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THE PROBLEMATIC GYM

By Ted Weidman

Nearly every gymnasium has the same problem – a horrible echo. If you combine a tile or wood floor, concrete walls and a metal roof deck, it does not take a degree in acoustics to assume that there is going to be a significant echo in the room. Couple the echo problem with the activities that go on in a gym, and the decibel levels can be ear splitting.

The product used in this gym was our 1" thick, #3 lb. density Marble Light Blue Echo Eliminator™ panels. These panels have an NRC Rating of .80 which basically means that they absorb 80% of the sound that hits them. On most multipurpose room installations, the panels are installed on the walls close to the ceiling. This is done to extend the life of the panels. Although the panels will not be destroyed by a ball hitting them, they are not the most abuse resistant panel that we offer. By the time a ball gets up to the height of the panels, it will have less energy than if the panels were installed at shoulder height.

Acoustics is not as hard as people generally think it is. Reverberation (echo) is simply a relationship between the size of a space and the surfaces that make

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up that space. I am asked two questions almost on a daily basis: How many panels do I need? And where should the panels be installed? The answer to these questions is ultimately up to the end user, but I would like to explain an equation that has been developed as an average - by taking into account the size of a space and the surfaces in that space.

I will use this gym project as an example. Generally speaking, the total square footage of panels needed to significantly "take the edge off" of the echo in a room is three-percent of the cubic volume of the room. For instance:

Height x width x depth = Cubic volume

Cubic Volume x 3% = The approximate square footage of panels needed.

In this case, the room measured 56' deep, 35' wide and 24' tall in which all the surfaces were quite reflective.

56 x 35 x 24 = 47,040 cubic feet of volume

47,040 x .03 = 1,411.20

In this space, if 1,411.20 square feet (or 176 24" x 48" panels) of panels are installed, the echo will be significantly decreased.

This calculation was used for this installation and proved successful. The customer reported that there was a very significant reduction in the gym, and that one could comfortably carry on a conversation. In this case, the customer chose to but joint the panels – rather than leaving an open

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wall space between the panels which can actually reduce the reverberation time even more by increasing the total surface area of absorption.

There are a few major advantages of the Echo Eliminator panel over other comparible panels. First, the cost. Because the panels are made from recycled cotton, they are some of the most cost effective panels on the market. Secondly, the panels are class A, or class 1 fire rated which means that they are safe for interior use. Third, they are very easy to install and can be field cut on site.

If you have any questions about this installation, please feel free to contact Ted Weidman at 800.448.0121, or Ted@acousticalsurfaces.com