

SOUND TREATMENT: PROBABLY MORE THAN YOU WANT TO KNOW (11 photos)

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The goal of my recent work-hard project was to turn the Heart Center Astrological Library into Heart Center Studios, a combined audio and video recording studio. The main concern was to come up with a sound treatment that included books, yet was balanced and (hopefully) tunable to some degree.

My idea was to alternate shelves of books (natural diffusers) with shelves of two-inch sound-absorbent material that soaked up the sound in a checkerboard arrangement. I already had the books (duplicates, etc.) and further arranged each bookshelf by alternating books on that shelf, one sticking out, one pushed in, one out, and so on. This produces a comb-like effect that further helps diffuse the sound. Next I needed some sound-absorbent material for the alternate empty shelves.

In searching for sound-absorbent material I first looked at the classic Owens Corning 703 Fiberglass board panels. In fact, I ordered a whole lot of them for the studio, but after reading about the cutting and installation of these Fiberglass panels, plus their gradual degradation over time and the eventual release of particulate matter, I could see no way that such particles would not soon-or-later reach my (or other's) lungs. I canceled that order. I don't want me or anyone using the studio to be in danger of inhaling Fiberglass particles, however small, now or later on.

And... since I already have lung problems, even wrapping the Fiberglass panels in cloth did not seem something I wanted to take on faith. Instead I searched until found Eco-C-Tex Acoustic Material. Some of its features include:

- (1) Class-A Fire Rated (with no external chemicals added to it.
- (2) Tested with an NRC 1.0 sound rating, as good as it gets I am told. This rating is better than the 0.6 for the Corning 703 Fiberglass boards.
- (3) Eco-Friendly – Composed of cotton and cellulose.
- (4) Easy and safe to install.
- (5) Since (IMO) the Eco-C-Tex material does not need to be covered with cloth, the price comes fairly close to buying the Owens Corning 703 and then enough cloth to cover them, not to mention the hassle of doing so.

So, I ordered a pallet of 2-foot-by-2-foot Eco-Tex C panels, 100 of them. I then I spent a day cutting them to the appropriate shelf sizes wearing safety glasses and a \$40 dusk mask on a table saw, using a saw blade made for plywood. The cotton-fiber panels were easy to cut through.

MOUNTING THE PANELS

The next task was to place the absorbent board in the empty cubbyholes. Of course I could nail/screw or glue them, but I wanted to keep things flexible in case this whole approach did not work out. So I came up with the idea of using small wooden wedges. And the perfect solution was simply to get some old-style wooden clothespins, separate them from their springs, and use the remaining two wooden pieces as wedges. They worked perfectly.

By cutting the absorbent panels pretty close, I was able to place them in the cubbyhole about two inches from the rear of the cavity and simply put in two wooden wedges, one on either side. It was easy, and they can be removed in seconds.

I did this throughout the entire room, and in the corners of the room I put in two 2-inch absorbent boards, thus providing 4 inches of sound treatment in the corners.

I had two remaining problems.

What if all of that absorbent material deadened the room too much? To remedy this, should it arise, I simply cut another set of 1/4-inch hard Oak plywood panels (the size of the absorbent panels) that can be placed over the absorbent panels in seconds, should we need to brighten up this or that area, or (for that matter) the whole thing. I rubbed the exposed surface with olive oil to improve their visual appearance. If this is not reflective enough, I will put a hard gloss finish on the reverse side of each panel and we can choose which surface to show.

The second problem was the seven double windows in three of the studio walls. What if their venetian blinds were TOO reflective? To counteract this possibility, I have in reserve a set of two 2-foot-by-2-foot absorbent panels for each window pair. They can be propped up or taken down in a jiffy.

So that is where we are now. The room is 40-feet long, 20-feet wide, and the ceiling is not flat, but rather slopes upward from around 13-feet to 15-feet or higher and ends in the beginning of a second floor. You can see this in Image-A. Actually that upper floor area perhaps acts like some kind of bass trap. You experts tell me.

The next step will be to test the space and get some sound engineers in here. I thank Tyler Duncan and Ian Gorman for valuable suggestions (also Glenn Brown) and look forward to each of them visiting and checking this sound space out.

Also, yet to be done is sound treatment for our new drum room. Tyler Duncan has volunteered to come and work with me on that. Ian Gorman has agreed to stop by and see what else we need. I also wish to thank Teresa Unger for helping to make this project happen in a timely manner.

So there you have it, as mentioned, perhaps more than you wanted to know, but that is what I have been up to and it is pretty much done.

