PREDICTED RELIABILITY & OWNER SATISFACTION

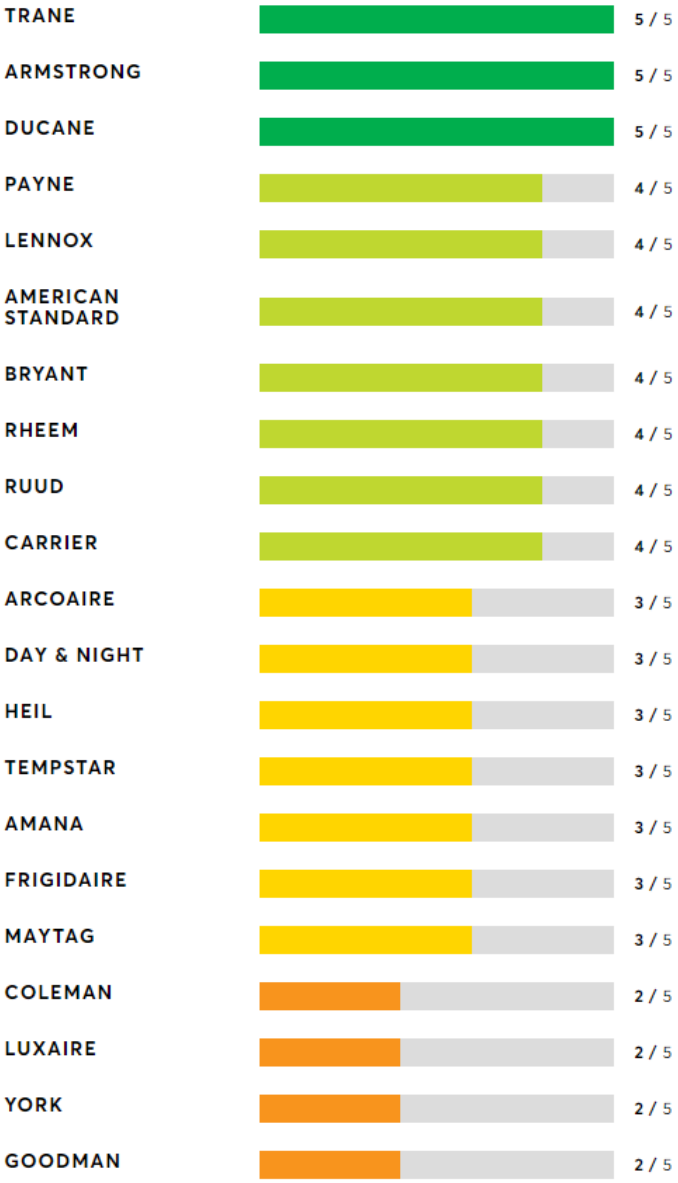
TRANE®
It's Hard To Stop A Trane.®

Results in the following chart are gathered from Consumer Reports' 2018 and 2020 Summer Surveys of 23,997 central air conditioners, owned by members who installed a new system between 2005 and 2020.

Our predicted brand reliability ratings are based on a statistical model that estimates problem rates by the end of the 8th year of ownership, for central air conditioners that are not covered by an extended warranty or service contract. We also adjust for the median number of months of use per year. The median in our survey was 5 months per year. Higher ratings are indicative of better reliability.

