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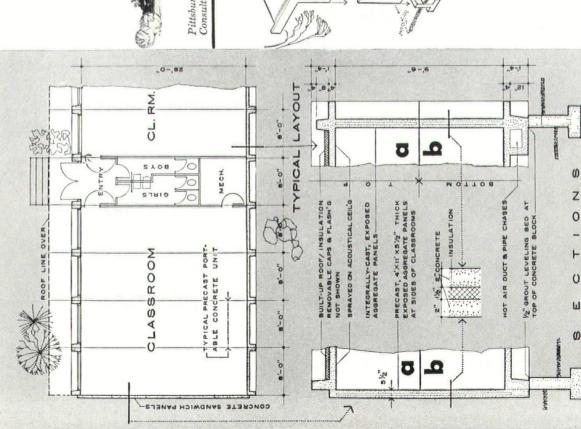


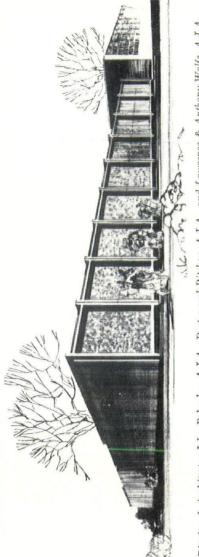
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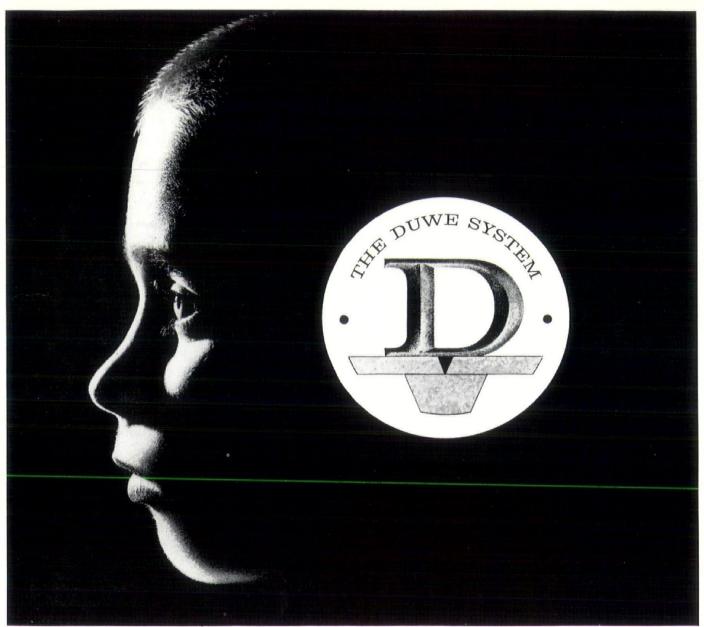
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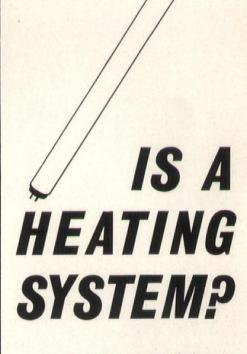
CONCERNING THE COVER

This month's rather patriotic cover design by IA Artist Bob Willis is our salute to the legislative bodies of Indiana and the United States, both of whom are in session at the present time. The stylized American flag at the top is, of course, in tribute to the Congress of the United States, and the Indiana flag at the bottom recognizes our own 94th Indiana General Assembly.

Incidentally, two Indiana architects received a vote of thanks from the Indiana House of Representatives last month; Mr. Walter Scholer, Sr., FAIA, of Lafayette, and Mr. Warren D. Miller, FAIA, of Terre Haute, both were mentioned by name in House Resolution 9, introduced January 15th by Representative Ralph A. Brassie of Lafayette. The Resolution conveyed the thanks of the members of the House to everyone concerned with the new Eugene Francis Savage mural recently installed in the House chamber.

Others named in the Resolution were the Honorable Governor Matthew E. Welsh, who with Mr. Scholer and Mr. Miller negotiated with the Abby Foundation for the mural, which was given to the State of Indiana as a gift from the foundation.

Mr. Scholer's and Mr. Miller's firms were the architects for the remodeling of the Indiana legislative chambers several years ago.



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Why Standard Plans Don't Work

"That stock plans for school construction have not worked satisfactorily, where tried throughout the nation over the years, is well documented.... But advocacy of such plans for schools continues in many quarters."

Those words appeared in an early AIA School Plant Study, written over nine years ago. They might have been written today. The frequent resurgence of the use of standard plans (often called stock plans) for schools has a nightmarish quality for architects who work closely with school boards and who have proved again and again the many reasons why standard plans are not economical, not flexible, not readily adaptable to variations in site and changes in curriculum and teaching methods. Stock plans are only "stock" for a short time.

