

## How to install Wall and Ceiling Speakers

Installing wall and ceiling speakers in your home can be the foundation for a whole-house audio system or a sound system for your home theater room. In-wall speakers make great sound effects as the surround channel speakers. They can be installed in hallways and under soffits outside the perimeter of your home. In-wall speakers can be installed in both new construction and into existing homes. Unlike regular boxed speakers, in-wall speakers don't stick out and are not easily noticed by visitors.

The speaker installation demonstrated here is typical of the products found in our catalog and web site. In some cases, the installation details may be different. But rest assured that the speaker manuals with all the speakers contain step-by-step instructions.

### Plan the location and running cable

Start by selecting a location for the speakers. They can be installed in the ceiling or in a wall. There is not too much difference between the sound quality of the two different types of installations. Much of your decision will be based on the ease of getting wires to the speakers and obstructions. All the speakers in our Website CAN be installed in a standard 2x4 framed wall. Frequently, we get calls from customers who worry about the back part of the speaker poking through the wall on the other side.

The first task will be getting speaker cable to the planned location. Be sure to use only Class-2 or higher rated cable like our [SmarthomePro Speaker Cable](#) or [Monster® Standard Speaker Cable](#). In new construction, before the walls go up, the electrical inspector will check all your wiring, including low-voltage lines like speaker cable. These cables have the UL Class 2 number clearly imprinted on the sheath of the cable.



In many cases, it will be necessary to drill into framing to run the cables. Drill holes in these pieces directly in the center. When running speaker cables or any low-voltage cable, be sure to avoid running the cables near regular electricity lines. We recommend that the cables be at least 16 inches from parallel runs of AC cables. Where the cable must cross each other, cross them at 90-degree angles. Do not use the same holes drilled in the framing that are used for the electrical wires. For wall speaker

installations, use a wall cavity (the area between the studs) that does not have an electrical cable running down the top plate to an electrical outlet in that cavity.



In a home with finished walls, using a [Fish Tape](#) can aid in the running the wires. You can run the wire before making holes in the wall or after cutting out the opening; it's your choice. You will also find it nearly impossible to run wires in exterior walls because of installed insulation and fire stops.

Another wiring option is to use [Tape Wire](#). This wire can be run along floors and walls between the amplifier and the speaker. Once installed, cover the Tape Wire with a thin coat of dry-wall compound, Spackle, or plaster. Once textured and painted, no one will notice.

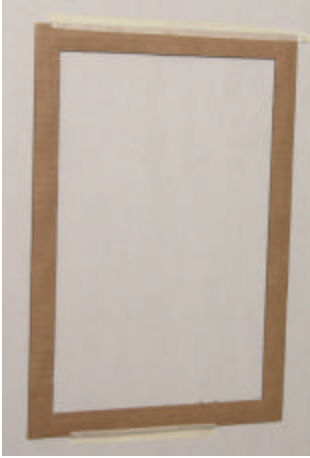
In new construction, we recommend running the cable to the proposed location of speaker and coiling up five to six feet of cable. It's easy to cut off the extra cable, but if you run short, you'll discover that cable does not stretch at all! After the drywall is installed and then painted, you can go back and finish the installation. Another alternative available on some speakers is to use a Rough-in Bracket. It will be nailed to the wall studs. Later, the drywall installers will cut an opening in the wallboard for the bracket. After the painters finish, it's just a matter of attaching the speaker wires and screwing in the speaker.



## Making holes in the walls

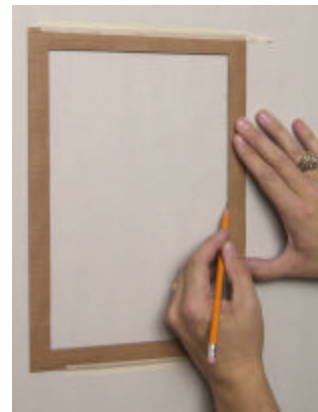


In this step, you will lay out the holes that must be cut to accommodate the speakers. Careful planning must be done in this step or you could end up with an ugly hole on the wall. Use a [Stud Finder](#) to locate the framing around the speaker. If this is new construction, a sketch of the wall with dimensions from the sides can help you remember what the wall's framing looks like. At this point, it may have been several months since you dropped in the cable before the walls went up. Check the speaker's instructions for the minimum clearance needed to install the speaker. Most speakers need at least one or two inches of free space around the opening for mounting. Ideally placing the speaker in the direct center between the studs is the best course of action.



