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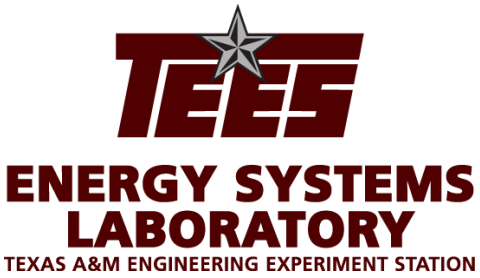

TAMU Project

Energy Consumption Data Quality Assurance/Quality Control Assessment Report for the

Month of May 2017

Prepared for

Utility & Energy Services

Division of Administration

Texas A&M University

June 2017

Acknowledgements

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Executive Summary

This report analyzes the energy use data collected from 595 meters in 206 buildings and complexes (approximately 20,468,000 GSF) on the campus of Texas A&M University in College Station, Texas. The report consists of five sections: 1) The summary of the monthly energy consumption per meter ID, 2) The quality control and assurance analysis of incorrect or incomplete energy use patterns, 3) Energy consumption time series plots, 4) Energy Balance plots, and 5) Energy Balance plots with filled-in consumption data. Section one contains the summary of monthly energy consumption for each of the TAMU buildings. Section two includes the reviews on each of those building energy use patterns that presented problems in the metered data. Section three and four are a collection of the plots generated for the energy use analysis, as reference to indicate and validate the quality of the metered energy data. The Section five includes the energy balance plots with filled-in energy data.

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I. Summary of Monthly Consumption

Table I-1 May 2017 Monthly Consumption for TAMU Buildings

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0270	Emerging Technologies Building	305,316	007469	ELE	181,082	kWh	
0270	Emerging Technologies Building	305,316	007470	ELE	46,485	kWh	
0270	Emerging Technologies Building	305,316	007471	CHW	2,252,311	mBtu	
0270	Emerging Technologies Building	305,316	007475	HHW	276,985	mBtu	
0275	Liberal Arts and Arts & Humanities Building	107,500	007715	ELE	46,175	kWh	
0275	Liberal Arts and Arts & Humanities Building	107,500	007716	CHW	379,935	mBtu	
0275	Liberal Arts and Arts & Humanities Building	107,500	007717	HHW	52,463	mBtu	#, (1), (2)
0290	Wells Residence Hall	67,283	006870	ELE	37,556	kWh	(2)
0290	Wells Residence Hall	67,283	001984	CHW	880,812	mBtu	#, (1), (2)
0290	Wells Residence Hall	67,283	001988	HHW	438,045	mBtu	#, (1), (2)
0291	Rudder Residence Hall	67,283	000351	ELE	43,217	kWh	#, (1)
0291	Rudder Residence Hall	67,283	002132	CHW	803,650	mBtu	#, (1), (2)
0291	Rudder Residence Hall	67,283	002136	HHW	376,671	mBtu	#, (1), (2)
0292	Eppright Residence Hall	67,283	000002	ELE	36,658	kWh	
0292	Eppright Residence Hall	67,283	002262	CHW	430,193	mBtu	
0292	Eppright Residence Hall	67,283	002266	HHW	139,426	mBtu	#, (1)
0293	Appelt Residence Hall	82,767	000003	ELE	49,266	kWh	
0293	Appelt Residence Hall	82,767	002062	CHW	809,760	mBtu	#, (1), (2)
0293	Appelt Residence Hall	82,767	002066	HHW	296,451	mBtu	#, (1), (2)
0294	Lechner Residence Hall	59,541	000004	ELE	41,984	kWh	
0294	Lechner Residence Hall	59,541	002285	CHW	677,442	mBtu	
0294	Lechner Residence Hall	59,541	002289	HHW	470,919	mBtu	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006536	ELE	121,848	kWh	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006537	ELE	111,996	kWh	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006534	CHW	1,161,435	mBtu	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006535	HHW	230,391	mBtu	
0353	Bright Aerospace Building	148,837	001569	ELE	160,894	kWh	
0353	Bright Aerospace Building	148,837	002746	CHW	1,386,835	mBtu	(2)
0353	Bright Aerospace Building	148,837	002757	HHW	39,492	mBtu	
0358	Davis Football Player Development Center	20,026	007699	ELE	28,542	kWh	
0358	Davis Football Player Development Center	20,026	007701	CHW	209,727	mBtu	
0358	Davis Football Player Development Center	20,026	007702	HHW	3,572	mBtu	
0361	Bright Football Complex	124,971	008461	ELE	195,340	kWh	
0361	Bright Football Complex	124,971	002547	CHW	1,156,050	mBtu	#, (1)
0361	Bright Football Complex	124,971	002551	HHW	148,010	mBtu	#, (1)
0367	Kyle Field	489,000	000336	ELE	145,212	kWh	
0367	Kyle Field	489,000	008861	ELE	81,070	kWh	
0367	Kyle Field	489,000	008862	ELE	99,193	kWh	
0367	Kyle Field	489,000	008863	ELE	174,250	kWh	
0367	Kyle Field	489,000	008864	ELE	162,258	kWh	
0367	Kyle Field	489,000	008865	ELE	59,415	kWh	
0367	Kyle Field	489,000	008866	ELE	131,967	kWh	
0367	Kyle Field	489,000	008867	ELE	197,344	kWh	
0367	Kyle Field	489,000	008868	ELE	105,954	kWh	
0367	Kyle Field	489,000	008852	CHW	1,916,960	mBtu	
0367	Kyle Field	489,000	008026	CHW	4,138,629	mBtu	
0367	Kyle Field	489,000	008856	HHW	58,417	mBtu	
0367	Kyle Field	489,000	008027	HHW	1,121,080	mBtu	
0376	Chemistry Building Addition	115,797	006229	ELE	174,745	kWh	
0376	Chemistry Building Addition	115,797	006230	ELE	118,074	kWh	
0376	Chemistry Building Addition	115,797	007115	CHW	3,111,025	mBtu	
0376	Chemistry Building Addition	115,797	007119	HHW	649,626	mBtu	
0383	Koldus Building	110,272	001488	ELE	160,381	kWh	
0383	Koldus Building	110,272	002863	CHW	611,862	mBtu	
0383	Koldus Building	110,272	002874	HHW	143,450	mBtu	#, (1)
0384	Sanders Corps of Cadets Center	19,363	001554	ELE	23,830	kWh	
0384	Sanders Corps of Cadets Center	19,363	002583	CHW	212,972	mBtu	
0384	Sanders Corps of Cadets Center	19,363	002587	HHW	85,033	mBtu	
0325-0385	CE TTI Office & Lab Building	157,844	009122	ELE	163,551	kWh	
0325-0385	CE TTI Office & Lab Building	157,844	009123	CHW	1,254,036	mBtu	#, (1)
0325-0385	CE TTI Office & Lab Building	157,844	009124	HHW	95,149	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	001428	ELE	151,434	kWh	
0386	Jack E. Brown Chemical Engineering Building	205,000	001429	ELE	354,134	kWh	
0386	Jack E. Brown Chemical Engineering Building	205,000	002250	CHW	3,500,555	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	006871	CHW	108,597	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	002254	HHW	497,324	mBtu	
0387	Richardson Petroleum Engineering Building	113,700	005870	ELE	82,104	kWh	
0387	Richardson Petroleum Engineering Building	113,700	005872	ELE	101,997	kWh	
0387	Richardson Petroleum Engineering Building	113,700	005805	CHW	1,303,830	mBtu	
0387	Richardson Petroleum Engineering Building	113,700	005809	HHW	223,396	mBtu	
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	001573	ELE	217,085	kWh	
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	002906	CHW	1,622,707	mBtu	
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	002910	HHW	278,547	mBtu	

Table I-1 May 2017 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0394	Underwood Residence Hall	81,730	000014	ELE	56,233	kWh	
0394	Underwood Residence Hall	81,730	002117	CHW	528,283	mBtu	(2)
0394	Underwood Residence Hall	81,730	002121	HHW	128,508	mBtu	(2)
0398	Langford Architecture Center Building A	116,619	003806	ELE	89,827	kWh	
0398	Langford Architecture Center Building A	116,619	003951	CHW	887,582	mBtu	(2)
0398	Langford Architecture Center Building A	116,619	003955	HHW	312,997	mBtu	(2)
0400-0402-1405	Spence Hall, Briggs Hall, and Ash II LLC	108,555	009386	ELE	73,975	kWh	
0400	Spence Hall Dorm 1	38,907	009290	ELE	12,703	kWh	
0400	Spence Hall Dorm 1	38,907	009291	ELE	12,678	kWh	
0400-1405	Spence Hall and Ash II LLC	72,038	009292	CHW	567,694	mBtu	
0400-1405	Spence Hall and Ash II LLC	72,038	009296	HHW	154,912	mBtu	
1405	Ash II LLC	33,131	009387	CHW	265,084	mBtu	
1405	Ash II LLC	33,131	009391	HHW	68,720	mBtu	
0402	Briggs Hall Dorm 3	36,517	009322	ELE	14,159	kWh	
0402	Briggs Hall Dorm 3	36,517	009323	ELE	8,475	kWh	
0402	Briggs Hall Dorm 3	36,517	009324	CHW	313,463	mBtu	
0402	Briggs Hall Dorm 3	36,517	009328	HHW	68,035	mBtu	
0401-0403-1404	Kiest Hall, Fountain Hall, and Plank LLC	108,752	009370	ELE	71,780	kWh	
0401	Kiest Hall Dorm 2	38,815	009306	ELE	12,051	kWh	
0401	Kiest Hall Dorm 2	38,815	009307	ELE	10,065	kWh	
0401-1404	Kiest Hall, and Plank LLC	72,052	009308	CHW	670,569	mBtu	
0401-1404	Kiest Hall, and Plank LLC	72,052	009312	HHW	207,679	mBtu	
1404	Plank LLC	33,237	009372	CHW	361,989	mBtu	
1404	Plank LLC	33,237	009376	HHW	120,339	mBtu	
0403	Fountain Hall Dorm 4	36,700	009338	ELE	12,886	kWh	
0403	Fountain Hall Dorm 4	36,700	009339	ELE	9,066	kWh	
0403	Fountain Hall Dorm 4	36,700	009340	CHW	298,937	mBtu	
0403	Fountain Hall Dorm 5	36,700	009344	HHW	74,199	mBtu	
0404-0406-1403	Gainer Hall, Leonard Hall and Ash LLC	90,072	009401	ELE	60,139	kWh	
0406-1403	Leonard Hall - Dorm 7 and Ash LLC	53,508	007982	CHW	480,969	mBtu	
0406-1403	Leonard Hall - Dorm 7 and Ash LLC	53,508	007983	HHW	74,586	mBtu	
0406	Leonard Hall - Dorm 7	36,222	008011	ELE	11,393	kWh	
0406	Leonard Hall - Dorm 7	36,222	008012	ELE	11,022	kWh	
1403	H. Grady Ash, Jr. '58 Leadership Learning Center	17,286	008005	CHW	158,687	mBtu	
1403	H. Grady Ash, Jr. '58 Leadership Learning Center	17,286	008006	HHW	5,576	mBtu	
0404	Gainer Hall Dorm 5	36,564	009354	ELE	11,454	kWh	
0404	Gainer Hall Dorm 5	36,564	009355	ELE	8,426	kWh	
0404	Gainer Hall Dorm 5	36,564	009356	CHW	323,555	mBtu	
0404	Gainer Hall Dorm 5	36,564	009360	HHW	69,900	mBtu	
0405-0407-1402	Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center	91,310	007721	ELE	65,422	kWh	
0407-1402	Harrell Hall - Dorm 8 and Buzbee LLC	54,443	007722	CHW	501,536	mBtu	
0407-1402	Harrell Hall - Dorm 8 and Buzbee LLC	54,443	007723	HHW	59,503	mBtu	
0405	Lacy Hall - Dorm 6	36,867	007922	ELE	24,461	kWh	
0405	Lacy Hall - Dorm 6	36,867	007918	CHW	336,803	mBtu	*
0405	Lacy Hall - Dorm 6	36,867	007919	HHW	94,292	mBtu	*
0407	Harrell Hall - Dorm 8	36,943	007729	ELE	22,694	kWh	
1402	Buzbee Leadership Learning Center	17,500	007725	CHW	250,268	mBtu	
1402	Buzbee Leadership Learning Center	17,500	007726	HHW	4,958	mBtu	
0408	Whitely Hall - Dorm 9	36,893	000024	ELE	12,079	kWh	*, (2)
0408	Whitely Hall - Dorm 9	36,893	002079	CHW	148,780	mBtu	*, (2)
0408	Whitely Hall - Dorm 9	36,893	002083	HHW	44,175	mBtu	*, #,(1),(2)
0409	White Hall - Dorm 10	36,893	000025	ELE	24,297	kWh	*, (2)
0409	White Hall - Dorm 10	36,893	002094	CHW	503,820	mBtu	*, (2)
0409	White Hall - Dorm 10	36,893	002098	HHW	263,079	mBtu	*, (2)
0410	Harrington Hall - Dorm 11	36,893	000327	ELE	25,226	kWh	*, (2)
0410	Harrington Hall - Dorm 11	36,893	002349	CHW	504,210	mBtu	*, (2)
0410	Harrington Hall - Dorm 11	36,893	002353	HHW	239,416	mBtu	*, (2)
0411	Utay Hall - Dorm 12	36,943	000026	ELE	15,020	kWh	*, (2)
0411	Utay Hall - Dorm 12	36,943	002102	CHW	50,277	mBtu	*, (2)
0411	Utay Hall - Dorm 12	36,943	002106	HHW	44,406	mBtu	*, (2)
0412	Moses Residence Hall	40,828	000027	ELE	32,783	kWh	
0412	Moses Residence Hall	40,828	002384	CHW	562,585	mBtu	
0412	Moses Residence Hall	40,828	002395	HHW	173,786	mBtu	
0415	Davis-Gary Residence Hall	40,828	000030	ELE	31,661	kWh	
0415	Davis-Gary Residence Hall	40,828	002532	CHW	473,723	mBtu	
0415	Davis-Gary Residence Hall	40,828	002543	HHW	206,466	mBtu	
0419	Legett Residence Hall	45,134	000031	ELE	14,705	kWh	(2)
0419	Legett Residence Hall	45,134	002218	CHW	313,544	mBtu	(2)
0419	Legett Residence Hall	45,134	002222	HHW	90,476	mBtu	(2)
0420	Milner Hall	48,268	009144	ELE	25,298	kWh	
0420	Milner Hall	48,268	009145	CHW	220,774	mBtu	
0420	Milner Hall	48,268	009146	HHW	39,458	mBtu	
0422	Walton Residence Hall	51,494	000378	ELE	73,694	kWh	
0422	Walton Residence Hall	51,494	002364	HHW	69,413	mBtu	

Table I-1 May 2017 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0424	Hotard Hall	18,500	000032	ELE	14,242	kWh	
0424	Hotard Hall	18,500	002657	CHW	195,157	mBtu	
0424	Hotard Hall	18,500	002668	HHW	74,374	mBtu	
0425	Henderson Hall	22,185	001553	ELE	15,382	kWh	
0425	Henderson Hall	22,185	002607	CHW	200,352	mBtu	
0425	Henderson Hall	22,185	002611	HHW	67,558	mBtu	
0426-0427-0428	FHK Complex	154,349	000331	ELE	98,345	kWh	
0426-0427-0428	FHK Complex	154,349	002848	CHW	1,270,787	mBtu	
0426-0427-0428	FHK Complex	154,349	002859	HHW	431,587	mBtu	
0430	Schumacher Residence Hall	38,957	000034	ELE	28,240	kWh	
0430	Schumacher Residence Hall	38,957	002015	CHW	356,125	mBtu	
0430	Schumacher Residence Hall	38,957	002030	HHW	83,328	mBtu	(1)
0359	Architecture Building B	28,545	005518	ELE	22,157	kWh	*
0432	Architecture Building C	73,020	005584	ELE	77,010	kWh	*
0359-0432	Architecture Building B&C	101,565	006419	CHW	723,885	mBtu	*
0359-0432	Architecture Building B&C	101,565	006423	HHW	245,239	mBtu	*
0434	Luedecke Building (Cyclotron)	80,646	005555	ELE	112,610	kWh	*
0434	Luedecke Building (Cyclotron)	80,646	005558	ELE	1,068,601	kWh	*
0434	Luedecke Building (Cyclotron)	80,646	006664	CHW	2,082,670	mBtu	*
0434	Luedecke Building (Cyclotron)	80,646	006668	HHW	93,032	mBtu	*
0435	Harrington Education Center Office Tower	130,844	001546	ELE	120,180	kWh	
0435	Harrington Education Center Office Tower	130,844	002792	CHW	973,848	mBtu	
0435	Harrington Education Center Office Tower	130,844	002796	HHW	346,609	mBtu	(1)
0436	Reed-McDonald Building	77,435	006868	ELE	88,754	kWh	
0436	Reed-McDonald Building	77,435	002419	CHW	1,394,770	mBtu	
0436	Reed-McDonald Building	77,435	002423	HHW	292,516	mBtu	
0438	Harrington Education Center Classroom Building	61,860	003630	ELE	35,018	kWh	
0438	Harrington Education Center Classroom Building	61,860	002784	CHW	198,060	mBtu	
0438	Harrington Education Center Classroom Building	61,860	002788	HHW	3,715	mBtu	
0433-0440-0441-0442-0447	Mosher Commons Krueger Dunn Aston	577,584	009099	ELE	281,766	kWh	
0433	Mosher Residence Hall	155,430	009083	ELE	70,591	kWh	(2)
0433	Mosher Residence Hall	155,430	002485	CHW	1,881,986	mBtu	* (2)
0433	Mosher Residence Hall	155,430	002489	HHW	668,979	mBtu	* (2)
0440-0441	Commons Krueger	196,633	009833	ELE	98,788	kWh	
0440	Commons Hall	84,500	009237	CHW	676,710	mBtu	
0440	Commons Hall	84,500	009238	HHW	133,795	mBtu	
0441	Krueger Residence Hall	112,133	009091	ELE	46,779	kWh	
0441	Krueger Residence Hall	112,133	009828	ELE	28,925	kWh	
0441	Krueger Residence Hall	112,133	002504	CHW	815,386	mBtu	*
0441	Krueger Residence Hall	112,133	002500	HHW	246,594	mBtu	*
0442	Dunn Residence Hall	112,133	009095	ELE	105,828	kWh	
0442	Dunn Residence Hall	112,133	002519	CHW	843,684	mBtu	
0442	Dunn Residence Hall	112,133	002515	HHW	351,190	mBtu	
0447	Aston Residence Hall	113,388	009087	ELE	58,409	kWh	
0447	Aston Residence Hall	113,388	002474	CHW	1,307,385	mBtu	
0447	Aston Residence Hall	113,388	002470	HHW	553,584	mBtu	(1)
0443	Oceanography & Meteorology Building	180,316	005322	ELE	178,465	kWh	
0443	Oceanography & Meteorology Building	180,316	005323	ELE	65,027	kWh	
0443	Oceanography & Meteorology Building	180,316	006388	CHW	1,437,928	mBtu	(2)
0443	Oceanography & Meteorology Building	180,316	006392	HHW	243,423	mBtu	(2)
0444	Peterson Building	84,831	004714	ELE	156,964	kWh	
0444	Peterson Building	84,831	002922	CHW	1,190,005	mBtu	
0444	Peterson Building	84,831	006435	HHW	219,436	mBtu	
0445-0517	Teague Research Center and DPC Annex	89,735	003948	ELE	29,176	kWh	*
0445-0517	Teague Research Center and DPC Annex	89,735	004719	ELE	50,375	kWh	*
0445	Teague Research Center	63,515	006411	CHW	361,982	mBtu	*
0445	Teague Research Center	63,515	006415	HHW	49,638	mBtu	*
0517	DPC Annex	26,220	006563	CHW	552,942	mBtu	*
0517	DPC Annex	26,220	006567	HHW	124,564	mBtu	* (2)
0446	Rudder Theatre Complex	209,293	002977	ELE	103,255	kWh	* (1)
0446	Rudder Theatre Complex	209,293	002980	ELE	33,121	kWh	(1)
0446	Rudder Theatre Complex	209,293	004297	CHW	1,771,818	mBtu	(1)
0446	Rudder Theatre Complex	209,293	004309	HHW	870,112	mBtu	(1)
0446	Rudder Tower	92,947	001550	ELE	30,026	kWh	
0446	Rudder Tower	92,947	001551	ELE	60,995	kWh	*
0446	Rudder Tower	92,947	002455	CHW	623,028	mBtu	
0446	Rudder Tower	92,947	002459	HHW	67,267	mBtu	
0448	Adams Band Hall	55,248	000978	ELE	60,488	kWh	
0448	Adams Band Hall	55,248	002555	CHW	510,775	mBtu	
0448	Adams Band Hall	55,248	002566	HHW	295,302	mBtu	
0449	Biological Sciences Building - West	96,038	003978	ELE	188,514	kWh	
0449	Biological Sciences Building - West	96,038	003981	CHW	1,426,820	mBtu	
0449	Biological Sciences Building - West	96,038	003985	HHW	292,039	mBtu	

Table I-1 May 2017 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0450	Duncan Dining Hall	128,482	000300	ELE	65,372	kWh	
0450	Duncan Dining Hall	128,482	002998	CHW	547,271	mBtu	
0450	Duncan Dining Hall	128,482	003009	HHW	20,640	mBtu	
0454	MSC (East Main)	392,000	007600	ELE	265,897	kWh	(1)
0454	MSC (West Main)	392,000	007601	ELE	195,848	kWh	
0454	MSC BOR	392,000	008047	ELE	17,105	kWh	
0454	MSC	392,000	007584	CHW	2,659,850	mBtu	
0454	MSC BOR	392,000	004184	CHW	390,883	mBtu	
0454	MSC	392,000	007585	HHW	266,288	mBtu	
0454	MSC BOR	392,000	004196	HHW	199,860	mBtu	
0456	Military Sciences Building	43,808	006939	CHW	513,449	mBtu	*
0456	Military Sciences Building	43,808	006943	HHW	188,054	mBtu	*
0457	TAES Annex Building	16,364	005863	ELE	13,962	kWh	
0457	TAES Annex Building	16,364	005913	CHW	84,350	mBtu	
0457	TAES Annex Building	16,364	005917	HHW	22,754	mBtu	
0461	Coke Building	24,466	004008	ELE	28,095	kWh	
0461	Coke Building	24,466	005307	CHW	115,612	mBtu	
0461	Coke Building	24,466	004023	HHW	3,553	mBtu	
0462	Academic Building	82,555	005861	ELE	18,536	kWh	
0462	Academic Building	82,555	005903	ELE	40,256	kWh	
0462	Academic Building	82,555	005905	CHW	636,611	mBtu	
0462	Academic Building	82,555	005909	HHW	312,669	mBtu	
0463	Psychology Building	48,215	001575	ELE	42,493	kWh	(2)
0463	Psychology Building	48,215	002941	CHW	588,233	mBtu	(2)
0463	Psychology Building	48,215	002945	HHW	36,092	mBtu	(2)
0464	State Chemist Building	20,027	005839	ELE	9,888	kWh	
0464	State Chemist Building	20,027	005837	ELE	8,063	mBtu	(1)
0464	State Chemist Building	20,027	005841	HHW	22,101	mBtu	(1)
0465	Butler Hall	29,699	003997	ELE	33,296	kWh	
0465	Butler Hall	29,699	004000	CHW	301,312	mBtu	
0465	Butler Hall	29,699	004004	HHW	82,244	mBtu	
0467	Biological Sciences Building - East	62,273	001543	ELE	186,960	kWh	
0467	Biological Sciences Building - East	62,273	003851	CHW	899,607	mBtu	(1)
0467	Biological Sciences Building - East	62,273	003862	HHW	78,097	mBtu	
0468	Evans Library	712,093	000304	ELE	241,078	kWh	
0468	Evans Library	712,093	000318	ELE	129,274	kWh	
0468	Evans Library	712,093	000319	ELE	92,570	kWh	
0468	Evans Library	712,093	000320	ELE	77,941	kWh	
0468	Evans Library	712,093	006429	ELE	86,339	kWh	
0468	Evans Library	712,093	003701	CHW	1,376,932	mBtu	
0468	Evans Library	712,093	003895	CHW	1,376,042	mBtu	
0468	Evans Library	712,093	003903	CHW	380,150	mBtu	
0468	Evans Library	712,093	003911	CHW	1,157,018	mBtu	
0468	Evans Library	712,093	003712	HHW	148,009	mBtu	
0468	Evans Library	712,093	003899	HHW	164,320	mBtu	
0468	Evans Library	712,093	003907	HHW	46,834	mBtu	
0468	Evans Library	712,093	003922	HHW	110,633	mBtu	
0468	Evans Library	712,093	005303	HHW	31,003	mBtu	
0469	Central Campus Parking Garage	251,304	000306	ELE	45,345	kWh	*
0469	Central Campus Parking Garage	2,844	003716	CHW	45,016	mBtu	
0469	Central Campus Parking Garage	2,844	003720	HHW	4,220	mBtu	
0470	Glasscock History Bldg	39,887	006407	ELE	18,303	kWh	
0470	Glasscock History Bldg	39,887	006638	CHW	187,516	mBtu	
0470	Glasscock History Bldg	39,887	006642	HHW	8,528	mBtu	
0471	Pavilion	40,062	001455	ELE	36,195	kWh	
0471	Pavilion	40,062	002769	CHW	275,911	mBtu	
0471	Pavilion	40,062	002780	HHW	7,835	mBtu	
0472	Animal Industries	44,856	009042	ELE	53,452	kWh	
0472	Animal Industries	44,856	009109	CHW	456,537	mBtu	
0472	Animal Industries	44,856	009113	HHW	61,320	mBtu	
0473	Williams Administration Building	69,898	007945	ELE	47,295	kWh	
0473	Williams Administration Building	69,898	007946	CHW	401,456	mBtu	
0473	Williams Administration Building	69,898	007947	HHW	53,665	mBtu	
0474	YMCA Building	36,035	007524	ELE	22,624	kWh	
0474	YMCA Building	36,035	007525	CHW	160,243	mBtu	
0474	YMCA Building	36,035	007526	HHW	12,508	mBtu	
0476	Francis Hall	36,850	008015	ELE	34,730	kWh	
0476	Francis Hall	36,850	008033	CHW	355,012	mBtu	
0476	Francis Hall	36,850	008034	HHW	2,697	mBtu	
0477	Anthropology Building	51,592	001558	ELE	33,104	kWh	
0477	Anthropology Building	51,592	003664	CHW	372,709	mBtu	
0477	Anthropology Building	51,592	003668	HHW	34,799	mBtu	

Table I-1 May 2017 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0478	Scoates Hall	62,228	007961	ELE	53,879	kWh	
0478	Scoates Hall	62,228	007968	CHW	506,038	mBtu	
0478	Scoates Hall	62,228	007969	HHW	65,824	mBtu	(1)
0480	Bolton Hall	39,686	006845	ELE	32,533	kWh	
0480	Bolton Hall	39,686	007012	CHW	227,788	mBtu	
0480	Bolton Hall	39,686	007016	HHW	62,269	mBtu	
0481	Heaton Hall	13,640	005712	ELE	NA	kWh	*
0481	Heaton Hall	13,640	007531	CHW	272,421	mBtu	(1)
0481	Heaton Hall	13,640	007535	HHW	188,640	mBtu	(1)
0482	Fermier Hall	19,074	005779	ELE	17,764	kWh	
0482	Fermier Hall	19,074	005878	CHW	99,254	mBtu	(2)
0482	Fermier Hall	19,074	005881	HHW	3,185	mBtu	(2)
0483	Thompson Hall	81,404	003688	ELE	68,534	kWh	
0483	Thompson Hall	81,404	003887	CHW	358,239	mBtu	
0483	Thompson Hall	81,404	003891	HHW	20,639	mBtu	
0484	Chemistry Building	205,393	007152	ELE	102,602	kWh	* (2)
0484	Chemistry Building	205,393	007556	ELE	11,027	kWh	
0484	Chemistry Building	205,393	007557	ELE	27,012	kWh	(2)
0484	Chemistry Building	205,393	007559	ELE	168,649	kWh	
0484	Chemistry Building	205,393	007028	CHW	1,187,734	mBtu	*
0484	Chemistry Building	205,393	007223	CHW	3,609,835	mBtu	
0484	Chemistry Building	205,393	007032	HHW	235,579	mBtu	* (1)
0484	Chemistry Building	205,393	007227	HHW	873,512	mBtu	
0490	Halbouty Geosciences Building	120,874	006691	ELE	66,785	kWh	
0490	Halbouty Geosciences Building	120,874	006695	ELE	92,279	kWh	
0490	Halbouty Geosciences Building	120,874	006896	CHW	1,201,633	mBtu	
0490	Halbouty Geosciences Building	120,874	006913	CHW	752,938	mBtu	
0490	Halbouty Geosciences Building	120,874	006900	HHW	320,738	mBtu	(1)
0490	Halbouty Geosciences Building	120,874	006917	HHW	246,807	mBtu	(1)
0492	Civil Engineering Building	56,537	005783	ELE	48,732	kWh	
0492	Civil Engineering Building	56,537	005950	CHW	266,846	mBtu	(2)
0492	Civil Engineering Building	56,537	005954	HHW	63,803	mBtu	(1) (2)
0495	Sbisa Dining Hall	94,233	000352	ELE	119,995	kWh	
0495	Sbisa Dining Hall	94,233	000353	ELE	93,135	kWh	
0495	Sbisa Dining Hall	94,233	001951	CHW	1,116,926	mBtu	
0495	Sbisa Dining Hall	94,233	001957	HHW	80,705	mBtu	
0496	Utilities & Energy Services Central Office	46,110	007706	ELE	14,168	kWh	(2)
0496	Utilities & Energy Services Central Office	46,110	006929	CHW	157,216	mBtu	(2)
0496	Utilities & Energy Services Central Office	46,110	006933	HHW	18,936	mBtu	(2)
0499	Engineering Innovation Center	28,339	001561	ELE	21,397	kWh	
0499	Engineering Innovation Center	28,339	002672	CHW	83,103	mBtu	(2)
0499	Engineering Innovation Center	28,339	002683	HHW	35,015	mBtu	
0501	Concrete Materials Laboratory	9,600	005791	ELE	7,467	kWh	
0506	Nagle Hall	32,306	001484	ELE	11,616	kWh	(2)
0506	Nagle Hall	32,306	003619	CHW	325,042	mBtu	
0506	Nagle Hall	32,306	003623	HHW	19,933	mBtu	
0507	Veterinary Medical Science Building	69,367	003013	ELE	78,887	kWh	
0507	Veterinary Medical Science Building	69,367	003640	CHW	1,248,239	mBtu	
0507	Veterinary Medical Science Building	69,367	003644	HHW	399,782	mBtu	
0508	Veterinary Teaching Hospital	96,416	003022	ELE	99,131	kWh	
0508-1026	Veterinary Teaching Hospital and Veterinary Medicine Administration	191,096	004166	CHW	1,885,738	mBtu	
0508-1026	Veterinary Teaching Hospital and Veterinary Medicine Administration	191,096	009694	HHW	444,602	mBtu	
0511	Heep Laboratory Building	40,476	005787	ELE	56,174	kWh	
0511	Heep Laboratory Building	40,476	005821	CHW	679,358	mBtu	#, (1)
0511	Heep Laboratory Building	40,476	005825	HHW	193,631	mBtu	#, (1)
0512	All Faiths Chapel	8,999	004340	ELE	7,189	kWh	
0512	All Faiths Chapel	8,999	004288	CHW	93,898	mBtu	
0512	All Faiths Chapel	8,999	004293	HHW	34,134	mBtu	(1)
0513	Doherty Building	42,336	000299	ELE	52,165	kWh	
0513	Doherty Building	42,336	002898	CHW	742,590	mBtu	
0513	Doherty Building	42,336	002902	HHW	310,713	mBtu	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007558	ELE	12,755	kWh	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007487	CHW	88,254	mBtu	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007491	HHW	3,437	mBtu	
0516	Computing Services Center	30,014	005259	ELE	516,973	kWh	
0516	Computing Services Center	30,014	003959	CHW	1,697,598	mBtu	
0516	Computing Services Center	30,014	003963	HHW	0	mBtu	
0520	Beutel Health Center	63,318	003785	ELE	70,219	kWh	
0520	Beutel Health Center	63,318	003933	CHW	502,709	mBtu	
0520	Beutel Health Center	63,318	003944	HHW	106,335	mBtu	
0521	Heldenfels Hall	104,949	001547	ELE	87,357	kWh	
0521	Heldenfels Hall	104,949	002962	CHW	982,683	mBtu	
0521	Heldenfels Hall	104,949	002973	HHW	89,311	mBtu	

Table I-1 May 2017 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0524	Blocker Building	257,953	001545	ELE	187,146	kWh	
0524	Blocker Building	257,953	002914	CHW	1,035,876	mBtu	(2)
0524	Blocker Building	257,953	002918	HHW	7	mBtu	(2)
0548	Clements Residence Hall	62,156	000048	ELE	33,880	kWh	(2)
0548	Clements Residence Hall	62,156	002729	CHW	960,318	mBtu	(2)
0548	Clements Residence Hall	62,156	002740	HHW	443,757	mBtu	(2)
0549	Haas Residence Hall	69,668	001398	ELE	35,215	kWh	
0549	Haas Residence Hall	69,668	002983	CHW	723,072	mBtu	(2)
0549	Haas Residence Hall	69,668	002994	HHW	464,457	mBtu	(2)
0550	McFadden Residence Hall	62,156	000339	ELE	33,095	kWh	
0550	McFadden Residence Hall	62,156	002188	CHW	929,671	mBtu	
0550	McFadden Residence Hall	62,156	002192	HHW	564,335	mBtu	
0652	Neeley Residence Hall	69,668	000056	ELE	36,600	kWh	
0652	Neeley Residence Hall	69,668	002147	CHW	538,268	mBtu	(1)
0652	Neeley Residence Hall	69,668	002151	HHW	253,436	mBtu	(1)
0653	Hobby Residence Hall	62,156	000057	ELE	46,472	kWh	
0653	Hobby Residence Hall	62,156	002401	CHW	775,595	mBtu	
0653	Hobby Residence Hall	62,156	002405	HHW	369,917	mBtu	
0682	Wisenbaker Engineering Research Center	177,704	005246	ELE	218,711	kWh	
0682	Wisenbaker Engineering Research Center	177,704	003879	CHW	1,575,666	mBtu	
0682	Wisenbaker Engineering Research Center	177,704	003883	HHW	168,928	mBtu	
0740	McNew Laboratory	20,904	005874	ELE	55,202	kWh	(2)
0740	McNew Laboratory	20,904	005974	CHW	492,454	mBtu	#, (1), (2)
0740	McNew Laboratory	20,904	005968	HHW	8,069	mBtu	#, (2)
0806	Soil Testing Labs	5,544	006875	ELE	20,333	kWh	
0815	Entomology Research Lab	17,618	005799	ELE	25,866	kWh	
0815	Entomology Research Lab	17,618	006043	CHW	180,327	mBtu	
0880	TVMC-Small Animal Building	3,260	005958	CHW	32,334	mBtu	
0880	TVMC-Small Animal Building	3,260	005962	HHW	33	mBtu	(2)
0972	Laboratory Animal Care Building	52,178	007063	ELE	138,301	kWh	
0972	Laboratory Animal Care Building	52,178	007067	ELE	51,392	kWh	
0972	Laboratory Animal Care Building	52,178	007071	CHW	2,228,003	mBtu	
0972	Laboratory Animal Care Building	52,178	006991	HHW	344,942	mBtu	
1020	Vivarium III	12,234	005857	ELE	25,371	kWh	
1020	Vivarium III	12,234	005997	CHW	280,837	mBtu	
1020	Vivarium III	12,234	006001	HHW	73,484	mBtu	(1)
1026	Veterinary Medicine Administration	94,680	006072	ELE	128,293	kWh	
1026	Veterinary Medicine Administration	94,680	006049	CHW	1,163,690	mBtu	
1026	Veterinary Medicine Administration	98,680	006053	HHW	493,847	mBtu	*
1041	Texas Vet Med Diagnostic Lab	55,169	001466	ELE	73,528	kWh	*, (2)
1041	Texas Vet Med Diagnostic Lab	55,169	001539	ELE	41,707	kWh	*, (2)
1041	Texas Vet Med Diagnostic Lab	55,169	003817	CHW	602,300	mBtu	*, (2)
1041	Texas Vet Med Diagnostic Lab	55,169	004137	CHW	977,774	mBtu	*, (2)
1041	Texas Vet Med Diagnostic Lab	55,169	003821	HHW	74,187	mBtu	*, (2)
1041	Texas Vet Med Diagnostic Lab	55,169	004130	HHW	126,913	mBtu	*, (2)
1042	Forest Science Laboratory Building	9,632	006036	ELE	26,711	kWh	
1085	Veterinary Small Animal Hospital	103,440	004136	ELE	237,694	kWh	
1085	Veterinary Small Animal Hospital	103,440	003656	CHW	1,902,922	mBtu	
1085	Veterinary Small Animal Hospital	103,440	003660	HHW	376,394	mBtu	
1089	Utilities Energy Office Annex	2,937	006964	ELE	6,928	kWh	
1146	Biological Control Facility	13,492	005795	ELE	36,944	kWh	
1146	Biological Control Facility	13,492	005887	CHW	162,588	mBtu	
1146	Biological Control Facility	13,492	005891	HHW	39,100	mBtu	
1156	Physical Plant Administration & Shops	101,704	007483	ELE	128,787	kWh	
1156	Physical Plant Administration & Shops	101,704	007679	CHW	325,980	mBtu	(2)
1156	Physical Plant Administration & Shops	101,704	007683	HHW	74,644	mBtu	
1184	Veterinary Anatomic Pathology	17,223	001445	ELE	53,824	kWh	
1184	Veterinary Anatomic Pathology	17,223	006995	CHW	418,179	mBtu	
1184	Veterinary Anatomic Pathology	17,223	006999	HHW	78,251	mBtu	
1194	Veterinary Large Animal Hospital	140,865	005256	ELE	106,235	kWh	
1194	Veterinary Large Animal Hospital	140,865	003016	ELE	65,887	kWh	
1194	Veterinary Large Animal Hospital	140,865	007455	ELE	41,946	kWh	
1194	Veterinary Large Animal Hospital	140,865	003648	CHW	2,115,989	mBtu	
1194	Veterinary Large Animal Hospital	140,865	007456	CHW	278,331	mBtu	
1194	Veterinary Large Animal Hospital	140,865	003652	HHW	585,525	mBtu	
1194	Veterinary Large Animal Hospital	140,865	007457	HHW	48,051	mBtu	
1197	Veterinary Research Building	114,666	006355	ELE	72,422	kWh	(2)
1197	Veterinary Research Building	114,666	006359	ELE	35,332	kWh	(2)
1197	Veterinary Research Building	114,666	006062	CHW	2,332,909	mBtu	
1197	Veterinary Research Building	114,666	006066	HHW	287,275	mBtu	
1416	Hullabaloo Residence Hall	253,452	007845	ELE	159,102	kWh	
1416	Hullabaloo Residence Hall	253,452	007846	CHW	1,100,695	mBtu	
1416	Hullabaloo Residence Hall	253,452	007847	HHW	162,951	mBtu	

Table I-1 May 2017 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1450	University Apartments - Laundry at the Gardens	1,428	006885	ELE	5,684	kWh	
1451	University Apartments - The Gardens J	33,535	006981	ELE	16,735	kWh	
1452	University Apartments - The Gardens K	33,535	006979	ELE	16,370	kWh	
1453	University Apartments - The Gardens L	33,535	006884	ELE	16,958	kWh	
1454	University Apartments - The Gardens F	33,535	006980	ELE	19,343	kWh	*
1455	University Apartments - The Gardens G	33,535	006882	ELE	18,441	kWh	*
1456	University Apartments - The Gardens H	33,535	007962	ELE	16,822	kWh	
1457	University Apartments - The Gardens M	33,535	007503	ELE	22,263	kWh	
1458	University Apartments - The Gardens N	33,535	007504	ELE	17,143	kWh	
1459	University Apartments - The Gardens P	33,535	007505	ELE	21,239	kWh	
1460	University Apartments - The Gardens Q	33,535	007506	ELE	17,702	kWh	
1497	Utilities & Energy Services Business Office	3,480	007082	ELE	5,205	kWh	
1497	Utilities & Energy Services Business Office	3,480	006341	CHW	36,292	mBtu	
1497	Utilities & Energy Services Business Office	3,480	006345	HHW	1,045	mBtu	
1501	Kleberg Center	165,031	007449	ELE	259,791	kWh	
1501	Kleberg Center	165,031	002624	CHW	1,679,057	mBtu	
1501	Kleberg Center	165,031	002628	HHW	602,939	mBtu	
1502	Heep Center	158,979	001556	ELE	265,254	kWh	#, (1)
1502	Heep Center	158,979	002599	CHW	1,937,706	mBtu	
1502	Heep Center	158,979	002603	HHW	237,951	mBtu	(1)
1503	Cater-Mattil Hall	27,958	007977	ELE	84,714	kWh	
1503	Cater-Mattil Hall	27,958	008001	CHW	529,929	mBtu	
1504	Reynolds Medical Sciences Building	169,859	003975	ELE	298,994	kWh	*
1504	Reynolds Medical Sciences Building	169,859	003989	CHW	2,572,961	mBtu	
1504	Reynolds Medical Sciences Building	169,859	003993	HHW	695,785	mBtu	
1505	Rosenthal Meat Science & Technology Center	30,889	003627	ELE	139,845	kWh	
1505	Rosenthal Meat Science & Technology Center	30,889	002573	CHW	200,422	mBtu	
1505	Rosenthal Meat Science & Technology Center	30,889	002577	HHW	70,897	mBtu	(1)
1506	Horticulture-Forest Science Building	118,648	001544	ELE	161,163	kWh	
1506	Horticulture-Forest Science Building	118,648	003967	CHW	784,751	mBtu	
1506	Horticulture-Forest Science Building	118,648	003971	HHW	107,437	mBtu	
1507	Biochemistry-Biophysics Building	166,079	001459	ELE	171,548	kWh	
1507	Biochemistry-Biophysics Building	166,079	001460	ELE	162,008	kWh	
1507	Biochemistry-Biophysics Building	166,079	003025	CHW	2,151,944	mBtu	
1507	Biochemistry-Biophysics Building	166,079	003029	HHW	815,527	mBtu	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	005638	ELE	26,701	kWh	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	006005	CHW	176,020	mBtu	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	006009	HHW	7,176	mBtu	
1509	Medical Sciences Library	84,183	000350	ELE	83,133	kWh	
1509	Medical Sciences Library	84,183	003777	CHW	735,852	mBtu	(1)
1509	Medical Sciences Library	84,183	003781	HHW	78,527	mBtu	
1510	Wehner Building	259,681	006849	ELE	187,783	kWh	
1510	Wehner Building	259,681	006685	ELE	257,909	kWh	
1510	Wehner Building	259,681	002687	CHW	1,785,925	mBtu	
1510	Wehner Building	259,681	002691	HHW	319,036	mBtu	
1511	West Campus Library Facility	68,125	004342	ELE	79,013	kWh	
1511	West Campus Library Facility	68,125	004313	CHW	624,678	mBtu	
1511	West Campus Library Facility	68,125	004318	HHW	98,995	mBtu	
1512	Southern Crop Improvement Greenhouse	48,154	005931	ELE	99,084	kWh	#, (1)
1513	Borlaug Center for Southern Crop Improvement	68,739	005802	ELE	292,795	kWh	
1513	Borlaug Center for Southern Crop Improvement	68,739	005936	CHW	1,235,744	mBtu	
1513	Borlaug Center for southern Crop Improvement	68,739	005895	HHW	153,905	mBtu	
1518	TX School of Rural Public Health A	69,079	005273	ELE	74,284	kWh	
1519	TX School of Rural Public Health B	24,761	005274	ELE	47,578	kWh	#. (1)
1520	TX School of Rural Public Health C	13,264	005275	ELE	105,508	kWh	#, (1)
1518-1519-1520	TX School of Rural Public Health A,B,C	107,104	005294	CHW	1,418,513	mBtu	
1518-1519-1520	TX School of Rural Public Health A,B,C	107,104	005298	HHW	226,775	mBtu	
1525	Nuclear Magnetic Resonance Facility	37,282	006718	ELE	88,790	kWh	
1525	Nuclear Magnetic Resonance Facility	37,282	006715	CHW	972,919	mBtu	
1525	Nuclear Magnetic Resonance Facility	37,282	006716	HHW	430,857	mBtu	
1530	Interdisciplinary Life Sciences Building	218,540	006286	ELE	414,253	kWh	
1530	Interdisciplinary Life Sciences Building	218,540	006288	ELE	220,699	kWh	
1530	Interdisciplinary Life Sciences Building	218,540	006290	CHW	4,289,582	mBtu	
1530	Interdisciplinary Life Sciences Building	218,540	006294	HHW	924,887	mBtu	
1535	Agriculture and Life Sciences Building	168,353	007205	ELE	117,360	kWh	
1535	Agriculture and Life Sciences Building	168,353	007206	CHW	678,334	mBtu	
1535	Agriculture and Life Sciences Building	168,353	007207	HHW	23,854	mBtu	
1536	AgriLife Services Building	80,907	007571	ELE	48,000	kWh	
1536	AgriLife Services Building	80,907	007572	CHW	264,273	mBtu	
1536	AgriLife Services Building	80,907	007573	HHW	16,513	mBtu	
1537	Agriculture Public Building	78,480	009620	ELE	55,758	kWh	*
1537	Agriculture Public Building	78,480	009621	ELE	75,551	kWh	*
1537	Agriculture Public Building	78,480	009622	CHW	1,140,124	mBtu	
1537	Agriculture Public Building	78,480	009623	HHW	258,981	mBtu	

Table I-1 May 2017 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1538	Agriculture Program Visitors Center	12,923	007209	ELE	14,453	kWh	
1538	Agriculture Program Visitors Center	12,923	007210	CHW	96,252	mBtu	
1538	Agriculture Program Visitors Center	12,923	007211	HHW	8,734	mBtu	
1540	Physical Education Activity Program Building	116,900	007881	ELE	65,477	kWh	
1540	Physical Education Activity Program Building	116,900	007878	CHW	500,985	mBtu	
1540	Physical Education Activity Program Building	116,900	007879	HHW	79,762	mBtu	
1542	Human Clinical Research Building	22,052	009693	ELE	58,253	kWh	
1542	Human Clinical Research Building	22,052	009683	CHW	460,132	mBtu	
1542	Human Clinical Research Building	22,052	009687	HHW	85,701	mBtu	
1544	Cain Garage	498,425	009824	ELE	43,435	kWh	(2)
1550	Olsen Field at Bluebell Park	60,537	007560	ELE	132,812	kWh	
1554	Reed Arena	230,000	007582	ELE	131,050	kWh	
1554	Reed Arena	230,000	006243	ELE	777	kWh	*
1554	Reed Arena	230,000	006244	ELE	88,376	kWh	*
1554-1558	Reed Arena and Cox-McFerrin Center	328,185	007576	CHW	2,541,012	mBtu	
1554-1558	Reed Arena and Cox-McFerrin Center	328,185	007578	HHW	630,780	mBtu	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007581	ELE	62,866	kWh	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007575	CHW	361,319	mBtu	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007577	HHW	136,207	mBtu	(2)
1559	West Campus Parking Garage	1,541,457	001453	ELE	159,879	kWh	
1559	West Campus Parking Garage	13,000	004322	CHW	70,900	mBtu	(1)
1559	West Campus Parking Garage	13,000	004327	HHW	7,153	mBtu	
1560	Student Recreation Center	334,642	000363	ELE	343,612	kWh	
1560	Student Recreation Center	334,642	000366	ELE	412,072	kWh	
1560	Student Recreation Center	334,642	002933	CHW	4,686,007	mBtu	
1560	Student Recreation Center	334,642	002937	HHW	1,097,261	mBtu	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009197	ELE	78,201	kWh	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009198	CHW	491,831	mBtu	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009199	HHW	49,952	mBtu	
1591	White Creek Apartment 2	179,467	008528	ELE	89,422	kWh	
1591	White Creek Apartment 2	179,467	008529	CHW	447,706	mBtu	
1591	White Creek Apartment 2	179,467	008533	HHW	52,285	mBtu	
1592	White Creek Apartment 3	179,467	008538	ELE	87,659	kWh	
1592	White Creek Apartment 3	179,467	008539	CHW	517,622	mBtu	
1592	White Creek Apartment 3	179,467	008543	HHW	41,336	mBtu	
1600	Gilchrist TTI Building	67,143	005286	ELE	52,310	kWh	
1600	Gilchrist TTI Building	67,143	002649	CHW	335,461	mBtu	
1600	Gilchrist TTI Building	67,143	002653	HHW	32,620	mBtu	
1601	International Ocean Discovery Building	86,576	006351	ELE	118,801	kWh	(2)
1601	International Ocean Discovery Building	86,576	006382	CHW	248,228	mBtu	(2)
1601	International Ocean Discovery Building	86,576	008144	CHW	60,062	mBtu	(2)
1601	International Ocean Discovery Building	86,576	008145	HHW	13,205	mBtu	(2)
1601	International Ocean Discovery Building	86,576	009829	HHW	47,079	mBtu	*, (2)
1604	Offshore Technology Research Center	40,014	006659	ELE	97,004	kWh	
1604	Offshore Technology Research Center	40,014	006660	ELE	0	kWh	(2)
1604	Offshore Technology Research Center	40,014	008142	CHW	561,975	mBtu	
1604	Offshore Technology Research Center	40,014	008143	HHW	140,889	mBtu	
1606	George Bush Presidential Library & Museum	121,678	000244	ELE	108,837	kWh	
1606	George Bush Presidential Library & Museum	121,678	002808	CHW	1,233,442	mBtu	
1606	George Bush Presidential Library & Museum	121,678	002812	HHW	280,084	mBtu	
1607	Allen Building	133,327	000243	ELE	91,024	kWh	
1607	Allen Building	133,327	002800	CHW	564,700	mBtu	
1607	Allen Building	133,327	002804	HHW	31,304	mBtu	
1608	Annenberg Presidential Conference Center	65,688	000245	ELE	72,391	kWh	#, (1)
1608	Annenberg Presidential Conference Center	65,688	002761	CHW	753,312	mBtu	
1608	Annenberg Presidential Conference Center	65,688	002765	HHW	257,092	mBtu	
1609	TTI Headquarters	66,707	006495	ELE	50,532	kWh	(2)
1609	TTI Headquarters	66,707	006496	CHW	330,765	mBtu	(2)
1609	TTI Headquarters	66,707	006497	HHW	21,181	mBtu	(2)
1611	Engineering Research Building	68,807	008462	ELE	161,091	kWh	
1611	Engineering Research Building	68,807	008463	CHW	1,551,102	mBtu	
1611	Engineering Research Building	68,807	008467	HHW	394,571	mBtu	
1800	General Services Complex	203,369	005441	ELE	185,427	kWh	
1800	General Services Complex	203,369	005468	CHW	1,033,723	mBtu	
1800	General Services Complex	203,369	005472	HHW	45,994	mBtu	
1809	New TVMDL	90,000	009652	ELE	53,834	kWh	*
1809	New TVMDL	90,000	009653	ELE	20,438	mBtu	*
1809	New TVMDL	90,000	009647	CHW	3,091,117	mBtu	
1810	Office of the State Chemist Building	31,735	009073	ELE	64,555	kWh	
1810	Office of the State Chemist Building	31,735	005460	CHW	488,218	mBtu	
1810	Office of the State Chemist Building	31,735	005464	HHW	75,783	mBtu	
1811	Vet Med Research Bldg Addition	52,993	006705	ELE	231,801	kWh	
1811	Vet Med Research Bldg Addition	52,993	006706	CHW	1,402,775	mBtu	
1811	Vet Med Research Bldg Addition	52,993	006707	HHW	367,992	mBtu	

Table I-1 May 2017 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1812-1813	Veterinary Medicine Building 1 and 2	254,952	009404	ELE	181,920	kWh	
1813	Veterinary Medicine Building 2	116,492	009418	ELE	3,454	kWh	*
1814	Veterinary Medicine Building 3	135,470	009405	ELE	268,255	kWh	
1812-1813-1814	Veterinary Medicine Building 1, 2 and 3	390,422	009676	CHW	3,890,111	mBtu	
1812-1813-1814	Veterinary Medicine Building 1, 2 and 3	390,422	009410	HHW	701,077	mBtu	
1900	Texas Institute for Genomic Medicine	34,120	005548	ELE	85,018	kWh	*
1900	Texas Institute for Genomic Medicine	34,120	005545	CHW	1,338,653	mBtu	
1900	Texas Institute for Genomic Medicine	34,120	005546	HHW	292,446	mBtu	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006364	ELE	221,510	kWh	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006365	CHW	1,887,325	mBtu	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006366	HHW	431,076	mBtu	
1910	National Center for Therapeutics Manufacturing	149,924	007517	ELE	204,226	kWh	
1910	National Center for Therapeutics Manufacturing	149,924	007518	ELE	184,525	kWh	
1910	National Center for Therapeutics Manufacturing	149,924	007519	CHW	4,409,793	mBtu	
1910	National Center for Therapeutics Manufacturing	149,924	007520	HHW	1,092,610	mBtu	
1911	Multi-Species Research Building	21,000	009138	ELE	26,192	kWh	
1911	Multi-Species Research Building	21,000	009129	CHW	416,124	mBtu	
1911	Multi-Species Research Building	21,000	009133	HHW	164,841	mBtu	
10226	NCTM Manufacturing Building	113,397	007648	CHW	3,737,329	mBtu	
10226	NCTM Manufacturing Building	113,397	007649	HHW	795,917	mBtu	
10226	NCTM Manufacturing Building	113,397	008133	HHW	242,531	mBtu	

1 mBtu = 1 000 Btu

NA: Not available
Monthly consumption in blue: Modified values
* : Missing data
# : Questionable data
(1): Consumption estimated and documented in the report *Part II - Data Analysis: Energy Use Estimation and Observations Section 2*
(2): Observation(s) documented in the report *Part II - Data Analysis: Energy Use Estimation and Observations Section 3*
(3): Missing data or changed consumption levels due to construction

II. Data Analysis: Energy Use Estimation and Observation

II-1 Meters with Missing Energy Consumption Data

During the month of May 2017, 60 meters in 30 buildings and complexes have missing daily data. The missing data have been filled in using consumption models based on the past data if available or using linear interpolation or some sort of average, and the monthly consumption has been estimated with the filled-in daily consumption. Table II-1 is the list of meters with missing data.

Table II-1 Meters with missing data during May 2017

Building No.	Building Name	MeterID	Type	Unit	Original Monthly Consumption	Estimated Monthly Consumption	# of Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0405	Lacy Hall - Dorm 6	007918	CHW	mBtu	259,913	336,803	7																M	M	M	M	M	M	M								
0405	Lacy Hall - Dorm 6	007919	HHW	mBtu	77,851	94,292	7																M	M	M	M	M	M	M								
0408	Whitely Hall - Dorm 9	000024	ELE	kWh	8,747	12,079	9	A	A	A	A	A	A	A	A	A																				
0408	Whitely Hall - Dorm 9	002079	CHW	mBtu	70,954	148,780	17	A	A	A	A	A	A	A	A	A	A	A														A	A	A	A	A	A
0408	Whitely Hall - Dorm 9	002083	HHW	mBtu	3,259	**	17	A	A	A	A	A	A	A	A	A	A	A														A	A	A	A	A	A
0409	White Hall - Dorm 10	000025	ELE	kWh	17,501	24,297	9	A	A	A	A	A	A	A	A	A																				
0409	White Hall - Dorm 10	002094	CHW	mBtu	259,368	503,820	19	A	A	A	A	A	A	A	A	A			A	A	A	A										A	A	A	A	A	A
0409	White Hall - Dorm 10	002098	HHW	mBtu	126,408	263,079	17	A	A	A	A	A	A	A	A	A	A	A														A	A	A	A	A	A
0410	Harrington Hall - Dorm 11	000327	ELE	kWh	18,404	25,226	9	A	A	A	A	A	A	A	A	A																				
0410	Harrington Hall - Dorm 11	002349	CHW	mBtu	261,726	504,210	17	A	A	A	A	A	A	A	A	A			A	A												A	A	A	A	A	A
0410	Harrington Hall - Dorm 11	002353	HHW	mBtu	126,506	239,416	17	A	A	A	A	A	A	A	A	A			A	A												A	A	A	A	A	A
0411	Utay Hall - Dorm 12	000026	ELE	kWh	7,484	15,020	16	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A														
0411	Utay Hall - Dorm 12	002102	CHW	mBtu	44,420	50,277	25	A	A	A	A	A	A	A	A	A	A	A	A					A	A	A	A	A	A	A	A	A	A	A	A	A
0411	Utay Hall - Dorm 12	002106	HHW	mBtu	18,874	44,406	25	A	A	A	A	A	A	A	A	A	A	A	A					A	A	A	A	A	A		A	A	A	A	A	A
359	Architecture Building B	005518	ELE	kWh	8,470	22,157	20												M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
432	Architecture Building C	005584	ELE	kWh	30,546	77,010	20												M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0359-0432	Architecture Building B&C	006419	CHW	mBtu	257,894	723,885	20												M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0359-0432	Architecture Building B&C	006423	HHW	mBtu	104,976	245,239	20												M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
434	Luedecke Building (Cyclotron)	005555	ELE	kWh	72,651	112,610	11	M	M	M	M	M	M	M	M	M	M	M																		
434	Luedecke Building (Cyclotron)	005558	ELE	kWh	687,812	1,068,601	11	M	M	M	M	M	M	M	M	M	M	M																		
434	Luedecke Building (Cyclotron)	006664	CHW	mBtu	1,324,010	2,082,670	12	M	M	M	M	M	M	M	M	M	M	M	M																	
434	Luedecke Building (Cyclotron)	006668	HHW	mBtu	55,565	93,032	12	M	M	M	M	M	M	M	M	M	M	M	M																	
433	Mosher Residence Hall	002485	CHW	mBtu	834,935	1,881,986	17															M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
433	Mosher Residence Hall	002489	HHW	mBtu	338,946	668,979	17															M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
441	Krueger Residence Hall	002504	CHW	mBtu	342,463	815,386	17															M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
441	Krueger Residence Hall	002500	HHW	mBtu	136,911	246,594	17															M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0445-0517	Teague Research Center and DPC Annex	003948	ELE	kWh	29,176	*	3																													
0445-0517	Teague Research Center and DPC Annex	004719	ELE	kWh	50,375	*	3																													
445	Teague Research Center	006411	CHW	mBtu	361,982	*	3																													
445	Teague Research Center	006415	HHW	mBtu	49,638	*	3																													
517	DPC Annex	006563	CHW	mBtu	552,942	*	3																													
517	DPC Annex	006567	HHW	mBtu	124,564	*	3																													
446	Rudder Theatre Complex	002977	ELE	kWh	51,671	**	1																													
446	Rudder Tower	001551	ELE	kWh	NA	60,995	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
456	Military Science Building	006939	CHW	mBtu	NA	513,449	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
456	Military Science Building	006943	HHW	mBtu	NA	188,054	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
469	Central Campus Parking Garage	000306	ELE	kWh	45,345	*	2																													
481	Heaton Hall	005712	ELE	kWh	NA	***	31																													
484	Chemistry Building	007152	ELE	kWh	36,311	102,602	22												M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
484	Chemistry Building	007028	CHW	mBtu	1,187,734	*	6			M	M	M	M	M	M																					
484	Chemistry Building	007032	HHW	mBtu	4,278,744	**	6			M	M	M	M	M	M																					
1026	Veterinary Medicine Administration	006053	HHW	mBtu	NA	493,847	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	001466	ELE	kWh	73,528	*	13												A	A	A	A	A	A	A	A	A	A	A							
1041	Texas Vet Med Diagnostic Lab	001539	ELE	kWh	41,707	*	13												A	A	A	A	A	A	A	A	A	A	A							
1041	Texas Vet Med Diagnostic Lab	003817	CHW	mBtu	NA	602,300	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	004137	CHW	mBtu	NA	977,774	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	003821	HHW	mBtu	NA	74,187	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	004130	HHW	mBtu	NA	126,913	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1454	University Apartments - The Gardens F	006980	ELE	kWh	NA	19,343	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1455	University Apartments - The Gardens G	006882	ELE	kWh	NA	18,441	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1504	Reynolds Medical Sciences Building	003975	ELE	kWh	298,994	*	1								M																					
1537	Agriculture Public Building	009620	ELE	kWh	NA	55,758	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1537	Agriculture Public Building	009621	ELE	kWh	NA	75,551	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1554	Reed Arena	006243	ELE	kWh	NA	777	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1554	Reed Arena	006244	ELE	kWh	NA	88,376	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1601	International Ocean Discovery Building	009829	HHW	mBtu	19,597	47,079	17	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M												
1809	New TVMDL	009652	ELE	kWh	NA	53,834	31																													
1809	New TVMDL	009653	ELE	kWh	NA	20,438	31																													
1813	Veterinary Medicine Building 2	009418	ELE	kWh	NA	3,454	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1900	Texas Institute for Genomic Medicine	005548	ELE	kWh	85,018	*	1																													

* Monthly consumption evaluated from the cumulative data is not affected by the missing data.
** See Table II-2 for the estimated consumption.
*** Consumption is not estiamted because reliable consumtpion model is not available.
NA: Not available

II-2 Meters with Estimated Consumption for Problematic Data

During the month of May 2017, 48 meters in 33 buildings have estimated daily consumption because the recorded consumption is found to be problematic or questionable. For each of these meters, alternative consumption has been estimated using the best possible method. Table II-2 lists these meters with indications of the days with estimated data. Detailed descriptions for individual cases follow.

Table II-2 Meters with problematic data during May 2017

Building No.	Building Name /MeterID(s)	Type	Unit	Original Monthly Consumption	Estimated Monthly Consumption	# of days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0275	Liberal Arts and Arts & Humanities Building																																				
	007717	HHW	mBtu	31,381	52,463	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0290	Wells Residence Hall																																				
	001984	CHW	mBtu	868,111	880,812	3																	M	M	M												
	001988	HHW	mBtu	468,641	438,045	10										M	M	M	M	M	M	M	M	M	M												
0291	Rudder Residence Hall																																				
	000351	ELE	kWh	32,578	43,217	13																			M	M	M	M	M	M	M	M	M	M	M	M	M
	002132	CHW	mBtu	423,330	803,650	15																	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	002136	HHW	mBtu	205,741	376,671	16																M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0292	Eppright Residence Hall																																				
	002266	HHW	mBtu	156,719	139,426	6																			M	M	M	M	M	M							
0293	Appelt Residence Hall																																				
	002062	CHW	mBtu	845,568	809,760	5										M	M	M	M	M																	
	002066	HHW	mBtu	332,882	296,451	8									M	M	M	M	M	M	M	M															
0325-0385	CE TTI Office & Lab Building																																				
	009123	CHW	mBtu	822,519	1,254,036	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0361	Bright Football Complex																																				
	002547	CHW	mBtu	895,713	1,156,050	14																		M	M	M	M	M	M	M	M	M	M	M	M	M	M
	002551	HHW	mBtu	34,989	148,010	27					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0383	Koldus Building																																				
	002874	HHW	mBtu	0	143,450	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0408	Whitely Hall - Dorm 9																																				
	002083	HHW	mBtu	**	44,175	13												A	A	A	A	A	A	A	A	A	A	A	A	A							
0430	Schumacher Residence Hall																																				
	002030	HHW	mBtu	143,197	83,328	5											M	M				M	M			M											
0435	Harrington Education Center Office Tower																																				
	002796	HHW	mBtu	366,355	346,609	10	M	M	M	M	M	M	M	M	M	M																					
0446	Rudder Theatre Complex																																				
	002977	ELE	kWh	**	103,255	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		M	M	M	M	M	M	M	M
	002980	ELE	kWh	29,391	33,121	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	004297	CHW	mBtu	788,749	1,771,818	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	004309	HHW	mBtu	179,313	870,112	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0447	Aston Residence Hall																																				
	002470	HHW	mBtu	668,967	553,584	17										M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M						
0454	MSC (East Main)																																				
	007600	ELE	kWh	-9,734,102	265,897	1					M																										
0464	State Chemist Building																																				
	005837	ELE	kWh	6,844	8,063	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	005841	HHW	mBtu	23,541	22,101	8	M	M	M	M	M	M	M	M																							
0467	Biological Sciences Building - East																																				
	003851	CHW	mBtu	571,808	899,607	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0478	Scoates Hall																																				
	007969	HHW	mBtu	102,645	65,824	16																M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0481	Heaton Hall																																				
	007531	CHW	mBtu	117,342	272,421	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	007535	HHW	mBtu	48,678	188,640	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0484	Chemistry																																				
	007032	HHW	mBtu	**	235,579	25	M	M							M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0490	Halbouty Geosciences Building																																				
	006900	HHW	mBtu	282,173	320,738	9																			M	M	M	M					M	M	M	M	M
	006917	HHW	mBtu	235,163	246,807	5																										M	M	M		M	M
0492	Civil Engineering Building																																				
	005954	HHW	mBtu	52,028	63,803	8	M	M		M	M	M	M	M	M																						
0511	Heep Laboratory Building																																				
	005821	CHW	mBtu	413,232	679,358	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	005825	HHW	mBtu	139,555	193,631	24								M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0512	All Faiths Chapel																																				
	004293	HHW	mBtu	23,658	34,134	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0652	Neeley Residence Hall																																				
	002147	CHW	mBtu	505,399	538,268	3																			M	M	M										
	002151	HHW	mBtu	237,879	253,436	3																			M	M	M										
0740	McNew Laboratory																																				
	005974	CHW	mBtu	519,922	492,454	25	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M							
1020	Vivarium III																																				
	006001	HHW	mBtu	58,484	73,484	9								M	M	M	M	M	M	M	M	M															
1502	Heep Center																																				
	001556	ELE	kWh	106,934	265,254	18	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M														
	002603	HHW	mBtu	208,746	237,951	4					M	M	M	M																							
1505	Rosenthal Meat Science & Technology Center																																				
	002577	HHW	mBtu	1,676	70,897	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1509	Medical Sciences Library																																				
	003777	CHW	mBtu	455,561	735,852	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1512	Southern Crop Improvement Greenhouse																																				
	005931	ELE	kWh	148,708	99,084	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1519	TX School of Rural Public Health B																																				
	005274	ELE	kWh	105,508	47,578	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1520	TX School of Rural Public Health C																																				
	005275	ELE	kWh	47,578	105,508	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1559	West Campus Parking Garage																																				
	004322	CHW	mBtu	30,522	70,900	31	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1608	Annenberg Presidential Conference Center																																				
	000245	ELE	kWh	45,064	72,391	12																				M	M	M	M	M	M	M	M	M	M	M	M

Notes: The colored cells means the consumption for the day appears to be problematic. The letter in the colored cell indicates the method for estimation. M: model, F: multiplication factor, L: linear interpolation, A: average, and C: correction of the reset cumulative reading

Liberal Arts and Arts & Humanities Building (TAMU Bldg #275)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007717	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level is lower than the level during the past year.	3/15/2017 – ongoing

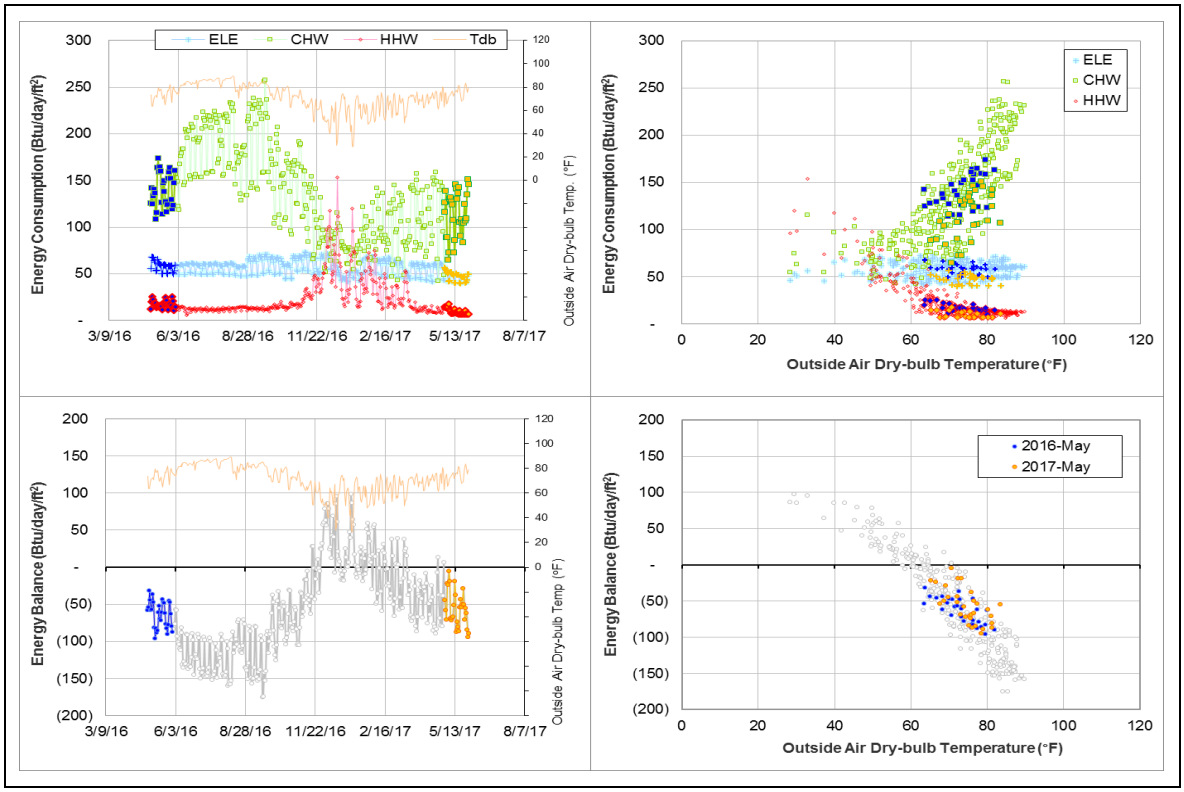
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	007717	3/15/2017 – ongoing	Flow rate	Decreased

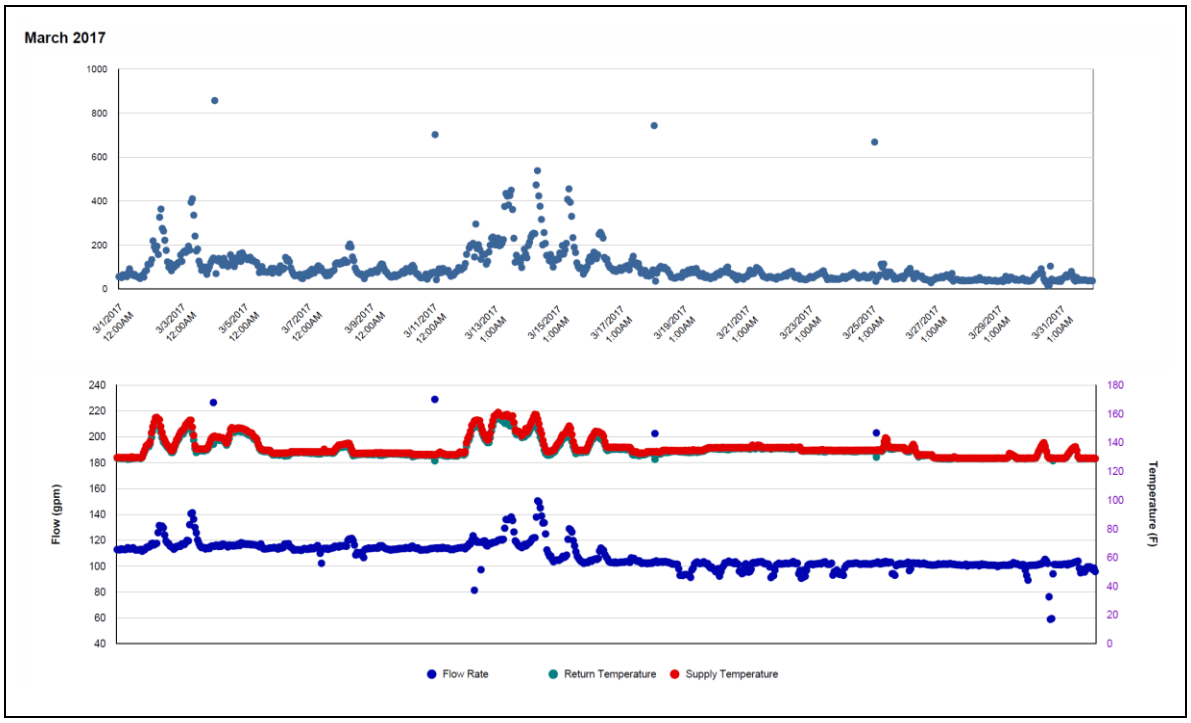
Quantitative descriptions and comments

The HHW flow rate was consistently around 120 gpm however on 3/15/2017 the flow rate decreased to about 100 gpm. In April the flow rate dropped to 80 gpm on 4/11/2017 and to 60 gpm on 4/14/2017. The flow rate has continued to drop in May to less than 10 gpm. The HHW delta-T was low, around 1-2°F, since the data became available. It increased slightly in the middle of May 2017 when the flow rate decreased. However, it still seems to be small. The whole month is estimated using a model. See also section II-3.

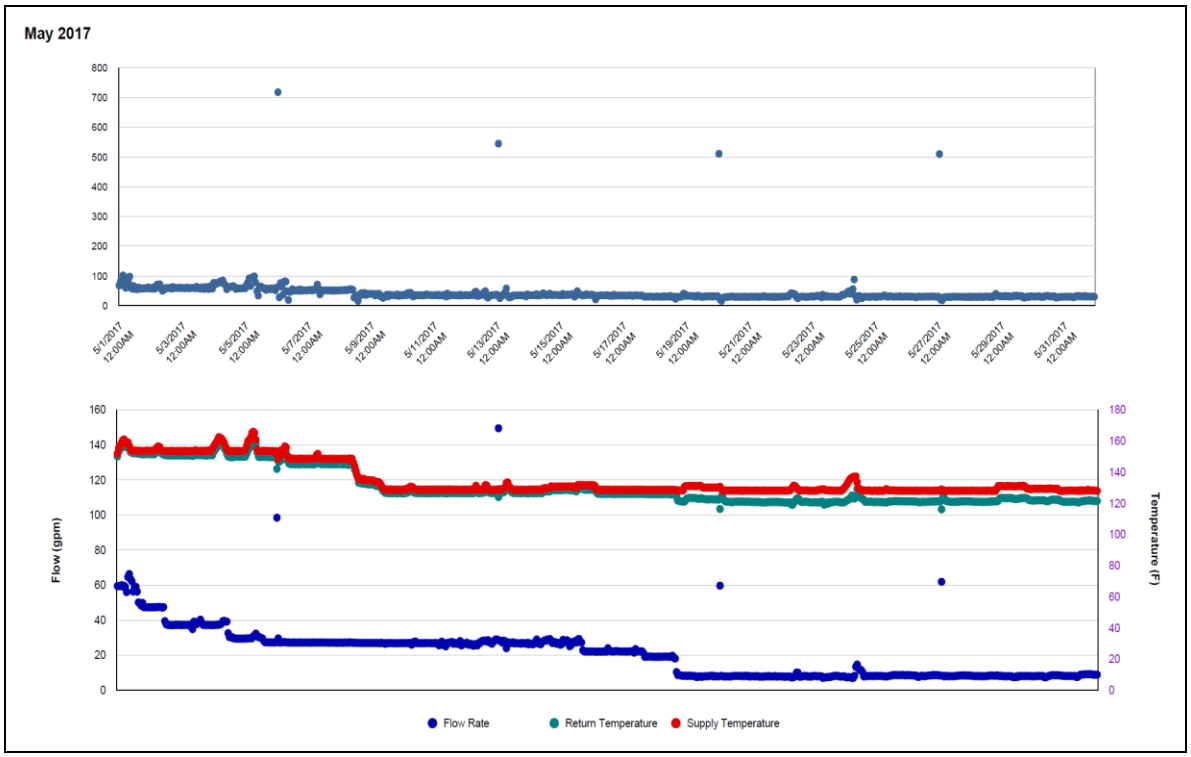
Explanatory Figure: 13 months energy balance plot with original data.



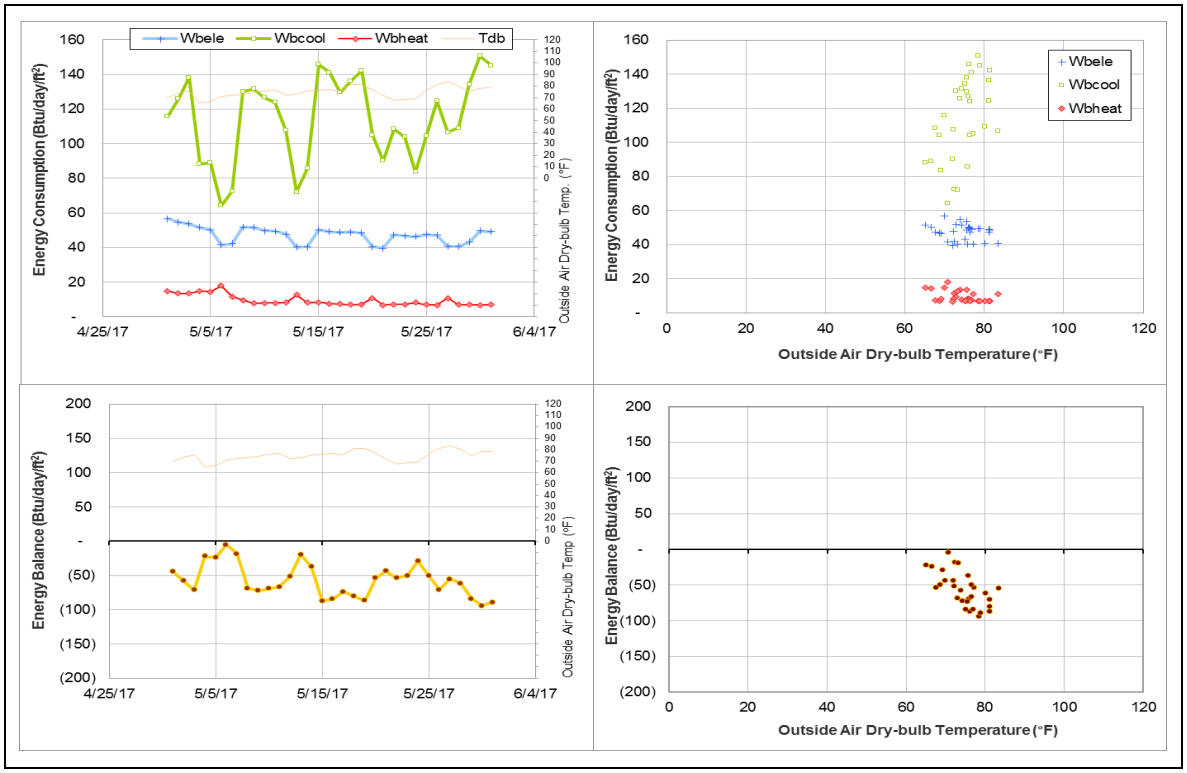
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during March 2017)



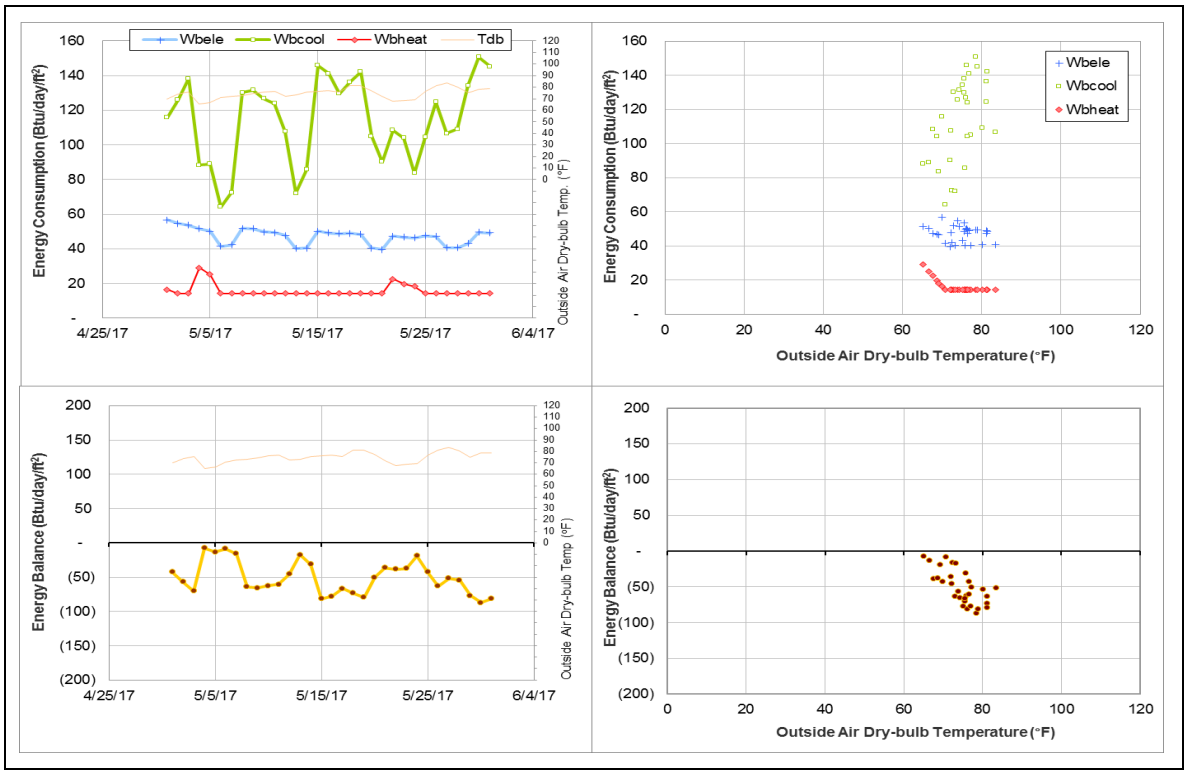
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Wells Residence Hall (TAMU Bldg #290)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	001984	3	5/17/2017 – 5/19/2017	Model
HHW	001988	10	5/10/2017 – 5/19/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption dropped for a short period.	5/17/2017 – 5/19/2017
HHW	The consumption increased for a short period.	5/10/2017 – 5/16/2017
	The consumption dropped for a short period.	5/17/2017 – 5/19/2017

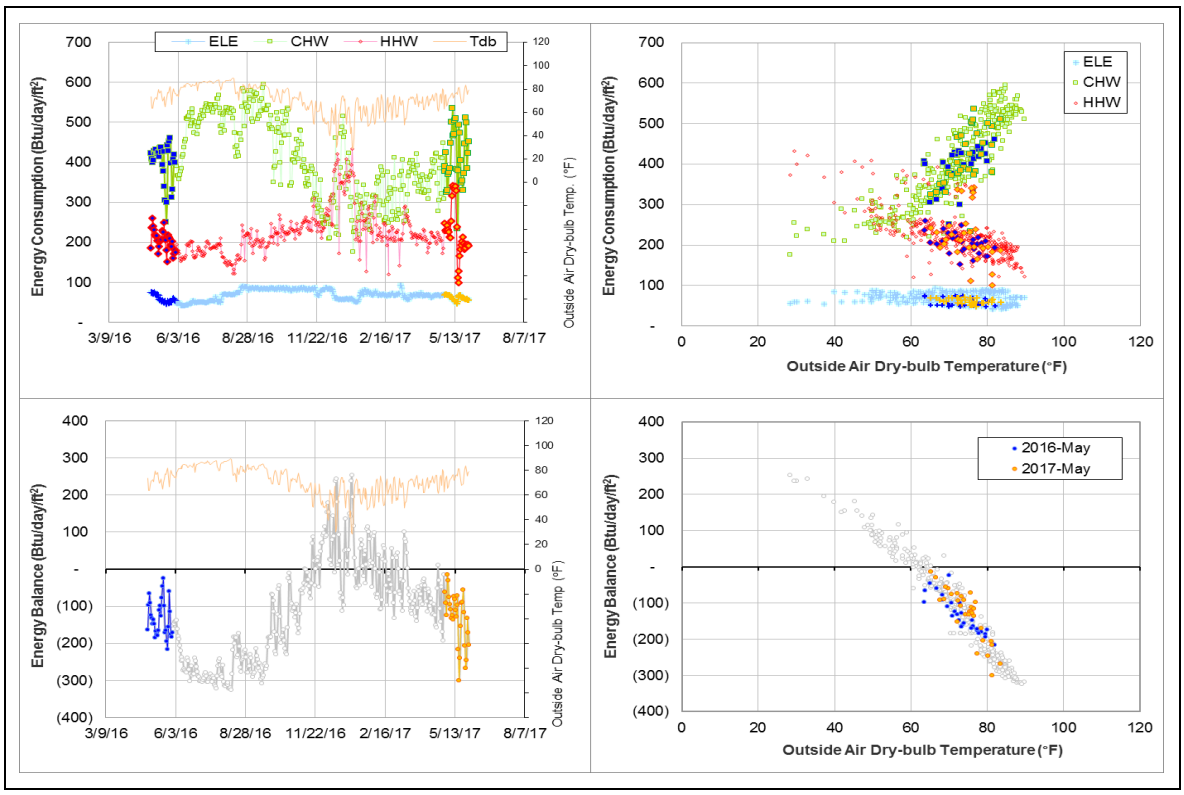
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	001984	5/17/2017 – 5/19/2017	Flow rate	Decreased
HHW	001988	5/10/2017 – 5/16/2017	Flow rate	Increased
		5/17/2017 – 5/19/2017	Flow rate	Decreased

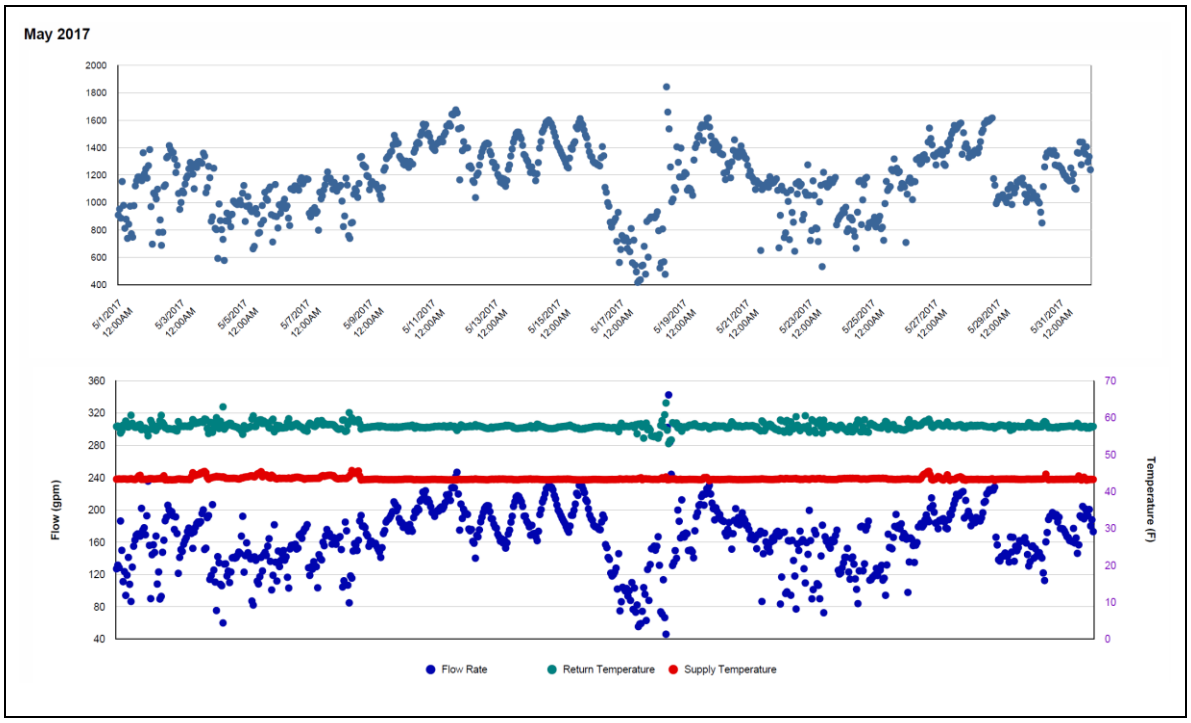
Quantitative descriptions and comments

The HHW flow rate increased from 5/10/2017 – 5/16/2017 and then decreased 5/17/2017 – 5/19/2017 causing the consumption to increase and decrease respectively. The CHW consumption decreased from 5/17/2017 – 5/19/2017 due to a drop in flow rate. Both CHW and HHW are estimated by model for the specified days.

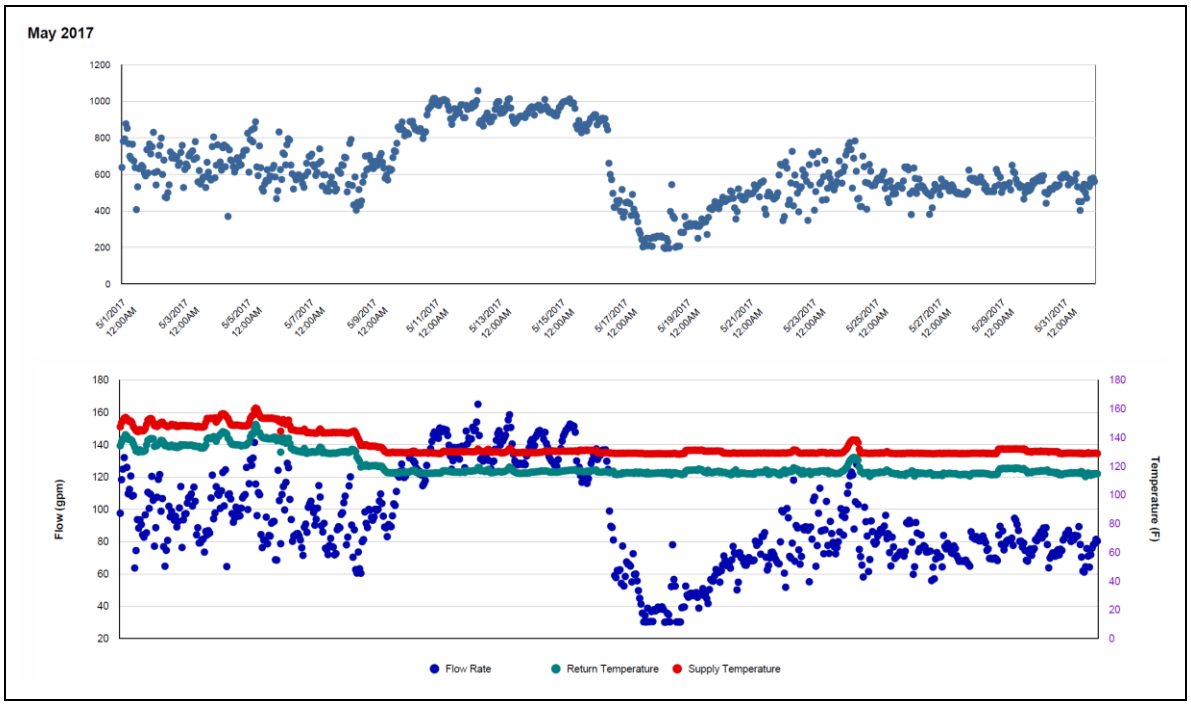
Explanatory Figure: 13 months energy balance plot with original data.



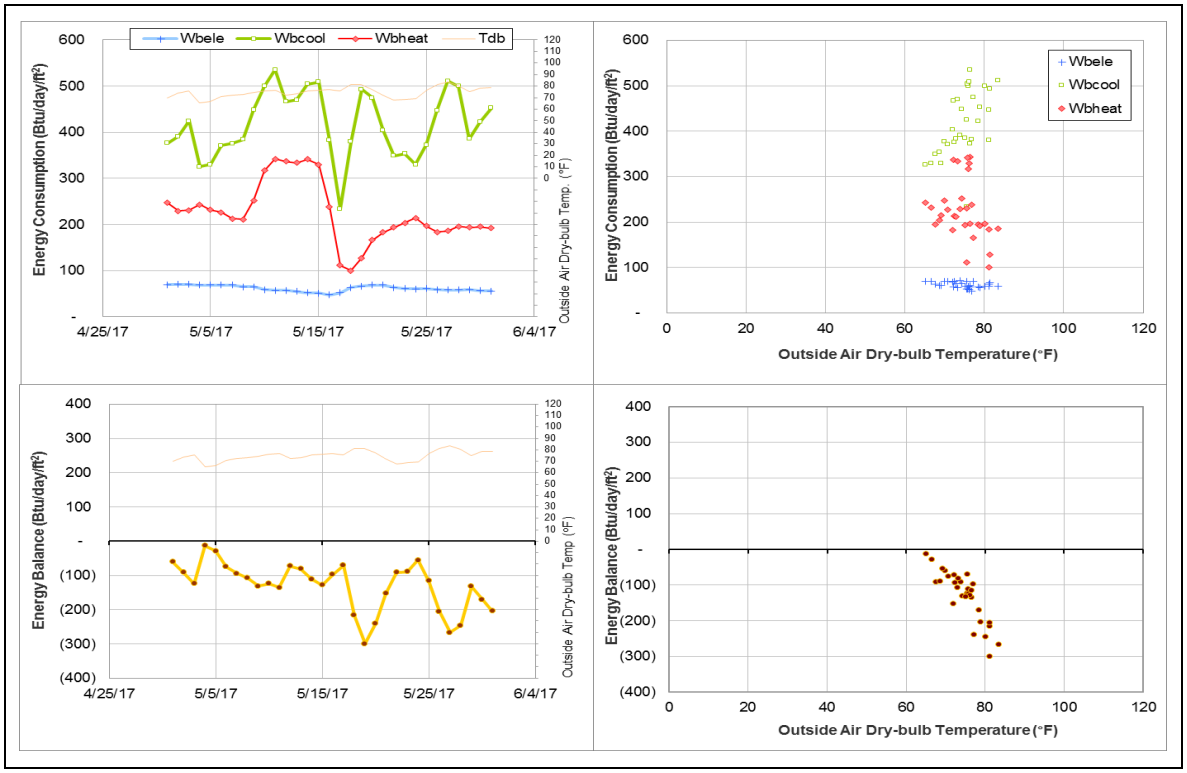
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)



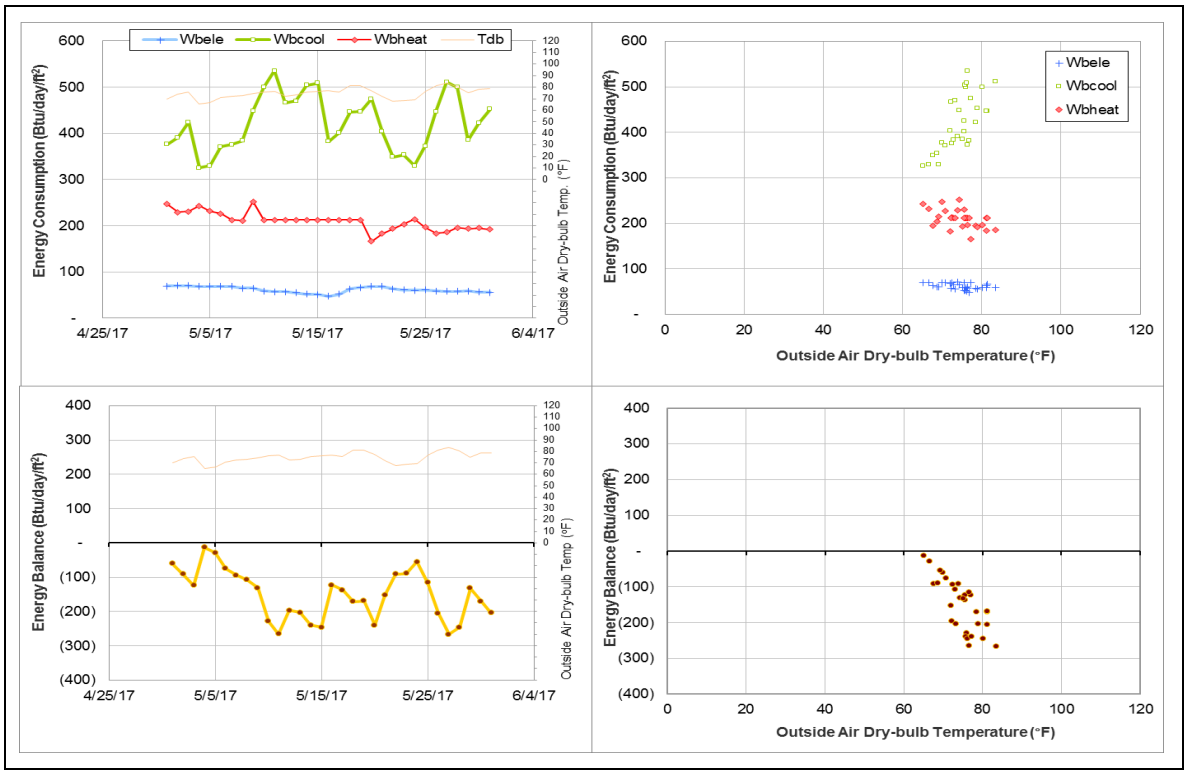
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Rudder Residence Hall (TAMU Bldg #291)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	000351	13	5/19/2017 – 5/31/2017	Model
CHW	002132	15	5/17/2017 – 5/31/2017	Model
HHW	002136	16	5/16/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level is lower than the level during the past year.	5/19/2017 – 5/31/2017
CHW	The metered values appear to be faulty.	5/17/2017 – 5/31/2017
HHW	The metered values appear to be faulty.	5/16/2017 – 5/31/2017

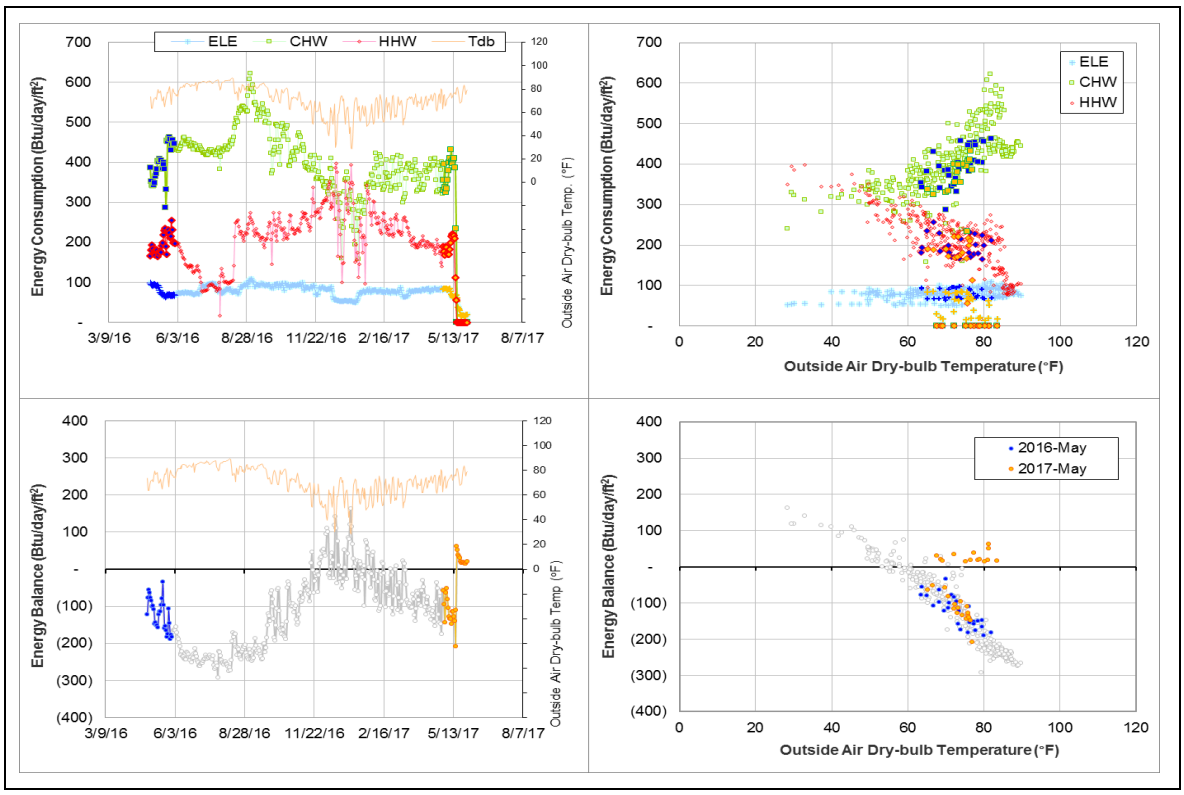
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002132	5/17/2017 – 5/31/2017	Flow rate	Zero
HHW	002136	5/16/2017 – 5/31/2017	Flow rate	Zero

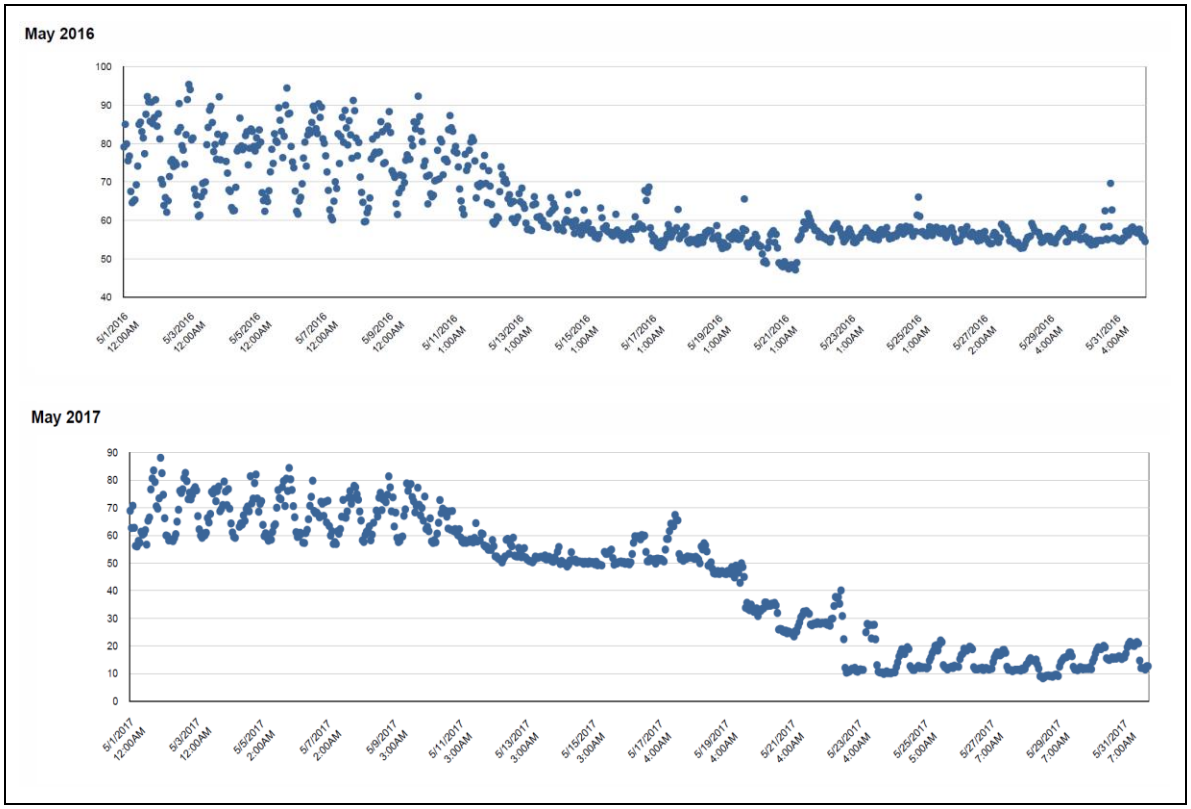
Quantitative descriptions and comments

The electricity consumption decreased gradually from ~ 80 Btu/day/ft^2 to ~ 20 Btu/day/ft^2 since 5/19/2017. The CHW consumption decreased to zero starting 5/17/2017 due to a zero flow rate. Similarly the HHW consumption decreased to zero starting 5/16/2017 due to a zero flow rate. The specified days are estimated by a model for ELE, CHW, and HHW. See also section II-3.

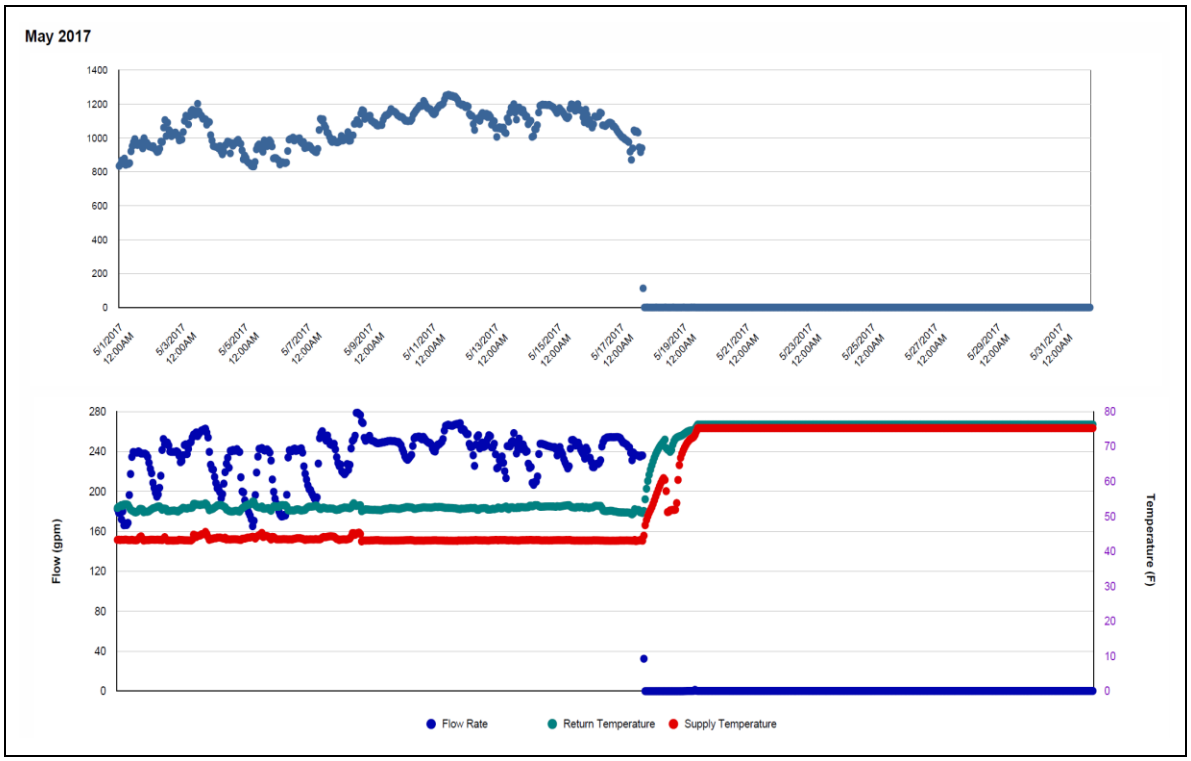
Explanatory Figure: 13 months energy balance plot with original data.



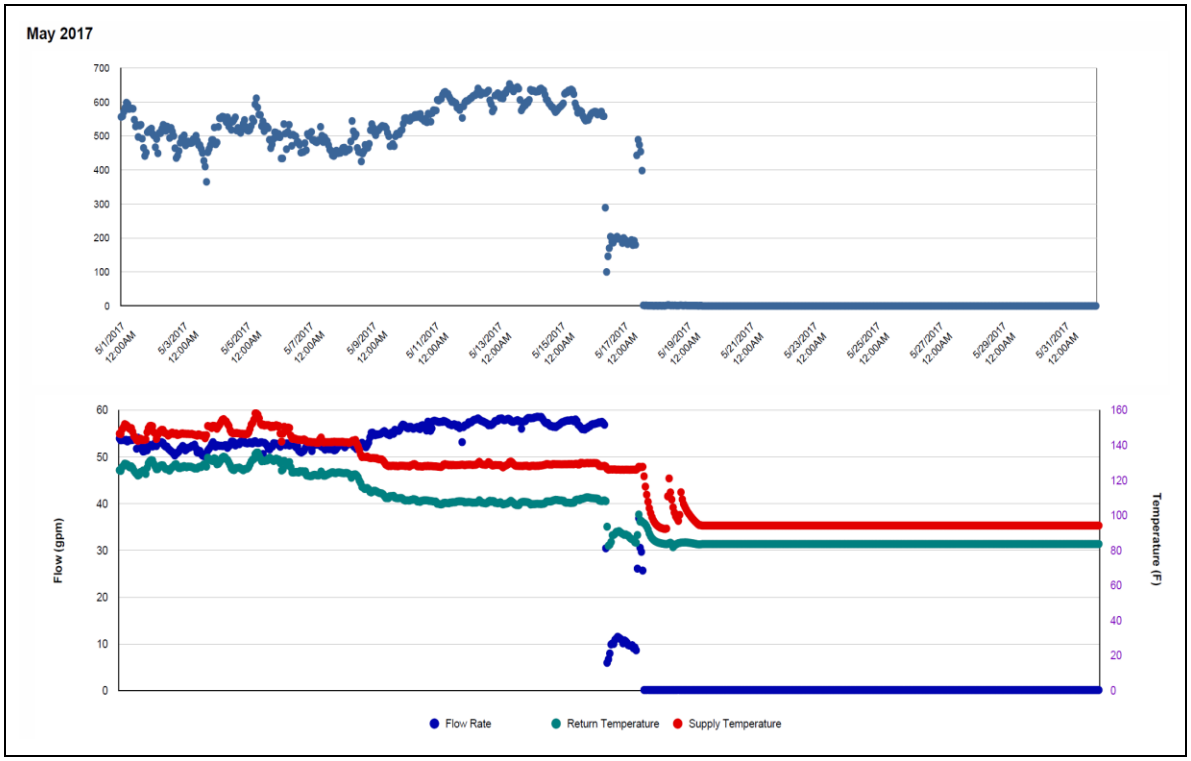
Explanatory Figure: Time series plots of hourly energy consumption from the utilities office. (ELE during May 2016 and May 2017)



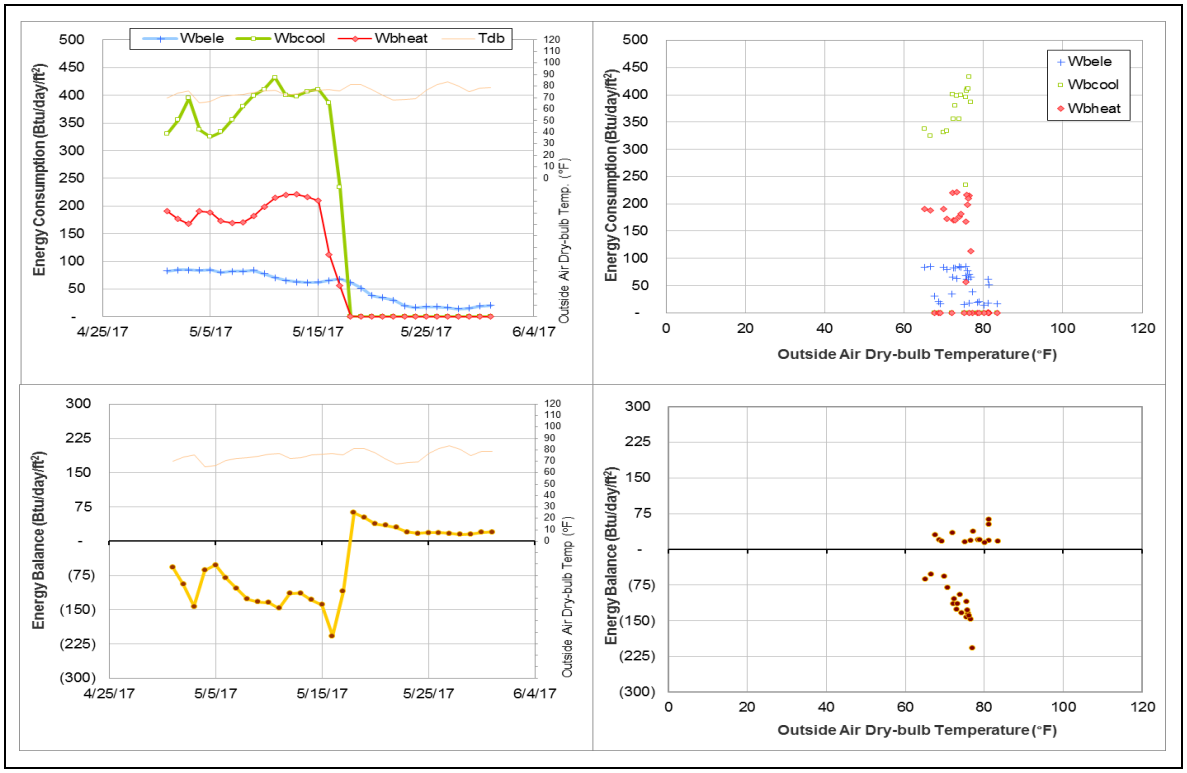
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)



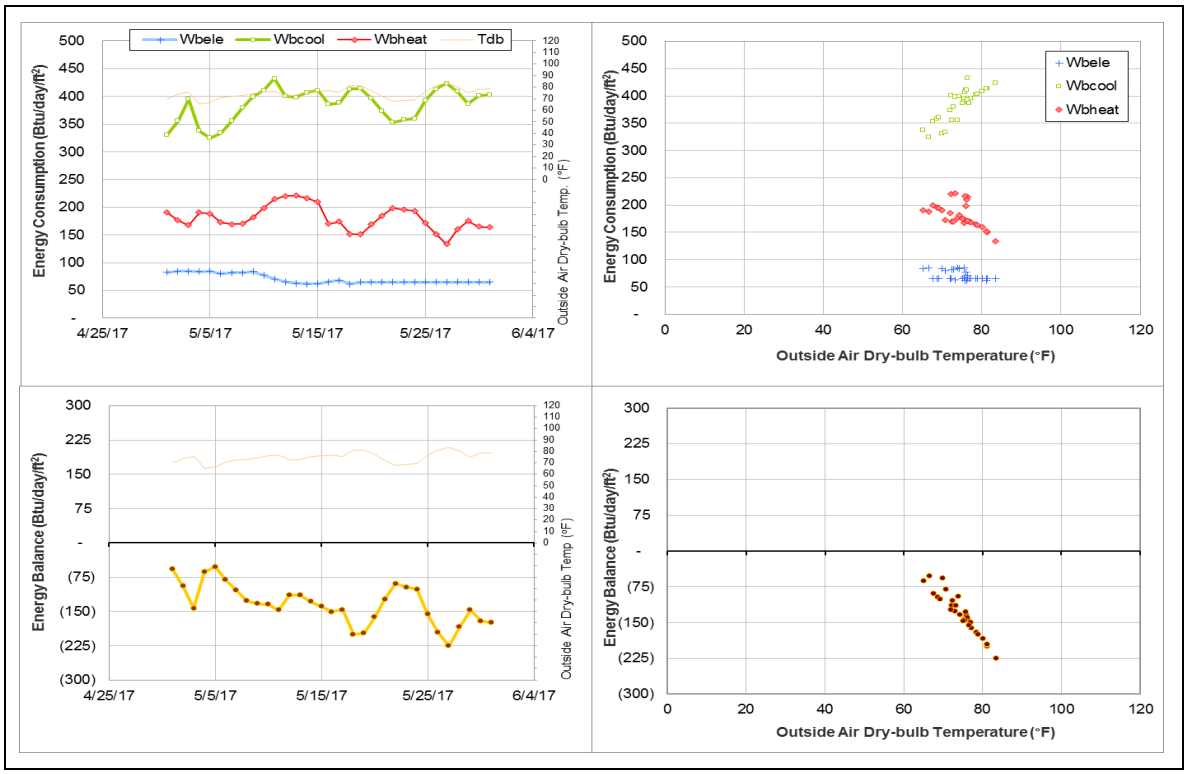
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Eppright Residence Hall (TAMU Bldg #292)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002266	6	5/19/2017 – 5/24/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption increased for a short period.	5/19/2017 – 5/24/2017

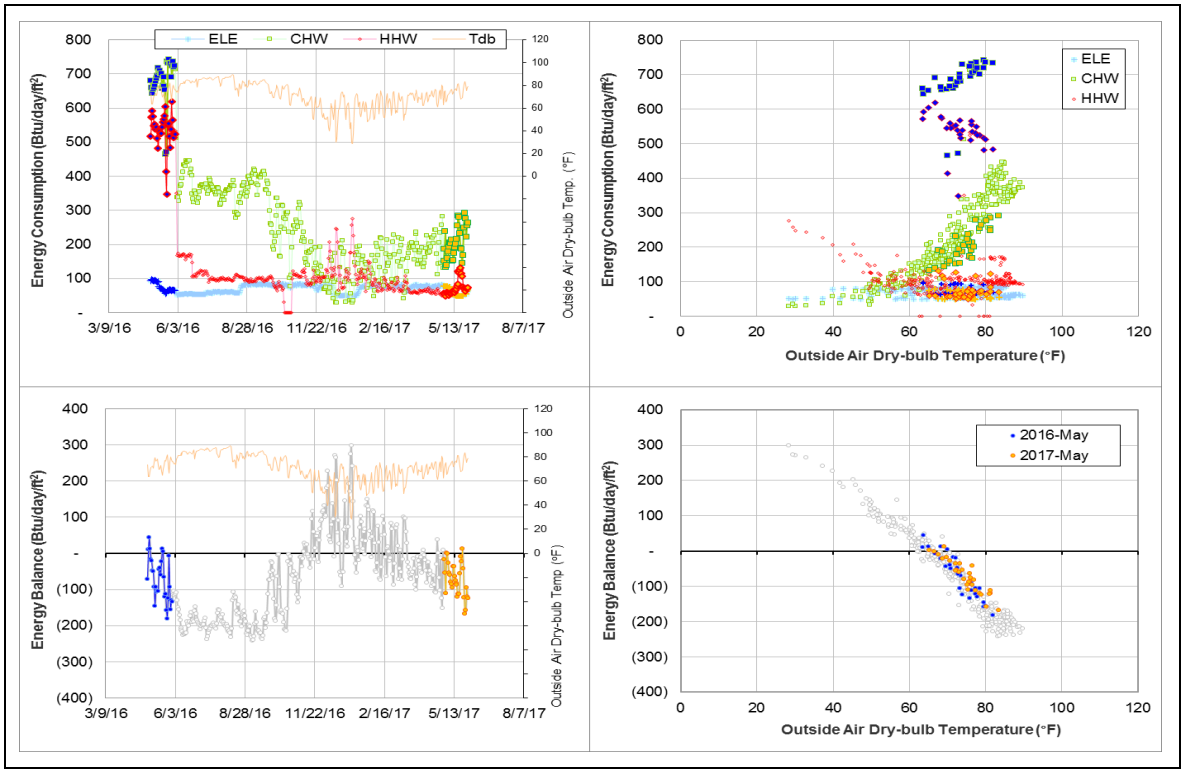
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002266	5/19/2017 – 5/24/2017	Flow rate	Increased

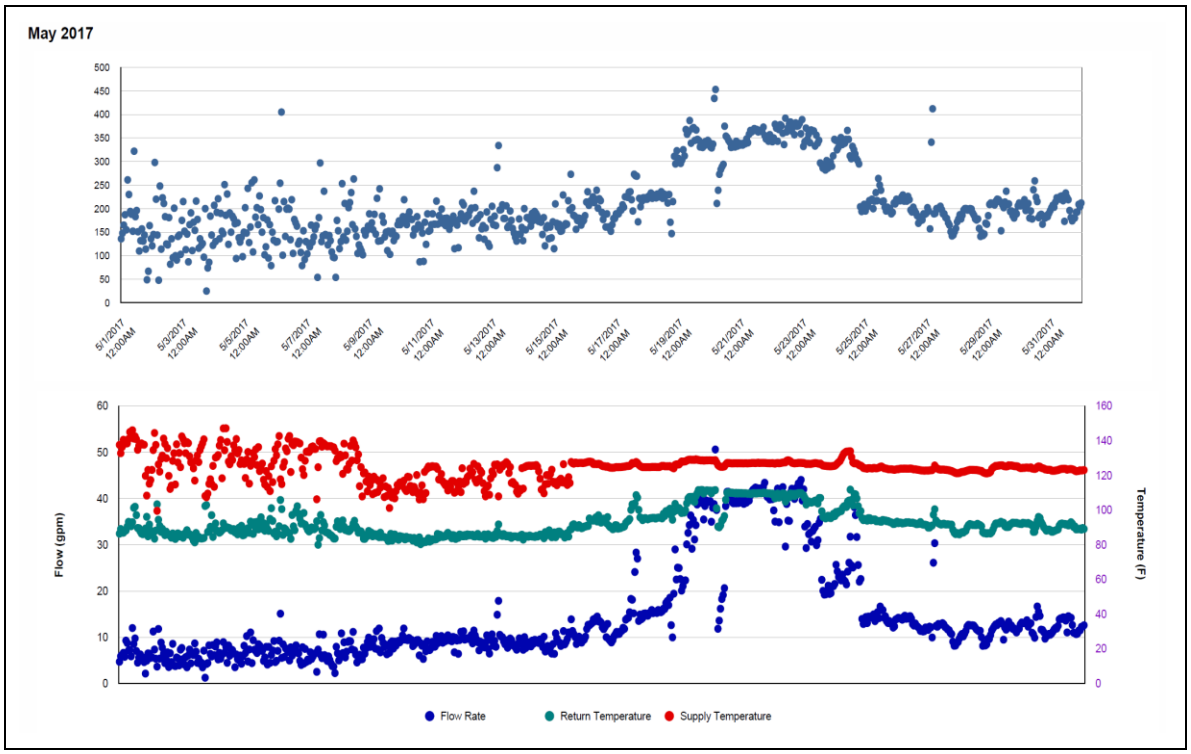
Quantitative descriptions and comments

The HHW consumption increased from 5/19/2017 – 5/24/2017 due to an increase in flow rate. These days are estimated by a model.

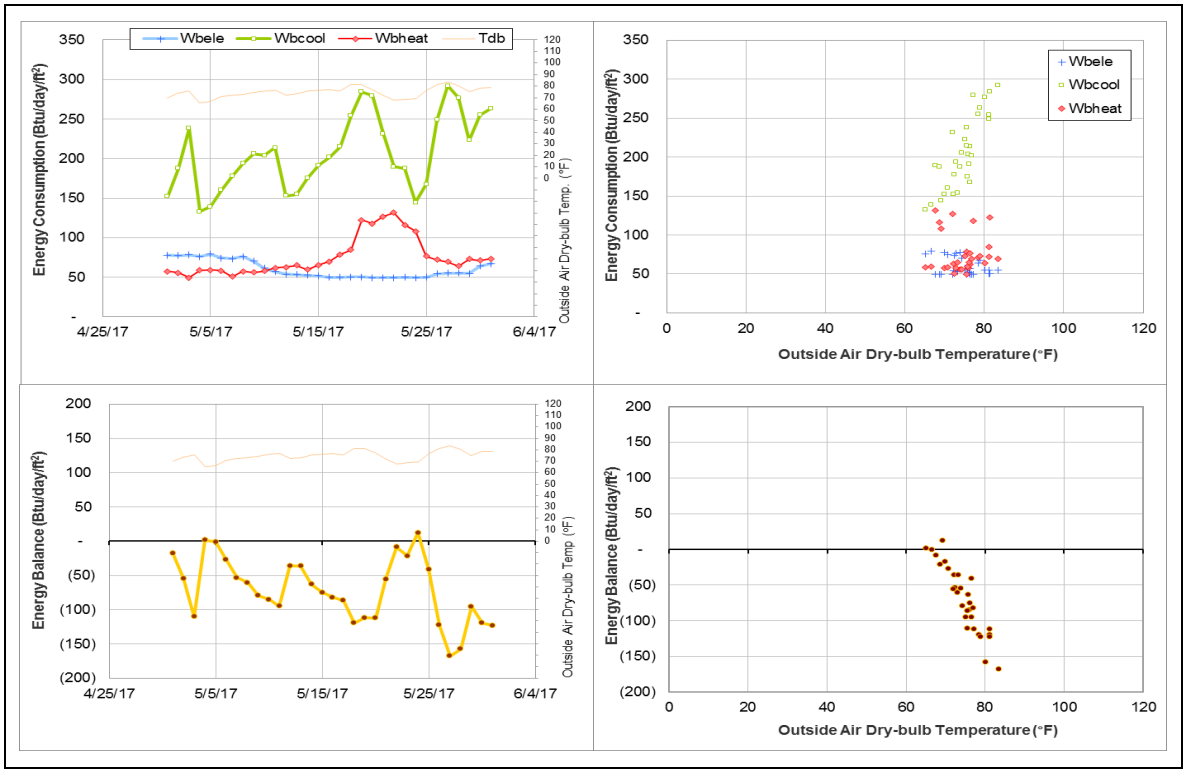
Explanatory Figure: 13 months energy balance plot with original data.



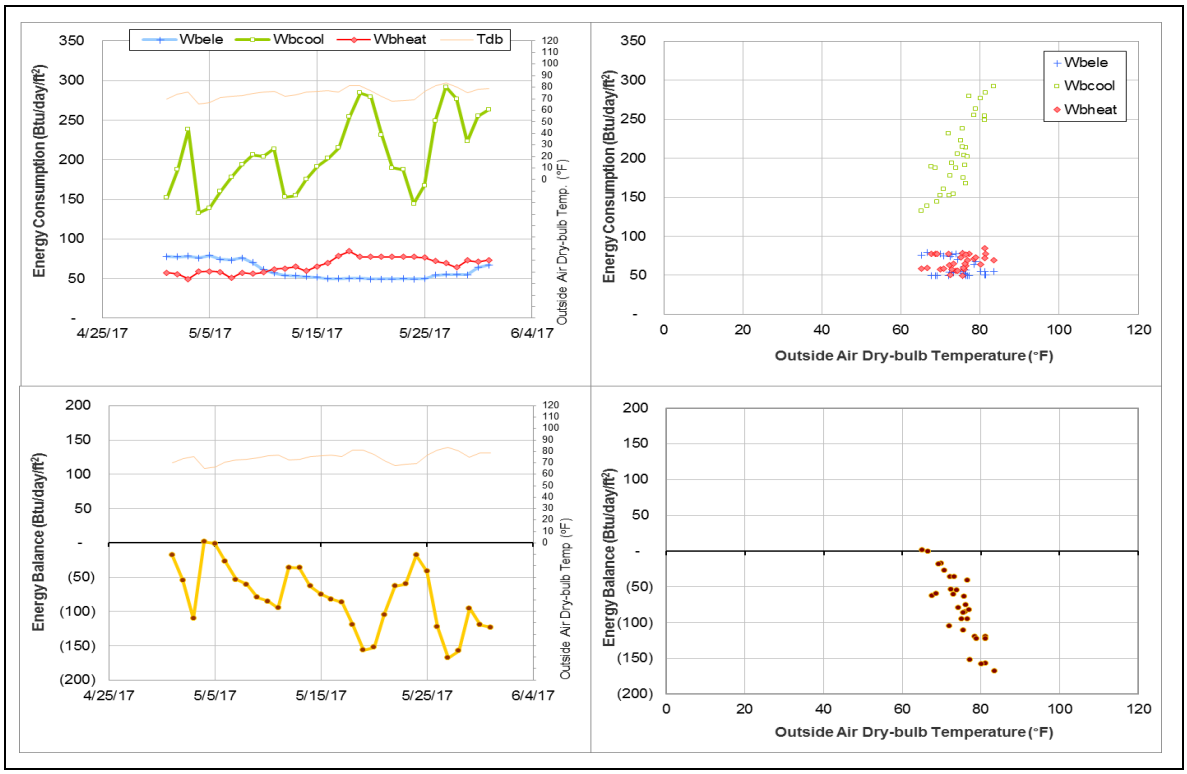
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Appelt Residence Hall (TAMU Bldg #293)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002062	5	5/10/2017 – 5/14/2017	Model
HHW	002066	8	5/9/2017 – 5/16/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption increased for a short period.	5/10/2017 – 5/14/2017
HHW	The consumption increased for a short period.	5/9/2017 – 5/14/2017
	The consumption dropped for a short period.	5/15/2017 – 5/16/2017

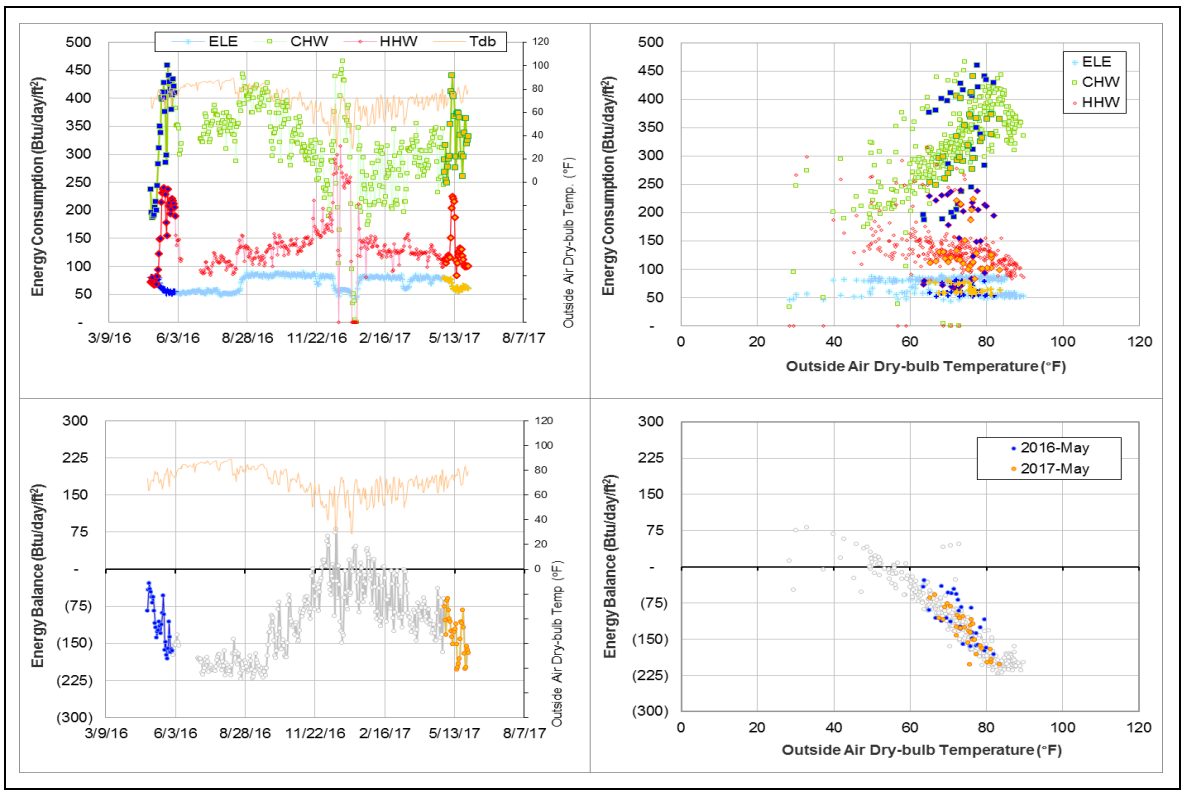
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002062	5/10/2017 – 5/14/2017	Flow rate	Increased
HHW	002066	5/9/2017 – 5/14/2017	Flow rate	Increased
		5/15/2017 – 5/16/2017	Flow rate	Decreased

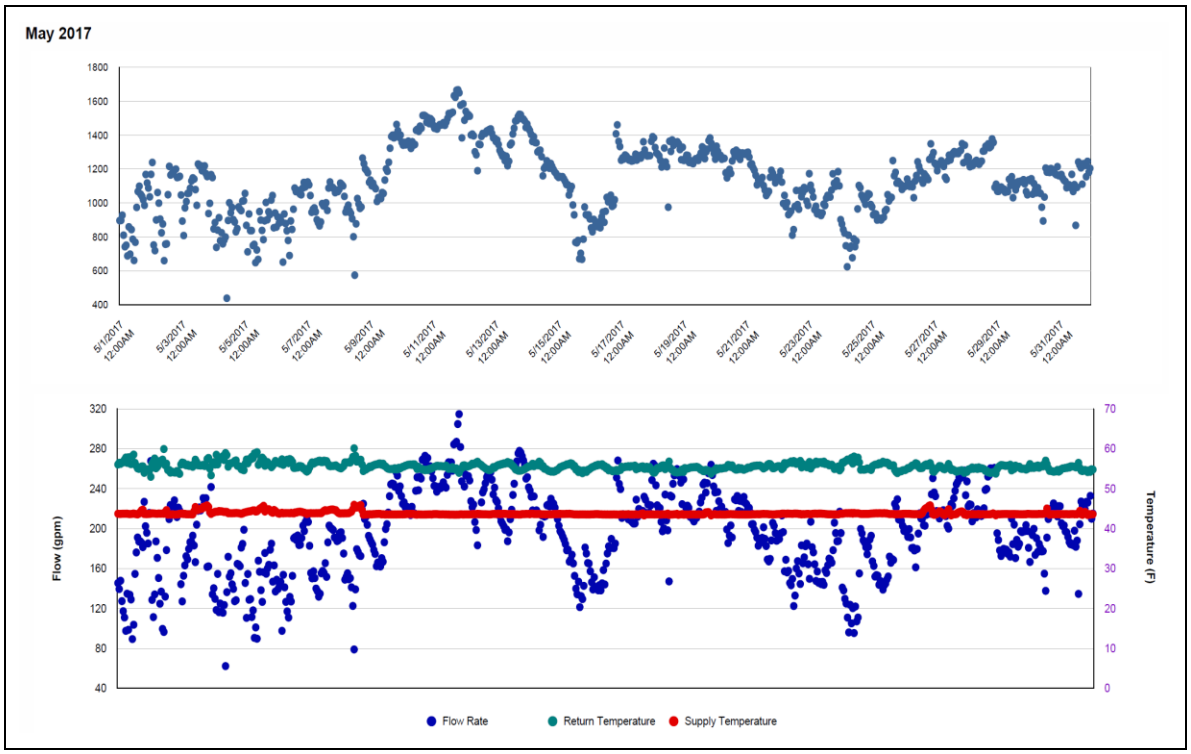
Quantitative descriptions and comments

The HHW flow rate increased from 5/9/2017 – 5/14/2017 and then decreased 5/15/2017 – 5/16/2017 causing the consumption to increase and decrease respectively. The CHW consumption increased from 5/10/2017 – 5/14/2017 due to an increase in flow rate. Both CHW and HHW are estimated by model for the specified days. See also section II-3.

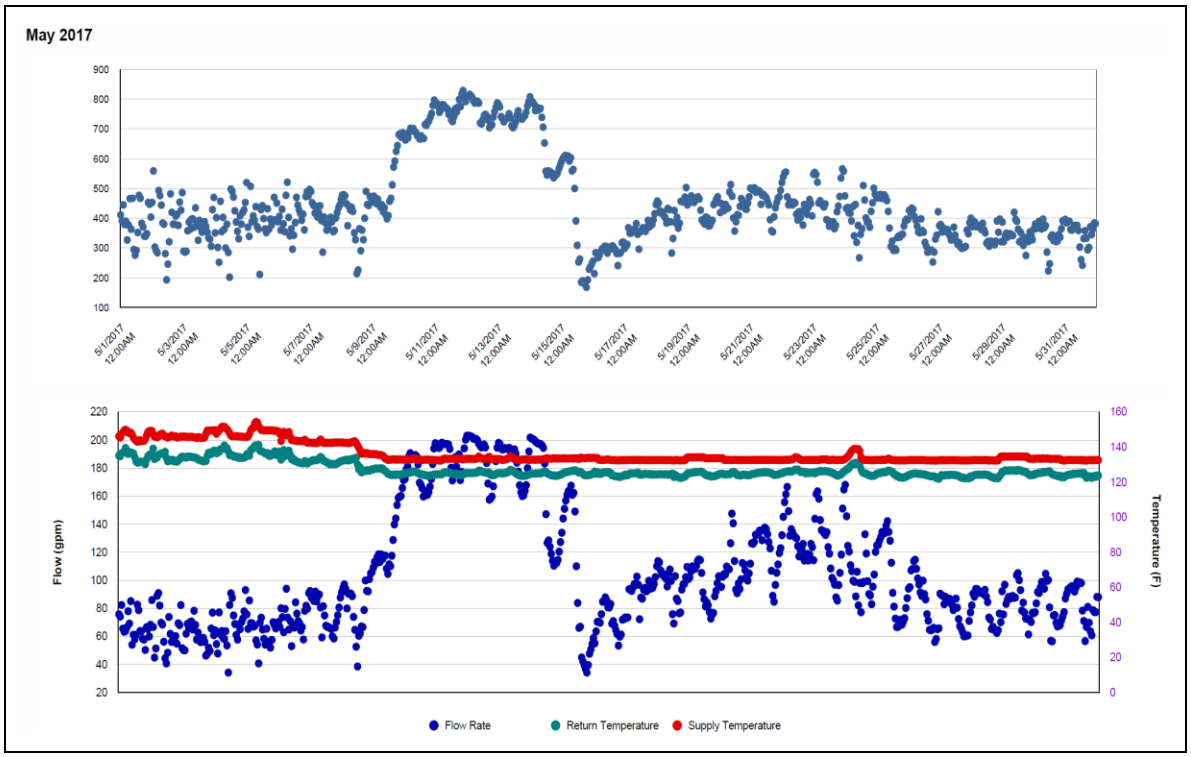
Explanatory Figure: 13 months energy balance plot with original data.



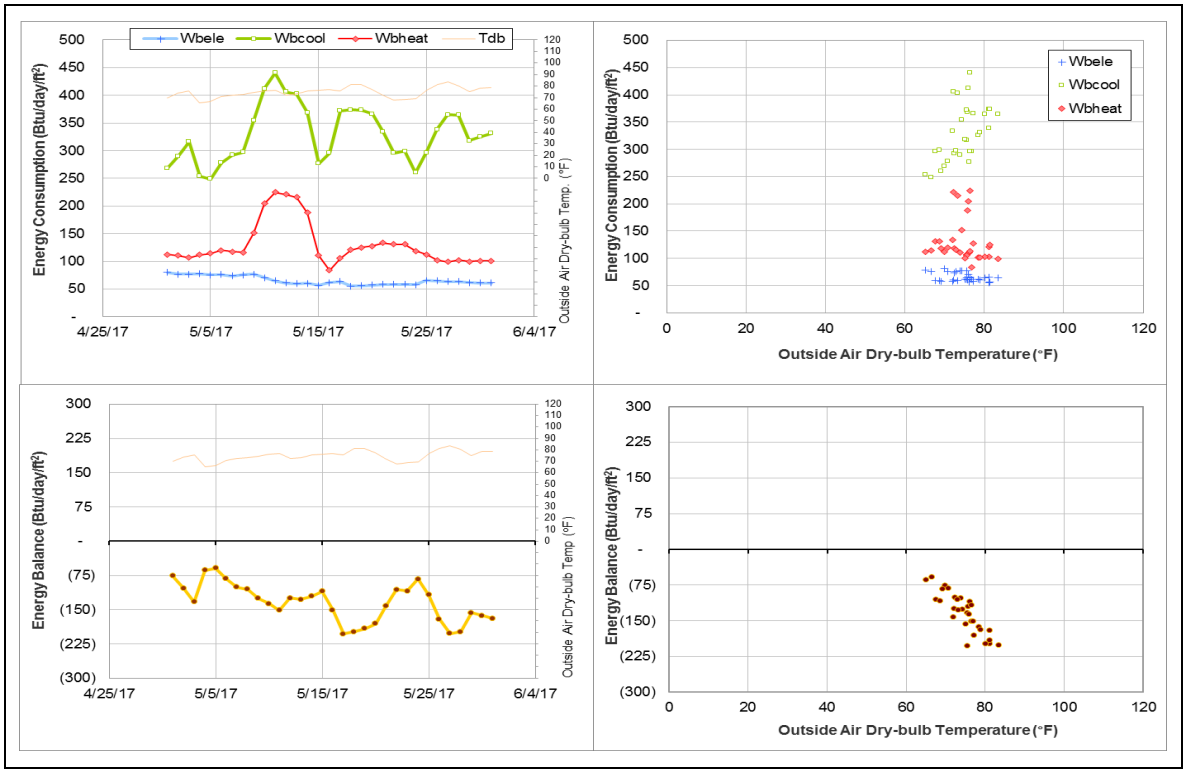
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)



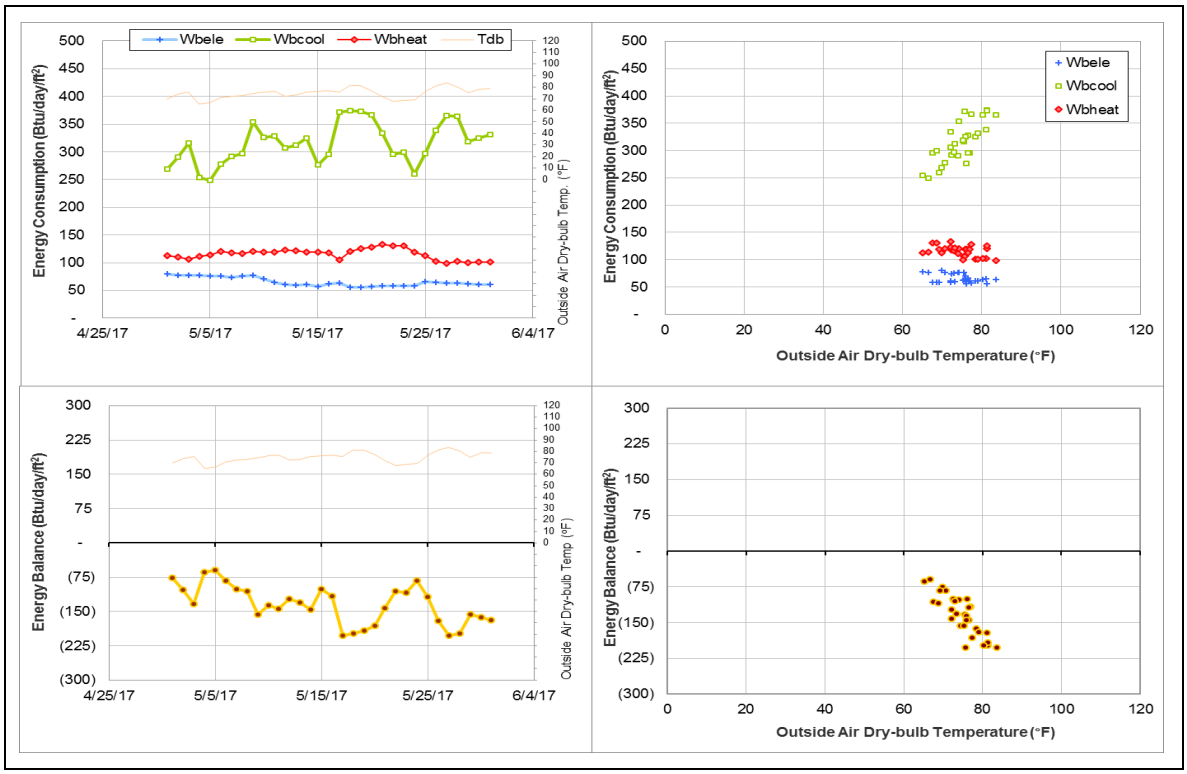
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



CE TTI Office & Lab Building (TAMU Bldg #325-385)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	009123	31	5/1/2017 – 5/31/2017	Model

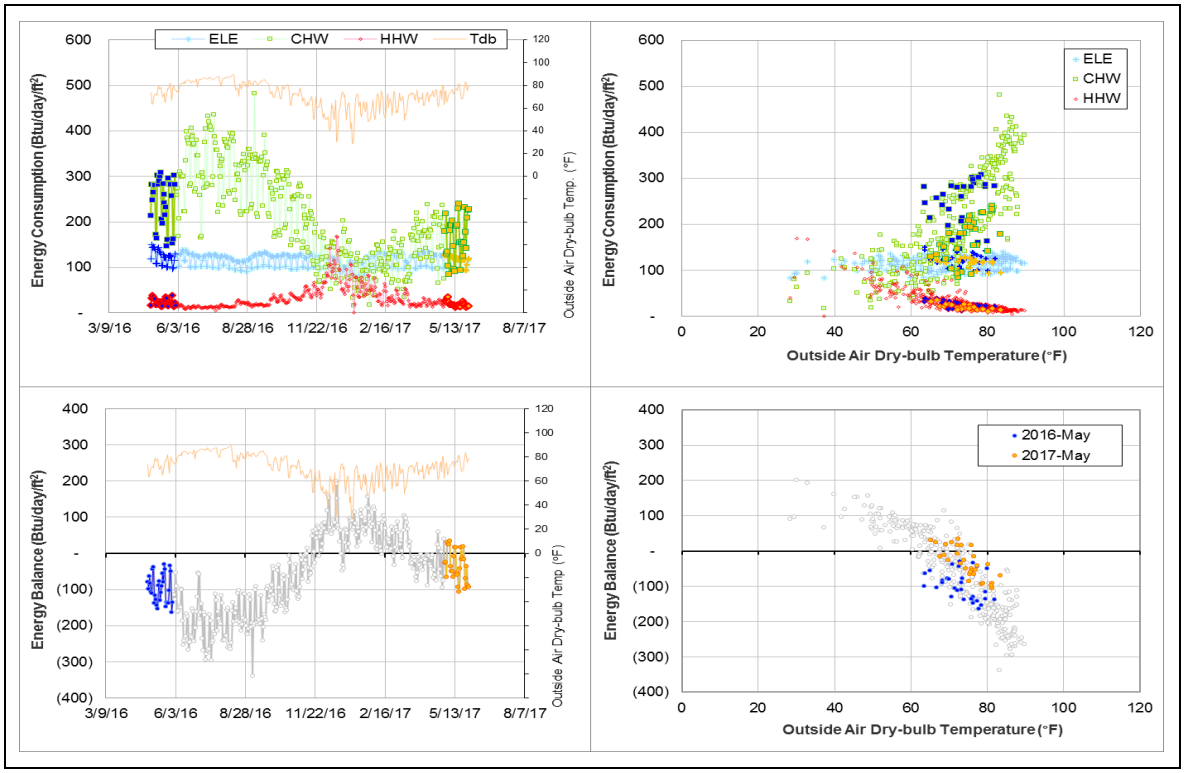
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is lower than the level during the past year.	1/1/2017 – Ongoing

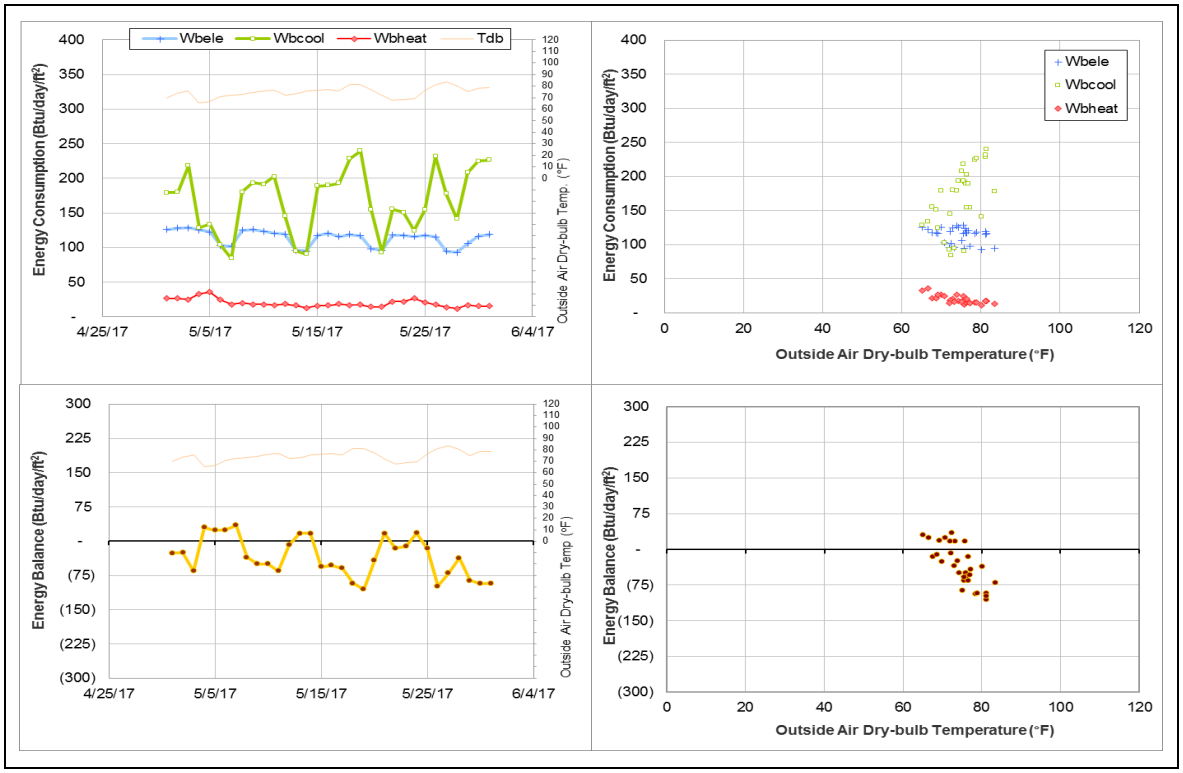
Quantitative descriptions and comments

CHW consumption gradually dropped to a level that is lower than the past year by 50 – 75 Btu/day/ft^2. No obvious sensor reading behavior anomaly is observed. The whole month is estimated using a model.

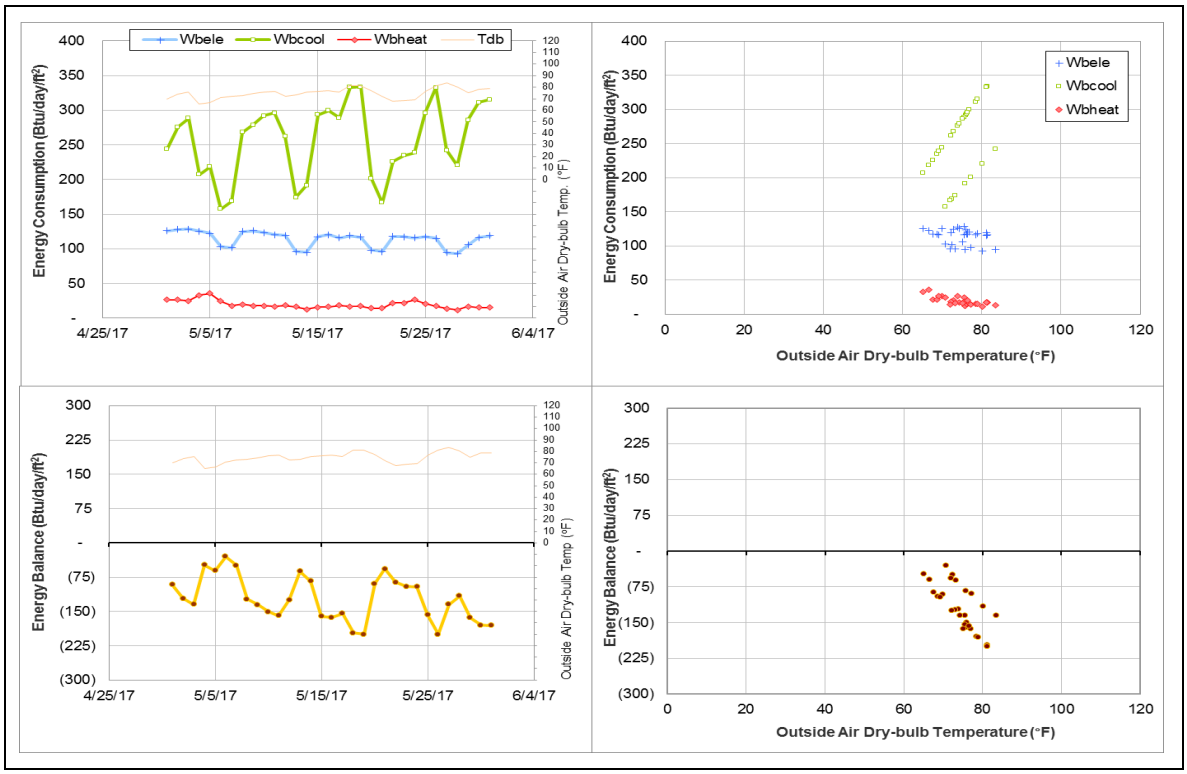
Explanatory Figure: 13 months energy balance plot with original data.



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Bright Football Complex (TAMU Bldg #361)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002547	14	5/18/2017 – 5/31/2017	Model
HHW	002551	27	5/5/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The metered values appear to be faulty.	5/18/2017 – 5/31/2017
HHW	The metered values appear to be faulty.	5/5/2017 – 5/31/2017

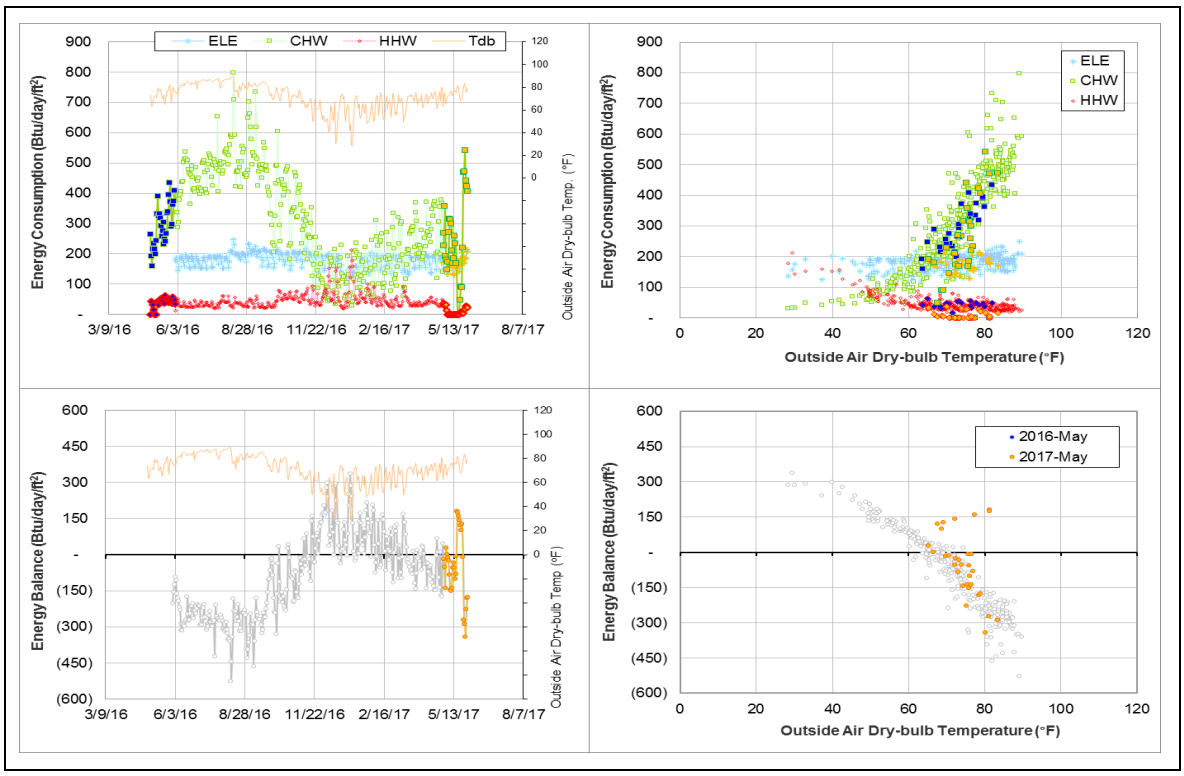
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002547	5/18/2017 – 5/22/2017	Flow rate	Zero
		5/23/2017 – 5/31/2017	Delta T	Low
HHW	002551	5/5/2017 – 5/22/2017	Flow rate	Zero
		5/23/2017 – 5/31/2017	Delta T	Low

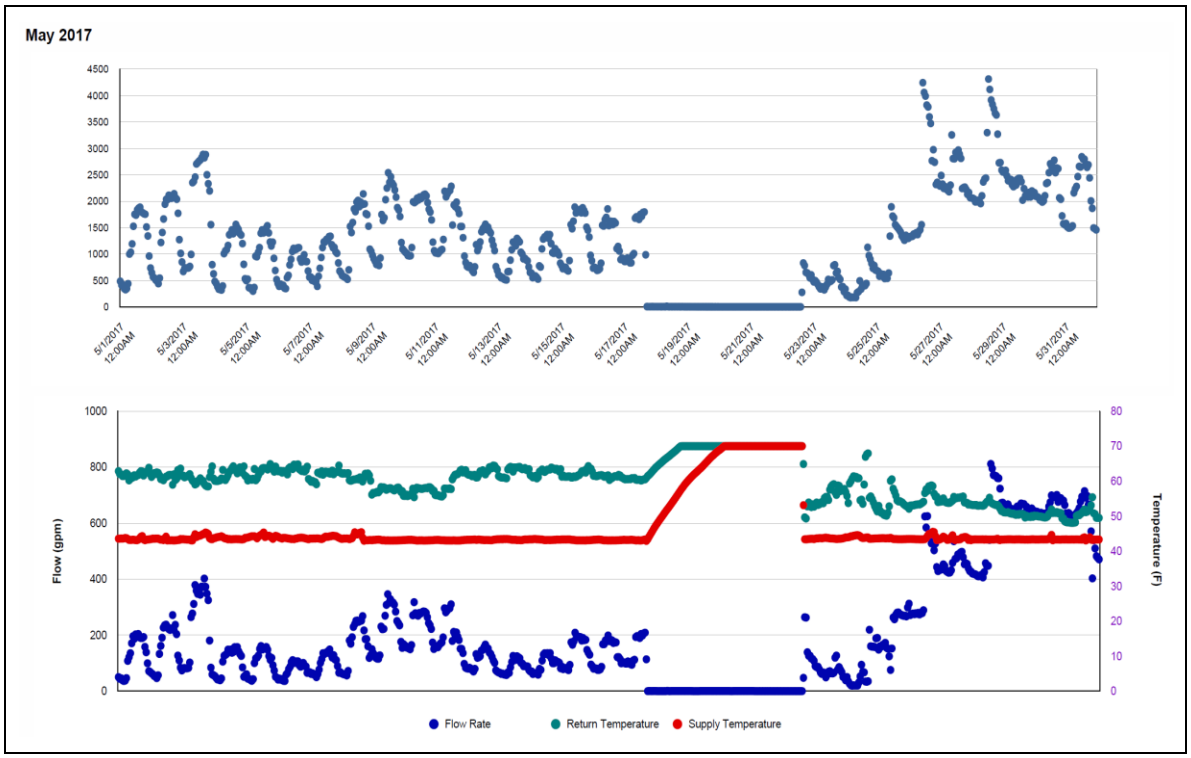
Quantitative descriptions and comments

The CHW flow rate dropped to zero from 5/18/2017 – 5/22/2017 then the flow rate increased but the delta T was low for the rest of the month. The HHW flow rate dropped to zero from 5/5/2017 – 5/22/2017 then the flow rate increased but the delta T was low for the rest of the month. Both CHW and HHW are estimated by model for the specified days.

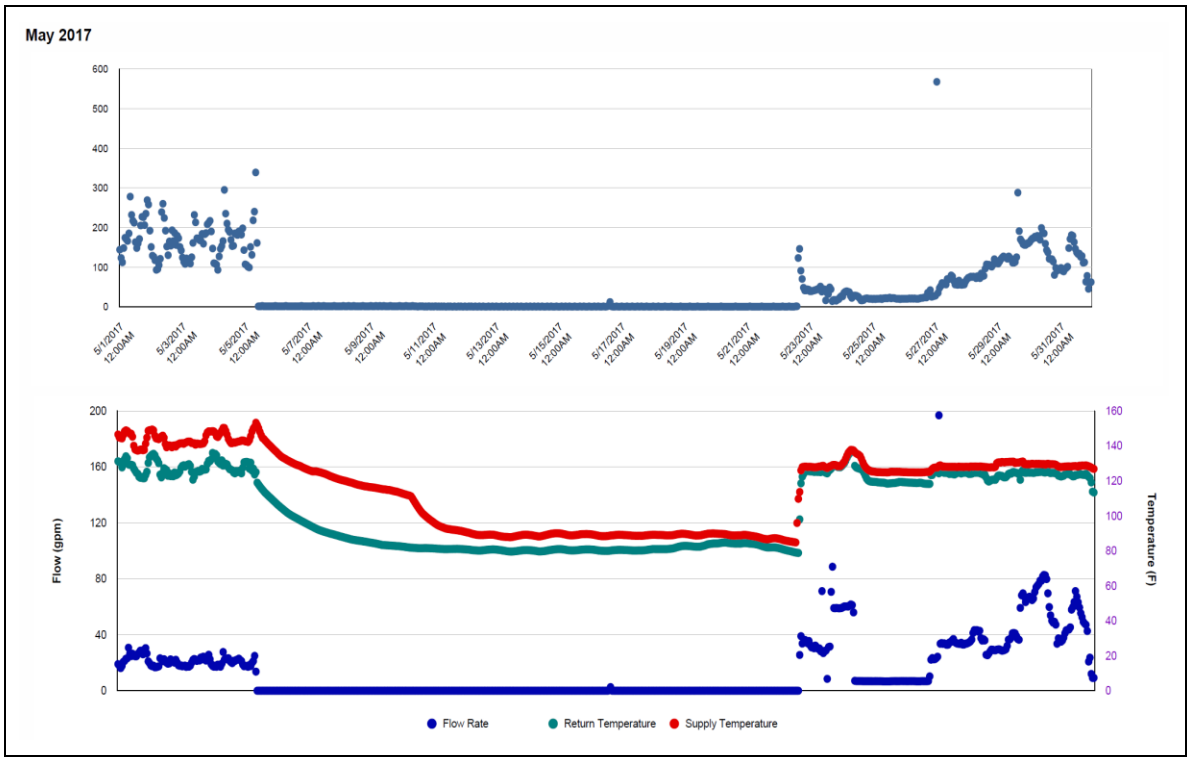
Explanatory Figure: 13 months energy balance plot with original data.



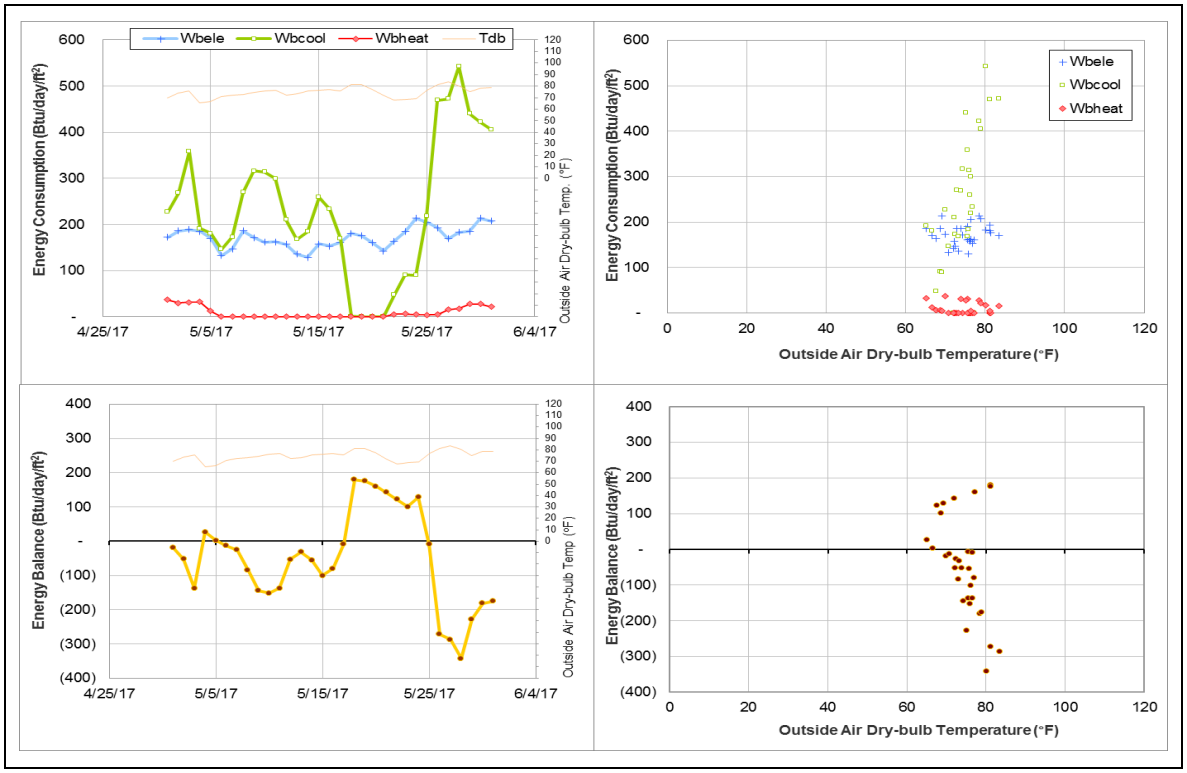
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)



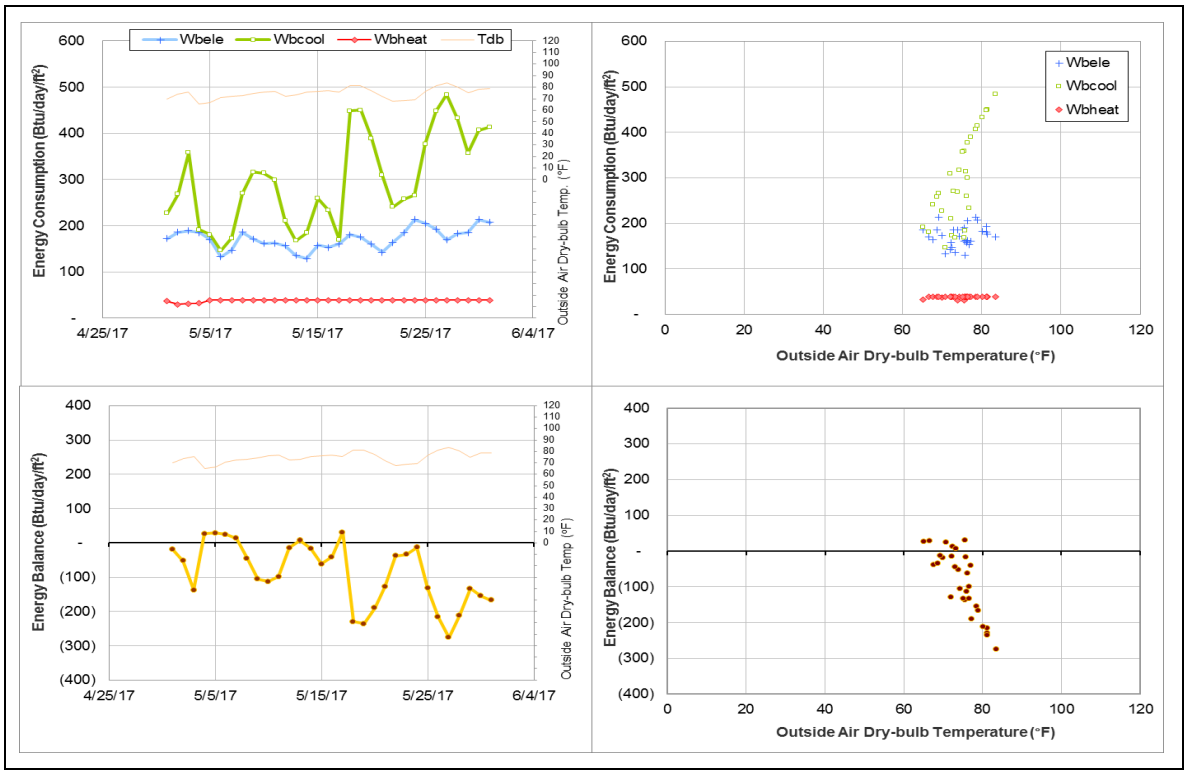
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Koldus Building (TAMU Bldg #383)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002874	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The metered value appears to be faulty.	3/8/2017, 3/12/2017 – 5/31/2017

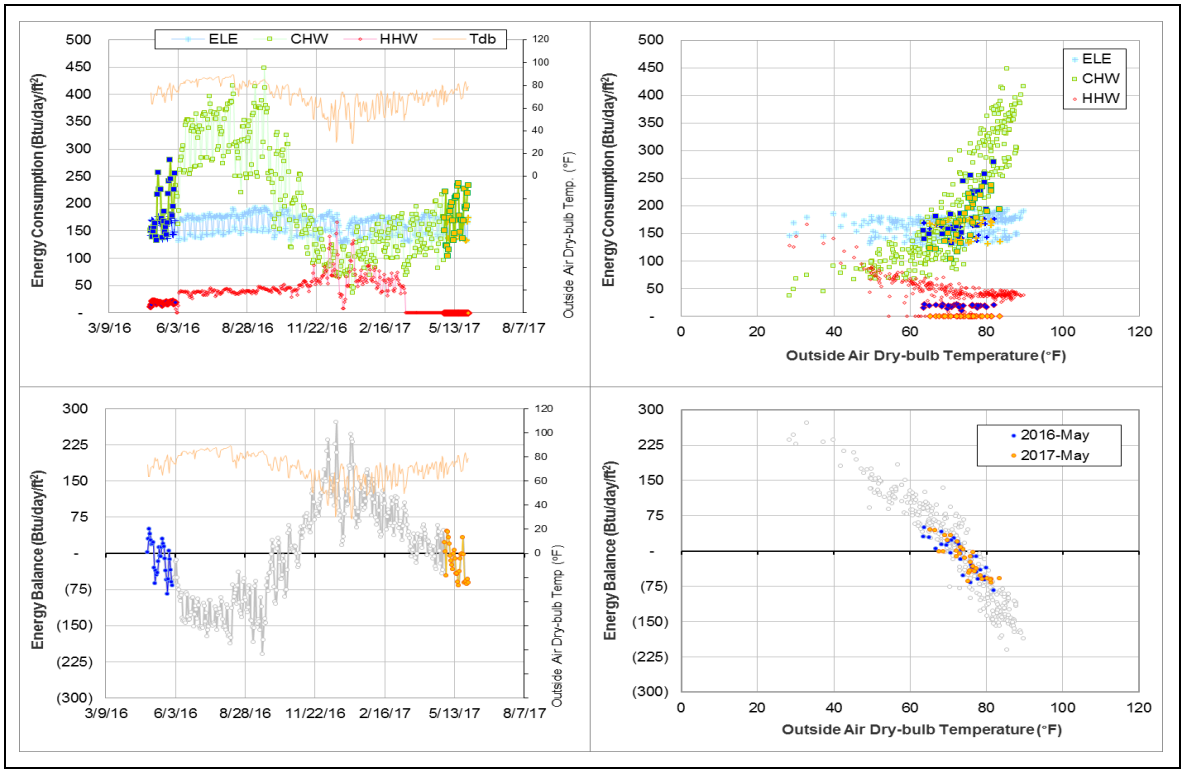
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002874	3/8/2017, 3/12/2017 – 5/31/2017	Flow rate	Near zero
		3/14/2017 – 4/13/2017, 4/21/2017 – 4/30/2017	Delta-T	Zero

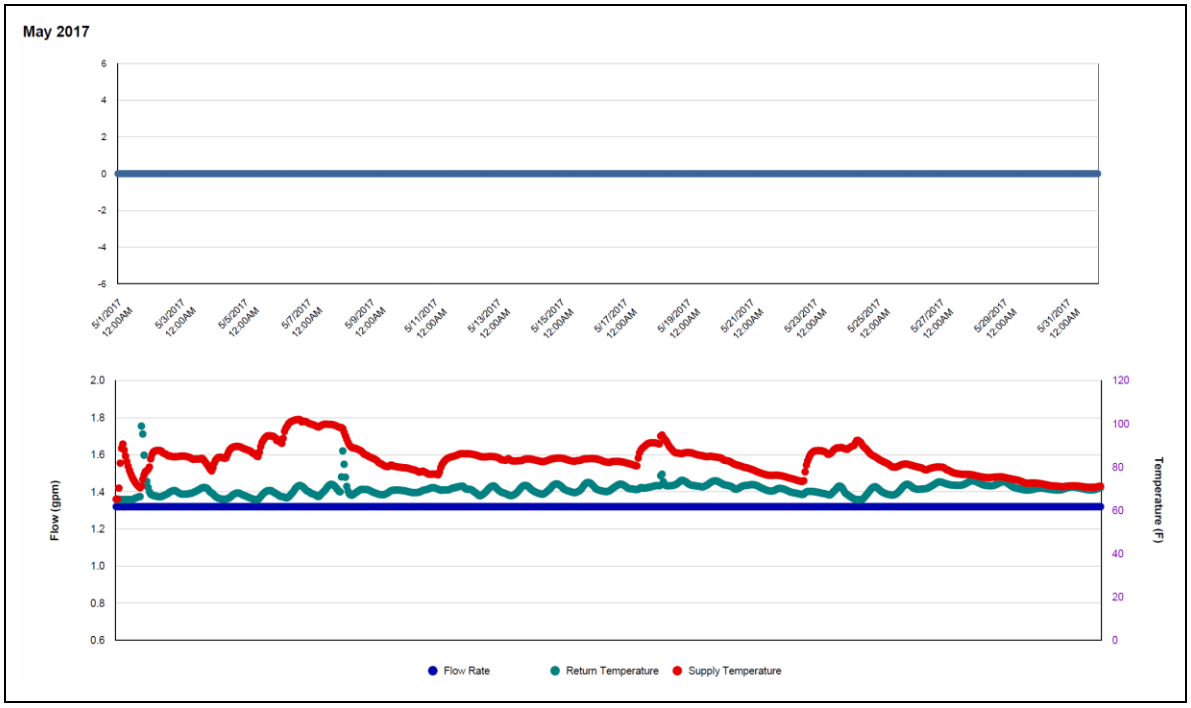
Quantitative descriptions and comments

The HHW consumption dropped to zero on part of 3/8/2017 as well as 3/12/2017 – 5/31/2017 due to a flow rate near zero. The delta T was zero from 3/14/2017 – 4/13/2017 and 4/21/2017 – 4/30/2017. The consumption was estimated by model for the whole month of May.

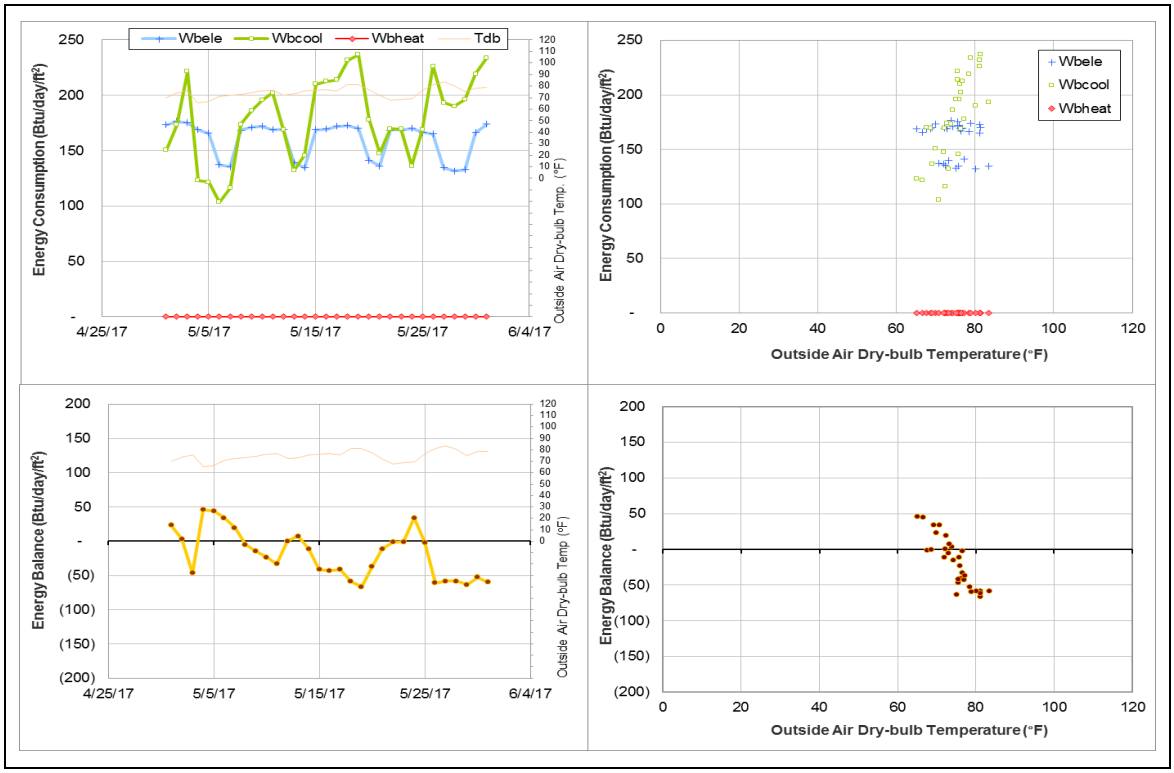
Explanatory Figure: 13 months energy balance plot with original data.



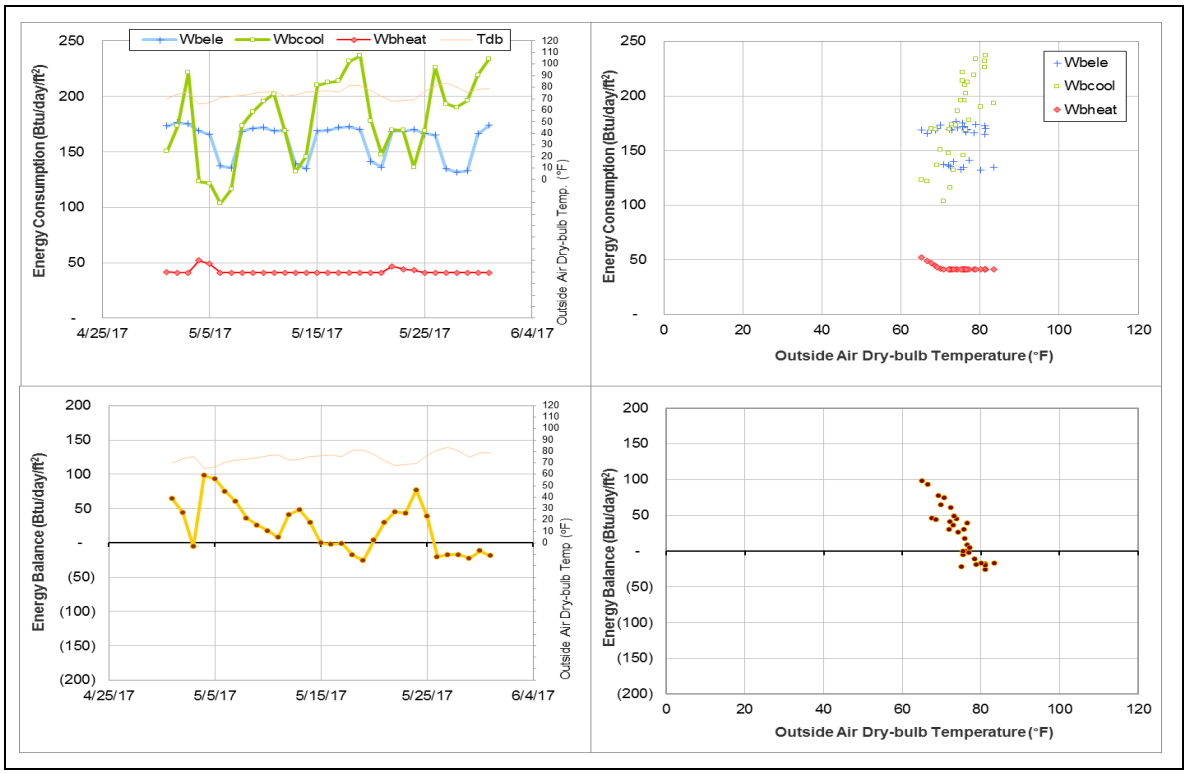
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Whitely Hall – Dorm 9 (TAMU Bldg #408)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002083	13	5/12/2017 – 5/24/2017	Average

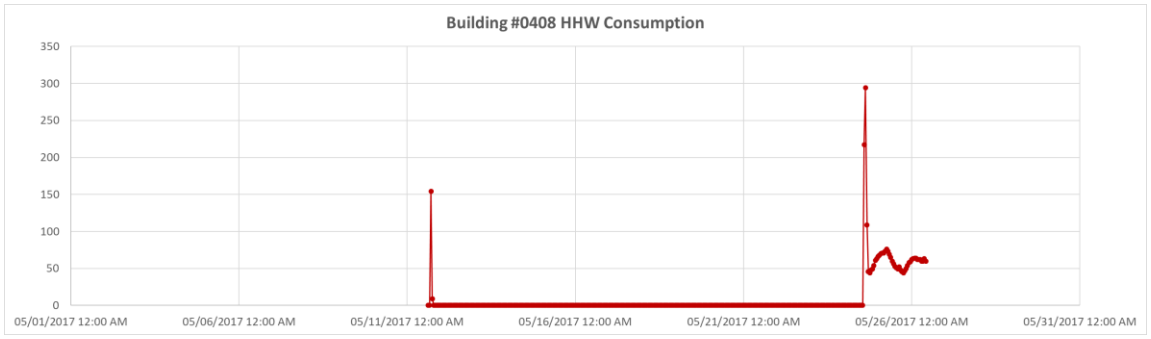
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	Abnormal patterns are observed.	5/12/2017 – 5/24/2017

Quantitative descriptions and comments

The HHW consumption was zero from 05/12/2017– 05/24/2017. These days are estimated by an average. See also section II-3.

Explanatory Figure: Time series plot for HHW consumption



Schumacher Residence Hall (TAMU Bldg # 430)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002030	5	5/11/2017 – 5/12/2017 5/16/2017 – 5/17/2017 5/20/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption increased for a short period.	5/11/2017 – 5/12/2017 5/16/2017 – 5/17/2017 5/20/2017

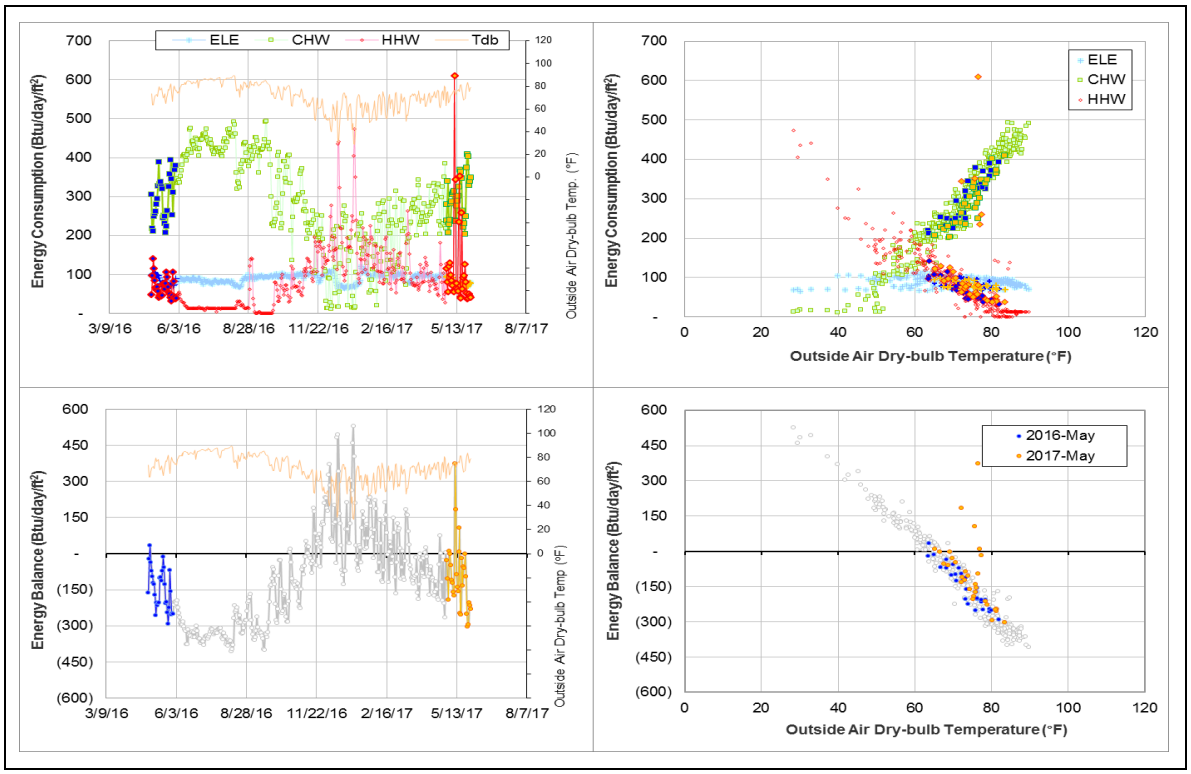
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002030	5/11/2017 – 5/12/2017 5/16/2017 – 5/17/2017 5/20/2017	Flow rate	Sudden increase

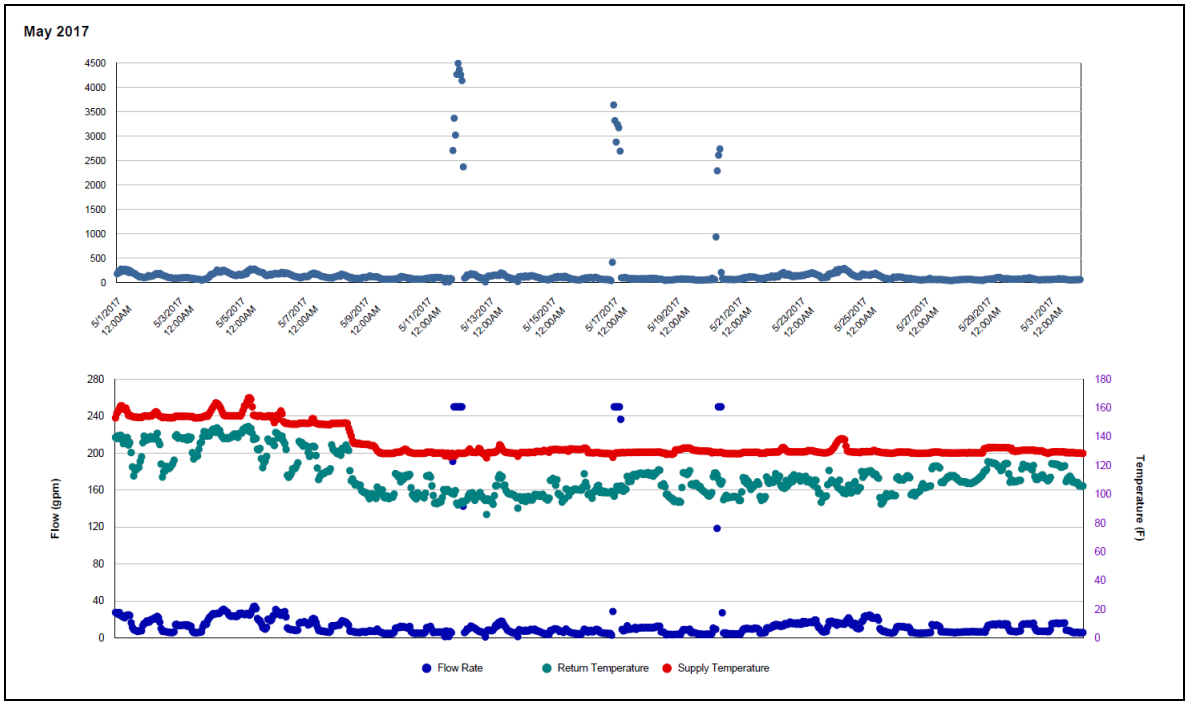
Quantitative descriptions and comments

The HHW consumption for the period 5/11/2017 – 5/12/2017, 5/16/2016 – 5/17/2017, and 5/20/2017 had a sudden increase. The increase in consumption appears to be caused by an increase in flow rate from <20 gpm to over 240 gpm. The HHW consumption was estimated by model for these dates.

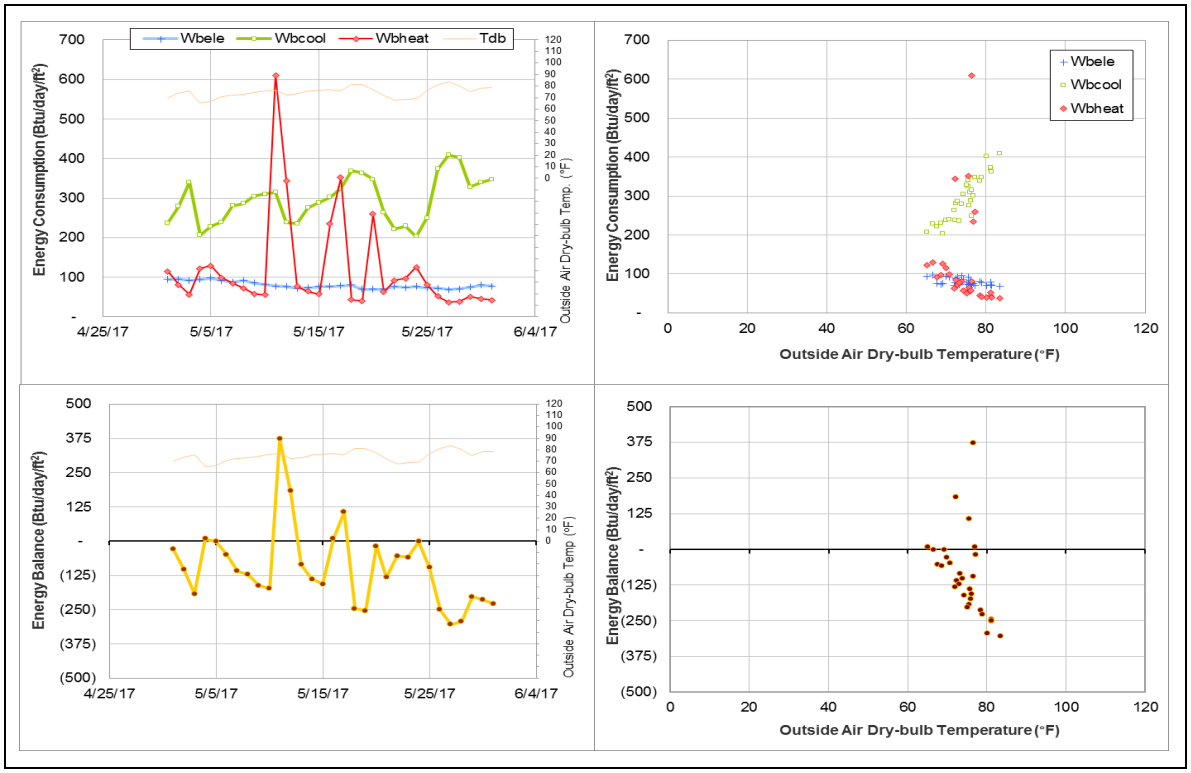
Explanatory Figure: 13 months energy balance plot with original data



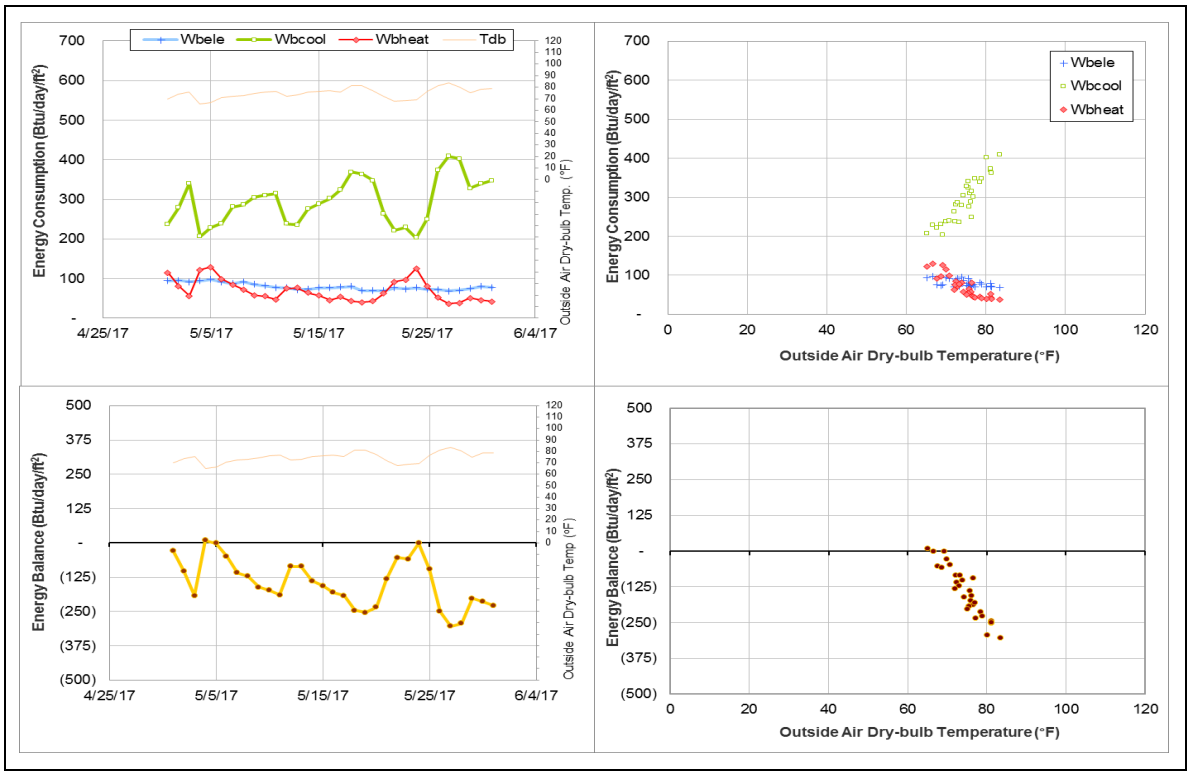
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Harrington Education Center Office Tower (TAMU Bldg # 435)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002796	10	5/1/2017 – 5/10/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption increased for a short period.	4/30/2017 – 5/10/2017

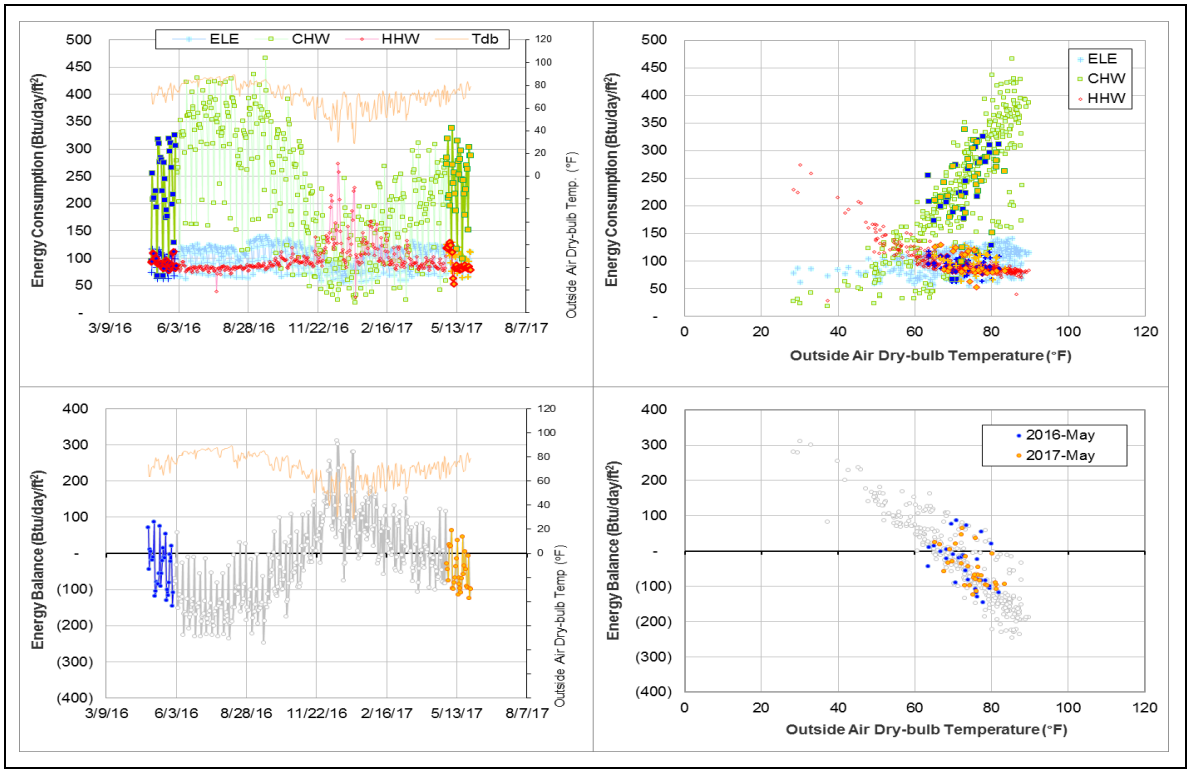
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002796	4/30/2017 – 5/9/2017	Supply and return temperature	Increased
		5/9/2017 – 5/10/2017	Flow rate	Decreased to zero

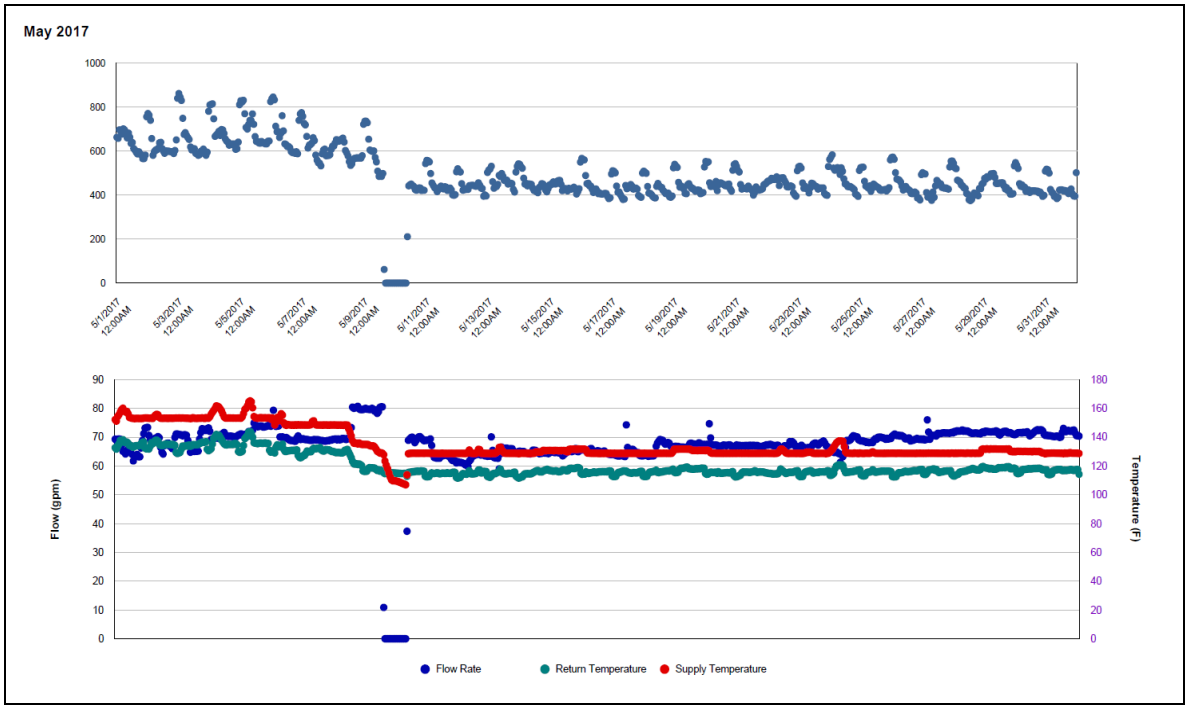
Quantitative descriptions and comments

The HHW consumption increased higher than the 13-month pattern for the period of 4/30/2017 – 5/10/2017. During this time, both the supply and return temperatures experienced an increase in temperature by almost 20°F. In addition, on the last two days of this period, the flow rate decreased down to zero and then returned to a stable level. The HHW consumption for this period was estimated by model.

