



**WaterFurnace.**  
Smarter from the Ground Up™

Geothermal Comfort System

## **5 Series** 500R11





## The 5 Series

*Smarter from the Ground Up™*

As the upgrade to our popular Envision product line, the 5 Series® carries some of our best features and efficiencies. The 5 Series upholds the standards we've set over three decades and the trust associated with the WaterFurnace name. Every unit is computer run-tested to ensure flawless performance at start-up—and in the unlikely event your equipment needs service, it's backed by the best warranties in the industry. The 500R11 features advanced components to offer a level of comfort and savings that's far greater than any ordinary system and represents an amazing 25.3 EER and 4.4 COP.

The 500R11 is engineered for use where an all-in-one unit would be difficult to install, like attics or crawl spaces, and is the perfect solution for retrofitting existing homes. By connecting to the WaterFurnace NAH Air Handler, the 500R11 can provide ultra-efficient heating, cooling, and even a portion of your home's hot water. The 500R11 is also great for use in extremely cold climates where a dual fuel application is ideal. The unit uses the clean, renewable, comfortable energy from the earth and switches to fossil fuels only during the coldest parts of the winter. It's ENERGY STAR rated and was developed in the HVAC industry's only in-house EPA/ENERGY STAR Recognized Laboratory. Tap into the earth to achieve a level of comfort you have to experience to believe.



### 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 a little more 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 excel 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.

### QUALIFIES ✓ 30% TAX CREDIT

#### 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, which is scheduled to last until the end of 2016, can be used to offset both AMT and regular income taxes and can be carried forward into future years. Thanks to this amazing opportunity, there's never been a better time to make the switch to geothermal.



#### Energy Efficient

WaterFurnace systems are rated number one in energy efficiency because they can deliver more than 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 it consumes. That translates into an efficiency rating exceeding 440%, compared to the most efficient gas furnace which rates only 98%.



#### 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.



#### No Fossil Fuels

When installed with a WaterFurnace Air Handler, no fossil fuels are used in a 50OR11 installation. WaterFurnace systems don't create heat—they simply move it to and from the earth. Since there are no fossil fuels, geothermal comfort is the cleanest method of heating and cooling available today.



#### 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 unit is the environmental equivalent of planting 750 trees or removing two cars from the road.



#### Flexible

One compact WaterFurnace unit provides heating, central air conditioning, and supplemental domestic hot water for your entire home. Both indoor and outdoor splits are available for a wide range of home applications, including newly constructed as well as existing homes. No matter what climate you live in, your WaterFurnace system will deliver.



#### Safe

Because no natural gas, propane, or oil is used in a geothermal installation, it's the safest method of heating and cooling available for your home. And when the 50OR11 is installed with an existing fossil fuel furnace for backup, the majority of heating is done with geothermal so minimal fossil fuels are used.



#### Quiet

WaterFurnace systems don't require noisy outdoor units that can disturb your peaceful surroundings or create unsightly additions to your home's appearance. We've also taken a number of steps to ensure your unit is as quiet as possible so you can enjoy the peaceful, clean comfort that only geothermal can provide.



#### 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.



#### Comfortable

WaterFurnace units are designed to run more often at low speeds to provide stable temperatures throughout the home and help eliminate hot or cold spots. They provide a comfort you need to experience to believe. To achieve precise control over temperatures in up to 4 areas, add our IntelliZone zoning system.

