



TAMU Project

**Energy Consumption Data Quality Assurance/Quality
Control Assessment Report for the
Month of July 2017**

Prepared for

**Utility & Energy Services
Division of Administration
Texas A&M University**

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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 July 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	181,499	kWh	
0270	Emerging Technologies Building	305,316	007470	ELE	46,420	kWh	
0270	Emerging Technologies Building	305,316	007471	CHW	3,796,466	mBtu	
0270	Emerging Technologies Building	305,316	007475	HHW	228,170	mBtu	
0275	Liberal Arts and Arts & Humanities Building	107,500	007715	ELE	48,404	kWh	
0275	Liberal Arts and Arts & Humanities Building	107,500	007716	CHW	583,275	mBtu	
0275	Liberal Arts and Arts & Humanities Building	107,500	007717	HHW	25,742	mBtu	
0290	Wells Residence Hall	67,283	006870	ELE	36,239	kWh	
0290	Wells Residence Hall	67,283	001984	CHW	1,070,028	mBtu	(2)
0290	Wells Residence Hall	67,283	001988	HHW	371,485	mBtu	(2)
0291	Rudder Residence Hall	67,283	000351	ELE	20,067	kWh	*, (3)
0291	Rudder Residence Hall	67,283	002132	CHW	NA	mBtu	*, (3)
0291	Rudder Residence Hall	67,283	002136	HHW	NA	mBtu	*, (3)
0292	Eppright Residence Hall	67,283	000002	ELE	39,707	kWh	
0292	Eppright Residence Hall	67,283	002262	CHW	759,499	mBtu	(2)
0292	Eppright Residence Hall	67,283	002266	HHW	277,431	mBtu	(2)
0293	Appelt Residence Hall	82,767	000003	ELE	43,052	kWh	
0293	Appelt Residence Hall	82,767	002062	CHW	938,372	mBtu	(2)
0293	Appelt Residence Hall	82,767	002066	HHW	271,551	mBtu	(2)
0294	Lechner Residence Hall	59,541	000004	ELE	37,561	kWh	
0294	Lechner Residence Hall	59,541	002285	CHW	730,940	mBtu	#, (1)
0294	Lechner Residence Hall	59,541	002289	HHW	427,673	mBtu	#, (1), (2)
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006536	ELE	116,798	kWh	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006537	ELE	101,802	kWh	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006534	CHW	1,746,393	mBtu	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006535	HHW	225,906	mBtu	
0353	Bright Aerospace Building	148,837	001569	ELE	153,396	kWh	
0353	Bright Aerospace Building	148,837	002746	CHW	1,778,157	mBtu	(2)
0353	Bright Aerospace Building	148,837	002757	HHW	43,517	mBtu	
0358	Davis Football Player Development Center	20,026	007699	ELE	31,887	kWh	
0358	Davis Football Player Development Center	20,026	007701	CHW	340,478	mBtu	
0358	Davis Football Player Development Center	20,026	007702	HHW	1,903	mBtu	
0361	Bright Football Complex	124,971	008461	ELE	191,764	kWh	
0361	Bright Football Complex	124,971	002547	CHW	2,036,122	mBtu	(2)
0361	Bright Football Complex	124,971	002551	HHW	76,100	mBtu	
0367	Kyle Field	489,000	000336	ELE	161,606	kWh	
0367	Kyle Field	489,000	008861	ELE	86,345	kWh	
0367	Kyle Field	489,000	008862	ELE	125,947	kWh	
0367	Kyle Field	489,000	008863	ELE	187,733	kWh	
0367	Kyle Field	489,000	008864	ELE	158,280	kWh	
0367	Kyle Field	489,000	008865	ELE	63,804	kWh	
0367	Kyle Field	489,000	008866	ELE	113,316	kWh	
0367	Kyle Field	489,000	008867	ELE	173,300	kWh	
0367	Kyle Field	489,000	008868	ELE	111,604	kWh	
0367	Kyle Field	489,000	008852	CHW	2,469,256	mBtu	
0367	Kyle Field	489,000	008026	CHW	5,904,651	mBtu	
0367	Kyle Field	489,000	008856	HHW	9,649	mBtu	
0367	Kyle Field	489,000	008027	HHW	893,910	mBtu	
0376	Chemistry Building Addition	115,797	006229	ELE	190,116	kWh	
0376	Chemistry Building Addition	115,797	006230	ELE	100,803	kWh	
0376	Chemistry Building Addition	115,797	007115	CHW	5,040,346	mBtu	
0376	Chemistry Building Addition	115,797	007119	HHW	486,157	mBtu	
0383	Koldus Building	110,272	001488	ELE	166,810	kWh	
0383	Koldus Building	110,272	002863	CHW	923,546	mBtu	
0383	Koldus Building	110,272	002874	HHW	140,035	mBtu	#, (1)
0384	Sanders Corps of Cadets Center	19,363	001554	ELE	23,619	kWh	
0384	Sanders Corps of Cadets Center	19,363	002583	CHW	276,783	mBtu	
0384	Sanders Corps of Cadets Center	19,363	002587	HHW	70,406	mBtu	
0325-0385	CE TTI Office & Lab Building	157,844	009122	ELE	155,644	kWh	
0325-0385	CE TTI Office & Lab Building	157,844	009123	CHW	1,647,682	mBtu	#, (1)
0325-0385	CE TTI Office & Lab Building	157,844	009124	HHW	64,107	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	001428	ELE	150,844	kWh	
0386	Jack E. Brown Chemical Engineering Building	205,000	001429	ELE	345,827	kWh	
0386	Jack E. Brown Chemical Engineering Building	205,000	002250	CHW	5,774,647	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	006871	CHW	117,300	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	002254	HHW	551,474	mBtu	
0387	Richardson Petroleum Engineering Building	113,700	005870	ELE	81,505	kWh	
0387	Richardson Petroleum Engineering Building	113,700	005872	ELE	101,239	kWh	
0387	Richardson Petroleum Engineering Building	113,700	005805	CHW	2,025,764	mBtu	
0387	Richardson Petroleum Engineering Building	113,700	005809	HHW	197,665	mBtu	
0391-0392	James J. Cain '51 and Mechanical Engineering Office Building	173,481	001573	ELE	206,244	kWh	
0391-0392	James J. Cain '51 and Mechanical Engineering Office Building	173,481	002906	CHW	1,883,319	mBtu	
0391-0392	James J. Cain '51 and Mechanical Engineering Office Building	173,481	002910	HHW	162,450	mBtu	

Table I-1 July 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	48,772	kWh	
0394	Underwood Residence Hall	81,730	002117	CHW	769,516	mBtu	(2)
0394	Underwood Residence Hall	81,730	002121	HHW	75,470	mBtu	(2)
0398	Langford Architecture Center Building A	116,619	003806	ELE	96,553	kWh	
0398	Langford Architecture Center Building A	116,619	003951	CHW	1,139,276	mBtu	(2)
0398	Langford Architecture Center Building A	116,619	003955	HHW	74,671	mBtu	(2)
0400-0402-1405	Spence Hall, Briggs Hall, and Ash II LLC	108,555	009386	ELE	71,424	kWh	
0400	Spence Hall Dorm 1	38,907	009290	ELE	11,306	kWh	
0400	Spence Hall Dorm 1	38,907	009291	ELE	12,566	kWh	
0400-1405	Spence Hall and Ash II LLC	72,038	009292	CHW	709,557	mBtu	
0400-1405	Spence Hall and Ash II LLC	72,038	009296	HHW	81,659	mBtu	
1405	Ash II LLC	33,131	009387	CHW	345,545	mBtu	(2)
1405	Ash II LLC	33,131	009391	HHW	51,263	mBtu	(2)
0402	Briggs Hall Dorm 3	36,517	009322	ELE	14,188	kWh	
0402	Briggs Hall Dorm 3	36,517	009323	ELE	7,520	kWh	
0402	Briggs Hall Dorm 3	36,517	009324	CHW	598,267	mBtu	#, (1)
0402	Briggs Hall Dorm 3	36,517	009328	HHW	56,347	mBtu	
0401-0403-1404	Kiest Hall, Fountain Hall, and Plank LLC	108,752	009370	ELE	67,489	kWh	
0401	Kiest Hall Dorm 2	38,815	009306	ELE	10,738	kWh	
0401	Kiest Hall Dorm 2	38,815	009307	ELE	9,411	kWh	
0401-1404	Kiest Hall, and Plank LLC	72,052	009308	CHW	967,187	mBtu	#, (1)
0401-1404	Kiest Hall, and Plank LLC	72,052	009312	HHW	269,260	mBtu	#, (1)
1404	Plank LLC	33,237	009372	CHW	578,516	mBtu	#, (1)
1404	Plank LLC	33,237	009376	HHW	199,018	mBtu	#, (1)
0403	Fountain Hall Dorm 4	36,700	009338	ELE	12,047	kWh	
0403	Fountain Hall Dorm 4	36,700	009339	ELE	8,718	kWh	
0403	Fountain Hall Dorm 4	36,700	009340	CHW	419,669	mBtu	
0403	Fountain Hall Dorm 5	36,700	009344	HHW	60,510	mBtu	
0404-0406-1403	Gainer Hall, Leonard Hall and Ash LLC	90,072	009401	ELE	58,269	kWh	
0406-1403	Leonard Hall - Dorm 7 and Ash LLC	53,508	007982	CHW	712,175	mBtu	
0406-1403	Leonard Hall - Dorm 7 and Ash LLC	53,508	007983	HHW	43,605	mBtu	
0406	Leonard Hall - Dorm 7	36,222	008011	ELE	12,744	kWh	
0406	Leonard Hall - Dorm 7	36,222	008012	ELE	11,168	kWh	
1403	H. Grady Ash, Jr. '58 Leadership Learning Center	17,286	008005	CHW	259,148	mBtu	
1403	H. Grady Ash, Jr. '58 Leadership Learning Center	17,286	008006	HHW	2,190	mBtu	
0404	Gainer Hall Dorm 5	36,564	009354	ELE	10,654	kWh	
0404	Gainer Hall Dorm 5	36,564	009355	ELE	7,311	kWh	
0404	Gainer Hall Dorm 5	36,564	009356	CHW	556,380	mBtu	#, (1)
0404	Gainer Hall Dorm 5	36,564	009360	HHW	46,079	mBtu	#, (1)
0405-0407-1402	Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center	91,310	007721	ELE	63,352	kWh	
0407-1402	Harrell Hall - Dorm 8 and Buzbee LLC	54,443	007722	CHW	756,621	mBtu	
0407-1402	Harrell Hall - Dorm 8 and Buzbee LLC	54,443	007723	HHW	8,344	mBtu	
0405	Lacy Hall - Dorm 6	36,867	007922	ELE	23,140	kWh	
0405	Lacy Hall - Dorm 6	36,867	007918	CHW	431,509	mBtu	
0405	Lacy Hall - Dorm 6	36,867	007919	HHW	67,078	mBtu	
0407	Harrell Hall - Dorm 8	36,943	007729	ELE	22,897	kWh	
1402	Buzbee Leadership Learning Center	17,500	007725	CHW	446,648	mBtu	
1402	Buzbee Leadership Learning Center	17,500	007726	HHW	2,362	mBtu	
0408	Whitely Hall - Dorm 9	36,893	009911	ELE	30,578	kWh	
0408	Whitely Hall - Dorm 9	36,893	009912	CHW	523,902	mBtu	*, #, (1), (2)
0408	Whitely Hall - Dorm 9	36,893	009916	HHW	36,964	mBtu	*, #, (1), (2)
0409	White Hall - Dorm 10	36,893	009924	ELE	23,734	kWh	
0409	White Hall - Dorm 10	36,893	009925	CHW	519,016	mBtu	*, (2)
0409	White Hall - Dorm 10	36,893	009929	HHW	65,177	mBtu	*, (2)
0410	Harrington Hall - Dorm 11	36,893	009937	ELE	22,035	kWh	
0410	Harrington Hall - Dorm 11	36,893	009938	CHW	432,657	mBtu	*, (2)
0410	Harrington Hall - Dorm 11	36,893	009942	HHW	21,369	mBtu	*, (2)
0411	Utay Hall - Dorm 12	36,943	009950	ELE	24,499	kWh	
0411	Utay Hall - Dorm 12	36,943	009951	CHW	383,056	mBtu	*, (2)
0411	Utay Hall - Dorm 12	36,943	009955	HHW	14,959	mBtu	*, (2)
0412	Moses Residence Hall	40,828	000027	ELE	30,449	kWh	
0412	Moses Residence Hall	40,828	002384	CHW	721,519	mBtu	
0412	Moses Residence Hall	40,828	002395	HHW	141,615	mBtu	(2)
0415	Davis-Gary Residence Hall	40,828	000030	ELE	32,722	kWh	
0415	Davis-Gary Residence Hall	40,828	002532	CHW	631,314	mBtu	
0415	Davis-Gary Residence Hall	40,828	002543	HHW	163,367	mBtu	(2)
0419	Legett Residence Hall	45,134	000031	ELE	11,648	kWh	(2)
0419	Legett Residence Hall	45,134	002218	CHW	432,931	mBtu	#, (1), (2)
0419	Legett Residence Hall	45,134	002222	HHW	55,115	mBtu	#, (1), (2)
0420	Milner Hall	48,268	009144	ELE	26,670	kWh	
0420	Milner Hall	48,268	009145	CHW	379,387	mBtu	
0420	Milner Hall	48,268	009146	HHW	35,781	mBtu	
0422	Walton Residence Hall	51,494	000378	ELE	104,473	kWh	
0422	Walton Residence Hall	51,494	002364	HHW	35,187	mBtu	(2)

Table I-1 July 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	14,534	kWh	
0424	Hotard Hall	18,500	002657	CHW	242,621	mBtu	
0424	Hotard Hall	18,500	002668	HHW	57,235	mBtu	
0425	Henderson Hall	22,185	001553	ELE	16,936	kWh	
0425	Henderson Hall	22,185	002607	CHW	301,537	mBtu	
0425	Henderson Hall	22,185	002611	HHW	60,686	mBtu	
0426-0427-0428	FHK Complex	154,349	000331	ELE	107,137	kWh	
0426-0427-0428	FHK Complex	154,349	002848	CHW	1,793,540	mBtu	
0426-0427-0428	FHK Complex	154,349	002859	HHW	148,107	mBtu	
0430	Schumacher Residence Hall	38,957	000034	ELE	27,852	kWh	
0430	Schumacher Residence Hall	38,957	002015	CHW	488,322	mBtu	
0430	Schumacher Residence Hall	38,957	002030	HHW	13,558	mBtu	
0359	Architecture Building B	28,545	005518	ELE	19,089	kWh	
0432	Architecture Building C	73,020	005584	ELE	80,446	kWh	
0359-0432	Architecture Building B&C	101,565	006419	CHW	973,718	mBtu	
0359-0432	Architecture Building B&C	101,565	006423	HHW	173,709	mBtu	
0434	Luedcke Building (Cyclotron)	80,646	005555	ELE	122,393	kWh	
0434	Luedcke Building (Cyclotron)	80,646	005558	ELE	1,145,803	kWh	
0434	Luedcke Building (Cyclotron)	80,646	006664	CHW	2,834,952	mBtu	
0434	Luedcke Building (Cyclotron)	80,646	006668	HHW	179,912	mBtu	
0435	Harrington Education Center Office Tower	130,844	001546	ELE	122,181	kWh	
0435	Harrington Education Center Office Tower	130,844	002792	CHW	1,342,543	mBtu	
0435	Harrington Education Center Office Tower	130,844	002796	HHW	316,695	mBtu	
0436	Reed-McDonald Building	77,435	006868	ELE	92,776	kWh	
0436	Reed-McDonald Building	77,435	002419	CHW	2,570,459	mBtu	
0436	Reed-McDonald Building	77,435	002423	HHW	274,764	mBtu	
0438	Harrington Education Center Classroom Building	61,860	003630	ELE	37,343	kWh	
0438	Harrington Education Center Classroom Building	61,860	002784	CHW	373,765	mBtu	
0438	Harrington Education Center Classroom Building	61,860	002788	HHW	178	mBtu	
0433-0440-0441-0442-0447	Mosher Commons Krueger Dunn Aston	577,584	009099	ELE	199,213	kWh	
0433	Mosher Residence Hall	155,430	009083	ELE	55,411	kWh	(2)
0433	Mosher Residence Hall	155,430	002485	CHW	NA	mBtu	* (3)
0433	Mosher Residence Hall	155,430	002489	HHW	NA	mBtu	* (3)
0440-0441	Commons Krueger	196,633	009833	ELE	94,882	kWh	
0440	Commons Hall	84,500	009237	CHW	1,073,009	mBtu	
0440	Commons Hall	84,500	009238	HHW	97,231	mBtu	
0441	Krueger Residence Hall	112,133	009091	ELE	26,945	kWh	
0441	Krueger Residence Hall	112,133	009828	ELE	20,774	kWh	
0441	Krueger Residence Hall	112,133	002504	CHW	NA	mBtu	* (3)
0441	Krueger Residence Hall	112,133	002500	HHW	NA	mBtu	* (3)
0442	Dunn Residence Hall	112,133	009095	ELE	63,848	kWh	
0442	Dunn Residence Hall	112,133	002519	CHW	968,022	mBtu	#, (1) (2)
0442	Dunn Residence Hall	112,133	002515	HHW	194,018	mBtu	(1)
0447	Aston Residence Hall	113,388	009087	ELE	52,999	kWh	
0447	Aston Residence Hall	113,388	002474	CHW	1,330,241	mBtu	#, (1)
0447	Aston Residence Hall	113,388	002470	HHW	313,623	mBtu	#, (1)
0443	Oceanography & Meteorology Building	180,316	005322	ELE	192,245	kWh	
0443	Oceanography & Meteorology Building	180,316	005323	ELE	68,564	kWh	
0443	Oceanography & Meteorology Building	180,316	006388	CHW	1,823,970	mBtu	#, (1) (2)
0443	Oceanography & Meteorology Building	180,316	006392	HHW	212,814	mBtu	(2)
0444	Peterson Building	84,831	004714	ELE	170,867	kWh	
0444	Peterson Building	84,831	002922	CHW	1,574,106	mBtu	
0444	Peterson Building	84,831	006435	HHW	142,817	mBtu	
0445-0517	Teague Research Center and DPC Annex	89,735	003948	ELE	23,676	kWh	
0445-0517	Teague Research Center and DPC Annex	89,735	004719	ELE	54,352	kWh	
0445	Teague Research Center	63,515	006411	CHW	527,822	mBtu	
0445	Teague Research Center	63,515	006415	HHW	30,139	mBtu	
0517	DPC Annex	26,220	006563	CHW	761,311	mBtu	
0517	DPC Annex	26,220	006567	HHW	99,502	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	2,291,243	mBtu	#, (1)
0446	Rudder Theatre Complex	209,293	004309	HHW	829,689	mBtu	#, (1)
0446	Rudder Tower	92,947	001550	ELE	38,717	kWh	
0446	Rudder Tower	92,947	001551	ELE	51,914	kWh	*
0446	Rudder Tower	92,947	002455	CHW	905,136	mBtu	
0446	Rudder Tower	92,947	002459	HHW	2,873	mBtu	
0448	Adams Band Hall	55,248	000978	ELE	51,474	kWh	
0448	Adams Band Hall	55,248	002555	CHW	605,069	mBtu	#, (1)
0448	Adams Band Hall	55,248	002566	HHW	290,705	mBtu	#, (1)
0449	Biological Sciences Building - West	96,038	003978	ELE	197,698	kWh	
0449	Biological Sciences Building - West	96,038	003981	CHW	1,942,133	mBtu	
0449	Biological Sciences Building - West	96,038	003985	HHW	193,702	mBtu	

