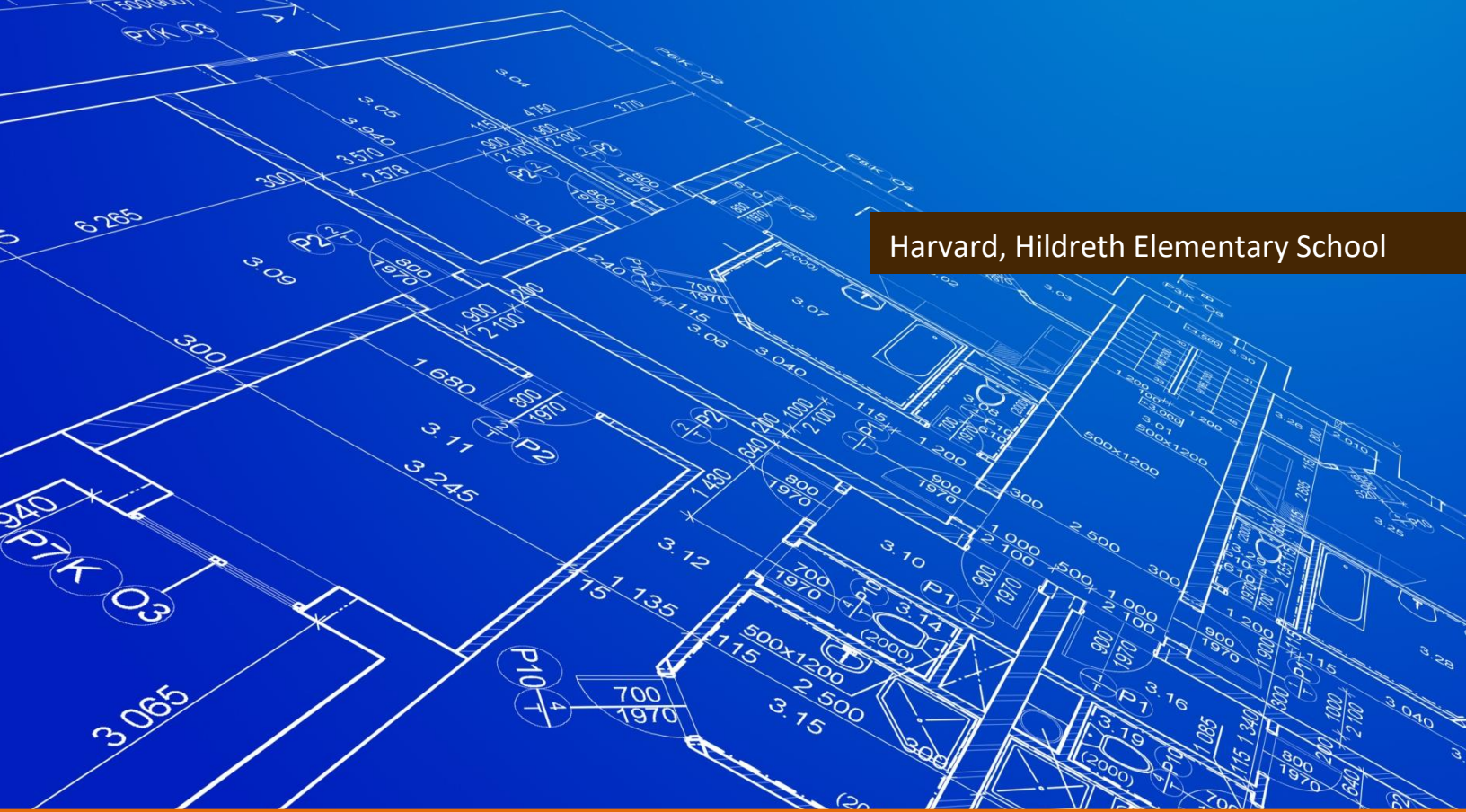




Harvard, Hildreth Elementary School

BLUEPRINT

for Better Building Performance

FALL 2016 – SNAPSHOT
October , 2016 Draft for Review

Introduction

This report presents our Fall 2016 snapshot report for Harvard's energy monitoring and building performance initiative at **Harvard's Hildreth Elementary School**. The report builds on our May 11, 2016 initial report and updates our original findings and recommendations.

The report starts with a short update on the building's overall electricity and gas use in fiscal year 2016 (FY2016) compared to the baseline use in fiscal year 2015 (FY2015), as reported by the utility meter. The report then drills down into more detail about energy use based on monitoring data. Following are the key observations that we made as a result of reviewing both utility and monitoring data for winter energy use:

- **Electricity use at Hildreth Elementary School has decreased by about 8%.** Electricity use does not include energy produced from the onsite solar PV system. We can add this information to our next report if Harvard can provide monthly energy use to us. Most of the electricity savings occurred during the winter. Warmer weather this winter may have contributed to these energy savings.
- **Natural gas use at Hildreth Elementary School has decreased by about 16%.** The weather-adjusted gas use increased about 2%. The winter was significantly warmer in FY2016 than the base year FY2015.

RECOMENDATIONS

The following graphs and charts report identify equipment that can potentially be scheduled more aggressively. Harvard should continue to review opportunities to turn off or turn down this equipment. The following charts and graphs highlight recommendations to reduce energy use for:

- a) HVAC equipment
- b) Lighting
- c) Plug loads
- d) Electrical Panels

APPENDICES

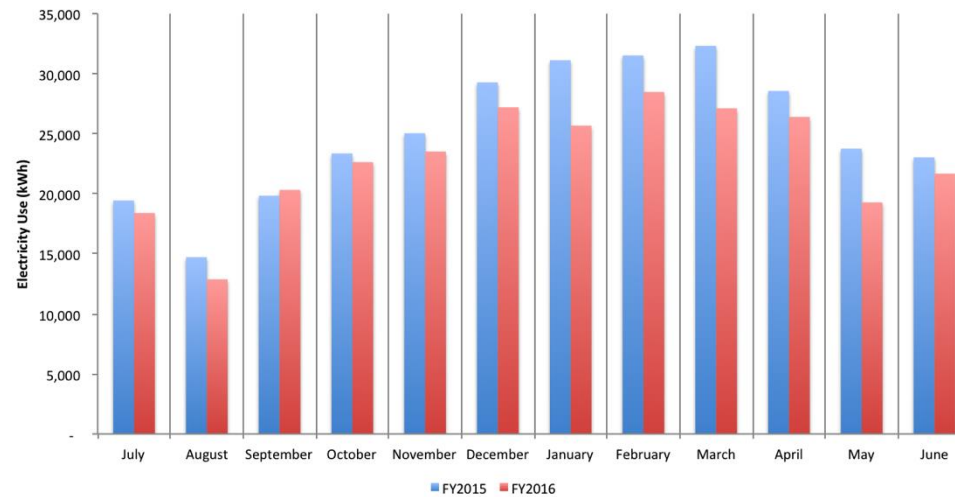
At the end of the report we include one appendix titled **Appendix A Monthly Electricity Use Grouped by Major Categories**. Appendix A lists each circuit organized by major category group and subgroup. The charts include total electricity use per month per circuit from January 1, 2016 to September 30, 2016.



Utility Data: Total Electricity and Natural Gas Use

Electricity Use

Hildreth Elementary



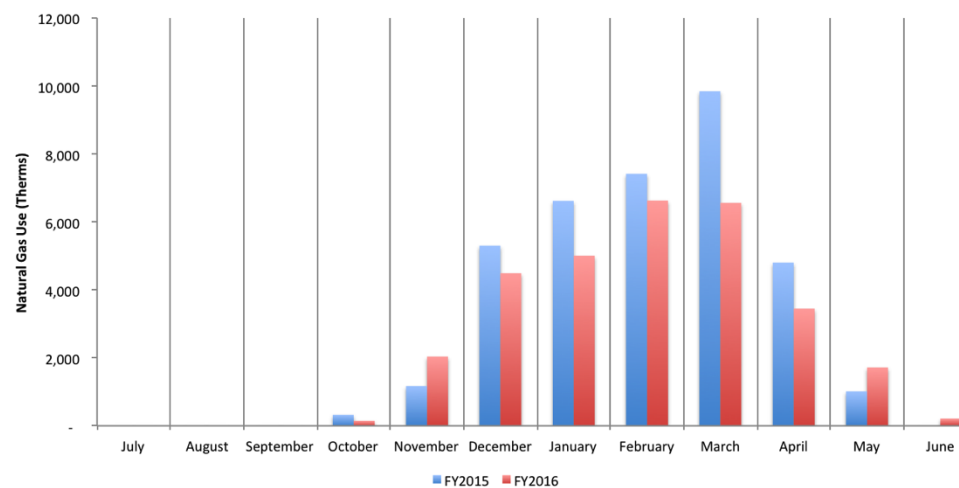
Electricity Use Table

Month of Date	Use (kWh)		Change (%)
	FY2015	FY2016	
July	19,440	18,400	-5%
August	14,720	12,880	-13%
September	19,840	20,320	2%
October	23,360	22,640	-3%
November	25,040	23,520	-6%
December	29,280	27,200	-7%
January	31,120	25,680	-17%
February	31,520	28,480	-10%
March	32,320	27,120	-16%
April	28,560	26,400	-8%
May	23,760	19,280	-19%
June	23,040	21,680	-6%
Grand Total	302,000	273,600	-9%
2015/2016 12-month Target		275,880	-5%
Energy Intensity kBtu/ Square Foot	15.0	13.6	-1.4

This page presents electricity (top) and gas (bottom) use for the entire building as measured by the utility meters and compares energy use for FY2016 with FY2015. At the bottom of each table, the FY2016 target savings are visible in grey, just below the actual savings. Electricity use shows improvement with a target savings of 5% and actual savings of 8%. While actual gas use appears as a 16% decrease, the weather-adjusted performance sits at the very bottom of the Natural Gas Use table and shows a slight 2% increase in gas use. The energy monitoring initiative did not begin until January, 2016.

Natural Gas Use

Hildreth Elementary



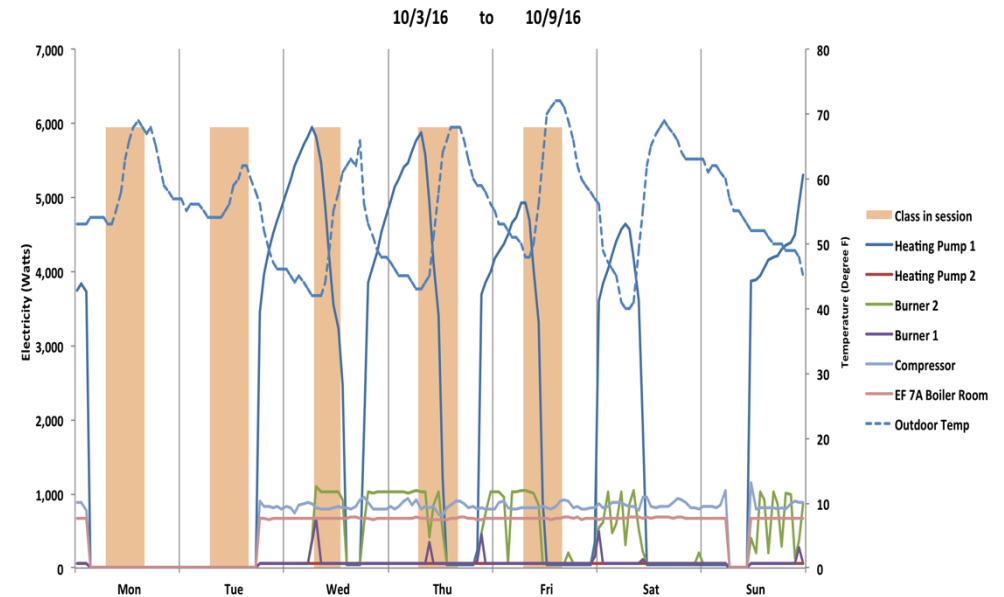
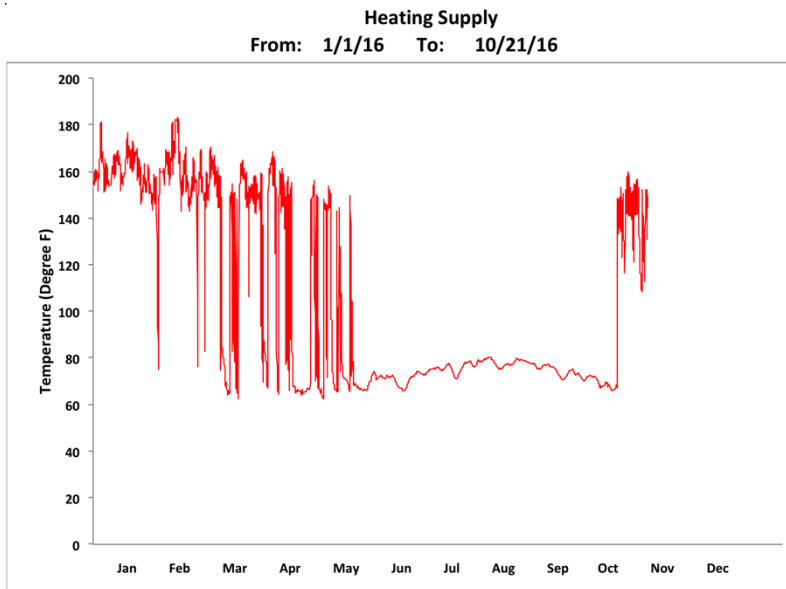
Natural Gas Use Table