# 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.

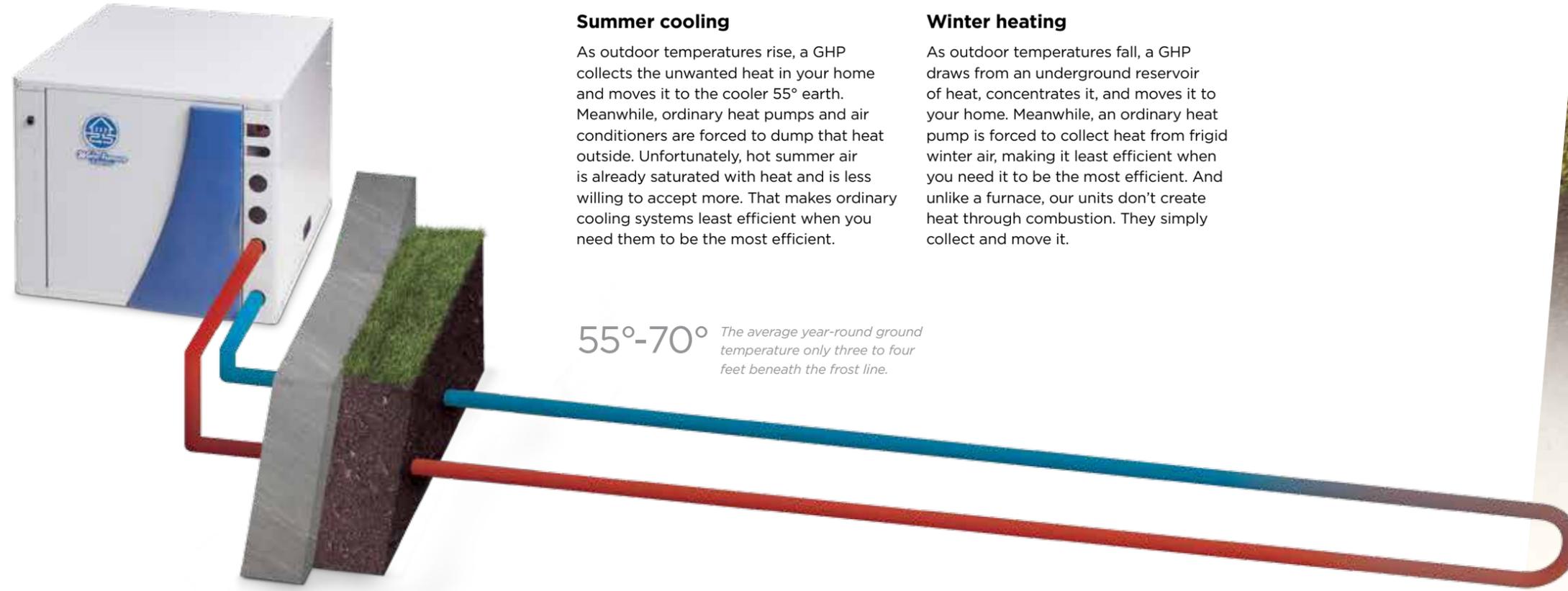
### Summer cooling

As outdoor temperatures rise, a GHP collects the unwanted heat in your home and moves it to the cooler 55° earth. Meanwhile, ordinary heat pumps and air conditioners are forced to dump that heat outside. Unfortunately, hot summer air is already saturated with heat and is less willing to accept more. That makes ordinary cooling systems least efficient when you need them to be the most efficient.

