FOSSIL

THE FUTURE IS NOW

TECHNICAL SYSTEMS

ELECTRIFICATION

New legislation on carbon emissions has created an initiative known as Electrification. This initiative consists of a complete transition from fossil fuels to electricity. For the HVAC industry, this means heating and cooling a building electrically, without traditional fossil fuels.

*In areas such as New York City, roughly 70% of greenhouse gasses come from commercial building emissions. Studies by the city of San Francisco found that the widespread adoption of electric heat pumps would be the single most important lever in reducing carbon emissions by 2050.

The extremely cold winters of northern cities have presented challenges for this initiative that the commercial industry has struggled to solve. 50 years of innovation has lead TECHNICAL SYSTEMS to the FossilX air-to-water heat pump system. The FossilX unit will allow you to fully heat and cool your building using 100% electrical power throughout a wide range of ambient temperatures down to below -10°F.

*council.nyc.gov/data/green/

COP INNOVATIVE Performance

The efficiency of a heat pump is measured using the Coefficient of Performance (COP). This is a ratio of the equipment’s “heat output/power (kW) input”. To achieve a high level of performance, meaning that the unit can produce a greater amount of heat with its given (electrical) power source, a high COP is necessary. FossilX provides up to 20 - 30% higher COP than traditional commercial heat pumps.

CUTTING-EDGE REFRIGERANTS GWP

Global Warming Potential (GWP) is a measurement that compares the ability of a gas to be absorbed into the atmosphere in comparison to Carbon Dioxide (CO2). The higher the GWP, the more that the given gas warms the Earth compared to CO2. To achieve a low GWP, meaning that the unit emits fewer harmful gasses into the atmosphere, cutting-edge refrigerants are required. FossilX is engineered to reduce GWP by up to 20 - 30%.

INTRODUCING

FOSSILX

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FOSSILX

CAPABILITIES

FossilX Low Temperature & FossilX High Temperature

- Allow you to fully heat and cool your building using 100% electrical power.
- Our multi-circuit design provides integral redundancy & adapts to varying levels of cooling & heating loads.
- Supplying the industry with the best range of hot water temperatures from 75°F to 170°F.
- Our single system provides chilled fluid, hot fluid, or both simultaneously.
- Industry-leading efficiency with the highest heating COP available today.
- Designed to be compact, yet easily serviced and maintained.
- Manufactured in the United States of America using commonly available parts.

SCAN THE QR CODE  WATCH THE VIDEO

TECHNICAL SYSTEMS

At TSI, problem-solving is what we do. We have spent over 50 years mastering our craft across a wide array of mission-critical process in the HVAC industry.

Our experience combined with our unique engineering capabilities in the low temperature refrigeration markets have allowed us to pave the way in electrification for the HVAC industry.

Electrification comes with many complex challenges; FossilX is the solution to these challenges.

OPERATING RANGE

FossilX is a multipurpose heat pump designed for both independent and simultaneous heating and cooling:

- Low temperature (LT) unit capable of heating fluid to 125°F.
- High temperature (HT) unit capable of heating fluid to 170°F.

ENERGY EFFICIENCY

- The FossilX heating COP is designed to be up to 20 - 30% greater than traditional commercial heat pumps currently on the market.
- This level of COP will drastically increase performance while reducing operating costs.

20 - 30% INCREASE COP

LOW AMBIENT HEATING

Temperatures where most heat pumps begin to fail, FossilX is just getting started:

- Both FossilX units produce a consistent heat output, at a full range of ambient temperatures at and below -10°F.
- Both units provide integral redundancy & adapt to varying levels of cooling & heating loads.

INNOVATIVE REFRIGERANTS

- Fossil-X uses next generation refrigerants that are not identified for phase-out by the EPA.
- Our refrigerants are highly efficient with a Class A1 safety rating and GWP factors 30% less than R410a.

