

Case Study

PA Church Puts its Faith in AERCO

Customer	Trinity Lutheran Church
Location	Location Perkasia, PA
Industry	Additional Markets
AERCO Product Installed	KC1000



What the Client Needed

Trinity Lutheran Church in Perkasia, Pennsylvania need to leap into the modern age to replaced its 1.4 million BTU/hr. cast iron boiler. The church's 60-year-old unit, whose design style dates back to the 1800s, was a giant, whose footprint measured 12' long x 6' wide. When it began to leak in 1996, Diversified Refrigeration, the maintenance company for the church (with the assistance of the Baase Company, Inc.) decided to replace it with a high-efficiency boiler that, at the time, had been on the market for just under ten years.

AERCO's Solution

"We replaced a boiler that took up an entire room with an AERCO KC1000 unit – just 57" long x 22" wide – that could fit comfortably into any closet," said Gary Derr, president of Diversified Refrigeration. "It heats both the church and the adjoining education wing, which has a day-care center in its basement."

Although compact boilers had been available for some time, it was AERCO's modulating and condensing capabilities, which deliver up to 98% thermal efficiency, that truly set it apart. By precisely matching energy output with actual demand, the KC1000's modulation ensures that the boiler consumes no more gas than is absolutely necessary. In contrast, other boilers continually cycle, alternatively firing at 100% and shutting down, to satisfy demand. By extracting energy from water vapors created as a by-product of the combustion process, the KC1000 maximizes usable heat from the gas that is burned. Noncondensing equipment, such as the original boiler that was replaced, cannot release this latent heat without damaging the heat exchanger.

Return on Investment

The KC1000 unit paid immediate dividends on the energy savings front. When comparing the daily gas consumption for the month of February in 1995 and 1996, records show that despite colder temperatures usage dropped by 21%. A total of 70,840 cu. ft. of gas was saved for the month.

Derr continues to embrace his decision to adopt what many still consider to be a new technology in the industry. "We've had the AERCO unit since 1996 and haven't had any problems," Derr remarked more than seven years later. "The boiler runs itself and hasn't needed anything other than routine maintenance. It's been a very low-key, high-benefit experience." (BMS) to coordinate operations and maximize system efficiency," said McDaniel. "The engineering team knew that Benchmark boilers run more efficiently at part load – that is, having three boilers running at 20 percent is more efficient than running one unit at 60 percent. So they designed the

mall's system to operate with five units acting as one heating component. This reduces fuel consumption and helps equalize run time to ensure that some units don't endure more wear and tear than others."

An added advantage of the AERCO units is their small size. Each Benchmark unit occupies a 12 sq. ft. footprint and can be installed with zero side clearance. The mechanical room at FlatIron Crossing measures only 30 ft. by 6 ft. In addition to each set of side-by-side boilers, it contains a 3,000 gallon storage tank that supports the system's cooling tower. It is co-located inside the mechanical room to prevent the water from freezing in the winter.