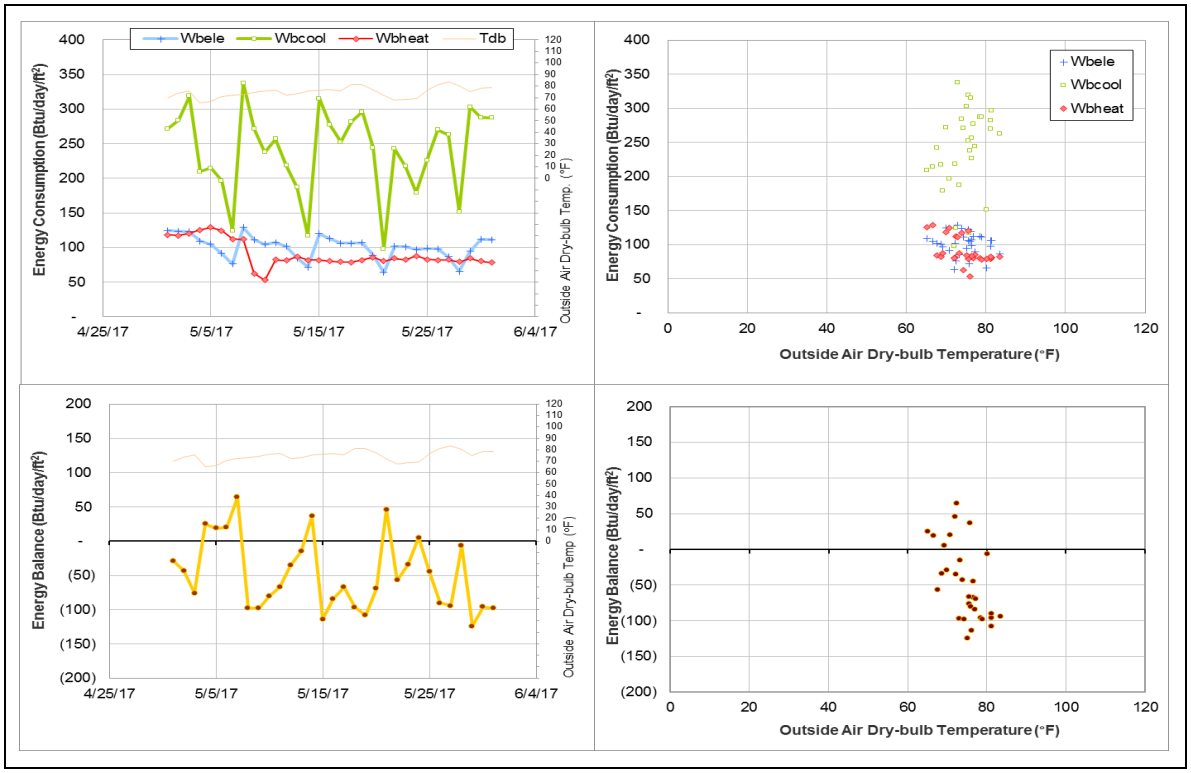
Explanatory Figure: 13 months energy balance plot with original data



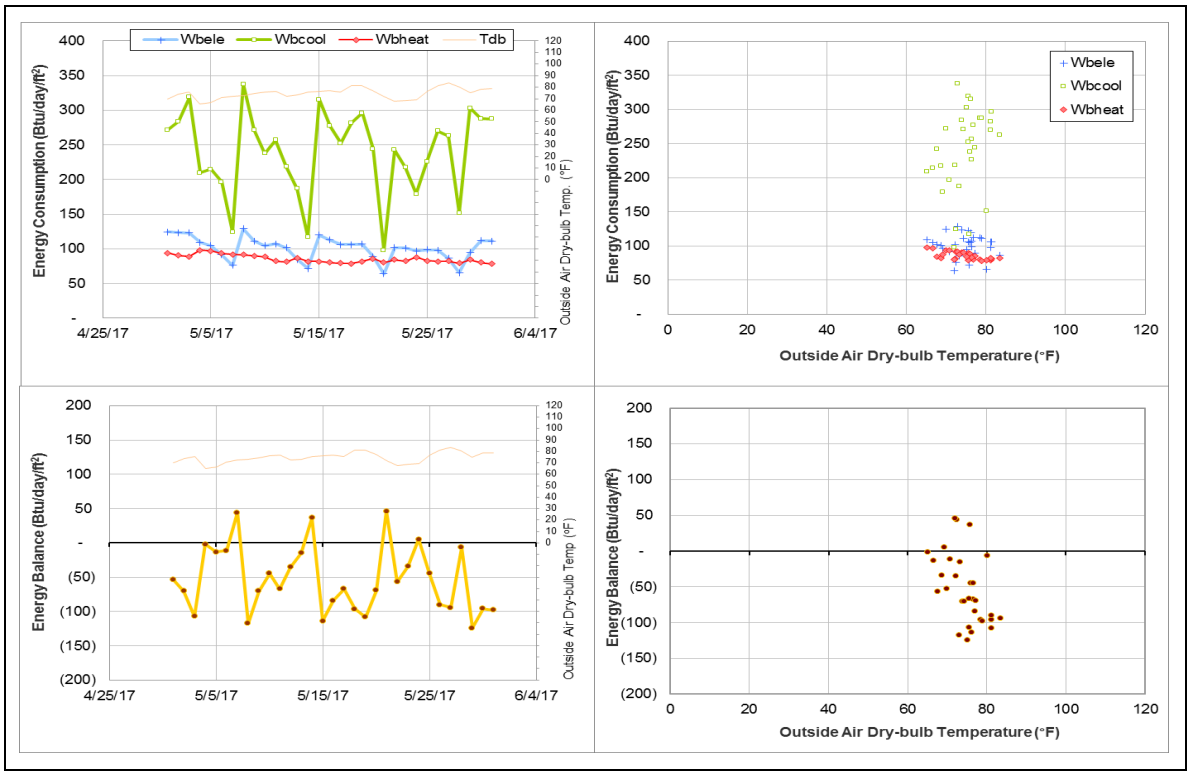
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Rudder Theatre Complex (TAMU Bldg # 446)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	002977	30	5/1/2017 – 5/22/2017 5/24/2017 – 5/31/2017	Model
ELE	002980	31	5/1/2017 – 5/31/2017	Model
CHW	004297	31	5/1/2017 – 5/31/2017	Model
HHW	004309	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

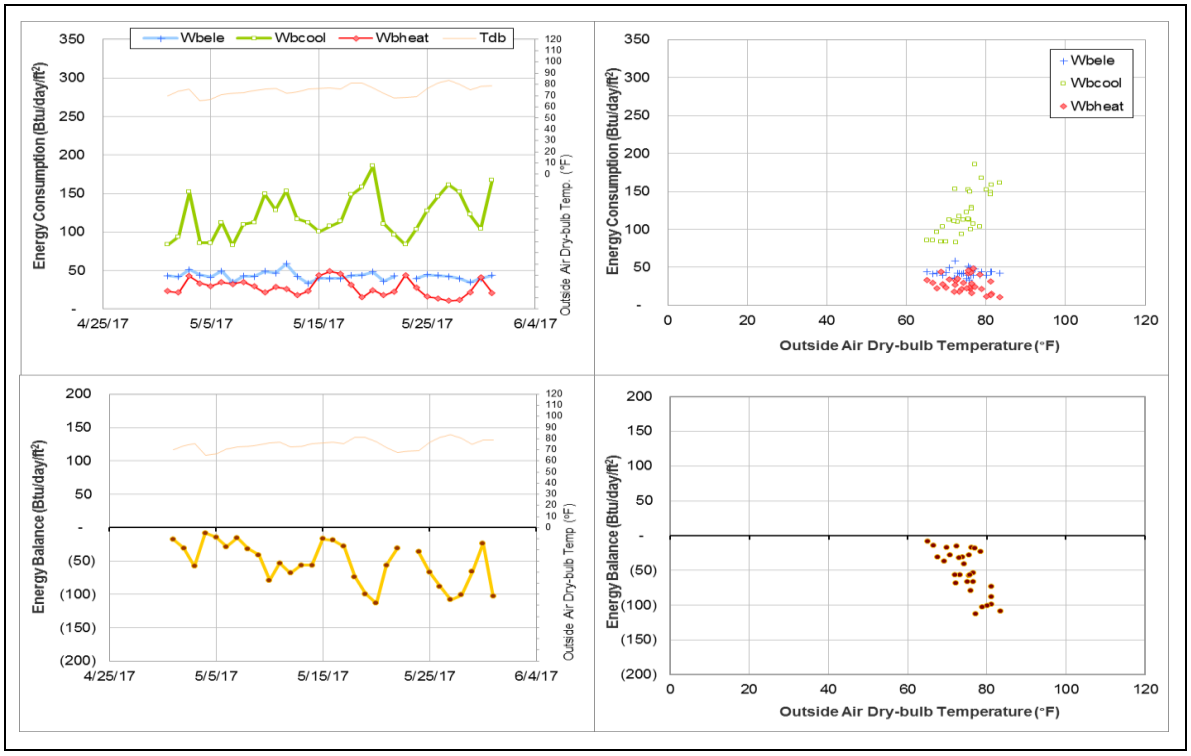
Data Type	Description of data behaviors	Period
ELE	The consumption level is lower than the level during the past year.	2/1/2017 – Ongoing
ELE	The consumption level is lower than the level during the past year.	2/1/2017 – Ongoing
CHW	The consumption level is lower than the level during the past year.	2/1/2017 – Ongoing
HHW	The consumption level is lower than the level during the past year.	2/1/2017 – Ongoing

Quantitative descriptions and comments

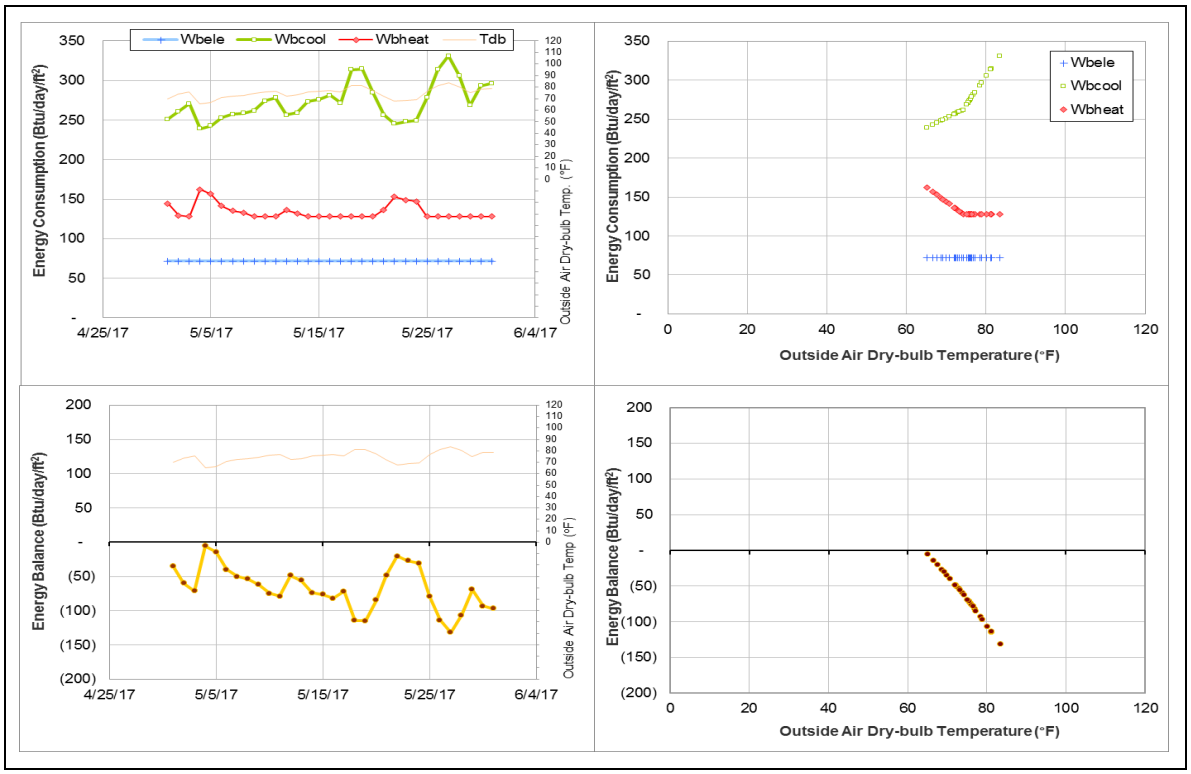
ELE, CHW, and HHW consumption dropped during the winter break of last year (2016-2017) and again during the winter break in 2015-2016. This drop is not suspected to be a meter malfunction since a decrease would be expected during break periods and that the data from 2015-2016 winter suggests that the consumption went back to the normal level around 1/25/2016. However, the data following 2016-2017 winter has not yet returned to the normal level. The energy balance of this building does not show separate patterns for these two levels. The whole month is estimated using a model for ELE, CHW, and HHW.

Explanatory Figure: 13 months energy balance plot with original data

Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Aston Residence Hall (TAMU Bldg # 447)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002470	17	5/10/2017 – 5/26/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level is higher than the level during the past year.	5/10/2017 – 5/26/2017

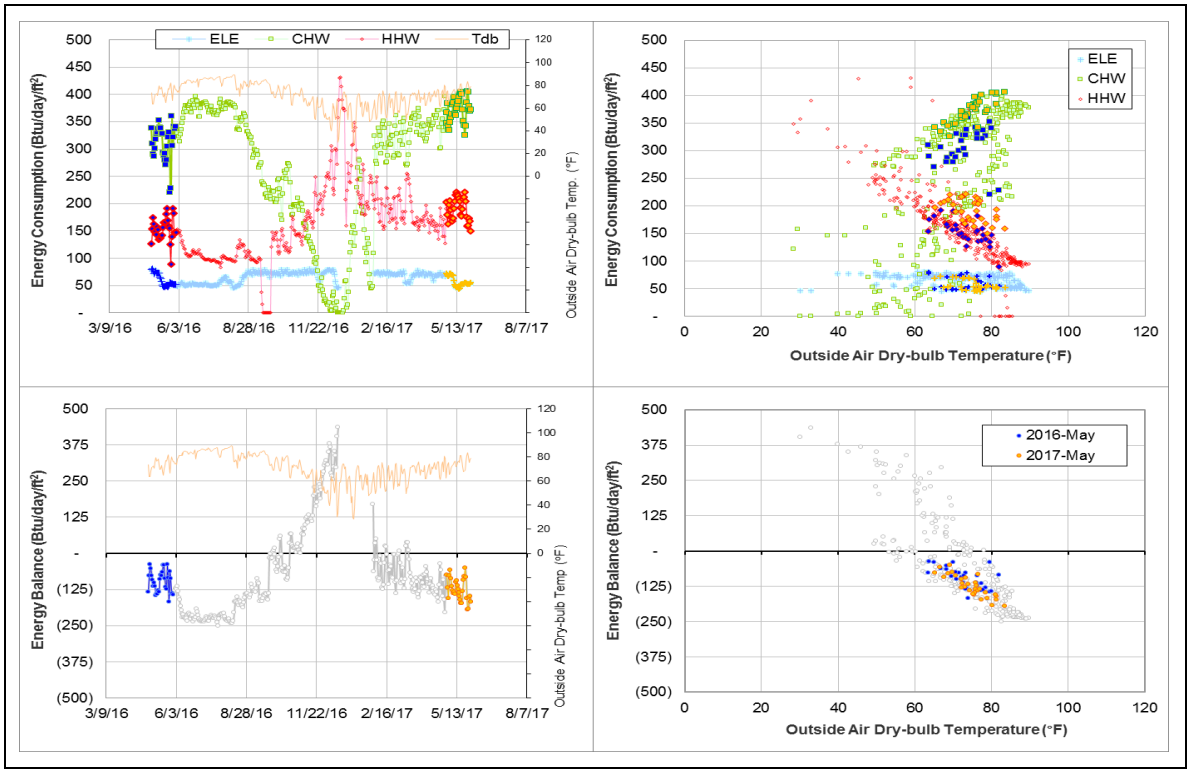
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002470	5/10/2017 – 5/26/2017	Delta-T	Increase

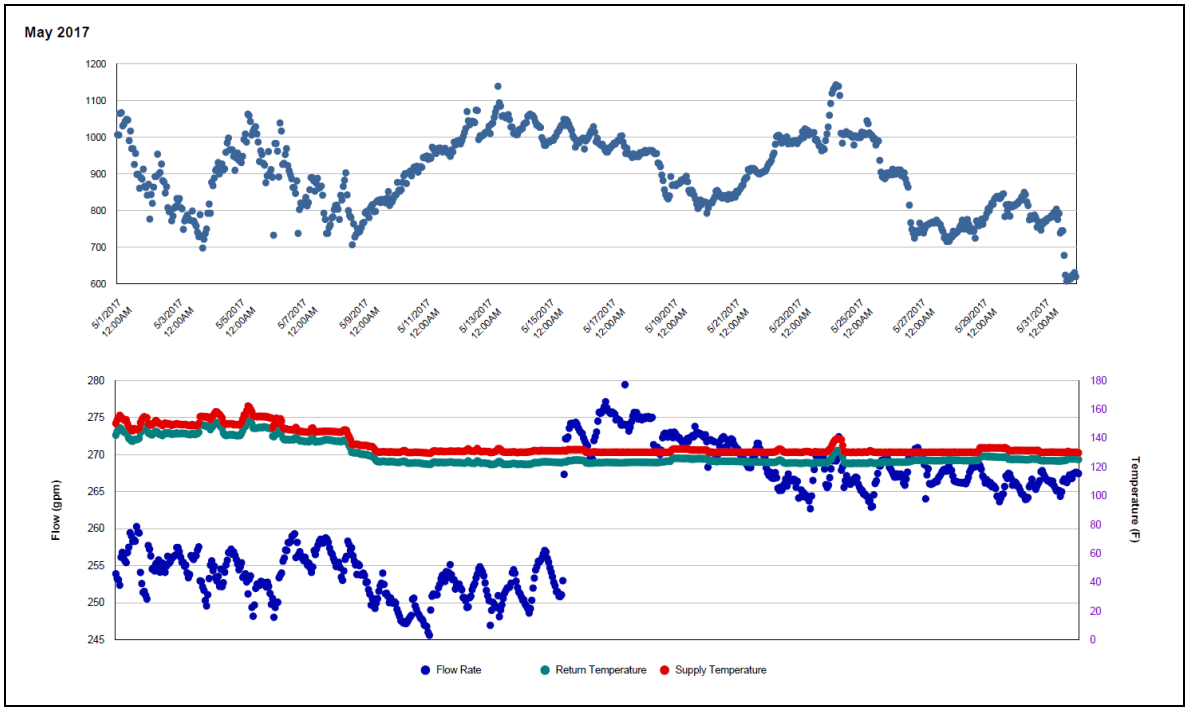
Quantitative descriptions and comments

The HHW consumption for the period 5/10/2017 – 5/26/2017 is higher than the level during the past year. There appears to be an increase in Delta-T during this period. The HHW consumption was estimated by model.

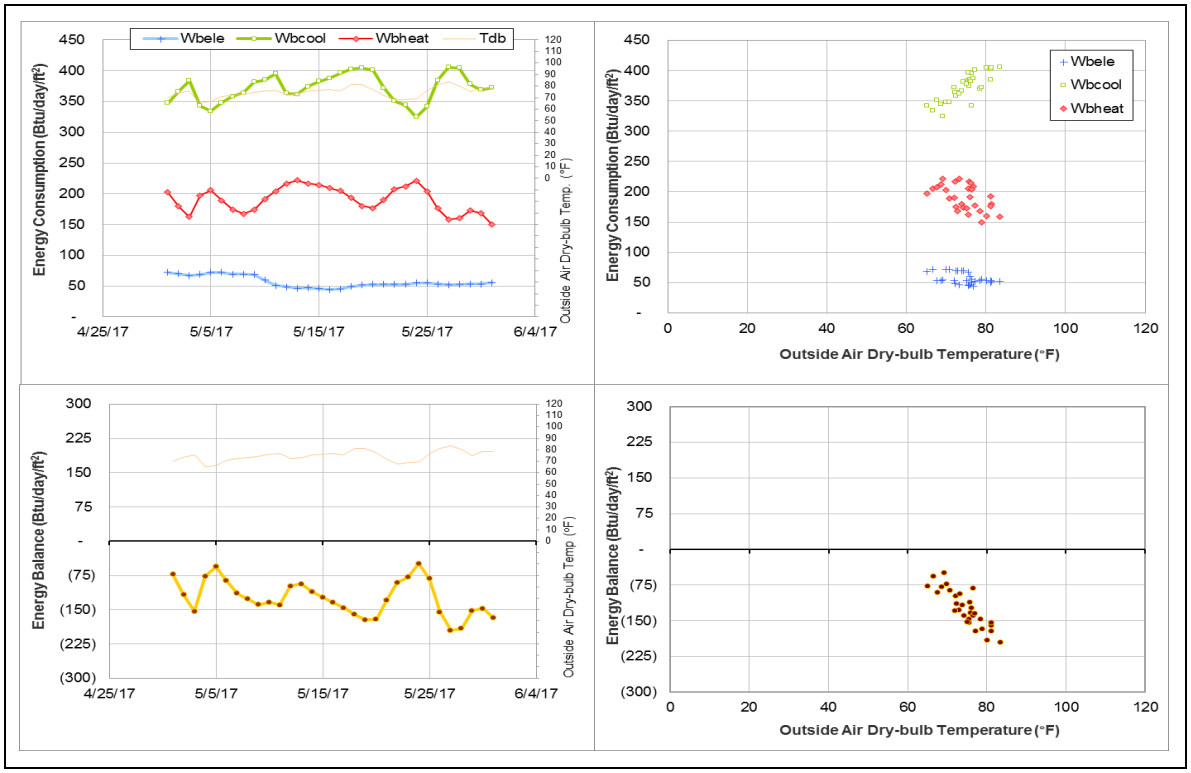
Explanatory Figure: 13 months energy balance plot with original data



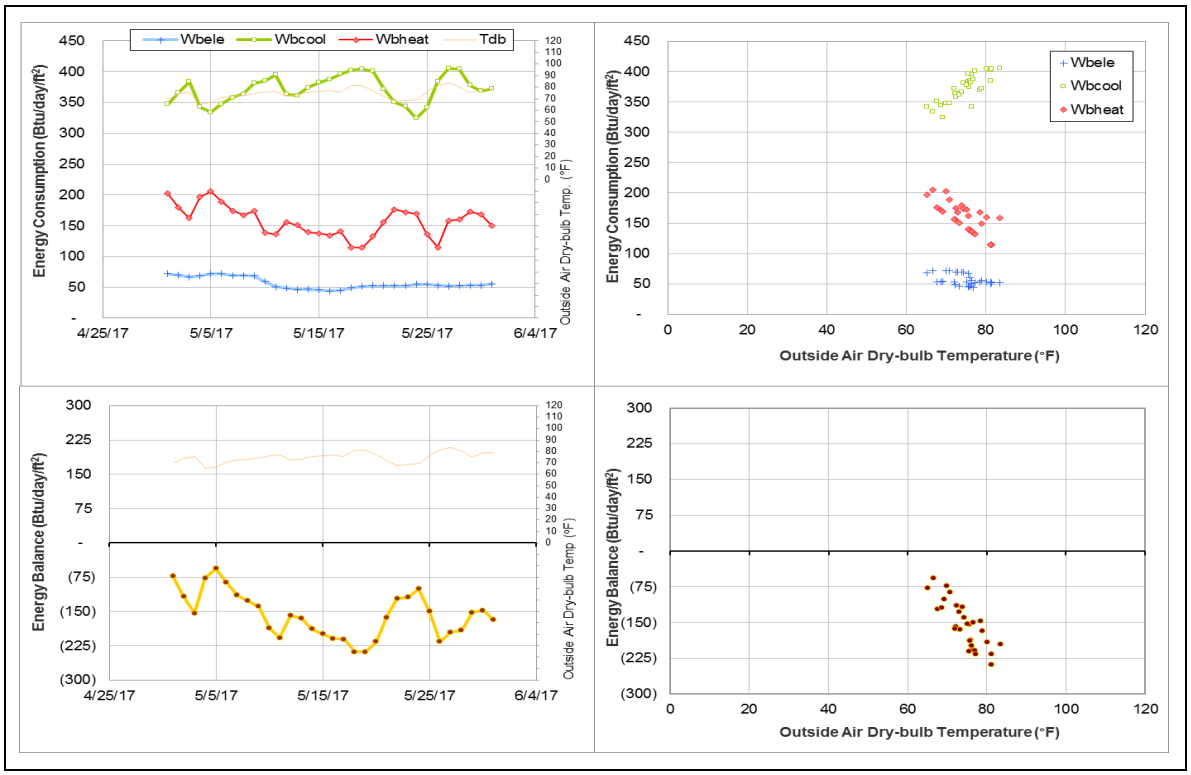
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



MSC (TAMU Bldg # 454)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	007600	1	5/5/2017	Model

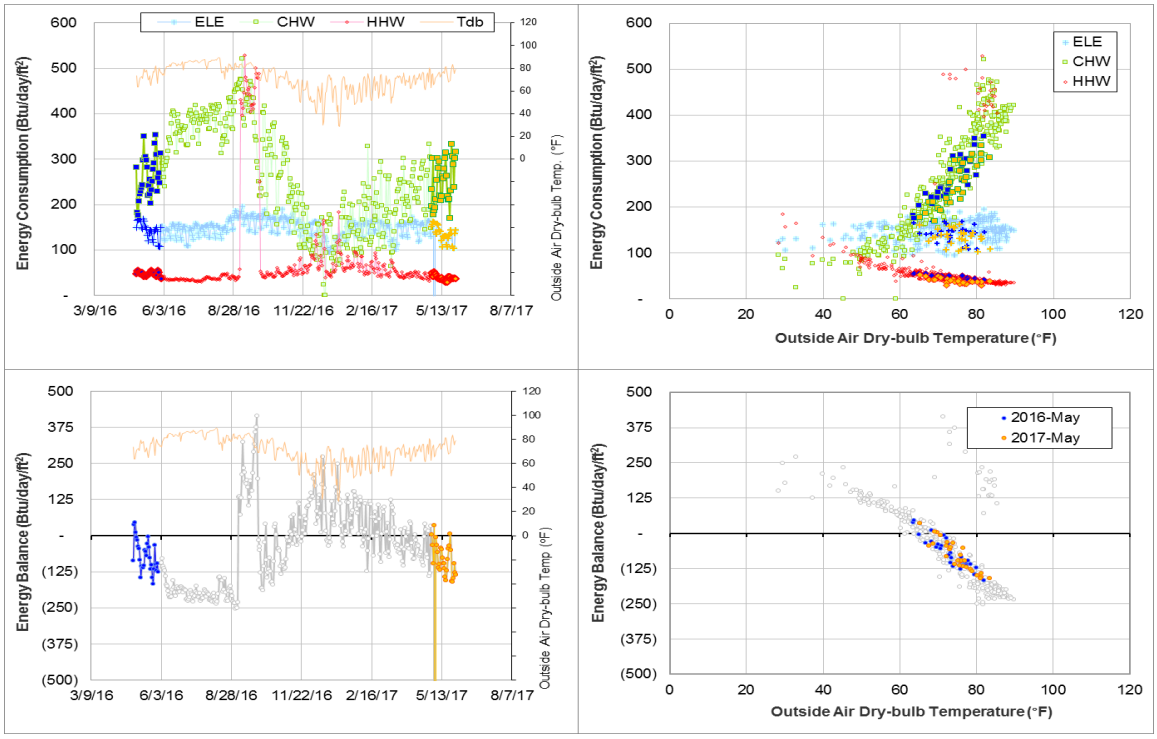
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	Accumulated meter total rolled-over 9,999,999	5/5/2017

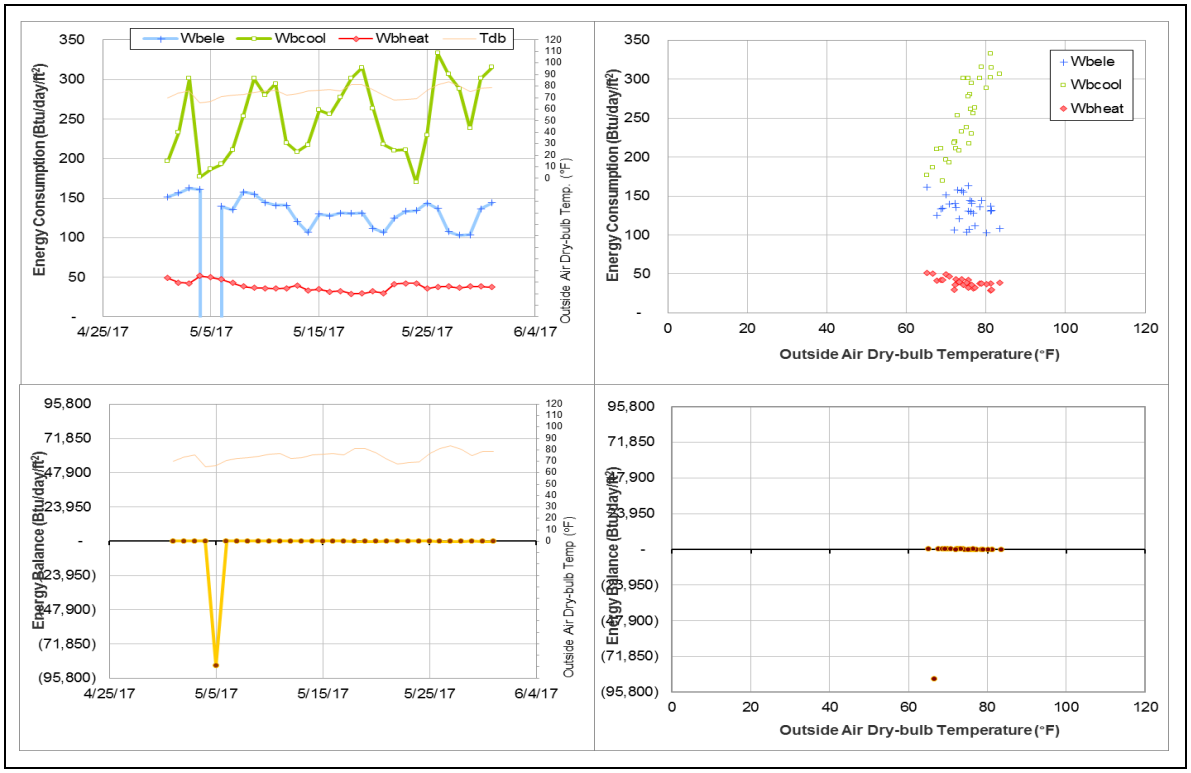
Quantitative descriptions and comments

The ELE meter's accumulated total rolled-over on 5/5/2017. The ELE consumption for that day was corrected from -9,989,760.29 kWh to 10,238.71 kWh by adding 9,999,999 to the original value.

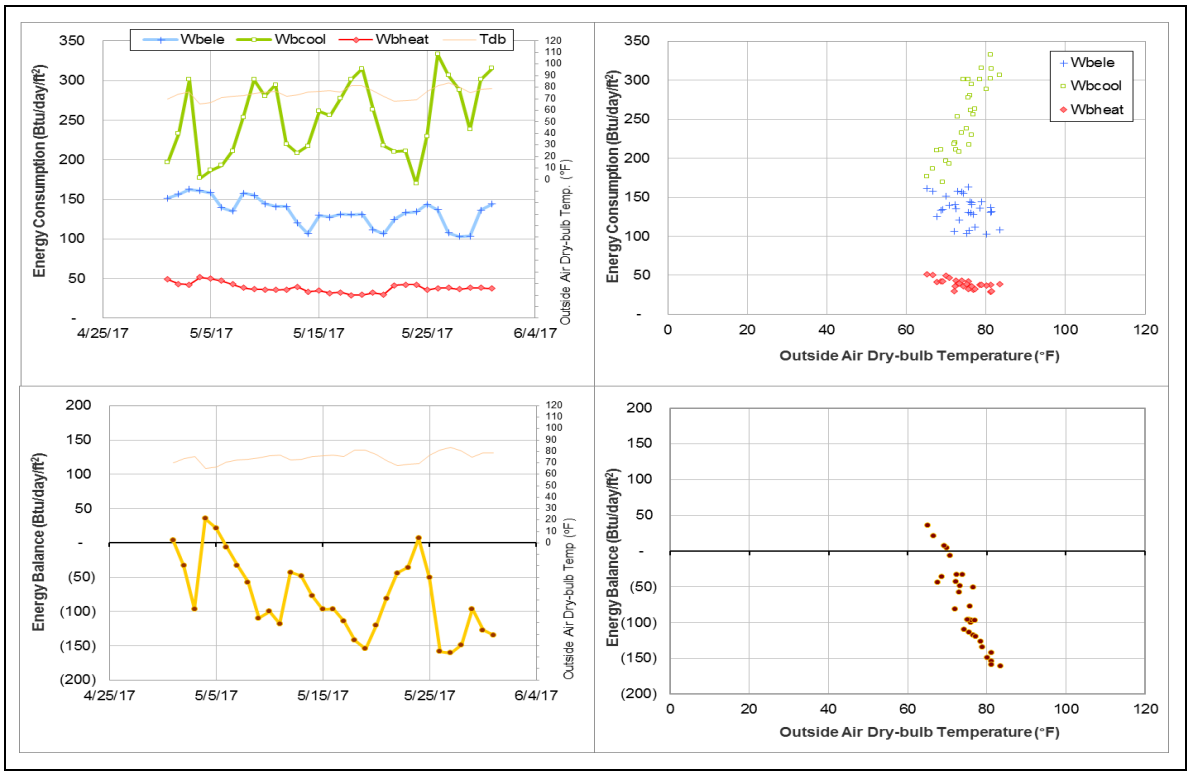
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



State Chemist Building (TAMU Bldg # 464)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	005837	31	5/1/2017–5/31/2017	Model
HHW	005841	8	5/1/2017–5/8/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level is lower than the level during the past year.	11/20/2016 – Ongoing
HHW	The consumption level is higher than the level during the past year.	4/30/2017 – 5/8/2017

Changes in sensor readings related to the detected issues

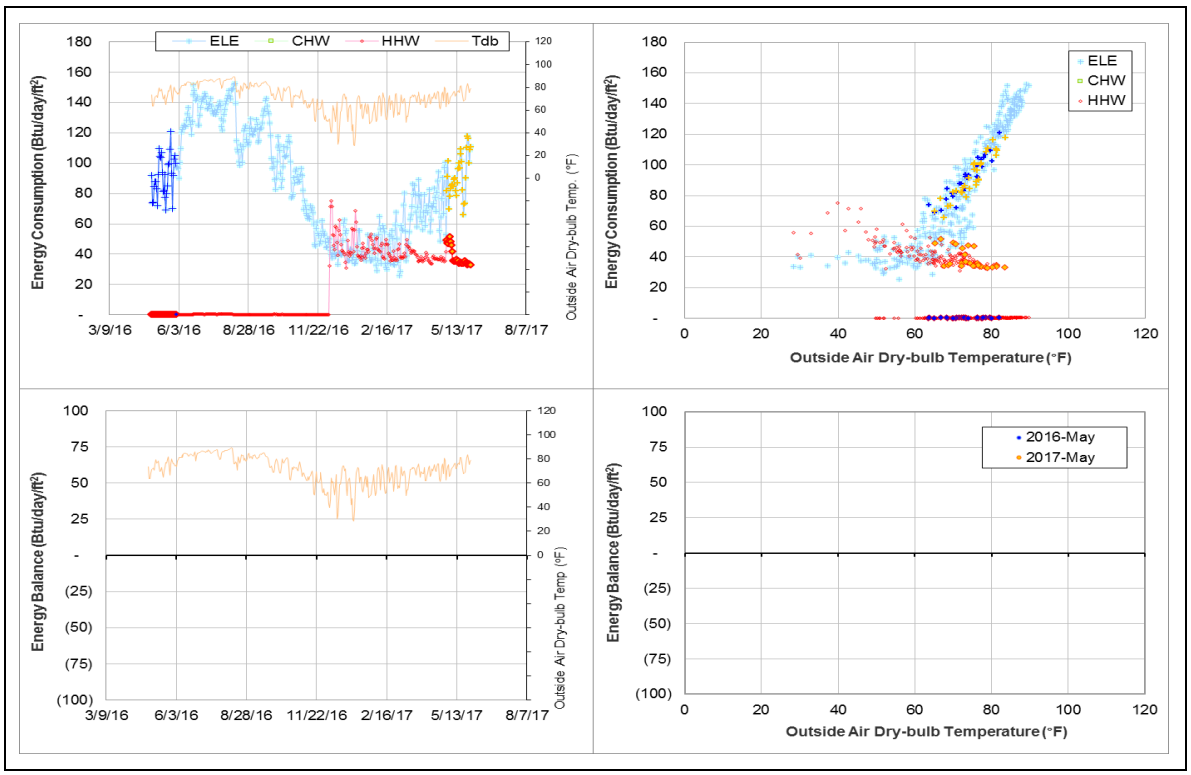
Energy Type	Meter ID	Period	Type	Description
HHW	005841	4/30/2017 – 5/8/2017	Supply and return temperature	Increase

Quantitative descriptions and comments

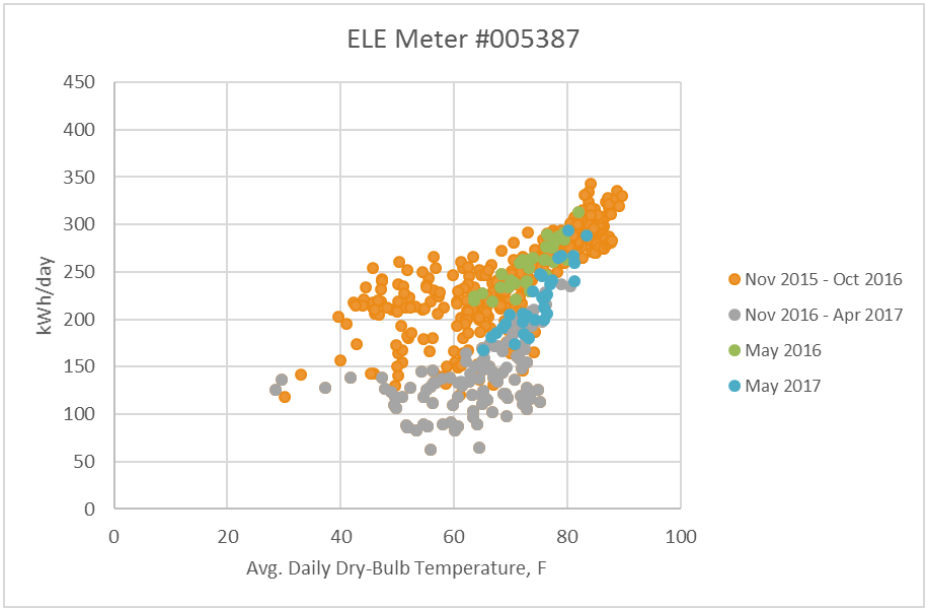
There are two ELE meters (#005837 and #005839) for this building. Starting in November 2016, the level for meter #005837 has decreased and the data appears scattered. Compared to April 2016, the average daily kWh for April 2017 has decreased by ~60 kWh. The decrease in this meter can be masked in the 13-month plot that shows the total of the two ELE meters combined. Explanatory figures showing the change before and after November 2016 are provided below. The ELE consumption for meter #005837 was estimated by model for the month of May.

The HHW consumption increased higher than the 13-month pattern for the period of 4/30/2017 – 5/8/2017. During this time, both the supply and return temperatures experienced an increase in temperature by almost 20 °F. The HHW consumption for this period was estimated by model.

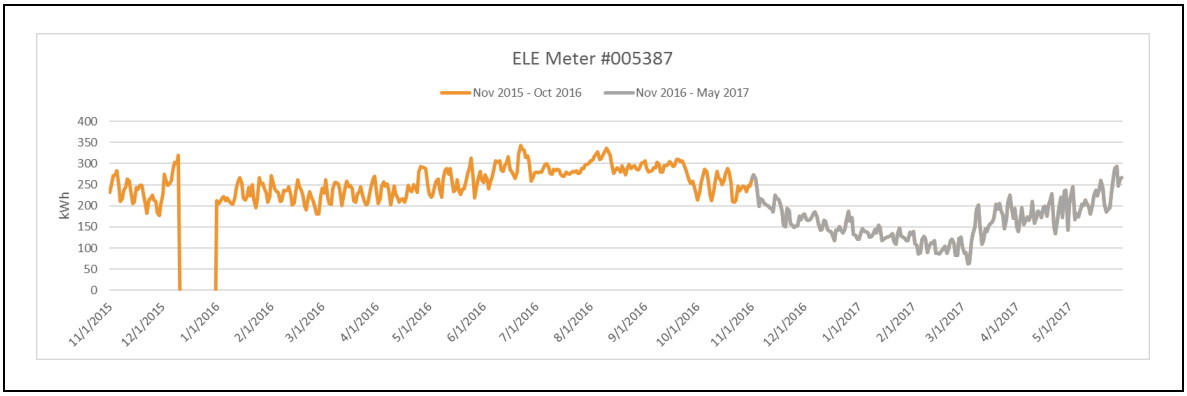
Explanatory Figure: 13 months energy balance plot with original data



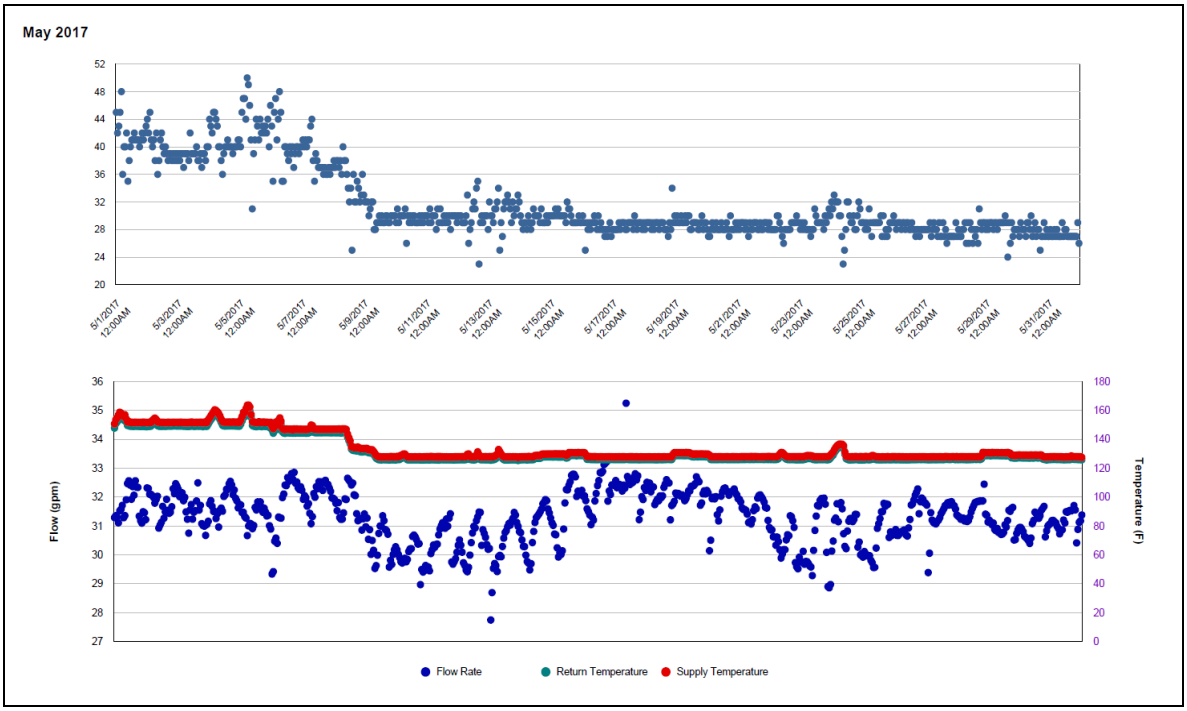
Explanatory Figure: Scatter plot of daily ELE energy consumption for meter #005837 versus outside dry-bulb temperature.



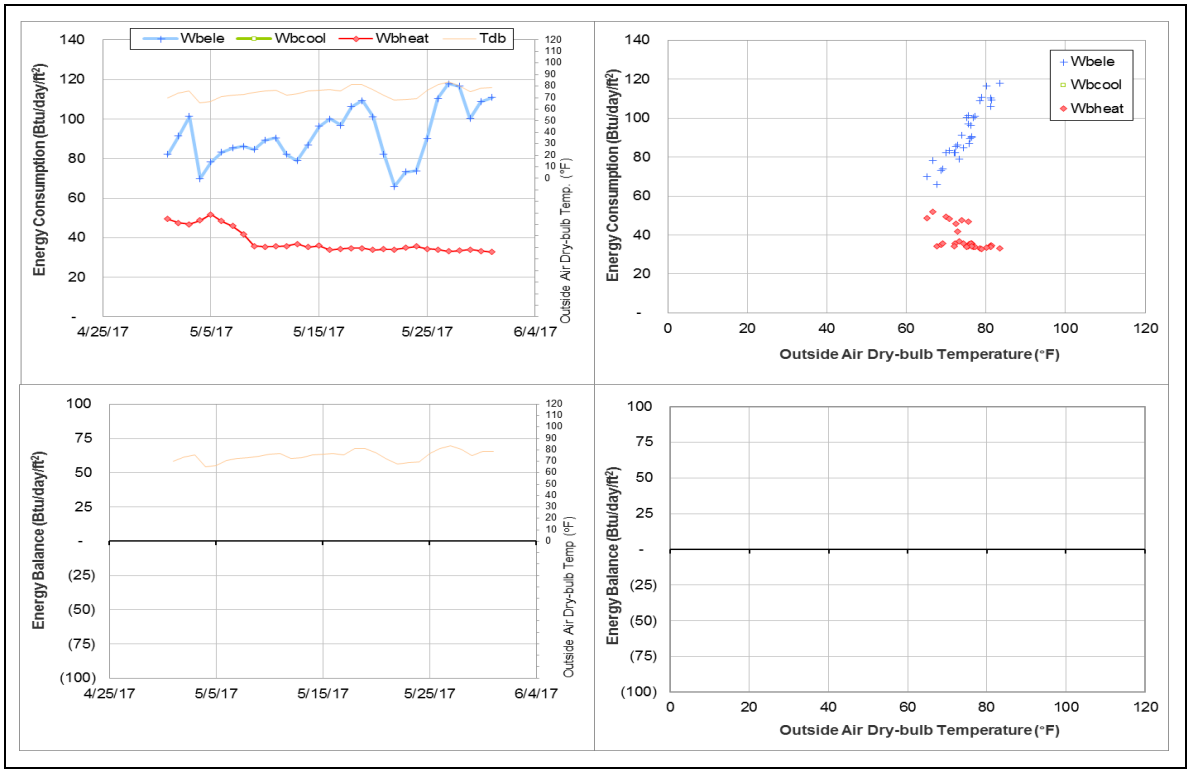
Explanatory Figure: Times series plot of hourly ELE energy consumption for meter #005837. The series in grey represents the recent data from November 2016 through May 2017.



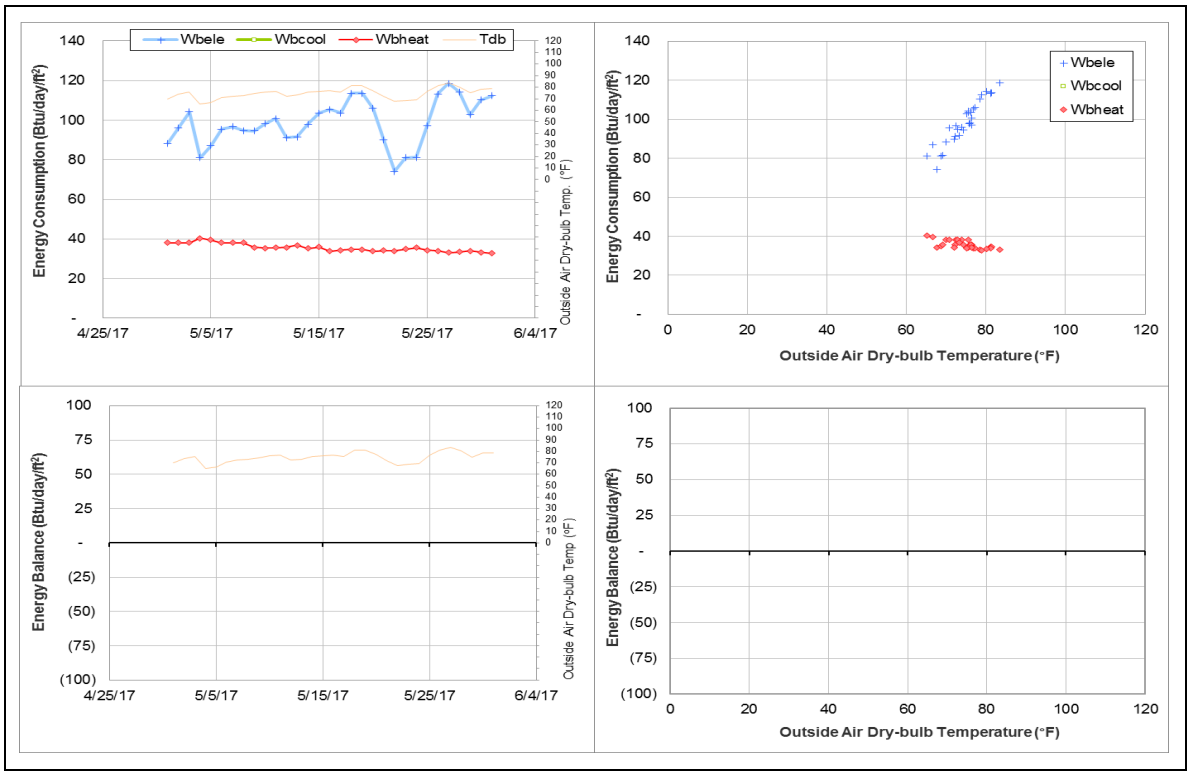
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Biological Sciences Building - East (TAMU Bldg # 467)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003851	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The metered values appear to be faulty.	8/6/2016 – Ongoing

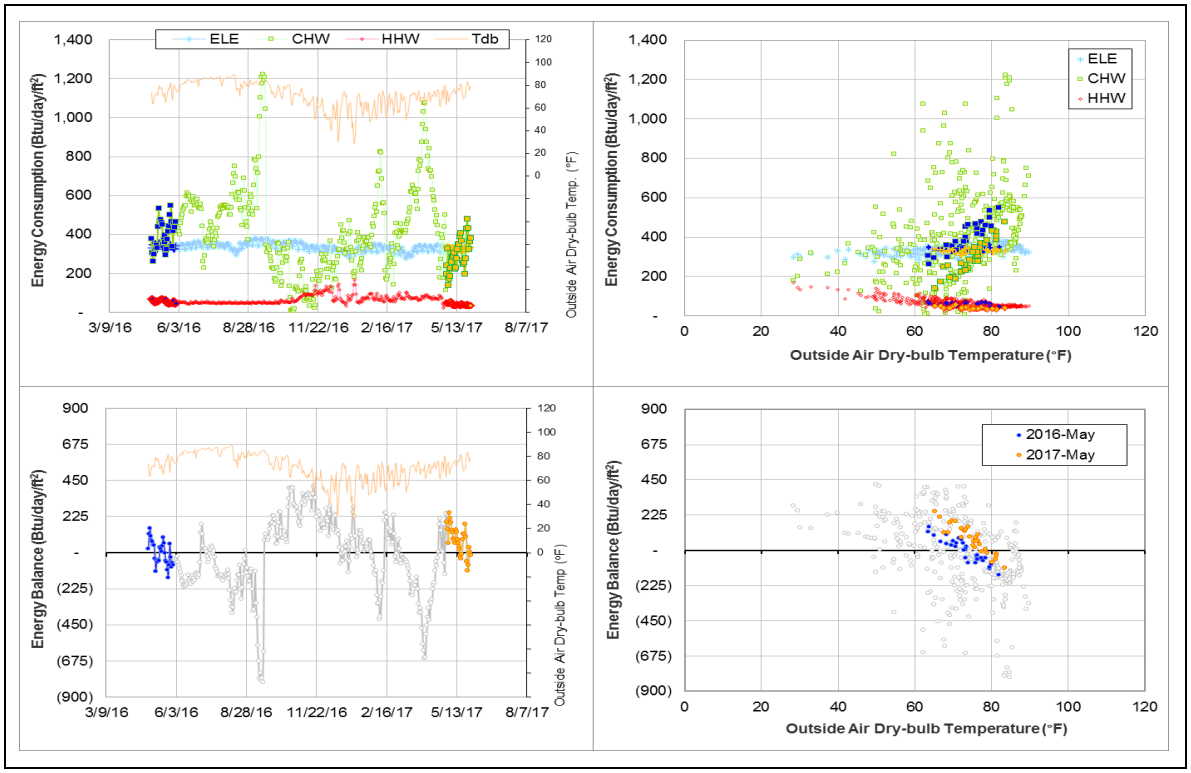
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	003851	8/6/2016 – Ongoing	Supply temperature	Faulty

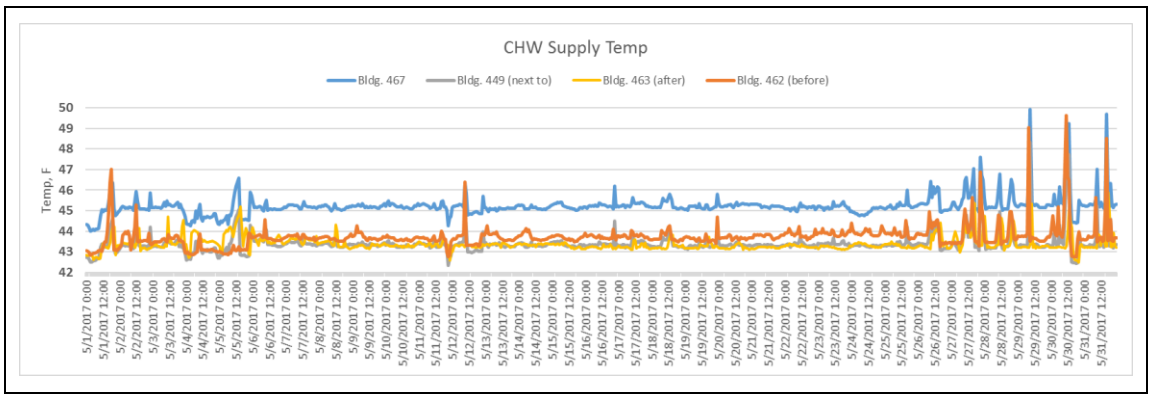
Quantitative descriptions and comments

The CHW supply temp readings for this building started to decrease on 8/6/2016 while all adjacent buildings have stable supply temperature at around 42°F. The supply temperature had a period of obviously erroneous values of 20°F during 9/10 – 9/20/2016, and then increased to 45°F range. The explanatory figure below shows the supply temperature for Bldg. #467 and the surrounding Bldgs. #462, #449, and #463. The temperature sensor for Bldg. #467 shows to be almost two degrees higher than its neighboring buildings. The CHW for the month of May was estimated by model based on the data during 6/1/2015 - 6/30/2016.

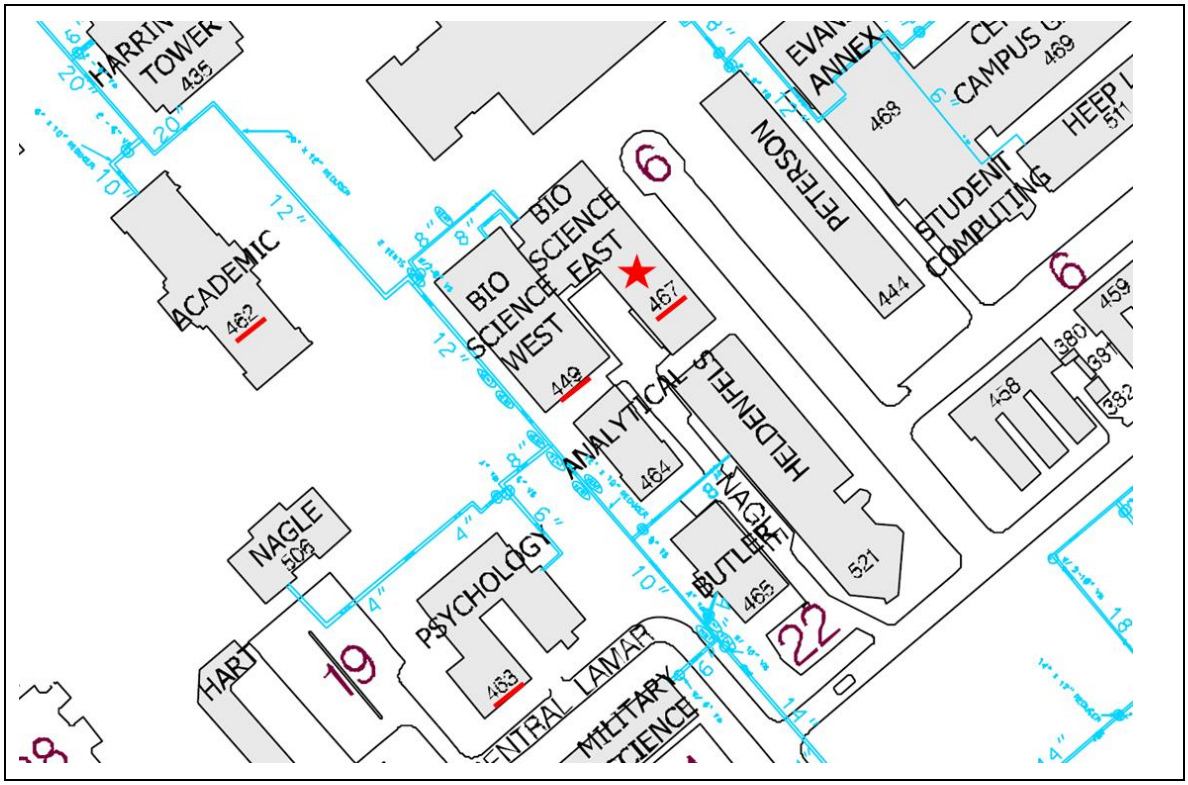
Explanatory Figure: 13 months energy balance plot with original data



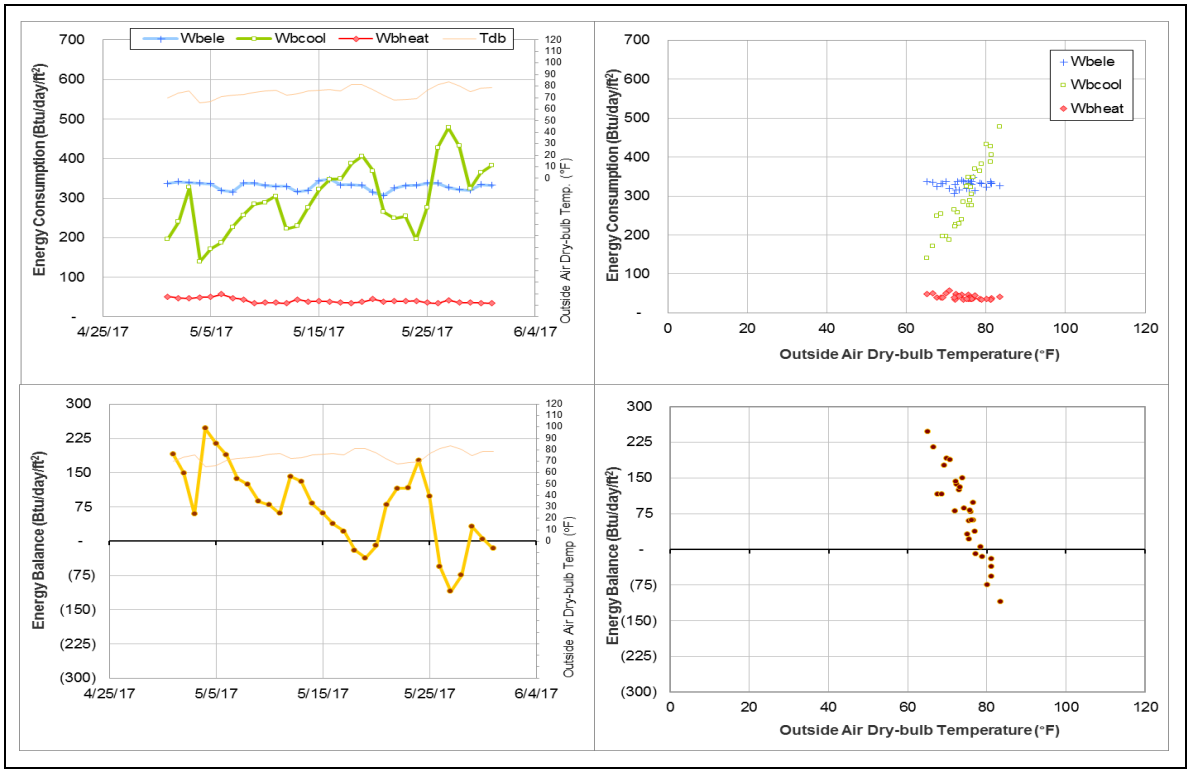
Explanatory Figure: Time series plot of hourly average CHW supply temperature for Bldgs. #467 Biological Sciences East, #462 Academic, #449 Biological Sciences West, and #463 Psychology. (May 2017)



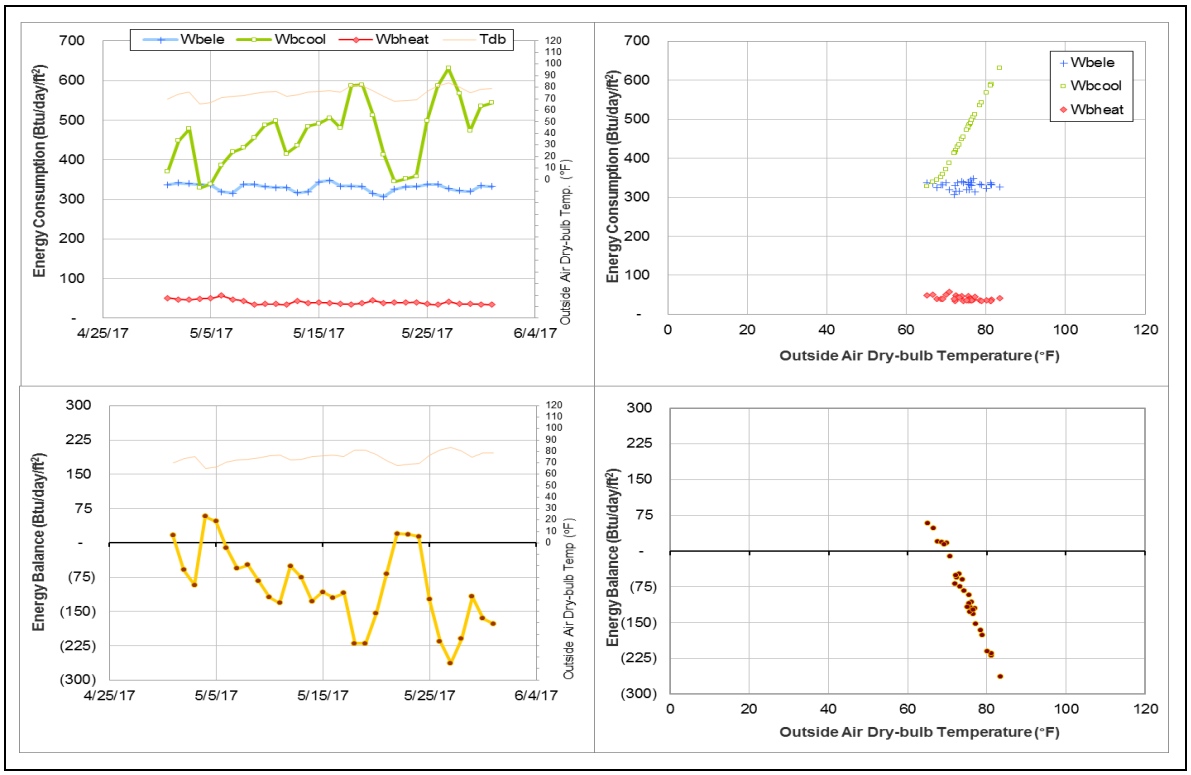
Explanatory Figure: CHW distribution with Bldgs. #467 Biological Sciences East, #462 Academic, #449 Biological Sciences West, and #463 Psychology highlighted.



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Scoates Hall (TAMU Bldg # 478)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007969	16	5/16/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level is higher than the level during the past year.	5/16/2017 – Ongoing

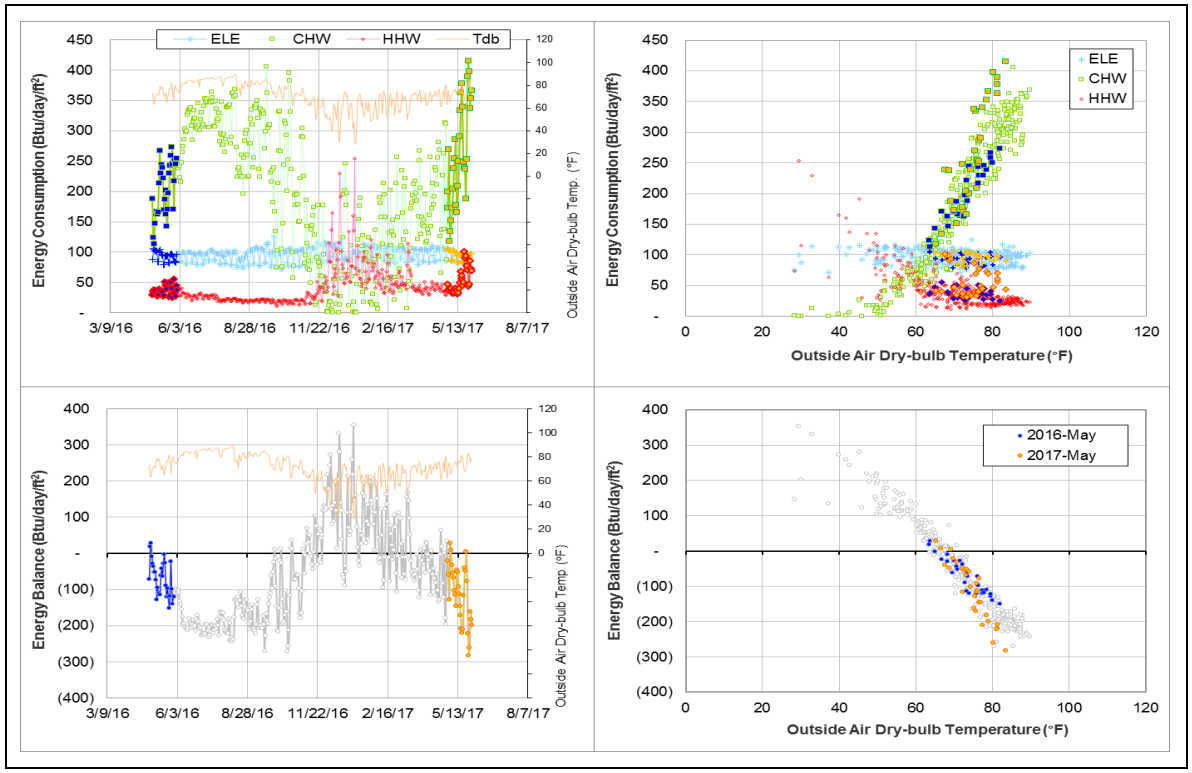
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	007969	5/16/2017 – Ongoing	Flow rate	Increase

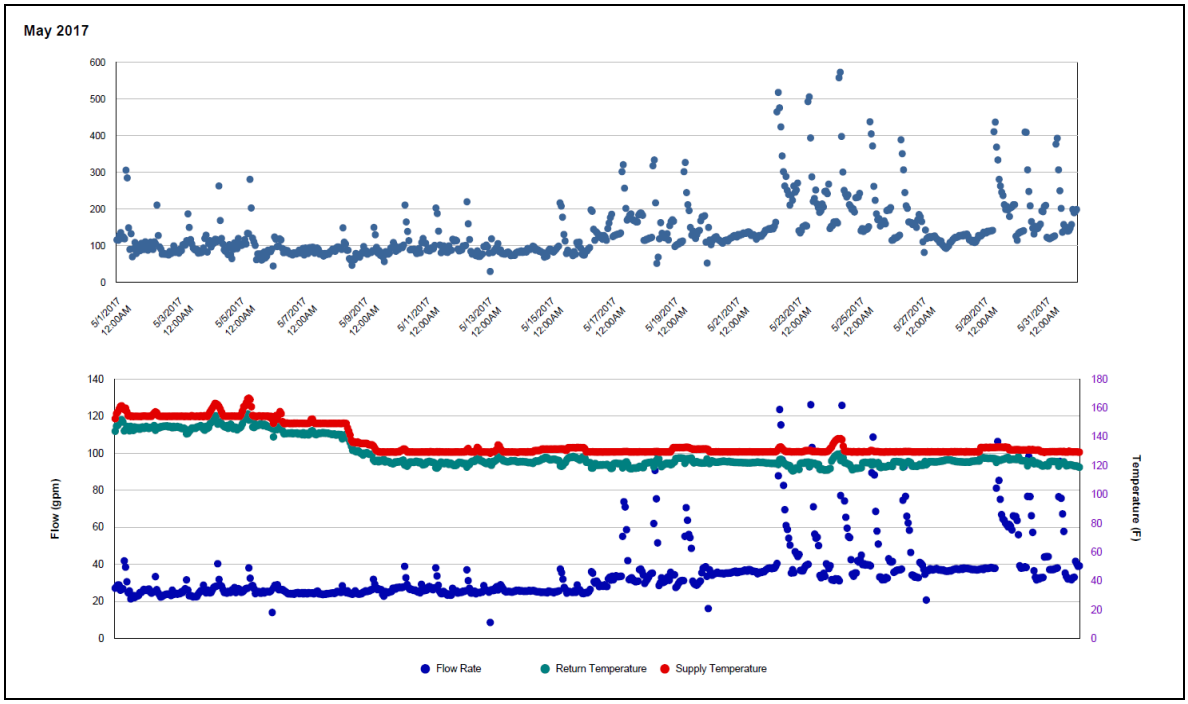
Quantitative descriptions and comments

The HHW consumption increased above the past 13-month pattern starting 5/16/2017 by 20-50 Btu/day/ft^2. The flow rate appears to have started increasing around the same time. The HHW consumption was estimated by model for this period.

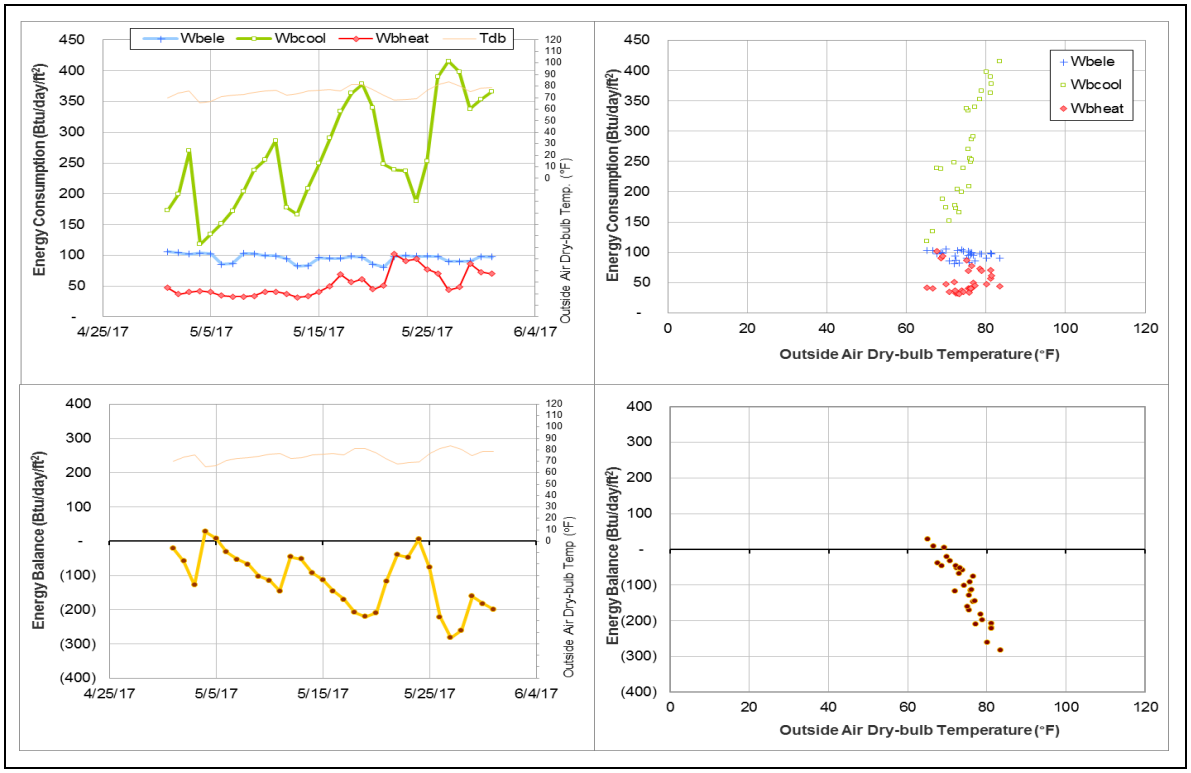
Explanatory Figure: 13 months energy balance plot with original data



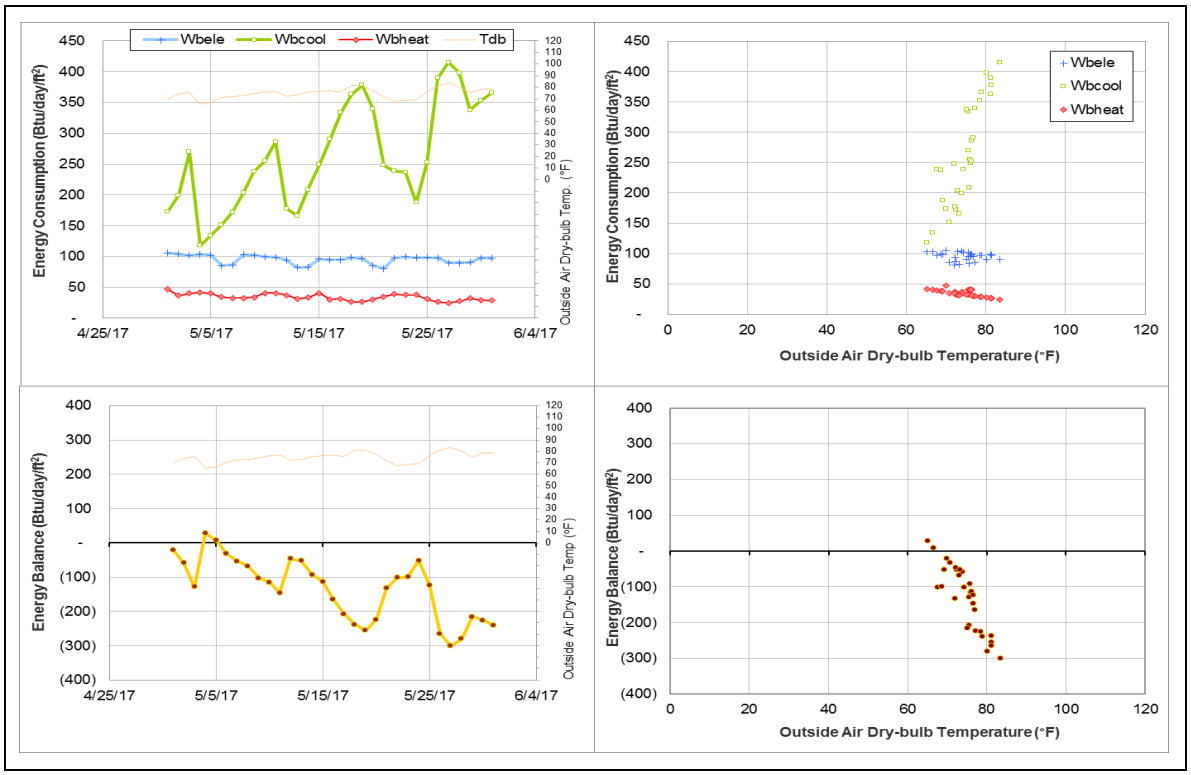
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Heaton Hall (TAMU Bldg # 481)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	007531	31	5/1/2017 – 5/31/2017	Model
HHW	007535	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is lower than the level during the past year.	2/1/2017 – Ongoing
HHW	The consumption level is lower than the level during the past year.	2/1/2017 – Ongoing

Changes in sensor readings related to the detected issues

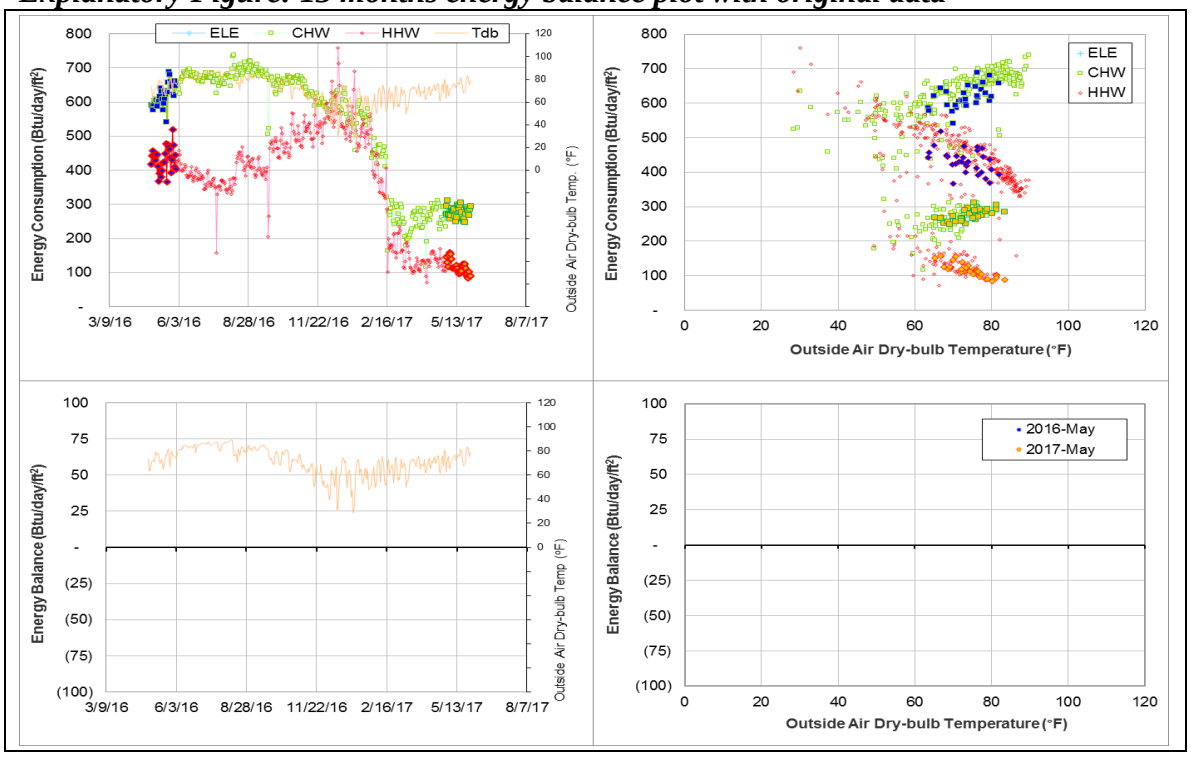
Energy Type	Meter ID	Period	Type	Description
CHW	007531	2/1/2017 – Ongoing	Flow rate	Decreased
HHW	007535	2/1/2017 – Ongoing	Flow rate	Decreased

Quantitative descriptions and comments

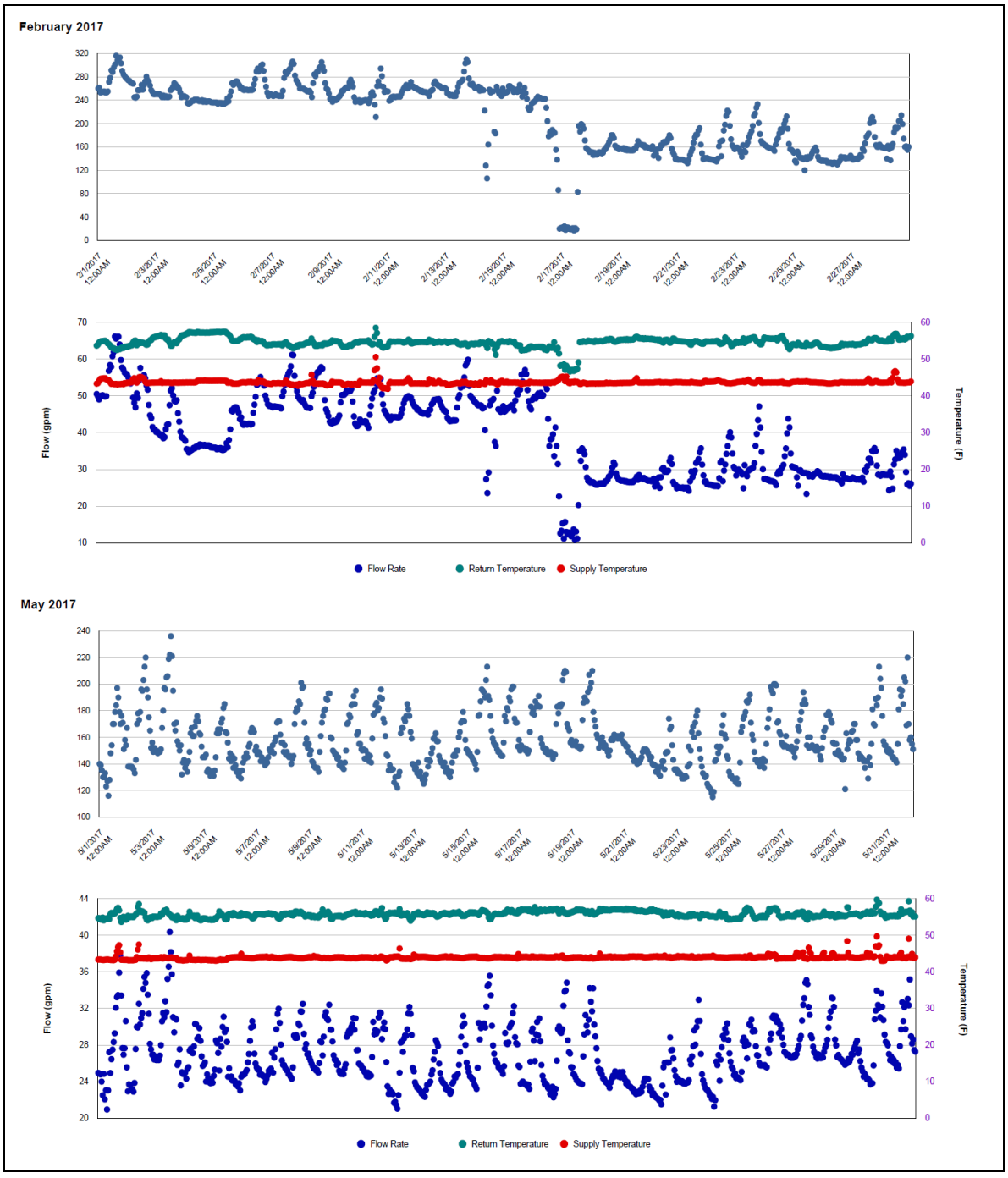
The CHW consumption decreased by about 100 Btu/day/ft^2 at the beginning of February 2017 and continued to decrease further by about 200 Btu/day/ft^2 around 2/17/2017. The CHW still maintains this lower level through May. When compared to the same month as last year, the flow rate appears to have reduced by half. The CHW was estimated by model for the month of May.

The HHW also decreased at the same time as CHW by a similar amount. The flow rate seems to have reduced to half of what was used in the same month last year. The HHW was estimated for the month of May by model.

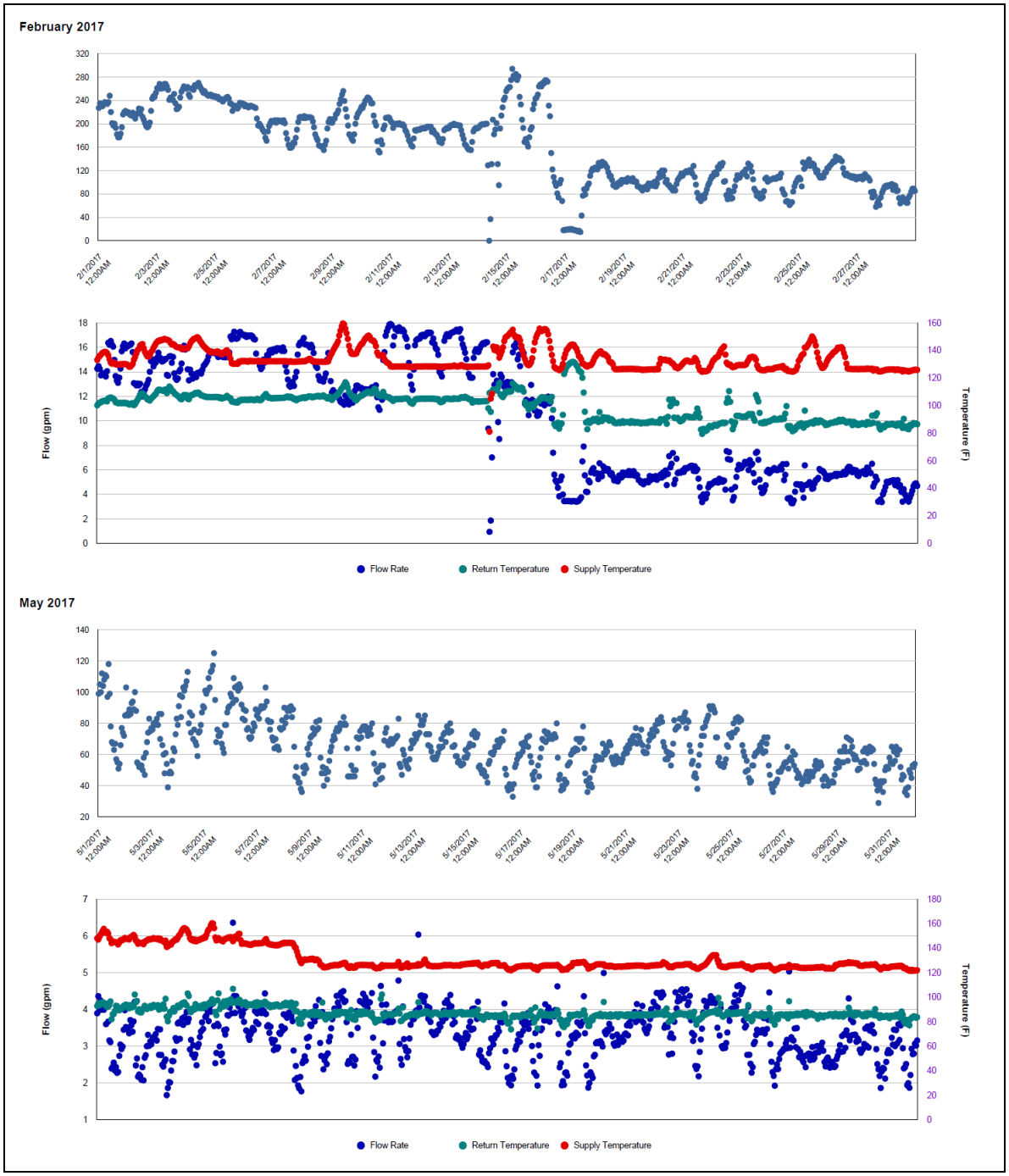
Explanatory Figure: 13 months energy balance plot with original data



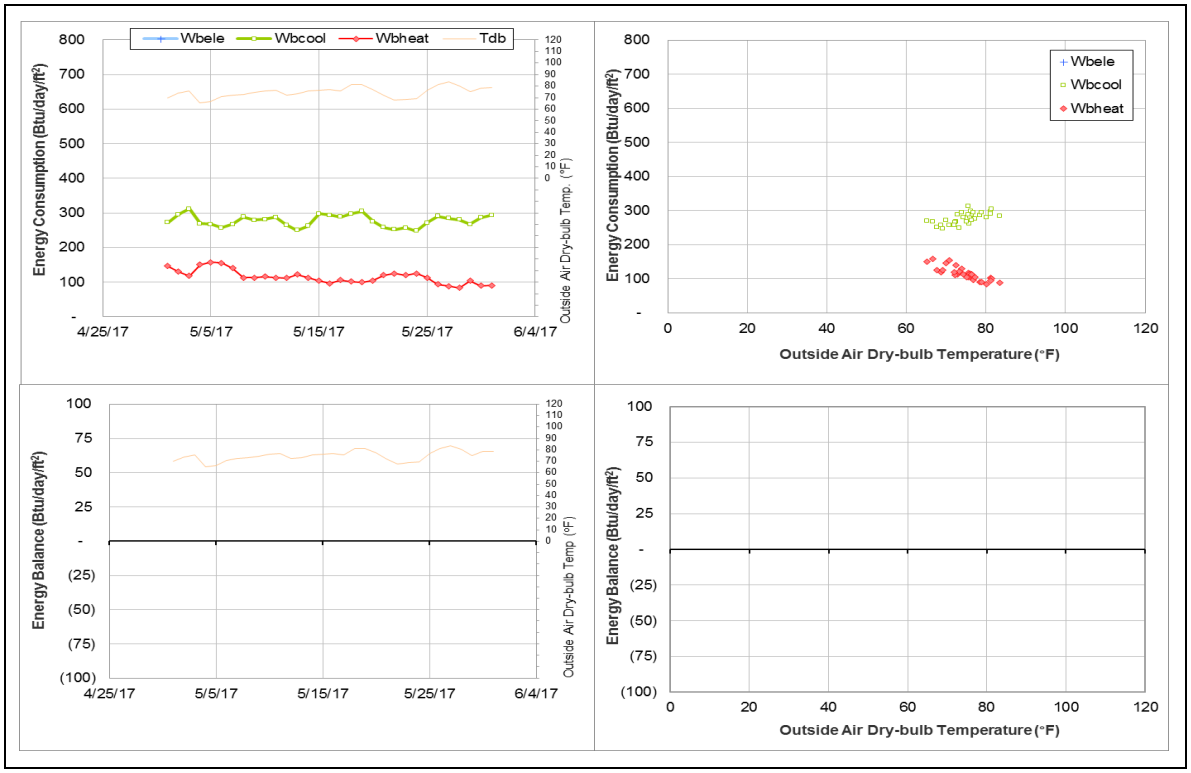
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow, and supply/return temperatures from utilities office. (Top: February; Bottom: May 2017)



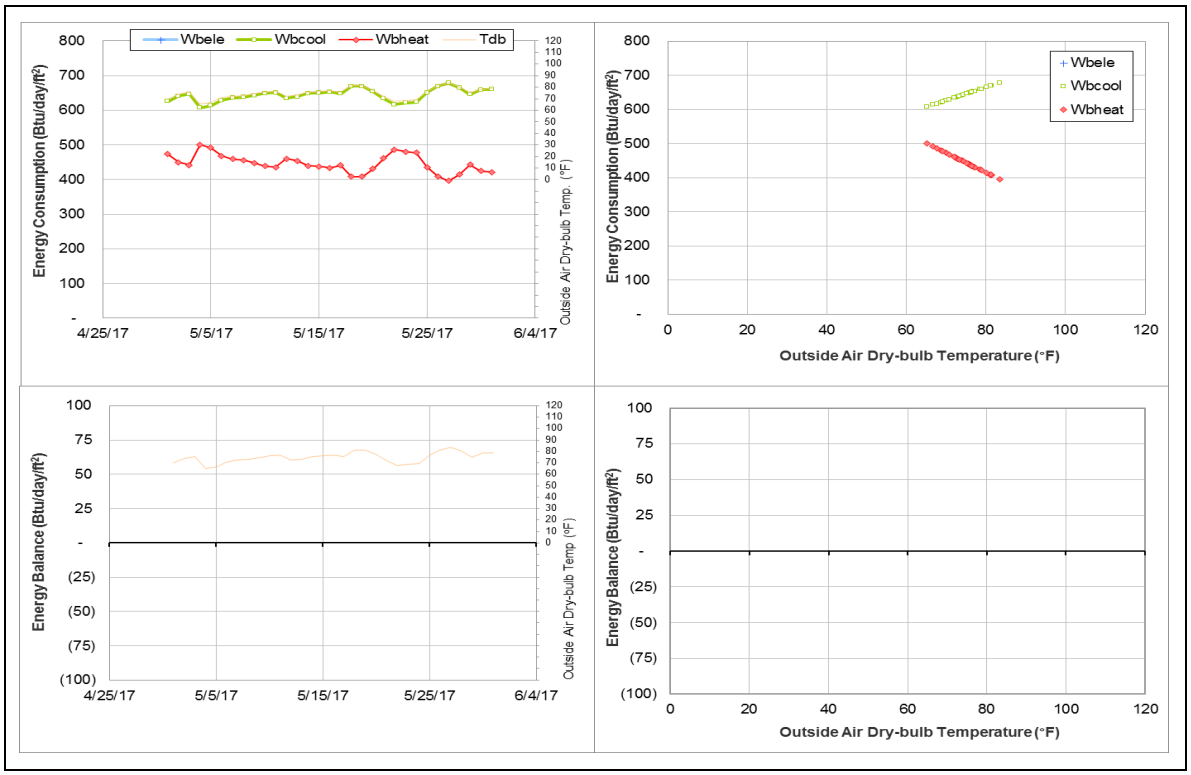
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (Top: February 2017; Bottom: May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Chemistry Building (TAMU Bldg # 484)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007032	25	5/1/2017 – 5/2/2017 5/9/2017 – 5/31/2017	Model

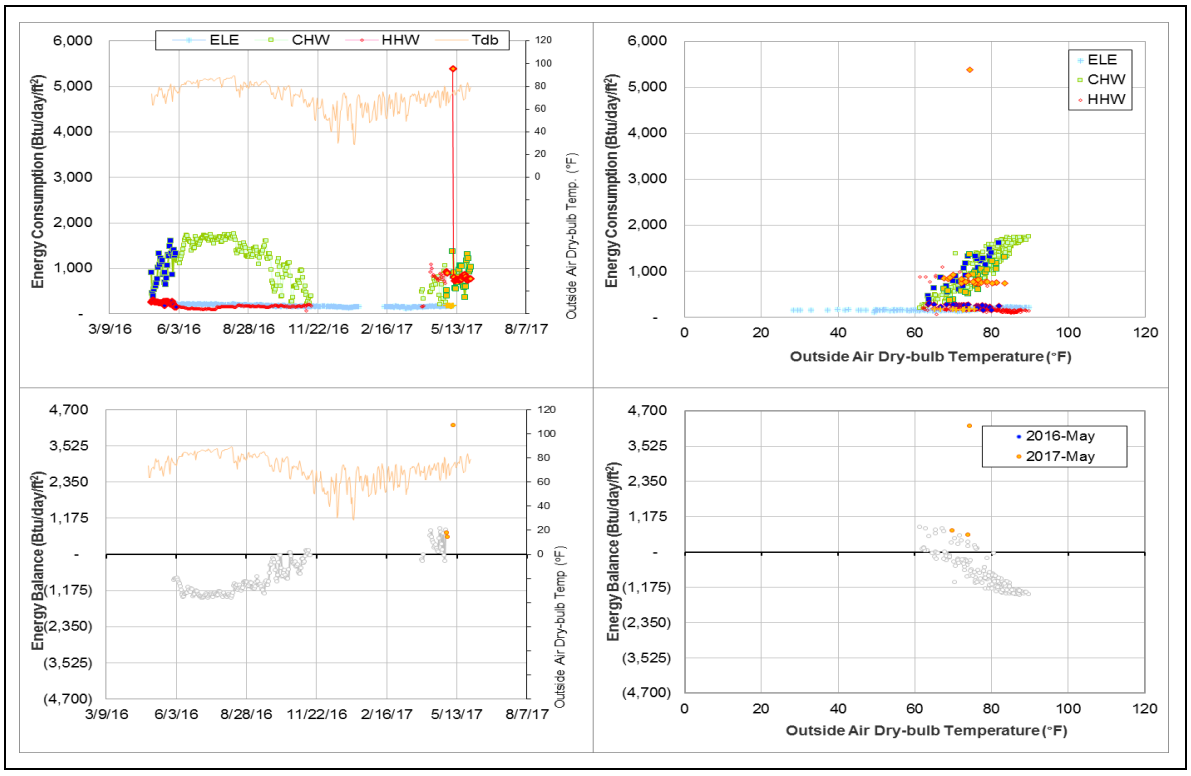
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level is higher than the level during the past year.	4/11/2017 – Ongoing

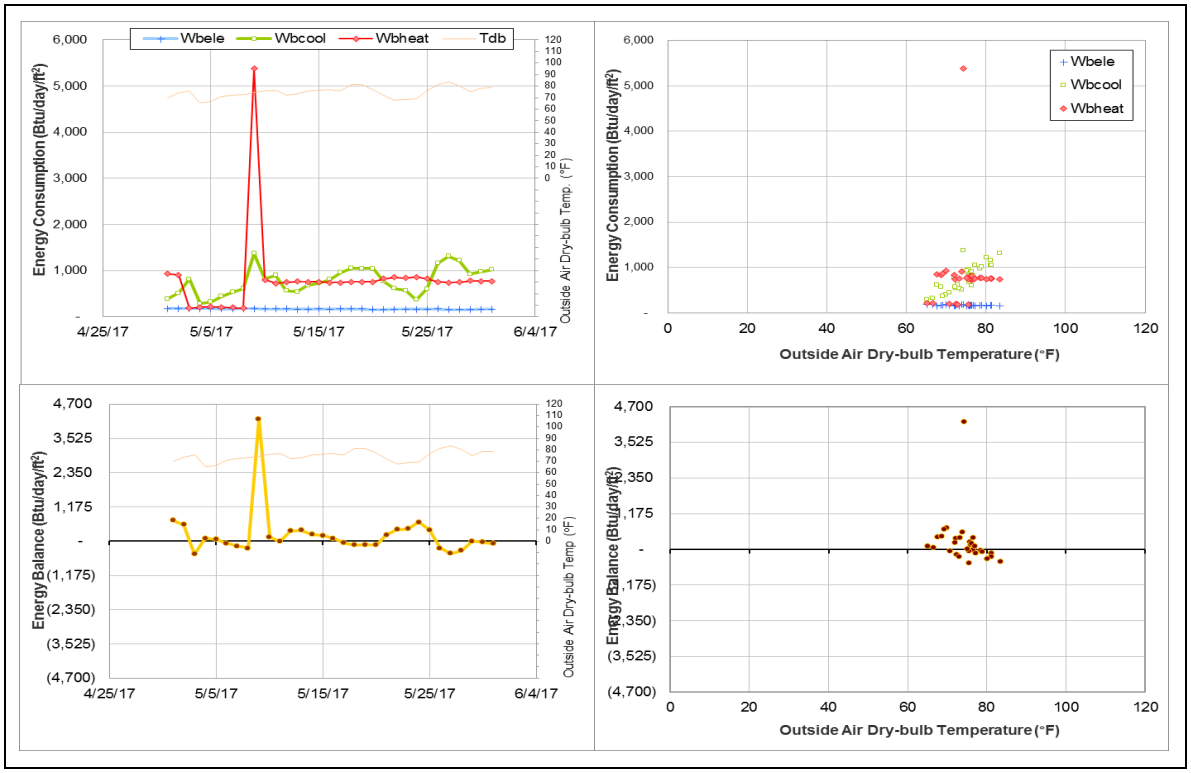
Quantitative descriptions and comments

This building has two HHW meters. The HHW consumption for meter #007032 increased by about 650 Btu/day/ft^2 starting on 4/11/2017. We are not able to identify a potential cause for this change due to the unavailability of the energy profile for this meter. The HHW was estimated by model for this period.

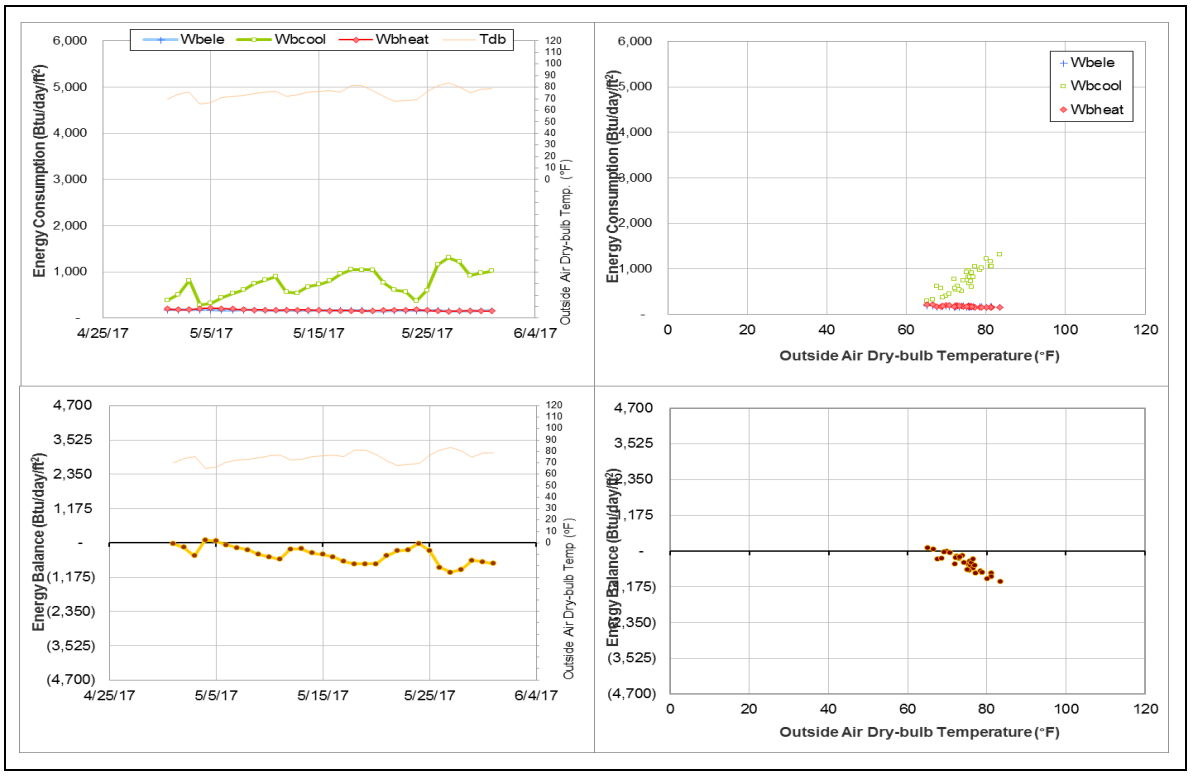
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Halbouty Geosciences Building (TAMU Bldg # 490)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	006900	9	5/19/2017 – 5/22/2017 5/27/2017 – 5/31/2017	Model
HHW	006917	5	5/26/2017 – 5/28/2017 5/30/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level has decreased suddenly.	5/19/2017 – 5/22/2017 5/27/2017 – Ongoing
HHW	The consumption level has decreased suddenly.	5/26/2017 – 5/28/2017 5/30/2017 – Ongoing

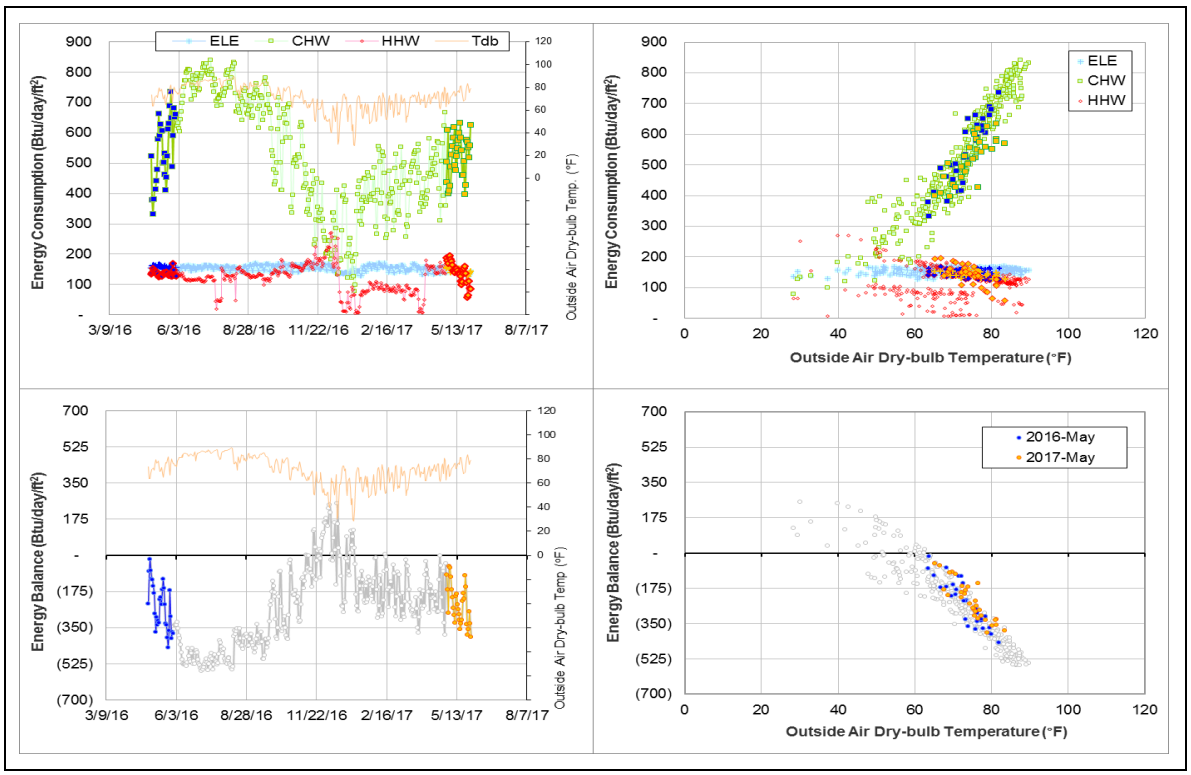
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	006900	5/19/2017 – 5/22/2017 5/27/2017 – Ongoing	Flow rate	Decreased
HHW	006917	5/26/2017 – 5/28/2017 5/30/2017 – Ongoing	Delta-T	Decreased to near zero

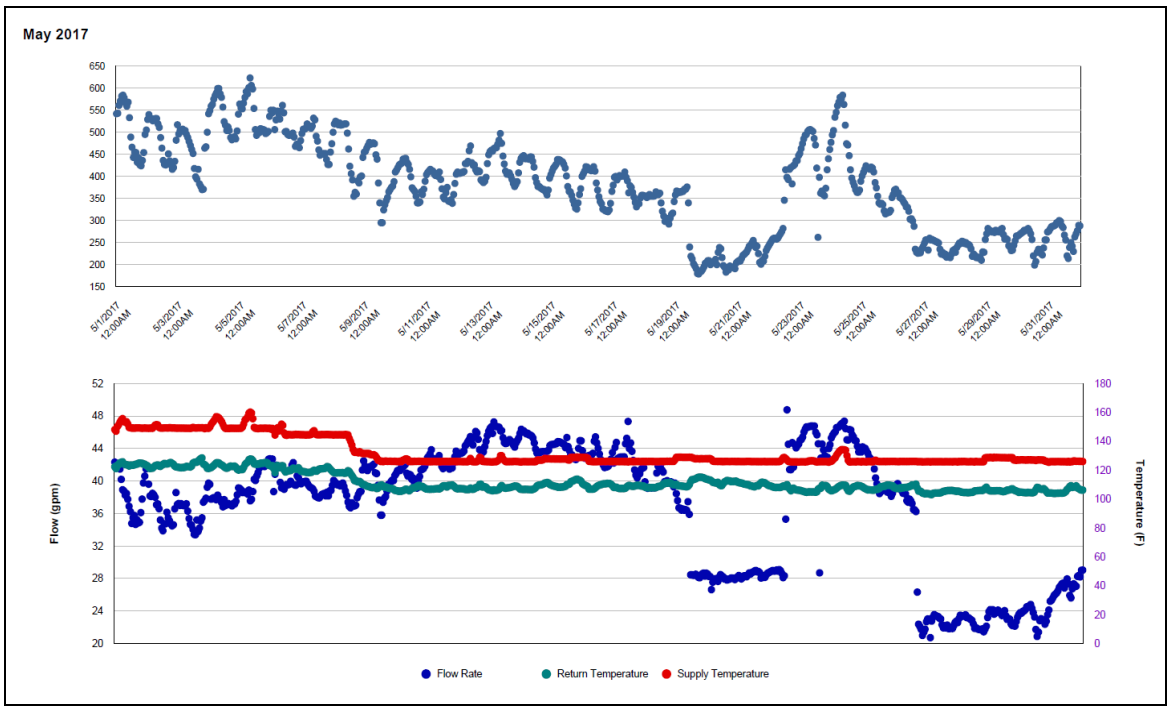
Quantitative descriptions and comments

There are two HHW meters for this building. Meter #006900 experienced a decrease in flow rate by up to half for the periods 5/19/2017 – 5/22/2017 and 5/27/2017 – 5/31/2017. Meter #006917 experienced a decrease to near zero Delta-T for the periods 5/26/2017 – 5/28/2017 and 5/30/2017 – 5/31/2017. Both HHW meters were estimated by model for these periods.

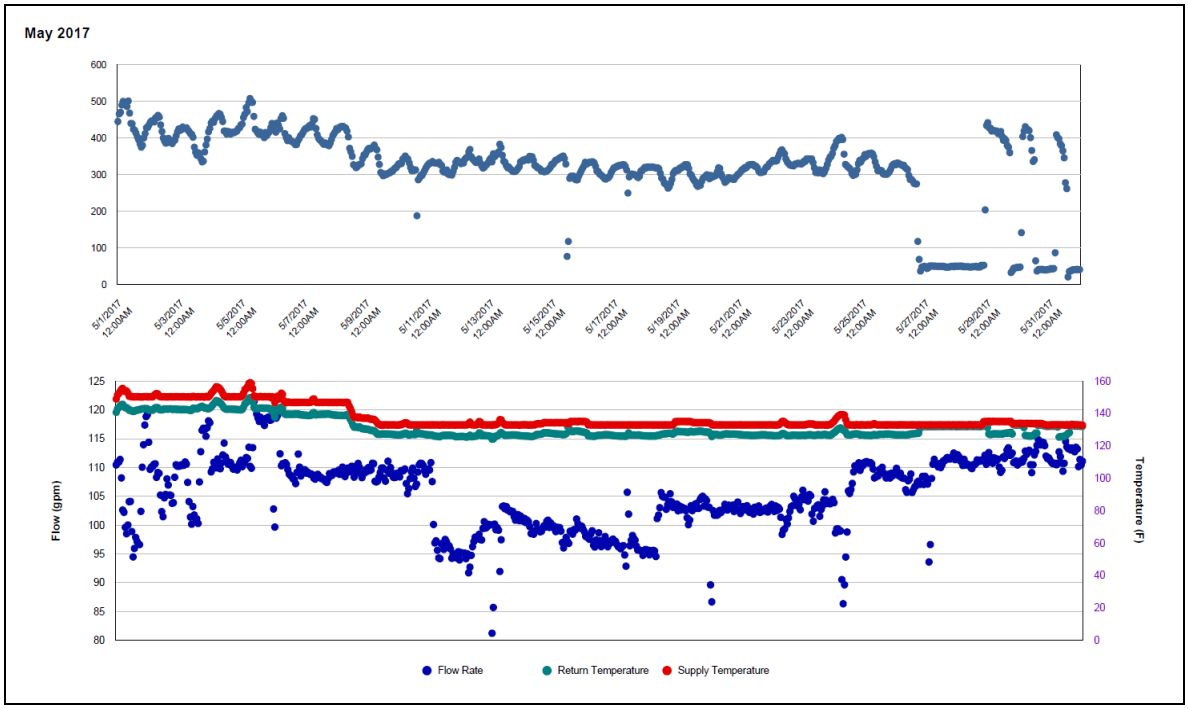
Explanatory Figure: 13 months energy balance plot with original data



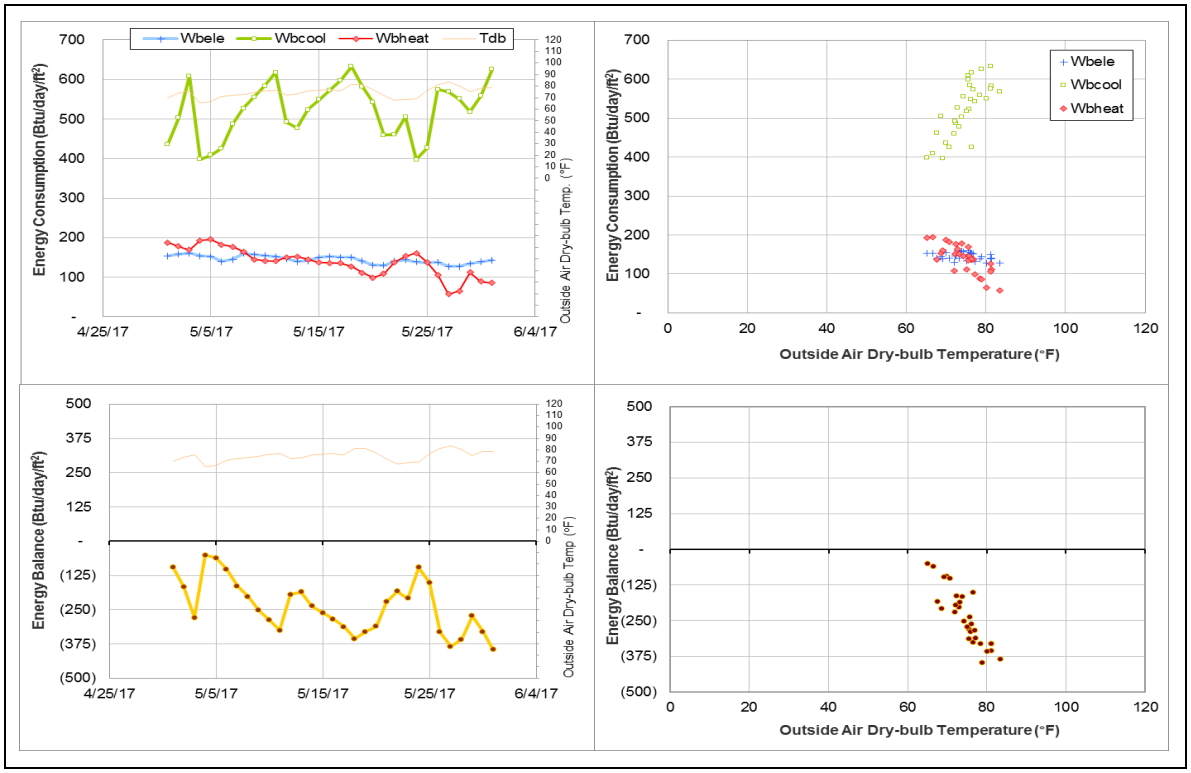
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter #006900 during May 2017)



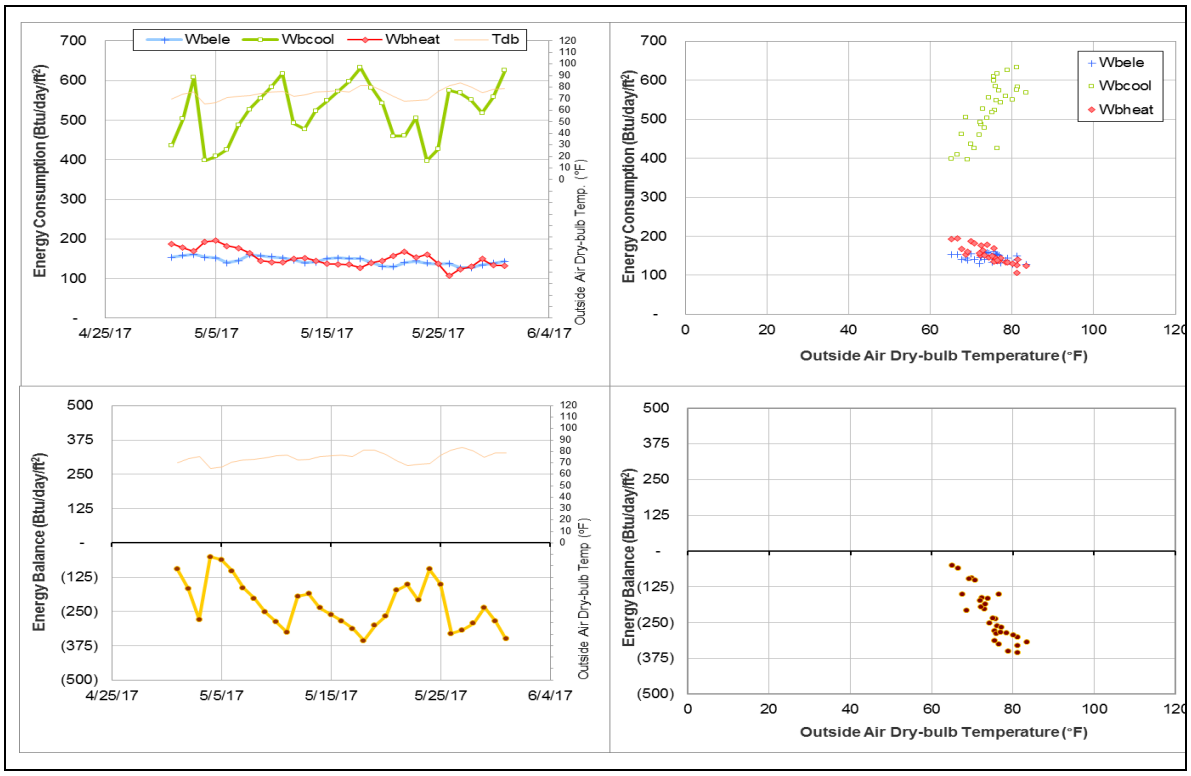
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter #006917 during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Civil Engineering Building (TAMU Bldg # 492)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	005954	8	5/1/2017 – 5/2/2017 5/4/2017 – 5/9/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption dropped for a short period.	4/30/2017 – 5/2/2017 5/4/2017 – 5/9/2017

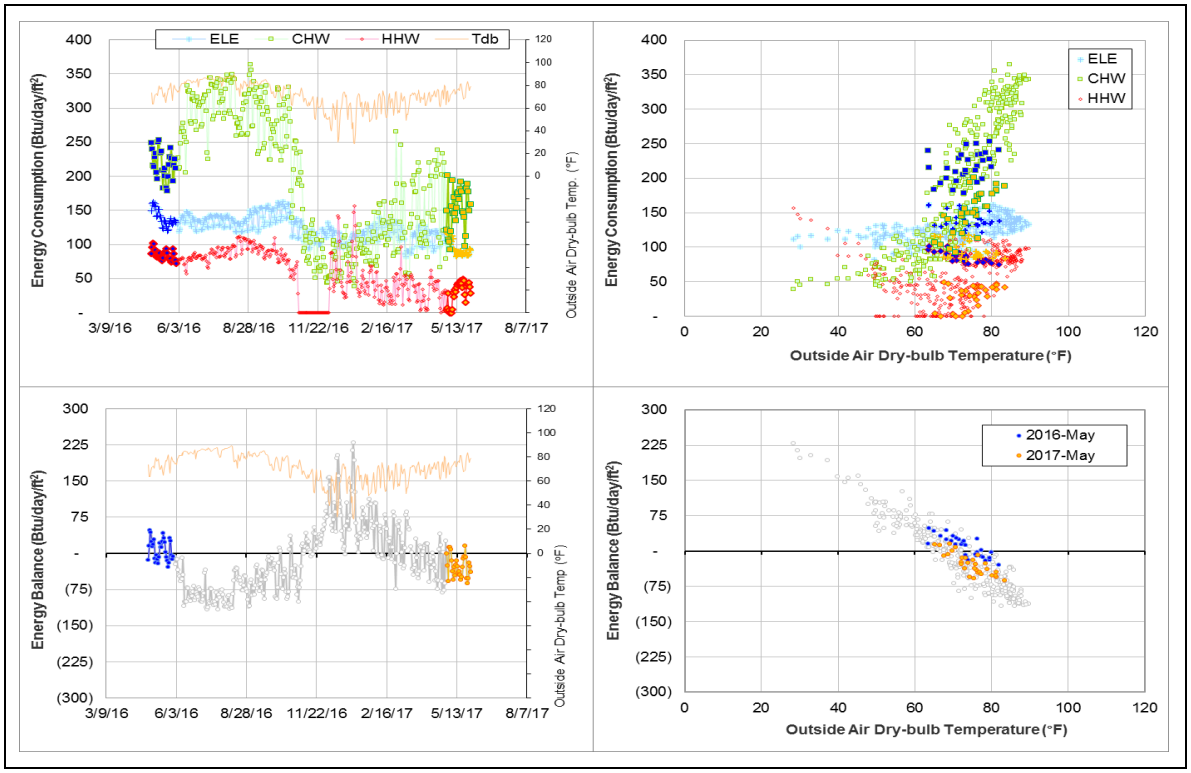
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	005954	4/30/2017 – 5/2/2017 5/4/2017 – 5/9/2017	Flow rate	Decrease to near zero

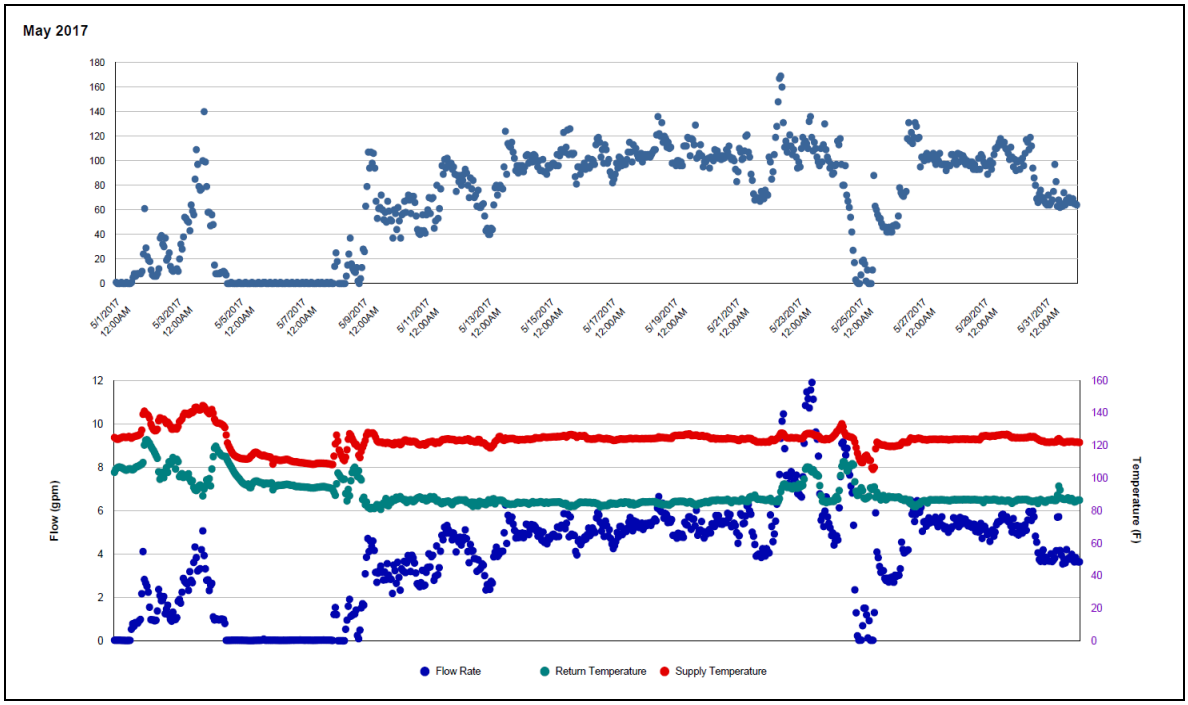
Quantitative descriptions and comments

The HHW consumption decreased for a short period during 4/30/2017 – 5/2/2017 and 5/4/2017 – 5/9/2017. The flow rate appears to decrease to near zero values during this time. The HHW consumption was estimated by model for this period.

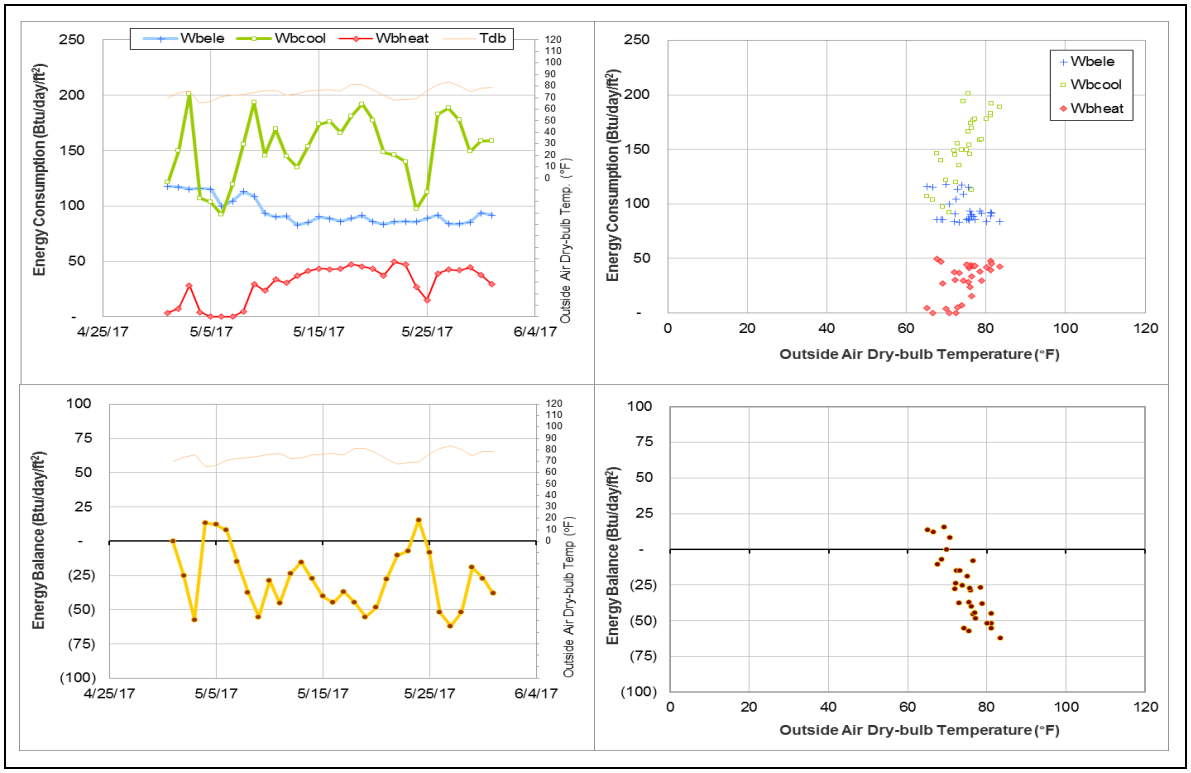
Explanatory Figure: 13 months energy balance plot with original data



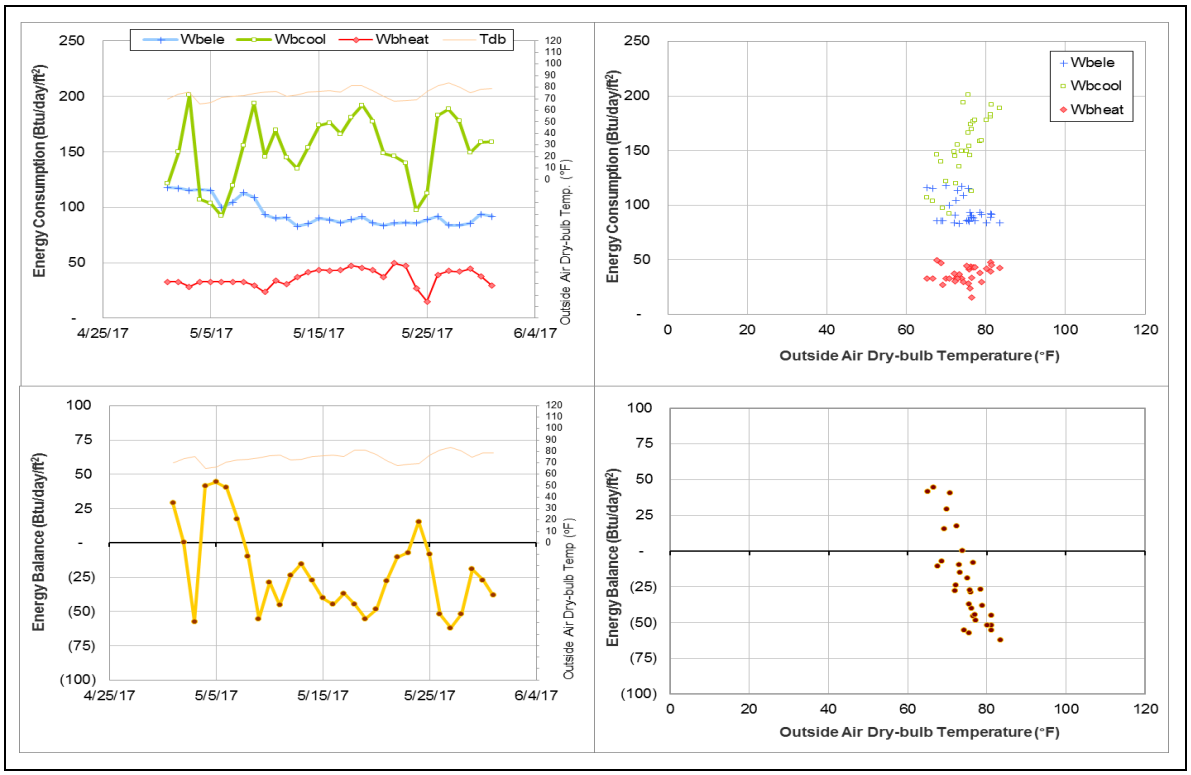
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Heep Laboratory Building (TAMU Bldg #511)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005821	31	5/1/2017 – 5/31/2017	Model
HHW	005825	24	5/8/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The metered values appear to be faulty.	4/1/2017 – Ongoing
HHW	The consumption level has decreased suddenly.	5/8/2017 – Ongoing

Changes in sensor readings related to the detected issues

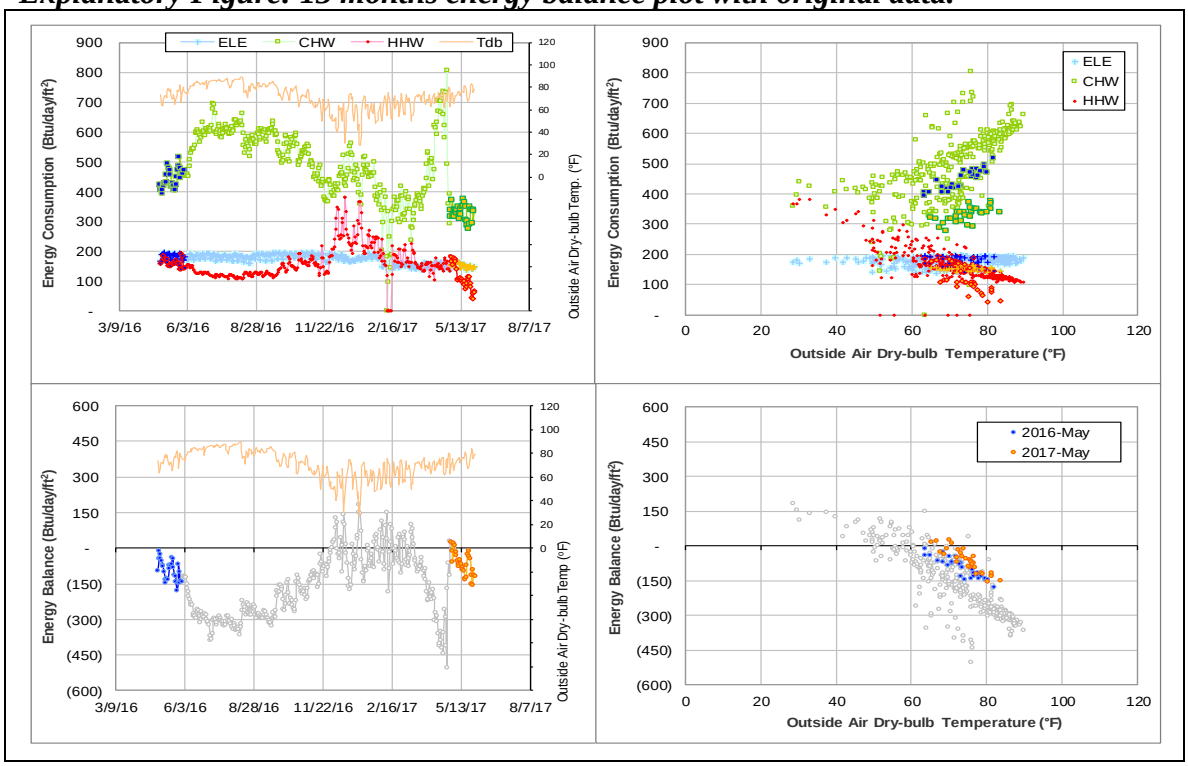
Energy Type	Meter ID	Period	Type	Description
CHW	005821	4/1/2017 – Ongoing	Supply Temp	Faulty – drifted
HHW	005825	5/8/2017 – Ongoing	Flow rate	Low

Quantitative descriptions and comments

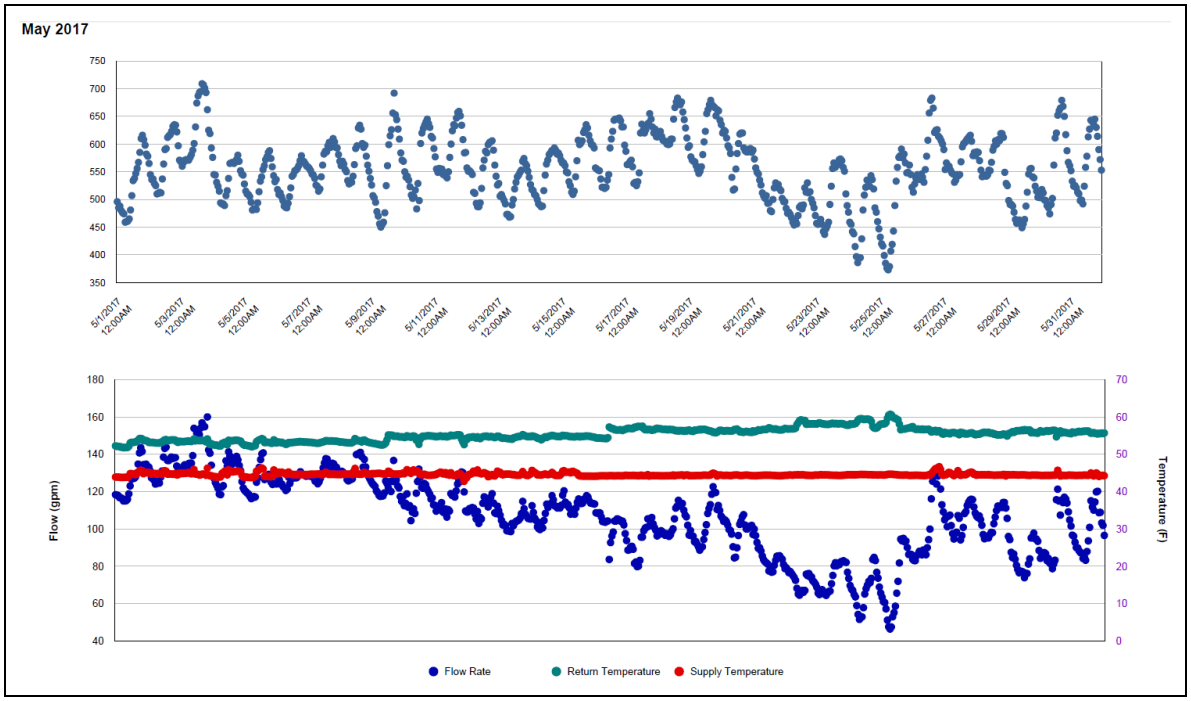
The CHW supply temp sensor appears to be faulty. The supply temp readings started to drift in the end of March 2017 and decreased to 35°F during April 2017. On 4/27/2017, the supply temp value jumped to 44°F. By comparing this value with the two hydrologically closest buildings #0471 Pavilion and #0444 Peterson, it is obviously observable that CHW supply temp sensor of #0511 is still under-calibrated (See the explanatory figure). The CHW of the whole month is estimated by model.

The HHW flow sharply dropped on 5/8/2017 from 20 – 25 gpm to 10 – 15 gpm, resulting in a significant decrease in HHW consumption. The HHW of this period is estimated by model. Note that the supply and return temp readings also dropped on 5/8/2017, but this is observed in many buildings too and is therefore not considered as meter faulty.

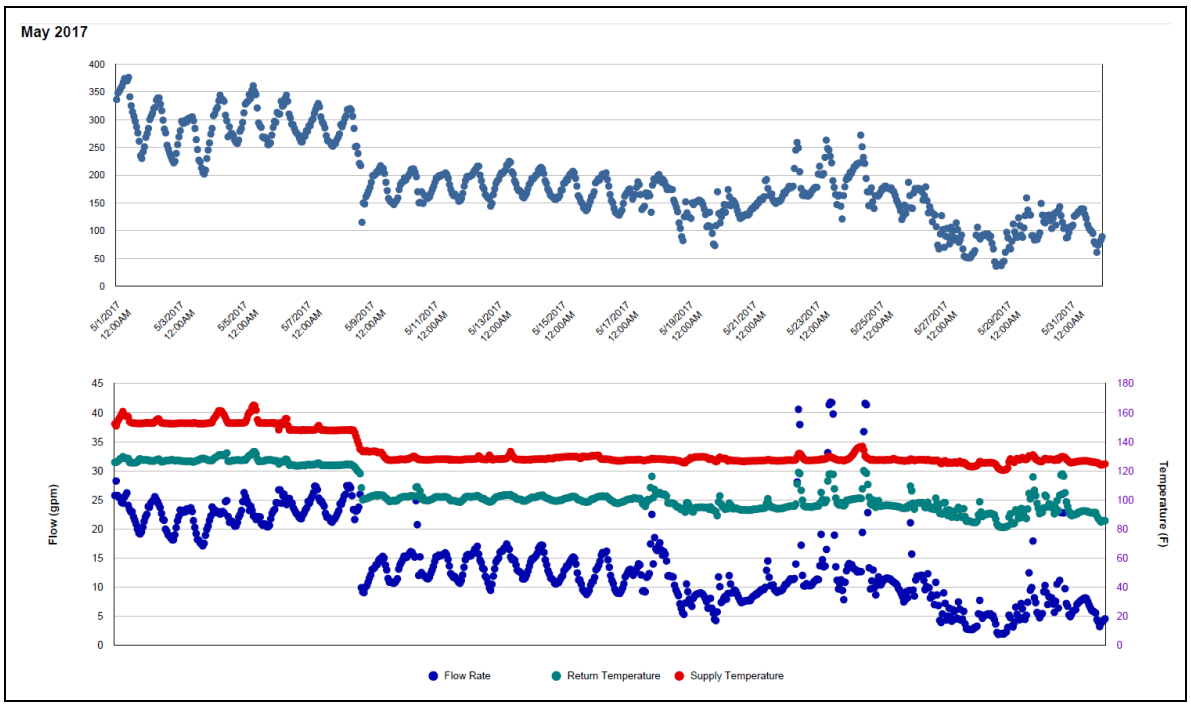
Explanatory Figure: 13 months energy balance plot with original data.



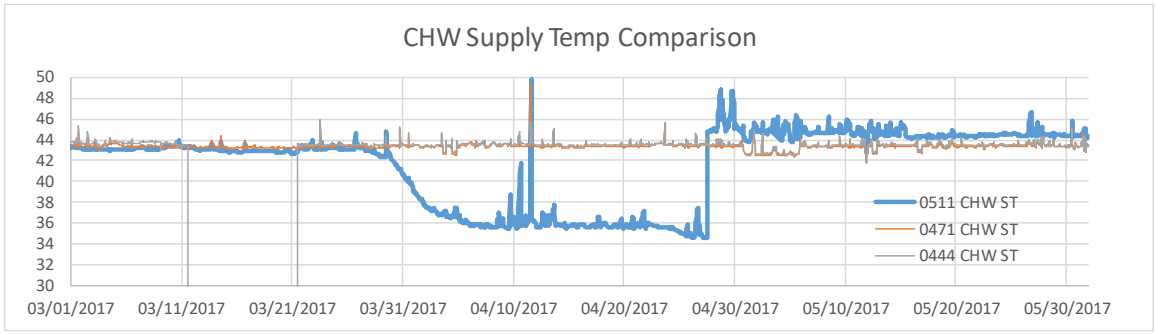
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)



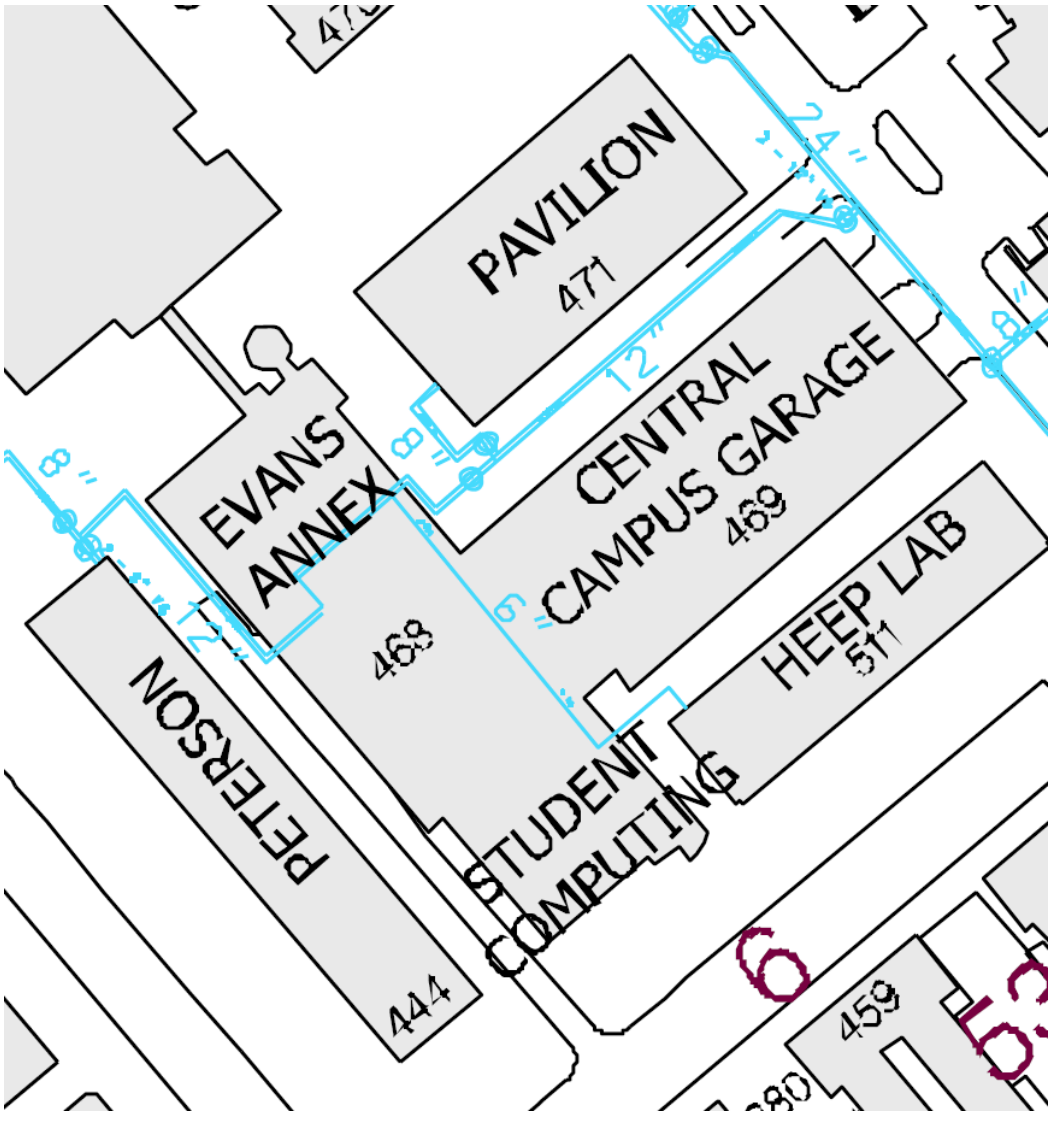
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



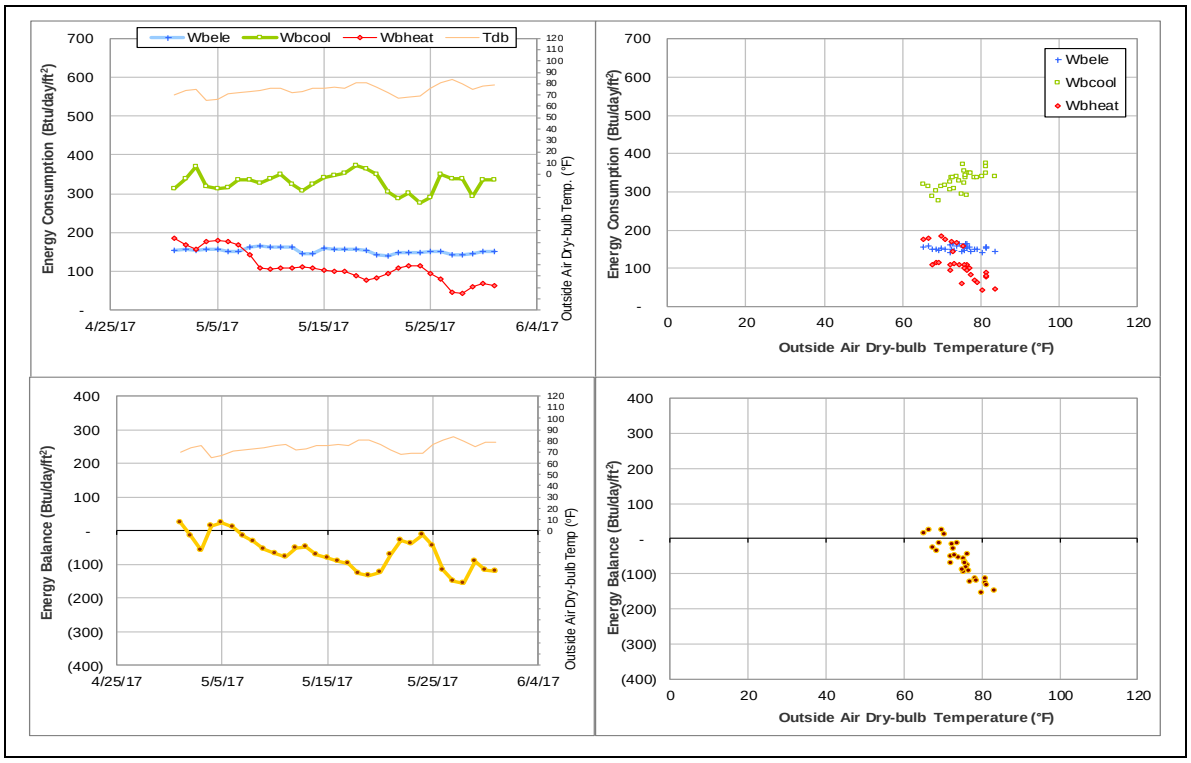
Explanatory Figure: CHW supply temp comparison of hydrologically closest buildings.



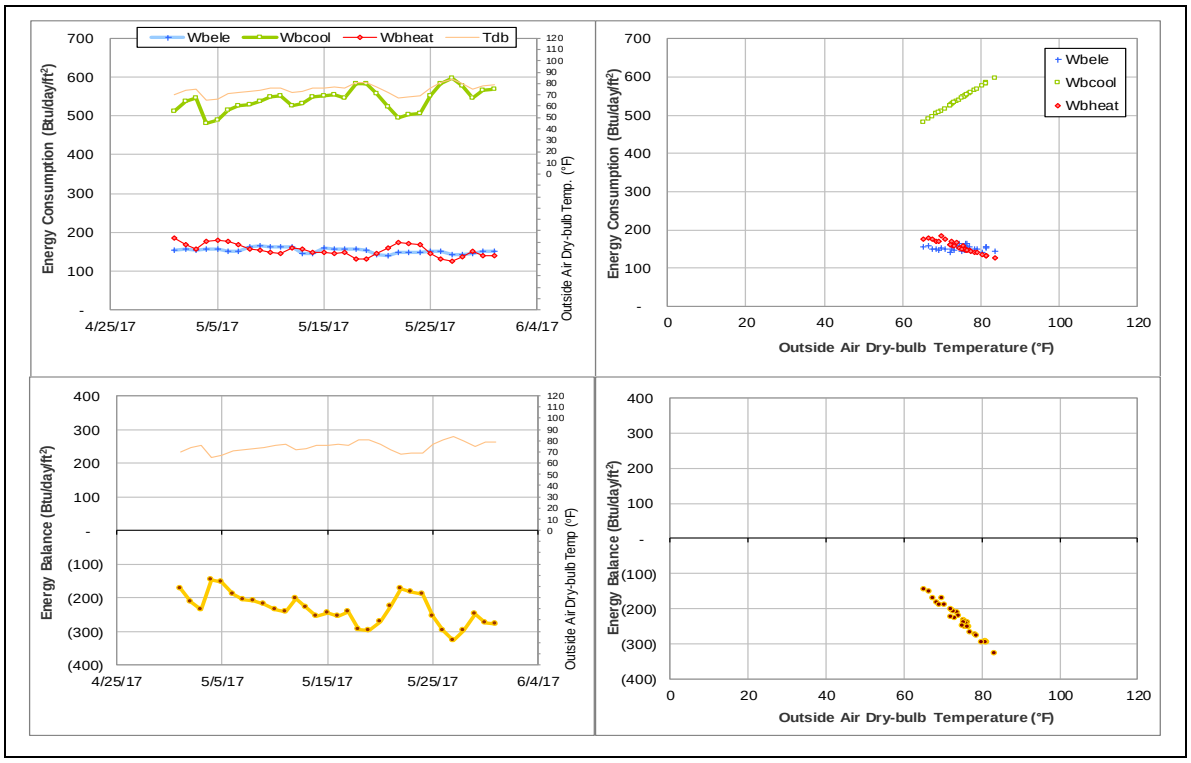
Explanatory Figure: CHW pipeline map near #0511.



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



All Faiths Chapel (TAMU Bldg #512)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	004293	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level has decreased suddenly.	4/26/2017 – Ongoing

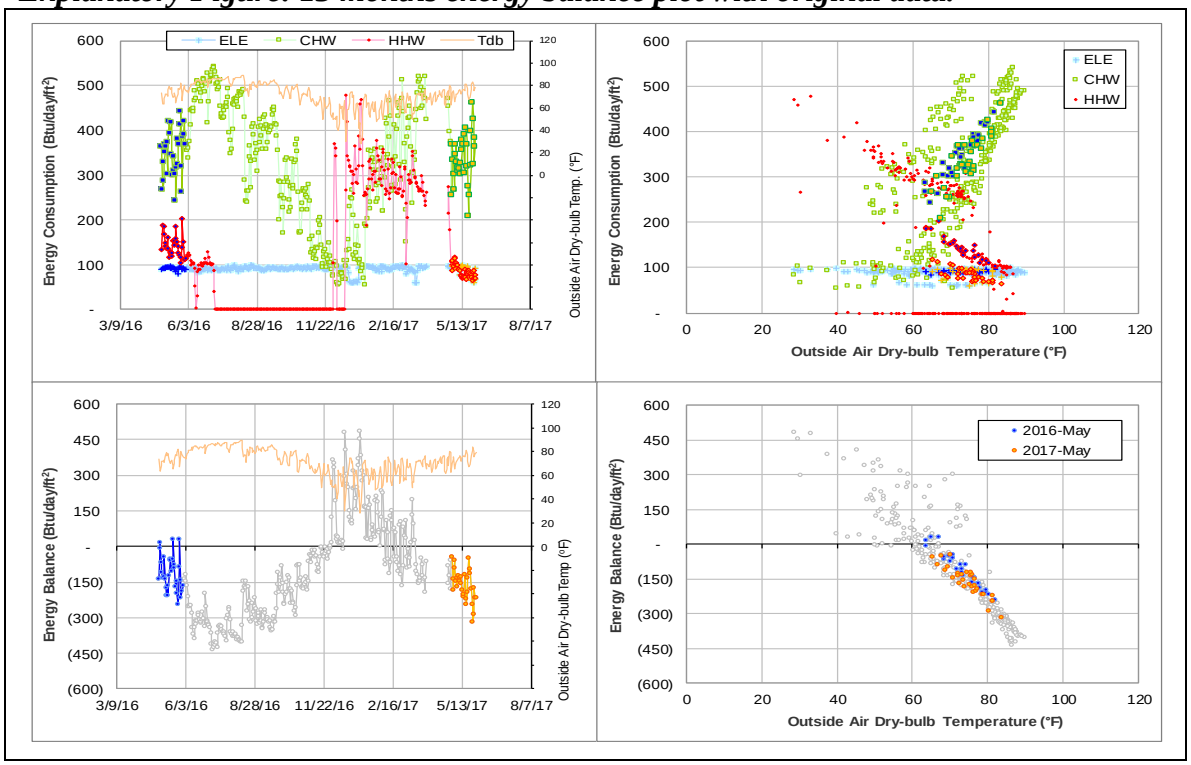
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	004293	4/26/2017 – Ongoing	Flow rate	Increased

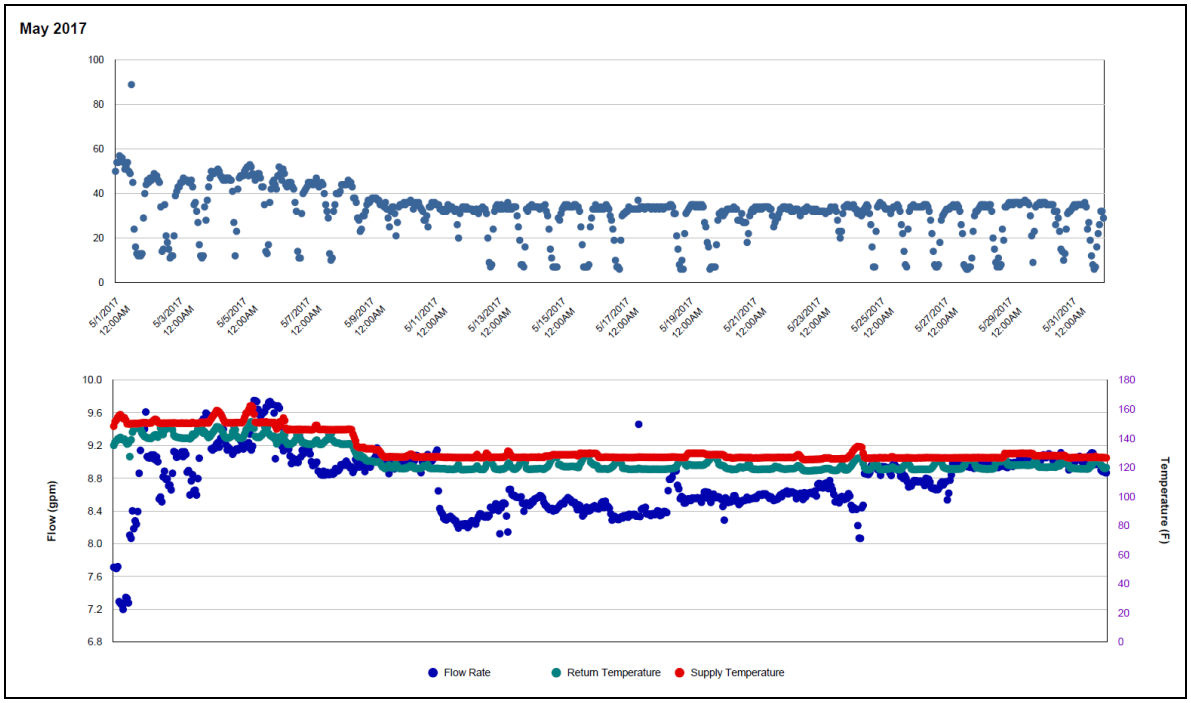
Quantitative descriptions and comments

The HHW consumption suddenly decreased to zero on 7/14/2016 due to a zero reading of flow rate. Starting 12/19/2016, the HHW consumption level is higher than the previous trend; an increase in flow rate is the suspected cause. On 4/29/2017, the HHW flow rate decreased. The consumption data is missing for most of April. After the missing, flow rate dropped sharply starting 4/26/2017. The HHW of the whole month is estimated by model based on the data during 5/1/2015 – 5/31/2016.

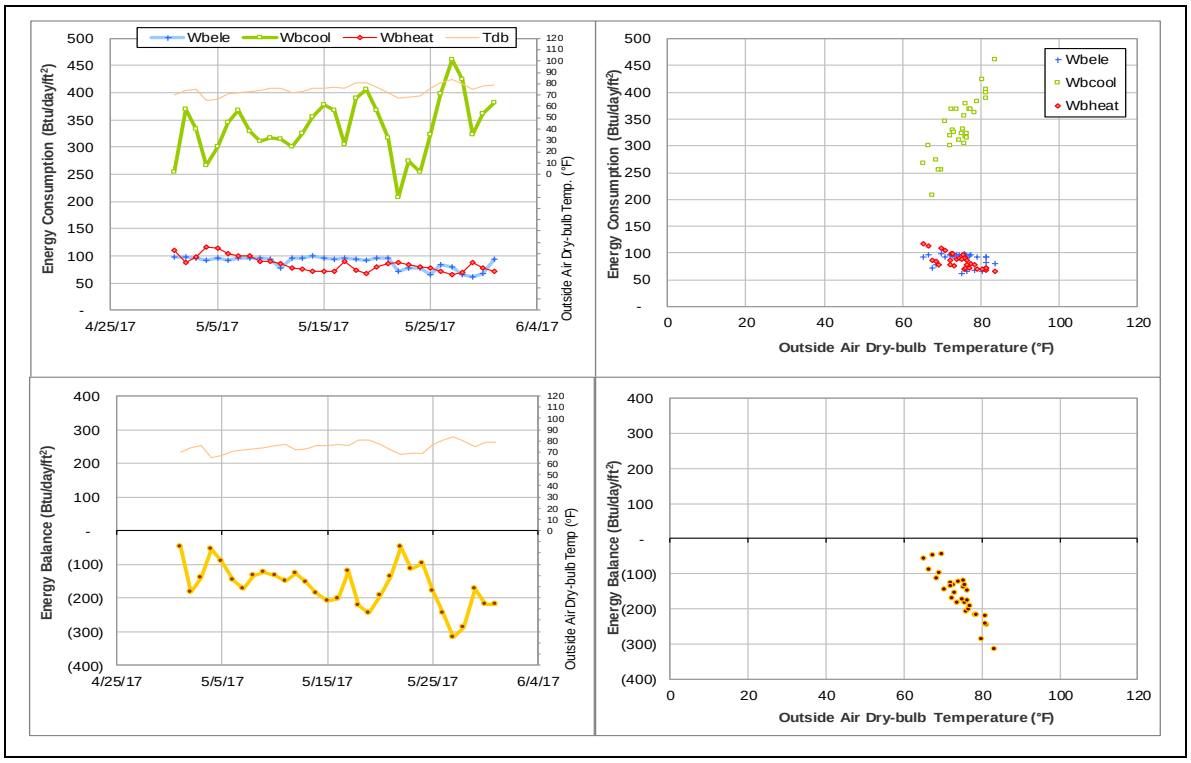
Explanatory Figure: 13 months energy balance plot with original data.



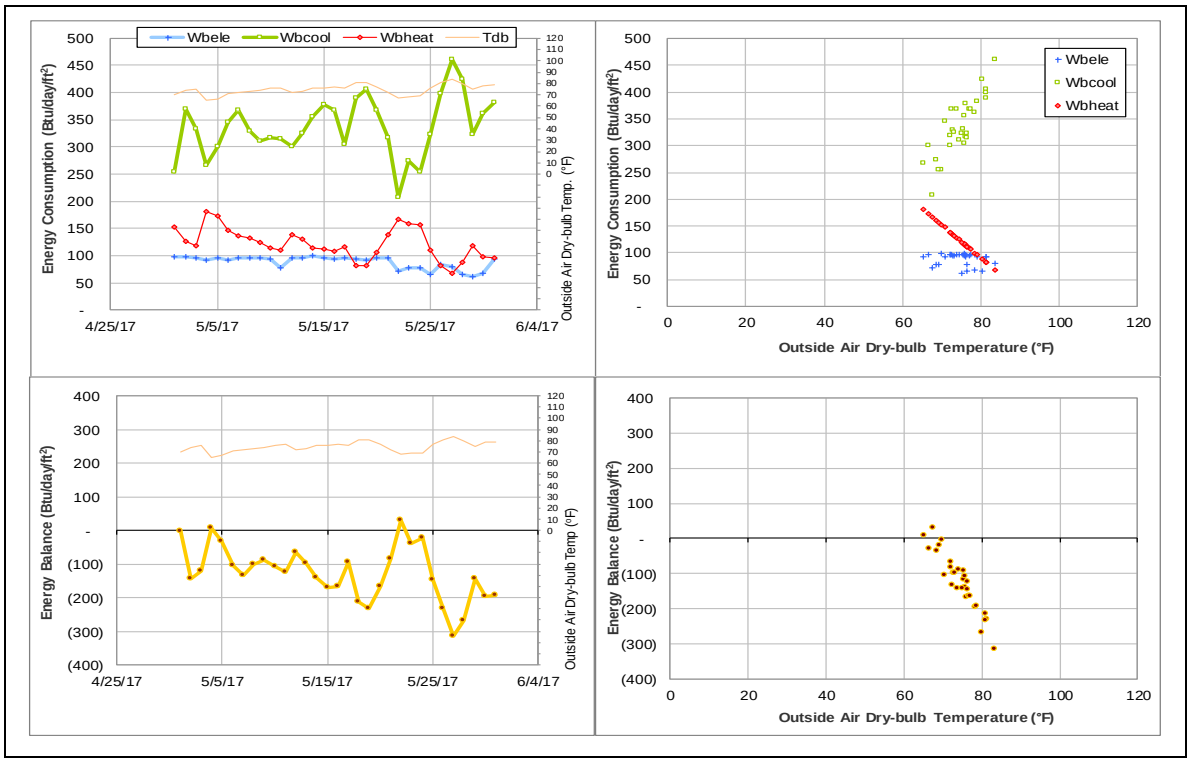
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Neeley Residence Hall (TAMU Bldg #652)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002147	3	5/20/2017 – 5/22/2017	Model
HHW	002151	3	5/20/2017 – 5/22/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption dropped for a short period.	5/20/2017 – 5/22/2017
HHW	The consumption dropped for a short period.	5/20/2017 – 5/22/2017

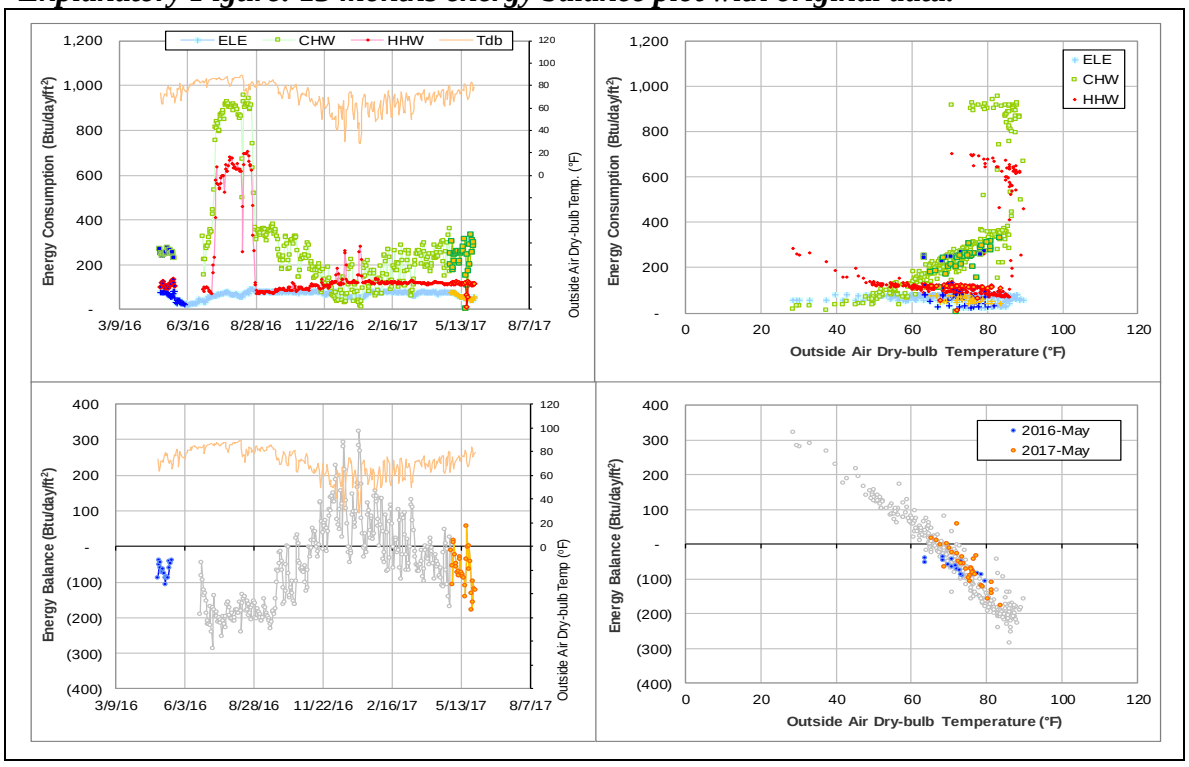
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002147	5/20/2017 – 5/22/2017	Flow rate	Decreased to zero
HHW	002151	5/20/2017 – 5/22/2017	Flow rate	Decreased to near zero

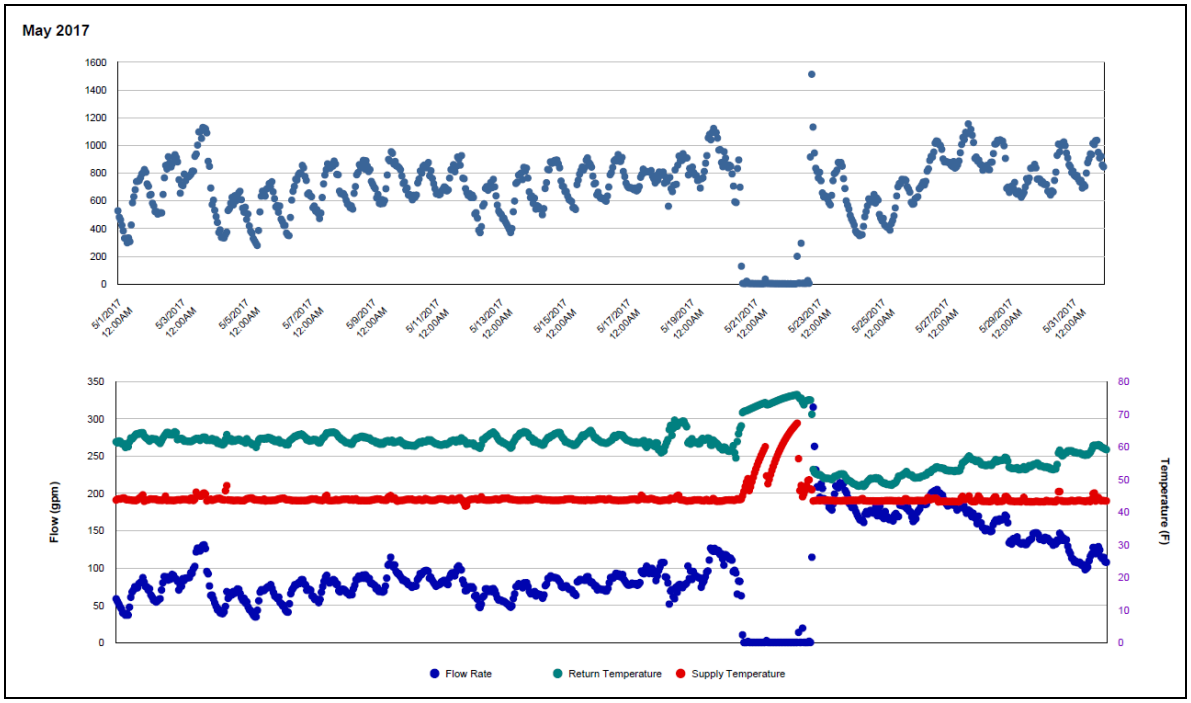
Quantitative descriptions and comments

During 5/20/2017 – 5/22/2017, CHW flow rate dropped to zero and HHW flow rate dropped to near zero. The CHW and HHW consumptions are estimated during this period by model.

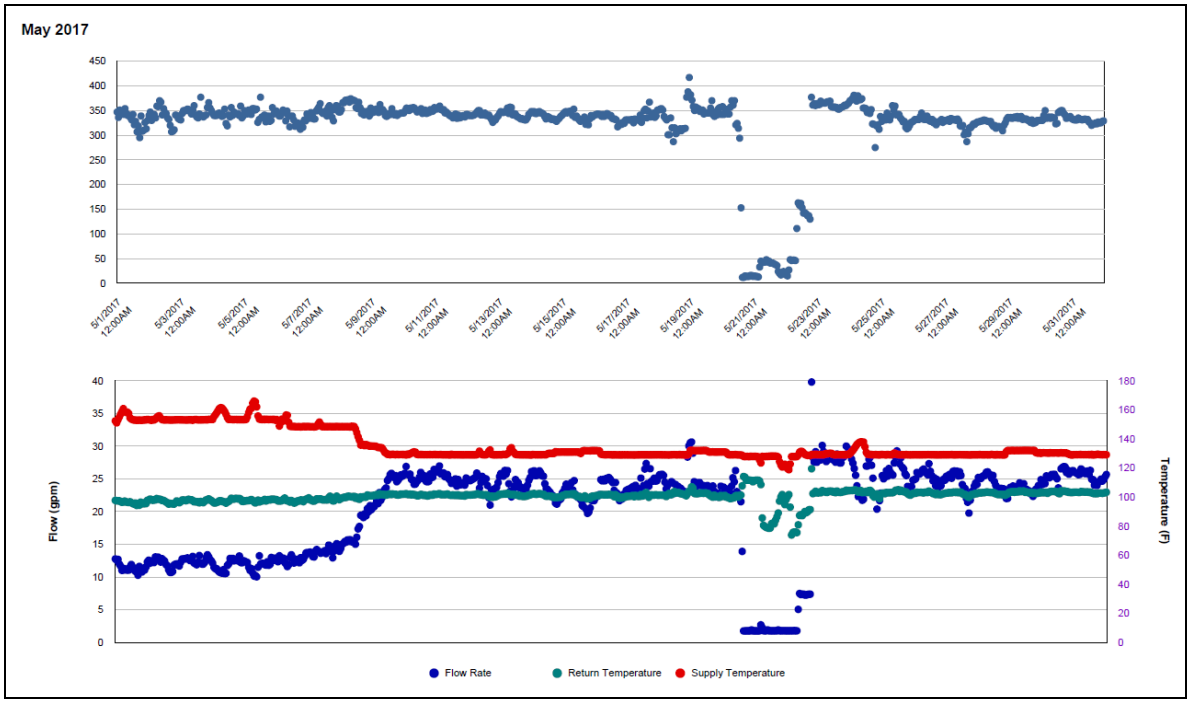
Explanatory Figure: 13 months energy balance plot with original data.



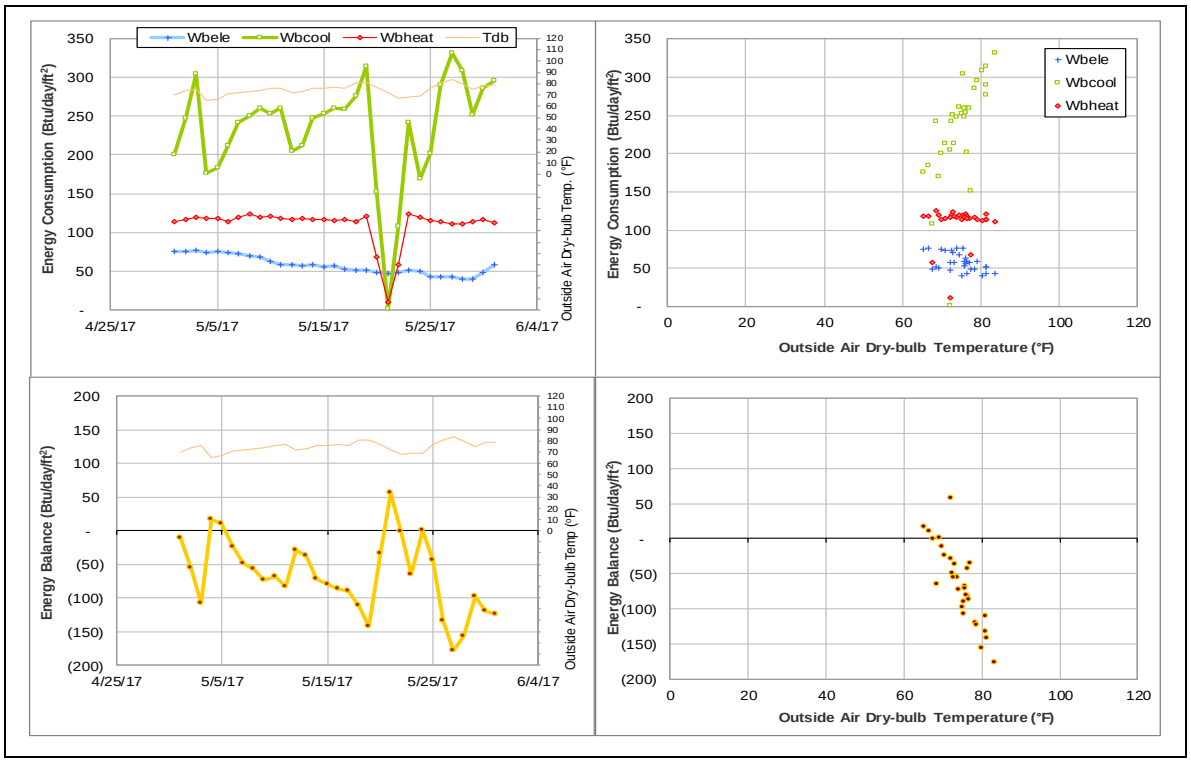
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)



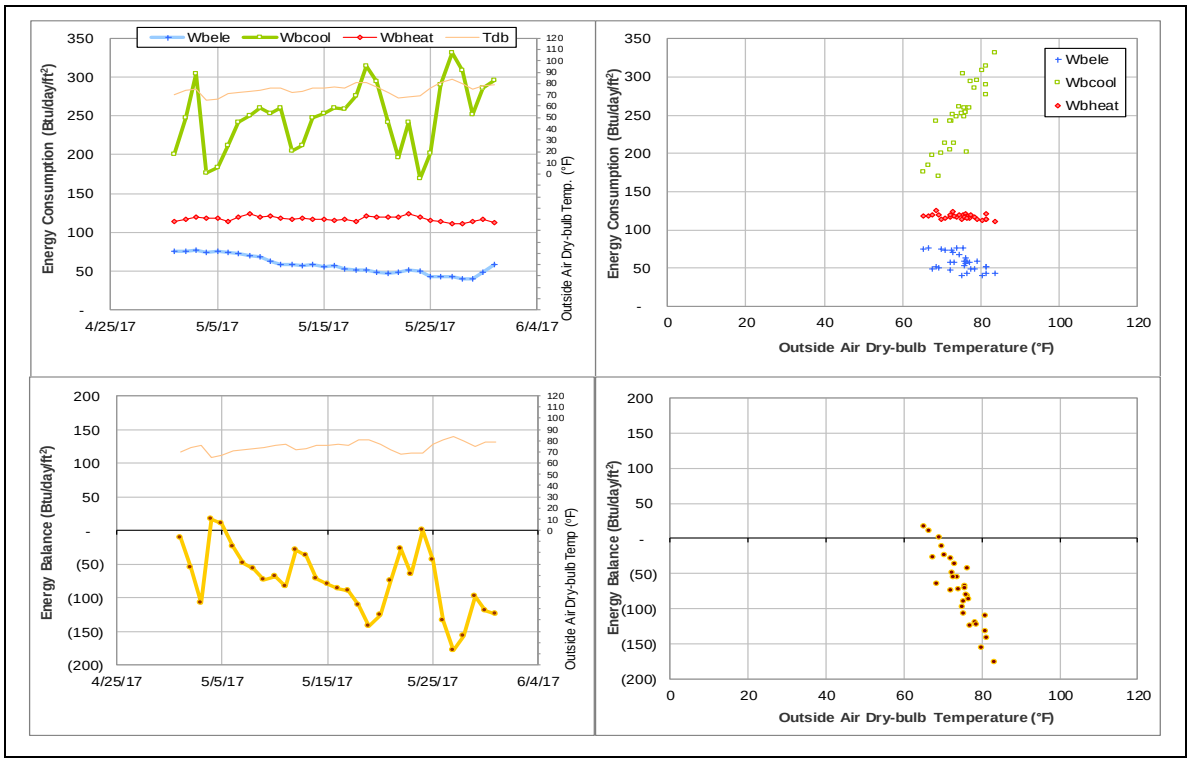
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



McNew Laboratory (TAMU Bldg #740)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005974	25	5/1/2017 – 5/25/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The metered values appear to be faulty.	2/1/2017 – Ongoing

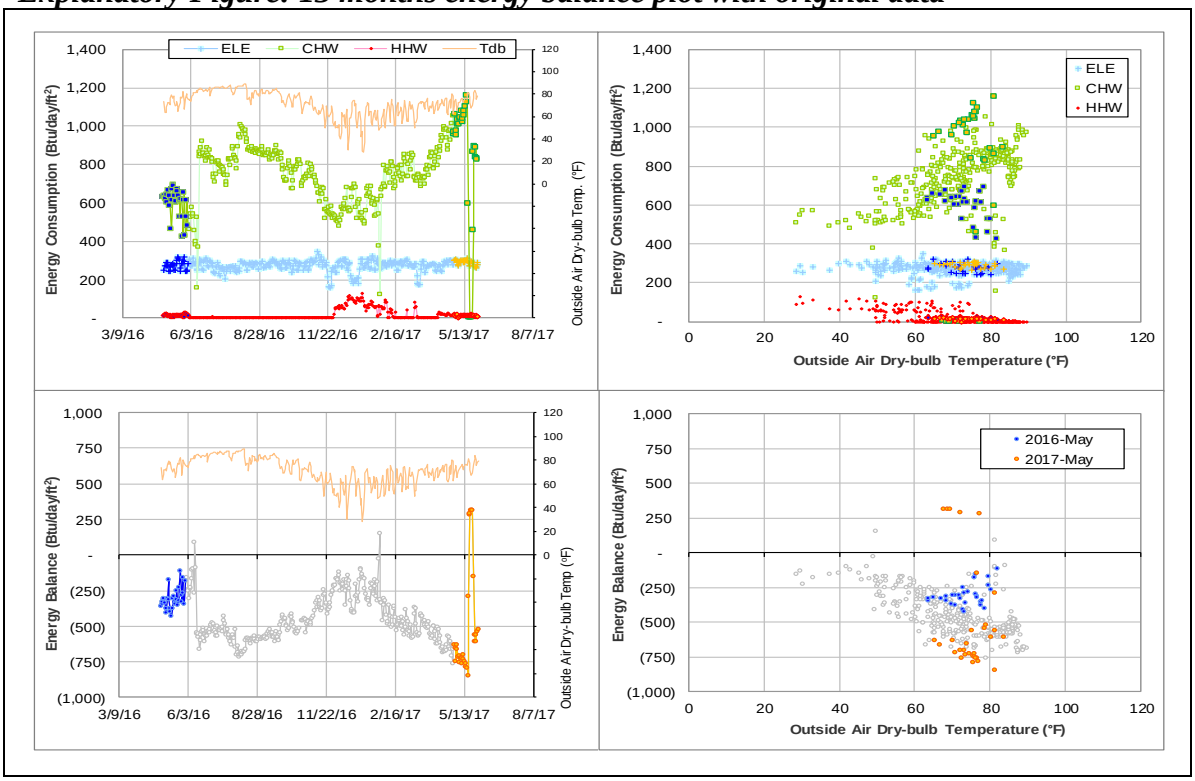
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	005974	2/1/2017 – 5/25/2017	Supply Temperature	Faulty, Gradually decreasing or fluctuating

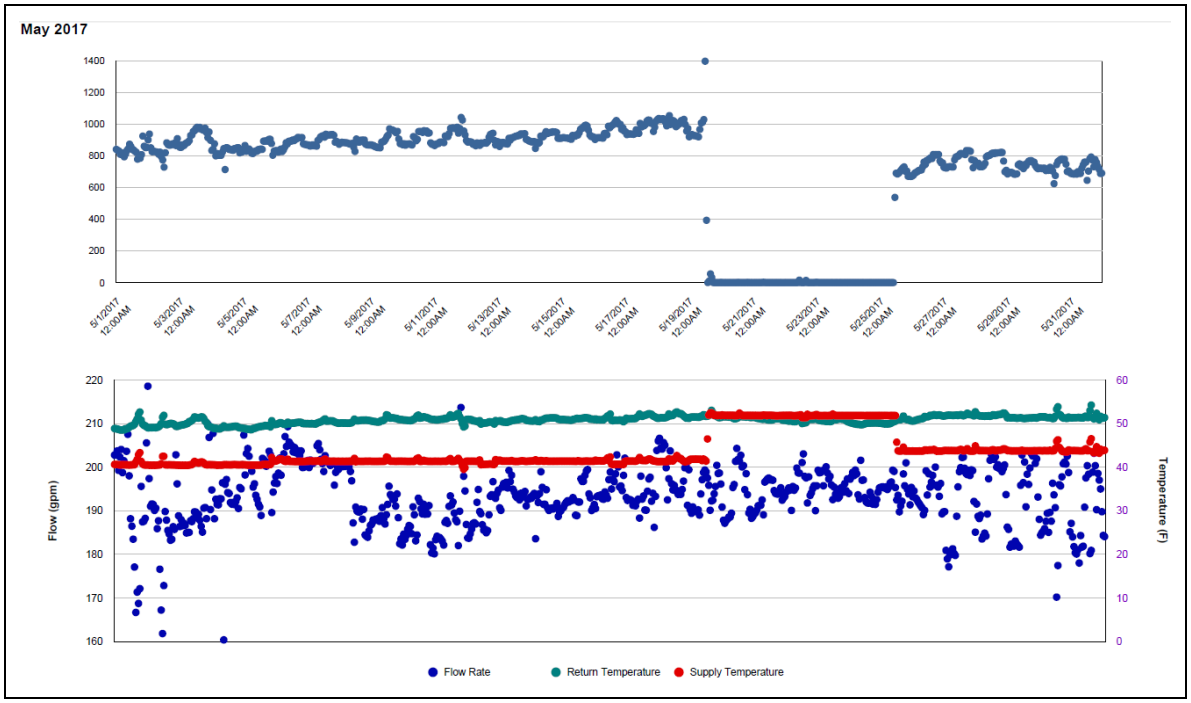
Quantitative descriptions and comments

The CHW supply temperature sensor started drifting gradually down since January 2017. By comparing its CHW supply temp readings with the two hydrologically closest buildings #0385 CE/TTI and #0682 Wisenbaker, it is obviously observable that CHW supply temp sensor of #0740 was under-calibrated but was restored on 5/26/2017 (See the explanatory figure). The CHW of the 5/1/2017 – 5/25/2017 is estimated by model. See also Section II-3.

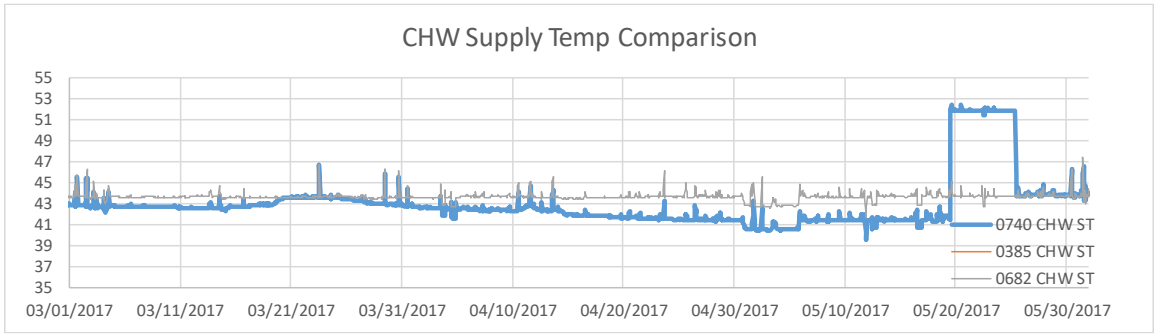
Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)

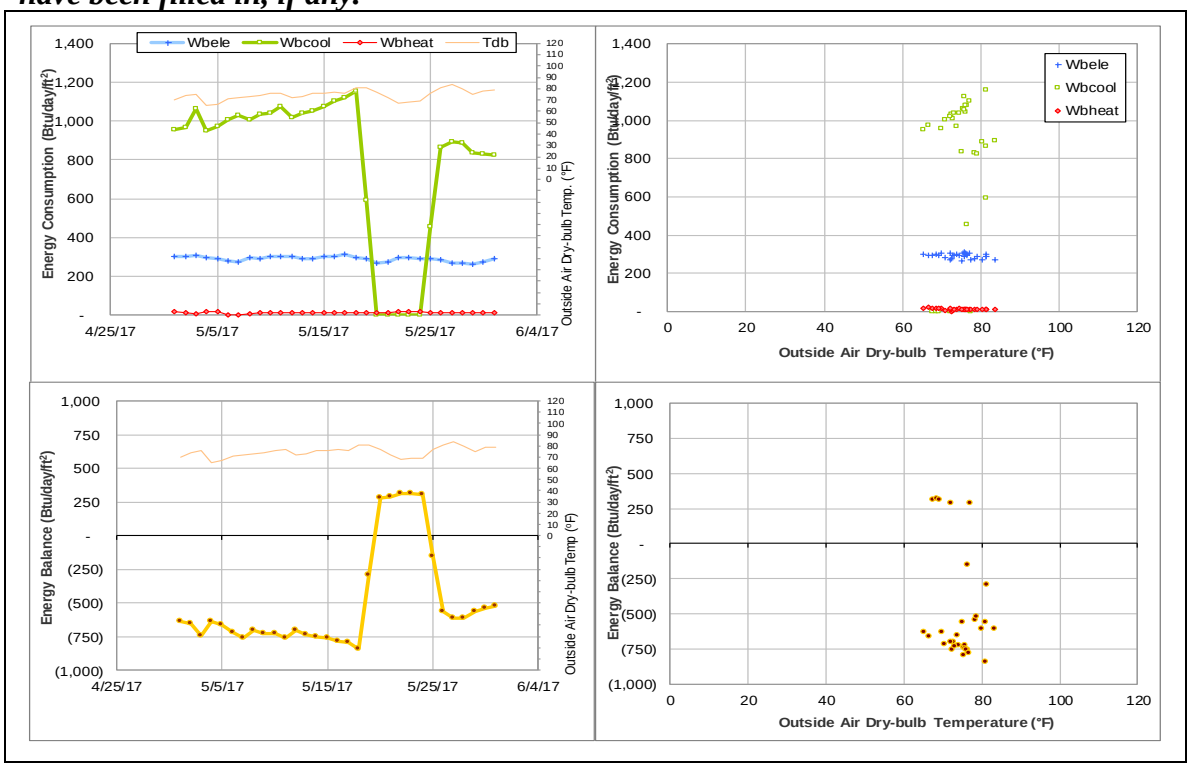


Explanatory Figure: CHW supply temp comparison of hydrologically closest buildings.

