



case study

products

CITY MULTI

market

Religious Facility

location

Doylestown, Pa.





Comfort with a Tight Budget

Project Name:

Doylestown Presbyterian Church

Location:

Doylestown, Pa.

Completion Date:

August 2004

The Team

Owner

Doylestown Presbyterian Church

HVAC Contractor

**HighTec HVAC
Southampton, Pa.**

HVAC Distributor

**Luce, Schwab & Kase, Inc.,
Cherry Hill, N.J.**

Founded in 1804, the Doylestown Presbyterian Church, Doylestown, Pa., has undergone several relocations. The current church site is in a building that was built in 1872. Steeped in historical and architectural tradition, the 5,500-square-foot building houses a congregation of more than 2,000 members and is served by two pastors.

Tight Budget, Few Contractors Willing to Bid

The intended chilled-water, air-conditioning project was sent out to 10 contractors who received walk-through tours and were asked to bid. Eight out of the 10 declined to submit a proposal for the installation. They called the project too difficult, citing the building's age, stonework and lack of equipment access as issues too large to overcome. Additionally, the church's limited budget posed another problem, as it operates on a not-for-profit basis.

Two contractors did answer the call, however, including HighTec HVAC, Southampton, Pa. When asked by Nancy Young, Doylestown Presbyterian Church business manager, to design a system that would work properly and meet the church's budget requirements, Ed DeAngelis, president, HighTec HVAC, and Mike Castelli, project manager, proposed using a CITY MULTI® Variable Refrigerant Flow Zoning (VRFZ) system by Mitsubishi Electric HVAC, a system they had become familiar with through Mitsubishi Electric

HVAC distributor Luce, Schwab & Kase, Inc., Cherry Hill, N.J.

Young chose HighTec HVAC's proposal over the competitor's bid because it presented the most creative cooling alternative that would meet the financial, logistical and comfort requirements of the church. HighTec HVAC's proposed use of CITY MULTI also satisfied a desire for energy-effective operation, another key issue for the church, given its limited operating budget.

Developing a Creative Answer

With the help of Manufacturer's Representative Bob Stroh, Stroh Sales Associates, Phoenixville, Pa., DeAngelis and Castelli designed a 2-component installation: two 12.5-ton horizontal split systems for the upper level and a CITY MULTI VRFZ system for the lower level, which included prayer rooms, quiet rooms and offices. They opted to use the CITY MULTI R2-Series because of its ability to simultaneously cool and heat specific spaces, its quiet operation, its individualized climate control capabilities and because the configuration of the offices in the lower level did not allow for ductwork.

Additionally, because of their Mr. Slim® Diamond Dealer status, DeAngelis and Castelli had received ample training to properly design the system for the application. Their extensive knowledge of CITY MULTI and the mechanics of split-

ductless design allowed them to devise a viable HVAC plan.

The Installation

DeAngelis and Castelli sold, designed and installed one PURY outdoor unit and eight indoor units: three PKFY wall-mounted ductless units and five PDFY ceiling-concealed ducted units.

Chosen for the function of the room in which they were installed, the PDFY ducted fan coil units were hung in the closet and storage areas; the piping and electrical work were also concealed in these rooms. In some areas, such as the prayer and quiet rooms, it was important to keep aesthetics in mind and hide all visible evidence of the indoor unit.

The Branch Circuit (BC) Controller and the G-50A Centralized Controller were installed in the basement to allow for easy access and service. The outdoor unit was installed on a concrete pad under a window, next to a walkway, since it is quiet enough that it won't bother the congregation.

The CITY MULTI R2-Series, a Building Comfort Solution

The CITY MULTI R2-Series is made up of an outdoor unit, a BC Controller, indoor air handlers and zone or central controllers. To simultaneously cool and heat, the BC Controller acts as the heart of



the system, managing refrigerant gas and liquid and directing it to the air handlers requiring cooling or heating. Essentially, heat energy is recovered from one space and sent to another in an innovative process that results in virtually no energy wasted by being expelled outdoors when 50 percent of indoor units are heating while 50 percent are cooling. This special function results in optimum energy usage.

From Initial Apprehension to Worship without Distraction

When Young initially put the project up for bid, she received much apprehension from the two pastors, in addition to the congregation who were concerned about the impact the installation would have on the historic

church interior and on the day-to-day services it offers.

Since its installation, Young described the system as “working great.” She noted that it was the smoothest installation job in her 15 years of church administration, as well as the most seamless looking. Each zone can be individually controlled for utmost efficiency and temperature control. “CITY MULTI also helps the church keep heating costs down in the winter, thanks to its ability to simultaneously cool and heat,” said DeAngelis.

Training that Paid Off

“When it comes to designing an HVAC system, part of doing the best job is doing your homework,” said DeAngelis. “This allows for

The Doylestown Church was built in 1872 and currently houses a congregation of 2,000 members who are served by two pastors. The PURY outdoor unit (shown below) is the only evidence of the Mitsubishi Electric HVAC CITY MULTI® R2-Series VRFZ system on the church's exterior.



pre-emptive problem-solving and Mitsubishi Electric HVAC shows a clear understanding of this concept through their dedication to training.”

HighTec HVAC submitted this job to the Southeastern Pennsylvania Chapter of Associated Builders and Contractors, Inc. for their 2005 Merit Construction Award of Excellence Program and won for “Best Mechanical Project under \$3 Million.”

CITY MULTI Equipment Installed:

- (5) PDFY Ceiling-concealed Air Handlers
- (3) PKFY Wall-mounted Air Handlers
- (1) PURY R2-Series Outdoor Unit
- (1) G-50A Central Controller
- (1) Branch Circuit (BC) Controller