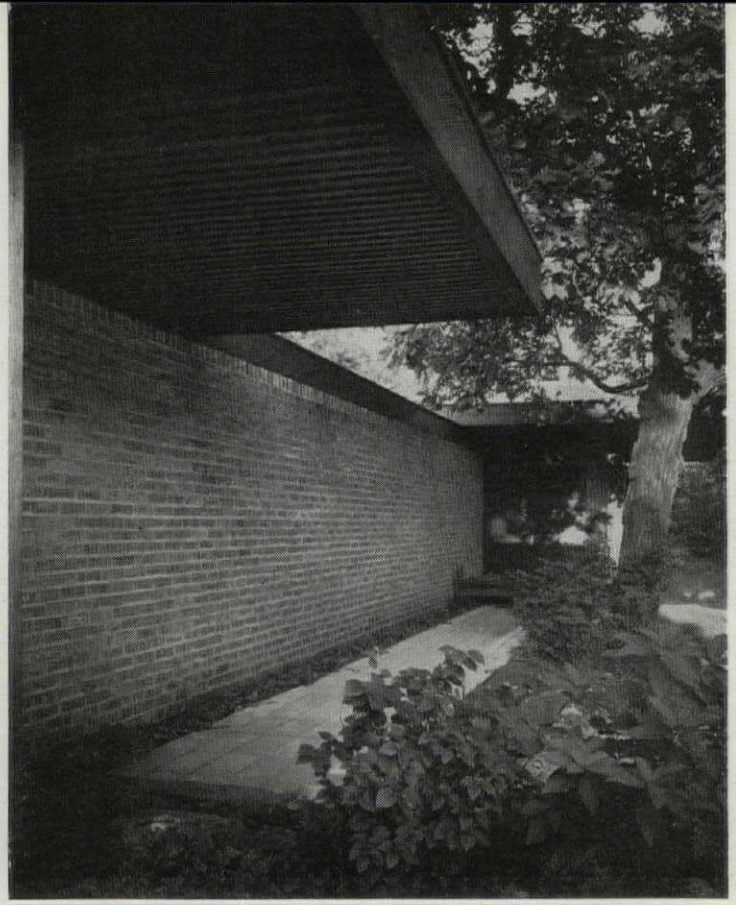
architect | Edward D. Dart

house: Illinois

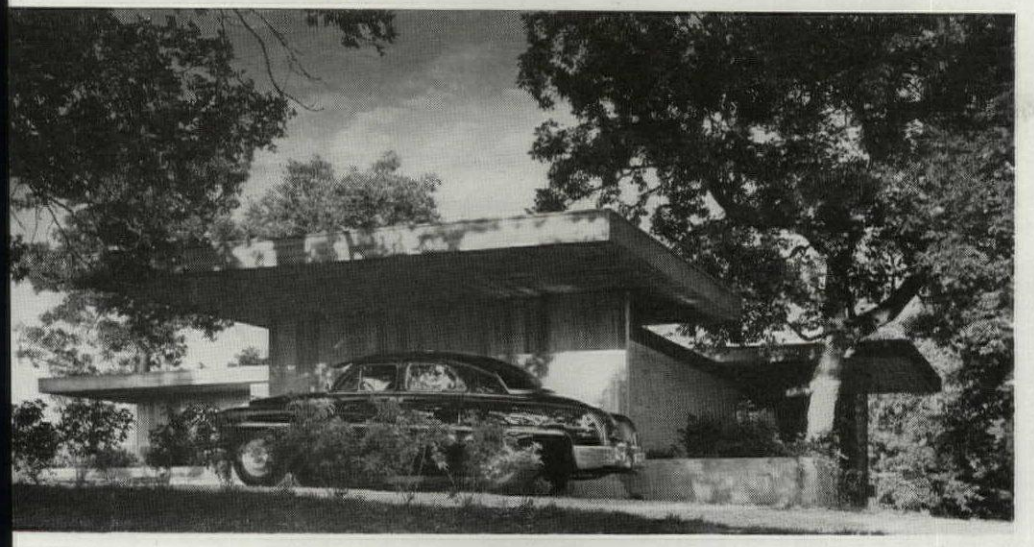






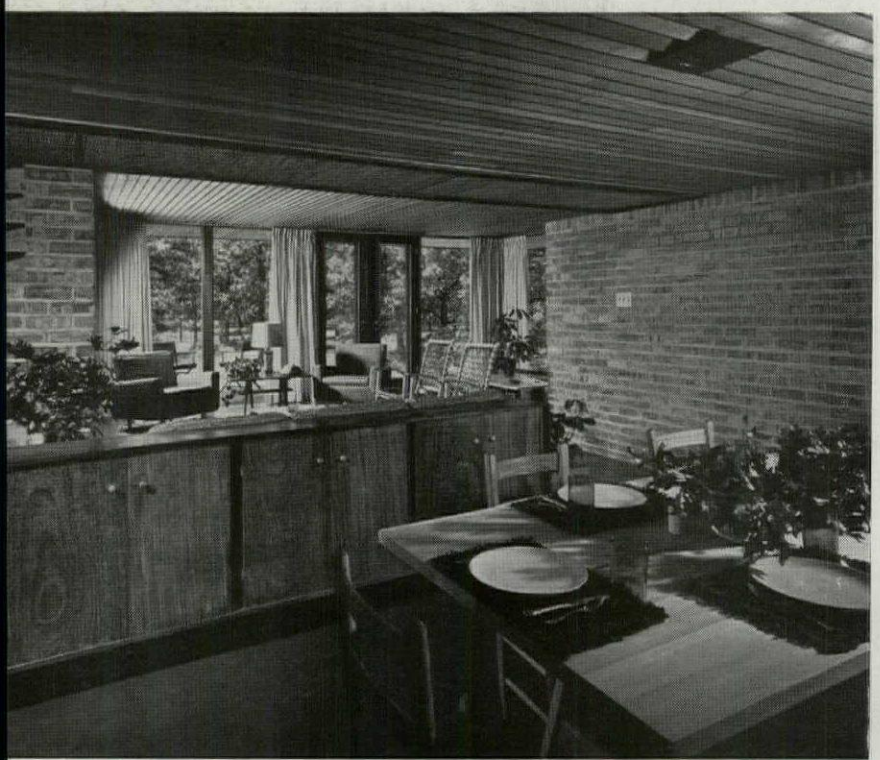


Carport roof (below) *is cantilevered, using 2"x12" joists, 12" o.c. Main entrance* (right) *is located at end of path bordered by brick wall. For color accent, front door has been painted orange. Windows, doors, posts, mullions, and general trim are painted a flat black.* Photos: Hedrich-Blessing

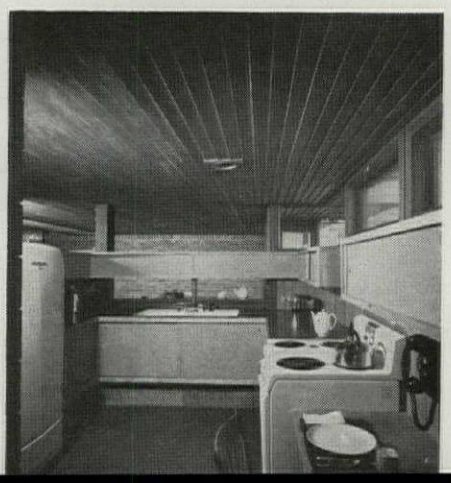


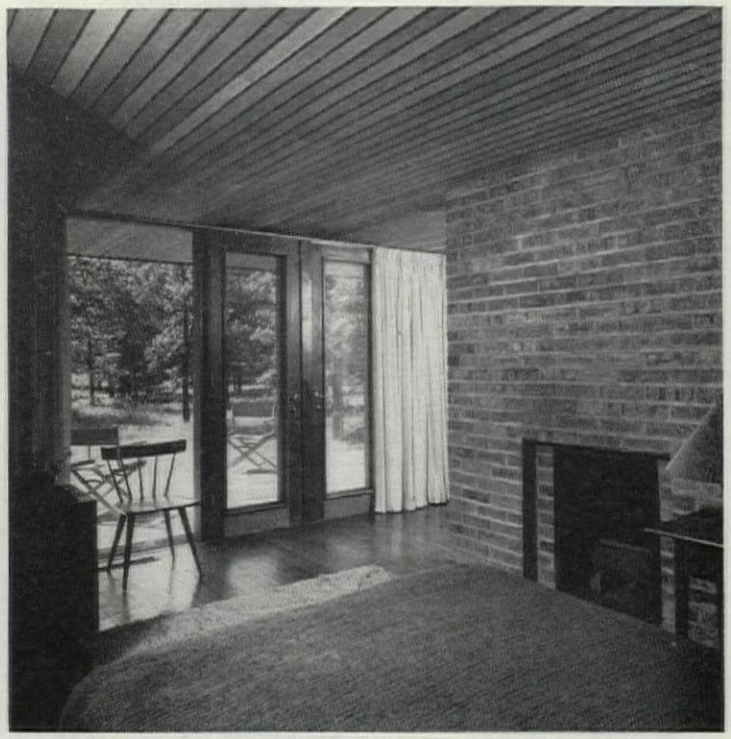
It was the architect's intention not to alter the contours of this pleasantly undulating 13-acre site. The main floor level was therefore determined by the highest point of the site, and a drop in contours to the west was used to good advantage in providing a day-lighted study at the basement level. To achieve as much visual space as possible, all major rooms open into each other. Only the two bedrooms for the architect's own family of three, are secluded in the south wing. Generous overhangs and extensions of floor surfaces to the exterior, on porches and decks, help to enlarge the living areas visually as well as functionally. Standard wood framing has been employed throughout. Exterior materials are Illinois common brick, wood siding painted dark gray, and glass. Exposed natural brick, beveled siding for ceiling, gypsum form-board for walls, finished paneling, and teak wood for living room floor, summarize the major interior materials. A unique lighting fixture, made of 3′ x 3′ plastic panels, extends through the center of the house. Perimeter ducts embedded in slab carry forced hot air into all the rooms. Rieke Construction Co. was General Contractor.

house: Illinois

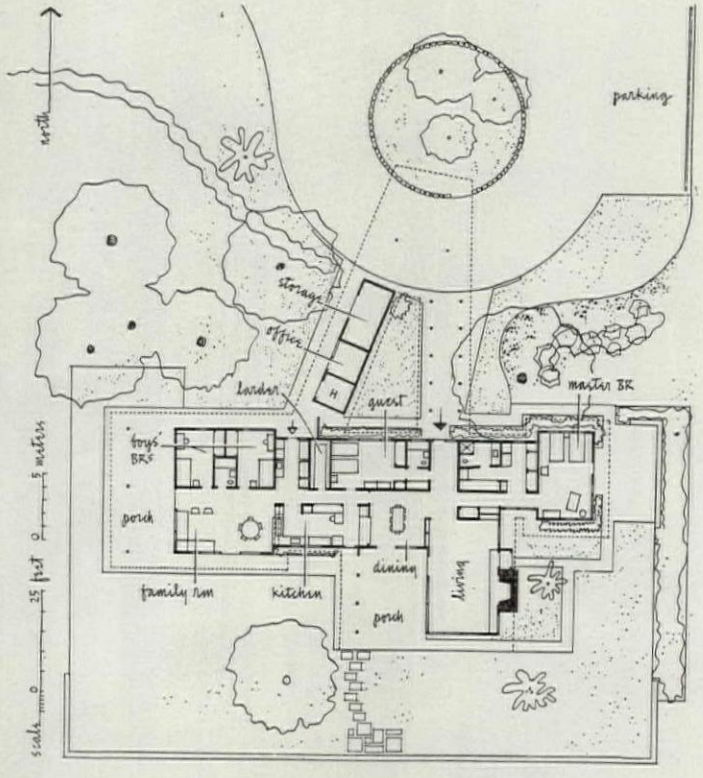


Well organized U-shaped kitchen (below) *has pass-through into dining room* (left). *For a sense of spaciousness, interior partitions stop short of ceiling and wood ceiling extends over the entire living area.*





Living room (top acrosspage) *is one step above kitchen and dining room. Screened porch beyond serves as expansion to living quarters when doors are folded back during the summer months. Other outdoor extension is deck opening off living room* (below) *and study or occasional guest room* (right). *Deck cantilevers 10 feet beyond column line and is constructed of 4"x10" beams, 4' o.c.*



house: Oregon

location	Medford, Oregon
architect	George T. Rockrise
landscape architect	Lawrence Halprin

Built on a 550-acre working ranch, this is the home of parents and two young sons. The family had previously lived in a city home that required several full-time servants. This house was specifically planned so that no more than occasional, part-time help would be needed.

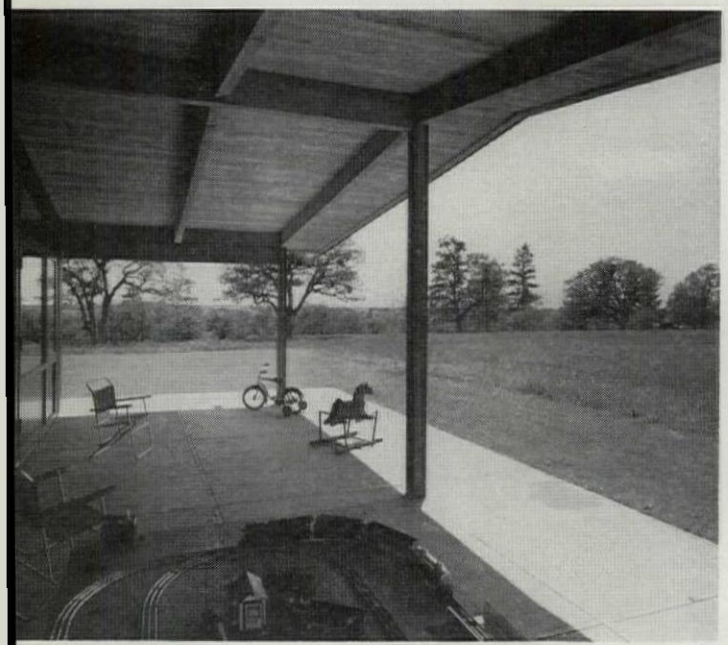
The plan has remarkable provisions for the separate activities of the family. Heart of the scheme is the handsomely equipped kitchen that forms a buffer between formal, adult areas east of it and informal, family and children's facilities to the west. From this core, meals may be served directly to (1) the formal dining room; (2) southern porch and terrace; or (3) multiuse family room, off which are bedrooms for the two boys. A deep porch west of the family room both governs afternoon sun and provides a play porch for the boys.

Note the large deep-freeze and walk-in larder—indication that the ranch produces and preserves much of its own food, as well as the fact that in-town purchases (requiring a trip of several miles) are made in quantity. The office in the angled unit bordering the service entrance is for conduct of ranch operations. The house is entirely of wood.

The private living side of the house is to the south (acrosspage) *where a deep-shaded living porch* (below) *adjoins the formal living room. Roof—and ceiling—construction consists of 2" x6" T&G planking supported on 4"x8" rafter beams (spaced 7'-1" o.c.) which, in turn rest on a 4"x12" ridge beam. Exterior walls are of redwood siding.*

On the entrance front, a sheltered walkway (right) *leads to a drive-through carport at the side of a turning circle.* Photos: Ernest Braun

house: Oregon



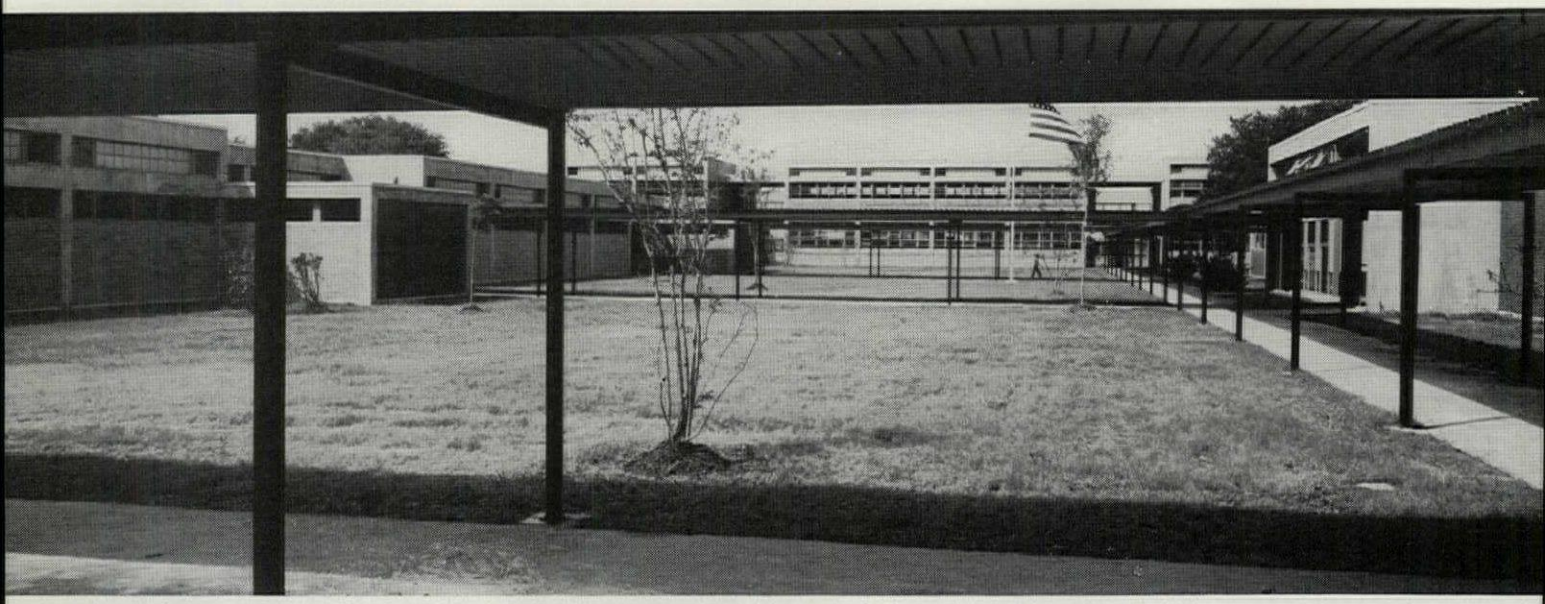
The living room (above) *is separated from the dining room (right of photo) by a high book-storage wall, topped with indirect lighting. Glass doors open both areas to the living porch.*

Beyond the family-children's room at the west end of the house is a 16-ft-deep play porch (left).

Collaborating with the Architect were Engineers Buonacorsi, Murray & Lewis and General Contractor F. R. Fairweather.

Undoubtedly the most-used room in the house is the family room (below) *with doors to outside on both south and west walls. A pass-through counter, in which are both barbecue grill and stove, opens from this room to the kitchen* (right). *Walls are of fir flooring, floors of vinyl cork. The house is heated by a hot-water system, served by an oil-fired boiler, and uses both unit convectors and baseboard convectors (the latter, under all fixed-glass areas).*

Many mechanical conveniences are in or near the central kitchen (top)*—built-in oven unit, dish washer, and garbage disposal unit in the kitchen, and washing machine, dryer, and ironer in the adjoining service space. The long pastry counter (right of photo) forms a pass-through island between kitchen and service areas.*



elementary school

location | New Orleans, Louisiana

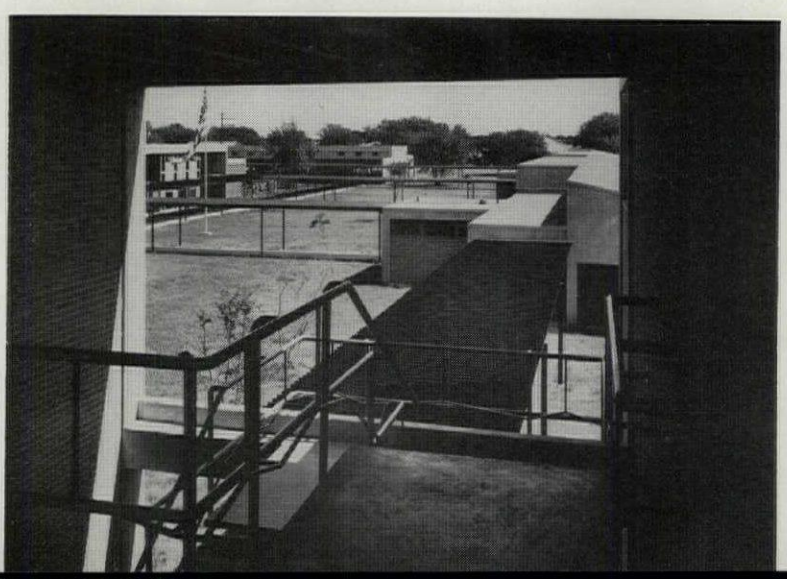
architects-engineers | Burk, LeBreton & Lamantia

One of the most interesting things about the Bienville Elementary School, built to accommodate a maximum of 595 children but with provision for expansion to an eventual student load of 770, is its site and siting. From the outset, it was known that the school was to share a large city square with a municipal playground, and the idea was that the 539'x 823' site would simply be split down the middle, with each project developed independently. However, the architects noted, because of the location of live oak trees on the property, this arbitrary division would mean that almost all trees would have to be removed. Several meetings with representatives of both school and park agencies convinced them of the advantage of dividing the property as shown on the plot plan. This scheme not only saved the trees but also made it possible to locate appropriate playground facilities adjacent to the areas for different age groups in the school buildings.

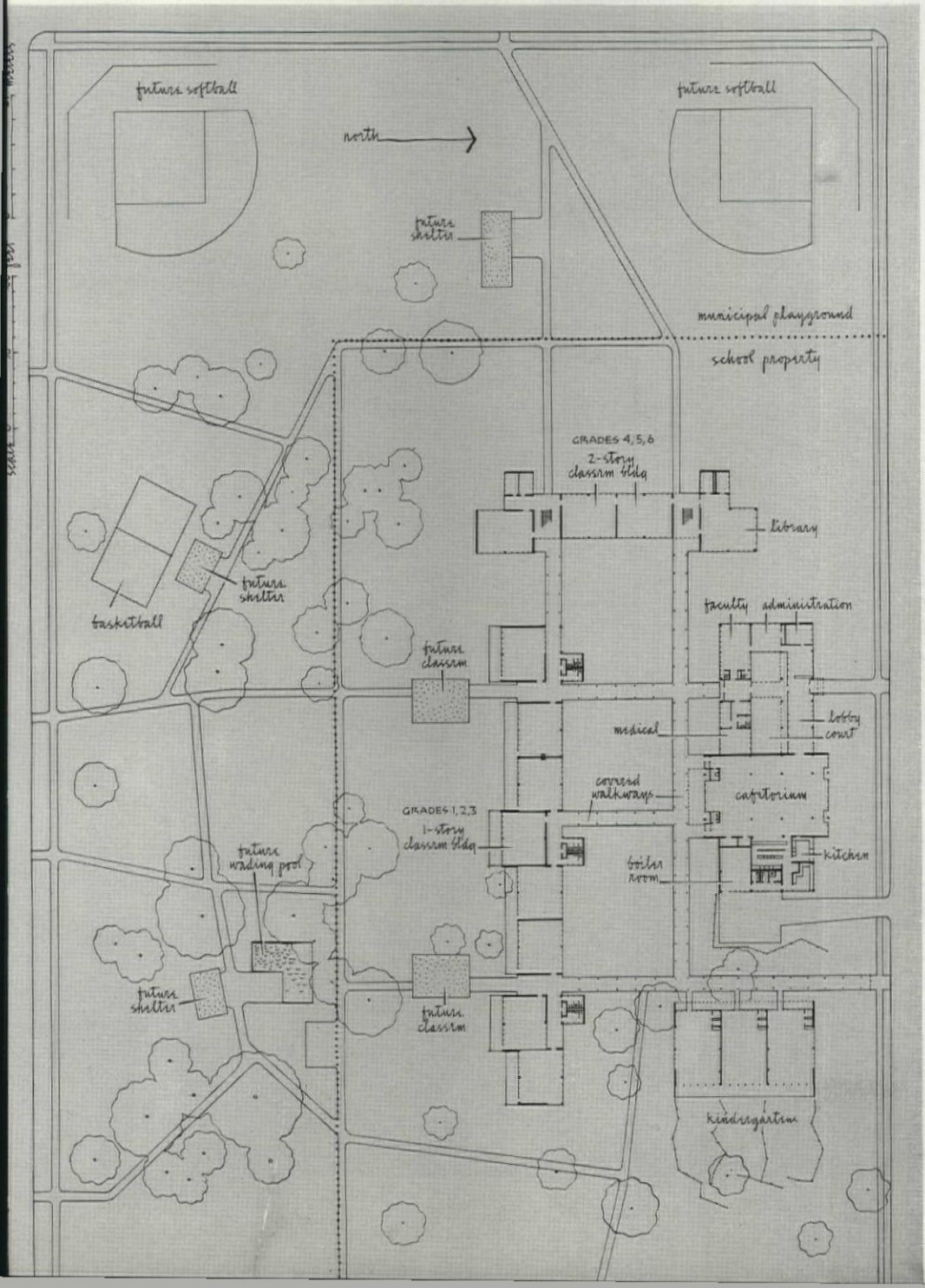
Four separate buildings, joined by covered walks, constitute the school plant —an administration-cafetorium building centrally placed on the north; a kindergarten building east of this; a classroom building for Grades 1 to 3 along the south side of the land; and a two-story building for Grades 4 to 6 at the western end.

To provide the amenity of bilateral lighting and ventilation, yet avoid the excessive length of buildings that would have been required had a single-story scheme been adopted throughout, "clusters" for the different class groups were employed. Large roof overhangs and use of vertical, exterior wing walls control sun glare in the one-story building. In the two-story block—also arranged in "clusters"—projecting window panels on the west side, "glazed" with asbestos cement, allow cross ventilation without direct sunlight.

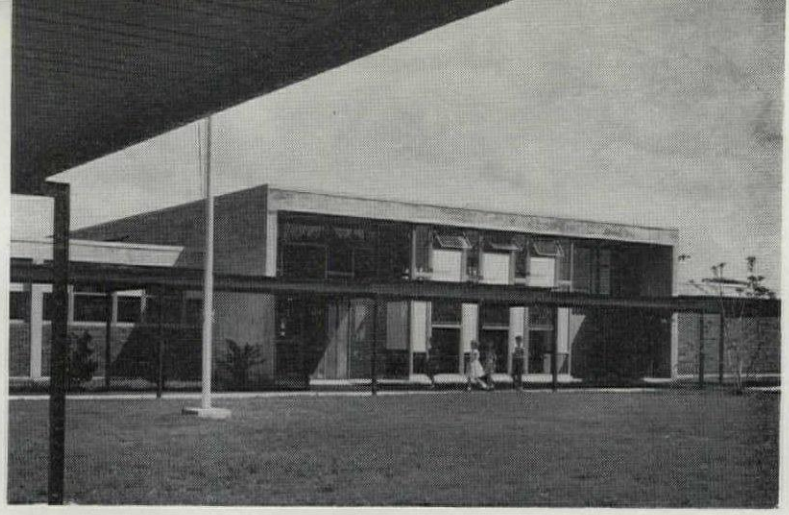
The three-room-to-a-cluster scheme for the one-story building allows entrance to each of the three rooms from a neutral space; in the two-story building, clusters consist of two rooms, and open stairs (required for fire exits) separate the elements of the building. Perilliat-Rickey Construction Co., Inc., was General Contractor.



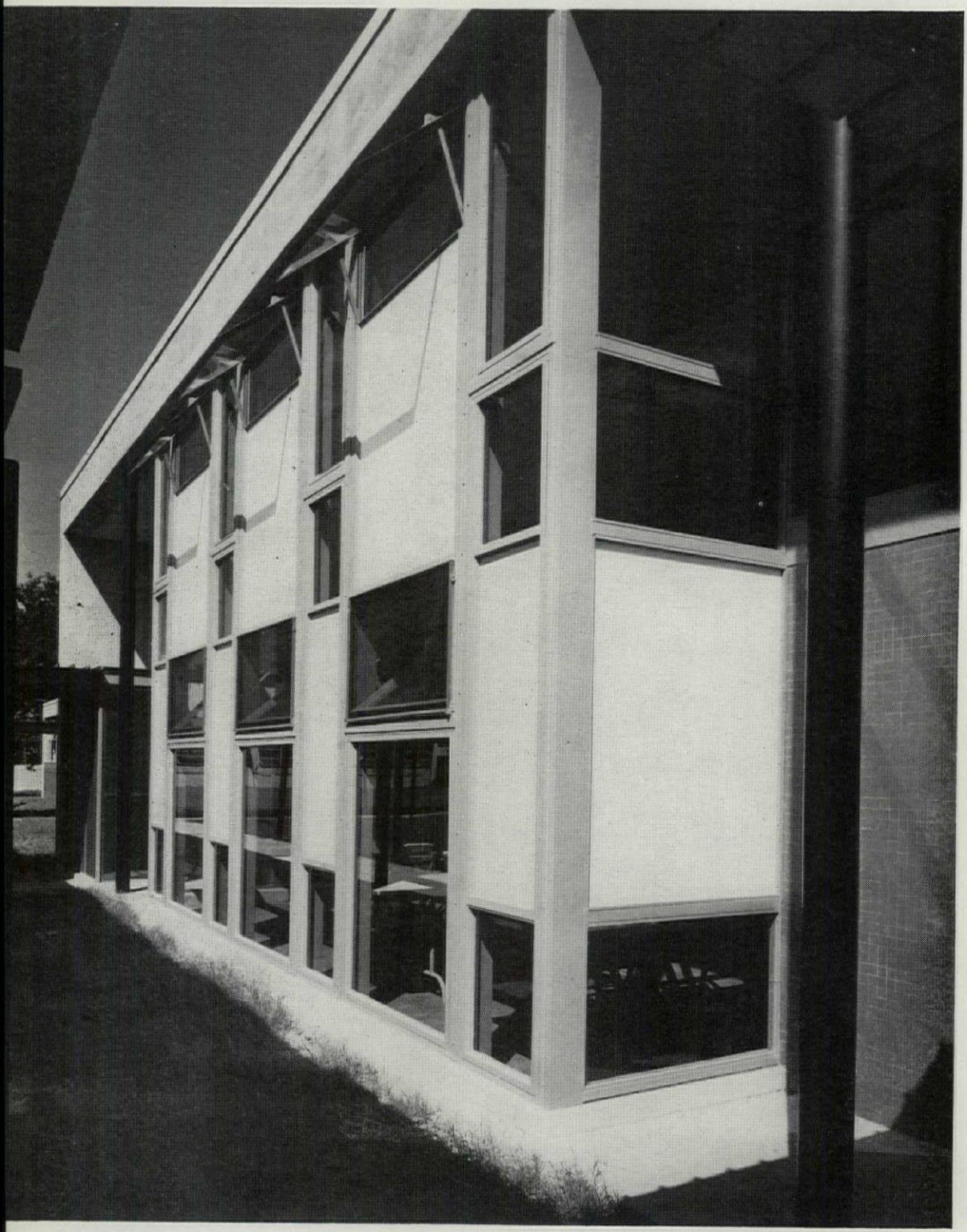
Construction, in the main, is of reinforced concrete. To reduce weight, the cafeteria element has light steel trusses resting on pipe columns; and the covered walks are also of steel. Because of unstable site conditions, all structures are supported on piling. Exterior walls are 10-in. hollow-core masonry, with brick or ceramic-tile exterior withe and structural facing tile within. Photos: Frank Lotz Miller



elementary school



The tall, bay-windowed cafeteria-assembly room (or cafetorium) dominates the north side of the school quadrangle. Color is introduced both in glass panels and in ceramic-tile wall facing.

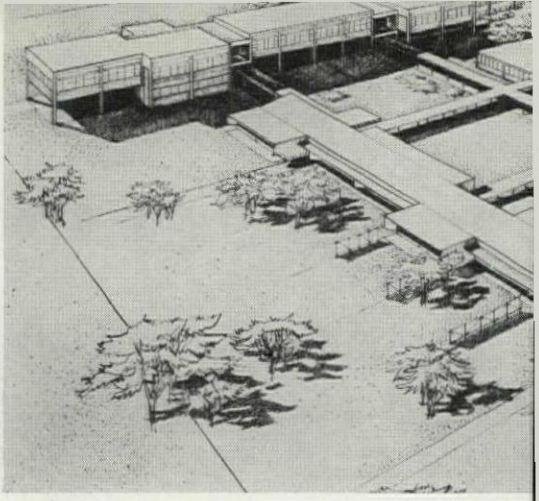


The main lobby of the administration building (above) *leads directly to the cafetorium (at far end) or, to the right, across a landscaped court, to the school quadrangle. Color notes occur in the patterned asphalt-tile flooring and in wall insets.*

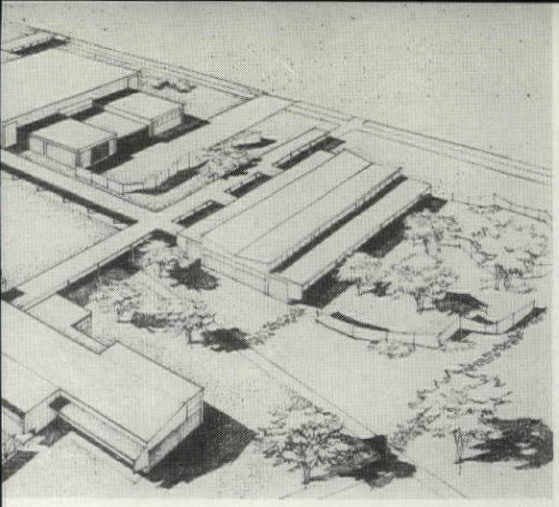
From the quadrangle (left), *one looks back across the courtyard to the main entrance.*

Heating of the cafeteria, lobby, and kindergartens is by forced hot air from concealed units; all other spaces use baseboard-type convectors.

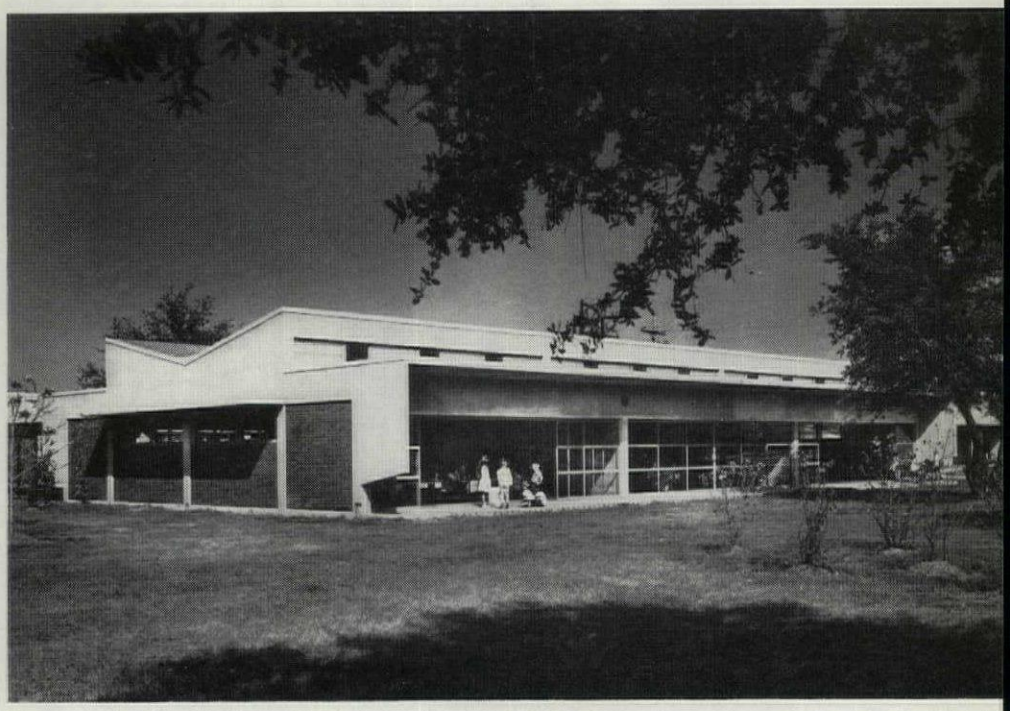
elementary school



The one-story classroom building for Grades 1 to 3 is made up of three clusters of classrooms —one for each grade—that operate almost like separate schools. The typical classroom is bilaterally lighted, with deep roof overhang above low southern windows (right of photo) and two light strips on the facing wall—glass block for a glareless light source; operating sash for ventilation and light. Flooring throughout is asphalt tile, and acoustical tile is used on all ceilings.



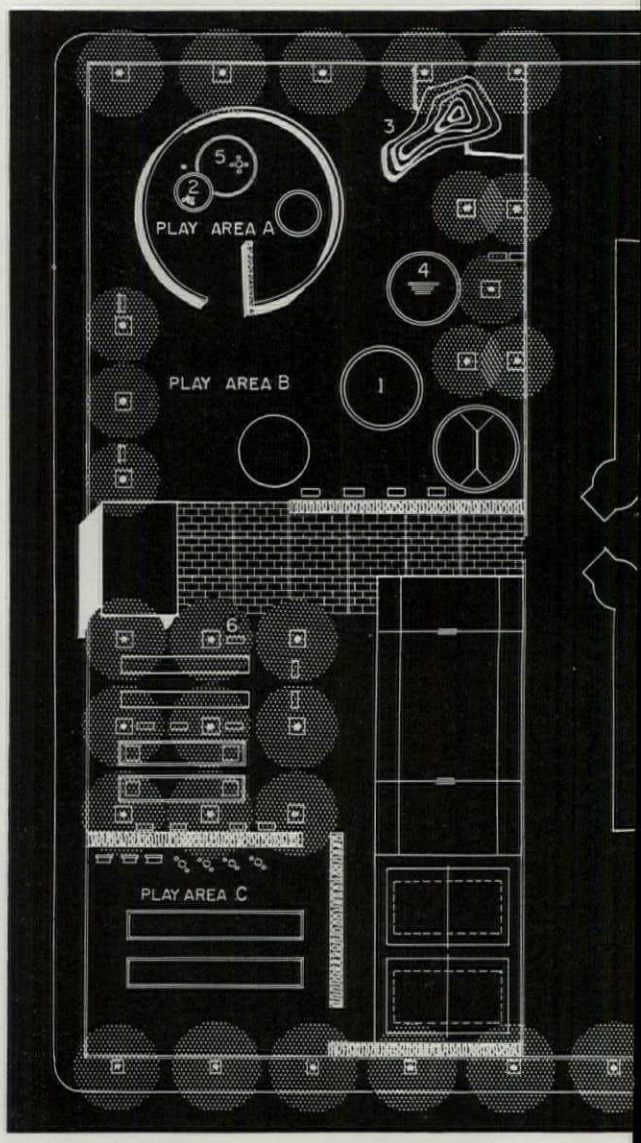
The kindergarten unit was planned for maximum openness, with rooms opening fully to their eastern outdoor extensions. Clerestories supplement end wall elements for natural light and ventilation. Total contract cost of the school came to $494,000—or $10.50 per sq ft.



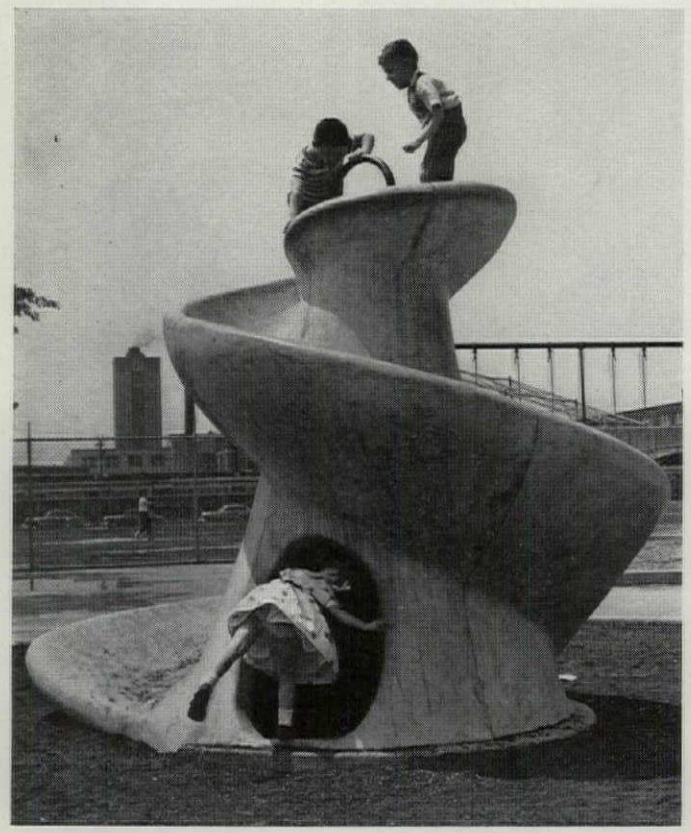
neighborhood playground

Passing of the stereotyped, cindery city "playground" with its rigid rows of iron-and-wood exercise equipment behind spiked fences is heralded in Philadelphia by adoption of a new kind of landscaped, informal area for family recreation as the standard for redevelopment of dozens of the municipal playgrounds. The components of the initial block-sized play center developed by Cornelia Hahn Oberlander for a congested neighborhood are noted on the plan (*below*). In Area A are climbing logs (2) and tables and stools for smaller children (5) enclosed by a low wall on which mothers may sit. Area B offers for larger children a play-sculpture (1) designed by Egon Moeller-Nielsen (Swedish sculptor who introduced this element in Stockholm playgrounds); as well as a concrete play-mountain (3), an ampitheater climber (4), swings, spray pool, etc. Area C provides a resting area with concrete benches (6) and games courts and tables for adults. All these areas are paved (except circles) and shaded. The remainder of the 3.5-acre block is a ball field (right of plan).

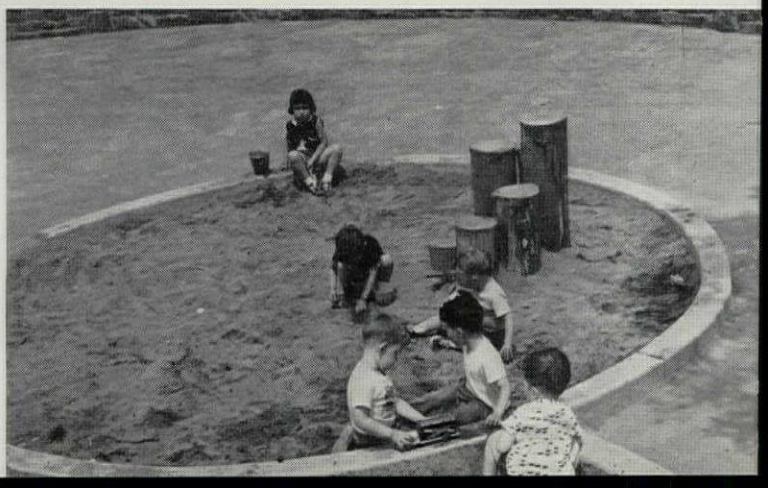
Recreation Commissioner Frederic R. Mann started the program, being continued under Commissioner R. W. Crawford, to provide city play centers that entire families can enjoy.



