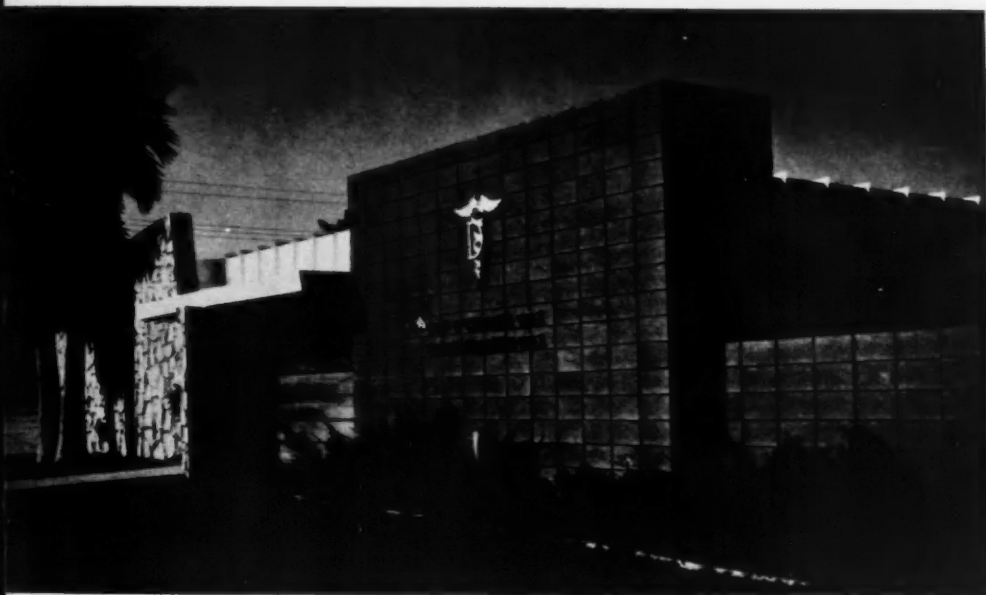


ARIZONA ARCHITECT



11

JULY 1961, Vol. 4, No.

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Cover — Interesting walls of the D. B. Campbell Dental Clinic, Tucson. Architects: Starkweather & Cain.

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THE PRESIDENTS' PAGE



CENTRAL ARIZONA CHAPTER

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SOUTHERN ARIZONA CHAPTER



David S. Swanson

AS ARCHITECTS WE, like most professional men, must keep ourselves continually informed on what is new. We must research and carefully evaluate new products and methods to determine their future place in our plans. I am certain that many of you feel as I often do. Is the knowledge thus gained worth the time consumed? Sometimes it isn't and yet we owe it to our clients, ourselves and our profession to keep abreast of all new ideas.

Producers' Council, a national organization of manufacturers of quality building materials, is the only commercial organization affiliated with the American Institute of Architects. It started as a manufacturer's committee formed in 1921, by the AIA, to improve the quality of advertising and sales promotion literature directed to the architect.

The nearly 200 manufacturers and 30 product trade associations of the Council form a diversified group.

The Arizona Chapter of the Producers' Council is completing its first year of operation. Their officers and members have made an excellent start. They have presented new products and new installation techniques at monthly luncheon meetings, and a one day seminar on heating and air conditioning. Some of their monthly meetings have been well attended by the architects; some have not. The seminar was both informative and well presented, but disappointing. Disappointing only because of the apparent lack of interest on the part of the architectural profession to spend a day in school. I wonder, and the Council does too, if the time and money spent in bringing top men and equipment to Phoenix for this seminar was a good investment. It should have been, and could have been if more of us had taken the time to absorb a little extra knowledge.

I have been asked by the officers of the Council: "Are we presenting the type of programs and information the architects want? What can we do to improve attendance? Should we attempt more seminars and, if so, how do we get better representation from the architects?" Their president is Robert J. McMullan, P. O. Box 667, Scottsdale. I urge you to write him your suggestions and comments.

IT IS WITH PLEASURE and feeling of accomplishment that I report on one of the Chapter's activities this year.

This will, I am sure, be quite a relief to those of you who read this column; for the voice of doom — that's me — has something refreshing to write about.

I believe all of us would agree — one of the daily problems which continuously plagues us and proves to be the basis of many misunderstandings is our lack of common vocabulary. The ability to communicate ideas, directions and desires through our plans and specifications has no uniformity from office to office, and on some occasions within the same set of plans and/or book of specifications. What is "masonry" to one is "masonary" to another, or "carpentry" and "crapentry."

With this in mind it was with great pleasure that we met with representatives of the ABC and together jointly formed the "Architect-Contractor Relations Committee."

The main function of this committee is to stimulate conversation — the method or vehicle to be their mutual choice. As a consequence they instituted a dinner meeting, the second Thursday of each month, at which time they select a panel, a moderator, and an aspect of construction for discussion. Ground rules for conduct have been established — no brass knuckles, blackjacks or barbed comments; no trade names, proprietary materials or personalities.

The meetings are open to the public, and all persons connected with our industry are urged to attend. The attendance has continued to grow and the interest and participation in the program has expanded beyond all expectations.

As a side effect, which may prove to be more valuable than the prime motive (the improvement of communications) there has grown a more cordial and mutual feeling of understanding between the various segments of our industry. Witness the comment of a contractor to his friend as they walked away from the bar, having concluded a conversation with one of the local architects: "I didn't know the SOB was a human being."

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THE PRESIDENTS of Arizona's AIA chapters, and this page, have from time to time written about professional ethics and the utter importance of a constant striving to raise them. Our issue last December, dealing with the evils of bid shopping in the construction industry, and suggestions on what architects could do to help the industry control it, had a reception that proved how true it all must be.

Three things have set us off on this theme again. One was the fine editorial, "Me Too," written by Bob Larabell of Arizona Acoustics as an ad in our May issue. In it he said that it was not only the prerogative but the duty of architects "to specify that product which will best satisfy the functional, esthetic or comfort demands" of their buildings, and then courageously to protect those specifications against the inroads that business-hungry suppliers would make in them by questionable means.

The second trigger to this theme was the editorial, "To the Point," written by H. W. Wehe, Jr., Executive Vice President of Overly Manufacturing Company, and carried in its ad in this issue. He, too, talks of the necessity and difficulty of maintaining quality standards in the arena of today's "razor-edge competition," and suggests that the architect's "insistence on no substitution is your best guarantee of a first-rate product."

And then came a hard-hitting editorial in the June 29 issue of *Engineering-News*, which said:

"It's sickening. The news of construction scandals from every corner of the country seems to have hit a new high — or low. Each day's mail brings reports of questionable or wrongdoings on the part of some contractor, engineer, architect, supplier, subcontractor, owner, inspector or law enforcement official: . . . presents from contractors to public officials; political campaign funds requested of architects by public officials influential in engaging them; multiple consulting fees paid in cases questionable on conflict-of-interest grounds; a city considering suing builders for big repair bills on relatively new construction; payola; shoddy construction, kickbacks."

The editorial went on: "It's time for contemplated and concordant action by every firm and organization in the industry against the evils everyone knows exist . . . It's a big problem and it calls for big, concerted action. It calls for agreement in every professional, functional and trade organization within construction that evils can be stopped. Stopped, not lessened. Every last bit of the hanky-panky that goes on could stop tomorrow if everyone who reads this page vowed that it must. Perfection is beyond the reach of man; but reach he must. The conduct of this industry of ours is so far from perfect that it's

OUTSTANDING REGIONAL CONFERENCE PLANNED FOR RENO SEPT. 21-23

Nevada, newest state in the AIA Western Mountain Region, will provide an outstanding conference at Reno September 21-23 this year.

To be held at the Riverside Hotel, the Tenth Annual Conference will carry the timely theme: Public Agencies For Community Development: The Politics of Architecture. Henry Wright, FAIA, Los Angeles, first vice president of the AIA, will represent the Institute, along with Regional Director R. Lloyd Snedaker, Salt Lake City.

Among prominent panel speakers will be Donald Reay, of the firm of DeMars and Reay, Berkeley, Calif., architects for the Golden Gateway Redevelopment Project in San Francisco; Alan Temko, architectural critic and well known writer for *Architectural Forum* and *Horizon* magazines; and Eugene Burdick, professor of political science at the University of California, Berkeley, and co-author with Wm. J. Lederer of the best seller, "The Ugly American." Still tentative, but hoped for, is the presence of Secretary of the Interior Stewart Udall for a major address.

The Conference will find itself in the center of an area rich in natural beauty and fascinating frontier history. Within approximately 30 miles are Lake Tahoe; Donner Pass; Carson City with its famous museum occupying the former U.S. Mint; and mining towns which produced more than a billion dollars in silver and gold after 1859.

Reno, astride the fabled California Trail, is also well known for a variety of entertainment features.

sickening. When are enough of its leaders going to become sufficiently nauseated to do something about it?"

Those are harsh words from another professional quarter. But they ask a question that may be closely related to business and professional and even national survival. If every AIA committee chairman will ask himself how that question might be related to the work of his committee, and what he can do to resolve it, he could well find his committee involved in the most constructive and satisfying activity yet.

Phil Litt

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Exterior Walls Major Problem in Southwest

Architecture has been defined as the art of dividing space. And walls are the most common means by which space is divided.

In the arid Southwest, the design of exterior walls may become a critical economic as well as structural and esthetic problem. The factors of heat transmission, retention and resistance are as complex as they are fundamental. There are tinted and double-paned glasses, glass fiber, vermiculite and other insulating materials, plus many combinations and treatments of native materials that are useful in controlling the heat which strikes walls.

