



Heating & DHW Modernization – West Davenport High School

Project Location: Davenport, Iowa

Completion Date: 2025

Engineer / Installer: IMEG Engineering Firm,
Crawford Company

Project Background

West Davenport High School, located in Davenport, Iowa, required a comprehensive heating and domestic hot water system upgrade to address aging infrastructure and improve efficiency. Serving approximately 1,500 students and 200 classes daily, the school's existing non-condensing commercial cast iron steam boilers were nearing the end of their operational life. The facility's heating load covers approximately 300,000 square feet, and its potable hot water demand services the kitchen, locker rooms and restroom facilities.



SVF™ 3000
Series 1



Existing System Limitations

- **Inefficiency:** Old non-condensing steam boilers operated at significantly lower thermal efficiencies
- **High Operating Costs:** Elevated fuel usage and ongoing maintenance
- **Limited Control:** Minimal modulation capabilities and outdated control logic
- **Reliability Concerns:** Frequent downtime risk for both heating and domestic hot water services

Upgraded System Specifications

This modernization project replaced the outdated steam system with a high-efficiency, fully modulating hot water plant featuring four Weil-McLain® SVF™ 3000 Condensing Stainless Vertical Fire Tube Boilers and two Aqua Pro® indirect-fired water heaters with 96% thermal efficiency and building automation system integration. Highlights include:

- Full modulation to match system load and operating temperature setpoint range of 120–160°F
- Variable Primary Closed-Loop Water System
- Improved distribution efficiency and minimized pump energy usage
- Heat distribution through perimeter baseboards and hot water radiators delivering even, consistent building comfort
- Smart controls & integration
- Building Automation System (BAS) tie-in with remote monitoring capability
- Load-responsive modulation for efficient heat ramp-up and reduced cycling



System Performance & Benefits

- **Energy Efficiency:** Up to 96% thermal efficiency, significantly reducing natural gas consumption
- **Operational Savings:** Lower fuel and maintenance costs due to advanced control strategies and high-efficiency equipment
- **Reliability:** Redundant boiler configuration ensures uninterrupted heating and hot water supply
- **Improved Comfort:** Precise temperature control across all heating zones
- **Sustainability:** Reduced greenhouse gas emissions aligned with district energy goals