Referring editorially to the New York standard plans, Forum said last November: "The case against the stock plan idea is well established, but it is worth restating... Charles D. Gibson, Chief of the California Bureau of School Planning, put it this way at a 1960 Forum roundtable: 'Stock plans represent the lazy, inefficient and expensive way to provide school housing. The facts are ... plain... It has never worked in the fashion in which we have tried to make it work. It is not less expensive. Nobody has ever recovered his original investment in the preparation of these things — nobody.'

"Other states have had the same experience. . . . Those few who still offer (standard plans) report

One of a series of school plant studies by the Schools and College Architecture Committee of The American Institute of Architects. Reprinted with permission from the December, 1964 AIA JOURNAL, Copyright, 1964, The American Institute of Architects.

that they mostly sit and gather dust on the shelf. . . . The danger is not that the nine schools will pop up all over New York. The danger is that they will become what the state likes to call them — 'standard schools.' Already opponents of a bond issue for a fine new high school in one New York community are pointing to the state's plans and the state's figures and charging that the school board is wasting money.

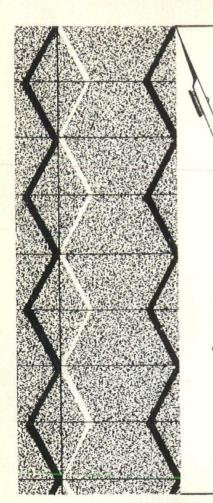
"These are not 'standard schools,' they are minimum schools. They were designed on a minimum budget to an amorphous physical and educational program that had to represent the lowest common denominator among the aspirations of the state's school districts."

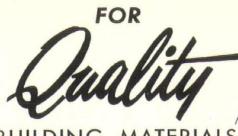
(The state architect hastened to protest, in a letter to Forum's editors, that the New York standard plans do not represent "minimum schools," and added that the plans provide work for local architects in "site adaptation, and desired modification or expansion, bidding, checking of shop drawings and supervision of construction of any project undertaken by a school board.")

As Forum's editors pointed out, the case against standard plans must be restated perennially, and architects must take on the recurring task of educating the educators to the nonwisdom of electing to build paper-doll schools from government-furnished plans. The AIA Committee on School and College Architecture feels that this task might be made easier by the compilation of a portfolio of information, documenting past attempts and the results.

The following points, forcibly brought to the attention of local school districts, should certainly bring about some soul-searching on the subject.

Standard plans, to effect even seeming economies, must be reused repeatedly. Once a standard plan has been prepared and disseminated by the state,





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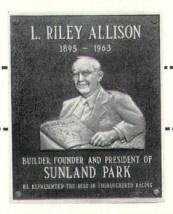
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10330 Wayne Avenue Cincinnati, Ohio 45215 few if any revisions are ever made. The plans are static; this effectively freezes progress by making it difficult to incorporate changes in the educational program. If a local board wishes to modify a standard plan to incorporate such changes, an architect must be called in to revamp an obsolete plan, instead of designing a school to accommodate the program.

John L. Cameron, Hon. AIA, Chief of the School Housing Section of the US Office of Education, recently wrote in the Indiana Architect: "The planning of each school building project is a different problem. Orientations are different, site topographies and shapes are different; access roads and streets are different; the availability and location of utilities are different. Most important, a school building should be designed to accommodate the educational program a particular community has determined it needs and wants. The building should also be a source of pride to the community."

• Standard plans cannot make optimum use of a school site. The New Jersey Society of Architects recently made this point with considerable force, in a letter protesting the standard-plans bill mentioned earlier in this article. The letter stated: "It is not possible to reuse drawings and specifications for a second time without adapting them to the topography and other physical conditions. More often than not, the cost of such adaptations more than offsets the fee required to design a particular building for a specific site."

A spokesman for the Tennessee State Board of Education put it even more succinctly, in reply to the 1951 Committee injuiry: "Too many strange ducks resulted from adapting stock plans to the varied site conditions throughout Tennessee."

This problem, of course, can arise any time plans are reused, whether or not they are "stock." The story is still being told — with the names deleted to protect the innocent and otherwise — of the assistant superintendent who insisted that plans for a just-completed high school would fit another site for a second high school. "I understand all about contours," he said — "See, you just turn it like this; and I've aiready had tests made."

The architects, a well-known firm, had to admit that the building would go on the lot, apparently without too much adjustment of site-grades. They protested — from their experience, they knew it would be a dubious economy — but the assistant superintendent prevailed.

Whatever the tests were, they had failed to reveal extremely difficult subsoil conditions. Just where

excavation was necessary to fit the old plan to the new site, there was rock, and lots of it. Adjustments to save some rock excavation required fill elsewhere. There was a bad relationship to existing utility lines and access streets because of entrances and equipment locations on the old plan. As the job was studied, it become apparent to the architect that no one in his right mind would put that building on that site. Nevertheless, there it went.