The material in this issue is offered in the hope that it will give a little better idea of some of the problems. If we could give you the answers, they would be outdated by tomorrow's tests and technology.

Some materials transmit heat quickly and cool quickly. Others, as explained by Dr. Sutton's article, have a high capacitance and even out the flow of heat energy. But even the low capacitance materials — in combination with various methods of heat resistance (like furred, foil-back sheetrock, fiber-glass, some plastics, vermiculite, and others), are effective in controlling this problem. Here's where the economics of refrigeration capacities, maintenance, utility costs, original costs, etc., come into play. And it's every architect and engineer to himself in finding the right solution — both economic and esthetic.

In addition to printed material available from producers and their testing laboratories, various organizations have contributed to better understanding of the problems in Arizona. Among these are the Architect-Contractor Relations group and ASHRAE meetings held in Tucson, and the Arizona Masonry Guild and Producers' Council meetings held in Phoenix.

On March 24, for example, Clayford T. Grimm, P.E., under the auspices of the Masonry Guild and Program, explained how the use of vermiculite in brick and block walls in new construction can quickly amortize its cost and then provide continuing savings in cooling costs. On June 29 Producers' Council and Owens-Corning Fiberglas presented Robert M. Meechan, of Santa Clara, Calif., in a discussion of a method by which the thermal performance of any construction can be evaluated.

Through such continuing programs, the assistance of many consultants and supply companies, and the ideas contained in the articles presented here, it is hoped that architects may be aided in their problem of dividing space well. — P.S.

ON ART APPRECIATION

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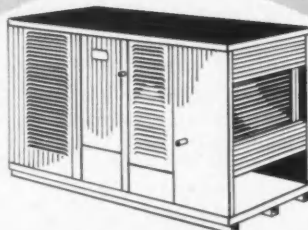
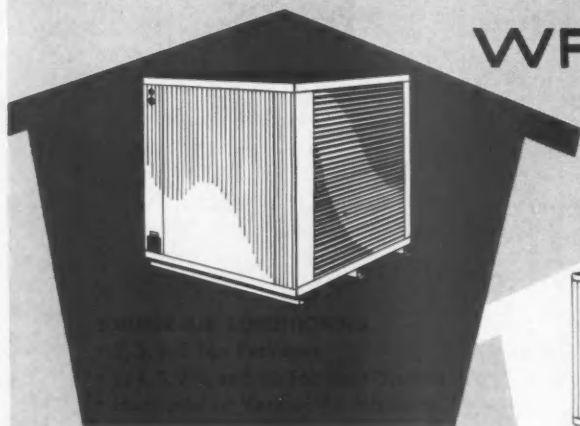
Howard's End by E. M. Forster, Knopf.



TURNOUT for a discussion of thermal performance of construction, sponsored by the Producers' Council, indicates interest architects, engineers and suppliers have in "keeping up" with products and techniques. Council officers and the speaker are in picture at right: Milton Merrick, secretary; Robert M. Meechan, Santa Clara, Calif., manager of engineering and industrial sales for Owens-Corning Fiberglas; and Producers' Council President Robert McMullan.

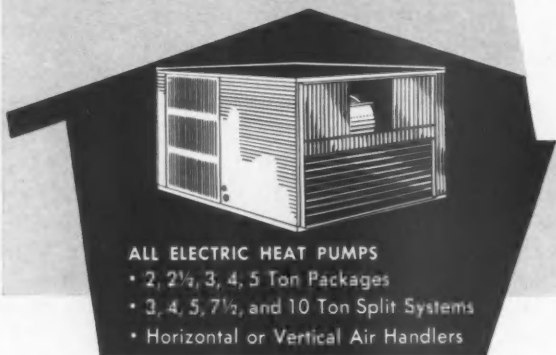
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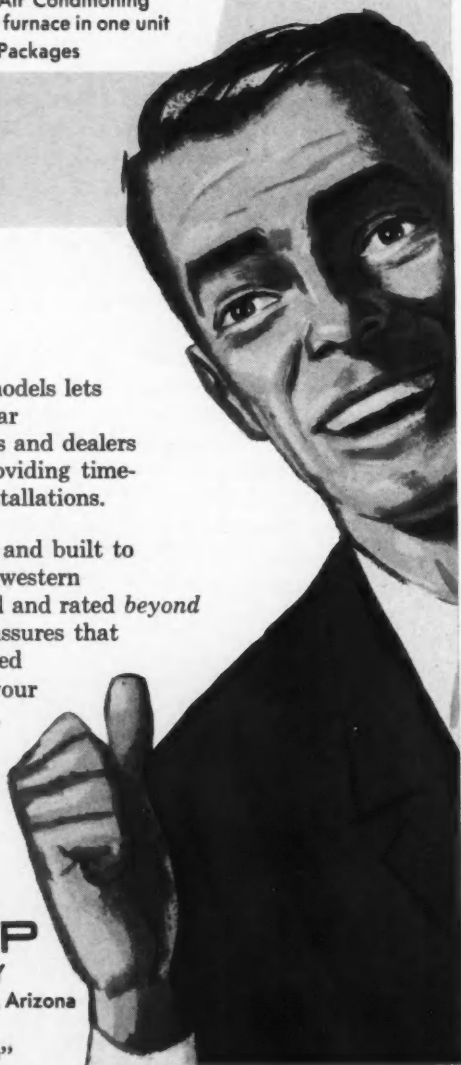
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**"U" factor of a structure,
is not the only consideration
in determining heat transfer
in the arid southwest.**

Heating and Cooling Properties of Walls

By George E. Sutton, Ph.D., P.E.
Registered Mechanical Engineer

Dr. George Sutton, a specialist in thermal dynamics, reached the conclusions expressed here after a study of central Arizona weather conditions, both winter and summer, recorded for a 10-year period.

This fall he becomes head of the department of mechanical engineering at the University of Nevada, after having been professor of engineering two years each at the University of Arizona and Arizona State University.

He has also been on the faculty of Michigan State University and the University of Florida, during which time he studied his specialty pertaining to those particular weather conditions. He has for a number of years been a consulting engineer.

There are two major factors which determine the rate of heat transfer through materials: resistance and heat capacity. In the case of building materials, the relative requirements between these two factors vary widely with local climatic conditions. Before relating these specifically to climate, however, it would be well to discuss the separate and combined effects of these factors on the heat transfer through structural components.

The rate of heat transfer through a plane surface is proportioned to the conductivity of the material and the temperature gradient, which is the rate of change of temperature with distance. This relationship does not hold for a finite thickness of material, however, unless there exists a steady state condition, steady state being defined as the condition where all temperatures remain constant with time. Whenever a change of temperature takes place in a material, it does so because of either a gain or loss of energy. Thus, if unsteady state heat transfer takes place, it is accompanied by either a gain or loss of stored energy. The general statement covering the transfer of heat through a finite thickness of material is that the energy in one side is equal to the sum of the energy out of the other side and the stored energy.

Let us consider, then, two slabs of material having the same size and thickness, but one made of aluminum and the other of clay. If both are heated on one side, the aluminum slab would show a quick and rapid rise of temperature on the other side, while the clay would not show a rise of temperature on the other side for a much greater time. Aluminum has

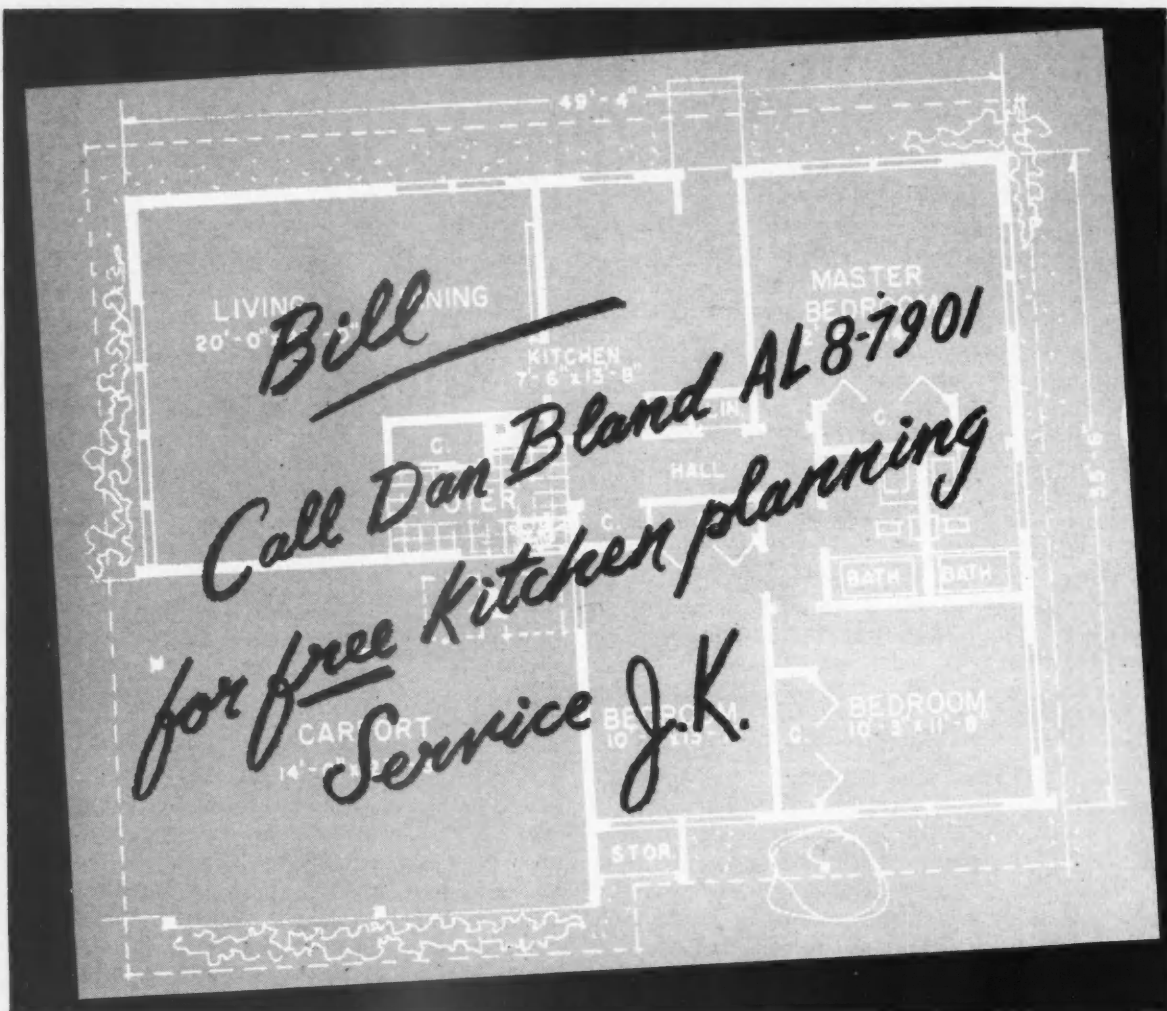
both low resistance (high conductivity) and low heat capacity, thus most of the heat transferred into the one surface is quickly transferred to the other surface. Clay has a moderate resistance and a high capacity. The time lag in the clay is due to its capacity for storing energy. Enough energy must be transferred into the slab to increase its temperature entirely through before heat is transferred out the other side, thus, since heat transfer takes a finite time, a greater time is required to transfer enough heat into the clay to raise its temperature, and produce heat transfer out the other side.

