Comfortmaker®
Air Conditioning & Heating
Comfort with Confidence.

GEOTHERMAL: THE SMARTER CHOICE

CONSUMER LITERATURE

WHY COMFORTMAKER AIR CONDITIONING & HEATING?

Throughout the historic legacy of Comfortmaker Air Conditioning & Heating, the company has provided millions of families with the finest comfort systems available. Offering a wide variety of state-of-the-art furnaces, air conditioners, heat pumps and now geothermal systems, Comfortmaker® dealers offer a complete line of products you can depend on.

WHY GEOTHERMAL?

Geothermal systems offer incredible energy efficiency and long-term cost savings, and they can create a more even, consistent level of comfort in your home. Within our geothermal options, Comfortmaker Air Conditioning & Heating offers a wide variety of units, features and options, ensuring we have a geothermal system your family can depend on. For the homeowner who expects more from their heating and cooling system, geothermal offers just that.

GEOTHERMAL: HOW YOU'LL BENEFIT

UNMATCHED ENERGY EFFICIENCY

Comfortmaker® geothermal systems can save consumers up to 70% in annual heating and cooling costs.* By using the earth's natural thermal storage energy to heat and cool your home, geothermal systems deliver up to four units of energy for every one unit of energy purchased. Those are savings you can depend on, keeping more of your hard-earned money in your pocket every month.

SUPERIOR COMFORT

Geothermal systems provide even temperatures throughout the home all year long, with excellent dehumidification when cooling and optimal humidity when heating for the ultimate in home comfort. Banish hot and cold spots from your home forever with Comfortmaker geothermal. You'll also enjoy peace of mind knowing that geothermal units can last longer and operate for years virtually maintenance-free.

FITS YOUR NEEDS

A wide variety of units, features and options ensures we have a system to meet your family's needs. Our models allow for multiple configurations so we can tailor the system to your needs, and our best-in-class warranties ensure peace of mind.

30%	Qualified homeowners may be eligible for a tax credit of 30% of the installed system cost. This credit can be used to offset both alternative minimum tax and standard income taxes and may be carried over to future years.

**Savings calculated using Comfortmaker LoopLink software. Comparison based on simulation in Dallas, Texas. Comfortmaker 6-ton unit vs. standing pilot propane furnace, standard air conditioner and local fuel rates. Actual savings will vary based on configuration, weather and local energy costs.*

EFFICIENT

Comfortmaker® geothermal products deliver up to four units of energy for every one unit of energy purchased, saving you up to 70% in annual heating and cooling costs.* In addition, units (HP, HS & HW) equipped with a two-stage compressor let the unit run at high capacity only when necessary, saving additional energy.

DEPENDABLE

Geothermal units last up to 30% longer† than ordinary air conditioners and heat pumps. Made from high-quality materials, their placement inside the home and out of the weather means they can operate for years virtually maintenance-free.

COMFORTABLE

Geothermal systems utilize moderate ground temperatures to ensure you and your family enjoy consistent, comfortable temperatures throughout your home with optimal humidity and zero hot or cold spots.

GREEN

Geothermal systems reduce your carbon footprint today and for future generations. In fact, geothermal systems are better for the environment than ordinary heat pumps, cutting up to 50% of carbon emissions.◊

COST-EFFECTIVE

Because of the extremely low cost of operating a geothermal system compared to ordinary heating and cooling systems, existing homes could recover the added cost of the system within 5–7 years. New home builds could be saving money from day one. You can even use excess heat from system operation to supplement your water heater.

SAFE

By eliminating fossil fuels from the heating process, Comfortmaker geothermal systems also remove combustion, flame, fumes, and the chance of carbon monoxide poisoning from your home.

QUIET

Unlike ordinary heating and cooling systems, geothermal systems require no outdoor unit. Our products include heavy-duty sheet metal cabinets, high-density insulation, and a double-isolation mounted compressor for quiet operation.