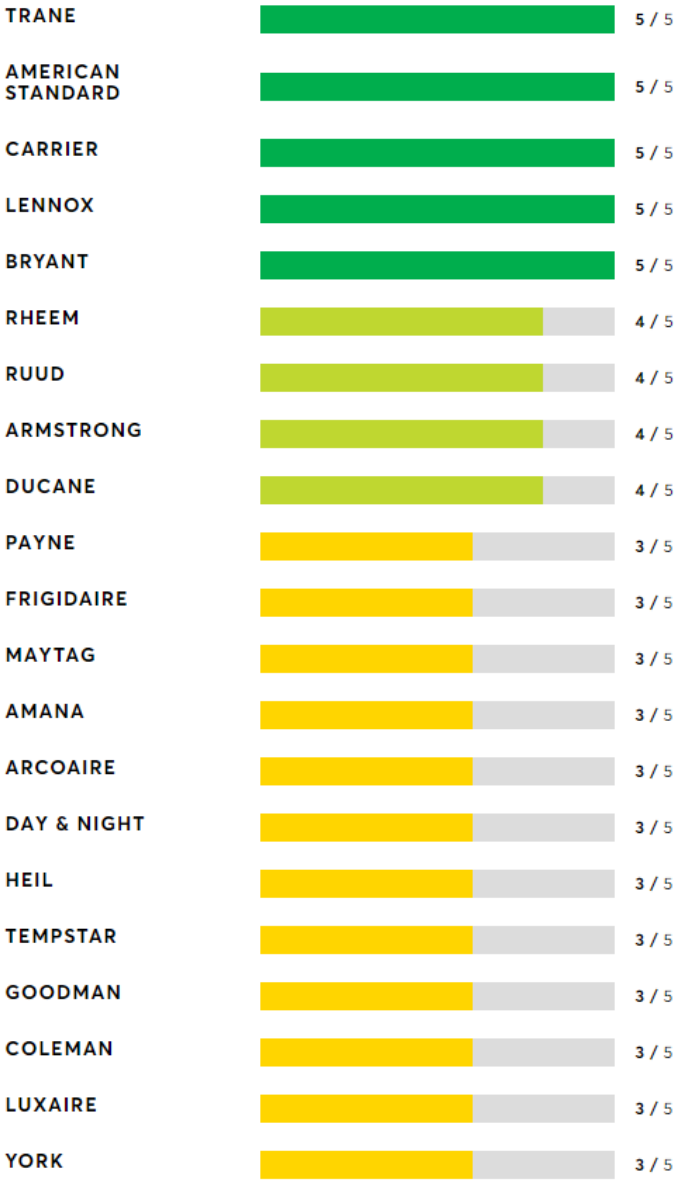
Our owner satisfaction ratings are based on the proportion of members who are extremely likely to recommend their central air conditioner brand to friends and family.

Predicted Reliability



Source: Consumer Reports' 2018 and 2020 Summer Surveys

Owner Satisfaction



Source: Consumer Reports' 2018 and 2020 Summer Surveys

CENTRAL AIR CONDITIONING BUYING GUIDE

With summer just around the corner, now is a good time to think about replacing your central air conditioning system, or installing a whole new one. More than 75 percent of U.S. homes use air conditioning, and 90 percent of new homes are equipped with central air. And eco-conscious consumers will be gratified to know that today's air conditioners are more energy-efficient, which means they cost less to run while keeping you cool and comfortable. Of course, installing or replacing central air can be a huge expense, so you'll want to get it right.

It's not practical for Consumer Reports to test central air conditioning systems because there are so many variables, including a home's size and design, how the system is installed, and construction of the ductwork.

Instead, we ask our members about the systems they own. In our most recent central air conditioning survey, we talked to our members about the almost 24,000 new central AC systems they bought and installed between 2005 and 2020. We learned how satisfied they were overall with their purchase, the cost of repairs, how many systems break, and which parts break most often.

Of the central AC systems covered in our survey, we predict that 36 percent will break or experience problems by the end of the eighth year of ownership. Find out the details from our reliability survey, and learn about the types of central air conditioning systems available and how to choose and maintain them. Plus, learn how to find a good contractor to do the work.

Check CR's exclusive predicted reliability ratings for central air conditioning systems.

Reliability Results

For our reliability survey, we focused on conventional air conditioning systems, which are more common in areas with wide temperature swings. In areas with more moderate cooling and heating needs, heat pumps are a good option. (You can check their reliability in our heat pump buying guide.)

Reliability Ratings for Central Air

Central Air Conditioning Types

The most common type of central air conditioning is the split system, which features a large, boxy condenser outside the home and a fan-and-coil system inside, connected by pipes carrying refrigerant. The air is distributed through ductwork. However, not every home can accommodate the ductwork needed to install central air. Split ductless systems are an option for those homes because, as the name indicates, they don't require ductwork.

Central Air Conditioning

A true central air-conditioning system uses ducts to distribute cooled air throughout the house. In a "split system," the most common design, refrigerant circulates between an indoor coil and a matching—meaning from the same brand—outdoor condenser with compressor (see illustration, below). The refrigerant cools the air, dehumidifying it in the process; a blower circulates air through ducts throughout the house. A thermostat maintains the temperature at the setting you select. A variation is the "heat pump," a type of system that functions as heater and air conditioner.

Split Ductless Systems

Split ductless systems have an outside condenser and compressor, and one to four or more indoor blower units, called air handlers, mounted high on the wall that distribute air. The indoor and outdoor sections are connected by a thin conduit that houses the power cable, refrigerant tubing, and a condensate drain. The conduit is run through about a 3-inch hole hidden behind each air handler. Each air handler cools the room in which it's installed, and you set the temperature with a remote control. Split ductless systems can be more expensive than window air conditioners, and professional installation is recommended. While not technically central air, the cooling they provide can feel like a central air system.