Meanwhile, as conferences with teachers progressed, there were a number of conversations that began, "Well, that's how it was in the other school, but we'd rather have it this way."

Construction progressed, in a rising market for building materials, but the old specifications and details were to be used, instead of choices based on current conditions. The sad culmination of the whole affair was that the second school, started one year after the first, cost \$300,000 more, and the assistant superintendent was encouraged to find himself a niche somewhere else.

- An architect's job is not finished when drawings and specifications are completed. Architectural services include supervision of the work in progress. To quote again from Mr. Cameron, "Adequate supervision of a building while it is under construction is of vital importance, and it should be (supervised) by the individual or firm who was responsible for its design. This would be impractical if stock plans were used."
- By forcing many component manufacturers out of the bidding (due to standardization of design and specifications) standard plans are obviously likely to increase costs enormously by limiting competition.
- Freezing of materials and construction methods precludes incorporation of new and improved products and construction techniques. Standard plans halt progress. If progress is to be made, it can be accomplished only as a result of calculated experimentation to develop newer and less expensive methods of construction. Just consider the range of products and techniques developed in the decade 1950-1960. Plastic wall coverings, vinyl floor coverings, aluminum roof coatings, acrylic paints, dozens of other products virtually unknown in 1950 were in competitive production and general use ten years later. Conversely, some materials in wide use in 1950 had been discarded by the early '60s, either because of disappointing performance or because more economical solutions had been developed.
- The question of liability becomes extremely



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cloudy when local architects are called upon to modify standard plans or adapt them to the site. This confusion is apparent in a letter, written by a New York State official to an architect who had requested clarification of the liability involved. The reply stated, in part, "I am not entirely clear as to your premise, because the state stock plans bear the seal of the state architects. It is my understanding that as to those plans and everything that is done therewith, if there is any responsibility it would be the responsibility of the state. However, if alterations are made in the plans, then the alterations would need to have the seal of the architect responsible for them. He and not the state would be responsible for anything dependent upon such alterations. Of course, if the alterations are of such magnitude that the stock plans are changed fundamentally, then the plans would need to bear the seal of the architect responsible for the redrawing of the plans and, of course, the question of liability would follow."

• While the few states which still favor the use of standard plans usually advocate their use only in very small districts, for one-, two- or four-classroom schools, the national trend is toward consolidation — and therefore, toward larger plants and a greater investment per plant. This points up an increasing need for architectural services on an individual basis to insure the most school for the building dollar.

Economies in school construction are possible. One innovative approach to a means of getting better facilities is described in another article in this issue ("SCSD — Better Schools for the Money"). Architects can frequently save money on sites, by designing a building which will adapt well to a difficult — and less expensive — piece of real estate. The educational program can be revamped and savings can be realized by determining in advance the area and equipment needs of various rooms, rather than by accepting a standard which may cramp one class while another wastes its excess of space.

• Standard plans may include facilities which are not needed or desired by one community, at the expense of facilities which that community urgently needs and wants. A high school with a particularly fine speech and drama department, for example, may want a little theater in which its players can give several performances on an intimate scale and thus perfect their technique. But if the assembly space provided in the standard plan consists of an enormous gymna-cafe-torium, tough luck! Unless, of course, the local board

wants to have the stock plan redesigned, at additional expense.

An adequate curriculum must fit the needs of the students it serves. In some areas, a high percentage of high school graduates continue their education. They need lots of classrooms, laboratories, etc. In other areas, because of the large number of terminal students, great portions of the building must be devoted to the vocational program. The building must fit the curriculum, and each school district proudly maintains its own curriculum to serve its children.

We are living in a dynamic age. In order for our children to be ready to face the demands of such an age, they must have the best possible education. And in fast moving times, education cannot remain static. Curriculum, teaching techniques, teaching equipment and buildings must be the very best available. Standard plans simply are not up to the task!

One of the documents mentioned in the following brief bibliography deserves more than passing attention from architects faced with the educational task of setting the facts straight about stock plans. It is a small pamphlet, published in 1959 by the Central New York Chapter AIA, and entitled "Will Stock Plans Give Better Schools at Less Cost?" We have drawn heavily on the questions and answers in this pamphlet in preparation of this article; we feel that the remarks on the lack of flexibility inherent in standard plans is worth quoting verbatim. "Stock plans may include facilities not needed by a community and deny facilities which the community urgently needs in its school. Facilities not needed waste money. Facilities needed, but not provided, waste the talents of the young people of America."