20 - 30% DECREASE GWP

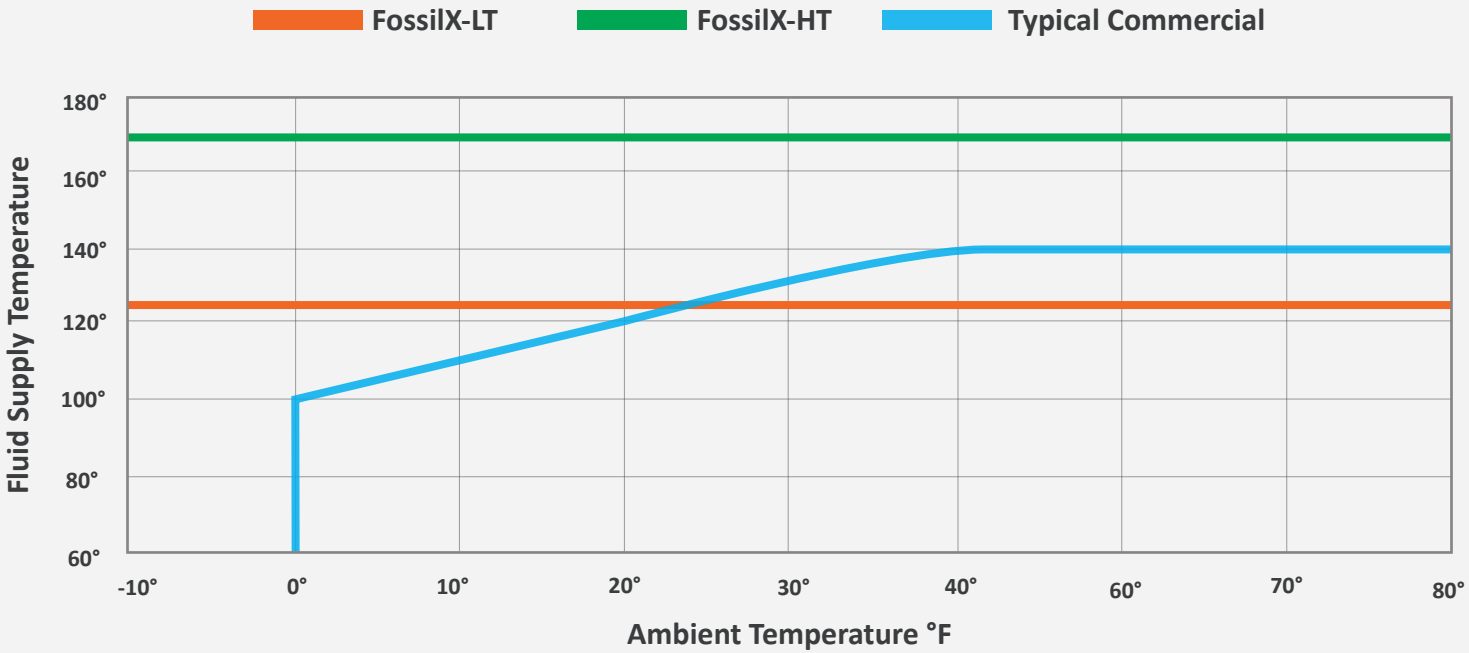
BUILT TO LAST

FossilX is specifically designed to be easily serviceable & cleanable:

- Our outdoor coil is designed with a wide fin spacing that allows for easy cleaning.
- All key components are easily accessible through the service area for maintenance & replacement.
- All components are common, non-proprietary, and are well known in the HVAC and refrigeration industry.

