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Subject: Improvements

Posted by [Barryso](#) on Thu, 08 Mar 2018 15:09:29 GMT

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A few month ago Wayne was helping me with an odd speaker issue. Long one short, the 2 Pi Towers sounded very different placed directly against the wall vs. being a few feet away from different wall (with flanking subs) in the same room.

Of course there are supposed to be sonic differences in different parts of the same room - and when using the flanking subs. This was more than that. It's hard to put into words but simply put the setup with the flanking subs just didn't sound as good. I've been struggling to figure out why.

A search of old posts on this forum lead to the answer - it's the floor.

This is an old house and it turns out there are three different regions under the suspended wood floor in that room. The area with the towers placed several feet out from the wall (using flanking subs) is, unfortunately, suspended wood and crawl space.

The floor where the towers were directly against a wall is different on either side. One side had the wood floor reinforced with more wood after some termite damage. The other side is where the floor rests on top of the original house foundation (the room was expanded in the 1940's). It turns out both of those locations are far superior sounding than the suspended floor over the crawl space. Stomp your foot on them and you can clearly hear the differences.

So it wasn't distance from the wall or flanking subs at all. It was the differences in construction of the floor.

As a test I put the towers back on top of the crawl space area and listened and then pulled them out to be over the old foundation. There's a lot more of a sonic difference than just the change in distance from the wall. A bit of bass boom is gone, mids are clearer and far better textured and they are just a much happier pair of 2 Pi towers. A thwack sounds more like a thwack when the speakers are on solid footing. Will play around to see which one of the locations sounds best over some extended listening as the two locations still sound different. They just don't sound totally different.

From a practical standpoint putting them over the foundation puts them about 5 feet out into the room and it makes them far more imposing than when they are against a wall. Having them directly against the "good" wall creates some layout and traffic issues in the room, too. This makes coming up with a good room/speaker layout a challenge but at least it explains the sonic differences.

I'd never thought much about the floor before. That was a mistake as it makes a big difference.

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Subject: Re: Improvements

Posted by [johnnycamp5](#) on Thu, 08 Mar 2018 15:39:46 GMT

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The floor can make a big difference.

I had something like you describe once above a 2' crawl space with a floppy (spongy) floor. Until I could make the floor more solid, a bag of play sand on each speaker helped lol.

I hope you had those flanking subs turned way down low, barely audible between on and off.

It's hard for them to make things worse, unless the gain is way too high, everyone's situation is different though.

Did you use 3pi's?

I had trouble blending expensive scan speak subs (with passive radiators) to my mains. I couldn't cross them over higher than about 50-60Hz without things getting very muddy sounding.

When I switched to the Lab 12's It became very hard to make them NOT blend with the mains.

YMMV.

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Subject: Re: Improvements

Posted by [Wayne Parham](#) on Fri, 09 Mar 2018 18:40:40 GMT

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I've been in some rooms with wood floors over crawlspaces that made everything sound very "nasal," sort of like the way a bathroom can sound. Even though the rooms were large, they sounded hollow like a small room does. The crawlspace formed a kind of resonant cavity.

In Tulsa, there are lots of homes like this in the "midtown" area. It was so common I used to think all homes on crawlspaces were acoustic problems. I always preferred homes on foundations.

Since then, I've encountered a lot of homes with wood floors that weren't on a slab but that weren't a problem. It seems like the narrow crawlspaces are the most troublesome, because second-story rooms don't seem to be a problem nor are rooms built some distance above the ground, like homes built on a hill with multiple levels.

But man, if you have one of those resonant crawlspaces under the room, it's really tough to get the sound right. It's the worst in the midbass and midrange.

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Subject: Re: Improvements

Posted by [Barryso](#) on Mon, 12 Mar 2018 19:23:15 GMT

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Johnnycamp5, did you just put the sand on top of the speakers or under them? It's funny, it was an old thread about building a floating sandbox over a suspended wood floor that got me started on all this.

I'm often undecided about the volume level of the flanking subs. With the towers 4 or 5 feet from the wall the flanking subs get turned up more than they were with the towers 2 feet from the wall. Just enough to fill in the low end and not enough to muddy up the presentation.

As for blending the subs, a borrowed Crown XLS amp went in the system a while back but it just didn't blend well. It had a 4th order slope on it's built in crossover. It had about a week in the system but no matter what the settings were it just didn't sound quite right. Right now the system has a plate amp with a 2nd order slope that's much, much better. The sub in the back is a 4th order crossover and crossed over about 50 or 60 hz. It's seamless, too.

I've heard the 3 pi and the 4 pi's at the Lone Star Audio Fest several times and they sound great. Unfortunately my woodworking is terrible and the guy who build the 2 Pi Towers for me has since retired. For the time being it's fine - the 2 Pi's are sounding better than ever.

Wayne, the areas that aren't crawl space have a full basement under them and some additional wood reinforcement. There's also a ceiling attached to the basement rafters made of some moderately porous material. It wasn't put there to absorb sound but it does. The sound of that part of the room is probably the equivalent of the 2nd floor rooms you mentioned.

Playing around some more with thumping on the floor it's also noticeable that different areas over the crawl space are different. A few feet away from the wall is where the sound is a big thud with an echo. Yet right against the wall the floor is pretty solid. So in that part of the room the towers are either going to be 5 feet out (on the old foundation) or right against the wall.

It's a big deal. Most of the speakers that have been in the room over the years have never performed as well as expected. They all were positioned somewhere over the worst sounding part of the room.

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**Subject: Re: Improvements**

Posted by [Wayne Parham](#) on Mon, 12 Mar 2018 22:43:10 GMT

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It's interesting how those kinds of construction details can affect the sound. But man, they can be so difficult to work with!

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Subject: Re: Improvements

Posted by [johnnycamp5](#) on Tue, 13 Mar 2018 23:00:20 GMT

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The sandbags were on top of the speakers lol.

My crown amps use 3rd order slopes, which is also considered a little steep, but I have no trouble blending them with my 4pi mains.

Sometimes there is more to it than just the crossover slope.

My old scan speak subs used plate amps with second order slopes, yet there was really no blending them with the mains if low passed above around 50Hz.

I still think the passive radiator design was the problem with those muddy sounding subs.

I have read on masonry occasions that passive radiator subs are not good for low passing higher than 70/80 Hz. I could not even cross them that high.

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