p/a

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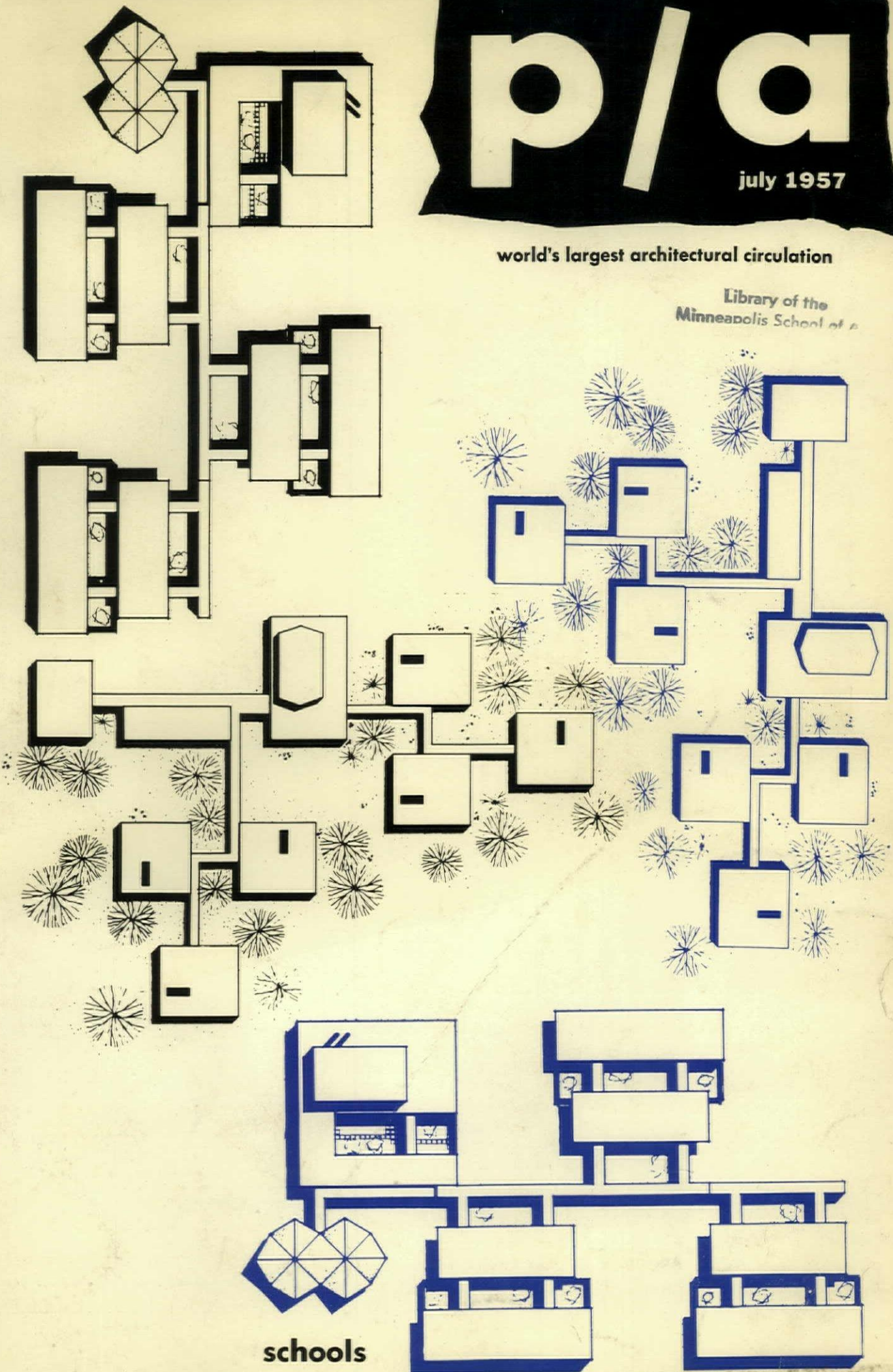

schools

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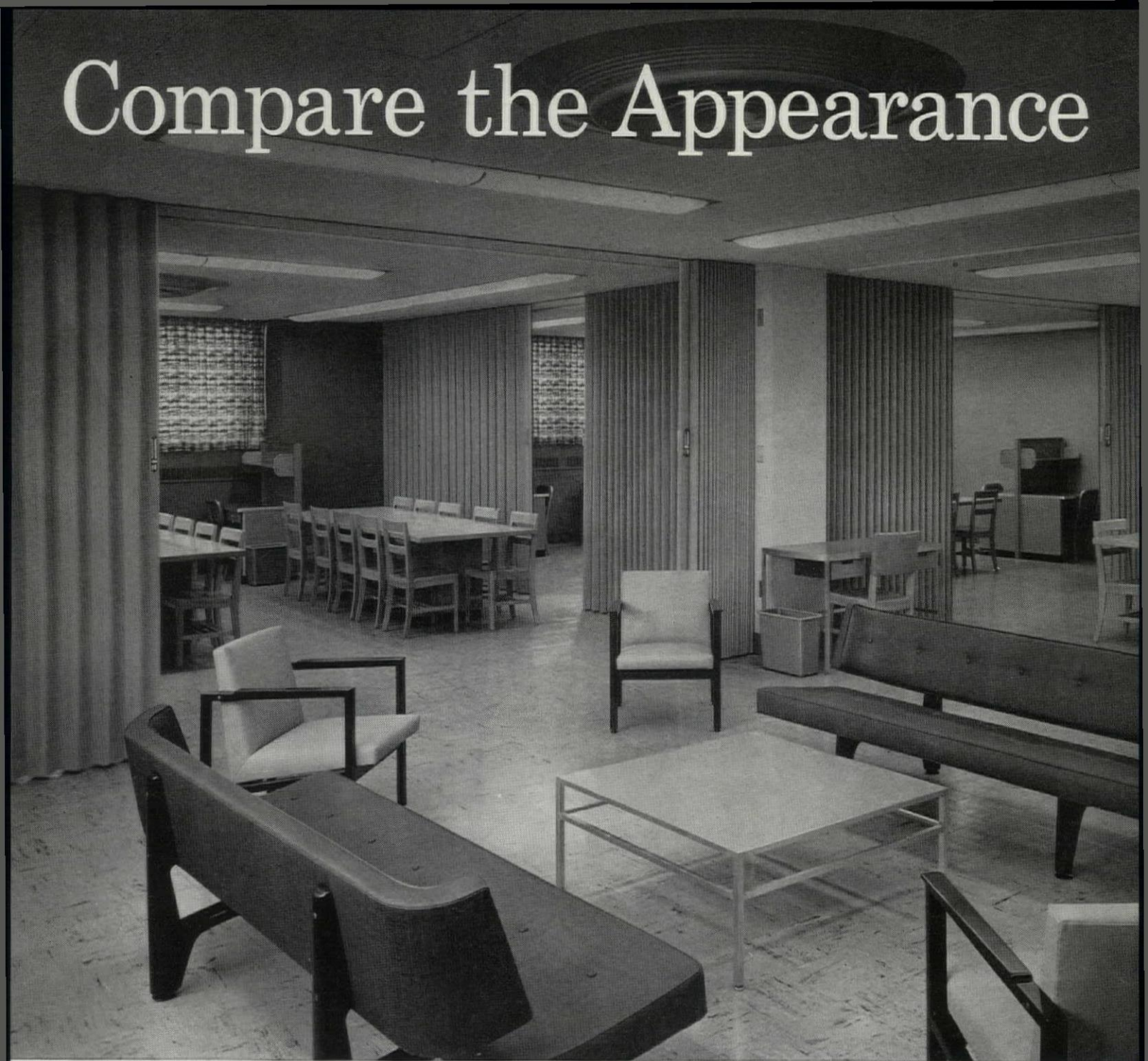

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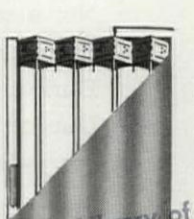

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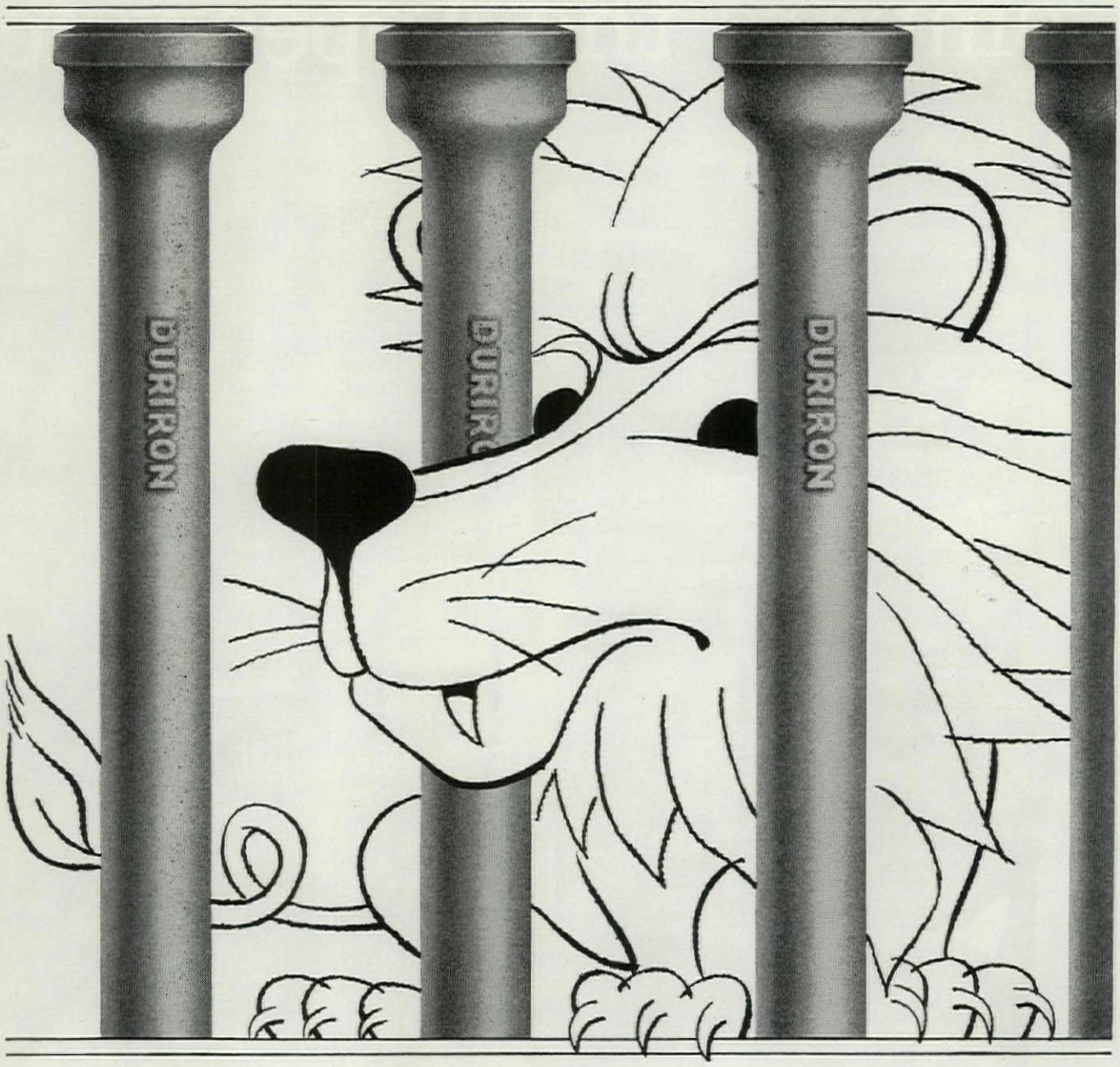

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PROGRESSIVE ARCHITECTURE

July 1957

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Volume XXXVIII, No. 7

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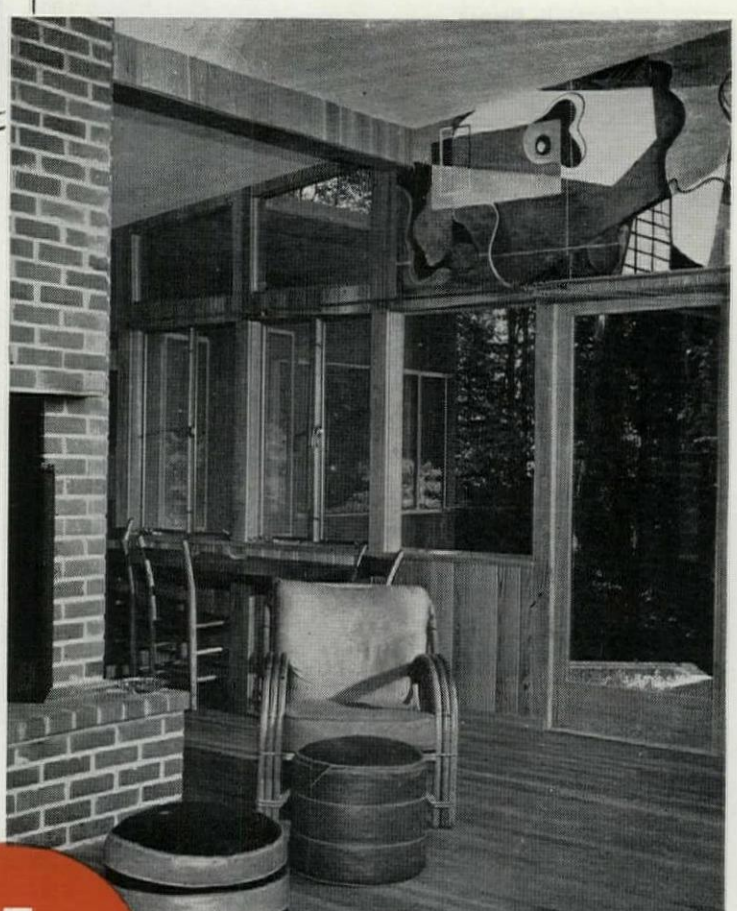

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It's the Law

by Bernard Tomson

P/A Office Practice *article discussing the separation of the Architect's functions and responsibilities from those of the Engineer.*

In *Architectural and Engineering Law* (Reinhold, 1951), I distinguished between the architectural and engineering professions as follows:

"A NUMBER OF DEFINITIONS have been adopted by legislatures and courts in allocating to each profession its particular function. Although the duties incidental to one profession may overlap with those in another, the fundamental distinction between them is carefully maintained, and any unwarranted excursion into a related, controlled occupation is prohibited.

"An architect has been defined as one who makes it his occupation to form or devise plans and designs and draw up specifications for buildings or structures and to superintend their construction. . . .

"A professional engineer has been defined as one who, by reason of his knowledge of mathematics, the physical sciences, and the principles of engineering, is qualified to engage in the practice of engineering. The term engineering includes any professional services, such as consultation, investigation, evaluation, planning, design, or responsible supervision of construction or operation in connection with public utilities, structures, buildings, machines, equipment, etc., wherever the public welfare is concerned, when such service requires the application of engineering principles or data. . . .

"While it may be difficult, if not impossible, to compartmentalize the activities of the architect and the engineer, a recognition of the distinction is of considerable importance in view of the fact that courts are unwilling to accept the whole area of activity of the one as completely within the particular province of the other."

The difficulties encountered in maintaining the separateness of the professions can be illustrated by referring to the experience of one state which may be typical.

Under the laws of the state in question it is provided that "any person who shall pursue the practice of architecture . . . or shall engage in the business of preparing plans, specifications and preliminary data for the erection or alteration of any building . . . or shall advertise or use any title, sign, card, or device to indicate that such person is an architect without a certificate thereof . . ." is in violation of the law. Excepted from this provision, however, are buildings "designed by licensed professional engineers incidental or supplemental to engineering projects."

The laws of this state further provided that no department in the state and no department in the municipality which was created for the purpose of filing plans and specifications for buildings, shall receive or file any plans or specifications unless they bear the seal of a licensed architect. This law was amended to provide that no official was to receive or file any plans and specifications for buildings unless they bore "the seal of a *licensed professional engineer* or a licensed architect."

It was contended that this amendment in permitting the filing and planning of specifications which bore the seal of a licensed engineer, as well as the seal of a licensed architect, in effect authorized the practice of architecture by licensed, professional engineers. The Attorney General of the state, however, ruled that this was not the intent of the amendment, stating:

"These laws do not broaden the scope of professional activities which may be performed by licensed professional engineers and the sole purpose of the two laws is to substitute a seal of a licensed professional engineer on plans and specifications for buildings designed by such engineer incidental and supplemental to engineering projects for the affidavit now required of a professional engineer."

Thereafter the question was presented to the Attorney General as to whether a building inspector or state official, who was presented plans and specifications for filing, having the seal of an architect or engineer affixed thereon, could refuse to accept them if the official believed that the plans submitted constituted illegal practice of architecture by an engineer or vice versa. The Attorney General answered this question in the negative stating:

"Where the plans and specifications offered for filing bear the seal of either a licensed architect or a licensed engineer of this State, they meet the requirements of the quoted statutes. The municipal building inspector or the State Official to whom the plans are submitted for filing must so recognize them. It is not his function to determine whether plans which bear the seal of a licensed engineer indicate that there has been a violation of R. S. 45: 3-10 prohibiting the unlicensed practice of architecture nor whether the plans which bear the seal of a licensed architect indicate that there has been a violation of R. S. 45:8-27 and 28 as amended, prohibiting the unlicensed practice of engineering."

The Attorney General might have reached the opposite conclusion with some justification. If prior to the amendment a building official had no power to accept plans and specifications for a building without an architect's seal and if the only purpose of the amendment, as stated by the Attorney General, was to permit engineers to file plans and specifications for buildings which were incidental to an engineering project, it would be a consistent interpretation of the amendment to conclude that plans or specifications which had an engineering seal, but which were not incidental to an engineering project, could be refused acceptance by the building official.

The Attorney General suggested that there were other penal provisions in the law which could be utilized to protect the architectural profession from the practice of that profession by unauthorized persons. However, if the law had been so written or so interpreted as to grant power to the building official to reject plans and specifications which, at least on their face, constituted an illegal practice of architecture by engineers, such a power would have furnished a forceful, direct and effective means of requiring compliance with the architectural practice law.

It is of interest to note that in this same state a special board consisting of five members had been established for the purpose of holding hearings on the complaint of any board or other person against a licensed engineer for the alleged illegal practice of architecture and against a licensed architect for the alleged illegal practice of engineering. Membership on the board, as provided by statute, included a member of the professional society of architects and a member of the professional society of engineers. The statute also provided that upon receipt of a complaint of unlawful practice of architecture or engineering, the special board would hold a hearing, and would take into consideration in making its determination "all of the facts involved, any inter-professional code of ethics applicable to the alleged violation and all statutory provisions pertaining to the alleged violation."

Despite the fact that both the architectural and engineering professional societies are represented on the board, and the board is empowered to hear complaints made and filed by any person, this procedure has seldom been utilized by either the members of the architectural or engineering professions, to assist in the protection of their respective spheres.

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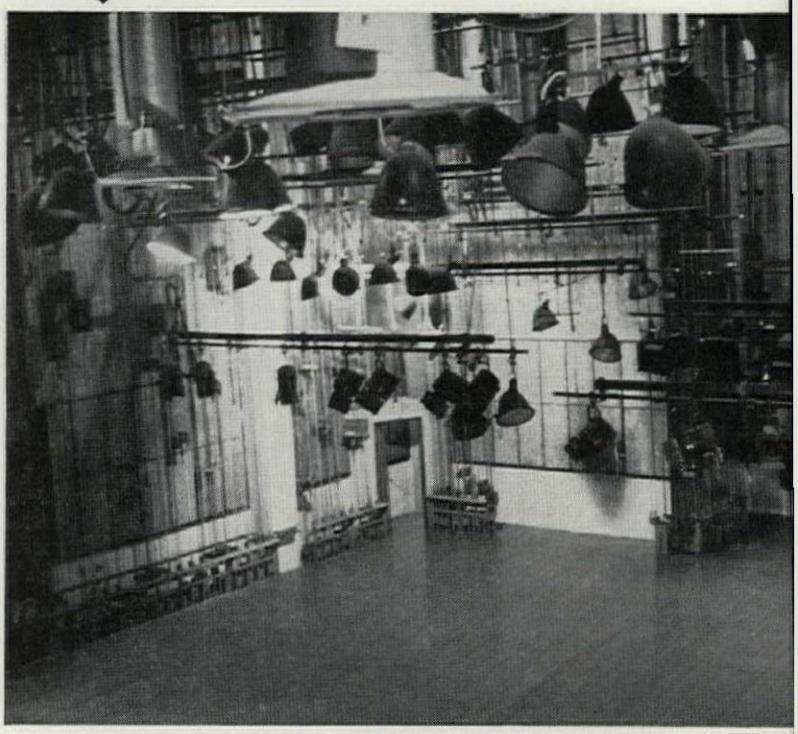

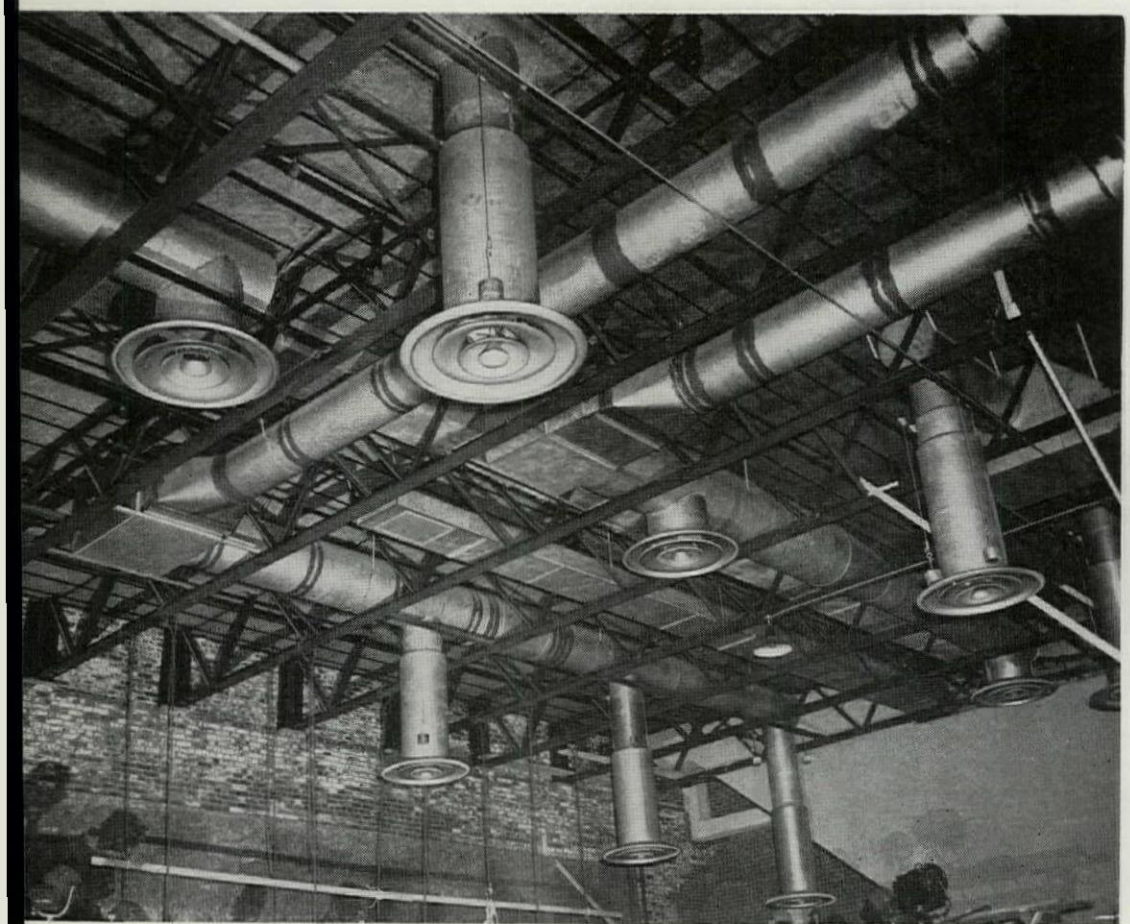

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Mechanical Engineering Critique

by William J. McGuinness

P/A Office Practice ***column on mechanical and electrical design and equipment, devoted this month to Selection of Heating Systems.***

radiant heating and cooling

Well established, now, is the method of heating and cooling by means of aluminum panels clipped at their edges to pipes hung from the ceiling and carrying heated or chilled water. Panels can be omitted to accommodate lighting fixtures or air diffusers. The latter are necessary for ventilation and, in summer, to remove the latent heat load due to moisture in the air which would otherwise condense on the cold panels. To complete this efficient package, small holes in the panels, in combination with soft acoustical blankets above the metal, provide an effective acoustical surface without interfering with the operation of the radiant ceiling. Indeed, the blanket serves a double purpose because it also acts as thermal insulation.

Reasons for the choice of this method in the design of the Harper-Wyman Co. office building in Chicago are interesting. In this one-story, basementless building there was every reason to avoid pipe trenches below the floor, convectors along walls, and bulky ducts. In the heating season the panels carry the load. Tempered air is used only to provide ventilation. In summer the air rate is only sufficient to remove the latent load and a small part of the sensible load. Thus ducts are at a minimum. The firm of Ralph Stoetzel, Architects-Engineers, has described the control system as follows: There are six zones each with water-temperature blending equipment. The temperature and flow of water are controlled in each room by individual room thermostats. Finally the basic water temperature is controlled by outdoor regulators which compensate for the weather.

finned tubes

The problem of heating university dormitories can be solved economically by distributing medium-pressure steam from a central campus source to individual buildings where it is reduced in pressure and passed through a converter for heat transfer to hot water used in convectors. This method was used in the six dormitories recently completed at Cornell. Arthur L. Zigas, Mechanical Engineer, of Chapman, Evans & Delahanty, Architects-Engineers, tells about the system. Steam is received at 50 psi. Hot water from the converter is circulated at 210 F through loops of continuous, low, finned convectors of the perimeter type. There are three zones in each building: student lounge, social lounge, and bedroom area. Straight runs of tubing were assured by passing them through sleeves in steel columns. Expansion was accommodated by inverted U-loops instead of expansion joints. These loops were made of small size tubing to speed the flow. This resulted in carrying entrained air through the loop and precluded the need for vents. All risers collect in attics, and there is an enlarged water chamber in the return header which reduces water speed and permits air to collect for venting at this point. Maintenance has been reduced by minimizing the number of vents and other controls. The cost of these systems, averaged for the six buildings was about eight cents per cu ft or about 65 cents per sq ft of building area.

electric heating

The new Parkside School in Hartford City, Indiana, is heated electrically. The decision to use this method was made only after detailed studies of the comparative costs of several fuels and a most careful analysis of the characteristics of this kind of occupancy. T. A. McConnaughey, Architect, and George Ravaux, Engineer, made these calculations. With an hourly heat loss of about 750,000 Btu in a region of 5600 degree days, it was possible to compute the probable fuel cost for an average building on the basis of the standard method of the ASHAE "Guide." At 10 cents per gal, oil would have cost $1600 per year: electricity at two cents per kwhr would have cost $9300. Now the nature of a school was considered in some detail. It is occupied for 6½ hr per day and not on Saturdays or Sundays. School holidays make further reductions of the occupied time. During these periods the system could be restricted to maintaining a temperature of 50 F instead of 70 F. The thermal capacity of the materials was considered and the warming-up time prior to occupancy was deducted from the hours of saving. Children contribute a credit input during their time of occupancy. Sensible heat per hr from each child is 150 Btu. Minimum introduction of outdoor air for ventilation was planned. Revised estimated cost for electrical heating was $2200 per yr. Actual cost was $2669.60. It was thought that an oil budget could have been similarly reduced. Electricity, because of improved efficiency of generation, has decreased 30 percent in cost since 1930. Oil cost has doubled. These facts and many desirable qualities of electric heating tend to suggest that the use of this energy source will increase. Some educators have proposed 12-month use of school buildings. Air conditioning may be considered in this case. It will be interesting to see how this effects the possible progress of electric heating.

atomic heating

In the rehabilitation of the Sheraton Park Hotel in Washington, D. C., atomic power was considered and rejected as a source of energy for heating, air conditioning, lighting, and power. The reasons given were that qualified technical manpower was in short supply and nobody could be found who was capable and willing to design, construct, and operate such a plant. Another reason at the time was the lack of adequate arrangements for insurance coverage. Elliott Earl of the analysis firm of Wilson & Earl, representing the hotel ownership, was of the opinion that a reactor could be built and used for this purpose. In a recent statement, Engineer Albert I. Brayman* indicated that in his opinion a separate reactor for an individual building was impractical. It will be useful to discover the capacity at which the separate reactor is most suitable and also to promote the training of proper experts in this field.

high-temperature water

The new Douglas DC-8 plant for the production of jet airliners will be heated by high-temperature, high-pressure hot water. News of this installation comes from Holmes & Narver, Inc., Engineers-Constructors, Donald T. Robbins, Chief Design Engineer and Hal Bateman, Mechanical Engineer. This will be the first installation on the Pacific Coast of this method of heating, and one of the few serving an individual building. The "individual" building covers 24 acres and has three boilers, each developing 36 million Btu per hr. The first design was for steam at 125 psi. A design was then made for a water system operating at 300 F. This was estimated to effect an initial saving of 18 percent and an annual operational saving of 21 percent. Finally, a 400 F system, examined and chosen for the job, resulted in even further economies.

**Mechanical Engineering Critique*, March 1957 P/A.

Growing Pains in the Suburbs by Robert C. Weinberg*

Relationship of The Architect and His Community—a continuing concern of P/A and its readers—involves the ability of the architect-planner to advise his community on planned growth. The problem of reasonable control and a time-dimensioned possible solution are discussed in this article about the spasmodic growth of urban fringes.

The suburban-house building industry is anxiously waiting for some news out of Westchester that is expected one of these days, when Justice Leonard Supple hands down a ruling in Westchester County Supreme Court on the case of *Albrecht, et al, vs. Town of New Castle* (Chappaqua, Millwood, and part of Mount Kisco, New York). Will builders be able to continue to buy land and put up as many houses as present zoning permits, or will communities be able to regulate the number of new houses in proportion to their available resources in schools, roads, sewers, and other public services? What is happening in the Town of New Castle is likely to have profound effect on home-builders throughout New York's suburban counties and there is as much difference of opinion on the issues to be decided, as there is on the outcome of the particular case.

When, last spring, following a wave of house construction, two or three more large tracts of land were taken over by builders, plans were filed for subdivisions, and permits were issued to build, the people of the Chappaqua school district, which comprises the larger part of the Town of New Castle, decided that something had to be done, since school and other public services could not even catch up with new building that was already finished, to say nothing of the additional families which these new subdivisions would bring in.

The situation confronting the town was not brought on only by this latest rash of subdivisions; New Castle had known for some time that the postwar suburban upsurge was engulfing it, and it had engaged competent professional planning assistance to analyze the situation and to prepare comprehensive plans for its future development. With the general trend of these plans pretty well in mind, the town took the drastic step of devising a modification of its zoning ordinance which would limit new construction to no larger number of additional houses all year than the average number that had been built in the previous five years. Clapping down the lid, it began, by ordinance adopted June 25, 1956, to maintain the absolute, physical *status quo* and to allow no new building to proceed, except by a formula established under the revised ordinance. Two of the five members of the Town Board sought to modify this proposal, since they foresaw the legal difficulties of trying to stop building where land had been purchased by the builders in good faith and some permits had already been granted; but the temper of the meeting was so overwhelmingly in favor of drastic action that these went along with the majority and the ordinance was adopted unanimously.

No sooner was this done than builders all over Westchester County banded together to fight it; and, a few months later, it became evident to the Town Board that it had perhaps gone too far. On September 25, the earlier action was replaced by a somewhat modified ordinance which made reasonable concessions to those builders who had already invested in land and plans; but it continued the basic principle of limiting new construction to the average rate of the past five years.

It now boils down to a legal fight between the builders of houses-for-sale, on the one hand, who see their free-enterprise property rights seriously curtailed; and, on the other, citizens of a growing community who, having gotten around to comprehensive planning a little late, are trying their best to save their town from complete confusion and possible bankruptcy.

The situation in Chappaqua is typical. The plaintiffs in this suit know that if the town's defense is successful, builders everywhere will possibly find their activities somewhat restricted in the interests of the public welfare; but it is equally true that if the town *loses*, not only Chappaqua, but every other suburban haven for escaped apartment dwellers, will find itself with one less legal leg to stand on in the difficult fight to maintain community amenities of the sort that the modern suburbanite *expects*.

What are these amenities and what are the trends that are threatening them?

It is all very well for people to leave the crowded conditions of the city for what they expect to be the quieter, less crowded, and pleasanter places, and to plan to live in the outlying portions of the metropolitan region. Unfortunately, this has (in many cases) proved to have been an unfulfilled dream—overcrowding is rapidly becoming as much a problem in the former potato fields or golf links of Long Island, the once-stately village greenery of Connecticut, along Chicago's "North Shore," and the pleasant farmlands of northern Ohio or New Jersey—as it ever was in Brooklyn, Chicago, or Manhattan.

Traffic jams, inconvenient shopping facilities, poor transportation, double-shift schools, and inadequate utilities have come to plague the eager buyers of new houses within a few years after they have moved in; and these are just as big a headache for the older residents of these suburbs who must submit to the rush of refugees-from-the-city in their erstwhile quiet towns.

Of course, these new families in the suburbs are not entirely made up of those who had already established footholds in downtown apartments; quite a large portion of them are new, young families who have never made a home anywhere else before. The problems of the bursting suburbs are due not only to the desire of people to get out of the city, but also to the general increase in population, which is as typical of the New York metropolitan region as it is of other similar areas throughout the country.

To meet this demand, builders are putting up houses by the thousands everywhere. From their point of view, they are only giving willing customers what they want and making a hard-earned profit in the bargain. As seen by the towns they have invaded, however, they are exploiting community values, destroying much, and giving nothing in return.

As a representative of the Home Builders Association put it, just the other day, "The builders are simply manufacturers delivering a product to meet a demand." What happens to the buyers who use their product after the deed has been signed is of little concern to them. *Caveat Emptor!* Even less do they care what the effect of their operations is on the communities they have invaded, nor can you blame them really: for what do, say, automobile manufacturers care about the traffic jams that are created by their product or the expense to which the millions of cars produced every year put the taxpayer, in having to build new roads, bridges, or overpasses, and in having to buy costly right-of-way for them?

But the communities *do* care and by "communities," I refer not only to the

* *New York architect, planner, author.*

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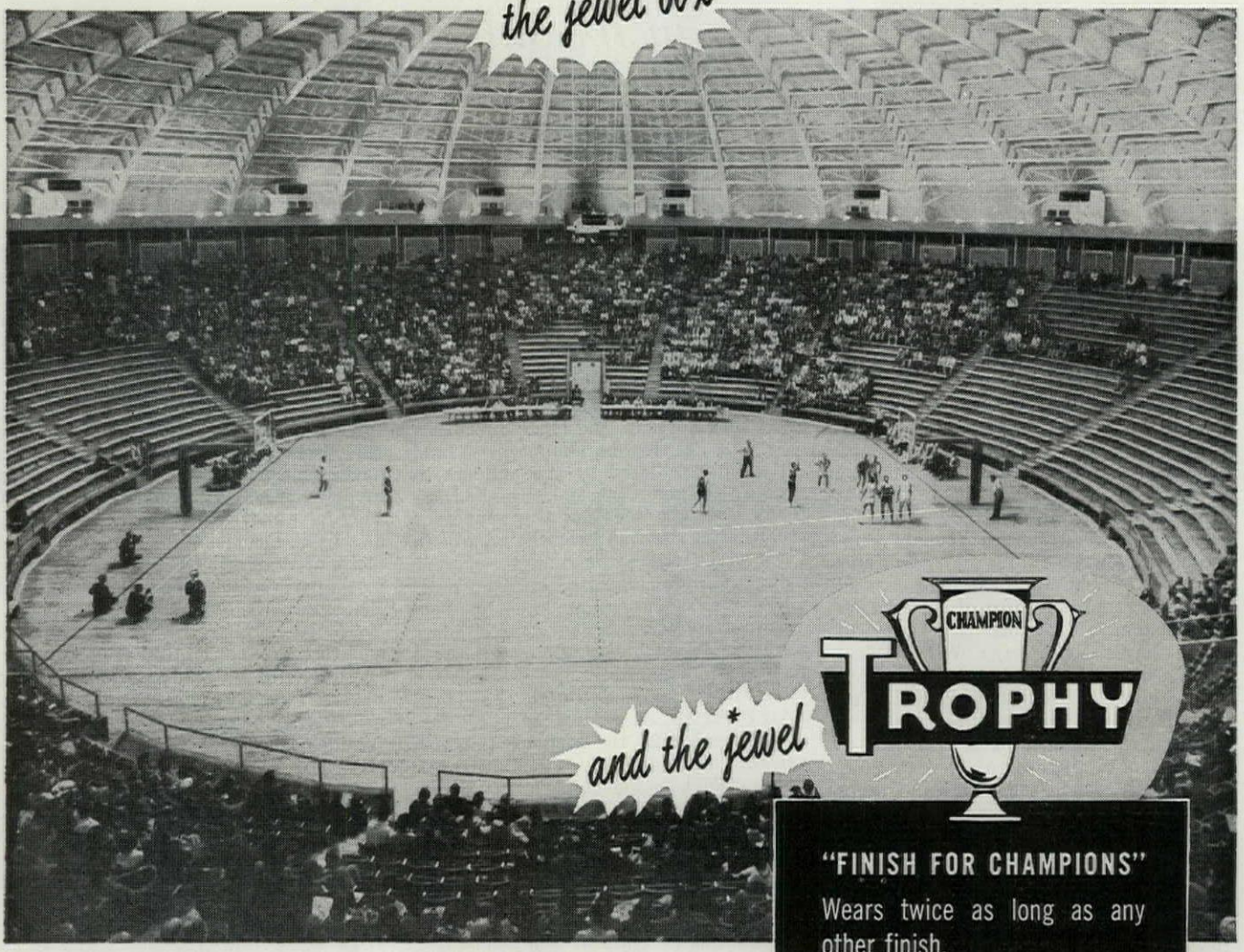

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Growing Pains in the Suburbs

vocal part of the citizenry in our suburban towns but also to the town or village governments themselves, for these are responsible to the people.

Such problems result not from the housing developments alone. These begin by largely replacing the rural atmosphere that for so long prevailed along the outskirts of what had been quiet villages with a modest proportion of commuters. But then, along with the houses, come new shopping centers and every type of commercial development from filling stations to night clubs, from veterinary hospitals to carpet salesrooms; and it is these, in turn, that have created most of the insoluble traffic jams which lead to further cutting up of the scenery with new streets, parking lots, superhighways, and over- and under-passes. All in all, more and more masonry and less and less greenery—to say nothing of the demands put upon the local governments to provide utilities, everything from schools to sewers, to take care of all these new houses, stores, and whatnot; and the increased personnel, on the town payrolls, to maintain police, teaching, and other services.

Occasionally, a town is well enough planned to have a balanced economy—that is, enough commercial and industrial development of the right sort paying high taxes and requiring comparatively little in the way of services—to offset the residential developments where the home-owner's tax seldom covers the cost of providing his children with the sort of school the modern suburbanite has become accustomed to. Where good planning and up-to-date zoning have joined to establish this economic balance, the financial ability of the local communities to pay for all these added costs is not so critical, although the time it takes to plan for and build the schools (to say nothing of staffing them completely) is still enough of a problem so that they are never able to catch up to the builder-created demand—and the communities are in a continuous turmoil.

Where, on the other hand (as is more often the case), there has been no planning, the zoning is outdated, and a well balanced economy not yet achieved, tax money is not available (even if the time and talents were to be had) to pay for the community facilities required by the new home-owners brought in by the builders.

That is why so many of our communities want to put a brake on the headlong construction of more new houses. They are seeking a formula to delay, at least, the increasing rate of construction of more new houses so that the communities can catch their breath and make proper plans for future and further growth, before they are completely engulfed.

Now, how are they going about this job? There are several ways. By far the greater majority of our communities are tackling the problem through the planning instrument known as zoning. This may seem a much more direct way of holding the builder at bay and, *when based on a comprehensive plan*, is usually an effective one whose strength is based on years of legal precedent behind it. It is when, as so often, zoning is resorted to hastily before adequate planning, and as an emergency defense against an unexpected (but probably foreseeable) situation, that the localities find themselves in real trouble.

Zoning as an instrument for carrying out a planning policy of limiting construction (and through this the number of new family units in a given community) can take two forms: *zoning by area*, i. e., specifying the number of families that can occupy an acre of land at *any* time; and *zoning by time*, i.e., regulating the number and location of new houses that can be built in designated portions of a community, *within specified periods of time*.

This latter concept, known as "time zoning," is comparatively new. Zoning by *area*, however, has long been established and is a well known expedient that is currently being resorted to with ever-increasing enthusiasm by communities faced with the growing pains of postwar expansion. It usually takes the form of "upgrading" the residential districts, requiring more square footage—or acreage—per family.

Limiting the number of families that can live on an acre may take the form, in the inlying suburbs where the big-city apartment belt is already spreading, of cutting down the land that may be covered by an apartment house, or to limiting the height or "floor area ratio" of multiple dwellings; or it may exclude them entirely from certain areas in favor of single-family units. Because the "middle-distance suburbs" like Paoli, Pennsylvania; New Canaan, Connecticut; or Lake Forest, Illinois, have become the homes of people of comparative affluence, disgruntled builders have circulated the easily swallowed argument that the new rules were adopted to "keep out" people of more modest means. It will probably be found, however, that the majority of the voters in the town—only a very small minority of whom are in the really high-income brackets—have simply decided to cut down on their troubles and their taxes.

This procedure, good as it is, as far as it goes, and effective as it is as an immediate stop-gap measure to offset the temptation to cut up large estates and destroy vast expanses of fine forest and meadow land, can be criticized on the grounds of failure to plan comprehensively on a long-range basis.

What other measures, then, can the town planner suggest? We can now go beyond even the three-dimensional planning and consider the *timing* of construction by means of zoning which would program the *rate* of building units which may be constructed in a given period of time, or the *sequence or order* in which new developments may take place in different parts of town.

As an example of the latter, Milford, Connecticut, divided the unbuilt portions of the town into areas of priority indicating those where building—*to the full limit of present zoning*—would be permitted during a specified period of years, with the assurance that public utilities would be provided; while other sections of the town were temporarily closed down to any new building whatsoever until, one by one, means were found to provide utilities for these "closed down" areas.

In a rapidly growing section like Rockland County, New York, the same principle has been adopted, but directly through zoning: "anticipating a population increase from the present 17,000 persons to an 'ultimate' of 90,000, a new ordinance schedules residential growth so that it will radiate outward in graded intensity from established population clusters." Even already built-up places like New Rochelle recently adopted new zoning regulations which "establish a maximum density in apartment districts of 48 families per acre. The previous regulations permitted densities of about 100 families per acre." The zoning ordinance of Hastings-on-Hudson, New York, establishes "a standard ratio between one-family and apartment construction. Fifteen multi-family dwelling units are permitted somewhere in the village for every eighty-five one-family dwellings that are completed." While at Sands Point, Long Island, "mass-production home-building operations are declared a commercial use—hence not automatically permitted in a residence district."

These ingenious devices will have to stand the test of the courts. The builders' associations have raised a sizable kitty to pay for the litigation involved in claiming the rights of their members to build without quota or priority, and the town has girded up its loins to fight back with equal determination. "Hasty contrivance" is what the builders term the town's action; "supervised exercise of the police power in the interest of the public welfare," answers the town.

The outcome, for a judicial decision is expected, will be watched with interest by other communities — and the builders.

Architect: W. B. Tabler
New York, New York

Contractor: Brown & Olds
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qualifications of paints interest specifiers, manufacturers

Dear Editor: The April issue of PROGRESSIVE ARCHITECTURE contained an article by Harold Rosen entitled, "How Do You Specify and Approve Paint Material?". This is a provocative question and, because the inquiry invites a reply, I have prepared some material (below) illustrating one paint manufacturer's viewpoint.

I feel that this type of discussion will do much to improve specifications and may lead to a broader spirit of co-operation.

FRED P. SUTTON
Director of Architectural Relations
Benjamin Moore & Co.
New York, N. Y.

●

The author is to be complimented on his efforts to acquire the necessary information incidental to preparing substantial and workable specifications. Some specifications contain a series of paragraphs which have no definite significance from a practical viewpoint and which may result in misinterpretation by the contractor, thereby defeating the intention. Very few architects enforce their specifications by proper inspection: i.e., are the materials delivered in unopened containers, which brand has been supplied, and so forth?

When you buy a new car, what standards do you apply? Price, color, horsepower, size end use, or friendship? When you specify paint you have the manufacturer's past performance, his integrity, availability, and national reputation. He supplies you with color chips, finish textures, and the type of paint required for your particular end use. He supports technical men to furnish you with your information. You have confidence in his recommendations and you specify accordingly. Ultimately, the contract is let and the painting contractor wishes to use Brand D in place of Brands A, B, or C which you specified. Why? There must be a reason. It is incumbent upon you to secure an answer to this question and, if you consider the answer legitimate, you may accept Brand D. If you do not consider the reason sound, you are at liberty to reject it.

Most specifications state: "Before work is started, the painter shall examine the premises, and all areas not suitable for painting shall be reported to the Architect in writing and the conditions shall be corrected before the work is begun." Several months later, a complaint is received regarding several areas where paint blistered (moisture), or some color has bleached out (hot spots), the hiding is poor, or shiners appear. These failures occur on one wall but not on the three remaining walls. What is at fault, architectural inspection, architect's permission to paint too soon, painter cutting costs by thinning the products or not performing in a thorough and workmanlike manner?

The author put his finger on the pulse of the situation when he stated: "To insure that you are getting what you specified, you watch the painter measure out and mix the ingredients on the job." Do the architects of today examine the containers in the painter's shack, do they watch the painter add thinners, and do they see to it that no painting is done in damp or rainy weather and when the temperature is below 50°? The author's statement at the end of his article supplies the key to this unsatisfactory condition. We must put our heads together and co-operate. We must write a specification which can

(Continued on page 14)

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Indexed in Art Index, Architectural Index.

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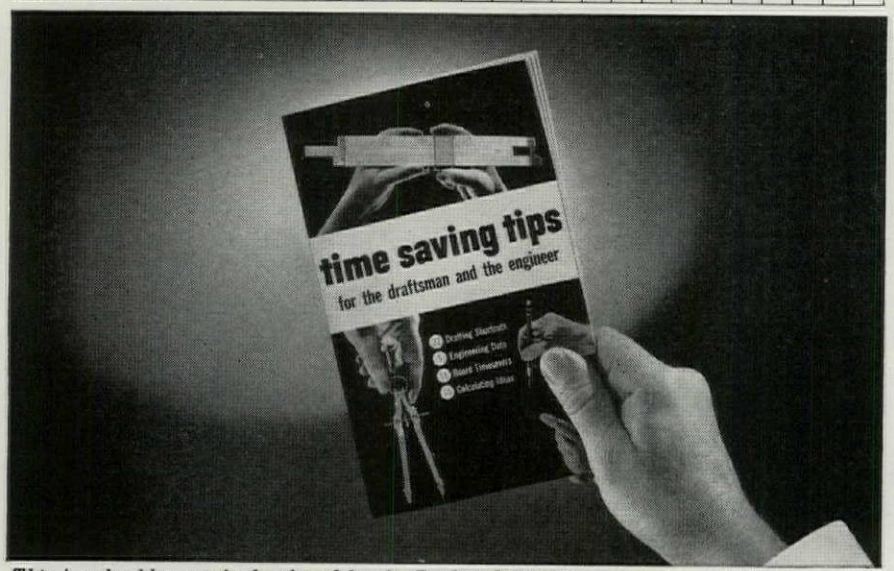

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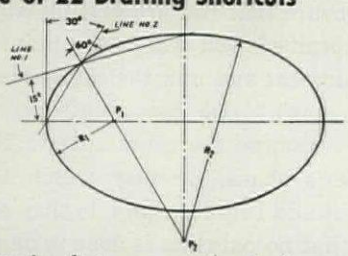
Clearly written and well illustrated, this booklet shows new approaches to old problems. The section on CALCULATING IDEAS contains 10 tips including easy ways of "Remembering the Signs of Trig Functions," "Dividing a Circle Into Parts," and "Locating Decimal Points."

One of 22 Drafting Shortcuts



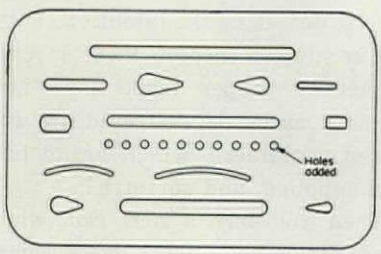
Here is what seems to be the fastest and easiest method of constructing an approximate ellipse: (1) Draw a line at 15° to major axis as shown. (2) Draw a line at 30° to minor axis as shown. (3) Draw a line at 60° to line #2 through intersection of lines #1 and #2. (4) Draw Arc R_1 from point P_1. (5) Draw Arc R_2 from point P_2.

9 tips in Engineering Data Section

Easy-to-use, practical shortcuts to formulas and other engineering data are featured in this section. Two of these time savers are faster methods of "Determining Gear Inertia" and "Interpolating Between Family of Curves."

One of 18 Board Timesavers

Fairly often when drafting it becomes necessary to change a solid line to a dotted line. By placing a series of holes in an erasing shield, as shown, it is possible to make the conversion simply by erasing through the holes.



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p/a views

(Continued from page 13)

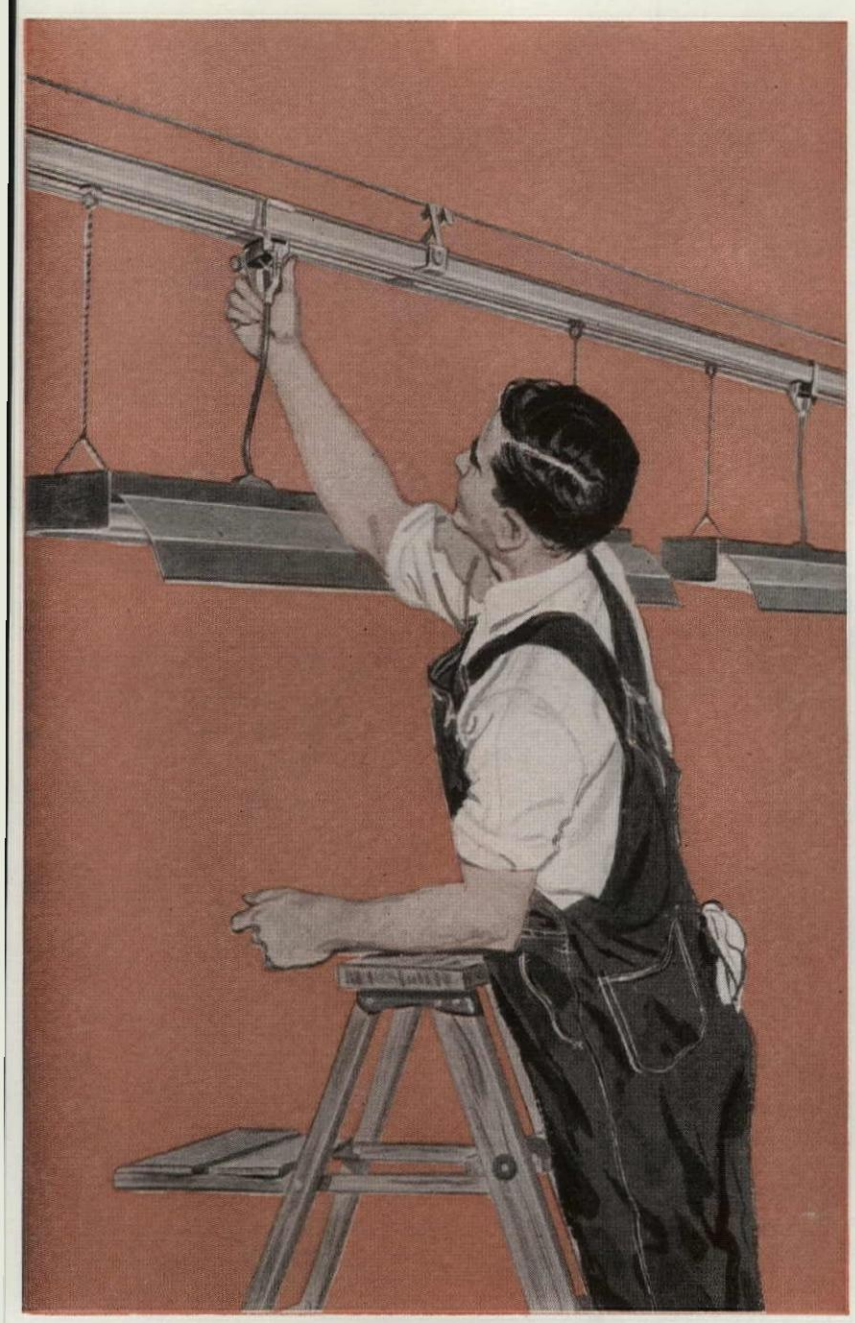
and will be enforced. If the painter knows that the architect is closely following his specification, he will hesitate before attempting to cut corners. The specifications writer must "follow through." It is not sufficient to write instructions and then not enforce them. This may involve "inspection," which is not necessarily a function of the specifications writer but *is* the architect's responsibility.

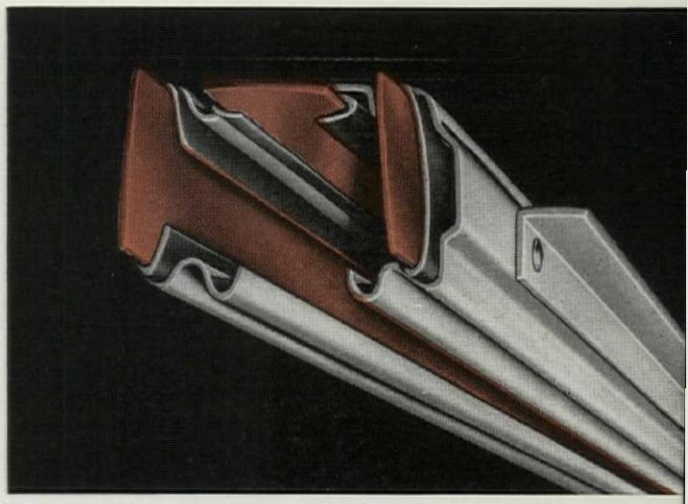
Another factor is the introduction of new materials which may require a paint finish. In the horse-and-buggy days of lead and oil, as outlined by the author (who quotes an obsolete formula), there were relatively few variations in surfaces requiring paint, principally exterior siding and interior plaster walls. Today we have many new paintable surfaces, such as wallboard, plasterboard with taped joints, several types of cinder blocks, stucco, acoustic material, and the like: all of which require that paint manufacturers, through research, develop new and suitable finishes. Inasmuch as new products in all fields are being introduced constantly, it is incumbent upon the specifications writer to adjust his work accordingly. Manufacturers will gladly assist you in the use of contemporary products.

To quote the paragraph contained in the Specifications suggested by the Painting & Decorating Contractors of America which states: "Recommendation of specific materials for fulfilling the intention of the Architect is not considered a function of these recommendations," appears justified. Being a trade association, they cannot be partial but do recommend the type of finish to be used which is generally available from all reliable manufacturers.

My answer to the query, "How Do You Specify and Approve Paint Material," is this: consult any reliable manufacturer's representative for

(Continued on page 16)





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(Continued from page 14)

current information. He is as close to you as your telephone. Tell him you want information industrywide. Today's representatives have been trained for this type of work and will supply your answers quickly by phone, or in person, or present literature containing the solution to your problems. Specify a minimum of three manufacturers whose work or products have proved acceptable and insist that the products of one of these be incorporated in your building, unless an additional manufacturer can prove acceptability to your satisfaction.

Teamwork is essential and could require the co-operation of all branches of the construction industry, including Architects, Specifications Writers, Manufacturer's Representatives, and Contractors. The Construction Specifications Institute, with chapters in principal cities throughout the United States, is an excellent medium for securing material at the specifications writer's level.

faith in manufacturer

Dear Editor: We use the same method that is used by most architects and engineers, namely the preselection and qualification of the paint material and manufacturer. This material is specified to be delivered to the job in sealed containers.

When a manufacturer unknown to us submits his material as an equal to the material specified, we request all of the information, tests or performance data necessary to qualify his material as an equal to the material specified.

The preselection and qualification of the paint material and manufacturer is the only means now available to the architect and engineer. Testing of material in accordance with established standards of testing, such as the Federal Specifications, ASTM, or other recognized agency is seldom used on private work.

Faith is placed in the manufacturer to deliver to the job the same material that has been previously qualified. There is a guarantee which protects the owner to the degree that the material will perform as specified.

A simplified form of specifications might be developed which will specify ingredients and performance, followed with standard tests to determine that the specified results can be obtained.

We look forward to watching the result of your efforts in solving this problem.

T. CHRISTIANO
Chief, Architectural Division
Voorhees, Walker, Smith & Smith
New York, N. Y.

(Continued on page 20)

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All surfaces, concealed and exposed, shall receive a vitreous porcelain enamel ground coat. All exposed surfaces shall then be given a cover coat, in a color selected from the Weis color chart of decorator colors.

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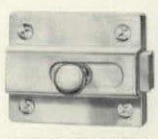
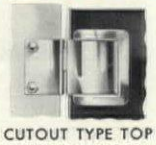


SLIDE BAR LATCH

COMBINATION KEEPER AND BUMPER

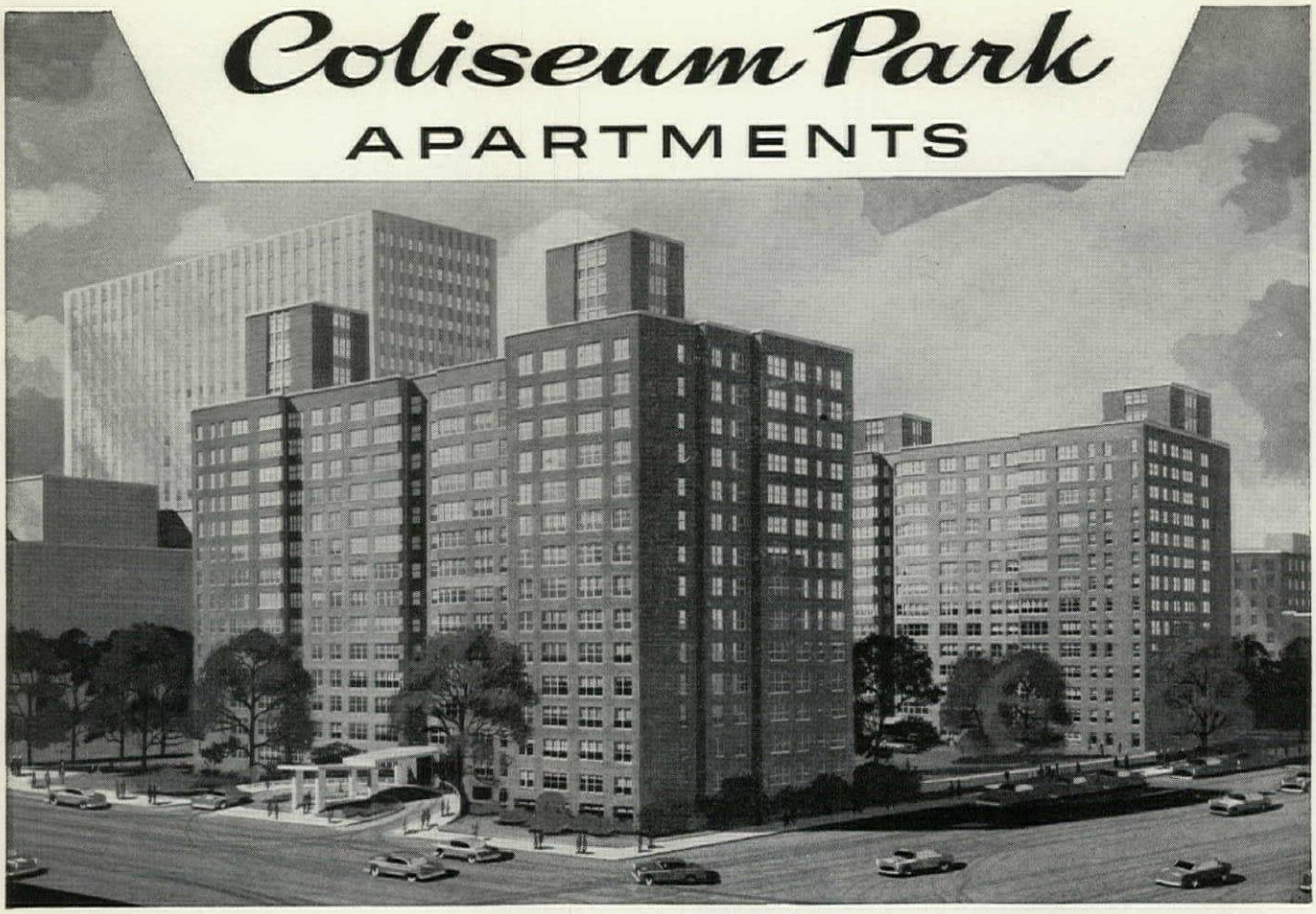
COMBINATION COAT HOOK AND BUMPER



CUTOUT TYPE TOP DOOR HINGE

UNIVERSAL BALL BEARING GRAVITY TYPE BOTTOM DOOR HINGE, CUTAWAY VIEW

Coliseum Park
APARTMENTS



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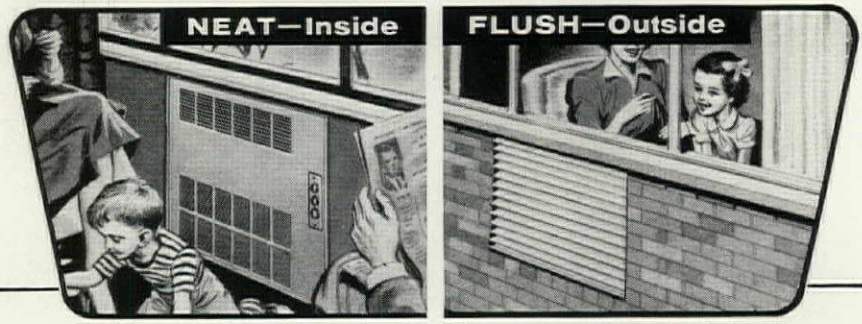

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(Continued from page 16)

would itemize finishes

Dear Editor: As a full-time counsellor on paint matters—and not completely biased—my cudgel is raised in defense of specifications which not only mention standard manufacturers but also itemize individual finishes of one of the approved widely known brands *to illustrate desired type and quality* for various paintable areas. It denotes teamwork with the designers and, to my mind, dignifies the job generally. Moreover, it is an invaluable guide to the contractor and his painting sub.

Competition of parallel or comparable materials is by no means excluded, as it would be in the case of a "closed" specification. Certainly there is no dearth of important projects using worthy alternates of specified materials. Harold J. Rosen's facile though provocative opening article includes a significant quote from specification guidance of the Painting and Decorating Contractors of America. Obviously, thoughtful elements in the painting trade share with architects a genuine respect for conservative technological judgments of manufacturers with nationwide paint consumer responsibilities and particularly those maintaining a competent architectural advisory service.

Painters bidding on important work are incredibly astute analysts of a painting specification. Superfluous verbiage copied from outdated office standards: meaningless descriptions of raw materials harkening back to the day of handmixed paint; obsolete materials or outmoded surface preparation practices . . . all such detractions may ever so slightly influence the way a contractor "sizes up" the caliber of material he has in mind submitting for architectural approval.

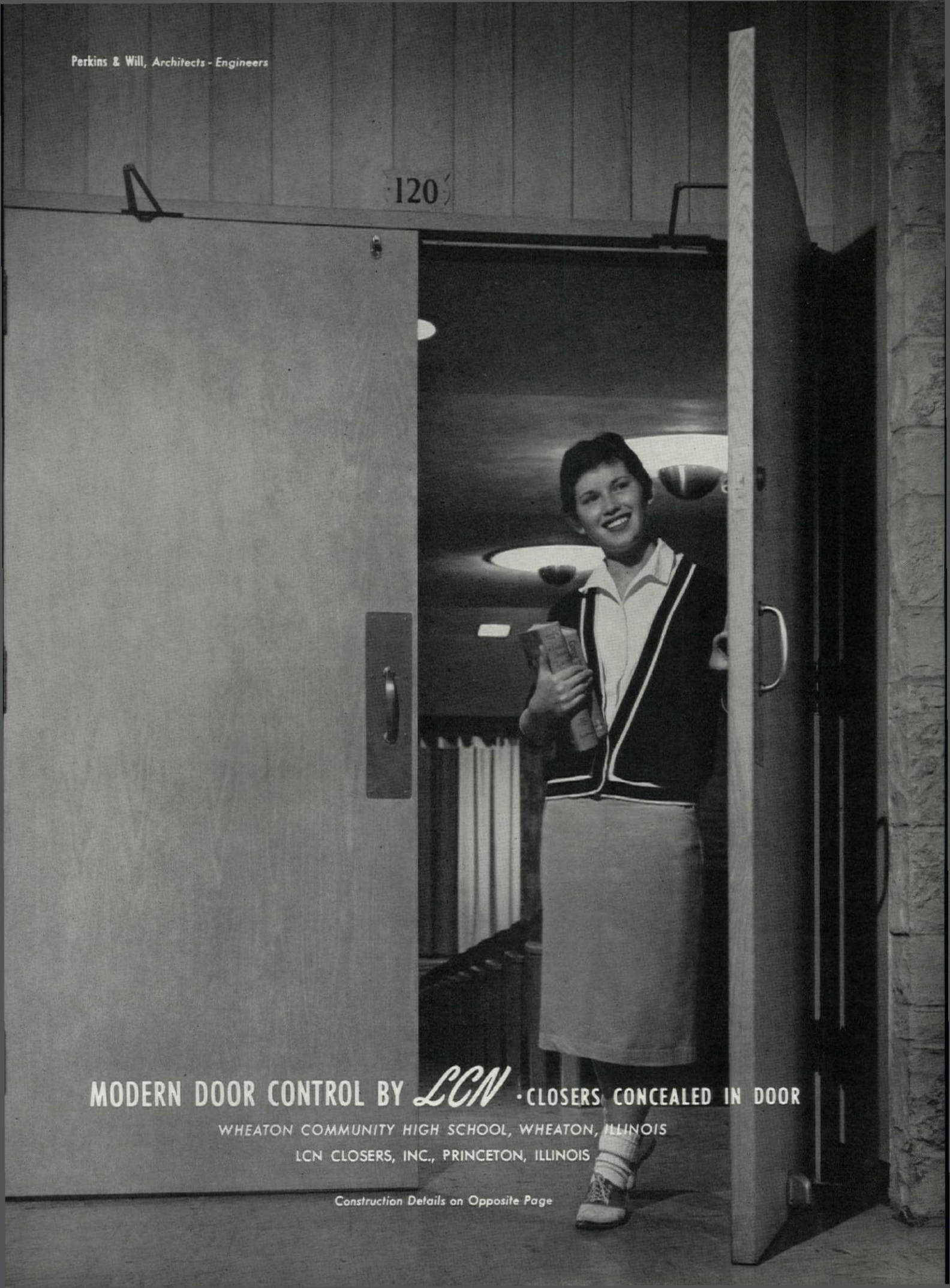
Now as to When, How, and Under What Circumstances to approve or not approve: the itemized specification, as above described, certainly indicates the architect is prepared to compare and evaluate printed label ingredient analyses. Price comparisons on the retail and wholesale levels are frequently overlooked factors. How many years has it been on the market? Which dealers stock the product by virtue of repeat-sales value? A list of institutional users is generally of little value. And finally, consider the contractor's integrity and sincerity.

WILLIAM F. OTTO
Pittsburgh Plate Glass Company
New York, N. Y.

shaving-mug era?

Dear Editor: Your request for comment on the paint article by Harold J. Rosen in April P/A is flattering,

(Continued on page 232)



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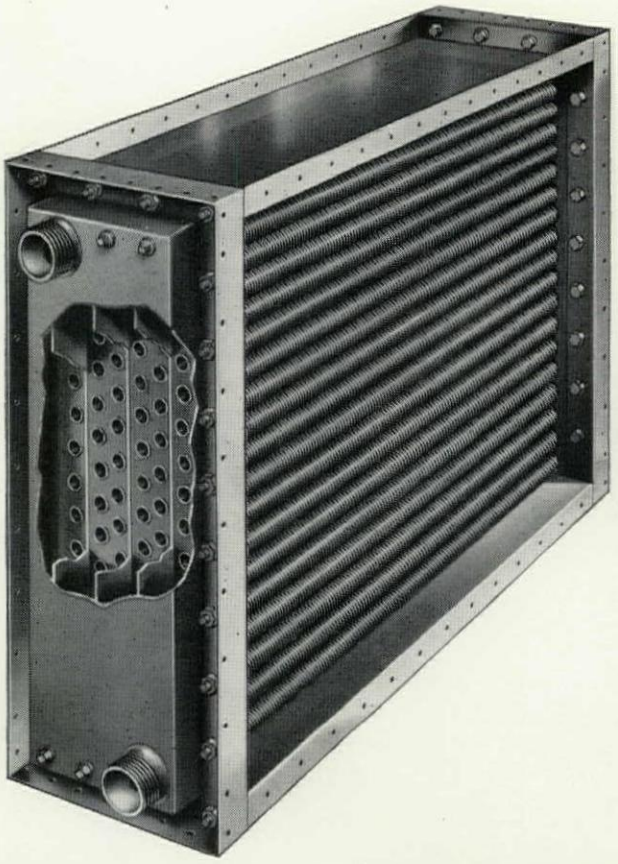

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- Faster completion; less job overhead with reinforced concrete
- Earlier rentals . . . 50 to 60% savings on forms
- 25,000 Cubic yards of concrete, 100,000 concrete blocks, and 2,200 tons of reinforcing steel went into the Americana

THE AMERICANA HOTEL
Bal Harbour, Miami Beach
Laurence A. Tisch, President
Owner: Tisch Hotels, Inc.

Architects & Designers:
Morris Lapidus
Leo Kornblath, Associate
New York-Miami Beach

Structural Engineers:
Oboler & Clarke
Miami Beach

Contractor: Taylor Construction Company
Miami

CONCRETE REINFORCING STEEL INSTITUTE

38 S. Dearborn Street • Chicago 3, Ill.

Wall is of 4′ x 8′ V-Plank* panels—grooved for the plank effect. Paneling for 12′ x 8′ wall costs $65, retail.

Birch Paneling by Weldwood

This beautiful Birch does a king-size job of brightening the looks of any room. And Weldwood prefinishing deserves a lot of the credit; the paneling comes finished, waxed and rubbed like fine furniture. This finish really lasts—still, the cost is low. For more information write:

*Trade Mark

UNITED STATES PLYWOOD CORPORATION, DEPT. PA7-57, 55 WEST 44th ST., NEW YORK 36, N. Y.

A continuing series of distinguished office buildings, schools,
churches, hospitals and industrial structures using NORTON DOOR CLOSERS.

1800 DOORS EQUIPPED WITH NORTON CLOSERS IN NEW EQUITABLE LIFE BUILDING...SAN FRANCISCO

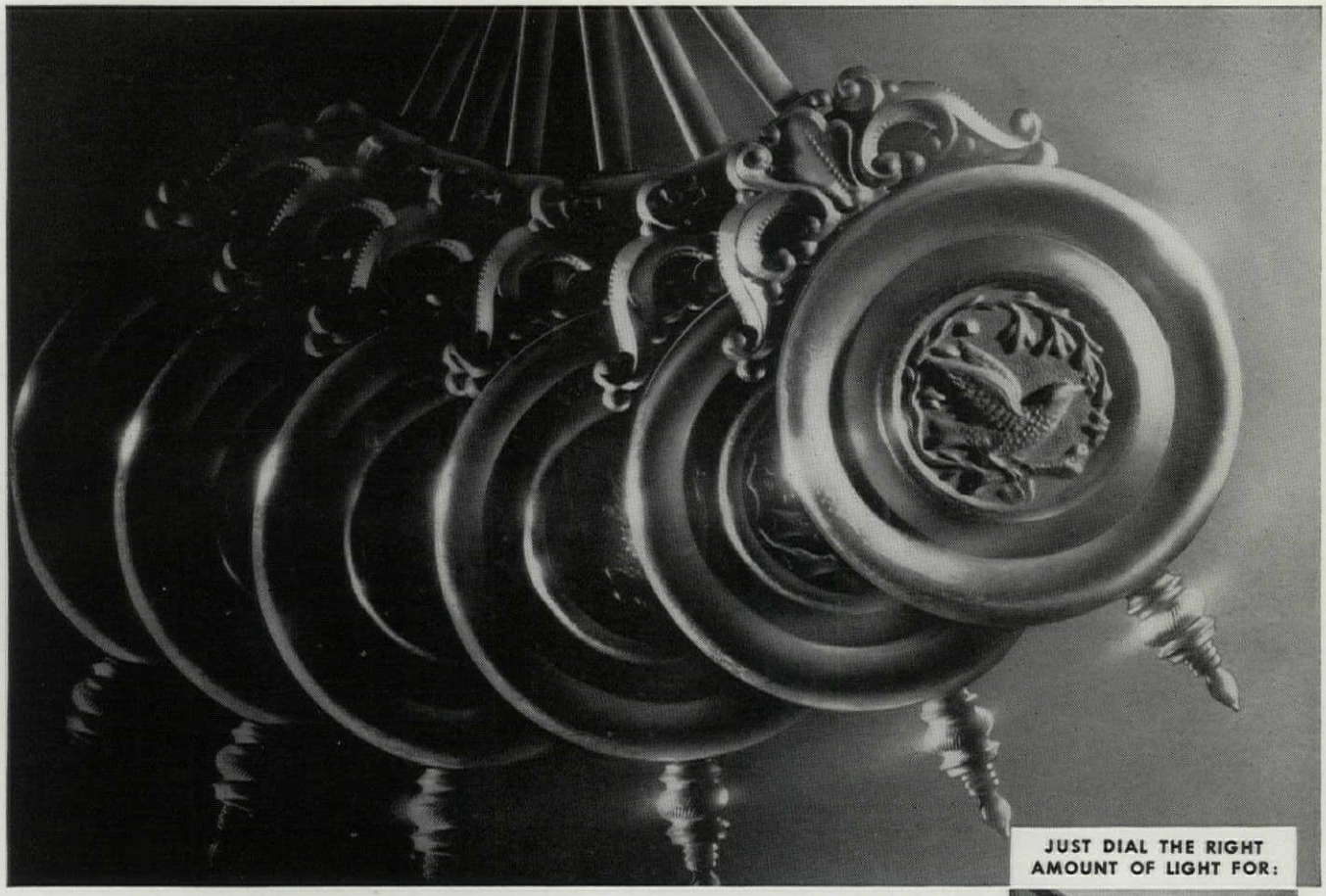
Trouble-free service for years to come is assured in this striking ultramodern building by the use of Norton Door Closers throughout. Both INADOR® and surface-applied NORTON closers are used, the latter on doors where concealment is not essential. Every Norton Door Closer is built to last longer with minimum maintenance and long range economies so essential in all public buildings. For full details, see current Norton catalog. Write for one today if you don't already have a copy.

NORTON DOOR CLOSERS, Dept. PA-77, Berrien Springs, Mich.

NORTON *INADOR*

For Streamlined Modern Design

Available with
(A) regular arm and
(B) holder arm
4 sizes to meet all
standard requirements.



JUST DIAL THE RIGHT AMOUNT OF LIGHT FOR:

LUNCH, COCKTAILS, DINNER

THE TYPE OF MEETING

THE TIME OF DAY

LUXTROL Light Control Provides Interiors with the Dimension of **TIME**

No longer do you have to think in terms of static interiors. Hour by hour you can now vary the emotional stimulus of your decor. You can set the mood you want *at the time you want it* throughout the day or night with "all level" lighting. You can add the dimension of TIME to your interior design.

For restaurants this means you can have customers linger and spend more . . . or hurry and make way for others. For stores it means the exact light level for each individual window or display. For offices it sets the mood of the meeting . . . provides proper light contrast with outside light levels. For churches and funeral homes it becomes a part of the service. Just to mention a few.

LUXTROL light control equipment can be used on incandescent, fluorescent and cold cathode lamps. In the complete line you will find units to meet all requirements from 360 to 30,000 watt loads. Send coupon for more information.

LUXTROL

Light Control Equipment

Non-Interlocking Types When only a few circuits require control. Capacities from 1000 to 30,000 watts.

Packaged Types 6000 to 15,000 watt ratings. Circuits can be interlocked. Professional light control at budget prices.

Interlocking Types Single units in 2500 and 6000 watt ratings for mounting in switchboard assemblies.

Type WBD 360 A compact unit designed to replace the ordinary "on-off" switch in a wall. 360 watt rating.

Magnetic Amplifier Systems No moving parts or electronic tubes. Available in 3000, 6000 and 15,000 watt ratings.

a precision product of

THE SUPERIOR ELECTRIC COMPANY

207 ROGER ROAD, BRISTOL, CONNECTICUT

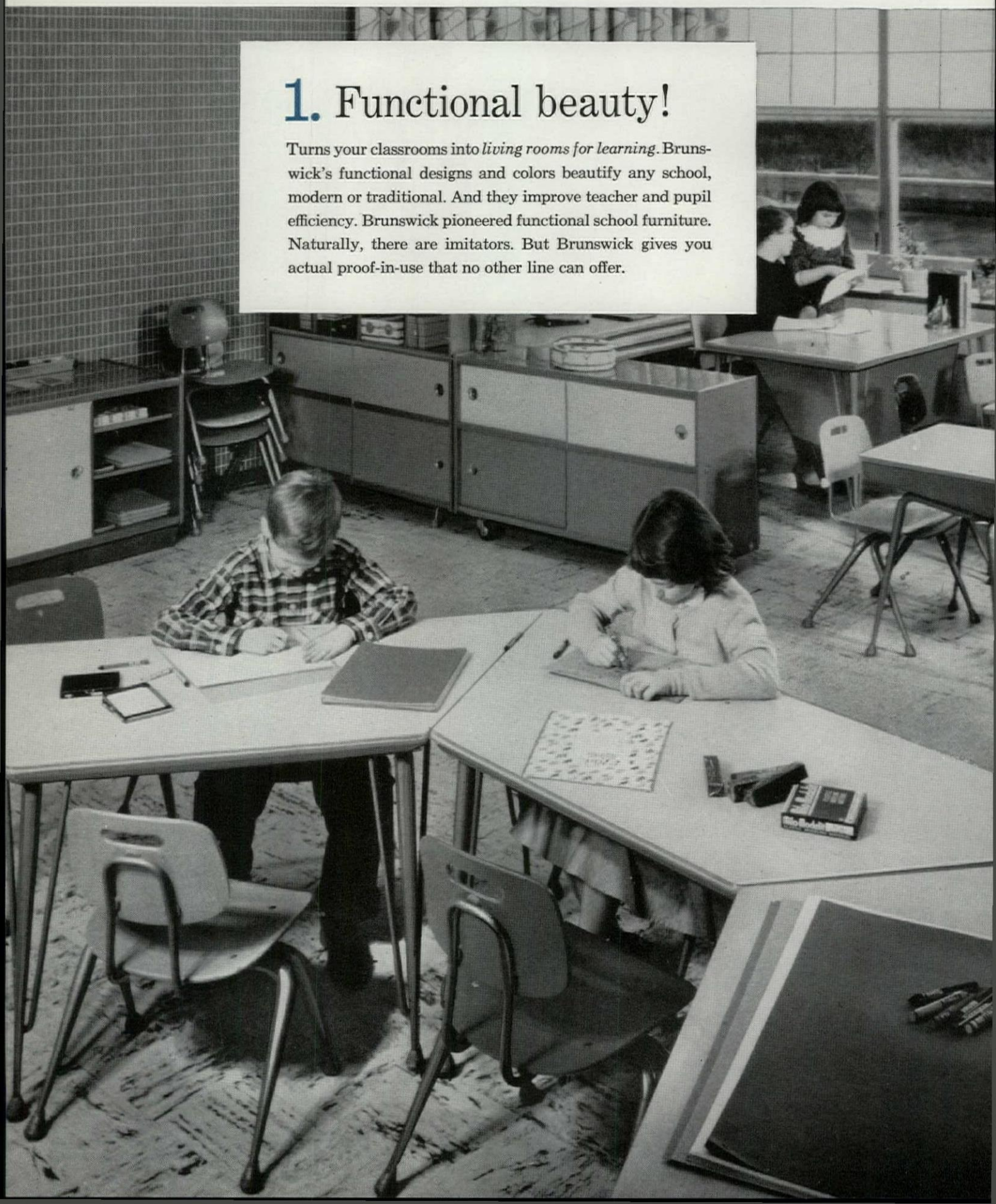
Name_____

Company_____

Street_____

City_____ Zone____ State_____

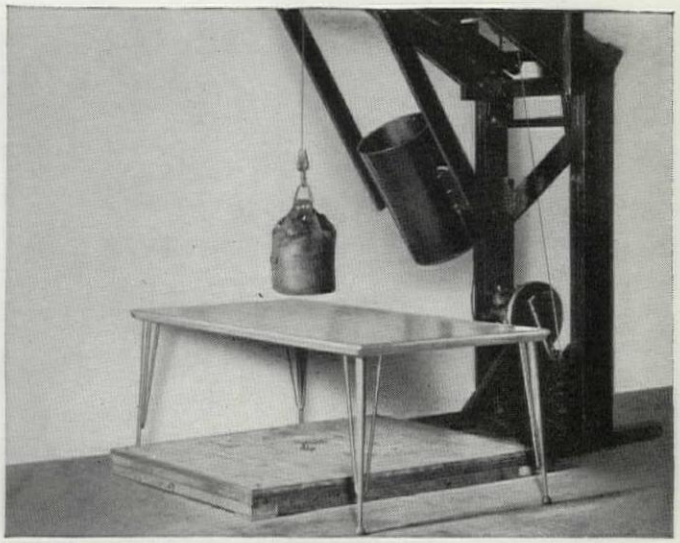
4 reasons why more and school authorities are



1. Functional beauty!

Turns your classrooms into *living rooms for learning*. Brunswick's functional designs and colors beautify any school, modern or traditional. And they improve teacher and pupil efficiency. Brunswick pioneered functional school furniture. Naturally, there are imitators. But Brunswick gives you actual proof-in-use that no other line can offer.

more investment-minded buying BRUNSWICK



2. Complete flexibility!

Makes your rooms *multi-purpose* to fit modern teaching techniques. Brunswick Furniture moves easily, groups and combines. It is the *only* stacking line. And only Brunswick offers factory-built cabinets. They come on wheels if desired, have adjustable shelves, combine in countless ways. Brunswick Furniture is ideal for after-school activities, too.

3. Rugged construction!

Means many more years of trouble-free use! The sand bag test above is one of many that Brunswick Furniture must withstand. They demonstrate Brunswick's many construction, engineering and quality features. Ask your representative to explain them all. And talk to friends using Brunswick. They'll tell you Brunswick is your best investment!

4. Dependable service!

Extends throughout the life of your Brunswick equipment! Your representative helps you plan every installation in exact detail . . . from school furniture to folding gym equipment. His service *begins,* not ends, with the sale. He is always on call when needed. And he is backed by Brunswick dependability that has been famous for 112 years.

Sales figures show that more school authorities are changing to Brunswick than to any other line. Four excellent reasons are shown on these pages. And there are others. One is Brunswick's fast, dependable delivery. Another is the way Brunswick stands 100% behind every piece of equipment sold. A third is that Brunswick offers the *widest* line. You can get all your needs from one dependable source. They all add up to *quality* . . . your best investment in the long run.

See your representative, or write to The Brunswick-Balke-Collender Co., 623 So. Wabash Ave., Chicago 5, Ill.

Still time to order for delivery before school starts this fall!

Brunswick also offers a full line of space-saving equipment such as folding gym seating, backboards and partitions.

Brunswick

the investment line

Recessed type lighting complements the appearance of this suspended acoustical ceiling of Armstrong Arrestone.
VANDERCOOK & SONS, INC., CHICAGO, ILLINOIS. JOHNSON & JOHNSON, ENGINEERS-ARCHITECTS, INC. AIRTITE, INC. ACOUSTICAL CONTRACTOR.

How to select lighting for

Since lighting and acoustical treatments almost always make use of the ceiling area, it is good practice to consider them together, rather than as separate elements.

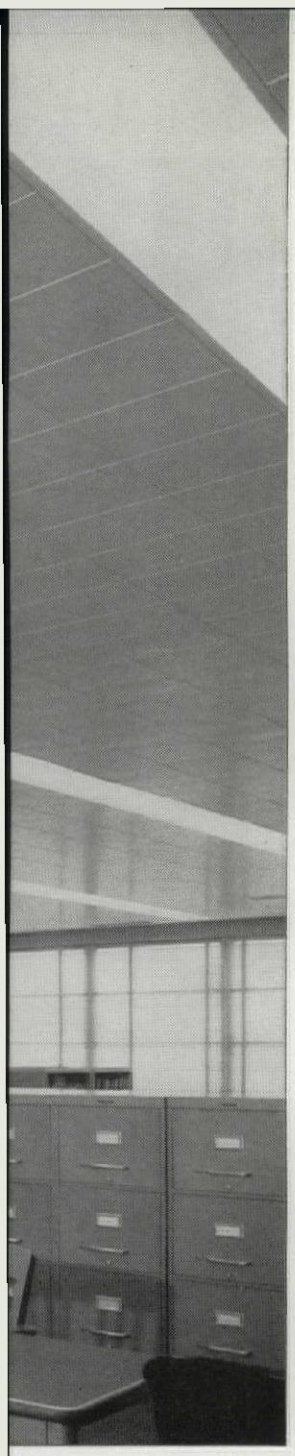
When selecting any type of lighting fixtures, it is always advisable to consider the effect they will have on the appearance of the acoustical ceiling.

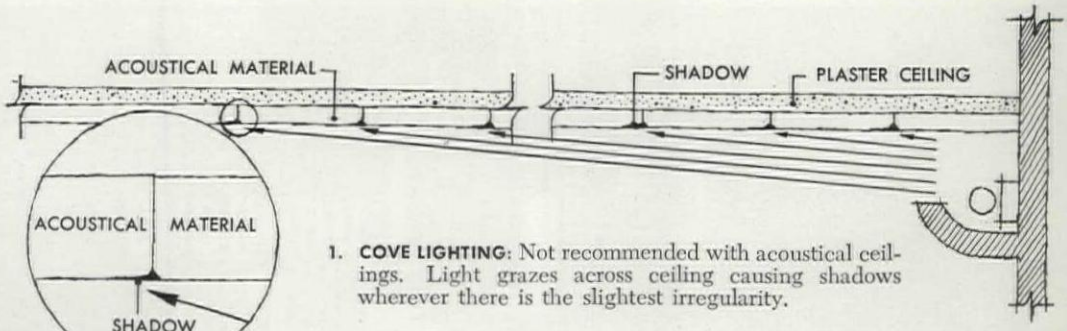
Fixtures located close to the underside of the ceiling, such as cove lighting, are generally unsatisfactory. In such cases, light grazes across the ceiling and emphasizes variations as small as .005 of an inch.

Window-wall lighting and semi-recessed fixtures often create the same uneven ceiling effect. Yet both can be used with acoustical ceilings if grazing side light is eliminated. With window-wall lighting, this can be done with a valance, draperies, or venetian blinds. Shielding around the outside of semi-recessed fixtures accomplishes the same purpose.

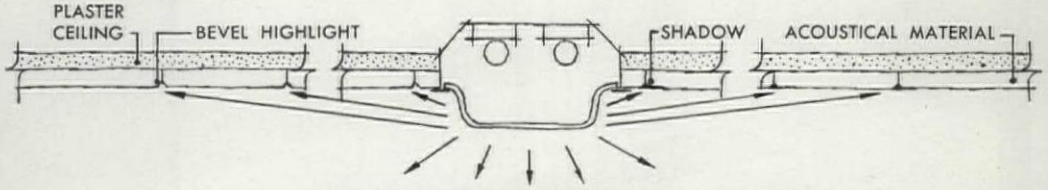
Surface mounted fixtures can also be troublesome in causing ceiling shadows. However, this type of fixture can be shielded to prevent low-angle glaring light from grazing across the ceiling.

The most functional of all types of lighting is the flush recessed fixture commonly used with suspended acoustical ceilings. Besides providing excellent illumination, this type of installation eliminates

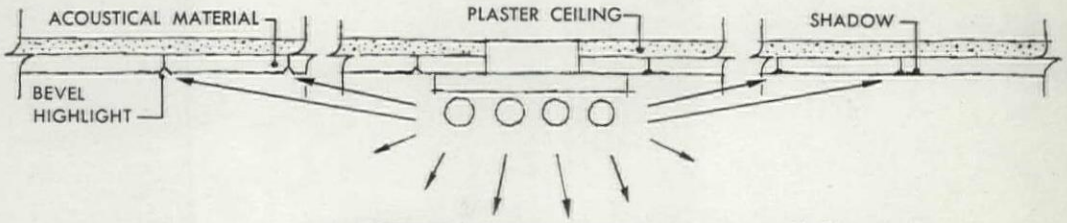




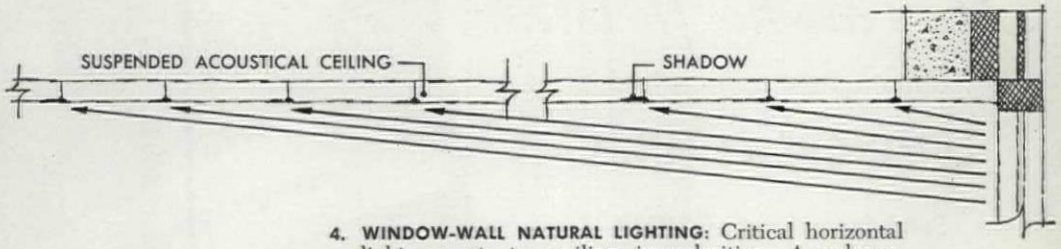
1. **COVE LIGHTING:** Not recommended with acoustical ceilings. Light grazes across ceiling causing shadows wherever there is the slightest irregularity.



2. **SEMI-RECESSED LIGHTING:** Creates the same effect as cove lighting unless fixture is shielded to prevent side light from grazing across ceiling. It may also emphasize bevel highlights, even on a level ceiling.



3. **SURFACE MOUNTED LIGHTING:** Creates much the same effect as cove lighting, unless the fixture is shielded to prevent low-angle glaring light from striking the ceiling.



4. **WINDOW-WALL NATURAL LIGHTING:** Critical horizontal light accentuates ceiling irregularities. A valance, draperies, or venetian blinds minimize grazing light.

an acoustical ceiling

the shadow problems of side lighting and complements the appearance of an acoustical ceiling.

Regardless of the type of fixture selected, its maximum efficiency will still depend upon light-reflecting surfaces in the area where it is used. That is why all Armstrong Acoustical Ceiling Materials have a factory-applied white finish with a light-reflection value of "a" (more than 75%), as listed in the current Acoustical Materials Association Bulletin. These materials diffuse light evenly, without annoying glare.

Your Armstrong Acoustical Contractor can give you complete information on selecting the best type of lighting for acoustical ceilings, as well as data on the entire line of Armstrong Acoustical Ceilings. You'll find him listed in the Yellow Pages. For your free booklet on the latest sound-conditioning materials and methods, write to Armstrong Cork Company, 4207 Watson Street, Lancaster, Pennsylvania.

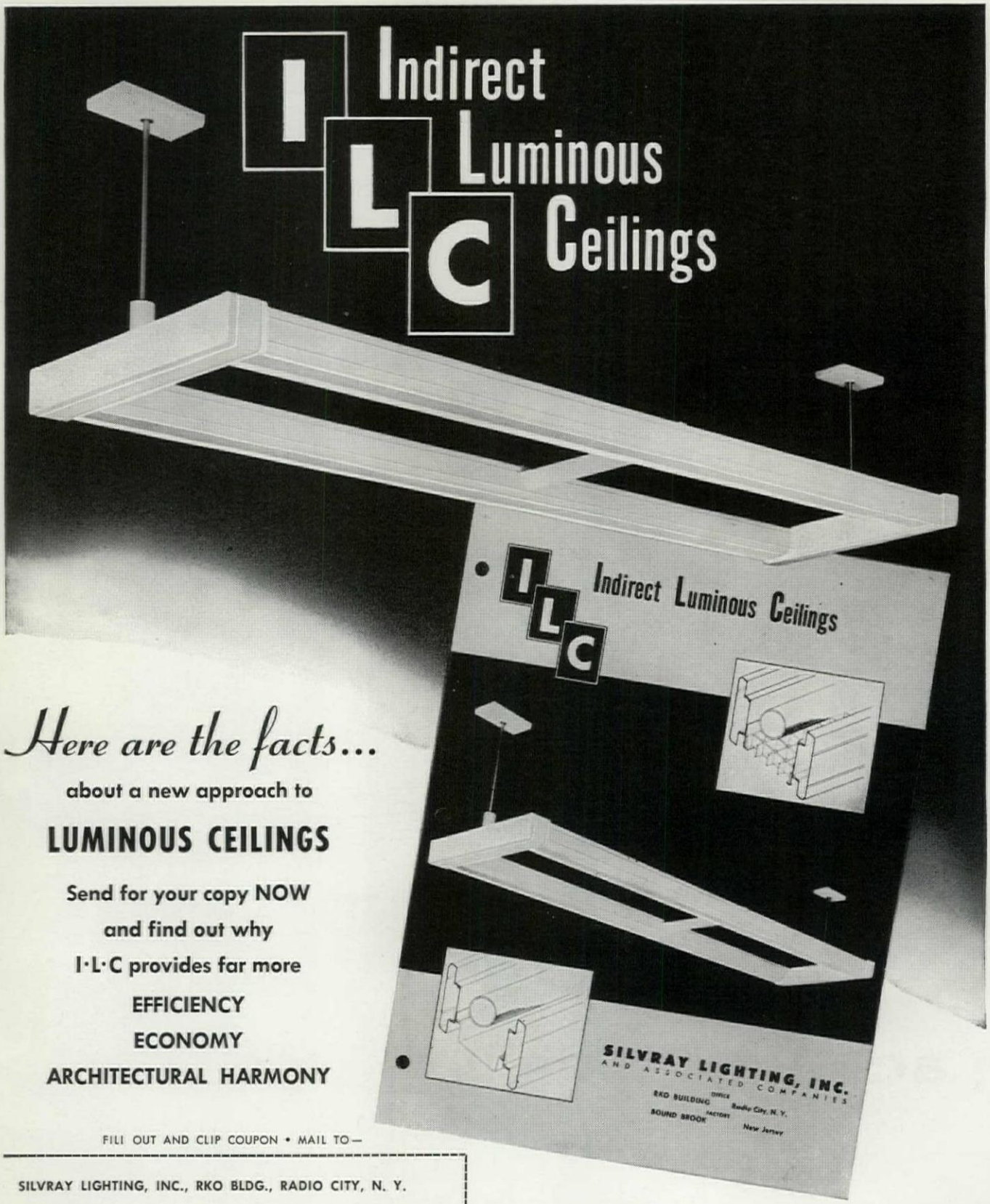
Armstrong

ACOUSTICAL CEILINGS

Cushiontone® • Travertone* • Arrestone®

Minatone® • Corkoustic® • Crestone®

*TRADE-MARK



Here are the facts...

about a new approach to

LUMINOUS CEILINGS

Send for your copy NOW
and find out why
I·L·C provides far more
EFFICIENCY
ECONOMY
ARCHITECTURAL HARMONY

FILL OUT AND CLIP COUPON • MAIL TO—

SILVRAY LIGHTING, INC., RKO BLDG., RADIO CITY, N. Y.

Dear Sirs:

Will you kindly, without any obligation on my part, send me the ILC Booklet #S-457 with complete data on Indirect Luminous Ceilings.

NAME:_____

ADDRESS:_____

CITY:_____ STATE:_____

SILVRAY
LIGHTING, INC.
AND ASSOCIATED COMPANIES
RKO Bldg., Radio City, N. Y.

WHEN RUGGEDNESS AND BEAUTY COUNT

SIMPSON FIR PLYWEAVE

Do your clients ever say "I want my family room to be attractive, but it has to be able to take a beating, too"?

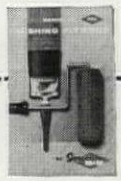
Fir Plyweave is tailor made for this kind of a situation. Plyweave is a low cost plywood paneling with a beautiful, deeply-embossed, three-dimensional surface that is also extremely hard and scuff-resistant. It is ideal for boys' and girls' rooms and heavy traffic areas like hallways.

Plyweave gives architects wonderful opportunities for ingenious and dramatic uses in new homes, offices, schools, etc., or in remodeling. It can be stained, painted or two-toned. It can be put up vertically, horizontally, or in squares.

So to give your client's project a treatment that is daring and practical, too, specify exteriors or interiors of beautiful, tough Simpson Plyweave, in either fir or redwood.

You can also rely on Simpson for Acoustical, Insulating Board and Hardboard Products, plus a complete line of specialty plywood and doors.

This section of Plyweave shows the deeply-embossed pattern.