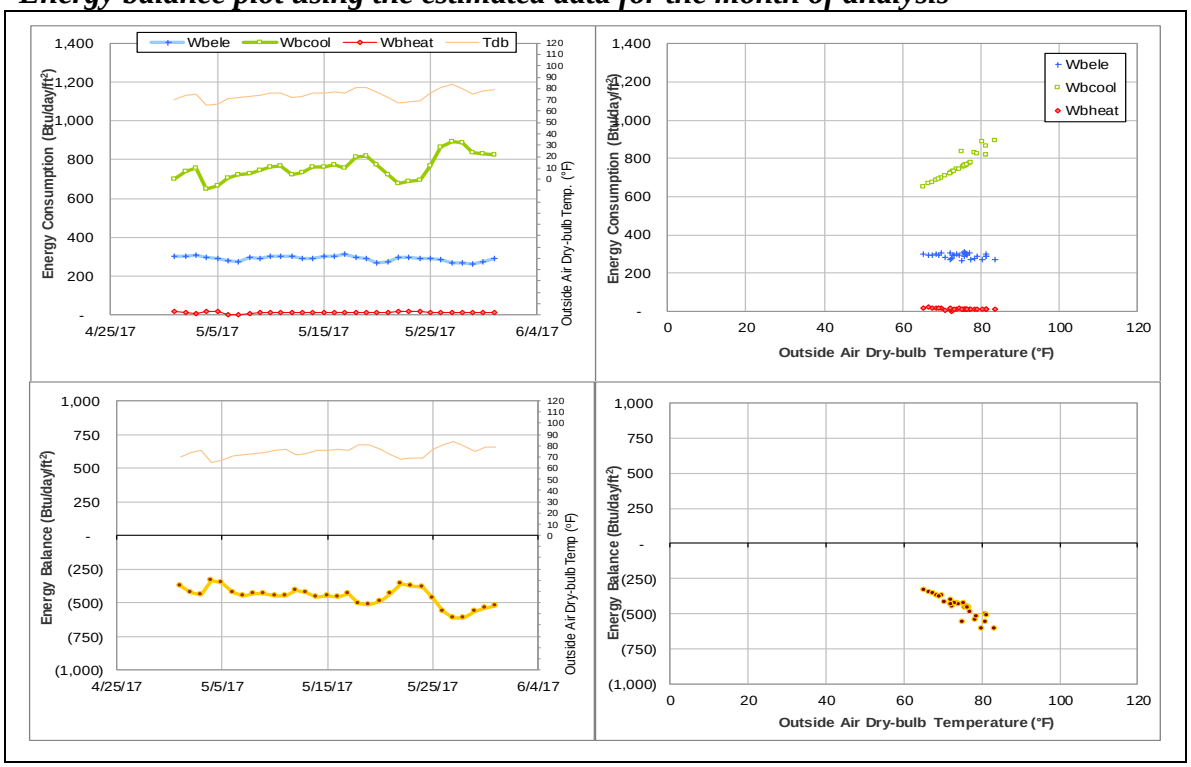


Explanatory Figure: CHW pipeline map near #0511.

Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Vivarium III (TAMU Bldg #1020)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	006001	9	5/8/2017 – 5/16/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption dropped for a short period.	5/8/2017 – 5/16/2017

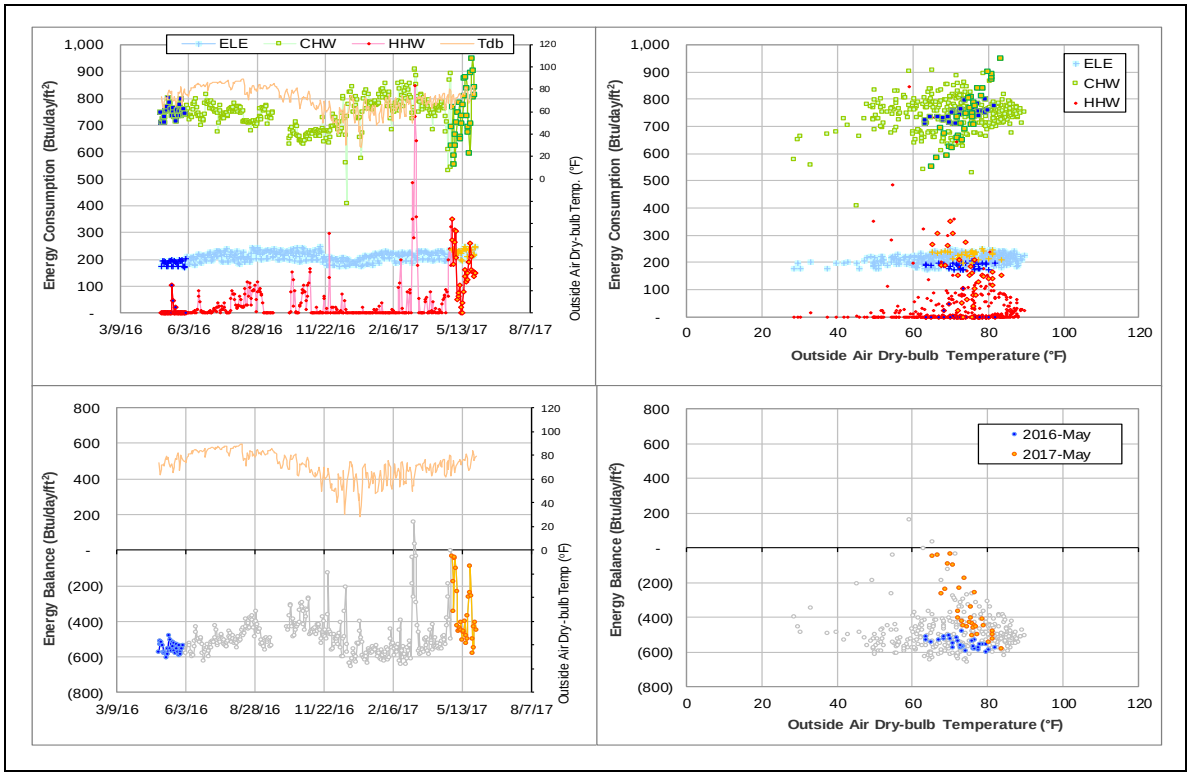
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	006001	5/8/2017 – 5/16/2017	Flow rate	Zero or very low

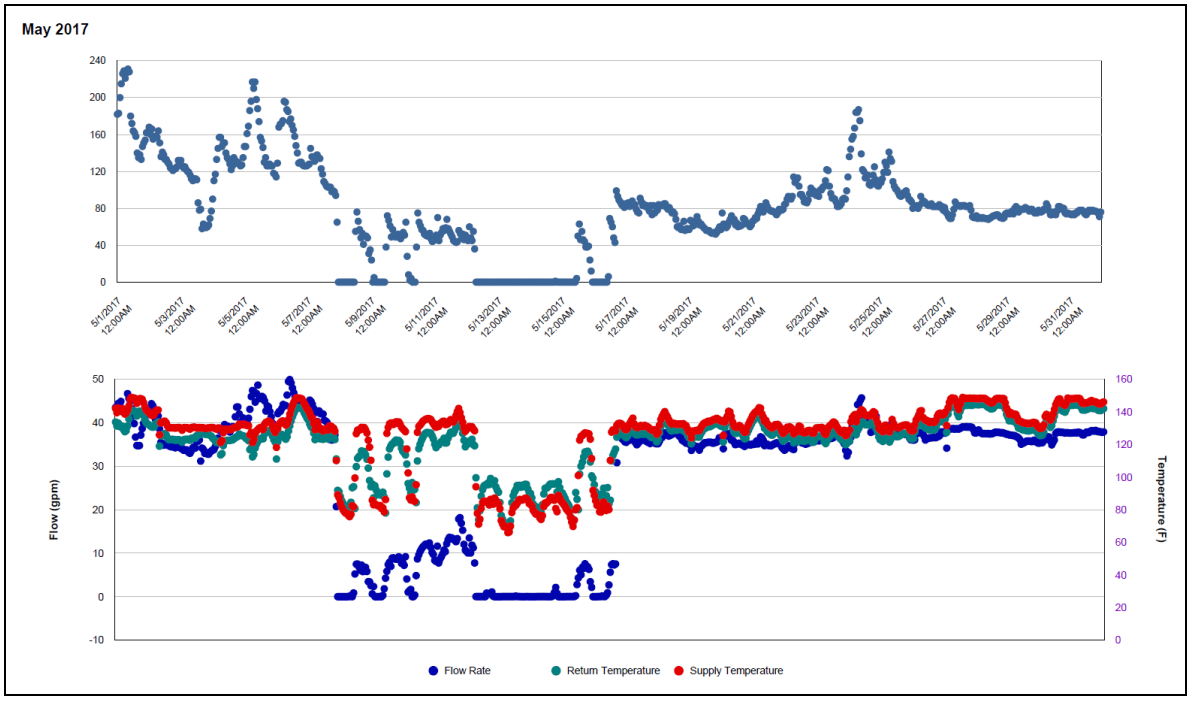
Quantitative descriptions and comments

HHW flow of this building dropped to zero or very low during 5/8/2017 – 5/16/2017. HHW of this period is estimated by model.

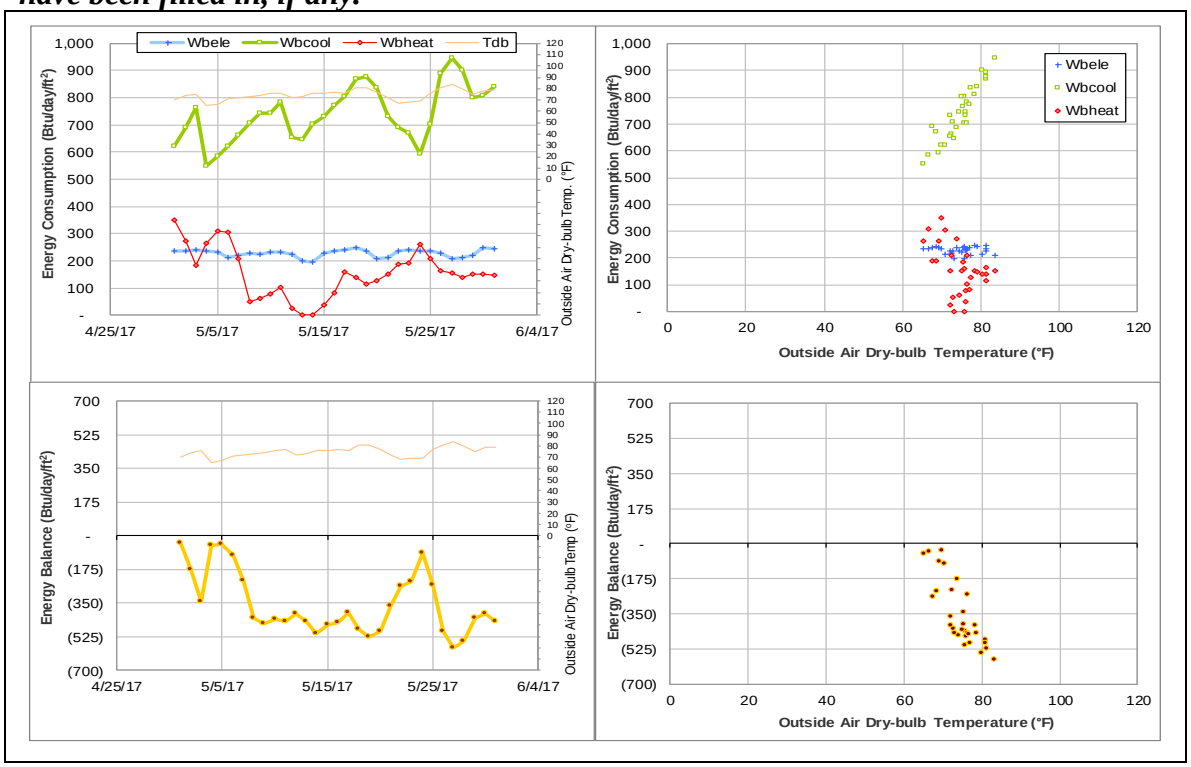
Explanatory Figure: 13 months energy balance plot with original data



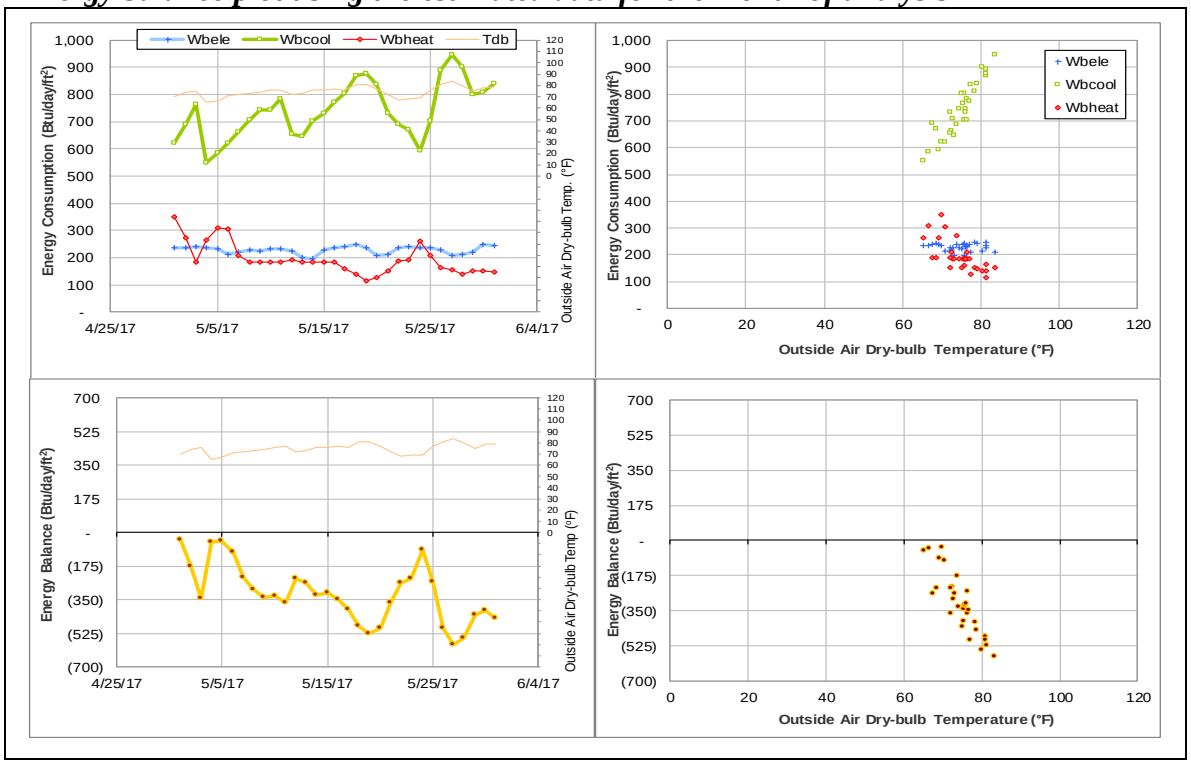
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Heep Center (TAMU Bldg #1502)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	001556	18	5/1/2017 – 5/18/2017	Model
HHW	002603	4	5/5/2017 – 5/8/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level has decreased suddenly. The metered values appear to be faulty.	4/19/2017 – Ongoing
HHW	The consumption dropped for a short period.	5/5/2017 – 5/8/2017

Changes in sensor readings related to the detected issues

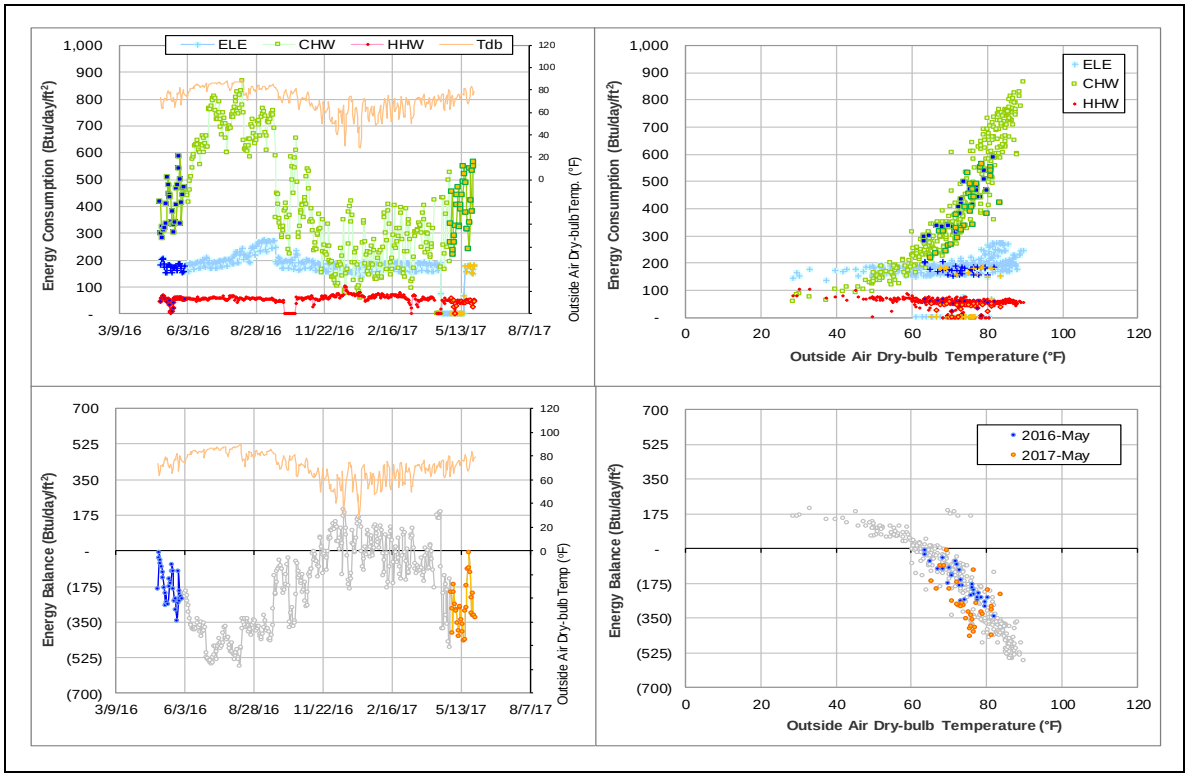
Energy Type	Meter ID	Period	Type	Description
ELE	001556	4/19/2017 – 5/18/2017	Consumption	Zero
HHW	002603	5/5/2017 – 5/8/2017	Flow rate	Zero

Quantitative descriptions and comments

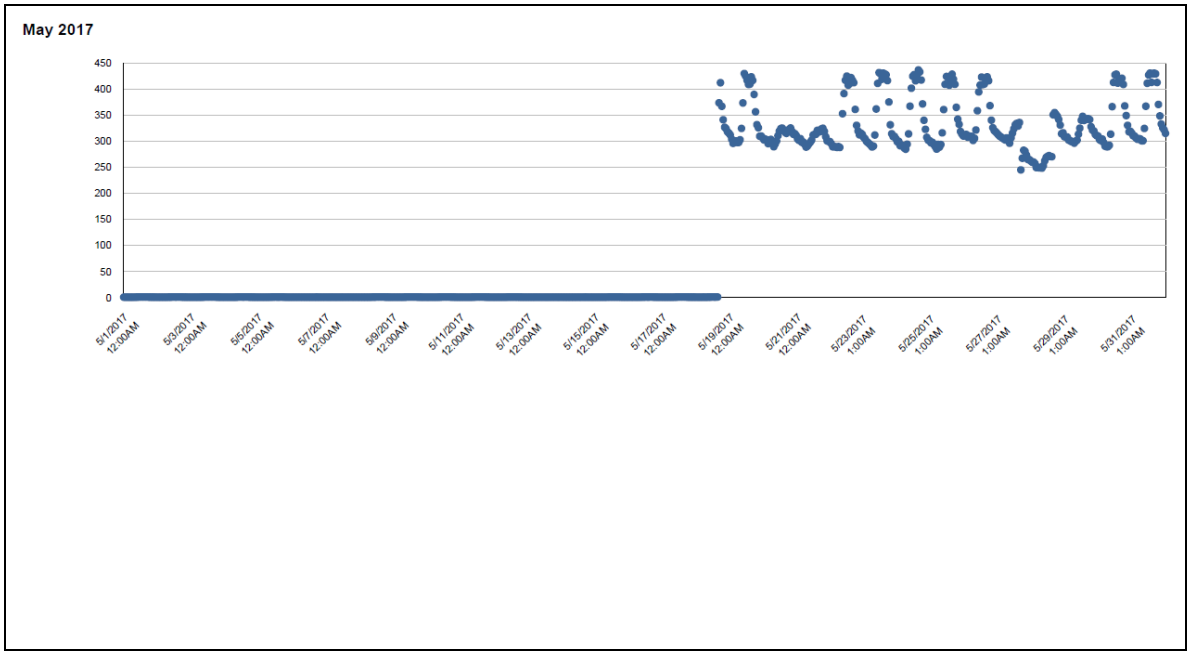
ELE readings dropped to zero with occasional positive readings during 4/19/2017 – 5/18/2017. The days affected are estimated by model.

HHW flow rate dropped to zero on 5/5/2017 – 5/8/2017. The days affected are estimated by model.

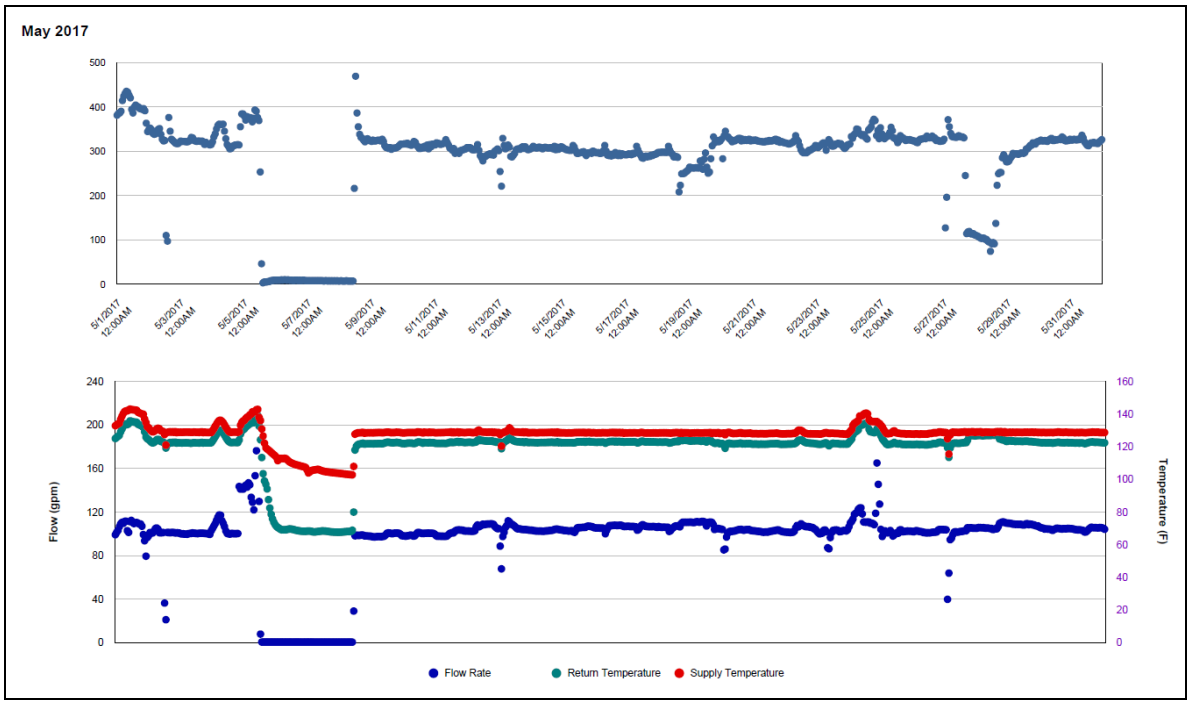
Explanatory Figure: 13 months energy balance plot with original data.



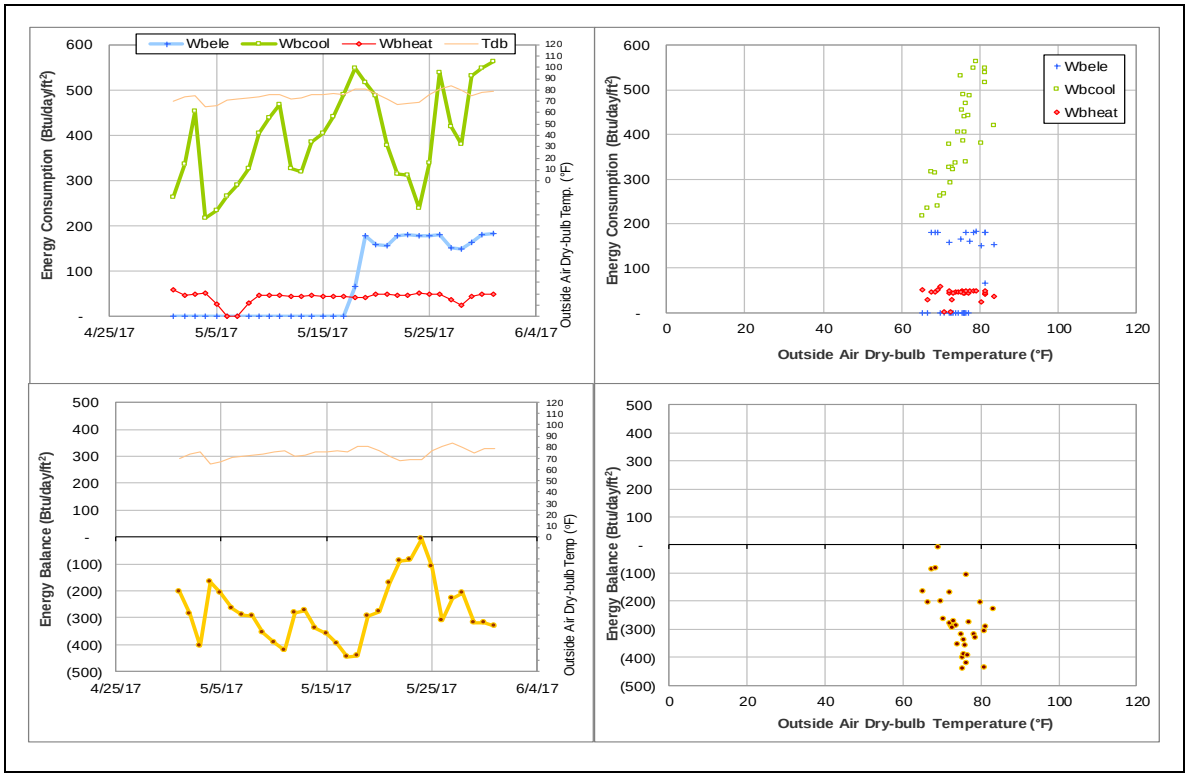
Explanatory Figure: Time series plots of hourly energy consumption from the utilities office. (ELE during May 2017)



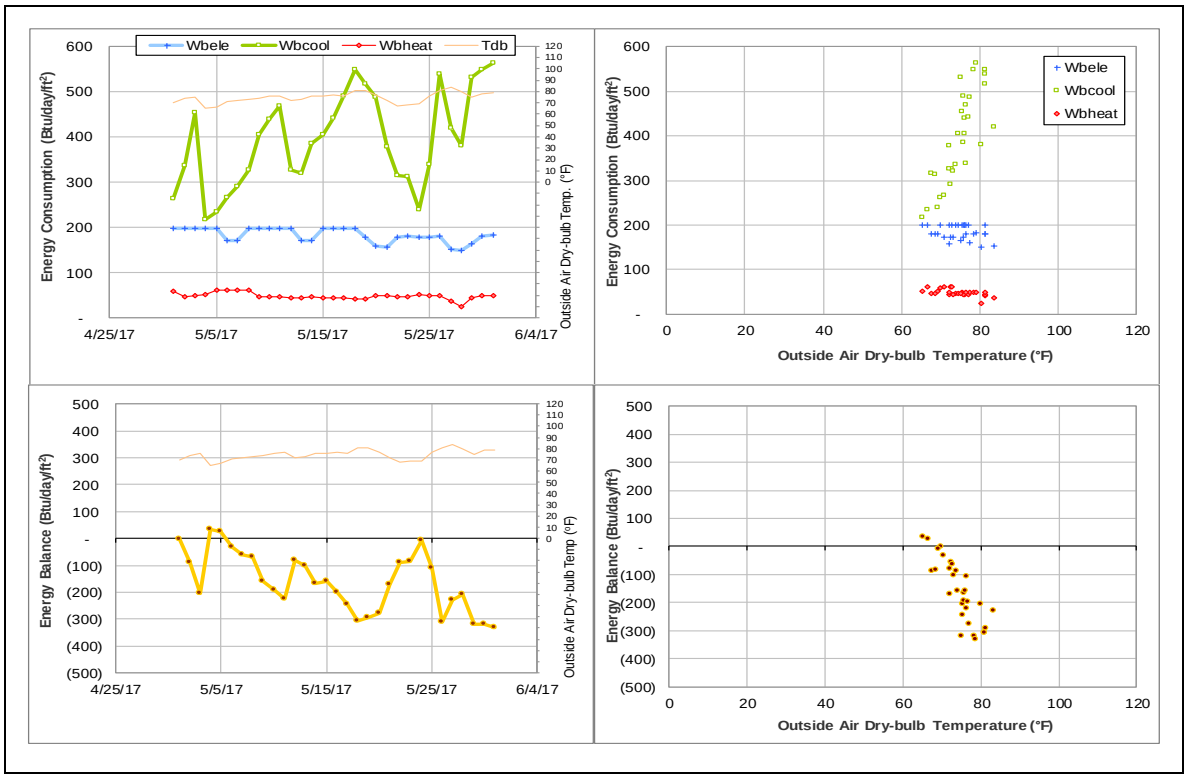
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Rosenthal Meat Science & Technology Center (TAMU Bldg #1505)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002577	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level has decreased suddenly.	3/15/2017 – Ongoing

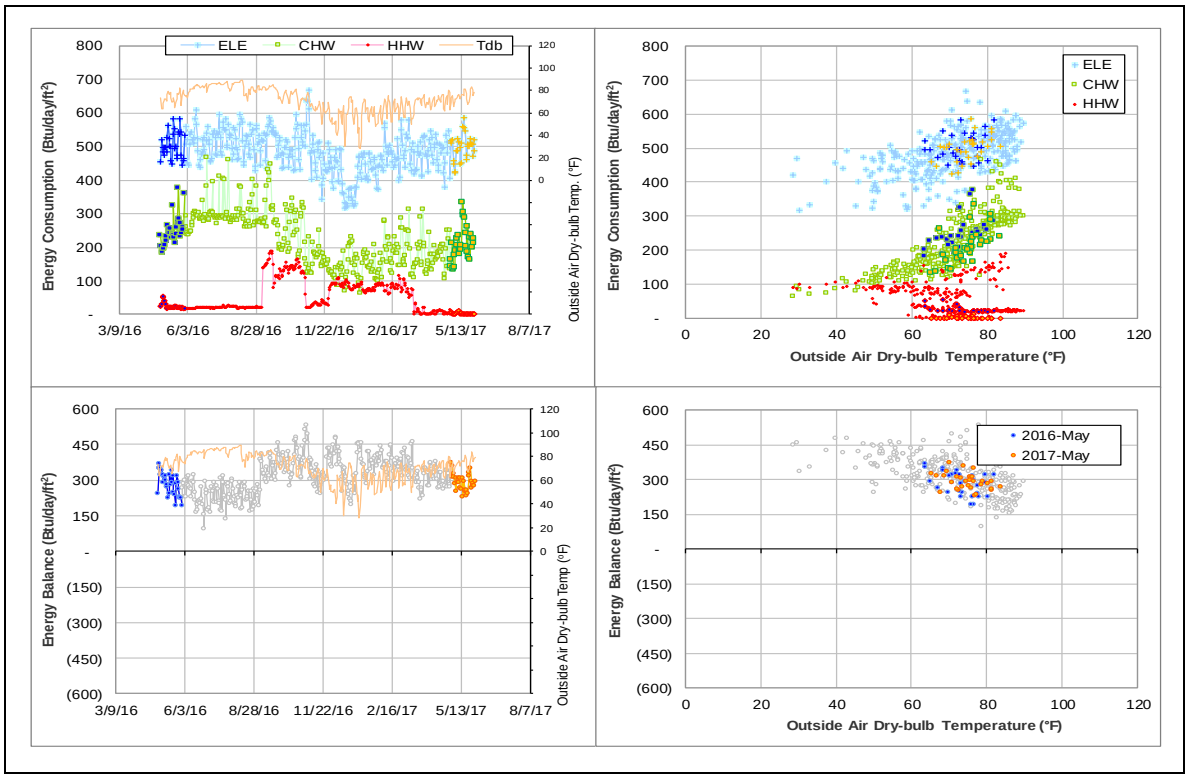
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002577	3/15/2017 – Ongoing	Flow rate	Zero or scatter

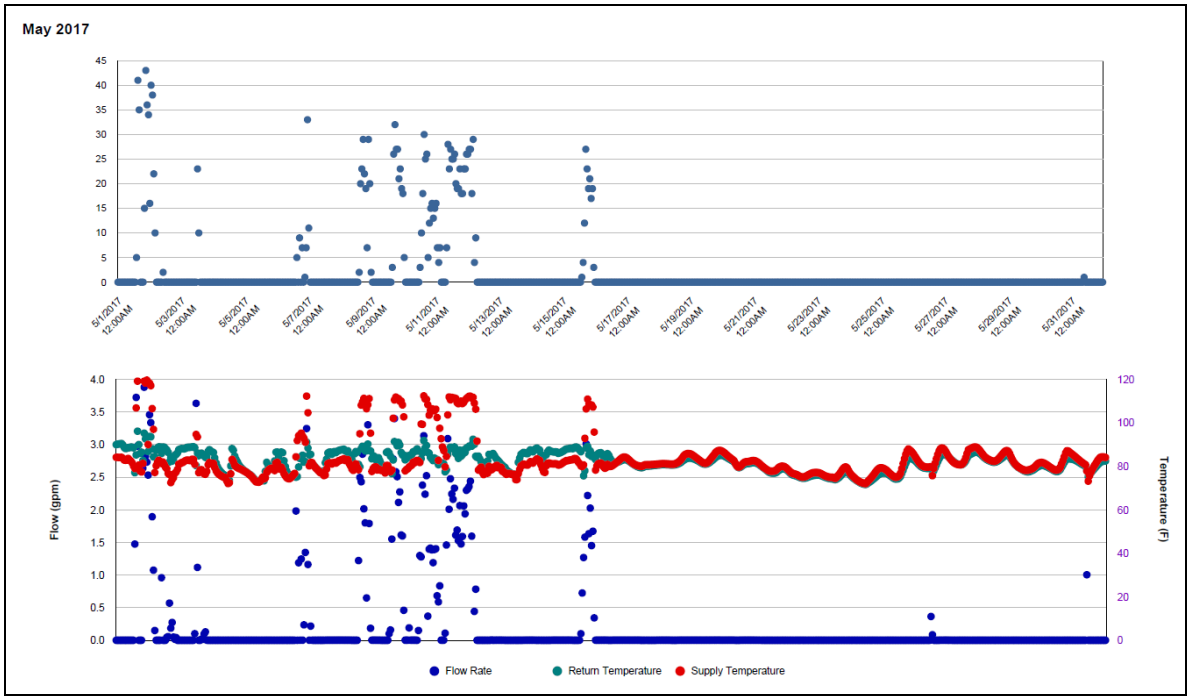
Quantitative descriptions and comments

Flow rate of HHW dropped to very low or zero since 3/15/2017. The readings and the consumption show great scatter since then. CHW decreased slightly during this period, but the meter readings do not seem faulty. This period of HHW are estimated using a model.

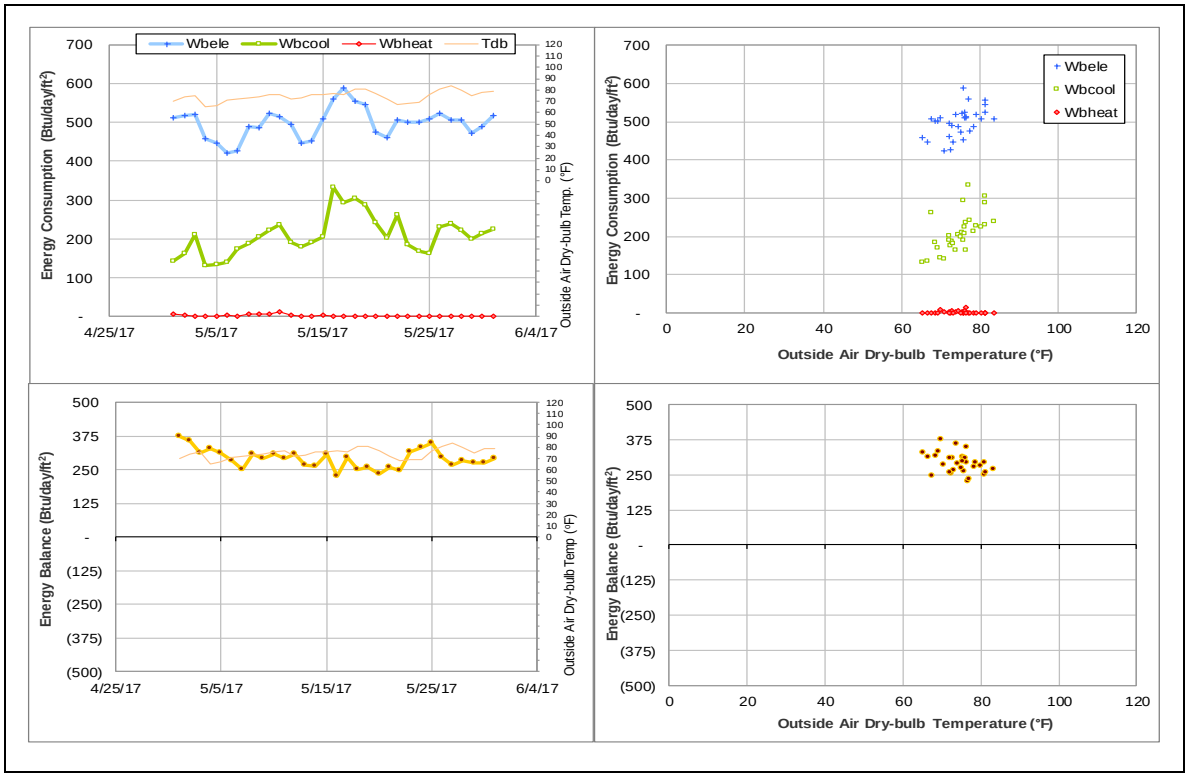
Explanatory Figure: 13 months energy balance plot with original data.



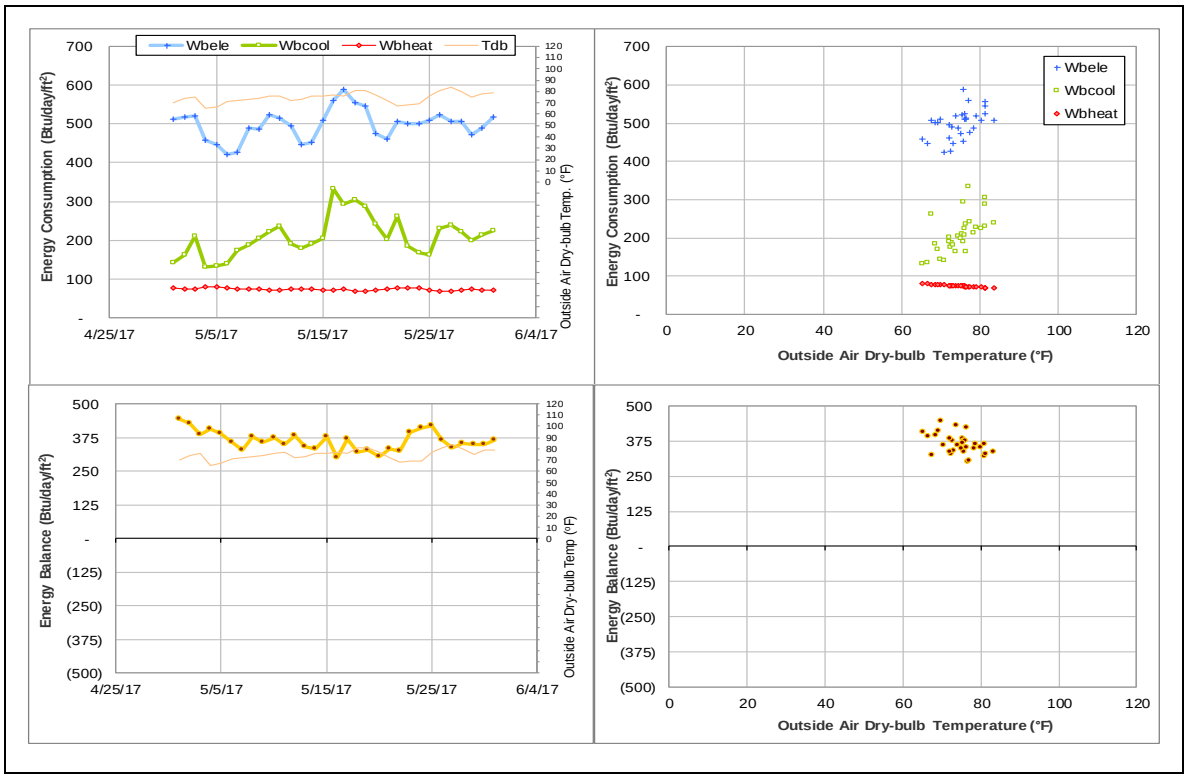
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Medical Sciences Library (TAMU Bldg #1509)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003777	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level has decreased suddenly.	3/24/2017 – Ongoing

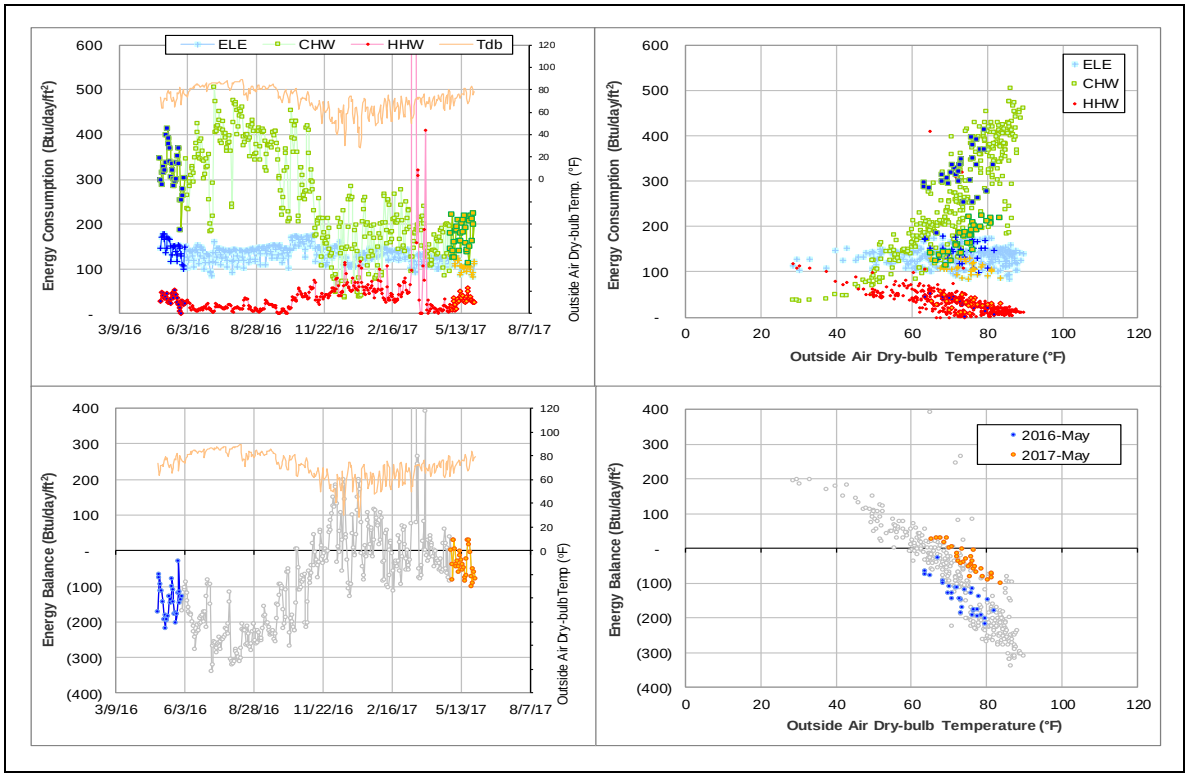
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	003777	3/24/2017 – Ongoing	Flow rate	Low

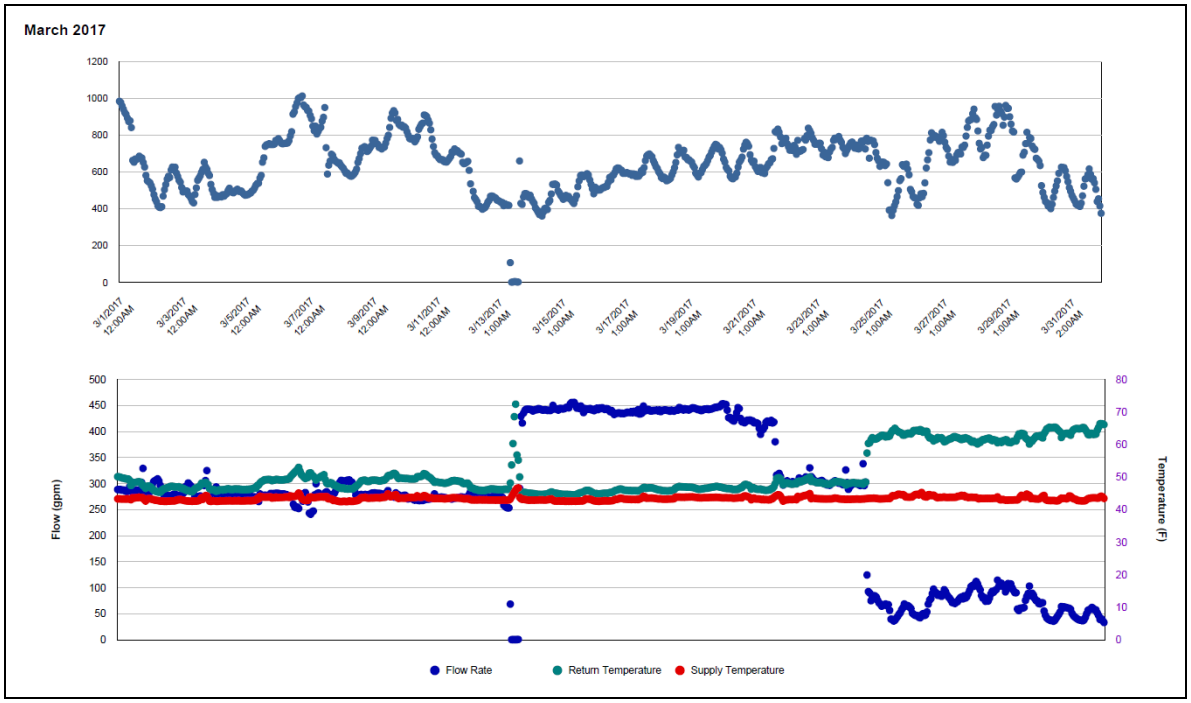
Quantitative descriptions and comments

CHW flow rate has been unstable for a long time. On 3/24/2017, the flow rate dropped to and remained at the 20 – 80 gpm level, which is significantly lower than the beginning of Mar 2017 at near 300 gpm. The CHW consumption thus has a considerable decrease in the following months. CHW is estimated for this whole month by model.

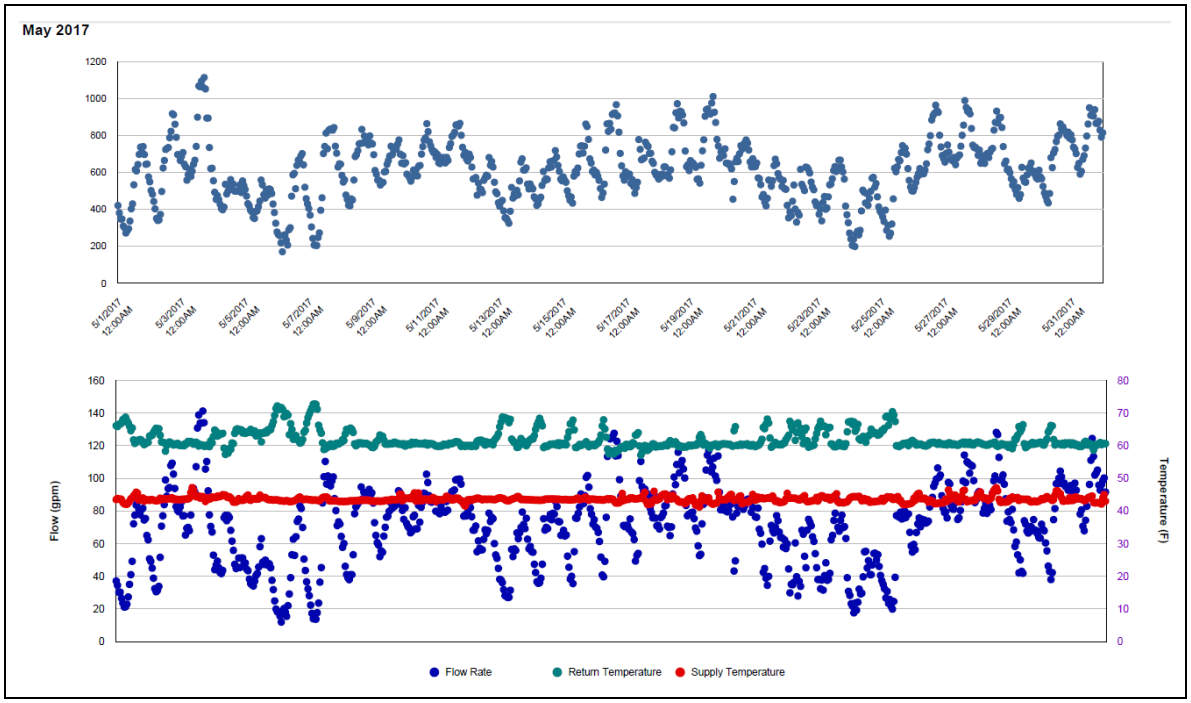
Explanatory Figure: 13 months energy balance plot with original data. (The plots are rescaled to remove spikes.)



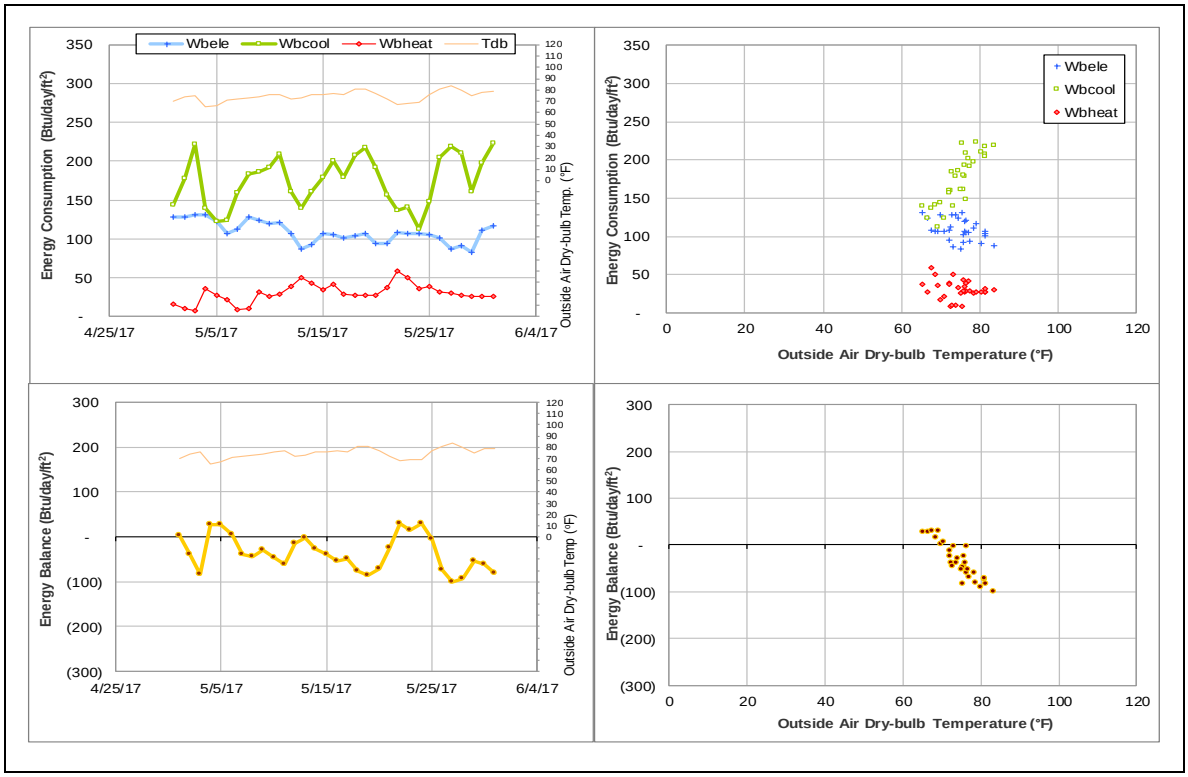
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during March 2017)



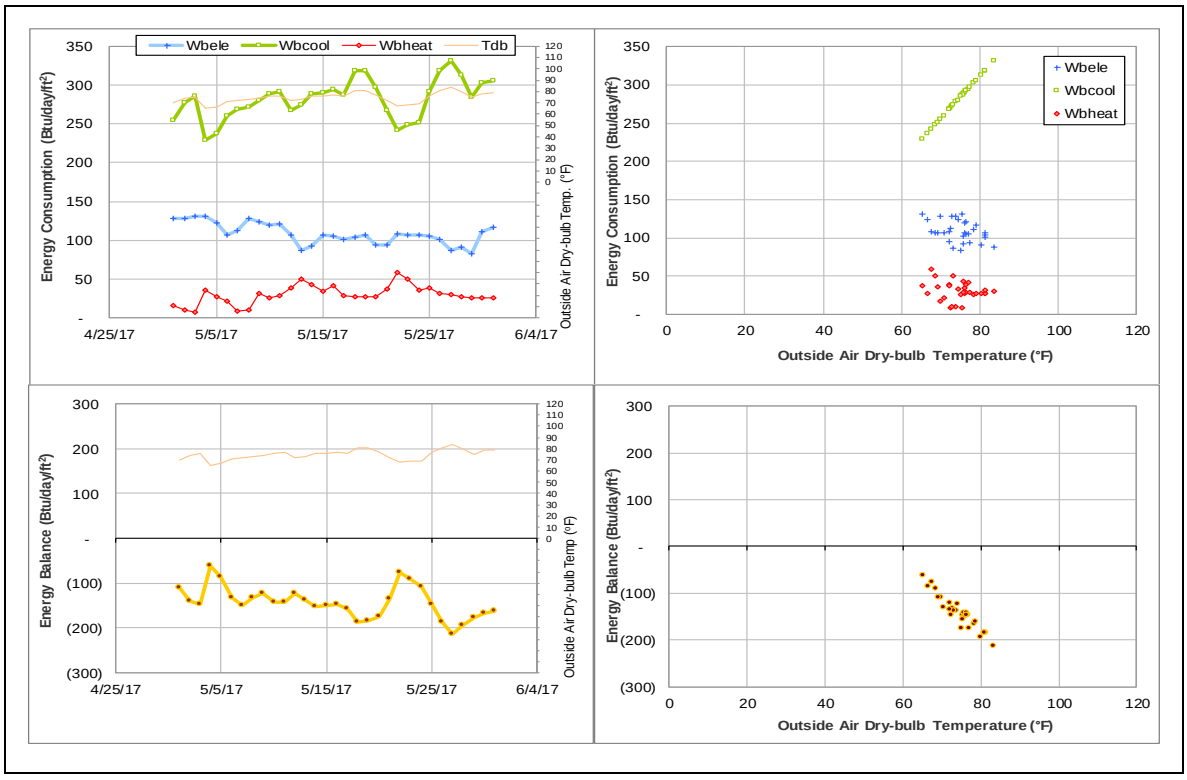
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Southern Crop Improvement Greenhouse (TAMU Bldg #1512)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	005931	31	5/1/2017 – 5/31/2017	Model

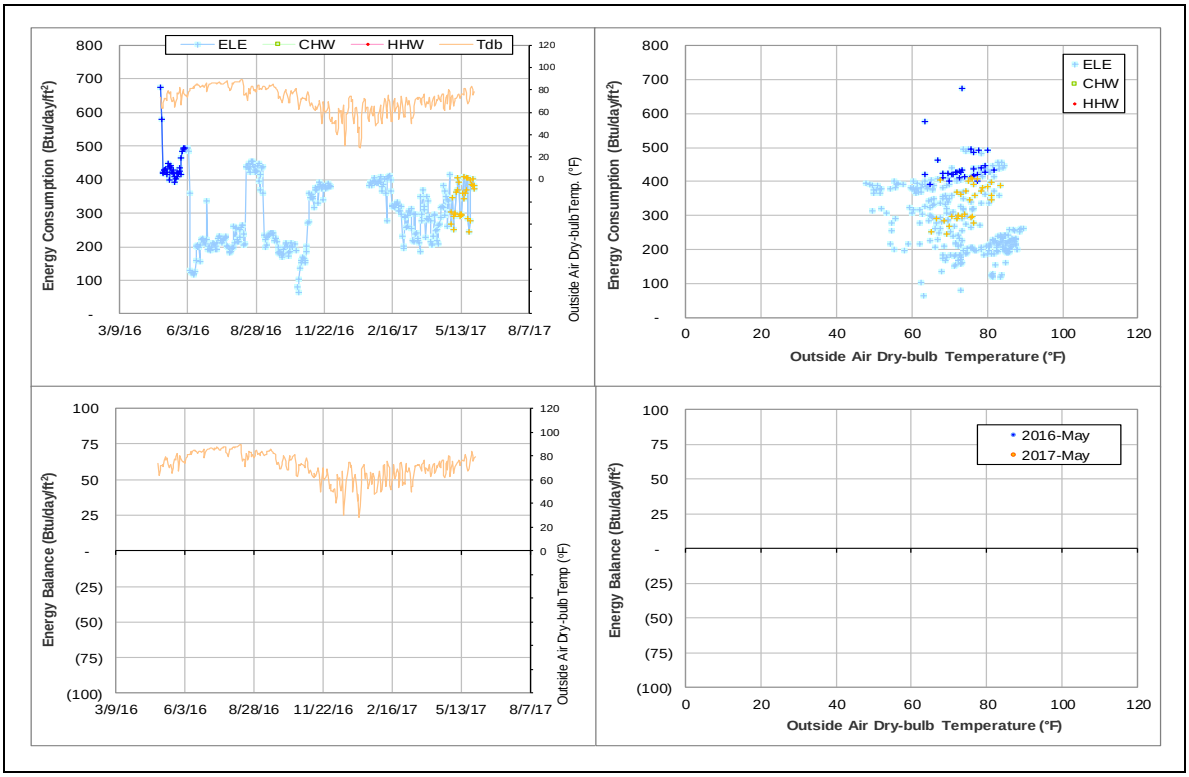
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The ELE consumption increased.	1/19/2017 – Ongoing

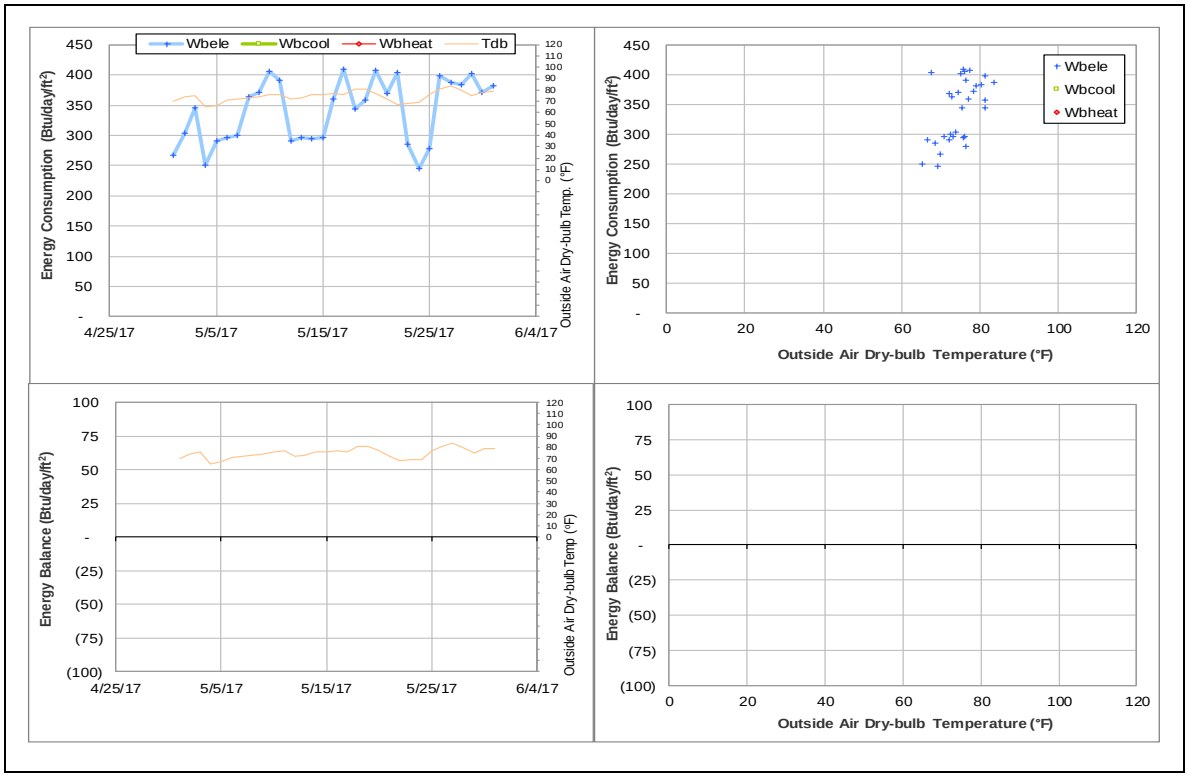
Quantitative descriptions and comments

The ELE consumption level has changed frequently since July 2015 as shown in the time series plot below (see explanatory figure). During the period of 1/22/2017 – 2/15/2017 it increased to the higher consumption pattern but then dropped again. The ELE consumption is estimated using a model based on data during 7/1/2014 – 6/30/2015 when the consumption was stable.

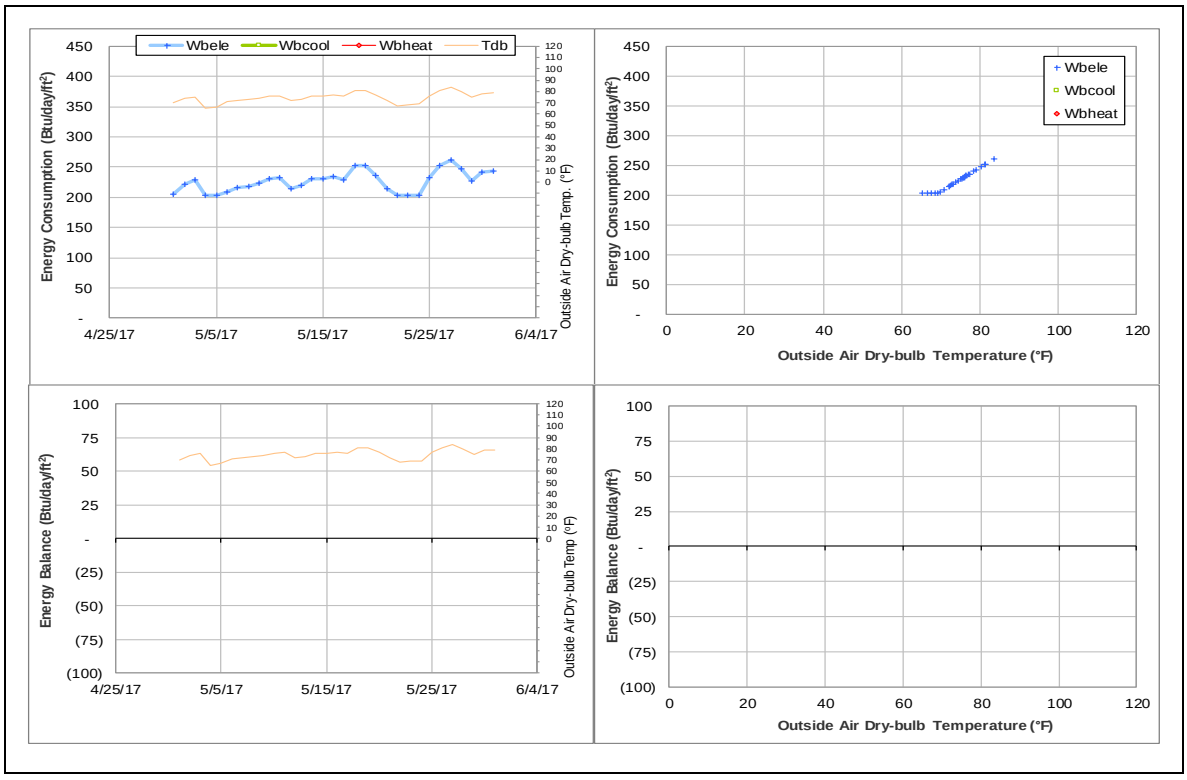
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



TX School of Rural Public Health (TAMU Bldg # 1518, 1519, 1520)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	005274	31	5/1/2017 – 5/31/2017	Switch with 005275
ELE	005275	31	5/1/2017 – 5/31/2017	Switch with 005274

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE (005274)	The consumption level increased largely.	8/14/2015 - ongoing
ELE (005275)	The consumption level decreased largely.	8/14/2015 - ongoing

Comments

ELE meter ID# 005274 serves TX School of Rural Public Health B and ELE meter ID# 005275 is for TX School of Rural Public Health C.

The ELE consumption levels for these two meters had a sudden change on 8/14/2015. The consumption level for meter ID# 005274 increased by approximate 80 kWh/h (~ 100%) and the consumption level for meter ID# 005275 decreased by around 80 kWh/h (~50%). The change observed on 8/14/2015 12:00 AM (see below explanatory figure) suggests that the two meters were switched and may need to be investigated.

Explanatory Figure: The time series plot of hourly electricity consumption for two ELE meters #005274 and# 005275

Time	Cumulative reading	Hourly Consumption	MeterID
08/13/2015 12:00:00 PM	2930884.013	84.262	005274
08/13/2015 01:00:00 PM	2930968.589	84.576	005274
08/13/2015 02:00:00 PM	2931051.959	83.37	005274
08/13/2015 03:00:00 PM	2931146.799	94.84	005274
08/13/2015 04:00:00 PM	2931240.505	93.706	005274
08/13/2015 05:00:00 PM	2931324.169	83.664	005274
08/13/2015 06:00:00 PM	2931399.91	75.741	005274
08/13/2015 07:00:00 PM	2931472.181	72.271	005274
08/13/2015 08:00:00 PM	2931543.838	71.657	005274
08/13/2015 09:00:00 PM	2931613.306	69.468	005274
08/13/2015 10:00:00 PM	2931672.706	59.4	005274
08/13/2015 11:00:00 PM	2931733.072	60.366	005274
08/14/2015 12:00:00 AM	4743876.03	130.385	005274
08/14/2015 01:00:00 AM	4744008.406	132.376	005274
08/14/2015 02:00:00 AM	4744141.74	133.334	005274
08/14/2015 03:00:00 AM	4744272.553	130.813	005274
08/14/2015 04:00:00 AM	4744404.045	131.492	005274
08/14/2015 05:00:00 AM	4744534.38	130.335	005274
08/14/2015 06:00:00 AM	4744667.111	132.731	005274
08/14/2015 07:00:00 AM	4744820.038	152.927	005274
08/14/2015 08:00:00 AM	4744972.221	152.183	005274
08/14/2015 09:00:00 AM	4745134.467	162.246	005274
08/14/2015 10:00:00 AM	4745308.905	174.438	005274
08/14/2015 11:00:00 AM	4745476.832	167.927	005274
08/14/2015 12:00:00 PM	4745634.44	157.608	005274
08/14/2015 01:00:00 PM	4745789.345	154.905	005274
08/14/2015 02:00:00 PM	4745949.369	160.024	005274
08/14/2015 03:00:00 PM	4746110.346	160.977	005274
08/14/2015 04:00:00 PM	4746270.903	160.557	005274
08/14/2015 05:00:00 PM	4746431.347	160.444	005274
08/14/2015 06:00:00 PM	4746586.415	155.068	005274
08/14/2015 07:00:00 PM	4746727.476	141.061	005274
08/14/2015 08:00:00 PM	4746864.372	136.896	005274
08/14/2015 09:00:00 PM	4747004.372	140	005274
08/14/2015 10:00:00 PM	4747137.886	133.514	005274
08/14/2015 11:00:00 PM	4747269.569	131.683	005274

Time	Cumulative reading	Hourly Consumption	MeterID
08/13/2015 12:00:00 PM	4741958.002	170.658	005275
08/13/2015 01:00:00 PM	4742132.336	174.334	005275
08/13/2015 02:00:00 PM	4742303.554	171.218	005275
08/13/2015 03:00:00 PM	4742483.683	180.129	005275
08/13/2015 04:00:00 PM	4742662.753	179.07	005275
08/13/2015 05:00:00 PM	4742832.009	169.256	005275
08/13/2015 06:00:00 PM	4742993.53	161.521	005275
08/13/2015 07:00:00 PM	4743149.675	156.145	005275
08/13/2015 08:00:00 PM	4743305.9	156.225	005275
08/13/2015 09:00:00 PM	4743462.097	156.197	005275
08/13/2015 10:00:00 PM	4743610.221	148.124	005275
08/13/2015 11:00:00 PM	4743745.645	135.424	005275
08/14/2015 12:00:00 AM	2931791.19	58.118	005275
08/14/2015 01:00:00 AM	2931849.35	58.16	005275
08/14/2015 02:00:00 AM	2931908.534	59.184	005275
08/14/2015 03:00:00 AM	2931966.686	58.152	005275
08/14/2015 04:00:00 AM	2932023.589	56.903	005275
08/14/2015 05:00:00 AM	2932080.05	56.461	005275
08/14/2015 06:00:00 AM	2932137.05	57	005275
08/14/2015 07:00:00 AM	2932232.983	95.933	005275
08/14/2015 08:00:00 AM	2932319.162	86.179	005275
08/14/2015 09:00:00 AM	2932404.691	85.529	005275
08/14/2015 10:00:00 AM	2932489.976	85.285	005275
08/14/2015 11:00:00 AM	2932564.419	74.443	005275
08/14/2015 12:00:00 PM	2932634.064	69.645	005275
08/14/2015 01:00:00 PM	2932704.723	70.659	005275
08/14/2015 02:00:00 PM	2932777.373	72.65	005275
08/14/2015 03:00:00 PM	2932845.908	68.535	005275
08/14/2015 04:00:00 PM	2932920.525	74.617	005275
08/14/2015 05:00:00 PM	2932996.835	76.31	005275
08/14/2015 06:00:00 PM	2933065.518	68.683	005275
08/14/2015 07:00:00 PM	2933127.559	62.041	005275
08/14/2015 08:00:00 PM	2933195.384	67.825	005275
08/14/2015 09:00:00 PM	2933263.632	68.248	005275
08/14/2015 10:00:00 PM	2933323.26	59.628	005275
08/14/2015 11:00:00 PM	2933382.3	59.04	005275

West Campus Parking Garage (TAMU Bldg #1559)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	004322	31	5/1/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level has decreased suddenly.	3/10/2017 – Ongoing

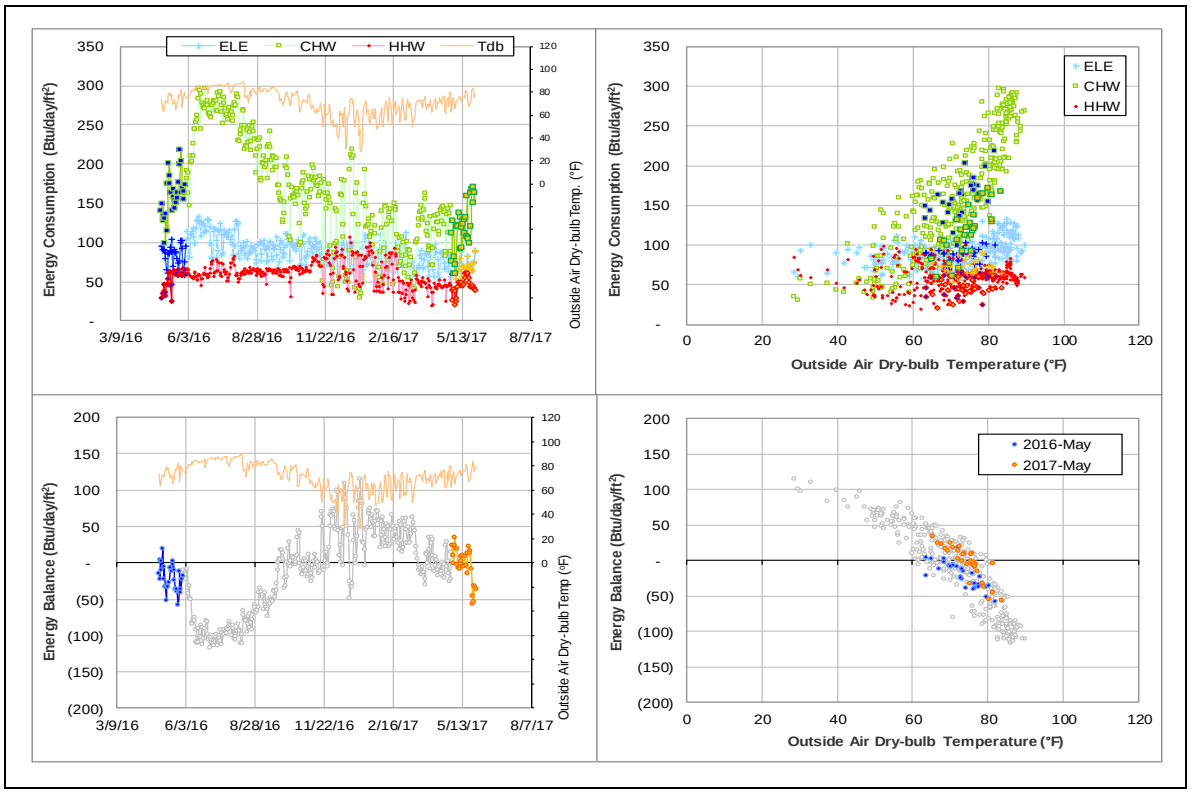
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	004322	3/10/2017 – Ongoing	Flow rate	Low

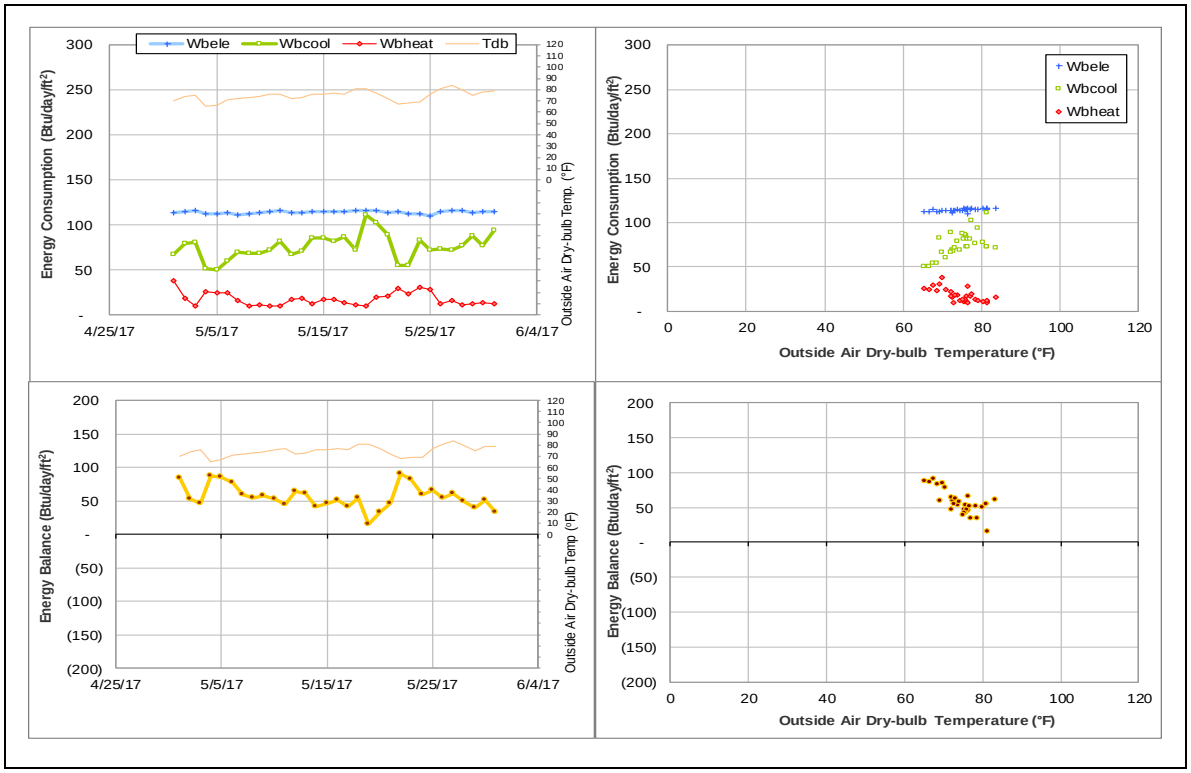
Quantitative descriptions and comments

The CHW flow rate had been severely scattered during 11/6/2016 – 3/9/2017. The flow rate also dropped from 10 – 20 gpm range before the scattering period to 8 – 12 gpm after the period. The consumption of this month is estimated using a model based on the data of 6/1/2015 – 5/31/2016.

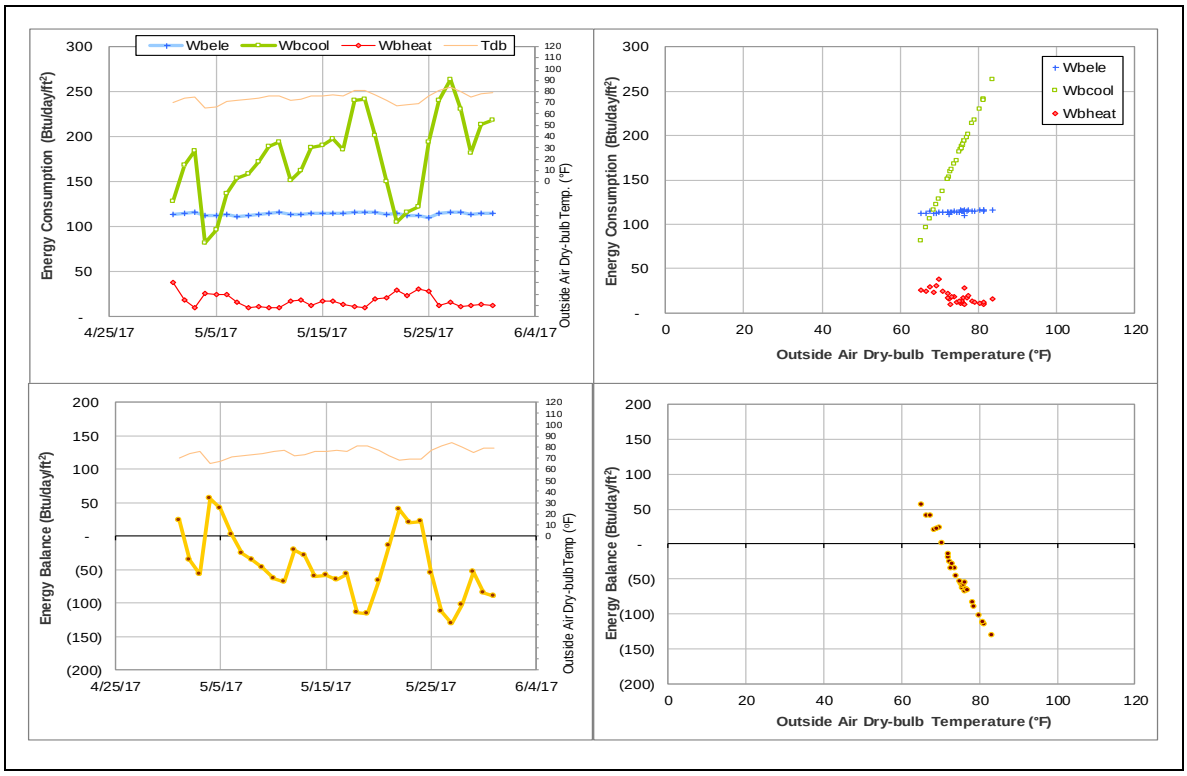
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Annenberg Presidential Conference Center (TAMU Bldg #1608)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	000245	12	5/20/2017 – 5/31/2017	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level has decreased suddenly.	5/20/2017 – Ongoing

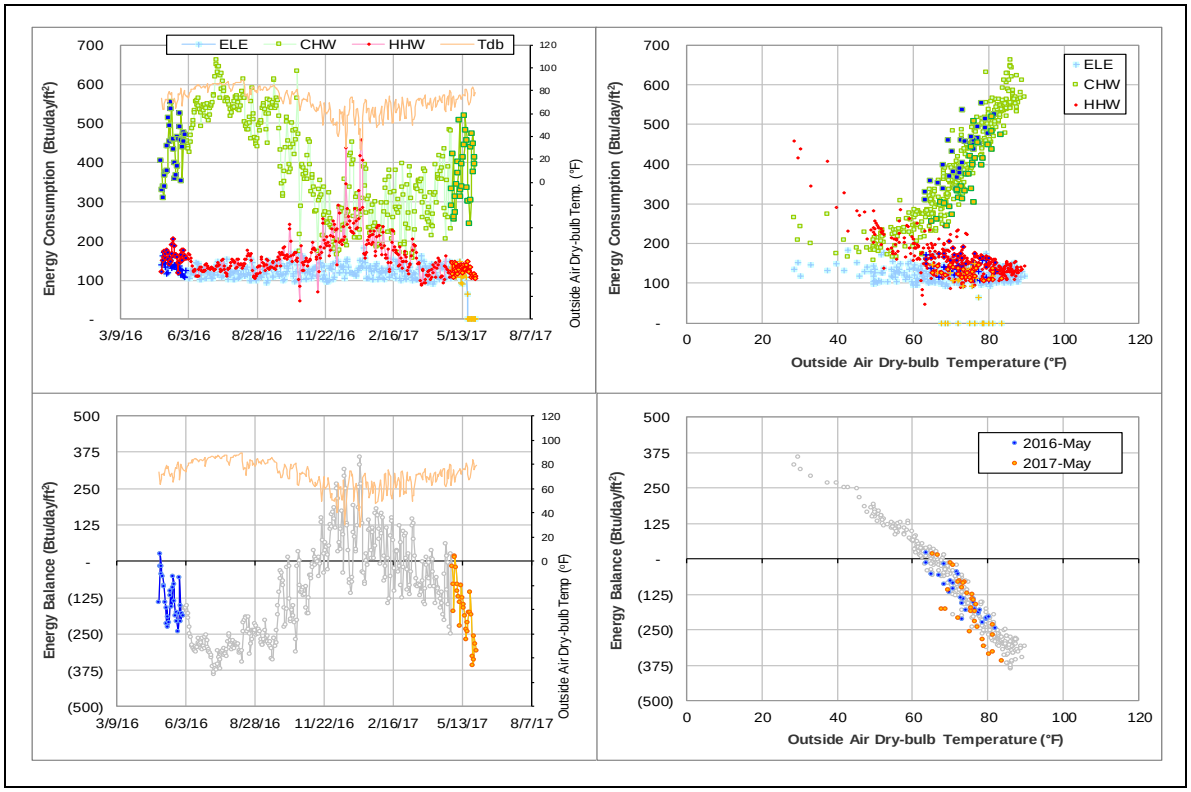
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
ELE	000245	5/20/2017 – Ongoing	Flow rate	Low

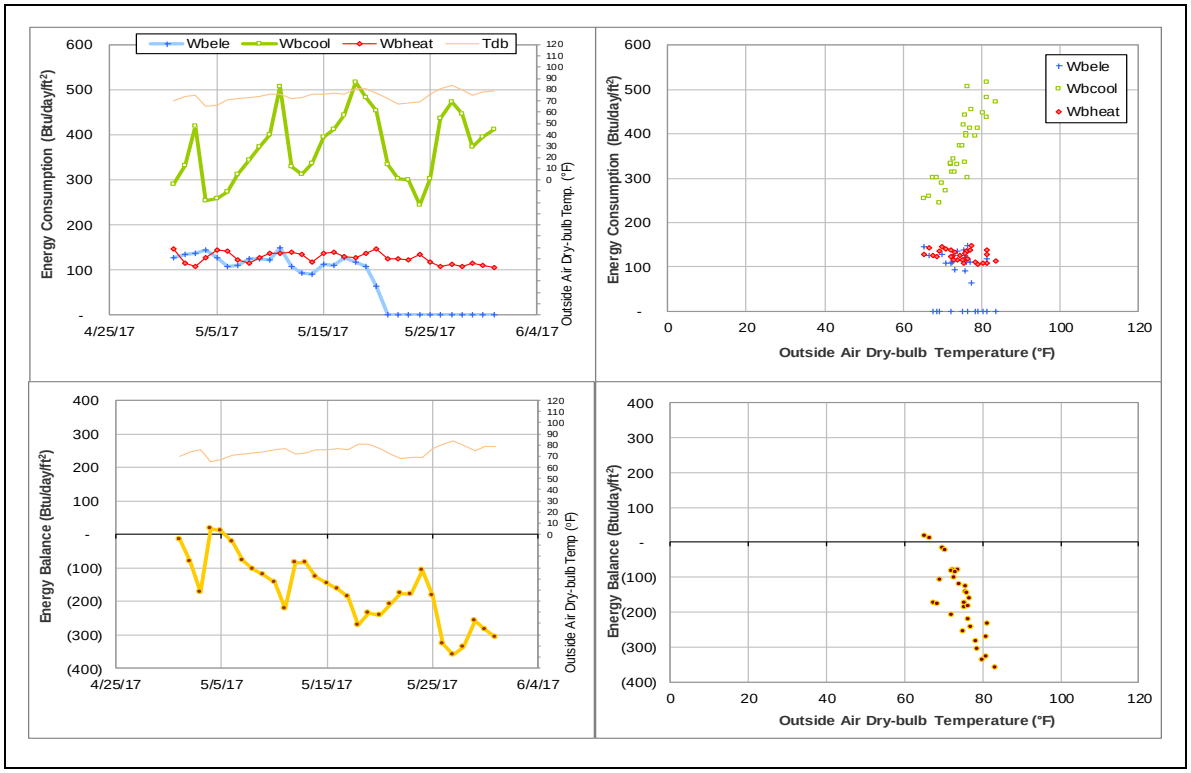
Quantitative descriptions and comments

ELE consumption decreased to zero after 5/20/2017. The consumption after 5/20/2017 was estimated by a model based on data of 5/1/2016 – 4/30/2017.

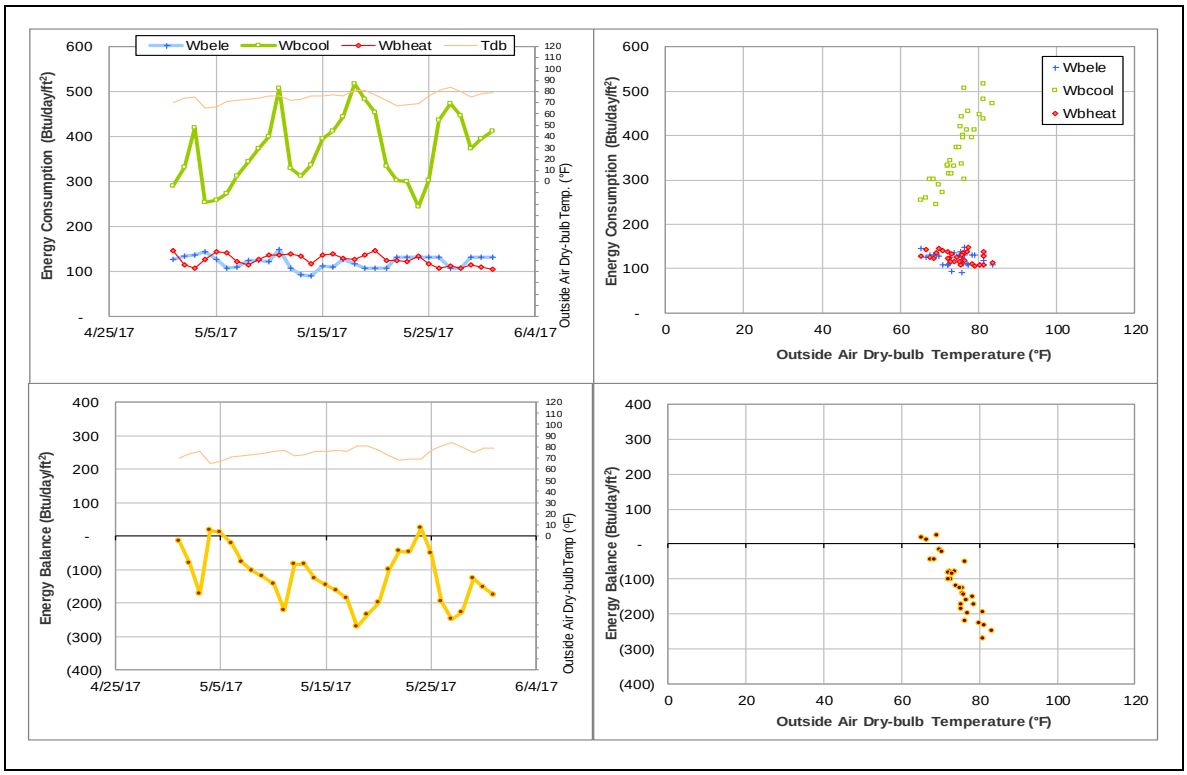
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



II-3 Meters with Significant Issues in Energy Consumption Data

In this section, significant issues in the data behavior are described. On the contrary to the section II–2, alternative consumption is not estimated for some reasons: presence of continuous problems since the beginning of the data acquisition, unbalanced energy uses in the past data, changes in the consumption patterns without evidence of data problems, etc. Table II–3 gives a list of meters included in this section.

Table II-3 Meters with significant issues in the consumption data during May 2017

Building No.	Building Name	MeterID	Type
0275	Liberal Arts and Arts & Humanities Building		
		007717	HHW
0290	Wells Residence Hall		
		001984	CHW
		001988	HHW
0291	Rudder Residence Hall		
		002132	CHW
		002136	HHW
0293	Appelt Residence Hall		
		002062	CHW
		002066	HHW
0353	Bright Aerospace Building		
		002746	CHW
0394	Underwood Residence Hall		
		002117	CHW
		002121	HHW
0398	Langford Architecture Center Building A		
		003951	CHW
		003955	HHW
0408	Whitely Hall - Dorm 9		
		000024	ELE
		002079	CHW
		002083	HHW
0409	White Hall - Dorm 10		
		000025	ELE
		002094	CHW
		002098	HHW
433	Mosher Residence Hall		
		009083	ELE
		002485	CHW
		002489	HHW
443	Oceanography & Meteorology Building		
		006388	CHW
		006392	HHW
517	DPC Annex		
		006567	HHW
463	Psychology Building		
		001575	ELE
		002941	CHW
		002945	HHW
482	Fermier Hall		
		005878	CHW
		005881	HHW
484	Chemistry Building		
		007557	ELE
		007152	ELE
492	Civil Engineering Building		
		005950	CHW
		005954	HHW
0496	Utilities & Energy Services Central Office		
		007706	ELE
		006929	CHW
		006933	HHW
0499	Engineering Innovation Center		
		002672	CHW
0506	Nagle Hall		
		001484	ELE

Building No.	Building Name	MeterID	Type
0410	Harrington Hall - Dorm 11		
		000327	ELE
		002349	CHW
		002353	HHW
0411	Utay Hall - Dorm 12		
		000026	ELE
		002102	CHW
		002106	HHW
0419	Legett Residence Hall		
		000031	ELE
		002218	CHW
		002222	HHW
0524	Blocker building		
		002914	CHW
		002918	HHW
0548	Clements Residence Hall		
		000048	ELE
		002729	CHW
		002740	HHW
0549	Haas Residence Hall		
		002983	CHW
		002994	HHW
0740	McNew Laboratory		
		005874	ELE
		005974	CHW
		005968	HHW
0880	TVMC-Small Animal Building		
		005962	HHW
1041	Texas Vet Med Diagnostic Lab		
		001466	ELE
		001539	ELE
		003817	CHW
		004137	CHW
		003821	HHW
		004130	HHW
1156	TVMC-Small Animal Building		
		007679	CHW
1197	Veterinary Research Building		
		006355	ELE
		006359	ELE
1558	Cox-McFerrin Center for Aggie Basketball		
		007577	HHW
1601	International Ocean Discovery Building		
		006351	ELE
		006382	CHW
		008144	CHW
		008145	HHW
		009829	HHW
1604	Offshore Technology Research Center		
		006660	ELE
1609	Oceanography & Meteorology Building		
			ELE
		006496	CHW
		006497	HHW

Liberal Arts and Arts & Humanities (TAMU Bldg #275)

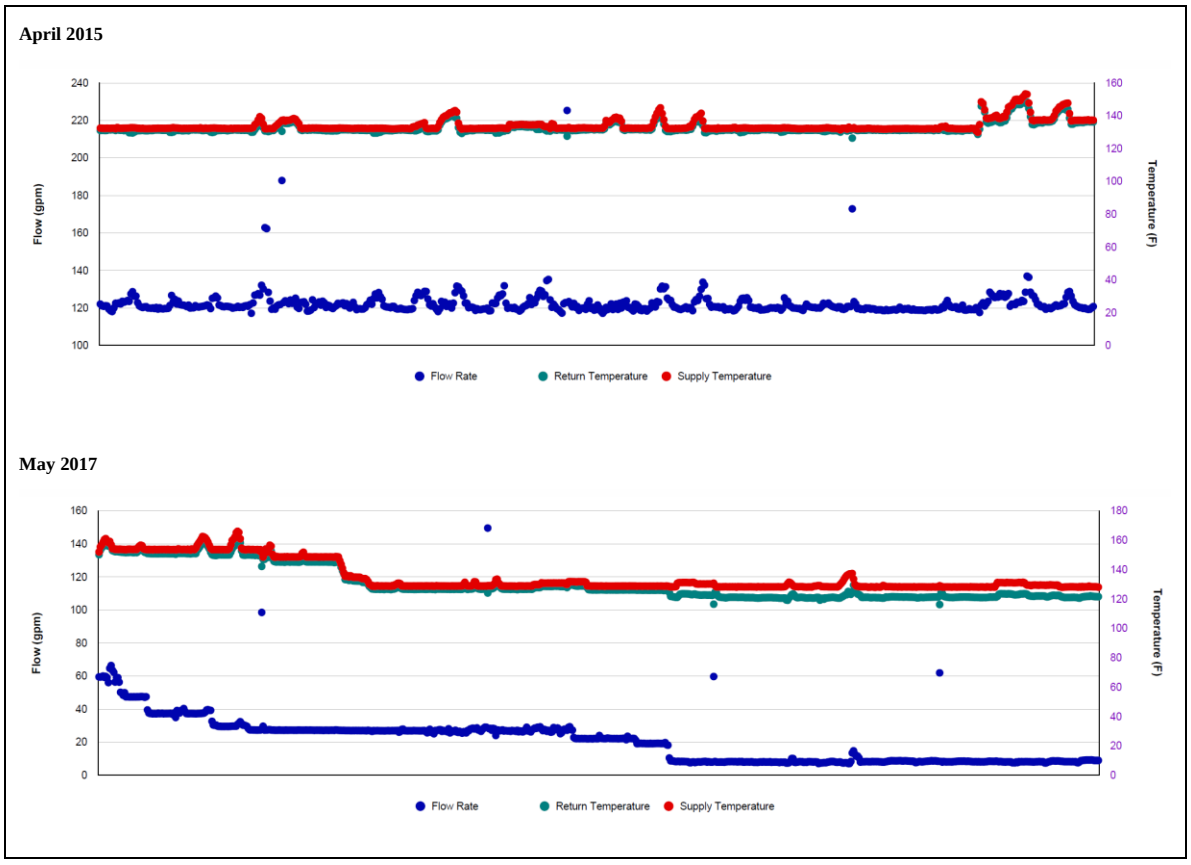
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	Low delta-T.	Since data became available

Comments

The HHW delta-T was low, around 1-2°F, since the data became available. It increased slightly in the middle of May 2017 when the flow rate decreased.

Explanatory Figure: Time series plots of hourly flow rate, and supply and return temperatures from the utilities office



Wells Residence Hall (TAMU Bldg #290)

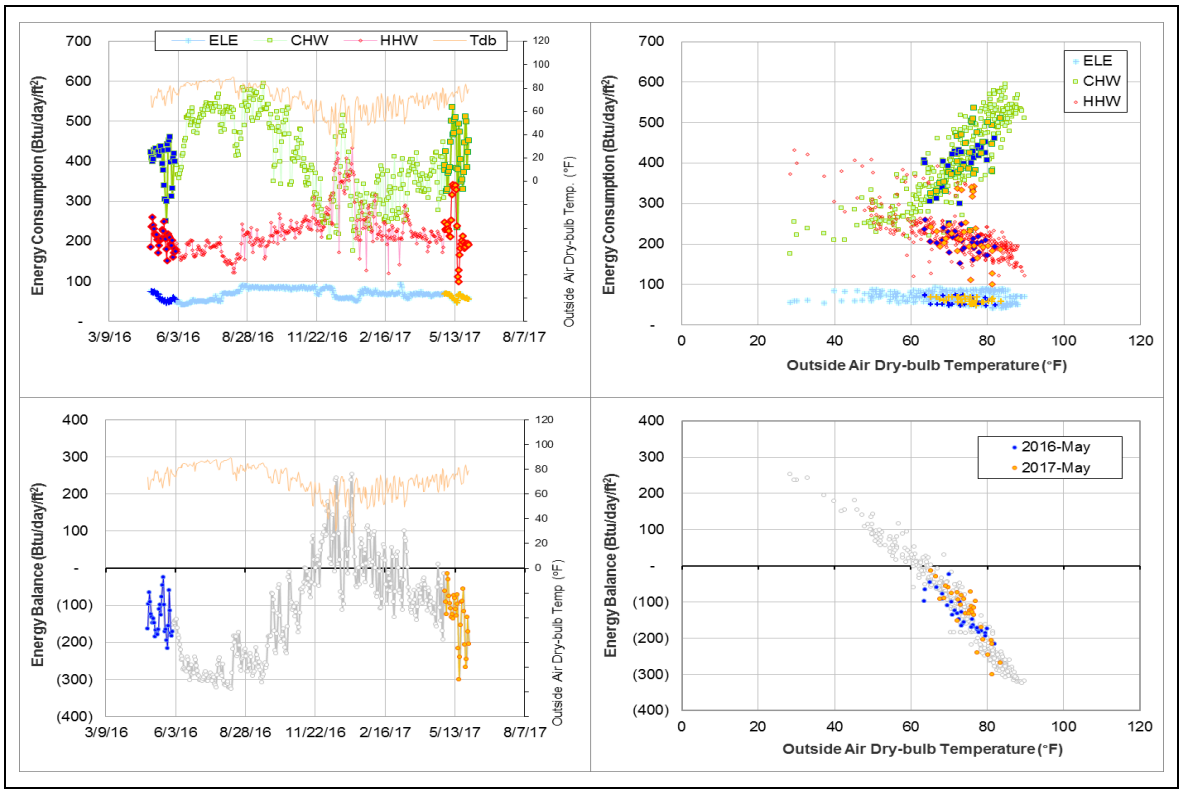
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The energy balance level is low. The cross-point temperature is around 60°F.	For several years

Comments

This building has a low level of energy balance load with the cross-point temperature around 60°F. The low E_{BL} level suggests an imbalance of metered energy use in the building, but we are not able to determine the cause.

Explanatory Figure: 13 months energy balance plot with original data



Rudder Residence Hall (TAMU Bldg #291)

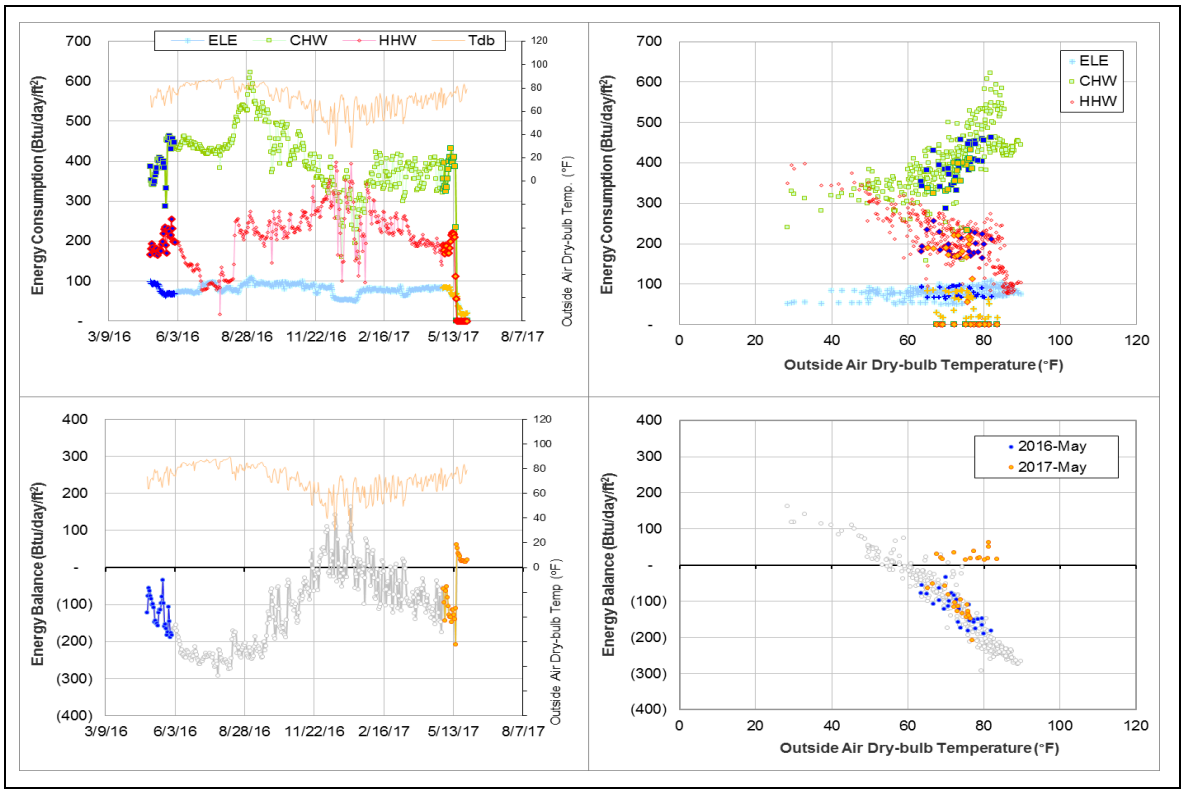
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Sudden increase by 150 Btu/day/ft^2.	Since August 2016
HHW	Sudden increase by 100 Btu/day/ft^2. The consumption is unstable.	Since August 2016
Energy Balance	The energy balance level is low. The cross-point temperature is around 60°F.	For several years

Comments

This building has a low level of energy balance load with the cross-point temperature around 60°F for years. The low E_{BL} level suggests an imbalance of metered energy use in the building, but we are not able to determine the cause.

Explanatory Figure: 13 months energy balance plot with original data



Appelt Residence Hall (TAMU Bldg #293)

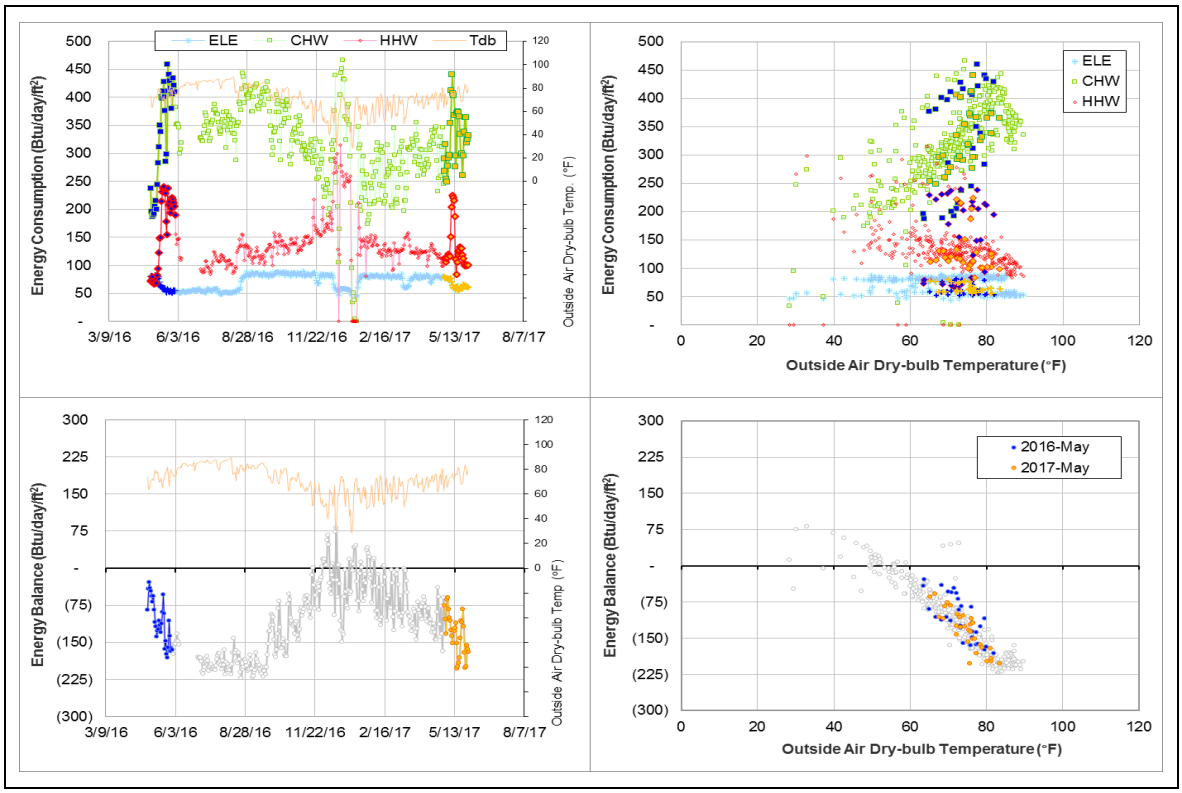
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW and HHW	The consumption level changes frequently	Since December 2014
Energy Balance	The energy balance decreased and the cross-point temperature is around 55°F.	Since January 2015

Comments

Both the CHW and HHW consumption levels have been unstable and changing frequently. The energy balance load was low with the cross-point temperature around 55°F. The low E_{BL} level suggests an imbalance of metered energy use in the building, but we are not able to determine the cause.

Explanatory Figure: 13 months energy balance plot with original data



Bright Building (TAMU Bldg #353)

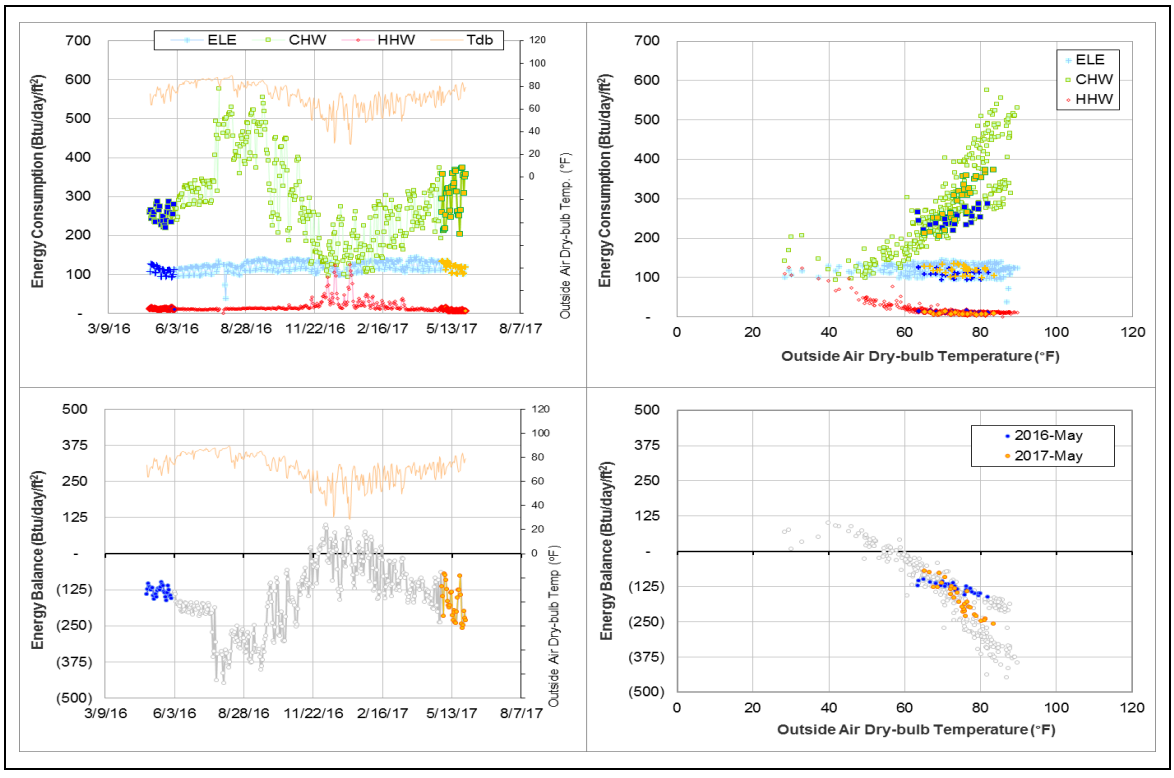
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The energy balance level has been low for years. The cross-point temperature was in the range of 40 - 70 °F.	For several years
CHW	The consumption pattern changed.	Since July 2016

Comments

The energy balance load (E_{BL}) of this building has varied but always been low (the cross-point temperature was between 40°F and 70°F) for years. CHW consumption increased greatly on 7/21/2016 and switched to a new pattern with a steeper slope.

Explanatory Figure: 13 months energy balance plot with original data



Underwood Residence Hall (TAMU Bldg #394)

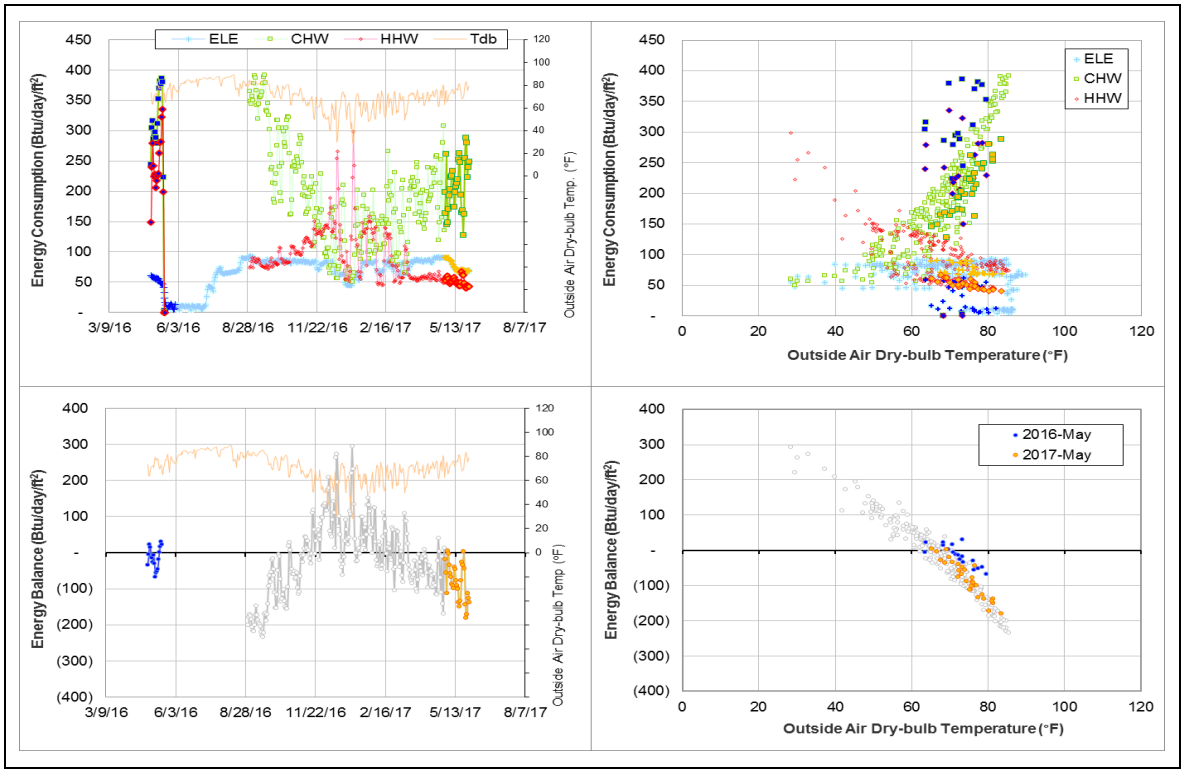
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption pattern is unstable.	9/1/2016 - ongoing
HHW	The consumption pattern is unstable.	9/1/2016 - ongoing

Comments

The CHW and HHW consumption has decreased since the data return in September 2016. There seem to be two different patterns forming. More data is needed to see how the pattern develops.

Explanatory Figure: 13 months energy balance plot with original data.



Langford Architecture Center Building A (TAMU BLDG # 398)

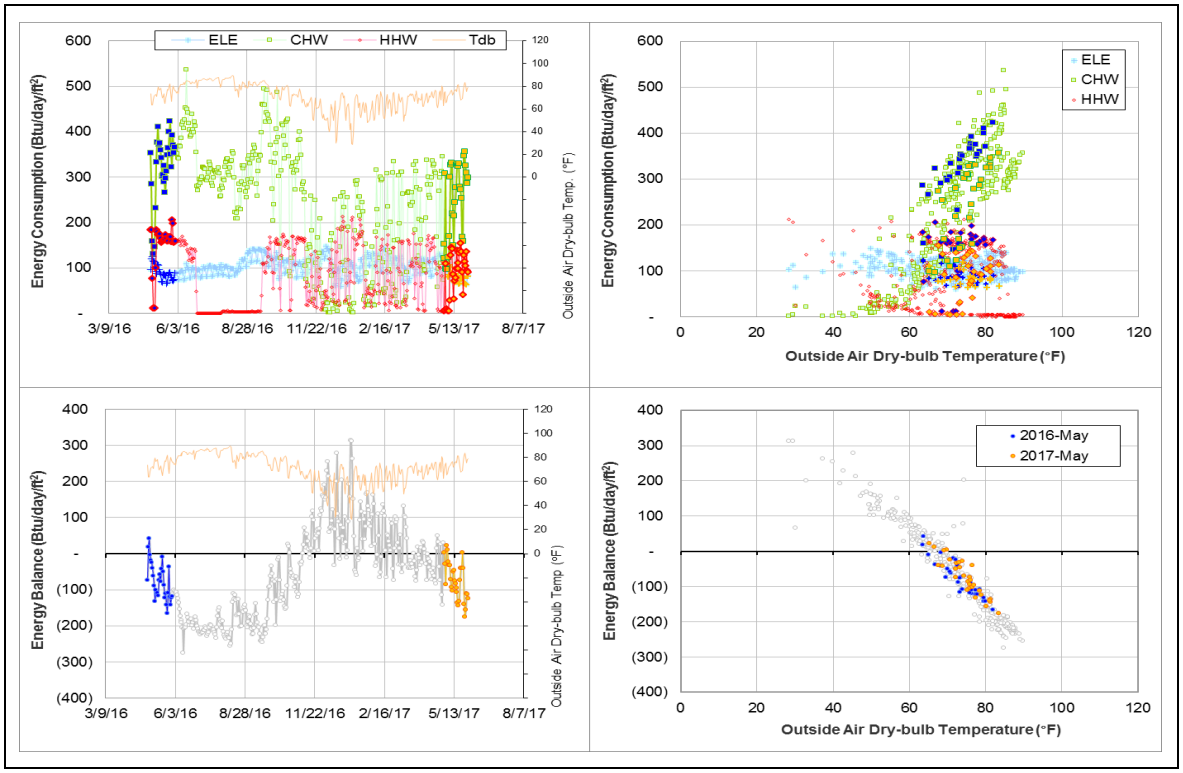
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW and HHW	The consumption has been fluctuating greatly.	For several years

Comments

CHW and HHW consumption has been unstable for several years. HHW flow rate can be seen going up and down between a maximum level and a very low level. The energy balance, however, is not disturbed during these fluctuations.

Explanatory Figure: 13 months energy balance plot with original data



Whitely Hall – Dorm 9 (TAMU Bldg #408), White Hall – Dorm 10 (TAMU Bldg #409), Harrington Hall – Dorm 11 (TAMU Bldg #410), and Utay Hall – Dorm 12 (TAMU Bldg #411)

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
All utilities	Abnormal patterns are observed.	5/1/2017 – 5/31/2017

Comments

These four dormitory buildings have undergone renovations during the last year starting in May 2016. The data became available for May 2017. However, there are abnormal patterns for the consumption of all utilities for these four dormitory buildings. Furthermore there are several gaps in the data. There is not enough information available to estimate the data with models therefore averages were used to estimate all missing consumption.

Legett Residence Hall (TAMU BLDG # 419)

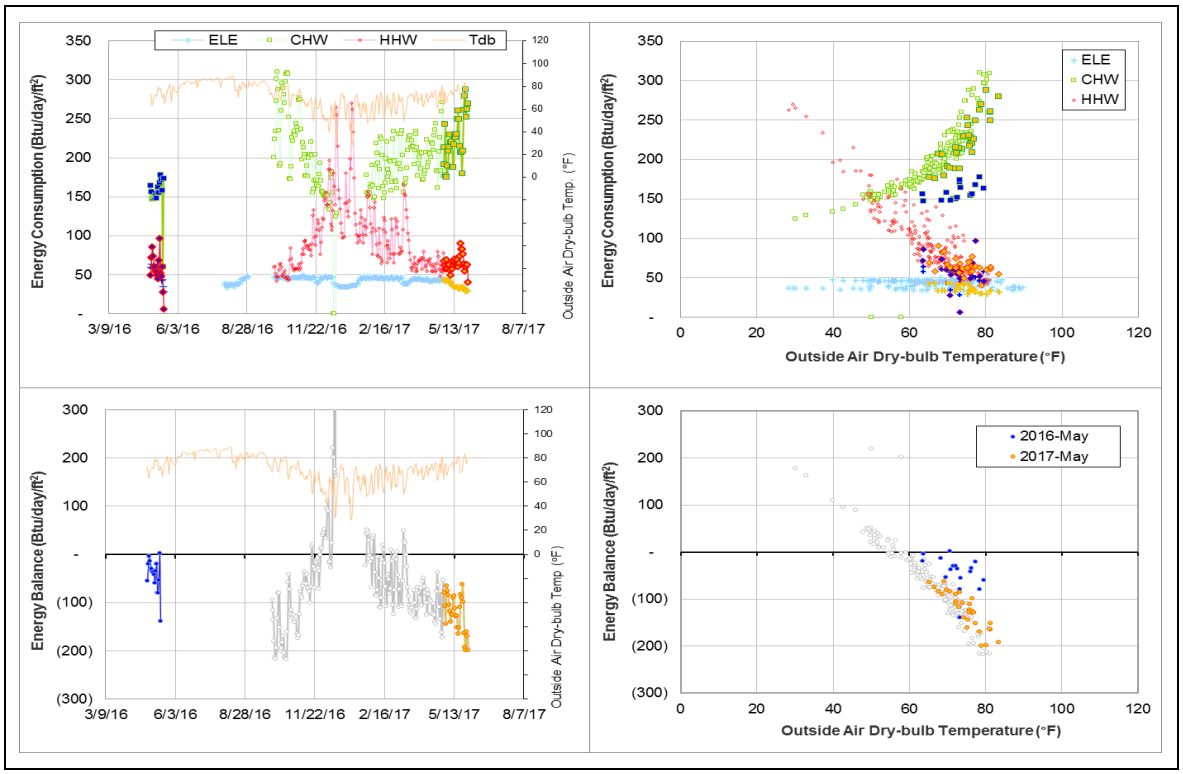
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption decreased after the missing period.	Since October 2016
CHW	The consumption increased after the missing period.	Since October 2016
HHW	The consumption decreased after the missing period.	Since October 2016
EB	The cross-point moved from 68°F to 55°F.	Since October 2016

Comments

After the missing period from May to October 2016, ELE and HHW consumption decreased and CHW consumption increased. EB cross-point moved from 68°F to 55°F since then.

Explanatory Figure: 13 months energy balance plot with original data (The plot is rescaled to remove the spikes.)



Mosher Residence Hall (TAMU Bldg #433)

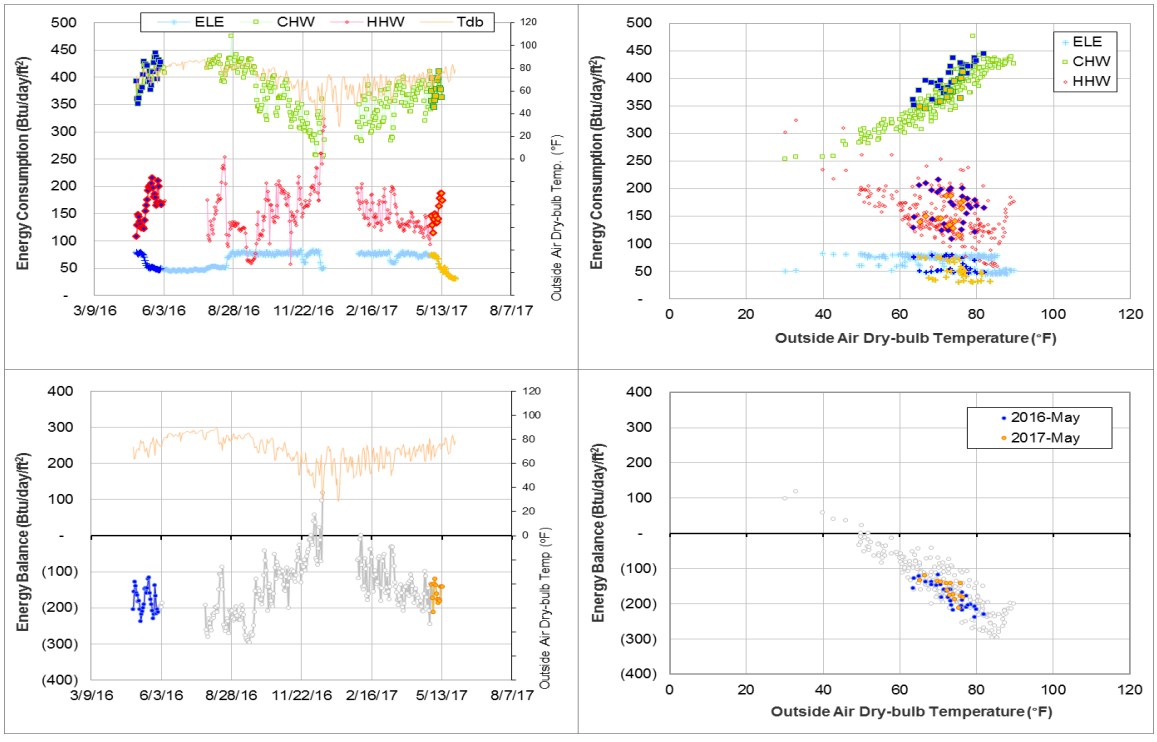
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level gradually increased.	Since 2015
HHW	The consumption level gradually decreased.	Since 2015
ELE	The consumption level suddenly decreased.	Since January 2016
Energy Balance	The cross-point temperature is lower than 50°F.	Since 2015

Comments

The ELE meter (MID 009083) replaced old meter (MID 000290) since January 2016. After that, the consumption decreased from 105 Btu/day/ft^2 to 80 Btu/day/ft^2 (approximately 25%). At near 40°F compared to 11/2014, CHW increased slightly by about 25 Btu/day/ft^2 and HHW decreased slightly by about 25 Btu/day/ft^2. HHW started to scatter since 5/2016 (shortly before the missing period). The cross-point temperature decreased further from near 55°F to lower than 50°F now. It is suggested to investigate these meters.

Explanatory Figure: 13 months energy balance plot with original data.



Oceanography & Meteorology Building (TAMU Bldg #443)

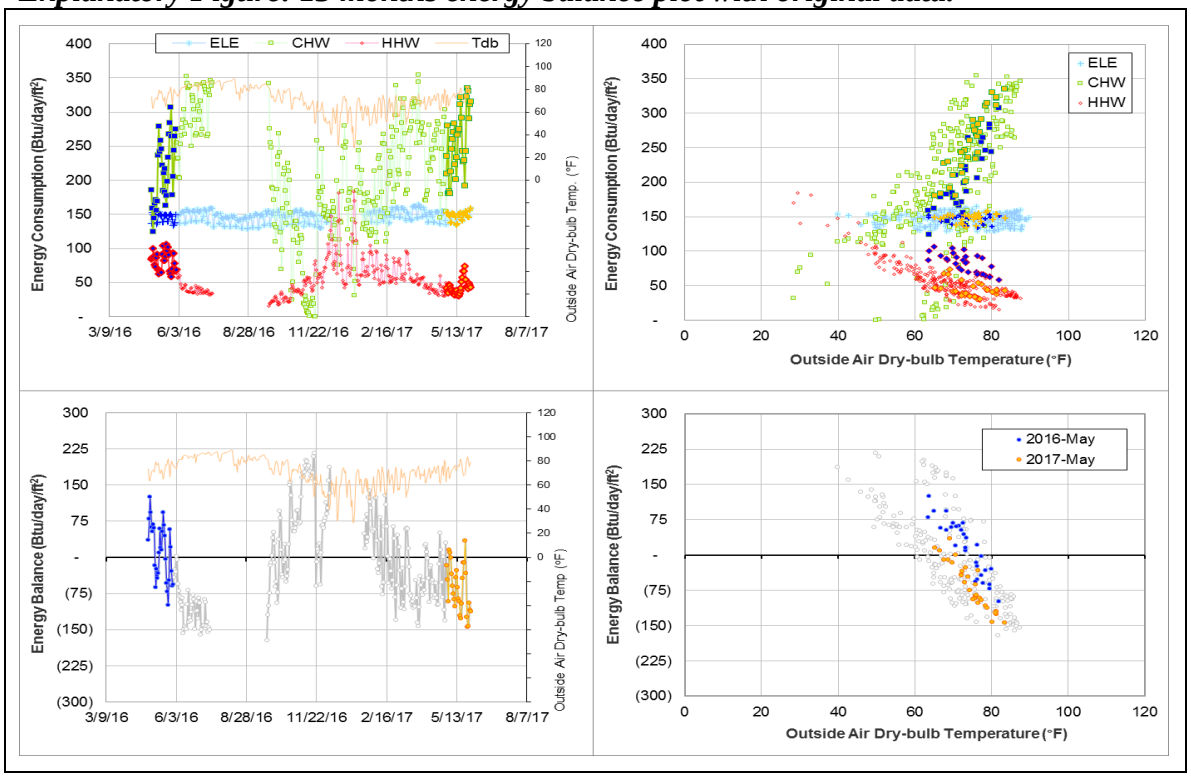
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption significantly decreased after a missing period.	September 2016 – October 2016
	The consumption increased suddenly.	Since November 2016
HHW	The consumption significantly decreased after a missing period.	Since September 2016
Energy Balance	The cross-point temperature moved from 75°F to 62°F.	Since November 2016

Comments

Both CHW and HHW consumption decreased significantly in September 2016 due to changes in Delta-T including negative values for CHW Delta-T. Starting 11/22/2016, the CHW Delta-T became positive but the consumption showed a sharp increase causing the energy balance cross-point temperature to move from 75°F to 62°F.

Explanatory Figure: 13 months energy balance plot with original data.



DPC Annex (TAMU Bldg #517)

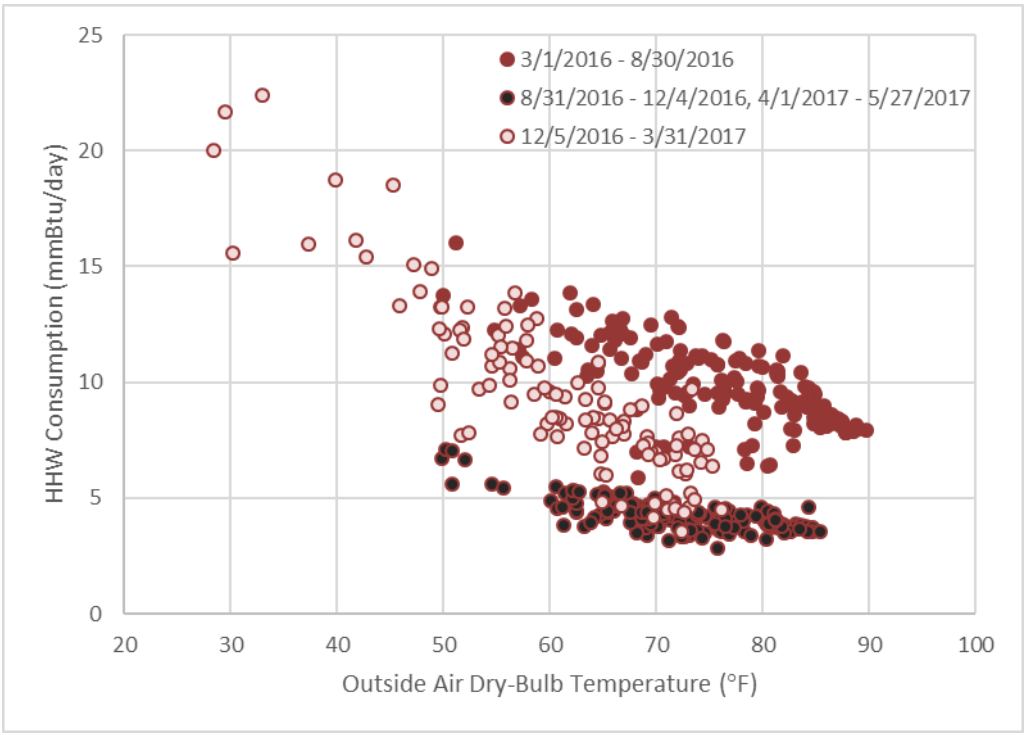
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The HHW consumption level decreased.	8/31/2016 – Ongoing

Comments

Starting 8/31/2016, the HHW consumption level decreased dropping clearly below the main pattern until 12/4/2016. The data from 12/5/2016 to 3/31/2017 appears between the main pattern and the lower pattern. However, the data for April 2017 returned to the lower pattern. This does not appear to be a meter issue. More data is needed to see how the pattern continues.

Explanatory Figure: Energy consumption versus outside air dry-bulb temperature.



Psychology Building (TAMU Bldg #463)

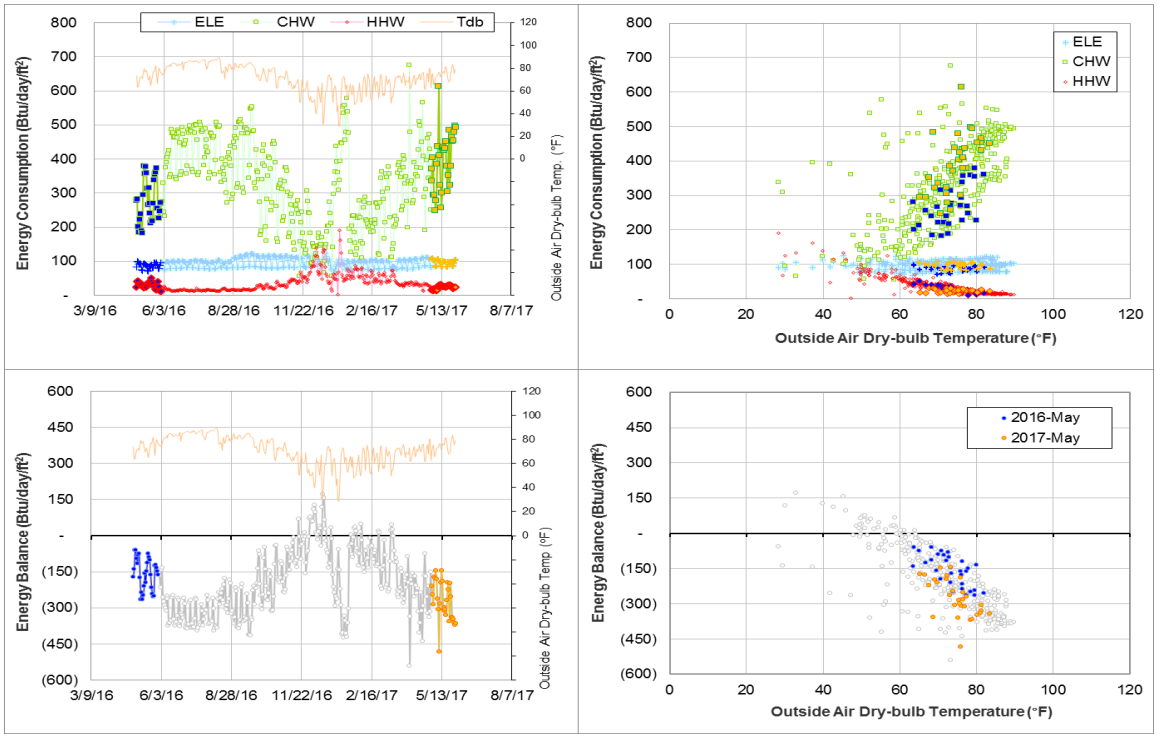
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The pattern is scattered and the level is low.	Ongoing after ESCO implementation in 2011
CHW	The consumption pattern versus ambient temperature scatters.	

Comments

The CHW consumption pattern versus ambient temperature started to scatter after ESCO implementation in 2011. The CHW consumption level is high with a CHW temperature differential around 20°F, which is high for an office building with conventional HVAC systems. The building had energy efficiency improvements by ESCO during the period of 5/9/2011–8/19/2011.

Explanatory Figure: 13 months energy balance plot with original data.



Fermier Hall (TAMU Bldg #482)

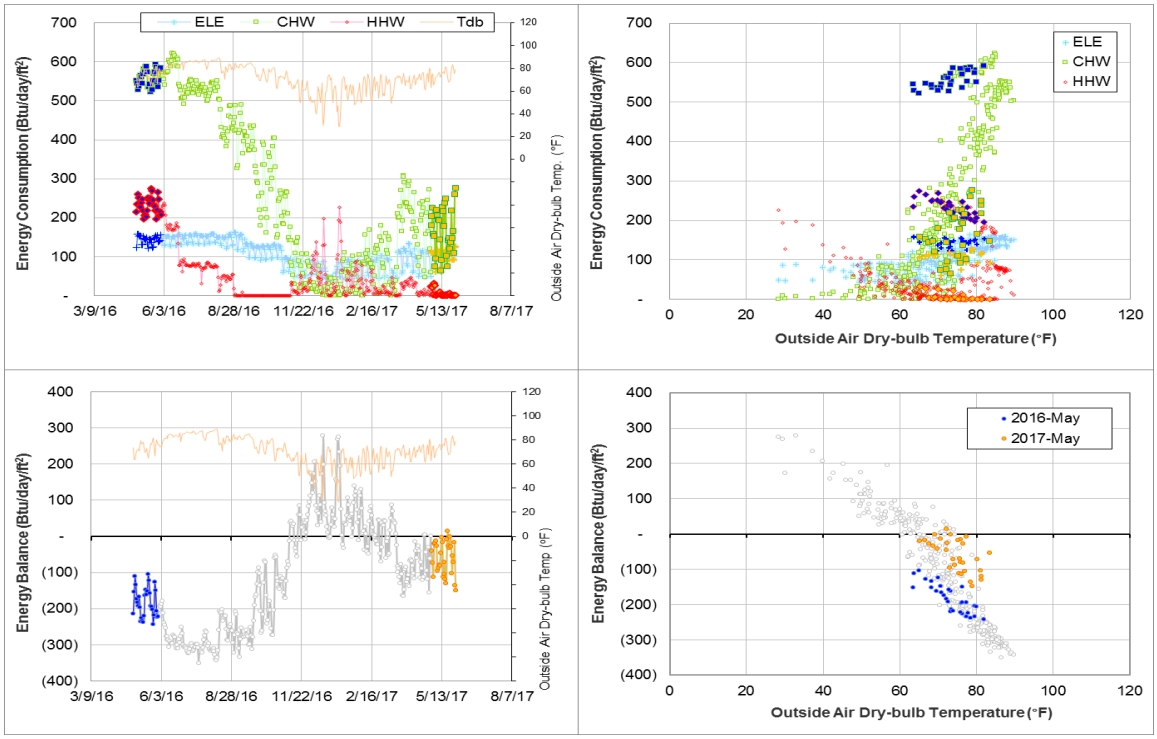
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption level has significantly decreased.	6/24/2016 – Ongoing

Comments

CHW and HHW of this building decreased significantly in steps since 6/24/2016. Since the energy balance plot has retained its pattern up to 12/23/2016, the drop may be due to a decrease in usage. The CHW consumption during winter break (12/23/2016 – 12/31/2016) is lower than the recent pattern but does not appear to be a meter issue. This building is in the ESCO list. The decrease in consumption level could be related to it.

Explanatory Figure: 13 months energy balance plot with original data.



Chemistry Building (TAMU Bldg #484)

Detected issues in the energy balance and/or the consumption data

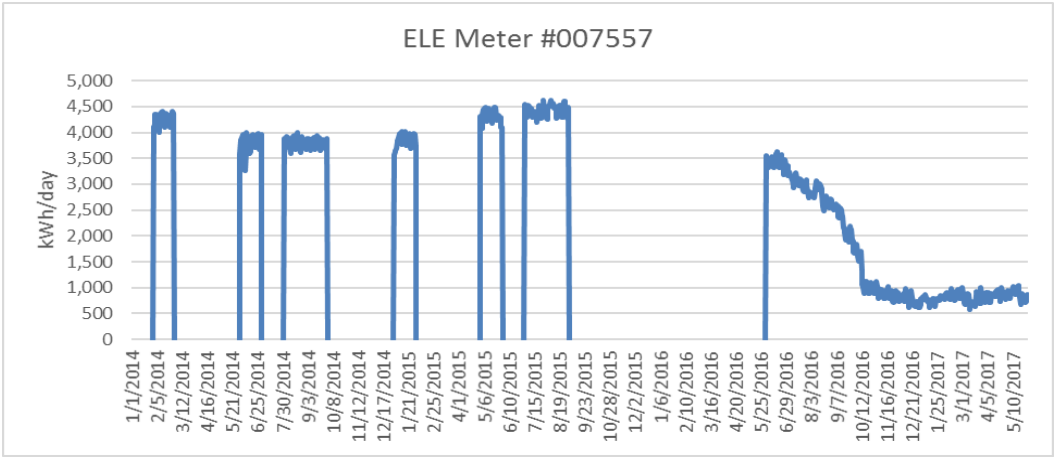
Data Type	Description of data behaviors	Period
ELE	The ELE consumption level has decreased significantly for meter #007557.	6/1/2016 – Ongoing
ELE	The ELE consumption level has decreased for meter #007152.	8/13/2013 – 5/1/2017

Comments

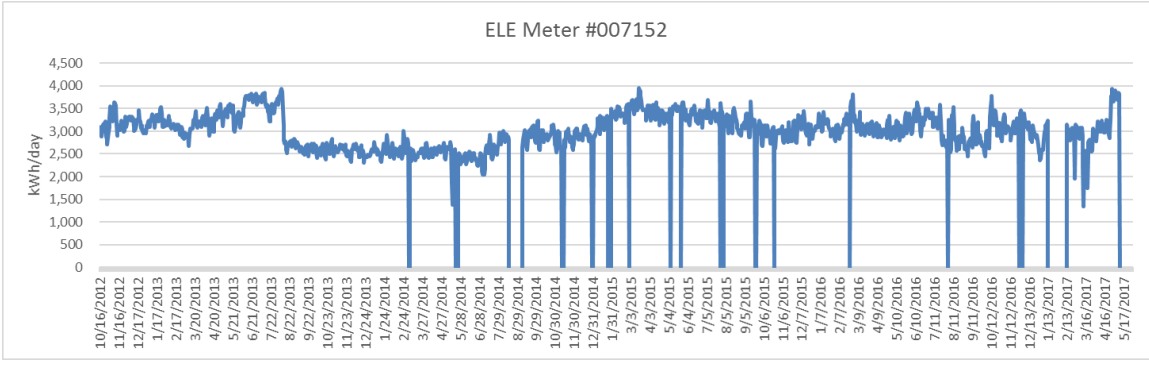
There are four ELE meters for this building. The consumption for ELE meter #007557 decreased gradually from 6/1/2016 to 8/31/2016 then more significantly in September and October 2016. This change appears to relate to building renovations.

The consumption for ELE meter #007152 decreased in August 2016 and remained at this lower level until May 2017. The consumption level returned to the higher level on 5/1/2017 and continued through 5/9/2017, after 5/9/2017 the meter data is missing. This change also appears to relate to building renovations.

Explanatory Figure: Times series plot for meter #007557



Explanatory Figure: Times series plot for meter #007152



Civil Engineering Building (TAMU Bldg #492)

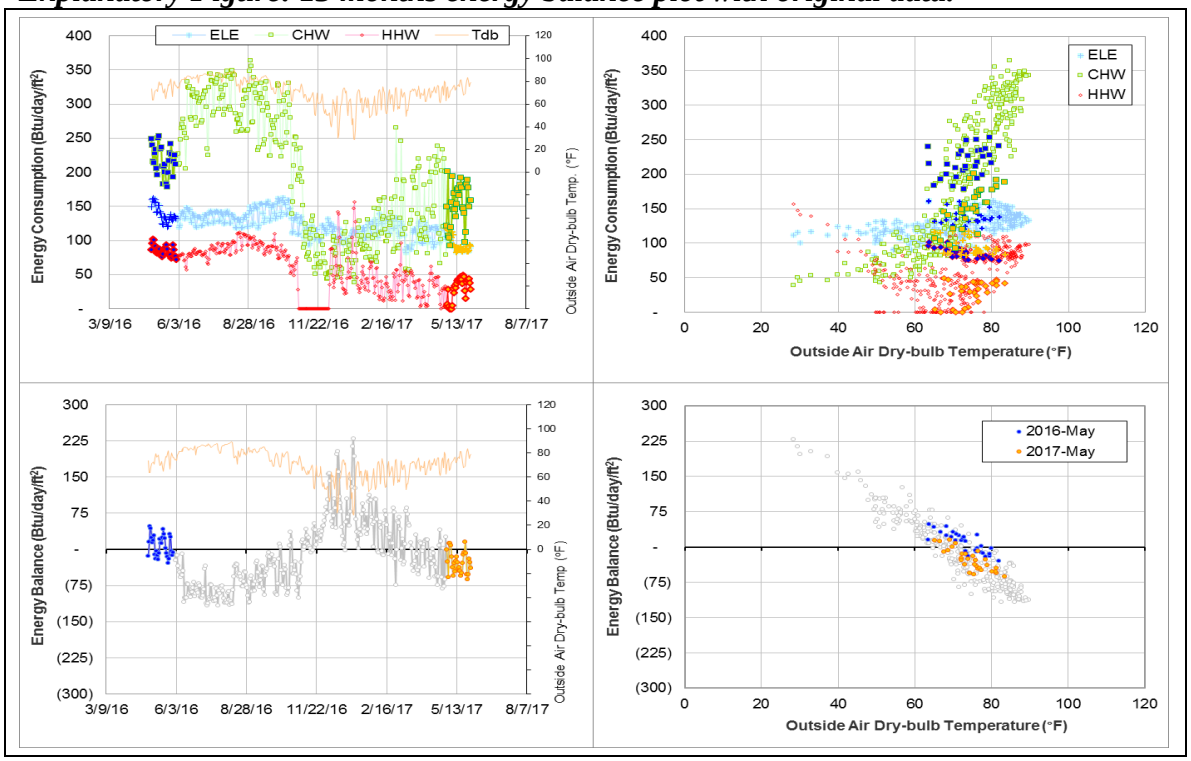
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption level decreased.	10/29/2016 – Ongoing.

Comments

Starting 10/29/2016, the CHW and HHW consumption levels decreased and continued to remain low. Excluding HHW meter issue from 10/29/2016 – 12/7/2016 (zero flow rate and near zero delta-T), the lower consumption levels may be due to ESCO.

Explanatory Figure: 13 months energy balance plot with original data.



Utilities & Energy Services Central Office (TAMU Bldg #496)

Detected issues in the energy balance and/or the consumption data

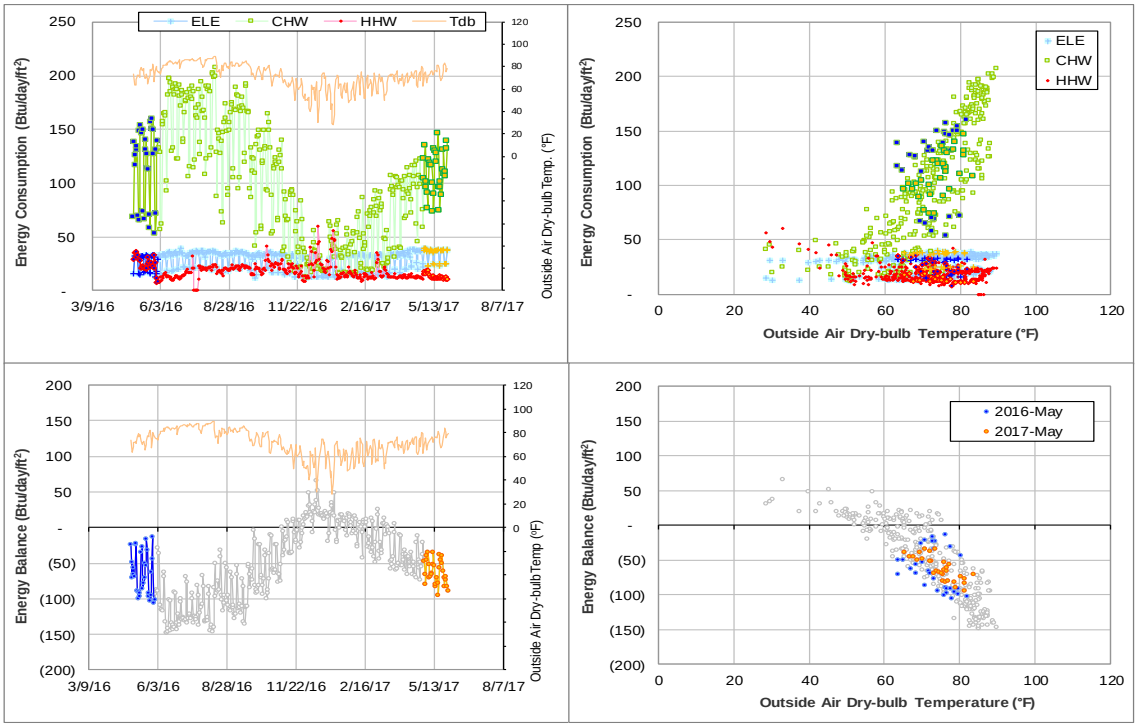
Data Type	Description of data behaviors	Period
ELE, CHW, and HHW	The energy use per unit floor area is low compared to other buildings.	Since the data became available on 7/1/2012

Comments

The peak electric use intensity is around 0.65 W/ft^2, which is small for an office building on campus. The delta-T for HHW seems to be small for years. The CHW and HHW consumption per unit floor area also seem to be low. It is possible that the GSF on file (46,110 ft^2) includes substantial unoccupied areas. The CHW consumption during the winter break period (12/23/2016 – 12/31/2016) is lower than previous winter break periods but does not appear to be a meter issue.

The energy balance scatter is due to the consumption level changes for CHW and HHW. The cross-point temperature of the energy balance is in the range of 50 to 75°F.

Explanatory Figure: 13 months energy balance plot with original data.



Engineering Innovation Center (TAMU Bldg # 499)

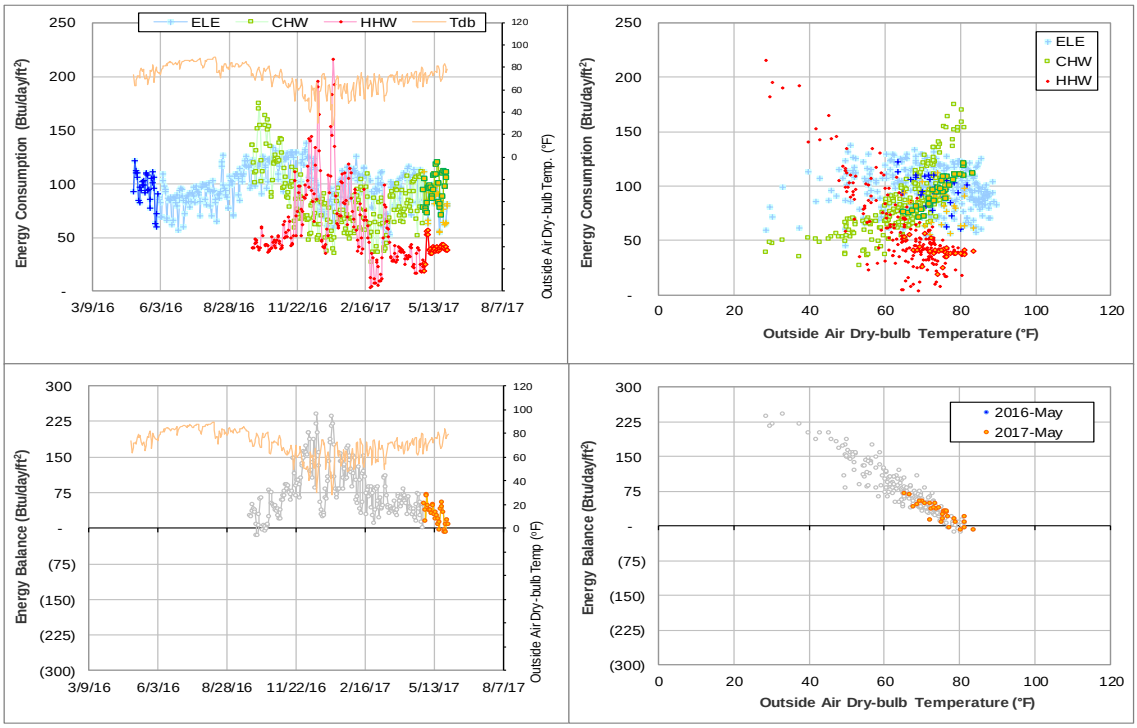
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is high, around 80°F.	For years
CHW	The consumption level is low compared to the ELE and HHW consumption.	For years

Comments

The cross-point temperature of energy balance for this building is high, around 80°F. The CHW consumption is relatively low when compared to the ELE and HHW consumption and could be the reason for the high cross-point temperature.

Explanatory Figure: 13 months energy balance plot with original data.



Nagle Hall (TAMU Bldg #506)

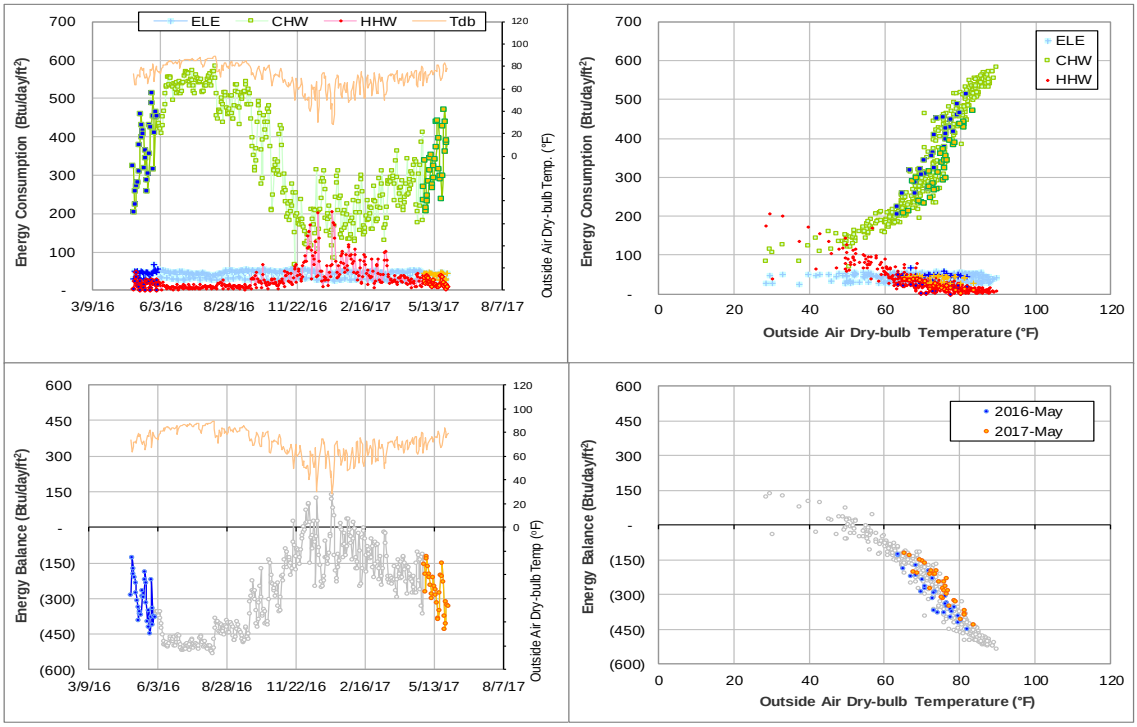
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The level was low and the cross-point temperature is around 50°F.	Since the data became available
ELE	The consumption per unit floor area is smaller than those for other similar office buildings, and has been decreasing gradually in the past 4 years.	Since the data became available

Comments

The ELE consumption is lower than 50 Btu/day/ft^2, lower than the typical level of 100 Btu/day/ft^2 for typical office buildings on campus. This might be a metering error that this meter might not cover the whole building or it is erroneously factored.

Explanatory Figure: 13 months energy balance plot with original data



Blocker Building (TAMU Bldg #524)

Detected issues in the energy balance and/or the consumption data

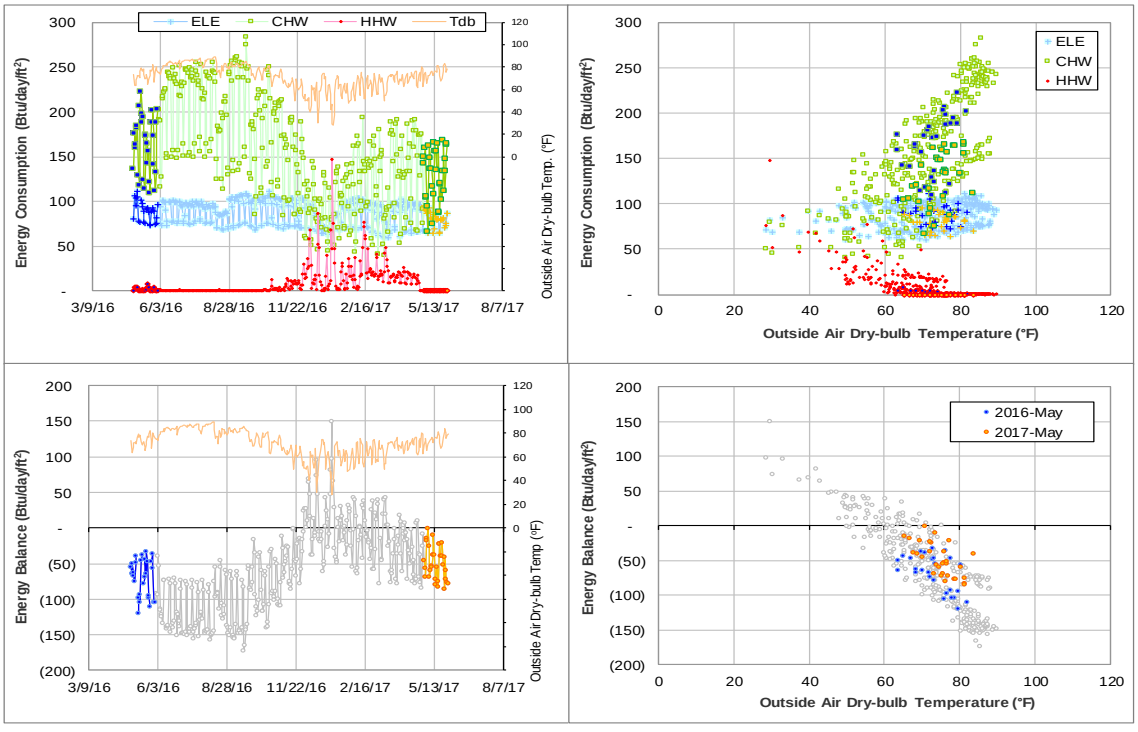
Data Type	Description of data behaviors	Period
CHW	The consumption decreased and is about 50 Btu/day-ft^2 (25%) lower than the level of the past year.	May 2017
HHW	The consumption level is low.	Past several years

Comments

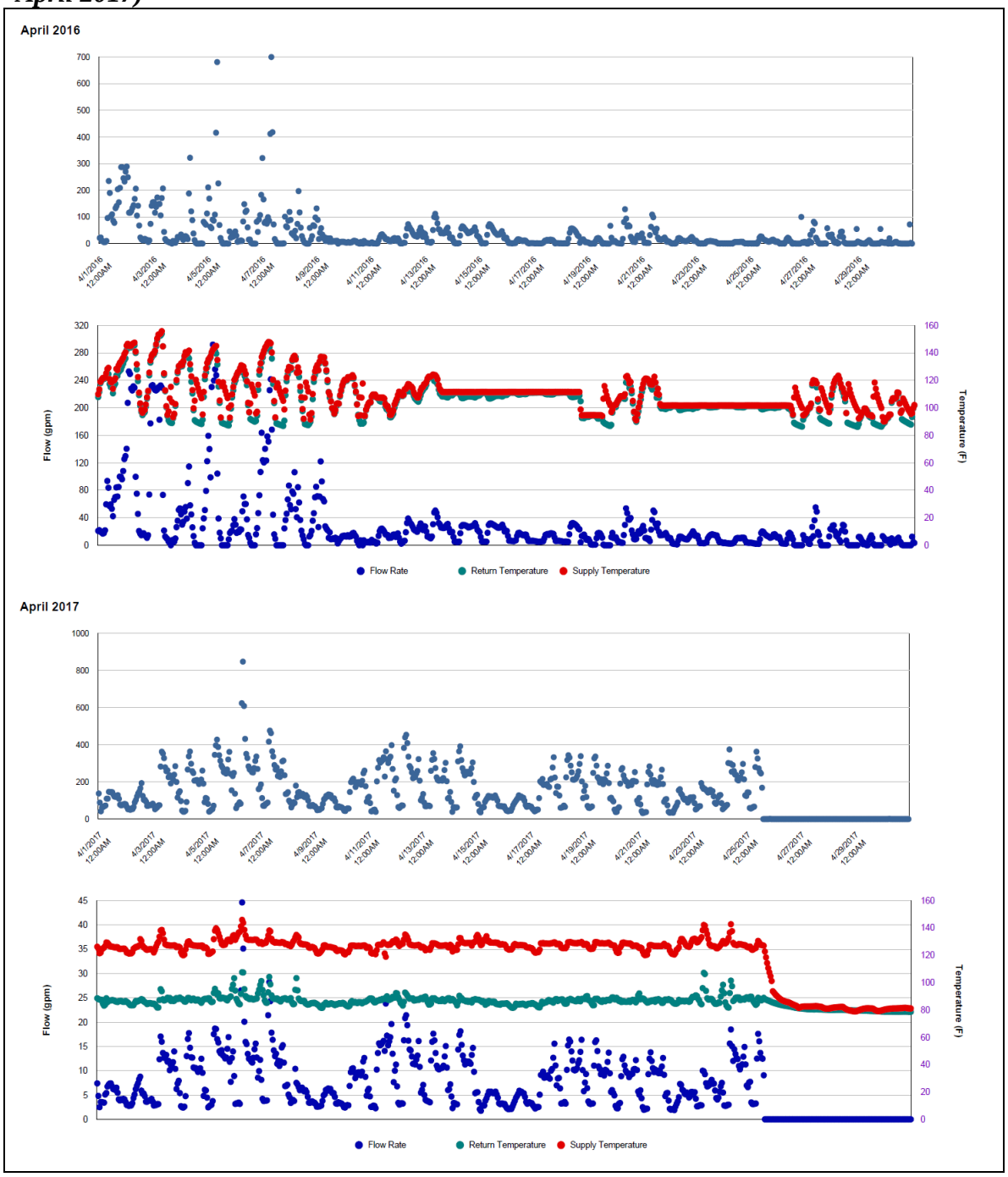
The cross-point of temperature of energy balance had been lower than 60°F for years. But the recent decrease of CHW pulled energy balance up and now it crosses between 60 and 70°F.

The delta-T and consumption level for HHW seemed low for the past couple of years and started to change in an unstable fashion in February 2017. The explanatory figures below show the change in Delta-T from April 2016 and April 2017. This increase also contributed to the higher and more reasonable cross-point of energy balance. It continues to seem closed in the non-heating season.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (Top: April 2016; Bottom: April 2017)



Clements Residence Hall (TAMU Bldg #548)

Detected issues in the energy balance and/or the consumption data

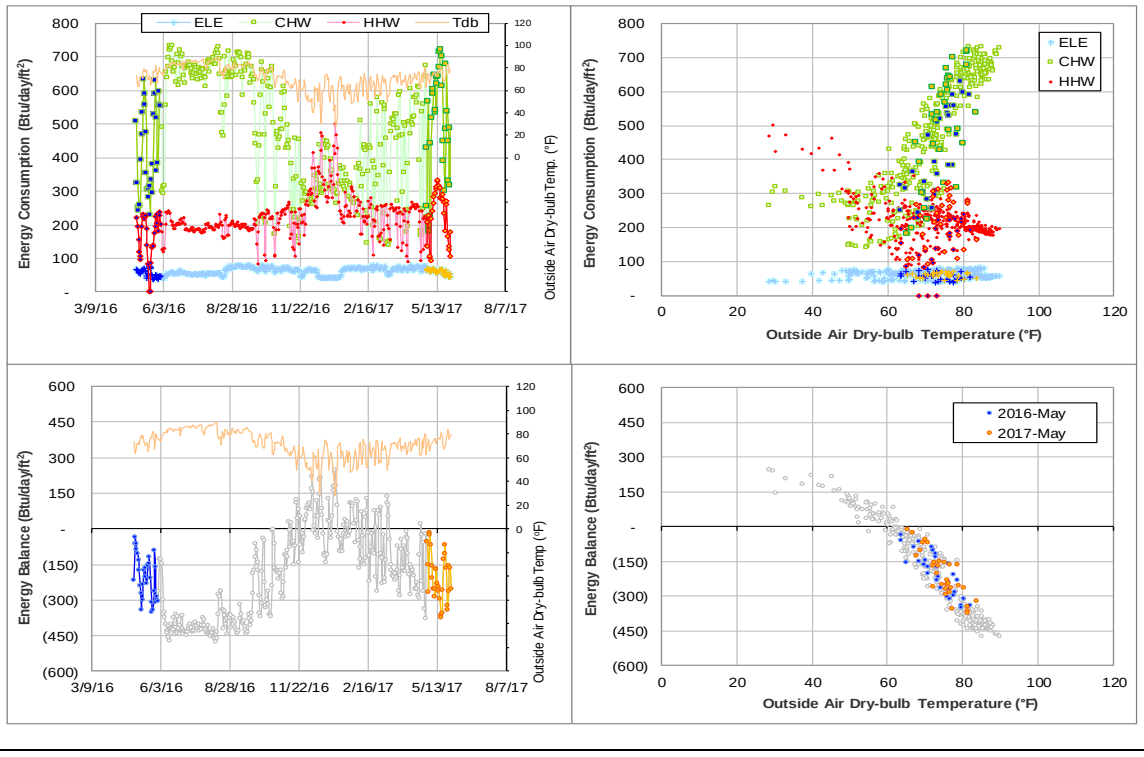
Data Type	Description of data behaviors	Period
All utilities	A fluctuation occurs and is not a weekly shift. For CHW and HHW, this fluctuation is realized by rapid change in flow rates.	For years

Comments

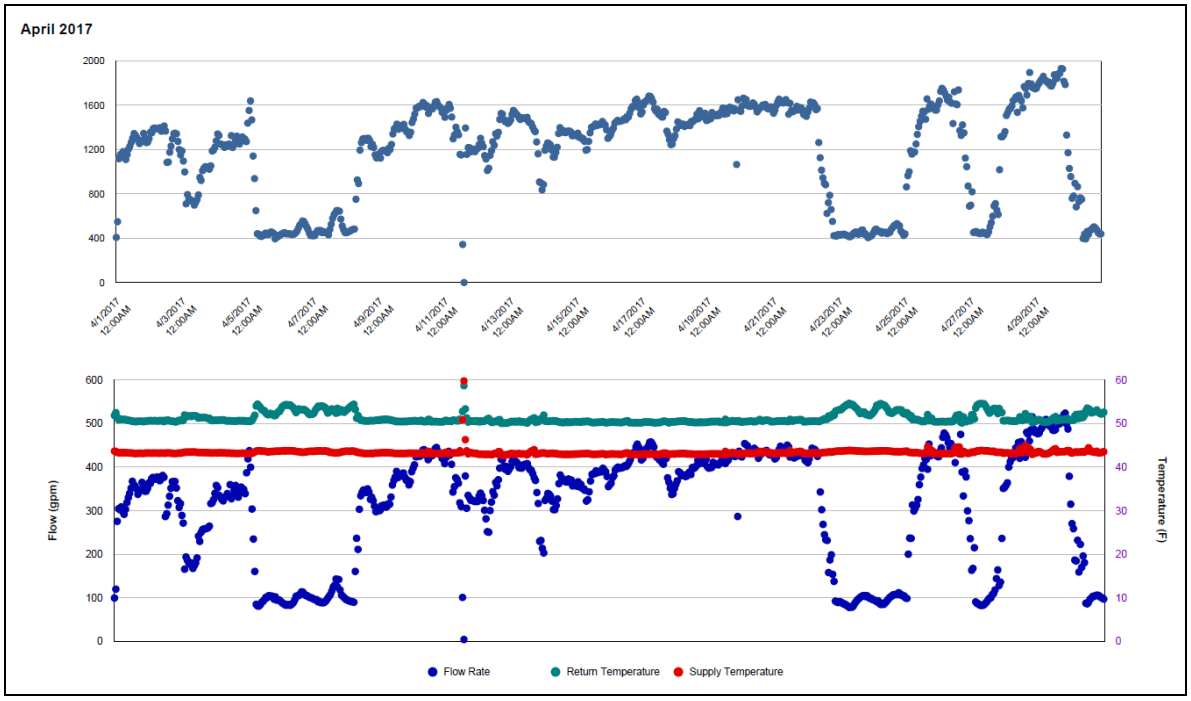
This building has a fluctuating consumption pattern. A higher level and a lower level can be observed and the two levels cannot be separated by separating weekdays and weekends. During the summer or break periods, ELE consumption stays stable at a level at an even lower level, whilst CHW and HHW stays at the higher level. The energy balance is clean and not disturbed by this fluctuation, but notice that the ELE consumption intensity is lower than 100 Btu/day-ft^2 and makes limited contribution to the energy balance. The fluctuation of the three utilities seems well synchronized. This is therefore not suspected to be a meter faulty. See also Section II-3 #549 Haas Residence Hall.

The explanatory figures below demonstrate the rapid fluctuation in flow rates. The two levels of HHW and ELE consumption are successfully separated by picking out the same days when CHW was at a higher or lower level. The two separation plots use data of 1/14/2017 – 5/7/2017, excluding 3/12/2017 – 3/18/2017. CHW and HHW flow rates increased abnormally on 5/8/2017. The consumption is not estimated as the energy balance retained its pattern.

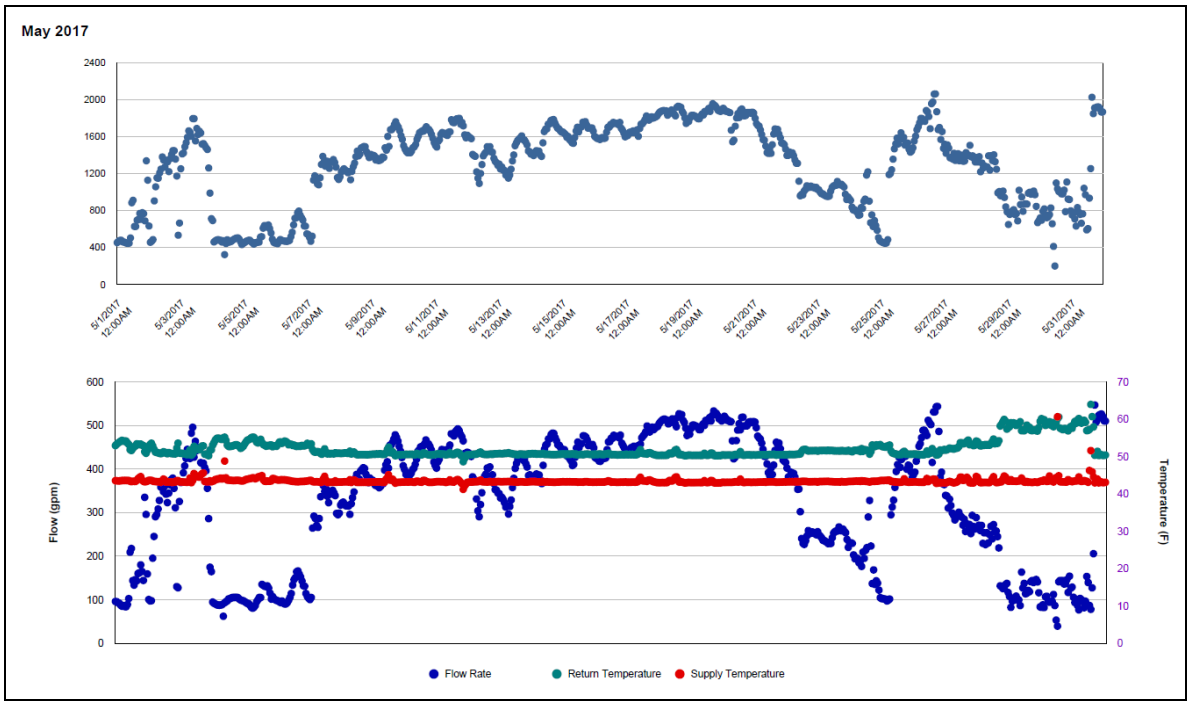
Explanatory Figure: 13 months energy balance plot with original data



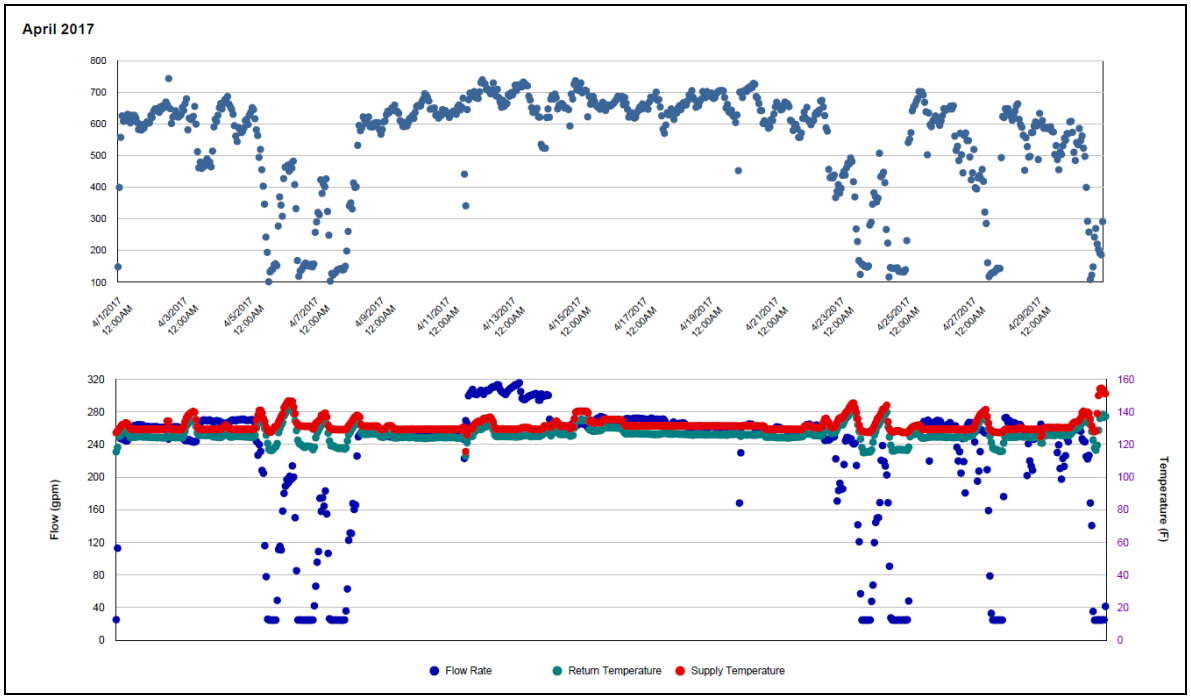
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during April 2017)



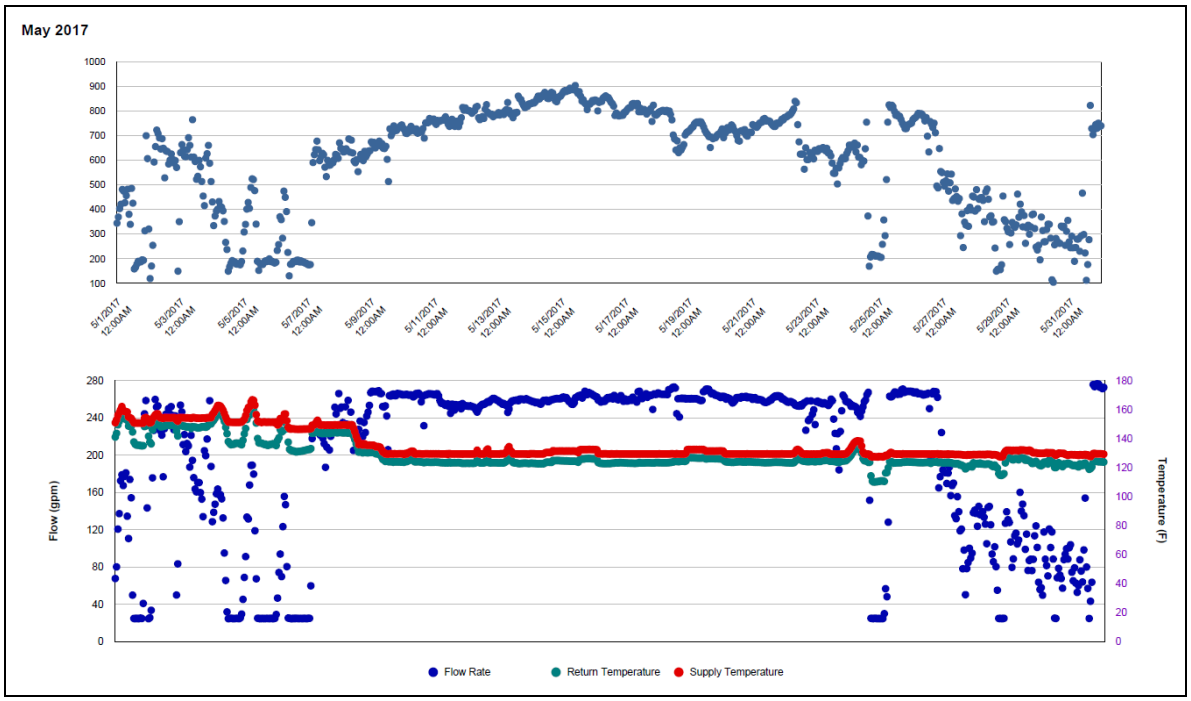
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during May 2017)



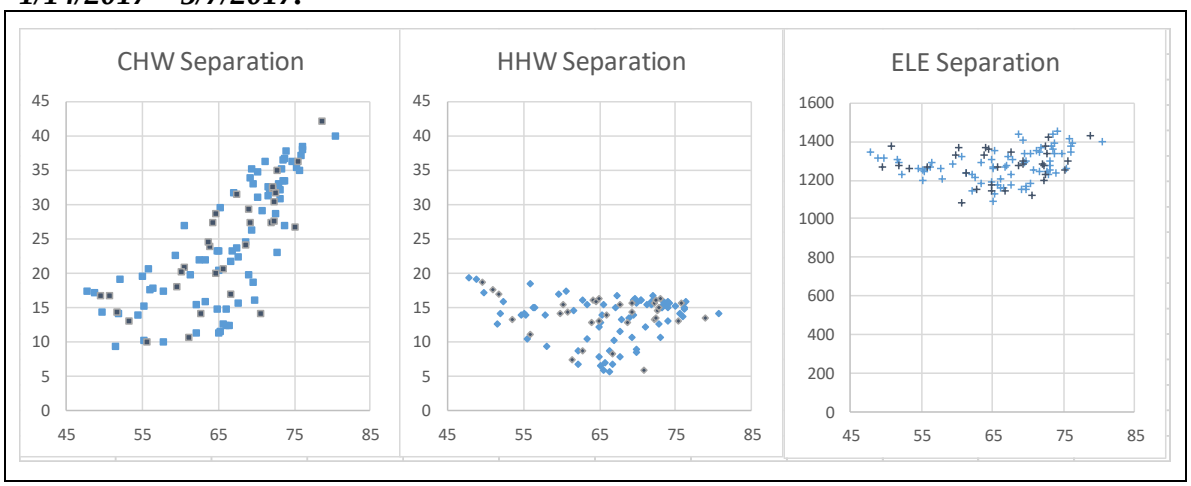
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during April 2017)



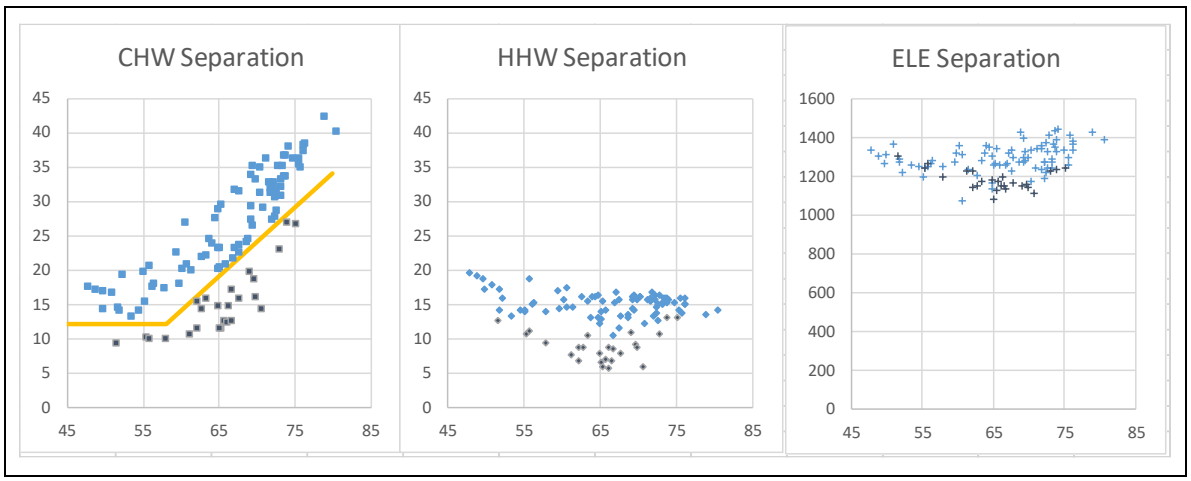
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during May 2017)



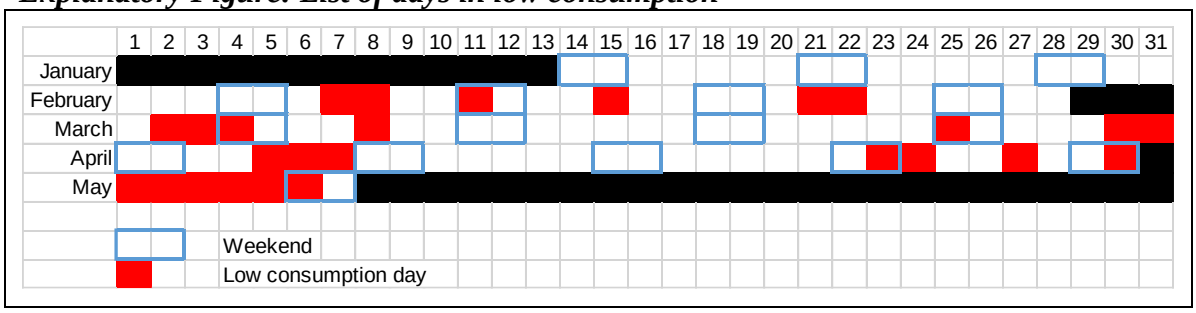
Explanatory Figure: Separating CHW, HHH, and ELE using weekday/weekend for 1/14/2017 – 5/7/2017.



Explanatory Figure: Separating HHW and ELE patterns using CHW for 1/14/2017 – 5/7/2017.



Explanatory Figure: List of days in low consumption



Haas Residence Hall (TAMU Bldg #549)

Detected issues in the energy balance and/or the consumption data

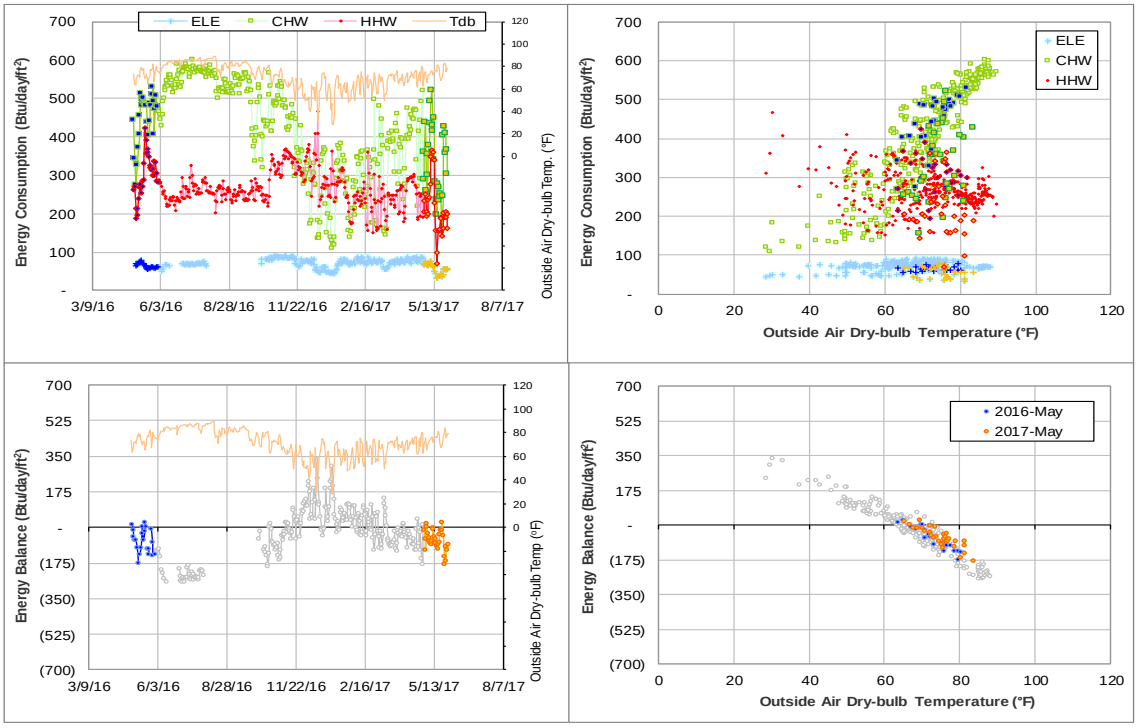
Data Type	Description of data behaviors	Period
CHW	The flow rate dropped for a period.	May 2017
HHW	The consumption pattern scatters due to the unstable flow rate.	For years

Comments

The CHW and HHW flow rates dropped to a very low level during 5/15/2017 – 5/25/2017. HHW of this building has a similar fluctuating pattern as described in Section II-3 #548 Clements Residence Hall, but it is difficult to be separated.

The energy balance is clean and not disturbed by the described issues. This is therefore not suspected to be a meter faulty.

Explanatory Figure: 13 months energy balance plot with original data



McNew Laboratory (TAMU Bldg #740)

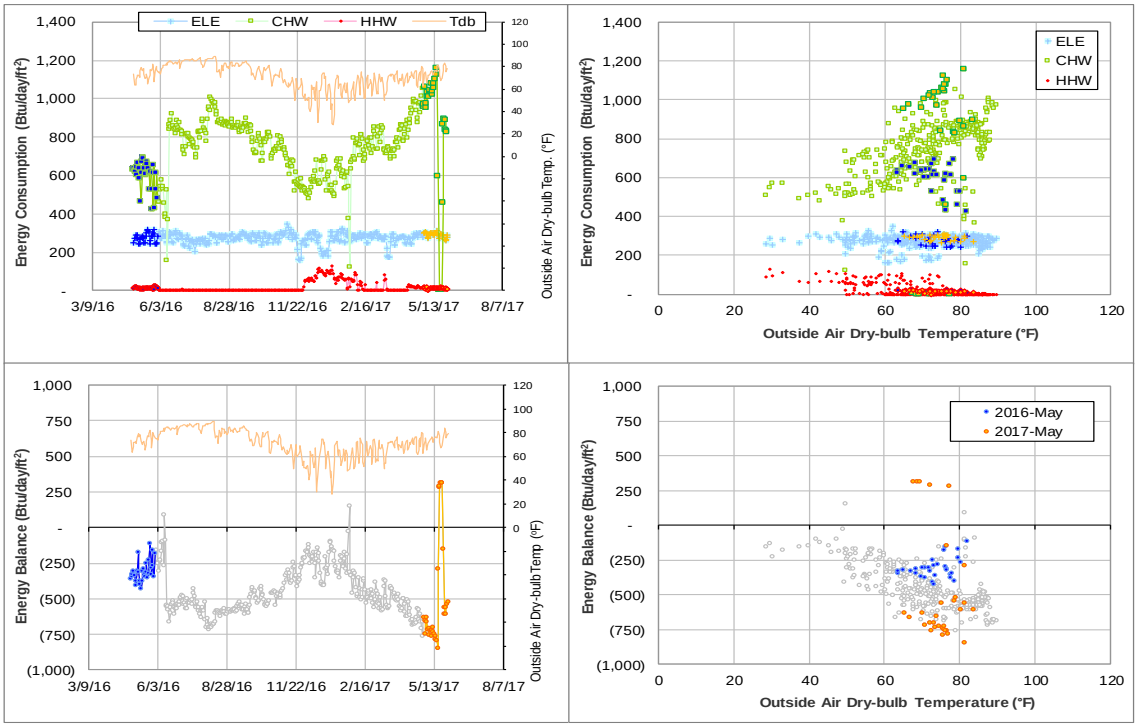
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The energy balance pattern level is low.	Past several years
HHW	The consumption level might be low.	Past several years

Comments

The energy balance level has consistently been low and does not even reach a cross-point temperature. Since 2013, there has been a large decrease in HHW use. After that, HHW consumption decreased gradually year by year. Since May 2016, the majority days have zero/nearly zero consumption. Recently, the CHW has increased starting February 2017, causing the energy balance to reduce even more. More information is needed to help identify the reason causing the low energy balance for this building. See also Section II-2.

Explanatory Figure: 13 months energy balance plot with original data



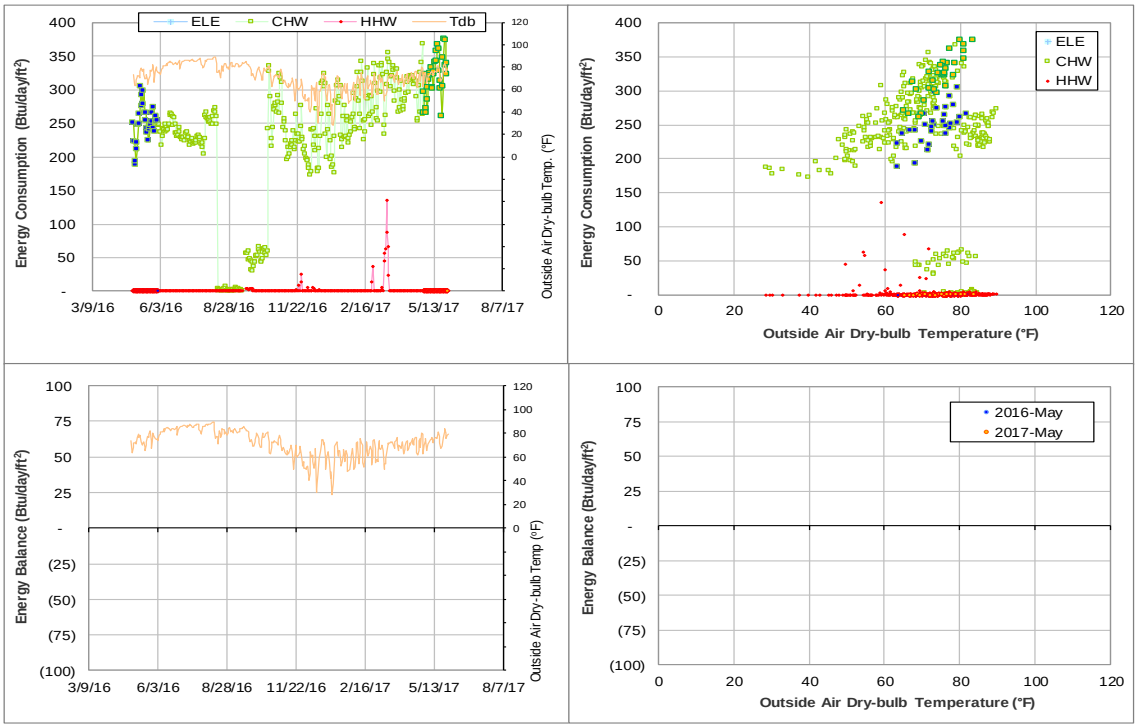
TVMC-Small Animal Building (TAMU Bldg# 880)

Data Type	Description of data behaviors	Period
HHW	The daily consumption is zero or nearly zero for the majority of the days during the year.	Since the data became available in October 2008

Comments

The daily HHW consumption pattern is zero or nearly zero for the majority of the days for years. Because the HHW consumption level appears unstable since the data became available, a valid consumption model for this meter has not been created.

Explanatory Figure: 13 months energy balance plot with original data



Texas Vet Med Diagnostic Lab (TAMU Bldg# 1041)

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	Decrease after missing periods	May 2017
CHW HHW	Still missing as ELE data recovered	Since July 2016

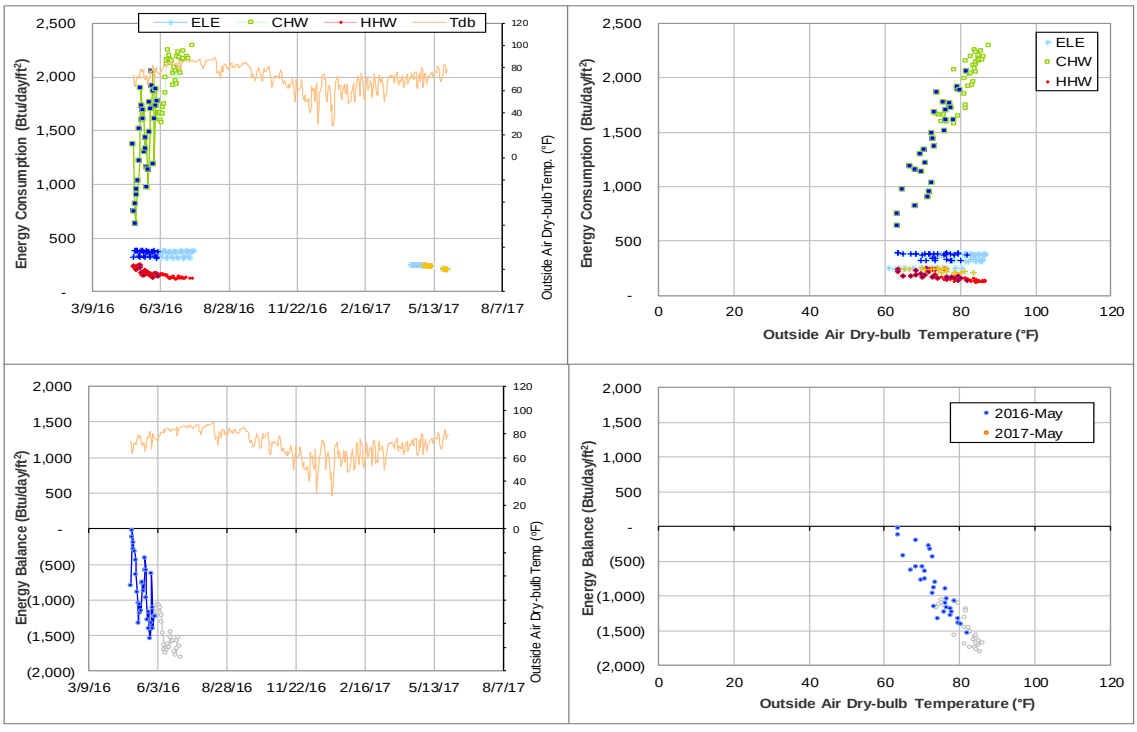
Comments

This building has six MID's in total (two for each utility type) and they had gone missing since 7/14/2016. The two ELE meters restarted taking data on 3/27/2017.

