



EDUCATIONAL

Comfort Solutions





**WATERFURNACE
IS THE SMARTEST CHOICE
FOR TODAY'S SCHOOLS**

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IS WATERFURNACE A SMART SOLUTION FOR A SCHOOL?

Water source/Geothermal heat pumps are the smartest choices for today's schools. They lower operating costs, and in most cases lower installation costs while creating a comfortable and quiet learning environment. Individual zone control and unmatched system reliability are added benefits that are hard to ignore. Water source/Geothermal systems are easily scalable to apply to a small elementary school, a larger regional high school, or a multi-building campus.

Water source/geothermal system installations can eliminate many common issues in school HVAC systems such as:

- No large-scale complex duct work
- No chillers or Boilers
- No staff operating engineers required
- No complicated controls
- No holes in exterior walls
- No large mechanical rooms



THINK GREEN

10% **10% Tax Credit***
Properties using geothermal heat pumps are eligible for a 10% Federal Energy Tax Credit and 5-year accelerated depreciation deductions.



Retrofit Made Easy

With the reduced space and duct work requirements, WaterFurnace water source/geothermal systems are the affordable choice for retrofitting.



Fast Solutions

Select WaterFurnace models and configurations can be ordered through our expedited Quick Ship Program, with some units shipping in as little as 3 days.



Large Product Line

WaterFurnace has the widest array of technology leading, water source products in the industry.

A 10% Federal Energy Tax Credit and 5-year accelerated depreciation deductions are available for costs associated with energy property using geothermal heat pumps, construction of which must begin before January 1, 2022. The geothermal equipment must be located in the United States and use the ground or ground water as a thermal energy source for heating or thermal sink for cooling. IRS Form 3468 can be used to claim the energy credit which may be used to offset both regular income taxes and alternative minimum taxes. If the tax credit exceeds the income tax liability, the loss can be carried back one taxable year and the remaining balance can be carried forward into future years. Contact your tax professional for more information.

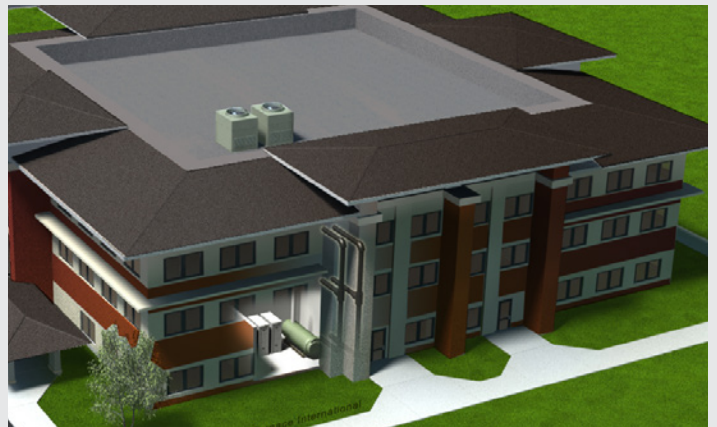
CHOOSING THE SOURCE ENERGY OPTION?

There are many different source installation options available to both new construction and retrofit job sites ranging from traditional water loop heat pump with boiler and cooling tower to geothermal options. All geothermal options feature ground loops that will last for more than 50 years providing the same high efficiency for subsequent equipment. All of these closed piping system applications also provide heat recovery capability. The ability to move heat from core building areas in cooling to perimeter areas requiring heat is a fundamental benefit of water source heat pumps no matter the source energy type. (See page 12 for details on heat recovery).