Month of Date	Use (Therms)		Change (%)
	FY2015	FY2016	
July	-	-	-
August	-	-	-
September	-	-	-
October	324	148	-54%
November	1,170	2,040	74%
December	5,302	4,491	-15%
January	6,620	5,006	-24%
February	7,416	6,629	-11%
March	9,845	6,563	-33%
April	4,803	3,448	-28%
May	1,014	1,718	69%
June	-	214	-
Grand Total	36,494	30,257	-17%
2015/2016 12-month Target		35,878	-2%
Energy Intensity kBtu/ Square Foot	53.1	44.0	-9.1
Weather Adjusted Energy Performance			
Heating Deg Days	6,705	5,526	
BTU/SF/Deg Day	7.9	8.0	1%



HVAC - Boiler operation

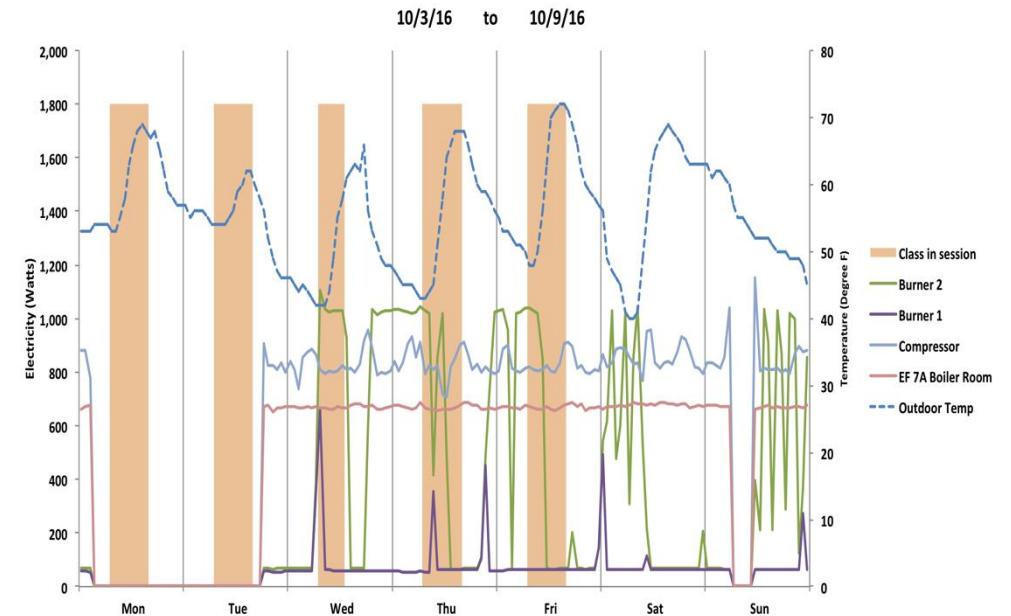
1



These charts summarize the performance of the boilers and related heating equipment. The chart directly above is the boiler system supply temperature. Facility management is able to keep the boilers off from about mid May until the end of September this year.

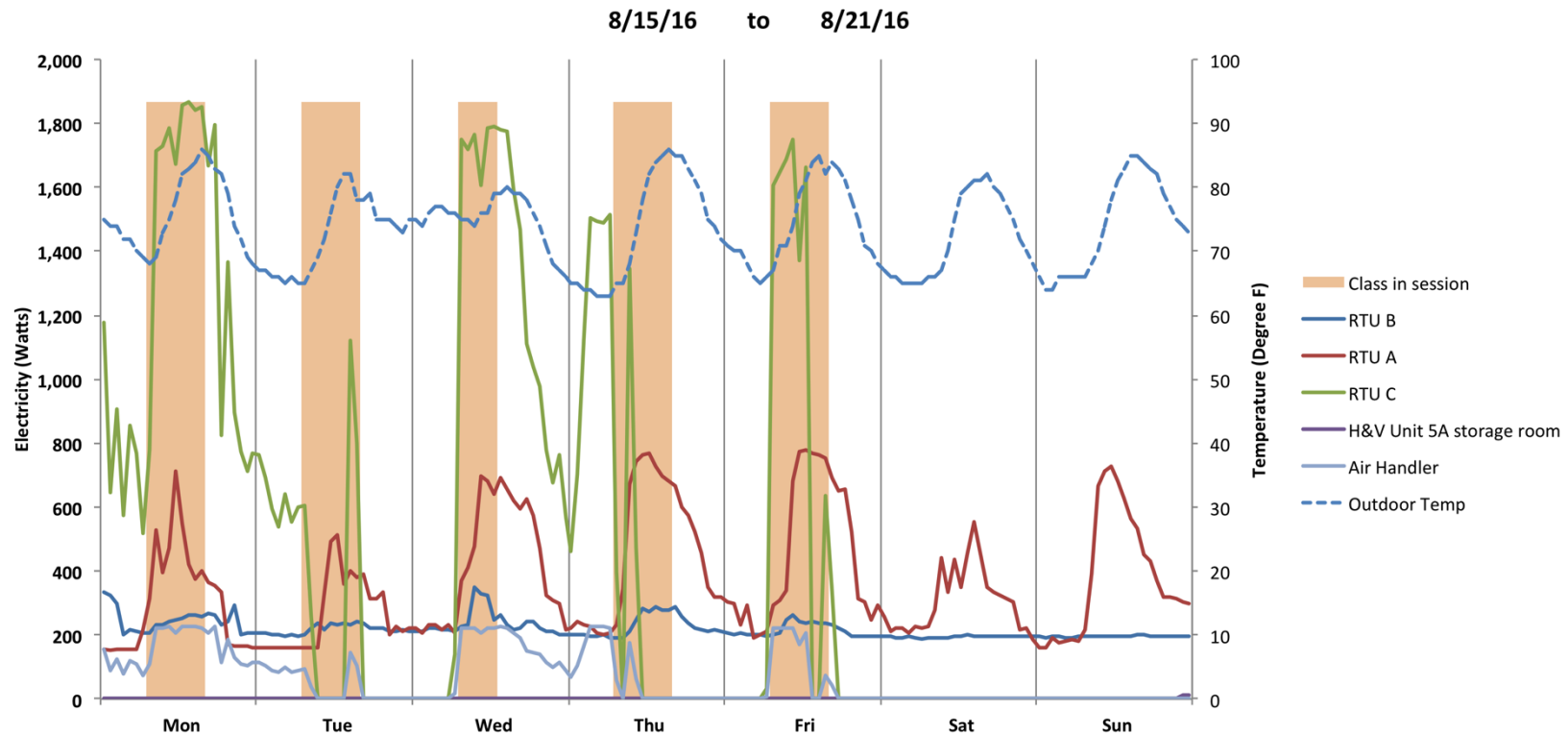
The two charts to the right summarize hourly electricity use for the major boiler system components the week of October 3. Data is incomplete for Monday, Tuesday, and a few hours on Sunday. The heating pumps are variable speed and appear to turn on automatically at an outdoor air temperature (OAT) of about 55 Degree F. Can the OAT setpoint be reduced to 40 Degree F when the building is unoccupied?

The lower chart to the right provides more granularity for the non-heating pump electrical loads. We don't see exhaust fans running in boiler rooms very often. What is it running for? In addition, how much HVAC equipment is pneumatic? The compressor is running constantly which is an indication that the air system may have a serious leak or leaks.



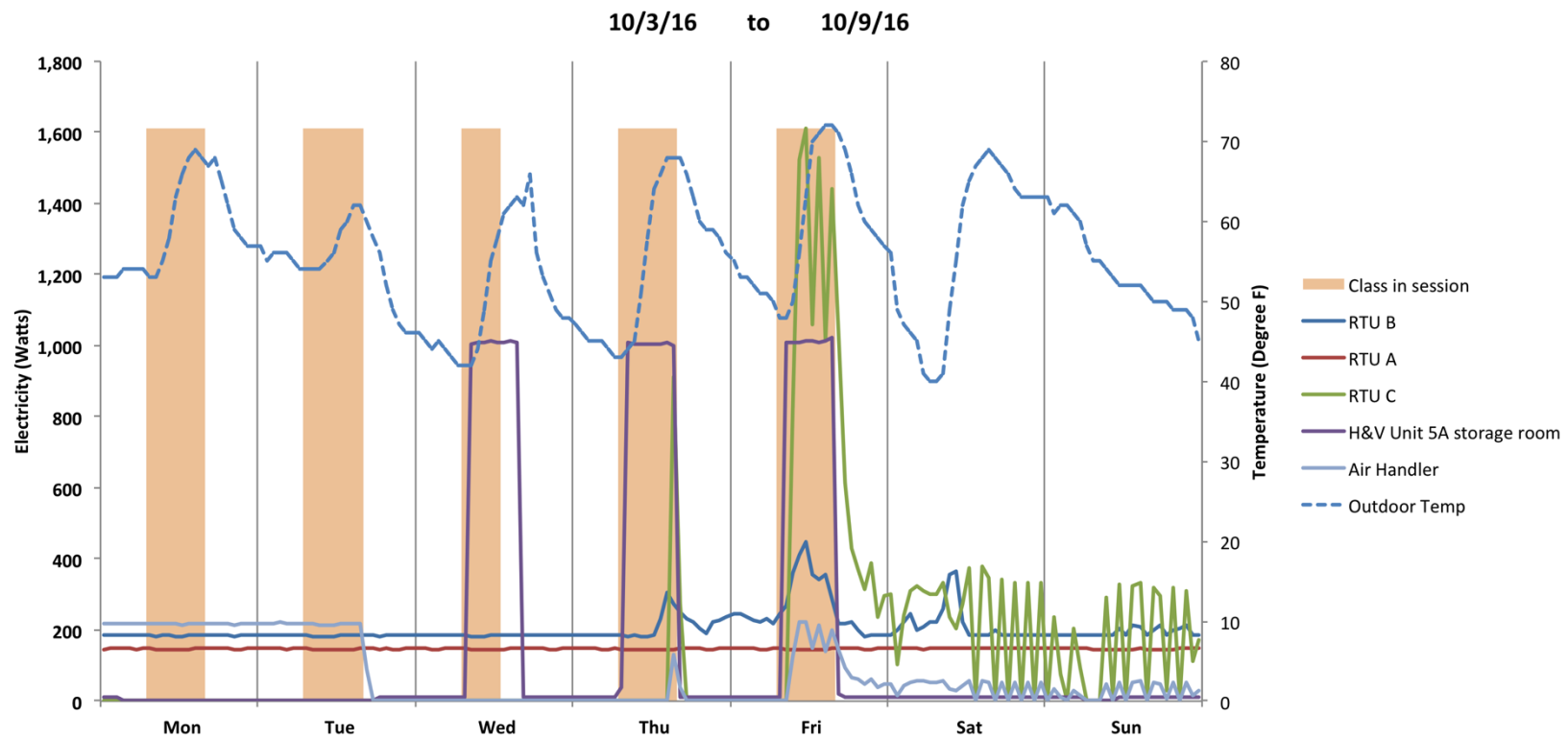
HVAC - Rooftop Units

2



This chart summarizes energy use in August for three rooftop units (RTU) and two air handler units (AHU labelled “H&V Unit 5A” and “Air Handler”). RTU C uses the most electricity and we assume serves the library. The other two RTUs use less energy and we assume serve administration offices located in the “new” building. Are the RTUs operating with a night setback? Does RTU A need to run on weekends? Can the fans in RTU A and RTU B be turned off when the building is unoccupied like it appears occurs with RTU C? H&V Unit 5A shuts off during the summer. Are all the AHUs turn off in the summer, at least the AHUs located in parts of the building that are unused in the summer?





