

Balance Room Temperatures for Increased Comfort



Use the duct damper handle to control the amount of heated or cooled air to rooms. The summer and winter settings will be different.

Photo by James Dulley



A register booster fan has a winter/summer switch and an adjustable sensitivity knob to fine tune for your room.

Photo courtesy of Field Controls



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Q. We have a problem keeping several rooms comfortable. What are some simple, efficient methods to balance the temperatures in our home?

A. There are many reasons various rooms in a home do not stay warm or cool enough, even though they have similar-sized ducts.

The number and orientation of windows affect room temperatures. South-facing windows can transmit a lot of heat into a room, causing a room to overheat in summer. North-facing windows—especially old leaky ones—can make a room chilly during winter. Both problems can be mitigated somewhat by installing new windows or insulating shades, but there will still be variations.

If your HVAC blower has an efficient variable-speed electronically commutated motor, switch the thermostat fan to continuous when problems arise. This keeps air circulating to reduce room temperature differences. If your system has a less-efficient standard blower motor, use this option sparingly. It can use a lot of electricity. During air-conditioning season, this extra electricity use ends up as heat that makes the compressor run longer for a double cost.

Another problem is the walls of the ducts—especially sheet metal ducts—lose or gain heat as the air makes its way from the heat pump or central air conditioner to the rooms. This problem is made worse because heating ducts often are located under windows. This positions them on outside walls and takes space from the wall insulation thickness.

Hold a thermometer in the register outlet air flow in each room. If there is a 5-degree temperature difference or more, wrap insulation around as much of the duct as you can.

Uneven room temperatures also happen when not enough heated or cooled air gets to problem rooms. Hold your hand over room outlet registers to compare air flow. If a room is far from the indoor blower, the duct creates more air-flow resistance. This problem is exacerbated because longer ducts also lose more heat through their walls.

Longer ducts also have more joints, which can leak heated or cooled air before it reaches the intended room.

Check the baffles in the ducts near the heat pump or furnace to be sure those leading to problem rooms are not partially closed and blocking air flow. There usually is a small handle on the side of the duct. The duct damper is fully open when the handle is parallel to the duct.

Try partially closing the duct baffles leading to other rooms. You will have to close them to at least 45 degrees to notice the effect. This forces more heated or cooled air to problem rooms. The settings of duct dampers to each room will have to be changed from summer to winter because the heat gain/loss varies by season.

Hang a thread from a stick and hold it near all the joints in the ducts to locate air leaks. Seal leaks with duct tape or duct joint sealing compound. Don't just use cheap gray duct tape. It often comes loose in a year or two. Use aluminum foil duct tape or black Gorilla duct tape. Gorilla tape is easier to apply and holds up for many years.

Make sure room register baffles are fully opened. Install a deflector over the register to direct heated or cooled air into the room. This is particularly effective when air conditioning because cool air tends to hang near the floor and not circulate throughout the room. Move furniture so it does not block air flow.

Installing a duct booster fan can help get more air flow to the problem rooms. Duct booster fans are designed to fit into the ducts near the furnace blower. Some sense when the blower starts and come on automatically. Others have their own thermostat or can be connected to the main blower controls.

Register booster fans also can help. They mount over the outlet register in a room. They are easier to install than a duct booster fan and provide more control over room temperature. The register booster fan plugs into a standard wall electric outlet. It has its own thermostat so it comes on only when the main blower runs. The small fan motor uses only about 30 watts. ■