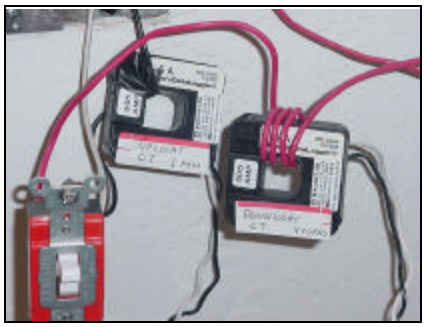
Appendix B

Data and analysis on energy usage included:

- Taking readings on energy each minute
- 14 classrooms successfully monitored
  - Special software developed
  - Data was translated into an Excel format
  - Daily records can be extracted
  - Savings were identified
- Yearly levels were calculated for the school
- Approximately 15 million data points exist
- Examples of data & analysis follow

1 – Data Loggers **2 – Sensors** **3 – Fax Modem**



Sensors were used in each classroom to detect when current was sent to the luminaire corresponding to the General Mode and A/V Mode and when the occupancy sensor was activated

The data from the sensors was captured by the data logger, which was then transmitted via fax modem to Finelite

Data is captured for every minute of every day for each classroom. The data for each

Time	Room 19			Room 20			Room 21			Room 22			Control
	General	AV	Occupancy Signal	General	AV	Occupancy Signal	General	AV	Occupancy Signal	General	AV	Occupancy Signal	Total
prior data	...	...	...	...	...	...	...	...	...	...	...	...	...
10/1/03 8:50 AM	3.22	0.00	100.00	0.01	1.35	100.00	3.32	0.00	100.00	3.37	0.00	100.00	6.05
10/1/03 8:51 AM	3.22	0.00	100.00	0.01	1.35	100.00	3.32	0.00	100.00	3.37	0.00	100.00	6.05
10/1/03 8:52 AM	3.22	0.00	100.00	0.01	1.35	100.00	3.32	0.00	100.00	3.37	0.00	100.00	6.05
10/1/03 8:53 AM	3.22	0.00	100.00	0.01	1.35	100.00	3.32	0.00	100.00				
10/1/03 8:54 AM	3.22	0.00	100.00	0.01	1.35	100.00	3.32	0.00	100.00				
10/1/03 8:55 AM	3.22	0.00	100.00	0.01	1.35	100.00	3.32	0.00	100.00				
10/1/03 8:56 AM	3.22	0.00	100.00	0.01	1.35	100.00	3.32	0.00	100.00				
10/1/03 8:5				0.01	1.35	100.00	3.32	0.00	100.00	3.37	0.00	100.00	6.05
10/1/03 8:5				0.01	1.35	100.00	3.33	0.00	100.00	3.38	0.00	100.00	6.05
10/1/03 8:5				0.01	1.35	100.00	3.32	0.00	100.00	0.01	1.76	100.00	6.05
10/1/03 9:00 AM	3.22	0.00	100.00	0.01	1.35	100.00				0.01	1.76	100.00	6.05
10/1/03 9:01 AM	3.22	0.00	100.00	3.08	0.00	100.00				0.01	1.76	100.00	6.05
10/1/03 9:02 AM	3.22	0.00	100.00	3.20	0.00	100.00				0.01	1.76	100.00	6.05
10/1/03 9:03 AM	3.23	0.00	100.00	3.24	0.00	100.00				0.01	1.76	100.00	6.05
10/1/03 9:04 AM	3.23	0.00	100.00	3.26	0.00	100.00	3.32	0.00	100.00	0.01	1.76	100.00	6.04
10/1/03 9:05 AM	3.23	0.00	100.00	3.27	0.00	100.00	3.32	0.00	100.00	0.01	1.76	100.00	6.04
10/1/03 9:06 AM	3.23	0.00	100.00	3.28	0.00	100.00	3.33	0.00	100.00	0.01	1.76	100.00	6.05
10/1/03 9:07 AM	3.23	0.00	100.00	3.28	0.					0.01	0.58	100.00	6.04
10/1/03 9:08 AM	3.23	0.00	100.00	3.28	0.					0.01	0.59	100.00	6.04
10/1/03 9:09 AM	3.23	0.00	100.00	3.28	0.					0.01	0.59	100.00	6.04
10/1/03 9:10 AM	3.23	0.00	100.00	3.28	0.					0.01	0.59	100.00	6.04
additional data	...	...	...	...	...	...	...	...	...	...	...	...	...