APPLICATIONS



Plate Heat Exchanger - Closed Loop/Ground Water



Cooler/Boiler - Closed Loop



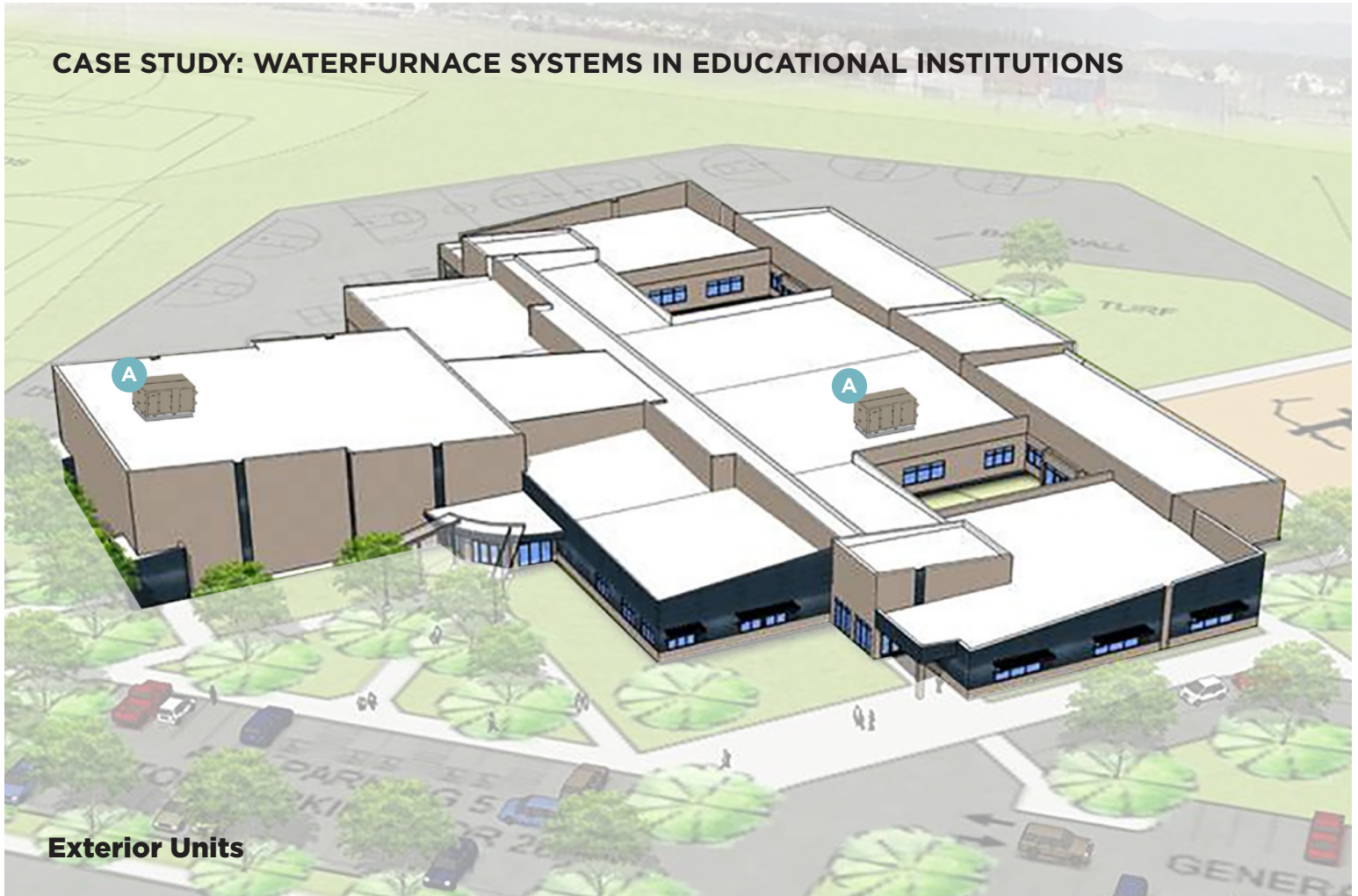
Surface Water - Closed Loop/Ground Source



Vertical - Closed Loop/Ground Source

**WATERFURNACE OFFERS A WATER SOURCE
APPLICATION FOR EVERY JOB.**

CASE STUDY: WATERFURNACE SYSTEMS IN EDUCATIONAL INSTITUTIONS



Exterior Units



UR SERIES ROOFTOP WSHP W/ECONOMIZER

Provides up to 30 tons of high efficiency cooling (28 EER) using variable speed EC plenum fan and ASHRAE 90.1-2016 compliant economizer for larger common areas such as a gymnasium, auditorium, cafeteria or classroom.

