

# TEXAS ARCHITECT

OFFICIAL PUBLICATION OF THE TEXAS SOCIETY OF ARCHITECTS

ARCHITECTURAL ACOUSTICS: A SYMPOSIUM

PLANNING FOR MODERN EDUCATION

HOW TO CHOOSE AN ARCHITECT

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# THE TEXAS ARCHITECT

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**THE TEXAS SOCIETY OF ARCHITECTS**

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The American Institute of Architects

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## CALENDAR OF EVENTS

**February 14-19, 1953**—American Association of School Administrators, Atlantic City, N. J.

**April 13-20, 1953**—Texas Architects' Week.

**June 15-19, 1953**—84th annual convention, AIA, at Seattle, Wash.

**November 4-6, 1953**—14th annual convention, TSA, at Austin.



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## SCHOOLS AND THE ARCHITECT

Recent reports by Federal and state agencies alike stress the tremendous need for additional schools, with many of our Texas cities adding emergency facilities until permanent structures can be built.

The children whose arrival in the half-decade from 1941 reversed a falling U. S. birth rate are moving on into elementary school classrooms. Their older sisters and brothers are crowding junior high facilities across the land.

This situation has caused many an emergency meeting of school boards and taxing bodies. Most of the state legislatures are grappling with it at this moment, and in California there is a proposal for the state to loan school districts millions of dollars to speed up the provision of needed classrooms.

Aside from the educational and fiscal problems involved, which are of tremendous interest and concern, the lack of classrooms is a most vital matter to the architectural profession.

The nationwide shortage of schoolroom space makes it imperative that the profession make its ideas and its skills available for maximum benefit. The public must be told about architectural thinking in regard to schools. This is being done in our Texas cities, and the recent report by Don Barthelme, Albert Golemon, and Albert Finn is an example of how architects serve the general welfare by stating their views when experience, judgment, and vision in a specialized field are needed.

The Barthelme-Golemon-Finn report, printed in the last issue of the TEXAS ARCHITECT, is only one example of how architects are responding to the need for correct school plant planning that looks to the future. In Dallas, Terrell Harper, TSA-AIA, heads an important committee formed to investigate these matters. Other cities and towns have TSA members working to help solve the critical problem of inadequate classroom space.

One principal means through which the TSA acts toward more and better schools is through the School Plant Study Committee headed by Lee R. Buttrill of Temple. Mr. Buttrill has been an energetic head of this committee, and with the inadequacy of our school plants becoming more and more critical, we have asked him to analyze the current situation, what is being done to alleviate the shortage of classrooms, and recent architectural thinking on the subject of school plants.

Mr. Buttrill's article on this subject is featured in the current issue of TEXAS ARCHITECT. We believe that it will be read with interest by people over the state; by those on our mailing lists who are particularly concerned with the problems of school planning, construction, renovation, and maintenance; and by all members of the TSA.

# PLANNING FOR MODERN EDUCATION

by LEE R. BUTTRILL, TSA-AIA

## The Chairman of The School Plant Committee, TSA, Discusses the Architect's Function In Planning for Modern Education

Within the past few years a sound and functional partnership has been formed. The community, school men, and architects have merged into a fruitful union and a long neglected business—providing stimulating educational facilities for children; at the same time looking toward the betterment of the community.

Realizing that the formation of this partnership will require a great amount of study on the part of many, and further realizing the vastness of the field, the Texas Education Agency and the Texas State Department of Health have jointly appointed a Steering Committee. This committee is composed of a cross section of interested citizens, including architects, and is organized for the production of a series of guides (not requirements) in the fields of school planning, construction, and maintenance. The guides will be written by men closely associated with the many subjects which these fields cover; the results of this work eventually being published for the use of all concerned.

### For Best Interest Of Children

The architect's primary function in planning for modern education is to design for the best interest of the children. But in the service of children, he must overlap into the needs of the community as well as fulfill the requirements of school men. It is obvious to the architect that the school plant is to function as a physical environment for study and play for the students and as a community center for the adults. The master planning of a school plant that pro-

gresses independent of community needs is economically, socially and educationally ineffective.

Educational-wise, the architect must design for the child's sensory facilities; sight being of major importance. Design for the most favorable daylight in all areas of the building with planned supplementary artificial light. A last minute "squeezed in" artificial light installation, based only on intensities, is as hazardous as letting a "style" of architecture determine the number, size, and location of windows.