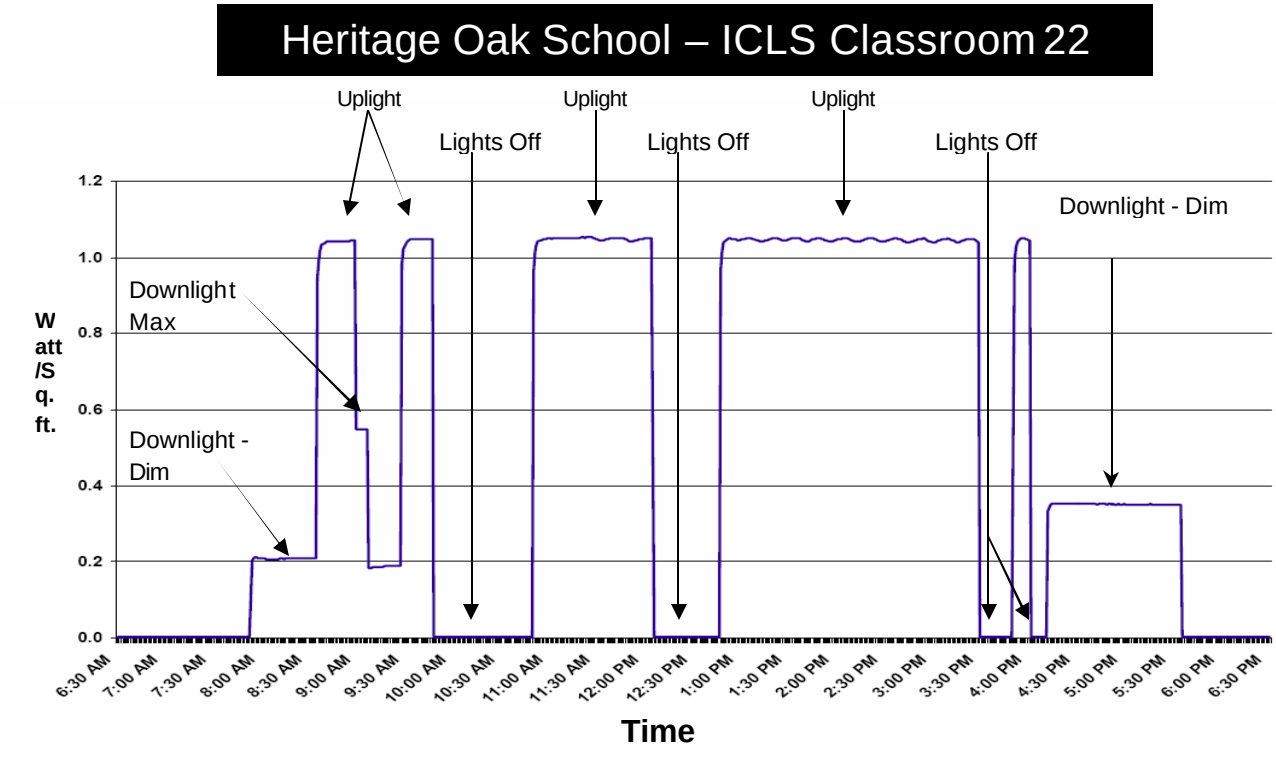
The Control Room uses 82% more energy than Room 22 in General Mode.