Table I-1 July 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	72,899	kWh	
0450	Duncan Dining Hall	128,482	002998	CHW	978,071	mBtu	
0450	Duncan Dining Hall	128,482	003009	HHW	3,111	mBtu	
0454	MSC (East Main)	392,000	007600	ELE	272,667	kWh	
0454	MSC (West Main)	392,000	007601	ELE	187,895	kWh	
0454	MSC BOR	392,000	008047	ELE	21,568	kWh	
0454	MSC	392,000	007584	CHW	3,728,107	mBtu	
0454	MSC BOR	392,000	004184	CHW	617,003	mBtu	
0454	MSC	392,000	007585	HHW	201,336	mBtu	
0454	MSC BOR	392,000	004196	HHW	204,986	mBtu	
0456	Military Sciences Building	43,808	006939	CHW	644,486	mBtu	*
0456	Military Sciences Building	43,808	006943	HHW	159,746	mBtu	*
0457	TAES Annex Building	16,364	005863	ELE	14,033	kWh	
0457	TAES Annex Building	16,364	005913	CHW	127,957	mBtu	#, (1)
0457	TAES Annex Building	16,364	005917	HHW	25,671	mBtu	#, (1)
0461	Coke Building	24,466	004008	ELE	26,725	kWh	
0461	Coke Building	24,466	005307	CHW	177,585	mBtu	
0461	Coke Building	24,466	004023	HHW	466	mBtu	
0462	Academic Building	82,555	005861	ELE	16,438	kWh	
0462	Academic Building	82,555	005903	ELE	41,796	kWh	
0462	Academic Building	82,555	005905	CHW	704,609	mBtu	
0462	Academic Building	82,555	005909	HHW	140,315	mBtu	
0463	Psychology Building	48,215	001575	ELE	44,117	kWh	(2)
0463	Psychology Building	48,215	002941	CHW	762,124	mBtu	(2)
0463	Psychology Building	48,215	002945	HHW	16,280	mBtu	(2)
0464	State Chemist Building	20,027	005839	ELE	14,879	kWh	
0464	State Chemist Building	20,027	005837	ELE	10,949	mBtu	(2)
0464	State Chemist Building	20,027	005841	HHW	18,672	mBtu	
0465	Butler Hall	29,699	003997	ELE	36,572	kWh	
0465	Butler Hall	29,699	004000	CHW	483,966	mBtu	
0465	Butler Hall	29,699	004004	HHW	74,149	mBtu	
0467	Biological Sciences Building - East	62,273	001543	ELE	194,591	kWh	
0467	Biological Sciences Building - East	62,273	003851	CHW	1,308,918	mBtu	(2)
0467	Biological Sciences Building - East	62,273	003862	HHW	75,263	mBtu	
0468	Evans Library	712,093	000304	ELE	244,708	kWh	
0468	Evans Library	712,093	000318	ELE	140,052	kWh	
0468	Evans Library	712,093	000319	ELE	94,579	kWh	*
0468	Evans Library	712,093	000320	ELE	81,055	kWh	
0468	Evans Library	712,093	006429	ELE	86,431	kWh	
0468	Evans Library	712,093	003701	CHW	1,891,633	mBtu	(2)
0468	Evans Library	712,093	003895	CHW	1,973,630	mBtu	
0468	Evans Library	712,093	003903	CHW	471,911	mBtu	(2)
0468	Evans Library	712,093	003911	CHW	1,252,427	mBtu	(2)
0468	Evans Library	712,093	003712	HHW	97,029	mBtu	
0468	Evans Library	712,093	003899	HHW	105,032	mBtu	
0468	Evans Library	712,093	003907	HHW	45,525	mBtu	
0468	Evans Library	712,093	003922	HHW	126,692	mBtu	
0468	Evans Library	712,093	005303	HHW	8,953	mBtu	
0469	Central Campus Parking Garage	251,304	000306	ELE	45,877	kWh	*
0469	Central Campus Parking Garage	2,844	003716	CHW	76,629	mBtu	
0469	Central Campus Parking Garage	2,844	003720	HHW	2,808	mBtu	
0470	Glasscock History Bldg	39,887	006407	ELE	18,460	kWh	
0470	Glasscock History Bldg	39,887	006638	CHW	320,953	mBtu	
0470	Glasscock History Bldg	39,887	006642	HHW	2,264	mBtu	
0471	Pavilion	40,062	001455	ELE	34,508	kWh	
0471	Pavilion	40,062	002769	CHW	341,721	mBtu	(2)
0471	Pavilion	40,062	002780	HHW	1,432	mBtu	
0472	Animal Industries	44,856	009042	ELE	50,728	kWh	
0472	Animal Industries	44,856	009109	CHW	713,140	mBtu	(2)
0472	Animal Industries	44,856	009113	HHW	3,619	mBtu	
0473	Williams Administration Building	69,898	007945	ELE	50,113	kWh	
0473	Williams Administration Building	69,898	007946	CHW	642,776	mBtu	
0473	Williams Administration Building	69,898	007947	HHW	30,789	mBtu	
0474	YMCA Building	36,035	007524	ELE	24,649	kWh	
0474	YMCA Building	36,035	007525	CHW	253,683	mBtu	#, (1)
0474	YMCA Building	36,035	007526	HHW	9,945	mBtu	
0476	Francis Hall	36,850	008015	ELE	34,039	kWh	
0476	Francis Hall	36,850	008033	CHW	579,146	mBtu	
0476	Francis Hall	36,850	008034	HHW	52	mBtu	
0477	Anthropology Building	51,592	001558	ELE	34,773	kWh	
0477	Anthropology Building	51,592	003664	CHW	620,968	mBtu	
0477	Anthropology Building	51,592	003668	HHW	17,842	mBtu	

Table I-1 July 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	52,583	kWh	
0478	Scoates Hall	62,228	007968	CHW	823,655	mBtu	(2)
0478	Scoates Hall	62,228	007969	HHW	101,301	mBtu	(2)
0480	Bolton Hall	39,686	006845	ELE	31,927	kWh	
0480	Bolton Hall	39,686	007012	CHW	238,581	mBtu	
0480	Bolton Hall	39,686	007016	HHW	40,371	mBtu	#, (1)
0481	Heaton Hall	13,640	005712	ELE	0	kWh	*
0481	Heaton Hall	13,640	007531	CHW	142,096	mBtu	
0481	Heaton Hall	13,640	007535	HHW	34,021	mBtu	
0482	Fermier Hall	19,074	005779	ELE	15,611	kWh	
0482	Fermier Hall	19,074	005878	CHW	171,250	mBtu	(2)
0482	Fermier Hall	19,074	005881	HHW	204	mBtu	(2)
0483	Thompson Hall	81,404	003688	ELE	66,172	kWh	
0483	Thompson Hall	81,404	003887	CHW	529,680	mBtu	
0483	Thompson Hall	81,404	003891	HHW	19,956	mBtu	#, (1)
0484	Chemistry Building	205,393	007152	ELE	100,038	kWh	#, (1)
0484	Chemistry Building	205,393	007556	ELE	11,623	kWh	
0484	Chemistry Building	205,393	007557	ELE	14,585	kWh	(2)
0484	Chemistry Building	205,393	007559	ELE	175,952	kWh	
0484	Chemistry Building	205,393	007028	CHW	4,800,794	mBtu	
0484	Chemistry Building	205,393	007223	CHW	5,748,279	mBtu	*
0484	Chemistry Building	205,393	007032	HHW	309,123	mBtu	
0484	Chemistry Building	205,393	007227	HHW	668,872	mBtu	*
0490	Halbouty Geosciences Building	120,874	006691	ELE	57,634	kWh	
0490	Halbouty Geosciences Building	120,874	006695	ELE	102,343	kWh	
0490	Halbouty Geosciences Building	120,874	006896	CHW	1,888,307	mBtu	#, (1)
0490	Halbouty Geosciences Building	120,874	006913	CHW	600,913	mBtu	
0490	Halbouty Geosciences Building	120,874	006900	HHW	330,975	mBtu	#, (1)
0490	Halbouty Geosciences Building	120,874	006917	HHW	176,428	mBtu	#, (1)
0492	Civil Engineering Building	56,537	005783	ELE	52,839	kWh	
0492	Civil Engineering Building	56,537	005950	CHW	370,041	mBtu	(2)
0492	Civil Engineering Building	56,537	005954	HHW	58,448	mBtu	(2)
0495	Sbisa Dining Hall	94,233	000352	ELE	115,522	kWh	
0495	Sbisa Dining Hall	94,233	000353	ELE	91,380	kWh	
0495	Sbisa Dining Hall	94,233	001951	CHW	1,680,017	mBtu	
0495	Sbisa Dining Hall	94,233	001957	HHW	99,878	mBtu	
0496	Utilities & Energy Services Central Office	46,110	007706	ELE	10,685	kWh	(2)
0496	Utilities & Energy Services Central Office	46,110	006929	CHW	202,024	mBtu	(2)
0496	Utilities & Energy Services Central Office	46,110	006933	HHW	16,824	mBtu	(1), (2)
0499	Engineering Innovation Center	28,339	001561	ELE	23,212	kWh	*
0499	Engineering Innovation Center	28,339	002672	CHW	118,736	mBtu	(2)
0499	Engineering Innovation Center	28,339	002683	HHW	29,251	mBtu	
0501	Concrete Materials Laboratory	9,600	005791	ELE	13,148	kWh	
0506	Nagle Hall	32,306	001484	ELE	3,644	kWh	(2)
0506	Nagle Hall	32,306	003619	CHW	470,990	mBtu	
0506	Nagle Hall	32,306	003623	HHW	14,987	mBtu	
0507	Veterinary Medical Science Building	69,367	003013	ELE	79,428	kWh	
0507	Veterinary Medical Science Building	69,367	003640	CHW	1,633,569	mBtu	
0507	Veterinary Medical Science Building	69,367	003644	HHW	390,538	mBtu	
0508	Veterinary Teaching Hospital	96,416	003022	ELE	101,864	kWh	
0508-1026	Veterinary Teaching Hospital and Veterinary Medicine Administration	191,096	004166	CHW	2,390,755	mBtu	
0508-1026	Veterinary Teaching Hospital and Veterinary Medicine Administration	191,096	009694	HHW	318,859	mBtu	
0511	Heep Laboratory Building	40,476	005787	ELE	41,727	kWh	
0511	Heep Laboratory Building	40,476	005821	CHW	772,011	mBtu	#, (1), (2)
0511	Heep Laboratory Building	40,476	005825	HHW	147,283	mBtu	(1)
0512	All Faiths Chapel	8,999	004340	ELE	7,100	kWh	
0512	All Faiths Chapel	8,999	004288	CHW	131,170	mBtu	(1)
0512	All Faiths Chapel	8,999	004293	HHW	15,538	mBtu	(1)
0513	Doherty Building	42,336	000299	ELE	49,038	kWh	
0513	Doherty Building	42,336	002898	CHW	1,205,004	mBtu	(1)
0513	Doherty Building	42,336	002902	HHW	273,231	mBtu	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007558	ELE	13,280	kWh	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007487	CHW	136,814	mBtu	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007491	HHW	2,161	mBtu	
0516	Computing Services Center	30,014	005259	ELE	534,870	kWh	
0516	Computing Services Center	30,014	003959	CHW	1,731,722	mBtu	(1)
0516	Computing Services Center	30,014	003963	HHW	0	mBtu	
0520	Beutel Health Center	63,318	003785	ELE	70,141	kWh	
0520	Beutel Health Center	63,318	003933	CHW	607,888	mBtu	(1)
0520	Beutel Health Center	63,318	003944	HHW	46,315	mBtu	
0521	Heldenfels Hall	104,949	001547	ELE	99,246	kWh	
0521	Heldenfels Hall	104,949	002962	CHW	1,555,265	mBtu	
0521	Heldenfels Hall	104,949	002973	HHW	72,181	mBtu	