This chart summarizes energy use in the October for the same RTUs and AHUs described on the previous page. The weather warms up enough on Friday so that the air condition equipment turns on briefly but at a very low level. The circulation fans in RTU C cycle on and off over the weekend. Was this for heating or cooling and can the fans be turned off over the weekend? In addition, as we saw on the previous page for August, the RTU A and RTU B fans run constantly 24/7. Can the RTU A and RTU B circulation fans be turned off when the building is unoccupied?

The AHU labelled “Air Handler” has an odd operation schedule. It runs constantly 24/7 Monday and Tuesday, then cycles on and off at different speeds Wednesday through Sunday. What controls this AHU?

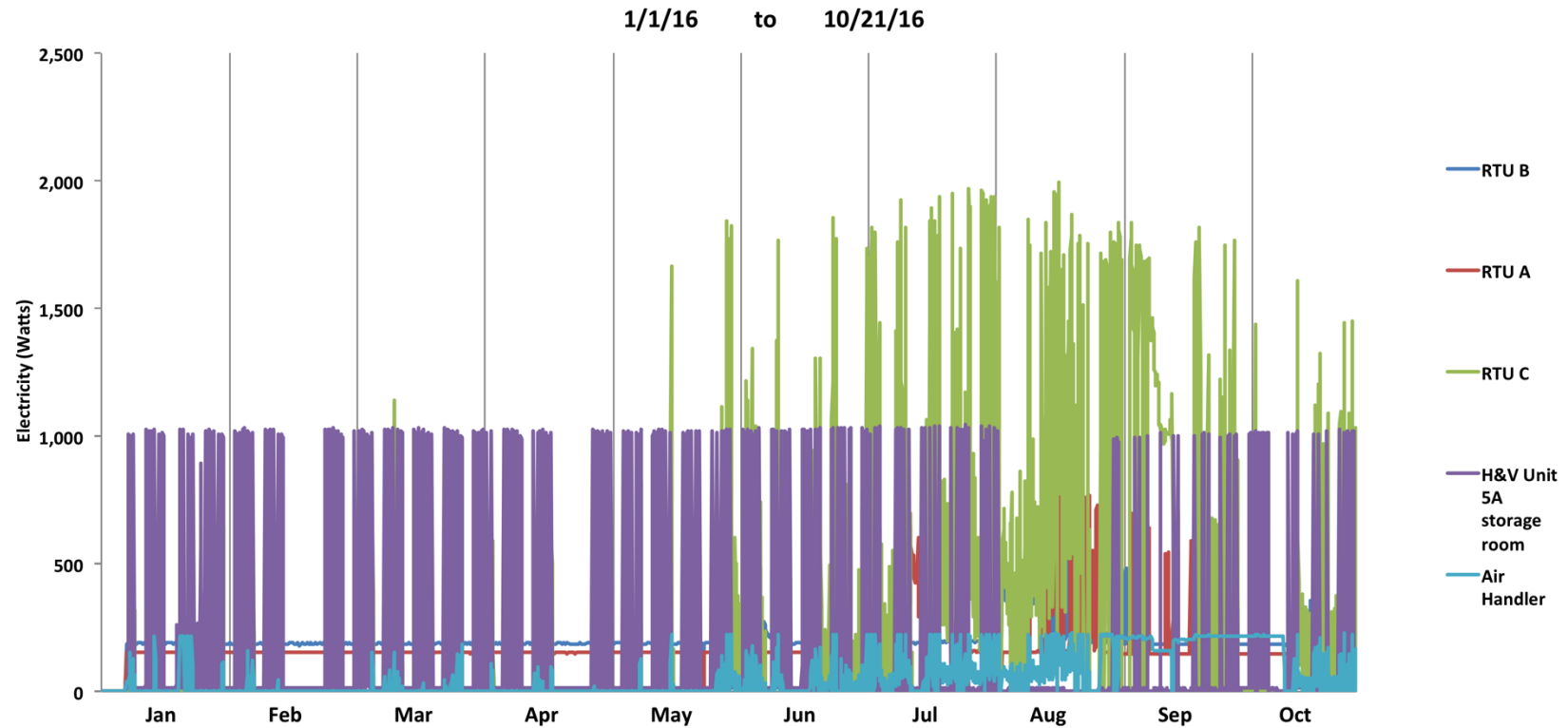
H&V Unit 5A operates 5 days per week (although the data doesn’t appear in this graph) when school is in session. We recommend that Harvard request a systematic review the building’s HVAC system. Prescriptive on/off operation of the hallway air handler units may not be the most efficient use for this equipment. Harvard could move the sPod portable sensor into one of the hallways to document existing temperature and CO2 levels over time then see how these levels change if the AHUs are turned off or run for 15 minutes each hour that school is in session.

The chart and table on the following page document the 9-month energy use trends and monthly energy use for these RTUs and AHUs.



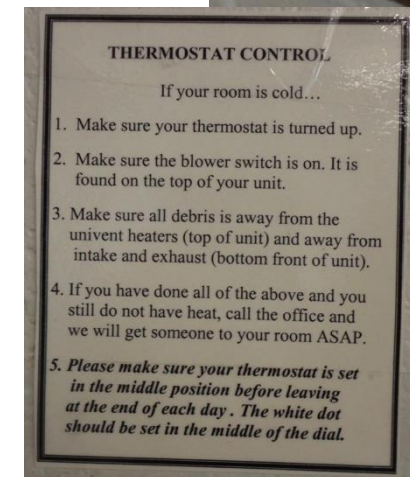
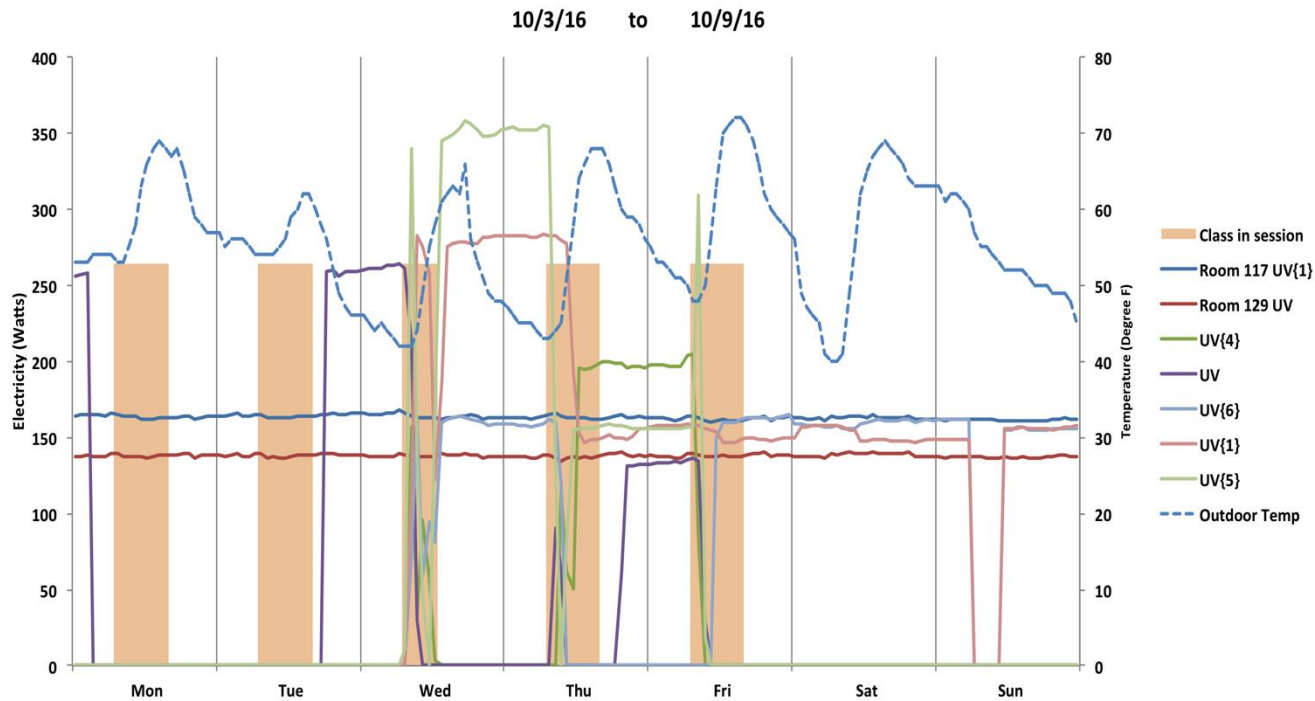
HVAC - Rooftop Units *Continued*

4



Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
RTU B	HVAC	Rooftop Unit	114	131	145	135	145	172	153	205	147	1,347	EP1A
RTU A	HVAC	Rooftop Unit	93	107	114	110	119	128	228	203	135	1,237	EP1A
RTU C	HVAC	Rooftop Unit	7	6	26	12	65	163	394	537	292	1,503	EP1A
H&V Unit 5A	HVAC	Air Handler Unit	143	136	194	138	183	149	90	17	84	1,134	EPM
Air Handler	HVAC	Air Handler Unit	14	1	5	2	9	22	52	89	147	340	EP1A
			372	381	483	397	519	634	917	1,051	805	5,560	





This chart summarizes energy use for 7 unit ventilators we're recording that have high energy use. The unit ventilators without room designations are located in the old building south wing. Each classroom has at least one unit ventilator that draws in fresh air from outside, heats it, then circulates the conditioned air into the classroom. Each unit is controlled locally with thermostats installed in each classroom. We believe that all the unit ventilator controls are pneumatic.