Simpson M&M

PLYWOOD & DOOR PRODUCTS

Simpson Logging Company, Sales Office,
Plywood & Doors, Room 902-A
2301 N. Columbia Blvd., Portland 17, Oregon

FREE Plyweave sample together with Simpson's new 36-page booklet. "Manual on Finishing Plywood" has 68 full-color finish illustrations plus decorating ideas and suggestions for the use of plywood in the home.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

PLEASE PRINT PD-72

Builder shows three steps to

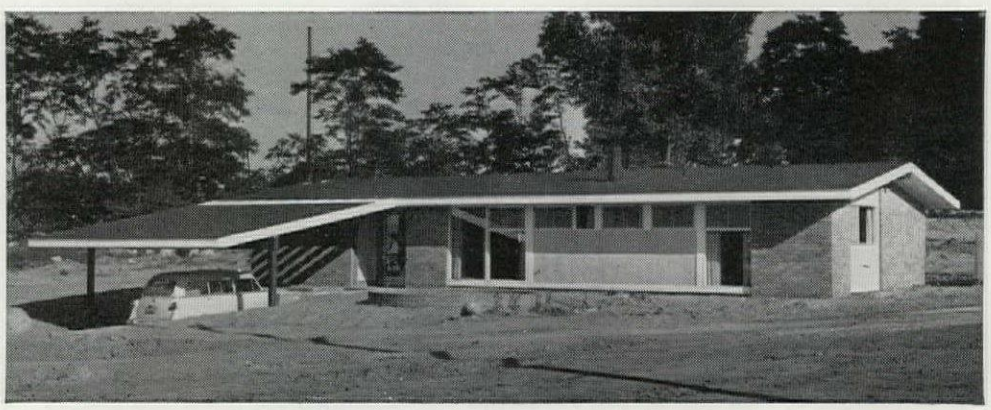
Lifetime perimeter

1 **Place Styrofoam horizontally, next to exterior walls . . .**

Wolfe & Gilchrist choose STYROFOAM for finest perimeter insulation

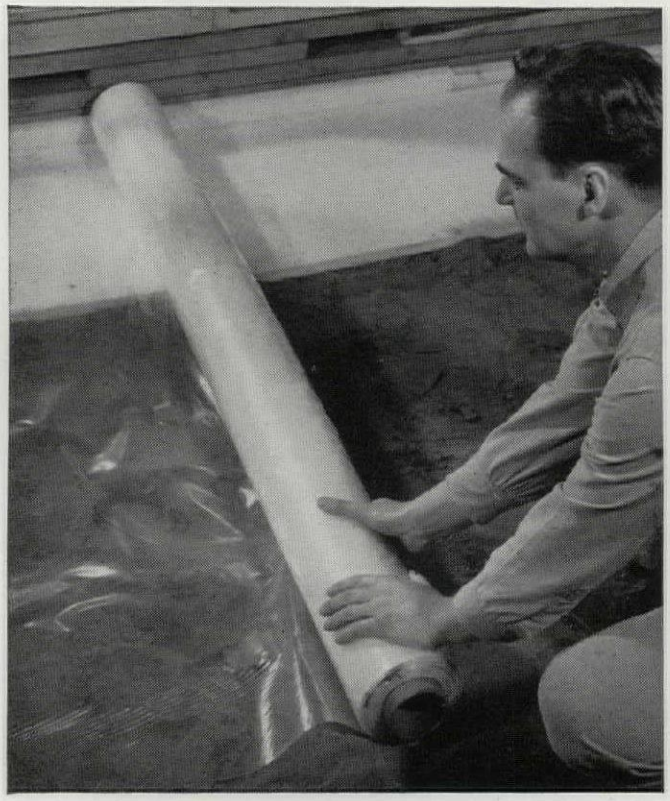
Keith Gilchrist, builder of contemporary homes, reports, "I've found Styrofoam the best ever for perimeter insulation in basementless homes. The way it protects against cold, heat and dampness is really something."

(All photos shown here were taken in Wolfe & Gilchrist's Holly Hill subdivision, northwest of Detroit, Michigan.)



SEE OUR CATALOG IN SWEET'S

insulation with Styrofoam



2 Apply vapor barrier . . .

3 Pour concrete floor slab . . .

STYROFOAM* (a Dow plastic foam) is a new kind of homogeneous insulation introduced by Dow, First in Foam. It resists rot, mold and deterioration. It has no food value—does not attract rodents and vermin.

A plank 9 feet long and 1 by 12 inches weighs less than 22 ounces! It's strong enough to support a commercial vehicle. Won't absorb water—even after a week's immersion only the open surface cells show any sign of moisture.

Here's an economical insulation—clean, easy to handle—available in various lengths, thicknesses. The millions of tiny, noninterconnecting cells block out heat and cold. What's more, Styrofoam gives lifetime protection.

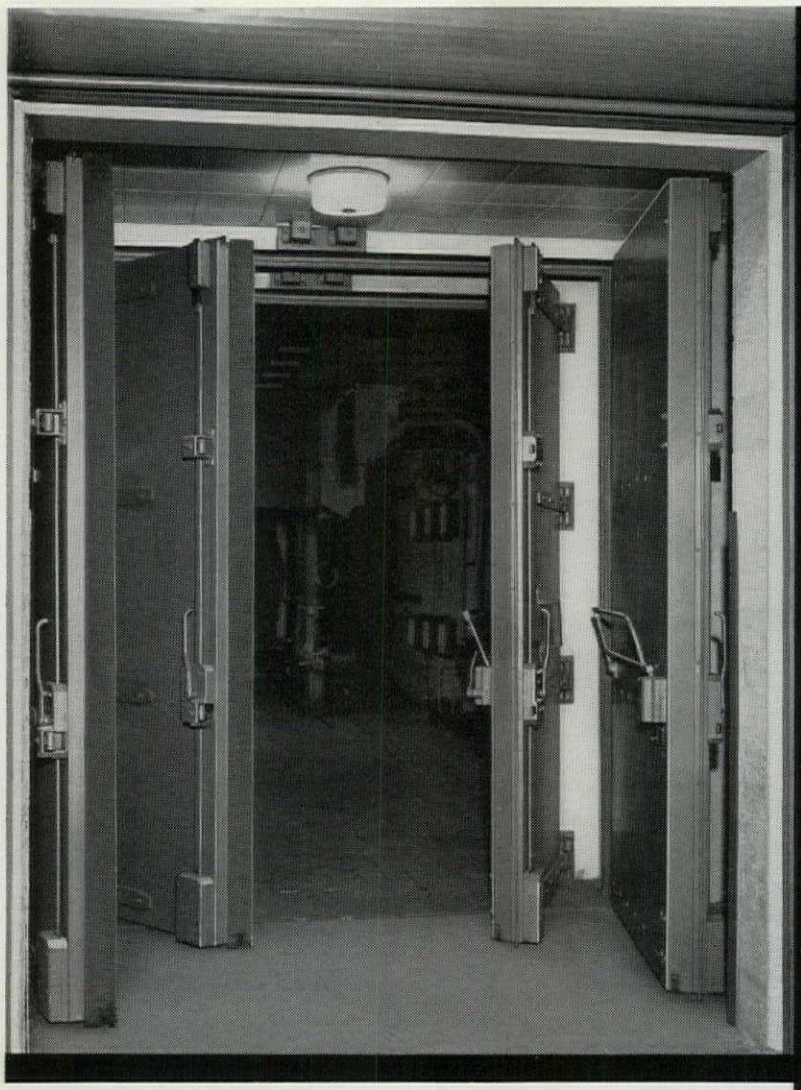
PROVED FOR 10 YEARS—Since 1946, Styrofoam has established a consistent record of satisfaction in the field of industrial refrigeration. Here only the best is good enough.

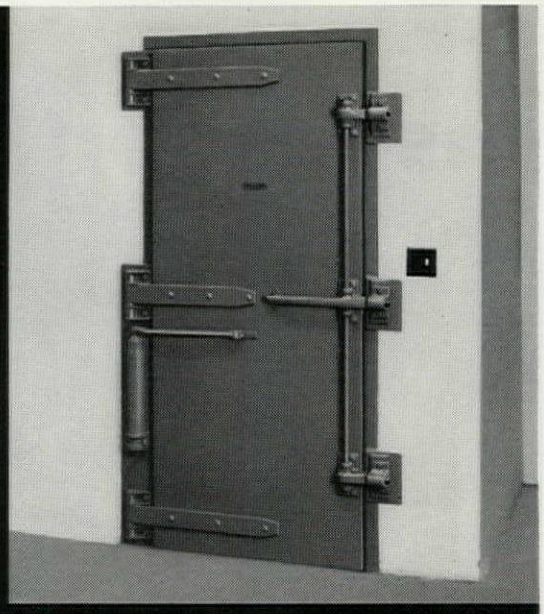
Now that Dow has increased production, Styrofoam is available as comfort insulation. Builders, architects and home owners, too, can profit from its unique combination of properties.

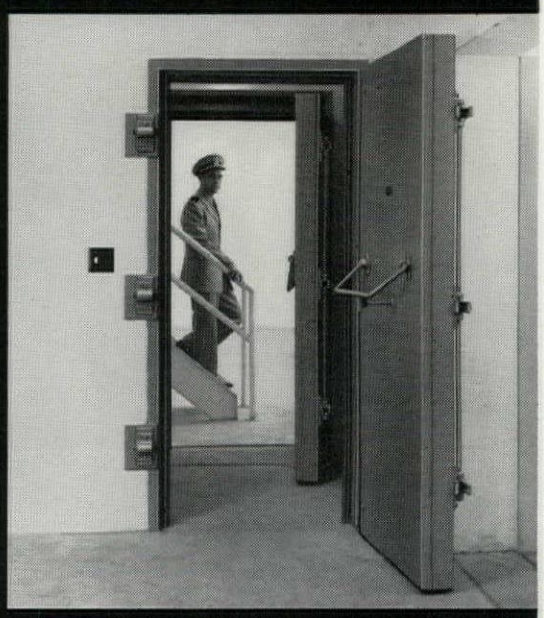
For further information, contact your nearest Styrofoam distributor: CALIFORNIA, San Francisco: Western Foam Products, Inc. • CALIFORNIA, Los Angeles 13: Pacific Foam Products Company • FLORIDA, Tampa: The Soule Company • GEORGIA, Atlanta 8: Badham Sales Company • ILLINOIS, Chicago 11: The Putnam Organization, Inc. • IOWA, Des Moines: Wilson-Rogers, Inc. • KANSAS, Kansas City: Styro Products, Inc. • MASSACHUSETTS, Ipswich: Atlantic Foam Products Company • MICHIGAN, Detroit: Par-Foam, Incorporated • MICHIGAN, Midland: Floral Foam Products • MINNESOTA, Minneapolis 8: Edward Sales Corporation • MONTANA, Billings: Madden Construction Supply Company • NEW YORK, Rochester 20: William Summerhays Sons Corp. • NEW YORK, Long Island City 1: Styro Sales Company, Inc. • OHIO, Cincinnati: The Seward Sales Corporation • OHIO, Cleveland 3: Structural Foams, Inc. • PENNSYLVANIA, Plymouth Meeting: G & W H Corson, Incorporated • TEXAS, Houston: The Emerson Company • UTAH, Salt Lake City 10: Utah Lumber Company • WASHINGTON, Seattle 9: Wiley-Bayley, Inc. • WISCONSIN, Milwaukee: S & S Sales Corporation • CANADA, Edmonton, Alberta: Northern Asbestos and Building Supply Co., Ltd. • CANADA, Kitchener, Ontario: Durofoam Insulation, Ltd. • CANADA, Vancouver, B. C.: Wiley-Bayley Co., Ltd. Or write THE DOW CHEMICAL COMPANY, Midland, Michigan—Plastics Sales Department PL 1744Z.

*STYROFOAM IS A REGISTERED TRADEMARK OF THE DOW CHEMICAL COMPANY

YOU CAN DEPEND ON DOW







Inner and outer Jamison Sound Reduction Doors on engine test cell. Single doors provide access to cell by personnel. Double doors for movement of equipment.

Tests prove Jamison Sound Reduction Doors reduce unwanted noise by an average of 50 decibels

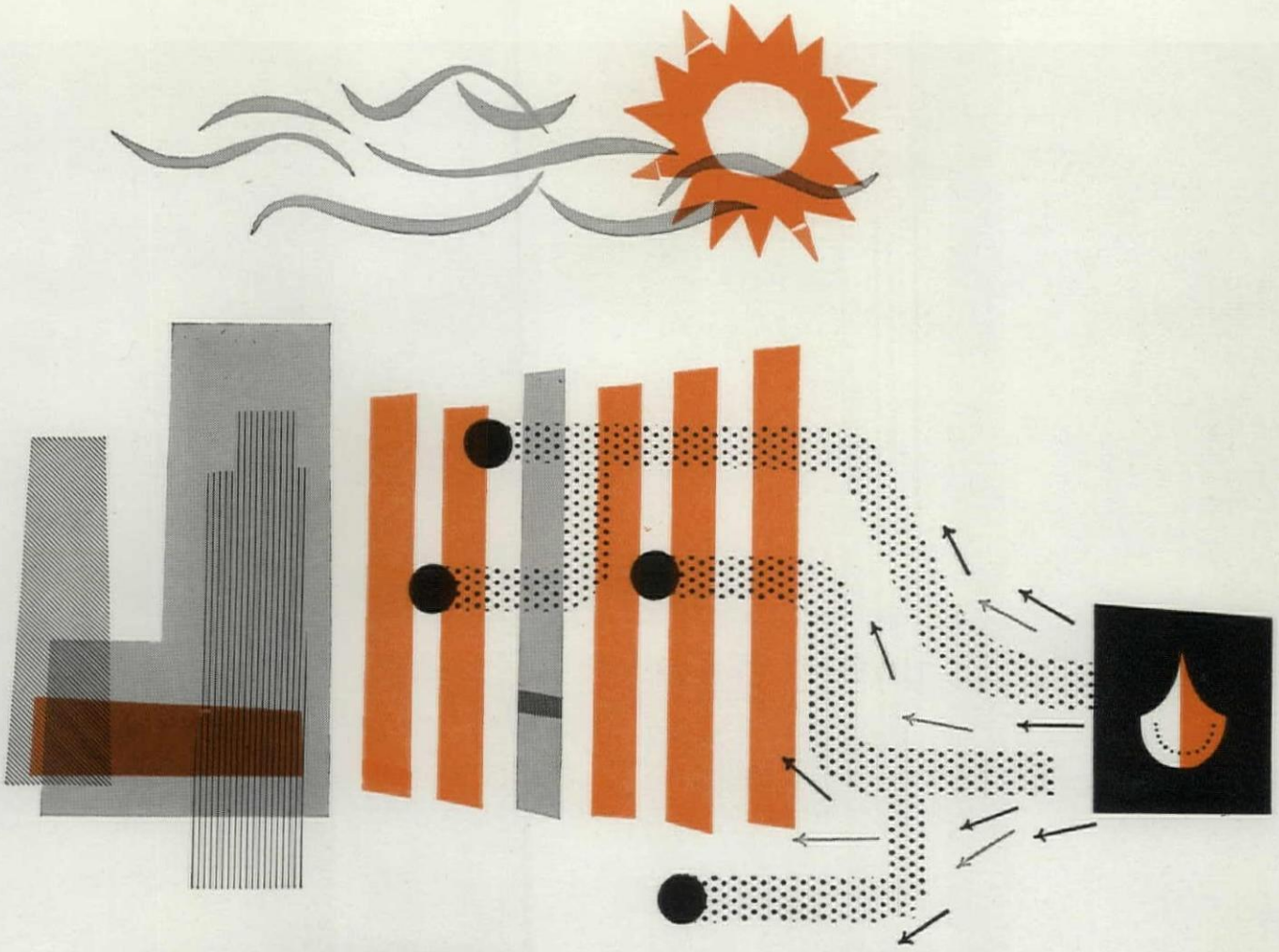
Recent tests conducted by a nationally recognized laboratory, in accordance with "Recommended Practice for Laboratory Measurement of Airborne Sound Transmission Loss of Building Floors and Walls" No. E 90-50T, ASTM, proved conclusively that these doors provide an average sound reduction of 50 db. for single doors, and 49 db. for double doors. Tests were run over 11 different frequencies ranging from 125 to 4000 cps.

Let Jamison's wide experience and knowledge in this specialized field help you solve your particular noise problem. Write today for Bulletin or test data for specific reductions at specific frequencies. *Jamison Cold Storage Door Co., Sound Reduction Door Division, Hagerstown, Md.*

JAMISON

engineered doors

For 50 years the leading builder of cold storage doors



SUPERVISORY DATACENTER*

Starting point for centralized automation in buildings

NEW IDEAS that significantly affect building design are rare—and important. The Supervisory DataCenter control panel perhaps represents such an idea. For by completely centralizing air conditioning control, it shows the way to similar economy and integration of many another mechanical function. Conception, housing and installation of the DataCenter involve creative design factors that are of first concern to the architect. Your local Honeywell man has full details.

Minneapolis-Honeywell Regulator Company

Visualized at right is a DataCenter as it might be integrated into the design of a modern airport terminal. On public display, it oversees comfort, gives the engineer a constant picture of air conditioning system operation, provides major operational economies.
For passengers, the panel might show weather conditions in major cities. A DataCenter similarly displayed is planned for the Queen Elizabeth Hotel, Montreal, Quebec. Architect: G. F. Drummond, Chief Architect, CNR; Engineer, N. S. B. Watson, CNR.

*Trademark

Constant exposure to salt air can eat away most metals. But it doesn't faze the finish on Fenestra® FENLITE Industrial Steel Windows.

FENLITE is an amazing new process that completely protects the steel. Fenestra Steel Windows with FENLITE never need painting. Yet they cost no more than ordinary steel windows with two-coat field painting.

Industry from coast to coast is installing Fenestra FENLITE Steel Windows to protect new plant investment money. And firms with established buildings are finding it wise to replace present windows with Fenestra FENLITE to substantially lower window maintenance cost. They estimate their savings in painting and maintenance costs will quickly pay for the new windows and eliminate future problems and expense.

It takes eight separate steps, completely controlled with electronic precision, to complete the exclusive FENLITE process. A lifetime zinc "surface" actually becomes part of the basic steel structure of the windows. Then a special treatment "passivates" and chemically polishes the zinc for even longer life and a gleaming, attractive finish. When put to the toughest test of standard 20% salt spray exposure, this treatment resists the start of corrosion 3 to 12 times longer than ordinary zinc "coating."

FENLITE also prepares the window for a tight glazing compound bond and for *decorative* painting, if you desire.

An illustrated-in-color brochure is prepared to fill in the details on FENLITE for you. Why not call Fenestra's nearest representative today? He is listed in the Yellow Pages. Have him visit you at your convenience and bring a sample of FENLITE Finish for your close inspection or mail coupon below.

The Fenestra FENLITE Finish is also available on the complete line of Fenestra Intermediate Steel Windows for schools, office buildings and other fine structures.

Fenestra INCORPORATED | FENLITE INDUSTRIAL STEEL WINDOWS

Your Single Source of Supply for
DOORS • WINDOWS • BUILDING PANELS

Fenestra Incorporated
Dept. PA-7, 3409 Griffin Street
Detroit 11, Michigan

Please send me complete information on the New Fenestra FENLITE Industrial Steel Windows.

NAME_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____

Tracerlab, Inc., pioneers in X-Ray, Isotopes and Nucleonics, new building in Waltham, Mass., is a combination office and manufacturing plant containing 164,000 square feet of floor area. Built at a cost of about $11.00 per square foot, the mortgage appraisal value is about $2,000,000. Fenestra Building Panel Products, including Electrifloor and Acoustical "D" Panels in the office area and Fenestra Type C Wall Panels throughout, helped make this economical construction possible. *Architect*: E. T. Steffian, Boston, Mass. *Contractor*: Gilbane Building Co., Providence, R. I.

New Fenestra Floor-Ceiling Panel System

supplies electrical service to floor above . . . acoustical treatment to ceiling below

for Tracerlab inc. World's Most Modern Nuclear Facility

Building costs can be substantially reduced by combining Fenestra* Electrifloor® and Acoustical "D" Panels into an integrated floor-and-ceiling system for buildings of two to four stories. Basically, it provides an acoustic ceiling below and an electrified floor above.

Cellular steel design combines great strength with light weight. Panels form the structural floor and finished interior ceiling. They replace five different materials—usually requiring extra labor and cost—with one metal building unit, erected in one operation, by only *one* trade.

This combination of Fenestra Building Panels reduces ceiling-floor depth, saves in building height and wall materials.

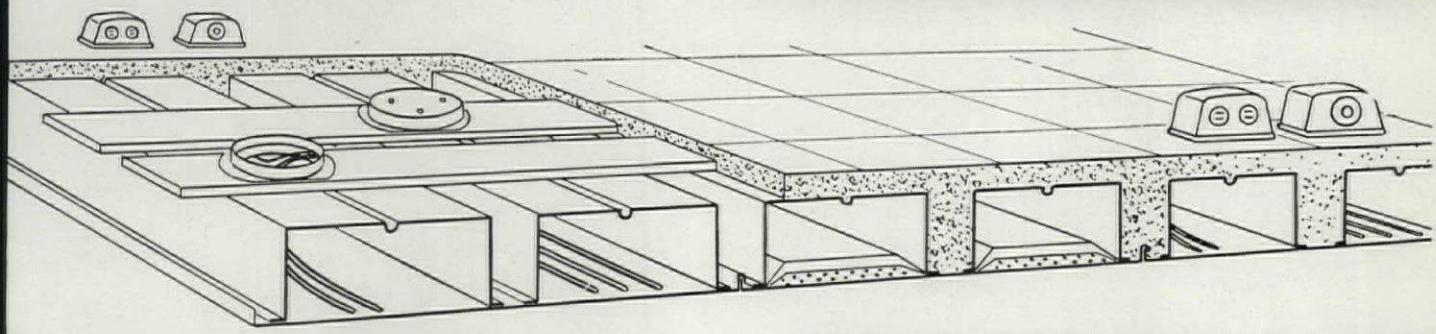
So light weight—as compared with other materials—Fenestra Building Panels save structural steel and foundation by cutting the dead weight of the building. They *save construction time* because the floor-ceiling panels are installed as the building frame goes up, thus providing working platform and storage areas for the contractor. This means faster completion and occupancy and lets the owner's investment pay off sooner.

* Trademark

Fenestra ELECTRIFLOOR

Lets you locate, move or add electrical outlets, telephones, intercom or other office machines *any time!* Whenever a new connection is required, you just drill down and pull the wires through.

Electrifloor panels give you larger area cells for extra wiring capacity and flexibility. The flat plate design makes it possible to use any depth panels as lateral bracing for the structural framework. It is also possible to design for seismic conditions. Used alone, or in combination with Fenestra Acoustical "D" Panels, it's the structural floor system with electrical availability *built right in.* Design your buildings around it.



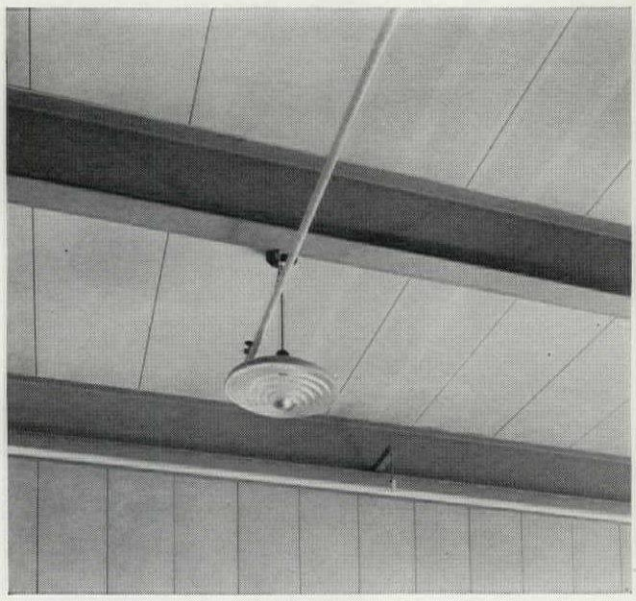
Fenestra ACOUSTICAL "D" PANELS

These lightweight, high-strength steel panels form the structural floor above and finished ceiling below with *"built-in" acoustical treatment.*

The flat bottom surface of the panels is perforated, and an exclusive Fenestra preformed, arched, sound-absorbing batt† is enclosed *inside the panels.* It cannot be harmed by painting or cleaning with soap and water. There is no "stuck-on" material to discolor or fall off and require replacement. Room-to-room noise is prevented by sound transmission barriers incorporated in the panel design.

And, because this ceiling plate is a part of the structural panel, it is made of 16-gauge steel—four times thicker than usual metal pan ceilings. This assures extra resistance to damage by objects thrown against the ceiling or other impacts.

Mail coupon below—for complete information on Fenestra Electrifloor and Acoustical "D" Panels and how to combine them into practical, low-cost ceiling-floor systems, or call your Fenestra representative. † Patent Pending



Fenestra INCORPORATED

METAL BUILDING PANELS

YOUR SINGLE SOURCE OF SUPPLY FOR BUILDING PANELS • DOORS • WINDOWS

Fenestra Incorporated
Dept. PA-7, 3409 Griffin Street
Detroit 11, Michigan

Please send me FREE copy of *1957 Fenestra Building Panel Catalog* on Electrifloor and Acoustical "D" Panel combination system.

NAME _____

FIRM _____

ADDRESS _____

CITY _____ ZONE ___ STATE _____

Redding Miller Building, Denver, Colorado, showing ceiling installation throughout of Acousti-Celotex Steelacoustic Panels. **Architect:** T. J. Moore, Jr. **Acousti-Celotex Contractor:** Lauren Burt, Inc. of Colorado.

For The Designer: New Ceilings To *Work With*

Ceilings are playing an increasingly important part in building design.

More glass areas on exteriors (above) are making ceilings more prominent. Greater emphasis on room layout flexibility is requiring ceilings that are modular, ceilings that combine interchangeable component parts for sound conditioning, lighting, air diffusion.

To meet architectural requirements, your Acousti-Celotex distributor has a constantly broadening range of Celotex acoustical materials and suspension systems to offer you.

In the installation shown above, the architect chose Steelacoustic* panels—an incombustible, 2′ x 2′ louvered steel facing with a sound absorbing element laminated to the back. These panels combine high sound absorption with easy maintenance, removability, a fresh original appearance, plus economy. The Celotex T&T* suspension system used here, on 24″ centers, ties the 24″ x 48″ recessed light fixtures into a modular, flexible layout with the Steelacoustic panels.

Ask your Acousti-Celotex distributor how these new products and his services can contribute to your next project.

For Complete Details on Acousti-Celotex Steelacoustic Panels and other acoustical products, write to the Celotex Corporation, Dept. C-77, 120 S. LaSalle St., Chicago 3, Illinois.

*REG. U. S. PAT. OFF.

TRADE MARK

ACOUSTI-CELOTEX *Sound Conditioning*

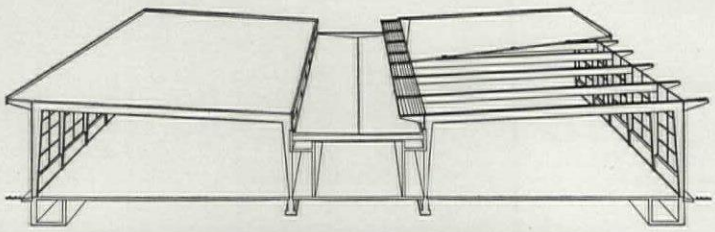
REGISTERED U. S. PAT. OFF.

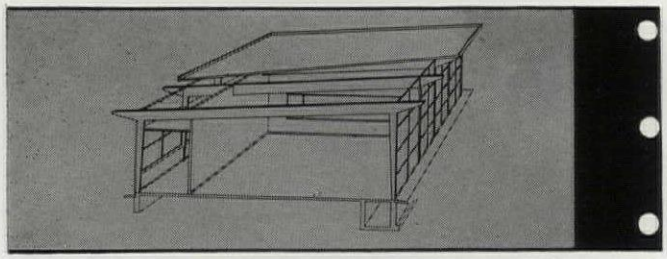
Products to Meet Every Sound Conditioning Problem . . . Every Building Code—The Celotex Corporation, 120 S. LaSalle St., Chicago 3, Illinois • **In Canada:** Dominion Sound Equipments, Ltd., Montreal, Quebec

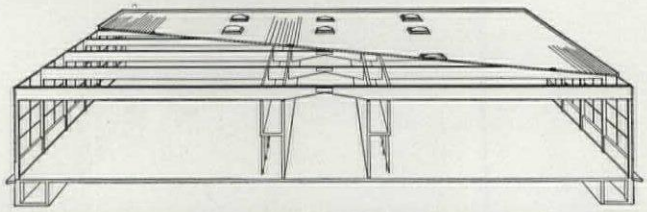
Use Framing of Glulam Beams for

SCHOOLS

of Permanence, Beauty and Economy







Here are five framing schemes designed to help in planning your classroom sections. Modern in concept, they retain the natural beauty of fine timber while making significant cost savings in these four ways:

Cut Foundation Costs:

Glulam timbers are ideal for post-and-beam construction which requires foundations of only limited area and depth instead of heavy foundation walls around the entire perimeter of the building.

Light Curtain Walls:

With glulam timber members supporting the roof loads, relatively light curtain walls are ample. Also, with beams carrying the loads on wide span units, bearing partitions are not needed.

Saves Cost of Concealing Structural Members:

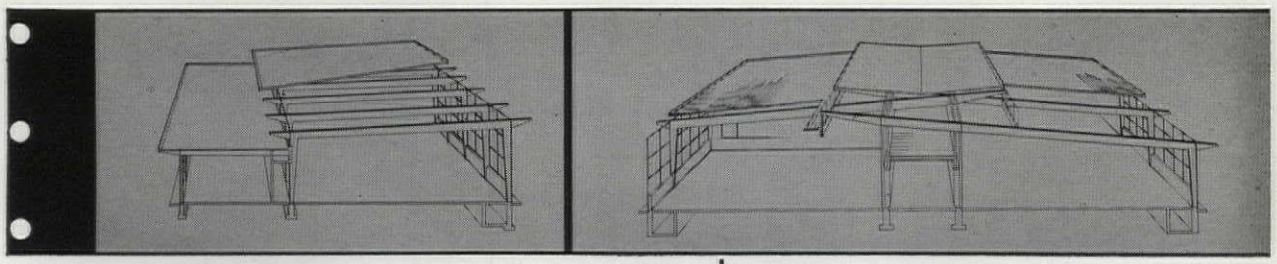
Glulam timbers need not be hidden by ceilings, for they actually improve the appearance of the room when left exposed. Use of heavy timber decking, which combines the functions of sheathing, insulation and finished ceiling, makes a further saving in cost.

Speed of Construction:

Glulam beams by Timber Structures, Inc. are thoroughly engineered, then prefabricated and piece-marked for fast erection. This is easy for any competent carpenter, and requires no special trades, skills or equipment.

Glulam beams, in addition to their economy and excellent appearance, provide maintenance-free service and fire safety unsurpassed by any unprotected material. Readily available in any quantity needed, they simplify procurement and enable tight schedules to be met.

Typical applications of glulam members by Timber Structures, Inc. are shown in the comprehensive brochure, "Timber Framing for Modern Schools". Get your copy from your Timber Structures representative, or fill-in and mail the coupon below.



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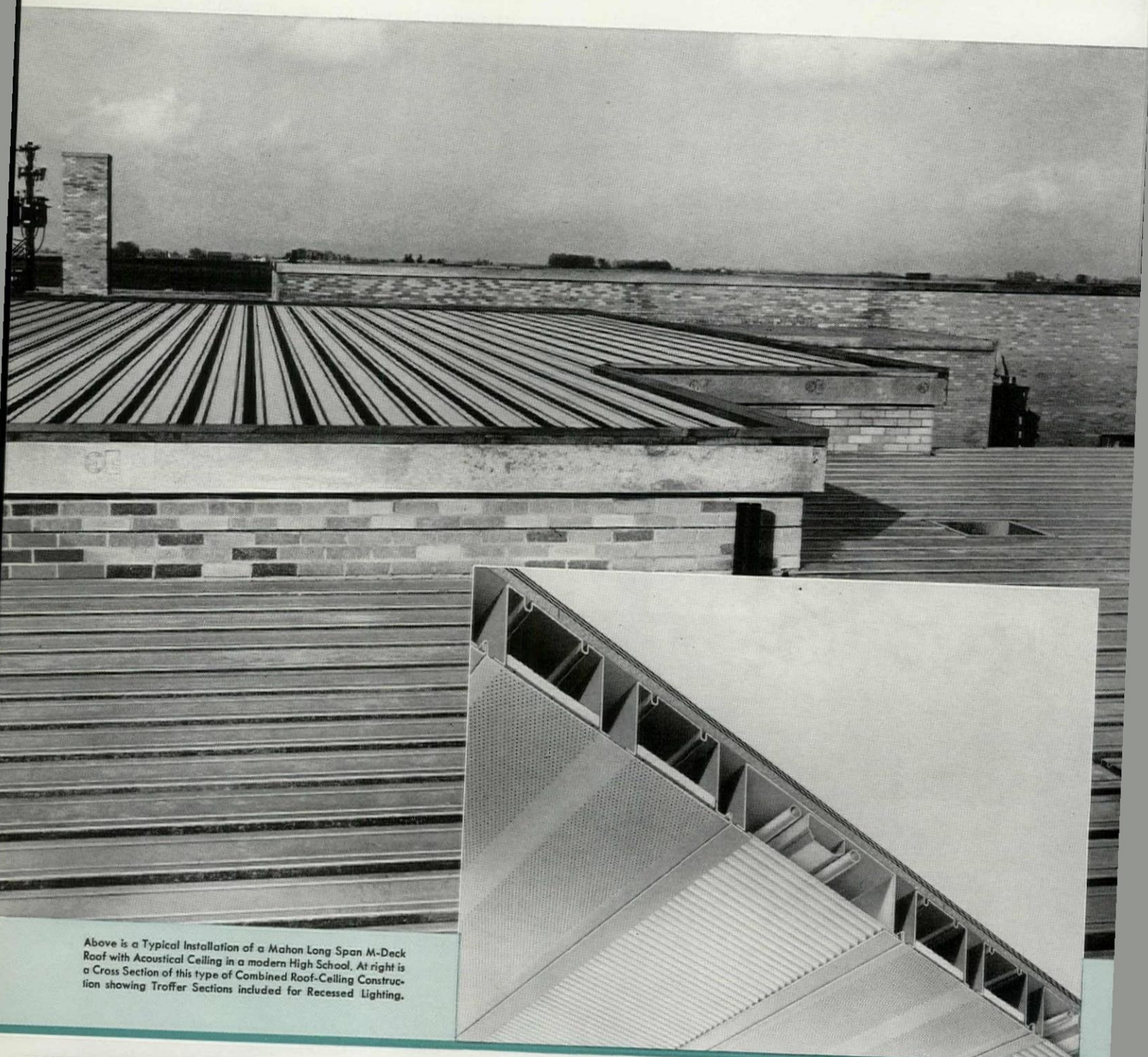
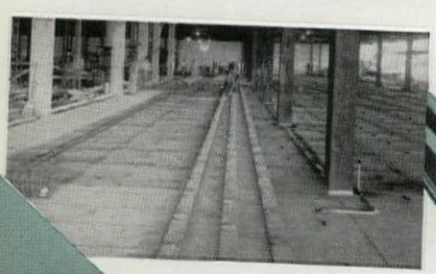
M-DECKS Broaden the

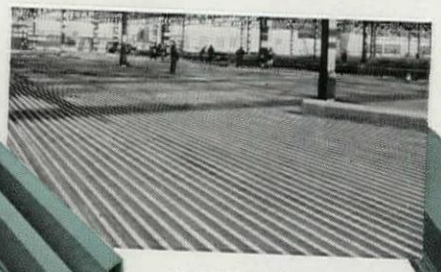


Above is a Typical Installation of a Mahon Long Span M-Deck Roof with Acoustical Ceiling in a modern High School. At right is a Cross Section of this type of Combined Roof-Ceiling Construction showing Troffer Sections included for Recessed Lighting.



ELECTRIFIED M-FLOORS

Mahon M-Floors provide electrical availability in every square foot of floor surface—safeguard buildings against electrical obsolescence in years to come.



CONCRETE FLOOR FORMS

Mahon Permanent Concrete Floor Forms in various types meet virtually any requirement in concrete floor slab construction over structural steel framing.

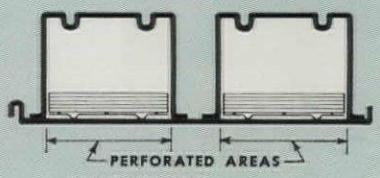
ACOUSTICAL and TROFFER FORMS

Provide an Effective Acoustical Ceiling with Recessed Troffer Lighting—Serve as Permanent Forms in Concrete Joist and Slab Construction of Floors and Roofs.

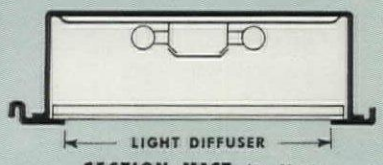
Functional Potential of a Modern Roof

. . . Mahon Long Span M-Decks Expand the Structural Roof's Function to Include the Finished Ceiling Material, Acoustical Treatment, and Recessed Lighting as Well!

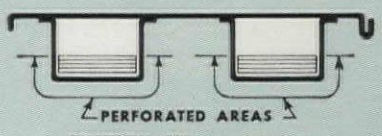
MAHON
ACOUSTI-STRUCTURAL
LONG-SPAN M-DECK SECTIONS



SECTION M2SR (Acoustical)



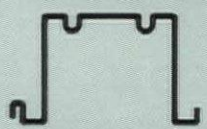
SECTION M1ST (Troffer)



SECTION M2 (Acoustical)

SECTION M3 (Acoustical)

MAHON
LONG SPAN OPEN BEAM M-DECK


SECTION M1-OB

In auditoriums, armories, sports arenas, field houses, churches, or any other type of building where exposed truss or rigid frame construction is employed, Mahon Cellular Steel M-Decks provide the structural roof and ceiling combined . . . the structural M-Deck Sections span from wall-to-wall or from truss-to-truss. This eliminates the cluttered effect of roof purlins and produces a neat, continuous, flat metal ceiling surface—all of which can be acoustically treated. If recessed lighting is desired, Mahon Troffer Sections can be included in this type of roof-ceiling construction in any ratio to meet specific lighting requirements.

Mahon Long Span M-Deck Sections and Mahon Troffer Sections are roll-formed from galvanized, structural quality steel . . . they are permanent, cellular structural units which also provide an indestructible ceiling. Exposed metal surfaces which form the ceiling can be readily painted to match or harmonize with any interior decor.

All Mahon Long Span M-Deck Sections can be furnished with bottom metal perforated and sound absorbing material inserted to provide a highly effective acoustical ceiling . . . Noise Reduction Coefficients range up to .85 in the various Mahon M-Deck Sections recommended for this use.

Some of the newer Mahon Sections do not appear in the current Sweet's File. Why not have a Mahon sales engineer call and bring you up to date on new Mahon Cellular Steel Sections now available for Floor, Roof, and Combined Roof-Ceiling Construction.

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Sales-Engineering Offices in Detroit, New York and Chicago
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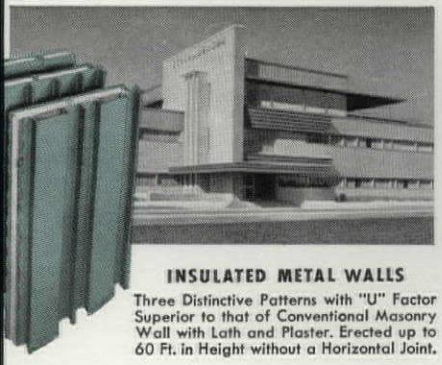
INSULATED METAL WALLS
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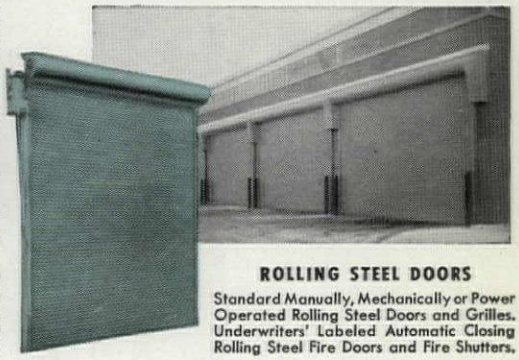
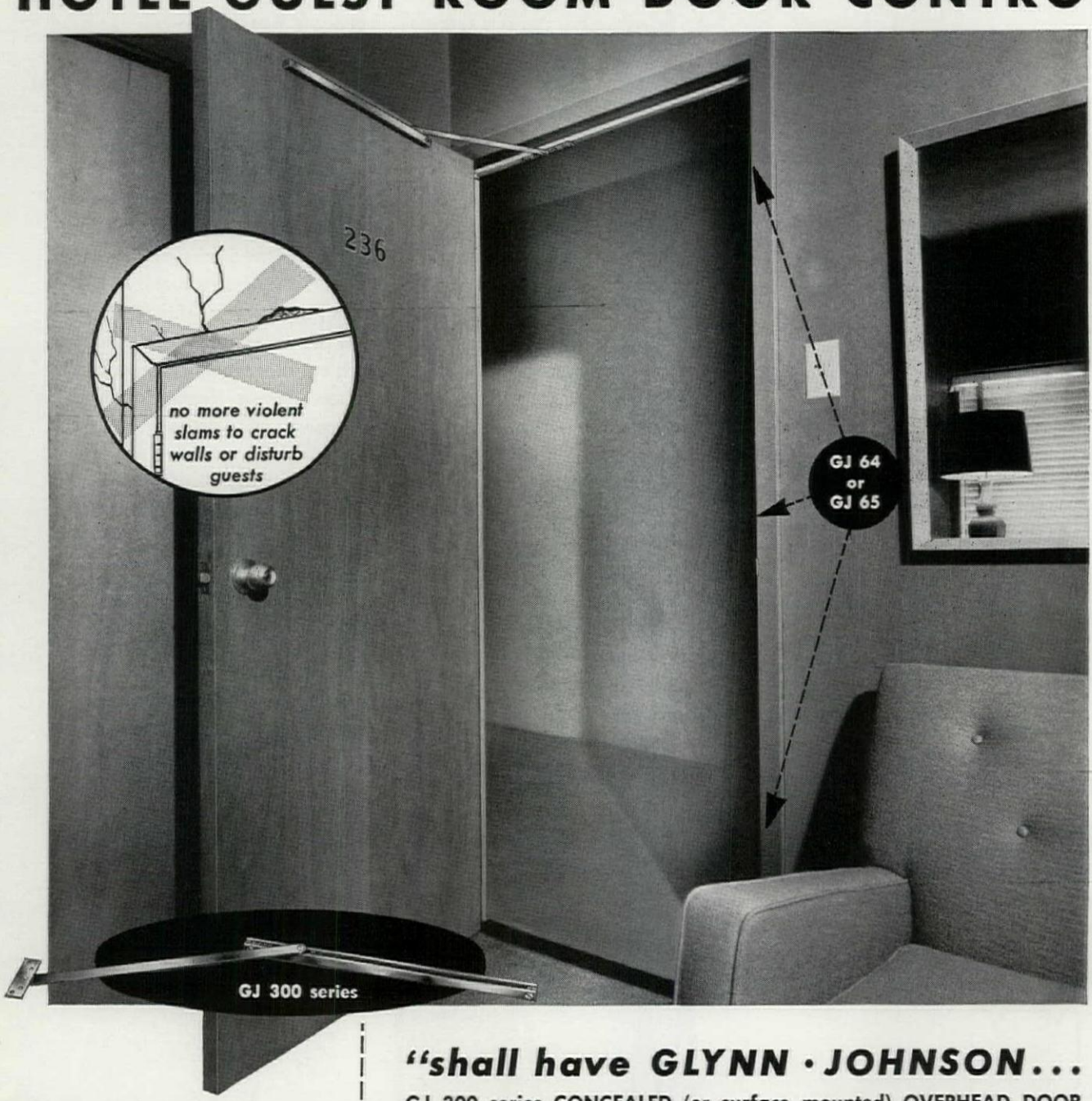
Mahon Metalclad Fire Walls carry two Hour Rating by Underwriters' Laboratories, Inc., for Use as Either an Interior Dividing Fire Wall or an Exterior Curtain-Type Fire Wall.


ROLLING STEEL DOORS
Standard Manually, Mechanically or Power Operated Rolling Steel Doors and Grilles. Underwriters' Labeled Automatic Closing Rolling Steel Fire Doors and Fire Shutters.

an ideal specification for quiet, slam-proof

HOTEL GUEST ROOM DOOR CONTROL



This ideal GJ specification for hotel guest room doors is used in such outstanding hotels as:

Hotel Fontainebleau, Miami Beach, Florida
Morris-Lapidus, Miami Beach — architects

Hotel Monteleone, New Orleans, Louisiana
Bernard & Bernard, New Orleans — architects

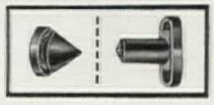
The Morris Inn, "On the campus," Notre Dame, Ind. Holabird & Root & Burgee, Chicago, Ill. — architects

All above hardware can be quickly installed on existing guest room doors.

"shall have GLYNN · JOHNSON...

GJ 300 series CONCEALED (or surface mounted) OVERHEAD DOOR STOP with FRICTION CONTROL." (Door is under constant control of friction. Eliminates guest disturbing noise of doors slamming open or shut. Opening swing of door is stopped by a shock absorbing spring cushion at any degree specified up to 110°. Door stop is mounted overhead, out of the way. Avoids interference with cleaning and the stumbling hazard of base type stops.)

"THREE GJ 64 for metal frame (or GJ 65 for wood frame) RUBBER SILENCERS." (Form pneumatic air pockets to absorb shock and noise of closing and create constant latch tension . . . no door rattling.)



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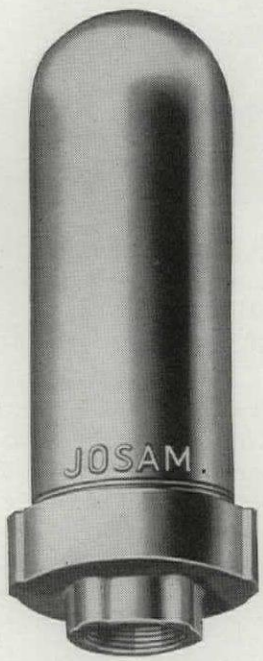

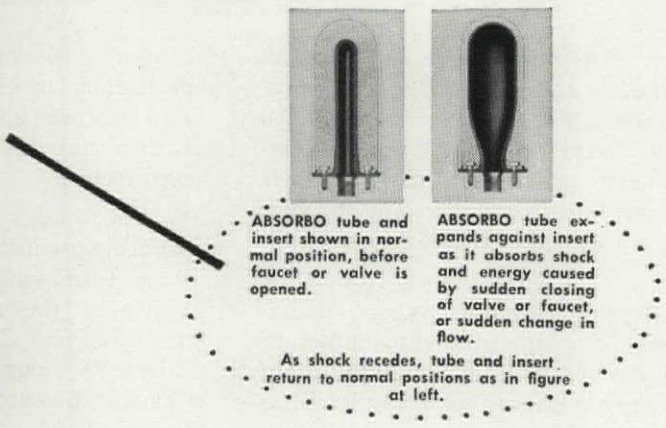

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ELIMINATE "WATER HAMMER"!

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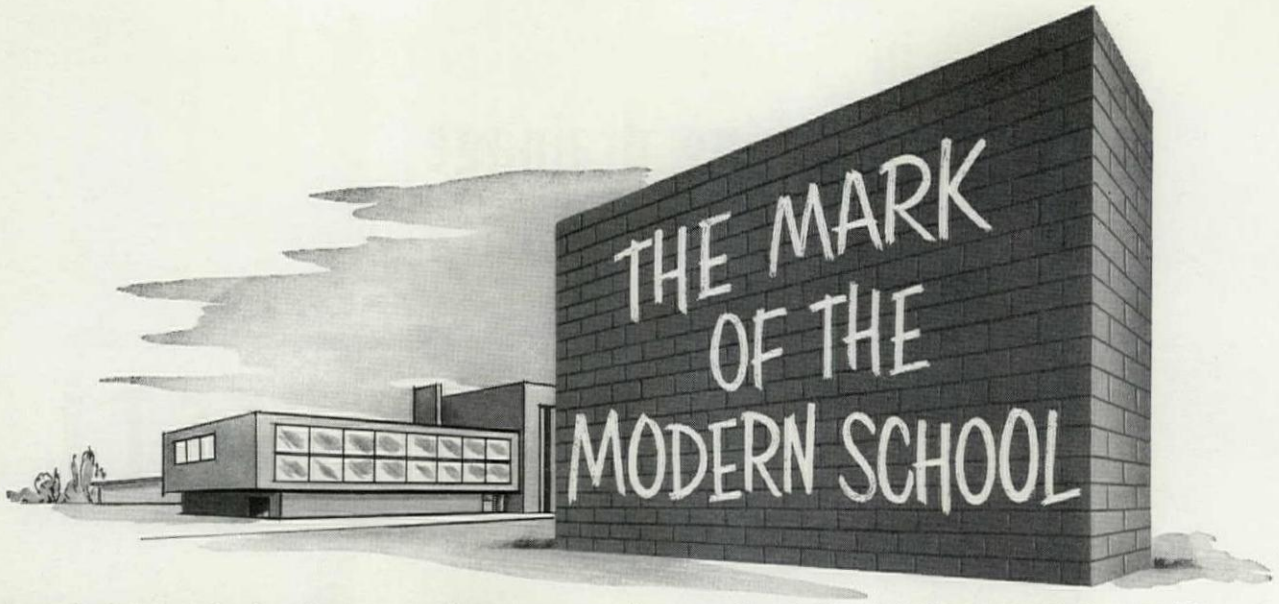
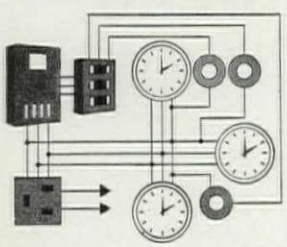


Today's modern schools rely more and more on dependable signaling equipment. Clock and program systems, school fire alarm systems, special intercommunication systems as well as an assortment of horns, bells and buzzers all have their place in the modern school building. And the very finest signaling equipment available for schools is Edwards.

For more than 80 years, Edwards has been specializing in the design, development and manufacture of fine signaling devices. This history of specialized experience is your assurance that every item has been designed to incorporate every possible feature, produced of matched components to provide dependable service at the lowest possible price. And Edwards signaling devices are of a uniform functional design that blends into modern architecture.

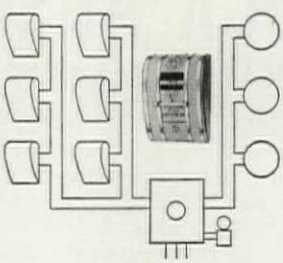
You'll find that you always get a better, more dependable product when you specify Edwards. For complete information, see your Edwards Technical Specialist (they are to be found in 53 key cities in the U. S. and Canada) or write to Dept. PA-7, Edwards Company, Inc., Norwalk, Conn. (In Canada: Edwards of Canada Ltd., Owen Sound, Ontario.)

EDWARDS SYNCHRO-MATIC CLOCK AND PROGRAM SYSTEMS



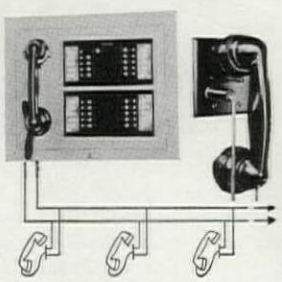
The simplest centrally controlled system. Perfection of the Telechron® motor obsoletes hourly correction... eliminates need for a master clock...provides simultaneous reset instantly after a power failure—automatically, or by the mere flick of a switch. Simple program instrument has no tapes or chains...can be changed quickly.

EDWARDS SCHOOL FIRE ALARM SYSTEMS



Edwards offers "hug the wall" look plus absolute dependability of performance in a new "foolproof" single action pull lever station that's factory tested 100 times. Can be combined with the newest automatic system for complete protection 24 hours a day.

EDWARDS INTERCOMMUNICATION SYSTEMS



Edwards new Intercommunication System when combined with an Edwards Program system operates without a switchboard... provides privacy and flexibility. Utilizing the same electric conduit results in an inexpensive installation that is virtually maintenance-free.

EDWARDS SIGNAL DEVICES

Edwards complete line of bells, horns and buzzers give the correct tone and intensity to overcome all noise conditions. The "Adaptabel", typical of Edwards specialization, has no moving contacts or armatures, with automatic compensation for plunger wear.

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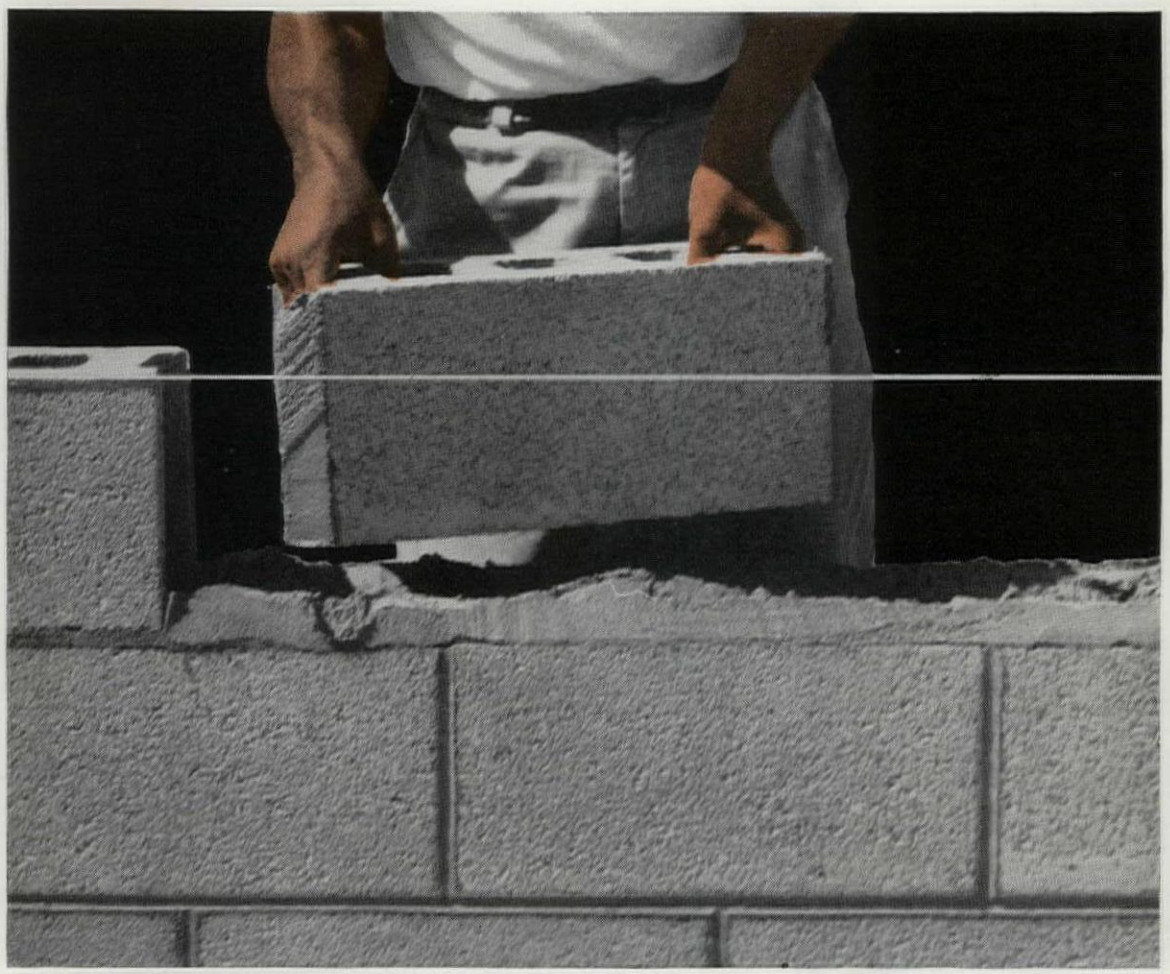

BETTER PLASTICITY

To build the best possible concrete-block walls, the bricklayer must use plastic mortar. The mortar must be plastic enough to stick to the long head joint. It must not drop off the edges of the block when the block is swung up, and lowered into place. It must remain plastic long enough to enable the bricklayer to tap the block down to the line, easily and accurately.

Brixment mortar provides this necessary plasticity. Moreover, it stays soft and plastic long enough to let the bricklayer level, plumb and straighten the unit and adjust it to its final position in the wall before the mortar stiffens.

Louisville Cement Company . . . Louisville 2, Kentucky

100 Years of Progress

Best wishes to the members of The American Institute of Architects, Inc. on the occasion of the AIA CENTENNIAL CELEBRATION CONVENTION, Washington, D. C., May 14-17, 1957

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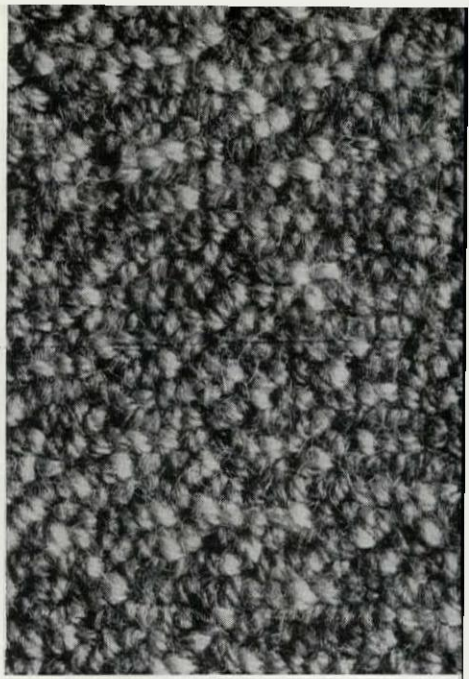

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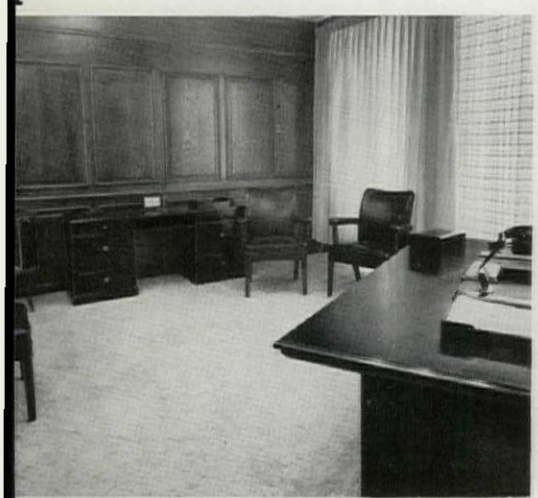

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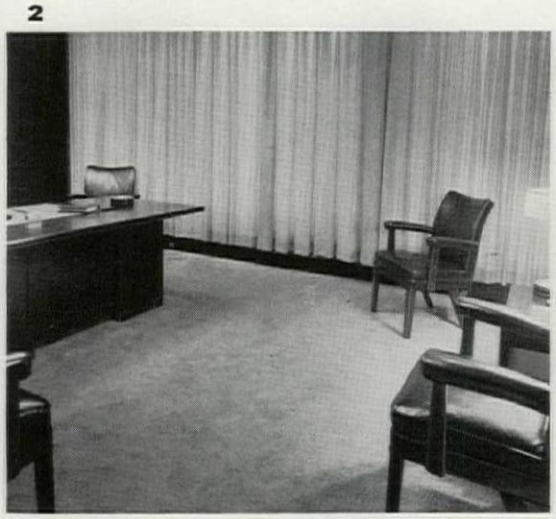

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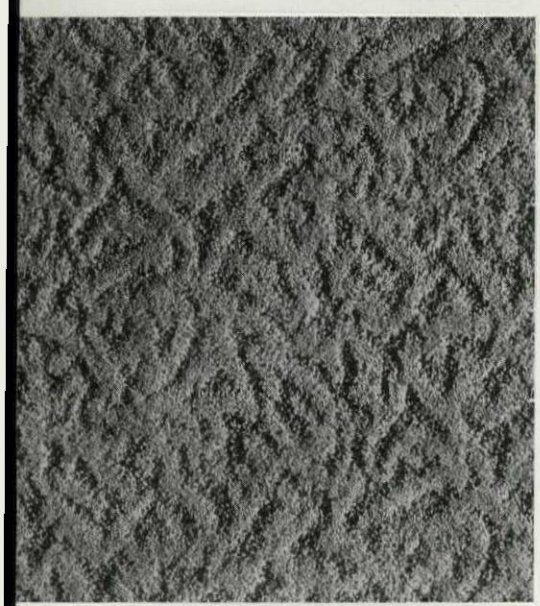

Base your next decorative scheme on carpet as distinctively yours as your signature. You will be assured of this result by choosing Beautiful Holmes as your decorating foundation. With the help of our Contract Staff, you can have carpet with just the right "furnishing authority" and individuality needed to carry out your plan. Look to us, too, for dependable recommendations, expedited service, prices that are competitive without sacrifice of quality. For your nearest Beautiful Holmes contractor, write or call Archibald Holmes & Son, Philadelphia 24, Pennsylvania. *Now in our Second Century of Fine Carpet Weaving.*

An air of dignity and stability is achieved with the help of Beautiful Holmes carpet in these offices of the investment house S. W. Coe Co., Springfield, Ill. Installation by: Madison Furniture Company, Springfield, Ill. **1** *President's Office: Beautiful Holmes Amorita, a sculptured effect of soft and twist yarn. Color, Caen Stone.* **2** *Vice-president's office: Beautiful Holmes Corsair, in oyster white.* **3** *Staff office: Beautiful Holmes Quality 682, a textured effect created by muted grey, light grey and black.*

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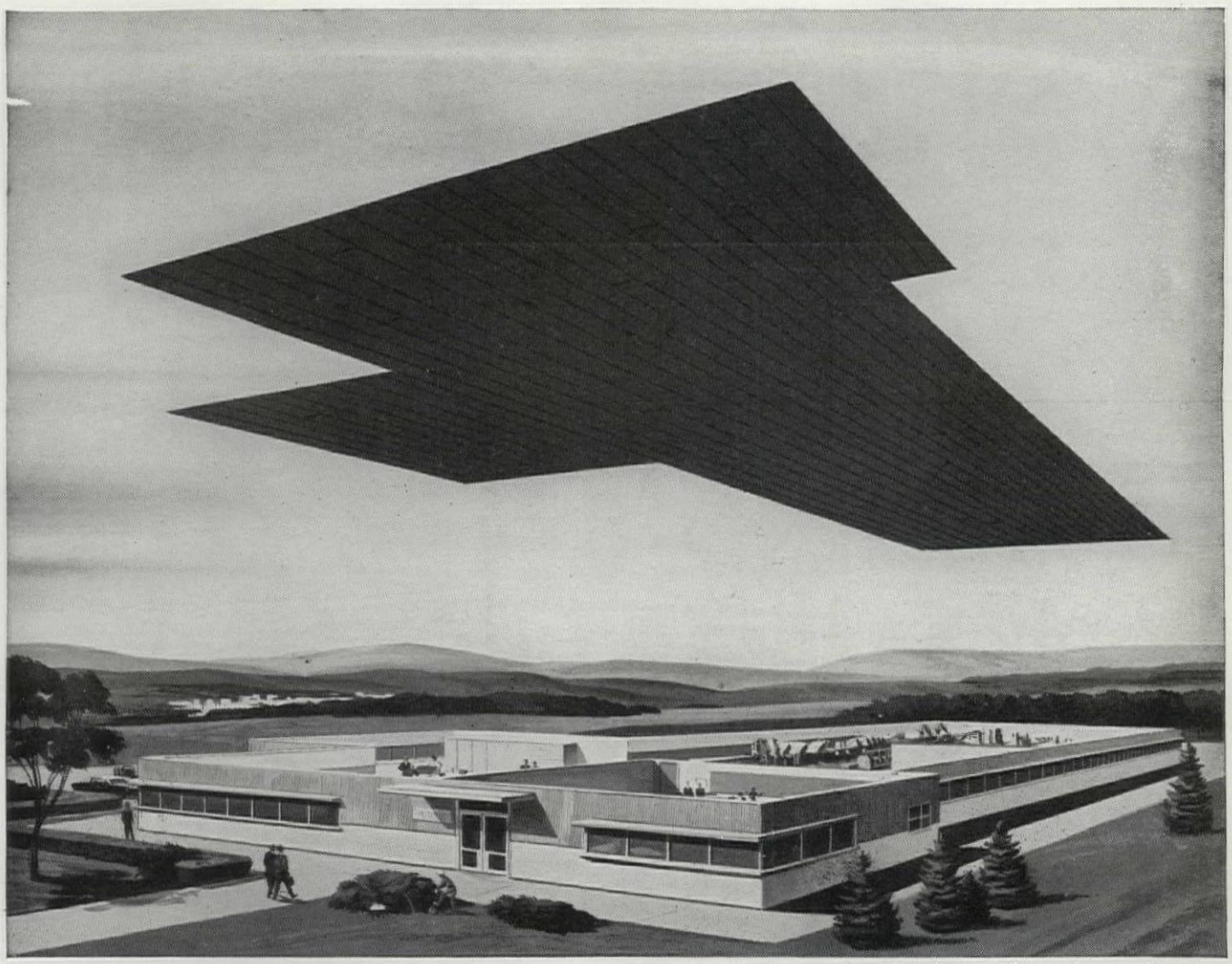

J-M Aquadam Roofs provide lasting roof protection. They are specifically designed for low pitch and dead level roof decks.

Give your clients the best roof protection . . .

specify Johns-Manville Aquadam Built-Up Roofs and be sure

A good roof is in reality a valuable "over head" investment. The roof is subject to the hardest wear of any part of a building. J-M Aquadam Roofs provide long-lasting protection with a minimum of roofing repair and maintenance expense.

J-M Aquadam Roofs owe their superiority to Aquadam, the modern cementing agent used in the application of felts. Aquadam has exceptionally high adhesive and permanent bonding properties. It has approximately twice the ability of typical asphalts to retain its initial properties on exposure.

Aquadam Built-Up Roofs resist beating rains, winds, melting snow and ice. The result is thorough watertightness in low sloped and dead level roofs.

The high ductility of J-M Aquadam helps prevent roof cracking. Aquadam reseals and repairs itself after being subjected to the equivalent of summer roof temperatures.

Aquadam Built-Up Roofs are available in both smooth surfaced and slag or gravel specifications.

Johns-Manville Approved Contractors are experienced roofers. They can help you in the planning and installation of the best application of Aquadam Built-Up Roofs. You'll find Approved Johns-Manville Contractors listed in the Classified Section of telephone directories. For illustrated data send for copy of "J-M Aquadam Built-Up Roofs." Write to Johns-Manville, Box 158. N. Y. 16, N. Y. In Canada, write 565 Lakeshore Rd. E., Port Credit, Ont.

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Johns-Manville congratulates the American Institute of Architects on its 100th Anniversary.

—Consult an architect—use quality materials.

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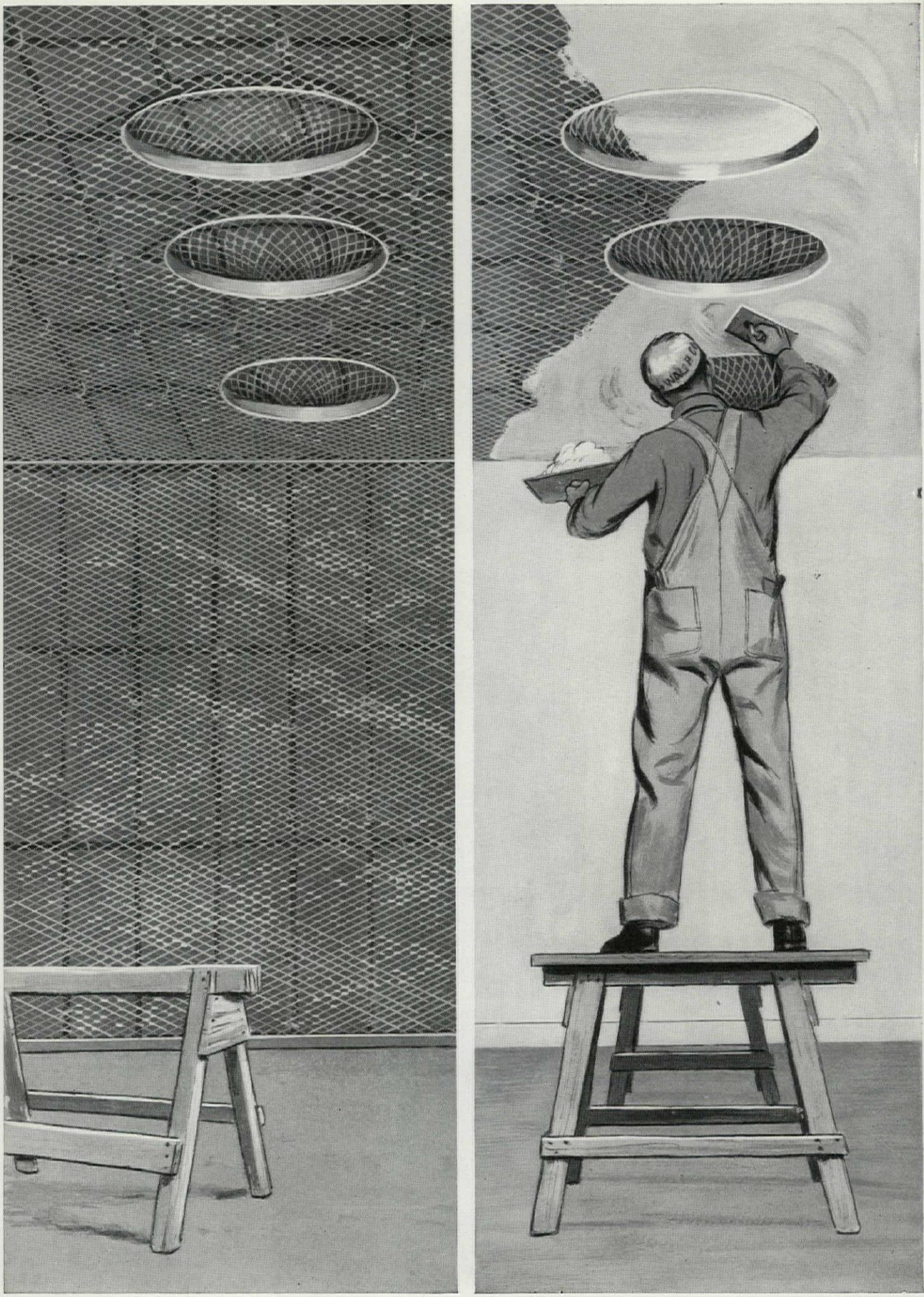
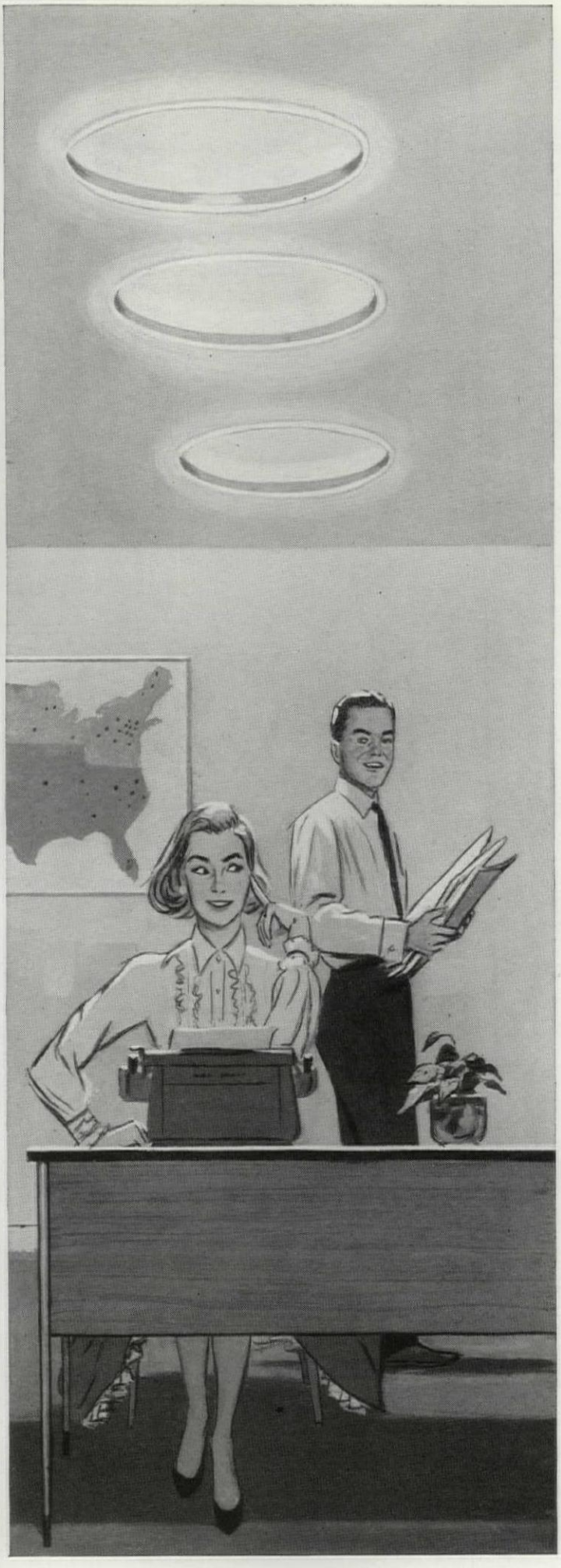




Wheeling Metal Lath molds plaster for beauty, versatility, economy and safety

Architects and builders have a natural ally in Wheeling Metal Lath. For this modern plaster base offers advantages found in no other type of construction.

For one thing, it permits an almost unlimited variety of design. It takes any shape, anywhere, and permits unhampered design freedom. Then, too, it's the strongest, most durable plaster base possible. And it holds plaster with a grip of steel come fire, flood or earthquake. Thousands of sturdy steel keying diamonds see to that.

Consider too the beauty that only Wheeling Metal Lath and plaster can give. Smooth, sleek, crack-free surfaces, surfaces that stay new-looking for years.

From an economical standpoint, Wheeling Metal Lath is unique. For here are savings that can be extended throughout the years. Not only is Wheeling Metal Lath easier to work with, cutting installation costs, but it also means maintenance-free interiors.

Equally important;—the full line of Wheeling Metal Lath and Accessories is immediately available from the Wheeling warehouse. For full details consult our catalog in Sweet's or contact the Wheeling warehouse or sales office nearest you.

The full line of Wheeling building materials includes SofTite Cop-R-Loy Galvanized Sheets, Steelcrete Reinforcing Mesh, ExM Gratings and Angle Frame Partitions, Tri-Rib Steel Roof Deck and Metal Lath and Accessories.

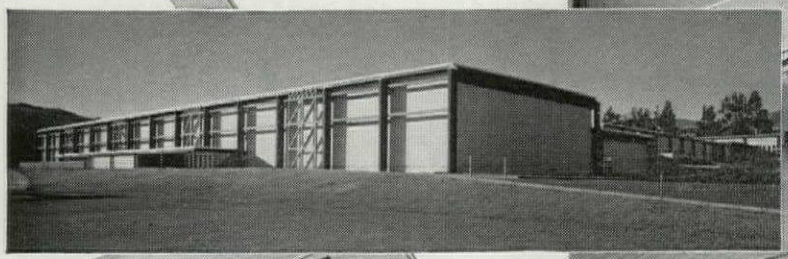
WHEELING CORRUGATING COMPANY

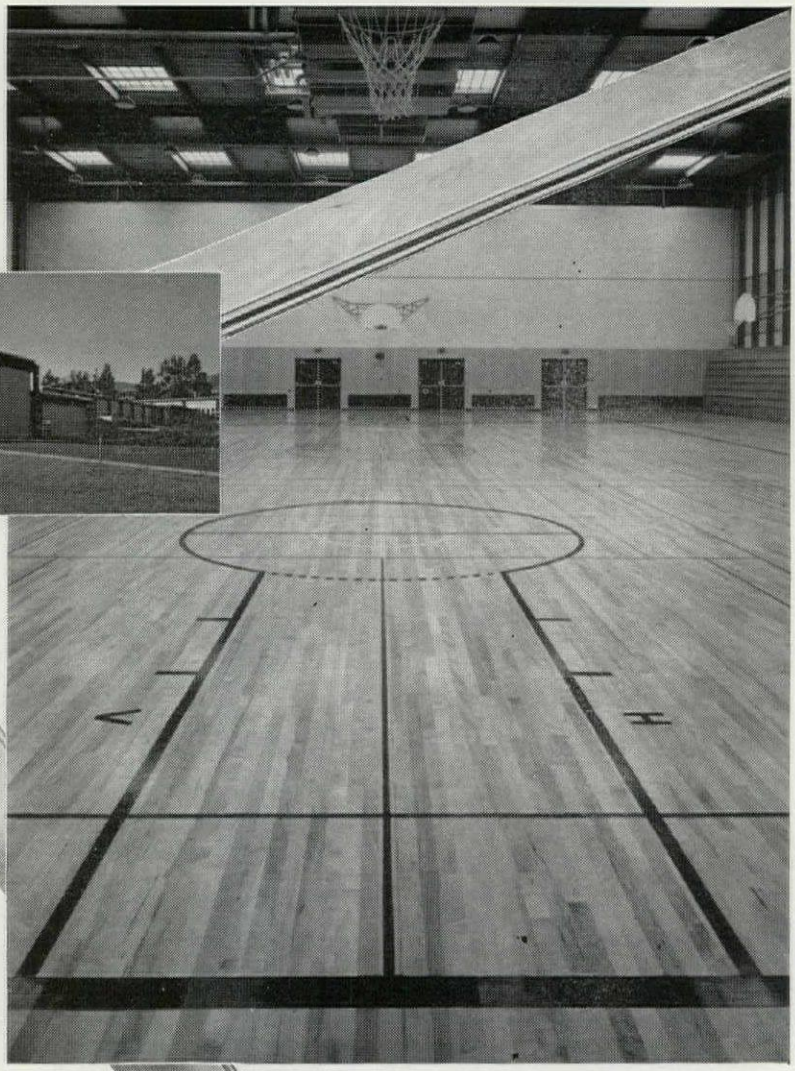
WHEELING, W. VA.

IT'S WHEELING STEEL

Atlanta Boston Buffalo Chicago Columbus Detroit
Houston Kansas City Louisville Minneapolis
New Orleans New York Philadelphia Richmond St. Louis

Planned by John Lyon Reid and Partners (architecture-engineering), San Francisco, this "classic-modern" San Mateo, California, Hillsdale High School blazes a brilliant new path in school design. The top AIA award stamps it as one of the truly great school plants of the year. Photographs by Roger Sturtevant, San Francisco.





It earned one "Oscar" for design . . . rates another for the splendid, lifetime floor of—

NORTHERN HARD MAPLE

The genial California sunshine that caroms in through the prism skylighting brings glowing life to the beautiful grain pattern of this "finest floor that grows." Notice the clean sharpness of the painted court-lines which the players "see without looking." Bear in mind how the close-knit fibre of Northern Hard Maple fights scuffs, scars, dents, with never a splinter—and with minimum maintenance. Consider the reasons why the nation's coaches—90 to 1—have gone on record for "*maple, by all means, for all gym and multi-purpose areas.*" And considering, "let your school dollars remind you."

the finest floor that grows

See Sweet's

(Arch. 13j-MA) for full data. Write for AIA File Folder and 1957 listing of MFMA-approved floor finishing systems and materials, also 1957 MFMA Grading Rules booklet, reflecting today's fine hardwood timber crops.

A vast variety of beautiful decorative effects easily obtained in Maple—in block and patterned designs as well as the conventional strip of various widths. Readily laid in mastic, over concrete or softwood sub-flooring.

MAPLE FLOORING MANUFACTURERS ASSOCIATION

Suite 583, Pure Oil Bldg., 35 E. Wacker Drive, Chicago 1, Ill.

Chrysler Stamping Plant, Twinsburg, Ohio

Chrysler uses Lexsuco roof construction for assured plant fire protection

The forward thinking Chrysler Corporation is using a Lexsuco Roof consisting of flame-resistant Koroseal* Vapor Barrier and Non-flammable Lexsuco Adhesive R 907 T to protect the new 34 acre Chrysler Stamping Plant in Twinsburg, Ohio.

Tested and approved by Factory Mutual, Lexsuco Roofing eliminates the use of flammable asphaltic materials between the roof deck and insulation. Lexsuco materials will not feed a fire, will not spread a fire . . . And Koroseal Vapor Barrier will protect the insulated built-up roof from the damage of moisture migration.

When Lexsuco Fire-Retardant Roof Constructions are used, the need for automatic sprinklers is often predicated on occupancy requirements. Even when required, fewer sprinklers or a lower insurance rate is a possibility.

Protect the building you design from fire and moisture. Always specify Lexsuco Fire-Retardant Roof Constructions. There are no "or equals".

*T.M. B. F. Goodrich Company

LEXSUCO
INCORPORATED
4815 LEXINGTON AVE. CLEVELAND 3, OHIO

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LEXSUCO, INCORPORATED, Dept. PA5-7
4815 Lexington Avenue
Cleveland 3, Ohio

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now...lath and plaster

when you build with the
Three Keys to Stronger Plaster
KEYMESH · KEYCORNER · KEYBEAD

are better than ever!

Every day, builders and contractors are discovering the big advantages of building with plaster reinforced with Keymesh, Keycorner and Keybead.

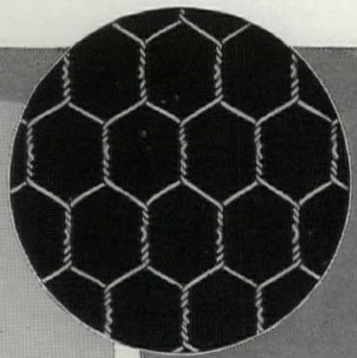
For example, Keymesh adds 50% greater fire safety to plaster ceilings in frame construction. It triples the fire endurance limit of open web, steel joist construction. And when you fireproof steel beams and columns with Keymesh reinforced plaster, the reduction in the insurance rate soon pays for the fireproofing.

Keycorner economically provides the extra strength that takes the worry out of trouble spots like corners, wall-ceiling junctures and joints.

Keybead allows exacting work on outside corners where ordinary beads fail. You save time and money.

In addition to these hidden values, the Three Keys help make plaster even more beautiful, more easily adapted to any design requirement.

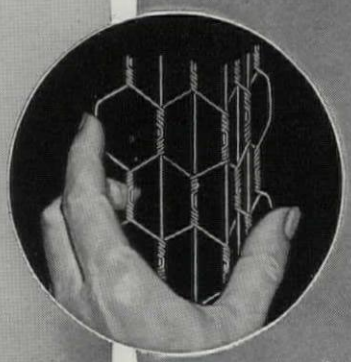
For far better construction that costs very little, ask your plastering contractor to figure your jobs with the Three Keys to Stronger Plaster.



KEYMESH

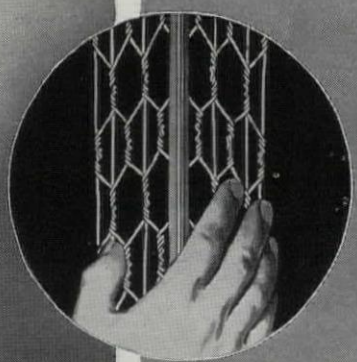
Tests prove that Keymesh-type Galvanized reinforcing lath increases fire safety of plaster ceilings a minimum of fifty per-cent . . . in some cases many, many times more. Since this is true by actual fire tests*, imagine the extra strength that a Keymesh ceiling or wall has against ordinary, day-to-day stress and strain. The hex mesh is a network of reinforcement. Plaster completely embeds the steel wires to make a solid, reinforced ceiling or wall. Keymesh stops plaster cracks before they start. It makes lath and plaster better than ever.

*Building Materials and Structures Report 141 National Bureau of Standards.



KEYCORNER

Keycorner is the only Galvanized strip lath preformed to fit corners, joints and wall-ceiling junctures. Just flex it—it bends to corner shape. It goes up quickly, easily. And what reinforcement! Corners and joints are no longer trouble spots when you build with Keycorner. It knits the plaster into a single, solid unit, reinforced at points of most strain. And it costs so little for this protection, this extra life for your plaster job. Keycorner pays big dividends in client satisfaction. See that it is used when you build with plaster. It makes lath and plaster better than ever.



KEYBEAD

New Keybead Galvanized lath makes possible exacting plaster work where ordinary corner bead fails. Keybead is straight, end to end. No waste. It's easy to true up. And Keybead makes a solid plaster corner! Plaster is easily troweled through open mesh flanges to fill corner and completely embed every reinforcing wire. Twenty-three gauge Galvanized steel nose—no other regular corner bead provides such protection against shock. Keybead is also available with solid zinc nose for use in highly corrosive atmospheres. Ask for Key Z Bead.

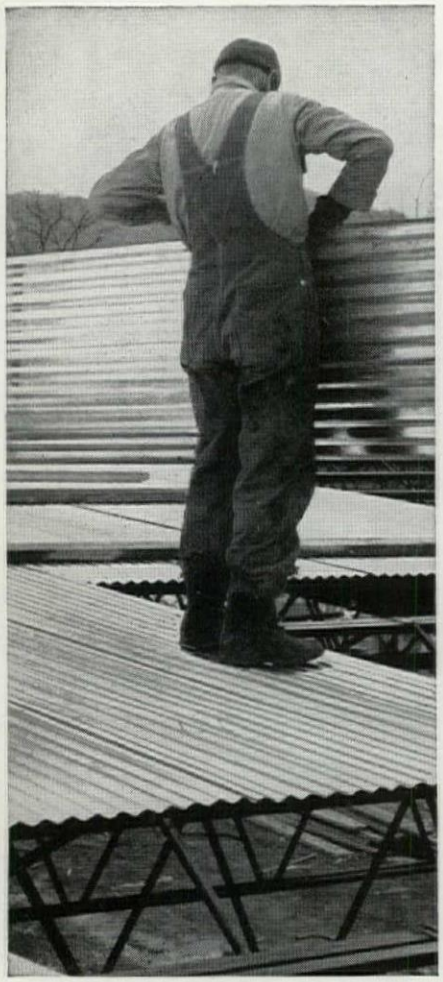
3 KEYS TO STRONGER PLASTER

KEYMESH
KEYCORNER
KEYBEAD

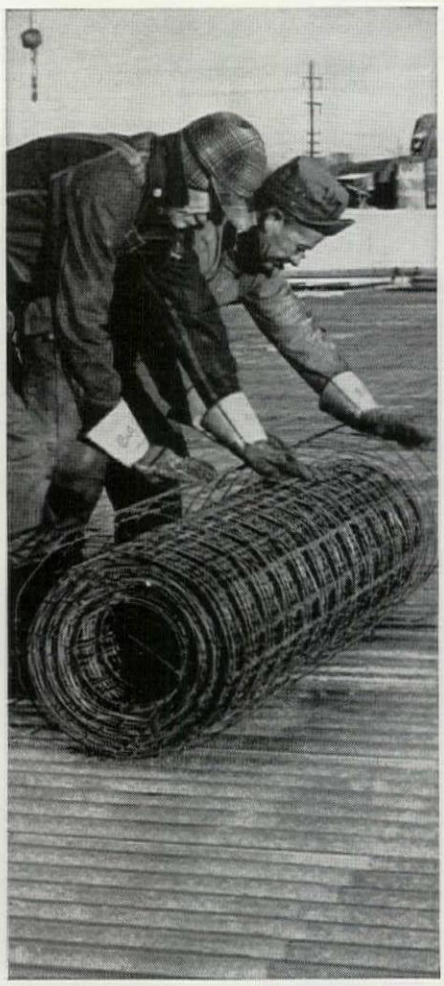
Blaine Drake, architect

KEYSTONE STEEL & WIRE COMPANY
Peoria 7, Illinois

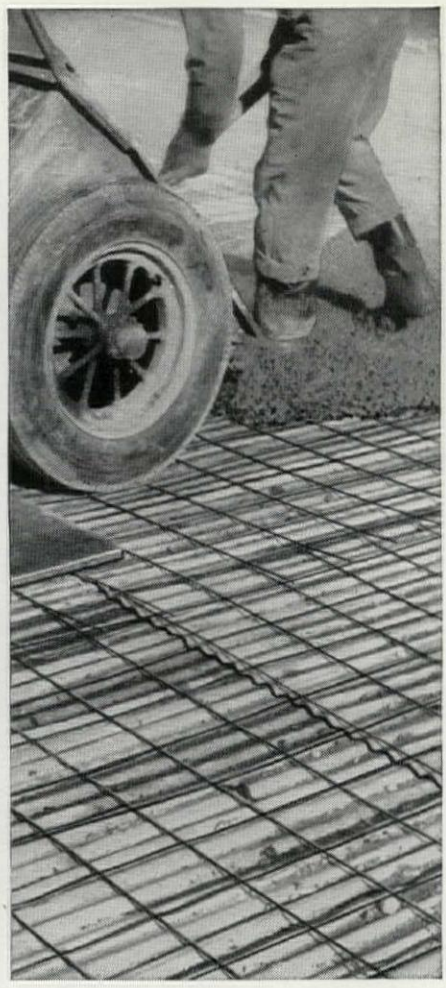
KEYMESH • KEYCORNER • KEYBEAD • KEYSTONE NAILS
KEYSTONE TIE WIRE • KEYSTONE WELDED WIRE FABRIC
KEYSTONE NON-CLIMBABLE AND ORNAMENTAL FENCE



EASY TO HANDLE. Light Corruform sheets span up to 30″, are quickly welded or clipped to steel joists, can be easily cut to fit openings.



ROLL OUT MESH. Corruform in place offers an immediate, safe work platform, withstands normal construction abuse, adds stiffening to joists.



FAST CONCRETING. Rigid Corruform sheets permit slab to be cast and finished in one operation. The finished slab is ready for floor covering.

Have you ever seen a faster, easier way to construct reinforced concrete floors?

Secure Corruform® to joists . . . roll out mesh . . . place concrete. That's all there is to it! Corruform corrugated steel base makes cast-in-place floor slabs strong, safe, easy to erect because Corruform sheets are light yet nearly *twice as strong* as ordinary steel of comparable weight. The minute Corruform is down, you can walk on it, work on it. Rigid sheets resist dents and punctures, distribute loads, eliminate pull on joists, provide a tight, solid base for concrete. And because Corruform is 100,000 psi steel, it carries concrete over joists without sag, stretch, bend or leakage. Sheets retain cement paste, speed finishing, assure true and level finish. Corruform has been used extensively throughout the U. S. on almost every type of building. Stocks available from coast to coast. Get more information by writing Granco home or district office. ATTN.: Dept. P-79.

CONCRETE YOU SAVE PAYS FOR CORRUFORM

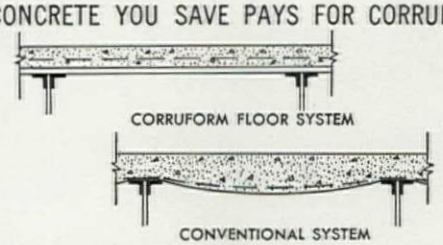


Diagram shows how Corruform stays level, saves about 20% or more in concrete over "flexible type" centering.

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SINCE 1878 GRANITE CITY STEEL

See our catalogs in Sweet's Architectural and Industrial Files

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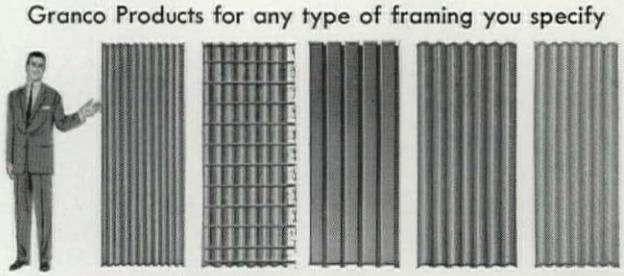
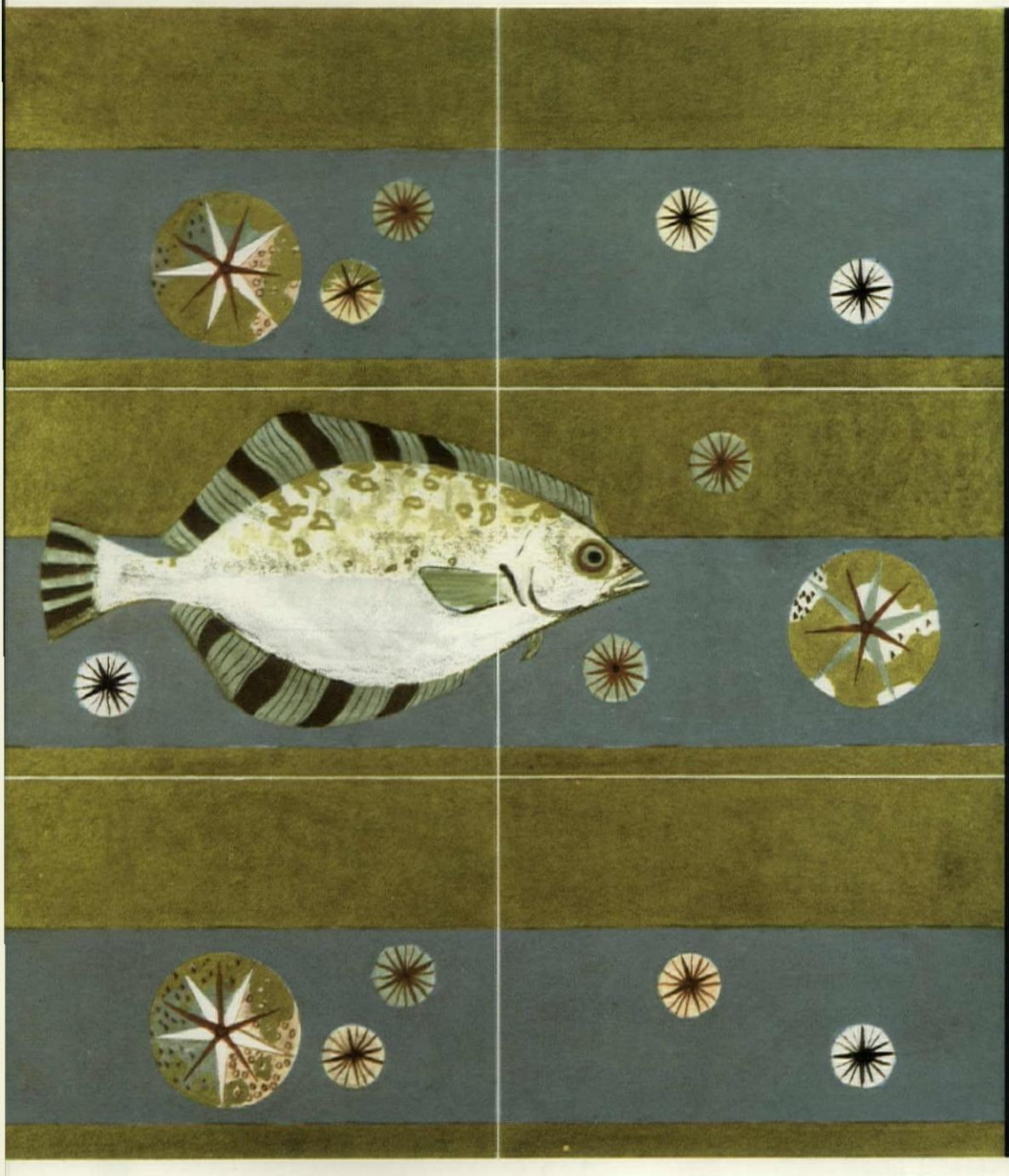


BAHAMA REEF... by Millard Sheets

Pomona Tile announces a brilliant new achievement in decorative ceramic tile... Millard Sheets' exciting Bahama Reef... the first of five new concepts in its "Distinguished Designer Series." "In creating Bahama Reef," says Mr. Sheets, "I attempted to design a highly versatile interior, exterior tile which could be applied as a continuous surface treatment or as an individual group placed at random within a tile installation." Consult your tile contractor for information or visit our convenient showrooms.



Distinguished designer series: Bass • Laszlo • Liebes • McCobb • Sheets

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POMONA TILE

this shining tower

is fire-protected

by **Permalite**®

insulating concrete

Behind the gleaming aluminum face of the 20-story tower of the Bank of the Southwest Building, in Houston, Texas, is a curtain wall of light weight insulating concrete made with Permalite expanded perlite aggregate. The diagram shows clearly how architect Kenneth Franzheim designed this wall to gain a full 4-hour fire rating. Portland cement and Permalite, in a 1-to-4 mix with an air-entraining agent, were machine applied. The architect's office states that the finished wall proved to be very hard, dense and structurally sound.

IN ACTUAL FIRE TESTS of 4" perlite insulating concrete walls, such as this one, the temperature of the unexposed face averaged only 159°F. at the end of 4 hours. A further advantage is found in the fact that Permalite insulating concrete has only limited expansion at high temperatures and does not tend to bulge or spall off as do concrete and plaster made with heavy, unexpanded aggregates.

MORE AND MORE, architects are designing for light weight insulating concrete curtain walls, since the many Permalite curtain wall jobs now standing have proved that Permalite insulating concrete provides adequate strength and fire protection, as well as additional acoustic and thermal insulation values.