The effect of heat capacity is even more pronounced in the case of periodic heat transfer; that is where the temperature variation at one surface swings about some mean temperature. An example is the daily temperature variation of the earth's atmosphere. In Phoenix on a "typical" summer day, the maximum will be about 110 degrees at 4:00 p.m. and will drop to about 82 degrees at 6:00 or 7:00 a.m. This temperature variation is cyclic or periodic.

Let us consider first a shaded wall. If this wall were of very light material — that is, a wall which had very low heat capacity — the change of temperature on the inside surface would follow very closely after changes of temperature on the outside. The amount of change would be reduced, however, due to the resistance of the material. Thus with pure resistance the heat transfer would follow very closely the temperature variation of the surroundings. In this case the wall would begin to cool off as soon as the outside temperature began to fall and would begin to heat back up again as soon as the temperature began to rise.

In the case of the high capacitance wall having the same resistance, a large part of the energy transferred would be stored within the material itself and, due to the time lag, the increase in temperature at the inside surface would follow an increase in temperature outside by anywhere from 4 to 24 hours. Since some of the energy is stored in the wall — increasing its temperature — as soon as the outside temperature begins to fall this stored energy will begin to transfer out as well as in. Thus, the quantity of energy actually reaching the inside surface of the wall would be less than that for the low capacity wall.

With a low capacity wall, the energy flow peaks



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sharply shortly after the outside temperature, or solar energy, peaks. The high-capacity wall peaks lower and much later. The heat which must be removed from a conditioned space depends upon the peak energy; the size of equipment depends upon the peak and the time at which it occurs in the wall system.

The high capacity wall system with an eight-hour time lag will peak at about 9 p.m., when the internal loads — cooking and other domestic activity in a residence, for example — have fallen off, while the low capacity system may peak about 5 to 6 p.m., coinciding with high internal loads, thus requiring larger equipment to maintain even conditions.

Further, when peaks are spread out, equipment which operates at best efficiency for longer times (since it operates at near capacity), may be used, rather than equipment which is oversized for all times except at peak load. Hence, operation cost savings result from the effect of heat capacity.

The opposite effect may be noted in the winter. In central and southern Arizona there are no very cold days which are anything like constant temperature. Actually the swing of temperature in the coldest part of the winter is of the order of 21 or 22 degrees during the day. In this case the storage of energy in a high capacitance wall is due to the energy transferred from inside the building and reduces the amount of energy which makes its way to the outside surface over that which would pass through a lighter structure.

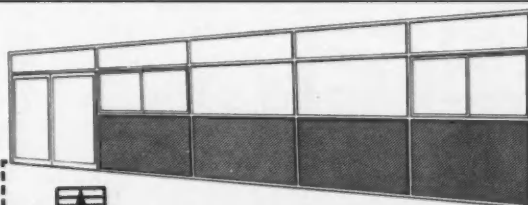
The American Society of Heating, Refrigerating and Air Conditioning Engineers Guide gives tables of equivalent temperature differentials for summer design. A little study will show that the equivalent temperature differential for light materials having the same overall resistance is considerably greater than those for the more massive structures having the same resistance. Similar tables for winter design are not available since the temperature variation during a cold day is considerably less in most other parts of the country than in the southwest. Thus most calculations are based on a steady state condition rather than a periodic or cyclic condition. Winter tables may be made available in the near future, however.

The effectiveness of heat capacity depends largely on the amount of temperature variation during the daily cycle called the diurnal swing or diurnal range. If this range is small, say of the order of 10 to 12 degrees, little value is gained from the high capacity wall. Actually it may even be detrimental. Consider the southeastern part of the United States. Here the hot day is one which may range from 87 to 97 degrees. There is no opportunity for stored heat to escape. Thus, for that type of climate, the ideal structure is one having very large resistance and no capacitance. This condition prevails over a very large part of the United States. As a matter of fact large diurnal ranges are found only in the southwestern United States. Thus the requirements for structures in this area of

the country are significantly different from those in other areas. Here capacitance can be used to advantage.

Very few who have ever been in one of them would ever criticize the ancient Spanish haciendas. These structures were sufficiently massive that they approached what we call an infinite slab, one in which a change of temperature outside produces only an insignificant change of temperature on the inside surface. These structures required very little heating and no cooling. Granted they would have been a bit more comfortable had they been equipped with mechanical refrigeration, but the requirements of such a system would have been very small. Examples of even more massive structures are some of the cathedrals in Europe. Some of these — made of very thick stone — have been reported to change less than 1 degree inside over an entire year, even without any artificial conditioning means winter or summer. Obviously, however, in our modern economic chaos the average building would be economically infeasible if made sufficiently massive to approach these conditions.

In conclusion, one important factor must be made very clear. That is, the resistance as exemplified by the "U" factor of a structure is not the only consideration in the determination of heat transfer through that material. The heat transfer through two structures having the same U factor will be determined by the relative heat storage capacity of each material.



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HEAT FLOW RATES FOR PHOENIX

The following table, prepared for Phoenix and the arid southwest by Dr. George Sutton, P.E., may be useful to architects and engineers in determining what materials, or combinations of them, to use for walls in given situations.

Using known and published factors from such sources as the ASHRAE Guide and the results of his localized studies, the table is based on equivalent temperature differentials corrected to Phoenix conditions.

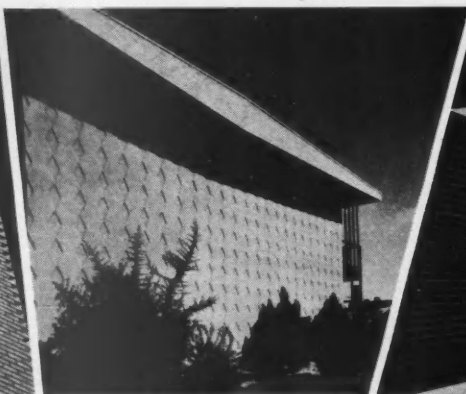
WALL SYSTEM	"U" WALL	Heat Flow, BTU/hr. - sq. ft.							
		8 AM	10	12	2	4	6	8	10 PM
Redwood siding, 4" studs, 3/8" Sheetrock, 2" Insulation.	0.10 West*	0.60	1.00	1.60	3.00	5.00	5.80	3.20	1.80
	South*	0.60	1.40	3.20	4.00	3.60	2.60	2.00	1.60
	East*	4.00	4.60	4.20	2.20	2.40	2.40	2.00	1.60
	North	0.60	0.80	1.40	2.00	2.40	2.20	1.80	1.40
8" Burnt Adobe, Furred foilback sheetrock	0.11 West	1.78	1.34	1.20	1.42	2.00	3.26	4.55	5.03
	South	1.17	0.94	0.94	1.35	2.26	2.88	3.24	3.16
	East	1.33	1.52	2.40	3.25	3.69	3.86	3.86	3.58
	North	1.13	1.02	1.05	1.32	1.82	2.33	2.74	2.88
8" Burnt Adobe, Exposed both sides	0.185 West	2.80	2.10	1.89	2.23	3.15	5.19	7.15	7.90
	South	1.83	1.47	1.47	2.12	3.53	4.53	5.09	4.97
	East	2.09	2.38	3.78	5.11	5.80	6.06	6.06	5.63
	North	1.78	1.60	1.65	2.07	2.86	3.67	4.30	4.53
8" Lightweight Block Furred plain sheetrock	0.19 West	1.34	1.90	2.86	5.13	8.55	10.63	6.65	3.80
	South	1.14	2.26	5.51	7.22	6.85	5.13	3.80	3.04
	East	6.08	8.35	7.80	4.17	4.56	4.50	3.80	3.04
	North	1.14	1.52	2.47	3.61	4.37	4.18	3.62	2.85
8" Lightweight Block Insulated cells, Painted only.	0.215 West	1.51	2.15	3.23	5.80	9.68	12.03	7.53	4.30
	South	1.29	2.58	6.23	8.18	7.75	5.81	4.30	3.44
	East	6.88	9.47	8.82	4.73	5.16	5.10	4.30	3.44
	North	1.29	1.72	2.80	4.09	4.95	4.73	4.10	3.23
8" Lightweight Block Painted only.	0.35 West	2.45	3.50	5.26	9.45	15.75	19.60	12.25	7.00
	South	2.10	4.20	10.15	13.30	12.60	9.45	7.00	5.60
	East	11.20	15.40	14.35	7.70	8.40	8.30	7.00	5.60
	North	2.10	2.80	4.55	6.65	8.05	7.70	6.66	5.25
8" Concrete Block, Sand and gravel agg. Furred, foilback sheetrock	0.21 West	1.68	2.10	3.15	5.25	8.83	11.33	8.14	4.62
	South	1.26	2.31	5.66	7.77	7.55	5.88	4.40	3.56
	East	5.30	9.35	8.60	4.83	4.83	5.04	4.40	3.78
	North	1.26	1.68	2.52	3.78	4.62	4.62	4.20	3.36
8" Concrete Block, Sand and gravel agg. Exposed both sides	0.52 West	4.16	5.20	7.80	13.00	22.10	28.02	20.15	11.43
	South	3.12	5.72	14.02	19.22	18.70	14.55	10.90	8.83
	East	13.10	22.90	21.30	11.93	11.93	12.48	10.90	9.36
	North	3.12	4.16	6.24	9.36	11.43	11.43	10.40	8.32
8" Common Brick, Plastered inside.	0.35 West	4.54	5.54	5.25	6.14	10.13	13.94	14.70	14.30
	South	3.15	3.50	6.29	9.77	10.83	10.15	8.05	6.65
	East	4.54	11.18	12.90	10.12	8.73	8.38	8.05	7.35
	North	2.80	3.15	3.50	4.81	5.95	6.28	7.00	5.95
8" Common Brick, Exposed both sides.	0.41 West	5.32	5.32	6.15	7.78	11.85	16.37	17.20	16.78
	South	3.69	4.10	7.37	11.45	12.70	11.88	9.42	7.78
	East	5.32	13.10	15.13	11.86	10.23	9.82	9.42	8.60
	North	3.28	3.69	4.10	5.73	6.96	7.37	8.20	6.96
8" Poured Concrete, Exposed both sides.	0.67 West	10.70	10.70	10.70	12.05	14.72	20.08	25.40	23.10
	South	8.03	8.03	9.37	14.72	17.40	18.72	16.06	12.72
	East	10.70	16.06	22.75	22.75	18.72	16.06	16.06	14.72
	North	6.70	6.70	6.70	10.72	13.36	14.72	14.72	10.04