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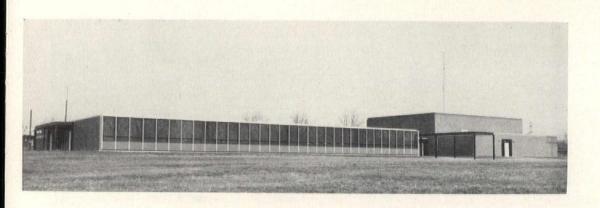


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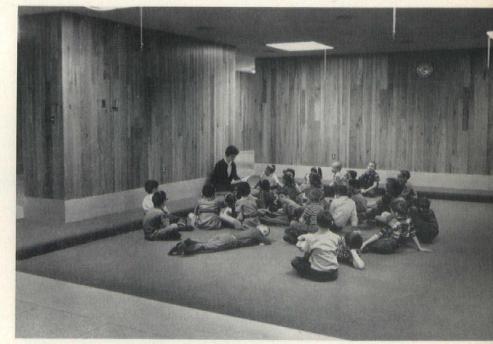
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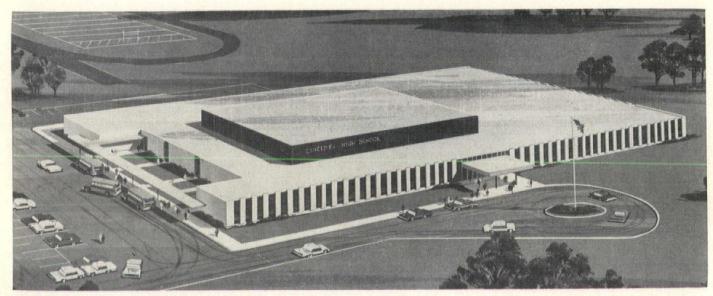


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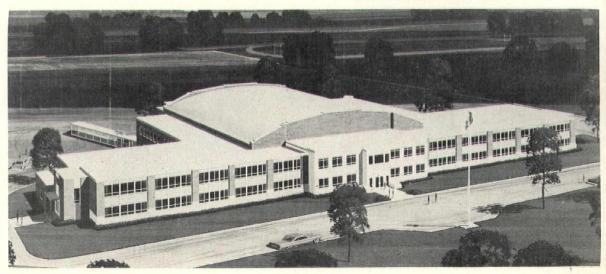


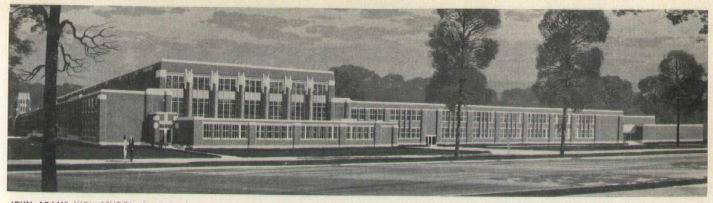
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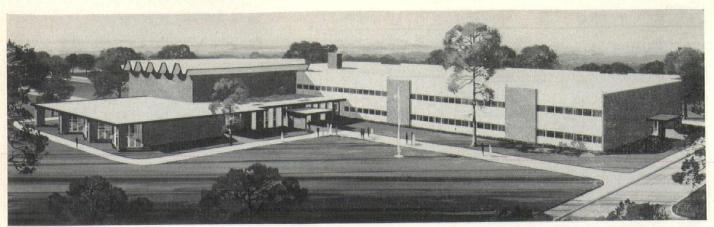




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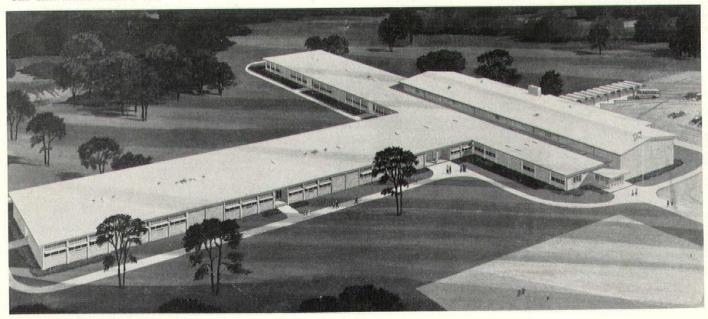
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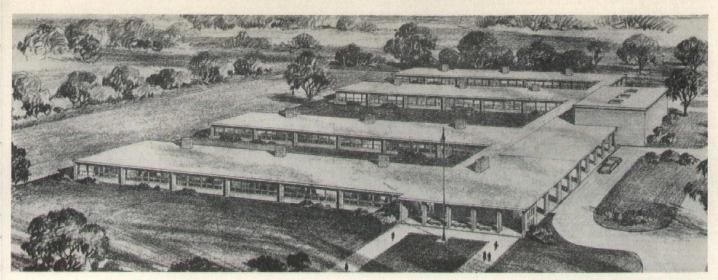