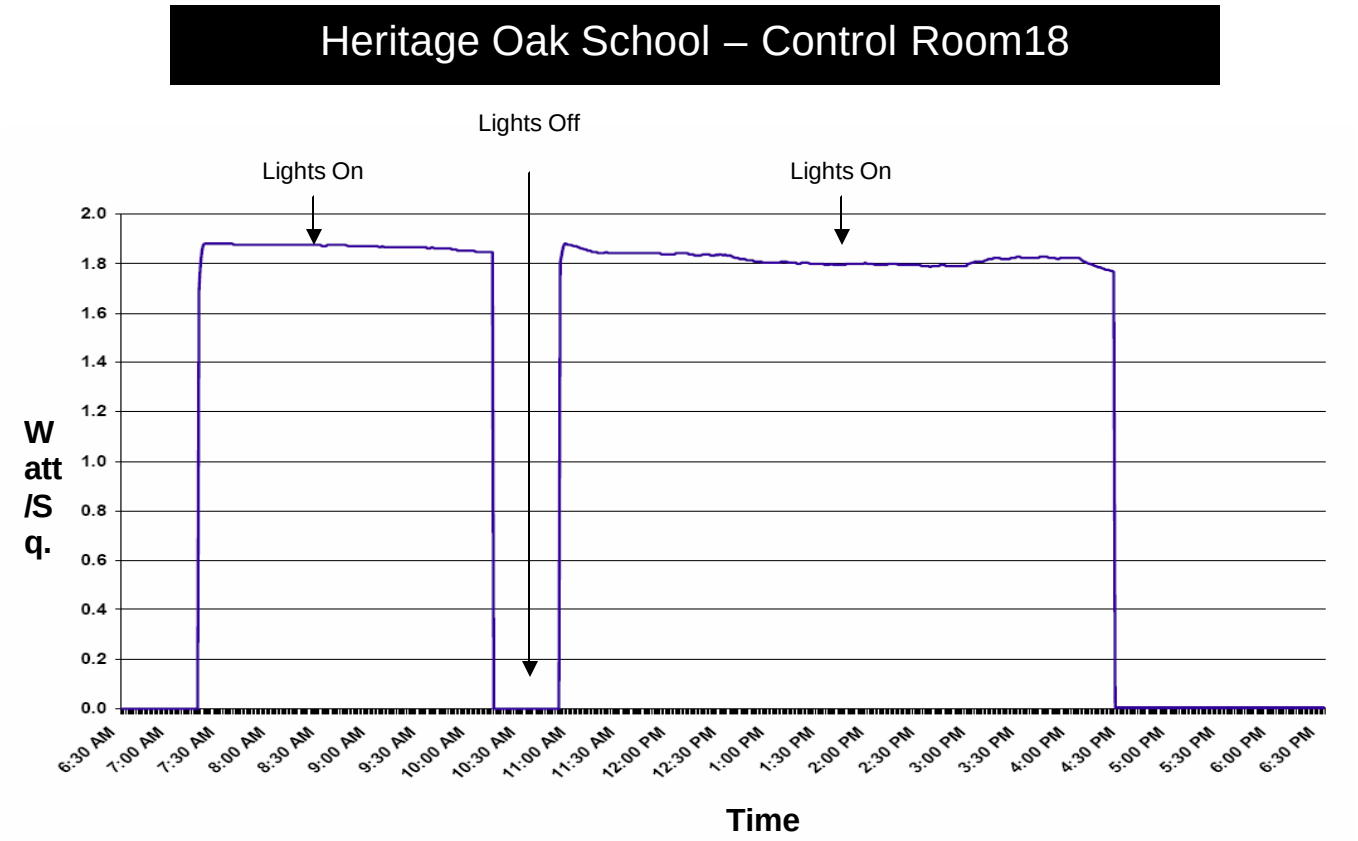
Room 20 Changes from A/V to General

Room 22 Changes from General to A/V

Room 22 Lights were dimmed in A/V Mode

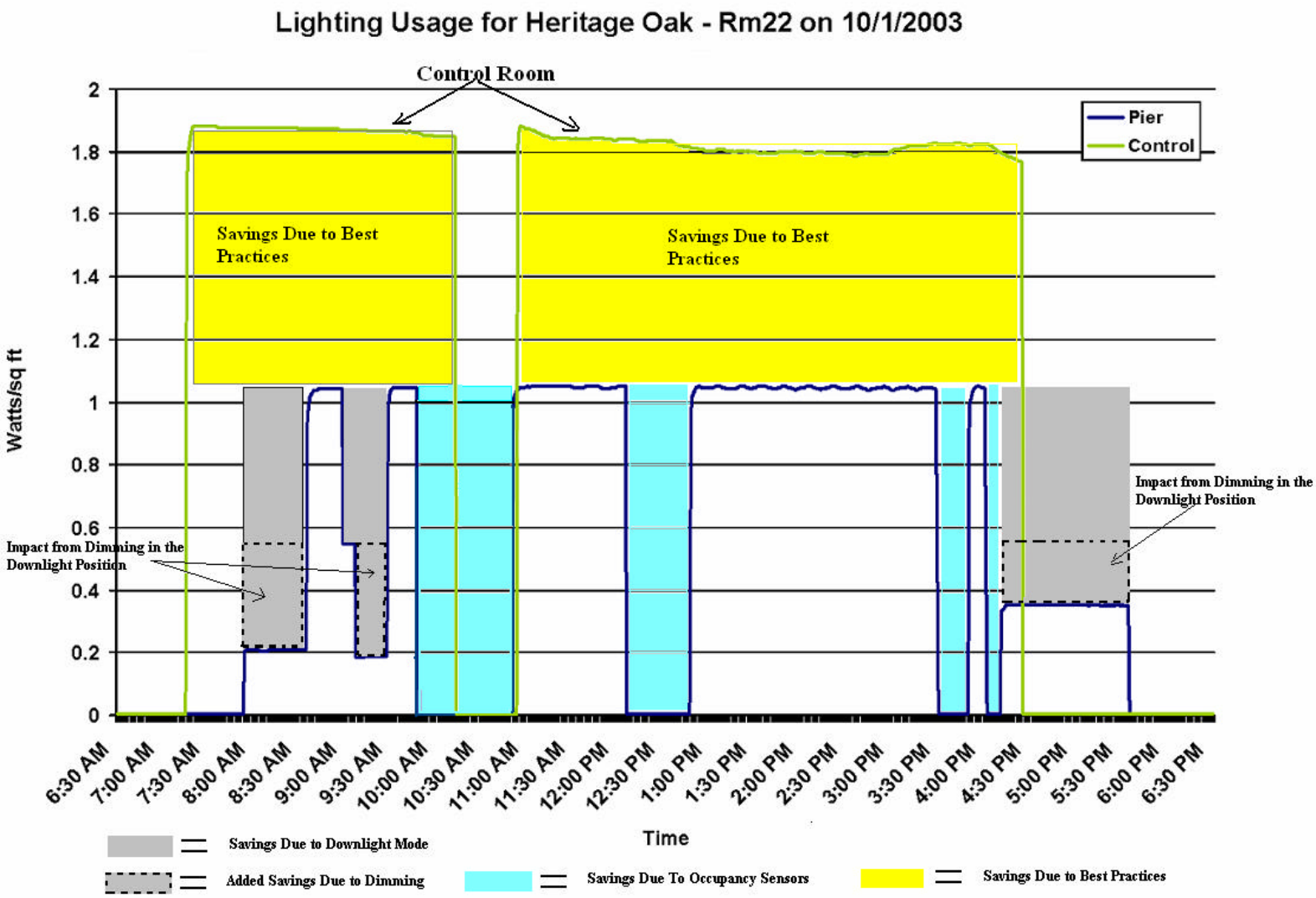
Proprietary software organizes data and presents it graphically for easy interpretation. The graphs below compare an ICLS classroom to the Control room.



