



Wide choice of horizontal discharge coolers for residential wall or roof installations available in capacities through 6500 CFM. Balleriew window model (right) has patented adjustable Flewtral grille. Capacities 2000 to 3000 CFM.

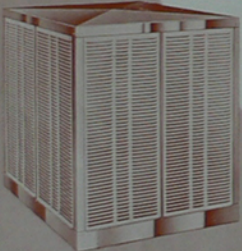
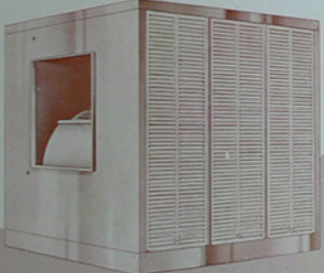
**ARCTIC CIRCLE  
AIR COOLERS**

**FOR EFFICIENT LOW-COST COOLING  
OF ALL TYPES OF BUILDINGS, including:**

- Residences • Hotels and Motels • Stores
- Super Markets • Offices • Schools
- Churches • Factories



Arctic Circle Coolers are built to the highest standards of quality by the world's largest manufacturer of evaporative cooling equipment. They have demonstrated their superior efficiency in hundreds of installations in all types of buildings.

Residential down-discharge types are available in capacities through 6500 CFM.

Arctic Circle commercial and industrial coolers for stores, schools, factories, etc., can be used singly or in multiples to cool economically any size building. Horizontal or down-discharge models. Capacities: 7500 through 15000 CFM.

**WRITE TODAY  
FOR FULL DETAILS!**

**INTERNATIONAL METAL PRODUCTS COMPANY**  
500 South Fifteenth Street • P. O. Box 1712 • Phoenix, Arizona  
the world's largest manufacturer of evaporative cooling equipment.

# ARIZONA ARCHITECT

OFFICIAL PUBLICATION OF THE ARIZONA SOCIETY OF ARCHITECTS, THE CENTRAL ARIZONA CHAPTER AND SOUTHERN ARIZONA CHAPTER OF THE AMERICAN INSTITUTE OF ARCHITECTS



"Visible Sound" — For interpretation, see "Cover," Page 3.

NOVEMBER 1958 Vol. 2, No. **3**  
In this issue: "SOUND AS ENVIRONMENT"





## CARNS - HOAGLUND CO.

420 N. 15th Ave. • Phoenix, Arizona  
Air Conditioning • Heating • Ventilating

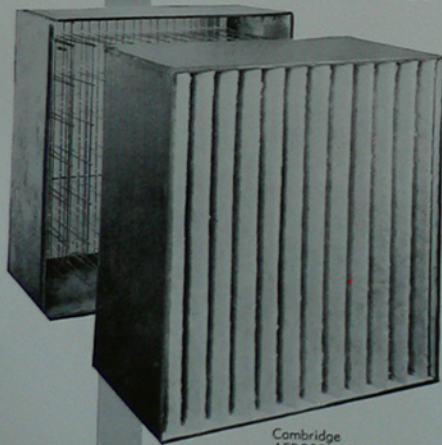
This One is 100% Efficient on Chickens —  
but 0% on Mice!

SO — when you compare filter efficiencies,  
use the same test

| TYPE FILTER             | ASHAE<br>(Weight Test) | NBS TEST METHOD<br>(Atmospheric Dust) | DOP TEST<br>(0.3 Micron Smoke) |
|-------------------------|------------------------|---------------------------------------|--------------------------------|
| Cambridge ABSOLUTE®     | *                      | 90-95                                 | ** 99.97 Min.                  |
| Cambridge AEROSOLVE 95  | 99                     | 80-85                                 | 80-85                          |
| Cambridge AEROSOLVE 85  | 96                     | 30-35                                 | 50-60                          |
| Cambridge AEROSOLVE 35  | 99                     | 85-90                                 | 20-30                          |
| Electronic Precipitator | 94                     | 25-30                                 | 60-70                          |
| Pleated Paper           | 76                     | 8-12                                  | 15-20                          |
| 2" Cleanable            | 76                     | 8-12                                  | 2-5                            |
| 2" Throwaway            | 76                     | 8-12                                  | 2-5                            |

\*Practically 100%. Test not practical for more accurate reading.  
†National Bureau of Standards Discoloration Test.

\*\*Maximum Allowable Penetration of Diethyl Phthalate Smoke 0.03%. Every filter individually tested.



Cambridge  
AEROSOLVE  
Filter

Cambridge filters, used alone or with pre-filters to take out the "chickens," give you high-efficiency air cleaning at only a fraction of previous costs. Wide range of efficiencies, from the Cambridge AEROSOLVE 35 to the world-famous Cambridge ABSOLUTE.

Cambridge AEROSOLVE Filters have a rugged permanent frame for long life. Light, compact cartridges, in a wide range of efficiencies, provide long service life and are easily replaced. No maintenance required.

Take advantage of Cambridge's unequalled experience in the field of high-efficiency air filtering. Ask the Cambridge man to help you lick your tough filtering problems.

Write for  
AEROSOLVE Filter Bulletin 105A  
ABSOLUTE Filter Bulletin 106A

### CAMBRIDGE FILTER CORP.

Pioneers in High-Efficiency Air Cleaning  
E. Erie Blvd. Syracuse 3, N. Y.

Representatives in Principal Cities

## ARIZONA ARCHITECT

POST OFFICE BOX 904  
PHOENIX, ARIZONA

1423 N. Third Ave.,  
Phone Alpine 2-4318



Official Monthly Publication of the  
ARIZONA SOCIETY OF ARCHITECTS  
comprised of  
CENTRAL ARIZONA CHAPTER and  
SOUTHERN ARIZONA CHAPTER of  
THE AMERICAN INSTITUTE OF ARCHITECTS

Phil Stitt ..... Managing Editor

### CHAPTER OFFICERS

| CENTRAL ARIZONA CHAPTER        |                | SOUTHERN ARIZONA CHAPTER    |                |
|--------------------------------|----------------|-----------------------------|----------------|
| David Sholder .....            | President      | Santry Clay Fuller .....    | President      |
| 1630 E. Camelback Rd., Phoenix |                | 2566 North Campbell, Tucson |                |
| A. John Brenner .....          | Vice-President | Edward H. Nelson .....      | Vice-President |
| Jimmie R. Nunn .....           | Secretary      | David S. Swanson .....      | Secretary      |
| P. O. Box 904, Phoenix         |                | 2447 N. Stone, Tucson       |                |
| Kemper Goodwin .....           | Treasurer      | Robert J. Ambrose .....     | Treasurer      |
| James W. Elmore .....          | Director       | D. Burr DuBois .....        | Director       |
| Ralph Haver .....              | Director       | Eleazar D. Herreras .....   | Director       |
| Martin Ray Young, Jr. ....     | Director       | Emerson C. Scholer .....    | Director       |

Subscriptions: \$4 a year  
Per copy, 40 cents

November, 1958  
Volume 1, No. 3

### IN THIS ISSUE

|   |            |
|---|------------|
| COVER Sound spectrogram (visible speech) of the spoken letters, "AIA", as recorded by the Bell Telephone Laboratories | Page 5     |
| THE PRESIDENTS' PAGE Guest column by William Wilde, AIA, and A. John Brenner, AIA                                     | Page 7     |
| PERSPECTIVE The editor sounds off about noise and music   | Pages 8, 9 |
| CHAPTER NEWS  | Page 11    |
| SOUND AS ENVIRONMENT By John Scully. The qualities and intensities of sound as they relate to architectural design    | Page 17    |
| HOW PLASTER ABSORBS SOUND By Norman Erb   | Page 18    |
| DESIGNING SOUND BARRIERS By John Scully   | Page 23    |
| PLANNING FOR HI-FI By "Hack" Metz. It can save disappointment, expense  | Page 25    |
| CONFERENCES ON NOISE CONTROL, URBAN LIVING  | Page 26    |
| NATIONAL DEFENSE RESOURCES CONFERENCE REPORT By Charles W. Pine   | Page 30    |
| THE SEARCH FOR ARCHITECTURAL FORM Part 2. By Ralph Rapson, University of Minnesota                                    | Page 34    |
| BOOKS   |            |

In Next Issue: Annual Roster Number

Signed articles reflect the views of the authors and do not necessarily represent the official position of the Arizona Society of Architects or the Central or Southern Arizona Chapters, AIA.

### Advertisers' Index

|  |    |   |       |
|--|----|---|-------|
| ARIZONA HI-FI HOUSE                                    | 8  | LAING-GARRETT Sound Control Engineering         | 13-15 |
| ARIZONA PUBLIC SERVICE CO.                             | 33 | NELSON-HOLLAND Builders' hardware               | 17    |
| ARIZONA STATE REGISTRAR OF CONTRACTORS                 | 32 | O'MALLEY'S BUILDING MATERIALS Hardware          | 8     |
| ARIZONA STRUCTURAL CLAY PRODUCTS ASS'N                 | 20 | PHIL STONE CO. Wascolite panels                 | 27    |
| ARIZONA TESTING LABORATORIES                           | 9  | PHOENIX ROOFING & SUPPLY CO. Acousti-Celotex    | 10    |
| ARIZONA TRADE BINDERY                                  | 19 | PIONEER PAINT AND VARNISH CO.                   | 21    |
| AUDIO SPECIALISTS                                      | 22 | PIPE TRADES INDUSTRY PROGRAM                    | 31    |
| BAKER-THOMAS CO.                                       | 18 | RINEHART & HARRIS KITCHENS St. Charles kitchens | 26    |
| CARNS-HOAGLUND CO. Cambridge Air Filters               | 2  | A. B. ROBBS TRUST CO. Building loans            | 25    |
| CONCRETE PRODUCTS CO.                                  | 31 | SUPERIOR SAND & GRAVEL                          | 29    |
| ENTZ-WHITE LUMBER & SUPPLY, INC. Hardware tips         | 27 | SUPERLITE BLOCKS                                | 4     |
| GLEN-MAR DOOR MANUFACTURING CO.                        | 9  | THORENS SHOWCASE & FIXTURE CO.                  | 30    |
| HASKELL-THOMAS, INC.                                   | 35 | UNION GYPSUM Wallboard & plaster                | 33    |
| INTERNATIONAL METAL PRODUCTS CO. Arctic Circle coolers | 36 | VENT-A-HOOD OF ARIZONA                          |       |
| KAISER ROOF DECK                                       | 6  |   |       |

LEBEAU PRINTING

Three

November, 1958





# SCHOOLMATE

classroom  
cabinets

Smart  
Functional  
Modern

Designed by

... the Architectural Woodwork Institute and its AIA architectural consultant, together with foremost school architects and planning experts, and manufactured in Arizona by Thoren's.

