Church Multipurpose Room/Fellowship Hall
NOISE PROBLEM SOLUTION

Products Used: Echo Eliminator™ Recycled Cotton Acoustical Panels.

Church acoustics in fellowship halls or multi-purpose rooms are some of the more frequent rooms that we are asked for recommendations for acoustical treatment. These rooms have a few very common similarities that are the reason for the need for acoustical wall panels or acoustical ceiling panels. These rooms are often quite large so that a large number of people can use the room at the same time. They also commonly have cinder block or sheetrock walls, a vinyl tile or linoleum floor. If carpet is present, it is almost always a very low pile, industrial carpet.
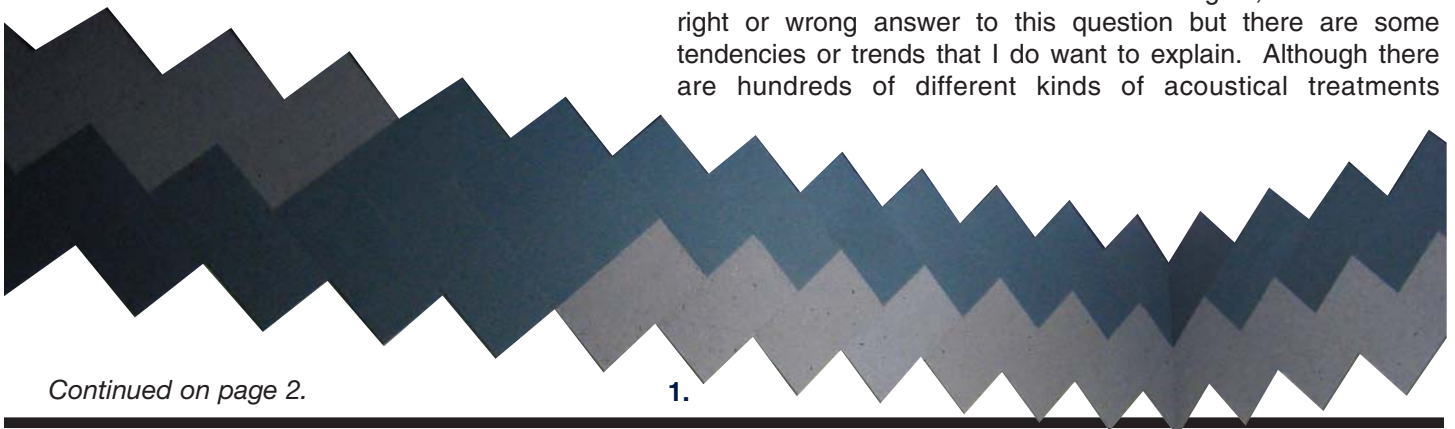
"How many panels do I need?" As far as echo and reverberation are concerned, the larger the room, the more square footage of acoustical treatment is needed to get the proper level noise control. Over the last few years, I have talked to thousands of people and a series of the same questions continues to be asked. *"How many panels do I need?"* This is a simple question that needs to be asked. The answer, however, is not as simple because rooms and the needs of the rooms are always different. For simplicity's sake, I know that rooms like this don't need "recording studio" sound quality. They do need a noise control solution that takes the edge off so that when the room is filled with people the noise level is not ear splitting.

This quilt-like zigzag pattern was the design of the church members. They used the light gray, medium blue and pure blue 2'x4' panels to create the pattern. The installers used our ASI Knife blade in a table saw to cut the panels as needed.

I've come up with a very simple equation to start with to answer the question above. This is not a guarantee or a necessity, but it is a generalization that I have had an extremely high success rate with. The square footage of paneling generally needed is found by multiplying the cubic volume of the room by 3% .03. Height x width x depth x (.03) = square footage needed for the room.

"What kind of treatment is the best for me?" Again, there is not a right or wrong answer to this question but there are some tendencies or trends that I do want to explain. Although there are hundreds of different kinds of acoustical treatments

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(including wall panels, ceiling panels, clouds, baffles, diffusers, etc.), when it comes to treating a room like this, this extensive list of options is just about always reduced to two different types of panels. These are our **Decorative Fabric Wrapped Fiberglass Panels** and our **Echo Eliminator Panels**. The Fabric Wrapped Panels are custom made boards of fiberglass that are cut to size and wrapped with a decorative fabric. This option offers the most freedom of panel size and color which is very attractive to quite a few people. The unfortunate part about the product is that because it is custom made and made by hand, it also comes with a higher price tag. This price tag often makes this option less attractive or simply not an option. Especially for a multi-purpose room where aesthetics isn't as critical as it would be in a room like a sanctuary, our Echo Eliminator recycled cotton panels become much more attractive.

These acoustical panels are made from recycled cotton fiber and we offer them in nine different colors. They have an absorption rating that makes them an extremely efficient acoustical treatment. Because they are made from a recycled material, they are also very cost effective. They can be used as wall panels or ceiling panels and are most often glued directly to the structure with a construction adhesive and a contact adhesive. They are Class A fire rated, which is always important as well.