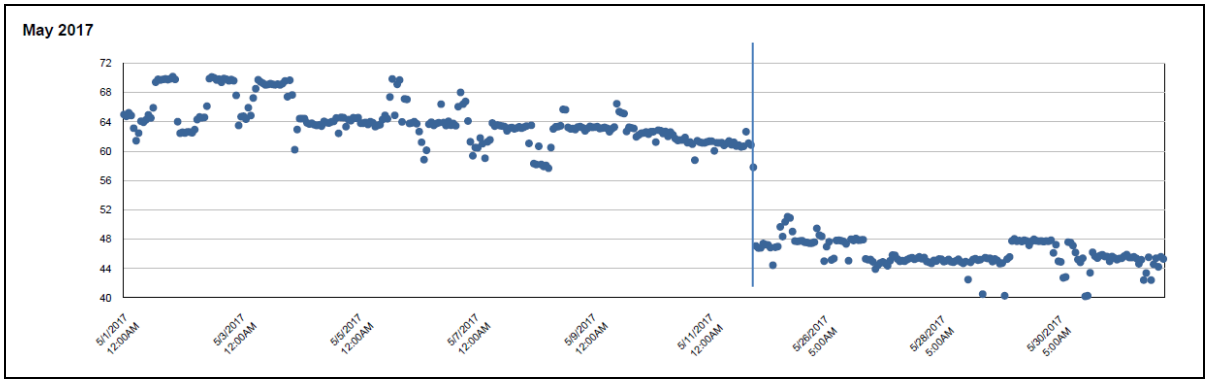
ELE MID 001466 decreased from a level ranging from 110 to 180 kWh/h to a stable 100 kWh/h level. ELE MID 001539 decreased from a level ranging from 100 to 130 kWh/h to 64 – 72 kWh/h level, and decreased further after a short missing period of 5/12/2017 – 5/24/2017 to 45 kWh/h. This building's total ELE consumption decreased by 33% in daily average value. This later missing period of the two ELE meters is not estimated because the monthly consumption evaluated from the cumulative data is not affected.

CHW and HHW data are still missing. To reflect the decreased level as ELE suggests, CHW and HHW consumption is estimated by first using models based on 8/1/2015 – 7/13/2016 data and then scaling down to 66%.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly energy consumption from the utilities office. (ELE MID 001539 during May 2017)



Physical Plant Administration & Shops (TAMU Bldg# 1156)

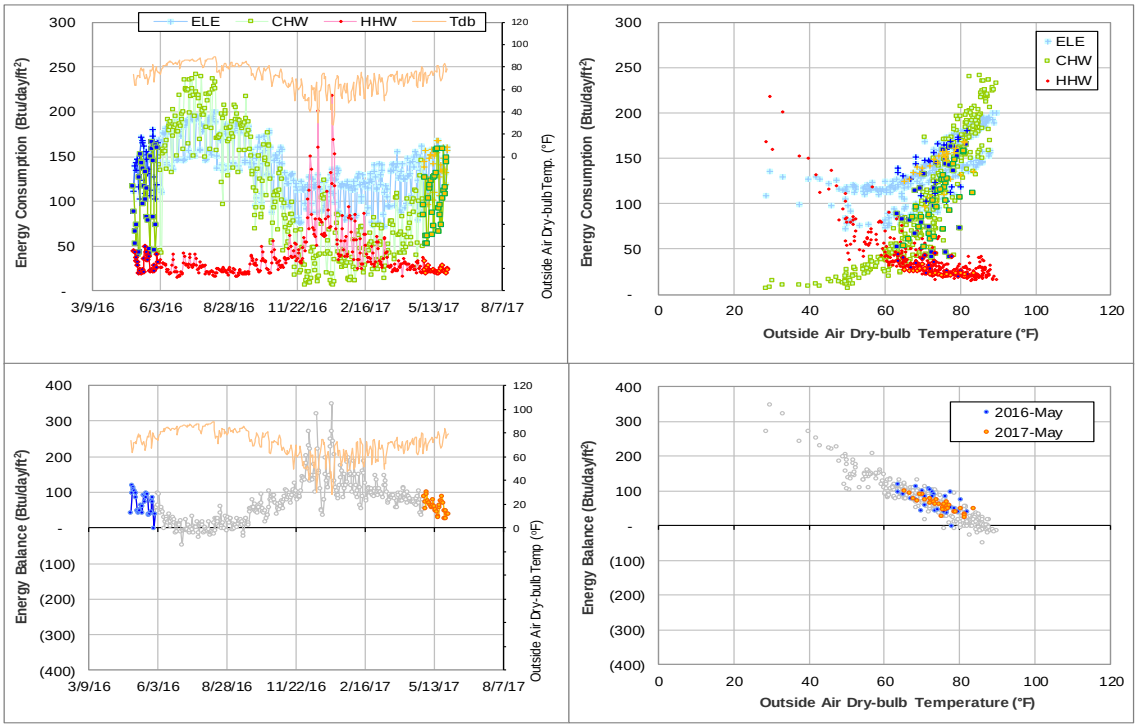
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is high, ~85°F.	7/1/2014-ongoing
CHW	The consumption level might be low compared to the ELE and HHW use level.	Since the data became available on 7/1/2012.

Comments

The electricity is not available until 7/1/2014. CHW consumption level seems low compared to the ELE and HHW use level, but the CHW consumption has a clean and stable pattern since the data became available on 7/1/2012. More information is needed to identify which type of utility causes the high cross-point temperature. It is possible that the GSF on file (101,704 ft^2) includes substantial unoccupied areas.

Explanatory Figure: 13 months energy balance plot with original data



Veterinary Research Building (TAMU Bldg# 1197)

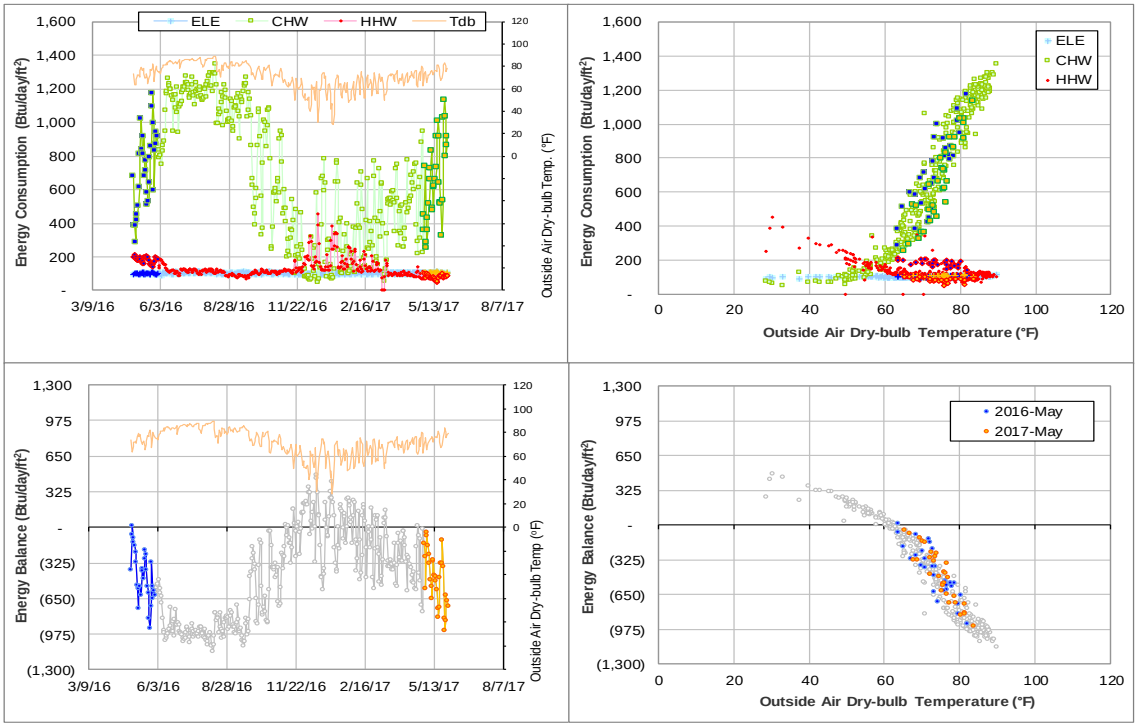
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption is low for a laboratory building.	Since January 2010 when the meter was added to this report

Comments

The electricity consumption is in the range of 90 - 120 Btu/day/ft^2 (1.05 W/ft^2 to 1.40 W/ft^2), which is low for a veterinary laboratory building on the campus. This seems to be the reason for the low level of the energy balance load. The temperature-axis intercept of the energy balance is around 62°F.

Explanatory Figure: 13 months energy balance plot with original data



Cox-McFerrin Center for Aggie Basketball (TAMU Bldg# 1558)

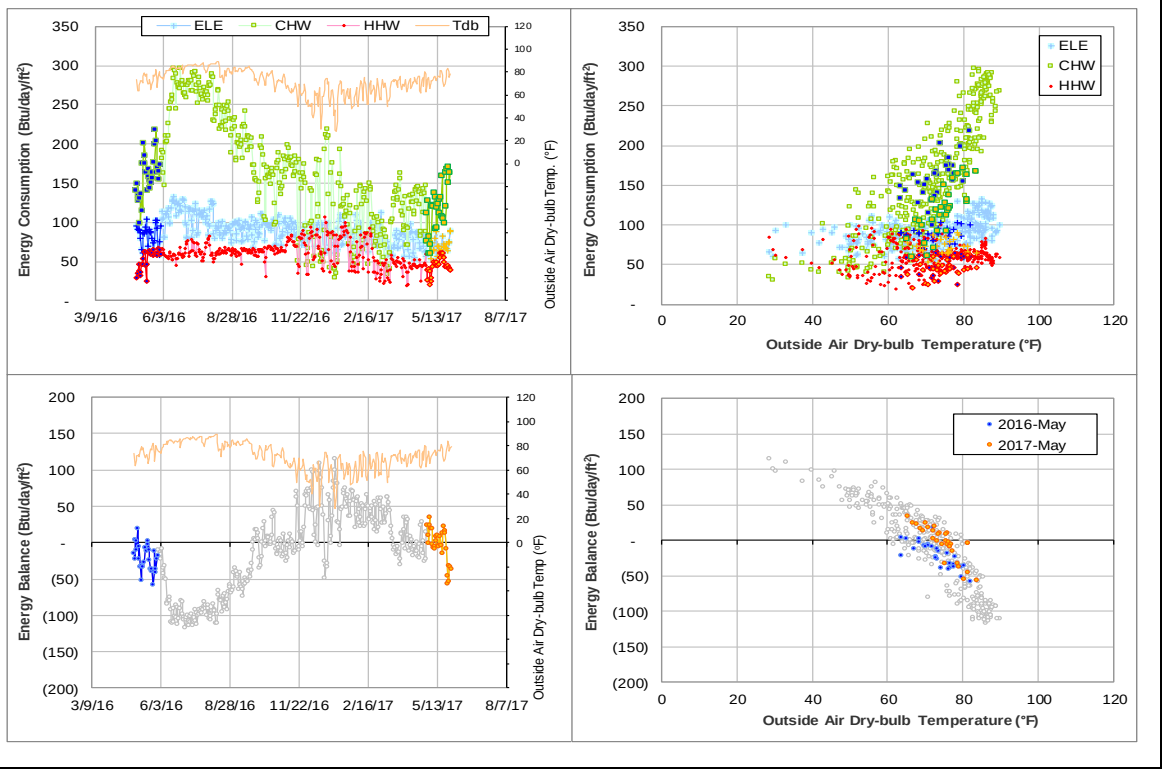
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	Consumption pattern is not weather dependent.	11/5/2016 – Ongoing

Comments

The HHW pattern remains scattered and does not appear to be weather dependent.

Explanatory Figure: 13 months energy balance plot with original data



International Ocean Discovery Building (TAMU Bldg# 1601)

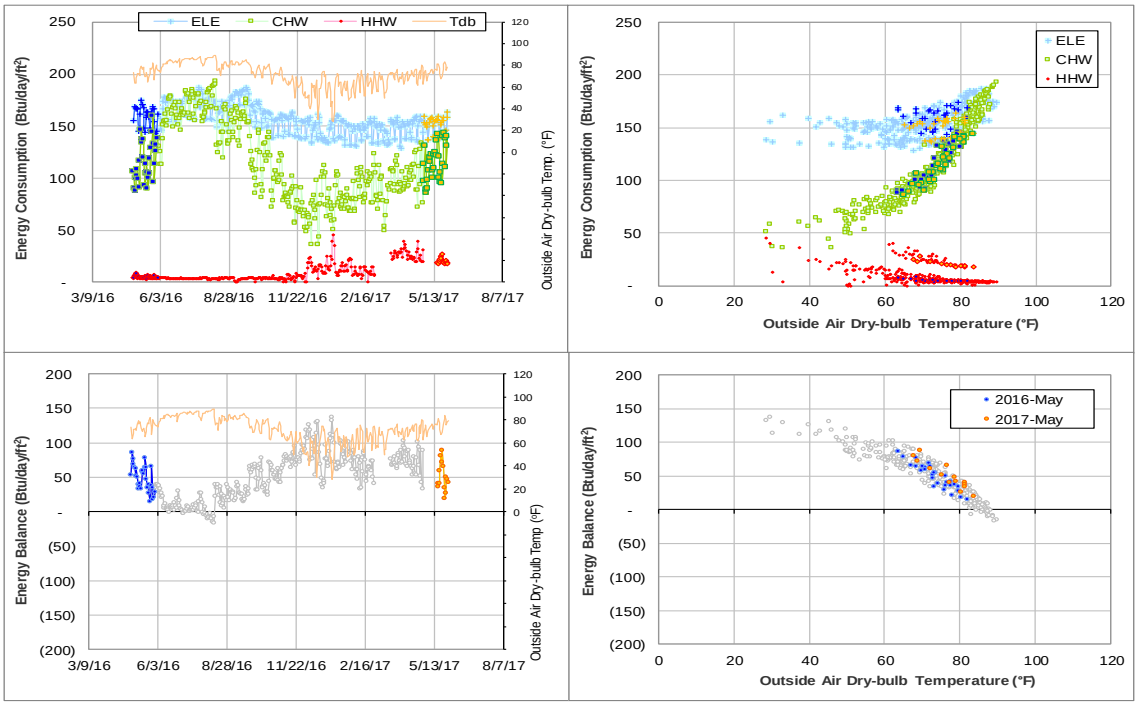
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point is high, around 85°F.	Since data became available in Feb 2015
HHW	A new MID 009829 is discovered.	3/21/2017

Comments

The cross-point temperature is high for this building, around 85°F. The daily CHW consumption for last year is 36 – 200 Btu/day/ft^2. The CHW consumption level is low compared to ELE and HHW levels. This building might have its own chillers.

Explanatory Figure: 13 months energy balance plot with original data



Offshore Technology Research Center (TAMU Bldg# 1604)

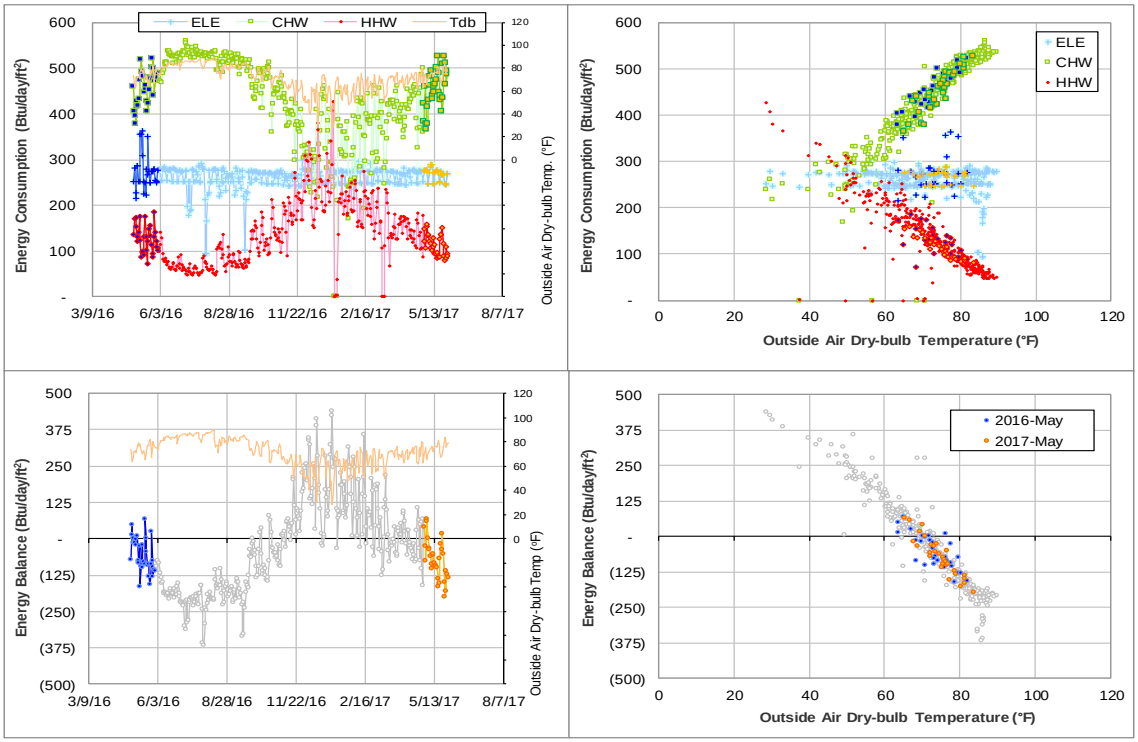
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE #006660	Consumption is zero for most of the time.	2/1/2015 – Ongoing

Comments

The electric consumption for meter #006660 has been zero for most of the time it has been available since 2/1/2015. This meter is suspected to measure consumption for a specific piece of equipment that only runs occasionally.

Explanatory Figure: 13 months energy balance plot with original data



TTI Headquarters (TAMU Bldg# 1609)

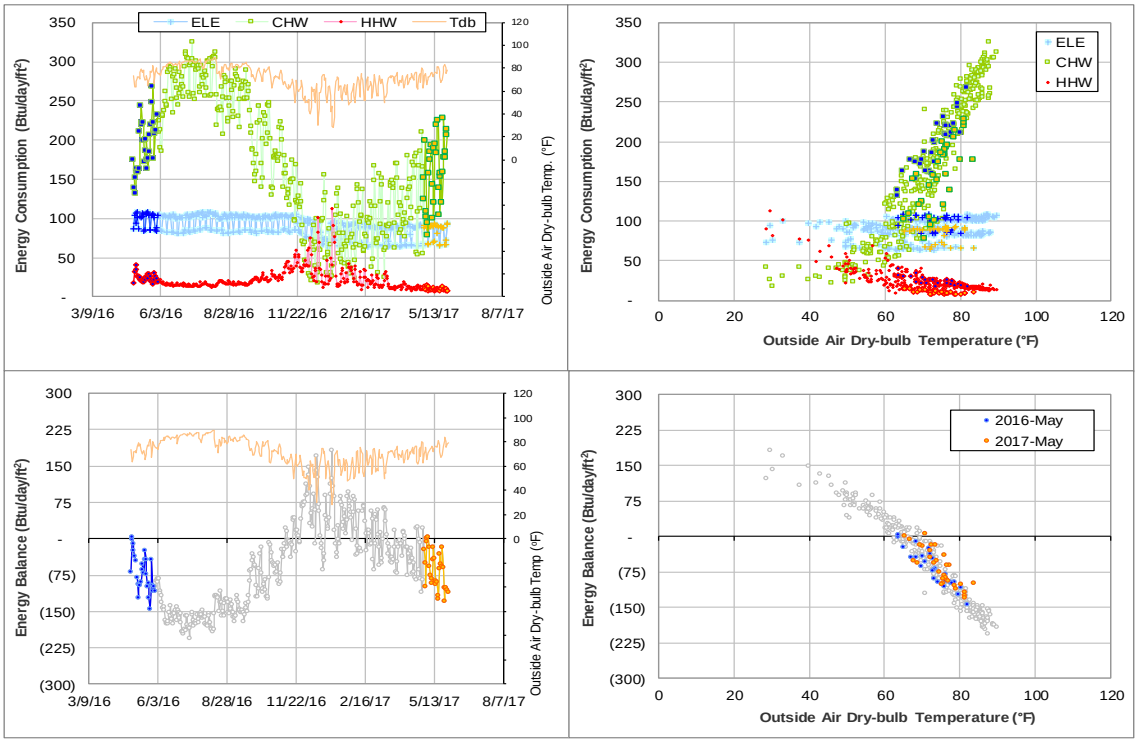
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE, CHW, HHW	Decrease in energy consumption pattern.	February 2017

Comments

All energy consumption are showing a decrease compared to the level of last year. A very clear new pattern is forming. CHW is even showing weekday/weekend pattern. This building is listed as an ESCO building. These decrease could be caused by ESCO.

Explanatory Figure: 13 months energy balance plot with original data



III. Time Series Plots for May 2017 Consumption

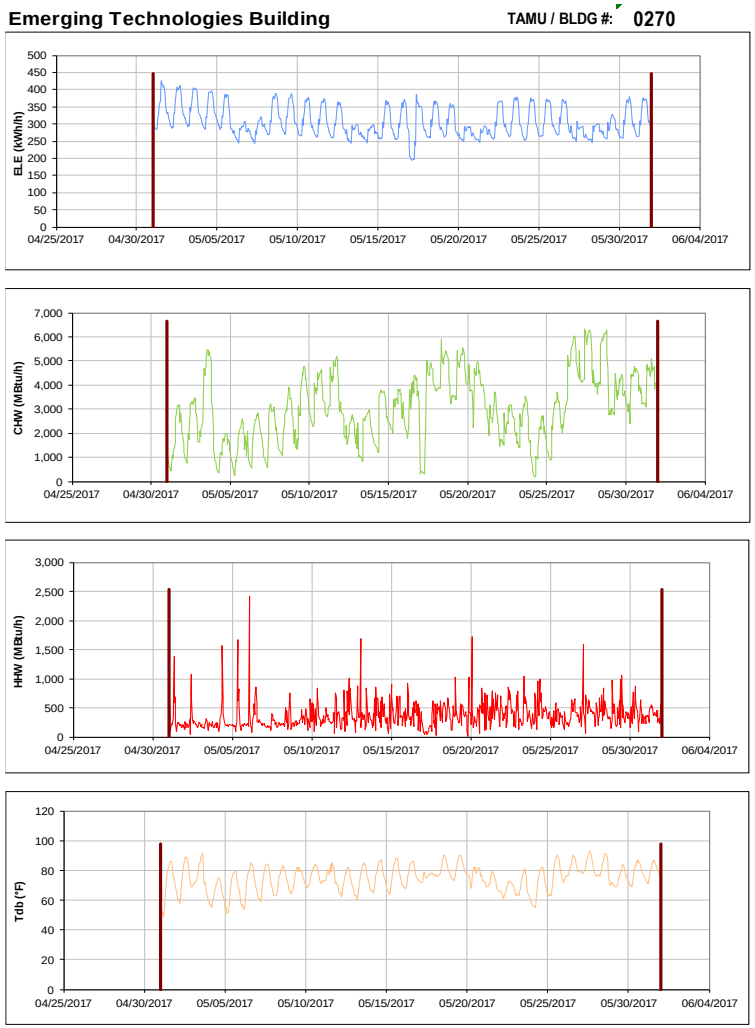


Figure III-1 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Emerging Technologies Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-2 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Liberal Arts and Arts & Humanities Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

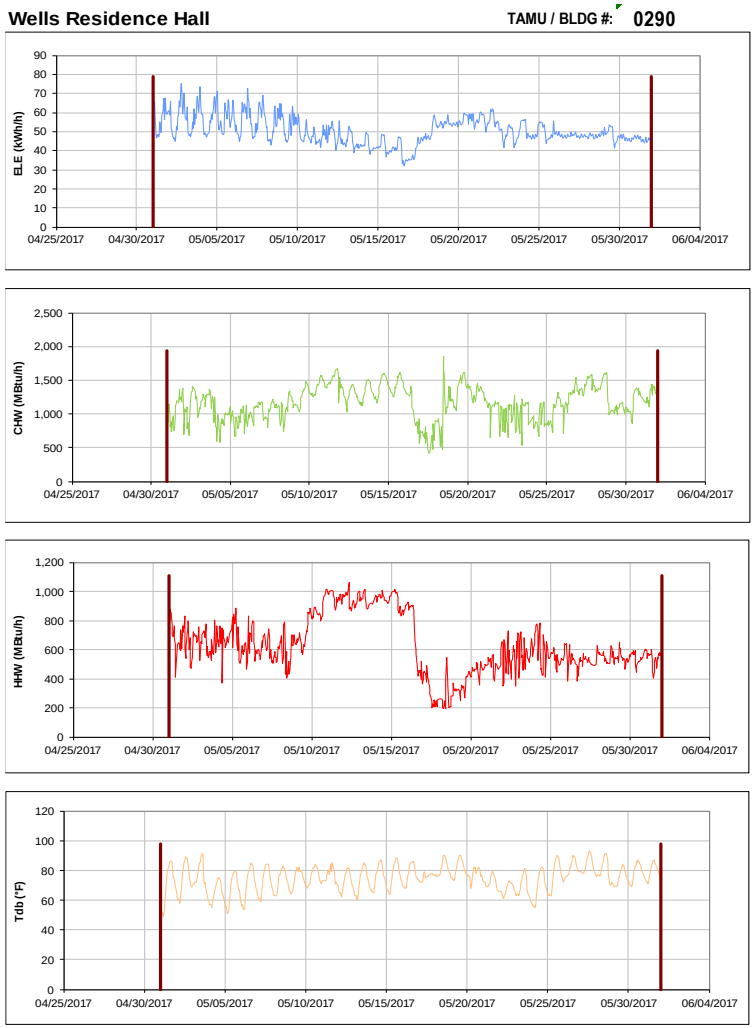


Figure III-3 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wells Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

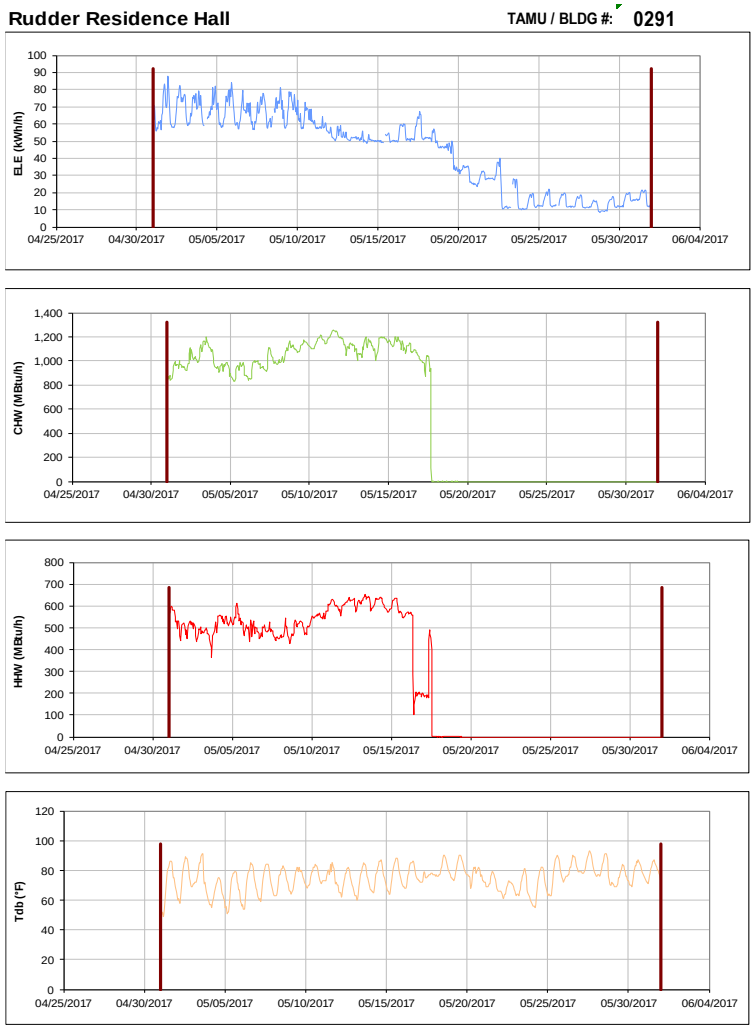


Figure III-4 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

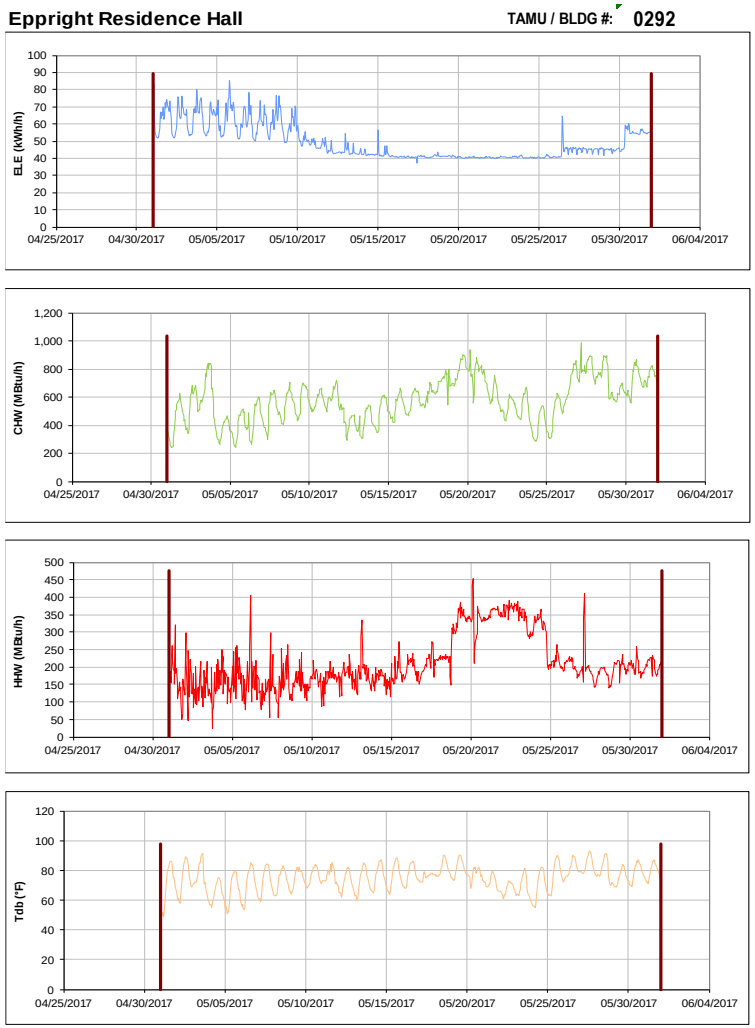


Figure III-5 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Eppright Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

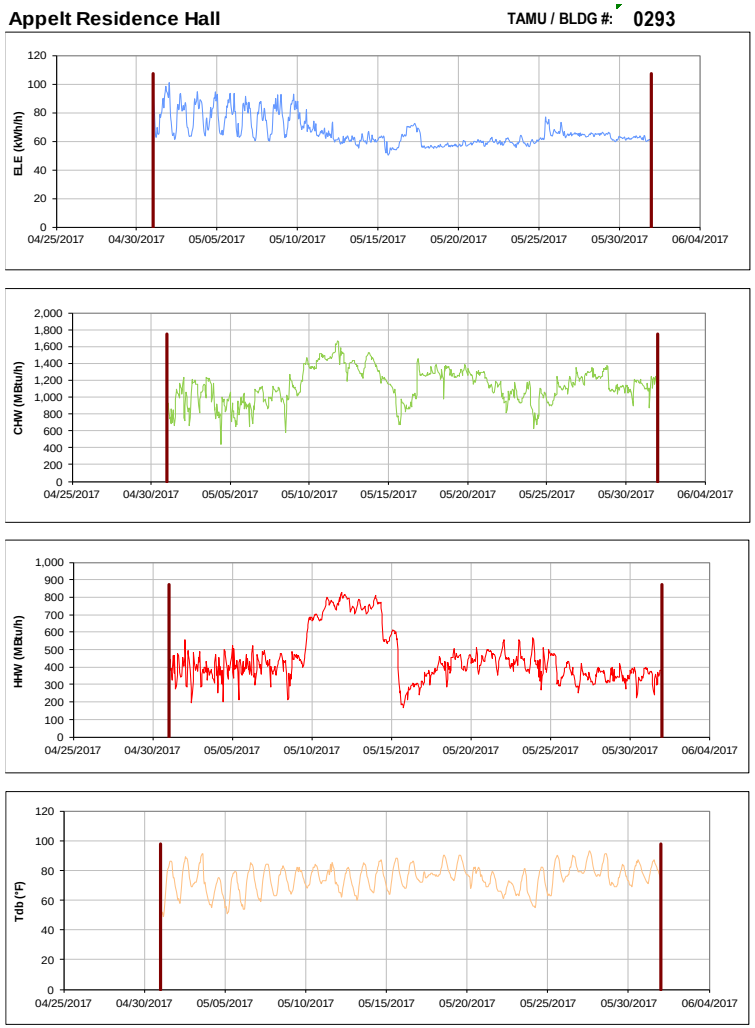


Figure III-6 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Appelt Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

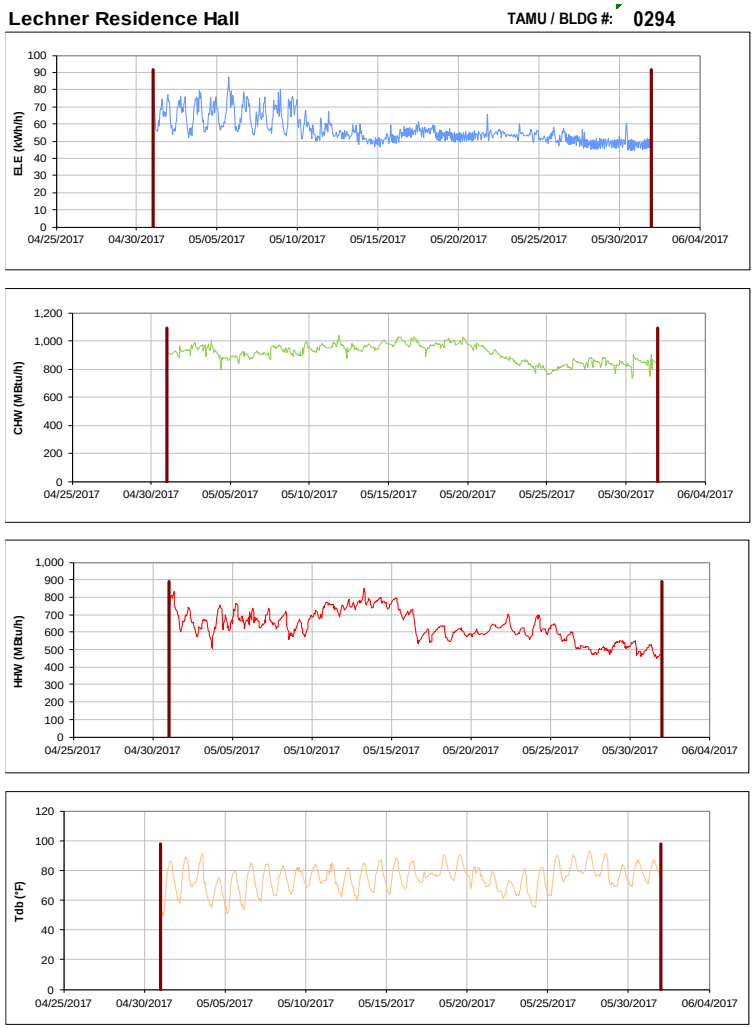


Figure III-7 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lechner Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-8 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mitchell Inst. for Fundamental Phys & Astronomy during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-9 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for CE TTI Office & Lab Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

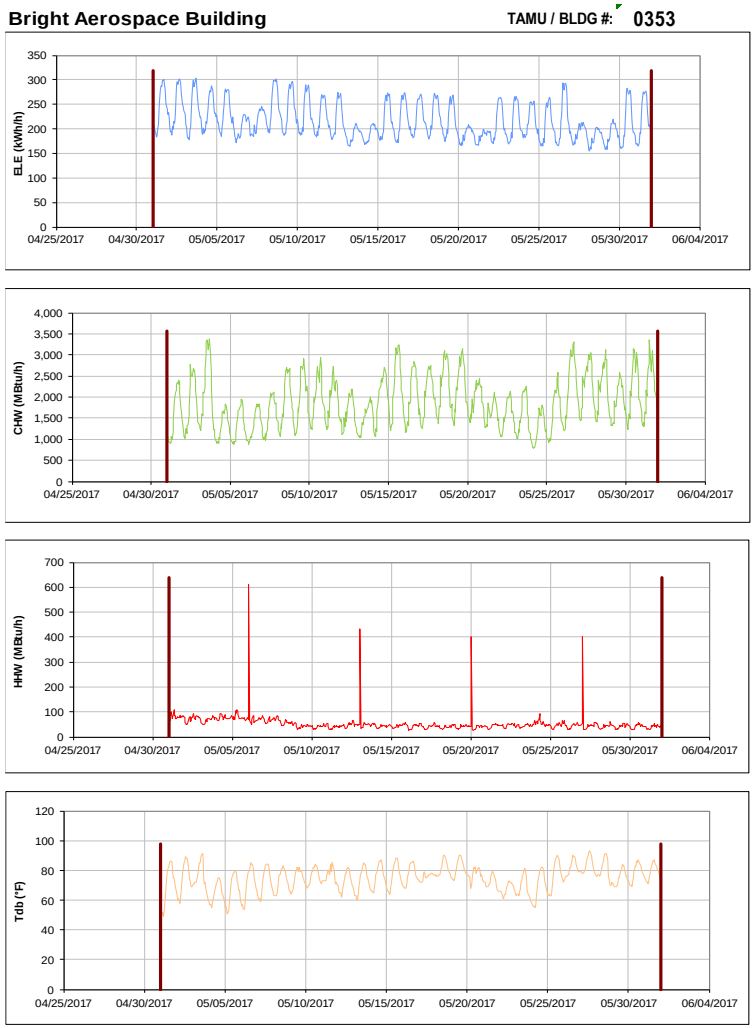


Figure III-10 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Aerospace Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

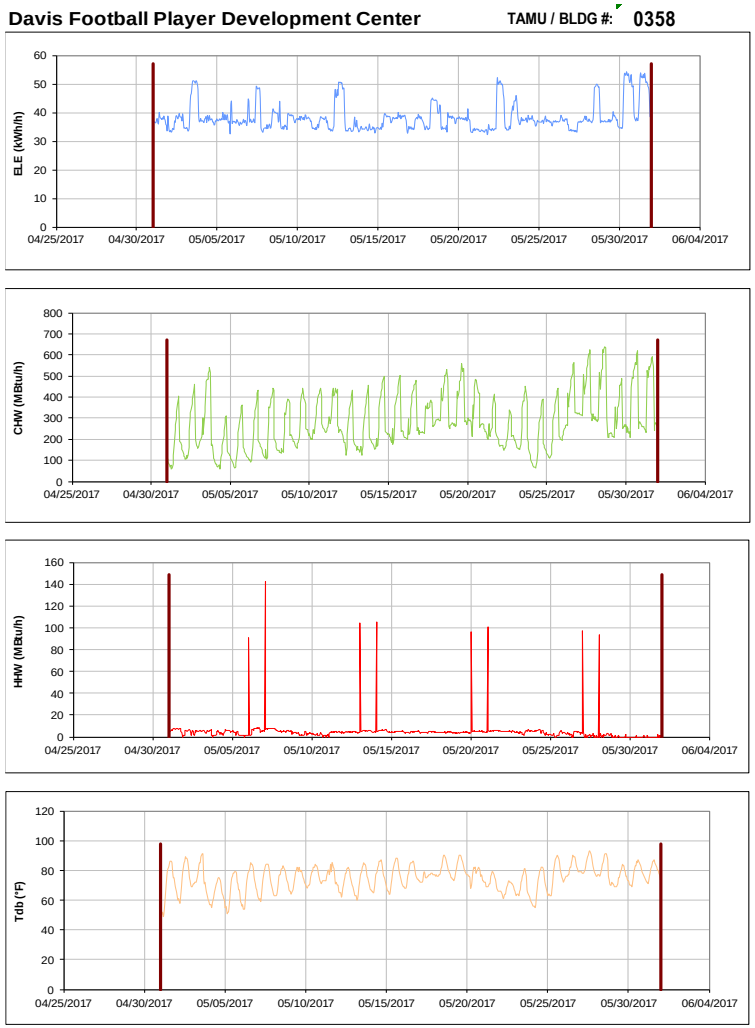


Figure III-11 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis Football Player Development Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

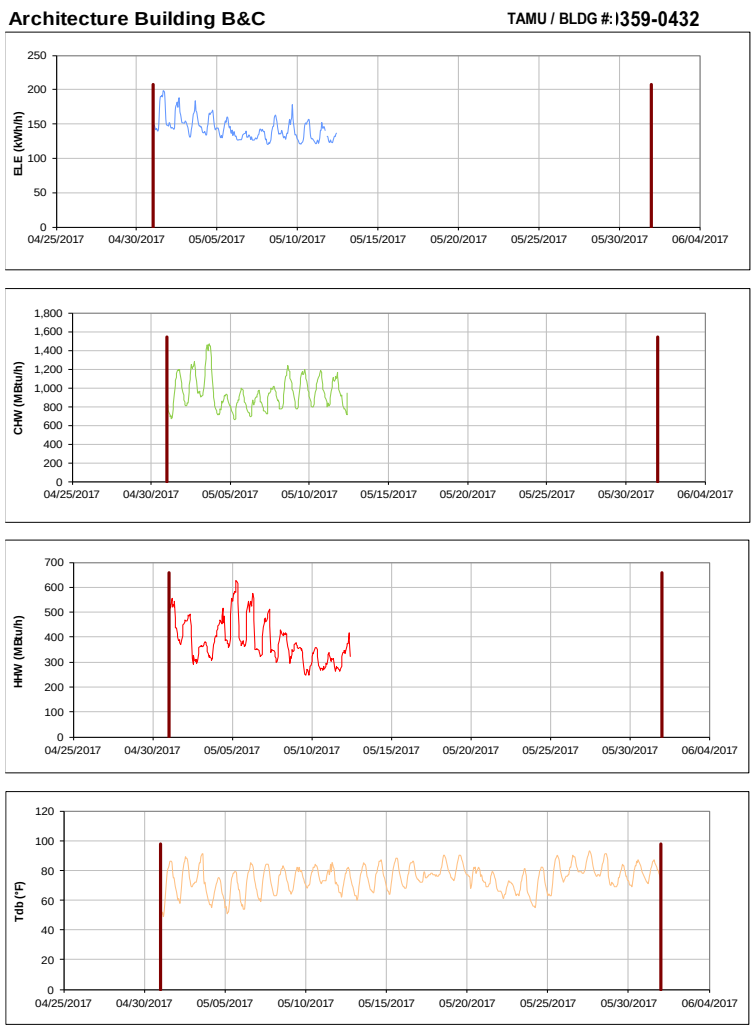


Figure III-12 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B&C during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

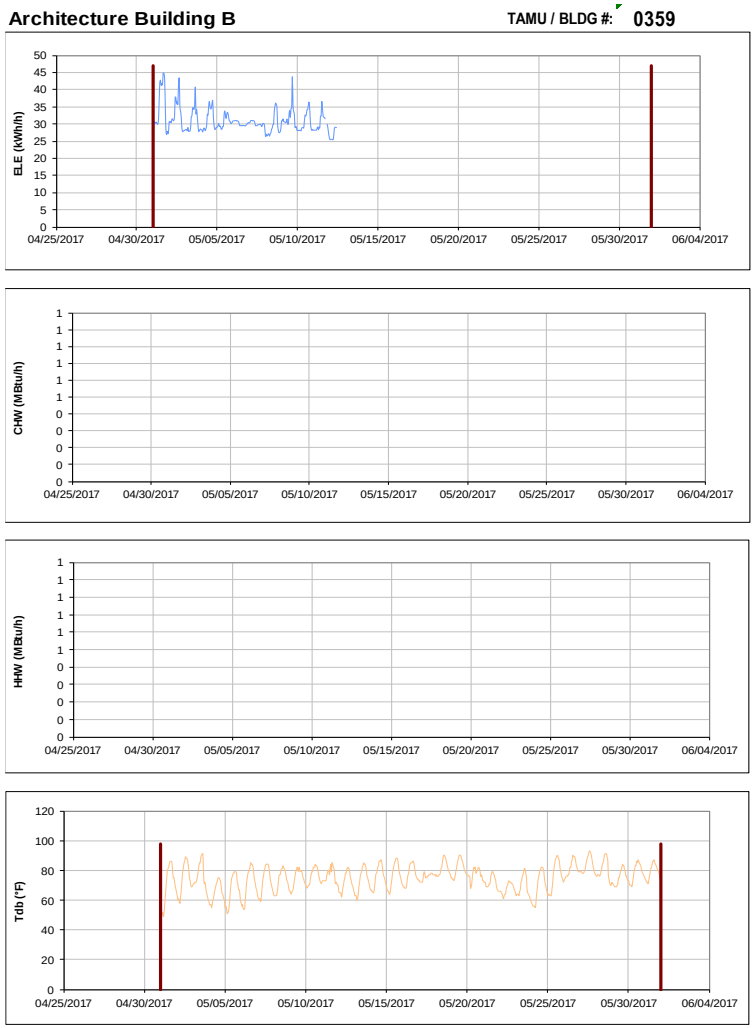


Figure III-13 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

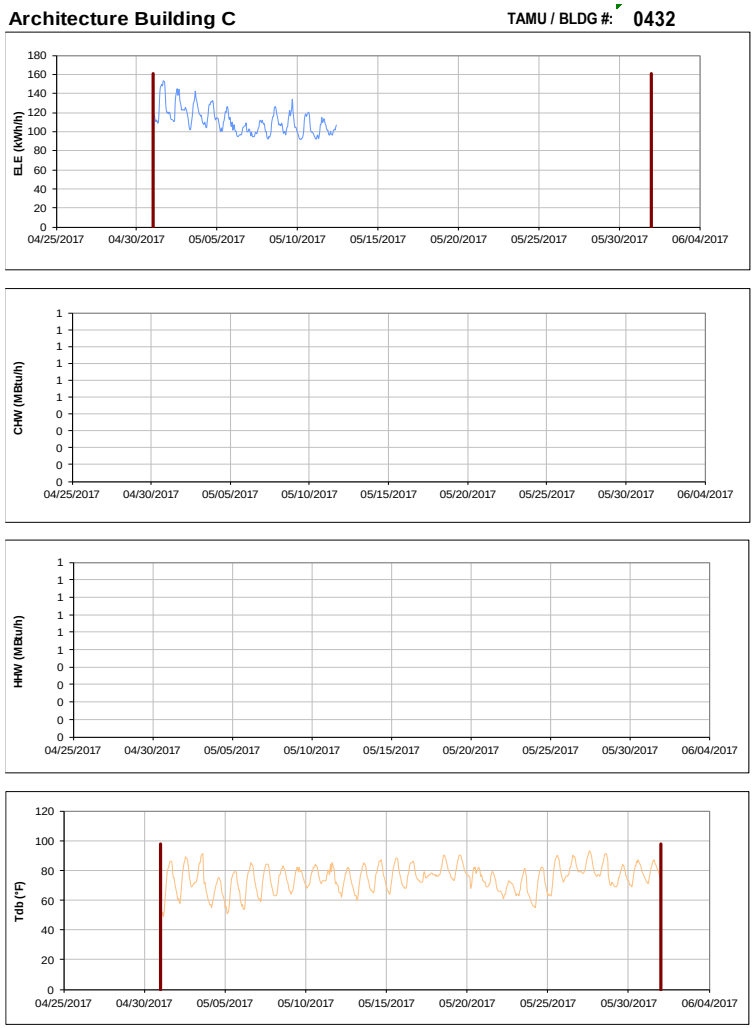


Figure III-14 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building C during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-15 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Football Complex during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-16 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kyle Field during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-17 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building Addition during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

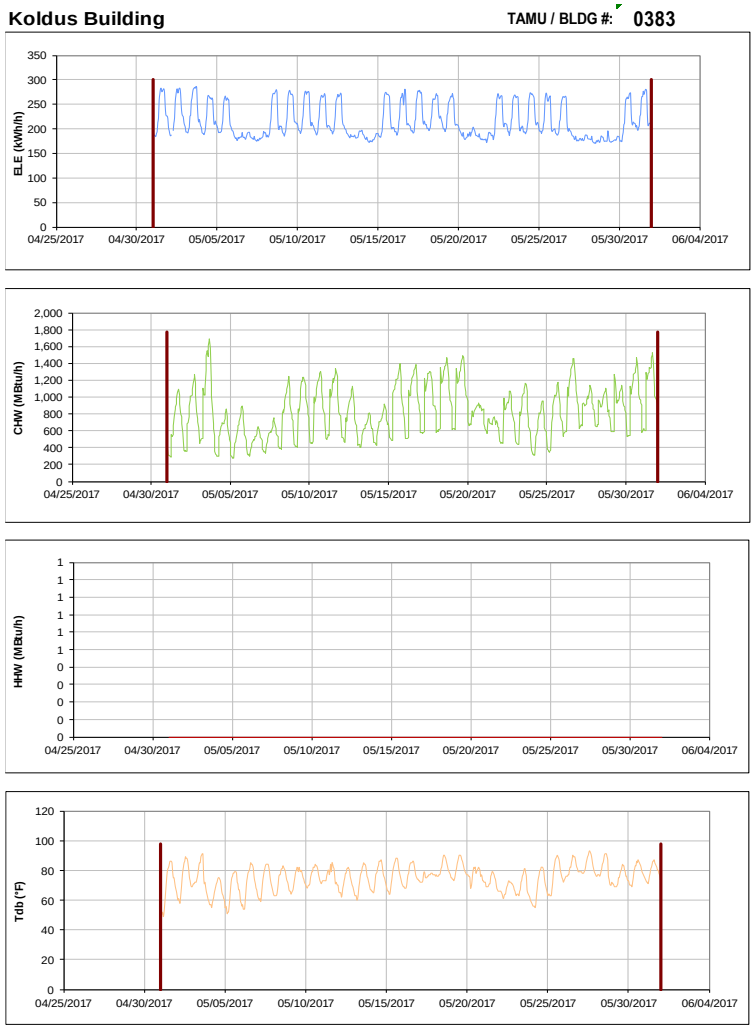


Figure III-18 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Koldus Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

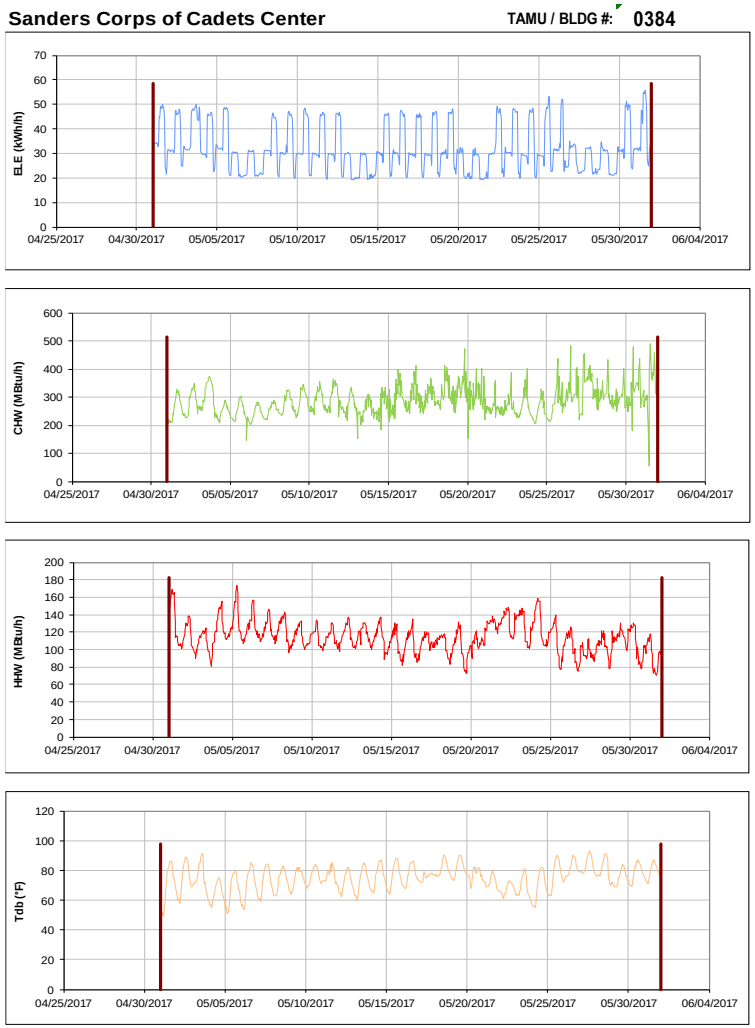


Figure III-19 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sanders Corps of Cadets Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-20 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Jack E. Brown Chemical Engineering Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-21 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Richardson Petroleum Engineering Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

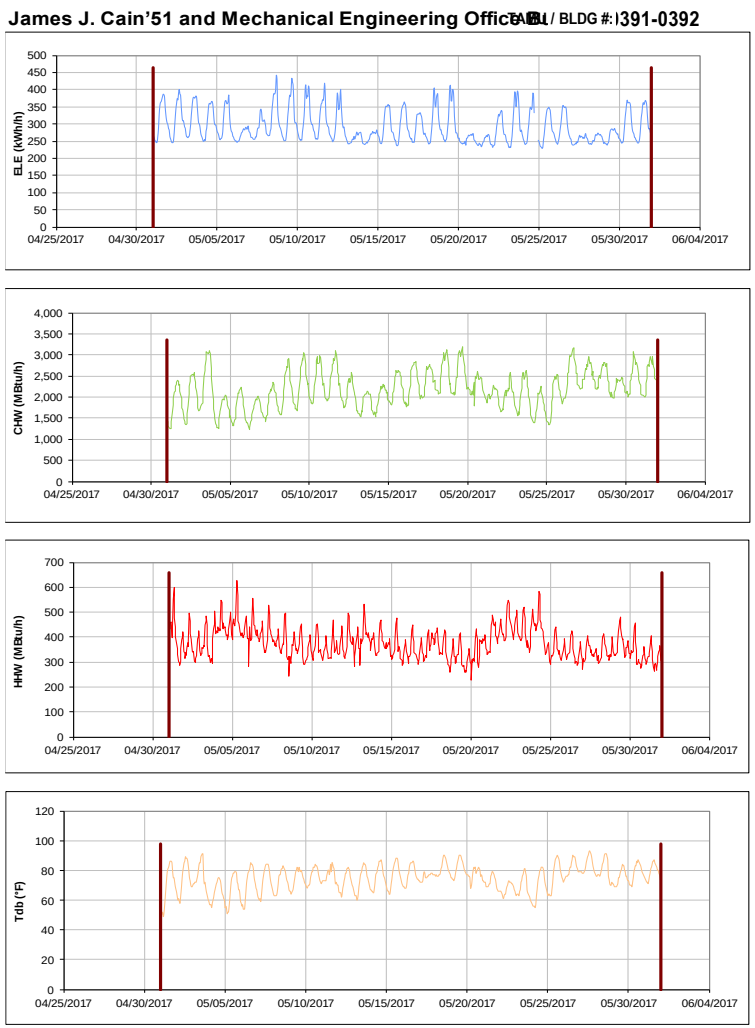


Figure III-22 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for James J. Cain'51 and Mechanical Engineering Office Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-23 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Underwood Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

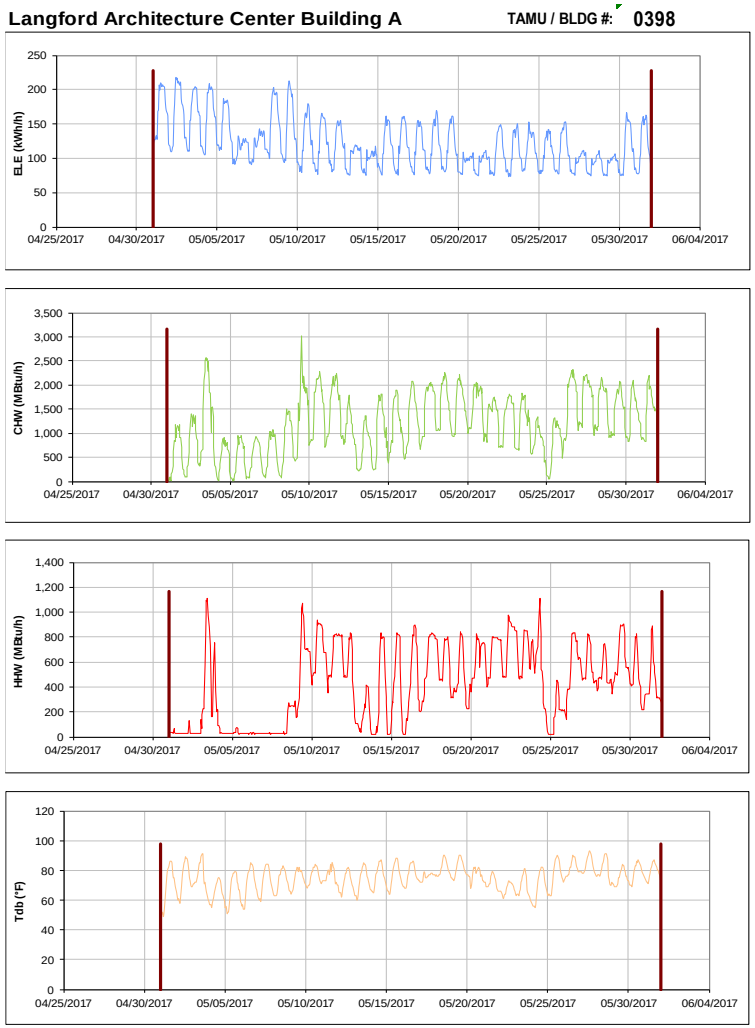


Figure III-24 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Langford Architecture Center Building A during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

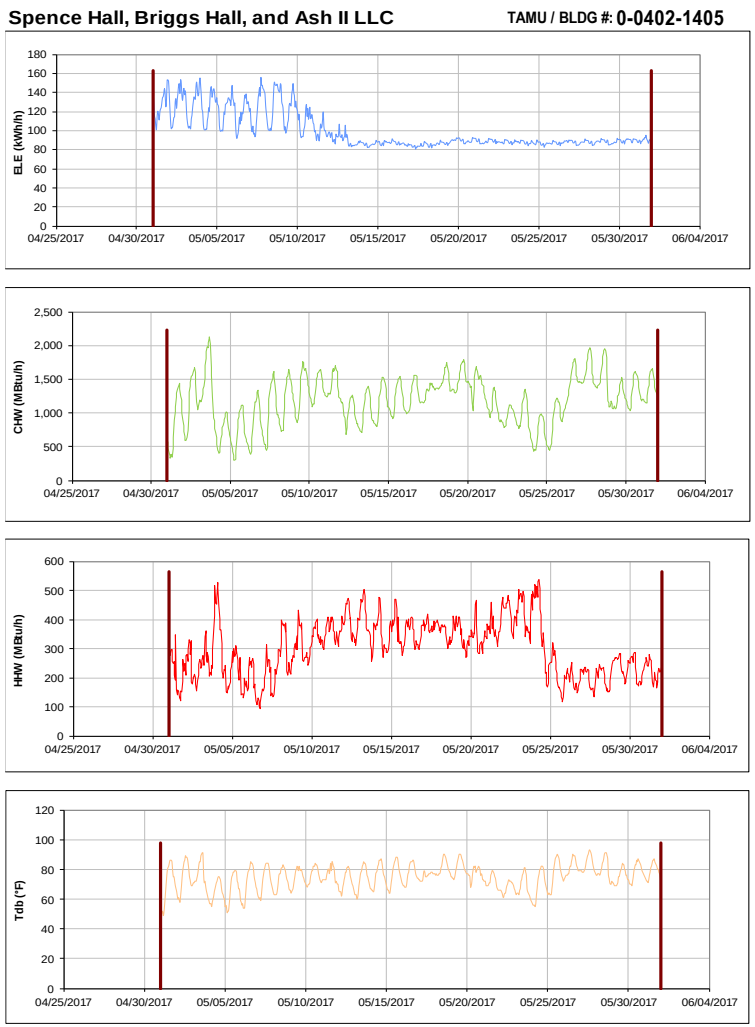


Figure III-25 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall, Briggs Hall, and Ash II LLC during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

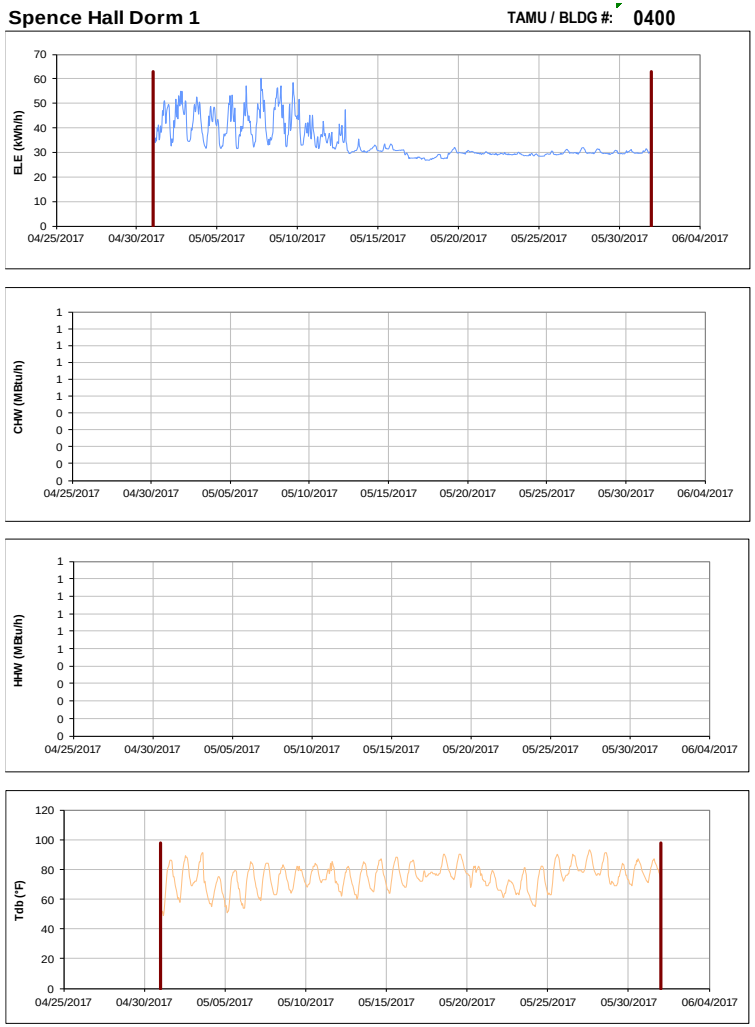


Figure III-26 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall Dorm 1 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

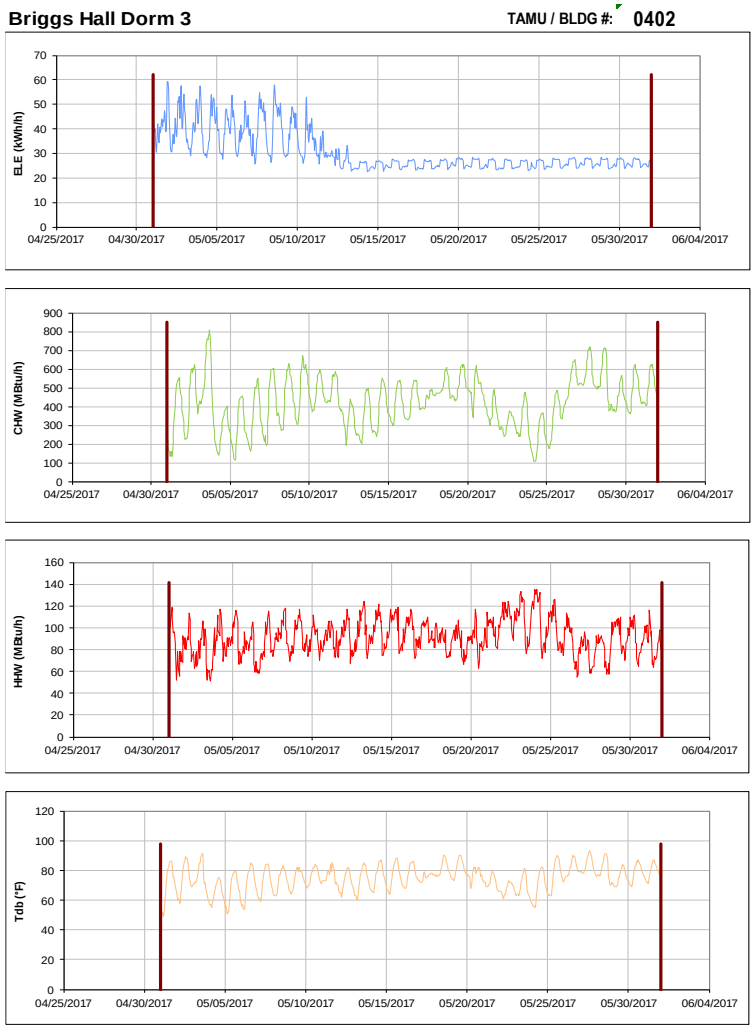


Figure III-27 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Briggs Hall Dorm 3 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

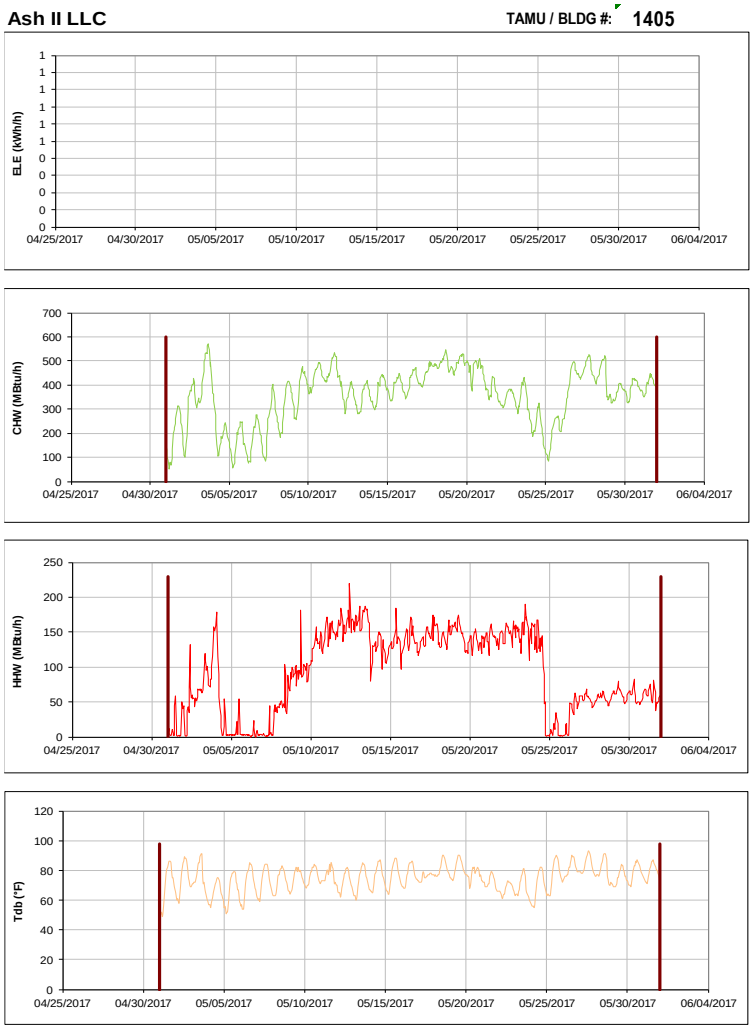


Figure III-28 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Ash II LLC during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

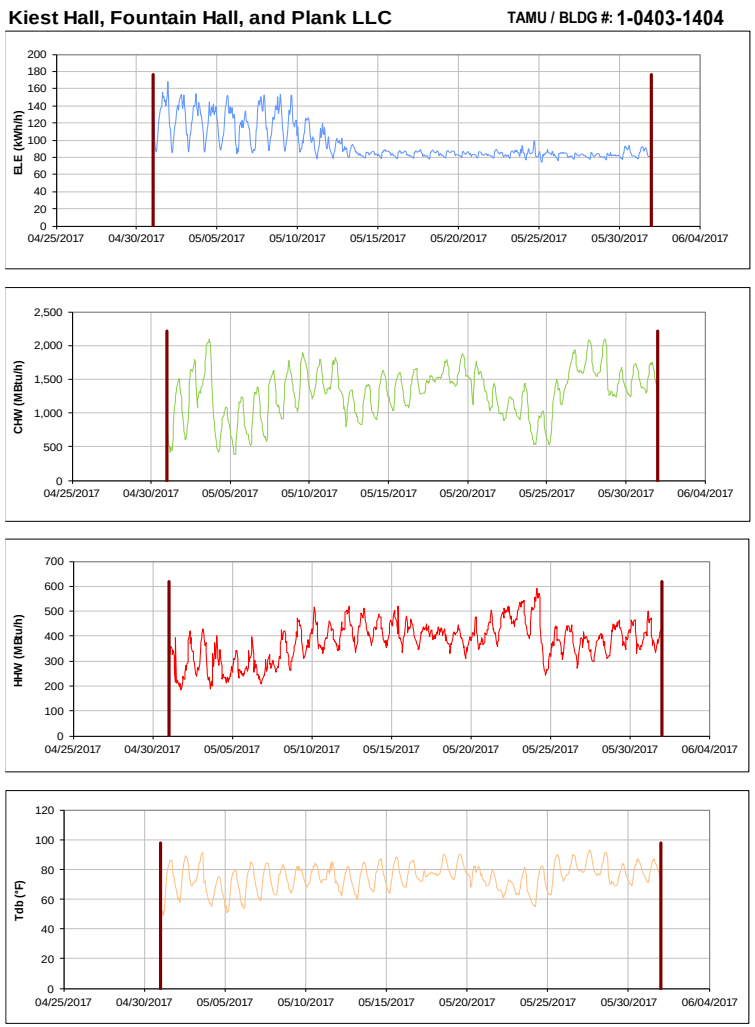


Figure III-29 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall, Fountain Hall, and Plank LLC during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

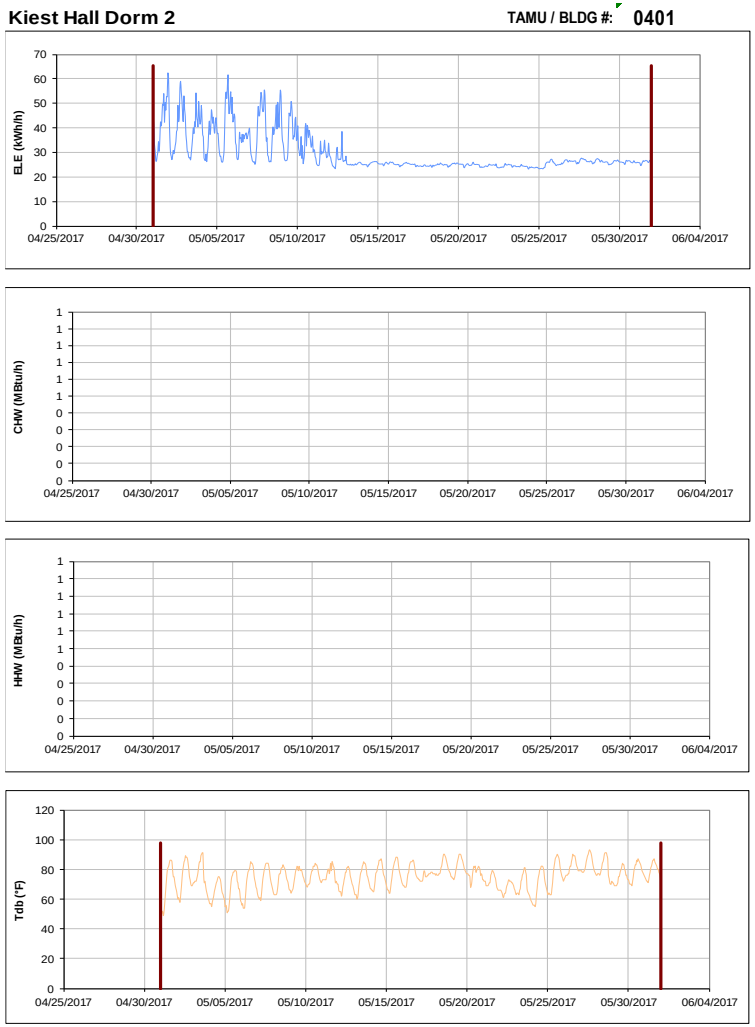


Figure III-30 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall Dorm 2 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

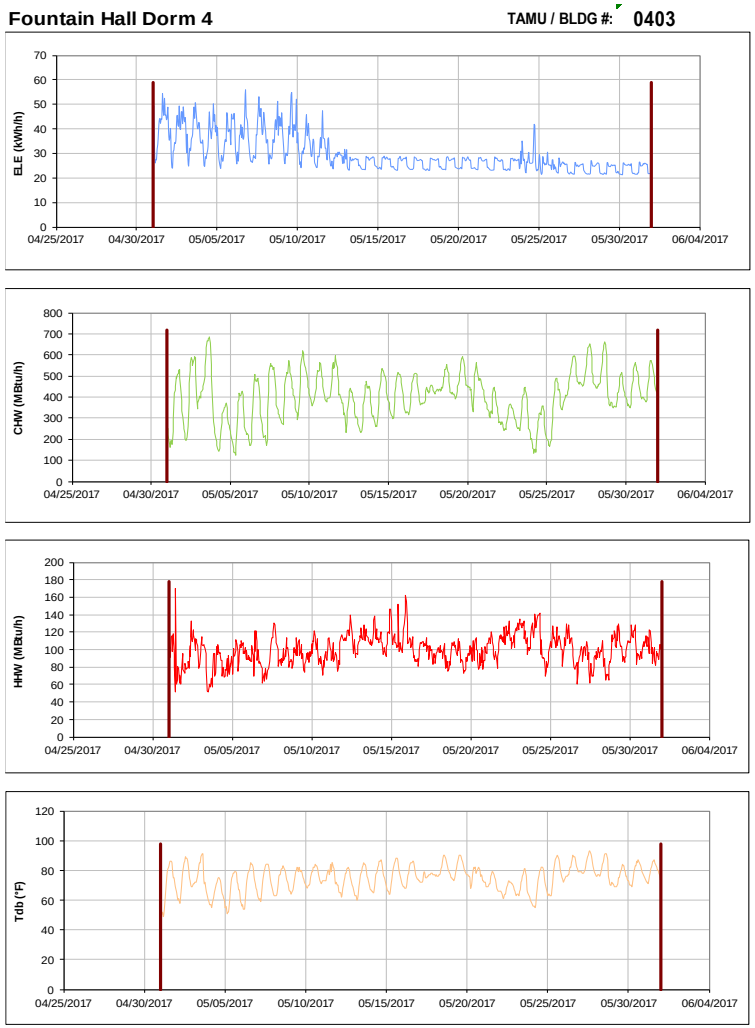


Figure III-31 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fountain Hall Dorm 4 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-32 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Plank LLC during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

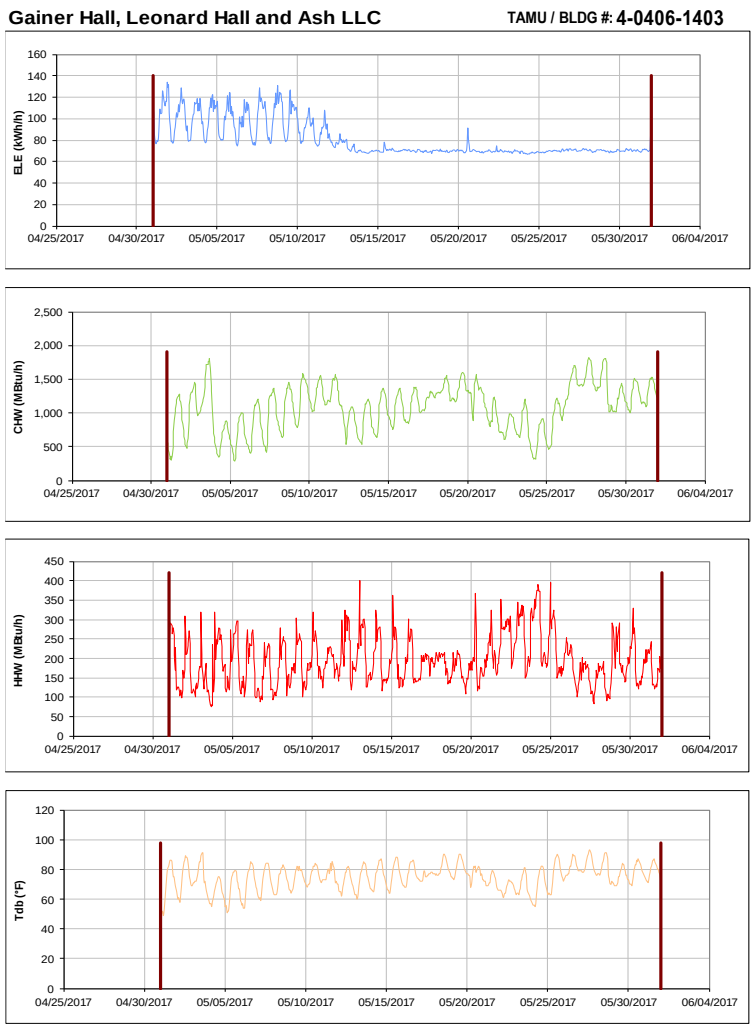


Figure III-33 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall, Leonard Hall and Ash LLC during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

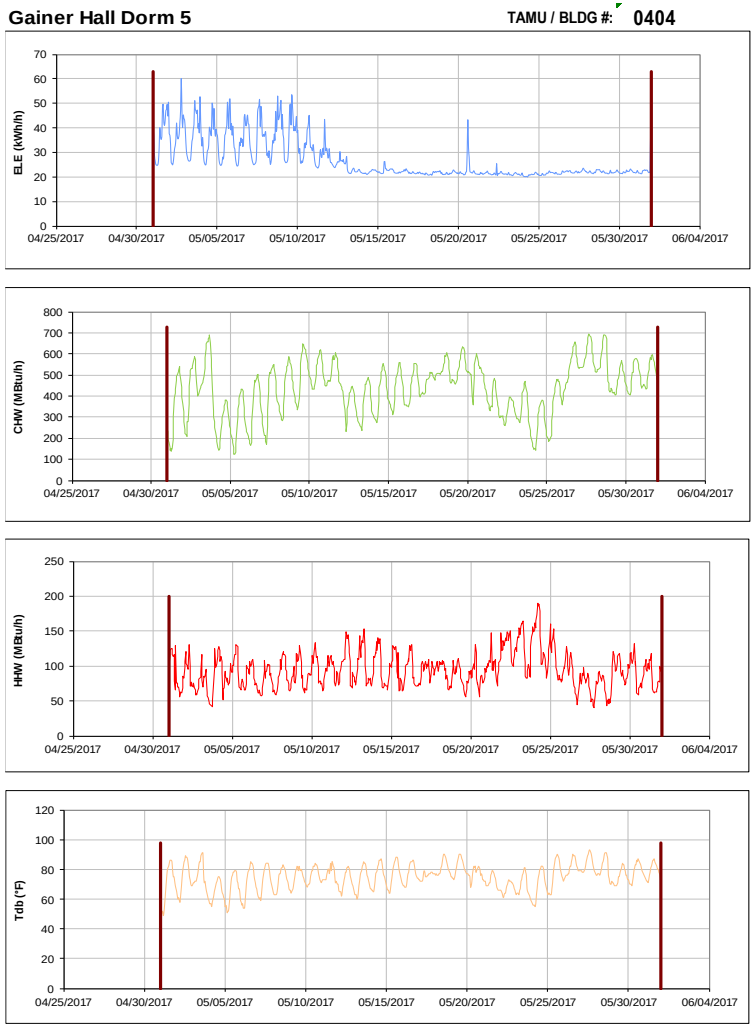


Figure III-34 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall Dorm 5 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

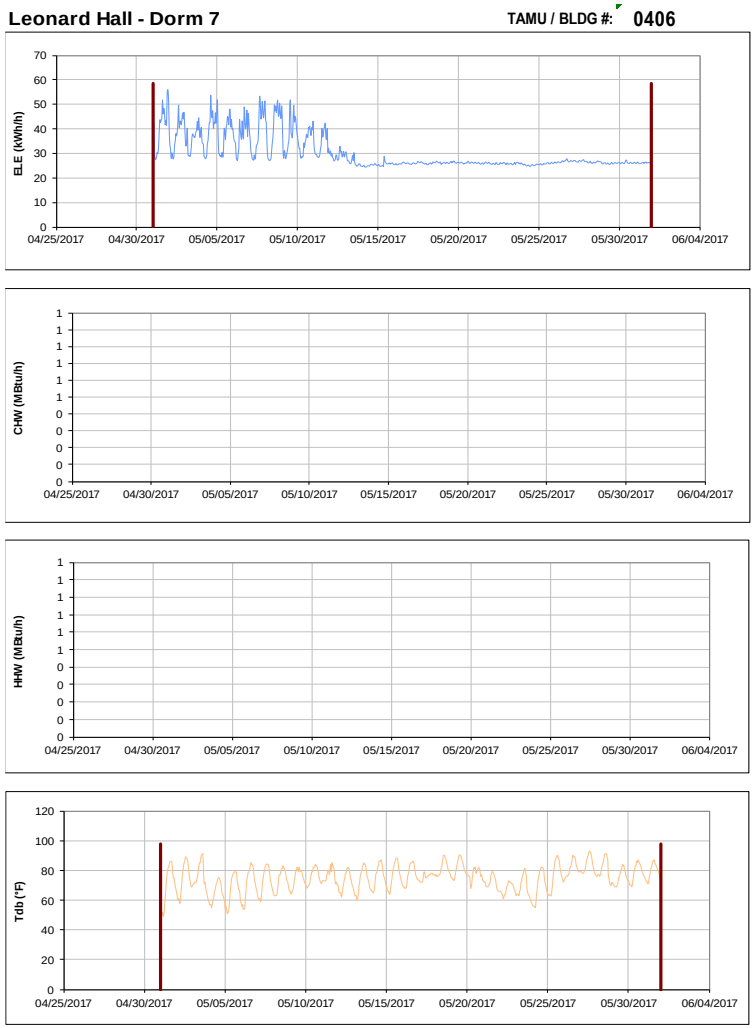


Figure III-35 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Leonard Hall - Dorm 7 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

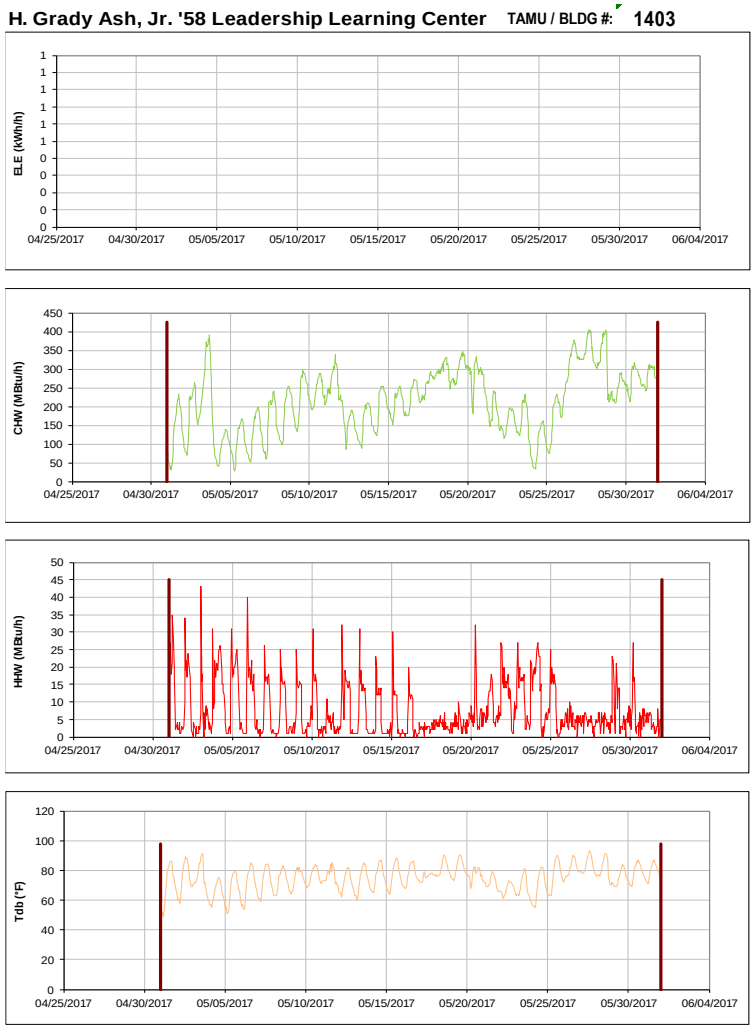


Figure III-36 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for H. Grady Ash, Jr. '58 Leadership Learning Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

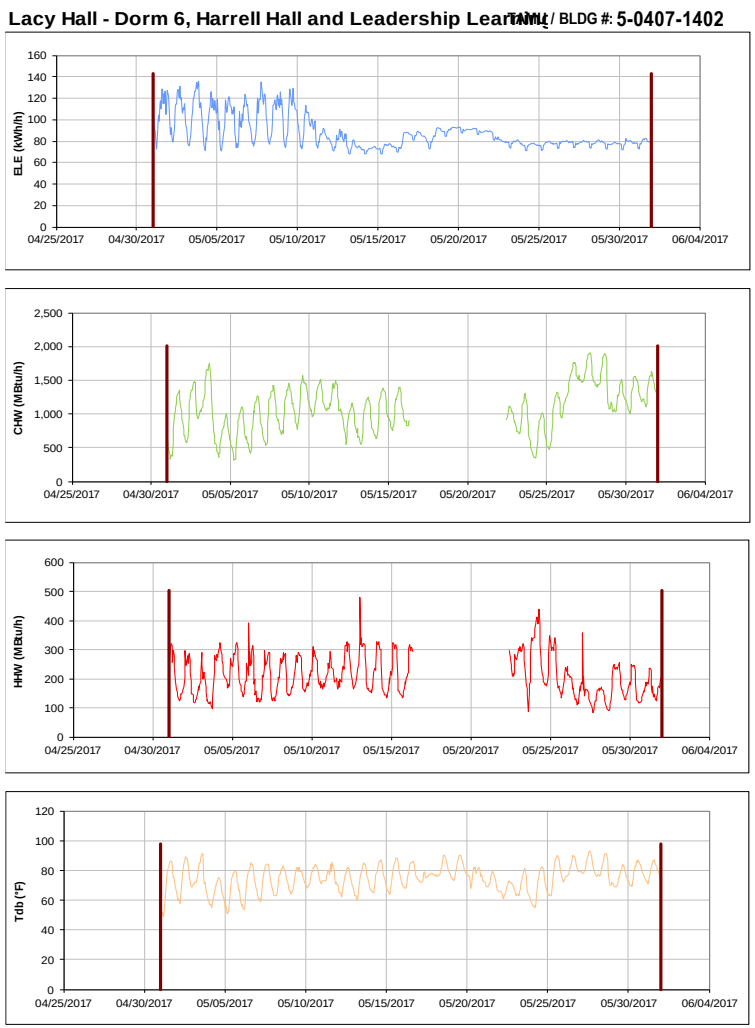


Figure III-37 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

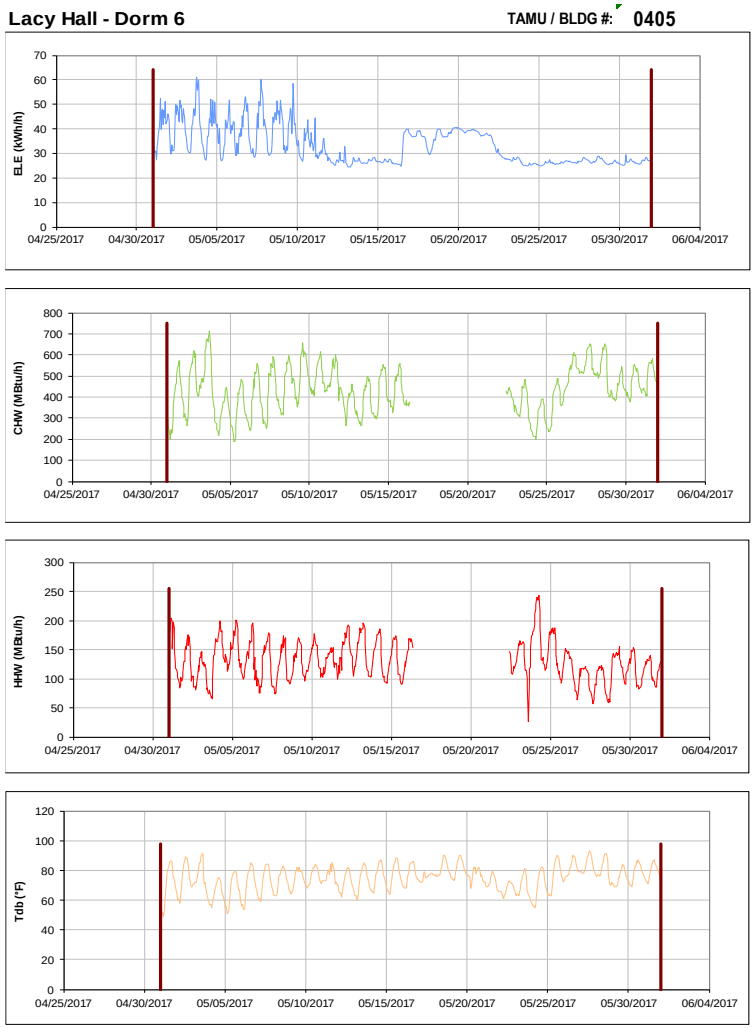


Figure III-38 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

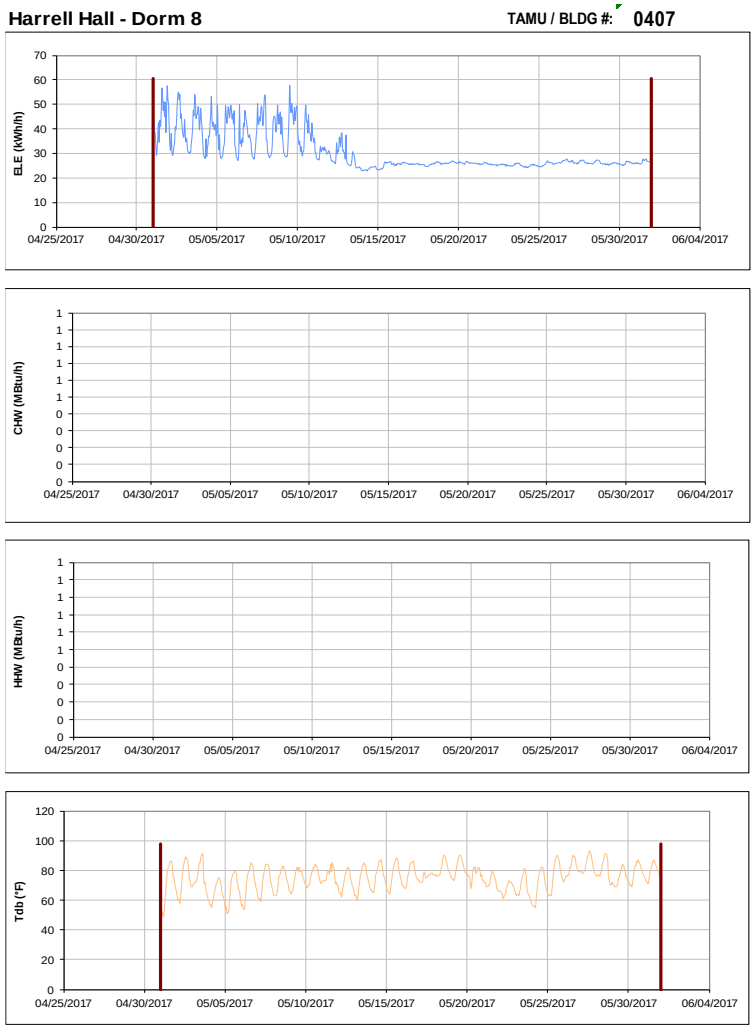


Figure III-39 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrell Hall - Dorm 8 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-40 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Buzbee Leadership Learning Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

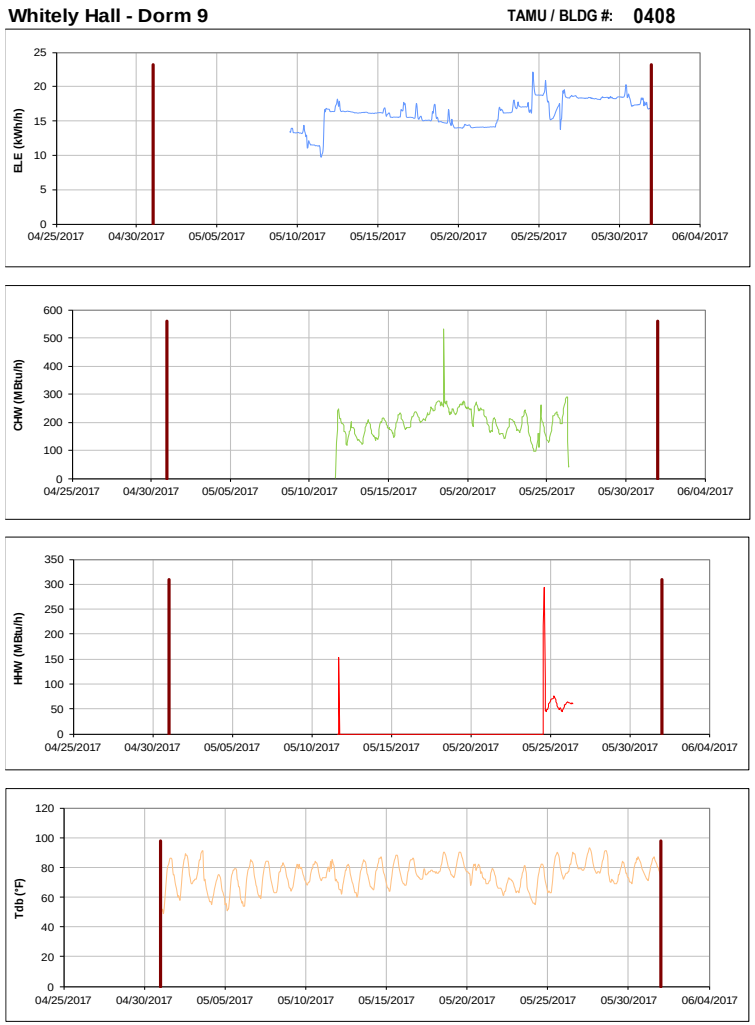


Figure III-41 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Whitely Hall - Dorm 9 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

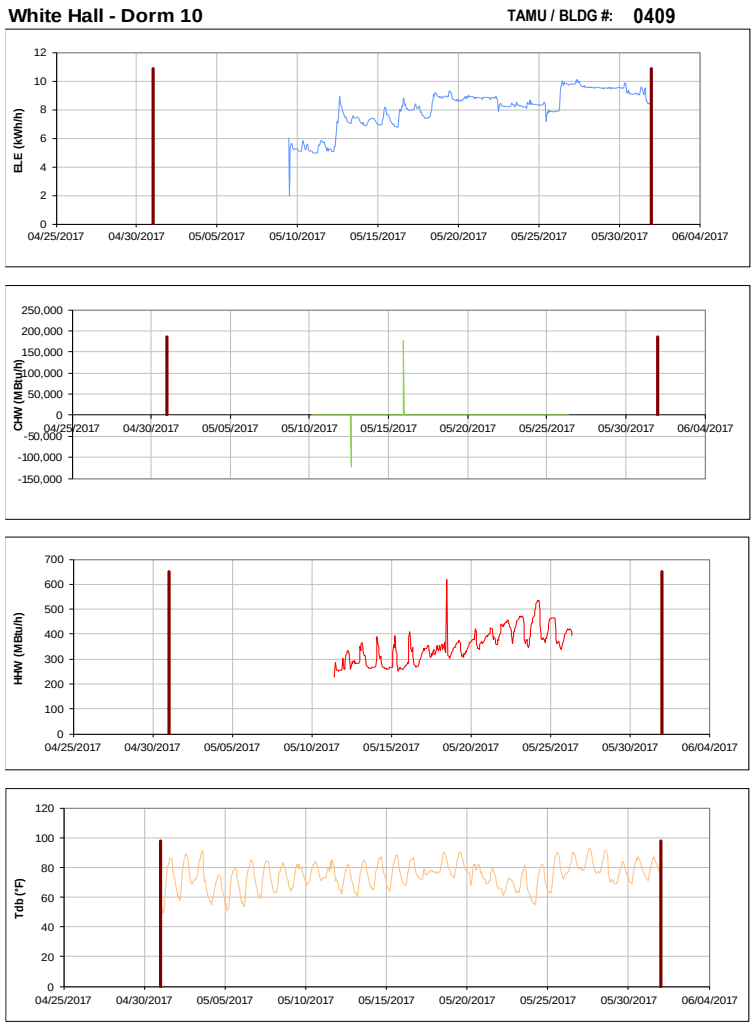


Figure III-42 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Hall - Dorm 10 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

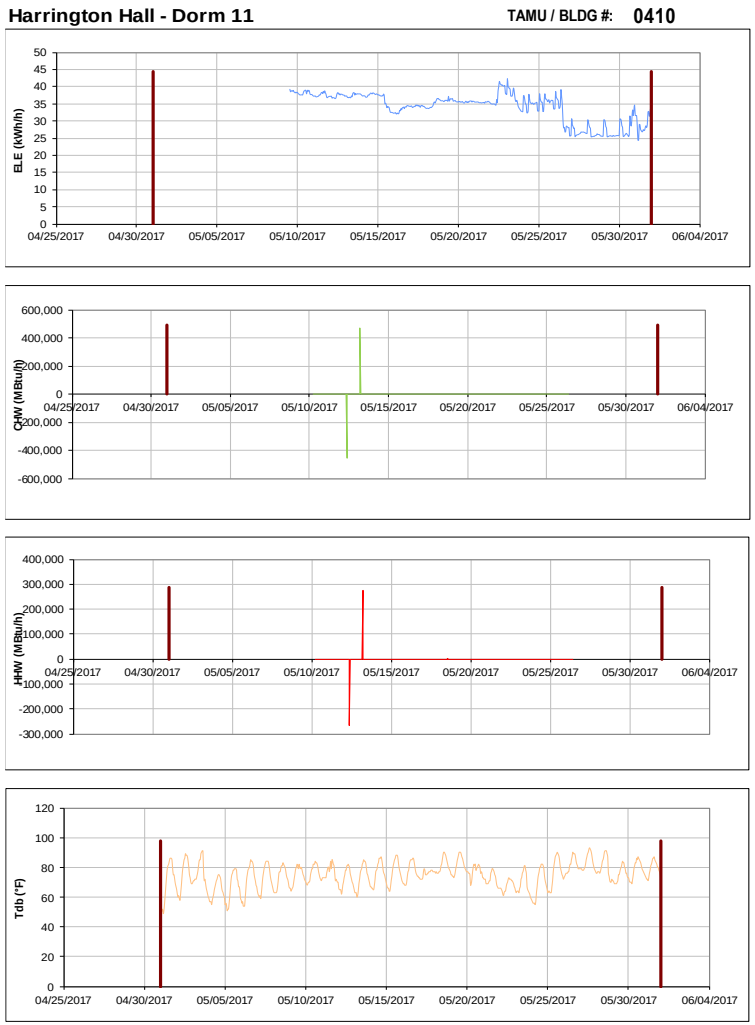


Figure III-43 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Hall - Dorm 11 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

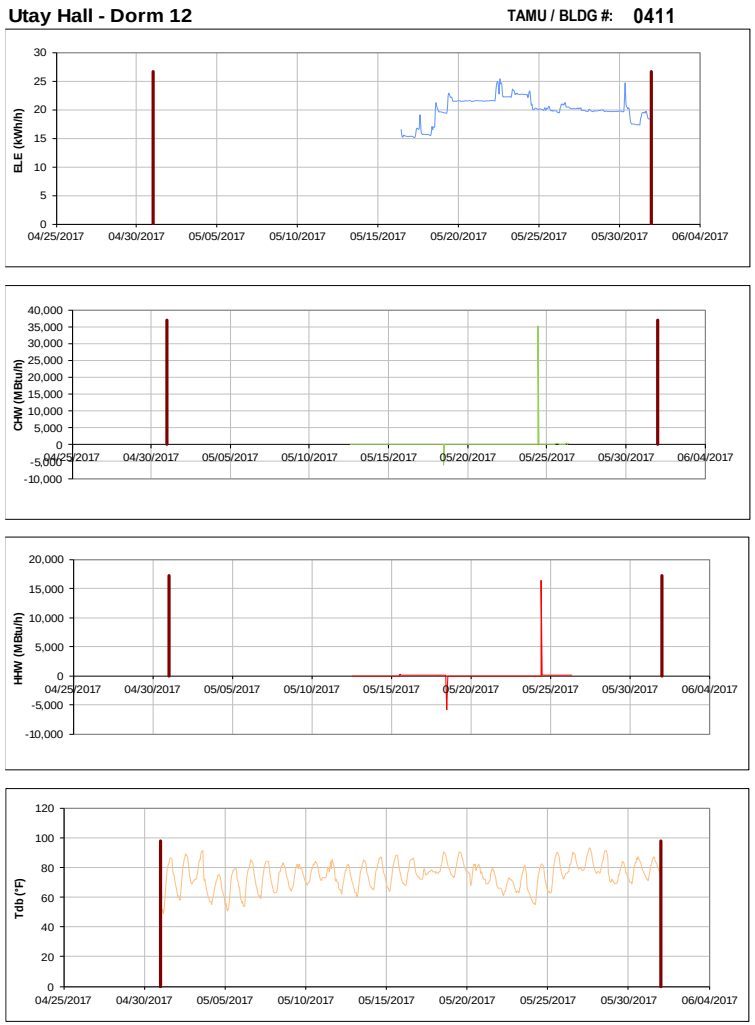


Figure III-44 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utay Hall - Dorm 12 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

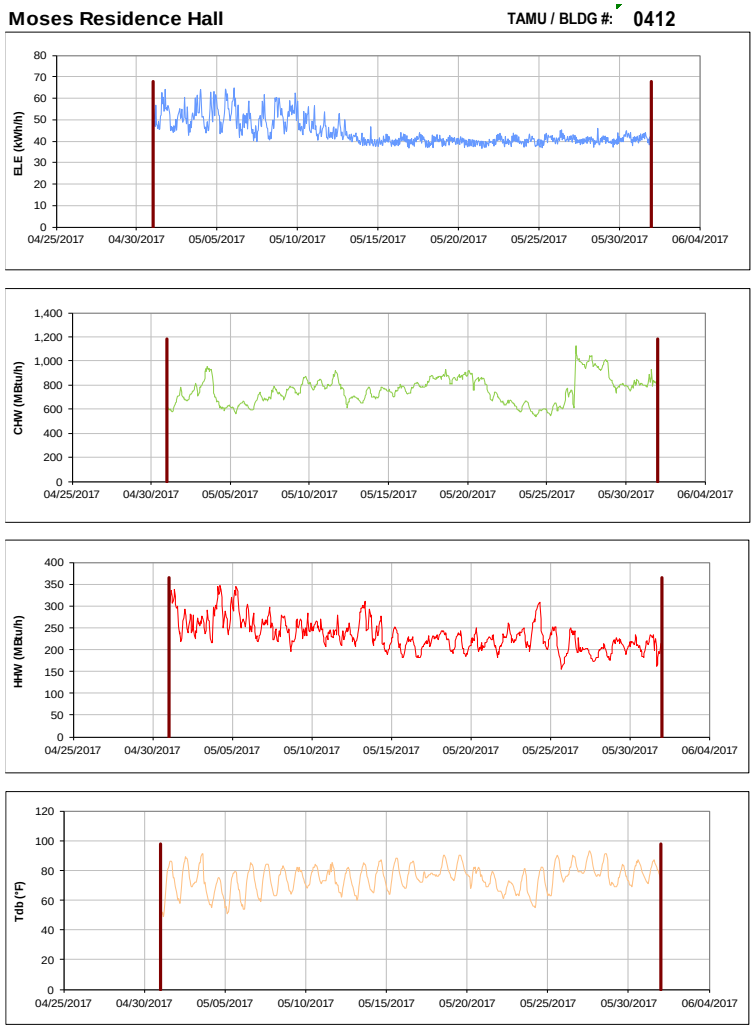


Figure III-45 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Moses Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

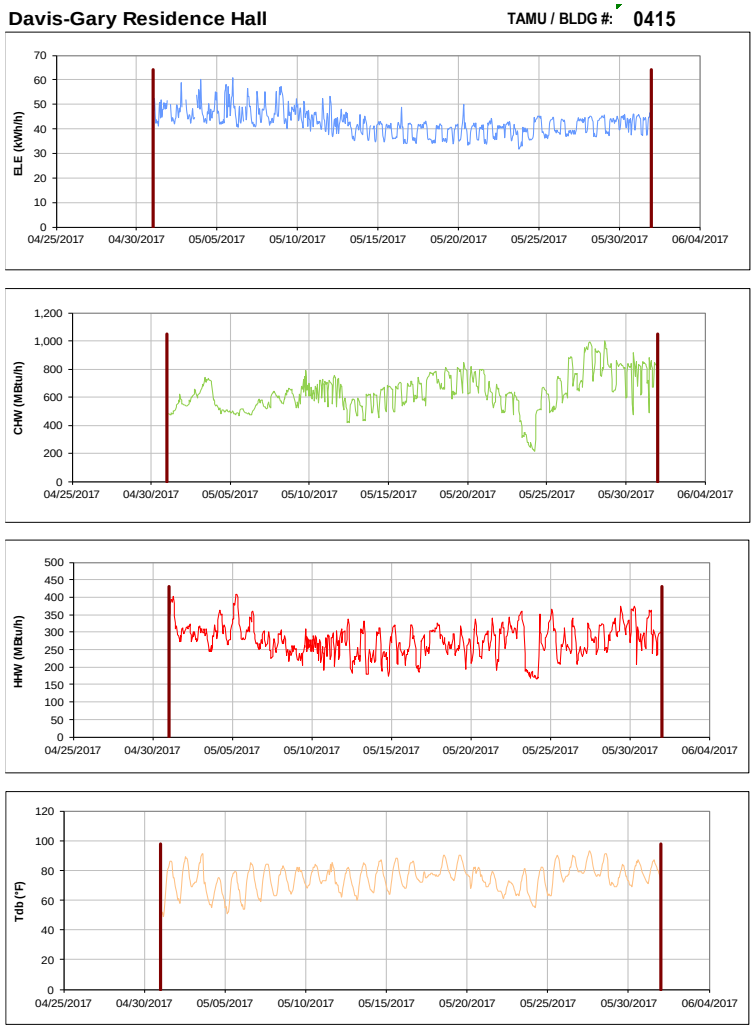


Figure III-46 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis-Gary Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

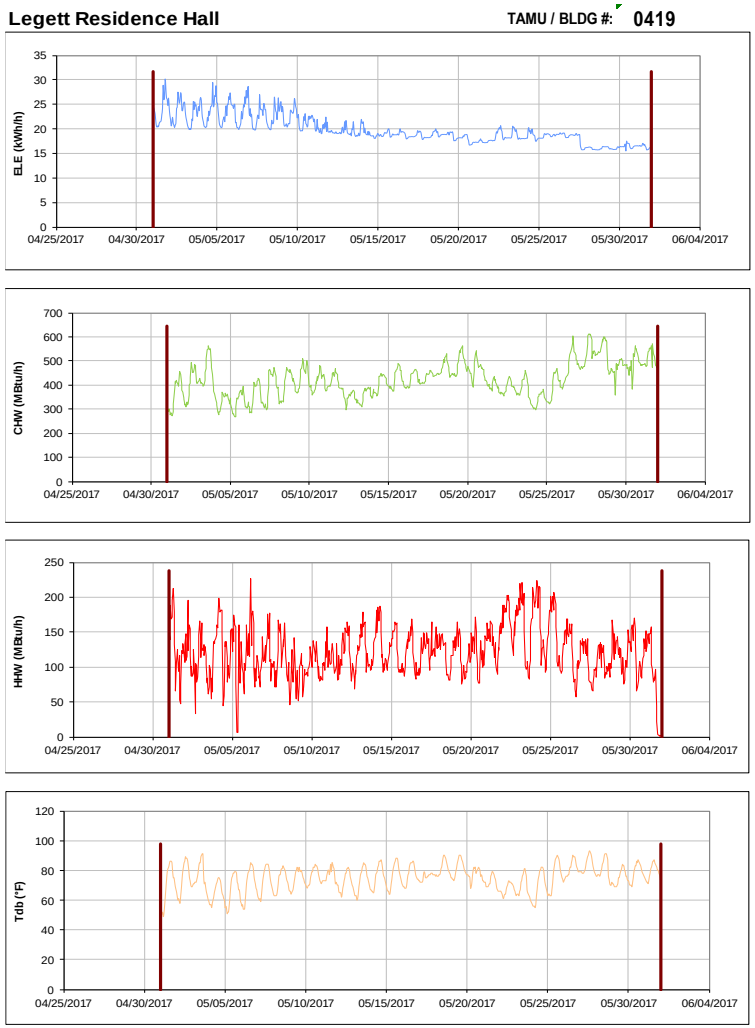


Figure III-47 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Legett Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-48 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Milner Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

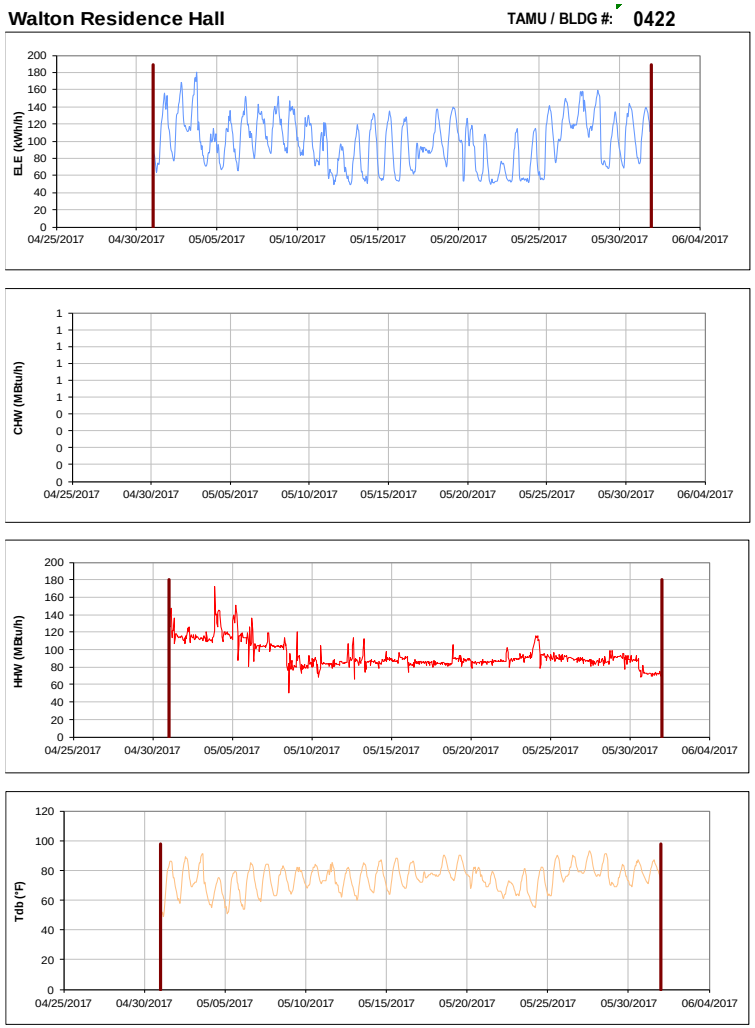


Figure III-49 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Walton Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-50 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hotard Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-51 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Henderson Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

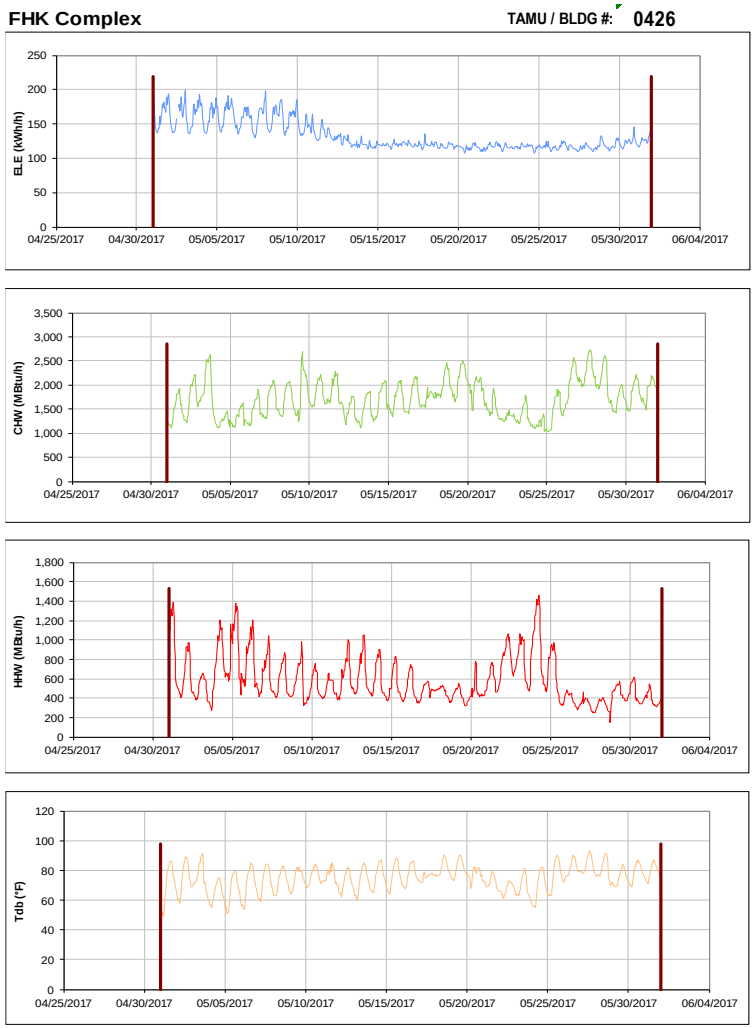


Figure III-52 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for FHK Complex during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

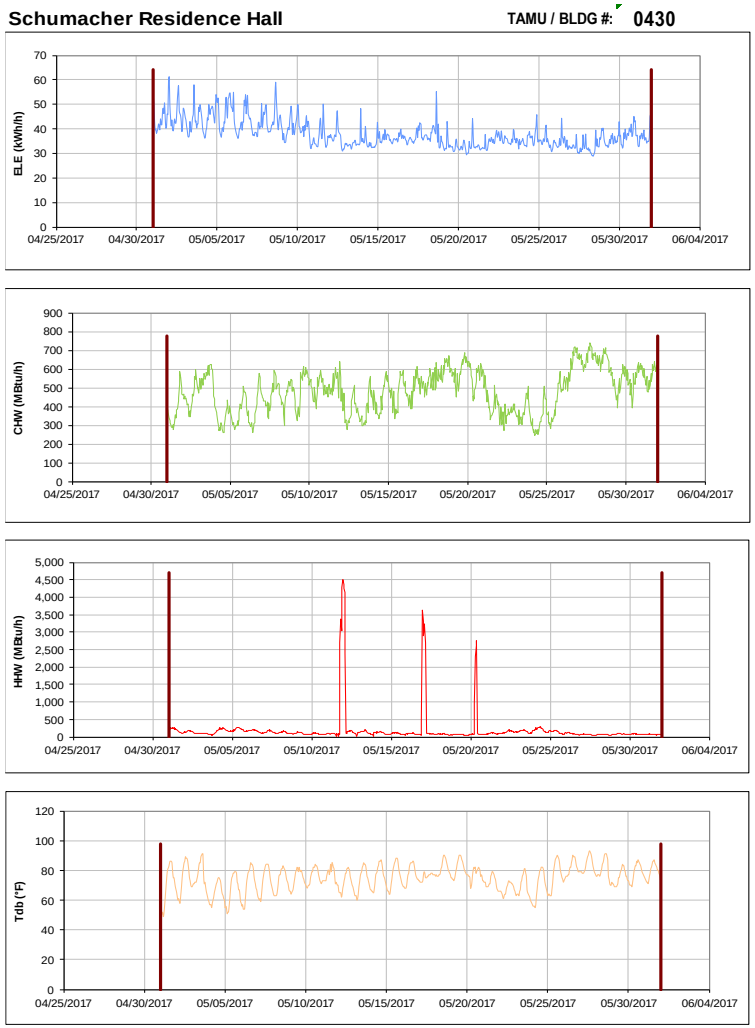


Figure III-53 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Schumacher Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

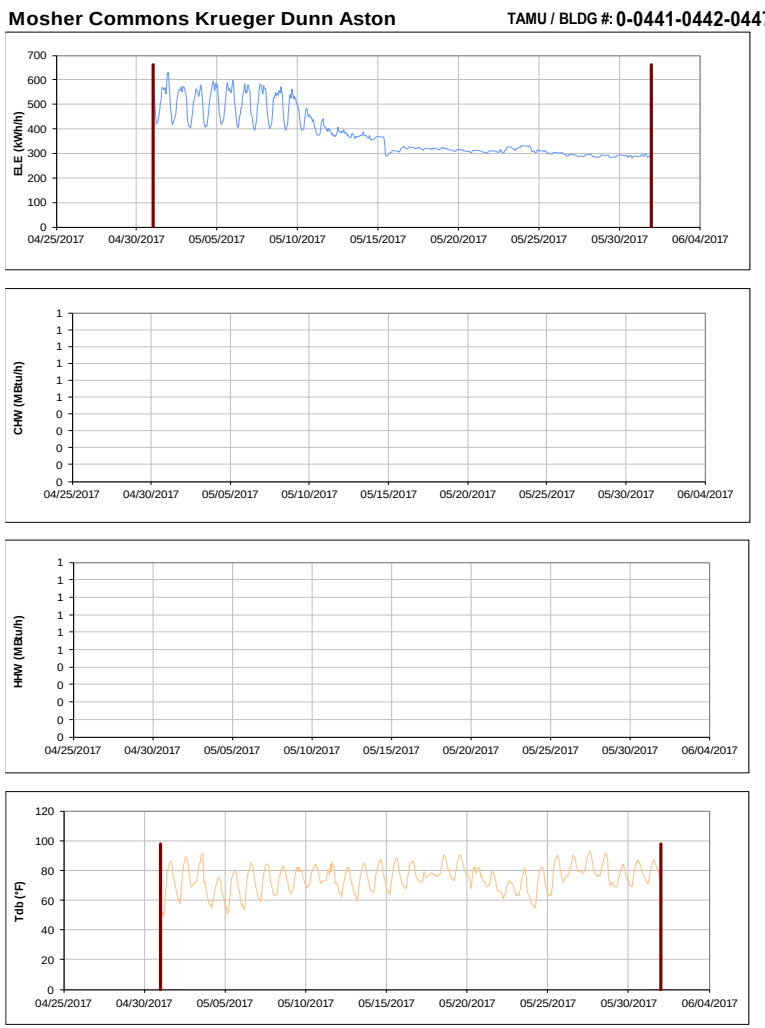


Figure III-54 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Commons Krueger Dunn Aston during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

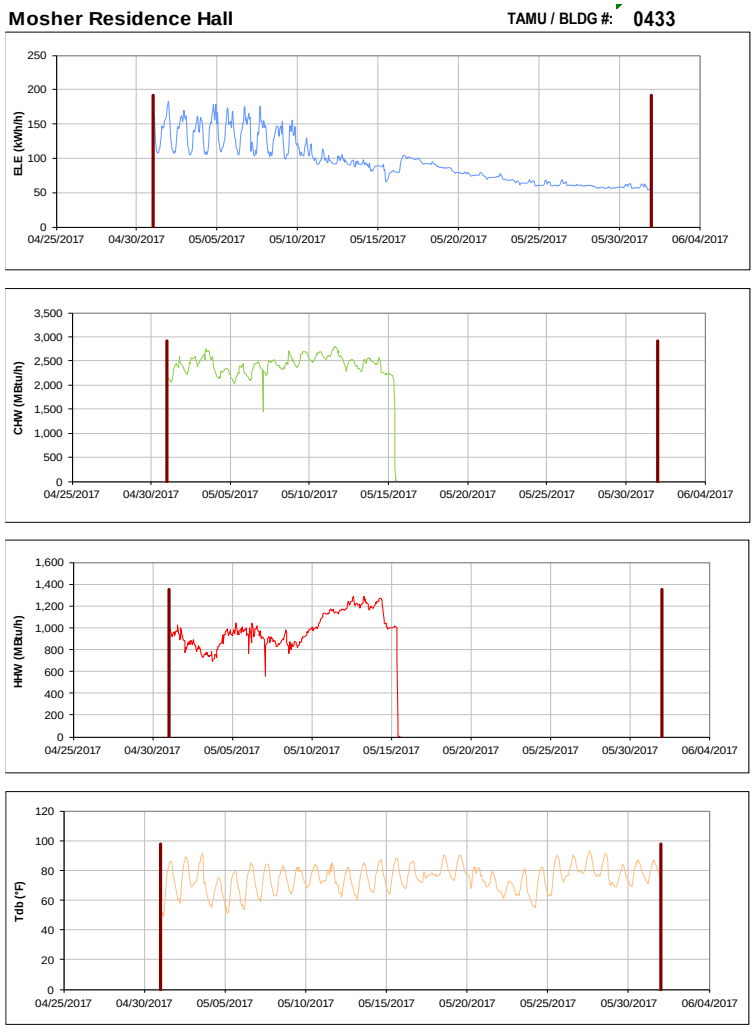


Figure III-55 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

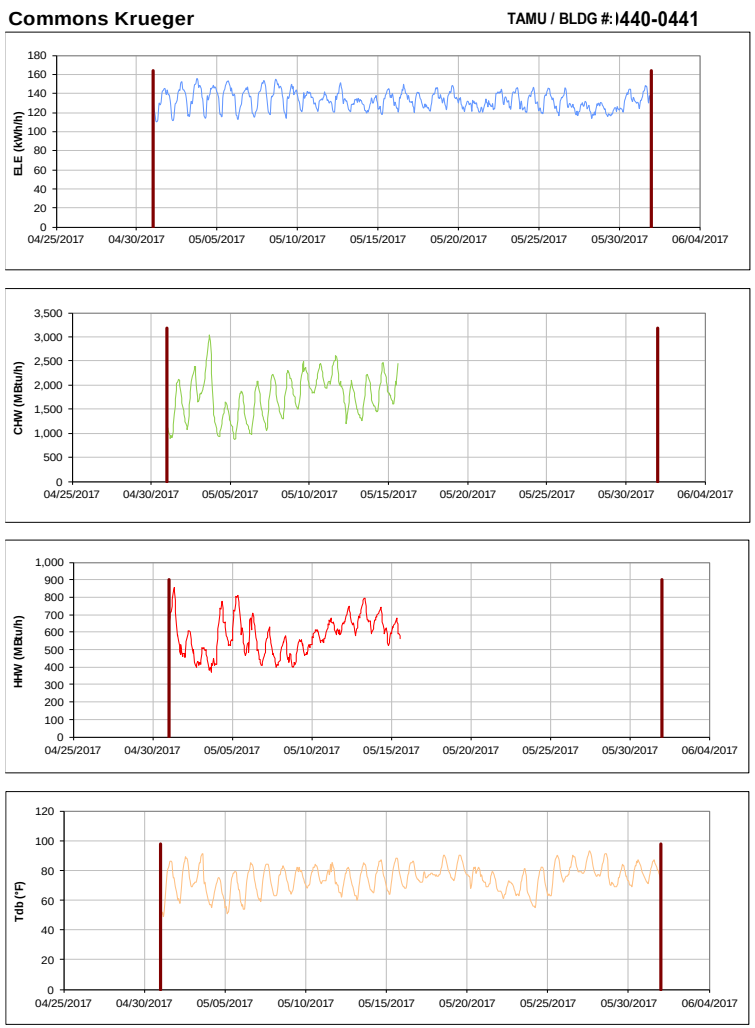


Figure III-56 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Commons Krueger during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

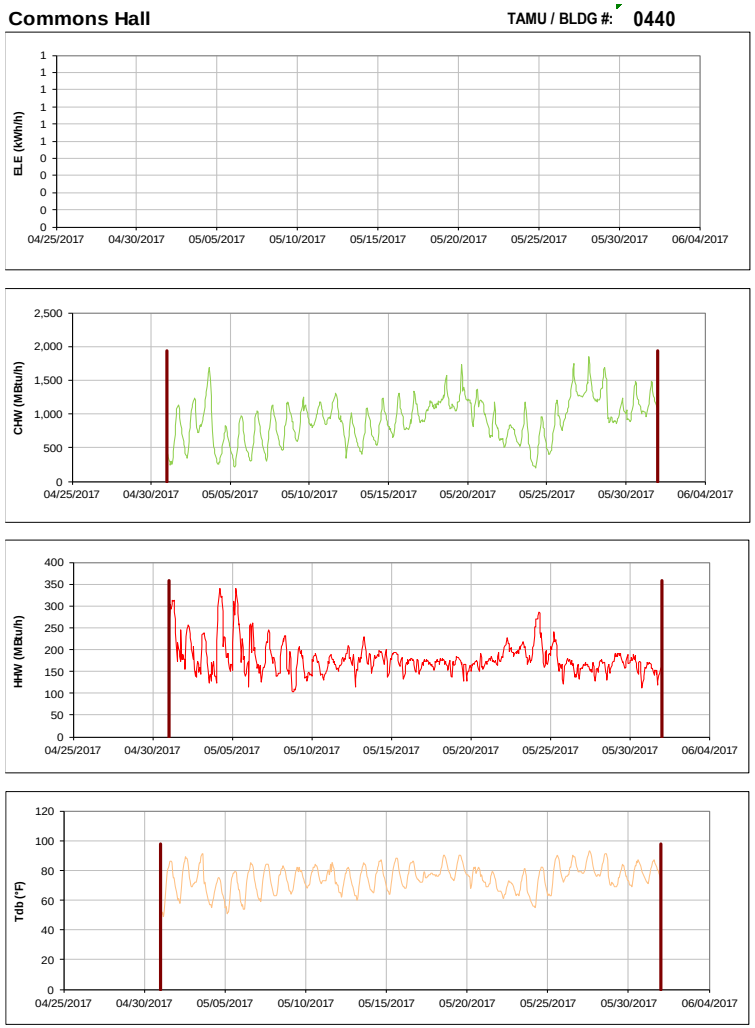


Figure III-57 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Commons Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-58 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Krueger Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

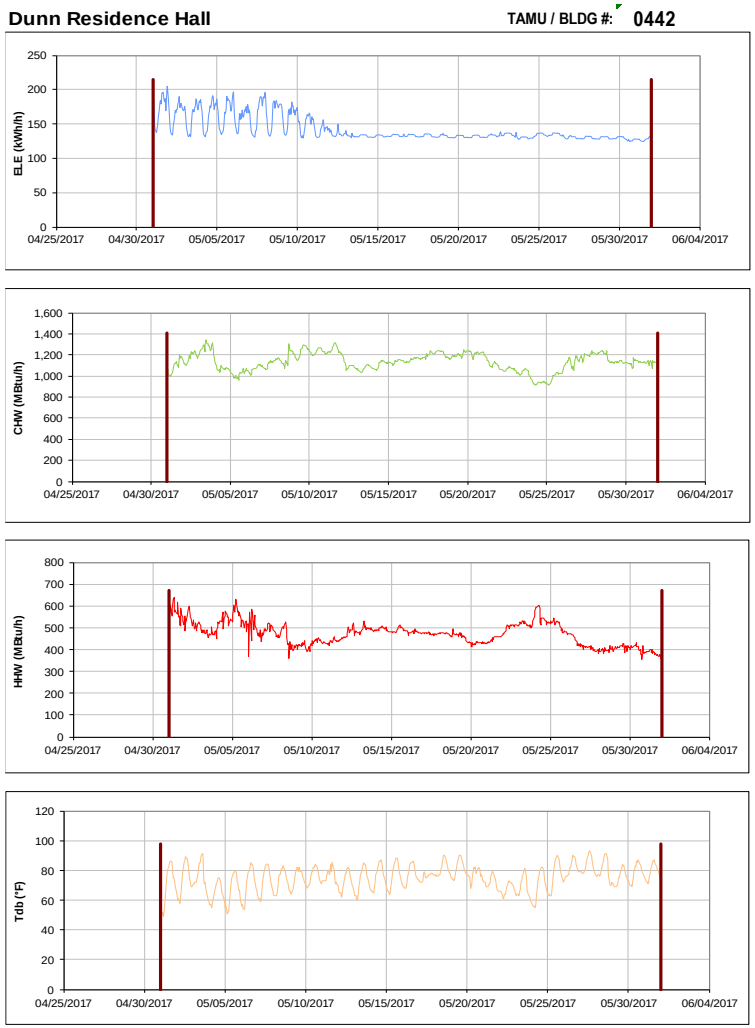


Figure III-59 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Dunn Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

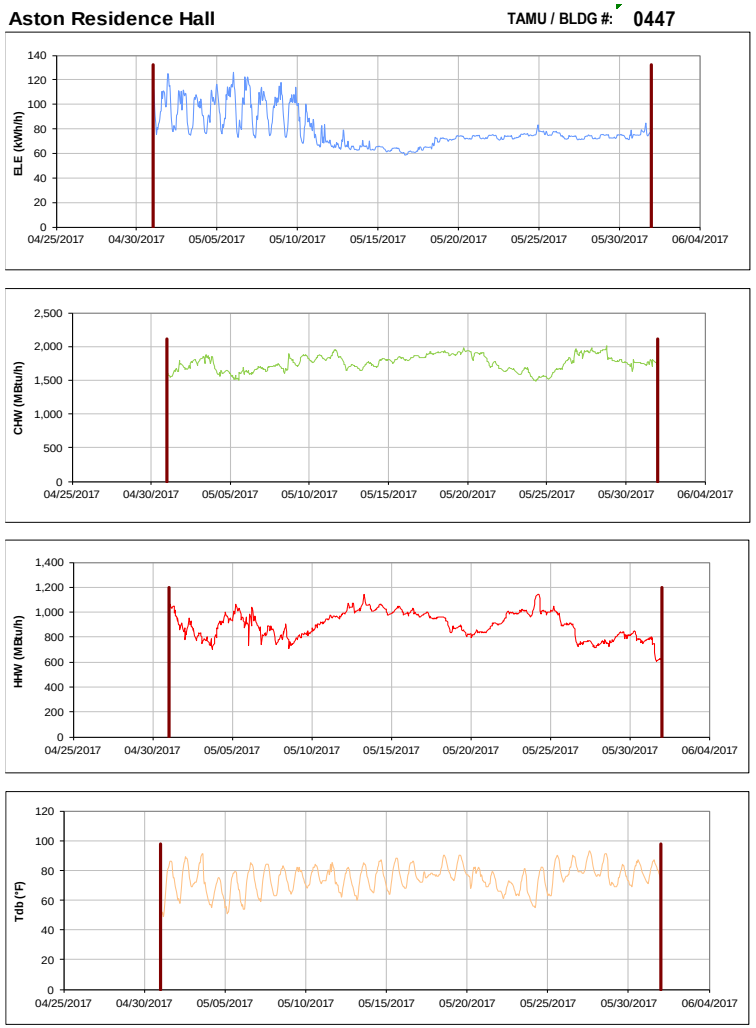


Figure III-60 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Aston Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

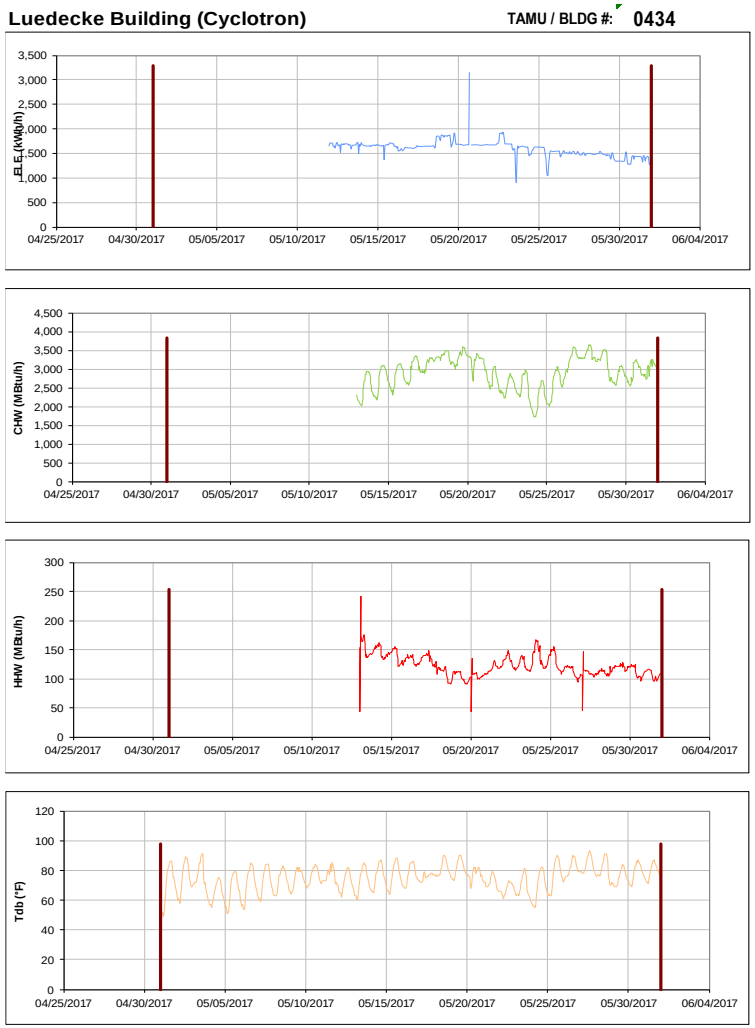


Figure III-61 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Luedecke Building (Cyclotron) during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

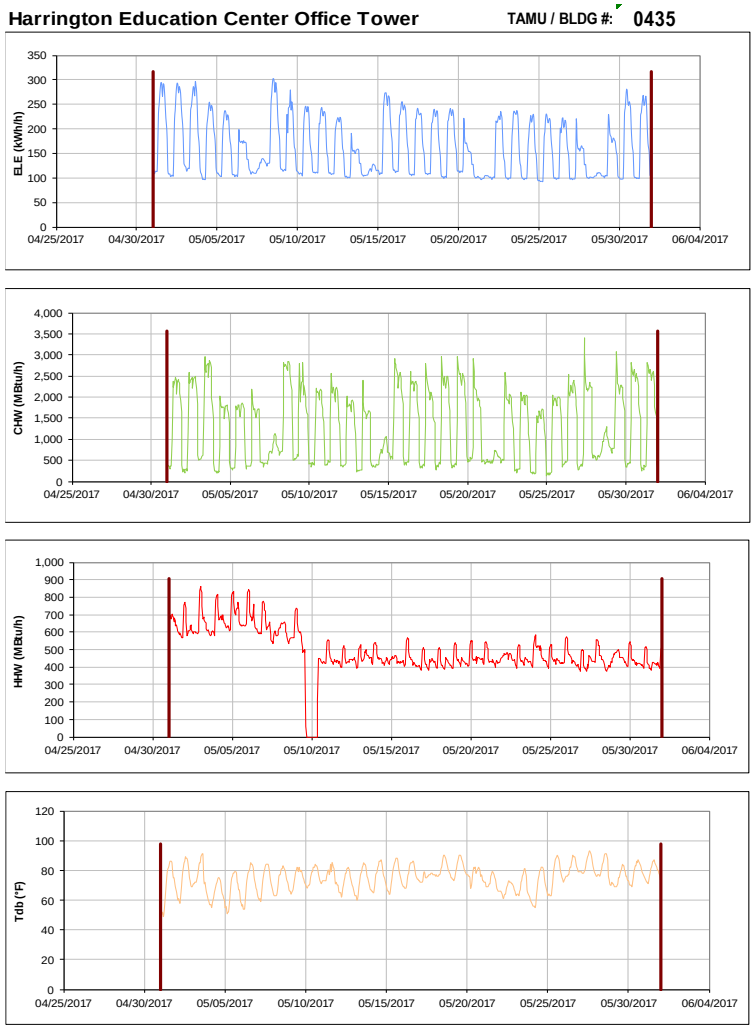


Figure III-62 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Office Tower during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

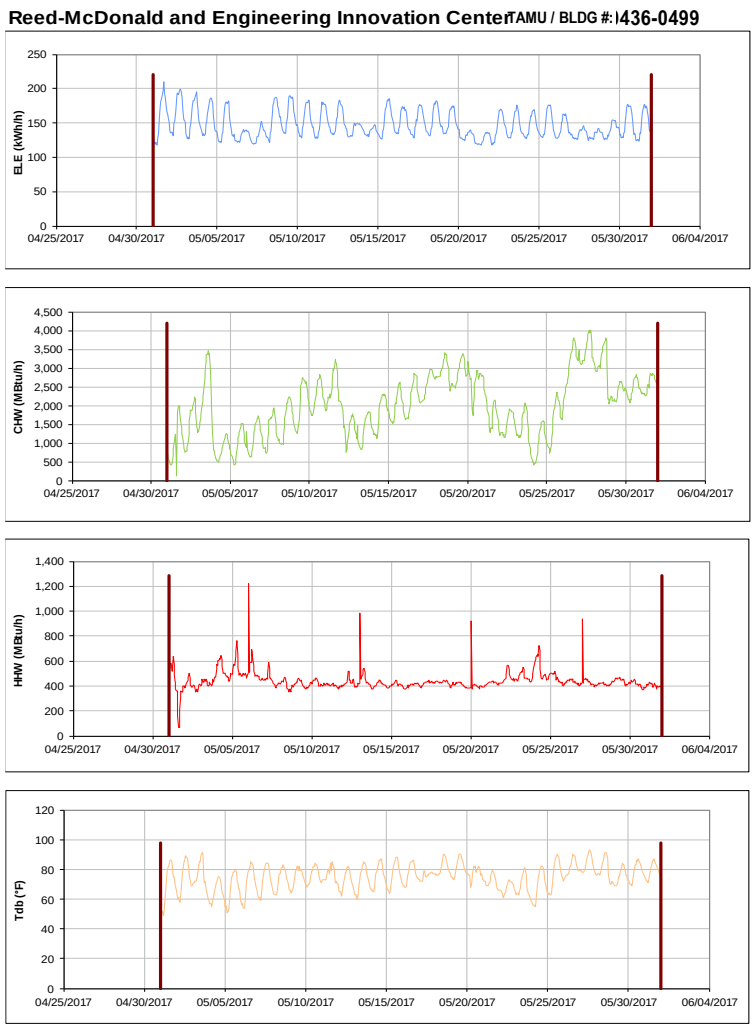


Figure III-63 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald and Engineering Innovation Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

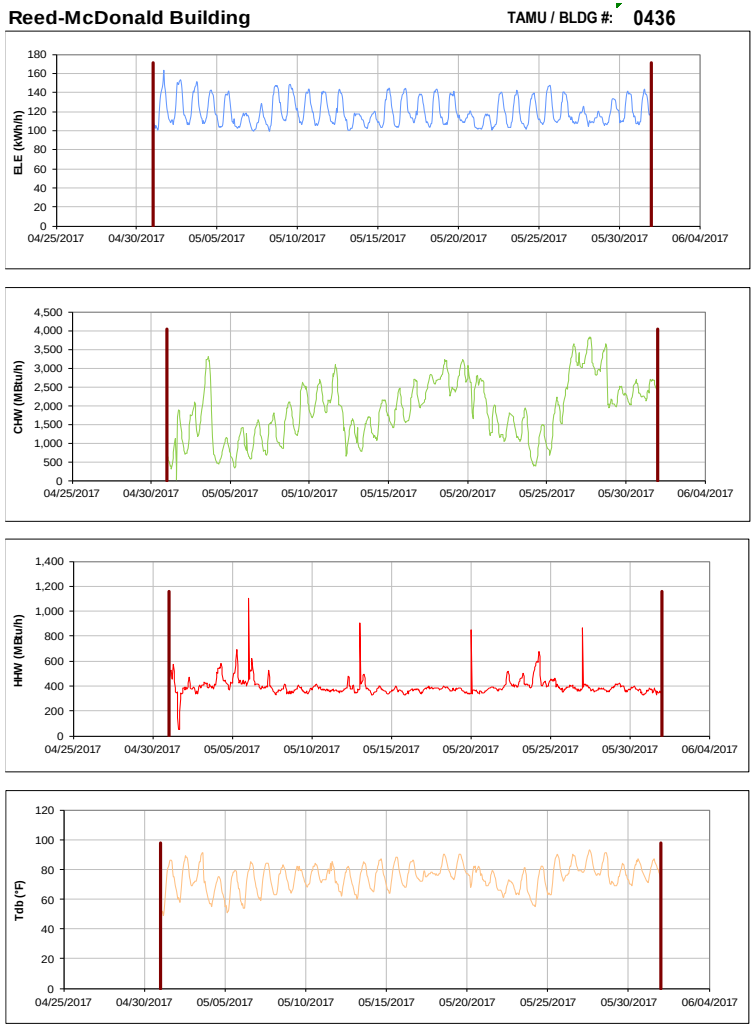


Figure III-64 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-65 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Innovation Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

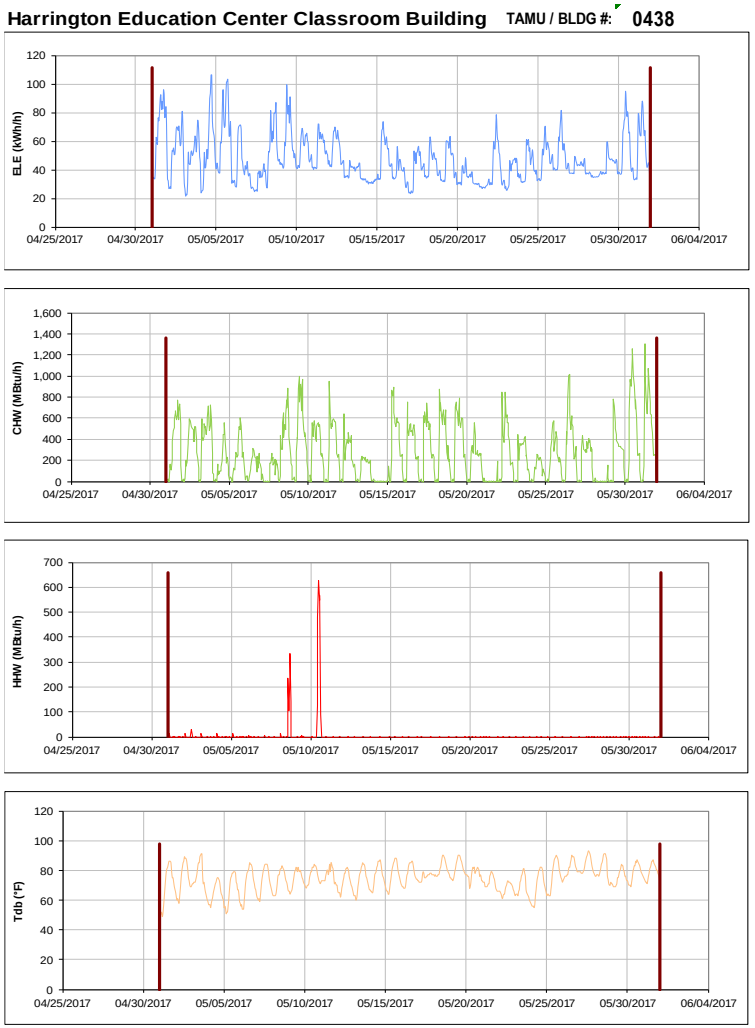


Figure III-66 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Classroom Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-67 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Oceanography & Meteorology Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

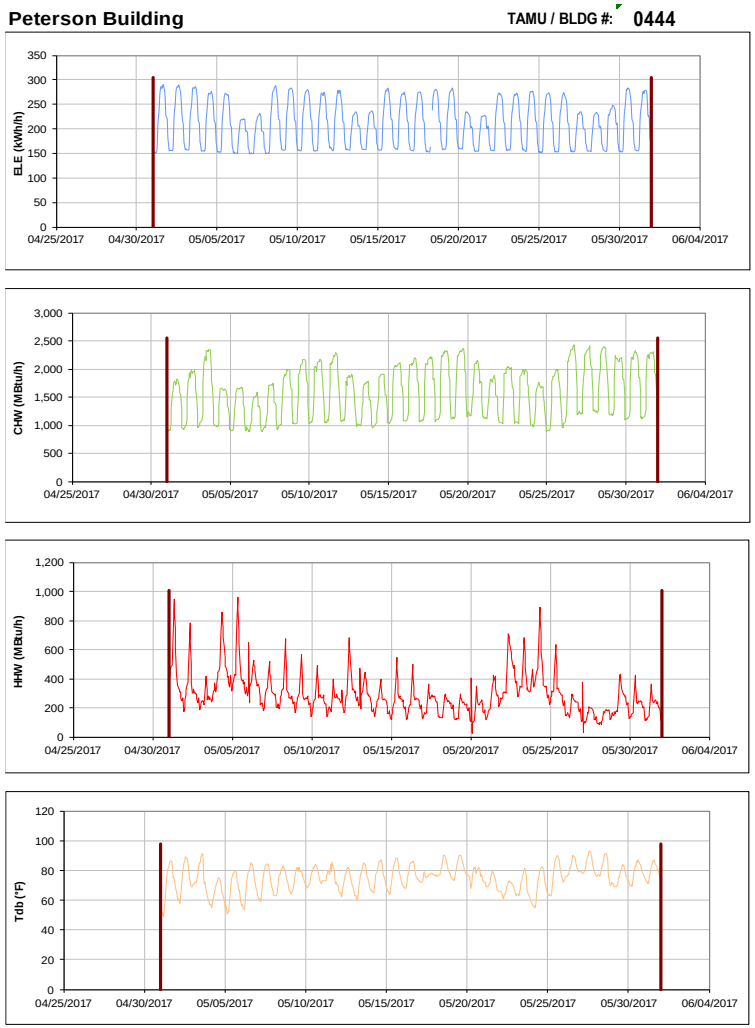


Figure III-68 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Peterson Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

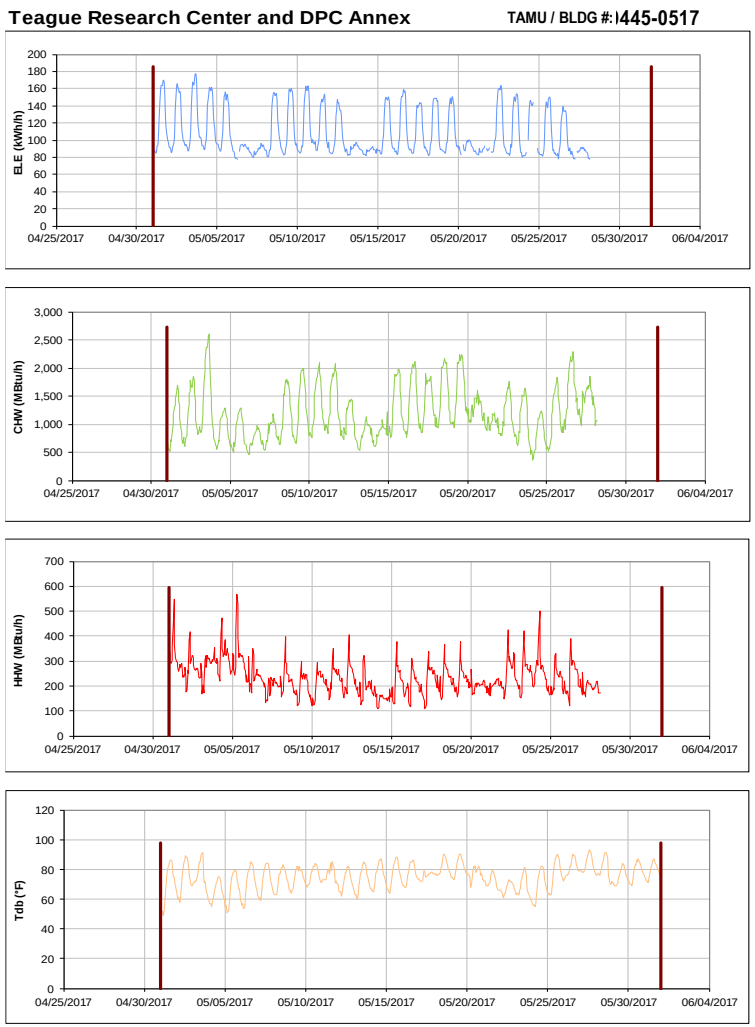


Figure III-69 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center and DPC Annex during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

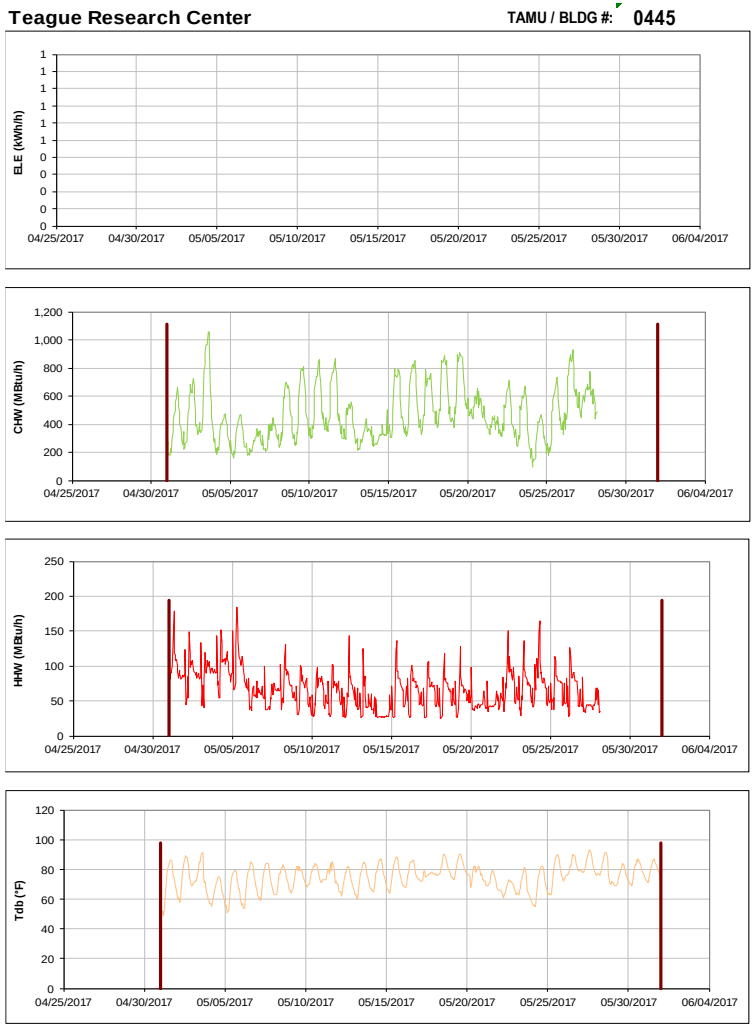


Figure III-70 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

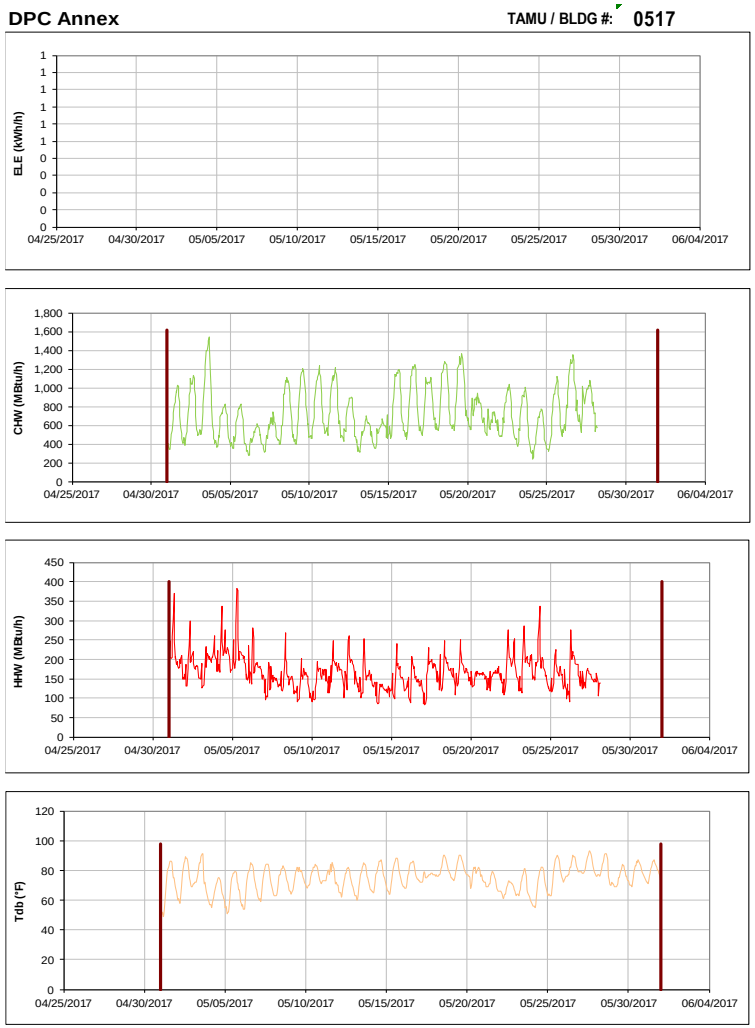


Figure III-71 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for DPC Annex during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-72 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower and Theatre Complex during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-73 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Theatre Complex during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

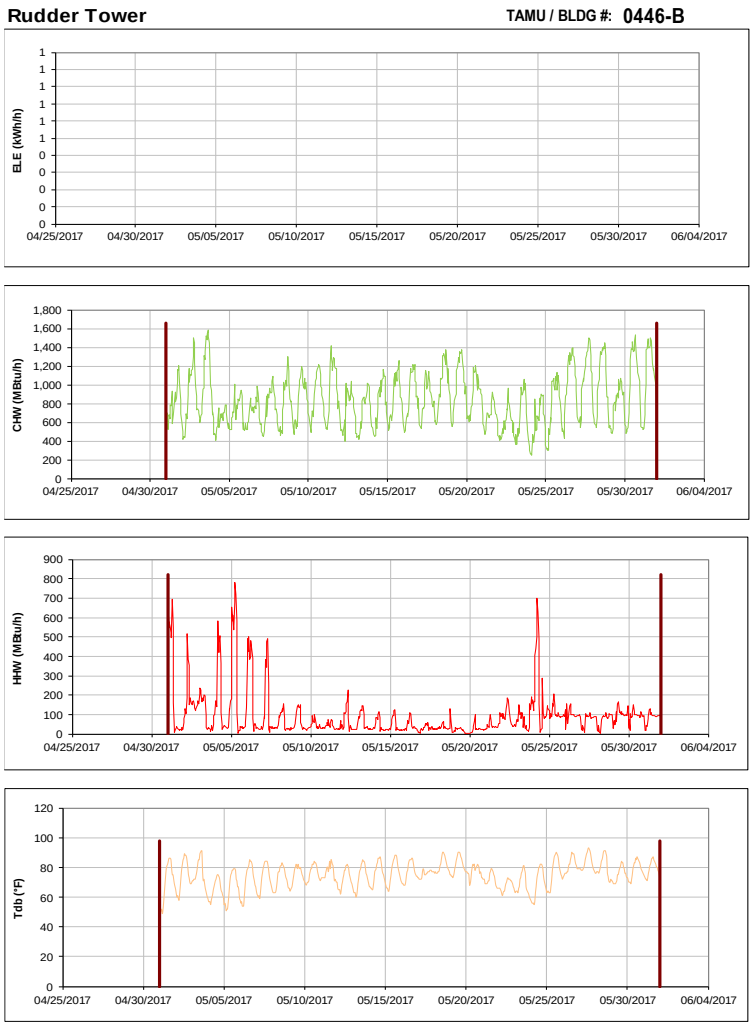


Figure III-74 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

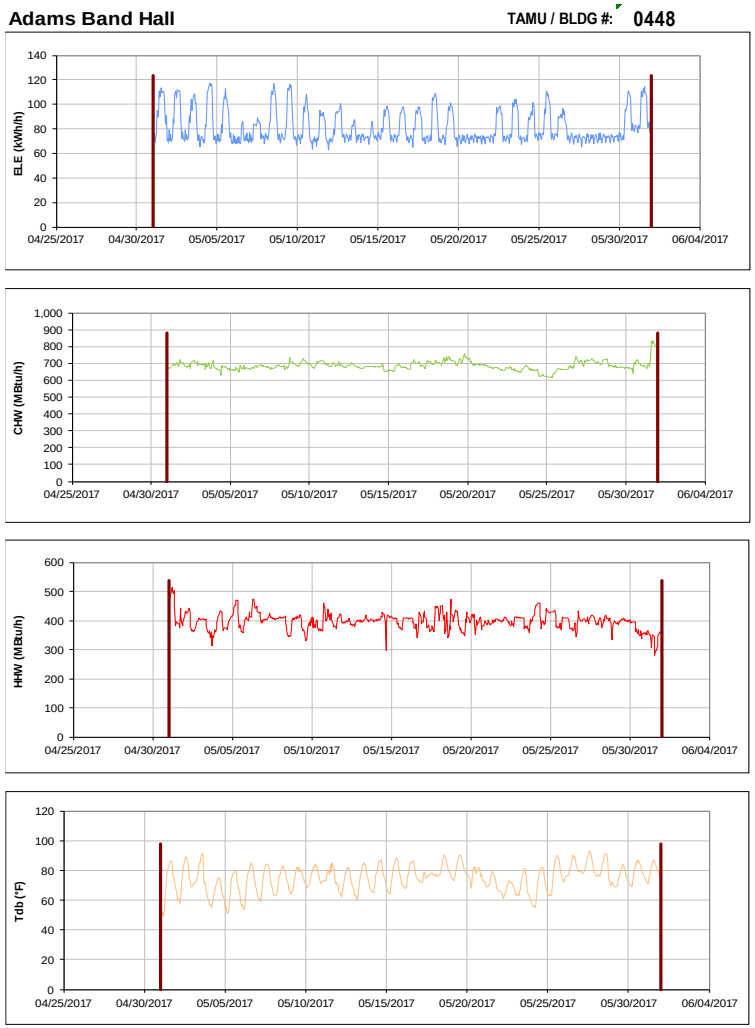


Figure III-75 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Adams Band Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-76 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - West during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

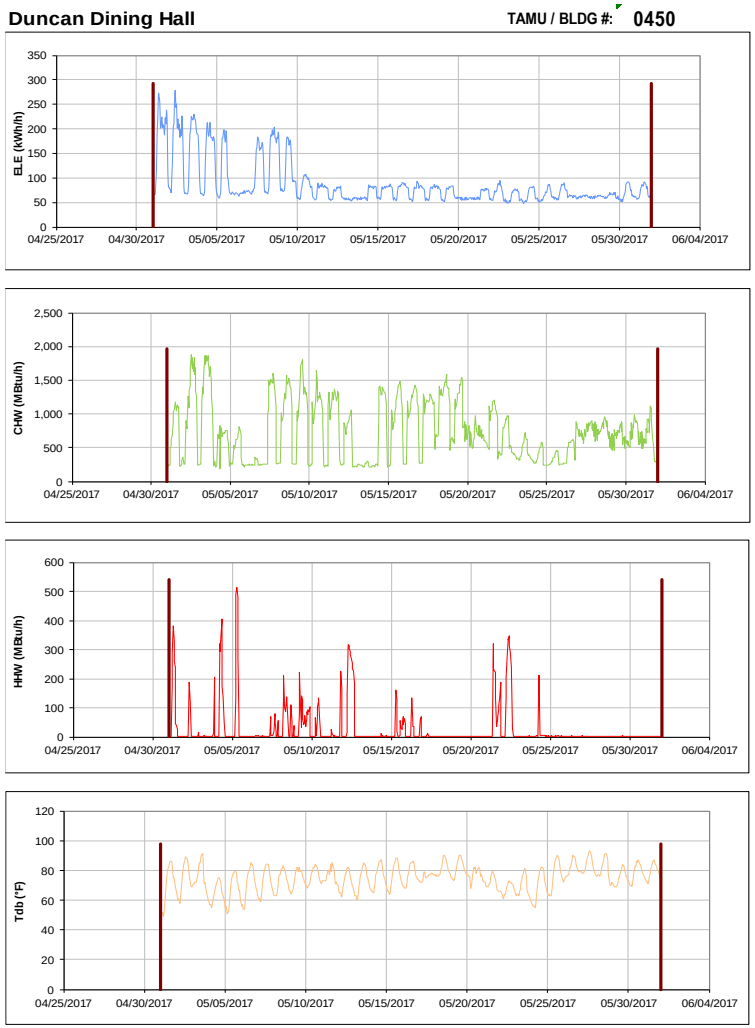


Figure III-77 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Duncan Dining Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

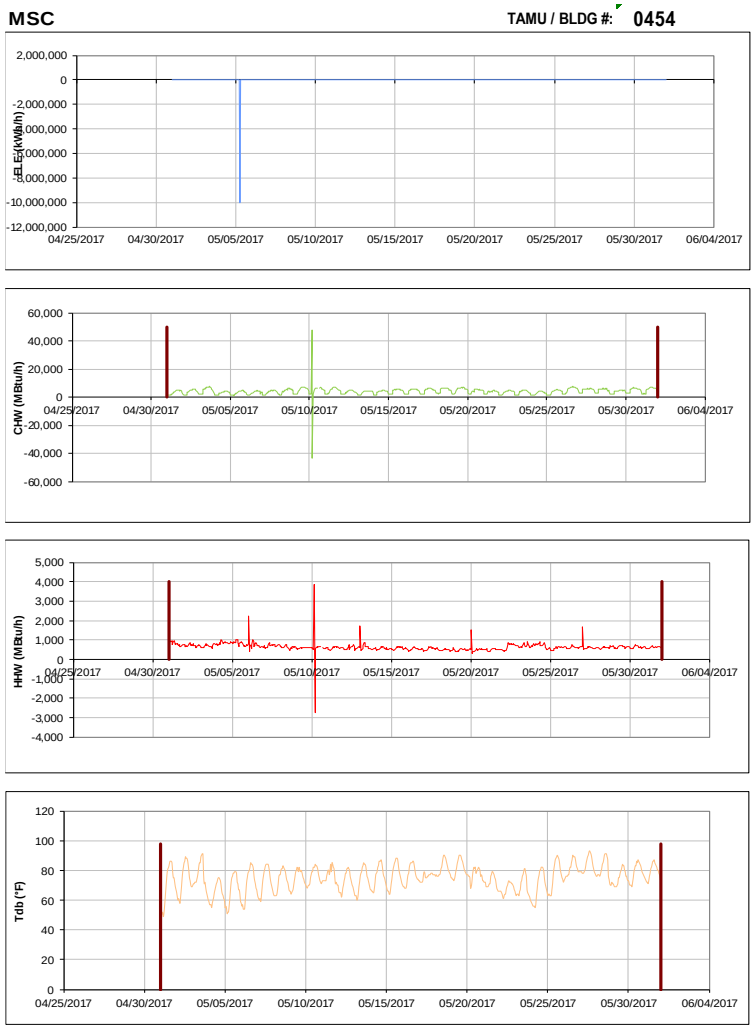


Figure III-78 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for MSC during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

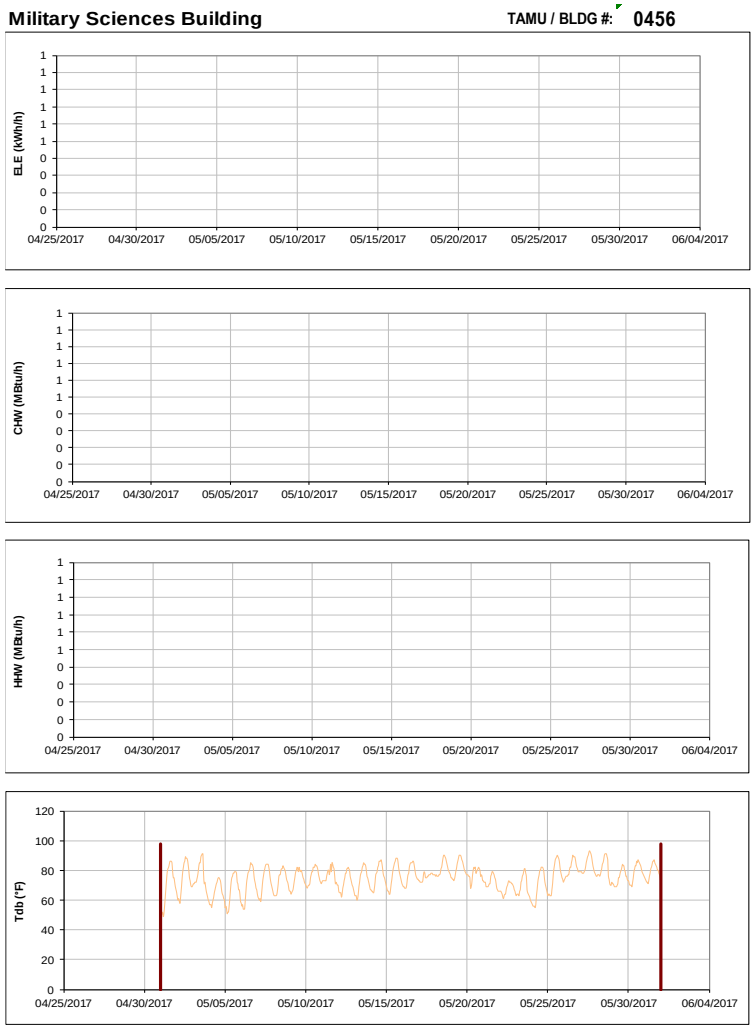


Figure III-79 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Military Sciences Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

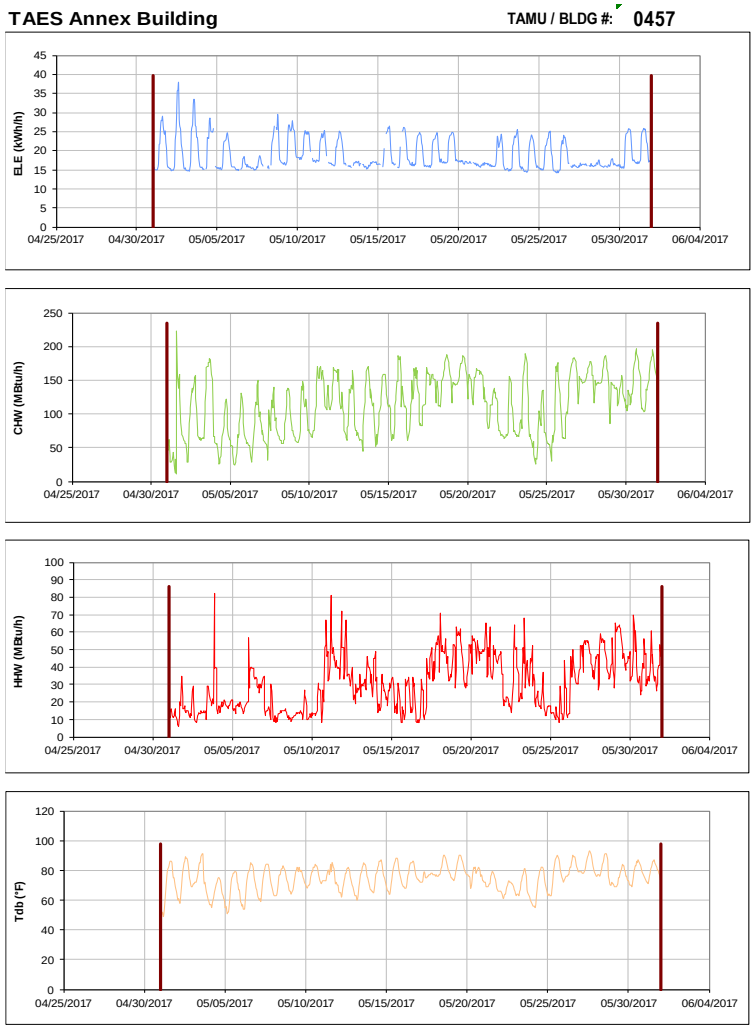


Figure III-80 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TAES Annex Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-81 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Coke Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

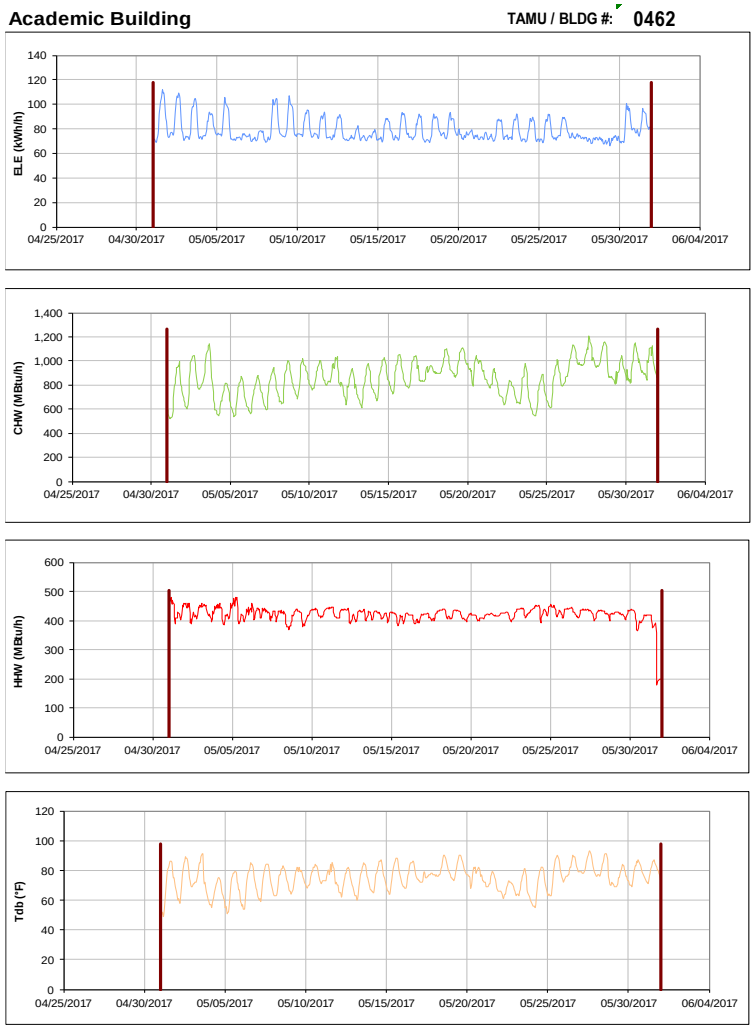


Figure III-82 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Academic Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

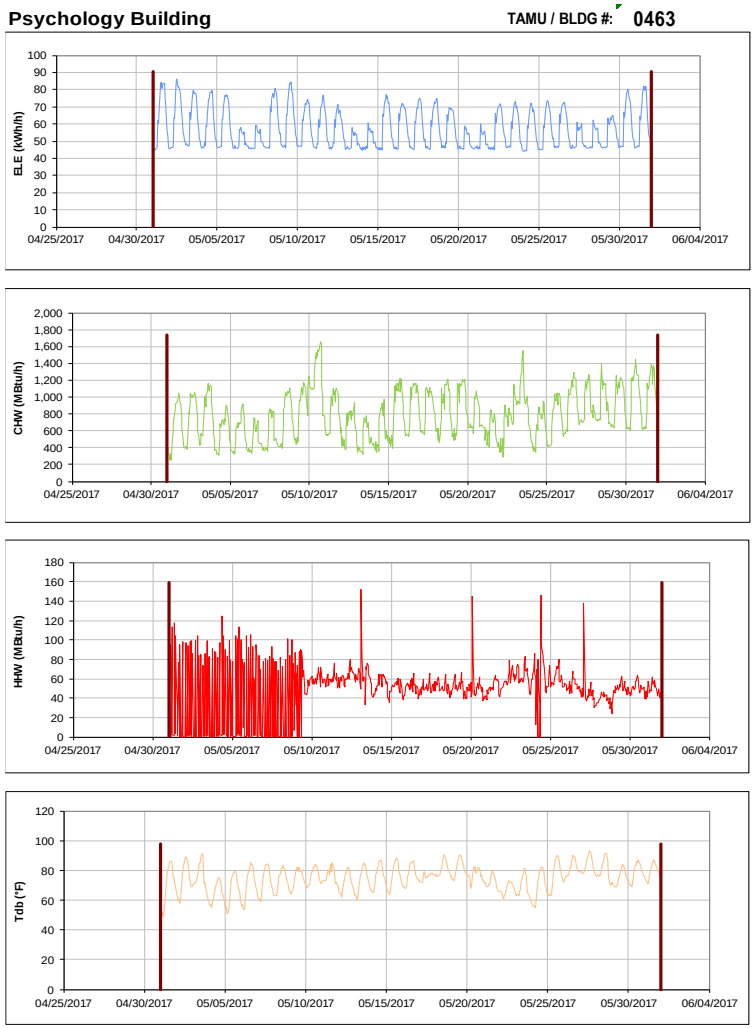


Figure III-83 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Psychology Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

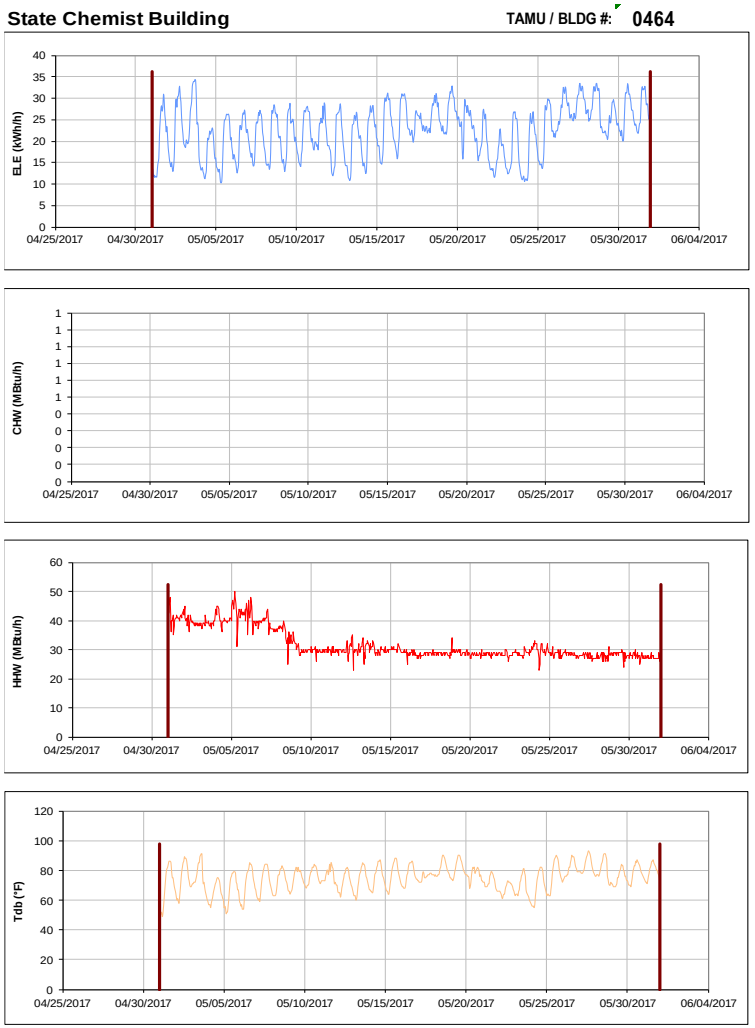


Figure III-84 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for State Chemist Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

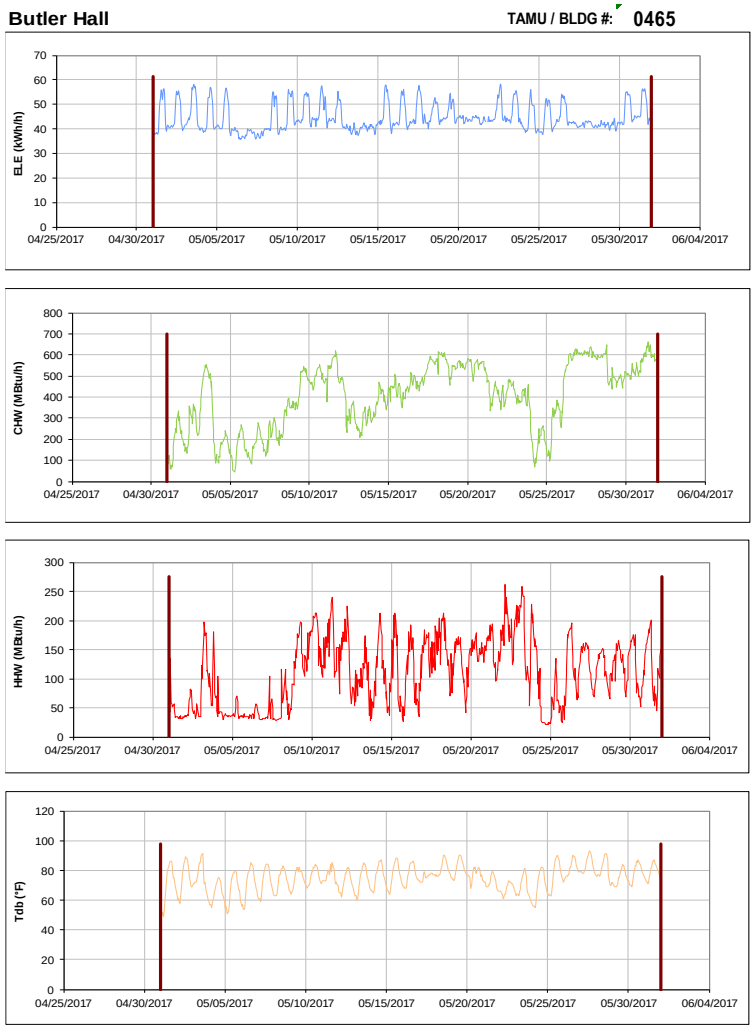


Figure III-85 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Butler Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

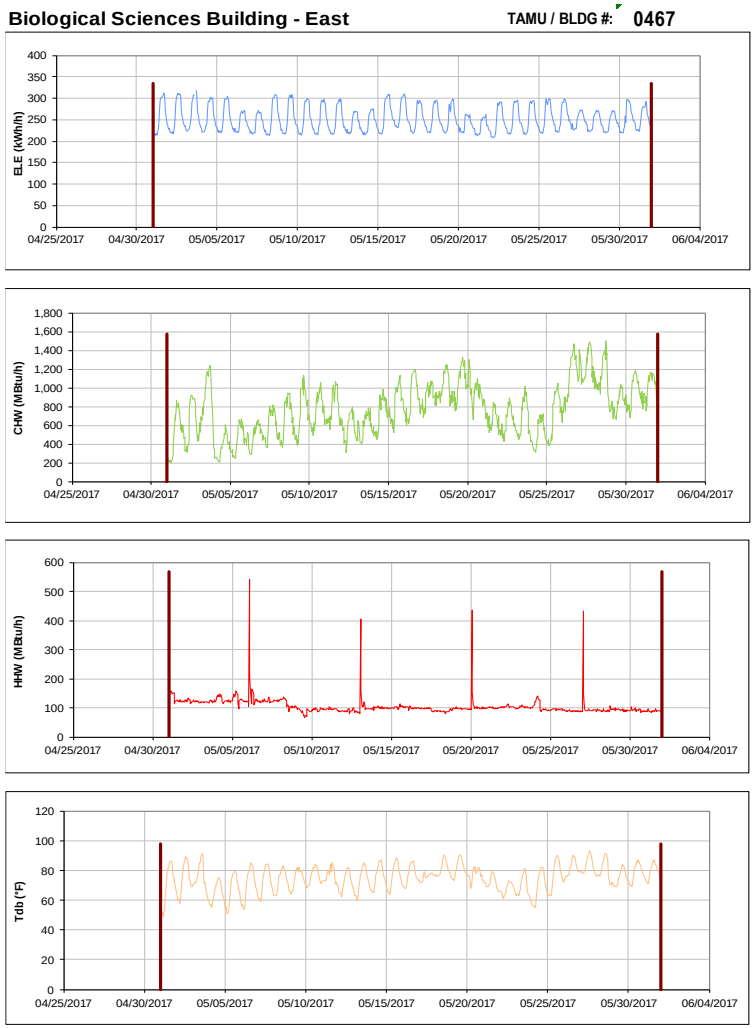


Figure III-86 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - East during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

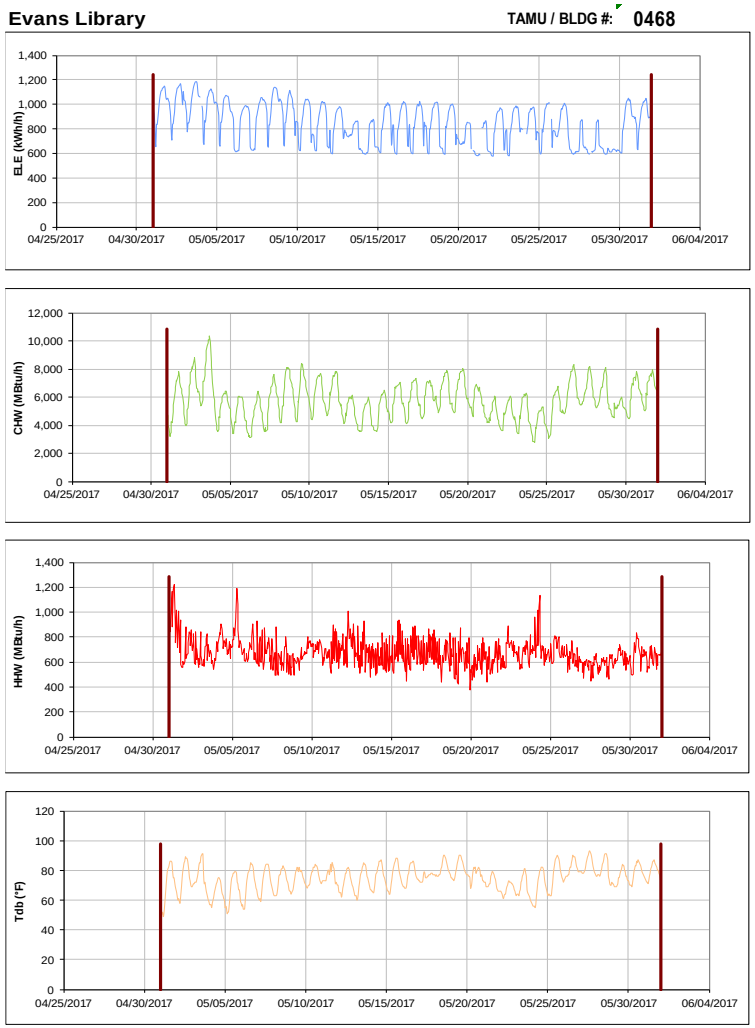


Figure III-87 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Evans Library during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-88 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Central Campus Parking Garage during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-89 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Glasscock History Bldg during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-90 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Pavilion during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

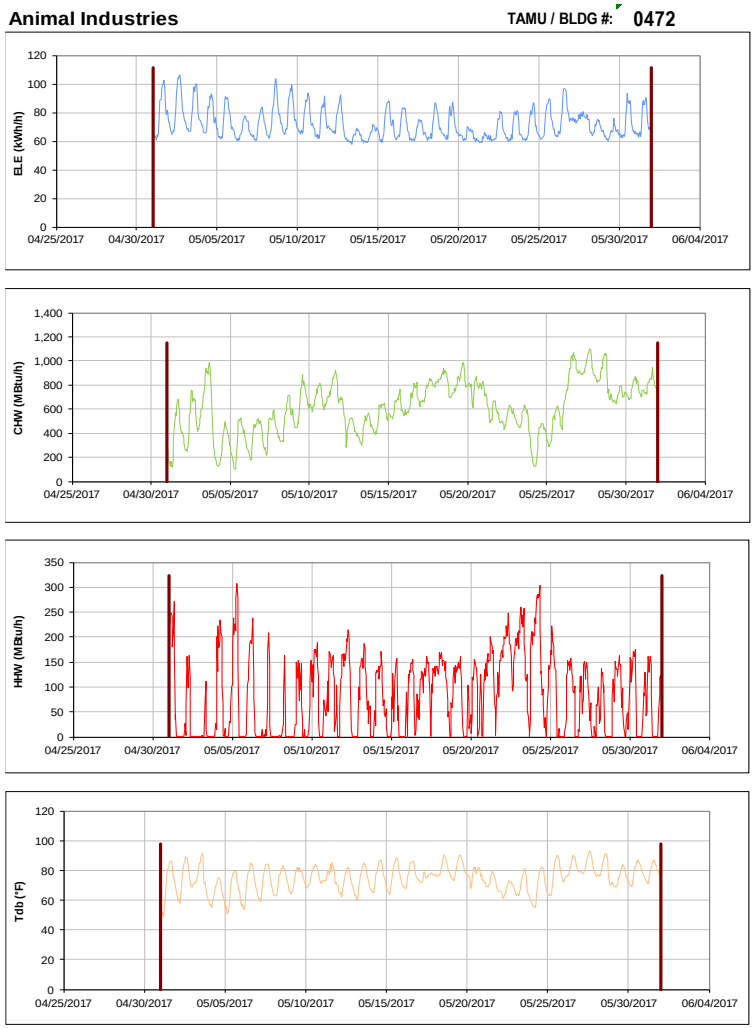


Figure III-91 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Animal Industries during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-92 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Williams Administration Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

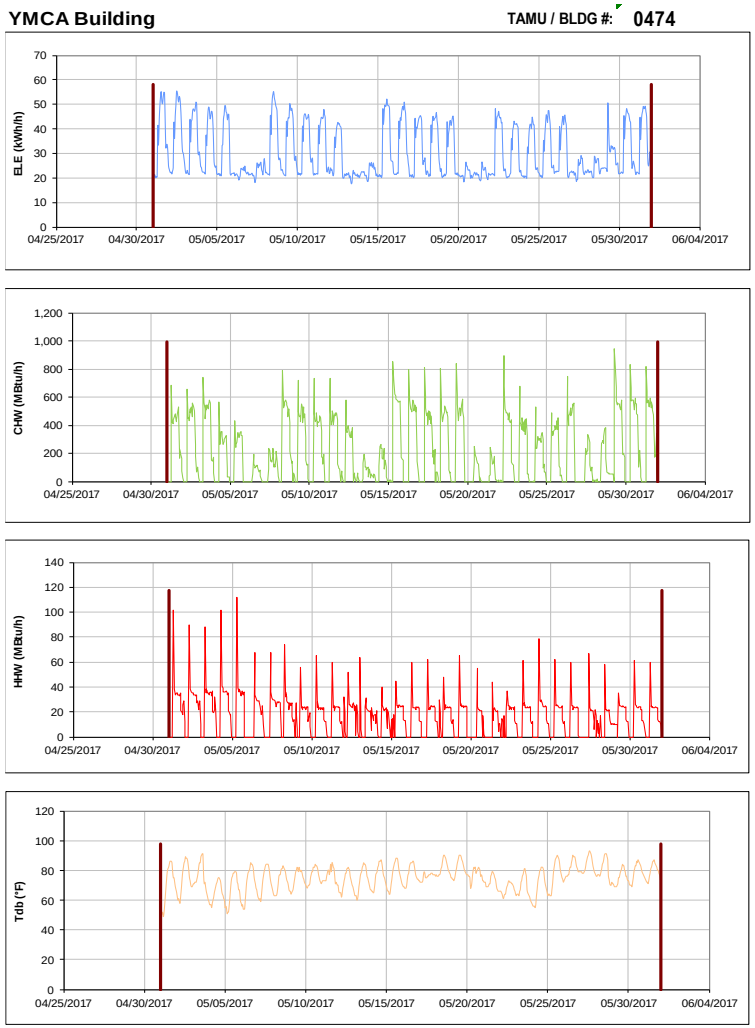


Figure III-93 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for YMCA Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

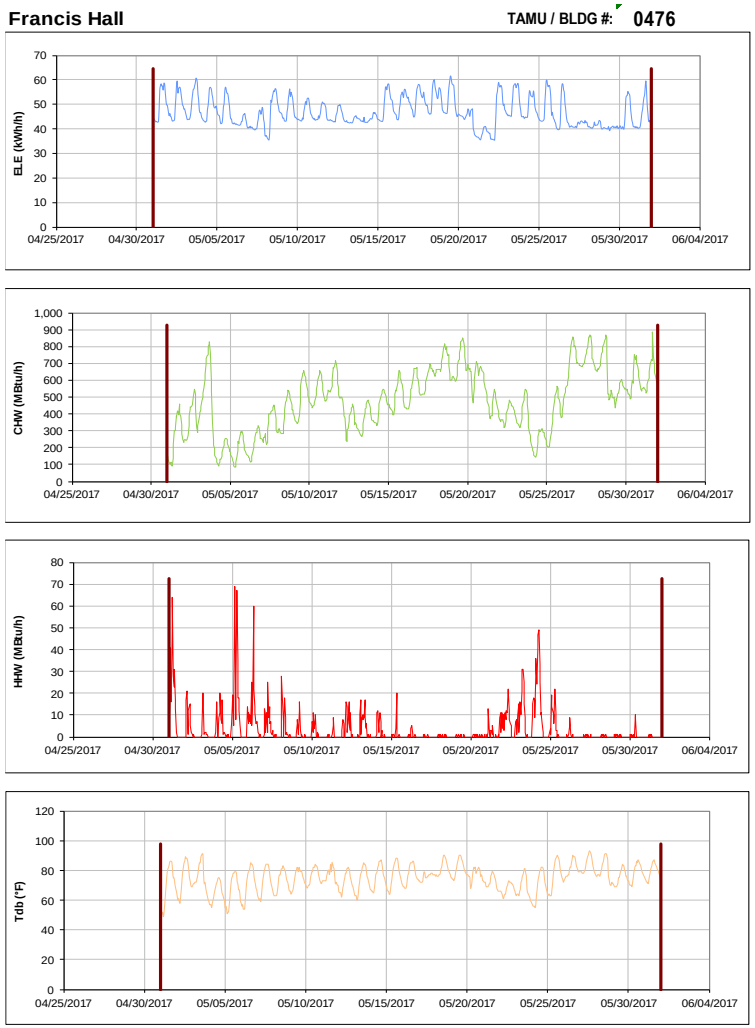


Figure III-94 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Francis Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-95 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Anthropology Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

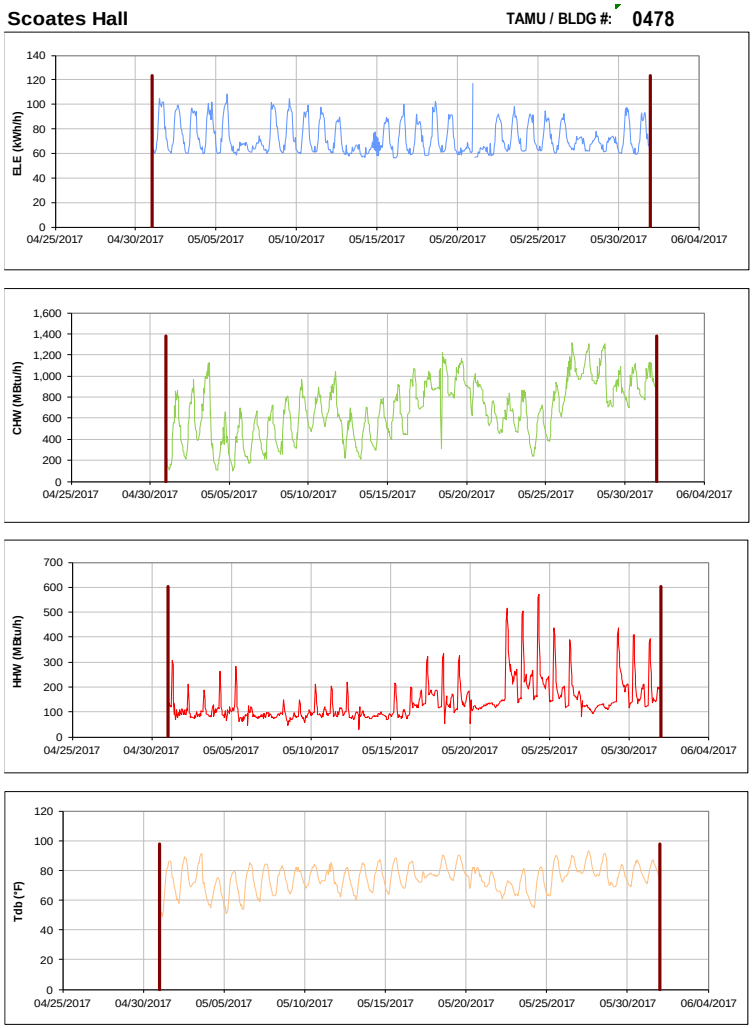


Figure III-96 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Scoates Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-97 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bolton Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

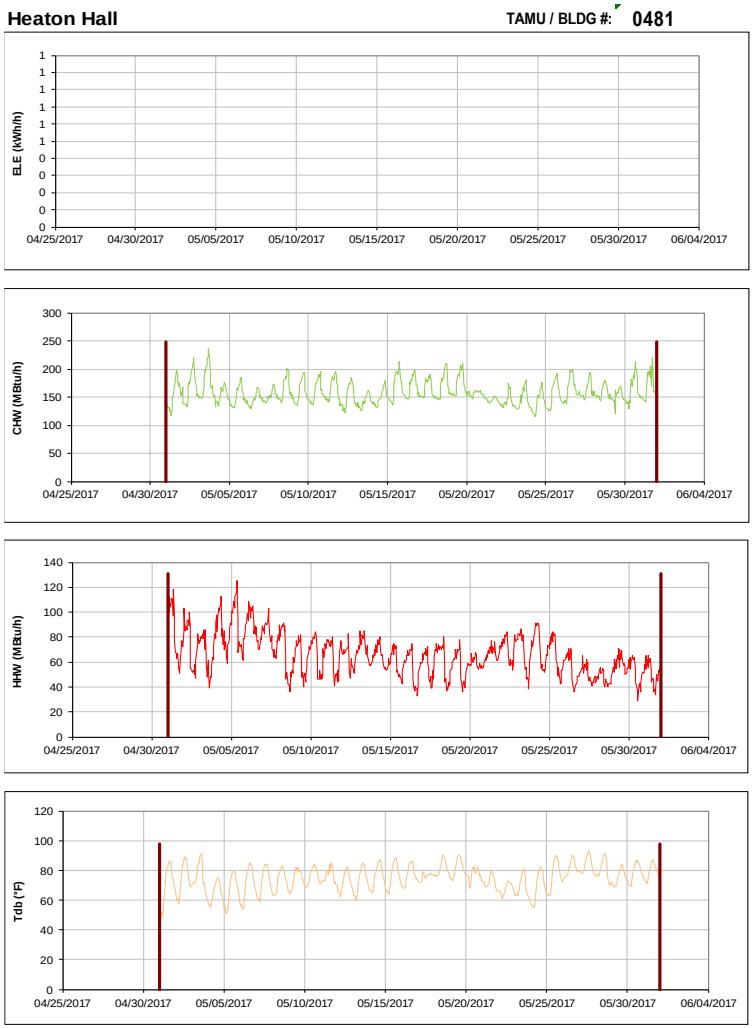


Figure III-98 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heaton Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-99 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fermier Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-100 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Thompson Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

