

HVAC Replacement

It may be time to replace your heating, ventilation, and air conditioning (HVAC) equipment if it is more than 10 years old, not keeping your home comfortable, or needs frequent repairs. Replacing existing equipment with an ENERGY STAR® qualified, high efficiency unit can save up to 20 percent on your heating and cooling costs. In addition, properly sizing new equipment may allow your home to use a smaller unit, which will save money on the cost of the unit and energy bills for years to come. A professional Quality Contractor Network (QCN) member can evaluate your equipment and offer solutions for your home.

What size HVAC system do I need?

HVAC equipment needs to be properly sized to perform at its best. An oversized heat pump or air conditioner wastes energy and costs you money. When replacing heating and cooling equipment, a trained QCN member will need to calculate your home's heating and cooling needs to determine the proper equipment size for your home.

How is the energy efficiency of a heat pump rated?

Heat pumps have two efficiency ratings: Seasonal Energy Efficiency Ratio (SEER) for the cooling mode and Heating Seasonal Performance Factor (HSPF) for the heating mode. Higher SEER and HSPF numbers equate to higher levels of energy efficiency. ENERGY STAR rules require new heat pumps to have a SEER of 14.0 or greater for packaged units and 14.5 or greater for split units, and a HSPF of 8.0 or greater for packaged units and 8.2 or greater for split units. Be aware that equipment efficiency degrades over time, so a 15-year-old unit rated SEER 12 easily could be operating like a SEER 10 unit.

How is the energy efficiency of an air conditioner rated?

Air conditioner efficiency is rated by SEER. Typical air conditioners manufactured today have a SEER ranging from 13 to 18, while a 12-year-old air conditioner might have a SEER of 10. ENERGY STAR labeled air conditioners have a SEER of 14.0 or greater for packaged units and 14.5 or greater for split units. In general, a SEER 16 air conditioner will use 33 percent less energy compared to an air conditioner rated SEER 12.

What factors affect the performance of my new HVAC system?

Heating and cooling accounts for approximately 45 percent of the energy used in a typical home. In order to optimize the performance of a new heat pump or air conditioner, it is important to first improve the overall energy efficiency of your home by insulating ceilings and walls to recommended R-values, sealing and insulating any ducts located in attics, crawlspaces, and unheated basements, and air sealing the home. These improvements may allow your home to use a smaller unit, saving you money on the cost of your new system and your energy bills. In addition, an improper installation can reduce system efficiency by up to 30 percent, so it's important to ensure that new equipment is properly installed.



TVA INCENTIVES

Subject to TVA Installation Requirements (see reverse side).

TVA offers incentives of 50 percent of the total installation cost for the following maximum rebates per home:

- Heat Pump – ducted system, non-ducted system or with desuperheater – \$250/unit (no limit)
- Geothermal with Desuperheater – \$500 (no limit)
- Central Air Conditioning – \$150/unit (no limit)
- Dual Fuel Heat Pump – \$250/unit (no limit)
- Tune-up for existing central heat pump or air conditioning system – \$15/unit (one rebate per unit per year)

For more details, call 1-855-2eScore (1-855-237-2673) or go to www.2eScore.com

TVA Installation Requirements for HVAC Replacement*

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- Moisture issues shall be resolved before work begins.
- Balance point shall not exceed 35°F (heat pump only).
- Contractor shall size, select, and install equipment according to Manual J and TVA requirements.
- Contractor shall obtain an electrical permit (or mechanical permit if required by local codes).
- Total cooling capacity shall be between 95 percent and 125 percent of total cooling load (sensible and latent) or the next largest nominal piece of equipment.
- Equipment operating capacity shall be within 10% of equipment rated capacity.
- All equipment shall be ENERGY STAR qualified and AHRI certified.
- Outdoor unit meets TVA clearances for air intake (18") and discharge (4 feet), and shall not be located within 4 feet of kitchen or laundry exhausts.
- Airflow shall be within the range recommended by manufacturer (normally 350 cubic feet per minute [cfm] to 450 cfm per ton).
- Supply registers shall have an average face velocity between 400 feet per minute (fpm) and 700 fpm, or per manufacturer's recommendations.
- Where possible, the return shall have a maximum average face velocity of 500 fpm.
- Vapor (suction) lines shall be continuously wrapped in a minimum of 3/8" insulation and vapor sealed.
- Condensate drain shall be at least 3/4", trapped at unit, and made of copper or plastic. Condensate shall always drain to the exterior.
- The first 6 feet of condensate line shall be insulated.
- Float switch shall be installed on auxiliary drain pan or condensate drain.

Ducts

- New and existing ducts shall be securely supported; supports shall not constrict ducts or duct insulation.
- Ducts shall not contact the ground.
- A minimum of one return air grille is located on each level of the home.
- Quality Contractor Network (QCN) member shall visually inspect duct system for damage and provide participant with a quote for making repairs.
- QCN member shall advise participant to install a working carbon monoxide (CO) monitor if the home has any gas appliances or an attached garage.

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



ENERGY SAVING TIPS

- Air seal the home, including attic access opening, recessed lights, and penetrations in the ceiling, basement, and crawlspace.
- Insulate attic access opening to a minimum R-10.
- All windows should have 2 layers of glass.
- Install attic insulation to R-38.
- Change your air filter every month.
- Tune up your HVAC equipment every year.
- Install a programmable thermostat set to ENERGY STAR settings.
- Keep fan in "auto" position on thermostat.
- Keep outdoor unit free of obstructions (i.e., bushes, fences).
- Seal ducts in unconditioned or semi-conditioned space with mastic.
- Insulate ducts in unconditioned or semi-conditioned space to R-8.
- Insulate all refrigerant lines (vapor and liquid) when installed in high temperature areas.