*Note: West, South, and East wall values are for sunlit walls. If walls are shaded, use values for North.

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High Lift Grouting Method Of Masonry Wall Construction

By HENRY H. SLICER

Arizona Structural Clay Products Association

Last spring the Arizona Masonry Guild, at its meetings in Phoenix and Tucson, arranged for Mr. Oscar F. Person, President of United Materials & Richmond Brick Company, Richmond, California; and Mr. Robert W. Harrington, Manager of The Clay Brick & Tile Association, San Francisco, to speak on "The High Lift Grouting Method of Masonry Construction." These two gentlemen, along with Mr. Manley W. Sahlberg, now deceased, Principal Structural Engineer, California State Division of Architecture, San Francisco, were the leaders in the development of this novel method of construction.

Since then two large bowling alleys have been constructed here — one in Phoenix, the other in Mesa, using this method. They have proved that costs can be lowered against the same type of wall, that the inspection of the wall, during construction, is surer, and that a better wall is obtained than with the older conventional method of reinforced brick masonry construction.

Basically, the method consists of placing vertical reinforcement, then building one wythe of brick masonry on each side of the reinforcement, with a space between of 2 inches or more to be filled with grout. The two wythes of masonry are tied together by metal ties, providing construction similar to a cavity wall. When the masonry is built to a maximum height of 12 ft., the cavity is filled with grout (9" to 10½" slump) by mechanical pumping equipment.

DESIGN

The design formulae and allowable working stresses for high lift grouted reinforced brick masonry are the same as those used for conventional or "low lift" reinforced grouted brick masonry.

MATERIALS

The brick materials used on the two projects were a 3" thick Norman brick (4" x 12" nominal face) and a conventional modular Norman face brick. Although the 3" brick is made especially for this type of construction, in order to allow a minimum of 2" grout space in an 8" wall, actually, the method may be used with any size standard unit. Tests made in California show that concrete block may also be used in this type of construction.



Figure 1

CONSTRUCTION

We will not be able to cover full construction details in this article; therefore, the reader is referred to the references at the close.

Cleanouts and Cleaning. It is very important to provide proper cleanouts at the bottom of the wall so that the grout space can be cleaned daily during construction and before grouting. Every third unit on one side of the wall should be left out to provide cleanout holes (See Figure 1). A high pressure jet stream of water should be used to remove the excess mortar from the grout space. If the wall is to be left exposed, and when a second or subsequent row of cleanout holes is used above a previously completed section of wall, precautions should be taken to protect the lower wall from stain resulting from the cleanout process.

In preparing for cleanout, it is possible to remove excess mortar droppings, etc., by breaking them loose with a reinforcing rod or long pole and scraping them out at the cleanout hole. Under extreme drying conditions, as found in the Arizona summer, cleaning out may be necessary twice a day. The cleanouts at the bottom of the wall should be left open and available for the inspection of the foundation and the

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condition of the wall until such time as the grout is ready to be poured.

Preparation of Grout Space Before Grouting. The walls should first be checked to see that all foreign materials and debris have been cleaned out. The reinforcing steel must be clean and properly positioned in the grout space. The foundation should then be cleaned of all material so that none is left to interfere with the securing of a good construction joint and bond. The cleanout holes are then filled with the brick, which should be hacked against the grouting pressure.

Grout. The best results are obtained with an 8 sack mix of cement per cu. yard of grout. The slump of the grout should be between 10½" and 11". The test on this mixture was 3900 lbs. on one of the jobs constructed here. (See Figure 2).



Figure 2

In Figures 3 and 4 you can see the type of grout pumping machine used and the method of placing the grout in the grout space. Using this type of equipment it is possible to place 60-70 yards of grout per day. One problem has been that the pre-mix trucks have been hard put to keep up with the pouring.

CONCLUSION

With the high lift grouting method of masonry construction there are several possible savings in cost over conventional methods because the bricklaying time and the grouting time are accumulated for a more efficient operation. By accumulating this work, the waste of material is eliminated, the necessity for extra labor to keep both the mortar and grout in useable condition, plus the time wasted changing from one operation to another.

Another large advantage is directed primarily to the architects, engineers, and building officials, because there is opportunity for a single last minute inspection, during which it may be determined (1) that all of the steel is properly in place; (2) that the grout



Figure 3

core is clean (almost impossible under other methods); and (3) that foundations are in condition so that the best possible bond can be obtained between foundation and wall.

The use of this method in wall construction will also enable the architect and engineer to use the wall as it should be used — for loadbearing.

REFERENCES: "Progress Report of Testing Project No. 922, New Method of Reinforced Concrete & Masonry Construction using High Lift Grouting System." By Oscar F. Person, Manley W. Sahlberg, and Robert W. Harrington.

"Technical Notes on Brick & Tile Construction, Volume 11, No. 2" — "High Lift Grouted Reinforced Brick Masonry" published by The Structural Clay Products Institute.

"Reinforced Brick Masonry and Lateral Force Design" by Harry C. Plummer and John A. Blume. Published by the Structural Clay Products Institute.

All of the above references may be obtained from The Arizona Structural Clay Products Association, P. O. Box 678, Phoenix 1, Arizona.



Figure 4

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Architecture... And the Curtain Wall

(Editor's Note: Thomas H. Creighton, FAIA, editor of *PROGRESSIVE ARCHITECTURE*, discussed architecture and the metal curtain wall before a clinic at the 23rd annual convention of the National Association of Architectural Metal Manufacturers this year, pointing out that architecture of the 1960s is characterized by the curtain wall and is being copied extensively in Europe. While use of the curtain wall is far less extensive in the southwest than in other areas of the nation, his remarks, applicable by and large to all architectural suppliers, cover the relationship between producers and architects who will specify, and justify the use of, their products. Excerpts of Mr. Creighton's address follow:)

There are few subjects more important, more broad in scope, or more difficult than architecture and the metal curtain wall. The subject covers every aspect of architecture — design theory, technology, specification, economics — and affects town planning and redevelopment as well as individual buildings. It is difficult and controversial because there is a great deal of feeling in the architectural profession, pro and con, about the curtain wall and what it is doing to architectural design.

The metal curtain wall typifies and even exaggerates many of the aspects of architecture and building construction troubling architects and the entire responsible building industry today.

For example: one of the criticisms of construction and the building industry is its slowness in approaching industrialization — not just industrial production of components, but industrialized methods of building on the site. There has been a desire for modular coordination, but it is not anywhere near an actuality; there has been a desire for standardization, but we are afraid of monotony; there has been a desire for prefabrication, but we still add component to component on the job site. And the curtain wall can answer all these "desires": it almost has to be modularly coordinated; it implies standardization, although it allows diversity within the standard; and it is the most important step toward prefabrication of larger components that we have yet had. Yet there seems to be too great a degree of confusion, too incomplete a coordination, too much of a willingness to meet custom-design needs in this advanced segment of the industry.