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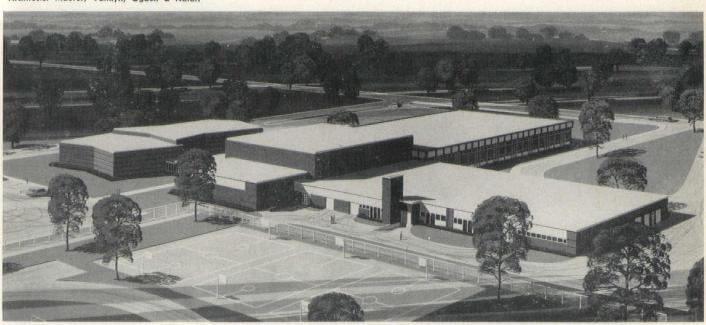
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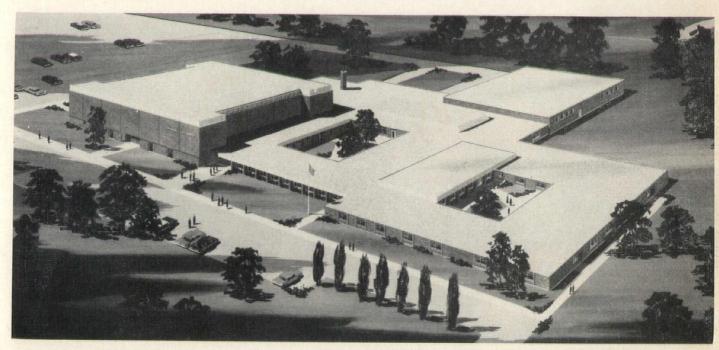
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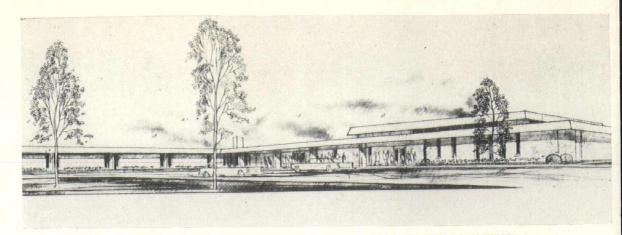
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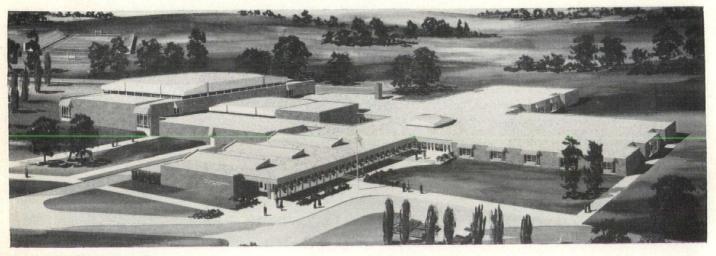
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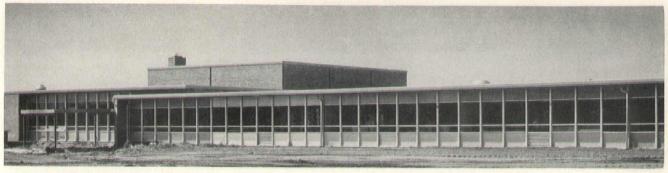
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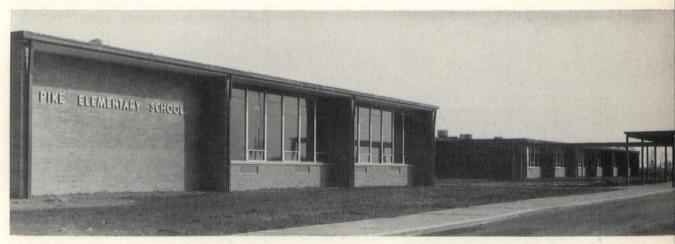
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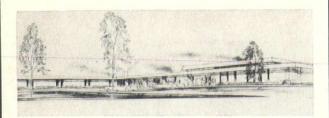


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SCSD BETTER SCHOOLS FOR THE MONEY

Ezra Renkrantz, AIA

Reyner Banham, in his book "Theory and Design in the First Machine Age," makes the statement: "It may well be that what we have hitherto understood as architecture, and what we are beginning to understand of technology, are incompatible disciplines. The architect who proposes to run with technology knows now that he will be in fast company, and that in order to keep up he may have to discard his whole cultural load, including the professional garments by which he is recognized as an architect. If, on the other hand, he decides not to do this, he may find that a technological culture has decided to go on without him."

I, for one, do not believe for a moment that these alternatives of "running with" (in reality, tagging along behind) technology, or being left out of the design picture, are true alternatives. I feel that architects and clients can and must work together to set the criteria, the standards and the pace, and then make industry understand that it must respond to our requirements.

