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Subject: Question for the carpenters out there  
Posted by [RJeff](#) on Tue, 03 Sep 2002 00:01:55 GMT  
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I'm hoping to build the Pi 2 towers. Since I live in a small apartment, I'll be borrowing space, as well as power tools, in friends' garages for various stages, and getting help with some of the steps. Q: For joining the sides, can I get away with (how do I describe this?) squaring the edges and screwing and glueing them together at 90 degree angles, or is it best to mitre the edges? Sorry if my terminology is inexact - I'm new at this. Thanks Jeff

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Subject: Re: Question for the carpenters out there  
Posted by [bmar](#) on Tue, 03 Sep 2002 01:14:17 GMT  
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90 degree corners or butt joints are fine. if you are going to veneer, laminate or cover the box in any way this will be just fine. A stronger joint would a rabbet or half lap type. (we wont get into locking miters) A butt joint is just not pretty if not covered. It is also not a strong joint, but this is a speaker box and will not be subject to a lot of stress. Internal bracing ie; cross members that tie the sides and the front and back together are a must no matter what panel joining method is used. you can engineer a speaker encloser till the cows come home. There are different methods that have distinct advantages and are well deserved. If your just starting out. Then start out simple and enjoy. Use glue and screws. Bill Martinelli

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Subject: Re: Question for the carpenters out there  
Posted by [JBLman](#) on Tue, 03 Sep 2002 15:42:47 GMT  
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Regarding bracing. I'm in the process of building 4 pi speakers. Can these cabinets be over braced. I think I installed seven braces per cabinet. The exterior panels are definitely vibration proof, but don't the braces themselves create (or suffer from) the same resonance problem (i.e. vibration) that the exterior panels would??

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Subject: Re: Question for the carpenters out there  
Posted by [bmar](#) on Tue, 03 Sep 2002 18:30:32 GMT

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In theory it is possible. what the bracing does for people with out very sophisticated measuring devices, is control the resonance of the large panels. The panels, if not braced will resonate and cause unwanted distortion and transient sounds. these will most definitely be heard with out bracing. I believe getting into the braces themselves vibrating and causing the panel to follow suit is valid, but insignificant to most. If you really had the time to structurally analyze the panel size and the frequencies that are to affect them. You would come up with exacting brace sizes and placement locations there on. a 6" thick concrete cabinet/container would do the trick and not need bracing. you could also make a sandwiched layer of 3/4" MDF, 5/8" sheet rock, 3/4" mdf. and it could further be vibration isolated with something like a barium vinyl or modified bitumen which would weigh about 1 lb per square foot @ 1/16" thickness. I think your 7 braces are just fine. Bill

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**Subject: Panel resonance**

Posted by [Wayne Parham](#) on Tue, 03 Sep 2002 22:50:21 GMT

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The reason bracing works is that it raises the resonance of the panels out of the region where resonance is a problem. If you have a cabinet that's tuned for 40Hz, you don't want the panels to be easily excited by panel resonance at 40Hz. So if you stiffen the cabinet enough to raise panel resonance up to 4kHz, you've moved it out of "harms way." If the frequency of panel resonance is raised high enough, it will be beyond the crossover point, and eliminated for all practical purposes. Preloading a panel stiffens it and raises its resonant frequency considerably. Both the braced panels and the thrust rods connecting them are stressed and made to be more rigid. So the entire structure is made less excitable near the frequencies of interest.