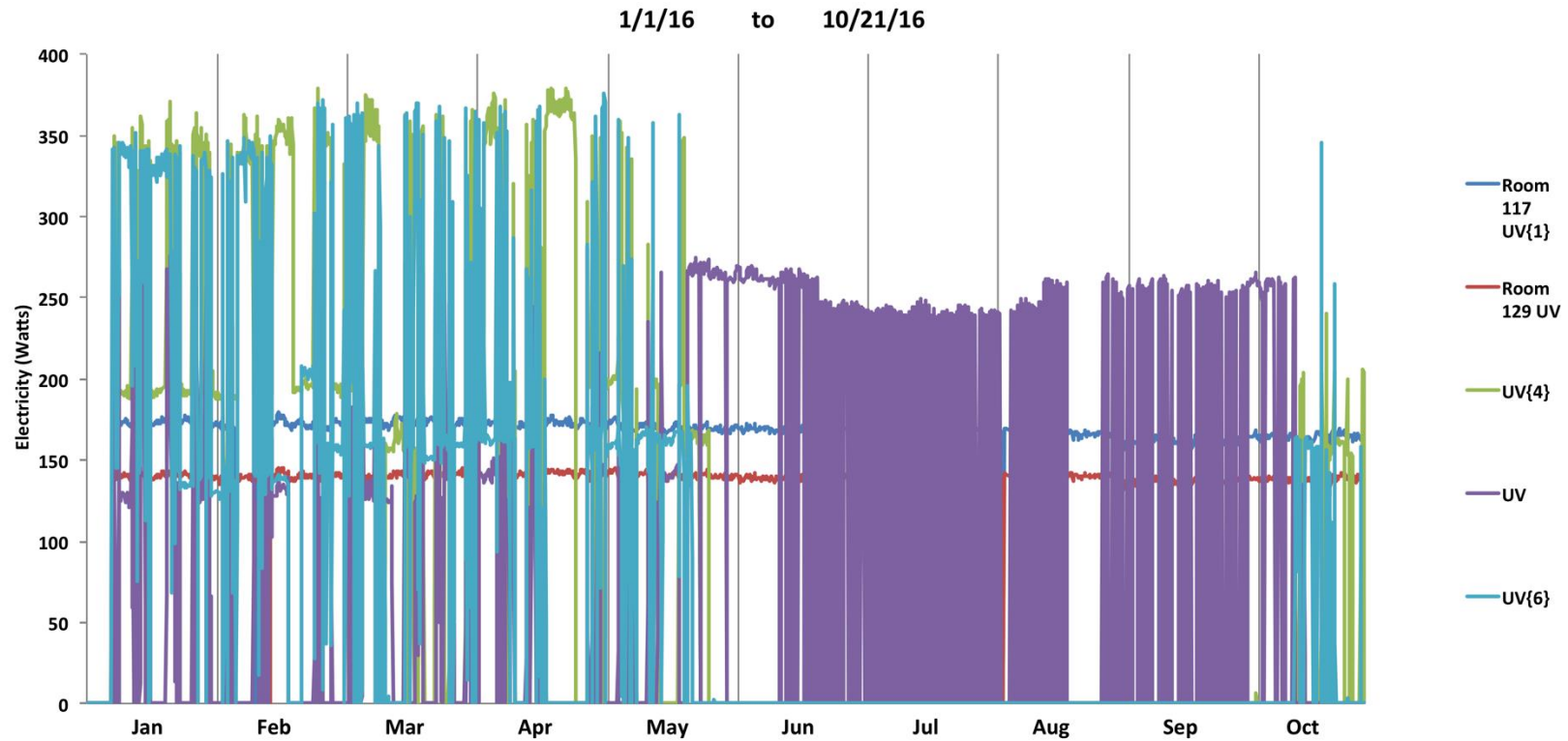
As the graph indicates, several unit ventilators run 24/7 constantly. The blower motors could be turned off manually when the room is unoccupied. As an alternative, all the blower motor circuits could be turned off at the electrical panels with a single switch.

The chart and table on the following page document the 9-month energy use trends and monthly energy use for the top 5 energy use unit ventilators that we're monitoring.



HVAC - Unit Ventilators *Continued*

6

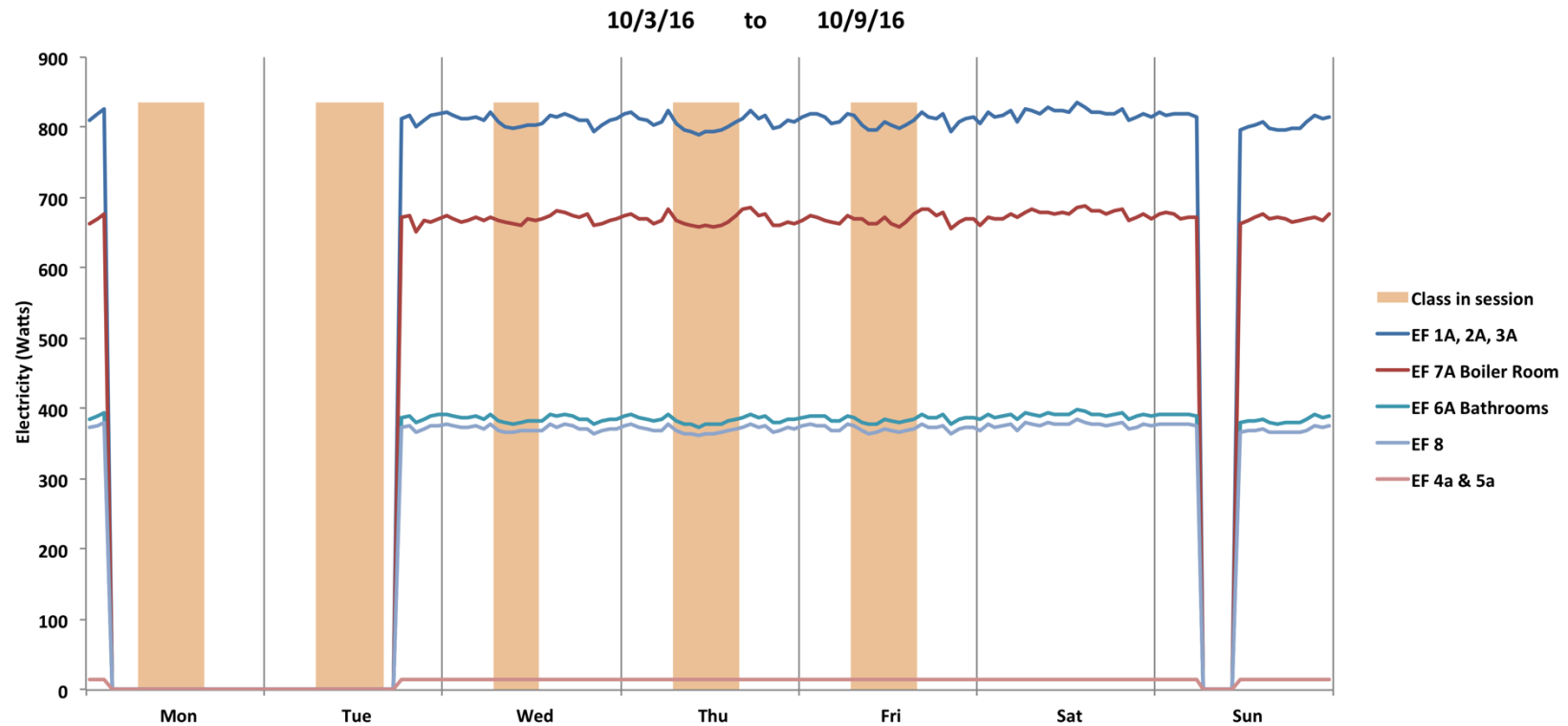


Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
Room 117 UV{1}	HVAC	Unit Ventilator	105	99	128	123	125	122	123	123	116	1,065	EP1A
Room 129 UV	HVAC	Unit Ventilator	85	97	104	102	104	100	102	103	99	896	EP1A
UV{4}	HVAC	Unit Ventilator	149	179	129	148	56	0	0	0	0	661	EPM
UV	HVAC	Unit Ventilator	44	22	50	30	104	151	90	53	77	620	EPM
UV{6}	HVAC	Unit Ventilator	149	124	104	75	63	0	0	0	0	516	EPM
UV{1}	HVAC	Unit Ventilator	123	162	101	75	25	0	0	0	0	485	EPM
UV{5}	HVAC	Unit Ventilator	64	97	110	77	92	0	0	0	0	440	EPM
Total			719	781	726	630	568	373	314	279	292	4,683	



HVAC - Rooftop Exhaust Fans

7



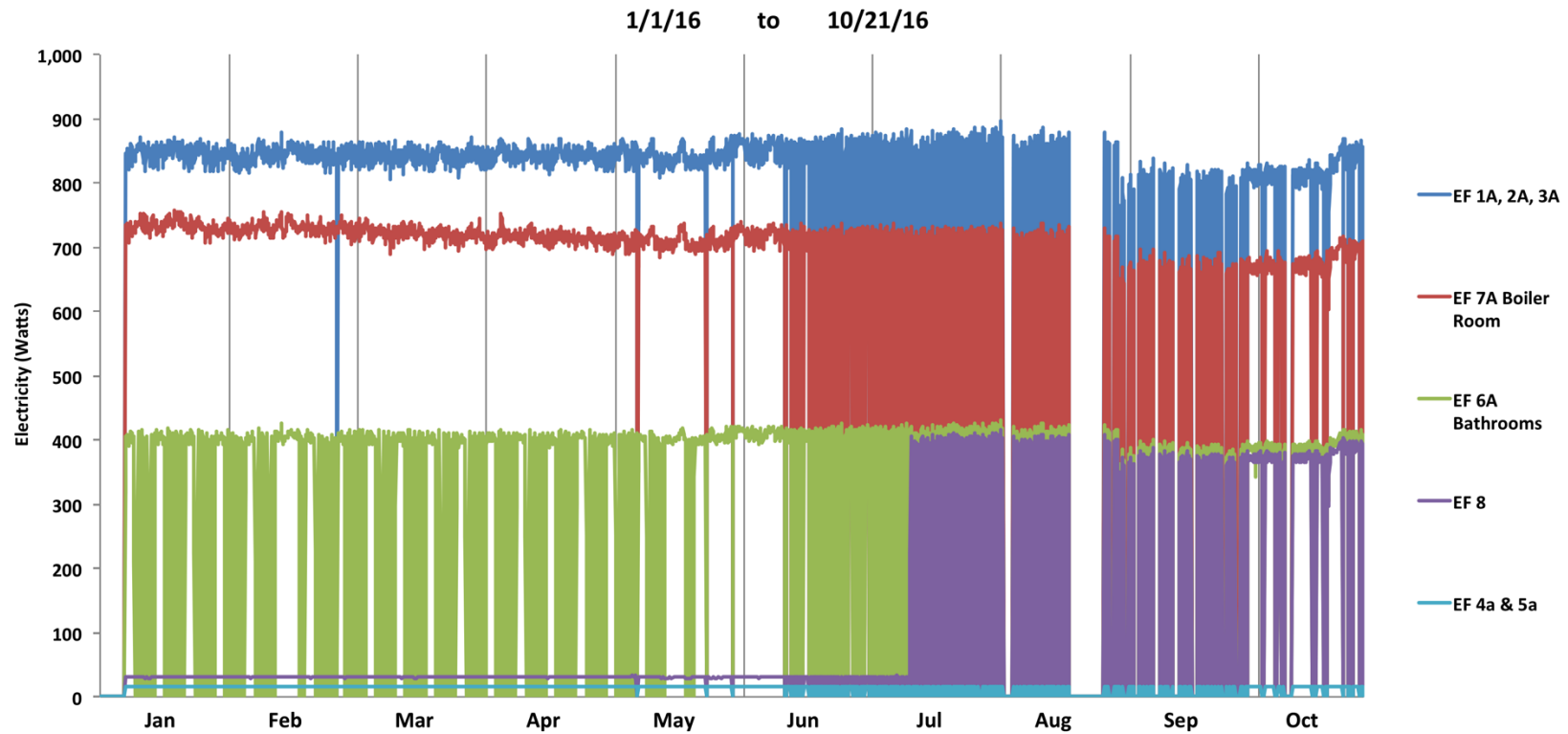
This chart summarizes energy use for five rooftop exhaust fans that we're monitoring. Four of the five exhaust fans run 24/7 constantly. The fifth fan labelled EF 4a & 5a does not appear to be running. Do the exhaust fans need to run when the building is unoccupied?

The chart and table on the following page document the 9-month energy use trends and monthly energy use for these exhaust fans.



