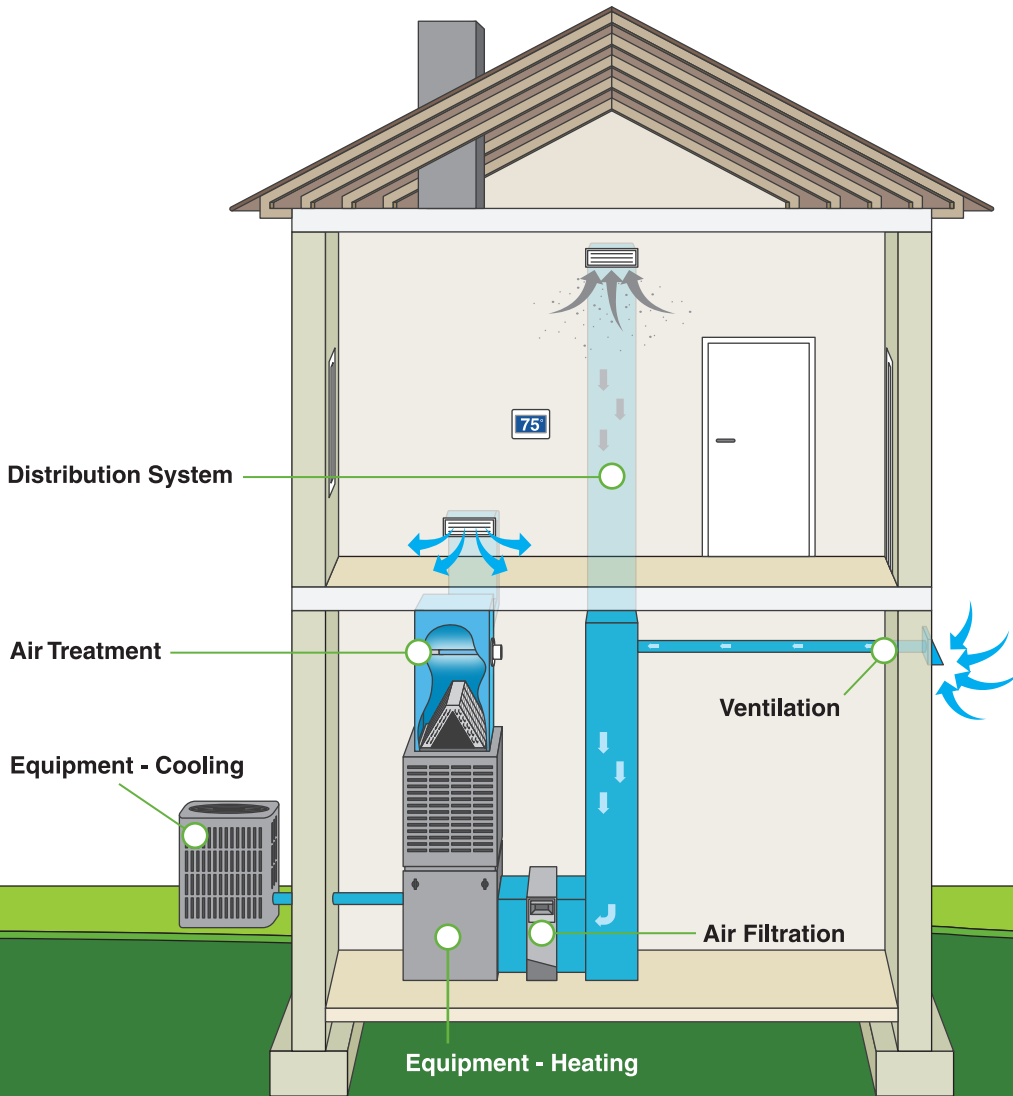


CleanGreen[®]

Comfort System



EQUIPMENT:

Cooling - Minimum 16 seer air conditioning or heat pump.

Heating - Two Stage Variable blower with 80% afue Furnace or Heat Pump Air Handler

AIR FILTRATION:

Minimum MERV 9 or higher air filtration

DISTRIBUTION SYSTEM: Properly sealed, sized and insulated to DET and NCI Standards.

AIR TREATMENT: Minimum of one Ultraviolet air treatment device at the evaporator coil.

VENTILATION: Outside air ducting or equivalent

PERFORMANCE TESTING: Live performance testing of system to verify proper operation

MAINTENANCE: Planned Maintenance at semiannual intervals

What makes a great heating and cooling system? How do I get crisp clean air? Why are my utility bills higher than my neighbors? Why is there so much dust? These are questions that we hear often from homeowners and the Clean Green Comfort System[®] is a practical guide to the minimum standards and components required for a complete system that will deliver the comfort, efficiency and air quality you deserve.