Or take the matter of the correlation of the design of products with the use of products — the strong feeling on the part of the architectural profession that architects should be consulted more in the design of materials that they will be expected to specify and use. There were many early theoretical studies before

Artists, Technicians, Businessmen

the industry existed, before the first prototype curtain-walled buildings had been built. Then the manufacturers and producers and fabricators began their proprietary and practical studies and early production, and the thing became an actuality. But now — what has happened? It seems as though the architects are saying very often, "You aren't giving us just what we want," and the manufacturers are saying very often, "We have given you what you asked for; now what are you complaining about?"

Or take the matter of city planning and urban renewal. The architects are worrying about the fact that buildings in groups are becoming more and more of a design problem, and a more common architectural commission — whether they constitute a civic center, a college campus, a central city redevelopment, a large housing complex, or even a new town. And the architects realize that they don't know how to design groups of buildings as well as they know how to design brilliant individual buildings. The result too often is a confusion of forms, of materials, of design philosophies. Here the curtain wall offers great diversity within unity — the coordination of the new environment that architects seem to want. And yet the designers are saying, "It is too monotonous — let's try hyperbolic paraboloids in concrete, and screen walls in masonry, and sculptural forms in whatever new materials we can find."

In other words, metal curtain walls would seem to offer all that architecture needs today — standardization, modularity, industrialized construction techniques, unity of design, available components. And at the same time they seem to present point blank all the problems that are troubling architects — monotony of design, so called; diversity of components, with too little correlation; a catalogue choice of pre-designed elements, with no "artistic" creativity allowed the designer.

So the question is: how can we get together, utilize all the advantages that are obviously there, eliminate whatever problems and difficulties really exist, and go on with the great job that confronts us of building and rebuilding America?

Most important thing a supply industry can do is to maintain a continuing useful contact with the architectural profession. Understand the nature of the architect, his problems, his aims, his desires. The architect remains the key to architecture. Whether he is a form-giver, who perhaps *develops* a technique, or a form-adaptor, who *perfects* that technique, or a form-user, who carries the technique to wide *application*, he is the man who is going to determine, in the long run, where our building construction technologies

TO THE POINT

CHEAP SUBSTITUTIONS: ARCHITECTS' ENEMY NO. 1

Today's razor-edged competition among suppliers to the building industry does not always work in the architect's favor. Such competition is healthy when it compels manufacturers to improve product to maintain sales position. It is unhealthy if competition forces manufacturers to shave quality to meet the contractor's price.

Quality standards are being seriously eroded in many current bargaining sessions at the contractor's table. If the architect's specification requires only the lowest common product denominator, it is probable that quality construction will be sacrificed to price. **Your insistence on no substitution is your best guarantee of a first-rate product.**

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are going. He will not decide this on an arbitrary basis, but on an artistic, on a technological, and on a business basis.

Anyone who is going to understand the architect must understand him on those three levels — that of the artist, that of the professional technician, that of the business man. It can't be emphasized enough that the architectural use of a technology is decided on a basis of design and theory, on a basis of technological development, and on a basis of first cost, availability and cost of maintenance.

It is on the question of design — the esthetic theories — that the curtain wall is being most criticized today. Actually, it was on a question of design theory that the curtain wall became desirable originally — not to say inevitably. The esthetic questions that were debated as the skyscraper developed and we began to get away from traditional treatments were questions about verticality vs. horizontality.

The metal curtain wall answered these esthetic questions by providing a natural and appropriate covering for the rectilinear, four-way frame. It was neither vertical nor horizontal — it was a sheer plane of glass and metal, with mullions and spandrels becoming parts of the plane rather than esthetically differentiated design elements. And now that is the very thing that *in a design sense* is criticized and objected to; the buildings using curtain walls that are most admired by the esthetically conscious architects today are those that de-emphasize the flatness of the curtain — those that emphasize the structure, make the columns and even the mullions count, put them, perhaps, outside the curtain rather than inside. And there is a great searching for a new decoration which is leading the design leaders toward other materials and other technologies that promise more variety, more plasticity, more sense of form.

I think the curtain wall is adaptable to a less flat-plane sort of architecture. Much design imagination and perhaps some competition-produced ideas are necessary. The curtain wall is a basic material, on a large scale, and it can be used in different ways by different architects. It may be very necessary to show how it can be used in ways other than a continuous, non-directional, non-interrupted sheet; because too many architects of repute and talent are turning to a different technology to achieve that plasticity they want.

After the esthetic considerations, it is the technological ones that you must work out with the architects. These begin, of course, with the detailed questions of materials and the quality of materials, of matters of specifications, or sealants, and anchorage, and testing — and they lead quickly into the more basic ones of assembly methods, of the life and maintenance of a system, and of the underlying appropriateness of a technology. Let's face it — today is the day of concrete experimentation. There is a great interest in

pre-stressed, pre-cast concrete technology.

This is not a passing fad. But it does not mean the end of metal curtain wall construction. All our technologies have their place. We must find their right uses, and use them rightly.

My prediction is that in a few years, if there is intelligent rapport between the architects and the producing end of the construction industry, there will be even more use of metal curtain walls than there is now. They will be used in two ways. First, for the great bulk of building construction that has to be built in the period ahead, where the relationship between buildings and the overall unit of a townscape, and what might be called anonymous, background architecture is much more important and desirable than brilliant design of any one structure. And secondly, in a more plastic, more expressive way curtain walls will be used in some of those important foreground buildings that we will always want. I believe that concrete and other materials that will develop will also find their uses, primarily for the occasional sculptural, accent building that offers the designer whose talents lie that way more freedom in form, admittedly, than a steel frame and a curtain wall do. I can also very well imagine the potential combination of a concrete structure with a metal curtain wall. And, of course, we will still have masonry buildings.

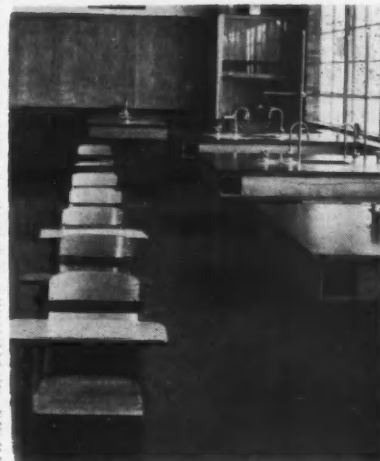
The third level on which architecture and the architect must be approached is that of pure business considerations, of economics. The architect is a businessman in two senses; he runs his own business, and if he doesn't run it well, he is soon not an architect any more. And he runs the business of spending a great deal of money for his client, and spending it and accounting for the spending as intelligently as he can.

In his own business he needs information — accurate information which he can depend on, and as quickly and concisely as possible at precisely the time that it is required in his office. Unfortunately, he hasn't much time for, and he is not paid for, research — either into basic matters, or into details of information needed for the specification and design of a building.

And in the business he runs for his client, he must be able to advise, to defend his advice, to rely on suppliers and producers as well as builders, to be sure of costs — and to guard those costs as though it was his own money he was spending. This is why you have the dichotomy, so often, of the architect insisting on quality products and construction methods, and yet seeking the less in cost. Modern, technologically correct construction has to begin to cost a lot less than old-fashioned hand-craft methods. The undoubted economic advantages of standardization, prefabrication and modular coordination must begin to count, in an important way, to warrant the architect as a businessman using the new techniques for the advantage of his client, and for the people who will use his client's building.

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Window Walls Allow Ve

By A. C. THOMAS, JR.

Window walls and curtain walls, both comparatively recent innovations, often are confused with each other.

For purposes of clarity, curtain wall is a prefabricated wall unit used to enclose the complete skeleton of a building, including all structural members; window wall, on the other hand, is a prefabricated unit which is inserted between the structural grids, leaving the frame exposed as part of the architectural expression.

The complaint of architects that curtain walls allow too little design freedom has led many to consider the window wall as a light-weight unit with greater versatility in design.

In order to obtain the greatest benefit from use of the window wall, it is necessary that it be considered during the original conception of the building. In so doing, the architect can take advantage of the light weight in his design of the structural and founda-

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tion system. The square footage saved by use of the thin window wall system plus the time saved in pre-fabrication makes the window wall extremely competitive with conventional construction.

Unfortunately, window walls have been an afterthought in many jobs, so proper consideration was not given to decreasing the needs — and cost — in the structural and foundation system.

In Arizona, most window wall jobs are found in outlying communities, such as mining areas where foundation problems have forced consideration of light weight construction. In school use, a comparison of the cost of window wall systems with masonry spandrel and windows for light and fenestration will demonstrate the competitive position of the window wall.

With the new materials usable as spandrel, the window wall also offers the architect a great flexibility in the type of materials available for the exterior of

a building. Face brick, painted cement block or concrete have been the usual spandrel choice in conventional construction. Window walls are available in panels of asbestos, aluminum or steel with prefinishes, or ceramic or glass veneers of various types.

As window wall fabricators have gained experience, such problems as expansion and contraction, and infiltration of air and water, have been eliminated. Today, window walls are available with insulated panels of various types to provide excellent results in local climatic conditions.

In this article, I have stressed window wall rather than curtain wall because of the advantages I feel it offers the architect from the standpoint of design.

There are several qualified manufacturers of window wall; many have competent Arizona representatives to assist designers in the detailing. Architects should feel free to make use of their experience to help assure a quality job.

Window wall systems offer a complete range of products to fit requirements for monumental, commercial and school construction. Representatives of the industry welcome the opportunity to provide specific information and assistance to architects.

