Subject: 2235 subs
Posted by Wayne Parham on Thu, 01 Aug 2002 04:38:51 GMT
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I usually like to position the subs physically close to the mains, so they sum as a single acoustic source. But in your case, it is important to spread them out.Your rigid walls make room modes well defined since there is little damping. Each woofer in the room creates standing waves at certain frequencies, and there will be hot spots and dead spots at various places in the room at those frequencies, areas of sound with nulls between them. Some places will boom, some will be dead, some in between.Framed drywall homes, as are typical in North America, actually do a world of good by damping room modes. The drywall panels vibrate as membranes, absorbing some of the sound and damping the room modes. But basements with concrete walls and rooms with brick or thick plaster walls do not get any damping, so the room modes are strong and well defined. When your sound system is in a room like this, the best thing you can do is to use dense interference to average and smooth the sound field. The way it works is to misalign the standing wave nodes formed by each woofer, using several to fill in the nulls and average out the room distribution.What I would do would be to run the mains as full range speakers, so their woofers provide bass. Do not crossover your subwoofers to the mains in the usual manner, instead, blend them so all the woofers cover as much of the bass as they're capable of, overlaping each other, at least up to 60-120Hz or so. You can low-pass the subwoofers somewhere below the midrange as usual, but do not high-pass the mains. Let them run as deep as they will go, rolling off naturally at the low end. Then position the subs a few feet away from the mains, ideally where nulls from the mains form.As you can imagine, this technique works better as the number of bass sound sources increases, so you might want to build a pair of subs (or more) rather than just one. The number of subs used in this manner isn't for adding bass energy or deeper extension, although it can have that effect if you crank the juice to them. The number of subs is used to distribute the sound sources, to smooth the sound field by averaging.If used outdoors or in a large or well-damped space, I would suggest a large subwoofer cabinet. This allows for high efficiency and deep bass extension. An example is a JBL 2245 in a 10 cubic foot cabinet tuned to 30Hz, a max flat alignment. But in your case, I'd rather have more bass sound sources spread around than one big sub.In other words, if you can't fit several large boxes, but have to choose between one moster sub or two smaller subs, go for the smaller ones. Even if you have to align them to trade efficiency or extension for size, the benefit from distribution will be worth it. So in your case, I'd probably use a pair of 2235 subwoofer cabinets, each 3.5 to 4.0 cubic feet, tuned to 25Hz. This is a realtively small cabinet with slightly overdamped response making -3dB at 40hz and -10dB at 25Hz. A pair of these carefully placed will sound good, blending with your mains and smoothing the bass in the room.