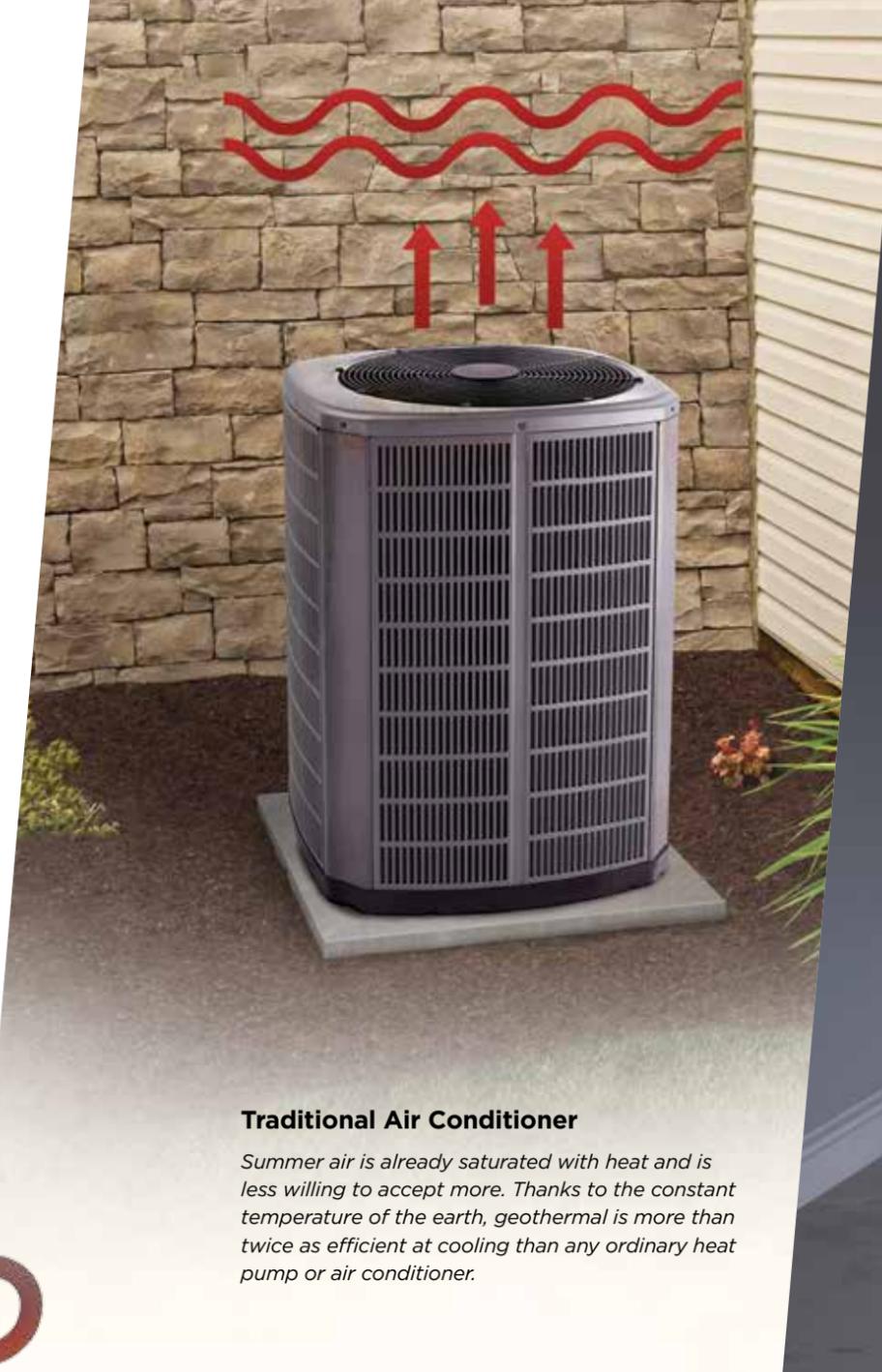
### Winter heating

As outdoor temperatures fall, a GHP draws from an underground reservoir of heat, concentrates it, and moves it to your home. Meanwhile, an ordinary heat pump is forced to collect heat from frigid winter air, making it least efficient when you need it to be the most efficient. And unlike a furnace, our units don't create heat through combustion. They simply collect and move it.

55°-70° *The average year-round ground temperature only three to four feet beneath the frost line.*



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 air is already saturated with heat and is less willing to accept more. Thanks to the constant temperature of the earth, geothermal is more than twice as efficient at cooling than any ordinary heat pump or air conditioner.

### Fossil Fuel Furnace

Ordinary furnaces return less than 98¢ of heat for each dollar spent burning polluting fossil fuels, while a geothermal system 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.



# 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.



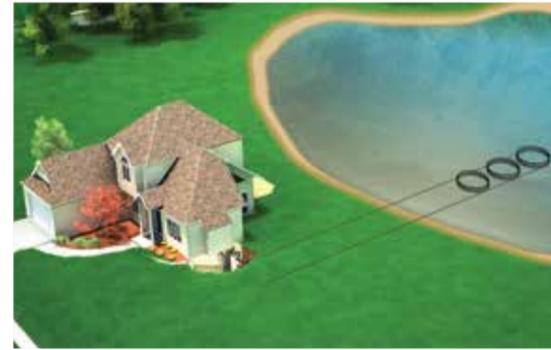
### **Horizontal Loop**

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.



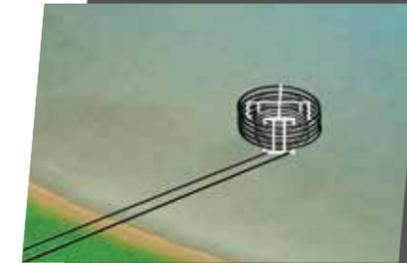
### **Pond Loop**

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.

# Split configuration for maximum flexibility

## *The 5 Series technology*

WaterFurnace 5 Series Splits are engineered for homes with limited indoor utility space or in cold winter climates where a dual fuel application is desired. By installing the 50OR11 with our NAH Air Handler, you can heat, cool, and provide a portion of your home's hot water efficiently and effectively. In areas with very cold winters, a dual fuel application can be a good option. In this application, the geothermal unit is paired with an existing fossil fuel furnace and a cased or uncased coil and can automatically choose which method of heating is most efficient—saving you money. That's both smart and flexible.

### **Which configuration is right for your home comfort?**



#### **Paired with an NAH Air Handler—all geothermal**

The NAH Air Handler is a perfect match to the 50OR11. It features an ECM blower motor for the ultimate in efficiency and electric backup heat for those rare instances where you need an extra boost of heating. It's field convertible and offers quiet and efficient comfort.



#### **Paired with a fossil fuel furnace—dual fuel**

By installing the 50OR11 with the WaterFurnace A-Coil (cased or uncased) and an existing fossil fuel furnace, the system can select the most efficient method of heating and switch between fossil fuel and geothermal. Perfect for colder climates, a dual fuel application will always keep you warm and cozy.