Table I-1 July 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	192,716	kWh	*
0524	Blocker Building	257,953	002914	CHW	1,425,738	mBtu	(2)
0524	Blocker Building	257,953	002918	HHW	404	mBtu	(2)
0548	Clements Residence Hall	62,156	000048	ELE	36,323	kWh	
0548	Clements Residence Hall	62,156	002729	CHW	1,356,530	mBtu	
0548	Clements Residence Hall	62,156	002740	HHW	414,217	mBtu	(1)
0549	Haas Residence Hall	69,668	001398	ELE	43,118	kWh	*
0549	Haas Residence Hall	69,668	002983	CHW	1,300,344	mBtu	*
0549	Haas Residence Hall	69,668	002994	HHW	535,119	mBtu	*
0550	McFadden Residence Hall	62,156	000339	ELE	36,766	kWh	*
0550	McFadden Residence Hall	62,156	002188	CHW	1,104,119	mBtu	*, #, (1)
0550	McFadden Residence Hall	62,156	002192	HHW	438,774	mBtu	*, #, (1)
0652	Neeley Residence Hall	69,668	000056	ELE	31,325	kWh	
0652	Neeley Residence Hall	69,668	002147	CHW	801,313	mBtu	(1)
0652	Neeley Residence Hall	69,668	002151	HHW	249,672	mBtu	(1)
0653	Hobby Residence Hall	62,156	000057	ELE	41,597	kWh	
0653	Hobby Residence Hall	62,156	002401	CHW	870,788	mBtu	
0653	Hobby Residence Hall	62,156	002405	HHW	284,315	mBtu	
0682	Wisnaker Engineering Research Center	177,704	005246	ELE	229,835	kWh	
0682	Wisnaker Engineering Research Center	177,704	003879	CHW	2,785,036	mBtu	
0682	Wisnaker Engineering Research Center	177,704	003883	HHW	144,946	mBtu	
0740	McNew Laboratory	20,904	005874	ELE	56,700	kWh	(2)
0740	McNew Laboratory	20,904	005974	CHW	589,217	mBtu	(2)
0740	McNew Laboratory	20,904	005968	HHW	1,876	mBtu	#, (2)
0806	Soil Testing Labs	5,544	006875	ELE	23,506	kWh	
0815	Entomology Research Lab	17,618	005799	ELE	27,752	kWh	
0815	Entomology Research Lab	17,618	006043	CHW	163,928	mBtu	
0880	TVMC-Small Animal Building	3,260	005958	CHW	35,653	mBtu	
0880	TVMC-Small Animal Building	3,260	005962	HHW	138	mBtu	(2)
0972	Laboratory Animal Care Building	52,178	007063	ELE	149,292	kWh	
0972	Laboratory Animal Care Building	52,178	007067	ELE	53,713	kWh	
0972	Laboratory Animal Care Building	52,178	007071	CHW	3,955,115	mBtu	
0972	Laboratory Animal Care Building	52,178	006991	HHW	213,626	mBtu	
1020	Vivarium III	12,234	005857	ELE	24,760	kWh	
1020	Vivarium III	12,234	005997	CHW	337,556	mBtu	
1020	Vivarium III	12,234	006001	HHW	20,621	mBtu	
1026	Veterinary Medicine Administration	94,680	006072	ELE	128,592	kWh	
1026	Veterinary Medicine Administration	94,680	006049	CHW	1,471,004	mBtu	(1)
1026	Veterinary Medicine Administration	94,680	006053	HHW	371,665	mBtu	*
1041	Texas Vet Med Diagnostic Lab	55,169	001466	ELE	67,632	kWh	(2)
1041	Texas Vet Med Diagnostic Lab	55,169	001539	ELE	30,457	kWh	(2)
1041	Texas Vet Med Diagnostic Lab	55,169	003817	CHW	868,369	mBtu	*, (2)
1041	Texas Vet Med Diagnostic Lab	55,169	004137	CHW	1,520,756	mBtu	*, (2)
1041	Texas Vet Med Diagnostic Lab	55,169	003821	HHW	33,375	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	40,367	kWh	
1085	Veterinary Small Animal Hospital	103,440	004136	ELE	235,298	kWh	
1085	Veterinary Small Animal Hospital	103,440	003656	CHW	2,620,617	mBtu	
1085	Veterinary Small Animal Hospital	103,440	003660	HHW	299,794	mBtu	
1089	Utilities Energy Office Annex	2,937	006964	ELE	9,275	kWh	(2)
1146	Biological Control Facility	13,492	005795	ELE	36,720	kWh	
1146	Biological Control Facility	13,492	005887	CHW	188,665	mBtu	
1146	Biological Control Facility	13,492	005891	HHW	25,610	mBtu	
1156	Physical Plant Administration & Shops	101,704	007483	ELE	157,144	kWh	
1156	Physical Plant Administration & Shops	101,704	007679	CHW	556,126	mBtu	(2)
1156	Physical Plant Administration & Shops	101,704	007683	HHW	62,270	mBtu	(1)
1184	Veterinary Anatomic Pathology	17,223	001445	ELE	51,586	kWh	
1184	Veterinary Anatomic Pathology	17,223	006995	CHW	844,488	mBtu	
1184	Veterinary Anatomic Pathology	17,223	006999	HHW	104,819	mBtu	
1194	Veterinary Large Animal Hospital	140,865	005256	ELE	108,637	kWh	
1194	Veterinary Large Animal Hospital	140,865	003016	ELE	68,067	kWh	
1194	Veterinary Large Animal Hospital	140,865	007455	ELE	42,881	kWh	
1194	Veterinary Large Animal Hospital	140,865	003648	CHW	3,159,721	mBtu	
1194	Veterinary Large Animal Hospital	140,865	007456	CHW	324,648	mBtu	
1194	Veterinary Large Animal Hospital	140,865	003652	HHW	456,189	mBtu	
1194	Veterinary Large Animal Hospital	140,865	007457	HHW	38,146	mBtu	
1197	Veterinary Research Building	114,666	006355	ELE	76,531	kWh	
1197	Veterinary Research Building	114,666	006359	ELE	34,846	kWh	
1197	Veterinary Research Building	114,666	006062	CHW	4,000,330	mBtu	
1197	Veterinary Research Building	114,666	006066	HHW	252,252	mBtu	
1416	Hullabaloo Residence Hall	253,452	007845	ELE	161,540	kWh	
1416	Hullabaloo Residence Hall	253,452	007846	CHW	1,573,351	mBtu	
1416	Hullabaloo Residence Hall	253,452	007847	HHW	108,906	mBtu	

Table I-1 July 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	5,678	kWh	
1451	University Apartments - The Gardens J	33,535	006981	ELE	22,181	kWh	
1452	University Apartments - The Gardens K	33,535	006979	ELE	23,968	kWh	
1453	University Apartments - The Gardens L	33,535	006884	ELE	22,301	kWh	
1454	University Apartments - The Gardens F	33,535	006980	ELE	22,285	kWh	*
1455	University Apartments - The Gardens G	33,535	006882	ELE	24,054	kWh	*
1456	University Apartments - The Gardens H	33,535	007962	ELE	22,556	kWh	
1457	University Apartments - The Gardens M	33,535	007503	ELE	23,898	kWh	
1458	University Apartments - The Gardens N	33,535	007504	ELE	20,591	kWh	
1459	University Apartments - The Gardens P	33,535	007505	ELE	27,401	kWh	
1460	University Apartments - The Gardens Q	33,535	007506	ELE	22,016	kWh	
1497	Utilities & Energy Services Business Office	3,480	007082	ELE	4,841	kWh	
1497	Utilities & Energy Services Business Office	3,480	006341	CHW	58,534	mBtu	(2)
1497	Utilities & Energy Services Business Office	3,480	006345	HHW	221	mBtu	
1501	Kleberg Center	165,031	007449	ELE	284,284	kWh	
1501	Kleberg Center	165,031	002624	CHW	2,425,896	mBtu	
1501	Kleberg Center	165,031	002628	HHW	492,607	mBtu	(1)
1502	Heep Center	158,979	001556	ELE	288,231	kWh	
1502	Heep Center	158,979	002599	CHW	3,658,463	mBtu	
1502	Heep Center	158,979	002603	HHW	242,216	mBtu	
1503	Cater-Mattil Hall	27,958	007977	ELE	79,989	kWh	
1503	Cater-Mattil Hall	27,958	008001	CHW	830,660	mBtu	
1504	Reynolds Medical Sciences Building	169,859	003975	ELE	312,449	kWh	
1504	Reynolds Medical Sciences Building	169,859	003989	CHW	3,502,105	mBtu	
1504	Reynolds Medical Sciences Building	169,859	003993	HHW	496,037	mBtu	
1505	Rosenthal Meat Science & Technology Center	30,889	003627	ELE	143,483	kWh	
1505	Rosenthal Meat Science & Technology Center	30,889	002573	CHW	287,519	mBtu	
1505	Rosenthal Meat Science & Technology Center	30,889	002577	HHW	63,900	mBtu	(1)
1506	Horticulture-Forest Science Building	118,648	001544	ELE	188,675	kWh	
1506	Horticulture-Forest Science Building	118,648	003967	CHW	1,334,962	mBtu	(1)
1506	Horticulture-Forest Science Building	118,648	003971	HHW	93,872	mBtu	
1507	Biochemistry-Biophysics Building	166,079	001459	ELE	188,303	kWh	
1507	Biochemistry-Biophysics Building	166,079	001460	ELE	163,433	kWh	
1507	Biochemistry-Biophysics Building	166,079	003025	CHW	3,538,349	mBtu	
1507	Biochemistry-Biophysics Building	166,079	003029	HHW	704,501	mBtu	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	005638	ELE	26,044	kWh	*
1508	Price Hobgood Ag. Engineering Research Lab	27,666	006005	CHW	274,121	mBtu	*, (1)
1508	Price Hobgood Ag. Engineering Research Lab	27,666	006009	HHW	3,891	mBtu	*
1509	Medical Sciences Library	84,183	000350	ELE	83,957	kWh	
1509	Medical Sciences Library	84,183	003777	CHW	653,480	mBtu	(2)
1509	Medical Sciences Library	84,183	003781	HHW	32,352	mBtu	
1510	Wehner Building	259,681	006849	ELE	191,402	kWh	
1510	Wehner Building	259,681	006685	ELE	262,118	kWh	
1510	Wehner Building	259,681	002687	CHW	2,476,342	mBtu	
1510	Wehner Building	259,681	002691	HHW	376,916	mBtu	
1511	West Campus Library Facility	68,125	004342	ELE	96,333	kWh	
1511	West Campus Library Facility	68,125	004313	CHW	834,149	mBtu	
1511	West Campus Library Facility	68,125	004318	HHW	65,207	mBtu	
1512	Southern Crop Improvement Greenhouse	48,154	005931	ELE	119,279	kWh	#, (1)
1513	Borlaug Center for Southern Crop Improvement	68,739	005802	ELE	307,994	kWh	
1513	Borlaug Center for Southern Crop Improvement	68,739	005936	CHW	2,056,113	mBtu	
1513	Borlaug Center for southern Crop Improvement	68,739	005895	HHW	113,332	mBtu	
1518	TX School of Rural Public Health A	69,079	005273	ELE	76,412	kWh	
1519	TX School of Rural Public Health B	24,761	005274	ELE	51,510	kWh	#, (1)
1520	TX School of Rural Public Health C	13,264	005275	ELE	114,412	kWh	#, (1)
1518-1519-1520	TX School of Rural Public Health A,B,C	107,104	005294	CHW	2,334,235	mBtu	
1518-1519-1520	TX School of Rural Public Health A,B,C	107,104	005298	HHW	183,720	mBtu	
1525	Nuclear Magnetic Resonance Facility	37,282	006718	ELE	87,997	kWh	
1525	Nuclear Magnetic Resonance Facility	37,282	006715	CHW	1,364,868	mBtu	
1525	Nuclear Magnetic Resonance Facility	37,282	006716	HHW	380,191	mBtu	
1530	Interdisciplinary Life Sciences Building	218,540	006286	ELE	442,544	kWh	
1530	Interdisciplinary Life Sciences Building	218,540	006288	ELE	227,317	kWh	*
1530	Interdisciplinary Life Sciences Building	218,540	006290	CHW	6,090,725	mBtu	(1)
1530	Interdisciplinary Life Sciences Building	218,540	006294	HHW	803,018	mBtu	(1)
1535	Agriculture and Life Sciences Building	168,353	007205	ELE	114,205	kWh	
1535	Agriculture and Life Sciences Building	168,353	007206	CHW	935,160	mBtu	
1535	Agriculture and Life Sciences Building	168,353	007207	HHW	19,841	mBtu	
1536	AgriLife Services Building	80,907	007571	ELE	45,807	kWh	
1536	AgriLife Services Building	80,907	007572	CHW	352,139	mBtu	
1536	AgriLife Services Building	80,907	007573	HHW	14,967	mBtu	(1)
1537	Agriculture Public Building	78,480	009620	ELE	95,721	kWh	*, (2)
1537	Agriculture Public Building	78,480	009622	CHW	1,832,593	mBtu	(2)
1537	Agriculture Public Building	78,480	009623	HHW	305,414	mBtu	(2)

Table I-1 July 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	13,426	kWh	
1538	Agriculture Program Visitors Center	12,923	007210	CHW	119,227	mBtu	
1538	Agriculture Program Visitors Center	12,923	007211	HHW	6,741	mBtu	
1540	Physical Education Activity Program Building	116,900	007881	ELE	66,783	kWh	
1540	Physical Education Activity Program Building	116,900	007878	CHW	677,759	mBtu	
1540	Physical Education Activity Program Building	116,900	007879	HHW	45,836	mBtu	
1542	Human Clinical Research Building	22,052	009693	ELE	56,339	kWh	
1542	Human Clinical Research Building	22,052	009683	CHW	808,892	mBtu	
1542	Human Clinical Research Building	22,052	009687	HHW	67,232	mBtu	
1544	Cain Garage	498,425	009824	ELE	44,259	kWh	
1550	Olsen Field at Bluebell Park	60,537	007560	ELE	137,300	kWh	
1554	Reed Arena	230,000	007582	ELE	160,921	kWh	
1554	Reed Arena	230,000	006243	ELE	864	kWh	*
1554	Reed Arena	230,000	006244	ELE	88,019	kWh	*
1554-1558	Reed Arena and Cox-McFerrin Center	328,185	007576	CHW	3,187,197	mBtu	
1554-1558	Reed Arena and Cox-McFerrin Center	328,185	007578	HHW	534,775	mBtu	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007581	ELE	87,999	kWh	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007575	CHW	688,065	mBtu	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007577	HHW	82,602	mBtu	(2)
1559	West Campus Parking Garage	1,541,457	001453	ELE	154,795	kWh	
1559	West Campus Parking Garage	13,000	004322	CHW	117,066	mBtu	(1)
1559	West Campus Parking Garage	13,000	004327	HHW	6,698	mBtu	(1)
1560	Student Recreation Center	334,642	000363	ELE	369,183	kWh	
1560	Student Recreation Center	334,642	000366	ELE	427,246	kWh	
1560	Student Recreation Center	334,642	002933	CHW	6,425,471	mBtu	
1560	Student Recreation Center	334,642	002937	HHW	512,122	mBtu	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009197	ELE	76,787	kWh	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009198	CHW	886,803	mBtu	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009199	HHW	78,539	mBtu	
1591	White Creek Apartment 2	179,467	008528	ELE	84,512	kWh	
1591	White Creek Apartment 2	179,467	008529	CHW	651,398	mBtu	
1591	White Creek Apartment 2	179,467	008533	HHW	51,511	mBtu	
1592	White Creek Apartment 3	179,467	008538	ELE	85,997	kWh	
1592	White Creek Apartment 3	179,467	008539	CHW	760,737	mBtu	
1592	White Creek Apartment 3	179,467	008543	HHW	46,582	mBtu	
1600	Gilchrist TTI Building	67,143	005286	ELE	54,625	kWh	
1600	Gilchrist TTI Building	67,143	002649	CHW	623,734	mBtu	
1600	Gilchrist TTI Building	67,143	002653	HHW	24,391	mBtu	
1601	International Ocean Discovery Building	86,576	006351	ELE	122,638	kWh	(2)
1601	International Ocean Discovery Building	86,576	006382	CHW	330,268	mBtu	(2)
1601	International Ocean Discovery Building	86,576	008144	CHW	85,146	mBtu	(2)
1601	International Ocean Discovery Building	86,576	008145	HHW	10,733	mBtu	(2)
1601	International Ocean Discovery Building	86,576	009829	HHW	28,047	mBtu	(2)
1604	Offshore Technology Research Center	40,014	006659	ELE	94,315	kWh	
1604	Offshore Technology Research Center	40,014	006660	ELE	0	kWh	(2)
1604	Offshore Technology Research Center	40,014	008142	CHW	657,422	mBtu	
1604	Offshore Technology Research Center	40,014	008143	HHW	88,871	mBtu	
1606	George Bush Presidential Library & Museum	121,678	000244	ELE	121,365	kWh	
1606	George Bush Presidential Library & Museum	121,678	002808	CHW	1,744,789	mBtu	
1606	George Bush Presidential Library & Museum	121,678	002812	HHW	301,262	mBtu	(1)
1607	Allen Building	133,327	000243	ELE	90,903	kWh	
1607	Allen Building	133,327	002800	CHW	781,659	mBtu	
1607	Allen Building	133,327	002804	HHW	30,614	mBtu	
1608	Annenberg Presidential Conference Center	65,688	000245	ELE	62,462	kWh	
1608	Annenberg Presidential Conference Center	65,688	002761	CHW	986,438	mBtu	
1608	Annenberg Presidential Conference Center	65,688	002765	HHW	191,722	mBtu	
1609	TTI Headquarters	66,707	006495	ELE	51,382	kWh	
1609	TTI Headquarters	66,707	006496	CHW	488,799	mBtu	
1609	TTI Headquarters	66,707	006497	HHW	16,090	mBtu	
1611	Engineering Research Building	68,807	008462	ELE	165,701	kWh	
1611	Engineering Research Building	68,807	008463	CHW	2,307,721	mBtu	
1611	Engineering Research Building	68,807	008467	HHW	306,045	mBtu	
1800	General Services Complex	203,369	005441	ELE	184,131	kWh	
1800	General Services Complex	203,369	005468	CHW	1,270,963	mBtu	
1800	General Services Complex	203,369	005472	HHW	42,788	mBtu	
1809	New TVMDL	90,000	009652	ELE	109,870	kWh	
1809	New TVMDL	90,000	009653	ELE	148,929	mBtu	
1809	New TVMDL	90,000	009647	CHW	4,694,711	mBtu	
1810	Office of the State Chemist Building	31,735	009073	ELE	66,449	kWh	
1810	Office of the State Chemist Building	31,735	005460	CHW	836,504	mBtu	
1810	Office of the State Chemist Building	31,735	005464	HHW	68,709	mBtu	
1811	Vet Med Research Bldg Addition	52,993	006705	ELE	233,456	kWh	
1811	Vet Med Research Bldg Addition	52,993	006706	CHW	2,363,681	mBtu	
1811	Vet Med Research Bldg Addition	52,993	006707	HHW	394,815	mBtu	

