



# ENERGY SAVINGS - CASE STUDY



Pump retrofit complete. Two 10-hp pumps replace two 20-hp pumps which offer attractive savings.



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## Wellington Christian School

Facility managers all around are looking for ways to reduce operating costs. This 48,000 square foot school building is one of many, located on a campus along with Wellington Presbyterian Church. Their electric utility costs were roughly 30% to 40% greater than similar buildings.

Wojcieszak & Associates, Inc. was hired to assist with the engineering for a chilled water pump retrofit. So far, the retrofit has been completed and reflects a **20% savings** in total electric utility costs. (Figure 4)

The pumps were old and ready to be replaced. Wojcieszak & Associates, Inc. was asked to review the proposed replacement pumps which were the same as the original ones. Looking at the large size and high costs to replace the pumps, Darcee McAninley recalls thinking, "There's got to be a way to help this school save money." After a thorough review of the chilled water system and meetings with the facilities manager

about how the system is operated, some great savings opportunities were uncovered.

### The Plan:

#### Savings Opportunity #1

There were two pumps and two chillers that provided cooling for the building. The air conditioning system ran day and night throughout the year, regardless of the hours of operation. Turning off equipment when the building was not in use cut down the hours of operation to 2,500 from 8,760. (Figure 1)

#### Savings Opportunity #2

The existing pumps ran one at a time; however, they pumped enough water for both chillers. (Figure 2) Most of the year except summer afternoons, only one chiller would be running, therefore it would be a waste of electricity to run water through both chillers. Now, one pump runs when one chiller is running. (Figure 3)

**The result:** The amount of water pumped was decreased resulting in a **monthly savings of \$1,500** (556 kWh/day). (Figure 4)

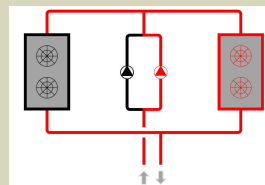


Figure 2 - One 20-hp pump, pumping 24/7, through both chillers

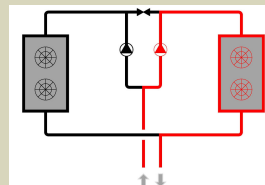


Figure 3 - One 10 hp pump, pumping through one chiller during occupied times.

## AVERAGE DAILY UTILITY USAGE

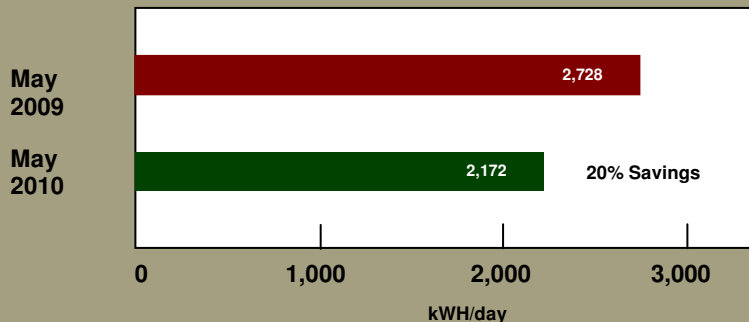


Figure 4

Courtesy of Wellington Christian School

### PUMP OPERATING COSTS

20 hp	8,760 hrs.	\$ 20k/yr
10 hp	8,760 hrs.	\$ 10k/yr
10 hp	2,500 hrs.	\$ 2k/yr

**SAVINGS \$ 18k/yr**

Figure 1