"Where should I put these panels?" My answer to this question almost always surprises people. For all practical purposes, to take the edge off of a room, the exact location of the acoustical wall panels or ceiling panels does not matter nearly as much as the square footage of panels introduced into the

This room measured roughly 55' x 65' x 20' ceilings. The church decided to install 1,552 square feet of acoustical paneling into the space which is just over 2% of the cubic volume of the room (71,500 cubic feet) and was very successful in significantly reducing the echo within the room.

room. This leaves the end user with a lot of freedom to put the panels in a location where they will either be a visual accent to the room or where they will be the most discreet. The only two recommendations that I would like to pass along would be to space the panels out as evenly as possible throughout the room and, if the aesthetics works, space the panels out (rather than

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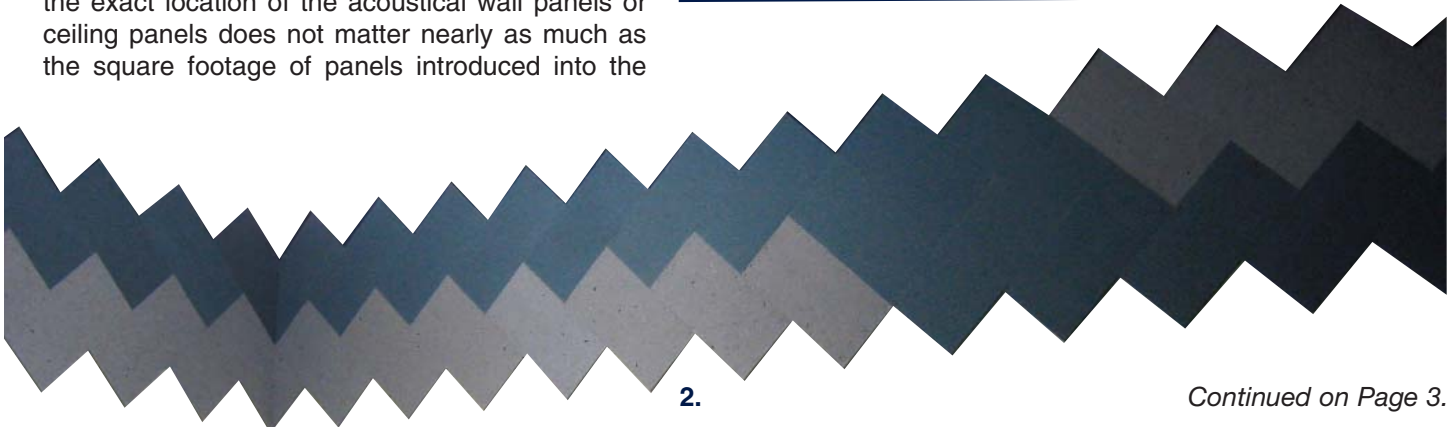
installing them one next to the other). Installing them throughout the room will give you the most even acoustical result and by spacing them apart, you will effectively increase the overall surface area of absorption and increase the performance of the panels as a whole.

The installation photos on pages 1 and 2 are very good examples of a creative and unique way to take a very cost effective acoustical cotton panel and use it as a design element in a room.

In December of 2006, Dennis contacted me about the multipurpose room at the Bon Air Church of the Nazarene in Kokomo, Indiana. He was collecting information about products and treatments for the room. We talked briefly about the room and a few of the more popular products that he might be interested in and I put some samples and literature together and sent them to him. We spoke about the advantages and disadvantages of the products and he took the information to the committees and decision makers of the church. Like all projects that I have done with houses of worship, the project was discussed and questions were asked, and ultimately the Echo Eliminator panels were chosen due to the low cost of the product and the high absorption numbers. Dennis sent me the measurements of the room and based on the size of the room and the surfaces that were present, I used the following equation to help him start to figure out how many panels the church was going to need.

This multipurpose room measures roughly 55' x 65' and has 20' ceilings. The equation that I used to determine the square footage needed was as follows:

Cubic volume x 3% = Square footage needed. 55' x 65' x 20' = 71,500 (cubic feet) x .03 = 2,145 (square footage of panels needed). Based on this number, Dennis worked with church members to come up with the unique and decorative pattern pictured here. The church purchased 64 panels of the Light Gray, 110 panels of the Pure Blue and 20 panels of the Navy Blue. They also purchased the BAC cutting blade to cut the 2x4 panels down as needed.

Most of our panels are adhered to the walls or ceiling of a room, but this type of installation is very permanent. Although most people are never going to want the echo problem to return, the idea of using a construction adhesive to install the cotton panels isn't ideal. In this case, the installers used small nails to hang the panels. I do not know exactly how this was done but they pulled it off very well.

The e-mail to follow is a reply that Dennis sent to me after they had completed the installation:

Ted,

We have installed our sound panels. I have attached a picture to show you the pattern we chose. I will be sending the saw blade back to you tomorrow. *We have seen a significant reduction in echo, and we especially can understand speech much clearer.*

We used nails to put up the panels. The color consistency was good, and they look good in this application. I would be interested in your thoughts.

> *Thanks,*
> *Pastor Dennis Riggs*

If you have any questions or need any information about any of the products or applications discussed in this article, please feel free to contact me. I would be happy to do my best to help you.
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