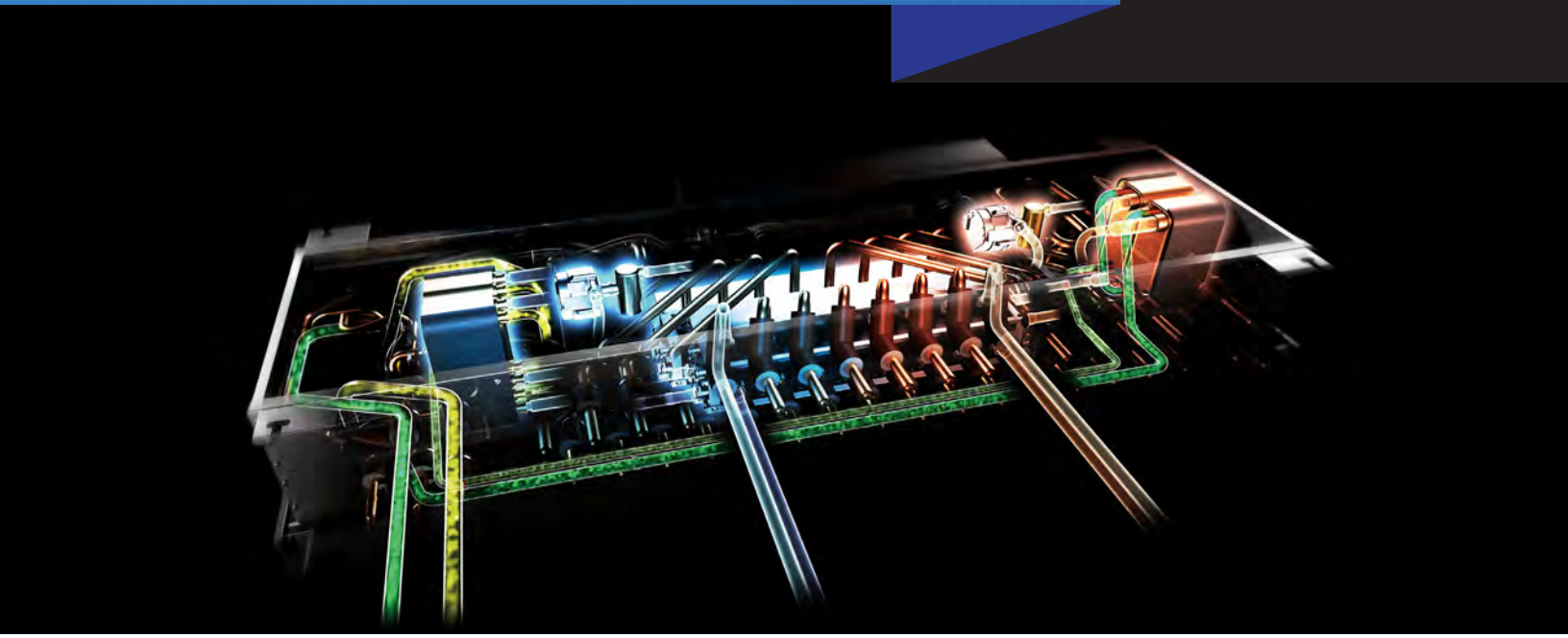
HYBRID VRF™ OVERCOMES INSTITUTIONAL BUILDING DESIGN CHALLENGES

MITSUBISHI ELECTRIC
Heating and Cooling



As demand for environmental responsibility grows in the building sector, decarbonization is at the forefront of conversations when it comes to HVAC systems.

Institutional buildings such as healthcare and long-term care facilities are highly complex environments that consume significant amounts of energy as they rely on a myriad of systems to function and deliver critical services to patients.

Variable refrigerant flow (VRF) systems can optimize HVAC performance by offering heating and cooling solutions, enhancing comfort and operational performance in institutional buildings, particularly healthcare and long-term care facilities.

However, the CSA B52 Mechanical Refrigeration Code (minimum requirements for the design, construction, installation, inspection, and maintenance of mechanical refrigeration systems) can limit the application of VRF solutions in long-term care facilities, often due to strict requirements surrounding refrigerants in occupied spaces.