Table I-1 July 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	170,727	kWh	
1813	Veterinary Medicine Building 2	116,492	009418	ELE	1,434	kWh	
1814	Veterinary Medicine Building 3	135,470	009405	ELE	309,669	kWh	
1812-1813-1814	Veterinary Medicine Building 1, 2 and 3	390,422	009676	CHW	6,483,169	mBtu	
1812-1813-1814	Veterinary Medicine Building 1, 2 and 3	390,422	009410	HHW	491,155	mBtu	
1900	Texas Institute for Genomic Medicine	34,120	005548	ELE	86,767	kWh	
1900	Texas Institute for Genomic Medicine	34,120	005545	CHW	2,287,492	mBtu	
1900	Texas Institute for Genomic Medicine	34,120	005546	HHW	308,073	mBtu	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006364	ELE	207,552	kWh	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006365	CHW	2,749,737	mBtu	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006366	HHW	269,675	mBtu	
1910	National Center for Therapeutics Manufacturing	149,924	007517	ELE	201,946	kWh	
1910	National Center for Therapeutics Manufacturing	149,924	007518	ELE	173,155	kWh	
1910	National Center for Therapeutics Manufacturing	149,924	007519	CHW	5,953,699	mBtu	
1910	National Center for Therapeutics Manufacturing	149,924	007520	HHW	898,723	mBtu	
1911	Multi-Species Research Building	21,000	009138	ELE	26,380	kWh	
1911	Multi-Species Research Building	21,000	009129	CHW	585,085	mBtu	
1911	Multi-Species Research Building	21,000	009133	HHW	150,442	mBtu	(1)
10226	NCTM Manufacturing Building	113,397	007648	CHW	4,992,546	mBtu	
10226	NCTM Manufacturing Building	113,397	007649	HHW	705,162	mBtu	
10226	NCTM Manufacturing Building	113,397	008133	HHW	163,700	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 July 2017, 42 meters in 21 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 July 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		
0291	Rudder Residence Hall	000351	ELE	kWh	12,804	*	11																																	
0291	Rudder Residence Hall	002132	CHW	mBtu	NA	*	31																																	
0291	Rudder Residence Hall	002136	HHW	mBtu	NA	*	31																																	
0408	Whitely Hall - Dorm 9	002079	CHW	mBtu	656,742	**	2	M	M																															
0408	Whitely Hall - Dorm 9	002083	HHW	mBtu	216,255	**	2	A	A																															
0409	White Hall - Dorm 30	002094	CHW	mBtu	478,369	519,016	2	M	M																															
0409	White Hall - Dorm 30	002098	HHW	mBtu	60,828	65,177	2	A	A																															
0410	Harrington Hall - Dorm 11	002349	CHW	mBtu	396,641	432,657	2	M	M																															
0410	Harrington Hall - Dorm 11	002353	HHW	mBtu	19,438	21,369	2	A	A																															
0411	Utay Hall - Dorm 12	002102	CHW	mBtu	350,449	383,056	2	M	M																															
0411	Utay Hall - Dorm 12	002106	HHW	mBtu	13,945	14,959	2	A	A																															
0433	Mosher Residence Hall	002485	CHW	mBtu	NA	*	31																																	
0433	Mosher Residence Hall	002489	HHW	mBtu	NA	*	31																																	
0441	Krueger Residence Hall	002504	CHW	mBtu	NA	*	31																																	
0441	Krueger Residence Hall	002500	HHW	mBtu	NA	*	31																																	
0446	Rudder Tower	001551	ELE	kWh	NA	51,914	8	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		
0456	Military Science Building	006939	CHW	mBtu	NA	644,486	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		
0456	Military Science Building	006943	HHW	mBtu	NA	159,746	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	M	
0468	Evans Library	000319	ELE	kWh	94,579	*	5																																	
0469	Central Campus Parking Garage	000306	ELE	kWh	45,877	*	1																																	
0481	Heaton Hall	005712	ELE	kWh	NA	NA	31																																	
0484	Chemistry Building	007028	CHW	mBtu	5,748,279	*	1																																	
0484	Chemistry Building	007032	HHW	mBtu	668,872	*	1																																	
0549	Haas Residence Hall	001398	ELE	kWh	18,082	43,118	18	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A																
0549	Haas Residence Hall	002983	CHW	mBtu	429,604	1,300,344	21	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		
0549	Haas Residence Hall	002994	HHW	mBtu	158,169	535,119	21	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	M	
0550	McFadden Residence Hall	000339	ELE	kWh	11,379	36,766	21	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	M	
0550	McFadden Residence Hall	002188	CHW	mBtu	176,221	**	21	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	M	
0550	McFadden Residence Hall	002192	HHW	mBtu	79,814	**	21	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	M	
1026	Veterinary Medicine Administration	006053	HHW	mBtu	NA	371,665	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	M	
1041	Texas Vet Med Diagnostic Lab	003817	CHW	mBtu	NA	868,369	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	M	
1041	Texas Vet Med Diagnostic Lab	004137	CHW	mBtu	NA	1,520,756	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	M	M
1041	Texas Vet Med Diagnostic Lab	003821	HHW	mBtu	NA	33,375	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	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	M	M	M	M
1454	University Apartments - The Gardens F	006980	ELE	kWh	NA	22,285	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	M	M	
1455	University Apartments - The Gardens G	006882	ELE	kWh	NA	24,054	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	M	M	
1508	Price Hobgood Ag. Engineering Research Lab	005638	ELE	kWh	25,712	26,044	1																																	
1508	Price Hobgood Ag. Engineering Research Lab	006005	CHW	mBtu	257,848	**	1																																	
1508	Price Hobgood Ag. Engineering Research Lab	006009	HHW	mBtu	3,884	3,891	1																																	
1537	Agriculture Public Building	009982	ELE	kWh	NA	95,721	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		
1554	Reed Arena	006243	ELE	kWh	NA	864	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	M	
1554	Reed Arena	006244	ELE	kWh	NA	88,019	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	M	

* 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 estimated because reliable consumption model is not available.
 NA: Not available

Lechner Residence Hall (TAMU Bldg #294)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002285	31	7/1/2017 – 7/31/2017	Model
HHW	002289	31	7/1/2017 – 7/31/2017	Model

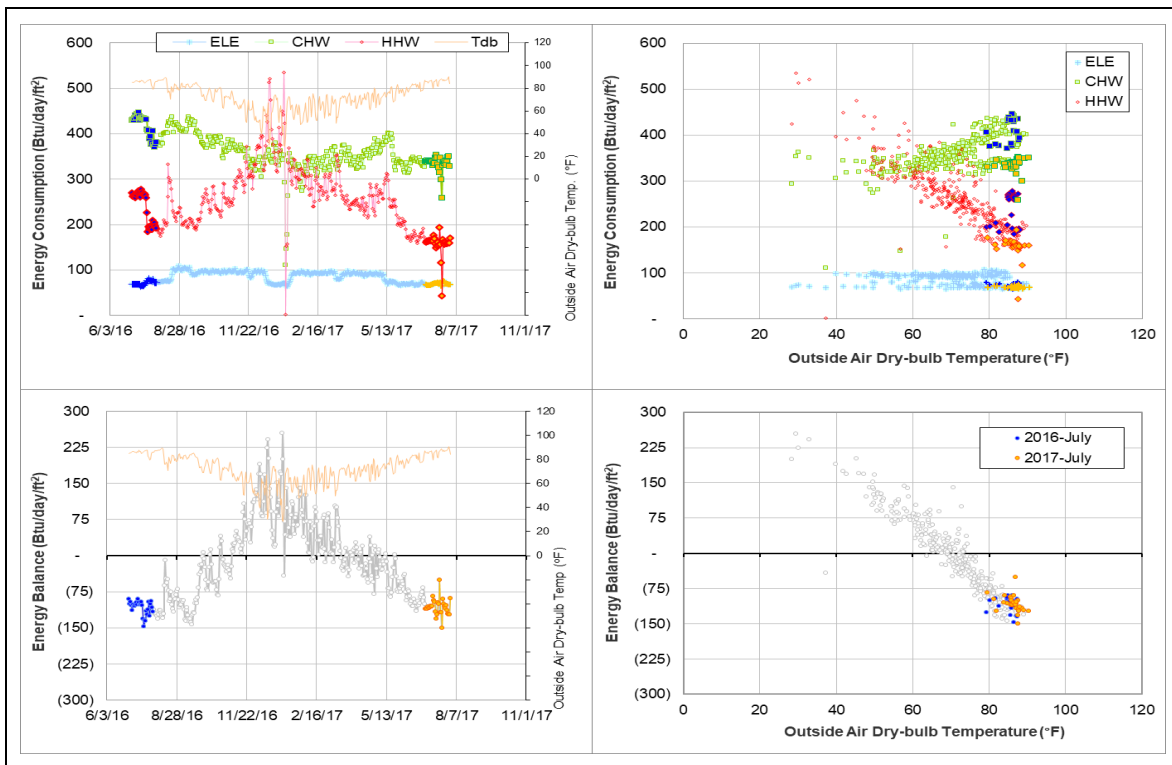
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is lower than the level during the past year.	5/21/2017 – ongoing
HHW	The consumption level is lower than the level during the past year.	5/26/2017 – ongoing

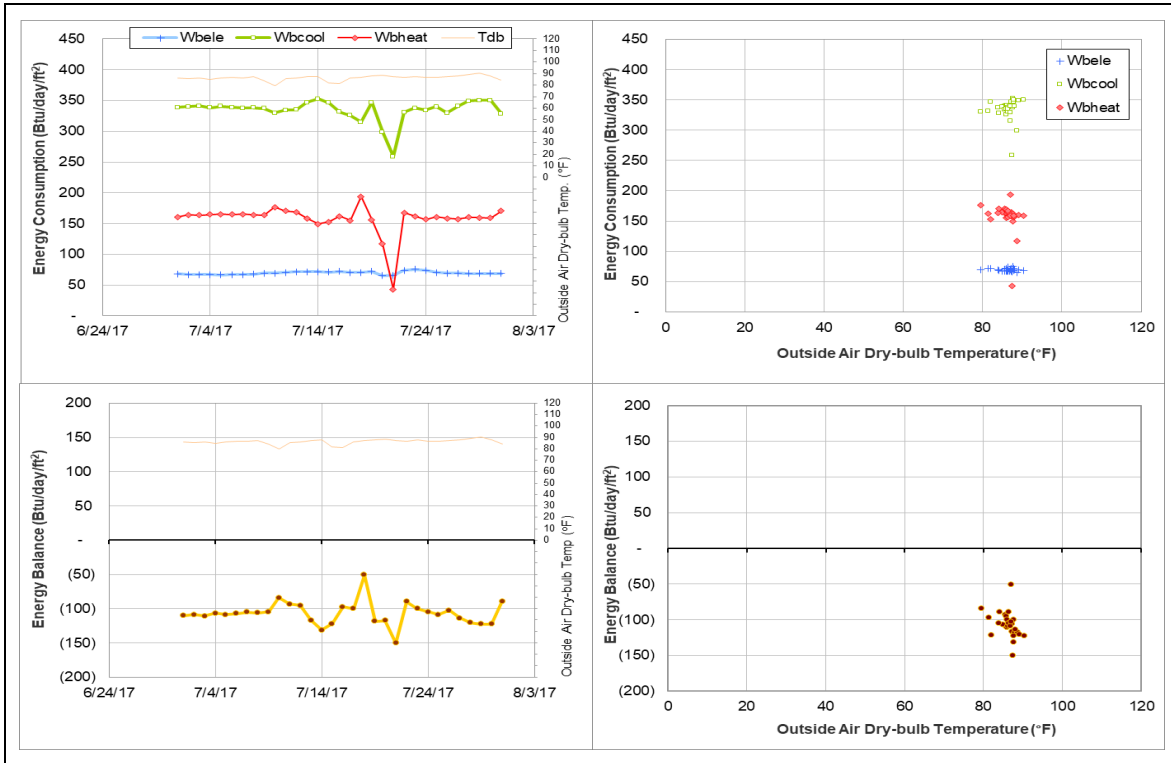
Quantitative descriptions and comments

The CHW consumption level is about 100 Btu/day/ft² lower than the previous year starting around 5/21/2017. The HHW consumption level is also about 100 Btu/day/ft² lower than the previous year starting around 5/26/2017. Both CHW and HHW are estimated by model for the whole month.

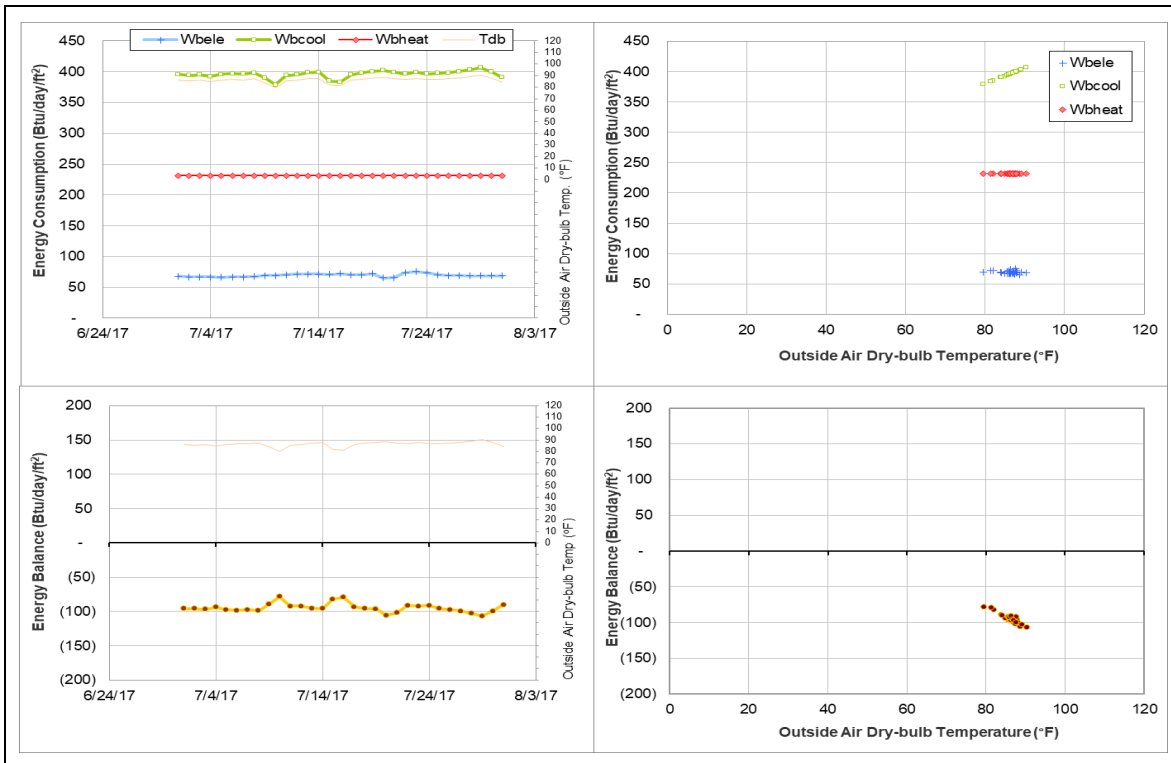
Explanatory Figure: 13 months energy balance plot with original data.



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.