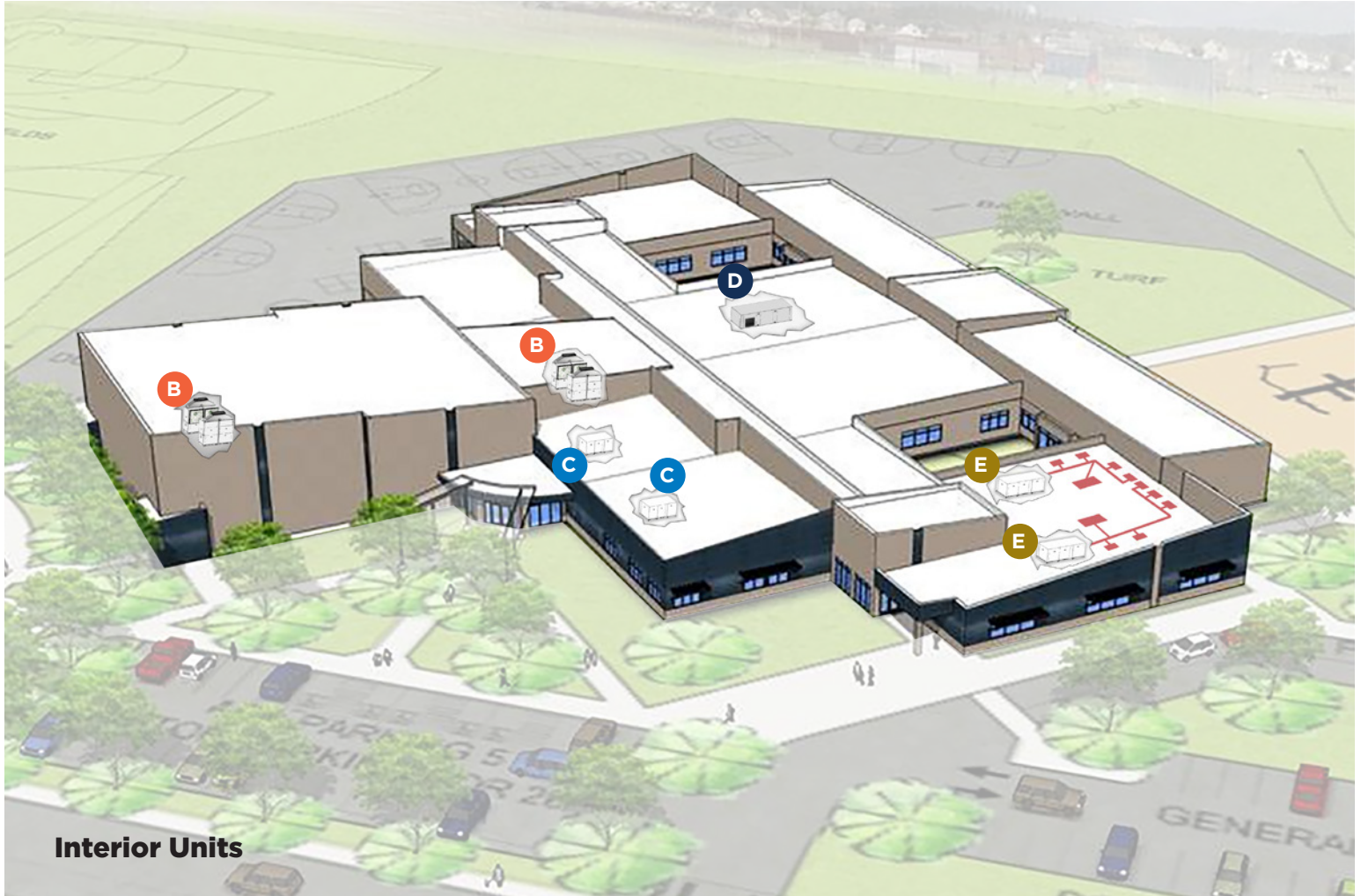
AURORA ADVANCED CONTROLS IN EVERY PRODUCT!