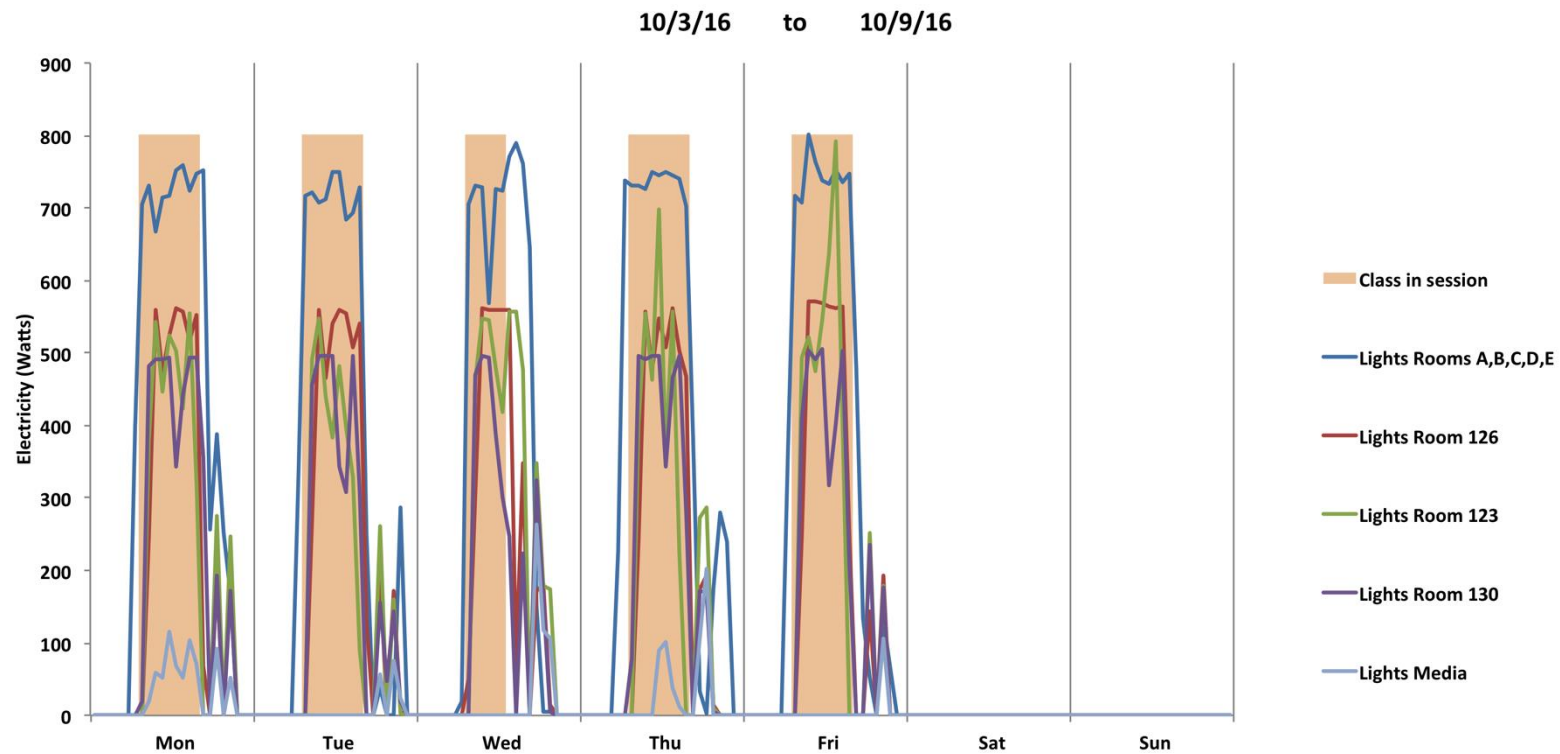
HVAC - Rooftop Exhaust Fans *Continued*

8



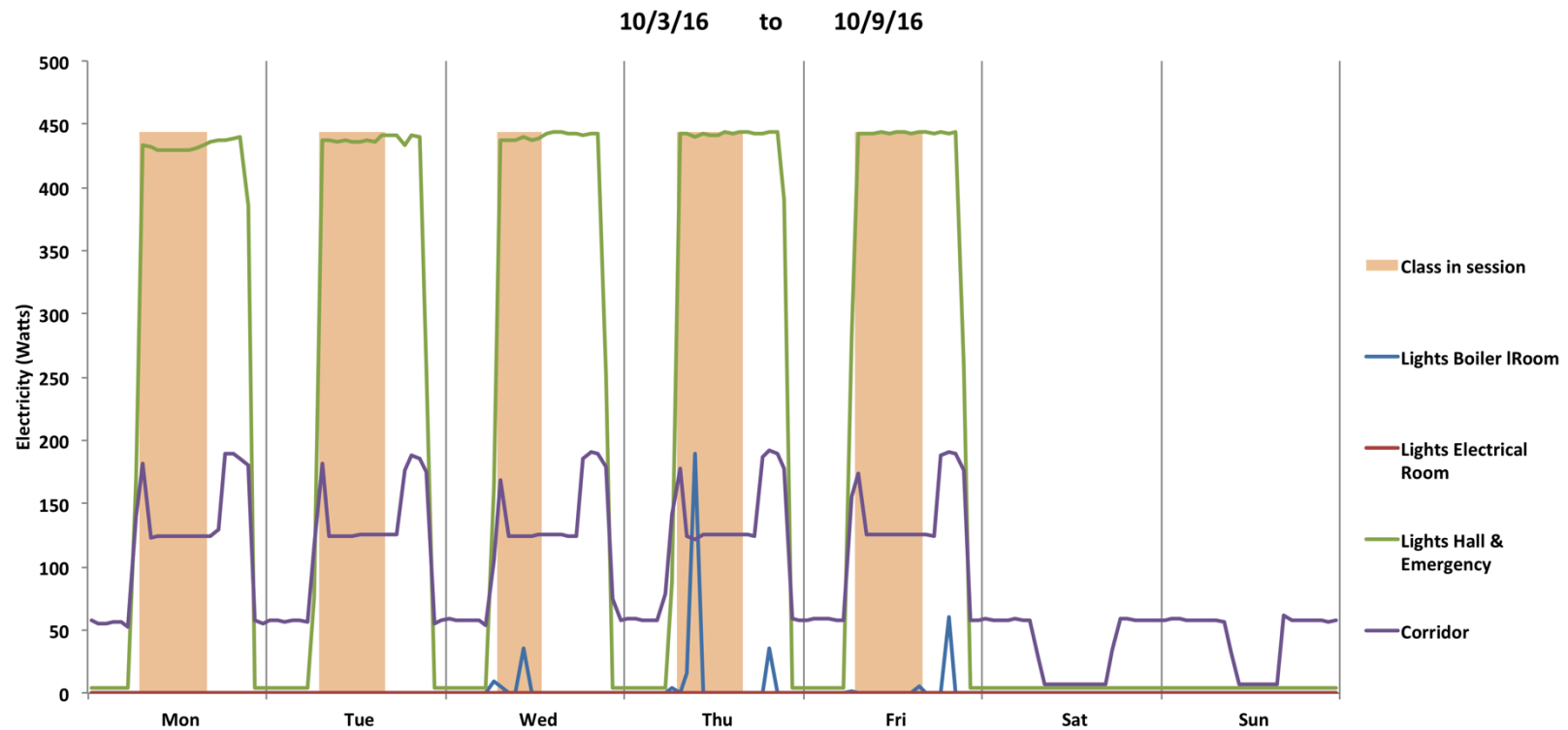
Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
EF 1A, 2A, 3A	HVAC	Rooftop Exhaust	513	582	626	607	619	508	320	178	241	4,193	EPM
EF 7A Boiler Room	HVAC	Rooftop Exhaust	444	508	536	515	522	426	267	148	200	3,566	EPM
EF 6A Bathrooms	HVAC	Rooftop Exhaust	144	175	172	166	238	244	154	85	115	1,493	EPM
EF 8	HVAC	Rooftop Exhaust	18	21	23	22	22	18	112	82	111	431	EPM
EF 4a & 5a	HVAC	Rooftop Exhaust	10	11	12	11	12	9	6	3	5	78	EPM
Total			1,128	1,297	1,368	1,321	1,412	1,205	859	497	672	9,761	





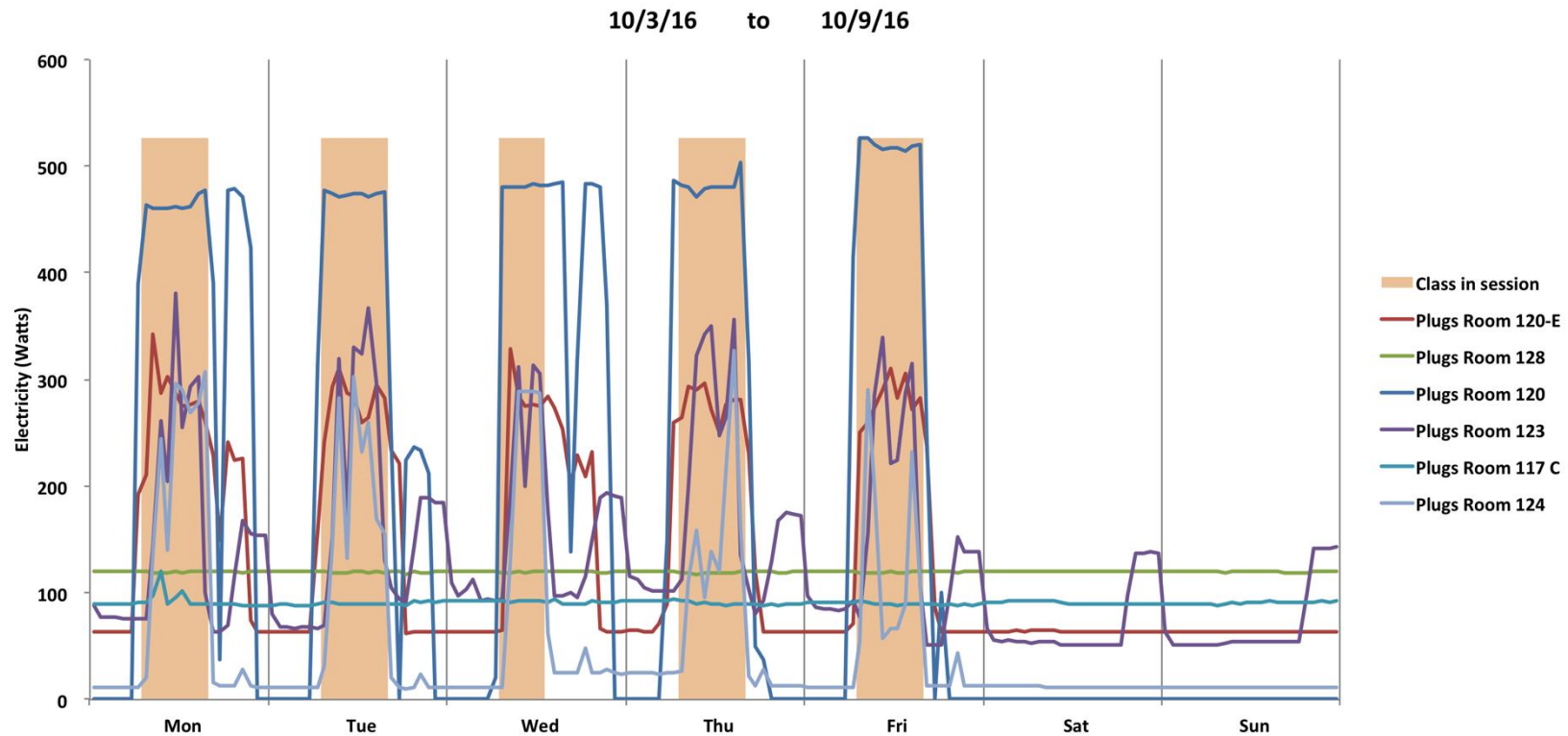
This chart summarizes energy use for classroom lighting circuits that we're monitoring. Other than a few evenings when the lights are turned on at low levels, classroom lighting schedules follow the school class in session schedule very closely.





This chart summarizes energy use for common area lighting circuits that we're monitoring. The circuit labelled "Corridor" appears to have at least two lighting levels. Reviewing the 9 month data we see that the circuit labelled "Lights Hall & Emergency" have at least two light levels as well. Do all the corridor hall lights need to remain on at night or can one circuit be turned off? Can the "Corridor" lights be turned off at night like the other hall lights?