# Compact design meets ultimate performance

## Components of the 5 Series



### Design Components:

- 1. Cabinet:** The cabinet comes standard with a professional grade finish for long-lasting beauty and protection. The system is fully insulated for quiet operation with cleanable foil-backed insulation.
- 2. Aurora Interface Diagnostic Port:** WaterFurnace is the first to offer an external communication port, which allows service and diagnosis of our units without ever having to open them.
- 3. Hot Water Generation:** With an optional hot water assist, the 5 Series 500R11 preheats your water and delivers it to your water heater. The longer the unit operates, the greater the amount of hot water generated.
- 4. ThermaShield™:** Our exclusive coaxial heat exchanger coating protects against condensation for temperatures below 50°F, extending its life.
- 5. Compressor:** For superb efficiency and reliability, dual capacity units utilize Scroll UltraTech™ compressors, while high efficiency Copeland Scroll™ compressors are featured in the single stage units. All compressors are double isolation mounted for extra quiet operation.
- 6. Aurora Controls:** The powerful Aurora Base Control (ABC) offers advanced operating logic and robust troubleshooting capabilities.
- 7. IntelliStart:** This optional soft starter reduces start-up amperage by up to 60% of normal draw to reduce noise, eliminate light flicker, and increase compressor life.



### ISO/AHRI 13256-1

Model & Size	Closed Loop		Open Loop		
	Cooling EER	Heating COP	Cooling EER	Heating COP	
026	Full Load	17.0	3.9	21.8	4.6
	Part Load	24.5	4.4	28.4	4.8
038	Full Load	17.1	3.8	20.4	4.5
	Part Load	25.3	4.2	27.0	4.4
049	Full Load	16.1	3.8	20.2	4.4
	Part Load	22.9	4.3	25.8	4.7
064	Full Load	15.5	3.6	19.2	4.3
	Part Load	22.2	3.9	24.9	4.3
072	Full Load	15.0	3.4	17.8	3.9
	Part Load	20.0	3.8	22.8	4.0
022	Single	19.5	3.7	27.9	4.5
030	Single	19.8	4.0	24.9	4.9
036	Single	19.8	4.0	27.0	4.7
042	Single	19.9	3.7	25.3	4.5
048	Single	18.1	3.8	23.8	4.5
060	Single	17.1	3.6	21.1	4.1
070	Single	15.1	3.3	19.2	3.7



\*Most models when installed with the NAH air handler or WaterFurnace A-Coil

# Finishing touches

## Accessories

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](http://waterfurnace.com) for more.



### NAH Air Handler

When installed in conjunction with the NAH Air Handler, the 500R11 indoor split can provide efficient and comfortable heating and cooling for your home. The NAH features a variable speed ECM fan motor for maximum comfort and efficiencies while maintaining a slim cabinet for ease of installation. Combining comfort with versatility, the NAH Air Handler can enhance your 5 Series 500R11 to provide the ultimate in heating and cooling for your home.



### TP32S02 Programmable

Perfect for any system—single or dual stage, ECM or PSC blower motor, or dual fuel installations. This thermostat will provide you with the programmable functionality, winter humidity control, and the convenient features you need.

*Shown with optional RF Module (RFMS01)*



### TP32W03 Touch-Screen

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 Programmable

This powerful thermostat is great for any system—single or dual stage units with ECM or PSC blower motors. Dual fuel capability, text based output and Comfort Talk are some of the features that make this thermostat a versatile and dependable choice.



### IntelliStart

An IntelliStart system reduces start-up amperage by up to 60% of normal draw—far higher than other soft start solutions. You'll reduce wear and tear on your compressor and protect it from potentially damaging low-voltage sags. Light flicker associated with your unit will be a thing of the past.



### AlpinePure HRV/ERV

Choosing the right ventilator depends on your home's comfort needs and climate.

#### Heat Recovery Ventilator (HRV)

If you live in an area with cold winters, the HRV is a great choice. An HRV comes with an aluminum core to exchange thermal energy and an automatic defrost cycle to prevent ice build-up during cold weather.

#### Energy Recovery Ventilator (ERV)

For climates that are generally warm and/or humid, the ERV is ideal. The ERV's special core will help remove both heat and moisture from the incoming fresh air and exhausts them to the outgoing stale air, thereby reducing the sensible and latent loads for the HVAC system.



### IntelliZone®

IntelliZone provides you with precise control over your indoor environment. Adjust zones to condition only the rooms that need it, so your WaterFurnace system runs more efficiently—saving money and providing better comfort.



### Dedicated Hot Water

For large demands of hot water or for 100% domestic hot water generation, a dedicated hot water unit can be added to your home. This add-on to your WaterFurnace system allows three to four times the efficiency of an ordinary water heater.



### GeoTank®

The WaterFurnace GeoTank is simply the best way to capture free preheated water from your unit's hot water generator or a separate NSW hot water generation unit.\*

*\*GeoTank is to be used in series with another hot water heater*



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.*



visit us at [waterfurnace.com](http://waterfurnace.com)