Although the school building field, the area of particular interest of our project, is the second largest in the country (second only to housing), an individual school is not a particularly large product. It might not be too difficult to stimulate research and development on components for, say, a tremendous housing project, or a \$40 million office building — but a single school just is not a sufficient market to provide the incentive for a lot of research by the building industry.

One of a series of school plant studies by the Schools and College Architecture Committee of The American Institute of Architects. Reprinted with permission from the December, 1964 AIA JOURNAL, Copyright, 1964, The American Institute of Architects.

As a result, we often find ourselves using handme-downs in new school buildings.

One of the things, therefore, that we hope to do in the SCSD project is to develop a sufficient market to capture the interest of manufacturers and motivate them to develop the projects desired by a group of school districts and their architects.

We are working under a grant from Educational Facilities Laboratories, Inc., with thirteen school districts in Calfornia, from Sacramento to San Diego. Ten architectural firms are involved in the project, ranging from a four-man office in one case, to extremely large firms.

Our project appears to offer a very good opportunity, by taking bids on twenty-two schools at one time, to present a large enough market to induce manufacturers to make products to meet the specifications of the educator or client-architect combination. In this way we hope that we will be able to meet certain needs expressed by the educators in the programming phase of the work, within the budget and current building costs. Left to their own devices, manufacturers too often end up designing building products to suit themselves and their equipment and processes. The people involved in the SCDC project feel that the architects and their clients should be in the driver's seat, and that this project will help restore the leadership where it belongs.

Perhaps the best way to describe the project and our results to date is to outline project objectives and then attempt to point out how each of the successful bidders went about meeting the criteria dictated by those objectives.

The project staff worked with the group of thirteen districts and their architects to develop per-

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formance specifications and take bids. The manufacturers had to bid on performance specifications (and the bid price is the installed price).

The basic idea here is to develop new products. Once they are developed and used in a sufficient number of schools, if they are useful and the approach is successful, they can then be used thereafter on an individual basis by an architect. When they are found to be obsolete in terms of meeting needs, then new development work is needed.

We developed performance specifications for the structural system, the airconditioning, lighting-ceiling and interior partitions. These components account for about 50 per cent of the cost of the total school. The exterior wall system, for instance, is not part of the project. The need for varying types of wall materials and different kinds of fenestration required such a variety that we concluded that exterior walls should be left outside the system.

Likewise, floor coverings and interior furnishings have been omitted, as well as the rough slab, excavation, foundation work, plumbing and base electrical.

Flexibility

At the early planning stage, we met often with representatives of the school districts to try to determine what our group of thirteen districts wants, and might want in the future, in terms of an educational program. As might be imagined, we found a tremendous need for design flexibility, not only flexibility to meet the differing needs of different types of schools, but to meet changing needs in time — a given school's educational program may impose entirely different requirements in ten or even five years.

Eventually draft educational specifications were drawn up and circulated for comment; revisions were made, until eventually everyone felt that the system allowed for the kinds of flexibility that would meet the need, both current and future, of the districts.

Working with the architects, we established a 2-ft, vertical module and a 5-ft. horizontal module, as best-suited to the needs of the system. Within the limits of this modular framework, a whole series of permutations in ways the buildings could be massed were developed.

Compatibility

At about this point, we realized that we should not be dealing with the independent parts in each area, and then be faced with the problem of working out some sort of "mortar" that would bond these independent developments into a compatible system. We began to try to set the specifications on a composite system, and at the end point we were actually taking bids based on the low composite bid for the structural system, the lighting-ceiling system, and the airconditioning and heating system. When the specifications were actually prepared, it was the low composite bid that was the successful bid — which obviously put a high premium on compatibility with the other components.

Design Freedom

As already mentioned, we did not include the exterior walls as part of the system. The primary reason for this was, of course, to give the architects a free hand as far as possible in terms of the esthetics of the situation. The system also provided for a number of different design approaches. We had to have the potential of a "clipped" building, or one with overhangs or arcades; of having the structure either concealed or expressed. Our objective here was a system that would allow as much design freedom as possible for the individual architect.

This design freedom extended beyond esthetic considerations. As stated earlier, we are working on a 5-ft. horizontal module. Some architects felt that a 60-ft. span for regular academic areas, and a 90-ft. or 110-ft. span for a gymnasium, would be sufficient; others wanted another series of beam sizes. Thus we began to build up a keyboard which probably none of the architects would use in its entirety, but we anticipate considerable overlapping in use of different elements.

The educators expressed a need for spaces approximately eight classrooms in size, which would be column-free or shear-wall free — free of any element that might inhibit the movement of partitions. This immediately indicated longer spans than are tradtional. Our average span is 60-ft., and there are as many longer spans as shorter ones.

