

FACILITY MANAGEMENT NEWSLETTER

The Business Case for VRF

The first costs of any HVAC system are sure to affect the purchasing decision of building owners and developers. Building owners who perceive [Variable Refrigerant Flow](#) (VRF) systems as having a higher first cost than traditional HVAC systems are missing out on significant cost savings.

Identifying True First Cost

With traditional HVAC systems, the first cost may appear lower on a mechanical bid but that typically only includes equipment and installation. Factors such as equipment screening, electrical for the outdoor units and structural steel are all elements that elevate initial HVAC and building expenses.

For instance, the system comparison information below pertains to a 3-story, 78,000-square-foot office building.

Conventional Variable Air Volume (VAV) System

Equipment and Ductwork (Bid)	\$713k	\$9.59 per/sf
Screening - 350 feet required	\$85k	1.09 per/sf
Electrical	\$45k	0.58 per/sf
Structural Steel	\$20k	0.26 per/sf
Building Owner Cost	\$863k	11.52 per/sf

VRF System

Equipment and Ductwork (Bid)	\$810k	\$10.38 per/sf
Screening - 160 feet required	\$55k	0.71 per/sf
Electrical	\$65k	0.83 per/sf
Structural Steel	\$10k	0.13 per/sf
Reduced Plenum	-\$78k	-1.00 per/sf
Building Owner Cost	\$862k	11.05 per/sf

As shown, the true first cost of a traditional HVAC system is not always as it appears on the mechanical bid.



Efficiency and Control

Beyond initial expenses, the efficiency of VRF technology outweighs its conventional counterparts due to zoning. By utilizing an INVERTER-driven compressor, VRF systems only use the precise amount of energy required to meet the setpoint of each zone. When zones are not in use, the temperature may be scaled back, further reducing operational costs. Building management systems, such as [Diamond Controls®](#), offer HVAC scheduling and integration to keep energy usage optimized. To learn more about the business case for VRF, view our [webinar here](#).

Introducing CITY MULTI® N-Generation!

A big advancement for VRF technology in an up to 30% smaller package, the new N-Generation outdoor units deliver better energy efficiency and personalized comfort control, design flexibility and application possibilities to commercial buildings. With a host of streamlined features and improvements, including a tiered product line-up, N-Generation is sure to make HVAC design, installation and operation even easier! Learn more at nextgenvrf.com.



Features

- Up to 78% heating capacity down to -13°F for (High-efficiency tier)
- Up to 70% heating capacity down to -22°F for the (H2i® tier)
- Up to 13% reduction in refrigerant volume (versus L-Generation)
- Built-in data storage, accessible via USB, stores up to 5 days of data
- 5 new airflow settings reduce noise levels across all models

Walnut Hill Community Church



Challenge

Selecting an efficient, cost-effective HVAC solution for a large church



Solution

Mitsubishi Electric
CITY MULTI VRF



Result

A quiet and efficient HVAC system that provides significant savings and a comfortable atmosphere

Project Details

- Located in Bethel, Connecticut
- 40,400-square-foot church
- The church needed to find a cost-effective replacement for its dated, chiller/boiler system
- The facilities director needed a streamlined controls platform

“Conservatively, the cost savings for this church are projected to be about \$50,000 per year. We sold them on the efficiency of VRF. Anytime you talk with a customer about having a 5-year return on investment, they’re going to listen.”

— Jim Messenger, Eastern Mechanical Services, Inc.