Your existing furnace and air conditioner may be just fine and yet your utility bills are high and odors linger for days. Evaluating your system and taking the steps required can bring your system up to the Clean Green Comfort System[®] standards. It's not as expensive as you might think and the energy savings alone will offset the cost month after month. You deserve to be comfortable and a Clean Green Comfort System[®] is what it takes to ensure a safer, cleaner, better home or work environment.

EMPIRE
HEATING & AIR CONDITIONING
404-294-0900 • www.empirehvac.com

1 EQUIPMENT

New equipment must meet a specific set of efficiency standards to qualify as a Clean Green Comfort System®. All new Clean Green Comfort® systems include the very popular variable speed blower motor that provides quiet low cost operation in addition to special features for system operation. Existing systems in good working order can be retrofitted with the other components of a Clean Green Comfort System® and qualify as well.

Cooling systems

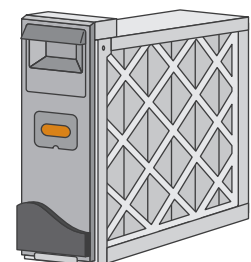
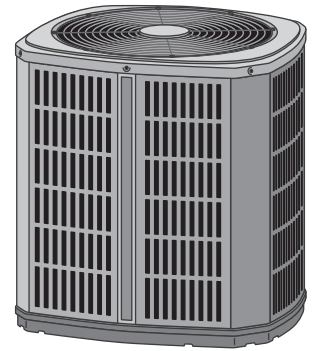
A minimum efficiency of 14 SEER (Seasonal Energy Efficiency Rating) has been mandated by the Department of Energy. The future minimum efficiency mandates are uncertain with many proposals pushing the minimum to 15 or even 16 SEER. Clean Green Comfort System® requires a minimum 16 SEER as this modest upgrade will meet current Energy Star requirements, ensure you meet future mandates and provide continuous savings over the life of your new system.

Heating systems

The Clean Green Comfort System® standard for heating systems is 80% AFUE (Annual Fuel Utilization Efficiency) for gas heating equipment and a minimum 8.5 HSPF for electric heat pump systems as long as a variable speed blower and two stage operation are incorporated in the unit.

Heating systems are currently mandated at a minimum 78% AFUE by the Department of Energy. EnergyStar ratings of 90% for the southern region and 95% for the north are the current minimum standards at the time of printing. There is an ongoing debate between governmental departments and other energy departments as to what the final efficiency determination will be for heating systems. The Clean Green Comfort System® minimum requirement of 80% AFUE is based on practical installation cost as well as specific installation requirements that may make the use of a 90% efficient furnace unreasonable.

Variable speed blowers offer extreme advantages. In the cooling modes having enhanced blower operation greatly improves the moisture removal capabilities of the cooling system. In the heating mode variable speed allows for proper distribution at first stage heating. In the ventilation mode the ultra-low speed operation is critical to maximize the benefits of air treatment, ventilation and air filtration systems.



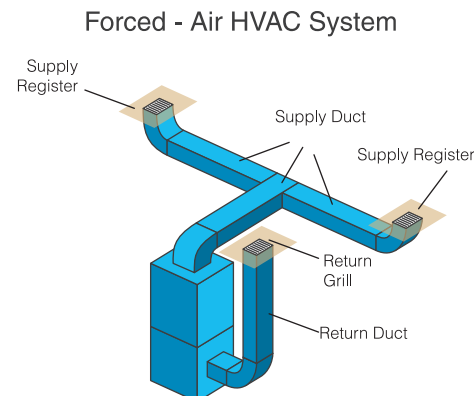
2 AIR FILTRATION

Filters are critical to the proper performance of a heating and cooling system as well as your first line of defense to provide clean air to breathe. The Clean Green Comfort System® minimum standard is a 4" extended surface MERV 9 filter. (Minimum efficiency reporting value is a measurement scale designed by the **American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)** to rate the effectiveness of air filters.) Filters are one of many factors that have an effect on air quality in heating and cooling system.

3 DISTRIBUTION SYSTEM

The ductwork, registers, grilles, plenums and dampers that carry the air from and to your home makes up the distribution system. Distribution systems require sealing to “Duct and Envelope Tightness” (DET) standards and must be properly sized using National Comfort Institute (NCI) standards for proper airflow.