—AIA—

For which of you, intending to build a tower, sitteth not down first and counteth the cost, whether he have sufficient to finish it. — St. Luke XIV:28

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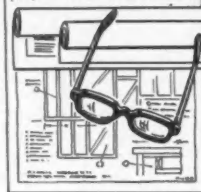
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LOOKING AT THE SPECS



(Ideas suggested by members of Central Arizona Chapter, Construction Specifications Institute.) This month's column —

By JACK JORDAN

Officials responsible for supervision of the major part of federal construction in Arizona and Nevada have, for a number of years, been acutely aware of the necessity for clearly defined lumber specifications. From experience in the supervision of many large construction projects in the arid climates under their jurisdiction, they have learned the quality control limitations of the so-called "Standard," or "Guide" lumber specifications. A seven year detailed study of lumber problems actually encountered in the field resulted in a sizeable file. Each problem was carefully documented, related to the weakness of the specification and researched for specification improvement. In 1960, with brevity, clarity and fairness in mind, and with full consideration given to legal and political aspects, the file was reduced to specification form.

Substantial changes in long used federal specifications are sometimes difficult to achieve. Indicative of the strength of the Arizona-originated specification is the fact that the basic form was approved without resistance from top side authorities.

Interesting requirements from the "Carpentry" section of a recent specification for Arizona construction are quoted:

Lumber. All lumber shall be in conformity with requirements of Department of Commerce Simplified Practice Recommendation R-16, American Lumber Standards for Softwood Lumber.

Grade Identification. Each piece of framing and board lumber shall bear a grade stamp approved under Section VI, Standards for Grade Marking of A.L.S. R-16.

In addition, each (carload) shipment of lumber shall be identified by a Certificate of Inspection issued by a grading and inspection agency approved by American Lumber Standards Committee, A.L.S. R-16.

Delivery and Storage. Lumber delivered to the site shall be carefully piled off the ground in such a manner as to insure proper drainage, ventilation, and protection from the weather. — Regardless of the grade stamp and Certificate of Inspection, the condition of the lumber when used shall meet the grade requirements of the specification.

Moisture Content. Boards and dimension lumber not over 2 inches in nominal thickness to be incorporated into the structure, excepting finish material and flooring, shall be kiln-dried or air dried to a moisture content not to exceed 12%.

Upon written application by the Contractor, the Contracting Officer, at his discretion, may permit the Contractor to supply boards and dimension lumber having moisture content in excess of 19%, subject to the following conditions:

- (a) That the lumber be suitably piled, under cover, in a manner approved for air drying on the site at the Contractor's expense.

- (b) That the lumber be air-dried to a moisture content not in excess of 12% prior to placement in the structure.
- (c) That all lumber so air-dried shall be of the grade specified when placed in the structure.
- (d) That no increase in construction time will be required.

Subsequent "specs" comment will cover specific advantages to be gained by incorporating certain portions of the quoted specification in all carpentry specifications, public or private ownership.

Next: The Certificate of Inspection.

—AIA—

Girand Appointed To State Technical Registration Board

John Girand, a native Arizonan and a civil engineer, has been appointed to the Arizona State Board of Technical Registration.

Girand, 55, will serve a term of three years on the Board. His term began July 1, 1961.

Girand is president of Johannessen & Girand, Inc., consulting engineers, the oldest engineering firm in Arizona. A registered civil engineer, he has had more than 30 years of professional practice and has directed the management of his firm for the past 20 years.

He is a fellow and past president of the Arizona Section, American Society of Civil Engineers; member of the American Management Association; member of the Consulting Engineers Council; past member of the Arizona State Board of Health; member of the National Society of Professional Engineers; member of the American Water Works Association; and a director of the Arizona Consulting Engineers Association.

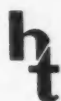
—AIA—

Esthetic values are no simple trimmings but indeed have their roots in the depth of the soul. Their impact on man's decisions reach even into the most practical problems, into the shaping of things of daily use — cars, bridges — and above all, of our human environment.

—Siegfried Giedion

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Midwest architect, supervisor of drafting room with responsibility for up to \$12 million annually in projects, active AIA Chapter officer, interested in Arizona position with smaller firm with diversified practice into which he can eventually invest as a partner. Request interested firm to note type of practice, total average annual volume of work each of past five years, resume of organization, brief analysis of basic function, duties and responsibilities of available position and specific qualifications of greatest interest. Resume of education and background of applicant will be supplied. Write Box 11-A, Arizona Architect, P. O. Box 904, Phoenix.



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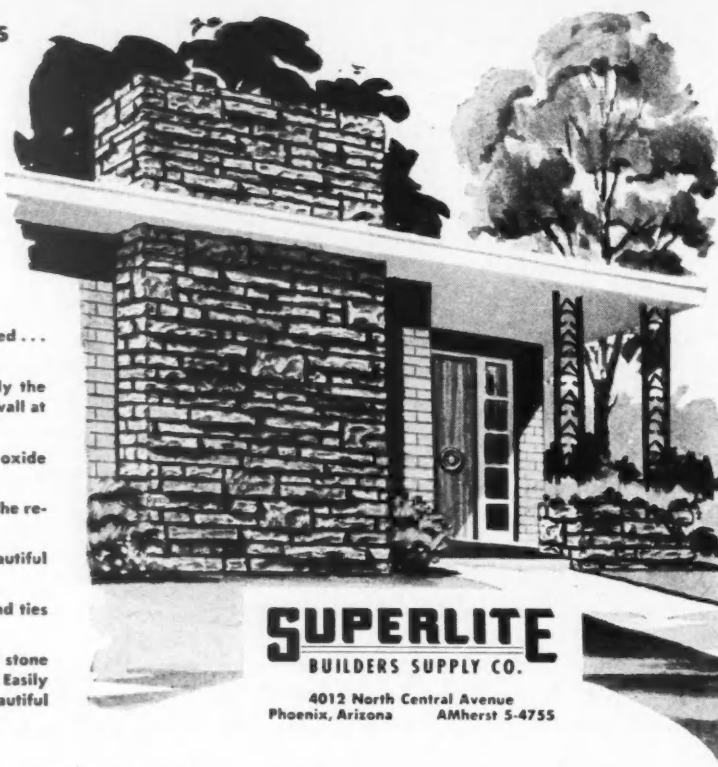
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ECHO

What others are saying or doing on matters recently discussed in 'Arizona Architect'

Congress of the United States
House of Representatives

June 23, 1961

Editor, Arizona Architect:

Thank you for calling to my attention your support of the amendment to the Highway bill, which would grant additional time to the States to qualify for the anti-billboard bonus. You will be interested to know that the Conference Committee appointed to agree on the provisions of the general bill, decided yesterday to keep the billboard amendment. I will keep your comments in mind when the legislation goes to the House Floor again.

JOHN J. RHODES

Item

A note from Congressman Morris Udall to a Tucson newspaper:

"I supported the effort of Senator Neuberger to continue bonus payments to states which restrict billboards on interstate highways. The billboard industry had asked me to fight the restrictions, saying 'proper controls of billboards should remain with the state (and sign industry) and local governments without interference or pressure from Washington'."

Item

From Arizona Republic, June 28, 1961

State Rejects Sign Curb

A FEDERAL program to curb billboards along interstate highways will not be applied in Arizona by the state highway commission.

To states willing to undertake such a program, the federal government offers a bonus of .5 percent on the federal aid funds they regularly receive for interstate highway construction.

But Arizona Highway Director Justin Herman said Arizona highway commissioners do not like the idea of attempting to prevent farmers and ranchers from leasing their private property near highways to advertising companies.

The "Beauty" Expert



Talburt in The Albuquerque Tribune

The American Institute of Architects
Washington 6, D.C.

June 6, 1961

Mr. Kemper Goodwin, President,
Central Arizona Chapter, AIA
Tempe, Arizona.

Dear Mr. Goodwin:

You might be interested to know the Secretary of Commerce in a recent speech made a special plea for the elimination of billboards throughout the Federal highway system.

I consequently sent a copy of the February issue of Arizona Architect to Secretary Hodges and in talking with him in Washington last Thursday found him to be most appreciative of the effort of the Arizona architects. As an instigator of the Southern Architect, publication of the North Carolina Chapter, I am particularly appreciative of the excellence of your February issue.

A. G. ODELL, JR., FAIA
Director, South Atlantic
Region, AIA

New Products, Personnel, Publications



Compriband, a compressible waterproofing sealant developed in Holland and being used extensively throughout Europe as a joint sealer in buildings, roads, bridges, dams, etc., now is available in the U.S. through Pacific Sealants, 1491 Daisy Ave., Long Beach 13, Calif.

Under compression, Compriband becomes completely water-tight and bonds to contacting surfaces. Its resiliency makes it strive toward its original shape and size, even under concentrated and prolonged loads.

It has chemical and physical stability under extremes of heat and cold, low thermal conductivity, non-bleeding, ease of handling and application, resistance to chemicals and fumes, sound and vibration isolation characteristics.

Technical details, test reports and general information on Compriband are available from **Pacific Sealants**, 1491 Daisy Ave., Long Beach 13, Calif.

Pacqua Division, **Forrest Industries, Inc.**, Dillard, Oregon, is now showing Par-TILE Forrest Wood Block Flooring with tongue and groove edges for easier handling and quicker installation.

Known as Par-TILE T & G, the tongue and groove 9" x 9" x 3/8" standard real wood block flooring is available in a pre-finished, high-glossed walnut tone that blends with any decor.

Par-TILE is surface sealed for easier cleaning and to preserve the beauty of the wood tones. Wood blocks are scored on the back for better mastic bonding, resiliency and sound-proofing qualities. It will not dent or mar under heavy furniture.

Matching feature strips, 37" x 1", tongue and grooved, can be combined with Par-TILE wood blocks to create endless patterns.

Par-TILE is designed for residential, commercial and industrial use.



