



Yes – you don't have to see your speakers to enjoy great sound. Custom installation speakers are easily concealed yet offer a genuine alternative to conventional cabinet designs.

True, some hardened audiophiles still regard custom installation as a compromise too far, a convenience-first choice that automatically rules out any possibility of proper performance. There may have been something in this notion once, but it's an outdated perspective now. Properly designed and executed, an installed speaker can perform just as well as a more conventional design.

But before we delve into specifics, let's establish some basics first. Designed to be installed into your home's walls or ceiling, custom installation speakers are purpose-developed to disappear into your décor. Once fitted – normally a job for a specialist installer, although not impossible for a competent DIYer – only each speaker's grille will be visible in your room, and these are paintable to make them even more discreet.

You won't see any trailing wires either, as all cabling will be hidden behind ceilings or walls when your speakers are installed. You can choose to hide your electronics too, either in a convenient cupboard or in another room altogether. The result is sound that, when compared to most conventional audio kit, seems to be coming from an almost-invisible system.

Custom Installation, proper performance



That's fine in theory, but is it really hi-fi? So long as the drive units, crossover and other core components are up to scratch, there's no reason why not.

Truth is, every type of speaker is compromised in some way or another. Conventional loudspeaker cabinets provide their drive units with the acoustic predictability of a defined physical constant – the cabinet itself – but they also interact with the properties of your listening space in specific ways. For example, place a very large loudspeaker in a small room, or too close to a nearby boundary, and you'll muddy its low-frequency output, impairing its timing and transient response. Place your speakers in unusual positions (for example, with one higher than the other) or fail to support them properly (especially important with bookshelf designs) and you'll further restrict their performance.

By comparison, mounting a Custom Installation loudspeaker flush with a wall or ceiling offers some real advantages. First, a loudspeaker mounted on a large surface is arguably more efficient at low frequencies than a cabinet-type speaker. Indeed, securing a speaker baffle into a rock-solid wall provides an exceptionally stable platform for its drive units to operate.

Second, aligning the drive unit flush with the ceiling or wall keeps it free of the baffle-generated diffraction effects that afflict a conventional cabinet speaker.

There are no edges or corners able to impact upon the drive units' operation – or those that are present are sufficiently far away as to have no discernible effect. You'll also find that the drive units are free of the typical back-reflection issues that can affect speakers when positioned close to a nearby wall.



Of course, some of those advantages raise their own problems. Installed speakers frequently have to fit into a limited space, which naturally has an impact upon the relative size of the drive units that can be used in each instance. Also, there's more variation over the precise nature of the structure into which an in-ceiling or in-wall speaker might be mounted. A masonry wall is an excellent location (as long as the speaker has an adequate volume of air behind it), but a plasterboard/timber 'stud' wall (or ceiling) is more challenging, in that it can vibrate in sympathy to the movements of the speaker, colouring and distorting the sound as a result. Specially developed back boxes help counter this problem, and are used to provide installed speakers with a constant physical volume from which to perform at their best.

A suitable solution for every home

So the theory behind Custom Installation is sound: what about the practice? There are two key categories of installed loudspeaker: in-wall and in-ceiling.

Broadly speaking, in-wall speakers are closer in character to a conventional pair of speakers. They're designed to be mounted at ear height, and because they tend to be installed in comparatively stiff, strong structures – walls – they can be bigger and heavier than their in-ceiling siblings. Of course, cutting an aperture for an in-wall speaker into a masonry wall is more of an undertaking than slotting it into a stud-type construction, but if you're building from new or having internal alterations carried out, it's less of an issue. If you or your architect plan any loudspeaker installation into your construction phase, it becomes no more challenging than fitting a new radiator.

This size advantage means if you've the space, the budget and the inclination, an in-wall speaker can be as performance-orientated as any good-quality floor standing speaker. [Bowers & Wilkins range-topping CWM8.3](#) is a true three-way design, its drive-unit complement including a Carbon Braced Tweeter plus a 5in Kevlar FST midrange drive unit and a pair of 7in carbon fibre reinforced Rohacell bass drivers. It's a truly high-end loudspeaker, albeit one that disappears from view.



By contrast, in-ceiling speakers tend to be lighter and smaller: rare indeed is the ceiling able to support a heavy full-range loudspeaker, and it's this constraint that most dictates the size and relative ability of in-ceiling products. As to performance, you'll find almost all in-ceiling designs ideal for use in multi-room music installations, and they also work well in a home cinema context.

Delivering true hi-fi performance from an in-ceiling speaker is more of a challenge, but by no means impossible. The key is to optimize high-frequency dispersion, simply because it's rare for listeners to be seated directly on-axis with the speakers. It's an issue that can be addressed in a variety of ways, from adjustable tweeters and variable driver equalization (allowing for a degree of 'aim' for high-frequency sounds) through to specific optimization of drive units to create a wider dispersion. Done correctly, as in our [CCM8.5](#) model, the results can be every bit as satisfying as those available from a good pair of conventional speakers.