1



2



3

4

5

Photos: Lawrence S. Williams

6

location	Philadelphia, Pennsylvania
client	Department of Recreation
landscape architect	Cornelia Hahn Oberlander
sculptor	Egon Moeller-Nielsen
contractor	Aversa Construction

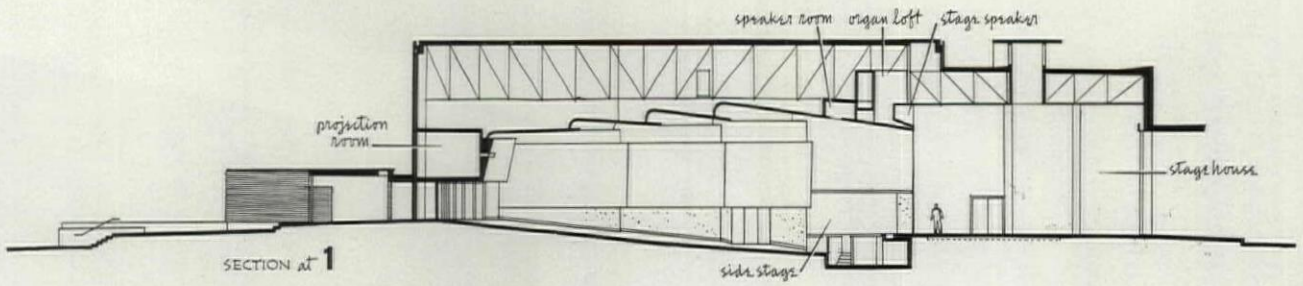
speech arts building

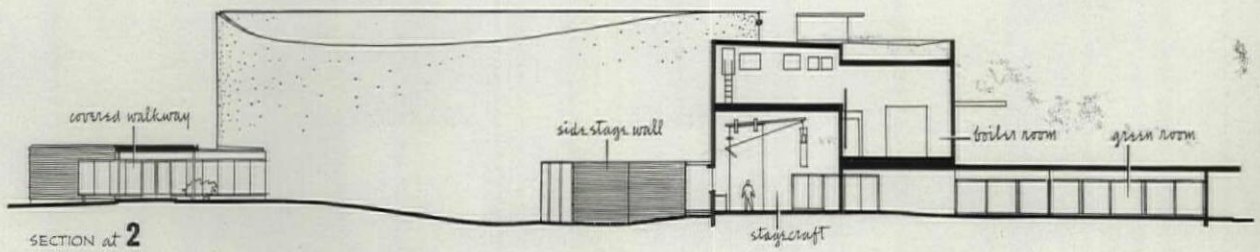
location	Costa Mesa, California
architects	Richard J. Neutra & Robert E. Alexander
associate architect	Richard H. Pleger
landscape architects	Eckbo, Royston & Williams

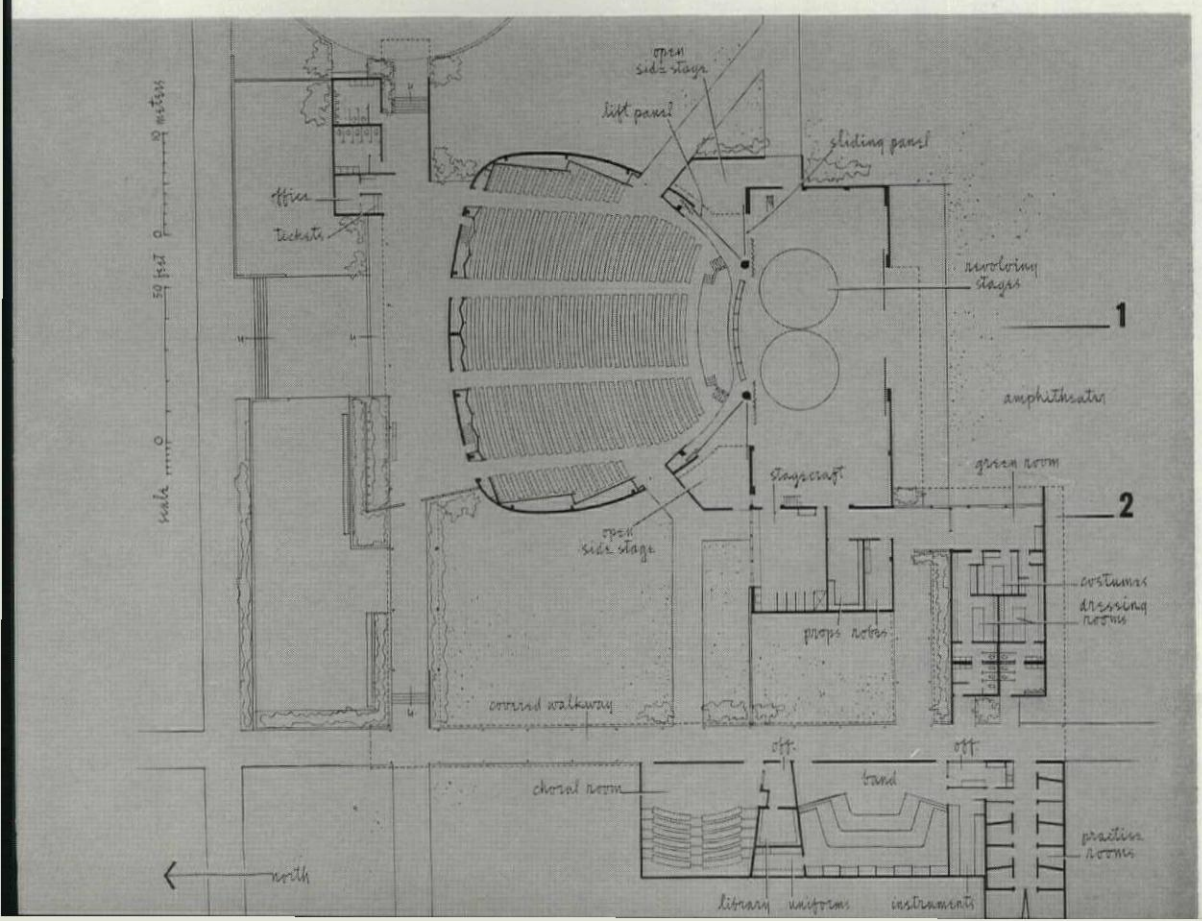
Latest of the campus buildings to be completed at Orange Coast College is the Speech Arts Unit, heralded in July 1955 P/A, which featured campus structures completed up to that time. The Speech Arts Center is composed of a large auditorium with multipurpose stage, amphitheater, and a music building containing choral, band, and practice rooms. It is a remarkably versatile group of buildings, which not only serves the college in many different capacities, but also the community as a whole. As Richard J. Neutra pointed out in his recent book, *Survival Through Design*, "The all-purpose character of such a space which is to serve and activate a community is markedly different from that of the more specialized theater as it developed especially since the Renaissance into a place where spectators forming one world peep through a proscenium arch into another well rehearsed and staged world behind the barrier of footlights. . . . Behind the student body of a college, for example, stands a wider and elastic community which may and should on occasion, converge on the campus." One further change contributing to the evolution of

today's campus theaters is the audience itself, which is now very often a participant rather than a group of mere spectators. "Participation," continues Neutra, "means being taken in, as much as feasible, making performance total, instead of 'half and half.' The stage extending around the 'audience,' or the audience surrounding the stage and players are two approaches to this totality, and at the same time, toward the desired intimacy between the two halves." To a degree this intimacy was achieved by the Elizabethan stage—the little theater-in-the-round—which has recently found favor again. On the other hand, suggests Neutra, there is a definite need on occasions for the opposite approach. "It is the one of surrounding the audience by action; simultaneous activity or action in sequence." This may be achieved by a widening and deepening of the stage, by special side stages, appropriate illumination, or an opening onto an outdoor terrace beyond the stage.

It would be difficult to find a more specific application or illustration of these theories than the recently completed Speech Arts Center, shown on these pages, and designed by Neutra and Robert E. Alexander. Among others who contributed to the success of these buildings were: Structural Engineers Parker, Zehnder & Associates; Mechanical Engineer Chester Walz; Electrical Engineer Earl Holmberg; J. C. Boespflug Construction Co., General Contractor; Rex Brandt, Color Consultant; Dr. Vern O. Knudsen, Acoustical Consultant.





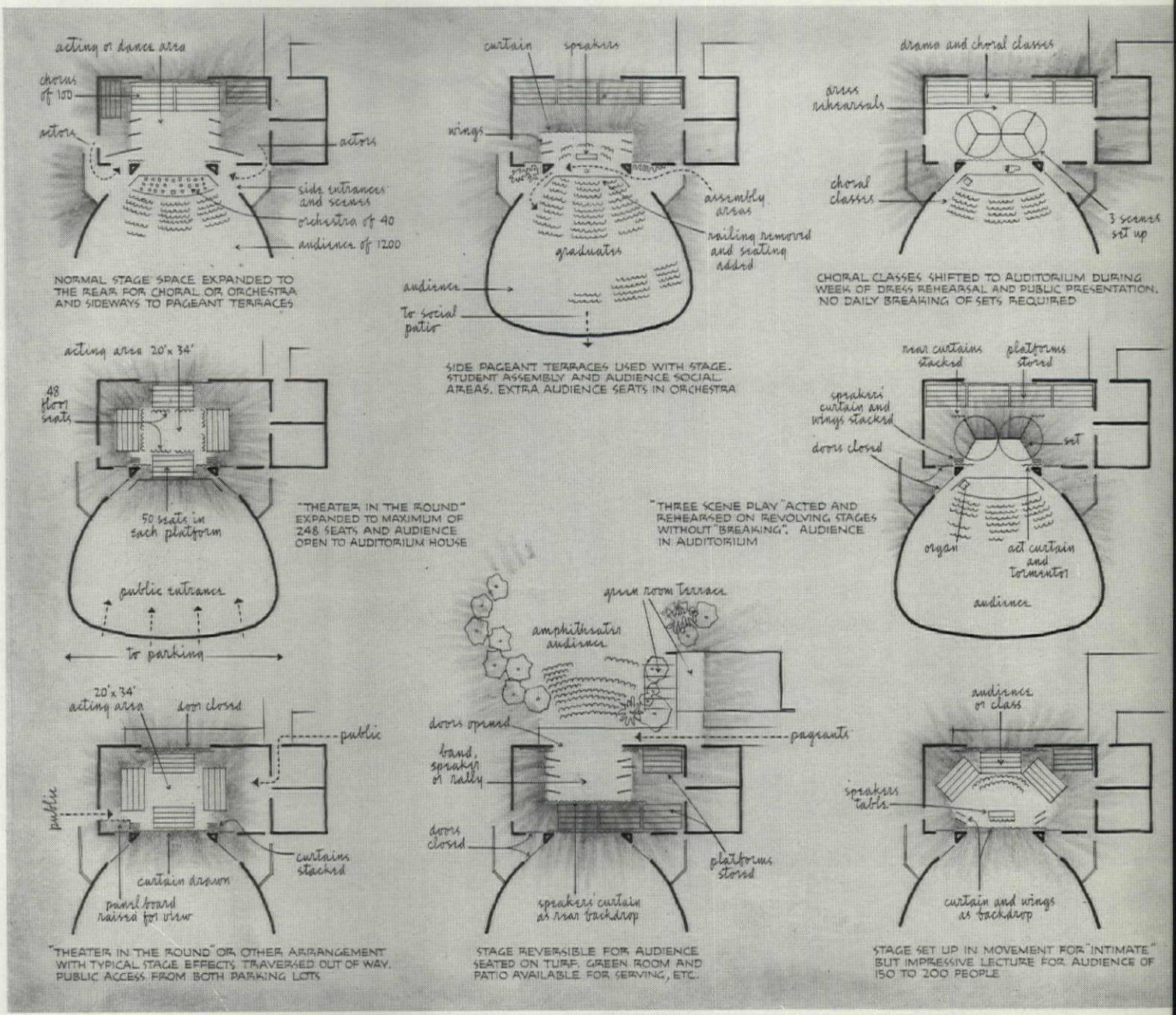


speech arts building

The auditorium, together with stage and stage-craft facilities (*above*), covers an area of 24,492 sq ft and seats 1200 persons. Adjunct services include a projection booth, orchestra pit, organ loft, public-address system, storage space, and dressing rooms. The auditorium, of roughly egg-shaped plan, has reinforced-concrete floors and walls, steel roof trusses, and wood roof construction. Inside, the auditorium has screen walls of plaster or perforated hardboard, and ceiling baffles of plaster. A separate gas-fired air heating and ventilating system provides for audience comfort. Stage and auditorium lighting-control panels, including preset boards, are placed on a platform above the sliding doors of the side stages.

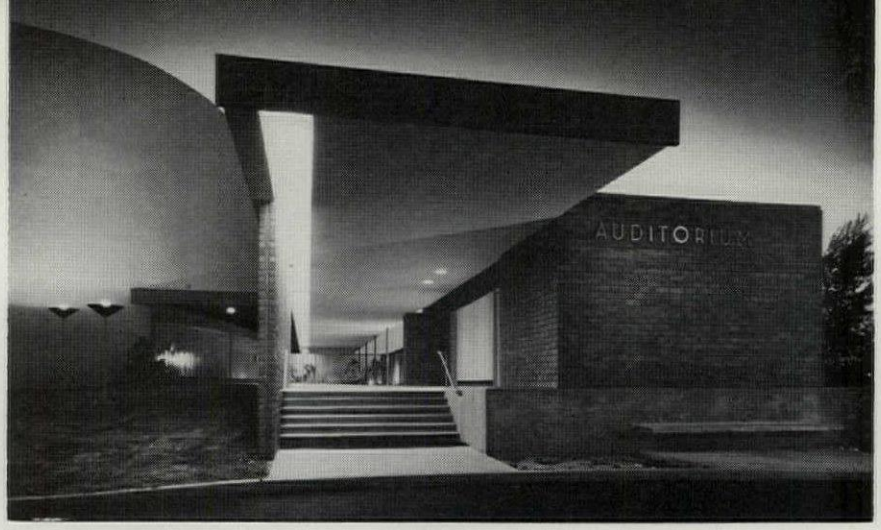
The stage, an area 45 ft deep and 104 ft wide, is perhaps the most versatile and ingenious part of the Speech Arts Center. Numerous arrangements (*illustrated acrosspage*) are made feasible by movable doors, curtains, stage platforms, side stages, and revolving scenery platforms. Thus, use of the stage may range from a most intimate theater-in-the-round, seating up to 250 persons, to a focal center linking the indoor auditorium with the outdoor amphitheater, the whole seating a total of 3600 persons.

Preliminary "flexibility diagrams" (below) *served as guides throughout the entire planning stages of the Speech Arts Center. From these, the manifold operations of the building are clearly apparent.*

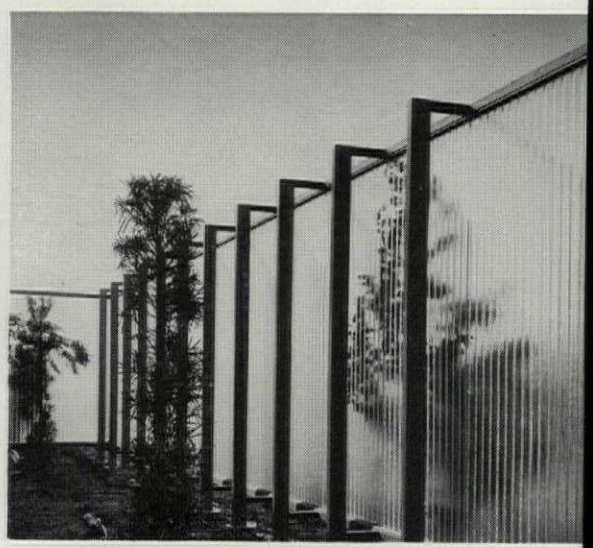


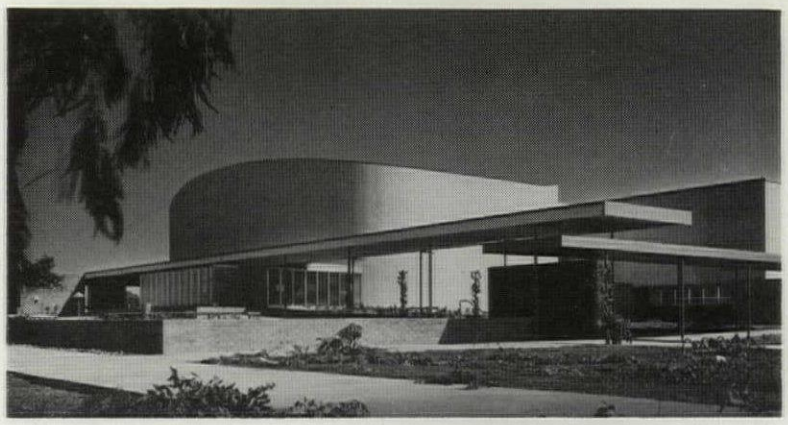
View of stage (left) *from auditorium shows outdoor amphitheater in background. Automatically operated doors permit use of stage with either auditorium or outdoor amphitheater. Two revolving stage platforms allow for presetting of three or four scenes for quick changes. Tracks at ceiling carry teasers, wing drapes, and border lights. Rear main drape may also be used as front drop for amphitheater.* **Photos: Julius Shulman**

speech arts building



For economic reasons, the lobby was constructed as a shelter without walls but shielded from the prevailing west wind by a glass screen (below). *Entrance into this lobby is from three directions—main vehicular approach from the east* (above), *pedestrian entrance from the north* (left), *and covered walk from the west* (bottom). *Approach from the west also links with shelter to music building.*





Vertical marks on concrete walls of auditorium (left) *are the result of slip-forms moved upward during construction. Rectangular structure in background encloses stage house, stage-craft facilities, heater and boiler rooms. Covered walk in foreground leads to music building.*

Music building houses choral, band, and practice rooms, facilities for instrument repair, and uniform storage. Choral room (above) *employs sound-absorbing blankets behind perforated-hardboard end walls. End walls, part of ceiling and wall above chalkboard in band room* (left) *are also acoustically absorbent. Instrument storage is at rear of room.*

daylight measurements: six New England schools

More and more, primary and elementary schoolrooms are being built with provision for additional daylighting—that is, more than can be provided by windows along one wall. Wide classrooms with low ceilings are common in recent construction, offering a reason for bringing daylight into the side of the room away from the window wall. In some cases, where state codes require a minimum ratio between window area and floor area, such additional daylighting is mandatory for wide, low rooms.

Some of the methods being used to provide additional daylight are: skylights, clerestories on the inner wall, monitors,** and plastic domes. Technical papers[1,2] have described some of these systems and discussions in the nontechnical press have sometimes implied that if substantial provision is made for additional daylighting, very little electric lighting need be installed in rooms which are not to be used for evening classes. On the other hand, some have argued that nothing more than a vision strip is justified in northern climates.[3,4]

This introduces the question of how much illumination is received by typical desks in such schoolrooms.[5] Previous papers have dealt with daylighting intensities outdoors[6] and with experimental data on particular systems;[7,8,9] however, there is a need for factual data on actual schools in different latitudes.[10]

*** There is some overlapping of terms in regard to monitors and clerestories. For example, the additional windows in the West Parish School are certainly clerestories and those in the Manasseh Cutler School monitors; however, those in the Fiske School could be designated either way.*

procedure

With this need in mind, a year's study was made of six schools in northeastern Massachusetts and southern New Hampshire, each having a different type of daylighting. In each school, a room was selected which seemed typical of those having the same orientation. A desk about midway from front to rear wall and located laterally in order to receive

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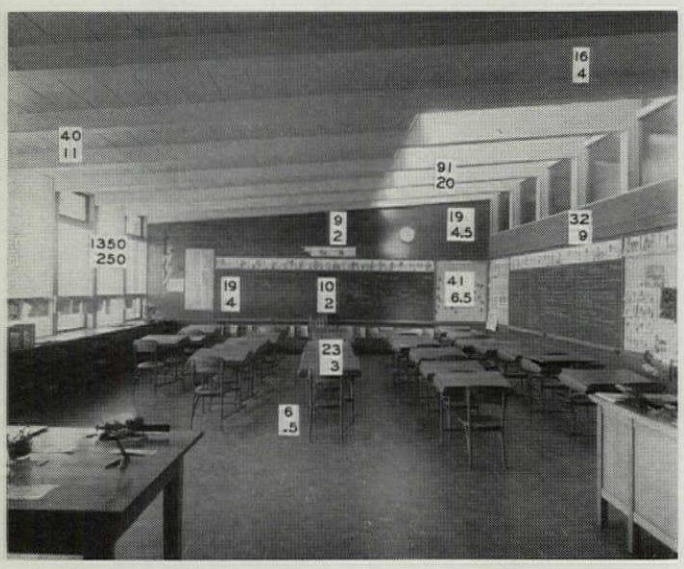
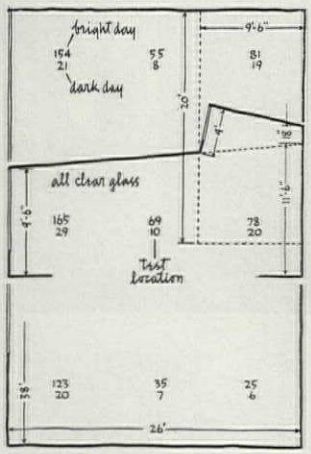
Manasseh Cutler School, Hamilton, Mass., Room No. 2



Brightness of monitor windows from right rear of room: bright day, 1100 ft-L; dark day, 420 ft-L.



Exterior view through windows: Lawn, at level of schoolroom floor, slopes gently downward for about 200 ft, then rises. Pine and shade trees start 50 ft forward of forward window and slant away from room at 45° angle. Pine and shade trees about 1000 ft away, along skyline.

Clear glass in window wall/ Northwest exposure/ Clear glass in sloping monitor—monitor only in forward 20 ft of room/ No shades at windows/ Walls—stained wood/ Ceiling—acoustical tile/ Floor—slate-colored asphalt tile/ Number of similar rooms—12 (half with opposite exposure).

Descriptive Measurements

	Bright day	Dark day
Month	January	February
Time	12:30 p.m.	1:00 p.m.
Weather	Hazy sun	Raining
Sky brightness	1800 ft-L	310 ft-L
Illumination on test desk	69 ft-c	10 ft-c
Average in 12 rooms	53 ft-c	10 ft-c
Spread of data in 12 rooms	42 to 69 ft-c	8 to 12 ft-c

Reflectances

Desks	34%
Floor	19%
Front wall	24%
Chalkboard	16%
Tackboards	52%

Illumination on Test Desk†

Over 100 footcandles	5%
51 to 100 footcandles	38%
31 to 50 footcandles	32%
0 to 30 footcandles	25%
	100%
0 to 20 footcandles	15%
0 to 10 footcandles	7%
0 to 5 footcandles	2%

† *Percent of total readings measured hourly over one school year.*

by Willard Allphin*

the least daylight, was used for periodic footcandle readings.

Once every hour, a meter was placed on this desk (usually by the child occupying it), electric lights were turned off, and the meter was read. New Weston #703 meters, color- and cosine-corrected (and correct to ± 5%) were used. Results of these readings are tabulated. (*Test locations shown on plans.*)

room descriptions and measured results

Further measurements were taken by the author. In each of the selected classrooms, illumination measurements were made with a Weston #756 meter, and brightness measurements were made with a Spectra Spot meter. The latter eliminates human error by measuring brightnesses electronically.[11] (*Bright-day and dark-day measurements in foot-Lamberts are shown on each photo.*)

Footcandle distributions in the test rooms were not measured at identical locations, because of the different room sizes and seating arrangements. The points were chosen in order to give a representative picture of the distributions, and are located approximately to scale on the floor plans.

Readings of footcandle distribution and brightness were taken at noon on clear days and on overcast days. The sky-brightness readings were taken by aiming the meter about half way between horizon and zenith in the direction faced by the main window walls.

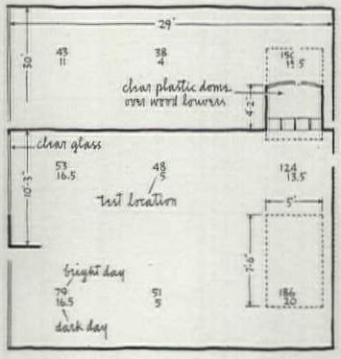
Interior-brightness readings were made from a seated position in the center of the rear of the room, except where a monitor window could not be seen from this position. In such cases, the monitor reading only was taken from the right rear of the room, pointing the meter at a window midway between front and rear of room.

** Sylvania Electric Products Inc., Salem, Mass. This discussion was taken from a paper presented at the National Technical Conference of the Illuminating Engineering Society last September in Cleveland.*

Exterior view through windows: Lawn at six in. above room floor level. Slopes up slightly for 50 ft, then changes to asphalt pavement. One-story red-brick building starts 60 ft forward of forward window and runs normal to window wall for 70 ft. Three-story red-brick building about 250 ft away, with corner opposite forward window. Pine and shade trees on skyline about 500 ft away.

54 in. of diffusing glass over 20-in. vision strip in window wall/ Roller shades at windows/ East exposure/ Two single-layer clear-plastic domes over wooden louvers/ Walls—brick, painted light buff/ Ceiling—acoustical tile/ Floor—green asphalt tile/ Number of similar rooms — two (one with opposite exposure).

Central School, Salem, N. H., Room No. 3



Brightness of plastic domes from below: bright day, 1500 ft-L; dark day, 250 ft-L.

Illumination on Test Desk†

Over 100 footcandles	27%
51 to 100 footcandles	40%
31 to 50 footcandles	16%
0 to 30 footcandles	17%
	100%
0 to 20 footcandles	9%
0 to 10 footcandles	3%
0 to 5 footcandles	1%

† Percent of total readings measured hourly over one school year.

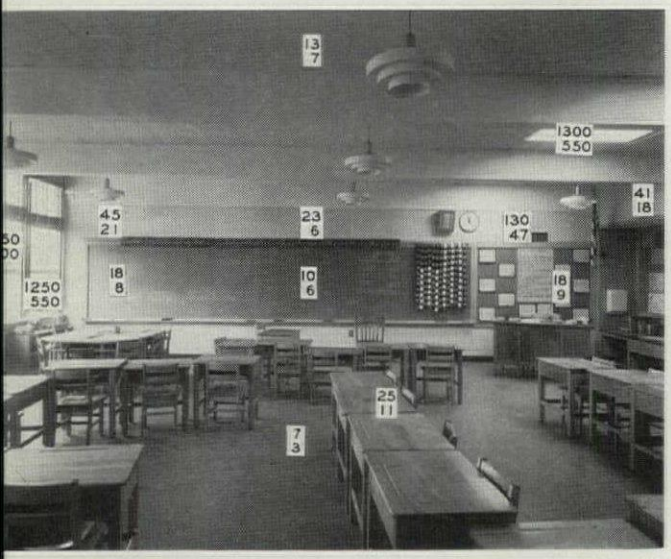
Reflectances

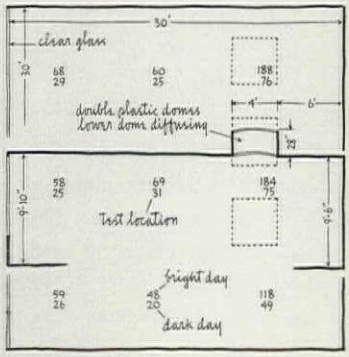
Desks	39%
Floor	13 & 19%
Walls	65%
Chalkboard	21%
Tackboards	46%

Descriptive Measurements

	Bright day	Dark day
Month	January	March
Time	12:10 p.m.	11:30 a.m.
Weather	Clear	Raining
Sky brightness	830 ft-L	250 ft-L
Illumination on test desk	48 ft-c	5 ft-c
Alverage in two rooms	59 ft-c	6 ft-c
Spread of data in 2 rooms	48 to 71 ft-c	5 to 7 ft-c

Central School Addition, West Acton, Mass., Room No. 2





Exterior view through windows: Level area six in. above room floor. Lawn for 10 ft, then asphalt for 25 ft more, then gravel. Grassy bank six ft high, running nearly parallel to windows, 50 to 60 ft away. Wall of adjoining wing 10 ft high, starts at rear of test room and runs normal to window wall for 22 ft. First six ft are red brick, next 16 ft are clear glass. Fairly tall pine trees about 300 ft away, forward of window.

Clear glass in window wall/ West exposure/ Double plastic-dome skylights, lower dome of diffusing plastic/ Venetian blinds at windows/ Roller shades under skylights/ Walls—cinder block, painted light buff/ Ceiling—perforated acoustical tile/ Floor — slate-colored asphalt tile/ Number of similar rooms—8 (half with opposite exposure).

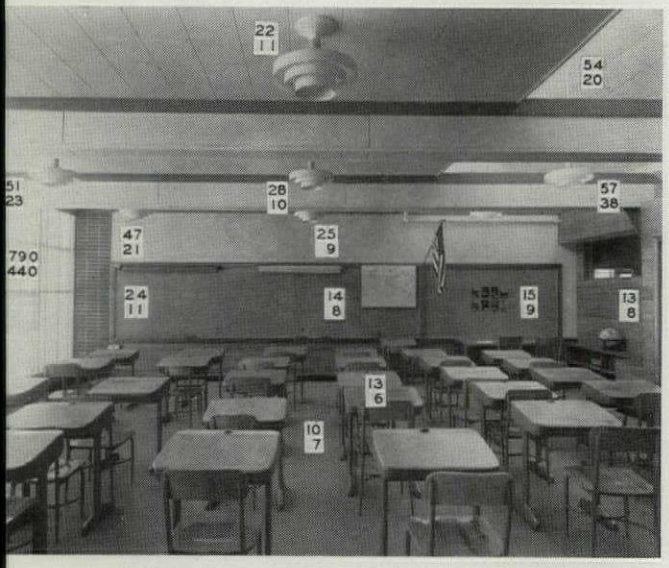
Descriptive Measurements

	Bright day	Dark day
Month	January	September
Time	12:15 p.m.	12:20 p.m.
Weather	Clear	Overcast
Sky brightness	1450 ft-L	650 ft-L
Illumination on test desk	69 ft-c	31 ft-c
Average in eight rooms	80 ft-c	35 ft-c
Spread of data in 8 rooms	62 to 100 ft-c	28 to 45 ft-c

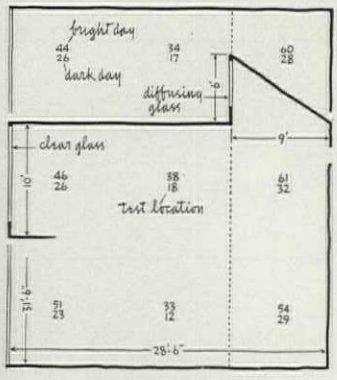
Reflectances		Illumination on Test Desk†	
Desks	36%	Over 100 footcandles	7%
Floor	24%	51 to 100 footcandles	39%
Front wall	73%	31 to 50 footcandles	27%
Side wall	48%	0 to 30 footcandles	27%
Chalkboard	32%		100%
Tackboards	36%	0 to 20 footcandles	17%
		0 to 10 footcandles	6%
		0 to 5 footcandles	2%

† *Percent of total readings measured hourly over one school year.*

North School, Chelmsford, Mass., Room No. 6A



Brightness of windows in monitors: bright day, 480 ft-L; dark day, 390 ft-L.



Exterior view through windows: Level area six in. above room floor. Asphalt pavement for 50 ft, then gravel. A few small pine trees forward of forward window and about 200 ft away. Pine trees on low ridge about 1000 ft away.

Clear glass in window wall/ West exposure/ Sill 12 in. above floor in forward half of wall; 33 in. above floor in rear half/ Four ft of diffusing glass in monitor/ Venetian blinds at window wall/ Front and rear walls — plaster, painted light bluish green/ Side wall—natural pine/ Dado—natural pine/ Ceiling—flat portion, perforated acoustical tile; sloping portion, plain acoustical tile/ Floor—light-green asphalt tile/ Number of similar rooms — 10 (one half with opposite exposure).

Descriptive Measurements

	Bright day	Dark day
Month	January	March
Time	11:50 a.m.	12:10 p.m.
Weather	Clear	Cloudy
Sky brightness	980 ft-L	750 ft-L
Illumination on test desk	38 ft-c	18 ft-c
Average in 10 rooms	44 ft-c	17 ft-c
Spread of data in 10 rooms	35 to 71 ft-c	13 to 20 ft-c

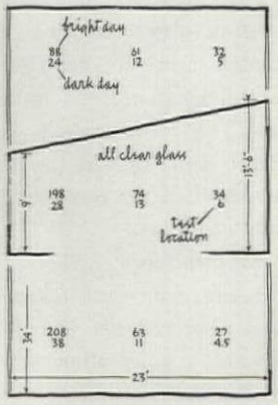
Reflectances		Illumination on Test Desk†	
Desk	34%	Over 100 footcandles	7%
Floor	35%	51 to 100 footcandles	28%
Upper walls	64%	31 to 50 footcandles	31%
Side walls and front dado	36%	0 to 30 footcandles	34%
Chalkboard	41%		100%
Tackboards	35%	0 to 20 footcandles	16%
		0 to 10 footcandles	7%
		0 to 5 footcandles	3%

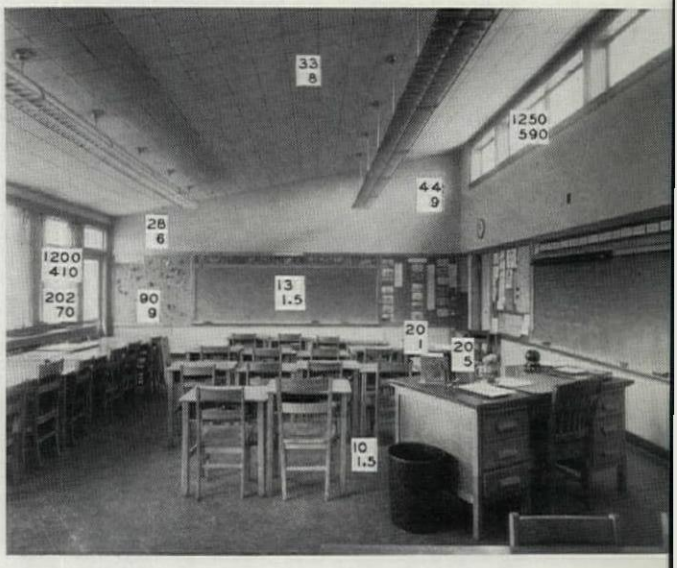
† *Percent of total readings measured hourly over one school year.*

West Parish School, Gloucester, Mass., Room No. 8

Exterior view through windows: Gravel area about six in. below room floor. Dirt bank with some grass and brush curves from 50 ft forward of forward window to 100 ft away, normal to windows. Height of bank diminishes from about 30 ft, at forward end, to ground level opposite windows; 300-ft hills on skyline about 1500 ft away.

Clear glass in window wall/ West exposure/ Clear glass in clerestory opposite window wall/ Translucent-cloth draw drapes at window wall/ Walls — bluish-gray plaster/ Ceiling — perforated acoustical tile/ Floor — brown asphalt tile/ Number of similar rooms—7.





Illumination on Test Desk†

Over 100 footcandles	13%
51 to 100 footcandles	44%
31 to 50 footcandles	21%
0 to 30 footcandles	22%
	100%
0 to 20 footcandles	13%
0 to 10 footcandles	5%
0 to 5 footcandles	1%

Reflectances

Desks	26%
Floor	9%
Walls	43%
Chalkboard	25%
Tackboards	23%

† *Percent of total readings measured hourly over one school year.*

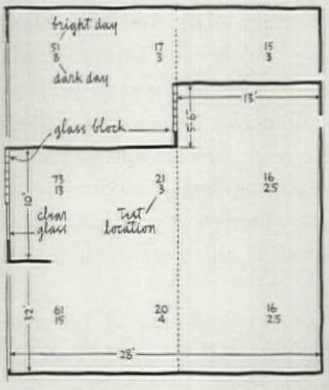
Descriptive Measurements

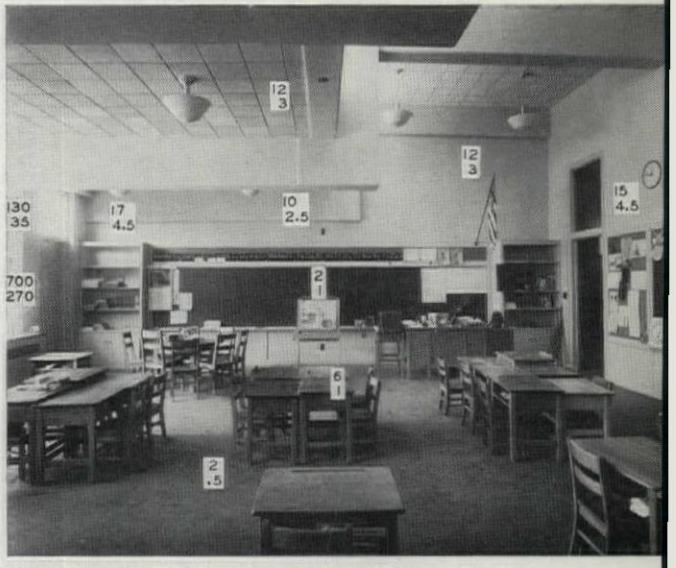
	Bright day	Dark day
Month	January	March
Time	12:10 p.m.	11:50 a.m.
Weather	Cloudy-bright	Raining
Sky brightness	1800 ft-L	550 ft-L
Illumination on test desk	34 ft-c	6 ft-c
Average in seven rooms	28 ft-c	5.5 ft-c
Spread of data in 7 rooms	21 to 34 ft-c	5 to 6 ft-c

Fiske School, Lexington, Mass., Room No. 8

Exterior view through windows: Level asphalt pavement six in. below room floor. Building 10 ft high; wall materials: red brick, clear glass, and glass block. A few shade trees are on a low ridge about 1500 ft away.

Four ft of glass blocks above three-ft clear-glass vision strip/ West exposure/ Glass blocks in clerestory facing west/ No shades at windows/ Walls — plaster, painted light peach/ Ceiling—acoustical tile/ Floor—slate-colored asphalt tile/ Number of similar rooms—8 (one half with opposite exposure).





Brightness of glass blocks in clerestory, from right rear of room: bright day, 110 ft-L; dark day. 27 ft.L.

Illumination on Test Desk†

Over 100 footcandles	2%
51 to 100 footcandles	12%
31 to 50 footcandles	23%
0 to 30 footcandles	63%
	100%
0 to 20 footcandles	38%
0 to 10 footcandles	12%
0 to 5 footcandles	3%

Reflectances

Desks	29%
Floor	10%
Walls	56%
Chalkboard	20%
Tackboards	28%

† *Percent of total readings measured hourly over one school year.*

Descriptive Measurements

	Bright day	Dark day
Month	February	February
Time	12 noon	12 noon
Weather	Clear	Raining
Sky brightness	1100 ft-L	330 ft-L
Illumination on test desk	21 ft-c	3 ft-c
Average in eight rooms	19 ft-c	3 ft-c
Spread of data in 8 rooms	15 to 21 ft-c	2½ to 3½ ft-c

results

Frequent checkups indicated that the young people did an accurate and conscientious job of reading the meters. Occasional readings were missed on days when school was in session, but these amounted to only 6% of the total of more than 5000 readings. Since they occurred at random times, their effects would tend to cancel out.

It cannot be emphasized too strongly that the data should not be used to compare one type of daylighting system with another, as to relative merits. Some of the factors which would make such comparisons unfair are:

Exact geographic location (weather can differ in two places only a few miles apart).

Orientation.

Outdoor surround of room.

Size and shape of room.

Exact details of *fenestration.*

Shades or other methods of daylight control.

Adjustments of daylight controls by teacher.

Reflectances in room.

Considering the virtual impossibility of finding any two rooms which would have different methods of providing additional daylight, but would be identical in every other important particular, the author feels that a fair comparison could only be made under laboratory conditions with model rooms and an artificial sky.

On the other hand, the combined readings should be of value because they show results actually obtained in schools which are being "lived in."

Here, therefore, are the totaled readings:

	Av.
Over 100 footcandles	11%
51 to 100 footcandles	34%
31 to 50 footcandles	24%
0 to 30 footcandles	31%
0 to 20 footcandles	18%
0 to 10 footcandles	7%
0 to 5 footcandles	2%

discussion of results

Note from the measurements (*shown on plans*) that on dark days the variations in footcandles across the room are much less than on bright days. Therefore, the low values are representative of more desks than are the high values.

The caution given earlier about attempting to compare the *merits* of the various daylighting systems also applies to the descriptive measurements of illumination and brightness. Because one "bright" day differs from another "bright" day and one "dark" day differs from another "dark" day, it would be entirely unwarranted to use the descriptive measurements to compare one school with another. The measurements are merely a general guide to how the daylight distributes itself in the rooms under some particular conditions.

Also, as was mentioned earlier, the descriptive measurements were taken at noon. This was done in order to reduce the differences due to orientation. However, it follows that the hourly footcandle readings on a test desk would include many values lower than that measured at noon on a particular dark day.

conclusions

With the acute shortage of schoolrooms and the need to hold construction costs down, there may be a temptation to put in less than enough electric lighting to provide a minimum of 30 footcandles, to feel that on a dark day children could be shifted from the poorest locations, or to consider that the program could be changed. Shifting the children would not accomplish much, because on dark days most desks are underlighted by daylight. Changing the program would seem undesirable in view of the small cost of meeting the ASA Standard, when spread over a period of years. The American Standard Practice for School Lighting calls for a *minimum* illumination of 30 footcandles on the desk. Too often designers overlook this point and provide an illumination that may maintain an *average* of 30 footcandles, but one that falls substantially below 30 in the weeks just before a cleaning.

Another point which should be mentioned is that potential savings in installation costs are not great if electric lighting is curtailed. Considering costs of wire, switches, panelboards, and labor, a 15-footcandle installation costs far more than half as much as a 30-footcandle installation.

There are things which can be said in favor of extra daylighting methods, apart from any economic considerations. For example, the author feels that too much consideration has been given to their effects on dark days and not enough to their effects on bright days. On the latter, there is a very cheerful feeling from the extra light in what used to be the darker side of the room. Furthermore, the higher illumination levels raise adaptation levels so that the sky brightness seen through the side windows is less glaring.

In short, both daylighting and electric-lighting systems have a place in school lighting, and neither should be considered to render the other unnecessary.

It is hoped that similar investigations will be made in more schools and in different climates and latitudes. However, on the basis of this investigation, it is evident that in climates equal to and darker than central New England, electric-lighting systems in schoolrooms should be designed for a minimum illumination of not less than that recommended by the American Standard Practice for School Lighting.

Sincere thanks are due to the superintendents, principals, teachers, and students who co-operated so cheerfully and efficiency in making this project possible.

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lighting the audio-visual classroom

by Carl J. Allen*

One of the significant changes occurring in education is the increased use of audio-visual projected material. This greater use of audio-visual material is partly due to the outstanding success that the Armed Forces have had with this method of demonstration. The extent to which audio-visual material has increased is indicated by surveys which show that six times as many educational films are being used in schools today as were used in 1940. In the college field, it is estimated that 10 times as many educational films and audio-visual presentations are being used, as compared with 15 years ago.