Aurora Controls feature unparalleled connectivity with the BAS system or cloud providing every parameter for configuration, monitoring or troubleshooting the system remotely. Aurora Advanced Control sensor kits not only provide advanced diagnosis and troubleshooting locally, via BACnet and remotely via WiFi but also can display actual operating power of any of our products at a modest cost. This provides the owner operator with powerful tools to monitor energy efficiency but also maintain the system at peak operation. Plus all of this data is available in an easy to use tablet app at the unit or the zone sensor.

DEHUMIDIFICATION

Aurora Controls also feature enhanced dehumidification capability through high latent removal, adjustable dehumidification airflows, hot gas reheat systems or our exclusive active dehumidification mode available on our variable speed product lines.





Interior Units



VERSATEC UV VARIABLE SPEED WITH TWINNING

Provides 60 tons of ultra high efficiency cooling using variable speed compressor and EC fan. Four combined units can supply 25-100% capacity modulation, and paired with our ERV can provide an interior ventilation/fresh air solution.



VERSATEC UB/US ENVISION2 NB

Provides 3/4 - 6 tons of high efficiency cooling (16-28 EER) using fixed and staged compressors and EC fan. A single unit can serve an individual zone providing accurate temperature control.



VERSATEC XL

Provides 7-30 tons of high efficiency cooling (16-22 EER) using fixed, dual and staged compressors with VFD or EC Plenum fan. A single unit can serve an individual zone providing accurate temperature control.



VERSATEC UV VARIABLE SPEED WITH ZONING

Provides 3 to 15 tons of ultra high efficiency cooling (40 EER) using variable speed compressor and EC fan. A single unit can serve up to 6 zones saving both money and providing accurate temperature control.

WHY CHOOSE A WATERFURNACE SYSTEM?



EFFICIENCY



RELIABILITY



COST

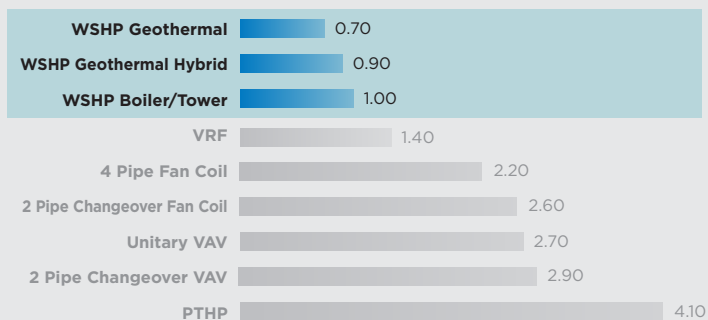


**GET EFFICIENCY, RELIABILITY,
AND A LOWER COST.**

HIGHEST ENERGY EFFICIENCY SYSTEM AVAILABLE

As a building owner/operator, a school system is unique in its position to make intelligent decisions about HVAC equipment. WaterFurnace Geothermal and WSHP systems represent solid comfort and efficiency with EER ratings as high as 41. The U.S. Environmental Protection Agency ranks geothermal systems as the most cost-effective space conditioning systems available. The lower operating and maintenance costs, together with the system's long life, give geothermal systems the lowest life cycle cost on the market.