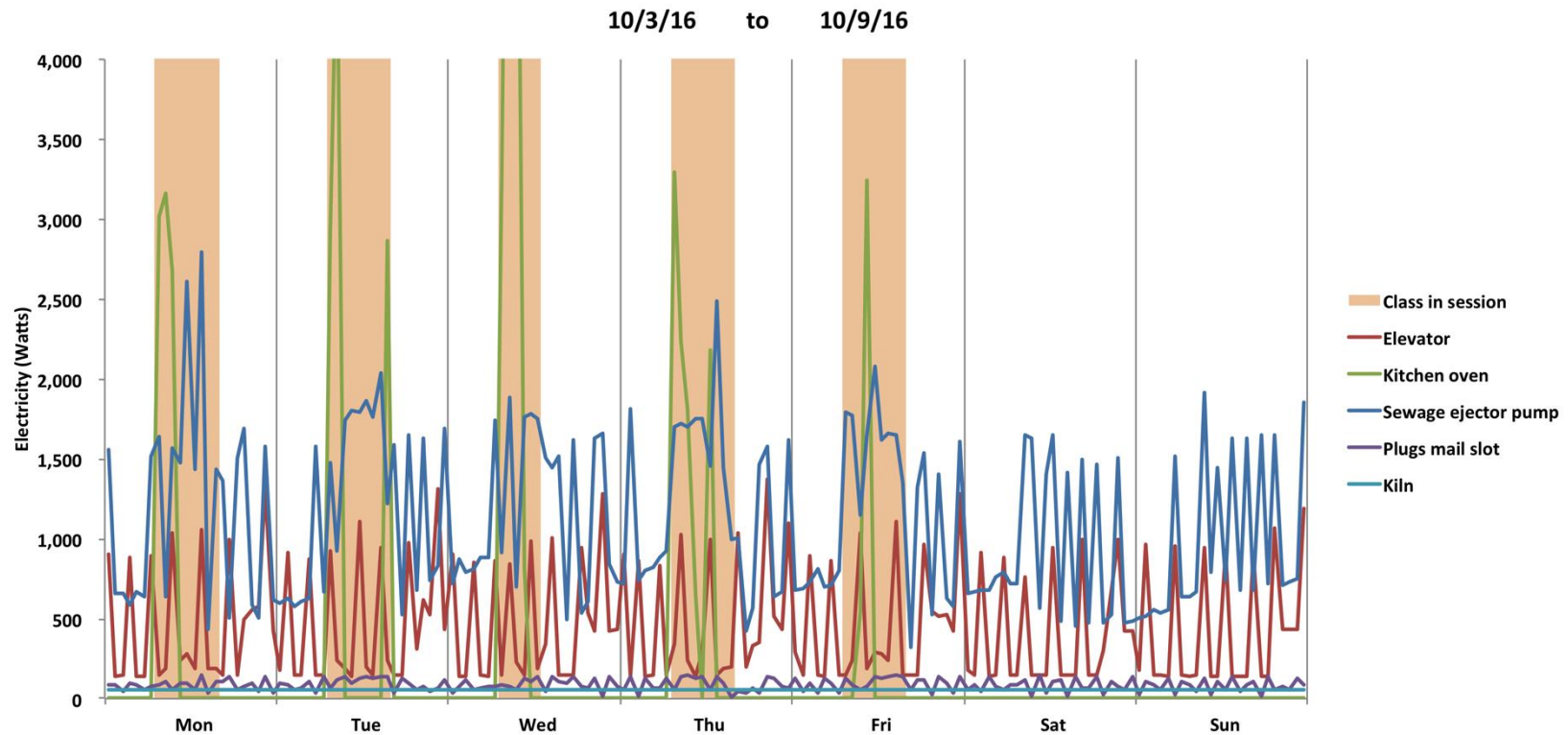


This chart summarizes energy use for classroom electric outlet energy use that we’re recording. Does Harvard have any thoughts about what’s turning on each day in room 120? In addition, there are minor electricity loads that are on 24/7 constantly. Could these loads be connected to occupancy sensor equipped extension outlets?

The table below summarizes the monthly use for each of the electrical loads. Using Room 124 as an example, could all the classroom plug loads be turned off in July and August?

Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
Plugs Room 120	Plug Loads	Classroom	119	119	179	128	107	122	89	121	144	1,128	EL1B
Plugs Room 120-E	Plug Loads	Classroom	75	86	102	88	115	93	89	110	110	867	EL1B
Plugs Room 128	Plug Loads	Classroom	74	84	90	87	90	88	88	90	86	778	EL1B
Plugs Room 123	Plug Loads	Classroom	89	97	106	91	88	77	56	50	102	757	EL1B
Plugs Room 117 C	Plug Loads	Classroom	67	76	83	80	80	78	67	70	72	674	EL1B
Plugs Room 124	Plug Loads	Classroom	43	158	45	35	47	34	8	9	49	429	EL1B
Total			467	619	605	510	527	493	398	450	563	4,632	



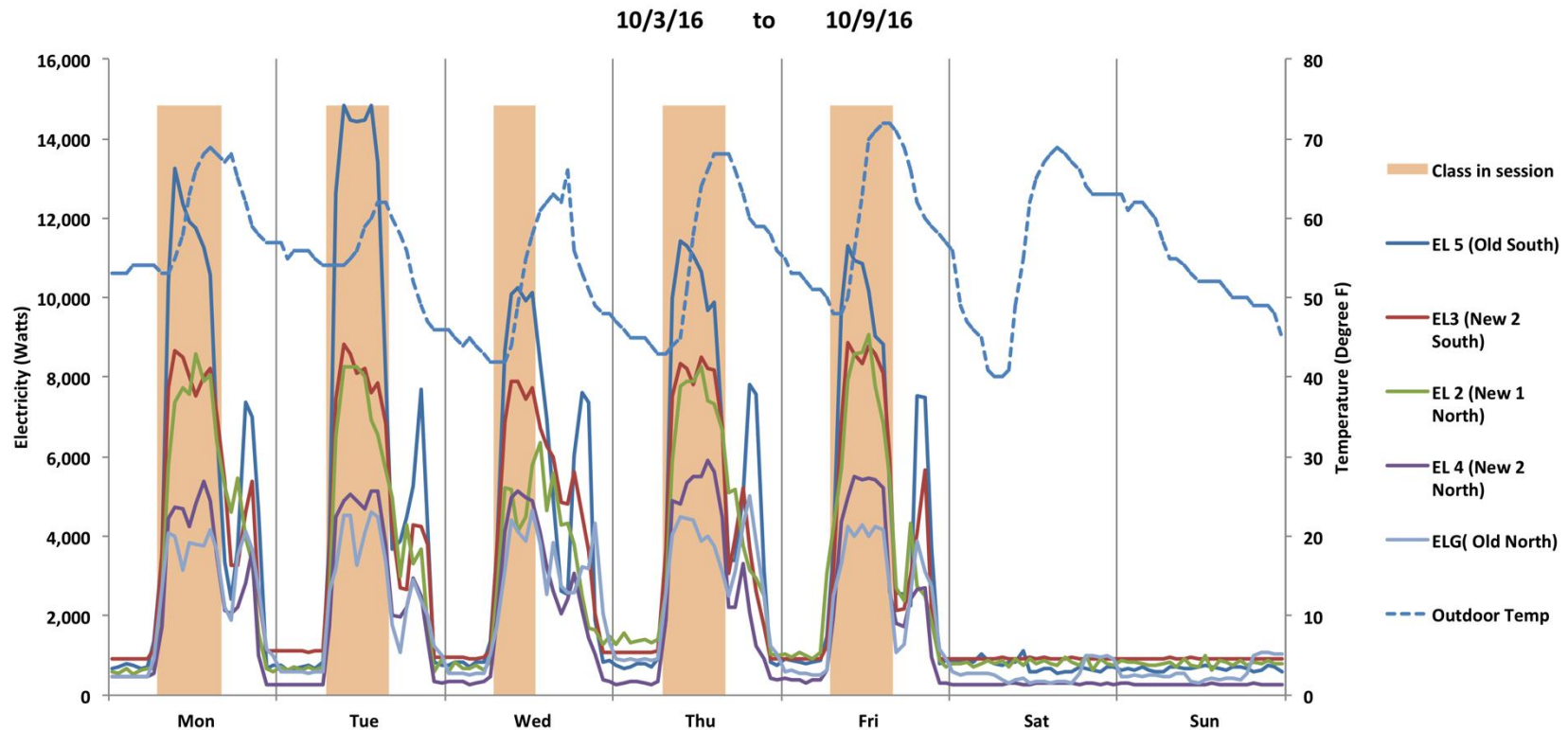


This chart summarizes energy use for several common area outlet or special purpose electrical loads. It would be worth investigating energy use by the elevator and the sewage ejector pump at night and weekends.

The table below summarizes the monthly use for each of the electrical loads. What is the mail slot outlet used for?

Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
Kitchen oven	Plug Loads	Appliance	209	154	305	197	265	138	4	6	241	1,518	Main SWBD
Plugs mail slot	Plug Loads	Common Area	37	50	60	52	58	66	69	56	56	504	EL1B
Sewage ejector pump	Special	Sewage Pump	894	995	1,050	898	836	616	492	463	699	6,944	Main SWBD
Elevator	Special	Elevator	406	446	452	411	353	283	238	236	272	3,095	Main SWBD
Kiln	Special	Kiln	35	40	43	42	43	42	42	43	41	372	EP1A
Total			1,581	1,684	1,909	1,600	1,555	1,144	845	804	1,309	12,432	