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

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	009123	31	7/1/2017 – 7/31/2017	Model

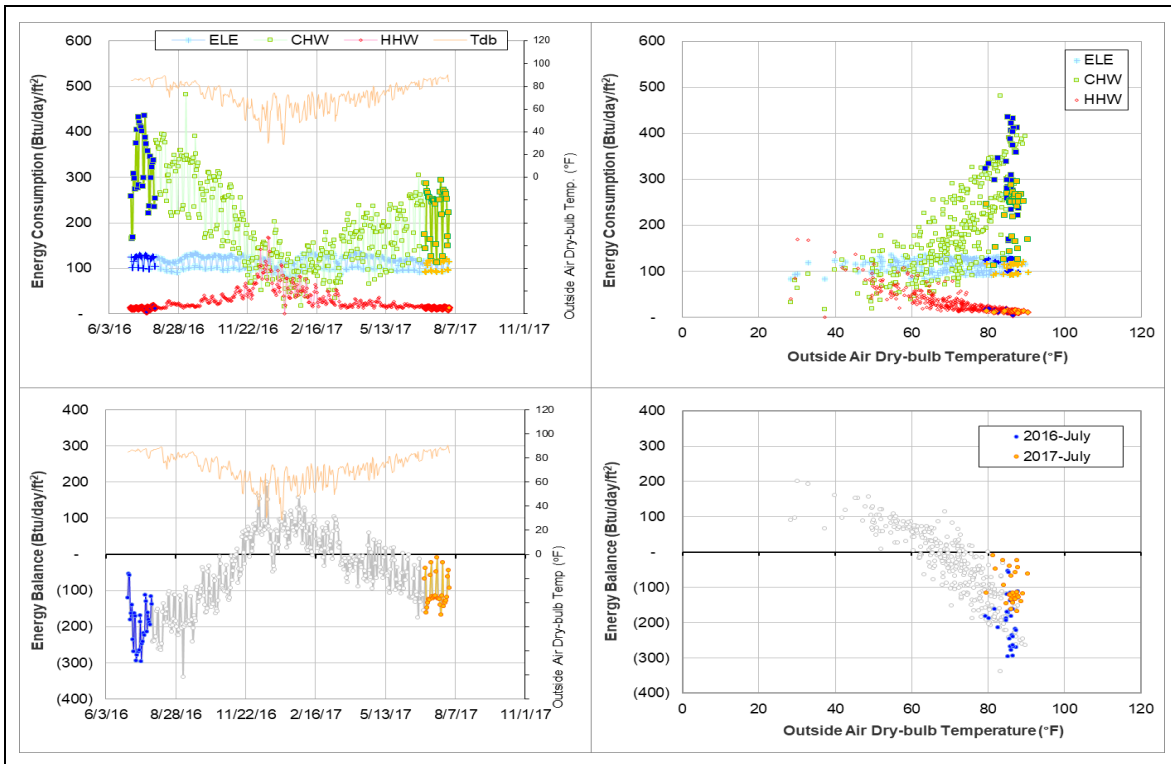
Detected issues in the energy balance and/or the consumption data

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

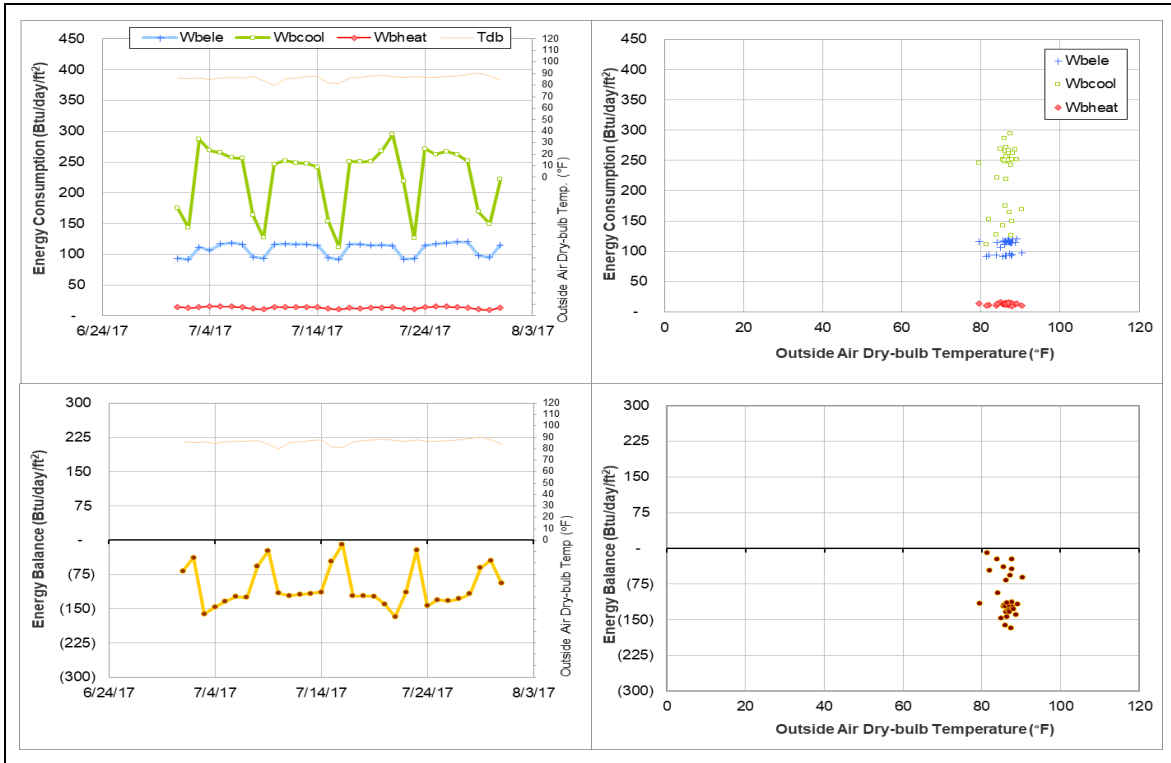
Quantitative descriptions and comments

CHW consumption gradually dropped to a level that is lower than the past year by 50 – 75 Btu/day/ft². No obvious sensor reading behavior anomaly is observed. The whole month is estimated using a model.

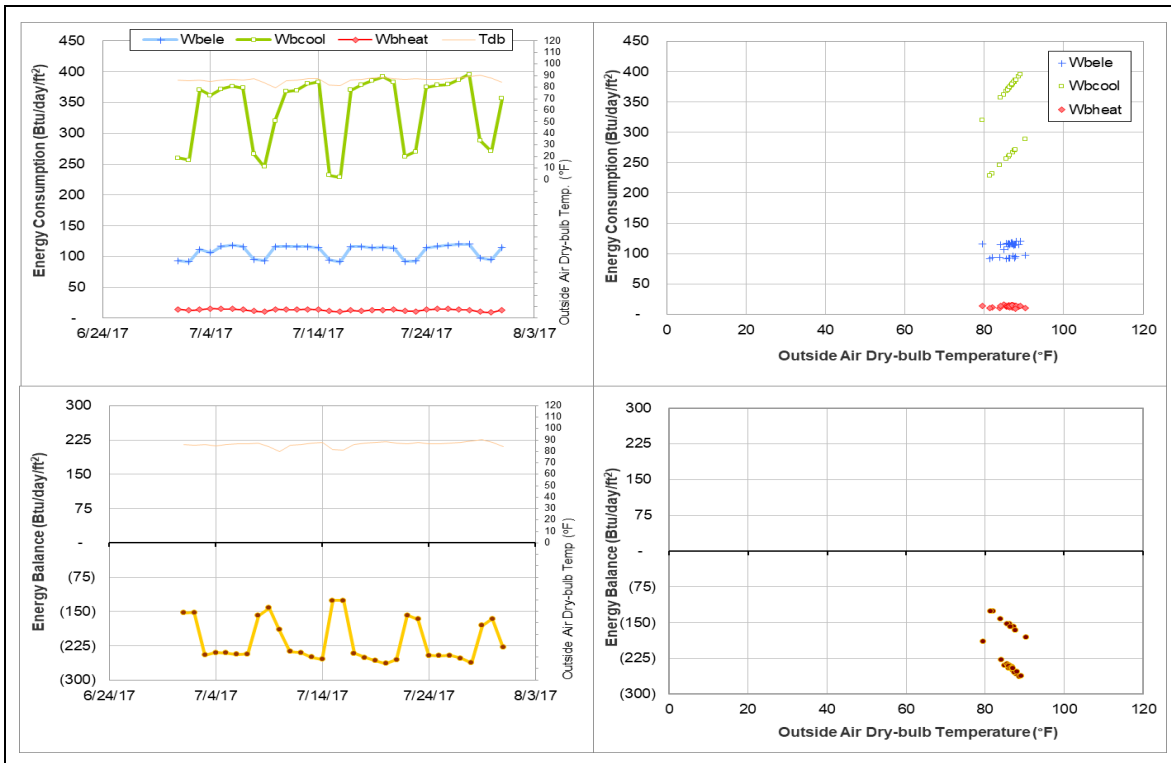
Explanatory Figure: 13 months energy balance plot with original data.



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.



Koldus Building (TAMU Bldg #383)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002874	31	7/1/2017 – 7/31/2017	Model

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

Data Type	Description of data behaviors	Period
HHW	The metered values appear to be faulty.	3/8/2017, 3/12/2017 – ongoing

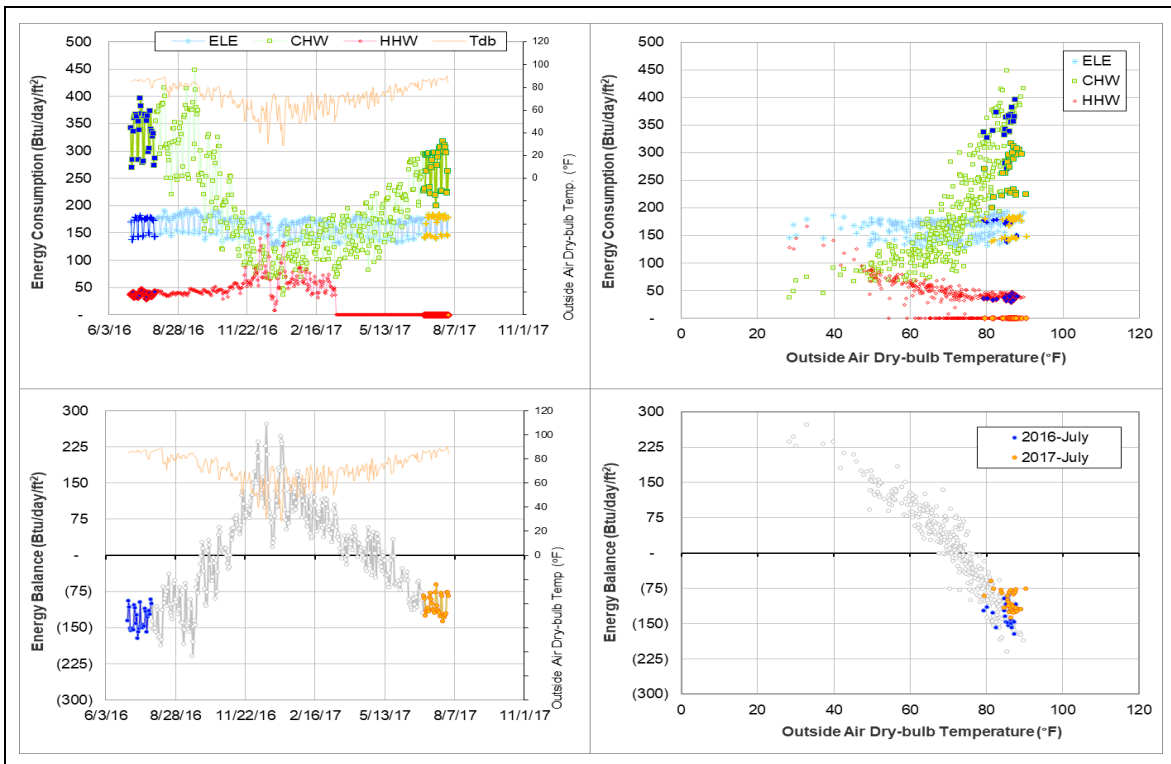
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002874	3/8/2017, 3/12/2017 – 7/31/2017	Flow rate	Near zero
		3/14/2017 – 4/13/2017, 4/21/2017 – 4/30/2017	Delta-T	Zero

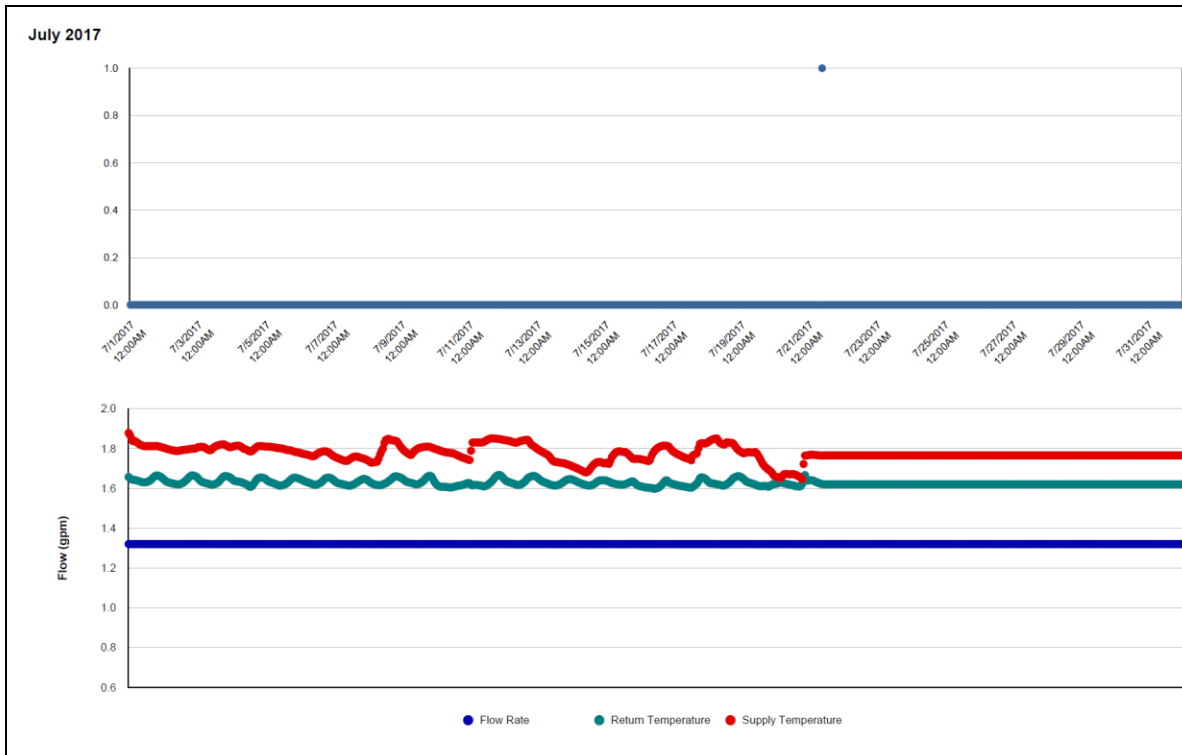
Quantitative descriptions and comments

The HHW consumption dropped to zero on part of 3/8/2017 as well as 3/12/2017 – 7/31/2017 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 July.

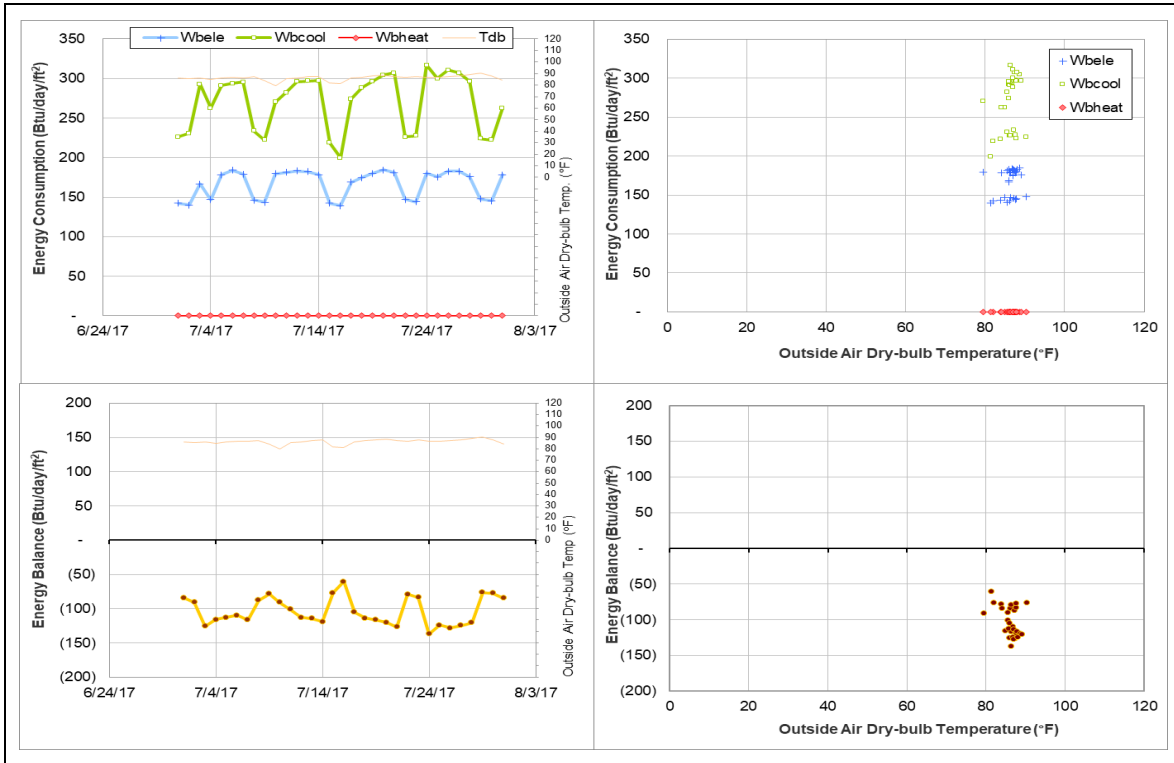
Explanatory Figure: 13 months energy balance plot with original data.