Included with all speaker kits will be cutout templates. Sometimes, the template will be part of the box or packing material. In the photo, the cardboard template was part of the material that separated the speakers in the box. Also, make sure that the template matches the speaker you are going to install. Sometimes the manufacturer will include a generic template for all their speakers. The template will have multiple perforations for the different sizes that the manufacturer produces. It would be a shame to cut a 14x10" hole for a speaker that only needs a 12x8" hole. If this happens and you don't want to patch the hole, our customer service team can help you upgrade the speakers to the larger size.

Place the template on the wall and use masking tape to temporarily secure it. Use a carpenter's level to make sure the top is level or the sides are plumb. Use a pencil to outline the area to be cut. Once again, it won't hurt to make sure the cutout matches the speaker's opening.



Once the outline is marked on the wall, begin cutting out the wall material. Use a drywall saw or a keyhole saw to remove the material. Take your time and go slowly – a mistake can ruin the project. Wallboard is pretty easy to cut and if you are a little on the big side, the speaker's outer frame will cover any minor over-cuts.

Remove the center section you have cut out and place it in a safe location. Why do this? In case you have made a mistake and have to repair the wall. If for some reason the hole you have made can't accommodate the speaker, it will have to be patched. Despite the best planning, after opening the wall a water pipe or heating duct could be revealed. It's not likely to happen, but better to play it safe and save the cutout until the project is completed.

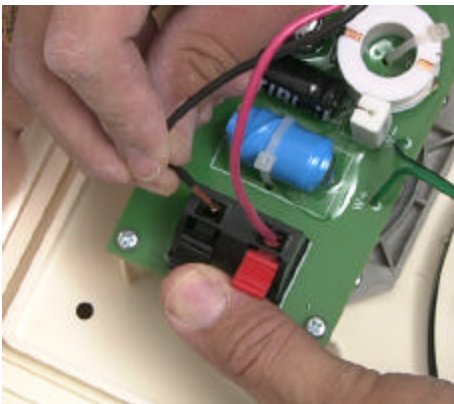
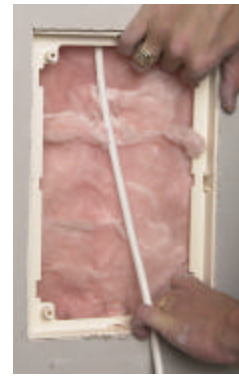




Reach inside the wall cavity and find the speaker cable you previously installed. If you did not pre-wire prior to this step, now's the time to run the wires. One optional step at this point is to install some fiberglass insulation to improve the speaker's sound.

### Installing the Speaker into the Wall

Install the bracket for the speaker if one is included. With these [JBL In-Wall Speakers](#) there is a plastic bracket that is installed inside the wall. Other speakers like the [BIC series](#) use a metal bracket and still others don't use a bracket at all. These units have clamps that hold the speaker to the wall from the inside of the wall.



Strip the insulation for the speaker cable and attach to the input jacks on the speaker. If the wires are connected to an audio source, test your speaker now. It's easier to fix a glitch now instead of after the speaker has been installed and painted!

Slide the speaker into the opening. Center the speaker in the cut-out and evenly tighten the screws. In the photo, we used an electric screwdriver to drive the screw most of the way. For final tightening, use a manual screwdriver. The speaker's plastic case may crack or be distorted if over tightened by an electric screwdriver.



## Finishing Touches



Press the grille onto the speaker and perform a final test. If you like, the grilles can be painted to match the walls. Use a well-thinned paint and try not to block the grille's holes as it will diminish the sound quality. High quality spray paint produces the best results. Use the cut-out template to cover the speaker elements during painting.

That's it! With your new speakers installed you can enjoy high quality sound from recessed speakers in that room.

If you don't feel that you have the skill set to install in-wall speakers, there are professionals that can help. Electricians, custom stereo installers, and phone system installers all have the skill set to run cables through the walls. Another alternative is a general handyman. The local home improvement center is a good place to pick up a few names of folks in your town who can help.

## Questions, we love questions

Email our Tech Support team if you have questions about our In-Wall Speakers or Whole House Audio. Email us at

[pretech@smarhome.com](mailto:pretech@smarhome.com)