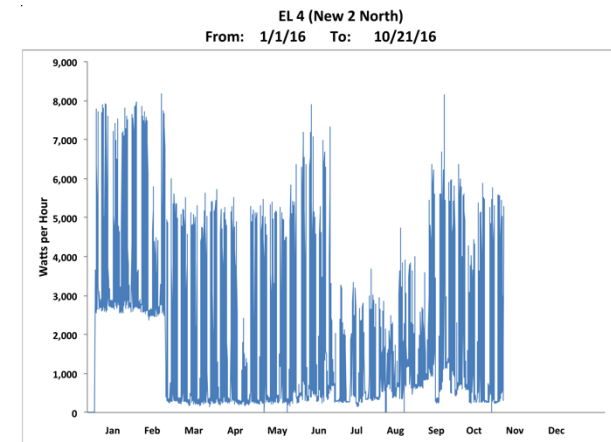


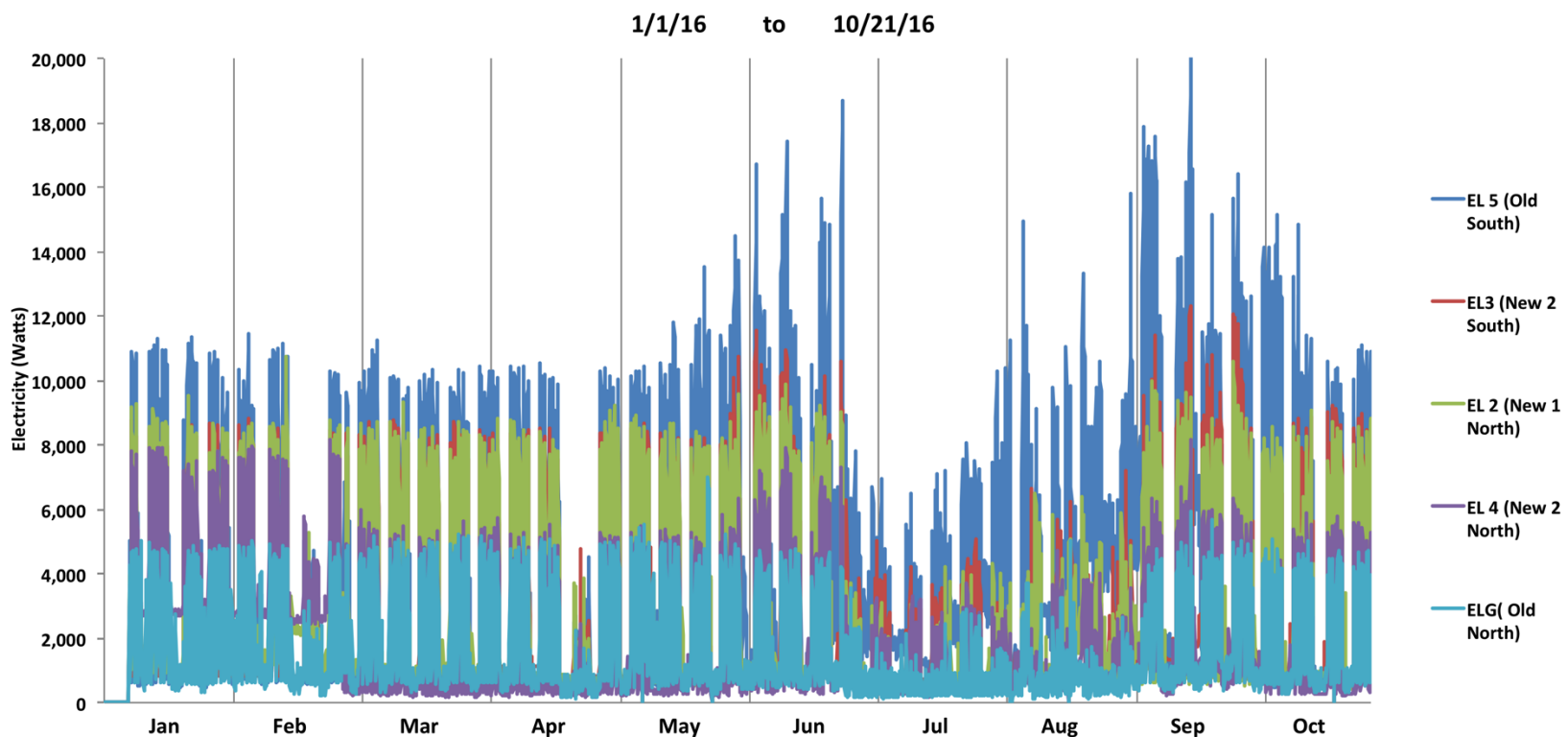


The chart above summarizes energy use for five electrical panels that serve lighting and plug loads in specific wings of the building. Harvard could use this information to provide monthly (or weekly) reports to each wing how they are doing with their energy consumption this month compared to the previous month and beginning in January compared to the previous year. As a general rule these lighting and plug loads follow the class in session schedule very closely. We assume that the evening electrical loads are associated with corridor and classroom lights that turned on for evening cleaning. Are there any potential explanations for the high energy use recorded for electrical panel ELG on Monday and Tuesday?

The small insert chart to the right is for Panel EL4. This serves HV6A, the air handler unit that was running 24/7 constantly. We assume that this air handler unit has been turned down or turned off. This would account for the significant energy savings beginning in March unless some other major change occurred.

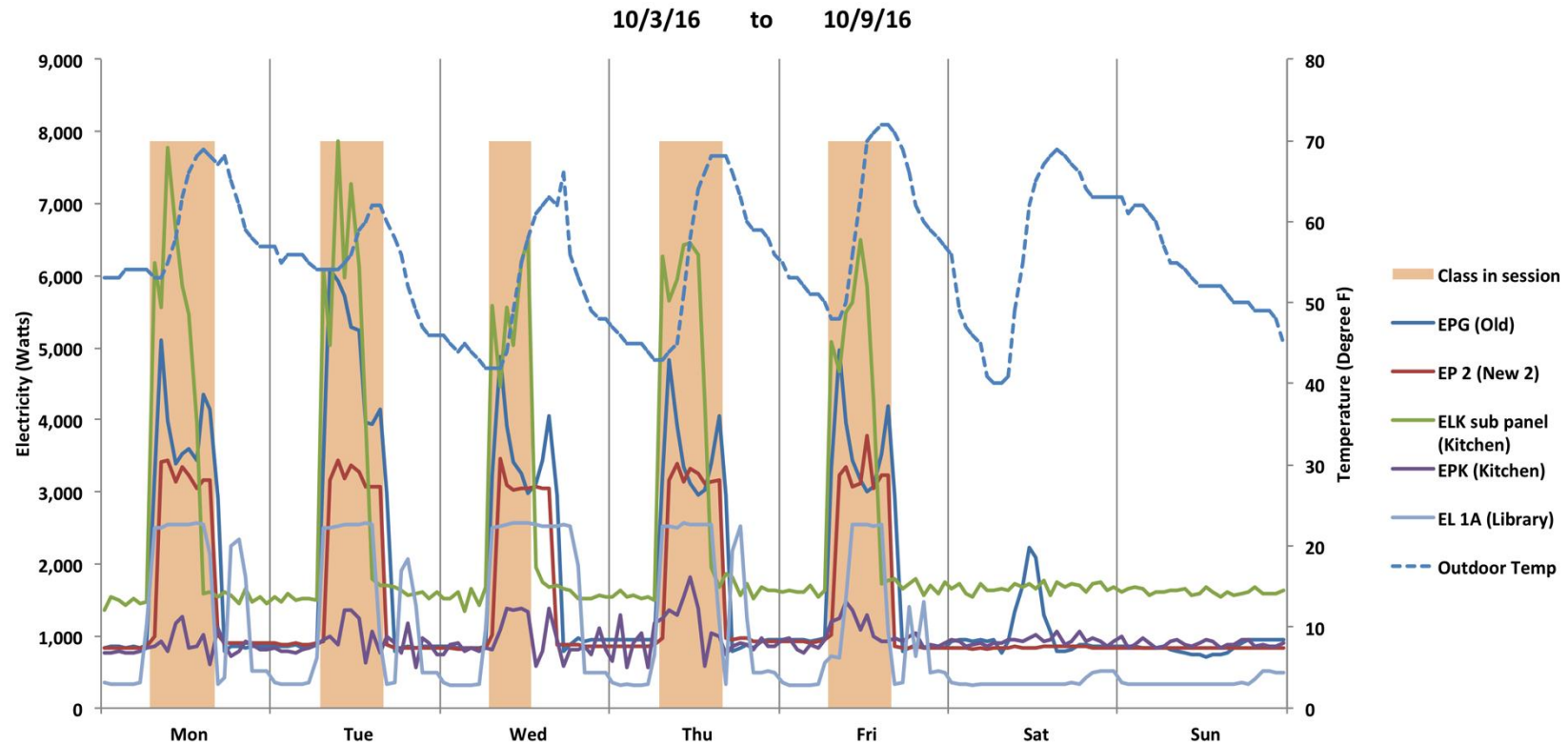
The chart and table on the following page document the 9-month energy use trends and monthly energy use for these electrical panels.





Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
EL 5 (Old South)	Panel	Lights & Plugs	1,953	1,994	2,462	1,898	2,718	3,122	2,391	4,142	3,888	24,568	Main SWBD
EL 3 (New 2 South)	Panel	Lights & Plugs	1,591	1,615	2,177	1,781	2,088	1,840	1,092	1,621	2,657	16,461	Main SWBD
EL 2 (New 1 North)	Panel	Lights & Plugs	1,829	1,958	2,329	1,694	2,124	1,774	908	1,577	2,181	16,373	Main SWBD
EL 4 (New 2 North)	Panel	Lights & Plugs	2,374	2,337	1,202	960	1,209	1,217	735	1,069	1,557	12,658	Main SWBD
ELG (Old North)	Panel	Lights & Plugs	1,327	1,217	1,498	1,066	1,353	961	431	678	1,380	9,911	Main SWBD
Total			9,073	9,120	9,667	7,398	9,492	8,913	5,557	9,087	11,662	79,969	

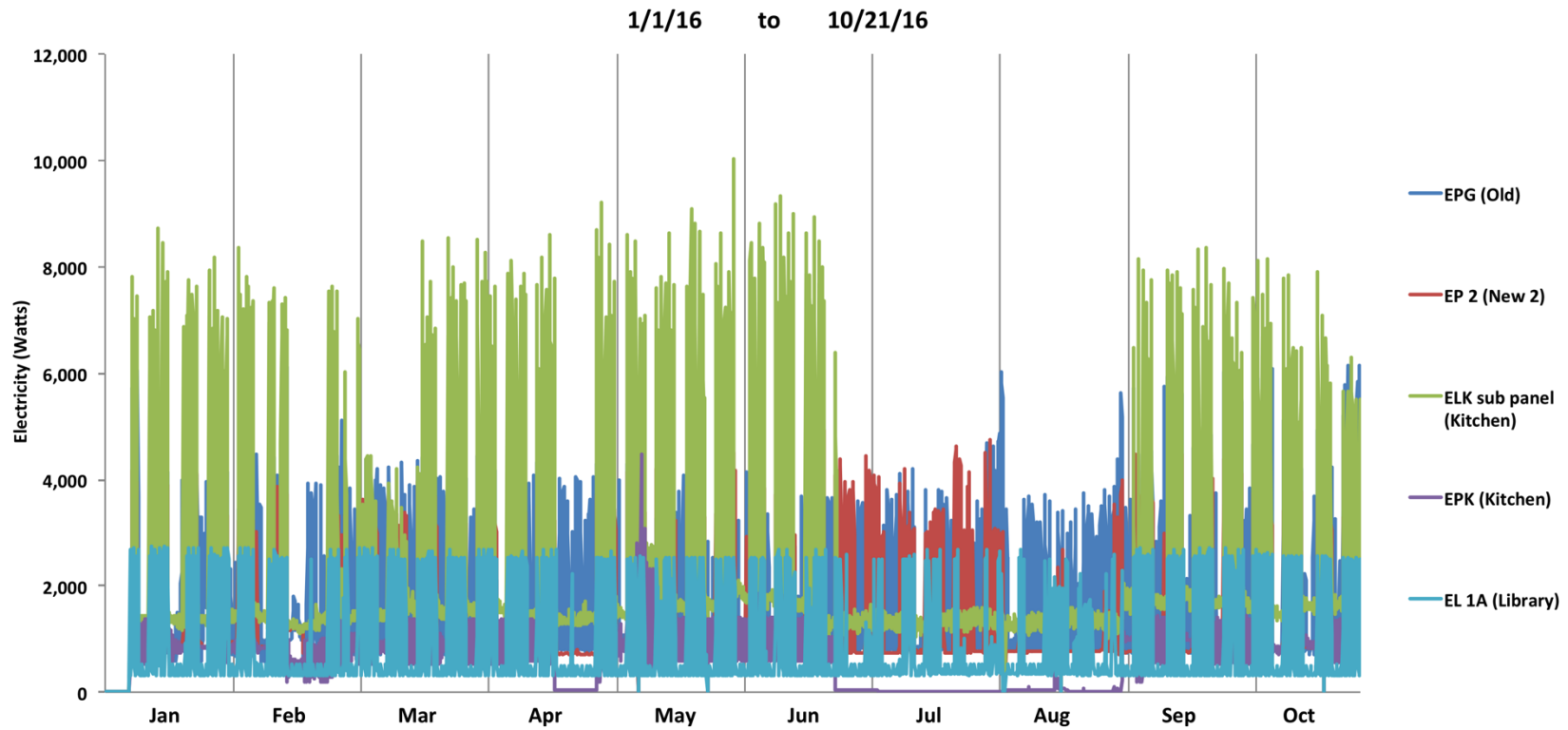




The chart above summarizes energy use for five additional electrical subpanels that we're monitoring. The energy baseloads associated with these electrical panels are higher when school is not in session than the energy baseloads associated with the other five electrical panels that we're monitoring. The detailed monitoring that we're doing in a few electrical panels can provide insights to areas that would be worth surveying for additional potential energy savings.

The chart and table on the following page document the 9-month energy use trends and monthly energy use for these electrical panels. There's about 1,000 watts per hour of constant energy use in the kitchen during the summer connect to subpanel ELK. The other electrical panel that serves the kitchen powers down almost completely. Is there additional equipment in the kitchen that can be turned off during the summer?





Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
EPG (Old)	Panel	HVAC	1,017	1,183	1,248	1,191	1,072	1,044	1,128	1,140	1,424	10,447	Main SWBD
EP 2 (New 2)	Panel	HVAC	903	913	1,067	910	1,053	1,074	978	721	1,076	8,695	Main SWBD
ELK sub panel (Kitchen)	Panel	Kitchen	1,392	1,398	1,733	1,644	2,016	1,594	964	1,099	1,932	13,772	Main SWBD
EPK (Kitchen)	Panel	Kitchen	548	573	734	502	829	527	16	148	717	4,594	Main SWBD
EL 1A (Library)	Panel	Lights & Plugs	640	617	852	667	684	595	566	565	761	5,947	Main SWBD
Total			4,501	4,684	5,635	4,914	5,654	4,834	3,651	3,673	5,910	43,455	



Appendix A Monthly Electricity Use Grouped by Major Categories

The following chart summarize monthly electricity use between January 1, 2016, and September 30, 2016 grouped by major categories and sub-categories. The charts include all the electrical circuits that are being monitored at the Library. Energy use for individual months are color coded by sub-category. Months with higher electricity use are highlighted in red and months with lower electricity use are highlighted in green.

HVAC			January	February	March	April	May	June	July	August	September	Total	Electrical
Description	Category	Sub Category	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	Panel
Heating Pump 1	HVAC	Heating Pump	179	2,246	4,422	3,369	1,198	8	5	3	192	11,621	EPM
Heating Pump 2	HVAC	Heating Pump	5,478	3,834	10	9	12	9	6	3	8	9,368	EPM
Burner 2	HVAC	Boiler	659	726	576	346	150	42	26	15	20	2,560	EPM
Burner 1	HVAC	Boiler	43	48	42	42	43	35	22	12	17	304	EPM
Compressor	HVAC	Controls	262	259	304	274	130	8	5	3	78	1,323	EPM
Air dryer	HVAC	Controls	275	270	337	326	138	1	1	1	1	1,349	EPM
BCM controls	HVAC	Controls	23	25	27	26	25	19	12	7	10	173	EPM
Boiler room heater	HVAC	Unit Heater	10	12	13	12	13	10	6	4	5	85	EPM
RTU B	HVAC	Rooftop Unit	114	131	145	135	145	172	153	205	147	1,347	EP1A
RTU A	HVAC	Rooftop Unit	93	107	114	110	119	128	228	203	135	1,237	EP1A
RTU C	HVAC	Rooftop Unit	7	6	26	12	65	163	394	537	292	1,503	EP1A
H&V Unit 5A	HVAC	Air Handler Unit	143	136	194	138	183	149	90	17	84	1,134	EPM
Air Handler	HVAC	Air Handler Unit	14	1	5	2	9	22	52	89	147	340	EP1A
Room 117 UV{1}	HVAC	Unit Ventilator	105	99	128	123	125	122	123	123	116	1,065	EP1A
Room 129 UV	HVAC	Unit Ventilator	85	97	104	102	104	100	102	103	99	896	EP1A
UV{4}	HVAC	Unit Ventilator	149	179	129	148	56	0	0	0	0	661	EPM
UV	HVAC	Unit Ventilator	44	22	50	30	104	151	90	53	77	620	EPM
UV{6}	HVAC	Unit Ventilator	149	124	104	75	63	0	0	0	0	516	EPM
UV{1}	HVAC	Unit Ventilator	123	162	101	75	25	0	0	0	0	485	EPM
UV{5}	HVAC	Unit Ventilator	64	97	110	77	92	0	0	0	0	440	EPM
UV{2}	HVAC	Unit Ventilator	54	76	102	49	48	1	1	31	43	404	EPM
Room 113 UV	HVAC	Unit Ventilator	66	79	63	72	28	0	0	0	0	308	EP1A
Room 130 UV	HVAC	Unit Ventilator	54	65	38	15	0	0	0	0	0	172	EP1A
Room 110 UV	HVAC	Unit Ventilator	18	8	20	17	12	0	0	0	0	75	EP1A
Room 117 UV	HVAC	Unit Ventilator	6	63	0	0	0	0	0	0	0	69	EP1A
Room 111 UV	HVAC	Unit Ventilator	21	38	5	1	1	0	0	0	0	65	EP1A
Room 114 UV	HVAC	Unit Ventilator	13	9	12	14	5	0	0	0	0	53	EP1A
Room 124 UV	HVAC	Unit Ventilator	11	13	7	4	3	0	0	0	0	38	EP1A
Room 123 UV	HVAC	Unit Ventilator	14	8	8	6	2	0	0	0	0	38	EP1A
Room 106 UV	HVAC	Unit Ventilator	10	7	9	5	3	0	0	0	0	34	EP1A
Room 126 UV	HVAC	Unit Ventilator	11	9	6	4	1	0	0	0	0	31	EP1A
Room 107 UV	HVAC	Unit Ventilator	5	3	5	9	4	0	0	0	0	27	EP1A
UV{3}	HVAC	Unit Ventilator	0	0	0	0	0	0	0	0	0	-	EPM
Room 121A UV	HVAC	Unit Ventilator	0	1	0	0	0	0	0	0	0	1	EP1A
EF 1A, 2A, 3A	HVAC	Rooftop Exhaust	513	582	626	607	619	508	320	178	241	4,193	EPM
EF 7A Boiler Room	HVAC	Rooftop Exhaust	444	508	536	515	522	426	267	148	200	3,566	EPM
EF 6A Bathrooms	HVAC	Rooftop Exhaust	144	175	172	166	238	244	154	85	115	1,493	EPM
EF 8	HVAC	Rooftop Exhaust	18	21	23	22	22	18	112	82	111	431	EPM
EF 4a & 5a	HVAC	Rooftop Exhaust	10	11	12	11	12	9	6	3	5	78	EPM
Total			9,430	10,258	8,585	6,947	4,314	2,347	2,174	1,906	2,143	48,102	



Lighting

Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
Lights Rooms A,B,C,D,E	Lighting	Classroom	145	139	190	138	149	145	91	150	170	1,318	EL1B
Lights Room 126	Lighting	Classroom	71	68	104	73	82	63	1	107	97	666	EL1B
Lights Room 123	Lighting	Classroom	70	74	105	76	97	60	4	38	101	625	EL1B
Lights Room 130	Lighting	Classroom	59	54	83	53	75	41	1	29	83	479	EL1B
Lights Media	Lighting	Classroom	18	25	34	21	23	17	4	15	25	181	EL1B
Lights Boiler Room	Lighting	Common Area	56	50	54	45	52	6	0	0	2	266	EPM
Lights Electrical Room	Lighting	Common Area	0	1	0	0	0	0	1	0	0	3	EL1B
Lights Hall & Emergency	Lighting	Corridor	132	144	165	138	152	135	107	105	143	1,219	EL1B
Corridor	Lighting	Corridor	61	67	77	64	67	59	49	49	65	557	EL1B
Total			612	622	812	607	697	526	258	494	684	5,313	

Plug Loads

Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
Kitchen oven	Plug Loads	Appliance	209	154	305	197	265	138	4	6	241	1,518	Main SWBD
Plugs Room 120	Plug Loads	Classroom	119	119	179	128	107	122	89	121	144	1,128	EL1B
Plugs Room 120-E	Plug Loads	Classroom	75	86	102	88	115	93	89	110	110	867	EL1B
Plugs Room 128	Plug Loads	Classroom	74	84	90	87	90	88	88	90	86	778	EL1B
Plugs Room 123	Plug Loads	Classroom	89	97	106	91	88	77	56	50	102	757	EL1B
Plugs Room 117 C	Plug Loads	Classroom	67	76	83	80	80	78	67	70	72	674	EL1B
Plugs Room 124	Plug Loads	Classroom	43	158	45	35	47	34	8	9	49	429	EL1B
Plugs Room 127	Plug Loads	Classroom	37	45	49	45	46	45	41	42	41	392	EL1B
Plugs Room 130	Plug Loads	Classroom	42	43	53	58	57	37	18	19	56	382	EL1B
Plugs Room 126	Plug Loads	Classroom	25	28	32	29	34	37	38	45	39	307	EL1B
Plugs Room 129{1}	Plug Loads	Classroom	12	20	22	19	23	17	0	0	0	114	EL1B
Plugs Room 120-A	Plug Loads	Classroom	10	15	14	12	11	11	9	9	11	102	EL1B
Plugs Room 129	Plug Loads	Classroom	10	11	9	0	0	0	0	0	0	31	EL1B
Plugs Room 129{2}	Plug Loads	Classroom	4	6	3	3	3	1	0	1	6	27	EL1B
Plugs mail slot	Plug Loads	Common Area	37	50	60	52	58	66	69	56	56	504	EL1B
Plugs office	Plug Loads	Common Area	7	8	8	8	8	8	8	8	8	70	EL1B
Plugs Boiler Room	Plug Loads	Common Area	5	0	0	0	0	0	0	0	0	5	EPM
Total			865	999	1,159	933	1,033	853	584	637	1,022	8,084	



Special Purpose, Unknown

Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
Sewage ejector pump	Special	Sewage Pump	894	995	1,050	898	836	616	492	463	699	6,944	Main SWBD
Elevator	Special	Elevator	406	446	452	411	353	283	238	236	272	3,095	Main SWBD
Kiln	Special	Kiln	35	40	43	42	43	42	42	43	41	372	EP1A
Unknown{4}	Unknown	Unknown	167	172	203	157	183	148	104	148	193	1,476	EL1B
Unknown{8}	Unknown	Unknown	86	75	115	81	97	61	8	67	89	679	EL1B
Unknown{6}	Unknown	Unknown	1	6	1	1	0	6	3	265	376	657	EL1B
Unknown{7}	Unknown	Unknown	75	66	101	71	99	66	2	30	95	606	EL1B
Unknown{5}	Unknown	Unknown	37	38	47	51	46	45	24	36	47	372	EL1B
Unknown{3}	Unknown	Unknown	10	11	12	12	12	12	12	5	2	87	EL1B
Unknown{1}{1}	Unknown	Unknown	9	10	11	11	11	9	6	3	4	75	EPM
Unknown{1}	Unknown	Unknown	6	6	7	7	7	7	7	7	6	59	EL1B
Unknown{10}	Unknown	Unknown	7	8	8	8	8	7	4	2	3	55	EPM
Unknown{2}	Unknown	Unknown	2	2	2	1	1	1	9	11	7	37	EL1B
Total			1,733	1,877	2,053	1,750	1,696	1,302	951	1,316	1,834	14,513	

Electrical Panels

Description	Category	Sub Category	January kWh	February kWh	March kWh	April kWh	May kWh	June kWh	July kWh	August kWh	September kWh	Total kWh	Electrical Panel
EPG (Old)	Panel	HVAC	1,017	1,183	1,248	1,191	1,072	1,044	1,128	1,140	1,424	10,447	Main SWBD
EP 2 (New 2)	Panel	HVAC	903	913	1,067	910	1,053	1,074	978	721	1,076	8,695	Main SWBD
ELK sub panel (Kitchen)	Panel	Kitchen	1,392	1,398	1,733	1,644	2,016	1,594	964	1,099	1,932	13,772	Main SWBD
EPK (Kitchen)	Panel	Kitchen	548	573	734	502	829	527	16	148	717	4,594	Main SWBD
EL 5 (Old South)	Panel	Lights & Plugs	1,953	1,994	2,462	1,898	2,718	3,122	2,391	4,142	3,888	24,568	Main SWBD
EL3 (New 2 South)	Panel	Lights & Plugs	1,591	1,615	2,177	1,781	2,088	1,840	1,092	1,621	2,657	16,461	Main SWBD
EL 2 (New 1 North)	Panel	Lights & Plugs	1,829	1,958	2,329	1,694	2,124	1,774	908	1,577	2,181	16,373	Main SWBD
EL 4 (New 2 North)	Panel	Lights & Plugs	2,374	2,337	1,202	960	1,209	1,217	735	1,069	1,557	12,658	Main SWBD
ELG(Old North)	Panel	Lights & Plugs	1,327	1,217	1,498	1,066	1,353	961	431	678	1,380	9,911	Main SWBD
EL 1A (Library)	Panel	Lights & Plugs	640	617	852	667	684	595	566	565	761	5,947	Main SWBD
ATC Panel	Panel	Special	0	0	0	0	0	0	0	0	0	-	EPM
Total			13,574	13,805	15,302	12,312	15,146	13,748	9,208	12,760	17,572	123,425	