Significant improvements have been made in the efficiency of lamps, the performance of projectors, and the reflectance characteristic of screens. This has led to the generally held belief that daylight projection is possible and that it is not necessary to darken classrooms. This, in turn, has led to most new schools being turned over to the teachers without any provisions for darkening the classrooms. A prevalent complaint from teachers is that it is difficult to show audio-visual presentations in these rooms because of the great amount of stray daylight which falls on the screen. It is possible, with considerable daylight in a room, to project satisfactorily black-and-white line drawings with high-output slide projectors using special directional screens—if one views the image from the projector position. However, if a typical colored slide is used in the same projector and viewed from one of the side seats, the results can be entirely unsatisfactory. The teacher viewing the same slide from beside the projector cannot understand this, as she is seeing a sharp, brilliant picture *(Figure 1)*.

In order to understand fully the problem of audio-visual projection techniques, it is necessary to understand the limitations and capabilities of modern projection lamps, projectors, and screens—as well as the importance of proper room darkening and room lighting. The goal of room darkening is not to provide blackout, but dim-out conditions. The room should have subdued illumination, properly balanced, so that seeing is comfortable and concentration on the screen is enhanced.

It is generally conceded that audio-visual presentations should be conducted in the classroom and that the auditorium or special audio-visual room be used only for very long programs or for large groups. In many of the modern auditoriums there are no windows and the darkening problem does not exist, but in classrooms a dim-out daylight control is decidedly necessary.

projection lamps

A projection-lamp standardization program has reduced the number of commonly used projection lamps, such as used in school projectors, from over 100 types down to seven lamps. These seven will lamp at least 80 percent of the modern projectors used in schools. This standardization means, for one thing, that fewer lamps are necessary in the audio-visual center stock room. It also means better lamps, as manufacturing facilities can concentrate on less diversified production and thus improve lamp quality.

Only those lamps for which a projector is specifically designed should be used in that projector. Limitations of the optical and ventilation system of the projector limits the wattage of the lamp that can be used in a projector. Increasing the wattage of a lamp past a certain point may not significantly increase screen illumination. This same increase, however, might seriously overtax the ventilation system and cause trouble from excess heat.

Because projection lamps operate at high efficiencies, the temperature of the filaments, in most cases, is within a few hundred degrees of the melting point of tungsten. The typical projection lamp currently used has a 25-hr life. The 10-hr-life lamp will deliver from 15 to 25 percent more light to the screen than the 25-hr-life lamp. When comparing projectors, one should be careful that the lamps are of the same wattage, same life rating, and same rated voltage. Variation in rated voltage and difference in life rating can result in a difference of over 50 percent in light output from two projection lamps, both rated at the same wattage. Information regarding the lamp or lamps which should be used in a projector is available from the manufacturer.

projectors

The most commonly used projector is a 16-mm sound projector. The obvious reason for this is that more educational material is available on 16-mm sound film than on any other film medium. The next most commonly used projector is the 2″x2″ projector which also takes 35-mm slides and film strips. In addition to these two, there are four other types of projectors which are useful and very commonly used in schools. They are the 3¼″x4″ projector, the opaque projector, the overhead projector, and the micro-projector.

While modern projectors are very effective in projecting clear and brilliant film images, they are not outstandingly efficient from the standpoint of utilization of the light available from the lamp. Using a 16-mm projector, for example, only 1½ to 2 percent of the light of the lamp actually reaches the screen. The 2″x2″ and 3¼″x4″ projectors have approximately three times this efficiency, because they do not need shutters and because the aperture opening is not as restricted as that of the 16-mm. The opaque projector is the lowest in efficiency, since the light of the lamp must be reflected off a diffused reflecting surface such as the page of a book. In all the other projectors, the light from the filament of the lamp is directed by the lens system through a transparent medium of varying density or color.

The relative approximate potentials of various common types of projectors to produce illumination on the screen are compared *(Table I)*. The screen brightness in each of these cases was obtained by setting up each projector so that it would project about the same sized image, 3′9″x5′. The screen illumination was measured by a sensitive light meter located at the center of the screen. From this table it can be seen that a considerable amount of stray light might be permissible when using a large objective-lens, 3¼″x4″ projector, whereas prac-

* *School Lighting Specialist, General Electric Company, Nela Park, East Cleveland, Ohio.*

tically no stray light is desirable when material is being projected by an opaque projector. The ratios of the screen brightness for these two projectors when the same wattage lamp is used in both is of the order of 36 to 1.

screens

There are three basic types of reflected-light screens that are in common use today. They are the beaded-glass screen, the processed metallic screen, and the white-mat screen. Each has its own use. If this use is not fully understood, the condition can easily arise where the teacher sees a very acceptable picture while the pupil sitting a few feet from her complains that he can hardly see the picture.

A close-up view of the three types of screens is shown *(Figure 2A)*. A series of photos *(Figures 2B, 2C, 2D)* compares the brightness of the screen: from the position of the projector, zero-degree viewing; from a position slightly to one side, 22-degree viewing; and from a third position at a rather wide angle, 45-degree viewing. Obviously, there are certain seats in a classroom which do not give satisfactory viewing conditions with certain types of screens. The processed metallic screen is designed to reflect the light within a relatively small vertical angle, but to disperse the light in a rather wide horizontal angle. This is desirable when one considers that the students are generally seated in a cone-shaped pattern fanning out from the screen. The processed metallic screens, available in specially-processed silver and finely-ribbed aluminum, are available only in flat panels. The beaded screens have the advantage of being able to be rolled up and thus are more portable. For widest picture projecton, the white-mat screen is best.

The beaded screen has the property of directing light back on the axis from which the light came originally. Thus the most brilliant image is seen from the projector position. Stray light from the window also is reflected back on itself and thus someone seated with his back to the windows will be disturbed the most by the reflections of the stray light from the windows.

The size of the screen for classroom use is generally specified as one-sixth of the maximum probable viewing distance. Usually a square screen is suggested, in order that horizontally and vertically framed slides may be projected equally well. The ratio of one-sixth is based upon consideration of seeing small details on the screen. When there is no small detail, this maximum viewing distance can be somewhat increased. In some classrooms, 30-in. screens are used and the students are seated closer to the screen. One natural advantage of the small screen is that significantly higher brightnesses can be obtained. For example, the brightness of a 30-in. wide screen will be four times the brightness of a five-ft wide screen when the same amount of light is projected upon

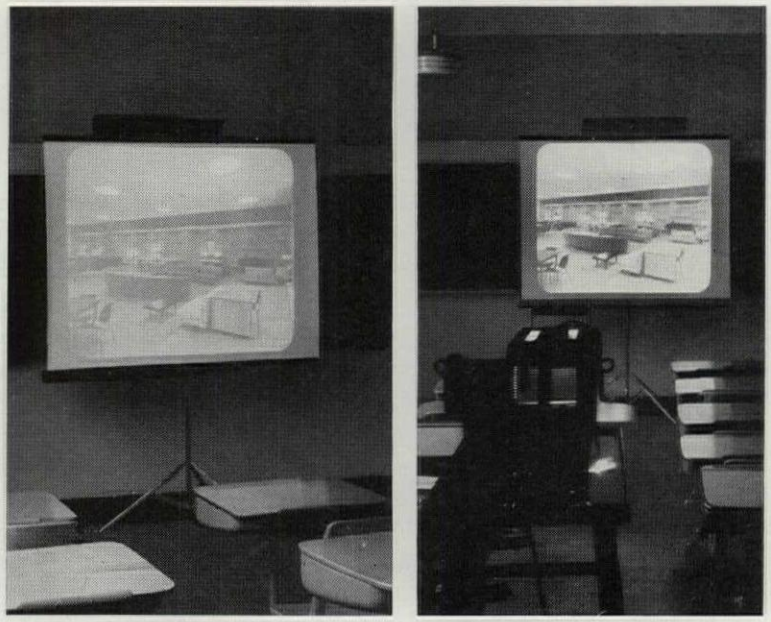


Figure 1—student seated at one side of the projector does not see as brilliant a picture on a beaded screen as does the teacher standing beside the projector.

TABLE I—Screen Illumination with Various Typical Projectors
(No film or slide in projector)

Projector type	Lens	Lamp	Screen illumination (ft-c)
Projected image: 3′-4″ x 4′-6″			
3¼″ x 4″	4⅝″ diam, 18″ E.F.	750 w	38
"	2⅝″ diam, 16″ E.F.	750 w	24
"	2⅝″ diam, 16″ E.F.	500 w	18
"	2⅝″ diam, 16″ E.F.	300 w	9
2″x2″	f 2.3, 7½″ E.F.	750 w	60
"	f 3.5, 5″ E.F.	300 w	10
16 mm	f 1.6, 2″ E.F.	1000 w	10
"	f 1.6, 2″ E.F.	750 w	8
"	f 1.6, 2″ E.F.	500 w	6
Projected image: 3′x3′			
Opaque*	2½″ diam, 18″ E.F.	500 w	0.5

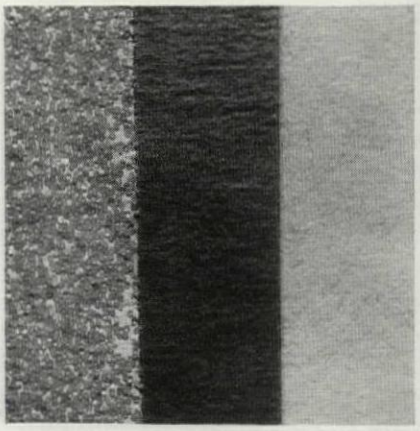
*With 80-percent reflectance white card in opaque projector.

TABLE II—Permissible Stray Light on Beaded Screen from Window Area
Projector: 3¼″x4″, 2-5/6″ diam lens, 16″ E.F.
Projected image: 3′-4″x4′-6″

Lamp size w	Screen illumination ft-c	Screen brightness ft-L		Maximum permissible stray illumination on screen* ft-c	
		Observation location (degrees from projector-screen axis)			
		0°	22°	0°	22°
750	24	90	20	25	6
500	18	70	15	18	4
300	9	35	7	10	2
200	4	15	3	5	1
500†	0.5	2	0.5	2	0.5

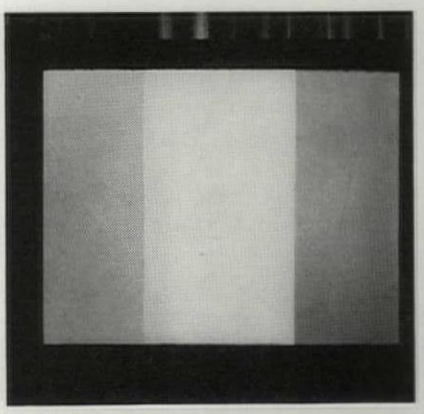
*Hand-colored slide of light-colored interior scene in projector.
†Opaque projector with white card in projector for screen-brightness values and a photograph in projector for stray-light evaluation.

both. This increase is inversely proportional to areas of the projected image. There is a very common practice, although not necessarily condoned, that TV screens are being observed at much greater distances than six times the screen width. It is important to note that a TV screen may be 10 to 15 times the brightness of a typically projected 16-mm motion picture. This partly accounts for the greater amount of room illumination that can be permitted with television as compared to motion-picture projection. Another reason is that many of the TV tubes are made of black glass and the reflected light is partly absorbed and not reflected to dilute the TV image.



A

*Figure 2—**A:** close-up of glass-beaded, processed metallic, and white-mat demonstration screen. Three photos* (below) *show brightness change of screen; **B:** as viewed from projector position; **C:** from 22°; **D:** from 45°.*



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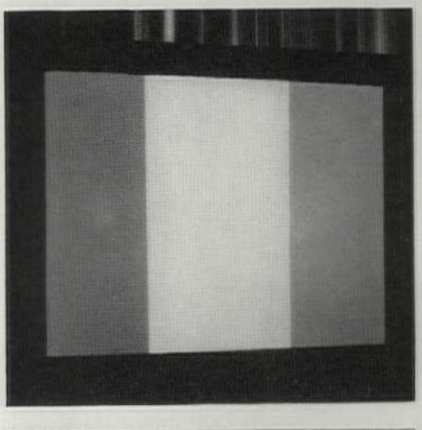

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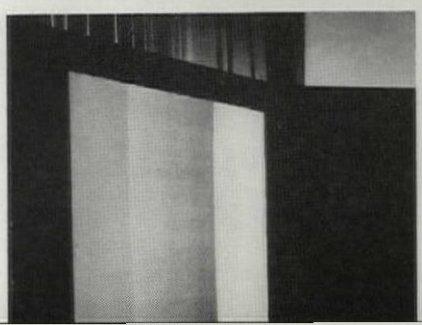


D

One projection scheme which has met with fair success has been the use of rear projection. The size of the enclosing box is generally limited by the clearance width of typical classroom doors through which it must pass. Like the TV screen, much of the stray light which is incident on the translucent screen is transmitted through the screen and absorbed in the black interior. Older types of translucent screens were rather narrow in their viewing angle; translucent screens with specially-processed surfaces are now available, however, which perform similarly to the processed metallic screens.

room darkening

The trend today is not to blackout the classroom for audio-visual presentations, but merely to dim-out the daylight which might be striking the screen and washing out the projected image. Even with all the improvements in projectors, screens, and lamps, it does not take much stray light to dilute typical projected images to the point where they lose significant detail and offer an unsatisfactory visual impression. The results of one investigation to determine the maximum amount of stray light coming from the windows, which would tend to make a typical projected picture unsatisfactory, are shown *(Table II)*. The criterion used by the observers was that the picture was unsatisfactory if significant details, which were clearly present under darkened conditions, were lost when the stray light was excessive. The exact maximum amount of stray light naturally will vary widely with various types of projected material. A four-part slide *(Figure 3)* was used in another test. One section was an Ektachrome slide *(upper left)*, one a hand-colored slide *(upper right)*, one a black-and-white photographic slide *(lower left)*, and the last a black-and-white line drawing *(lower right)*. The three photographic slides showed no significant difference in the amount of stray light. With a good projector, the black-and-white line drawing slide was still reasonably acceptable with 100 ft-c of stray light on the screen.

One of the principal problems in specifying the amount of darkening necessary for satisfactory projection is the great variation normally encountered in daylight. For example, on a sunlit day the outdoor illumination might be as high as 10,000 ft-c. On a dark, rainy day, the illumination might drop to only 100 or so ft-c. Daylight projection can be very satisfactory if a black-and-white line drawing is being projected while the observer is near the projector axis, and, if the day is not specifically brilliant and if there is no direct sunlight on the windows. When the sun is on the windows, even when typical roller shades are drawn, if a fairly dark-colored scene is being observed from a position somewhat off the projector axis, the conditions can be entirely unsatisfactory. Under these conditions it is desirable to block out nearly all of the stray light which may fall on the screen.

The simplest solution where individual windows are concerned is the use of roller shades of opaque material which overlap the windows by at least six in.

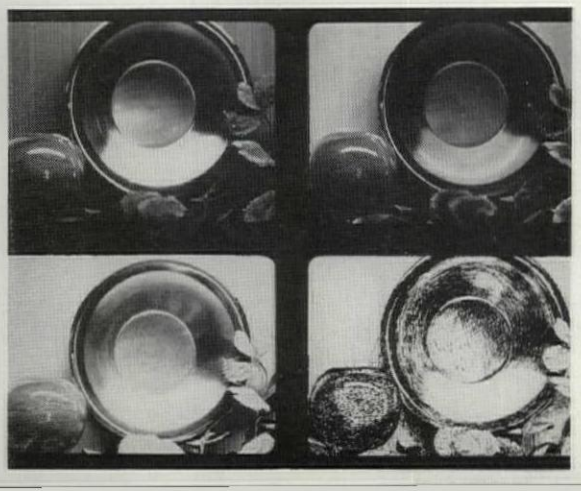


Figure 3—test slide: (upper left) *Ektachrome* (upper right) *hand colored;* (lower left) *black-and-white photo;* (lower right) *black-and-white line drawing.*

While these shades are usually black, they need not be, as long as they are essentially opaque. They may be any light color which harmonizes with the room interior.

The room-darkening device which seems to have met with the most favor is the drapery which can be drawn on curtain tracks over the entire face of the windows. There are plastic draperies available which are fire resistant and which have excellent wear- and tear-resistant properties. Draperies work especially well with unit window ventilators located beneath the windows. One basic reason why the draperies are popular is that they can be brought into use as fast as one can walk the length of the classroom to pull the draperies over the face of the windows. Draperies have also been used on curtain tracks which are located about 18 in. from the windows with 12 in. or 18 in. clearance from the floor, so that the windows may be left open for ventilation.

In addition to the use of draperies, glass-block lighted rooms may be darkened by double-hung roller shades which are mounted at the division between the glass-block area and the vision strip. One set of roller shades may be pulled up over the glass blocks and the other set may be pulled down over the vision strip.

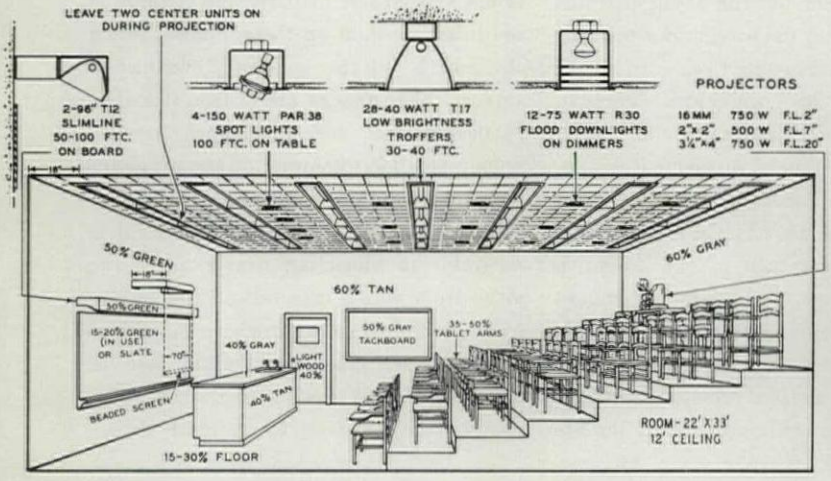
Where complete darkening is desired, roller shades should be confined in light-tight side and bottom channels. In lecture rooms where darkening is required a good part of the time, roller shades are frequently operated by electric motors controlled with limit switches. Skylights may be darkened by roller shades which are held close to the opening by tight wires over which the roller shade slides. If the stray light is coming into the screen from the side or overhead, its washing out effect may be minimized by means of baffles around the screen.

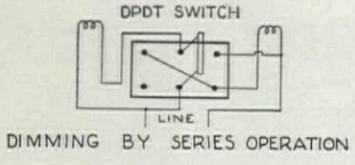
Recent developments in venetian blinds have produced a blind which closes tightly with very little light leakage. When used in conjunction with light-tight side and bottom channels, these full-closure venetian blinds are a very effective means of room darkening. They also serve very well for the purpose of normal daylight brightness control.

room lighting

It may seem paradoxical that after the room has been darkened the next consideration is to provide light in the room; however, it is generally agreed that a completely dark surrounding is not comfortable for viewing projected audio-visual material. The contrast between the screen and its surround is too great. On the other hand, too much surrounding light detracts from the projected images and if it falls on the screen it dilutes the sharpness of the projected image.

Most existing rooms will have no provision for dimming the existing lighting system. In this case, an indirect light which is part of the projector cart may be utilized. The indirect reflector lamp is controlled by a small variable autotransformer so that the illumination in the room may be varied from about one ft-c to complete darkness. About one ft-c seems about as much as is normally desired. The exact amount will vary with each type of projection and the position of the observer in relation to the screen. The double-pole double-throw switch was incorporated into this design in order to overcome the awkward situation when there is no light in the room between the time the room lighting is switched off and the time the teacher turns on the projector. When the double-throw switch is in one position, the indirect light is on at its full value and the projector is off. When the double-throw switch is turned to its other position, the projector is on





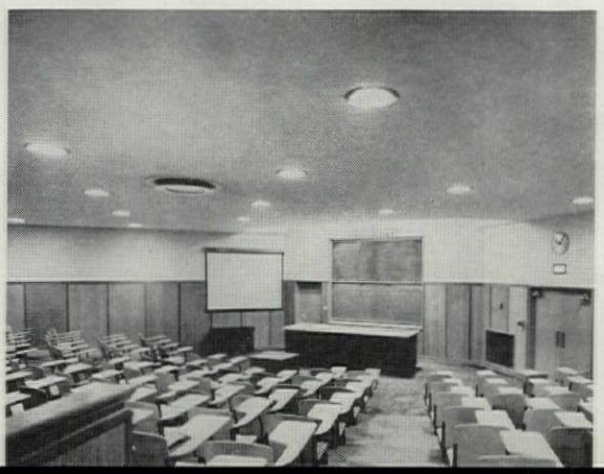
DIMMING BY SERIES OPERATION

Figure 4—low-level illumination can be obtained by operating two incandescent lamps in series (left). *Double-pole double-throw switch will accomplish this condition.*

Figure 5—reflector lamps concealed in downlight units and operated on a dimmer provide a low-level illumination without glare (above).

Figure 6—rapid-start fluorescent lamps in recessed troffers can be dimmed by special circuits (above right).

Figure 7—incandescent lighting units may be operated on remote-controlled, motor-driven dimmers (right).



and the indirect light is on at a subdued level, depending upon the setting of the autotransformer. With this arrangement, the lighting in the room may be varied to meet the requirements of the specific type of projection being done.

In new construction where incandescent lamps are to be used for general lighting, a double-pole double-throw switch can also be used to provide dim-out lighting by placing two of the rear lamps in series *(Figure 4)*. Series operation of incandescent lamps is equivalent to operating the lamps at 50 percent of rated voltage, which results in a light output of about 10 percent of normal light output. Thus, if 30 ft-c are provided in the room when all six lamps are on, about one ft-c (1/3 x 1/10 x 30) is provided when the four front lamps are turned off and the two rear lamps operated in series. The double-pole double-throw switch should be conveniently located in the rear wall of the room, near the probable projector location.

One audio-visual lighting scheme which has worked out very satisfactorily is a downlighting system in which the light is confined just over the seating area *(Figure 5)*. In this case, 75-w R30 reflector lamps operated at full voltage will provide about 5 to 10 ft-c. This is too much disturbing light for viewing typical projected pictures. The white page of a notebook becomes too bright in contrast to the brightness of a typical picture on the screen; further, the full brightness of the lamps, even when fairly well shielded, produces a sense of overhead glare under darkened-room conditions. When these same lamps are reduced in output by an autotransformer so that about one ft-c is provided on the desks, then the lighting arrangement is very comfortable from the standpoint of glare and also from the standpoint of brightness balance of notebook and screen. With this arrangement, there is no wash-out effect of stray light on the screen as the light is confined principally to the seating area.

In many lecture rooms there are no windows. The two rooms shown *(Figures 6 and 7)* illustrate common methods of lighting such rooms. One installation uses incandescent downlights; the light output is controlled by motor-driven autotransformer dimmers. The motor-driven dimmers may be remotely controlled and operated by push buttons either at the speaker's position or at the projection location at the rear of the room. The lecture room shown *(Figure 6)* is lighted by rapid-start fluorescent lamps which can be dimmed by recently developed circuits. The fluorescent lamps in the low-brightness etched-aluminum troffers in this room are also controlled by motor operated dimmers.

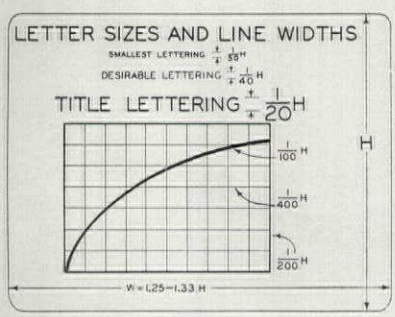
There are occasions when the instructor may wish to write in the dark at the time material is being projected on the screen. This is possible by using a "black-light" chalkboard. The reflector above the chalkboard utilizes a commercially available fluorescent chalkboard lighting reflector. Instead of the regular fluorescent lamp, it is lamped with a 40-w black-light fluorescent lamp equipped with a black-light filter. Using fluorescent chalks in the various available brilliant colors, writing in the dark can be very effective and dramatic.

preparation of audio-visual material

One additional consideration in the audio-visual picture is the preparation of slide material for good visibility.

Too often when one wishes to illustrate a talk, illustrations in articles or books are copied directly for slide use. This frequently results in too much and too small detail.

When one considers the preparation of material for a slide, one is concerned with the size of letter that should be used and with the thickness of lines if graphs or curves are involved. The information shown *(below)* is designed to



give guidance in this respect. Letter sizes and line widths are given in terms of height of the illustration. Thus, if the available letter sizes are known, the height of the drawing may be determined. If the size of the drawing is known, then the ratio of letter height to drawing height gives the minimum-size letters which should be employed. The smallest lettering ratio of 1/50 of H is based upon a minimum projected-letter-height of one in. for each 30 ft of viewing distance. The typical AMA eye chart which is used for vision screening is roughly based upon a normal person with 20-20 vision being just able to see letters of one-in. height at 50 ft. Thus, the 1/50 H ratio considers the fact that everyone does not have 20-20 vision and for some the size of letters needs to be larger. The assumption is made that a screen width equal to 1/6 the maximum viewing distance will be used during the projection of the material. A convenient way of checking the relative visibility of letter sizes and line widths is to view the drawing or chart at a distance eight times the height of the chart. This is essentially the same formula as viewing the chart at six times the chart's width, as typical slide proportions, width to height, are about 1.25-1.33 to one.

There are many convenient means of lettering charts. Charts may be hand lettered or may be mechanically lettered by devices such as the Wrico or Leroy lettering guides. For dramatic three-dimensional lettering, molded letters of various styles are available. Precut gummed paper letters, available in a wide range of sizes, offer a convenient means of providing quite legible lettering for charts. Under certain conditions, the typewriter can be used. The electric typewriter is naturally best, because of its controlled pressure, and when used with carbon-paper ribbon gives excellent results. The regular pica typewriter with good black ribbon and clean type makes acceptable letters. The pica-size type typed on a 5″x7″ card will produce letters of minimum acceptable size. If the same type is typed on a 3″x4″ card, the size of the resulting letters projected on the screen will give good visibility for viewing distance of the order of six times the width of the screen.

Today, suitable equipment is available for making audio-visual teaching an efficient means of education. The various components—projectors, screens, darkening devices, and lighting—still need to be co-ordinated so that a teacher can use audio-visual projection with a minimum of classroom interruption. It might be well to reflect that the teacher-blackboard combination is a very old but still very effective audio-visual team. If audio-visual projection is to be as long lived and as successful, it too must be easy and effective to use.

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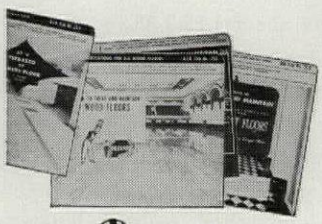

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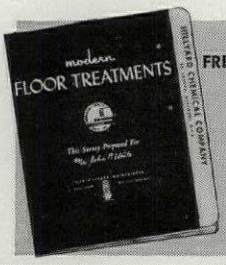

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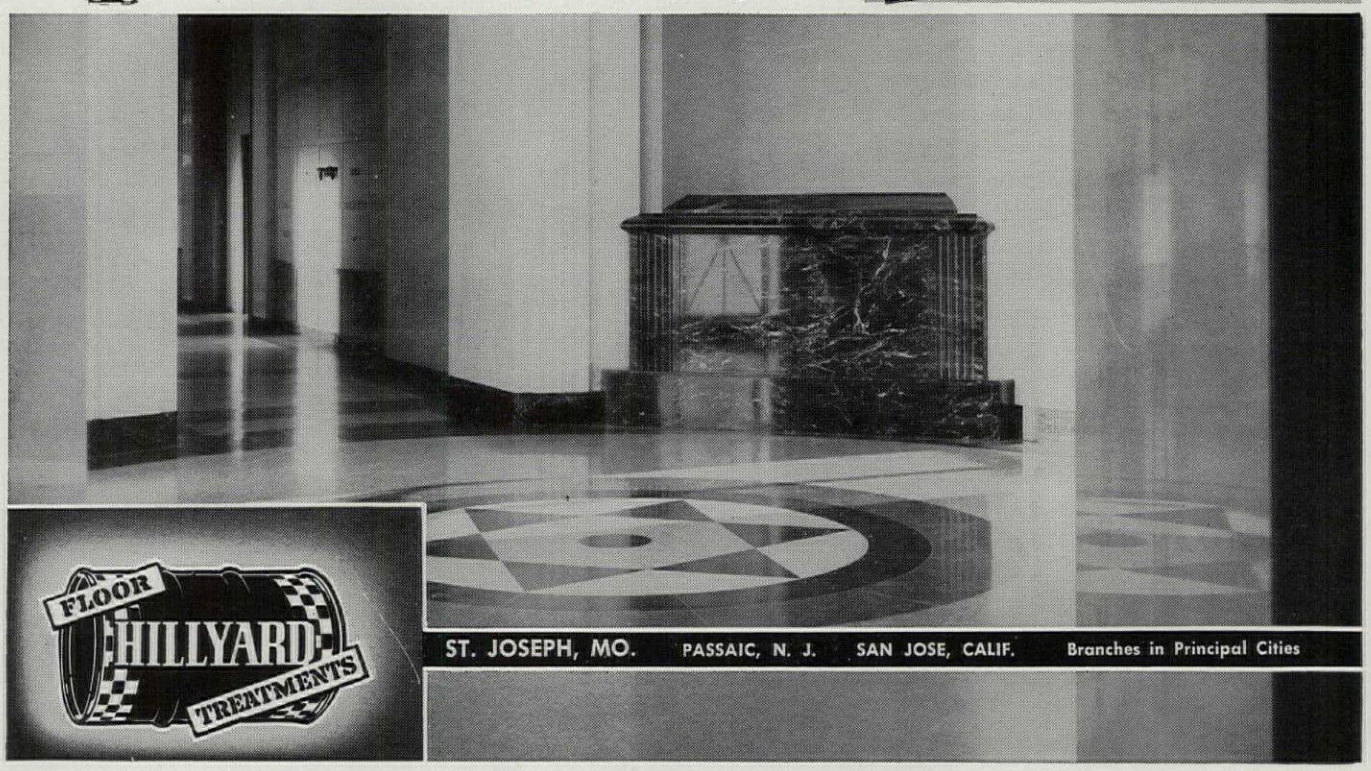

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Ben John Small

spec small talk

reefer modular

It was 2 a.m. I had just gotten through reading "Modular Grid Lines" in the May-June 1955 issue of the Bulletin of the AIA. I tried to sleep, but could not. C. E. Silling's burning slogan, "Organize, Systematize, Modularize," kept gnawing at me relentlessly. I searched for comforting distraction in other literature: alas, without avail! The fates were working the other side of the street. I fell to reading "Facts and Features Exclusive with Sta-Kold, Vimco and Sno-Queen Refrigerators and Freezers," only to discover that their interiors were frighteningly modularized. Yes, sir, the gizzards of these boxes are interchangeable—interiors can be changed in minutes—no tools needed. Each and every interior is adjustable to take all or any combination of refrigerated drawers, stationary or pull-out meat rails, stationary or pull-out shelves, and baker's pan slides. Friends, this is possible only through the use of patented, exclusive accessories. You know, at 2 a.m. this can cause an everlasting trauma. Victory Metal Manufacturing Corporation, Germantown Pike, Plymouth Meeting, Pennsylvania, Conshohocken 6-5000, the manufacturers, when defrosted will tell you that they fathered the first and only refrigerators in the world to win the *Institutional Feeding and Housing* product-of-the-month award. Undoubtedly, users will be delighted with the reefers quick changeovers to provide dough retarders (note to myself—when I arise in the morn I must not forget to send a bill for that job finished four months ago or else my dough will be retarded permanently), a salad or dessert, or a meat storage refrigerator. Storage requirements at the beginning of the week can be varied to fit changes in refrigerated inventory and can accommodate both standard and odd-sized containers. Each refrigerator has a full-length coil, automatic defrosting, slideout compressors for easy servicing and automatic interior lights. All-metal construction, coved edges, and ball corners are standard. Interiors, exterior sides, door and bottom grill are all stainless steel. The Sta-Kold model has stainless steel on the fascia exterior of the door kick plate and the balance is of corrosion resistant aluminum. The Sno-Queen baby has stainless steel on the fascia and kick plate, white deluxe on the exterior of the door and sides, balance aluminum. Porcelain exterior and interior are available for more dough. Top, back, and bottom are aluminum. Bottom kick plates are heavy stainless steel. Compressor and motor units are hermetically sealed for trouble-free performance. And 15 to 90 cu ft models are available in self-contained, remote and pass-through units. Gosh, I'm hungry. Will I ever fall asleep? Good nite. Zz-zz-zz.

P R note

By this time I guess you must know of my fine print compulsion reading. Went to see the play "Bad Seed" and found myself reading in the playbill the following:

"Scenery built and painted by Imperial Scenic Studios. Lighting equipment by Century Lighting, Inc. Lighting fixtures by City Knickerbocker. Flowers by Universal Flower & Decorating. Furniture by Arden Galleries and Newel Art Galleries. Miss Kelly's clothes by Bergdorf Goodman. Shoes by I. Miller and Capezio, Inc. Patty McCormack's clothes by Rosenau Brothers. Kitchen range by Tappan. Men's luggage by Amelia Earhart, Inc. Miss Croydon's accessories by Haymaker. The Deodorizing Air Purifiers and the Creco Liquid Soap Dispensing System used in this theatre are manufactured by the Creco Company."

It was then that I got a sneaky idea for ethical advertising by architects. In such a list of credits one could include with propriety simply: "Architecture by Post, Pendentive, and Piloti."

price vice

All right, so I'm price conscious. When I ride along the highway and note (where the road is torn asunder) those road torches that look like hot-footed billiard balls, I wonder how much they each cost.[1] How about those heavy-duty water-proofed tarpaulins?[2] And them thar lime-slaking boxes?[3] And those concrete chutes,[4] collapsible horse heads,[5] roof crabs,[6] post-hole diggers,[7] common trestles,[8] midget louvers,[9] and reversible safety shoes.[10] There, I'll bet you thought I acquired my first ulcer by merely contemplating my navel.

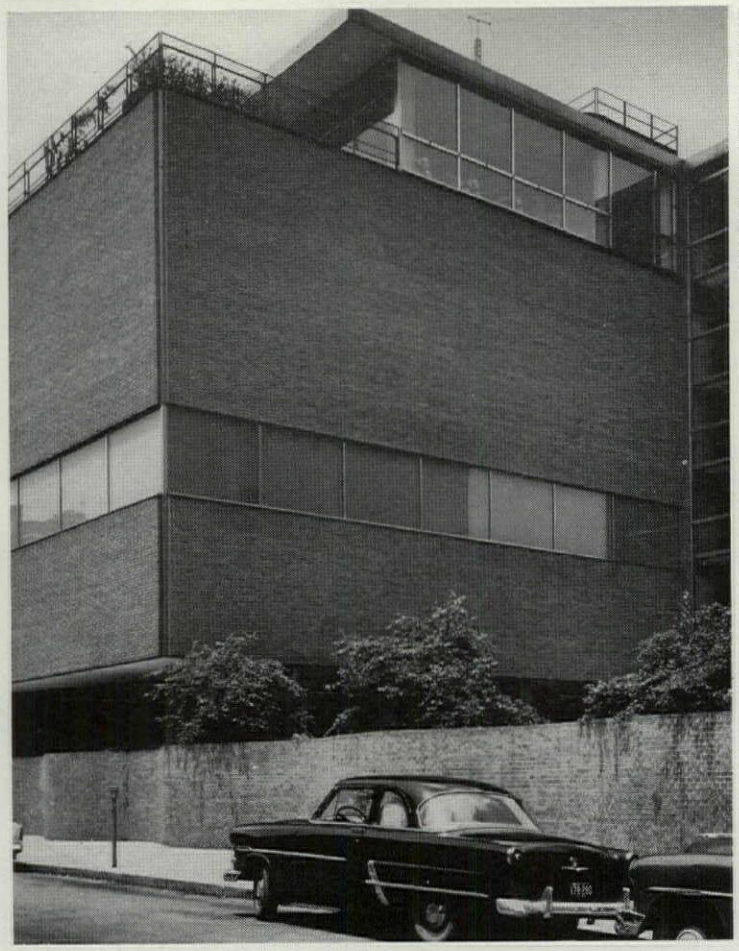
1. *$3*
2. *10¢ per sq ft*
3. *$40*
4. *$2.20 per ft*
5. *From $1.20 to $3.50, depending upon the horse's weight.*
6. *$5*
7. *$3.75*
8. *$2.65 per ft*
9. *25¢ and up*
10. *$3.25 per pair*

chucking lug

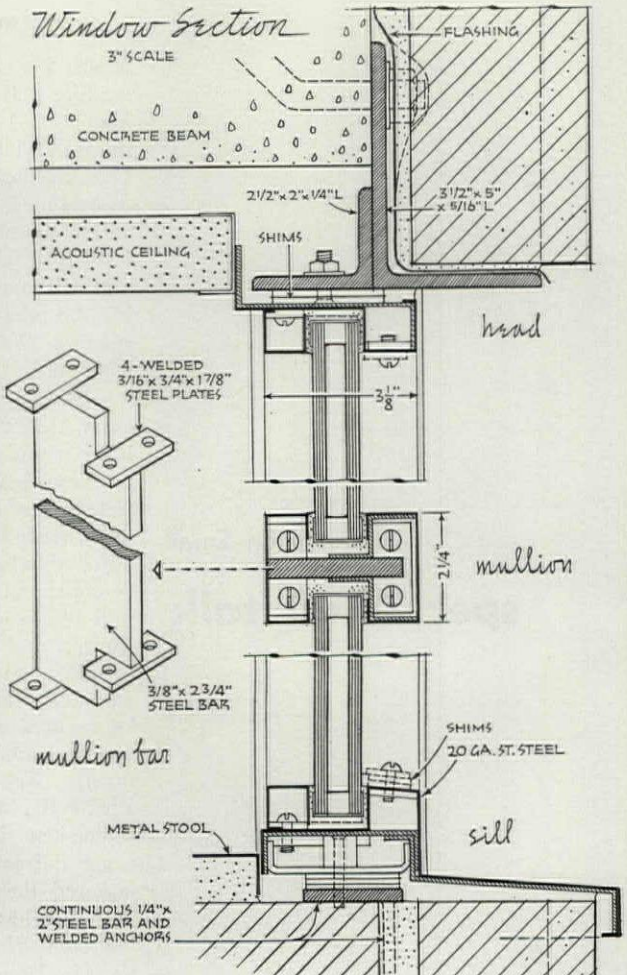
The other day I was watching a *stripper* in action doing a *pickle roll* and an occasional *side thrust* when during a *bump up* a *breakdown* developed in the *cast*. The impact of an *off center kiss* by this *model* played *hob* with the *flow lines* of the *cast* which naturally sent the *boss* on a *bender*. Lest I give the *impression* that I am *eccentric* or *off center* in any way, may I hasten to explain that the italicized words form part of a very interesting glossary of terms commonly used in connection with brass forgings as issued by Copper & Brass Research Association.

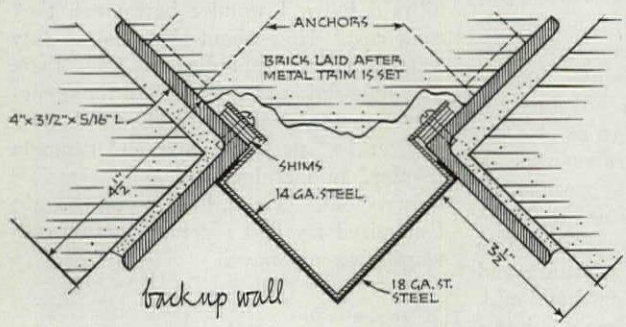
Have I been a *bore*? Sorry!