### Home-Like Atmosphere

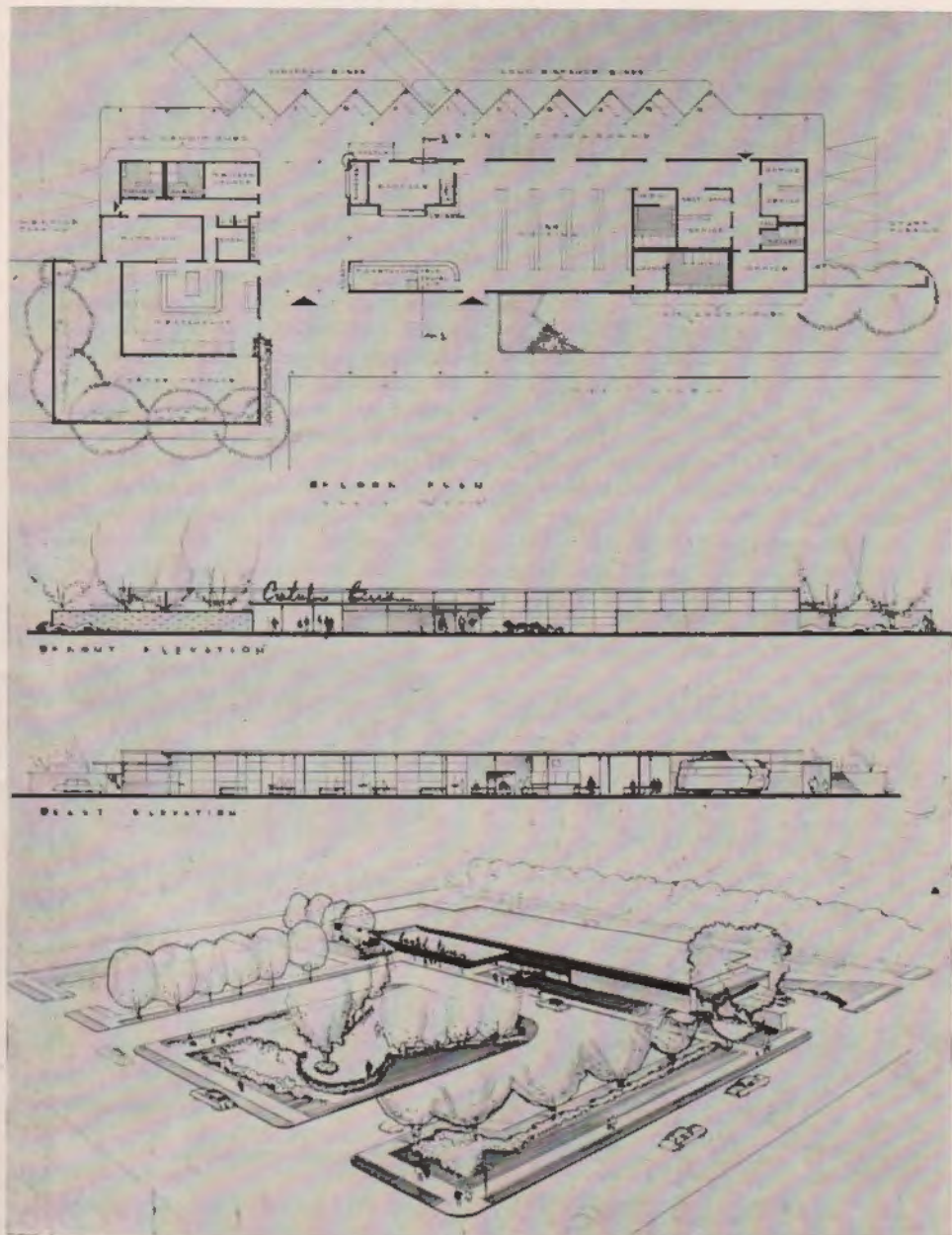
Color harmony, scale, lighting, and weather conditioning are relative in creating a sensory thought process. The school plant must impart to the child a comfortable home-like atmosphere, livable and roomy. A child cannot learn if he has the feeling of being on a production line in a factory. A school building that is regional in character, simple in organization, economical, expandable, and integrated with the surrounding site will prove to be interesting as well as inviting.

