

# STANDING UP TO THE COLD:



## REVERSIBLE HEAT PUMPS ARE SHOWING UP IN CANADIAN BUILDINGS

The pursuit of greener, more efficient, and more comfortable buildings has sparked innovations throughout the HVAC industry. Among these innovations are reversible heat pumps, which offer hybrid heating and cooling solutions for the challenging Canadian climate.

Reversible heat pump technology offers a more flexible and energy-efficient approach to heating and cooling over conventional technologies. Where conventional hydronic systems use a combination of an air-cooled chiller and a boiler to supply water of various temperatures to different parts of a building, reversible heat pumps use electricity to perform heating or cooling, according to the loads.

“We call this the hybrid heat pump plant,” explains Chris DesRoches, P. Eng., Applied Product Manager, HVAC Division, with Mitsubishi Electric Sales Canada Inc. (“MESCA”).

“Instead of a conventional chiller and boiler system, the chiller is replaced with a reversible heat pump so it can produce hot water or chilled water. That way, it can act as a chiller, but you also have the added benefit of using it to provide heat when your chiller would otherwise be shut off over the winter.”

“The idea is not to replace boilers outright”, DesRoches stresses. “Instead, these electrically-powered heat pumps are designed to take over for the boiler until conditions make it necessary to switch back.”

In this sense, heat pumps offer a cleaner and less expensive alternative to chiller replacements. Instead of replacing an old chiller with the same model, for example, owners can install a heat pump chiller that produces hot water to offset natural gas boiler usage during the colder Canadian seasons.

“Ultimately, it’s about using the energy that you have in your building as smartly as you can to minimize your carbon footprint” DesRoches adds.

### **Retaining functionality**

Low carbon footprint and enviable COP (coefficient of performance) are natural advantages of reversible heat pumps. Other advantages include energy-saving features found in conventional boilers, such as outdoor reset technology - which increases or decreases water supply temperatures circulating throughout a building in response to outdoor conditions and changes in load conditions.

“Outdoor reset technology has been used in boiler systems for decades, and the same feature also exists in reversible heat pumps,” notes DesRoches. “In addition to offering the high energy efficiency of a Heat Pump, you can further increase energy savings by utilizing other energy saving features. Reversible heat pumps have features in common with, and operating principles that are similar to, conventional chiller and boiler systems except that reversible heat pumps use clean and renewable energy sources unlike their fossil fuel counterparts.”

### **Evolving the market**

Reversible heat pumps have been proven and trusted solutions in markets like Europe and Asia for many years but have only recently found their footing in Canada. MESCA is leading the charge with its line of heat pumps designed by Climaveneta, a European HVAC and HPAC manufacturer, and pioneer in higher-energy efficiency solutions for the built environment for over 45 years.

Climaveneta was acquired by Mitsubishi Electric Corporation in 2015 to provide energy efficient alternatives to traditional Hydronic HVAC systems and, more importantly, solutions that can handle challenging year round environments.

“We are excited to be launching Climaveneta in Canada, and the products we are introducing now are just the tip of the iceberg,” says DesRoches adding, “We need to start thinking about how we can use the energy we have in smarter and more efficient ways in order to achieve Canada’s Carbon emission reduction targets; and technologies like these are a big part of the solution.”

Mitsubishi Electric Sales Canada Inc. features solutions from Climaveneta, a brand of Mitsubishi Electric, a global leader with a vast portfolio of energy-efficient, non-carbon-based space and water heating and cooling solutions. For more details or information on training, visit [www.Climaveneta.ca](http://www.Climaveneta.ca).



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