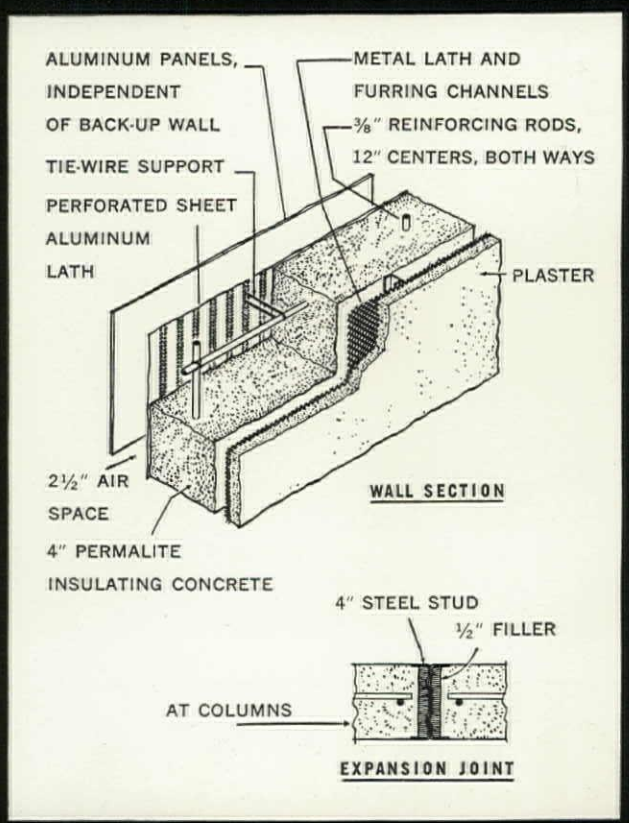
write for information PERLITE DEPARTMENT
GREAT LAKES CARBON CORPORATION
612 south flower street, los angeles, california

ARCHITECT:
Kenneth Franzheim, Houston, Texas.

GENERAL CONTRACTOR:
W. S. Bellows Construction Co., Houston, Texas.

CURTAIN WALL HUNG BY:
A. A. Greer, Inc., Dallas, Texas.

PERMALITE SUPPLIED BY:
Perlite of Houston, Inc., Houston, Texas.



Graceful horizontal lines

of beautiful California redwood siding enhance the structural form of this school building. The imaginative use of standard CRA bevel siding patterns can lend new character to contemporary architecture. Whatever the effect desired, specify "CRA—Certified Dry" redwood to assure long years of service at minimum maintenance cost, in any type of climate.

Everglades School, Florida
Weed, Russell, Johnson
& Associates, Architects

Photo: Rudi Rada

CALIFORNIA REDWOOD ASSOCIATION • 576 SACRAMENTO STREET, SAN FRANCISCO 11, CALIF.

CALIFORNIA REDWOOD

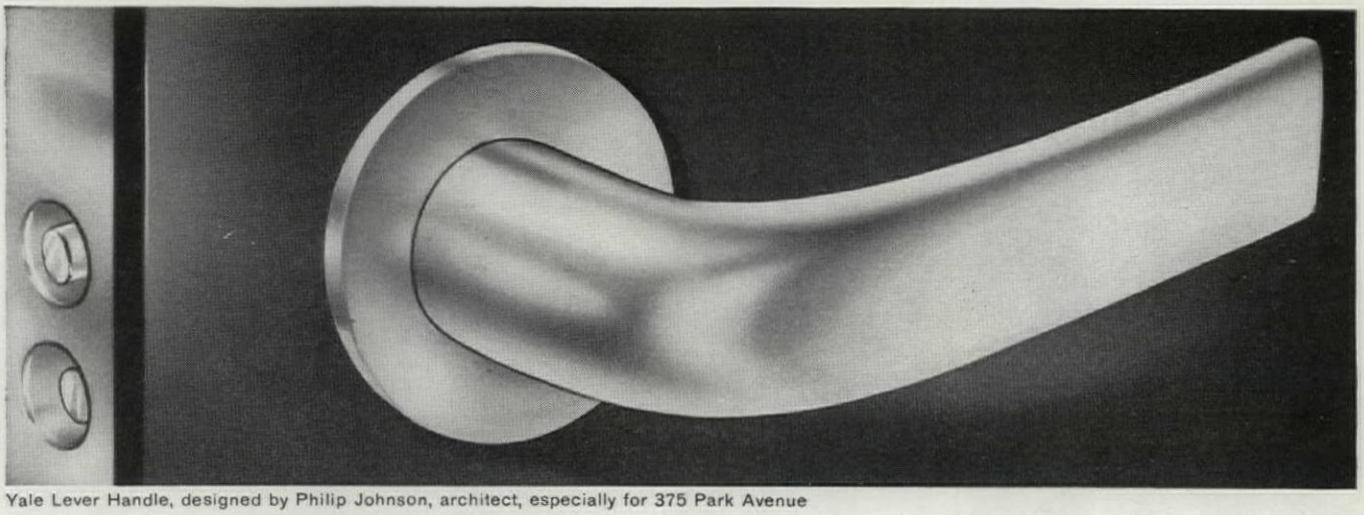
Its name: 375 Park Avenue

Its location: New York City

Its architects: Mies van der Rohe, Philip Johnson, Kahn and Jacobs

Its contractor: George A. Fuller Co.

Among its appointments: The Yale Lever Handle



Yale Lever Handle, designed by Philip Johnson, architect, especially for 375 Park Avenue

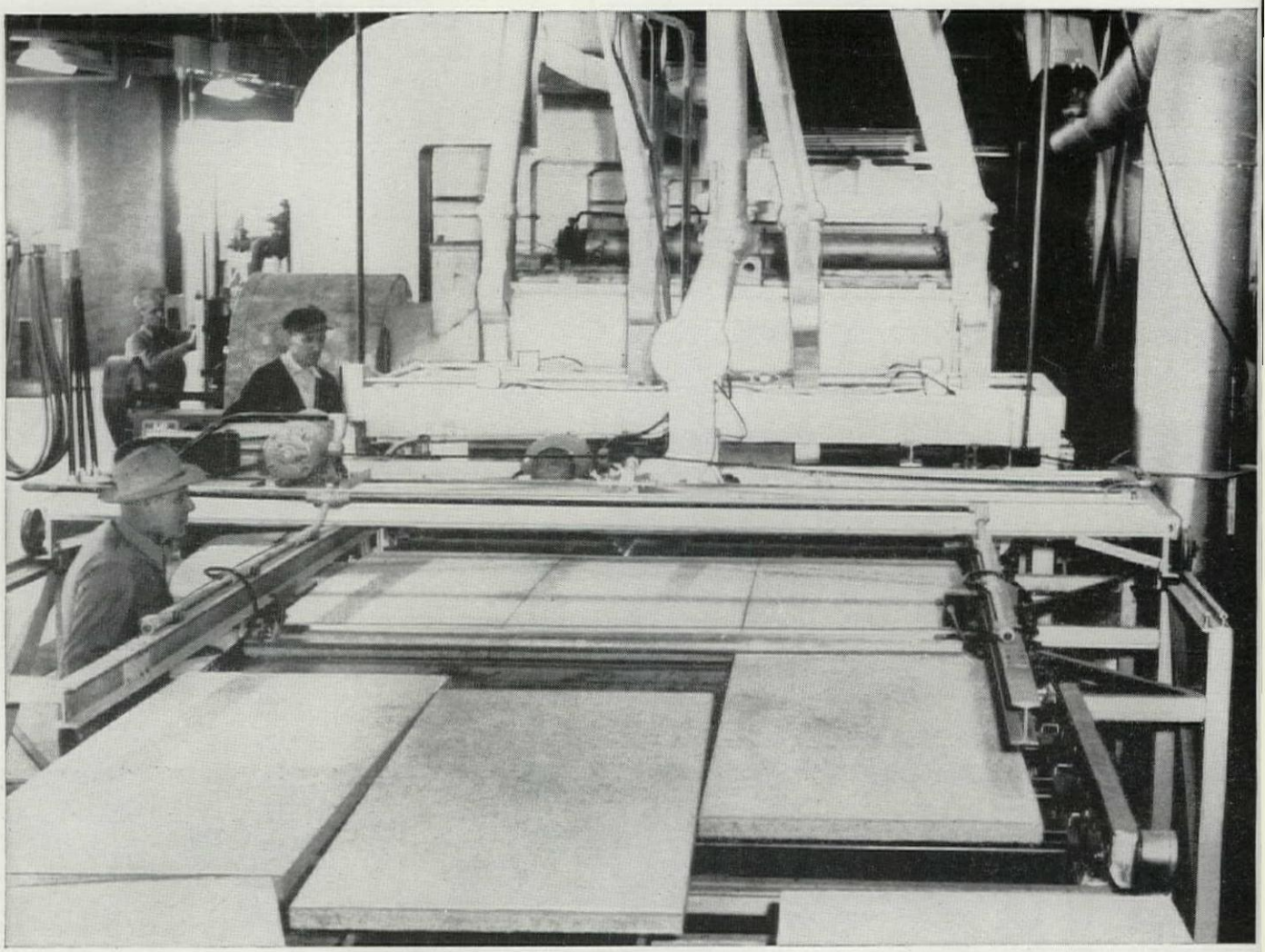
A unique demonstration of Yale's ability to match custom styling with maximum security in a master-keyed system. The Yale Lever Handle was manufactured by Yale in aluminum with a rich satin finish. Wherever fine residences, office buildings, hospitals, schools or factories are built you will find Yale Locksets of elegance, precision and unquestioned security in a collection of distinctive knob and trim designs.

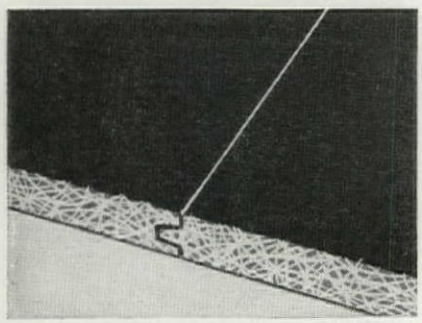
Yale & Towne Manufacturing Company,
Lock & Hardware Div., White Plains, N. Y.

YALE & TOWNE

YALE—REG. U. S PAT. OFF.

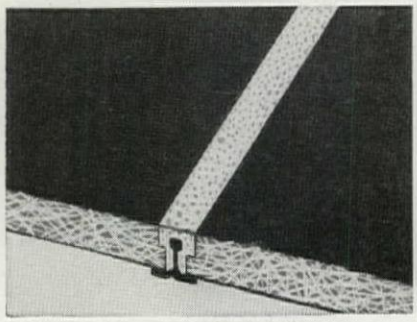
Tectum's Quality, Exclusive Features and





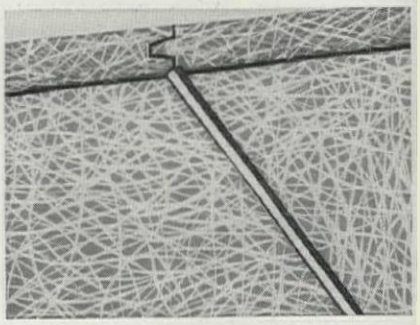
Tongue and Groove Joints

After the continuous slab of Tectum is sawed into standard widths and lengths, tongue and groove edges are machined into both sides of the plank and into the ends of standard tile. T & G edges assure strong, tight joints with improved seal.



Rabbeted Edges

Tile, for use on bulb-tee sub-purlins, has rabbeted edges as shown above. This Tectum feature allows ample room around the bulb-tee and full resistance to uplift is assured. Mechanical clips are unnecessary.



Beveled Edges

No details are neglected in the effort to make Tectum superior in composition, structural strength, functional utility and appearance. Where sides are T & G, exposed edges are beveled 45°. The exposed joint gives an attractive finished effect.

Performance Record Assure Extra Value

Tectum's rapid growth into one of the leading suppliers of roof deck and sidewall material has been accomplished within five years. This quality label has been earned by performance in the field. At Tectum there is no compromise with quality and as a quality material there is no equal. Tectum's completely automated manufacture, exclusive in its field, assures a quality product and guarantees uniform structural strength, uniform insulating and acoustical values and the finest appearance. Its combination of long, tough wood fibers and insoluble hydraulic cement binder produces a product of exceptional stability and secondary strength. Its natural, textured good looks are a decorator's delight with a natural affinity for other materials. A quick look at the other bonus features shown below illustrate why Tectum is a specification for long-lived satisfaction . . . why, after all other materials are considered, Tectum is truly an outstanding roof deck or sidewall value.

Acoustical

Up to .85 NRC

Structural

Withstands roof loading up to 200 psf

Insulating

Meets or exceeds normal requirements. "U" value .20 to .15

Noncombustible

So rated by Underwriters' Laboratories, Inc.

Workable as Wood

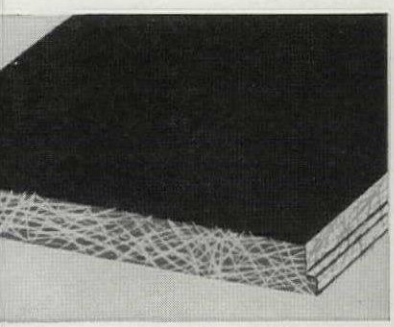
No special tools required

Lightweight

Saves on structural steel

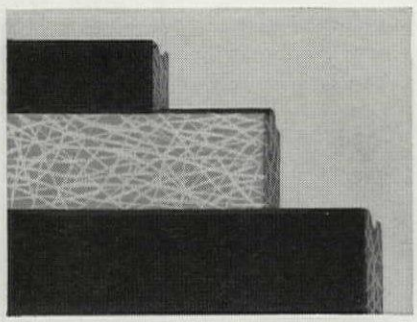
Resists Termites, Fungus, Rot

Proven by laboratory and field tests



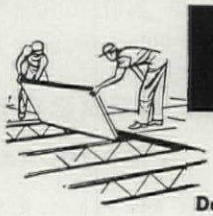
15 Lb. Felt Backing

The topside of Tectum has a ply of roofing felt applied at the factory. This cap sheet is an excellent protection against staining prior to roofing. A perfect base for built-up roofing, it resists the elements and reduces sound transmission—a truly bonus feature.



Custom Lengths To Specified Spans

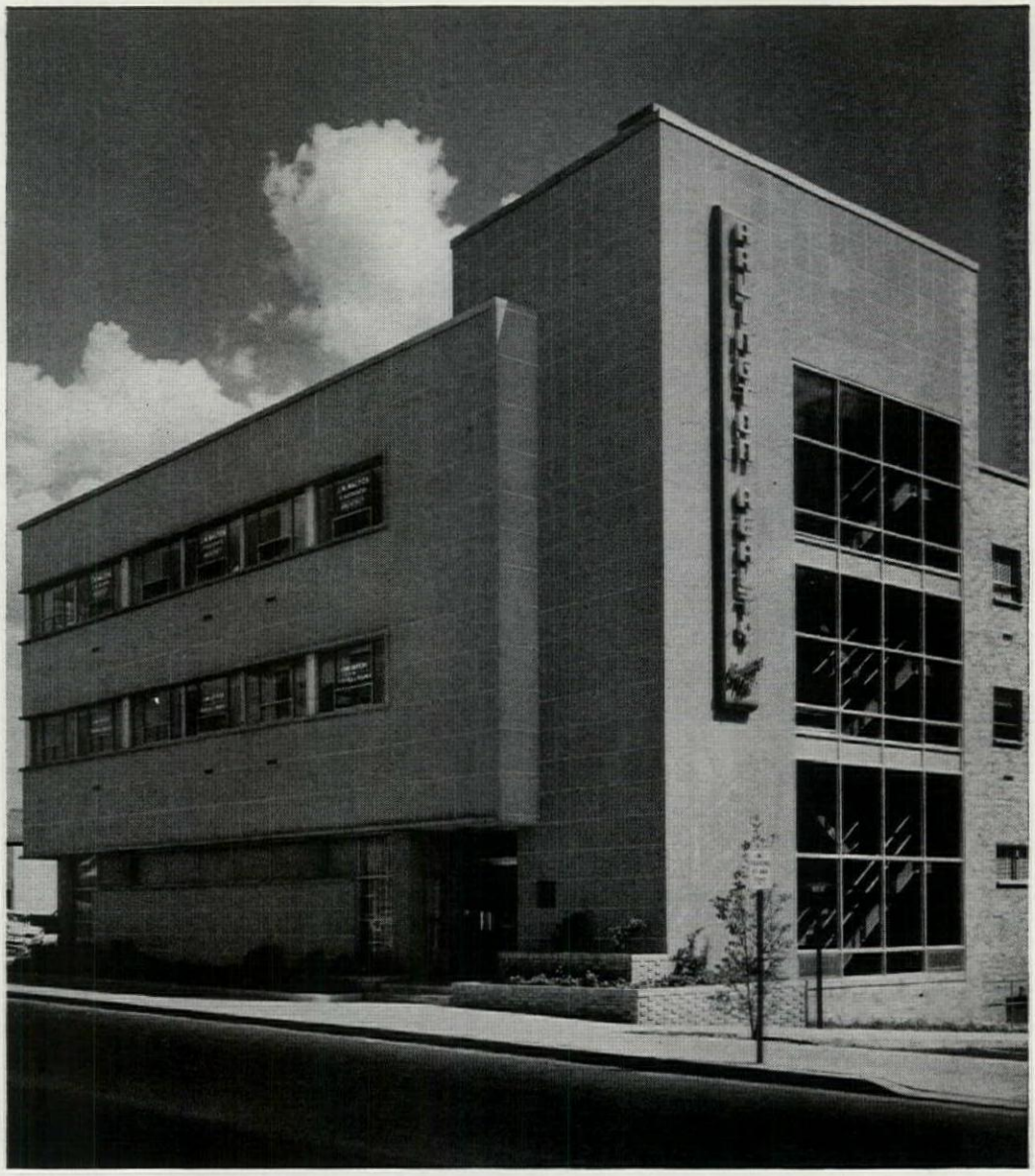
Continuous process means lengths engineered to fit the job. It often eliminates need for expensive hand-cutting on the job for Tectum may be ordered in almost any length you need. Flexibility of design is a tremendous advantage and convenience to the Architect and Designer. Tectum adapts simply and without added cost to your specific plans.



Tectum CORPORATION

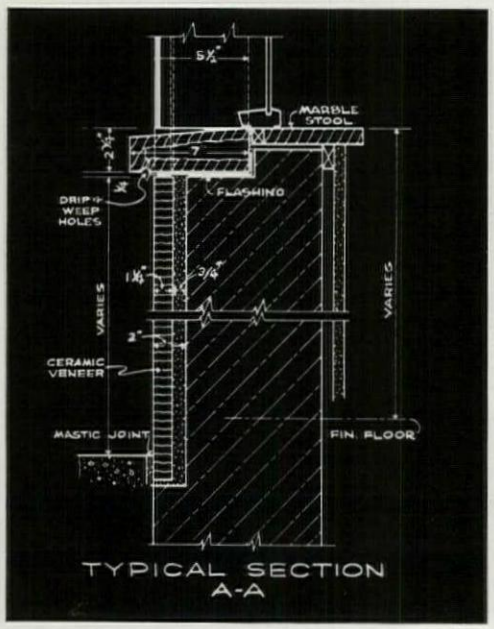
109 SOUTH SIXTH STREET, NEWARK, OHIO

Branch offices in Columbus, Philadelphia, Atlanta, Chicago, Dallas, Beverly Hills, and Seattle, with distributors in principal cities.



OFFICE BUILDING
ARLINGTON, VA.
John M. Walton & Associates—*Architects*
Wayne Const. Co., Inc.
Builder
Arlington Realty Co.
Owner
Facing units 20" x 20" x 1¼", sills, trim and wainscot in lobby #2 are adhesion-type Ceramic Veneer in a pleasing sea-mist green.

How to design distinction into office buildings



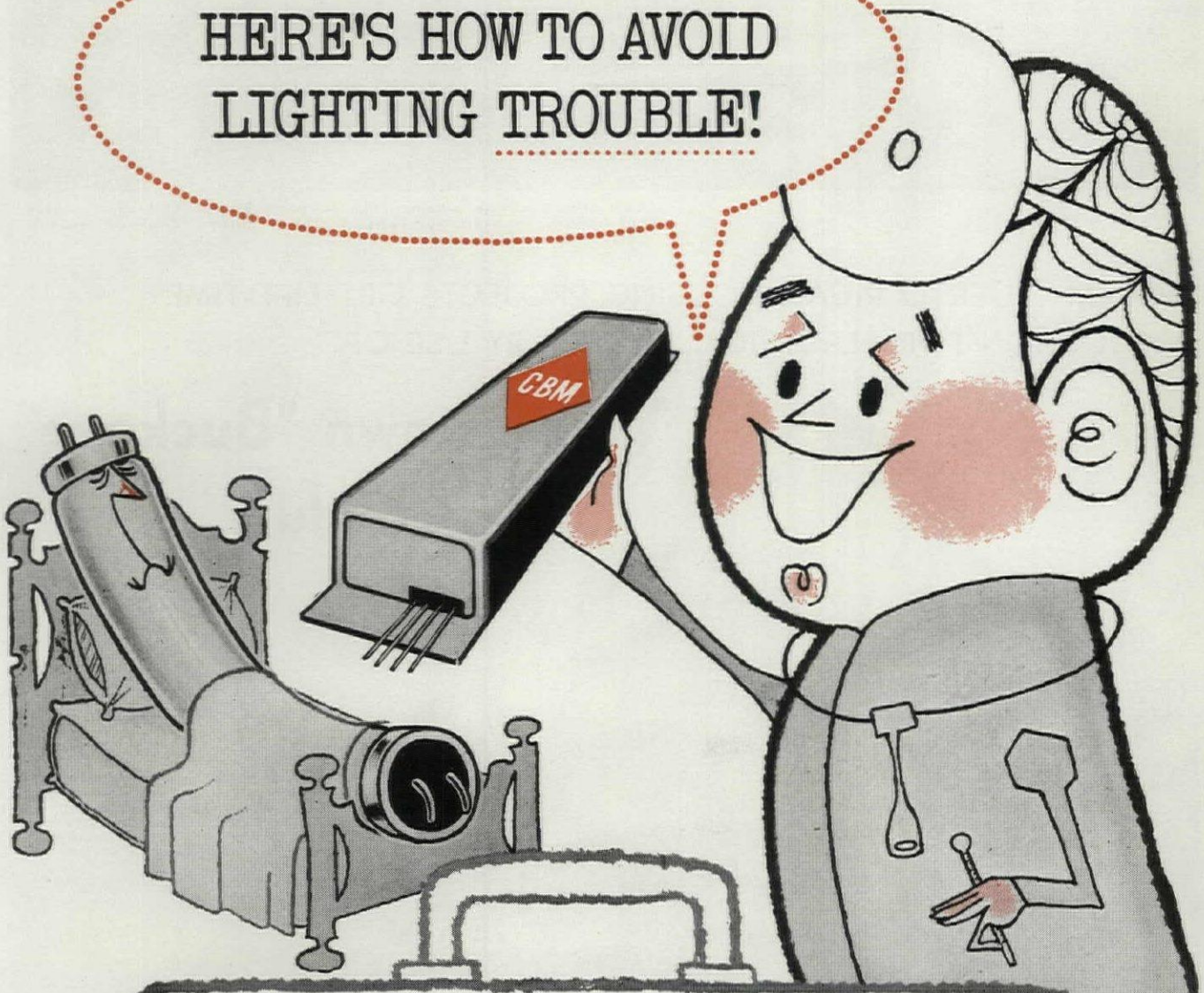
As custom made as each building you plan, Ceramic Veneer helps to stimulate architectural expression. You have free rein in the selection of colors, form and textures—for interiors, exteriors. Units can be large or small—plain surfaces, polychrome panels, or sculpture—to combine impressively with all building materials. The fire-hardened glazed surface of Ceramic Veneer assures enduring beauty. So, when you consider the advantages of Ceramic Veneer for the distinctive buildings now on your boards, add permanence and cleanliness to the other advantages of versatility and appearance. Even the price is not high for such proved high quality. For lighter weight walls economical to install, let us send you the latest facts on Ceramic Veneer, the modern Architectural Terra Cotta. Without charge we will gladly furnish construction detail, data, color samples and advice on premliminary sketches.

FEDERAL SEABOARD
TERRA COTTA CORPORATION

F S T C

10 East 40th Street, New York 16, N. Y. • Plant at Perth Amboy, New Jersey

HERE'S HOW TO AVOID LIGHTING TROUBLE!



Poor ballasts can cost up to 30% loss in light output . . . shorter lamp life and shorter ballast life . . . so

Insist on CERTIFIED CBM *Ballasts in Fixtures*

Participation in CBM is open to any manufacturer who wishes to qualify.

You get optimum light output, rated lamp life and assured ballast life when fixtures use CERTIFIED CBM BALLASTS. That's the report of *all* the fluorescent lamp makers. You get High Power Factor and quiet operation, too.

For Certified Ballasts are made to exacting specifications "tailored to the tube" and checked by Electrical Testing Laboratories. And they're *all* U.L. approved. Assure top performance . . . insist on Certified Ballasts in fixtures.

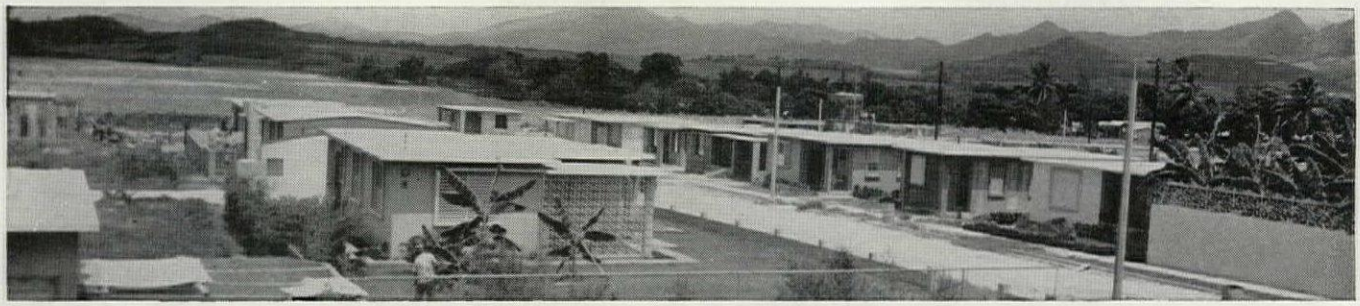
Write for a copy of the new booklet that gives you the low down about approvals on ballasts.

Seven leading manufacturers now make up

CERTIFIED BALLAST MANUFACTURERS

2116 KEITH BUILDING CLEVELAND 15, OHIO

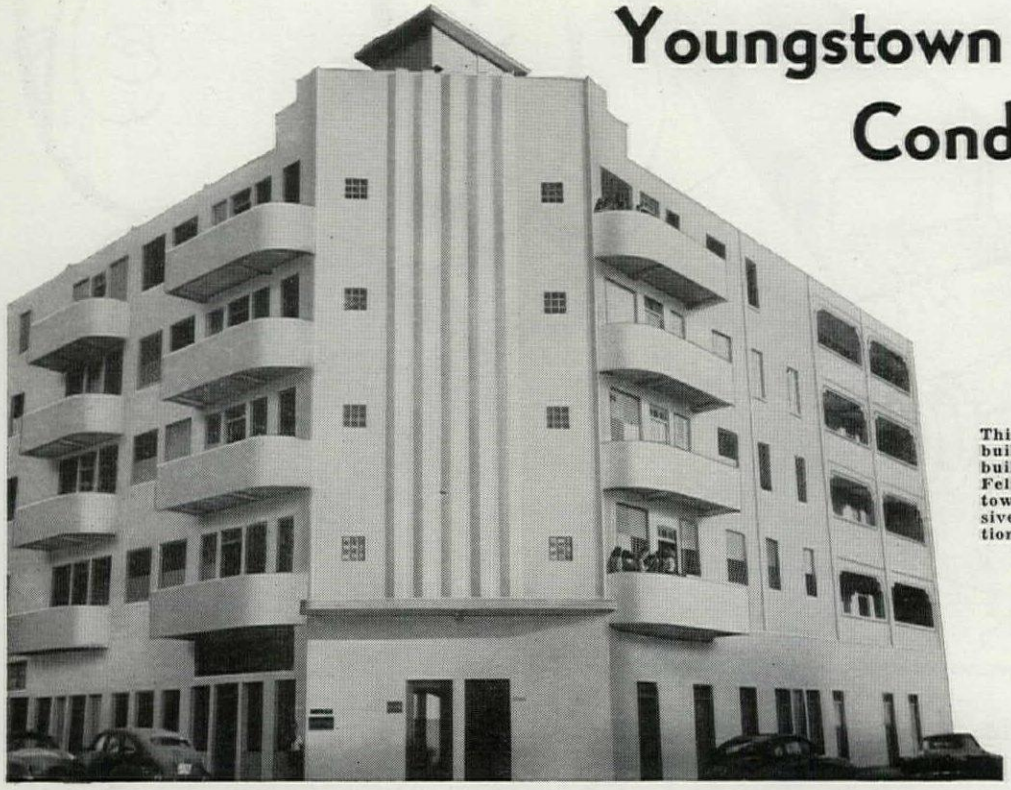
CBM 2-E



This 34-unit private housing project—known as "La Esperanza"—under construction by contractor Felix A. Torres utilizes "Buckeye" conduit exclusively.

MODERN PUERTO RICAN HOUSING PROJECTS GET LIFE-TIME PROTECTION FOR ELECTRICAL SYSTEM BY USE OF

Youngstown "Buckeye" Conduit



This modernistic 36-apartment building in Ponce, Puerto Rico—built and owned by contractor Felix A. Torres—utilized Youngstown "Buckeye" Conduit exclusively for wiring system protection.

In many of Puerto Rico's modern multi-story apartment buildings and private housing developments, Youngstown "Buckeye" Full Weight Rigid Steel Conduit has been used exclusively to give positive, safe, life-time protection for the electrical wiring systems. Electrical systems must function properly or they are definitely a bad investment. So to guarantee safe and efficient operation, leading owners, architects and contractors wisely specify Youngstown's "Buckeye" Conduit.

User's field reports tell us: " 'Buckeye' Conduit is easier to bend and thread—easier to fish wires through—and best of all, its superior corrosion resistance provides a much longer trouble-free service life."

Leading industrial and electrical distributors carry complete and ample stocks—to serve you with on-the-spot delivery. They're awaiting your phone call—today.

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General Offices - Youngstown 1, Ohio

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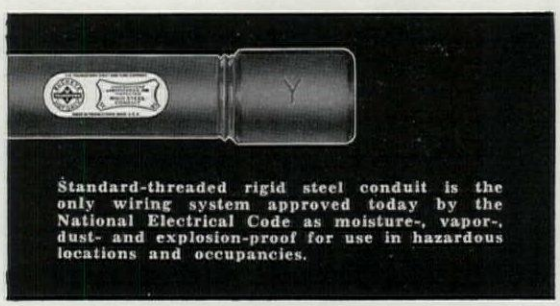

Standard-threaded rigid steel conduit is the only wiring system approved today by the National Electrical Code as moisture-, vapor-, dust- and explosion-proof for use in hazardous locations and occupancies.

"I always specify Hako floor tile"

Hospital Director: "About thirty thousand pounds to the square foot every day, Mr. Architect. That's supposing a patient weighs 150 pounds."

Architect: "That's pretty rough treatment."

Hospital Director: "What kind of a floor will take a beating like that?"

Architect: "HAKO vinyl-asbestos . . . every time. There's no contest here."

Hospital Director: "How about cost? Don't forget our budget. We're non-profit you know!"

Architect: "It's the most economical type of flooring you can use. HAKO is manufactured to rigid specifications . . . designed to do a job in hospitals."

Hospital Director: "Why HAKO—won't *any* brand do?"

Architect: "Certainly not. I like to keep my clients happy. I always specify HAKO. High in quality—and low in cost! And HAKO has a tile for every job—asphalt tile or vinyl-asbestos—in a fine selection of colors and patterns."

HAKO BUILDING PRODUCTS

A DIVISION OF MASTIC TILE CORPORATION OF AMERICA

Houston, Tex. • Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.

Asphalt Tile • Vinyliflex • CorkAtile • Parquetry
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HAKO

Guaranteed by Good Housekeeping

HA-3

HAKO Building Products, Dept. H9-7, Box 986, Newburgh, New York

Please send me free samples and full information about HAKO Tile Flooring.

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CITY_____ ZONE____ STATE_____

20,000 FL* REDUCED TO 50 FL PROVES

HONEYLITE® ELIMINATES GLARE!

Right after this photograph was taken an illuminating engineer from an independent laboratory took Footlambert readings. His findings are as follows: each of the battery of photographer's floodlights produced 20,000 FL; the six Honeylite panels gave overall 340 FL readings; the little girl's face showed 120 FL; and the page in her picture book was all the way down to 50 FL . . . a light soft enough for the youngest eyes!

HONEYLITE®

LIGHT-DIFFUSING ALUMINUM HONEYCOMB

A DEVELOPMENT OF **HEXCEL PRODUCTS INC.**

951-61ST STREET, OAKLAND 8, CALIFORNIA

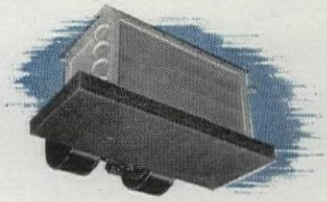
See our Catalog in Sweet's file 31a/He

* Footlambert — the standard unit of surface brightness — as measured with a Spectra Brightness Spot Meter. Name of testing laboratory available on request.

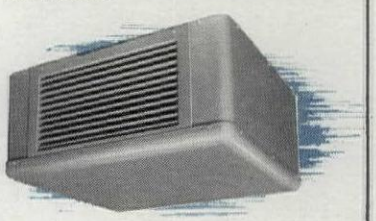
Here's Why

Dunham-Bush 'CR' Year 'Round Room Air Conditioners provide MAXIMUM FLEXIBILITY

'CRV' Console Unit



'CRH' Basic Unit



'CRH' With Cabinet

'CRV' Basic Unit

FLEXIBILITY... in choice of Construction

That's the keynote of the Dunham-Bush line of 'CR' year 'round room air conditioners. Typical of the variations available: cabinet or recessed models; vertical or horizontal models; combination water cooling and heating coils; combination direct expansion and steam coils; three control kits.

FLEXIBILITY... in Selection

Model	CFM Normal Speed	Water Coil Capacities		Inner-Fin Direct Expansion Combination Steam Coil	
		Cooling BTU/hr	Heating BTU/hr	Cooling BTU/hr	Heating BTU/hr
CRV-220 & CRH-220	220	5,600	18,300	6,400	15,300
CRV-330 & CRH-330	330	8,400	25,400	9,800	21,500
CRV-450 & CRH-450	450	13,200	35,300	14,900	28,000
CRV-600 & CRH-600	600	21,000	55,000	23,200	45,300

Cooling capacities (total heat) based on entering air 80° DB, 67° WB, 45° water (or 40° suction).

Heating capacities based on entering air 60°, 2 psig steam.

FLEXIBILITY... in Installation

Vertical models with cabinet can be exposed or semi-recessed, basic units completely recessed. Horizontal units with cabinet can be ceiling suspended in conditioned space; basic units can be utilized for unexposed installation.

Contact your nearest DUNHAM-BUSH Sales Engineer for complete specifications or write for 'CR' catalog.

Dunham-Bush, Inc.

WEST HARTFORD 10 • CONNECTICUT • U. S. A.

DUNHAM-BUSH

MARSHALLTOWN, IOWA • MICHIGAN CITY, INDIANA • RIVERSIDE, CALIF. • TORONTO, CANADA • LONDON, ENGLAND • SUBSIDIARY: HEAT-X, INC., BREWSTER, N. Y.

AIR CONDITIONING • REFRIGERATION • HEATING • PRODUCTS AND ACCESSORIES

Typical $23,000 home in Potomac Valley Project, Mount Vernon, Va. BUILDER: Empire Engineering Corp. of Virginia, Washington, D.C. ARCHITECT: Jack C. Cohen, A.I.A., Silver Springs, Maryland.

Revolution at Mount Vernon:

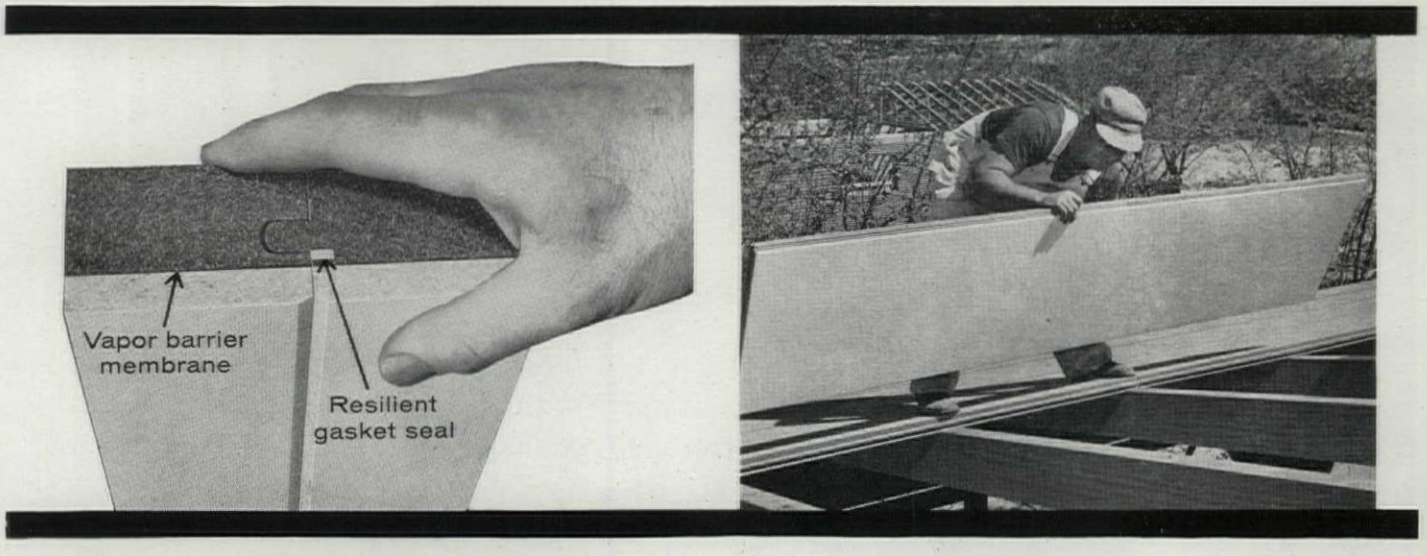
133 contemporary open-beam homes being built with Insulite Roof Deck

In striking contrast to the colonial style homes of the Mount Vernon district, 133 homes like the one shown at left are now building on George Washington's former estate near Washington, D.C. These crisply modern split-levels are being built by Empire Engineering Corp. at its "Potomac Valley" development.

Buyers are delighted with these handsome homes. They get 3 or 4 bedrooms, 2½ or 3 baths. Best of all, they like the rich, spacious look of high-ceilinged, open-beam interiors, in three variations.

A key factor in this ingenious basic design—by architect Jack C. Cohen, A.I.A., Silver Springs, Md.—is the use of Insulite Roof Deck. It's a factor that cuts costs remarkably, while adding much in beauty. For Insulite Roof Deck is three materials in one: decking, insulation, finished ceiling. Applied over pre-finished beams, it eliminates roof boards, separate insulation, lath, and plaster. It needs no painting, staining or waxing on the ceiling side.

In thousands of homes in all climates—homes priced from $10,000 to $100,000—Insulite Roof Deck has now been proved one of the most exciting new materials available. Want more information? Write us—Insulite, Minneapolis 2, Minnesota.



Made in three thicknesses—1½", 2" and 3"—Insulite Roof Deck meets any climatic requirements. Continuous vapor barrier available in 2" and 3" thicknesses. Roof Deck has excellent "U" and "K" values; holds heating and cooling costs low. Insulation value of 2" thickness equals 2" wood decking plus 1" insulation.

Fast and easy to apply. Big, rugged panels are 2'x8', easily lifted, carried and placed by one man. Tongue and groove joining on long edges makes snug, tight fit. Insulite Roof Deck cuts quick and clean with handsaw or power saw. Short-edge joints are caulked. Exterior is finished with built-up roofing.

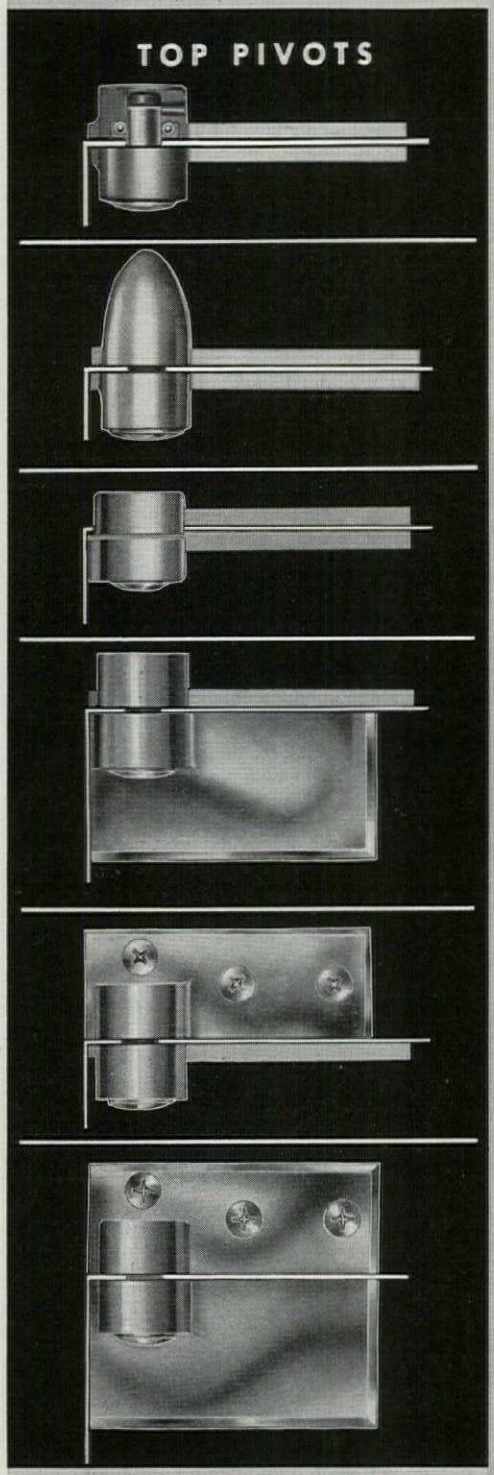
build better and save with

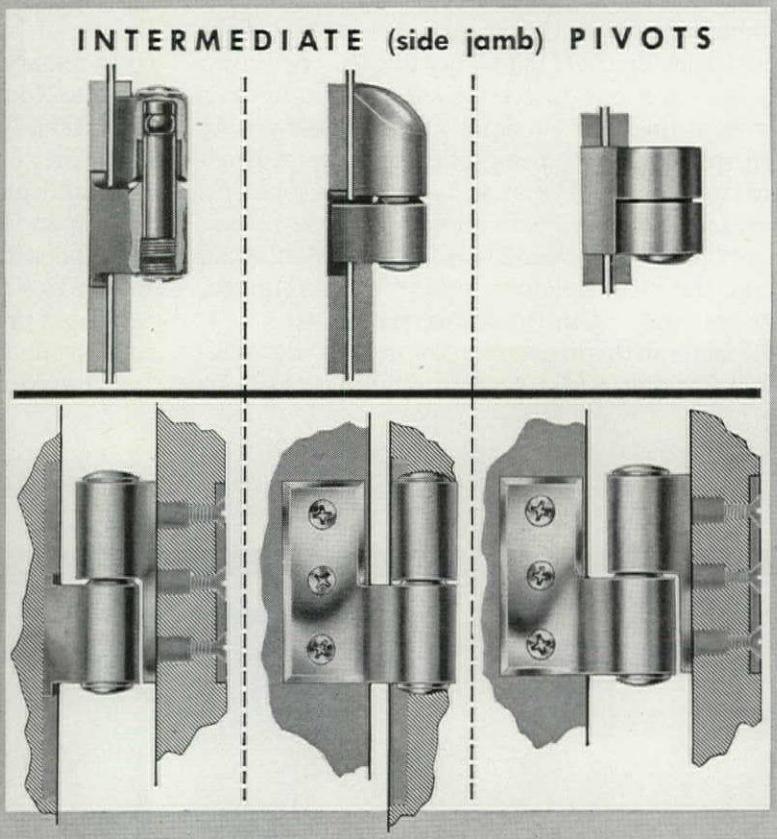
INSULITE®

Insulite, *made of hardy Northern wood.* Insulite Division of Minnesota and Ontario Paper Company, Minneapolis 2, Minnesota

a specialized RIXSON OFFSET PIVOT

for every door and jamb material or construction





Whether for standard construction or for bull nose type framing with both leaves mortised . . . or for door and jamb combinations in hollow metal, channel iron, kalamein or tubular steel that require the jamb or door leaf surface mounted or both leaves surface mounted . . . there is a RIXSON top and side jamb pivot designed and manufactured for the specific installation.

You can specify RIXSON offset type closers or pivot sets for all entrance and interior doors.

write for complete description and templates

THE OSCAR C. RIXSON COMPANY

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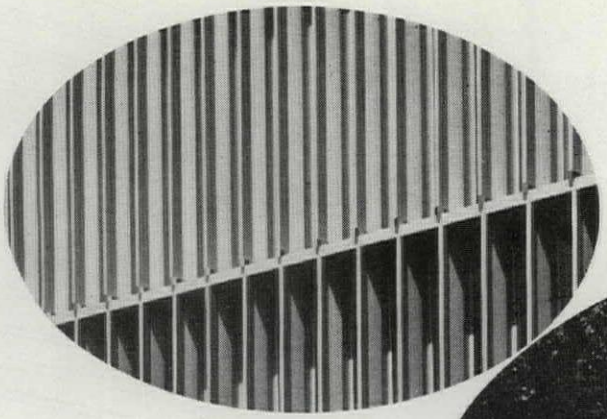
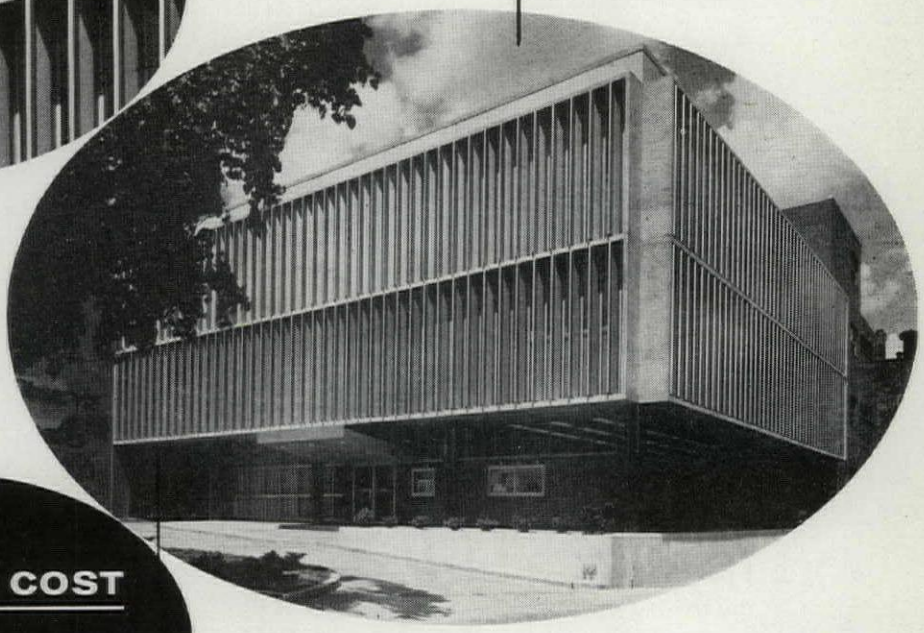
CANADIAN PLANT: 43 racine road • rexdale, ontario



LEMLAR adjustable louvers (type VJ-24) were chosen to dramatize this new home of the Raleigh (N. Carolina) NEWS and OBSERVER and The Raleigh TIMES.



NO ADDED COST for SOLAR CONTROL LOUVERS . . .

Operating, Maintenance Expense Reduced Annually More Than 25 Percent!

AIR CONDITIONING equipment cut $15,000 and a $2,000 saving on interior blinds made "first costs" exactly even. Important, too, is the "from now on" operating economy. Operating expense of the air conditioning system is reduced by 25% and maintenance of interior blinds eliminated altogether!

GLARE CONTROL is a cost-free benefit for the maximum comfort and improved productivity of workers.

See Sweet's Architectural File, 19e/Le; Industrial File, 7f/Le. Or write for product Catalog and further data. Sun Angle Charts for your locality also available on request.

Architects: Wm. Henley Deitrick, F.A.I.A.
John C. Knight, A.I.A.

Builder: Strong and Harmon

LEMLAR SUN LOUVERS

SOLAR CONTROL

LEMLAR MANUFACTURING COMPANY

P.O. BOX 352-P7, GARDENA, CALIFORNIA

Cut painting costs in half!

...with MILCOR Steel Roof Deck

One field coat over Milcor's Bonderized, baked-enamel primer gives better protection than two coats over ordinary prime finishes.

You get these exclusive advantages in Milcor Steel Roof Deck:

1. Bonderizing which fortifies metal against corrosion and anchors paint to metal like nothing else can.
2. Epoxy-resin enamel baked to a smooth hard finish over the treated metal.
3. Surface damage from shipping and erection reduced to the absolute minimum.
4. *Big savings* in field painting. On Milcor's special light gray surface, one coat does a better job than two coats on ordinary roof decks.

Despite these exclusive advantages, Milcor Steel Roof Deck costs no more than ordinary deck! See Sweet's Catalog File 2d/InL or write for Catalog No. 240.

MILCOR® *STEEL ROOF DECK*

The panel at left was not Bonderized; the one at right was. The panels were scratched and then subjected to the A.S.T.M. standard salt spray test. In the finish over Bonderite, rust stopped at the scratch mark while it spread extensively over the other panel.

Three types available

INLAND STEEL PRODUCTS COMPANY

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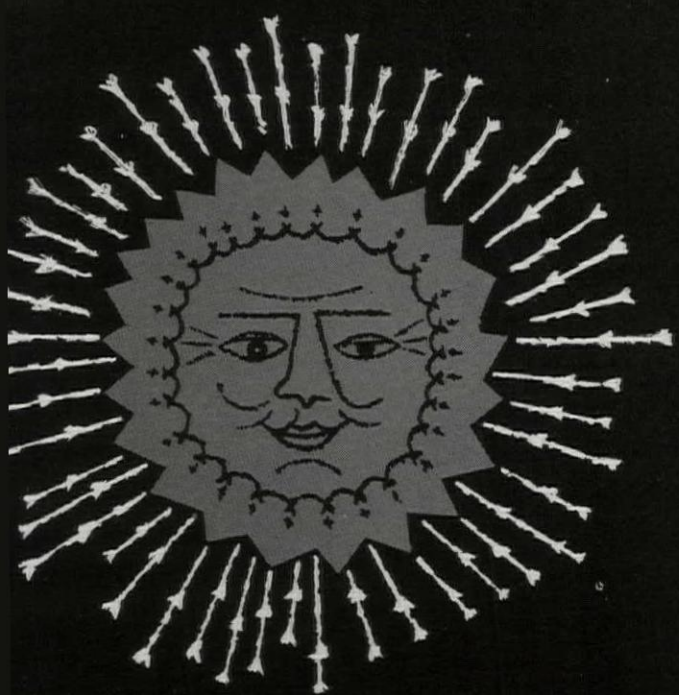
RD-3

NEW WASCOLITE REFLECTADOME* WITH SOLATEX SILVER



w
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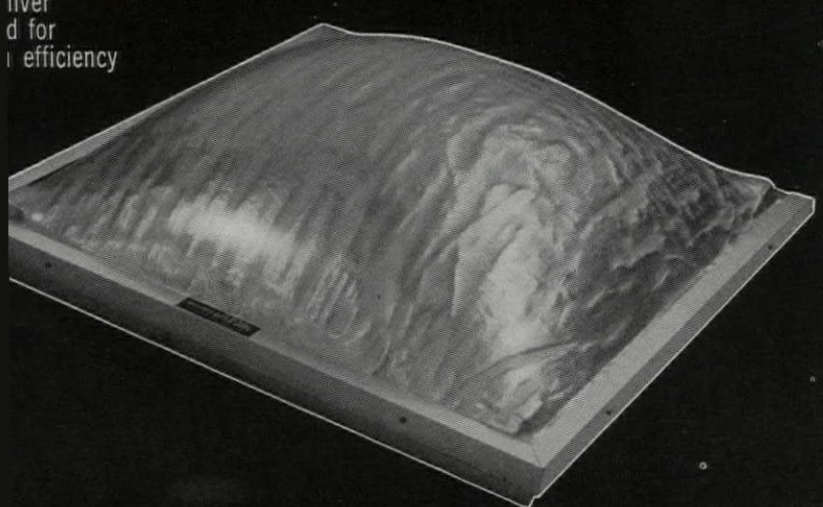

WASCO PRODUCTS, INC.

Bay State Road, Cambridge 38, Massachusetts
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the skydome that does all 3 reduces heat . . . eliminates glare . . . controls daylight

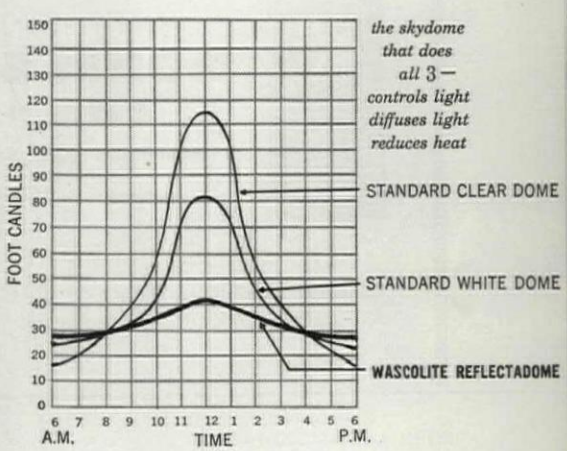
After years of development and research Wasco Products, the company that originated Skydomes, now offers you a revolutionary new overhead daylighting unit. It's Reflectadome, the one dome that reduces objectionable solar heat gain, eliminates glare and controls daylight — without supplementary light control fixtures.

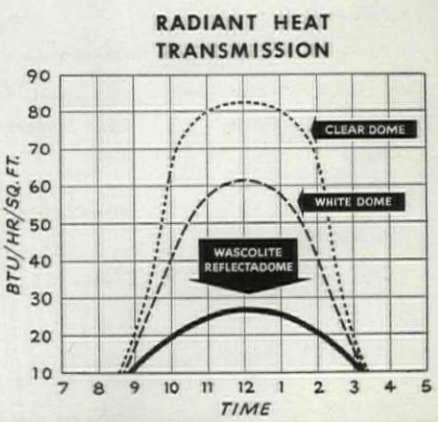
Reflectadome's secret is Solatex Silver, a special material embedded (not laminated) right into the acrylic dome. Reflectadome produces a remarkably level lighting curve to keep interiors evenly illuminated throughout the daylight hours for top visual performance.

Naturally, Wascolite Reflectadome features all the improved functional advantages of the Wascolite Skydome. Solatex Silver embedments are available only from Wasco, so specify Wascolite Reflectadome by name.

Write immediately for full details on exciting new Reflectadome, the one Skydome that does all 3! — reduces heat . . . eliminates glare . . . controls daylight.

*Trademark of Wasco Products, Inc.





Plexiglas

THE ARCHITECTURAL PLASTIC

Here are the reasons why the building industry is finding more and more uses for PLEXIGLAS ® acrylic plastic.

... **Lightweight**—saves on supporting members and footings. ... **Weather resistant** and highly resistant to breakage. ... **Economically formed** into almost any shape. ... **Transmits and diffuses** light with highest efficiency. ... **Optical grade clarity** in transparent form. ... **Colorful**—select from a rainbow of bright or subdued hues.

This combination of properties means superior performance when PLEXIGLAS is used for spandrels . . . louvers . . . glazing . . . dome skylights . . . lighting diffusers . . . luminous ceilings . . . daylight control . . . office partitions . . . architectural signs. Mail the coupon below for names of suppliers of building products incorporating PLEXIGLAS, and sign companies experienced in its use.

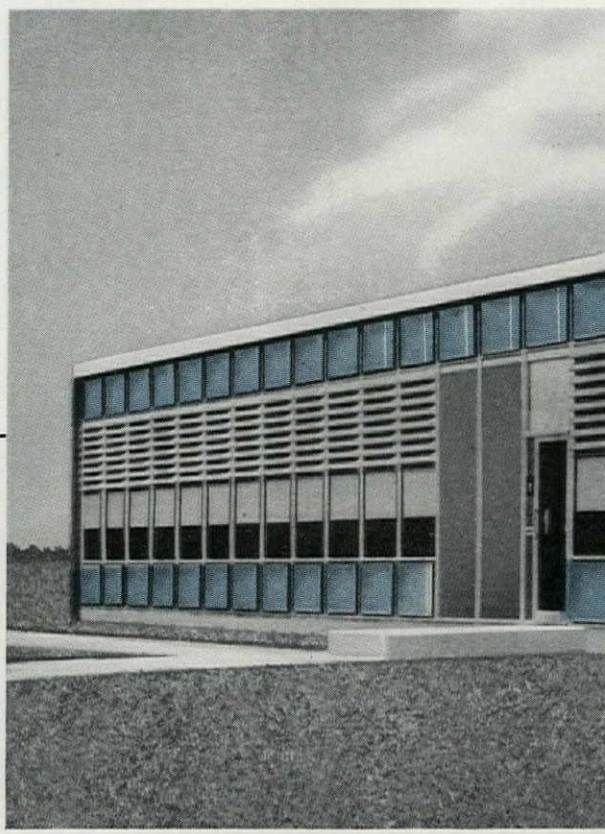
Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

Canadian Distributor: *Crystal Glass & Plastics, Ltd., 130 Queen's Quay East, Toronto, Ontario, Canada*



ROHM & HAAS COMPANY
Washington Square
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Please send PLEXIGLAS color samples and the names of suppliers of:

☐ Daylight Louver Panels ☐ Lighting Equipment
☐ Spandrel Panels ☐ Dome Skylights ☐ Signs and Letters

Name.....

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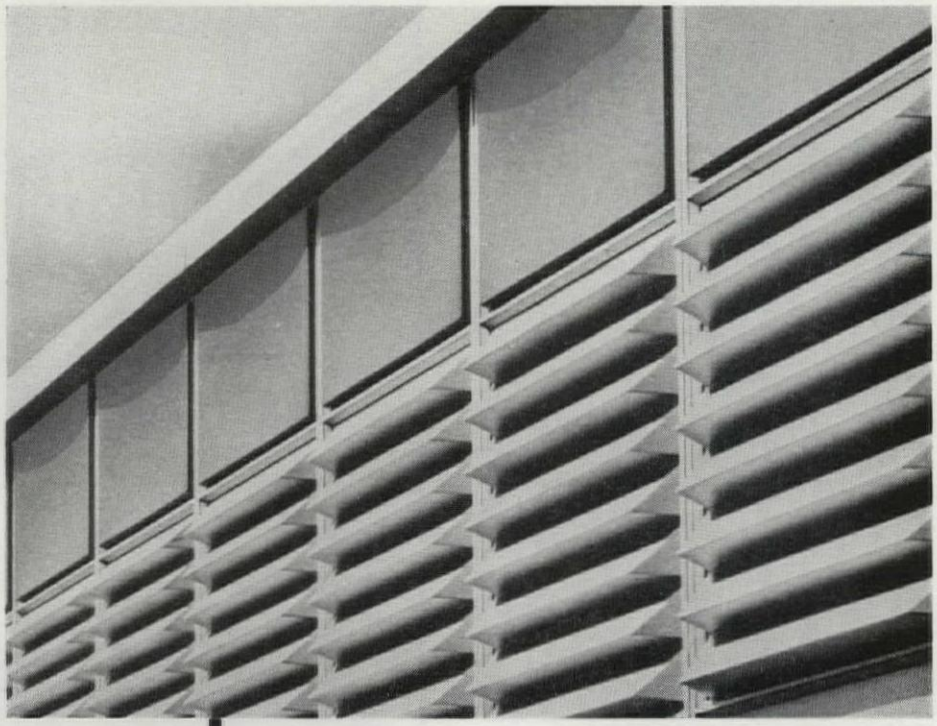
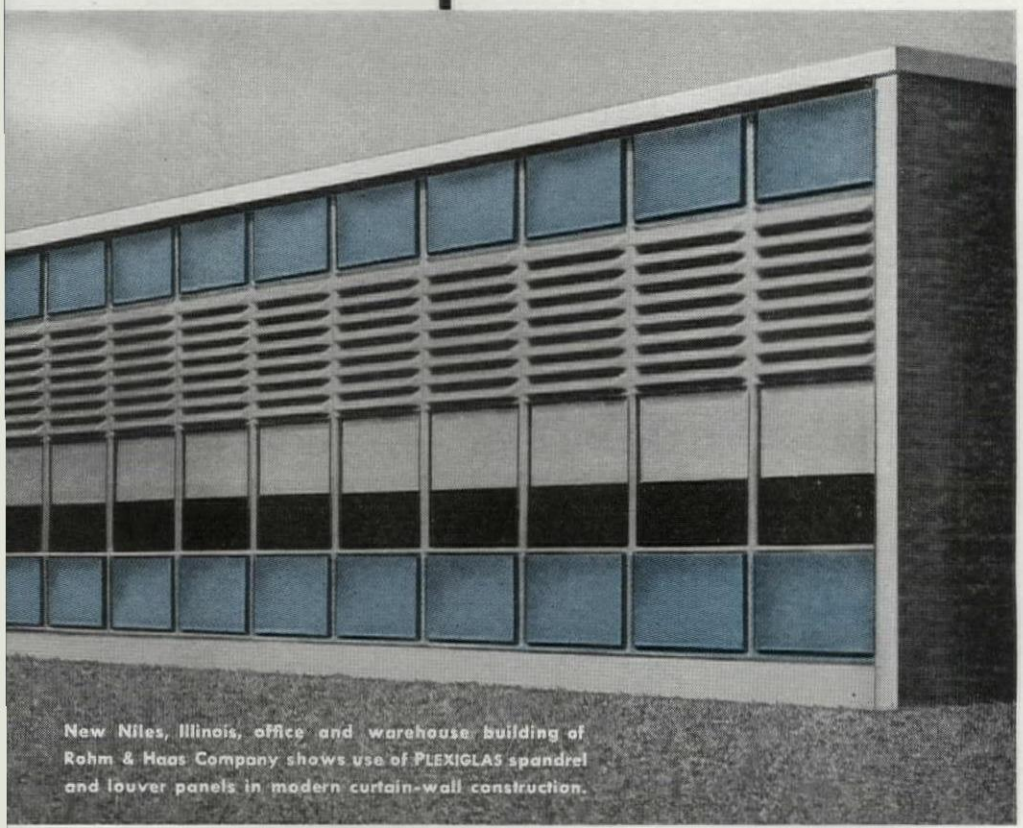
P7-23

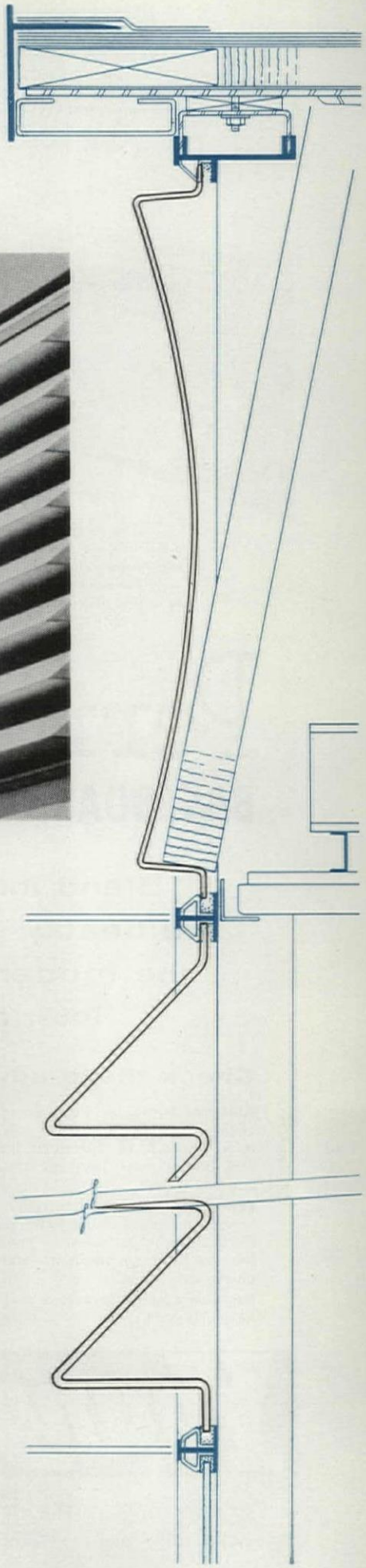
Spandrel Panels formed from PLEXIGLAS provide functional beauty . . . lightweight . . . economy and low maintenance advantages.

Daylight Louver Panels . . . light transmission, daylight control and weather closure in a single formed sheet of PLEXIGLAS.

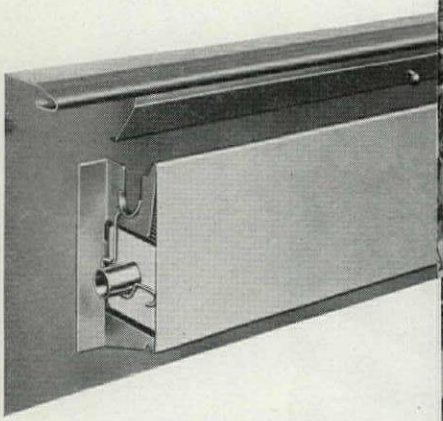




New Niles, Illinois, office and warehouse building of Rohm & Haas Company shows use of PLEXIGLAS spandrel and louver panels in modern curtain-wall construction.



Simple construction of Perimaheat makes fitting quick and easy. Front cover snaps into place without screws, yet is easily removed for access.



Attractive view of this living room illustrates how well Perimaheat blends into a well designed interior.

Perimaheat®
BASEBOARD CONVECTORS BY Young

Blend into the beauty of the modern interior

Designed to work inconspicuously against the background of the contemporary interior, Perimaheat offers perfectly controlled baseboard convection heating that is *low in cost, high in performance* and *installed with ease.* For homes, offices and institutions.

Complete information and data about Perimaheat may be obtained from your nearest Young Radiator Company representative — see yellow pages of your telephone directory — or by writing to Young Radiator Company, Dept. 247-G, Racine, Wisconsin.

Check these advantages:

Attractive Styling — Perimaheat's slim enclosure needs little floor space, permits freedom of furniture grouping and blends well into the design of any room.

Ease of Installation — Installed either surface mounted or partially recessed, Perimaheat is packaged in convenient lengths insuring minimum waste and quick, easy installation.

Minimum Cost — Low cost of Perimaheat makes possible the installation of a more comfortable, cleaner hot water heating system at a cost no greater than that of a well designed but less desirable forced warm-air system.

Rapid Warm-up — Lightweight nonferrous core responds quickly to thermostatic control. No lag in heating-up or over-run after desired temperature is reached, insuring maximum fuel economy.

Maximum Capacity — High capacity heating unit provides maximum output with a minimum of length. It is seldom necessary to install Perimaheat on more than one or two walls of a room.

Piping Economy — Perimaheat heating element serves as a main in the often used loop or series loop circuits. Most homes require only one or two loops which eliminate mains, fittings, etc.

Young RADIATOR COMPANY

RACINE, WISCONSIN

Creative HEAT TRANSFER ENGINEERS

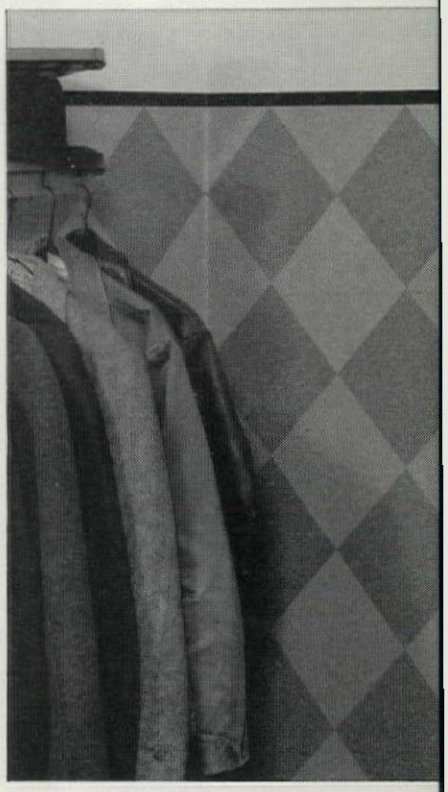
Executive Office: Racine, Wisconsin, Plants at Racine, Wisconsin, Mattoon, Illinois

Write Dept. 247-G for catalog 4354-A

for residential and commercial interiors

TWO NEW VINYL WALL COVERINGS by Armstrong

FIRE-RESISTANT VINYL WALL TILE



New Armstrong Vinyl Wall Tile is an ideal combination of practicality and colorful beauty.

Fire-resistant – especially suitable for interiors which must meet rigid building codes. Armstrong Vinyl Wall Tile is listed under the Label Service of Underwriters' Laboratories, Inc.

Beautiful—available in nine handsome colors with subtle Granette® graining. Colors keyed for use together to create dramatic wall effects.

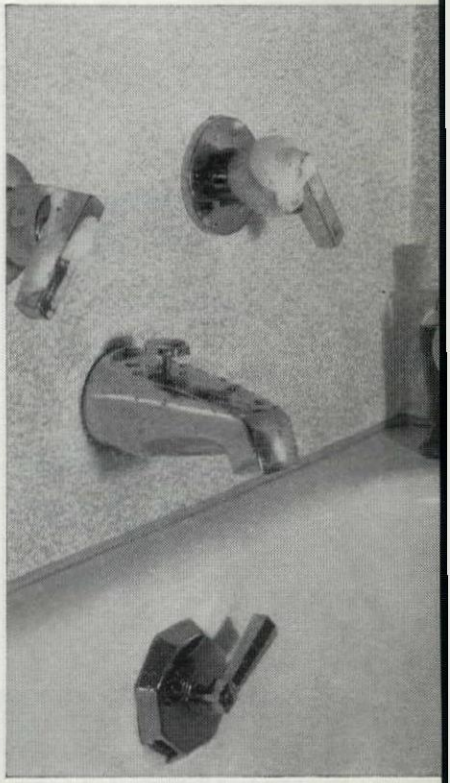
Economical—costs approximately 45¢-60¢ per square foot over sound plaster base. Resists tearing, scratching, abrasion, and staining.

Flexible—conforms to wall contours.

Dimensionally stable—won't shrink or curl with age or sag with heat.

Available in 9″ x 9″ tiles only.

FLEXIBLE PLASTIC SURFACING



Here is a new and completely different vinyl surfacing material for walls, counter tops, tables, and shelves. Recommended for both residential and commercial interiors, Armstrong Plastic Surfacing meets the architect's need for an economical, all-purpose surfacing material.

Flexible – coves easily, hugs sharp curves and corners, won't crack or split when bent sharply.

Economical – costs 55¢-75¢ per sq. ft., over sound plaster base. Available in rolls 30″ and 42″ wide, in any length.

Attractive—available in eight smart colors that won't fade or discolor.

Durable—will not shatter on impact or buckle with heat. Resists staining, tearing, abrasion, effects of strong soaps and chemicals. Solid vinyl surface wipes clean with a damp cloth, won't hold dirt.

For information, samples, complete specifications, design or color scheme assistance, call the Architectural-Builder Consultant in your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, 1007 Watson Street, Lancaster, Penna.

Armstrong
CORK COMPANY

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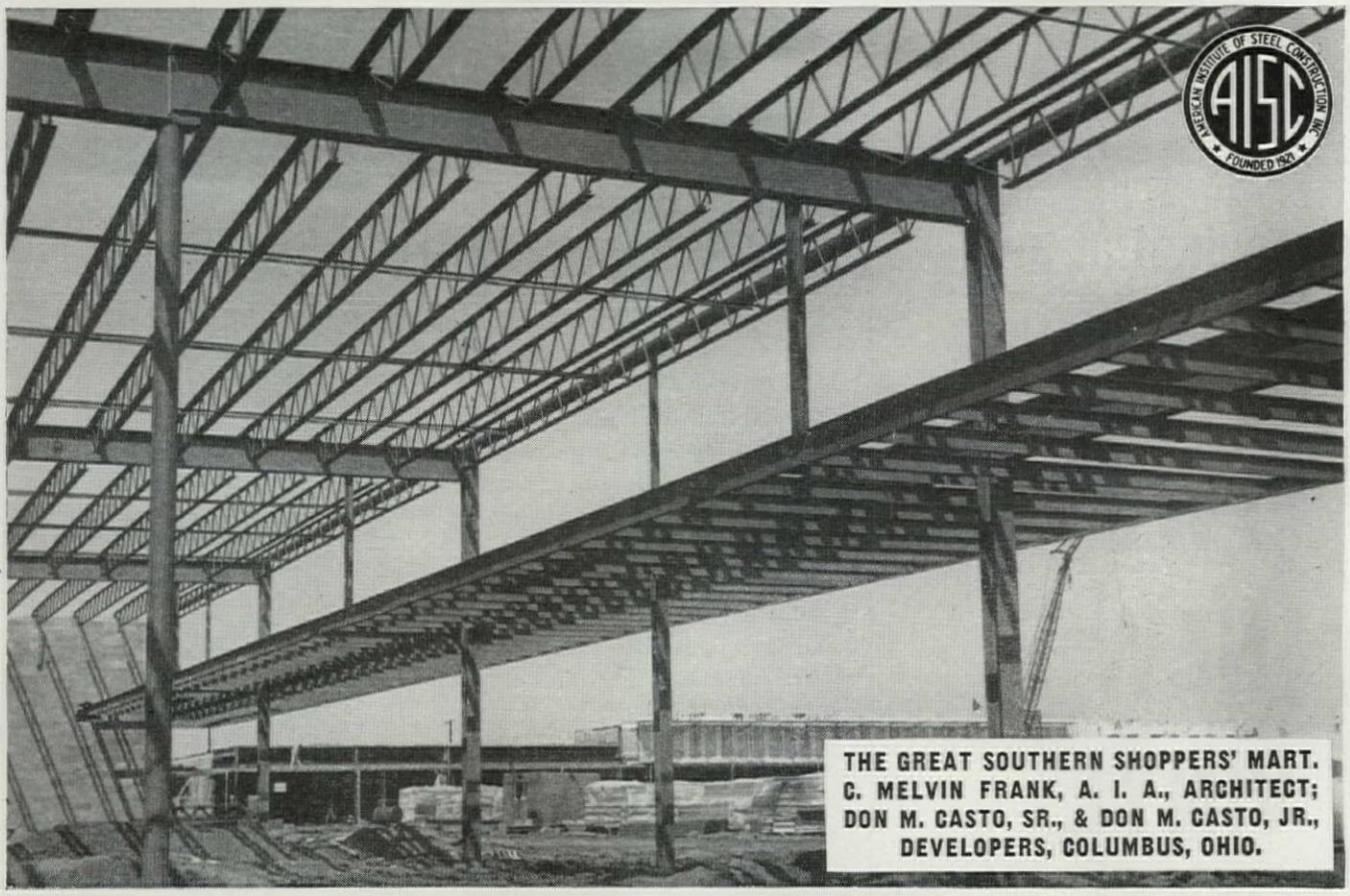
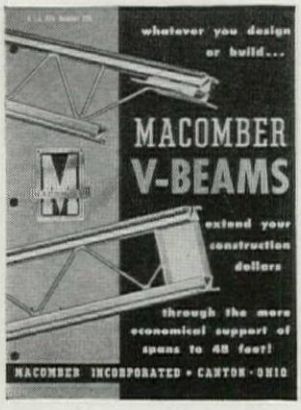
for greater structural values



THE GREAT SOUTHERN SHOPPERS' MART.
C. MELVIN FRANK, A. I. A., ARCHITECT;
DON M. CASTO, SR., & DON M. CASTO, JR.,
DEVELOPERS, COLUMBUS, OHIO.

THE MACOMBER V-BEAM IS A MORE ECONOMICAL FLOOR AND ROOF FRAMING MEMBER WITH A GREATER MAXIMUM LOAD FACTOR.



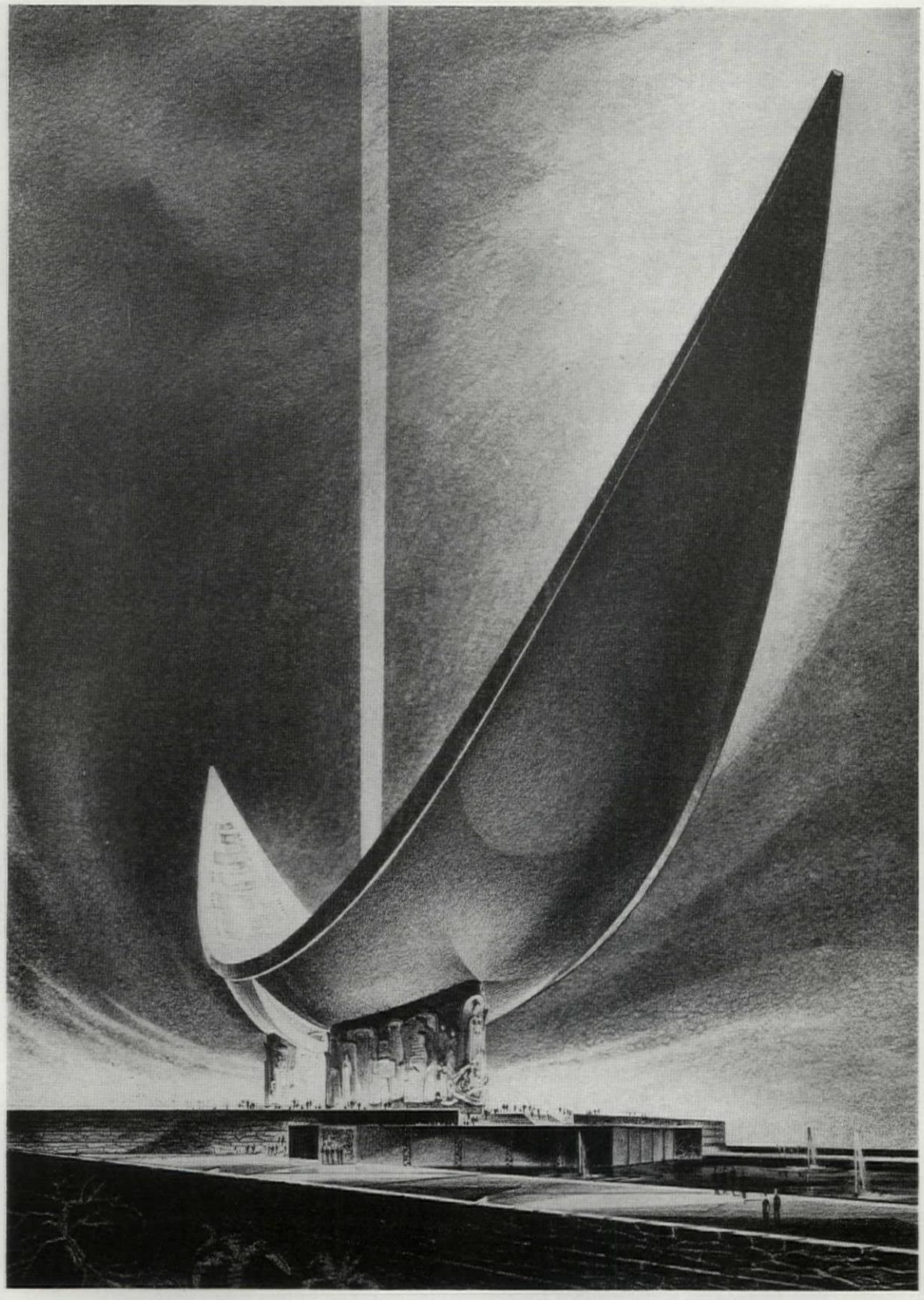
The Macomber V-BEAM goes right on establishing new friends, new sales records wherever Architects and Engineers design this rigid structural unit into a roof or floor system.

For here is reserve capacity and structural stamina unequaled in structural framing members. The wide flange V-Section with the extra turn-down along the outside edges provides exceptional lateral rigidity in the top and bottom chords.

The V-BEAM Catalog will enable you to design these improved structural values into your jobs at bid winning prices. One trial will convince any structural engineer!

MACOMBER

MACOMBER CANTON 1, OHIO



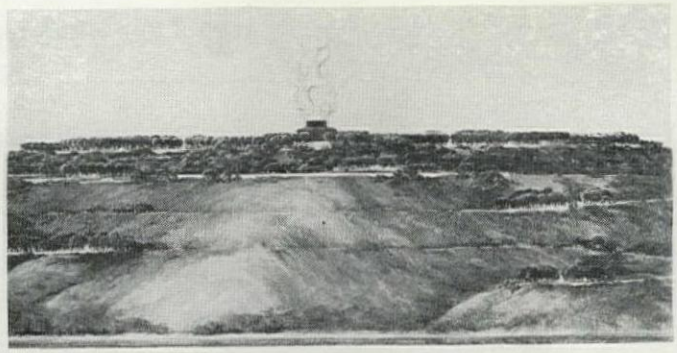
CORREGIDOR-BATAAN MEMORIAL COMPETITION WINNER SELECTED

A soaring (280-ft-high), melon-slice-shaped, cellular-concrete structure, consisting of two thin, curved slabs (500 ft, tip to tip), joined at the perimeter by prestressed edge members; stiffened transversely by crosswalls; the whole acting as a double cantilever shell structure supported on a pair of centrally located, 54-ft, sculptured piers, has won the Corregidor Bataan Memorial Competition. Architects are the Seattle firm of Naramore, Bain, Brady & Johanson and this was a united effort of the entire office. Design Critics were Perry B. Johanson; William J. Bain; Clifton J. Brady; Wil-

liam M. Svensson was in charge of development of design; delineator was John A. Rohrer; and structural design was worked out by John B. Skilling.

Jury for the final stage of the two-part competition—the first open; the final, restricted to 10 invited firms—was composed of Pietro Belluschi, Chairman; Fleet Adm. C. W. Nimitz, USN; Gen. Walter Krueger, USA, Ret.; Gen. George C. Kenney, USAF, Ret.; Vice-Adm. Wm. O. Hiltabidle, USN, Ret.; Arthur Brown, Jr.; William Gehron; William J. H. Hough; Lee Lawrie; Frederick V. Murphy; and John W. Root. John F. Harbeson served as Professional Adviser. The Jury applauded the winner for its "sculptural qualities"; its "simple form easy to remember and to admire and love"; its composition in relation to the shape of Corregidor Island; and its "right scale." Finally, they commented, it has "spiritual power, and its meaning need not be explained any more than the Washington Monument needs to be explained."

1



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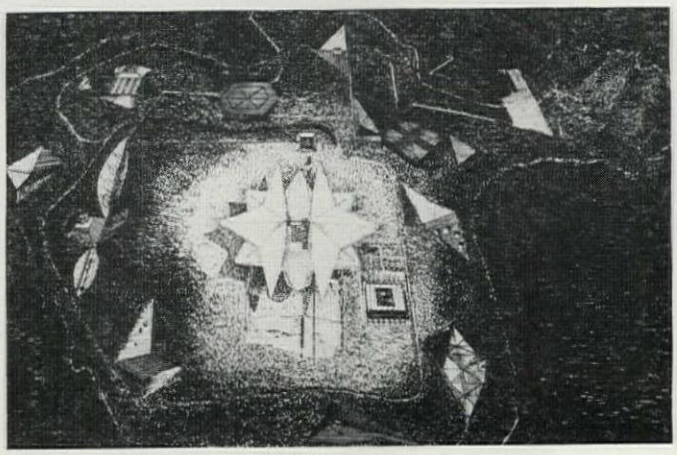

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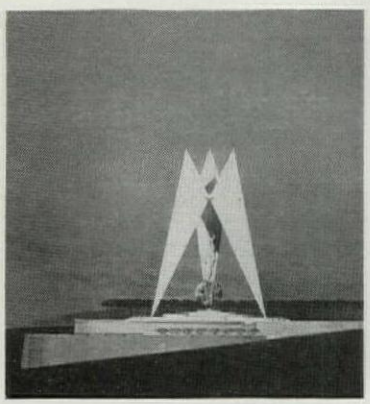

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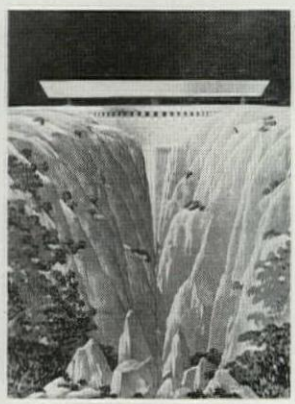


Nine other firms invited to participate in the final stage of the competition were: Anshen & Allen, Architects (Robert B. Howard, Sculptor Consultant); Gardner A. Dailey, Architect (Kitchen & Hunt, Associated Architects; Boris Lovet Lorsky, Associated Sculptor); Gugler, Kimball & Husted, Architects **1**; Katz, Waisman, Blumenkranz, Stein, Weber, Architects Associated **2** (Costantino Nivola, Sculptor; Peter Strauss, Engineer; Patrick Raspante and Ricardo Scofidio, Architectural Designers; Weidlinger & Salvadori, Engineers); Francis Keally & Howard S. Patterson, Architects (Donald deLue, Sculptor; Allyn Cox, Painter; Richard Webel, Landscape Architect); McKim, Mead & White, Architects **3** (Clarke & Rapuano, Landscape Architects-Site Planners; Sidney Waugh, Sculptor; Severud-Elstad-Krueger, Structural Engineers); Shepley, Bulfinch, Richardson & Abbott, Architects **4**; Donald Powers Smith, Architect (Isadore Thompson, Structural Engineer; Roger Youngs, geodesic dome development; Andrew Tagliafico and Anthony Parrinello, art elements); and Paul Thiry, Architect.

WASHINGTON REPORT by Frederick Gutheim

Less than half a dozen years after its complete modernization, the White House is again the subject of proposals to remodel it—this time to provide working space for the Executive Office staff and guest quarters for distinguished visitors. The most important of the recommendations would raze the Old State building, located immediately west of the White House and occupied for many years now by the Bureau of the Budget and other executive agencies. In its place, a White House office-space commission recommends the construction of a new office building. Eventually, the further needs of the Executive Office of the President could be met by expanding north across Pennsylvania Avenue to the controversial new building that has earlier been proposed facing Lafayette Square. In recent months, these developments have been foreshadowed, but the official report has now been made and endorsed by the President and sent to Congress. Action by that body in this session is unlikely, and there should be time for these recommendations to be deliberated by the architectural and planning professions. The report considers several possible ways in which space requirements can be met, but there are still other possibilities. Relocation of the Treasury Department, as urged by Representative Thompson

of New Jersey, and the transfer of a substantial amount of Executive Office work to some building several blocks from the White House are among them. These appear to have been regarded by the commission and its consultants as beyond their instructions, but they are relevant to such future consideration as their recommendations are given.

● The new British Embassy offices here, just north of the main embassy building (designed by Lutyens), have raised again the question whether a seven-story office building has any place in a residential district. The Canadian Joint Staff building, a few blocks down Massachusetts Avenue, broke the ice five years ago by demonstrating that the doctrine of diplomatic immunity might apply to zoning and building codes as well as to parking violations. In any event, the same tendency toward congestion in a low-density area, and the same shirking of the obligation to provide off-street parking is manifested. Now that some embassies, at least, have grown to be quite a lot more than an ambassador and a few secretaries, their location in the capital should receive fresh study. The answer may not be to confine them to the central business district, as some hotheads suggest, but to review plans to make sure the over-all density is not too great and that mass-transportation, parking, and other needs have been met. Publication of plans for the embassy offices also drew criticism of their design from British Sculptor Charles Wheeler, who wrote The Times of London that "it would seem almost a code of architectural rectitude these days to deny the cone, the cylinder, the globe, and the pyramid, all truly noble forms." Wheeler said his heart sank when he saw the succession of monotonous shapes topped with straight lines in the embassy design. (No one as yet has offered any comparison between what the United States is erecting in London and the British effort here.)

● A middle-of-the-road housing bill is about to emerge from Congress, which expresses clearly how this once-controversial program has reduced itself to another routine shelling out of Federal grants to localities. If the plight of our cities is as desperate as is claimed, it is difficult to see that our present housing programs and policies are making any fundamental changes for the better. The conclusion that any forward progress in the Federal handling of urban affairs must come from outside the public housing and FHA programs is beyond question. But some action in this direction is inevitable. Perhaps the exploration of the potentialities of the Federal highway program as an instrument for metropolitan planning, which has attracted the interest of the Connecticut General Insurance Company and prompted it to sponsor a conference on this subject in September, will end the torpid behavior of Congress when it faces our growing urban problems. Congress has another opportunity in the pending local hearings on several bills to unify Federal programs affecting cities. And its constant chance to use the capital as an urban laboratory is enhanced by a bill pressed by Representative Hyde of Maryland to authorize a study of Washington's metropolitan area.

● A thoroughly Swiss exhibition reviewing the architecture and industrial design of that tidy, accurate, inventive nation made its first step in a nationwide tour, at the National Housing Center here last month. The architects who turned out were as much interested in this broadening of the NHC's exhibition policy as they were in what the Swiss had to show. For their part, the Swiss were pleased to have something to show besides cheese, chocolate, and watches. The exhibit, designed by Alfred Altherr (whose grandfather founded the Schweitzer Werkbund), was a comprehensive photographic review of all major building types, spiced with enough hardware, handicrafts, and other items to relieve its flatness. The 32 panels in which the show is organized were mounted in tension within a series of tubular metal frames—a neat and practical solution to the perennial problem of a compact, lightweight traveling show. The Smithsonian Institution's Circulating Exhibition Service is handling bookings for the show.

"THEATER OF TOMORROW" EMPHASIZES LIGHT AND MOTION

Robert Cox

Recently opened at Stanford University, Palo Alto, Calif., is the Music Building, developed by Eldridge T. Spencer, Stanford Director of Planning; Arch Lauterer, stage designer; William L. Crosten, head of Stanford Music Department; and Milton T. Pflueger. (Pflueger and Spencer & Ambrose were Associated Architects.) The main, 728-seat Florence Hellman Dinkelspiel Memorial Auditorium minimizes separation between performance and audience—there is no proscenium and the stage curves out into the seating area. An orchestra pit for 80 musicians can be covered to increase stage area. Exceptional lighting allows "at least 500 angles of light." According to Lauterer, emphasis on light and motion reduces use of painted scenery; results in operating economy and increased flexibility.

p/a financial news

by William Hurd Hillyer

The half year has been rounded without serious economic mishap, but the thunders which growl from inauspicious quarters bespeak greater disturbances than ordinary summer showers. The most vocal of these is antiphonal to the steadily advancing tide of inflation. No longer are the moneyed and industrial worlds manic-depressive in their hidden fears of a business downslide; at present their biggest worry is the mounting inflationary drift.

Consensus of 70 bankers and other seers interviewed by The Wall Street Journal reveals an expectation of a business speedup, rather than a downturn. Most of those approached were glad that the Federal Reserve Board is keeping a tight rein on credit instead of printing more currency. "The cancer of healthy credit is inflation," declares Executive Vice-President Heimann, National Association of Credit Men, in his membership letter. "Nothing so destroys it"—whether it be of long or short terms. Confirmed by such expert opinion, this page maintains its position of the past two years: inflation poses a greater peril than deflationary recession. Furthermore, as current signs and conditions indicate, it is possible to have an inflationary scarcity of capital.

New capital for all construction projects is still hard to get. Lower and lower prices are registered by municipal bonds, as reflected in higher average-income yield, which is now near the 1935 record-breaking "Bond Buyer" level of 3.34% despite heavily attractive tax exemptions. School and building issues, however, are holding up surprisingly well, the chief weakness being in highway and other nonarchitectural financing.

• What banks can do in furtherance of veterans' housing is demonstrated by the Worcester (Mass.) St. Nicholas Trust, recently dissolved on its 10th anniversary. The five participating savings banks had co-operated with the local Chamber of Commerce and architects in financing a million-dollars project to shelter 144 families, at $55 a month each. The bank handed the city, as beneficiary, a $123,237 settlement check by way of profit, after having remitted to the city $138,000 in taxes. This trust, as such, had no employes and the trustees served without compensation.

• The dictum that good design will survive the most drastic economic and stylistic changes is strikingly exemplified by the recent decision of Security Bank & Trust Company, Owatonna, Minnesota, relative to modernizing its quarters. Completed in 1908, the former National Farmers' Bank building was the work of Louis H. Sullivan and has for many years been well nigh sacrosanct to his countless admirers. Heeding the protest of art and architectural bodies, the bank has engaged the services of Harwell H. Harris, Fort Worth, regarded as a Sullivan authority, to handle the remodeling. "This step," Bankers Monthly quotes the bank's president as saying, "assures a full measure of conformance with Sullivan's basic architecture."

• A "doorless door" affords access to the Knickerbocker Federal Savings and Loan Association of New York. As developed by a Swiss engineering firm, this ingenious device replaces the usual entrance by creating a continuous air curtain at the doorway. In this manner, the interior of the building is protected against all outside weather, without inconvenience to those who come and go. At night, aluminum-and-glass doors close the opening.

• Housing activity, Government economists opine, is near the end of its long fall-off. This conclusion is based upon an estimated gross national product of $435 billions for 1957. The figures compare with an annual rate of $427 billions for the first quarter. Mortgage conditions—"the key to the whole situation", as a long-established New England authority puts it—shows signs of betterment. The future in the real-estate lending field is regarded as "much more stable," interest rates having steadied at higher levels. Meanwhile the home-buying public "wants larger houses and will pay for them."

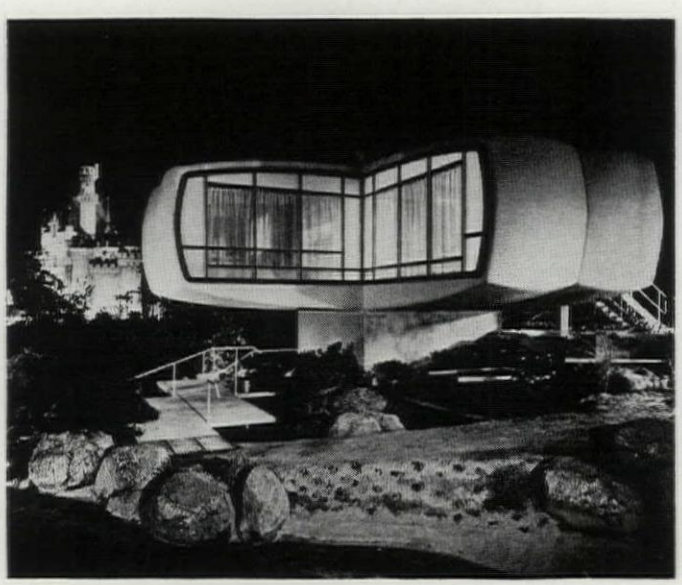
"Reassuring" is the word used by the First National City Bank, New York, in summing up the general economic scene. Favorable first-quarter reports are cited to show that the so-called "profit-squeeze" is less severe than was expected. Sustained consumer and industrial demand, coupled with a $37.4-billions projected capital-expenditure—a 12% rise as comparable with 1956—is relied upon to engender confidence. Nevertheless, warns the Federal Reserve Bank of San Francisco, if the continued money-demand for long-term investment is to be realized without inflation, there will have to be a higher degree of saving on the part of corporations, individuals, and Government agencies.

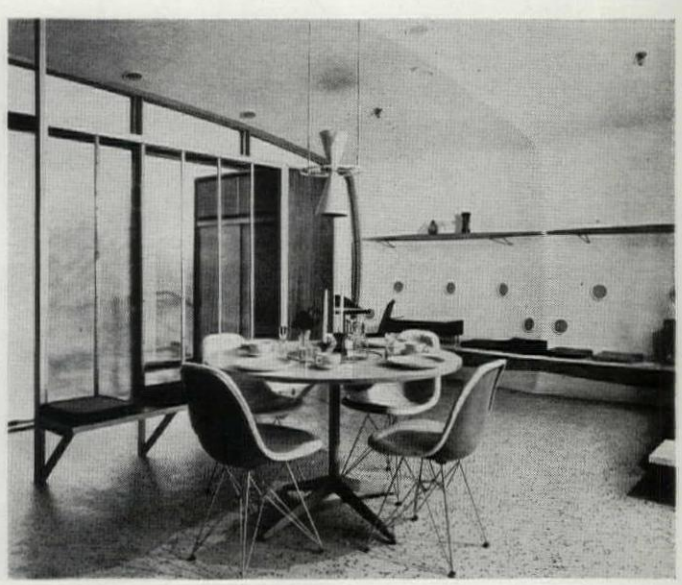
Accumulation of savings has not been as rapid of late, as serious students of our economy would like to see. Since the Federal Reserve Board gave the green light last January to higher rates for depositors, the net increase of savings in major commercial banks to May 15 was $1.2 billions or 5%. This compares with $3 billions during the like period of '56. As for the mutual savings banks, their first-quarter deposits rose only 1.4% as against the previous year's 1.8%. Even savings-and-loan associations, those top performers, showed a smaller January-March increase than a year earlier, and life-insurance companies lagged a fraction. As compared with 1955, four great capital sources had already reduced their 1956 holdings of residence loans by about $1.634 billions. As a partial offset to this rather drab showing, gross national product on "physical income" for March, 1957, at the seasonally adjusted annual rate, was $15 billions greater than in '56.

MONSANTO REVEALS PRESENT AND FUTURE OF PLASTICS IN ARCHITECTURE

St. Louis, Mo., June 3—Monsanto's brand-new Inorganic Research Building was turned over to its research department here today at suburban Creve Coeur. This three-story structure (above), affording 70,000 sq ft of floor area, contains 40 chemical research laboratory modules, a special section for chemical engineering research, offices, a library, and service facilities. Architects Holabird & Root & Burgee used over 80 different applications of plastics—all commercially available—to demonstrate the possibilities that exist in conventional construction for this type of material. The exterior, almost entirely of plastics, has sandwich-type curtain-wall panels (foamed-styrene cores with colored facing sheets of reinforced-polyester resin), full louver-type acrylic windows (above right) that admit indirect light while filtering out direct sun rays, and plastic-faced concrete blocks. Styrene extrusions fitted in steel-frame channels hold reinforced-polyester interior partition sheets. Extensive use was made of plastic pipe; many joints were job welded.