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†Geothermal unit with 20+ year life expectancy (http://www.energy.gov/sites/prod/files/guide_to_geothermal_heat_pumps.pdf) compared to average lifespan of residential split air conditioner or residential air-to-air heat pump (2015 ASHRAE Fundamentals Section 37.3)

◊Geothermal Exchange Organization, 2015; compares baseline building CO2 Emissions to Geothermal CO2 Emissions (17.7 mtons/yr baseline vs. 9.2 mtons/yr for geothermal).

HOW GEOTHERMAL MAKES THE MOST OF THE EARTH'S ENERGY

Geothermal offers an energy-efficient, cost-effective space conditioning system that taps into the earth to capture its renewable energy.

The sun heats the earth, which then stores about 47% of that energy in the ground. Just a few feet below the frost line, the temperature remains between 55 and 70 degrees all year round in many climates.

WINTER

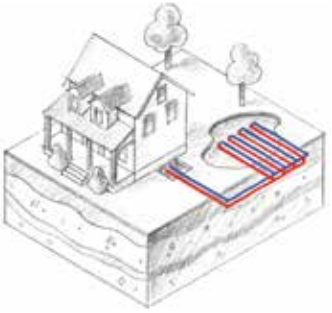
A geothermal system extracts the energy stored in the earth during the winter, concentrates that energy through compression, and then uses it to heat your home. So instead of heating using ice-cold air like an ordinary heat pump, our systems make the most of heat that already exists in the ground.

SUMMER

In the summer, the process is reversed. A geothermal system extracts the heat from your home and transfers that heat to the ground. Unlike ordinary cooling systems that are forced to dispose of excess heat into hot air, the cool ground just a few feet below the surface is ready to accept that heat.

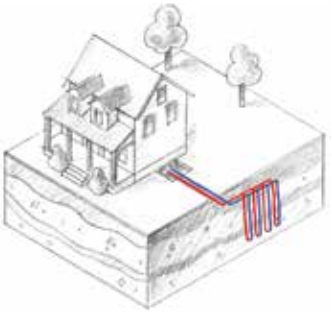
THE LOOP: AT THE CENTER OF IT ALL

A geothermal earth loop provides the transfer mechanism that moves heat from the earth to your home and vice versa. There are four types of underground loops. We can meet your needs even in as little as 15´ x 15´ of space in some homes.



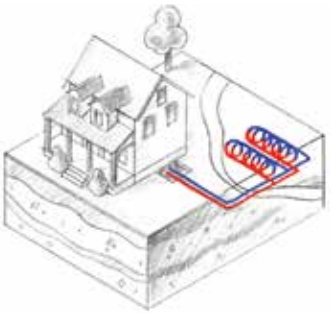
HORIZONTAL LOOP

Perfect for larger lots. Involves one or more horizontal trenches dug with a backhoe or trencher. Polyethylene pipes are laid in trenches that are then backfilled. Typical install requires a half-acre of available space.



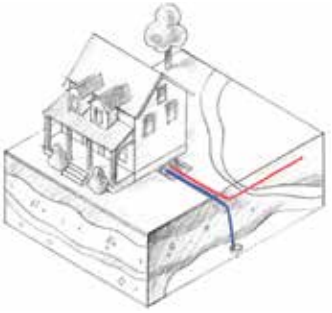
VERTICAL LOOP

Appropriate for limited land installs or when soil conditions prohibit horizontal loops. A drilling rig bores holes into the ground and pipes are inserted vertically.



POND LOOP

Ideal for homes located near an adequately sized body of water. Involves sinking a series of coiled, closed loops to the bottom of the body of water and then connecting those to the geothermal system.



OPEN LOOP

Best for homes with an abundant supply of quality well water. Water is drawn into the geothermal system, used by the system, and then discharged into an adjacent drainage ditch or pond.