SCHOOLMATE cabinets help answer the demand for quality and economy in school construction. Our manufacturing ability permits us to combine the advantages of production line techniques with our ability to meet special and individualized conditions.

Now — for the first time — here is a line of school cabinets that offers you a wide choice of materials, colors and dimensions to meet the individual needs, preferences and budgeting requirements of every school; making, at the same time, a genuine contribution to maximum economy in school construction costs.

These new SCHOOLMATE cabinets can be had in a wide variety of sizes, materials, colors and finishes to match other woodwork or equipment because SCHOOLMATES are made expressly for you!

Write us today for a free Details and Specifications Manual

BACKED BY 200 YEARS OF FAMILY EXPERIENCE IN CABINET WORK AND DESIGN

**SHOWCASE & FIXTURE COMPANY, INC.**

PHONE WO 7-4771

149 FARMERS AVE., TEMPE



ARIZONA ARCHITECT

Four

## THE PRESIDENTS' PAGE



SOUTHERN  
ARIZONA  
CHAPTER

Santry Fuller

GUEST COLUMN BY WILLIAM WILDE, AIA

WHEN SHOOTING at the moon is behind us, and interplanetary travel becomes a reality, a new frontier will be opened. Armed with atomic power and the know-how of the electronic brain age, civilized man will be able quickly to transform the deadpan face of the moon into a likeness of Earth.

Small outposts will grow into cities. There, in standardized and class-grouped neighborhoods, the new settlers will nurse their ulcers and prepare for another day of traffic and inconvenience of the city.

Again the city will be on the verge of deterioration and the settlers will be applying half-measures to save the *raison d'être* of their Suburbia.

Impossible? Ridiculous? Not at all. With very few exceptions our cities are doing very little more. We are repeating mistakes of preceding generations and older cities. Sporadic measures, in a negative way, like zoning, are taken for the protection of group interests. Or palliatives, in the form of open squares, downtown malls, and unintegrated urban renewal programs, are proposed.

Most of this so-called city planning is done without intensive study, it lacks vision, sense of responsibility, and is de-humanized. Very seldom is there an indication that people were considered at all beyond the fact that creating heavy traffic is one of their activities. Only mayors, councilmen and other dignitaries have a voice.

It is high time to recognize the city as the most important living organism for the cultural development of man. We must return the city its vigor. We must do this even if only to retain our Suburbia, if that's what we want.

We need humanized, flexible "Master Plans" and they will be costly. Whether we take the high road as behoves a great people with a sense of responsibility; or a low way out just getting by with ideas lacking boldness, the cost is going to be high.

While leaders will be necessary, the energy must come from the people. Their interest must be aroused by visionary leaders if we ever hope to transform our unpleasant, chaotic, patch-quilt neighborhoods into happy communities.

November, 1958



CENTRAL  
ARIZONA  
CHAPTER

David Sholder

GUEST COLUMN BY A. JOHN BRENNER, AIA

IN RECENT times, numerous complaints have reached our ears concerning advance publicity and a disinterested attitude exhibited by the press toward our profession. Perhaps we should now sit up and look over the reasons why, rather than just lay back and gripe. It may well be that some of the fault lies with each and every one of us. It may well be we each have something to contribute that for some reason or other we just never got around to. Undoubtedly we are not getting all the public attention we are entitled to or deserving of.

The newspapers, construction industry and architectural news media are always in need of good material. Perhaps by helping them fill their columns we can convincingly demonstrate that architects are newsworthy and at the same time create a more friendly relationship. We can accomplish this if we, individually and collectively, work at it.

If you have something worthwhile to publish, make it available in an attractive manner and make its publication as easy as possible for the editor. Give him all the material he needs in form that requires little effort on his part and you can rest assured you'll get not only his thanks but also enthusiastic cooperation. In presenting delineations or photography be sure that the subject is of interest not just as a creditable piece of architecture, but also carries a message of interest to the general public, that clear reproductions can be made without extensive retouching. Avoid requiring the editor to dig and scrape for editorial material necessary to make the story readable. You can get a lot of pleasure, yourself, out of preparing your own story, suggesting captions, and in general being helpful. Be sure to insist on being credited for your work and that your A.I.A. affiliation gets mentioned.

Picture stories need not be our only offering, however. Certainly, architects are doing other things of interest which should be reported at every opportunity.

Remember, publishers only print the news available; it's up to us to make it! If you need assistance call on your Public Relations Committee.

Five



# KAISER STRUCTURAL GYPSUM ROOF DECK

## MEETS ANY ROOF DESIGN CONDITIONS

Here's dramatic proof of the flexibility of Kaiser Structural Gypsum roof deck systems. Curved, sloped or flat surfaces are finished faster, thanks to the time-saving techniques used in Kaiser's poured gypsum roof decks. You gain materially increased erection speed, plus lower initial costs. In addition, Kaiser Gypsum poured roof deck imparts fire resistance, and low maintenance costs to commercial and industrial roofs. Contact your nearest Kaiser Gypsum office for design and engineering assistance on your next gypsum roof deck job. Erection phase, lunch shelter, Costa Mesa High School.

Architects: Lind, Plegler, Bluerock and Hougan.  
Applying Contractor: Alta-Fraser-Edwards Co.



KAISER GYPSUM COMPANY, INC.

Kaiser Building-1924 Broadway, Oakland, Calif.

ARIZONA ARCHITECT

## The Editor's PERSPECTIVE

"How LONG will it be before there is no quietness anywhere, no escape from the rumble and the crash, the clank and the screech which seem to be the inevitable accompaniment of technology? Whatever man does or produces, noise seems to be an unavoidable by-product. Perhaps he can, as he now tends to believe, do anything. But he cannot do it quietly.

"Perhaps when the time comes that there is no more silence and no more aloneness, there will also be no longer anyone who wants to be alone. If man is the limitlessly conditionable creature so many believe him to be, then inevitably the desire for a thing must disappear when it has become no longer attainable. Even now fewer and fewer are aware of any desire to escape from crowds, and most men and women who still make traditional excursions to beach or picnic grounds unpack their radios without delay and turn on a noise to which they do not listen. But it is not certain that this is not a morbid appetite rather than one which has become normal or that it, any more than any other morbid appetite, brings real satisfaction when it is gratified."

So writes Arizona's Joseph Wood Krutch in his extraordinary new book, *GRAND CANYON, Today and All Its Yesterdays*, published by Sloane at \$5.

Because architects must create the environment in which people work and play and learn and pray, they must consider the sounds and noise about us and do something about them. Mask them, reduce them, control them. In some cases enhance them. Certainly they should be planning ahead in every building they design for the transmission of wanted sounds over wires from one room to another.

The last few months have seen a tremendous boom in stereophonic music systems, with the advent of phonograph records carrying two sound tracks in a single groove, and stereo cartridges that translate them into directional sound. I've been watching this development in the new *HIFI and Music Review Magazine*, and it seems certain that this is no flash in the pan like 3-D movies were. Already the major record producers are in the field and hundreds of selections are available. According to the magazine, "since stereo cartridges can play monaural discs, there is no problem of obsolescence of your present collection of monaural discs."

But the new baby wonder of the music world needs a right environment to set off its good points. And environment is where the architect and builder must

come in. Placement of speakers and other equipment should be considered whenever homes are designed. Even if no immediate need is evident, a little extra wiring to begin with can save unsightly wiring later, or costly work to put it in properly. Recognizing a related problem, the telephone company offers to put in (during construction) conduit for adequate future telephone outlets, and for a special low price.

The Bell Telephone Laboratories, two years ago, announced a telephone that transmits pictures along with sound. The picture-phone image has been transmitted over standard low frequency telephone channels as far as from New York to Los Angeles. So keep in mind the future of sound and sight transmission and their possible effect on building design.

But back to noise. W. A. Kirkpatrick, in his recent book for the layman on how to plan and get *The House of Your Dreams* (McGraw Hill, \$5.50), says:

"Noise can harm the individual. It makes concentration difficult, saps strength and vitality, and interferes with sleep. Intense noise over long periods of time can be detrimental to nerves, digestion, emotions, and ultimately the well-being of the individual. Modern research is concerned with this problem, and steps are being taken by interested groups toward reducing noise. Fortunately, noise can be controlled."

The brush chipper used on Phoenix streets to chop up palm leaves sends out a 95-decibel whine among the residences. The Air Force jets over Tucson blanket the city with 75 decibels, the same intensity you find in a bowling alley as the ball strikes the pins. Close-up, my baby granddaughter is just as loud when howling to get her way.

Low velocity refrigeration systems are not so bad, but in this area of universal cooling it is possible to get annoying monotony from nighttime running of evaporative coolers unless duct systems are well designed. Ducts also carry other noises. Sound traps can help.

The greatest drawbacks in the tract home I live in and otherwise enjoy so much, have to do with noises and lack of adequate wiring for music. It is at this point that architects and builders can do much to improve living conditions for an America that makes more and more noise, but wants it controlled.

Phil Litt



**CUSTOM SOUND  
IS OUR BUSINESS**

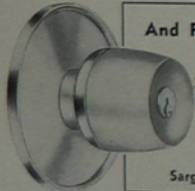
Call Us For Special Estimates  
Without Obligation

RON DE PINTO  
DAN SCHWARTZ

4807 North Central  
Amherst 6-5810



**For The Best In  
BUILDERS HARDWARE  
See O'MALLEY'S**



And For The Best In  
**CUSTOMER  
SATISFACTION**

Specify  
**SARGENT**

Sargent Integrallock



WILLIAM E. WELLING, AHC  
GEORGE S. MARKHAM, AHC



**O'MALLEY'S**  
Building Materials  
PHOENIX  
4TH AVE. AND MADISON  
TUCSON  
247 NORTH 4TH AVE.  
Complete Architectural Service

Eight

**CENTRAL ARIZONA CHAPTER NEWS**

- The Arizona Building Contractors Association entertained the officers and directors of the Chapter at a dinner meeting held November 3rd at the Arizona Club. A number of industry problems were discussed, and committees of the two groups will study them in detail and make recommendations.
- On November 12 Chapter officials were the guests of the Construction Practices Board of Industrial Council, Inc., at which problems of subcontractors were aired. These opportunities for architects to get together with contractors should prove beneficial for the entire construction industry.
- At the last regular meeting, revised by-laws were reviewed and unanimously approved by the membership. Appreciation for successfully completing this difficult task was extended to the members of the revisions committee — Kemper Goodwin, Chairman, A. John Brenner and Charles Hickman.
- Notice has been received from The Institute that two applicants have been approved for corporate membership and assigned to the Central Arizona Chapter. Congratulations are extended to David Haumerson and Ralph Wyatt on their new status in the Chapter.
- A tabulation of the poll taken to determine the regular meeting day of the Chapter has revealed that the first Thursday of the month is still the most acceptable to an overwhelming number of the members, therefore no changes will be needed.