Consider the unification of the outdoors with the classroom. If the architect designs with liberal, intelligent use of clear glass and honestly reveals his structure by carrying his exterior materials right into the classroom, each child can feel that he has his own private lease on nature. There is no substitute for the ever changing color of seasonal nature, for the warmth of sun, or the cool relief of dimensional shadow.

(Continued on Page 11)



# Thomas Conger's Featherlite Competition Winner



# SYMPOSIUM ON ARCHITECTURAL ACOUSTICS:

A Report By Martin S. Kermacy,  
Associate Professor, School of Architecture,  
University of Texas; Chairman, TSA Seminar Committee

The following is a condensed report on the symposium on architectural acoustics held at Trinity University in San Antonio on January 15 and 16, 1953. The symposium was sponsored by the Southwest Research Institute with the cooperation of the West Texas Chapter of the AIA.

The symposium staff was composed of the following specialists: Dr. Charles P. Boner, Professor of Physics, Dean of the College of Arts and Sciences, Director of the Defense Research Laboratory, University of Texas, Austin, Texas; Dr. Robert B. Watson, Associate Professor of Physics, University of Texas; Mr. Monroe Smith, Technical Staff, U. S. Gypsum Company, Chicago, Illinois; and

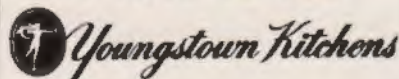
Dr. C. A. Culver, Senior Physicist, Southwest Research Institute, San Antonio, Texas.

## Directed By Dr. C. A. Culver

The program was directed by Dr. C. A. Culver, who presented the basic terminology, concepts, and laws of acoustics. Sound was defined as a compressional wave having wave-length, velocity, loudness, pitch, and timbre. Loudness, or subjective auditory response, was contrasted with intensity; i.e., sound energy at the emitting source, and the decibel explained as the unit for measuring sound level. Leading up to the practical aspects of acoustical designing, Dr. Culver's closing remarks established that

(Continued on Page 15)

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## News of the Chapters

**PANHANDLE** — New officers for 1953 have been elected as follows: President, Robert E. Hucker; vice-president, L. H. Kirby; secretary, John Ward; treasurer, M. Howard Ensign; TSA director, J. Roy Smith.

**HOUSTON** — Frank Lloyd Wright, in Houston to address a quarrymen's convention, appeared as guest speaker at the January meeting. Introduced by Harold Calhoun, newly-installed chapter president, the 83-year-old architect discussed his concept of religion and architecture and his opinion on the present-day status of the profession.

**CENTRAL TEXAS** — Howard R. Barr has been appointed chairman of the chapter committee on Texas Architects' Week.

## Uel Stephens Named President Of Construction Council

Uel Stephens of Fort Worth has been named president of the Texas Construction Council, which is composed of the TSA, League of Texas Municipalities, Municipal Contractors' Association, and the Texas Society of Professional Engineers.

Other officials of the Council recently elected are: Mayor Jim Wright of Weatherford, vice-president; W. H. Sindt of Fort Worth, secretary-treasurer; and Marvin C. Nichols, Fort Worth, A. P. Hancock, Abilene; and H. Larsen and Grayson Gill, Dallas, directors.

The address and telephone number for the Council are now listed as P. O. Box 870, Fort Worth; telephone FORTune 8341, Fort Worth, Extension 222.



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## HOW TO CHOOSE AN ARCHITECT

Once You Hire The Right Architect The Work Begins;  
Why You Come Out Ahead;  
Five Ways To Get The Most From Your Architect's Work

(Editor's Note: Last month the TEXAS ARCHITECT printed the first part of "How To Choose An Architect," from the Kiplinger Magazine "Changing Times." Now we complete this valuable article which we suggest TSA members make available in their own communities. We are now receiving bids on having the article reprinted in its entirety for distribution.)

Once you find the right architect, the work begins. You present your ideas, explain just what you want, how much you can spend. If you need to, you can bind him by contract to plan a house that can be built for a certain amount. Then, courts have held, you won't owe a penny if it turns out that the house can't be built for that sum.

He will analyze and comment on your ideas, point out problems, and show how you can get what you want for less, or get more for just as much. Together you work out the general idea of the house, step by step. When the conception is agreed upon, he will set to work on preliminary sketches, outlining specifications and making a rough estimate of the cost.