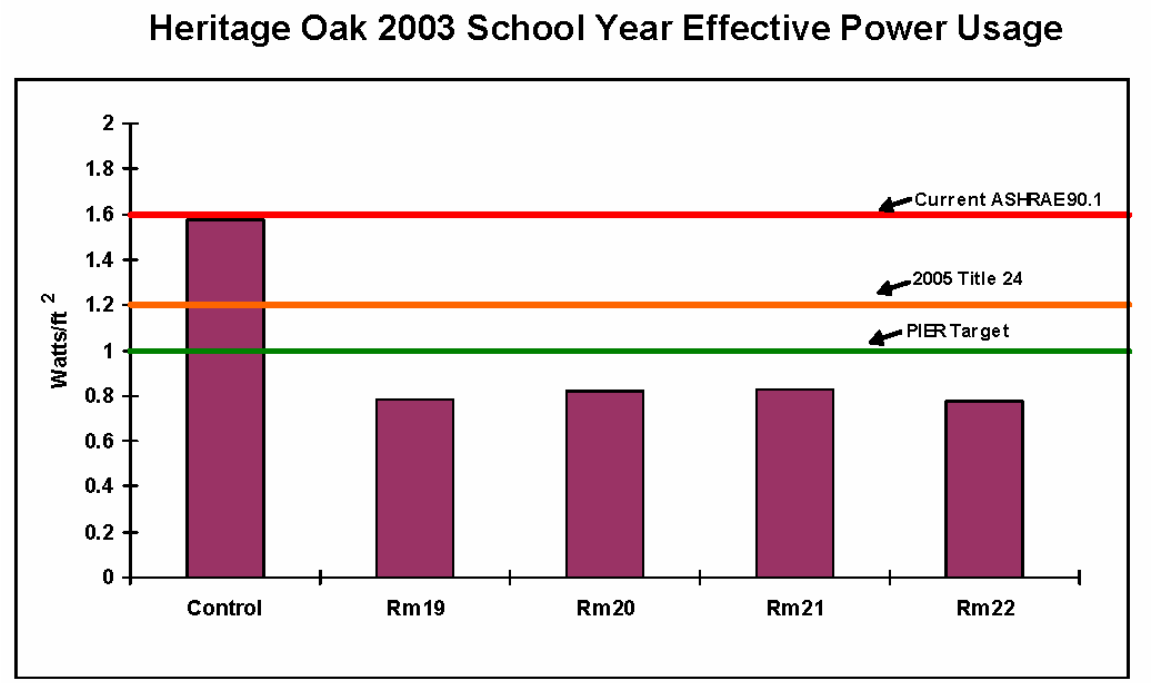


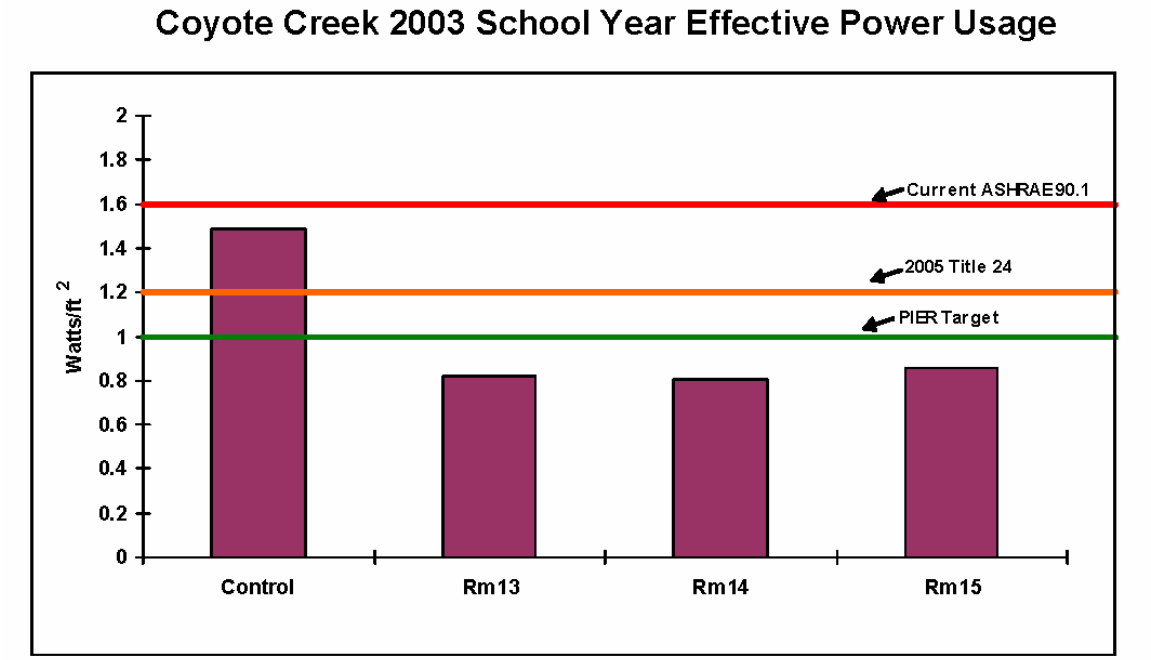
The Chart below shows the impact using Best Practices and the features of the ICLS System, including Downlight Mode, Downlight Dimming, and Occupancy Sensors.