RELATIVE SYSTEM OPERATING COSTS



FIRST COST ECONOMICS

WSHP/Geothermal systems may not be as expensive to install as you think, most systems have installed costs similar to conventional systems. Most systems will show payback in less than 24 months. WSHP/Geothermal systems have the advantage of a smaller geothermal loop and a smaller tower that only operates in the summer months reducing both installed and maintenance costs while maintaining high efficiency. Geothermal systems also have the advantage of a federal tax credit that can be applied in many situations.

HIGHEST RELIABILITY AND THE LOWEST MAINTENANCE COST

Water source/geothermal heat pump systems are designed to be easy and affordable to maintain. Should a unit need to be shut down for service, only that classroom is affected – not the entire school, as with other systems. For routine maintenance, individual heat pump units are easy to access without disrupting classes at all.

No central equipment to fail that can shut down the entire system if it stops operating.

No toxic refrigerant is pumped throughout the building as with VRF systems.

No chemicals associated with the prevention of scaling and bacterial growth are needed.

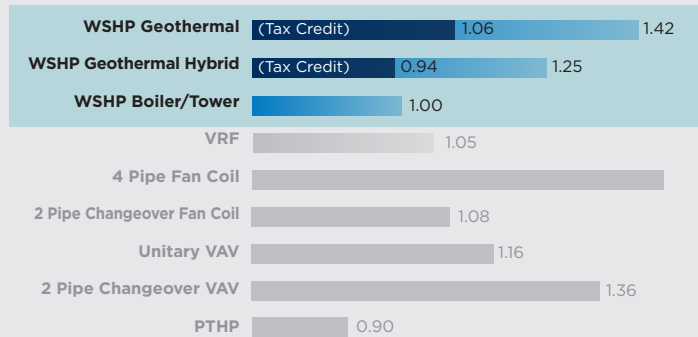
No year-round tower operation or boiler maintenance (geothermal systems only).

Lowest maintenance costs ASHRAE shows Geothermal having the lowest maintenance costs of any HVAC systems.

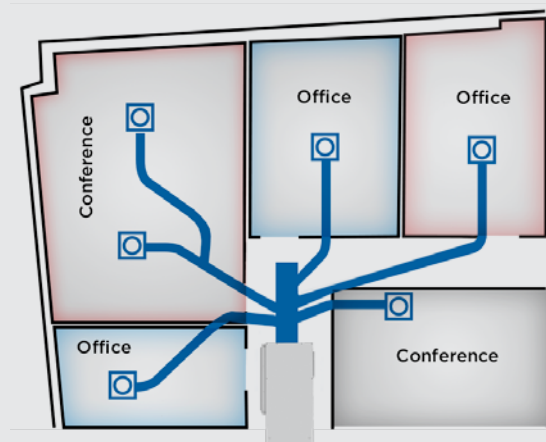
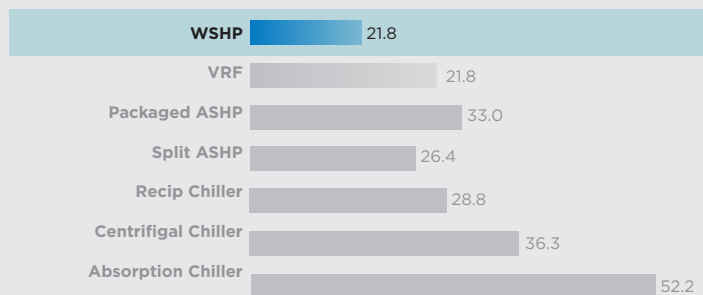
LOWER INSTALLATION COSTS WITH A ZONING SYSTEM

Zoning can reduce number of units and provide accurate temperature conditioning in offices and smaller rooms in the school. For instance a BACnet Zoning system on a WaterFurnace WSHP can maintain accurate zone temperatures at a reduced installed cost by allowing a 6 ton variable speed unit to supply up to 6 smaller zones, instead of 3 or 4 units supplying those same 6 zones. Single unit piping and electrical also add to the savings and changing only one filter reduces your maintenance costs as well! Up to 6 zones (400-800 ft² zone) would have a single compressor bearing unit providing direct heating and cooling to each zone with its own thermostat control. No large complicated air delivery systems to overcool or under deliver air. This is especially useful when rooms with differing loads are required to be combined in a single unit such as 2 offices and a conference room. Each zone will have its own thermostat independent control.