This flexibility and freedom dictated fire requirements. Even if all classrooms face the exterior of the building initially, interior enclosed spaces may be created by movement of partitions, thus setting a mandatory one-hour fire requirement.

The compatibility requirement evolved into a need for a total tolerance system, so that all the parts — structure, ceiling, partitions — would fit together at the building site.

The Structural System

Thus the system began to take shape. Successful





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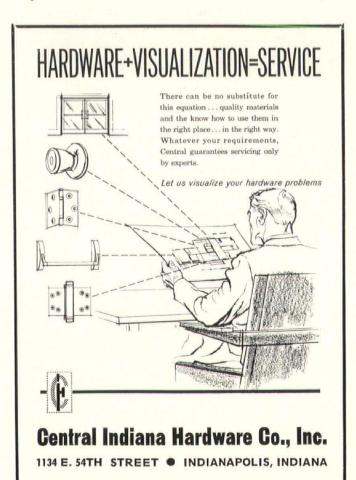
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bidder on the structural system was the Inland Steel Products Company, and as in the case of practically all the bidders, architects and engineers (in this case Robertson Ward AIA and Ken Nasland) were hired to do the actual design work on the project.

The structure consists of a deck system, with the deck serving as the top chord of the truss, and the bottom flange of the truss designed as an electrical raceway.

Lighting-Ceiling System

For the lighting system, we are accepting and actually going beyond the scissors-curve criteria developed by the Illuminating Engineering Society and the AIA. The criteria used here are those desired by the school districts with which we were working and their architects and consultants.

We set a footcandle level of 70; for what the eye could see in an area of direct glare, we accepted a maximum of 350 footlamberts. For reflected glare and ceiling reflectance, the criterion is a 500-foot lambert maximum. This does not mean that the architects must accept these criteria in designing buildings. There are certain academic areas where these criteria are appropriate, and others where strong contrast or other lighting conditions might be desirable. But by insuring that the system provides a capability for meeting these criteria, we can provide them when and if they are wanted.

To provide the 70 footcandles and still not exceed the maximum brightness, it was obviously necessary that light be spread out over every large areas of the ceiling; something on the order of half the ceiling-area would have to be a light-emitting source. We also required sufficient flexibility that the entire lighting-ceiling system could be reorganized when partitions were moved.

Heating-Ventilating-Airconditioning

We established a service module of approximately 3600 sq. ft. or four classrooms, in area, in setting up our criteria. Again thinking of flexibility, and planning for a future time when a tremendous amount of heat-producing equipment will be making its way into the schools (ETV, teaching machines, etc.), we saw a necessity for control zones within the service module. The control modules are 450 sq. ft. in size, so that we have eight control modules in each service module. Hot and cold air are supplied simultaneously within any service module, to allow for heating in one control zone and cooling in another at the same time.

We made the assumption that mechanical cooling would be used in about 56 per cent of the school.

Types of spaces where mechanical cooling are most likely to be used include general academic areas, administrative spaces, science, music and multipurpose areas. Physical education, food service and storage and mechanical areas would probably not require cooling.

Interior Partitions

The interior walls, naturally, are demountable in the interest of the flexibility that everyone is so concerned with. (We will also have movable partitions, both rigid and accordian-type, as well as the demountable partitions.) Hauserman was the successful bidder on the demountable partitions. We have a stud structural system which permits the panels to be removed. And the surface material of the panels can b evaried, so that we can use bright-colored vinyl facing on the steel panels (which come prime -coated), or chalkboard, or tackboard, depending on the requirements of the area.

Better Schools, Not Cheaper Schools

Although we have tried to discourage premature publicity on the project, there has nevertheless been considerable attention paid to it in the press. Most of the coverage has been excellent. But some of the articles which have been published have tended to give an unfortunate impression, that this is a magic-wand way of saving money on school construction. One article made the statement, "First bids on school components indicate a saving for taxpayers; bids received so far are 18.4 per cent below conventional systems."

I have sat in conferences with the educators on the project, and I would guess that costs on most of these schools will come up to the state-aid formula. Some districts will take the savings realized on the system components and try to turn them into dollar savings, but most will use the savings to buy carrels for the library, carpeting, better casework, better science equipment — things that will result in a better school. And then people will say to us, "Where is the 18.4 per cent saving that this system of yours was supposed to get us?"

So let me stress once again — we are not promising to build schools for less money. We are not even trying to produce more school — that is, greater area — for the same money. What we are trying to do with SCSD is to set up the machinery, the procedures, whereby school districts can get better schools for their building dollar, by enlisting the cooperation of the building industry and providing a sufficient volume to make this cooperation worthwhile.