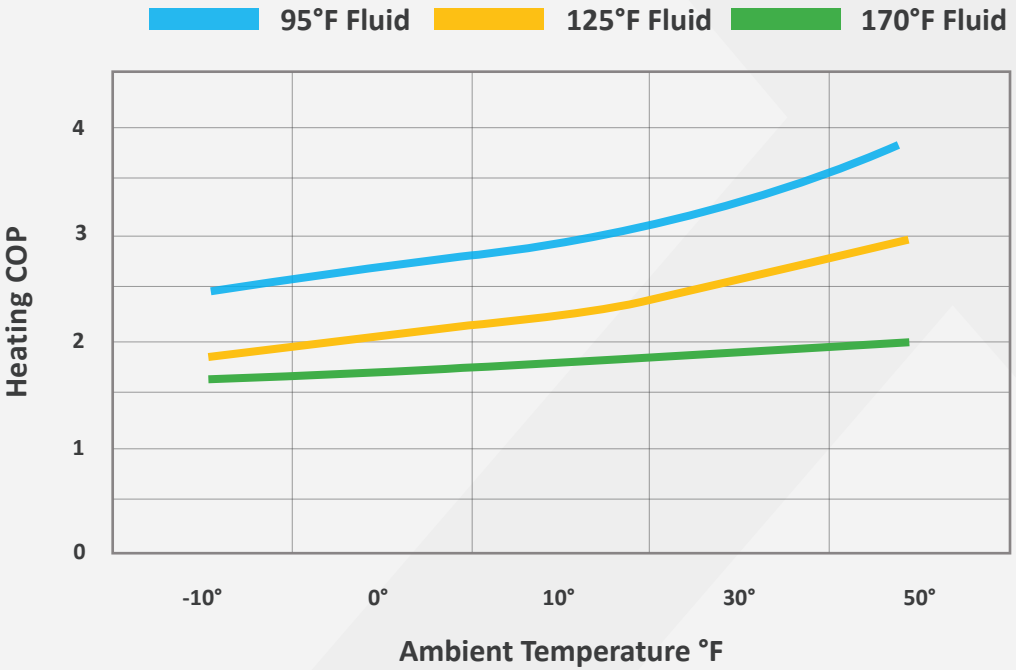
Ambient vs Fluid Supply Temperature

- Our low temperature (LT) unit is designed to sustain a 125°F fluid down to below -10°F ambient.
- Our high temperature (HT) unit is designed to sustain a 170°F fluid down to below -10°F ambient.
- Typical commercial units are designed to sustain a 140°F fluid but begin to fall at 25°F ambient.



FossilX COP vs Ambient Temperature

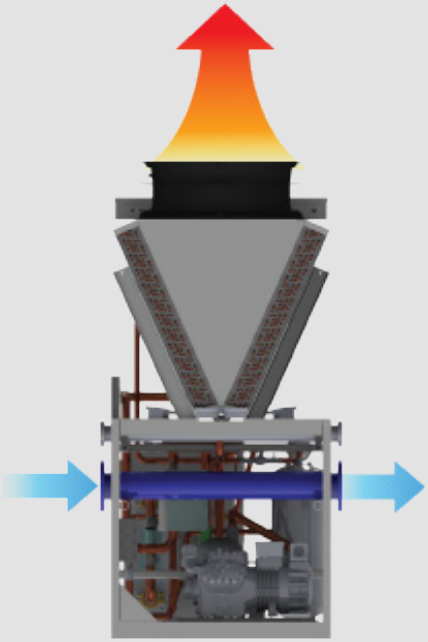
As the maximum fluid temperature moves across the ambient spectrum, FossilX provides up to a 30% higher COP than traditional commercial heat pumps.



Operating Modes

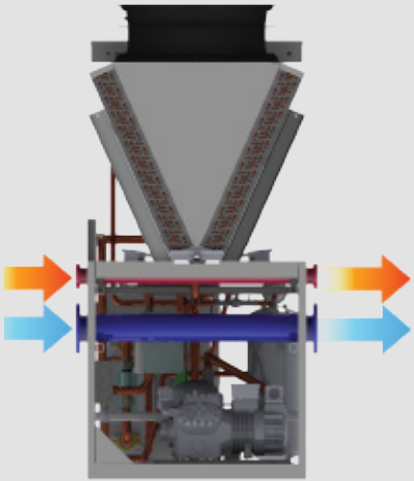
Unlike traditional chiller and boiler designs, FossilX is able to provide heating and cooling within one single packaged system. Within each FossilX heat pump, each individual circuit will operate in one of three modes.