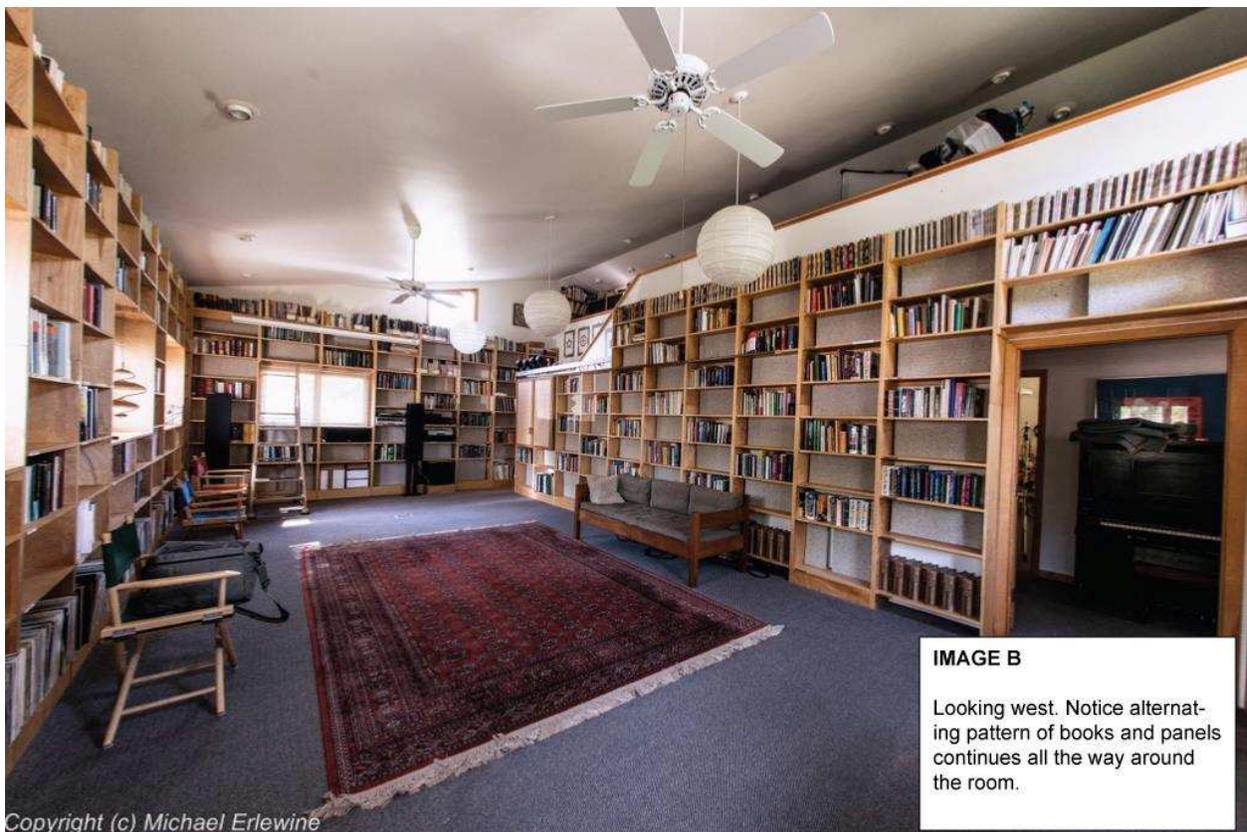




IMAGE C
The Eco-C-TX panels absorb and flatten the sound, while the books (every other book is inset to form a comb) are diffusers.