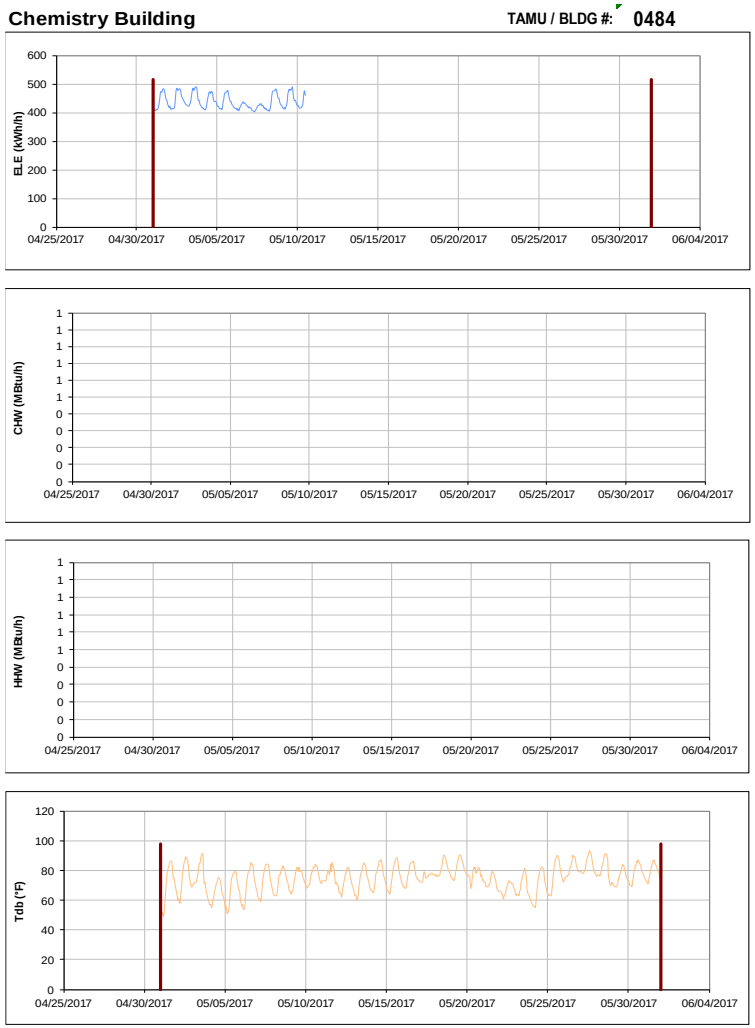


Figure III-101 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

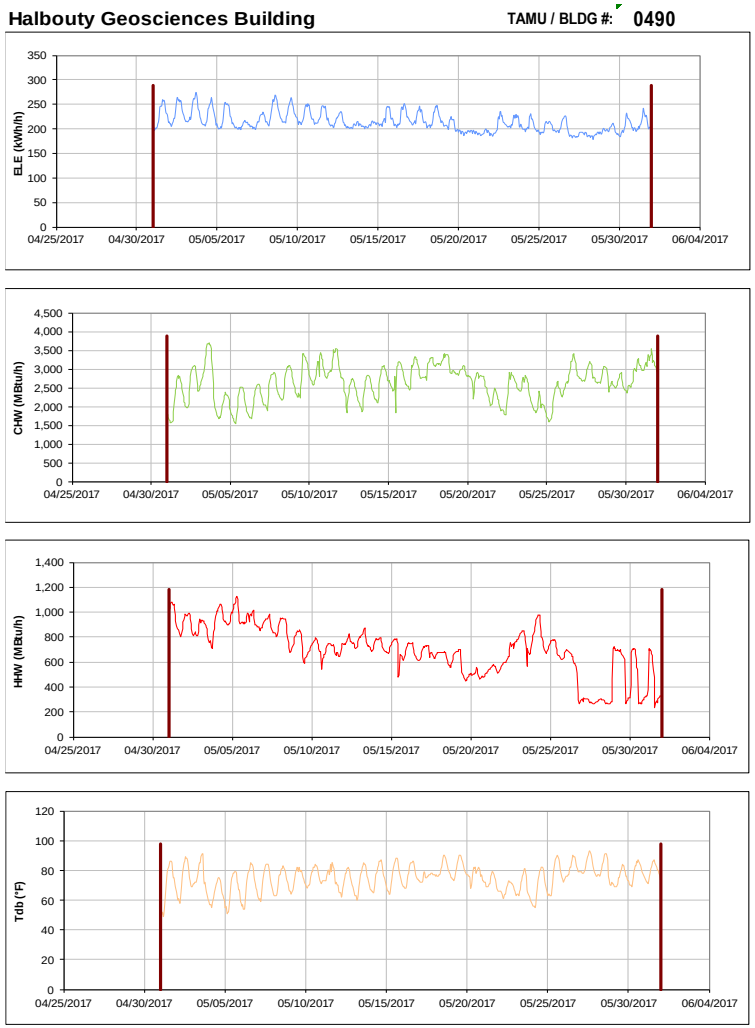


Figure III-102 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Halbouty Geosciences Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

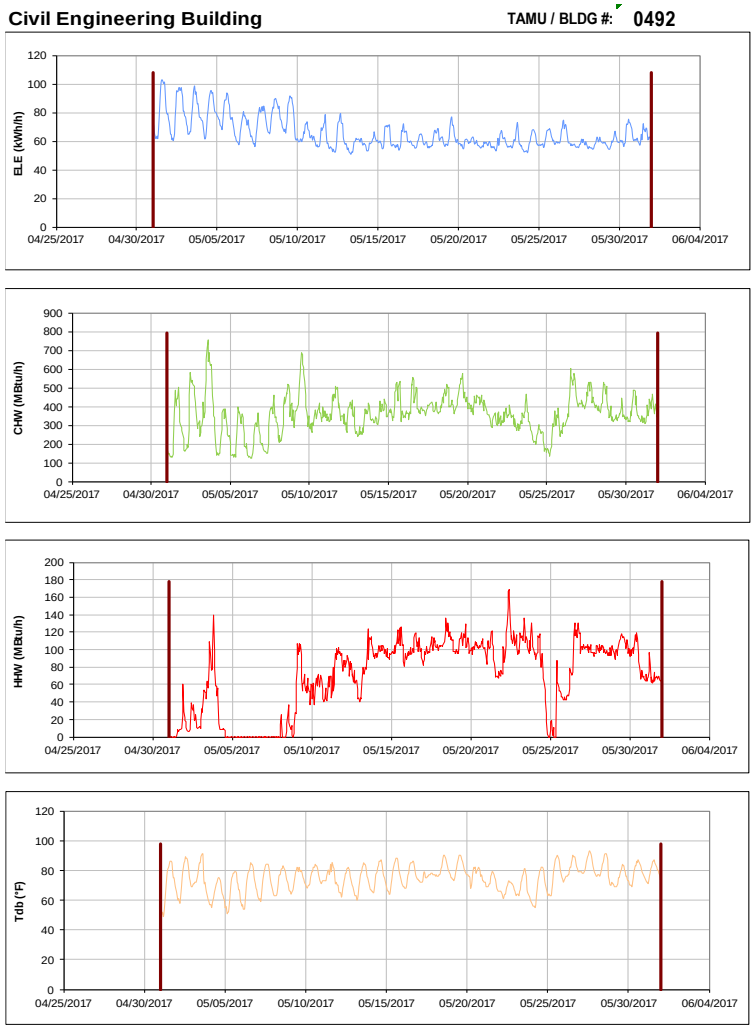


Figure III-103 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Civil Engineering Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-104 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sbisa Dining Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-105 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Central Office during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

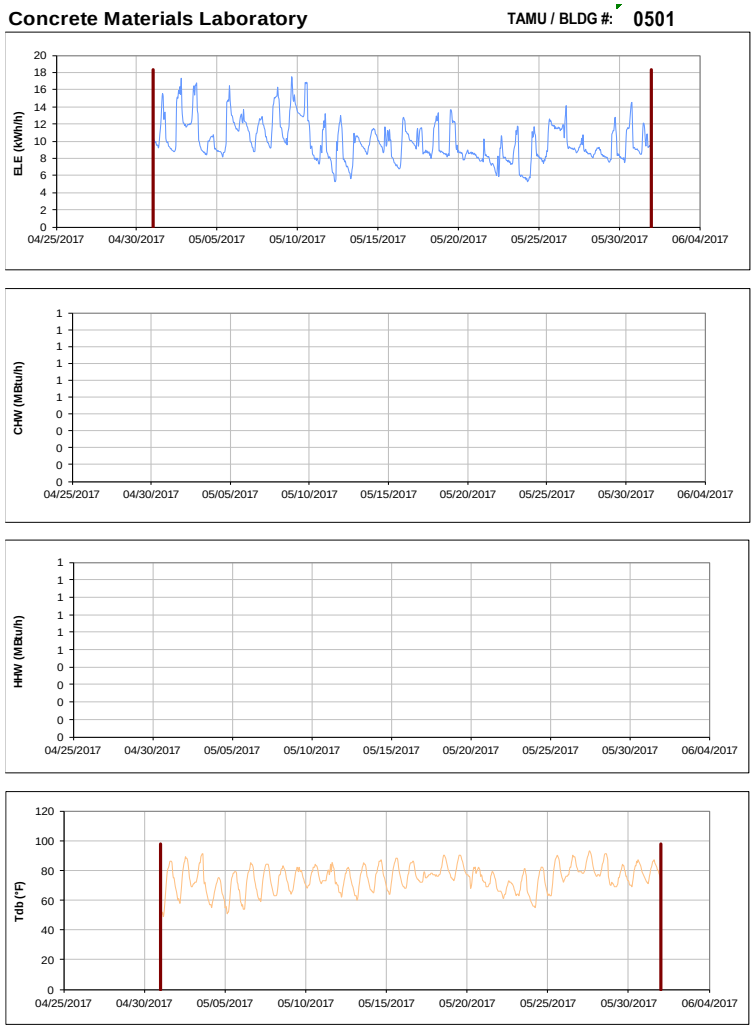


Figure III-106 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Concrete Materials Laboratory during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-107 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nagle Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-108 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medical Science Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-109 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Teaching Hospital and Med Adm during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

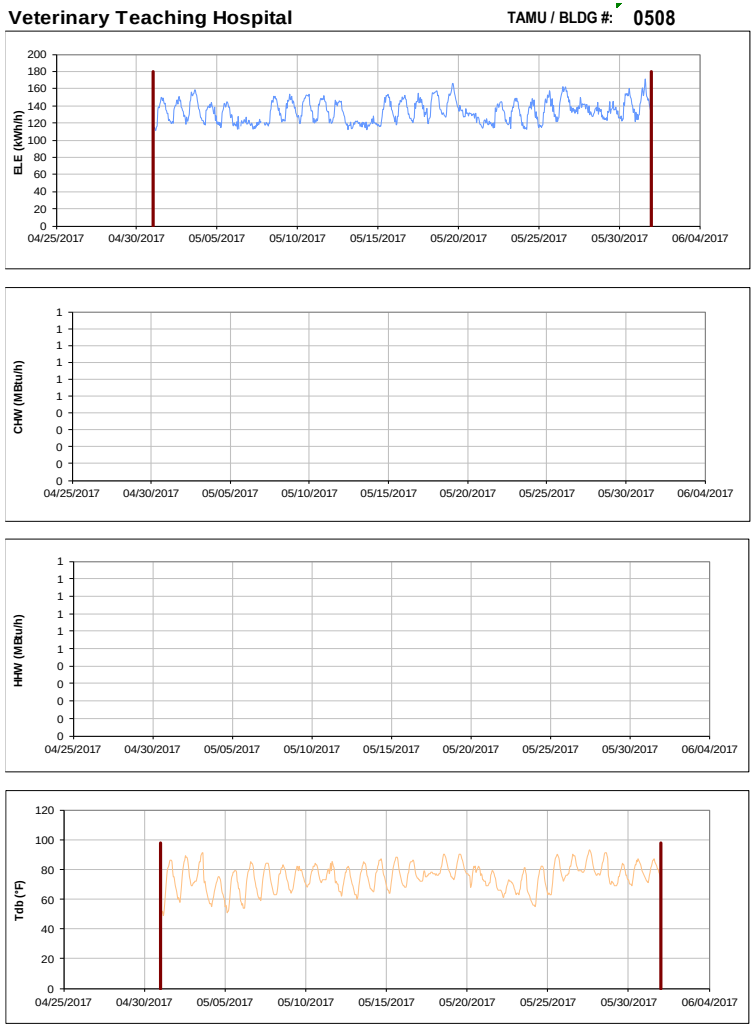


Figure III-110 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Teaching Hospital during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-111 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Administration during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-112 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Laboratory Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

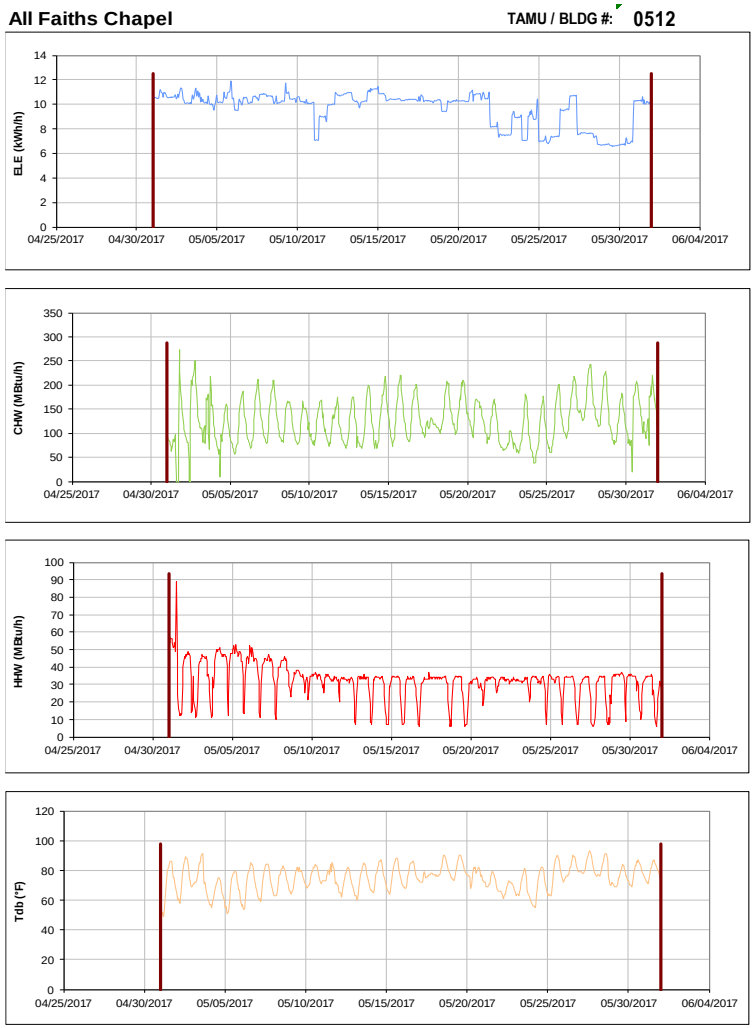


Figure III-113 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for All Faiths Chapel during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

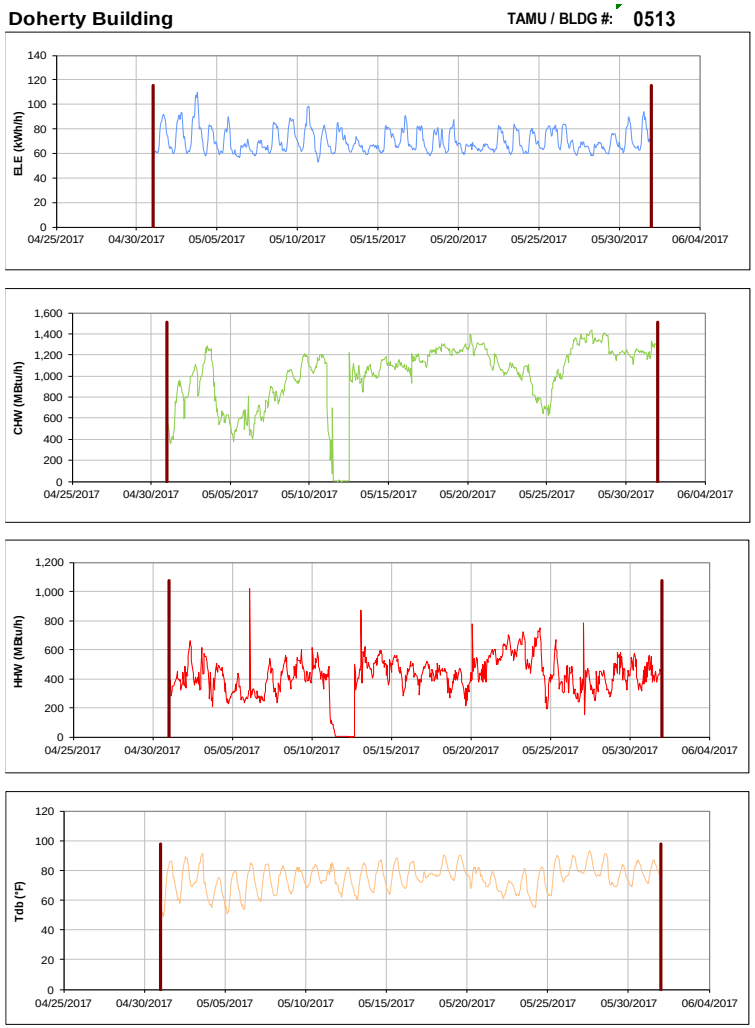


Figure III-114 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Doherty Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

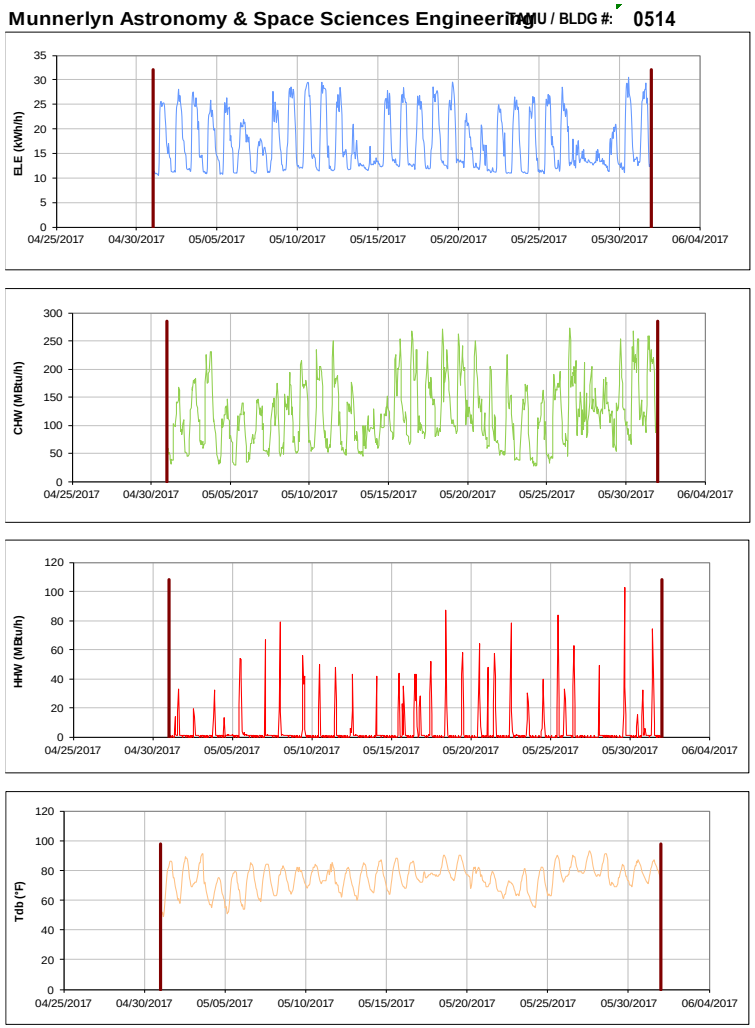


Figure III-115 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Munnerlyn Astronomy & Space Sciences Engineering during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

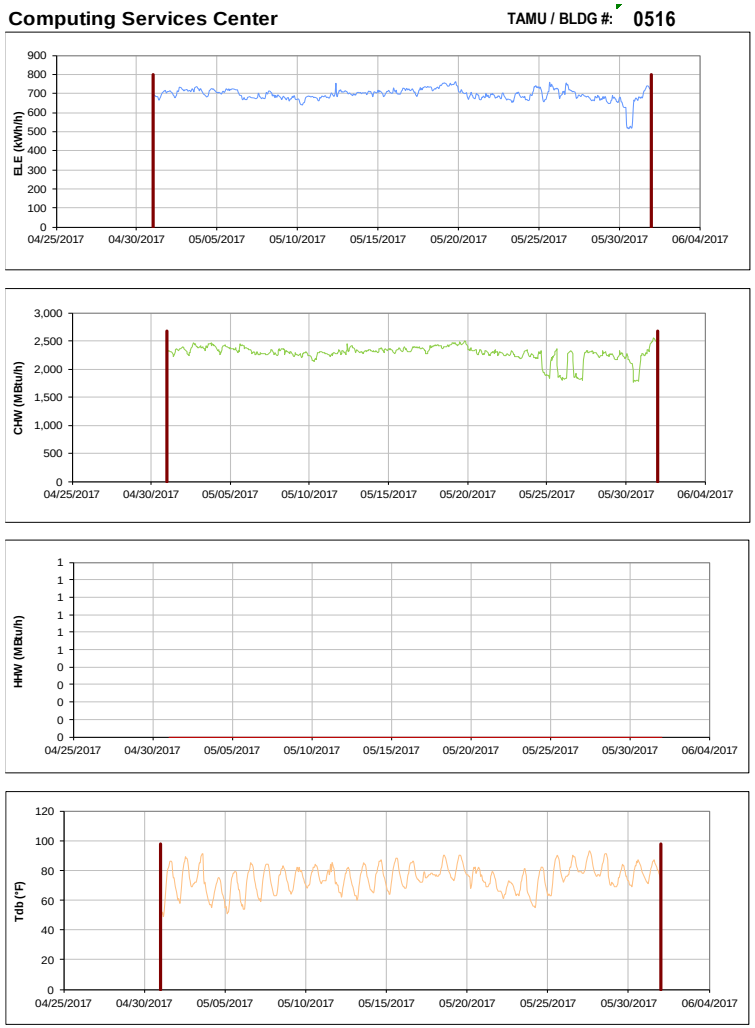


Figure III-116 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Computing Services Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

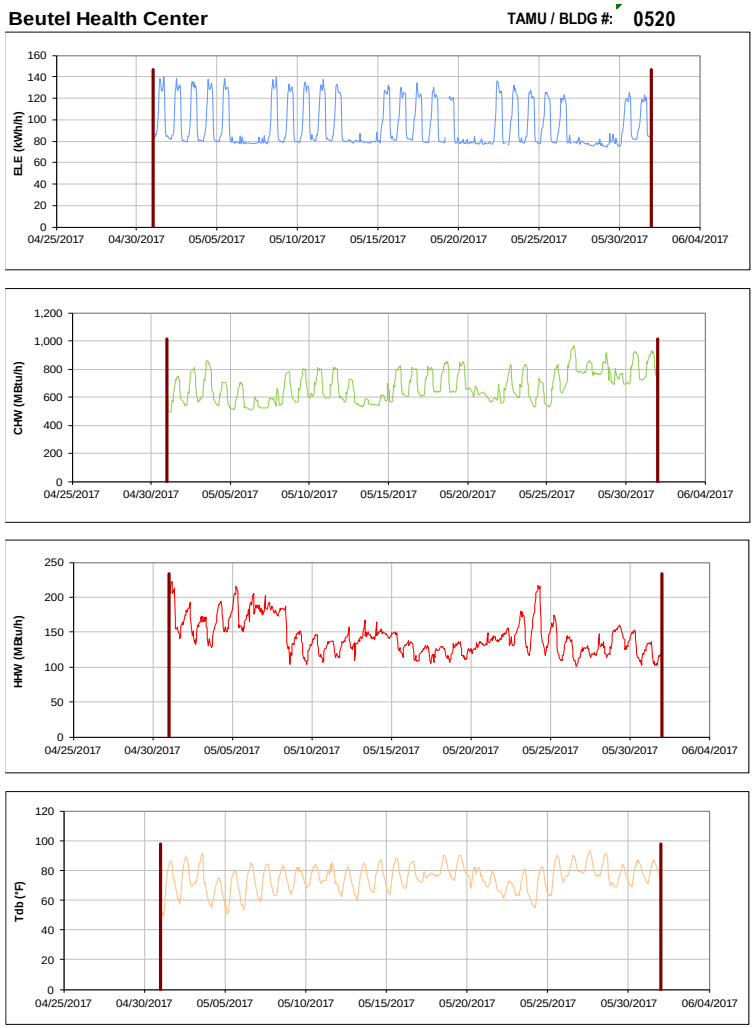


Figure III-117 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Beutel Health Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

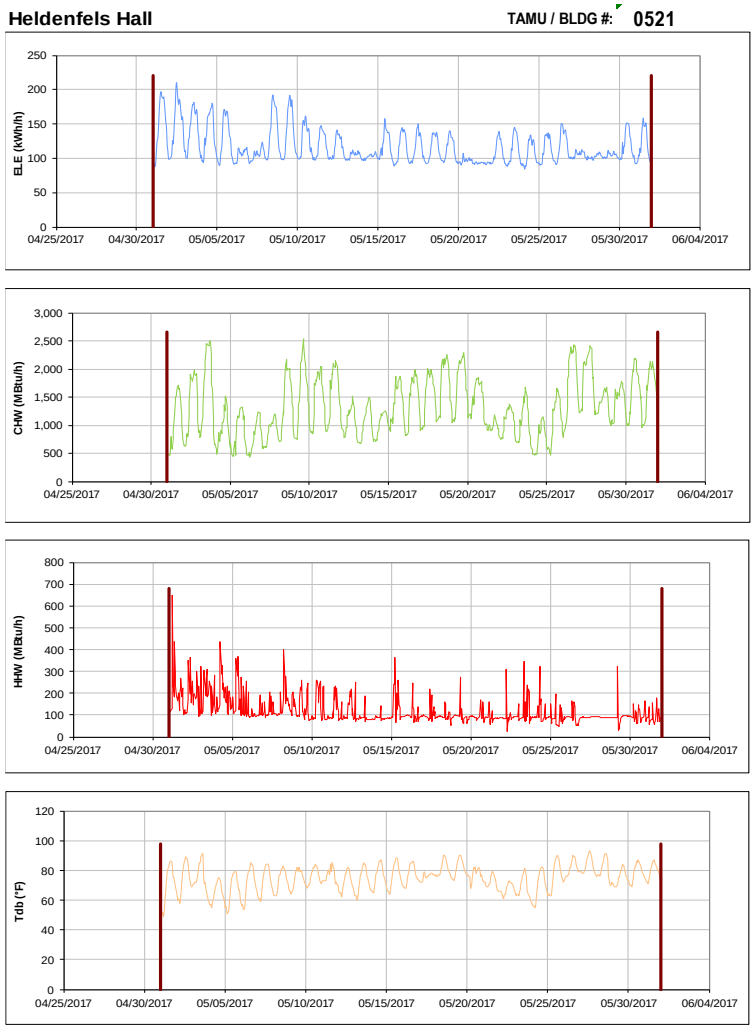


Figure III-118 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heldenfels Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

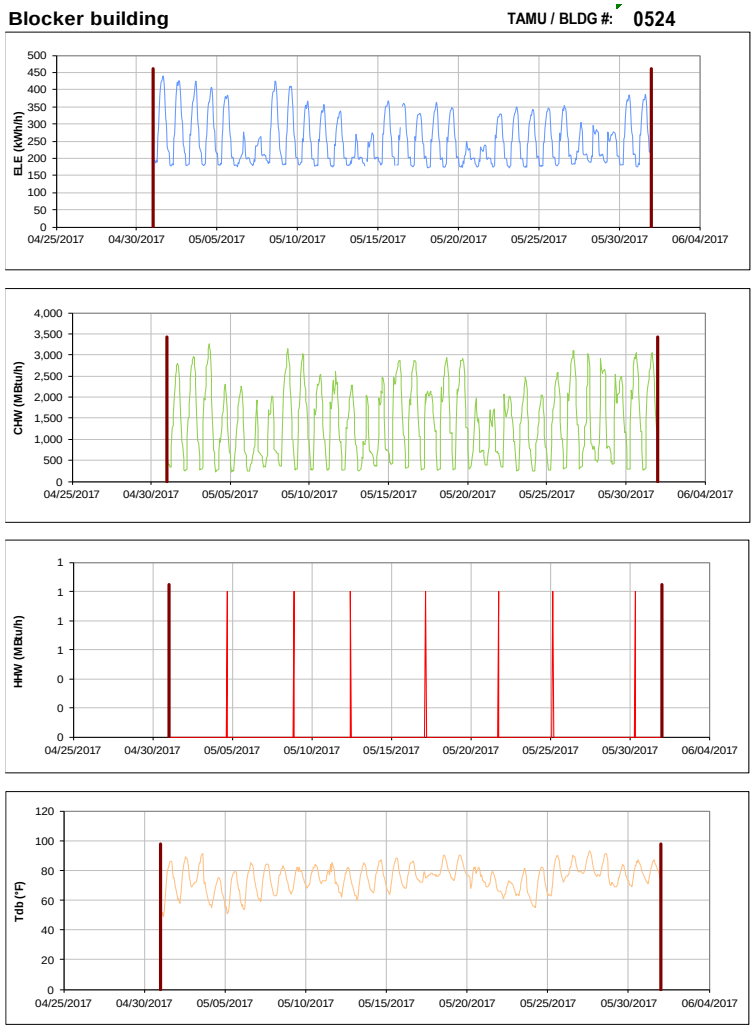


Figure III-119 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Blocker building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

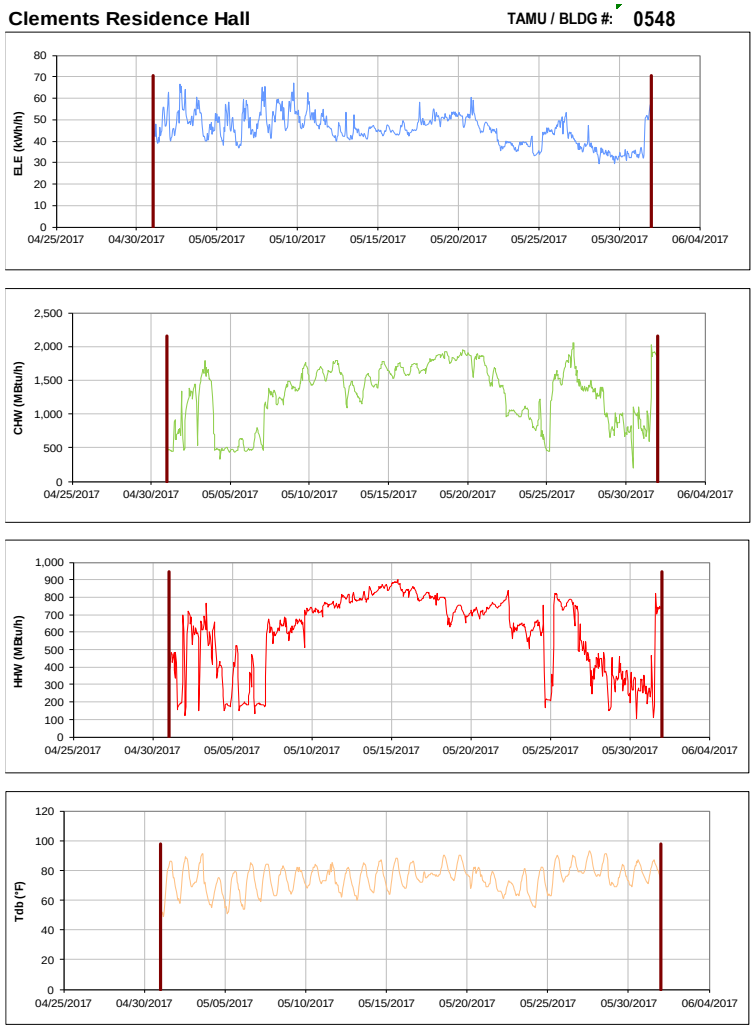


Figure III-120 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Clements Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

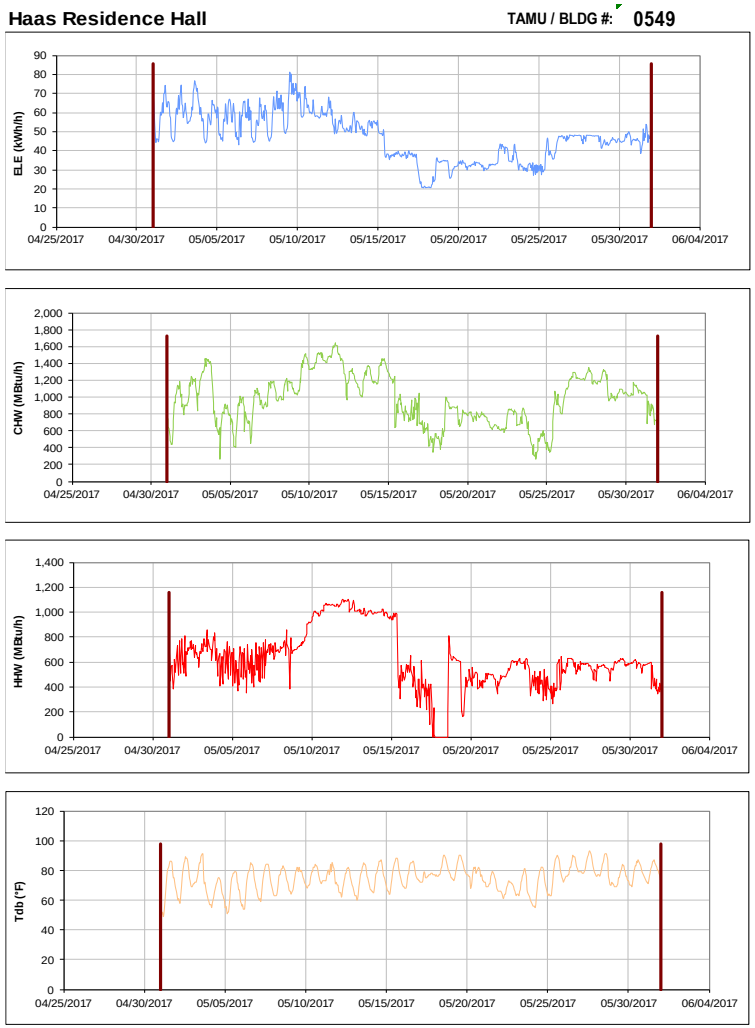


Figure III-121 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Haas Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

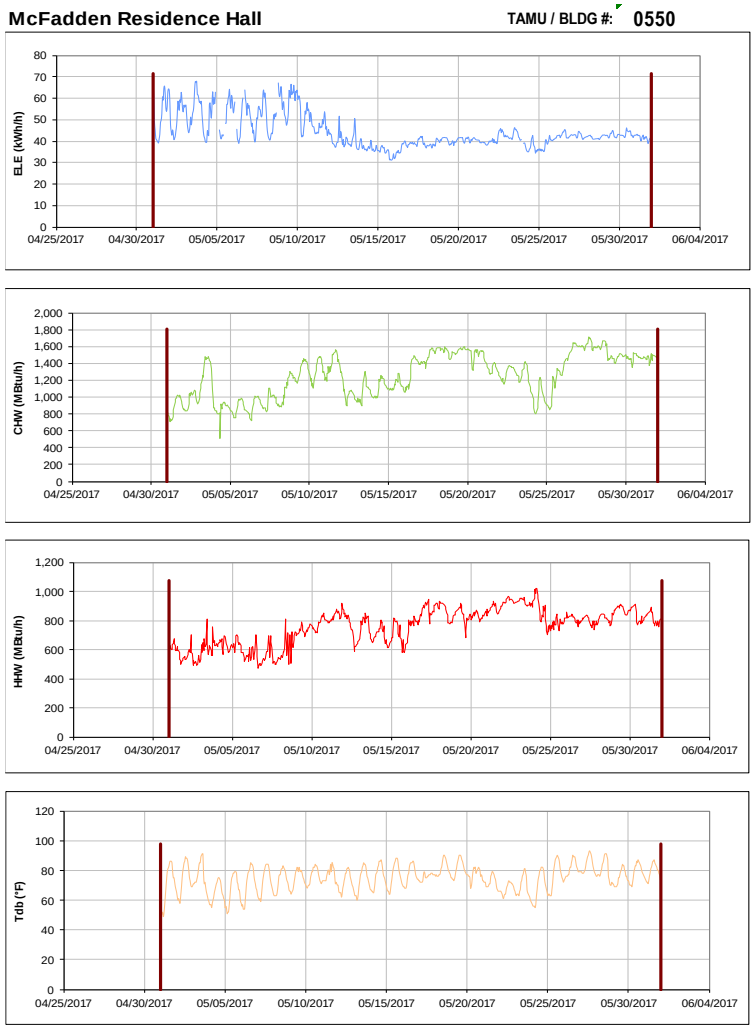


Figure III-122 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McFadden Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-123 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Neeley Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-124 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hobby Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-125 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wisenbaker Engineering Research Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-126 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McNew Laboratory during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

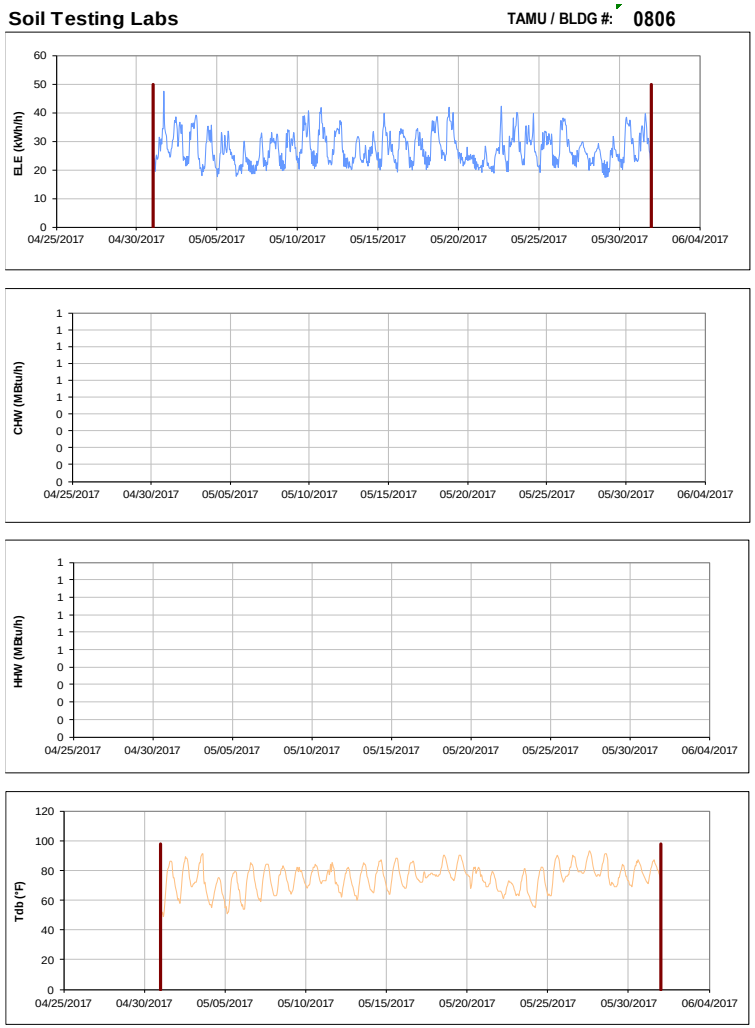


Figure III-127 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Soil Testing Labs during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

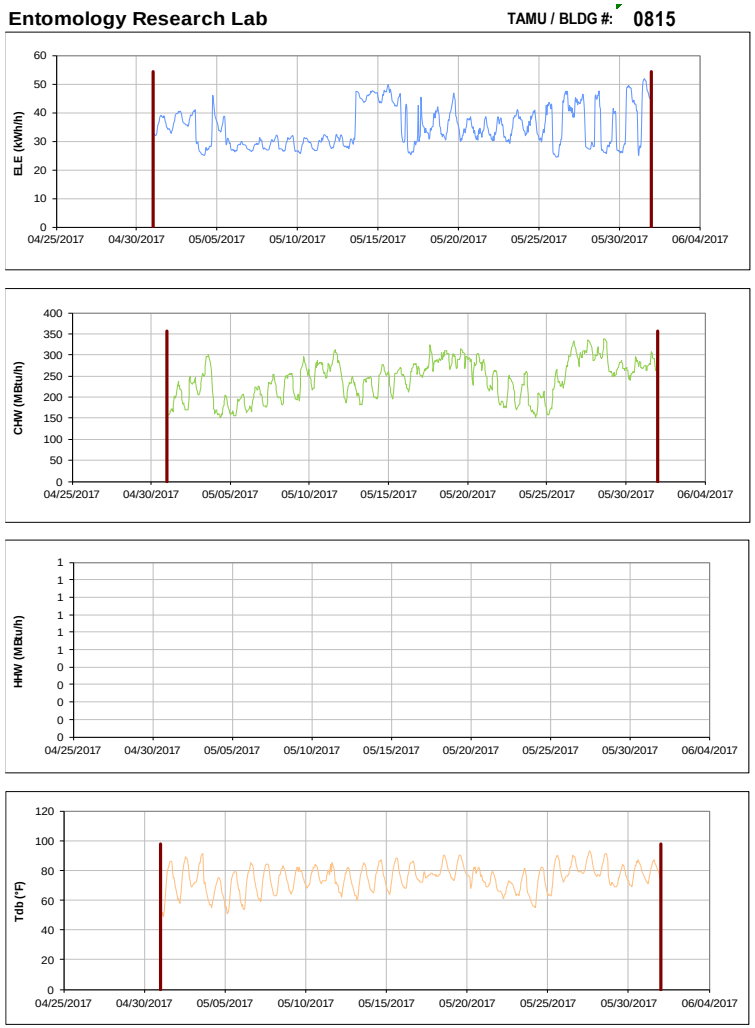


Figure III-128 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Entomology Research Lab during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

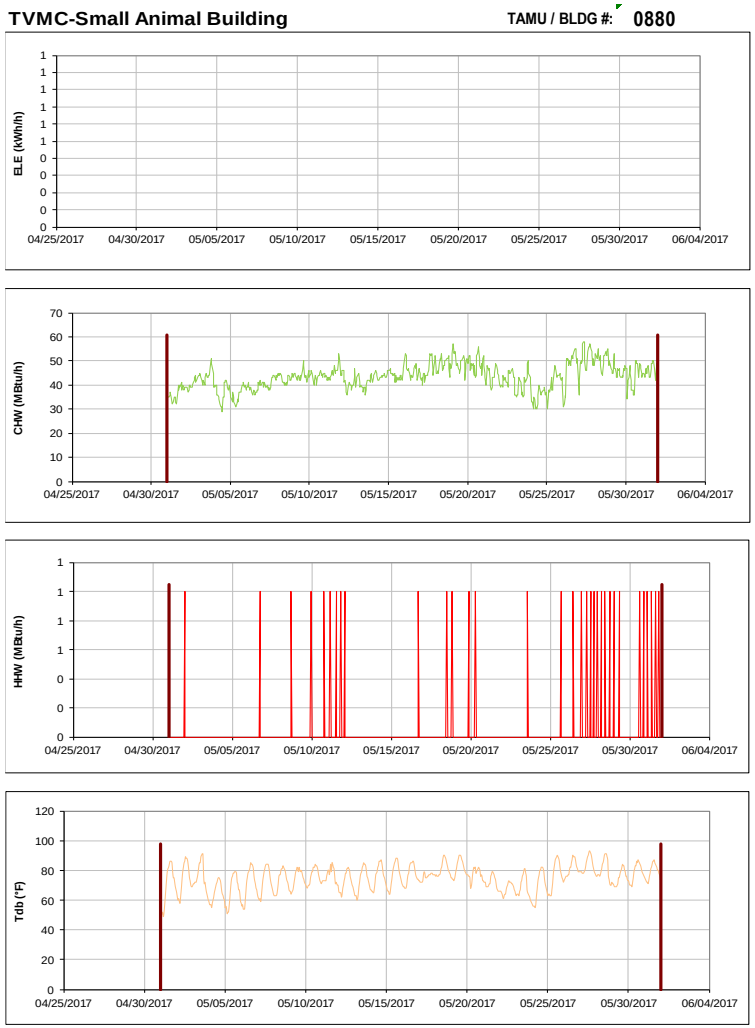


Figure III-129 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TVMC-Small Animal Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-130 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Laboratory Animal Care Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-131 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vivarium III during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

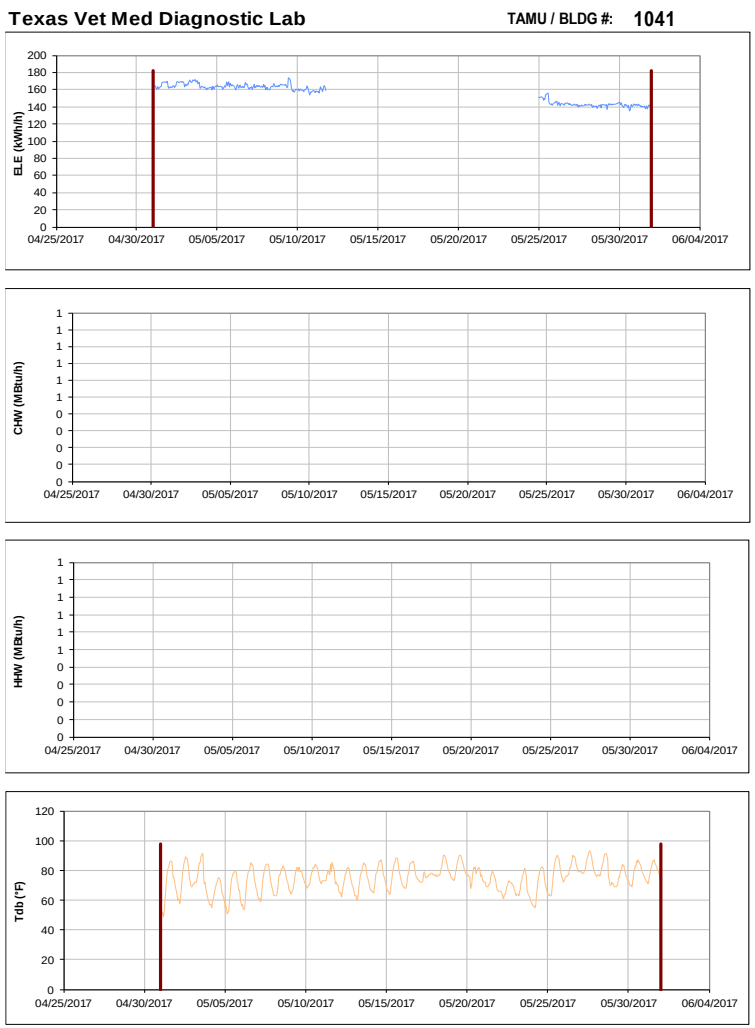


Figure III-132 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Vet Med Diagnostic Lab during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

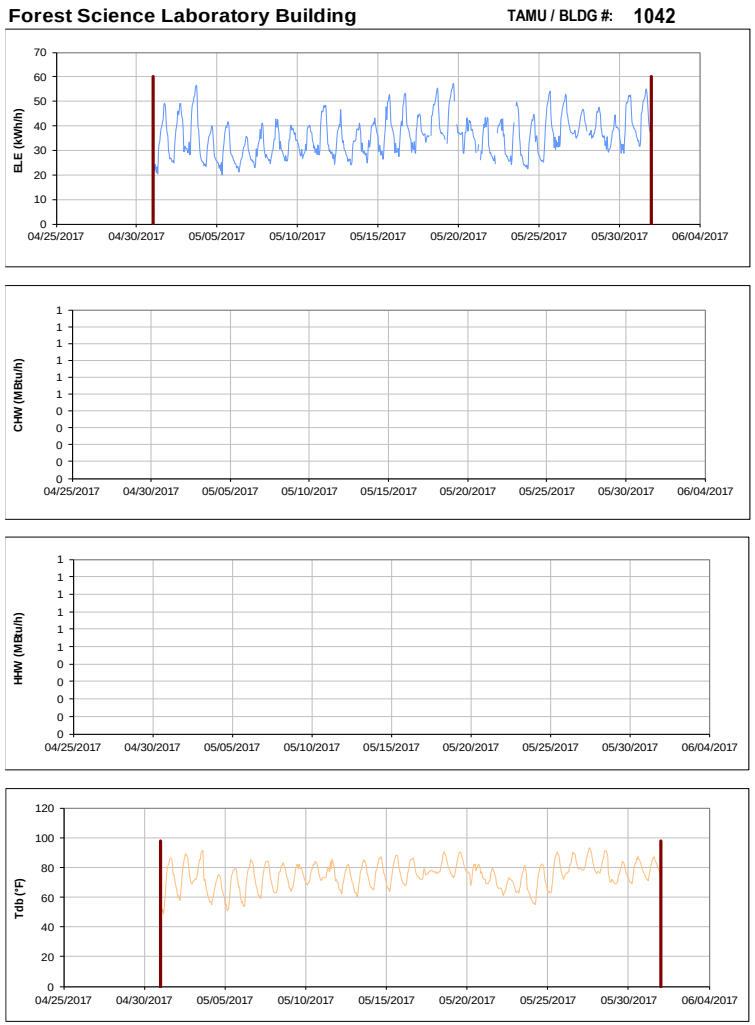


Figure III-133 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Forest Science Laboratory Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-134 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Small Animal Hospital during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

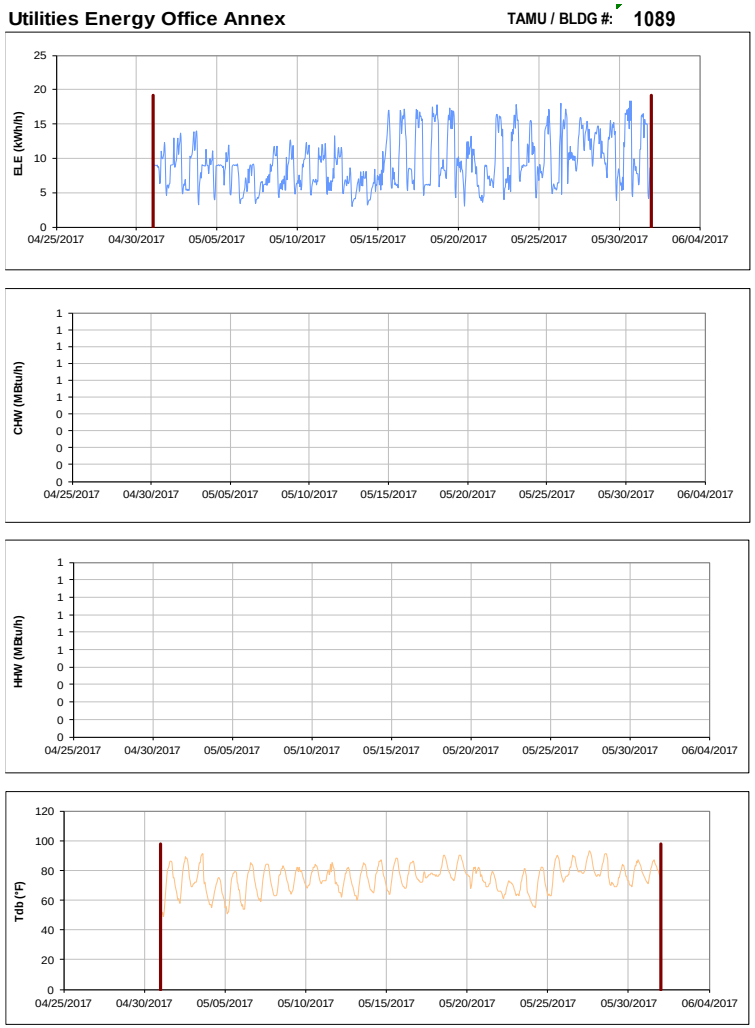


Figure III-135 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities Energy Office Annex during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

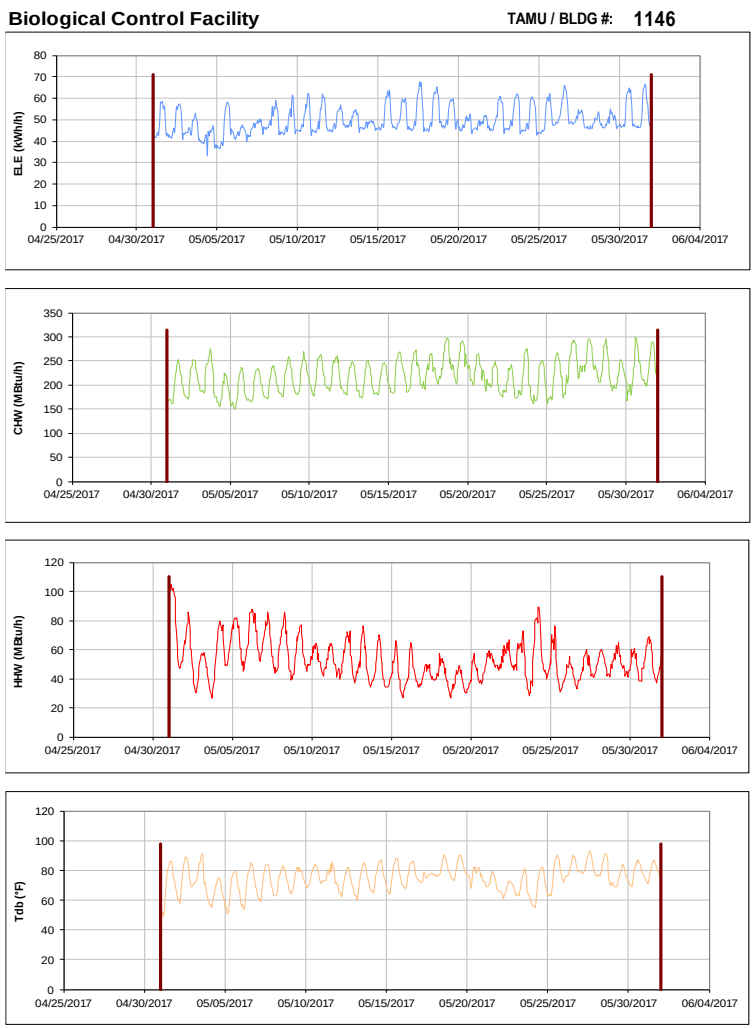


Figure III-136 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Control Facility during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

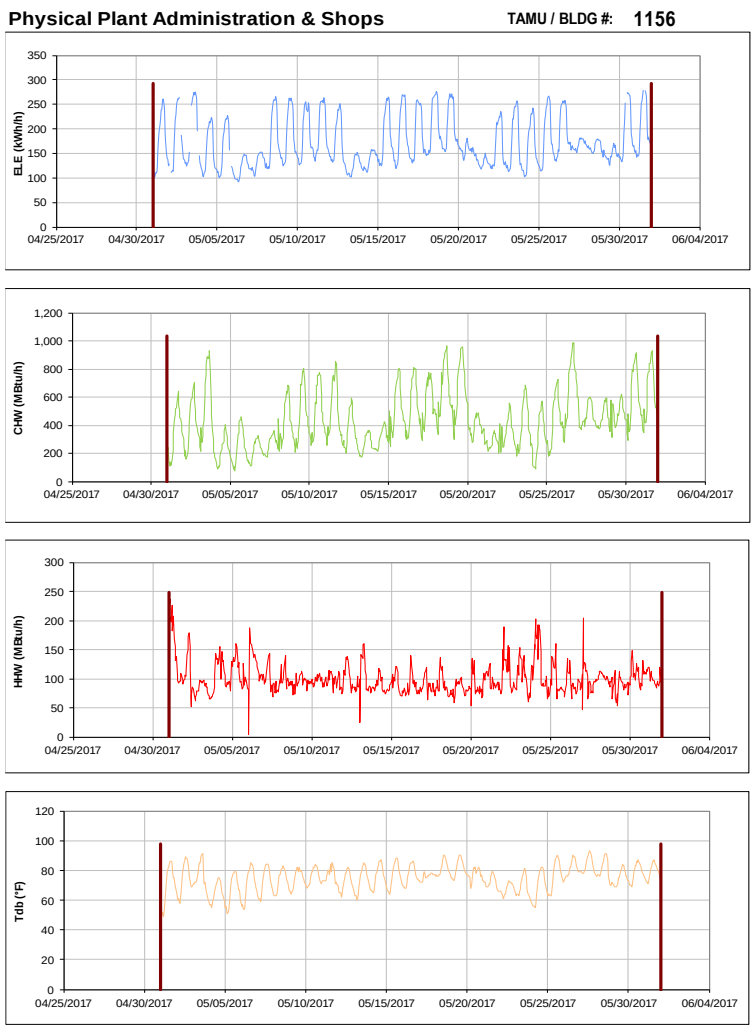


Figure III-137 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Plant Administration & Shops during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-138 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Anatomic Pathology during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

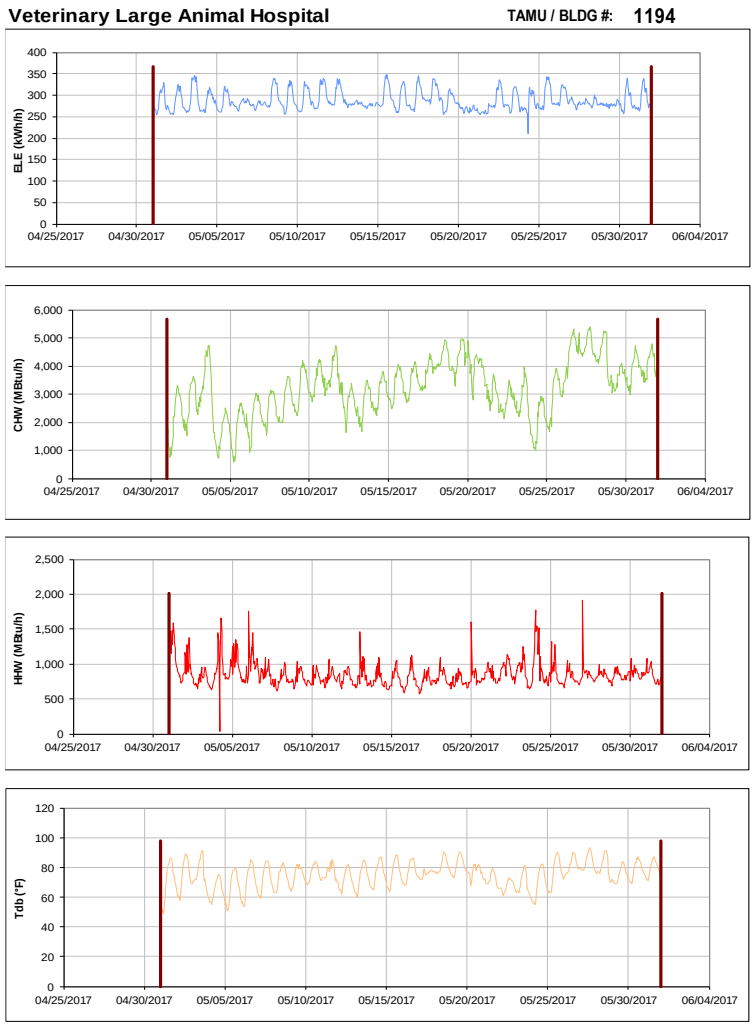


Figure III-139 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Large Animal Hospital during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-140 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Research Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

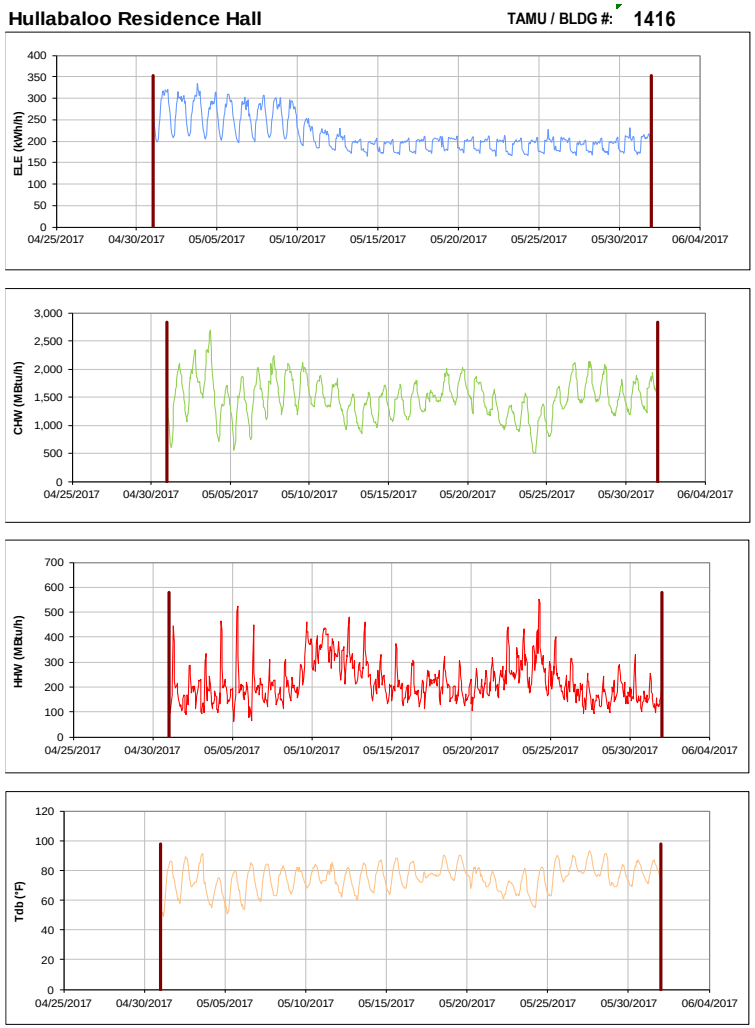


Figure III-141 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hullabaloo Residence Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

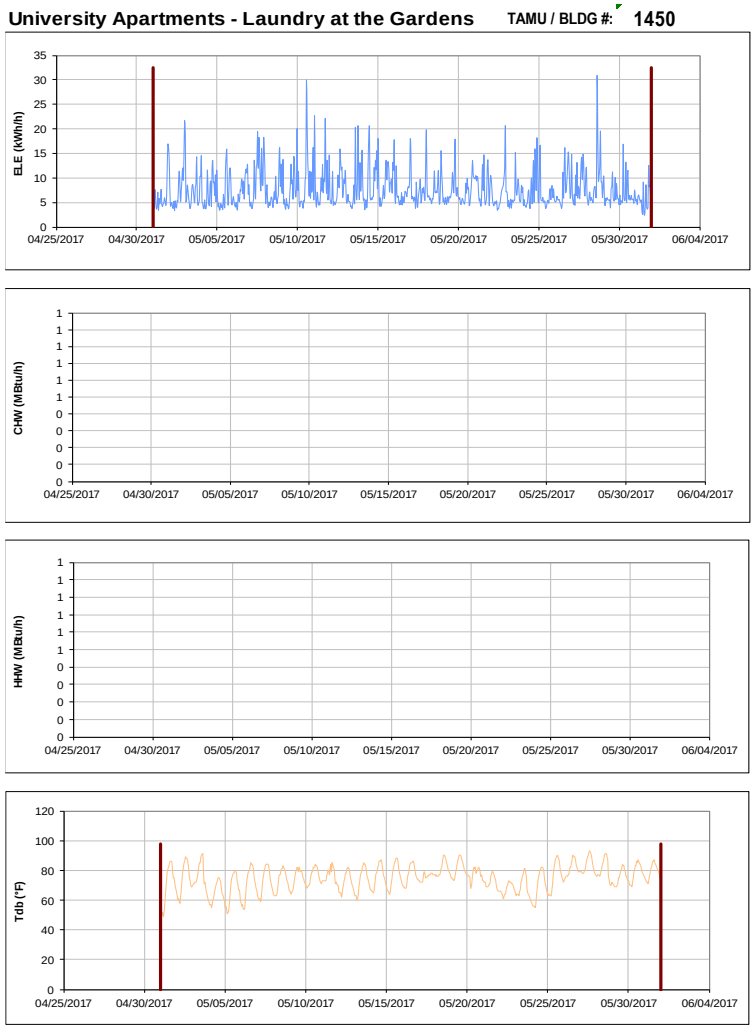


Figure III-142 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - Laundry at the Gardens during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

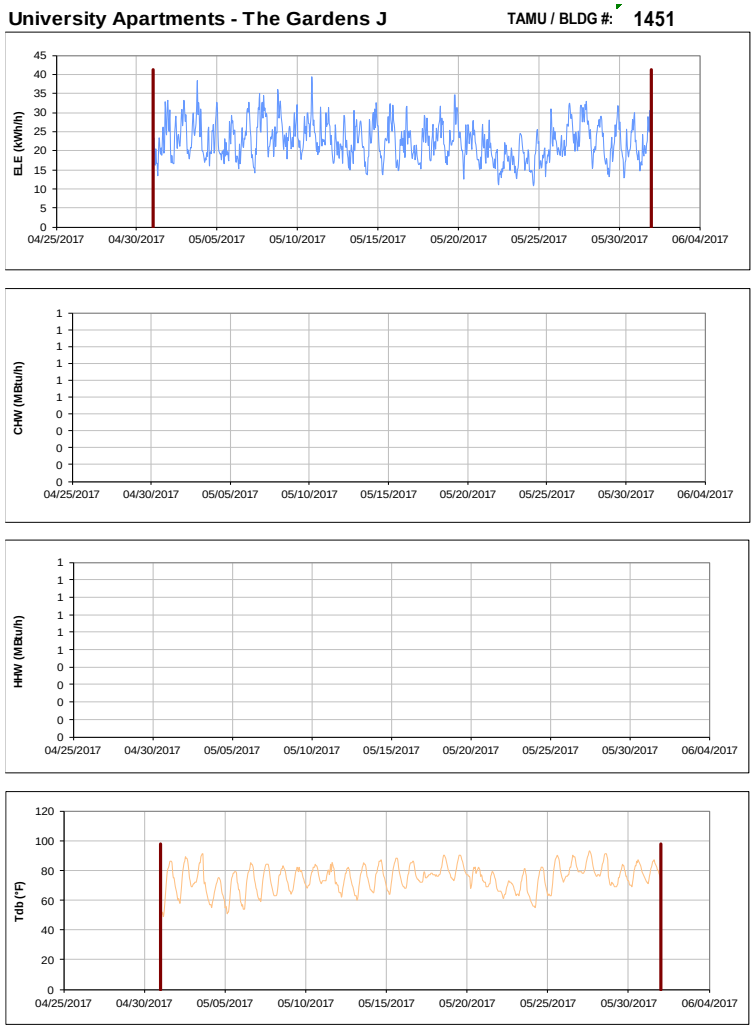


Figure III-143 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens J during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

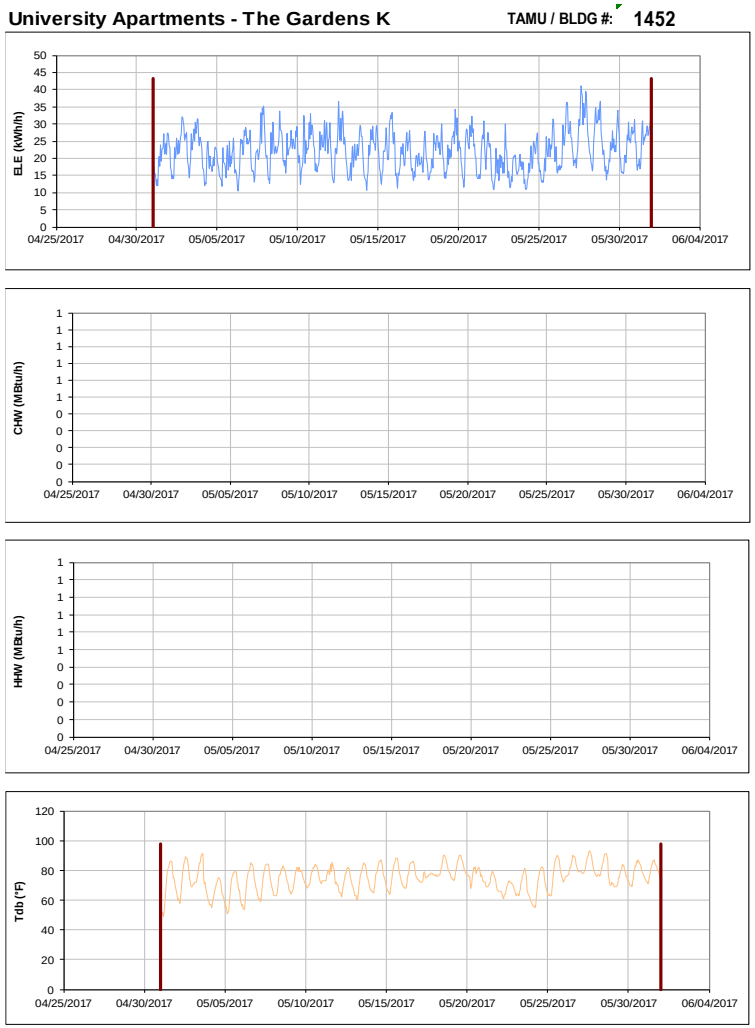


Figure III-144 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens K during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

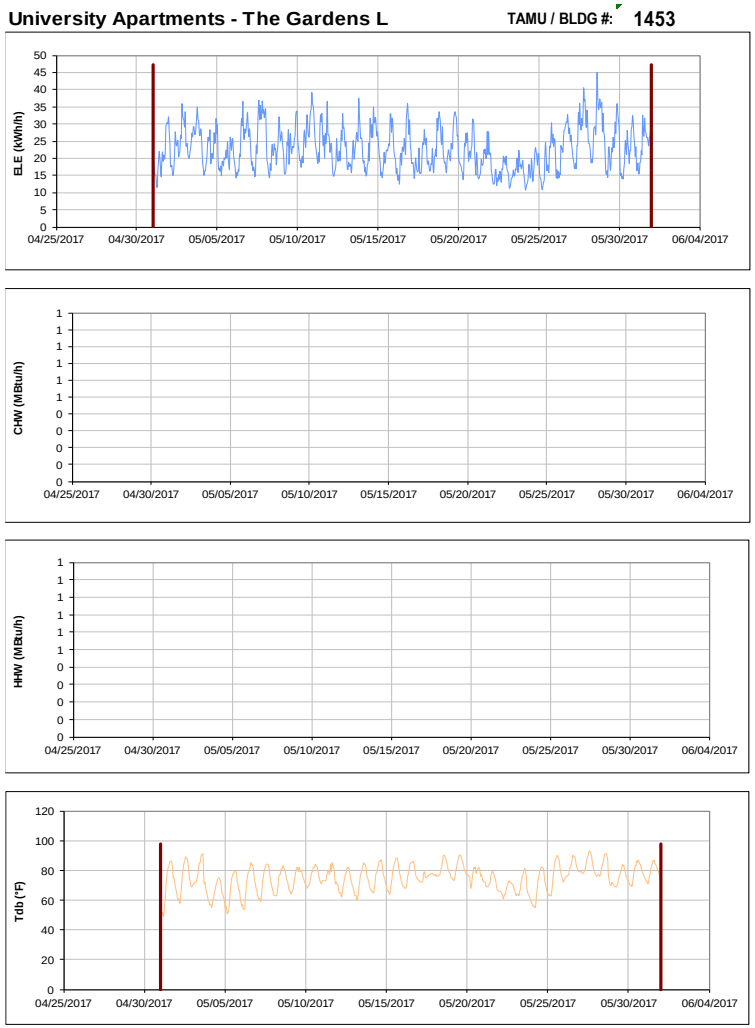


Figure III-145 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens L during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

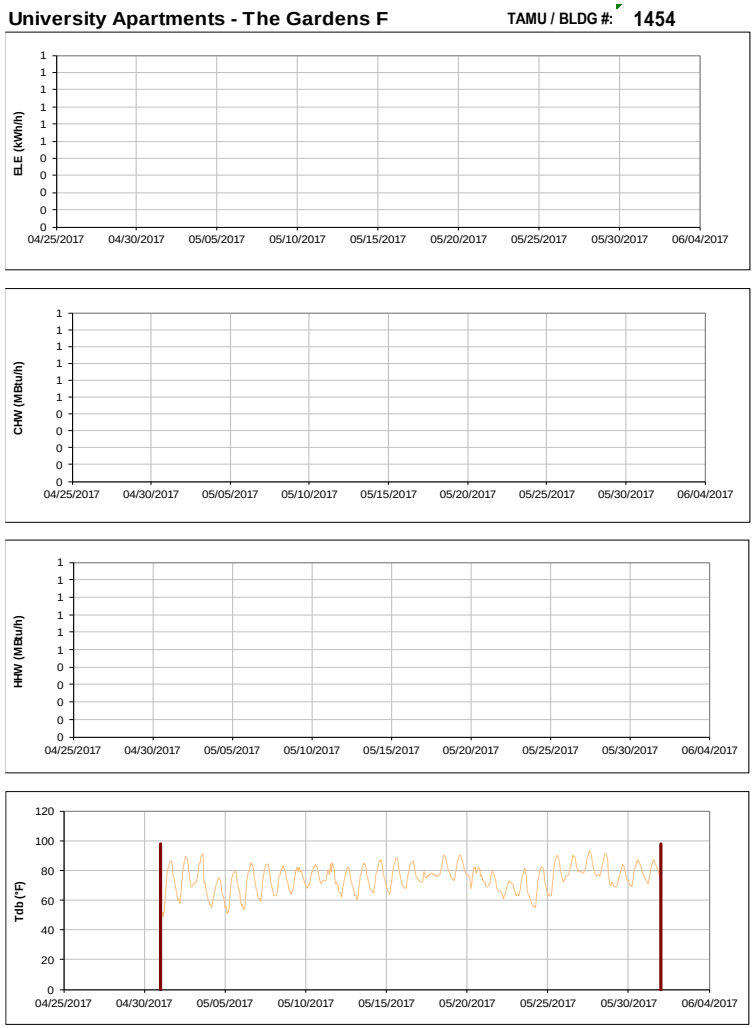


Figure III-146 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens F during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

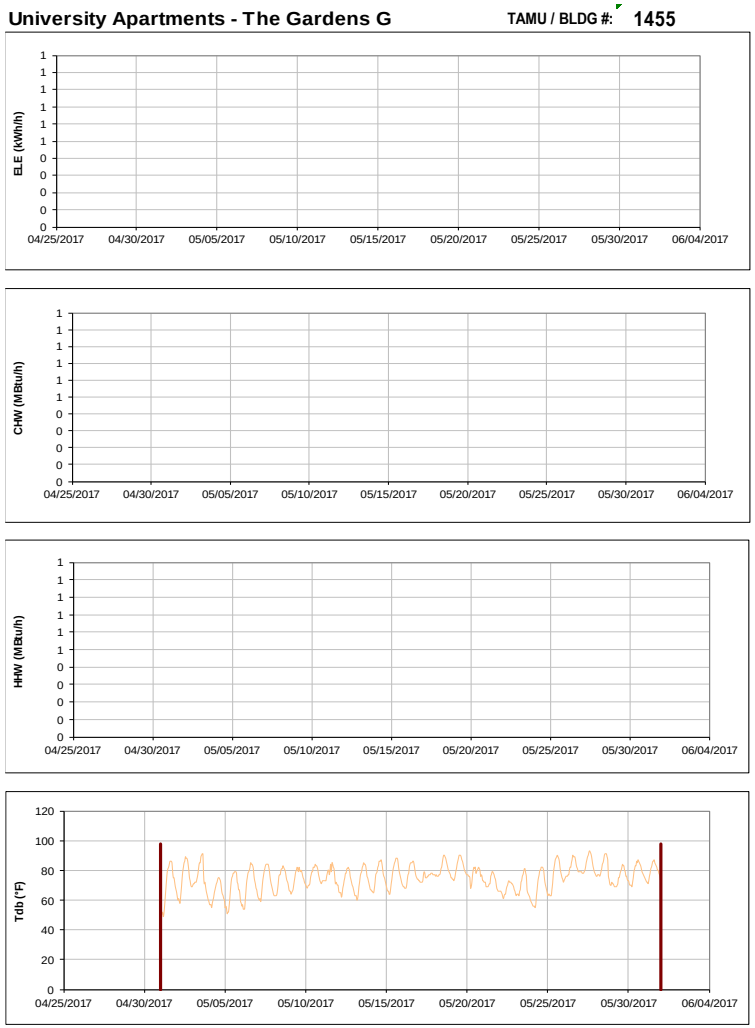


Figure III-147 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens G during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

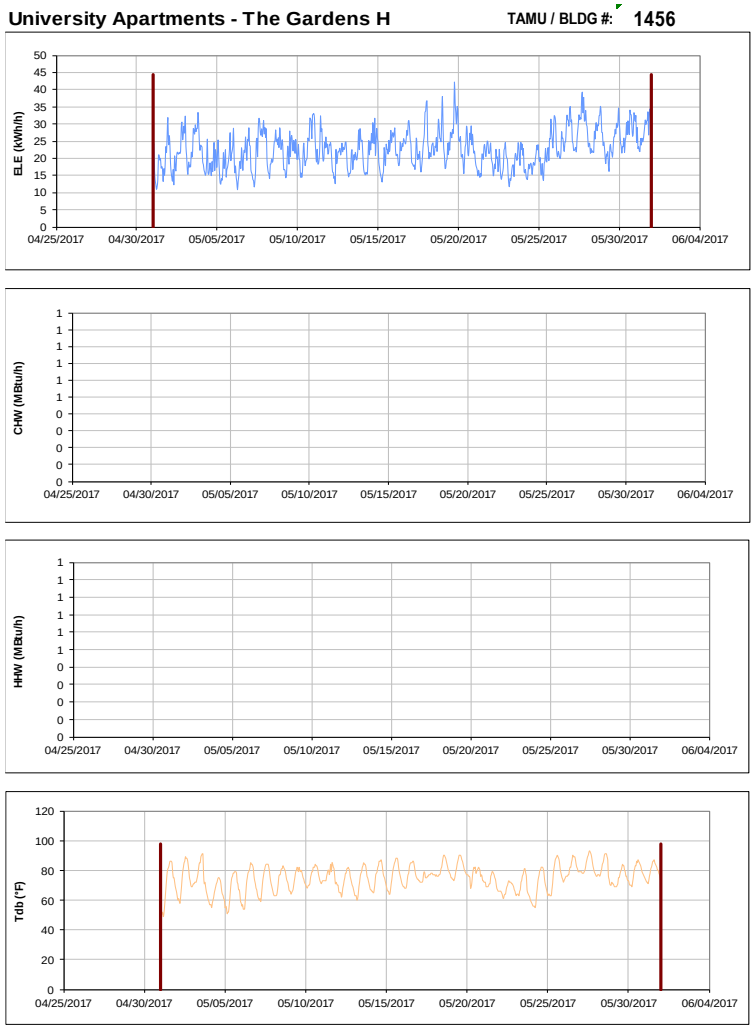


Figure III-148 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens H during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

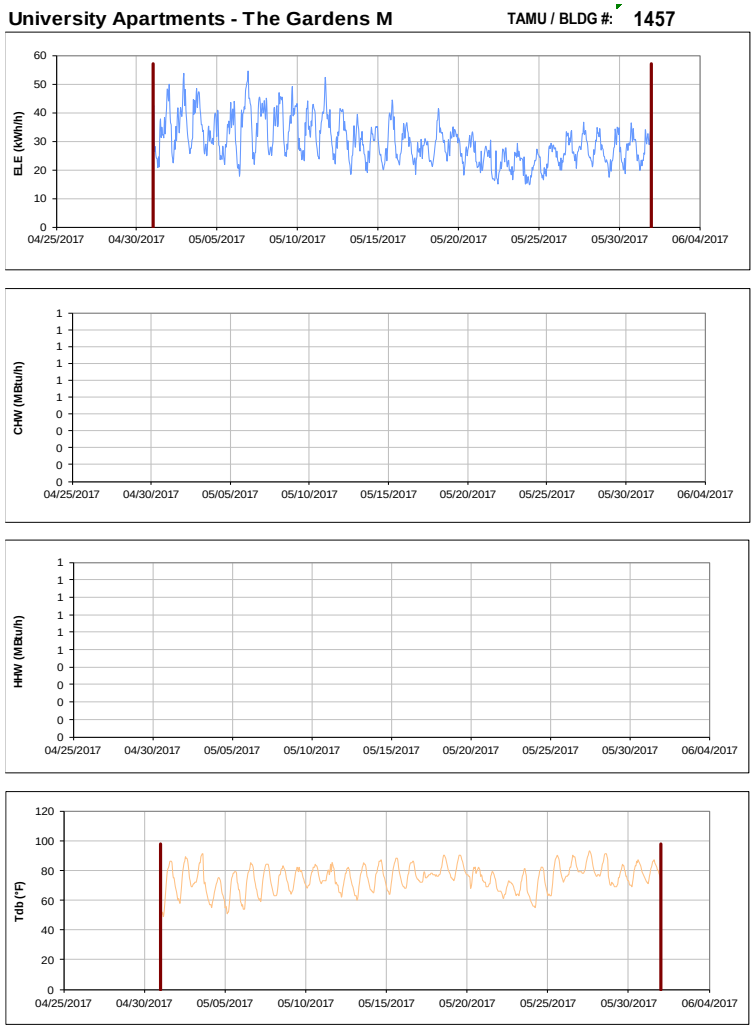


Figure III-149 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens M during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

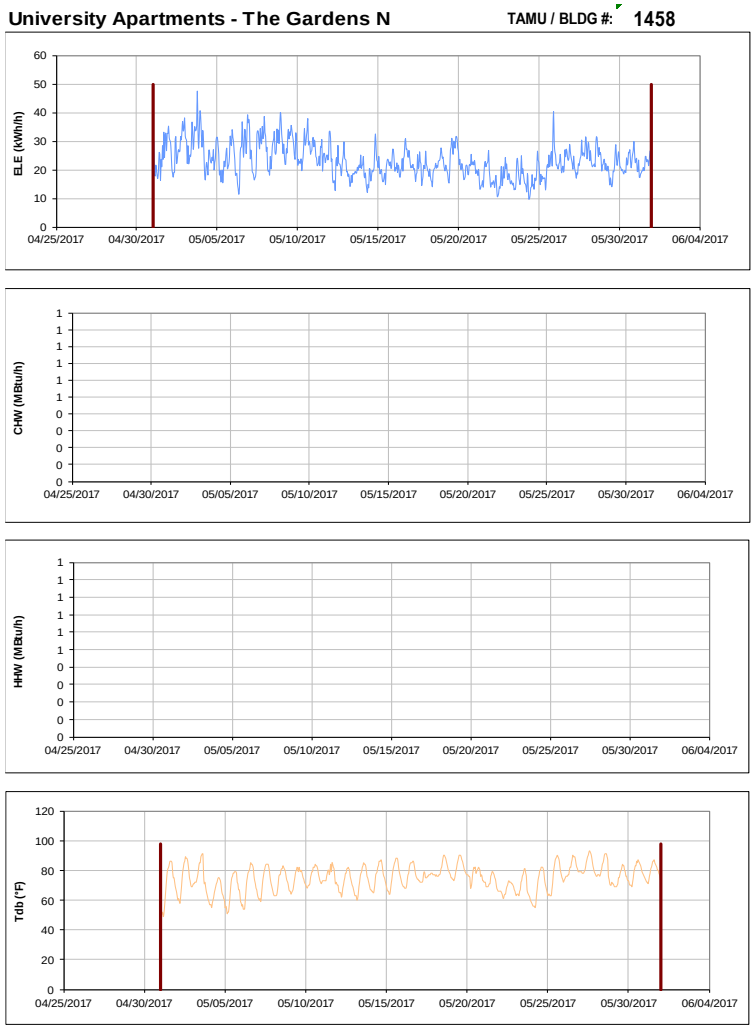


Figure III-150 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens N during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

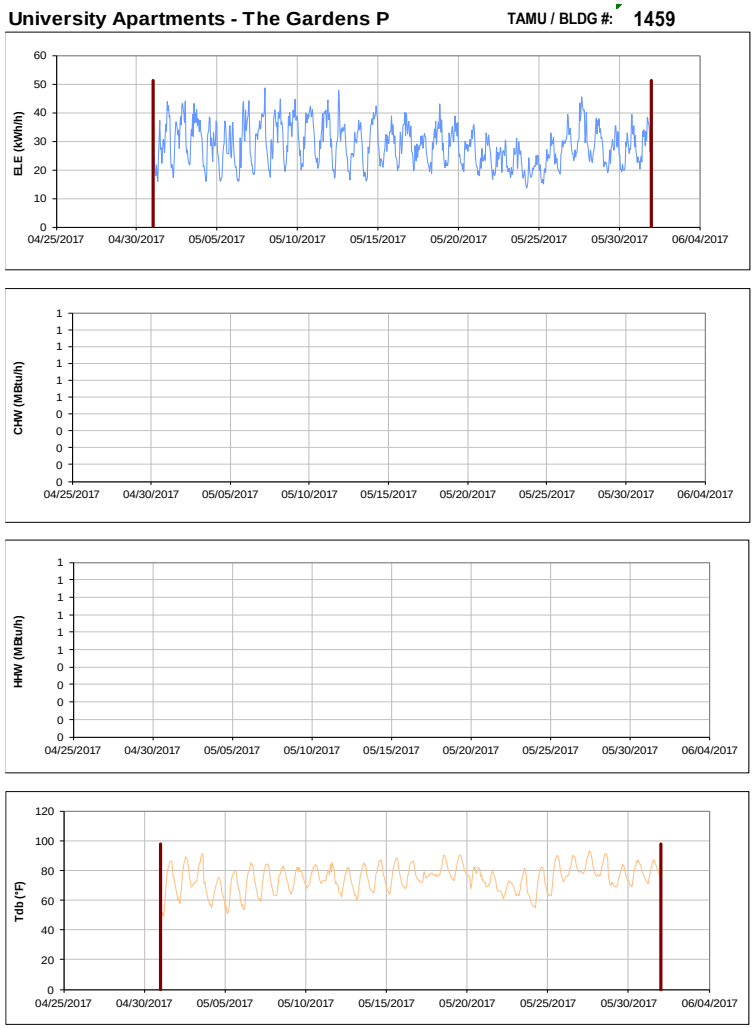


Figure III-151 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens P during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

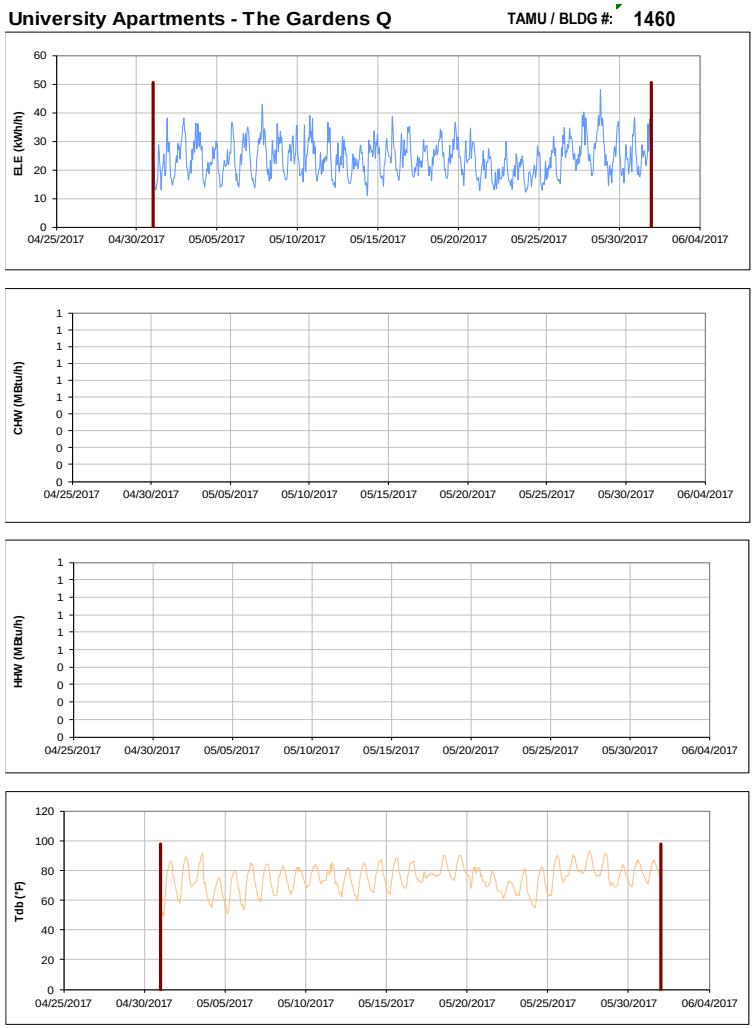


Figure III-152 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens Q during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-153 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Business Office during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-154 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kleberg Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-155 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

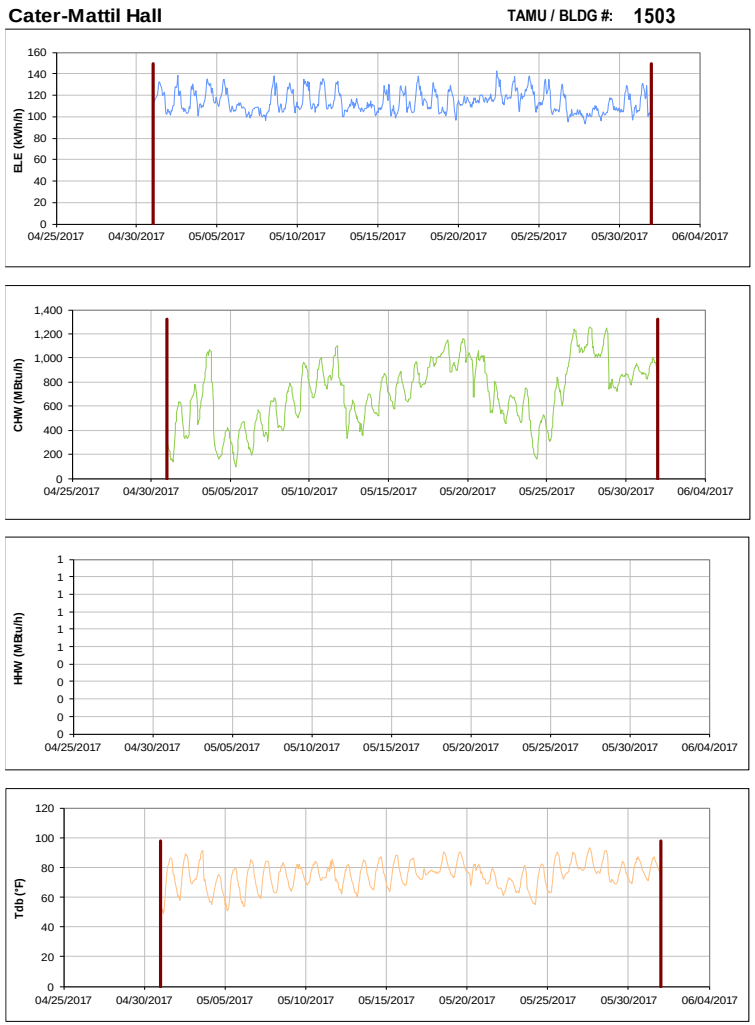


Figure III-156 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cater-Mattil Hall during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-157 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reynolds Medical Sciences Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-158 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rosenthal Meat Science & Technology Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-159 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Horticulture-Forest Science Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-160 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biochemistry-Biophysics Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

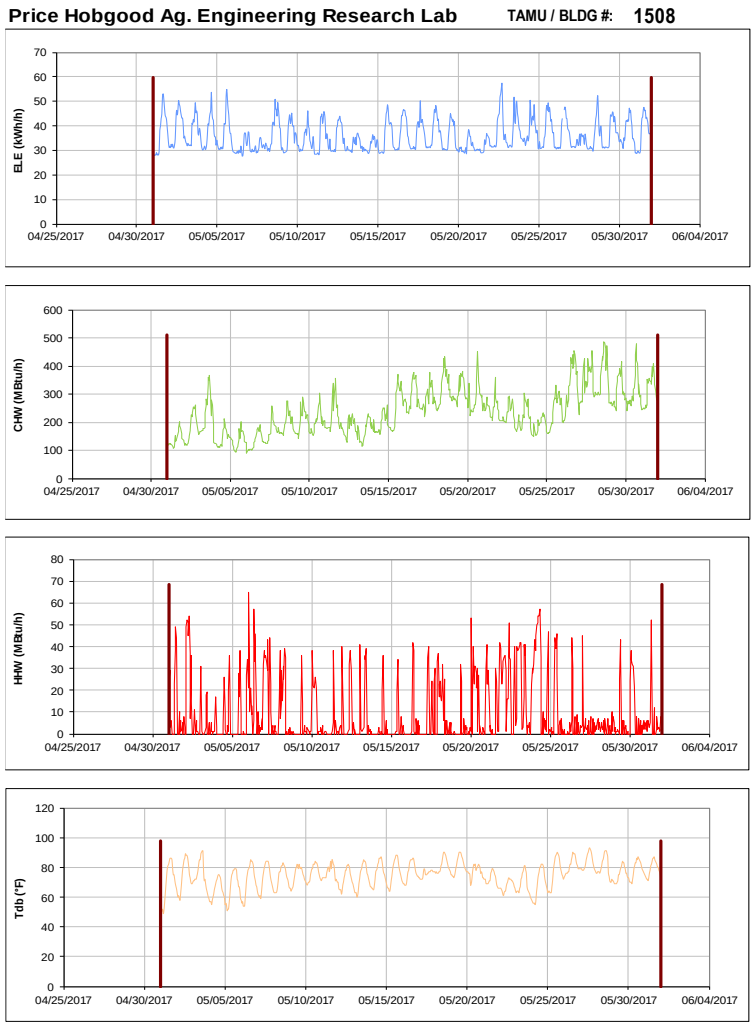


Figure III-161 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Price Hobgood Ag. Engineering Research Lab during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-162 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Medical Sciences Library during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-163 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wehner Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-164 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Library Facility during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

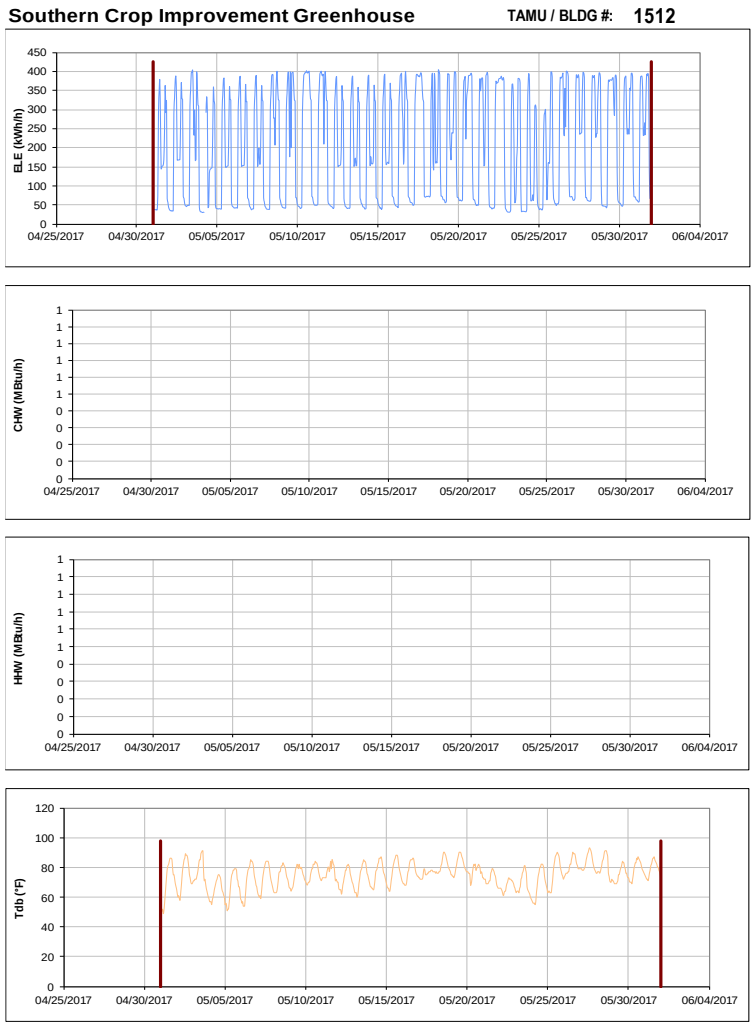


Figure III-165 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Southern Crop Improvement Greenhouse during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-166 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Borlaug Center for Southern Crop Improvement during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-167 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TX School of Rural Public Health during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-168 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nuclear Magnetic Resonance Facility during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-169 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Interdisciplinary Life Sciences Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

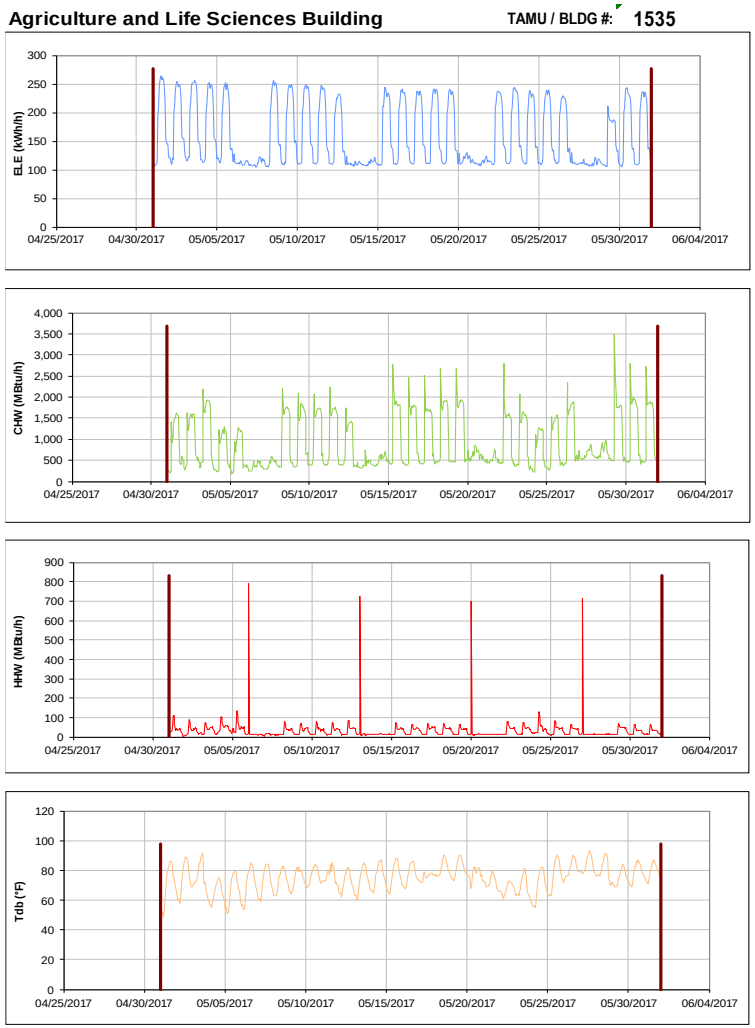


Figure III-170 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture and Life Sciences Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-171 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for AgriLife Services Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

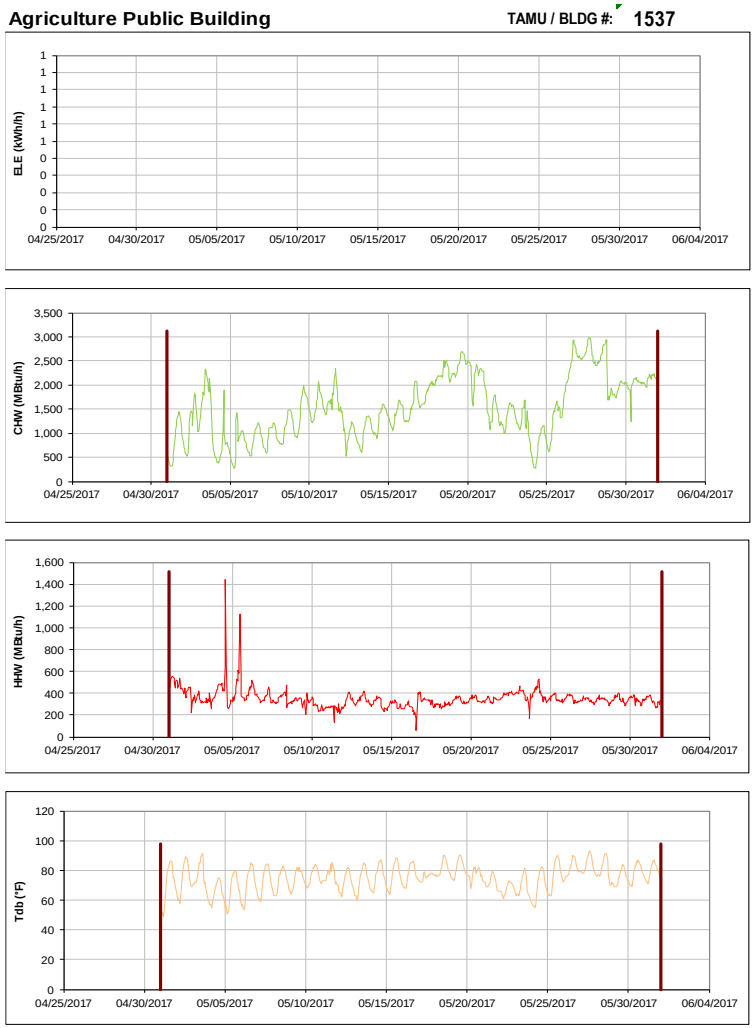


Figure III-172 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture Public Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-173 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture Program Visitors Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

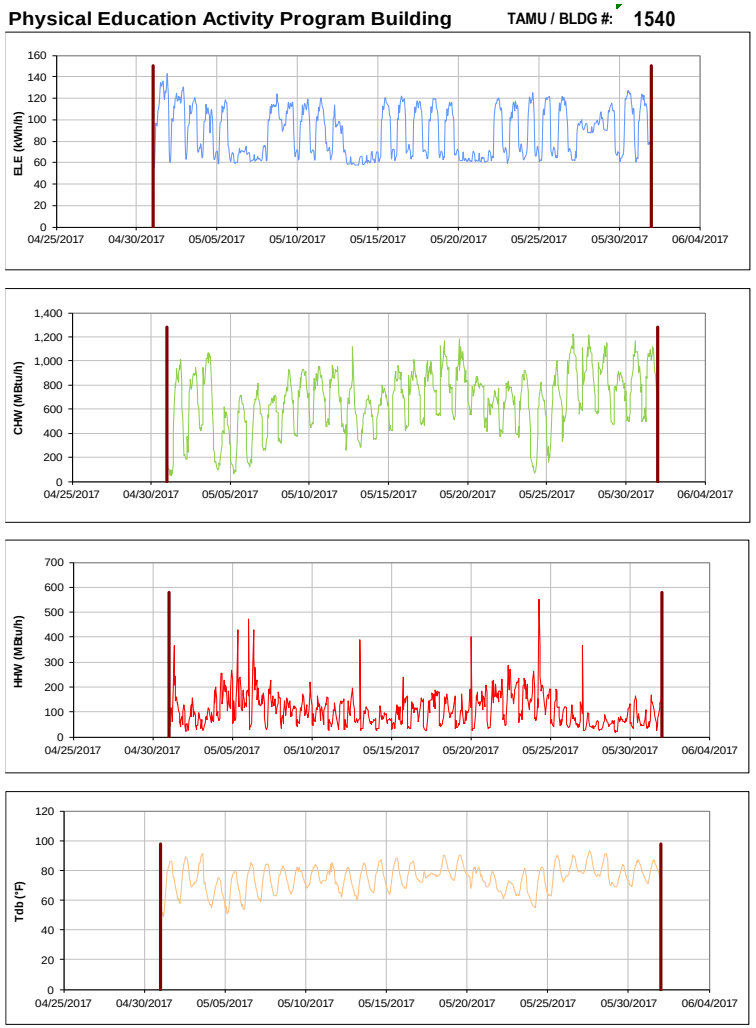


Figure III-174 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Education Activity Program Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-175 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Human Clinical Research Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

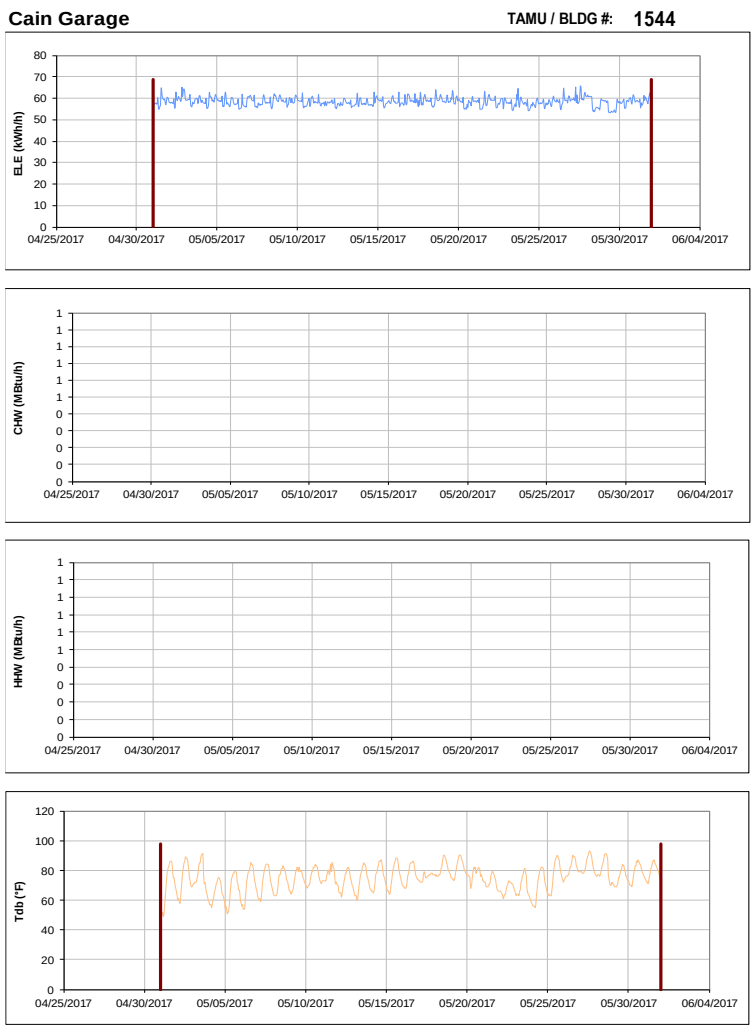


Figure III-176 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cain Garage during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

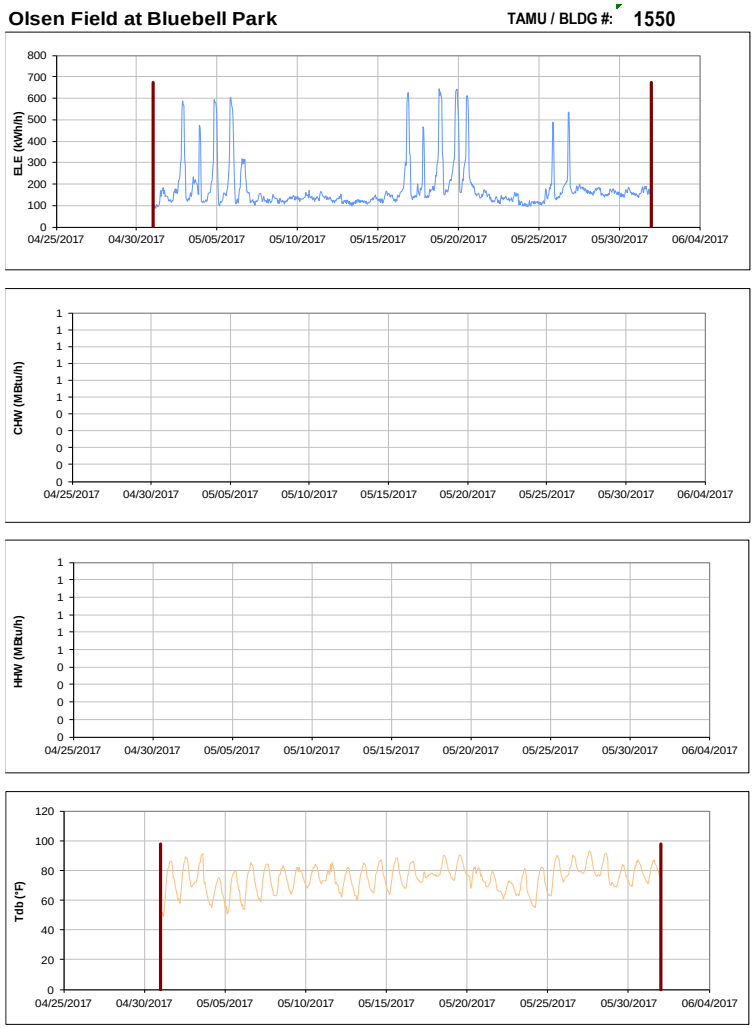


Figure III-177 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Olsen Field at Bluebell Park during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

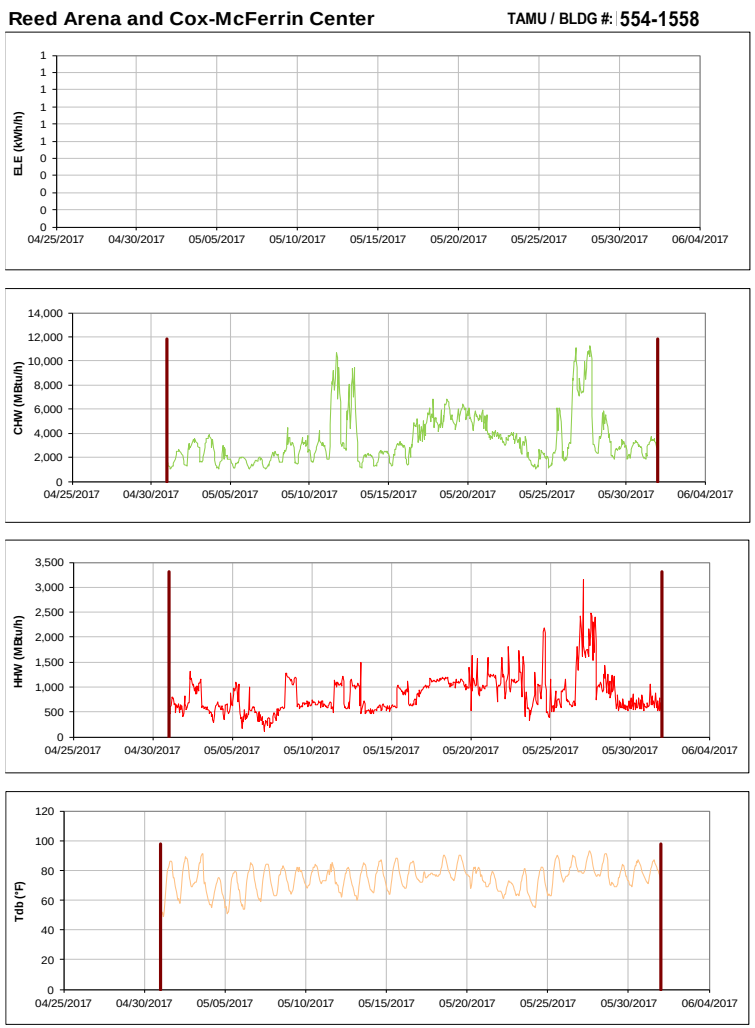


Figure III-178 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed Arena and Cox-McFerrin Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-179 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cox-McFerrin Center for Aggie Basketball during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-180 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Parking Garage during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-181 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Student Recreation Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

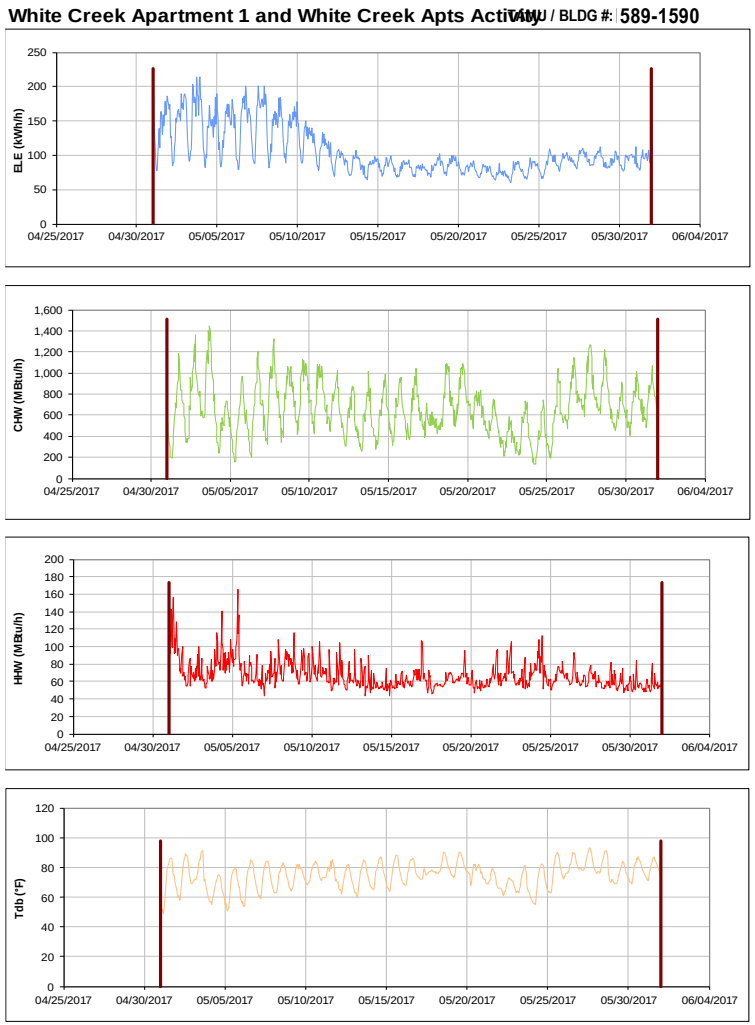


Figure III-182 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 1 and White Creek Apts Activity Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

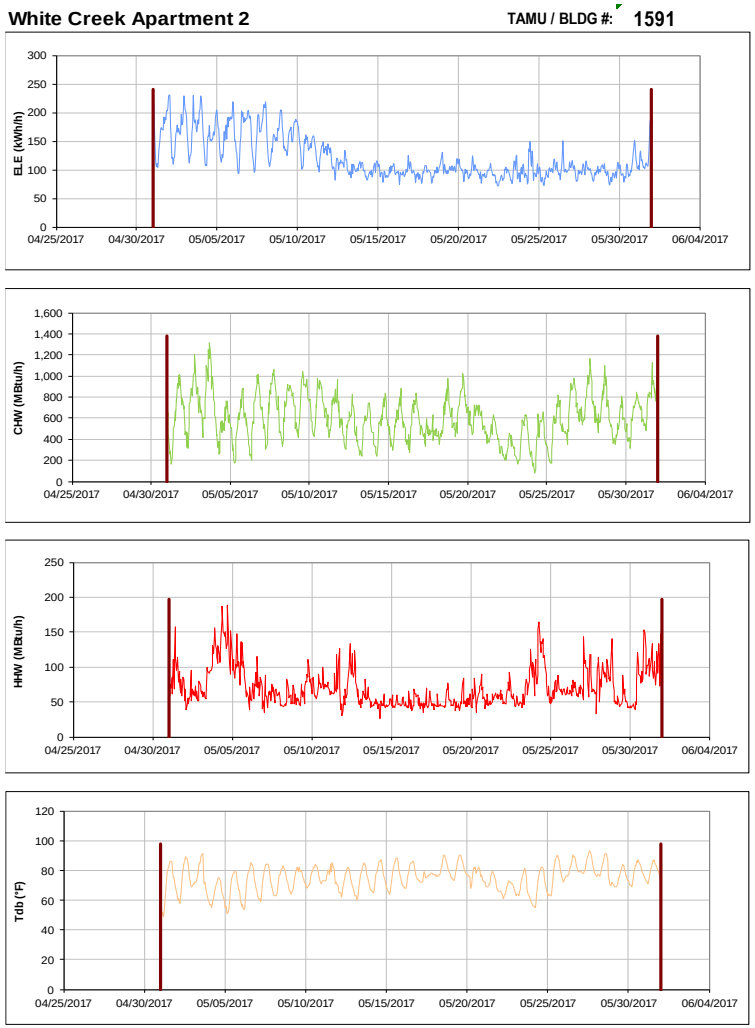


Figure III-183 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 2 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

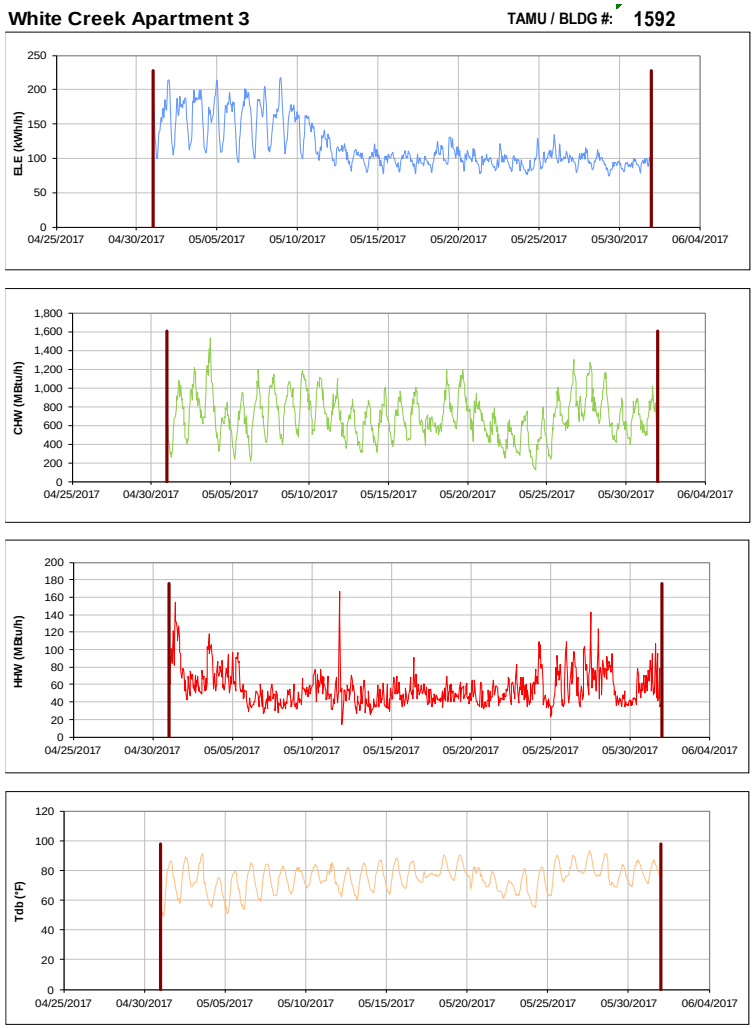


Figure III-184 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 3 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-185 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gilchrist TTI Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

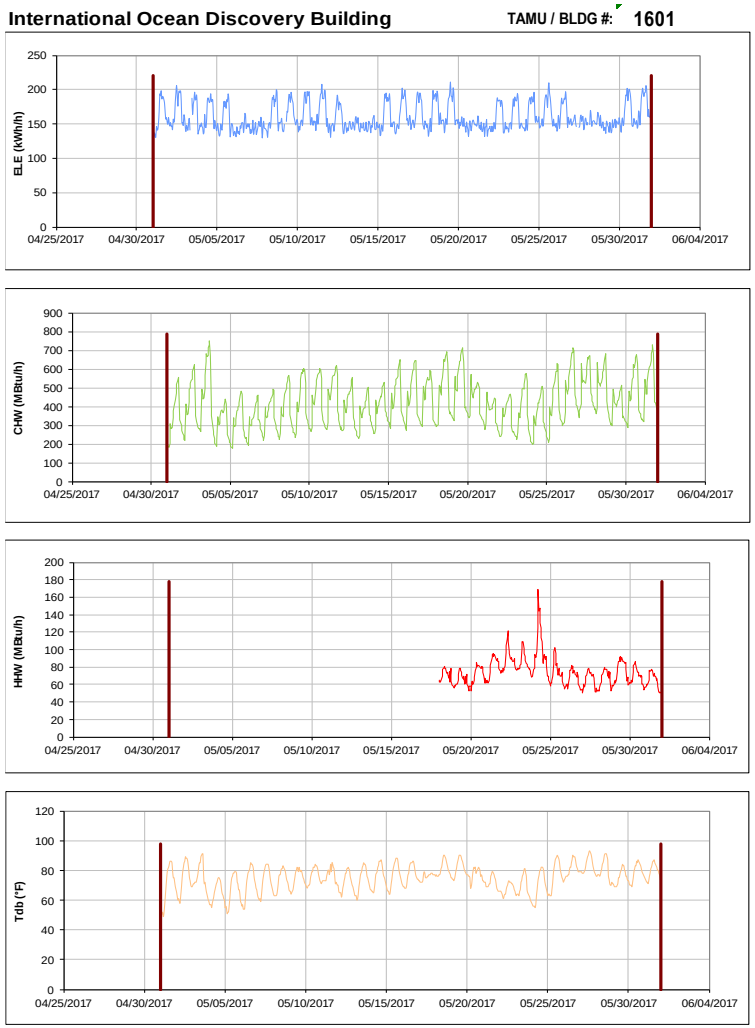


Figure III-186 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for International Ocean Discovery Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

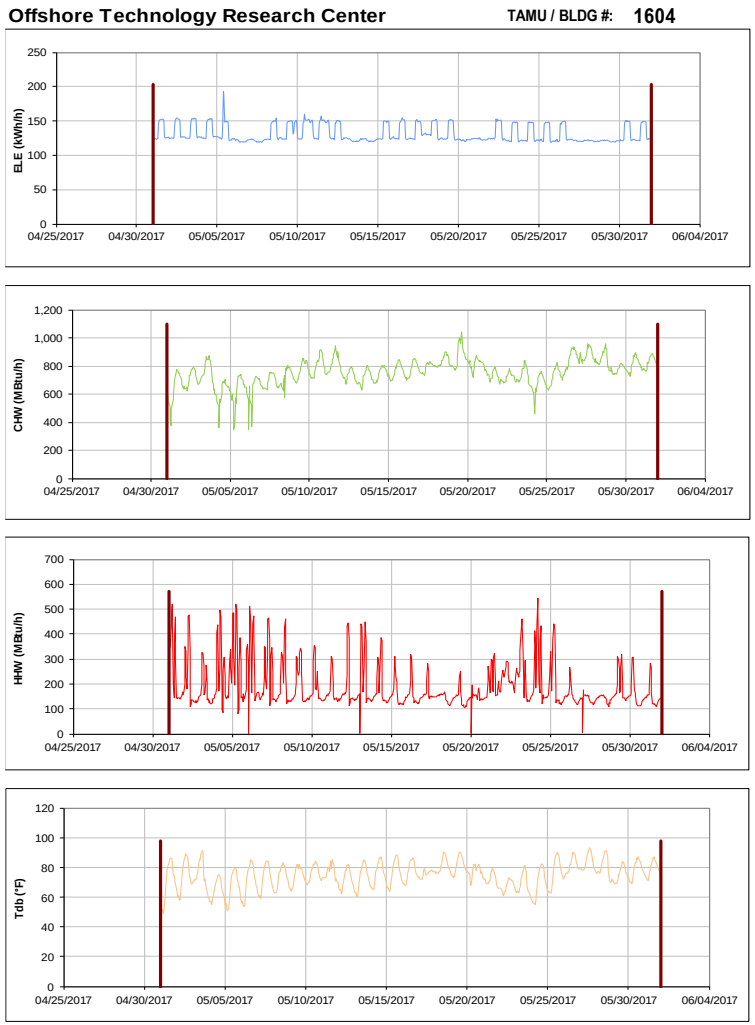


Figure III-187 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Offshore Technology Research Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

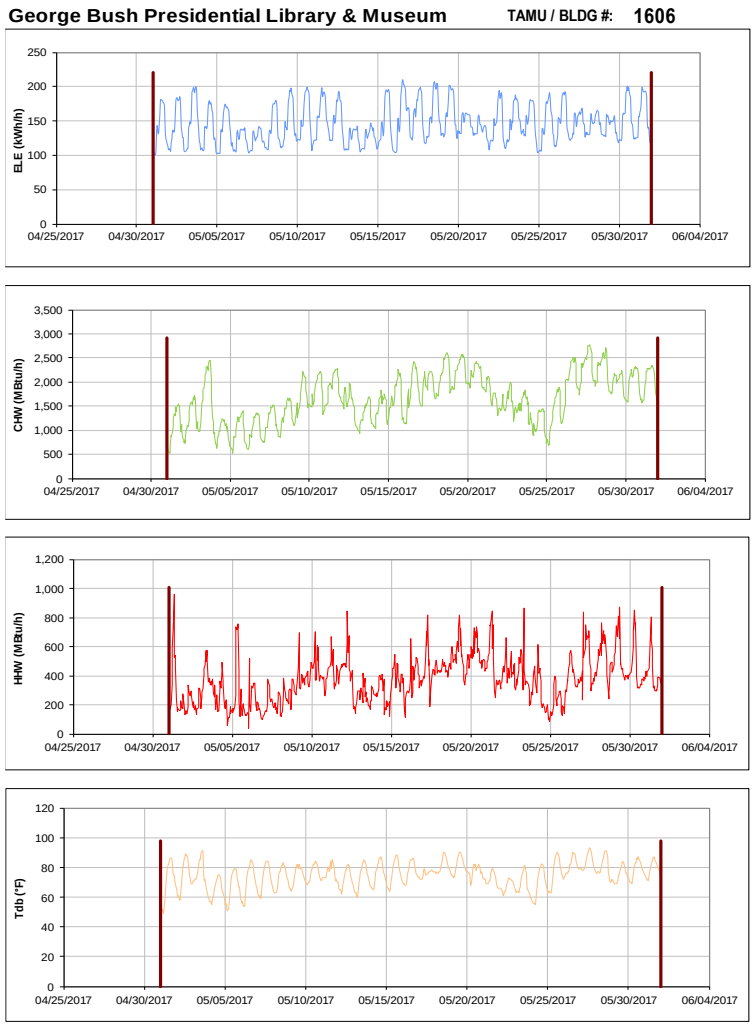


Figure III-188 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for George Bush Presidential Library & Museum during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

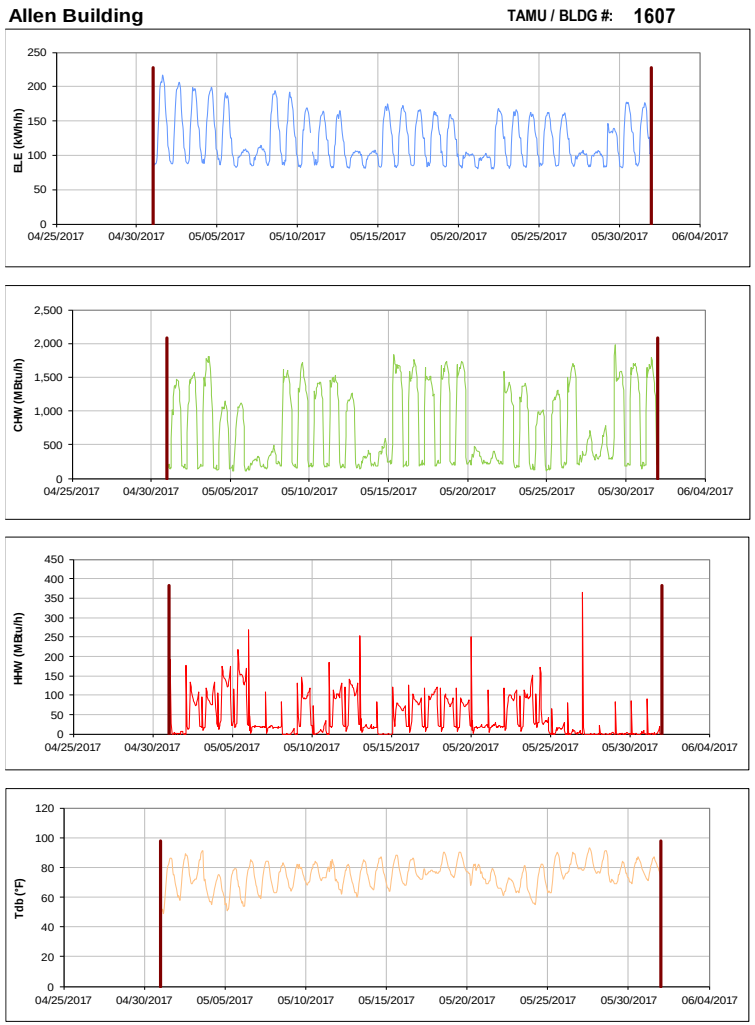


Figure III-189 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Allen Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

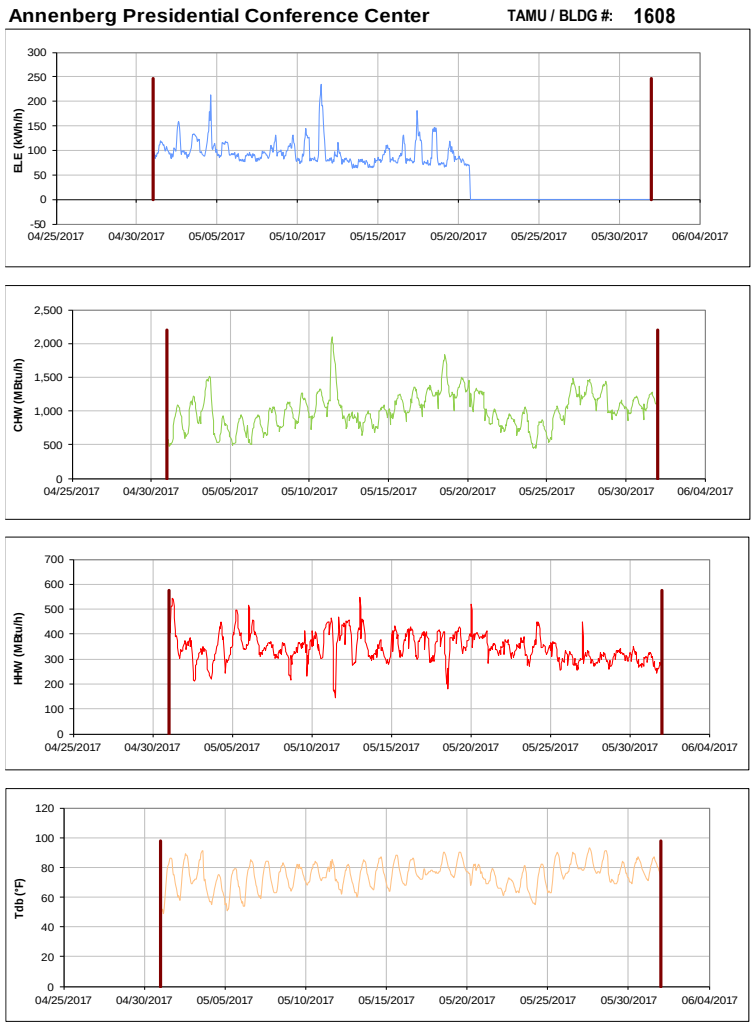


Figure III-190 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Annenberg Presidential Conference Center during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-191 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TTI Headquarters during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-192 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Research Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-193 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for General Services Complex during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-194 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for New TVMDL during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

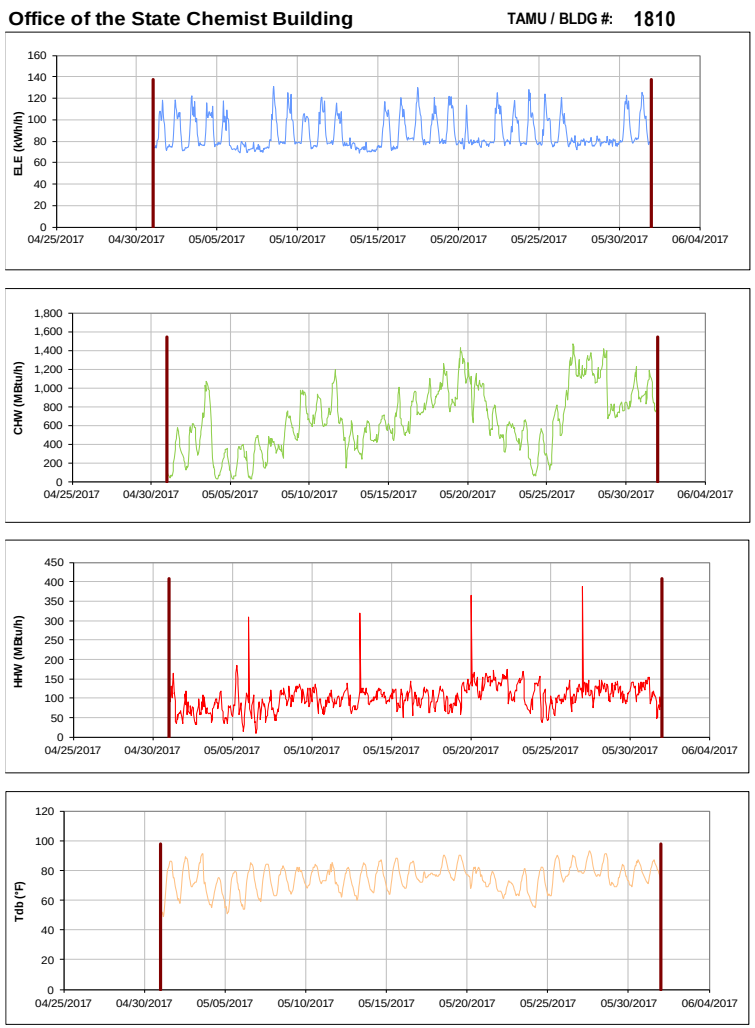


Figure III-195 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Office of the State Chemist Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

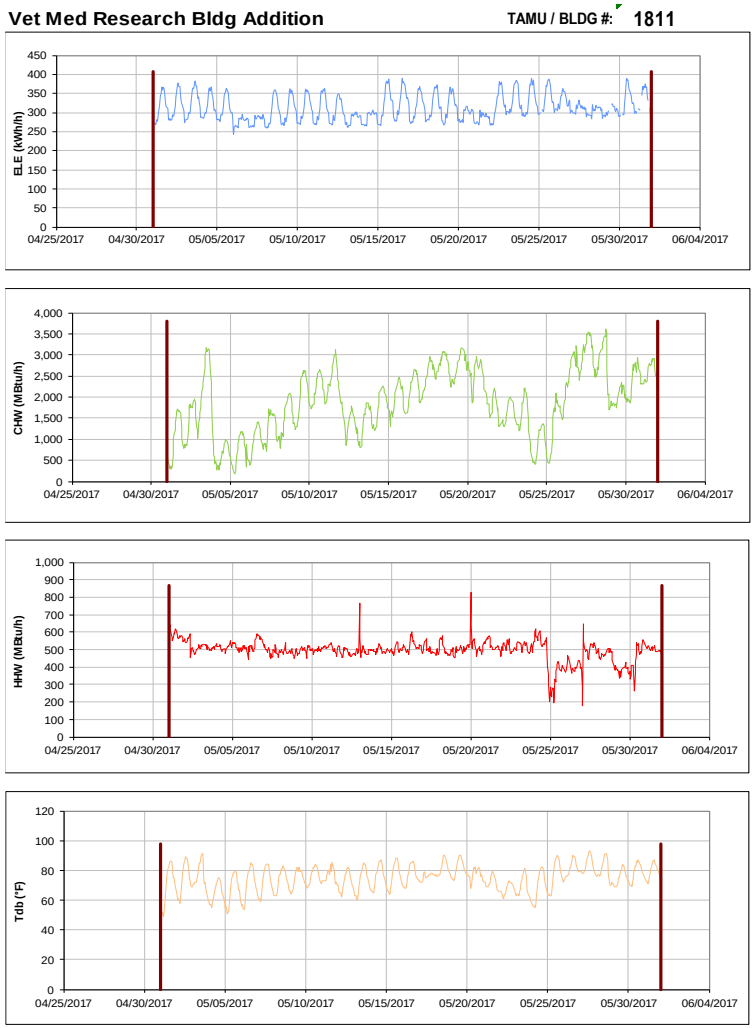


Figure III-196 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vet Med Research Bldg Addition during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-197 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Building 1, 2, and 3 during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-198 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Institute for Genomic Medicine during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-199 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas A&M Institute for Preclinical Studies A during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-200 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for National Center for Therapeutics Manufacturing during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

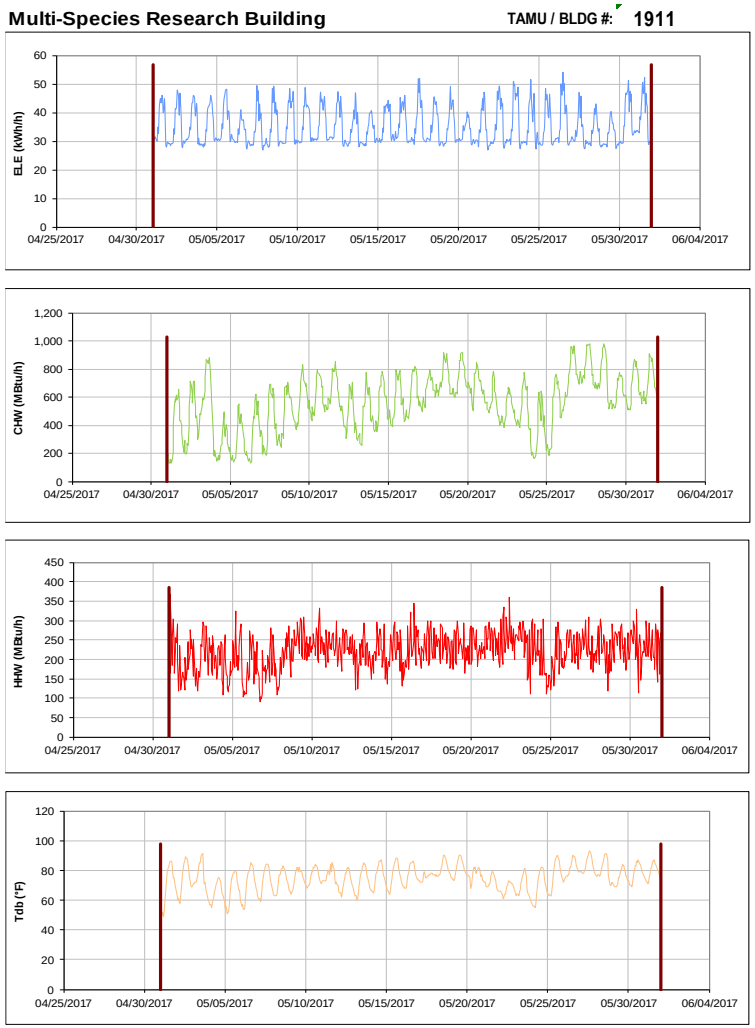


Figure III-201 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Multi-Species Research Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

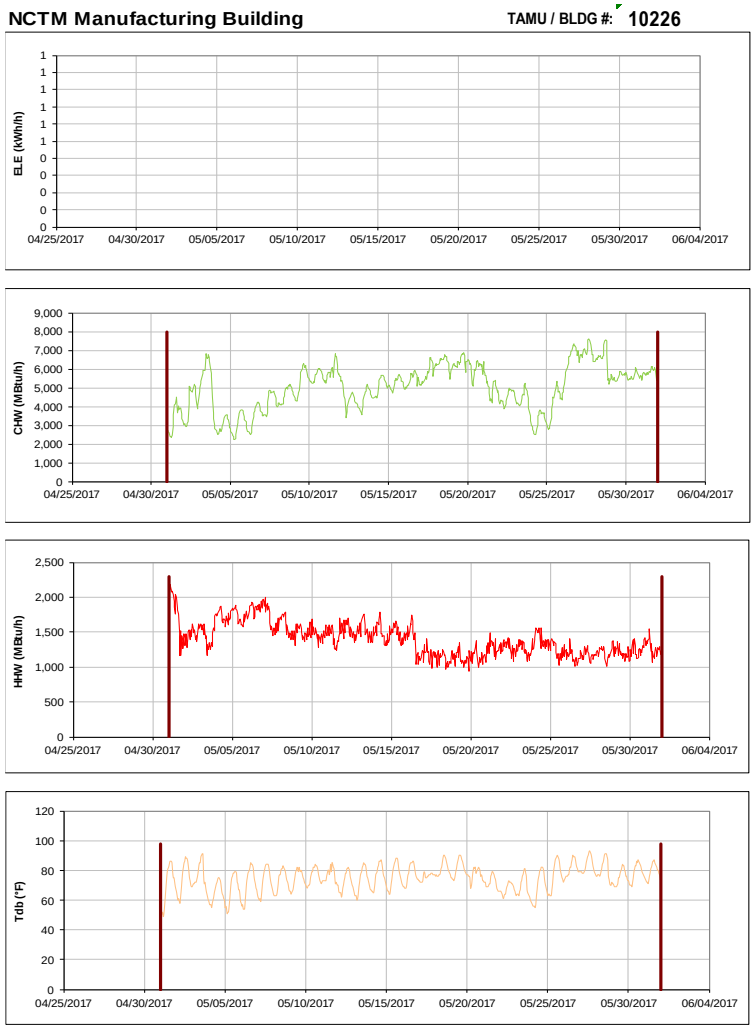


Figure III-202 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for NCTM Manufacturing Building during the Month of May 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station,TX

IV. Energy Balance Plots for May 2017 Consumption

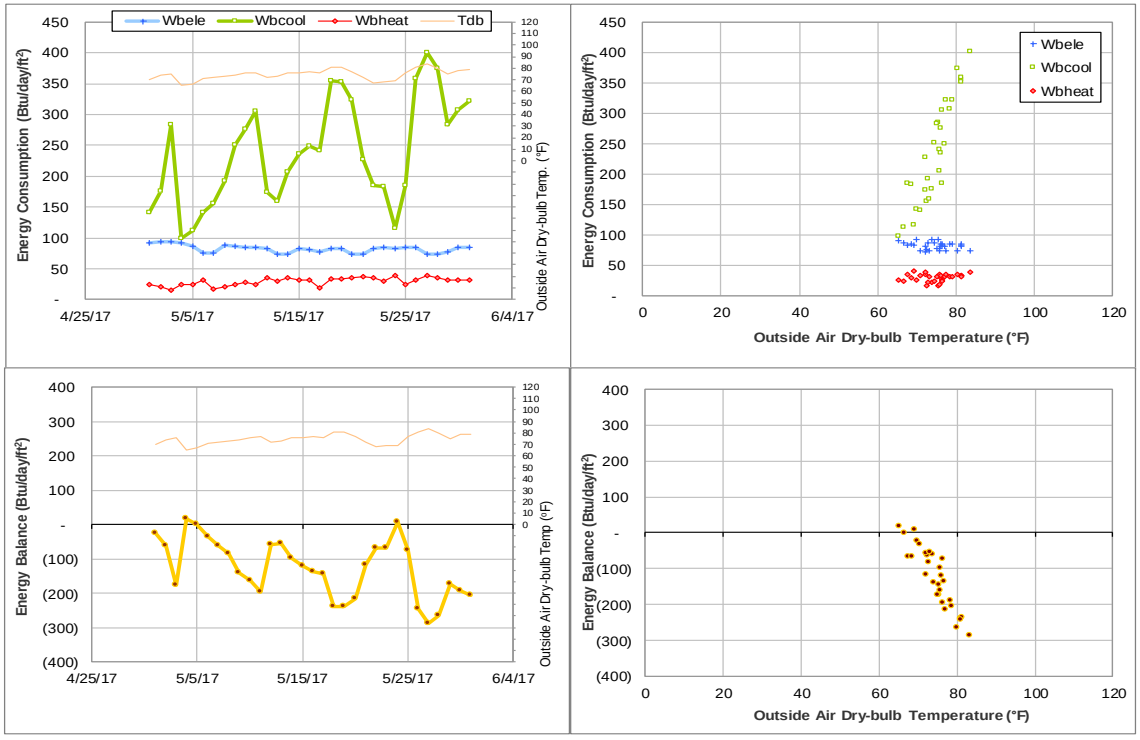


Figure IV-1 Emerging Technologies Building TAMU BLDG # 270 Energy Balance Plot during May 2017

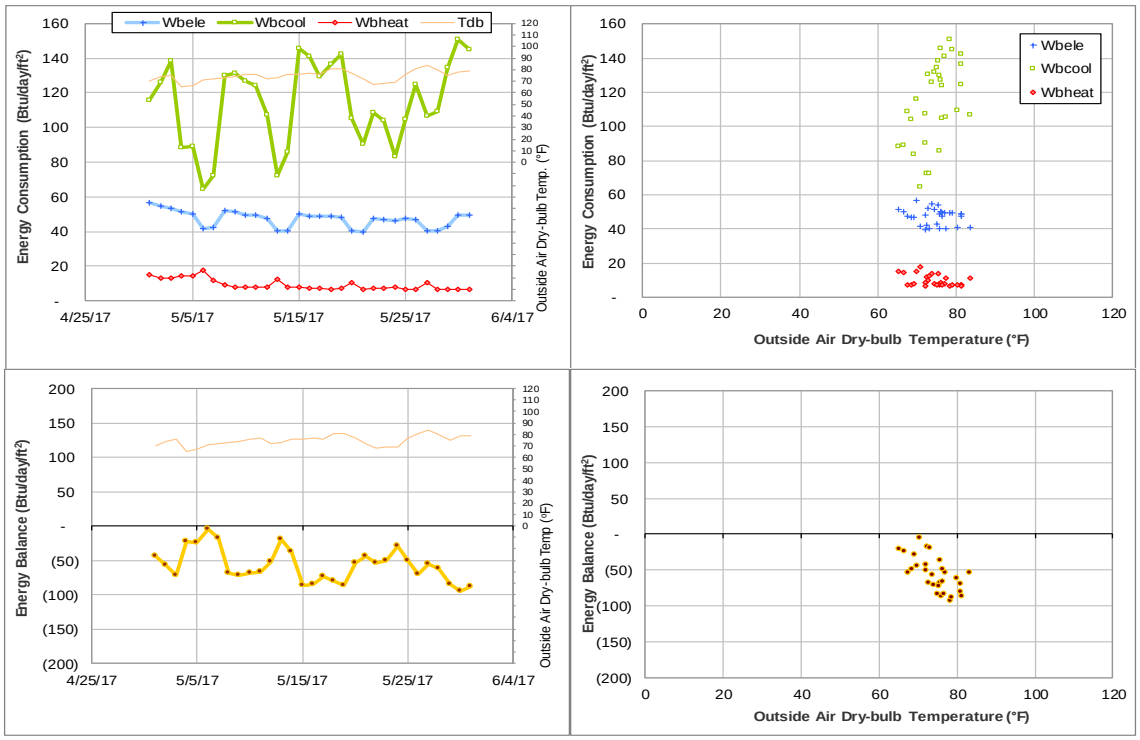


Figure IV-2 Liberal Arts and Arts & Humanities Building TAMU BLDG # 275 Energy Balance Plot during May 2017

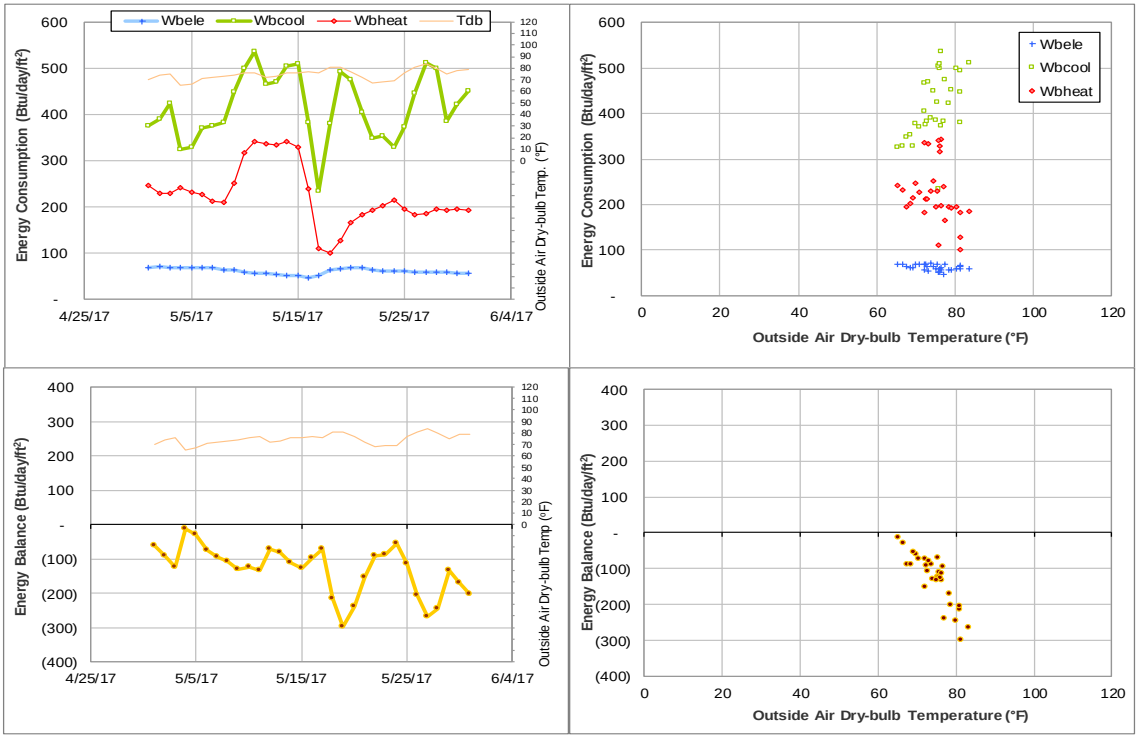


Figure IV-3 Wells Residence Hall TAMU BLDG # 290 Energy Balance Plot during May 2017

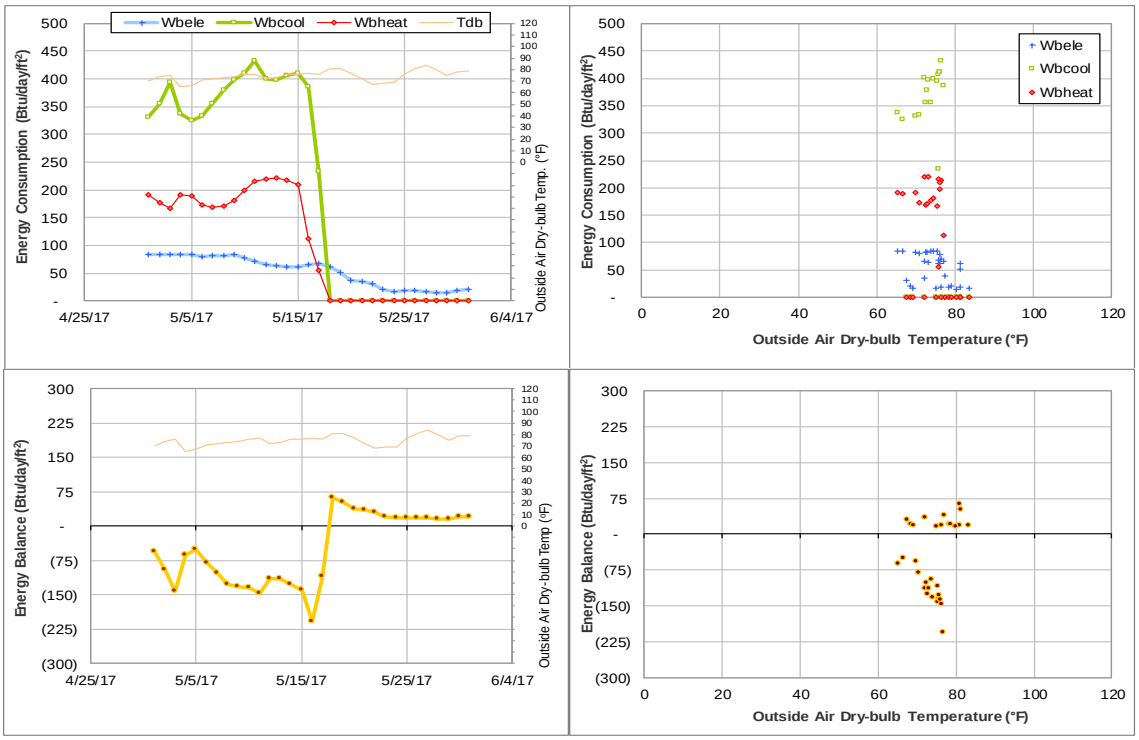


Figure IV-4 Rudder Residence Hall TAMU BLDG # 291 Energy Balance Plot during May 2017

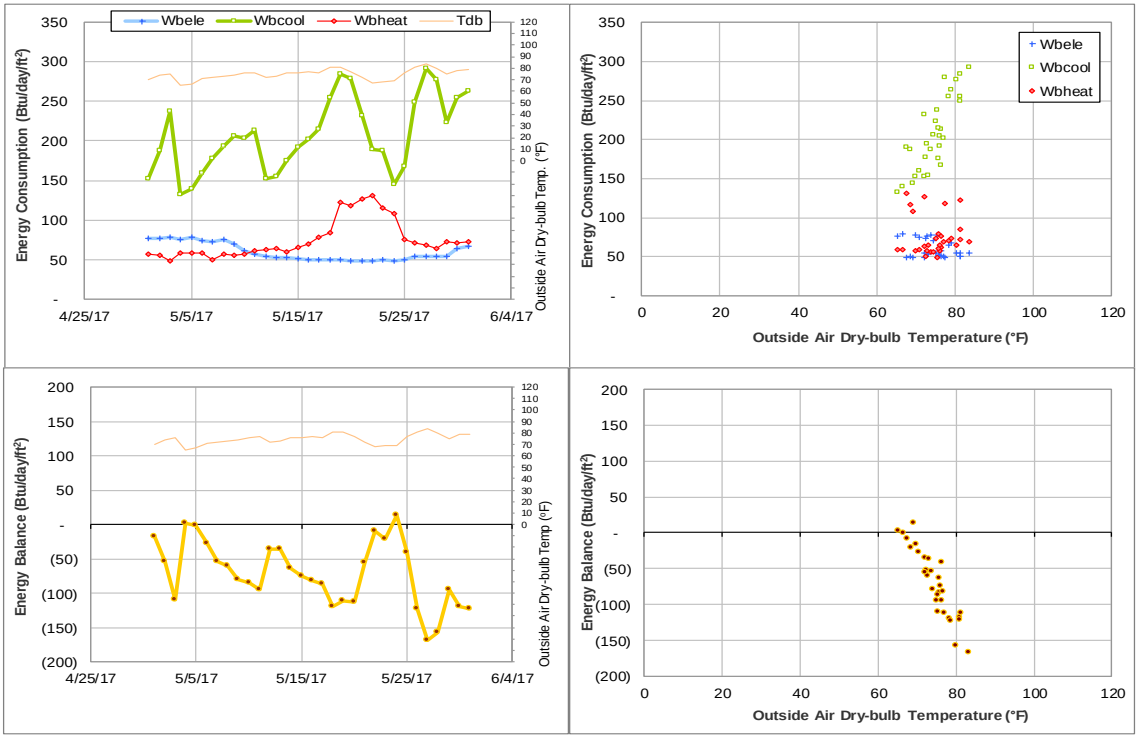


Figure IV-5 Eppright Residence Hall TAMU BLDG # 292 Energy Balance Plot during May 2017

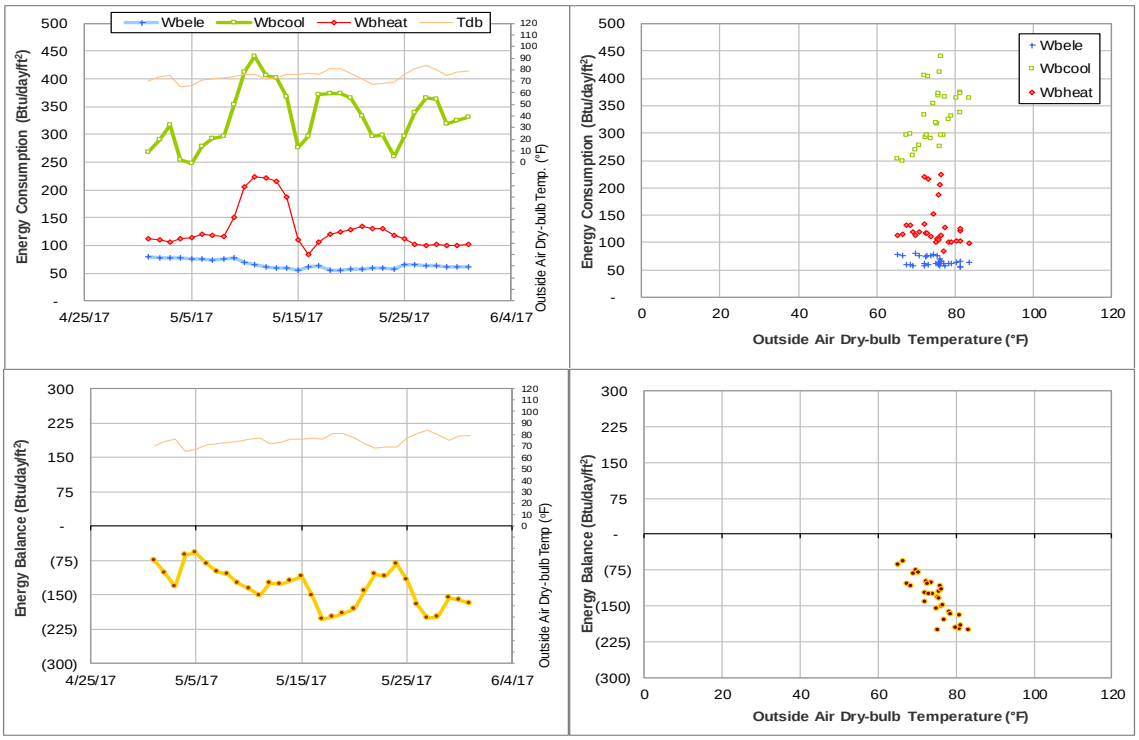


Figure IV-6 Appelt Residence Hall TAMU BLDG # 293 Energy Balance Plot during May 2017

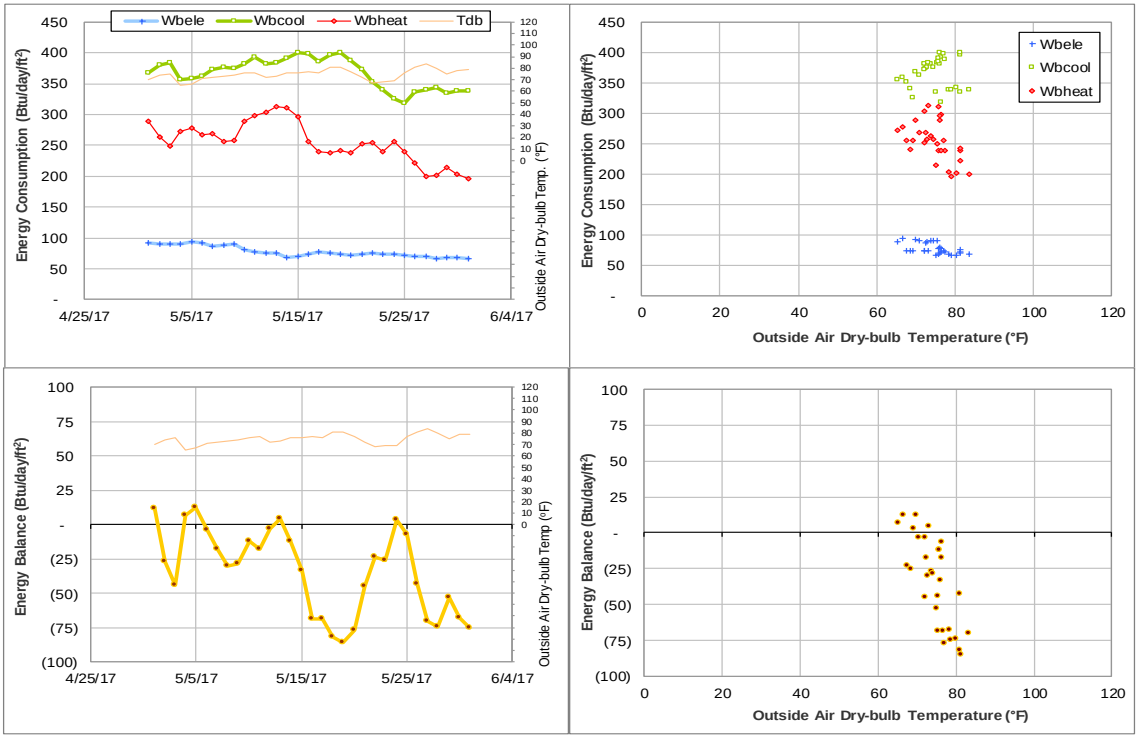


Figure IV-7 Lechner Residence Hall TAMU BLDG # 294 Energy Balance Plot during May 2017

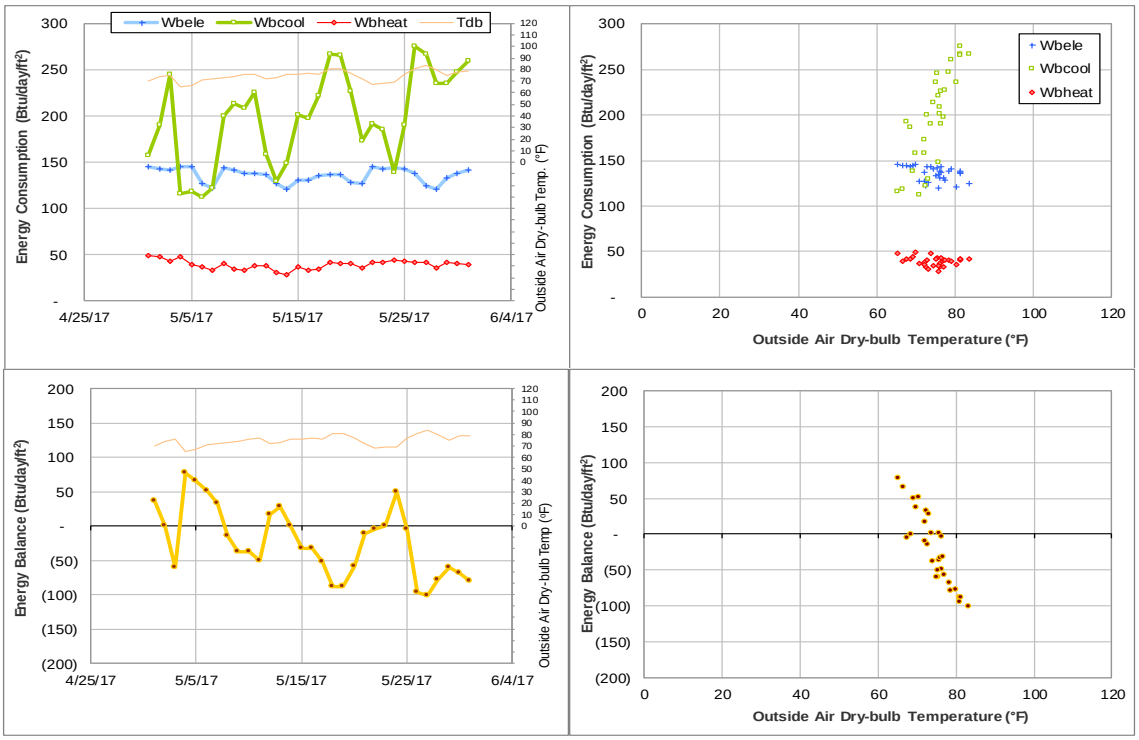


Figure IV-8 Mitchell Inst. for Fundamental Phys & Astronomy TAMU BLDG # 296 Energy Balance Plot during May 2017

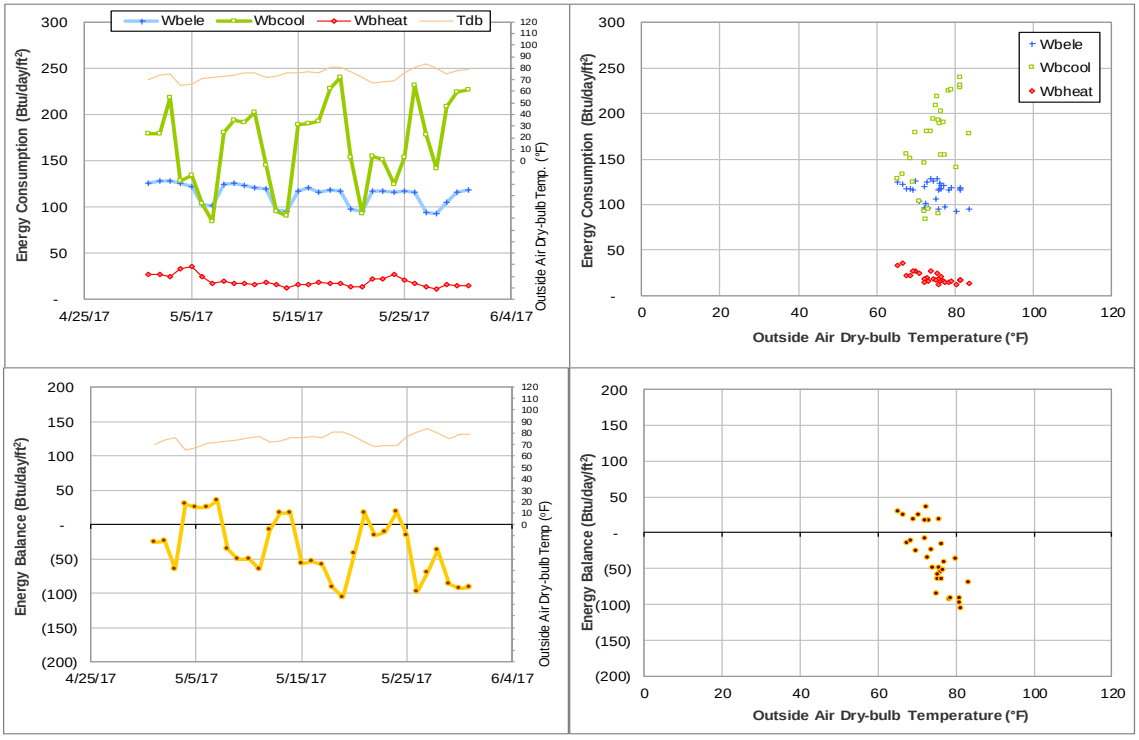


Figure IV-9 CE TTI Office & Lab Building TAMU BLDG # 325 Energy Balance Plot during May 2017

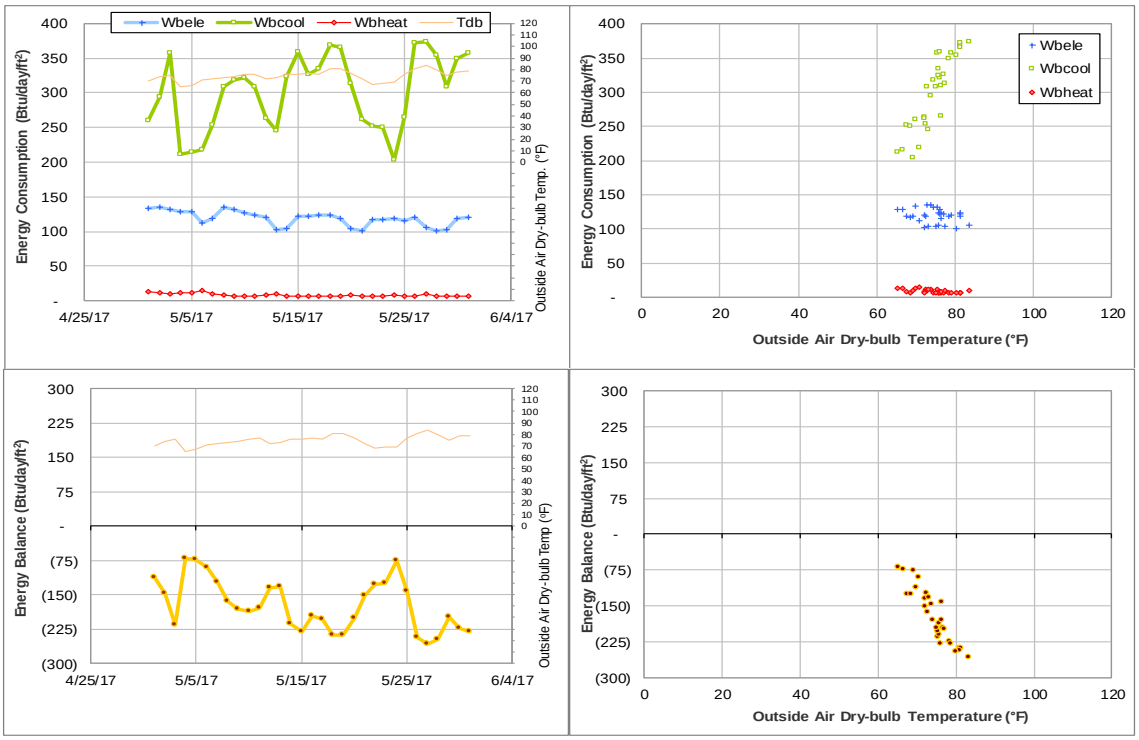


Figure IV-10 Bright Aerospace Building TAMU BLDG # 353 Energy Balance Plot during May 2017

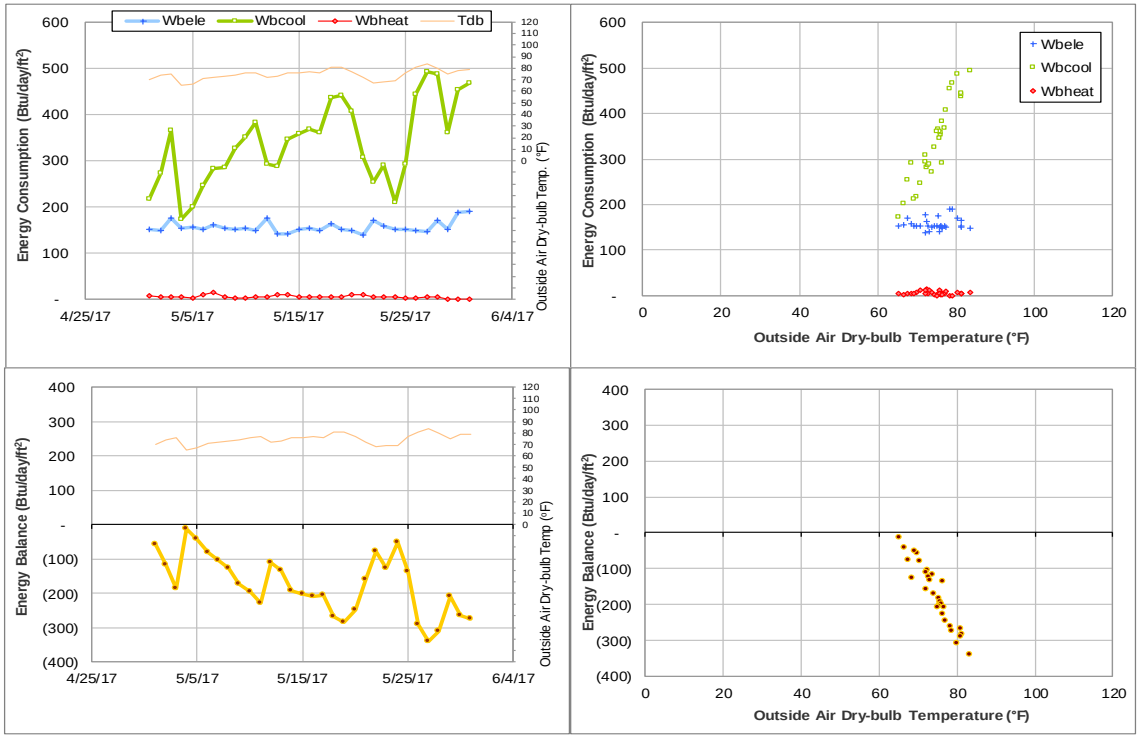


Figure IV-11 Davis Football Player Development Center TAMU BLDG # 358 Energy Balance Plot during May 2017

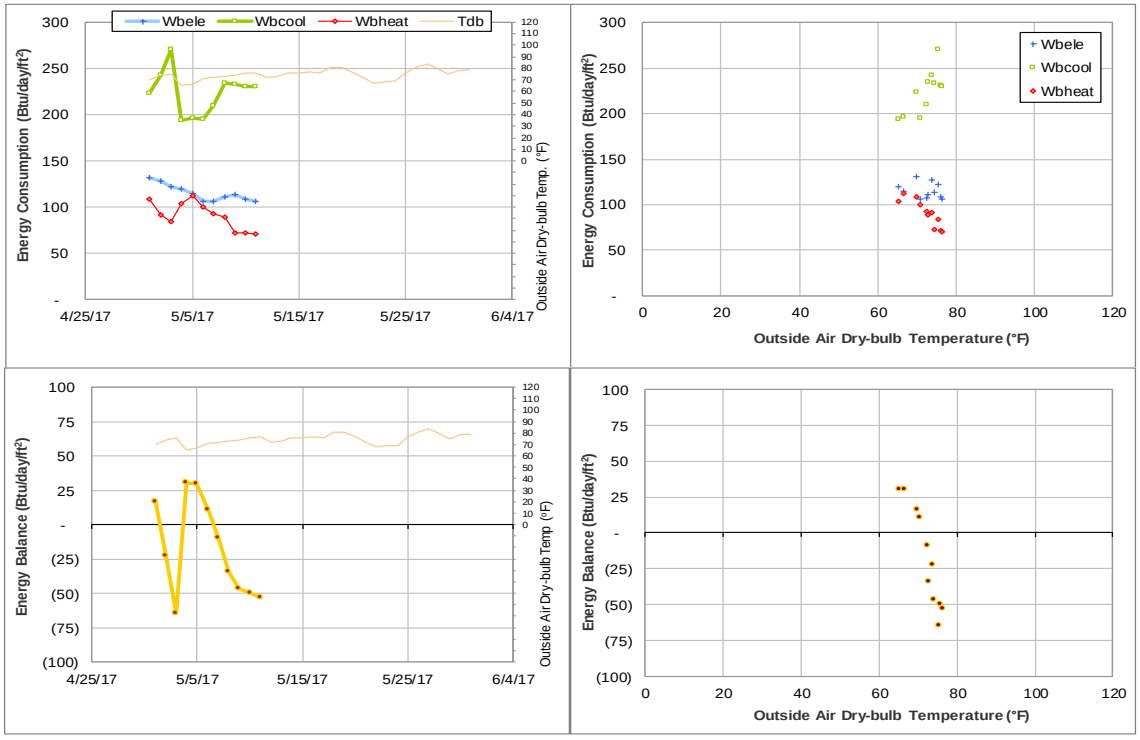


Figure IV-12 Architecture Building B&C TAMU BLDG # 359 and 432 Energy Balance Plot during May 2017

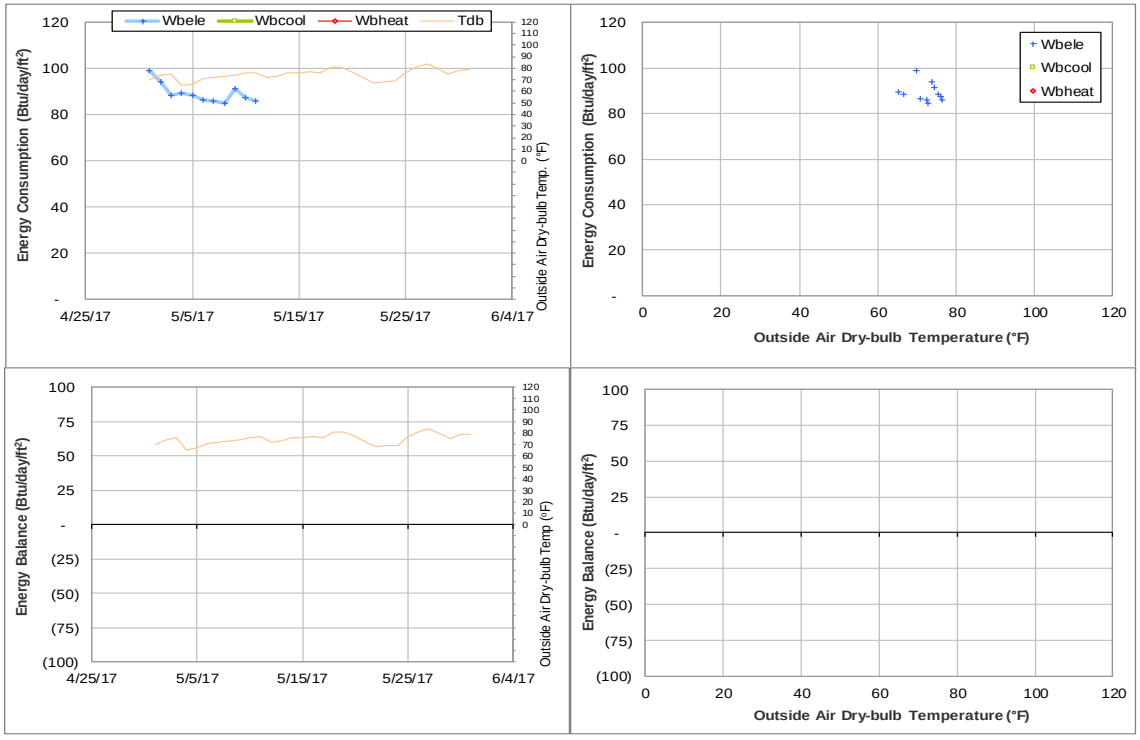


Figure IV-13 Architecture Building B TAMU BLDG # 359 Energy Balance Plot during May 2017

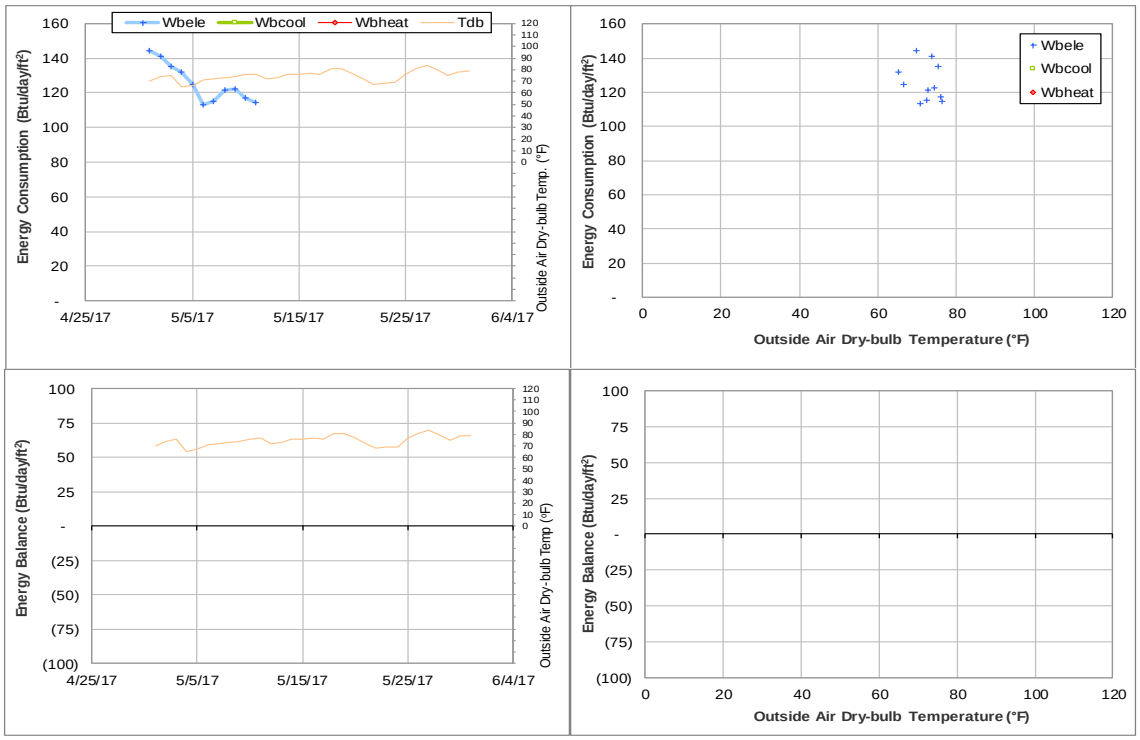


Figure IV-14 Architecture Building C TAMU BLDG # 432 Energy Balance Plot during May 2017

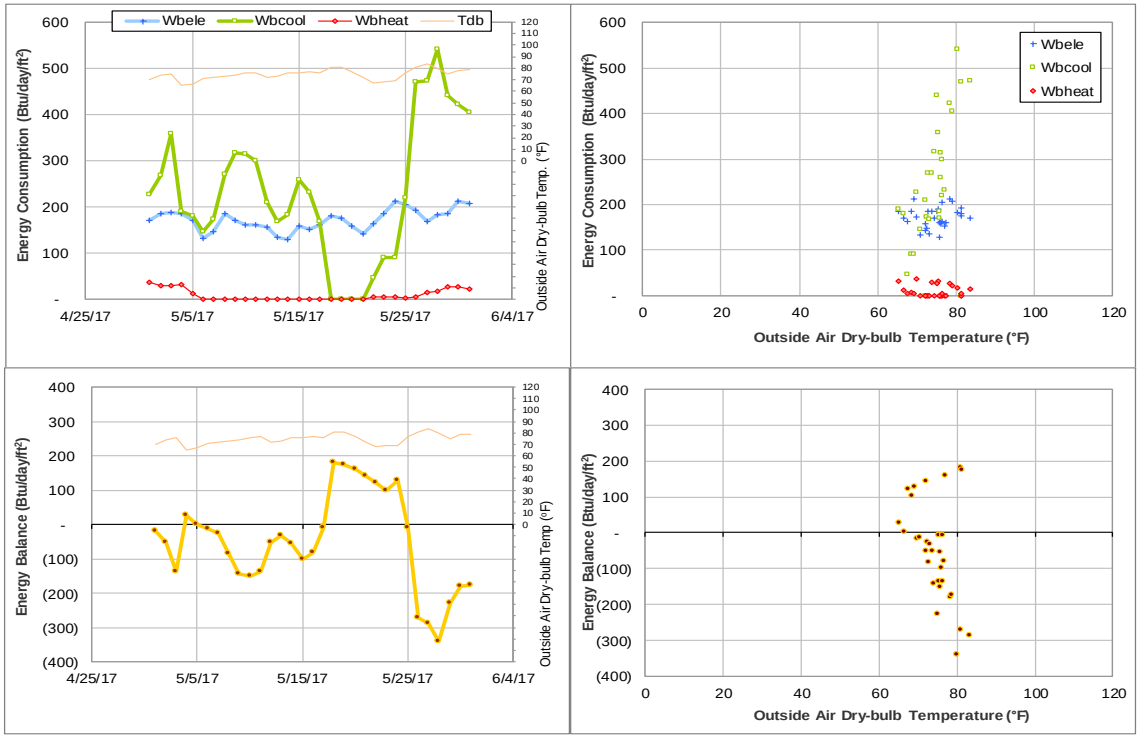


Figure IV-15 Bright Football Complex TAMU BLDG # 361 Energy Balance Plot during May 2017

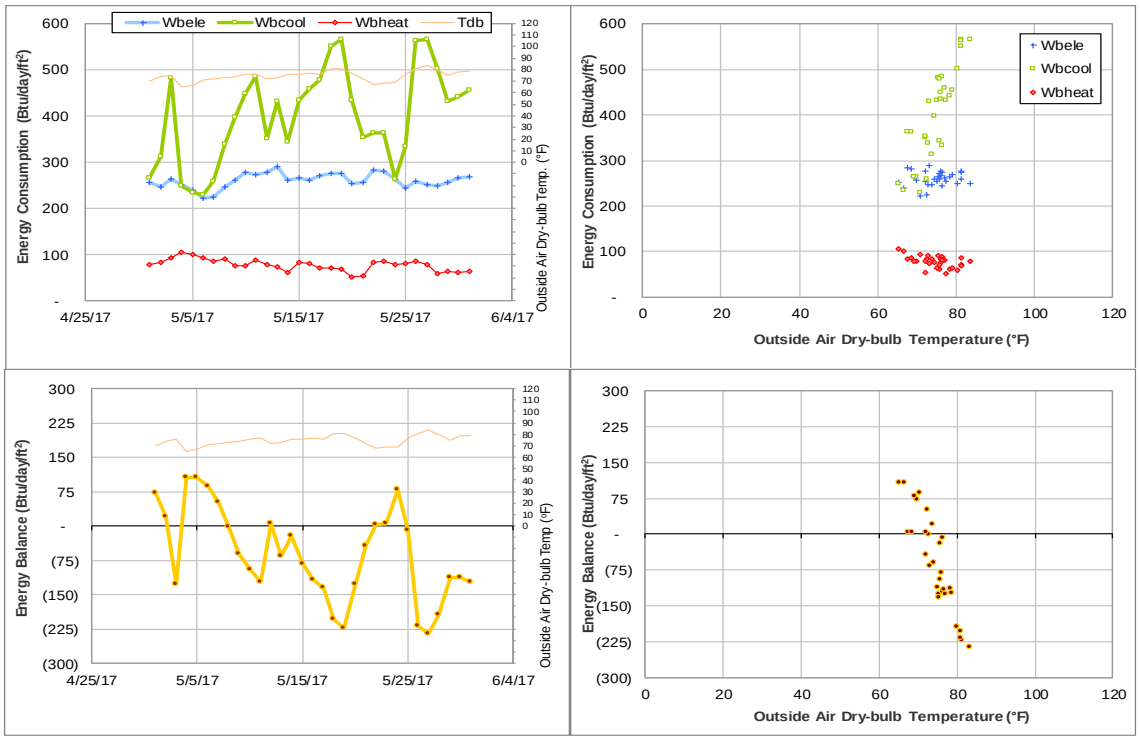


Figure IV-16 Kyle Field TAMU BLDG # 367 Energy Balance Plot during May 2017

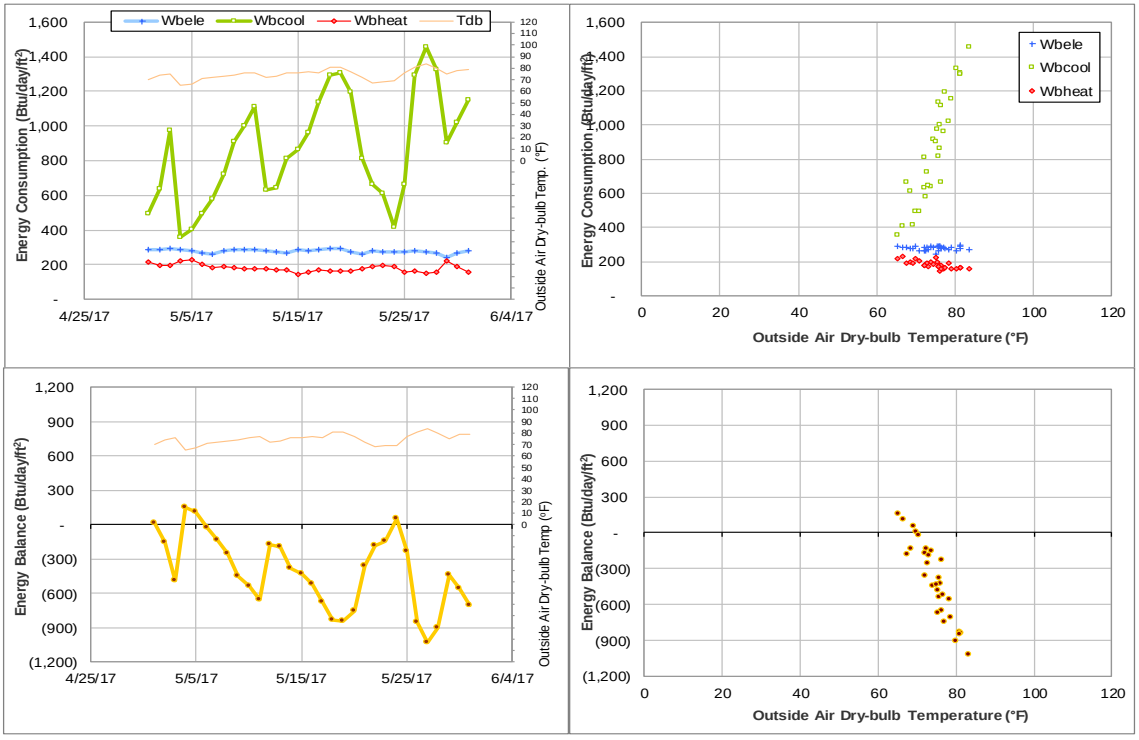


Figure IV-17 Chemistry Building Addition TAMU BLDG # 376 Energy Balance Plot during May 2017

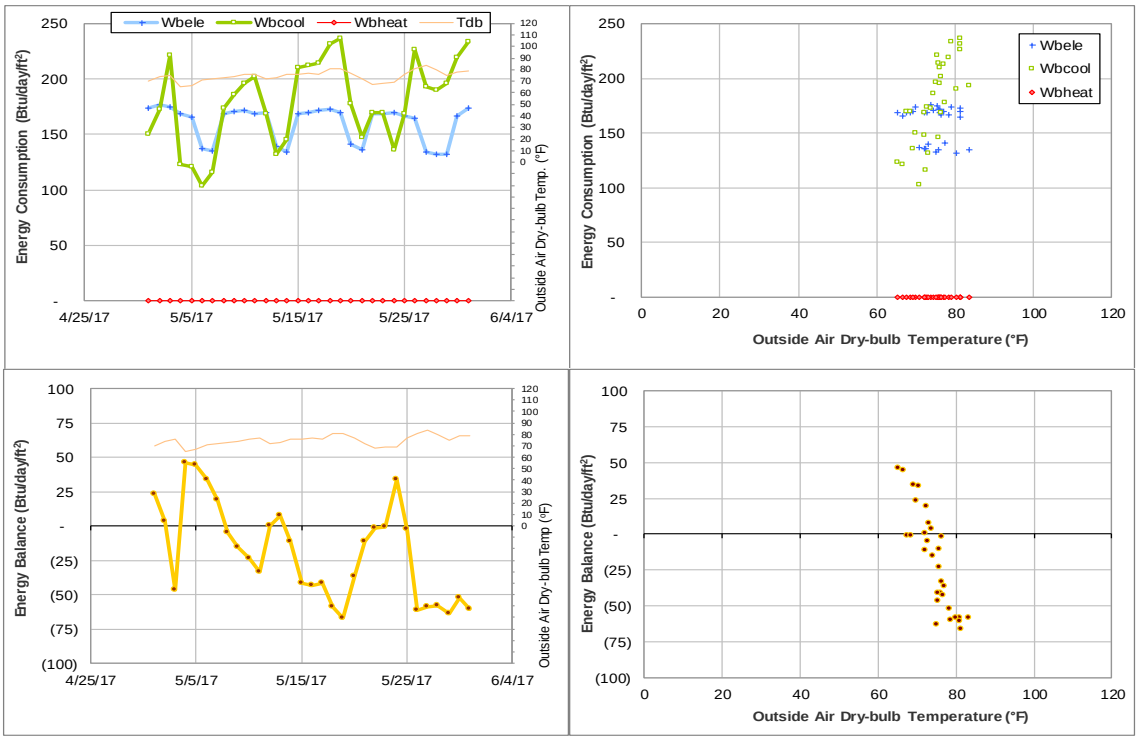


Figure IV-18 Koldus Building TAMU BLDG # 383 Energy Balance Plot during May 2017

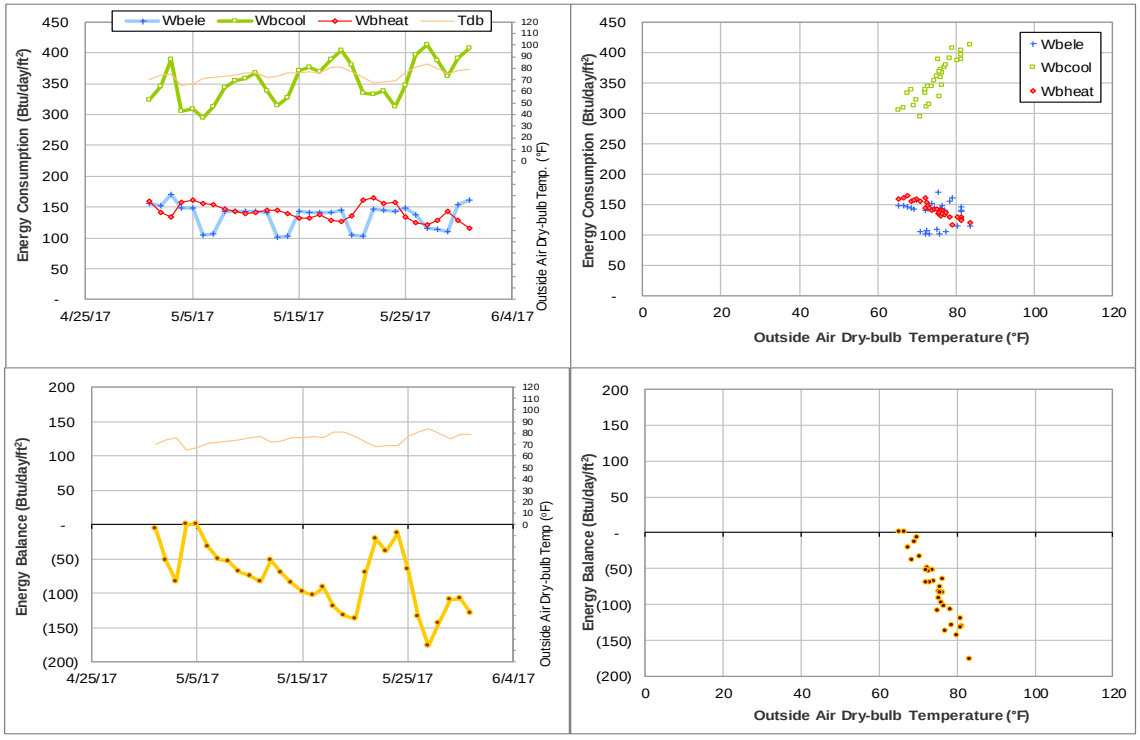


Figure IV-19 Sanders Corps of Cadets Center TAMU BLDG # 384 Energy Balance Plot during May 2017

