The 5 Series
Smarter from the Ground Up™

As the upgrade to our popular Envision product line, the 5 Series represents some of our best features and efficiencies. Its advanced components offer a level of comfort and savings that’s far greater than any ordinary system and among the geothermal industry’s highest.

The 504W11 with OptiHeat Vapor Injection technology provides increased heating capacities, greater efficiencies, and higher water temperature output. Capable of delivering up to 150°F leaving hot water, this system is perfect for baseboard radiator systems, pool/spa heating, radiant floor applications, snow melt, and more. It’s never been easier to upgrade to a water heating system that uses the earth as its fuel source.

Why Geothermal?
Geothermal is perfect for those who want to dramatically reduce their energy usage, save money on bills, and enjoy a more even, consistent comfort in their home. Over the next few pages, we’ll tell you about geothermal and show you how you can benefit from a technology that’s Smarter from the Ground Up™.
Comfort that gives back

Geothermal’s benefits

Geothermal heat pumps are not only the most comfortable way to heat and cool, they’re also the most cost effective. They’re versatile enough to work in almost any home or any environment, and you’ll find geothermal in more than 1 million households across Canada and all 50 U.S. states. They can be scaled for single-family homes to entire college campuses. In fact, we heat and cool our entire 110,000-square-foot headquarters with WaterFurnace equipment. Here are a few reasons why geothermal is one of the fastest growing technologies available for your home.

Energy Efficient
WaterFurnace systems are rated number one in energy efficiency because they can deliver almost five units of energy for every one unit of electrical energy used. Compare that to even the best ordinary system that delivers less than one unit of energy for every unit of electricity the system consumes. That translates into an efficiency rating approaching 500%, compared to the most efficient gas furnace which rates only 94%.

Cost Effective
Because of the extraordinary efficiency of a WaterFurnace system, most homeowners save more on monthly bills than they pay for the system when installation costs are added to the mortgage. Any added investment over traditional equipment is usually recovered in just a few years, and many homeowners see a return on investment of 10-20% over the life of the system.

Clean
Since no fossil fuels are used, 5 Series units are perfect for clean and virtually maintenance free operation.

Quiet
WaterFurnace systems don’t require noisy outdoor units that can disturb your peaceful surroundings or create unattractive additions to your home’s appearance. We’ve taken great steps in keeping your unit as quiet as possible.

Environmentally Friendly
Geothermal systems are recognized by the United States Environmental Protection Agency as the most environmentally friendly, cost effective and energy efficient heating and cooling technology available. These systems also minimize the threats of acid rain, air pollution, the greenhouse effect and global warming – problems directly linked to the burning of fossil fuels. In fact, installing a single geothermal is the environmental equivalent of planting 750 trees or removing ten cars from the road.

Reliable
Because geothermal units aren’t subjected to the punishing effects of outdoor weather or fuel combustion, they last longer than nearly any other heating and cooling system. According to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, geothermal units have an average equipment life of 25 years while the underground loop system has a rated material life of more than 100 years. Ordinary air conditioners, furnaces and heat pumps are rated for only 12-18 years.

Extra savings for geothermal
A 30% tax credit on equipment and installation costs is currently available to U.S. homeowners who install an ENERGY STAR rated geothermal system. The credit can be used to offset both AMT and regular income taxes and can be carried forward into future years. The 30% tax credit will last until the end of 2019 where it is scheduled to decrease in amount each year through 2021. Hurry and act now for the most savings!

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Fossil Fuel Boiler

Ordinary boilers are expensive to operate and can be detrimental to the environment, since they burn fossil fuels. A geothermal system uses the heat from the earth and returns up to five dollars of heat for each dollar spent on electricity. That's because our units don't create heat through combustion. They simply collect and move it.

Note: Illustration represents how geothermal works and is not to scale. Loops are generally 4-6 feet below the earth’s surface and between 150-400 feet long.

Traditional Air Conditioner

Summer cooling
For homes with ductwork, the SD4VTR can be paired with the 504 Series Air Handler to provide your home with efficient, dehumidified cooling. And since there are no outdoor components, you won’t have to worry about a noisy air conditioner disrupting your peace and quiet. Cool your home quietly and efficiently with WaterFurnace.