Comfortmaker®
Air Conditioning & Heating

PACKAGED UNITS

VERTICAL UPFLOW/VERTICAL DOWNFLOW/HORIZONTAL

Efficiency – Up to 4.6 COP and 30.0 EER
Copeland two-stage scroll compressors*

Variable-speed ECM blower motors*
Microprocessor control

** on selected models*

	HP Series **Upscale** Great choice for excellent performance and reliability 	HB Series **Performance** Standard, solid performer at a base tier price 
Sizes	2, 3, 4, 5, 6	1.5, 2, 2.5, 3, 3.5, 4, 5
AHRI Ratings (13256-1) **Closed Loop (GLHP)** **Ground Water (GWHP)**	 3.5 – 4.0 COP, 15.5 – 24.5 EER 4.0 – 4.6 COP, 19.6 – 30.0 EER	 3.7 – 4.3 COP, 18.5 – 21.7 EER 4.3 – 5.2 COP, 22.7 – 28.1 EER
Compressor	Two-stage unloading scroll	Single-stage scroll (Rotary in 018)
Blower	Variable-speed ECM Constant CFM	Multi-speed ECM Constant torque
Cabinet Configurations	Vertical upflow Vertical downflow Horizontal	Vertical upflow Horizontal
Stages **(* with Aux.)**	3 stages heating* 2 stages cooling	2 stages heating* 1 stage cooling
Control	Microprocessor control	Microprocessor control
Air Coil	Tin-plated copper tubing	Tin-plated copper tubing Coated coil
Air Filter	MERV 8, 2”	MERV 8, 2”
Cabinet Insulation	Closed cell foam	Fiberglass
Compressor Blanket	Yes	No
Desuperheater	Optional Internal mount pump	Optional Internal mount pump
Auxiliary Heat	Optional Internal mount on vertical units	Optional Internal mount on vertical units
Smart Start	Optional (field installed)	Optional (field installed)
Zone Control	Optional	Optional
ENERGY STAR® rated	All sizes	All sizes
Dealer Notes		

SPLIT UNITS	WATER-TO-WATER UNITS
Efficiency – Up to 5.2 COP and 29.1 EER Copeland two-stage scroll compressors Use with FVM fan coils or Comfortmaker® furnaces with variable-speed blowers Great for dual fuel applications	Efficiency – Up to 3.8 COP and 25.7 EER Copeland two-stage scroll compressors Rugged, durable and reliable for a variety of hydronic applications
HS Series **Versatility** Great performance, used with air handler or gas furnace 	**HW Series** **Hydronic** Heating and cooling capable for various applications 
2, 3, 4, 5	2, 3, 4, 5, 6
3.3 – 4.6 COP, 14.8 – 28.8 EER 3.8 – 5.2 COP, 19.2 – 29.1 EER	(13256-2) 3.0 – 3.2 COP, 14.6 – 22.1 EER 3.4 – 3.8 COP, 18.8 – 25.7 EER
Two-stage unloading scroll	Two-stage unloading scroll
Used with ECM furnace or fan coil	Not applicable
Compact cube	Compact cube
3 stages heating* 2 stages cooling	2 stages heating 2 stages cooling
Microprocessor control	Microprocessor control
Depends on air handler selected	Not applicable
Depends on air handler selected	Not applicable
Closed cell foam	Fiberglass
Yes	Yes
Optional Internal mount pump	Optional Internal mount pump
Depends on air handler selected Dual fuel option	Not applicable
No	Optional (field installed)
Optional	Not applicable
All sizes	All sizes

