



Duct sealing

Your duct system is responsible for efficiently distributing conditioned air throughout your home. Proper duct sealing and duct insulation help your HVAC system perform at its best. If conditioned air is leaking into your attic and crawlspace through gaps in your ductwork or if your ducts are not insulated, you could be losing 20%–40% of your conditioned air. TVA EnergyRight® and your local power company make it easy to hire with confidence for your duct system upgrade or repairs when you choose a TVA-approved contractor—trained, licensed and insured to work on your system—through our Quality Contractor Network (QCN).

Why is duct sealing important?

Heating and cooling make up approximately 45% of your home's energy usage. Sealing leaky air ducts may be the single most important thing you can do to improve your home's energy performance.

What are the benefits of duct sealing?

1. Reduce summer and winter energy bills.
2. Improve comfort in your home.
3. Improve the quality of indoor air.
4. Increase the lifespan of HVAC units.
5. Reduce noise from the HVAC system.
6. Reduce excessive dust.

How do you seal your ducts?

Sealing your ducts does not require a lot of material, just time and a little special attention. Remember this: Don't use duct tape. Despite the name, the adhesives in duct tape aren't designed to withstand the typical temperature and moisture variations present around ductwork. Duct mastic and mastic tape are designed for HVAC applications and are the go-to methods for a durable and long-lasting seal. Duct mastic or mastic tape is applied directly to connections and seams on the internal duct, not to the insulation, liner or sleeve on the outside of the duct.

How much money could I save?

By reducing duct leakage in your home by even 30%, you can expect, on average, up to a 16% reduction in your annual energy consumption. And less energy consumption means a lower utility bill.

TVA installation requirements for duct sealing*

Duct sealing to be performed in the following areas:

- Largest leaks, including disconnected ducts, missing end caps, etc.
- Areas of highest pressure, including air handler and plenums.
- Entire return duct system, except hard pipe seams.
- Panned joists, wood plenums, wall cavities and/or other building cavities used as part of the duct system.
- Supply take-offs, including starting collars.

Proper duct sealing requires use of the following materials and procedures:

- Sheet metal and flexible ducts must be mechanically fastened.
- Ducts to be sealed with UL 181 approved mastic or mastic tape before insulation is applied. Regular duct tape is not allowed.
- Apply mastic directly on the duct (not insulation or sleeve).
- Ensure the mastic is installed on a clean and dry surface.
- Gaps larger than ¼ inch should be sealed with fiberglass mesh tape and mastic.
- QCN member to advise customer to install a working carbon monoxide (CO) monitor if the home has any gas appliances or an attached garage.

Basic steps to duct sealing:



Pull back outside sleeve and duct insulation to expose flexible duct.



Install tie strap and apply fiberglass mesh tape.



Apply mastic directly on the duct.

Duct repair and replacement requirements:

- New ducts must be mechanically fastened and sealed with mastic paste or mastic tape.
- New supply branch ducts must have a damper installed at each take-off and originate no less than 12 inches from the end of the trunk line.
- Each level of the home must have at least one return air grille.

Duct insulation requirements:

- New ducts must be vapor sealed, weatherproof and have a minimum R-8 insulation.
- Existing ducts with less than R-4 insulation must be insulated to R-8.



ENERGY SAVING TIPS

- Keep furniture from blocking registers.
- Keep interior doors and registers open.
- Check duct system quarterly for damage that needs repair or sealing.

RECOMMENDED BEST PRACTICES

- Verify the duct system is correctly sized prior to sealing.
- Ensure duct leakage to the outside after sealing is no more than 10% of system fan capacity.
- Do not use panned joists, wood plenums, wall cavities and/or other building cavities as part of new or existing duct system.
- Do not turn air handler on until after mastic has had time to cure.
- List locations of duct sealing, materials used, labor hours and diagnostic readings on invoice (if available).

Go to **EnergyRight.com** to register your home and connect to the Quality Contractor Network.

*This sheet is not a substitute for the TVA Standards.