Next come working drawings, showing all dimensions and details. Complete specifications are made out, too. These will go to builders, with an invitation to bid on the job.

There's a lot of paper work at this

point. You need forms for bids, performance bonds, contracts, and such documents. Most of them have legal force. Your architect can't give legal advice—he's no lawyer—but he does have standard forms available that may save you a lawyer's fee.

When the bids come in from builders, he'll analyze them and recommend the builder who should get the contract. Since an architect knows the work and reputations of local builders, he'll know which can be counted on to do a good job. He may recommend awarding the work to a man who wasn't the lowest bidder to protect you against a shoddy building job.

### Architect's Work Goes On

The architect's work is not done when the building begins. He may continue to make large-scale drawings for the builder's guidance. Often he'll be right out on the building site, supervising construction, inspecting materials, giving on-the-spot directions, watching out for defects or deficiencies.

He also acts as a sort of paymaster. As various construction stages are completed, the builder submits requests for partial payments according to a schedule set up in his contract. Your architect

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## Thomas Broad On Panel At Amarillo Meeting Of Professional Engineers

Thomas D. Broad of Dallas, TSA-AIA, was a featured member on a panel at the annual meeting of the Texas Society of Professional Engineers held recently at Amarillo.

Mr. Broad emphasized that architects, just as the family doctor who sometimes calls in specialists, use the special abilities of engineers for collaboration on overall problems. The complexity of modern building, he said, increasingly calls for integrated thought by several trained minds and has made the architect-engineer team a requisite on almost all major work.

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## Planning For Modern Education

(Continued from Page 4)

The sense of hearing is enhanced in good design by the separation of noise and quiet areas in plan. Classrooms can be planned for comfortable acoustic environment and good hearing conditions.

### Planned Environment Needed

The enumeration of the many devices at the architect's command to produce the livable, educational and social value of a school plant would be futile. Comparatively, haphazard use of a combination of these devices would restrain design, just as some codes have forced an assembly line production of schools. Rather, the desire is to stimulate a viewpoint toward the creation of a planned environment, based on the child's educational and emotional needs and the social requirements of the community.

From a continued close cooperation, and the individual understanding of the problems of the other within the trinity partnership, there will continue to emerge further advancement of our standards of school plant study and design.

## How To Choose An Architect

(Continued from Page 9)

goes over these requests, certifies that the work has been performed satisfactorily as provided in the contract, and authorizes payments. If extras crop up, he will check the estimates for them.

And on that happy day when the builder announces that the house is done, your architect will make a final inspection, note any last-minute details to be taken care of, and certify to the satisfactory completion of the work.

All of this takes months, of course. As the months pass, you will be impressed by the variety of things your architect does for you. He's counselor, artist, consultant, planner, business manager, coordinator and expeditor all rolled into one.

### Why You Come Out Ahead

And when everything is added up, what do you gain by hiring an architect? You can figure you're ahead on two counts.

First, the architect helps you make the most of the house you build. Individual planning, for your family alone, gives you a house designed from top to bottom for your own interests, activities and needs. Because he has upkeep costs in mind, you get a house that will be cheap and easy to maintain. The architect's designing skill helps arrange the house so that the space, which is expensive, is not wasted and often does double duty. Careful advance planning spares you the cost and trouble of expensive afterthoughts.

The second big gain is that you get the most for your building dollar. Your architect's plans help you get a good loan. His plans and specifications make it possible to take competitive bids. By adapting the house to the lot, you save on excavating and foundations. Because he is familiar with the vast array of materials and equipment on the market, you get the best you can afford. And because architect-designed houses ordinarily have

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## How To Choose An Architect

(Continued from Page 11)

a better resale value than scrapbook houses, you feel good about the security of your investment.

### To Get the Most From Your Architect . . .

**Hire the right man.** Choose an architect with experience and a reputation for doing the kind of work you want done. Pick one who understands you and your problem and is sympathetic.

**Hire him for what you need.** Maybe all you want is advice on whether to buy or build, whether to remodel or add. Maybe you need planning but not construction supervision. Hire him for partial services as needed.

**Hire him early.** Every decision affects the job. Have his know-how on tap before you start making decisions.

**Put your cards on the table.** Be candid about what you can spend,

what you expect, your doubts, worries and reservations.

