
Subject: Surround Sound With TV Over Fireplace
Posted by [two.dogs](#) on Fri, 24 Feb 2012 18:29:58 GMT
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Hello all,

I was referred to this forum from the AVSforum. We are renovating our living room and will mount the TV over the fireplace. I know it isn't the best location but it must go there and we'll install it as low as possible to avoid neck strain. I was planning to make a new mantel with a center channel built-in. The front L/R speakers would be simply be purchased and placed into the bookshelves flanking the fireplace. The rear speakers would be in-wall.

Several of the folks at AVSforum said that the room looked pretty good for constant-directivity speakers that would allow me to skip the center channel. They said I could build the speakers into the flanking bookshelves at the corners of the room and angle them in. Perhaps glass doors in front of the shelves would improve the sound.

I like good sound, but the wife could care less. The speakers will have to be reasonable priced and visually discreet. I've attached a floorplan with the furniture arrangement. I don't really like the placement of the chair, but the bookshelves are 50" tall and we can get a low chair. Thoughts, anyone?

Two.dogs

File Attachments

1) [Audio.jpeg](#), downloaded 6092 times

Subject: Re: Surround Sound With TV Over Fireplace
Posted by [Wayne Parham](#) on Fri, 24 Feb 2012 19:33:35 GMT
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A few thoughts, starting with some basic concepts:

High-Fidelity Uniform-Directivity Loudspeakers

Room modes, multisubs and flanking subs About wives and sound, I actually think most wives care about sound as much or more than their husbands. It's just that if the husband is one of us - an audiophile - and has a tendency towards large, ugly and/or expensive equipment, then their wives object. But it's the ugliness they complain about, not the sound. They don't want our hobbies to cause them to skimp on other things, but since they do like fine things, if you can get them on board with a purchase, they are often times as excited about the home theater as you are. Give her a beautiful room with attractive loudspeakers that sound good, and she'll brag about the sound of your home theater more than she does any other aspect of it.

About center channels, when done right, they're a huge improvement. But when done wrong - as they usually are - when they are designed to fit into a particular space, compromising all other aspects to do so, they are almost always worse than no center channel at all. My general suggestion is if you can use a center speaker that is exactly like the right and left speaker, then do so. If you can't, then don't use a center channel at all. Use right and left speakers with uniform

90° horizontal beamwidth, and angle them in 45° so their axes cross in front of the listeners.

In practice, this philosophy works very well because a phantom center is pretty easy to accomplish realistically as long as the left - right span is not large. By "large span" I mean a width that is greater than about twice the distance to the listeners. If the screen is 100", then the speakers can be placed ten or fifteen feet apart. If the audience is at least five or six feet back, then a good phantom center can be developed using this technique. When larger screens are employed, it is pretty important to have a center speaker, but larger screens are usually used by projectors, in which case speakers can be mounted behind the screens.

Subject: Re: Surround Sound With TV Over Fireplace
Posted by [two.dogs](#) on Fri, 24 Feb 2012 20:28:20 GMT

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If I went the center channel route, I would try my best to do it right. However to fit the mantel would probably require small drivers (maybe 6") in a horizontal MTM configuration. Then maybe use either identical drivers for the L/R speakers or perhaps upsize the drivers from same manufacturer. Maybe this is what you mean by doing things the wrong way!

Here is a picture of how I might integrate 3 pi speakers. Distance between speakers is just over 15' and distance to listener is about 12' so that's good. TV is probably 55" so good for a 12' viewing position. Cost of the 3 pi kit is actually under budget. Speaker front baffles are about 14" so not too visually dominant (would that dimension work?). How about the stub wall (pocket doors) - is 34" enough to make the corner horn work correctly?

Actually, all of your base kits are within budget. The 4 and 7 pi seem too large with the 15" drivers. What speaker would you recommend and what width would the baffle have to be?

File Attachments

1) [pi3.jpeg](#), downloaded 5665 times

Subject: Re: Surround Sound With TV Over Fireplace
Posted by [Wayne Parham](#) on Fri, 24 Feb 2012 21:25:57 GMT

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Yes, an MTM laid horizontally is definitely what I'd consider being "doing it the wrong way." I mean, you can make something like an MTM arrayed horizontally, but the crossover points have to be so low the nulls are very widely spaced. This isn't the way the small ones are made, because drivers small enough to fit can't be crossed low. So they're designed for convenience, to fit in the space constraints. A layout like that is worse than no speaker at all. Besides, it is different than the left and right mains, so the tonal character shifts as you pan side to side, through the center channel. Bad juju.

Subject: Re: Surround Sound With TV Over Fireplace
Posted by [two.dogs](#) on Fri, 24 Feb 2012 22:39:00 GMT

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OK, I think we're closing in on it. The flanking subs are a visual problem. Two solutions come to mind. First, maybe I might be able to build a two chamber corner box and essentially stack the speaker on top of the sub and make them appear as one. Might not be sufficient volume to do this, though.

Second, I think I read somewhere here that using corner horn would enable me to eliminate the flanking subs. I'd just use one sub at the back of the room. Is 18" the minimum dimension for the front baffle on your horns?

Subject: Re: Surround Sound With TV Over Fireplace
Posted by [Wayne Parham](#) on Sat, 25 Feb 2012 00:31:52 GMT

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Don't put the mains on top of flanking subs because that defeats the purpose. They need to be a few feet behind, below and beside the mains. Each flanking subs needs to be between the main speaker it's flanking and the nearest boundaries, in all three dimensions. So they're usually slightly behind, to the outside and just below the mains, which are on stands.

Constant directivity cornerhorns are an excellent option when the room has the right corners to support them. You're right - they don't need flanking subs - because the problem solved by flanking subs doesn't exist in constant directivity cornerhorns. They are acoustically close to the nearest boundaries, so there is no self-interference notch from them. I still recommend multisubs though, just the more distant variety, designed to increase extension and smooth the lowest frequency room modes.

Speaker placement and wavefront launch

Subject: Re: Surround Sound With TV Over Fireplace
Posted by [two.dogs](#) on Sun, 26 Feb 2012 20:52:50 GMT
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The speaker placement you mention is a non-starter for our situation. Trust me on this - we have a surround system upstairs and my wife never turns it on. She just listens to the TV speakers. Also, it looks like the corner horns won't work because they have an open back that would be closed off in the bookshelf cabinetry.

The basic plan A is to throw some Paradigm Atoms into the bookshelves and put an MTM center channel into the mantel.

Plan B is to put 3 pi towers in the corners, no center channel, inwall surrounds, and a subwoofer on the back wall. I know that I am reducing the performance of the system. But would this not sound far better than plan A?

This picture shows how I would try to build 3 pi towers.

File Attachments

1) [product_ak_prisma.jpg](#), downloaded 5454 times

Subject: Re: Surround Sound With TV Over Fireplace
Posted by [Wayne Parham](#) on Mon, 27 Feb 2012 01:44:54 GMT
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to test the configuration for internal standing waves. Maybe just go with Prisma's as they are already designed and optimized for that size and shape?

and thoroughly tested than to modify something of mine and not know what you're getting.

If you have measurement gear and some time to dial 'em in then by all means, give it a go. But if you don't want to go through a design/test/optimization cycle, then it might be better to go with a design that has been proven.