Winter heating
As outdoor temperatures fall, the SD4VTR draws from an underground reservoir of heat, concentrates it, and moves it to your home. Meanwhile, an ordinary boiler system is forced to create heat by utilizing gas or oil. That means dirt, fumes, and expensive operation while our systems cleanly and efficiently collect and move heat.

Using the earth to heat & cool
The geothermal difference

A geothermal heat pump (GHP) taps into the renewable solar energy stored in the ground to provide savings up to 70% on bills. Using a series of underground pipes, it exchanges heat with the earth instead of outdoor air. While air temperatures can vary greatly from day to night or winter to summer, the temperature just a few feet below the earth’s surface stays an average 55°-70°F year-round.

Summer cooling

The average year-round ground temperature just three to four feet beneath the frost line is 55°-70°F.

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The heart of a geothermal system

Geothermal earth loops

A geothermal system uses a series of underground pipes called a “loop.” The earth loop eliminates the need for fossil fuels. It’s the heart of a geothermal system and its biggest advantage over ordinary heating and cooling technologies. The type of loop used is based on available land space and installation costs for specific areas.

Horizontal Loop
Used where adequate land is available, horizontal loops involve one or more trenches that are dug using a backhoe or chain trencher. High-density polyethylene pipes are inserted, and the trenches are backfilled. A typical home requires 1/4 to 3/4 of an acre for the trenches.

Vertical Loop
Vertical loops are used when space is limited. Holes are bored using a drilling rig, and a pair of pipes with special u-bend fittings is inserted into the holes. A typical home requires three to five bores with about a 15-foot separation between the holes.

Pond Loop
If an adequately sized body of water is close to your home, a pond loop can be installed. A series of coiled, closed loops are sunk to the bottom of the body of water. A 1/2 acre, 8-foot-deep pond is usually sufficient for the average home.

Open Loop
An open loop is used where there is an abundant supply of quality well water. The well must have enough capacity to provide adequate flow for both domestic use and the WaterFurnace unit. 5 Series units require 3 - 10 GPM, depending on size.

HyperLoop - Pond
Perfect for pond and lake geothermal applications, this prefabricated and compact loop greatly reduces loop build and installation time.

Directional Bore
Perfect for homeowners who need minimal landscape disruption, these loop types take advantage of the space available below ground. A directional bore loop can be installed either vertically or horizontally depending on yard space.
OptiHeat vapor injection technology for higher temperatures and greater efficiencies

Water temperatures up to 150°F

Hydronic heating is a versatile, energy efficient solution for conditioning your home. It uses tubing to distribute hot water under the floor, through baseboard radiators, or through larger cast iron radiators. Heat is gently transferred throughout the room in a consistent, even manner. Hydronic heat can also be paired with forced air systems and fan coil units.

OptiHeat Vapor Injection technology incorporates an additional heat exchanger that diverts excess heat and reinjects it into the system. This creates higher exiting water temperatures and optimum compressor operating conditions. Smaller loads are required and result in the ultimate in efficiency.

Baseboard Radiation

Baseboard units are typically copper pipe with aluminum fins covered with a decorative shell to hide the pipes. The operation of a baseboard radiation system depends on creating convection currents in the room. As air warmed by the fin tubes rises and displaces cool air, this process is difficult to sustain with the 130°F water most hydronic geothermal systems generate. The 504W11 changes that.

Cast Iron Radiation

In many retrofit applications, the replacement system is required to work with existing cast iron radiators. These systems also rely on convection currents and typically operate with water temperatures of 120°F to 160°F. The 504W11 is capable of 150°F water output making it perfect for upgrades.

Radiant Floor Heating

In a building with a radiant floor heating system, the entire floor acts as a heat source for the room. Many people consider this method of heating the most comfortable available. With its higher water temperatures, the 504W11 is able to be installed between joists under the floor which removes the need to alter existing flooring.

