



Keys to a Premium Air Duct System

We will design and install a complete air duct distribution system optimized for use with geexchange systems. There is a wide range in our local market in both price and quality with regards to ductwork. We believe in installing the best possible distribution system to maximize your geothermal system's full potential. Many times, the duct system is in place for the life of the home or until a major remodel, so it is especially important to get it right the first time.

A properly designed and installed duct system will last longer, run quieter, operate more efficiently, and even help keep your family safe from harmful fumes or gases. Below, we list some of the specific aspects of our duct systems and how they contribute to your home:

1. Duct design based on ACCA Manual D ducting standards.

When sizing ducts, many contractors still use a single pressure value throughout, which will guarantee incorrect duct size for most segments, especially if duct sizes are not based on actual heating and cooling loads for each room. For instance, almost half of the runouts of the system will be somewhat oversized, creating zones that are too cold in summer; the remaining runouts, usually the furthest from the air handler, will be undersized, creating zones that are too warm in summer. The result is uneven heating and cooling throughout the home.



Manual D design can also help ensure that ducting is sized large enough to keep the system running quietly. In addition to noise control, properly sized ducts mean that the ECM blower doesn't have to work as hard, using less electricity and causing less wear on the motor.

2. Comprehensive duct sealing

Our duct systems are sealed to Energy Star standards with mastic (duct sealant) on every fitting. Many existing duct systems lose 20% of their air through leaks, holes, and poorly connected ducts. This air doesn't get to where it needs to go and can lead to poorly heated rooms. For example, one home we recently retrofitted had a cold master bathroom. Upon opening the wall, we found that the fitting had been sealed with duct tape which had come loose over time, spilling all of the warm air into the exterior wall. Problems like this can be prevented with mastic sealing, which offers a much more permanent solution than duct tape.





Proper sealing also affects your homes indoor air quality. During normal operation, gas appliances such as water heaters, clothes dryers, or furnaces release combustion gases (like carbon monoxide) through their ventilation systems. Leaky ductwork in your heating and cooling system may cause “backdrafting,” where these gases are drawn back into the living space, rather than expelled to the outdoors.

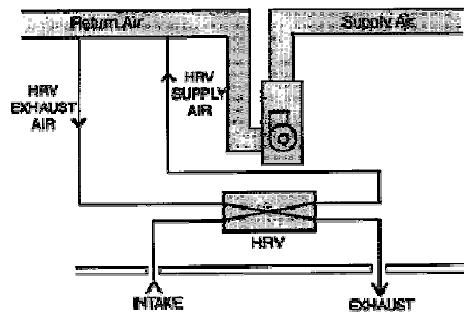
3. Duct insulation

We insulate all ducts in unconditioned areas (like attics, crawlspaces, and garages) with duct insulation that carries an R-value of 6 or higher to prevent undesired losses. Whenever space permits, we also insulate supply trunks in conditioned space to ensure that the temperature going out of the duct is the same as the temperature going in.

4. Whole-system integration

Our duct systems take a holistic approach to integrate heating, cooling, and ventilation. For instance, in many cases, we can integrate our ventilation approach with the capabilities of our equipment’s ECM blowers to provide constant, low-energy circulation throughout the whole house.

Another example is sizing our E-Star bath fans according to Home Ventilation Institute standards, which means that the exhaust fans are optimized for the size and use of the room instead of a one-size-fits-all approach.



5. Other keys to a good duct system

Some other unique aspects of our duct systems include careful attention to placement of thermostats and registers, attention to duct curves and geometry to reduce noise, air flow returns in all major areas, and careful selection of zones according to room usage and temperature characteristics.

A good duct system will incorporate all of the characteristics above. The system may cost more upfront but will be well worth the extra expense in terms of comfort and efficiency.