



Squadron Line Elementary School - Simsbury, CT

CASE STUDY

Client Profile

Squadron Line Elementary School was voted best elementary school in its region in 2016 of Connecticut. Squadron Line Elementary School educates 600+ kindergarten through sixth grade students. The building is two stories, 91,361 square feet and was built in 1970. The school has undergone a number of renovation projects throughout the years to maintain its leadership as state of the art learning center. Yet the original cast iron hot water system has remained in constant service.

Challenges

The 46 year old oil fired, hot water system, with constant speed circulating pumps and an out-dated control system were inefficient, and expensive to maintain and operate. According to Steve Twitchell, Simsbury School System Supervisor, Building and Grounds, "Four years ago we replaced our old boilers at our middle school with Camus units and have realized very impressive results. We made the decision to standardize on them in all future renovations."

Solutions

The existing system was replaced in December 2016, with three sequentially staged, Camus "DynaForce" hydronic, condensing, gas fired boilers and two Camus TH condensing tank water heaters and primary and secondary circulation pumps with VFDs for optimal efficiency. The state of the art condensing boilers and building automation control network(BACnet) were installed by Rivco Construction of Burlington, CT. Rivco was very happy with the ease of installation, start up and operational simplicity of the new boilers. Fuss & O'Neill designed the new boiler room.

High Efficiency Condensing Boilers and Domestic Hot Water Heaters Central to Heating Plant Upgrade

Goals and Objectives

1. *Replace the failing hot water system to hot water system with a high efficiency heating and domestic hot water system with condensing boiler technology.*
2. *Improve comfort, dependability, and operation of the HVAC system throughout the facility.*
3. *Reduce energy use and operating costs.*
4. *Reduce the carbon footprint of the school.*



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Results

According to Steve Twitchell, Supervisor of Building and Grounds for the Simsbury School System, the new boilers and hot water heaters operate at 92-94% efficiency and emissions have been significantly reduced. They are cool to the touch and quiet. Despite the outdoor temperature, the temperature throughout the school is consistent and even which fosters better learning. The units mirror finish, stainless steel, three-sided jackets promote attention to detail throughout the mechanical room and allow easy access to all parts of the boiler. They are very easy to maintain. The BMS Interface allows for constant real-time monitoring the system from virtually anywhere, reducing nuisance maintenance expenses.

Steve Twitchell said, "We like working with Blake Equipment because when they say it's going to happen, it happens. No glitches. When we called for warranty back-up, they said they were on their way."

With a teacher at the High School, Steve Twitchell is incorporating the new system into the Simsbury Engineering curriculum. Students compare an existing boiler system at a school yet to be upgraded with the new, then backward engineer the Squadron Line project. Steve Twitchell says, "It's a great way to teach students about new technology and develop their appreciation for Green Solutions."

BEFORE AND AFTER



Before

The old system was noisy and dirty, the boiler room was very hot. It was expensive to operate and maintain. The heat was uneven throughout the school, the system was an energy drain and not environmentally friendly.



After

The Camus Hydronics, DynaForce and TH tank water heaters are gas-fired, condensing boilers. They take up much less space of the old system, are cooler and cleaner, much more efficient and emit a fraction of the emissions of the old system. They are easy to service, too. The boiler room is pristine so it's easy to spot problems and address them immediately.

PARTNERS IN SUCCESS

Engineering: Fuss and O'Neill - Manchester, CT

Contractors: Rivco Construction - Burlington, CT

Boiler Manufacturer: Camus Hydronics - DynaForce gas-fired, condensing boilers and TH gas-fired, condensing tank heaters.

Manufacturers Representative:
Blake Equipment - E Windsor, CT



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