— AIA —

**NEW STATE REGISTRANTS**

The following have been granted architectural registration by the Arizona Technical Registration Board:

- Robert E. Alexander, Los Angeles, California.
- James A. Brunet, Minneapolis, Minnesota.
- George Christensen, 922 E. Mitchell Dr., Scottsdale.
- Paul Crosier, 6214 N. 13th St., Phoenix.
- Thomas Erchul, San Diego, California.
- Donald H. Crugel, West Covina, California.
- Robert Kahl, 460 W. 4th St., Scottsdale.
- William Knight, 5617 N. 32nd Dr., Phoenix.
- Lamont Langworthy, Laguna Beach, California.
- Vincent Portuese, Santa Monica, California.
- Lawrence Reed, 303 S. Patricia Lane, Scottsdale.
- John Schotanus, 1915 E. Berridge Lane, Phoenix.
- Emil Smka, 5224 N. 8th Pl., Apt. 2, Phoenix.

— AIA —

**MODERN CHURCHES**

"The Churches Go Modern" is the title of an article by Pietro Belluschi which appeared in the October 4 issue of the Saturday Evening Post. The text is accompanied by a series of color photos of contemporary church buildings in various sections of the country.

ARIZONA ARCHITECT

**SOUTHERN ARIZONA CHAPTER NEWS**

- Dean Little announced at the October regular meeting that all expectations as to enrollment at the University in the new Department of Architecture had been far exceeded. Duane Cote and Bob Ambrose were introduced as part of the professional faculty. Little extended an invitation to all architects in the community to visit the plant at their convenience and investigate the school's program.
- Plans are being developed by the Awards, Scholarships and Allied Arts Committee to combine the forthcoming Architectural Exhibit at the University with an Awards Dinner.
- The Chapter granted a \$25.00 assistance donation to help send a University student, Chuck Jones, to the Student Conference of the AIA, to be held in Washington in November.
- The November meeting, for which the Chapter's Associate members were hosts, featured an interesting talk by Gene Morris of the Portland Cement Association.

— AIA —

**CIVIL SERVICE OPENING**

Applications are now being accepted by the Federal Housing Administration for the position of Architectural Examiner, GS-9. Information and forms may be obtained from The Board of U. S. Civil Service Examiners, Federal Housing Administration, 215 E. McDowell Road, Phoenix.



**A** field density test is important to the Engineer and Architect, but not as useful as full-scale supervision by a trained laboratory employee.

**T**he picture above shows Harvey Mear directing the leveling and mixing of the fill for the new Brunswick Drug Warehouse in Phoenix. General contractor Wm. Simpson engaged the Laboratory to control this important fill.

**L**ayers of river run material and silt were mixed and compacted on this project. The foundations will be put in place later, and fill-up panels poured on top of the fill. Only with a well-controlled fill was this procedure possible.

**ARIZONA TESTING LABORATORIES**

Member, American Council of Independent Laboratories  
PHOENIX • TUCSON • FLAGSTAFF

November, 1958

**Climate Built**

FOR  
THE  
ARID  
SOUTH-  
WEST



No shrinkage,  
no moisture to  
lose before  
stabilizing.  
Every Glen-Mar door  
is built with the  
natural moisture  
content of this  
area (6%).

**Glen-Mar**  
DOORS OF QUALITY

Compare these  
advantages

**T**HE LOCATION of the Glen-Mar plant in dry Phoenix, achieves "Balanced Moisture Control" through maintenance of low moisture levels in all component parts, from raw material to finished door. For convincing proof of its superiority, just open and close a Glen-Mar door. Your questions on problems in design, planning or installation are invited. Just phone AL 4-7203.

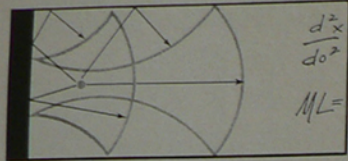
- Quality-Built
- Balanced Moisture Control
- Beautiful wood finishes
- Complete stocks for quick delivery

**Glen-Mar Door Manufacturing Co.**  
1310 North 21st Ave., Phoenix, Ariz.

Nine

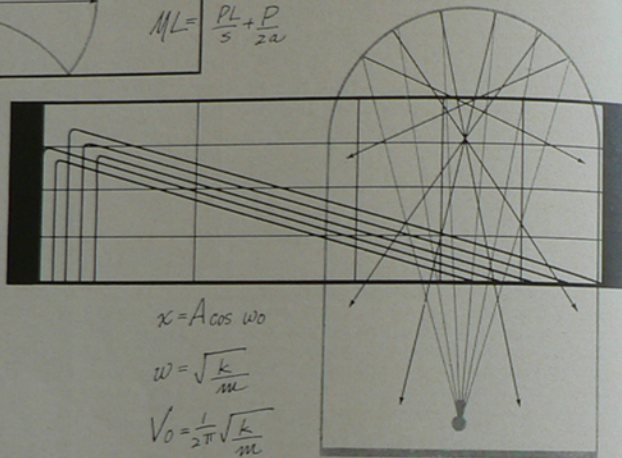


$$\frac{d^2 x}{dt^2} = \left(\frac{k}{m}\right)x = 0$$



$$\frac{d^2 x}{dt^2} = A \omega^2 \cos \omega t$$

$$M L = \frac{P L}{S} + \frac{P}{2 a}$$



$$x = A \cos \omega t$$

$$\omega = \sqrt{\frac{k}{m}}$$

$$V_0 = \frac{1}{2\pi} \sqrt{\frac{k}{m}}$$

## acoustical research keeps pace with modern structural needs . . .

At vast Celotex Research Center new product development . . . new manufacturing skills . . . new installation methods continue to provide the utmost in sound absorbing products, ceiling structural integration, interior flexibility. And we, as Acousti-Celotex distributors, can offer more in services and consultation . . . more in product variety . . . more in acoustical installation and knowhow. Bring us in on your next job . . . from drafting board to job completion you'll discover why more and more architects today look to Acousti-Celotex when they think of sound conditioning.

**Phoenix Roofing and Supply Co.**

**ACOUSTI-CELOTEX** DISTRIBUTORS AND APPLICATORS

1655 WEST JACKSON STREET • P. O. BOX 6125 • PHOENIX • ALpine 3-2161

ARIZONA ARCHITECT

## Sound as Environment

By JOHN SCULLY, Architectural Partner,  
Johannessen and Girard

The concept of environment as opposed to architecture or building is having its impact on many facets of our lives. We have begun to appreciate the significance of all the elements contributing to our experiences. Leaders are not only concerned about the physical and functional aspects of their cities but of the visual, spacial, and audial as well; just as architects must recognize them when designing individual buildings. We are becoming more aware of how man's total experience controls his orientation to life. This will be chaotic or harmonious, depending upon the skill of its designers.

Engineers have virtually mastered an understanding of the quantitative nature of these elements; architects, in increasing numbers, are mastering the qualitative. Control of the audial, however, has been relatively slow. This is, undoubtedly, due to the youth of the acoustical consulting profession and to the designer's consequent lack of a cultivated sensitivity to its power.

All of us have experienced the emotional content of sounds just as we have those of forms, color, light, ideas, space, and all other phenomena of life. These, too, must be integrated into a building's design. Whether the goal of the designer is to create spatial continuity, contrast, harmony or dis-harmony, definition, or to accentuate a particular mood, the quality of the sound attending the experience can be either an enhancement or discordance.

The designer of the acoustics of Saarinen's M.I.T. Chapel, Mr. Robert B. Newman of the firm of Bolt, Beranel, and Newman, has commented that since the interior of the building was to be entirely of brick the decision was made to create a reverberation time in excess of normal, thereby relating reverberation to their concept of a brick chapel. Similarly, the ideal reverberation time of a catholic church is considered to be about a half second longer than that of a protestant church of the same volume. To conclude that this is so because one service involves more music than the other is to overlook their spiritual differences, which are dramatically expressed visually and spatially.

The struggle to achieve spatial continuity has been a particularly difficult one for architects, especially when one desires continuity between the interior and exterior. Within a building, changes in volume, sound absorption, or diffusion can cause sharp lines of demarcation in the experience of what visually was intended to convey continuity. Continuity with the exterior creates a similar problem. No amount of careful glass detailing can overcome the unique experience of walking from the interior to the out-of-doors. Visually the spaces may approach continuity

but acoustically they are drastically different. Both the character and content of the sounds vary. When a door is left open, however, these differences are reduced. This audial continuity might be permanently achieved by introducing lightweight flexible plastic into the divider, thereby providing a permanent weather-tight access for outdoor sounds. A solution of this type could be especially effective where natural materials are used on the interior. In this way a greater correspondence of the functional, visual, and acoustical elements of our environment is achieved.

Reverberation and echoes have the ability to modify the quality of spaces just as do colors. Echoes seem to make even a small highly-absorbent room seem barn-like and, consequently, larger. Reverberation has somewhat the same effect; it makes a room seem more lively. This fact should be kept in mind when designing more gracious spaces. The nature of reverberation can also be a factor. Sounds will have a singing quality in rooms with larger volumes even though reverberation times are identical.

In an indirect way sound influences our environment by demanding forms which not only must comply with the physical demands of sound but to the architectural concept of the space as well. Reflective surfaces must be carefully placed and have appropriate dimensions. The most obvious results of these considerations are the corrugated ceilings and acoustical clouds of our new auditoriums and the splayed walls appearing everywhere. These physical manifestations of the application of a science are significantly changing the character of our environment. It is the architect's role to decide whether or not these changes are paralleling or opposing the multitude of forces indigenous to our society, just as the Bauhaus strove to resolve the schism between form and society in the twenties.

At the risk of oversimplifying, the following brief summary of acoustical principles, procedures, and approximations are being presented. They may give the reader a little more insight into the phenomena of sound within enclosures and into the relationship between its computations and our experience.