Architecture in the News

Indianapolis Architect Henry G. Meier, AIA, has announced the establishment in Indianapolis of his office for the personal practice of architecture. Mr. Meier formerly was associated with McGuire & Shook, Compton, Richey and Associates, Inc., and D. A. Bohlen and Sons. He is a graduate of the University of Cincinnati and a former United States Marine.

Mr. Meier's office will be located at 7504 Hanover Rd., Indianapolis; his phone number is CL 1-6467.

Architect Donald A. Hinshaw, AIA, has announced the relocation of his architectural office from Westfield, Indiana, to 10447 North College Avenue, Indianapolis. The telephone number remains the same, VI 6-0286.

Indianapolis Architect Don B. Fisher, AIA, has announced the relocation of his architectural office from 5339 East 62nd Street to 3925 North College Avenue. The new telephone number is

WA 3-1473.

The Indiana Society of Architects has established a Public Relations Committee charged with the responsibility of creating a better public image for Indiana architects with non-professionals. In connection with this program, the INDIANA ARCHITECT will feature twelve special issues in the next twelve months, starting with this special issue on Indiana schools.

The schedule is: MARCH, Office Buildings; APRIL, Churches and Memorials; MAY, Industrial Buildings; JUNE, Residences; JULY, Public Buildings and Libraries; AUGUST, College and University Facilities; SEPTEMBER, Hospitals and Medical Buildings; OCTOBER, Related Arts in Architecture; NOVEMBER, Triennial Awards; DECEMBER, Commercial Buildings; JANUARY, 1966, Apartments, Dormitories and Fraternities.

We hope every architect in the state will participate in this program; space will be available on a first-come, first-served basis. Work should be submitted as soon as possible, preferably 8 x 10 inch, black and white photographs, exterior or interior, accompanied by a brief description of the problem and solution.

All material, and any suggestions you have for additional persons to receive the INDIANA ARCHITECT, should be sent to the Indiana Society of Architects, Post Office Box 55594, Indianapolis, Indiana 46205.

Mr. C. Eugene Hamilton, AIA, and Mr. Frederick H. Graham, AIA, of Muncie, have announced the reorganization and renaming of their architectural practice. Mr. Philip L. Hodge, AIA, associated with the firm for eight years, is now a partner in the new firm of Hamilton, Graham & Hodge, Architects. The firm will remain at 506 North Martin Street, Muncie.

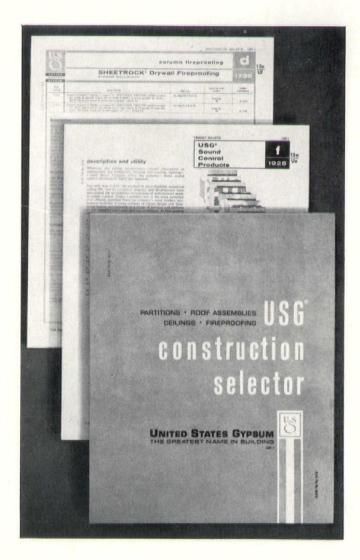
The Indiana Institute of Technology has announced a Fallout Shelter Analysis Course to be offered in Fort Wayne each Monday evening for thirteen weeks, beginning March 1st. Classes will meet in Room 360, The Anthony Building, Indiana Institute of Technology, 1600 East Washington Blvd., Fort Wayne. Information concerning the classes can be obtained from Dr. I. A. Planck at the same address.

Mr. O. A. Tislow, AIA, has announced the transfer of ownership of his architectural firm, Tislow, Hunter & Associates, Indianapolis, to Tislow, Hunter & Associates, Inc. Mr. Harry E. Hunter, AIA, is the president and treasurer of the new firm, and Mr. Tislow will continue as an associate of the firm and consultant.

Other members of the new firm are Mr. Norval E. Stelhorn and Mr. Dudley Senefeld.



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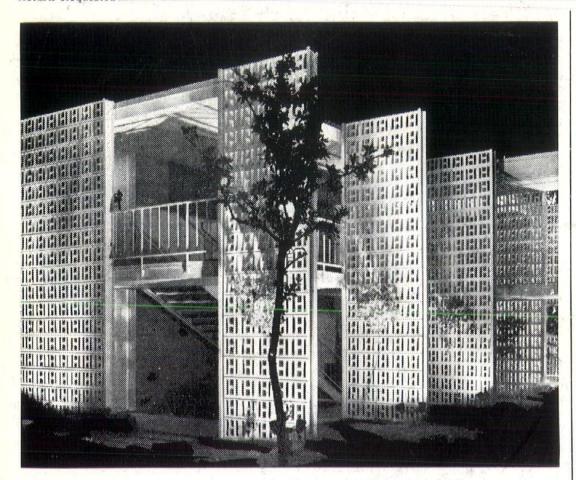
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