Anaheim, Calif., June 12—Today, at Disneyland Park, the "House of the Future"—a direct result of Monsanto's program to establish plastics as engineering materials of construction—was opened to the public. The structural form was evolved from the following concept: Because of plastics' versatility, the shapes of correctly designed structures can be a function of their use rather than of the form of the materials from which they are constructed. Basic unit is the curved, hollow plastics section, 8' x 16', that forms ceiling, wall, and floor (see P/A NEWS SURVEY, February 1957 for fabrication procedure). Sixteen of these modules are cantilevered from a 16-ft square utility core to form four wings. View of family room (below) shows main entry separated by a screen of laminated glass. Specially designed plastic flooring has foam back with controlled resiliency and noise-reducing properties. MIT and 12 co-operating companies participated. Architects were Richard W. Hamilton and Marvin Goody, Cambridge, Mass.





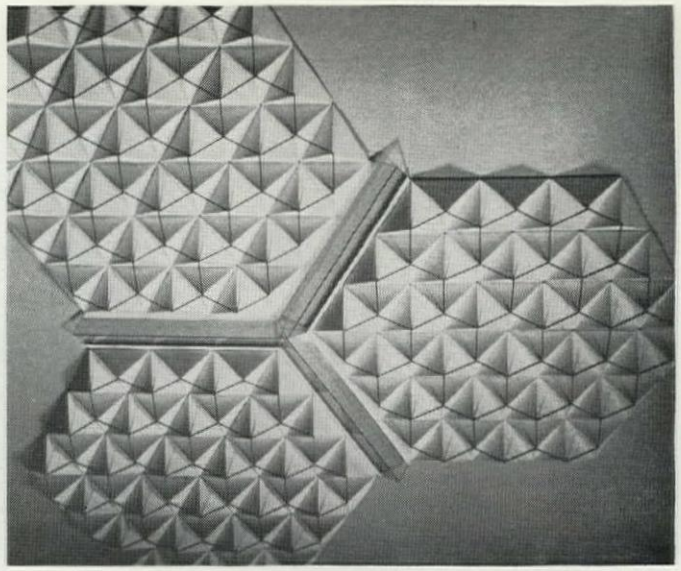
p/a news bulletins

• Fulbright Awards for University Lecturing or Advanced Research in Europe, Near East, Japan, Africa, and Latin America, are now available for 1958-59 period. Applicants may obtain full information from Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., Washington 25, D. C. Applications due Oct. 1.

• Architect Paul Rudolph, Sarasota, Fla., will succeed Henry A. Pfisterer as Chairman of Yale University's Department of Architecture; appointment by Yale President A. Whitney Griswold, becomes effective Feb. 1958. . . . Dean Gordon B. Carson of Ohio State University College of Engineering is new president of American Institute of Industrial Engineers. . . . New president of New York Building Congress is John F. Hennessy of Syska & Hennessy engineering firm. . . . Oscar B. Schier, II, was designated Secretary-Elect of ASME at June meeting: new ASME President John N. Landis, Vice-President of Bechtel Corp., will be installed during December meeting.

• Paul Weigel, former head of Kansas State College Department of Architecture and Allied Arts, will serve as architectural advisor to Turkish government in planning new land-grant college-type university near Erzurum, Turkey. . . . William Demarest, formerly AIA Modular Co-ordinator, later assistant director of Construction Department & Research Institute of NAHB, has joined staff of Manufacturing Chemists' Association, as director of "plastics for contruction" program, to promote new uses of plastics and to negotiate, with co-operation of SPI, building-code revisions which will permit wider use of plastic materials.

• Construction of two new steel-framed office buildings (below) for Hammermill Paper Company, is scheduled to begin this month in Erie, Pa. Four-story building (foreground) will house administrative offices; low building, in less compact arrangement, is for office functions related to operation of Erie plant. Paved roadways and walks in landscaped environs will connect buildings with historical entrance road. Colorful exterior walls are composed of yellow aluminum spandrel panels, gray plate glass, and red brick. Buildings will be ready for occupancy in early 1959. Architects: Daniel, Mann, Johnson & Mendenhall; engineer-constructor: The Rust Engineering Company.



• Preview of coming events: devised by Dean Joseph Passoneau of Washington University, new roof system (above) using series of sheet-plastic pyramids tied with steel rods, is one of uses of Plastics for Roof Construction to be discussed at BRI Plastics Study Group meeting in St. Louis, Mo., Sept. 17-18. Other reports will deal with prefabricated roof panels, asphaltic roofing compounds, vapor barriers, thermoplastic foam insulation, skylights, sprayed vinyl roof surfacing, and plastic flashing. For registration data write to: Harold Horowitz, Technical Secretary, BRI, 2101 Constitution Ave., Washington 25, D. C. . . . World Conference on Prestressed Concrete, under auspices of University of California, will be held in San Francisco, July 29-Aug. 2. Besides presentation of technical papers, event will include materials and equipment exhibits, field trips, panel discussions, and film sessions. Registration fee of $25 is due July 14. Address inquiries to: University Extension, University of Calif., Berkeley 4, Calif.

• Itinerary and descriptive brochure for Architects' Tour of Japan, in October, may be obtained from: Kenneth M. Nishimoto, 263 S. Los Robles, Pasadena, Calif.

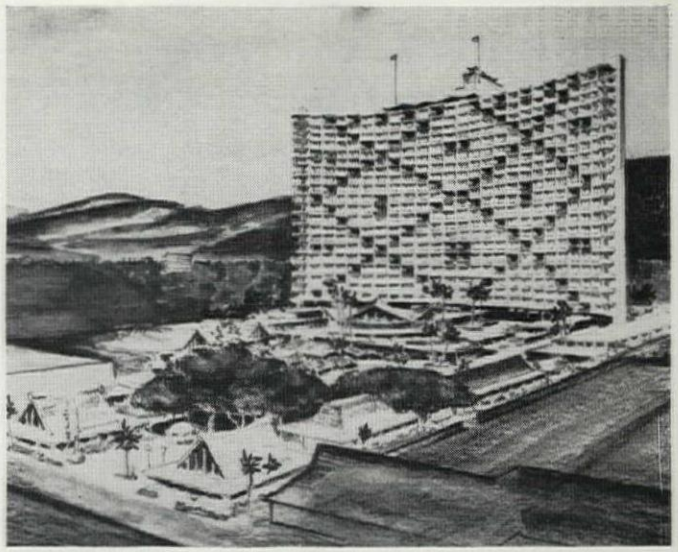
• Eight winning entries in Baltimore Association of Commerce Architectural Awards Contest—for buildings erected or redesigned during 1955-56—are: Gilman School Auditorium—Taylor & Fisher; Patapsco & Back River RR Co. Offices, Goucher College Stable, Mischanton's Restaurant, and Fire Dept. Facilities, Towson—Wilson & Christie; Dumbarton Junior High School—Smith & Veale; Flag House Courts—Cochran, Stephenson & Wing; Mondawmin Shopping Center—Fisher, Nes, Campbell & Associates.

• At Bonn, Germany, first steps have been taken toward foundation of International Association of Color Advisors to create uniform system of professional practice and etiquette in color determination and application. Association will be officially established during "Farbe" exhibition, to be held in Cologne. A. V. Hartogh is Secretary of present Committee of Preparation, located in Goudenregenstraat 1, Wageningen, Holland.

• Construction of International Conference Hall in Berlin (below)—designed by Architect Hugh Stubbins, Cambridge, Mass., and scheduled for September completion—is progressing rapidly. Distinguished by suspended saddle-shaped roof, building will be among most daring architectural conceptions in Europe (NEWS SURVEY, September 1955 P/A).

• Circulating architectural exhibits, now available through Smithsonian Institution, feature diversified themes on timely subject matter. Listing includes: "Contemporary Danish Architecture"—emphasizes traditional concern with functional demands; "German Architecture Today"—reflects strict functionalism imposed by reconstruction demands; "Good Design in Switzerland"—deals with large-scale planning, housing, institutional projects, industrial design, and handicrafts; "Contemporary Finnish Architecture"—shows progressive trends in recent design of buildings; "Landscape Architecture Today"—traces evolution of undeveloped site into finished project; "San Francisco Bay Region Architecture"—original designs by leading northern California architects; "A Half Century of Architectural Education"—stresses achievements in architecture by alumni of Georgia Institute of Technology; "Architectural Photography II"—selection of photos from AIA-APA Competition; "One Hundred Years of American Architecture"—depicts main steps in development of architecture in America. For further data write to: Mrs. John A. Pope, Chief, Traveling Exhibition Service, Smithsonian Institution, Washington 25, D. C.

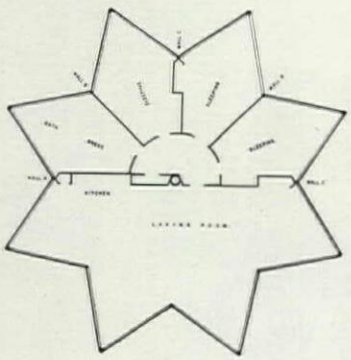
• Outstanding examples of Swiss Graphic Art since World War II—posters, ads, package design, and pamphlets—will be shown at Institute of Contemporary Art, Boston, Mass., July 30-Sept. 22. . . . "Architecture of Antoni Gaudi"—exhibit of buildings and furniture designed by Spanish architect whose unique surrealistic and sculptural style anticipated characteristics of Art Nouveau—will appear at New York's Museum of Modern Art, Dec. 18-Feb. 23, under direction of Prof. Henry-Russell Hitchcock. . . . Exhibit of American industrial design in communications field, organized by ASID, will be first U. S. Government-sponsored exhibit at Eleventh Triennale, July 28-Nov. 2, Milan, Italy.

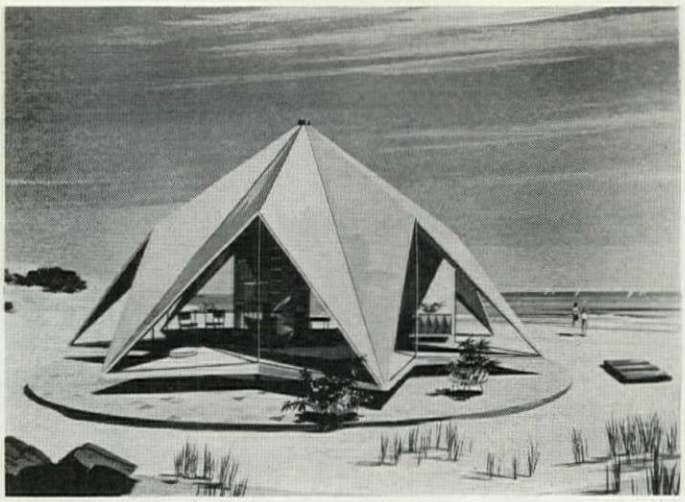


• Proposed for erection in Hawaii, 20-story, steel-and-concrete hotel (above), costing about $7 millions would be built in one-room thickness to allow view of ocean in front, and mountains at rear. Corridors, enclosed by glass with vent openings, would be dropped below floor level. Oceanfront balconies are arranged in decorative pattern, similar in effect to Hawaiian tapa cloth. Conceived by Architects George J. Wimberly and Howard L. Cook, for Waikiki Development Company, hotel would serve as focal point in company's current project, International Market Place.

• Winners of Annual Citizens Housing and Planning Council-Pratt Institute Housing Design Competition, announced by Sidney L. Katz, are: Leo Mahoney, Louis Zerlow, Paul Tauber, Robert Adams, and Kurt Resch—awarded 1st to 5th prizes respectively. . . . John David Hilberry, Ann Arbor, Mich., was awarded 1957 George G. Booth Traveling Fellowship for project, "The Pedestrian in an Urban Setting." . . . Winner of annual Birch Burdette Long Memorial Prize Competition for architectural rendering is Elliot Glushak, who used as subject House of Seagram Building. Robert Schwartz, Glushak, and Vincent Furno received honorable mentions.

• NIAE International exhibit of architectural student design, held recently at Carnegie Endowment for World Peace, in New York, attracted international audience. Among personalities present were: (right) Sibyl Moholy-Nagy; Giorgio Cavaglieri; C. deFerrariis Salzano, Consul General of Italy; Dr. Sorbello; Hans William Gassner, Consulate General of Switzerland. Schools interested in showing 240-piece exhibit should specify first and second choice of exhibit date on application to: NIAE, 115 E. 40 St., New York, N. Y.

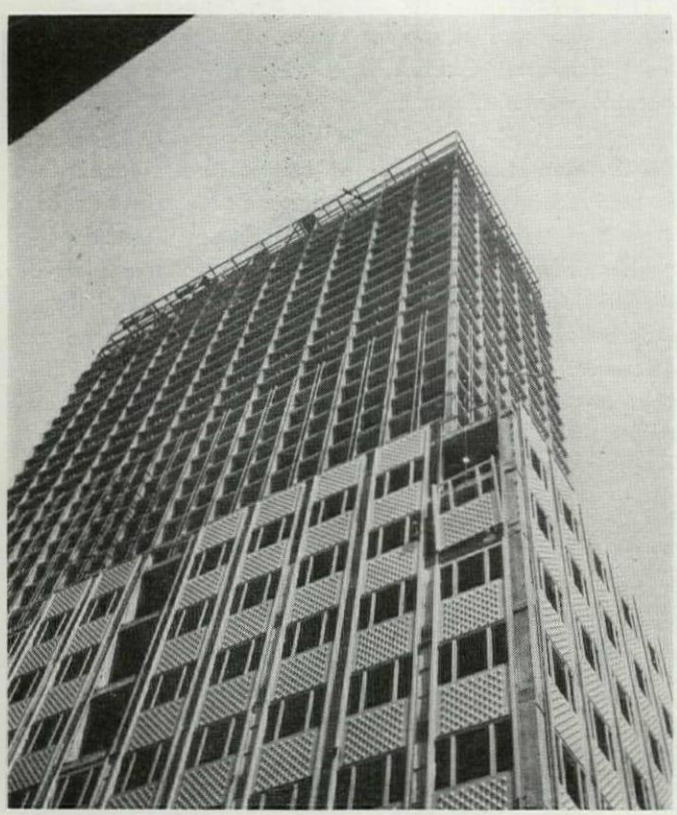




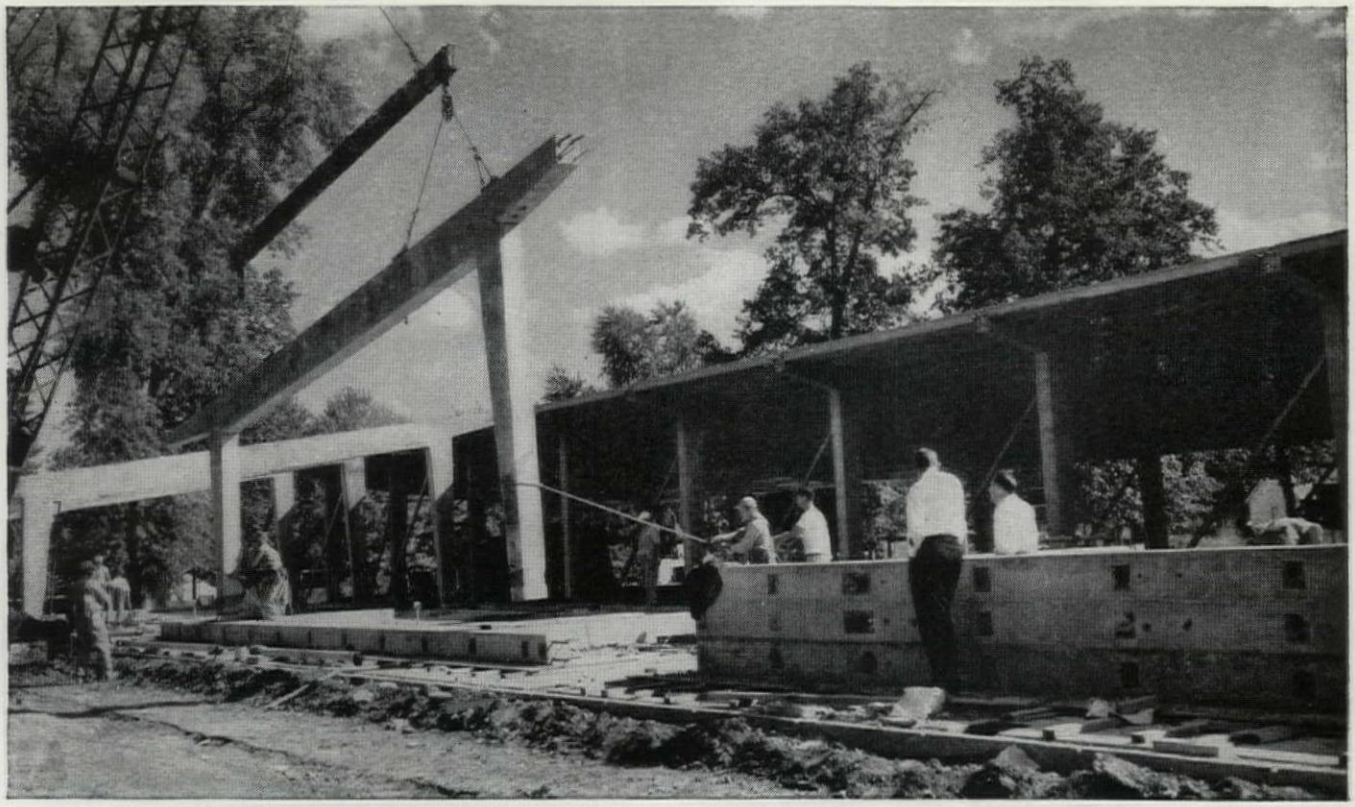
PEAKED ALUMINUM ROOF TOPS REVOLVING BEACH HOUSE

This beach house is the latest in a series of experimental designs forecasting the many possible uses of aluminum. The structure's plan is star-shaped, designed within a 37-ft-diameter circle. Its floor is formed of identical triangular sections. From the eight points of the star a peaked aluminum roof, again composed of triangular sections, rises to a central point 15'-6" above the floor level. Walls of the house are triangular glass panels fitted into the inverted V-shaped grooves formed by the roof. These glass walls ring the entire building and open outward to provide ample light and air, as well as access to the outdoors. Aluminum screening has been included to protect against insects. Desired amount of sun or shade may be obtained by rotating the entire structure about its central aluminum column. Room dividers also radiate from this central post. With its three bedrooms, bath, kitchen, large living-dining room, the house has all the amenities of a standard dwelling and, therefore, suggests itself not only as a vacation place but also as a year-round house. Harrison & Abramovitz, Architects.

BOSSED-ALUMINUM CURTAIN WALL TO SURFACE 8 ACRES



The world's largest aluminum curtain wall will shortly envelop the framework of a new 38-story office building at 666 Fifth Avenue, New York. The typical curtain-wall unit—spandrel section and window frame—measures approximately 7'-5" in width, 11'-0" in height, and weighs about 255 pounds. A total of 2950 of these sections will be installed. Panels are factory-assembled in jigs, and anodized at the shop to produce a protective finish. Rows of small, truncated pyramids die-pressed into the spandrel sections provide an unusual bossed surface and an everchanging pattern of highlights and shadows. Panels are placed in position from within the building bolted to steel rails which have been welded to the structural frame. Accurate placement is assured by these vertical steel members. Tops and bottoms of panels interlock. Windows—one pivoted sash and two fixed sidelights per panel—will be glazed with gray-tinted glare-reducing glass. Aluminum panels are to be separated by 20" vertical bands of porcelain enamel. Combinations of one or more wall and window units will make it easy to subdivide office space, giving every room, even the 7'-6" minimum office, one full window without sacrifice of floor space. Tishman Realty & Construction Co., Inc., is owner-builder; Carson & Lundin are Architects for the building.



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Structural Engineer: **FLOYD E. BURROUGHS,** Indianapolis

General Contractors: **REPP & MUNDT, INC.,** Columbus, Ind.

Precast Structural Units: **RISHER READY MIX COMPANY,** Linton, Indiana

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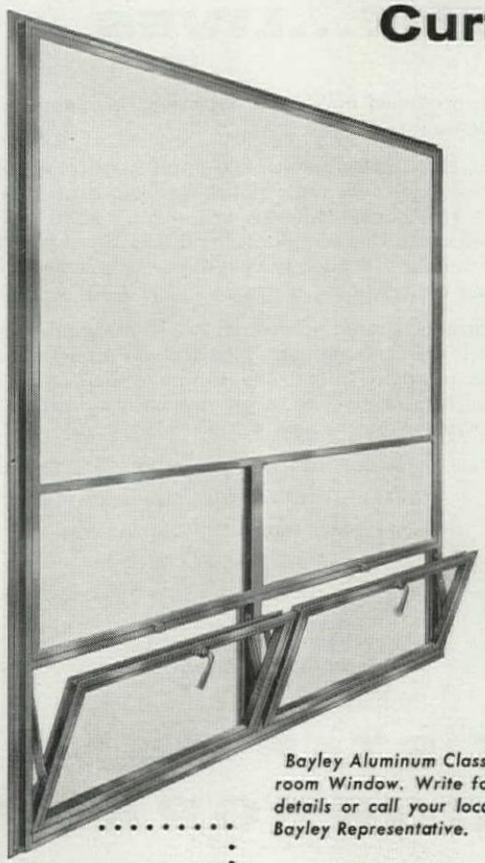

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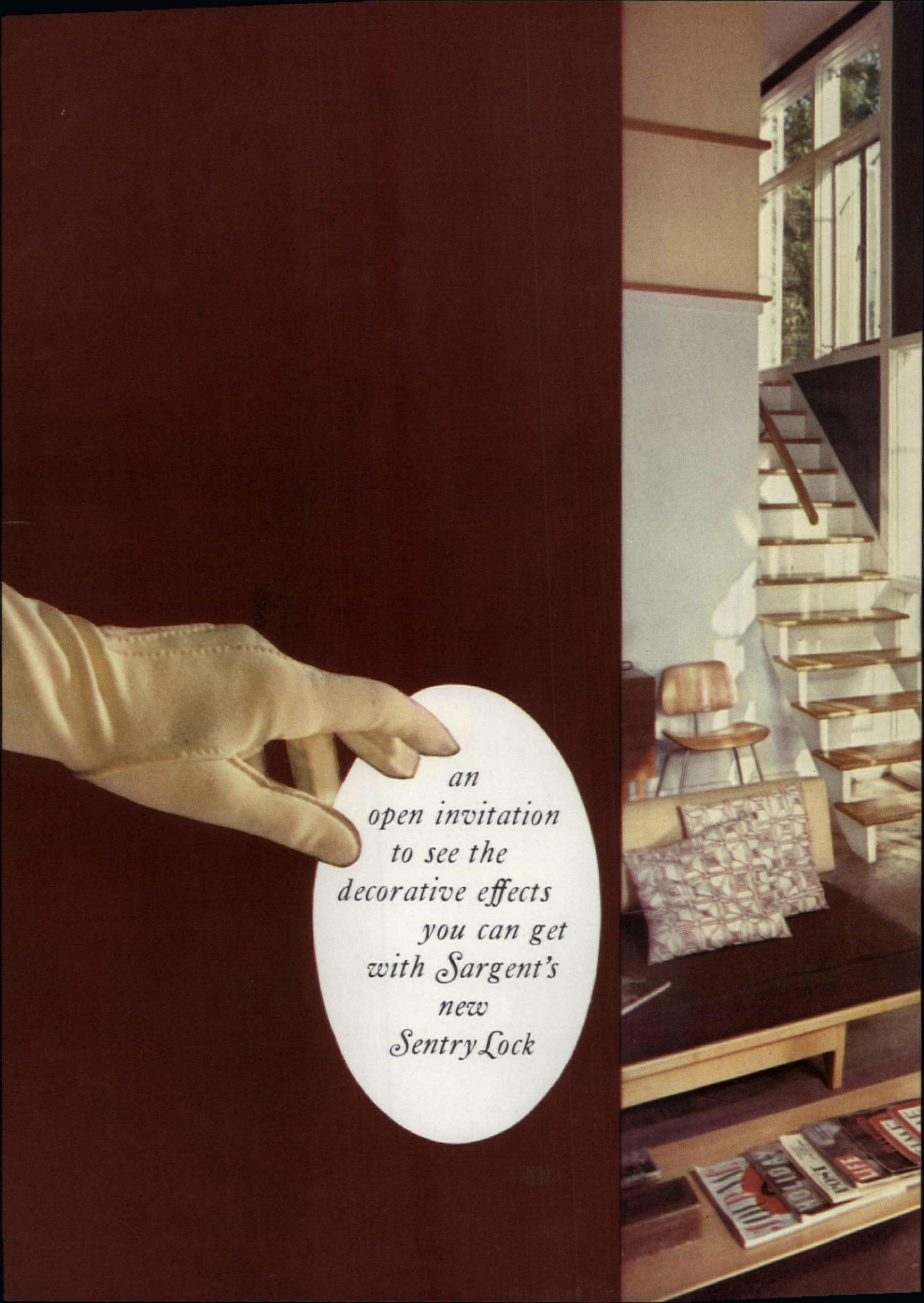
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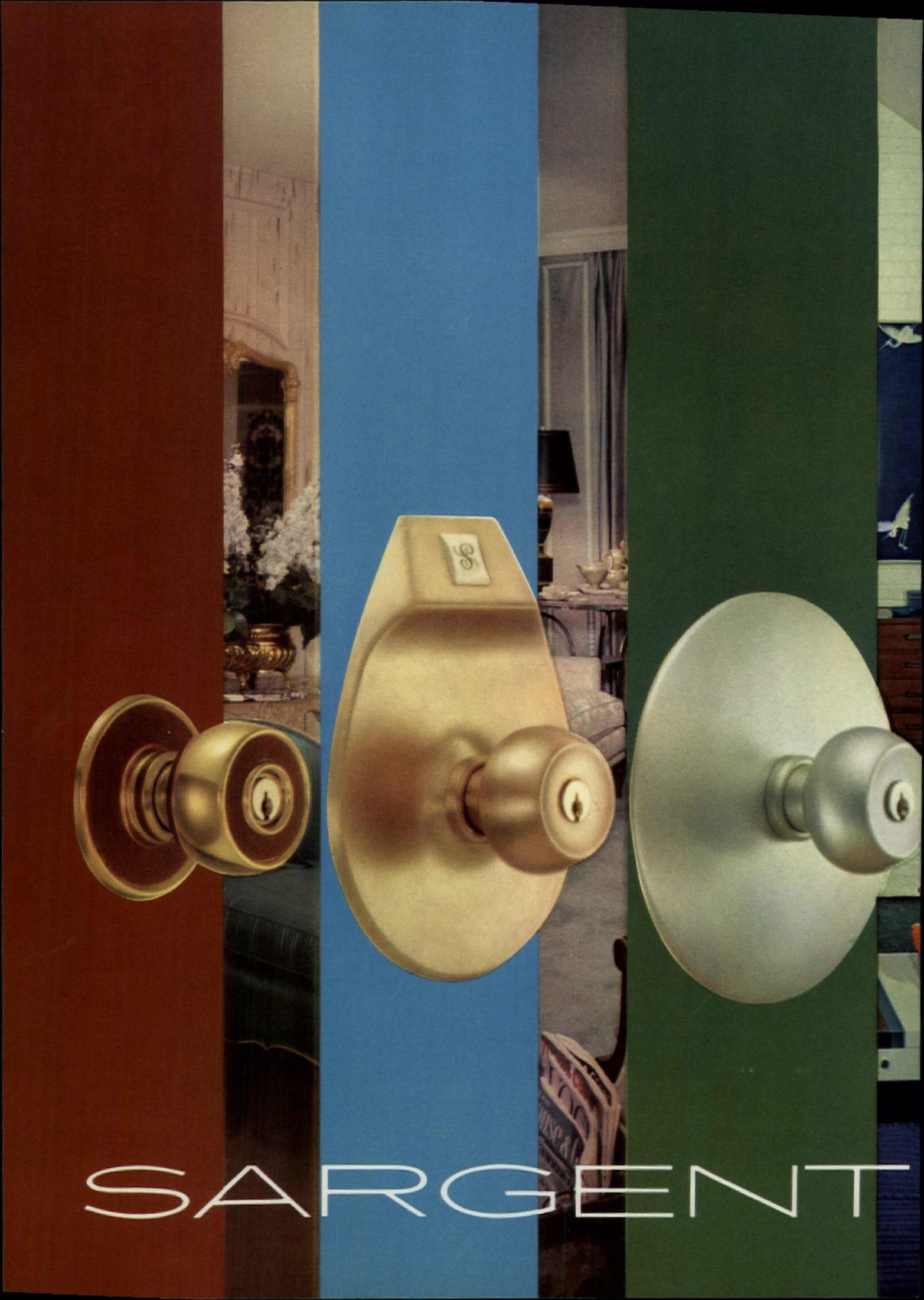
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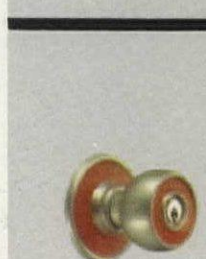

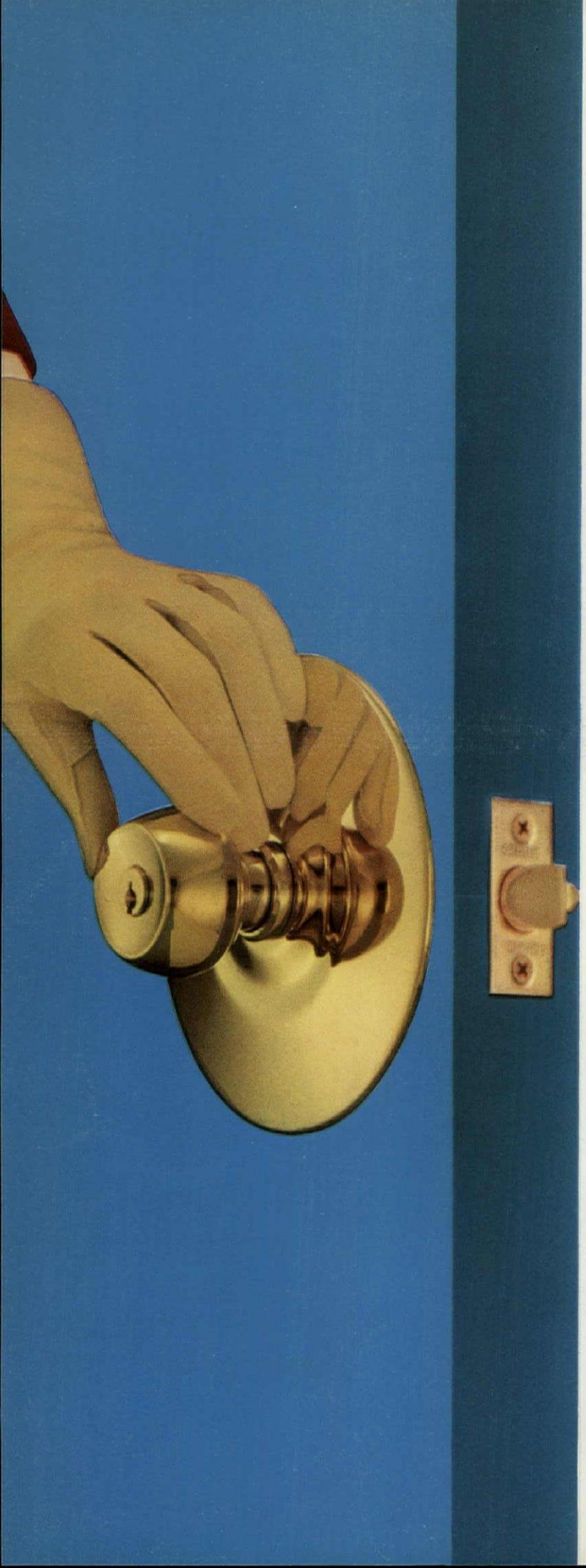

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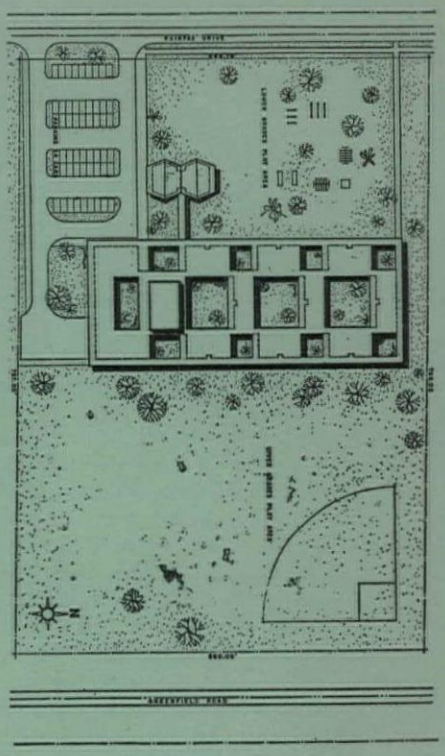
p/a design awards seminar II

This is the second in a series of Case Study Seminars held last January at the School of Architecture at Tulane University, in conjunction with the announcement of results of the P/A Design Awards Program. The group of several hundred attending the Seminars urged P/A to "keep this institution of Seminars in connection with the Design Awards Program and find ways to build it even further": hence this publication, through the year, of a new type of architectural critique. Critical-minded readers may want to compare this group discussion with the "round-robin" critique method used in the preceding pages of this issue of the magazine.



Project: **Greenfield Elementary School**

Client: **School Board, Birmingham, Michigan**

Location: **Birmingham, Michigan**

Architects: **Eberle M. Smith Associates, Architects-Engineers**

Presentation:

Mark Jaroszewicz, Associate Architect

Our program on this school was to design an essentially complete elementary school to which the client did not anticipate any additions in the future; the Birmingham School Board believes in limiting the size of a school to a certain maximum, beyond which they do not like to go. We were to design a kindergarten to sixth grade school, with *three* classrooms per grade. The reason I stress the number "three" is that it is difficult to design a building in multiples of three. The least expensive building form is a rectangle; a rectangle and the number three somehow seem to be in contradiction to one another. Here our program called for two kindergartens and 18 classrooms—three each from first to sixth grade—and three special rooms: Music, Art, and Library, along with a multipurpose room and an office area.

An additional requirement for the program was the separation of playgrounds for the younger (kindergarten through third grade) and the older children (fourth through sixth grades). We resolved the plan by working to an imaginary axis, running down the middle of the larger courts, which separates this school for the younger grades on one side of the axis for the older grades on the opposite side.

The site is a ten-acre property, which is fairly ample in size but which is completely flat, with nothing very exciting about it. One of the earliest resolutions we made in designing the building was to introvert the plan, so to speak, and create spaces which are exciting and spaces which are fun within the school plant itself. We had designed another elementary school for the same client, which involved interior courts. At first they had looked on this suspiciously, but it turned out to be so immensely successful in operation that they had requested us to include some manner of courts in our next school plan. Since there were three classroms for each grade we organized them with two of these classrooms on the outside perimeter of the school and one, adjacent to the other two, facing on one of the interior courts. The large courts are completely enclosed, but the smaller ones, which are about 32-ft square, are on the sides and are not confined, although a continuation of the roof overhang runs along the outside of each court.

The two kindergartens are to one side and have a shape which we thought would be a relief or foil against the large rectangular form of the main building. It is a purely arbitrary shape, which seemed to us best of the many that we tried. There is no enclosed connection between the kindergarten and the school: only a covered passage.

We achieved control of daylighting by the very simple expedient of large roof overhangs, which we checked thoroughly to see that all noxious rays of the sun are kept out. All the walls facing south are shaded by 8-ft roof overhangs; on the west and on the east these are covered walks which are also 8½-ft wide. On these two sides of the building we have only very high strip windows above door level to the 8-ft ceiling line. Thus our major fenestration in all cases faces north and south, although light does enter through the high windows from the other sides.

In approaching the building by car, the children can be unloaded at a point near the kindergarten and can either directly enter the school at this point or go along one of the overhangs to one of the numerous side entrances to the building. To the right of the main entrance there is an administration area: general office, work room, principal's office, teachers' lounge, conference room, and so on. There is a multipurpose

room equipped with tables which fold into the wall, and which has a hydraulic elevator stage, normally flush with the floor. The kitchen, which also serves as a coffee or tea kitchen in the evenings, as well as for lunch, is reached by a service drive.

The structure of the building is extremely simple. Columns are lined up on 32-ft centers (interrupted, of course, by the courts) and in the other direction they are on 16-ft centers. Beams span the short way and steel joists span the long way. Since overhangs are included in the typical 32x16-ft bay all beams and joists are the same size throughout the school. The rigidity of this kind of a structural scheme, we hope, is avoided by a pattern of holes in the roof of the structure. The thickness of the roof structure is fully expressed, since it is the full depth of the joists. On the walls where there is full fenestration we used a curtain wall with the wall sections insulated aluminum panels and with the open section glass from about floor level to the ceiling, which is 8-ft, 4-in. On the east and west side of each classroom there is a brick wall with glass from door height to ceiling. Doors are recessed and these recesses are painted bright primary colors, which vary from group to group.

Along the two main corridors (between the inner courts and the classrooms) the walls are glazed from floor to ceiling. As one walks down these corridors (approximately 300-ft in total length) open spaces will appear first on the right and then on the left. We felt that this would relieve the length of the corridor in this plan, by varying the view.

One final comment about the budget. The structural system is simple—the running fenestration and the corner fenestration are typical modules, and dimensions and details are constant throughout the job. For that reason, although there are many corners to turn—which we are always told will raise the cost of a building—the bids came in under the budget by almost $100,000. I think that despite the structural discipline and the rigidly enforced modularity of the school, it did not turn out to be a stark building. We'll find out in a few minutes how many or how few of you agree with me.

***Discussion:* George Saunders**

I think that the structural system in this school is a very ingenious one and is extremely well articulated. The program is a much simpler problem than some we are discussing today. Fortunately all the classrooms are, apparently, the same size which helps in the modular arrangement. Some of the New Orleans architects are not quite so fortunate because the School Board requires different size rooms, which would make this arrangement a bit difficult. I think also that we have a very ingenious system of courts in this project, although we do find that some of the rooms on the outside have to share a courtyard with adjacent classrooms. There might be a danger here of sound going from one classroom to another, especially if one class is doing something that might be noisy. It seems to me that the kindergarten, where the smallest children are, should have a court of its own, in case the children are to be taken outside, so that the teacher wouldn't have to keep after about thirty little pigeons running around the place. Having worked for Barancik & Newman, I am very conscious of the problem of acoustics. On this project I see that there are acoustical ceilings. Those of you who have worked with Barancik & Newman have probably heard this lecture before. Generally speaking, the ceiling is the wrong place to put acoustical insulation; just as painting the ceiling black would destroy light in the room, putting acoustical tile in the room is, as far as the children are concerned, painting it acoustically black so that there will not be any reflections into the back of the room.

I really think that the school is wonderfully simple, and it is just surprising that something like this hasn't been done half a dozen times before. I'm sure that when it gets built it will be an extremely pleasant place. Its extremely simple structural system and the fact that bids came in under the budget are certainly facts to be admired.

Robert Schenker: You mention that the connection between the kindergarten and the main building is not essential except as a minor traffic connection, yet the drive-in and bus-loading apparently take place at this point. I wonder whether the drive-in area could not have been brought out as a more important individual element.

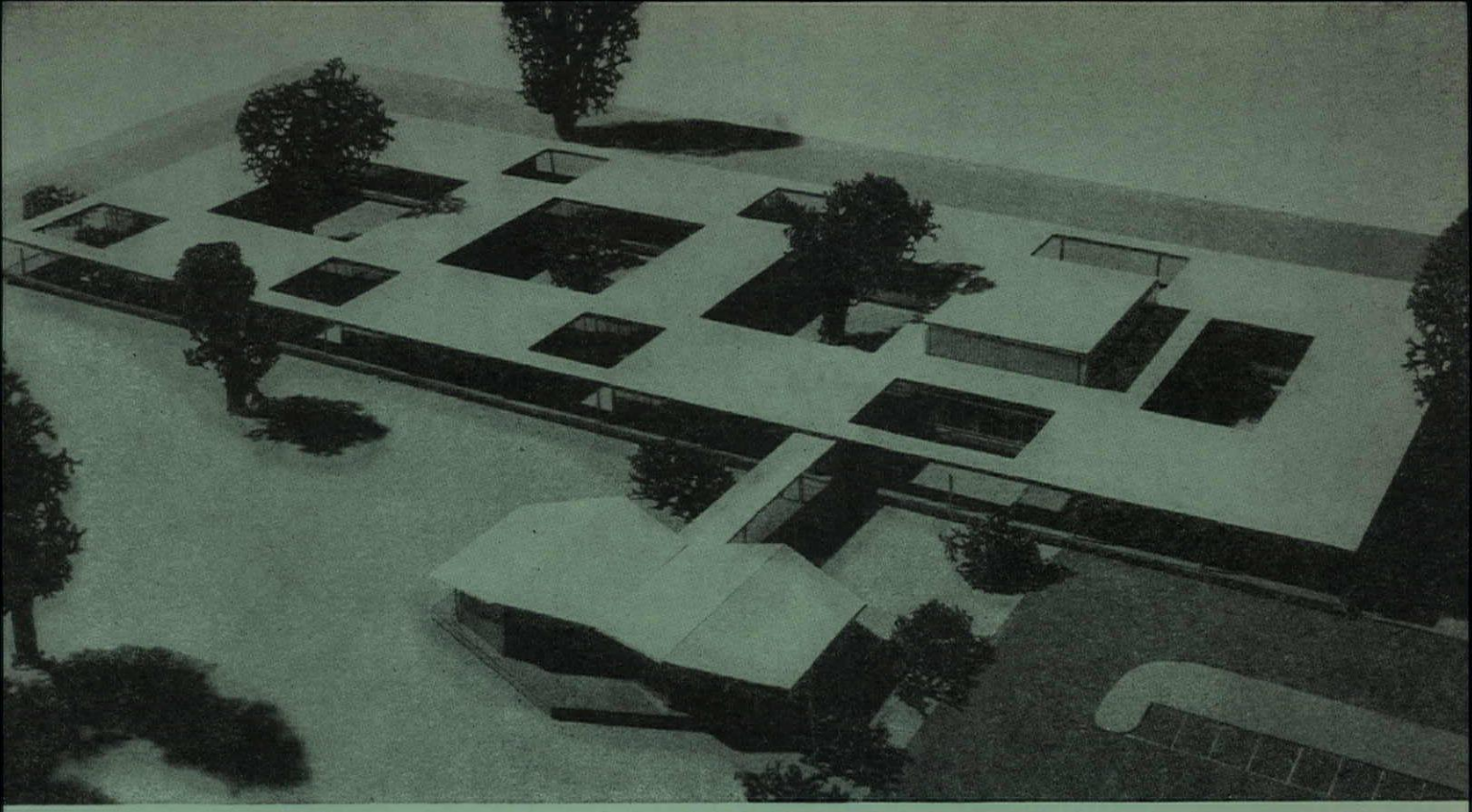
Jaroszewicz: That sounds like a good point. However, in very many schools which do unload buses, specific unloading areas are not provided. In this instance the covered walk could be used for this purpose very well, but I would say that it is not an absolutely necessary feature. It was something of an architectural feat, collecting these triads of classrooms together, and we hesitated to use another element which would express a bus unloading area. It happened that the drive occurred in such a place that we could use a part of the covered walk as the unloading area, since that connection is comparatively secondary and there is no other major traffic going back and forth. There is a very simple rectangular wire fence separating the kindergarten from the drive, which is possible in plan since the entrance to the kindergarten is from the direction of the school.

James Lamantia: I have several questions. First, who uses the court between the kitchen and the music and art class area? Two, I question the wisdom of taking a service drive past the windows of this instruction space: music, etc. Three, how efficient is the play area in the form of a long covered walk or corridor?

Jaroszewicz: Let me answer the questions as they came. I have to admit, first, that the court shown on the model in the kitchen area is no longer there. We realized that the court was enclosed but would not be used by anybody. In the preliminary stages, when we made up a tentative budget, we were afraid that we might overshoot costs in this area, but that court is not there in the final plans as the school is being built. Item number two: in the matter of the drive going past the music room we preferred not to introduce another mass or another design element, consisting of the boiler house and spaces of that sort. We tried to integrate them within the framework of the over-all design, which may have been stretching the point a little but seemed to us to help the simplicity of the job. The service drive comes to this point, and we simply left it there as it seemed to work most directly and simply. Point number three: as far as the use of the covered area is concerned, the corridors were not intended to be used as a play area; they are merely passageways to get to the classrooms. However, in a previous school that we did for the District of Birmingham—the Beverly School—we also had 8-ft overhangs on the south side of the building (it was oriented a little differently than this one), and we found that these spaces were used very extensively by the children in rainy weather as play areas in spite of the fact that it might seem that an 8-ft wide space, several hundred feet long, would not be the most efficient play place. Nevertheless, we found it to be used in inclement weather.

Harry Weese: I would like to ask an ominous question. What is the cost per square foot?

Jaroszewicz: The cost per square foot is $16.85. That includes all of the built-in equipment, the kitchen equipment, the lockers, landscaping



"... the rigidity of the structural scheme is relieved by a system of courts."

of the courts. It excludes movable furniture and the fee.

Gwen Lux: I would like to say two things. One is that in a plan like this the children could take care of the gardens in the courts and in that way learn something about them. The other thing I would like to say is that, being a sculptor, I wish the simplicity of the main building and the sculptured architecture of the kindergarten could have been contrasted a little more. The kindergarten could be very sculptural since you are working with two styles.

Minoru Yamasaki: I think this is such a nice job that I hate to see anything wrong with it. The main body of the building is very beautifully worked out and very good, but I would like to criticize the kindergarten. I feel that you weren't very sure of yourself and that you had to defend it arbitrarily. It might have been better if you had separated it completely and pushed it out in a corner so that the building would stand by itself. The main building is such a very clear and strong thing that having a "wart" on the side I don't think helps it. By doing this you might have been able to put a plaza between the two, where the kids would get off and stand around for buses.

Thomas Creighton: Yama, do you think that Miss Lux's point is valid: that if there had been a sharper form distinction also, that might have separated the two; or are you thinking of a purely physical separation?

Yamasaki: No, I don't quite agree with that, because I don't think the kindergarten ought to be stressed more strongly than the rest of the school. In other words, I'm not quite sure that we ought to use architecture as sculpture.

Question: There was obviously a great deal of attention given to the courtyards and the classrooms but the music and art rooms have no court and it just seems to me that it would be a very important place for you to have one.

Jaroscewicz: That is, of course, one of those inconsistencies which come into a plan; you have to call an end to the courts, otherwise they would keep going on indefinitely. However, there is a difference in the way the courts are used. Coming back to the point that Miss Lux raised: in the Beverly School, which was our previous experience with courts, they do use the kids' own labors to dress up the courts and to some extent enter into a competition. Most of the classrooms are homerooms; the children are assigned to a specific room for the entire year. That means that the pattern of the children developing the courts can be followed quite easily because there is always one teacher in charge of the same group, to help them develop their own court and have fun with it. On the other hand the music room is a transient room. All children in the school use it at one time or another, and it would be rather difficult to give the same sort of attention to a court opening off that area.

Alfred Clauss: Much as I admire the design of this school, and its court arrangement, I would be afraid of the noise-control question.

Jaroscewicz: My answer to the question of noise control is based on empiric factors. The previous school that I have referred to has courts of the same width as the ones that we show on this plan. That school has been in operation for several years now and there have been no objections whatever voiced by the teachers about noise transmissions across the courts. There were difficulties with noise transmission from room to room within the same group of rooms, which had to be corrected. We may be making more of a problem of noise transmission through the courts, on a theoretical basis, than is really justified by the experience that we have had.

John Dinwiddie: I think that the most significant thing about this plan is the creation of the square courts in two sizes. I am curious; are these courts to be developed by landscaping? Are they purely visual, or will they be used, and if so, how? It seems to me that there is an opportunity here to develop the courts by the use of sculpture, or by seating arrangements if the children will go out there. Is this going to be developed later?

Jarocewicz: They are going to be developed now. As I believe I mentioned before, the courts are primarily for a visual sense of enjoyment, not serving any functional use in terms of play yards and so forth.

They will be developed by the children themselves as they were in the previous school I have mentioned several times. It would of course be most desirable if the School Board would provide an instructor for the development of the courts. We would love to see nothing better than that, but so far there has been nothing of the sort mentioned.

Lux: If the budget doesn't allow sculpture, and an instructor is hired, then perhaps the children could be taught to do their own sculpture.

Jaroscewicz: That sounds like a terrific idea.

Richard Aeck: Would you explain the heating system?

Jaroscewicz: It is a Burgess-Manning Corporation heating system, which consists of a series of supporting channels that run between the joists. To these channels are clipped a heating pipe—a copper pipe—that runs across the supporting channels on twelve inch centers. The pipe itself is then used as the ground to which a metal tile is snapped. Hot water circulates through the pipes and the aluminum pan ceiling acts as a source of heat. In other words, it's a radiant ceiling where the heat is transmitted from the pipes to the metal pan and then to the classroom. The pan is perforated, and one puts a glass-fiber blanket above that which acts as acoustical control.

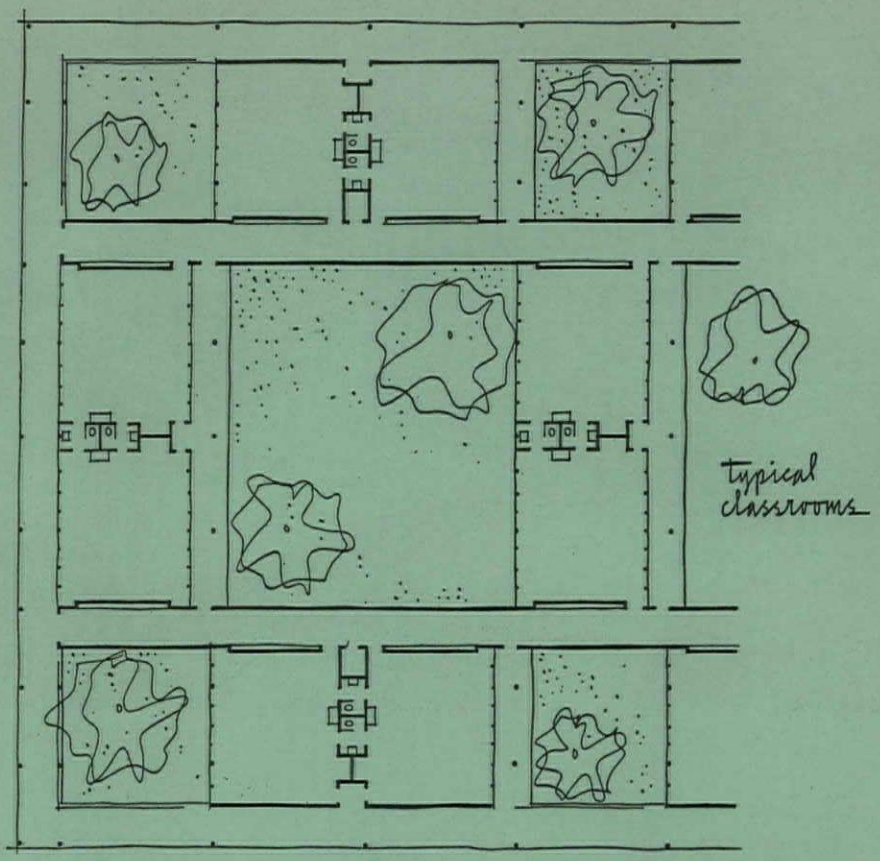
John Lawrence: What material is the wall between the classrooms and the inner courts?

Jaroscewicz: It is a cabinet. It's a wood cabinet which is door height, with glass at each end and glass above door height. Thus it is a free-standing cabinet, with storage space on one side and pegs for clothes and a shelf for boots on the other side.

Question: Can you tell us something about the use of color in the school?

Jaroscewicz: We have what might be called three different color keys. Each series of classrooms is keyed differently, with a major predominant color. We have what we call our blue group of classrooms, the yellow group of classrooms, and the green group of classrooms. We use the color in a variety of shades in the individual insulated panels below the windows. Of the basic carrying color there are about twelve varieties in each classroom, all within the same color field. On the exterior there is contrast between the dark, pierced garden walls that screen the small courts and the larger gray area of the brick, going up to door height, screening the side of the classroom. The door recess is then painted in a bright color—each pair of classrooms a different class color.

Victor Gruen: Coming back again to the question of noise transmission from the courts. I would be concerned not so much about noise from classroom to classroom across the court but from any activity which might go on within the court itself. There might be trouble if there were any activity in these beautiful courts during teaching hours in any of the classrooms.



". . . the classrooms are oriented with their open sides to the courts."

Jaroscewicz: The answer again is that the courts are meant to be looked at rather than used. As a matter of fact one reason why the outside classrooms are oriented with their open sides, so to speak, to the courts rather than the playground, is that we have brick walls along the sides of the courts, and they will act in a sense as insulation against playground noises.

Question: I have been interested in the affinity of this plan, and especially the integration of the structural system, with the Hartfordshire County Council schools in England, and I wonder whether it would be possible, or whether it was considered, to use a system of prefabrication throughout this building.

Jaroscewicz: Well, after a fashion the building is prefabricated because we are using standardized steel joists.

Question: But you would have trouble as regards prefabrication with the masonry that you are using, wouldn't you?

Jaroscewicz: Masonry is used primarily for visual relief. It is my personal opinion, and anyone is free to disagree with me, that buildings which are made entirely of prefabricated, light, insulated panels may tend to look a little thin. Otherwise, there is really no good reason why we couldn't use a prefabricated panel throughout. Actually, prefabrication is used to a very large extent in this school. All the stock structural members are standard in length, depth, and so on. Most of the window walls are standard; there are only two sizes of windows that are repeated through the entire school. We varied them so that there is a wide, narrow, wide, narrow pattern in the elevation. All of the cabinetwork is standardized throughout.

Thomas Creighton: Thank you, Mark Jaroscewicz, for a most articulate exposition of a beautifully articulated piece of architecture. I think that the critical points raised—function of the courts, noise transmission, relation of the kindergarten to the main school mass, and so on—have been well answered. Eberle Smith and his associates seem to have come off very well in the discussion.

Ezra D. Ehrenkrantz and John D. Kay*

flexibility through standardization—part 1

The Hertfordshire Prefab Schools

One of the major problems facing the United States—in particular, the building industry and the architectural profession—is how to produce many good schools, quickly and cheaply. Paradoxically, the magnitude of the problem can become a major factor in facilitating its solution. This was convincingly demonstrated in postwar England, where a mass school-building program was completed with unprecedented dispatch and economy. Paralleling these achievements were many significant advances in design, from both educational and esthetic viewpoints.

Have the British achieved the ultimate in this field of endeavor? Most of the men who have been closely associated with this work for the past 10 years and have contributed much to its success, agree that much modification and improvement is necessary before all the potential benefits of mass-produced school buildings are realized. A close examination of the British experience seems to be a prerequisite to the scientific quest for a solution to the school-shortage problem of this country.

At the end of the last war, England was faced with an unprecedented task of school-building. Over one million more places were needed in seven years—the equivalent of more than 400 new schools a year. This sudden rise in demand was the result of several causes: damage to schools during the blitz, sharp increase in birth rate at the end of the war, construction of the New Towns and expansion of existing cities—all needing new schools, and finally the extension of education planned for in the 1944 Education Act—especially the raising of the minimum school-leaving age from 14 to 15.

However, the size of the job was not the only trouble, for at the end of the war the building industry itself was in a grievous state. There was an acute shortage of many building materials, in particular, the traditional ones such as brick and timber. After a temporary postwar glut, metals such as steel and aluminum were in short supply and became increasingly expensive.

The most serious shortage, however, was that of manpower on the site and, in particular, the skilled craftsmen in the traditional trades: bricklayers, carpenters, and plasterers. Since many building operatives had been dispersed during the war to the factory, with full employment and better conditions than could be found on an exposed building site, they naturally felt little inclination to return to their old employment.

All this was to have a positive result in that it underlined the need—more, the necessity—for a change that had long been held by architects and others to be the next logical move in the development of the building industry—that is, the factory production of a wide range of building components which could be assembled swiftly on the site by the proverbial man with a wrench. Such a move was welcomed by manufacturers who had made swords during the war and whose factories were now freed to make ploughshares—or their constructional equivalent. This form of manufacture has high overhead, in addition to the costs of jigs and setting up of production lines, and to offset these costs the manufacturer requires the promise of large and steady orders. It was in the national school-building program that these conditions could be satisfied. The prime requirement of mass production is of course *standardization*, and it is the way in which this feature has been harnessed to the cause of good architecture that provides the theme of our present story.

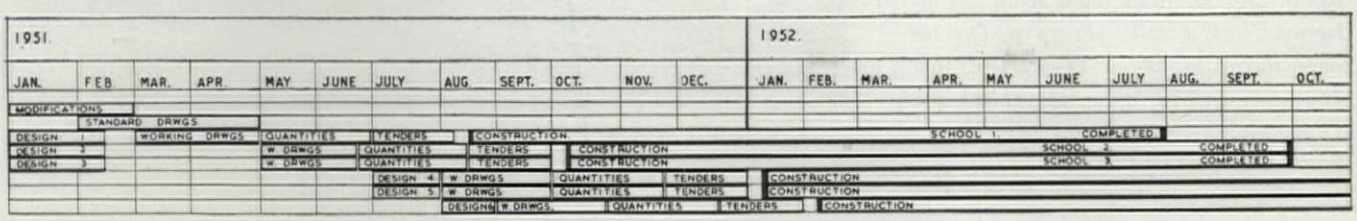
Although many of the best individual schools in the past 10 years have been designed in the offices of private architectural practitioners, the biggest successes in developing new systems of building suitable for getting schools on the ground quickly were to be made by architectural teams in the offices of the Local Education Authorities responsible for administrating the new educational program. These teams had the advantage of being able to concentrate on one building type, to schedule their work over an extended period, and to experiment within this program more freely than an office working, as it were, from job to job. A year's building program of the Hertfordshire County Council (H.C.C.), which has won a deservedly international reputation under C. H. Aslin, Hertfordshire County Architect, is shown (*Figure 1*).

school building in Hertfordshire

The County of Hertfordshire lies immediately to the north of London, and within its boundaries have been sited many of the New Towns originally designed to take the overspill of population from the

* *Both authors were formerly associated with Britain's Building Research Station. The former is now a Second Lieutenant at Aberdeen Proving Grounds, Maryland, and the latter is a member of the Ministry of Education School Research Team in London.*

Figure 1—part of a year's primary-school building program.



metropolis. A program of 175 schools to be built within 15 years was necessary to educate the growing population of the county. The H.C.C. architects resolved at an early stage to overcome the shortages of traditional building materials and site labor by using a factory-made building system. It was felt that structure should be the servant of planning, since the buildings to be constructed would vary from nursery-school playrooms to technical-college workshops. Flexibility and variety in planning were valued highly, particularly for the younger children, as it was desirable to be able to depart from the formal desks-in-a-row teaching of the regulation 480 sq ft classroom of 20′ x 24′. In the words of one of the architects concerned, "the structure should be capable of growing out of itself in all possible ways." Hence, while the component parts could be standardized, the whole building should not. To meet these requirements the H.C.C. architects evolved, in close co-operation with manufacturers, a flexible building system on the "erector set" principle with a kit of parts which could be swifty assembled on the site in many different combinations. To insure that there was true interchangeability of the parts so that, for instance, two beams and a column could be replaced by one longer beam, it became apparent at an early stage that the dimensions of the component parts would have to be co-ordinated by some means. This was done in a characteristically direct manner by using a simple, rectangular, planning grid spaced at 8′-3″ centers *(Figure 2)*. All the main components—beams, wall cladding, slabs, windows, and roof-deck units—were then made in multiples of the 8′-3″ dimension, which thus became a very large module for building. The size chosen may seem arbitrary, but it was, in fact, one that had been recommended by a Government Committee for use in light-framed schools, being one-third of the accepted 24 ft width of a classroom plus the thickness of a 9″ brick wall between rooms. Moreover, the most likely manufacturer had already set up production lines jigged for 8′-3″. In practice, this dimension proved quite convenient for

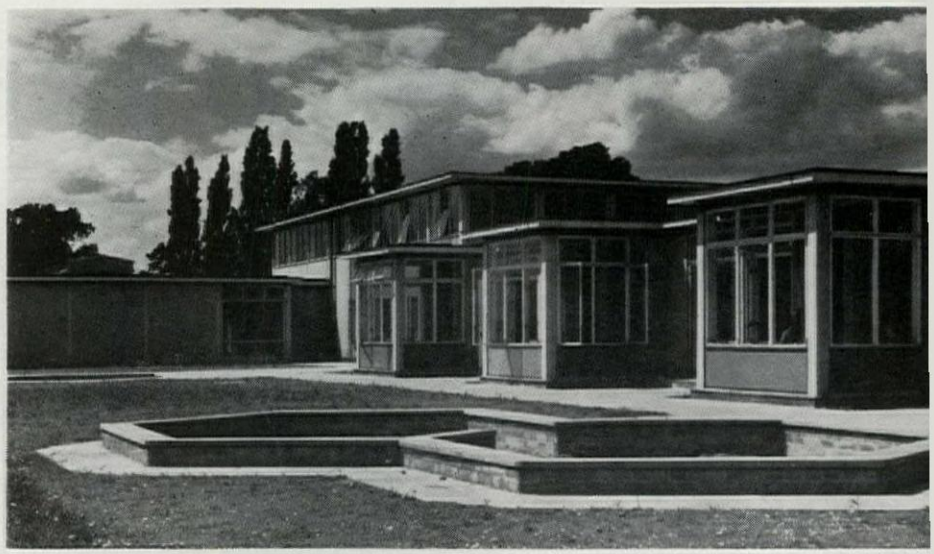
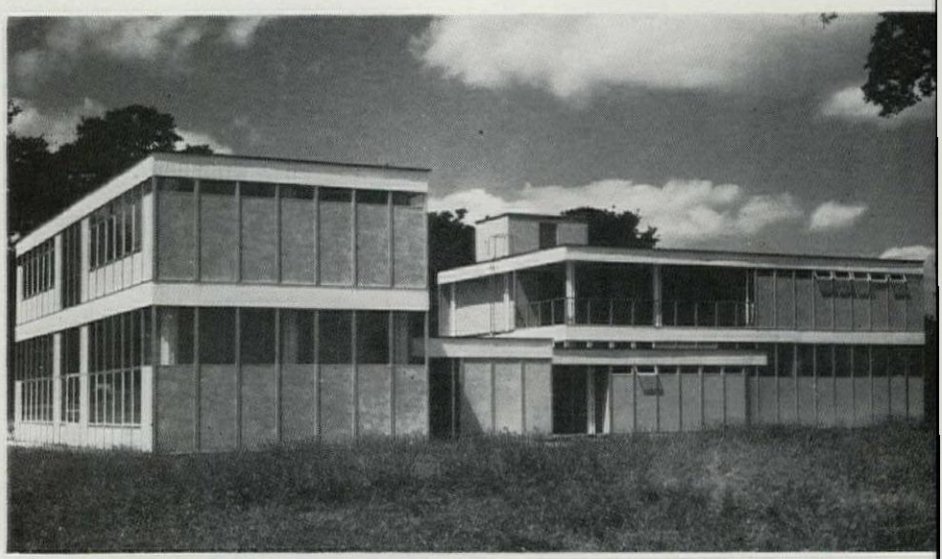
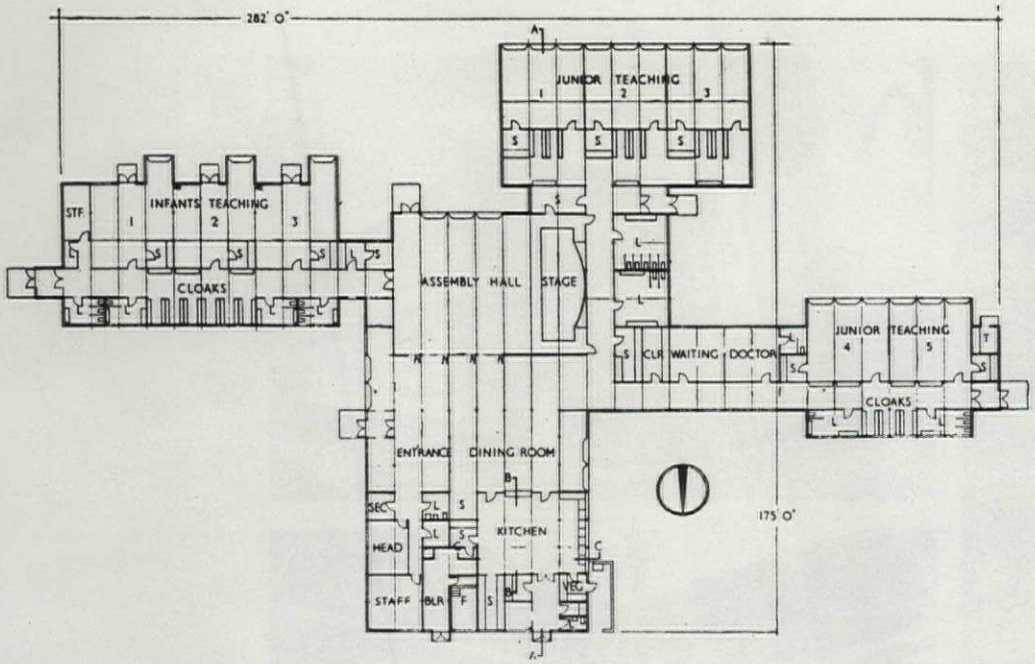


Figure 2—Morgan's Road primary school, a unit of the 1948-49 program. View of infants' wing shows vertical cladding blocks that permit window openings which are not full-bay width. Plan (acrosspage) *indicates flexibility of perimeter that is possible and economic within limits of a 8′-3″ module. Hertfordshire County Architect.*

Photos (except as noted): Building Research Station and *The Architectural Press*

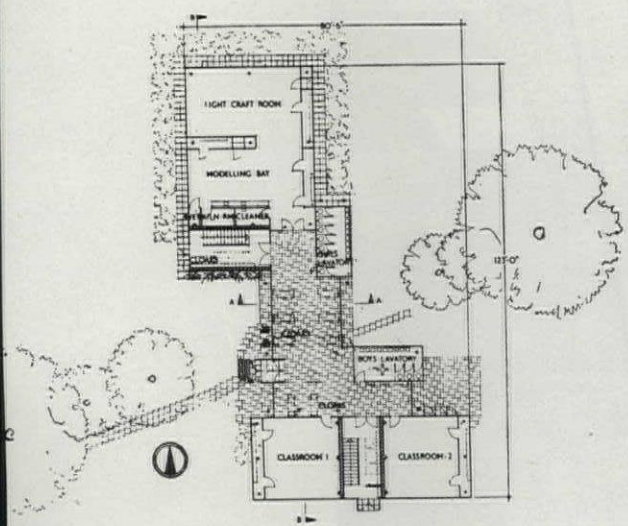
Figure 3—Clarendon secondary school, 1950 prototype has 3′-4″ module. Exterior view shows repetition of aluminum mullions at modular intersections; wall panels are cellular plastic. Construction photo (acrosspage) *reveals cruciform steel columns and open-web joists. Hertfordshire County Architect.*

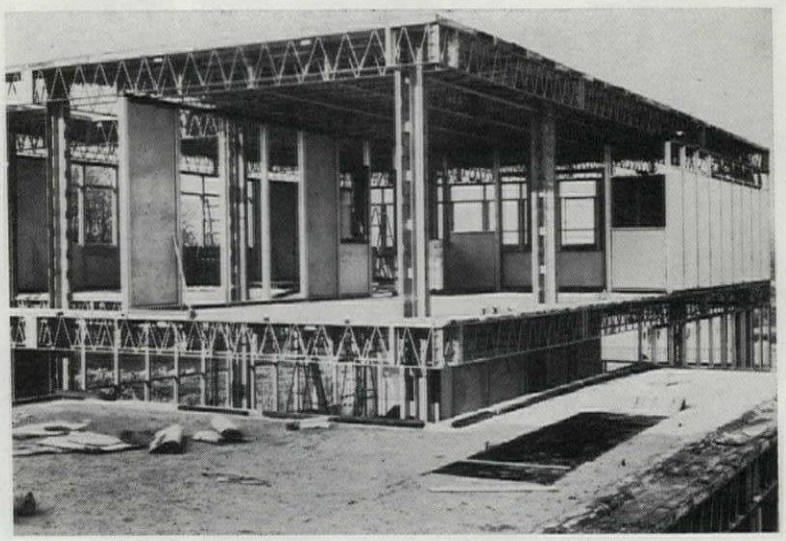


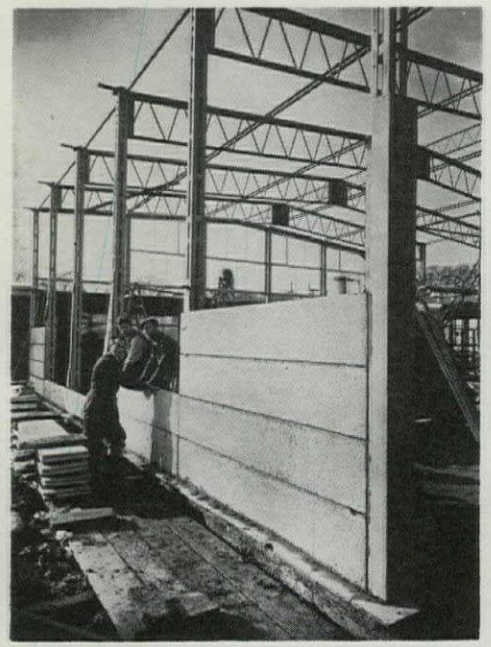


primary-school planning, although rather coarse for the more detailed planning necessary in secondary schools, where a 3'-4" grid system was developed and used *(Figure 3)*. The light-steel frame consisted of open-web columns and beams fabricated from cheap steel sections—angles, strips, and rods *(Figure 4 and December 1950 P/A)*. The column section was always square in plan —allowing identical beam connections to be made with any face of the column—and each column was always located on a grid intersection. Later it was found necessary to add rectangular column sections to carry bending moments induced by longer beams, but this was a step away from the original modular flexibility. The architects and manufacturers soon found that the theoretical advantages of the 100 percent standardized component, which might be used in any situation, could only be achieved at great cost, and that a compromise involving a lower degree of standardization was usually necessary. The size of the market becomes an important factor: If more products are manufactured, then each one may be simpler since it will have to do fewer jobs and, therefore, reduce the over-all cost. This is just one point where the magnitude of the problem aids in its own solution.

The H.C.C. office found that flexible standardization of this type can have direct benefits for the architect. Every year, a kit of parts was developed and frozen for the year's program of a dozen or so schools. Standard drawings were then prepared for each of the modular and other standard components. This set of standards, which would comprise from 60 to 70 drawings covering structure, cladding, finishes, and equipment, was then used for each of the year's designs. The County Architect has said, "this system saved *half* of the time normally spent on the drawing board where each job is treated as a separate structural problem. The time saved was then used for development and research, decoration, and color treatment—aspects of an architect's work which are normally skimped or omitted altogether." Some of the private offices doing H.C.C. schools were allowed to draw on the H.C.C. stock of standard drawings, and shared advantages which could be enjoyed under a national system of modular coordination by all private architects.







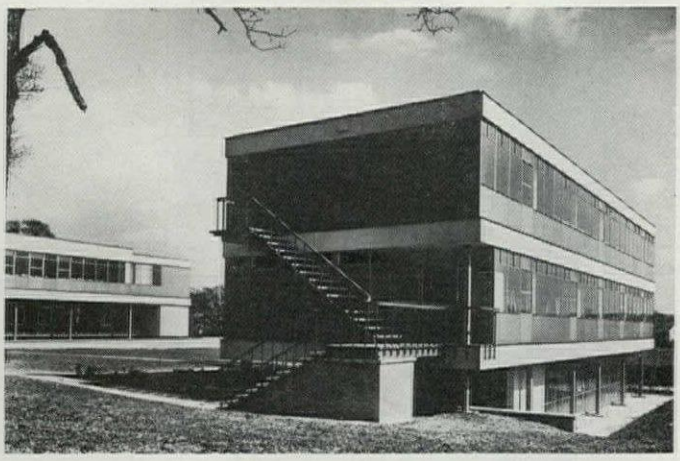
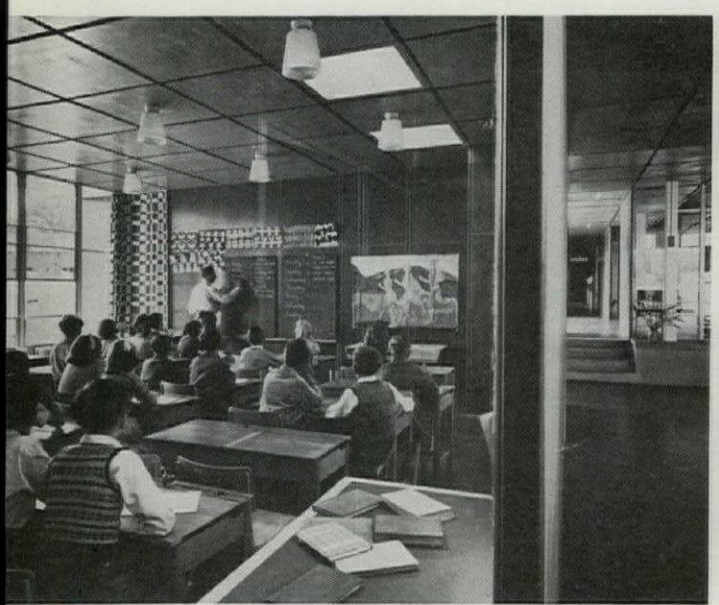
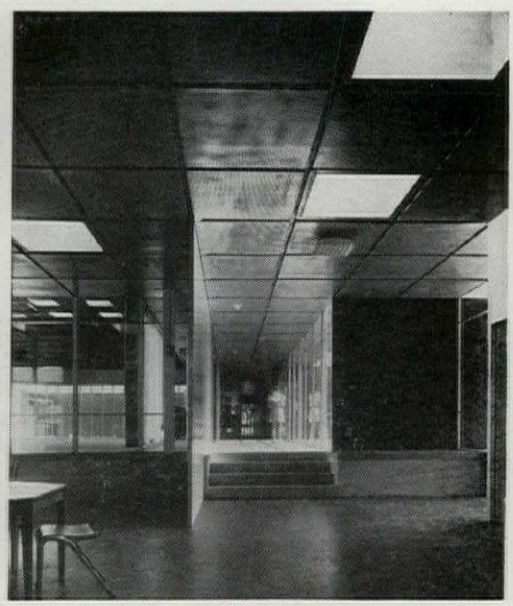


Figure 4—typical 1950-51 schools at Oxhey. Hertfordshire County Architect.

Figure 5—primary school, Boreham Wood. Hertfordshire County Architect.





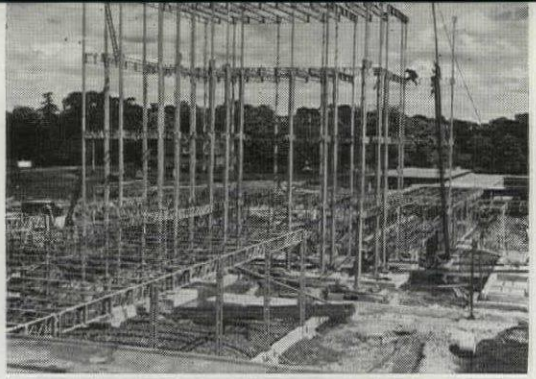


Figure 6—St. Crispin's secondary modern school, Wokingham, Berkshire, 1952-53. Elements were designed on 3'-4" grid. Architects: Development Group, Ministry of Education. Photo: *The Times, London*

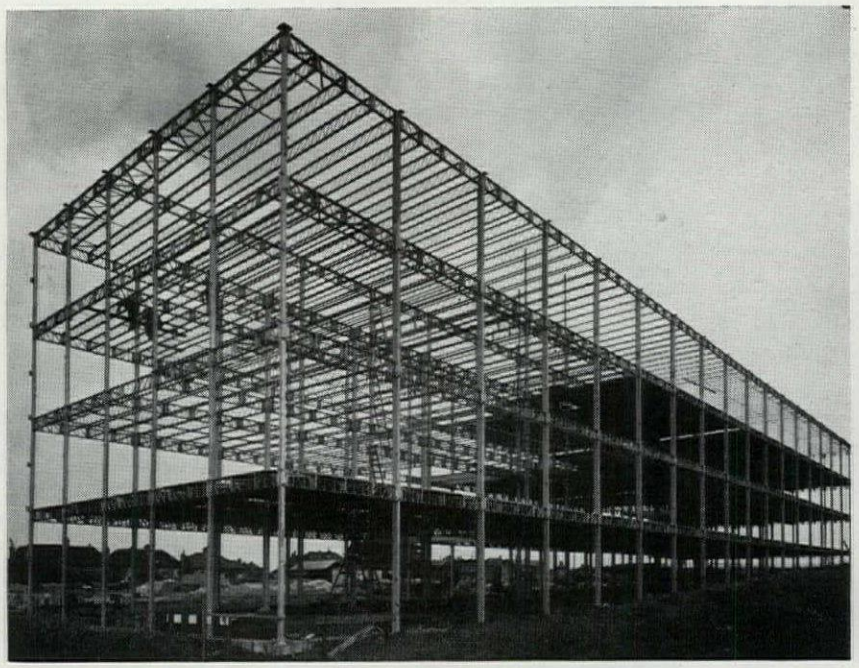
Figure 7—Templewood junior and infants' school, Pentley Park, Welwyn Garden City (below). *Hertfordshire County Architect.*

These advantages of high professional productivity were found to extend back into the offices of the structural engineer designing the standard frame. Here a small group of highly qualified men would calculate each standard modular component—column, beam, bracing member, etc.—to meet every possible condition. These elements were then taken by draftsmen who rapidly made frame layout drawings for each job. It is significant to note that in this system any specials had to be referred back to the original design group, and that a large number would seriously dislocate production and raise costs. This is a very important point to keep in mind in the United States, because there are no County Councils to support mass production of new prototypes through large orders; to get a number of different private architects to agree on a single set of details would be very difficult. *(A number of schools designed by the H.C.C., and others, are shown—Figures 5, 6, 7, 8, 9, and 10.)*

In the use of these prefab-building systems in Britain during the past 10 years, it has been shown time and again that their prices compare reasonably well with the more conventional types only as long as they are used "off the peg." As soon as architects demand specials, prices soar. The conclusion to be drawn from this is not only that architects should moderate their personal whims and fancies, but also that the systems should have sufficient flexibility built into their original design to meet the reasonable demands of architects who have to cope with widely differing planning problems. To guarantee this flexibility the original design development groups should include—and preferably be led by—an architect. This helps to insure that each part of a building is considered primarily in terms of its functions and not as a vehicle for some product.

the spread of development work

Since 1949, the spread of this concept of development work has been assisted by the Development Group at the Ministry of Education in London. Recently, some of the larger manufacturers and contractors have set up their own Develop-



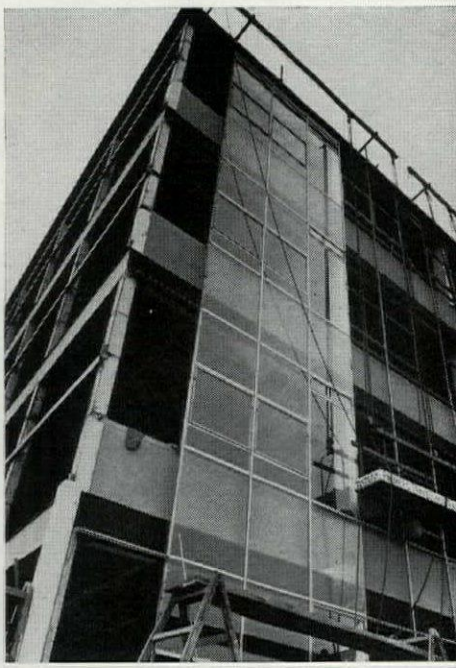
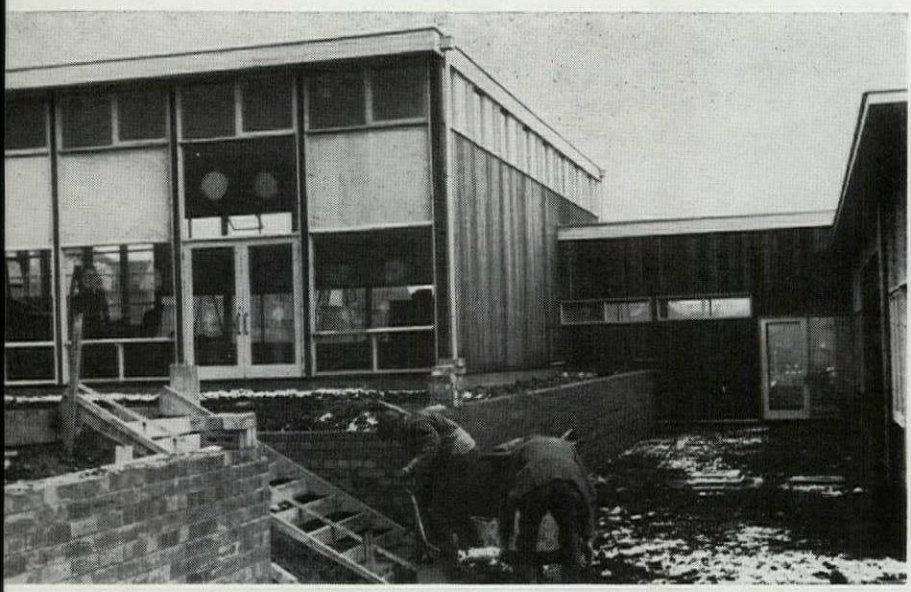


Figure 9—Alban Wood school. Baseplates for V-shaped columns occur in center of 3'-4" grid square (below). *Columns in assembly hall carry main plywood-box beams* (below right).



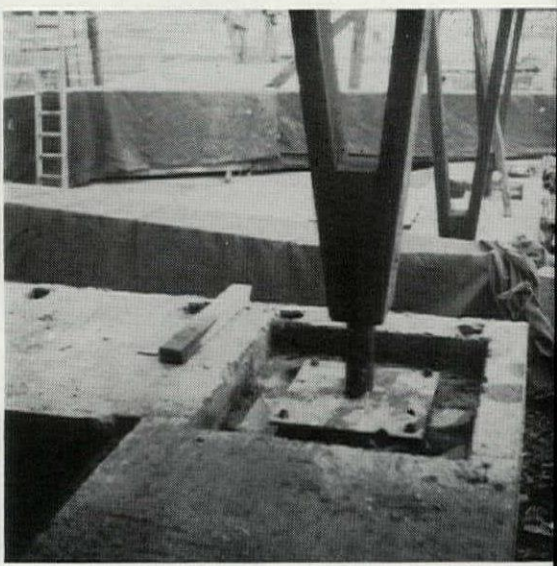


Figure 8—Derwent system, at Hemel Hempstead, has timber frame on 6'-4" grid and mahogany siding (above).

ment Groups—these have often included architects. This should assist but cannot, we think, replace the normal independent role of the architect appointed by the client. This type of enterprise has been described by S. A. W. Johnson-Marshall, A.R.I.B.A., until recently Chief Architect at the Ministry of Education, as being "a simple pattern of work which lies halfway between building research and building in quantity. It is compounded of three main activities which interact upon one another and must be carried out simultaneously by one team of people. They are: investigation of the needs of the user, planning, and the design of components. In essence development must be comprehensive, in that it is better to advance all the aspects of building a short distance, simultaneously, than it is to make striking progress in a single aspect." This group has helped to develop a number of the many prefab systems intended primarily for school building, which are now available in Britain. All have light structural frames in a variety of materials: steel, timber, prestressed concrete.

The great majority of the systems have dimensions of their component parts coordinated on a planning grid. The spacings used for these grids have varied considerably: the original 8'-3" grid is still widely used, another system used 4'-0", another 6'-4", and in recent years

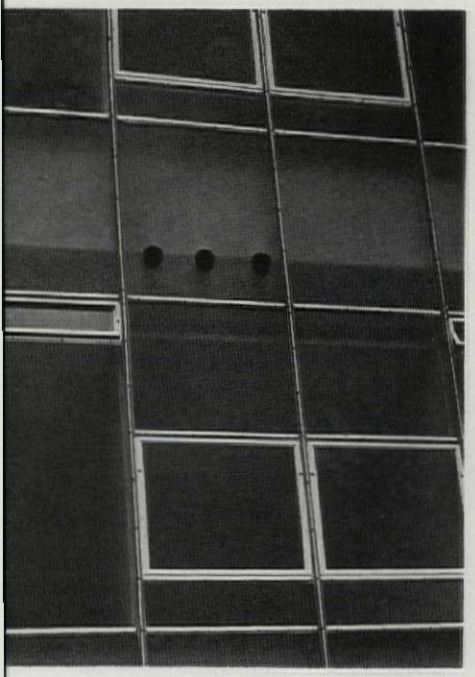
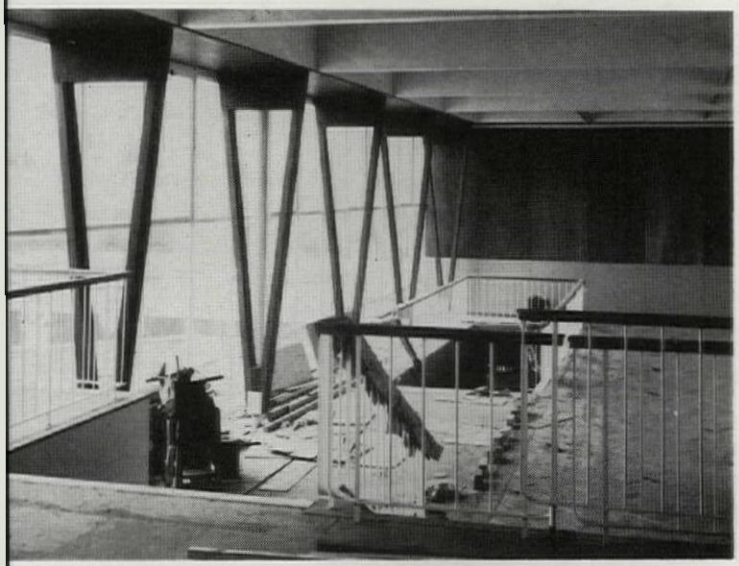


Figure 10—comprehensive school, Catford, London. Early example of glass curtain wall in British school. J. L. Martin, Architect to London County Council (left *and* acrosspage).



the 3′-4″ planning grid has increased in popularity. Owing to the multiplicity of grids and to the difficulty of establishing common jointing details, there is little interchangeability between the systems—even though each may attain a considerable degree of flexibility within itself. Traditional materials had little place in these systems, and there was no demand that the modules used as planning grids should allow the components to be related to the standard 9″ x 4½″ x 3″ brick. Center-line grid planning was general, and few architects felt the need of solving the "thickness" problem by using a small module in the 3″-4″ range to relate column and partition thicknesses to larger component sizes. Again, few of the systems were able to use the traditional building components standardized by the British Standards Institution for use in housing, since there was no common dimensional unit. One of the major tasks before those now working to extend the use of modular co-ordination in Britain is to bring the prefab and traditional sides of the building industry together on a common dimensional basis.

summary

Let us try to summarize the advantages that have accrued from the use of this simple form of modular-co-ordination in factory-made building systems developed within the extended school-building period.

1. The *clients*, who are the Education Committees representing the interests of the teachers and children on the one hand, and the general public, on the other, get quality schools quickly at no extra cost and frequently even less.

2. The *architect* had the very real economic benefit of being able to use simplified standard working drawings without undue limitation of his freedom of design; indeed, it gave him time for more creative design work. His colleagues, the engineers and surveyors, have likewise had their work eased.

3. The *manufacturer* was given the benefit of large advance orders for relatively few standard components, and he thus had the opportunity for the forward planning of his output with the use of long production runs.

4. The *contractor*—often closely associated with the manufacturer—had the gains that arise out of a quick turnover, as jobs were completed in half the normal time. Standard details enabled him to train erection teams swiftly.

The principal financial disadvantage of this work has been the fact that the individual systems are unrelated to each other and to traditional practice. The 40″ timber systems cut 8″ from each 48″ panel used. This is just one example of the waste which results from this lack of co-ordination.

This has been much too brief a summary of the work of the H.C.C. school architects. More adequate descriptions will be found in an article by R. Llewellyn Davies and John R. Weeks in June 1952 *The Architectural Review*, entitled, "The Hertfordshire Achievement"; also in a series of progress reports which have been appearing at intervals in the weekly *Architects' Journal*.

flexibility through standardization—part 2

The Modular Number Pattern

The fact that standardization *can* provide an answer to the school-building problem stands out as the most significant point of the British program. When individuals think of standardization in terms of completed products—cars, washing machines, and prefabs—there is resistance due to inflexibility in plan and uniformity in appearance. Standardization will be advocated here in terms of a scale, and not as a finished object or building. The musical keyboard offers an excellent analogy for such a scale, since both the frequency of a note and the relationship of one note to the next are standardized. The octave is not only defined as a 1:2 ratio, but also it has fixed frequencies. C major, for example, has 128 vibrations per second to 256 vibrations per second between octaves, or 256:512, or 512:1024. In a similar way, octaves in other keys may be explicitly designated. Each octave has only seven notes, but the organization of these notes allows more freedom for composition than selecting many more intervals.

We have seen that the main weakness of the English approach to standardization is the lack of interchangeability between parts of different systems. Thus the best structural-framing system cannot be used with the best range of windows, and neither will fit with the most efficient panel size or acoustical tile. Traditional building materials will not fit within any system and the flexibility, while being greater than any comparable system of standardization yet devised, still has many limitations.

What is needed is a single *pattern* or *scale* to embrace the whole building industry. Such a single scale is especially important in this country, because we do not have the equivalent of the British county council with its large volume of assured orders based on standard details. A county council, as its own client building 15 schools in one year, can standardize and work to a single system. A private architect in the United States, however, with a variety of clients and a smaller volume of work, cannot say: "This year we will work with one set of details and one structural system; next year we will revise and improve the system." Because demand for a single system cannot be built up under our school-building set-up of private architects and communities, rather than county school boards, and because of the above-mentioned disadvantages of proprietary systems, it seems that the only way to utilize standardization efficiently in this country is by means of a pattern which incorporates the entire industry.

A pattern of this type was also necessary in Britain for optimum design and construction efficiency, and a research team was started there at the Building Research Station in 1953 to solve this problem on an industrywide basis.

development of number pattern

There were many requirements to be considered in developing such a system for interchangeability and flexibility. Some of the more important requirements considered in the development of this system were:

1. It should lead, as a matter of first importance, to lower costs.

2. It should be esthetically neutral, allowing freedom in design. The importance of standardizing a scale of product sizes for multiple use and not for closed systems must be a primary consideration. A standardized scale gives the designer sureness and confidence in his work, because the properties of his palette are known and constant, while standardization of end-products only, provides a regimenting influence.

3. It should allow building materials to be used in a natural manner, taking into account the properties and limitations of the materials themselves, and the manufacturing and handling processes involved. Many building materials have optimum dimensional sizes based both on their physical properties and their handling characteristics. These optimum sizes should be retained, as far as possible, so that no branch of the building industry is penalized unnecessarily.

4. It should include those proportional systems which may be useful tools to the designer and which do not conflict with industrial processes. Esthetic neutrality should include flexibility in visual and proportional relationships.

5. It should be numerically simple and easy to operate.

6. It should have maximum numerical adaptability and, in particular, the terms should be additive in many ways, because building is an additive process.

7. It should take into account anthropometric data, efficient and economical structural sizes, and their relation to established planning sizes in diffierent types of buildings.

The scale or "Number Pattern" developed was based on three numerical series:

1. The doubling series, 1, 2, 4, 8, 16 . . .

2. The tripling series 1, 3, 9, 27 . . .

3. The Fibonacci (or additive) series, 1, 2, 3, 5, 8, 13 . . .

Each of these series has certain properties which make its inclusion necessary in an over-all pattern for modular coordination.

These three series were used as a guide to form a three-dimensional Number Pattern in the following manner *(Figures 1, 2, 3, and Table I)*:

There are 35 dimensions from 0″ to 12′-0″. Table I shows the distribution of these dimensions, per ft intervals. Fourteen sizes are found from 0″ to 2′-0″ giving flexibility in the critical range of wall thicknesses, column and masonry sizes, acoustical tiles etc. Between 2′-0″ and 12′-0″ there are 21 dimensions which would be the stock available for panels, windows, doors, etc. These sizes are

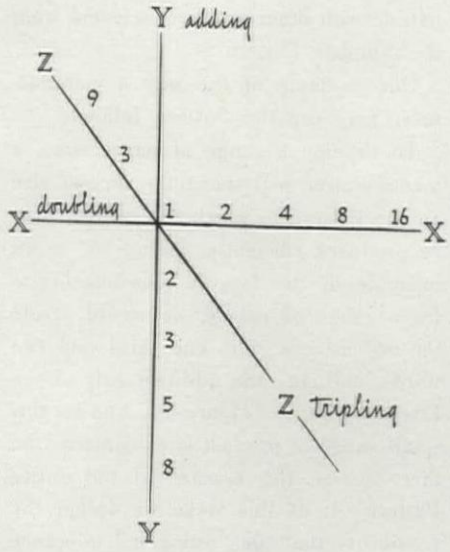


Figure 1—the guide series.

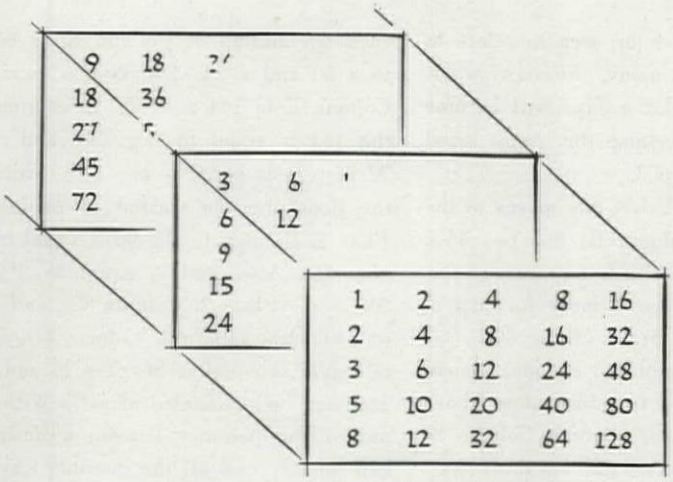


Figure 2—filling in the numbers on the basis of the three guide series.

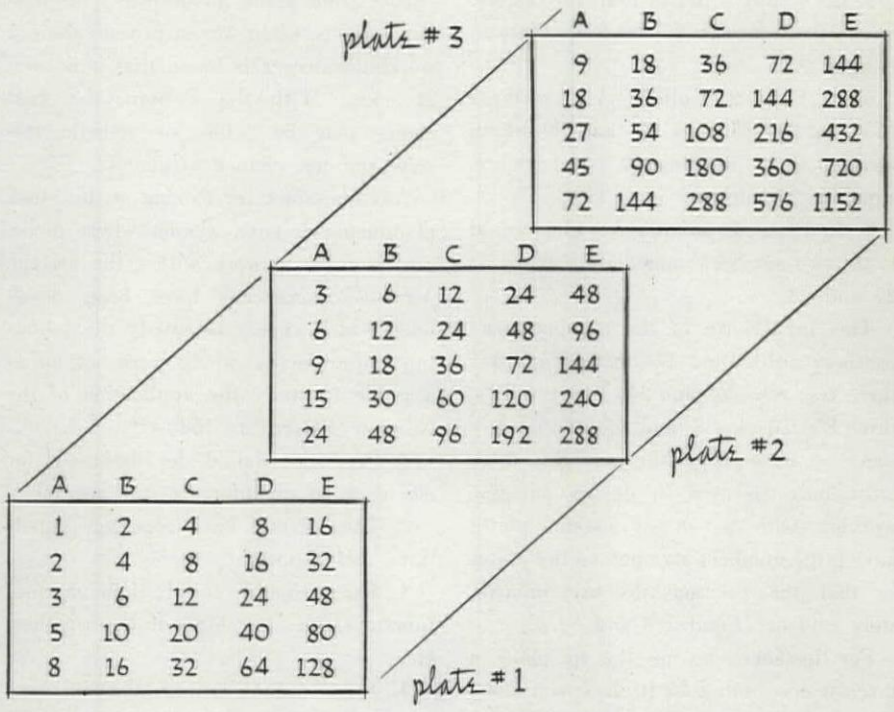


Figure 3—completion of the Number Pattern core; may be extended to include still larger sizes.

Table I

Foot intervals	Dimensions
12 ft.	144 in.
11 ft.	135 in.
	128 in.
10 ft.	120 in.
9 ft.	108 in.
8 ft.	96 in.
7 ft.	90 in.
	81 in.
	80 in.
6 ft.	72 in.
	64 in.
5 ft.	60 in.
	54 in.
4 ft.	48 in.
	45 in.
	40 in.
3 ft.	36 in.
	32 in.
	30 in.
	27 in.
2 ft.	24 in.
	20 in.
	18 in.
	16 in.
	15 in.
1 ft.	12 in.
	10 in.
	9 in.
	8 in.
	6 in.
	5 in.
	4 in.
	3 in.
	2 in.
0 ft.	1 in.

thought of as product sizes, and planning dimensions developed through combinations of these product sizes may be worked to any inch dimension. This flexibility, which will be demonstrated below, allows the incorporation of non-pattern sizes to be used as planning dimensions. The pattern includes the two base-module sizes Alfred Bemis considered necessary for modular co-ordination in this country—three and four inches—and organizes the sizes so that they may be used together. Plates 2 and 3 of Figure 3 are selected dimensions on a 3″ base module. The three plates, minus columns A and B, are selected dimensions on a 4″ base module. These dimensions are selected to eliminate all prime numbers above 5 (odd unfactorable numbers) and their multiples which assures the maximum possible flexibility with the selected stock of dimensions. For example, one may also design on the basis of a 16″ block module, a 9″ (British brick module), or a 40″-grid dimension, still within the Pattern.