**Take his advice.** Don't lay down rules. Talk things over. Get all the advice you can and give it the weight that professional knowledge deserves.

There you have a picture of what a good architect can do for you when you retain him for his full service. But does it follow that an architect is always a must when you are in the market for a house?

Well, suppose you were buying a suit of clothes. You could have a tailor make you a fine custom outfit, carefully fashioned for you alone with every detail to your liking. Custom tailoring however, has its price. Your budget might dictate a ready-to-wear suit instead. By careful shopping, you could get a durable, presentable suit for less money.

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dividually designed and built house has many advantages. But the economies of multiple production are not among them. If you can't pay the price of custom planning and building, look for a good architect-designed builder's house instead.

But let your decision turn on whether or not you can afford to build for yourself, not on whether you think you can afford an architect's fee. If you can afford to build for yourself, you can scarcely afford not to have an architect's skilled help. His services may well save enough to cover his fee—and you'll have a far better house, too.

## David C. Baer Attends Joint Session Of AIA Committees

David C. Baer of Houston, TSA-AIA, attended a joint session of the office practice and contract documents committees of the AIA, in New York City. Mr. Baer is chairman of the former group, which has been engaged for more than a year in a study of accounting and office practice procedures followed by AIA members.

The Houston architect also spoke recently at Galveston before the Texas Council of Painting and Decorating Contractors of America. As a panel member, he urged the adoption of a standard index for colors, and the preparation of standard specifications for the use of architects.

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## Symposium

(Continued from Page 6)

sound follows the laws of light, and that the importance of reverberation control has led to the adoption of a standard measure, the time required for a sound level to drop sixty decibels, which is called reverberation time.

Dr. Boner, Executive Director of the Office of Government-sponsored Research, discussed further those problems of acoustical correction which he introduced at the School of Architecture, University of Texas, in the seminar held in April, 1952. He presented a typical problem in which, by use of the reverberation formula, the required acoustical absorption for optimum conditions was determined. The formula applies only for irregular surfaces, and the acoustical material has to be intelligently located to achieve a calculated result. The rear wall is the best location for absorptive

material, while the ceiling is a poor choice and insulation should never be placed near the source of the sound.

### Acoustical Design of Auditoria

Proceeding to the next topic, Dr. Boner demonstrated modern techniques in acoustical design of auditoria. His introductory remarks presented the following essentials to good design:

1. The room must have "acoustical presence," i.e., it must make the audience feel it is a part of the performance.
2. Within limits, the room must respond well to all frequencies.
3. Since the laws of sound are similar to those of light, prevent acoustic glare by providing for sound diffusion.
4. The sound must be loud enough.
5. Rooms having less than 2000 seats

(Continued on Page 16)

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## Symposium

(Continued from Page 15)

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### Spatula Outline Best

Analyzing a typical problem, Dr. Boner stressed that the shape of an area is of prime importance in achieving "acoustical presence." The most satisfactory plan shape is a spatula outline contained within a rectangle not longer than twice the width. The ceiling should be kept as low as possible consistent with architectural considerations. A guide for volumes favorable to good acoustics establishes 125 to 200 cubic feet per seat. Upholstered seats are important for effective absorption, and if these principles are followed, then base correction is left as the only principal problem in reverberation. Proper sound diffusion requires that all surfaces have acoustical roughness in scale with the wavelength of the sounds to be diffused. The ceiling is a sounding board,

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therefore it should be as hard a surface as is practical. Sound waves follow the pattern of equal angles of incidence and reflection, which means that the shape of plans and sections must be carefully checked for echoes—a most troublesome single item. The front of the balcony facing the proscenium must be as carefully constructed for maximum absorption as the rear walls. Humidity tends to improve acoustical conditions, and in air-conditioned rooms a relative humidity of forty per cent will give good results.

Mr. Monroe Smith spoke on the acoustical properties of materials, contrasting the problems of sound insulation with those of sound absorption.

Dr. Robert B. Watson discussed sound transmission and its control. He explained that transmission is either through vibration or through air passages in the sound barrier. The sound-insulating ability of any construction is a function of its mass and stiffness. The solution for a typical sound transmission problem involves three considerations: the acceptable noise level, the surrounding noise conditions, and a construction which will reduce noise to the specified tolerance.

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