FEATURES & BENEFITS

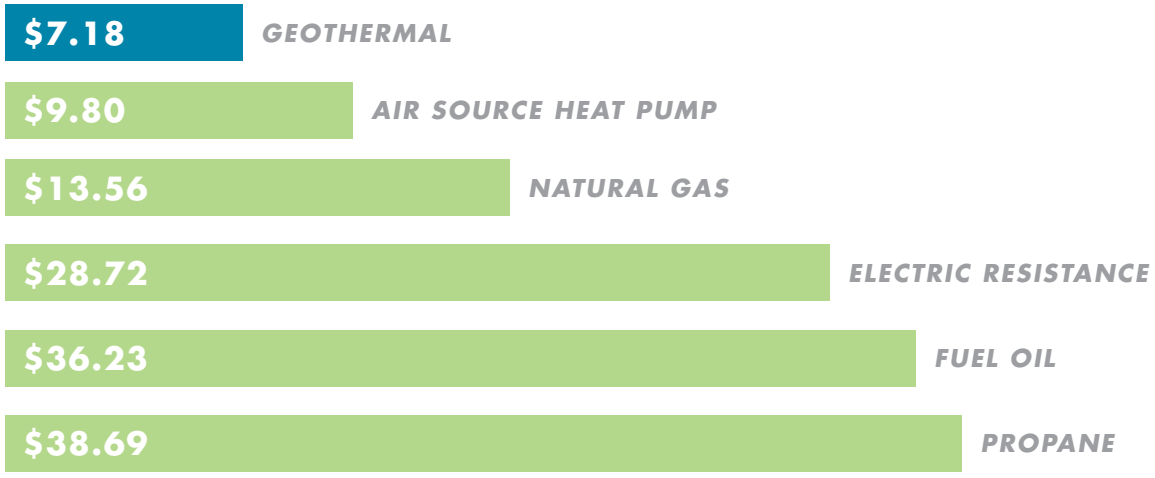
MAIN PRODUCT FEATURES	BENEFITS
Copeland® Ultra-Tech™ two-stage unloading scroll compressor (single-stage scroll compressor on HB)	*Provides increased efficiency by allowing for low-stage use during lower demand times*
Variable speed ECM fan (HP)	*Can increase fan speed to deliver consistent required air flow*
Tin-plated copper tubing in air coil	*Additional durability, increased lifespan*
Heavy-duty sheet metal cabinet	*Additional durability, increased lifespan and quiet operation*
High-density insulation	*Increases efficiency and reduces noise*
Filter frame with two-inch MERV filter (HP, HB)	*Improves indoor air quality, keeps coil clean for energy efficiency and comfort*
Corrosion resistant drain pan	*Adds durability, increases lifespan*
Microprocessor control	*Precise sequencing for optimum performance, ease of service*
Dual-level compressor isolation	*Reduces sound during operation*

YOUR QUESTIONS ANSWERED

ARE COMFORTMAKER® GEOTHERMAL SYSTEMS REALLY THAT EFFICIENT?

In short, yes. Of course actual results may vary slightly, but the graph below offers a one-to-one comparison for heating and system efficiency.

COST COMPARISON FOR 1 MILLION BTUS (HEATING)
COMPARE FUEL COSTS BASED ON FUEL RATES AND SYSTEM EFFICIENCY.



Source of Energy Rates: U.S. Energy Information Administration as of 4/30/14
Geothermal: 4.0 COP, $.098/kwh*
Air Source Heat Pump: 10 HSPF†, $.098/kwh
Natural Gas: 90% AFUE◊, $1.22/ccf
Electric Resistance: 100%, $.098/kwh
Fuel Oil: 80% AUFE, $4.02/gallon
Propane: 90% AUFE, $3.18/gallon
**COP stands for Coefficient of Performance.*
†HSPF stands for Heating Seasonal Performance Factor.
◊AFUE stands for Annual Fuel Utilization Efficiency.

When cooling, a geothermal system offers an Energy Efficiency Ratio (EER) that's up to three times more efficient than a ordinary air conditioner.

HOW CAN GEOTHERMAL SYSTEMS DELIVER SUCH HIGH EFFICIENCY?

Comfortmaker® geothermal systems use the earth's natural thermal storage ability to heat and cool your home. Just a few feet below the surface, below the frost line, the earth's temperature remains a constant moderate temperature. Compare that to ordinary heat pumps and air conditioners that use outdoor air for heating and cooling. The temperature of the outside air often fluctuates widely, making geothermal systems operation much more efficient.

CAN I DEPEND ON MY COMFORTMAKER GEOTHERMAL SYSTEM?

Absolutely. You'll also have the peace of mind that comes from owning a system with an average lifespan that's up to 30% longer* than ordinary air conditioners and heat pumps. Made from high-quality materials, their placement inside the home and out of the weather means they can operate for years virtually maintenance-free.

IS ONE KIND OF LOOP SYSTEM BETTER THAN ANOTHER?

Your Comfortmaker dealer will recommend the most appropriate loop system based on your lot size, soil type, well water availability, and other factors. All four systems have comparable operating costs.

DO I NEED A LARGE YARD TO INSTALL A LOOP SYSTEM?