All the sizes can be seen to relate to one another in many different ways. Some of these relationships will become evident upon checking the steps listed below with Figure 3.

1. In order to halve, one moves to the left. Plate 3, Column B: 90=two 45's.

2. In order to third, one moves forward. Using 90 again, move forward to Plate 2, Column B: 90=three 30's.

3. In order to add two unequal dimensions, one uses the two dimensions above 90: 36 plus 54=90. Plate 3, Column B.

4. 90, which was equal to three 30's, is also equal to 30 plus 60. 60, Plate 2, Column C, is equal to two 30's when one moves to the left.

5. 60 is also equal to four 15's as one moves two intervals to the left. Plate 2, Column A.

6. In Plate 3, Column A: 45=three 15's; so 60=15 plus 45, and 90 which was equal to 30 plus 60 is, therefore, equal to 15 plus 30 plus 45.

7. In Plate 3, Column A: 45 is equal to the two numbers immediately above it: 27 and 18.

This breakdown of the numbers may continue adlibitum: 27=three 9's; 18=three 6's; 60=36 plus 24; 24=two 12's, three 8's, 16 plus 8, and so on.

As an example of the way this flexibility may be used in design, imagine working with a set of plastic plates having the numbers stamped on the plates so that the relationships are immediately evident *(Figures 3 and 8)*.

For instance, let us try to place a three ft door into a 20 ft classroom. 240″ (Plate 2, Column E) is equal to two 120's (Plate 2, Column D); 120 is equal to two 60's (Plate 2, Column C); and each 60, adding in Column C, is equal to a 36 and a 24. 240 is also equal in Column E to 144 and 96. In column D, the 144 is equal to two 72's, and each 72 in turn is equal to two 36's, which is the door size we started to fit in; in Plate 2, Column C, the 96 is equal to 60 plus 36. Also, 240 is equal to (¼ of 240) 60 (Plate 2, Column C) and (¾ of 240) 180 (Plate 3, Column C). The 60 again is equal to 36 plus 24 and the 180 may be subdivided at will. With the aid of the Number Pattern a designer can quickly find all the possible ways of using given standard size products to fit a given wall opening. This property of the Pattern will enable the designer to choose from many possibilities; at present, one is often so surprised when a workable answer is found that it is used at once. With the Pattern, the final choice may be made for esthetic reasons and not chance arithmetic.

Any manufacturer looking at this stock of dimensions must wonder where to begin in order to work within the system. Various approaches have been developed which appear to satisfy the following requirements, which were set up as a guide to study the application of the Number Pattern to industry.

1. Products should be designed for efficiency in manufacture and assembly.

2. They should have pleasing proportions and shapes.

3. They should fulfill their normal functions, i.e., keeping out the weather, etc.

4. They should utilize the inherent properties of the materials from which they are made.

5. They should be dimensionally compatible with other products selected from the Number Pattern.

One example of the way a manufacturer may use the Pattern follows:

To develop a range of panel sizes, a manufacturer will select the largest size on the Pattern to which his product may be produced efficiently. Using 96″ as an example of the largest economical size for a range of panels, we would divide the 96″ in half, into one third and two thirds, and into the additive pair of the Fibonacci series *(Figure 4)*. And so this small range of product sizes contains the three series, the essence of the entire Pattern. If at this stage we accept the possibility that the "fitting in" tolerance of the panels can equal the cut, then all the sizes of this family may be cut from a 96″ stock size without waste. From 96″ upwards, these six sizes can achieve every 4″ interval; or as 96″=two 48's and 64″=two 32's, only four sizes are really needed to achieve every 4″ interval *(Figure 5)*.

The 72″ family *(Figure 6)* will allow every 3″ interval to be achieved and the 60″ family will allow every 2″ interval to be achieved above 90″ *(Figure 7)*.

Of the three groups shown, it is interesting to notice that any two groups have two common sizes, i.e., 96″ and 60″ have 36″ and 60″ in common; and 60″ and 72″ have 36″ and 24″ in common. These relationships should give some insight into the way in which different sizes may be used together.

The flexibility of a composite group selected from a few families to give inch flexibility is shown *(Figure 9)*. This is not important for the normal planning of spaces, but as soon as wall and col-

Figure 4

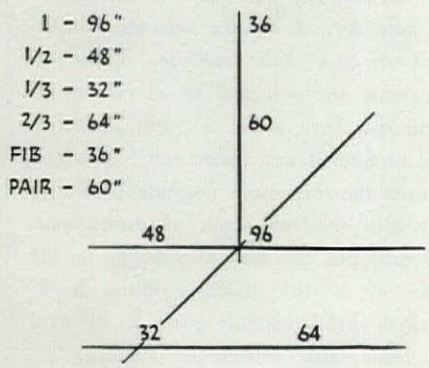
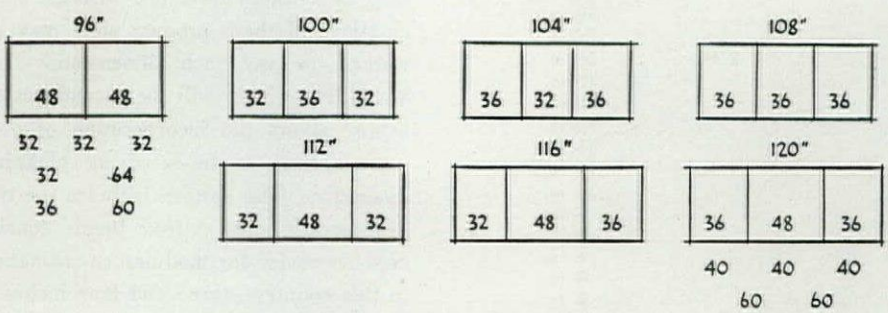


Figure 5



umn thicknesses enter into a problem it is difficult to have too much flexibility. The sizes are 20″, 24″, 27″, 30″, 36″, and 45″; how the column thickness may vary by one in. is also demonstrated *(Figure 9)*.

Now, let us look back to the English school systems with their various sizes. The use of the 72″ group of sizes shown *(Figure 7)* enables one to work with the traditional 9″ brick and the two main school grids as well. The sizes 27″, 36″, 45″, 72″ are multiples of nine inches. The 8′-3″ primary school equals two panel or window combinations—36″-27″-36″—and—27″-45″-27″. The 40″ grid is most frequently used in groups of three using a 10′-0″ structural grid, and from the same 72″ family we have 48″-24″-48″, 72″-48″, 24″-72″-24″, and 36″-48″-36″.

This type of flexibility enables the architect to co-ordinate the best components of many different manufacturers into a single building. It should not be necessary to use a more expensive and less efficient window range to work with what is considered to be the best structural system, as is now the case in England.

The Number Pattern also allows much freedom in proportion. It contains certain relationships which have not been used in the past and most of those which have been used. These relationships, moreover, are contained in a way that allows for industrialization. With time, we may be able to learn new freedoms within this discipline, as music has done so markedly during the past 60 or 70 years. Rhythm in architectural design today is frequently little more than simple repetition—for example, in making up a size represented by 48 from two 24's, three 16's, or four 12's. In the light of the Number Pattern, however, it becomes easier to see that other rhythmic patterns are freely available within the discipline; e.g., 30 plus 18, 16 plus 32, 12 plus 16 plus 20, 12 plus 18 plus 18, and so on.

This prospect of increased rhythmic freedom is important. Successful composition implies orderly relationships and a known basis of order has always been important for any kind of composition. In music, frequencies are classified and the notes are combined in a consciously related manner, but musical variety would not be so extensive nor composition so powerful without a flexible basis of order. Much the same is true of architecture. What is proposed here is a basis of order providing for the sizes of components and a related, flexible framework within which to plan and design buildings.

This explanation has of necessity been no more than an outline of the results of the research program carried out at the Building Research Station. Much of this material has been taken from *The Modular Number Pattern*,* a book that goes into many of the specific problems of product design, etc., and explains in detail all of the material that has been briefly presented here.

The authors wish to acknowledge the part that William A. Allen and the rest of the research team at the Building Research Station played in developing these ideas.

* *Published by Alec Tiranti Ltd., 72 Charlotte St., London, W.1., England. Ehrenkrantz was the author.*

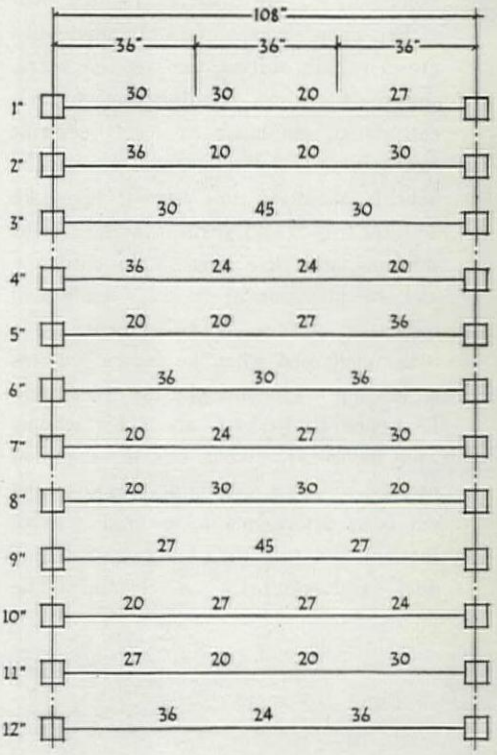


Figure 9—

Figure 8—pattern numbers are stamped on three plastic plates of convenient size—4″ x 3″ with ½″ air space between—to simplify use of system.

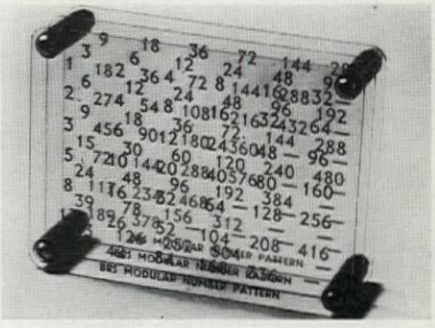


Figure 6

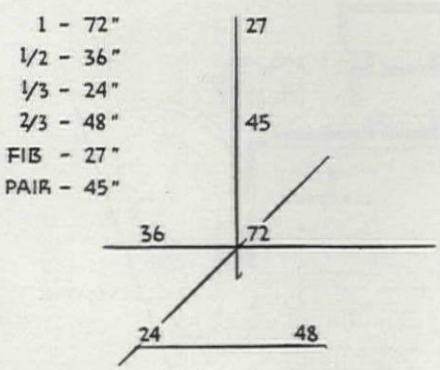
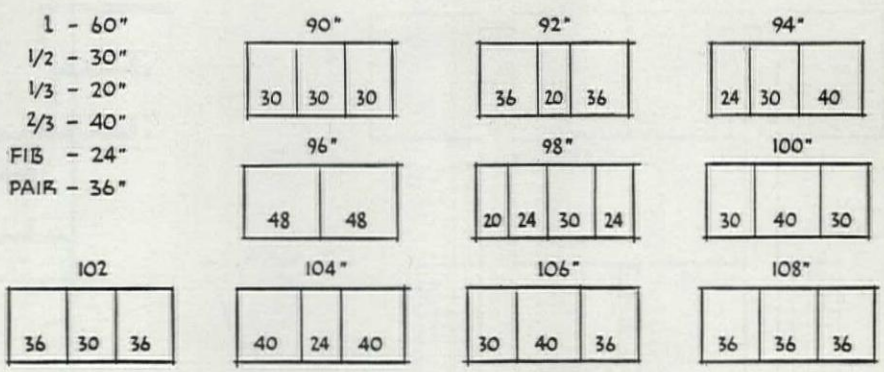


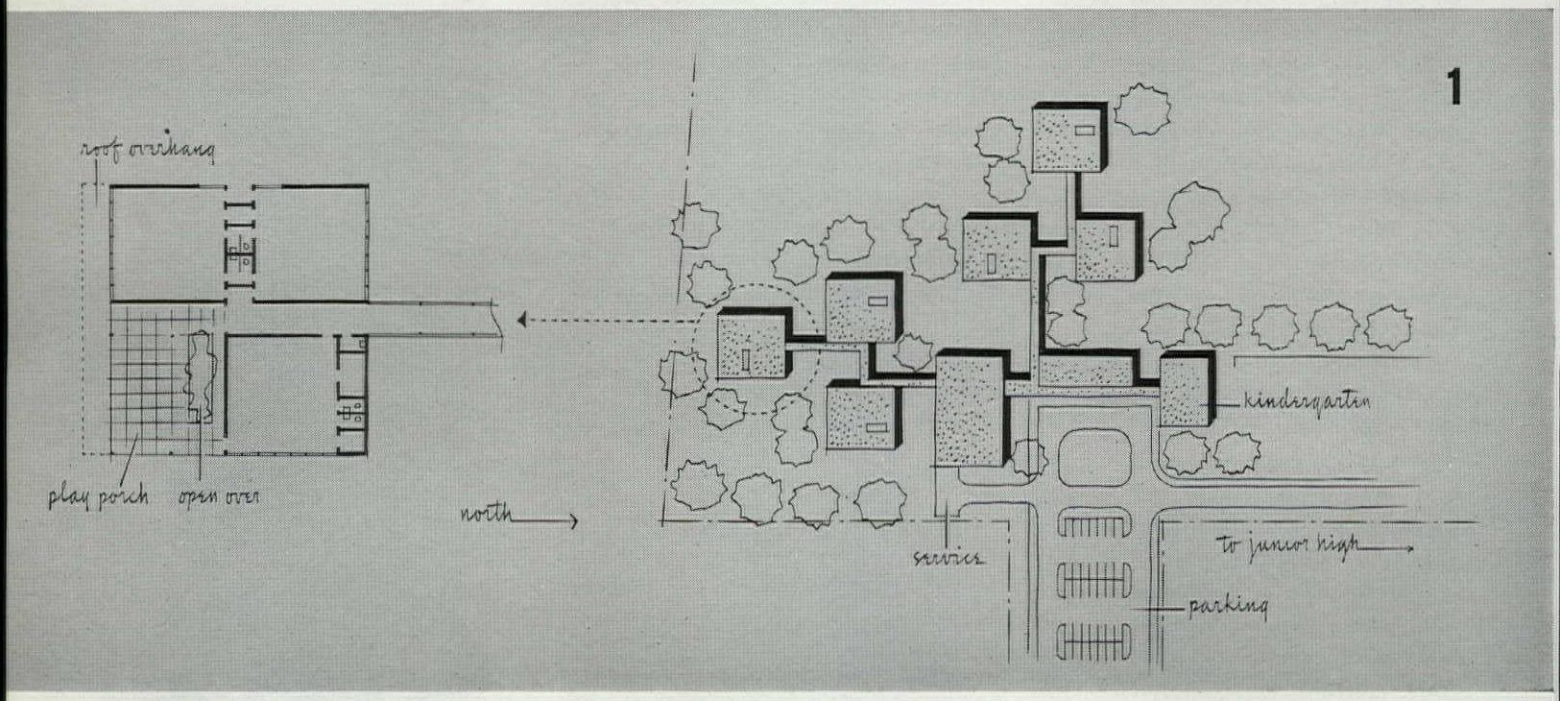
Figure 7

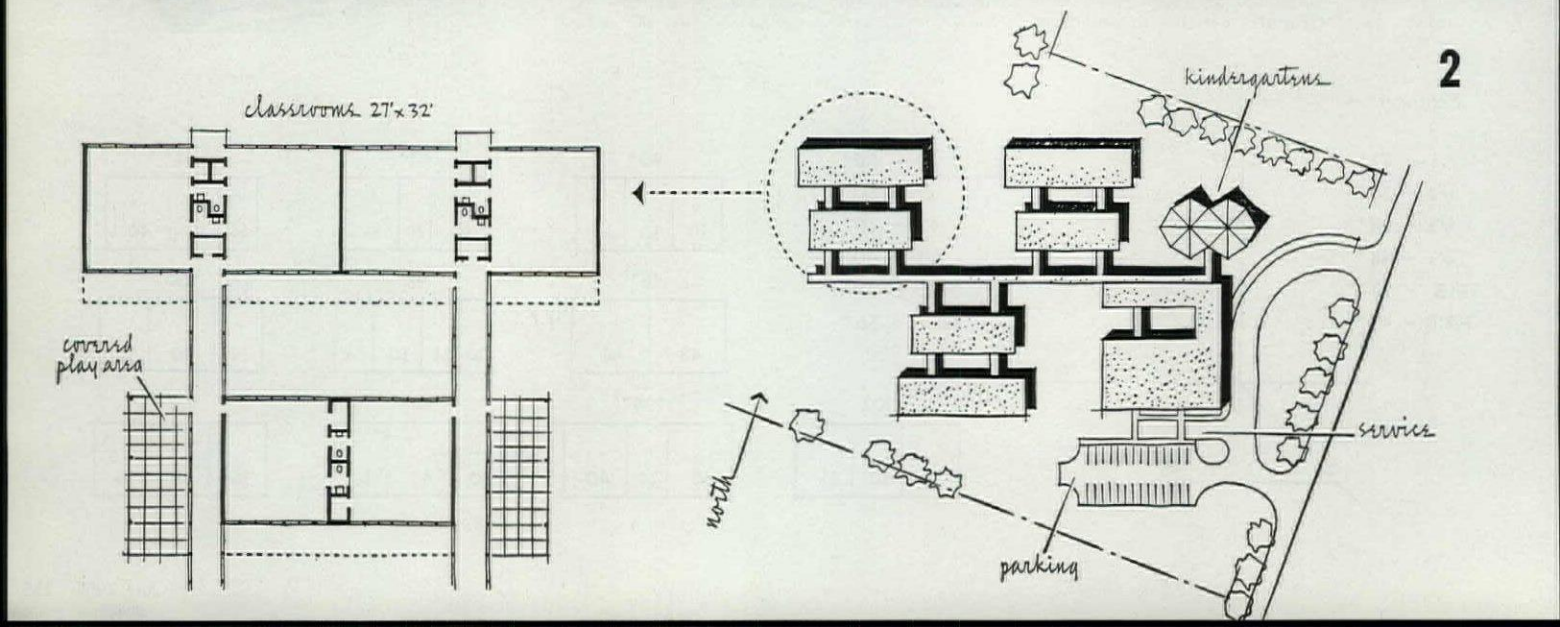


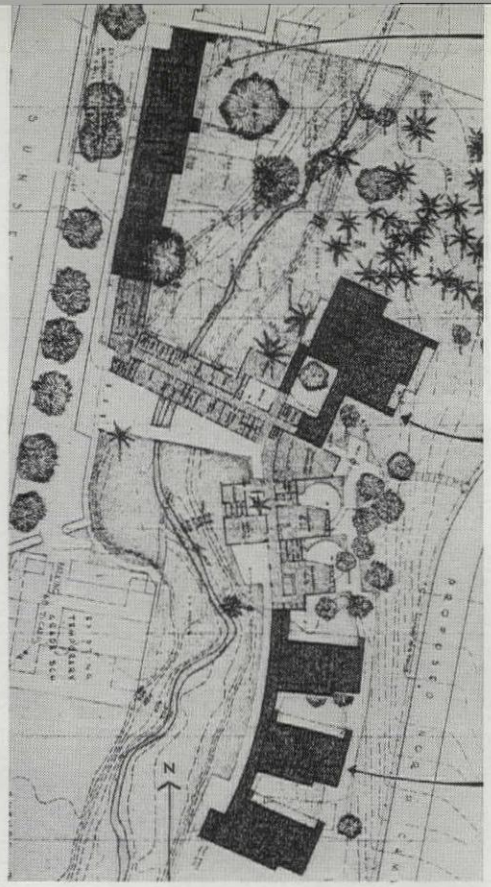
by I. M. Reese and E. A. Bennett

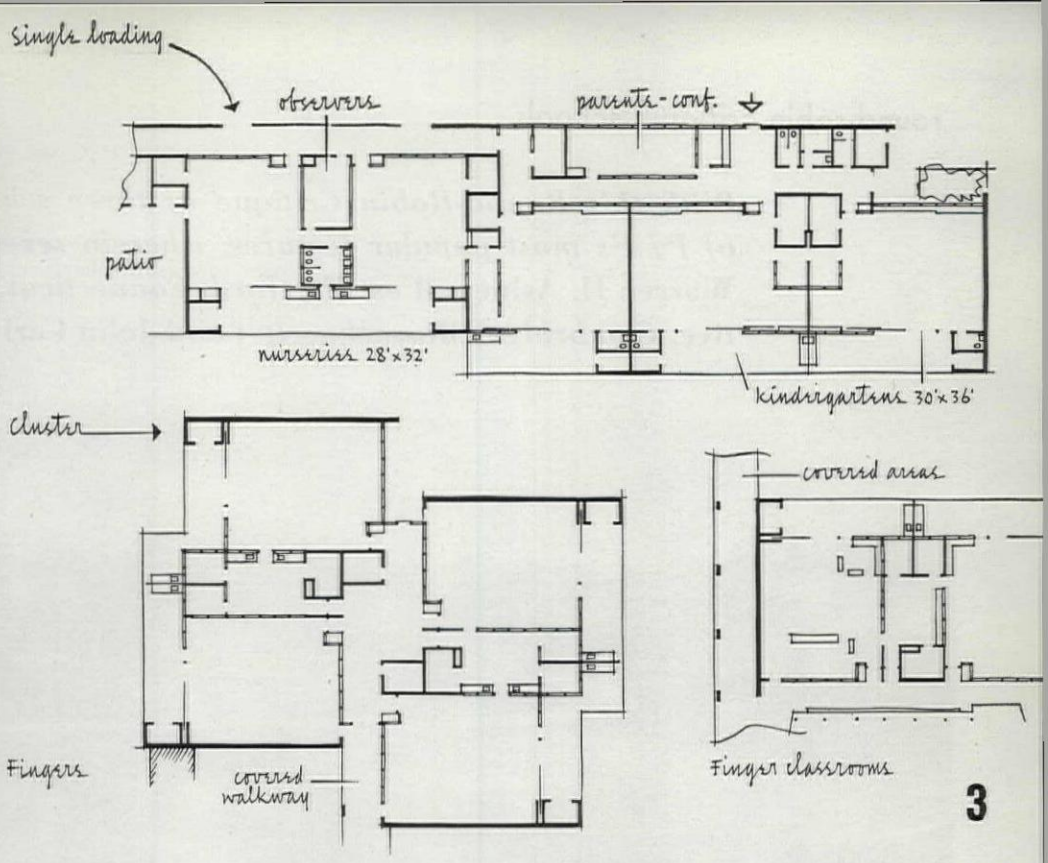
classroom planning

Popularity of the dispersed school plan —the open and informal plan—has grown rapidly during the last few years, and parallels the popularity of today's educational emphasis on least restraint and maximum self-expression for pupils. School planners now stress homelike atmosphere, "child scale," inviting color schemes, attractive views of the outdoors, and the provision of open-air study and recreation spaces. "The student never feels unchained when he leaves," writes a leading exponent of this viewpoint, Lawrence B. Perkins, about his schools (*see* REVIEWS). What has been gained pedagogically is debatable and has not yet been determined to everyone's satisfaction. But that we have gained a good deal architecturally is certain. The schools shown here demonstrate particularly well the careful thought being given to the details of classroom planning—arrangement of furniture, service considerations, and relationship to outdoor study and recreation spaces. Schools **1**, **2**, and **4** are almost identical in basic facilities—all three have the same number of classrooms. The only variants are the number of kindergartens provided and the extent of administrative and ancillary spaces. Valley Woods Elementary School, **1**, designed by Eberle M. Smith Associates Inc., is to be built on a heavily wooded site. Since existing trees were to be respected the cluster plan was a logical answer. Harlan School, **2**, by Smith, Tarapata, MacMahon, Inc., distributes 600 pupils among three six-classroom units. Buildings connected by light, airy passages hug two sides of a hill. Pennsbury Heights Elementary School, **4**, by Bellante & Clauss has 18 classrooms, three kindergartens for 690 pupils. Each of five classroom clusters has its own multipurpose room. The program for the elementary school on the campus of the University of California, **3**, departs somewhat from the usual program. Neutra & Alexander were asked to add a number of classrooms to the existing school. Following requirements, varied classroom types were to be designed to illustrate teaching methods to university students. Thus three classroom types appear—the finger plan, the cluster plan, and the single-loaded corridor plan.









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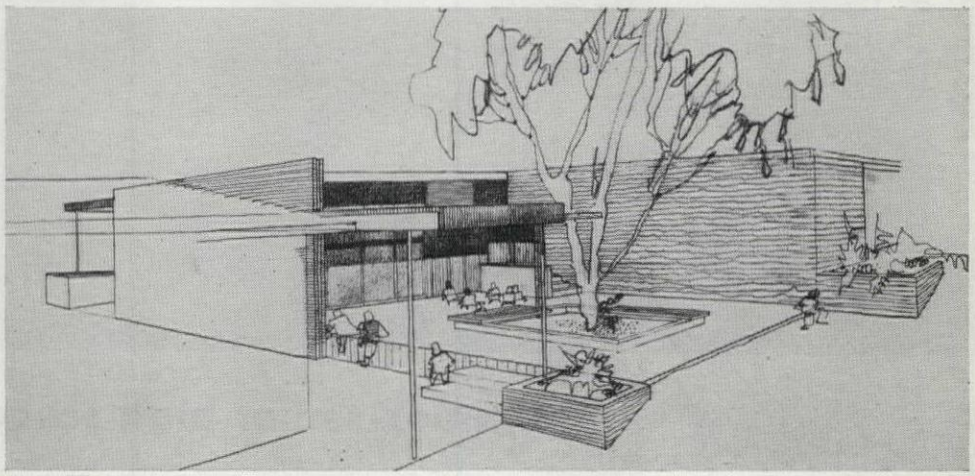
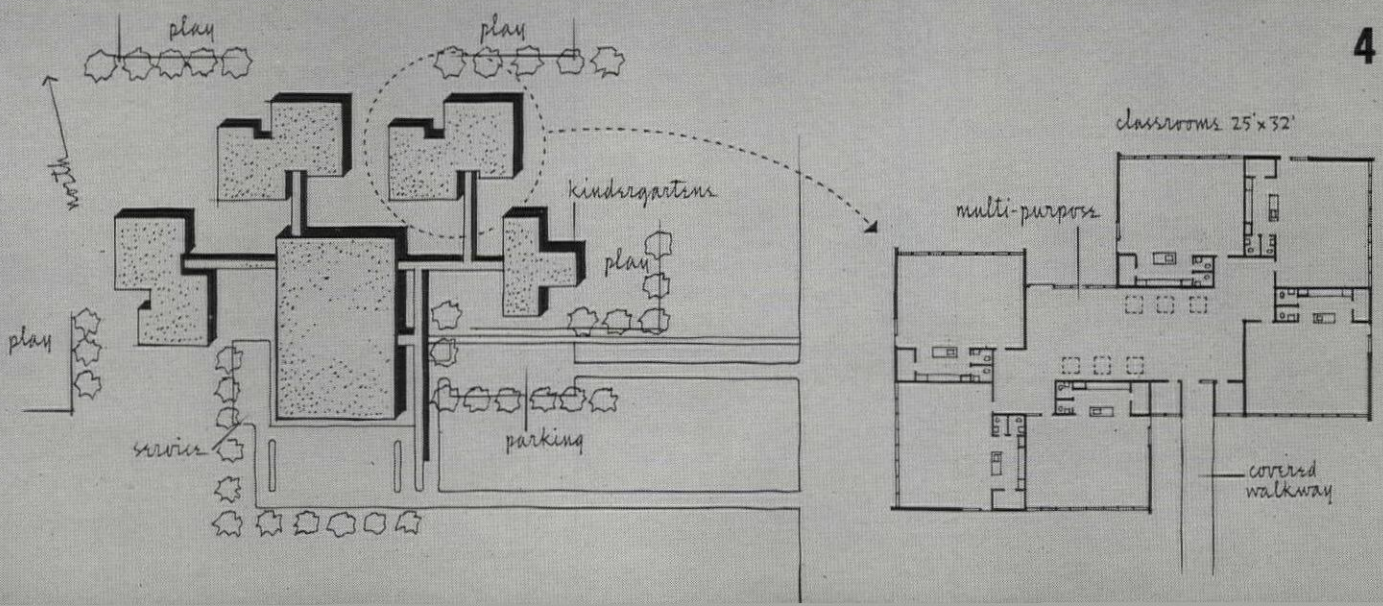


All site plans approx. 200' per inch, detailed pull-out units approx. 25' per inch.



4

With this Round-Robin Critique of three schools, we re-introduce one of P/A's most popular features, wherein several architects—in this case,* Warren H. Ashley, *West Hartford, Connecticut;* The Architects Collaborative, *Cambridge, Massachusetts; and* John Carl Warnecke, *San Francisco,

junior-senior high school

PROGRAM A 600-student, junior-senior high school, to be built in stages. Requirements: best possible educational facilities; most economical cost.

SITE Practically level land adjacent (toward the west) to existing, two-story school.

PLAN Rectangular administrative, multipurpose and special classroom unit; gymnasium; series of circular classroom clusters, all units joined by covered walkways; 84% of total area used for educational purposes; each building with own heating plant; central mechanical core in each cluster.

COST $13.39 per sq ft.

comment and rebuttal

"The buildings have been placed in a generous way upon the site," remarks one critic, "so that outlook from all rooms is pleasant."

In plan, "we feel this is a very nice handling of the cluster-plan type of school. There is a pleasant sense of scale achieved by the clear expression of the small units."

While relation of buildings and site is sculpturally attractive, the plan "has the effect of breaking up the site into many small and inefficient pieces."

"In my opinion," says Ashley, "the site is broken up into some small, but efficient, study areas. We have found that when you provide good outside study areas, the teachers and pupils use them."

"I question having the principal access to student areas pass through the administrative area of the school."

"I do not believe that this is a real problem in this school, because it is a small school. . . . I feel that a group of buildings like this should have one central or common building to tie the whole group together, such as the administration building does here. . . . By passing through this common area, pupils go out to their individual areas to do their work. I believe we have a problem in present-day schools of developing the individuality of the pupil and also of teaching them to work together as a large group. The circular buildings are such that they will help do this—areas where the individuality of the students is developed. The administration building and the gym are centers for development of large group work."

"We could find lockers in the administration building and in only one cluster. Are these the home base for all pupils?"

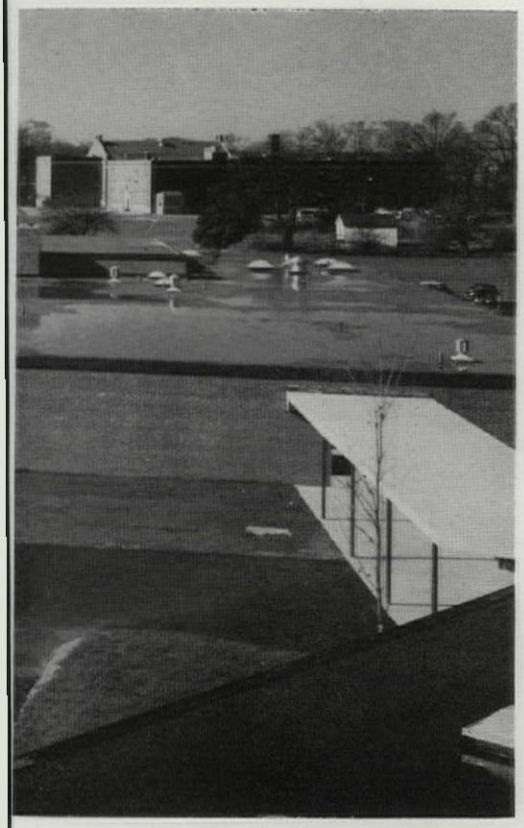
"In the other buildings, we used simply cubicles with hooks and hook straps below, and this has proved to be more successful. . . . In the future units, cubicles will be installed."

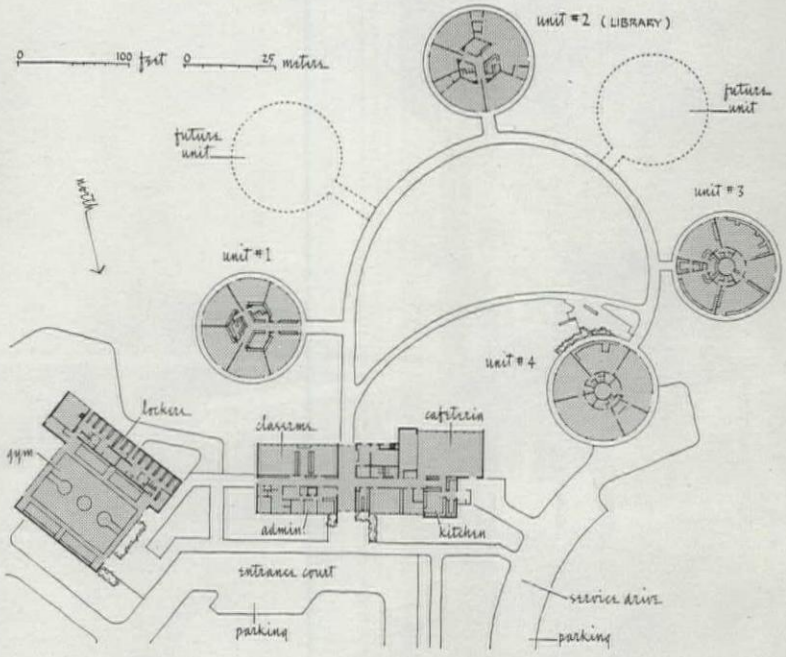
"Why are some classrooms in the administration block?"

"These are the business-education classrooms . . . the school staff felt that business education should be next to administration."

"The circular classroom-unit scheme is imaginative and highly successful in Unit 1, but forced in some of the other units . . . It is unfortunate that access to the storage, preparation, and mechanical areas must be through the class-

California—evaluate and criticize each other's work. After the analyses were made by the participants, each was sent to the originating architect for explanation and rebuttal. From this comes some of the liveliest—and we hope most valuable—discussion to appear in the pages of P/A.





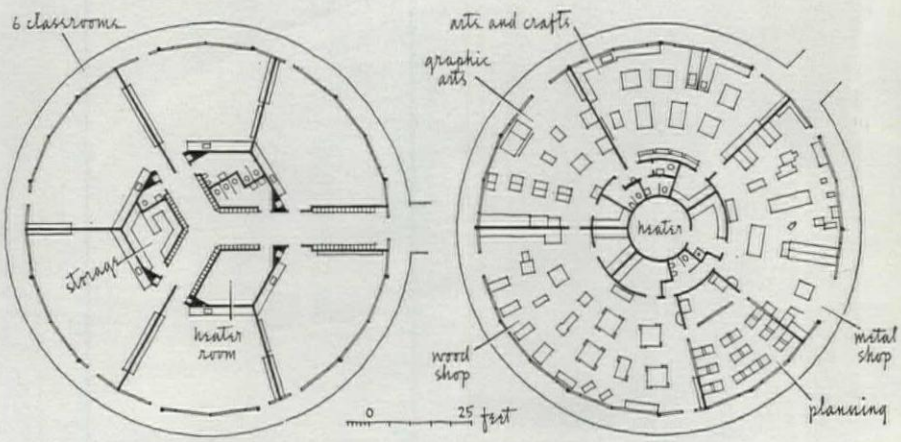
location	Old Saybrook, Connecticut
architect	Warren H. Ashley
site planner	Charles Currier

room area, and that classroom access passes the windows of other classrooms by way of an open, covered walkway."

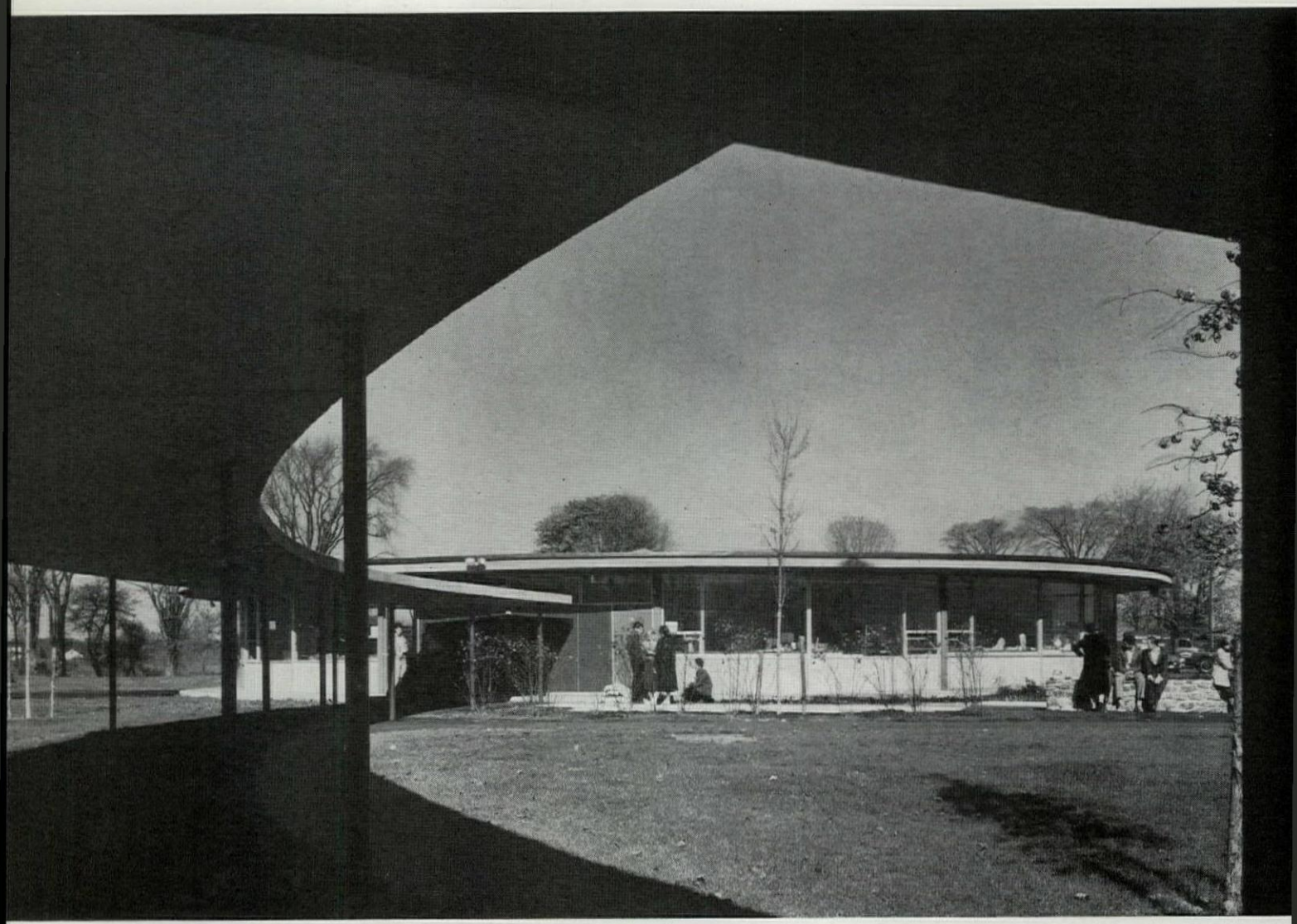
"I can see no objection to access to storage, preparation, and mechanical areas being through the classroom area, because all supplies delivered to the storage area will be made when school is not in session. . . . That classroom access passes the windows of other rooms is, in our opinion, not unfortunate, but a very desirable feature, because it makes the school a living-learning laboratory where other pupils can see what is going on in other courses."

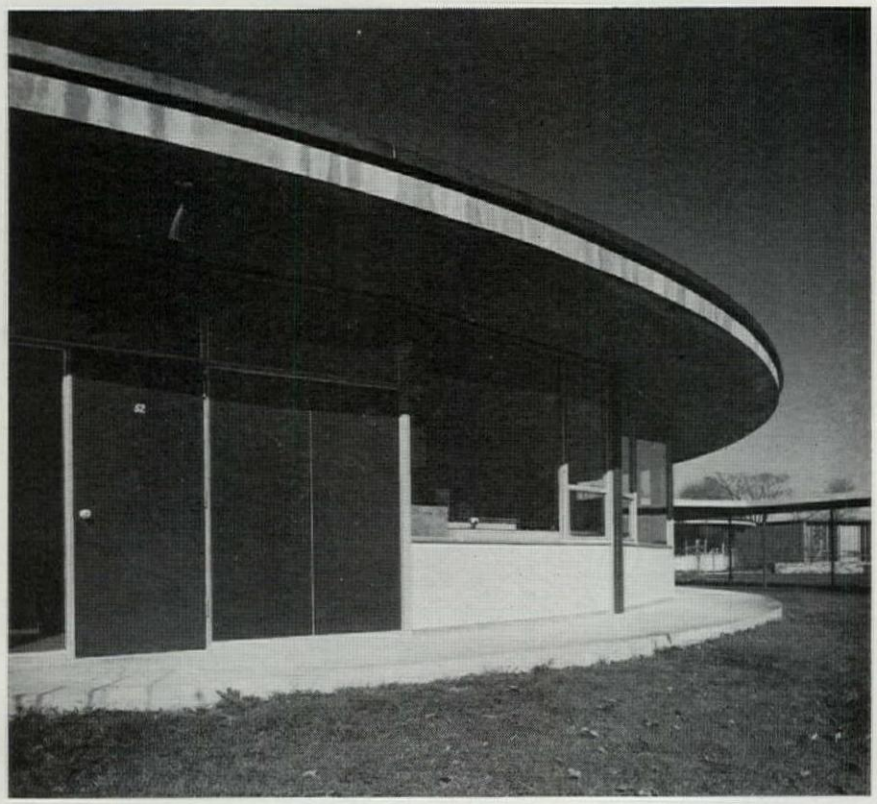
"The pie-shaped teaching areas focus attention effectively but cause the teacher to face a bright glass façade."

"The only teaching areas which cause the teacher to face the glass are the labboratories, where the demonstration desk is at the inside wall of the room. All other classrooms have chalkboards on the end walls of the room so that the teacher, in most cases, teaches on one of the side walls."



PLAN OF UNIT #1 PLAN OF UNIT #4





The architect feels that the shape of the classroom buildings and the rooms within "gives pupils and teachers a real feeling that they are working together as a team, rather than individuals shut off in little cubicles on either side of a corridor."

Engelhardt, Engelhardt & Leggett were Educational Consultants; Marchant & Minges, Engineers; and Torrington Building Company, General Contractor. Photos: Joseph W. Molitor

Reason for selection of the lift-slab method of construction for the round clusters was for economy, to reduce labor costs to a minimum. "We felt that with more conventional construction, the shape of the buildings would require a lot of cutting and fabrication; but the concrete could be done by just pouring a form around the perimeter of the building." After the slabs were lifted, the soffits were left in their natural rough state, and asbestos acoustical ceiling surface was sprayed on. Again, to keep costs down, "there is no exterior painting in the entire project, except for the doors." Partitions between classrooms are wood stud, surfaced with pressed-wood panels, to which cork is cemented. "Each wall is a live wall that can be used for bulletin board."

MATERIALS AND METHODS *Frame:* steel columns and lift-slab roofs in classroom units; steel beams and columns in administration-multipurpose building; steel columns and joists in gym. *Exterior walls:* brick curtain wall; glass; porcelain panels. *Interior walls:* sand block, plaster, cork. *Floors:* asphalt tile, maple, concrete. *Ceilings:* sprayed asbestos in classrooms; acoustical tile in corridors; aluminum panels in kitchen and lockers. *Sash:* hot-dipped galvanized steel. *Lighting:* incandescent mainly, but fluorescent in special instruction areas. *Heating:* forced warm air, with individual plant in each building.

comment and rebuttal

General applause greeted the structure of the round units: "We liked the structural handling . . . the round form seems to lend itself well to lift-slab construction," said one. "The advantageous use of lift-slab construction shows every appearance of close co-ordination between Architect and Engineer," said another. "The structure has a light and crisp quality."

One of the critics was equally pleased with the use of materials: "conservative and well ordered," said he. "The general effect of the masonry and glass is one of solidity."

"Why is sun protection (by roof overhang) desirable in the classrooms in the round clusters, but not in the administration building?"

"I concur," replied Ashley, "that it would have been desirable to have a roof projection on the south side of the administration building."

"Do the galvanized-steel sash really look sufficiently finished when unpainted?"

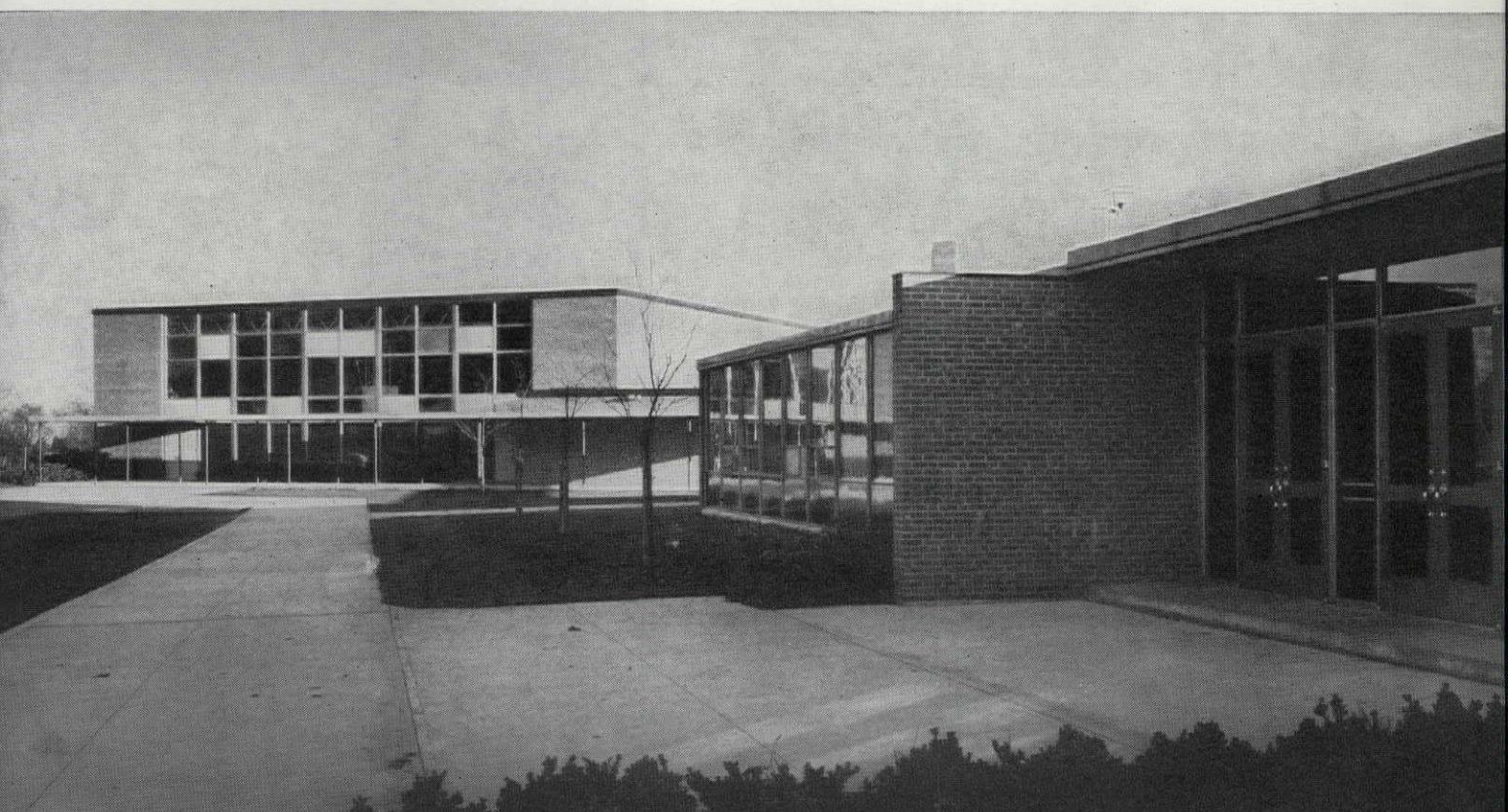
"Unpainted, galvanized sash are not bad, but of course they are not as attractive, esthetically, as painted, but I do feel that they are definitely acceptable; and if money has to be saved, this is a logical way to save it. The owners can always paint them in the future, if they wish to do so."

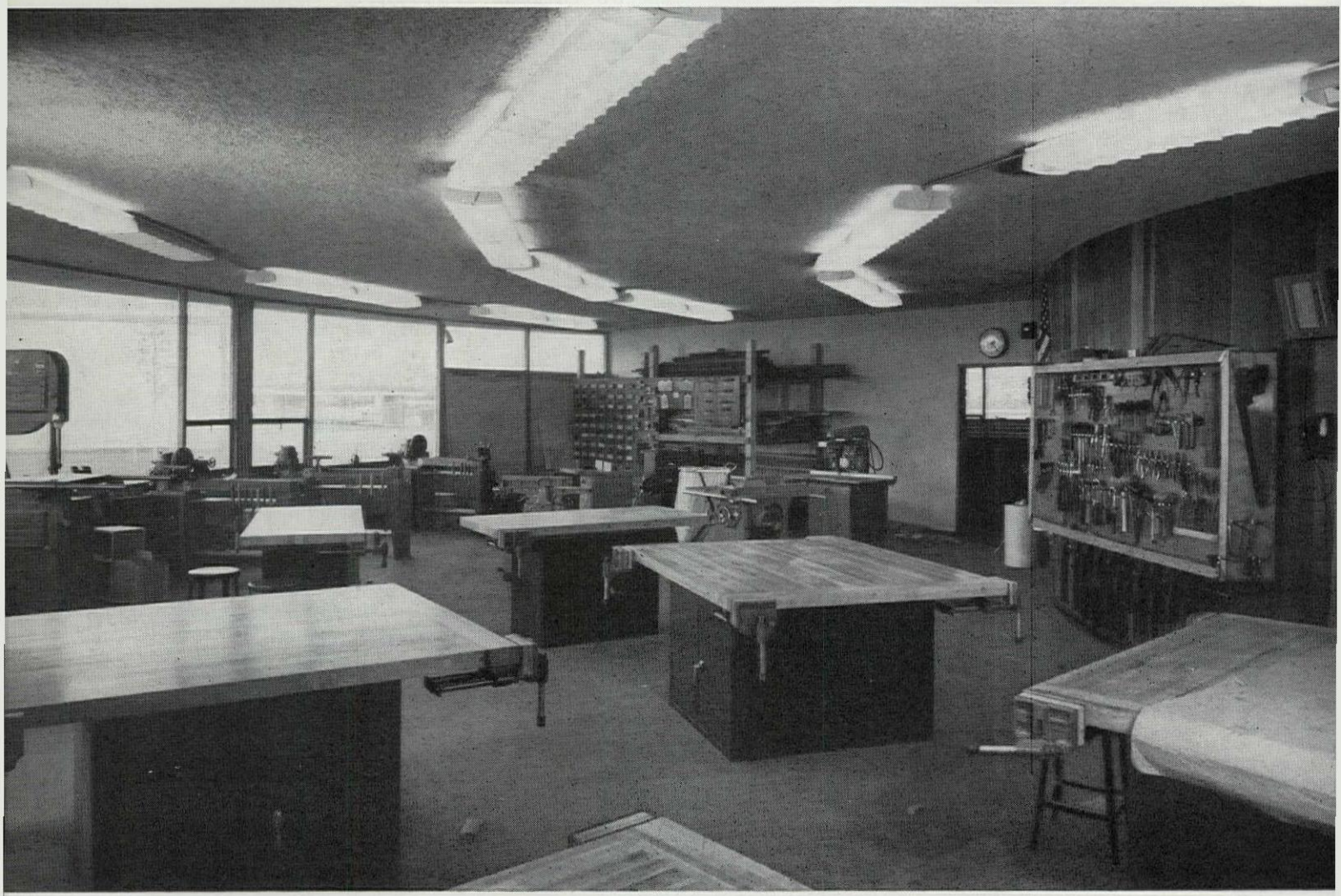
"Is there any source of heat along the window wall? It would seem particularly desirable in this shape room."

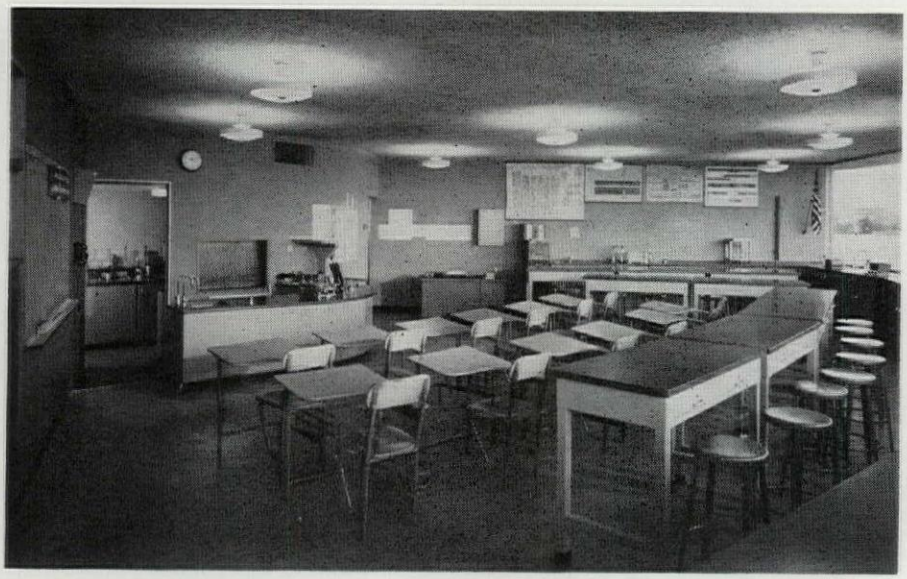
"No. Heat is supplied high along the inside wall and is returned through the doorways into the central corridor, which acts as a plenum chamber, and then into the air heater again. The system has been in operation a year and gives satisfactory distribution of heat."

"We wondered whether one of the great advantages of the campus-type plan —namely the ease of adding to any unit to meet changing educational requirements—has not been lost by using the circular buildings."

"If you are going to add to any one unit . . . a rectangular unit is better. However, in this case, if additions are to be made, they will be made by using more circular units. . . . If the school population doubles, the logical thing to do would be to build another school the same size as this one."



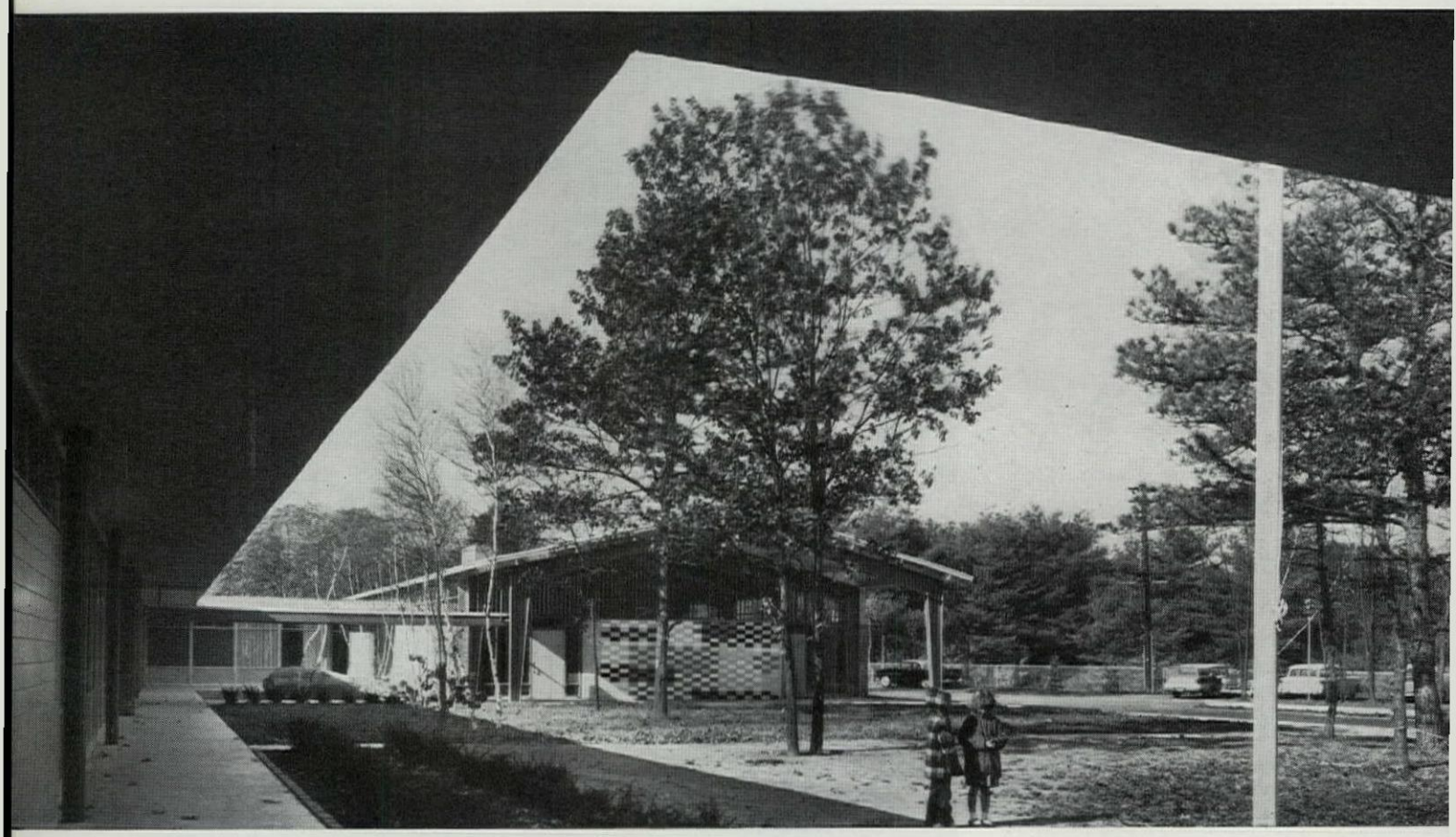




One critic felt that the problems of the round shape were emphasized in the arrangement of the fluorescent fixtures in the shop section (above). *"Incandescent lights seem to work better," he opined. The other critic, however, commented: "The lighting fixtures give effective emphasis to the round forms."*

"It was not clear to us why a different structural system was used in the administration building and gym, from that used for classroom clusters," said one.

"We used lift-slab in the units because we felt this was the most economical method," replied Ashley. "In the gym and administration building, we used steel because we felt that for the size and shape of these buildings, steel would be most economical. . . . I do not see the need for using the same structural system throughout a group of buildings."



elementary school

SITE Irregular piece of land, without street frontage; permanent right-of-way across adjoining land of Sudbury River aqueduct used for entrance; grading kept to minimum to save trees.

PLAN Kindergarten of 2 rooms; lower-grade wing of 4 rooms; wing of 8 rooms for grades 3, 4, 5, and 6; two multi-purpose rooms—auditorium-cafeteria and playroom-gym; administration; health unit; library. Plan developed to provide variety of outlooks and orientations. Classrooms face south, east, and west.

comment and rebuttal

"Effective use is made of the trees on the site without any forced effects," applauds one critic. "The several faces of the school present equally interesting and satisfying designs."

One co-critic commented that the plan "sets a high standard," especially highlighting the segregation of grade-level groups; centralization of common activity areas; efficient ratio of corridors to net area; and "the attractive and varied courts and 'open' feeling of the school in general." The other found the school "attractive, well planned, functional."

"What about the common circulation area for both administration and classrooms, and the apparent disregard for sun and glare involved in the diverse orientation of the classrooms?"

"In a school of this size," says TAC, "we did not feel that common-use of a corridor for administration and classrooms was detrimental. We have had no adverse comment." As to the point about glare, "sun control is obtained with a 6-ft projecting roof, plus roll shades that pull up from below and cut off only direct sunlight."

"I think it would be better to get away from . . . desks set in orderly rows . . . I believe that school would be a more fruitful experience if buildings were built as living, learning laboratories and classrooms opened up more to corridors so that pupils passing through corridors could observe others' activities."

"Actually, the rooms are planned for a variety of desk arrangements and, in fact, are used with variety and imagination by the teachers . . . Opening of classrooms to corridors is certainly a nice idea. It is expensive in Massachusetts because the Law requires that all glass between corridors and classrooms be wire glass set in metal frames, and not to exceed 7 sq ft per pane."

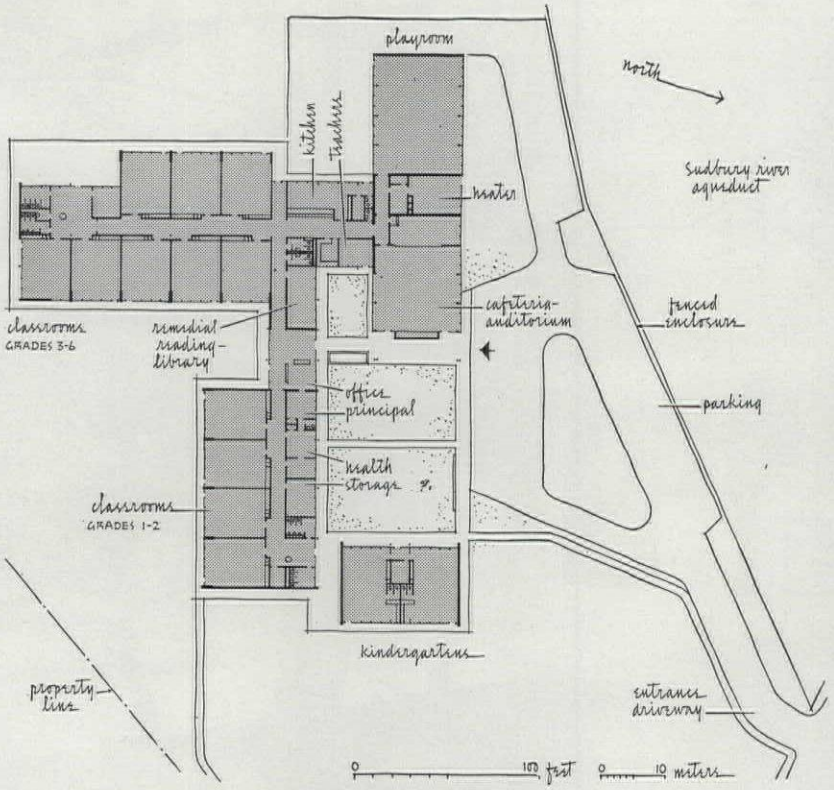
"The apparent conflict between service access to kitchen and multi-use area and normal pupil traffic might be a source of confusion in daily operation."

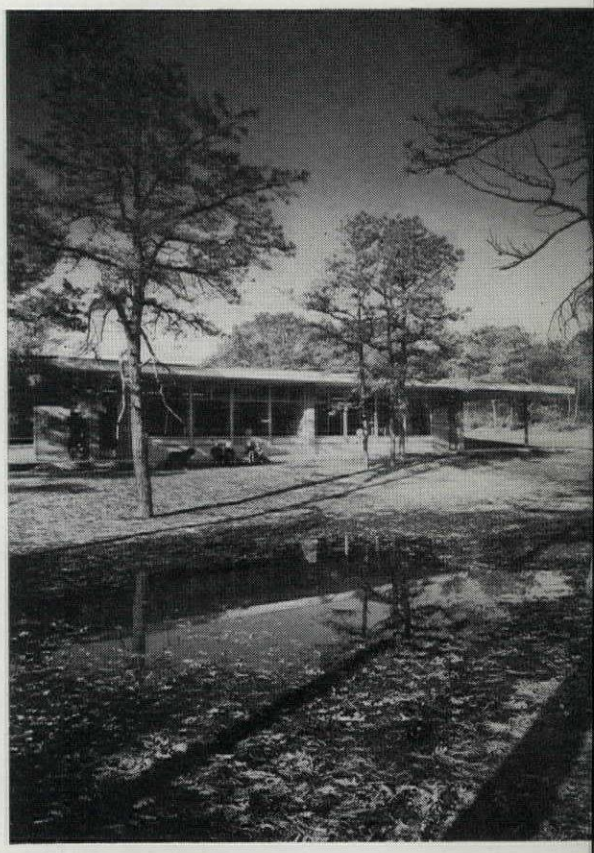
"The criticism . . . is a valid one, although so far it has not caused any serious problem."

"I find no grounds' storage room."

"Ground storage is adjacent to the playfields."

* *Partners: Jean B. Fletcher, Norman Fletcher, Walter Gropius, John C. Harkness, Sara P. Harkness, Robert S. McMillan, Louis A. McMillen, Benjamin Thompson. Associates: Chester E. Nagel, Richard Brooker, Herbert Gallagher, Witold Von Henneberg, Richard Morehouse, H. Morse Payne, Jr.*





location | Needham, Massachusetts

architects | The Architects Collaborative*

MATERIALS AND METHODS *Frame:* concrete-filled steel columns; exposed steel bents in multi-use rooms. *Floors:* concrete slab on grade. *Roof:* lift slab. *Walls:* brick; glazed tile; unglazed tile. *Interior walls:* brick and glazed tile; cypress siding in corridors. *Flooring:* asphalt tile in classrooms and corridors; vinyl-asbestos tile in vestibule, cafeteria, and corridor to cafeteria; ceramic tile in toilets and kitchen; strip maple in playroom. *Ceilings:* concrete slab; exposed and painted acoustical tile. *Sash:* aluminum projected sash; sheet glass; structural plate glass in playroom; wire glass in corridor transoms; plastic skylights. *Lighting:* both fluorescent and incandescent. *Heating:* hot water and unit ventilators. Each classroom has three domed skylights to provide even illumination (except for the corner room—*acrosspage*—which has windows on two walls and a single skylight).

comment and rebuttal

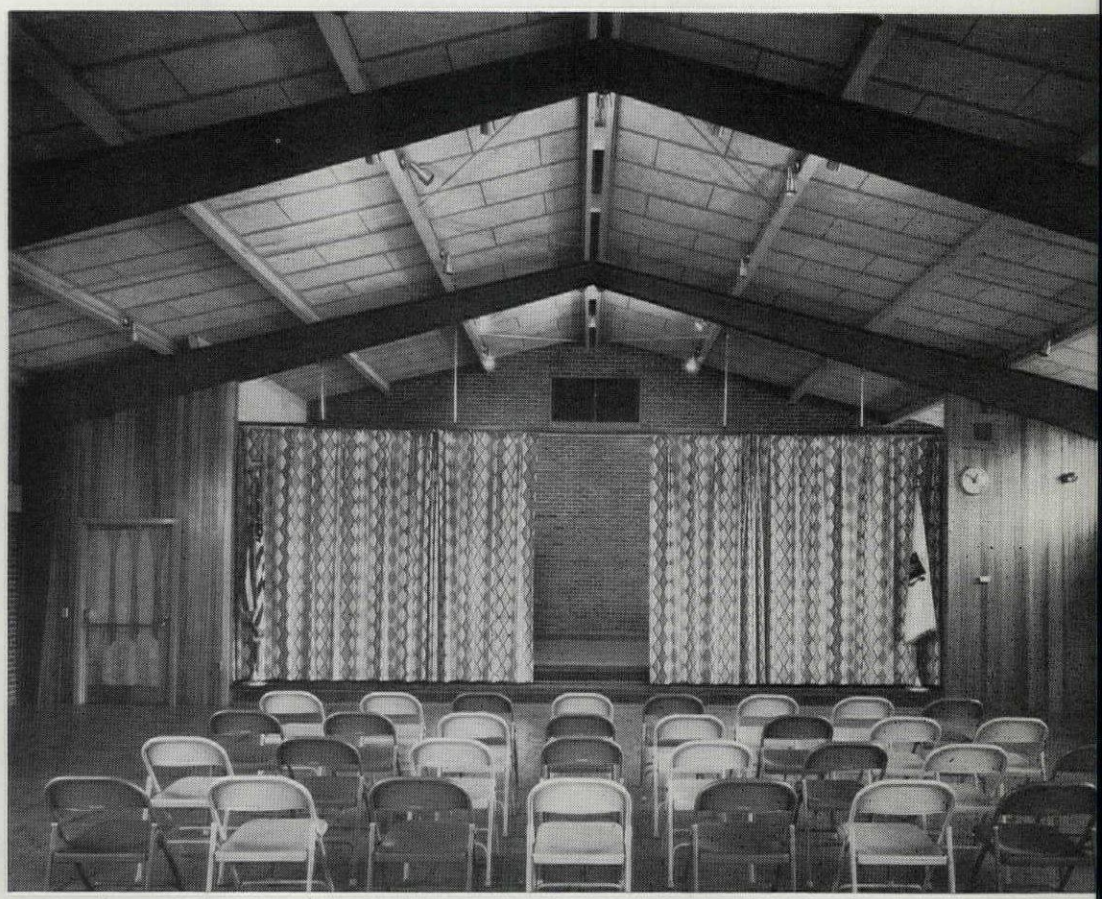
"The lift-slab construction and steel bents show a strong concern for design possibilities and for economy," one critic finds. "The straightforward use of exposed diagonal ties typifies the frank expression of the structural scheme." The other participant notes that "the photographs indicate good judgment used in selection of materials." Pleasant contrasts of color and texture derives from "the bold and crisp use of materials." Viewing the classroom lighting, the comment was made that "the classrooms seem to be guaranteed a good, uniform intensity of light by the combination of natural and artificial light sources."

"The extended masonry piers in the classrooms seem to be without clear structural justification."

"Although the roof slab is carried completely on the structural columns," explains TAC, "the masonry walls do provide lateral bracing."

"Might not the large areas of glass in classrooms pose heating and cooling problems?"

"The glass areas in the classrooms are actually not excessive since only the shorter dimension of the room is exposed, e.g., the classrooms run the deep way, and the ceiling is only 9'-8" high."



Among "the attractive and varied courts" that one critic praised is the one on the south (across-page) *that is used as an outdoor classroom. The central paved area is a step below the bordering walks, which become seating on three sides of the court.*

Structure and finished design are one and the same in the auditorium (right).

Structural Engineer: Edward K. True; Mechanical Engineer: Thomas Worcester, Inc.; Electrical Engineer: R. G. Vanderweil; General Contractor: Sciaba & Company, Inc. Photos: Louis Reens

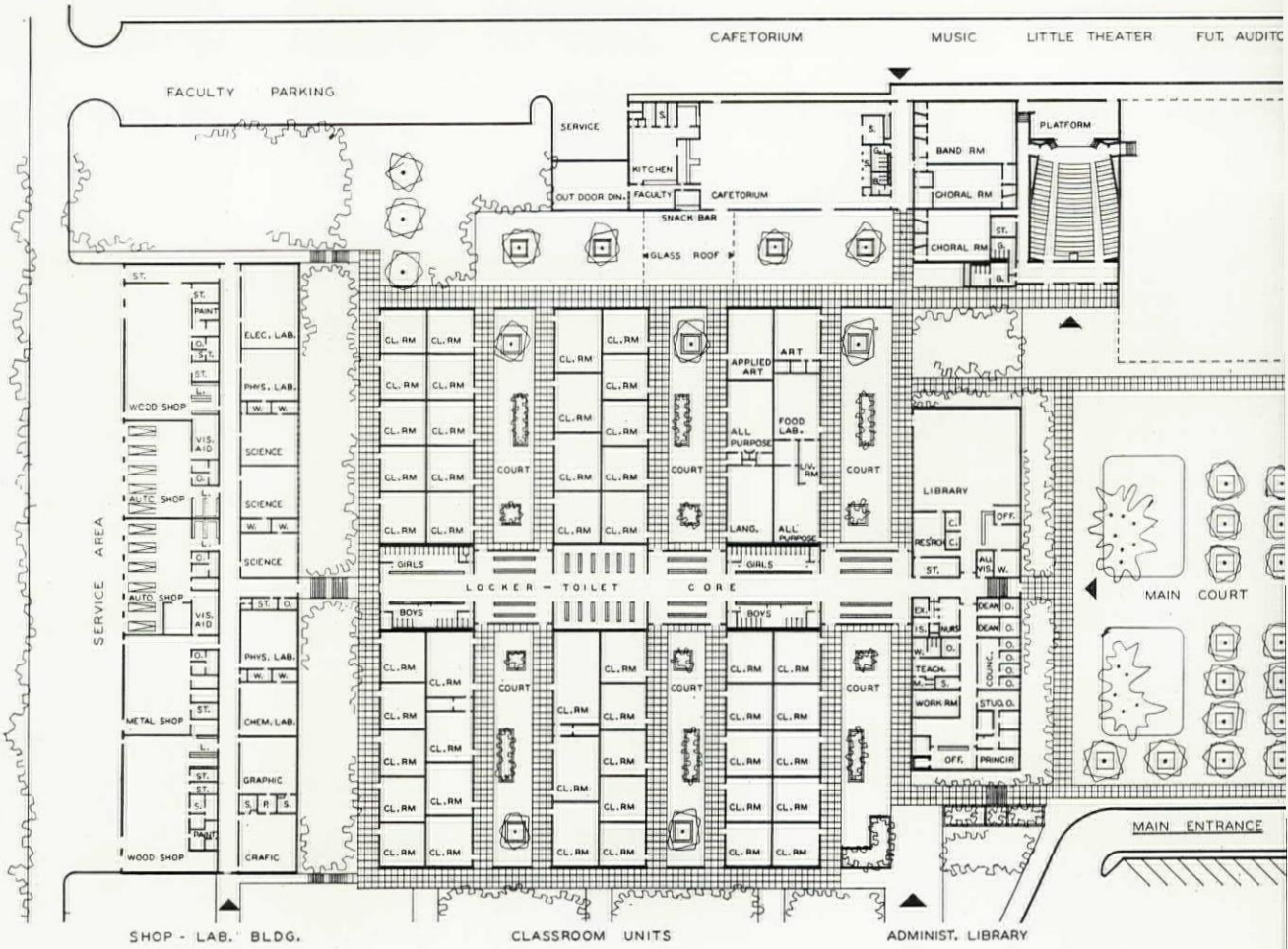

EXIT

Focusing on the colorful tile panel used on the exterior end wall of the auditorium, one critic finds it to be "a nice surprise and well placed for an effective but not overwhelming impact."

In the over-all planning, one participant felt strongly that it would have been a much more exciting and modern scheme "if the units had been separated and made into four buildings. The group has the feeling of being a unit plan which has been pushed together." In reply, TAC comments: "We feel that a cluster plan can be very nice, and this office has done several of them. . . . However, we do not think that there is anything either traditional or modern about a campus plan; it is rather a matter of educational policy. . . . Children are certainly not all alike. We do hope that there is room for more than one idea in school planning."


DE ANZA HIGH SCHOOL

high school


CAFETORIUM
MUSIC
LITTLE THEATER
FUT. AUDITO
FACULTY PARKING
SERVICE
KITCHEN
OUT DOOR DIN.
FACULTY
CAFETORIUM
SNACK BAR
GLASS ROOF
BAND RM
CHORAL RM
CHORAL RM
PLATFORM
ST.
PAINT
ELEC. LAB.
PHYS. LAB.
SCIENCE
SCIENCE
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WOOD SHOP
AUTO SHOP
METAL SHOP
WOOD SHOP
VIS. AID
SERVICE AREA
CL. RM
COURT
APPLIED ART
ART
ALL PURPOSE
FOOD LAB.
LIV. RM
LANG.
GIRLS
BOYS
LOCKER — TOILET CORE
LIBRARY
OFF.
RESRCH
ALL PURPOSE
MAIN COURT
DEAN
COUNC.
TEACH.
WORK RM
STUD. O.
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PRINCIP
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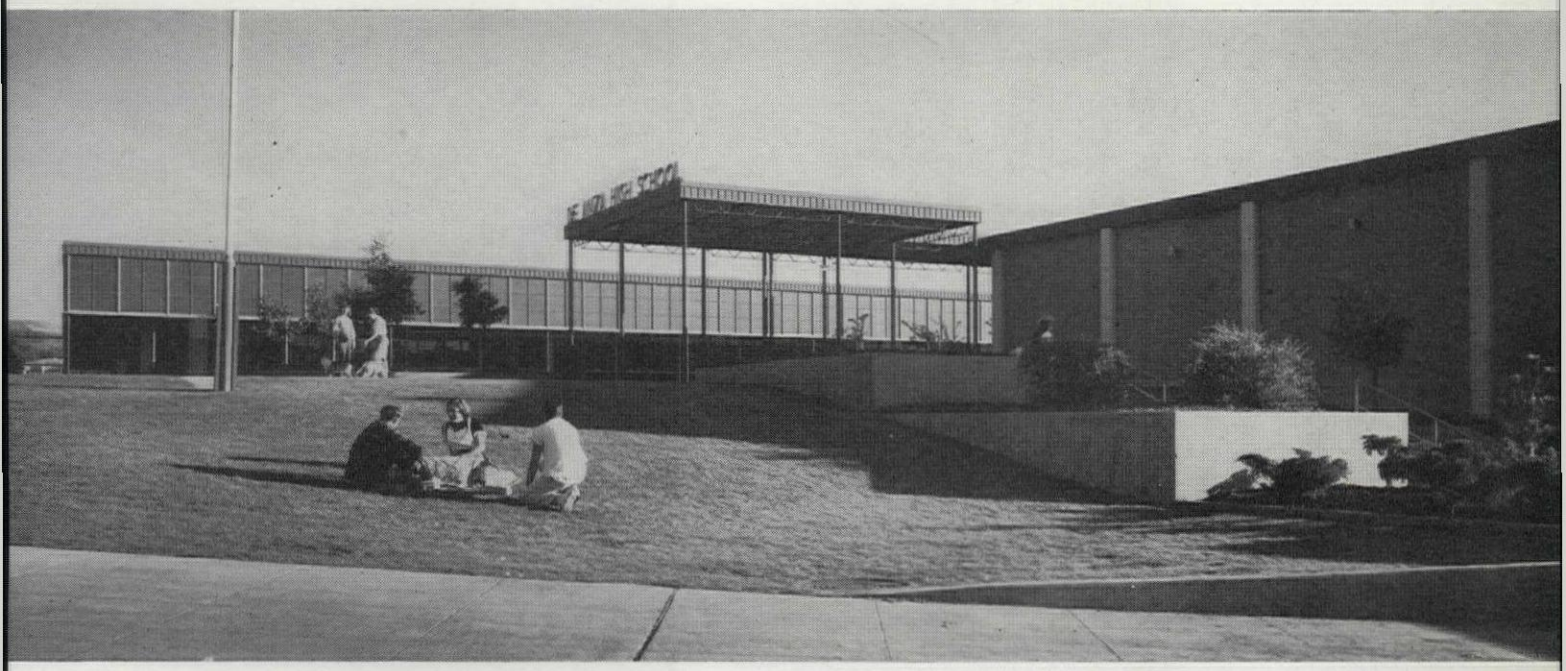
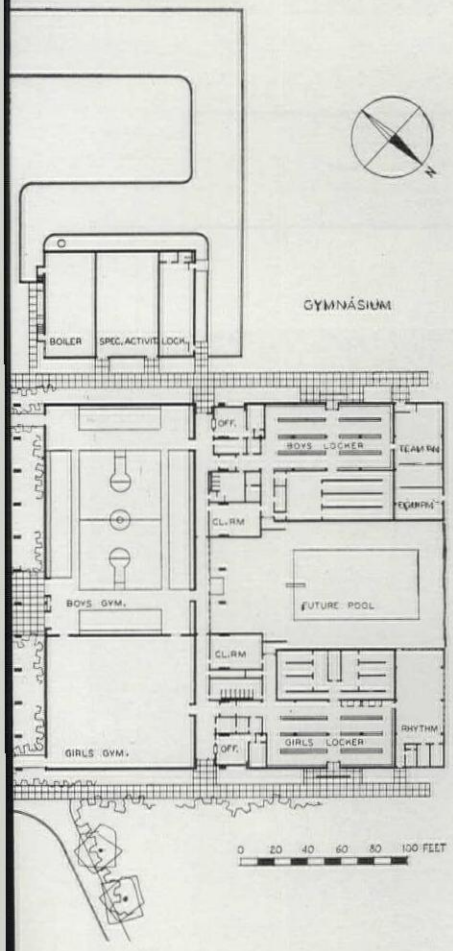
CLASSROOM UNITS
ADMINIST. LIBRARY



location | El Sobrante, Contra Costa County, California
architect | John Carl Warnecke



PROGRAM Initial facilities to accommodate 1250 students—administration; library; 20 general classrooms; 25 special classrooms; 2 gymnasia; 500-seat cafeteria-auditorium; athletic facilities.

SITE 52 acres, with street frontage on one side; only 35 acres considered usable due to irregular nature of remainder.

PLAN Administration/Library unit located at central point on streetfront; classrooms and laboratories placed alongside for easy access; remaining facilities sited to take advantage of existing land contours and to permit logical patterns for both pedestrian and vehicular traffic. Back-to-back classrooms, with tilt-up slab partition construction between; central concourse to protect main circulation areas from the weather and include service areas, lockers, toilets; also to serve for educational exhibits and informal meetings; open corridors used in wing sections.

comment and rebuttal

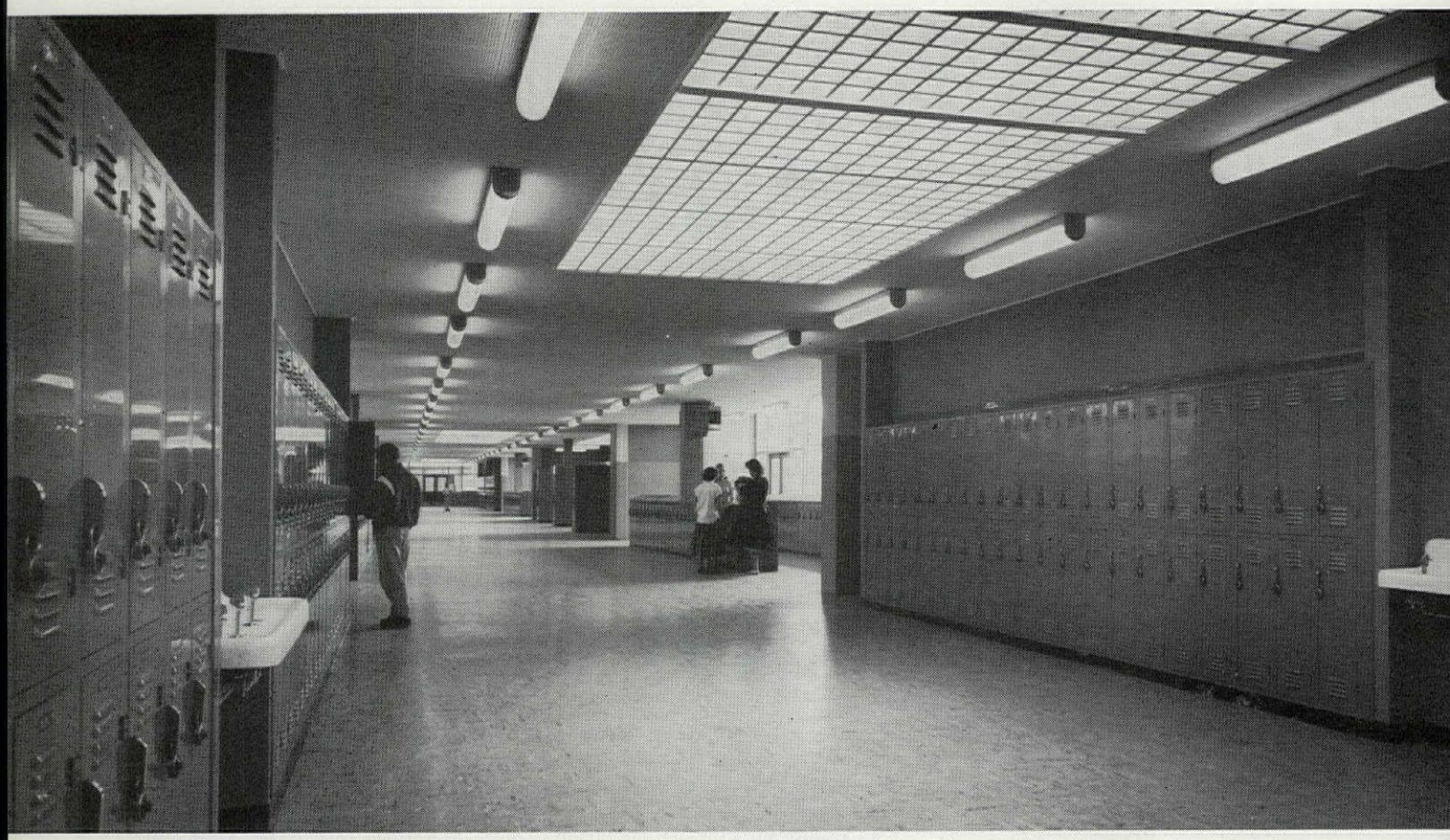
"We like the very clear, almost diagrammatic arrangement of elements. The combination of generous interior circulation for the main rib with exterior circulation to classrooms seems practical, economical, and it provides stimulation through variety . . . The large court opposite the gym provides a fine focal point for this big school, and the gym's structure seems to relate well to it," enthused one analyst.

"The plan seems crowded on the site. Could this have been relieved by some two-story construction?"

"Lower costs were the prime factor in determining use of the less expensive one-story construction and confining construction to the more regular portions of the site," Warnecke explains.

"If an attempt had been made to design this school as a school-within-a-school, rather than as a departmentalized high school, the pupils and staff would be relieved from the feeling of mass education which the plan gives."

"We agree that the school-within-a-school idea is a valid alternative approach. However, the architect's control over educational patterns is most often marginal. . . . The major problem we were asked to solve was the organization of a large student body into a central area that would permit easy movement among classrooms and offer protected areas for lockers and between-class activity. This had to be done on a very limited budget."



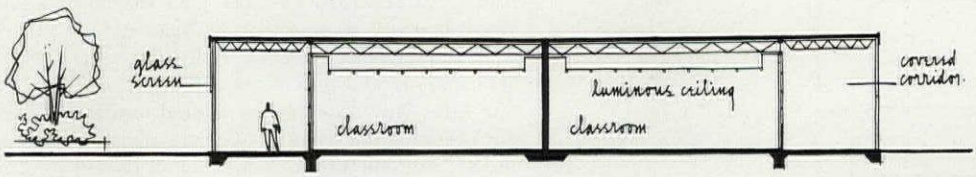
A central concourse, with lockers and meeting areas (above) *joins all instructional units.*

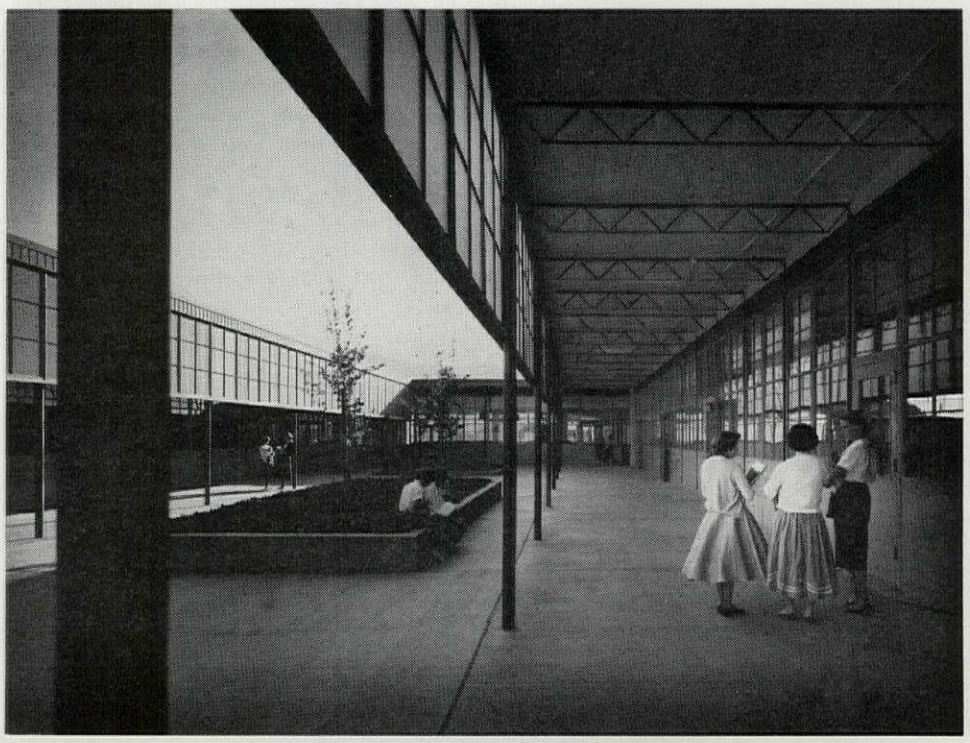
Access to classrooms is via exterior landscaped courtyards (right).

All classrooms (acrosspage) *have suspended luminous plastic ceilings.*

Hall, Pregnoff & Matheu were Structural Engineers; G. M. Simonson, Mechanical Engineer; and Stolte, Inc., General Contractor.

Photos: Morley Baer





MATERIALS AND METHODS To keep costs down, low-cost industrial materials and modular construction were extensively used; major structural innovation: tilt-up slab construction between back-to-back classrooms—economical; providing sheer wall to take lateral earthquake forces; also good sound and fire barrier.

FRAME structural steel and reinforced concrete. *Walls:* reinforced concrete tilt-up walls; window walls. *Floors:* concrete. *Exterior wall surfaces:* concrete and stucco. *Interior:* plywood and plaster. *Flooring:* asphalt tile. *Ceilings:* acoustical tile and luminous ceilings of plastic sheeting suspended from roof structure. *Partitions:* concrete, wood stud, tile. *Sash:* steel, double-strength plate glass; wire-glass skylights.

HEATING hot water.

comment and rebuttal

"We were particularly impressed with the structural system—and its bold expression—in the gym building," said one critic. "The tilt-up construction in the classroom buildings seems well detailed, and works well with the lighter construction of the outside window walls." The other critic echoed approval of structure—"seems to be frank, clean-cut, straightforward, and economical."

"Will amount of painting required on exterior be a maintenance problem?"

"Steel joists, sash, decking, etc., are not directly exposed to weather," Warnecke points out. "After thorough discussion during design, it was agreed that economies to be realized in making available the maximum amount of instructional area would outweigh the slight increase in maintenance cost."

"The luminous ceilings provide good, even lighting, and natural light seems well controlled. But we had a long debate as to the relative advantages of natural and artificial light. We hope that in eliminating the irritation from the changing effect of natural light, its stimulating effect has not also been eliminated."

"The selection of the east-west orientation meant that all light was on one side of the classroom. It was felt that natural light could be sufficiently controlled by covered corridors and over-hangs and glare glass. Since rooms are also used at night, we decided that luminous ceilings would provide the most satisfactory system of constant light."

"We feel that this school plan shows very clearly the strong hand of the designer in its arrangement, orderliness, and detailing. However, there was a general reaction that so large a building might have gained in interest through greater variety of experiences from the point of view of a student moving about."

"The major problem of organizing the life of a large school into a central area on a limited budget made a certain sacrifice in design necessary. A successful solution was found, we felt, in use of multiple skylights in the main corridor and introduction of small courtyards between each classroom unit. Thus ever present in the student's daily pattern is an awareness of boundless light and air."

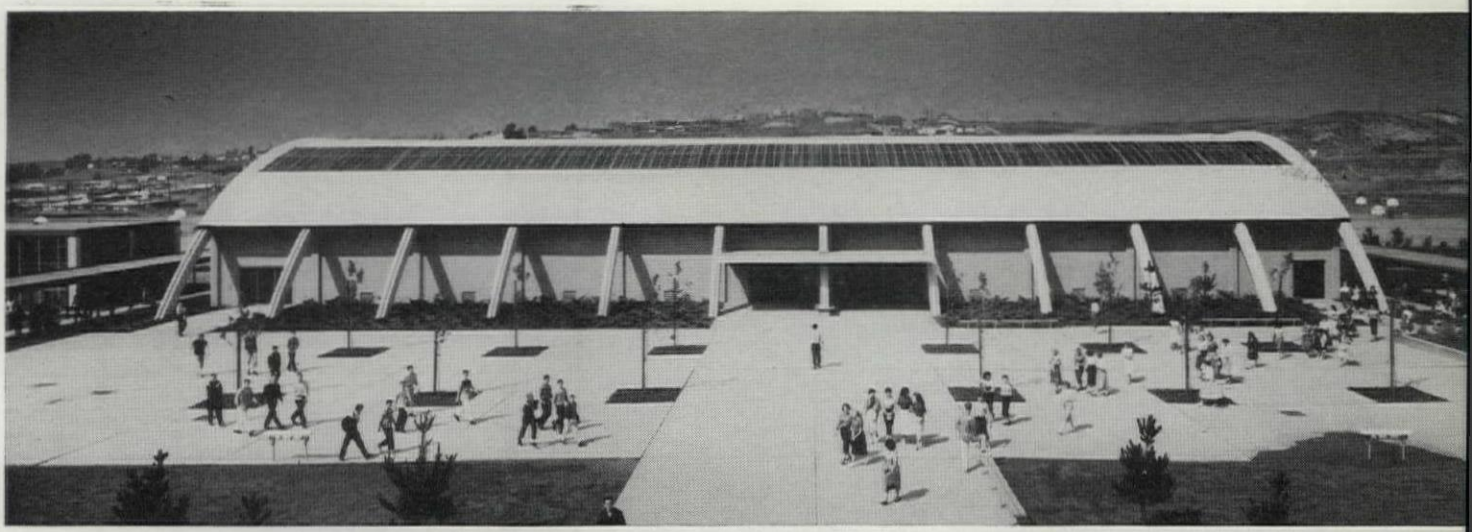
"The finished design is as interesting as an army camp—monotonous and big."

"What may seem to be cold and regimented in the plans is actually less so by the introduction of courtyards . . . Every opportunity was taken to remind the student of the exterior mood. The large central circulation core is light even in inclement weather. . . . During the predominating warm and rainless days, students are attracted to the landscaped courts between classroom units."

The library (top), *like the classrooms, has a luminous ceiling. The cafeteria* (above) *currently doubles as an auditorium, though future plans call for an independent structure.*

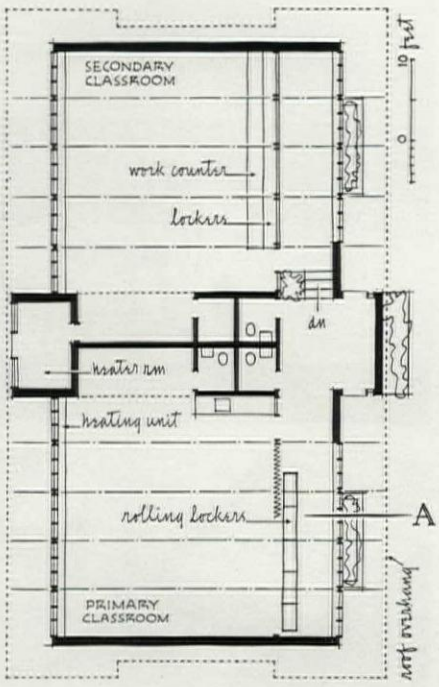
"It would have been a pleasanter and more functional educational plant if it had been a group of buildings centered around the common elements," one of the critics thought.

"The school-within-a-school idea can be eliminated here for reasons of cost, without even debating the educational choice," replied Warnecke.



"Why, in California, cannot the gym be treated as a sheltered play area with floor-to-ceiling window walls, so you would have the feeling of openness and space; that the roof was just a protection from the elements?"

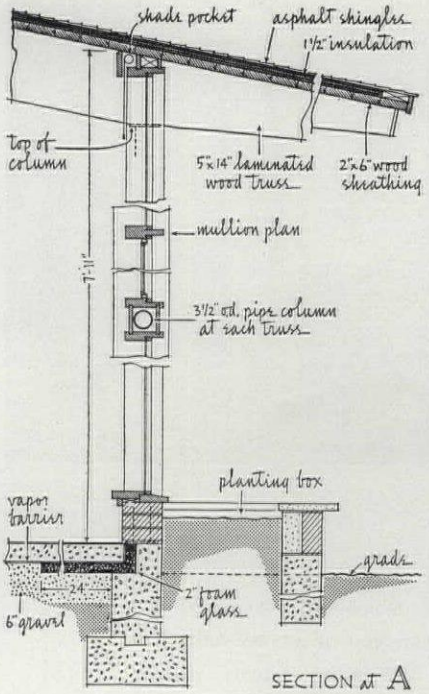
"The top lighting gives a pleasant, general light and leaves the walls free for attachment of apparatus needed in a high-school physical education program . . . We are fortunate in having mild weather throughout the year, making outdoor activities much the larger portion of the total time spent at physical education."

