

Case Study

Zion Episcopal Church

Boiler Replacement Needs: Existing heating system consisted of four 12-year old 199 MBH boilers. Two of the four boilers were no longer functioning, and a third boiler was leaking. Boiler manufacturer offered to honor the warranty and install new units, but customer declined and chose to seek new boilers for the facility.

Project Installation Date: September 2015

Type of Facility: Community building

Name of Building: Zion Episcopal Church

Location: Oconomowoc, Wisconsin

Construction Details: Total Number of Boilers Required for Job - Two

Solution: Weil-McLain® Evergreen™ 299 and 399

Installing Contractor: Schulte Heating



Zion Episcopal Church in Oconomowoc, Wisconsin



The two Evergreen units installed in the boiler room provide energy efficient heating for the church



The Evergreen 299 and 399 boiler

Case Study (Cont'd)

Zion Episcopal Church

History

Zion Episcopal Church is a Wisconsin landmark founded more than a century and a half ago. In 1846, the Rt. Reverend Jackson Kemper, the first missionary Episcopal Bishop, established the Zion Episcopal community in Oconomowoc, Wis. The present day stone church situated on Fowler Lake was built in 1889. With failing boilers and an inefficient heating system, the historic Zion Episcopal Church needed guidance and help. The latest high efficiency condensing boilers from Weil-McLain provided the answer to solve their heating woes.

Existing Issues

The existing heating system consisted of four 12-year old 199 MBH boilers. Two of the four boilers were no longer functioning, and management was convinced the other two would fail because one was leaking. Zion was distressed to experience failures this large on units that had been considered state-of-the-art at the time they were purchased. The boiler manufacturer offered to honor the warranty and install new units, but Zion declined.

Instead, Linda Georgeson, Senior Warden at Zion, requested bids from three mechanical contractors, including local Oconomowoc, Wis.

firm Schulte Heating.

Schulte submitted a bid to install Weil-McLain Evergreen boilers. "We invested a lot of time researching and evaluating commercial boilers and reviewing the proposals we received," said Georgeson. "In an open meeting of the church, we charted cross comparisons of all of the different units, the associated costs and warranties, and who would handle installation."

Solutions and Details

In the end, Schulte Heating and Weil-McLain came out on top.

"We chose Weil-McLain Evergreen units because we thought the engineering was excellent, and the system design seemed attractive in terms of overcoming our issues," said Georgeson. "We also liked the warranty, the ability to easily service them and that Schulte Heating was a local firm."

Rich Schulte, Jr., Vice President of Schulte Heating, oversaw the boiler upgrade project. "Upon our analysis, in addition to having unreliable boilers, the church also had quite a bit more capacity than they needed with the four previous boilers," said Schulte. "And, the church knew it had to act quickly because they wouldn't be able to heat the building with only one functioning boiler."



Zion Episcopal Church in Oconomowoc, Wisconsin



Schulte Heating based in Oconomowoc, Wisconsin

Installing the Evergreen Units

In September 2015, church staff determined it was time to proceed with the project, and the Evergreen units were installed in October.

Schulte Heating replaced the four failing boilers with two Evergreen boilers, a 299 MBH and a 399 MBH; they were installed as a Multiple Boiler System (MBS) using the Modbus® Communication feature. In this configuration, a master boiler controls the modulation and sequencing of boilers on the network to achieve the desired system supply temperature.

"With the automatic sequencing feature, the boilers communicate directly with one another so they sequence themselves and rotate as needed," said Schulte. "Both operate at the lowest rate to optimize efficiencies."

Case Study (Cont'd)

Zion Episcopal Church

Notable Features

The new 95% AFUE Evergreen from Weil-McLain offers simple controls, flexible functionality for multiple applications and a durable design, and is easy to install, use and maintain.

The units are adaptable for most heating needs including light commercial or large residential applications and for single or multi-boiler installations. Evergreen offers quiet operation, an aesthetically pleasing design, floor standing or wall mount options and environmental sustainability.

"Evergreen is the only boiler I proposed to Zion because I really like the technology of the fire tube heat exchanger in those boilers," said Schulte. "In addition, they are easy to set up through the set-up wizard option provided on initial start-up and also easily maintained.

"Another important feature is the units don't require a separate, external control panel or boiler panel, and that was ideal because the church did not currently have a separate interface to view the status of the systems," said Schulte. "It's now very easy to see the system status and service the units, if needed."

The installation took less than a week.

Boiler Upgrade Benefits

Georgeson is already seeing efficiencies with the new units, though installed for less than a year. "We've noticed a significant savings on our energy bills when comparing this year's monthly bills to last year," said Georgeson. "This was not surprising as we expected to experience energy savings based on the high efficiency of these boilers. We imagine we will save hundreds of dollars in the long term.

"The Evergreen boilers also are very reactive to our heating needs," said Georgeson. "The units keep the baseline water temperature at a level where they can react quickly if additional heating is required, such as when our church doors open on Sunday morning."

The units are configured to handle the five separate church thermostats/zones. Each thermostat is programmed for usage depending on the day and whether the area is occupied. "I can control temperatures throughout the church when people need heat or when I can keep it low," she said. "The units are very responsive for zone use."

Georgeson also appreciates the easy-to-use interface. "I can even reboot the boilers myself if needed because

the interface is very user-friendly," said Georgeson. The two Evergreen units also allow for more space and access in the boiler room.

"It's not an overcrowded area anymore because we have two appropriately sized boilers handling the heating load of the church instead of four," said Georgeson. Schulte Heating will handle annual maintenance to keep the units in top working order.

"Schulte Heating's workmanship was excellent, and I am very satisfied with the performance of the units," added Georgeson.



Evergreen Controls and Screen



Large panels on the Evergreen allow for easier access to internal compartments