



Case Study: Holdrege Middle School - HVAC System Optimization

Holdrege Public Schools
Holdrege, NE

Engineer: Kucirek Engineering, Inc
Contractor: Mid-States Automation & Control

Description of Facility: 49,894 sq. ft. Middle School

The school was primarily served by a single variable air volume (VAV) system with fan powered terminal boxes and hot water reheat. Gymnasium and locker rooms are served by single zone constant volume air handling units. Heating provided by natural gas boiler. Chilled water provided by an air-cooled chiller. Direct digital control system.

Energy Conservation Measures completed: Conversion of fan powered VAV terminal boxes to single duct VAV terminal boxes, conversion of pneumatic controlled smoke dampers to DDC control and removal of air compressor, optimization of duct static pressure controller and supply fan for single duct VAV system.

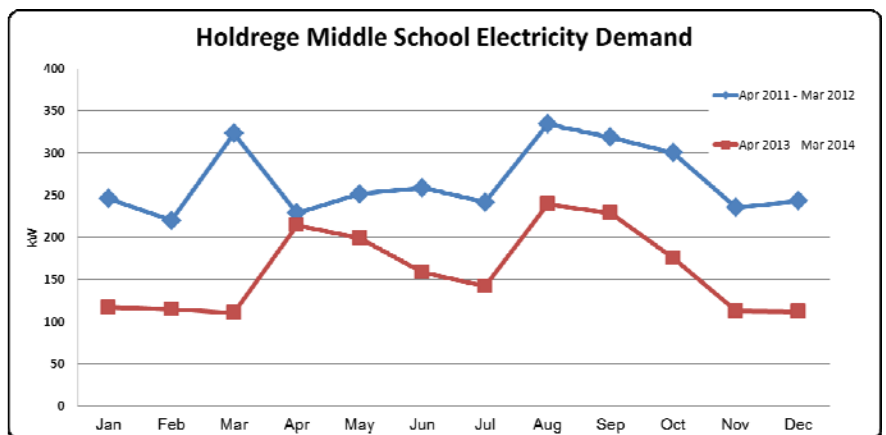
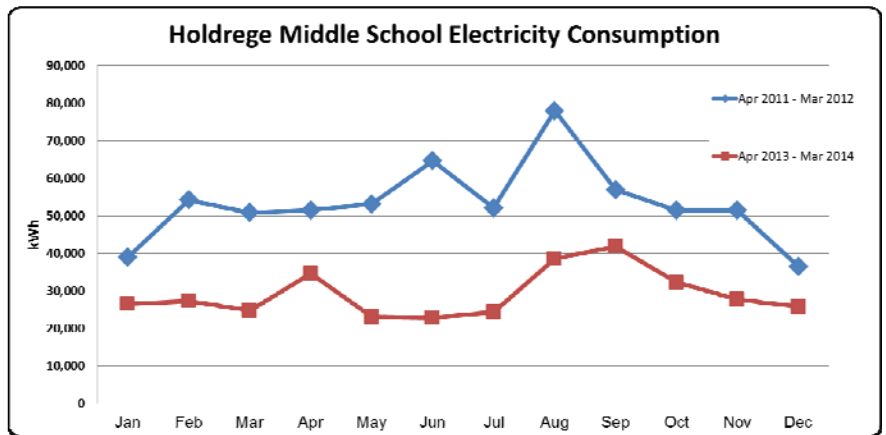
Note: A lighting upgrade was completed in 2012, prior to this HVAC Optimization. The estimated savings (127,000 kWh) and actual savings from the lighting project are reflected in the charts and table below.

Energy Consumption Comparison

The charts below compare baseline energy consumption to post-HVAC System Optimization energy consumption:

Building Energy Performance

The table below shows the energy savings as estimated in the Technical Energy Analysis, dated September 13, 2012, compared to the actual savings realized during the first year of operation following implementation of the Energy Conservation Measures described above.



	Estimated Savings	Actual Savings	Actual Savings from 2011/2012 to 2013/2014
Electricity Consumption (kWh)	183,108	290,320	45%
Electric Demand Reduction (kW)*	37	106	40%
Natural Gas Consumption (Therms)**	-	2,657	20%

*Electric Demand Reduction is the average kW demand reduction per month.

**As a result of optimization of air handling units and terminal boxes, natural gas savings were also realized.