Hybrid VRF (HVRF) is next generation technology from Mitsubishi Electric. The world's first 2-pipe heat recovery VRF system, which overcomes the strict B52 requirement by using water instead of refrigerant in occupied spaces. HVRF uses water between the Hybrid Branch Circuit Controller (HBC) and the indoor units, offering centralized control, individual operation, and simultaneous heating and cooling with heat recovery. It also requires less piping than a 4-pipe hydronic system with boilers, chillers, and cooling towers system.

Mitsubishi Electric's Hybrid VRF City Multi is the industry's first system to use refrigerant only between the outdoor unit and the Hybrid Branch Circuit Controller (HBC controller) and water between the HBC controller and the indoor units. This system requires less refrigerant compared to the VRF system. The HBC controller is the most unique part of this system that allows heat exchange between refrigerant and water.

- **HVRF** is also quick, easy and flexible to design and install using the same control and network as VRF systems.

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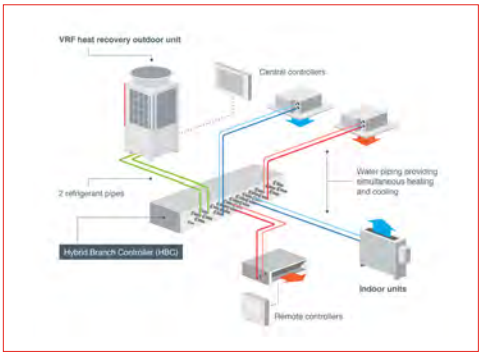
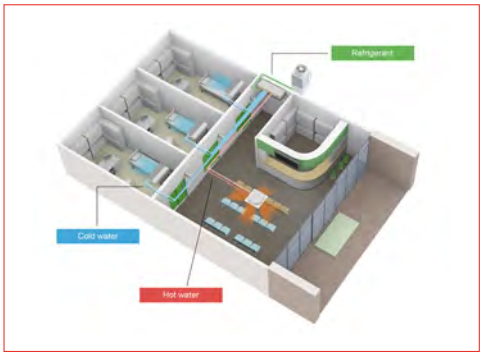
KEY BENEFITS





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CITY MULTI

COMFORT – Having individual comfort control is important in order for patients and residents in a hospital or healthcare facility to experience optimal comfort, whether over a short- or long-term period. The system achieves this by gradually adjusting capacity within the air-conditioned space, delivering a comfortable and stable environment.

LESS REFRIGERANT – Consultation rooms are often small in size and airtight. With the Hybrid VRF system, refrigerant is not used in the occupied space since the refrigerant does not flow between HBC controller and indoor units. Concerns regarding refrigerant concentration can be eliminated.

HVRF systems excel by minimizing refrigerant use and redistributing energy, significantly reducing energy consumption and operational costs. These systems are designed to minimize refrigerant volume across the entire system and within individual zones, improving safety and reducing design and installation complexity.

HIGH ENERGY EFFICIENCY – The 2-pipe system allows for simultaneous heating and cooling operation. It needs fewer key components to be installed because components such as the pumps, heat exchanger, and valves are incorporated into the HBC controller.

Easy control through M-Net - HVRF can provide individual control by indoor unit or by zone with the integration of Mitsubishi Electric's M-Net control system. Whether by local controller or centralized controller, heating and cooling can be monitored and operated remotely.

HVRF is a smart system that offers a lower carbon footprint compared to traditional VRF systems, providing comfort and reduction in refrigerant usage. The Hybrid VRF System allows for a flexible layout, making installation simple, and is a perfect fit for small, medium and large scale applications in most institutional buildings. HVRF systems are the next generation solution that will meet demands for decreased refrigerant usage to reduce greenhouse gas emissions for a greener planet.

An HVRF system can be utilized along with a VRF system in a mix and match format for a given application as both utilize the same controls system.

▶ To learn more about how a Hybrid VRF system can create a cleaner and greener environment, visit...

WWW.HYBRIDVRF.CA