
Subject: Soffit (Flush Mount) Reference Speakers
Posted by [epstudio](#) on Wed, 15 Dec 2010 22:54:52 GMT
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Hello everyone,

The guys over at Hawthorne Audio sent me here with nothing but great things to say so hopefully some of this will make sense.

I am in the process of designing my new studio control room and will be going with a Soffit (flush) mounted approach for my (mid-field) Full Range reference speakers. I have read tons of info about how to do this right and the guys at John Sayers Studio Design Forum have been great helping me out, but I was leaning more towards a custom Passive Full Range Monitor approach as opposed to the standard Brand Name Active Reference Monitor (Adam, Genelec, Focus etc..) for a few different reasons...

Specifically, my room considerations in regards to size of drivers/enclosure, accuracy of frequency reproduction of components, heat/venting issues for enclosed power amps SIMPLICITY of speaker design (in terms of electronics)for purity of sound etc...

So I guess my questions for you are:

Do you offer your speakers as components? (drivers & x-overs)

Which combo would you recommend for my Control Room?(See attached Pics but disregard the drivers in the 2nd one they are a coax design hence no visible tweeter/horn)

Would your components work without your enclosure (using the soffit effectively as the enclosure) and have you had anybody use this approach with your speakers before? For this type of application? With good/bad results?

I would greatly appreciate any thoughts you have on this and will provide much more info upon request, as my needs are critical listening in the mixing/mastering stage of recording music my attention to detail is exhaustive and my control room design will be acoustically balanced in every aspect possible (given it's limitations of being an enclosed space), thus the marriage between the speaker and the room will be done in such a way as to essentially remove the room from the equation allowing the speaker to reproduce it's content faithfully and provide me with the most accurate representation of my source material possible

Well, sorry for the long-winded post but rather than have you guys wondering what my intentions/needs are I figured I'd try to cover lots of ground in this first one .

Thanks in advance!

Kind Regards,

Lee Billwiller
EP Studios

File Attachments

- 1) [Soffit Angles.jpg](#), downloaded 15880 times
 - 2) [Soffit Front View.jpg](#), downloaded 16384 times
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Subject: Re: Soffit (Flush Mount) Reference Speakers
Posted by [Wayne Parham](#) on Thu, 16 Dec 2010 00:44:33 GMT
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We don't offer any single driver loudspeaker kits, so I'm not sure if this will help. But if you're looking for monitors that offer uniform directivity, I can help.

incorporate a compression tweeter and crossover network, kits also include the crossover, Zobel woofer damper, and all cable assemblies are completed and ready to install. Every kit containing a compression driver also includes the horn flare and the bolts to mount the driver to the horn.

From the looks of your room, the end result would be something like this:

Subject: Re: Soffit (Flush Mount) Reference Speakers
Posted by [epstudio](#) on Thu, 16 Dec 2010 00:55:50 GMT
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Great, Yes disregard the single speakers (I am at work and didn't have an updated pic of just the soffit mounts...)

So, I guess my next question is, would you recommend just using your completed speakers and mounting them into my soffits (as in the University setup), or would there be any advantages/disadvantages to building the components into the front wall of the soffit (resulting in an infinite baffle scenario)?? What are your thoughts on that? The research I have done, shows that in soffit mounting an enclosed speaker you get a 6db boost in lows which needs to be addressed with bass trapping, so my thought is, would there be a plus to minimizing that extra loading by removing the enclosure... Hope that makes sense!

Thanks!

Subject: Re: Soffit (Flush Mount) Reference Speakers
Posted by [Wayne Parham](#) on Thu, 16 Dec 2010 01:19:28 GMT
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I would suggest simply building the speakers as designed and mounting them in the wall. If you

can close the gap so the wall is the baffle, that's great but as long as the gap is small it is acoustically invisible.

Radiating into half-space does increase sound compared to freespace. The so-called baffle-step compensation is done to conjugate the transition from the region where the baffle is acoustically large to where it is acoustically small.

At low frequencies, the baffle is acoustically small so sound radiates omnidirectionally. At high frequencies, where the baffle is acoustically large (i.e. large compared to wavelength), the front of the speaker causes the sound to radiate into halfspace. (Unless of course the driver's directivity is already making a tighter beamwidth anyway)

So what you have here is changing directivity, and this causes on-axis response changes. It does not modify the power response though. Power response is the total energy radiated in all directions. On-axis is the response straight forward. So if a speaker has constant directivity, they're equal. If not, then the on-axis response changes as beamwidth changes.

used with their backs against the wall already. But to tell the truth, there are still some transitions between where the baffle is acoustically small to large, and then again where the room has influence, and wall mounting will help this. So there is a benefit in soffit mounting like that.

And don't forget multisubs...

By the way, here's another good link of permanent installation:
Three 4Pi's in Basic Black for Home Theater Build Thread

Subject: Re: Soffit (Flush Mount) Reference Speakers
Posted by [epstudio](#) on Thu, 16 Dec 2010 07:34:36 GMT
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Thanks, that is certainly helpful... What about putting the 6Pi's into a soffit design? The idea of having a 3-way full range system is also one I am kicking around. Would this even be possible?

Subject: Re: Soffit (Flush Mount) Reference Speakers
Posted by [Wayne Parham](#) on Thu, 16 Dec 2010 13:09:08 GMT
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rather than sunk into the wall.