HOW AN AIR CONDITIONER WORKS

To provide cooling throughout the home, air conditioners transfer heat from a home's interior to the outside.

1. Evaporator
Cooling coils remove heat and humidity from the air using refrigerant.

2. Blower
A blower (or fan) circulates air over the evaporator, dispersing the chilled air.

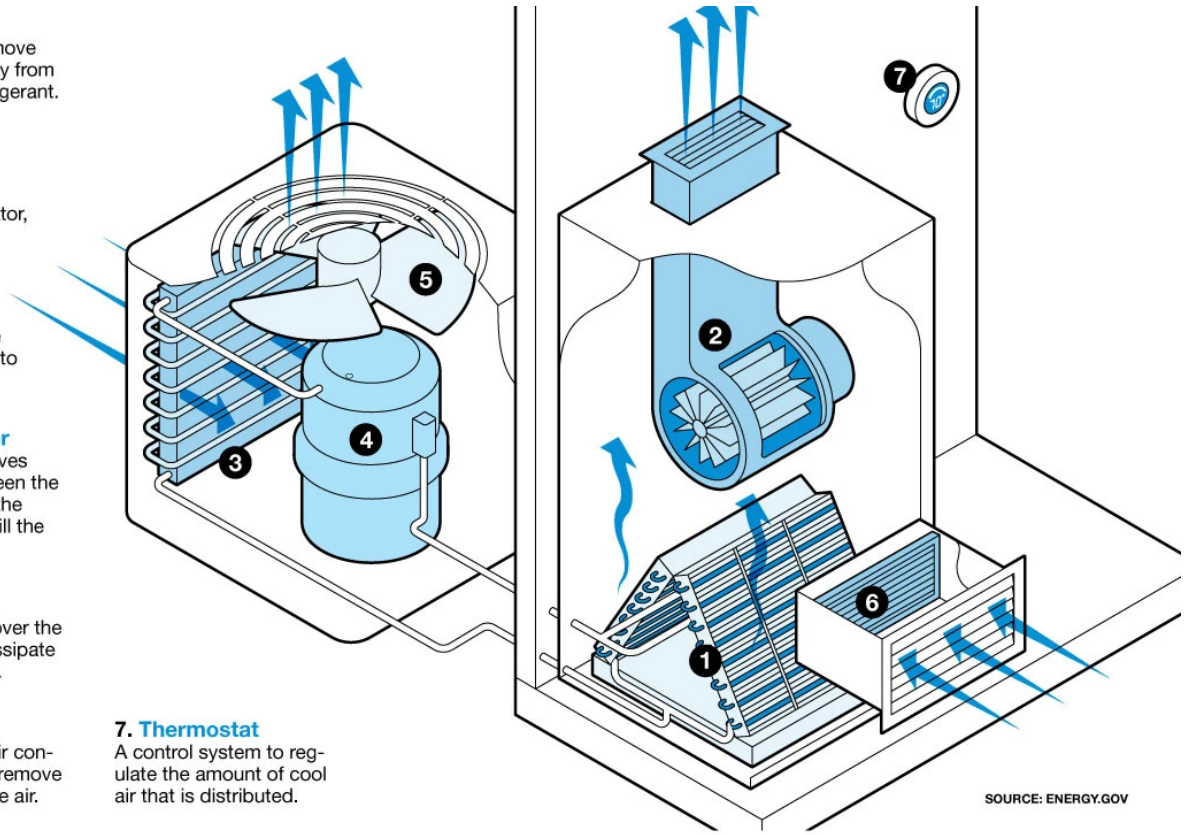
3. Condenser
Hot coils release collected heat into the outside air.

4. Compressor
A pump that moves refrigerant between the evaporator and the condenser to chill the indoor air.

5. Fan
A fan blows air over the condenser to dissipate the heat outside.

6. Filter
Located in the air conditioning unit to remove particles from the air.

7. Thermostat
A control system to regulate the amount of cool air that is distributed.



SOURCE: ENERGY.GOV

Keep Your Ducts in a Row

If you are installing an AC system from scratch, your contractor should calculate the size of the cooling equipment you need by using recognized methods, such as those you'll find in the Residential Load Calculation Manual, aka Manual J, from the Air Conditioning Contractors of America (ACCA). If you already have ductwork for your heating, adding a central AC system can cost less.

