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Subject: Re: How does one emulate the typical theater sound?

Posted by [Wayne Parham](#) on Sat, 04 Aug 2012 14:02:41 GMT

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You're absolutely right. With a projector and screen, you can put the center speaker behind the screen. That's definitely the best approach. When running a plasma or LCD screen though, I'd have to say I don't think there is a good center channel option. That's why I prefer a phantom center. When the R/L axes are crossed, it works very well, especially when the mains are only a dozen feet apart or so.

As for subs, you definitely need them. They aren't just there for extension, but also for modal smoothing. The idea is to run a sub close to each main: a foot or two below, beside and behind, in between the main speaker being flanked and the nearest boundaries. The main is on stands, the sub on the floor; The main is pulled out from the wall a foot or two, the sub is pushed back against the wall. The sub also sits outboard slightly, in between the main speaker and the nearest sidewall.

The reason flanking subs are needed is midbass and deepest lower midrange are omnidirectional, and the sound goes everywhere with equal SPL. The sound that bounces off nearby boundaries is delayed slightly as it arrives your ears compared to the direct sound, which comes straight at you. But the reflected sound is almost as loud, so at frequencies where it is out-of-phase because of the delay, it almost completely cancels, leaving a big hole in response. The peaks surrounding this self-reflection notch contrast greatly, and depending on the frequency where it occurs (which is determined by the distances to boundaries), it can make the sound thin or nasal. Or it can go the other way and make a sort of hollow, tubby sound, even throaty.

The way flanking subs work is they counteract the self-reflection notches. Where the distances between main speaker, boundary and listener all conspire to create a hole in response, the different set of distances between sub, boundary and response tend to "fill in the hole". Likewise, where a hole is formed from the self-interference between sub and wall, the main speaker fills it in. This limits the size of the hole to about 6dB versus what it would be without flanking subs: 15dB to 25dB. Flanking subs make a 10dB to 20dB improvement in the smoothness of the 100-200Hz range, similar to the modal smoothing more distant multisubs provide below 100Hz. Room modes, multisubs and flanking subs

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