

# *Sound Advice*

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Helpful Information from *Stewart Acoustical Consultants*

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## **GYMNASIUM ACOUSTICS**

By Noral D. Stewart

Older gyms without acoustical treatment can be very reverberant and loud. It can be difficult to understand speech beyond a few feet. They are very bad environments for teaching. The rooms are very large for the number of people present, even when bleachers are occupied. This leads to their liveliness. These rooms also have large parallel surfaces that are conducive to flutter echoes between them when the sound source is in the middle of the room. Thus, at least one surface of each parallel pair must be treated with absorption. Bleachers will often help break up reflections between one pair of walls.

If a gym is used only for teaching, and the budget allows, the room can be treated to create ideal teaching conditions. This maximum treatment also can be desirable in church gyms also used as fellowship halls. If the room will be used for spectator competition, there is usually a desire to leave it a little livelier to create loud crowd cheering. This livelier condition is also desirable if the room will serve as the location of classical music presentations. Major factors that must be considered in selecting treatment materials are cost, durability, appearance, fire safety, and interferences with lights, sprinklers, ventilation, or activities.

A new gym should have an acoustical deck roof of either wood fiber or perforated-metal and fiberglass. We prefer the metal deck with perforated flat surfaces for better low-frequency absorption. Wood fiber decks or perforated rib decks could require special slotted masonry blocks for the walls to get low frequency absorption. Otherwise, the walls should be treated with special absorbers of perforated metal and fiberglass or wood-fiber panels on furring over fiberglass. The ceiling is often left non-absorptive above bleachers to reinforce cheering.

Other materials are available for use in existing buildings. Vinyl-covered industrial baffles or lapendary banners similar to those in the Charlotte Coliseum can be the least expensive treatment. Other options are spray-on materials, perforated metal panels with fiberglass above, or wood-fiber panels supported on the trusses with fiberglass above. Wall treatments in addition to wood-fiber panels include spray-on materials, lapendary panels hung against the wall, and fiberglass panels covered with perforated metal. Fiberglass panels with a protective surface also can be covered with cloth or perforated-vinyl wall covering. Even unpainted, stained, or lightly-painted concrete block can be an inexpensive treatment for the upper walls of a new gym. However, you have to make sure it will not be painted later with a block sealer.