RELATIVE INSTALLED SYSTEM COST



MAINTENANCE COSTS (ASHRAE) MEAN COST \$ PER 100 SQ FT



OTHER BENEFITS OF CHOOSING WATERFURNACE

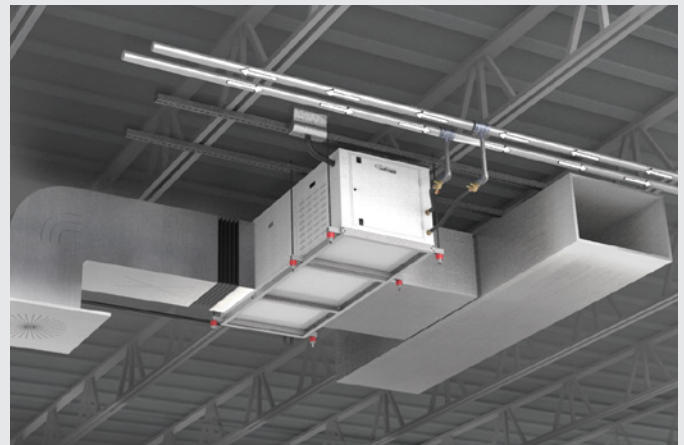
1. LARGE AREA SOLUTIONS: TWINNING LARGE VS WSHP

Large tonnage water source equipment can be accomplished by the twinning of our large (10 & 15 ton) Variable Speed Versatec UV by twinning the units. From 2- 8 individual units can be combined into one large wshp (20-60 tons). In this configuration onsite installation costs are reduced and all heat pumps can be controlled using a single control signal with several options for staging.



2. QUIET OPERATION IN A LEARNING ENVIRONMENT

The generally smaller compressors and blowers of WSHP's can provide accurate comfort and low noise levels. With typical application details, NC levels of <35 are achievable in most applications. Locating units in the hallway and conditioning the classrooms through ductwork allows servicing during class time and reducing any noise transmission to the classroom or disruption. For more information on WaterFurnace equipment and sound testing, see our Sound Application Guides on our website.



3. CAN YOU RETROFIT WITH WATERFURNACE? SMALLER FOOTPRINT = EASY REPLACEMENT

If your school already has WSHP's, it is likely the existing units have been encircled with plumbing, ductwork and electrical lines. Replacing these units at end of life can be difficult since newer more efficient models are larger and will not fit in the existing space. Re-routing the electrical and plumbing can be very expensive. The WaterFurnace Versatec Compact has 21st century WSHP efficiency in the footprint of the older much less efficient models. For example, our 3 ton UBH Series unit is a full 12 inches shorter than our nearest competition and outperforms it in efficiency as well.