### Reverberation

The persistence of sound within a space for a short time after its introduction is known as reverberation, and its rate of decay as reverberation time. This time is directly proportional to volume and inversely proportional to absorption. Or roughly:

$$T = \frac{V}{20A}$$

T = Time in seconds

V = Volume in cubic feet

A = Total units of absorption

Eleven

November, 1958



SOUND AS ENVIRONMENT (continued)

When computing the amount of absorption within a space all surfaces and objects must be considered. In general, if all soft surfaces are computed individually and all hard surface areas are combined and given an absorption coefficient of .03 units per square foot, a good approximation is obtained. This usually resolves the problem down to people, acoustical materials, and hard surfaces. At a frequency of 500 cps. a good average, adults absorb 4 units each and children absorb 3.

The criteria for the determination of optimum reverberation times of rooms is usually recommended as in Figure I. These have been established empirically and are the average or most acceptable. As

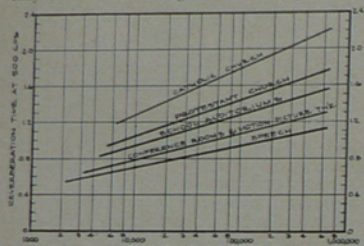


FIG. I — OPTIMUM REVERBERATION TIMES —

such they tend to become obstacles to sensitive design just as light intensity levels and uniform distribution have become the bane of creative lighting. No recognition is given to the unique physical and spiritual functions of the space. Experience and architectural goals must tell the designer when to vary from these curves.

Figure II is merely a graphic presentation of results obtained from the formula for reverberation time, but with appropriate modifications.

Figure III illustrates the absorption characteristics of two common acoustical materials.

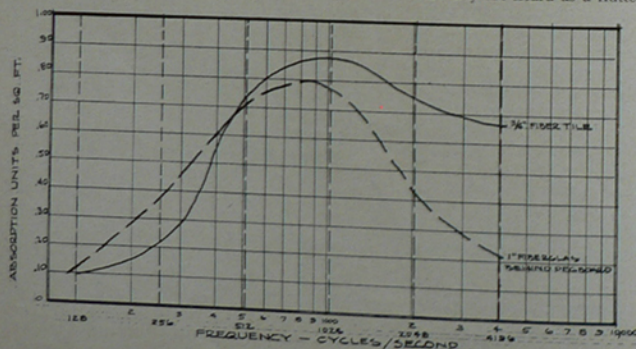


FIG. III. ABSORPTION CHARACTERISTICS OF MATERIALS

Twelve

ARIZONA ARCHITECT

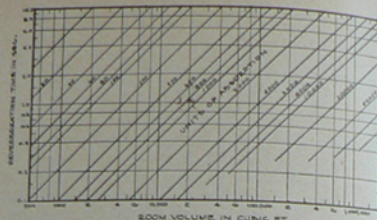


FIG. II. — REVERBERATION, VOLUME, & ABSORPTION

With these three groups of curves one can easily compute the absorption required for most spaces. From Figure I we see that a classroom of 9000 c.f. should have a reverberation time of about eight seconds. From Figure II we find that this will require 500 units of absorption. The normal classroom will involve 30 children and have roughly 3000 square feet of hard enclosing surfaces. Together these give us 180 units. Therefore, 320 units must be obtained from acoustical materials. From Figure III we see that 3/4 inch fiber tile has an absorption coefficient of .73 which means that we must provide 438 square feet of tile. This is about half the floor area of the room; a common rule of thumb for the absorption requirements of classrooms.

The placement of absorbing materials greatly influences the ability to hear projected sound. If the tile of our classroom is distributed around the perimeter of the ceiling the hard center can reflect sound to the rear seats. Ceiling reflections become especially important in auditoriums and are the basis of the corrugated ceiling. By carefully positioning these splays, areas of seating can receive reflections in proportion to their distance from the sound source.

Diffusion

The quality of sound is also effected by the uniformity of its growth and decay rates. Parallel surfaces reflect perpendicular waves back and forth so that they are heard as a flutter after all other sound

# SOUND CONTROL ENGINEERING

by **Laing-Garrett**  
CONSTRUCTION SPECIALTIES, INC.





## A few satisfied customers

### SCHOOLS

Phoenix Union High School, West Phoenix High School, North Phoenix High School, and other High Schools at: Scottsdale, Tempe, Mesa, Glendale, Peoria, Chandler, Casa Grande, Florence, Ajo, Gila Bend, Yuma, Kingman, Williams, Flagstaff, Winslow, Joseph City, Holbrook, Snowflake, Maricopa, Safford, Globe, Miami, Superior, Prescott, Las Vegas.

### AIRFORCE

Luke AFB, Williams AFB, Yuma AFB, Big Springs AFB, Rosewell AFB, Albuquerque AFB, Mountain Home AFB, Spokane AFB, Nellis AFB.

### ARCHITECTS OFFICES

Lescher and Mahoney, Matthew Trudelle, Martin Young, Dave Sholder, Ed Varney, Weaver-Driver, Ralph Haver.

### MUNICIPAL

State Capitol, Maricopa County Court House, City Hall, County Court House, Yavapai County Court House, Ajo, Pima County.

### HOSPITALS

St. Joseph, Good Samaritan, Memorial, Arizona State Hospital, Yavapai County Hospital.

### BANKS

Main Offices, Valley National Bank, First National Bank, Bank of Douglas.

### OFFICE BUILDINGS

Luhrs, Professional Building, Madison, Luhrs Tower, Security Building.

### THEATERS

Mesa, Sombreno, Palms, Holbrook.

### RESTAURANTS

Durants, Flame, Heslings, Navarre's.

### CHURCHES

Trinity Cathedral, Central Methodist, St. Francis, St. Gregory, St. Matthews.

### HOTELS

Camelback Inn, Biltmore, Westward Ho, Adams Hotel, Luhrs Hotel, Valley Ho, Safari, San Marcos, Hossayampa, Flamingo, Show Boat, Desert Inn, Sands.

### INDUSTRIAL

Goodyear Aircraft, AIBResearch, Matasola, Arizona Public Service, Salt River Valley Water Users, Reynolds Metals.



## HOW PLASTER ABSORBS SOUND

By NORMAN ERB, Executive Secretary,  
Arizona Lath and Plaster Institute

Acoustical plaster has been in existence for quite some time. However, due to the difficulty of application by hand that would provide an esthetically acceptable surface, less than 5% of all acoustical work was being done with acoustical plaster. With the advent of machine-application methods, the product attained greatly improved esthetic qualities. Acoustical plastering has since grown rapidly and become widely accepted by the building industry.

Acoustical plaster, as well as any other acoustical material, in order to be effective, should be porous. The openings on the surface allow sound to penetrate to the interior, where the absorption takes place in the fine pores by reason of friction between the vibrating air particles and the walls of the pores.

Acoustical plaster, which has a clay base, obtains its acoustical value as a result of the shrinkage of the material. Benetite clay, which is the variety used in acoustical plaster, has the unusual property of expanding or swelling to about ten times its original volume upon being wet. Therefore this material, upon drying, will shrink a great amount providing a very high percentage of voids, or pores, where sound can penetrate and be absorbed. The surface of this clay base plaster usually is sprayed with a light texture coat resulting in a very even surface that

shows no joining marks or large surface cracks. Clay base acoustical plaster is very successful when machine applied, and machine application definitely is recommended.

The acoustical value of acoustical plaster depends upon the thickness it is applied. A thicker coat will absorb more than a thin coat, but the increase in absorption is not in proportion to the thickness. Acoustical plaster over 1/2" thick will not greatly increase the acoustical value whereas any reduction of thickness from 1/2" will reduce the acoustical value very quickly. Caution should be taken so that there is enough plaster applied so as to leave at least 1/2" after drying.

Maintenance of the acoustical plaster surface is very important. If a resurfacing is required it can be done with a sprayed coat of a non-abrading water-thinned type of paint. If done correctly this will not reduce the acoustical value of the surface to any extent. However, a paint such as those with an oil base should not be used as they will seal the pores of the acoustical materials and greatly reduce the sound absorption value. We feel that maintenance that requires a resurfacing should be done with a thin sprayed coat of the acoustical plaster itself. This will not only retain the original surface texture, but will also increase the acoustical value of the surface, as more material is added. It can also be sprayed successfully in any color desired.

## SOUND AS ENVIRONMENT (continued)

has been absorbed. This phenomenon can be observed in most rooms but is usually not objectionable in spaces where tone quality is important. However, provisions must be made to blend them by diffusion. There are three common ways of doing this. The first is to break up the wall planes into many irregularly sloped surfaces. These reflectors must have dimensions of the magnitude of the wave lengths involved. In the case of a 300 c.p.s. wave the reflector would have to be at least four feet square. Smaller bumps have no effect and the waves will be reflected from the plane of the entire wall. Rough masonry textures and projections are only effective at very high frequencies. A less expensive method is to splay entire walls to eliminate parallelism. Splays of one to fifteen are considered adequate. The third solution is to scatter patches of absorbing material on the offending surfaces. To sound, the patches become large holes, thereby making the walls highly diffusive.

These are, certainly, just a few of the fundamentals necessary for the design of room acoustics, but with them the architect can develop a sensitivity for sound phenomenon approaching that of his mastery of color and form.

Sound control not only enhances hearing but also modifies spaces, forms, and spirit. This necessarily places it within the scope of the architect.

## NELSON - HOLLAND BUILDERS HARDWARE

ARIZONA'S ONLY BUILDERS HARDWARE CO.

### Shock absorption means less noise!

Specify —

Rixson floor type door closers

The gentle, smooth, invisible power of the rugged, precision-made mechanism will bring the door to a quiet rest at closed position . . . with minimum maintenance.

Rixson and Glynn-Johnson shock absorbing door holders.

Protect hinges, door and jambs against violent openings.

For service call on

Vic Nelson, AHC — Cliff Holland, AHC  
Joe Woolford, AHC

Members of the American Society of Architectural Hardware Consultants

Phone AM 6-8411 • 1205-1207 E. Camelback  
Phoenix, Arizona

postage  
will be paid  
by  
addressee

no  
postage stamp  
necessary  
if mailed in the  
United States

BUSINESS REPLY CARD  
FIRST CLASS PERMIT No. 2485, Sec. 349, P. L. & R., Phoenix, Arizona

LAING-GARRETT  
4700 NORTH CENTRAL AVENUE  
PHOENIX, ARIZONA



# Sound Barriers

When an acoustical engineer is faced with the problem of providing a sound barrier between two spaces he spends a great deal of time plotting curves and establishing criteria before choosing the materials to do the job. He must know the intensity spectrum of the sound sources frequencies; since any predominant ones may control his design. He must know the type and quantity of the sound absorption he can expect in the two spaces. High absorption can reduce the partition's requirement by as much as ten decibels. He must know the intensity spectrum of the background noise of the room to be protected. Air-conditioning noise, the noise of its occupants, and even outside noise can be influential.