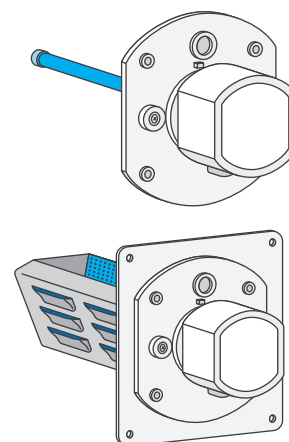
Studies have shown duct leakage can reduce a systems efficiency by as much as 50% and is a major contributor to indoor air quality issues. Field testing has also shown that many systems have inadequate ducting that results in poor balance of temperature in a conditioned space and excessive Total External Static Pressure reducing efficiency and longevity of equipment. Proper sizing, sealing, insulation and installation of ducting is required to ensure total system performance.



4 AIR TREATMENT

A Clean Green Comfort System® requires a minimum of one germicidal ultraviolet light installed at the evaporator coil to help keep the coil clean. Evaporator coils are enclosed in a dark and damp environment throughout the cooling season. Germicidal Ultraviolet light is an acceptable method to maintain the coil and inhibit biological growth. Studies have shown the use of germicidal ultraviolet light has promising results in reducing airborne viruses and bacteria to help provide a safer and healthier indoor air quality.

Humidity control is not a minimum requirement of a Clean Green Comfort System®. The need to add humidity for heating or reduce humidity for cooling is application specific and can vary greatly with factors external to the comfort system. Operational analysis is required to determine if additional equipment is required to maintain proper humidity levels.

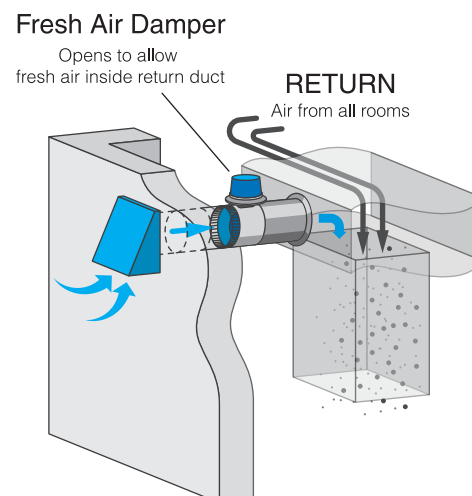


5 VENTILATION

A Clean Green Comfort System® requires a minimum of outside air as required per ASHRAE (American Society of Heating Refrigeration and Air Conditioning Engineers) Standard 62.2 in order to maintain acceptable indoor air quality levels. The required minimum ventilation rate is the simplified calculation from 62.2 or 5% of system airflow. In cases where outside air ducting is not possible or where outside air is undesirable for ventilation the requirement of adding a Photocatalytic Oxidation (PCO) device to the germicidal light will be an accepted alternative.

Indoor air can be two to five times more contaminated than outside air according to the US Environmental Protection Agency (EPA/600/6-87/002a).

External conditions (lifestyle, structure, ambient conditions) can create severe swings in humidity and air quality. In order to control the quality of indoor air and provide a better living and working environment the use of these additional components that are typically not included with a standard installation are required to deliver fresh clean indoor air.



6 PERFORMANCE TESTING

In order to verify systems are working to full capacity performance testing to document total system performance is a requirement. Many contractors will verify a system performance by simply determining the difference in temperature between supply air and return air. In order to determine actual delivered efficiency and capacity of a heating and cooling system total airflow and enthalpy (moisture content change of the air) must be considered in a known well sealed duct system. National Comfort Institute (NCI) has developed a program of HeatMaxx and CoolMaxx testing that is part of a Clean Green Comfort System® program.



7 MAINTENANCE

System maintenance on a bi-annual basis is required to maintain a Clean Green Comfort System®. Approximately Seventy nine million (79,000,000) cubic feet of air move through an average cooling system each year and another one hundred eighteen million (118,000,000) each winter during the heating season. The only way to keep a system performing properly and at capacity is to have a routine maintenance program to keep filters clean and system settings verified. Routine inspections will also help reduce the amount of service and repairs required in high demand seasons.

Having a team that understands the Clean Green Comfort® concept and is trained on all the components as well as how they work together is critical to keep you system running at optimum levels.

We look forward to the opportunity to meet with you and discuss the benefits of a Clean Green Comfort System®. Creating a healthy clean efficient home is only a call or email away! We hope to hear from you soon.



Email us at info@empirehvac.com or call **404-294-0900** for a free consultation.

EMPIRE
HEATING & AIR CONDITIONING

Safer • Cleaner • Better • Since 1985
783 DeKalb Industrial Way Decatur GA 30033
404-294-0900 • www.empirehvac.com