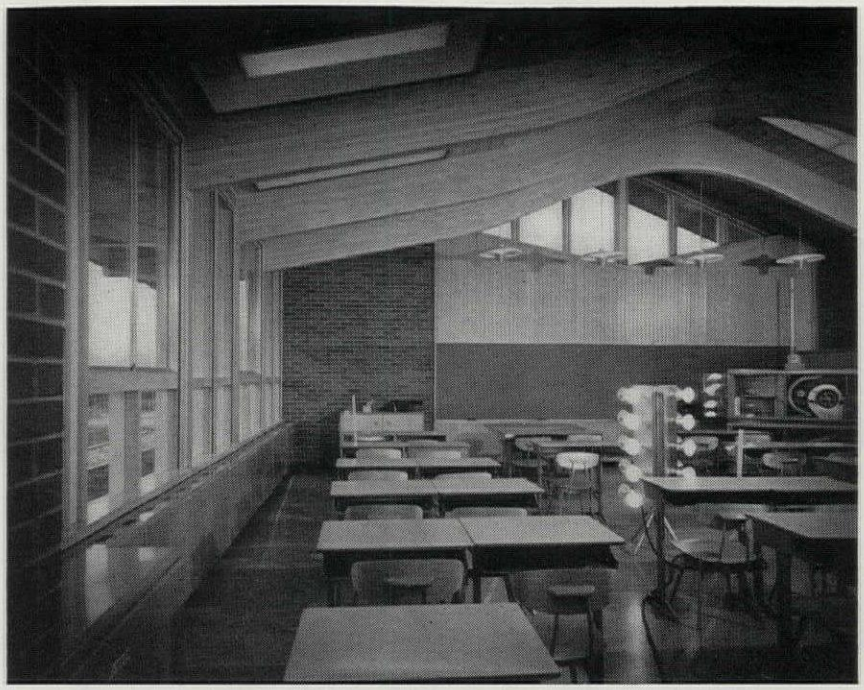


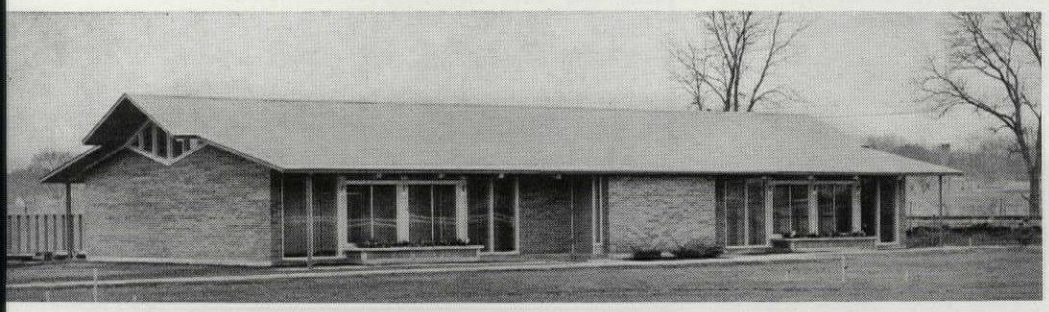
classroom laboratories for thermal comfort studies

Not satisfied with conventional laboratory tests to determine over-all capabilities, advantages, or limitations of its present and future environmental control systems for classroom comfort, Lennox Industries, Inc., recently erected a "Living Laboratory" school building at Des Moines, Iowa. Designed by Ray Ovresat, Architect, with Perkins & Will—nationally known school architects acting as consultants—the new structure will be used for research, product development, and education. It contains two classrooms of equal floor area, approximately 28′x30′, but of different volumes. One unit, the smaller, was conceived as a primary-grade classroom and the other, because of its larger scale being more suitable for taller teen-agers, a secondary-grade classroom. Ovresat has achieved a split-level school—the secondary unit's floor being 2′-4″ below that of the primary—with a level roof line. Blonde, laminated-wood trusses supporting the roof, light-colored woodwork, colored brick, resilient flooring, and glass-panel inserts, plus contemporary classroom furniture (differing scales for each classroom unit) help to provide the physical and psychological prerequisites for comfort. Access to both classrooms is gained from a corridor which runs across the front of the building. A divider wall between the primary classroom and the corridor is made of 4′ locker units that can be easily moved to provide several hundred additional square feet of usable space for special activities. Large gable-windows permit daylight to enter each classroom from a third side while high quality artificial lighting obtains from both incandescent and fluorescent sources. Only the required amount of acoustical insulation was placed on the exterior side of each classroom ceiling and above the corridor.

First environmental-control equipment to be installed in the classrooms is Lennox' new "Comfort Curtain" heating and ventilating system which has been in the development stage for the past three years. The system combines residential-type heating equipment with a fresh concept of ventilation to produce a continuous circulation of ventilation at proper temperature. This installation has borne out engineering claims that the system can hold classroom temperatures within one degree of the thermostat setting—and can do so under normal conditions of classroom occupancy, regardless of weather outside. In operation, recirculated air passes over a heat exchanger during the "heat-required cycle" and bypasses the heat exchanger during the "no-heat-required cycle." In either case, the recirculated air is mixed with fresh outside air in the air processing unit when the building is occupied. During the "cooling-required cycle," a maximum amount of outside air is pulled into the room without recirculation. Successful operation of this system is due to the fact that it pulls outdoor air into the classroom quickly, when needed, to offset internal heat gains. A series of dis-





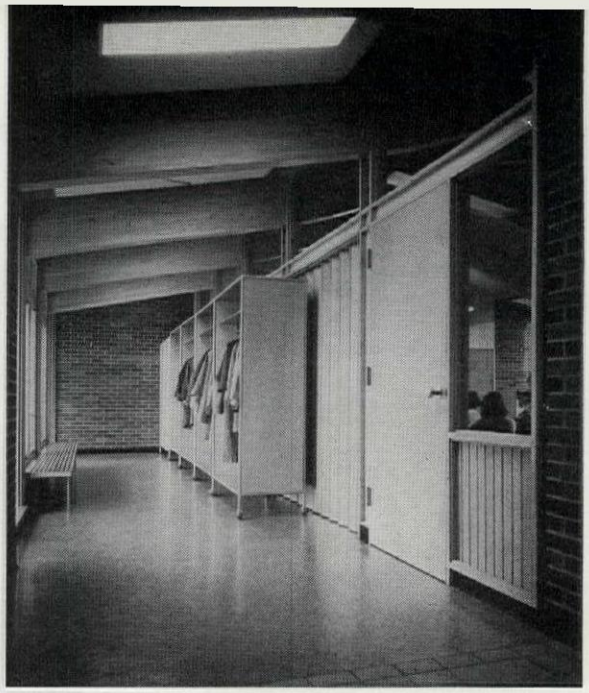


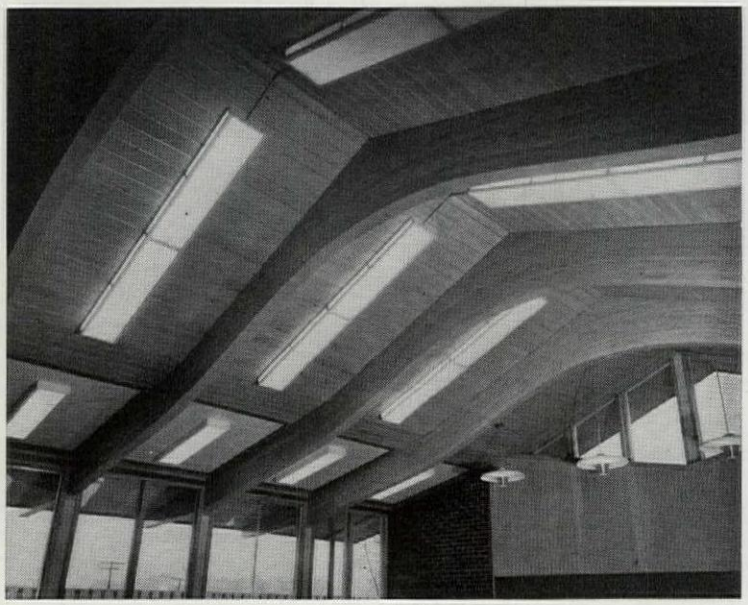
View of primary classroom (acrosspage) *indicates small scale of unit. In secondary classroom* (above) *discharge outlets extend full length of wall; heater room and cabinet for air processing unit are at left. Full-scale unit is demonstrated at front of classroom. Wood, accordion wall in primary classroom can be opened for more space* (below). Photos: Infinity, Inc.

charge outlets along the full length of the room give even air distribution at a velocity—approximately 900 cfm—that prevents cool air from dropping on students near supply openings. Velometer tests indicate constant bathing of the window at a constant rate of speed.

An air processing unit installed in each room contains blowers, air filters, dampers, and controls for temperature regulation; noise level is at minimum. Shelf or wall ducts are made of 16-gage enameled furniture steel. A vertical type of duct heater may be installed in the classroom or in a separate heater room (4'x5') depending on the fuel used, existing building codes, or architect's preference. The heating plant is generally for one or two classrooms; the number can be expanded as classrooms are added. Entire service of units can be readily obtained at local level and all combustion controls are standard. A particular advantage is centralized responsibility for installation and operation. This

classrooms for thermal studies





Locker units in primary corridor (top right) *can be removed to provide extra space; secondary corridor is 2'-4" lower* (above). *Fluorescent and incandescent lighting as well as acoustical strip are shown* (above center).

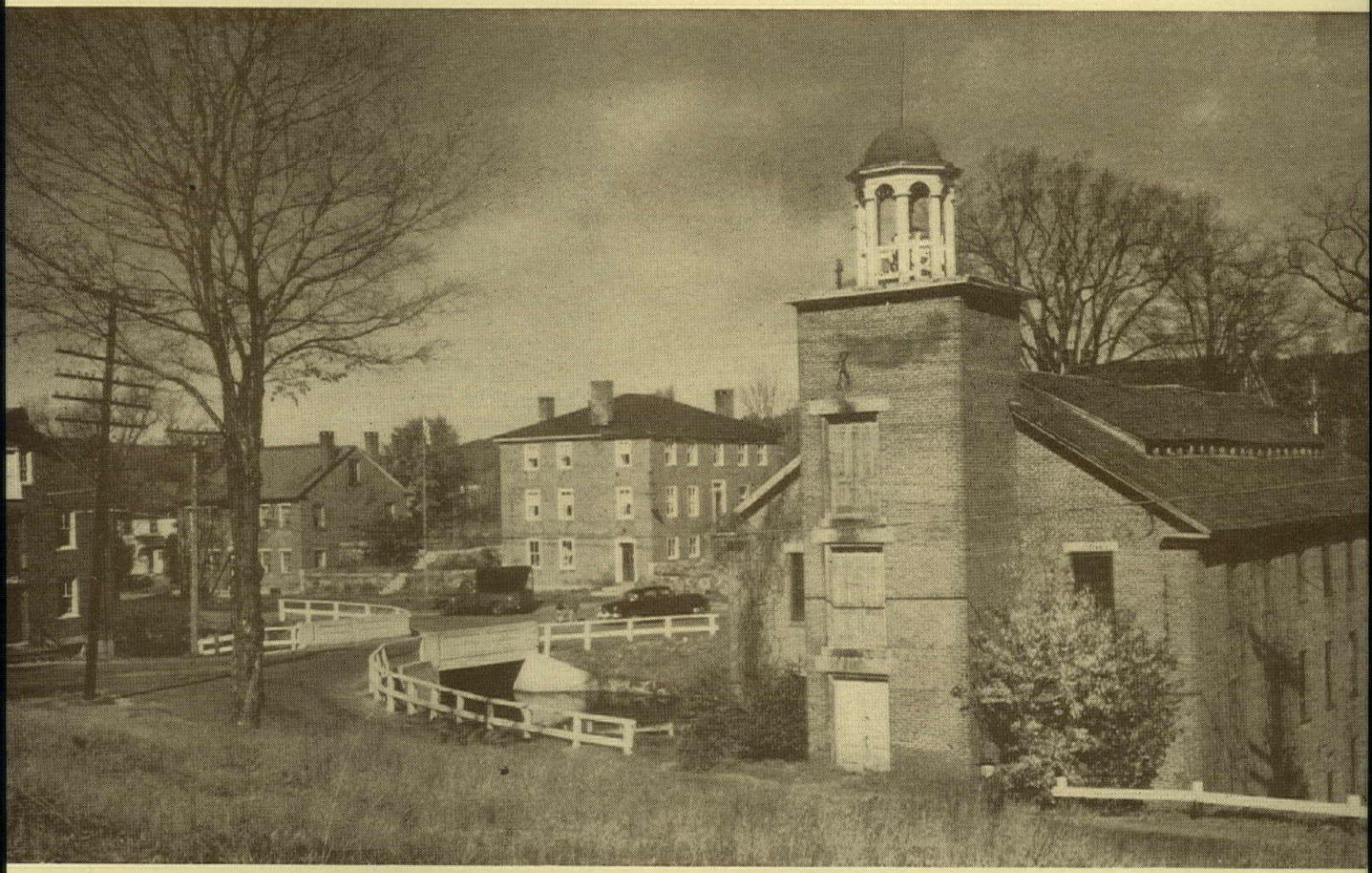
system is said to cost about $1400 to $1800 per classroom—about one-half the cost of unit ventilator systems where under-floor pipe channels, boiler rooms, and flues are required.

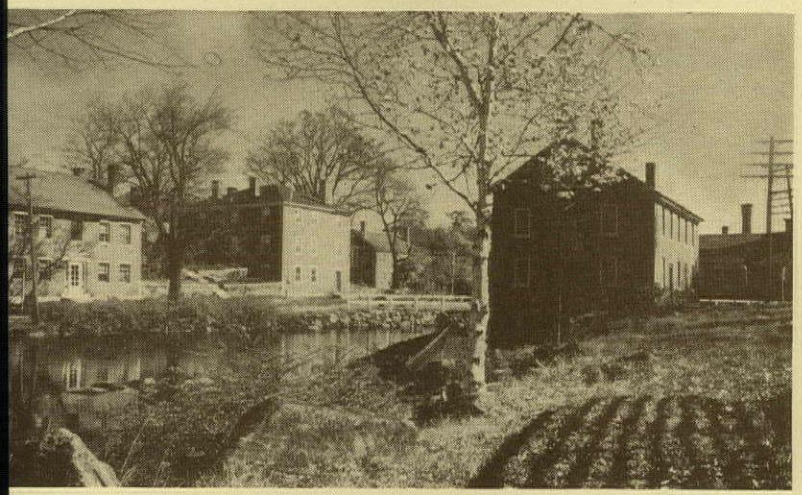
With the possibility that classrooms may one day be occupied 12 months of the year, a good deal of thought is being directed toward year-round air conditioning of classrooms. In future research, heat pumps will be in for a good deal of testing in these laboratories for, in the opinion of the research engineers, an all-electric, heat-pump system may be the answer for localities as far north as Des Moines.

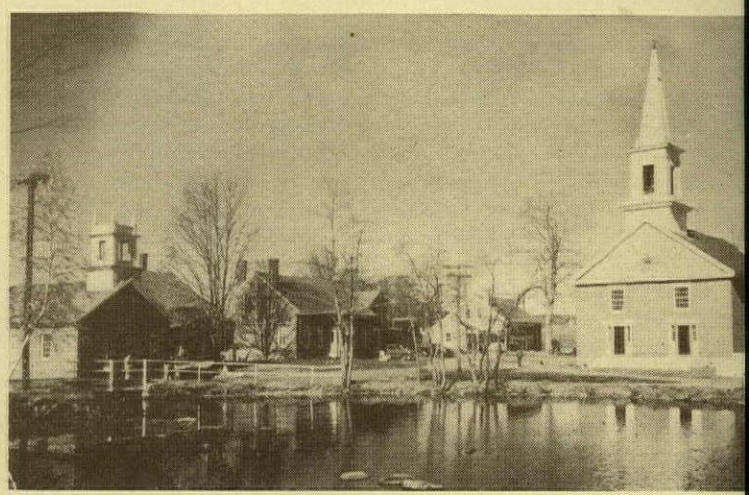
On special occasions, the classrooms will house students from the nearby Altoona, Iowa, Consolidated School District. Classes will be assigned to these rooms for varying periods of time. Dr. S. J. Knezevich, of the College of Education, State University of Iowa, will outline and conduct a program of research with students under actual classroom conditions. He is anxious to test various theories for the required amount of heat for classrooms, the validity of existing codes governing classroom heating, and the learning behavior of children under controlled conditions.

PROGRESSIVE ARCHITECTURE IN AMERICA

NEW ENGLAND MILL VILLAGE
Harrisville, New Hampshire
Original Mill & Buildings — c. 1810-19
Mill Additions — c. 1835, 1860, 1923, 1946







William B. Pierson Jr.

The beginnings of industrial architecture in America are remarkable for their unpretentious simplicity. Small in scale, domestic in style, the typical 19th Century mill village presents an aspect of deceptively picturesque serenity when we re-encounter it today in the tranquil New England landscape. The sturdily built mill and its cluster of well located houses give little indication that they represent a trend-setting level of social and industrial planning seldom equalled since—standards that disappeared completely in the industrial squalor of the ensuing era. These early manufacturing communities, with their exemplary housing, are a highpoint of American architectural achievement.

Occasionally, when growth and change have passed them by, one of these mill villages has remained intact. The town of Harrisville is such a village, noteworthy not only for its amazing state of preservation, but also for the fact that it has been functioning as a textile manufacturing center for almost 150 years. Its sense of living architectural tradition is unmatched by the most conscientious historic restoration. According to William Pierson, who has extensively recorded this unusual community, the first unit dates before 1830, with the old "upper mill" and its surrounding houses erected as early as 1817-19. An irregular but purposeful plan fits all of the necessary buildings—storehouse, sorting house, boarding house, owners' and workers' dwellings—into the natural fall of the land, clustered around a dam, on the bank of a steep and beautiful gorge. The total of the original mill village, the old and new structures, and the inevitable transformations of time as they have affected the buildings and the town, adds to an unique architectural experience.

Impressed as we are today by the attractive design and sensitive, far-sighted layout of these early industrial developments, the New England mill village was the creation of neither sociologists nor esthetes. It was the product of the hard-headed Yankee businessman, who was faced with the problems of scarce labor, scant capital, and social antagonism to industrialization growing out of familiarity with the substandard conditions already existing in English manufacturing towns. The American textile industry, encouraged during the wars with England, competing in peacetime with English mechanization, was forced to solve these problems to safeguard its own existence. The solution was an unforced architectural one, based on such nonarchitectural considerations as the use of water power and child labor. Early mills were built at the source of power—a dam that was often many miles from the nearest town. Capital investment was used to create a community of permanent buildings, offering assurance of desirable living conditions. To attract labor, preferably prolific families capable of supplying many child workers, model housing was provided as part of the original scheme—comfortable cottages built conveniently close to the mill (as were the owners' houses, often of equally unpretentious construction). The neatness, fitness, and harmonious style of these mill villages, as well as their excellent planning, offer many implicit lessons for the ever-increasing problems of industrial housing. Here is the use of a well organized housing plan, incorporating the *cul-de-sac* block, eliminating through roads, relating the skilfully grouped, widely spaced buildings to the natural amenities of the site. In addition, these villages achieved a handsome homogeneity of appearance. There is uniformity without regimentation, contemporary style without self-consciousness, a resulting harmony without clichés.

Harrisville represents this planning logic and design felicity to an exceptional degree. The 1810-19 group is entirely of red brick, in a simple, provincial reflection of the solid Bulfinch tradition of early 19th Century Boston. Mill and houses are of similar domestic scale and detail. Graciously proportioned two- and three-story buildings flank the stream at well placed, irregular intervals, some structures still serving their original purposes. A second mill was built, about 1835, of local stone, a material more commonly used at that time, for greater structural strength and fire resistance. Except for the clerestory dormer that replaced the earlier trapdoor dormer, details, scale, and style, were closely related to the "upper mill." In 1860 a third mill was added, its red brick walls and well proportioned windows with white stone lintels following the previous pattern. Similar red brick was used for later additions, in 1923 and 1946. Houses were built as needed, with no radical variance in style. A temporary church was erected about 1840, and a larger one completed in 1845. That the fortunate design harmony was not the result of the obligatory use of a "correct" formula, can be seen in the free treatment of these two buildings: the one embellishd with a stylish carpenter-Gothic cupola, the other reflecting the popular Greek Revival taste in its pedimented gable. The underlying bond for industrial, domestic, and community buildings was the simple, uncorrupted, vernacular tradition of New England construction, and the established order of fine proportions and basic materials.

Harrisville and its sister communities, however, were neither idyll nor ideal, although they were a long step in the right direction. Conditions were primitive, the community was overpaternalistic, and child labor was a continuing misfortune. Even so, except for isolated villages such as this one, the pattern changed rapidly for the worse after the introduction of power machinery, which was to lead to the centralization of the total manufacturing process under one roof and the concentration of factories and population in cities and transportation centers. A pall of industrial smoke and Victorian gloom soon eclipsed the small New England mill village. Model housing was replaced by the factory slum. The promise of early 19th Century sociological-industrial architecture was never realized, and only today are we turning back to its progressive precepts of planning and design.

ADA LOUISE HUXTABLE

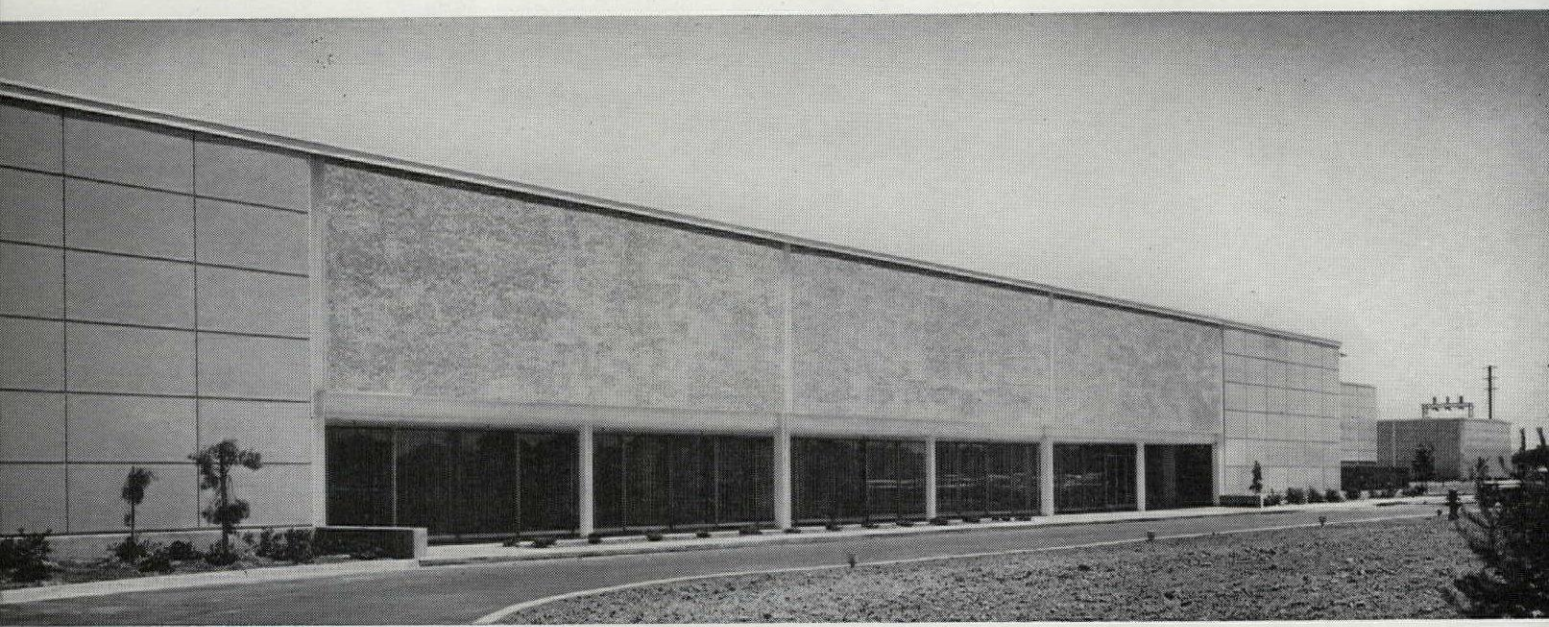
Grateful acknowledgement is made to William B. Pierson Jr. for loan of his original material on Harrisville, New Hampshire.

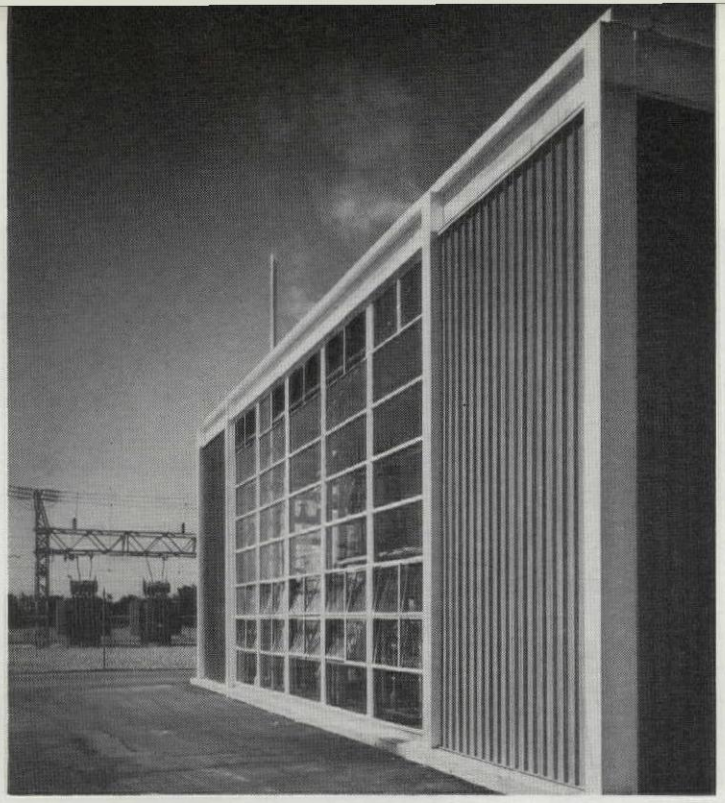
paper mill

location | Fullerton, California

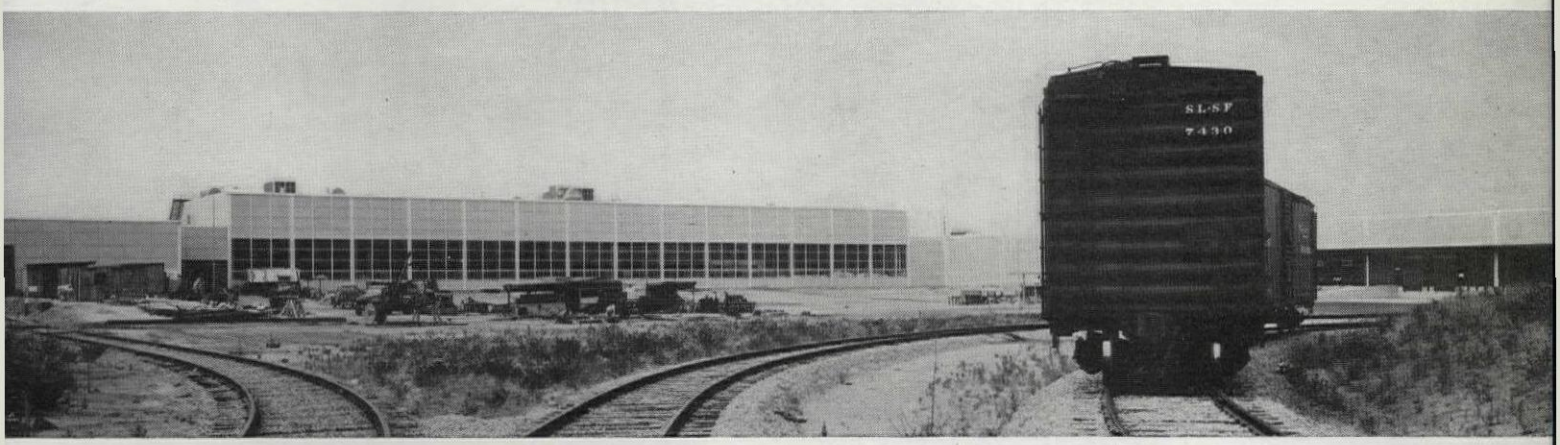
architects-engineers | Kimberly-Clark Staff and Skidmore, Owings & Merrill

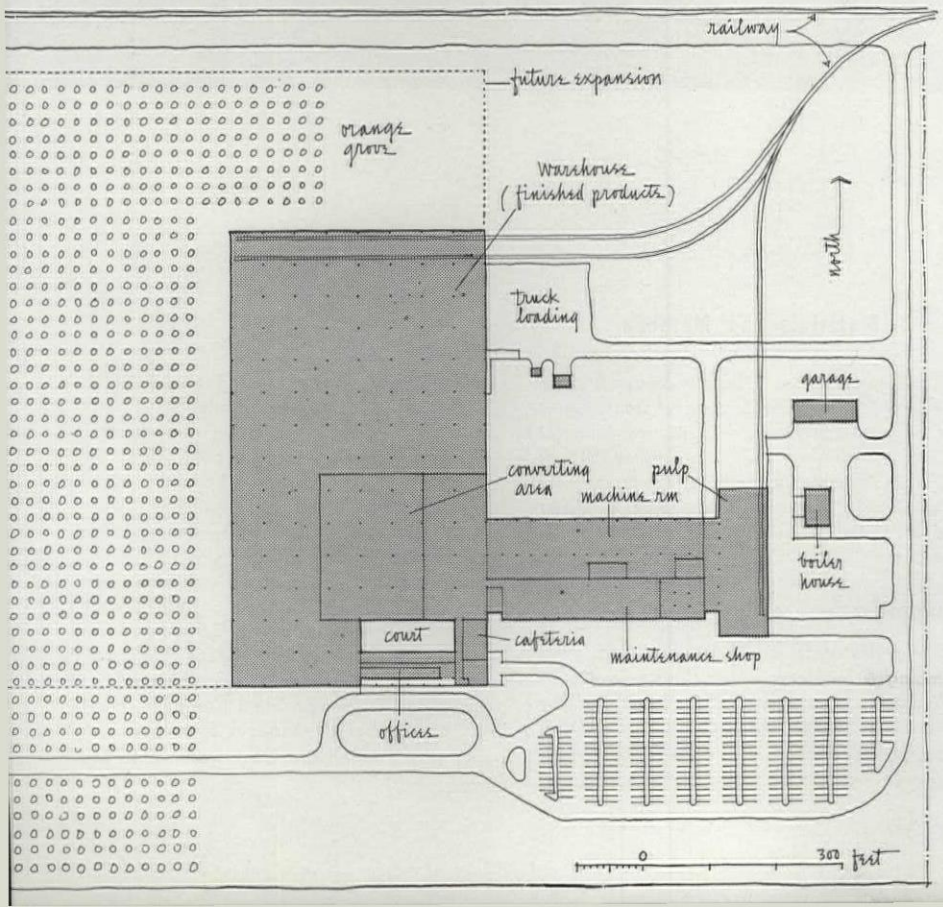
paper mill



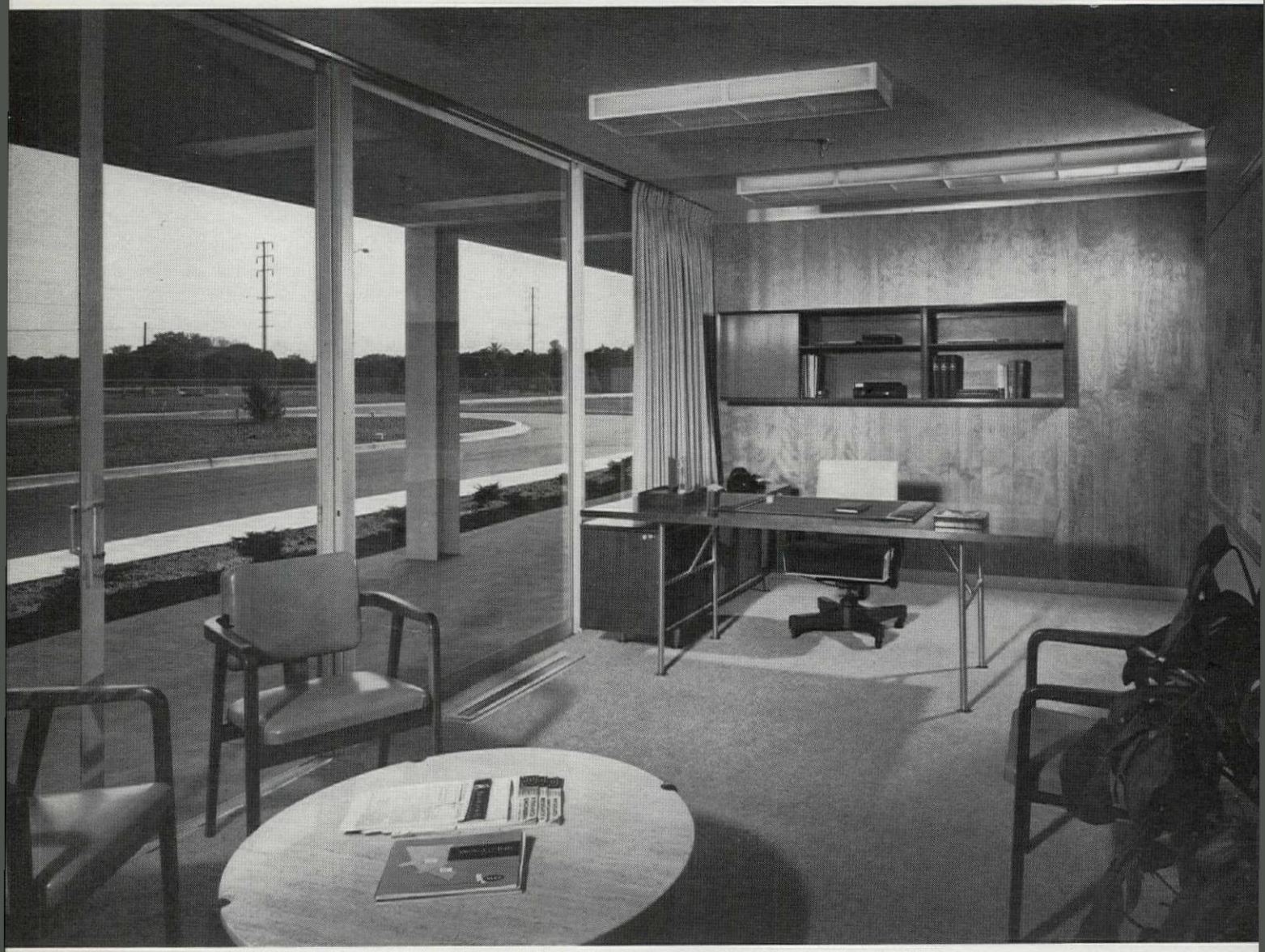


The sixty-acre site for this mill is located twenty-five miles southeast of downtown Los Angeles, in an area now being developed for light industrial and residential use. The location offered good rail service and an abundant supply of water and electricity. Major industry up to the present has been the growing of fruit, particularly oranges, and care has been exercised in preserving part of the original orange orchard on the site. First consideration in the development of the site was the establishment of a total, over-all plan with respect to: (a) efficient arrangement for the manufacturing process; (b) balanced distribution of the architectural elements; (c) integration with the neighborhood. The need for speedy erection of the building and for large unencumbered spans for the





manufacturing spaces made steel the desirable structural material. Floors are of reinforced concrete; roofing is composed of metal decking and precast-concrete panels with built-up tar-and-gravel. For exterior wall construction 4′ x 8′ porcelain-enamel panels, 1″ thick, were employed. Colors of the panels are blue and tan. The boiler house (*top*) is sheathed with ribbed, insulated, steel panels. A series of fixed and operable floor-to-ceiling glass panels, set back 8′ from the building-line, denote the office and lobby areas from the approach road. Ceramic tiles surface the exterior wall on this side above the glass panels. Inside, demountable steel or wood partitions have been used. Interior colors are light and gay. Furniture and accessories for the mill manager's office and entrance lobby were specified by Knorr Interior Planning, San Francisco. Lindgren & Swinerton, Los Angeles, was General Contractor. *Photos: Morley Baer*



Materials and Methods

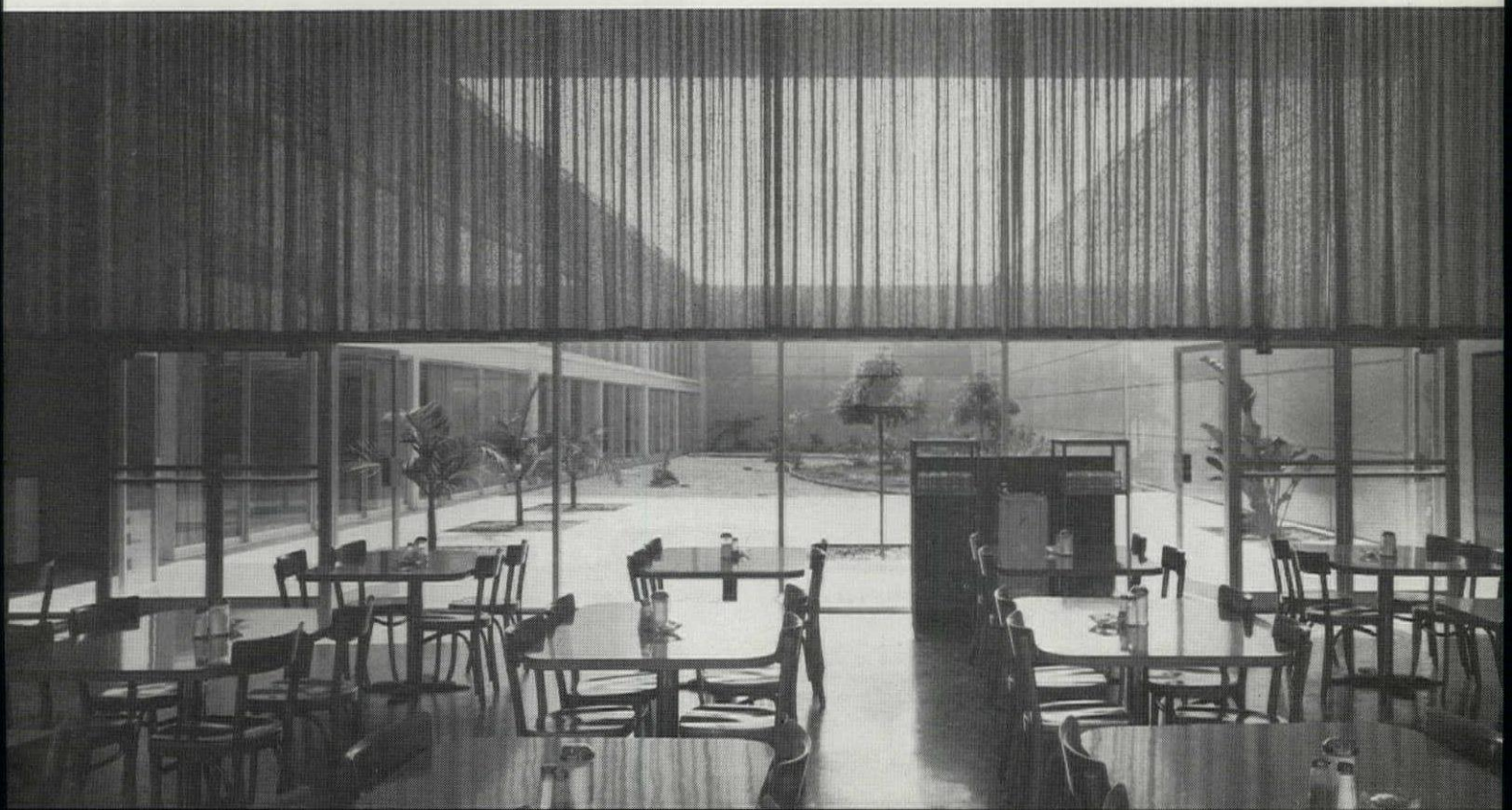
construction

Foundation: drilled-in, belled, concrete caissons; spread footings: reinforcing steel—Blue Diamond Company. **Structure:** frame: structural steel; floors: reinforced concrete; roof: metal roof deck—H.H. Robertson; precast-concrete panels. **Wall Surfacing:** interior: painted concrete block, painted steel panels; rest rooms, toilets: ceramic tile. **Floor Surfacing:** silicone-base masonry coating. **Ceiling Surfacing:** gypsum board with applied acoustical insulation. **Roof Surfacing:** built-up tar and gravel roofing—Koppers Company, Inc. **Partitions:** interior: demountable steel type—E.F. Hauserman Company; demountable wood type—U.S. Plywood Corporation. **Windows:** sash: aluminum,—Soule Steel Company; plate glass—W.P. Fuller & Company. **Doors:** interior: wood—U.S. Plywood Corporation; metal—Overly Manufacturing Company; entrance: aluminum frames—Soule Steel Company, Arcadia Metal Products, Inc. **Paint & Stain:** interior: enamel—E.I. duPont deNemours & Company.

equipment

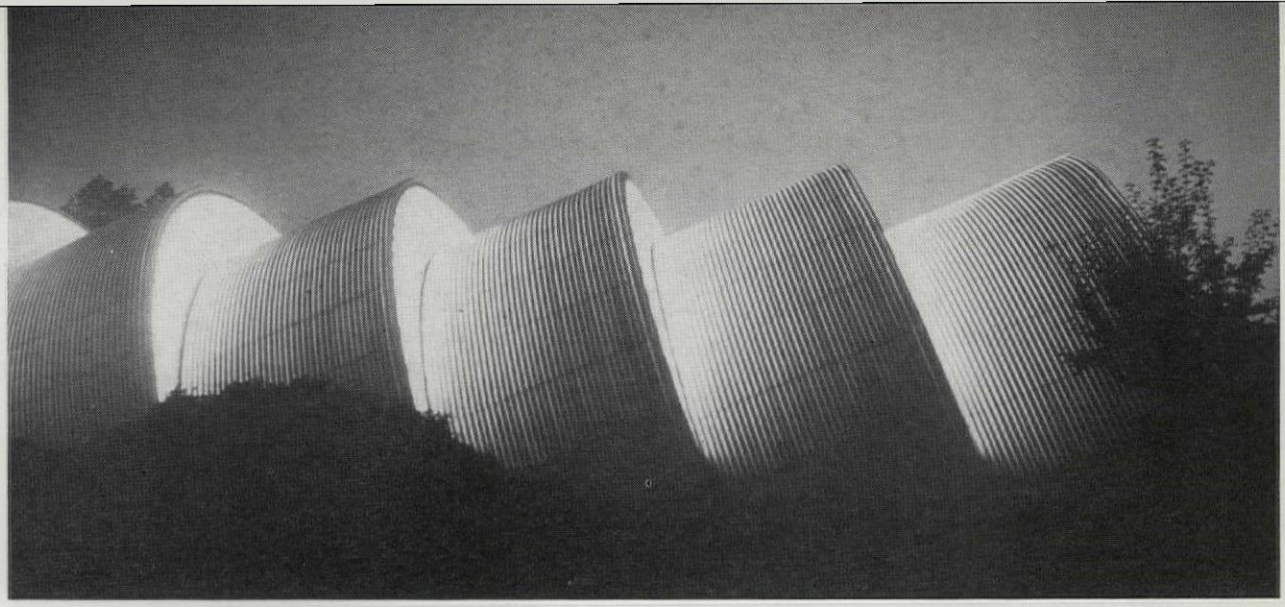
Lighting Fixtures: Day-Brite Lighting, Inc. **Plumbing & Sanitary:** water closets, lavatories—American Radiator & Standard Sanitary Corporation; toilet seats—C.F. Church Manufacturing Company; water heater—A.O. Smith Corporation; flush valves—Sloan Valve Company; drains and accessories—J.A. Zurn Manufacturing Company; insulation—Owens-Corning Fiberglas Corporation; wash fountain—Bradley Washfountain Company; float and thermostatic traps—Hoffman Specialty Manufacturing Corporation; heat exchangers, water circulating and booster pumps—Bell and Gossett Company; steam line strainers—Sarco Company, Inc.; finned-radiator-tube unit heaters—The Trane Company; flash tanks—Dunham-Bush Manufacturing Company; gate, globe, and check valves—Crane Company; soapstone sink—E.H. Sheldon Equipment Company; pipe—Bethlehem Steel Company. **Heating:** package boiler—Babcock & Wilcox Company; sheet metal and duct work—C.L. McCluney, Inc.

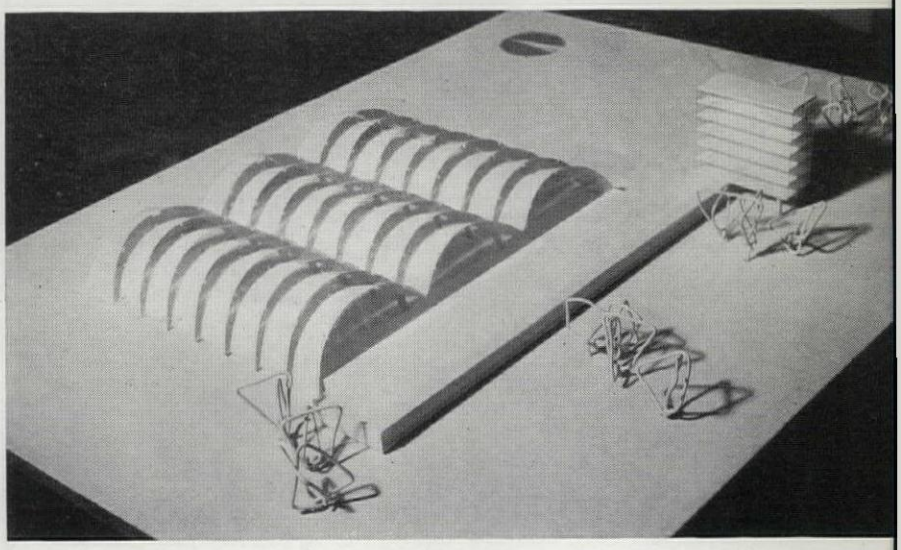
A row of offices opens onto the main approach road (left); *on opposite side of the corridor, offices overlook planted interior court* (above *and* below). *Area above offices* (above) *is devoted to locker rooms and lounges. Favored position between court and second outdoor terrace has been given to cafeteria* (below). *Its east and west walls are entirely glazed; upper panels are of heat-absorbing glass.*



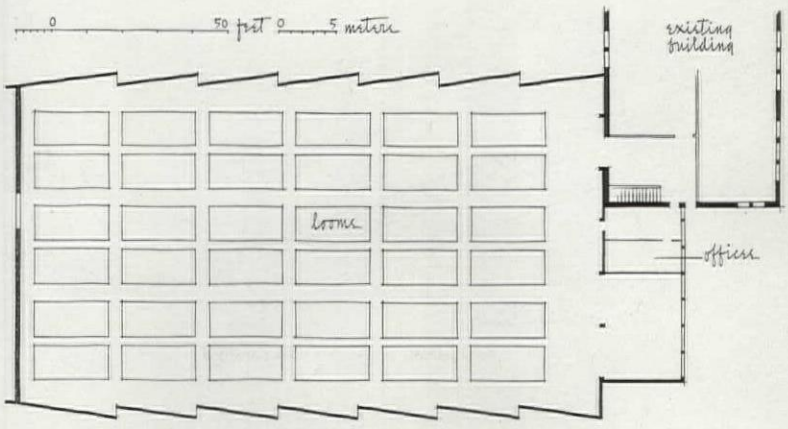
elastics manufacturing plant

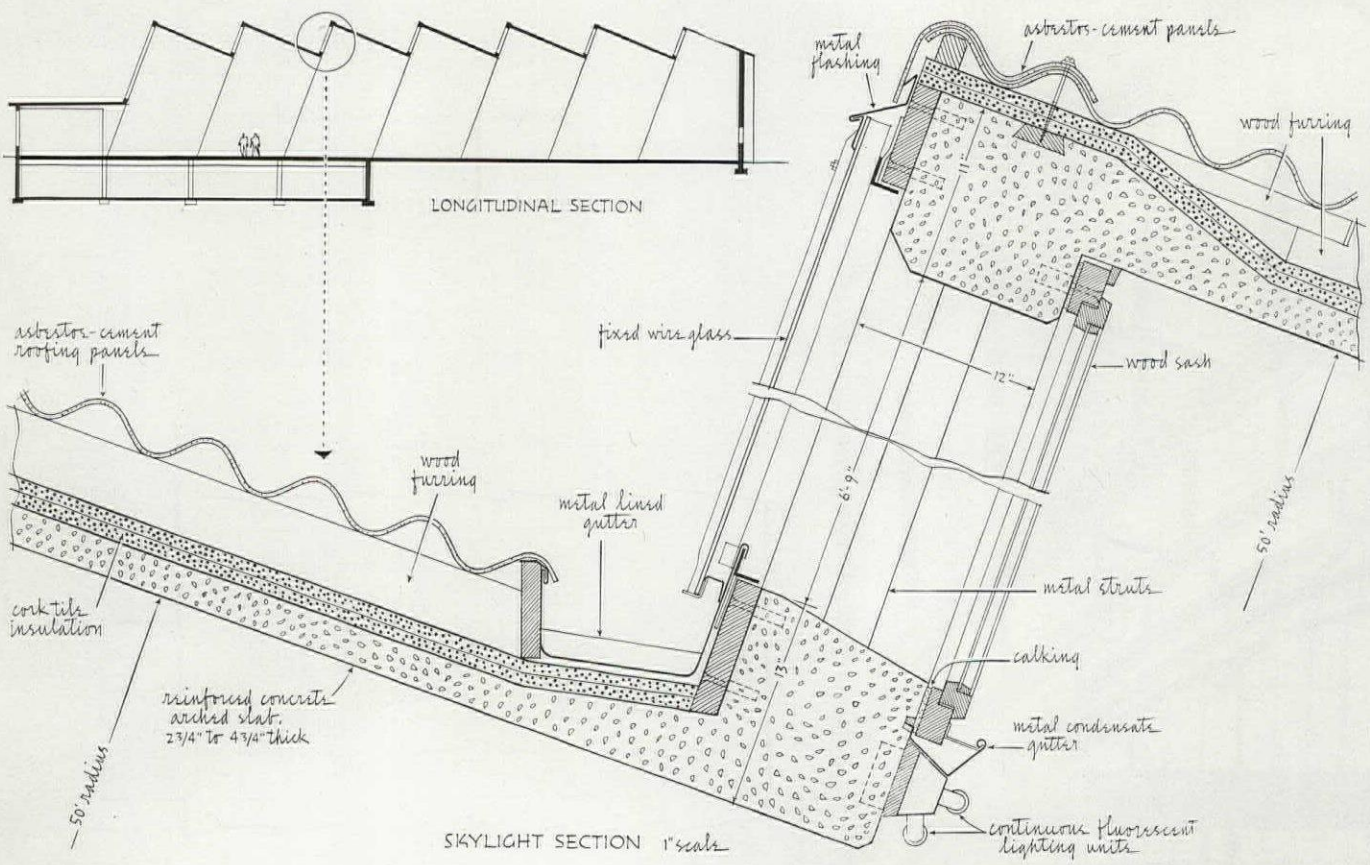
To provide flexibility in the placement of looms for the manufacture of elastic fabric, and to anticipate probable future refinement and redesign of machinery, the client wished a large, column-free space. At the same time, uniform lighting in the manufacturing area was desirable; direct sunlight was to be excluded. These requirements, plus a limited construction budget, led the architects to investigate alternative structural systems, among which the cylindrical-shed construction was by far the most economical and suitable technically. The main manufacturing space measures 166.8 ft in length; the six equal concrete shells span 93.5 ft. Storage, restrooms, lockers, and mechanical equipment are located in the basement. The natural light level in the manufacturing space is high and evenly distributed because of the large window openings and the reflective quality of the curved planes. Artificial lighting is provided by strip lighting fastened to the lower chords of the shells. Temperature- and moisture-controlled air is brought into the large hall through a duct which bisects the interior, and is removed at the west side. For the erection of the shells, two complete wood forms were constructed. A third scaffold served as temporary support.





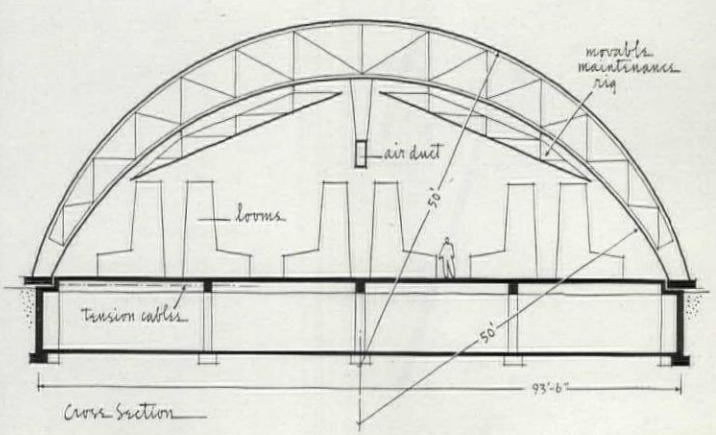
location	Gossau, Switzerland
architects	Danzeisen & Voser
engineer	H. Hossdorf




LONGITUDINAL SECTION
asbestos-cement roofing panels
wood furring
metal lined gutter
cork tile insulation
reinforced concrete arched slab. 2 3/4" to 4 3/4" thick
50' radius
SKYLIGHT SECTION 1" scale
metal flashing
asbestos-cement panels
wood furring
fixed wire glass
12"
wood sash
6'-9"
50' radius
metal struts
calking
metal condensate gutter
continuous fluorescent lighting units

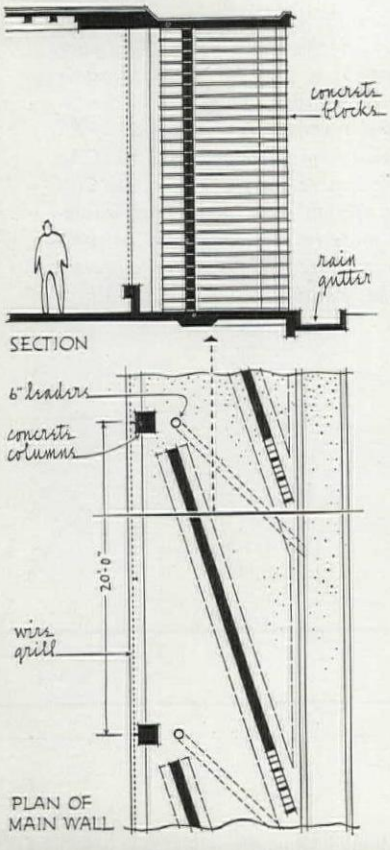
The new building is attached at the north side to the existing plant.

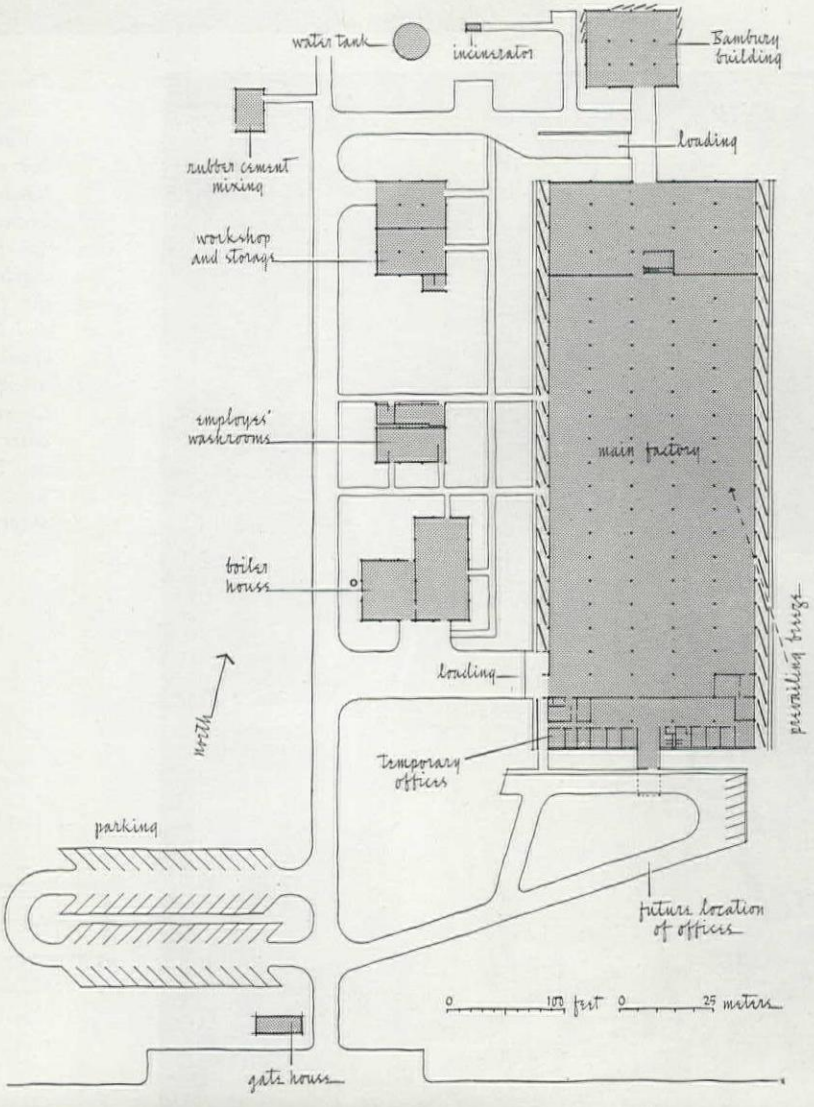
Concrete shells are cylindrical segments whose bottom edges are integral concrete beams which have freedom of movement for expansion. These beams, in turn, rest on steel bearing plates connected to the under-structure. Cross braces at the sickle-shaped window openings are, in effect, trusses, in which the thickened edges of the shells served as upper and lower chord members. The horizontal thrust is resisted by prestressed tie rods. Thickness of the reinforced-concrete shells varies from 2.75" to 4.72". Concrete was applied by spray method (above). *The outer surface of the concrete shells is covered with two layers of cork tiles to serve as thermal insulation. The cork is protected by corrugated asbestos sheets which deflect water and snow to a gutter along the sides of the building.*



tire and footwear plant

location	Guacara, Venezuela
architects	Oficina Don Hatch
engineer	Claudio Creamer
consultant	Henry Werner

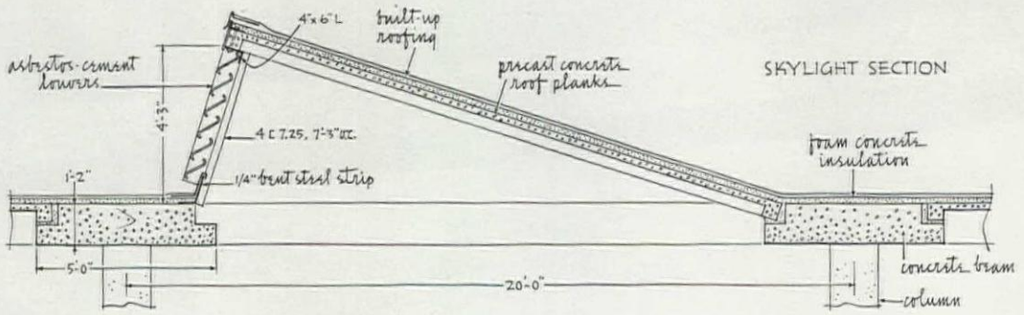


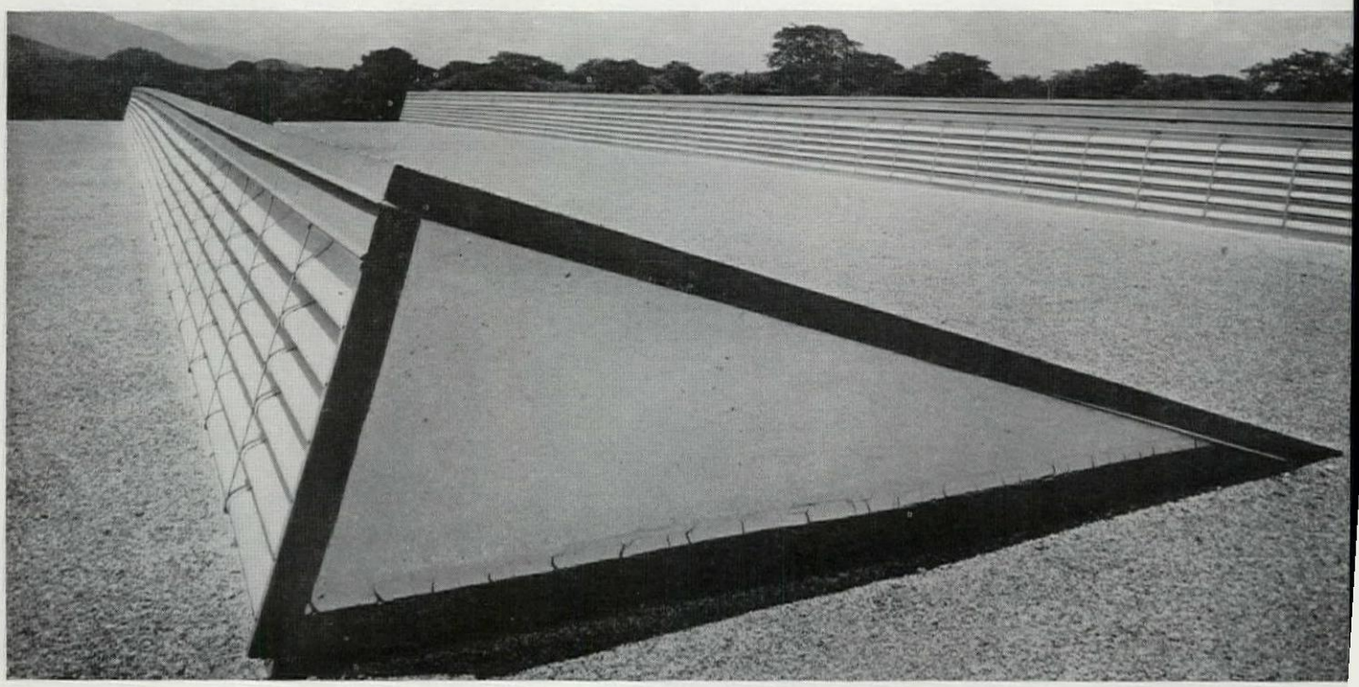


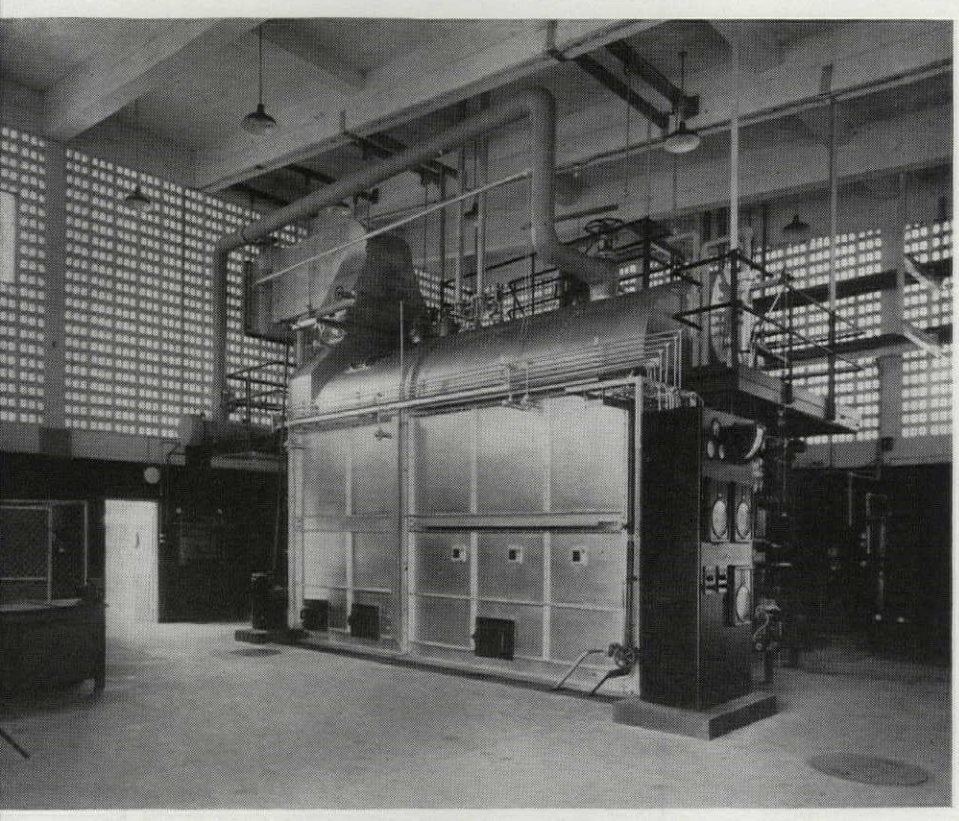
General offices are temporarily located in the south end of the main plant (right). *A future office building will be joined, to the right of covered drive.*

tire and footwear plant

This plant for the manufacture of rubber tires is located on the main highway between Maracay and Valencia, approximately 150 kilometers west of Caracas. The main highway to the south of the site and an auxiliary road to the west dictated, in part, the long north-south axis of the main factory—expediting receiving and shipping, and permitting future growth of the plant in the easterly direction. Other factors in the siting of the main factory were the prevailing breezes from the east-southeast during the day and the northwest in the evening, and driving rains from the northeast. To encourage natural circulation of air through the factory, east and west walls have been designed as brise-soleils from floor to ceiling. For security purposes, a wire fence closes the opening on the inside of the building. Direct sun rays have been blocked from the manufacturing area by the spacing and angling of the fins. Heat generated by rubber working and vulcanizing equipment is expelled through monitors in the roof. For most efficient machinery layout, structural bays in the main factory building were established at 36′x20′. The structural frame is of reinforced concrete; the concrete floor is surfaced with a ductile metallic aggregate for high resistance against wear, and walls are of locally manufactured concrete block laid in stack bond. Roof framing consists of flat reinforced-concrete beams 5′ wide, 14″ deep; roof planks are site-fabricated and precast with inserts for pipe and conduit suspension; foam-concrete provides thermal insulation for the roof, and surfacing is 3-ply built-up crushed stone. Interior partitions are of concrete block; restrooms are surfaced with glass mosaic tile. Roof monitors above manufacturing area have fixed louvers of asbestos cement. Above the office area, the monitors contain glass blocks as well as louvers. Color has been used on the exterior to accent structural elements and to correlate the mass of the main factory building with the smaller supplementary structures. Inside, color was used in the interest of safety and reduced maintenance.







Boiler plant, like all the other structures, is of reinforced concrete. Solid and pierced concrete blocks, laid in stack-bond pattern, form the outer walls.

Standardization of Specifications Trade Sections

by Harold J. Rosen

In May 1957 P/A there appeared in the VIEWS section a Letter to the Editor from John W. Foster, Portland, Oregon, describing a method for simplifying some of the routine office tasks which relate to filing and specifications writing, and which he indicates works very well in his small office.

I am personally acquainted with a system similar to the one described, which is in use in a large Government office, the Veterans Administration, and I believe that several large private architectural firms use similar systems. Foster should be congratulated on bringing the subject up so that its merits might be discussed and the system eventually put into practice with other firms benefitting by its work simplification.

The system centers on affixing permanent trade-section numbers to the divisions of the specifications. In turn, this numbering system is used in cataloging and filing such items as manufacturers' literature, technical data, samples, shop drawings, general correspondence, estimates, lists of manufacturers' names, check lists and a host of other routine office memoranda.

Other advantages can accrue from this system, as one gains familiarity with its use. For example, if the numbering system of the specifications trade sections were adopted as standard by the architectural profession, it would enable contractors, estimators, manufacturers, and others who use specifications, to find items in the specifications more readily. With specifications emanating from thousands of offices today without any attempt at standardization, these people must cope with many varied systems in use. I am not writing of the technical content of the specifications, but of the segregation of the building material elements in their proper places in the specifications sections.

Foster states that he can reduce the number of specifications sections to 23. It may be that his practice is such that it does not encompass all the trade. In order to get the ball rolling, I list herein (as a starter) a total of 31 sections. I would suggest that this matter be placed in the hands of the Construction Specifications Institute to investigate the needs, determine the scope, and prepare a standardized numbering system for the specifications trade sections.

In using the system, the Index to the specifications states which sections have been omitted, or a sheet bearing the number of the section which has been omitted is inserted in the specifications, in the proper sequence.

The following is a listing of specifications trade sections, which is submitted as a trial balloon to obtain your reaction. Your comments, together with this list, will be submitted to the Construction Specifications Institute. I am certain that a committee of represenative specifications writers in CSI will find a workable solution which can be put into use before 1960 as Foster suggests.

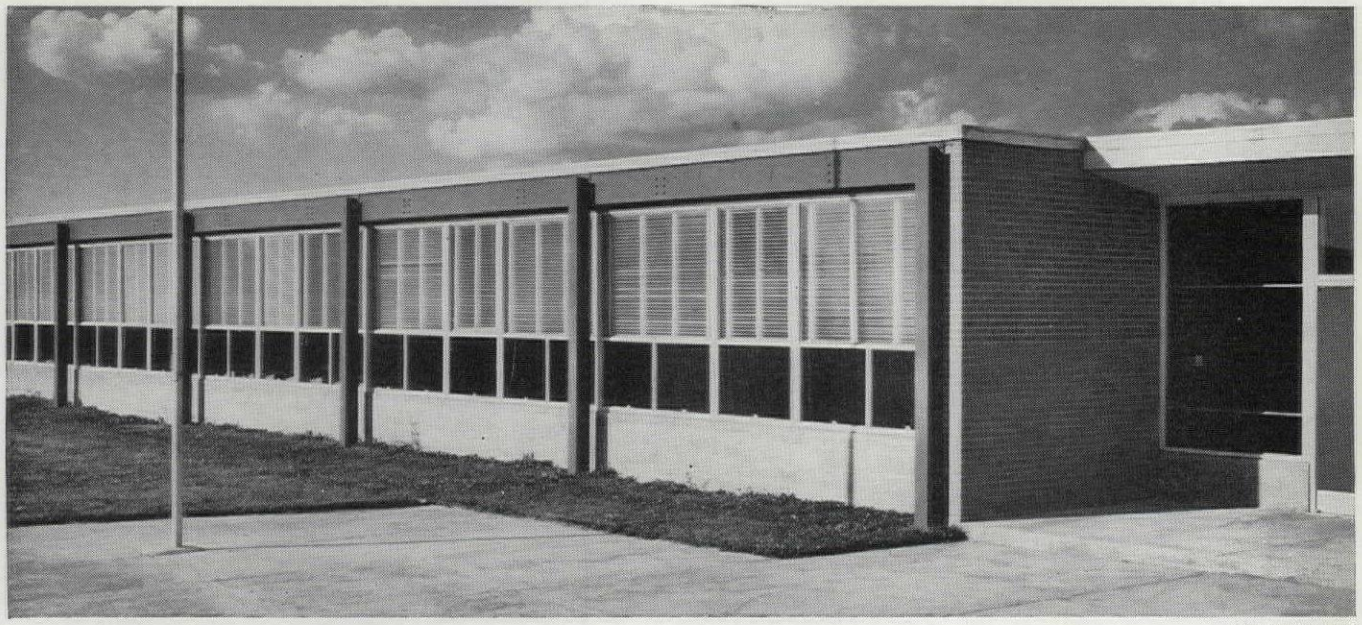
1. Excavation
2. Piling
3. Concrete
4. Masonry
   Brick, Concrete Block, Gypsum Block, Structural Facing Tile, Glass Block
5. Stonework
   Limestone, Granite, Terra Cotta, Exterior Marble, Cast Stone
6. Waterproofing and Dampproofing
7. Structural Steel & Steel Joists
8. Miscellaneous Iron and Steel
9. Ornamental Metal
10. Roofing
    Built-up Roofing, Shingles, Slate, Tile
11. Sheet Metal
    Skylights
12. Metal Windows
    Steel, Aluminum, Bronze, Stainless
13. Hollow Metal Work
    Steel Doors and Frames, Aluminum Doors and Frames
14. Furring, Lathing, and Plastering
15. Carpentry and Millwork
16. Builders Hardware
17. Caulking
18. Thermal Insulation
19. Metal Partitions
    Office Partitions, Toilet Partitions, Hospital Cubicle Partitions
20. Acoustical Treatment
21. Tile Work
    Ceramic, Plastic, Metal Tile
22. Resilient Flooring
23. Terrazzo
24. Interior Stone
    Marble, Slate
25. Glazing
26. Shades and Venetian Blinds
27. Hospital Casework
28. X-Ray Construction
29. Miscellaneous Building Items
30. Painting and Finishing
    Wallpaper, Vinyl Wall Covering
31. Site Improvements
    Roads, Walks, Landscaping, Fencing

It might be wise to arrange the order of the sections so that the more frequently used sections are noted at the beginning, and the less common ones are placed at the end of the index. Where a special need arises, the specifications writer can add the required section at the end of the standard index of the sections.

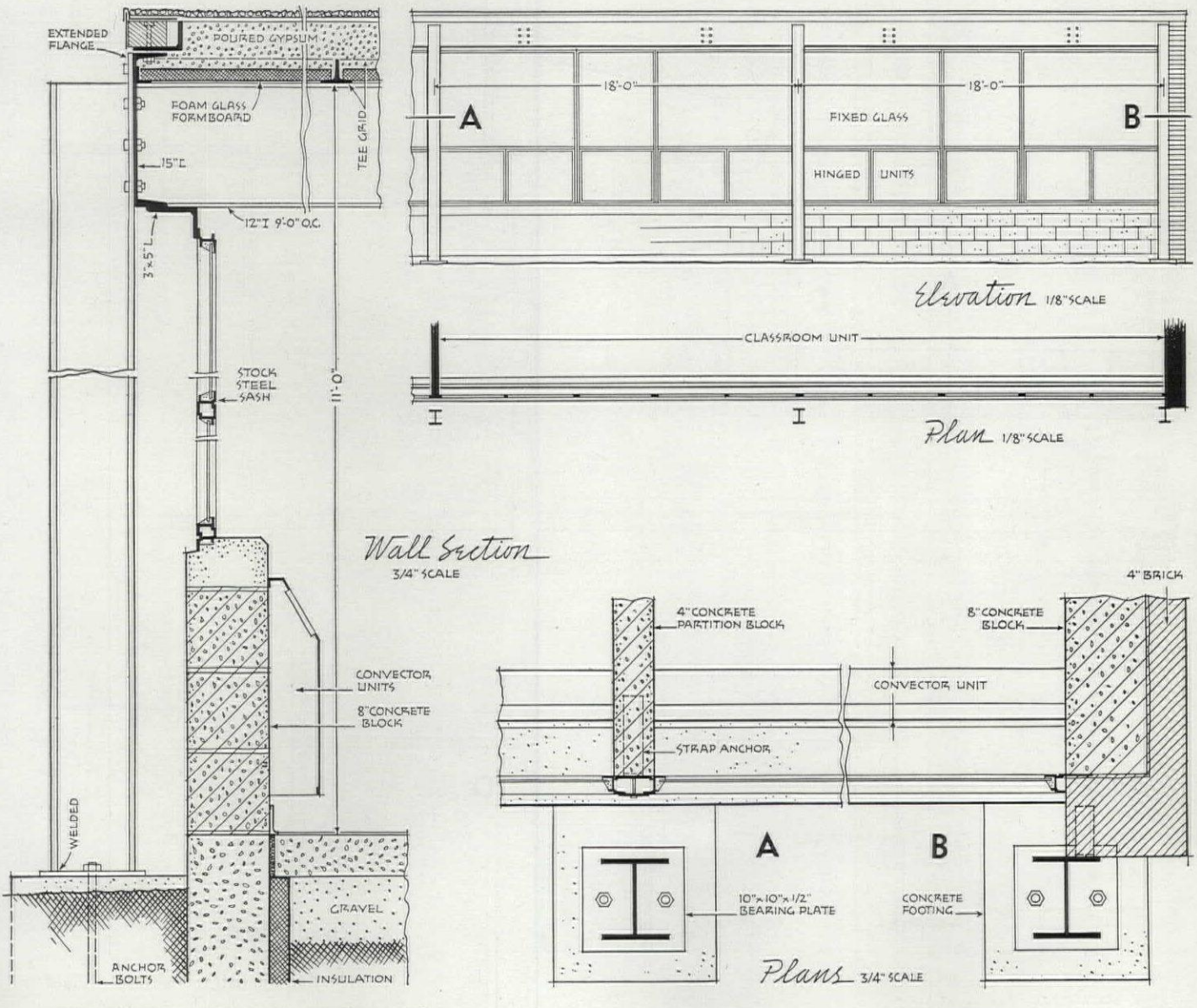
The sequence may be based on the general order in which the various trades will appear on the job, although it may not be wise to attempt to hold too closely to the exact chronological order of appearance. Grouping sections for certain kinds of work so that they may be let as a whole by a general contractor to a subcontractor may be another method of arrangement.

The Construction Specifications Institute can also draw from several published lists such as the AIA "Standard Filing System," Sleeper's *Architectural Specifications* and Steven's *Master Specifications*, in order to arrive at a definite and wholly satisfactory system, which will become the standard of the profession.

wall section



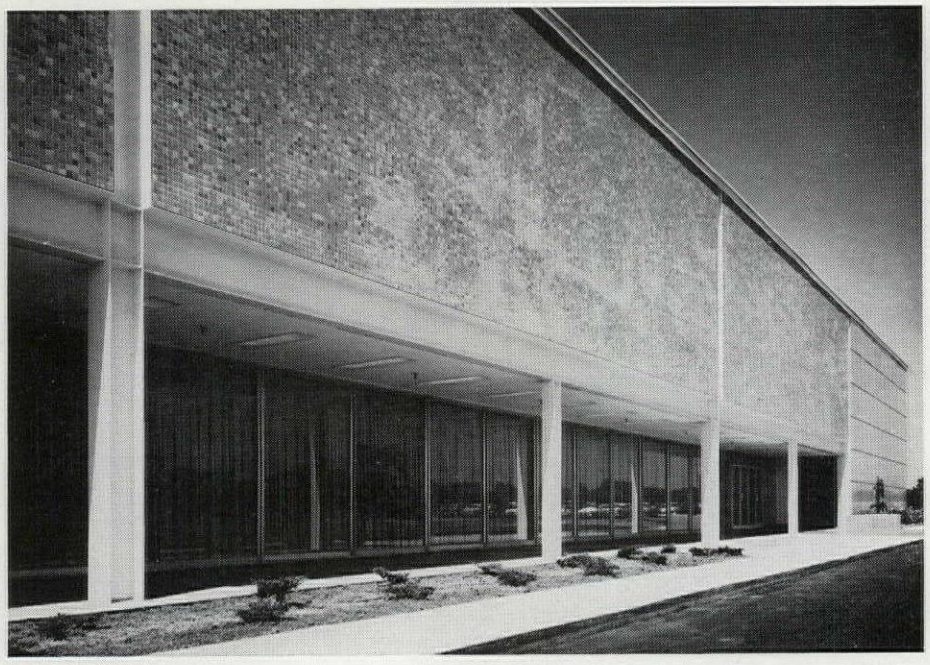
JOSEPH W. MOLITOR



ELEMENTARY SCHOOL, Madeira, Ohio

A. M. Kinney Inc.—Charles Burchard

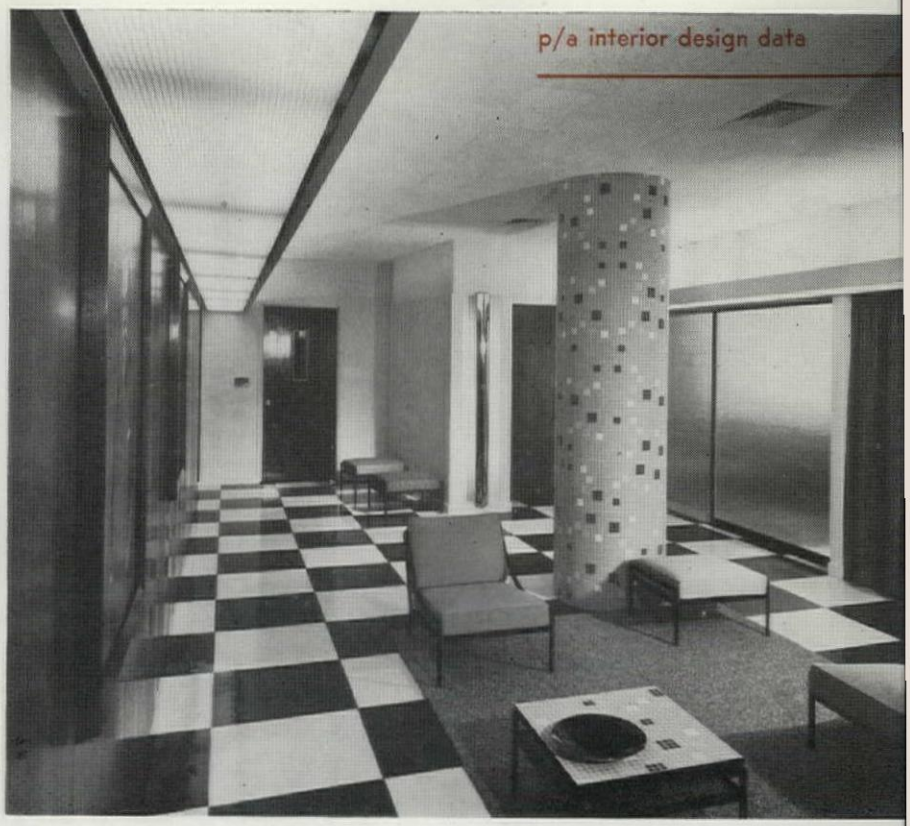
wall section



MORLEY BAER

PAPER MILL, Fullerton, Calif.

Kimberly-Clark Staff and Skidmore, Owings & Merrill, Architects-Engineers



Directors' Lounge, with portrait wall at left, suspended cove lighting, mosaic-tiled column, brown-and-white rubber-tiled floor. Trim and hardware are brass. Furniture colors repeat mosaic-tile colors (black, brown, light and dark yellow, white, light pumpkin).

Photos: Ben Schnall

Louise Sloane

remodeling - 1

In this section, we devote our entire attention to Peter Fraser, Jr.'s brilliant conversion of interior areas of The Connecticut Mutual Life Insurance Company's symmetrical Georgian red brick structure, in Hartford, to a handsome, functional, contemporary suite. The space now includes a Directors' Lounge, Directors' Board Room, Directors' Dining Room, and President's Office.

As the "before" pictures indicate, the original interiors had not been changed for some years, and Fraser's assignment included modernization of a structural and engineering nature, as well as a décor. Existing placement of columns, ducts, windows, stairways, predetermined the over-all sizes of all spaces, providing a considerable challenge in the carving out of newly necessary storage and equipment space.

Also, as suggested in the "before" pictures, an atmosphere of quiet luxury was clearly a client requisite, with drama permissible only at no expense to dignity. The designer's admirable solution is based on a meticulous plan of colors and materials—the unified colors gently touching tone gradations from brown to ivory, from black to white; the materials providing stimulating textural contrasts with velvet and leather, wood and mosaic tile, metallics and tweeds, copper and slate, marble and deep pile.

So much successful remodeling has come to our attention that we will follow this month's presentation with other work of the same category in August.

remodeling

Directors' Board Room, with fireplaces at each end of room as focal points. Old-fashioned windows, completely blocked-out, are compensated for by luminous walls, achieving even, shadowless lighting. French doors replaced by fixed, clear glass. Hangings are six velvet panels, ranging from pale beige to deep chocolate, against which are portraits, free-standing in oak frames. The same smoky grayed-brown oak is used for fireplaces, furniture, doors, trim. The woven blind repeats the velvet colors, as well as the black patent leather of the Chairman's chair, the beige leather of the Directors' chairs. Luminous wall is curtained in sheer beige net, forms one of three lighting sources, the other two being lights over conference table and those used to highlight portraits and hangings. Custom-woven tweed carpeting combines the beige-to-brown room colorings.

golden buff marble

luminous wall

ombre velvet hangings

free-standing portrait

client | The Connecticut Mutual Life Insurance Company

location | Hartford, Connecticut

designer | Peter Fraser, Jr.

remodeling

Adjusting to existing space limitations, dining accommodations are provided for 12 to 16 persons, with all service equipment concealed: wall-hung refrigerator behind blind in wall recess next to fireplace; pass-through serving pantry behind floor-to-ceiling draperies adjoining glass sliding door; kitchenette behind wood folding door in alcove. Dramatic sloping ceiling, acoustic-tiled, conceals ductwork. Entire window wall covered in woven wood combining cocoa-painted slats and milk-glass rods, with fixed panels applied to walls, roll-up blinds at window and radiator enclosure openings. Area carpets on white, brass-stripped, rubber-tile floor. Fireplce wall is of Travertine marble tile. Lighting "baffle" is in cocoa-painted wood frame, held in place with continuous, polished-brass angles. Corner coffee-table may be raised to seat additional four.

The first strong color accent in the suite appears here with the introduction of a rich turquoise in the lowered ceiling, in the vertical dividers between walnut wall panels, and, blended with black, in a pair of armchairs. The copper-tile fireplace hood is flanked by gray-green slate walls, window shutters are beige or walnut. Beige, black and gold-threaded sheer draperies and beige carpeting continue the neutral color plan. Use of materials, as well as "fixed" furniture arrangement, are designed "to create logic" in a square room with four windows, two doors. Zigzag wall accommodates soundproofing and air-conditioning ducts.

remodeling

data

directors' lounge

Entrance Doors: wire-glass, brass stops, black lacquer.

Other Doors: walnut solid-core "Staystrate"/ United States Plywood Co., 55 W. 44 St., New York, N. Y.

Furniture: chairs, ottomans, table/ designed by James Morse/ Ernst Schwadron, Inc., 757 Madison Ave., New York, N. Y.

Drapery Fabric: "Kismet" pale pumpkin gold print on black/ L. Anton Maix, 162 E. 59 St., New York, N. Y.

Upholstery: "Rapture"/ gold, pale pumpkin/ L. Anton Maix.

Walls: smooth plaster painted very pale yellow/ rough textured plaster in natural sand color.

Tile Walls: tan background, squares of deep brown, black, white, pale yellow, deep yellow, pale pumpkin/ The Mosaic Tile Co., 1949 Pershing Ave., Zanesville, Ohio.

Mirror Walls: Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.

Wood Walls: walnut "Plankweld"/ U. S. Plywood Co.

Telephone Room Walls: gold metallic "Vicrtex"/ L. E. Carpenter & Co., 350 Fifth Ave., New York, N. Y.

Floor: brown-and-white rubber tile/ Robbins Floor Products Co., Tuscumbia, Ala.

Rug: "Highland Tweed" beige-and-brown mixture/ Firth Carpet Co., 295 Fifth Ave., New York, N. Y.

Ceiling: Motif'd Acoustone/ U. S. Gysum Co.

Suspended Cove Lighting: Gotham Lighting Corp., 3701 31 St., Long Island City, N. Y.

Vertical Lighting Fixtures: polished brass/ designed by Peter Fraser, Jr./ executed by Treitel-Gratz Co., Inc., 142 E. 32 St., New York, N. Y.

"Star" Chandelier: Metropolitan Lighting Fixture Co., Inc., 16 E. 39 St., New York, N. Y.

directors' board room

Design Associate: Mrs. S. I. Ward, Hartford, Conn.

Lighting Consultant: lighting by Feder, New York, N. Y.

All Doors, Cabinets, Wodwork: random-length oak flooring/ designed by Peter Fraser, Jr./ executed by C. H. Dresser & Son, Hartford, Conn.

Conference Table: custom-top of oak; base/ Lehigh Furniture Co., 16 E. 53 St., New York, N. Y.

Tilt-Back Chairs: oak finish/ The Ward Co., Hartford, Conn.

Recorder's Desk; Chair: Knoll Associates, Inc., 575 Madison Ave., New York, N. Y.

Velvet Fabrics: six panels/ shading from pale beige to dark brown/ Stroheim & Romann, 35 E. 53 St., New York, N. Y.; Kent-Bragaline, Inc., 509 Madison Ave., New York, N. Y.; Ramsona Fabrics Ltd., 6 E. 53 St., New York, N. Y.

Net Curtains: sheer "Pella"/ natural/ House of Sundour, 40 E. 53 St., New York, N. Y.

Patent Leather: black/ Guilford Leather Co., 515 Madison Ave., New York, N. Y.

Beige Leather: Eagle-Ottowa Leather Co., 10 W. 33 St., New York, N. Y.

Woven Window Blind: Webb Blinds, Los Angeles, Calif.

Walls: chalk-white painted plaster; fireplace wall, 2¼" wide random length oak flooring.

Luminous Walls: "Albalite" sliding panels/ Corning Glass Works, Corning, N. Y.; metal framework/ Unistrut Products Co., 1015 W. Washington Blvd., Chicago, Ill.

Ceiling: rough sand plaster, natural.

Carpet: custom-woven/ beige and three shades of brown/ V'Soske design, Lord & Adams, 4 E. 53 St., New York, N. Y.

Hardware: "Manhattan" hinges/ Hager Hinge Co., 141 E. 44 St., New York, N. Y.

Table Accessories: Vermont Marble Co., 61 Main St., Proctor, Vt.

Hearths, Projecting Frames: Galilee Golden Buff Marble/ Vermont Marble Co.

Andirons: Wm. H. Jackson Co., 3 E. 47 St., New York, N. Y.

directors' dining room

Sliding Glass Door: unpolished plate/ painted frame and fixed panel beige, sliding panel in black/ Arcadia Metal Products, 801 S. Acacia Ave., Fullerton, Calif.

Folding Wood Door: painted cocoa/ Pella Products, Pella, Iowa.

Woven Wood Wall and Window Panels: "Ariel" Lattiswood/ Columbia Mills Inc., 120 W. Onondaga St., Syracuse, N. Y.

Dining Table: Black Formica top, metal base/ designed by Peter Fraser, Jr./ executed by Lehigh Furniture Co.

Dining Chairs: Herman Miller Furniture Co., Zeeland, Mich.

Armchairs: Knoll Associates, Inc.

Coffee Table: Travertine marble/ Rene Brancusi Co., Inc., 1001 First Ave., New York, N. Y.

Pass-Through Drapery: striped chenille/ Boris Kroll Fabrics Inc., 220 E. 51 St., New York, N. Y.

Concealed Refrigerator, Kitchenette Units: General Electric Co., 310 W. Liberty, Louisville, Ky.

Walls: Travertine "Markwa" marble tile/ Vermont Marble Co.

Ceiling: Motif'd Acoustone/ striated/ U. S. Gypsum Co., 300 W. Adams St., Chicago, Ill.

Floor: white rubber tile/ Robbins Floor Products; polished brass divider strips/ Simon Manges & Sons, Inc., 575 Madison Ave., New York, N. Y.

Area Rugs: "Coronet"/ beige-and-white mixture/ Vogue Carpet Corp., 17 E. 53 St., New York, N. Y.

Clock: Howard Miller Clock Co., Zeeland, Mich.

Brass Firescreen: "Flexscreen"/ Bennett Fireplace Curtain Screen Co., 225 Fifth Ave., New York, N. Y.

Hardware: polished brass "Tulip"/ Schlage Lock Co., 2201 Bay Shore Blvd., San Francisco, Calif.

Recessed Cove Lighting: Gotham Lighting Corp.

"Baffle" Lights: "Gratelite"/ The Edwin F. Guth Co., 2615 Washington Blvd., St. Louis, Mo.

Downlight: "Saturn"/ Kneedler-Fauchere, 451 Jackson Sq., San Francisco, Calif.

president's office

Desk, Desk Chair, Storage Cabinet: walnut with white Formica/ Lehigh Furniture Corp.

Sofa: Jens Risom Designs, 49 E. 53 St., New York, N. Y.

Tables: white tops, black bases/ Herman Miller Furniture Co.

Armchairs: Knoll Associates, Inc.

Ottoman, Slate-Topped Table: James Morse design/ Ernst Schwadron, Inc.

Curtain Fabric: "Tanglewood"/ Isabel Scott Fabrics, 17 E. 53 St., New York, N. Y.

Sofa and Side Chair Upholstery: "Arabesque"/ Isabel Scott Fabrics.

Desk Chair: "Transportation Cloth"/ Knoll Textiles.

Fireplace Armchairs: "Intransit"/ L. Anton Maix.

Ottoman, Sofa Cushion: "Comet"/ Isabel Scott Fabrics.

Louvered Shutters: "Plantation"/ Devereux Products Co., 1725 Berkeley St., Santa Monica, Calif.

Entrance Wall: grasscloth/ "Vicrtex"/ L. E. Carpenter & Co.

Wood Walls: "Algoma" walnut plywood/ U. S. Plywood Co.

Fireplace Wall: copper tile/ Vikon Tile Corp., Washington, N. J.; slate/ Vermont Structural Slate Co., Fair Haven, Vt.

Mirrors: Pittsburgh Plate Glass Co.

Ceiling: "Motif'd Acoustone"/ U. S. Gypsum Co.

Carpet: "Caracul"/ greige/ Alexander Smith Carpet Co., 295 Fifth Ave., New York, N. Y.

Lighting Fixtures: Neo-Ray Products, 315 E. 22 St., New York, N. Y.

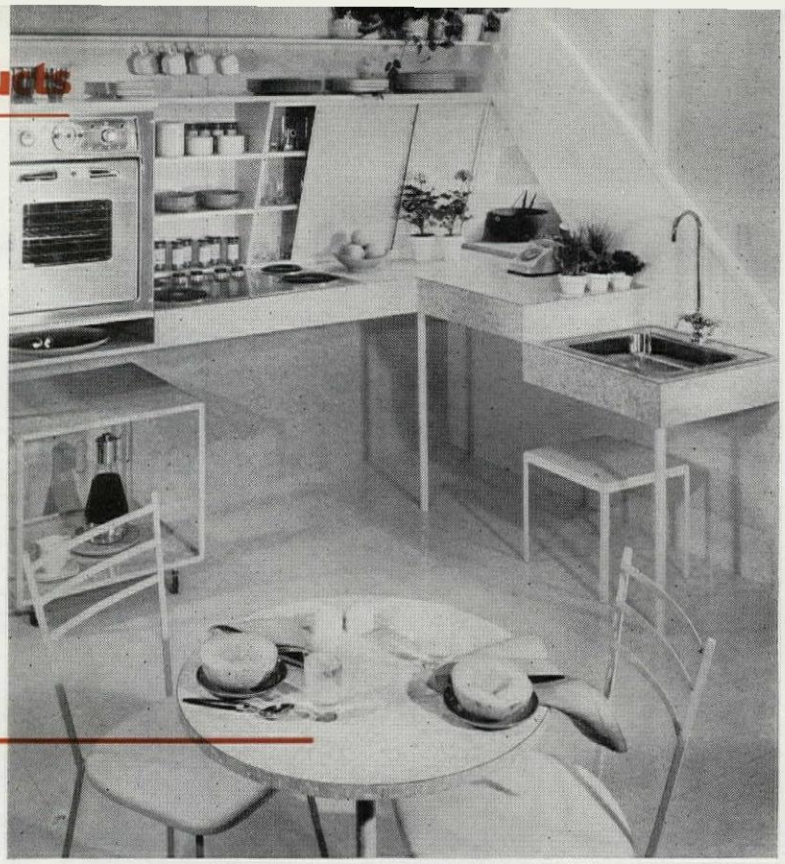
Dimmer Control: "Luxtrol"/ Superior Electric Co., Bristol, Conn.

Hardware: white porcelain, copper trim/ British import/ Ostrander & Eshleman, Inc., 40 E. 49 St., New York, N. Y.

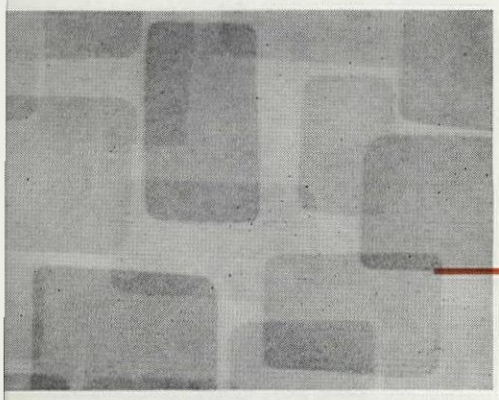
Clock: "Lifetime"/ copper and verdigris bronze/ Howard Miller Clock Co.