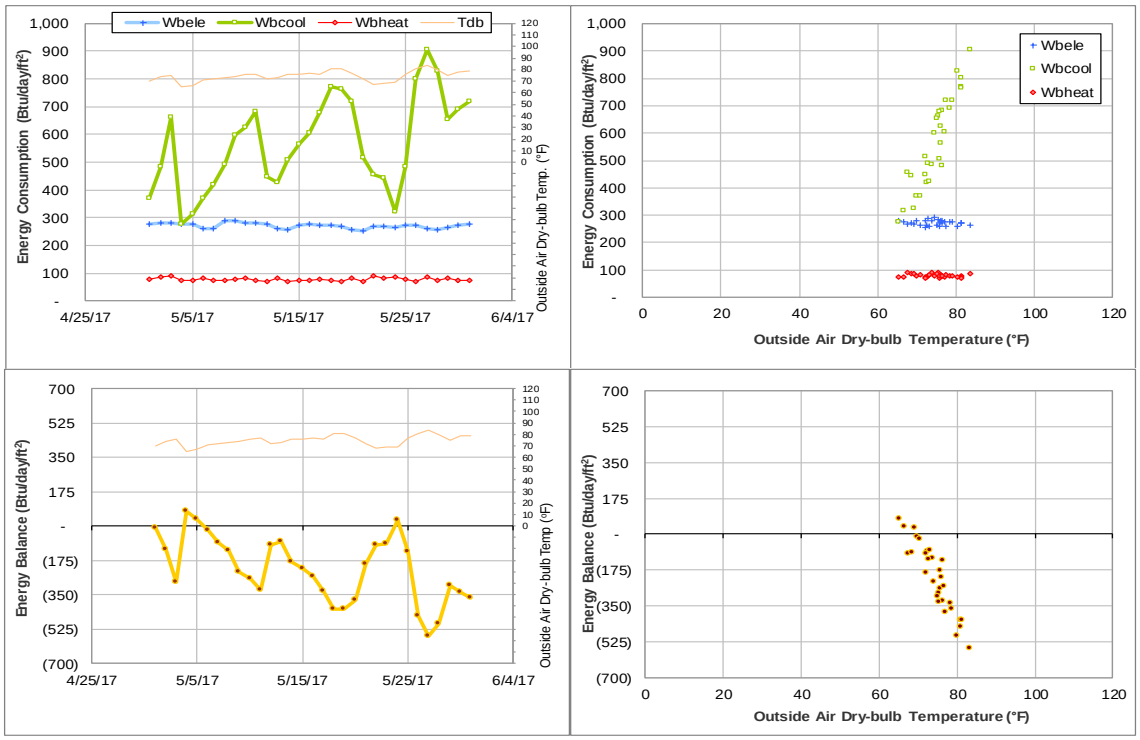


Figure IV-20 Jack E. Brown Chemical Engineering Building TAMU BLDG # 386 Energy Balance Plot during May 2017

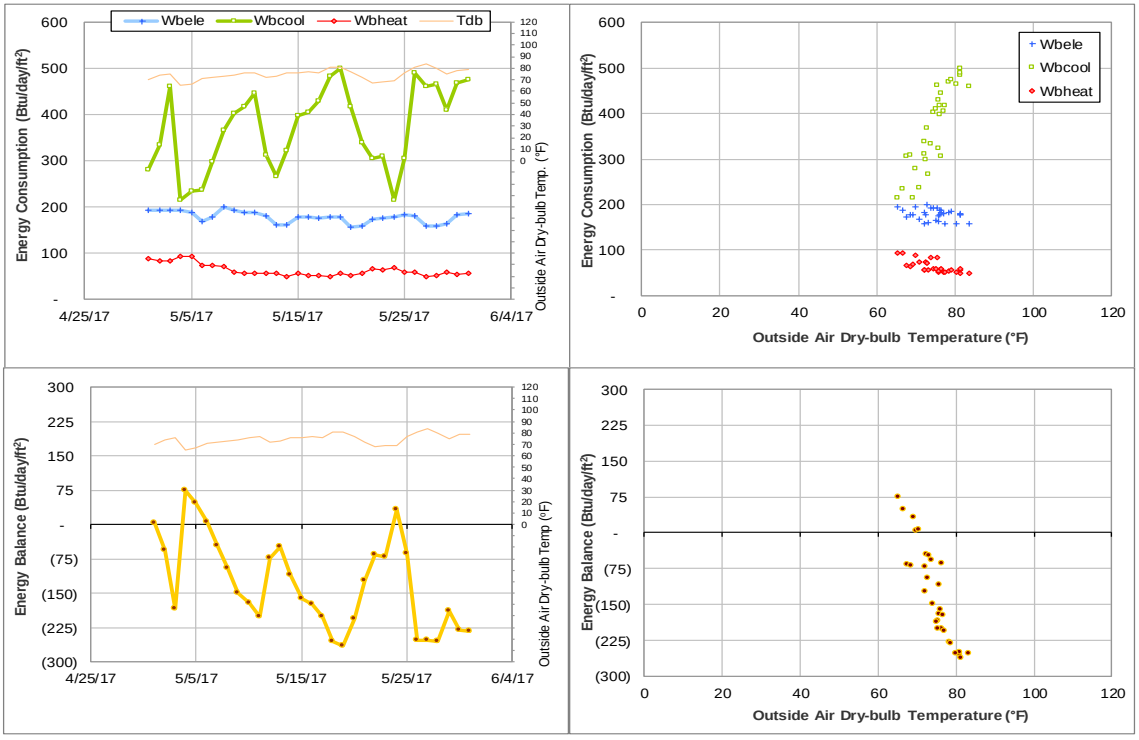


Figure IV-21 Richardson Petroleum Engineering Building TAMU BLDG # 387 Energy Balance Plot during May 2017

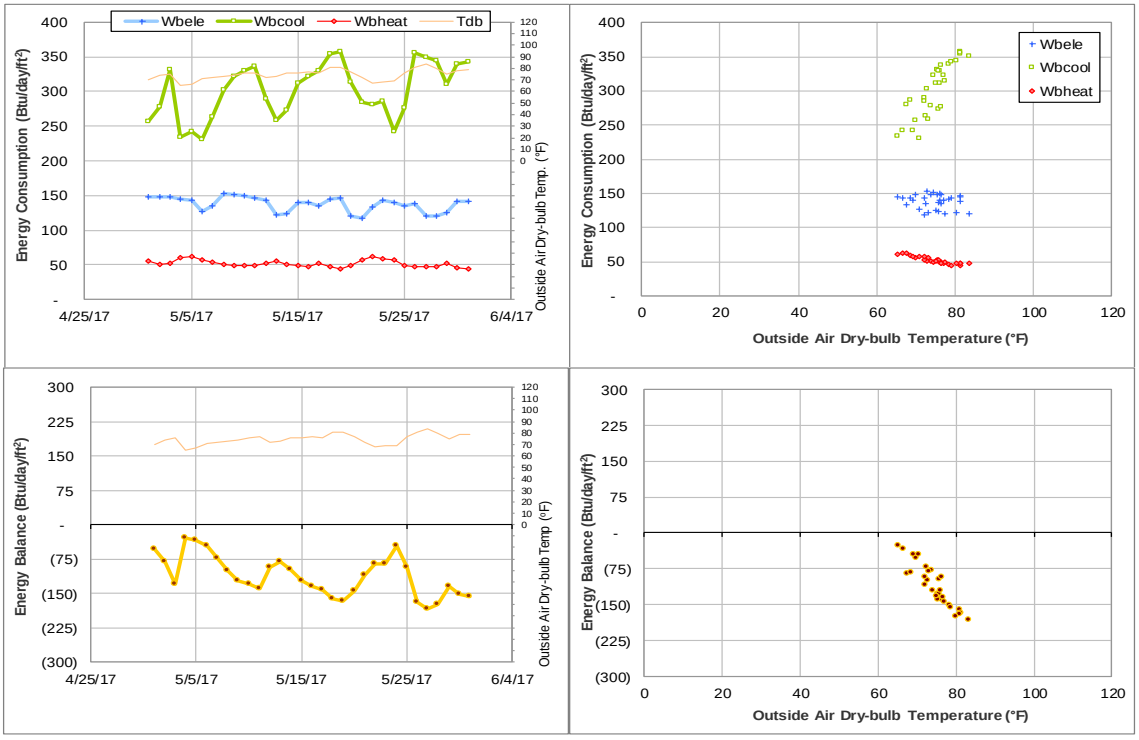


Figure IV-22 James J. Cain'51 and Mechanical Engineering Office Building TAMU BLDG # 391 Energy Balance Plot during May 2017

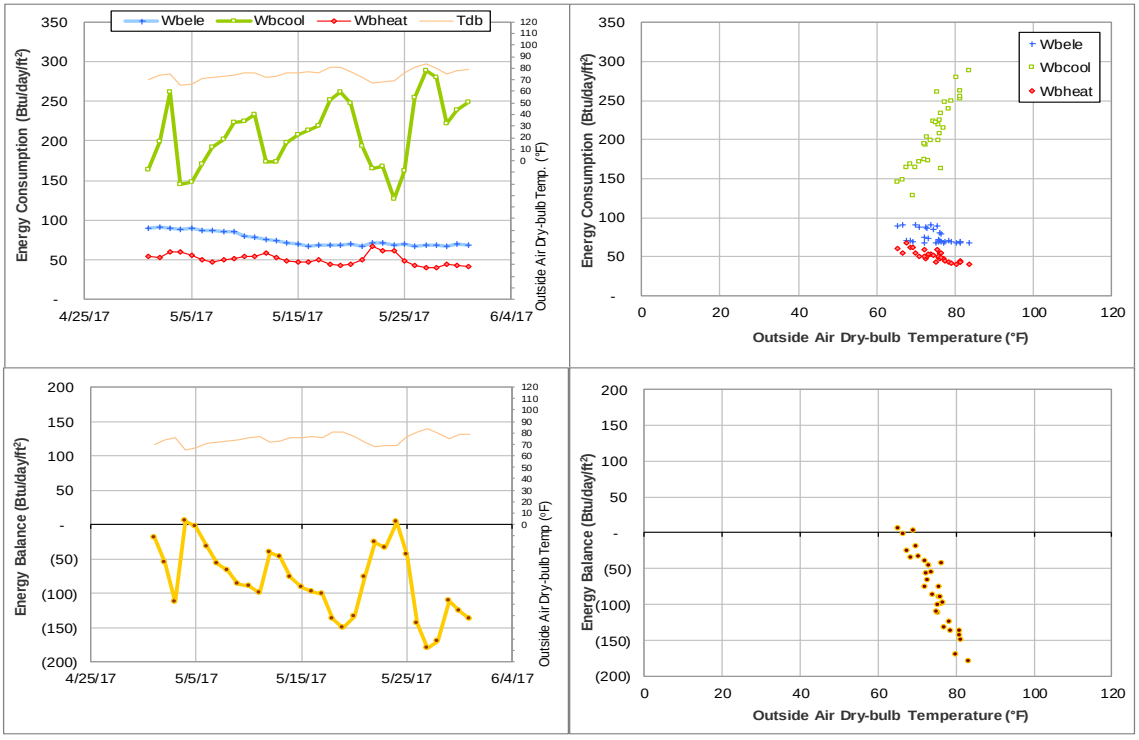


Figure IV-23 Underwood Residence Hall TAMU BLDG # 394 Energy Balance Plot during May 2017

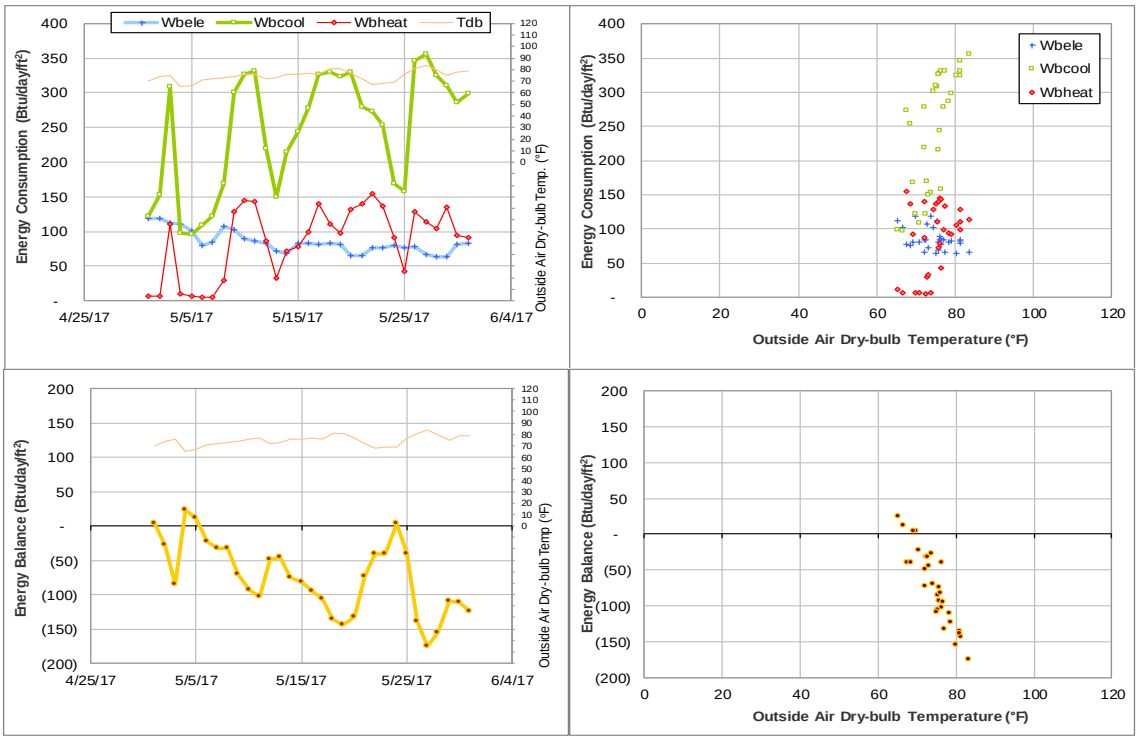


Figure IV-24 Langford Architecture Center Building A TAMU BLDG # 398 Energy Balance Plot during May 2017

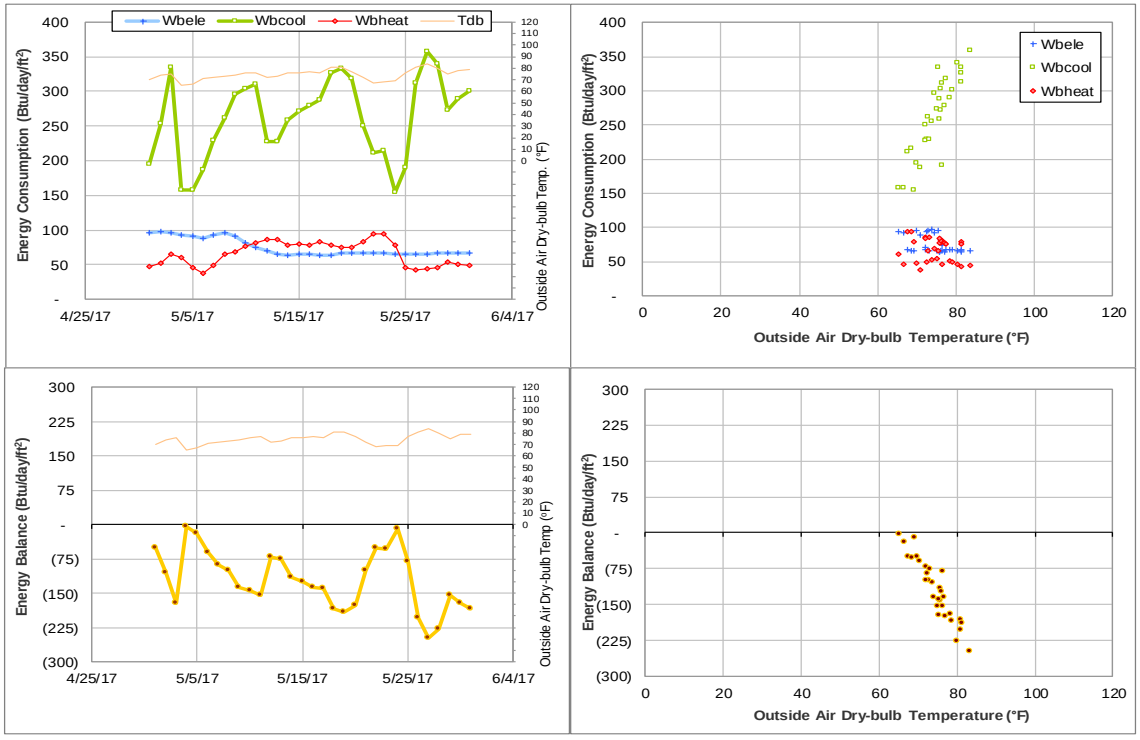


Figure IV-25 Spence Hall, Briggs Hall, and Ash II LLC TAMU BLDG # 400, 402, 1405 Energy Balance Plot during May 2017

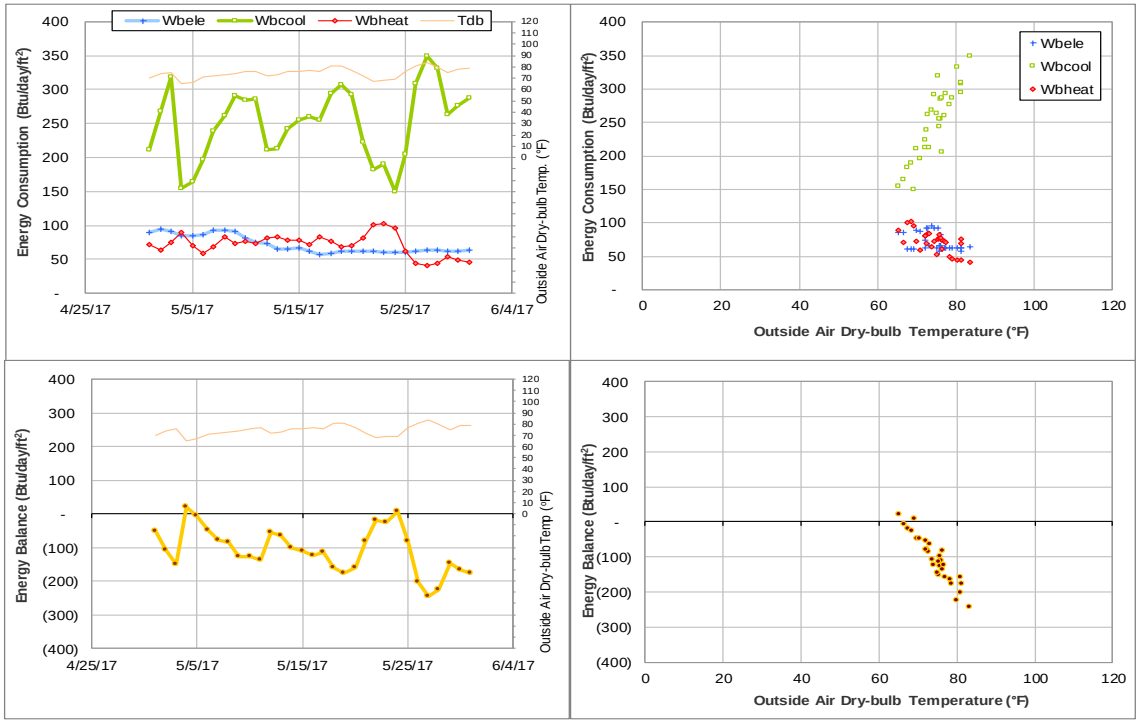


Figure IV-26 Spence Hall Dorm 1 TAMU BLDG # 400 Energy Balance Plot during May 2017

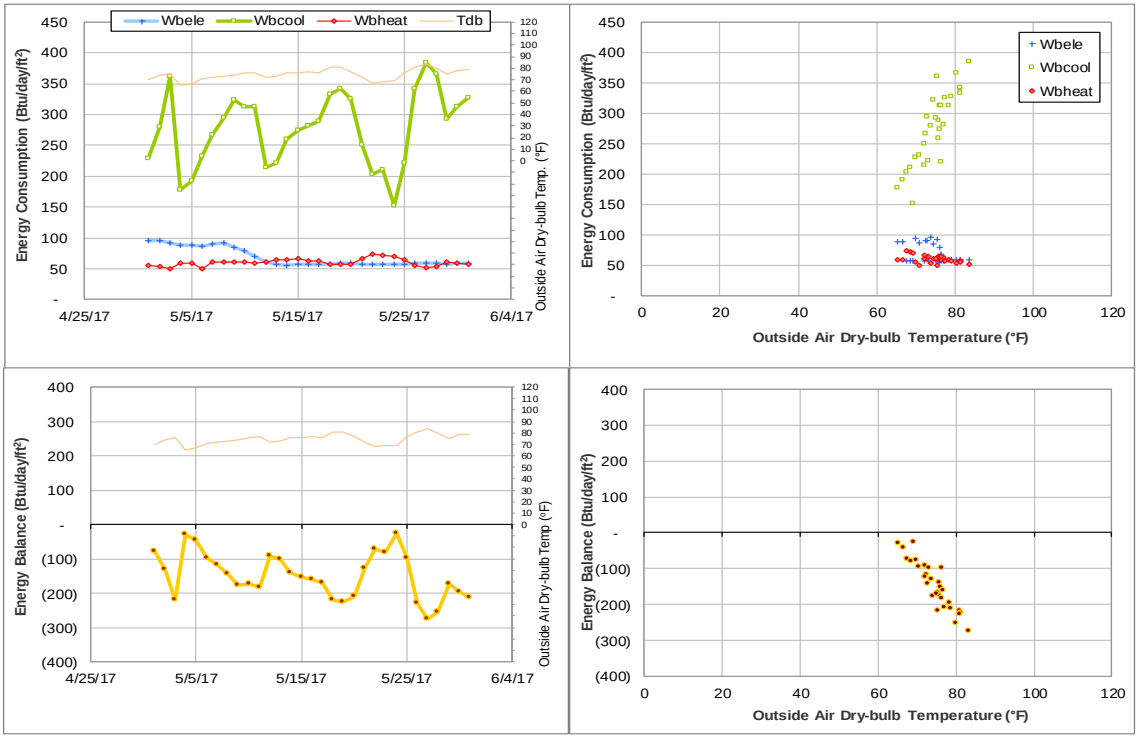


Figure IV-27 Briggs Hall Dorm 3 TAMU BLDG # 402 Energy Balance Plot during May 2017

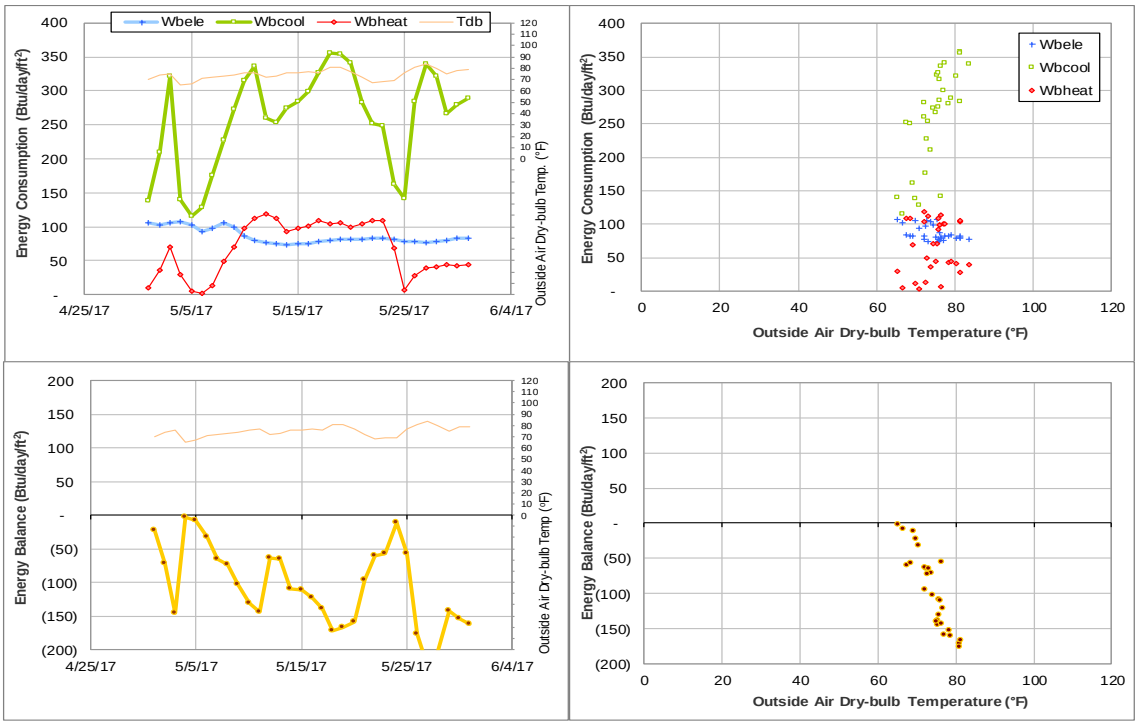


Figure IV-28 Ash II LLC TAMU BLDG # 1405 Energy Balance Plot during May 2017

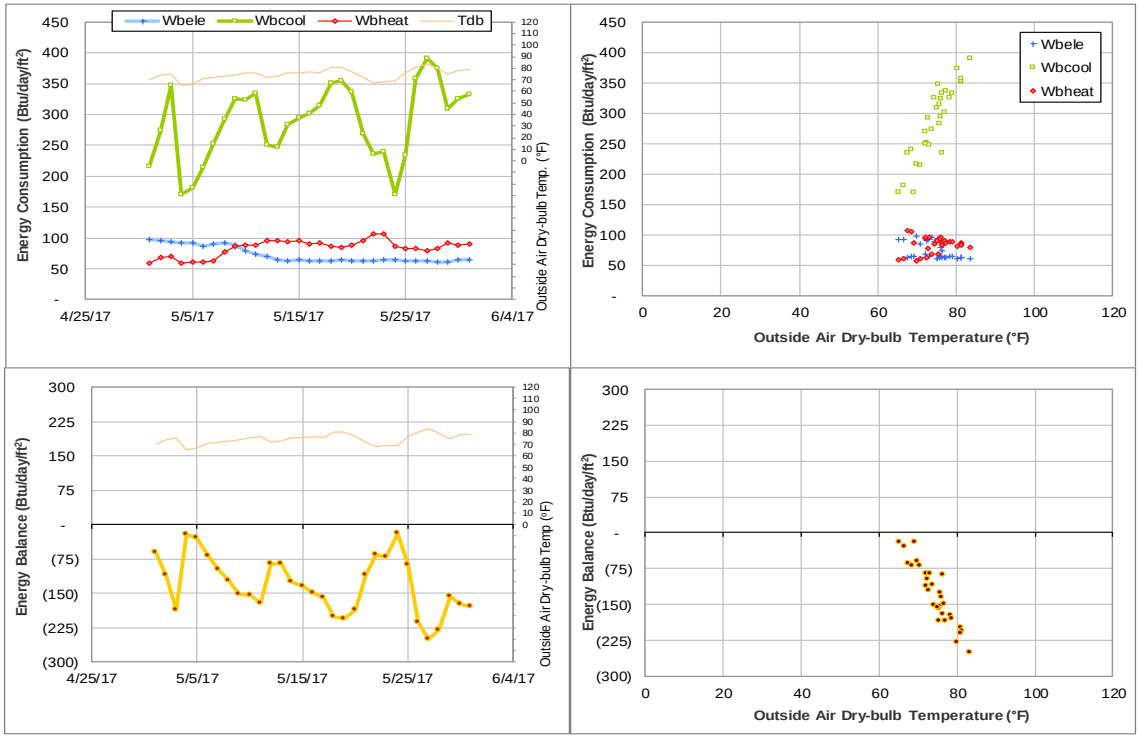


Figure IV-29 Kiest Hall, Fountain Hall, and Plank LLC TAMU BLDG # 401, 403, 1404 Energy Balance Plot during May 2017

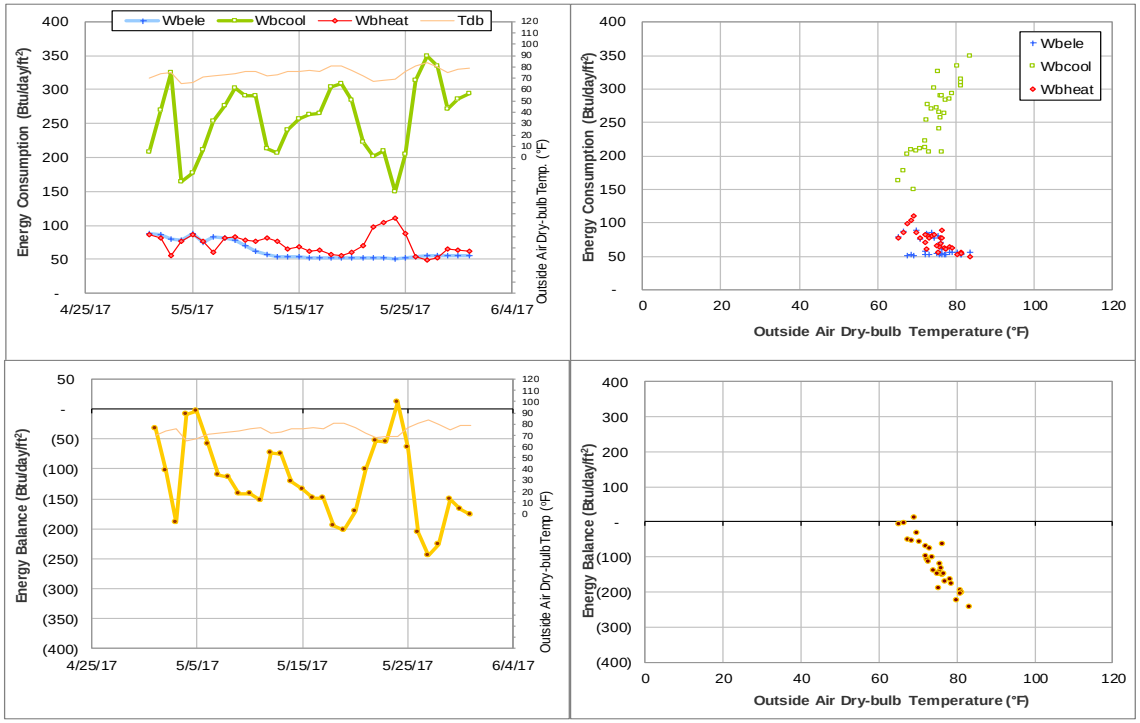


Figure IV-30 Kiest Hall Dorm 2 TAMU BLDG # 401 Energy Balance Plot during May 2017

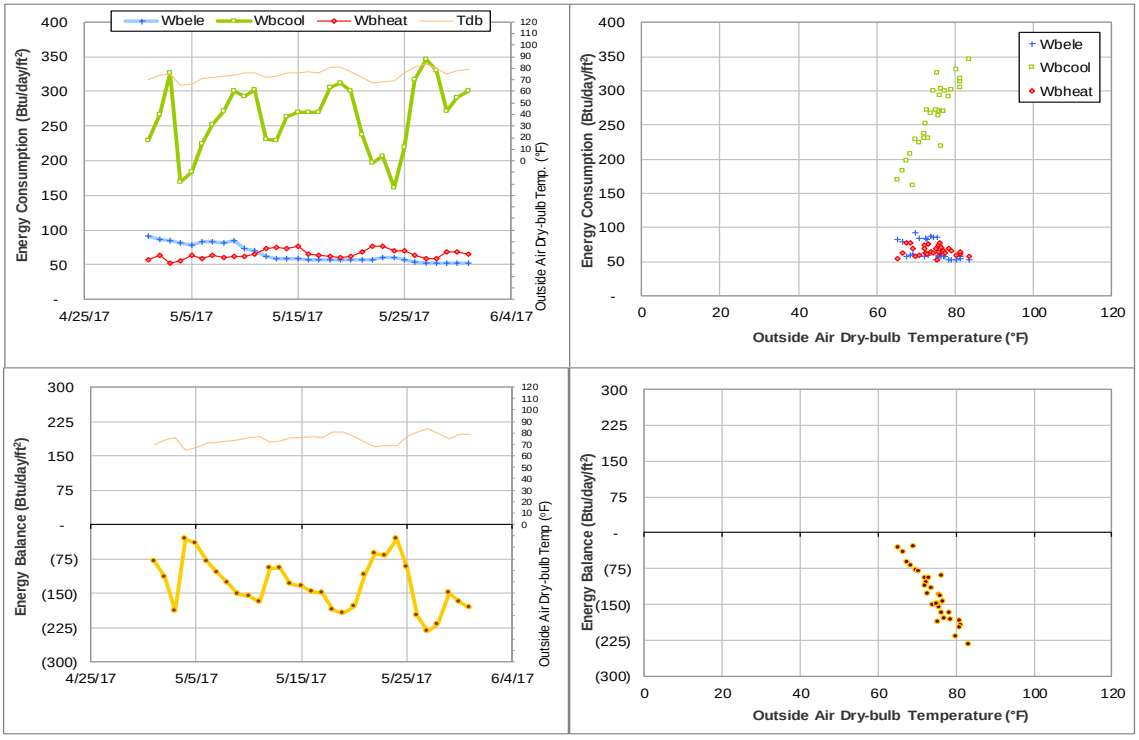


Figure IV-31 Fountain Hall Dorm 4 TAMU BLDG # 403 Energy Balance Plot during May 2017

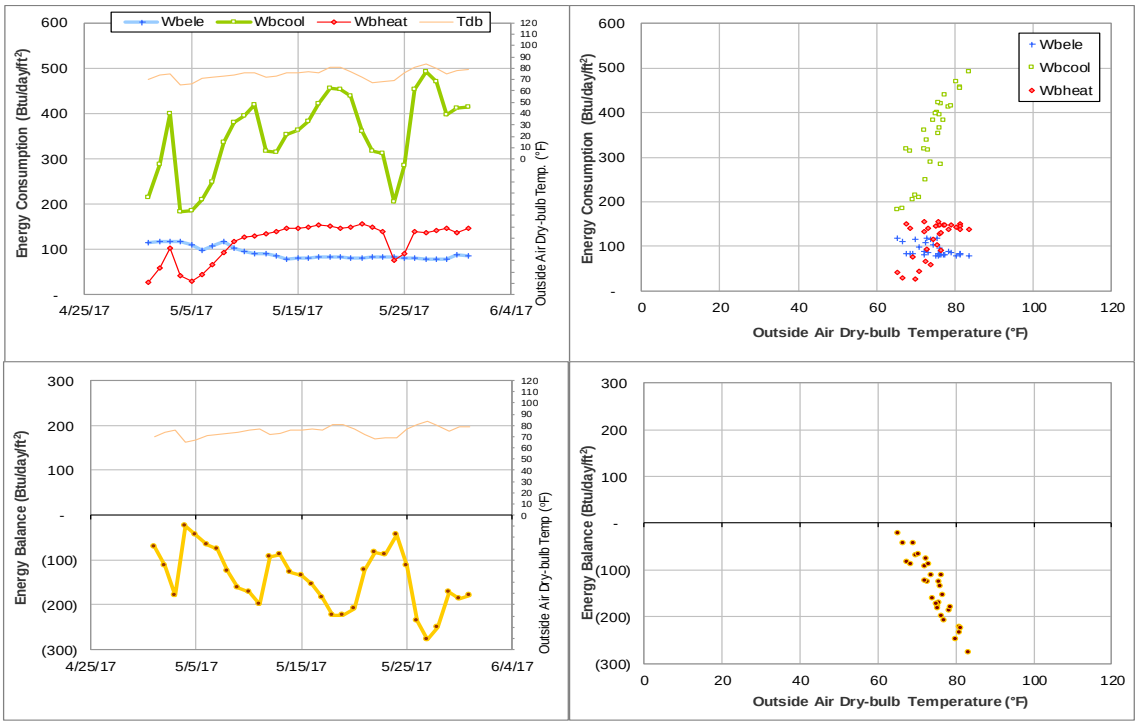


Figure IV-32 Plank LLC TAMU BLDG # 1404 Energy Balance Plot during May 2017

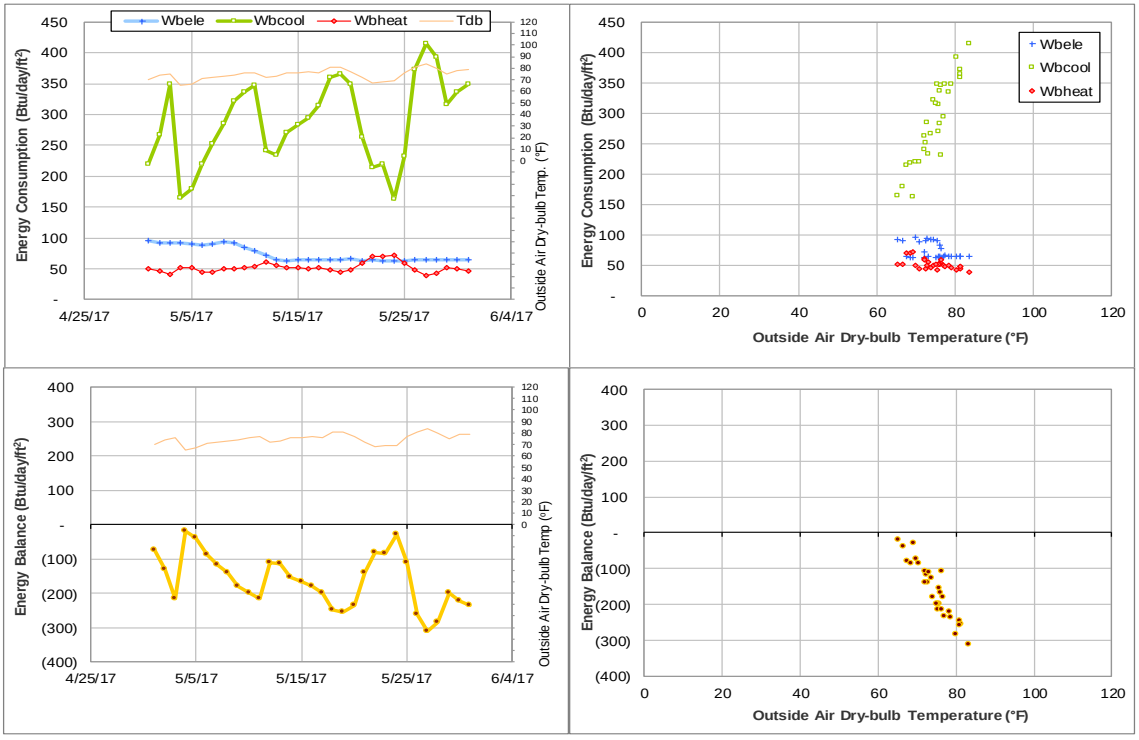


Figure IV-33 Gainer Hall, Leonard Hall and Ash LLC TAMU BLDG # 404, 406, 1403 Energy Balance Plot during May 2017

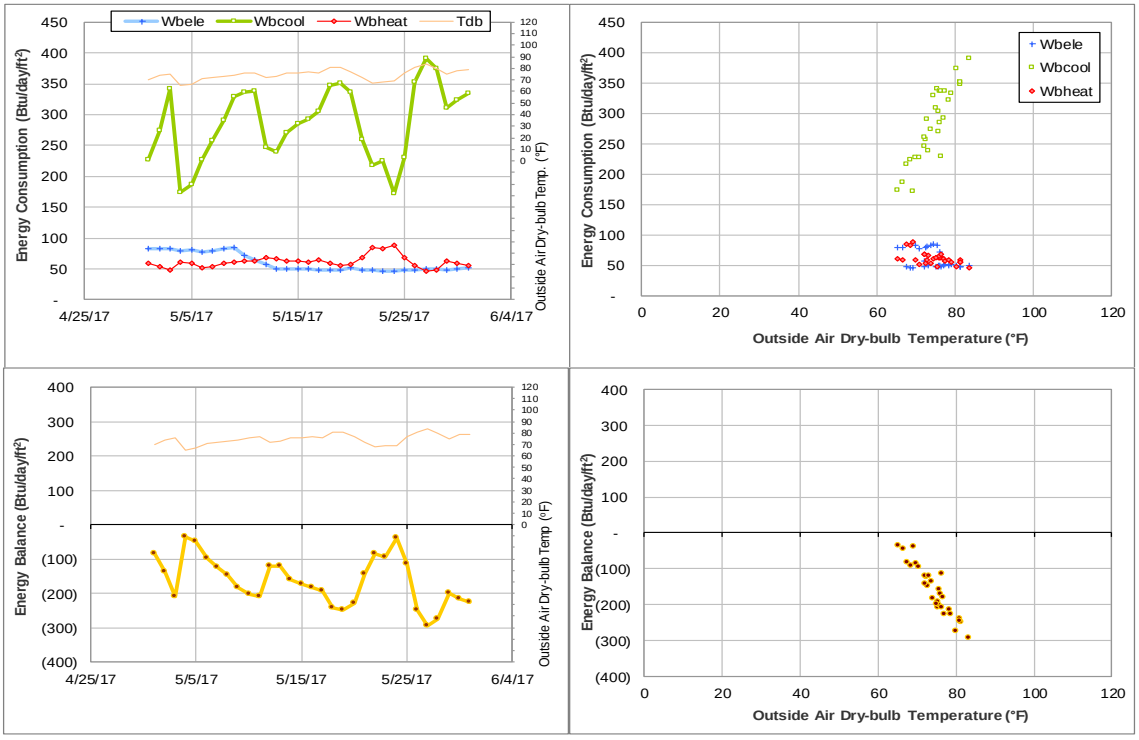


Figure IV-34 Gainer Hall Dorm 5 TAMU BLDG # 404 Energy Balance Plot during May 2017

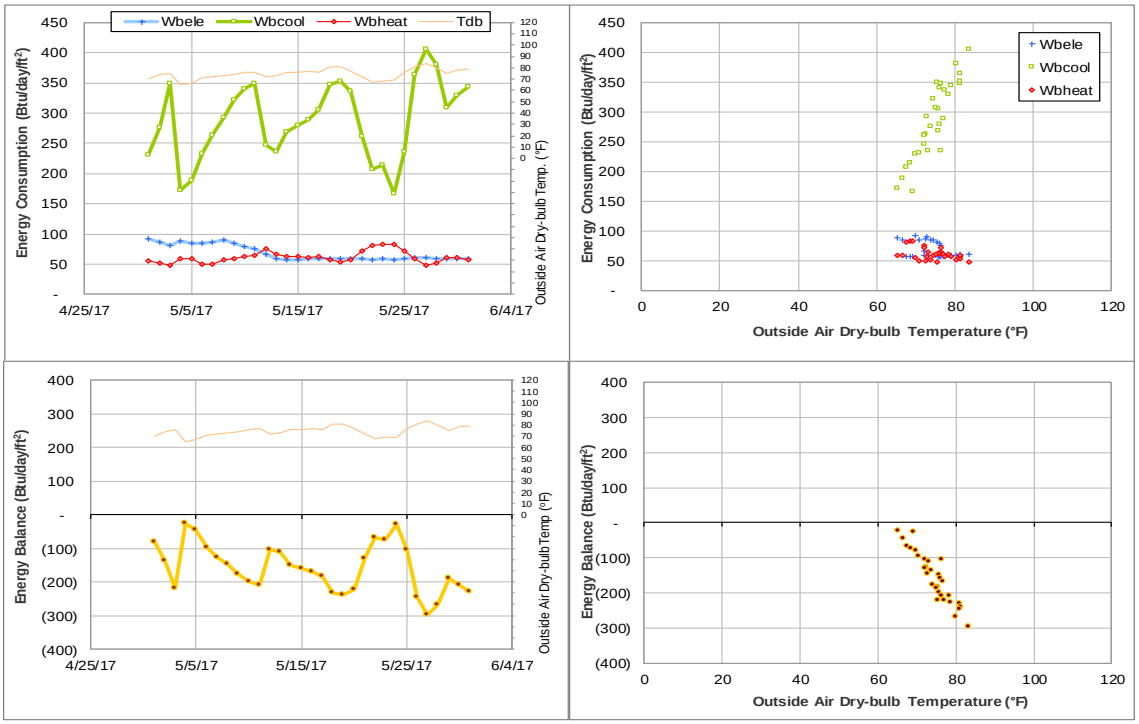


Figure IV-35 Leonard Hall - Dorm 7 TAMU BLDG # 406 Energy Balance Plot during May 2017

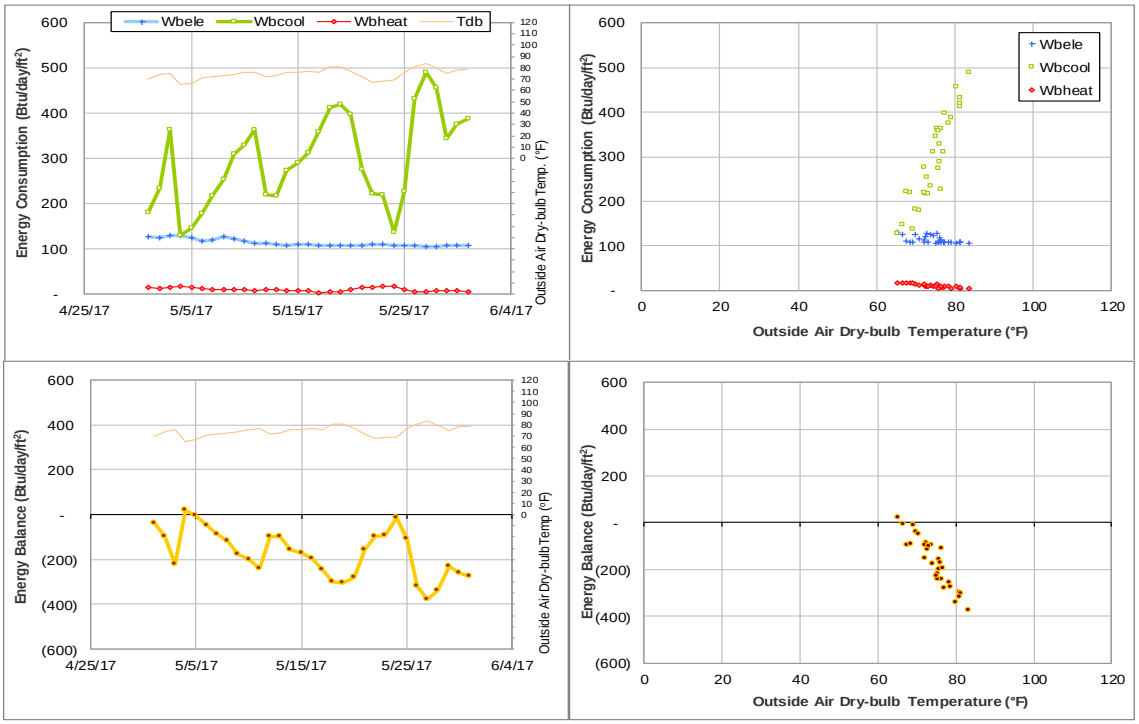


Figure IV-36 H. Grady Ash, Jr. '58 Leadership Learning Center TAMU BLDG # 1403 Energy Balance Plot during May 2017

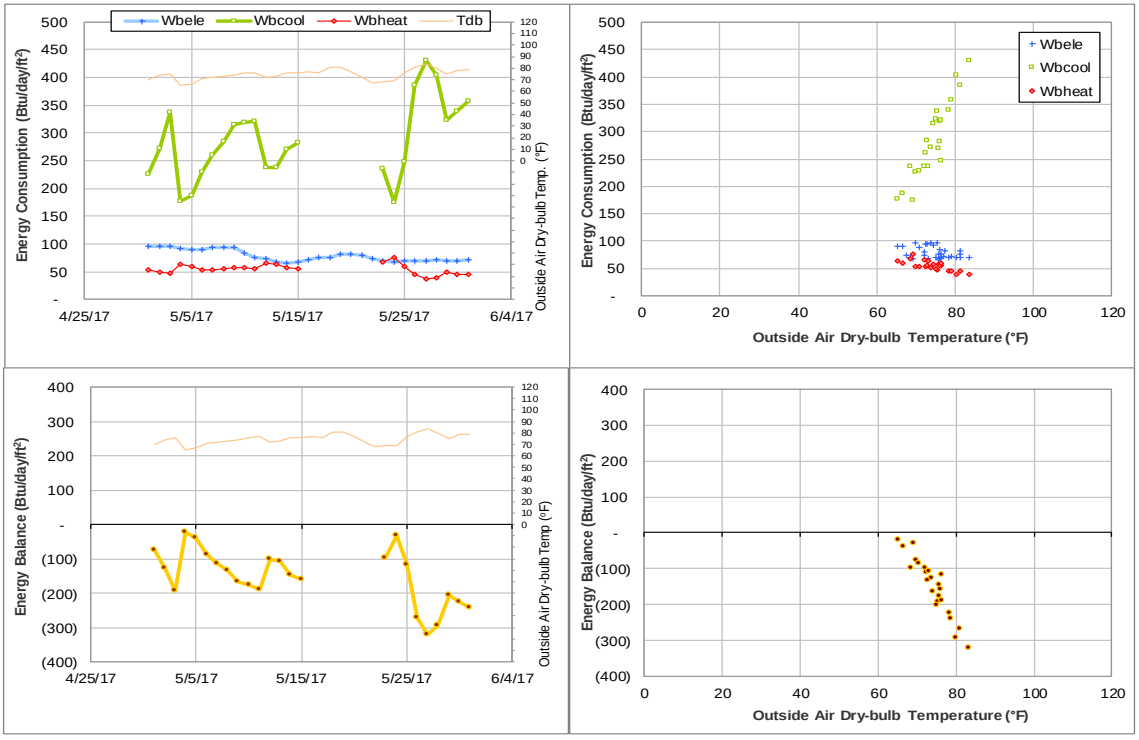


Figure IV-37 Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center TAMU BLDG # 405, 407, 1402 Energy Balance Plot during May 2017

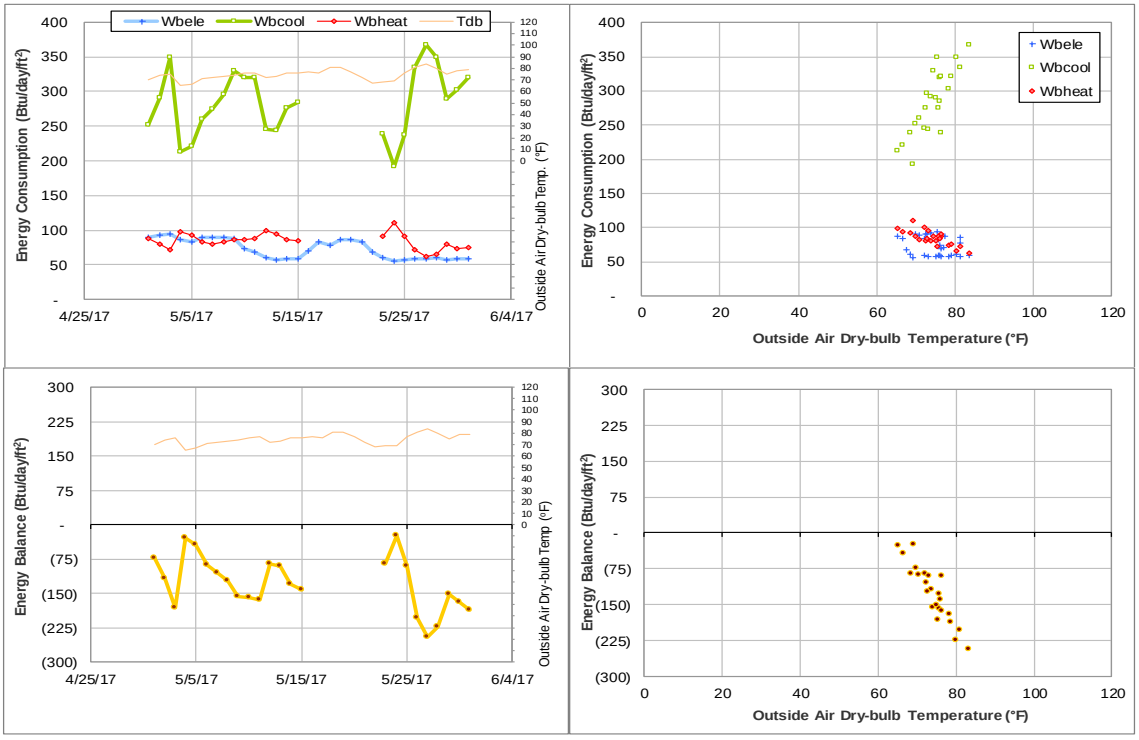


Figure IV-38 Lacy Hall - Dorm 6 TAMU BLDG # 405 Energy Balance Plot during May 2017

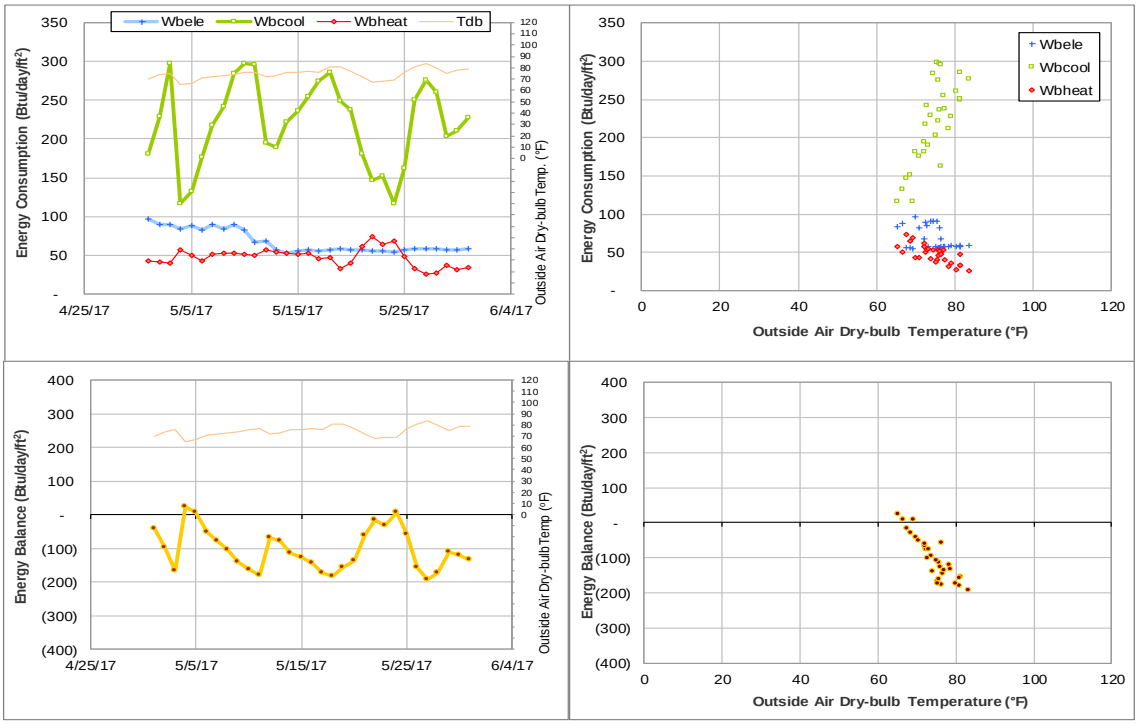


Figure IV-39 Harrell Hall - Dorm 8 TAMU BLDG # 407 Energy Balance Plot during May 2017

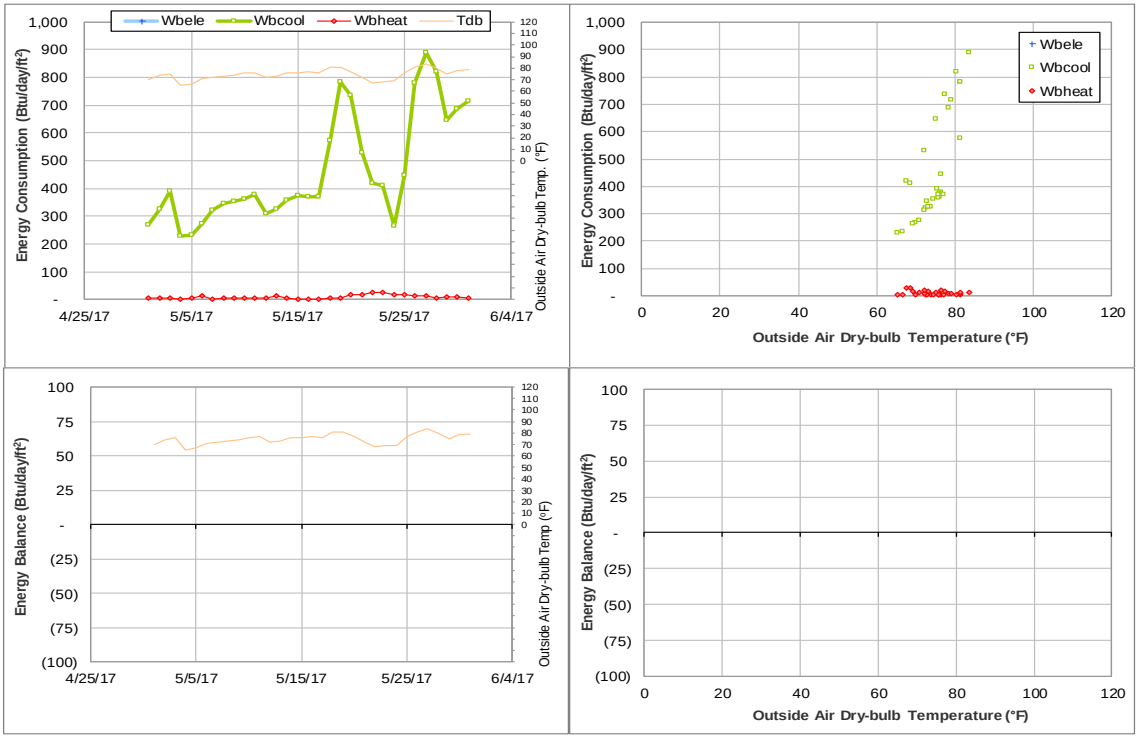


Figure IV-40 Buzbee Leadership Learning Center TAMU BLDG # 1402 Energy Balance Plot during May 2017

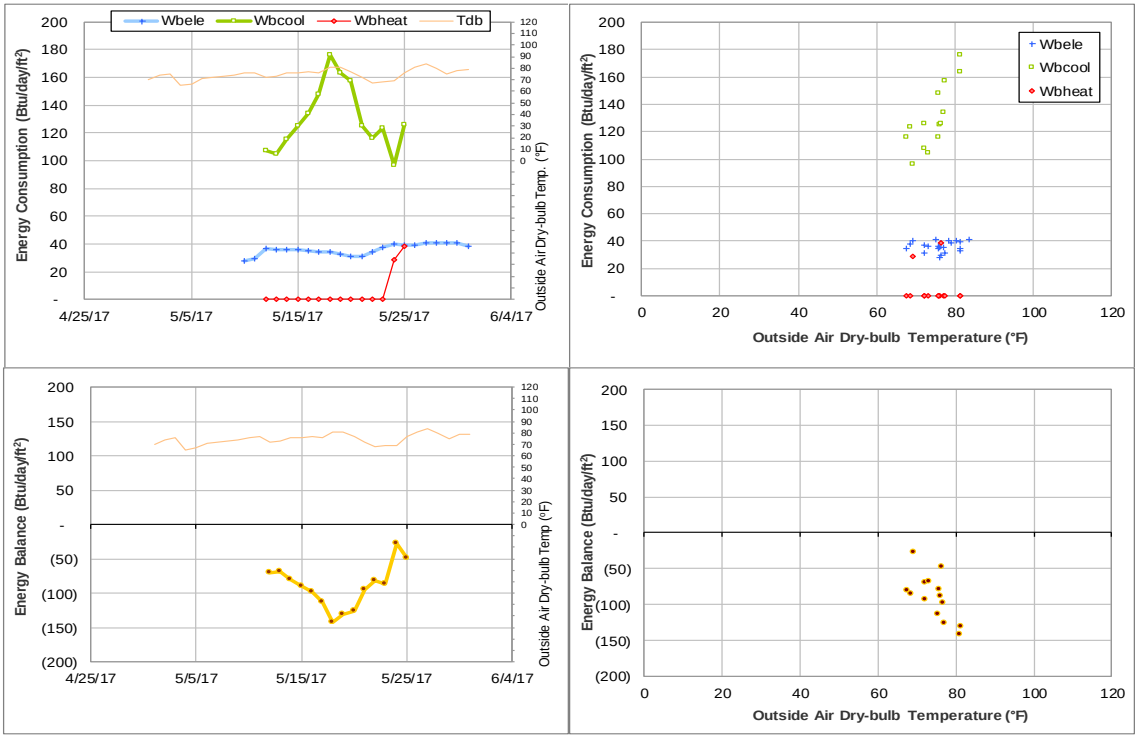


Figure IV-41 Whitely Hall - Dorm 9 TAMU BLDG # 408 Energy Balance Plot during May 2017

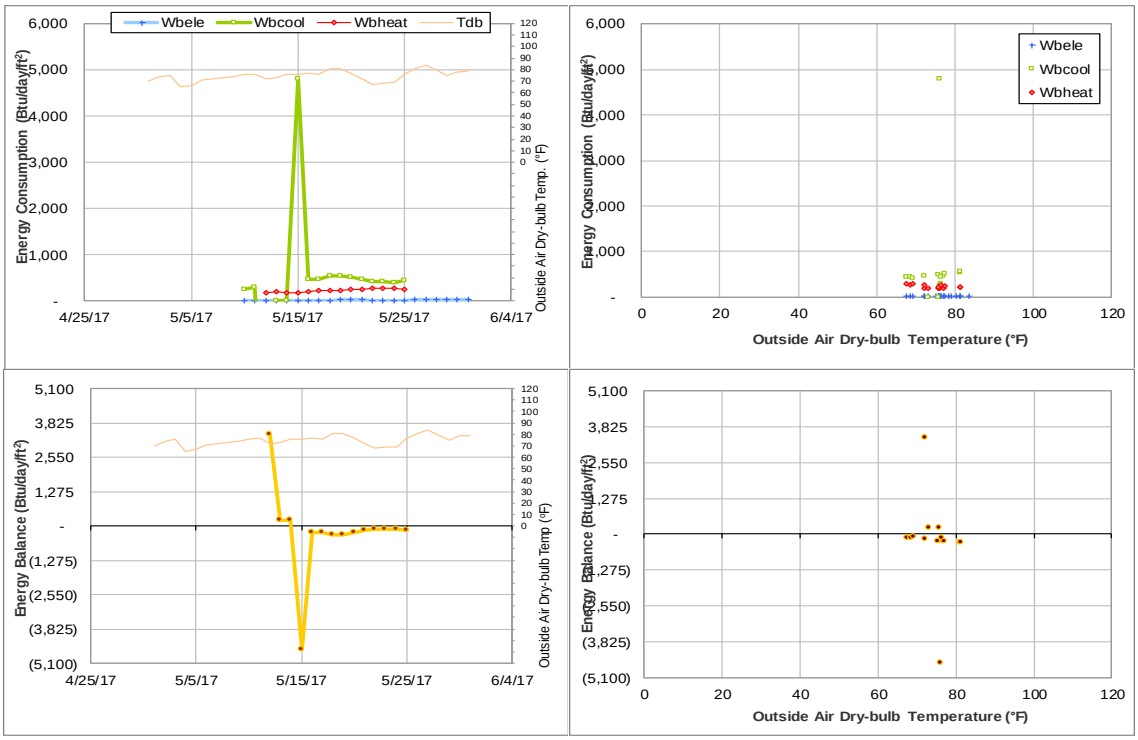


Figure IV-42 White Hall - Dorm 10 TAMU BLDG # 409 Energy Balance Plot during May 2017

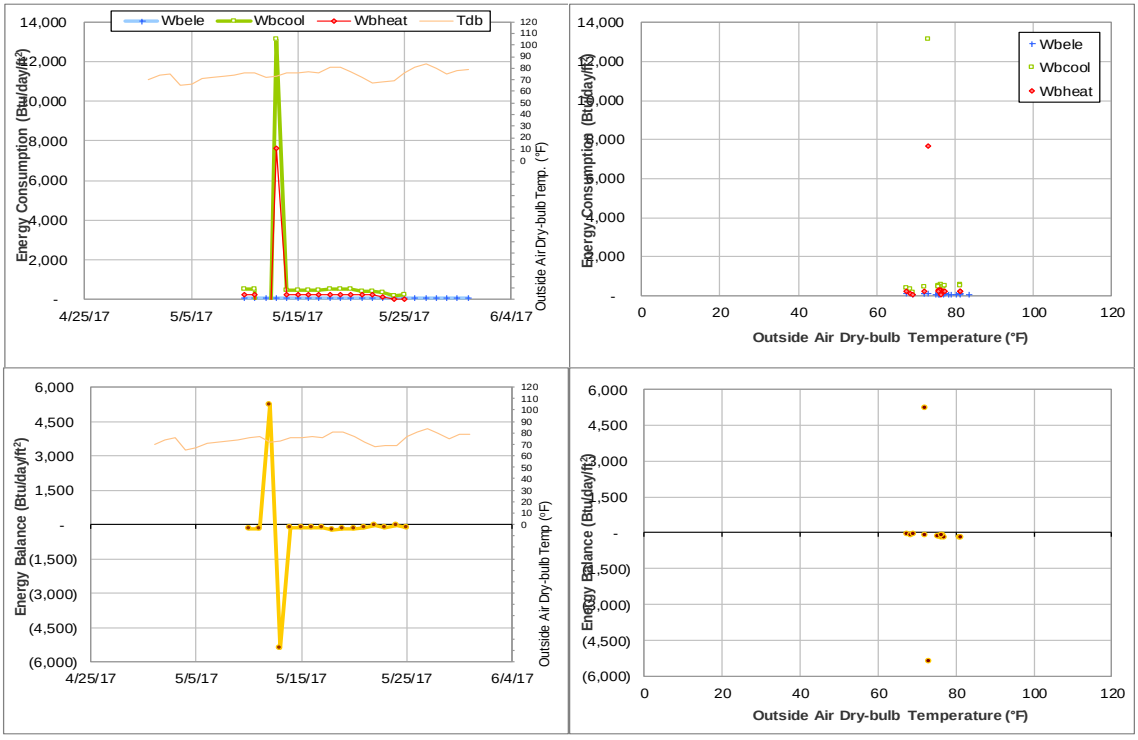


Figure IV-43 Harrington Hall - Dorm 11 TAMU BLDG # 410 Energy Balance Plot during May 2017

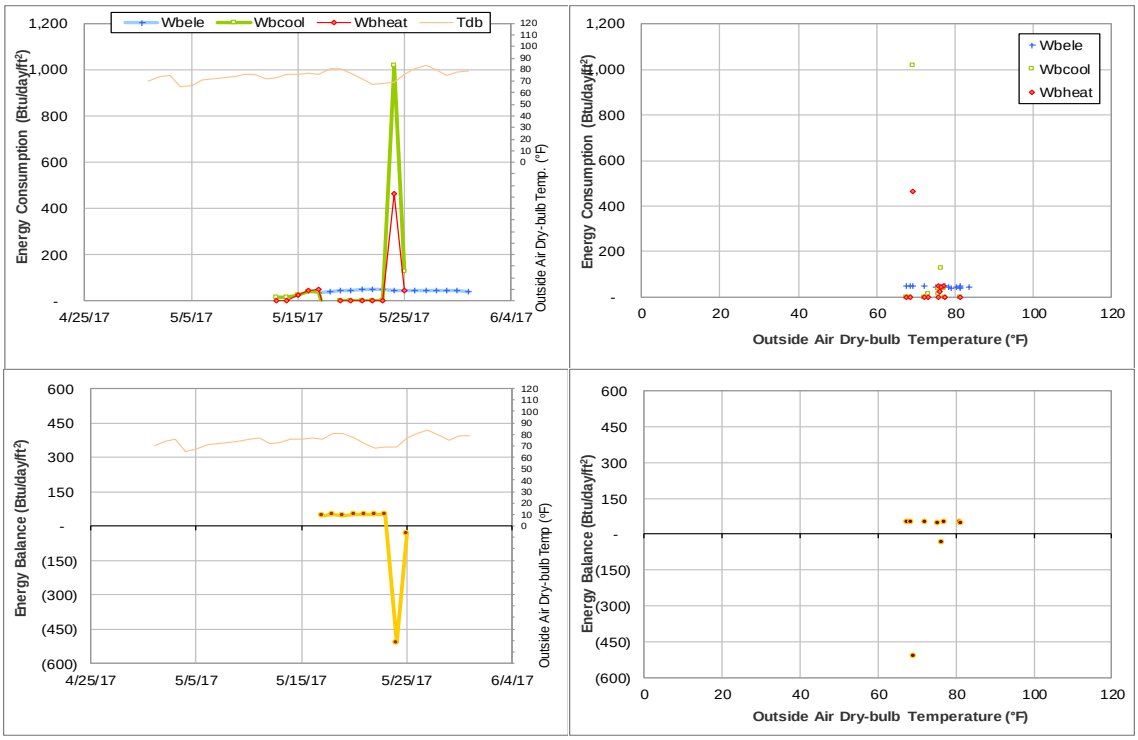


Figure IV-44 Utay Hall - Dorm 12 TAMU BLDG # 411 Energy Balance Plot during May 2017

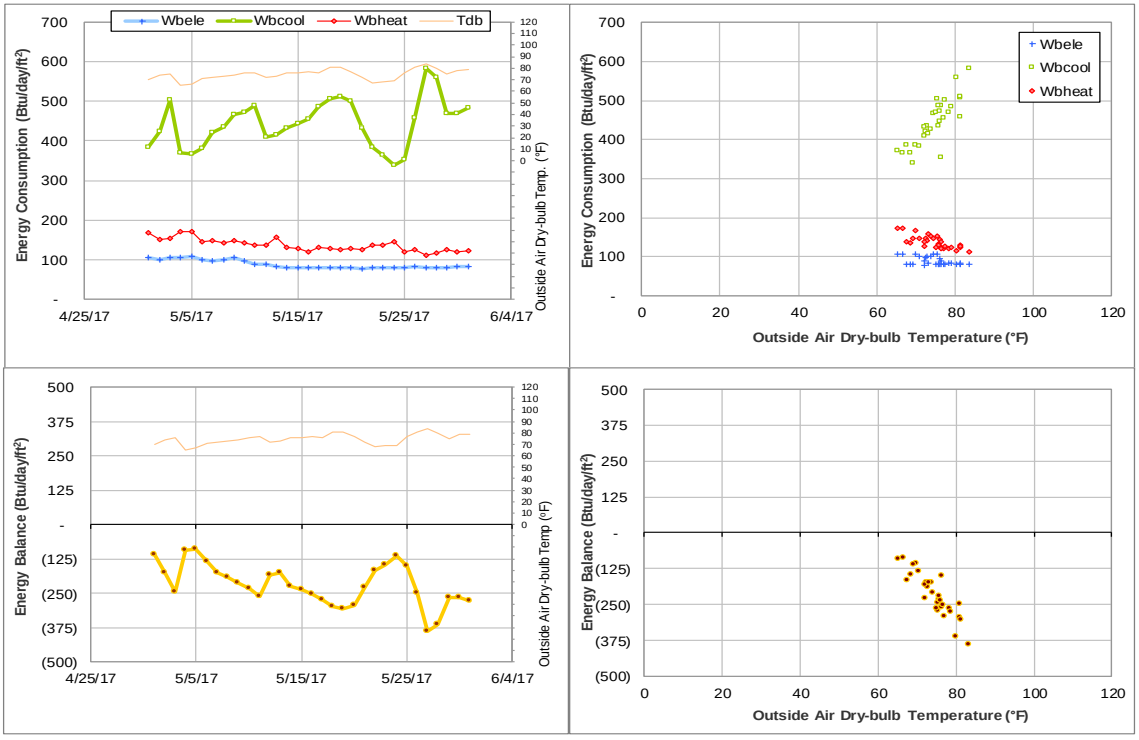


Figure IV-45 Moses Residence Hall TAMU BLDG # 412 Energy Balance Plot during May 2017

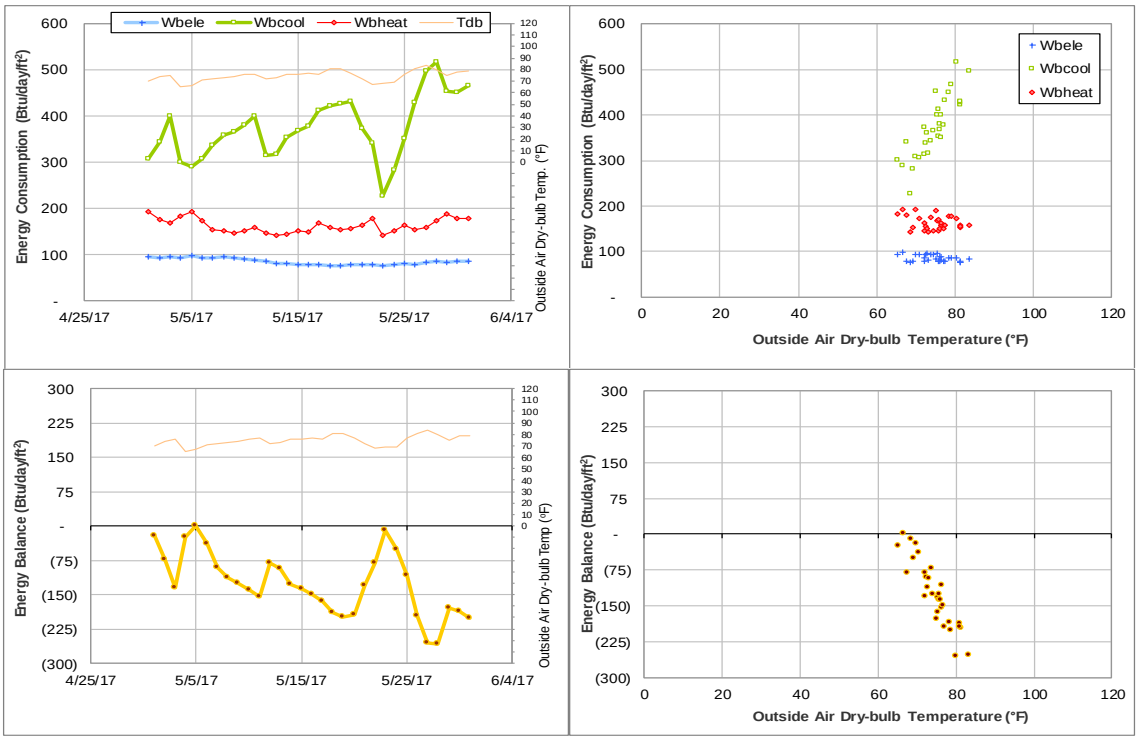


Figure IV-46 Davis-Gary Residence Hall TAMU BLDG # 415 Energy Balance Plot during May 2017

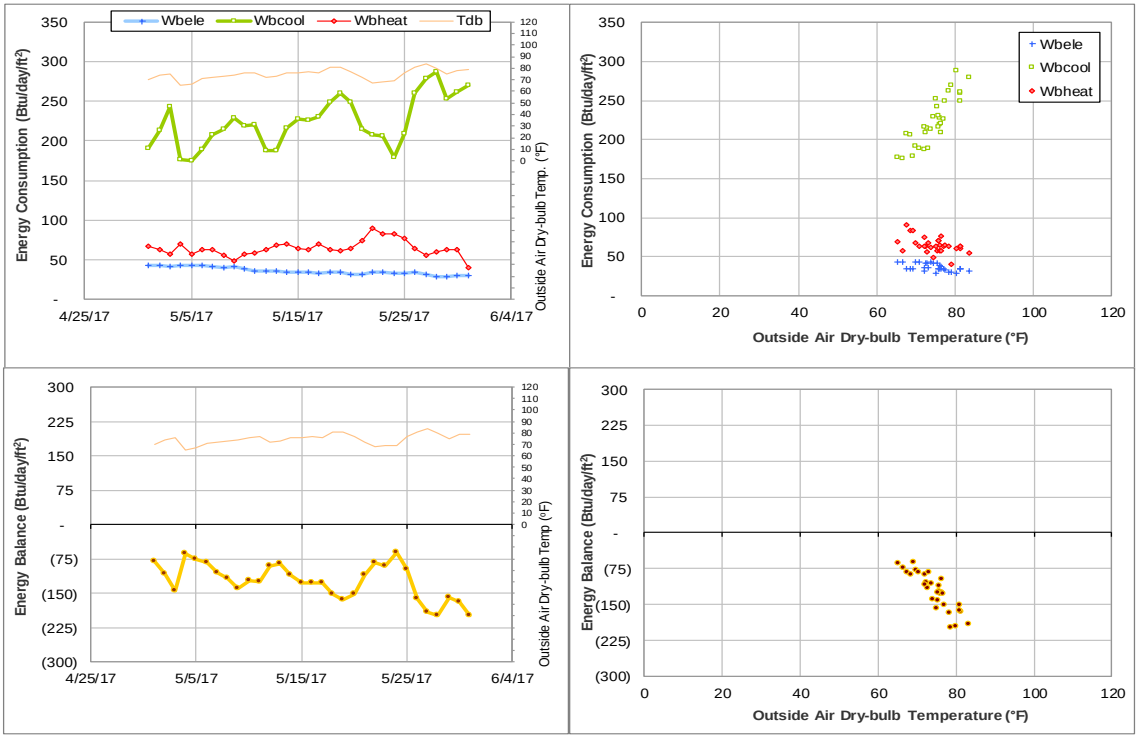


Figure IV-47 Legett Residence Hall TAMU BLDG # 419 Energy Balance Plot during May 2017

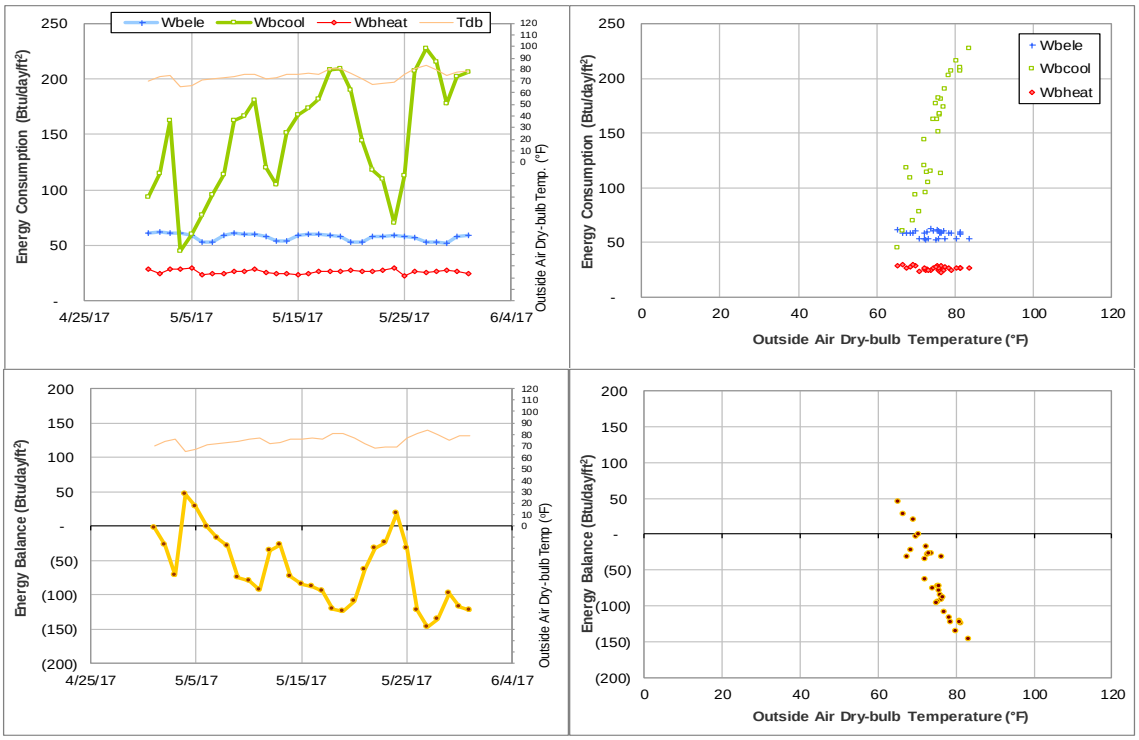


Figure IV-48 Milner Hall TAMU BLDG # 420 Energy Balance Plot during May 2017

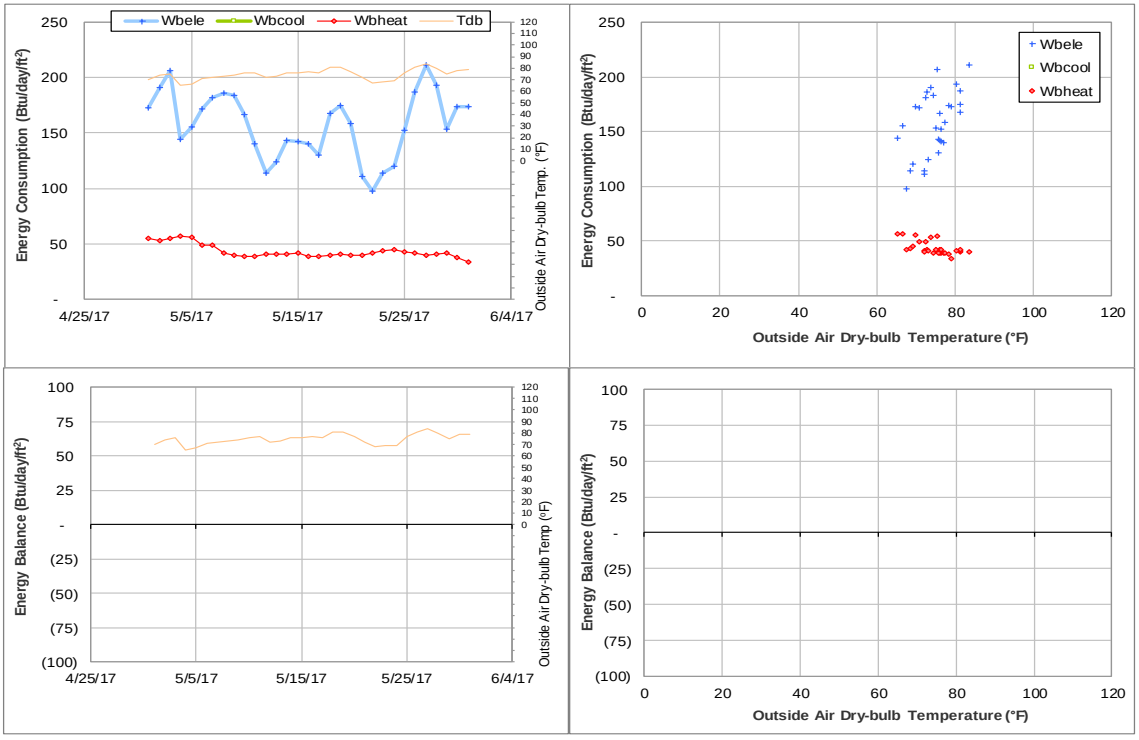


Figure IV-49 Walton Residence Hall TAMU BLDG # 422 Energy Balance Plot during May 2017

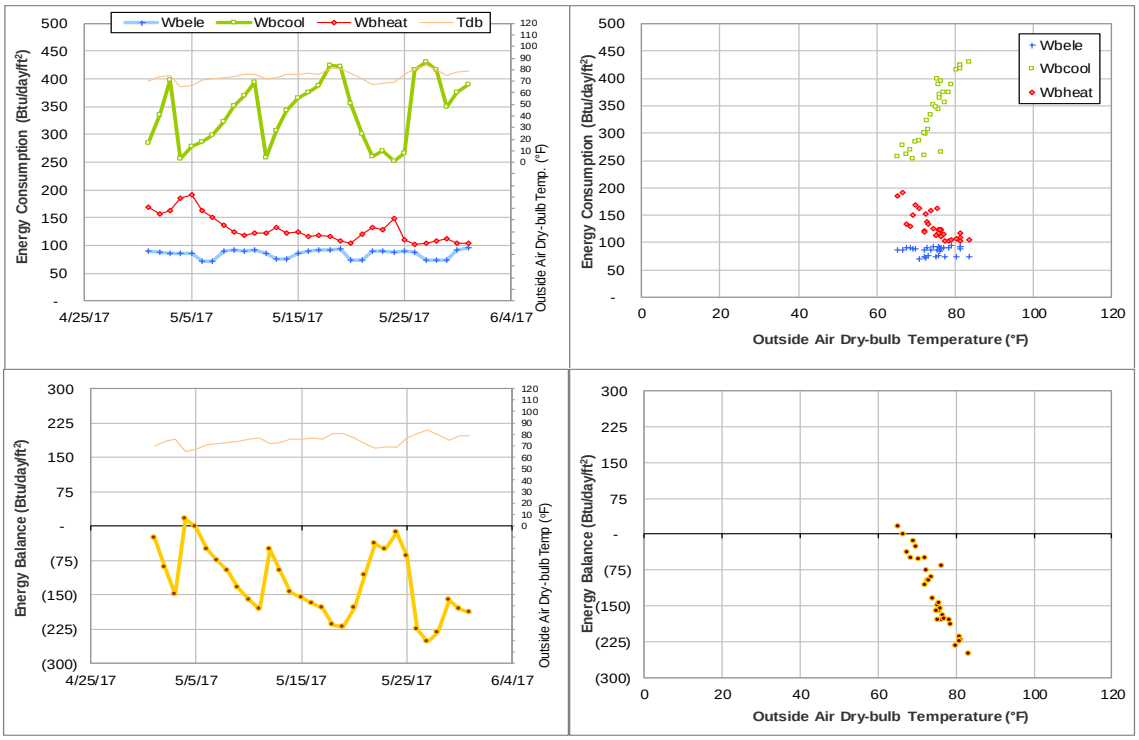


Figure IV-50 Hotard Hall TAMU BLDG # 424 Energy Balance Plot during May 2017

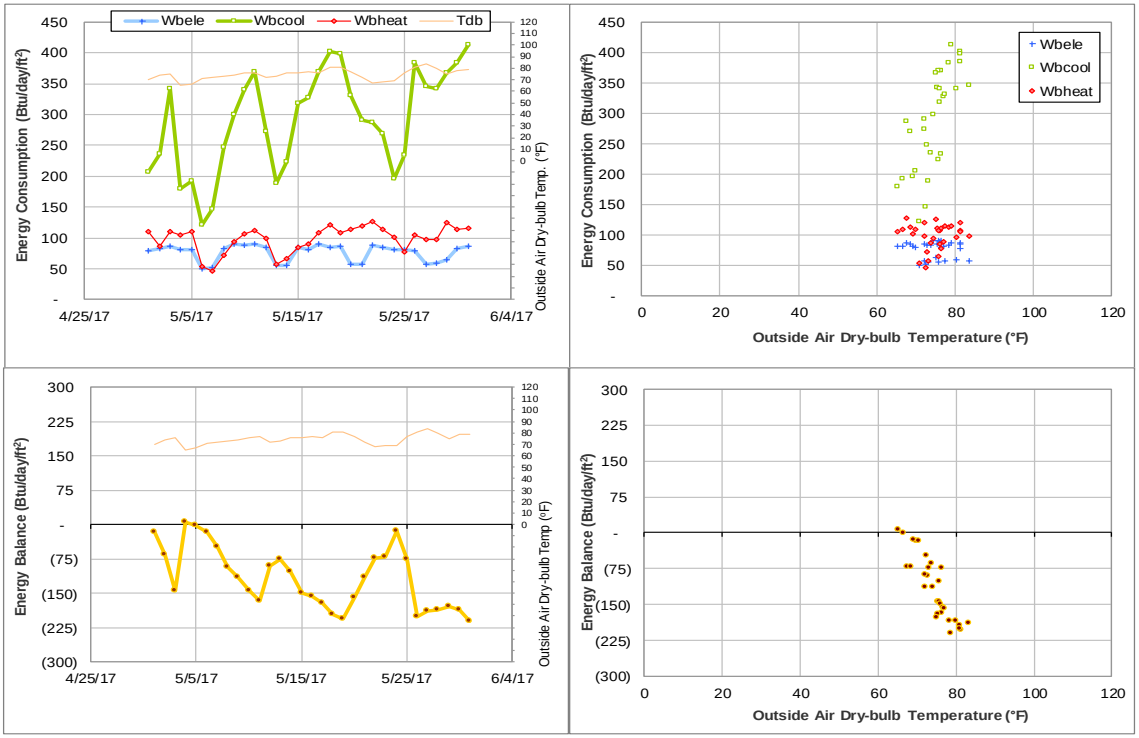


Figure IV-51 Henderson Hall TAMU BLDG # 425 Energy Balance Plot during May 2017

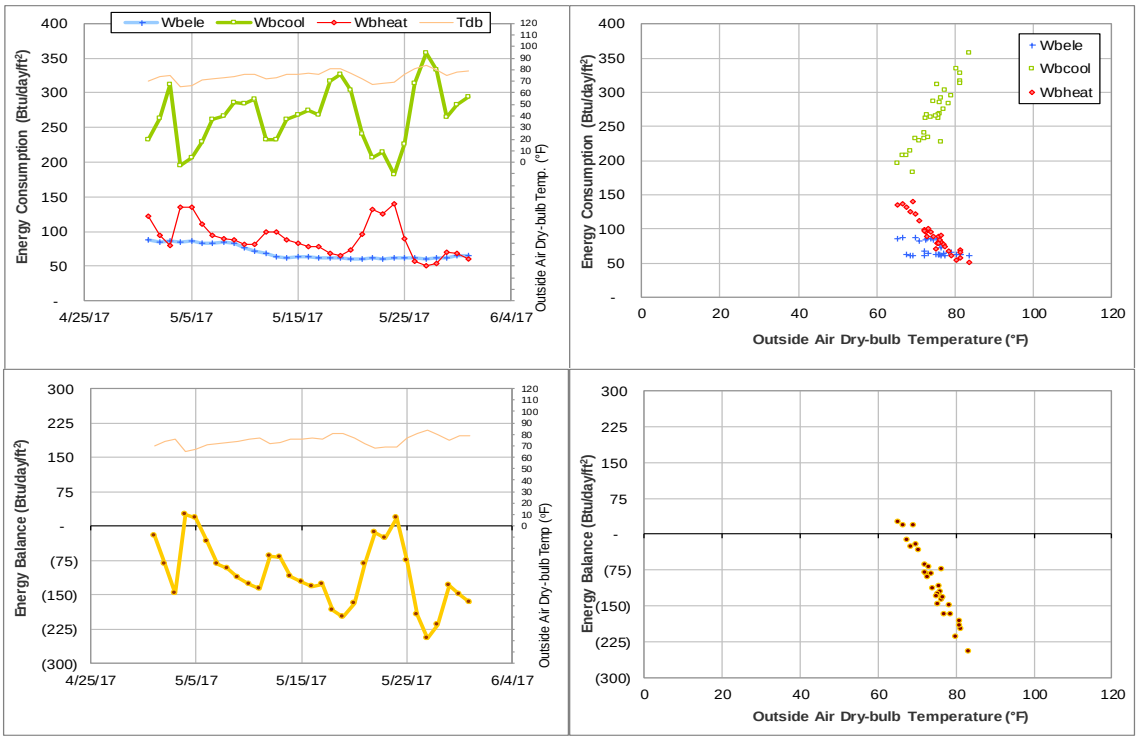


Figure IV-52 FHK Complex TAMU BLDG # 426 Energy Balance Plot during May 2017

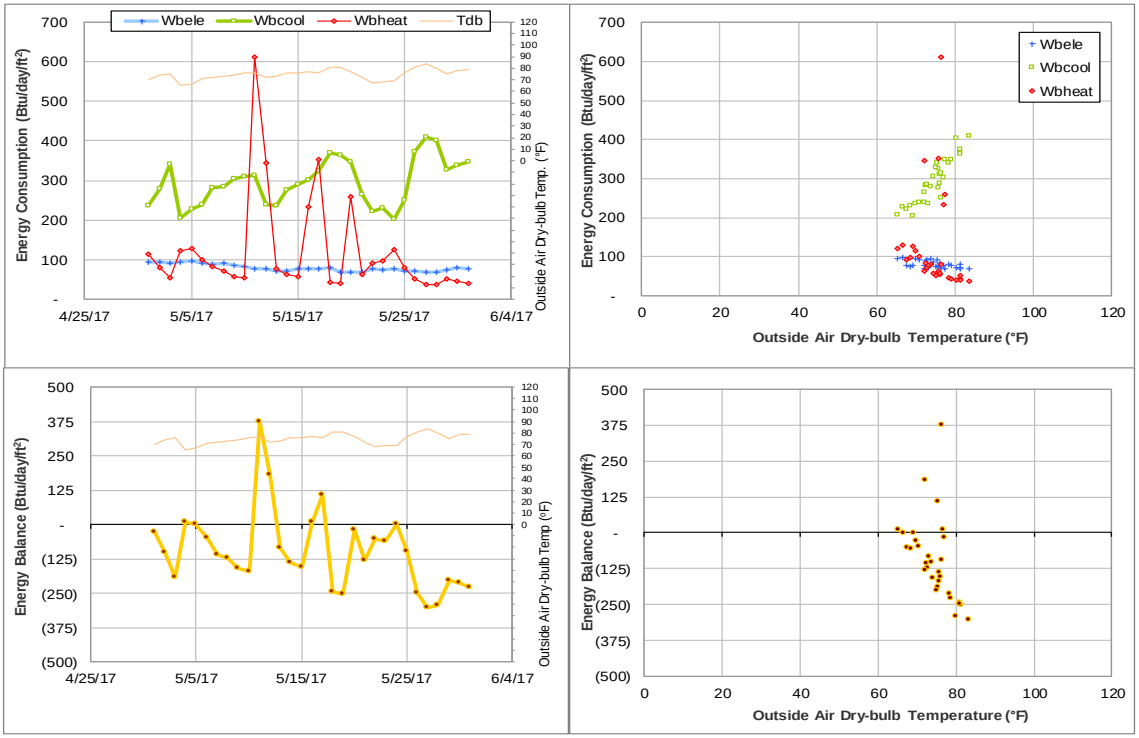


Figure IV-53 Schumacher Residence Hall TAMU BLDG # 430 Energy Balance Plot during May 2017

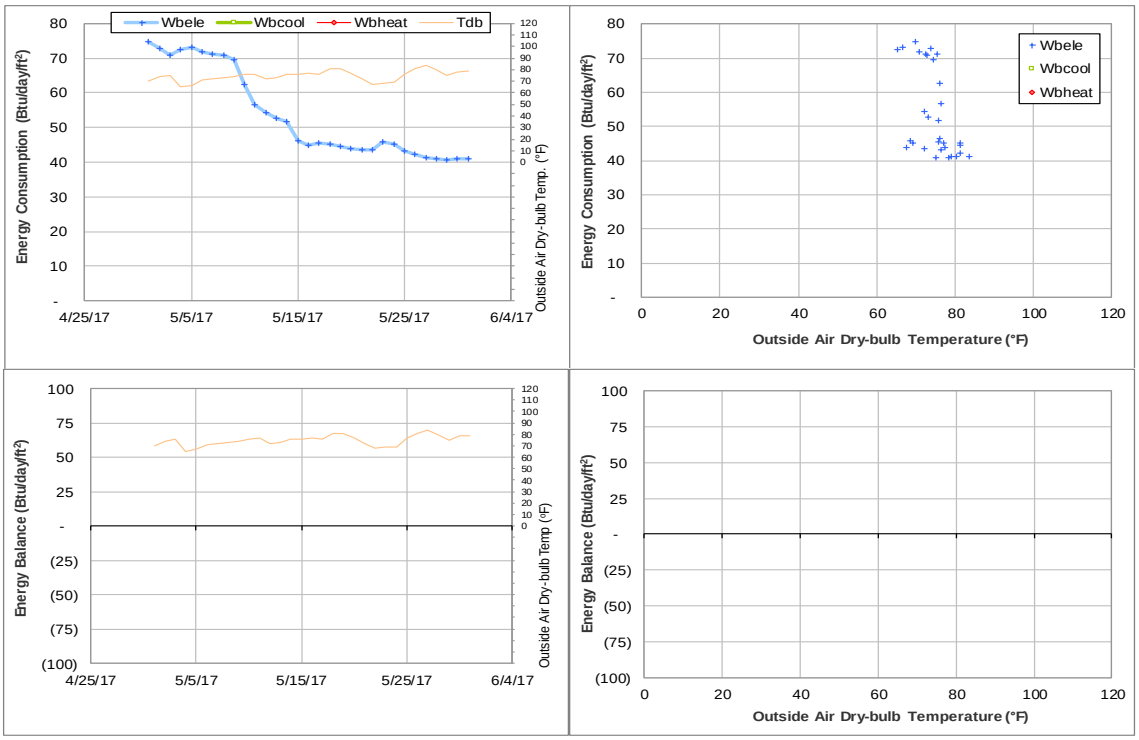


Figure IV-54 Mosher Commons Krueger Dunn Aston TAMU BLDG # 433, 440, 441, 442, 447 Energy Balance Plot during May 2017

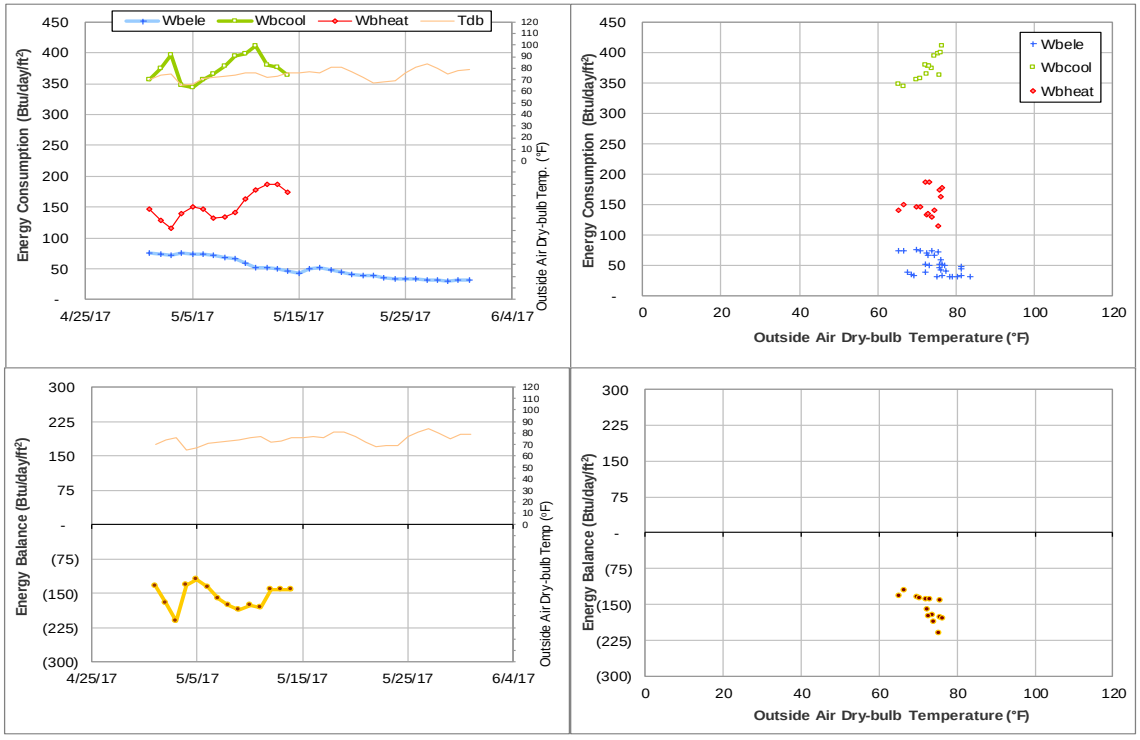


Figure IV-55 Mosher Residence Hall TAMU BLDG # 433 Energy Balance Plot during May 2017

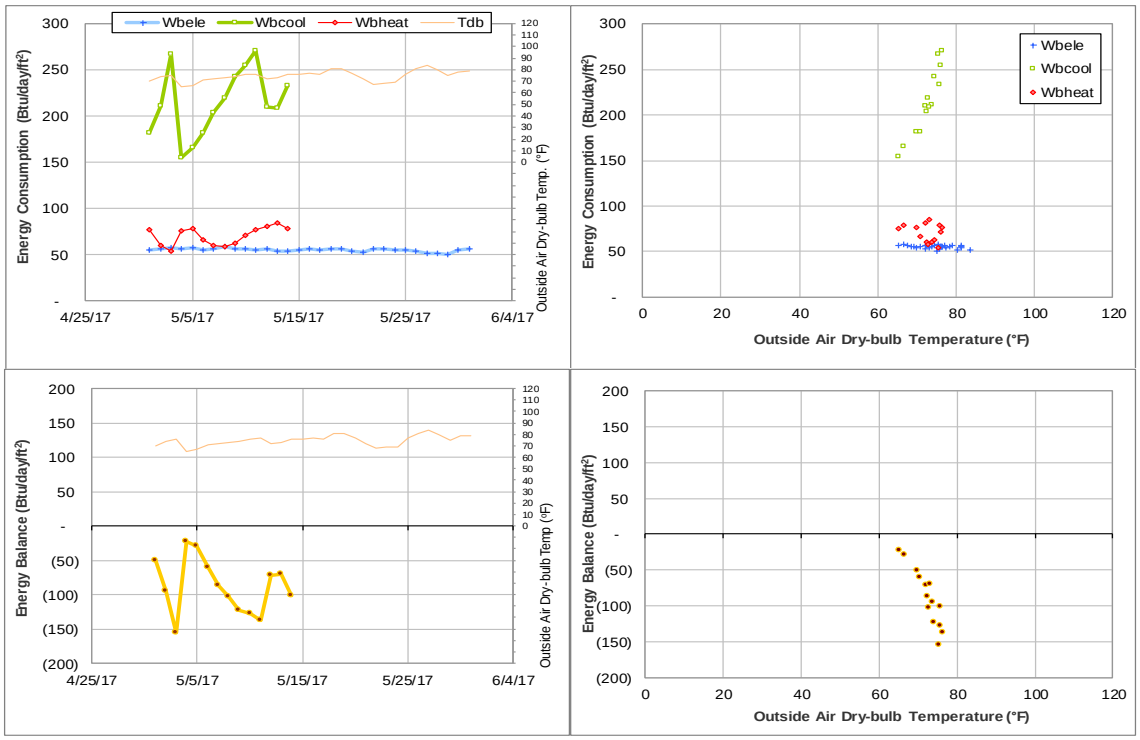


Figure IV-56 Commons Krueger TAMU BLDG # 440 and 441 Energy Balance Plot during May 2017

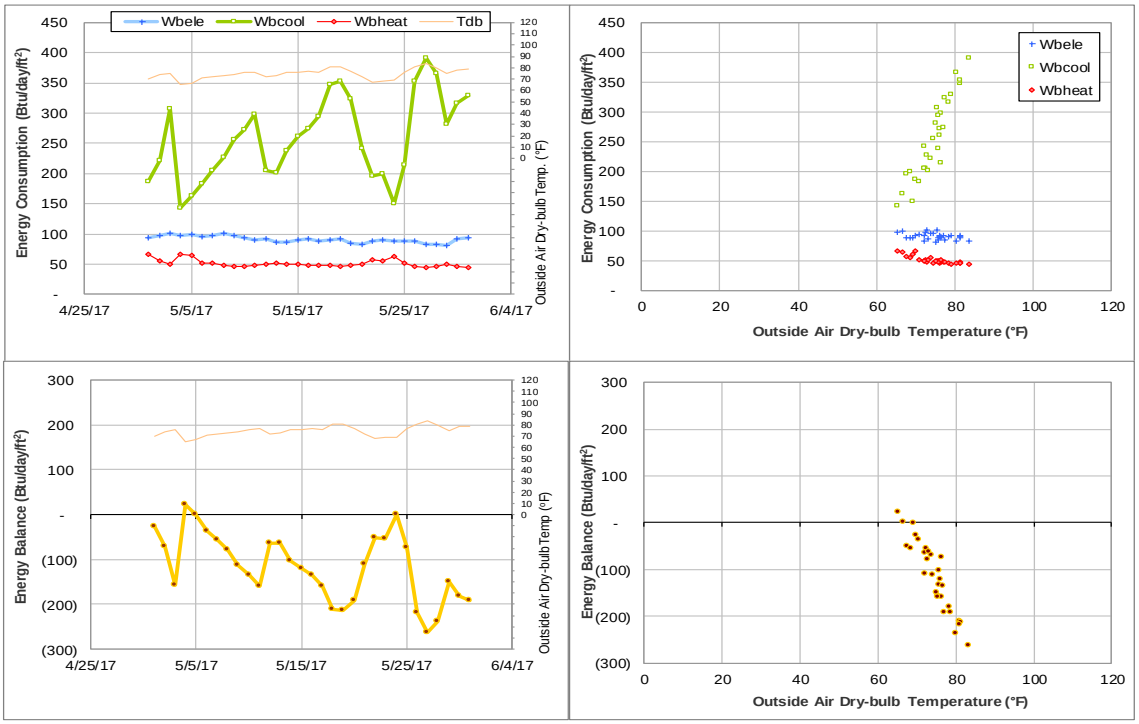


Figure IV-57 Commons Hall TAMU BLDG # 440 Energy Balance Plot during May 2017

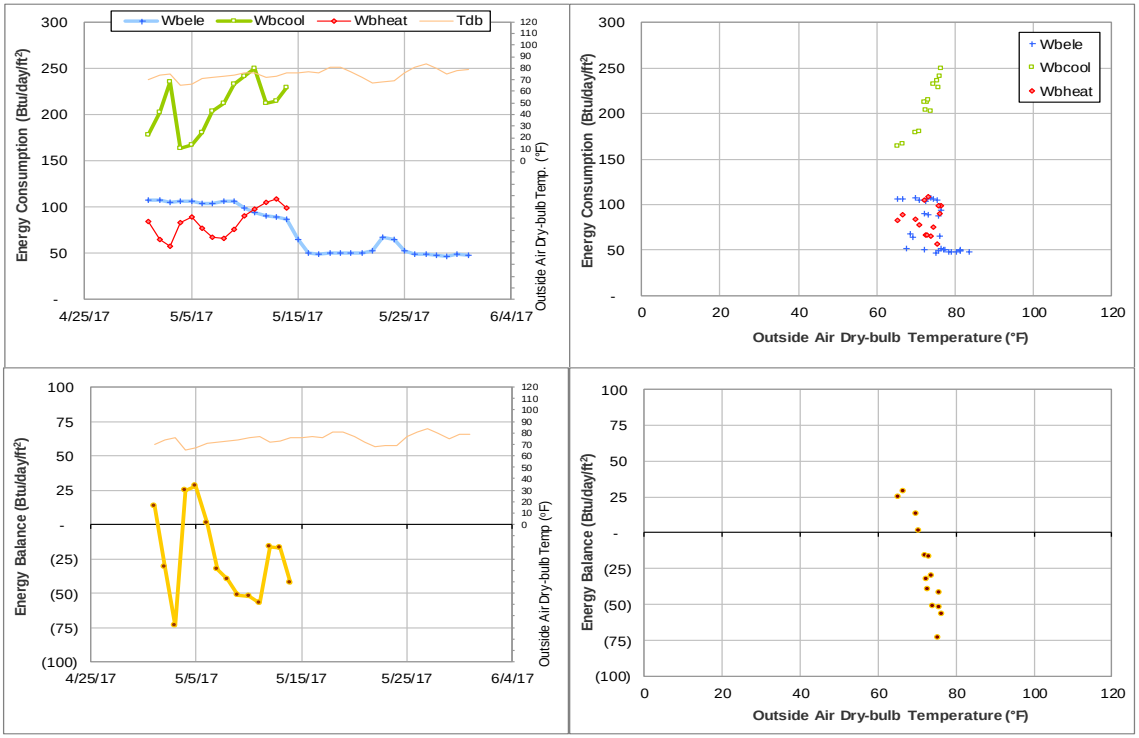


Figure IV-58 Krueger Residence Hall TAMU BLDG # 441 Energy Balance Plot during May 2017

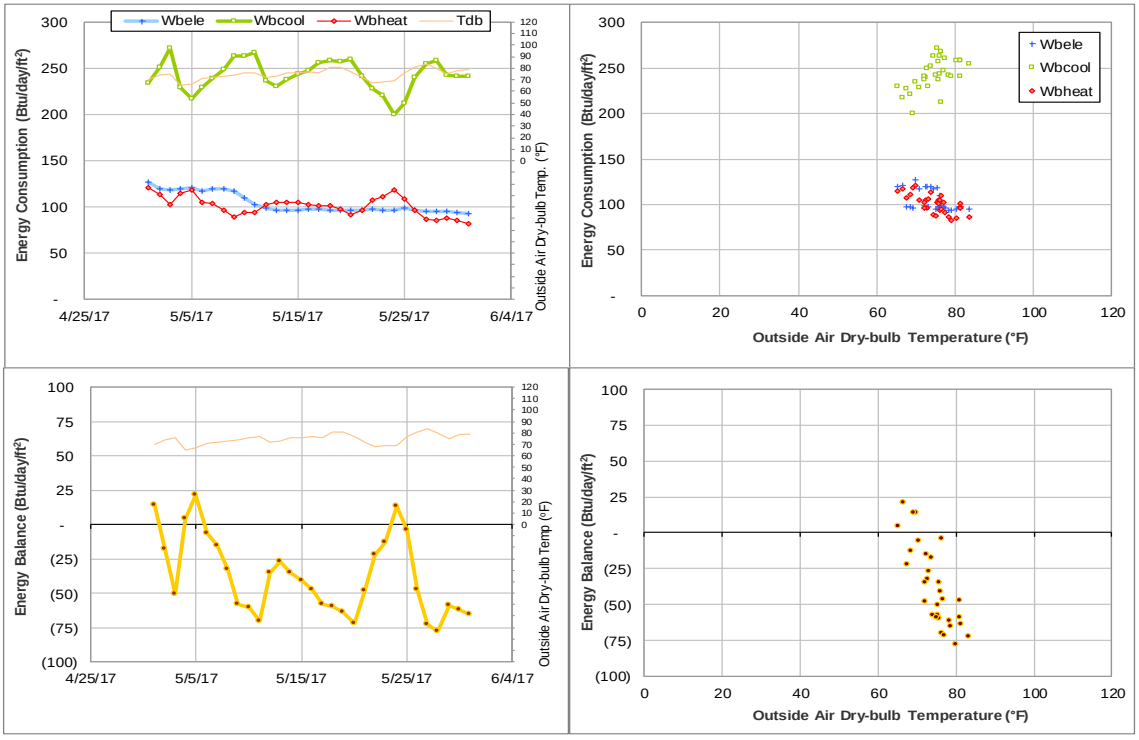


Figure IV-59 Dunn Residence Hall TAMU BLDG # 442 Energy Balance Plot during May 2017

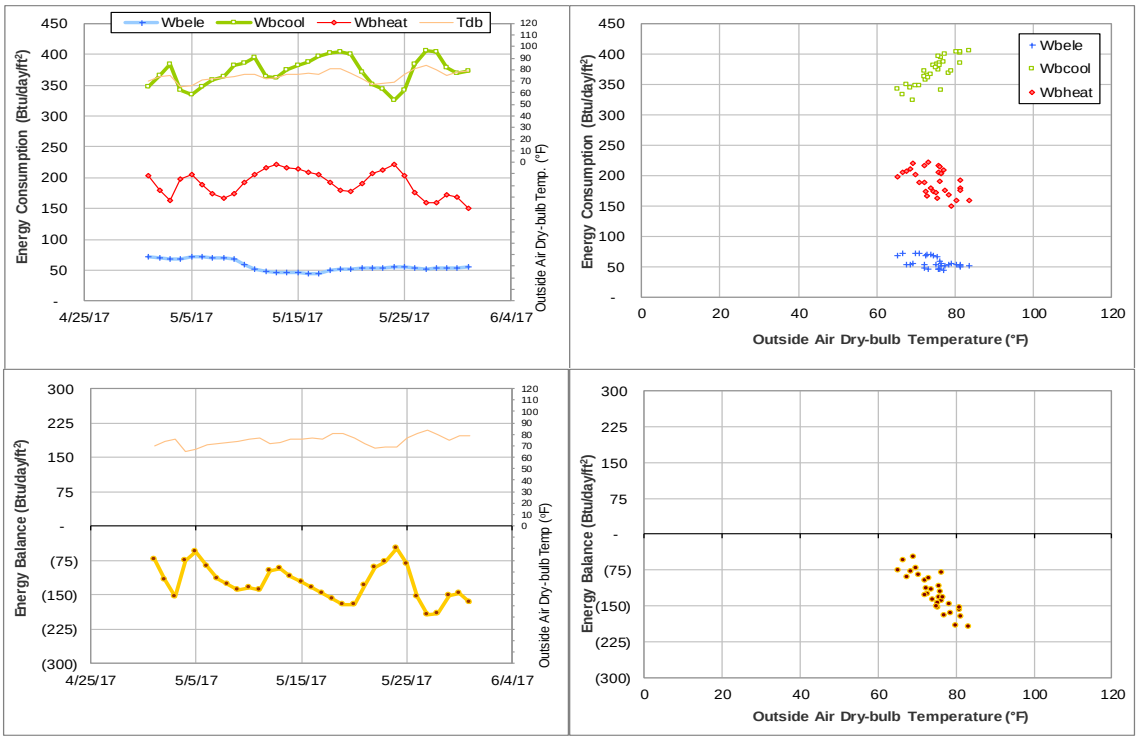


Figure IV-60 Aston Residence Hall TAMU BLDG # 447 Energy Balance Plot during May 2017

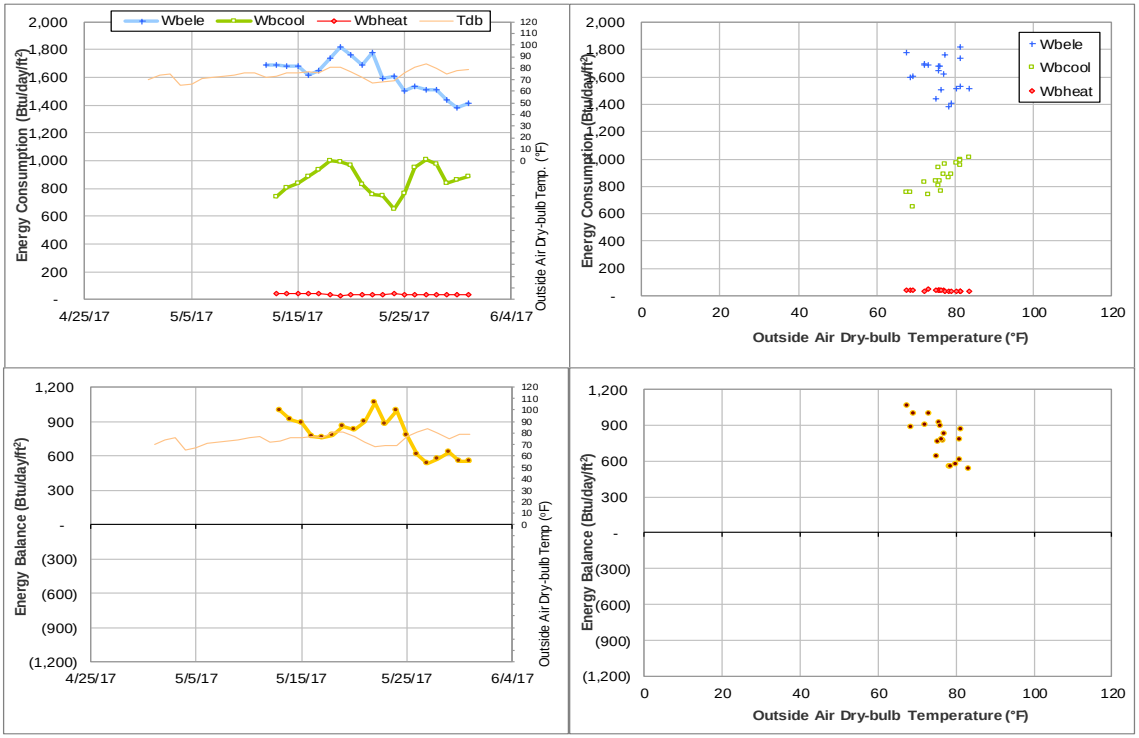


Figure IV-61 Luedecke Building (Cyclotron) TAMU BLDG # 434 Energy Balance Plot during May 2017

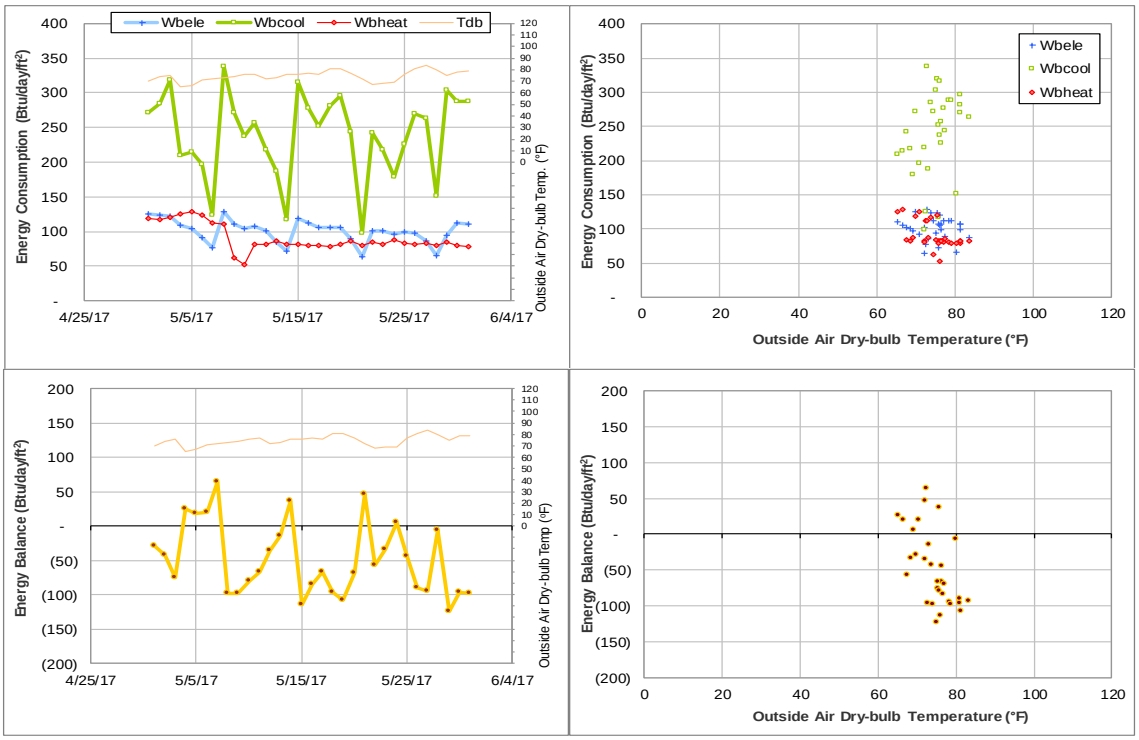


Figure IV-62 Harrington Education Center Office Tower TAMU BLDG # 435 Energy Balance Plot during May 2017

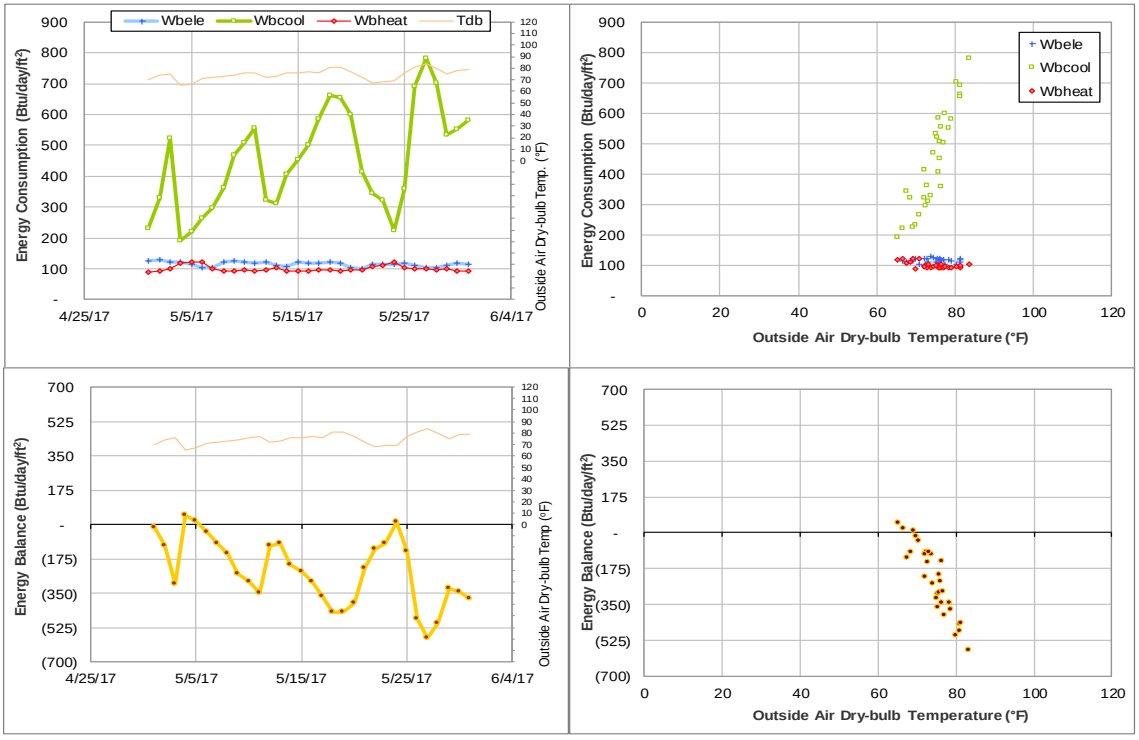


Figure IV-63 Reed-McDonald and Engineering Innovation Center TAMU BLDG # 436 and 499 Energy Balance Plot during May 2017

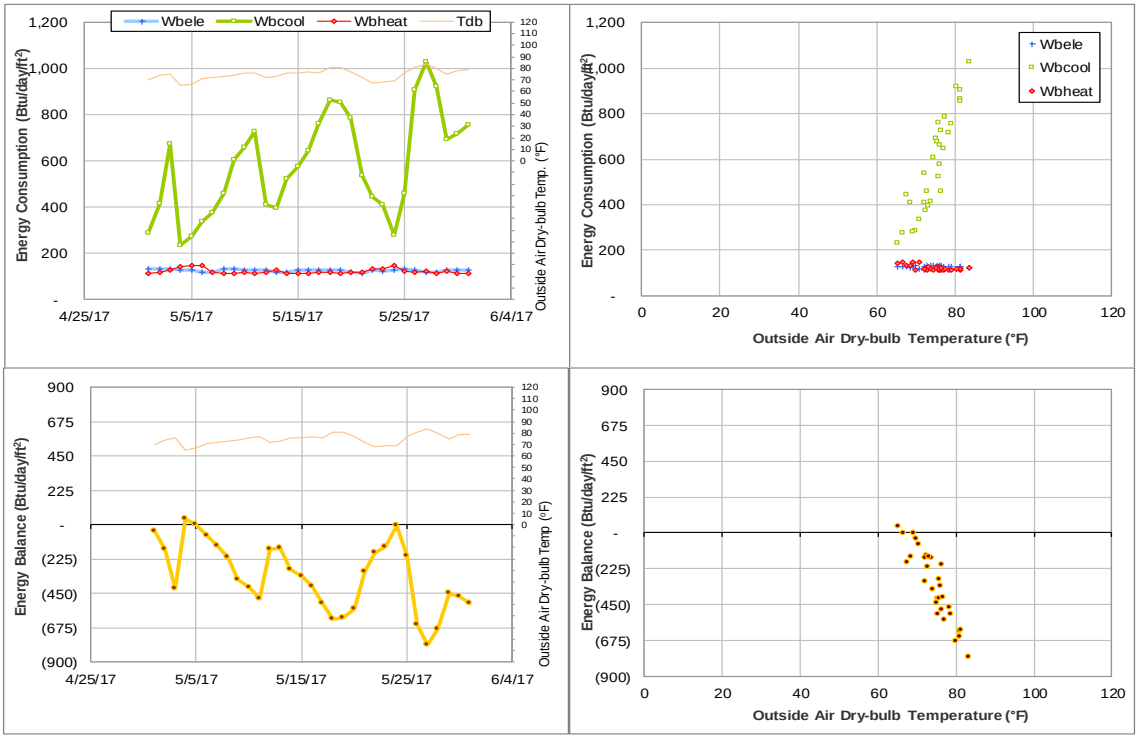


Figure IV-64 Reed-McDonald Building TAMU BLDG # 436 Energy Balance Plot during May 2017

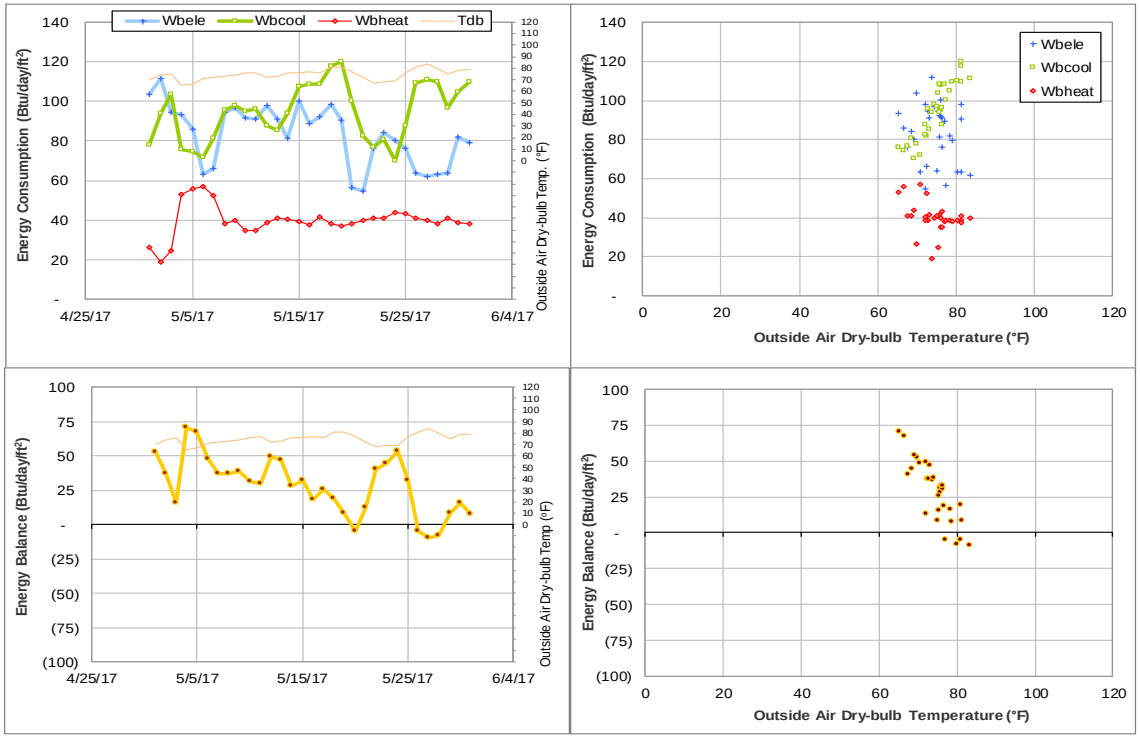


Figure IV-65 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during May 2017

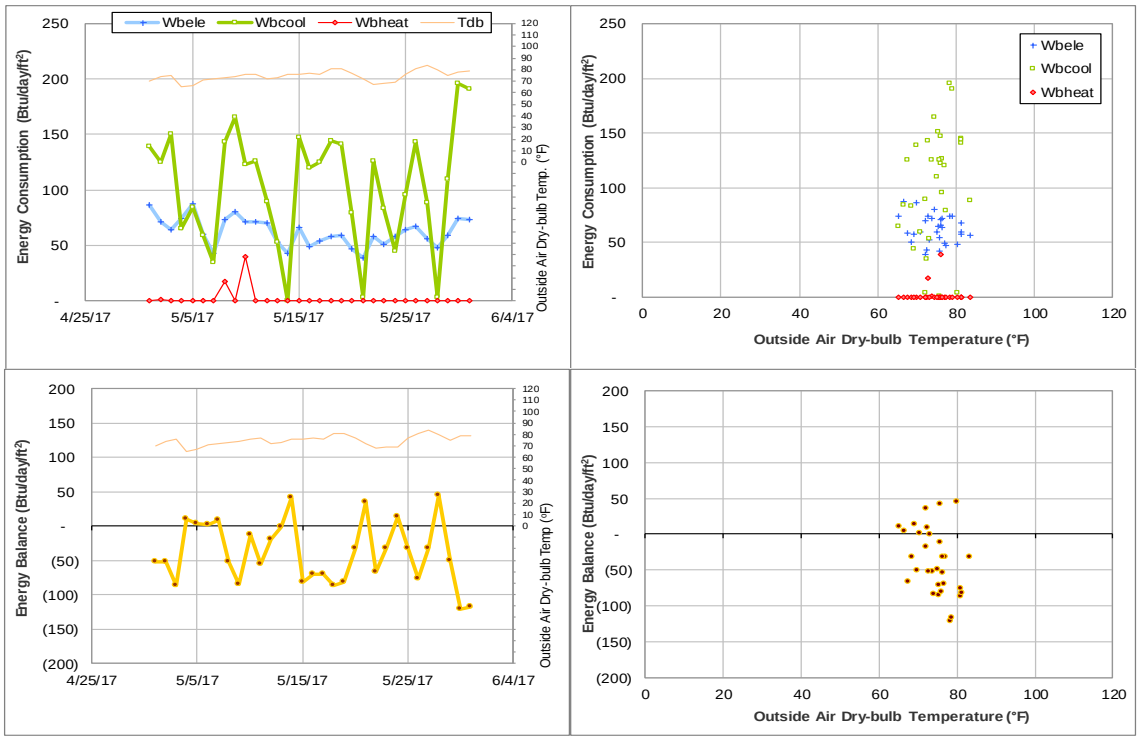


Figure IV-66 Harrington Education Center Classroom Building TAMU BLDG # 438 Energy Balance Plot during May 2017

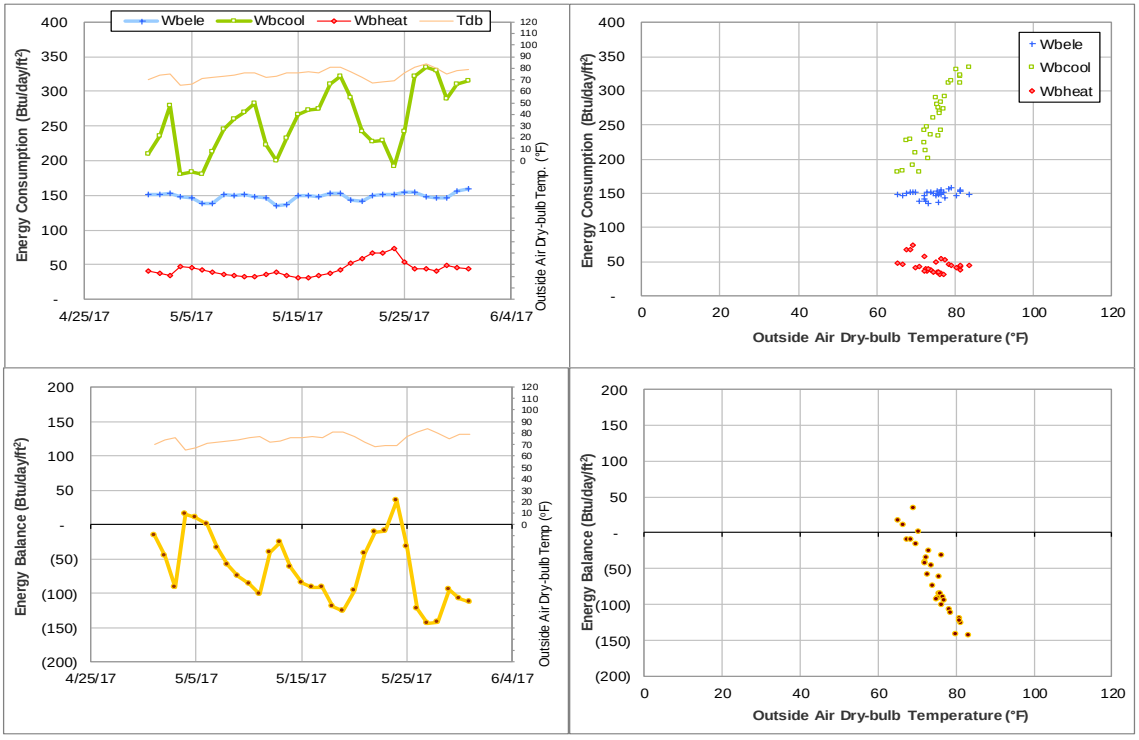


Figure IV-67 Oceanography & Meteorology Building TAMU BLDG # 443 Energy Balance Plot during May 2017

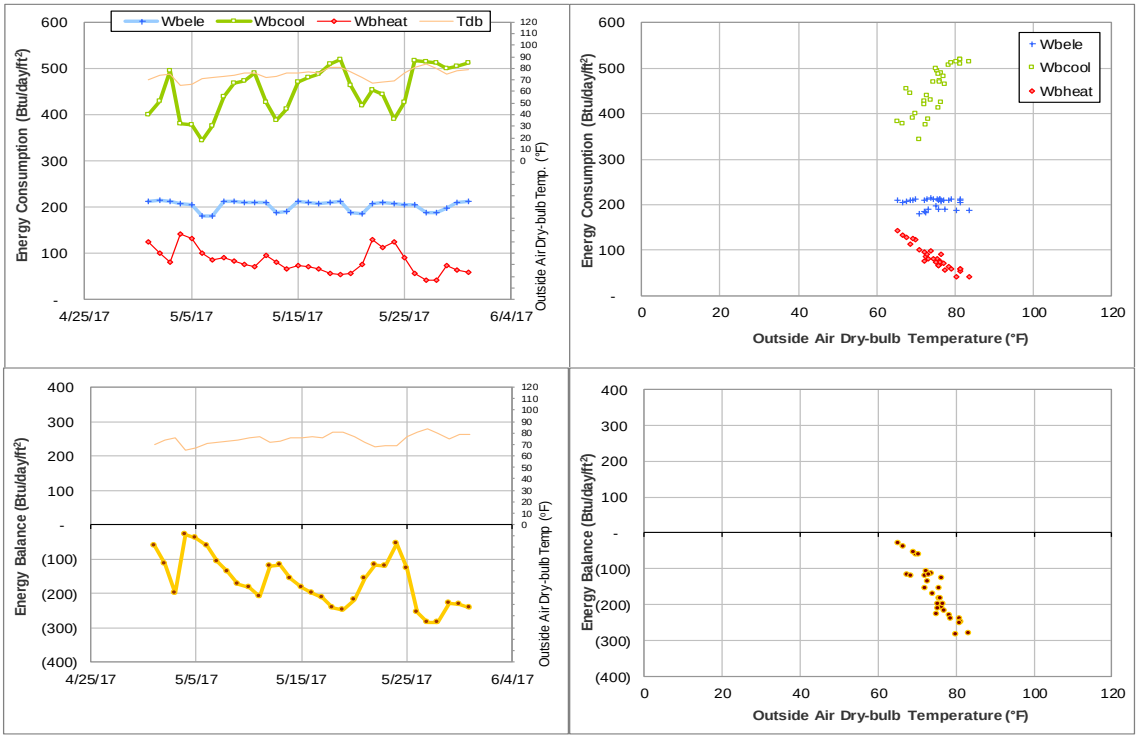


Figure IV-68 Peterson Building TAMU BLDG # 444 Energy Balance Plot during May 2017

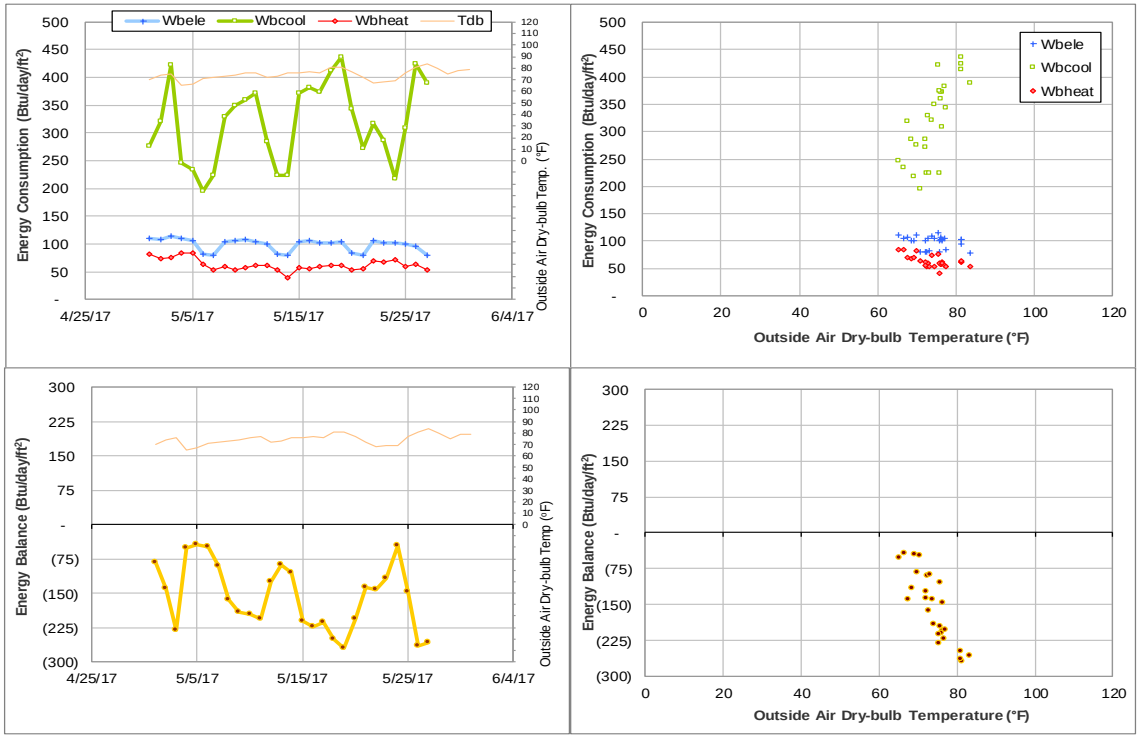


Figure IV-69 Teague Research Center and DPC Annex TAMU BLDG # 445 and 517 Energy Balance Plot during May 2017

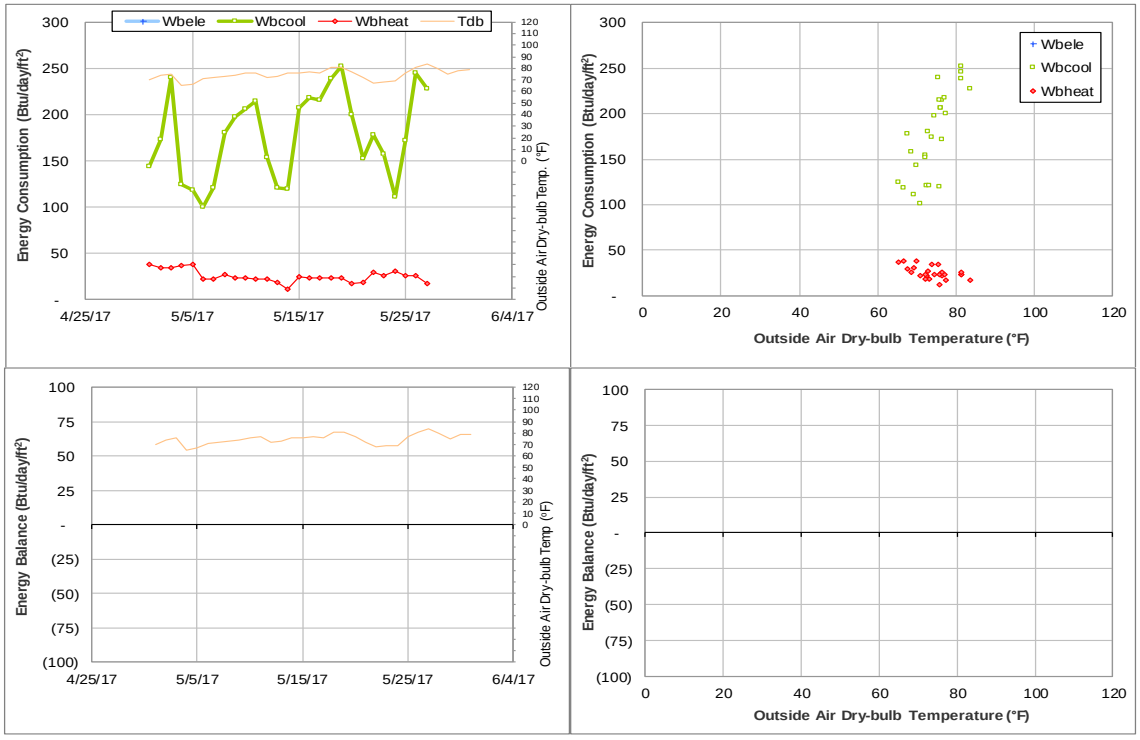


Figure IV-70 Teague Research Center TAMU BLDG # 445 Energy Balance Plot during May 2017

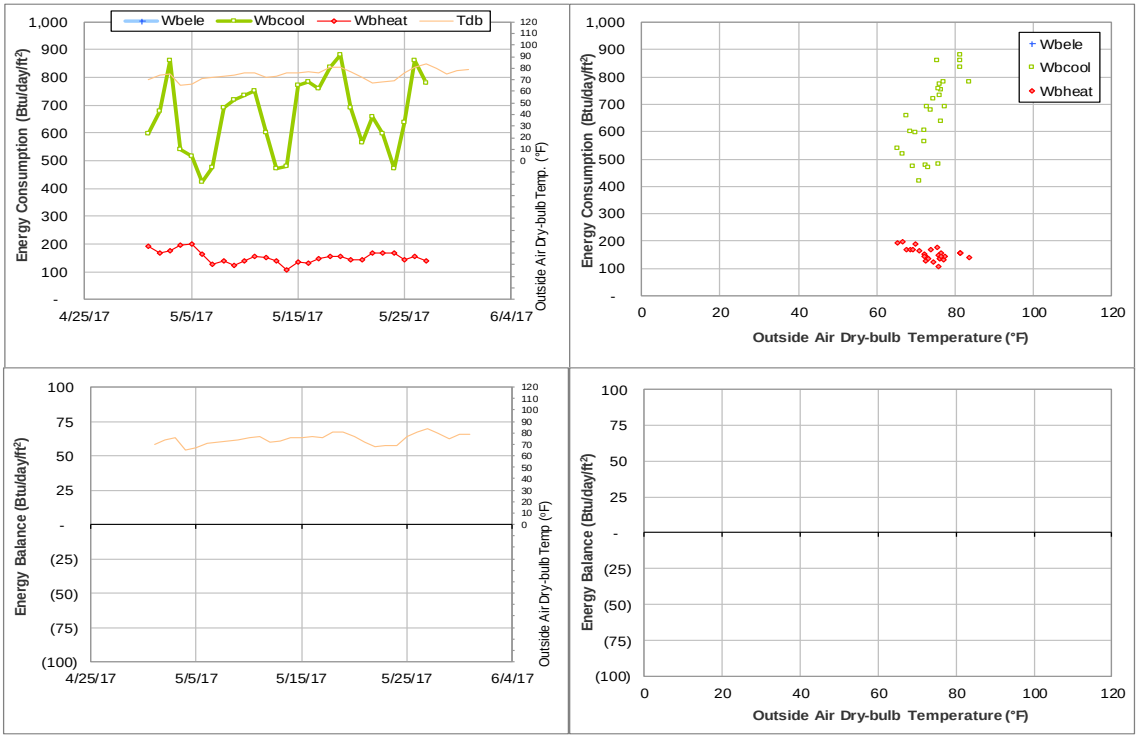


Figure IV-71 DPC Annex TAMU BLDG # 517 Energy Balance Plot during May 2017

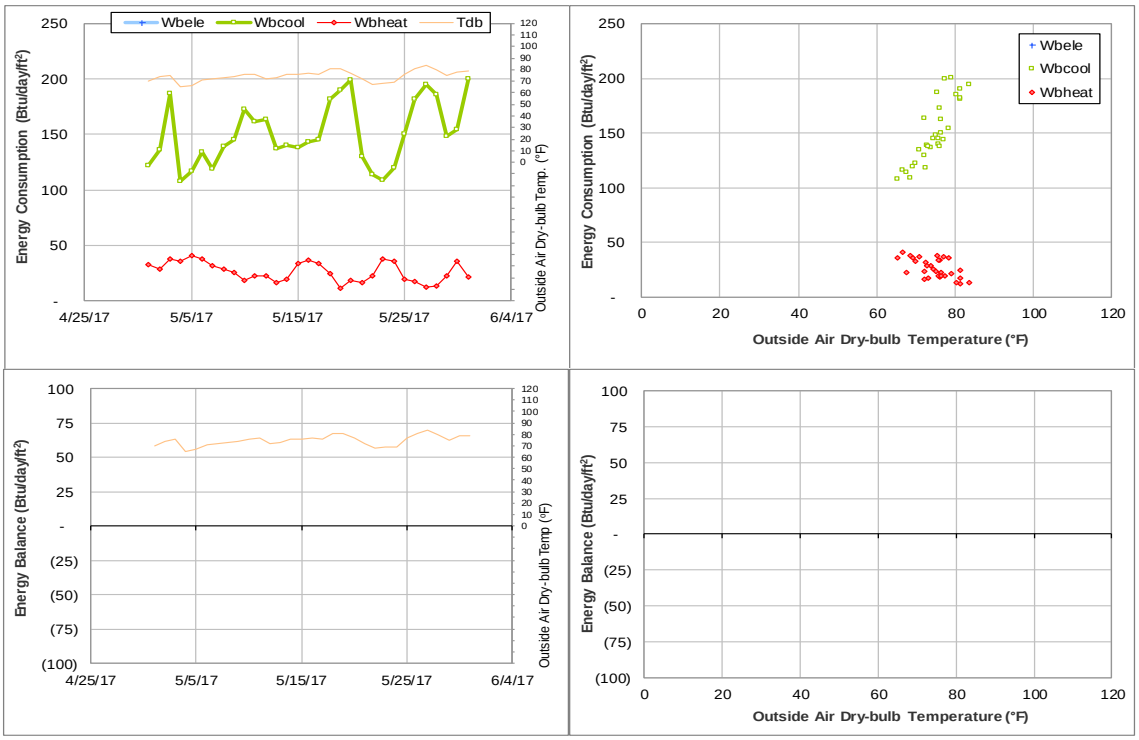


Figure IV-72 Rudder Tower and Theatre Complex TAMU BLDG # 446 Energy Balance Plot during May 2017

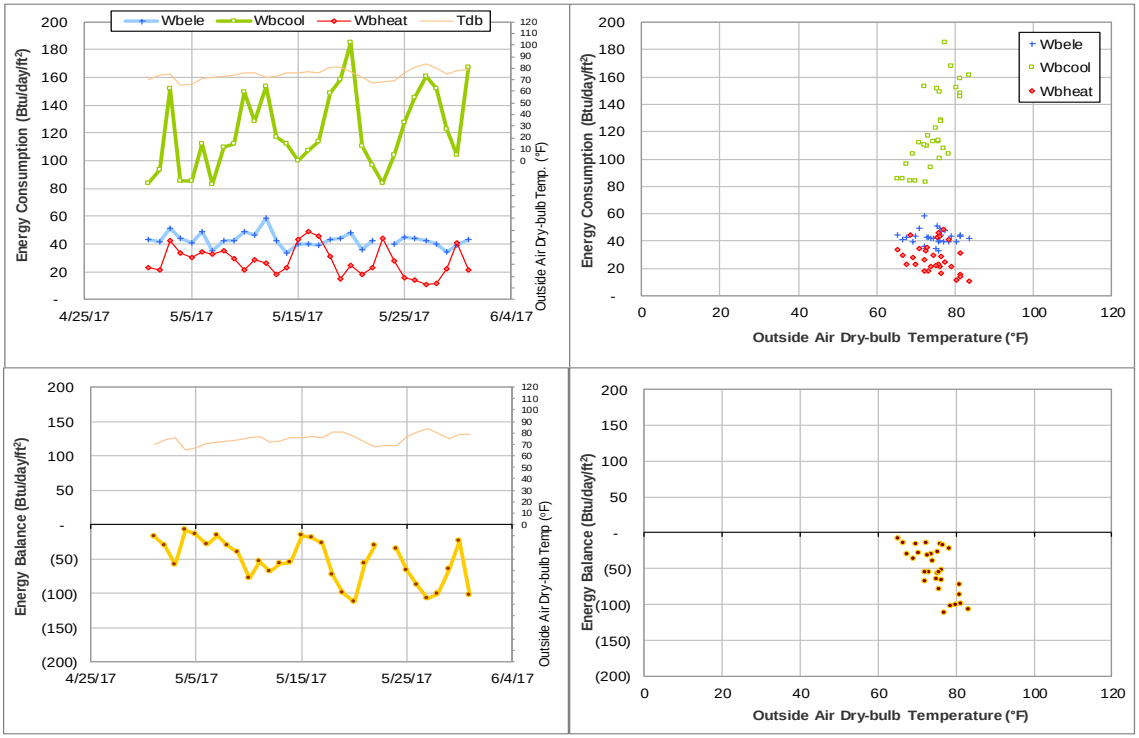


Figure IV-73 Rudder Theatre Complex TAMU BLDG # 446 Energy Balance Plot during May 2017

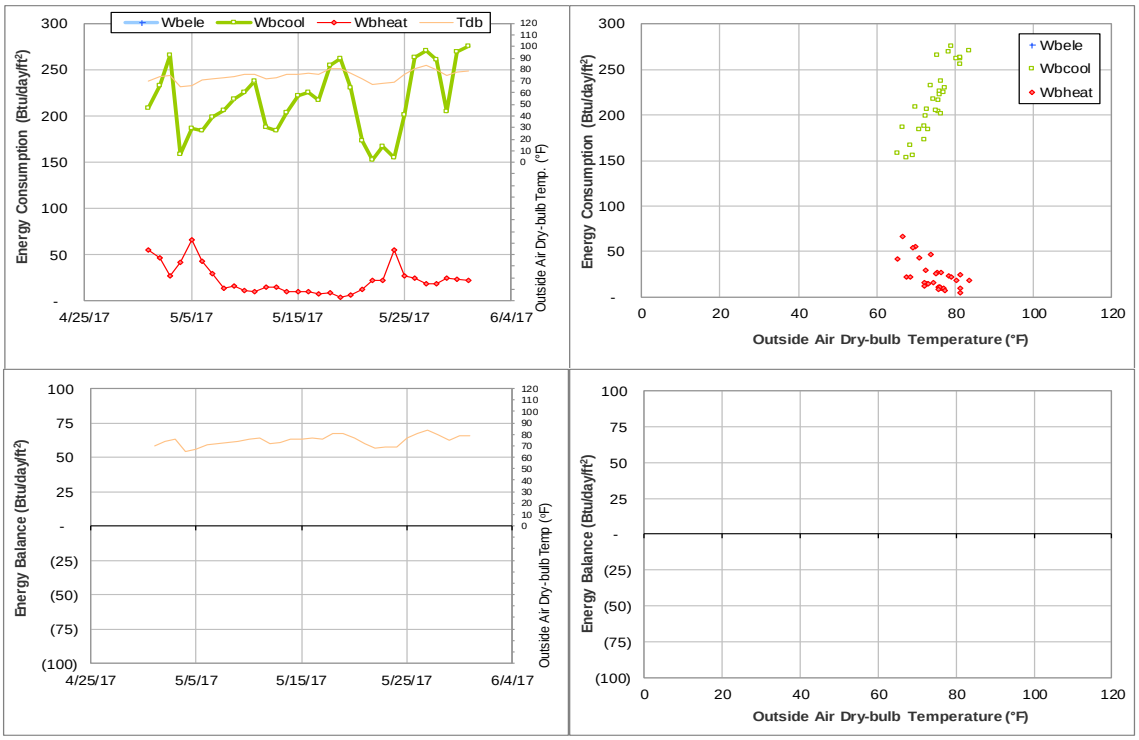


Figure IV-74 Rudder Tower TAMU BLDG # 446 Energy Balance Plot during May 2017

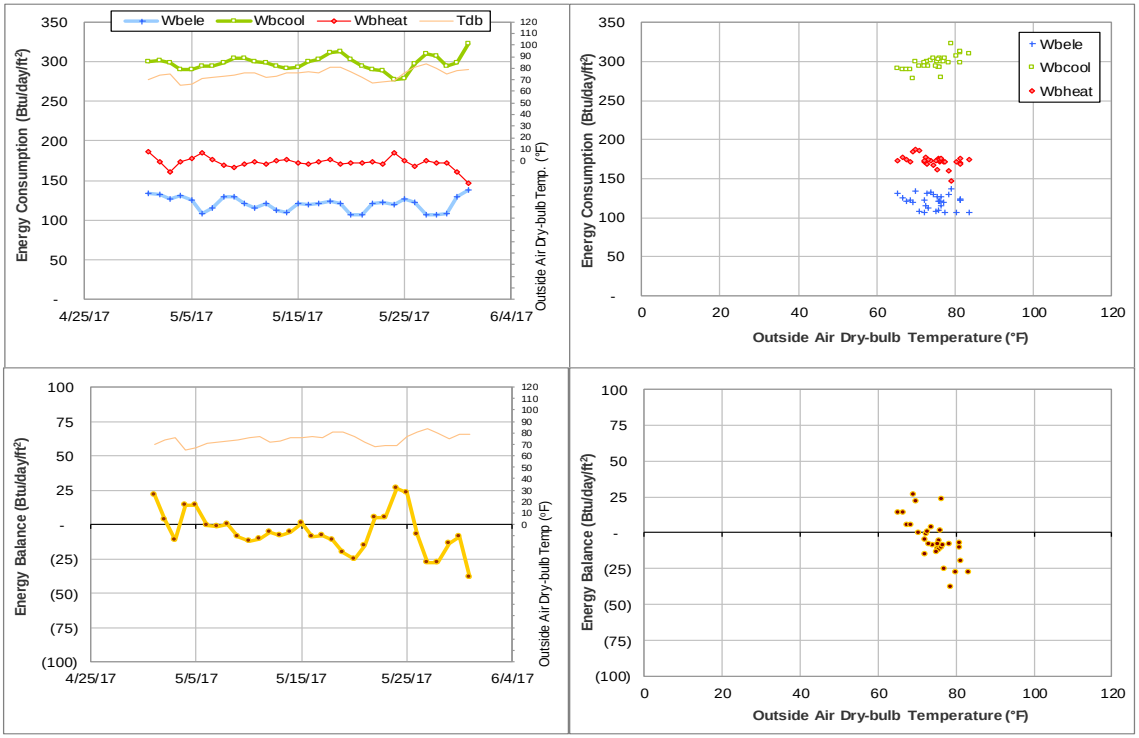


Figure IV-75 Adams Band Hall TAMU BLDG # 448 Energy Balance Plot during May 2017

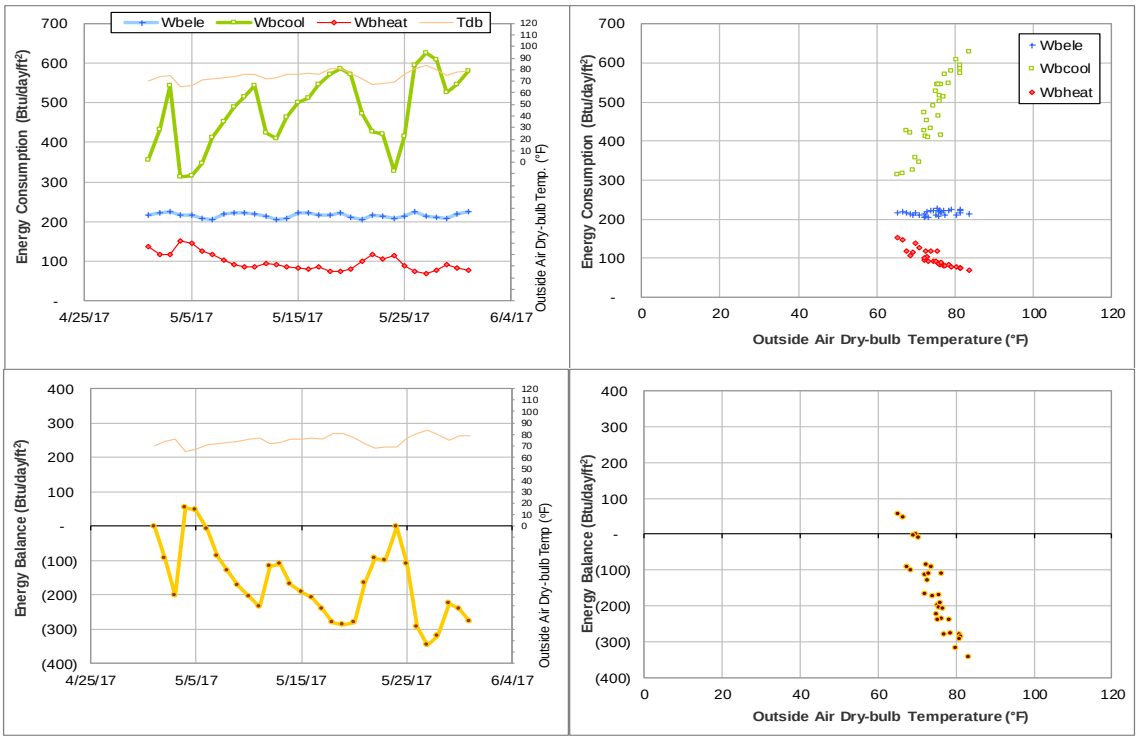


Figure IV-76 Biological Sciences Building - West TAMU BLDG # 449 Energy Balance Plot during May 2017

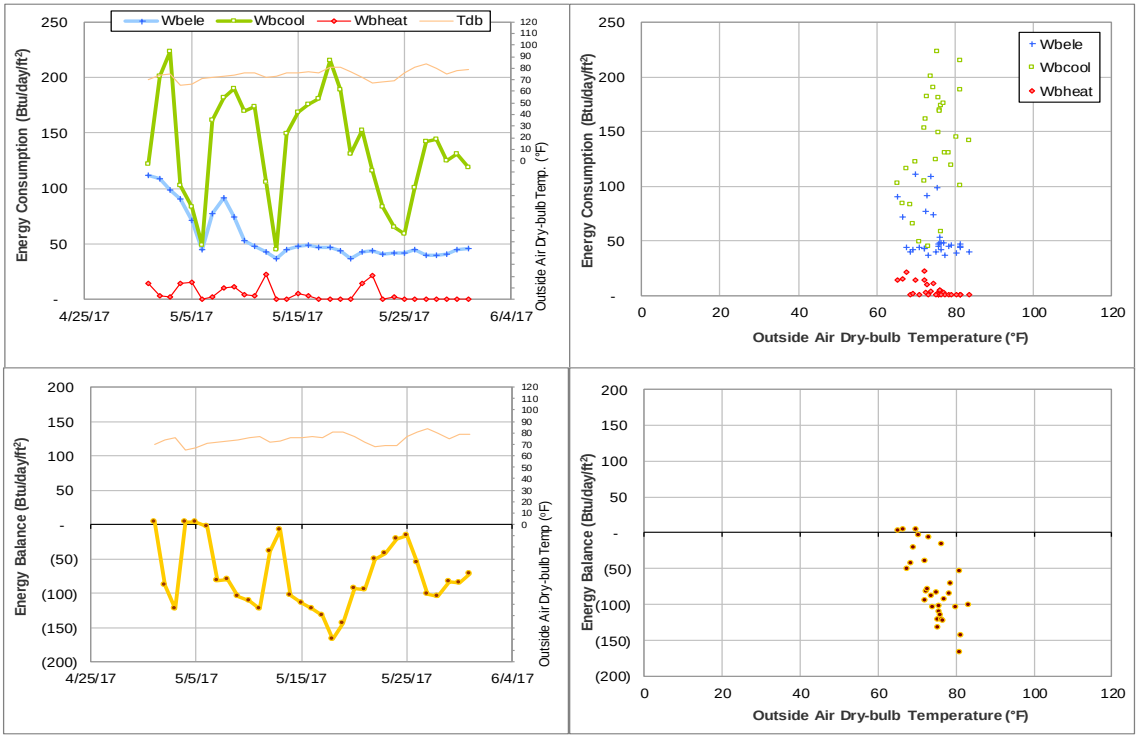


Figure IV-77 Duncan Dining Hall TAMU BLDG # 450 Energy Balance Plot during May 2017

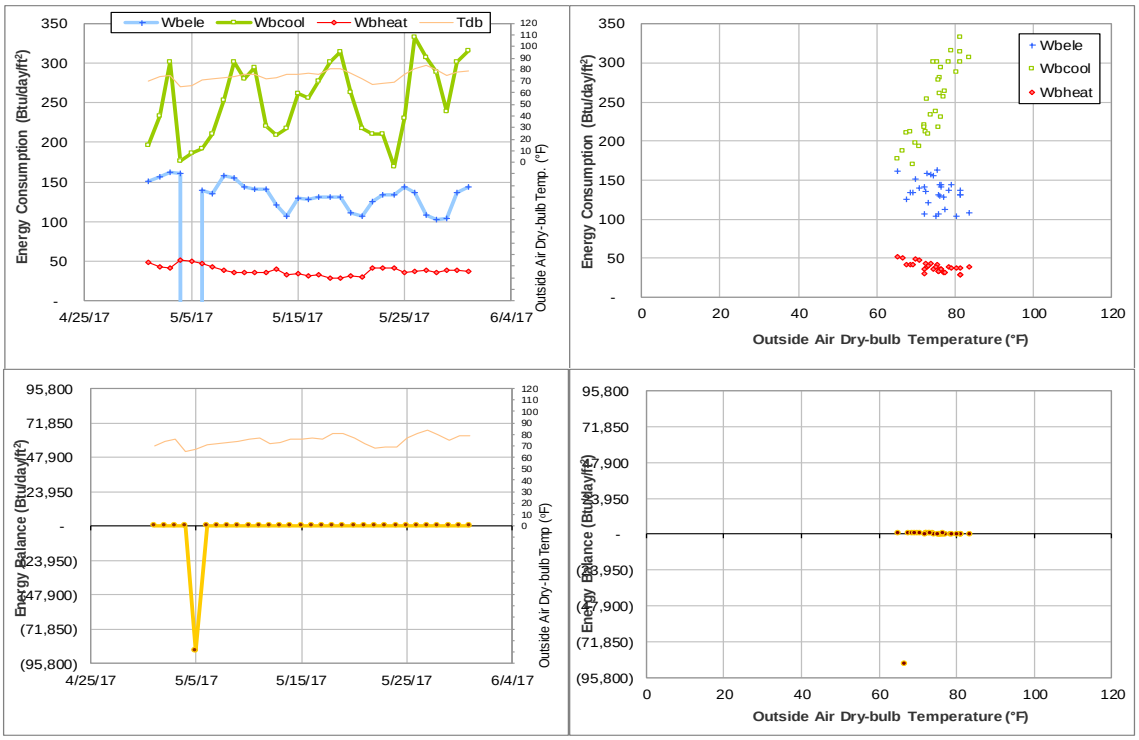


Figure IV-78 MSC TAMU BLDG # 454 Energy Balance Plot during May 2017

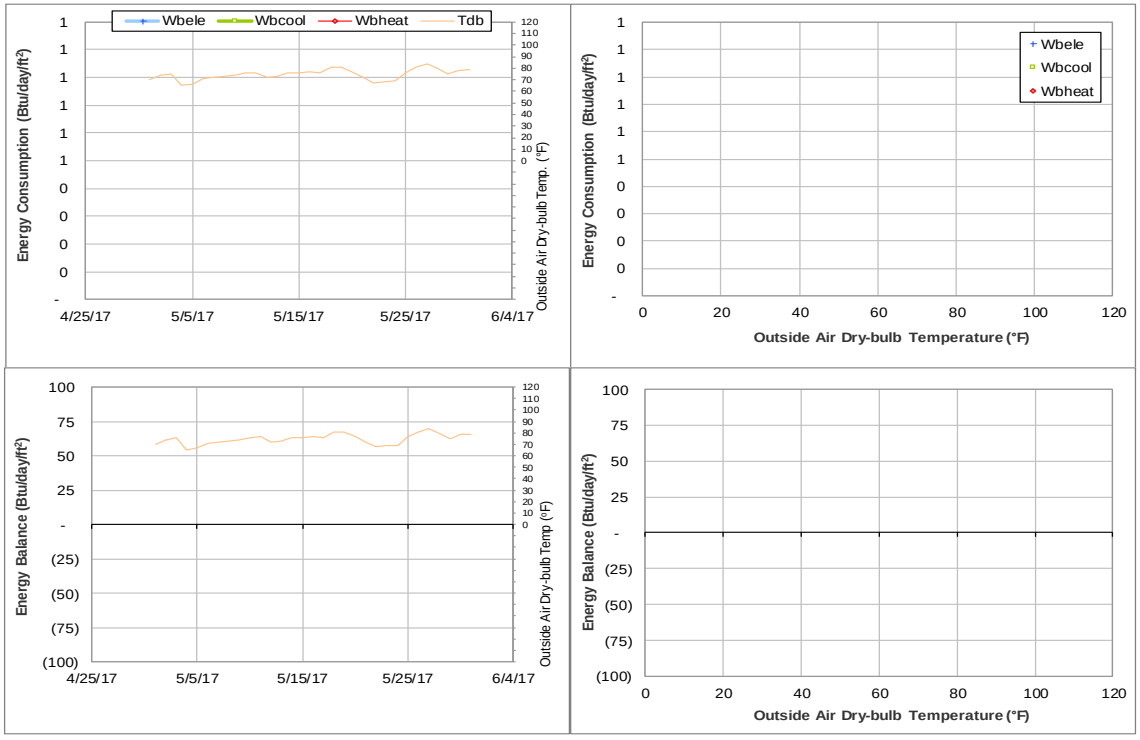


Figure IV-79 Military Sciences Building TAMU BLDG # 456 Energy Balance Plot during May 2017

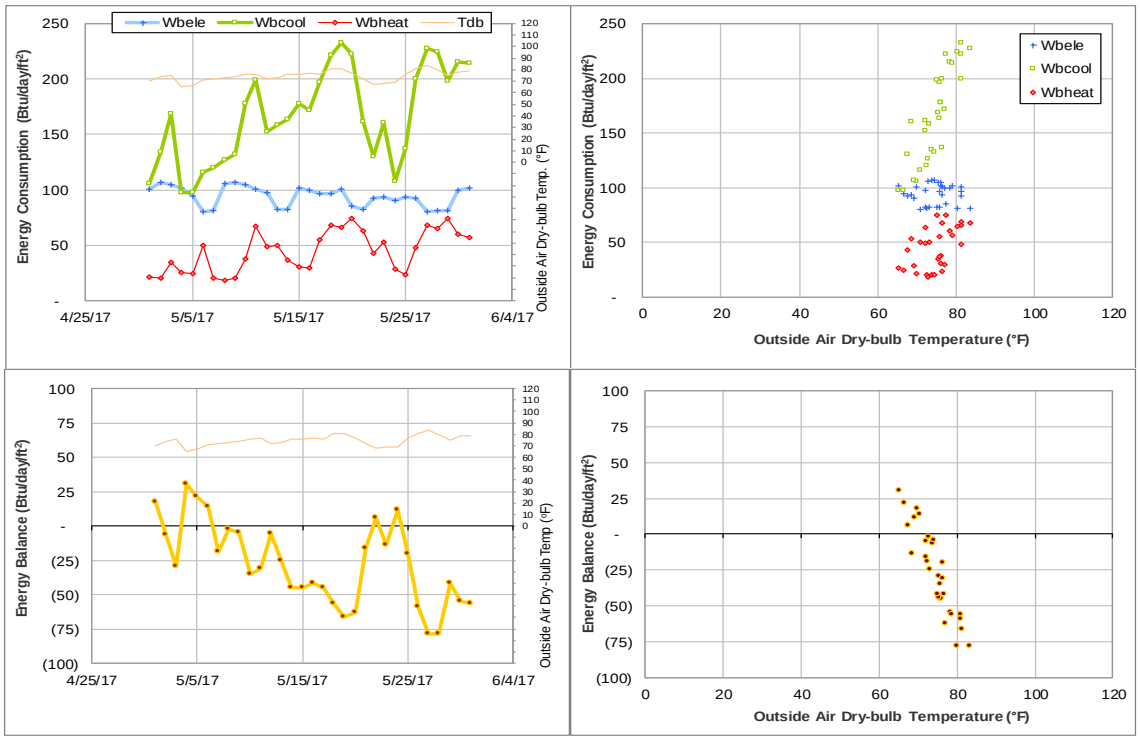


Figure IV-80 TAES Annex Building TAMU BLDG # 457 Energy Balance Plot during May 2017

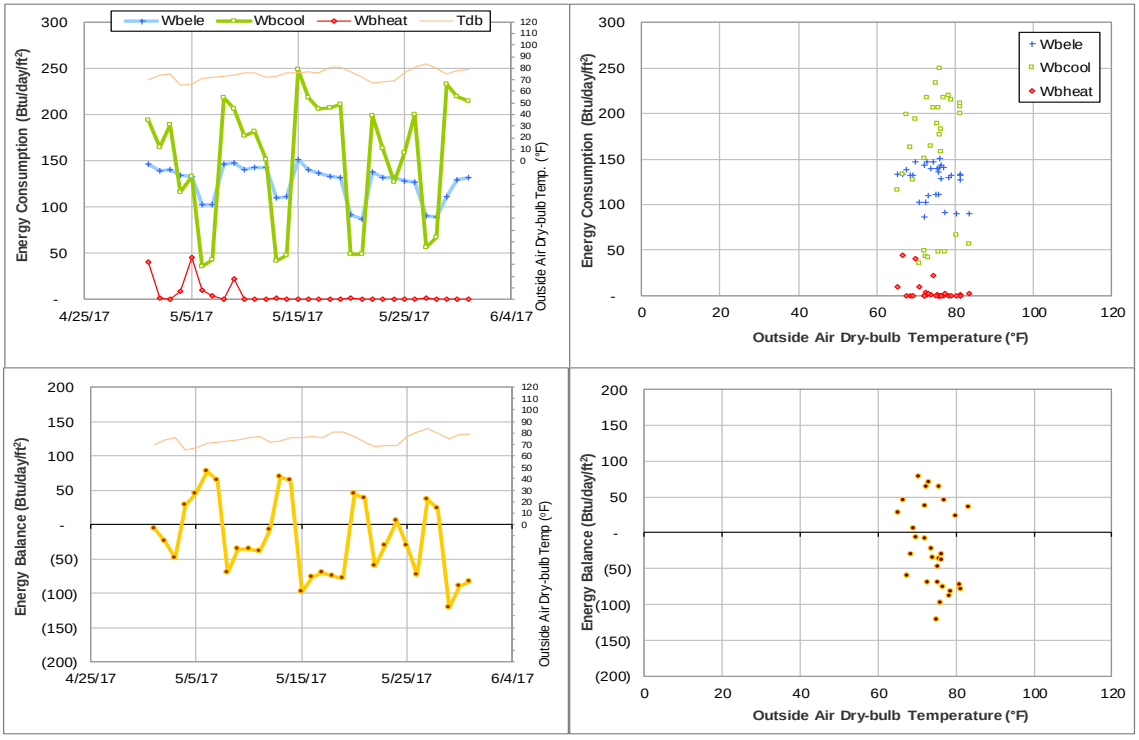


Figure IV-81 Coke Building TAMU BLDG # 461 Energy Balance Plot during May 2017

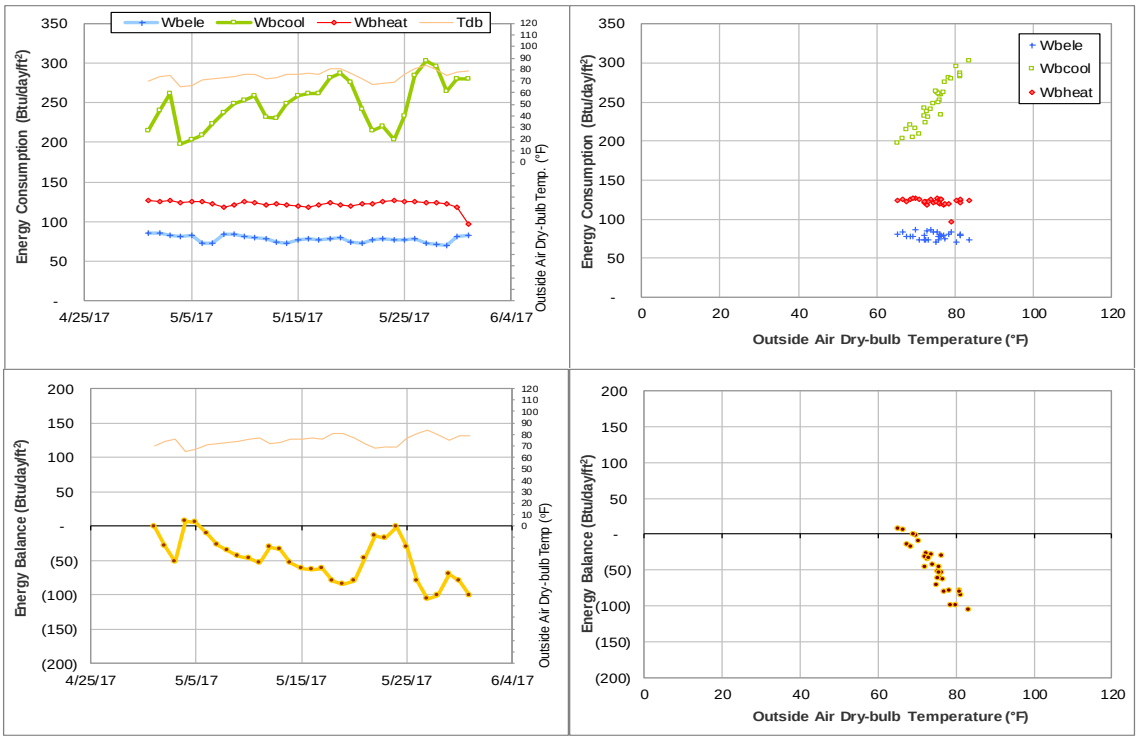


Figure IV-82 Academic Building TAMU BLDG # 462 Energy Balance Plot during May 2017

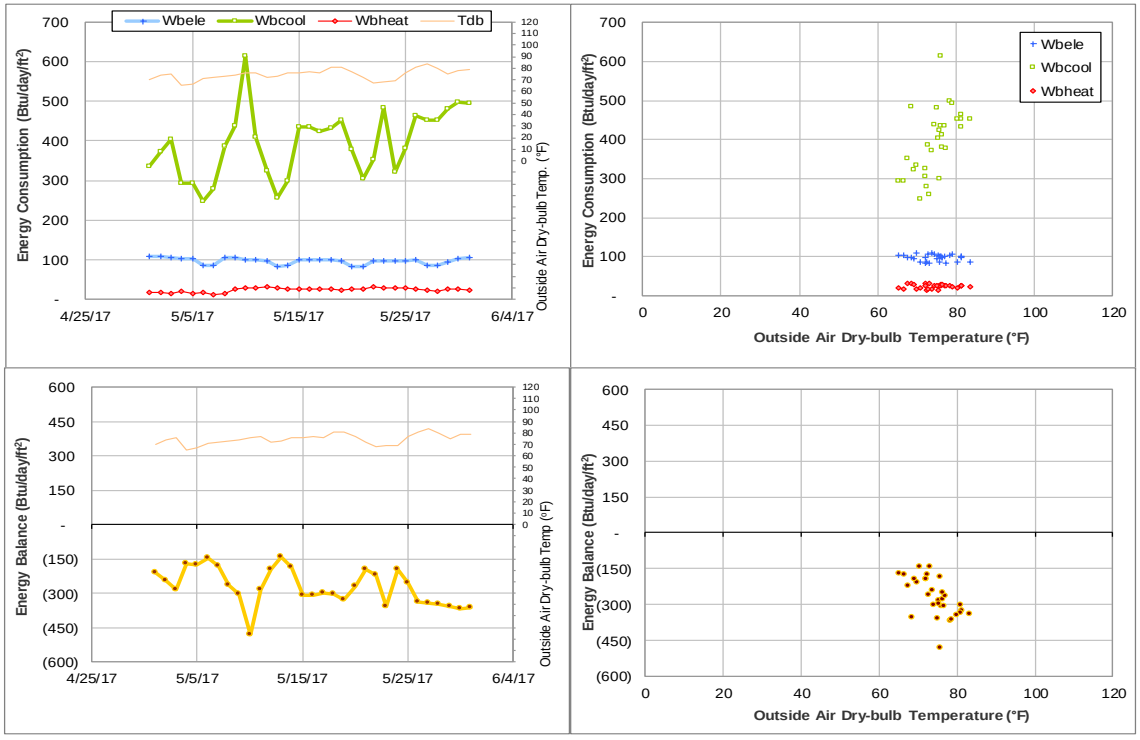


Figure IV-83 Psychology Building TAMU BLDG # 463 Energy Balance Plot during May 2017

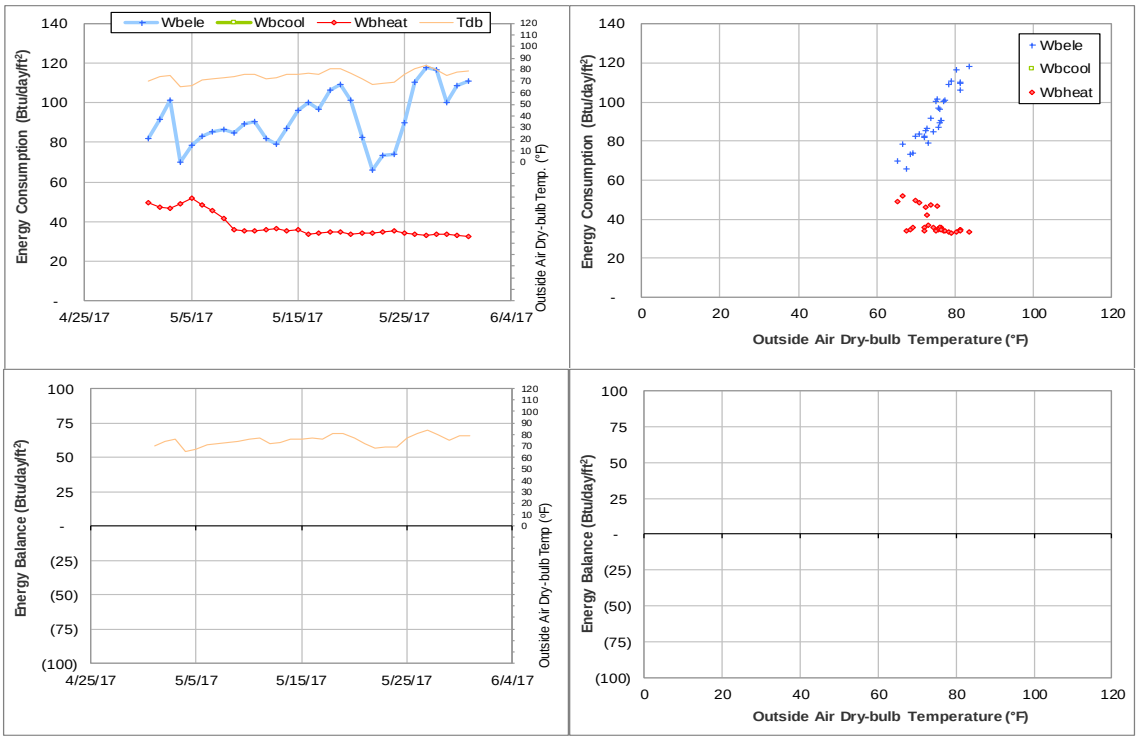


Figure IV-84 State Chemist Building TAMU BLDG # 464 Energy Balance Plot during May 2017

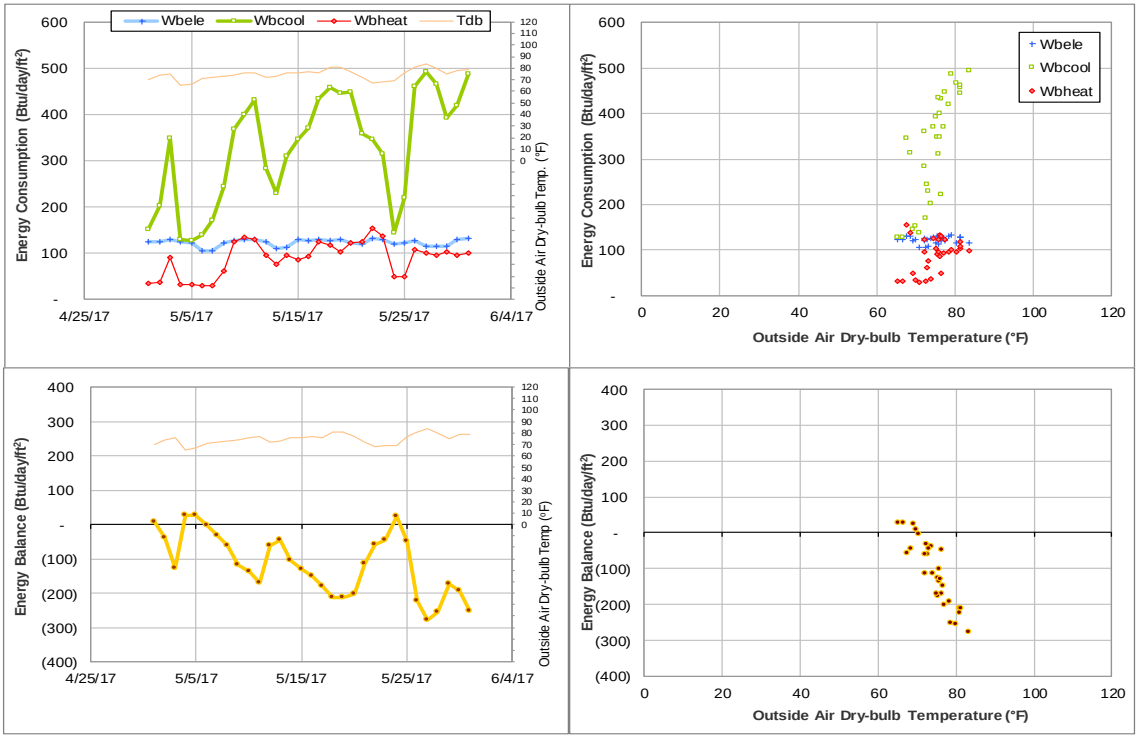


Figure IV-85 Butler Hall TAMU BLDG # 465 Energy Balance Plot during May 2017

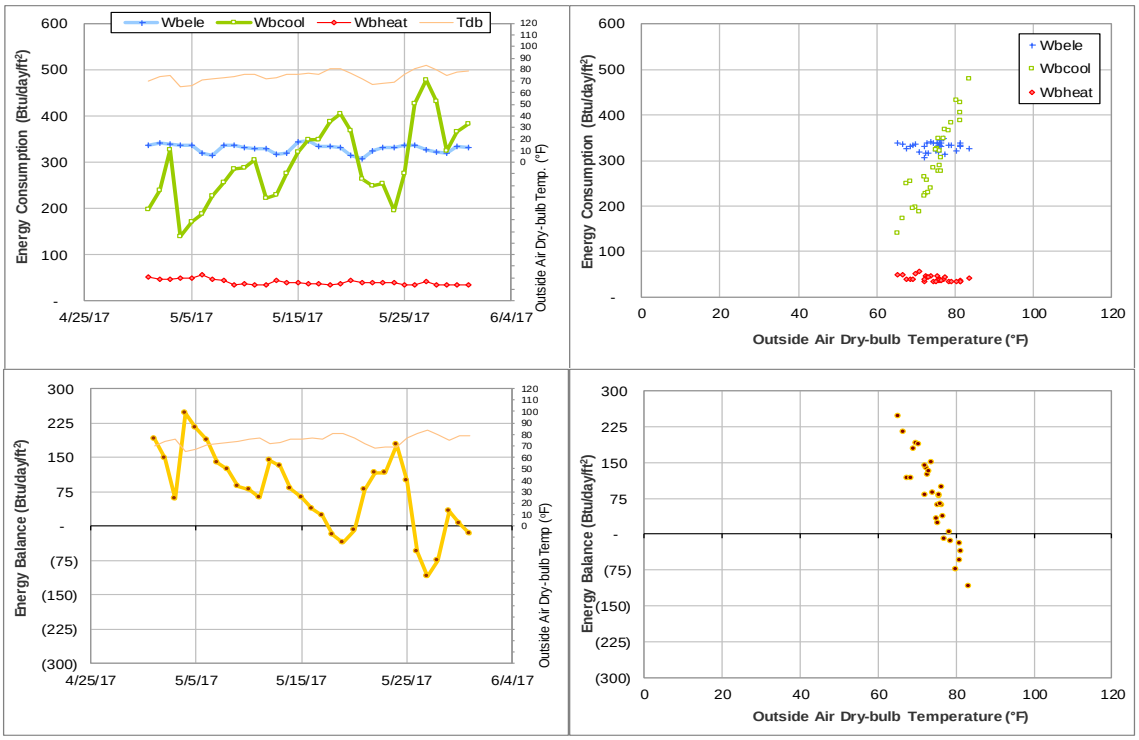


Figure IV-86 Biological Sciences Building - East TAMU BLDG # 467 Energy Balance Plot during May 2017

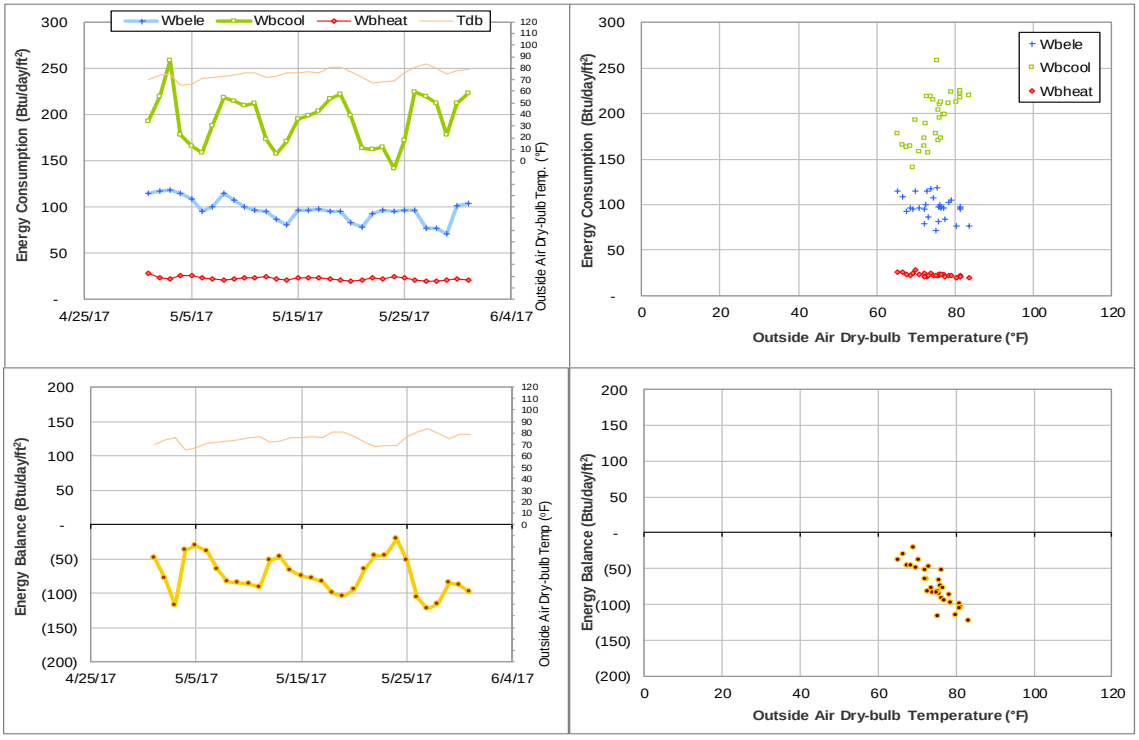


Figure IV-87 Evans Library TAMU BLDG # 468 Energy Balance Plot during May 2017

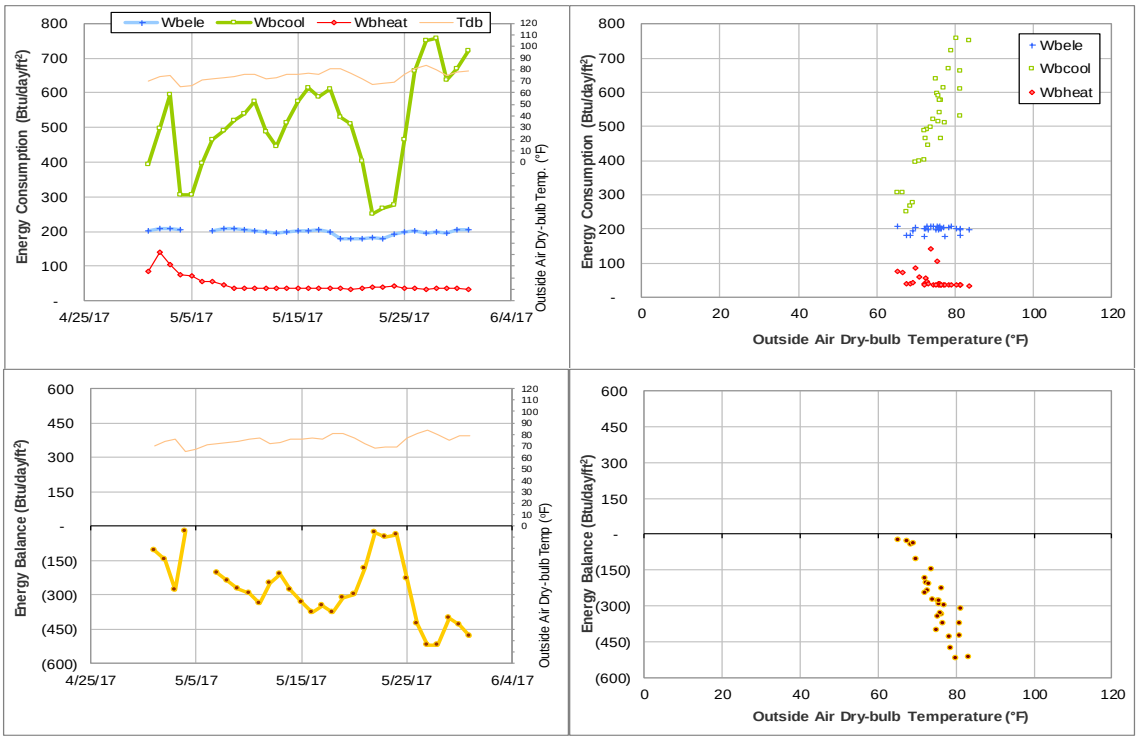


Figure IV-88 Central Campus Parking Garage TAMU BLDG # 469 Energy Balance Plot during May 2017

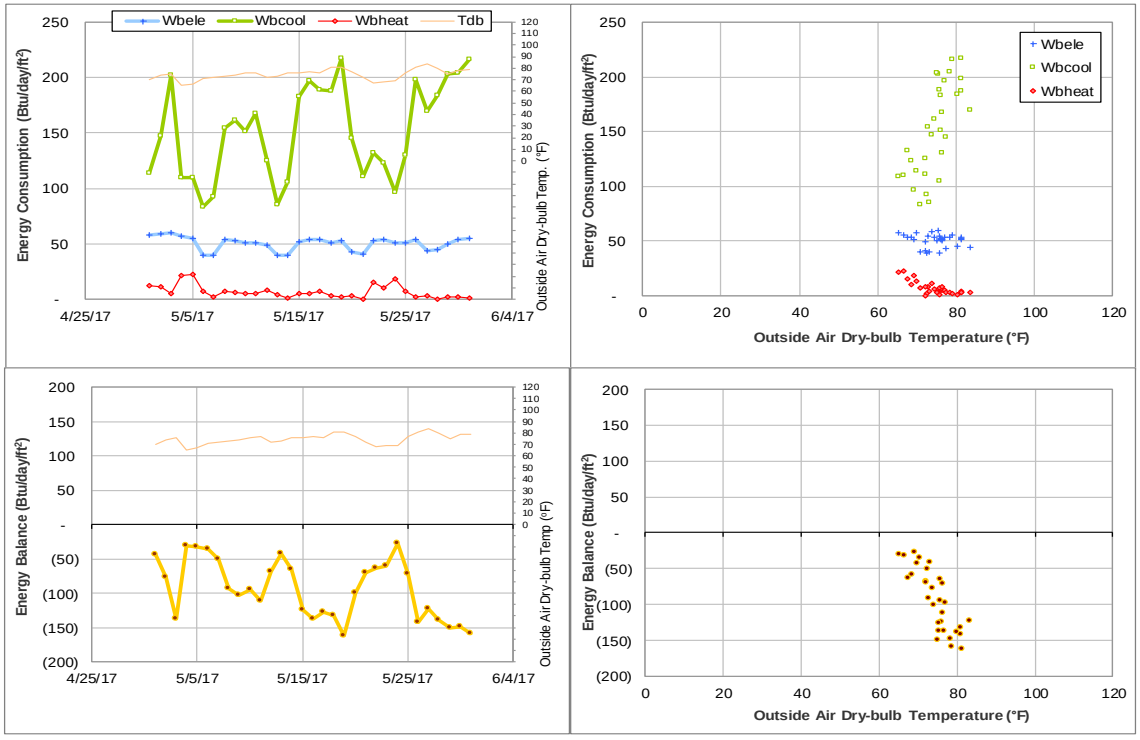


Figure IV-89 Glasscock History Bldg TAMU BLDG # 470 Energy Balance Plot during May 2017