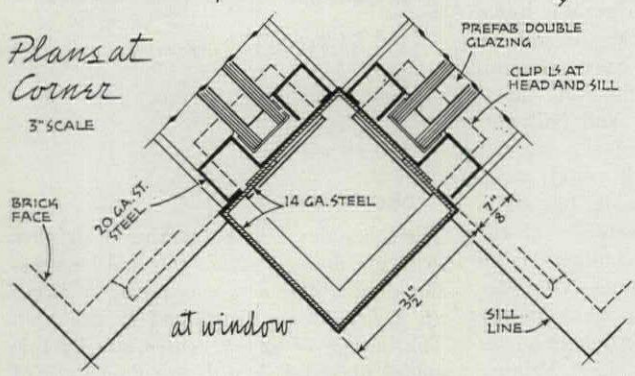
wall section

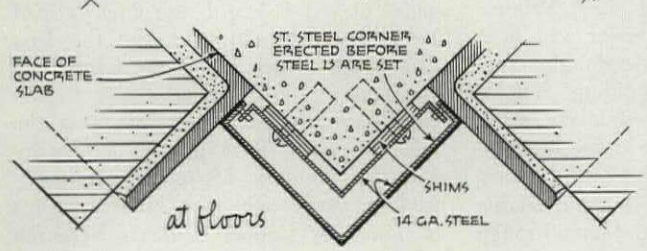


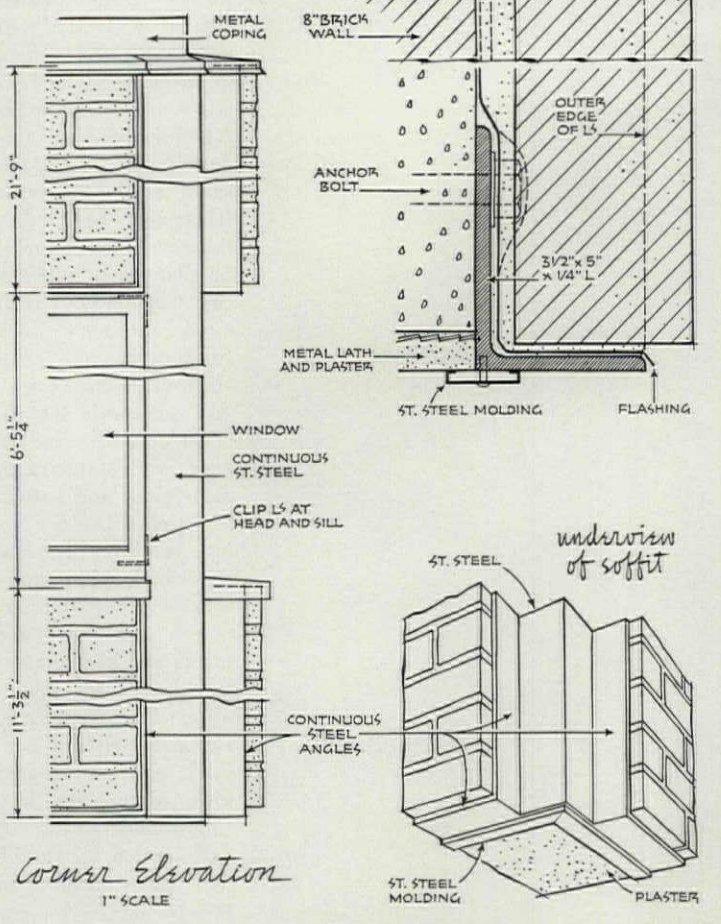
BILL ENGDAHL, HEDRICH-BLESSING











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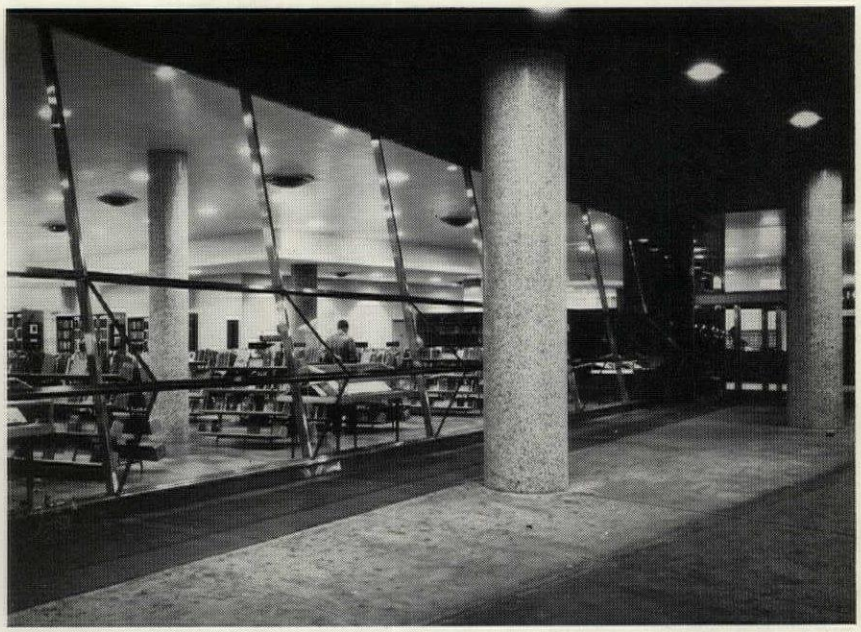
sloping window wall



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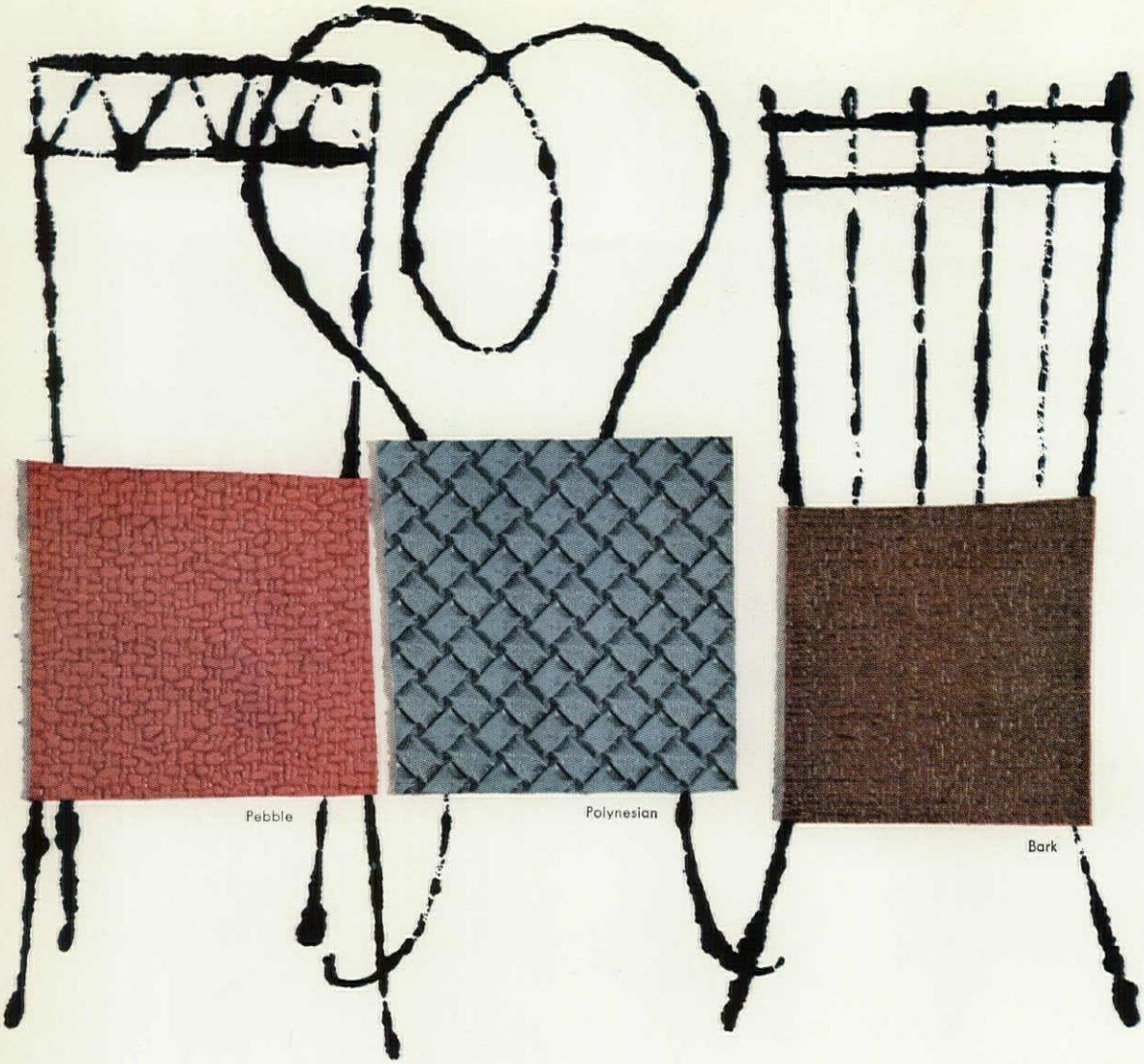

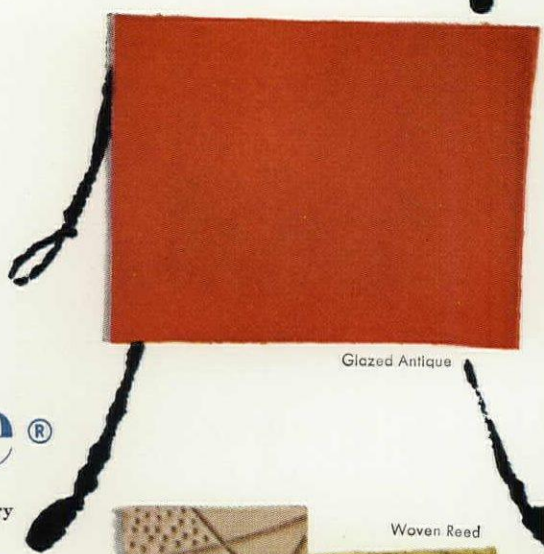

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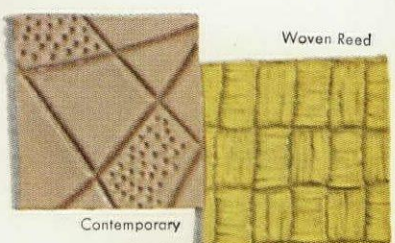

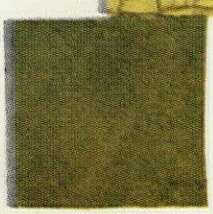

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US RUBBER

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Julius Shulman

Interior introducing pond in living room, continued from outside, through plate glass partition. Materials are redwood and brick. Architect: ***Richard J. Neutra.***

Louise Sloane

planting

In presenting examples of an interior design element that adds unique life and beauty to any area, we have chosen to show interior planting that is actually gardening, not merely a grouping of potted plants placed as afterthought accents. Such use of integral planting is part of architectural planning, a component of the room's original design. Our examples include five different uses of planting in houses, one in an office building lobby, one in a church.

In the residential category, Architect Neutra extends both pond and planting into the living room to bring the outdoors in; the Hunters, in their own home, utilize an entire hall as a "growing room," selecting materials and equipment that permit indoor gardening; Wilson, Morris & Crain extend a hearth to include a planting area, locate the planting under plastic dome skylights for best growing conditions; the Kecks use planting and a view window for an extraordinary effect in an entrance hall; and Architect Charles Gilman Davis and Landscape Architect Elizabeth Ames Davis provide a horticultural-hobbyist client with a planting hall oriented to natural sunlight. In an office building, Neutra landscapes the lobby by bringing an outside planting strip into the interior. Architects Thorshov & Cerny use planting as a partial screen for the baptistry tank in a church, particularly apt setting for living growth.

Landscape Architect James C. Rose makes these suggestions: 1. Locate interior planting areas where they may receive best natural light, or, if this is not feasible, locate artificial lighting for both growing help and for decorative effect. 2. Allow adequate space for plant composition, so that plants will not be too crowded to grow. It is most advisable to consult with a plantsman at the time of planning the planting area, to make sure just how much space the plants actually need for growing room. 3. Provide for adequate drainage. 4. In designing planted areas, accomplish a spatial feeling through height variations, hanging plants as mobiles, sculptural compositions of plants related in scale to the entire room area.

planting

data

Design Theory: Hall from main house to bedroom utilized as indoor gardening area to compensate for long winters and short gardening season. Plant area has no bottom, but has specially prepared soil down to natural grade, to reduce need for frequent watering. Slate floor and stone walls permit watering by hose. Radiant heat in floor for quick drying and desirable humidity. Large window faces south.

Color Plan: Natural tones of gray slate and stone, gray-stained fir, natural birch, as background for greens of plants.

doors and windows

Doors: solid-core 1¾" plywood/ United States Plywood Co., 55 W. 44 St., New York 36, N. Y.

Windows: fixed glass/ no vents/ Pittsburgh Plate Glass Co., 632 Ft. Duquesne Blvd., Pittsburgh, Pa.

lighting

Recessed Ceiling Lights: General Lighting Co., 248 McKibbin St., Brooklyn, N. Y.

Surface Swivel Fixtures: Kurt Versen Co., 4 Slocum Ave., Englewood, N. J.

walls, flooring, ceiling

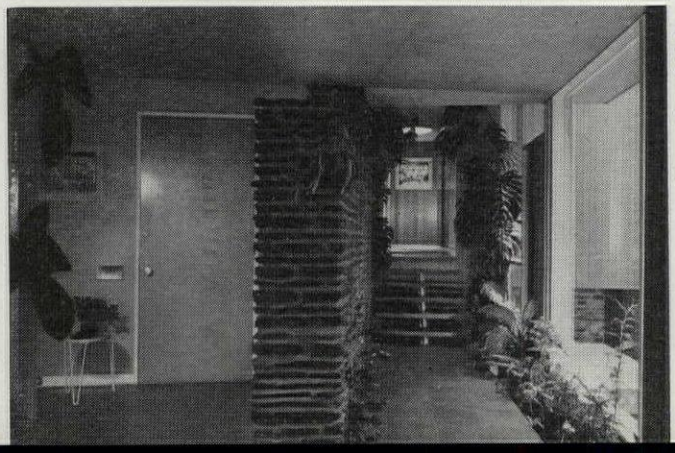
Walls: native stone/ white vertical clapboard/ rift-sawn fir vertical siding stained gray with shingle stain/ Samuel Cabot, Inc., 528 Oliver Bldg., Boston 9, Mass.

Floors: 12"x12" slate tiles installed on concrete slab/ sealed with Hornglaze wax/ O'Brien Co., Granville, N. Y.

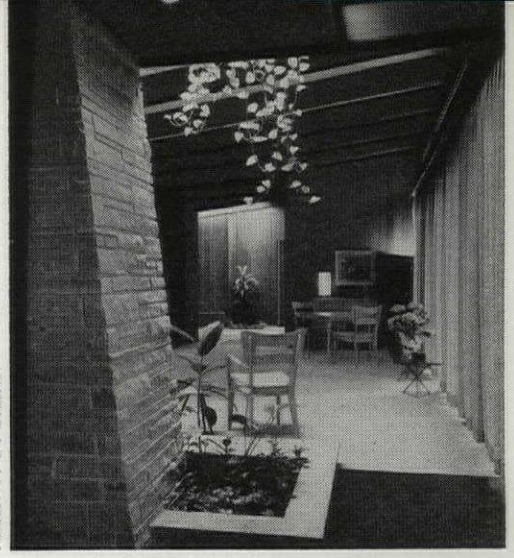
Stairs: Honduras mahogany.

Ceiling: 3'x6' panels of white birch plywood/ Bradford Veneer and Panel Co., Bradford, Vt.

example	house
location	Hanover, New Hampshire
architects	E. H. & M. K. Hunter



Photos: Joseph Molitor



Photos: F. W. Seiders

example | house
location | Houston, Texas
architects | Wilson, Morris & Crain

data

Design Theory: Planting located under plastic-dome skylights for best growing conditions—and esthetic effect. Room somewhat "woodsy" in character, with continuous glass doors on east looking into heavy tree shade outside.

Color Plan: Floor, joists, and walls warm dark brown. Ceiling, stone and fabrics in pink-beige tones.

cabinetwork

Concealed Cabinets: in wall paneling.
Hinges: Soss Mfg. Co., P. O. Box 38, Harper Station, Detroit 13, Mich.

doors and walls

All: V-joint redwood, 1'x6'.

windows

All: Arcadia Metal Products Co., 324 N. Second Ave., Arcadia, Calif.

furniture

Chairs, Tables: Heywood-Wakefield Furniture Co., Gardner, Mass.

flooring and ceiling

Floors: concrete/ painted.
Ceiling: Tectum Div., Alliance Mfg. Co., 105 S. Sixth St., Newark, Ohio.

planting

data

Design Theory: Entrance hall, leading to living room at left, bedrooms at right, as seen from front door. Natural materials, window placement, interior planting relate interior to outdoors.

Color Plan: Monochromatic grays of natural materials.

window

Plate Glass: "Thermopane" sealed, double glazing/ Libbey-Owens-Ford Glass Co., 608 Madison Ave., Toledo, Ohio.

walls, ceiling, flooring

Walls: Joliet stone, gray.

Ceiling: acoustical plaster.

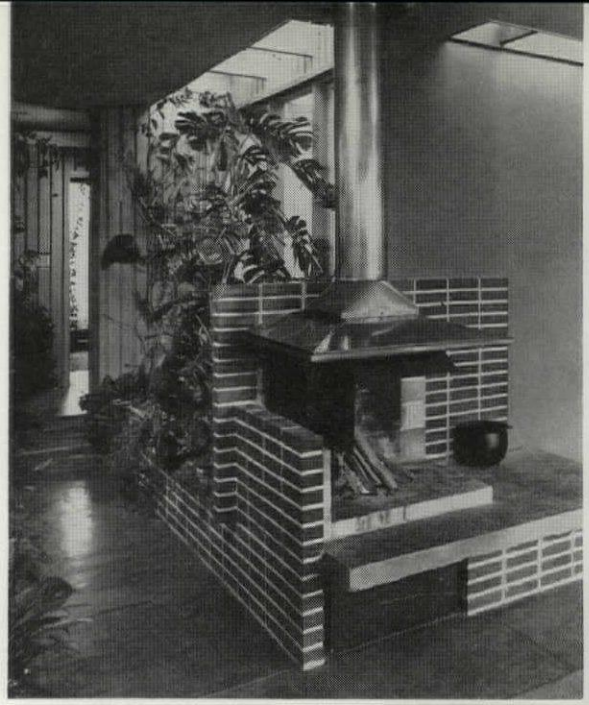
Floors: Vermont slate flagstone.

Hedrich-Blessing

example | house

location | Hinsdale, Illinois

architects | George Fred Keck & William Keck



Photos: Tom Burns, Jr.

example	house
location	Portland, Oregon
architect	Charles Gilman Davis
landscape architect	Elizabeth Ames Davis

data

Design Theory: Designed around client's interest in specimen house plants. Free-flowing open plan, an expression of continuity of space.

Color Plan: Wood walls stained medium gray; living area, deep blue with coral trim at planting box; ceiling, light gray, fireplace, red brick, with copper hood.

windows

All: Pittsburgh Plate Glass Co., 632 Ft. Duquesne Blvd., Pittsburgh 22, Pa.

walls, ceiling, flooring

Walls: Douglas Fir Plywod Assn., 1119 A St., Tacoma 2, Wash.; stained with stain wax/ Samuel Cabot, Inc., 528 Oliver Bldg., Boston 9, Mass.

Ceiling: lightweight plaster/ painted.

Floors: polished concrete/ waxed.

planting

example	office building
location	Los Angeles, California
architect	Richard J. Neutra

Julius Shulman

data

Design Theory: To introduce some feeling of outdoors in an insurance office, lobby was landscaped. Outside planting strip continues into lobby (through glass partition).

Color Plan: light-colored terrazzo; glass, both clear and acid-treated corrugated; walnut; stainless steel.

doors and partitions

Door: "Tuf-flex" glass/ Libbey-Owens-Ford Glass Co., 608 Madison Ave., Toledo, Ohio.

Glass Partition: acid-treated, corrugated/ Mississippi Glass Co., 88 Angelica St., St. Louis 7, Mo.

Free - Standing partition: walnut/ United States Plywood Co., 55 W. 44 St., New York 36, N. Y.

Stainless-Steel Column: Wagner-Woodruff Co., Los Angeles, Calif.

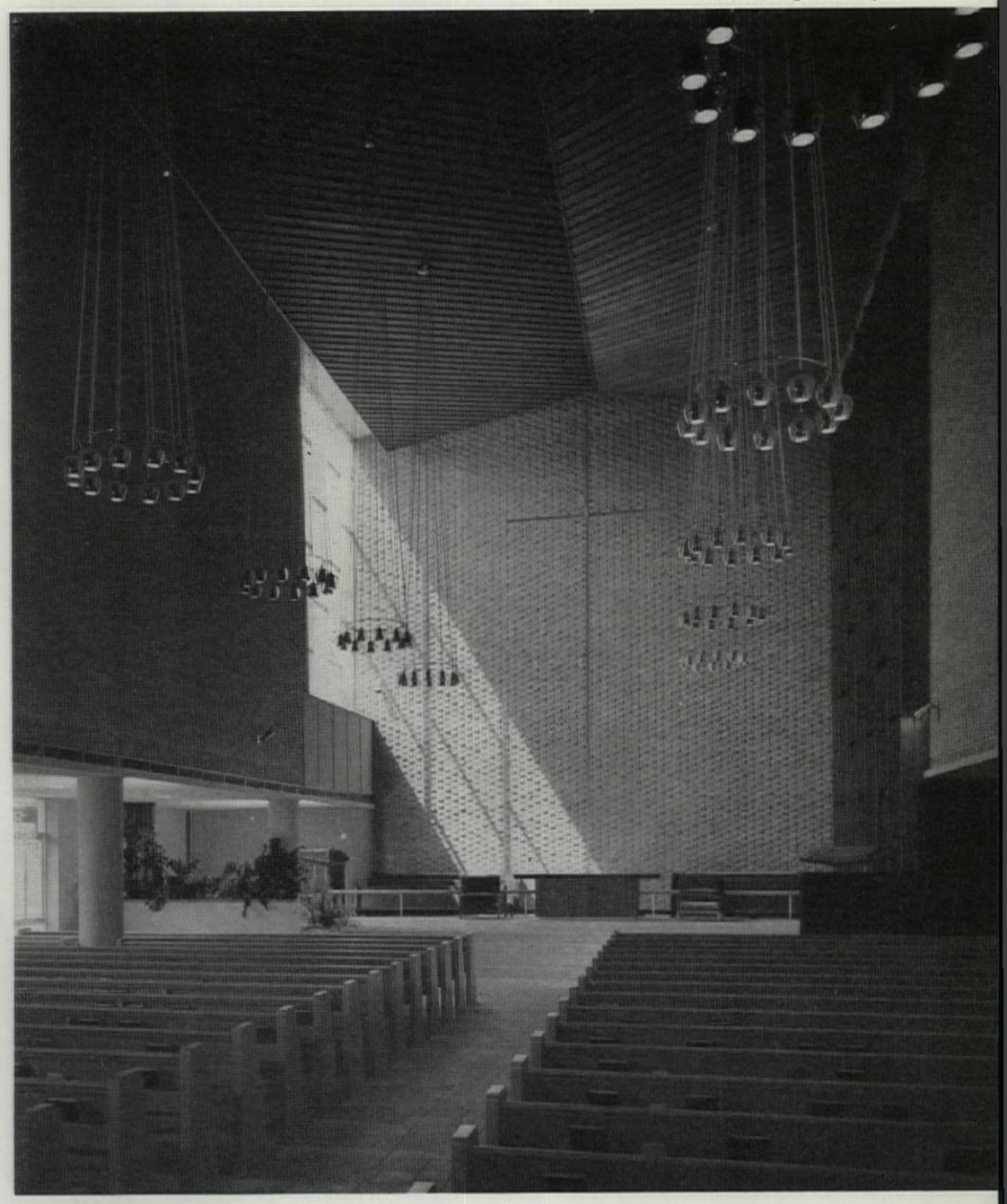
furniture and fabrics

Furniture: patented metal spring supported chair/ birch table/ designed by Richard J. Neutra/ executed by Fred Epping, Los Angeles, Calif.

flooring

Entrance: terrazzo.

Photos: George Miles Ryan



data

Design Theory: Denomination practices baptism by immersion and planting is used here as partial screen for baptistry tank. When not in use, tank is covered with mahogany Formica top. Access to tank is through door leading from choir room.

Color Plan: Blend of "naturals" (terrazzo, travertine, redwood, brick, oak, mahogany), with contrasting painted walls.

doors and windows

Doors: "Roddiscraft"/ solid-core flush doors/ Phillipine mahogany veneer/ Roddis Plywood Corp., Marshfield, Wis.

Windows: aluminum sash/ single glazing/ Marmet Corp., Wausau, Wis.

lighting

Fixtures: brass and glass/ Lightolier Co., 346 Claremont St., Jersey City, N. J.

furniture and fabrics

Chancel Furniture, Lectern, Pulpit: redwood and aluminum/ architect-designed.

Upholstery: "Naugahyde"/ U. S. Rubber Co., Coated Fabrics Div., 407 N. Main St., Mishawaka, Ind.

Plant Box: Winona travertine/ mahogany top/ Formica Co., 4620 Spring Grove Ave., Cincinnati 32, Ohio.

walls, ceiling, flooring

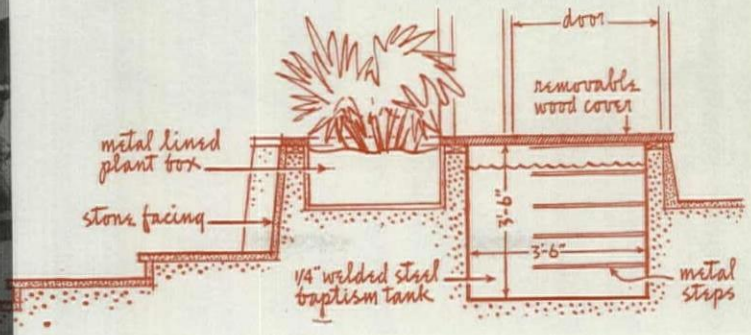
Walls: Chicago common brick; Plaster, painted/ The Martin-Senour Co., 2520 S. Quarry St., Chicago 8, Ill.

Columns: covered with "Madagaska"/ L. E. Carpenter Co., 350 Fifth Ave., New York, N. Y.

Ceiling: firred, acoustical plaster/ off-white/ Zonolite Co., 135 S. LaSalle St., Chicago 3, Ill.; nave/ Redwood T&G boards/ clear stain.

Flooring: aisles, chancel/ Minnesota travertine stone; under pews/ terrazzo.

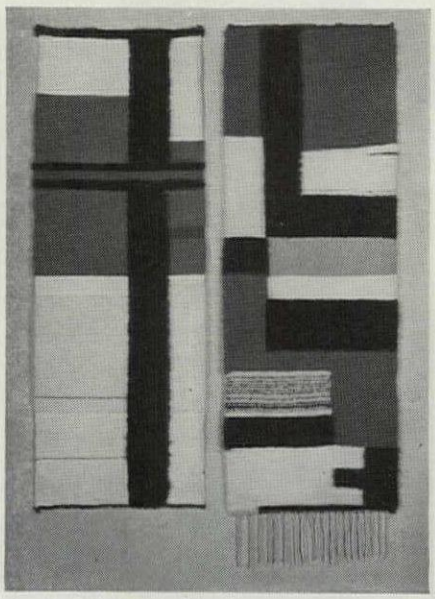
example	church
location	Minneapolis, Minnesota
architects	Thorshov & Cerny, Inc.

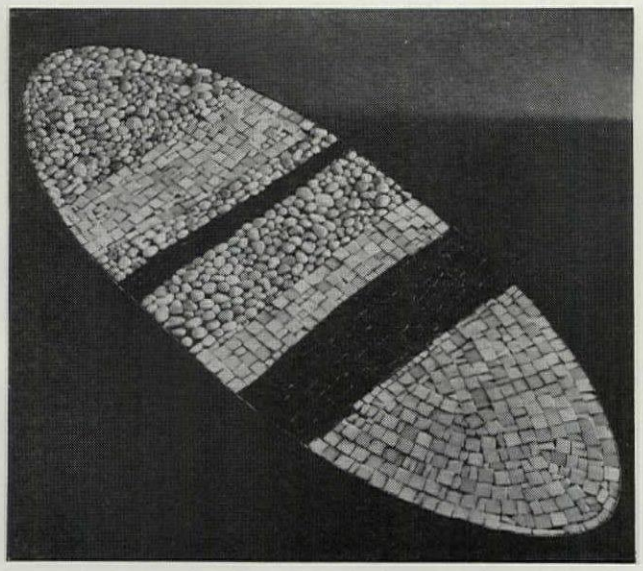


p/a interior design products

A decorative arts exhibition at the Bertha Schaefer Gallery, 32 E. 57 St., New York, represents important artist-craftsmen whose creative work lends itself aptly to interior architectural use. The weavings of (Miss) Franklin Colvin are applicable as tapestries, space dividers, draperies. Hugh Wiley's mosaics may be used as table tops, as wall pieces, as murals. Boris Chatman's ceramic medallions set in a composition are usable both as table tops and as framed wall pieces.

Useful Arts: (right) Mosaic wall panel by Hugh Wiley/ **retail:** $300; sheer fabric for drapery or wall panel handwoven by Franklin Colvin/ **retail:** $200; hand-sculptured stool, applewood seat, hickory legs, 25" high/ by Wharton Esherick/ **retail:** $50; pivot-top table, natural finish walnut/ designed by Bertha Schaefer for M. Singer & Sons/ **retail:** $150; (below) handwoven panels, 50"x18", combining yarns, textures, piles in vivid colors/ by Franklin Colvin/ **retail:** $75 apiece.





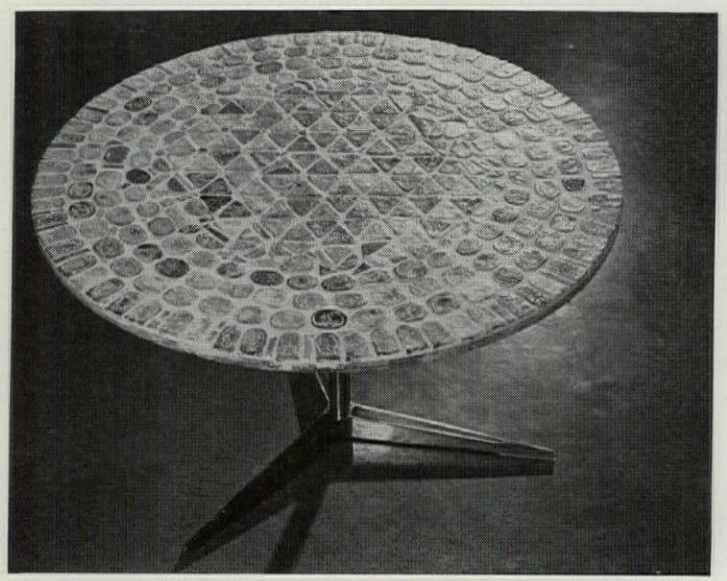
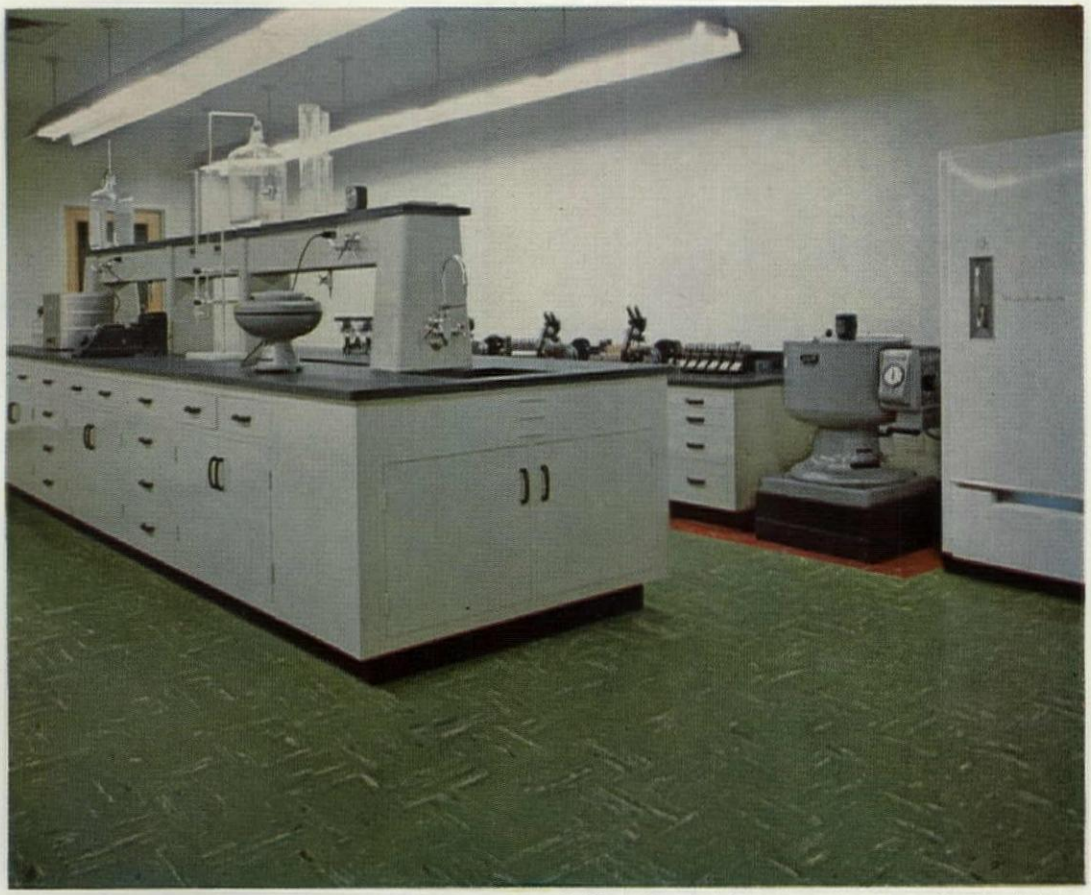


Table-Tops: (left) ceramic medallions/ diversified designs and colors/ set in composition, plywood-mounted/ by Boris Chatman/ **retail:** $320; (above) pebbles/ Italian mosaics of black glass and marble/ set in Swedish putty/ plywood-mounted, brass-strip framed/ by Hugh Wiley/ **retail:** $270.

Vinylized AZPHLEX *floors*

answer the laboratory floor problem



Parkland Memorial Hospital, Dallas. Roscoe DeWitt, Architect
Albert H. Scheidt, FACHA, Consultant, Dallas

Laboratories put floors to a severe test, subject as they are to unusual types of abuse. Vinylized Azphlex is the *new* and better flooring that is especially qualified to serve in such areas.

Because it is vinylized, Azphlex has greater resistance to most chemical products, food greases, petroleum oils and solvents. Vinylizing gives Azphlex other characteristics that are far superior to ordinary greaseproof tiles. It gives it a tightly textured, smooth surface — one that is easier to clean and keep clean with minimum care. It gives it added toughness that means added years of wear.

For modern hospitals and institutions where floor beauty is a requisite, vinylizing gives Azphlex a surprising range of clean, bright colors with superior light reflectance.

These are some of the qualities that are making Vinylized Azphlex a prime choice with hospital authorities — plus the fact that Azphlex *costs no more* than ordinary greaseproof tile. Why not get all the facts on Azphlex before you select those specialized floors in your hospital. At no obligation to you, a qualified representative will call on you to give you the full Azphlex story.

AZPHLEX

VINYLIZED TILE

AZROCK PRODUCTS DIVISION • UVALDE ROCK ASPHALT CO.
FROST BANK BUILDING • SAN ANTONIO, TEXAS
MAKERS OF VINA-LUX • AZROCK • DURACO • AZPHLEX

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When you divide space, why not do it with a material that is a decorating medium in itself . . . a material that stops vision, yet transmits light?

You can create striking effects with versatile Blue Ridge *Patterned Glass.* You can choose from linear, checkered and over-all patterns. You can have plain, textured or *Satinol** finish. You can create sparkling backgrounds or softly-diffused panels of light—whatever best fits your decorating motif.

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1

2

Three designs for business offices, introduced by the Executive Furniture Guild of America, in settings created by George W. Reinoehl, with furniture by Stow & Davis Furniture Company, 80 Front Ave., S.W., Grand Rapids, Michigan.

1. *Natural walnut furniture, with muted green leather upholstery, the color matched in the Spinning Wheel Rugs wool carpet, the Martin-Senour Co. wall paint. Natural cowhide tiles by Eagle-Ottawa Leather Co. finish one wall and floor corner. Curved lighting panel with brushed brass down lights custom-designed, executed by Stamford, Inc.*

2. *Office for a woman executive, with emphasis on* blue, *repeated in varying tones in the leather upholstery on bleached walnut chairs, the tambour front of the storage cabinet, the carpet, the draperies. Pewter accessories repeat the pewter feet and ferrules of the furniture.*

3 and **4.** *Views of the "Life Extension Office." Its key feature is a remote-control system with control panels both in the desk and in the conference areas. This "Sigmacon" remote control unit, developed under the direction of George W. Reinoehl and executed by Michigan Bell Telephone Co., provides a telephone system equipped with transmitter-receiver amplifier as well as conventional hand set; dimmer controls for all lighting; an inter-com system with both conventional and amplifier combinations; mechanical control of doors, curtains, temperature; a panel unit which includes tape recorder, TV and hi-fi equipment, as well as a kitchen. Vivid green leather upholstery on the ebony-finished furniture is matched in the handwoven upholstery by Rancocas Fabrics. Carpet is gold. Silk shantung draperies by Isabel Scott Fabrics Corp. and woven straw wall covering by Murals, Inc., are white.*

3

4

Architectural Terra Cotta
colorful complement for store fronts

Any color under the sun is yours to specify when you design with Architectural Terra Cotta in mind. Custom-made in individual units large or small, plain surfaces or decorative sculpture, it can be combined impressively with other building materials — for interiors as well as exteriors. Such versatility encourages full creative expression. It's the reason so many leading chain, syndicate and department stores now have handsome facades of Architectural Terra Cotta. For new buildings or for modernization, investigate the advantages of Architectural Terra Cotta — from design-ability to desirability, from initial cost to ease of maintenance.

Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge on Architectural Terra Cotta and Ceramic Veneer.

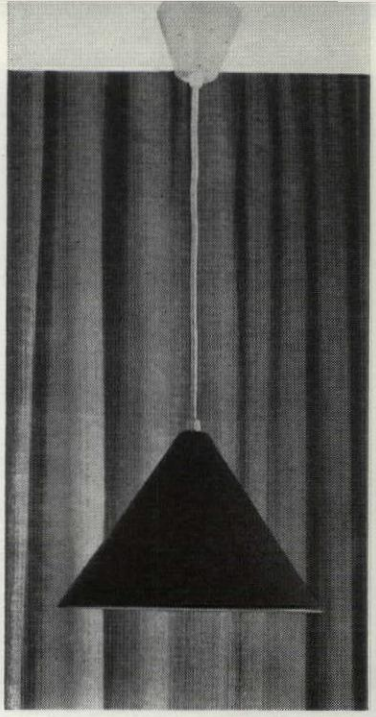
SEARS ROEBUCK & CO. STORE
Allendale Shopping Center
PITTSFIELD, MASS.

Gilbert Small and Co., *Architects*
Gilbane Bldg. Co., *Builders*

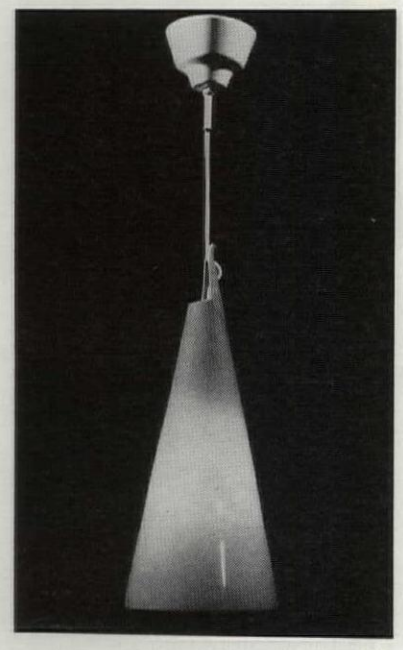
Facing and cap are Architectural Terra Cotta in a textured harvest yellow harmonizing with the face brick. Units are 24" x 36".

F S T C

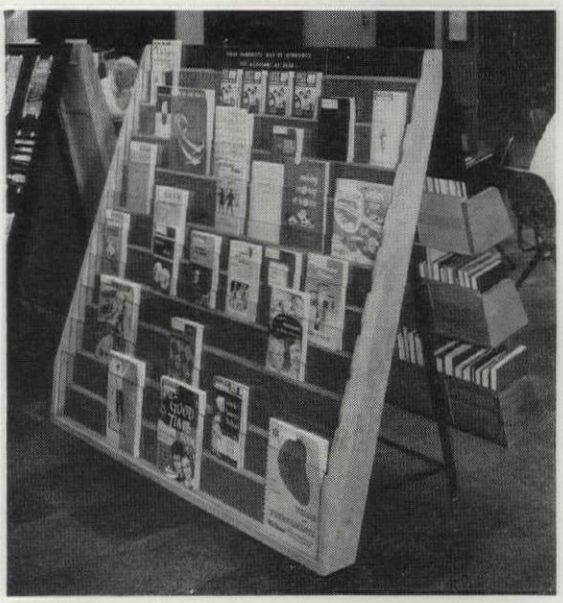
FEDERAL SEABOARD TERRA COTTA CORPORATION
10 East 40th Street, New York 16, N. Y.
PLANT AT PERTH AMBOY, NEW JERSEY

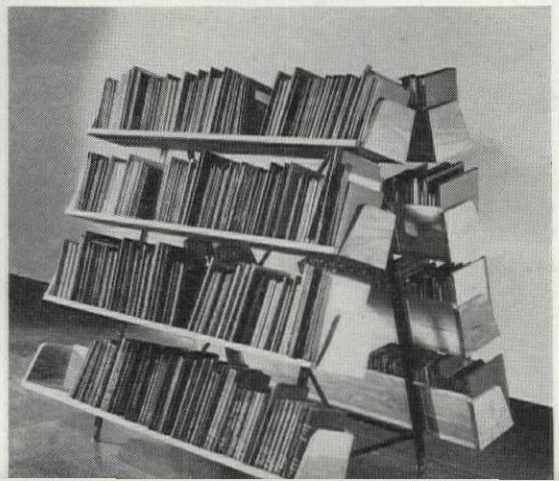


Scandinavian Fixtures: (left) #16523/ cone-shaped metal shade/ mat finish/ in white, red, or blue/ 10" high, base diameter 13½"/ designed by Poul Henningsen of Denmark/ **retail:** $19.50; (below) #148/181-1/ tepee-shaped translucent plastic/ in red, cocoa, white/ 16¾" high, base diameter 7"/ designed by Hans Bergstroem of Sweden/ **retail:** $35/ **Georg Jensen, 667 Fifth Ave., New York 22, N. Y.**

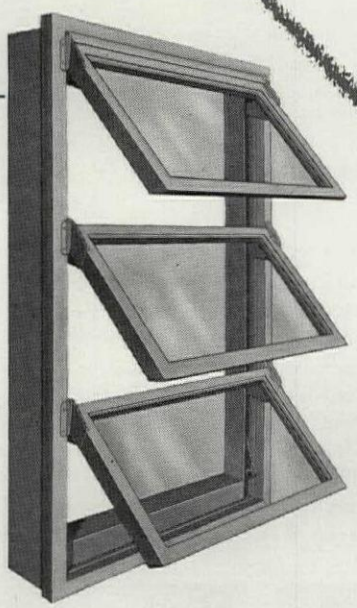


Library Furniture: designed for Cincinnati Public Library (see page 77)/ steel rod "A-frames," black semigloss baked enamel finish, lend themselves to many variations/ units are flexible, inexpensive, hold maximum capacity, occupy minimum space, do not interrupt visual supervision/ all work surfaces of Formica/ shelves of birch or maple/ standard shelf length is 4½ ft; (right) "A-frame" with detachable shelves; (below) "A-frame" with periodical rack; (bottom) "A-frame" with sit-down reference shelf/ chairs by Brunswick-Balke-Collender/ units designed by John R. Burquist of Woodie Garber & Associates/ **Backus Bros., Inc., 214 E. Third St., Cincinnati, Ohio.**





About this awning window trend...



For one thing, it's on the minds of more and more top architects as a quick, economical way to give a modern twist to any building where windows are to be used. For another —Gate City helped set the trend by creating the first *true* awning windows. Asked-for-features like: enclosed dual-action hardware —no-splash rain protection—complete weatherstripping—(you can specify Gate City for *all* climates)—wood stop glazing —13 stock sizes—have made Gate City the preferred awning window among builders, architects, and home owners all over the nation. Good reasons why *you* should send the coupon below for full details:

GATE CITY SASH AND DOOR COMPANY

Box 901, PA-6, Fort Lauderdale, Florida

☐ Please send literature on the new "Type-H" wood awning window.
☐ Please send literature on the new "push-button" Aluminum window.

Name.....

Address.....

City.....

Zone.....State.....