Ironically, partitions must sometimes be superior for suburban locations where fewer outside noises are available for masking. He must also know if other elements will become part of this divider. A door with its poor isolating value or an intercommunicating duct might obviate the effort of producing a partition with greater sound reduction properties.

Finally, he must know how the room is to be used. With this information he is able to plot the isolation spectrum required and design the partition accordingly.

By JOHN SCULLY, Architectural Partner,  
Johannessen and Girard

Such a procedure is, obviously, quite expensive, and unnecessary for the usual circumstances. Experience alone can, generally, provide us with the information required for an appropriate choice. Sometime, however, experience can be deceptive. The architect may have observed that a plaster partition worked fine as a mechanical room enclosure in one building but finds it drastically inadequate in another. In these cases he has probably failed to observe those factors which the engineer considers so vital. It is not uncommon for background noises to vary the isolation requirement by 20 decibels.

Many sources are available which provide us with figures for sound levels of various activities, recommended background levels, and the sound reduction properties of typical construction. When experience seems inadequate these data can provide reasonable approximations. Neither, however, tells us what to do when unusual situations arise or when architectural and acoustical considerations are in conflict. At this point a knowledge of a few fundamentals of sound transmission is very useful.

The most important conditions necessary for resisting the propagation of sound are **WEIGHT** and **AIR-TIGHTNESS**. Figure I demonstrates the effective-

ness of mass. From it we can see that as the weight of a partition is doubled, its resistance is increased by about 5 decibels. Obviously, there is a practical limit to the value of weight. Beyond this point double construction may be necessary. We also see that the resistance varies with the sound frequency. For usual sounds the figure for the average of the frequencies will be satisfactory.

The value of airtightness is not so easily demon-

strated since the sound contribution of other elements is not constant. Engineers can show us, however, that a one inch square hole in a 40 db wall will contribute as much energy to the transmitted sound as 100 square feet of that partition, thereby reducing its effectiveness to 37 db. If we relate this to the total area of the usual crack we can see the significance of airtightness. An interesting experiment is to tape the perimeter cracks of a solid core door and

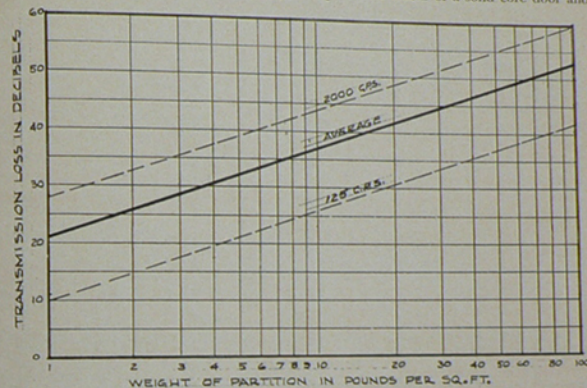


FIG. I.  
AVERAGE  
TRANSMISSION  
LOSS OF  
PARTITION

**FOLDOOR**  
FOLDING PARTITIONS AND DOORS

**DUAL SOUND-RETARDANT FLOOR PARTITION**

PRESIDENTIAL SUITE  
BILTMORE HOTEL COURTS,  
NASHVILLE, TENNESSEE

Represented  
in Arizona by

**Baker Thomas  
COMPANY**  
**BT**  
BUILDING MATERIALS

111 S. BEE ST. PHOENIX, ARIZ.

Since 1939

The new Dual Sound-Retardant FOLDOOR Partition now makes it possible to separate both space-and-sound with a flexible folding partition. Now the convenience and beauty of the fabric covered folding door are available in a general purpose, improved sound-retardant partition that operates from overhead tracks only.

Laboratory tests show maximum sound insulation over a wide range. This partition has proved its effectiveness in a number of greatly varied applications. Some of these installations are shown on the cover page: Hotel dining and ballrooms, mortuaries, bowling alley league rooms, churches, motel meeting rooms.

## Give a BINDER!

Beautiful • Useful • Lasting • Low Cost



### IDEAL GIFT

For ARIZONA ARCHITECT Readers.

**\$3.00**

Postpaid (Binder Only)  
U.S.A.

Add 50c if you wish binder personalized with name in gold on cover.

(Please Print the name)

ARIZONA TRADE BINDERY  
547 W. Jefferson, PHOENIX, ARIZONA

Check enclosed for \$

Ship \_\_\_\_\_ binders 10c

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Nineteen



- Brown
- Imitation Leather
- Gold Stamped
- Will Hold 12 Issues
- "Arizona Architect" stamped on spine

For yourself and your professional friends and associates, order binders for complete files of **Arizona Architect**. Magazines easily bound in by wires. No punching necessary.



place an alarm clock on the other side. When the tape is suddenly stripped from the door a striking difference will be heard.

Now let's relate these principles to the typical construction shown in Figure II. These values were obtained primarily from the U. S. Bureau of Standards Report BMS-144 and from "Sound Reduction Properties of Concrete Masonry Walls" published by

the National Concrete Masonry Association. An untreated 8 inch cinder-block partition is given a value of about 33 decibels. A similarly-constructed painted partition is valued at 10 decibels more. Since they both weigh roughly 29 pounds per square foot they should each be worth 44 decibels, according to Figure I. The low reading on the untreated block is due to its porosity. This is overcome by both cement

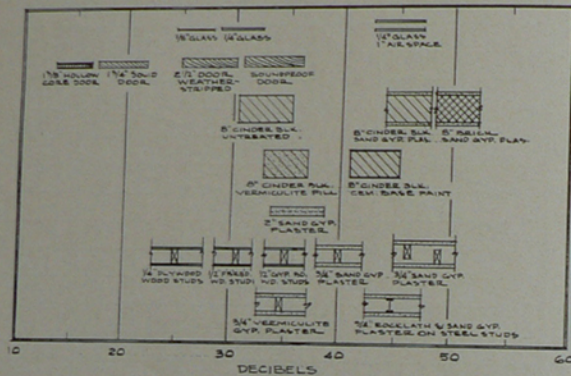


FIG. II  
TRANSMISSION  
LOSS FOR  
TYPICAL  
CONSTRUCTION

based paint and plaster. Any paint which does not fill the outer pores of the block will have little influence on its sound reduction properties. Similarly, vermiculite fill does very little good. It, too, is porous; and it adds very little to the total weight.

Stud partitions do not follow the Mass Law curve exactly since they are not homogeneous constructions, nevertheless, our principles still apply. We see that a lightweight vermiculite gypsum plaster gives us less resistance than sanded gypsum of the same thickness. A different situation exists when the studs are doubled. We now have two barriers separated by an air space. Its transmission value becomes a function of the distance between them as well as by their weights.

If weight and airtightness are requisites for sound reduction, then fibrous blankets will give practically no value to partitions. When used in double construction they add only two or three decibels and in single construction they add even less. At times two or three decibels may be important, however, and blankets can be useful; but for all intents and purposes they are not barriers, they are absorbers.

The application of these two principles can make unique demands on present construction methods; and must, necessarily, be contingent upon the criteria established. The use of a sound level meter can be

of tremendous assistance for observations. By recording source and background levels the designer can develop a valuable insight into his client's needs as well as into the characteristics of materials.

For those projects not requiring a consultant this kind of experience and practice, along with a knowledge of fundamentals, makes fairly accurate decisions possible.

— AIA —

#### WORLD TOUR

Plans have been completed by the AIA for a 'Round the World Trek, which they are announcing for departure in February, 1959. The Trek will be led by the immediate past President Leon Chatelain and Mrs. Chatelain, with the special travel arrangements being handled by the United States Travel Agency.

The itinerary is designed to provide tours, meetings and social functions that will be of special interest to architects and their families, and arrangements have been made to include a choice of First Class, Tourist or Economy Class transportation.

Further information may be obtained from Mr. John E. Smith, Jr., President, United States Travel Agency, Inc., 807 15th St., N.W., Washington 5, D.C., and it is urged that reservations be made without delay.

**quieter**  
**CLAY BRICK**  
**HOMES**

|                                |                       |                              |
|--------------------------------|-----------------------|------------------------------|
|                                | GRABE BRICK COMPANY   | LOUIS DeVRY AND SON          |
|                                | PHOENIX BRICK YARD    | TUCSON PRESSED BRICK COMPANY |
| WALLAPAI BRICK & CLAY PRODUCTS | WESTERN CLAY PRODUCTS |                              |

Twenty

ARIZONA ARCHITECT

## It Doesn't Come Naturally

Hank Aaron, the great slugger of the Milwaukee Braves, once went to bat unmindful of anything but connecting with a pitch.

A rookie watched the mighty Aaron thoughtfully, asked him why he didn't hold the bat with the brand name up — might crack the bat, you know.

"Boy," Aaron said, "I didn't come up here to do any reading!"

Well, plumbing, heating, and air conditioning work, unlike batting, doesn't come naturally to anyone. It requires years of training, filled with patient teaching. It demands integrity, a careful eye for detail, and dedication to public health and safety.

Both management and labor affiliated with PTIP are pledged to these high standards.

### Pipe Trades Industry Program of Arizona

1616 East Maryland

Phoenix

CR 7-2634

November, 1958

Twentyone



## HI-FI IDEAS

— and commercial sound systems, too

**AUDIO SPECIALISTS**  
333 East Camelback Phone CR 7-3306  
PHOENIX

Twenty-two

ARIZONA ARCHITECT

## PLANNING FOR HI-FI

By 'HACK' METZ, Gen. Mgr.,  
Audio Specialists

Q. Man, I'm already swamped with detailing everything from underground plumbing to an esthetically pleasing TV antenna. How can I escape the Hi Fi monster?

A. Don't run — attack! The basic wiring and special requirements for any home music system are simple, direct, and should be out of your hair in less than an hour at the board!

Q. Nonsense. It'll take me longer than that just to find out what Mr. Client wants, won't it?

A. That's the whole point. Consultation with Mr. Client should *not* be concerned with *what* "Hi Fi" equipment he wants, but rather should boil down to *whether* he wants it, *now*, or *in the future*.

Q. So how do I boil it down without boiling him?

A. You start with fact (1) that a music system is simply an elaboration of the familiar "Hi Fi" console or table model with the addition of extra "speakers" throughout the house, indoors or on the patio. The "source" device, be it his present "Minivox", or a new built-in component system, can furnish music to those speakers most economically and attractively if the wiring necessary to connect source and speakers is installed while the walls are open and the attic easily accessible.