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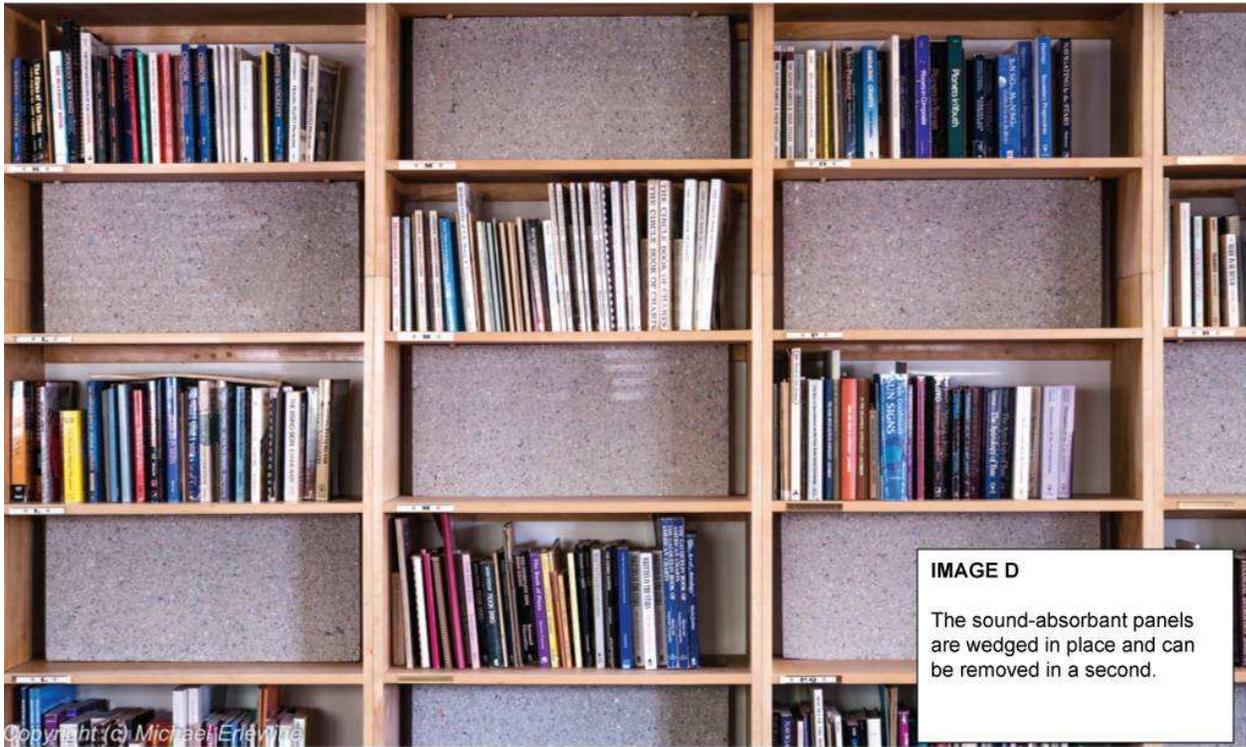


IMAGE D
The sound-absorbant panels are wedged in place and can be removed in a second.

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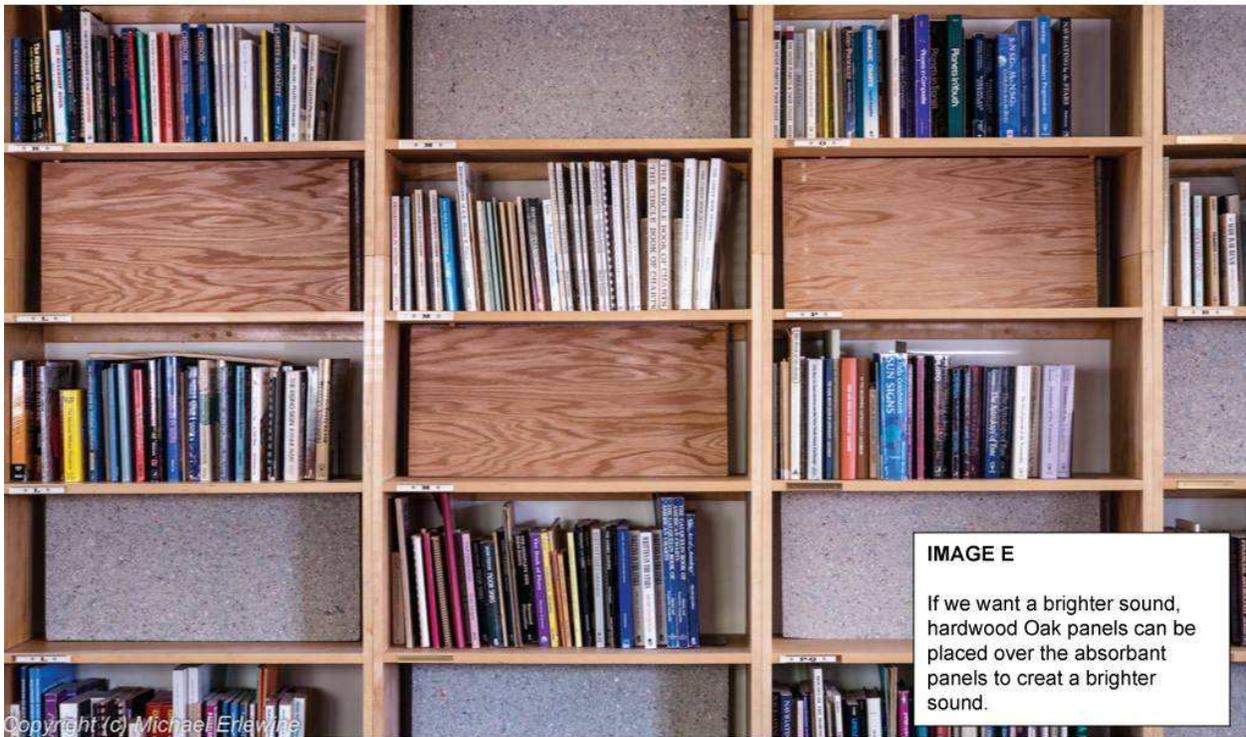