Gate City AWNING WINDOWS

Perma-treated for Long Life

Wall Lighting Unit: "Wallens"/ for wall mounting in residences, hospitals, corridors/ lens directs light distribution to a three-way asymmetric pattern to provide direct and indirect illumination/ may be used as bed light, over bathroom mirrors, over kitchen work areas and sinks/ **The Art Metal Co., 1814 E. 40 St., Cleveland 3, Ohio.**

Architectural Drapery Hardware: #2200/ for use in any drapery or stage curtain installation/ adaptable to motor-driven operation/ rust-resistant/ all parts of either noncorrosive metal or nylon/ no metal-to-metal contact between moving parts/ master carrier equipped with long reinforced arm assuring drapery overlap and clean meeting/ one style end pulley fits both ends of track/ **Grant Pulley & Hardware Corporation, 31-85 Whitestone Pkwy., Flushing 54, N. Y.**

Decorative Escutcheons: designed with open backs, providing the opportunity to select ornamental lock backgrounds to suit individual requirements: "Manhattan"/ rectangular outline with four bars at right angles converging on the center/ 8"x4⅜"; "Continental"/ circular with four-pointed star motif radiating through the circle/ 11" high by 8" wide/ both may be used either horizontally or vertically/ available in satin-finished bronze, polished brass, brushed or bright chrome, luster-sealed aluminum/ **Schlage Lock Company, 2201 Bay Shore Blvd., San Francisco 19, Calif.**

Pink and Copper Cabinet Hardware: "Town and Country"/ pulls, knobs, hinges, backplates/ available in either pink baked enamel combined with copper, or copper with copper/ concave drawer knobs with beveled edges/ beveled, half-moon and waterfall drawer pulls/ semi-concealed hinges machine- or hand-polished/ **Ajax Hardware Mfg. Corp., 4351 Valley Blvd., Los Angeles 32, Calif.**

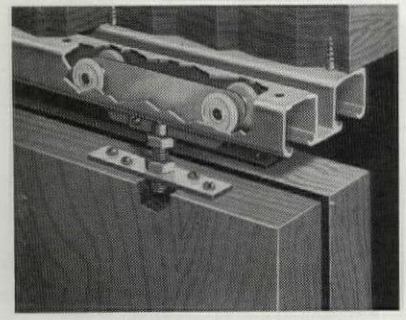
Pastel Pink Plumbing Fixtures: "Rose Pink" now available in plumbing fixtures/ pastel tone with depth of color/ **Universal-Rundle Corp., New Castle, Pa.**

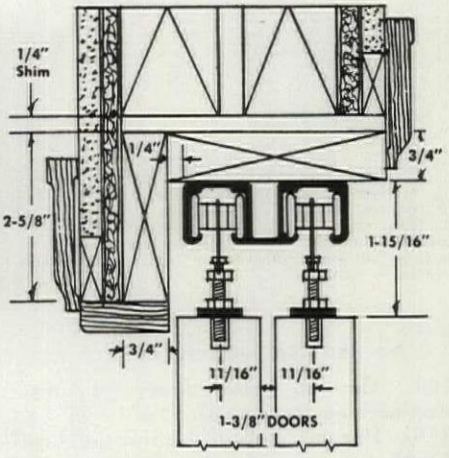
Sponge-Rubber Carpet Underlay: "U.S. Rug Underlay Airbase"/ of resilient sponge rubber reinforced with strong fiber backing/ 53" wide, in 30 sq yd or 20 lineal yard rolls/ proof against carpet beetles, moths, vermin/ high tensile strength/ **retail:** $2 sq yd/ **United States Rubber Company, Rockefeller Center, New York 20, N. Y.**

Wallpaper Sample Book: "Kohrai"/ imported wallpapers, 27 patterns, 6 styles of laminated textured papers/ fade-proof, waterproof, easily cleaned/ sample book costs $3/ **Jatai, 324-326 E. Olympic Blvd., Los Angeles 15, Calif.**

Custom-Dyeing Carpet Service: at no extra charge, all "Wunda Carpets" of all-cotton construction may be dyed to match any given color sample/ at slight extra charge, same service available for synthetic carpets/ **Belrug Mills, Inc., Greenville, S. C.**

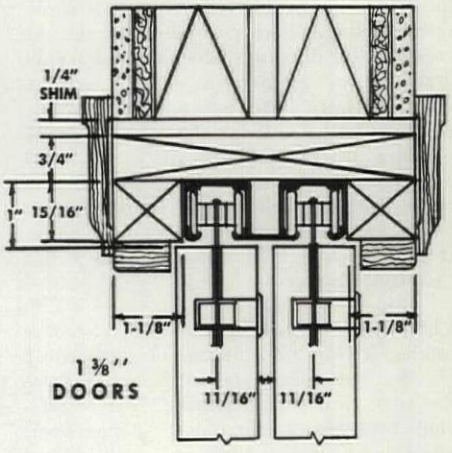
Natural Fiber Drapery and Upholstery Fabrics: Six new groups, each based on native colors of specific geographic areas/ "Atlantis"/ of Rami and Egyptian cotton/ in sea-blues and sea-greens; "Phoenicia"/ of Rami and silk/ in coppers, pinks, black; "Athenia"/ of Egyptian cotton and linen/ in pale yellows, deep orange-reds; "Olympus"/ of linen and silk/ in wines, purples; "Pharaoh"/ of Rami, Egyptian cotton, linen and silk/ in tile colors of blue, green, purple; "Algerian"/ of Rami and Egyptian cotton/ in desert tones of greens, tawny yellows/ clear-tone cotton warps/ drapery and upholstery weights/ in textures, block checks, and plaids/ 54" wide/ **retail:** $10.50 to $15.50 per yd/ designed by Carmen Graham/ **Thaibok Fabrics, Ltd., 3 E. 52 St., New York, N. Y.**

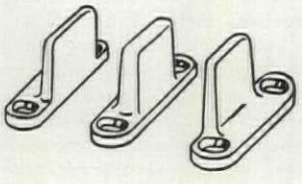




Kennatrack Series 600 sliding door hardware is designed for quality wardrobe installations of 1⅜-1¾ in. doors/ door weight is evenly distributed over 8 self-aligning nylon wheels for finger-tip operation/ extruded aluminum double track automatically assures correct spacing between doors/ heavy gauge steel hangers have threaded vertical adjustment for exact alignment of door to jamb.

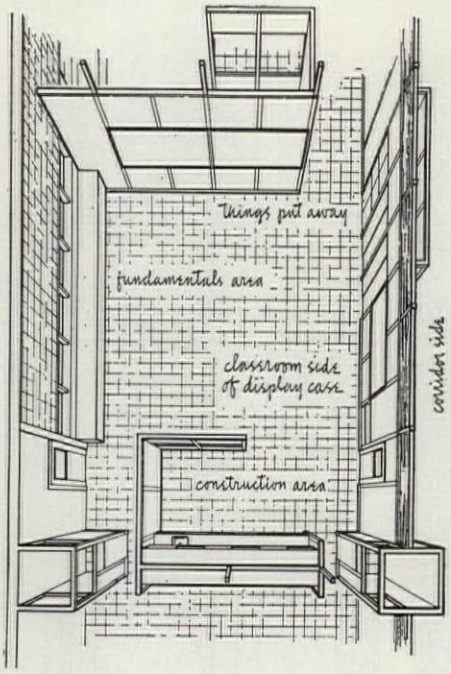
New nylon Kennaguides which screw to floor can be used without saw kerf in bottom of door/ center spacer goes between doors/ side guide goes at outside of each door and are slotted for easy adjustment.





The Kennatrack "Architectural Portfolio" gives you full information for detailing this complete line of sliding door hardware/ its scaled detail drawings save you valuable time/ write manufacturer for free copy/ **Kennatrack Corporation, Elkhart, Indiana.**

p/a manufacturers' literature



With the problem of ever-changing schoolroom requirements in mind, The E. F. Hauserman Company has published a report by Dr. Darell B. Harmon on Flexibility in the Co-ordinated Classroom. *This report should be of interest to architects and educators alike because of several controversial theories: (1) experimentation in classroom shapes may not result in more versatile space; and (2) movable partitions—not reaching to the ceiling—can provide flexibility within the classroom and within groups of rooms.*

After reviewing the physical and psychological requirements of the classroom, Dr. Harmon proposes a primary schoolroom (left) *which utilizes movable, modular partitions to separate activities in the room and to divide it from other rooms. In addition to their flexibility, these dividers also serve as supplementary teaching aids, providing reversible chalkboard-corkboard surfaces, storage areas, and built-in work counters.* L. C.

222. Flexibility in the Co-ordinated Classroom, *36-p., The E. F. Hauserman Co., 7507 Grant Ave., Cleveland 5, Ohio.*

★ *Editor's Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

air and temperature control

109. Herman Nelson Amervent Unit: Engineering Data (625), 20-p.
110. Herman Nelson Auditorium Unit Ventilators: Engineering Data (650A), 16-p.

Two pamphlets containing engineering data on heating and cooling units designed especially for schools. Both present information on proper selection and application of units; both give sample problems, cross-section drawings of units, and layout drawings of temperature-control system. First brochure describes cooling, heating, and ventilating unit for classrooms in mild climates where outdoor air can usually be used for natural cooling; second brochure explains operation of ventilator unit for auditoriums, gyms, or swimming pools. Herman Nelson Div., American Air Filter Co., Inc., Louisville 8, Ky.

111. Broan Fans, AIA 30-D-1 (55), 8-p. catalog giving information on ventilating fans for bathrooms and kitchens. Features fan with motorized exterior door to prevent heat losses when unit is not operating; also shows wall and ceiling fans for horizontal or vertical discharge. Drawings, dimensions, details of installation in frame and masonry construction. Broan Mfg. Co., Inc., 1669 N. Water St., Milwaukee 2, Wis.

112. Field Draft Controls, 6-p. circular on draft-control device which conserves fuel in industrial and commercial furnaces. Explains reasons for chimney losses with uncontrolled flue draft; gives data for selection and location of proper draft control in gas, oil, or coal furnaces. Drawings; selection tables. Field Control Div., H. D. Conkey & Co., Mendota, Ill.

113. Hartzell Propeller Fans, AIA 30-D-1 (A-109A), 40-p. catalog illustrating industrial ventilating fans, intake units, and unit heaters. Includes information on two new fans—by-pass duct fan with motor shielded from hot air and double-ring reversible fan; provides description and performance data for standard fans. Also gives data for selection of unit heaters and intake-air units. Specifications; dimensions. Hartzell Propeller Fan Co., Piqua, Ohio.

114. Electronic Controls for Heating, Ventilating, and Air Conditioning (SA-2418), 46-p. reference guide on electronic equipment prepared especially for architects and engineers. Contains data on component parts of control systems; gives diagrams of 17 typical electronic systems. Also provides data sheets explaining control panels; specifications. Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.

115. Nesbitt Sill-Line Radiation (102), 20-p. brochure describing high-capacity fin-type radiation. Shows interior construction of baseboard radiators as well as enclosure assemblies; provides material on selection and installation of radiation. Capacity and selection tables; details; specifications. John J. Nesbitt, Inc., Holmesburg, Philadelphia 36, Pa.

construction

211. Architectural Woodwork: Cabinet Construction Data, AIA 19-D (6), most recent booklet in series on architectural woodwork. Features outstanding group of details of custom-designed cabinets and casework chosen from P/A *Selected Details;* shows classroom storage units, office furniture, residential storage walls, and kitchen cabinets. Architectural Woodwork Inst., 332 S. Michigan Ave., Chicago 4, Ill.

212. Certain-Teed Products (5550), 20-p. publication presenting information on line of glass-fiber-reinforced gypsum-wallboard products. Describes fire-stopping wallboard with one-hr fire rating; covers plain, wood-grained, and insulating gypsum boards. Also explains construction of low-cost nonbearing partitions by erecting wall board in multiple layers. Gives suggestions for joint treatment; tabulates product data; photos. Certain-Teed Products Corp., Ardmore, Pa.

213. Jarl Standard Aluminum Shapes, 16-p. catalog of extruded-aluminum sections used in architectural work. Shows thresholds, sills, and panels available in mill finish or polished, anodized aluminum; covers standard rectangular, round, and beam sections. Lists dimensions, weights. Jarl Extrusions, Inc., Linden Ave., E. Rochester, N. Y.

214. Mahon Cel-Beam Floor Systems, 58-p. notebook containing data on cellular-steel flooring system. Provides isometric details to show erection of flooring; explains electrification of floor system; shows perforation of steel ceiling panels for increased sound absorption in room below. Section-property and load tables; dimensioned drawings; specifications. The R. C. Mahon Co., 6575 E. Eight Mile Rd., Detroit 34, Mich.

215. Vertical Furring, AIA 20-B-1 (14), 4-p. technical bulletin giving information on both braced and freestanding vertical furring. Specifications provide complete data on installation of furring; tables list maximum allowable heights for furring as well as maximum stud spacing; details show construction of furred recess suitable for metal lockers or built-in cabinets. Metal Lath Manufacturers Assn., Engineers Bldg., Cleveland 14, Ohio.

216. Principles of Warm-Air Floor-Panel Heating, AIA 30-A (CM-108), ★ 24-p. manual discussing basic concepts of warm-air panel heating as applied to floors constructed of hollow-concrete masonry units. Outlines general heating factors affecting comfort; explains principles of panel heating. Descriptions and isometric drawings show several methods of circulating warm air; notes give pertinent data on design and installation of system. National Concrete Masonry Assn., 38 S. Dearborn St., Chicago 3, Ill.

217. Lightsteel Technical Manual, AIA 13-G (SS-8), 16-p. booklet presenting ★ data on lightweight-steel framing system. Large-scale isometric details show steel sections in wall, floor, roof, and ceiling assemblies; drawings also cover typical window and door details. Provides information on installation of vapor barriers and thermal insulation; gives data on connection of lightweight members to steel or concrete structure. Penn Metal Co., Inc., 205 E. 42 St., New York 17, N. Y.

218. Duraface Foamglas, AIA 37-B, 4-p. folder illustrating ceramic-faced insulating block. Outlines properties of expanded-glass block; gives photos of several installations in cold-storage rooms. Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa.

219. Reynolds Architectural Aluminum, AIA 15, portfolio enclosing 102 pages of data sheets on aluminum sections. Provides section drawings, details, and dimensions for all standard thresholds, sills, handrails, and copings; presents data on structural sections as well as embossed sheet aluminum. Also includes information on nonwarehouse items. Reynolds Metals Co., 2500 S. Third St., Louisville 1, Ky.

220. Unistrut Metal Framing, AIA 14-G (700), 78-p. catalog describing metal framing system. Outlines procedure for design of beams and columns; illustrates standard channel sections and special connectors. Drawings show use of framing for pipe supports, lighting-fixture hangers, or shelving; tables give electrical and piping symbols as well as pipe sizes. Unistrut Products Co., 1013 Washington Blvd., Chicago 7, Ill.

221. LaBelle Cut Nails, 12-p. booklet explaining properties and advantages of cut-steel nails. Gives dimensions and drawings of specially hardened cut nails for finishing work, flooring, or furring; also describes cut nails for masonry or building-block construction. Photos; comparison of value of cut nails vs. wire nails. Wheeling Corrugating Co., Wheeling, W. Va.

doors and windows

309. American 3-Way Top-Lights, AIA 12-J, 8-p. pamphlet describing skylights of preassembled glass-block sections. Shows assembly of glass blocks on aluminum frame; tabulates standard dimensions and physical properties. Also provides data on performance of specially designed prismatic-glass blocks. American 3 Way-Luxfer Prism Co., 431 S. Dearborn St., Chicago 5, Ill.

310. Columbia Tension Screens, 8-p. brochure containing information on aluminum tension screens. Lists advantages of screens held tightly against opening by tension; describes installation in ordinary double-hung windows as well as in casement units. Includes data on narrow-frame and tubular-aluminum-frame screens. Photos; specifications. The Columbia Mills, Inc., 120 W. Onondaga St., Syracuse 2, N. Y.

311. Paul Heinley's Movable Shutters, 8-p. booklet illustrating movable wood shutters. Photos show installation in residential and commercial interiors; drawings explain sizing of shutters to fit unusually shaped openings. Installation details; dimensions; specifications. Paul Heinley's Movable Shutters, P. O. Box 190-A, Santa Monica, Calif.

312. Thermopane Manual, AIA 26-A (TP-25), 28-p. technical manual on insulating glass revised to include data on glazing of air-conditioned buildings. Compares effectiveness of single, double, and triple glazing in retarding winter-heat loss and summer-heat gain; outlines formula for calculating solar-heat gains. Shows proper methods of glazing; lists glass sizes which fit standard sash; gives specifications. Libbey-Owens-Ford Glass Co., 608 Madison Ave., Toledo 3, Ohio.

313. Overline Entrances, AIA 16-A (701), 8-p. pamphlet illustrating steel-framed entrances. Describes satin-finish stainless-steel frames in addition to baked-enamel finish available in 11 colors. Sections show basic designs in narrow-framed glass entrances; tables give standard dimensions. Installation details; data on hardware. Overly Mfg. Co., Greensburg, Pa.

314. Steelcraft Hollow-Metal Doors, AIA 16-A, 8-p. catalog on flush-type and panel-type steel doors. Provides information on frame construction as well as data on hardware; gives installation details for sliding and swinging doors. Drawings; dimensions; specifications. The Steelcraft Mfg. Co., Blue Ash Rd., Rossmoyne, Ohio.

315. Steel Doors and Frames, AIA 16-A, 8-p. publication containing information on steel doors. Presents advantages of steel for interior doors and sliding closet doors; provides typical details for doors installed in plaster or drywall construction. Photos; recommended specifications for doors and frames. The Steel Door Inst., 2130 Keith Bldg., Cleveland 15, Ohio.

electrical equipment, lighting

406. Panel-Glo Systems (43), 32-p. engineering report on modular luminous ceiling system. Discusses special construction of vinyl ceiling panel which also diffuses conditioned air; gives complete description of light-transmission factors and acoustical properties. Presents recommendations for design of suspension system and air conditioning where luminous ceiling is used; contains comprehensive data on installation of lighting fixtures. Benjamin Electric Mfg. Co., Des Plaines, Ill.

407. C-lector System, 4-p. pamphlet on system of remote-control presetting of lighting arrangements—suitable for TV studios, theaters, and exhibitions. Explains operation of system designed to hold almost unlimited number of lighting set-ups; describes functions of master controller, console, and relay and breaker cabinets. Drawings. Century Lighting Inc., 521 W. 43 St., New York 36, N. Y.

408. Outdoor Lighting for Family Living (LS-171), 28-p. booklet of suggestions for exterior residential lighting. Photos and sketches illustrate ideas for many aspects of outdoor living—terraces, gardens, pools, entrances, and walkways; describes types of lighting fixtures and wiring required for exterior use. Large Lamp Dept., General Electric Co., Nela Park, Cleveland 12, Ohio.

409. Smithcraft Architectural Troffers (430C), 36-p. booklet featuring improved troffer-type lighting fixtures. Details show installation of troffer fixtures in several familiar types of ceiling construction; drawings and charts contain data on fixtures in one-ft or two-ft widths. Also

(Continued on page 147)

PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York 22, N. Y. I should like a copy of each piece of Manufacturers' Literature circled. We request students to send their inquiries directly to the manufacturers.

109	214	310	410	907
110	215	311	502	908
111	216	312	605	34
112	217	313	606	35
113	218	314	607	36
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213	309	409	906	

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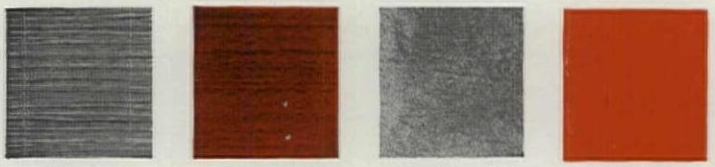

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SPECIFY . . . .

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(Continued from page 141)

provides description of louvered, glass, and plastic diffusers. Photos; specifications. Smithcraft Lighting Div., Chelsea 50, Mass.

410. School Building (B-6521), 32-p. brochure prepared to serve as guide in initial planning of lighting and electric facilities for modern schools. Discusses requirements of electrical system in terms of flexibility, performance, safety, space, and economy; describes types of systems suitable for school use. Also provides data on lighting fixtures. Drawings; photos. Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa.

finishers, protectors

502. Customized Color Center, 12-p. catalog compiled for architects and interior designers. Over 250 actual color chips illustrate wide selection of colors obtainable in eight finishes—flat, satin-gloss, enamel, floor, house, masonry, and shake paints as well as wood stains. Martin-Senour Co., 2520 S. Quarry St., Chicago, Ill.

insulation (thermal, acoustical)

605. Styrofoam, AIA 37-B-1 (PL245A), 12-p. publication describing expanded-polystyrene insulation recommended for use in slab-on-grade construction as well as on cold-storage vaults. Outlines properties of two formulations of low-temperature insulation—one for below 155 F, one for temperatures up to 175 F; gives details for application of material on walls, ceilings, and floors. Specifications; tables of heat-transmission factors. The Dow Chemical Co., Midland, Mich.

606. Insulation Design for the Air-Conditioned Home, AIA 37-C (BL6.A3), 20-p. booklet on designing for maximum heat control in summer and winter. Discusses orientation of building, insulation of structure, and protection at windows; explains how insulation increases effectiveness of air-conditioning systems. Also contains performance data on glass-fiber insulating materials. Drawings, tables. Owens-Corning Fiberglass Corp., Toledo 1, Ohio.

607. Simplex Radiant-Acoustical Ceiling, AIA 39-B, 4-p. folder on suspended-ceiling system integrating radiant and forced-air heating or cooling with acoustical treatment and lighting. Explains principle of heating or cooling by both tempered air and radiation; describes acoustical qualities of perforated metal ceiling with additional insulation above panels; shows installation of lighting fixtures in suspended ceiling. Drawings; specifications. Simplex Ceiling Corp., 552 W. 52 St., New York 19, N. Y.

sanitation, water supply, plumbing

704. Scotch-Brand Products, 16-p. publication on polyvinyl-chloride-backed tape to protect pipelines from corrosion. Charts outline physical properties of tape, including insulation values; photos show application of tape at job site. Also contains data on electrical tape for protection of splices and connections. Dept. E5-299, Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul 6, Minn.

specialized equipment

804. Allenco Fire-Protection Equipment, AIA 29-E-2 (150), 44-p. bulletin on fire-equipment cabinets, hose connections, and extinguishers. Features new equipment cabinets with removable glass-retaining strip to facilitate replacement of broken glass; describes several types of water- or chemical-filled extinguishers; illustrates many kinds of hydrants. Details; dimensions; specifications. W. E. Allen Mfg. Co., 566 W. Lake St., Chicago 6, Ill.

Jensen Guide to High-Fidelity Loud Speakers in Homes and Institutions (A-1060), 36-p. manual on design and construction of high-fidelity loudspeaker systems for music areas. Describes eight matched-

p/a manufacturers' literature

(Continued from page 147)

component speaker kits planned for economical, built-in installations; gives simplified details and data for design of acoustically correct speaker enclosures. Available only on direct application to Jensen Mfg. Co., 6601 S. Laramie Ave., Chicago 38, Ill. 50¢.

surfacing materials

904. Slate Chalkboards, AIA 35-B-1, 16-p pamphlet outlining advantages of slate chalkboards for school installations. Emphasizes contrast between black slate and white chalk for easing vision; gives data on cost comparison of slate and other chalkboard materials. Pennsylvania Slate Producers Guild, Pen Argyl, Pa.

905. Architectural Plywoods, AIA 19-F, 12-p. booklet containing information on hardwood plywood. Explains veneer construction of plywood; shows surface grains of popular woods. Drawings illustrate suggested methods of installing decorative paneling. Roddis Plywood Corp., Marshfield, Wis.

906. Finishing of Philippine Mahogany, AIA 19-E, 8-p. circular explaining several methods of finishing mahogany. Color photos show how finishes appear on both light-red and dark-red mahogany; instructions tell how to achieve illustrated effects. Also contains recommendations for obtaining successful results in finishing woods. Philippine Mahogany Assn., Inc., 111 W. Seventh St., Los Angeles 14, Calif.

907. Markwa Marble Wall Tile, AIA 23-N, 8-p. pamphlet illustrating thin-marble wall tiles. Photos show actual colors and veining of 18 different marbles; sketches suggest ways of using marble tiles. Specifications. Vermont Marble Co., Procter, Vt.

★ **908. Vikon Porcelain-on-Aluminum Tile,** 8-p. catalog containing actual samples of porcelain-enamel aluminum wall tiles. Includes small-size tiles in all 12 colors as well as larger tiles to show actual size and bevel; outlines fireproof, lightweight, and chip-resistant features of aluminum tiles. Recommendations for installation; dimensions; specifications. Vikon Tile Corp., Washington, N. J.

interior furnishings

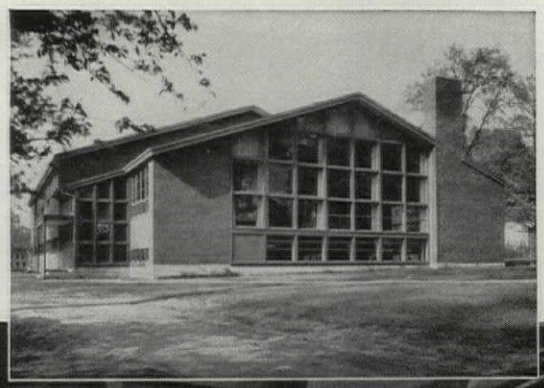
★ **34. Contemporary Home Designed Around the Kitchen** (1), first in series of portfolios enclosing photos of homes especially designed by well-known architects to emphasize importance of the kitchen. Plans and exterior view present medium-priced home designed by Architect Robert A. Little; cut-away view shows completely equipped kitchen-laundry area in relationship to rest of house. Frigidaire Div., General Motors Corp., Dayton 1, Ohio.

Risom Contemporary Furniture, 84-p. book presenting furniture designs by Jens Risom. Photos show designs for chairs, sofas, tables, desks, cabinets, and headboard available in light birch or walnut finish; description gives data on fabrics and dimensions of each piece of furniture. Also contains elevation drawings. Available only on direct application to Jens Risom Design, Inc., 49 E. 53 St., New York 22, N. Y.

35. Colorama Styling by Steelcase, 14-p.

36. Convertibles by Steelcase, 28-p.

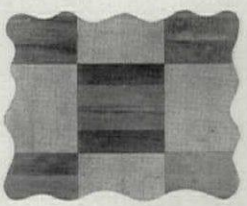
★ First of two pamphlets on steel office furniture includes color plates of scenes from Arizona desert which inspired color styling of office units; color photos show furniture in desert sage, mist green, metallic gray, and blond tan. Second pamphlet covers each unit in more detail; drawings and photos show how desks, cabinets, bookcases, and files can be combined to suit variety of office functions. Gives data on clamps which interlock units to form efficient work center; provides dimensions of desk units and chairs. Steelcase Inc., Grand Rapids, Mich.



pride *of the* community!

Gentle Community Building, Houlton, Maine. Alonzo J. Harriman, Inc., Auburn, Maine, Architects and Engineers

foot-friendly NORTHERN HARD MAPLE



Cost is surprisingly low for the ultimate in luxury flooring—in blocks and modern patterned designs as well as the more conventional strip form. Readily laid in mastic, over concrete or softwood sub-flooring.

• The air of hospitality that beckons the townspeople of Houlton into their new Community House is repeated with cordial emphasis within. The warm, "foot-friendly" comfort of resilient, Northern Hard Maple Flooring extends its own invitation. Activities room, dance lounge and gymnasium-auditorium—all are maple-floored, for enduring, low-cost "housekeeping" and maintenance. We believe you'll agree, the building's low $7.75 unit cost ($123,750 for its 10,000 square feet) bespeaks to some degree the economy of "the finest floor that grows." Write for latest literature, or consult Sweet's (Arch. 12K-MA).

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Sherardizing normalizes the conduit metal by gradual heating and cooling in an annealing-like process. This means easy bending and forming on the job.

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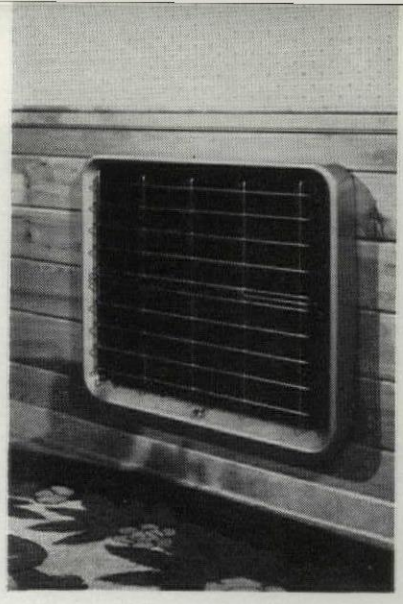
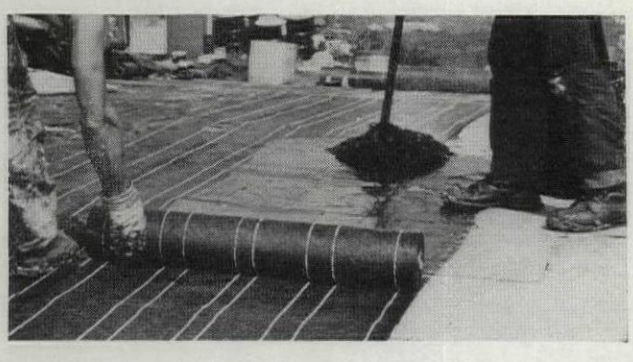


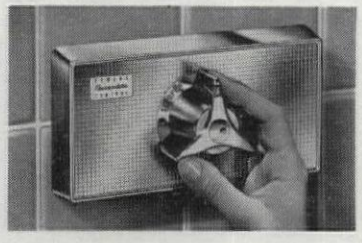
Chromalox, electric room heater of unbreakable, all-metal construction (left), *gives positive protection against moisture and rough usage. Heating element bonded to back of radiant-heating plate consists of nickel-chromium resister wire packed in high-density insulating refractory. Width, 28"; height, 23"; extends 3" from wall. Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa.*

Fiberglas-reinforced, built-up roofs reduce roofing failures and help cut down costly repairs by decreasing cracking or "alligatoring." Such a built-up roof (below) *with gravel finish requires one less layer of bitumin and felts than a conventional bonded roof. Owens-Corning Fiberglas Corp., Toledo 1, Ohio.*



Self-contained Weathermaker for universal application (left) *has matching plenum and specifically designed five-way-air-return base accessory. Employs water-cooled refrigeration and is available in sizes of 2-, 3-, and 5-hp. Return air is brought through bottom of unit making it possible to move desks and other furniture directly against solid front panel. Twenty-two-carat gold-plated control cluster is located at center of panel. Carrier Corp., Syracuse 1, N. Y.*

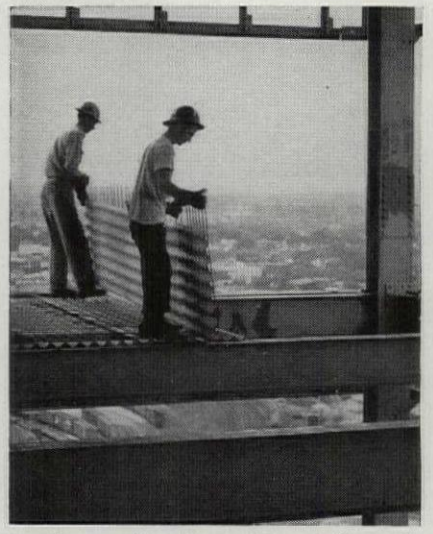
Kaylo-20 (right), *a new heat insulation product used primarily as covering for pipes and vessels, withstands temperatures of 1800 F. Made of hydrous calcium silicate, this product has the advantage of expanding slightly up to 1100 F. Completely immersed in a test furnace at 1800 F, shrinkage is limited to about 1½ percent. Pipe insulation is produced in thicknesses and diameters from ½" to 39". Owens-Illinois, Toledo, Ohio.*



Powers Type H Hydroguard shower control (above) *has only one dial to turn and requires only one hole in tile wall. Combined with safety, comfort, and water conservation features, this thermostatic shower control is ideal for practically all types of occupancy. Also available for exposed wiring installations. The Powers Regulator Co., 3400 Oakton St., Skokie, Ill.*

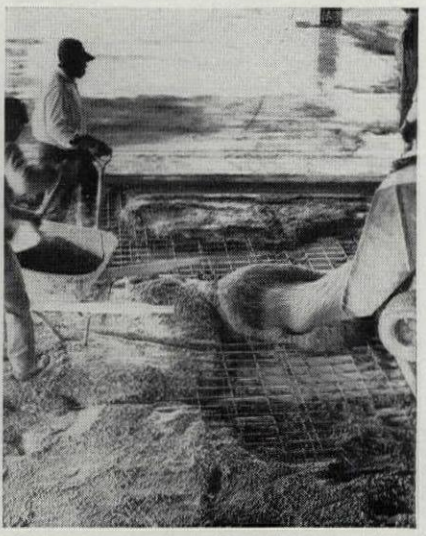
Unitrol 400, gold and silver thermostatic control for gas water heaters (left), *combines a snap-action thermostat, a thermomagnetic automatic pilot, and large-capacity gas cock. Fits snugly against water-heater shell, but can be easily removed without removing immersion unit. Grayson Controls Division, Robertshaw-Fulton Controls Co., Long Beach, Calif.*

Only 18 Days From Start to Finish! Averaging 3000 sq. ft. per day, workmen spraying 3 coats of acoustical plastic on Cofar completed each floor in only 3 days—the entire job in 18 days!

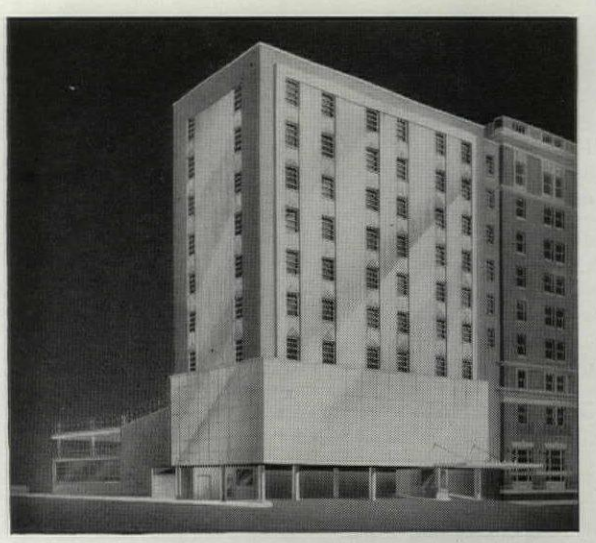


Handles easily, places fast—Cofar units arrived at the job site conveniently bundled and identified for immediate placing. In 8 days, 5 workmen had placed and welded Cofar into position — ready for concrete pours several days ahead of ordinary forms.

Wood forms eliminated—Because Cofar eliminates bulky, expensive wood forms, limited storage space on the job site was used to maximum advantage. Once installed, Cofar forms a solid, safe, sheltered working deck for all trades.



1 floor every 4 days—Fast Cofar construction helped to make up 60% of an 8-week delay. Concrete pours were made in 4 days per floor, more than 50% faster than with ordinary forms. Tight laps between Cofar units kept wet concrete from leaking.



Addition to Yorktowne Hotel, York, Pa.
Architect: *Roy Stiff, St. Louis, Mo.*
Hotel Consultant: *J. G. Jackson & Associates, St. Louis, Mo.*
Contractor: *R. S. Noonan, Inc., York, Pa.*

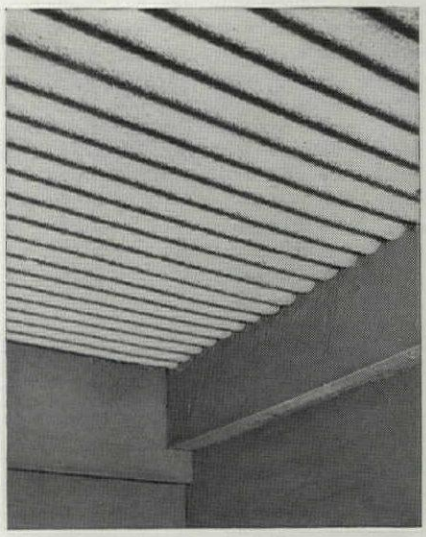
Hotel Consultant—J. G. Jackson says: "Cofar, sprayed with acoustical plastic, cut our ceiling-floor construction cost 42¢ per sq. ft.—an amazing saving! Also, this new kind of ceiling eliminates the possibility of future damage from plumbing leakage."

Job Superintendent—Norman Babner reports: "Our limited working area was not cluttered up because Cofar eliminates wood forms. Clean-up operations were cut because concrete does not leak through tight Cofar units."

Architect—Roy Stiff says: "Thanks to Cofar, we've made a definite saving in time, money and high labor costs. The Cofar and acoustical plastic ceilings offer distinctive beauty and secure the best fire insurance rating obtainable."

Cofar® sprayed with acoustical plastic cuts ceiling-floor construction costs 42¢ per square foot!

Five men install 8 floors of Cofar in 8 days in new York, Pa., hotel addition



Firesafe and beautiful—Acoustical plastic-on-Cofar ceilings eliminate between-floor wasted areas. Exposed to direct flame for over 4 hours without igniting, acoustical plastic sprayed on Cofar rates Underwriter's Laboratories Retardant Report 3413-7.

YORK, PA.—In the 8-story addition to the Yorktowne Hotel, a new kind of ceiling made of Cofar (combined form and reinforcement) sprayed with acoustical plastic has saved almost $9500 in building costs.

Roy Stiff, architect, reports: "Cofar's attractive corrugated pattern contributes a distinctive architectural effect. By eliminating expensive suspended or conventional plastered ceilings, Cofar, sprayed with acoustical plastic, saves 12″ to 18″ in wasted ceiling height . . . saves structural materials by reducing the over-all height of the building."

Says Norman Babner, job superintendent for R. S. Noonan, Inc., York, Pa., contractors: "Cofar cost only 7¢ per sq. ft. to install because the easy-to-handle units are quickly placed and welded. Once installed, Cofar forms an immediate, sheltered work platform for electricians and plumbers. Cofar placement and concrete pours averaged 4 working days per floor. With conventional forms, the same area would take 2 weeks. And, because Cofar requires minimum support, our shoring costs were only 1½¢ per sq. ft.!"

Cofar deep-corrugated steel units save weeks of construction time, provide earlier occupancy, help make your client's building dollars go farther. For information, estimates or costs on your building project, contact home or district office, attention Dept. P-6.

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(Continued from page 151)

air and temperature control

Spotaire LRC Conditioner: air-conditioning unit, designed expressly for multistory structures, allows individual-room temperature control with centralized supply system. Unit, installed at ceiling, is regulated by three-speed wall switch; piping from centralized supply delivers chilled or hot water for cooling, ventilating, filtering, or heating. Rubber-mounted motor with special ½" shaft insures quiet vibrationless operation. Conditioning equipment is also available without enclosure for built-in installations. Drayer-Hanson Inc., 3301 Medford St., Los Angeles 63, Calif.

Webster Heating-Cooling Conditioner: air-conditoning unit, for use with centralized supply system, features year-round, individual-room temperature control. Unit consists of coil, filter, three-speed fan, and drip connection; chiller and boiler, connected in parallel, supply hot or cold water. Enclosure, sized to fit in standard stud spacing, is equipped with directional louvers to spread conditioned air throughout room; quiet operation is achieved by rubber-mounted motor and fan. Warren Webster & Co., Camden 5, N. J.

Flexi-Cool Conditioner: new cooling unit, for small commercial buildings and homes, is adaptable to wide variation of installation requirements. Cooling-cycle section alone can be added to existing furnace; where space is limited, blower and cooling coil can be installed as unit with condenser located in remote area; entire unit can be placed in remote location and connected to conditioned area by ductwork. Cooling unit, for use with air- and water-cooled condenser, may be located in crawl space, closet, basement, or garage; unit is suitable for floor or ceiling installation, in vertical or horizontal position. Worthington Corp., Harrison, N. J.

construction

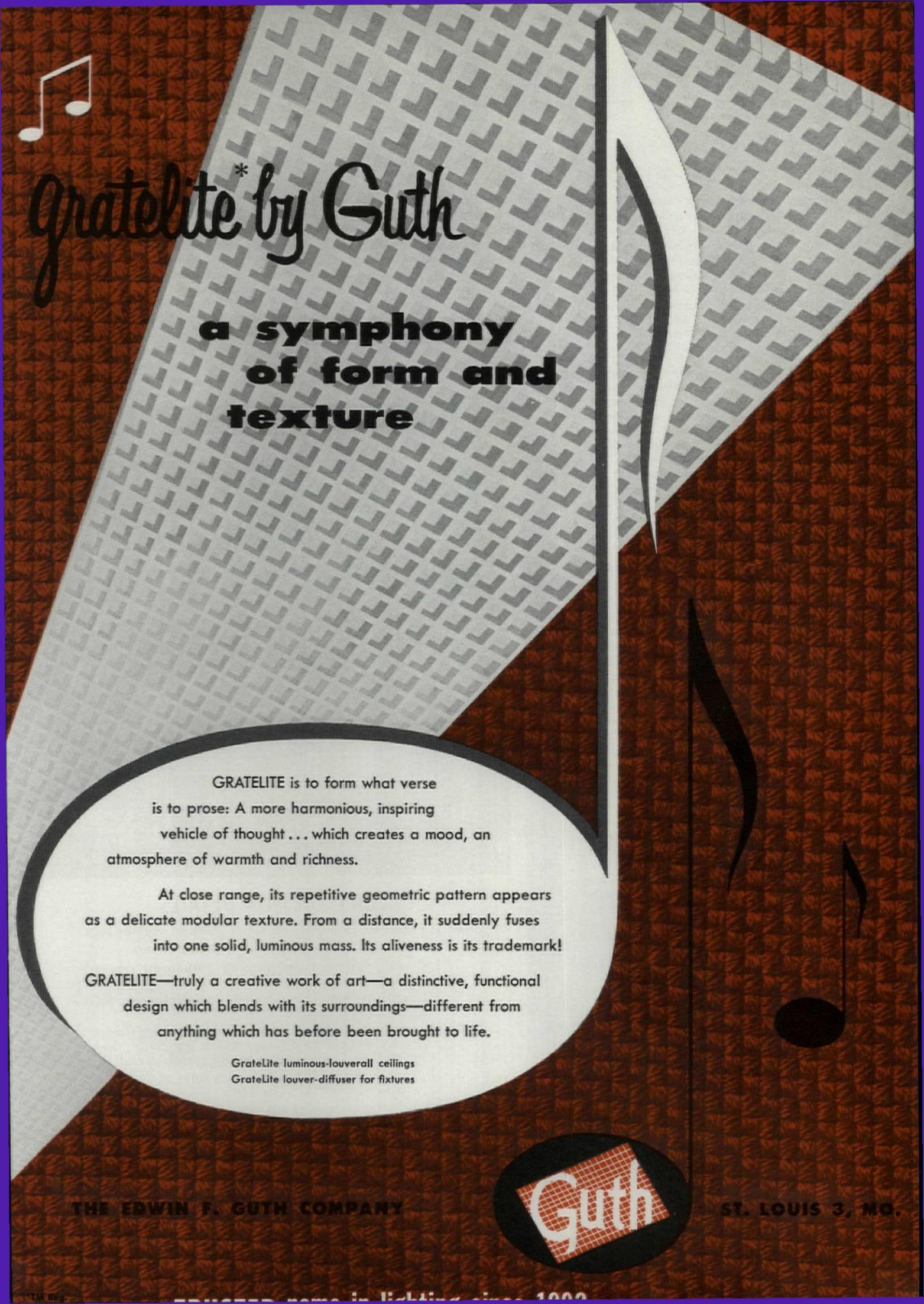
Perspec Partitions: new steel partitions achieve custom-designed appearance through flexibility of arrangement, size, and surfacing materials. Designed on expansible module, sections will accommodate glass, ⅜" or 2" steel panels, and 3" flush steel panels; 2"x3" frame section also carries concealed wiring. In addition, wide variety of surface treatments—such as cork, wood, wallpaper, and textured foil—may be specified by architect. Aetna Steel Products Corp., 730 Fifth Ave., New York 19 N. Y.