You advise Mr. Client of fact (2) that the selection of *equipment*, like that of carpets or furniture, is a matter of preference, and can be done next month or *next year*, so long as the provisional wiring is incorporated initially.

Q. This sounds like trouble to me. Why should I look for it?

A. Getting the answers to just three questions from Mr. Client will be all your trouble. And the answers will enable *you* to save Mr. Client hundreds of dollars in wiring, furniture, and obsolescence costs in the coming years on everything from TV to stereo rock-'n-roll. And music *has* become as much a part of the American home as the washing machine or built-in oven. You can't beat 'em, so ask 'em:

1. "Do you have, or do you plan to have, a good music reproducing system — such as "hi fi" phonograph, tape recorder, radio, etc?" (Source).
2. Any such "source" device, either built-in or "store bought", can be used to "pipe" music to other rooms of the house. This simply requires wiring from the probable location of your source to the probable master bedroom? kitchen? patio? The wiring is easy and quite inexpensive if done during construction. The most elaborate jobs seldom cost \$100.00 for provisional wiring.

So, Mr. Client, where is the most likely loca-

tion — now or later — of Mrs. Client's Hi Fi or built-in music system? (If he can't decide — specify two or three alternate "master" locations.) Qualifications of the "master" locations? — it should be handy to get at as a radio or record player, and should have an AC power receptacle reasonably close.

3. We've spotted the *source*, so let's spot the *objects*: the hollow stud walls in which the wires will be hidden, and future speakers can be installed, without additional wiring. Good speakers are available complete with individual on-off loudness control on a 12"x12" flush mounting grille panel. So we'll want to spot these "remote" locations on standard stud partitions so the speakers can be recessed in the wall. Don't worry about height, Mr. Client, since the wires will run from ceiling to floor, and the plaster or dry wall will be cut for the speaker only *at such time as you decide to put in a speaker*, and then by the speaker installer! So, Mr. Client, shall we spot the bedroom speakers next to the light switches? And yes, the patio will simply be wired out to the eaves, so that a separate removable speaker enclosure can be hung there. That's so it can be removed when desired.

That's really it! **WHETHER** he wants music, which location it's to come **FROM**, and where it's to be piped **TO**.

Q. I'm beginning to feel better, but what about the source — suppose he wants me to spend 30 hours designing \$300.00 worth of cabinets?

A. A good storage design is almost automatically ideal for simple or elaborate music system cabinets, *provided*

1. Minimum depths are 18" (18" clear inside behind any doors).
2. **MINIMUM** clear heights between *fixed* shelves are 14" — adjustable height shelves of the *metal clip* and *metal standard type* are the best insurance against obsolescence and space waste — provided you keep unsupported shelf span to 32" maximum.
3. Minimum clear *widths* between dividers is 18", with 22" being preferable.

Q. Numbers, numbers — stop, man! Draw me a picture, please? And what about stereo?

A. OK. Mr. Client wants his all-purpose family room to have plenty of storage, bookshelves, and TV. He has a console TV which he's going to put in the living room, and plans to get a table model for the family room. Costs are higher than he anticipated, so he wants to plan only for who-knows-what-stereo-hi-fi to be built into the family room storage area. Let's break it down.

(Continued next page)

November, 1958

Twenty-three

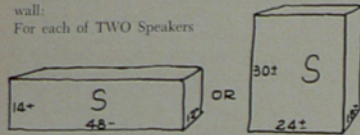


FIRST: Get the remote locations out of the way. This should be easy, since they're just wires in the wall - no outlet boxes are necessary.

SECOND: Decide on which wall of the family room is best suited for viewing from the probable seating areas. This is automatically best for both TV and Hi Fi.

THIRD: Now stereo requires two speakers, separated horizontally by six or eight feet. And the family room speakers should be bigger and better than the remotes. And bigger and better speakers require substantial, sealed cavities behind them of 5 to 8 cubic feet, with no one inside dimension less than thirteen inches. This means we must provide for these "boxes" to be hung on, or recessed in, that wall:

For each of TWO Speakers



For ALMOST Any Record Player



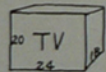
For Various Electronics (Amplifiers, etc.)



For Record Storage or Tape Recorder

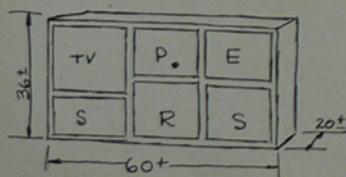


For TV



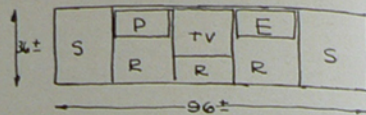
TV'S VARY-REAR CUP MAY EXTEND INTO HOLLOW OF STUD WALL

FOURTH: Happily, the speaker enclosure dimensions are most flexible, so long as smallest dimension is at least 14", so we'll worry about it last. Let's assume you've got to keep it all below 36" high. And nobody likes to reach to the floor to play a record or tune the radio, so we'll keep them at the top level of the assumed 36" high base cabinet. Here's the way it might then look; for minimum size cabinet.

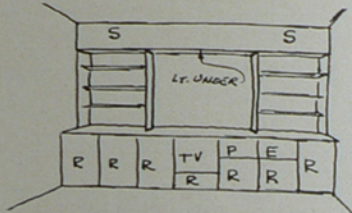


Twenty-four

THIS would be mighty cramped, and the speakers too close for comfort. So if you've got more space, it could develop so:

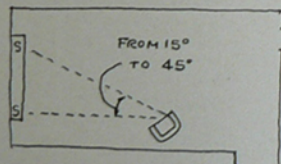


Note that we've kept the speakers as far apart from each other as possible. Now, if you can go to the ceiling, you can pick up that three running feet of base cabinet being gobbled by speakers by shoving them up to look like a dropped ceiling, like this:



FIFTH: We could practically summarize the whole design criterion as one of placing two large (speaker) boxes of flexible shape in a most favorable position with respect to the probable location of the listener, without offending his visual sensibilities.

If you imagine the speakers to mark the end positions of the performing musical group, you'll see that the logical positioning of the two speakers should make both of them visible to the listener at the same time, but spread apart at roughly a 15 to 45 degree angle.



There are many other ways to disguise these boxes - as a bench, window boxes, planters, room dividers, etc. Don't be afraid to use your imagination.

Q. That's enough for me, man. Suppose Mr. Client insists on recommendations and specifications?

A. If you can't get Mr. Client to see a specialist, then call one yourself. Helping you to help your client is his business. And he loves business.

ARIZONA ARCHITECT

#### NOISE CONTROL MEET

The Building Research Institute has announced the scheduling of a research correlation conference on "Noise Control in Buildings," to be held January 14-15, 1959, at the New Yorker Hotel, New York City. Conference speakers will attempt to present the many facets of the specialized subject in terms familiar to the building industry.

Members of the BRI, a unit of the Division of Engineering and Industrial Research of the National Academy of Sciences-National Research Council, come from all segments of the building industry and conduct an average of three to four such annual conferences.

Complete information, final program and registration material for the Noise Control Conference may be obtained by writing to Harold Horowitz, BRI Technical Secretary, 2101 Constitution Ave., Washington 25, D.C.

#### URBAN LIVING

The Fourth National Construction Industry Conference will be held December 10-11 at the Hotel Sherman in Chicago. Co-sponsored by AIA, the American Society of Civil Engineers, Armour Research Foundation of the Illinois Institute of Technology, Associated General Contractors of America and the Buildings Research Institute, the conference has taken as its theme "Creative Trends in Urban Living."

Featuring such figures as Karl Menninger, Menninger Clinic, Philip Will, Jr., Vice-President, AIA, Eduardo Torroja, Director, Tecnico Institute de la Construcción, Madrid; The Hon. Albert M. Cole, Administrator, Housing and Home Finance Agency, the conference proposes to show what the architect, engineer and builder are doing to fashion an advanced environment for man combining beauty, science and economy; and to spotlight achievements already realized in the field of urban building.

Registration and fee information may be obtained by writing M. J. Jans, Armour Research Foundation, 10 West 35th St., Chicago 16.

November, 1958

# Superior

prestressed concrete

as used in  
**W. P. Fuller & Co.**  
 117 E. JACKSON ST., PHOENIX  
 Fred M. Guirey, AIA, Architect  
 Bert Owens, General Contractor

**YOUR REASONS FOR USING Superior PRESTRESSED CONCRETE:**

- PROVEN Standard Designs Tested Products Controlled Manufacturing
- ECONOMY Low Initial Cost Construction Time Savings Low Maintenance Cost
- APPEARANCE Smooth Cast Surface Uniform Section Slim Lines
- STRENGTH Long Spans High Loads Fire, Blast & Storm Resistance
- VERSATILITY Industrial Plants to Schools Floors, Roofs, Walls One Story or Many

Therefore, you know the material is good when you use **Precast, Prestressed, PRETESTED Concrete!**

Superior

SAND & GRAVEL

Division of Fisher Contracting Co.  
 3640 S. 19TH AVENUE - AL 8-7741

Twenty-five







## DEFENSE CONFERENCE

heads on cities as far as 500 miles inland. Russian submarines just off the Lower California coast would have no difficulty in locating Phoenix as a target, he noted. Germ warfare, nerve gases and psychological warfare all might well be employed against this nation, he soberly pointed out.

To bring the problem of enemy bomb attack into sharper focus, Colonel Alexander estimated that "at least 60,000 Phoenicians would be instantly killed and as many more injured" if a single 1-megaton bomb landed on Arizona's capital city.

The weakness of America's civil defense program is not so much the program's fault as it is "the public's failure to face up to the problem of defending ourselves, our industries, our homes and our people," he stressed.

Other members of the ICAF team — Capt. Charles H. Mead, USN, Capt. Irwin S. Moore, USN, and Lieut. Col. Richard P. de Camara, USAF — were just as frank in their presentations. The 30 lectures were supplemented by a dozen half-hour color films. Attendance at these was optional. To receive a "certificate of completion," enrollees were required to attend at least 50 per cent of the talks.

Colonel Conner was high in his praise of the work of the local committee in charge of arrangements.

"Without question," he stated flatly, "this is the best-attended, best-publicized and best-organized Conference in which we have ever participated."

"And the audience is among the most attentive!" he added.

Magnitude of his tribute is underscored by the fact that several score similar seminars have been conducted by the ICAF during the past decade.