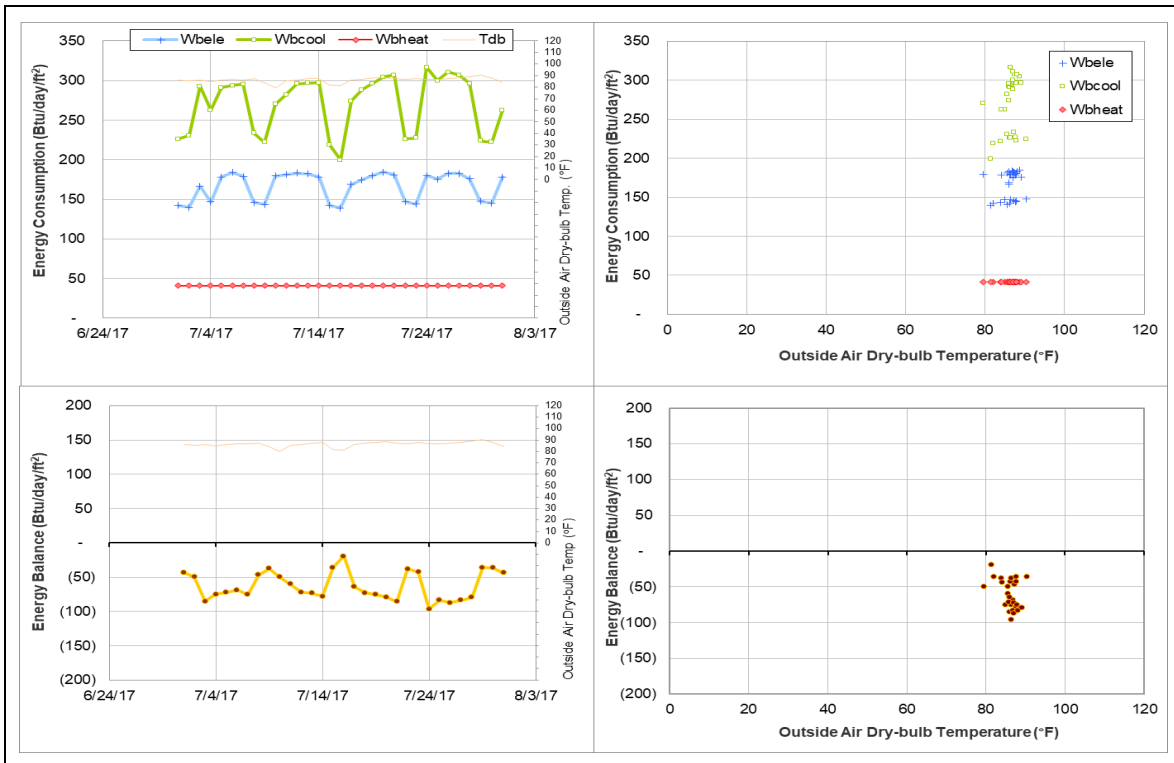
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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.



Plank LLC (TAMU Bldg #1404)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	009372	17	7/15/2017 – 7/31/2017	Model
HHW	009376	17	7/15/2017 – 7/31/2017	Model

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

Data Type	Description of data behaviors	Period
CHW	The consumption level is decreasing gradually.	7/15/2017 – 7/31/2017
HHW	The consumption level is decreasing gradually.	7/15/2017 – 7/31/2017

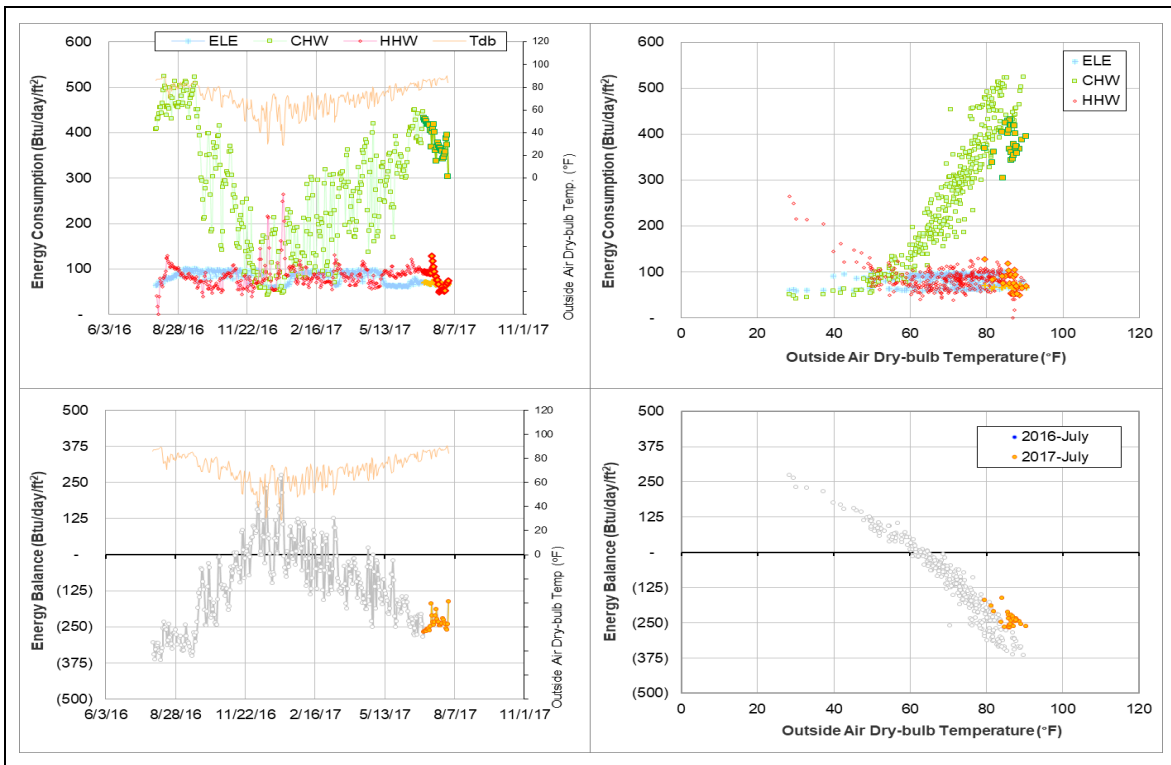
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	009372	7/15/2017 – 7/31/2017	Flow rate	Decreased
HHW	009376	7/15/2017 – 7/31/2017	Flow rate	Decreased

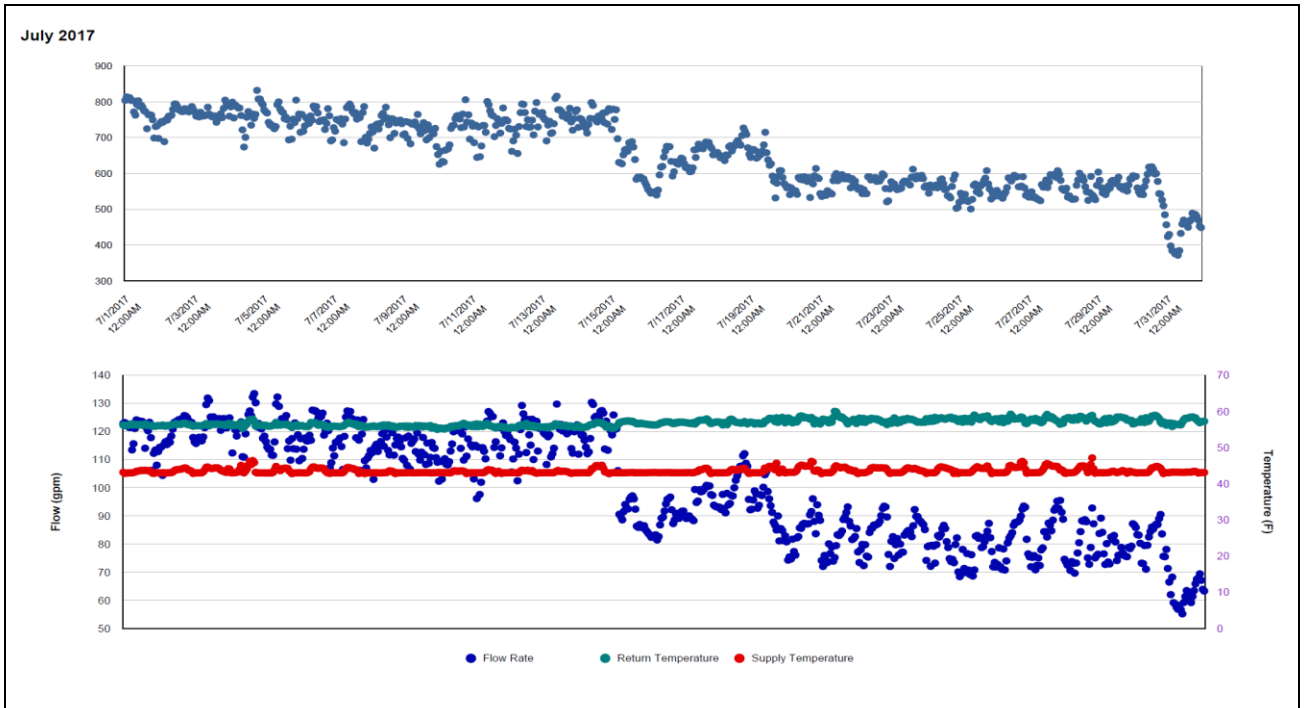
Quantitative descriptions and comments

The CHW and HHW consumption started decreasing on 7/15/2017 due to a decrease in flowrate. The CHW flowrate decreased by 40 GPM and the HHW flow rate decreased by 8 GPM between 7/15/2017 and 7/31/2017. Both CHW and HHW consumption is estimated by models for the indicated period.

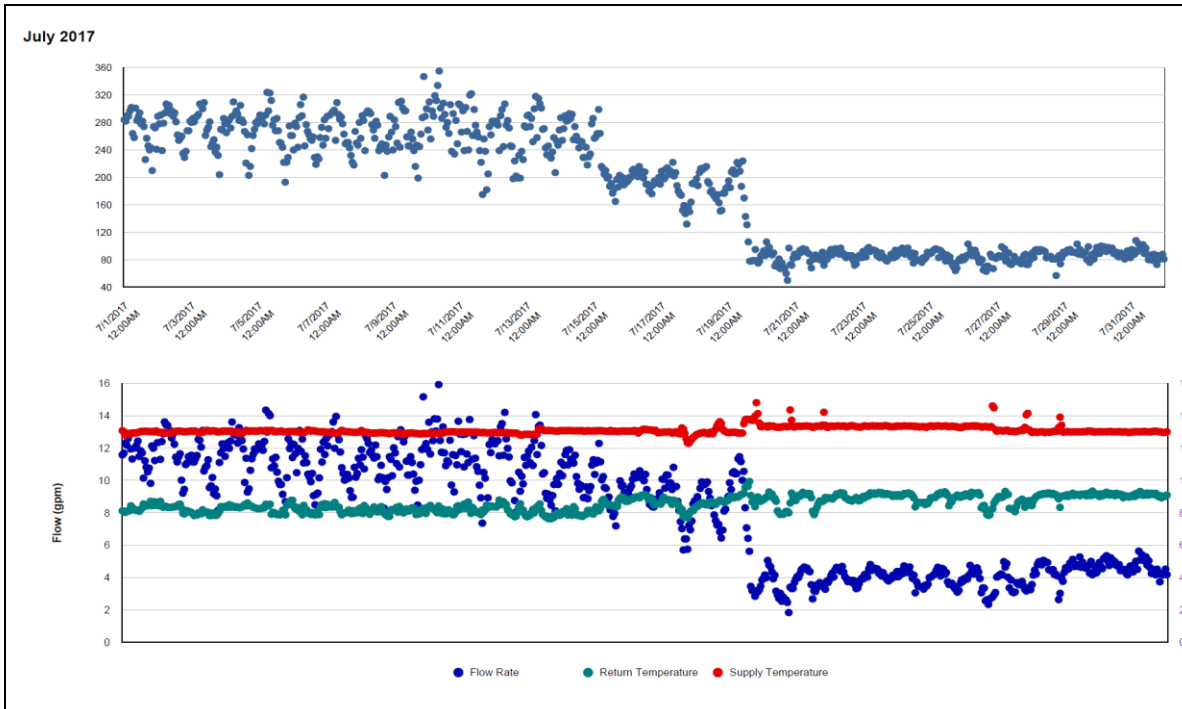
Explanatory Figure: 13 months energy balance plot with original data. (Kiest Hall, Fountain Hall, and Plank LLC TAMU Bldg #401-403-1404)



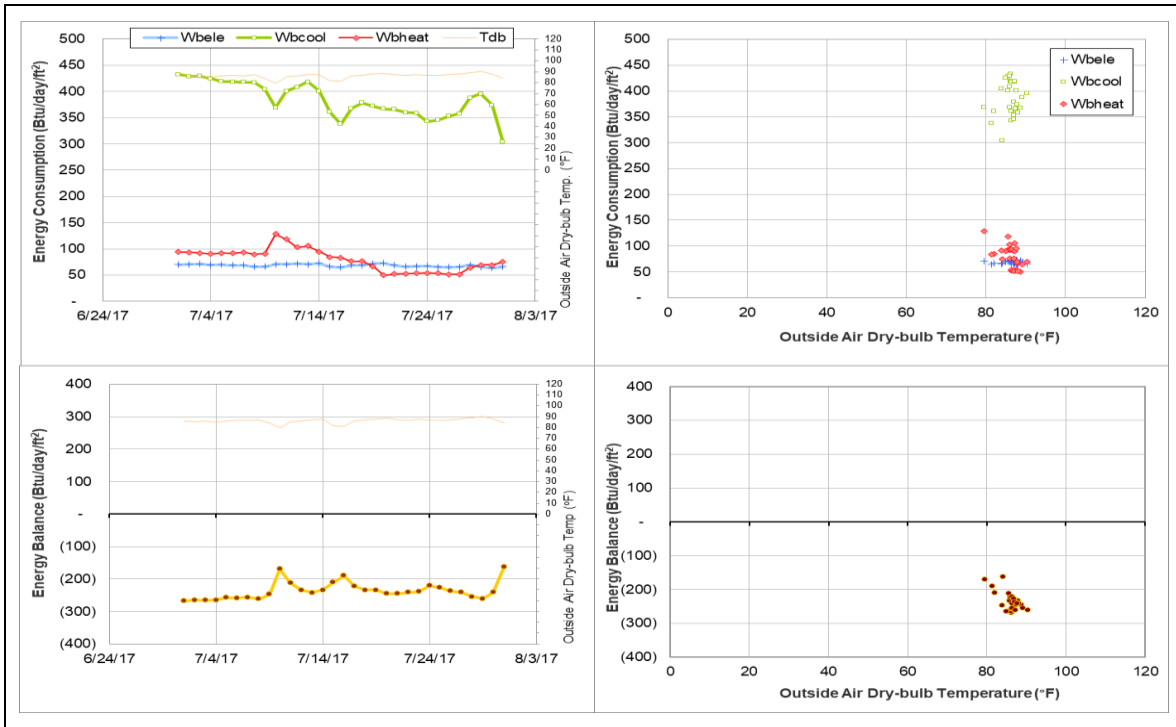
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017 - Plank LLC TAMU Bldg #1404)



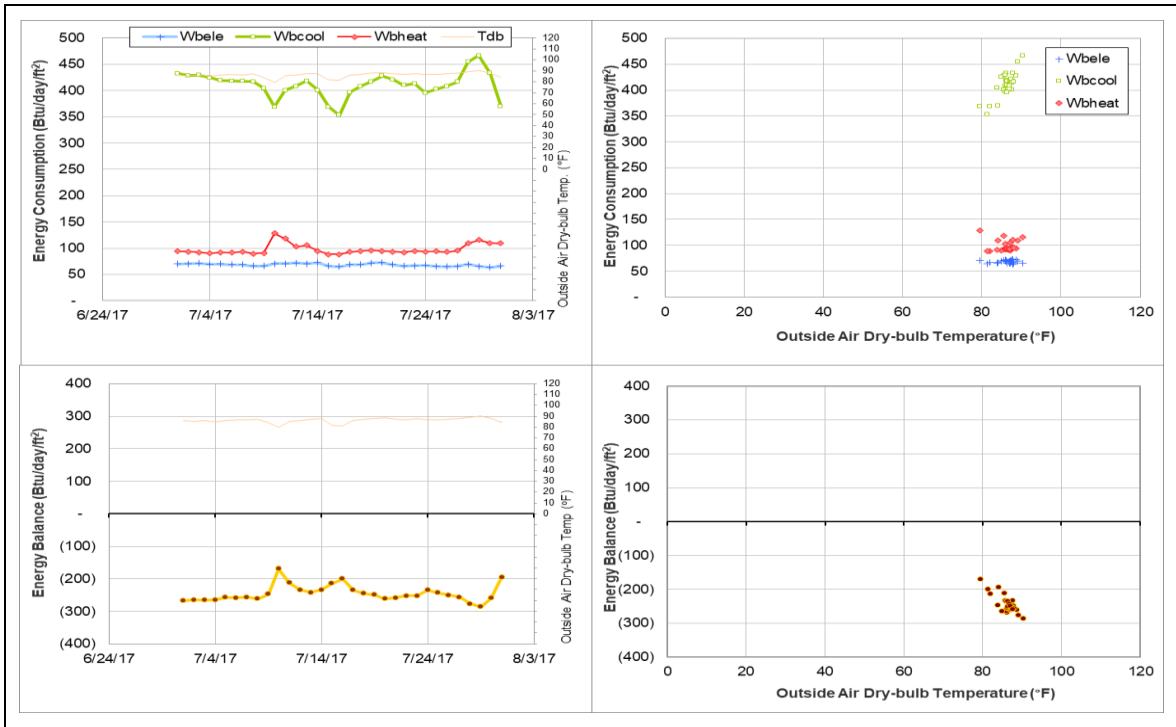
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017 - Plank LLC TAMU Bldg #1404)



Energy balance plot using the original data for the month of analysis. (Kiest Hall, Fountain Hall, and Plank LLC TAMU Bldg #401-403-1404)



Energy balance plot using the estimated data for the month of analysis. (Kiest Hall, Fountain Hall, and Plank LLC TAMU Bldg #401-403-1404)