File Basket, Waste Basket: walnut/ Lehigh Furniture Co.

p/a interior design products

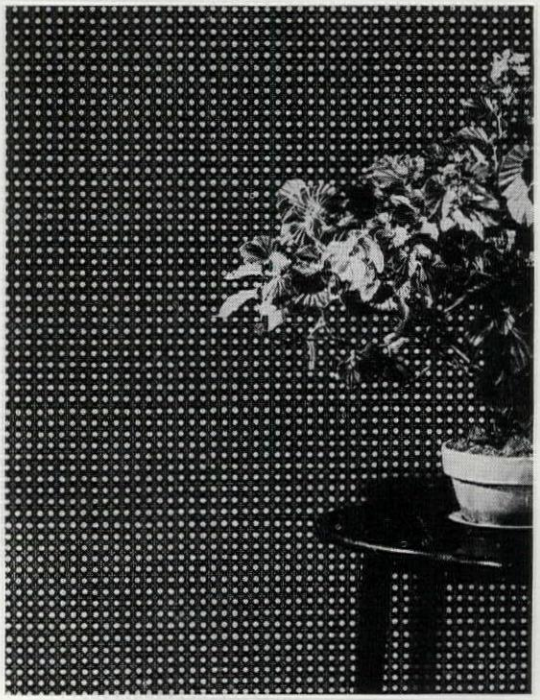


Cooking Workshop Setting: introduces new Formica patterns by Raymond Loewy Associates/ "Nassau" (see closeup) covers counters and serving pieces; "Colorgrain" covers cabinets and wall/ "Nassau" comes in Calypso Red, Sky Blue, Gull Gray, Sunshine Yellow, Bronze, Tropical Green/ "Colorgrain" comes in blue, coral, gray, or yellow/ designed by Staniford Squire/**Formica Corporation, Subsidiary of Cyanamid, Cincinnati, Ohio.**



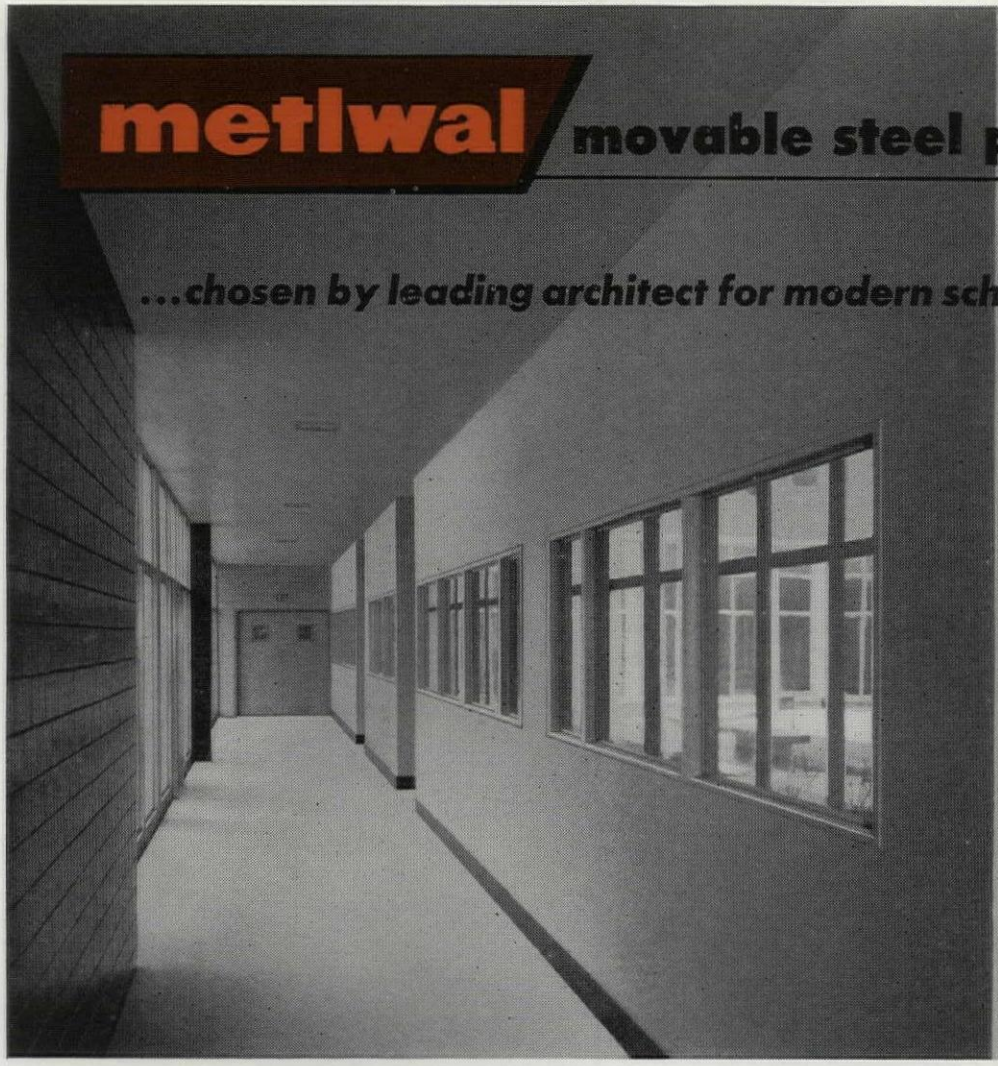
Handprint: "Prisma"/ Swedish import on linen/ comes in beige, gray, yellow, red, blue/ 9" repeat, 50" wide/ designed by Sven Markelius/ **retail:** $9 yd./ **Knoll Textiles, Inc., 575 Madison Ave., New York 22, N. Y.**

Wallpaper: "Caning"/ comes in nutmeg and black, candy pink and geranium red, copper and chalk white, saffron and primrose yellow/ from the American Court Collection/ **retail:** $7.50 the single roll/ **Katzenbach & Warren, 575 Madison Ave., New York, N. Y.**



metlwal movable steel partitions

...chosen by leading architect for modern school in Michigan



●"We have been very pleased with the complete installation of METLWAL and we find it most satisfactory for its purpose as used in the Woodrow Wilson Junior High School at Wyandotte, Michigan."

J. Robert Swanson
PRESIDENT
SWANSON ASSOCIATES, INC.,
ARCHITECTS

● Except for exterior walls, all rooms in the shop section of this beautiful new school are enclosed by Metlwal Movable Steel Partitions.

William Eiker, Assistant Superintendent of the Wyandotte Board of Education, says:

"We have used Metlwal in our Woodrow Wilson Junior High School shops and are very satisfied with its construction and function. It was very flexible in installation, and we could cover our conduit and plumbing without difficulty."

Widening of the above corridor or alteration of room sizes can be done quickly at any time: Metlwal movable partitions can be relocated without disrupting plaster or floors. Ideal where noise control is important, Metlwal has the highest sound reduction properties of any known substitute material, not excluding 4" plaster wall.

Flexibility, low first cost, low maintenance, functional design and modern beauty all combine to make Metlwal a prime choice for new construction . . . and for modernizing older structures.

William Eiker,
Ass't. Superintendent
Board of Education
Swanson Associates, Inc.,
Architects.
Darin & Armstrong, Inc.,
General Contractors.

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Mr. Carey (seated) discusses plans for his new Harvey Park Addition in Denver with his sales manager, Morris Gilligan, and David R. McMillan (also seated) of Mountain States Telephone and Telegraph Company.

"Concealed telephone wiring is a proven sales feature"

—says Mr. J. J. "Lou" Carey, Builder, of Denver, Colorado

"More and more customers are asking for concealed telephone wiring," says Mr. Carey. "It's one of the conveniences and refinements they expect to find in a modern home.

"Concealed telephone wiring is a proven sales feature because the American public wants more telephones. They want these telephones located handily and the wiring concealed. Our slogan is 'The Best Planned Home We Can Build,' and that certainly includes telephone planning."

In his eleven years as a builder, Mr. Carey has been associated with the construction of more than 3000 homes. At present he is at work on 450 more. He is a past president of the Home Builders Association of Metropolitan Denver, and is a National Director of NAHB. In company with trend-minded builders across the country, Mr. Carey is convinced of the value of concealed telephone wiring as a quality sales feature.

• • •

Your nearest Bell Telephone business office will help you with concealed wiring plans. For details on home telephone wiring, see Sweet's Light Construction File, 8i/Be. For commercial installations, Sweet's Architectural File, 32a/Be.

Working together to bring people together
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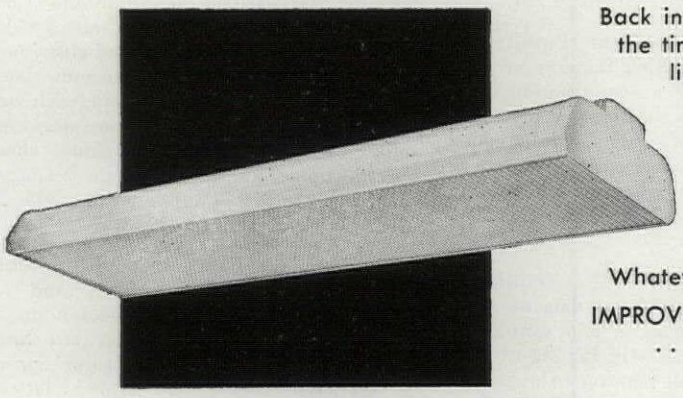
it puts you "light years" ahead!



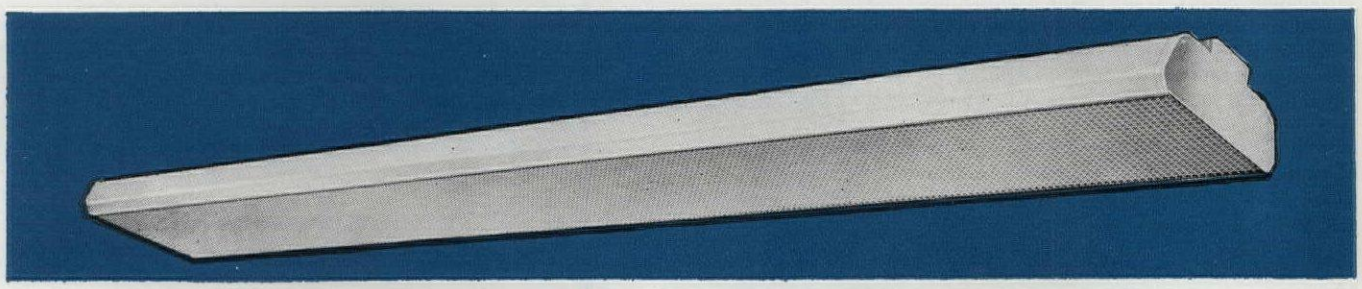
Back in a new functional dress, Guth Futurliter breaks through the time barrier of illumination planning. You meet today's lighting requirements and anticipate tomorrow's needs, with Futurliter's "flexible footcandle package."

Install two rows now . . . add a third lamp later, *in the same fixture.* Still later, you can *add more Futurliters* between units installed now . . . or *complete third and fourth rows!*

Whatever footcandle flexibility you want—*Futurliter delivers.*

IMPROVED LOUVERING AND DIFFUSING MEDIA AVAILABLE . . . with famous GrateLite Louver Diffuser*, cross baffles, glass bottoms, and others.

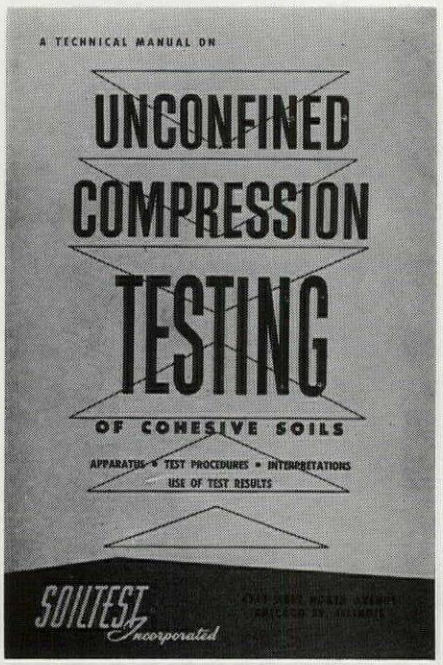
Choice of 4′ and 8′ lengths available for 100% downlighting, or combination up-and-down lighting, for pendant or close-ceiling mountings. Write for complete data.



TRUSTED NAME IN LIGHTING SINCE 1902

THE EDWIN F. Guth COMPANY • ST. LOUIS 3, MO.

*U. S. Pat. No. 2,745,001 Can. Pat. 1957, No. 538,245



First of a new series of manuals which will cover all major phases of testing of construction materials, Unconfined Compression Testing Manual, published by Soiltest, Inc., is intended to augment available textbook data on soil-testing procedures and soil-test evaluation.

Manual describes, in detail, the test for cohesive soils and outlines standard engineering test procedures using laboratory equipment designed specifically for the test.

Written for engineering, laboratory, and educational use, the 56-page book deals, not only with test procedures and equipment, but also with interpretation, application, and limitations of test data. Photos, drawings, graphs, and tables illustrate text.

Copies of Unconfined Compression Testing Manual, 56-p. are available free from Soiltest, Inc., 4711 W. North Ave., Chicago 39, Ill.

★ *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

118. Copper Tube Panel Grids, 28-p. guide to installation and design of residential radiant heating system using preformed, copper tube panel grids. Discusses principles of radiant panel heating; explains advantages of new system with flexible center spacing that simplifies adaptation to any plan arrangement. Diagrams suggest variety of grid designs for floor and ceiling as well as methods of indicating grid layout in drawings. Gives installation procedure with photo illustrations. Charts, drawings. The American Brass Co., Waterbury 20, Conn.

119. 3-Way Functional Ceiling, AIA 17-A, 12-p. booklet featuring multipurpose suspended ceiling system which incorporates acoustic-thermal blanket and heating-cooling snap-on panels. Discusses basic laws of radiant energy and application in radiant heating-cooling system. Shows components of suspension system and assembly of channel grid, water coils, insulating blanket, prefabricated aluminum panels, and connectors. Outlines features and design procedure. Schematic drawings suggest alternate arrangements of system. Performance curve chart, photos. Burgess-Manning Co., 5970 Northwest Highway, Chicago 31, Ill.

★ **120. Trade-Wind Ventilators and Heaters,** 12-p. catalog exhibiting line of kitchen/bathroom ventilators and electric wall heaters. Introduces prewired built-in oven ventilator—equipped with on/off switch, automatic thermostat, and removable filter. Also features packaged ventilator hood systems—formerly sold in bulk only—now available for single installations. Photos, drawings, sizes, installation data. Trade-Wind Motorfans, Inc., 7755 Paramount Blvd., Rivera, Calif.

121. Prop-R-Temp Heat Pump, 8-p. product guide describing features of automatic heating and air-conditioning unit which operates on heat-pump principle. Outlines features of system. Color-coded diagrams trace air-circulation pattern through system during heating and cooling operations. Typhoon Heat Pump Co., 2001 Garcia Ave., Tampa, Fla.

★ **122. Hernel-Cool II Ventilator,** 24-p. booklet containing data on year-round air-conditioning and ventilating system designed especially for classrooms. Outlines construction features. Details operating characteristics and controls. Procedure for selection, selection data, selection example; hot- and chilled-water cooling capacity charts; specifications; dimensioned drawings; installation drawings; data on accessories: book shelves; utility cabinets, wall fillers; engineering data; photos. Herman Nelson, American Air Filter Co., Inc., Louisville, Ky.

construction

205. Reyconowall Curtain Walls, AIA 12-C, 8-p. bulletin providing instructions for installation of insulated field-assembled curtain wall consisting of ribbed or corrugated exterior aluminum sheet, glass-fiber insulation, corrugated aluminum interior sheet. Describes advantages and economies of wall system. Step-by-step erection procedure is accompanied by detail drawings. Photos, specifications, loading tables, dimension data. Reynolds Metals Co., Bldg. Products Div., 2000 S. Ninth St., Louisville 1, Ky.

206. Aluminum in Architecture, AIA 15-J, 16-p. pamphlet describing properties and use of various aluminum alloys for building components. Lists alloy types for specific installations of aluminum sheet plate, castings, extrusions, hardware, welded members, or porcelain-enameled aluminum. Photos show: embossed aluminum sheets for decorative use; insulated-sandwich wall system; shade screening. Section drawings, table of finishes, color-matching chart, specifications. Kaiser Aluminum & Chemical Sales, Inc., Palmolive Bldg., 919 N. Michigan Ave., Chicago 11, Ill.

207. Porcelain Enamel for Aluminum, 4-p. brochure outlining features and advantages of porcelain-enamel coated aluminum and aluminum alloys for structural and decorative use. Stresses color appeal in store-front designs, display letters, kitchen and bathroom paneling, tiles, household appliances. Describes application of coating. E. I. duPont de Nemours & Co., Electrochemicals Dept., Wilmington, Del.

208. Micro-Match Flooring, 4-p. folder containing information on pre-sanded oak strip flooring supplied in long uniform lengths and double-widths to eliminate problem of matching odd pieces. Color photos show precision tongue and groove connections of strips that form integral finished floor over conventional subflooring, concrete slabs, or joists. Illustrates two available oak grades. Specifications. Miller Brothers Co., Inc., Johnson City, Tenn.

209. Davidson Architectural Porcelain, AIA-17-A, 20-p. reference catalog with data on porcelain-enamel panels for commercial and institutional buildings. Section on curtain walls provides details and elevations showing installation of single and double-wall panels via mechanical connections.

Section on facing panels shows clip attachment for screw connections and gasket-type joints. Gives typical trim and opening details. Illustrates variety of panel surface patterns and channel letter designs. Photos and drawings show: installation of decorative facing panels and louver inserts; exterior remodeling job; installation of checkered-panel pylon. Davidson Enamel Products, Inc., 1104 E. Kibby St., Lima, Ohio.

210. Mills Movable Walls, AIA 35-H-6, 68-p. catalog featuring series of modular movable metal partitions designed for office and factory interiors. Details construction features and application of three incombustible, acoustical partition types. Perspective drawings suggest applications using alternate jamb, head, and base details. Covers installations for particular room requirements; details for wall linings and railings. Also, catalogs accessories: transoms, louvers, bookcases, sliding doors, hardware, electrical outlets—giving details for installation. Photos, drawings, specifications, exploded views. The Mills Co., 993 Wayside Rd., Cleveland 10, Ohio.

211. Glass for Construction, AIA 26-A, 28-p. booklet providing data on special glass types for architectural applications. Covers tempered plate glass windows and doors, shatterproof glass, insulating glass, transparent mirrors; also patterned, frosted, heat-absorbing, and wire glass. Describes physical properties; suggests installation methods. Gives chart of standard sizes and designs in plate glass windows; table of dimensions and varied patterns in obscure glass. Photos, drawings, specifications. Libbey-Owens-Ford Glass Co., Toledo 3, Ohio.

doors and windows

307. Reversible Windows, AIA 16e, 4-p. folder describing features of stainless-steel reversible windows with automatic locking device—designed for fully air-conditioned office buildings. Discusses economies of use in conjunction with stainless-steel spandrels and cement-block or tile-masonry back-up wall. Standard details; specifications. Truscon Steel Div., Republic Steel, Youngstown 1, Ohio.

308. Adjustable Threshold, installation drawing and data sheet on adjustable aluminum threshold—with two interlocking members—designed specifically for use where floors of different levels are joined. Illustrates typical applications, clip connection. Specifications, dimensions. National Guard Products, Inc., P. O. Box 4754 North Station—540 Jackson Ave., Memphis, Tenn.

309. Overline Entrances, AIA 16-A, 8-p. catalog brochure features photos of stainless-steel entrance door installations—some with automatic operators and baked-enamel finish—in schools, stores, hospitals, and commercial buildings. Descriptions accompany photos. Also highlights doors equipped with vinyl-edge cushion between stile and jamb to prevent accidental finger damage. Streamlined specifications. Overly Mfg. Co., Greensburg, Pa.

310. Duraflex Thresholds, AIA 14-B, 4-p. publication on four-piece extruded aluminum threshold with two vinyl strips inserted along bottom edges and one arched against door to provide triple-seal weather protection. Lists advantages; describes construction features. Section drawings and photos show available extrusion shapes. Installation instructions, sizes. Duraflex Co., 3500 N.W. 52 St., Miami 42, Fla.

311. School Hardware, 6-p. folder illustrating line of contemporary-styled aluminum door hardware for schools. Photos show locksets, door stops, door pulls, push-plates, standard mortise lock and latch, door closers; sketches show other latches and locks for particular door types. Also features combination locker locks and padlocks. Yale & Towne Mfg. Co., Stamford, Conn.

312. 3-R's and Daylighting, AIA 10-F, 12-p. pamphlet describing approach to school lighting which stresses quality rather than quantity of light. To achieve this end, application of prismatic glass block is recommended and discussed. Illustrations show how blocks alter course of light rays. Installations of various block-and-window combinations are shown in photos. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.

electrical equipment, lighting

494. Commercial Lighting, AIA 31-F-237, 20-p. guide to application of incandescent and fluorescent fixtures for specific commercial/institutional buildings. Shows variety of lens panel designs including linear, louvered, prismatic, pebbled, and concentric-ring types. Recommends panels for particular areas in each of five building categories: offices, schools, banks, hospitals, and stores. Gives table for rough estimation of fixture locations and numbers. Photos, charts, drawings. Corning Glass Works, Corning, N. Y.

495. Gotham's New Domelite, AIA 31-F-2, 6-p.

496. Gotham's Hourglass, AIA 31-F-2, 4-p. Two file folders exhibiting designs for new series of incandescent lighting fixtures with graceful contour reflectors. Section drawings in first brochure illustrate white-enameled dome reflectors with conical baffles in recessed, surface, and pendant installation. Engineering data, series price list, photos. Second brochure illustrates nine combinations for wall or ceiling mounting of hour-glass shaped fixture which accommodates variety of lamps. Shows single and multiple-unit mountings. Gotham Lighting Corp., 37-01 31 St., Long Island City 1, N. Y.

finishers and protectors

525. Del Protective Coatings, 12-p. catalog describing application procedures, uses, and features of line of protective coatings for metal, masonry, and wood. Also features synthetic-rubber compound for sealing, glazing, or filling jobs. Tab-indexed for easy reference to resins, primers, waterproofing, emulsion-type coatings, chemical resistance charts. Photos. David E. Long Corp., 220 E. 42 St., New York 17, N. Y.

526. Glasfab, 8-p. catalog brochure describing properties of woven glass-fiber permanent membrane-waterproofing system. Compares volume, strength, weight, and thickness of product with other membranes. Provides specifications and cut-away drawings for hot process application using asphalt or pitch and cold process method using emulsified or cut-back asphalt. Expansion joint details, on-the-job photos. Twinsburg-Miller Corp., P.O. Box 207, Twinsburg, Ohio.

★ **Encyclopedia of Coatings,** large-size chart folded to fit standard file is unique guide to properties and use of liquid-plastic protective coatings which are applied without special skills or equipment. Chart is based on comprehensive

(Continued on page 174)

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.

118	209	494	867
119	210	495	868
120	211	496	869
121	307	525	870
122	308	526	871
205	309	649	963
206	310	650	
207	311	651	
208	312	740	

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Coupon must be used by 9/1/57.

Fabulous Gulfgate

Owner: THEODORE W. BERENSON AND ASSOCIATES, Boston, Mass.; Architects-Engineers: JOHN GRAHAM AND COMPANY, Seattle and New York; Associate Architects: IRVING R. KLEIN AND ASSOCIATES, Houston; Contractors-Engineers: FARNSWORTH & CHAMBERS CO., INC., Houston; Sheet Metal & Roofing Contractor: LYDICK ROOFING COMPANY OF HOUSTON, Houston; Revere Distributor: MONCRIEF-LENOIR MANUFACTURING COMPANY, Houston.

1.

HERE YOU SEE workman putting the Revere-Keystone standard 4" flat copper receiver with ¼" hook dam in place preparatory to putting masonry in place. Revere-Keystone 2-Piece Cap Flashing also comes in combination receiver and Thru-Wall Flashing, with receiver furnished in 49" lengths (48" layup), with 1" overlap in a locking tongue dam to assure proper alignment. (See diagram on next page.)

2.

MASONRY being put in place over the Revere-Keystone 2-Piece Cap Flashing. In this way masons and roofers can work without interference and without damaging cap which is snapped into place after work is completed.

Shopping Center

takes 3 fast steps to a tight-as-a-drum Flashing Installation... uses

REVERE-KEYSTONE*

EASY-TO-PLACE 2-PIECE CAP FLASHING

This Shopping Center, located in Houston, Texas is the largest regional Shopping Center in the South, and includes famed Joske's and Sakowitz Department Stores. The Center itself, including buildings, truck tunnels and malls covers about 840,000 square feet, with the entire plot covering 2,580,000 sq. ft. which has in excess of 5,000 prime car parking spaces. It represents a $32,000,000 investment and was designed by JOHN GRAHAM & Co., of Seattle and New York.

Although there are 15,000 lbs. of Revere Sheet Copper and 8,600 ft. of Revere Reglet Flashing on this job the item of greatest interest is the 1,000 ft. of Revere-Keystone 2-Piece Cap Flashing, the flashing system that has created quite a stir with architects, sheet metal contractors and engineers.

HERE ARE SOME OF THE REASONS WHY—

FREE WALL—It provides the roofer with an unobstructed wall face for the placement of the base flashing. Receiver is laid in during construction of wall, while the insert is snapped in only after all roof and base flashing work is finished.

STRAIGHT CLEAN LINE, PERMANENT GOOD LOOKS—Factory-bent to precise dimensions. This, with the one-inch locking tongue, assures alignment of receiver slots, uniform appearance.

PERFECT WEATHER-SEAL—Factory-formed angles on the receiver and insert cause latter to hug the base flashing, weather-seal effectively. Water cannot blow up behind flashing.

NON-LEAKING DAMLOCK — Requires no soldering except for special conditions. The interlocking copper-to-copper overlap creates a dam which prevents longitudinal travel of water and drains seepage to the face of the wall.

VERTICAL RECEIVER SLOT ON WALL FACE—Position of vertical receiver slot on face of wall eliminates possibility of the receiver slot being crushed shut by weight of masonry.

CAN BE DISASSEMBLED—Insert can be removed with a simple tool and used again, with no loss of neatness or snugness, when the built-up base flashing or roofing have to be repaired.

Find out about this newest method of flashing neatly, quickly, safely, positively. Send for descriptive literature today! Write Advertising Department.

FREE! For group showing—Instructive 16 mm motion picture in sound and color—"SHEET METAL IN BUILDING CONSTRUCTION." A "must" for every Architect, Building Owner, Spec. Writer, Sheet Metal Contractor and Mechanic. Write Revere Advertising Department.

*Patent No. 2,641,203 Other Pats. Pending

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Founded by Paul Revere in 1801

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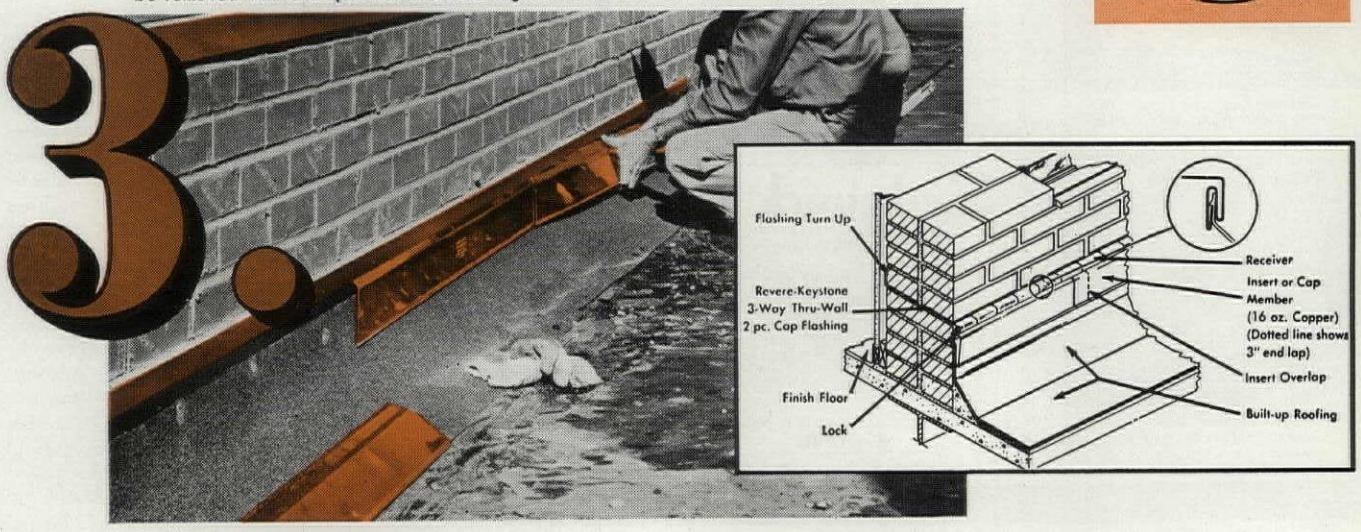
Mills: Rome, N.Y.; Baltimore, Md.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N.Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.

COPPER * BRASS * 18 01 REVERE * ALUMINUM

SNAPPING CAP MEMBER INTO PLACE to form a perfect weather seal gives the job a nice, neat finish. And should built-up base flashing or roof need repairing, the insert or cap can be removed with a simple tool and used again without loss of neatness or original snug fit.



p/a manufacturers' literature

(Continued from page 171)

listing of architectural, industrial, and marine surfaces normally encountered. Other columns cover conditions surfaces are exposed to such as corrosion, impact, temperature—and characteristics required of coating for particular surface. Final columns recommend specific coatings for specific job. Available only on direct request to: Protective Coatings, Inc., 807 N. Fremont Ave., P. O. Box 2578, Tampa 1, Fla.

649. Plaster and Acoustical Systems, 21-A-5, 8-p. booklet offering data on vermiculite plaster and acoustical systems for application to floors, walls, ceilings, and structural members. Gives summary of fire tests; discusses use of gypsum plaster base coat, fireproofing, and insulating back-up in housing and nonresidential structures. Photos, specifications, drawings. Zonolite Co., 135 S. LaSalle St., Chicago 3, Ill.

650. Foamglas Building Insulation, AIA 37-B, 24-p.

651. Foamglas in Thin Wall and Sandwich Panel Construction, AIA 37-B, 12-p. Two booklets presenting data on use of all-glass thermal insulating material. First booklet provides photos and details of rigid insulation boards applied to flat and pitched roofs, curtain walls, core walls, concrete ceilings, and perimeters. Recommends adhesives and finish materials. Technical data charts. Second booklet supplies photos and details of specific buildings using insulated sandwich panels of aluminum, porcelain enamel, or concrete. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.

Ballast Sound-Rating Calculator, 4-p. chart-folder with dial indicator attached will aid specifiers in determining sound level of fluorescent-lighting layout prior to installation. Using sound level stamped on case of ballasts, number of ballasts installed, size and acoustical characteristics of room, and room's ambient sound level, specifier can predict whether or not sound problem will result and select proper rating accordingly. Room constant chart, calculator instructions, ambient sound level guide included. Send request directly to: General Electric Co., Section 1662, Schenectady 5, N. Y. $1

sanitation, plumbing, water supply

Atomic Plants and Reactors, 12-p. publication offering visual and descriptive data on nuclear power plants, reactors, and components developed to compete commercially with conventional power stations in remote locations or where chemical fuels are costly. Features five-page insert of transparent overlays showing details of typical reactor system. In addition, photo of plant model shows how equipment is arranged to prevent radioactive exposure. Includes drawings of pressurized water reactor cycle and reactor core as well as nuclear-plant heat balance diagram. Available free on request to: Alco Products, Inc., P. O. Box 1065, Schenectady, N. Y.

740. Hudee Handbook, 34-p. guide to application and selection of stainless-steel or aluminum sink frames for cabinet-type flat-rim sinks. Shows step-by-step procedure for installing frames between sink bowl and counter top via special clamp-down system. Provides comprehensive list of frame sizes and types to be used with sinks and lavatories manufactured by 48 nationally known firms. Includes full-size cross-sections showing clamp connections for various counter and bowl-ledge dimensions. Also illustrates use of bar assemblies for joining separate cabinet units. Photos, drawings. Walter E. Sleck and Co., 225 W. Hubbard St., Chicago 10, Ill.

Calculating Coefficients of Utilization, 40-p. report compiled by Committee on Lighting Design Practice of IES, presents results of efforts to simplify and improve method of lighting calculation. Describes new method for calculating coefficients of utilization; recommends desirable reflectance combinations; supplies series of

(Continued on page 178)

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NAMEPLATE
WHICH IDENTIFIES EVERY
SANYMETAL INSTALLATION.

Distinction, quality, in toilet compartments make an impression on all who occupy or visit a building. Sanymetal's added value costs building owners nothing—actually makes savings—because Sanymetal quality requires the least upkeep, renders the longest service attainable. There is no need to accept less.

See Sweet's, or write for Sanymetal Catalog 94.

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LONGSPANS GIVE CLEAR SPAN OF 69 FT TO NEW MILWAUKEE BANK BUILDING

This attractive new bank building is the newest Milwaukee branch of the First Wisconsin National Bank. It embodies the latest developments in modern banking facilities —plenty of parking space, drive-in windows and after-hours depositories, among others.

An outstanding feature of the new building is its 69-ft interior clear span, made possible by the use of 70-ft Bethlehem Longspan Steel Joists. The lobby and banking area, uncluttered by columns or supporting walls, is believed to have the largest clear span of any bank building in Milwaukee.

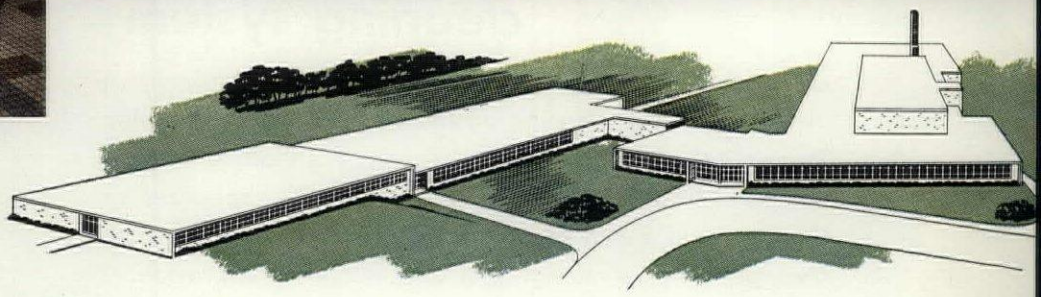
Bethlehem Longspans gave other advantages to the builders. The open webs of these steel joists simplified the installation of pipes and conduits. The joists arrived at the job site clearly marked, ready for immediate placing. And they contribute to the fire-resistant construction of the new bank, for steel joists in combination with poured floor slab and ceilings provide fire-resistance of up to four hours, depending upon the thickness of the slab and the type of plaster used.

Citizens' Office, a branch of the First Wisconsin National Bank, at West Villard Ave. and 38th St., was designed by Edwin J. Krause, architect, of Milwaukee. General contractor: Kroening Engineering Co.; steel fabricator: Wisconsin Bridge & Iron Co.

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 LONGSPAN STEEL JOISTS

BETHLEHEM STEEL



Glen Lake Elementary School, Glen Lake, Minn.
Architects: Bissell & Belair, Minneapolis, Minn.
Tile Contractor: Dale Tile Co., Minneapolis, Minn.

Romany•Spartan tile selected for Glen Lake school

The advanced thinking of our architectural designers, their skillful blending of modern and traditional material, and their utilization of new building techniques are providing America with the world's finest school buildings.

In this program, ceramic tile is playing an important part. New setting methods offer new opportunities to use tile where cost or weight is a factor. And Romany•Spartan offers a complete line to fill every functional and design need. Little wonder that more and more architects the country over are specifying Romany•Spartan.

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p/a manufacturers' literature

(Continued from page 174)

work sheets for computations and graphs for determining factors. Order directly from: Illuminating Engineering Society, 1860 Broadway, New York 23, N. Y. 50¢

specialized equipment

867. Curtis Kitchens, 24-p. catalog brochure illustrating range of wood cabinets and closets for designing attractive contemporary kitchens. Illustrates several complete kitchens stressing color variety in natural wood or painted effects. Shows selection of storage units with pull-out trays, swinging doors, and spinning shelves as well as storage walls and island units. Scale outline drawing of wall and base cabinets facilitate kitchen planning. Photos. Curtis Companies Service Bureau, Clinton, Iowa.

Patterson's Source Guide, 67-p. listing of business concerns dealing in educational materials and equipment, is compiled by School Superintendents, Board of Education members, businessmen, and school executives. Firms are listed both alphabetically and under product headings which range from academic apparel and acoustical materials to zoology charts. Four-color inserts and spot advertisements for school furniture and other equipment are included. Request directly from: Educational Directories Inc., 710 Seventeenth St., N. Chicago, Ill.

868. Methods for Plant Layout, 44-p. catalog showing materials and methods for making plant layouts or scale models without preliminary drafting. Describes two-dimensional system using grid sheets, templates, and tapes to create layout from which blueprints are made in usual manner. Drawings show available replicas of piping sections with brass-pin connections; pumps; compressors; ladders and stairs; laboratory furniture; refinery equipment and even scale figures for building miniature assembly lines and fully equipped model plants to facilitate visualization. F. Ward Harman Associates, Halesite, Long Island, N. Y.

869. Efficiency Kitchens, 4-p. catalog sheet featuring steel kitchen equipment for installation where space is limited. Provides photos showing assortment of combination units: electric stove, oven, broiler, sink, refrigerator combination; gas stove and electric refrigerator unit; electric refrigerator and sink unit; plus other space-saving combinations. Davis Products Co., Niles, Mich.

870. Plan for Kitchen Living, 24-p. booklet shows how kitchens are planned, custom-built, equipped, and decorated to suit individual taste and requirements. Photos illustrate special purpose units for each of four-areas: food preparation; clean-up; cooking and serving; auxiliary and storage. Color plates of kitchen ensemble suggest decorating schemes. Sketches show small accessories. St. Charles Mfg. Co., St. Charles, Ill.

871. Hardwood School Furniture, 35-B, 4-p. leaflet illustrating line of hardwood school cabinets and casework composed of standardized parts to permit rearrangement of shelves, drawers, mirrors, or accessories. Wardrobes and cabinet units fashioned for specific storage tasks are shown in photos. Construction drawings show precise detailing at cabinet corners. Coppes, Inc., Nappanee, Ind.

surfacing materials

963. Micarta, AIA 35-C-12, 22-p. architects' reference manual on high-pressure laminated-plastic surfacing material for decorative applications in schools, restaurants, and offices. Technical data chart lists types, grades, characteristics, uses, and sizes. Describes fabrication process; supplies construction details for material applied to walls, window stools, countertops, sinks, doors, and partitions; photos show completed installations; sketches suggest further applications. Specifications, color and pattern chart. United States Plywood Corp., 55 W. 44 St., New York 36, N. Y.

Pegs
are popular

Here's a popular-priced version of always-appealing pegged oak flooring. The walnut pegs of this Bruce Ranch Plank Floor are inserted at the factory. The beautiful finish is factory-applied, too, for economy and durability. Alternating 2¼″ and 3¼″ strips with beveled edges help capture the appearance of a costly random-width plank floor. Bruce Ranch Plank is laid just like any strip floor. Write for color booklet. See our catalog in Sweet's Files.

E. L. BRUCE CO.
Memphis 1, Tennessee

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Ranch Plank Floor
Naturally Beautiful

Furniture by Knoll Associates, Inc.
Photo by Hedrich-Blessing

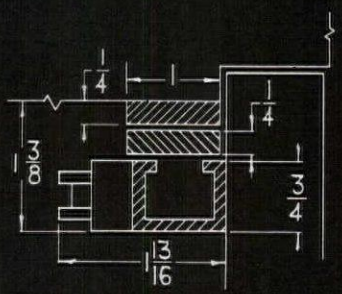
Surface Applied Door Holder

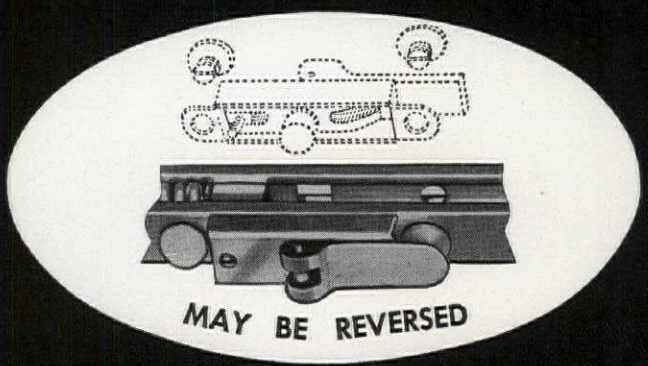
WITH AUTOMATIC SAFETY RELEASE

SERIES 190V

Spring-cushion stops opening action at 90° or 110° as required. Free acting slide does not hinder the efficient control of overhead or concealed checking floor closers.

Control lever may be preset to hold door open. Tension of holding action may be adjusted to varying weights of doors and may be released manually or with a firm "push-pull."





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SARGENT & GREENLEAF INC.

ROCHESTER 21, NEW YORK

CHOSEN AFTER TESTS with competing brands of masonry cement, Atlas Mortar goes into gymnasium, monastery and chapel of Mendel Catholic High School, Chicago, Illinois. Architect A. F. Moratz and Contractor Van Etten Bros. report results fully up to expectations with exact light color desired.

Here's how masons rate ATLAS® MORTAR cement: "Stays plastic . . . has excellent water retention . . . provides a strong bond"

- Good mortar workability is a necessary aid to masons in producing serviceable, watertight masonry walls.
- Field results consistently confirm that Atlas Mortar Cement produces excellent mortar workability and also gives high yields.
- Quality-controlled manufacture of Atlas Mortar Cement maintains high product standards and promotes uniform performance and appearance. (Complies with ASTM and Federal Specifications.)

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UNIVERSAL ATLAS CEMENT COMPANY—member of the industrial family that serves the nation—**UNITED STATES STEEL**

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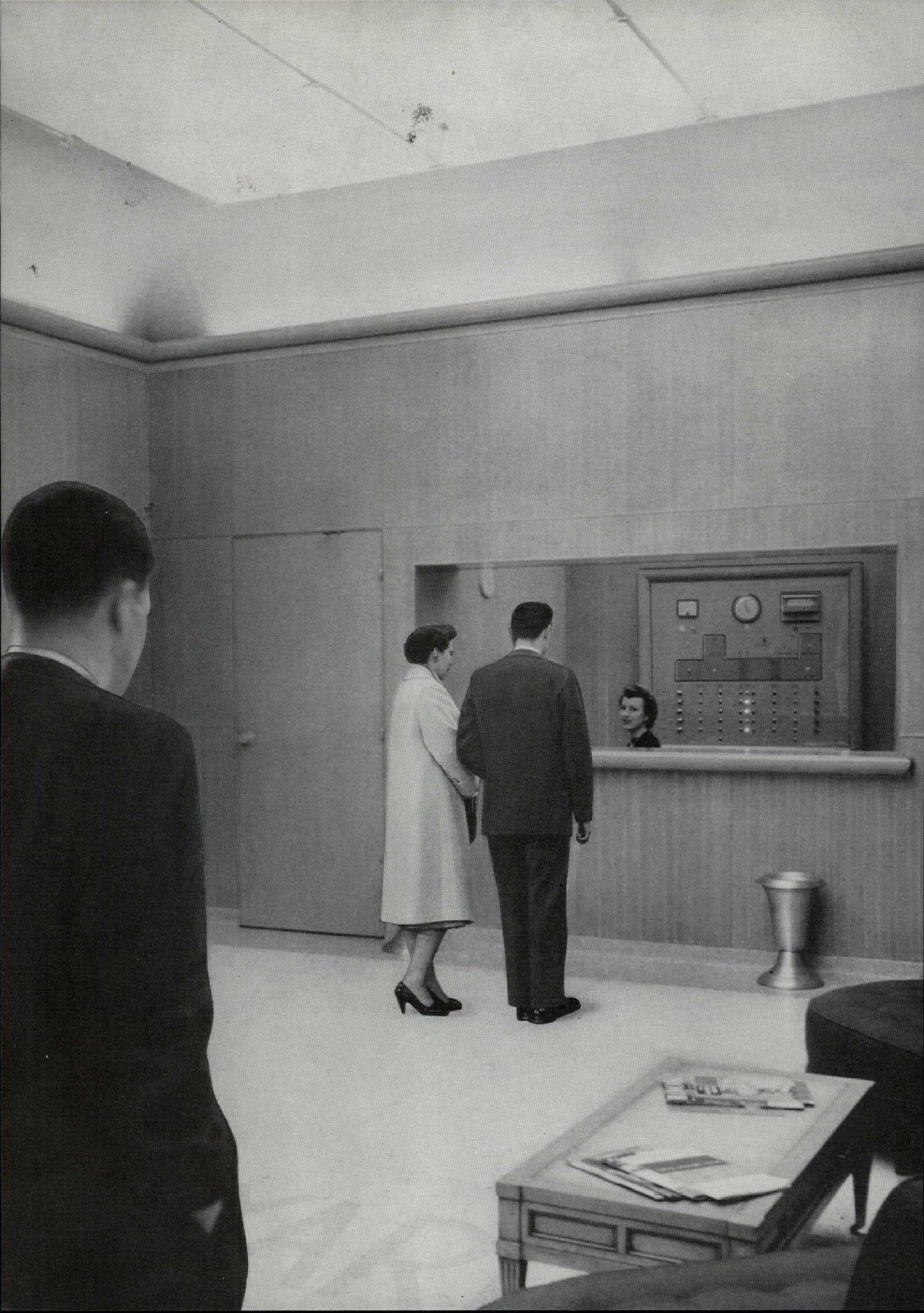
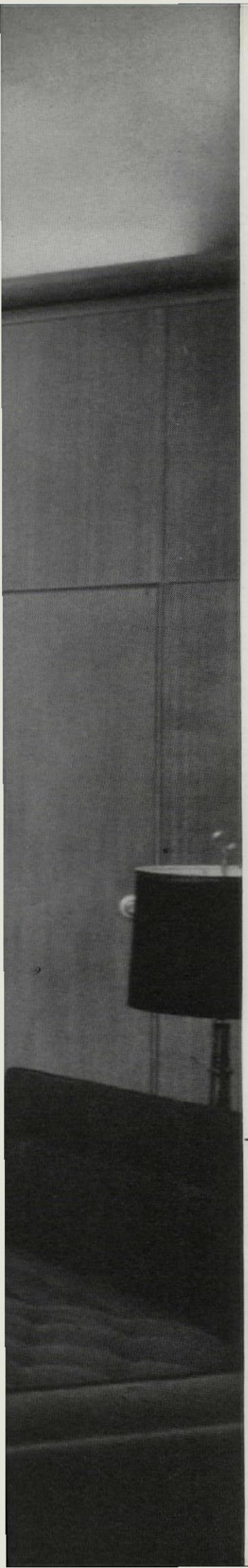
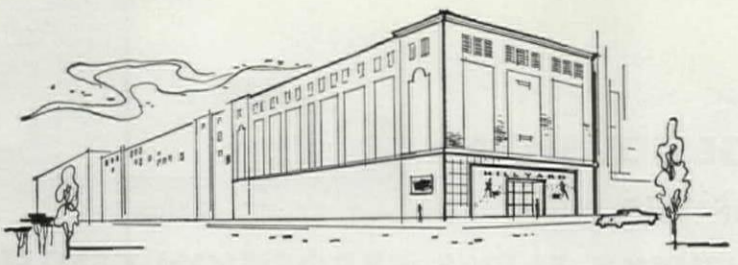






Architect: Harlen E. Rathbun, AIA. Consulting engineers: Turnbull-Novak Inc., Kansas City. Air conditioning contractor: St. Joseph Fuel Oil Co. Heating and plumbing contractor: Welsh Plumbing & Heating Co.

The right atmosphere calls for quality air conditioning "custom" controlled

GROWING FAST among business clients is a broadened definition of "right atmosphere"—the climate where business can be done most profitably.

Prime ingredient of this new thinking is quality air conditioning that provides year-round comfort, better health and efficiency of employees, improved customer good will.

Such a system includes precision heating, ventilating and cooling—all under coordinated *control*. And the best way to provide such control is with a Honeywell *customized* installation designed to fit the specific needs of the building.

An excellent example is the recently remodeled Hillyard Chemical Company building in St. Joseph, Mo.

The various comfort areas of this windowless six story building are each controlled by a strategically placed Honeywell thermostat. These in turn can be read and adjusted at an attractive central control panel conveniently located so that the receptionist can make sure occupants of each area are comfortable at all times.

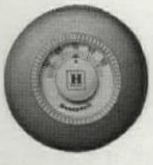
When *you* develop new construction or modernization plans for your clients, give them the right atmosphere. Plan for quality air conditioning, with a Honeywell customized control installation.

To learn more about Honeywell customized control, talk to your local Honeywell office. Or write Minneapolis-Honeywell, Dept. PA-7-205, Minneapolis 8, Minnesota.

Easily-monitored Master Control Panel—
Key to Quality Air Conditioning

Office receptionist easily supervises and controls the entire air conditioning system of the six-story Hillyard Chemical Company building. This is made possible by a Honeywell Supervisory DataCenter* with clearly marked controls, instruments and graphic system diagram. At the panel next to her she can adjust temperatures to suit the needs of occupants of each different building area according to area activities and seasonal needs. Only Honeywell has the experience and the complete control line to provide an installation that so effectively ties in all types of control, so well adapts to any building. **Trademark*

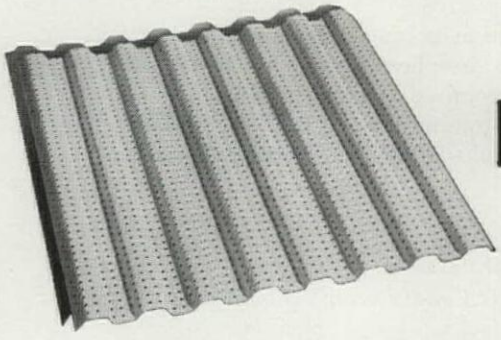
Honeywell



H HONEYWELL First in Controls

The Honeywell Round . . .
World's Most Popular Thermostat

HUGE COLISEUM OF THE NEW KENTUCKY FAIR & EXPOSITION CENTER



...SOUND-CONDITIONED WITH

ReynoCoustic

This 125,000 square foot installation consists of ReynoCoustic Pyramid Grid Pans in 4-foot squares set in alternating direction of pattern.

The photograph attests the handsome appearance of this ceiling. The practicality of the movable panels, for access to utilities, is obvious. Aluminum's freedom from rust and resistance to corrosion assure lowest maintenance. Its incombustibility earns the U.L. label. And these advantages are all in addition to maximum noise reduction!

You can now get all these benefits in five types of ReynoCoustic—the original Long Span corrugated panels, Pyramid Panels, Pyramid Grid Pans, Snap-In Flat Pans, and Lay-In Flat Pans. Installed cost is low. Write for details.

A complete installation service is available. For name of nearest Franchised Acoustical Contractor, 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.

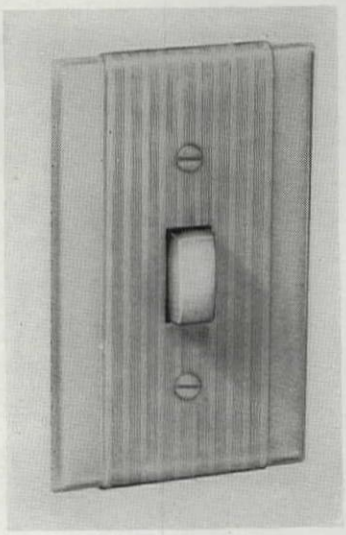
See "Circus Boy", Reynolds dramatic adventure series, Sundays, NBC-TV Network.

REYNOLDS ALUMINUM

BUILDING PRODUCTS

Fissured, wood-fiber acoustical tiles, now available with tongue-and-groove edges, have an extended flange for hidden nailing or stapling (above). *These rapidly installed Forestone tiles—12" x 24", center-scored, and 9/16" thick—retail at approximately 26¢ per sq ft. Simpson Logging Co., Shelton, Wash.*

Quiette Tap-Action Switch provides safe, dependable, and quiet mechanical operation for incandescent and fluorescent lights and appliances (below). *Operates on full voltage, non-relay, and is rated standard by UL; switch is an H&H Specification Grade with ratings of 15 or 20 amps. Available with conventional binding screws or screwless terminals. For all standard connections, may be obtained in brown or ivory; or, fits any standard toggle wall plate. The Arrow-Hart & Hegeman Electric Co., 103 Hawthorn St., Hartford 6, Conn.*

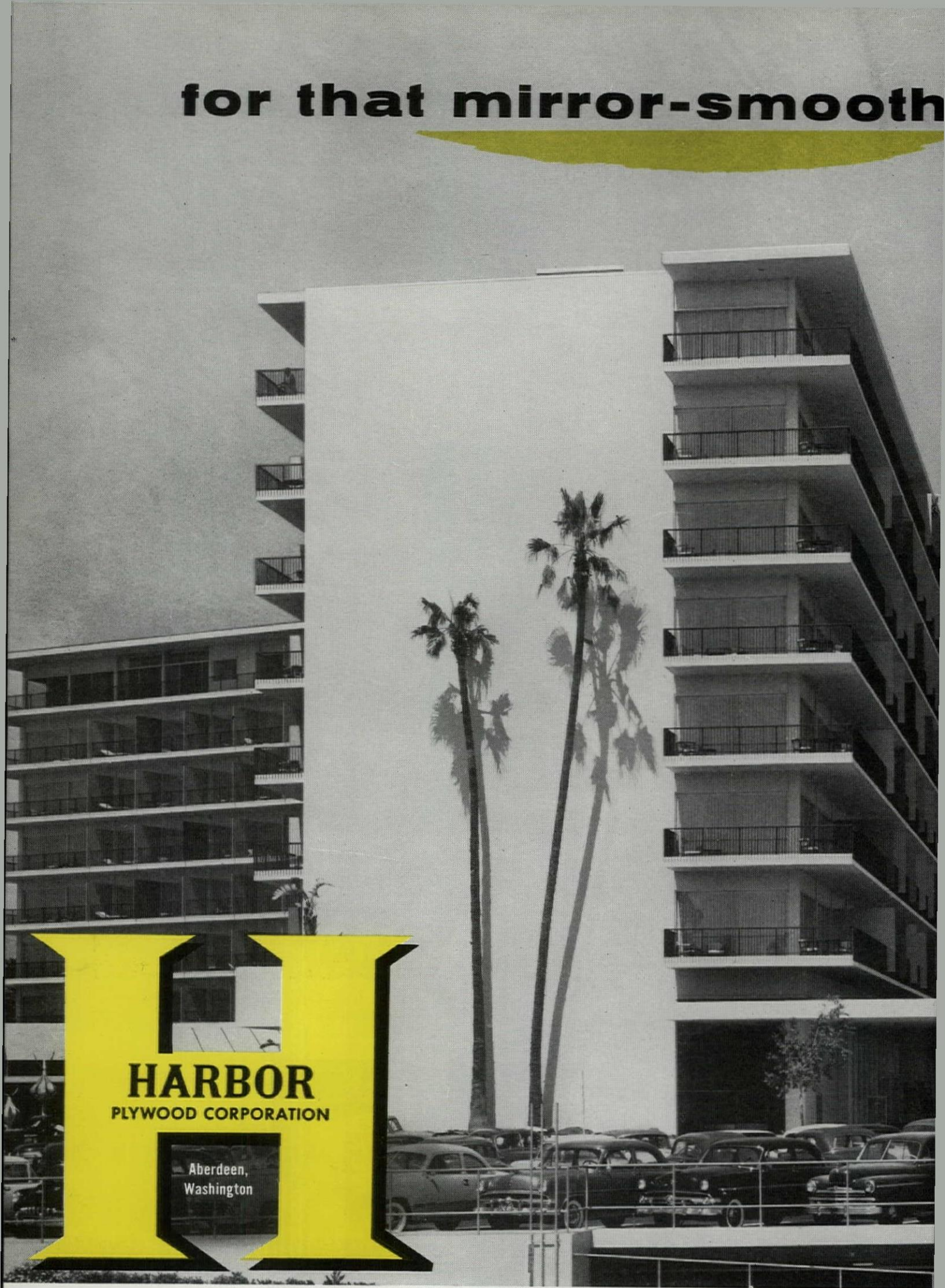


Precision-cast aluminum stair tread, designed for use in industries where stairs are subject to extreme weathering or corrosive atmospheres, requires no costly protective coating (right). *Although designed to carry weight of a heavy man, stair has withstood loads in excess of 3000 lb. Tread utilizes a slip-proof abrasive nosing. Three finishes are available; lengths range from 24" to 42"; 10" width is standard, but special sizes are obtainable. Aluminum Company of America, Alcoa Bldg., Pittsburgh 19, Pa.*

A new material called Solatex Silver, which provides better control of light, has been cast into acrylic-plastic Skydomes (below). *Principal advantages gained are glare reduction and variation of light received at different hours of the day —as well as reduction of objectionable heat. When sun altitude is 20°, new Reflectadome doubles amount of light transmitted by a conventional, clear skylight. When sun altitude approaches 90°, heat is filtered out and light is reduced by 60%, allowing comfortable level for sustained reading. Wasco Products, Inc., Bay State Road, Cambridge 38, Mass.*

New concept in all-plastic fan design combines higher efficiency of axial-type fans with greater capability of centrifugal-type fans in working against static pressure. Although vanes are mounted perpendicular and parallel to axis around which they spin, no spill-off or turbulence is created (above). *First commercial installations, in new Monsanto laboratory, exhaust chemical fumes. Units permit lower silhouette on roof exhausters. True-Scale, Inc., Wichita, Kans.*

for that mirror-smooth



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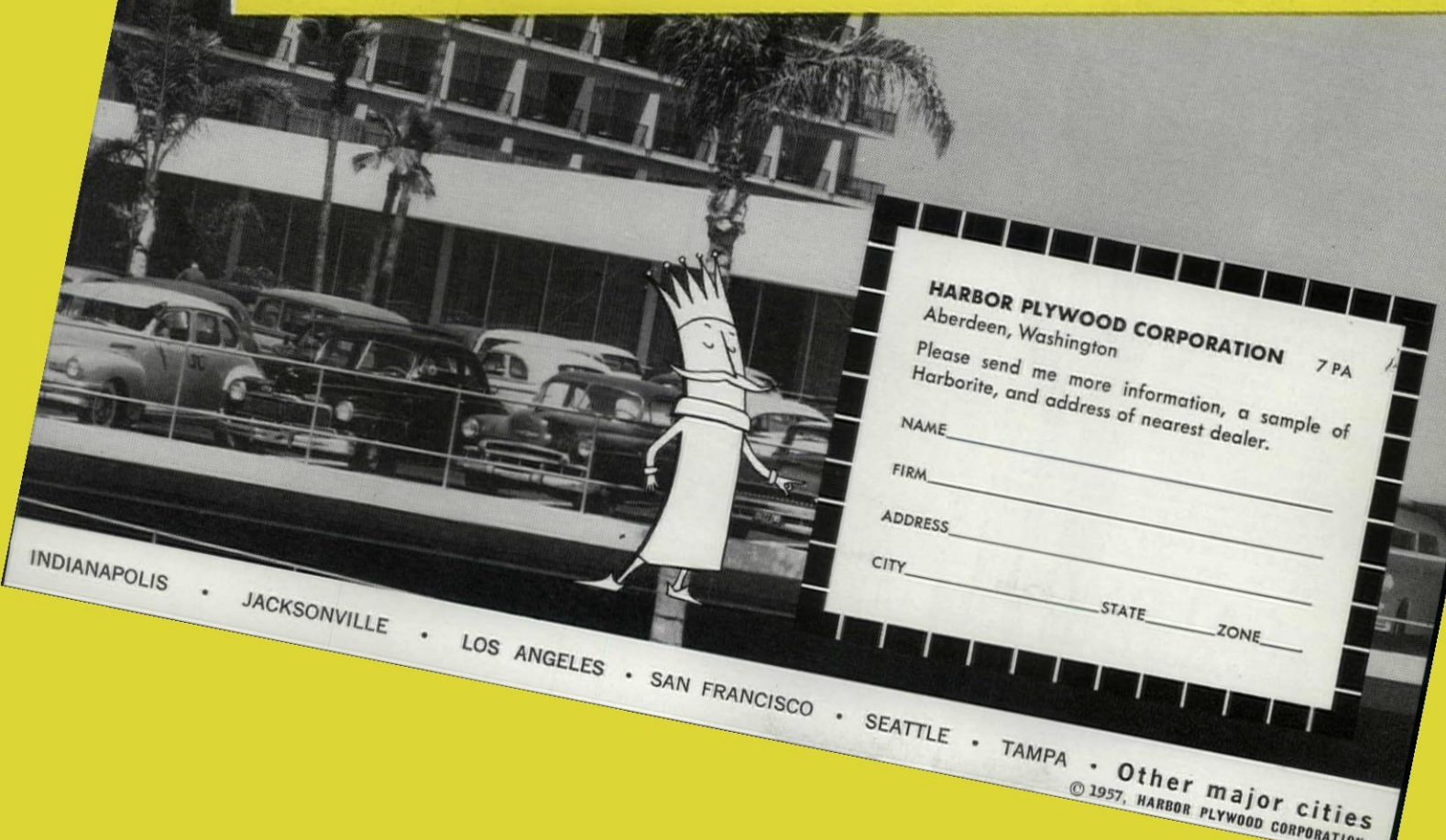
Cut finishing costs before you start... specify Harborite for concrete form panels! Rigid, abrasion-resistant Harborite panels produce glass-smooth concrete ...joints and fins are cut to a minimum... no grain-raise problems...no checking... stripping is faster, easier! The super-smooth overlaid facing will not run, bleed or discolor concrete...it has a special affinity for oil and other form finishes! And you get economy, too, with Harborite panels; 40 re-uses is not unusual and users have reported well over 100 re-uses with only normal care. Available in oversize panels and standard 4′ x 8′ size...in any thickness. See your lumber dealer.

With Harborite you get mirror-smooth surfaces...faster stripping... minimum finishing...and the high re-use factor, too!



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p/a products

(Continued from page 185)

air and temperature control

Multi-Orifice Multi-Jet Diffuser: new air diffuser for modular installation in tile ceilings is designed to introduce conditioned air through openings which blend with contemporary architectural ceiling treatments. Custom-size outlets are engineered to match standard tile size and to span ordinary suspended "T" bar system. Outlets are available in square and rectangular sizes. One-, two-, three-, and four-way air distribution systems for outlet may be adjusted on the job to required air-flow discharge angle. Air-Factors, Inc., Monrovia, Calif.

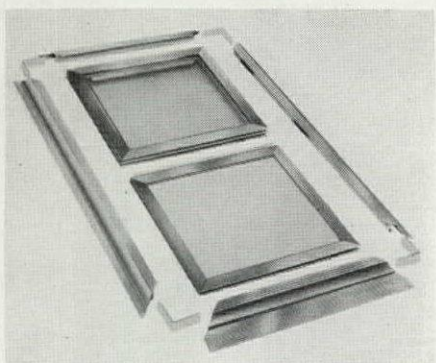
construction

Marfix Magic Cement: developed to repair breaks in stone, metal, wood, glass, and other common materials—without outside drying agents—new cement is thermo-setting, has low viscosity, and dries free from bubbles. Product, said to be translucent when dry, can be colored with choice of eight basic pigment-paste colors to match mended materials. Finish is waterproof and receptive to high polish. Vermont Marble Co., Proctor, Vt.

Amarlite Store Fronts: polished, buffed, and anodized for uniform alumilite finish, extruded aluminum-alloy store fronts consist of precision-engineered sections and adaptable fasteners to facilitate installation. Snap-on sash members can be used singly or in pairs; continuous threads throughout length of division and corner-bar extrusions permit insertion of screws at any desired point without drilling, tapping, or waste of cut-offs. Entire storefront from entrance to bulkhead assemblies may be individually specified. American Art Metals Co., 433 Highland Ave., N.E., Atlanta, Ga.

doors and windows

Versatile Aluminum Window: new concept in standardization of aluminum window components permits assembly of



seven distinctive window styles from just 11 extrusions (*above*). Without expensive tooling, manufacturer may assemble models ranging from vertical overlap 2-track window to picture window. Tracks in triple-track units are fabricated of durable, rigid vinyl; frames and uprights are made of heavy-gage metal which won't swell, twist, or warp. Cadmium-plated springs are said to insure proper tension and weather protection. Wells Aluminum Products Co., North Liberty, Ind.

electrical equipment, lighting

Golden Alzak Edge-Glo: designed to add interest to commercial ceilings, new fluorescent luminaire features slender color-impregnated aluminum frame that is permanently protected by transparent aluminum oxide sheath. Fixtures 3½" deep are available in 2-, 4-, and 6-lamp sizes and variety of bottom closures. Curtis Lighting, Inc., 6135 W. 65 St., Chicago 38, Ill.

Aluminum Troffer: new one-lamp aluminum troffer features anodized aluminum parabolic reflecting surfaces for low-brightness control of high-level fluorescent lighting in recessed installation. Mounted individually or in continuous rows, fixtures are comprised of: one-piece baffle assemblies—in 4′ sections—hinged from either side of troffer; steel housing in 4′ and 8′ sections; and separate reflector. Baffles are spaced on 6″ centers and provide 45° x 45° shielding. Unit is installed in 12″ ceiling openings without trim flange. Smithcraft Lighting, Chelsea 50, Mass.

Frost-White Shields: designed for fluorescent light fixtures, new polystyrene diffuser is said to end troublesome reflections associated with extruded-plastic diffusers. Other properties ascribed to shields are extreme flexibility, impact strength, and resistance to discoloration. Sheffield Plastics, Inc., Sheffield, Mass.

specialized equipment

Laminated Diving Board: new laminated-wood diving board claims increased strength through use of high-quality materials and improved lamination process. Composed of Douglas Fir boards, resourcinal resin adhesive, glass-fiber capping, and polyester resin coating, new board requires only light sanding prior to refinishing. Boards are stocked in 10-, 12-, 14-, and 16-ft lengths and packaged in damage-resistant wrappings complete with bolts, butt-plate, and instructions for installation and maintenance. Swimquip, Inc., 3301 Gilman Rd., El Monte, Calif.

Workwall Partition: advantages of extreme flexibility and attractive design are combined in new movable partitions for offices and schools. Units consist of standard, corner, and three-way uprights with grooves and rail locks for holding plastic or glass panels. Heavy-duty brackets—capable of supporting desks, cabinets, pictures, fixtures, shelves, and other office furnishings—are fastened to grooves of uprights by simple screw connections. Special wire way accommodates electrical and telephone lines. Partitions from rail-

(Continued on page 190)


Run on it!
and Feel the Cushioned Flex of KREOLITE Gym Floors
While many factors contribute to Kreolite's durable beauty, its resiliency is one of its most outstanding qualities. Kreolite Flexible Strip End Grain Wood Block Floors actually feel resilient, and they resist wear that would quickly age other type flooring.
This resilient feature helps to cushion feet, lessens fatigue and being splinter-proof, Kreolite gym floors are safer.
Whether you are replacing an old floor in a gym, for a multi-purpose room or school shop, or planning flooring for a new building, get all the facts on Kreolite's many money saving advantages . . . Write Today.
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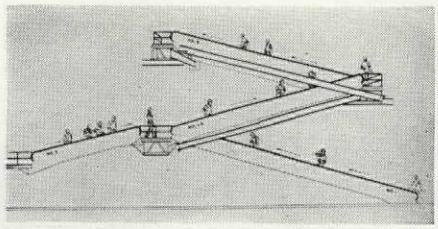
FLEXIBLE STRIP
END GRAIN FLOORING
THE
JENNISON-WRIGHT
CORPORATION
TOLEDO 9, OHIO

(Continued from page 188)

ing to ceiling heights with open or closed bases can be used singly or in combination. Adjustable legs compensate for uneven floors. Units may be secured by floor clamps, attached to walls, or left free-standing. L. A. Darling Co., Bronson, Mich.

Sylvan Door Chimes: new line of compact contemporary-styled door chimes features natural wood cases with hand-rubbed finish that emphasizes natural beauty of grain. Further enhancement is provided by decorative musical motif of brass which adorns corner of each case. Two door signals and continuous signal are available for residential paging and alarm systems. Edwards Co., Inc., 90 Connecticut Ave., Norwalk, Conn.

Speedwalk Conveyor: new application for conveyor belt provides economical means for carrying passengers from floor to floor



by system of four moving ramps (*above*), each of which moves upward at 14° incline and speed of 132 fpm or half normal walking speed. System is said to be capable of elevating 734 men a total of 41¾ ft in 12 minutes. First unit rises 16¾ ft; second rises another 12½ ft and third additional 12½ ft. Conveyor surface, 24″ wide, glides over smooth steel deck. For safe operating, metal ballustrades line sides of belt while moving handrails provide maximum stability for passengers. Powered by electric motors, system has few moving parts and requires low maintenance. Stephens-Adamson Mfg. Co., Aurora, Ill.

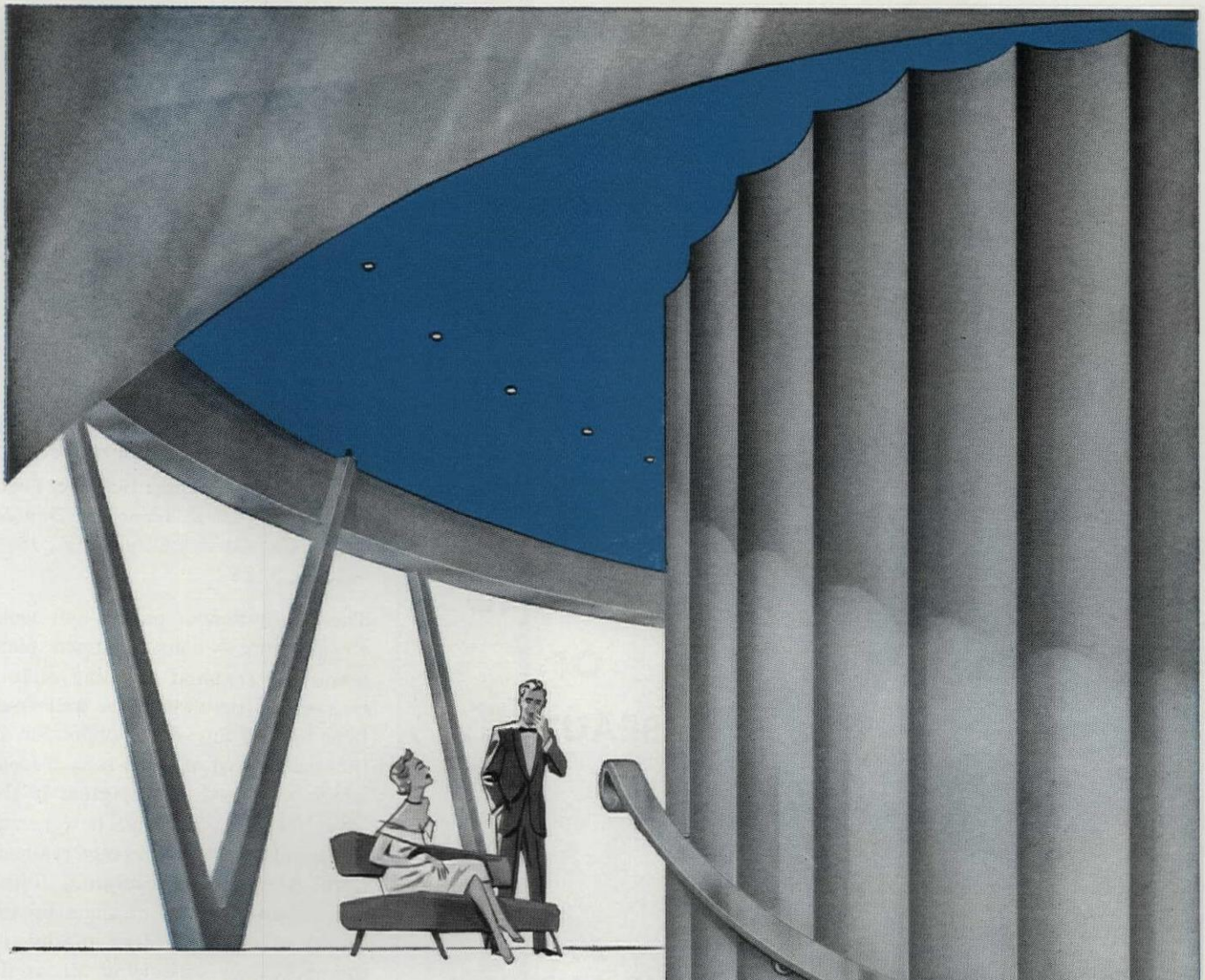
Sovereign Erasing Machine: designed to speed erasing and reduce arm fatigue, new electric erasing machine for draftsmen is said to remain cool under heavy working conditions. Lightweight unit with tapered stem for easy gripping offers minimum torque and automatic stall control to prevent drawing damage. Push-button switch is located on stem; hook at top permits convenient hanging. Machines are furnished with five assorted erasers and electric cord. Frederick Post Co., 3650 N. Avondale Ave., Chicago 18, Ill.

Bilt Hinged Door Medicine Cabinet: for hotels, motels, and institutional installations, new model medicine cabinet features magnetic door latch to eliminate closing noises. Two shelves are concealed behind 16″ x 16″ plate glass mirror with stainless-steel frame while third shelf—at bottom—is open and provides slot for discarding razor blades. All welded one-piece cabinet is coated in white baked-on enamel; cabinets, made for 13½″ x 18¼″ x 13¼″ wall openings, can be equipped with fluorescent side or top lights. The Bennett Mfg. Co., Alden, N. Y.

Keep-shelf: versatile new clamp-on shelf for drawing board, desk, or workbench provides space for storing tools, or reference data without encroaching on work area. Shelf can be mounted in one of eight positions, tilted to any desired angle, and locked parallel to floor. Unit, 8″ x 19″, is designed for easy assembly. Special Devices Section. Downs Industrial Illustrators, Detroit 38, Mich.

surfacing materials

Chrystalline Glazed Tile: new ceramic glaze developed to meet demand for durable glazed tile—particularly in regard to bathroom floors—has unusual permanent surface texture, cleans easily, and needs no waxing. New glazed tiles are produced in 12 colors and variety of sizes: 1¼″ sq, 3″ sq, 4¼″ sq, and 4¼″ octagon and dot. American-Olean Tile Co., 1000 Cannon Ave., Lansdale, Pa.



The beauty of Crucible stainless steel ... it highlights your design

What are the advantages of specifying stainless steel? One advantage is that it is both beautiful and functional. You can use it to build and enhance a skyscraper or a store-front—without introducing new construction problems. And, in either case, its natural dignity and lustre highlight your design.

Then, too, clients quickly approve specifications for stainless steel. They know it gives lifetime service—maximum resistance to corrosion and weathering. They also know it requires very little maintenance; for example, periodic cleaning as required with other metals is not necessary with stainless steel.

There are hundreds of uses for stainless steel in both the interiors and exteriors of residences, industrial and commercial buildings, no matter what their size. Like to know more about them? Send today for "A Guide to Future Uses of Stainless Steel in Architecture and Building", a free 20-page booklet prepared by one of America's largest makers of stainless steel sheet and strip. Write: *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

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books received

The Hospital Purchasing File. 34th edition. Purchasing Files, Inc., 919 North Michigan Ave., Chicago 11, Ill., 1957. Illus.

School Construction, 1955-1956. Councils and Education Press Ltd., 10 Queen Anne St., London W. 1, England, 1956. 154 pp., illus., 15s

Building U. S. A. By the Editors of Architectural Forum. McGraw-Hill Book Co., 330 W. 42 St., New York 36, N. Y., 1957. 147 pp., illus., $3.95

Course in Pencil Sketching. Book 3. Ernest Watson. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1957. 57 pp., illus., $2.50

Figure Drawing. Dale Nichols. Watson-Guptill Publications Inc., 24 W. 40 St., New York 18, N. Y., 1957. 63 pp., illus., $4.95

Counter-Attack Against Subtopia. Ian Nairn. The Architectural Press, 9-13 Queen Anne's Gate, London S. W. 1, England, 1957. illus., 12s 6d

unique combination reflected

Community Building: Science, Technique, Art. *Carol Aronovici. Doubleday & Co., Garden City, N. Y., 1956. 354 pp., $7.50*

The steady flow of papers and books on planning — housing, town planning, and regional planning alike — makes this reviewer blasé and skeptical toward any new publication in this field. Most of them rehash ideas which were new and original in the Twenties but which are now generally accepted, if only rarely realized. Carol Aronovici's *Community Building* differs from all of them by the clarity of its basic ideas and by the comprehensive mastery of all the diversified branches of planning. Dean of town planning in America and one of its most active pioneers, Dr. Aronovici for some decades has fought for new solutions to divers urbanistic and regional problems; he has opened so many new vistas that the sum of his ideas and experiences, presented in the present volume, must be of the greatest value to anyone interested in the field.

Starting from a clear definition of what he calls the "human and communal dimensions" and of the individual's relationship with the community, the author develops his ideas about the manifold questions which play a decisive part in community planning: street design, zoning, regionalism, the sociological, legal, economic, and educational aspects, and many others. In 1934, Aronovici, together with William Lescaze, Henry Churchill, and Albert Mayer, had

(Continued on page 196)

Quick and economical to install, Nepcoduct is manufactured as a single, double, or triple duct system to provide separate wiring facilities for light and power, inter-communication and telephone.

Power-full floors can take any office layout

National Electric Nepcoduct Steel Underfloor Raceways provide full electrical distribution throughout the floor area.

Adaptable to any type of floor construction, Nepcoduct makes outlets available wherever they are needed for efficient office lay-out. This means electrical service changes can be made quickly and at low cost to the owner or tenant . . . without interrupting business routine.

When you build, specify NE Nepcoduct to be sure the building will never grow old electrically. Write for complete information today.

National Electric's new streamlined service fittings are specially designed for installation where modern desks and free standing equipment limit the heights of service fittings to less than 3 inches.

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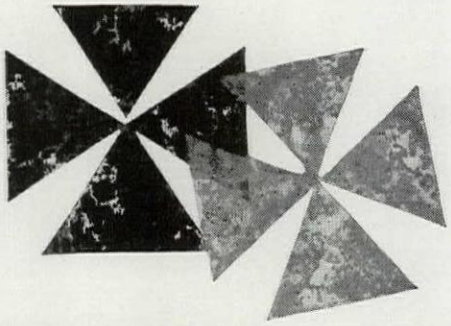
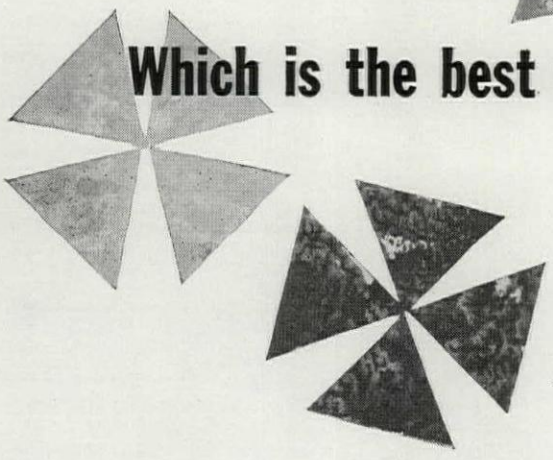
2 Plants • 12 Warehouses • 41 Sales Offices



Which is the best way to air condition your office?

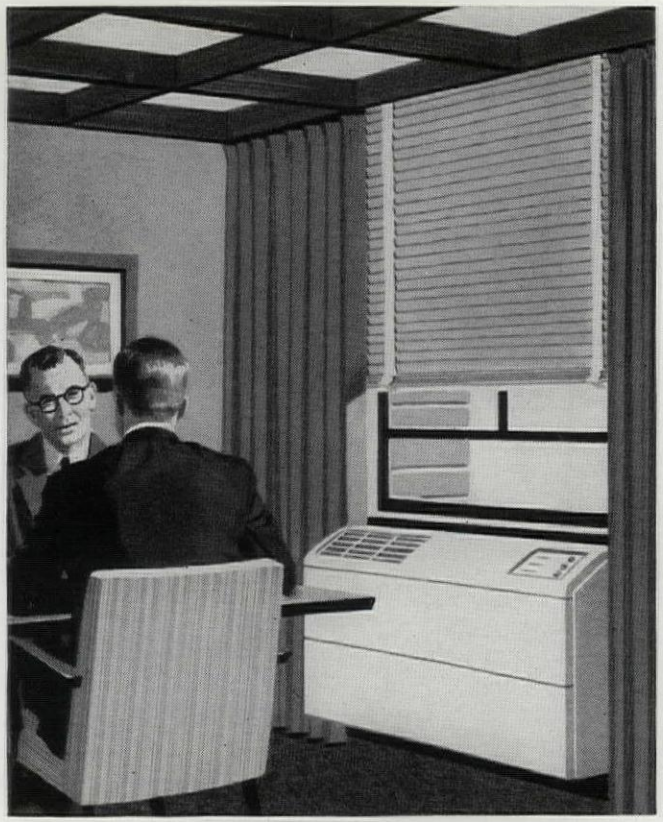


That depends on its size, how many people work in it, how the space is divided, the size and number of windows.

Here, for example, are four good ways an office can be air conditioned. But only a survey will tell which of the four is best for you. So ask your Carrier dealer to analyze your needs and guide you in the right selection. Because he sells these four (and many more), his first interest is to recommend the type of air conditioning that serves you best.

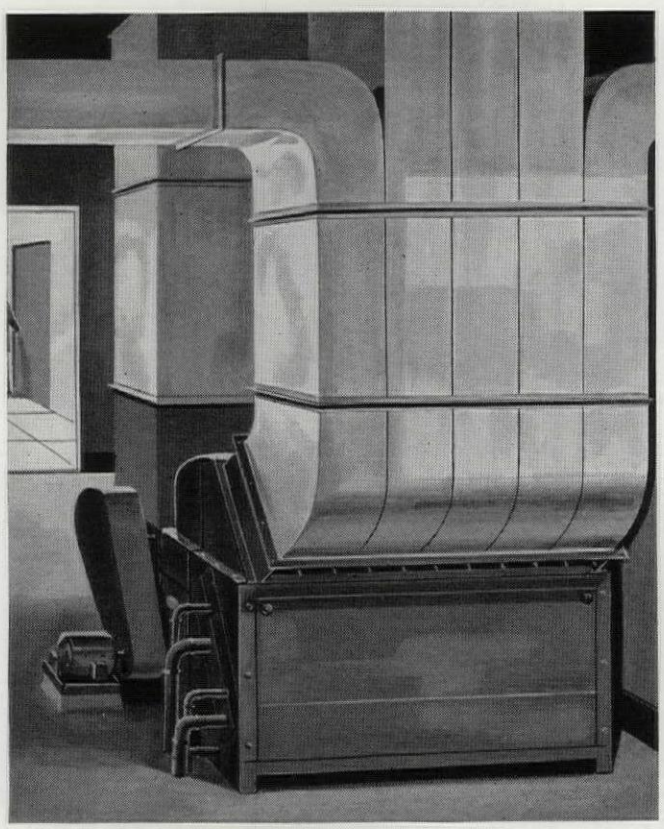
For more information, ask for free booklet, WE-5. Call your Carrier dealer, listed in the Classified Directory. Or write Carrier Corporation, Syracuse, New York.

Carrier



For a single room, you might use the new Carrier Console Weathermaker* that fits inconspicuously under the window. It's completely self-contained and has space in it for a heating coil. Simple controls.

For a whole floor, one simple way is to use a number of these Carrier Weathermakers. They do a man-size job. Yet they're economical—the model shown for instance, operates without the use of water.



For separate areas, this Carrier Zoning Weathermaker will provide individual control of temperature within every zone. Ductwork carries the cooled and heated air to each zone, on one floor or several floors.

For an entire building, an excellent way is a Carrier Weathermaker under a window in each office. A central plant pipes hot or cold water to each unit, where a quiet fan circulates air across the coils.

*Reg. U.S. Pat. Off.

(Continued from page 192)

already articulated his fundamental ideas with reference to a local community. And now, more than 20 years later, he analyzes the functional mechanisms which should serve communal life in order to make possible what he calls "civic art." He demands that the planner be not only a specialized technician, but also a humanist who must be capable of translating his mechanistic knowledge "into a living and progressive civil society . . . to achieve physical well being and the cultural and spiritual opportunities for intellectual and emotional experience." Such statements may seem rather matter of course. However the author's truly encyclopedic knowledge, mirrored in numerous quotations from philosophers, poets, and scientists of all periods, is the source of each single conclusion which is developed and knitted into a scheme that is both intellectually persuasive and empirically applicable.

There is no sense in listing and analyzing the individual chapters of Aronovici's work since, as previously mentioned, it truly represents an encyclopedia of living thought in the realm of planning. The brief comments added to each title in his extensive bibliography may save the student as well as the active planner many detours in research. The combination of artistic imagination, historical knowledge, social consciousness, and practical experience in a man who has contributed so much to urbanistic developments in many larger American cities, and who has published so many papers on special problems in the field, is unique. And this unique combination is reflected in every line of this book.

PAUL ZUCKER

a fresh experience

Structures. *Pier Luigi Nervi. F. W. Dodge Corp., 119 W. 40 St., New York 18, N. Y., 1956. 118 pp., illus. $6.95*

Pier Luigi Nervi is one among many designers: yet one of the few who have formulated strikingly original ideas of great interest and value concerning structural theory; and one of the very, very few who have expressed such ideas clearly, interestingly, and convincingly.

In the present volume, his thoughts are on many varied subjects, subjects which are all allied to his main

(Continued on page 198)

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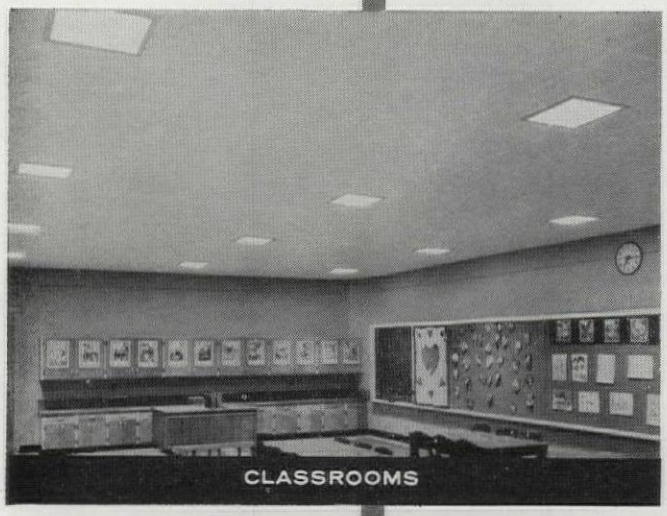
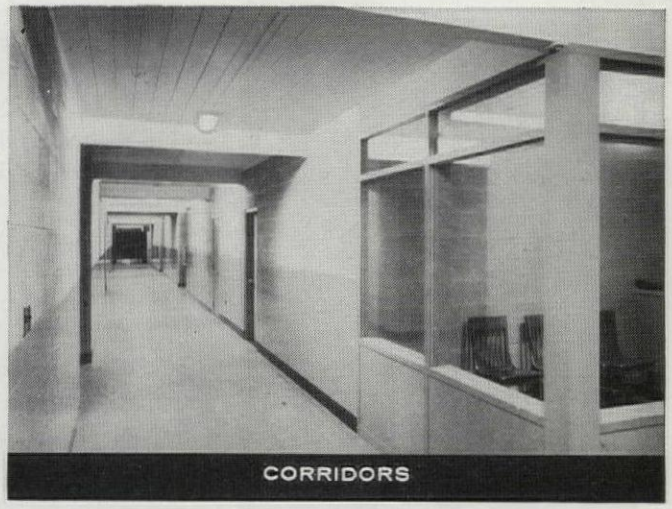
Custom-Engineered

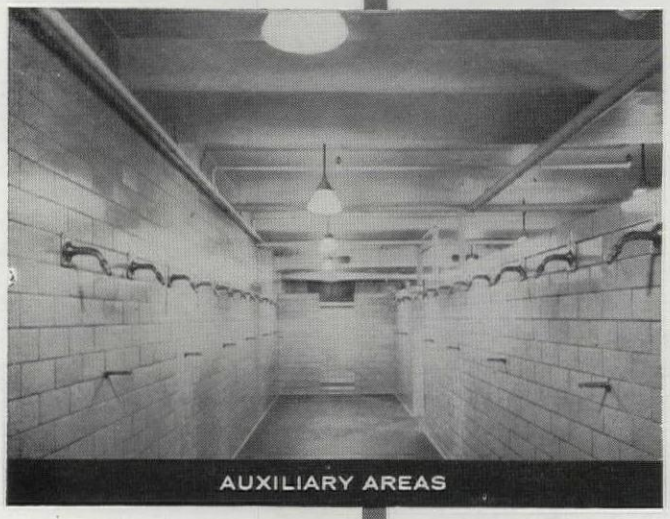
LIGHTING For Every School Need



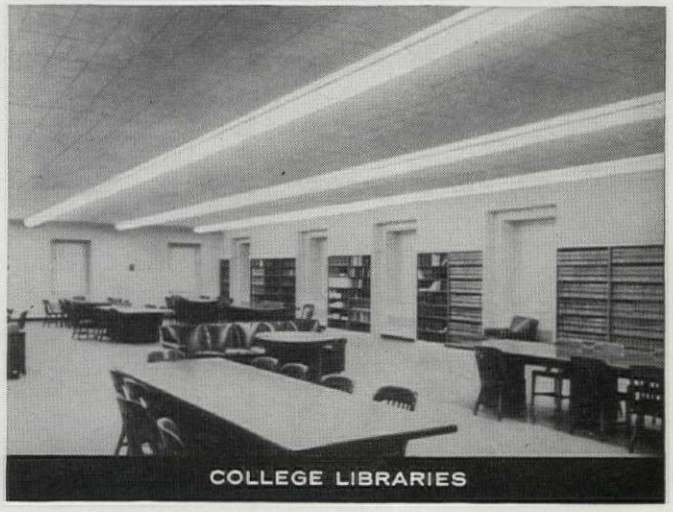
CLASSROOMS



CORRIDORS



AUXILIARY AREAS



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reviews

(Continued from page 196)

theme — building design and construction: the limitations of structural calculations and theories; the necessity of further experimental analyses of structures; the characteristics and uncertainties of building materials; the future possibilities of skin-resistant structures; and other similar phases of the architectural, theoretical, economic problems of construction.

The original edition of this work was published in Italian in 1955. In this English edition the translation has been skillfully and intelligently handled by Guiseppina and Mario Salvadori. Reading this book will be a fresh, unusual experience even for the expert in the author's field. The originality and force of Nervi's thinking should inspire others to further investigation and experimentation. LAWRENCE E. MAWN

invaluable

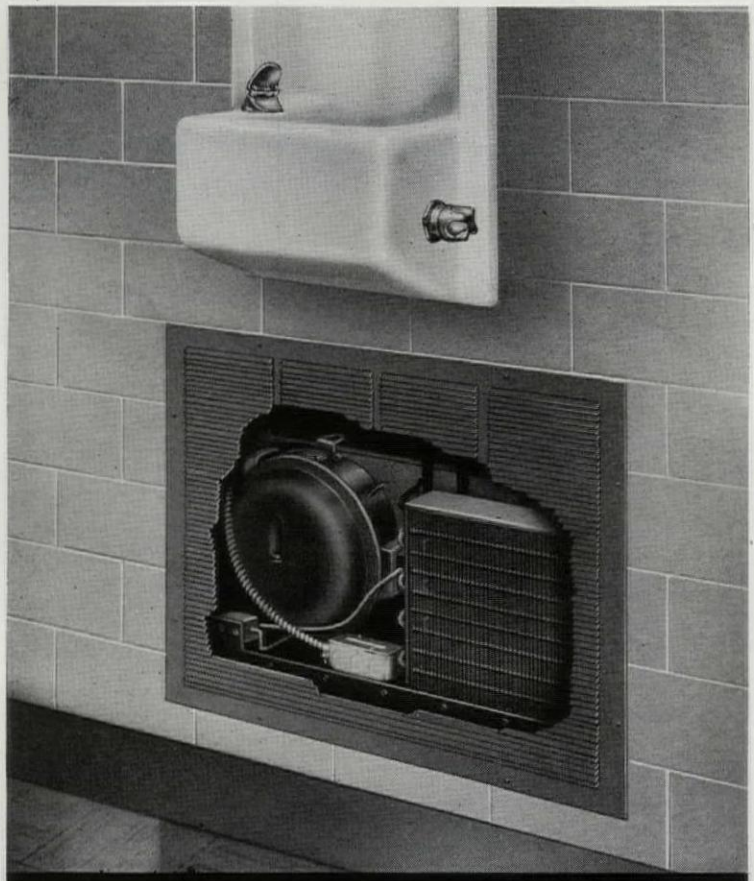
School Planning and Building Handbook. *Engelhardt, Engelhardt & Leggett. Dodge Books, 119 W. 40 St., New York, N. Y., 1956. 626 pp., illus., $12.75*

This volume by Engelhardt, Engelhardt, and Leggett is a carefully prepared collection of co-ordinated writings. Accompanied by the intuitive commentary of the authors, 80 outstanding contributors outline the attitudes, functions, and responsibilities of persons associated in developing sound school buildings. The complex and overlapping interest spheres of citizen, educator, architect, planner, engineer, and consultant are treated with sympathy and understanding. The articulate simplicity of the present book unfolds ordered and proved procedures for fixing responsibility and authority in the school building process.

The evolution of the school building survey movement is discussed alongside the fields of city planning

(Continued on page 206)

NEW OASIS WATER COOLER



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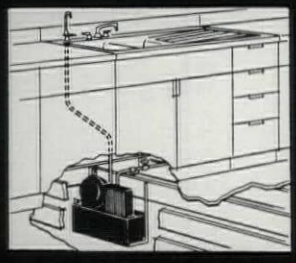
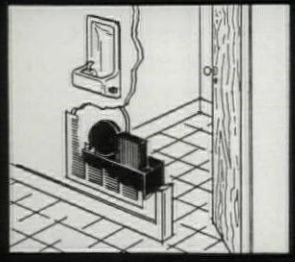


ON A JOIST

ON A WALL



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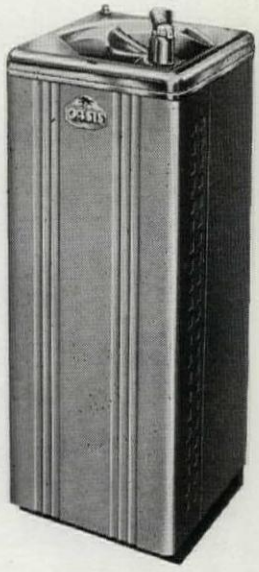
There's an OASIS Constellation water cooler for every need



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Los Angeles Hotel Statler demonstrates **Three of fir plywood**

Smooth architectural concrete is achieved at lower costs with high-density overlaid plywood.

key advantages concrete forms

1. time and labor savings

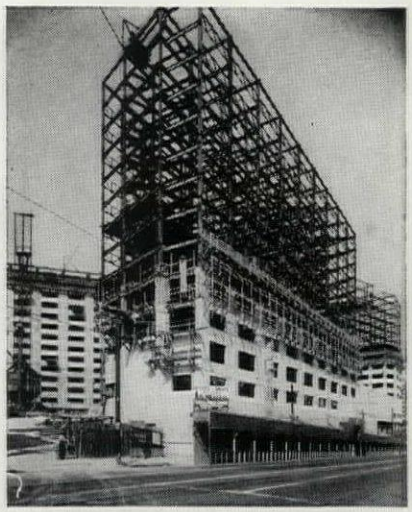
Job superintendent J. L. Morris estimates a saving of 20% in time and labor through use of overlaid fir plywood concrete form panels on the Statler Hotel, Los Angeles. Forms were built faster and easier because of the large panel size; leakage was virtually eliminated.

2. economy through re-use

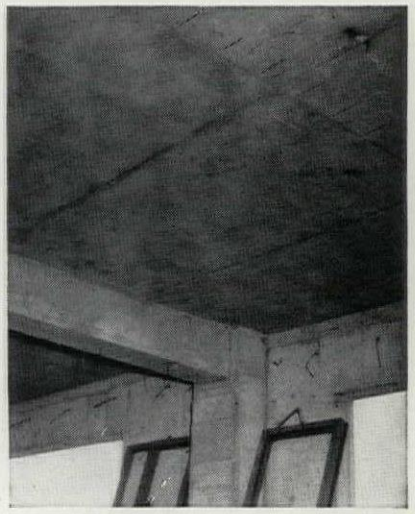
Plywood forms gave 13 re-uses on exterior walls, one on each floor. Inside, forms averaged 15 re-uses. Panels of 5/8" high-density overlaid plywood were wiped clean with oily rags between pours.

3. smooth concrete surfaces

A minimum of touching-up was required before finishing because of the high quality surface provided by the overlaid panels. Joint lines on interior ceilings were spackled. On exterior walls, joints were accented with strips nailed to inside of forms.



Overlaid fir plywood forms were slipped up the building as exterior walls were poured, one per week. Same panels were used for the entire job, on 2 x 4 studs, 12" o.c., backed by 2 x 4 walers, 24" o.c.



Interior ceilings were smooth, ready for finish, except for the joint-lines at panel edges. These were spackled, and the surface was painted with a flat paint.