Fan Coils and Air Handlers

Fan coils and air handlers typically have one or two coils and a blower. Air is heated by hot water circulated through the hot water coil. Chilled water is circulated through the coil if air conditioning is needed. Blowers can be provided for fan coil units, with or without ductwork.
Design Components:

1. OptiHeat Vapor Injection: This patented technology incorporates an additional heat exchanger that diverts excess heat and reinjects it into the system. This creates higher exiting water temperatures and optimum compressor operating conditions. Smaller loads are required and result in the ultimate in efficiency.

2. Water Lines: The 504W11 features flush-mount connections to allow for leak-free connections.

3. Discharge Muffler: A discharge muffler is standard on this system to limit noise even more than before. Add to that our double isolation plate mounted top-of-the-line compressors and you’ll be able to enjoy the comfort of geothermal in peace and quiet.

4. Aurora Advanced Controls: The powerful Aurora controls offer two-way communication between components, operating logic, and robust troubleshooting capabilities. Diagnosis and setup are also simplified, making service much simpler for the technician.

5. Field Switchable Control Box: The ultimate in versatility, the 504W11 features a field switchable control box so that the unit can be oriented two different ways. Your dealer can move the control box to the opposite end if that is the most accessible side of the system in your home.

6. Compressors: For superb efficiency, all 504W11 units feature Copeland scroll compressors with vapor injection technology. All compressors are double isolation mounted for extra quiet operation.

Innovations for greater efficiency and reliable comfort

Components of the 5 Series

ISO/AHRI 13256-2

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7. IntelliStart®: This optional soft starter reduces start-up amperage by 60% of normal draw to reduce noise, eliminate light flicker, and increase compressor life.

8. Field Switchable Control Box: The ultimate in versatility, the 504W11 features a field switchable control box so that the unit can be oriented two different ways. Your dealer can move the control box to the opposite end if that is the most accessible side of the system in your home.
Choosing the right accessories can greatly improve the comfort levels in your home and can even allow you to expand the functions of your existing WaterFurnace system. Each item has been designed to work hand in hand with your system to allow flawless and convenient operation. Here are some of our most popular accessories. Visit waterfurnace.com for more.

**Finishing touches**

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#### GeoTank™

The WaterFurnace GeoTank is the best way to capture free preheated water from your unit.

#### NAH Air Handler

For homes with ductwork, the 504W11 is the perfect solution for central air conditioning when paired with our NAH Air Handler. The Air Handler features a variable speed ECM fan motor for maximum comfort and efficiencies while maintaining a slim cabinet design for ease of installation. Combining comfort with versatility, the NAH Air Handler can enhance your 5 Series 504W11 to provide efficient, dehumidified cooling for your home.

#### TP32W03 Thermostat

This thermostat is made for use with single or dual stage units that feature an ECM blower motor. It features 3 heat stages and 2 cool stages and dual fuel capabilities. With a sleek touch screen display this programmable thermostat will look great in any home.

#### TP32U03/04 Elite Programmable

This powerful thermostat is great for any system. It allows dual fuel capability, winter humidity control, text based output and Comfort Talk error communication.

#### TP32T02 Thermostat

Perfect for any system - single or dual stage, ECM or PSC blower motor, or dual fuel installations. This thermostat will allow you with the programmable functionality, winter humidity control, and the-constant features you need to keep your home at its best. With a sleek design this programmable thermostat will look great in any home.

#### Radiant heat with HydroLogic

WaterFurnace HydroLogic is a turnkey solution for radiant heating that integrates seamlessly into a WaterFurnace geothermal system. HydroLogic is a pre-piped, pre-wired mechanical panel designed to simplify the installation while providing maximum comfort for your home. The mechanical panel supports cooling, dehumidification, and multiple zones of radiant heating.

#### Mechanical Panel

The WaterFurnace Mechaniletter Panel is the best way to capture free preheated water from your unit.
The WaterFurnace name has been synonymous with geothermal since we were founded in 1983. Over the years we’ve worked to innovate new technologies, integrate key trends and grow our core business to represent clean and sustainable solutions. Our units combine sound engineering with the highest levels of quality control to provide you with some of the most efficient heating and cooling systems on the planet. WaterFurnace—Smarter from the Ground Up.

ISO Accreditations: