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Subject: 4 Pi build for HT

Posted by [NWCgrad](#) on Sun, 14 Mar 2010 02:08:01 GMT

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I've been in communication with Wayne for a couple days trying to determine what I should build for my HT. Looks like I have settled on 3 4 Pi speakers (2 normal and 1 sealed for center channel).

To build the three enclosures it looks like I will need 2 sheets of plywood. My local wood source has 3/4" Cabinet Grade Birch Plywood - 11Ply - on sale for \$59.75 per sheet. This stock is "A-1 domestic made plywood" and seems high quality. However, he also has 13-ply Baltic Birch for \$92.25 per sheet. I am trying to keep the cabinet costs down, but don't want an inferior product as a result.

I will have enough scrap material to extensively brace the cabinets (see attachment for a rudimentary diagram).

I appreciate any advice on any part of the project.

SWN

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#### File Attachments

1) [Internal Bracing.png](#), downloaded 5876 times

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Subject: Re: 4 Pi build for HT

Posted by [CZ Eddie](#) on Sun, 14 Mar 2010 03:40:14 GMT

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Why not use 3/4" MDF @ \$25/sheet and then use veneer to cover it?

Here's a walkthrough on how to veneer:

<http://www.partsexpress.com/Tech/300-704.html>

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Subject: Re: 4 Pi build for HT

Posted by [NWCgrad](#) on Sun, 14 Mar 2010 14:42:59 GMT

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CZ Eddie wrote on Sat, 13 March 2010 21:40: Why not use 3/4" MDF @ \$25/sheet and then use veneer to cover it?

The downside to MDF is weight and strength. I move every three years, with possible move to Egypt or Peru in 18 mths, so MDF is too "brittle" for my needs.

I used the 11-ply for my subwoofer build and it was very good quality, much higher than what I

could find at Lowes or Home Depot. I may go with it again so that I can stain to match the subwoofer. The owner of the store where I buy my plywood (Hardwoods, Inc [http://hardwoodsincorporated.com/plywood.aspx]) recommended the 11-ply due to the huge discount over the 13-ply.

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Subject: Baltic Birch

Posted by [Wayne Parham](#) on Sun, 14 Mar 2010 16:42:20 GMT

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I understand your concern with MDF. I use it in smaller cabinets, usually 3ft3 and less, but only if they'll be used indoors. MDF is definitely softer and easier to damage. It doesn't do well in humid environments either. But in dry, indoor places, it's great because it is real dead acoustically and the price is right.

For outdoors use or wherever I need a more durable cabinet, I always go with Baltic Birch. It isn't just the strength I'm looking for when choosing this product over other plywoods. My main concern when choosing plywood is the possibility of voids. If there are voids between laminations, then there is likely to be debris in the voids that buzzes. Sometimes, there are internal voids that don't initially buzz but material breaks free over time and a buzz develops. If that happens, the cabinet is firewood. I've heard of people drilling tiny holes and inserting epoxy to fill in a void that forms, and that's a pretty good idea if you hit the pocket, but I'd rather start with a nice void-free material to begin with. So I suggest using Baltic Birch.

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Subject: Re: 4 Pi build for HT

Posted by [BigmouthinDC](#) on Wed, 24 Mar 2010 13:43:56 GMT

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I would hope that you post some progress reports/pictures of this project. A couple thoughts came to mind as I reviewed your plan and contemplate my own.

Was your decision to go with the modified center speaker based on aesthetics or something else?

I wonder if there is a point at which putting a lot of internal bracing in as you show starts altering the internal volume of the enclosure.

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Subject: Re: 4 Pi build for HT

Posted by [Wayne Parham](#) on Wed, 24 Mar 2010 15:25:20 GMT

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I'd love to see NWCgrad's build pics too. As for the internal bracing, yes, of course, if you

displace too much internal volume you can affect performance. So the obvious reply is "don't". It is designed to have an internal cross-brace and that's plenty. On the other hand, using a window brace is fine too and takes no more volume.

The center channel is made sealed for aesthetics. We made three speakers for a sound lab at the New Jersey City University and did it this way. When also running multisubs, you have multiple scattering of bass modes, and that's exactly what you want in a small room. The slight difference in the center channel and the left/rights below 100Hz plus the overlapping subs all blends to smooth room modes.

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Subject: Re: 4 Pi build for HT

Posted by [NWCgrad](#) on Fri, 26 Mar 2010 19:56:43 GMT

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BigmouthinDC wrote on Wed, 24 March 2010 08:43I would hope that you post some progress reports/pictures of this project. A couple thoughts came to mind as I reviewed your plan and contemplate my own.

Was your decision to go with the modified center speaker based on aesthetics or something else?

I wonder if there is a point at which putting a lot of internal bracing in as you show starts altering the internal volume of the enclosure.

It will be summer before I can start to build, I am on temporary assignment away from home for the next few months.

I am going with the modified center based on aesthetics - I do not plan on building grills so I liked the symetrical approach.

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