Keep in mind that ducts used for heating might not be the right size or in the right location for optimal cooling. Your contractor should ensure that duct sections are properly sized and that there are enough supply registers to deliver sufficient air to the right spots. Undersized ductwork can make for inefficient and noisy operation. Here's how to keep yours humming.

Keep it clean. Clean grills and filters monthly. Clear debris and dirt from condenser coils and check for blockages in the drainpipe. When changing the filter, follow the filter manufacturer's recommendation on how often to swap it out. In general, the thicker the disposable filter, the less often it needs to be changed. (The filters we test last between three and 12 months.)

Seal and insulate ducts. Air can escape through leaks or when ducts aren't sealed and insulated properly, wasting 20 to 30 percent of the energy used to run your system. Sealing your ducts will keep you cooler in the summer and warmer in the winter. That's why it's called duct tape, not duck tape.

Outdoor checks. The compressor needs adequate airflow to operate correctly, so make sure to keep at least 2 to 3 feet of space between the unit and any plants or structures. And there should also be 5 feet of clearance between the top of the unit and any trees above. You'll also want to make sure there's enough space for you or a technician to access and service the unit.

Seasonal checks. Once a year have a licensed professional change all filters, clean and flush the coils, drain the pan and drainage system, and vacuum the blower compartments. The contractor should also check to make sure that the system is properly charged with refrigerant, that there are no leaks, and that all mechanical components are working properly.

IMPORTANT FACTORS FOR CHOOSING CENTRAL AC

Size

A synonym for the air conditioner's cooling capacity, size is measured in British thermal units per hour (Btu/hr.) or in "tons." One ton of cooling equals 12,000 Btu/hr. For sizing guidance, check the Energy Star website.

Efficiency

This describes how much cooling the unit delivers for each watt of electricity. Efficiency is expressed as the seasonal energy-efficiency rating, or SEER. The minimum SEER for a split system central air conditioner allowed today is 14, so look for units with SEER ratings of 15 or greater. The higher the SEER, the more you can lower your energy costs.

Maintenance

Central AC systems need regular maintenance for optimal performance. When you negotiate your installation, it's worth negotiating a service plan that combines regular inspections with discounts on repairs and a labor warranty into the overall price. Prices for such a service can vary widely.

Programmable thermostats

Setting your smart or programmable thermostat at the right temperature can reduce your cooling costs by about 10 percent. The right temperature varies on your comfort level, but start by setting it at 78° F and experiment until you find the sweet spot. You'll save about 3 percent on your utility bill for every degree you raise the set temperature for your central air, according to the Department of Energy. And keep in mind that using a box or ceiling fan, which costs little to run, can make you feel 3° F to 4° F cooler.

Upgrading an existing system

If you're upgrading your central air, don't assume you should buy the same-sized system. Any changes you've made to improve your home's energy efficiency, such as upgrading your windows or adding insulation, can reduce your cooling needs. On the other hand, if you've added rooms, you might need more cooling.

Have your contractor do a load calculation based on a recognized method, such as one in Manual J from the ACCA. The contractor's evaluation should include whether your ducts need to be resized, sealed, and insulated, or replaced. Remember that an indoor evaporator coil and outdoor condenser must be a matched set from the same brand, or the performance, efficiency, and capacity might not meet expectations.

New systems are 20 to 40 percent more efficient than minimum-efficiency models made even 10 years ago. Costs will vary and can depend on whether you need ductwork installed, and the particular size and configuration of your home.

Reliability Ratings for Central Air Conditioning

Installation: Find the Right Contractor

Whether you're replacing an older air conditioner or installing one for the first time, finding a trustworthy contractor to install and service an air conditioning system matters the most. Here's what to do.

Ask around. Seek referrals from neighbors, family, or business associates. It's wise to get price quotes from at least three contractors.

Check their background. Contractors who bid on your installation should show you verification of bonding and insurance, plus any required contractor's licenses. Check with your local Better Business Bureau and consumer affairs office for complaint records. It's a plus if technicians are certified by a trade organization, such as North American Technician Excellence or HVAC Excellence, to service residential heating and cooling equipment. Those and other similar programs assess the technician's knowledge of specific types of equipment and their proper service methods.

Get specifics. Contractors who bid on your job should calculate required cooling capacity by using a recognized method, such as one found in the ACCA's Residential Load Calculation Manual, also called Manual J. An additional reference for assessing ductwork needs is Manual D. The calculations produce a detailed, room-by-room analysis of cooling needs. Ask for a printout of all calculations and assumptions, including ductwork design. Be leery of a contractor who bases estimates merely on house size or vague rules of thumb.