Briggs Hall – Dorm 3 (TAMU Bldg #402)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	009324	31	7/1/2017 – 7/31/2017	Model

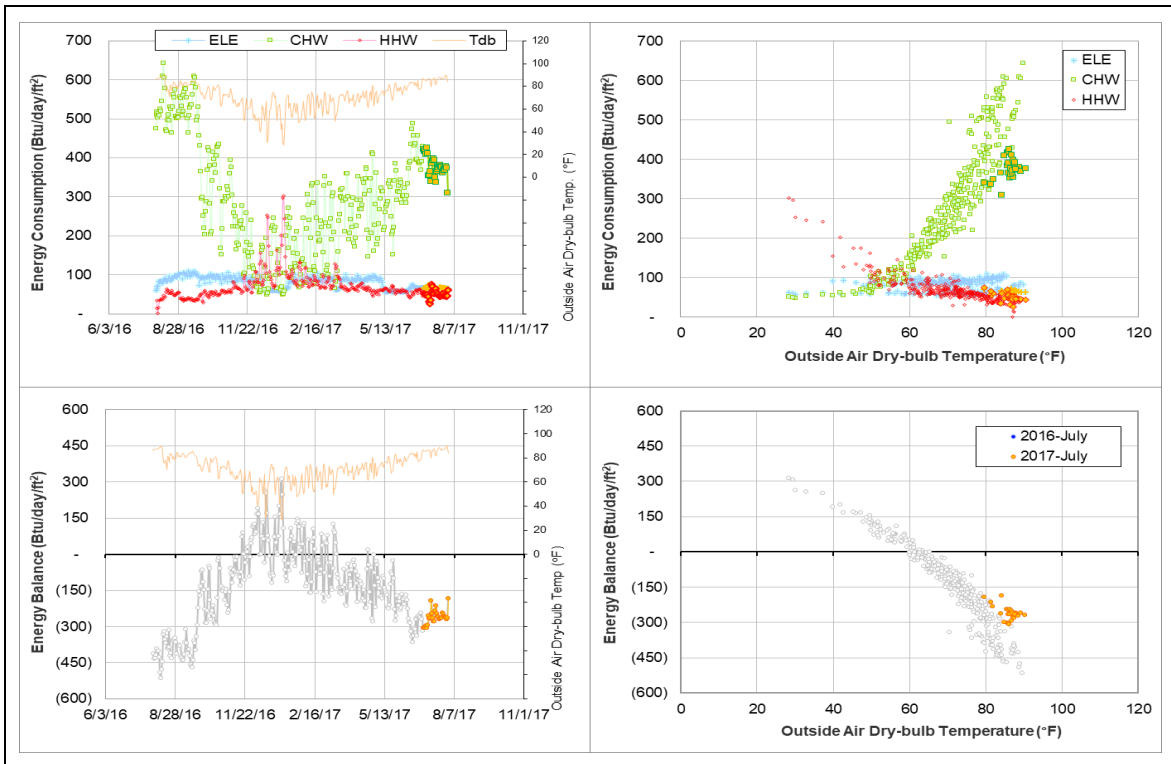
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is lower than the level during the past year.	7/1/2017 – 7/31/2017

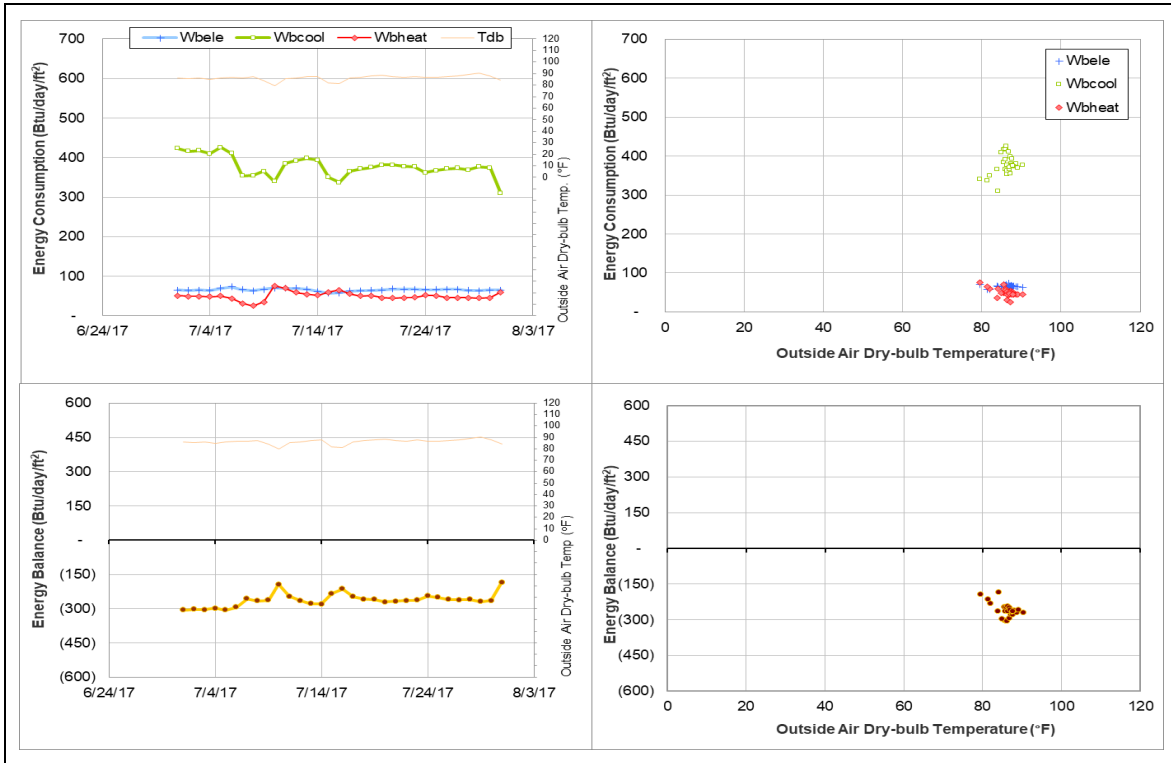
Quantitative descriptions and comments

The CHW consumption is lower than the past year by about 200 Btu/day/ft². No obvious sensor reading behavior anomaly is observed. The whole month is estimated using a model.

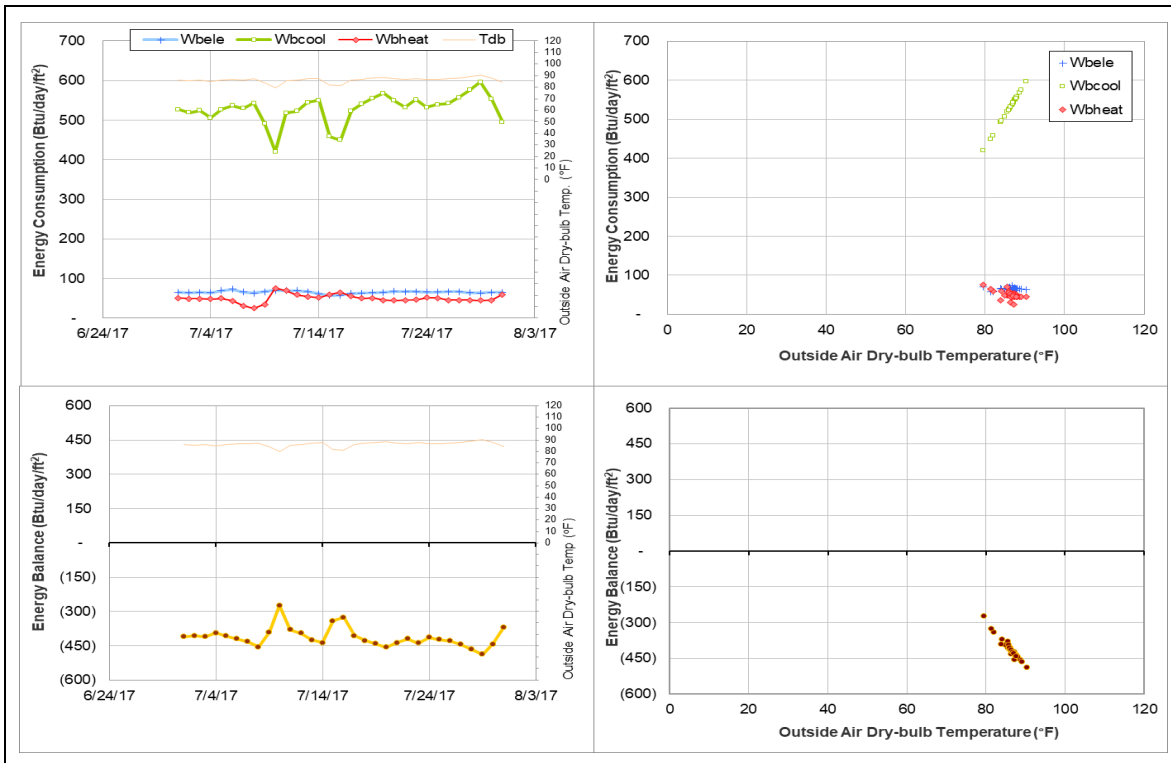
Explanatory Figure: 13 months energy balance plot with original data.



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.



Gainer Hall – Dorm 5 (TAMU Bldg #404)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	009356	31	7/1/2017 – 7/31/2017	Model

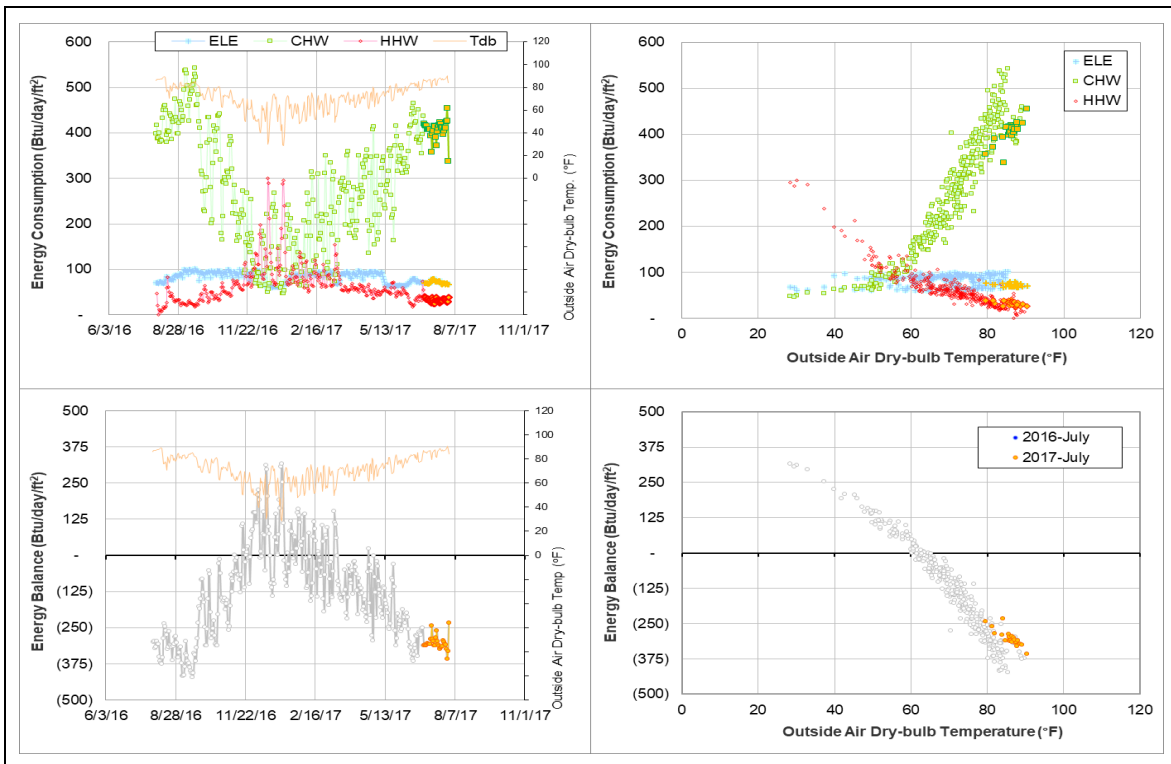
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is lower than the level during the past year.	7/1/2017 – 7/31/2017

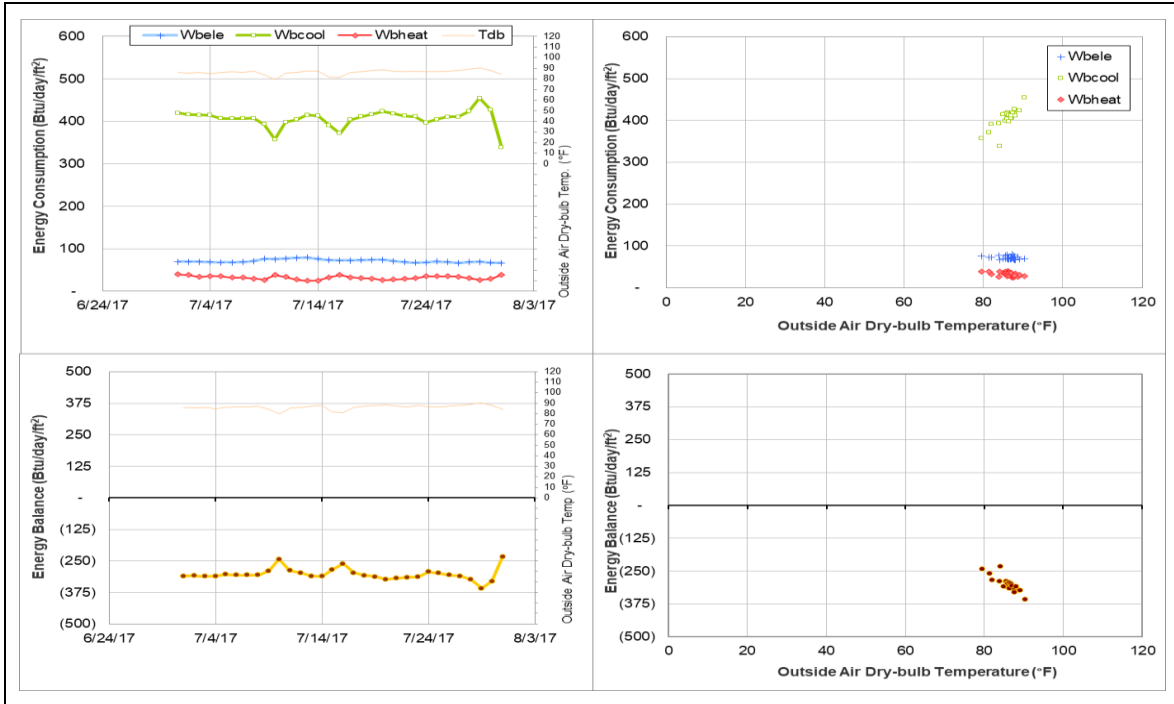
Quantitative descriptions and comments

The CHW consumption is lower than the past year by about 150 Btu/day/ft². No obvious sensor reading behavior anomaly is observed. The whole month is estimated using a model.

