

Comfort By Design

by Jim Herritage, CEM

Before you replace your heating, ventilation, and air conditioning (HVAC) system, there are some things you should know. The first is that a quality installation begins with a professional design.

Most of us don't think about "design" when we think of heating and cooling, but it's just as important as a solid architectural design. A professional HVAC contractor won't simply replace what you have now with new equipment. It's possible that your existing system wasn't sized properly to begin with!

To make sure your new HVAC system meets your needs for comfort and energy efficiency, a quality contractor performs a series of calculations that take into account the overall climate where you live; how your home is sited (for example, if it faces south or north); the amount and quality of insulation in walls, basement or crawl space, and attic; how many windows the home has and how efficient they are; other sources of ambient heat, such as kitchen appliances and lights; even landscaping near the house.

These are called "load calculations." The formulas, which are included in ACCA's Manual J©, were developed by HVAC experts at ACCA and are the industry standard, often incorporated into local building codes.

Turn to the pros

Why should you care about load calculations? It's simple: an under-sized system can reduce the comfort of your home, use more energy, and not last as long as a properly sized system. An over-sized system will cost more than you need to spend and may contribute to moisture-related problems down the line.

Any contractor who tells you a load calculation isn't important is not a professional. The professional understands that your year-round comfort is the ultimate goal. In the summer, your air conditioning system not only cools your home's air (sensible cooling), it removes moisture (latent cooling). In the winter, your heating system must keep you comfortable without causing high utility bills.

Insist that the contractor uses the Manual J residential load calculation procedure. He or she will produce a computerized analysis that indicates just how much heating and cooling capacity your new system should provide. After the installation of your new system is completed, you will receive a copy of the load calculation for your records.

The right equipment

The load calculation also enables the contractor to select the right kind of system. Heating and air conditioning equipment comes in many capacities, configurations, and efficiencies. It's important that your contractor selects the equipment that will be compatible with your home's

heating and cooling needs.

Ducts, grills, and registers

A qualified contractor will make sure the duct work in your home is the right size and insulated properly. Properly installed and maintained duct work can last twenty years or more, but time, heat, and humidity can degrade the ducts' insulation. In addition, ducts may have collected contaminants over the years and need to be cleaned out.

Tell your contractor if some of the rooms in your home have been too hot or too cold, as this could be a sign that the ducts are the wrong size or are dirty. The contractor will evaluate the amount of air each room should get and verify that your duct system is clean and configured to deliver the right air to the right rooms.

Your return air grilles and supply air registers play an important role in providing heating and air conditioning comfort, too. There are times when simply replacing one or more of these devices can cause a noticeable improvement in your home's thermal comfort.

Return grilles that are undersized can reduce the efficiency of the air conditioning system as well as the comfort in your home. Your contractor will verify that these devices are sized and operating properly and may make suggestions for improved performance.

Select a professional

Buying a new comfort system is a major expense, and most homeowners replace their heating and air conditioning systems only every ten or twenty years. It just makes sense – and cents! – to choose a contractor who knows how to design, install, and service the right equipment for you. Using a professional contractor assures you that your home will be comfortable for many years to come.

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