Cooling Mode



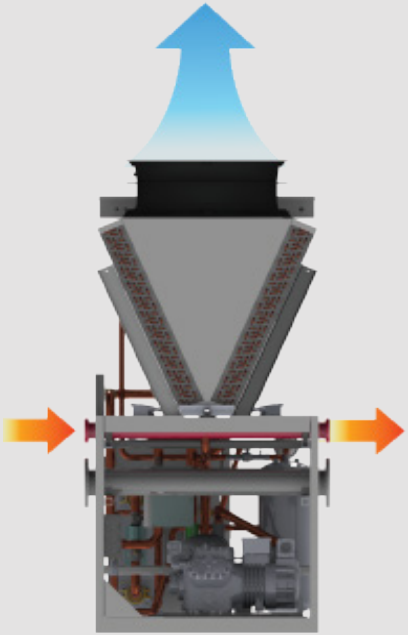
Cooling Mode creates chilled fluid by absorbing heat from the CHW exchanger and pumping it to the outdoor air coil.

Simultaneous Mode



Simultaneous Mode creates both hot and chilled fluid. Heat is absorbed from the CHW exchanger and pumped into the HW exchanger.

Heating Mode



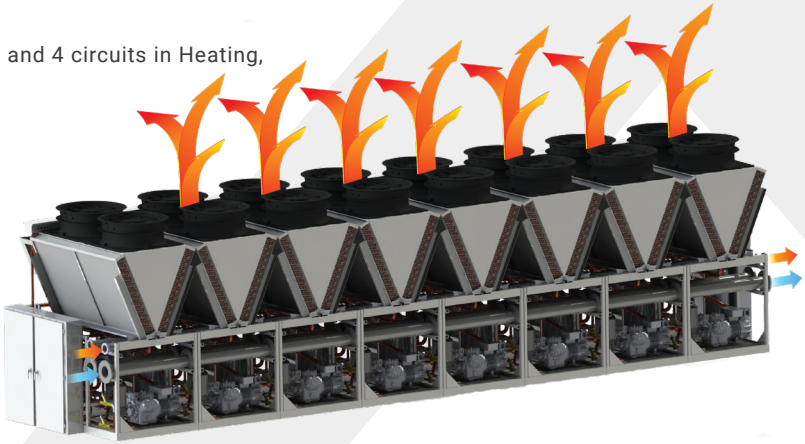
Heating Mode creates hot fluid by absorbing heat from the outdoor air coil and pumping it into the HW exchanger.

Efficient Adaptability

8 circuit FossilX with 4 circuits in Simultaneous and 4 circuits in Heating, producing 100% heating and 50% cooling.

Facilities require a system that can meet a variety of heating and cooling demands through all seasons, not just summer and winter. The multi-circuit design of FossilX will adapt to changing combinations of heating and cooling loads, while always operating in the most energy efficient manner.

When cooling and heating are both needed, FossilX will maximize COP by enabling circuits in Simultaneous mode until either heating or cooling demand is met. If needed, additional circuits will then enable in Heating or Cooling Mode until both demands are satisfied.



8 circuit FossilX with 1 circuit in Simultaneous and 7 circuits in Cooling, producing 100% cooling and 13% heating.




ABOUT RAE CORPORATION

RAE Corporation was founded in 1971 and is located in the MidAmerica Industrial Park in Pryor, Oklahoma. RAE employs more than 400 people, is represented throughout the country, and markets equipment throughout the world. RAE manufactures air and water-cooled condensing units, air and water-cooled chillers, air-cooled condensers, fluid coolers, heat transfer coils, industrial coils, unit coolers, corrosive environment equipment, and an assortment of other engineered cooling systems, all of which are either UL- or ETL-approved.

RAE CORPORATION

TECHNICAL SYSTEMS — EST. 1971

RSI — EST. 1974

CENTURY REFRIGERATION — EST. 1984

RAE COILS — EST. 1984

ZEROCOOL SYSTEMS BY RAE CORPORATION — EST. 2018

SEND ALL CORRESPONDENCE TO TECHNICALSYSTEMS@RAE-CORP.COM

FOR MORE INFORMATION, VISIT WWW. TECHNICAL-SYSTEMS.COM