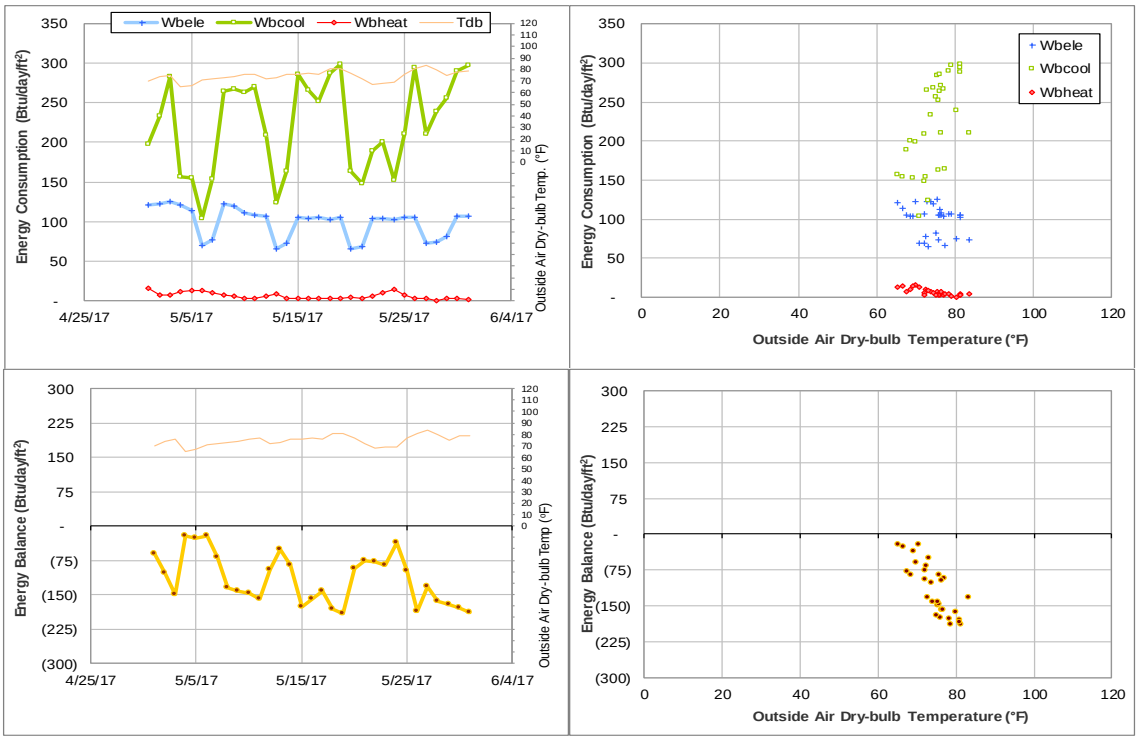


Figure IV-90 Pavilion TAMU BLDG # 471 Energy Balance Plot during May 2017

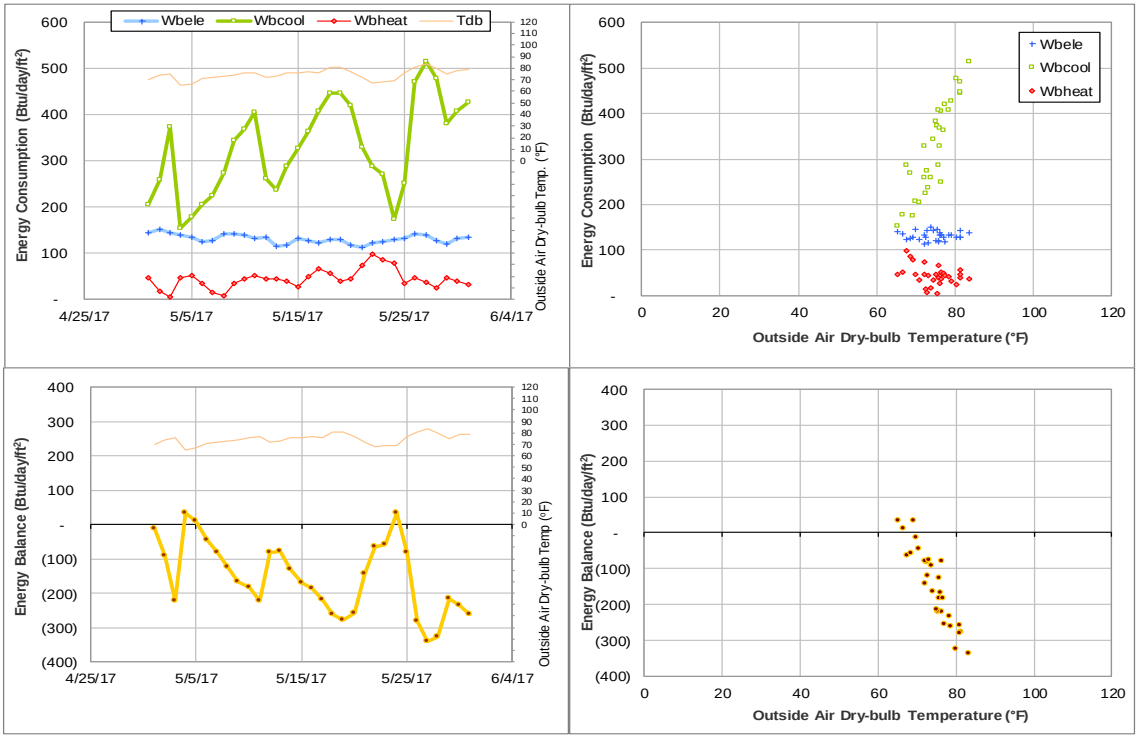


Figure IV-91 Animal Industries TAMU BLDG # 472 Energy Balance Plot during May 2017

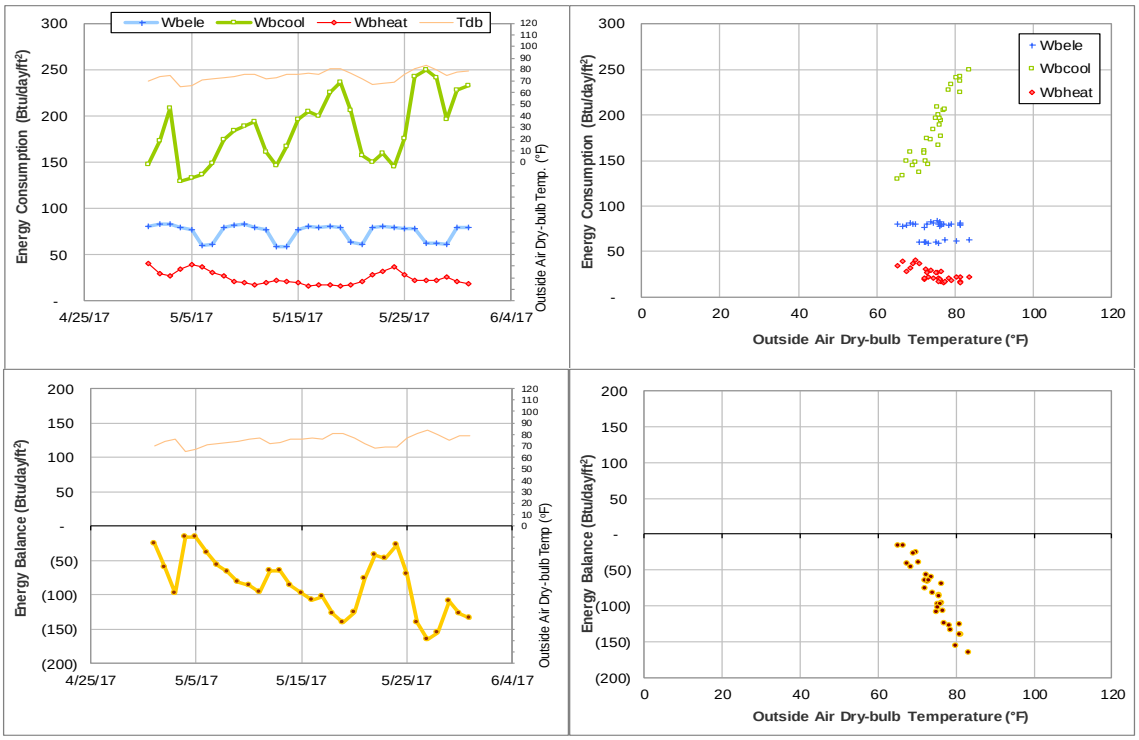


Figure IV-92 Williams Administration Building TAMU BLDG # 473 Energy Balance Plot during May 2017

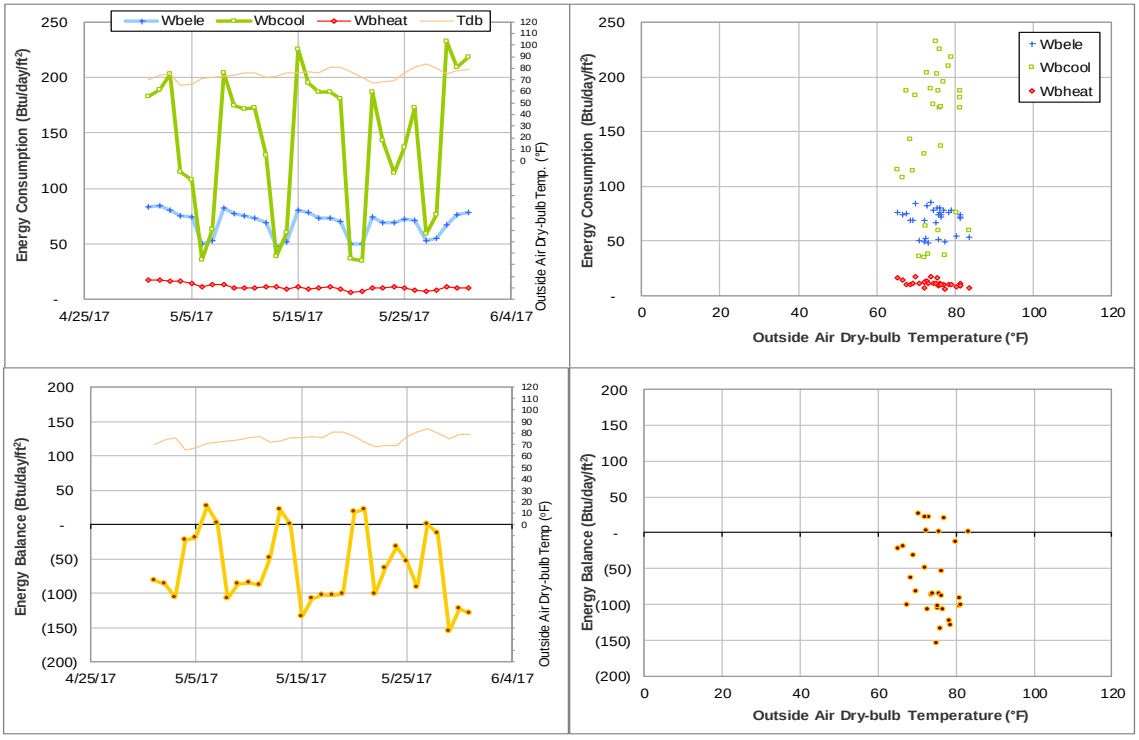


Figure IV-93 YMCA Building TAMU BLDG # 474 Energy Balance Plot during May 2017

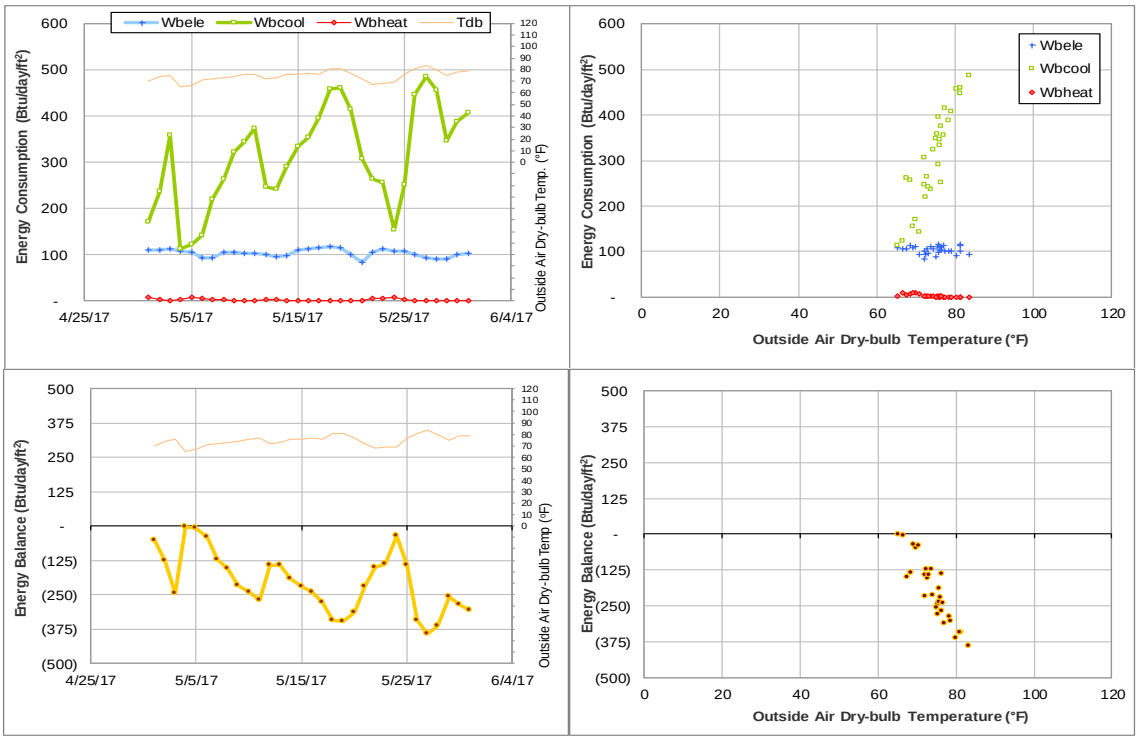


Figure IV-94 Francis Hall TAMU BLDG # 476 Energy Balance Plot during May 2017

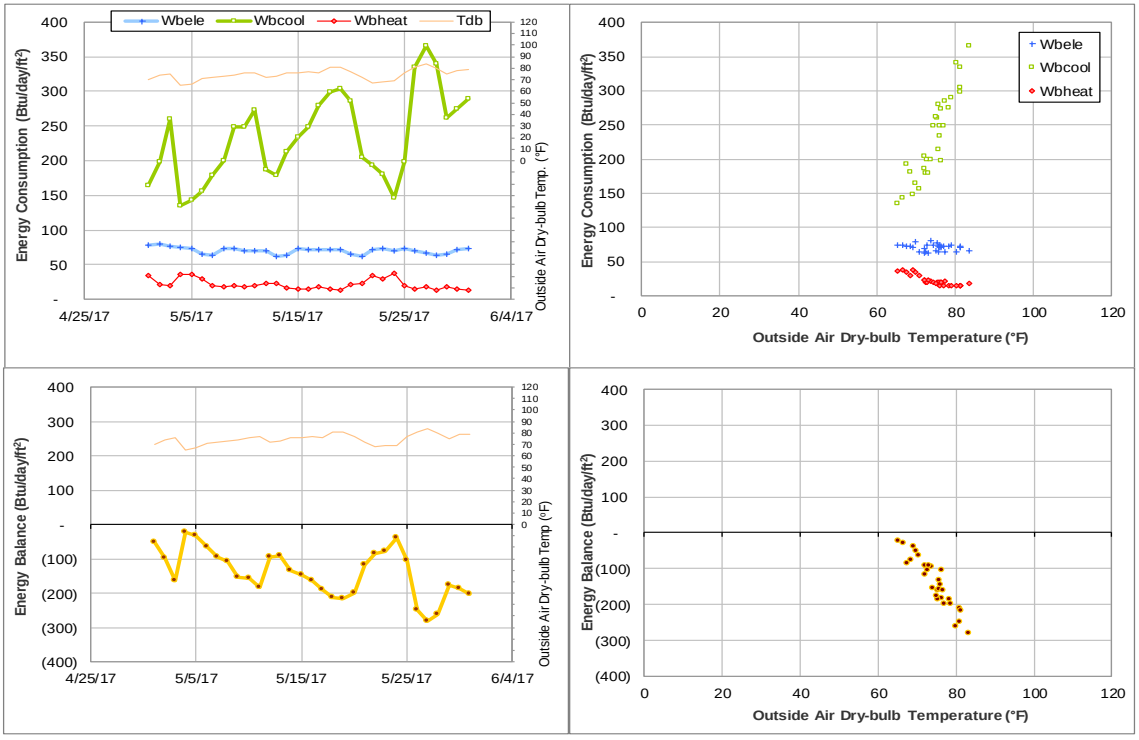


Figure IV-95 Anthropology Building TAMU BLDG # 477 Energy Balance Plot during May 2017

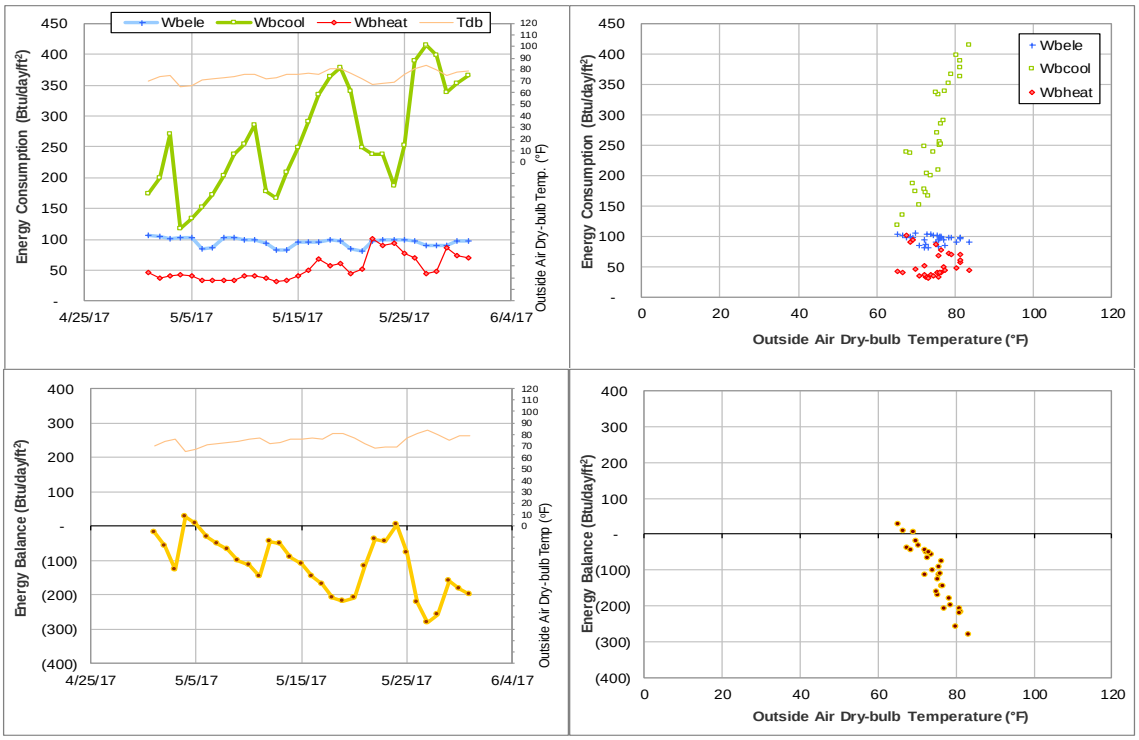


Figure IV-96 Scoates Hall TAMU BLDG # 478 Energy Balance Plot during May 2017

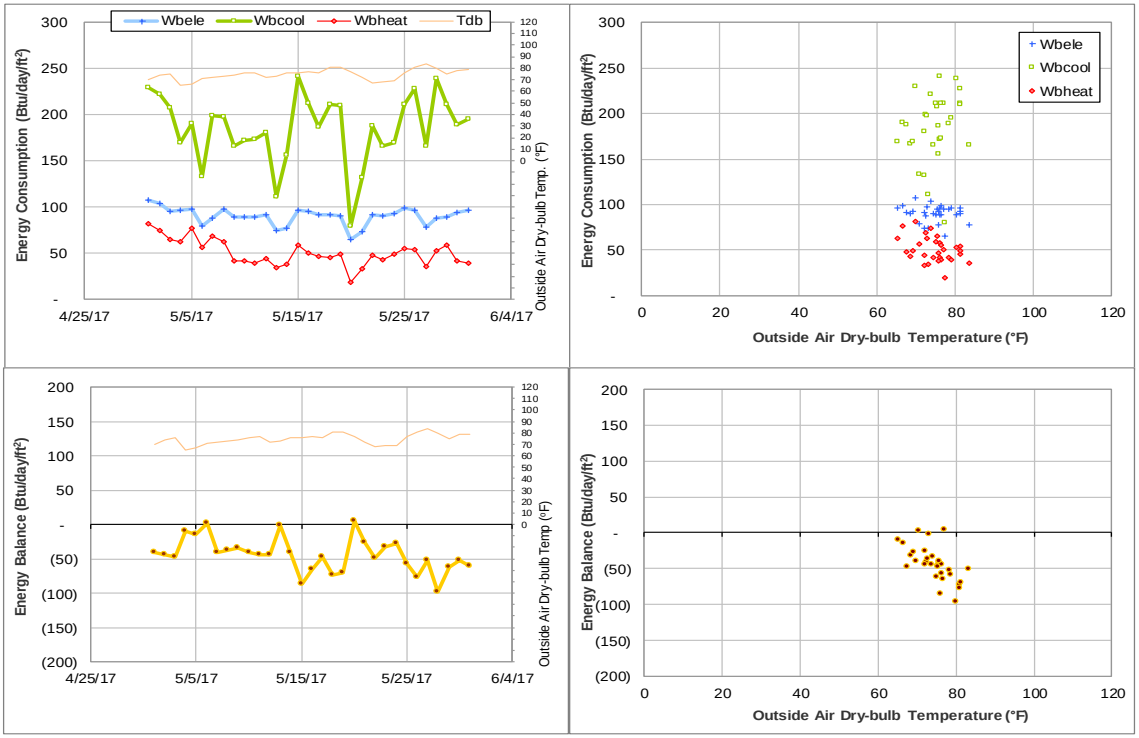


Figure IV-97 Bolton Hall TAMU BLDG # 480 Energy Balance Plot during May 2017

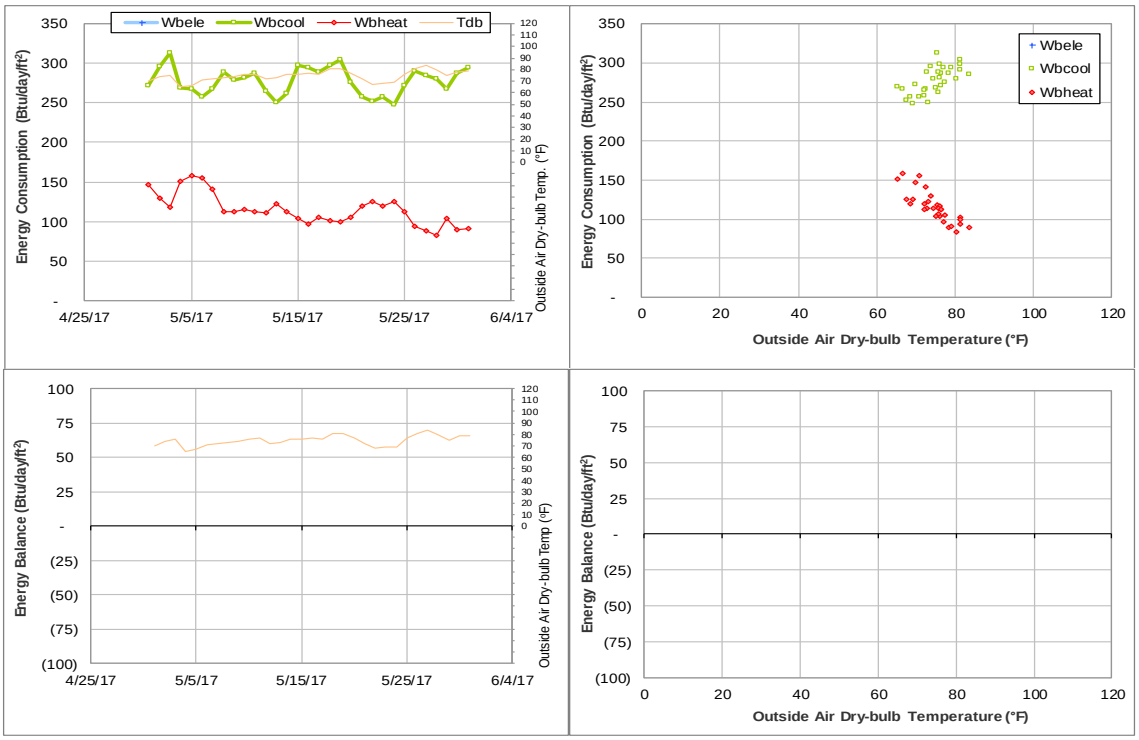


Figure IV-98 Heaton Hall TAMU BLDG # 481 Energy Balance Plot during May 2017

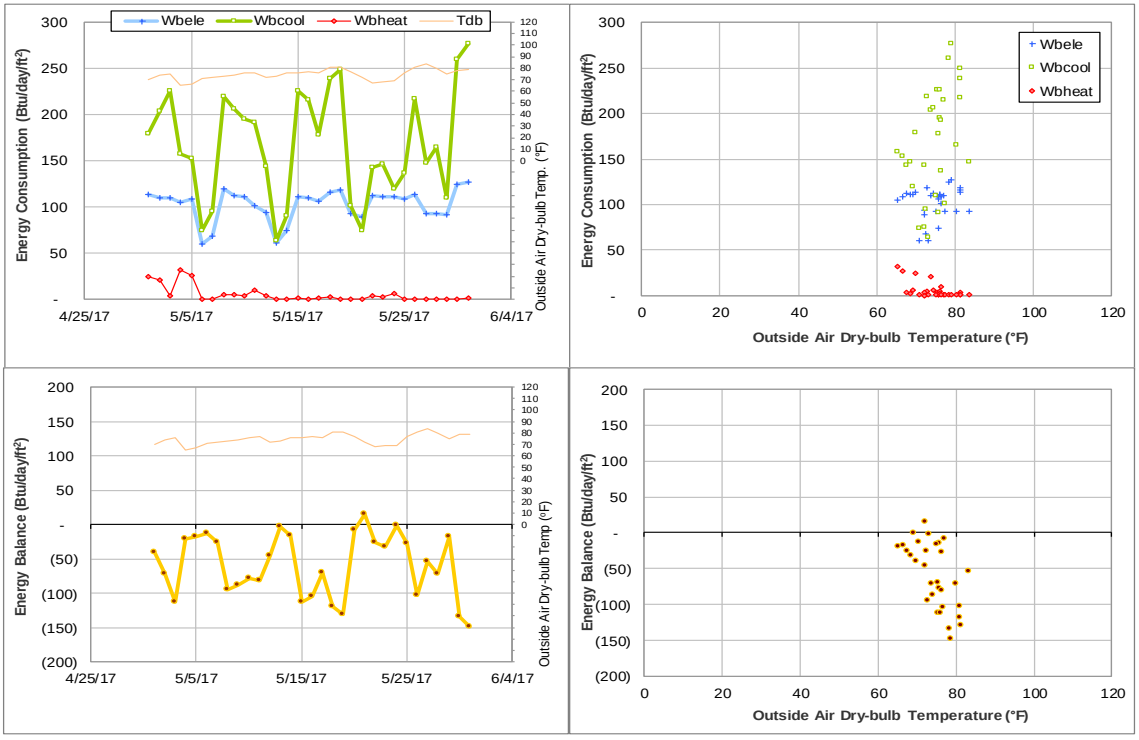


Figure IV-99 Fermier Hall TAMU BLDG # 482 Energy Balance Plot during May 2017

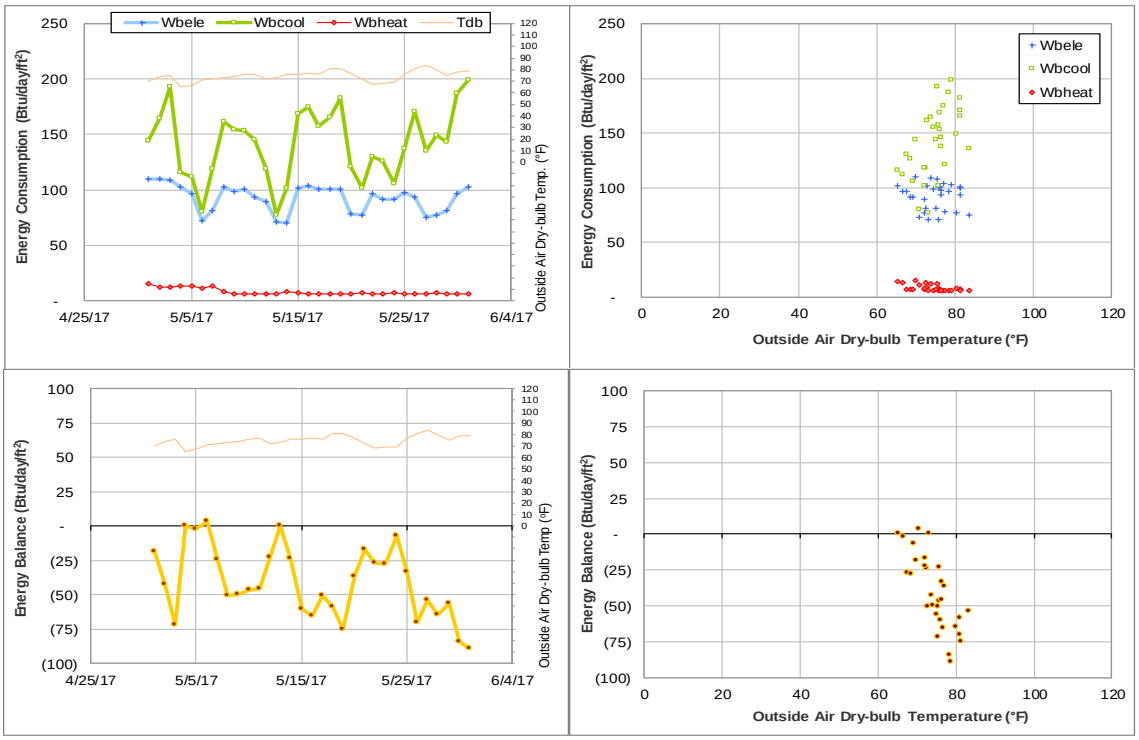


Figure IV-100 Thompson Hall TAMU BLDG # 483 Energy Balance Plot during May 2017

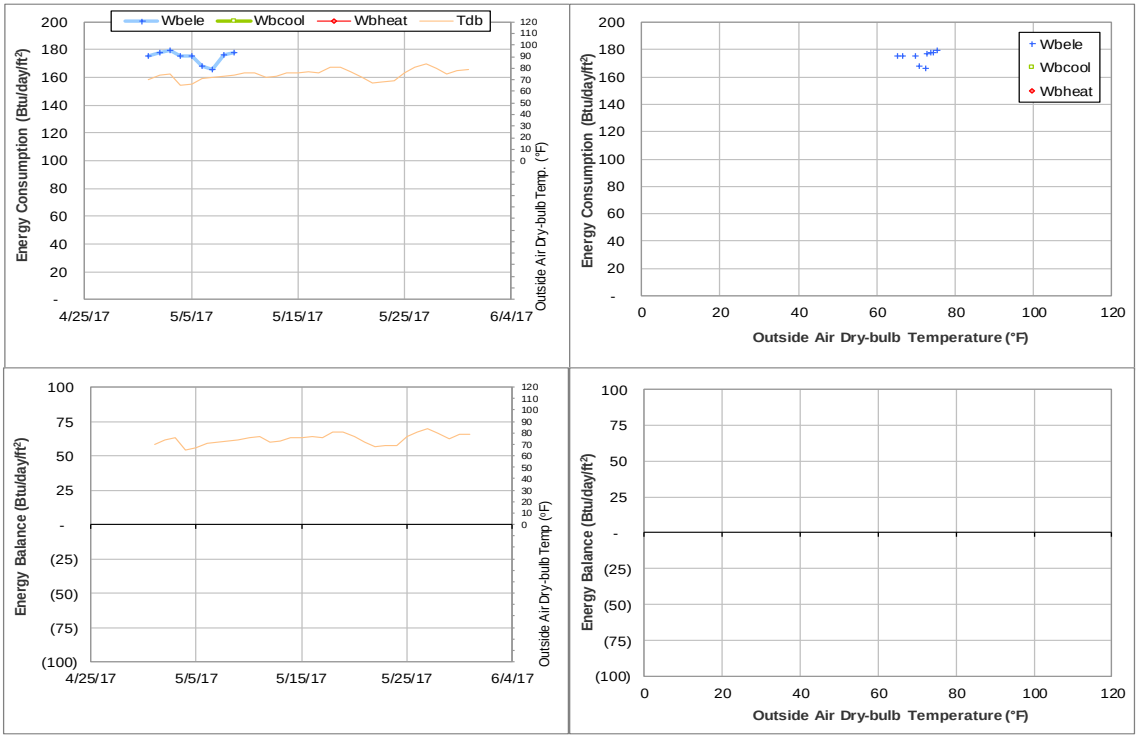


Figure IV-101 Chemistry Building TAMU BLDG # 484 Energy Balance Plot during May 2017

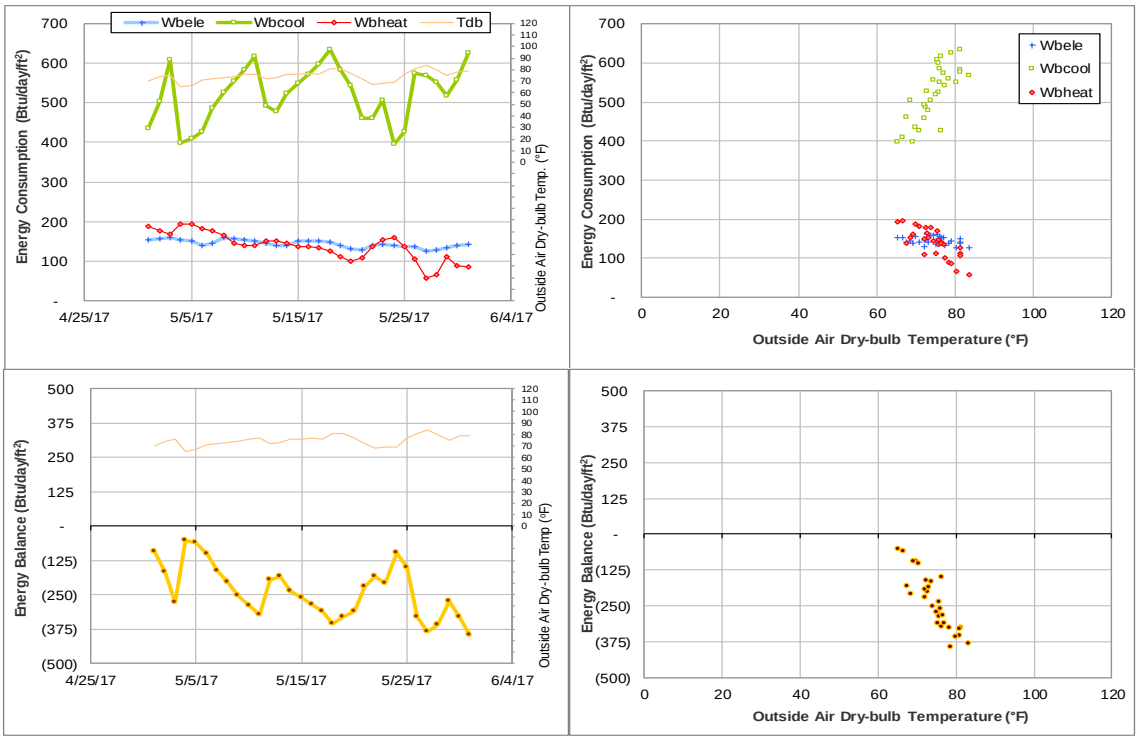


Figure IV-102 Halbouty Geosciences Building TAMU BLDG # 490 Energy Balance Plot during May 2017

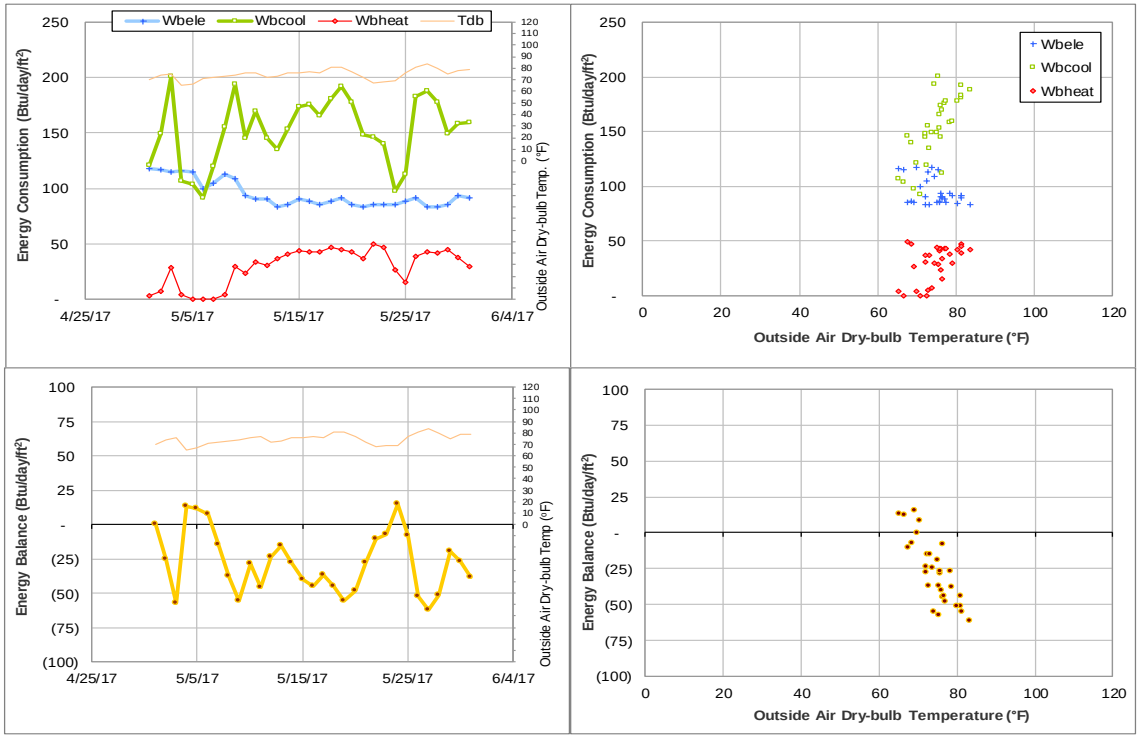


Figure IV-103 Civil Engineering Building TAMU BLDG # 492 Energy Balance Plot during May 2017

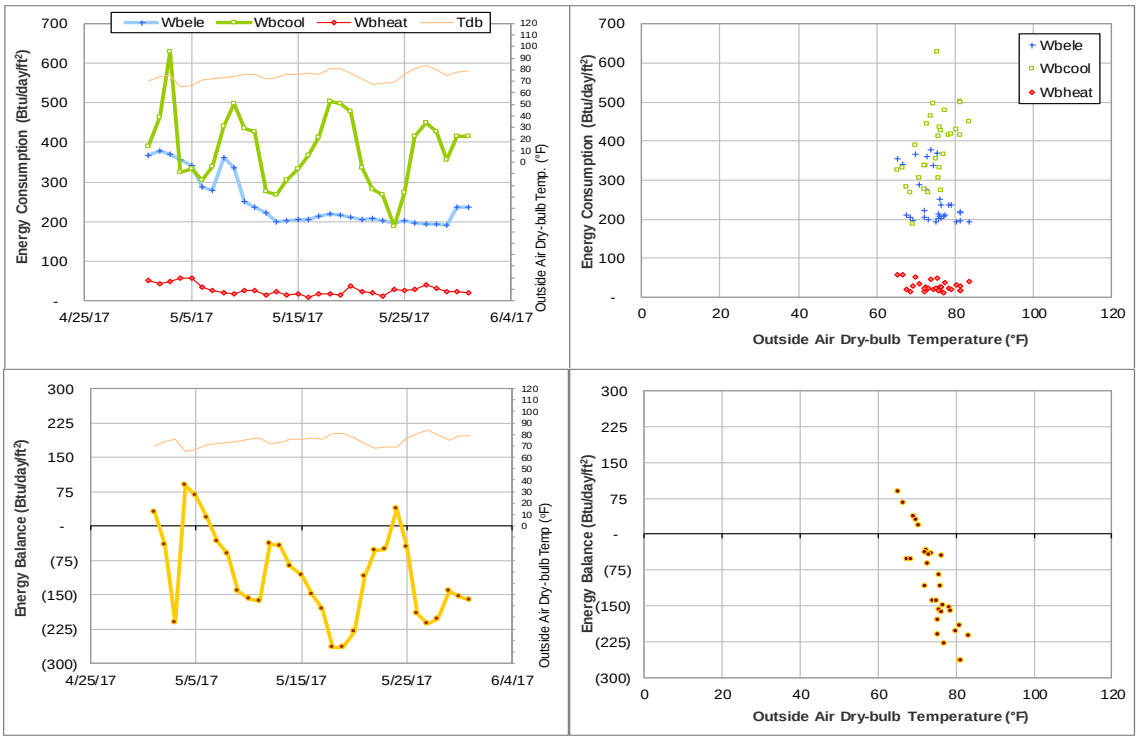


Figure IV-104 Sbisa Dining Hall TAMU BLDG # 495 Energy Balance Plot during May 2017

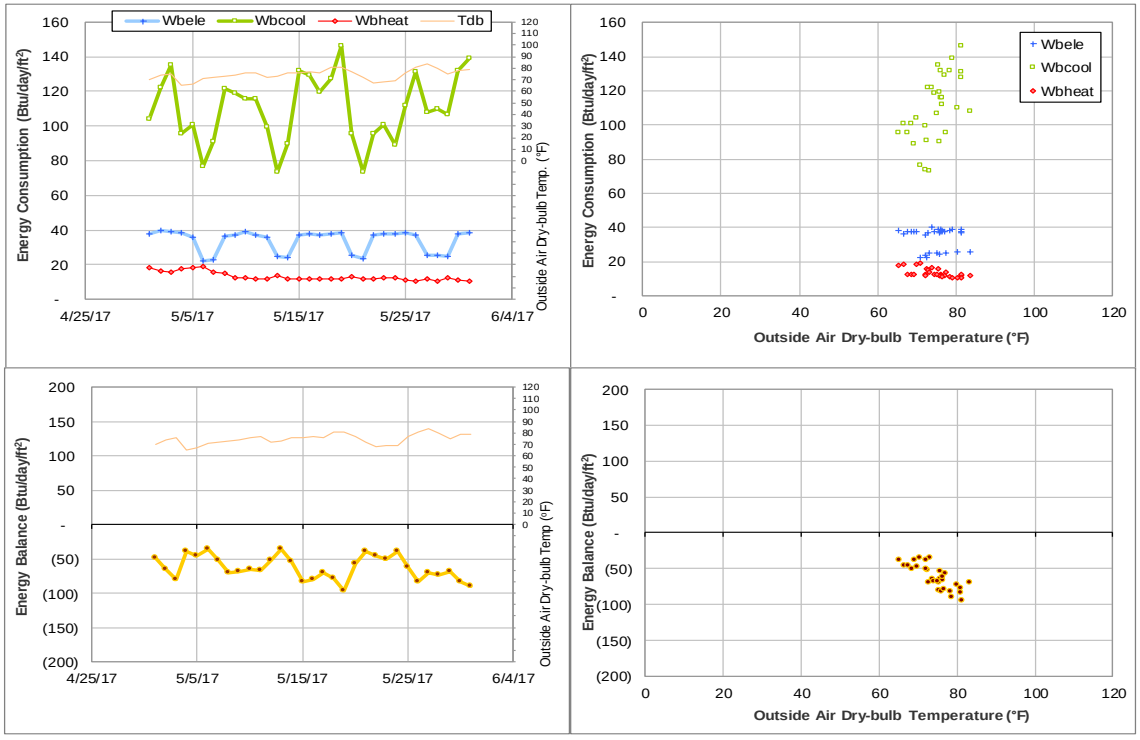


Figure IV-105 Utilities & Energy Services Central Office TAMU BLDG # 496 Energy Balance Plot during May 2017

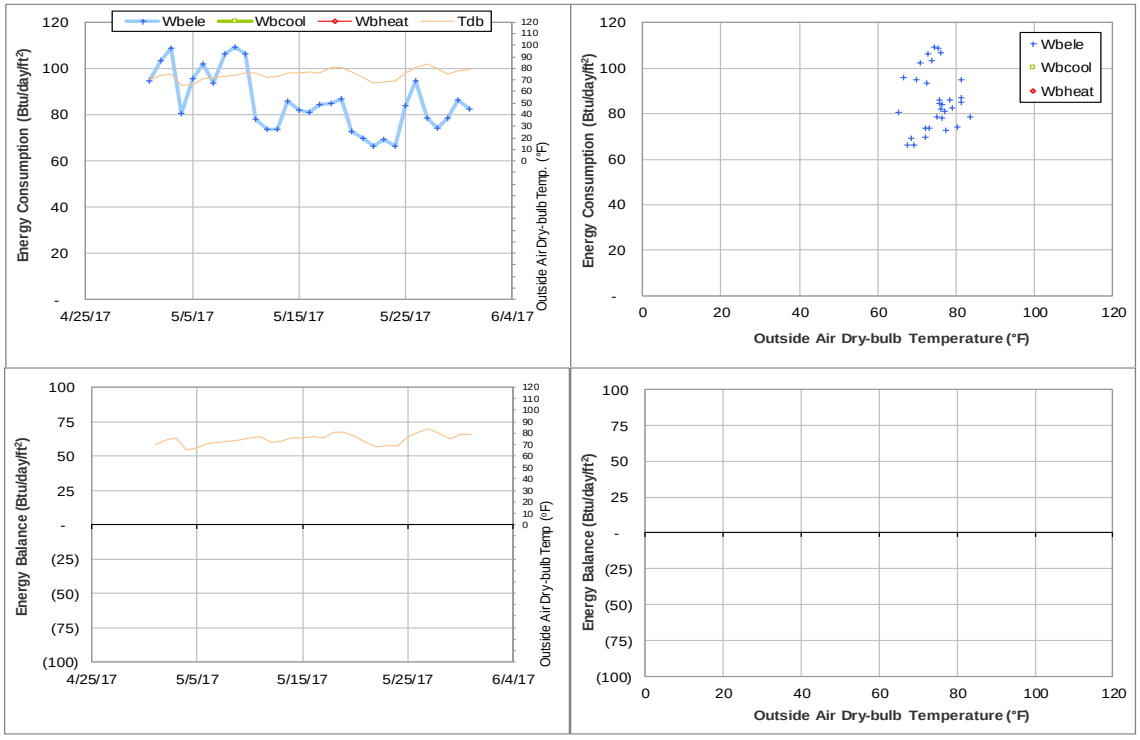


Figure IV-106 Concrete Materials Laboratory TAMU BLDG # 501 Energy Balance Plot during May 2017

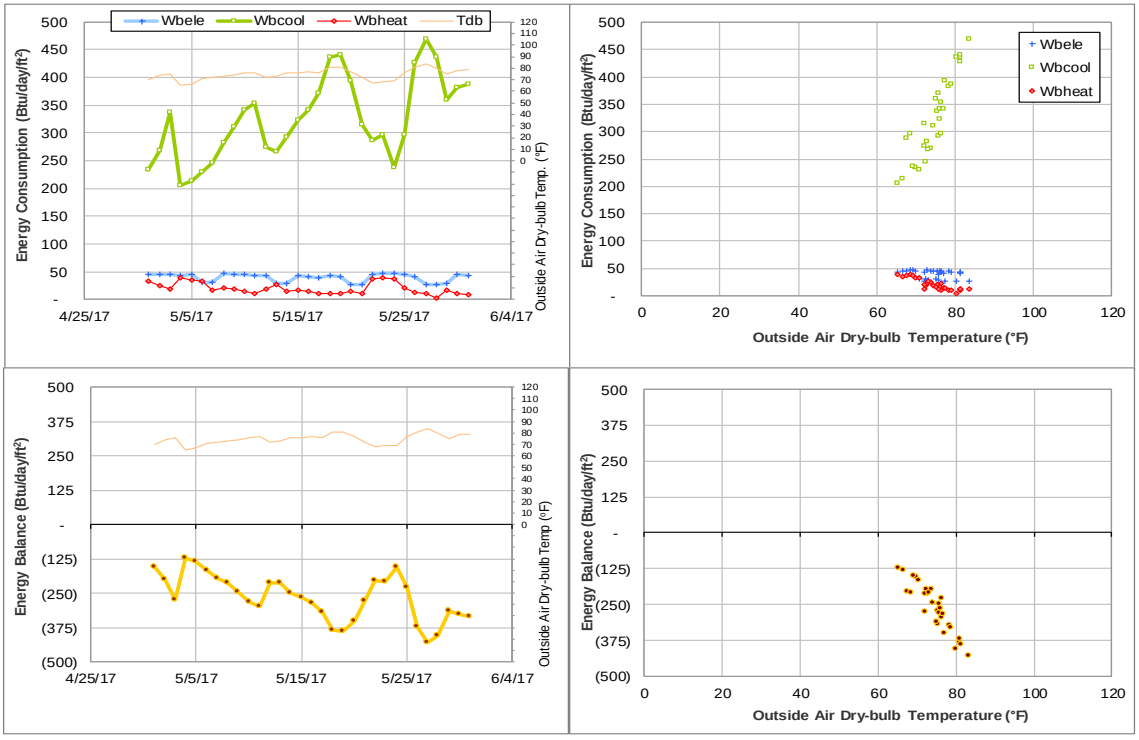


Figure IV-107 Nagle Hall TAMU BLDG # 506 Energy Balance Plot during May 2017

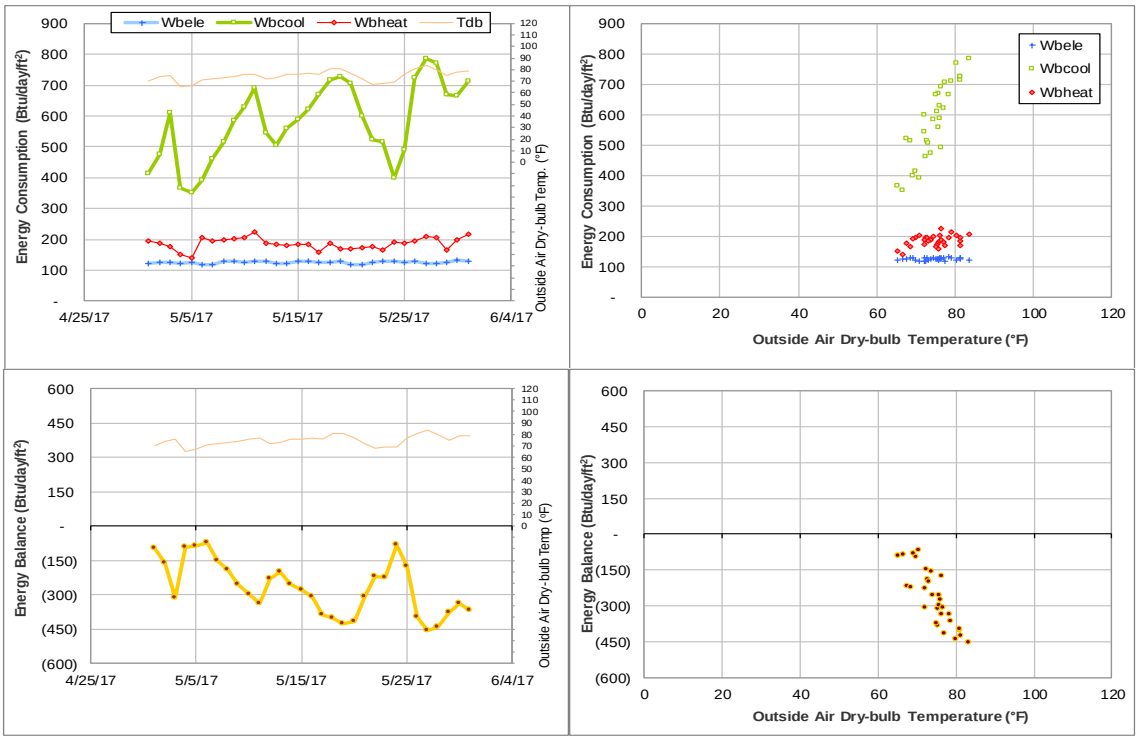


Figure IV-108 Veterinary Medical Science Building TAMU BLDG # 507 Energy Balance Plot during May 2017

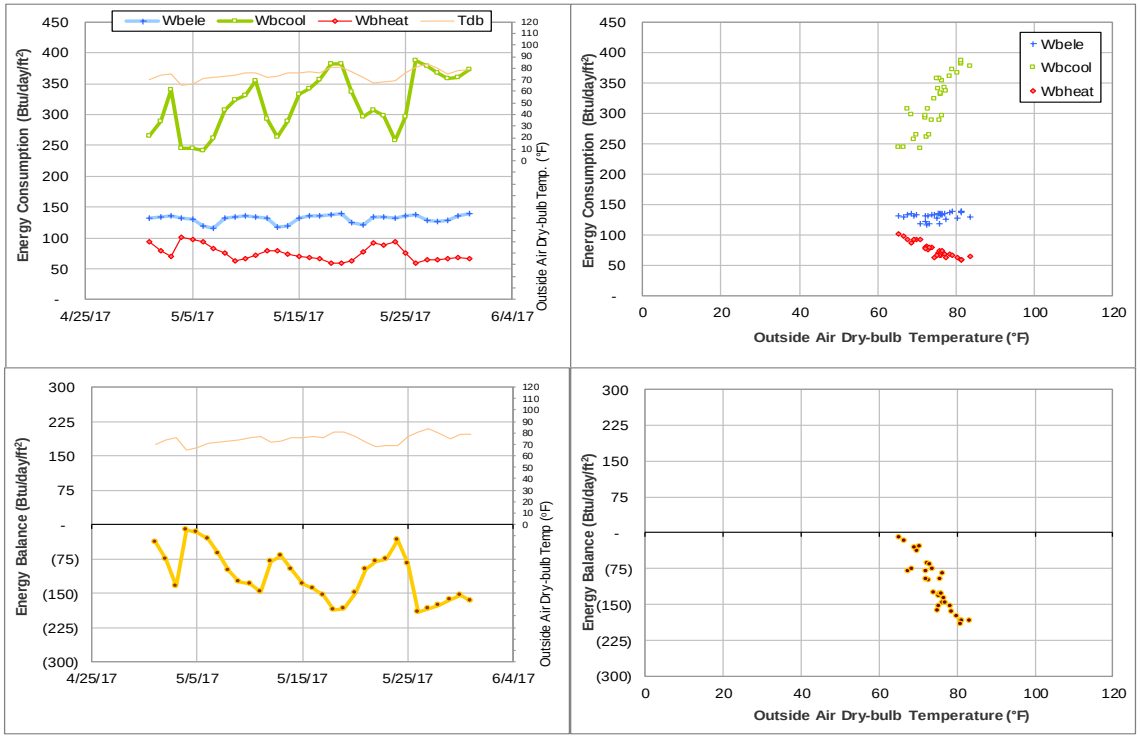


Figure IV-109 Veterinary Teaching Hospital and Med Adm TAMU BLDG # 508 and 1026 Energy Balance Plot during May 2017

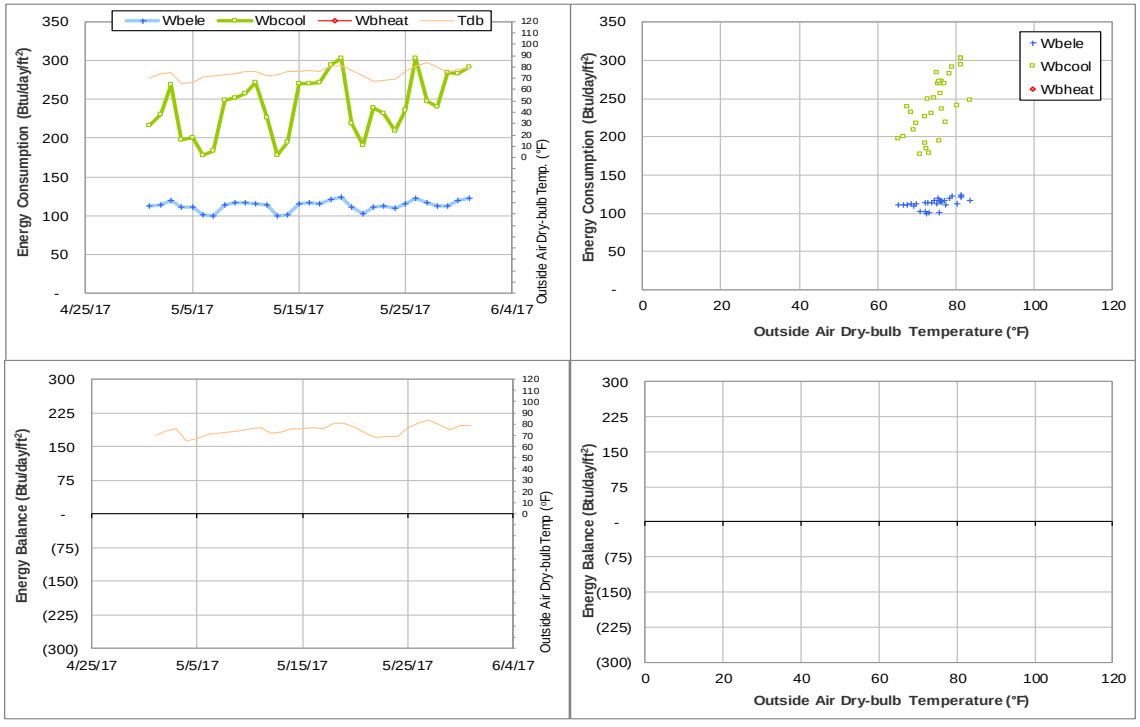


Figure IV-110 Veterinary Teaching Hospital TAMU BLDG # 508 Energy Balance Plot during May 2017

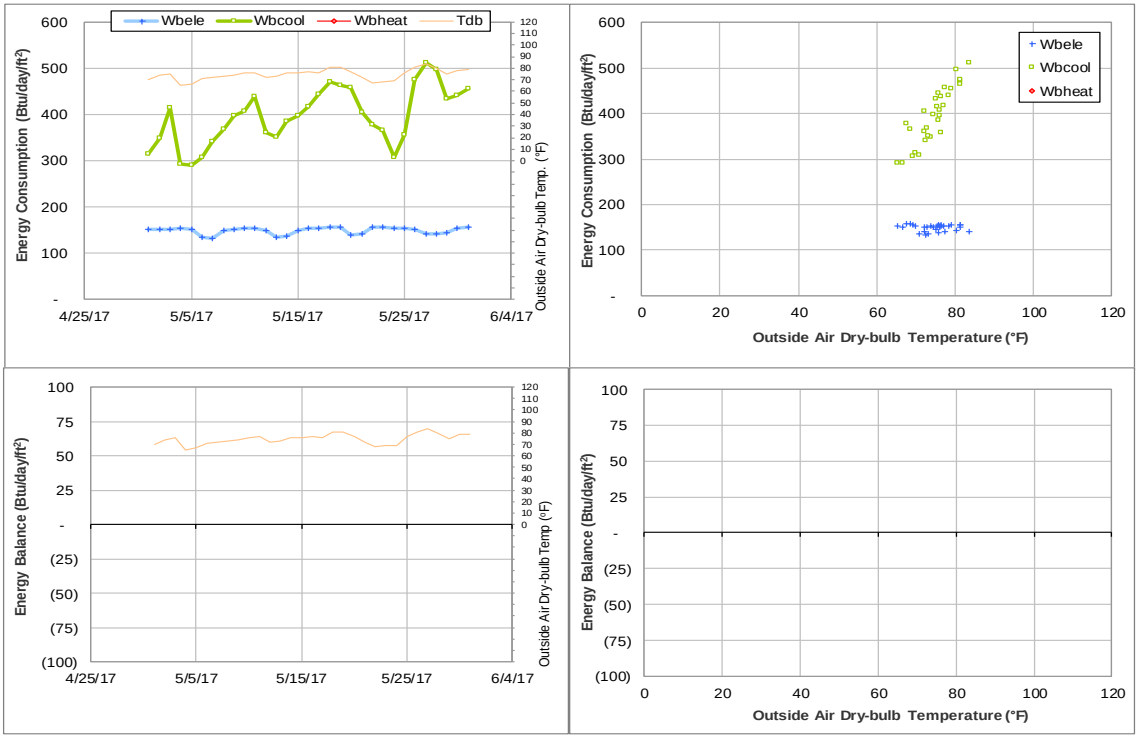


Figure IV-111 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during May 2017

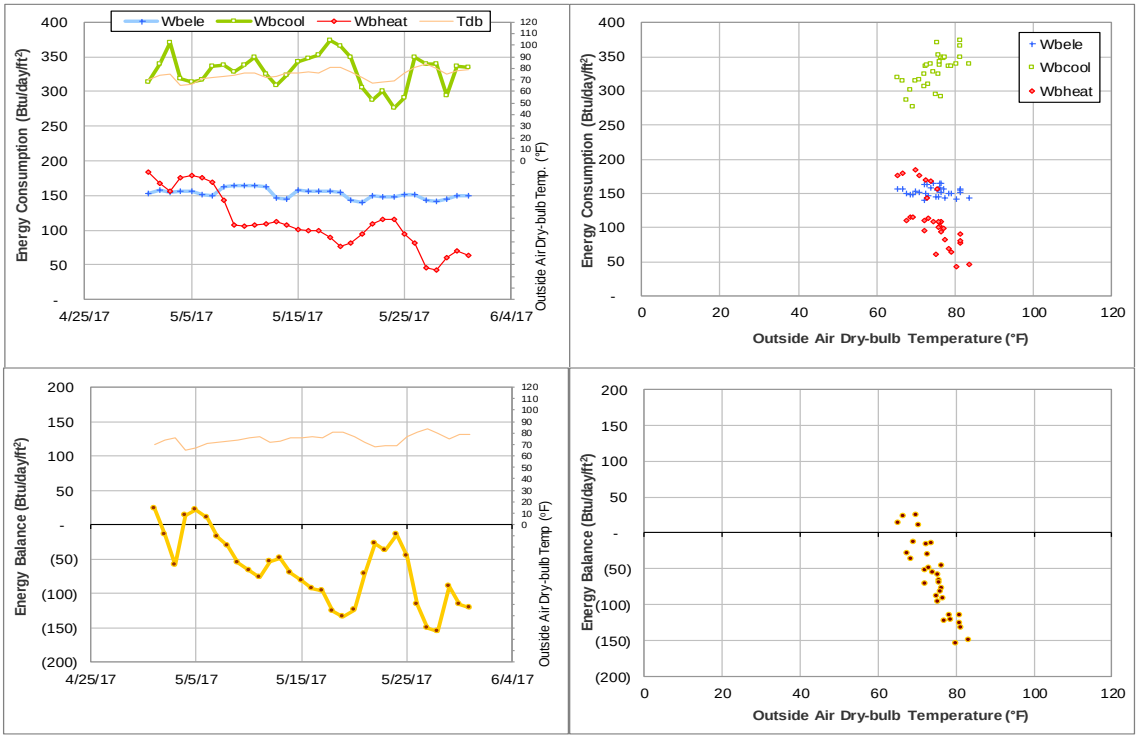


Figure IV-112 Heep Laboratory Building TAMU BLDG # 511 Energy Balance Plot during May 2017

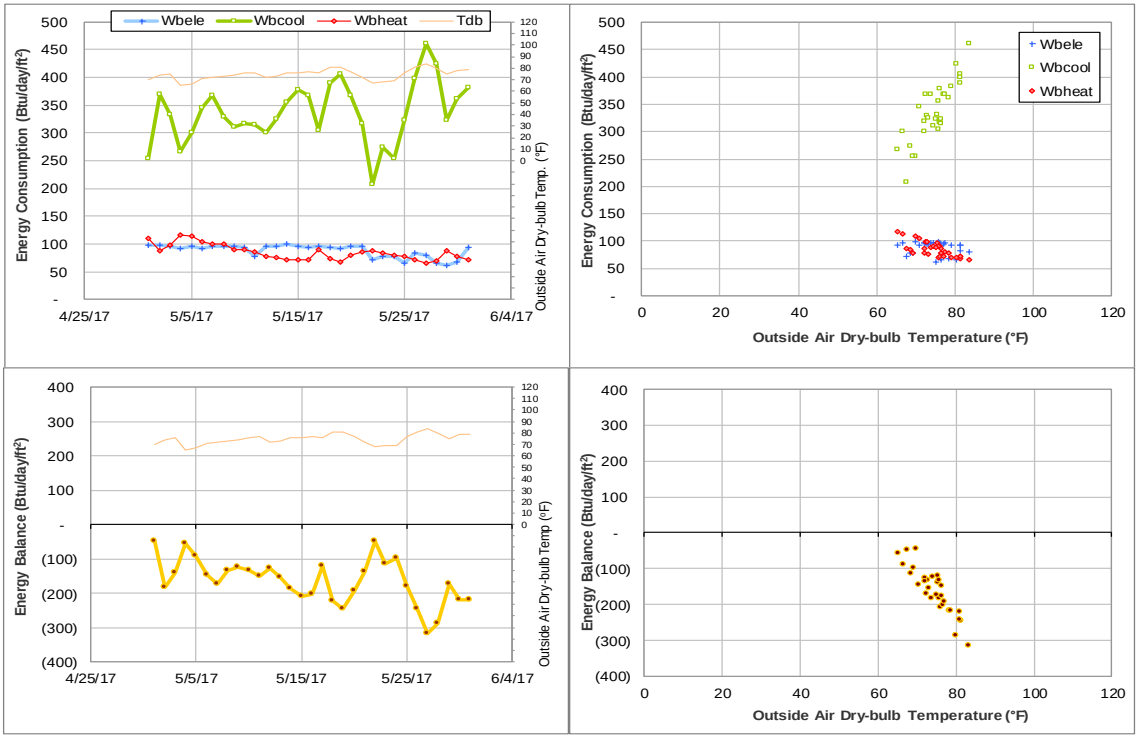


Figure IV-113 All Faiths Chapel TAMU BLDG # 512 Energy Balance Plot during May 2017

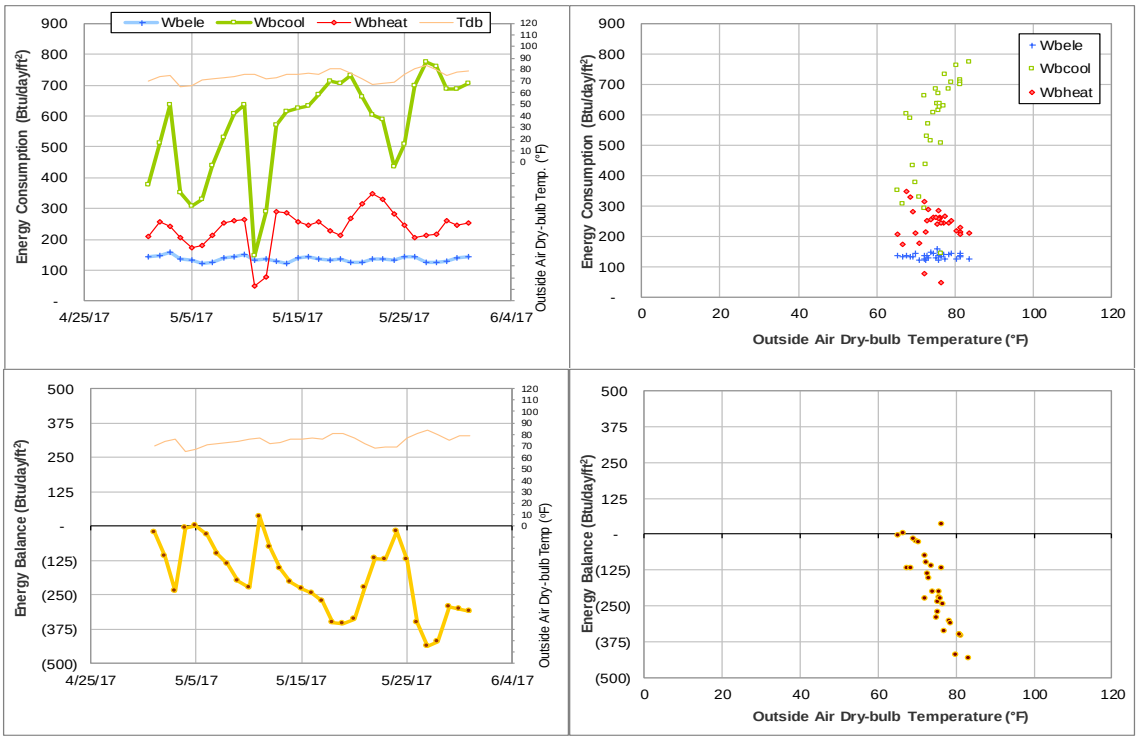


Figure IV-114 Doherty Building TAMU BLDG # 513 Energy Balance Plot during May 2017

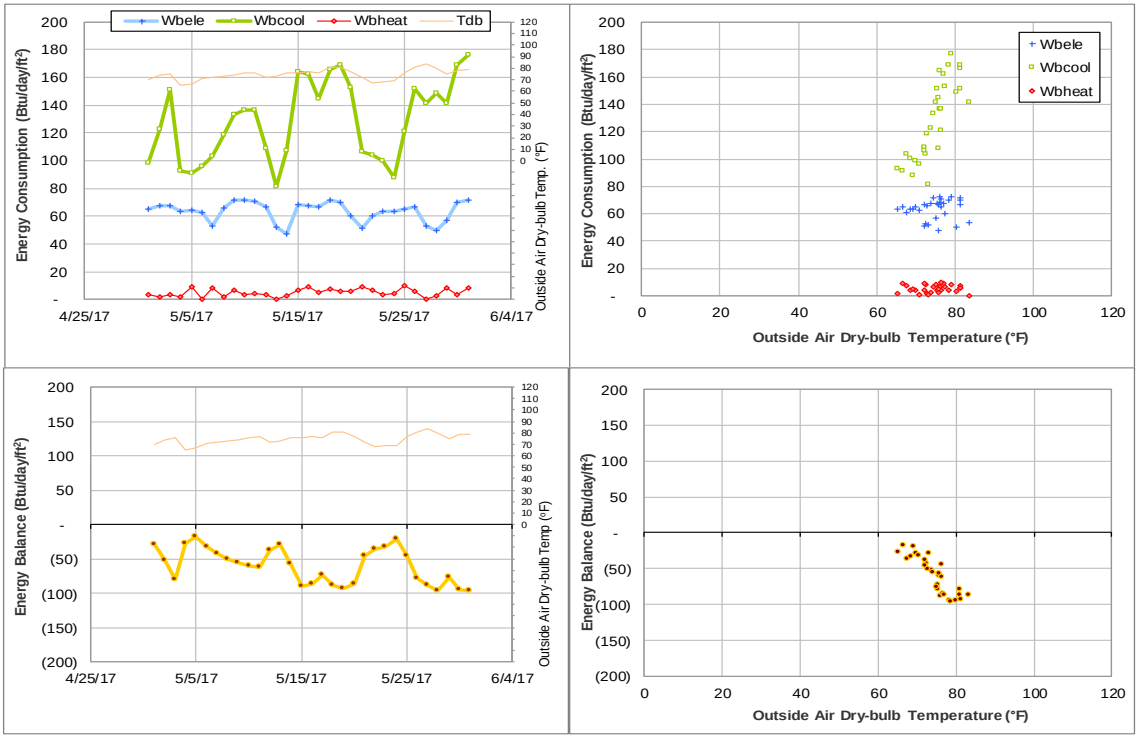


Figure IV-115 Munnerlyn Astronomy & Space Sciences Engineering TAMU BLDG # 514 Energy Balance Plot during May 2017

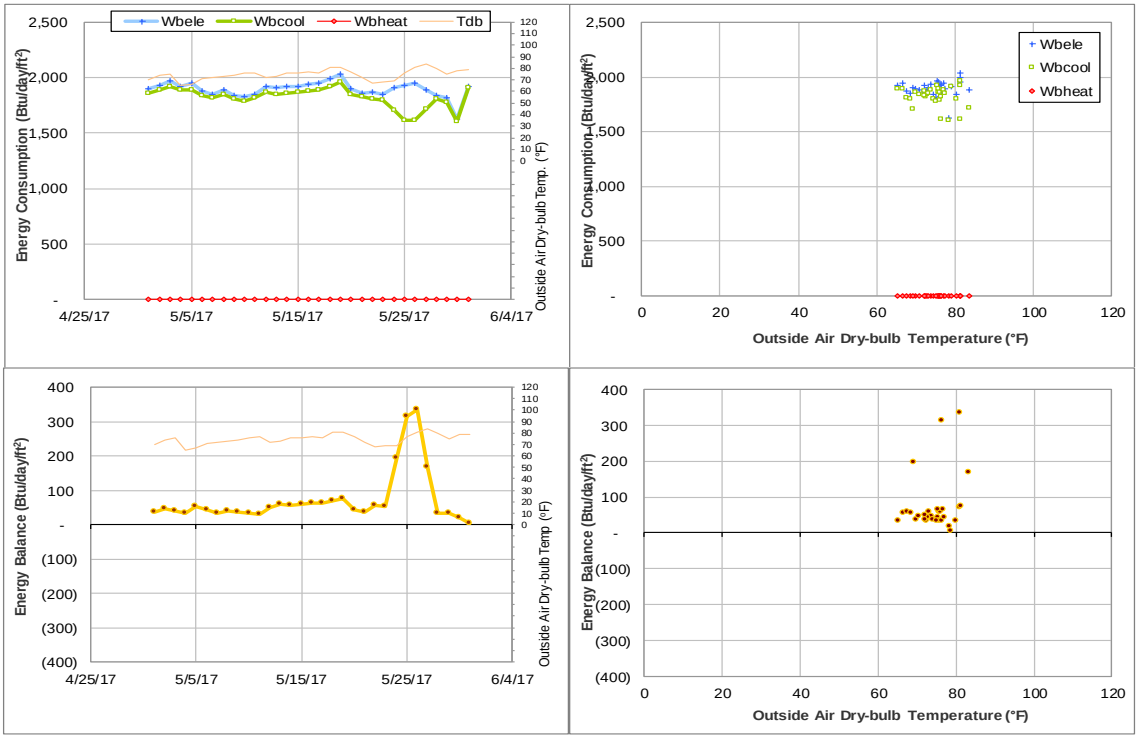


Figure IV-116 Computing Services Center TAMU BLDG # 516 Energy Balance Plot during May 2017

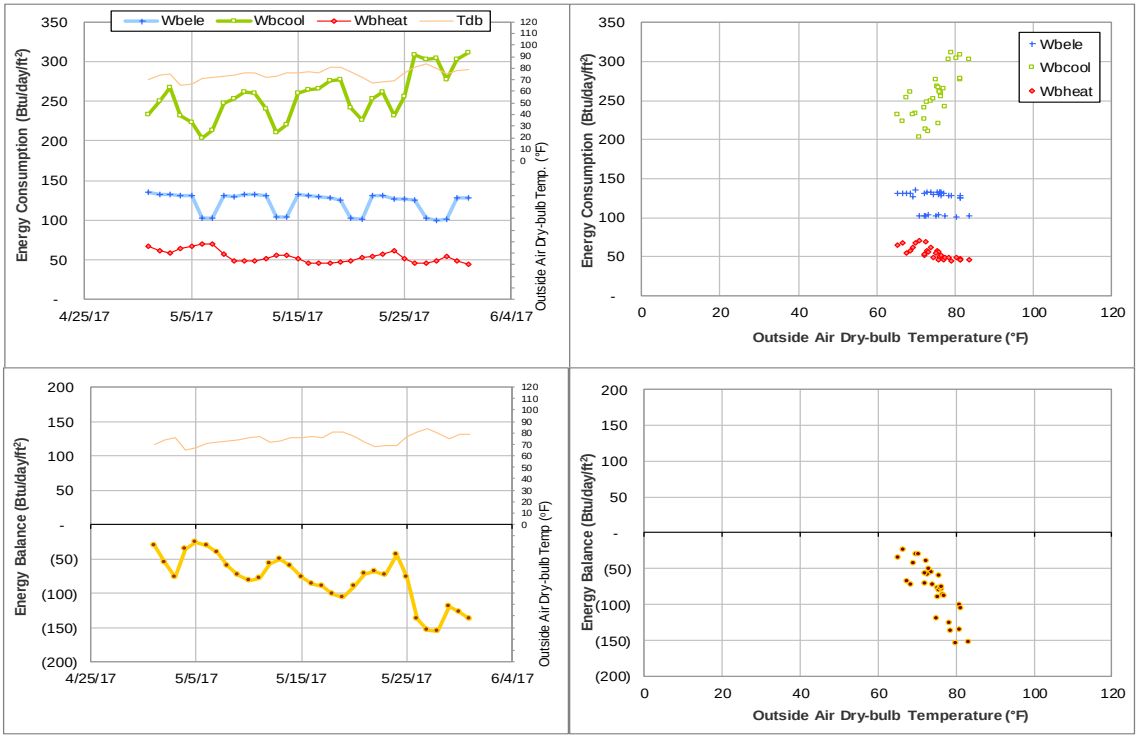


Figure IV-117 Beutel Health Center TAMU BLDG # 520 Energy Balance Plot during May 2017

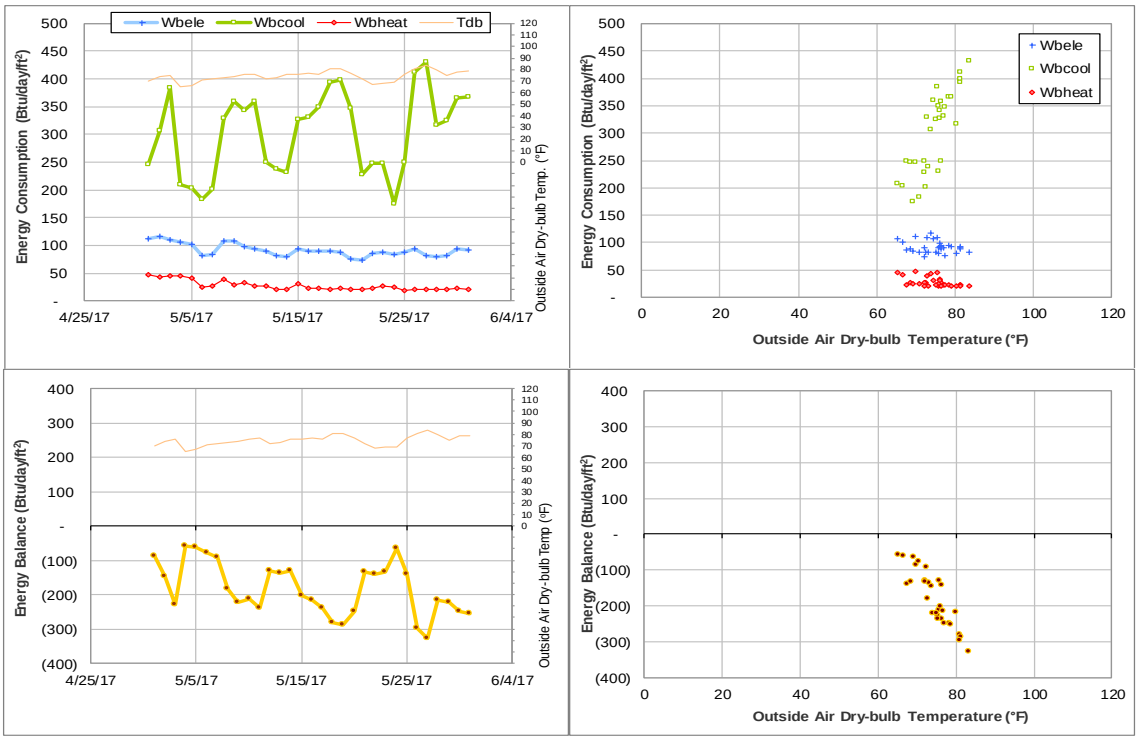


Figure IV-118 Heldenfels Hall TAMU BLDG # 521 Energy Balance Plot during May 2017

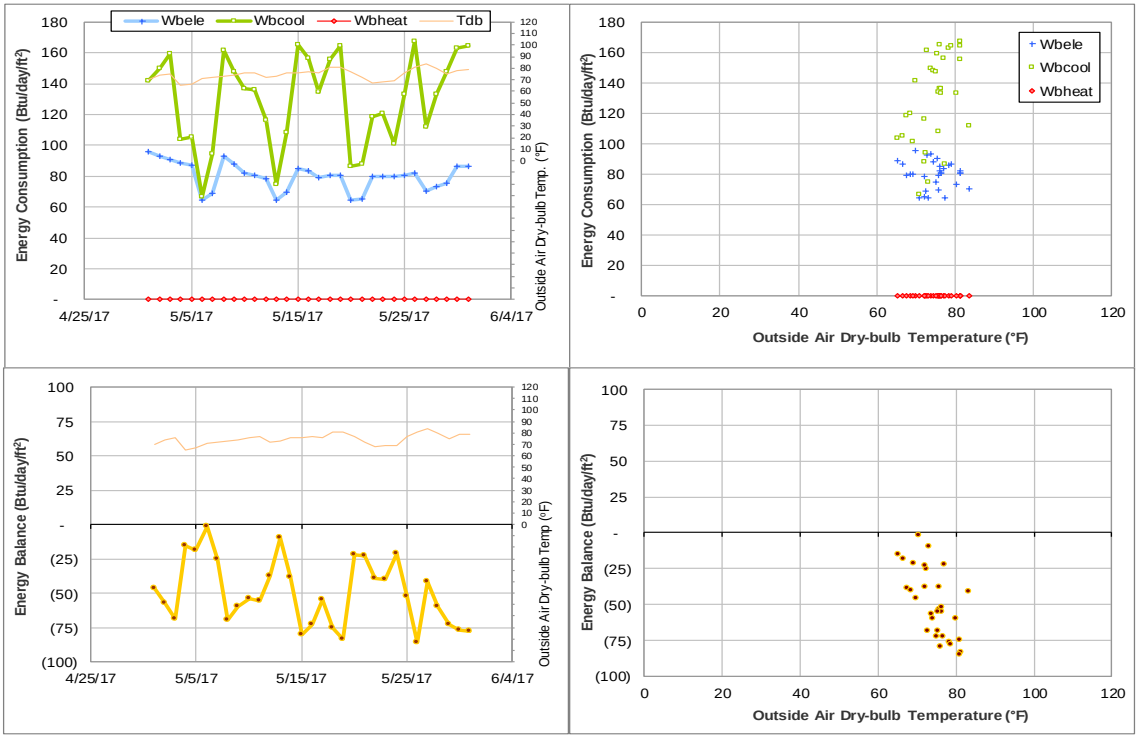


Figure IV-119 Blocker building TAMU BLDG # 524 Energy Balance Plot during May 2017

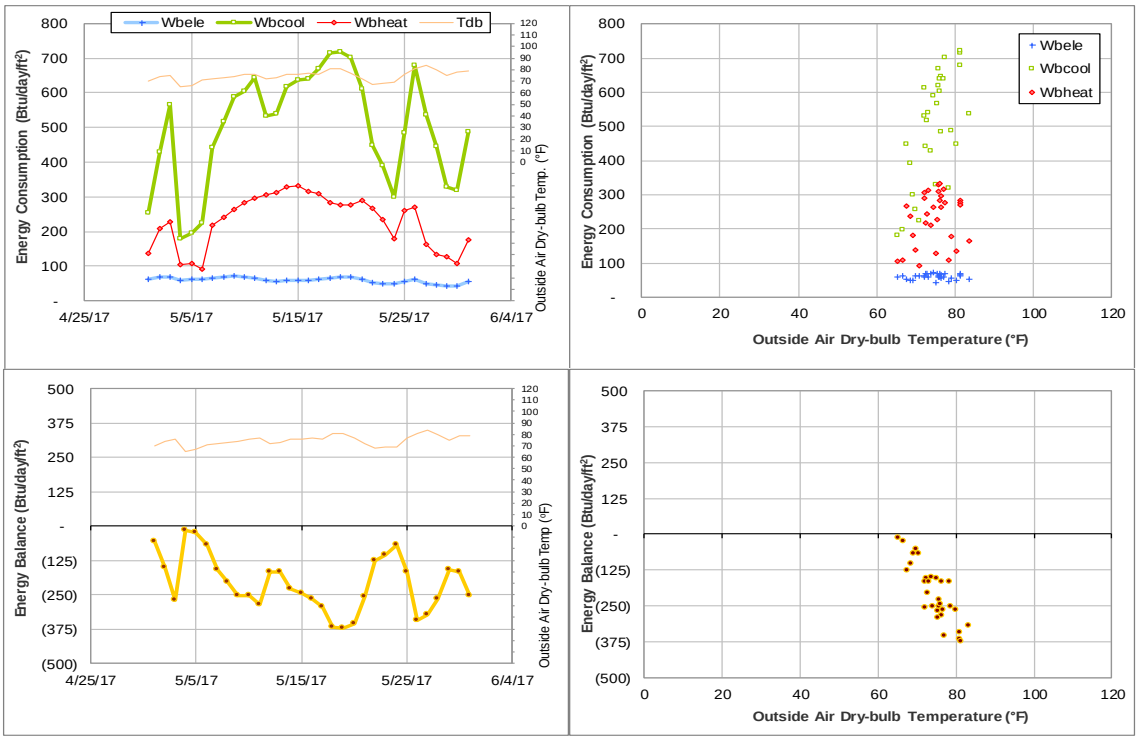


Figure IV-120 Clements Residence Hall TAMU BLDG # 548 Energy Balance Plot during May 2017

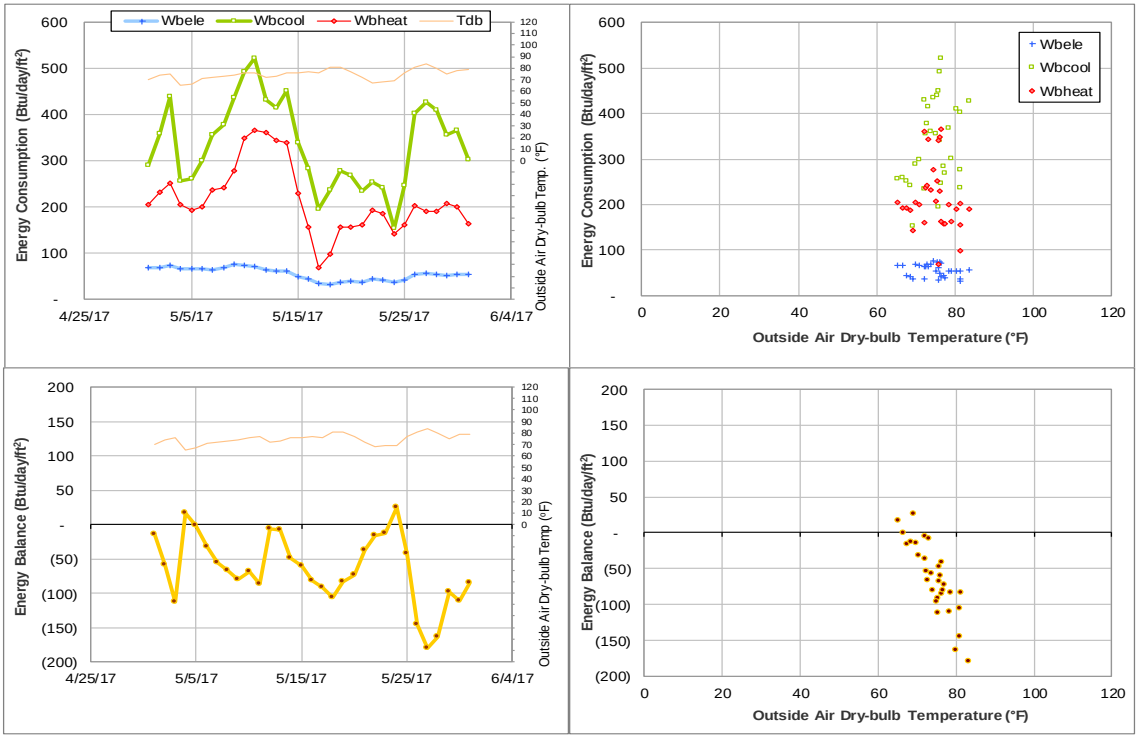


Figure IV-121 Haas Residence Hall TAMU BLDG # 549 Energy Balance Plot during May 2017

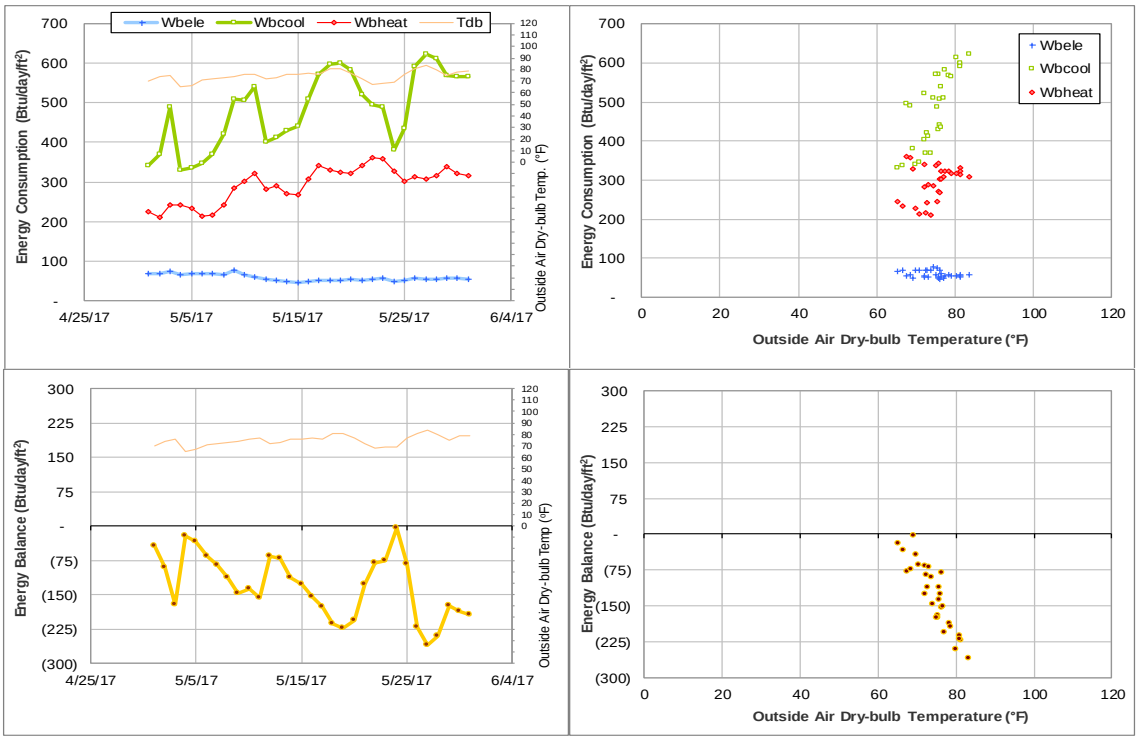


Figure IV-122 McFadden Residence Hall TAMU BLDG # 550 Energy Balance Plot during May 2017

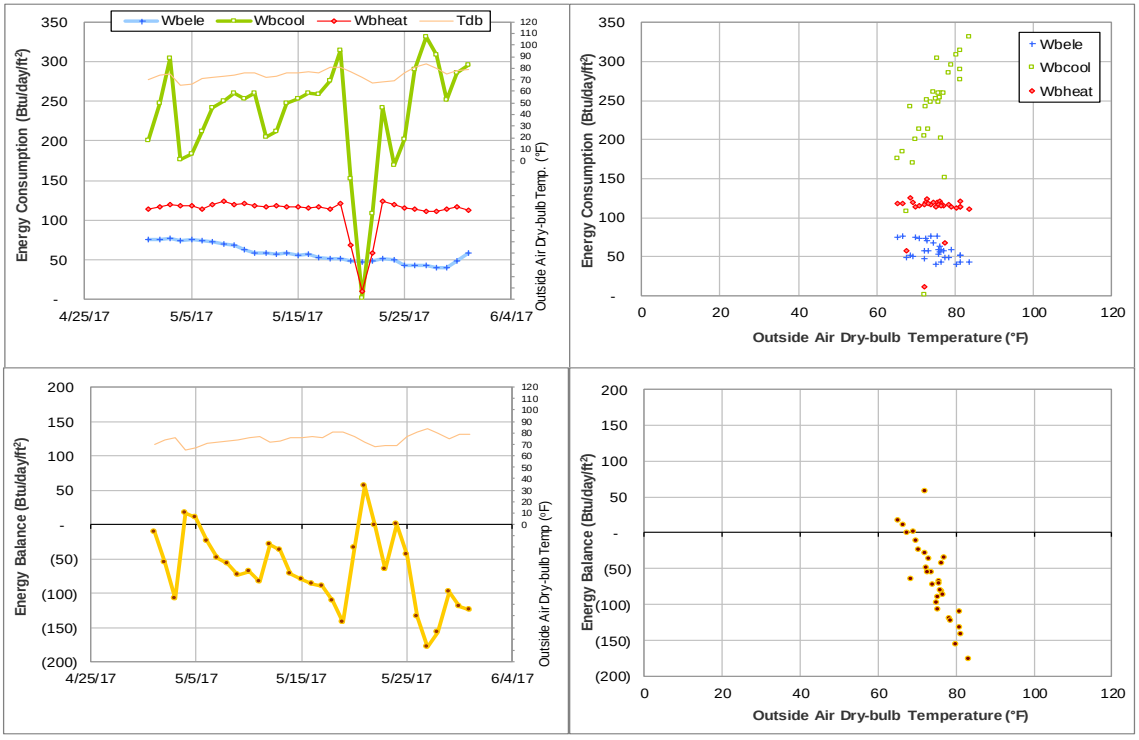


Figure IV-123 Neeley Residence Hall TAMU BLDG # 652 Energy Balance Plot during May 2017

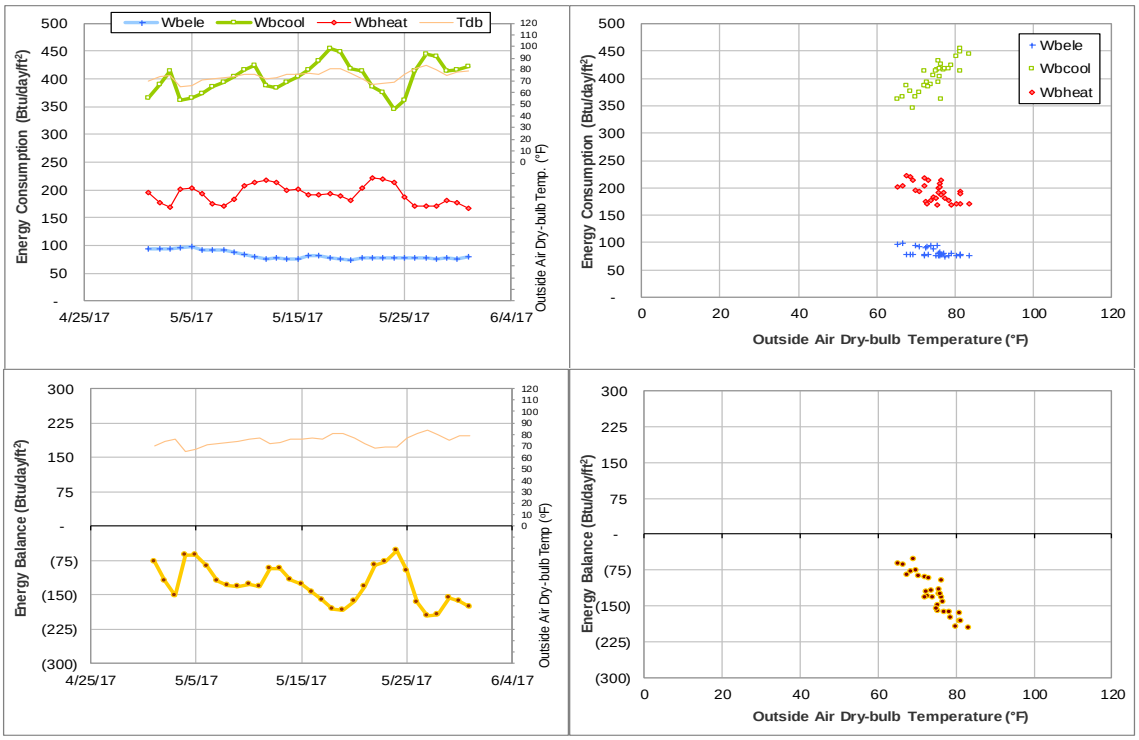


Figure IV-124 Hobby Residence Hall TAMU BLDG # 653 Energy Balance Plot during May 2017

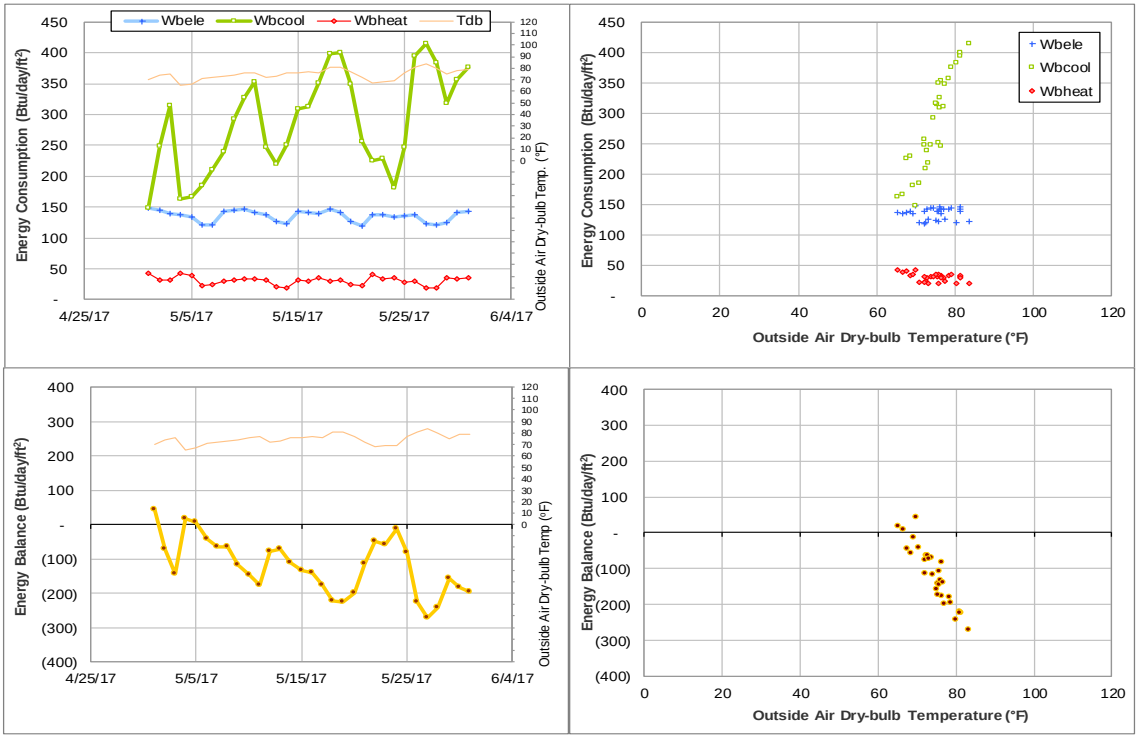


Figure IV-125 Wisenbaker Engineering Research Center TAMU BLDG # 682 Energy Balance Plot during May 2017

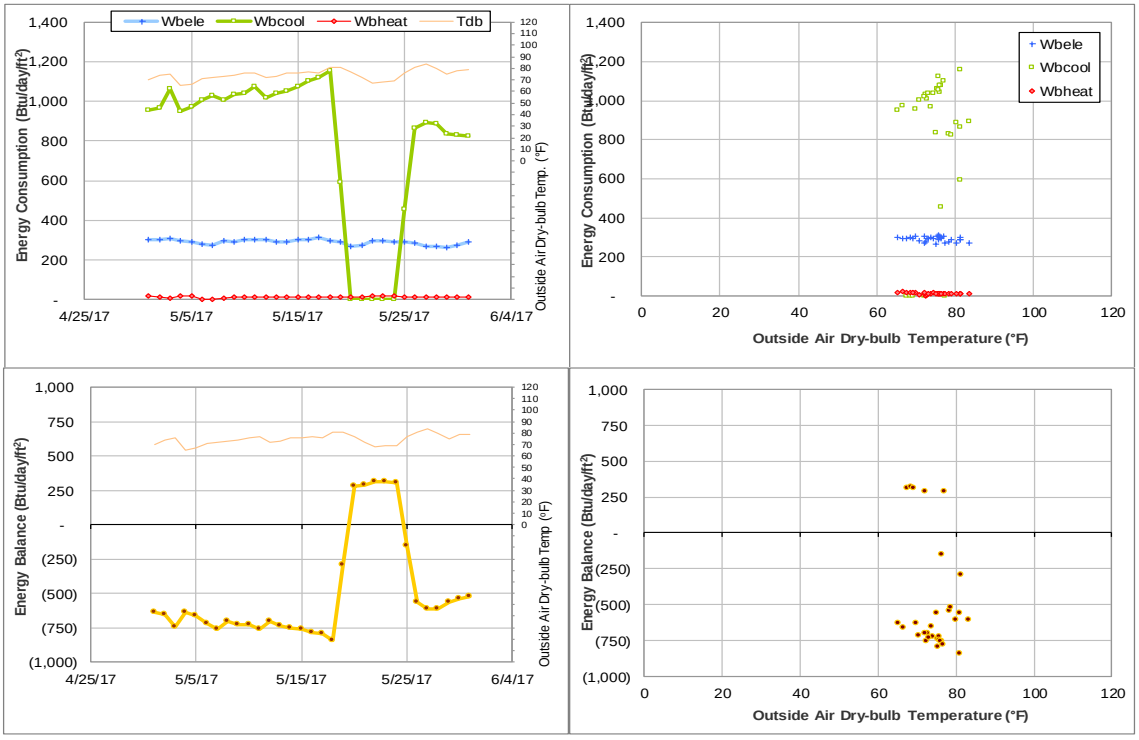


Figure IV-126 McNew Laboratory TAMU BLDG # 740 Energy Balance Plot during May 2017

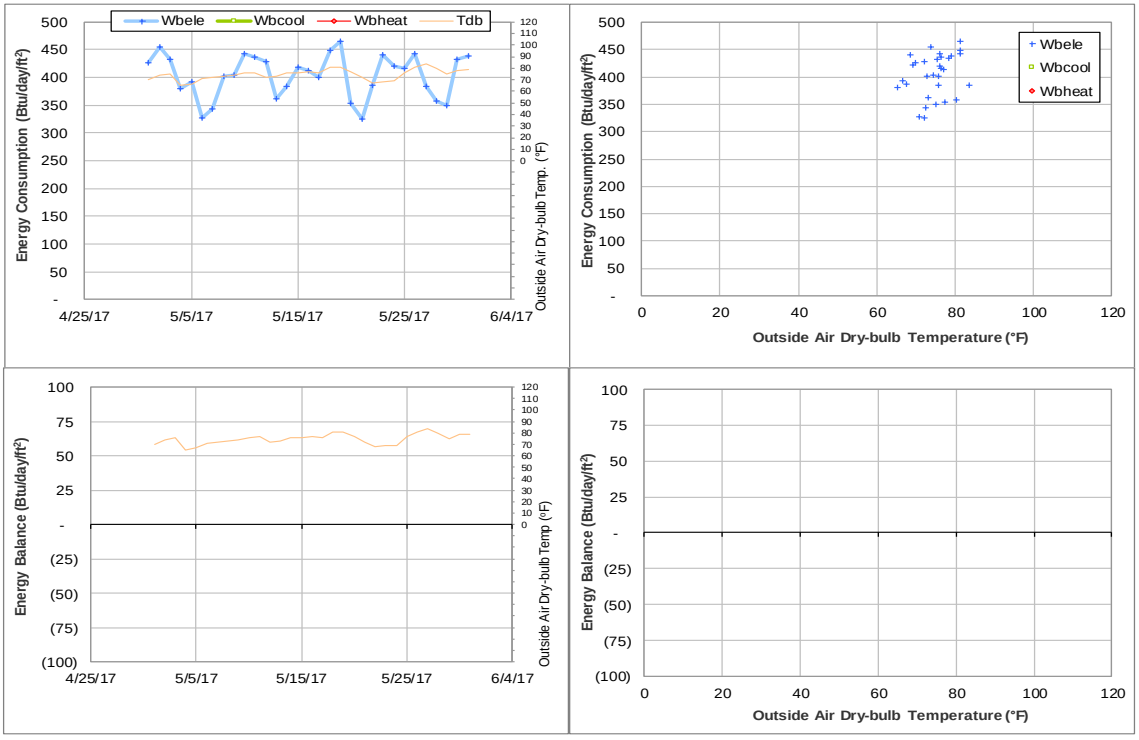


Figure IV-127 Soil Testing Labs TAMU BLDG # 806 Energy Balance Plot during May 2017

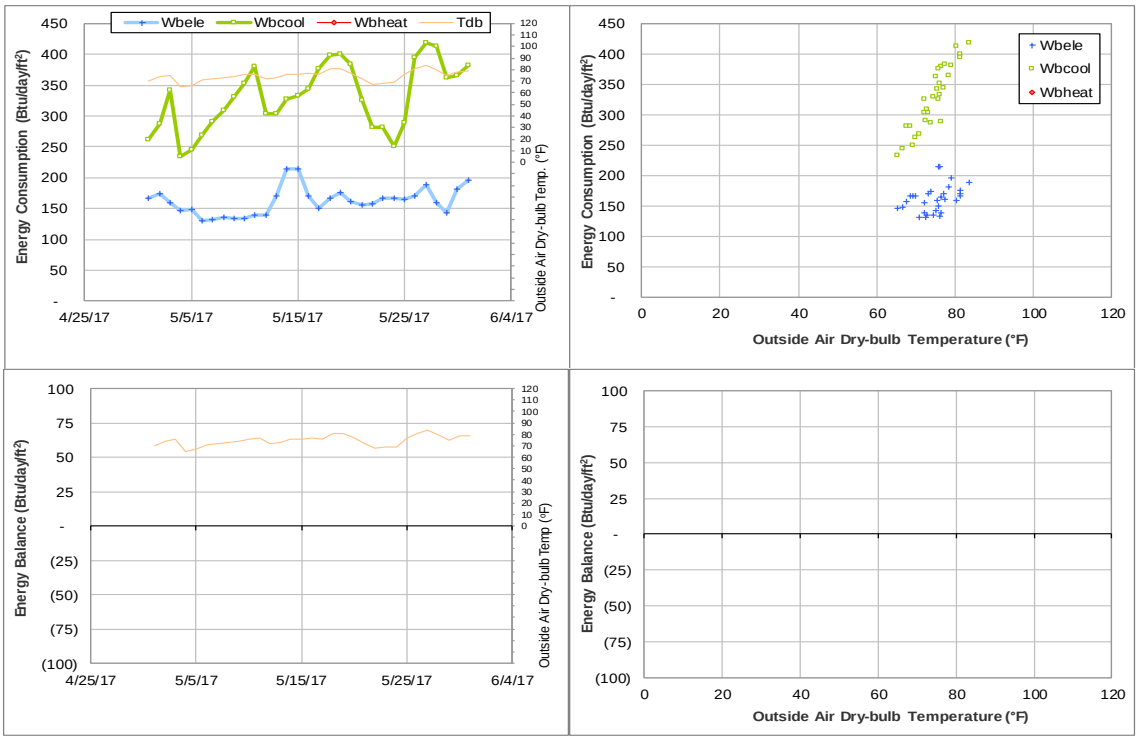


Figure IV-128 Entomology Research Lab TAMU BLDG # 815 Energy Balance Plot during May 2017

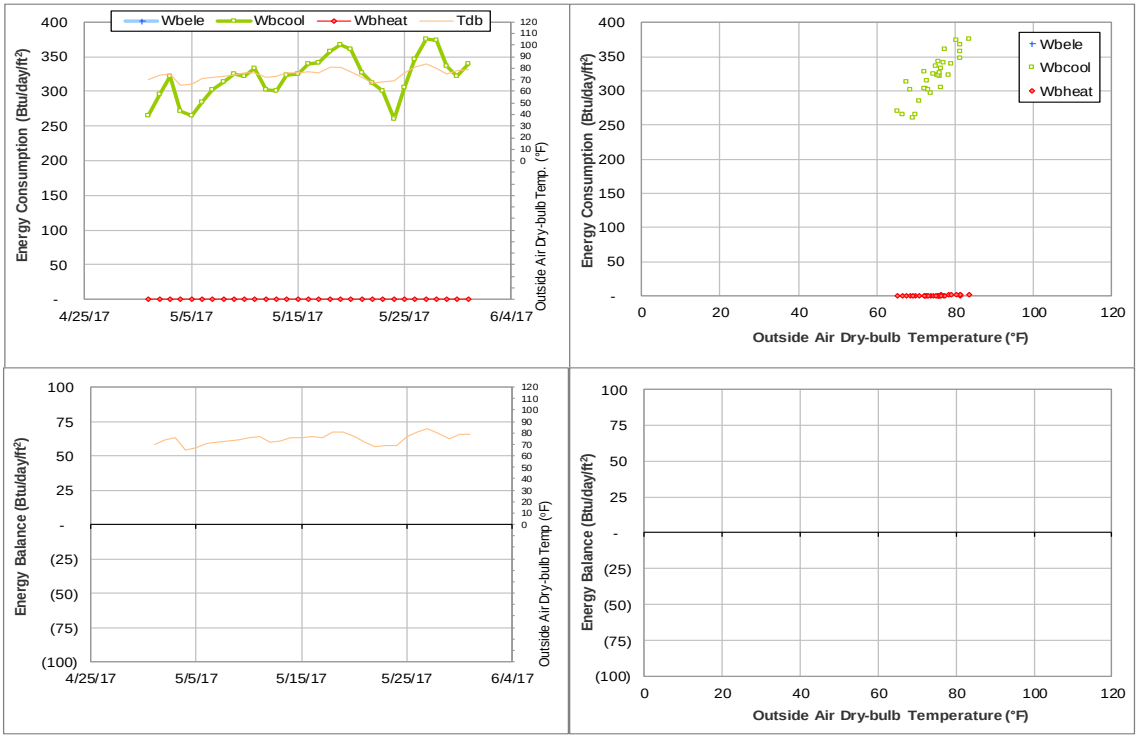


Figure IV-129 TVMC-Small Animal Building TAMU BLDG # 880 Energy Balance Plot during May 2017

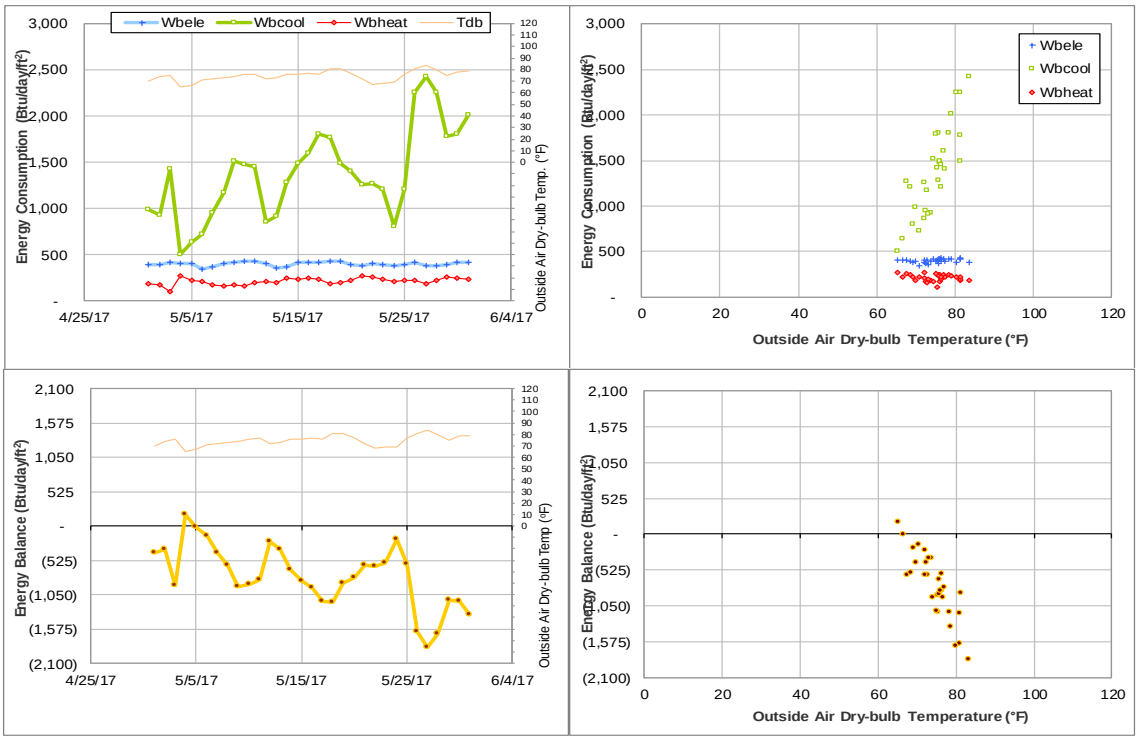


Figure IV-130 Laboratory Animal Care Building TAMU BLDG # 972 Energy Balance Plot during May 2017

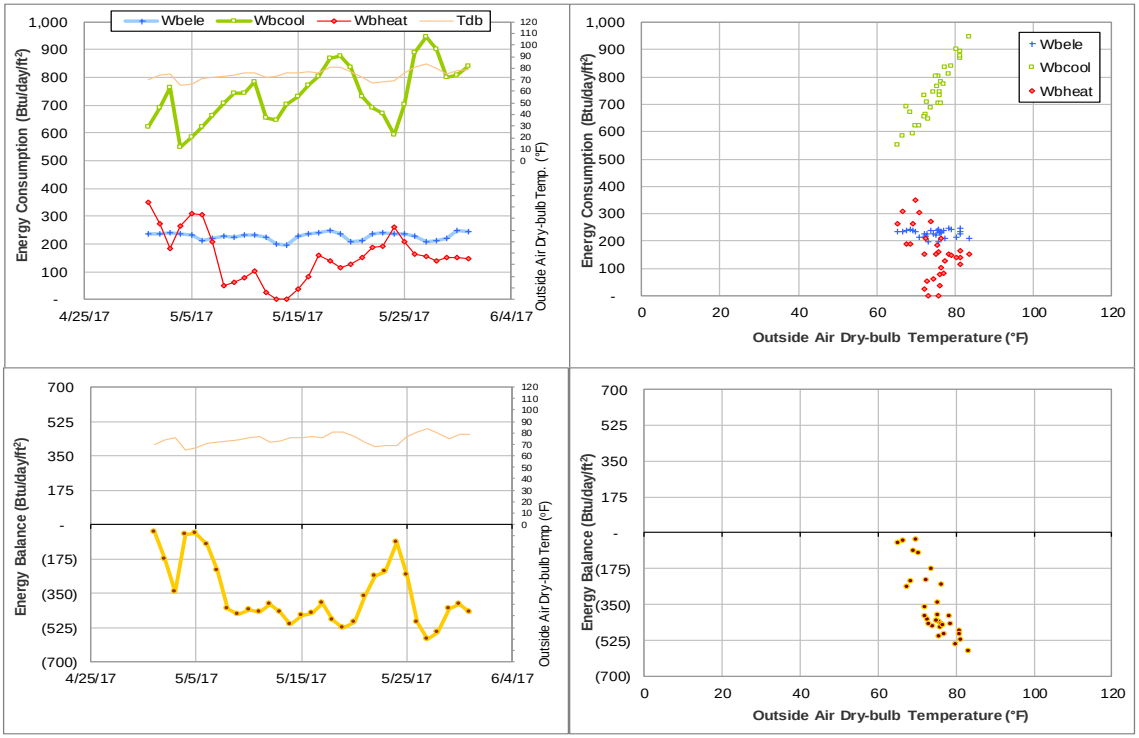


Figure IV-131 Vivarium III TAMU BLDG # 1020 Energy Balance Plot during May 2017

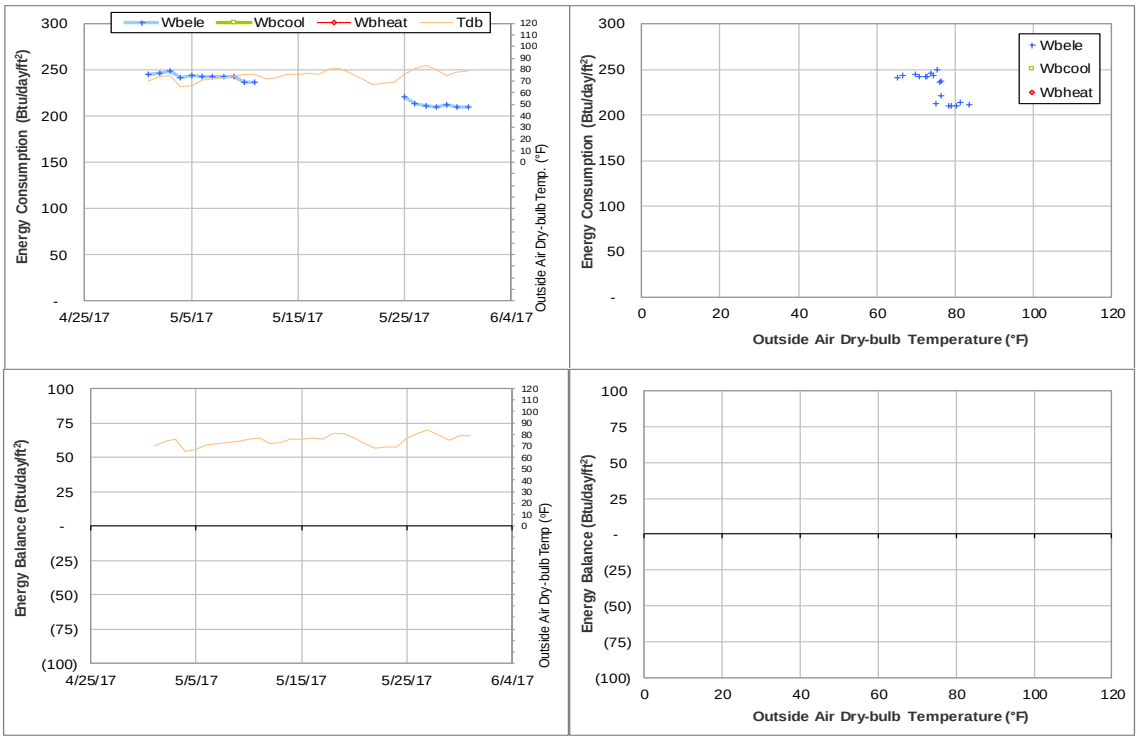


Figure IV-132 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during May 2017

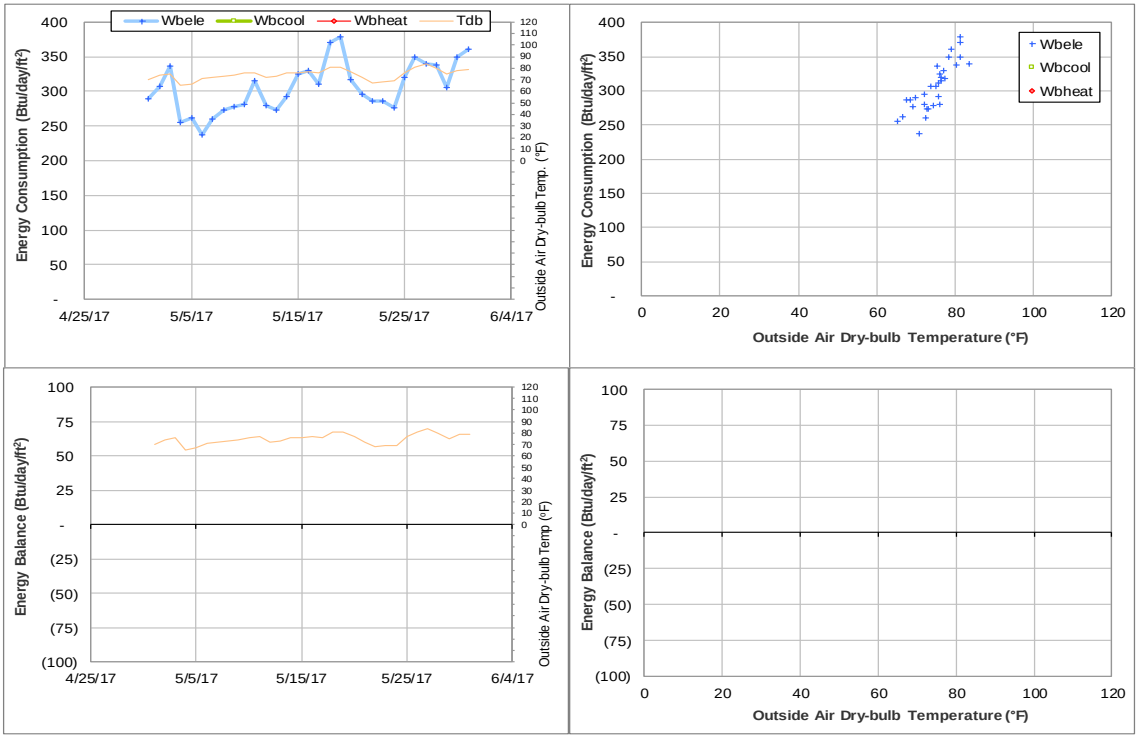


Figure IV-133 Forest Science Laboratory Building TAMU BLDG # 1042 Energy Balance Plot during May 2017

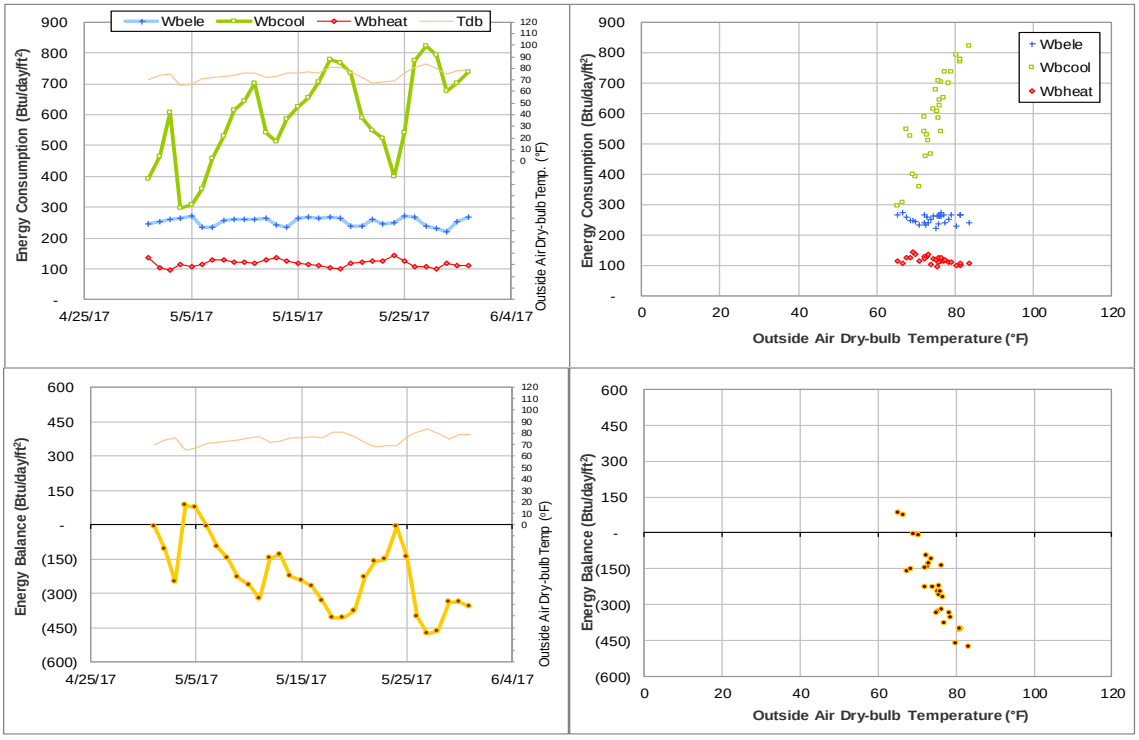


Figure IV-134 Veterinary Small Animal Hospital TAMU BLDG # 1085 Energy Balance Plot during May 2017

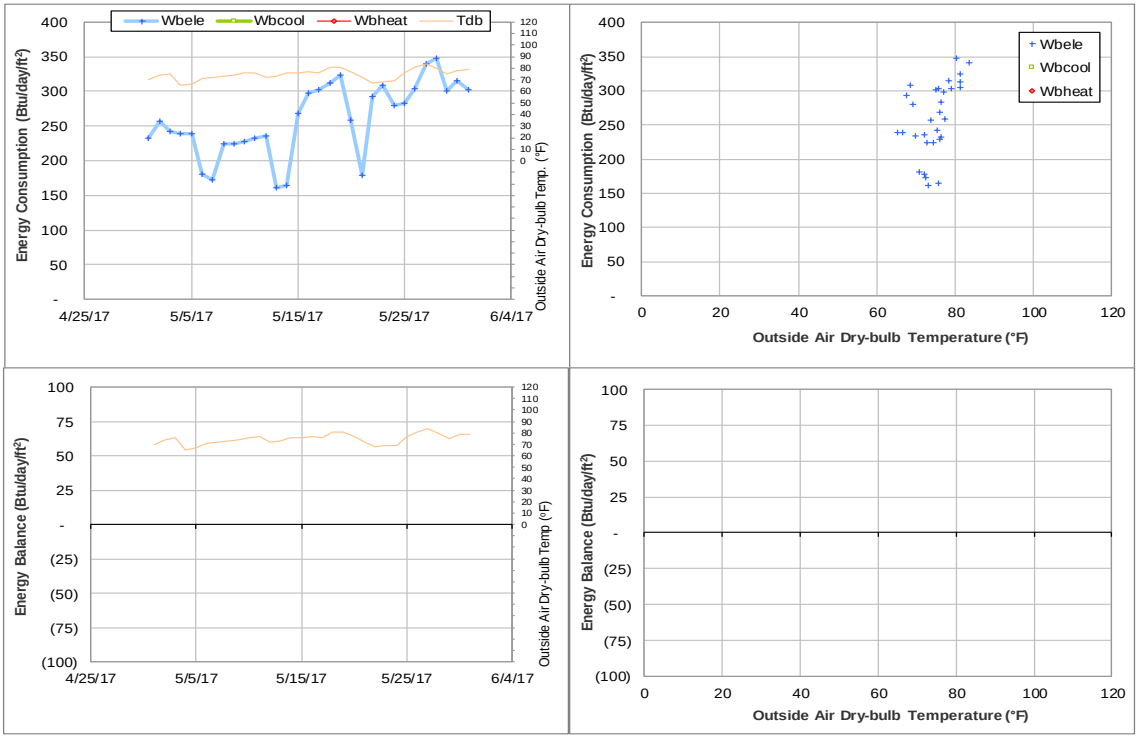


Figure IV-135 Utilities Energy Office Annex TAMU BLDG # 1089 Energy Balance Plot during May 2017

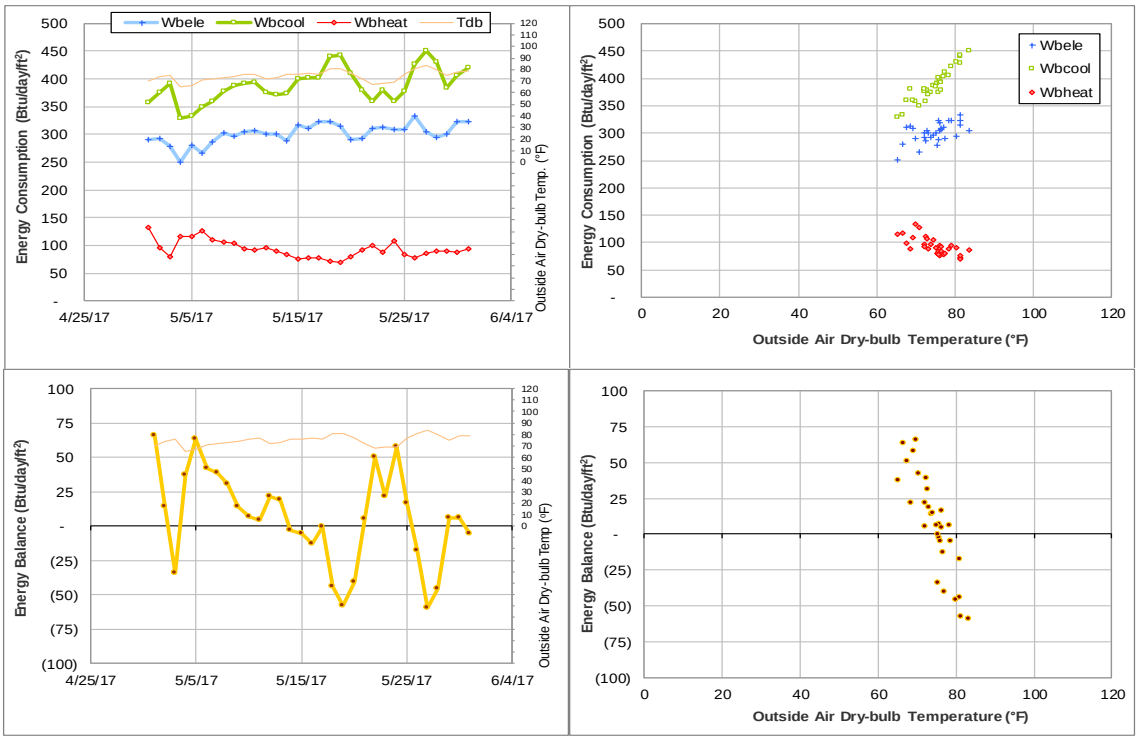


Figure IV-136 Biological Control Facility TAMU BLDG # 1146 Energy Balance Plot during May 2017

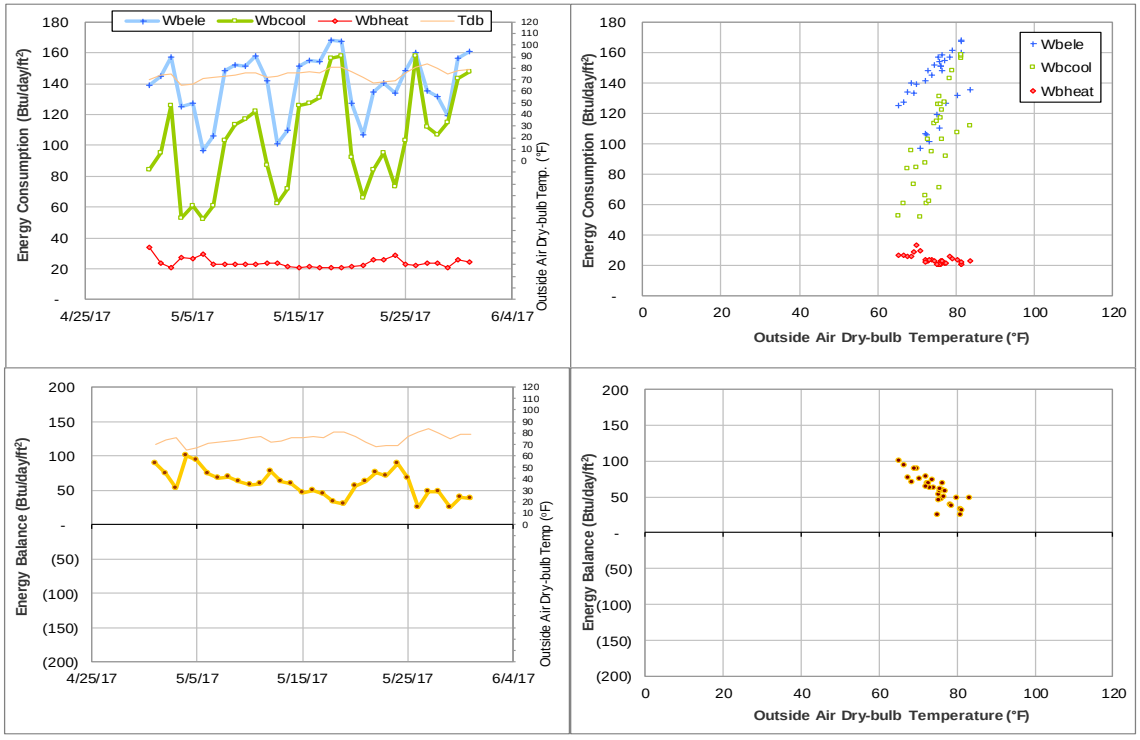


Figure IV-137 Physical Plant Administration & Shops TAMU BLDG # 1156 Energy Balance Plot during May 2017

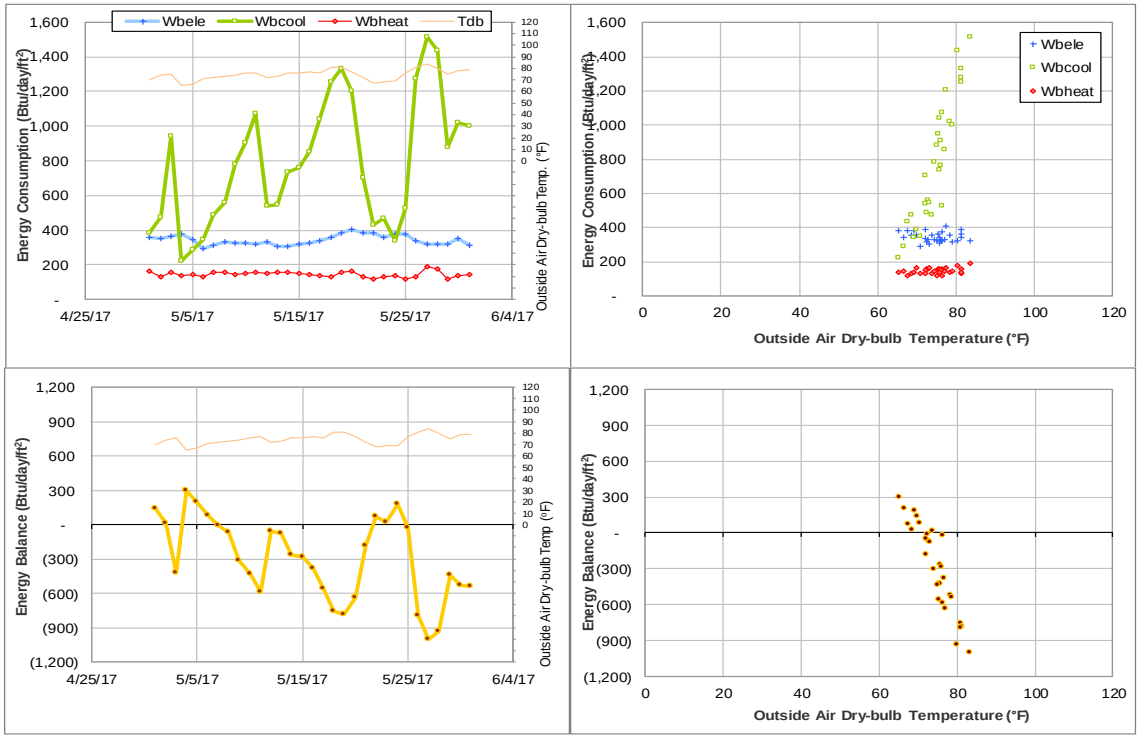


Figure IV-138 Veterinary Anatomic Pathology TAMU BLDG # 1184 Energy Balance Plot during May 2017

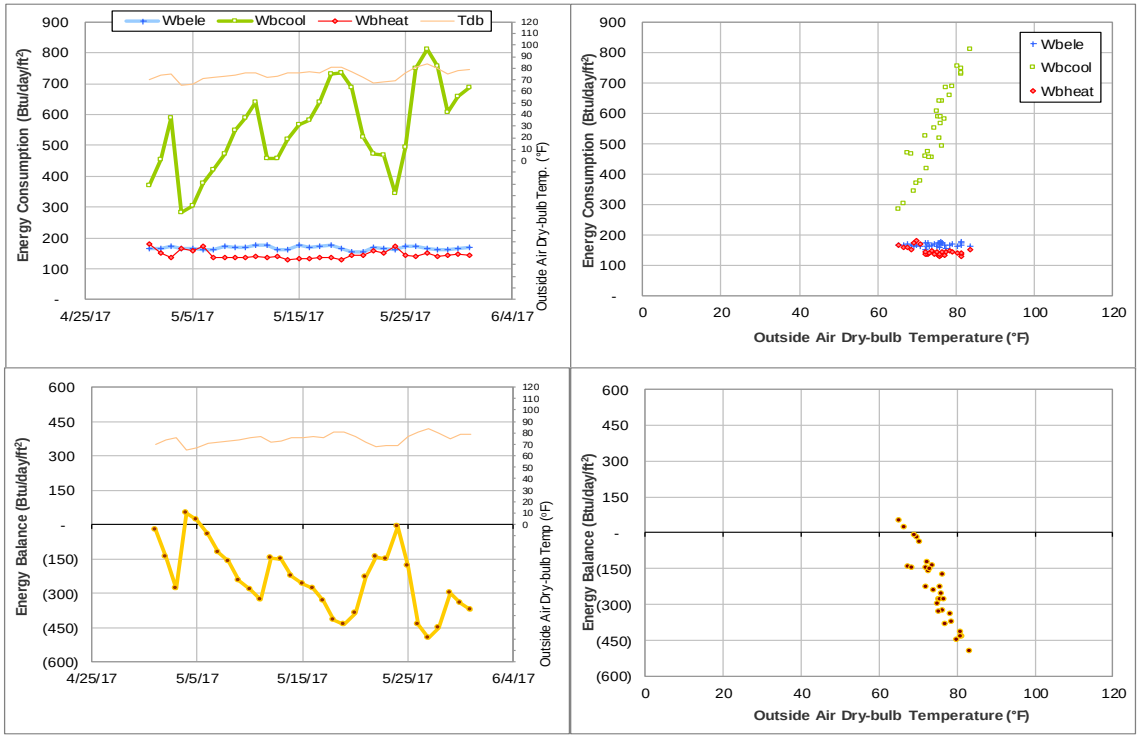


Figure IV-139 Veterinary Large Animal Hospital TAMU BLDG # 1194 Energy Balance Plot during May 2017

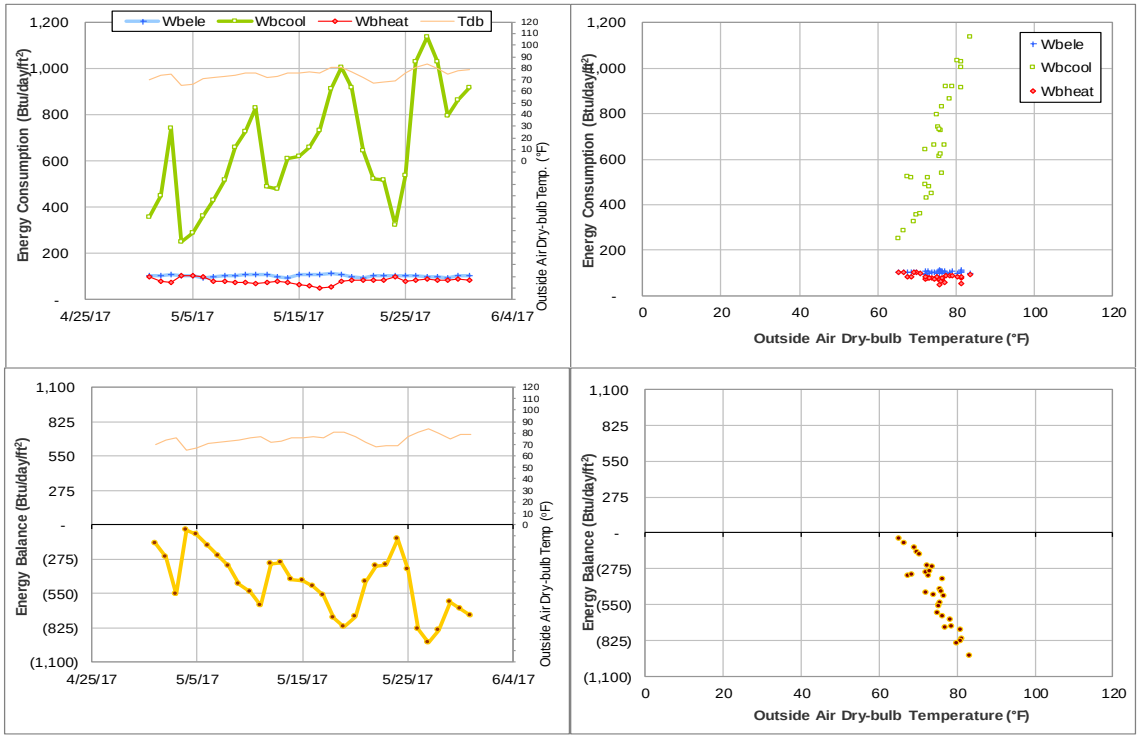


Figure IV-140 Veterinary Research Building TAMU BLDG # 1197 Energy Balance Plot during May 2017

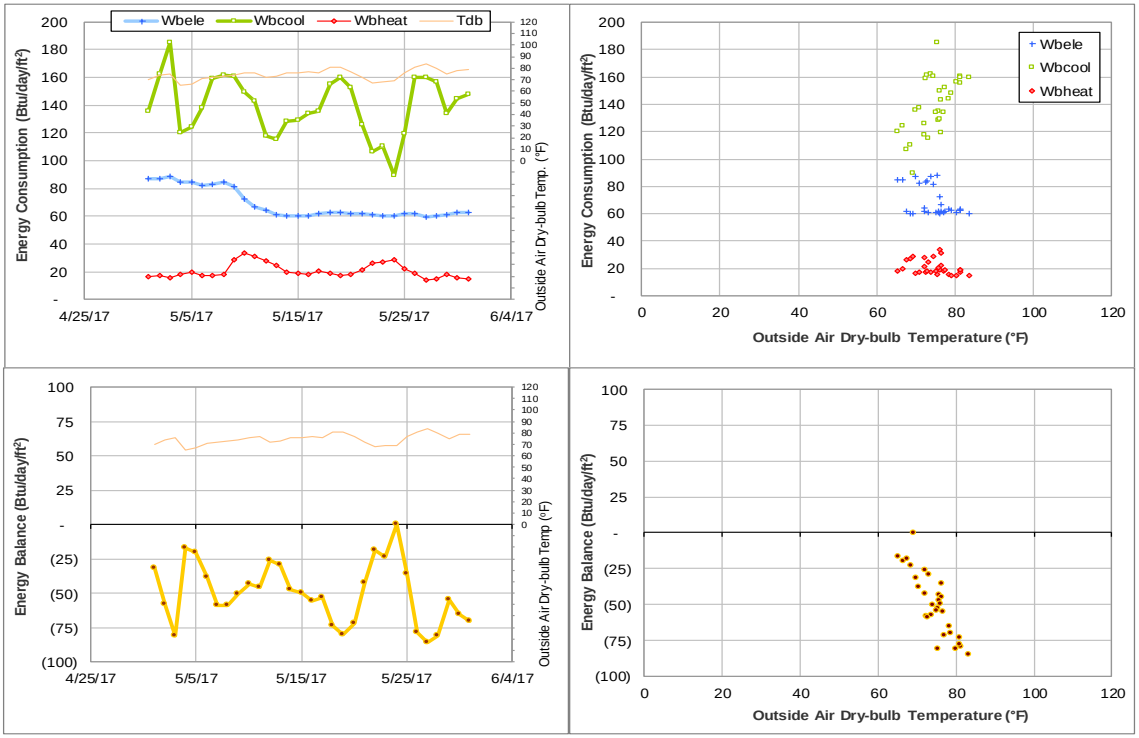


Figure IV-141 Hullabaloo Residence Hall TAMU BLDG # 1416 Energy Balance Plot during May 2017

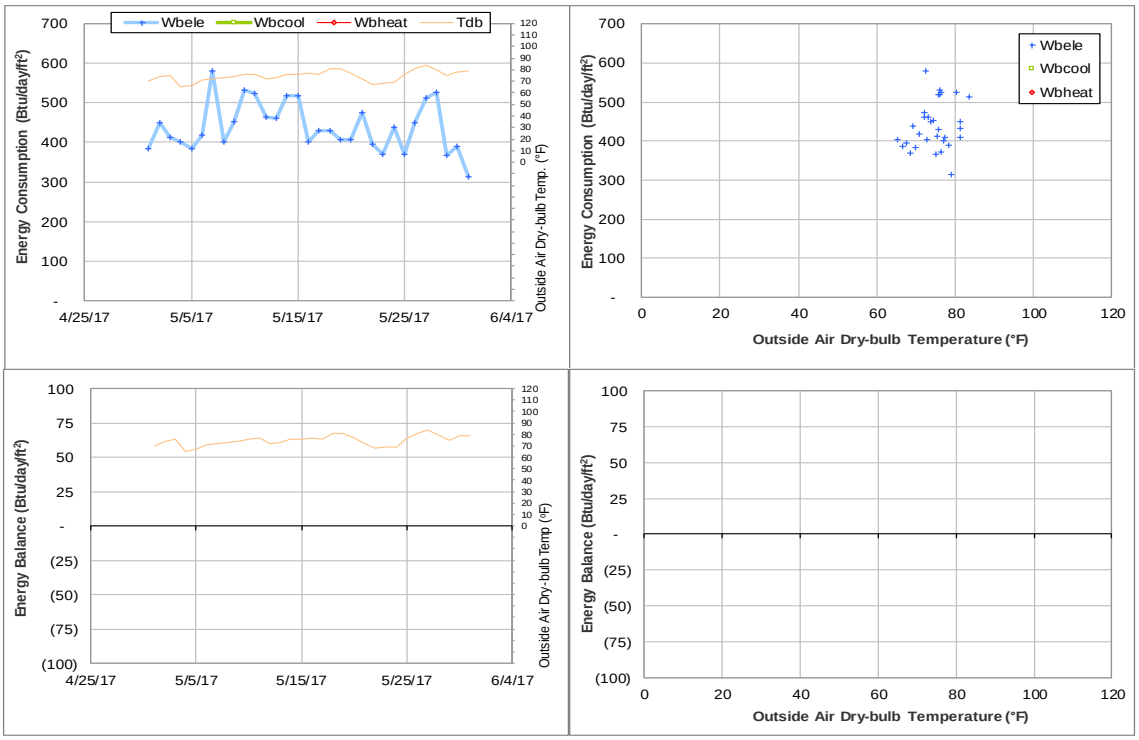


Figure IV-142 University Apartments - Laundry at the Gardens TAMU BLDG # 1450 Energy Balance Plot during May 2017

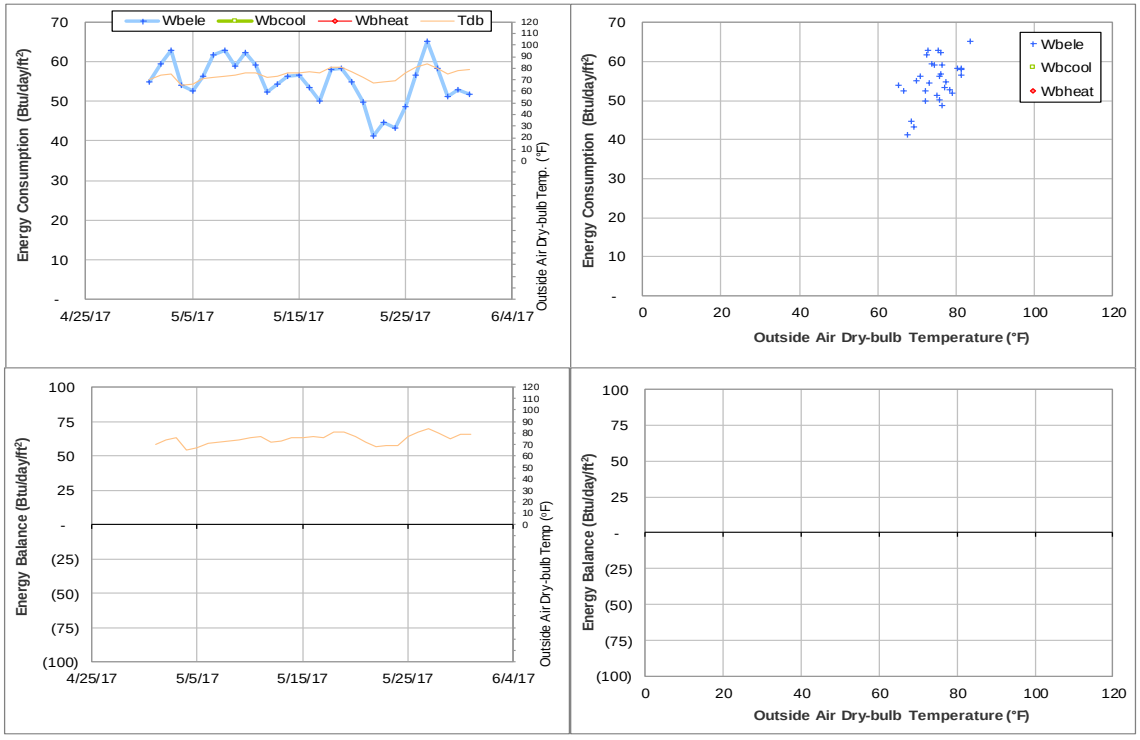


Figure IV-143 University Apartments - The Gardens J TAMU BLDG # 1451 Energy Balance Plot during May 2017

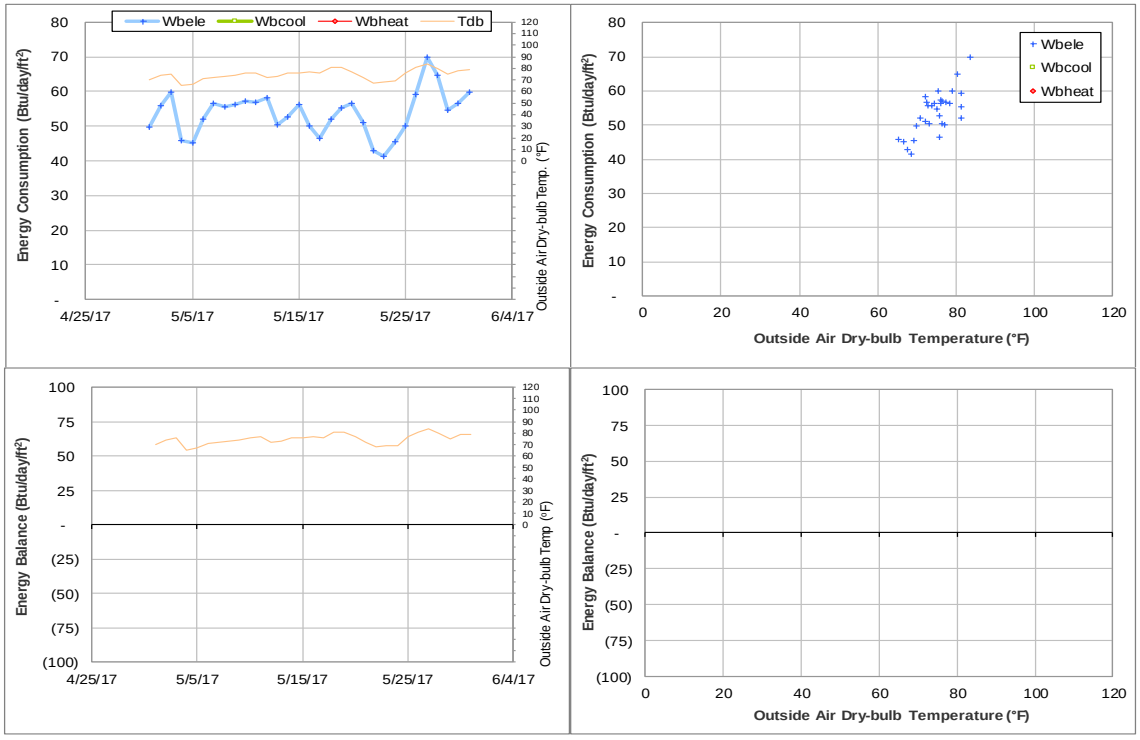


Figure IV-144 University Apartments - The Gardens K TAMU BLDG # 1452 Energy Balance Plot during May 2017

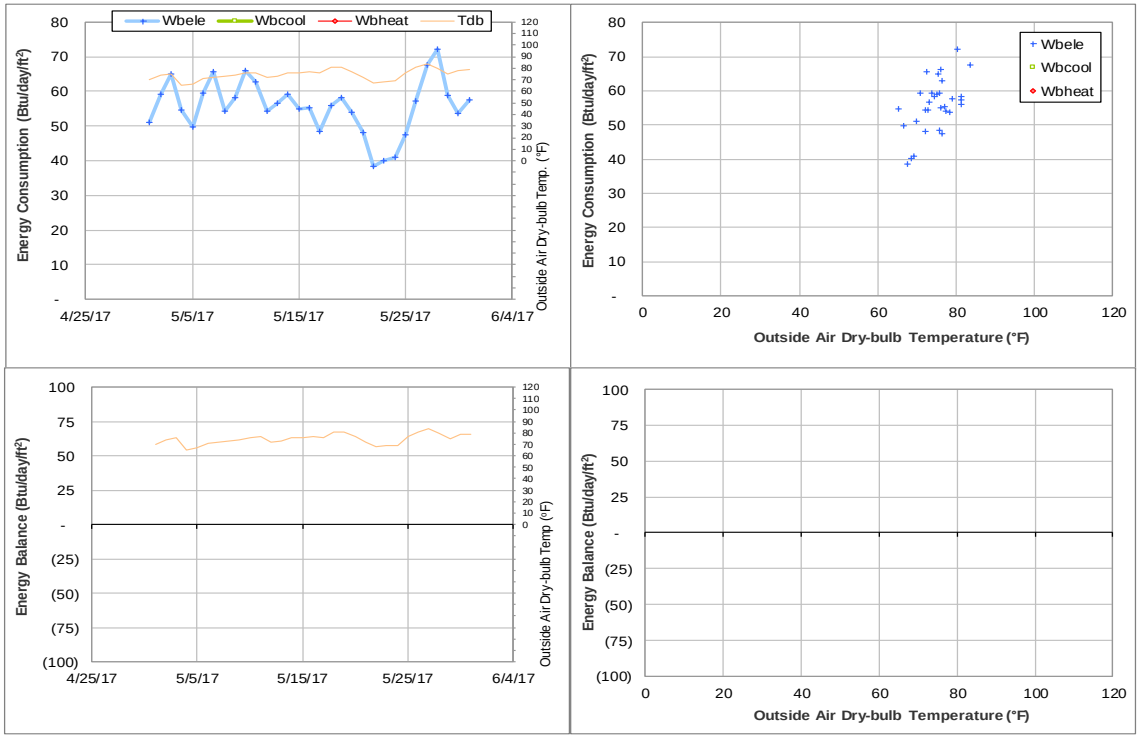


Figure IV-145 University Apartments - The Gardens L TAMU BLDG # 1453 Energy Balance Plot during May 2017

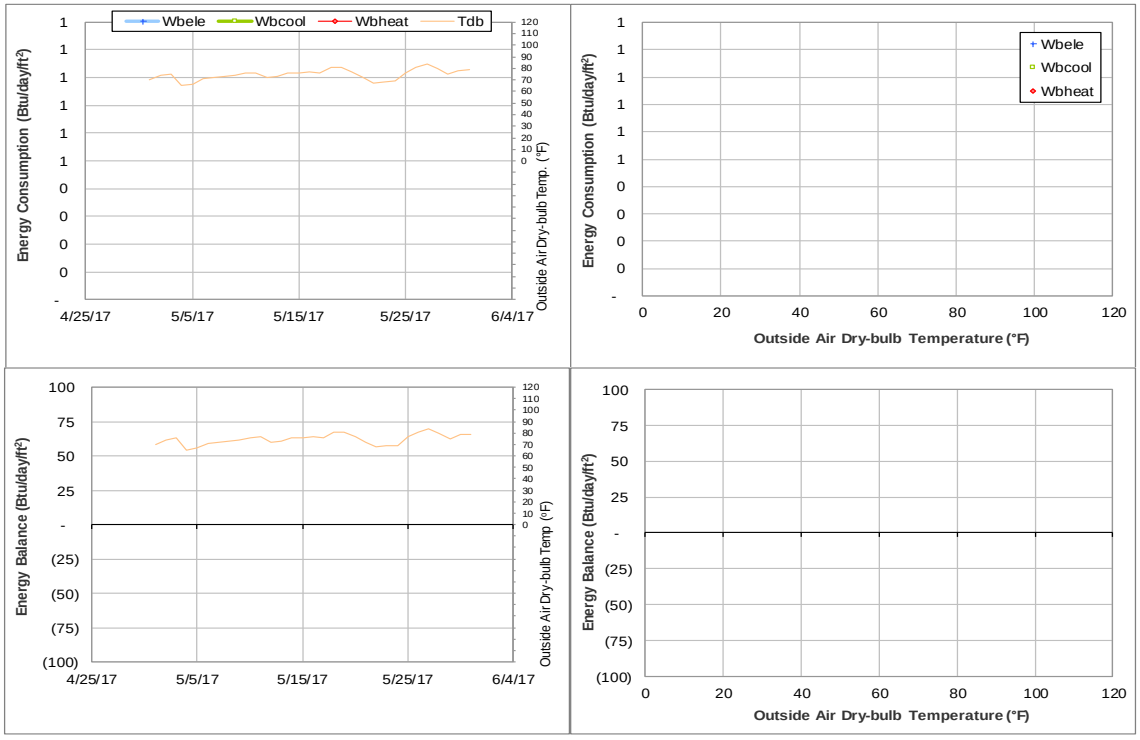


Figure IV-146 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during May 2017

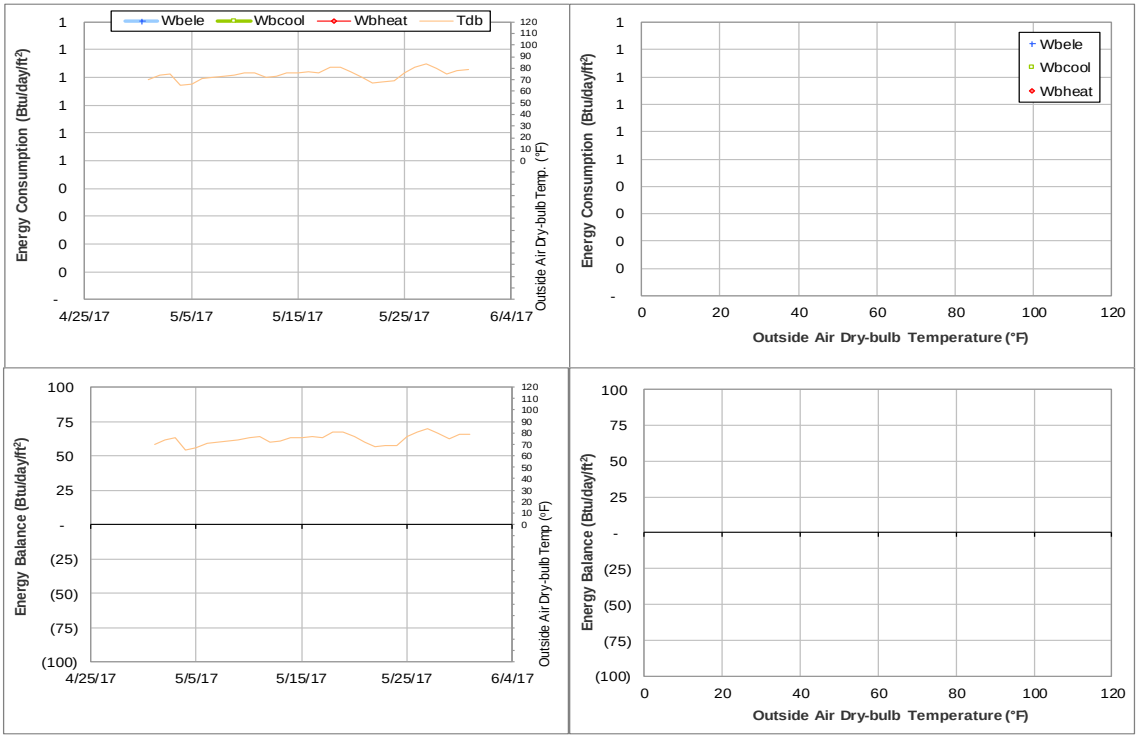


Figure IV-147 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during May 2017

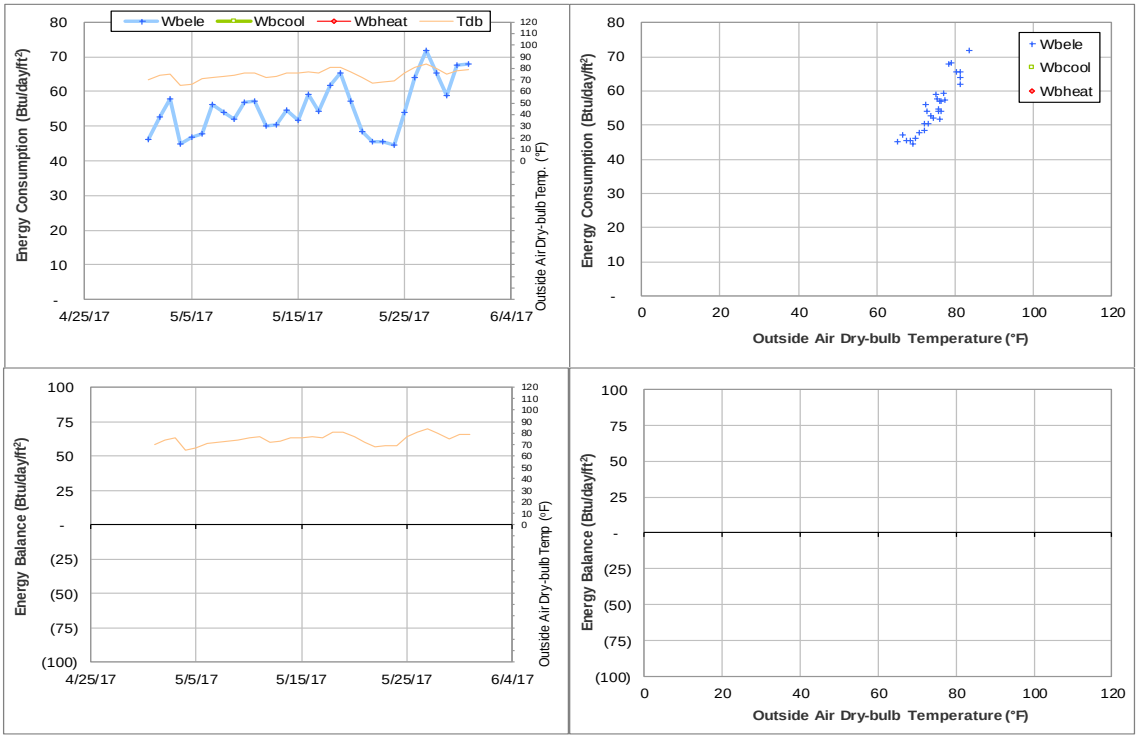


Figure IV-148 University Apartments - The Gardens H TAMU BLDG # 1456 Energy Balance Plot during May 2017

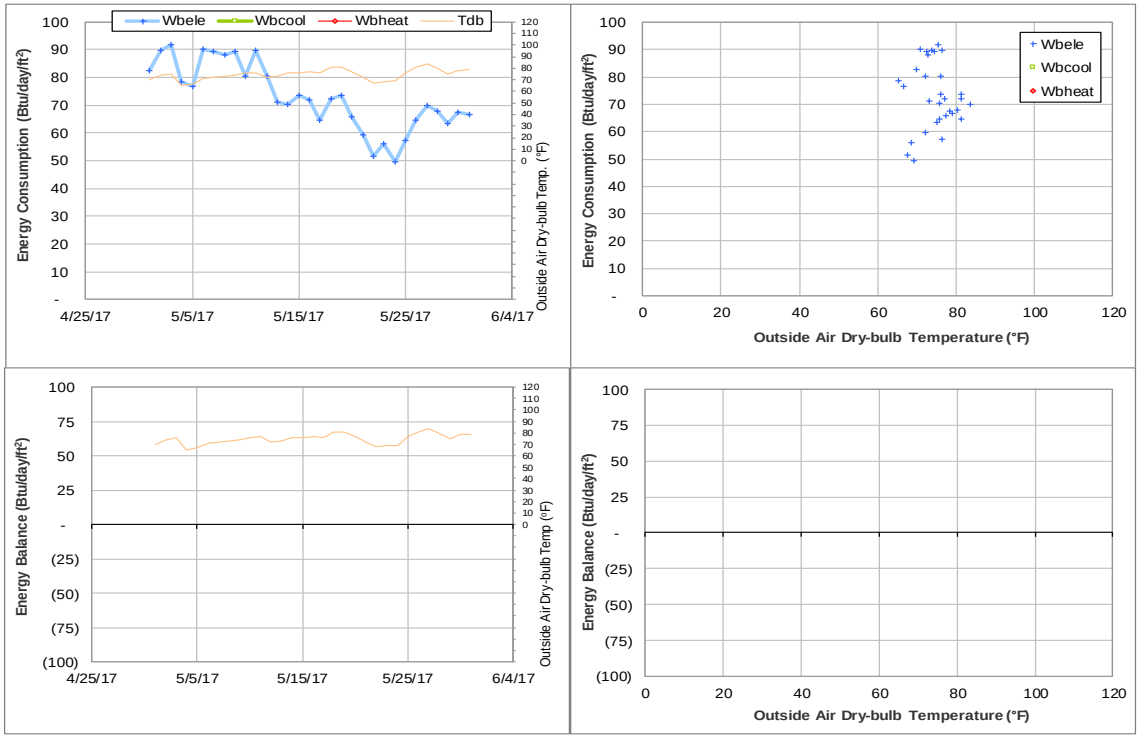


Figure IV-149 University Apartments - The Gardens M TAMU BLDG # 1457 Energy Balance Plot during May 2017

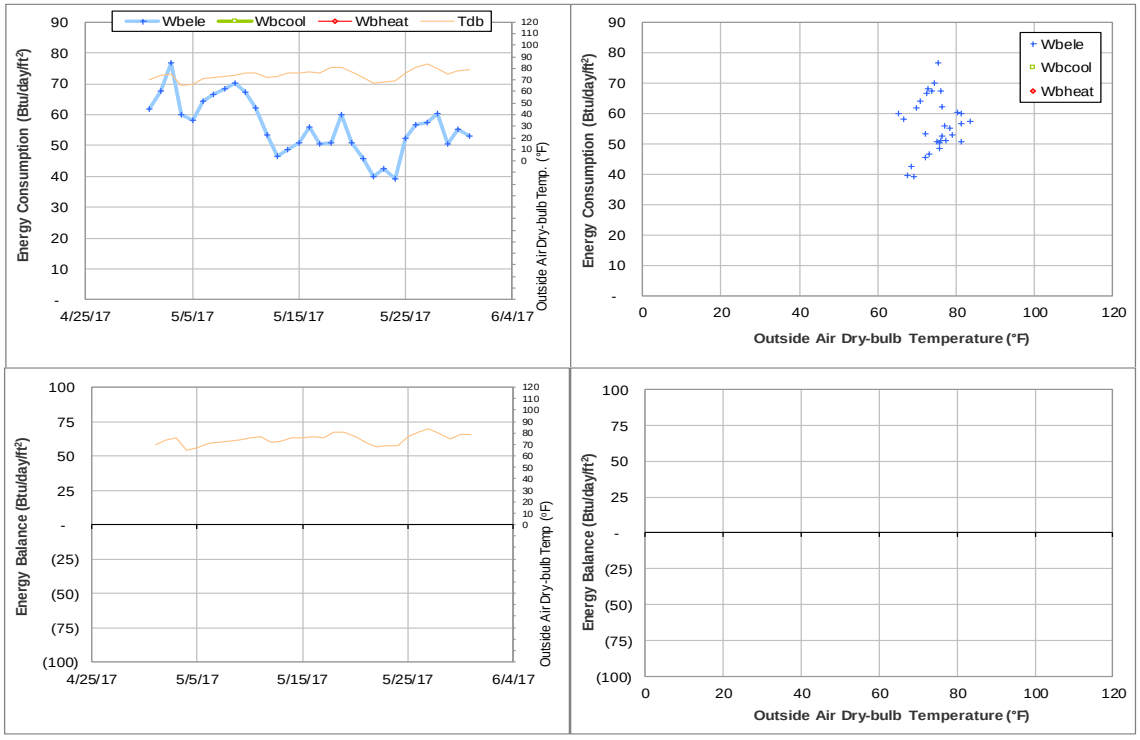


Figure IV-150 University Apartments - The Gardens N TAMU BLDG # 1458 Energy Balance Plot during May 2017

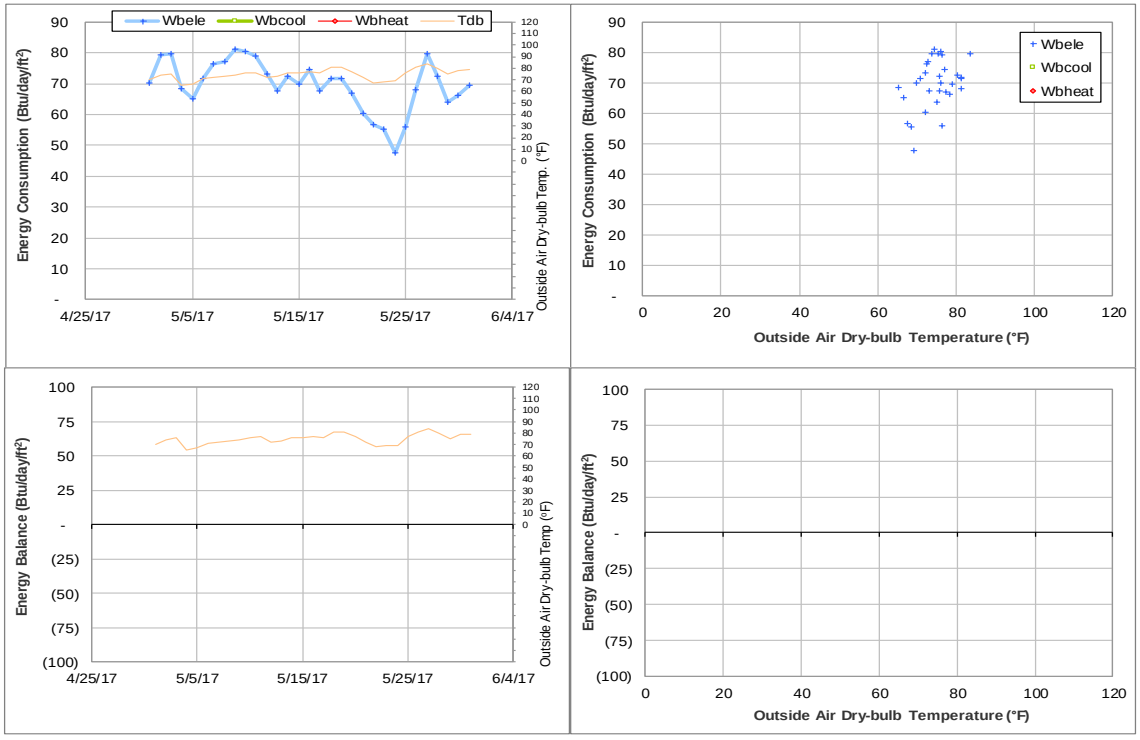


Figure IV-151 University Apartments - The Gardens P TAMU BLDG # 1459 Energy Balance Plot during May 2017

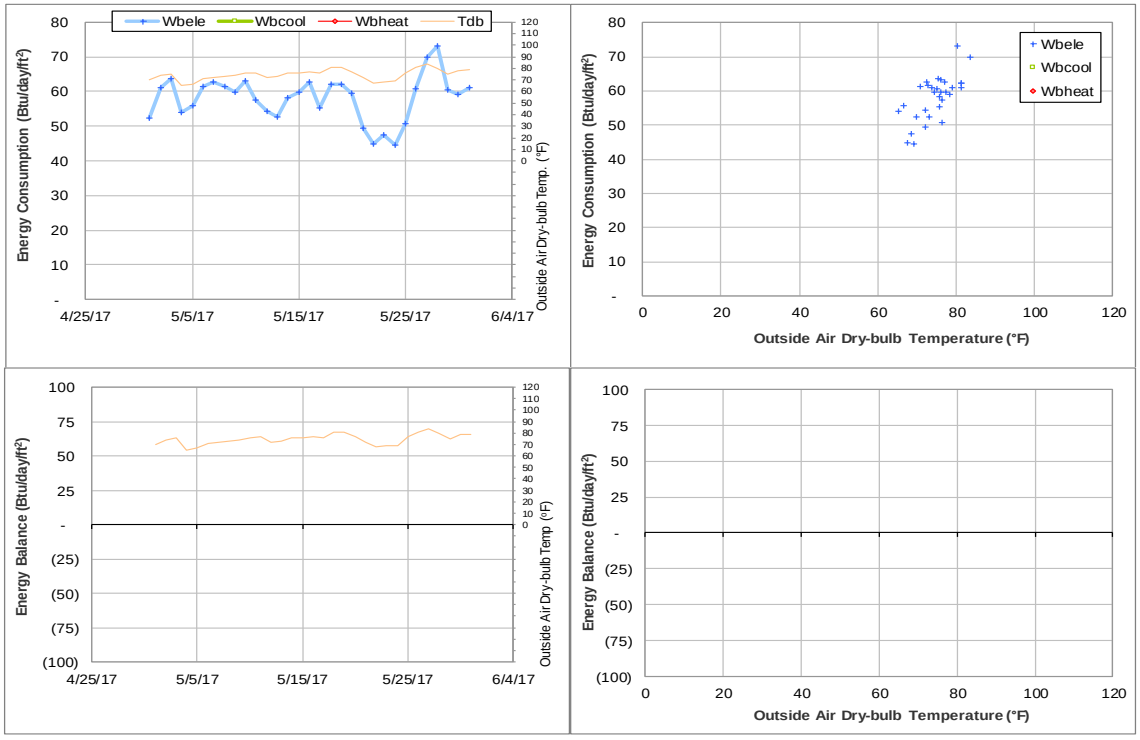


Figure IV-152 University Apartments - The Gardens Q TAMU BLDG # 1460 Energy Balance Plot during May 2017

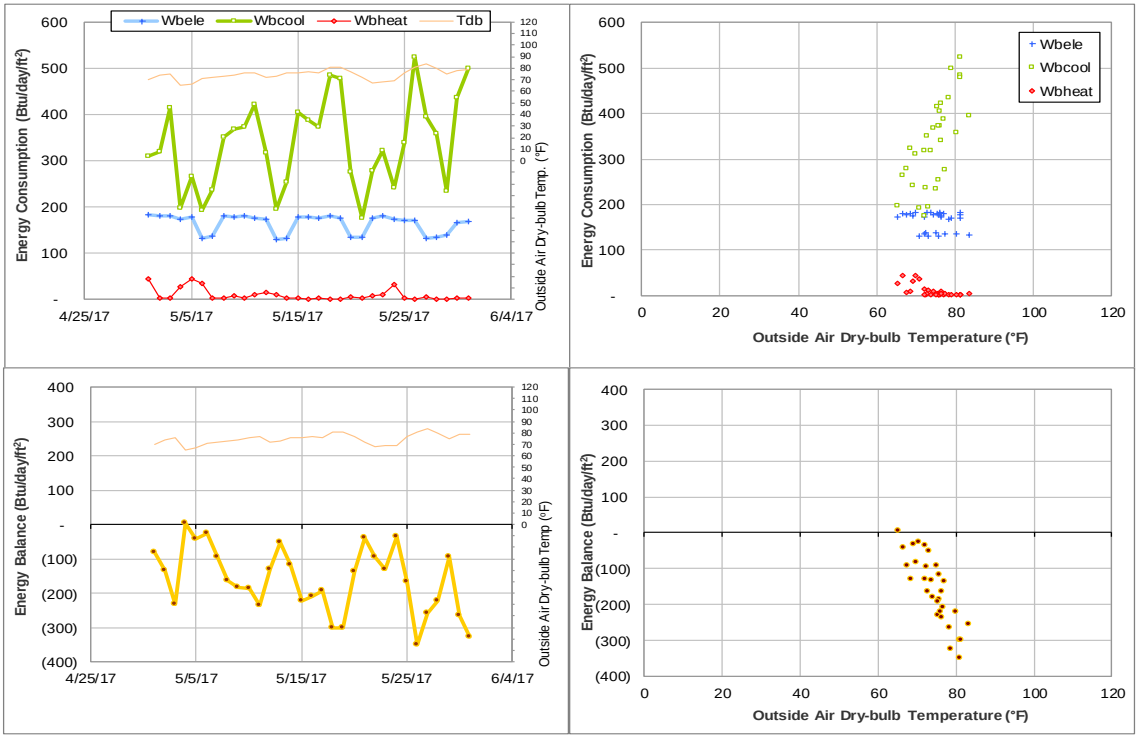


Figure IV-153 Utilities & Energy Services Business Office TAMU BLDG # 1497 Energy Balance Plot during May 2017

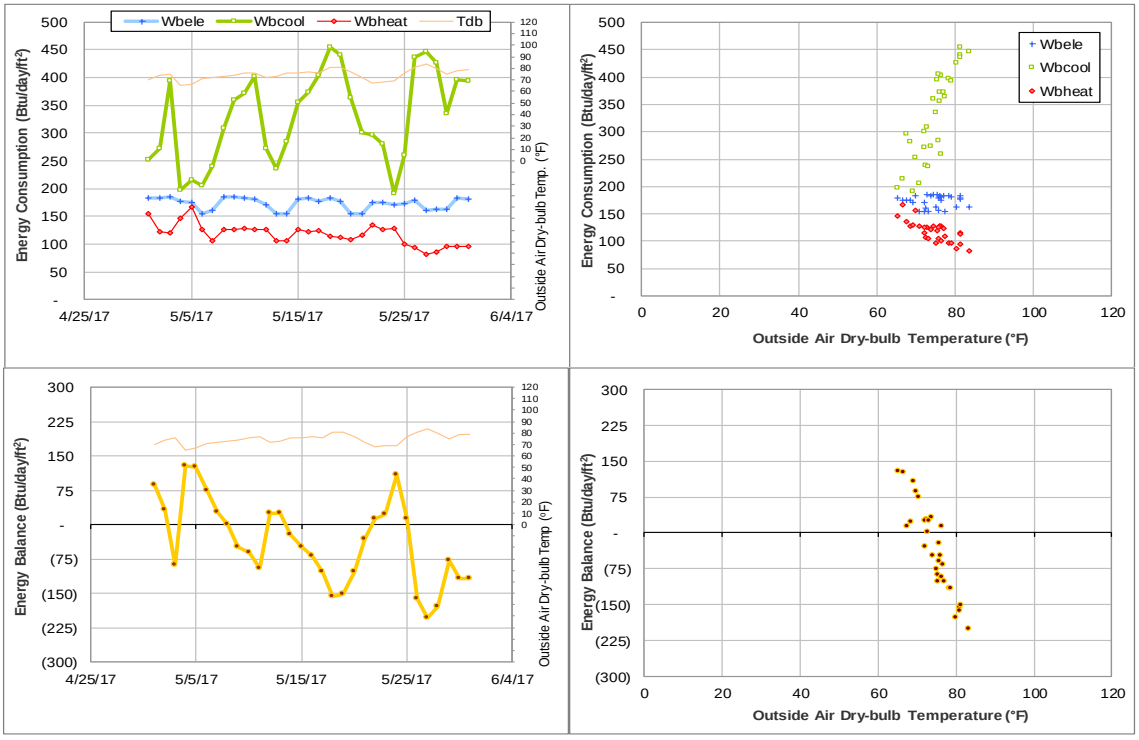


Figure IV-154 Kleberg Center TAMU BLDG # 1501 Energy Balance Plot during May 2017

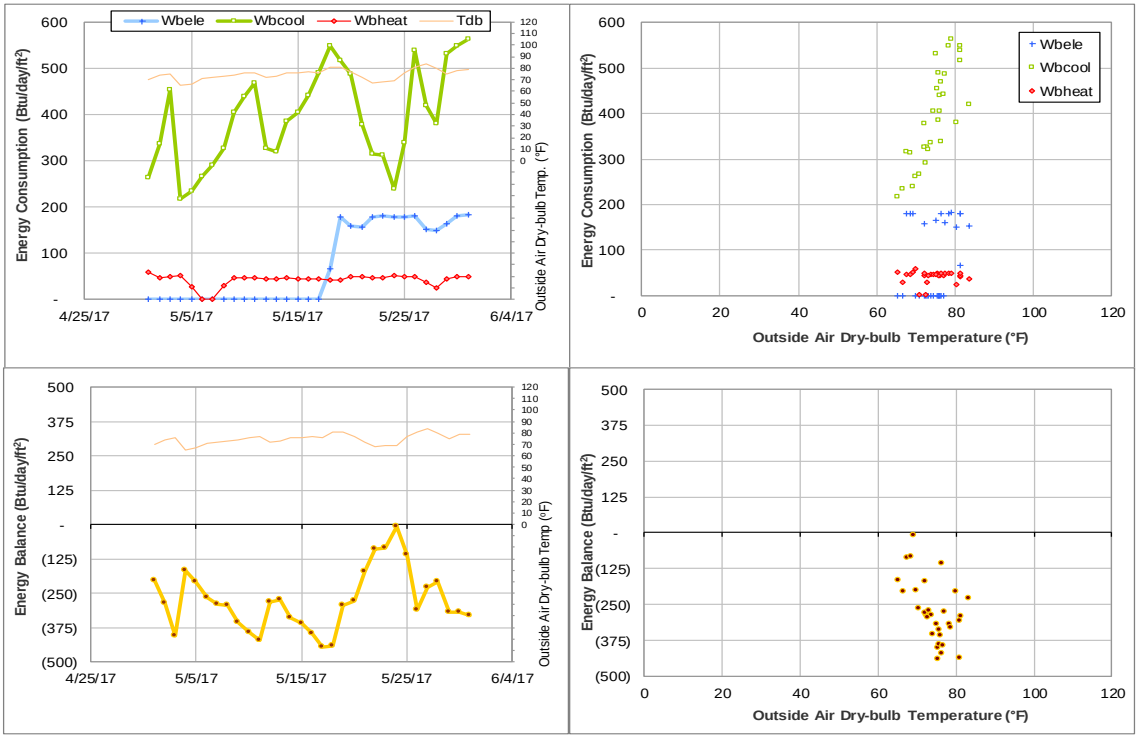


Figure IV-155 Heep Center TAMU BLDG # 1502 Energy Balance Plot during May 2017

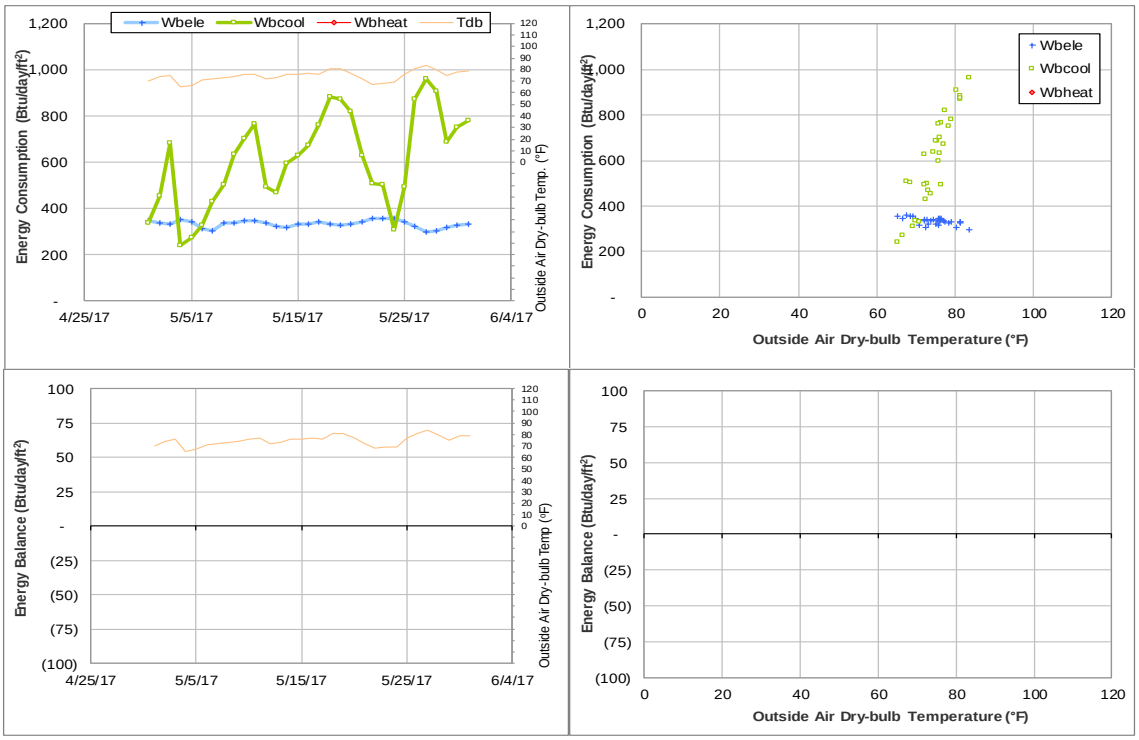


Figure IV-156 Cater-Mattil Hall TAMU BLDG # 1503 Energy Balance Plot during May 2017

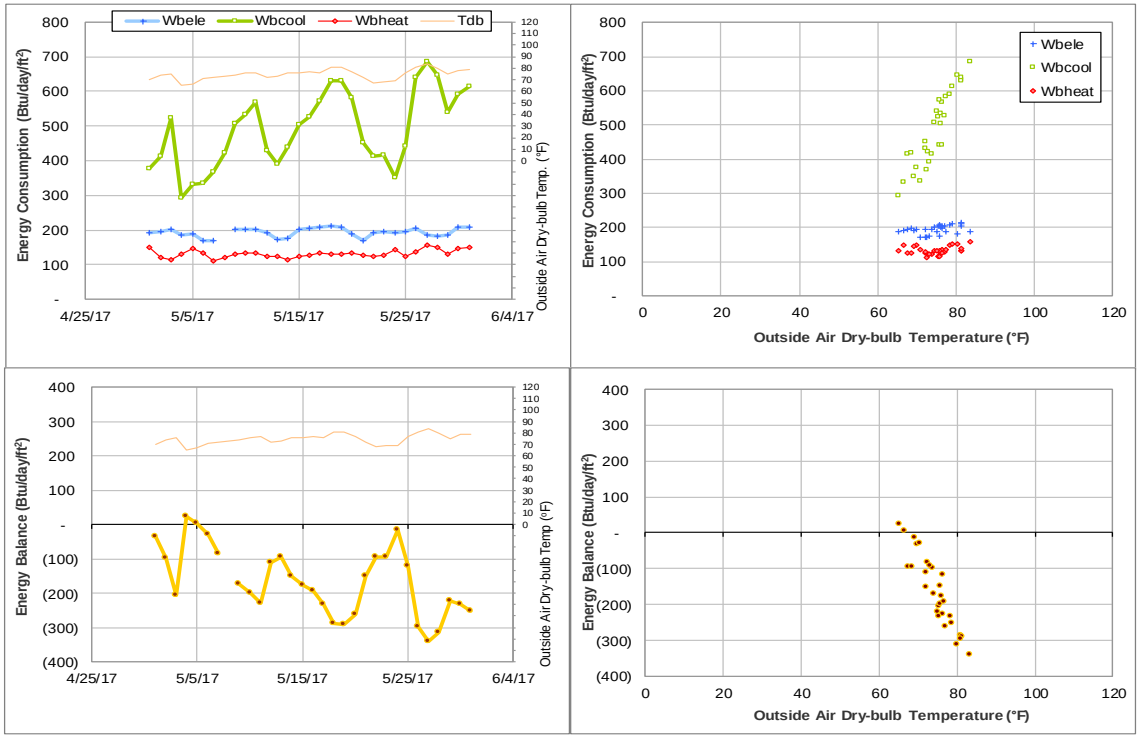


Figure IV-157 Reynolds Medical Sciences Building TAMU BLDG # 1504 Energy Balance Plot during May 2017

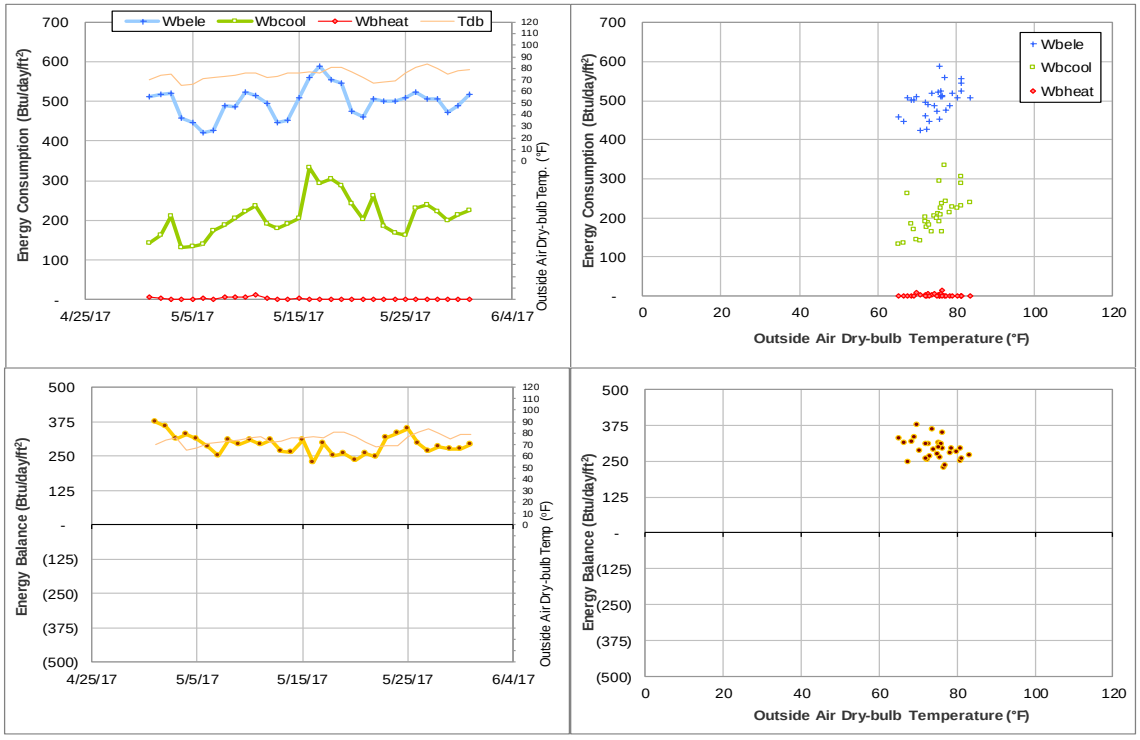


Figure IV-158 Rosenthal Meat Science & Technology Center TAMU BLDG # 1505 Energy Balance Plot during May 2017

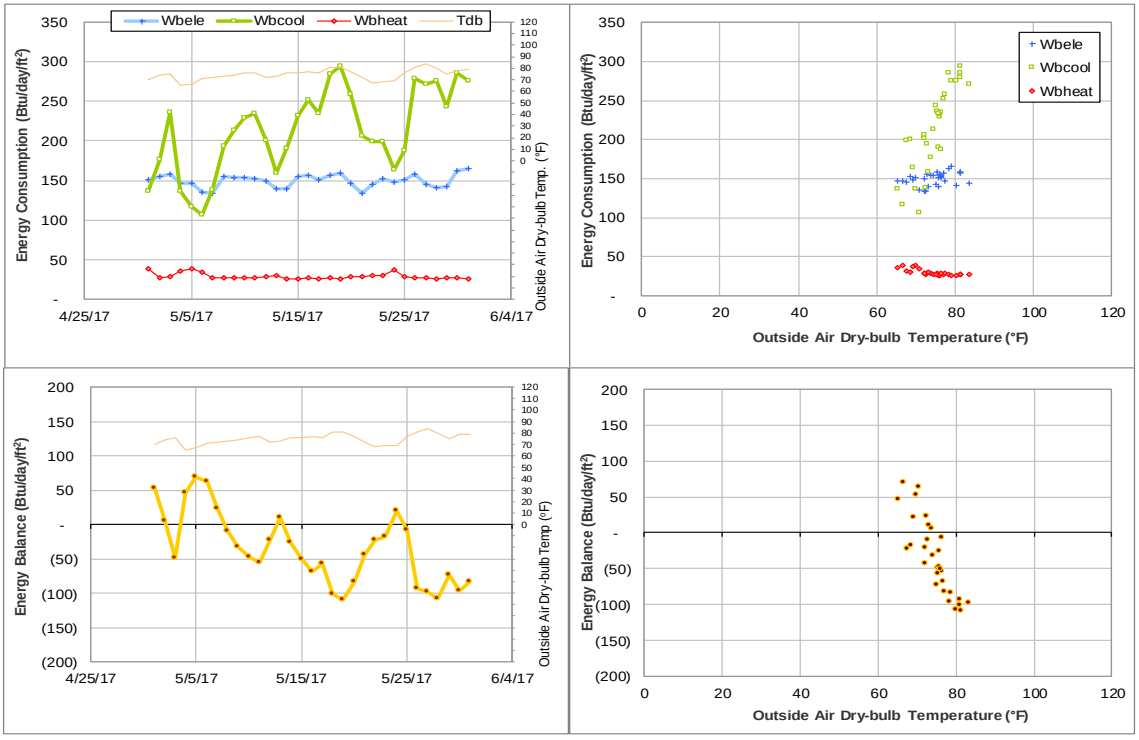


Figure IV-159 Horticulture-Forest Science Building TAMU BLDG # 1506 Energy Balance Plot during May 2017