At the end of the opening day ceremonies, Askins announced a registration of 481 civilians and 270 military personnel. Both the civilians and total attendance represented new all-time highs.

Askins was assisted by Bruce K. Moore, arrangements chairman; Walter R. Bimson, selections chairman; Charles W. Pine, publicity chairman, and Herbert Lindner, speakers chairman. A hard-working planning committee composed of Frank Snell, Tom Chauncey, Mildred May, Lucille Eisenbeiss and Nick Volcheff was singled out for special praise by Askins.

Prior to the Conference's opening, Colonel Conner at a Phoenix press conference quoted the highly-regarded Rockefeller Report on problems of U. S. defense as noting:

"When the security of the United States and the free world is at stake, cost cannot be the basic consideration. The cold war cannot be won and a 'hot

war cannot be avoided without a major effort. This is clearly not time for complacency, it is just as clearly not a time for hysteria. What is required throughout the country is an attitude of sustained and informed determination."

The colonel explained: "It is just such an attitude of informed determination that we hope to develop at the Phoenix Conference."

If he had overheard Frederick P. Weaver, Jr., Phoenix architect, on the final day of the Conference, the Colonel would have been gratified. Said Weaver to a group of other professional men who, like himself, had attended the seminar:

"I feel as if I am a much more knowledgeable citizen. As a result of what I have learned at this conference, I should be able to better understand the motives behind important political, economic and military developments daily unfolding in the headlines."

His audience nodded in vigorous agreement. Weaver's observation would have been music to Colonel Conner's ears.

— AIA —

No matter how widely you have traveled, you haven't seen the world if you have failed to look into the human hearts that inhabit it.

Donald Culross Peattie

## Next Month: ANNUAL ROSTER ISSUE of ARIZONA ARCHITECT

Complete list of membership (with addresses)

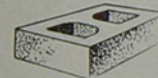
CENTRAL ARIZONA CHAPTER

SOUTHERN ARIZONA CHAPTER



## SUPERLITE

BRICKS AND BLOCKS



• **MANUAL**  
• **FOR**  
• **DESIGN**  
SUPERLITE BLOCK

Have you a . . .

Write or call for your copy

### SUGGESTED SPECIFICATIONS

1. Concrete Masonry units shall be SUPERLITE lightweight units manufactured with Volcanic Scoria aggregate.
2. They shall be precise in form and dimension, shall be uniform in texture and shall conform to A.S.T.M. C90-55, except that moisture content, as delivered, shall not exceed 25% of total absorption.
3. Manufacturer shall certify that the masonry units shall have a maximum Linear Shrinkage of not more than .05 of 1% from a saturated

to oven dry condition determined by the National Bureau of Standards Method of Testing, or Linear Shrinkage shall not exceed .04 of 1% determined by the Modified British Method of Testing.

## SUPERLITE

BUILDERS SUPPLY Co.

AM 5-4755

4012 N. Central      Phoenix  
842 W. Main          Mesa

Give your design added beauty and lasting protection

with Pioneer paints & varnishes

Proved best in over 24 years of climate tests in Arizona and New Mexico . . . on the finest residential and commercial buildings. When you specify Pioneer Paints you are getting the best. Paint catalog and color chip display gladly furnished upon request.



## Pioneer

PAINT AND VARNISH CO.  
P. O. Box 5098 • Tucson, Arizona

Offering a Complete Line of  
RESIDENTIAL  
ARCHITECTURAL  
INDUSTRIAL  
GOVERNMENT SPECIFICATION  
PAINTS AND VARNISHES

MADE FOR THE SOUTHWEST

Scientifically formulated and manufactured in Tucson for nearly 25 years . . . specifically for the southwest.



## The Search For Architectural Form Part II

Speech given at the Regional Conference of The American Institute of Architects, September 1958, Denver, Colorado, by Mr. Ralph Rapson, School of Architecture, University of Minnesota.

Before considering the present-day climate, it will be fruitful if we look briefly at some of the major developments in architectural form.

As Giedion has pointed out, the concept of interior space simply did not exist in the Egyptian mind. While the incomparable pyramids do exist as strong, simple geometric form in space, related to each other and to the flat, arid landscape, esthetically their forms gain meaning when one considers the significance of the elementary triangle forever leading the soul up and out to eternity.

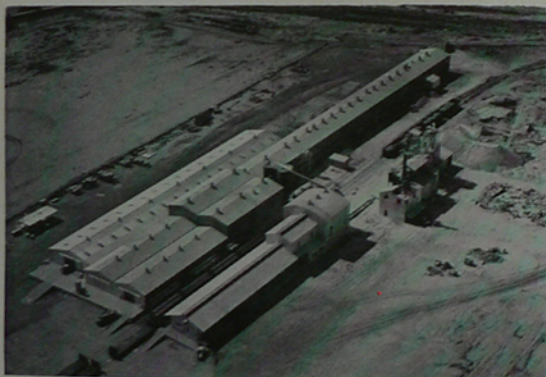
Again, though to a greater degree, the concept of continuity or movement in space, found little expression in the architecture of Greece . . . those forms that for these many centuries we normally associate with perfection. Bound up closely with rather fixed and limited social and religious requirements and based on a primitive structural system, here perfection of form was culminated by intensive concentration and repetitive example. Here, form achieves meaning when one considers the cultural climate, the

striving for perfection in all its aspects.

Structural developments were available to give full satisfaction to the needs and demands for greater spacial utilization in later Roman times. While Brooks Adams held that materialistic Rome's architecture was only a combination of the vulgar and ostentatious, their contribution to form through their greater understanding of space and interpenetration of space is hardly to be denied. For the first time, form resulted from the definition of space within. Form grew out of function.

Obviously less fastidious, less sensitive than their Greek teachers (and it is true they borrowed and superficially applied structural forms that naturally lost significance) their indiscretion cannot cloud their greater achievement, that of conquering space. Again, meaning is given to these new forms when one recalls the vigorous civilization which produced them.

The relatively thin brick and mortar domed structural forms of the Near East were evolved on principles and techniques developed during the latter



The sound-killing qualities of gypsum are well-known. Union Gypsum's quality-controlled, Arizona-made products offer high sound attenuation and absorption values.

We especially invite your inquiries about sound-proofing through two-ply wallboard application and acoustical plaster. Valuable data supplied on request.

### UNION GYPSUM COMPANY

FIRST NATIONAL BANK BUILDING • SUITE 336 • AL 8-4101 • PHOENIX

Thirty

Quietness  
Is  
Born  
Here . . .

. . . in the huge Phoenix  
plant of Union Gypsum



ARIZONA ARCHITECT

centuries of the Roman Empire. These multi-domed, curved interior spaces build up logically to the central climax. One is constantly aware of the dome domination of the design. Far beyond their unique structural contributions, here form is given meaning when one realizes the climactic dome is a symbolization of the builder's concept of celestial order.

The heaven-seeking art of the Middle Ages achieved an almost unlimited concept of space. However ingenious the structural pointed arch forms were, there were still physical limitations due to inherent limitation of then-known masonry techniques. The desire to temper the severity of exterior form due to need for structural stability accounts for much of the integrated decoration. As Brooks Adams says: "The Gothic art in its prime was spontaneous and pure, elevated and dignified, not a chattle to be bought but an inspired aesthetic form given meaning by society's single-mindedness that bordered on the fanatic."

While the Renaissance and Baroque architecture employed an extravagance and flamboyance of surface detail far beyond our present taste, interpenetration of space and its continuity was carried to a near-ultimate degree, and represents one of the major contributions to form through space. It has been exceeded only by modern times with our greater structural techniques.

Naturally, there are other civilizations, almost too numerous to mention, which contributed to the development of architectural form. While of little influence over the years and only now being fully realized and appreciated by us and influencing our design, an architecture of profound and sensitive esthetic order was quietly being developed by the Japanese . . . a culture based on eternal values and love for simplicity and beauty.

These, then, are in brief outline the significant spacial contributions to form and are the heritage upon which we build. Today, structural limitation to interpenetration and continuity of space are all but dissolved. One of the most definitive outgrowths of this technological age is the rise of structural purity and engineering economy as an esthetic value. Now the principle of "more for less" has become recognized as a vital factor in building and has become more and more a guiding esthetic principle. Here one need only look to the work and example of Mies van der Rohe.

Acknowledged scientific and technical progress has placed in our hands the means to create truly superior environment. We have the ability to control architectural form at will. The dilemma is that we live in a cultural vacuum. We are just not able to absorb all the ever-expanding and increasing scientific and technological motivations and to assimilate

For a BETTER INSULATED HOME

Specify



Quality Tested  
Light  
Sound Absorbent

Economical  
Fireproof  
Versatile

### CONCRETE PRODUCTS CO.

Quality & Service since 1937

4445 North First Avenue Phone: MAin 2-8857  
TUCSON, ARIZONA

Thirty-one

November, 1958

Rinehart & Harris Kitchens  
2561 E. Grant Rd. • Phone EA 6-1105  
TUCSON, ARIZONA



### SEARCH FOR ARCHITECTURAL FORM

all this in our daily lives. As we add more and more gadgets to our way of life, we do so under the delusion that this is culture. We flatter ourselves that this is real progress when so often it is only an escape. As Albert Einstein once said, "Perfection of means and confusion of aims seem to be characteristic of our age." We have the technical know-how and yet we seem to care not for beauty.

If ever there was a need for careful, thoughtful design, it is now. Our times have produced far-reaching advantages in science and technology, as well as highly significant social and political change. This is an age of mass production, mass distribution, great standardization, and rapid economic growth. It is an age of highly increased personal and group prosperity — yet all the while something is lacking.

One wonders how future generations will evaluate us. Historical judgment, except in scorn, is by spiritual values. Music, literature, poetry — architecture — are the true gauge of a society and are far more enduring than warfare, politics, or economics.

Our know-how and the means have resulted often in fine and occasionally inspired architecture. Today's building often reaches acknowledged heights in its solution to shelter. Private and public buildings, large and small, have in many instances reached levels of accomplishment that honestly rate the

designation of "Contemporary Architecture."

Yet it is difficult to reconcile this top-flight individual accomplishment with the unbelievably low level of over-all environmental performance. For every bit of excellence, there are countless examples of ugliness.

In the headlong rush to conquer the unknown and to perfect scientific and industrial know-how, a world of unprecedented ugliness has grown up around us. All about us we see the sickening consequences of our great industrial and economic civilization. An angry sea of discord and chaos confronts us at every turn.

