



Salem, Virginia

BURTON CENTER FOR ARTS & TECHNOLOGY

CHALLENGE

Finding an energy-efficient HVAC system that provided occupants with year-round comfort

SOLUTION

Mitsubishi Electric VRF

RESULT

An easy installation, energy-efficient operation and satisfied occupants



The Burton Center for Arts & Technology (BCAT) serves almost 800 high school students on its Salem, Virginia, campus. Students take classes on a wide variety of topics—including automotive technology, computer information technology, mechatronics, culinary arts, performing arts and cosmetology. When the school's old HVAC systems needed replacing, the district's attention turned toward technologies that could ensure comfort and efficiency. For the school's front building—**20,000 square feet of offices and classrooms**—that meant Variable Refrigerant Flow (VRF) from Mitsubishi Electric.

Melinda Ruble, president, MDR Engineering, Roanoke, Virginia, was called in by the mechanical contractor to design a new HVAC system. Ruble said, "The old boiler was entering the end of its useful life. The school also wanted cooling; some of the school was air conditioned by window units, but in some places there was no a/c at all."

She continued, "The county is really

energy-conscious and had made a big push for energy efficient designs, so the eventual HVAC system's energy efficiency came into play." The design team explored various technologies, comparing efficiencies and costs. **"Geothermal was too expensive and there was no space for wells. VRF, though, could be as energy-efficient as geothermal, but without the expense."**

With VRF decided on, going with Mitsubishi Electric was a clear choice for Doug Stackpole, account executive at Comfort Systems USA, Roanoke. "We consider Mitsubishi Electric the cream of the crop right now in VRF. Mitsubishi Electric has a two-pipe system. Other manufacturers have a three-pipe system, and they try to tell you that it doesn't make a difference. It does. **The extra pipe means 33 percent more material. Drives up labor, too."**

Stackpole also noted the importance of design support: "Mitsubishi Electric's support is a big thing for us. The APG1 team is available 24 hours a day, really. They even



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come to the site. That field support is critical; we don't see that as consistently with some of the other vendors." Ruble added, **"Mitsubishi Electric also requires certification programs of its contractors, making for a better install. I've had much greater success with Mitsubishi Electric than other manufacturers."**

The school chose to use VRF in key areas to take advantage of its benefits. "We put VRF, for example, in places with multiple offices where individual comfort was most important. From there, we could then piggyback on the system to get some extra classrooms," said Ruble.

Principal Jason Suhr said the installation was easy and fast: "The crew came in and worked around our schedule. I was very impressed with how quickly it all moved—about a month. The crew waited to begin until after the summer camps ended, and got the system in before school started."





The experience since installation has been going “very well. The teachers have been pleased—haven’t really said anything. The previous heating system—the boiler—was brutally hot or not working at all. It was really a mess and we heard about it all the time. So no news is good news. And those of us up in the offices, we’ve been comfortable. That’s the name of the game right there. So it’s been a pleasant experience,” said Suhr.

Stackpole said the county, itself, is also “extremely pleased. The system works great, and they especially love the individual control and VRF’s operational efficiency has helped the school in its sustainability efforts. Suhr said, “We’re about conserving energy here. We try to emphasize turning appliances

off, turning off the lighting in the hallways and so on. Our office HVAC system even kicks down if there’s no movement. We want to not run things that are not being used. And we’ve done well at that with the new HVAC system.”

PROJECT TEAM

HVAC Contractor:

Comfort Systems USA, Roanoke, Virginia

Mechanical Engineer:

MDR Engineering, Roanoke, Virginia

Distributor:

Advanced Products Group, a division of Aireco Supply, Inc., Laurel, Maryland

EQUIPMENT

- ▶ (3) PUHY Y-Series Outdoor Units
- ▶ (13) PLFY 4-Way Ceiling-recessed Cassette Indoor Units
- ▶ (10) PKFY Wall-mounted Indoor Units