Subject: 4Pi build
Posted by pizzacat666 on Fri, 19 Jun 2015 18:50:01 GMT
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Hi Wayne, may I please have the plans for the 4 pi speakers?

I figured out where I am moving to, and the 2pi towers are just way too big for my small apartment. Depending on the cost of building the cabinets, I may choose to upgrade the drivers to the JBLs.

Thank you in advance!

Subject: Re: 4Pi build
Posted by Wayne Parham on Sat, 20 Jun 2015 15:17:45 GMT
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You've got mail!

Subject: Re: 4Pi build
Posted by pizzacat666 on Wed, 24 Jun 2015 17:55:25 GMT
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Thank you Wayne. I just placed my order for the 4 pi's with upgraded drivers! So excited!

Subject: Re: 4Pi build
Posted by Wayne Parham on Wed, 24 Jun 2015 19:00:39 GMT
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We'll start assembling your crossovers right away! You can expect us to ship your kits within 30 days.

Subject: Re: 4Pi build
Posted by pizzacat666 on Thu, 02 Jul 2015 20:12:14 GMT
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Can you tell me what kind of connector panels are included in the 4 pi kit and how big they are? I

have a 3 inch hole saw I was going to use, but I don't have any idea if that is an appropriate size without having seen the panels. I'd like to make the panel area look like this:

http://audioroundtable.com/forum/index.php?t=msg&th=15168&prevloaded=1&&start=50

I picked up a 4x10 of 3/4" MDF and I'm going to cut it down and start assembling the cabinets tomorrow.

File Attachments
1) BigmouthinDC_4Pi_HomeTheater_26_BindingPosts.jpg, downloaded 5254 times

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Subject: Re: 4Pi build
Posted by Wayne Parham on Sat, 04 Jul 2015 13:40:59 GMT
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The binding posts are on a panel that requires a 2-1/8" x 2-7/8" cutout.

Subject: Re: 4Pi build
Posted by pizzacat666 on Wed, 08 Jul 2015 20:14:42 GMT
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Thank you Wayne. One more question. Regarding the insulation that you lay across the side wall nearest the port: do you want to cover the port outside walls, or is it better to just run insulation only on the cabinet sidewall up to and around the port leaving the port itself bare?

Subject: Re: 4Pi build
Posted by Wayne Parham on Thu, 09 Jul 2015 15:19:59 GMT
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Do not let insulation stuff the port. But don't worry if it shrouds it a little. Bass will pass right through.

Subject: Re: 4Pi build

Posted by pizzacat666 on Wed, 26 Aug 2015 18:00:11 GMT
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I finished the construction of my 4 pi speakers last week and wanted to post a photo. They're not finished yet, and I haven't decided if I want to paint or veneer, but here is a picture of the speakers with the maker. I brought them to a friend's house and we demo'd them with a bunch of vinyl this weekend. We were able to crank them to the point where highs were shrill and started to hurt our ears. At that point, we backed the volume down a little. The bass was superb. Running through just a cheesy Sony surround sound receiver in 2 channel mode, the 4 pis filled the basement with punchy, crisp bass. I suspect the shrill highs were a combination of the basement we were in and the cheesy surround sound amp. I will be testing the 4 pis out more and providing my experience, but so far they blow away everything. I went to the theater to see a movie after the demo session with the 4 pis, and the experience in the theater didn't come anywhere close to the sound of these 4 pis. The 4 pis are clear and crisp like my headphones, but unlike headphones or the sound system at the theater, they rock the whole room you are in and make you the feel the music in your body. Pretty awesome!

I had a lot of fun making them too. The 3/4" MDF was only $65 at my local lumber yard for a 4x10'. I was able to get it home in a toyota camry by cutting it roughly in half, lengthwise, and folding down my back seats. It stuck out the trunk, but we just strapped it down to my hitch-mounted bicycle rack! It was too perfect.

I made a good cut plan, but I still needed to buy another sheet of MDF in 2'x4' because I was doing double front baffles. I cut the large pieces down using a table saw and the help of a friend.

Once the pieces were cut, we found it difficult to assemble them into boxes before the titebond III wood glue dried because it was a hot day. I don't have any clamps, but luckily we did have a pneumatic nail gun to nail the pieces together while the glue set. I left the baffles off during this step. Ultimately, I screwed and glued the cabinets together, but found the screws completely unnecessary. I figured people will probably try to sit on the cabinets at some point and want them to be strong enough for that, but just wood glue is enough.

To cut the holes for the drivers, I used a cheap rotozip style edge trimmer, a drill, and a handsaw. It actually went pretty well! First I traced rough holes with a pencil and used the drill to make holes that I could get my handsaw into and sawed the rough holes out. Once the drivers arrived in the mail, I was able to trace around them for my exact holes. I made a circle cutting jig out of a scrap piece of MDF. I think the circles came out pretty good. Then for the waveguide hole, I clamped a piece of scrap MDF on the baffles to use as a fence. I routed the rounded corners out free hand as well as one side of the hole that was too close to the edge to use a fence. Where I made mistakes, I simply applied wood filler and sanded it to perfection.