One has only to look about to see the ugliness that surrounds our daily lives. Glaring lights, noise, dust and dirt, distasteful advertising, discordant lack of design and order, all assault our sensitivities and pollute the city and country-side alike — an environment seemingly dedicated to the beautiful mobile juke-boxes, miles of asphalt and concrete and acre after acre of ranchburger delight.

Having accomplished this chaos, we attempt to free ourselves. Usually this results in contriving ways and means of living with the mess with the least inconvenience and the least cost — in other words, the choice or selection is usually the lesser of several evils. What all this means is compromise — compromising our ideals and our vision with self-inflicted limitations.

## In The Public Interest

And

FOR YOUR OWN AND YOUR CLIENTS' PROTECTION

Always recommend a contractor licensed by the —

### Registrar of Contractors

State of Arizona

1818 W. Adams St.

• Phone ALpine 2-2381

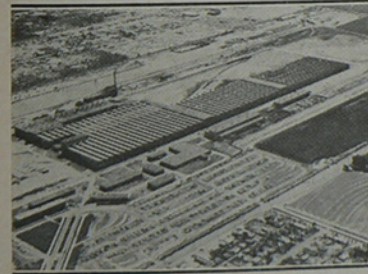
• Phoenix

Thirty-two

ARIZONA ARCHITECT

SERVING INDUSTRIAL ARIZONA . . .

*America at its best!*



We work at the factories too . . . help make everything from aluminum furniture to radio transistors. In 200 communities, you'll find us helping Arizonans do the work that makes Arizona . . . America at its best!

ARIZONA  
**Public Service**  
YOUR LOCALLY MANAGED SERVING GROUP

November, 1958

urate some sort of design control — dangerous though it may appear on the surface — until our society has had time to take up this cultural lag of which I spoke.

Fundamental to human survival is man's need to bring order to his environment. Unless he brings life's situations to an integrated whole, he cannot continue to grow and develop. Order is inseparable from fitness of use, honest application of technology, and genuine aesthetic values.

Technical means have always been and will continue to be the necessary means of achieving an enriched environment, but our great advantage will be of little value unless inspired by true cultural values. If our era is to produce significant environment in keeping with the highly developed technology of the day, then there must be a new scale of values — values based on beauty, values based on order, and values based on a genuine desire for a harmonious and beautiful environment, stemming from an understanding and appreciation for the dignity of man and his aspirations.

Well, all this has rambled on much too long. Let me close with this short prescription found in Buddhism, "Develop an infallible technique and then place yourself at the mercy of inspiration."

### BUILT-IN KITCHEN BEAUTY

MOST FAMOUS NAME  
**Vent Hood**  
IN COOKING VENTILATION

FOR A BRIGHTER,  
COOLER, CLEANER  
KITCHEN

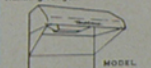
the Fabulous **Flair**  
Designed specifically for the thorough ventilation of built-in cooking surfaces.



MODEL F-100

and the Handsome **Conqueror**

Designed specifically for the thorough ventilation of free standing ranges.



MODEL BLB

**O'KEEFE & MERRITT**  
BUILT-IN RANGES

features

- ★ Triple Rotisserie
- ★ Grillvator Broiler
- ★ Pin Point Pilots
- ★ Starjet Thermatic Burner Control
- ★ Snap Off Top
- ★ Automatic Clock & Timer
- ★ Oven Signal Lights



★ BOTH IN RAINBOW COLORS ★

**Vent Hood OF ARIZONA**

EMIL A. SALMI  
6415 E. Thomas Rd., Scottsdale — Dial WH 5-5602

Thirty-three



## IN THE BOOK WORLD

**AT HOME WITH TOMORROW** by Carl Koch with Andy Lewis. Rinehart and Company, Inc. Reviewed by Logan Van Sittert.

While the first concern of this book is with the single, industrialized house, there are many attendant concerns: the relation of house to land and community; the interests of the family — especially the women of the family — in selecting and making use of their home, the history and present state of prefabrication as an industry and the difficulties against which it works; and, finally, the ways in which the author believes architectural design is, or must be, influenced by the broad characteristics of these times.

In no sense a "how to" book, it defines what a man wants and needs in his house. It tells a woman how her desire for a beautiful home can be combined with her practical requirements.

Carl Koch discusses his own career as a progressive architect with definite ideas about the relationship of housing to society. He sees the need for attractive and comfortable, as well as more, housing at the least possible cost.

His early experiments in "modern" houses: the Luston house, the Acorn, the Techbuilt house, cause him to point out that the best housing of the future will, because it must, use all the facilities of mass production without sacrificing beauty.

This is a well written book and, correspondingly, pleasant reading. A sample taken from the first paragraph of the first chapter gives an idea of the concise, interesting style:

"There was a time, obviously, when the way to a house was simple. Your neolithic ancestor either dug one for himself or found someone else who already had, and put him out of the way."

Within the text of the book are two worthwhile editorials, one dealing with archaic building codes and the other with building materials.

The book layout, pleasing enough for even the critical design eye, is another factor contributing to pleasant reading. Illustrations are well chosen photographs and drawings.

This is a refreshing book with sound ideas to stimulate any architect.

— AIA —

**ACOUSTICS FOR THE ARCHITECT** by Harold Burris-Meyer and Lewis S. Goodfriend. A handbook full of up-to-the-minute information and more than 100 easily understandable charts, tables and checklists making it possible for the architects to plan accurately acoustics and noise control in the structures they design. 126 pages. Illus. Single copy \$10.00. Reinhold, 1957.

**HANDBOOK OF NOISE CONTROL** edited by Cyril M. Harris. An encyclopedia on acoustical noise and its control. Has such chapters as "Physical Properties of Noise and their Specification", "The Loudness of Sound", "Effects of Noise on Behavior". 1033 pages. Single copy \$16.50. McGraw-Hill, 1957.

**TECHNIQUES OF MAGNETIC RECORDING** by Joel Tall. A top tape editor and audio technician describes the various types of equipment, tells how to avoid distortion and achieve the most faithful sound reproduction. Valuable information about hearing as it relates to editing, background sound and reverberation. 472 pages. Illus. Single copy \$7.95. Macmillan Company, 1958.

**TUREN** by Schneck. Doors in wood, metal and glass. Translation of technical forms in German, English and French. Illus., diagrams, photos. 180 pages. Architectural Book Publishing Co., 1957. Single copy \$15.00.

**THE CONTEMPORARY CURTAIN WALL** by W. Dudley Hunt, Jr. An analysis and evaluation of the walls, their functions and malfunctions, their component parts, materials and installation. Lists and tables give all the known data about insulation, efficiency, fire resistance, dimensional stability, and the like. App. 480 pages. Illus. Single copy \$12.75. Dodge, 1958.

**ARCHITECTURAL ENGINEERING: New Concepts; New Methods; New Materials; New Applications** by the editors of *Architectural Record*. Nine years of new findings and developments in architectural engineering were examined by the editors in selecting the 100 studies the book contains. Composed of six extensive sections: "The Building Shell", "Utilities", "Site Planning", "Materials", "Special Problems" and "Environmental Control." 495 pages. Illus. Single copy \$11.50. Dodge, 1958.

**THE SKYSCRAPER** by Yen Laing. (For the young reader.) Illustrated by the author, the book shows the various steps in construction of a great building from the planning stage which brings together bankers and architects, engineers and construction experts, through the building stage, to the final stage which shows people living and working in the skyscraper. A secondary theme of the book points up the advantages of city planning and rehabilitation of slum areas. In picture-book format, brief text and large dramatic drawings. Single copy \$2.95. Lippincott, 1958.

**NATIONAL CONSTRUCTION ESTIMATOR, 8th edition.** Actual prices given in dollars and cents, arranged in logical sequence and broken down to the unit cost for material and labor. The hundreds of items principally used in light and heavy construction are listed with complete labor and material prices. Single copy \$3.00.

**THE CONDUCT OF MEETINGS** by C. H. Stanford. A simple and compact guide for the conduct of meetings designed to help the businessman, housewife, professional man, or student who finds himself involved in meetings of one organization or another and has the sad experience of poor chairmanship. Discusses various functions of any business meeting; gives practical examples of meeting procedures. 100 pages. Single copy \$3.25.

**THE PERSPECTOR** by Theodore DePostels, AIA. Not a book but a valuable new device for accurate and rapid construction of perspectives. Produces angular and parallel perspective drawings of exteriors, interiors and bird's-eye views. Reinhold. Single copy \$5.00.

## SPACE AND SOUND CONTROL FOR OFFICE EFFICIENCY THROUGH

### E-Z WALL MOVABLE PARTITIONS



Drivers License Building, Phoenix

SIMPLIFIED  
PLANNING,  
CONSTRUCTION  
AND  
RELOCATION

ONLY 28  
INDIVIDUAL PARTS

The new E-Z Wall "Simplicity" design offers the best and fastest solution to any space control problem in offices, commercial buildings and institutions.

In contrast to other movable partition systems that require up to 350 separate parts, E-Z Wall has just 28 parts! Basic components are multi-purpose and fully modular. This modular construction simplifies layout, eliminates the need for special panels and fillers, and permits on-the-job adaptation with a minimum of cutting.

E-Z Wall partitions are as attractive and serviceable as permanent installations. They are made of strong, incombustible laminated gypsum board, held in place by open web steel studs that provide raceways for service wiring and piping. E-Z Wall partitions are always reusable, and may be relocated easily when space requirements change.

Whenever you have a space control problem, call the Haskell-Thomas office in your area. We'll furnish, without obligation, E-Z Wall plans and estimates for initial installations, additions or relocations.

E-Z Wall partitions are flush-panel-type 3 1/4" thick. Each panel consists of two pieces of 3/4-inch thick gypsum board, mill-laminated to form a 3/4-inch thick sheet. A roll-formed H-shaped stud holds panels in place (flanges of stud slip into the lamination of the panel). Partition units are erected on a simple hat-shaped, continuous floor runner. Ceiling-height partitions are inserted into a ceiling runner. Openings for windows and door frames are standard extruded aluminum sections.

## HASKELL-THOMAS, INC.

Distributors of quality lines

3740 E. Grant Rd.

EA 7-4690

3808 N. Central

CR 7-5488

TUCSON

PHOENIX

Technical Magazine Subscriptions

Central Arizona Chapter, A.I.A.

Architectural Books

ARCHITECTS BOOK & MAGAZINE SERVICE • P. O. Box 904, Phoenix • AL 2-4318

On all book orders please add 2 1/2% sales tax.

Thirty-four

ARIZONA ARCHITECT