Thirty

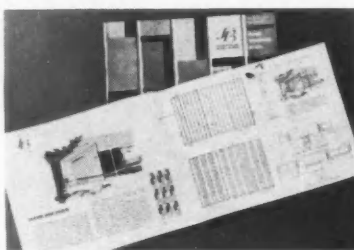
A booklet describing and illustrating a new Curtainscreen system of components for forming interior and exterior screens is available from **Julius Blum & Co., Inc.**

The new booklet includes information on designs and applications, and is illustrated with full-color renderings and scaled architectural sections, elevations and details.

Several typical applications are illustrated, including vision screens, partitions, facing and solar screens, railings and both interior and exterior space dividers. Alternate design approaches to each problem are also illustrated to help indicate the versatility of the system.

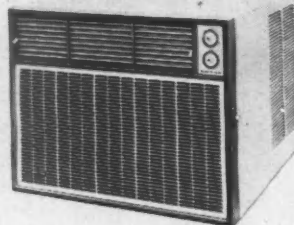
Information about design and fabrication is included, together with scaled details of all component parts.

Copies of the booklet are available free from **Julius Blum & Co., Inc.**, Carlstadt, N.J. Ask for Bulletin No. 141.



Superlite Builders Supply Co., 4012 N. Central Ave., Phoenix, has been named distributor for **Raybestos Threadline Mortar**, a new adhesive for bonding masonry units manufactured by **Raybestos-Manhattan, Inc.**, of Bridgeport, Conn.

Threadline is said to have a bonding strength five times greater than that of conventional mortar, and 100 blocks can be laid in 15 minutes with one gallon.



A window air conditioner which provides more cooling capacity than many "central" conditioners, yet is easily installed in double hung windows as small as 28 inches wide, has been developed by **Amana Refrigeration, Inc.**, Amana, Iowa.

Called the Amana 250 Series Air Command, the unit provides 23,000 BTU cooling capacity, the highest ever offered by Amana room air conditioners. An eight-position, extra-sensitive thermostat, large cooling coils and exclusive Amana Silent-Aire turbine for quiet operation, a zinc-coated, virtually rust-free, steel, are other features of the new line.

Specifications are: BTU capacity (per NEMA standard): fan motor HP, 1/4; voltage, 230; amperage, 13.5; wattage, 2850; CFM 600; height, 20"; width, 26 1/2"; depth, 30 1/4"; net weight, 240 pounds; shipping weight, 270 pounds.



Stanthony Corporation, of Los Angeles, a pioneer manufacturer of kitchen ventilating hoods, introduces a portable electric barbecue unit for either indoor or outdoor use.

The new unit, identified as "Mr. Inside-Outside," is the Electramic-Broiler, Model 6115. It is 3" deep, eliminating the need for special cabinets. It requires no special wiring.

Stanthony engineers have achieved grill temperatures of over 600 degrees using only 1650 watts, assuring high performance while meeting UL requirements for a portable unit.

Each unit has a three-prong plug and grounded adapter for outdoor use, saving builders \$5-\$7 a house on wiring costs.

The unit disassembles in seconds and parts requiring cleaning fit into sink or dishwasher. The electric surface broiler eliminates the need of surface cleaning and oven venting.

High radiant heat comes from Stanthony's "cerro-coals," a hard and dense ceramic washable refractory that does not absorb grease.

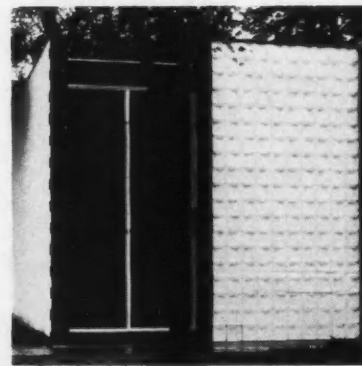
Stanthony products are nationally distributed and available through built-in appliance distributors.

Sculptured Glass Modules in eleven colors and four patterns — "Pyramid," "Wedge," "Leaf," and "Harlequin," are being introduced by the **Pittsburgh Corning Corporation**.

The new office of the Dun-Well Construction Co. in Wyandotte, Mich., (see photo), features a wall of pure white "Wedge" units, 12" square and 4" thick. Their interior is at a partial vacuum, giving them excellent insulation characteristics.

The Modules, hollow units with a design pressed in both faces, have a white ceramic finish on their outer faces. The color, fused onto the surface, is translucent and allows light to pass through.

The modules are mortared in place to form a strong, practically maintenance-free wall, yet one that allows architects almost unlimited freedom of design through use of various colors, patterns and placement of individual blocks.



ARIZONA ARCHITECT

Quality Control "Brings Adobe Back"

With its proximity to Mexico, Tucson long has used adobe for a higher percentage of its construction than other Arizona areas, with current estimates putting the figure at more than 60 per cent of all walls.

As reported in a University of Arizona engineering bulletin, however, "the physical properties of this building material vary widely, due to the relatively poor control exercised." A delivery of excellent block could be followed by one with a high breakage rate. So inconsistent was the adobe, that FHA withdraw its approval until large quantities had been tested, and frequent spot-checks are required now to retain approval.

The use of adobe, the southwest's authentic natural building material, is reported on the rise in Phoenix, especially for residential use, and is expected to gain even wider acceptance.

Contributing to the greater use of adobe is a new Tempe firm, Vitradobe, Inc., which has developed a quality-controlled modern gas-fired burnt adobe block with a compressive strength, on a random sample average, of 1503 psi and combining a lower U factor than regular adobes with high thermal storage ca-

pacity. Thus an eight-inch block gives the capacitance value of a much wider block.

The Vitradobe wall system contains Kaolinite clay, Scoria volcanic cinder, grog, vermiculite, silica, organic fiber and iron sulphate. It is cast in a mobile molding machine and slumped by gravity, rather than pressed, and eventually burned at 1800 degrees for several days with natural gas. It is made in solid blocks, in cored structural blocks and in veneer blocks. Its grout core structural system accommodating vertical and horizontal reinforcing bars, is said to reduce need for pilaster and poured bond beam construction. It can be used in any single or multiple-story construction in which brick or block can be used, and has received FHA and Gold Medallion Home approval.

Thus the application of a scientific approach to an ages-old product to develop a balanced wall system for the maximum fulfillment of structural strength requirements, maximum insulation properties and comparable economy, may help the southwest increase its use of a native material with the traditional esthetic qualities of the past, for entire walls or in combination with other materials.

A new open hearth fireplace-stove with the heating principle of the circulating fireplace form is announced by **Northwest Tube and Metal Fabricators** of Portland, Oregon.

Named the Firemite, the fireplace-stove has a heavy steel base with ash receptacle and clean-out, self-cleaning fire grates, inner circulating form, outer hood, fire screens, and insulated flue section.

The inner form is an exclusive feature of Firemite which fits beneath the outer hood. When the fire is lighted, cold air is drawn off the floor at the back and circulated between the inner form and hood, preventing

it from becoming excessively hot, and giving the warmed air a gentle velocity for flow to all parts of the room.

The Firemite comes in two sizes in each of three models. Standard colors are black, Oriental red, chalk white and light brown, with others available upon special order. Finish may be enamel or porcelain.

Installation may utilize an existing flue, or any insulated metal flues. This makes the Firemite adaptable to existing rooms which do not have fireplaces.

The Firemite meets code requirements wherever free-standing stoves are permitted.



Aluminaire Series 1000 Window Walls are being manufactured in Phoenix for use in offices, stores, motels, apartments, and homes. Shown is the Peoria Post Office designed by Francis W. Bricker, AIA, and built by Am-Kep Construction Co.

Aluminaire Window Walls provide maximum versatility in combining, as desired, sliding and swinging doors, sliding windows, and fixed vertical or horizontal panels of glass or other materials up to a maximum thickness of 1 1/4". Rigid narrow sections, without exposed screws, and anodized alumi-

num finish provide modern functional beauty.

Weatherproof sealing of all elements helps air conditioning efficiency. Brick ties may be used to lock framing into position as masons erect a wall, or the entire frame can be quickly installed in a previously prepared opening.

All elements are quickly made up in the Phoenix plant to meet the special requirements of the architect. For further information, contact **Standard Glass**, 5321 E. Washington.



Monarch Tile Manufacturing, Inc., has announced the appointment of George O. Petty as architectural consultant for its Western Division, with headquarters in Phoenix, Arizona. The announcement was made from the general offices in San Angelo, Texas by R. C. Crabb, board chairman of the company, and president of the Tile Council of America.

Petty, a native of Arizona, will work out of the Phoenix Divisional Office. He has had a long and varied career in the tile industry, including a period as tile setter, as tile contractor, as Monarch Tile distributor, and as sales representative. He is a graduate of the University of Arizona, and lives with his family in Phoenix.



The AIA and an Urban Affairs Department

Excerpts from statement by Philip Will, Jr., FAIA, President, The American Institute of Architects, before the House Committee on Government Operations on H. R. 6433, to Establish a Department of Urban Affairs, Wednesday, June 7, 1961.

At its great Centennial Convention here in Washington in 1957, The American Institute of Architects passed a resolution calling for the establishment of a Department of Urban Affairs. This resolution has been reaffirmed by our Board of Directors within the year.

Shortly after my election to the presidency of AIA, more than a year ago, I took the opportunity to describe, in a statement to Senate and House committees, our concern with the plight of the American city and our endorsement of the early establishment of a Department of Urban Affairs because of the accelerating urbanization of the nation.

I note with particular interest Budget Director Bell's statement that over two-thirds of the population of the U. S. is contained within 212 metropolitan areas, and of this number, 24 of our largest areas lie in two or more states. Let me emphasize that a correlated development of these state-straddling cities is extreme-

ly difficult without the Federal assistance and guidance that can best come with the creation of a new cabinet-level urban affairs department.

