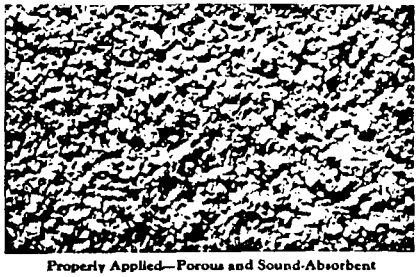
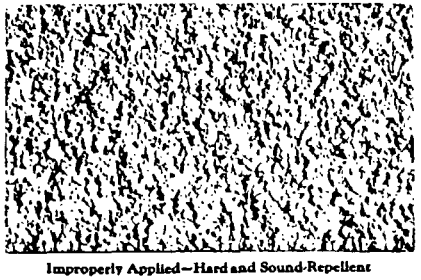
How SABINITE Should Be Applied



Properly Applied—Porous and Sound-Absorbent



Improperly Applied—Hard and Sound-Repellent

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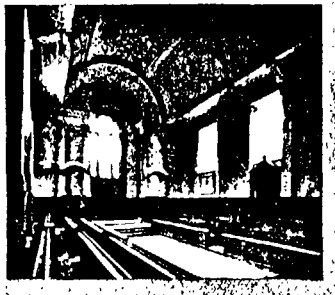
A SCIENTIFIC SOLUTION of AN OLD ARCHITECTURAL PROBLEM



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SABINITE ACOUSTICAL PLASTER

A Modern Method for Solving Acoustical Problems

THE CONTROL OF SOUND in buildings is a comparatively new development in architectural design. The need for eliminating unnecessary noise has been felt ever since man began to build public and semi-public buildings. Greek architects tried to solve the problem by the arrangement of vases, statuary, etc., about their rooms. More recently such makeshifts as stretching wires across the room and leaving the plaster rough have been used.

The first really scientific effort to solve this age-old problem was made about thirty years ago, when Professor Wallace C. Sabine, at Harvard, began a series of researches on the subject. This work established him as the recognized authority on acoustics in America. He attracted the notice of Colonel Fabyan, founder of Riverbank Laboratories, at Geneva, Illinois, and they co-operated in erecting there, the most complete acoustical laboratory in America.

In this laboratory, designed by Professor Sabine, tests were carried on, after his death, by his cousin, Dr. Paul E. Sabine, who has been in charge of further development of this research. A principal achievement has been the invention of SABINITE ACOUSTICAL PLASTER.

The Need for Sound Absorption

Earlier work on sound control problems was toward control by properly shaped contours, curved walls and ceilings and sounding boards. But Professor Sabine soon found the real difficulty to be *too much* rather than *too little* sound; provision was needed for absorption rather than reflection.

Scientific measurements have proved the human ear to be an extremely sensitive instrument. The sound of ordinary conversation is a million times greater than the slightest intensity the ear can detect. For normal ears, difficulty in hearing and understanding speech, in a room lacking good acoustics, arises more from confusion of sounds than lack of sound intensity. The problem is one of preventing prolongation of any sound element until it becomes confused with succeeding sounds.

Reverberation Causes Poor Acoustics

Prolongation of sound, technically known as *reverberation*, causes most cases of faulty acoustics. Reverberation is really reflected sound from the hard, non-absorbent plastered walls and ceilings found in modern buildings. Such surfaces reflect sound waves just as highly polished surfaces reflect light.

Ordinary plastered walls and ceilings reflect about 98% of the sound reaching them, and the reverberation of a single sound element lasts several seconds. In a room so plastered, a veritable bedlam is produced by a constantly operating source of sound, such as a typewriter.

How Reverberation Can Be Controlled

Reverberation is very noticeable in an empty room, but when rugs and furniture are placed and draperies hung, much of this is stopped, as part of the reflected sound waves are absorbed by the furnishings and changed to another form of energy.

As the walls and ceilings are the greatest sound-reflecting areas of any room, the first effort toward sound absorption, was in covering these surfaces with a sound-absorbent material. This, however, was expensive, so it was necessary to develop a plaster with sound-absorbent qualities.