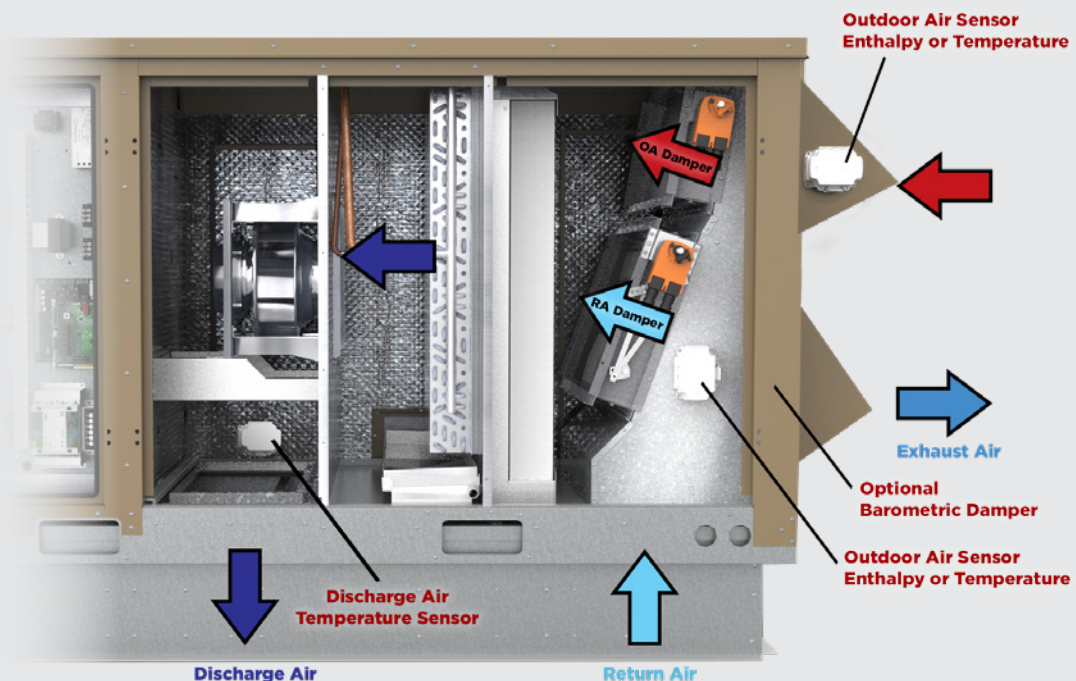
4. LARGE AREA SOLUTIONS: ROOFTOPS

A rooftop unit (3-30 tons) can be located on the roof for conditioning larger areas such as cafeterias, auditoriums and gymnasiums without the need for large mechanical rooms or expensive hanging equipment. The 30% fresh air capability of the optional economizer frequently satisfies all ventilation requirements negating the need for a separate DOAS unit. Rooftops are also suitable for classroom use as a unit ventilator replacement.



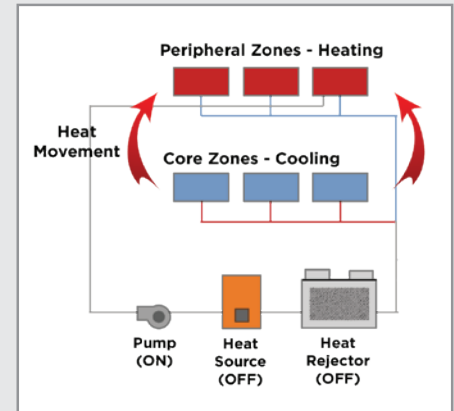
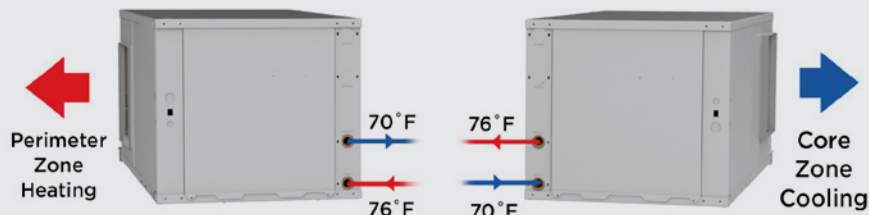
5. VENTILATION AIR EQUIPMENT

The Versatec Packaged Rooftop with integrated economizer features a 4 Mode temperature or enthalpy control within a single control integration and is ASHRAE 90.1-2013 compliant. The economizer can also be engaged directly through network commands. All economizer network points are communicated to the BAS system for a fully integrated control with fault detection. The system uses high accuracy and factory calibrated enthalpy sensors and the dampers are California Title 24 Class 1A tip sealed for air tightness.



WHAT IS HEAT RECOVERY?

A hallmark feature of the water source/geothermal heat pump is the ability to move heat from the center core of the building where air conditioning occurs most of the year to the perimeter zones that need heat in the morning startup or winter months. This 'heat recovery' can add significant savings to the building energy costs and is inherent in every WaterFurnace WSHP system.



