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Subject: Journal of a First-time Builder - Pt 1: Assembly

Posted by [GarMan](#) on Tue, 04 Nov 2003 11:46:11 GMT

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If there are no objections, I'd like to start a thread documenting my experience as a first time speaker builder and the 2 Pi Towers. Last Thursday, I went to the Building Box and got a sheet of 1" MDF cut to size for one tower cabinet. The cost of cutting was only \$2 and was very accurate. Absolutely no need to buy or rent (or learn how to use) a table saw if you don't already have one. Since I was using 1" panels, I increased all external dimensions by 3/4" to maintain internal volume (Wayne's plans called for 5/8" board). Why just one cabinet? Guess I was scared to commit to two until I have a good feel for what I'm doing. With the panels leaning in our front hall, it was the first time that it hit me how big these speakers are going to be (see other post "Towers are Huge!"). Even though I had thought of resizing, I still proceeded to assemble the first cabinet over the weekend. Who knows? I might look better once it's put together. Four hours were spent on Sat cutting the holes for the drivers and putting the front, top, and sides together with lots of glue and 5/16" dowels. I would have liked to use biscuits, but I didn't have the tools. With dowels, all you need is a power drill, and a handful of brass plug/spikes to align the holes. The use of dowels made dry fitting a breeze! A suggestion to first time builder: Get more clamps. You can never have too many clamps. Also, a good metal square is extremely helpful. With the 1" panels, dowels, and glue, the box was rock solid. But I still spent 3 hours on Sunday installing bracing (you can never over-brace). In addition to the two sets of cross-brace suggested by Wayne, I also inserted right-angled triangular pieces to brace the side panel to the front and rear baffles. The triangles were cut from the MDF and measured 5"x5"x7". By my calculations, I have about 280 in<sup>3</sup> of bracing in this cabinet, so I'll have to adjust the port size for this. Right now, I have a partially completed cabinet sitting in the corner of our living room. I won't be able to get to it again until the weekend. My wife's nickname for it is "Monster". I keep taunting her about the second cabinet to come. While the cabinet is large, I'm getting used to it and I'm starting to think that it fits the room. Our living room is about 18'x20' with a sloped ceiling from 11' to 15'. However, I'm still toying with the idea of reducing the height by 6".to be continued...

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Subject: Re: Journal of a First-time Builder - Pt 1: Assembly

Posted by [spkrman57](#) on Tue, 04 Nov 2003 14:33:41 GMT

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Great post!!! I am woodworking challenged, so I always take note when someone shows me a way to get something done without the skills all my lucky friends possess. Keep us informed and once the cabinets are done and finished/veneered, your wife might actually like them. Regards, Ron

Subject: Re: Journal of a First-time Builder - Photos  
Posted by [GarMan](#) on Tue, 04 Nov 2003 16:34:02 GMT  
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Found the digital camera!More to come as project progresses

<http://f1.pg.photos.yahoo.com/lowgc>

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Subject: Re: Journal of a First-time Builder - Pt 1: Assembly  
Posted by [drguayo](#) on Tue, 04 Nov 2003 20:35:16 GMT  
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Those look professionally built to me! What tools are you using? Just a drill and circular saw? take care craig.

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Subject: Hey Slackers! Now you have no excuses!  
Posted by [BillEpstein](#) on Tue, 04 Nov 2003 23:02:09 GMT  
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hey this Building Box sounds like a great place. \$2bucks to cut? Wow! Where it is?My Home Depot and prolly other home centers sell pine for tabletops glued up into 18 and 24X36" and 72" long boards. Exackly the size of Theatre 4 cabinets. 1 24X72 and 2 18X72 make a single speaker with just 4 crosscuts. Total cost in Central Ohio about \$90 for 2 speaks. Nail'm with #6 finish nails, glue'm with PL400 Deck adhesive, brace'm with poplar 1X4 and finish'm with Watco Danish Oil. You could also use dimensional (1X) pine for the Studio Ones and Two's with a minimum of fuss and cutting. Nails and urethane construction adhesive (not to be confused with the heinous Gorilla Glue) is all it takes.Creating is more like performing than listening

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Subject: Port size for thicker baffles  
Posted by [Wayne Parham](#) on Wed, 05 Nov 2003 03:39:00 GMT  
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Sounds like those are going to be absolutely great. Just a word about baffle thickness - Since the port length is set by panel thickness, the Helmholtz frequency is a function of the thickness of the wood. I recommend changing the port diameter so that the Helmholtz frequency is maintained if a different baffle thickness is chosen. A 4 3/4" hole cut through a 1" baffle will tune this box to the

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same frequency as a 4 5/8" hole cut through a 3/4" baffle or a 4 1/2" hole cut through a 5/8" baffle. So if you haven't already cut the port hole, I'd suggest making it 4 3/4" diameter for panel thickness of 1". If you've already cut it, you may be able to enlarge it a little bit. Since the hole for a 1" baffle is slightly larger than for the thinner baffles, it probably shouldn't be too difficult to modify if a smaller hole has already been cut. It's better to have a hole too small than one too big, since enlargements can be done without patching.

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Subject: Re: Tools Used

Posted by [GarMan](#) on Wed, 05 Nov 2003 11:12:05 GMT

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Hi Craig, The only cuts I made were the holes for the drivers. I used a handheld jigsaw for that. All the panels were cut for me to spec from a single sheet of 8x4 MFD from The Building Box (a variation of Home Depot here in Toronto). All I had to do was give them cutting centre a cutting diagram. In terms of assembly, I used a power drill and a jig to drill the holes for the dowels. The jig was \$35(Cdn) and is an attachment to the drill to allow you to drill at preset angles (in this case, 90 degrees). Obviously, I couldn't clamp the inside bracing while the glue dried. For those, I screwed them in from the inside. I may or may not back the screws out later. gar.

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Subject: Re: Hey Slackers! Now you have no excuses!

Posted by [GarMan](#) on Wed, 05 Nov 2003 11:16:17 GMT

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The Building Box is a Home Depot-like store in Toronto. Usually, they charge \$1 per cut, but the guy at the cutting centre was pretty friendly and only charged me \$2. Even at the full price of \$10, it would have been well worth the service. You just have to provide the cutting diagram.

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