Heritage Oak School – Room 22 Impact of ICLS

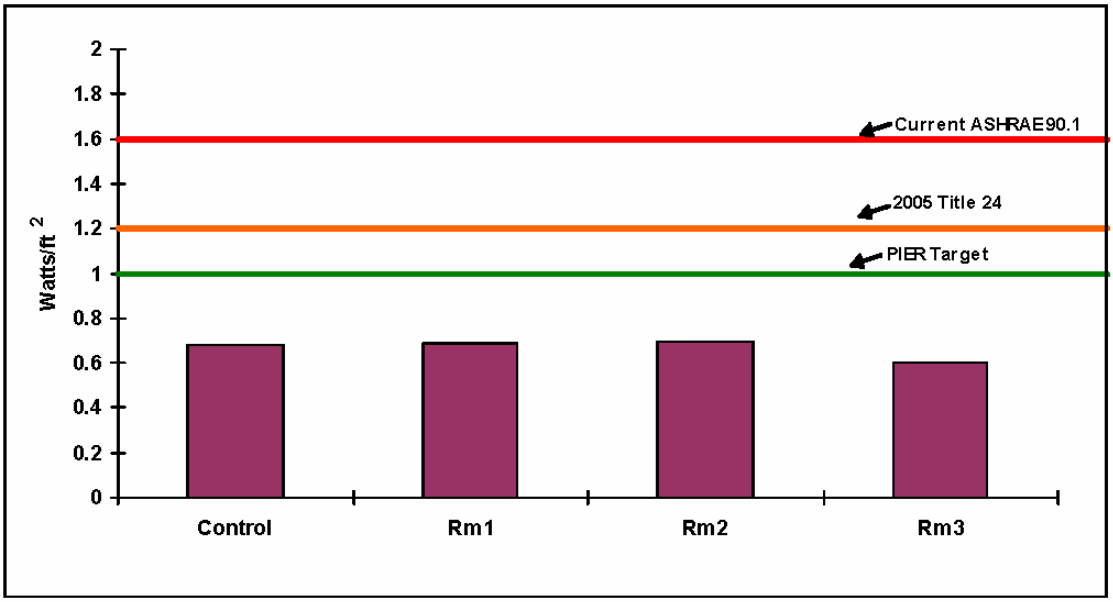
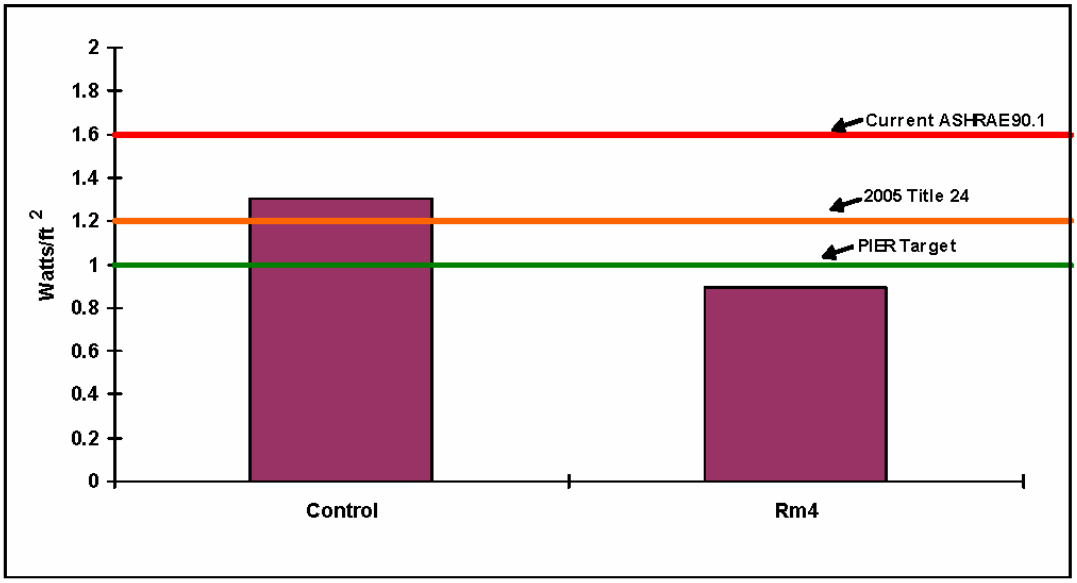


The charts below summarize the actual energy usage at the schools we monitored. The usage is compared to the PIER target, Title 24, and Ashrae 90.1.





Country Club 2003 School Year Effective Power Usage



Carlmont 2003 School Year Effective Power Usage