HEAT RECOVERY: CHILLER FOR HOT WATER

Adding a WaterFurnace Envision2 NXW to generate hot water from waste heat in the building loop is an excellent energy saving idea. The chiller generates 130°F hot water while simultaneously removing heat from the building loop improving the overall efficiency of the WSHP system and generating hot water at COP's of over 4-5.



TECHNOLOGY THAT DRIVES INNOVATION

ENERGY MONITORING

Imagine knowing exactly what heating and cooling is costing for your building right from within our Aurora controls and available through BACnet. Add complete power consumption reporting to every unit by adding the Aurora Energy Monitoring Package.



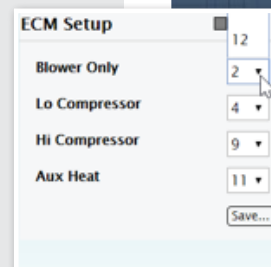
ZONESTAT TROUBLESHOOTING

Imagine troubleshooting a rooftop unit (or any WaterFurnace product for that matter) directly from the zonestat with every performance and configuration parameter at your fingertips. Full refrigeration and performance monitoring sensor kits are available for each unit to enhance this feature that is especially useful on larger units. This reduces classroom disruptions trying to access units for troubleshooting.



BACNET MONITORING

Imagine monitoring or servicing a unit with every performance and configuration parameter at your fingertips directly through the front end DDC system. Set the dehumidification airflow, loop freeze protection setting for antifreeze or change the airflow setting on HP12 easily through a single source. All are available through the Aurora UPC interface at the DDC system. Full refrigeration and performance monitoring sensor kits are available for each unit. This is especially useful on larger units.



QUALITY OF DESIGN AND MANUFACTURING

Every unit built is exposed to a wide range of quality assurance procedures throughout the assembly process and is then subjected to a rigorous battery of computerized run tests to certify that it meets or exceeds performance standards for efficiency and safety, and will perform flawlessly at startup. As further affirmation of our quality standards, each unit carries our exclusive Quality Assurance emblem, signed by the final test technician.



WHAT DO OUR CUSTOMERS HAVE TO SAY?



“YEAR-ROUND COMFORT”

“In planning the new middle school, we were looking for a system that provided year-round comfort and utility savings. Our research found that WaterFurnace has an excellent reputation for performance and quality. Their technical support was key in providing a quality installation. We give WaterFurnace our highest recommendation.”

- Vice President: GPD Associates Mechanical Engineers, Massillon Ohio



“EASY TO REGULATE TEMPERATURE...”

“From a facility services viewpoint, one of the best features of the WaterFurnace system is that we can regulate the temperature in different rooms throughout the school. Not all areas need to be conditioned the same – some require cooling while others require heat.”

- Mechanical Supervisor: Lancaster Drive Elem. School, Frontenac, Wisconsin



“SURPASSING EXPECTATIONS”

“The best feature of a WaterFurnace system is ‘no complaints’, especially during the seasonal transitions from heating to cooling and vice-versa. In addition, the temperature is constant throughout the building. The units are surpassing our expectations – we would like to do it again.”

- Facility Supervisor: Maxey and Campbell Schools, Lincoln, Nebraska



“VERY RELIABLE”

“We have found the product to be very reliable with great controllability. The head building engineer at Discovery has been very pleased with the serviceability of the units. We are planning a new elementary school in the next few years, which will have geothermal heating and cooling. My recommendation to the mechanical engineer will be WaterFurnace.”

- Director of Building and Grounds: Fargo Public Schools, Fargo, North Dakota



“WISE USE OF THE ENVIRONMENT”

“As educators, we try to encourage our children to make wise use of the environment, and I think this will be something that they will be able to look back on as adults”

- Principal: Paint Lick Elem School, Paint Lick, Kentucky



visit us at waterfurnace.com