



Step 1 Seal Cracks and Gaps

At the framing stage, but after the mechanical process is complete: Start with a quick visual inspection of ductwork and water supply lines. They should all be clamped and secured tightly in place to prevent vibration. Using acoustical sealant (in a caulking tube), seal all small cracks, gaps, and holes that penetrate walls and ceilings to the upper floor or adjoining rooms, such as holes drilled for electrical wires, plumbing lines, or furnace ductwork. Larger holes up to 3/4" can be filled with a can of low expansion foam such as you would spray around windows and doors. This will minimize obvious sound transfer from room to room. You may also consider having your electrician use R-2000 device boxes, which are self-sealing. Conventional metal device boxes are full of holes that will allow sound to travel easier into wall cavities. The added benefit here is that on exterior walls, vapour cups will not be required. Pot lights installed next to insulation should be an insulated fixture, and are required to have an I/C (in contact) certification stamped on the fixture for fire protection. An insulated pot will offer less sound transmission. These are points you should bring up with your electrician in the planning stage. **Make sure they are aware that insulation will be in contact with light fixtures.**

Step 2 Sound Absorbant Insulation

Perhaps you've chosen speakers that are built into ceilings. Construct and install a 2" Styrofoam SM box approx. 14 1/2" x 14 1/2" x 8" H, or the width of your floor joist, with a top and open bottom. Install the box between the ceiling floor joists at the location of the speaker, allowing 1/2" to hang below the floor joist to create a flush seal to the drywall. This will help direct sound into the room while suppressing sound transmission back through the speaker and into the cavity, framing structure, and upper construction floor itself.

While most insulation batts will dampen sound, none do so as well as Roxul Safe and Sound. It's a little pricier but the benefits are a no-brainer. This product is high density for sound absorbance, with a slightly higher R-value than a standard batt. Due to the inherent nature of basements to have a greater tendency to be damp, this product is made from stone and offers better mould and moisture resistance, with a higher fire resistance rating as well. You'll also be happy to know that it is not nearly as itchy as fibreglass insulation, but still wear gloves, a mask and eye protection. Simply cut the batts to friction fit 1/4" larger than the cavity with a serrated knife (try to have no gapping, without having excessive compression of the batt). You will need to cut around all obstacles such as wiring, device boxes, pot lights, etc. Compressing the batt around these obstructions will have a negative impact on R-value and sound transmission.

I would recommend using an R-22 batt in the ceiling installed flush to the bottom of the floor joists; maximize the thickness of the wall batt to the thickness of the wall framing. So R-14 for 2 x 4 framing and R-22 for 2 x 6 wall framing, which will likely be the norm. Don't forget to insulate the underside of the stairwell.