Blok-Joint: rubber control joint for masonry construction provides protection from leakage through mortar joints. Control joint, with cross-shaped section, fits in vertical masonry joints and compensates for wall movement due to contraction or stresses on building; in addition, control joint relieves strain on wall section in which it is installed. Rubber joint is supplied in lengths up to 50'. The Carter-Waters Corp., 2440 Pennway, Kansas City 8, Mo.

Foil-Lined Fiber Ducts: aluminum-foil lining in fiber ducts improves performance of warm-air perimeter-heater systems. Rigid-fiber tubes, embedded in concrete slabs on grade, distribute warm air to perimeter registers; foil duct lining, chosen for great reflectivity and low emissivity, increases efficiency of heat flow. Lightweight ducts, which will support 200 lb per lineal ft, are manufactured in diameters from 4" to 8"; sections are joined by standard galvanized joints and fittings. International Oil Burner Co., 3800 Park Ave., St. Louis 10, Mo.

K System: two-oz iron clip, used with lightweight steel beams, results in savings of time, materials, and money. Small clips, three in. long, fit over top flanges of beams; plywood forms for concrete floors rest on clips. After concrete is poured and hardened, exposed section of clip is knocked away, allowing plywood form to drop free. Structure is given added rigidity, since clips permit concrete floor to extend below top flange of beams. Jones & Laughlin Steel Corp., 3 Gateway Center, Pittsburgh 30, Pa.

(Continued on page 156)


gratelite* by Guth
a symphony of form and texture
GRATELITE is to form what verse is to prose: A more harmonious, inspiring vehicle of thought . . . which creates a mood, an atmosphere of warmth and richness.
At close range, its repetitive geometric pattern appears as a delicate modular texture. From a distance, it suddenly fuses into one solid, luminous mass. Its aliveness is its trademark!
GRATELITE—truly a creative work of art—a distinctive, functional design which blends with its surroundings—different from anything which has before been brought to life.
GrateLite luminous-louverall ceilings
GrateLite louver-diffuser for fixtures
Guth
THE EDWIN F. GUTH COMPANY
ST. LOUIS 3, MO.

p/a products

(Continued from page 154)

doors and windows

Dual-Glazing Adaptor: new device for sliding-glass doors permits use of double glazing in climates where glass doors were previously considered impractical. Adaptor, which fits on standard door frame, holds double-glass panes; snap-on vinyl beading prevents air infiltration at frame. Adaptor is engineered to keep weight of heavier glass panes centered over track for smooth operation. Ador Sales, Inc., 2345 W. Commonwealth Ave., Fullerton, Calif.

LSA KoolShade Sunscreen: metal insect screen also provides protection against glare. Screen is made up of louvers 1/20″ wide, spaced 23 to vertical in.; louvers are tilted at 24° angle—said to be ideal angle for maintaining proper illumination levels while eliminating solar heat. Screens, which require no adjustment, are claimed to give greater protection to window six ft high than structural overhang 13 ft deep. KoolShade, Reflectal Corp., 310 S. Michigan Ave., Chicago 4, Ill.

sanitation, plumbing, water supply

Precise Cleaning System: centralized vacuum-cleaning system is designed for low-cost residential installations. Vacuum unit is installed in basement or utility room; baseboard outlets and switches are located at convenient points throughout house; expandable hose, fitted with cleaning attachments, connects to outlets. System, which eliminates noise and dust, can be installed in new or existing homes. Precise Mfg. Co., Inc., 2561 S. 67th St., Philadelphia 42, Pa.

specialized equipment

Best Coffee Maker: completely automatic, electronically controlled coffee maker reduces brewing costs and saves labor time. When machine is turned on, correct volume of water, at proper temperature for brewing coffee, flows through extractor and seeps through grounds; water supply in tank is automatically replenished and heated. Compact design permits easy servicing and cleaning; built-in safety device prevents excessive steam pressure. Best Products Co., 2618 W. Addison, Chicago 18, Ill.

surfacing materials

Cork-Tex Underlay: cork cushion for resilient-hardwood or flexible-tile flooring laid on concrete eliminates need for subfloor. Composition material, made from high-grade milling cork, is available in ⅛″ and ¼″ thicknesses; cork mat is also claimed to reduce sound reflection and lessen noise transmission through floors. Bond Crown and Cork Div., Continental Can Co., 100 E. 42 St., New York 17, N. Y.

Wood-Block Flooring: flexible-strip, end-grain wood flooring is made specifically for gymnasiums, shops, laboratories, and locations subject to rough wear. Flooring is assembled from 1½″ or 2″ kiln-dried pine blocks, wire trussed together in strips; lengths of flooring are then interlocked with patented steel-wire splines. Special finishing compounds are added to give extra wear resistance and bring out pattern on end-grain blocks. Jennison Wright Corp., 2460-66 Broadway, Toledo 9, Ohio.

Creo-Dipt Shakes: two new factory-primed, red-cedar shakes offer greater variety in exterior appearance for development homes. Sanded-face shake features smooth surface; 18″ hand-split shake is genuine cedar shingle at economical price. Both types of shingles as well as earlier scored-surface shake are available in 20 different colors at no extra cost. Creo-Dipt Co., Inc., N. Tonawanda, N. Y.

ıren Pilafian and Frank Montana, *Architects*

MODERN DOOR CONTROL BY *LCN* · CLOSERS CONCEALED IN HEAD FRAME

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LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

p/a reviews

valuable assay

Italy's Architecture Today. *Carlo Pagani. Ulrico Hoepli, Corso Matteotti 12, Milan, Italy, 1955. 293 pp., illus., L.5.500*

Pagani has a cosmopolitan and comparative view of his own country and he also knows all of Europe and America from coast to coast. With his office in Milan he has the forward-looking metropolitan attitude of the North Italian industrial civilization and shares its doubts about the political influences which, in the past, made of the architects around the courts of Vittore Emanuele and of Mussolini, cautious diplomats or bombastic eclecticists.

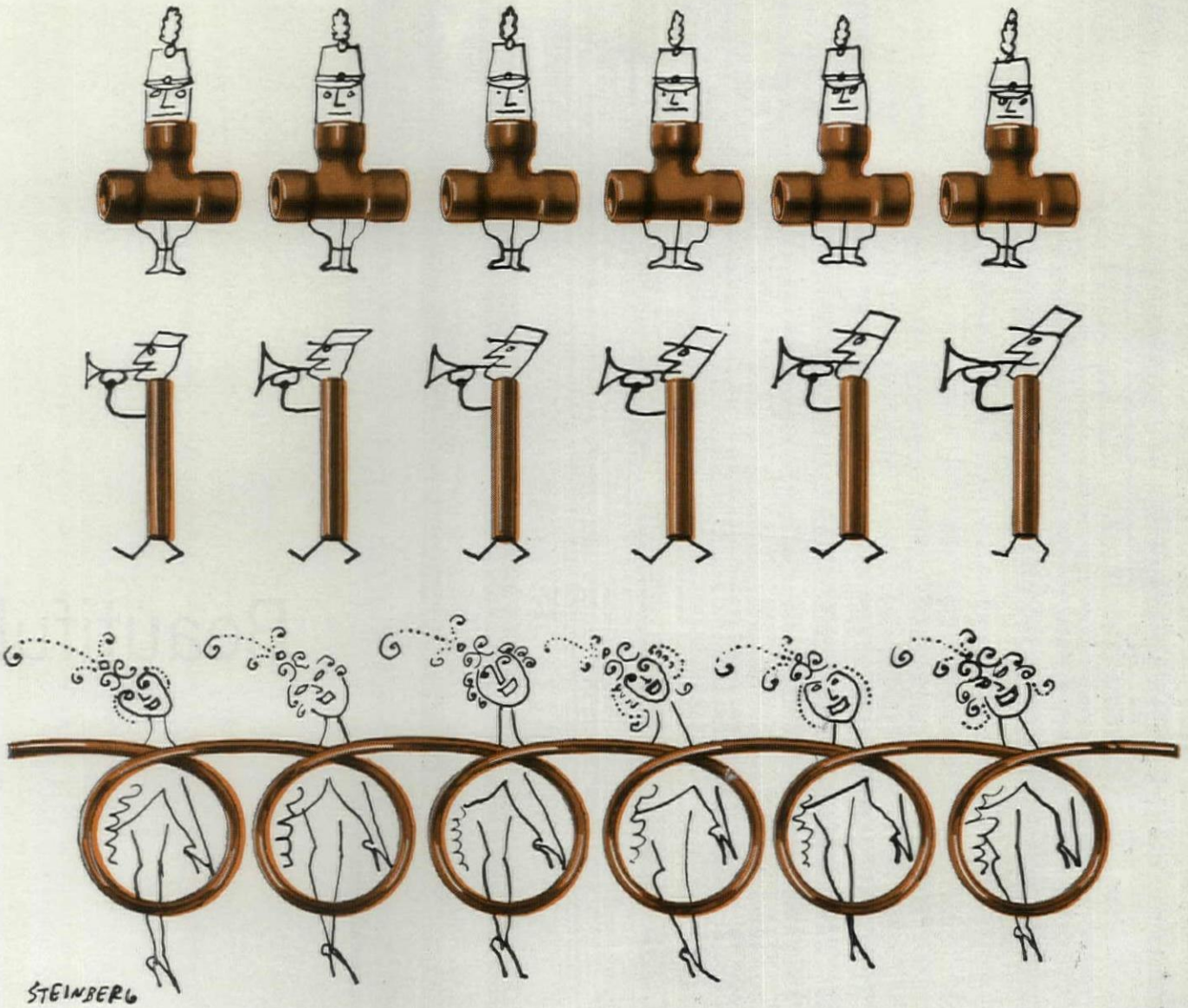
About 1900, "Art Nouveau" began in Milan. Rationalism took up the antihistorical ideas of the great futurist architectural essayist and graphic artist Sant Elia, who might have been an architect of European significance but for his early death in World War I. Pagano, Terragni, and the writer Persico were the leading figures of the so-called rationalist movement between 1930 and 1940.

The war, with its catastrophic devastations, tested once again the resilience of Italian humanity. Over and over again through history foreigners have destroyed the beautiful countryside of Italy, outraged her cultural monuments of the past, toppled her economy.

During reconstruction, men like Ernesto Rogers warned against deficient, substandard rehousing. Industry recovered speedily and engaged on its own part in rehousing, although rarely with an excellence equal to the Olivetti achievement, which was guided by a superb spirit of social consciousness and desire for an over-all view of the problems of planning. The government itself has shown far less of this spirit.

The APAO, the movement for organic architecture, owes much of its humanly forward-looking spirit to

(Continued on page 162)



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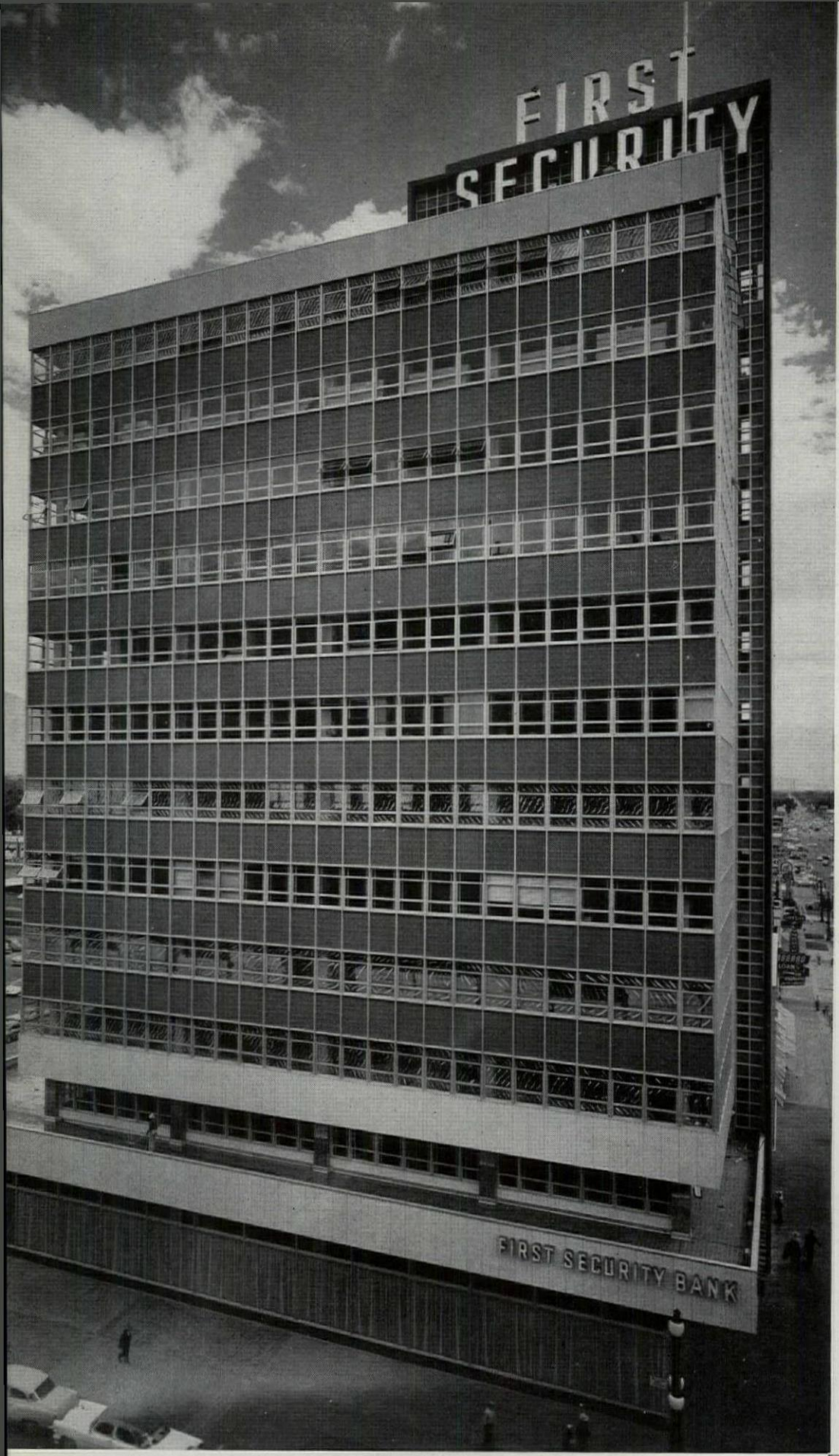

Beautiful

First Security Bank of Utah. Architects: Bank Building and Equipment Co.; Associate Architect: Slack W. Winburn; General Contractor: Utah Construction Co.; Electrical Contractor: Wasatch Electric Company.

Day-Brite Lighting, Inc.,

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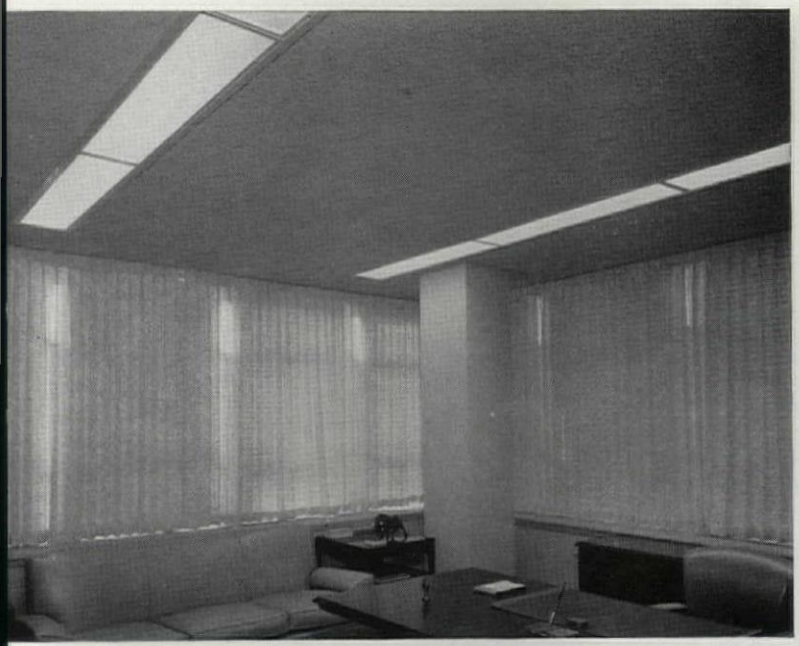
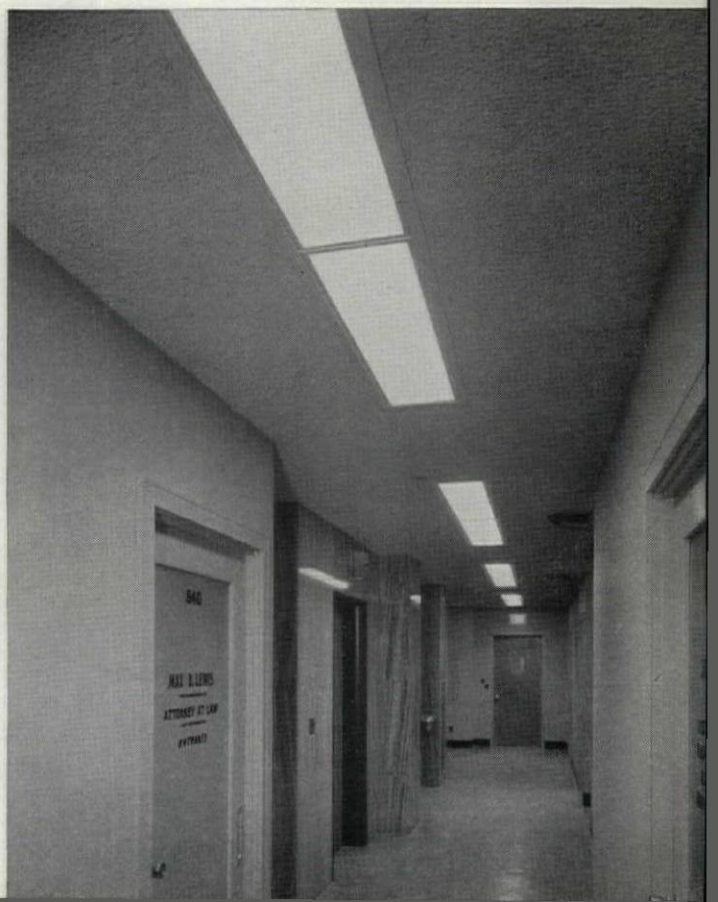


▲ **Unmistakable prestige** is evident in this executive office lighted with Day-Brite troffers in acoustical plaster ceiling.

Corridor lighting illustrates the adaptability of Day-Brite troffers. Note Day-Brite EXIT light. ▶



ATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT

reviews

(Continued from page 158)

Bruno Zevi, who had been in America and had become an admiring friend of Frank Lloyd Wright. Rome again revived its role as the center from which a mental and architectural climate began once more to spread all over Italy, despite the veering and turning of a Capital's politics.

At this time of a high tide in quality production, it would be impossible to name the many fine architects who honor not only their own great country by their work, but also many foreign nations into which these Italian designers have extended their influence.

The neatness of workmanship in Italian building surpasses that in almost all other countries of the world. Italy leads most other lands also in the number and average quality of its many architectural students, who are taught by excellent professors and served by a number of well-edited periodicals of varying approaches.

Pagani's book may perhaps be considered too impartial by many of his countrymen who have, more often than American architects, very militant and vital convictions. For the foreign reader, however, the lack of bias must seem an advantage, and he can endeavor to form his opinion from the wealth of splendid illustrative material. RICHARD J. NEUTRA

to make the sick well

Studies in the Functions and Design of Hospitals. *Oxford University Press, 114 Fifth Ave., New York 11, N. Y., 1955. 185 pp., illus., $15*

Just as I finished reading this book, I received a letter from a friend, a member of the Institute of Architects of Brazil, telling me of his trip to Europe this summer. In Sweden and England, my friend "became acquainted with their fine institutes on hospital research." In this country, we are still in the talking stage,

except for a mild beginning by the American Psychiatric Association.*

The Report under review is that of a team sponsored by the Nuffield Provincial Hospital Trust and the University of Bristol, England. The title of the report implies that the design of a hospital must follow its functions. This may be news to those in our profession who resent the discipline of function and who would reverse the logic by *making* function fall in line with "design." (Nevertheless, I hope, in my lifetime, to see F.L.W. design a hospital after "firing all the experts," because I cannot suppress the desire to see whether the magic of an esthetic approach would make a good hospital.)

This volume is just the beginning. Research is infinite and involves experimentation. It is rather difficult to experiment with the existing structures of the English hospitals, because most of them have been built in accordance with the standards of Florence Nightingale in Queen Victoria's reign. These involve a series of closely spaced long pavilions, connected by a corridor. In the usual 30-bed ward, the beds are ranged 15 to a side with heads against the outside walls, high narrow windows occupying the intervals between the beds. (Your reviewer had a hand in trying to break down this precedent when, in a 1932 competition, he and an English architect submitted premiated designs† which, contrary to a specific program requirement that the design must follow Florence Nightingale, were based on the Rigs system.)

In consequence of the above condition, the investigating team concerned itself largely with reviewing hospital planning literature in the U.S., Switzerland, France, and Sweden. The team also did much observ-

(Continued on page 166)

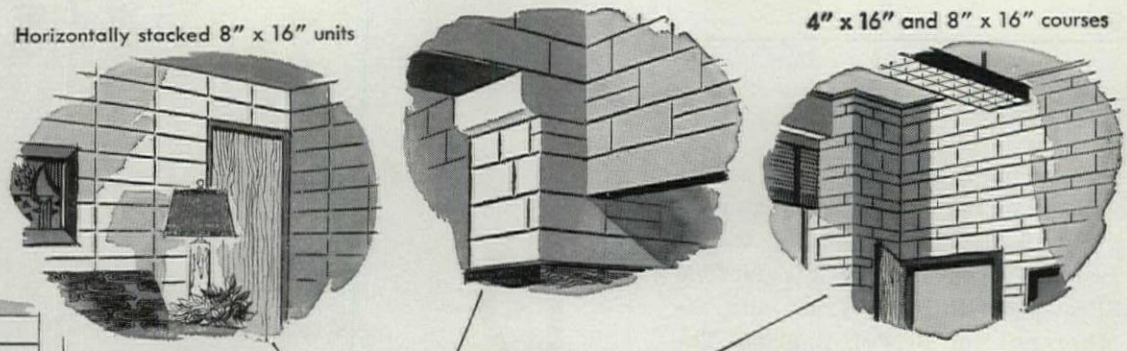
** At the last session of Congress, $1,200,000 was authorized for hospital research, and the American Architectural Foundation, Inc., is currently soliciting funds to conduct research in hospital planning and in other fields.*

† The Scarborough Hospital, Scarborough, England.

Coursed Ashler variation with 4" & 8" units

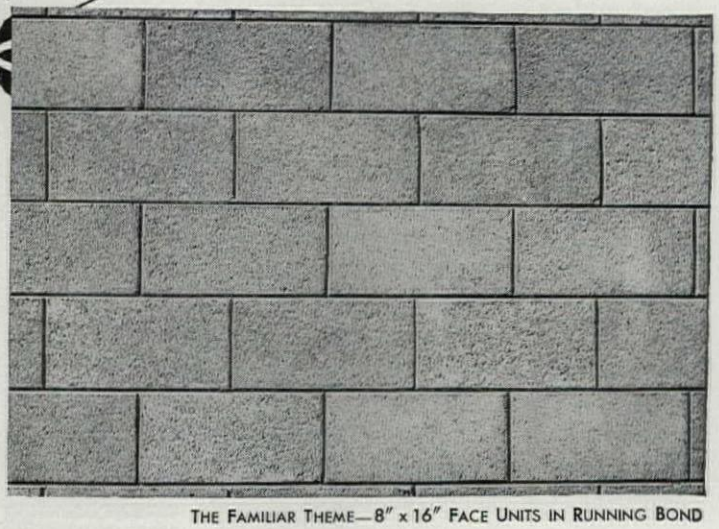
Horizontally stacked 8" x 16" units

4" x 16" and 8" x 16" courses



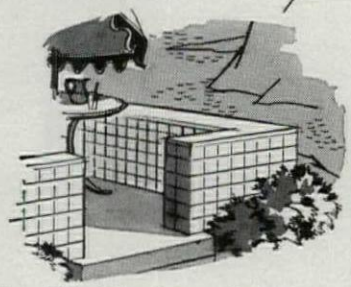
Basket-weave using 8" x 16" units

Theme and Variations

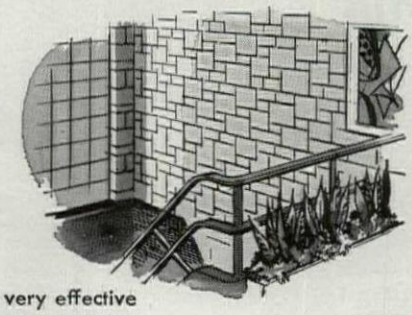


THE FAMILIAR THEME—8" x 16" FACE UNITS IN RUNNING BOND

Tooled horizontal joints; verticals wiped out



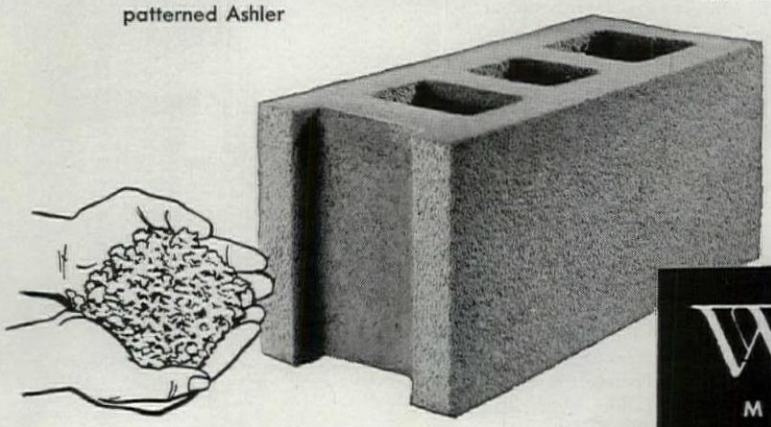
Here 8" x 8" units are stacked



A very effective patterned Ashler

with exposed WAYLITE Partitions and Bearing Walls

The vast musical literature of the world is limited to a maximum of 13 tones in any one octave . . . similarly there is a very wide range of harmonious effects to be obtained with Waylite Masonry walls of any thickness . . . a few of the different handlings are shown here . . . they are achieved very simply. . . . Waylite masonry has adequate structural strength—superior thermal insulative qualities—and exposed Waylite interior walls need no acoustical treatment. Waylite Co., 20 N. Wacker Drive, Chicago, or Box 30, Bethlehem, Pa.

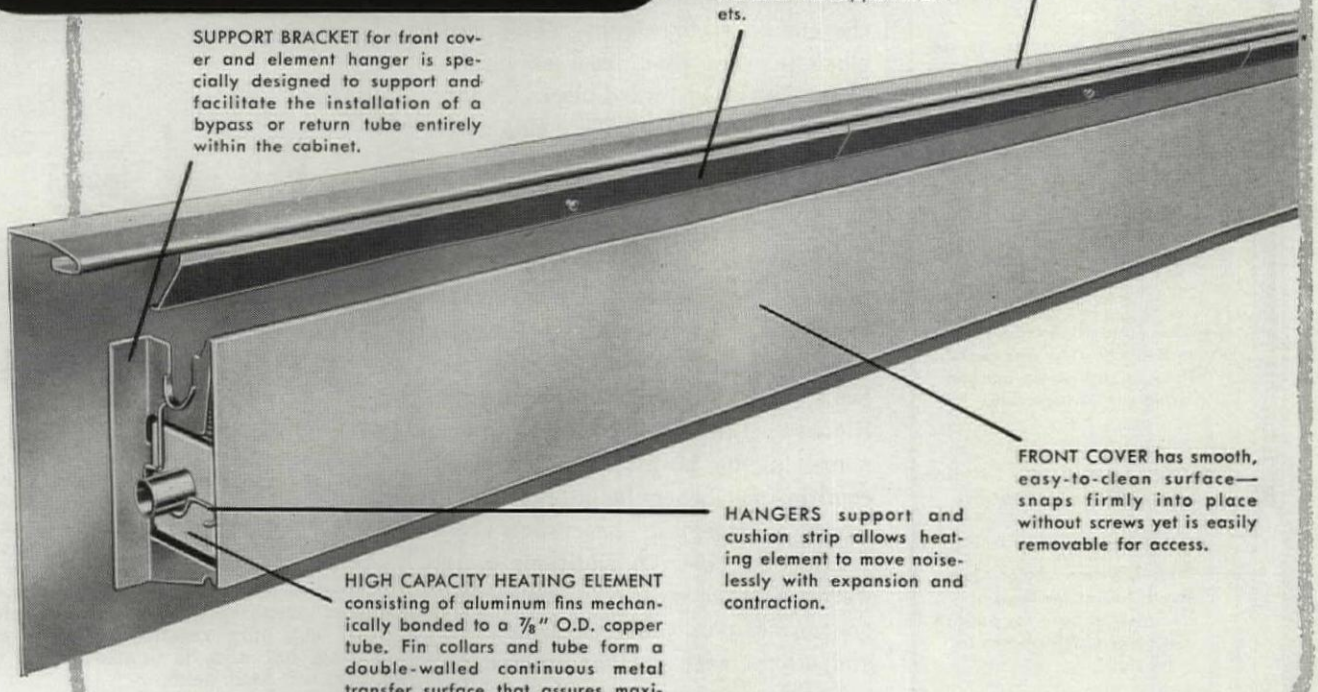


WAYLITE

MASONRY UNITS

"Perimaheat"

Baseboard Convectors



SUPPORT BRACKET for front cover and element hanger is specially designed to support and facilitate the installation of a bypass or return tube entirely within the cabinet.

DAMPER or SPLITTER (optional) can be installed at any time—now or later. Dampers are held in place by retainers snapped into top groove and can be set in any position from fully open to fully closed. Splitters attach to support brackets.

ONE-PIECE BACK AND TOP facilitates easy installation—eliminates air leakage and streaking. Cabinet is suitable for surface mounting or partially recessed installation.

FRONT COVER has smooth, easy-to-clean surface—snaps firmly into place without screws yet is easily removable for access.

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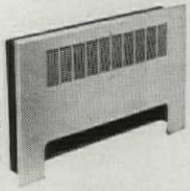
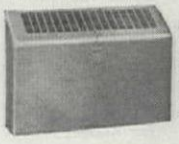
YOUNG FREE-STANDING CONVECTOR for new or remodeling jobs. Can also be installed semi-recessed.



YOUNG FULLY-RECESSED CONVECTOR unit provides maximum floor space. Front panel projects but 1/2 inch from wall.



YOUNG WALL-HUNG CONVECTOR sloping top designed for institutions where frequent floor cleaning makes wall hung units desirable.

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reviews

(Continued from page 163)

ing and conferring in England, not only with persons connected with hospitals, but also with various research institutions that have bearing on building in general. From the above, they came to certain tentative conclusions which are set down at the end of each chapter. These conclusions were then used as guides in the design of "ward blocks," additions to two old hospitals in England; and, even before proceeding with the designs, the team experimented with a full size mock-up of a hospital room.

Obviously, the study needed architectural participation and so it is pleasant to note that the investigating team of 12 persons had at its head the distinguished architect, Richard Llewelyn Davies, whom many in the hospital field in this country met when he attended the American Hospital Association Convention in 1954. In addition, there were two other architects, one doctor, one nurse, plus research assistants, and others with various specialties.

The time and space studies are well documented, as are the space comparisons between the proposed hospital (research) additions and several well-known examples in England and abroad.

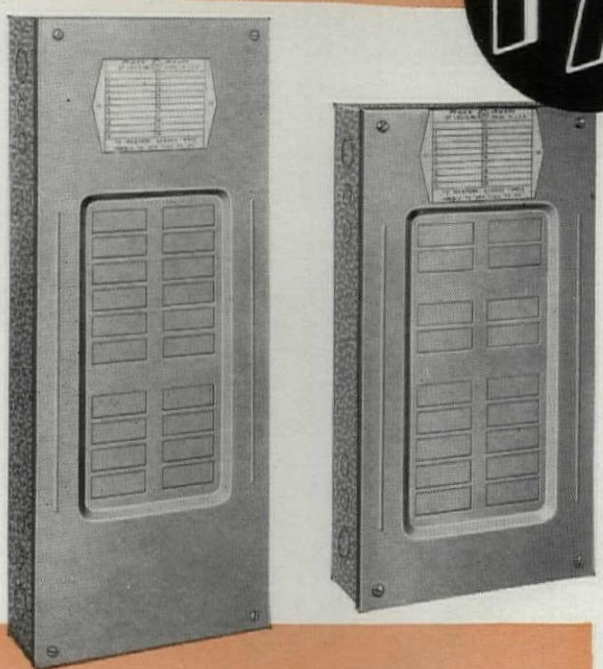
Insofar as the inpatient portion of the hospital is concerned, the team concentrated its studies on the nursing unit, referred to in England as the ward, and on the design of hospital additions to be used for later experimentation. These additions, now being built, are also primarily nursing units.

In terms of English precedent, what is being proposed is veritably revolutionary as compared even with up-to-the-minute Florence Nightingale, at least in respect to the abolition of the 30-bed room and the placing of beds parallel to the outside wall instead of perpendicular to it. In terms of what is being currently planned in the U.S., the proposed nursing units strongly resemble the

(Continued on page 170)

for the home of **TODAY AND TOMORROW**

FA SPLIT-BUS *circuit breaker type* SERVICE EQUIPMENT



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The 100 amp. unit is of two types — one having space for four double pole and 10 single pole branches and the other for six double pole and 10 single pole branches. The 200 amp. unit also makes provision for six double pole and 10 single pole branches.

The new units plus a stock of individually-packaged Ⓕ T-M and QP thermal magnetic quick-make and quick-break plug-in type circuit breakers, meet almost any requirement.

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CATALOG NO.	AMP. MAIN CAPACITY 3-WIRE SINGLE PHASE	MAXIMUM NO. BRANCHES DP	MAXIMUM NO. BRANCHES SP	SIZE
Ⓕ SE4DPL100-8SPL50	100	4	10	9"x18"x3⅜"
Ⓕ SE6DPL100-10SPL50	100	6	10	9"x24"x3⅜"
Ⓕ SE6DPL200-10SPL50	200	6	10	9"x24"x3⅜"

Circuit Breakers are Ⓕ T-M and QP, thermal magnetic, quick-make and quick-break. Capacities are 10 to 50 amps. Two pole common trip plug-in type circuit breakers also available in new units. Adjoining single pole branches can be fitted with handle extension for double pole, individual trip operation.

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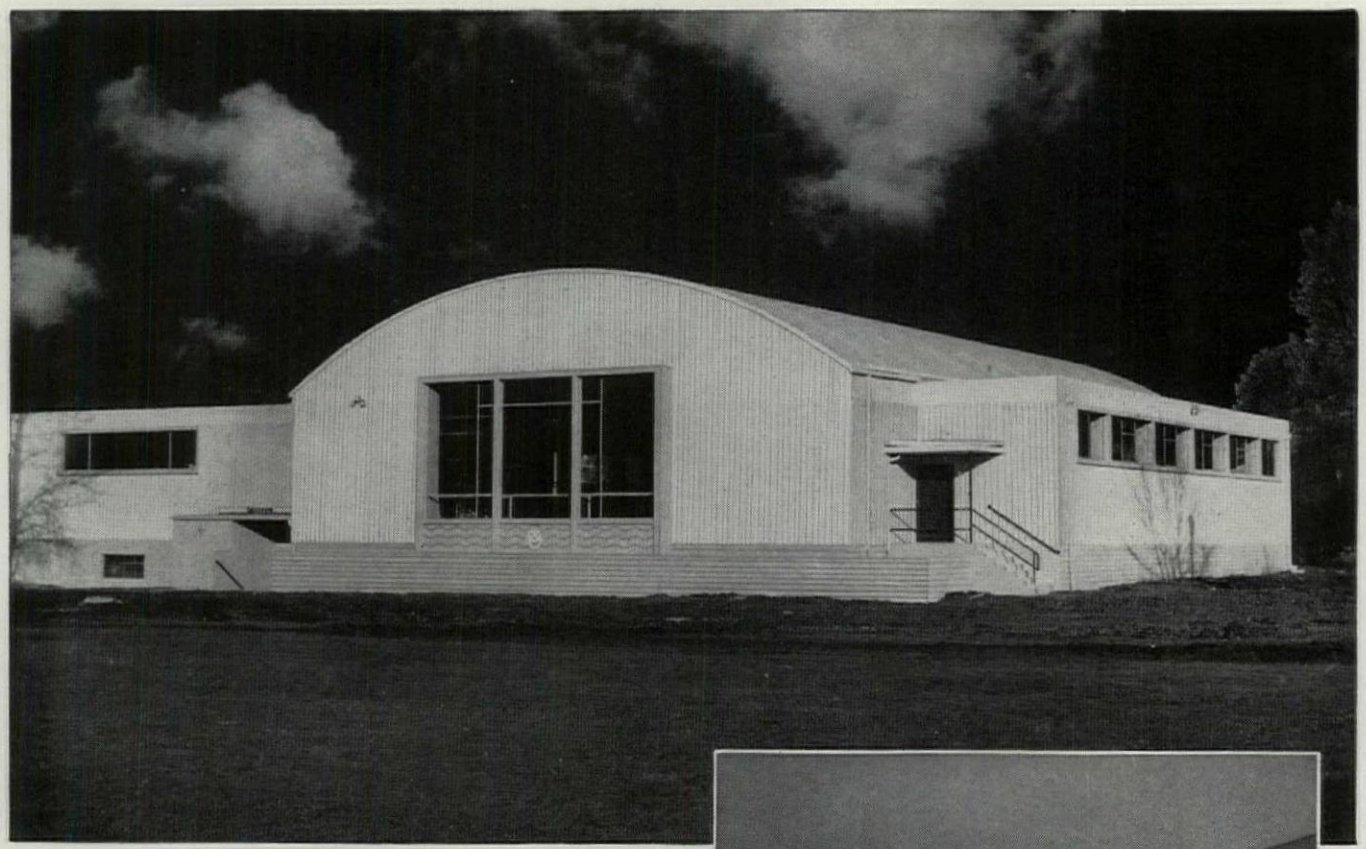


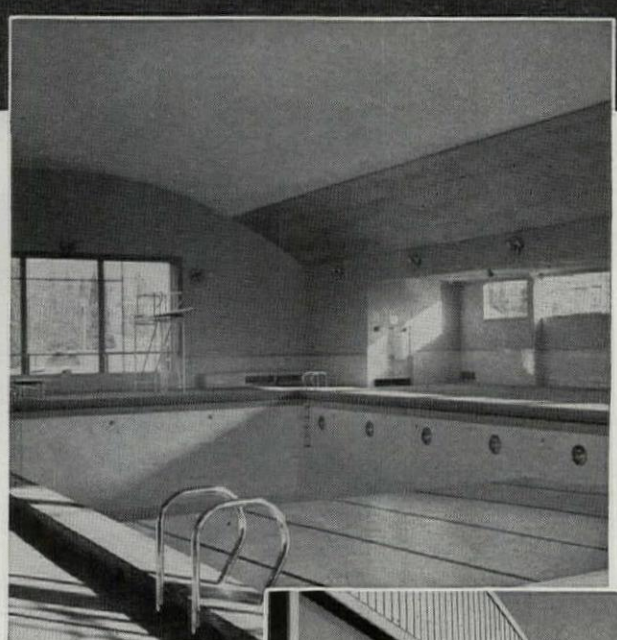
CONCRETE

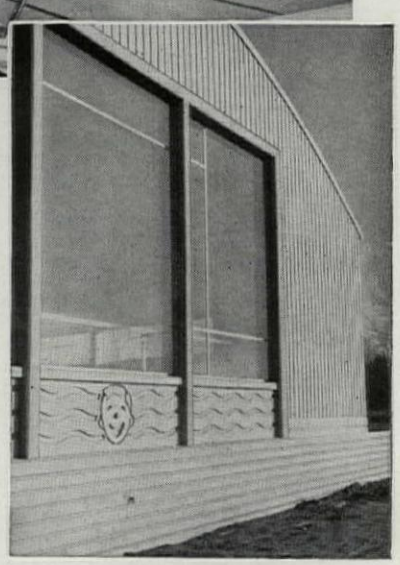
Shell Roof Provides Distinctive, Economical Pool in Seattle

Economical construction and unobstructed inside space were main reasons for choosing a concrete shell roof for the Seattle park department's swimming pool at Green Lake. The 64′ x 110′ roof is supported only at the end walls. It forms a curve with a 54′ radius and arches to 25′ above the normal pool water level. The concrete in the roof tapers from 6″ thick at the end walls to 3¼″ in a distance of 4′.

Concrete shell roofs can span up to 300′ and more without supporting columns. That's an important consideration in auditoriums, garages, warehouses, hangars, gymnasiums, exhibition buildings and train sheds and repair shops.

Concrete shell roofs are low-annual-cost investments. They are economical to build, need little or no maintenance, have long life and low insurance rates. Write for free literature. It is distributed only in the United States and Canada.





Top: Attractive exterior of the Green Lake swimming pool building of the Seattle, Wash. park department.

Center: In the interior of the building the concrete shell roof made possible a large unobstructed area.

Right: Interesting decorative touches were cast in the exterior architectural concrete wall surfaces.

Architects and engineers: Lamont & Fey. General contractor: Cawdry & Vemo. Both firms are from Seattle.

PORTLAND CEMENT ASSOCIATION Dept. A12-25, 33 West Grand Avenue, Chicago 10, Illinois

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Chicago's Grant Park Underground Garage uses Corning flat and bent Alba-Lite lightingware. Alba-Lite comes in a variety of bends to provide design flexibility. Flat Alba-Lite panels are available in three patterns offering true light source transmission, exceptional brightness control by diffusion, high fixture efficiency, permanence and low upkeep cost.

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Consulting Engineers—Ralph H. Burke, Inc., Chicago, Ill.
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Fixture Manufacturer—Solar Light Manufacturing Company, Chicago, Ill.

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No more circling weary blocks looking for a place to park in Chicago's busy Grant Park area.

Now you swing your car off the street down a ramp to the new Grant Park Underground Garage. There's space there for 2359 cars in 787,000 square feet of floor space.

Lighting in this garage, wherein 90% of the cars are self-parkers, must provide for quick adjustment from natural to artificial illumination. "Avenues" must be bright—but free of accident-causing glare and shadows. Walkways must be safe for pedestrians on their way to and from their cars.

High efficiency

Corning Alba-Lite lightingware was selected because it meets all of the requirements for safe lighting established by the Chicago Park District. Alba-Lite is a translucent opal glass. It transmits 60-65% of the light and diffusely reflects 25-30% for an efficiency of greater than 90%. And Alba-Lite transmits the true color of the light source.