I used double-front baffles to get the drivers to flush mount. I found that just cutting a hole completely through the front 3/4" piece was good enough to get the woofer flush mount. Honestly, I wasn't going to spend hours routing the hole just so I could have 1/8" material left to make the driver perfectly flush. If I cared, I could use a double gasket to make up the difference. For the wave guide, I found it easy to set my router to the perfect depth and route out the small amount of material needed to get that perfect flush mounting.

For the port hole, I made a rough cut out with the handsaw, and then once the port was assembled in place, I routed the full cutout with a flush-cutting router bit. It worked flawlessly and gave a nice rounded look to the corners. Also, before assembly, I painted inside pieces of the port flat black latex using a sponge roller. I primed it with oil based primer first, because I read that MDF tends to swell up when latex paint touches it.

I used 2x2" scrap doug fir to brace the boxes. I know its not exactly a "hardwood" but I think it's more than strong enough considering it's in compression. It also smelled good when I was sawing it.

Once the cabinets were finished, I lined all inside edges with wood glue to ensure an air-tight seal. I read that silicone and some sealers can off-gas a harmful substance for your drivers, so I avoided them.

For the driver gaskets, I cut out pieces of pvc shower pan liner but found it was difficult to utilize for the woofers. My hole punch could not get through the material to make holes for the mounting hardware. So I ended up using the rubber o rings that came with the woofers, and they work just fine. The drivers have a recess on the back of the baskets where this o ring sits.

I also used the tee nuts that came with the woofers after a disaster with some over kill-sized nuts and bolts I bought from parts express. I found with the 1/4" tee nuts that my holes and placement had to be too exact otherwise the bolts would be going in crooked and either cross-thread or make the tee nuts spin. I found it difficult to get the tee nuts to press in perfectly straight using just a c clamp. I ended up using the smaller hardware that came with the woofers because it gave me some margin of error. They work just fine as well.

I wanted to build my cabinets while waiting for the kits to arrive, and it would have been nice to know more specifics of what Wayne's kit does and does not include. For example, I bought extra tee nuts and bolts plus extra shower pan liner for gaskets that I didn't even need because the woofers come with that stuff. On the other hand, the kits do not include any kind of mounting screws or hardware to use with the crossover PCBs and the rear panel connectors. So its a good thing I had wood extra screws. No one likes running to the hardware store when you are in the middle of a relaxing project!

The waveguide does not include a gasket nor mounting hardware. So you will need shower pan liner and tee nuts/bolts for that. I found the 10/32 size bolts worked well for the waveguide. The tweeter, however, does include the hardware needed to mount it to the waveguide.

I hate MDF and would not use it again. The dust gets absolutely everywhere including your eyes and throat. Plus it's really not very strong in the corners which leads to all your corners getting dented and rounded off during construction and moving the speakers. I would use baltic birch plywood next time.

File Attachments

1) 4-pi-speakers-handtruck.png, downloaded 4498 times

Subject: Re: 4Pi build
Posted by Wayne Parham on Wed, 26 Aug 2015 20:44:42 GMT
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Lookin' good!

Thanks for posting feedback and build pics!

Subject: Re: 4Pi build
Posted by BobTahoe on Wed, 26 Aug 2015 20:50:38 GMT
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They look great!

I'm currently trying to paint my 4pis and I'm starting to wish I did veneer. Or picked a simple paint like flat black.

Subject: Re: 4Pi build
Posted by pizzacat666 on Wed, 26 Aug 2015 22:21:28 GMT
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I want to do veneer, but I'm worried it will be ruined when I move the speakers. I usually do not live in an apartment for more than a year or two. So every year I will be loading these into my car and ruining the finish on the veneer. Plus the corners of the MDF are already rounded off sadly!

Am I being too worried?

Subject: Re: 4Pi build
Posted by BobTahoe on Wed, 26 Aug 2015 22:26:45 GMT
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The paint's finish won't be any tougher. at least that's what I'm finding right now as I try to finish my cabinets.

I ended up using a 1" round over bit on the front sides and a 3/8's round over bit on the top, now the corners you see are all rounded off to begin with, it looks pretty cool too. Might be something to consider if you have access to a router.

If you really want to protect them you could check out the corner protectors for pro audio stuff on Parts express.

Subject: Re: 4Pi build
Posted by rvsixer on Wed, 26 Aug 2015 22:36:56 GMT
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If they are going to get some abuse, I'd round off all the corners as BobTahoe mentioned and then Duratex them.