About five years ago, Dr. Paul E. Sabine, at Riverbank Laboratories, began a research toward the development of such a plaster. The physical properties needed for an easy working plastic material to be applied with a trowel that, when hard, would be highly absorbent, are difficult to combine. But eventually, a plaster with a gypsum base was developed, possessing both qualities, and has been named "SABINITE ACOUSTICAL PLASTER." Today it stands as an accepted, scientific solution of acoustical problems.

How Sabinite Acoustical Plaster Controls Reverberation

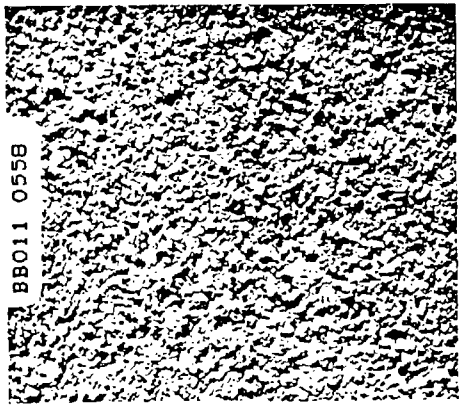
For a practical test, two rooms of the same shape and size were selected at Riverbank Laboratories, identical in all respects, except that one was plastered in the usual way with a smooth, hard finish; the other with a scratch coat of gypsum plaster, over which was applied ½ inch of Sabinite Acoustical Plaster. The difference in acoustics is evident without the use of testing instruments—in the one room reverberation is so pronounced that conversation is difficult; in the one plastered with Sabinite there is no noticeable reverberation, and conversation can be carried on without confusion of sound.

Sabinite absorbs from 15% to 20% of the sound that strikes it, depending upon the pitch, compared with 2% absorption by the ordinary plastered wall. Tests show that in a room plastered with Sabinite, sound is absorbed 6 to 18 times as quickly as in a room plastered with ordinary plaster. That is, if sound is produced in both rooms at the same rate, the average intensity in the room plastered with Sabinite is from one-sixth to one-eighteenth greater. The effect of sound absorption is as if a heavy carpet were applied to walls and ceilings.

The reason for these remarkable results is that Sabinite is exceedingly porous, filled with a multitude of connecting air spaces. Sound enters these spaces, and, through friction, is converted into heat—that is, the sound is absorbed in the plaster.

Where Sabinite May Be Used

Sabinite Acoustical Plaster is valuable in reducing excessive reverberation and resultant confusion of sounds in auditoriums, churches, theatres and halls.



Sabinite Acoustical Plaster Absorbs Sound, Because It is Exceedingly Porous, Filled with Connecting Air Spaces



Sabinite Acoustical Plaster Has All the Qualities of the Best Gypsum Wall Plaster

Sabinite also decreases sound intensity from a constant source in any room. In the room previously referred to, finished with ordinary plaster, the sound from the click of a typewriter lasts five or six seconds. There is constantly in the room, not only the click produced at any particular instant, but also the residuum of sound from all clicks made during the five or six preceding seconds—a condition that is found in any average office.

Sabinite transforms the walls of corridors in hospitals, hotels, apartments and office buildings—usually very noisy from the highly intensive sound-reflecting materials with which they are plastered—into "zones of quiet" at once restful and comfortable.

Qualities of Sabinite Acoustical Plaster

Sabinite has all the qualities of a practical wall and ceiling plaster. It is packed in 80-lb. paper bags.

Sabinite is mixed and applied like any other gypsum plaster. It is gray-white in color, and its finish is that of a sand float, providing a restful tone to walls and ceilings.

Complete directions covering bases to which applied, mixing and application of Sabinite supplied on request.

Decoration of Sabinite

Because an open, porous surface is needed to secure the maximum acoustical effect, it is recommended that Sabinite be not painted. However, paint may be successfully applied with a spray. Apply to manufacturer for special instructions concerning decoration.

UNITED STATES GYPSUM COMPANY
205 WEST MONROE STREET, CHICAGO, ILL.