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reviews

(Continued from page 166)

hospitals for the indigent we planned for the Department of Hospitals in the City of New York in the late '30s. What are referred to as four- and six-bed rooms are really open alcoves, which frequently face each other. On the other hand, 25 percent of the beds are in single rooms which are assigned to patients on a "medical and social" basis, but which may be occupied by the well-to-do at extra payment, *provided* they are not needed by those who are not making extra payment.

The philosophy behind the nursing unit plans is simple and direct. In effect, it is that hospitals exist to make sick people well. The best way to make the patient well is to make him as accessible as possible to doctor and nurse. This explains the open plan, so designed that nobody is hidden in a room if he need not be. It also explains the division of the nursing unit into small groupings, so that the patients will be only a few steps from the center (the nursing station) and within sight of it. This is, of course, so different from the point of view of our voluntary and proprietary hospitals, where the paramount consideration is the operating budget. In order to stay within that budget, we strive to provide ever more private-private accommodations and innumerable services, diversions, and conveniences, not unlike those of the best hotels and resort establishments. Who knows who is right?

Actually the designs are gracious and spacious and by all appearances should be more pleasant than most of our rooms-strung-along-the-corridor plans.

Two things intrigue me about the affirmations concerning the nursing unit. The first is that, subject to other controlling factors, there is no such thing as an optimum size. The problem is resolved by the simple device of sizing the complement of nurses and other personnel to the number of patients to be cared for,

(Continued on page 174)

Attractive, modern Miami, Florida, guest house, designed by Robert Fitch Smith, AIA, features glowing beauty of translucent reinforced plastic panels on 40% of outside walls.

Reinforced plastic panels spark fresh, functional design ideas!

Include functional beauty in your home designs with versatile fibrous glass reinforced plastic panels—a truly modern building material. Architects have already discovered many exciting new applications for these beautiful, durable, low-cost panels. For example:

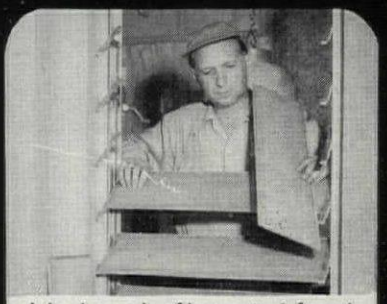
Patio roofing, fencing, skylights, partitions, awnings made of reinforced plastic panels offer smart, lasting beauty. Your clients will appreciate them in all these installations because they require minimum maintenance, won't shatter, dent or fade.

These richly colored lightweight panels are rustproof, rotproof, weather-resistant, with a high strength-to-weight ratio and excellent dimensional stability.

Monsanto's contribution to the quality of these panels is a dependable supply of their basic raw materials: phthalic, maleic and succinic anhydrides, adipic and fumaric acids plus styrene monomer.

For help in finding dependable suppliers for polyester resins and custom molders of reinforced plastics, call your nearest Monsanto office, or write Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, Box 478-U-8, St. Louis 1, Missouri.

350 sq. ft. of translucent reinforced plastic panels, recessed in deep studs to block sun's glare, flood guest house with soft, shadowless light.



Jalousies made of low-cost reinforced plastic panels are easy to install, offer long-lasting light-ventilation control with minimum maintenance.

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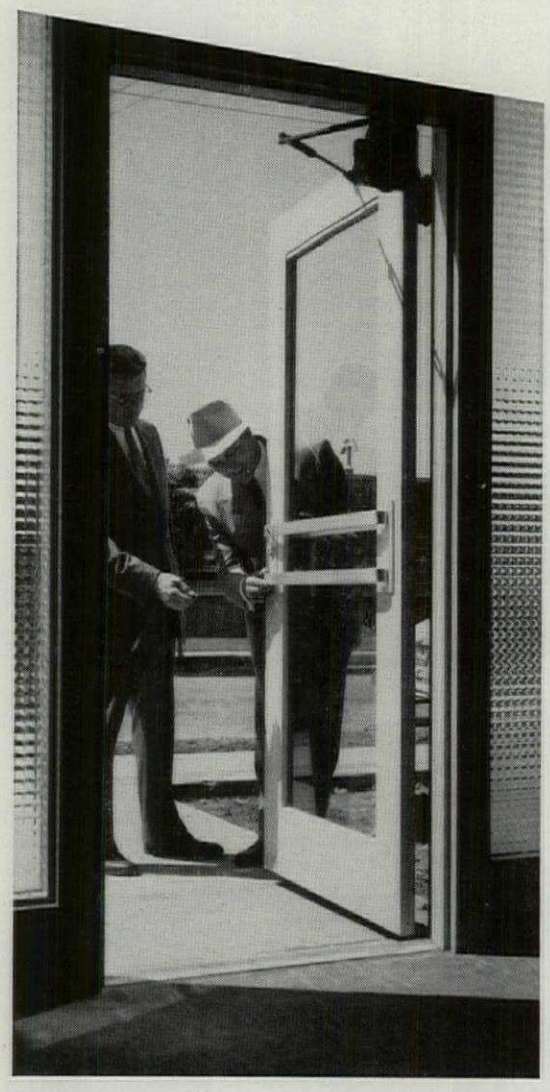

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Four big reasons why these Fenestra Hollow Metal Door units can give you this tremendous saving on every single door opening in your next building!

1. Fenestra* Hollow Metal Doors cost you less at the very start, because you get production-line economy—not custom job costs. They are mass produced on special jigs that avoid expensive time and labor.

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There's a door for every purpose in the Fenestra line: Entrance Doors, Flush or Regular Interior Doors with glass or metal panels, Doors with the Underwriters' B Label. For photos and details, write the Detroit Steel Products Company, Dept. PA-12, 3409 Griffin Street, Detroit 11, Michigan. *®

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Heating Contractor: Anderson & Rowe, Inc.;
Architect: W. P. Day & Harry Michelson, Assoc.
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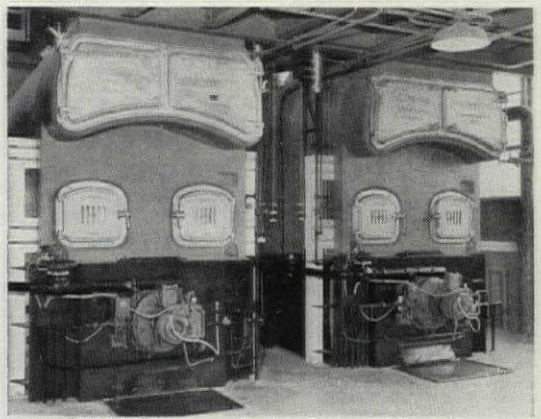
KEWANEE reserve plus rated boilers

...guard against heat loss

In airports, where height is a hazard, buildings hug the ground. They grow OUT instead of UP. And because steam must travel great distances, there can be a marked loss of heat in long piping runs. Here space is valuable too, so areas to house boilers must be kept compact. Such was the problem at the San Francisco International Airport. Solution called for space-saving boilers large enough to supply steam to the remote corners of the sprawling airport buildings, and with sufficient reserve to compensate for transmission heat loss. Kewanee reserve plus rated boilers were selected because they offered a compact installation with enough power to guard against heat loss, yet maintain required temperatures. Kewanee Boilers assure savings in fuel and maintenance since they operate at "cruising speed" with 50% more power built-in to provide for piping, pickup and additional capacity requirements. So be safe—be sure—select Kewanee.



Two #588 125# Kewanee Firebox Boilers with combination gas & oil burners.

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reviews

(Continued from page 170)

and the larger the unit the more economical it is in terms of personnel. The other point is that, after careful evaluation, the team report gives its blessing to the 6-bed room. (Accordingly, while the first experimental unit is based on the 4-bed alcove, the second is based on the 6-bed unit.) I have advocated the first solution on many occasions, and have frequently been considered kin to savage for defending the second.

I cannot refrain from criticising the manner in which stairs are used in the first experimental building (I presume in obedience to a pseudo-esthetic consideration), blocking the ends of the nursing unit and depriving it of view, light, air, and possible future expansion. In the second building, the above defect is corrected.

The team also studied the operating suite (theater). And one of the experimental buildings will have a suite of two operating rooms built on the new plan, which is also a radical departure from English precedent. It resembles the U.S. prototype, but actually lies between the elaborate European precedent, where adherence to techniques is enforced by physical arrangement, and the U.S. plan, which leaves aseptic techniques largely to the discipline of the operating-suite personnel.

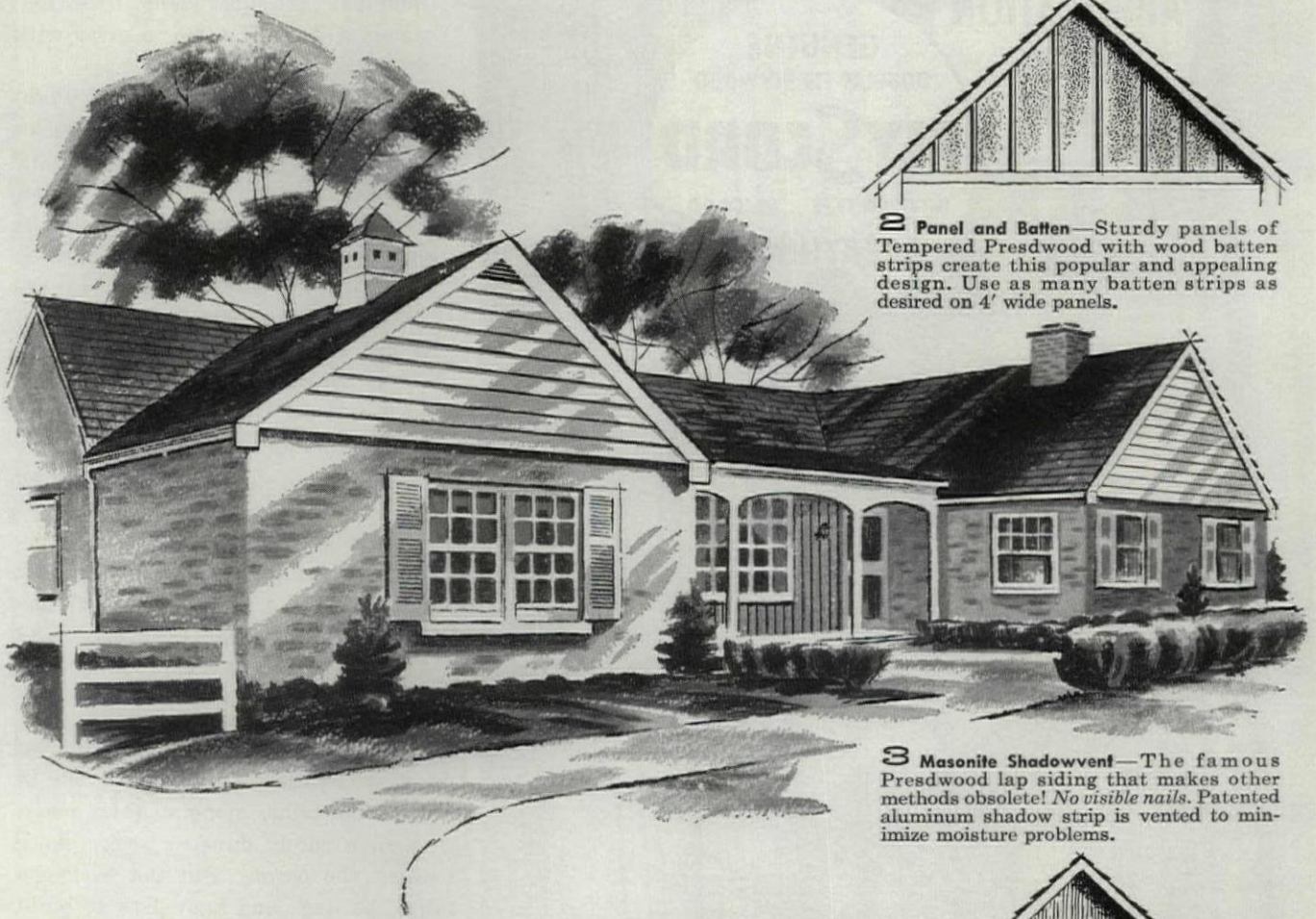
The study of the outpatient service is the best we have seen and those of us who do not wish to design by guess or by taking someone's word for it will find this chapter most valuable.

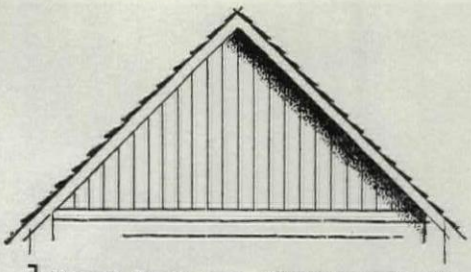
The chapters on the physical environment within the hospital are generally interesting, but would be considered rather primitive as compared with our best practices in the design for control of sound and in the mechanical specialties such as heating and ventilating, fire protection, etc. Daylighting, in this chapter, has most to offer, as some very interesting ideas are presented.

The chapter titled "Some General Considerations Affecting Design" is

(Continued on page 176)

5 ideas for distinctive, trouble-free gable ends...

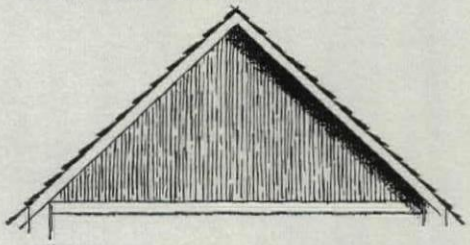




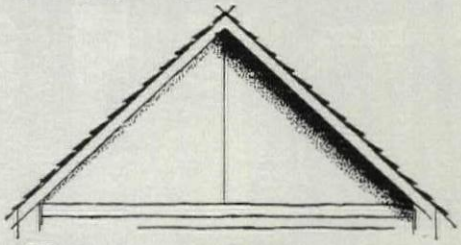
1 Masonite Panelgroove—Newest member of the Presdwood family, Panelgroove presents clean-cut vertical grooves every 4", giving an attractive plank effect. Ship-lapped edges.

2 Panel and Batten—Sturdy panels of Tempered Presdwood with wood batten strips create this popular and appealing design. Use as many batten strips as desired on 4' wide panels.

3 Masonite Shadowvent—The famous Presdwood lap siding that makes other methods obsolete! *No visible nails.* Patented aluminum shadow strip is vented to minimize moisture problems.



4 Masonite Ridgewood—Combed textured surface of this new Presdwood affords a rich-looking, distinctive design that harmonizes with any other siding treatment. In panels, lap sidings or shingles.



5 Masonite Tempered Presdwood Panels—Economical to buy and apply. Won't twist or swell out of shape when simple instructions are followed. Takes and holds paint without checking or crazing.

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MANUFACTURER OF PRESDWOOD PANEL PRODUCTS

reviews

(Continued from page 174)

perhaps the weakest. It is understandable only as an effort to include at least something on such important topics as orientation, external noise, architectural character, etc., but I am confident that subsequent "investigations" will really come to grips with those topics.

Curiously, the chapter on "Planning to Meet the Demand," or, as we would say, "Measuring the Need," comes at the end of the book rather than at the beginning, as would be normally expected. This, of course, is really a clear indication of the intent of the whole book. It is not meant to be a pompous pronunciamento to settle all hospital problems once and for all, but an intelligent and, to me, an inspiring beginning.

ISADORE ROSENFIELD

the secluded retreat

Build Your Own Summer Camp or Cabin. *Jeffrey Livingston. McGraw-Hill Book Company, Inc., 330 W. 42 St., New York 36, N.Y., 1955. 152 pp., illus., $4.50*

Almost everyone has a desire to own a camp or cabin on a wooded lake in the mountains, along a quiet river, or on a sandy dune or rocky shore along the ocean. But not everyone has the urge and know-how to build his own. This book is aimed at the man who, chiefly for reasons of economy or because he feels it will be a challenge to his ability as well as sound occupational therapy, wants to build his own summer retreat.

This is much more than just another simple "how-to-do-it" book. Livingston is an architect, builder, and technical adviser, and has thorough acquaintance with the type of building and construction he dis-discusses. His approach to the subject, while inspirational to some extent, is highly practical, clearly presented, and readily understandable. Under his expert guidance here one can find all the details for constructing a summer cabin set forth step by

step—from the laying of the foundation to the interior furnishings. Rather than offering too many confusing ideas and suggestions, Livingston starts off with the plans and specifications for ten units, ranging from a simple yet appealing cabin that can be built for less than $1,000 to more elaborate camps and cottages.

Some of the 10 cottages are planned around simple core or starter units—that is, a one-room arrangement that is sufficiently flexible so that other rooms can be added later on. An analysis of the plans for these cabins reveals how relatively simple and inexpensive the construction is, yet nothing is sacrificed to make them attractive in appearance. They are designed for easy informal living and all provide the one essential requirement for buildings of this nature—maximum light and air.

To supplement his own ideas for a variety of summer cabins, the author has included a small portfolio showing plans and photographs of summer homes that have already been built. These are the work of recognized architects of this country and Canada. Each has been selected to show particularly practical and attractive plans and exterior details that anyone can readily incorporate in his own cottage.

FRANK A. WRENSCH

first regional study

Architects for the South. *Southern Regional Education Board, 830 W. Peachtree St., Atlanta, Ga., 1955, 40 pp.*

Architects for the South comprises the final report of the Commission on Architectural Education in the South which, in 1953 under the egis of the Southern Regional Education Board, undertook an appraisal of the profession and its schools in the 14 states of the region. The Commission included educators, practitioners, and

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reviews

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other interested persons. Prof. Paul M. Heffernan served as Consultant.

The need for the study arose in the question as to whether the region's existing schools of architecture will be able to meet the profession's future demands for trained personnel. The answer required estimates of the number of architects needed by the region in 1960 and 1975, the enrolments needed to support this corps, and the school capacity required to take care of the resulting educational load.

In arriving at these estimates, the Commission adopted methods of projection first introduced by the AIA Commission for the Survey of Architectural Education and Registration in its report *The Architect at Mid-Century: Evolution and Achievement.* Additional data was obtained by special tabulations of the responses to the AIA 1950 Survey of the Architectural Profession. In the one new analysis introduced in the southern study, a ratio of the number of census-enumerated architects to the value of New Construction is attempted. Unfortunately, the validity of this ratio is highly questionable because data on New Construction derived from Department of Commerce reports includes much more than New Building Construction. For example, the AIA Commission estimated that New Building Construction represented 60.8 percent of New Construction in 1940 and 73.5 percent in 1950. Happily, however, the use of this misleading ratio does not vitiate the principal arguments of the present study.

The report finds that "projected enrollments in Southern schools of architecture, based on expected overall increases in college enrollment, will be more than sufficient to produce enough architects during the next 20 years to allow for the range of growth estimated for the profession." The chief conclusion of the report—that the inevitable expansion

(Continued on page 182)

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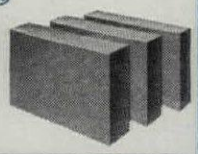
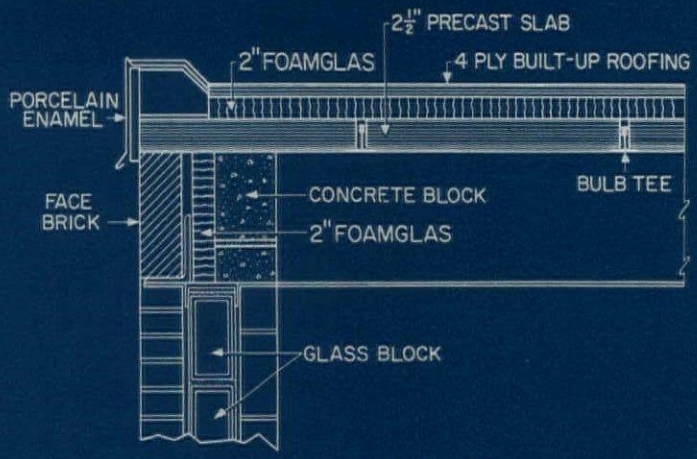
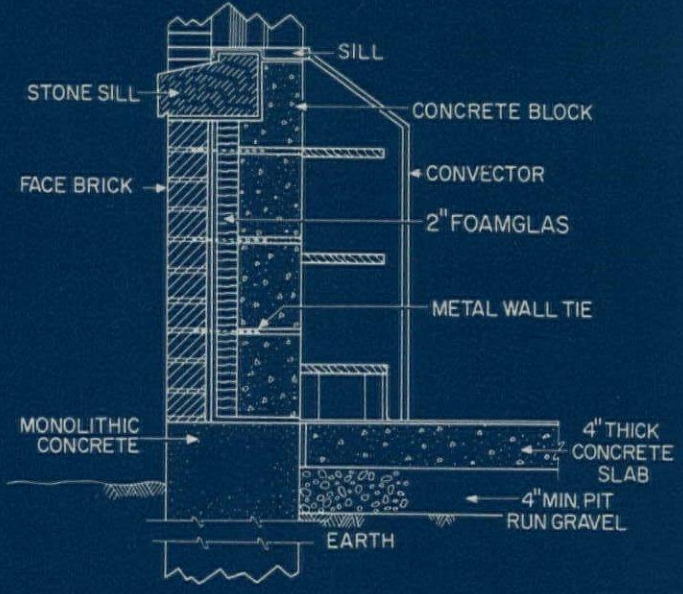




TYPICAL ROOF SECTION



TYPICAL COREWALL SECTION

Architect: Thomas A. McConnaughey, Muncie, Ind.
General Contractor: Glaser & Glaser Inc., Muncie, Ind.
Roofing Contractor: Adams Roofing & Insulating Co., Inc., Muncie, Ind.

At new Parkside School, Hartford City, Indiana . . .

FOAMGLAS roof and wall insulation makes electric heating system practical

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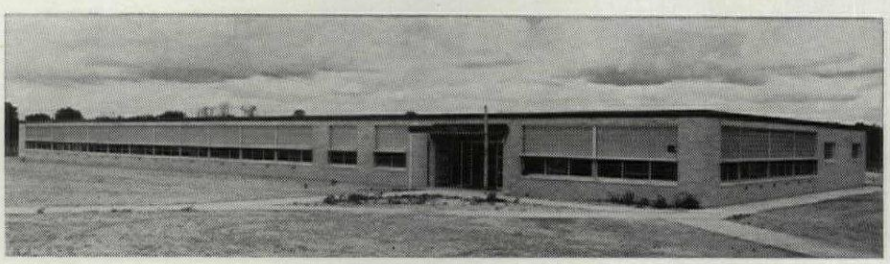

Pittsburgh Corning Corporation

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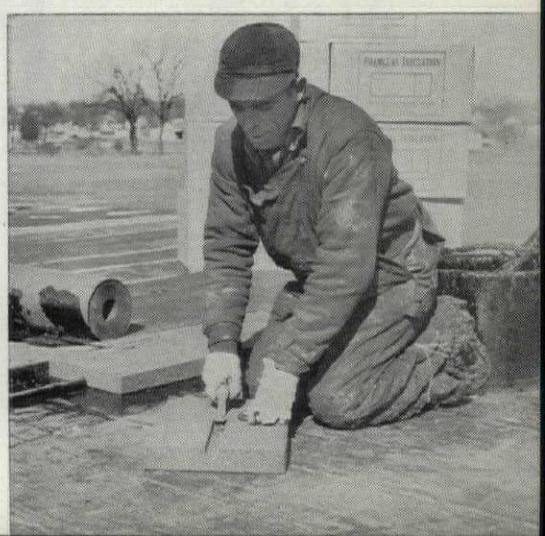
Workman is shown grooving the under surface of FOAMGLAS block to accommodate electric conduit. Cutting into the block's surface does not affect its moisture resistance.



reviews

(Continued from page 178)

of educational facilities needed to accommodate these enrolments should be centered in existing schools —parallels exactly the recommendation of the AIA Commission.

Beyond its specific utility for the South, the report also has national significance in that it is the first regional study to follow the directions and methods established by the AIA Survey. Thus, it lends additional emphasis to the opportunity provided by co-operative analysis and planning which should encourage other states and regions to investigate their own future needs and resources in professional education. For this reason, *Architects for the South* should be studied by all forward-looking architects and educators.

TURPIN BANNISTER

Mumford re-visited

Sticks and Stones. *A Study of American Architecture and Civilization. Second Revised Edition. Lewis Mumford. Dover Publications, Inc., 920 Broadway, New York 10, N. Y., 1955. 238 pp., illus., $3 (paperbound, $1.50)*

The Brown Decades. *A Study of the Arts in America 1865-1895. Second Revised Edition. Lewis Mumford. Dover Publications Inc., 920 Broadway, New York 10, N. Y., 1955. 266 pp., illus., $3.50 (paperbound, $1.65)*

Remarkably few architectural critics have found the means to discuss the subject in such a way that it interests the layman as well as the professional. Even fewer have had the wit to view architectural expression in relation to time and space and the social mileu in which it appears, rather than as a museum-like series of isolated buildings. In both respects, Lewis Mumford is a notable exception. And it is a revealing experience to re-read these two early Mumford volumes — *Sticks and Stones*, that appeared originally in 1924, and its companion volume, *The Brown Decades*, that appeared in

(Continued on page 194)

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notices

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FRANKLIN L. WHITE, appointed Manager, Air Conditioning Division, PHILCO CORPORATION, Philadelphia, Pa.

DON MCANALLY, named Sales Promotion manager, L.O.F. GLASS FIBERS COMPANY, Toledo, Ohio.

WESLEY D. HAMILTON, FRANK W. SCHROEDER, and ARTHUR M. SIMPSON, promoted (respectively) by INTERNATIONAL STEEL COMPANY, Evansville, Ind., to Executive Vice-President in charge of Operations; Vice-President, Steel Division; and Vice-President and General Manager, Revolving Door Division.

DARWYN I. BROWN, who recently joined WASHINGTON STEEL CORPORATION, Pittsburgh, Pa., as Assistant to President.

FRANK PAVLICEK, elected President, and W. L. DAUGHERTY, new Secretary-Treasurer, SANYMETAL PRODUCTS CO., INC., Cleveland, Ohio.

REEVE K. BIGGERS, appointed national account executive, OWENS-CORNING FIBERGLAS CORPORATION, New York, N. Y.

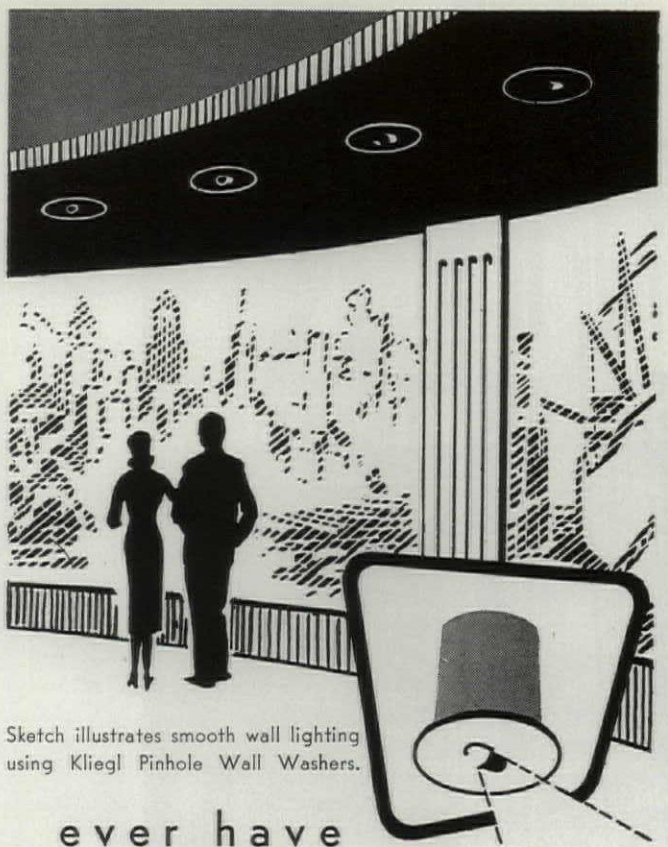
JOHN W. HALL, named Director of Advertising and Sales Promotion for NATIONAL-U.S. RADIATOR CORPORATION, Johnstown, Pa.

RICHARD M. GERBER, new Manager of building products department, KAISER ALUMINUM & CHEMICAL SALES, INC., Chicago, Ill.

JOHN VECKLY, appointed Assistant Director of Administration in Advertising Division, UNITED STATES STEEL CORPORATION, New York, N.Y.

Luria expands

LURIA STEEL & TRADING CORPORATION, New York, N. Y., has purchased HUNTER ALUMINUM PRIME WINDOW DIVISION of F. C. RUSSELL COMPANY, Cleveland, Ohio. Newly organized LURIA BUILDING PRODUCTS, INC., New York, N. Y., will handle the business.



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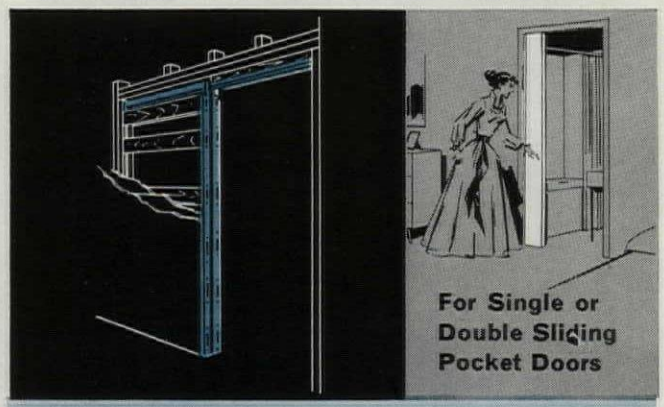

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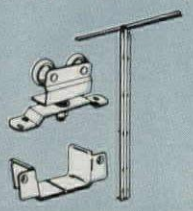

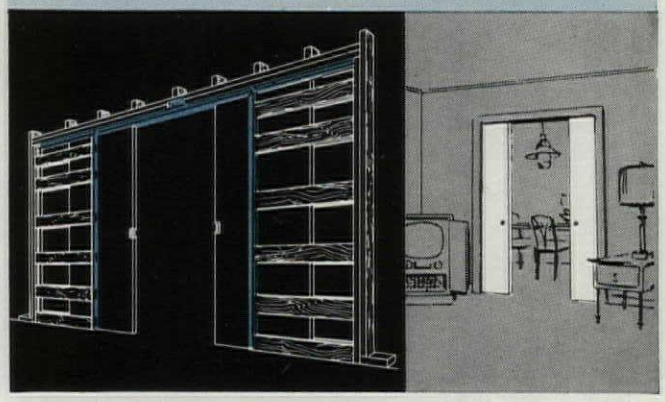

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brings the fixture manufact
a new latitude for housing
ventilation, both more efficient
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system of assembly
wholly by Advance
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ceded to add stability
life to the performanc
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obtained without elin
vital materials.

Photograph shows a section of the Langley-Bath Clearwater High School, located at Bath, Aiken County, S. C. It received design awards in the AASA-AIA School Building exhibition and the South Atlantic AIA Regional Honor Awards Program and from the School Executive magazine.

Lyles, Bissett, Carlisle & Wolff, architects.
E. M. Spong Construction Co., general contractor.
W. O. Blackstone & Company, plumbing and heating contractor.
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YOUNGSTOWN PIPE installed in award-winning school

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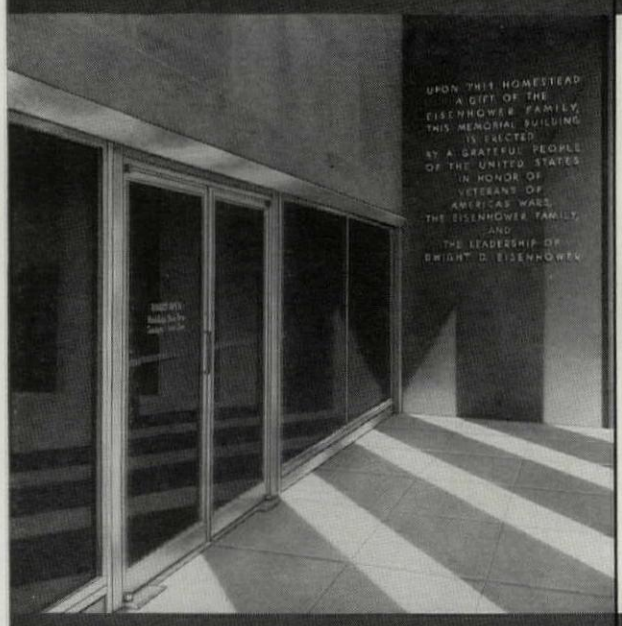

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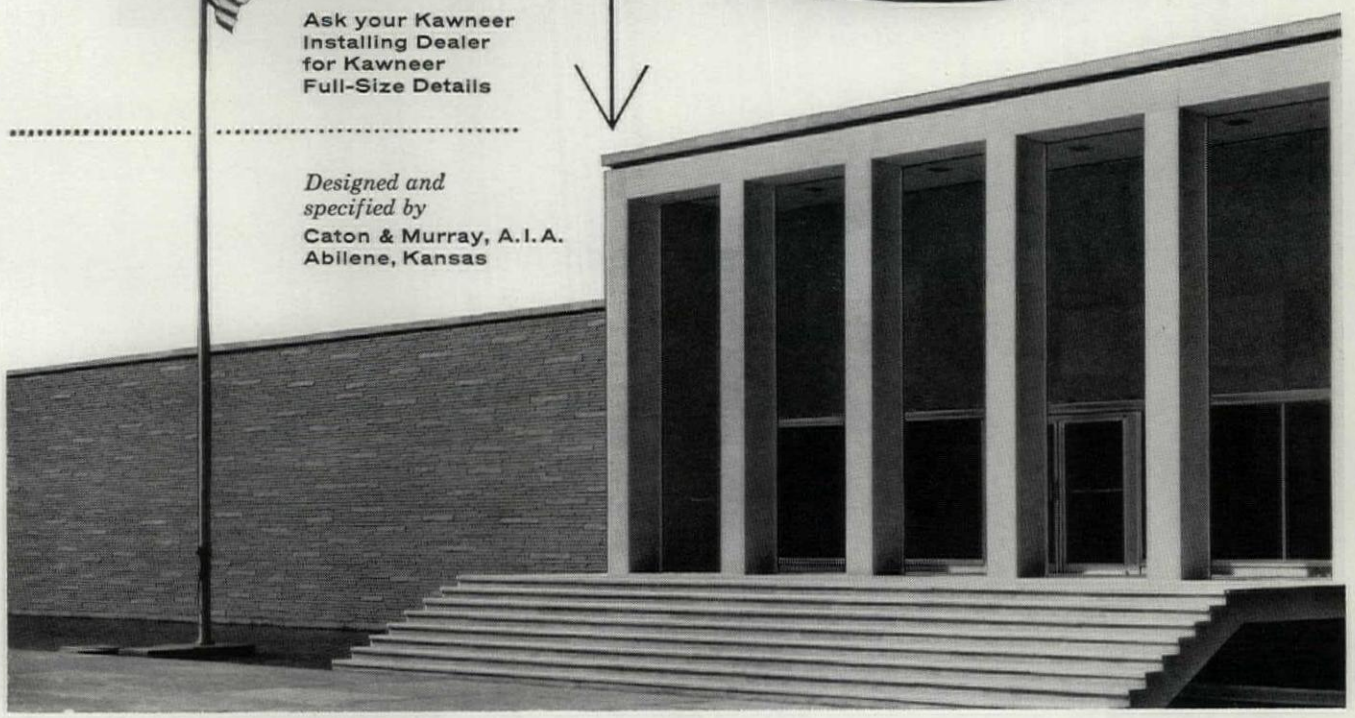
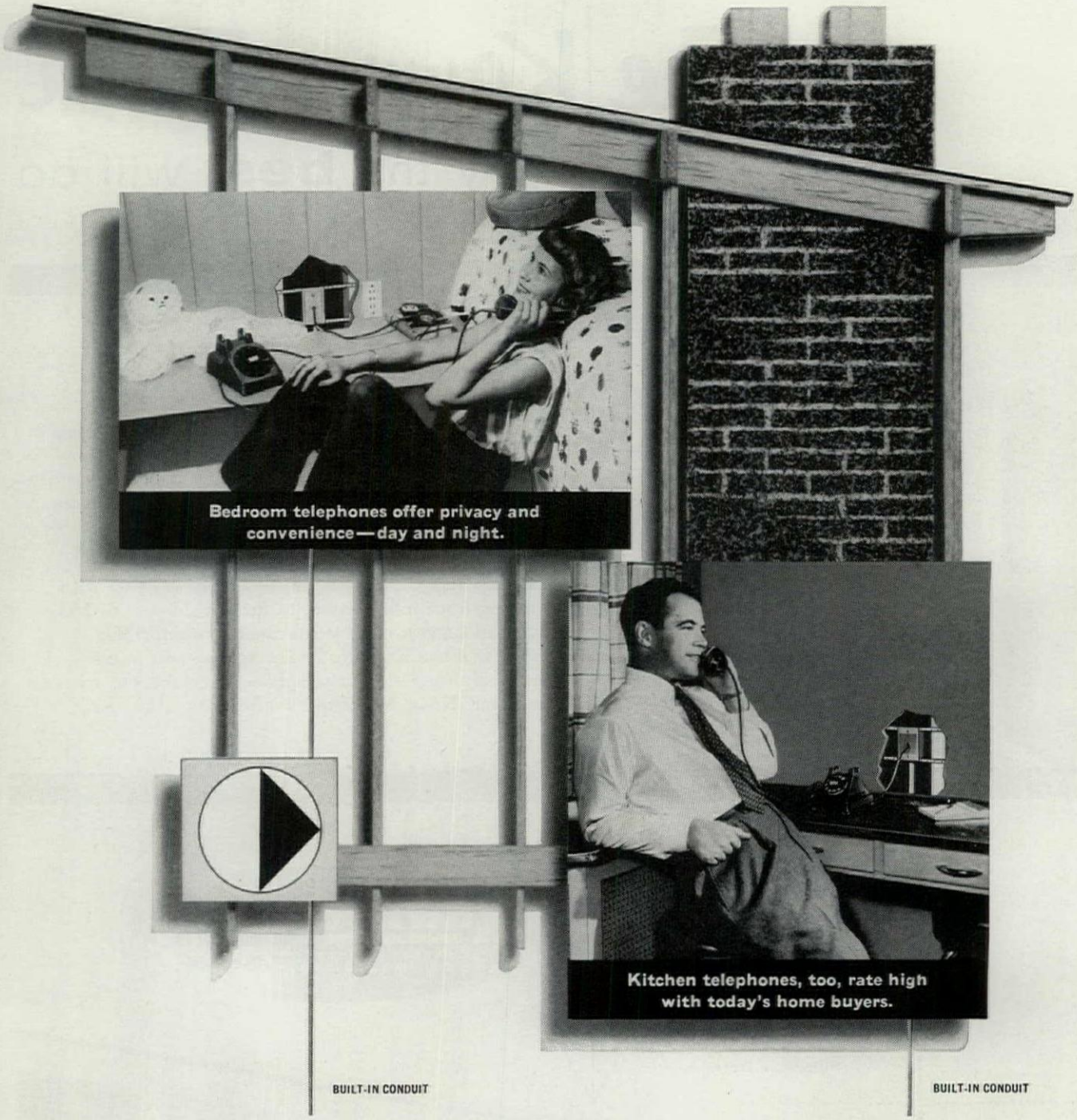
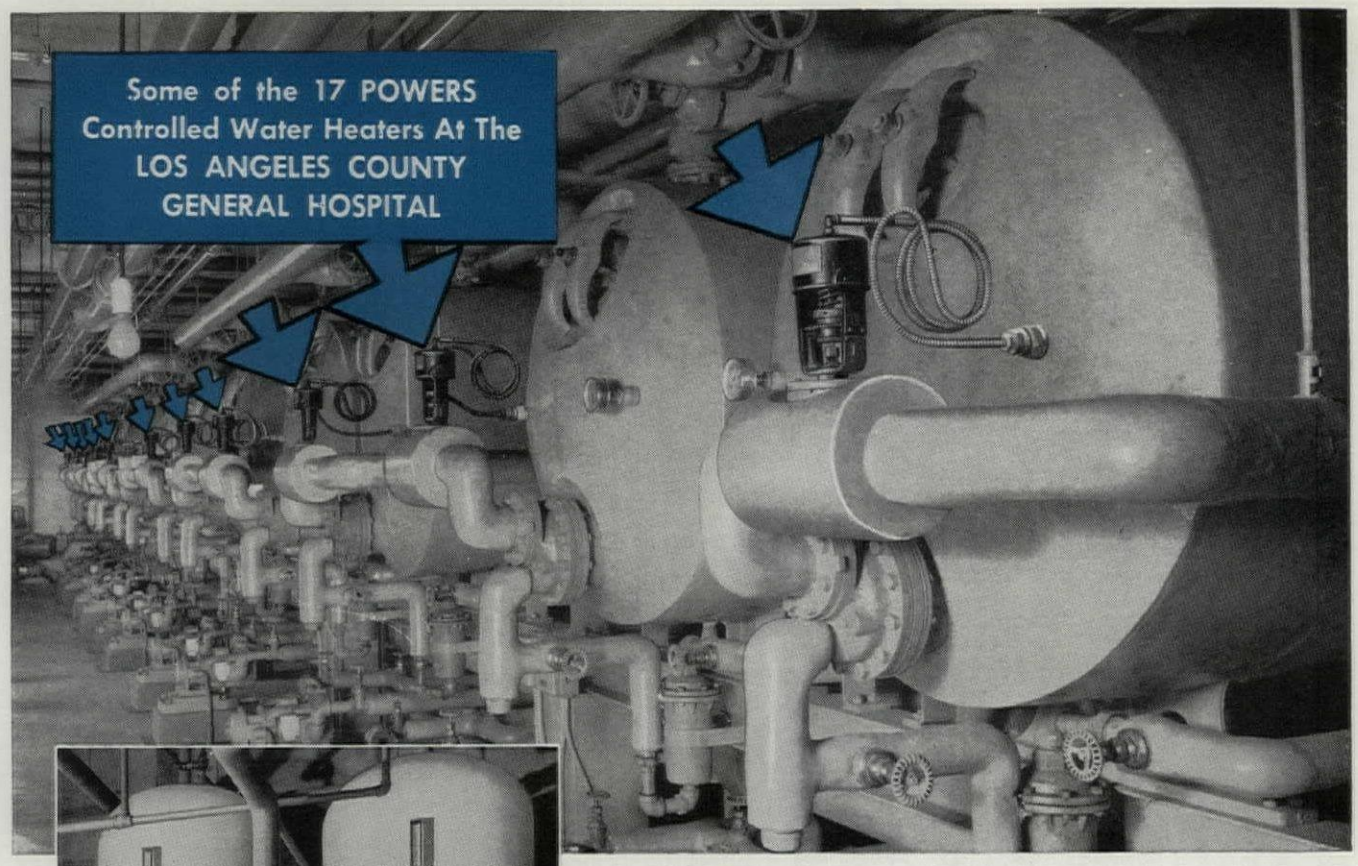




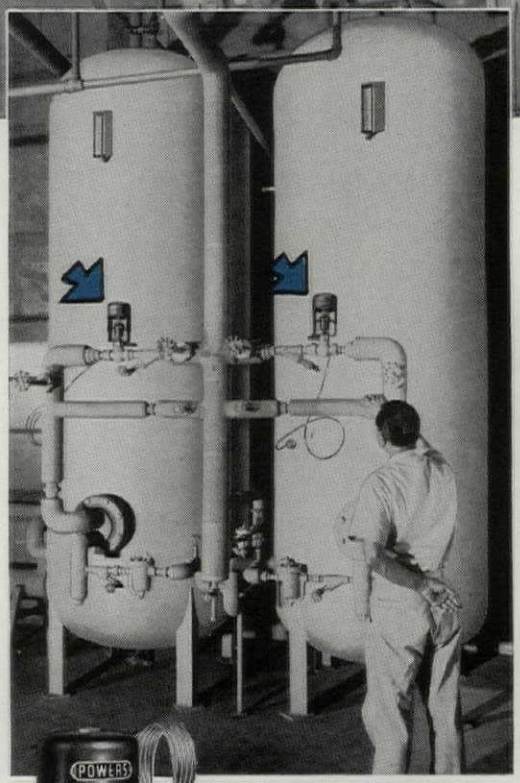
For the little it costs, telephone conduit helps a lot in preserving the interior beauty of a home and in adding to the home buyer's feeling of satisfaction. Specifying telephone conduit is good sound practice.