IMAGE E

If we want a brighter sound, hardwood Oak panels can be placed over the absorbant panels to create a brighter sound.

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IMAGE F

A convenient stack of 44 panels (rubbed with olive oil) are available to brighten any particular section or wall.

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IMAGE G
Close-up of the wooden wedge, which takes only a second to place or remove. There is a 2-inch space behind each 2-inch absorbent panel.

[Note: no Image H.]

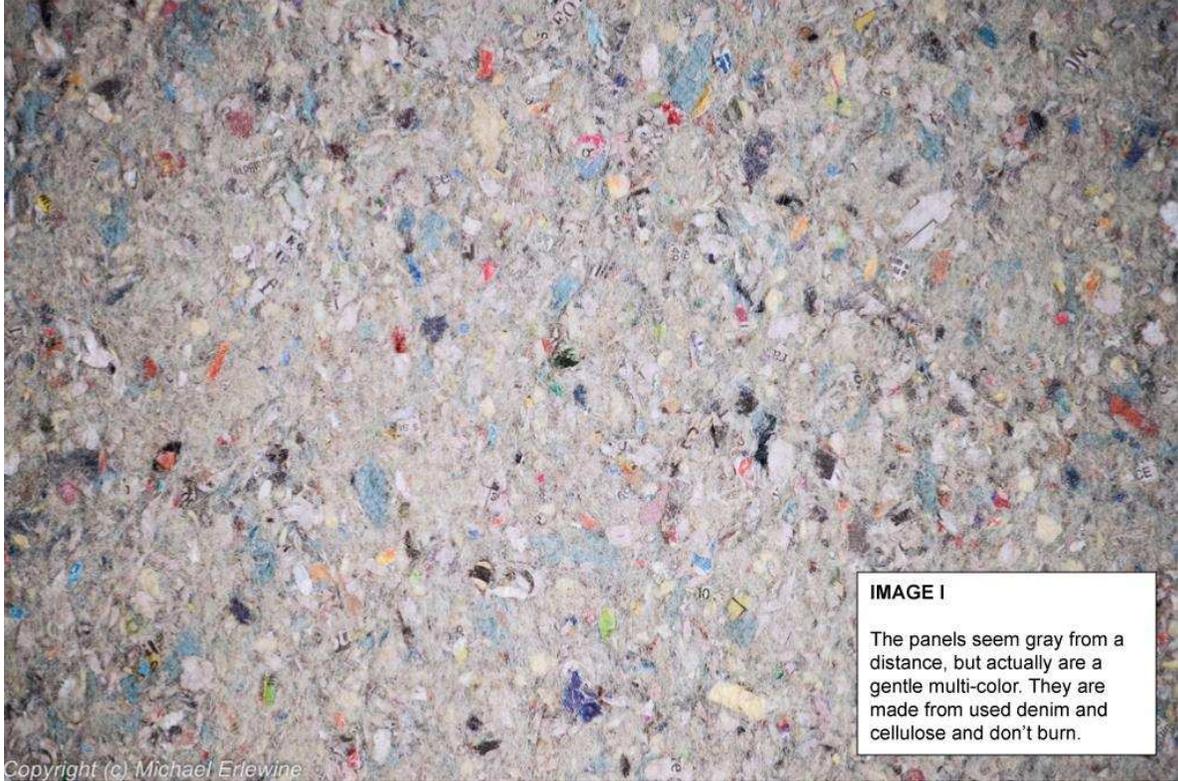


IMAGE I
The panels seem gray from a distance, but actually are a gentle multi-color. They are made from used denim and cellulose and don't burn.

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IMAGE J
There are 14 windows in the studio, the venetian blind of each acts as a reflector.

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IMAGE K
If the Venetian blinds need toning down, sets of 2'x2' Eco-C-Text panels are available for each two-window pair.

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IMAGE L

The attractive wooden wedges are made from ordinary clothespins separated. They work well and are inexpensive.

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