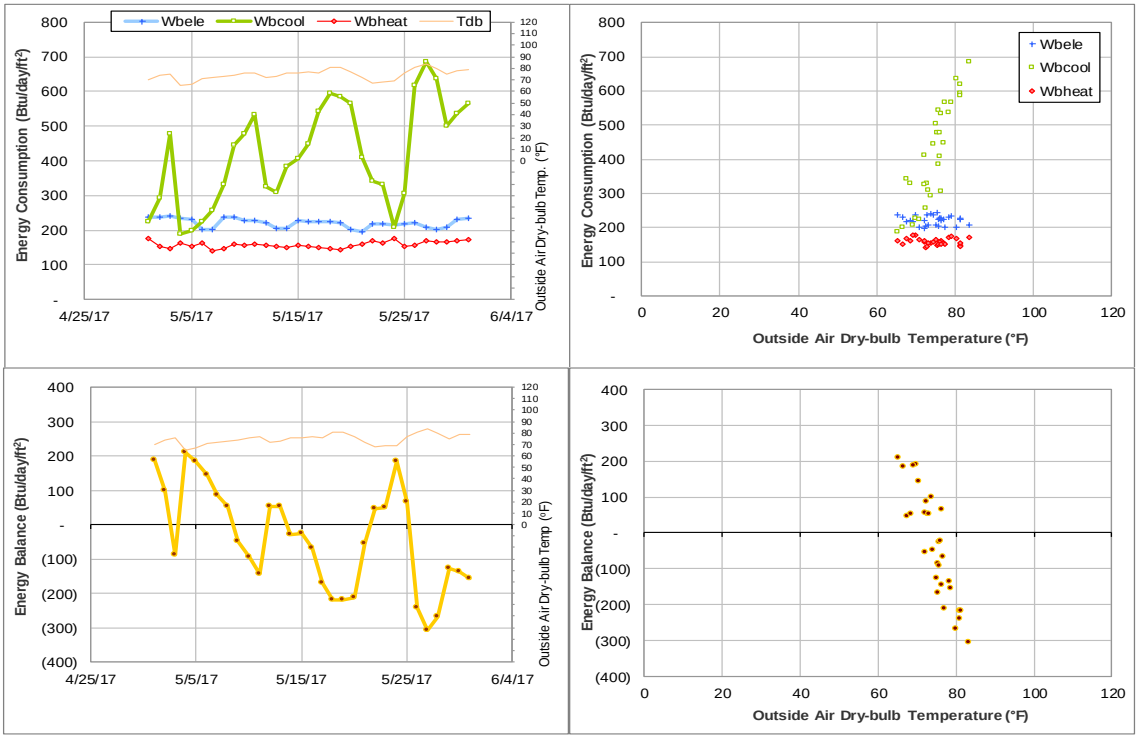


Figure IV-160 Biochemistry-Biophysics Building TAMU BLDG # 1507 Energy Balance Plot during May 2017

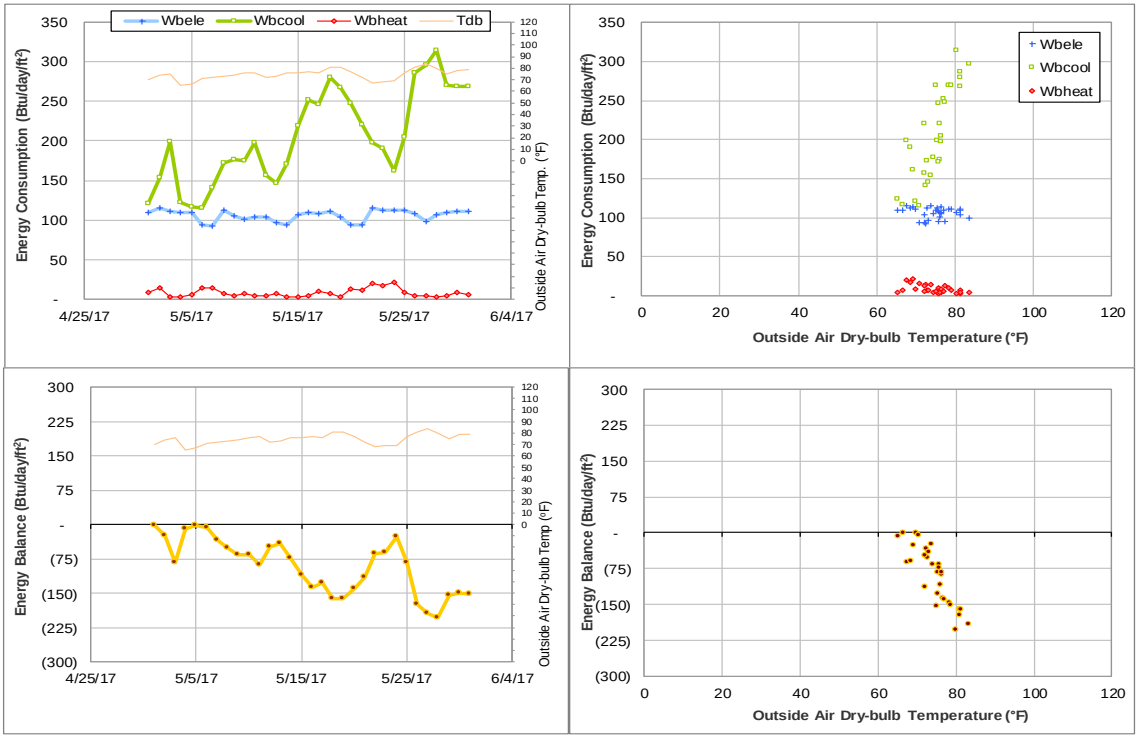


Figure IV-161 Price Hobgood Ag. Engineering Research Lab TAMU BLDG # 1508 Energy Balance Plot during May 2017

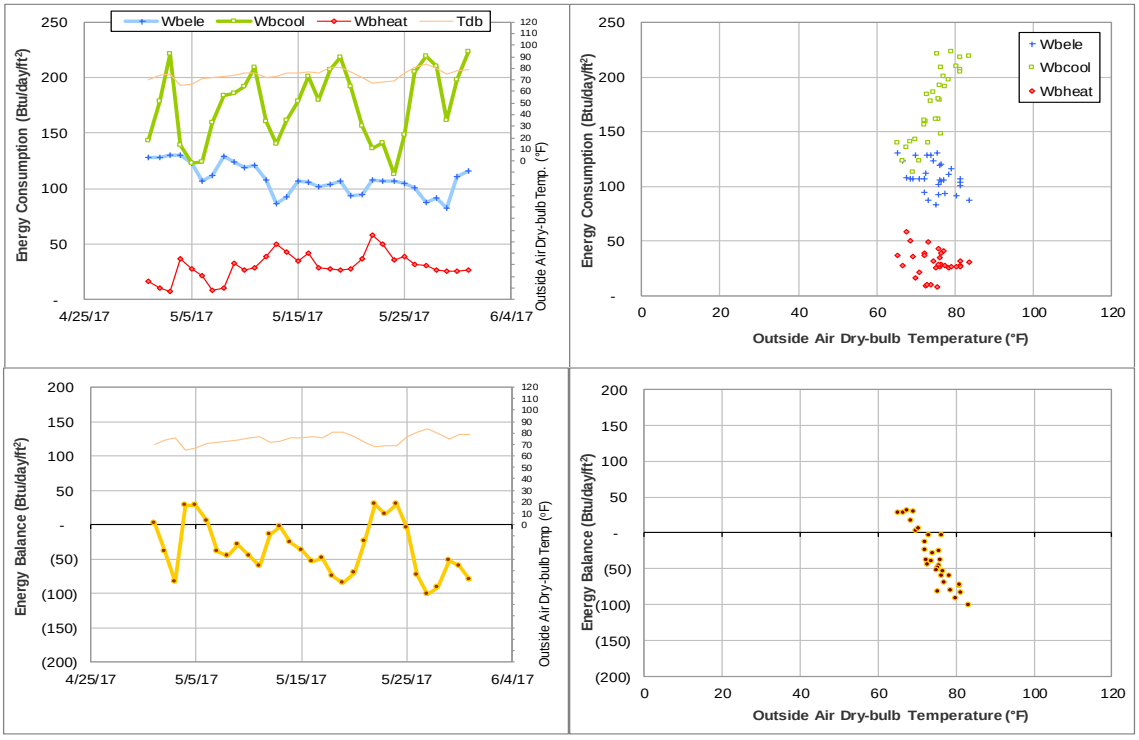


Figure IV-162 Medical Sciences Library TAMU BLDG # 1509 Energy Balance Plot during May 2017

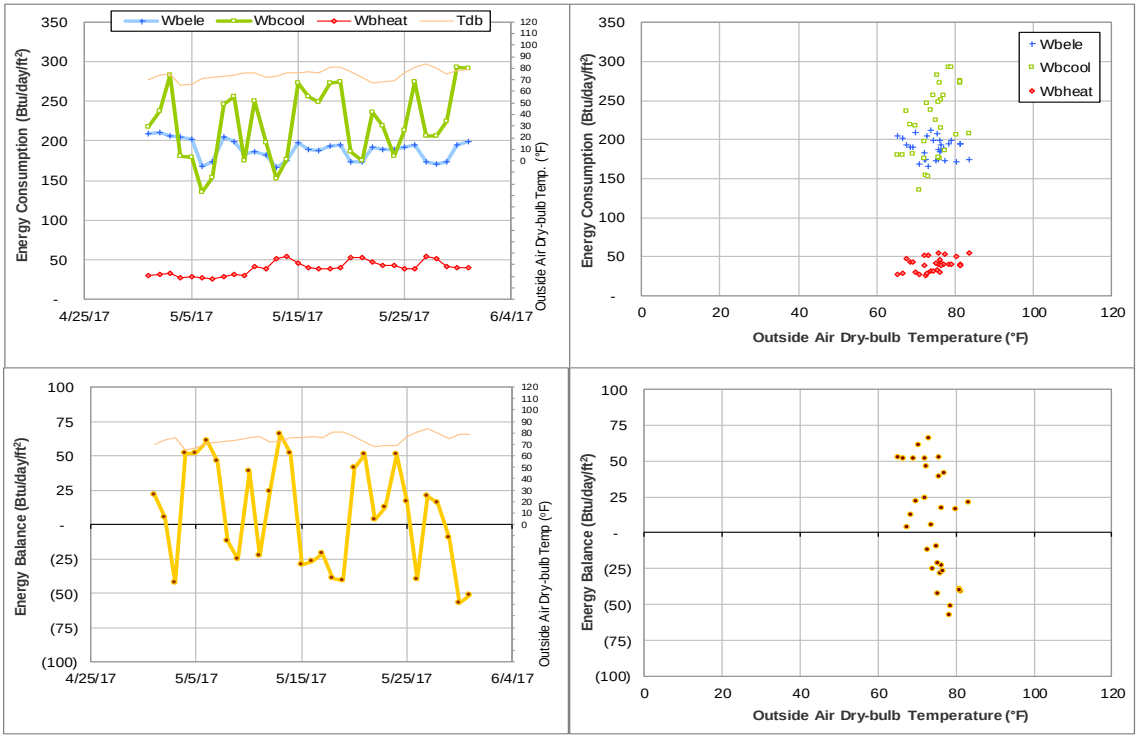


Figure IV-163 Wehner Building TAMU BLDG # 1510 Energy Balance Plot during May 2017

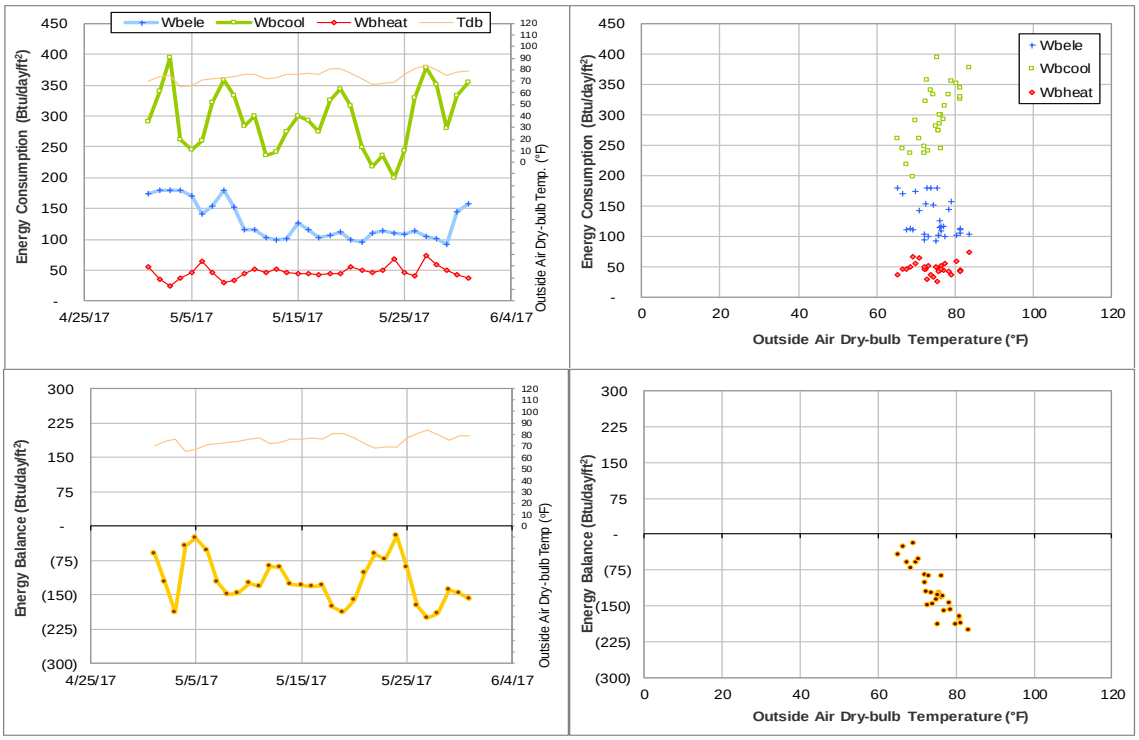


Figure IV-164 West Campus Library Facility TAMU BLDG # 1511 Energy Balance Plot during May 2017

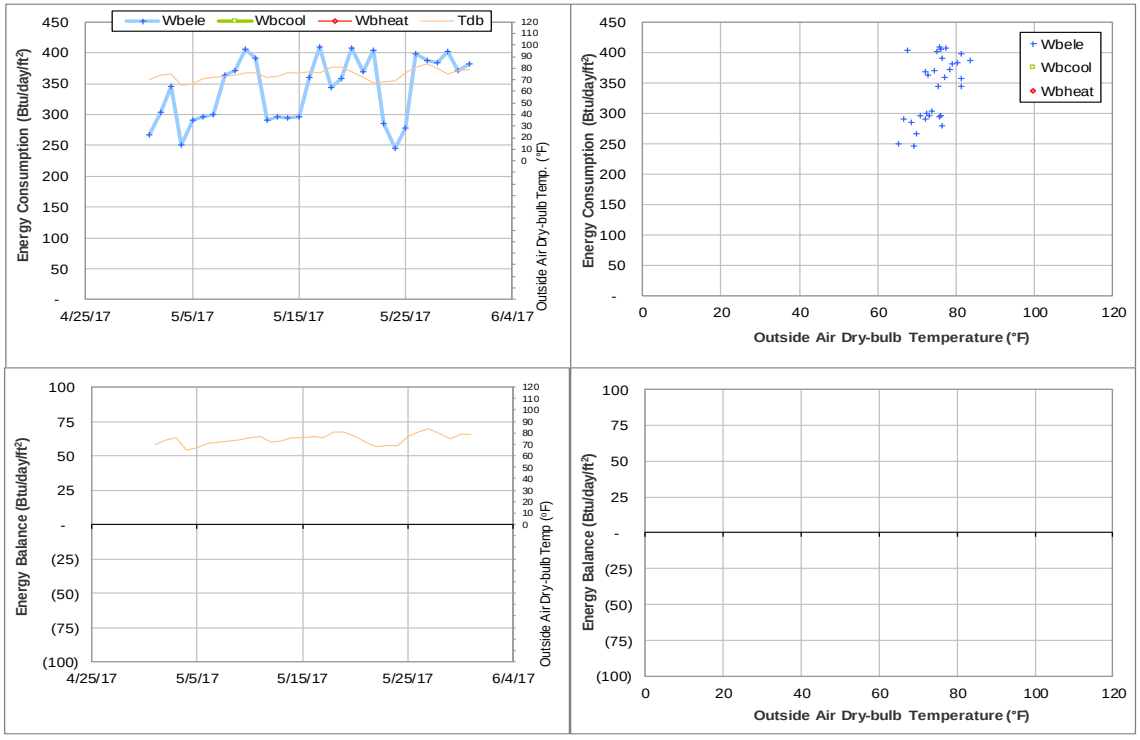


Figure IV-165 Southern Crop Improvement Greenhouse TAMU BLDG # 1512 Energy Balance Plot during May 2017

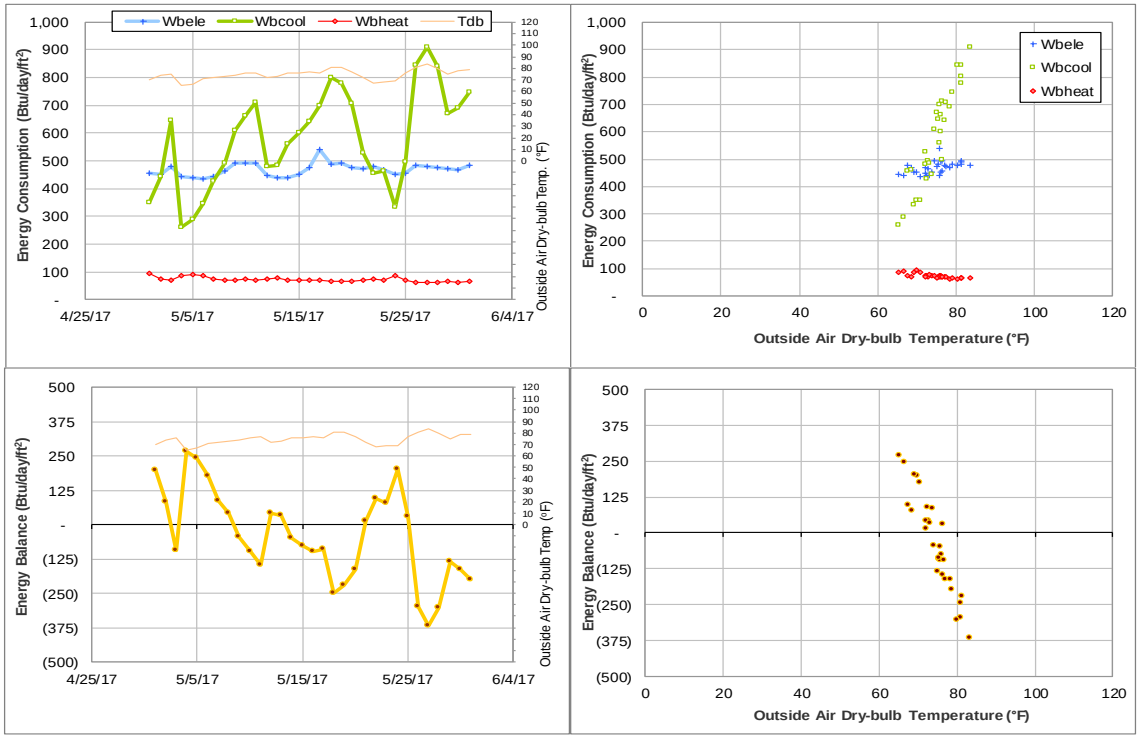


Figure IV-166 Borlaug Center for Southern Crop Improvement TAMU BLDG # 1513 Energy Balance Plot during May 2017

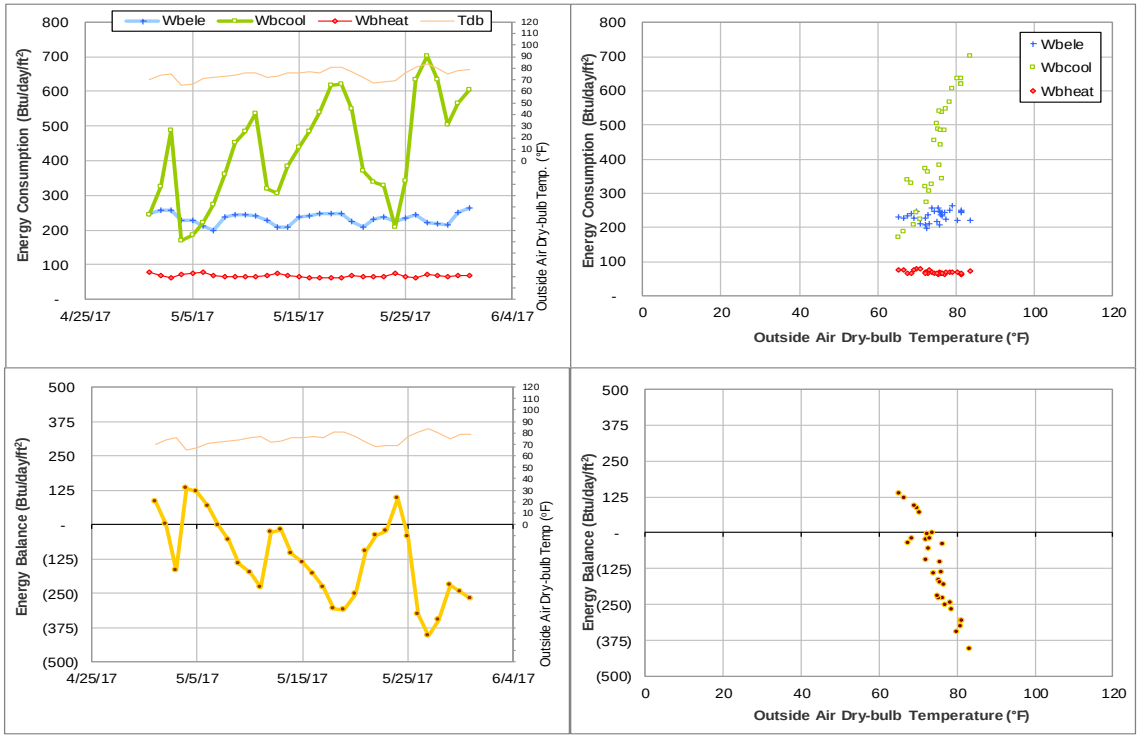


Figure IV-167 TX School of Rural Public Health TAMU BLDG # 1518 Energy Balance Plot during May 2017

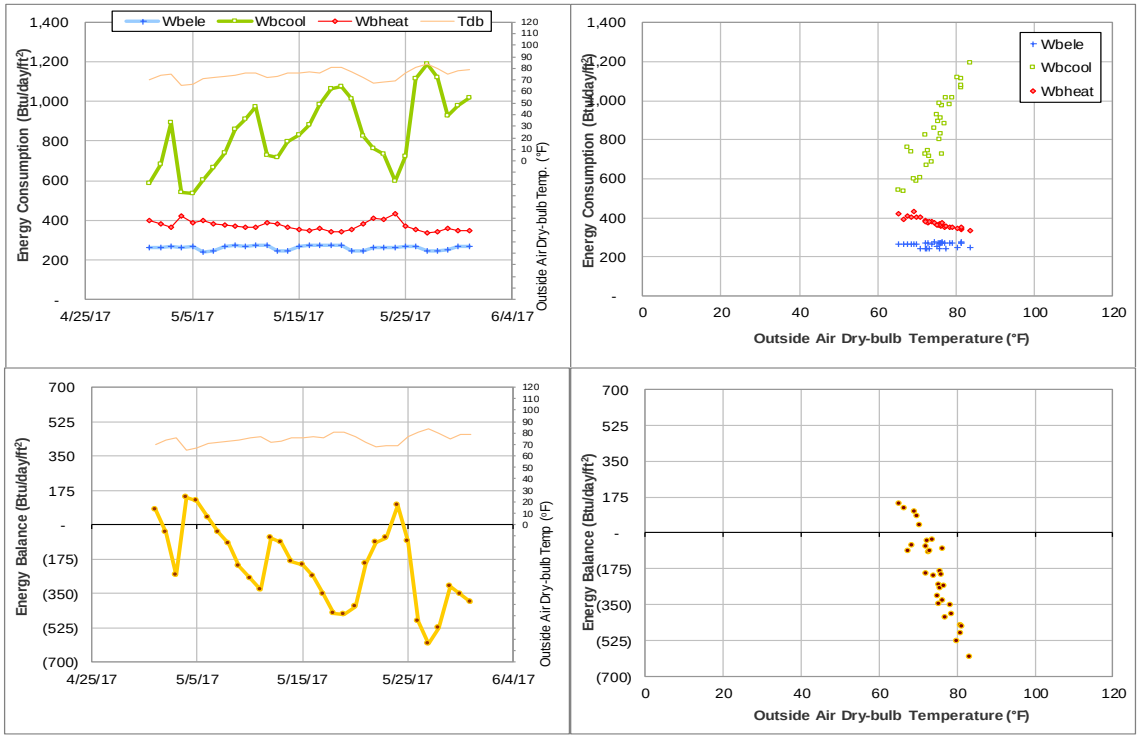


Figure IV-168 Nuclear Magnetic Resonance Facility TAMU BLDG # 1525 Energy Balance Plot during May 2017

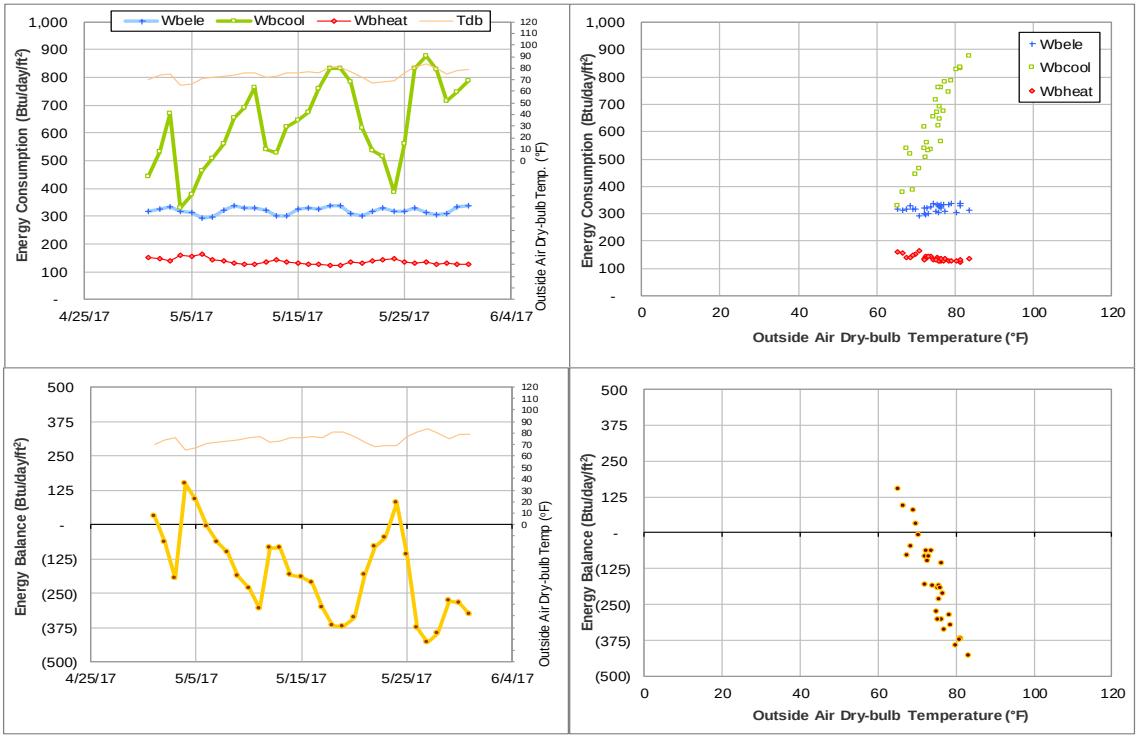


Figure IV-169 Interdisciplinary Life Sciences Building TAMU BLDG # 1530 Energy Balance Plot during May 2017

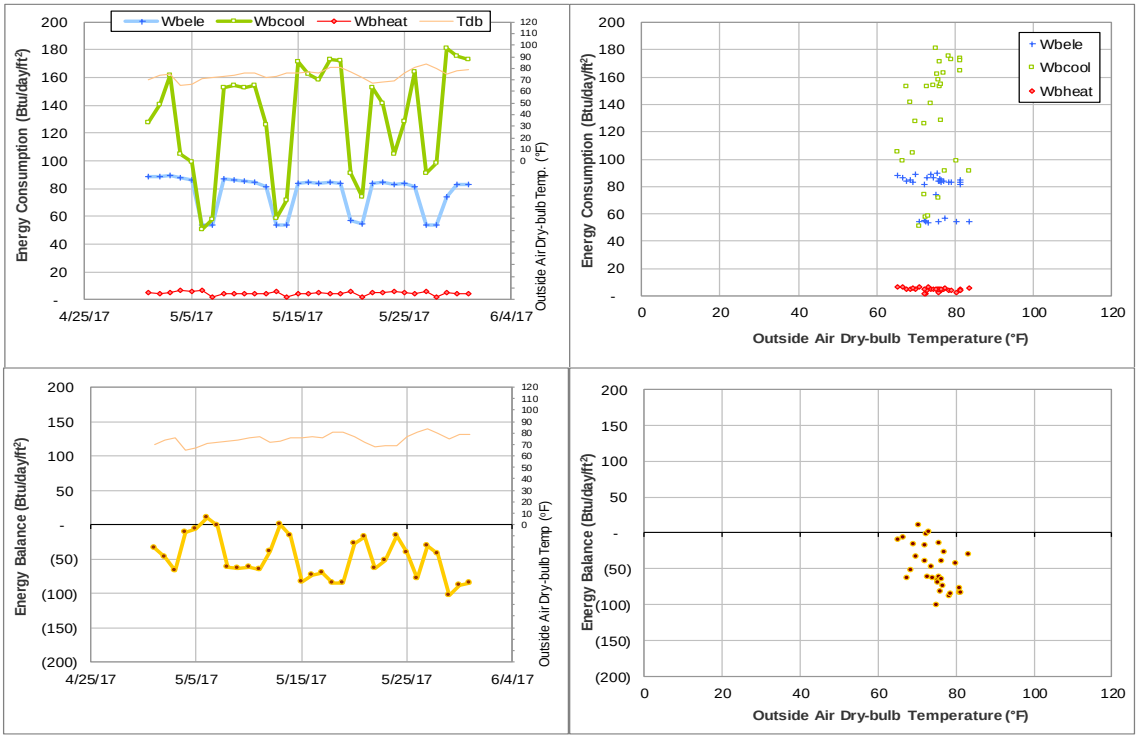


Figure IV-170 Agriculture and Life Sciences Building TAMU BLDG # 1535 Energy Balance Plot during May 2017

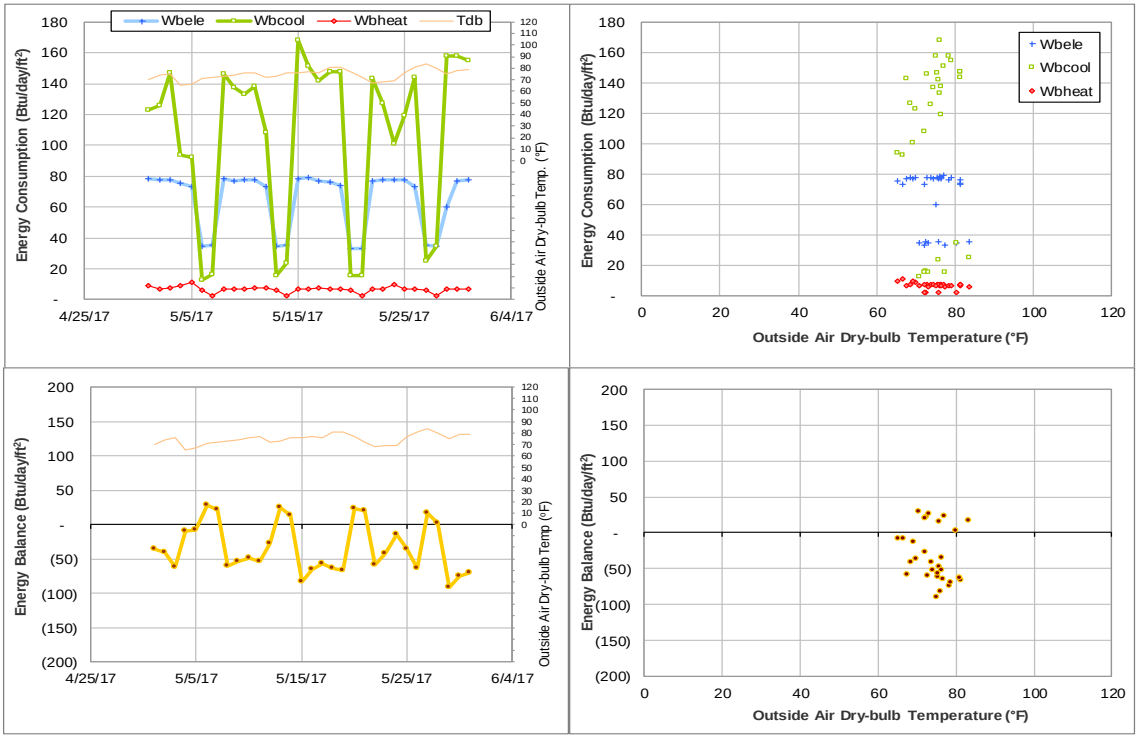


Figure IV-171 AgriLife Services Building TAMU BLDG # 1536 Energy Balance Plot during May 2017

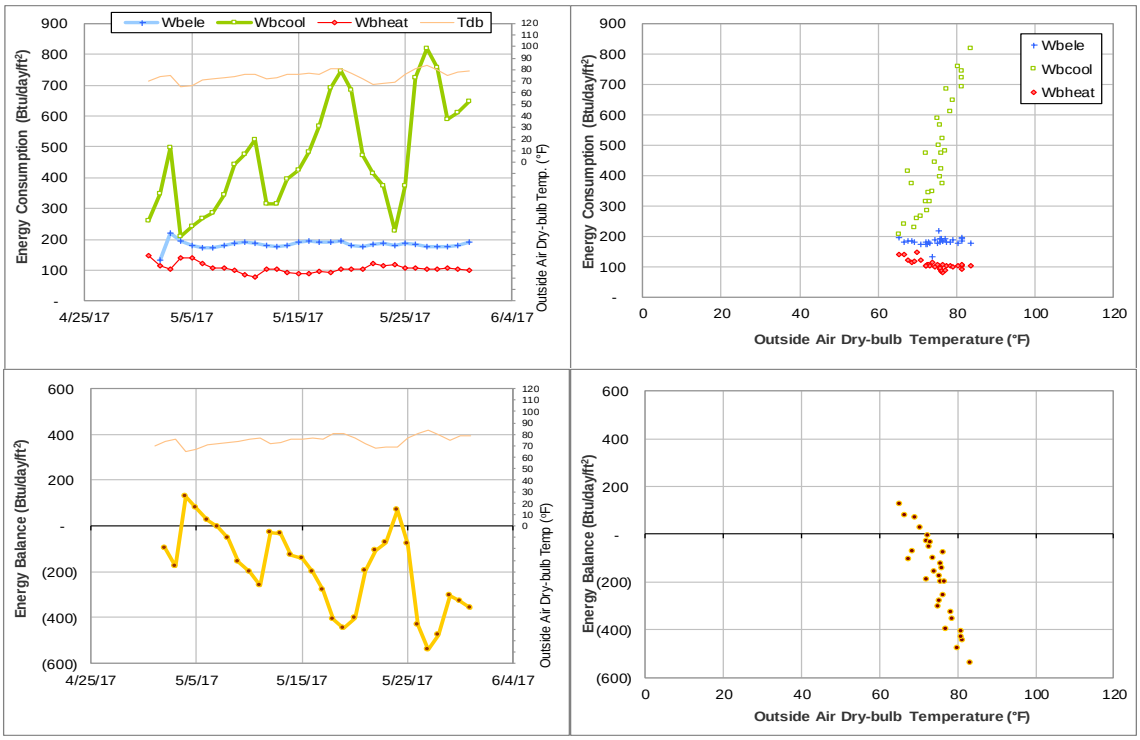


Figure IV-172 Agriculture Public Building TAMU BLDG # 1537 Energy Balance Plot during May 2017

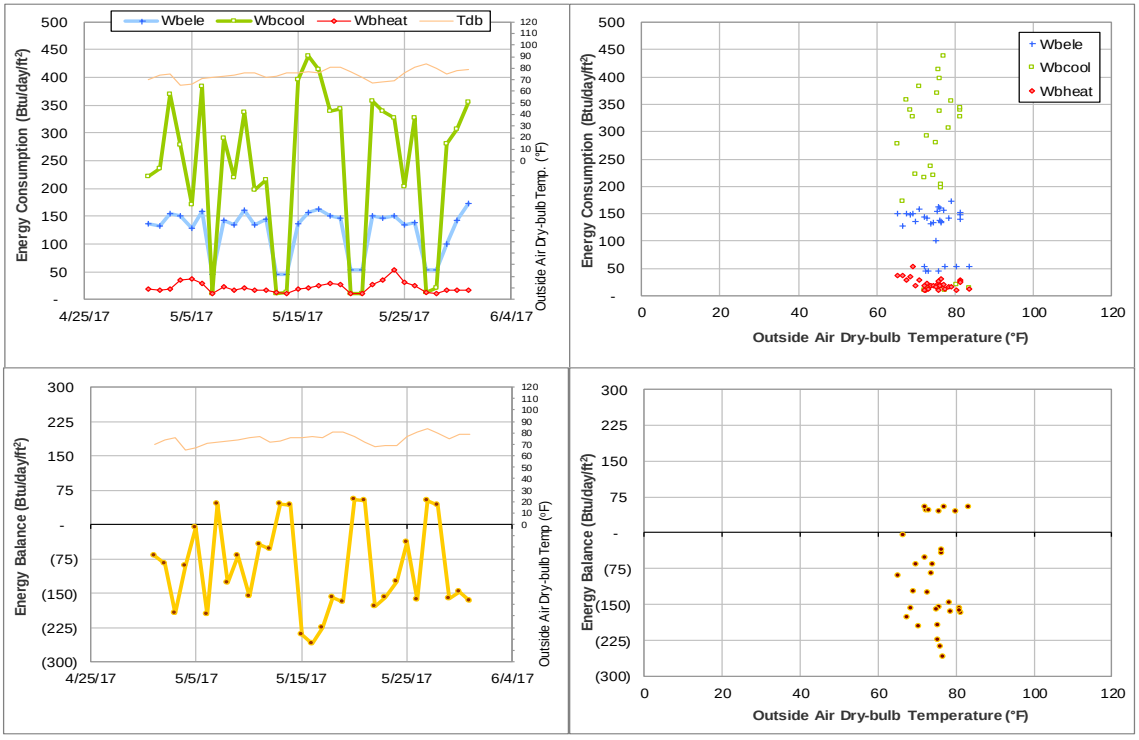


Figure IV-173 Agriculture Program Visitors Center TAMU BLDG # 1538 Energy Balance Plot during May 2017

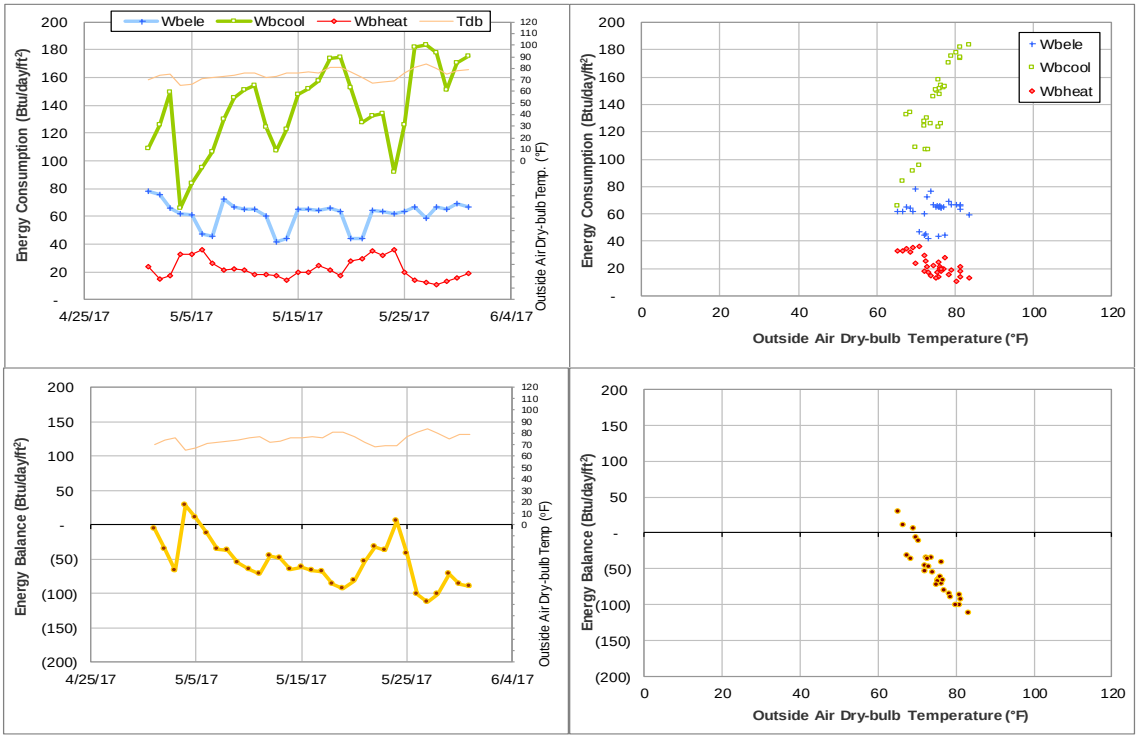


Figure IV-174 Physical Education Activity Program Building TAMU BLDG # 1540 Energy Balance Plot during May 2017

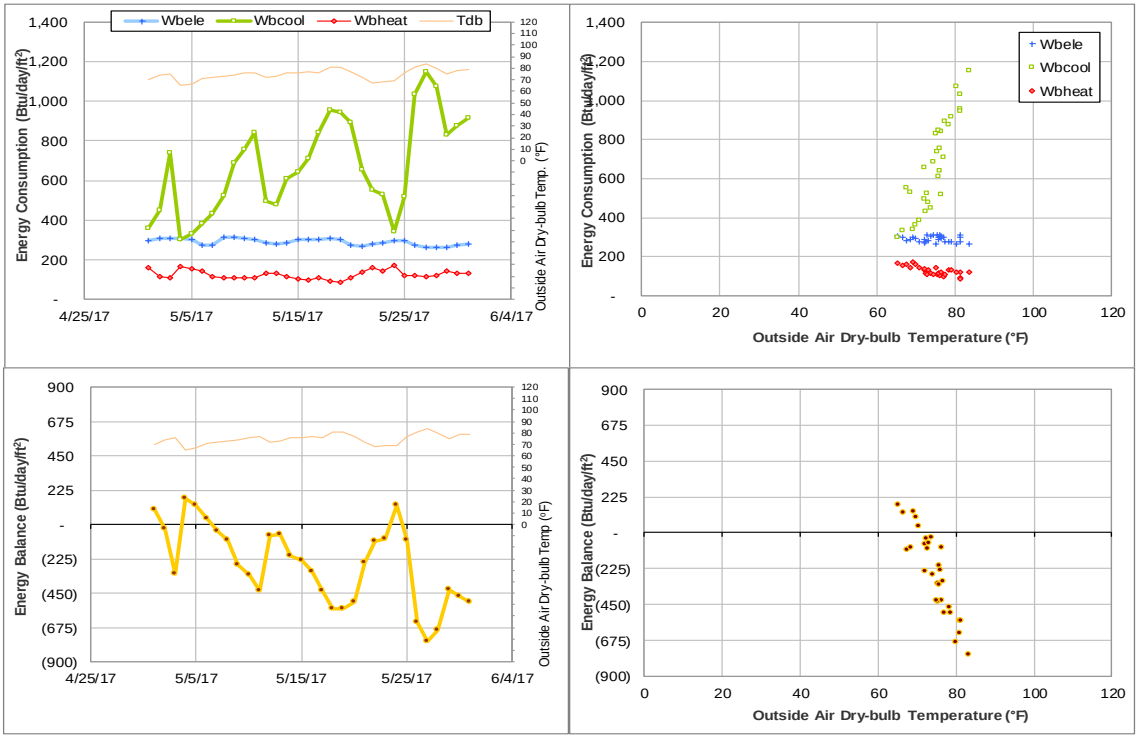


Figure IV-175 Human Clinical Research Building TAMU BLDG # 1542 Energy Balance Plot during May 2017

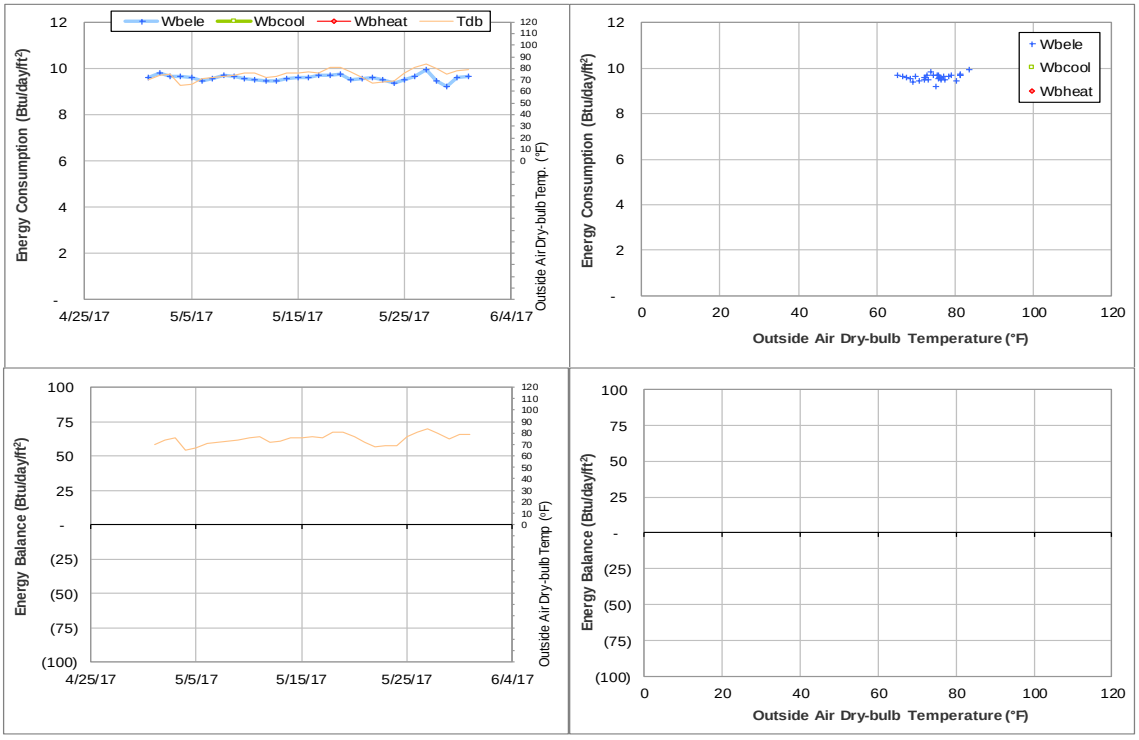


Figure IV-176 Cain Garage TAMU BLDG # 1544 Energy Balance Plot during May 2017

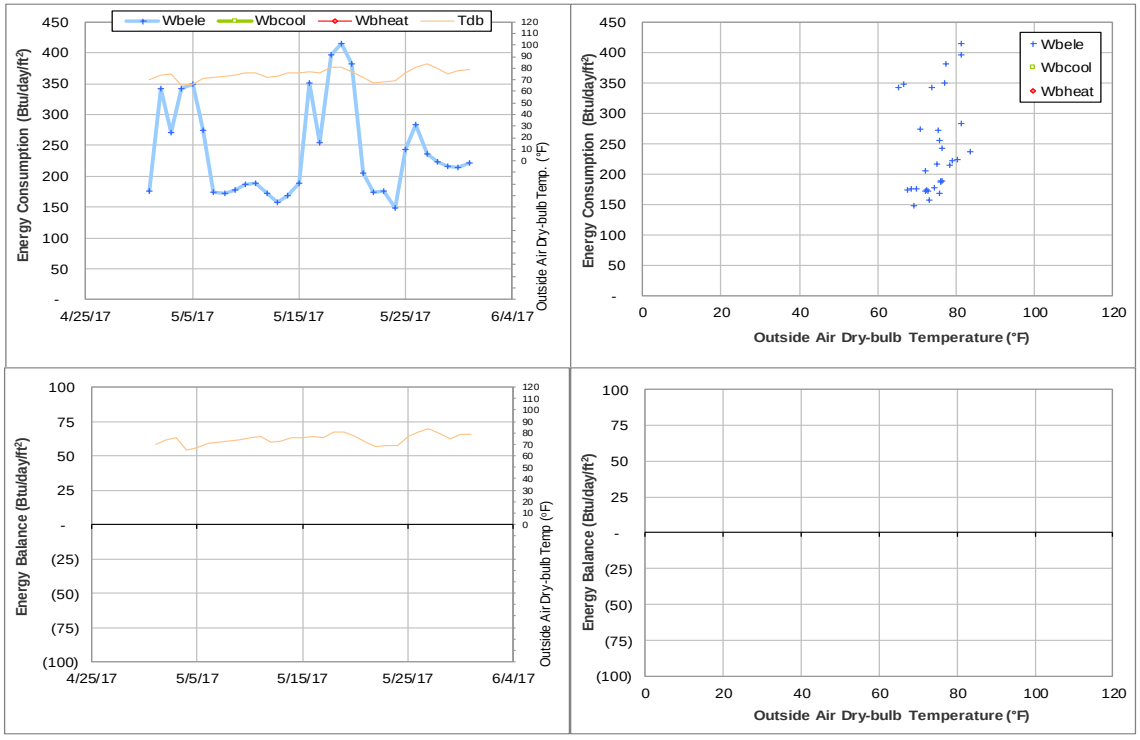


Figure IV-177 Olsen Field at Bluebell Park TAMU BLDG # 1550 Energy Balance Plot during May 2017

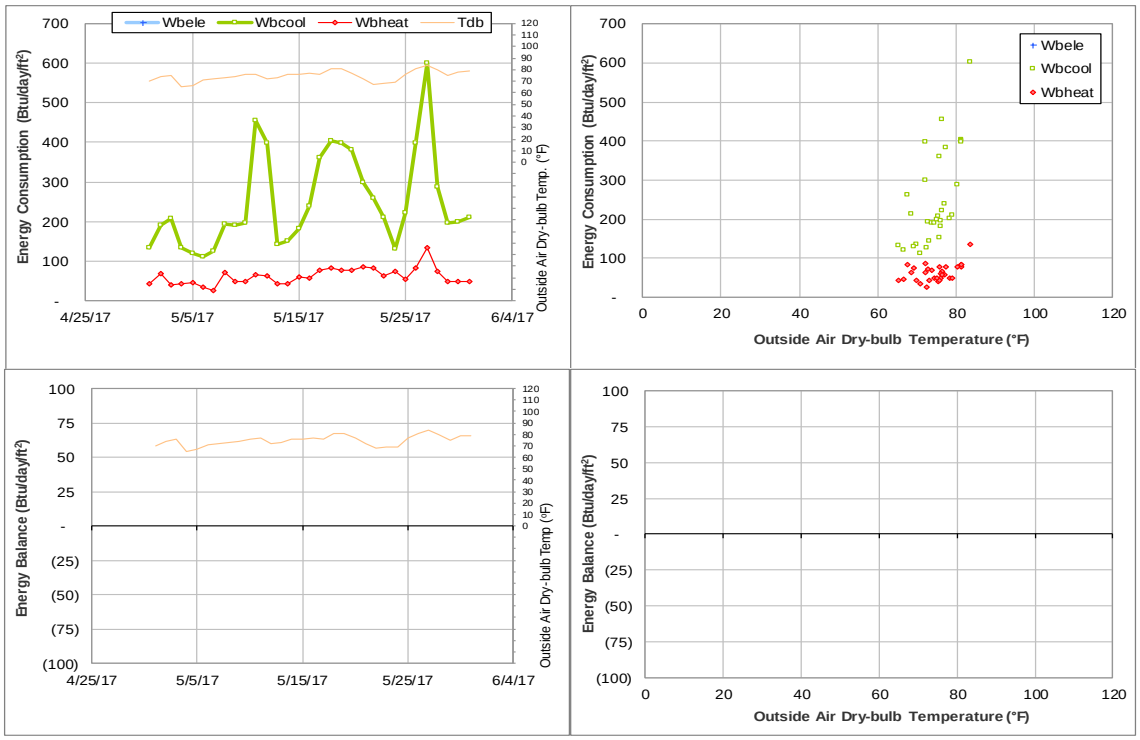


Figure IV-178 Reed Arena and Cox-McFerrin Center TAMU BLDG # 1554 and 1558 Energy Balance Plot during May 2017

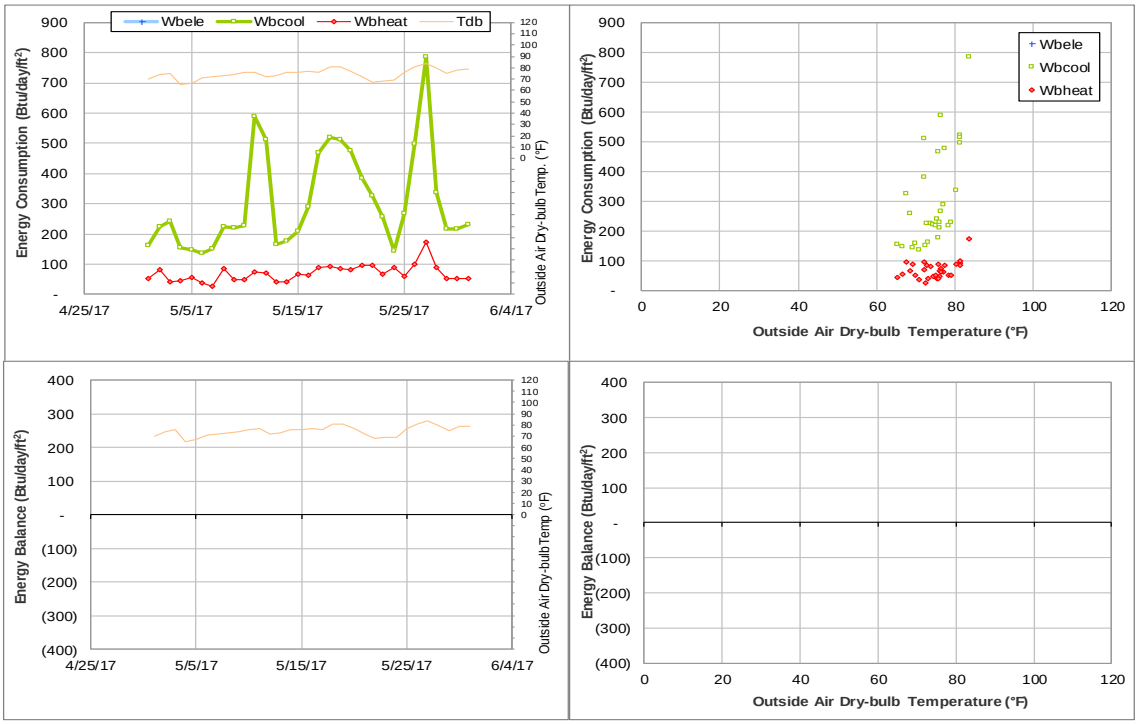


Figure IV-179 Reed Arena TAMU BLDG # 1554 Energy Balance Plot during May 2017

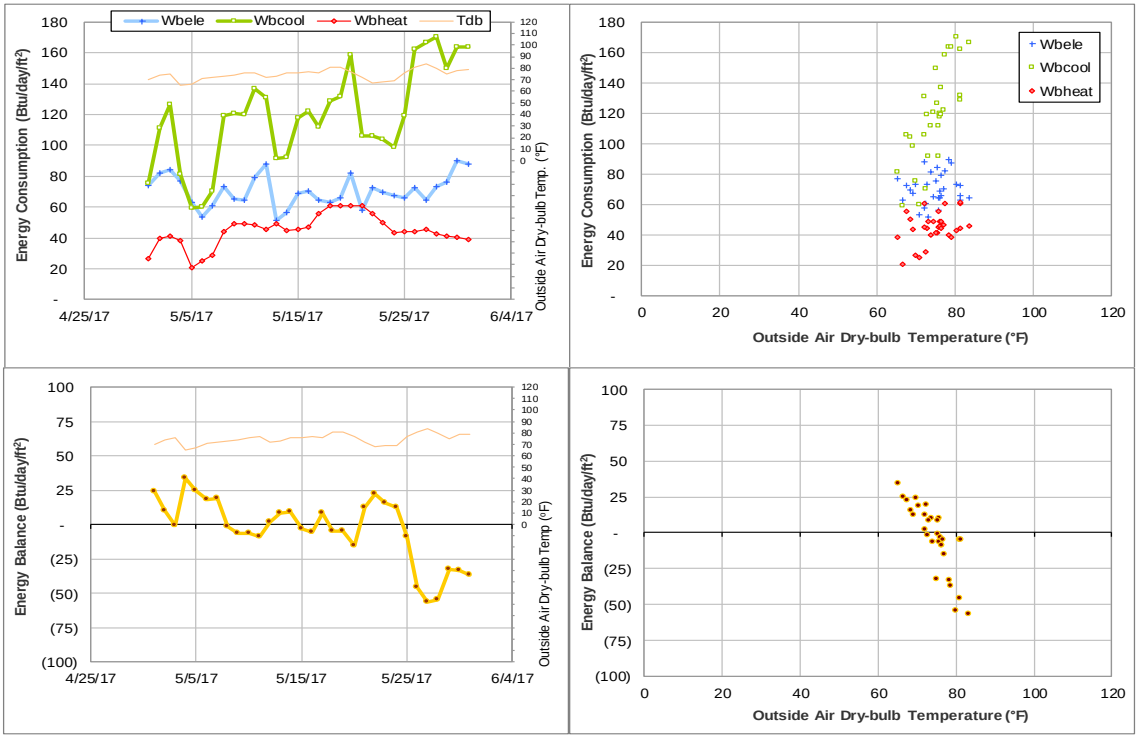


Figure IV-180 Cox-McFerrin Center for Aggie Basketball TAMU BLDG # 1558 Energy Balance Plot during May 2017

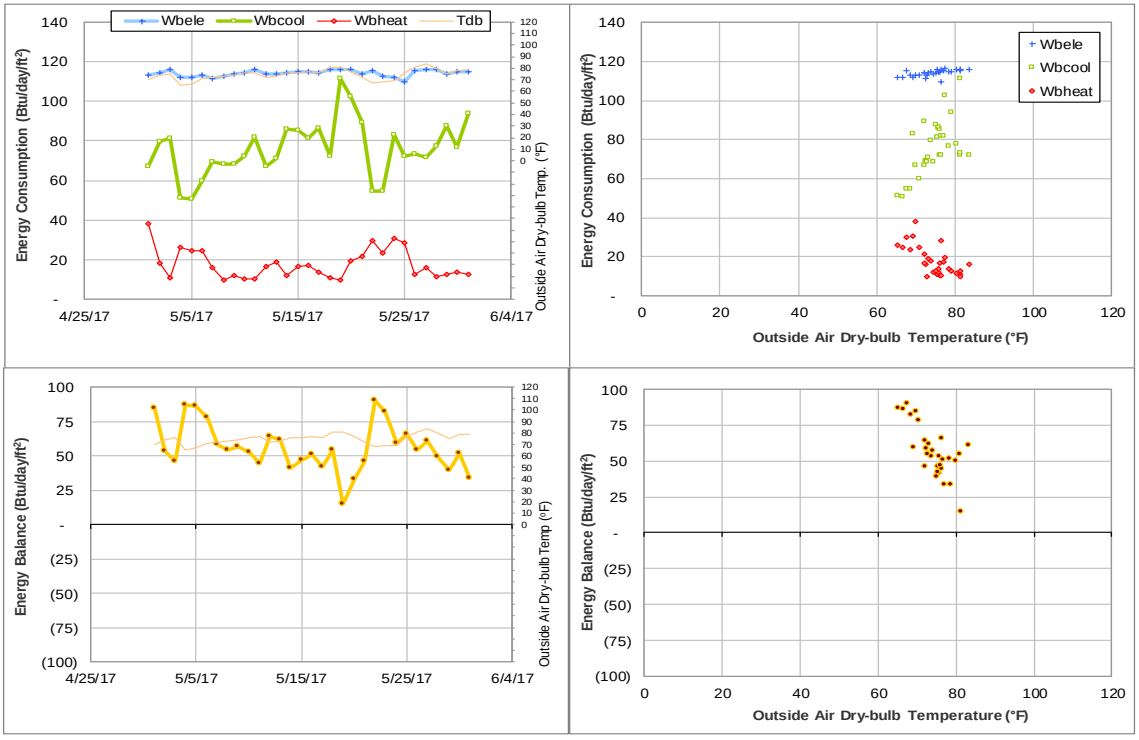


Figure IV-181 West Campus Parking Garage TAMU BLDG # 1559 Energy Balance Plot during May 2017

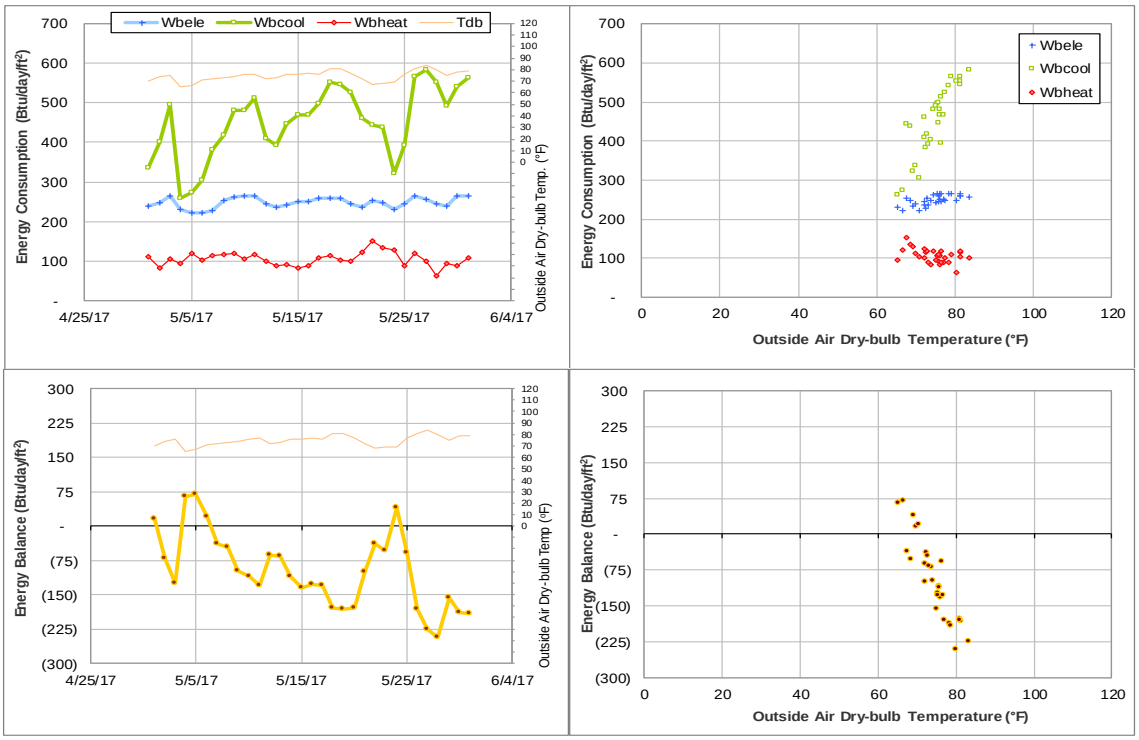


Figure IV-182 Student Recreation Center TAMU BLDG # 1560 Energy Balance Plot during May 2017

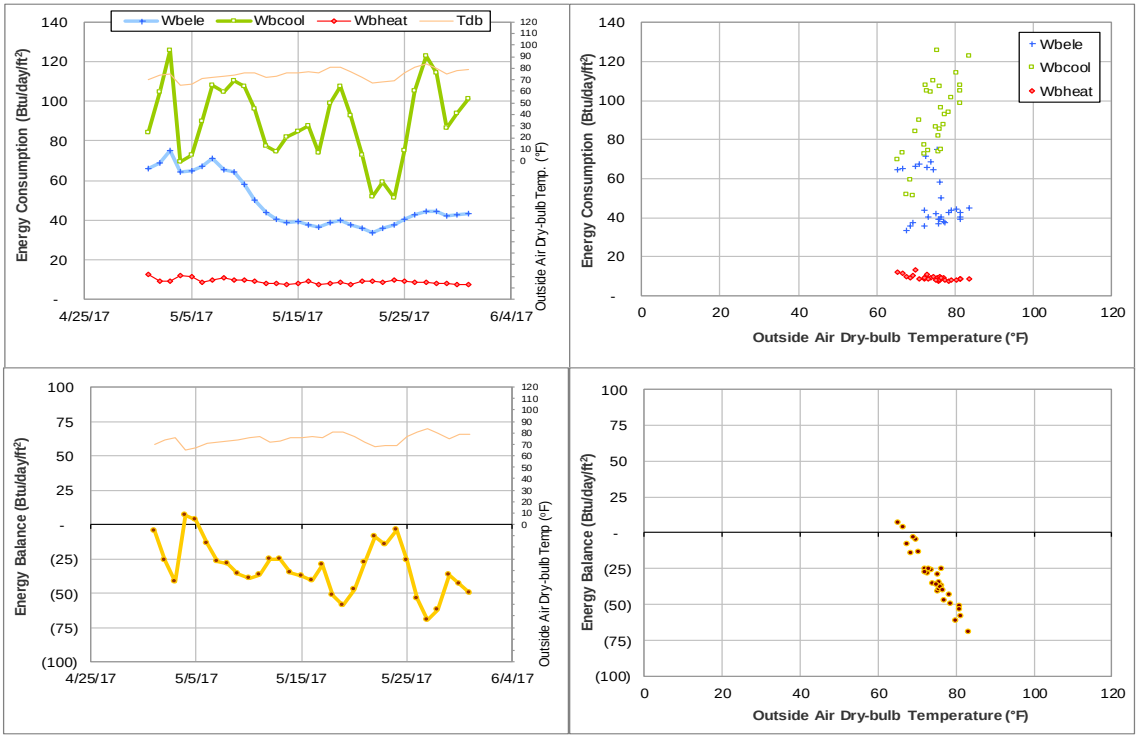


Figure IV-183 White Creek Apartment 1 and White Creek Apts Activity Center TAMU BLDG # 1589 Energy Balance Plot during May 2017

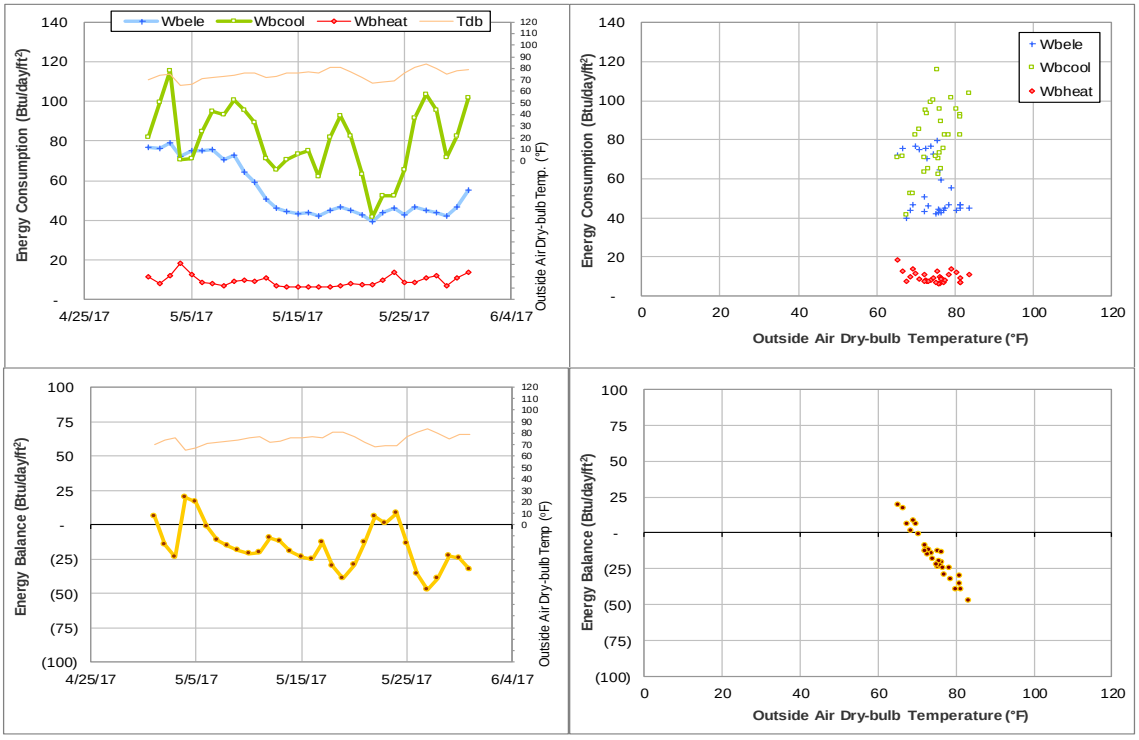


Figure IV-184 White Creek Apartment 2 TAMU BLDG # 1591 Energy Balance Plot during May 2017

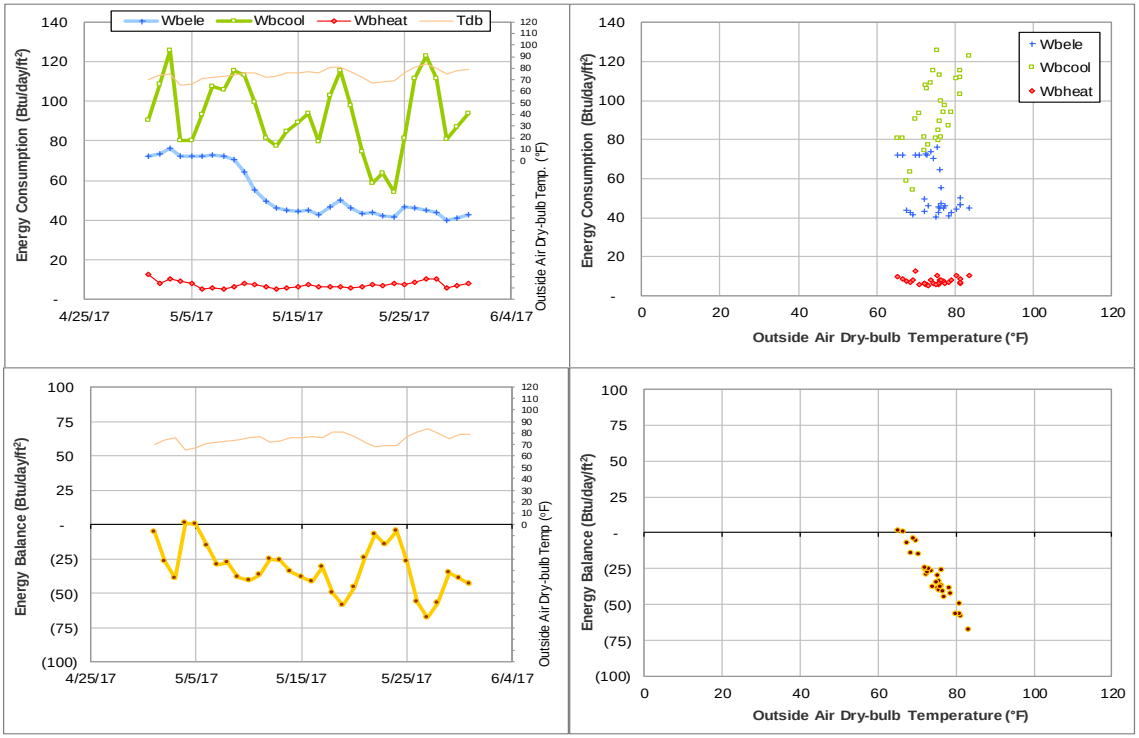


Figure IV-185 White Creek Apartment 3 TAMU BLDG # 1592 Energy Balance Plot during May 2017

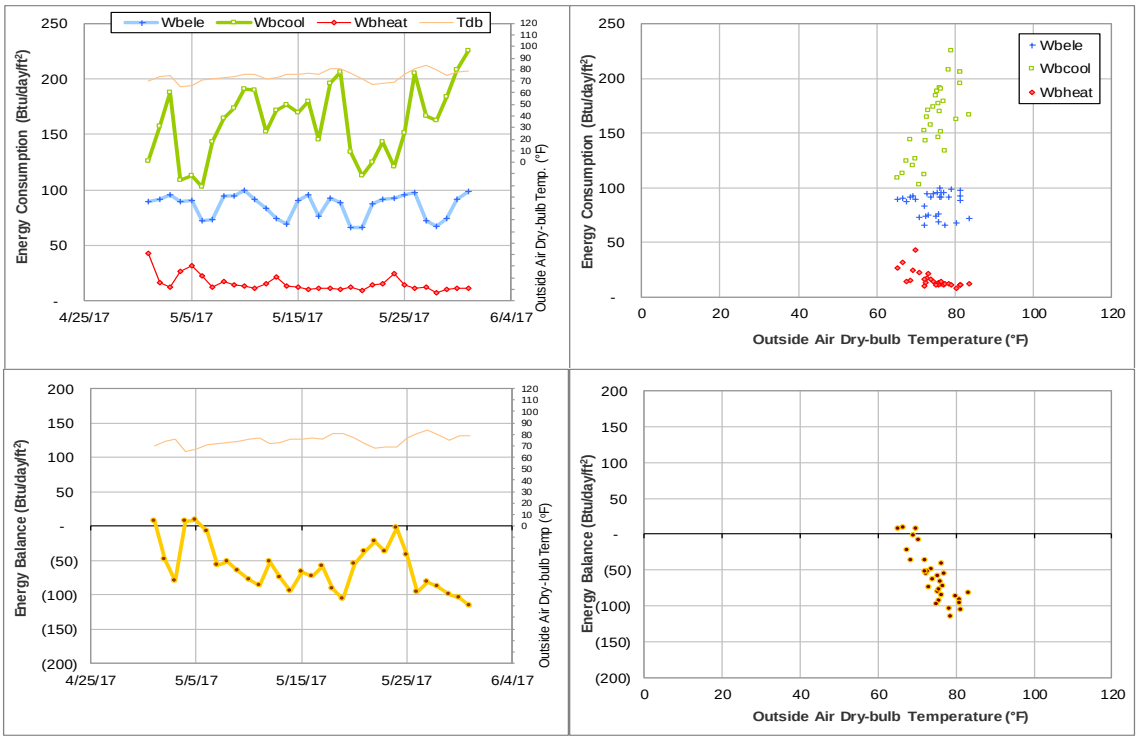


Figure IV-186 Gilchrist TTI Building TAMU BLDG # 1600 Energy Balance Plot during May 2017

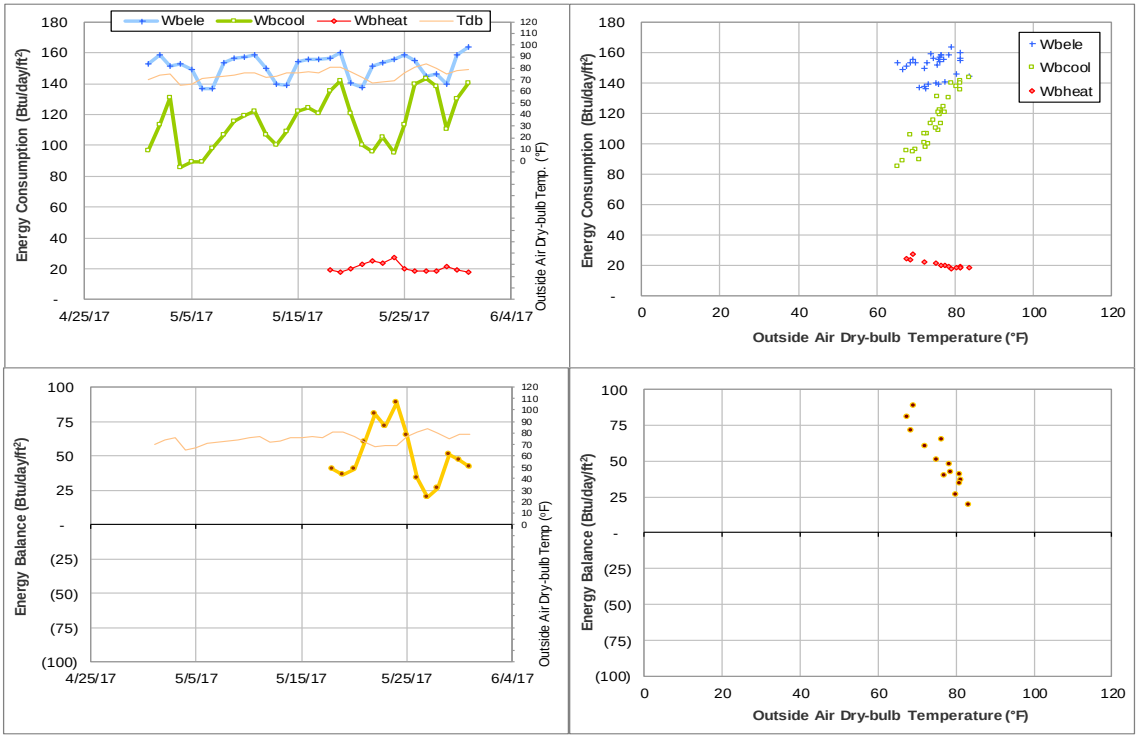


Figure IV-187 International Ocean Discovery Building TAMU BLDG # 1601 Energy Balance Plot during May 2017

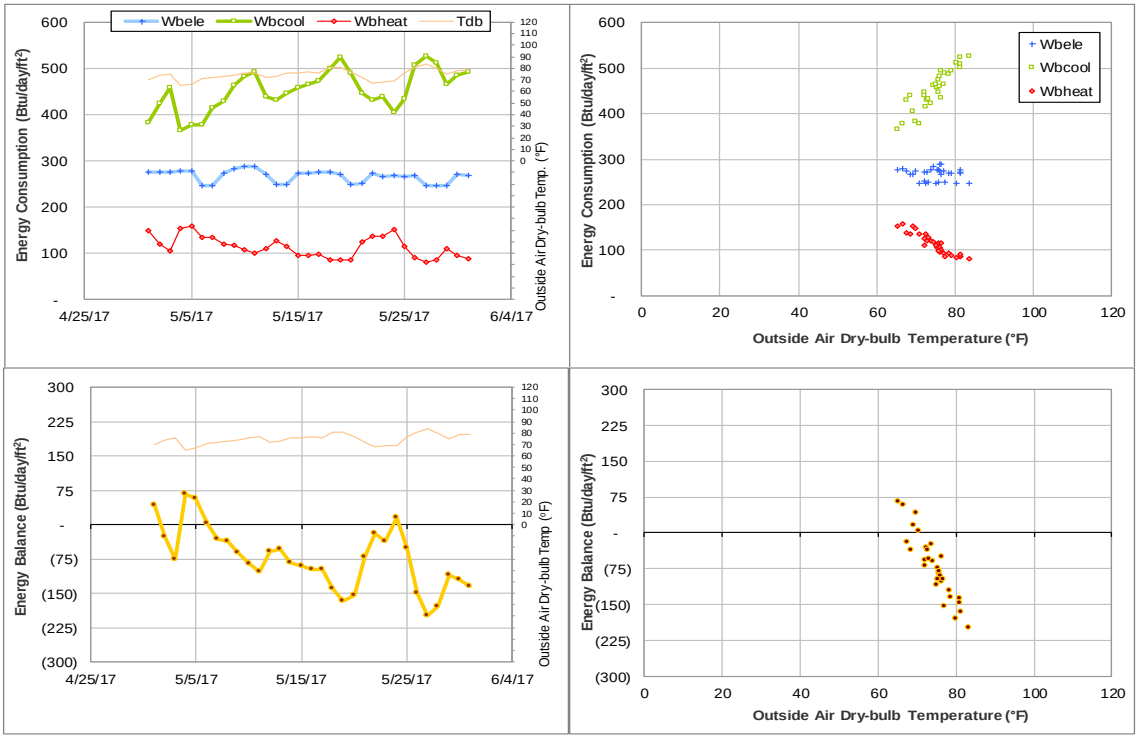


Figure IV-188 Offshore Technology Research Center TAMU BLDG # 1604 Energy Balance Plot during May 2017

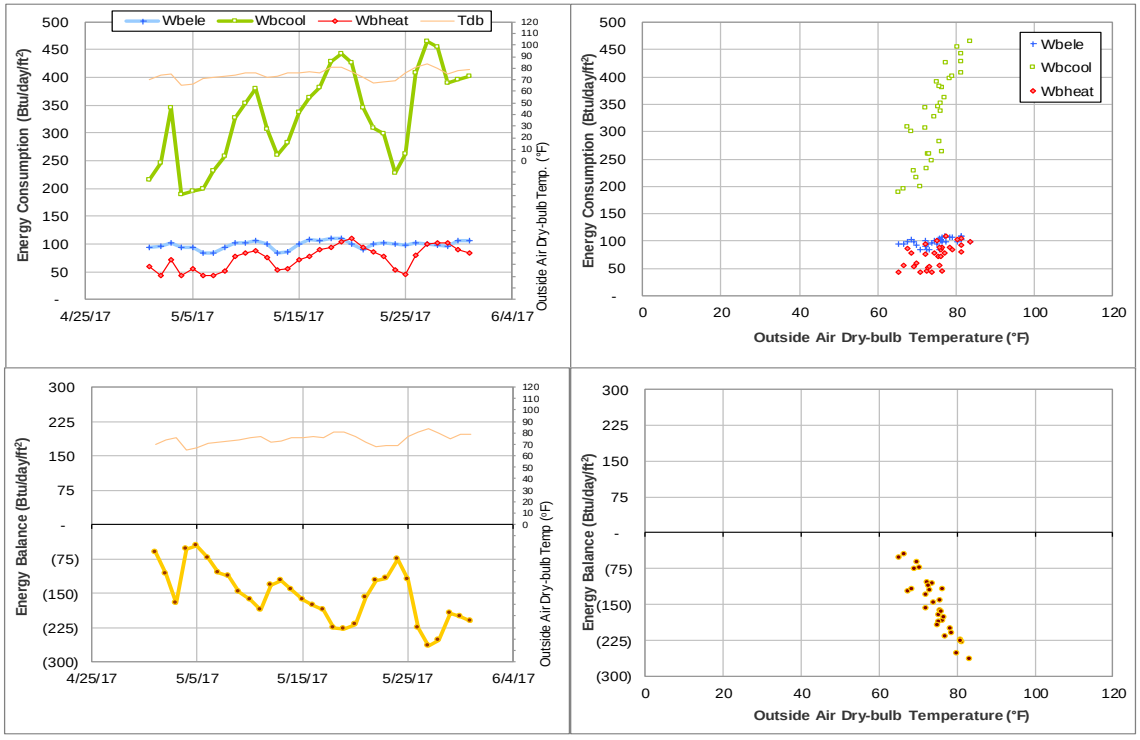


Figure IV-189 George Bush Presidential Library & Museum TAMU BLDG # 1606 Energy Balance Plot during May 2017

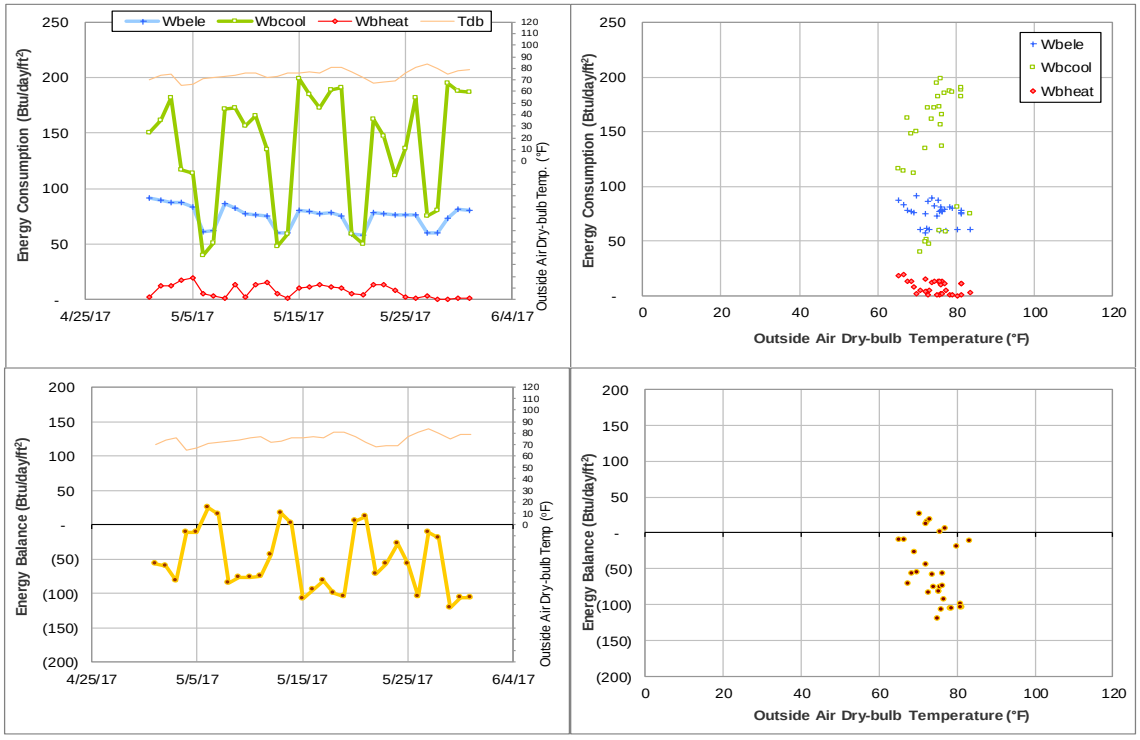


Figure IV-190 Allen Building TAMU BLDG # 1607 Energy Balance Plot during May 2017

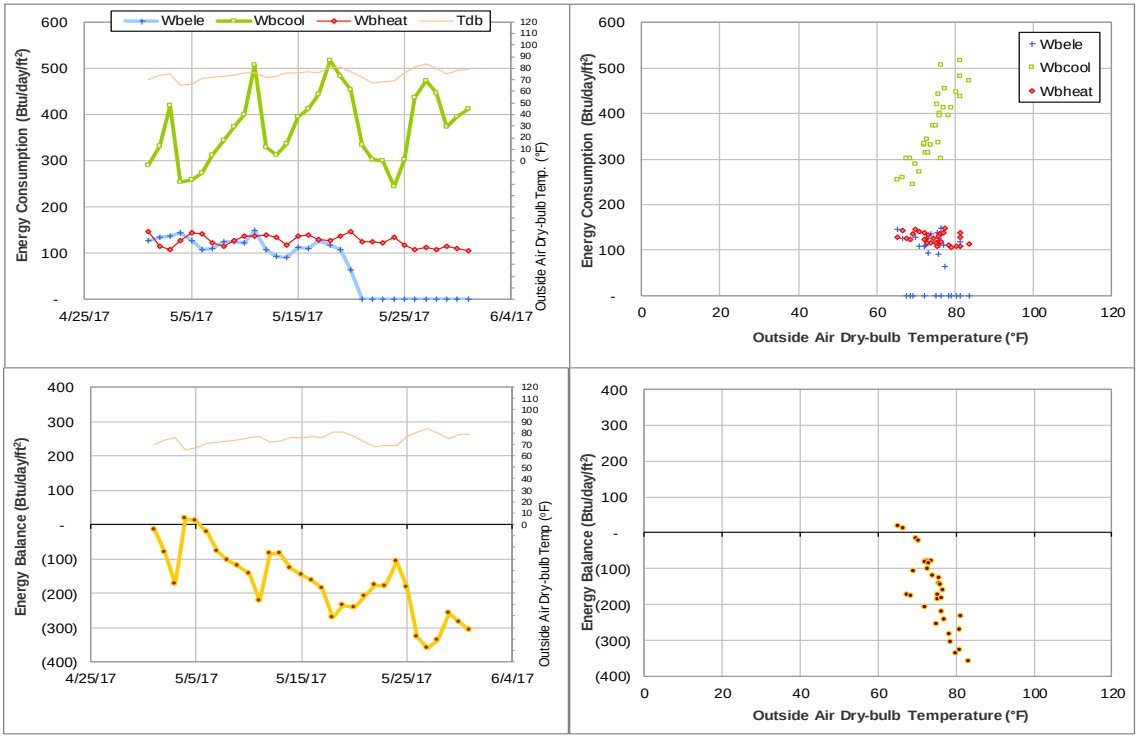


Figure IV-191 Annenberg Presidential Conference Center TAMU BLDG # 1608 Energy Balance Plot during May 2017

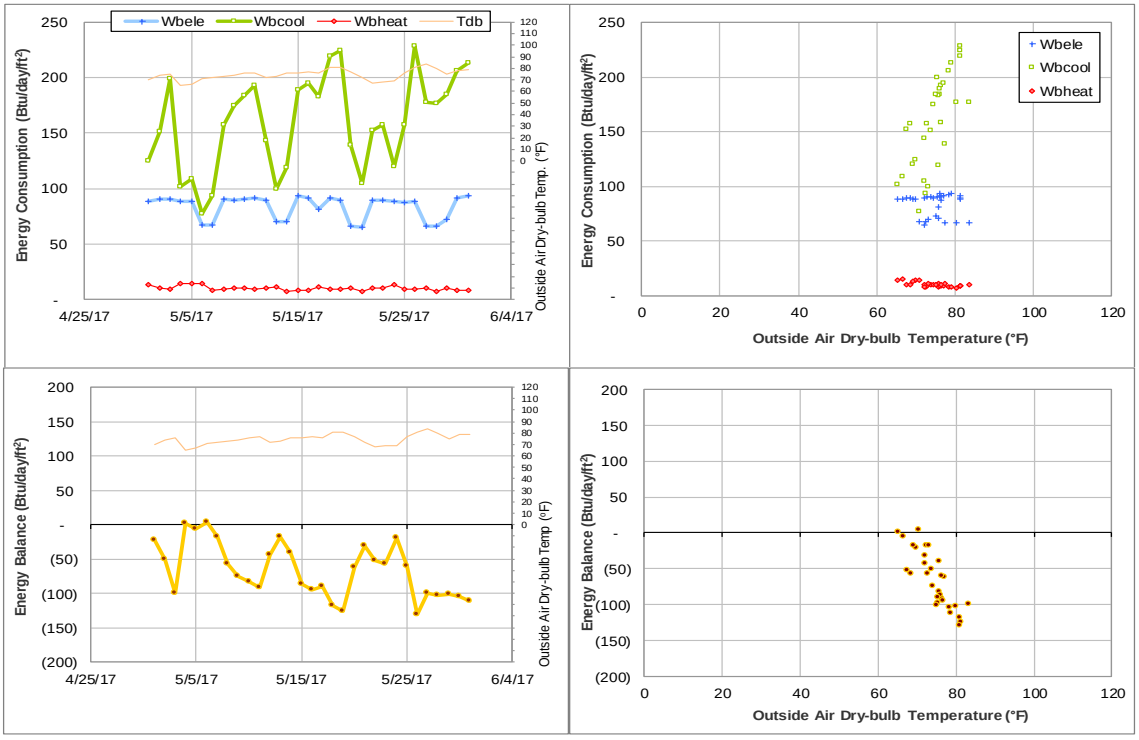


Figure IV-192 TTI Headquarters TAMU BLDG # 1609 Energy Balance Plot during May 2017

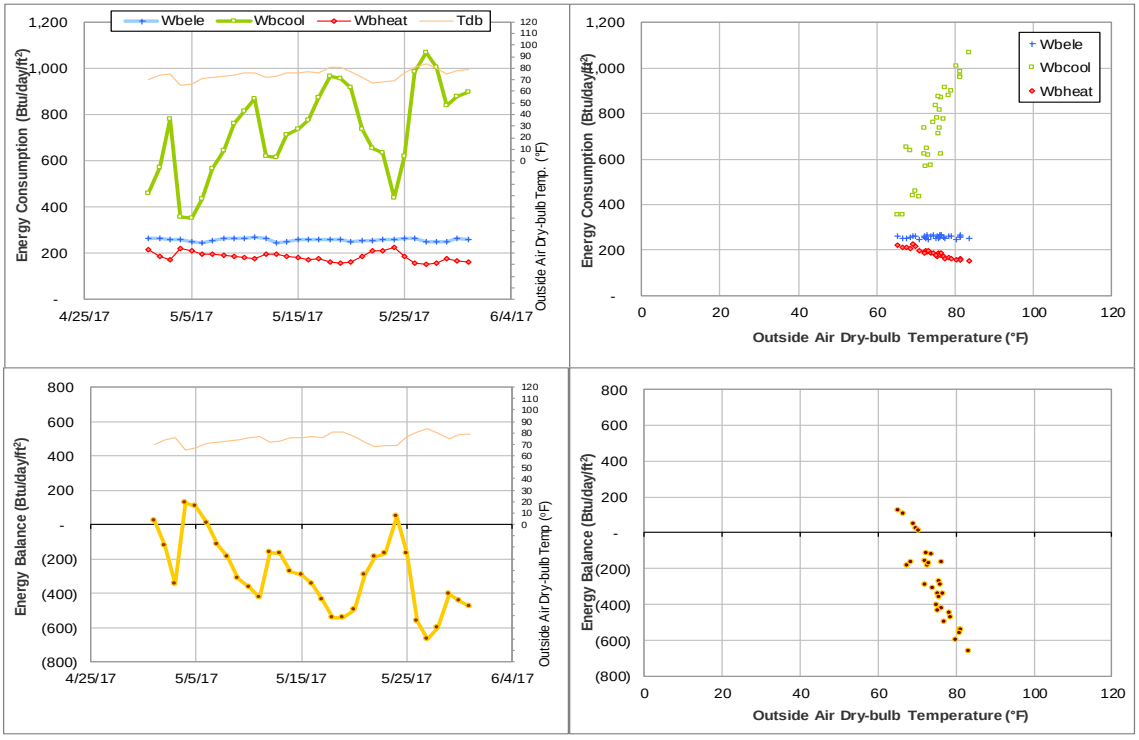


Figure IV-193 Engineering Research Building TAMU BLDG # 1611 Energy Balance Plot during May 2017

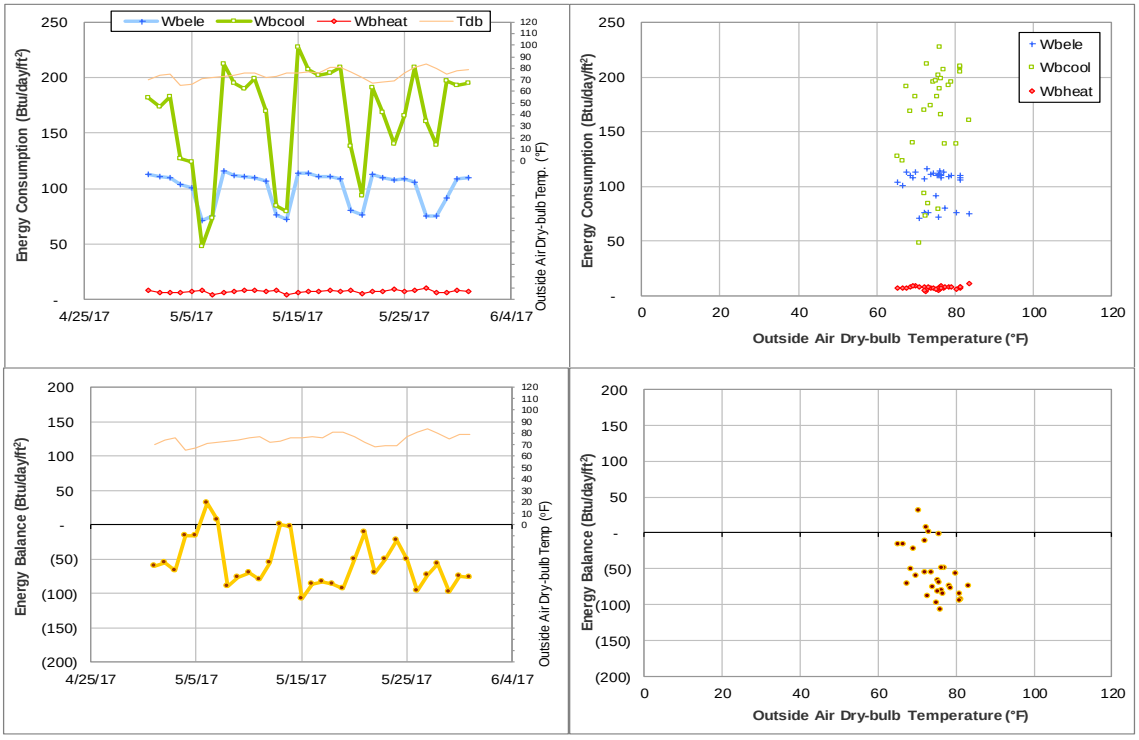


Figure IV-194 General Services Complex TAMU BLDG # 1800 Energy Balance Plot during May 2017

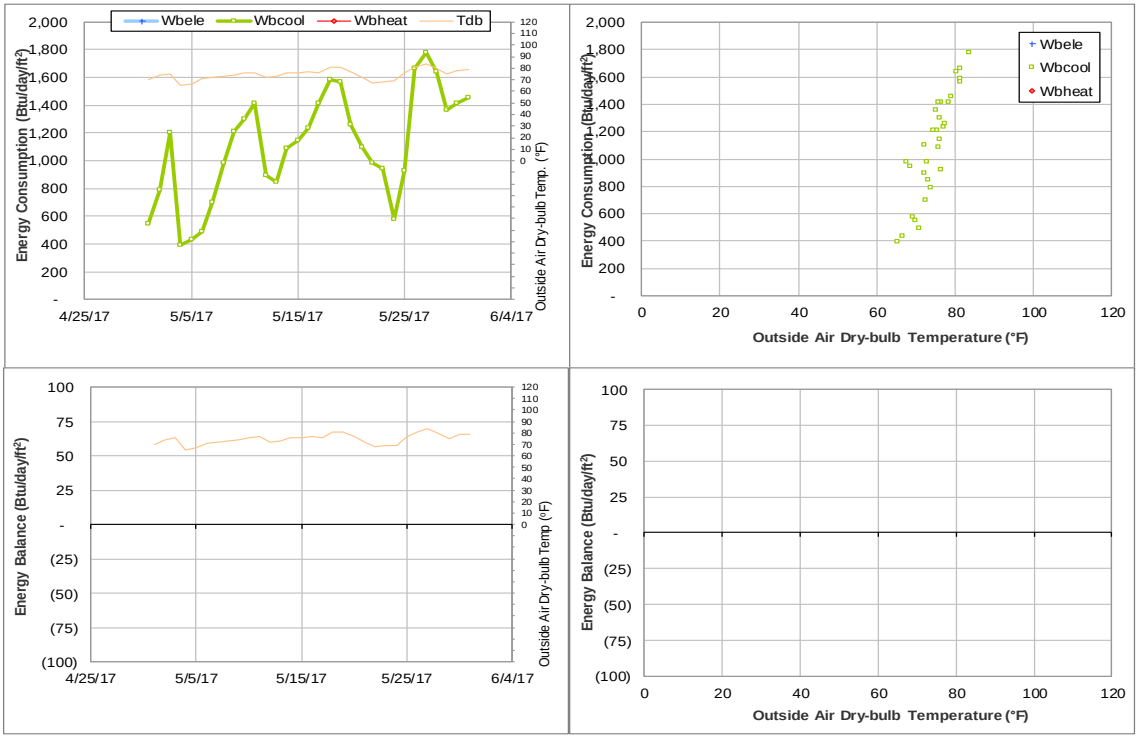


Figure IV-195 New TVMDL TAMU BLDG # 1809 Energy Balance Plot during May 2017

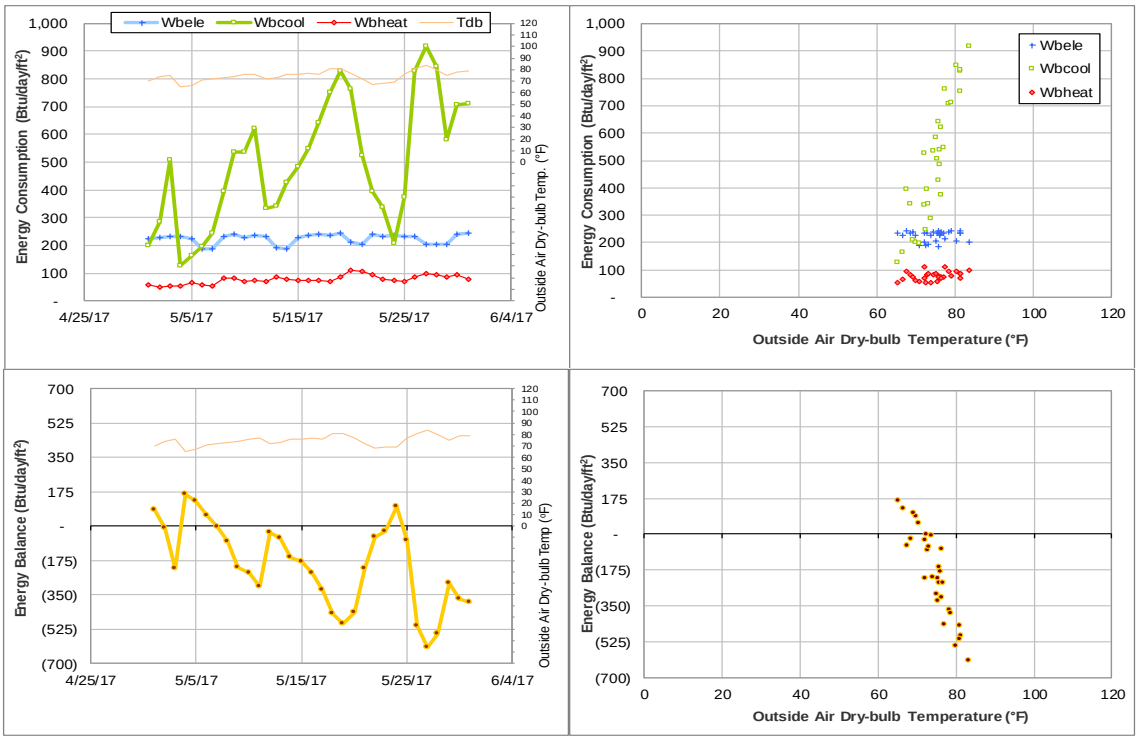


Figure IV-196 Office of the State Chemist Building TAMU BLDG # 1810 Energy Balance Plot during May 2017

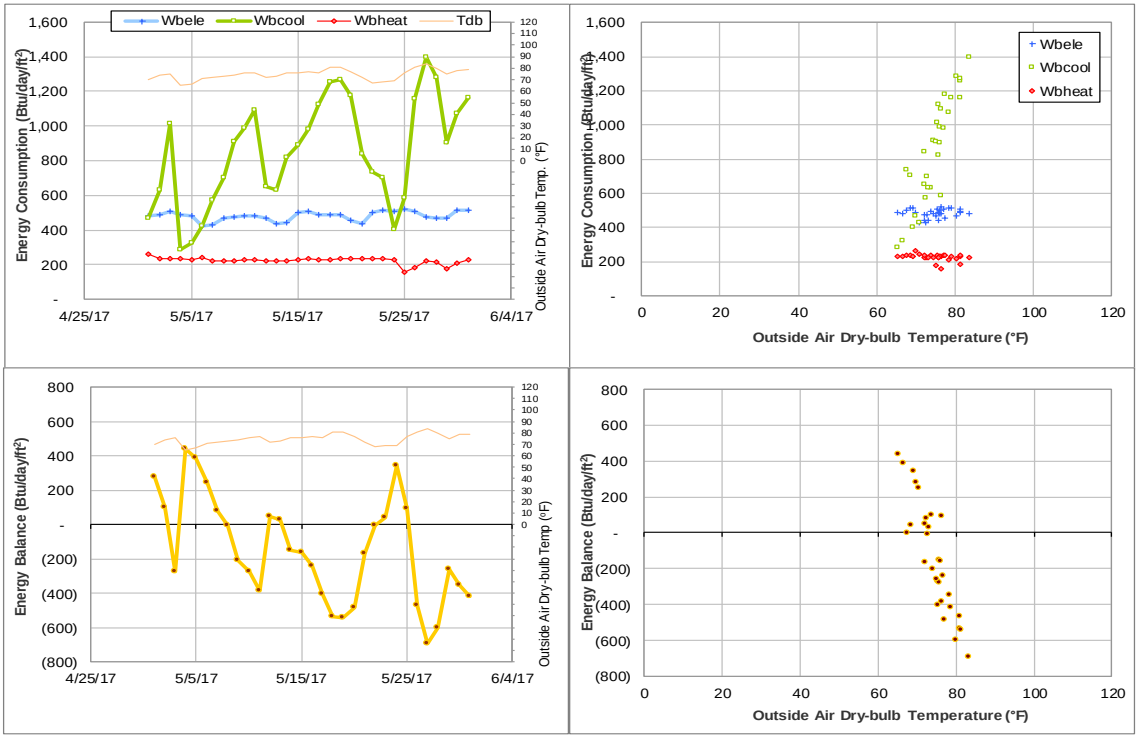


Figure IV-197 Vet Med Research Bldg Addition TAMU BLDG # 1811 Energy Balance Plot during May 2017

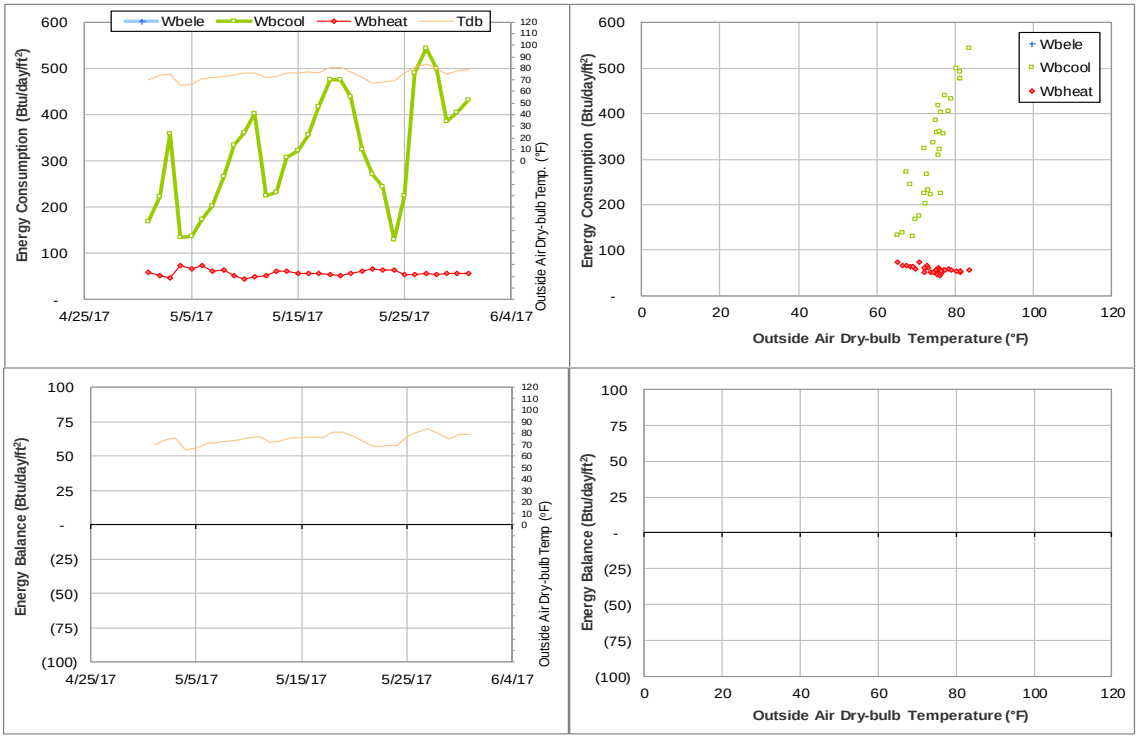


Figure IV-198 Veterinary Medicine Building 1, 2, and 3 TAMU BLDG # 1812 Energy Balance Plot during May 2017

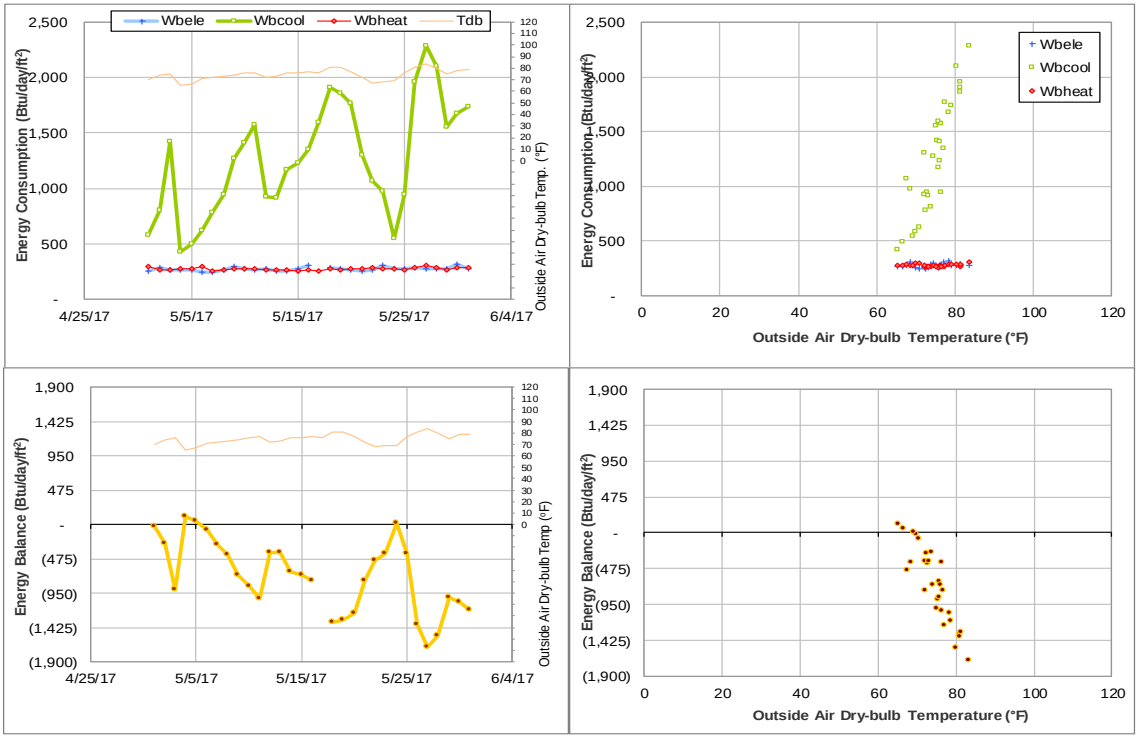


Figure IV-199 Texas Institute for Genomic Medicine TAMU BLDG # 1900 Energy Balance Plot during May 2017

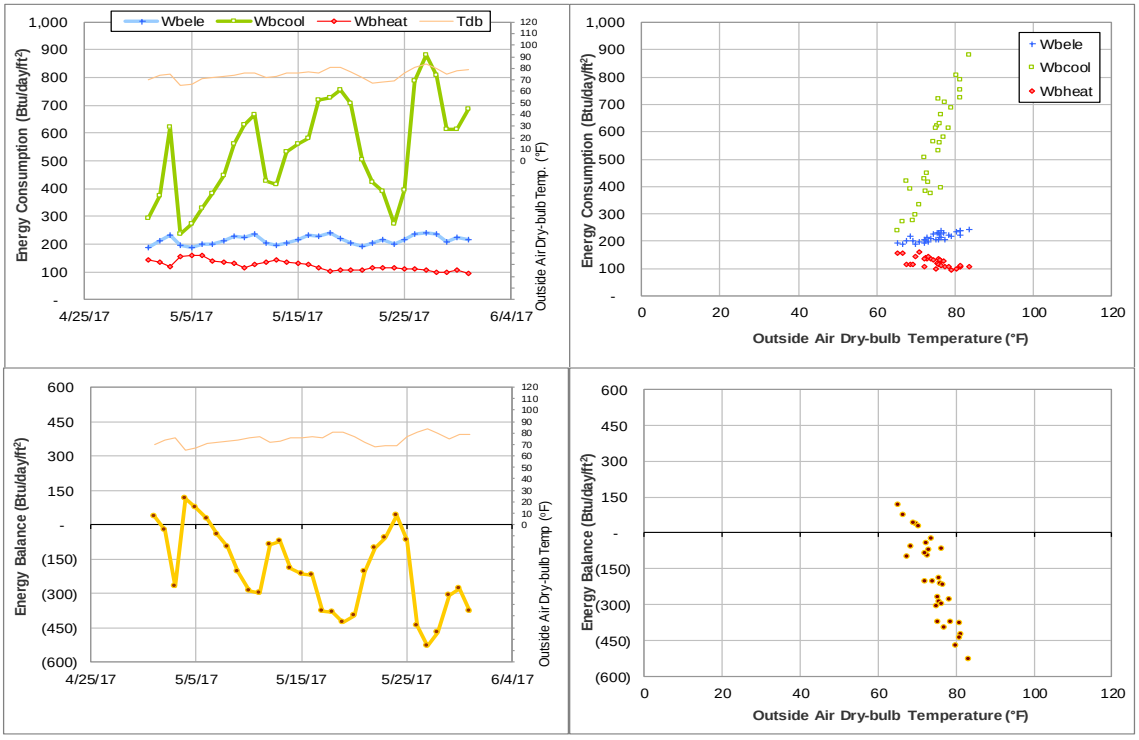


Figure IV-200 Texas A&M Institute for Preclinical Studies A TAMU BLDG # 1904 Energy Balance Plot during May 2017

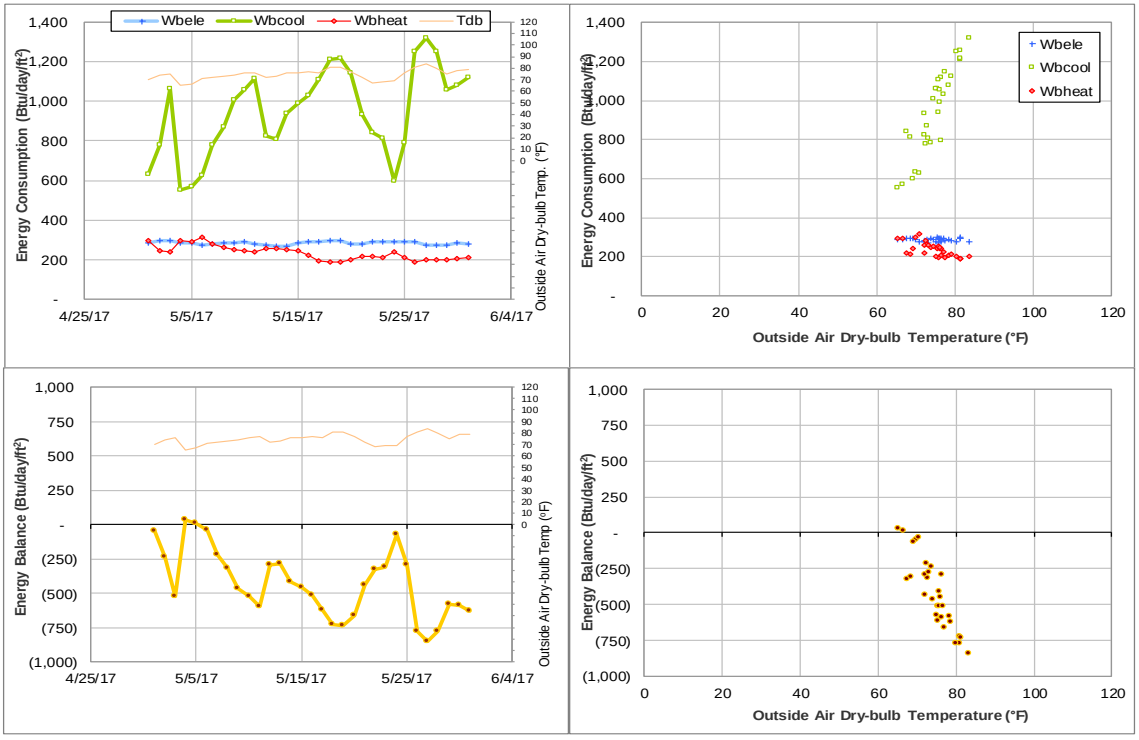


Figure IV-201 National Center for Therapeutics Manufacturing TAMU BLDG # 1910 Energy Balance Plot during May 2017

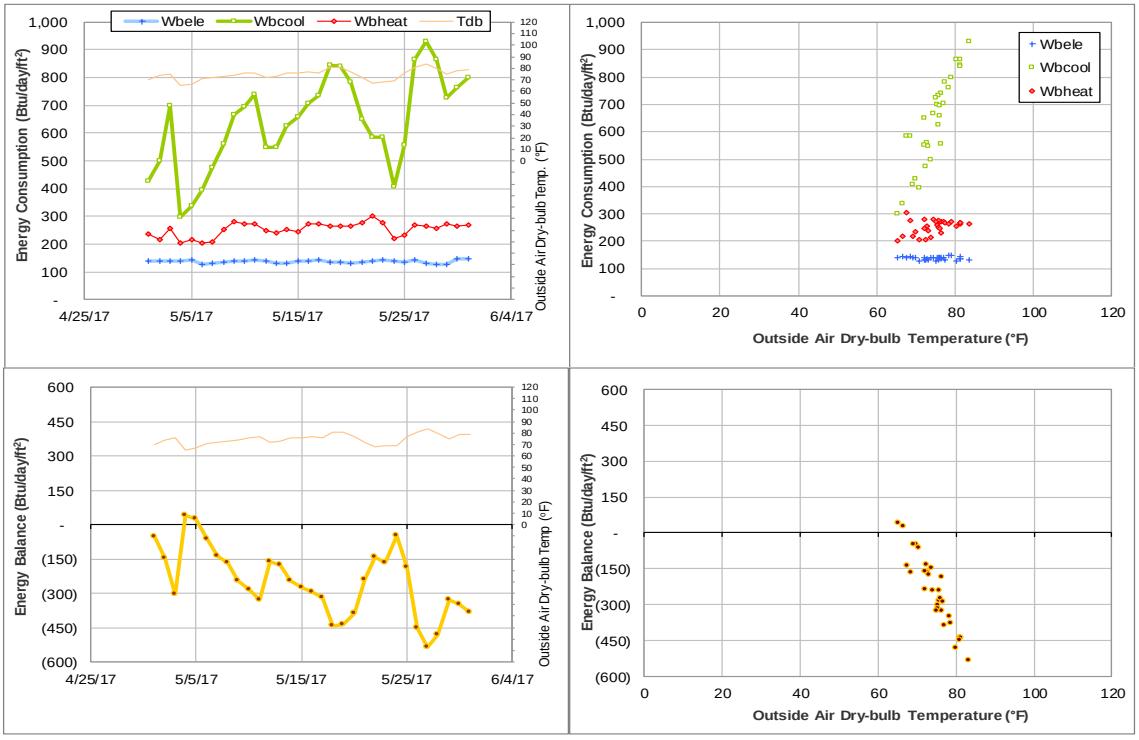


Figure IV-202 Multi-Species Research Building TAMU BLDG # 1911 Energy Balance Plot during May 2017

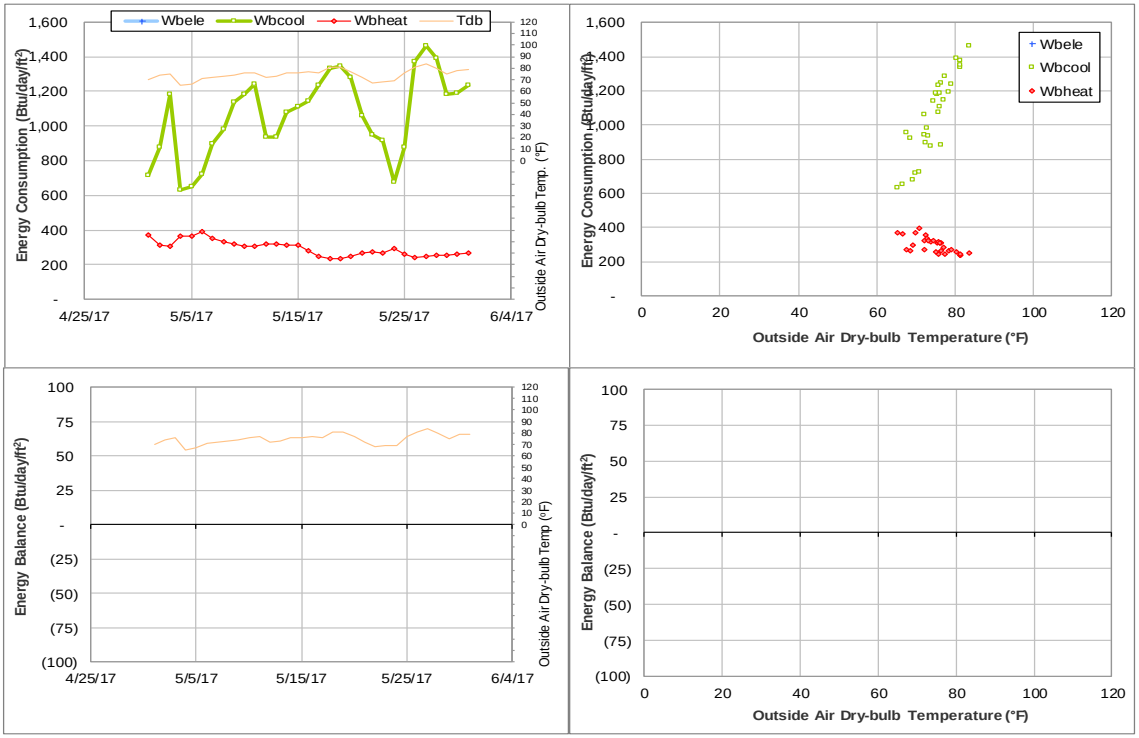


Figure IV-203 NCTM Manufacturing Building TAMU BLDG # 10226 Energy Balance Plot during May 2017

V. Energy Balance Plots with Filled-in data for May 2017 Consumption

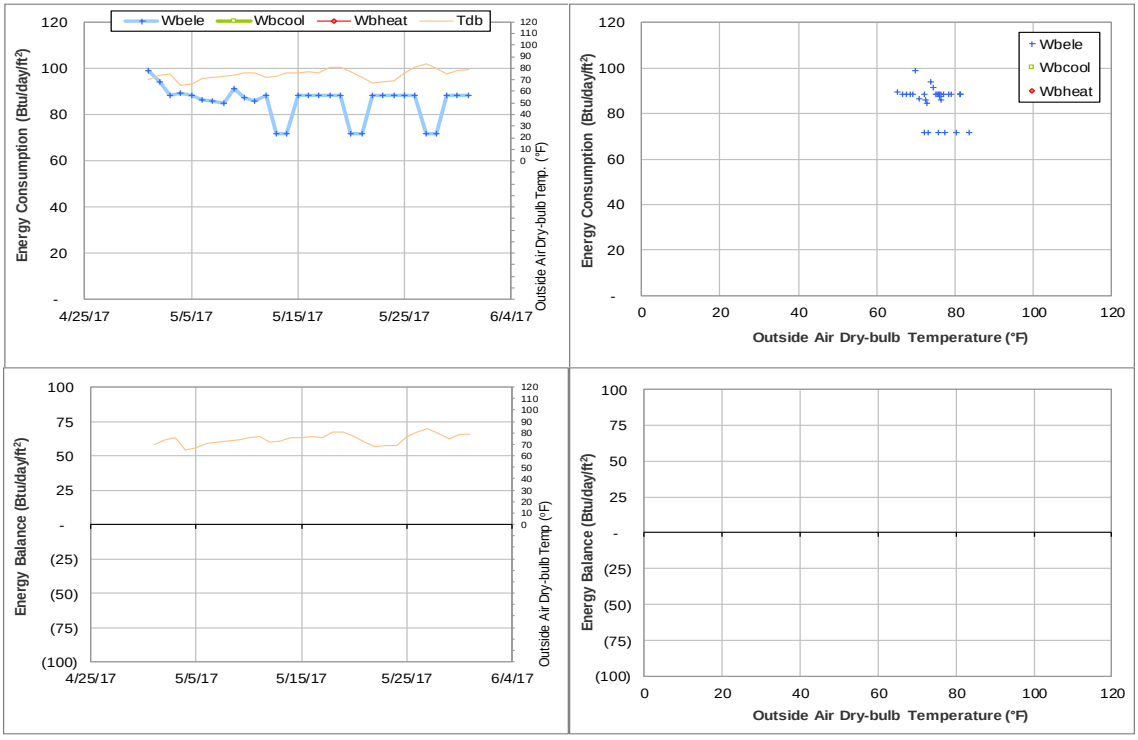


Figure V-1 Architecture Building B TAMU BLDG # 359 Energy Balance Plot during May 2017

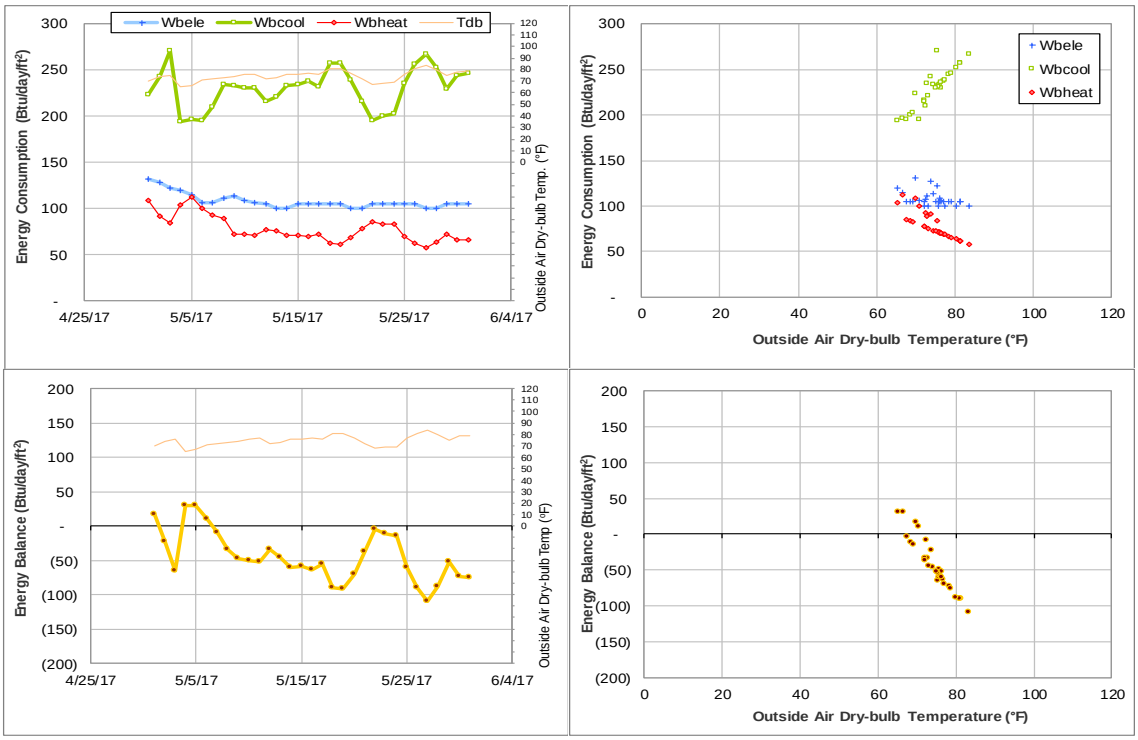


Figure V-2 Architecture Building B&C TAMU BLDG # 359 Energy Balance Plot during May 2017

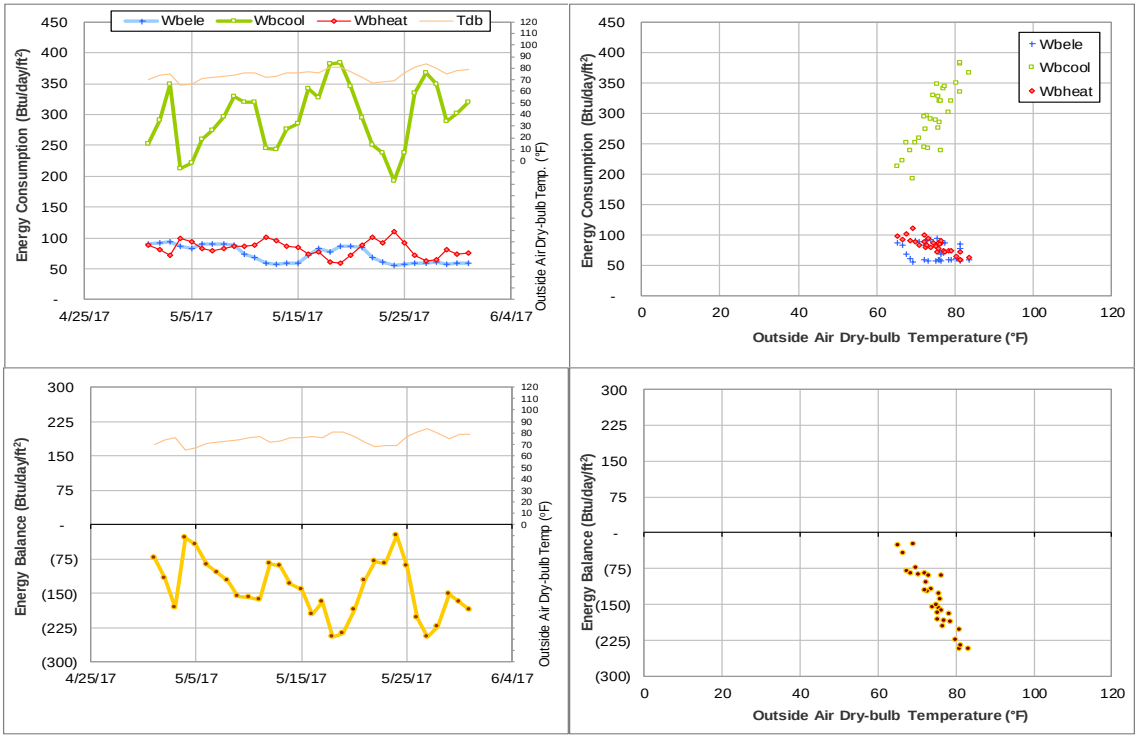


Figure V-3 Lacy Hall - Dorm 6 TAMU BLDG # 405 Energy Balance Plot during May 2017

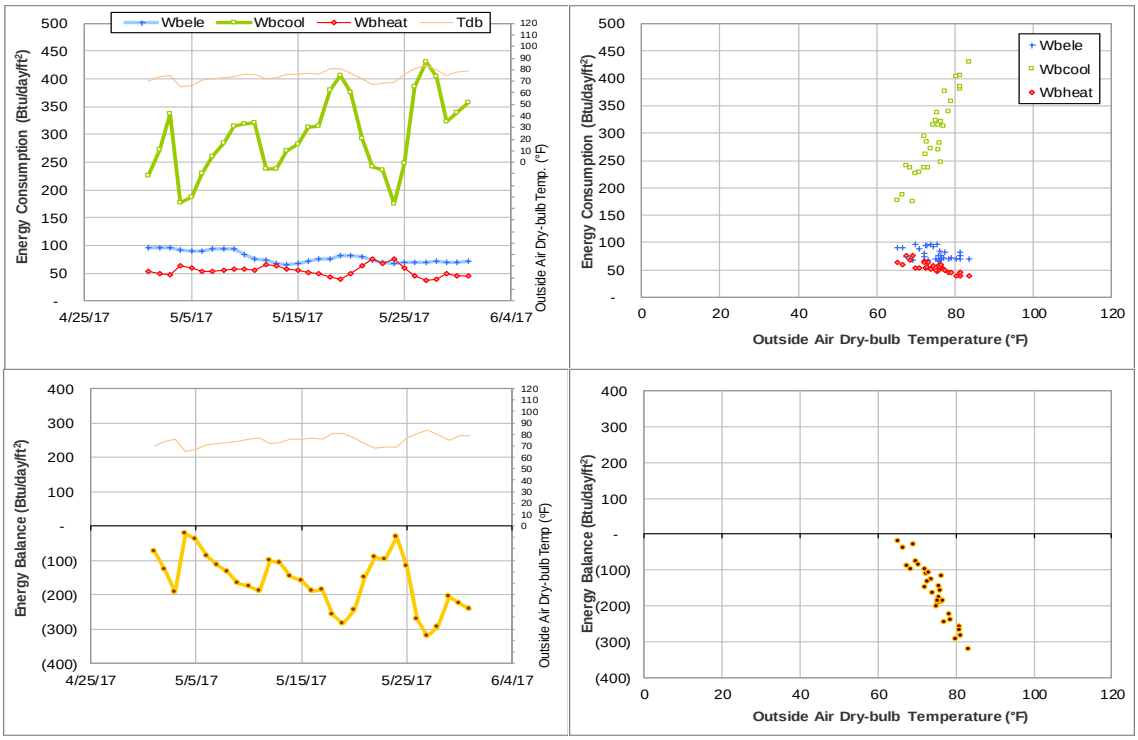


Figure V-4 Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center TAMU BLDG # 405 Energy Balance Plot during May 2017

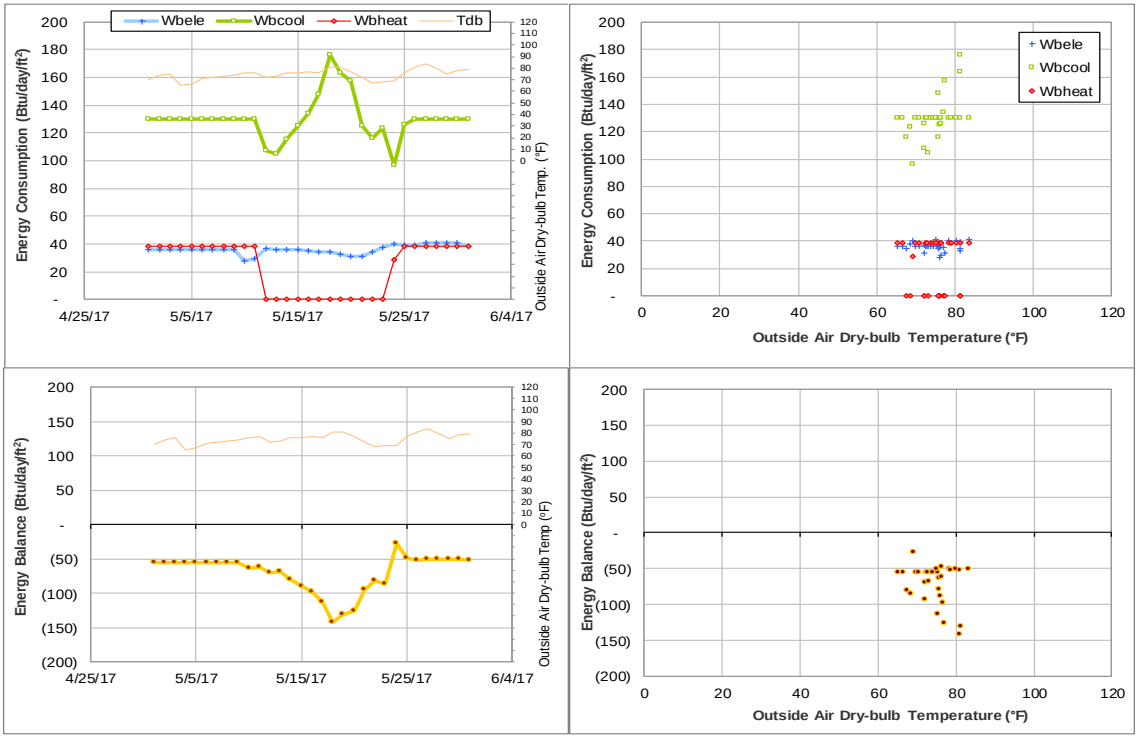


Figure V-5 Whitely Hall - Dorm 9 TAMU BLDG # 408 Energy Balance Plot during May 2017

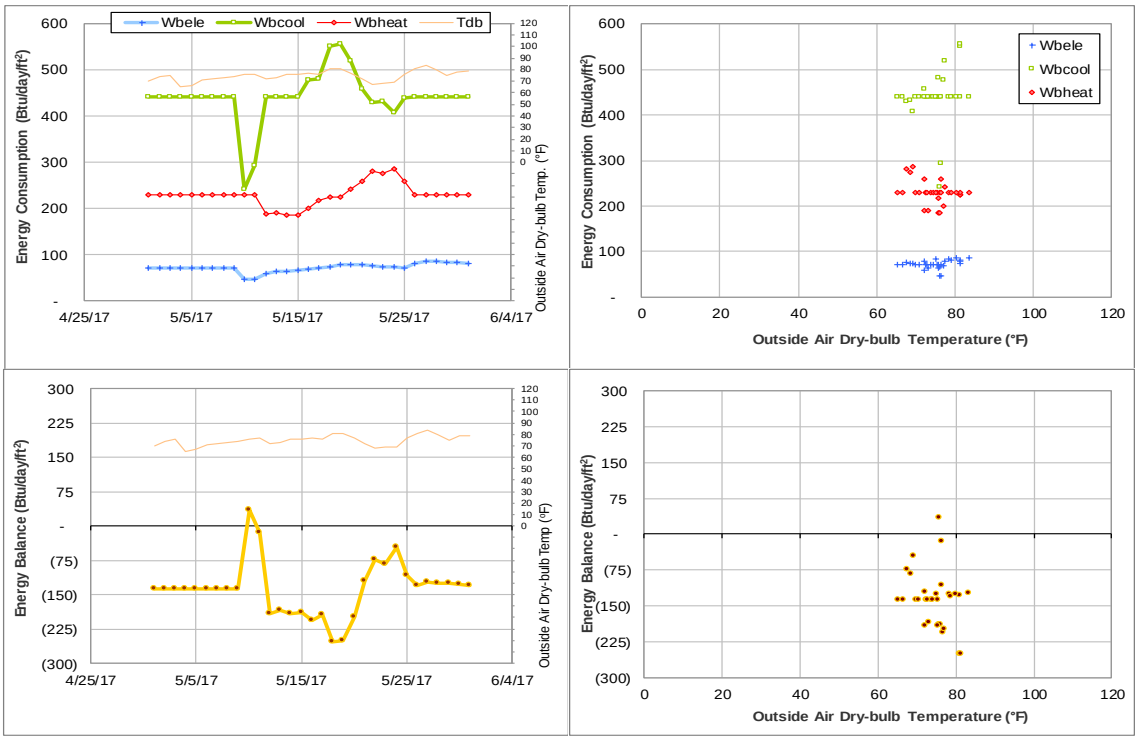


Figure V-6 White Hall - Dorm 10 TAMU BLDG # 409 Energy Balance Plot during May 2017

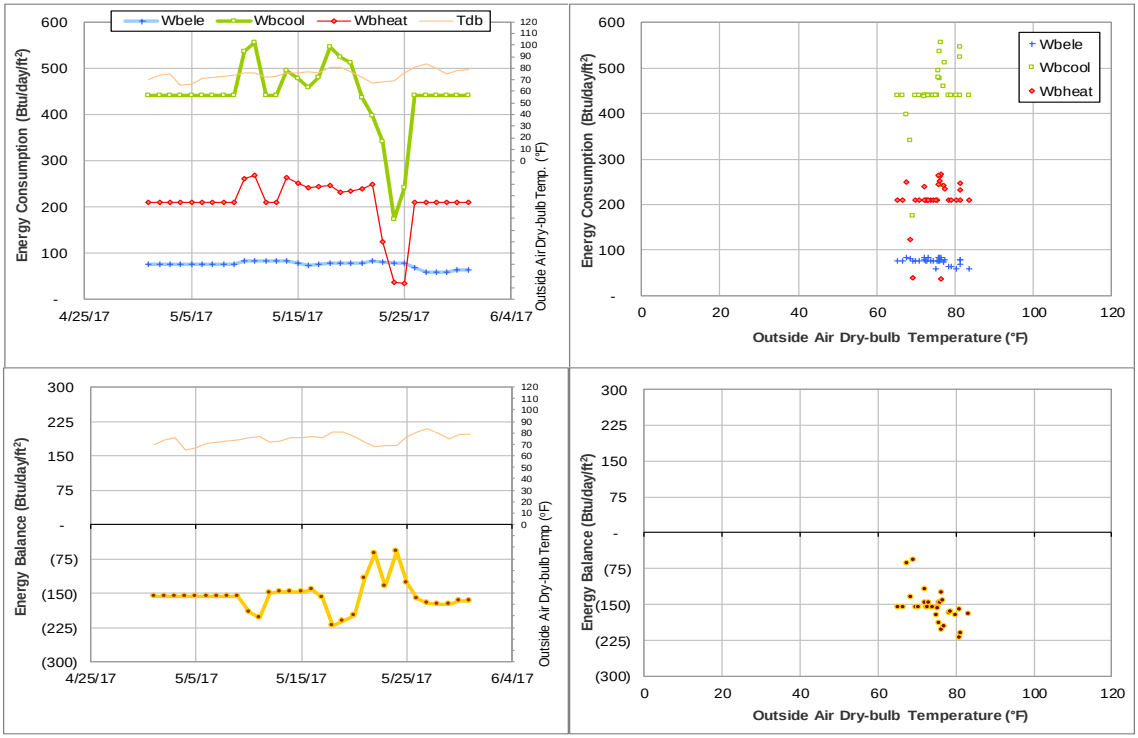


Figure V-7 Harrington Hall - Dorm 11 TAMU BLDG # 410 Energy Balance Plot during May 2017

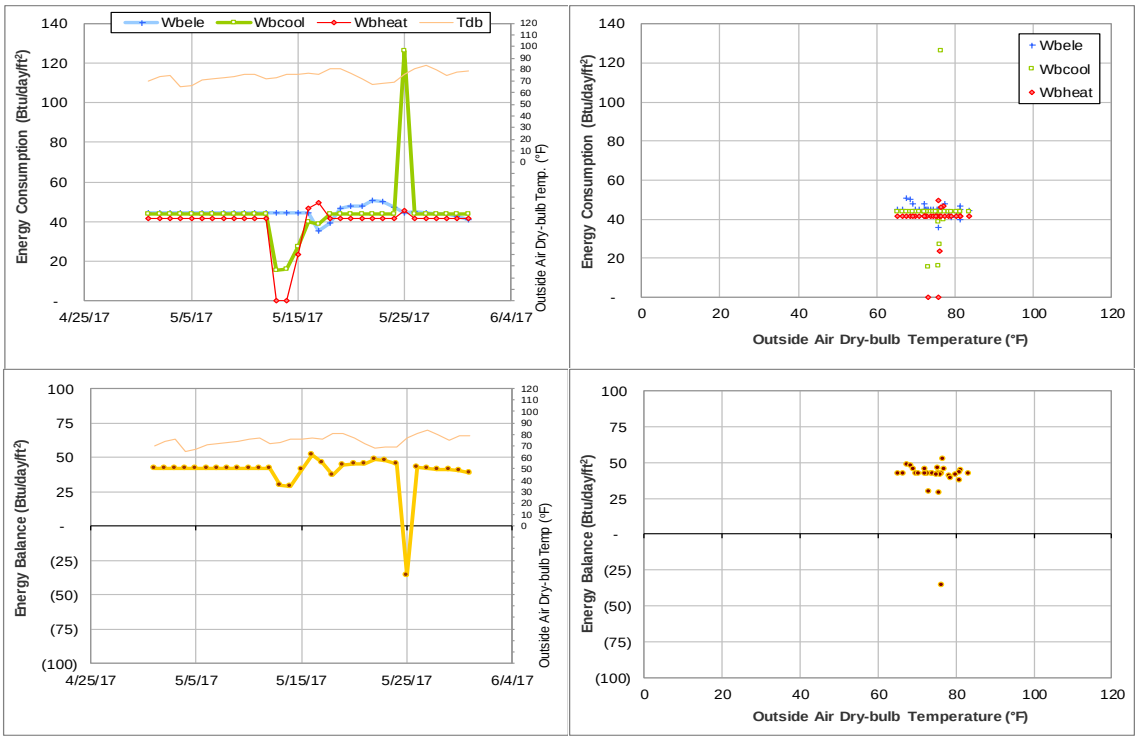


Figure V-8 Utay Hall - Dorm 12 TAMU BLDG # 411 Energy Balance Plot during May 2017

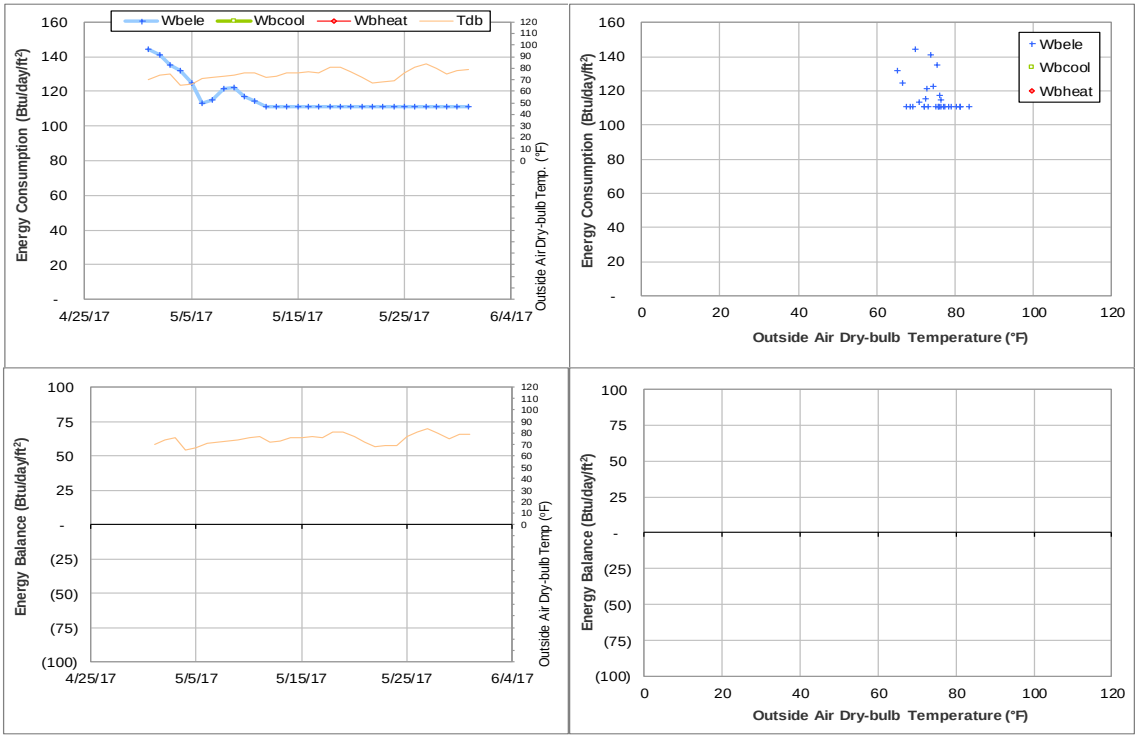


Figure V-9 Architecture Building C TAMU BLDG # 432 Energy Balance Plot during May 2017

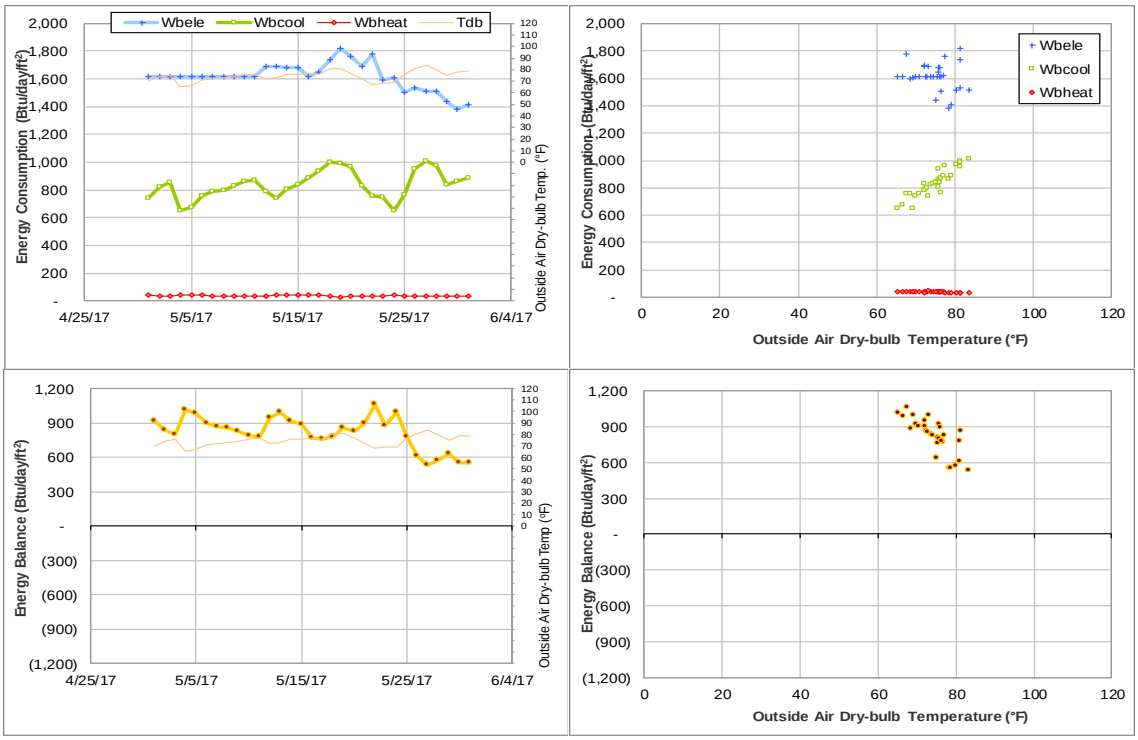


Figure V-10 Luedecke Building (Cyclotron) TAMU BLDG # 434 Energy Balance Plot during May 2017

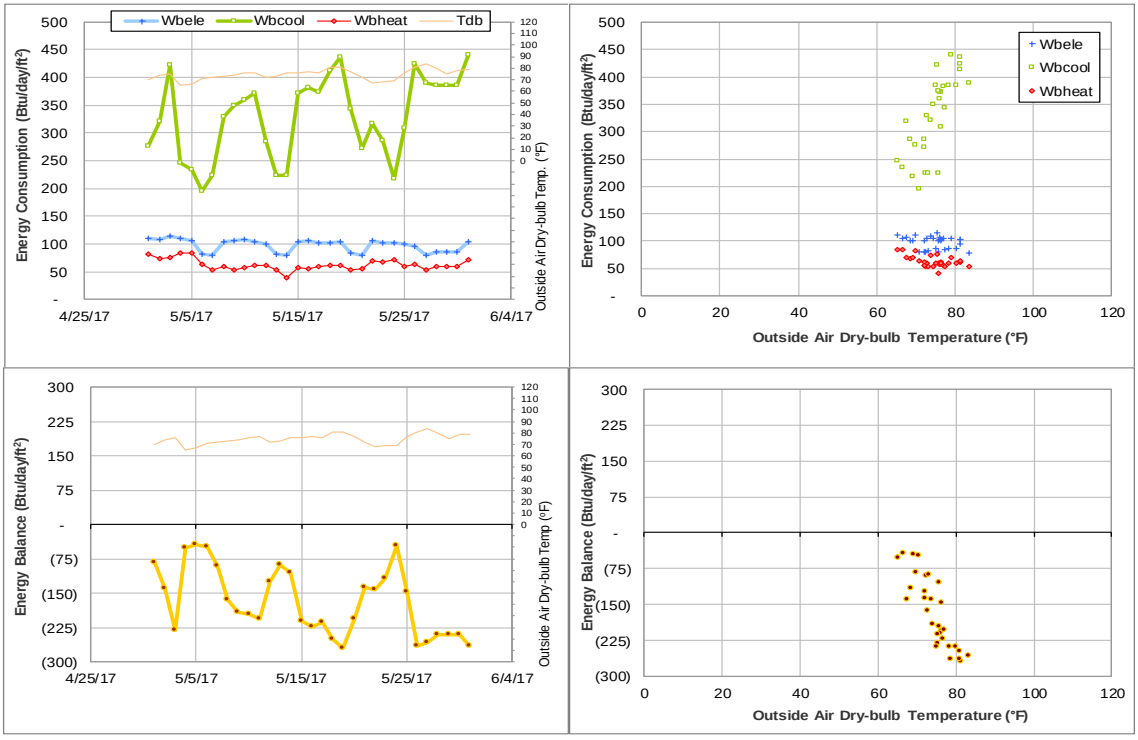


Figure V-11 Teague Research Center and DPC Annex TAMU BLDG # 445 Energy Balance Plot during May 2017

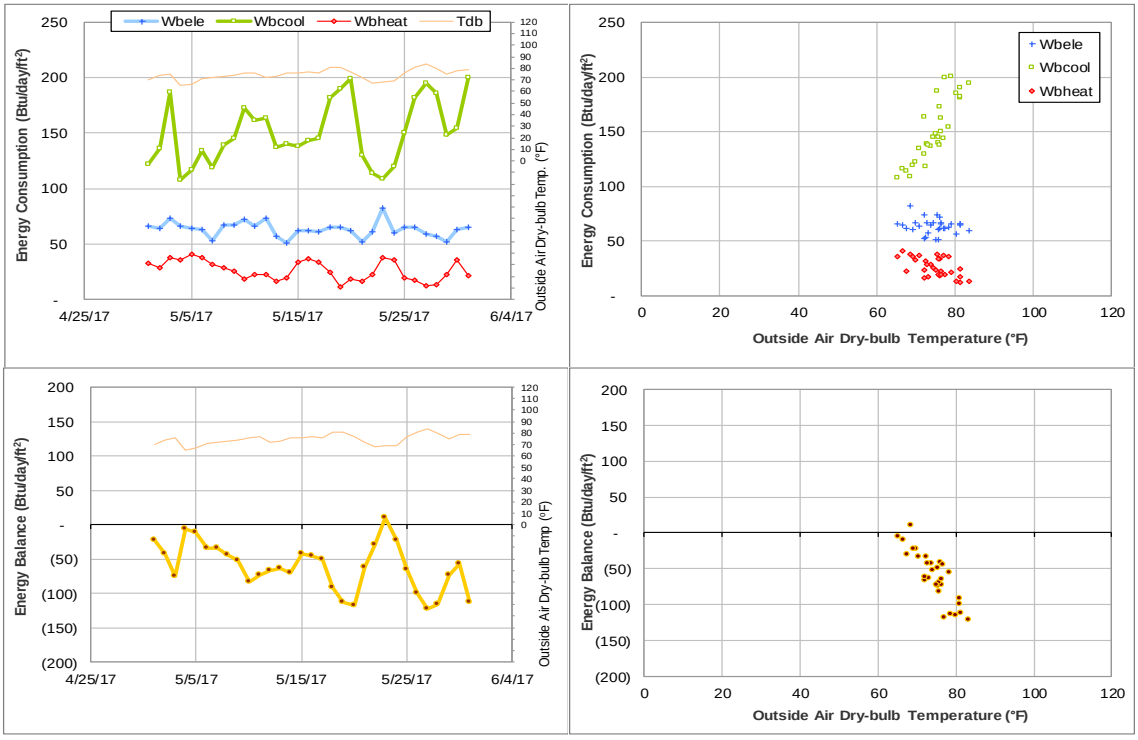


Figure V-12 Rudder Tower and Theatre Complex TAMU BLDG # 446 Energy Balance Plot during May 2017

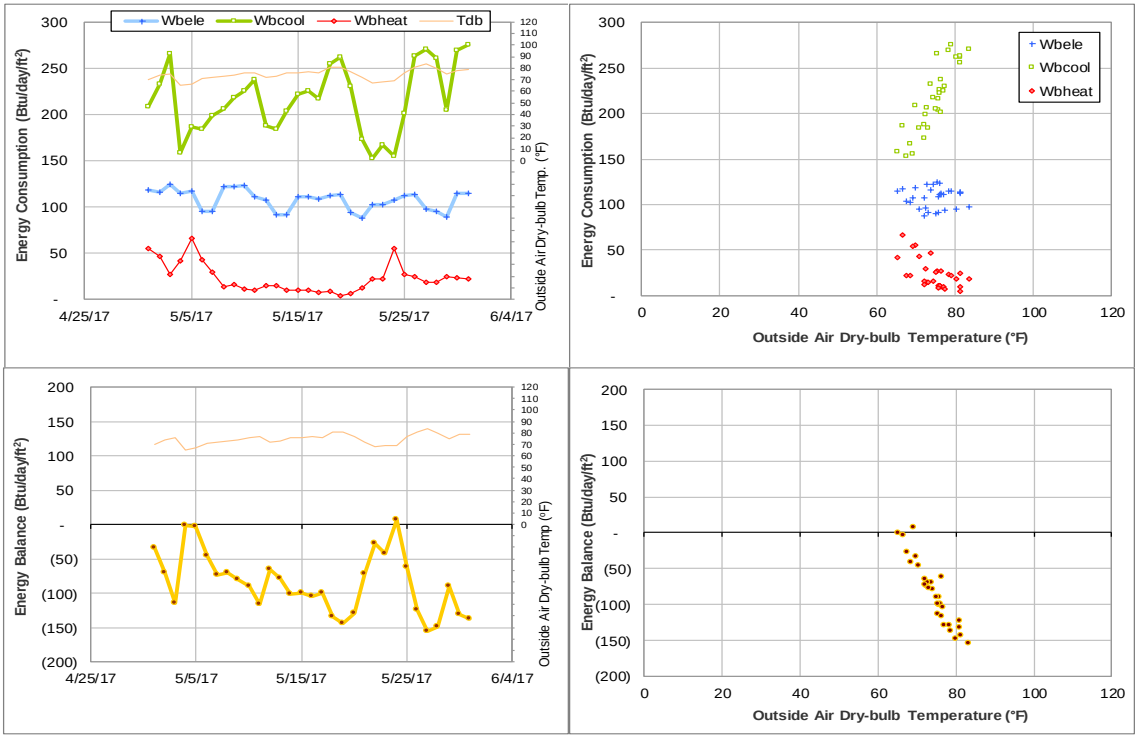


Figure V-13 Rudder Tower TAMU BLDG # 446 Energy Balance Plot during May 2017

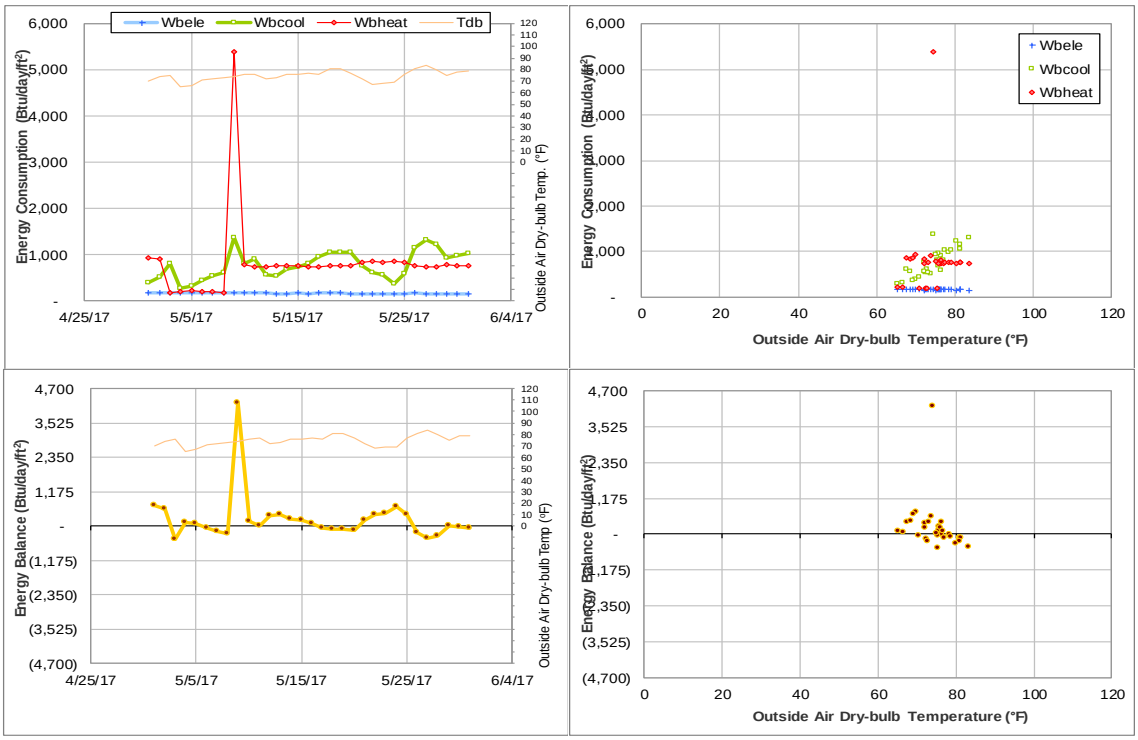


Figure V-14 Chemistry Building TAMU BLDG # 484 Energy Balance Plot during May 2017

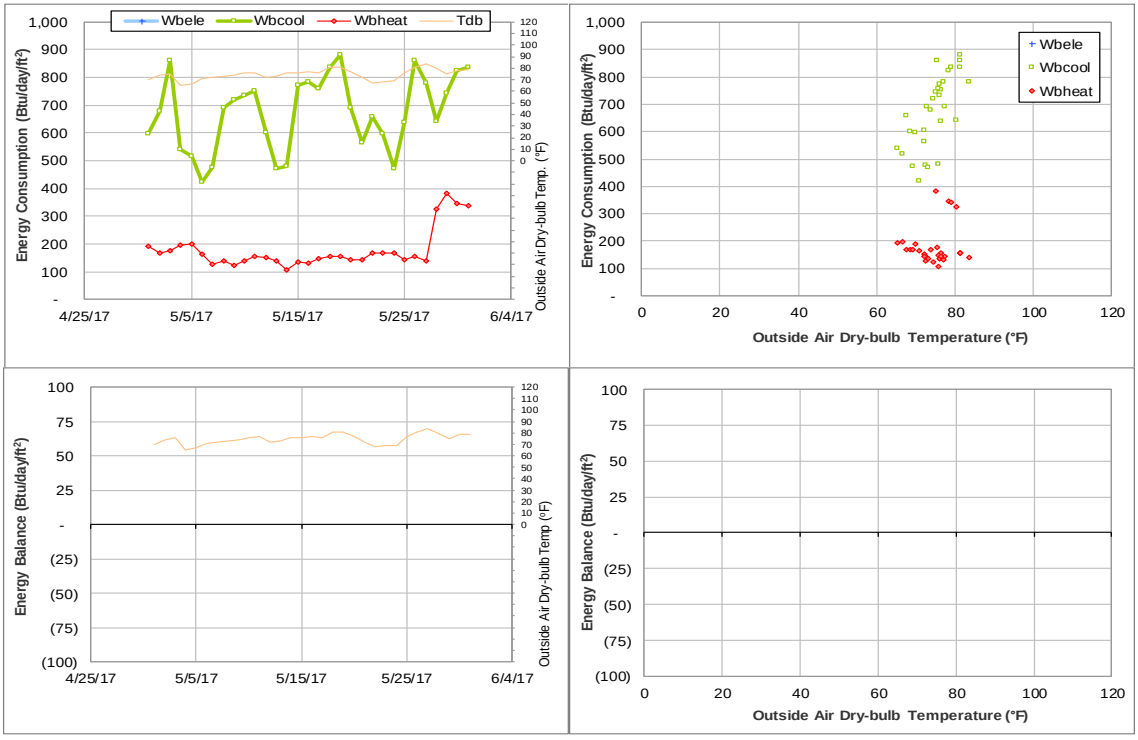


Figure V-15 DPC Annex TAMU BLDG # 517 Energy Balance Plot during May 2017

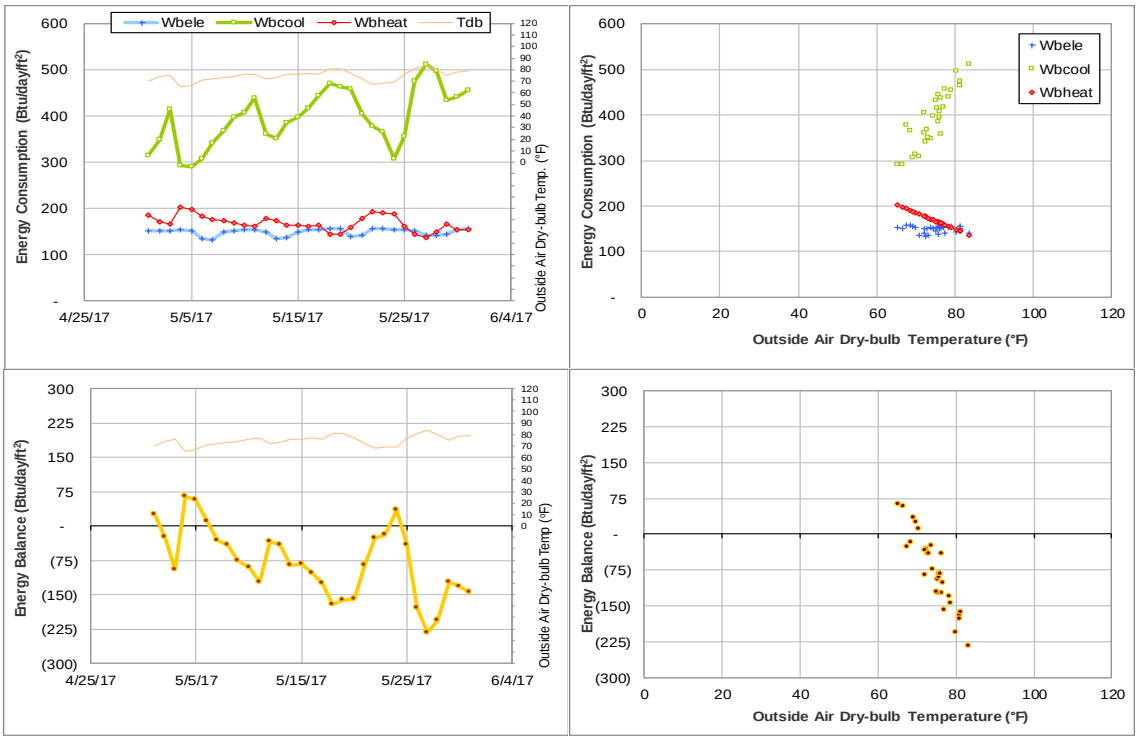


Figure V-16 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during May 2017

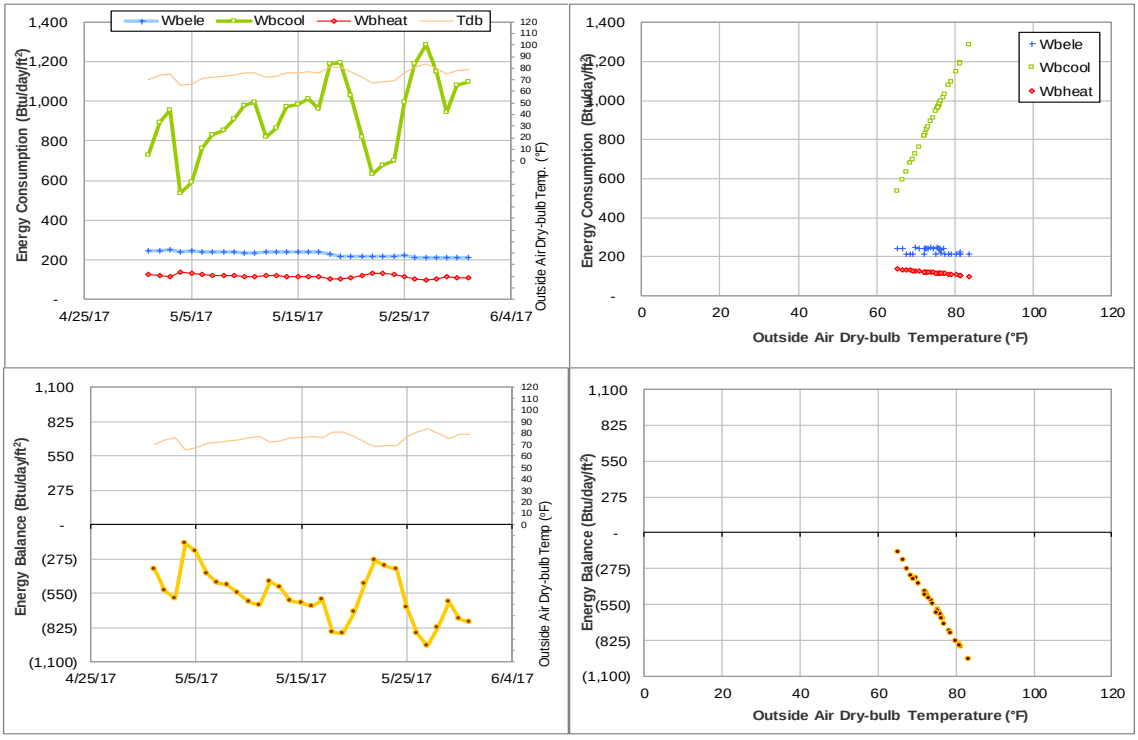


Figure V-17 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during May 2017

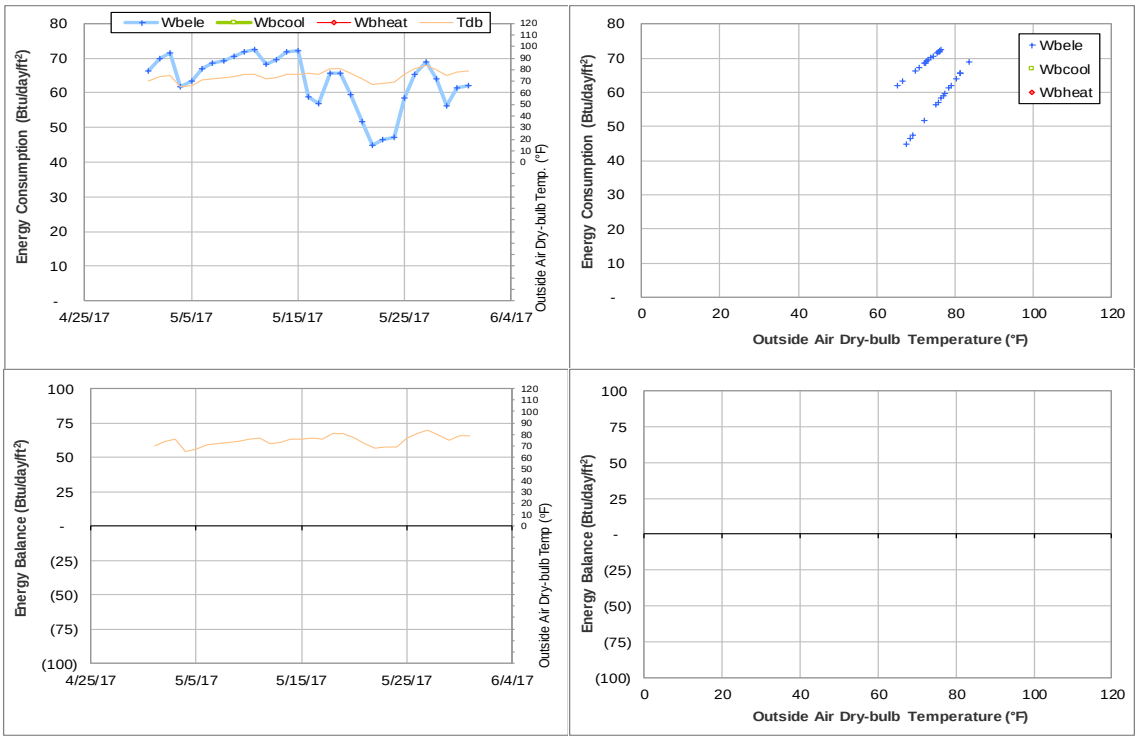


Figure V-18 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during May 2017

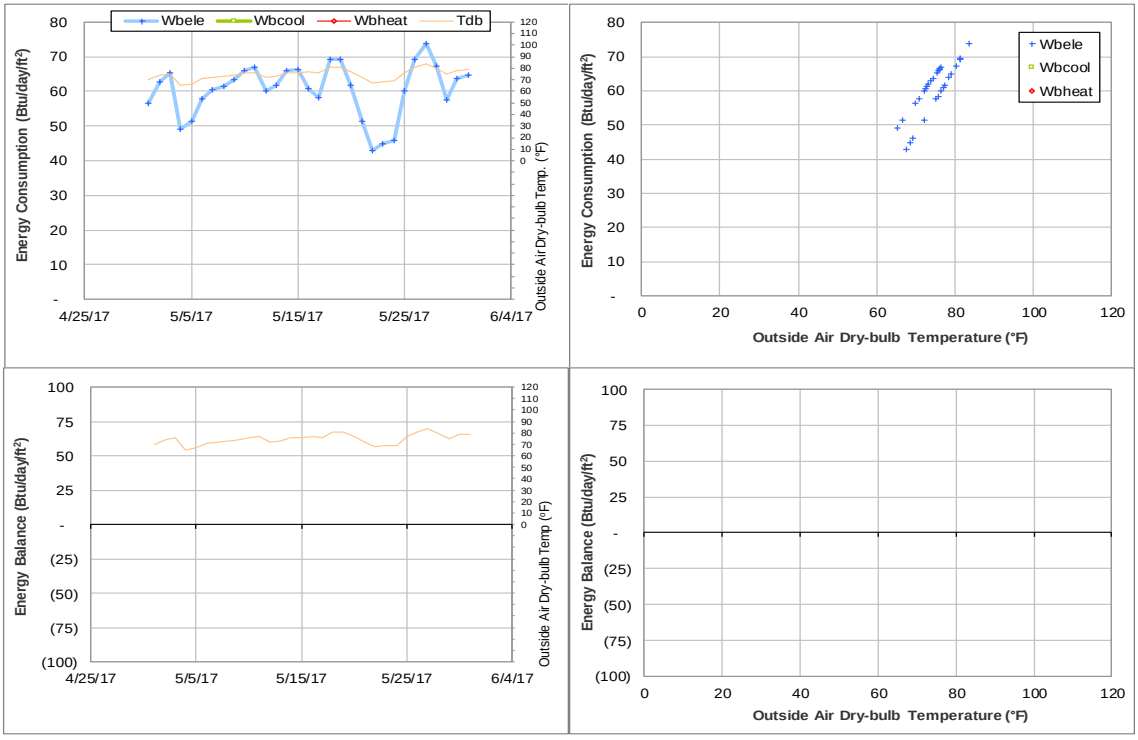


Figure V-19 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during May 2017

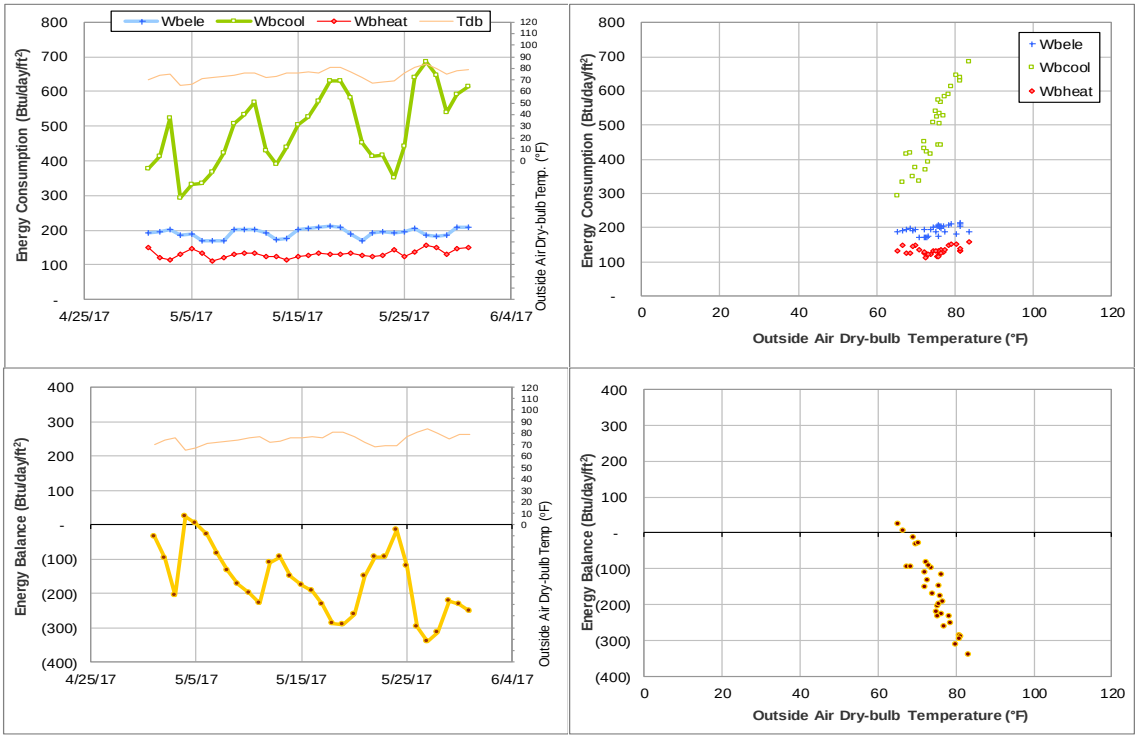


Figure V-20 Reynolds Medical Sciences Building TAMU BLDG # 1504 Energy Balance Plot during May 2017

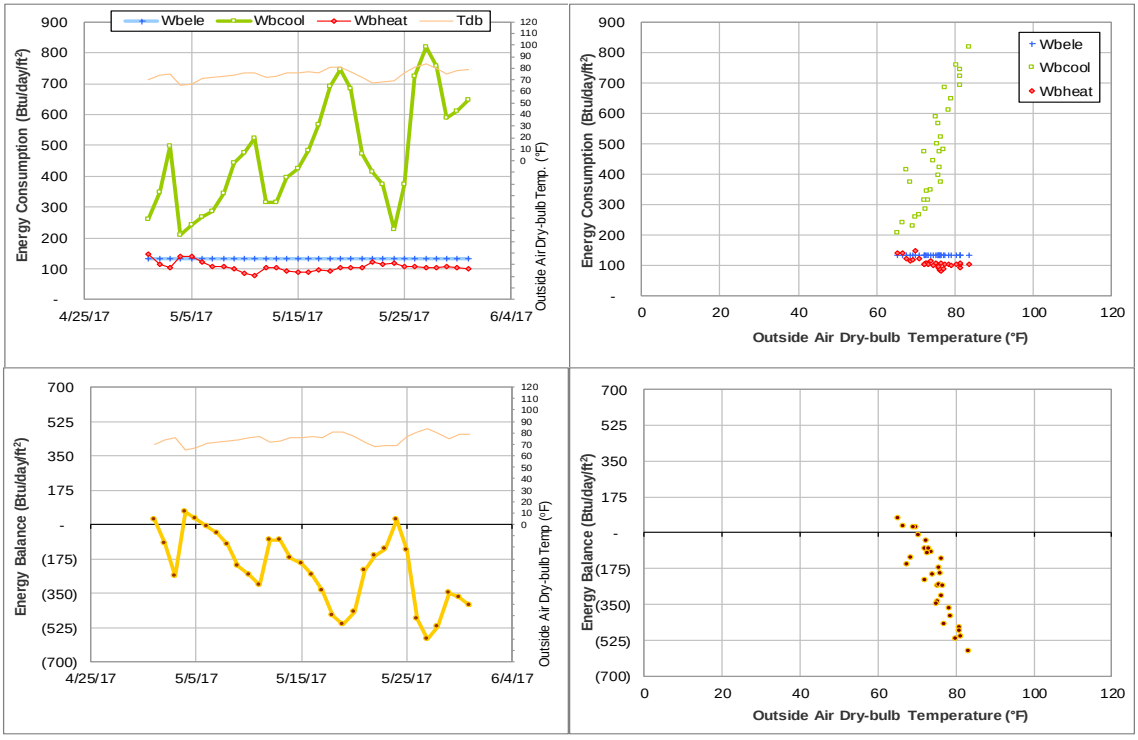


Figure V-21 Agriculture Public Building TAMU BLDG # 1537 Energy Balance Plot during May 2017

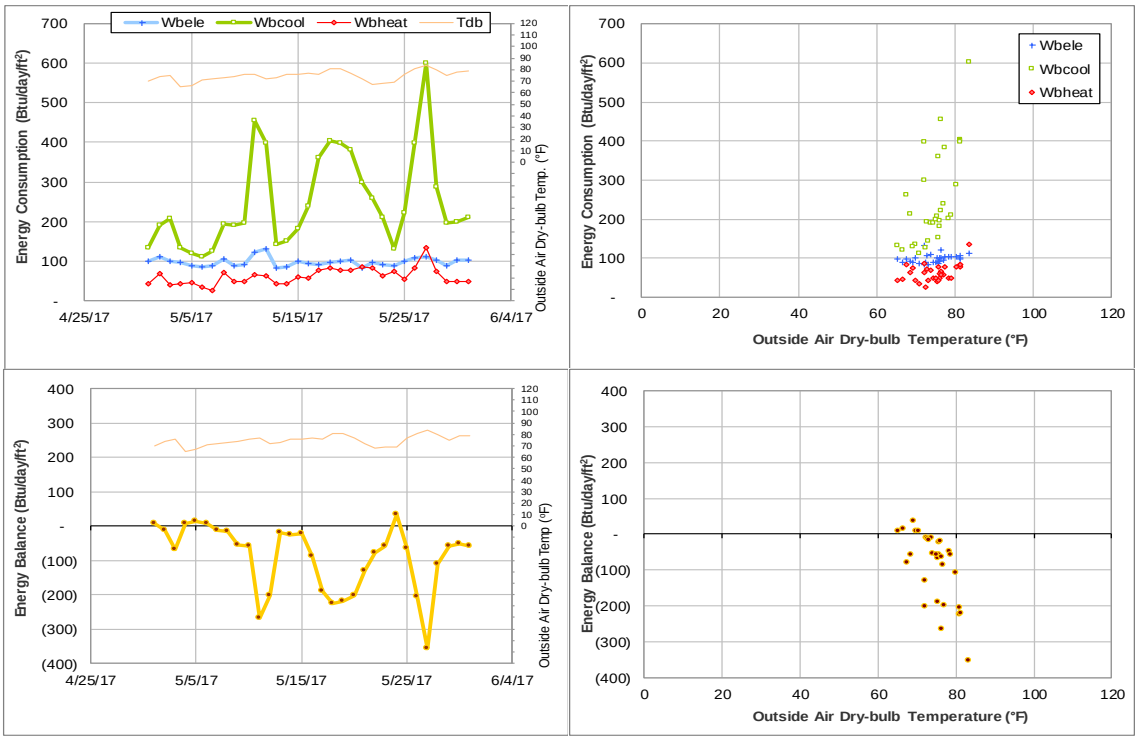


Figure V-22 Reed Arena and Cox-McFerrin Center TAMU BLDG # 1554 Energy Balance Plot during May 2017

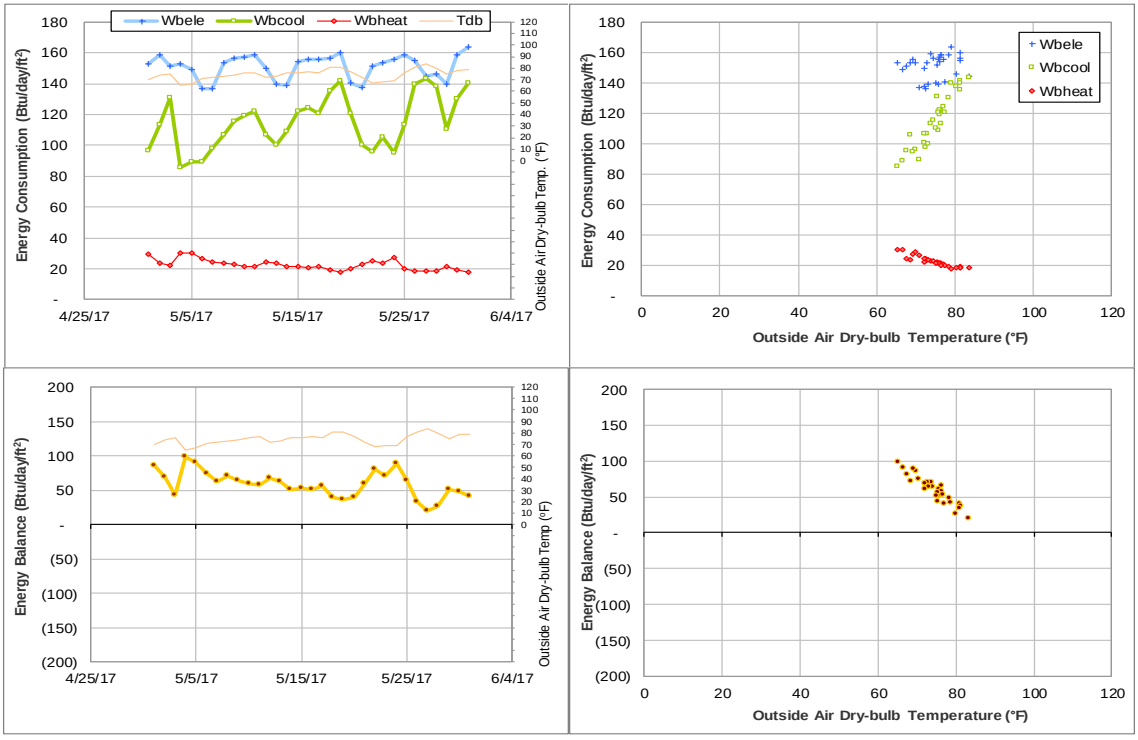


Figure V-23 International Ocean Discovery Building TAMU BLDG # 1601 Energy Balance Plot during May 2017

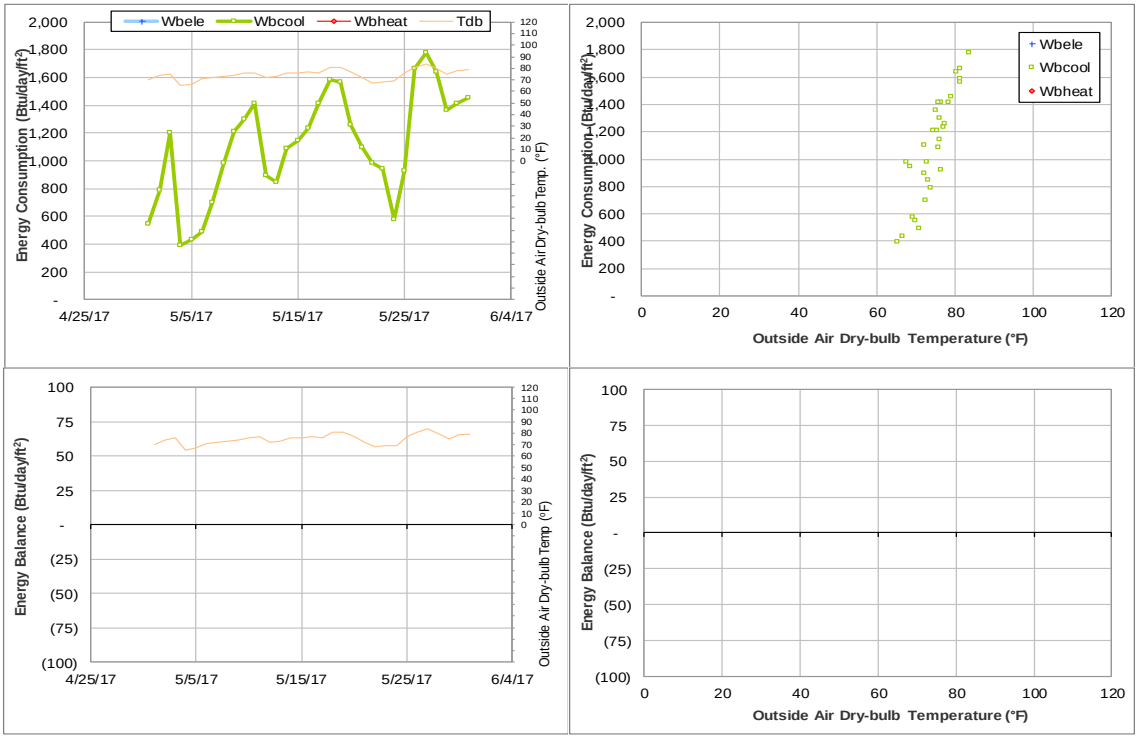


Figure V-24 New TVMDL TAMU BLDG # 1809 Energy Balance Plot during May 2017

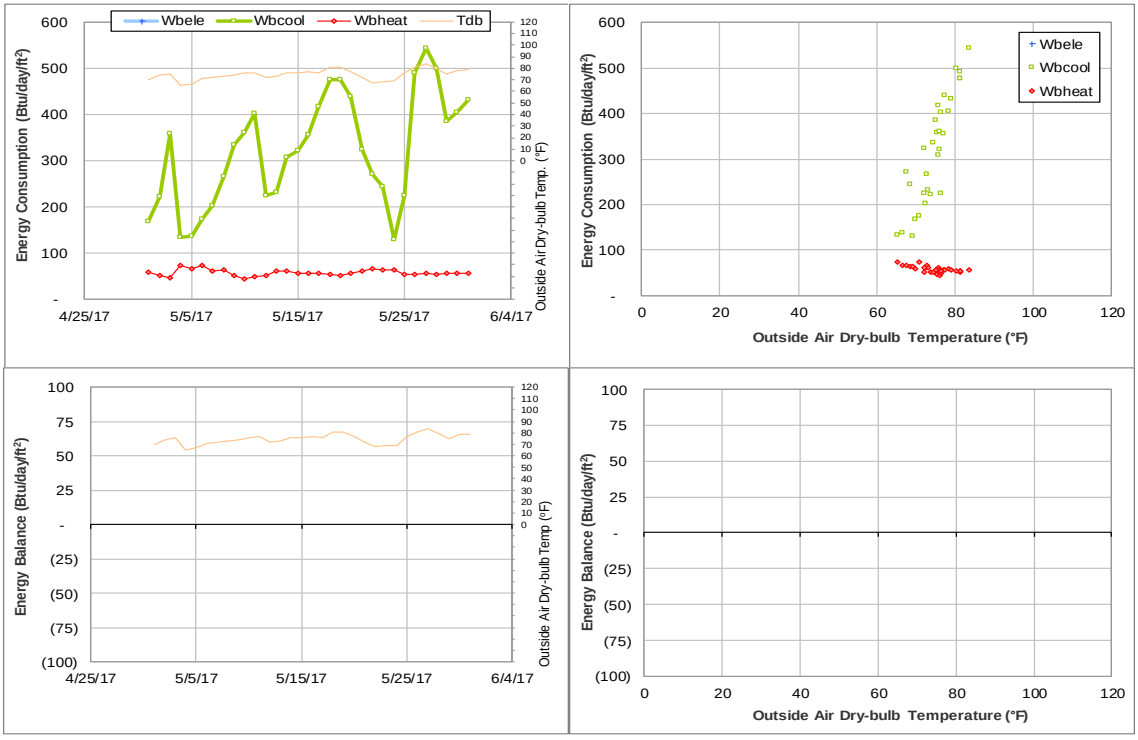


Figure V-25 Veterinary Medicine Building 1, 2, and 3 TAMU BLDG # 1812 Energy Balance Plot during May 2017

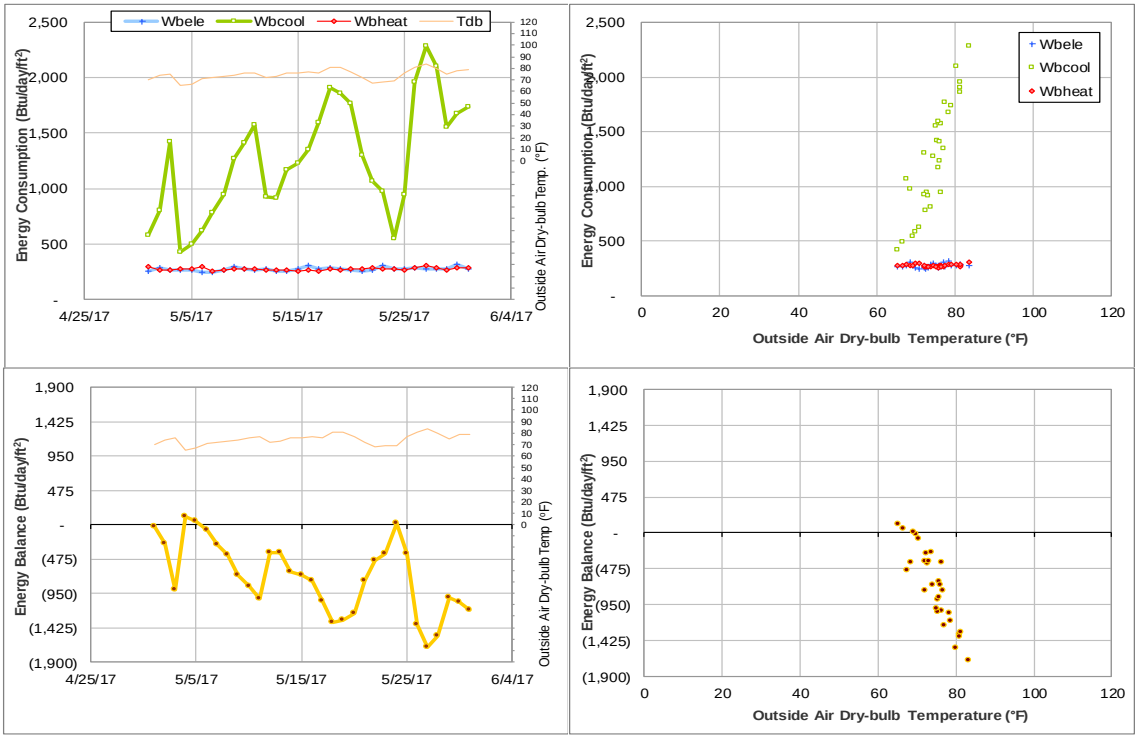


Figure V-26 Texas Institute for Genomic Medicine TAMU BLDG # 1900 Energy Balance Plot during May 2017

VI. Appendix

ENERGY ANALYSIS GROUP

ENERGY SYSTEMS LABORATORY
TEXAS A&M ENGINEERING EXPERIMENT STATION

Project: TAMU: Energy Analysis*

Report: Energy Consumption Data Quality Assurance/Quality Control Assessment Report for the Month of May 2017

Prepared for:

Utility & Energy Services

Division of Administration

Texas A&M University

Authors: Xiaoli Li, Kimberly Jones, Hongxiang Fu, Alaina Ruffin

Dr. Juan-Carlos Baltazar, and Dr. David Claridge

Date: June 2017

* For information on TAMU project please contact the Team Manager Dr. Juan-Carlos Baltazar