Your Bell telephone company will be glad to help you work out economical conduit installations. Just call your nearest business office. For details on home telephone wiring, see Sweet's Light Construction File, 8i/Be. For commercial installations, Sweet's Architectural File, 31a/Be.

BELL TELEPHONE SYSTEM



In 1933 Howe Bros., Contractors, installed 15 Powers Regulators here. All are still in operation, only 11 are shown in photo above.



Above: 1955 installation of Powers Controlled Water Heaters in Contagious Disease building. Contractor: E. Willardson Company.

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are still giving dependable control"

Reports Mr. Louis J. Koch, Senior Master Mechanic

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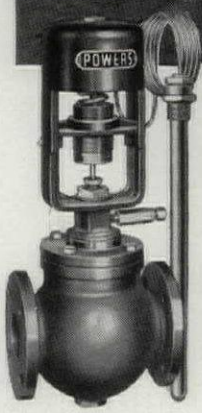

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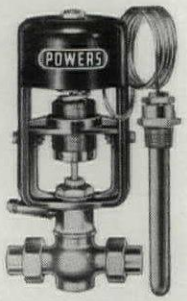

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(Continued on page 198)

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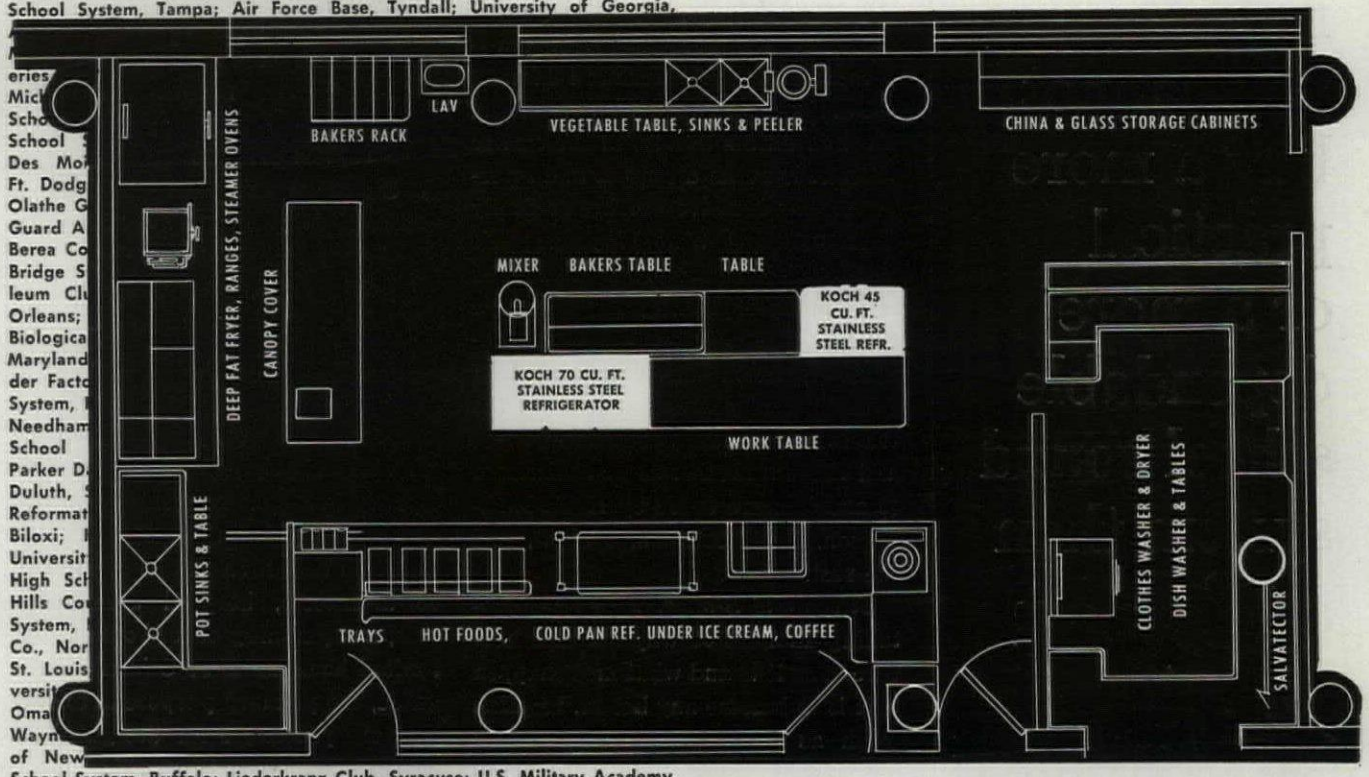

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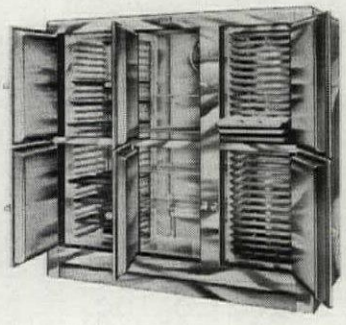

School System, Buffalo; Liederkranz Club, Syracuse; U.S. Military Academy, West Point; University of North Carolina, Chapel Hill; Duke University, Durham; Women's Club, High Point; North Carolina State College, Raleigh; Ridgecrest Baptist Assembly, Ridgecrest; School System, Winston-Salem; Apple Creek Country Club, Bismarck; School System, Minot; Church of the Covenant, Cincinnati; School System, Cincinnati; Federal Reserve Bank, Cleveland; School System, Cleveland; School System, Columbus; Hiram College, Hiram; Elks Lodge, Lima; Service Creamery, Lorain; School System, Springfield; Army Base, Ft. Sill; School System, Muskogee; Skirvin Tower Hotel, Oklahoma City; Chamber of Commerce, Tulsa; State Dept. of Agriculture, Salem; School System, Bucks County; Army Ordnance Depot, Broughton; McGuire Hospital, New Brighton; School System, Pittsburgh; The Crown Hotel, Providence; Naval Minecraft Base, Charleston; Clemson College, Clemson; Liberty Life Insurance Co., Greenville; State Dept. of Health Laboratory, Pierre; State Hospital, Yankton; Baptist Orphanage, Chattanooga; School System, Knoxville; University of Tennessee, Knoxville; Cudahy Packing Company, Memphis; Kimberly-Clark Corporation, Memphis; School System, Memphis; Belle Meade Country Club, Nashville; David Lipscomb College, Nashville; Government Project, Oak Ridge; Vocational School for Girls, Tullahoma; Air Force Base, Amarillo; Bar-K Guest Ranch, Austin; Women's Club, Austin; Harvest Club, Beaumont; School System, Corpus Christi; Dallas Club, Dallas; School System, Dallas; School System, El Paso; International Club, El Paso; First National Bank, Fort Worth; Brae Burn Country Club, Houston; Municipal Airport, Houston; State Home for Senile, Kerrville; School System, San Antonio; Perrin Air Force Base, Sherman; Commission for the Blind, Temple; St. Edward's School, Texarkana; Veterans' Hospital, Salt Lake City; Mary Fletcher Hospital, Burlington; Army Engineer
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reviews

(Continued from page 182)

1931—to discover how consistent this dean of our architectural critics has been through the years; how contemporary and pertinent (for the most part) are the analyses and discussions, though developed 25 to 30 years back.

The Brown Decades, you will recall, heralds the "buried renaissance" that was churning up through the welter of the post-Civil War era—a movement that Mumford himself admits he had largely overlooked, through unfamiliarity, in the earlier volume. Here he discusses and interrelates the creative writing of Emily Dickinson and Walt Whitman; the genius of the Roeblings, father and son, in accomplishing the Brooklyn Bridge; the new horizons and humane approach that Frederick Law Olmsted and others brought to the treatment of the urban landscape; and the unintimidated contributions to architecture made by H. H. Richardson, Root, Sullivan, Wright, and the rest.

Sticks and Stones, with its painstaking analysis of why our architecture is as it is and what must happen if it is to become any better, remains much as it was, with only a few paragraphs added to certain chapters, and a fresh and discursive preface that views the book in retrospect, commenting on the elements the author feels are most contributory and admitting frankly its youthful errors of omission.

The new editions of both books, now issued at popular prices, are enhanced with illustrations. And this reviewer feels that those who "knew them when," as well as the student who has yet to discover them, will find the texts rewarding, instructive, and almost uncannily up-to-date in their viewpoints. G.A.S.

prefab handbook

Marketing Handbook for the Prefabricated Housing Industry *(Research Pubn. No. 2), Glenn H. Beyer & James W. Partner. Cornell University Housing Research Center, Ithaca, New York, 1955. 64 pp.*

This handbook is intended by the authors for manufacturers and dealers in the prefabricated house industry. It will be of interest and importance principally within that industry since discussion is limited to principles, policies, and problems of the prefabricated house industry.

LAWRENCE E. MAWN

hospital criteria

A Guide to Hospital Building in Ontario. *Prepared by the Committee on Designing, Constructing, and Equipping of Public Hospitals in Ontario. University of Toronto Press, Toronto 5, Ontario, Canada, 1954. 307 pp., illus., $10*

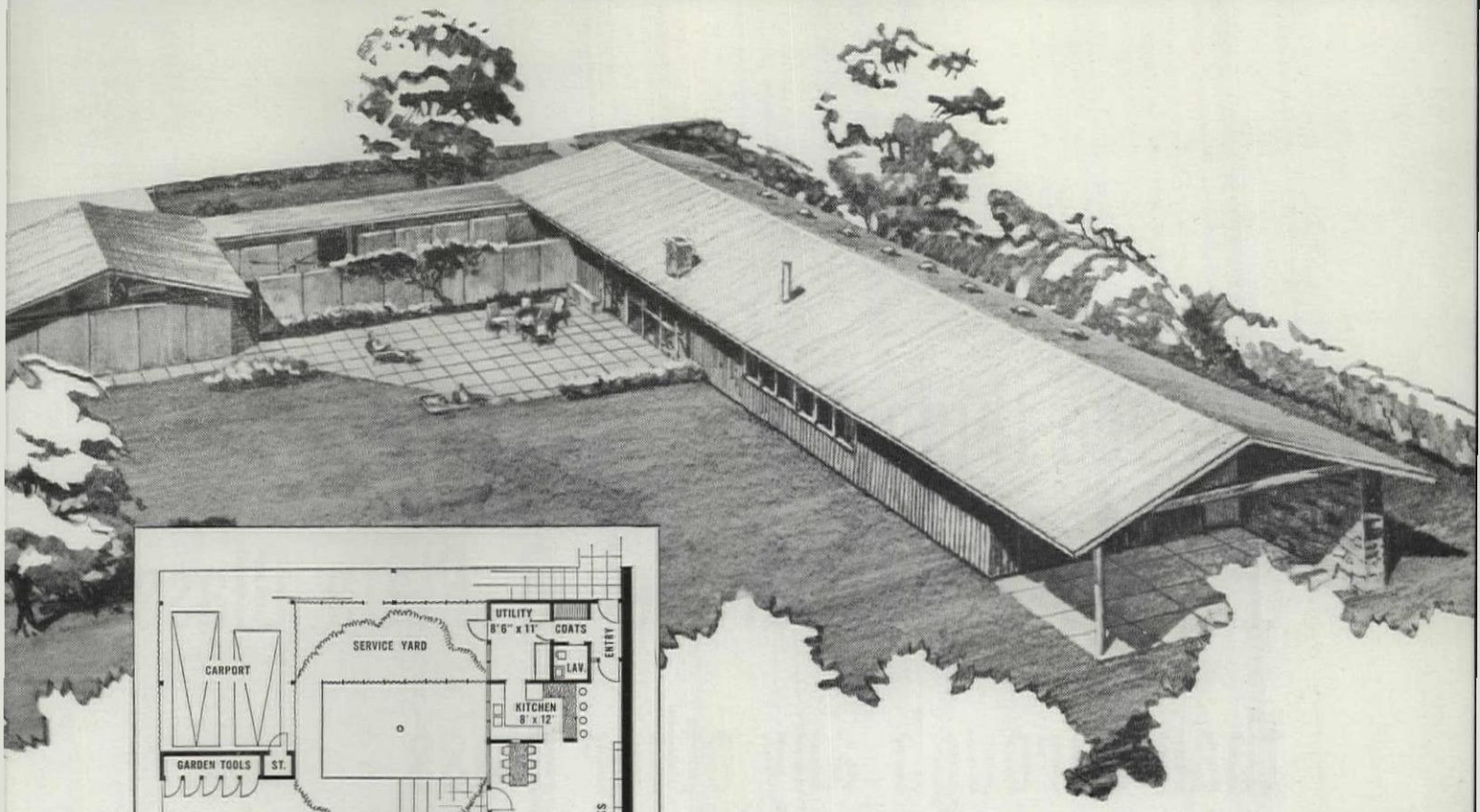
Although this volume was prepared with the requirements of a specific locality in mind, the result is a guide to hospital planning so broad in application that it should be of interest to architects, hospital administrators, and planning boards outside the limited boundaries of Ontario. As a guide, the primary purpose is to suggest the procedure for designing an efficient, economical working unit, from the initial planning stages through to the finished building. Essential factors relating to each phase of planning are presented in outline form; however, the book does not attempt to specify particular requirements and sizes, materials and methods, nor does it show "typical plans." This approach not only tends to stimulate original thinking on the part of the architect, but also insures that the material will not quickly become obsolete with new developments in structure and technology. L.G.

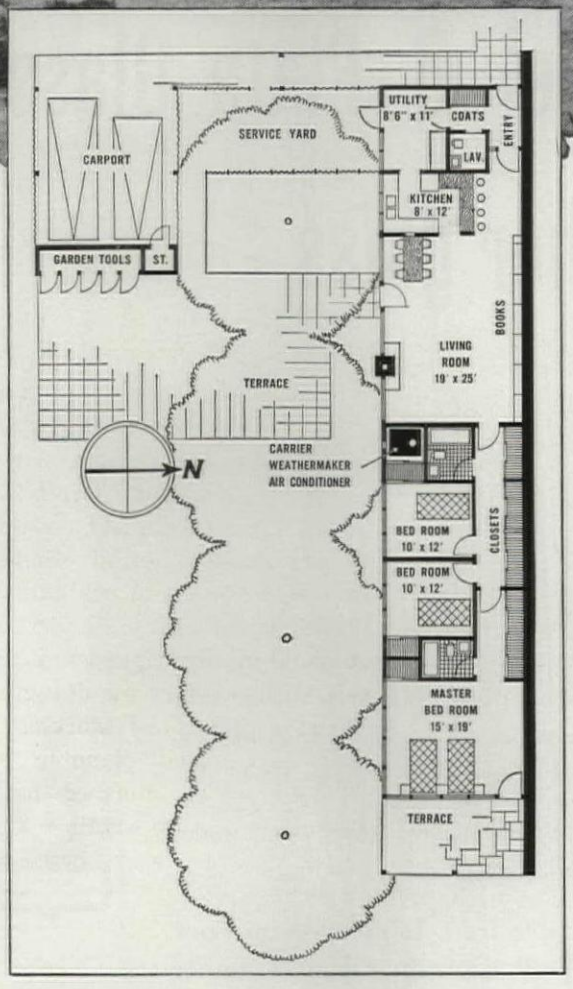
books received

World's Contemporary Houses. Volume 1. Edited by Shinji Koike, Ryuichi Hamaguchi, Kimimasa Abe. Shokokusha Publishing Co., Tokyo, Japan, 1954. 100 pp., illus., $6.50

American School and University 1955-56. Vol. 27. American School Publishing Corp., 470 Fourth Ave., New York 16, N. Y., 1954. 472 pp., illus., $7

Architecture in the Age of Reason. Harvard University Press, 44 Francis Ave., Cambridge 38, Mass., 1955. 279 pp., illus., $10





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This is the very first Weathermaker Home—and it started architects everywhere to designing homes around Carrier air conditioning

This house grew from a very simple idea: that if a house were *designed around air conditioning* it could be a *better* house.

It need not depend on natural ventilation. Ells and wings wouldn't be necessary. Only a few windows need have movable sash. The bathrooms needn't require a window. Windows, doors and even the rooms themselves could be placed to suit the convenience of the owner, *not* to catch a breeze. Windows could be grouped; some walls could be solid, to allow space for storage and convenient furniture arrangement.

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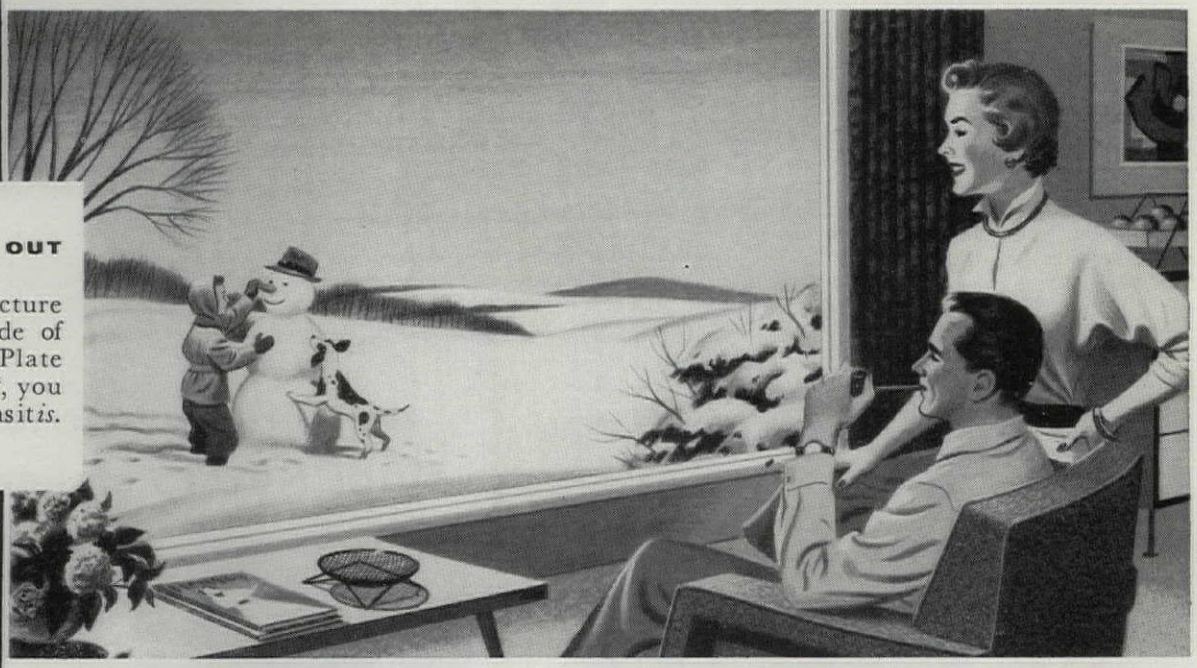

LOOKING OUT

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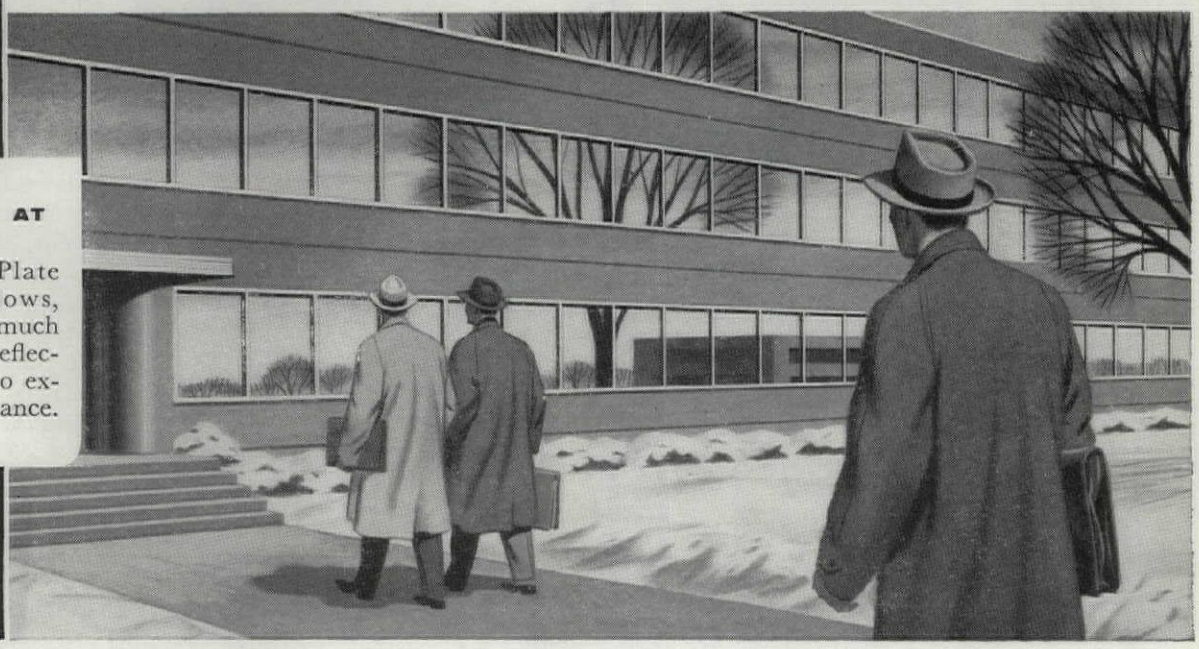

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Parallel-O-Plate Glass windows, you see how much its truer reflections mean to exterior appearance.

JOBS AND MEN

(Continued from page 192)

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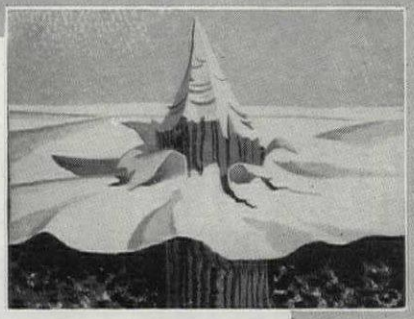

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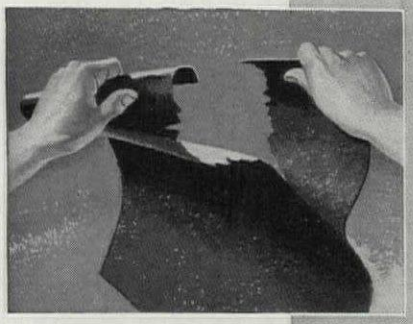

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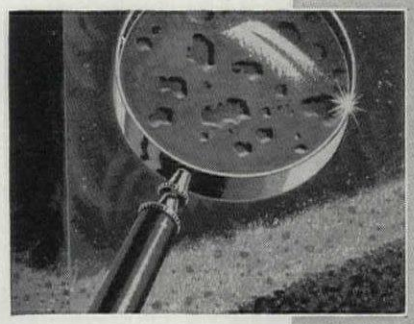

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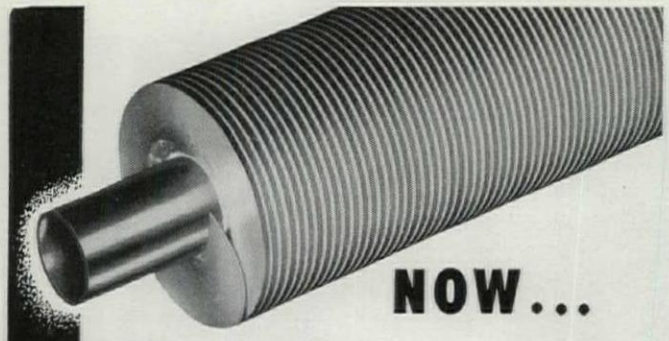

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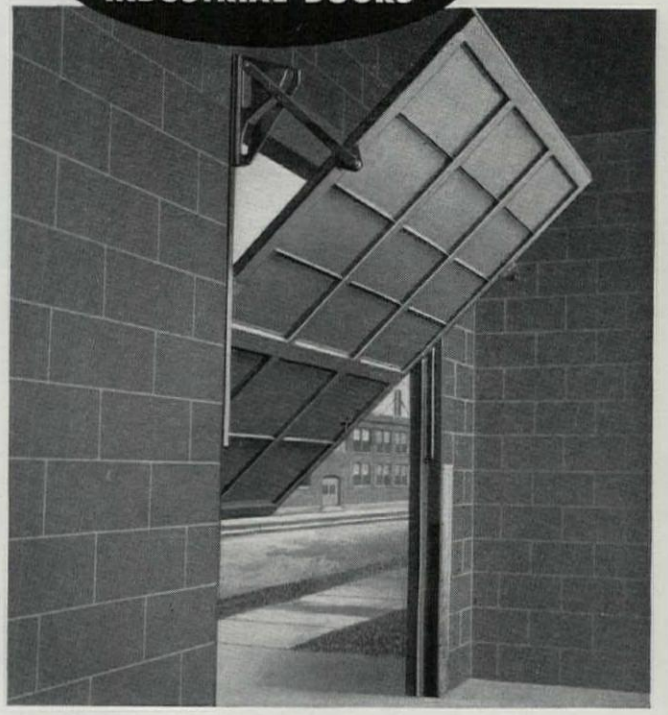

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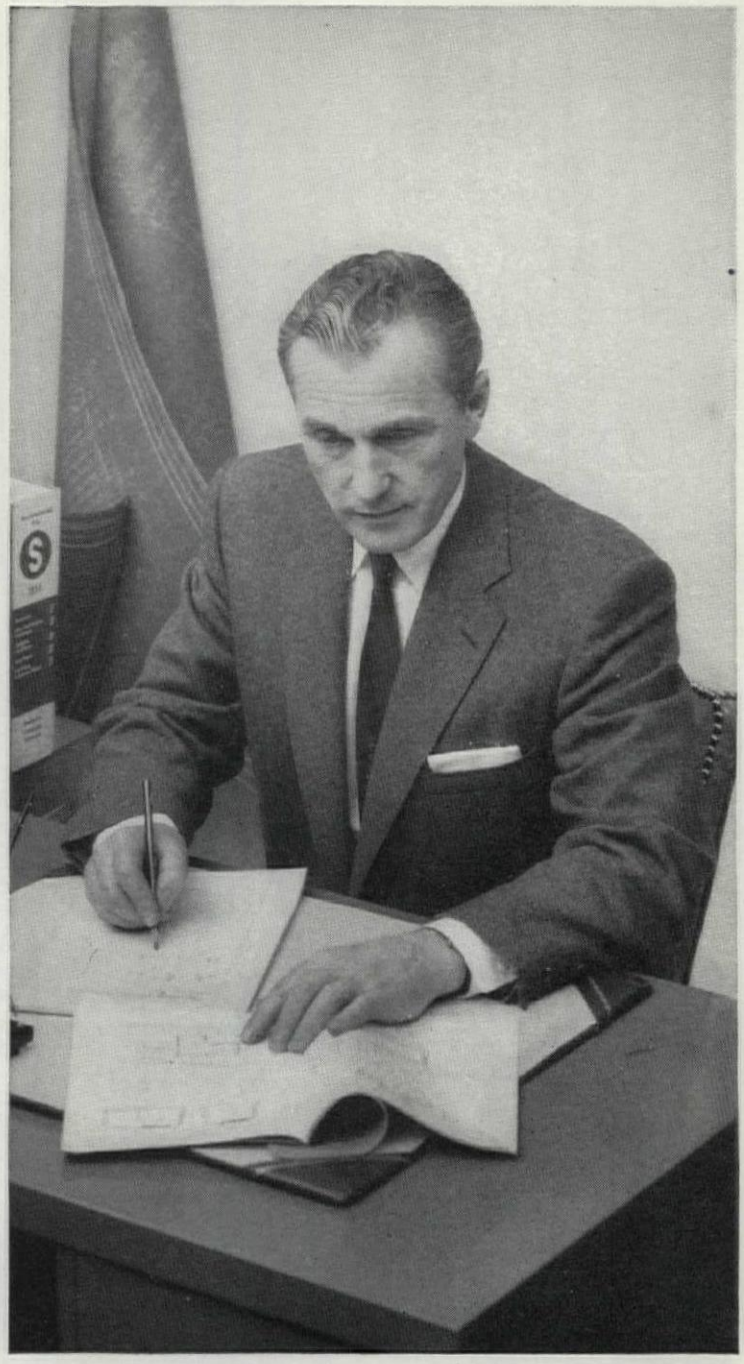

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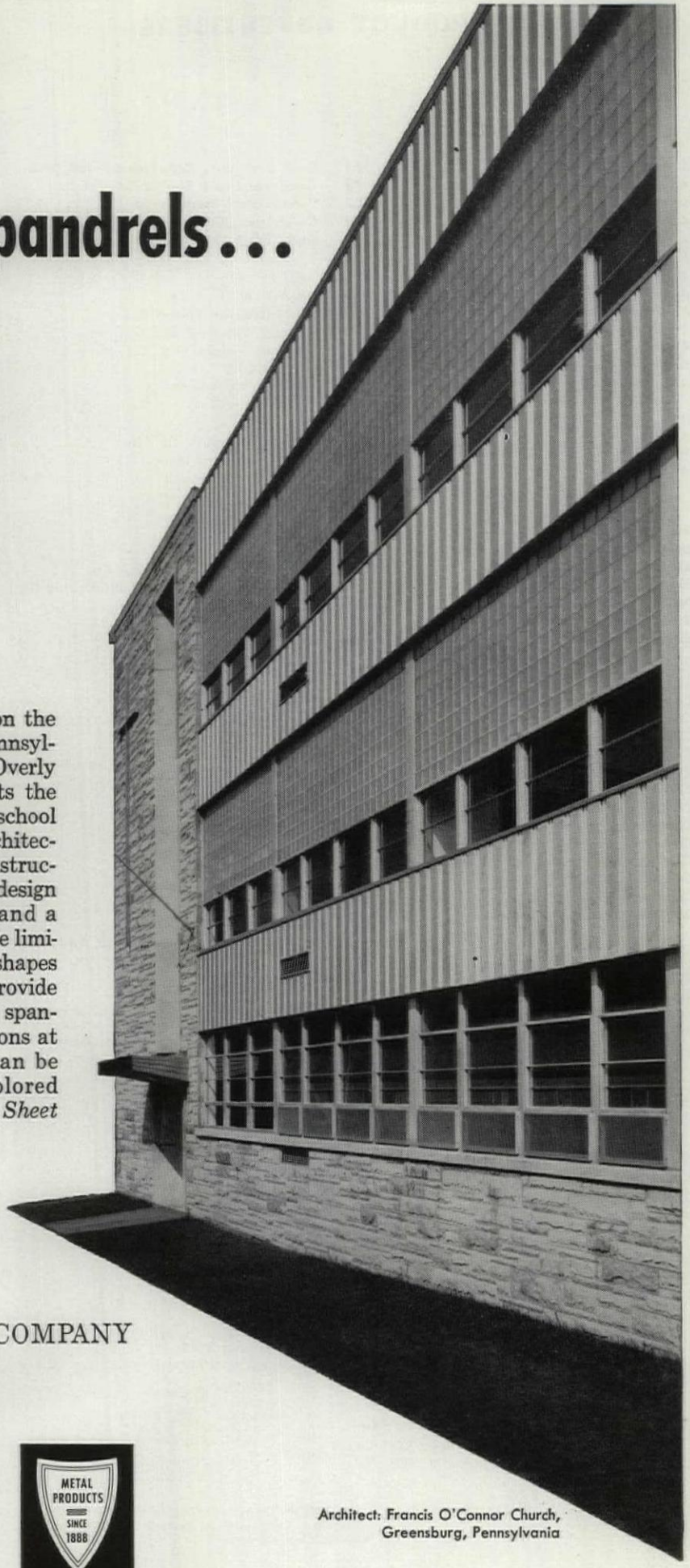

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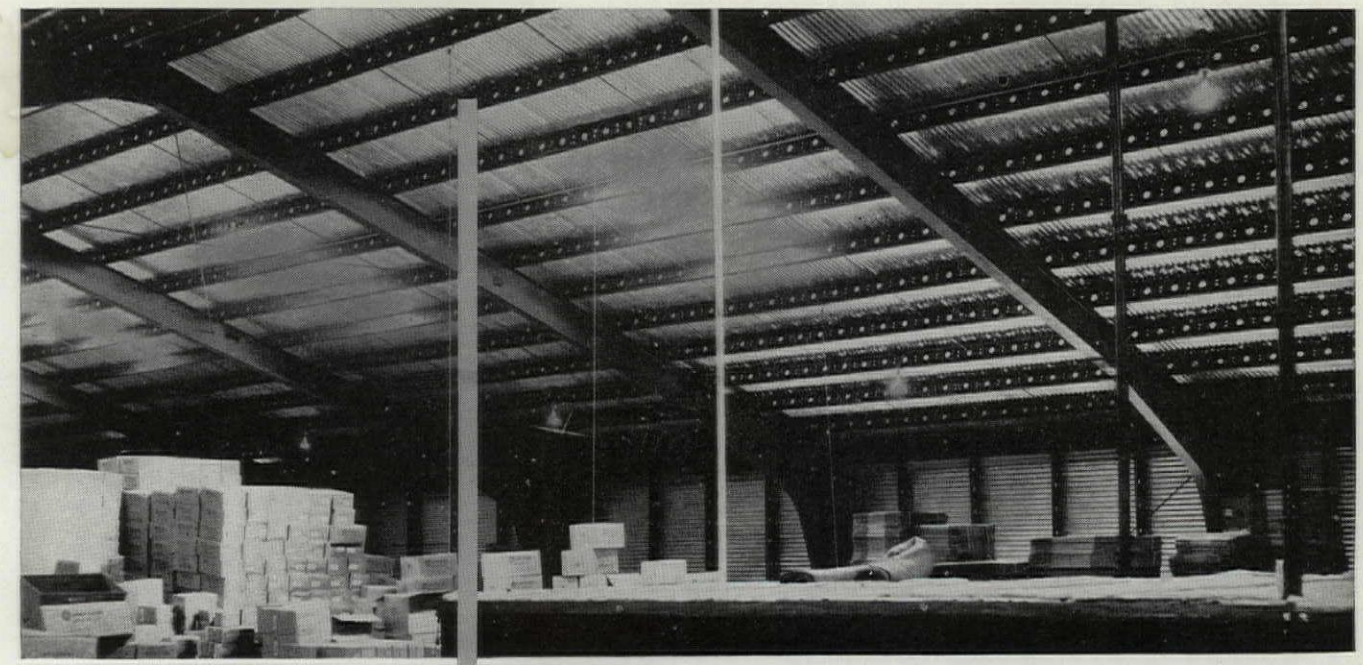

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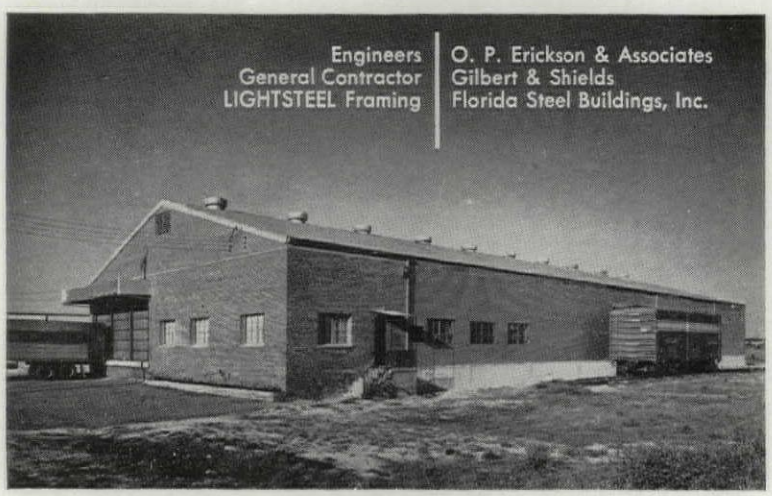

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PM-84

P.S.

Back at the editorial desk after a trip to Europe, I find it difficult to get down to the monthly business of meeting deadlines. Even this P.S. escape valve, which has always been fun when the month's hard work is over, seems a chore. I sit and look out of the window across Park Avenue to a space which is open—at the moment—only because some buildings have been torn down to make room for a new Kahn & Jacobs skyscraper; and I think of looking across from our hotel window in Milan to a great open space before the Cathedral, which had been *planned* to be open, centuries ago. One of my associates comes in to ask me a question, and I suddenly realize I haven't heard a word he's said; I'm still driving across the St. Gotthard Pass in that little Volkswagen.

This is the place and the time, of course, to report on all the good contemporary things I saw abroad. I'm embarrassed; I saw so little built since the 16th Century that seems worth reporting. I suppose it sounds just like a typical, provincial, flag-waving touring American to say so, but I came back feeling strongly that in contemporary development—with all the mistakes we have made, all the admitted failures and inadequacies—we are far ahead of Western Europe. Ugly as our cities are, isolated as our really fine pieces of new architecture may be, my observation is that in the design of schools, hospitals, churches, apartments, housing projects, or what have you, there is little abroad to compare with what we can show.

Like all generalities, that one is inaccurate, and I'm sure that I'll hear from many of you who were in Europe this year and brought home pictures of that little church you saw outside Zug (it's coming along nicely; I got some good pictures, I think) or found half a dozen nice shop interiors in Milan, or paid a reverent visit to Ronchamp. Personally, I was very disappointed in the Milan revival; I thought driving 80 miles from one good new school to another in Germany was excessive (distances between satisfying fare are less here); and the missed opportunities in rebuilding destroyed cities are at least as depressing as the muffed redevelopment possibilities in the States.

It must be tough for the architects in cities with great, still existing traditional examples, to strike a bold new note. Imagine trying to design a store in Milan, where the Galleria, that modern prototype of all community shopping centers, exists and functions. That Albini, Ponti, the BBPR group and others have done some very good ones is remarkable, and they're certainly to be congratulated. But it doesn't alter the fact that that growing, bustling, crowded city is being endowed with many banal new structures, just as mediocre as the run-of-the-mill new construction in New York, Chicago, or Houston.

If that was my first impression (being always on the lookout for new design) my second was that we needn't feel too good about our superior position, because that top spot, today, is so far from truly great architectural achievement that we must feel humble and unsatisfied. It is a healthy thing to see and experience every so often the design heritage which has been preserved for us abroad. Studying from pictures and text never actually prepares one for the emotional responses that come from scale, space, materials, textures, colors handled as surely as they were in the Middle Ages and the Renaissance. And over and over again, one realizes that it isn't so much the individual building as it is the relationship of buildings and the space around them. There are the obvious examples (Piazza San Marco, with the many individually undistinguished, mixed-style structures pointing to the pure, delightful corn of the Cathedral, which makes everyone who enters it for the first time choke with emotion) and there are also the thousands of little instances one experiences driving through Germany, Switzerland, Italy, France, of the unexpected, relaxing, vista-broadening open space; the narrow street that suddenly becomes a Piazza or a Place or a Plaza or a Square. with a market and a church and a cafe, and then narrows down again to streets of everyday living and commerce until the next open area comes.

This is, of course, a lesson we have been taught over and over; it has become fashionable to remark on it, and I am now in the fashion. Yet we continue to ignore it. We impose our gridirons, and line them curb to curb, mile after mile, and wonder why we can't relax from the straight and narrow tensions that result.

Park Avenue goes on endlessly past my window, with the only break in the building line the space that Lever Brothers allowed SOM to leave under their handsome building. At the moment, there is an open block opposite me, and even though it is a hole in the ground, a few trees escaped the bulldozer, and I can see sky and a vista. Next month it will cease to be Piazza 55th Street, and will become again another 200 ft module in the continuous wall.

•

Every trip away from home and office has its high spots and its pleasant memories. This one included my first visit to Stuttgart, a city that made a most favorable impression (and where I saw one of those two good schools); an unexpected realization of the thin line that divides two of the cultures that form our background, as we drove from the neat, clean, busy, efficient German-speaking part of Switzerland down into the easy-going, slower-moving, more romantic, less orderly Italian-speaking portion; a visit (in a cloudburst) to the Grimaldi Museum at Antibes, where Picasso tapestries and Roman antiquities live happily together; Portofino, the fishing village which is not yet spoiled by tourism but which if anyone visiting the North of Italy misses he should have his head examined; a day with Paul Nelson, Madeleine, and the two boys who will grow up to speak French, English, and Italian with equal facility, and a visit to see a new house Paul has designed, with polychromy by Léger done just before his death; a day in Hampstead Garden Suburb, the charming, relaxing, Parker-Unwin-Lutyens "garden city" outside London, spent with Hermann and Kate Field (which I shall report in greater detail later; for now let me tell Hermann's friends that he is healthy and well, in every sense).

•

Every U.S. tourist who considers himself a cut above the "typical" U.S. tourist comes back with at least one story illustrating the confusion of that worthy individual who is the backbone of the top industry in many areas of Europe. Mine, I think, is rather pathetic. My hero flew back from Paris on the same plane we did. He was ahead of me in line at the Aerogare des Invalides (the in-town air terminal) and he was obviously tired, anxious to get back to the good old U.S.A., and more than a little confused by foreign ways and foreign languages. His first embarrassment was that he had misplaced his passport—a crime no one allows himself to commit away from home. His second was that in reaching for his luggage to search for the missing document he stepped on a baggage platform which was a series of pipe rollers, and was delivered behind the ticket counter on the back of his neck. The passport, however, *was* in one of his suitcases, and when we passed through the gate to the limousine he was again ahead of me in line. All of us *efficient* tourists were clutching our little green cards, which are bus ticket, aircraft boarding pass, and general identification tag.

The girl at the gate asked him, in perfect English (so *many* of them speak perfect English), "May I see your boarding pass?" More tired and homesick than ever, and by now frightfully embarrassed, he frowned, thought a moment, and shook his head in perplexity. She repeated the request, and again he puzzled over these strange foreign words. Finally he shrugged in resignation and said, "Sorry, miss, I don't speak French."

That's done. Now to settle back, look out the window and remember . . . for instance . . . Ferrara . . . we got lost hunting for Ariosto's house, and when we found it it wasn't very pretty, but the squares we wandered through . . .

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