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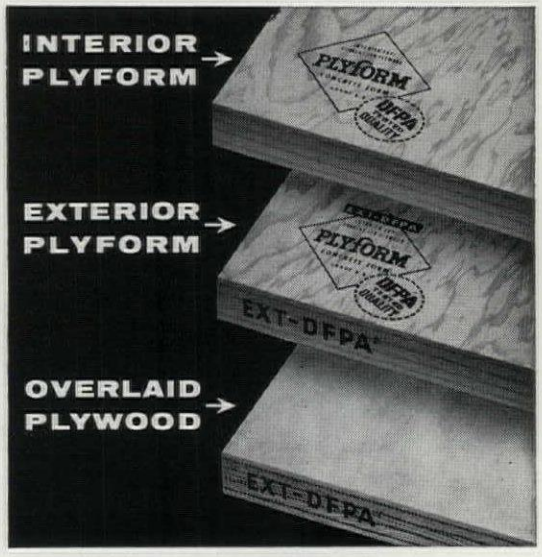


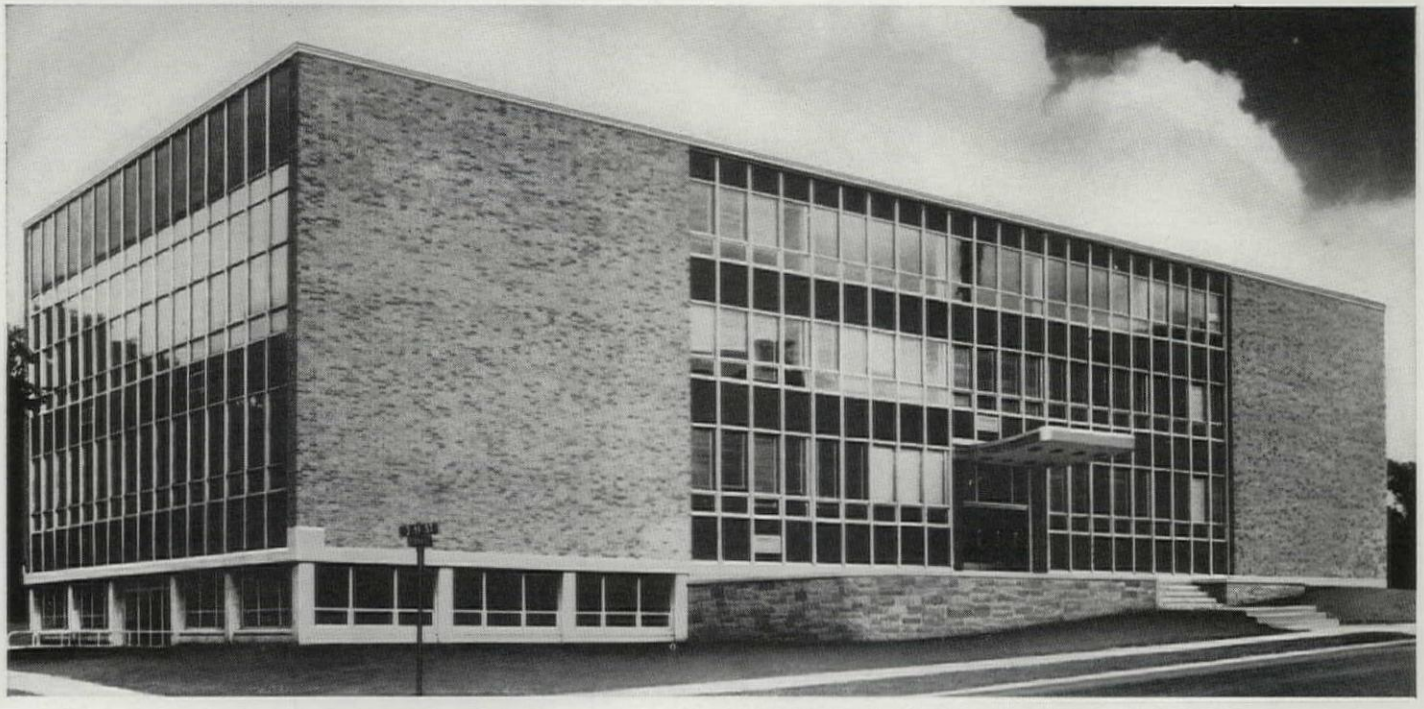
HOTEL STATLER
LOCATION: Los Angeles, California
ARCHITECTS: Holabird & Root & Burgee, Chicago
CONTRACTOR: Robert E. McKee, Gen. Contractors, Inc., Los Angeles

LUPTON metal windows...

KELLOGG (Idaho) HIGH SCHOOL. Architects: Culler, Gale, Martell & Norrie; Perkins & Will. Contractor: Johnson-Busboom-Rauh, Spokane, Wash. Entire walls of LUPTON Steel Architectural Projected Windows provide maximum light and air plus weathertight construction.

and curtain walls

give freedom of design at low cost



NIAGARA COUNTY BUILDING, Niagara Falls, N.Y. Architect: Charles F. Obenhack. Contractor: Walter S. Johnson Building Co. Outside face of this LUPTON Curtain Wall is green-black porcelain-enameled aluminum laminated with honeycomb core, galvanized back. Double-glazed 1"-thick fixed lights, ½"-thick ventilators opening in.

These views of recent LUPTON curtain-wall and window installations prove the beauty and modernity of LUPTON construction. The architects who created the buildings found many added advantages, among which are the following:

The wide range of LUPTON metal-window and curtain-wall styles provides unusual planning flexibility, a freedom of design with custom or standard units. In fact, LUPTON curtain walls and windows are *your* idea, executed by LUPTON engineering and manufacturing experience.

Erection is fast and economical—usually from within the building, without scaffolding. In fact, LUPTON Aluminum Curtain Walls are often put up by LUPTON's own experienced, fast-moving crews.

Assembly is simplified, routinized, because all parts are accurately made and delivered on schedule by LUPTON, a veteran in metal-window manufacture.

INVESTIGATE the advantages of LUPTON construction—write for information on LUPTON Aluminum Curtain Walls and Metal Windows as they apply to your current and future projects.

COLLEGE OF THE BIBLE, Drake University, Des Moines, Iowa. Architects: Eero Saarinen & Associates, Bloomfield Hills, Mich. Contractor: Fane F. Vawter Co., Des Moines, Iowa. LUPTON curtain-wall units—one-third the thickness of masonry—go up fast, leave extra square footage indoors.

LUPTON

METAL WINDOWS • ALUMINUM CURTAIN WALLS

MICHAEL FLYNN MANUFACTURING CO. Main Office and Plant: 700 East Godfrey Avenue, Philadelphia 24, Pa.

reviews

(Continued from page 198)

and public administration from which it grew. For perhaps the first time, a serious and detailed analysis of program planning and system-wide school planning is available to Metropolitan school adminstrators and city planners. The long-range value and economy of comprehensive planning is related to administrative procedures and the minutiae of surety bonds and construction supervision. A compendium of standard-contract forms, check lists, organizational charts, and specific reporting techniques allows wide comparison and selectivity.

While small space is devoted to architectural design quality, the presentation on the subject is excellent. The explanation of unit construction-cost data is also particularly contributive. The long and widely held illusion of simple comparability of building costs is emphatically discredited.

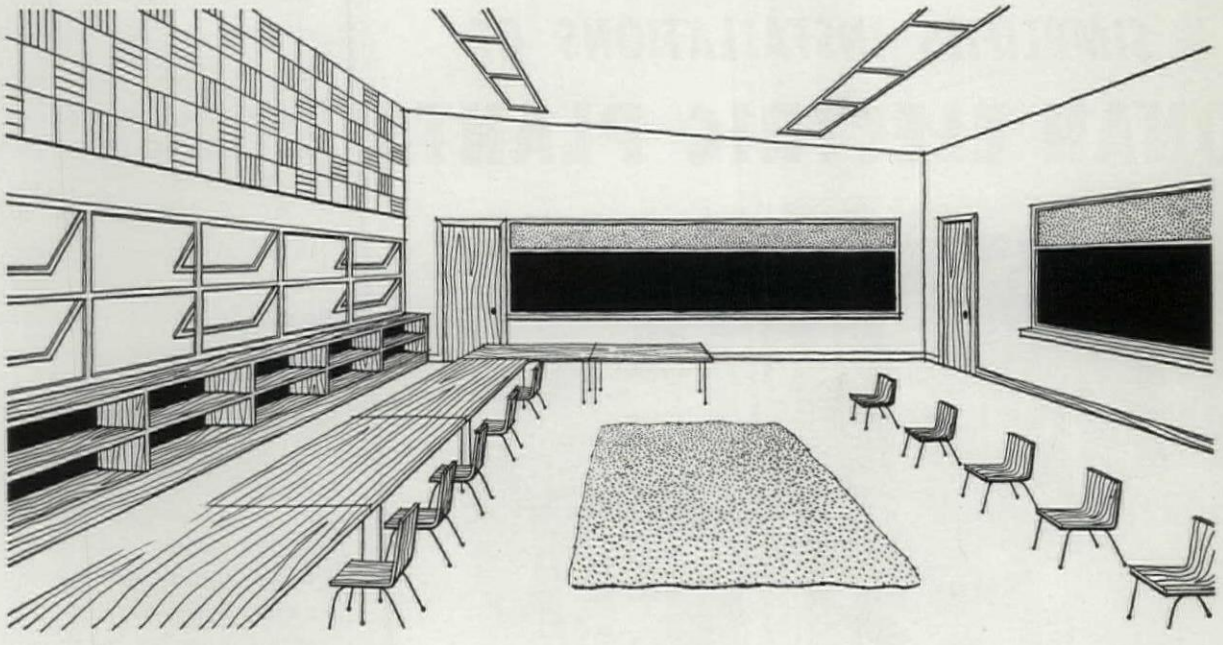
Because of its straightforward organization, wide coverage, and careful analysis of administrative procedures this book is invaluable both as a practical day-to-day office handbook and as a college text. It is by far the most important book on the subject of schoolhouse planning yet published. Architects, city planners, and engineers will find it exceedingly useful in fields far removed from schoolhouse construction. CHARLES R. COLBERT

curious and charming

Tidewater Maryland Architecture and Gardens. *Henry Chandlee Forman. Architectural Book Publishing Co., Inc., 883 First Ave., New York 22, N. Y., 1957. 208 pp., illus., $10*

The current taste for handsomely printed and illustrated volumes concerning the early architecture of America is perhaps responsible for the publication of this curious and charming work of Henry Chandlee Forman. In it he has described at

(Continued on page 208)



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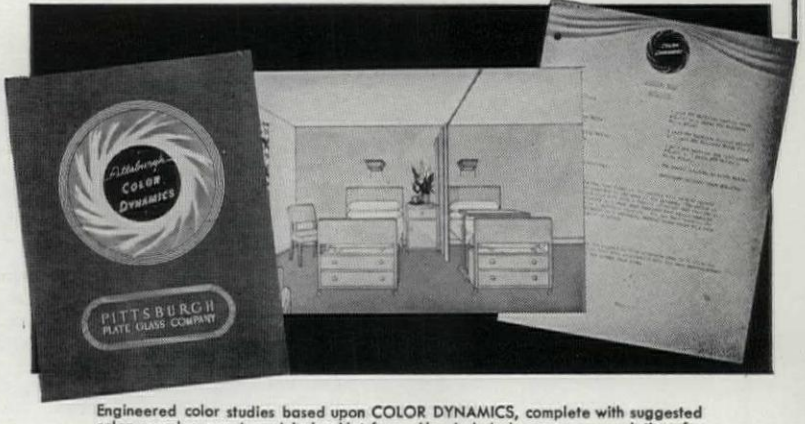

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reviews

(Continued from page 206)

great length and with infinite patience the architecture, gardens, and social history of certain parts of Maryland.

By way of photos and descriptions, if not by actual experience, we have become far too familiar with the gracious interiors and proportioned architecture of Jacobean, Transitional, and Georgian homes and estates. This volume offers a change, or rather, a variation on the theme. Most of the buildings described are by no means unique, yet they do have a regional individuality which makes them noteworthy. Several qualities characterize this Maryland architecture as being quite distinct from its more refined cousins in New England, Virginia, and elsewhere: simplicity, rusticity, an absolute minimum of sober decoration, rather confining smallness.

Unfortunately many of the buildings are now in decay, have been destroyed, or have been hopelessly "improved." In preserving in book form the record of this architecture, Forman has performed a distinct service for those interested in Colonial architecture, who are bored by a mere photographic approach to the subject. F.J.S.H.

a Georgian holiday

Georgian Grace. *John Gloag. MacMillan Company, 60 Fifth Ave., New York, N. Y., 1956. 426 pp., illus., $12.50*

Subtitled "A Social History of Design from 1660 to 1830," this stunning book will assuredly be acclaimed by anyone interested in making a clinical study of one of the most glorious periods of design. How was it that architects, designers, craftsmen, and their patrons seemed never to put a wrong foot forward in the Georgian period? What was the secret of their capacity for good design, their sense of style, and their impeccable judgment? John Gloag

(Continued on page 210)

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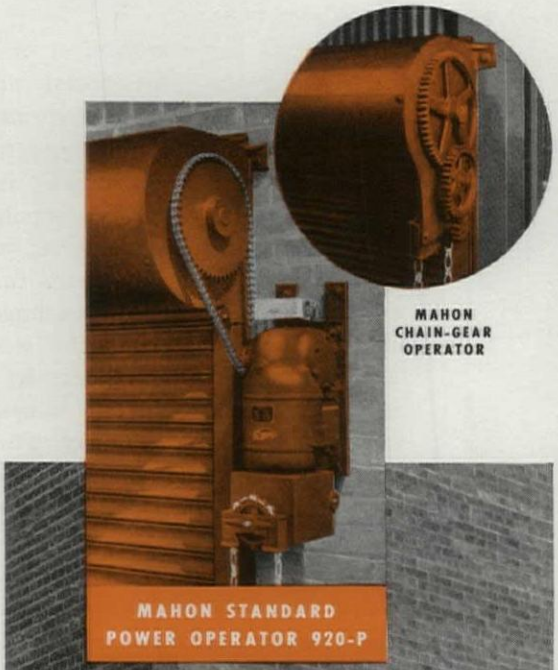

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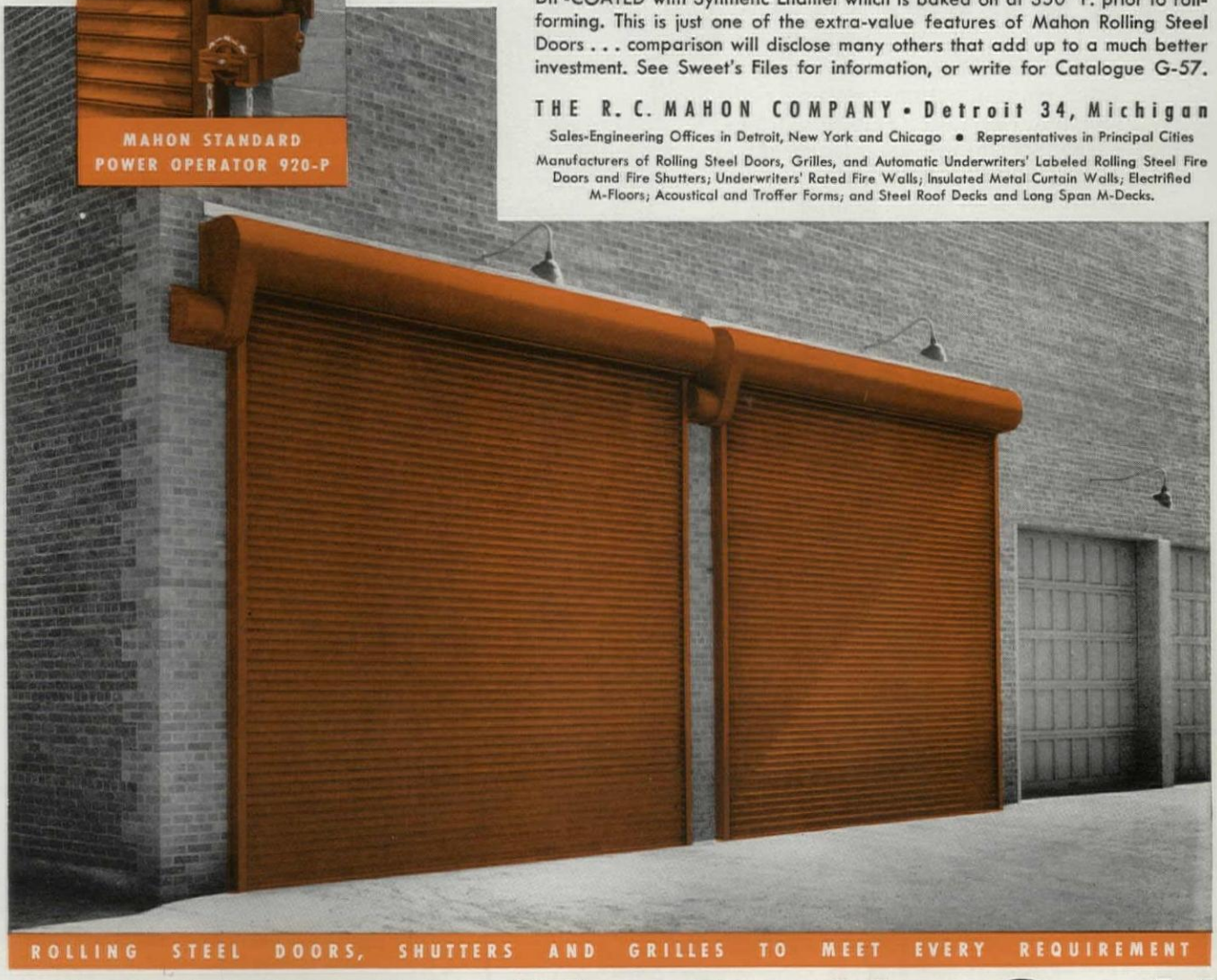

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MAHON

reviews

(Continued from page 208)

here suggests some of the answers to these questions and reveals many of the secrets.

Instead of being a work of original scholarship — the social and artistic history of the Georgian period has been thoroughly covered by many eminent scholars and specialists—this volume is a popular work written in a popular vein, the author drawing heavily from contemporary sources for his examples and much of his material. This is all to the good, for the reader, from beginning to end, will find himself on a grand Georgian holiday, while discovering what the influences were that encouraged good design in the 18th Century.

The book is divided into two parts. In Part One, dealing with the Georgian background, the author describes the growth of educated patronage and the "architectural bones" of the Georgian era. He then takes up the Georgian scene in detail and describes the variety of ornamental conventions and the waves of taste that distinguished the period. Part Two of the book is called "The Accompaniments of Life." Here the author discusses a wide range of subjects from the styles of chairs and seats and the clothes and fashions that affected their form, to wine glasses, beds, fireplaces, desks and cabinetwork, means of transportation, and even the character of sepulchral monuments and the epitaphs which adorned them. It is a most comprehensive and enlightening coverage.

In addition to the vast number of plates and drawings which complement the text, the book has a ten-part appendix, the most important sections of which are a list of the principal architects and their works, and a list of furniture designers and makers. These, with the list of books referred to in the text, contribute much to a carefully planned and well presented book concerning that exciting era. FRANK A. WRENSCH

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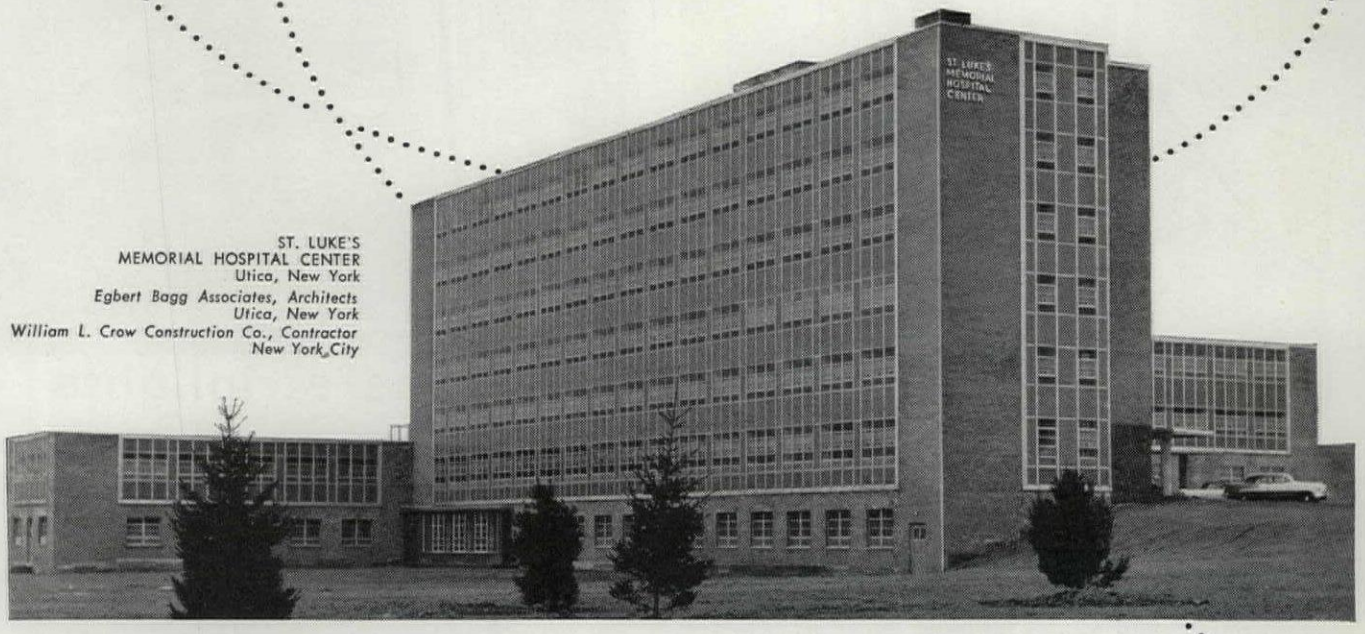

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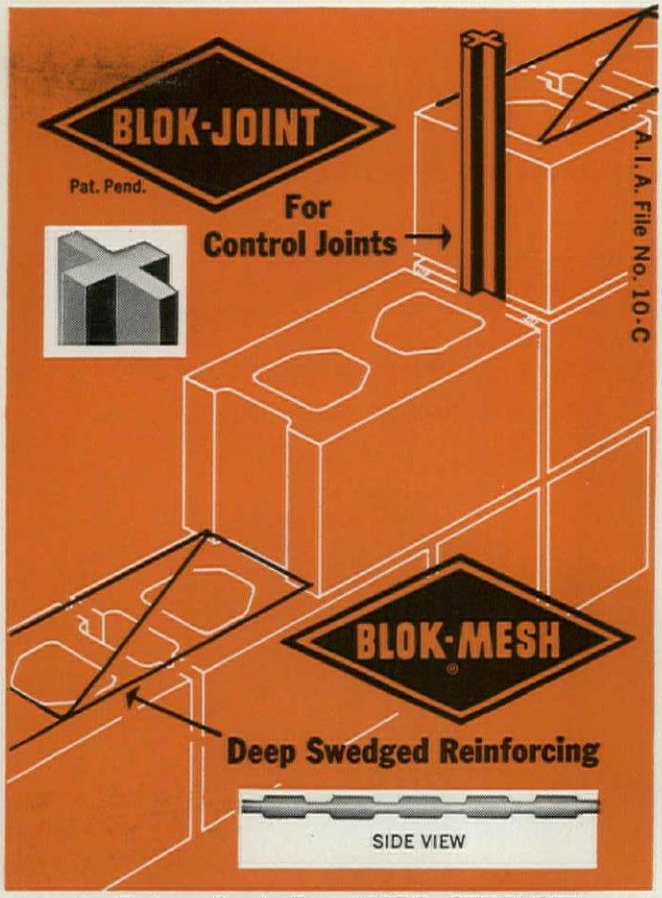

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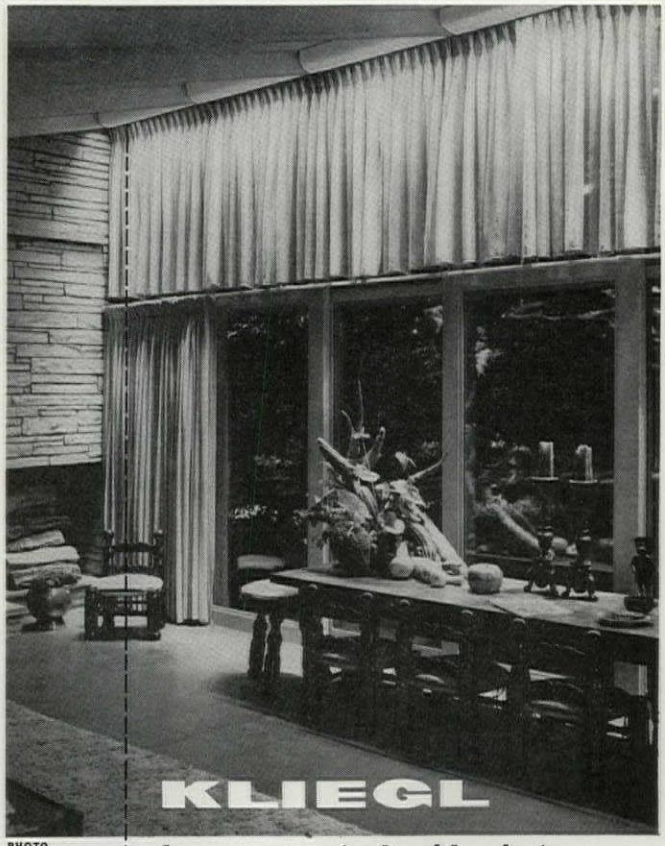

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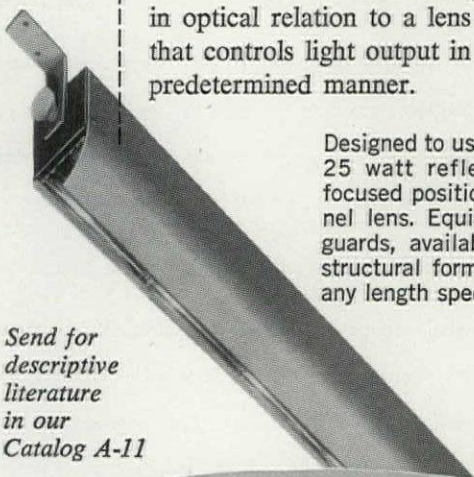

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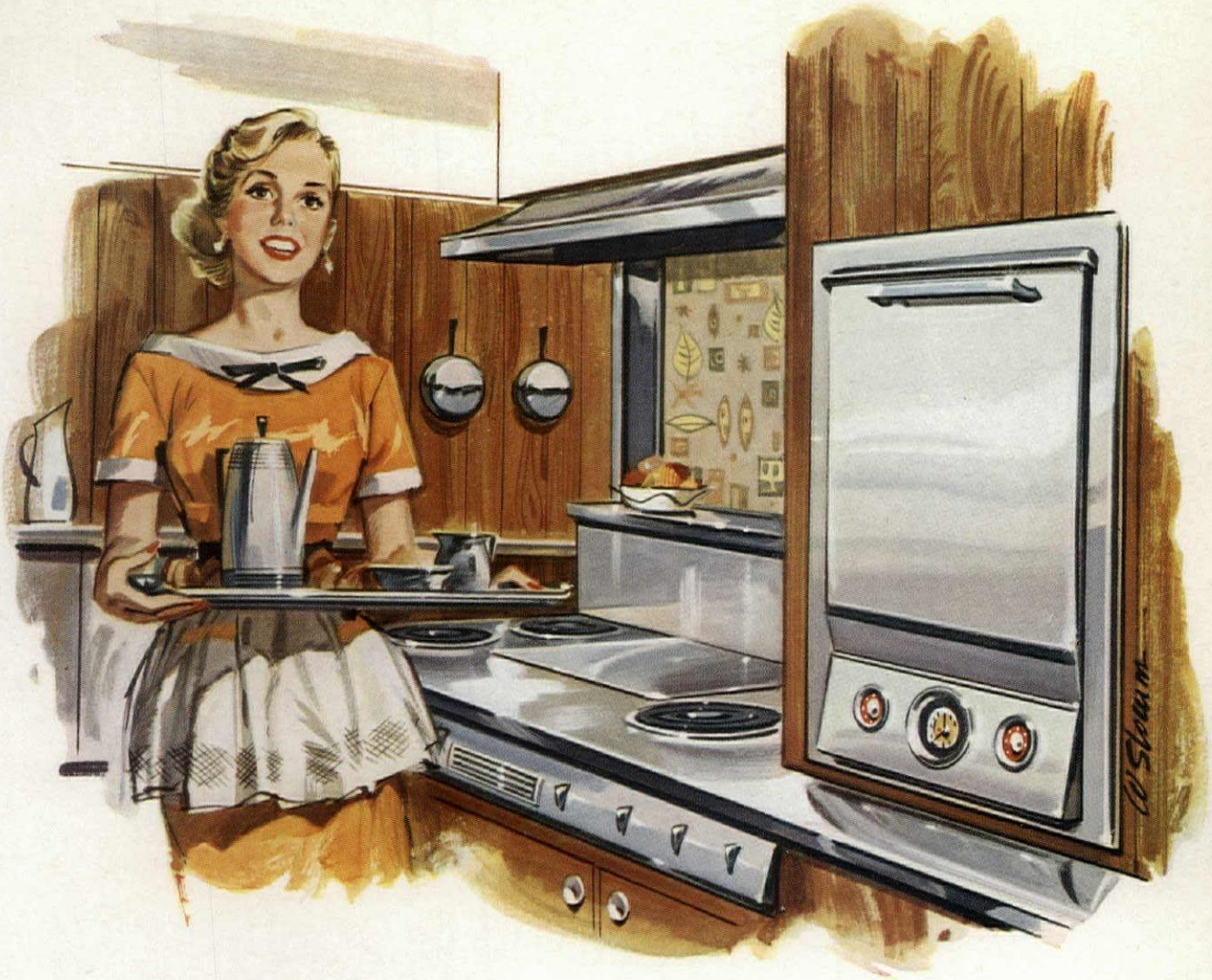

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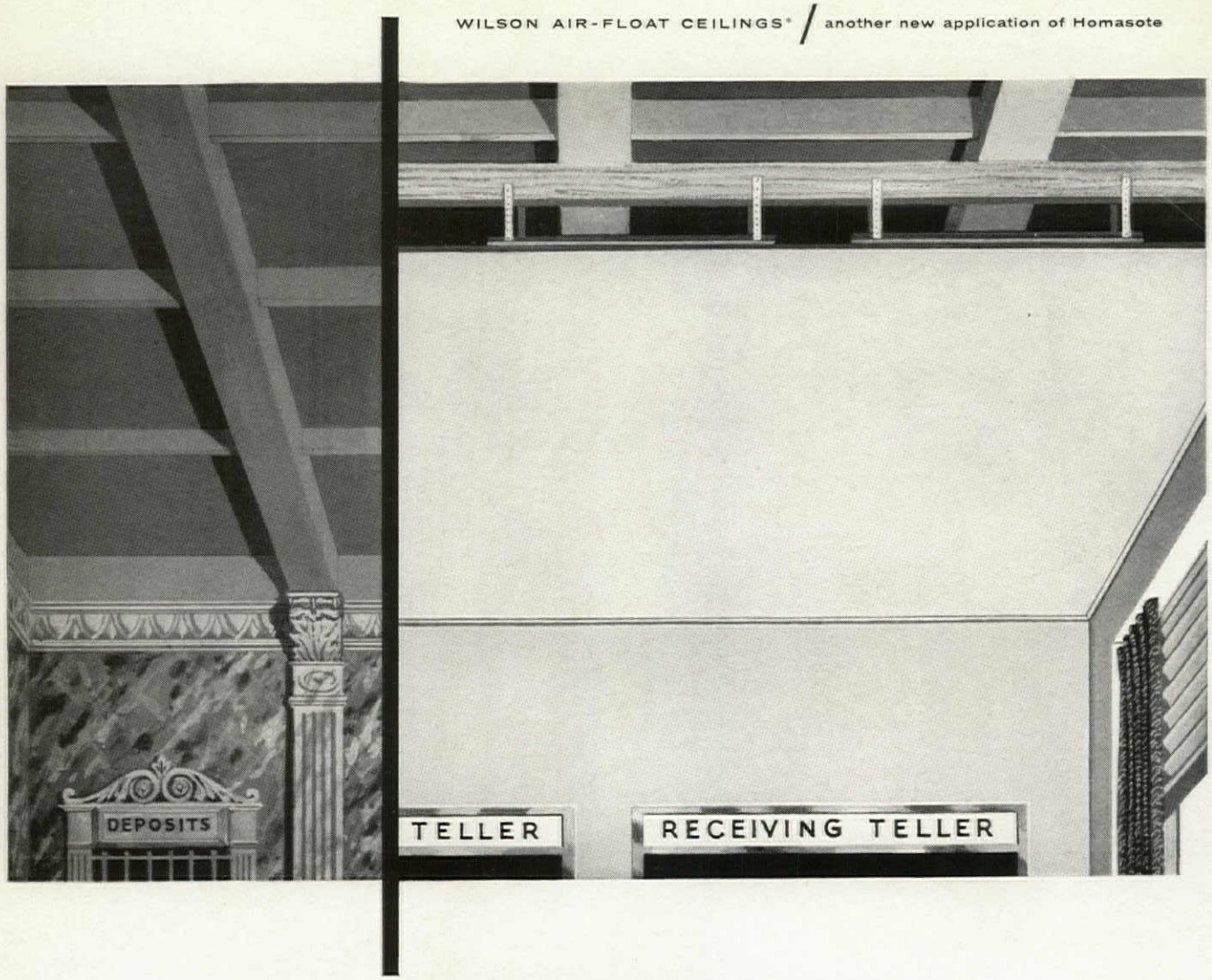
WILSON AIR-FLOAT CEILINGS* / another new application of Homasote



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...WITH CEILINGS THAT

FLOAT

Whatever the type or condition of the existing ceiling, here is a new construction method to modernize it – economically. Wilson Air-float ceilings are hung from the present beams or from strapping under old plaster – without "leveling up". The ceiling is "continuous dry-wall construction", as low as desired, and with no perceptible joints.

The whole ceiling, of Homasote in big sheets up to 8′ x 14′, literally floats – clear of all walls – free to expand or contract as a unit in either dimension. It easily accommodates and hides pipes, wiring, or air-conditioning equipment.

Wilson Air-float permits ceilings of two or more layers – for indirect lighting and for sound-deadening. Consider it in new designs, for ceilings of any size. Let us send you complete blueprint information and construction data. Kindly address Department G-8.

*Patent applied for

HOMASOTE COMPANY, TRENTON 3, NEW JERSEY

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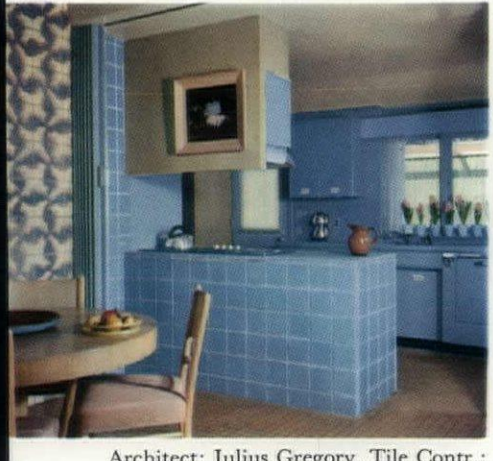
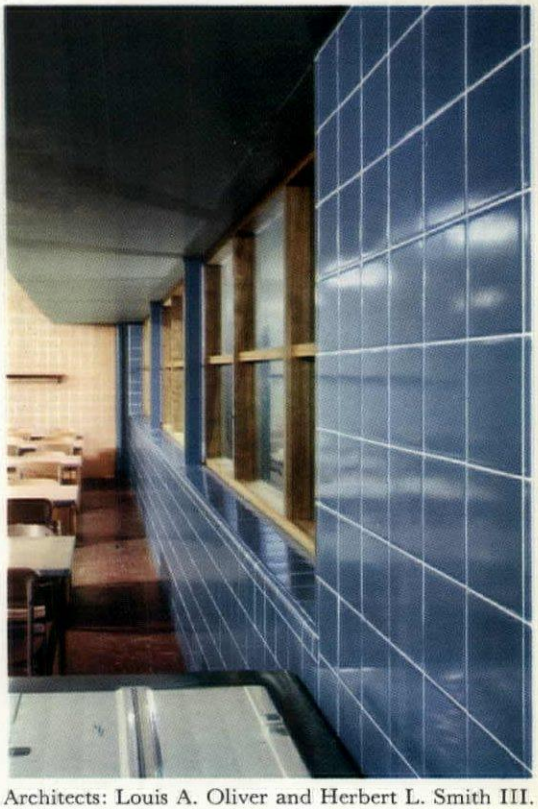
America is entering the ceramic tile age

Architects: Ferrenz and Taylor. Tile Contr.:
A. Tozzini Tile Works, Inc. Plate No. 319.



Architect: Julius Gregory. Tile Contr.:
Robert Chuckrow. Plate No. 143.

MOSAIC®



Architects: Louis A. Oliver and Herbert L. Smith III.
Tile Contr.: Ferrell Linoleum and Tile Co., Inc.
Plate No. 454.

Designer: J. Gordon Lippincott. Tile Contr.:
National Tile and Marble Corp. Plate No. 247.

THE MOSAIC TILE COMPANY

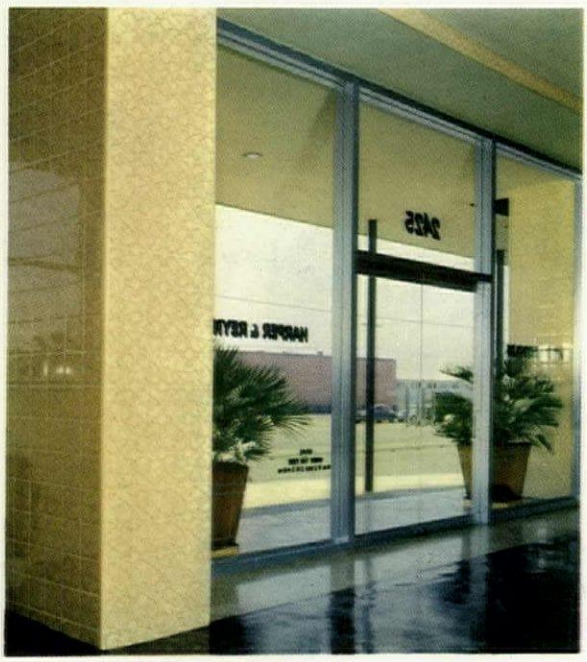
GLAZED WALL TILE

A. I. A. FILE NO. 23-A

Architectural spirit preserved in Mosaic Ceramic Tile

Glazed Wall Tile—a basic material to be considered in almost every type of structure—is usually specified for interior walls and counter fronts. It is also suitable for exterior surfaces in non-freezing climates. Rich color and dramatic scale (sizes range up to 9″ x 6″ x ½″) make the Mosaic line of glazed wall tile a particularly challenging medium for today's designers.

The Mosaic Harmonitone palette of 36 satin-matt glazed colors is scientifically color-calibrated so that all colors are compatible—a palette conceived in answer to the designer's request for a color tool of wide latitude. In addition to the satin-matt Harmonitone series, there are 20 Bright Glaze colors, designed to correlate with the plumbing fixtures of leading manufacturers. (A recent survey showed these high-gloss colors to be the most popular for bathrooms and kitchens.)



Architects: Burke, Kober and Nicholais. Tile Contr.: Beverly Hills Tile Co. Plate No. 380

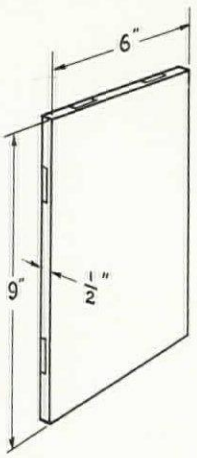
Made from a blend of selected clays, Mosaic Glazed Wall Tile has specially-designed cushion edges to assure fine finished surfaces and integral spacers that automatically provide close uniform joints. Like all ceramic tile, glazed wall tile is fadeproof, easy to clean, a pleasant and practical material for home and major building alike.

Other types of tile for wall use include Formfree* decorated units, decorated inserts and strips and a complete line of All-Tile Accessories in the same color glazes as wall tile. All necessary trim for any installation is available in matching colors.

The complete Mosaic line of ceramic tile also includes ceramic mosaics, Carlyle Quarry Tile, Everglaze (textured hard glaze tile), and Faience.

Floors and Walls of Mosaic Ceramic Tile will contribute to a greater return on your clients' building investment. Maintenance cost is less than with any other material—in many cases by as much as 50%. And the original investment is reasonable.

With our recently expanded manufacturing and distribution facilities, we can fill your tile requirements promptly. A broad selection of tile is carried in stock locally in the Mosaic warehouses listed below. You and your clients are welcome to make full use of our showrooms and those of your tile contractor.



Mosaic 9″ x 6″ x ½″ Glazed Wall Tile—available in all Harmonitone satin-matt and Bright Glaze colors. No expensive special trim needed. Competitive in first cost with glazed structural units. Requires only lowest-cost substructure. Installed by either conventional or thin-set method. Trim shapes available for both horizontal and vertical setting.

Mosaic Glazed Wall Tile Sizes	
9″ x 6″ x ½″	6″ x 4¼″ x ⅜″
6″ x 6″ x ⅜″	6″ x 3″ x ⅜″
4¼″ x 4¼″ x ⅜″	

The complete glazed wall tile color palette of 36 Harmonitone satin-matt and 20 Bright Glaze colors appears in the Mosaic Tile Workbook for Architects, Form No. 218, in Sweets. For additional data, write The Mosaic Tile Company, Dept. A, Zanesville, Ohio, or The Mosaic Tile Company, Dept. A, 829 N. Highland Ave., Hollywood 38, Calif.

Ask for:

Mosaic Tile Workbook for Architects—Form No. 218

Buildings of Today—Form No. 208

The Mosaic Tile Book of Beautiful Homes—Form No. 195

Mosaic Tile Selection Guide (popular, most readily available colors East of the Rockies)—Form No. 186

The Choice of the Coast (popular, most readily available colors West of the Rockies)—Form No. 179

9″ x 6″ x ½″ Glazed Wall Tile Folder—Form No. 187

Formfree* Decorated Wall Tile—Form No. 151

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Showroom-Warehouses: Atlanta, Baltimore, Boston, Buffalo, Chicago, Cleveland, Corona, Cal., Dallas, Denver, Detroit, El Segundo, Cal., Fresno, Greensboro, E. Hartford, Hempstead, L.I., N.Y., Hollywood, Ironton, Ohio, Jackson, Miss., Little Rock, Matawan, N.J., Miami, Milford, Conn., Milwaukee, Minneapolis, New Orleans, New York (Showroom only), Philadelphia, Portland, Rosemead, Cal., Salt Lake City, San Antonio, San Diego, San Francisco, Santa Clara, Cal., Seattle, Tampa, Washington, D.C., Zanesville, Ohio.

Representatives: Birmingham, Cincinnati, Kansas City, Oklahoma City, Pittsburgh, St. Louis.

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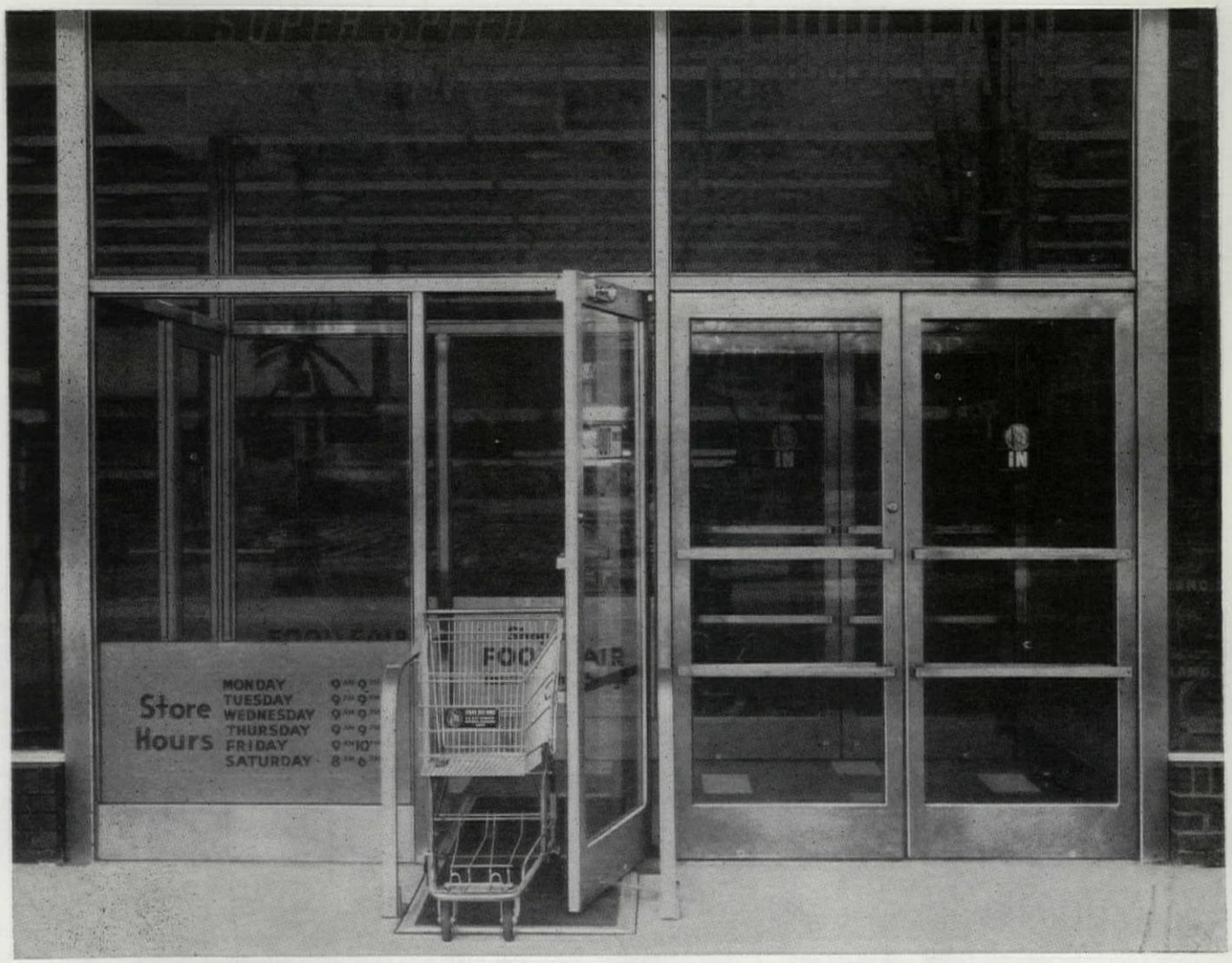
And the beauty of Stainless Steel is permanent, too. It is unaffected by damp, corrosive atmosphere. Because it is a strong, solid material it will not chip. It will not be marred or nicked by accidental blows or bumps. And the smooth, dense surface of Stainless Steel makes it easy to clean and keep clean.

Stainless Steel doors and frames are strong and sturdy; they will not warp or shrink, will stay true and tight-fitting for the life of the door.

USS STAINLESS STEEL



Stainless Doors, Frames, Hardware and Glass-Holding Members create an attractive entrance for this Food Fair Store in Norristown, Pa. This all stainless entrance is the product of the Overly Manufacturing Co., Greensburg, Pa.

UNITED STATES STEEL

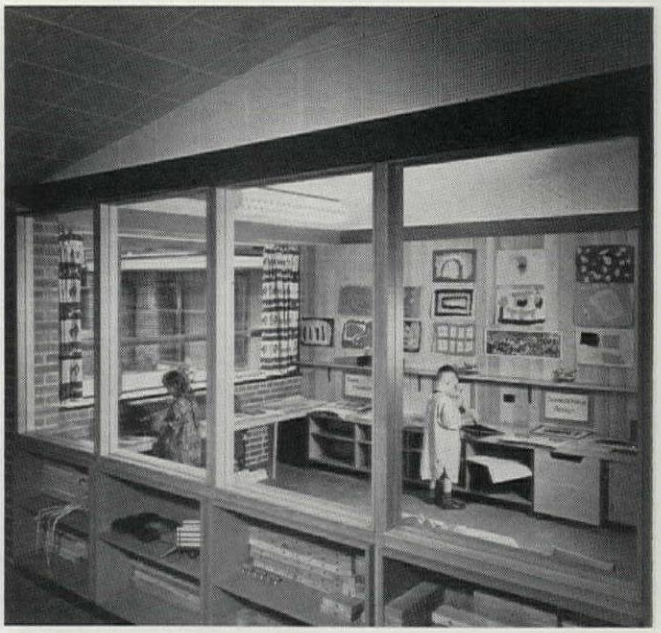
work place for learning

A book on "the art of school building" with the above title, written by Lawrence B. Perkins, partner in the firm of Perkins & Will, has recently been published by Reinhold.* It was commissioned by the Libby-Owens-Ford Glass Company, the author explains in a foreword, because of that company's "belief in the importance of physical environment to learning, and because of its belief that the school building, properly designed, is an integral part of that environment." It is a remarkably simple and lucid statement of the bases for contemporary planning of the school plant, directed not so much to the designer as to the alert layman who wants to understand the reasons for the changes in the schools his children use, and his community sponsors. Nevertheless, many architects should find it useful as a tool, as an educational medium in the community, as a source of excellent explanatory material. There follow excerpts from text of the book and some of the illustrations (many of which, in the book, are reproduced in color).

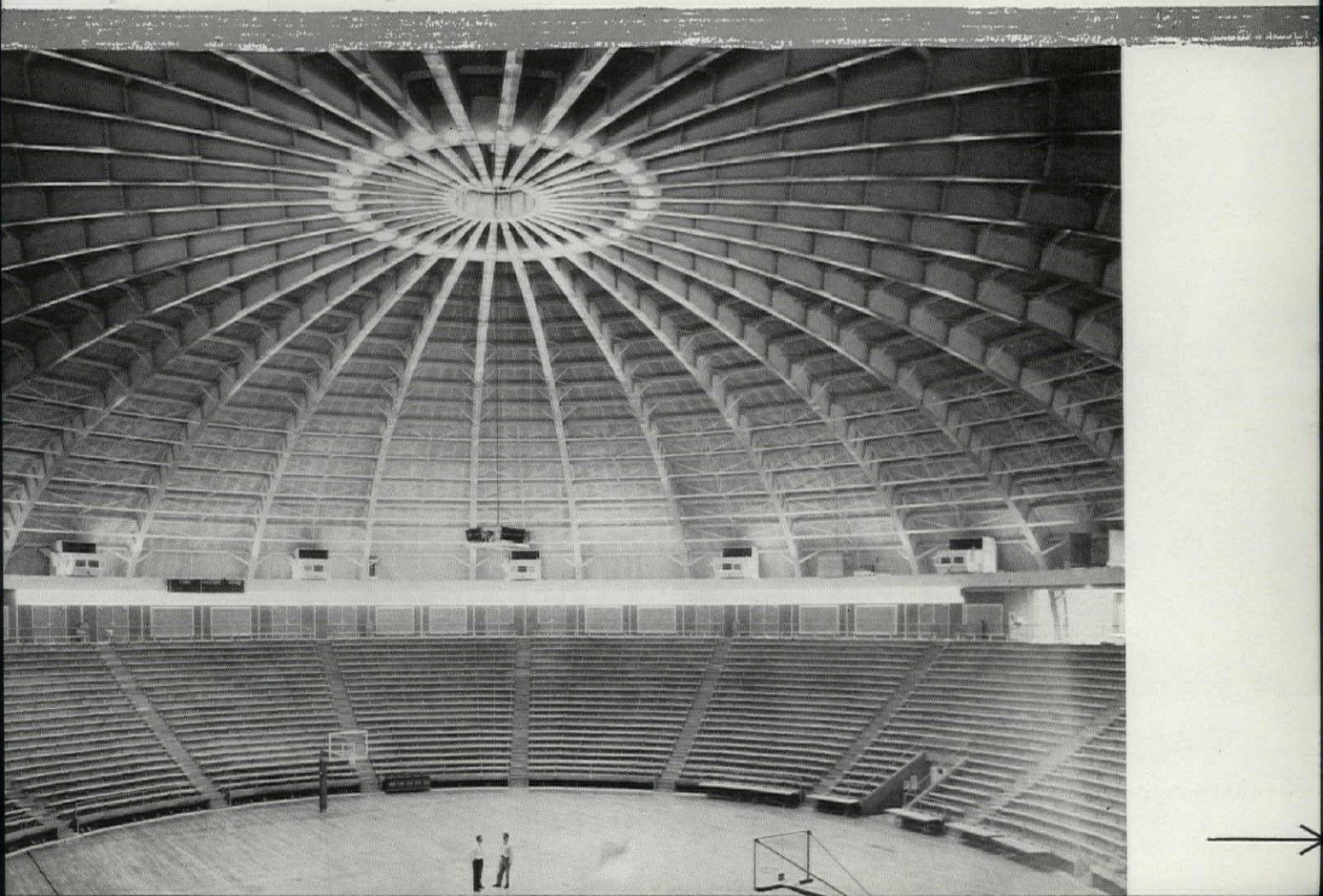
* **Work Place For Learning.** *Lawrence B. Perkins. Reinhold Publishing Corp., 430 Park Ave., New York, N. Y., 1957. 63 pp., illus., $4*

"There are some days during every school year when the outdoors is itself the classroom. The class goes outdoors, to *see* and *hear* the bluejay and the thrush, to *touch* the bark of the willow, to come into actual contact with the world around. This can be done by placing the classroom so that it *feels* as if it is a part of the surrounding land . . ."

"One of the major problems the school designer must consider is the 'first impression' his building gives. Those of us who began our education in one of those big, ugly, fortress-like school buildings remember that First Day as a frightening experience. The grim face of the building was awesome; it was bullying. Here was a witches' castle, a place of fierce teachers and cruel older children. However 'scientifically-planned' these buildings may have been, the best provided little in the way of a welcome or an appetizing introduction to education for the young newcomer. But just how can a school building be made to say, 'welcome'? First, both school building and approach should be designed with just that in mind. Open-armed and friendly, they greet the student without overwhelming him. They blend with the landscape and harmonize with the world, so that the approaching student knows the school as part of something familiar, something friendly. Too, the walls open with glass, so he sees what is going on inside; instead of being awed by the unknown, he is made eager to see more and to become part of the world within the school."



"The classroom should provide space and facilities for every activity the school program calls for. Whether the student is to learn by working alone, with a small group of classmates, or with the whole class, the space, the tools and the mood must be right. Rooms and furniture scaled to child-size, and usable, colorful materials provide an atmosphere conducive to eager learning."

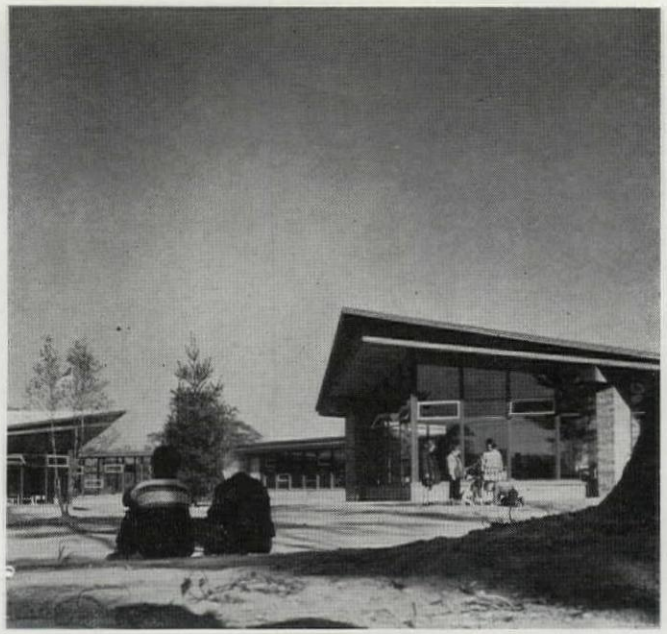


work place for learning

"The architect who designs a school building cannot think only in terms of shelter, or blueprints, or brick and stone and steel. He must think about the individuals who will use the building. . . .

"If the architect keeps these things in mind, he may be able to contribute in some small way to the achievement of the educator's goals . . . by creating a building that is a tool for the teacher and an expression of the school's educational approach . . . by creating an atmosphere, a mood, to aid the student in every learning task set before him . . . by making the school a place the student looks forward to entering, and one he regrets leaving . . . by helping the student feel the unity of his classroom with other classrooms, and with the world.

"And if he does all this successfully, he will have done what every artist—and educator—wants. He will have created a beautiful building. For a beautiful building is one that is sensitive to the emotional needs of the humans who use it, one that serves the physical functions set for it, and one that has been designed with an understanding of the materials and building methods it requires."



"Entering the school, there are no barriers from the outdoors; inside the school, the outdoor scene is in constant view. Now, leaving the building, the transition from indoors to outdoors is gradual, almost imperceptible. The student was never completely separated from the outdoor world, so he never feels trapped in the building, never feels 'unchained' when he leaves."

"Free the classroom of its traditional design straight jacket, and students become individuals, rather than rows of faces. 'Group academic' teaching can be informal, and can benefit from cheerful lighting . . . looking outdoors, (the student) feels the mind-freeing and eye-resting experience of a limitless classroom, he learns from the changing scenes of the outdoor world."

---

the critic's role in esthetic evaluation of architecture

by N. E. Chotas*

In general, critics may be divided into two main groups: *absolutists,* those who measure esthetic value in terms of individual response, to whom values are matters of individual taste, hence at times these evaluations can be unreasoned, arbitrary, or based upon intuitive preference or liking, and very often their statements of value are immediate, emotional, and unreasoned; and *relativists,* those who define value, not ontologically, but in psychological terms. A relativist critic may believe that mere preference and liking, though essential, are insufficient for evaluating. His judgment is largely based upon a serious, unreasoned discrimination between good and bad, or between better and worse.

Let us observe the standards that each of the above types of critics employs in judging the esthetic merit—leaving out functional analysis—of, for example, an architectural work.

It is difficult to see how the extreme absolutist's criticism—being personal, intuitive, and impressionistic—can be based upon any standards, for by his criticism he evaluates solely by expressing immediate pleasure or displeasure. At times, he may use such terms as unity, balance, proportion, feeling, or character, etc., to justify his evaluation. But, one may ask, do not these words cover multitudes of spatial variations and subjective interpretations? These terms have come to acquire a sort of mysticism—an abscure quality, upon which the absolutist tends to rely. At the most, these criteria of "beauty" which are directly felt or perceived *only* as this specification of what constitutes unity, character, balance, expression, etc., are apparent to a particular

*Associate Professor of Design, College of Architecture and Fine Arts, University of Florida.

the critic's role

individual. The absolutist will claim that if one of two contradicting criteria for evaluating is to be accepted, the other is to be rejected. If one is right, the other is wrong..

The relativist, on the other hand, recognizes the dependence of values upon differing cultures and temperaments. He believes that values may change from time to time, and that within each period there are differently constituted, yet equally sensitive, critics who may hold varied, yet equally valuable standards and judgments. If one makes a study of the ratings given to any architect's work, many different value judgments will be noticed not only between critics of different periods, but even between critics of the same period.

Can one find a single architectural example that has been universally acceptable during all periods of history? The Gothic Cathedral form was considered by certain French architects of the late 18th Century to be "crude, ugly and hateful" and the proposal was even made to demolish the edifice of Notre Dame. In 1764, Parisian architects complained bitterly against the pre-

the critic's role

posterous barbarity of the Greek Doric Order. These two examples only show that it is difficult to claim timelessness and universal acceptability of even a single architectural example. Can we say that there really exists an abstract ideal of beauty, a certain pattern of lines, geometrical figures, colors, etc., that is eternally acceptable? For the relativist, this viewpoint would be an impossibility.

The relativist believes that values depend largely upon one's culture and environment. His standards, contrasting with the firm infallible ones of the absolutist, are flexible—even tentative. He may deny that there are unchangeable and absolute evaluations and prefer to say that value judgments are largely conditioned by individual attitudes, or by particular social groups. In general, one may say that relativist standards are considered more as empirical criteria than rigid rules—standards that are flexible and that may even be revised.

Perhaps the absolutist may ask: Does not this relativism based upon psychological differences of various cultures and people make knowledge impossible, critical

judgment useless, and value an illusion? This could be the case only for those who in their demand for absolutes will deny, misinterpret, or attempt to explain away empirical facts. To others, the position of relativism in criticism can be reasonable—as it shifts the issues to firmer ground, removing them from the realm of illusion and the realm of "eternal truths" that turn out to be so contradictory. (It is interesting to note how many men—scholars of reputation, who practice scientific objectivity in other fields—lose their objectivity completely when criticizing or even discussing art.)

Every critic should realize that his evaluations are relative, since they depend in part upon his particular psychological makeup, his cultural environment, or his philosophical outlook.

A critic should remember that equally competent critics may disagree with his evaluations and he should understand the reasons for other critics' claims. Perhaps the critic should affirm his judgments with the full realization that for himself and for others with comparable backgrounds and basic attitudes, these judg-

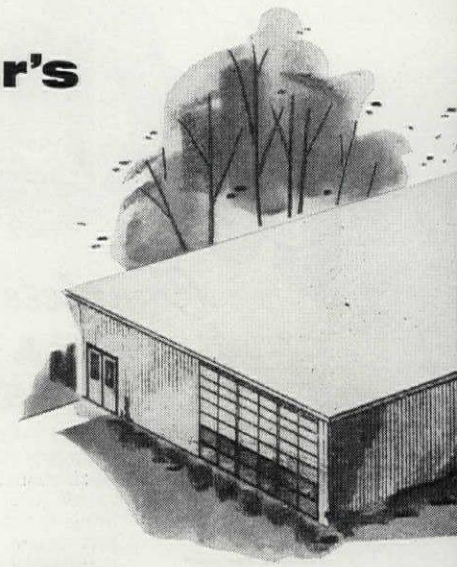
the critic's role

ments will have much in common with one another. They will not be the unarguable, fixed preferences of the absolutist, but will be thoughtful, reasonable appraisals, just as binding and true to the relativist as any absolutist's evaluation.

Since the relativist cannot define with absolute finality, his position is to a degree unavoidably imprecise. Because relativism cannot be formulated with exactitude, we occasionally see various unjustifiable efforts made by the absolutists to belittle relativism. However, the trend today may be in the direction that one is to believe there is no single rule or standard to evaluate a work of art under any and all conditions.

Every member of a society has the right to express his likes or dislikes, but should not his expression be frankly one of purely personal attitude and debatable standards? Are we not indulging in primitive thinking when we, as critics, project our own emotional responses to the world and assume that things are really good or bad in themselves in accordance with our own likes or dislikes?

Get next year's classes into classrooms next year...



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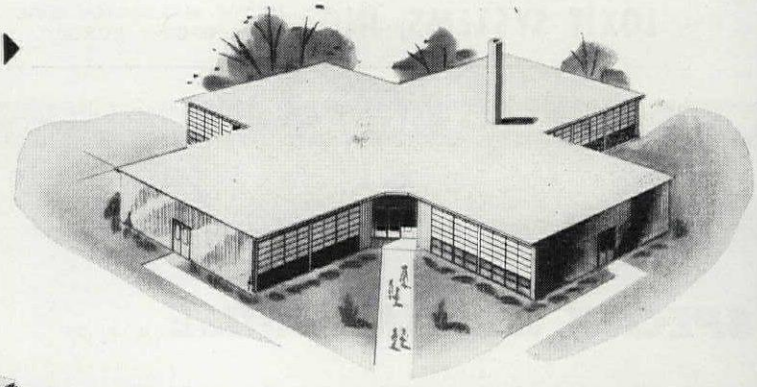
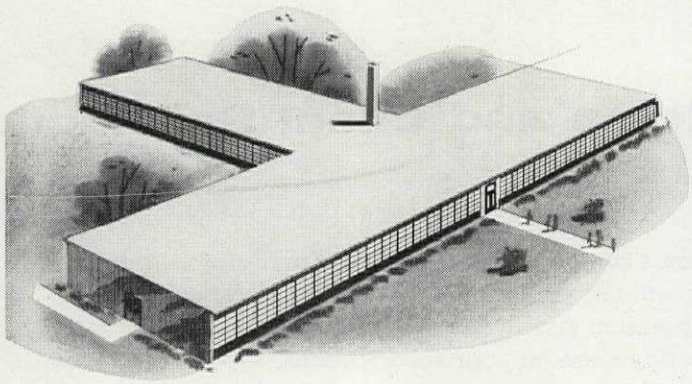
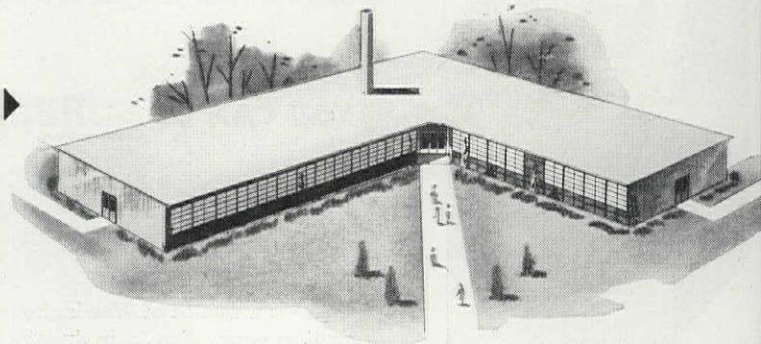


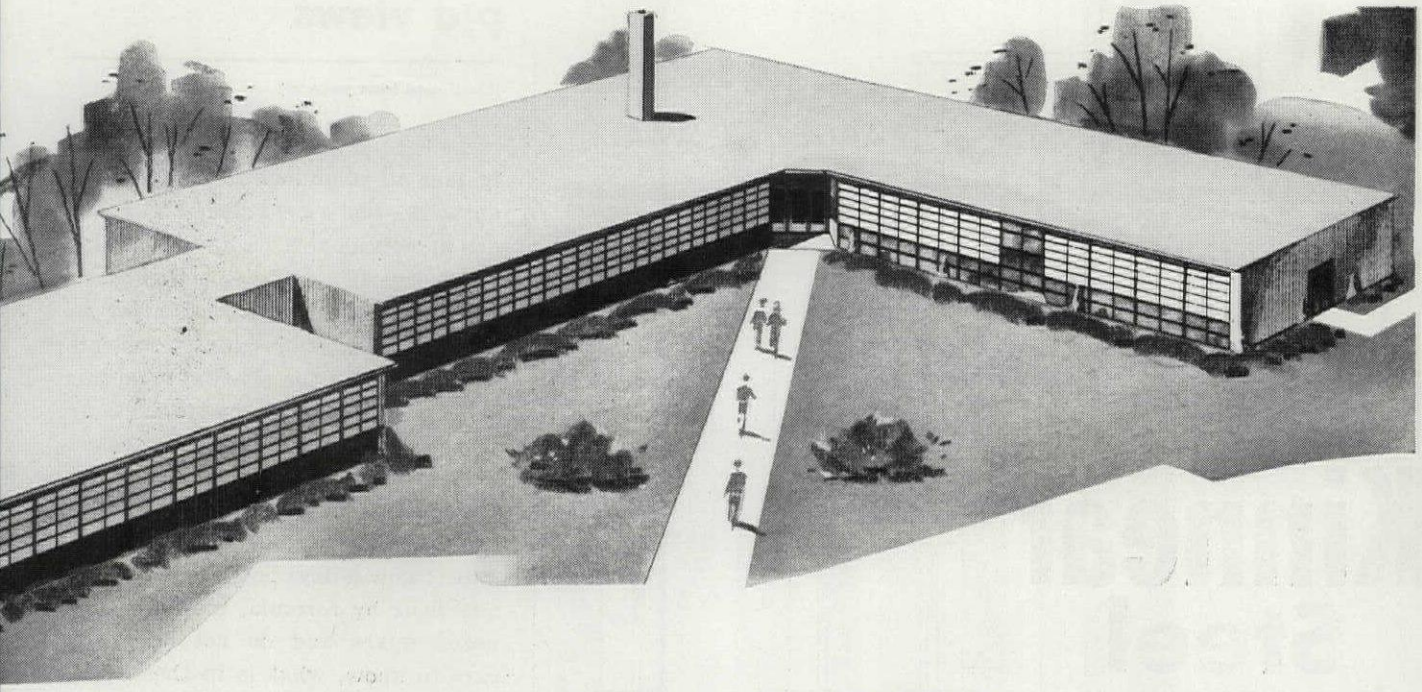


Retain the low cost of the basic plan . . . then plan to fit the site. Proper site is vital. Grade groupings, travel distances, accessibility of utilities, sewerage, fire protection, and transportation may be more important than topography. Projected community growth is an influence, too. The Truscon system of standard units which can be infinitely varied is the ideal solution to topographical problems, permitting the architect to select the site for its convenience rather than ground formation.

Standard "L" units provide unlimited room for future expansion. All insulated end walls of either wing can be removed, additional space added, and the end wall re-used. This means that expansion of a school building is limited only by the site, as indicated in main illustration above. Additions can be made rapidly, economically and in perfect architectural harmony. The best protection against obsolescence is provision for easy expansion.



BETTER SCHOOLS BUILD BETTER COMMUNITIES



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p/a views

(Continued from page 20)

in that all of us look to P/A for the answers—not vice versa! If I did not know him for his up-to-the-minute specifications, his selection of an oldtime lead-formula example to dramatize exterior paint problems would point to the shaving-mug era. It certainly has as many whiskers as the then-current formula for cake: one cup of flour, one pinch cream of tartar, and one something of carbonate soda (actually sodium-bicarbonate): now-a-days housewives do not mix flour by formula, they buy prepared mixes and do not know, or care to know, what is in them, provided the cake is good. Specifications writers should follow the same technique for paint.

He further — and possibly with tongue-in-cheek — sets up a straw man (a lead formula,[1] circa 1914) in using the term "Lead and Oil," a term that has been dying in favor of Lead-Zinc-Titanium; which term is *also* becoming out-moded as many manufacturers now-a-days reduce or even eliminate the lead content entirely.

Unlike interior paints, adequate Federal Specifications exist for primer and finish on exterior wood. These paints are made by many, many manufacturers,[2] small and large, and are readily available. So if you wish to, or for Public contract reasons must use formulas for exterior paints on wood, you won't go far wrong in using Federal Specifications even with their attendant difficulty of either testing for compliance or relying on affidavits; the latter method is reliable,[2] if reliable persons are involved.

If you are free to use the preferable method of specifying by means

(Continued on page 234)

[1] *His interior formulae is 100 pounds of white lead, three gallons of linseed oil, and ½ pint of drier. Here is a perfect example of the pitfalls of formulae specifications. This goo could not be applied on the wall, unless the painter changed the formula by adding much turpentine.*
[2] *These are points in which Rosen and I are in complete disagreement.*

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BRIGGS

BEAUTYWARE

BRIGGS MANUFACTURING COMPANY • DETROIT, MICHIGAN

p/a views

(Continued from page 232)

of trade names, you will find little disagreement that oil-base materials are still top choice. Here are the results of the last check (which should be re-checked at intervals as the paint boys are developing ideas; and experience with new materials is so short that a delay of one month might double the experience time). It covers the uncoerced recommendations of the top ten manufacturers—and I mean the sellers of the greatest quantities, not the ten who spend the most on advertising. These are my classifications of their recommendations for new buildings. Each manufacturer supplied a trade name for his particular product: each recommended an oil base primer:

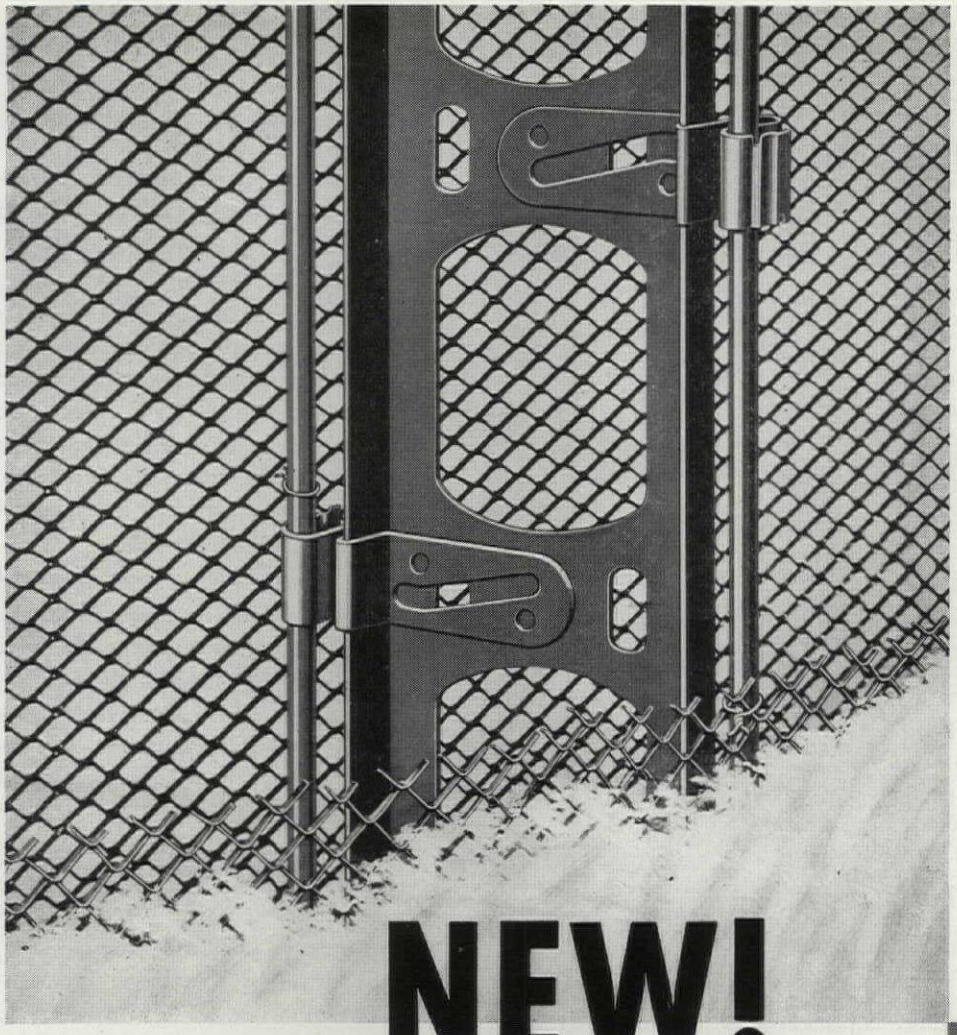
Recommended Finish

1. Oleoresinous, self-cleaning
2. Oleoresinous, self-cleaning
3. Oleoresinous, self-cleaning for light colors
   Oleoresinous, hard-film for deep colors
4. Oleoresinous, hard-film
5. Oleoresinous, self-cleaning
6. Oleoresinous, self-cleaning
7. Oleoresinous, hard-film
8. Oleoresinous, hard-film
9. Poly-vinyl-acetate *or* Oleoresinous, self-cleaning
10. Oleoresinous, self-cleaning

From the above, it is easy to conclude that these top ten have not yet found the perfect replacement for the oil-base system for exterior wood. However, a check today might find some minor changes in opinion. (The above divergence of opinion between self-cleaning and hard-film is probably due to nothing more than failure to explain conditions properly: more uniformity will undoubtedly appear as our conditions are better known to the manufacturers.)

The obvious conclusion is that no great problem exists in the particular paint example cited by Rosen; namely, exterior paints. Federal Specifications are adequate and they described a paint generally similar to that advocated by the top ten manufacturers.

(Continued on page 236)



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Hush-clip partition system rates sound transmission loss of 56.4 decibels

Now you can design for minimum transmission of sound from room to room, and do it at a reasonable cost —thanks to Penmetal's new HUSH-CLIP partition system.

Utilizing steel studs, track and gypsum plaster over metal lath, the system features a unique clip used in conjunction with a ¼" pencil rod. Because direct wall-to-stud contact is made only at point of clip, the area over which sound is transmitted is greatly reduced.

The sound loss rating of this combination is unequalled. Tested by a well-known independent research laboratory, the Penmetal HUSH-CLIP system recorded an average sound transmission loss of 56.4 decibels. (Complete test data furnished on request.)

That isn't all. This new system offers the bonus advantage of resistance to plaster cracking. And, since all parts of the system are designed to fit together, the partition is easy and economical to erect.

No other partition system offers so many benefits in one assembly. Send for further information on the HUSH-CLIP partition.

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METAL MARK Penmetal 1869 OF QUALITY

PARTS OF THE SYSTEM

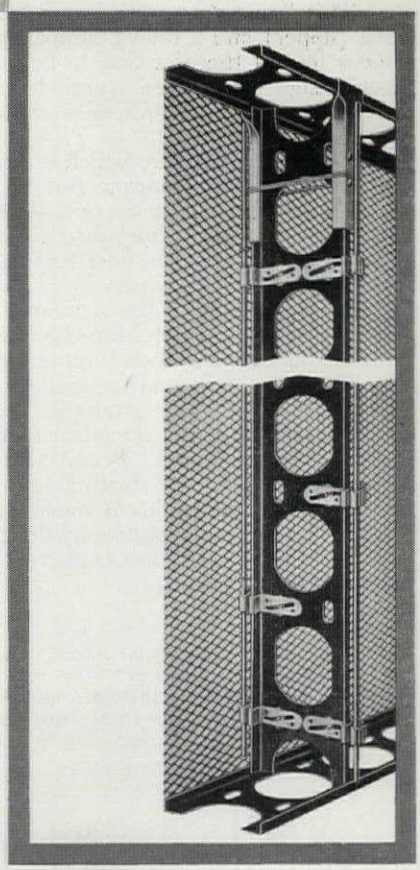
STEEL TRACK — made in five sizes to fit over the flanges of the five standard studs.

STEEL STUDS — furnished in 2", 2½", 3¼", 4" and 6" widths. Openings provide easy passage of pipe, conduit or cables without expensive chases.

HUSH CLIP — can be clipped, wired or bolted to the steel stud, or can be nailed to wood stud.

PENCIL ROD—provides the vertical member to support metal lath. May be snapped into lip of clip, or wire tied to the outside of the lip, depending on the grounds required.

METAL LATH — Penmetal Meshtex, provides the ideal size openings for perfect keying of scratch coat with minimum use of plaster; maximum rigidity.



PM-126

p/a views

(Continued from page 234)

The picture is a completely different one for interior work. Federal Specifications are not available for the newer paint systems, although their specifications for interior-plaster primer is a performance one, and can be met with oleoresinous or alkyd or acrylic or PVA. Here the same top ten paint manufacturers came up with five different basic kinds of paint systems[3] for typical ceilings and plaster walls.

Considerable experience is needed before any final conclusion can be reached regarding these materials; sufficient to say that many are superior to the old-time paints, as was demonstrated in one recent experiment in which a different primer was placed on different walls—a total of eight primers, including variations of oil-base, latex, PVA, alkyd, acrylic, shellac, etc. Over these primers were painted horizontal bands of finish paints of five basic types to attain samples of PVA over oil-base, PVA over latex, PVA over PVA, PVA over alkyd, PVA over acrylic and their counterparts for the other four basic types of paints. Due to circumstances too involved for explanation here, these experiments were inconclusive.

In answer to Rosen's specific question — How to specify paint — my answer is probably unique, in that it is a definite one, devoid of the hedging that is part of every good specification writer:

1. Discard all ideas of using formulas: forget all your chemistry, it is out-of-date, anyway.

2. Get the recommendations of as many manufacturers as possible, to your specific question, "How should we spend our paint dollar?" Use these recommendations unadulterated and unimproved. Use these materials in direct competition with each other[4] even

(Continued on page 238)

[3] *Some of these are water-thinned paints; others are thinned with mineral spirits.*

[4] *Each named manufacturer must be told generally what his rival has recommended, thus avoiding the unfair situation of specifying materials from different price groups.*

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Von Duprin

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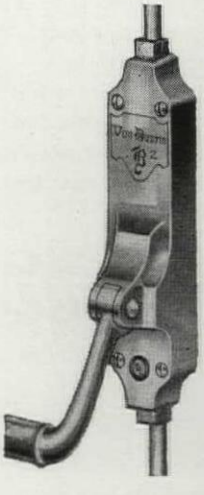

B2 device

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p/a views

(Continued from page 236)

though they may be entirely different types. However, the primer must match with the finish, and specifications must specify primer and finish as a package, and thus prohibit A's finish over B's primer.

The above recommendations may be used under public specification procedure, if sufficient names are included. Most Public contracts stipulate "or equal" is implied, if less than three proprietary names are used. Although three names are sufficient, it is better to include several more.

PROGRESSIVE ARCHITECTURE should be commended for bringing this problem to general attention. Our Local Chapter of CSI tackled this problem sometime back by getting three of their active paint members to produce recommendations on a "friendly-rival" basis.[5] They produced some excellent material, but little use was made of it due to the conditions outlined in Rosen's Specifications Clinic.

Summary of Specification Techniques

Preferred Method—Specify Brand Names in quantity

Possible Method— Refer to Federal Specifications where same are available and applicable. For newer materials use brand names in quantity.

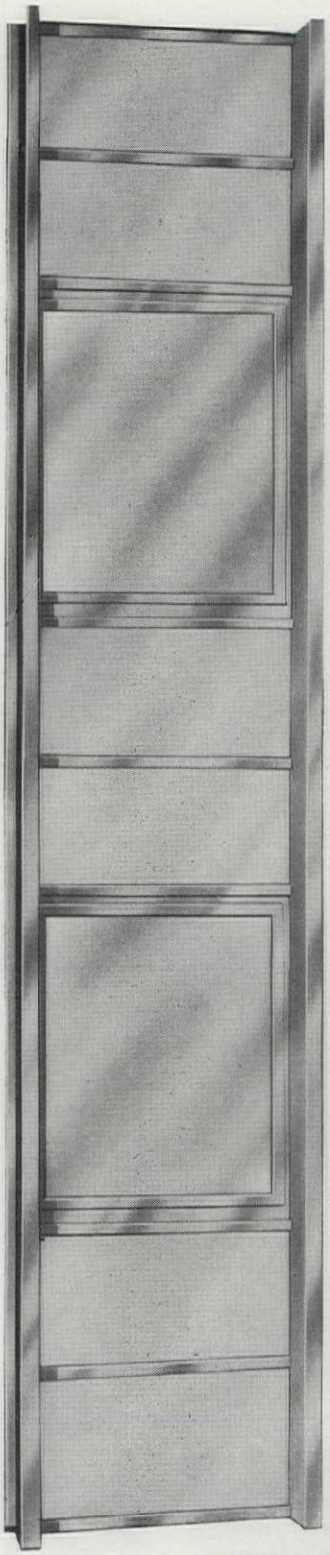
Hopeless Method— Specify by formulas.

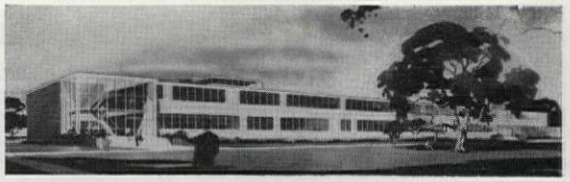
DERMOT W. GALE
Bureau of Construction
Board of Education
New York, N. Y.

[5] *The word "friendly" usually means a rival who holds his knife out in plain view.*

with apologies

The friendly letter endorsing the forthright critical approach of our P/A Design Awards Jury (*page 13,* May 1957 P/A) was from Joseph (*not John*) W. Wells, Auburn, Alabama.





Biological Sciences Building, Southwestern Louisiana Institute, Lafayette, Louisiana. Architects: Robert L. Stephen, Lafayette. General Contractor: Robert Angelle, Breaux Bridge, Louisiana.

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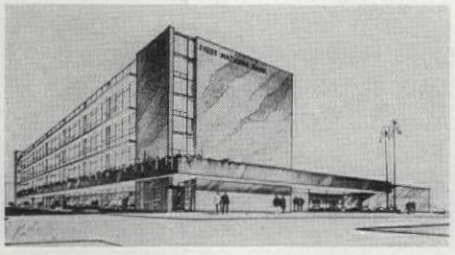
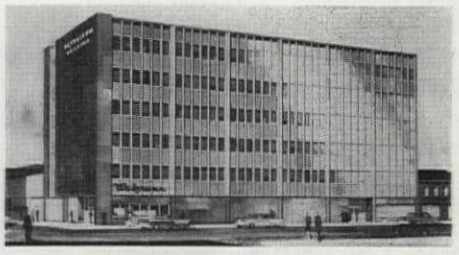


First National Bank Building, McAllen, Texas. Architect: MacKie and Kamrath, A. I. A., Houston. General Contractor: M. R. Nelson Company, McAllen.



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(Continued on page 244)

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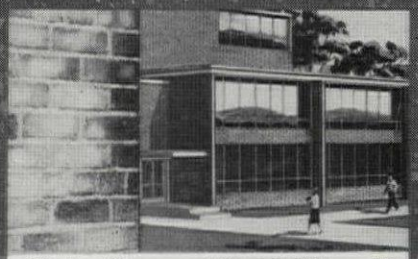

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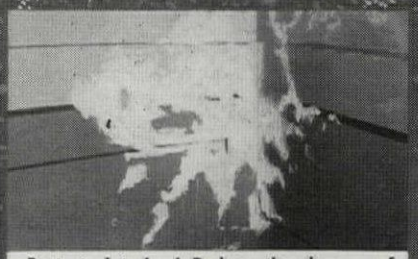

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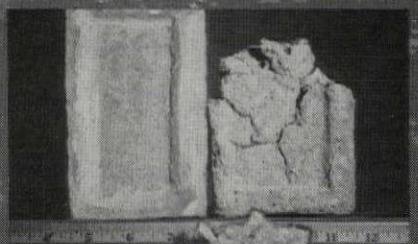

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p/a jobs and men

(Continued from page 242)

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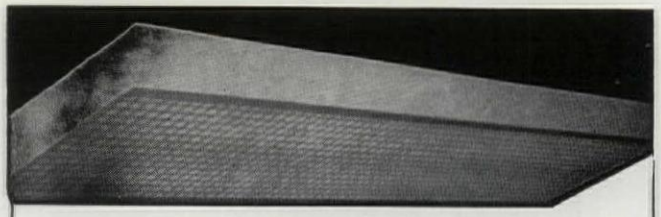

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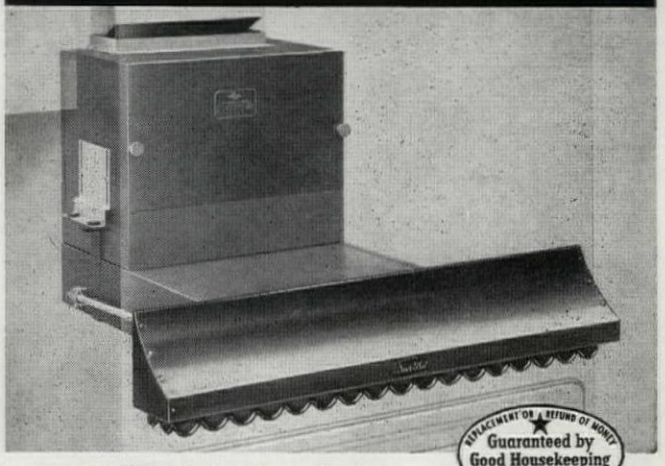

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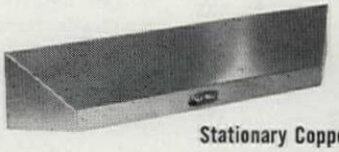

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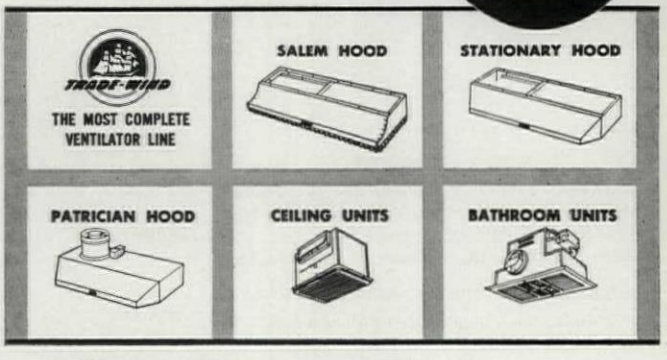

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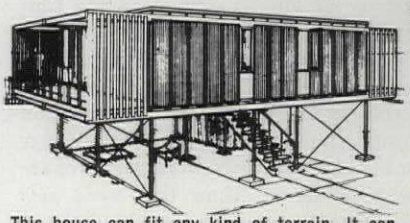
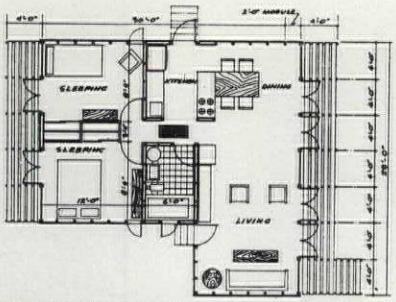
Bent Construction can be made away from the site if sufficiently small and lightweight. The foundation is usually a series of piers which support the bents. To expand this type of house, simply add more piers and another bent.

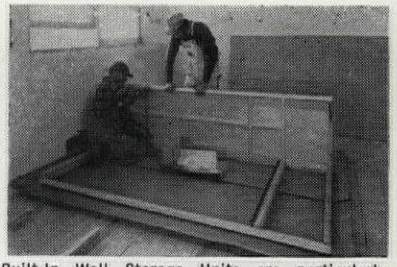


This house can fit any kind of terrain. It can adapt to a hillside by shortening the lally columns in the rear, or a beach by using the complete full length columns. By entering the center of the house from the ground level into the utility section much space is saved.

This Bent House is a year-round house which is compact but which can expand gracefully. It is extremely versatile in its adaptation to site and climate.

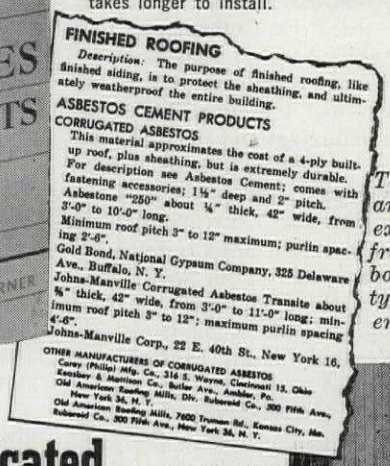


This Panel House is designed for the beach with both sections of the house fully open to possible view and breezes.



Built-In Wall Storage Units are particularly appropriate for houses which do not require interior structural partitions. Here is a Mengle Space Saver Wall Closet with sliding doors in the process of being assembled.

Sub-Flooring is "boxed in" over the floor joist with diagonal 1 x 6's in conventional building prior to frame construction. Diagonal sheathing is slightly less expensive than plywood, but takes longer to install.



FINISHED ROOFING

Description: The purpose of finished roofing, like finished siding, is to protect the sheathing, and ultimately weatherproof the entire building.

ASBESTOS CEMENT PRODUCTS

CORRUGATED ASBESTOS

This material approximates the cost of a 4-ply built-up roof, plus sheathing, but is extremely durable. For description see Asbestos Cement; comes with fastening accessories; 1¼" deep and 2" pitch. Asbestone "250" about ¼" thick, 42" wide, from 3'-0" to 10'-0" long.

Minimum roof pitch 3" to 12" maximum; purlin spacing 2'-6".

Gold Bond, National Gypsum Company, 325 Delaware Ave., Buffalo, N. Y.

Johns-Manville Corrugated Asbestos Transite about ¼" thick, 42" wide, from 3'-0" to 11'-0" long; minimum roof pitch 3" to 12"; maximum purlin spacing 4'-6".

Johns-Manville Corp., 22 E. 40th St., New York 16, N. Y.

OTHER MANUFACTURERS OF CORRUGATED ASBESTOS

Carey (Philip) Mfg. Co., 316 E. Wayne, Cincinnati 13, Ohio
Keasbey & Mattison Co., Butler Ave., Ambler, Pa.
Old American Roofing Mills, Div., Ruberoid Co., 300 Fifth Ave., New York 36, N. Y.
Old American Roofing Mills, 7600 Truman Rd., Kansas City, Mo.
Ruberoid Co., 300 Fifth Ave., New York 36, N. Y.

This is an actual example from the book of a typical entry

Design Budget Homes by Using Pre-Fabricated Materials as Building Blocks

Complete Wall Units are being produced by a number of manufacturers.

Here is a quick and up-to-date guide to readily available building material of all types; how you can adapt them to your own design, and where they are available.

Undeniably the small house which presents proportionally the greatest financial demands is the most challenging in the residential field. Ever since Designer Norman Cherner designed his first house he has been working on methods of building budget houses which do NOT look alike. After several years of testing, designing and research he found that there are two basic requirements for building good low-cost houses: SOUND PLANNING AND MODERN BUILDING MATERIALS.

15 different Houses—700 sq. feet or more—all expandable

You will find complete floor plans, framing and foundation plans, elevations, sections and expansion plans for each house. And to make it easier for you to take advantage of their design the basic type of structural systems used; panel, bents, girder, masonry, and foundation and Quonset, are described and depicted. Each house is designed to give a feeling of openness and space by planning minimum hall space, unbroken wall areas, large window areas, good circulation, and multi-use of space.

Material and Method Section contains more than 300 entries

Big factors in economy of construction are the use of factory fabricated components. Here you can get exact knowledge of what material is available and its uses. You will find *clear* and *concise* information about pre-cut lumber, pre-fabricated panels, pre-fabricated wall boards etc. And for economy of decoration there are listings of colored and textual roofing and side walls, interior wall finishes, vinyl or asphalt tile floors and many others. The materials are presented and grouped according to the actual sequence of building, starting with the foundation and ending with completion of finished interiors. Under each heading is a list of materials which perform similar functions together with addresses of manufacturers.

Here is what OLINDO GROSSI, Dean of the School of Architecture, Pratt Institute says in his foreword:

"To assist the would-be builder with this type of house or summer home Norman Cherner has computed in this book a series of basic designs giving details and materials listing. This information has been carefully selected to clarify type of construction and to present a variety of methods of solution of the small house problem. The author has wide experience in contemporary small house design and a particular interest in low cost components and assemblies"

In its 208 pages and more than 300 illustrations you will find hundreds of ideas how to save money by using these *Factory Fabricated Components* as building blocks for Foundations, Exterior Skin, Roofs, Wall and Ceiling Insulation, Interior Walls, Doors, Windows, Trim and Mill Work, Heating, Plumbing, Electrical Work and related Fixtures and Appliances, Floor Coverings, Wall Coverings, Painting, Staining and Adhesives.

SEND NO MONEY

See for yourself how this handbook can bring you new information about design, construction, and material for year-round houses and summer houses. Simply mail the coupon and we will send it to you for FREE EXAMINATION. If not delighted, return it within ten days and pay nothing. Otherwise keep it as your guide to design better low-cost houses and pay only $7.95 plus postage in full.

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P.S.

diary

The AIA Convention this year was obviously the biggest and best yet. There doesn't seem much point in reporting it to you, because I am sure you were there. It was a fine meeting all around, with excellent talks and seminars; several truly off-beat divertissements such as the National Symphony's architecture-music afternoon sponsored by SCPI and the opening of the Fritz Gutheim-prepared exhibition at the National Gallery; a delightful series of events arranged by the host Chapter—and the usual large and small social gatherings and reunions. The only adverse comments I heard had to do with the size of the group (we are so used to *intimate* Conventions; this week in New York the AMA is gathering 45,000 in comparison to our 4500!) and to the over-length of some talks (a fault which is reprehensible in direct proportion to one's desire to get finished with this meeting and on to the next event).

There were pro and con comments about the exhibition, of course (its gatherers would have been unhappy if there hadn't been) and about the un-documentary photography of the big blow-ups. Many thought the gay banners contributed by Sisters Mary Corita and Magdalen Mary, folk-art teachers of Los Angeles, were so delightful that the adjacent pictures of architecture looked very dull. I doubt if the tired but gratified Convention staff minded any of these cavils; I can remember Conventions where there was no event this stimulating to talk about.

My only complaint (not a very serious one) is that too much goes on for someone who wants to snatch a bit from each offering; especially when, in addition to AIA, there are concurrent meetings or conventions of PC, CSI, ACSA, NCARB, NASA, and others. Many of these are important in themselves. CSI (Construction Specifications Institute) had its first true National Convention (part of it in conjunction with Producers' Council) and it was most impressive. The rapid growth of this group of serious specifiers is understandable when one meets with them and senses their enthusiasm. NASA (National Association of Students of Architecture) also deserves congratulations on its gathering, and the quality of its leadership. I've just been going through the first issue of its annual publication, and it's a honey; in fact, for anyone who wants to know "what's going on in the schools these days?" it's a must.

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What *is* going on in the schools? Since the Convention I've sat in on two judgments—one at Yale, and one at Pratt Institute—and I've spent an evening talking to a number of graduating Harvard students. Added to impressions picked up at other schools recently and conversations with some of the boys at Washington, I'm sure of just one thing: we have a very serious-minded and mature group of students of architecture about ready to step out into the offices. As has always been true, some are brilliant designers and some are a bit confused about design approach. There's imagination, and there's copyism. There is also (and no one knows this better than the schools themselves) great variety and disparity in the quality of teaching. How to draw good architects who are good teachers to a college drafting room for several weeks—not to say on a permanent basis—when the office drafting room is busier than it's ever been, is a tough problem. Exhortations won't help, I know, but I can assure anyone who might try it that those who *do* find that nothing is more stimulating and freshening than a tour of such duty.

The current student body, nevertheless, strikes me as a more grown-up group, than it has at any time since the war. Something of the seriousness of today's architectural-planning challenge seems to have reached student level. I think that they are, by and large, more conservative than we are used to students being. Some of the more revolutionary fighting spirit that one expects from students is missing; in a sense that's bad. But there is a greater responsibility, and maturity; certainly that's good.

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This is a wacky time of year before the summer sets in. Meetings all over the place. I popped up to Boston the other evening to attend Hank North's presentation of the annual Arcadia Metal Products Award for excellence in architecture (of the indoor-outdoor type, of course) to Hugh Stubbins, and another to Richard Neutra, in absentia, for all-time excellence of this sort. I ended that evening crawling around the construction hazards of Belluschi's First Lutheran Church, in the dark. Tomorrow I'm off to Chicago to talk to the annual meeting of the Chicago CSI Chapter ("we don't want a technical address, nor a strictly social one, either"). Down to Washington over the weekend to help judge the Washington Evening Star-AIA Residential Honor Awards, and then to New Jersey to chaperone a "seminar" (how that word gets used, these days, including by us) on "Architecture as a Social Art."

In the meantime, we've had many visitors passing through town, whom we've been happy to see. Fred Emmons, racing out of the Far East, ahead of the flu epidemic, was still mopping his brow in recollection of the heat of Singapore, the chore of digging out a State Department building program, and the difficulty of picking a local associate. Mathias Goeritz, of Mexico City, dropped by on his way home from a midwest lecture tour. Slightly groggy from a two-talk-a-day schedule, he had been most impressed by Chicago. "A city with character," he said. Arthur Davis, from New Orleans, dropped in to report intentions of winning again the P/A Design Awards top honor. Since we were just selecting a Jury, we foxed him by putting the finger on him (or his partner; see next month's announcement) for Jury duty. Philip Hiss, of Sarasota, Florida, stopped by to tell us about his own house, and to say nice things about the work being done there by Paul Rudolph, Victor Lundy, and others. Arthur Fehr, of Austin, Texas, came in to delight us with some handsome kodachromes of handsome work.

And this is the time of year, of course, for the beginning of trips to Europe. "What should I see?" is a tough, common question; and, "What can I report for you?" is another. We honestly don't know, not having been abroad just recently, so we enviously mention the well known buildings and the familiar people, and turn back to this humdrum life in which nothing ever happens.

Thomas H. Creighton