According to Webster, the term "urban" denotes either "city" or "town." An important phase of the HHFA's work, the "701 program" deals with the correlated planning of small towns and rural communities, some of which contain as few as two to three thousand persons. Many of these towns are in agricultural areas — others are rural non-farm towns such as are found in the river valleys of Pennsylvania and West Virginia, in the mining districts of Southern Illinois and similar pockets of chronic unemployment elsewhere throughout the nation.

The "701 program" must be expanded and broadened and put on a continuing basis. And it must be "co-related" to the population growth of surrounding neighborhood areas and regions.

There are numerous potential advantages to be accrued under a Department of Urban Affairs. One of these is the opportunity to develop a major, consolidated research program on urban planning and development problems, including all phases of housing, material and construction research. Such a re-

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search program also would involve broad studies into the new design and redesign of communities in order to improve knowledge and techniques in the building and rebuilding of our cities and towns.

The AIA and its members, by the very nature of our profession, have been closely associated with the development of building codes, housing codes, zoning and sub-division control ordinances and other regulatory measures affecting the design and construction of all building types in all types of locality. We know that many of these must be updated but regrettably often find it impossible to accomplish the necessary and long overdue modernizations and improvements. The Federal Government with its expanding responsibility of assisting urban areas also is vitally concerned with these matters. We foresee in a Department of Urban Affairs a new vehicle under which concerted efforts can be directed towards a better national comprehension of the need to improve and develop uniform national regulatory measures on which both Federal and local programs must be predicated. The nation pays heavily for the waste inherent in the thousands of conflicting local building codes.

We believe through the strengthening of the urban housing and planning functions of the Federal Government that inevitably would occur under a Department of Urban Affairs, a more comprehensive, consistent and effective program will be obtained locally,

resulting in better urban design and urban building throughout the country.

An English critic once said that America builds the most beautiful buildings and the ugliest cities. This statement, together with my own observation, causes me to wonder about the policy statement which appears in the proposed bill. It speaks of the needs of our nation in terms of decent homes, employment opportunities, stable tax base, growth and security. Nothing, however, recognizes the human craving for beauty and true amenity in our environment. Efficiency, order and productivity are, indeed, all worthy goals. Yet I would hope that beauty might also be an objective, that in the building and rebuilding of our cities we might create an environment which we can show to the world with pride as a proper product and true image of our great democratic nation, so that the words, "America the Beautiful," now a pious hope, may someday state a proud reality.

—AIA—

The value of the artist lies in the fact that he asserts a sense of order, of the power of the human spirit, into the sordid conflict of our everyday lives. He sees all life as a battle between chaos and order. It is the vision of order, of conquest of the obstacles and complications of living, that inspires men with new energy and purpose. Life is inconceivable without this vision of purpose.

—Colin Wilson

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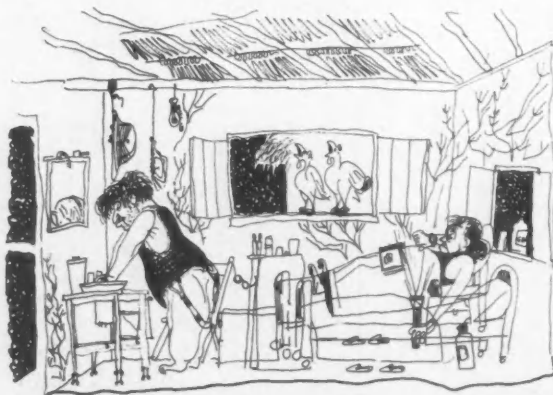
ALFRED BENDINER, F.A.I.A.
ARCHITECT



Bendiner doing the Convention; Laraway doing Bendiner.

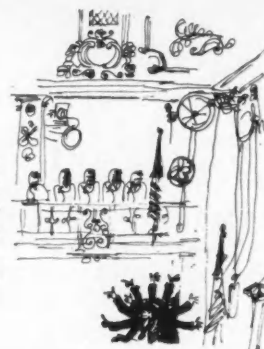


Here's what Laraway was seeing: One of the Bendiner drawings exhibited at a Philadelphia art center during the convention.



Thirty-four

Here's what Bendiner was seeing: Bruno Zevi's arms waving during the panel presentation on "The Culture of the City." This and other Bendiner sketches of the convention appear in the June AIA JOURNAL.



AIA Journal readers have for years enjoyed the pen and word sketches contributed by Al Bendiner and run under the title: "Through The Martini Glass." His pre-convention Journal series, "Through The Philadelphia Pepper Pot," enabled convention-goers to enjoy the event more than ever. On the first day, while waiting for the bus to take delegates to the start of the walking tour, the Laraways and Stitts were provided a personally conducted tour by Mr. and Mrs. Bendiner in their convertible. Among other things, we learned that he pronounces his name: Ben-deen-er. After being impressed with the recognition given the architect-artist by his own city, we're specially delighted to own the original Bendiner reproduced at left.

The Editor

—AIA—

ARCHITECTURE AND RELIGION

It is the religious question which is asked when the architect, in creating office buildings or churches, removes the trimmings taken over from past styles because they cannot be considered an honest expression of our own period. He prefers the seeming poverty of a purpose-determined style to the deceptive richness of imitated styles of the past. He knows that he gives no final answer, but he does give an honest answer.

The philosophy of our time shows the same hiddenly religious traits. It is divided into two main schools of thought, the analytic and the existentialist. The former tries to analyze logical and linguistic forms which are always used and which underlie all scientific research. One may compare them with the painters who dissolve the natural forms of bodies into cubes, planes and lines; or with those architects who want the structural "bones" of their buildings to be conspicuously visible and not hidden by covering features. This self-restriction produces the almost monastic poverty and seriousness of this philosophy. It is religious — without any contact with religion in its method — by exercising the humility of "learned ignorance."

—Paul Tillich, *The Lost Dimension in Religion*

ARIZONA ARCHITECT

Just What Is An Acoustical Engineer?



Everybody's an engineer today, it seems. The peddler is now a sales engineer, the janitor a maintenance engineer and, we suppose, the garbage man calls himself a disposal engineer. So it shouldn't surprise you to hear that, as far as college degrees are concerned, there is no such thing, really, as an acoustical engineer. As a matter of fact, very few colleges even now offer separate courses in acoustics.

The acoustical engineering field, as an applied science, is only a quarter of a century old and thus practicing acousticians (who like to call themselves "engineers") are basically field-trained — usually by the acoustical industry.

We might better define this animal by taking a look at the acoustical engineer's brain:



Note the predominance and overlapping of the common sense and experience sections. Note also how education and book learning occupy less active sections. Finally, note how the throbbing hard knocks sections overshadow the entire function of the brain.

N.B. This brain section is NOT typical of the egg-head breed of acoustical engineer who inhabits testing laboratories, or serves as a technician.

Because of the predominance of the experience factor in a relatively infant field, very few acoustical engineers are available. Actually, less than a dozen firms or individual consultants practice in the United States. One of these is in Arizona and we offer his services to you.

WHAT DOES HE COST?

There is no charge for conferences in your office relating to architectural acoustics, sound transmission, ceiling constructions, integrated ceilings, etc. We're so proud of knowing something that very few other people know that we're pleased to share this knowledge with you.

For field investigations, tests, readings, design studies, auditoria or church analyses, etc., there is a minimum fee of \$25.

WHAT CAN HE DO?

He can *save you money* by:

1. Foreseeing and preventing design and construction errors.
2. Helping you select a ceiling construction of multiple use and function (e.g., integrated ceilings).
3. Saving you the time and worry involved in proper acoustical design and treatment of special audio purpose rooms (churches, auditoria, theatres, studios, band and choral rooms, etc.).

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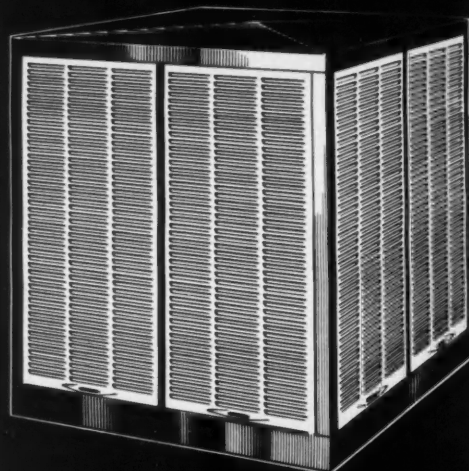
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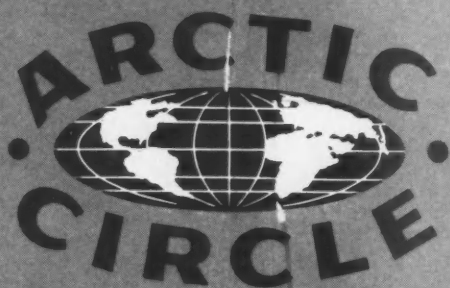
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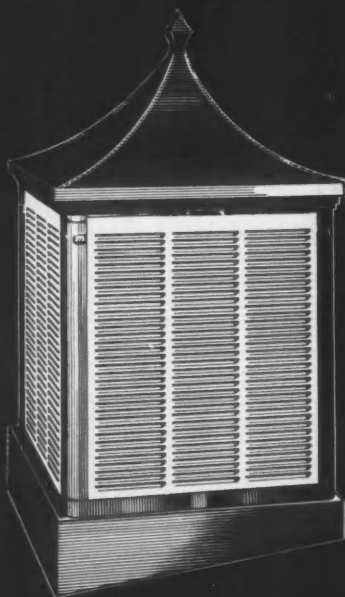
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