In many homes, a Comfortmaker vertical loop system can be installed in a space as small as 15´ x 15´ with at least 10´ of clearance from the home and adjacent property lines.

**Geothermal unit with 20+ year life expectancy (http://www.energy.gov/sites/prod/files/guide_to_geothermal_heat_pumps.pdf) compared to average lifespan of residential split air conditioner or residential air-to-air heat pump (2015 ASHRAE Fundamentals Section 37.3)*

IS IT POSSIBLE FOR THE FLUID IN THE LOOPS TO FREEZE DURING COLD WINTERS?

No. We include antifreeze in the loop fluid to eliminate any chance of freezing.

HOW DOES AN OPEN LOOP OR WELL SYSTEM WORK?

Your Comfortmaker® dealer will check water quality and flow volume to ensure adequate supply. Geothermal units usually require between 4–9 gallons per minute during unit operation. Open loop systems also require a discharge location, such as a pond or drainage ditch.

WILL I HAVE TO TRADE COMFORT FOR EFFICIENCY?

Absolutely not. You'll actually find a Comfortmaker geothermal system makes your more comfortable. These systems use moderate ground temperatures to provide even temperatures throughout the home year round, with excellent dehumidification during cooling and optimal humidity during heating.

ARE GEOTHERMAL SYSTEMS NOISY?

Actually, they're quieter than ordinary systems. Comfortmaker geothermal units use heavy-duty, fully insulated cabinets for quiet, non-disruptive operation. Unlike ordinary air conditioners and heat pumps that require noisy outdoor units, a geothermal system is contained completely within the home.

WILL I NEED NEW DUCTWORK OR WIRING?

More often than not your Comfortmaker dealer can use the existing ductwork within your home without major changes. Our variable-speed ECM fans can even make up for sub-par duct systems. We recommend a 200 amp service for the home.

CAN GEOTHERMAL SYSTEMS WORK WITH IN-FLOOR HEATING?

Hydronic floor heating offers the ultimate in heating comfort by circulating heated water through tubes embedded below concrete and wood. Comfortmaker HW series units could be a perfect solution.

CAN I ADD A GEOTHERMAL UNIT TO MY EXISTING FURNACE?

You can. Our split units connect only the compressor section to your furnace and cooling coil. Under normal operation, the geothermal unit performs all the cooling and some of the heating. On colder days, the system switches over to furnace operation to maximize heating temperature and air capacity.

HOW QUICKLY WILL I SEE A RETURN ON MY INVESTMENT?

By including the cost of a geothermal system in the mortgage, new home builds may begin saving money on day one. Because Comfortmaker geothermal systems can save consumers up to 70% in annual heating and cooling costs,* an existing home could recover the added cost of the system within 5–7 years. Ask your Comfortmaker dealer to demonstrate the savings potential using LoopLink software.

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TAX CREDITS & INCENTIVES

Qualified homeowners may be eligible for a tax credit of 30% of the installed system cost. This credit can be used to offset both alternative minimum tax and standard income taxes and may be carried over to future years. Additional local/ regional rebates or incentives may be available. (Learn more at dsireusa.org.)

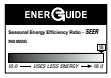
BEST-IN CLASS WARRANTY

The only No Hassle Replacement™ limited warranty that you'll find in the industry backs every HP, HS, and HW product. It means comfort with no questions. We'll replace your unit if the compressor, coaxial heat exchanger, or air coil fails within the first 5 years. We give you extra coverage in addition to a 10-year parts and either a 5- or a 10-year labor limited warranty.*

**To the original owner, all HP, HS, and HW products are covered by a 10-year parts and labor limited warranty upon timely registration (the limited warranty period is 10-year parts and 5-year labor if not registered within 90 days of installation). To the original owner, all HB products are covered by a 10-year parts and 5-year labor limited warranty upon timely registration (the limited warranty period is 5-year parts and 5-year labor if not registered within 90 days of installation). Jurisdictions where warranty benefits cannot be conditioned on registration will automatically receive the "timely registration" coverage. See warranty certificate for complete details.*

All systems tested and listed by the appropriate agencies.

ISO 9001: 2000 Registered



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HP/HB/HS/HW Series

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