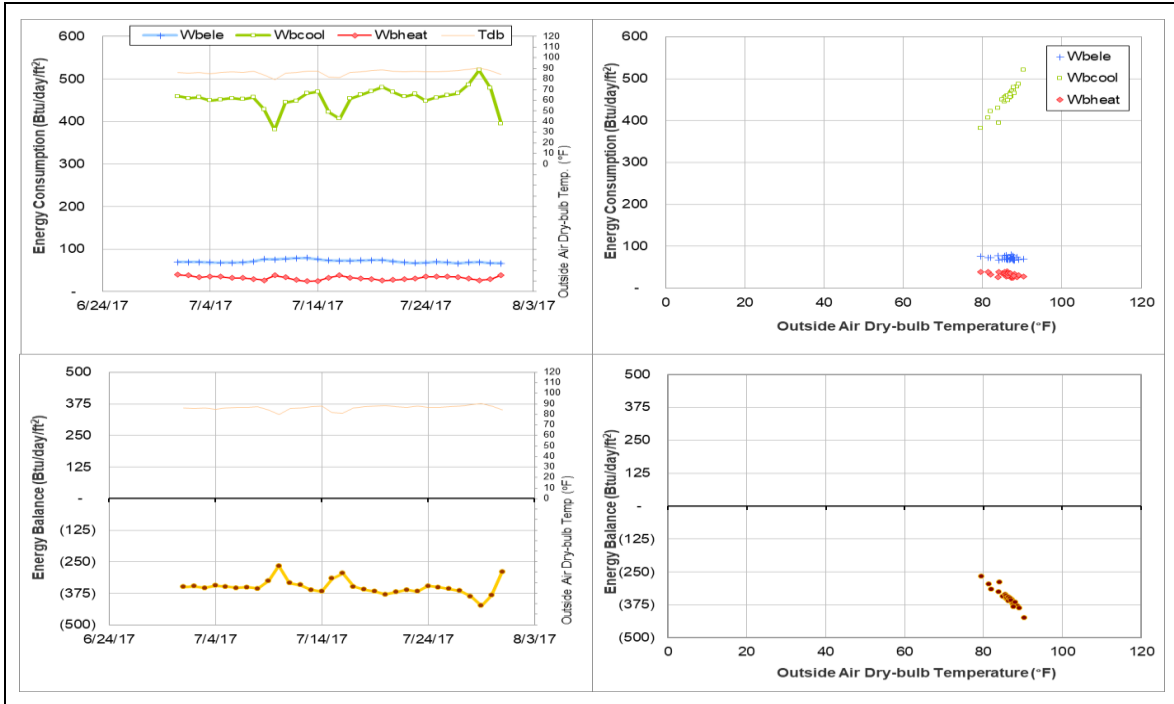
Explanatory Figure: 13 months energy balance plot with original data. (Gainer Hall, Leonard Hall and Ash LLC TAMU Bldg #404-406-1403)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any. (Gainer Hall, Leonard Hall and Ash LLC TAMU Bldg #404-406-1403)



Energy balance plot using the estimated data for the month of analysis. (Gainer Hall, Leonard Hall and Ash LLC TAMU Bldg #404-406-1403)



Whitely Hall – Dorm 9 (TAMU Bldg #408)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002079	11	7/21/2017 – 7/31/2017	Model
HHW	002083	11	7/21/2017 – 7/31/2017	Average

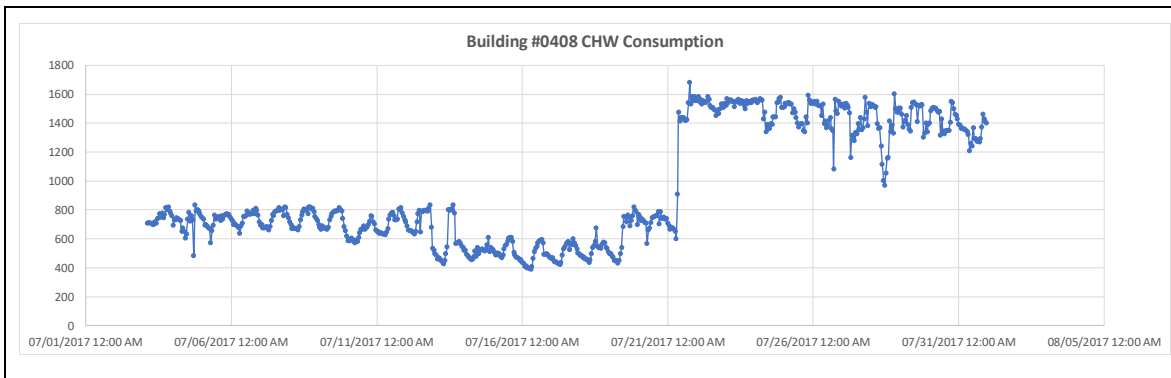
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Abnormal patterns are observed.	7/21/2017 – 7/31/2017
HHW	Abnormal patterns are observed.	7/21/2017 – 7/31/2017

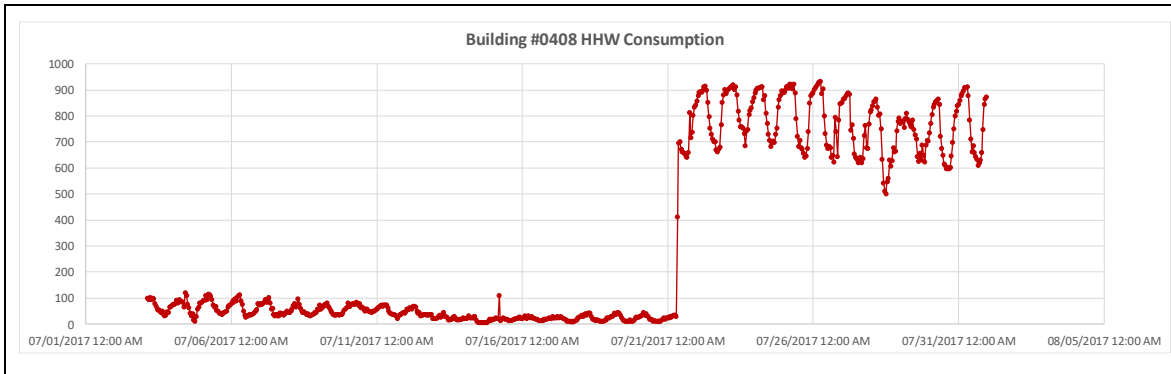
Quantitative descriptions and comments

The CHW and HHW consumption was abnormally high from 7/21/2017 – 7/31/2017. CHW consumption appears to be doubled while HHW consumption appears to be larger by a factor of 24. These days are estimated by a model for CHW and an average for HHW. See also section II-3.

Explanatory Figure: Time series plot for CHW consumption



Explanatory Figure: Time series plot for HHW consumption



Legett Residence Hall (TAMU Bldg #419)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002218	4	7/28/2017 – 7/31/2017	Model
HHW	002222	11	7/21/2017 – 7/31/2017	Model

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

Data Type	Description of data behaviors	Period
CHW	Abnormal patterns are observed.	7/28/2017 – 7/31/2017
HHW	Abnormal patterns are observed.	7/21/2017 – 7/31/2017

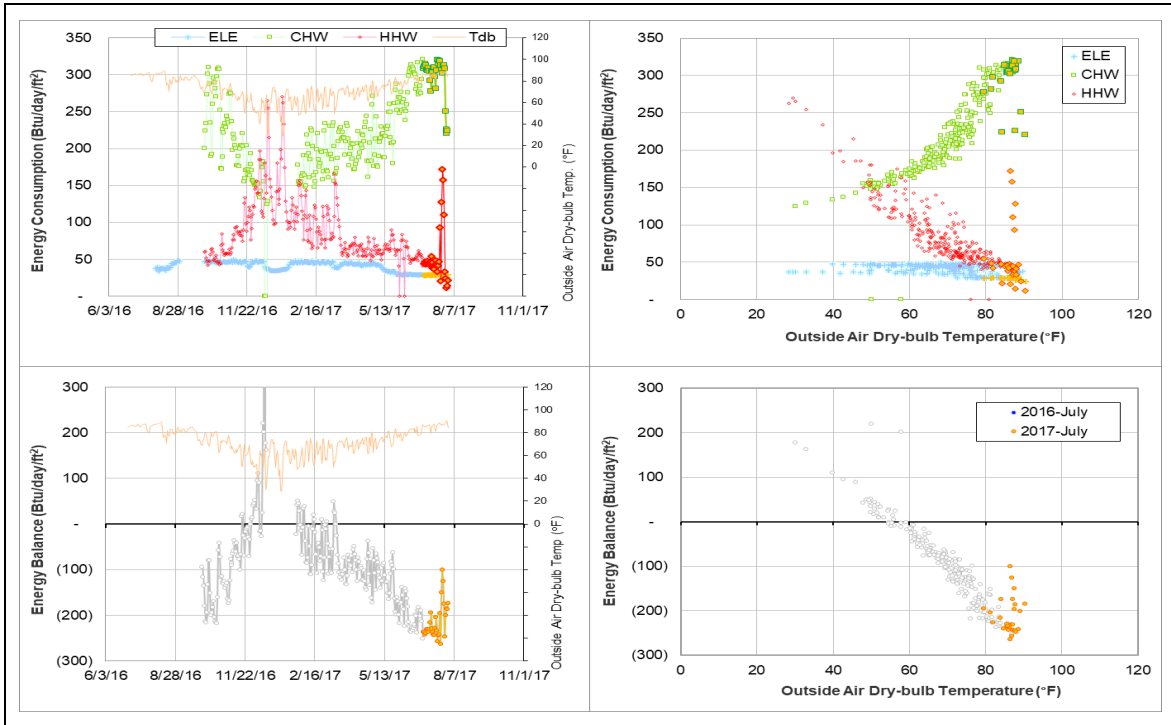
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002218	7/28/2017 – 7/29/2017	Flow rate	Decreased
		7/30/2017 – 7/31/2017	Delta-T	Decreased
HHW	002222	7/21/2017 – 7/29/2017	Flow rate	Spikes
		7/30/2017 – 7/31/2017	Delta-T	Decreased

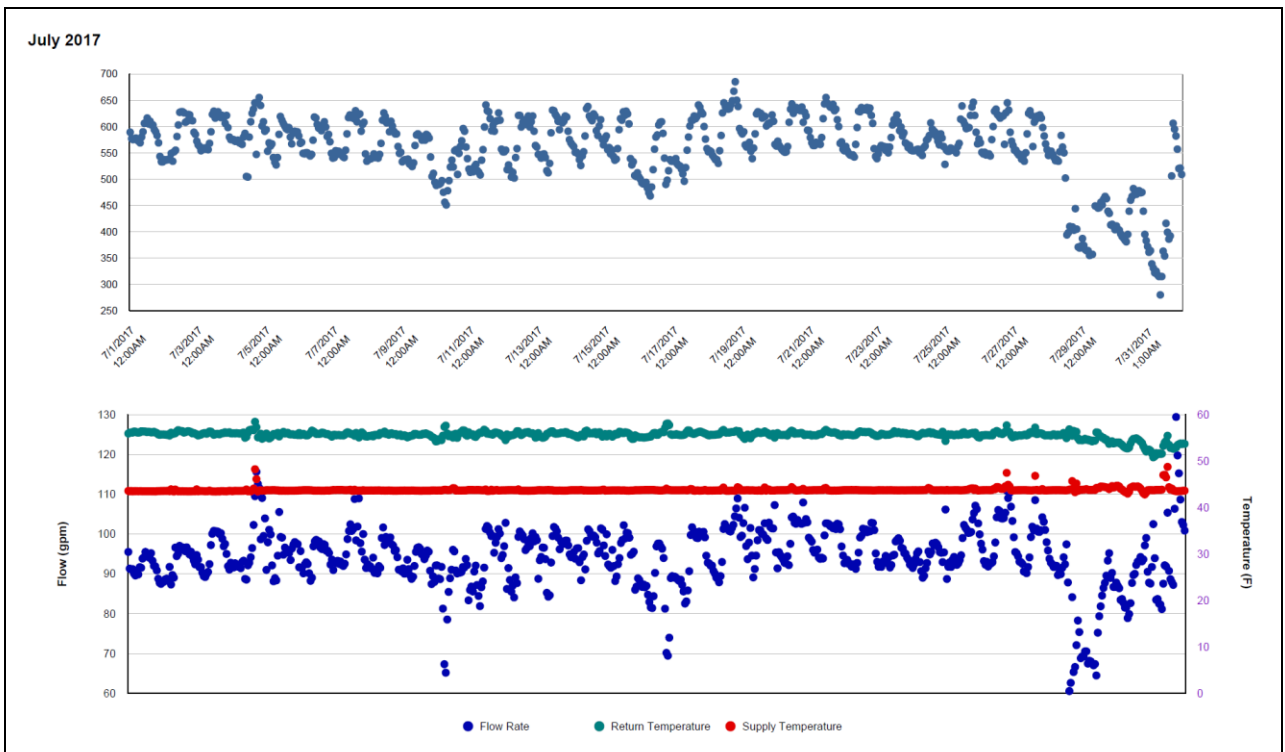
Quantitative descriptions and comments

The CHW consumption dropped starting 7/28/2017 due to a decrease in flow rate followed by a decrease in delta-T on 7/30/2017. The HHW consumption increased starting 7/21/2017 due to several spikes in the flow rate followed by a decrease in delta-T on 7/30/2017. The specified days are estimated using a model.

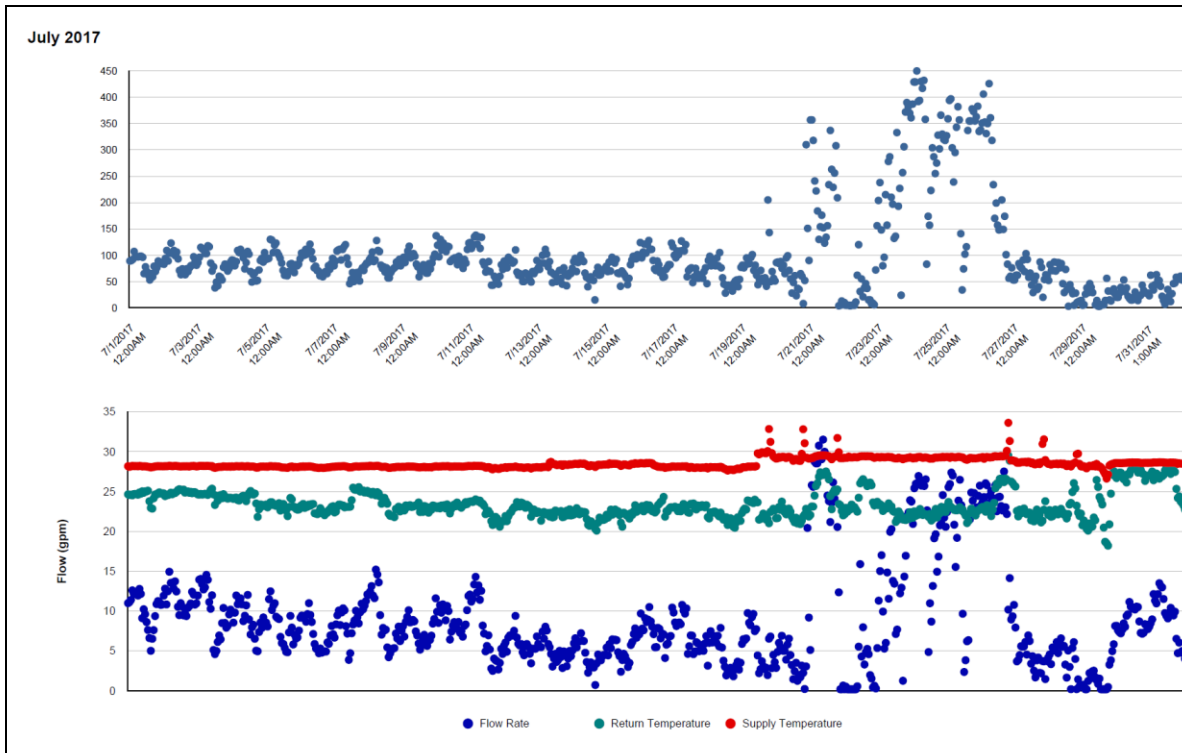
Explanatory Figure: 13 months energy balance plot with original data. (The plot is rescaled to remove the spikes.)



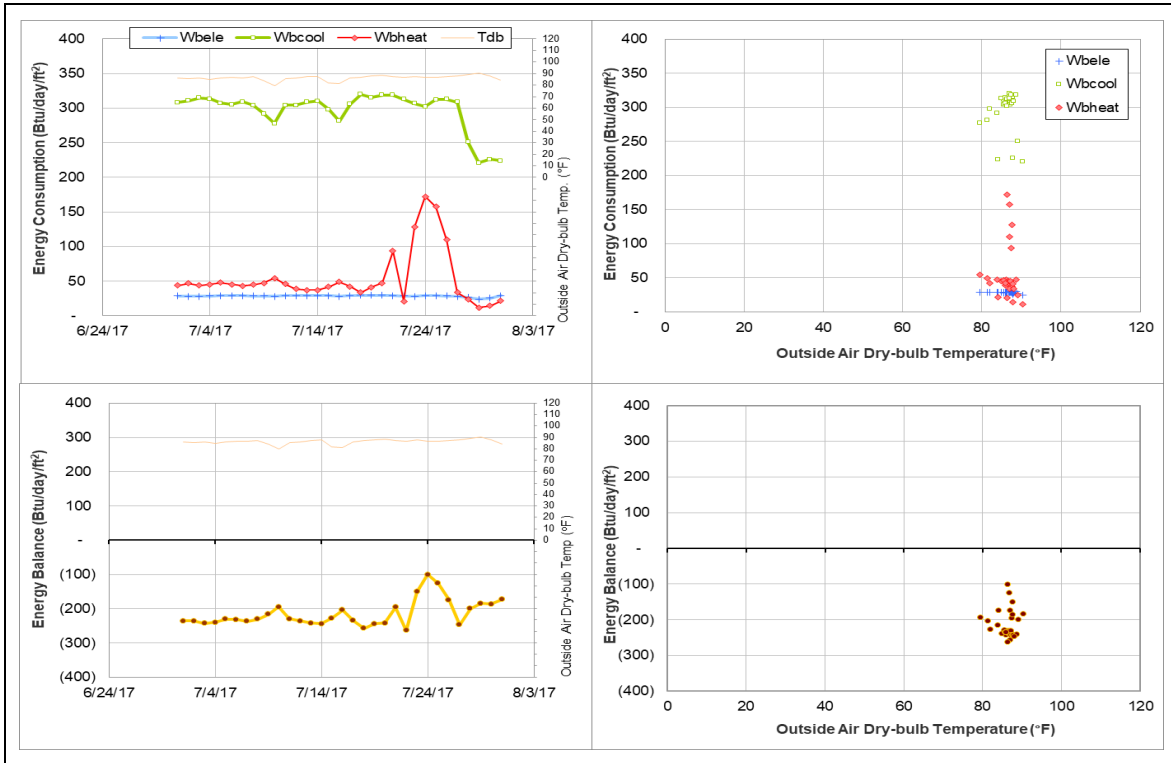
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



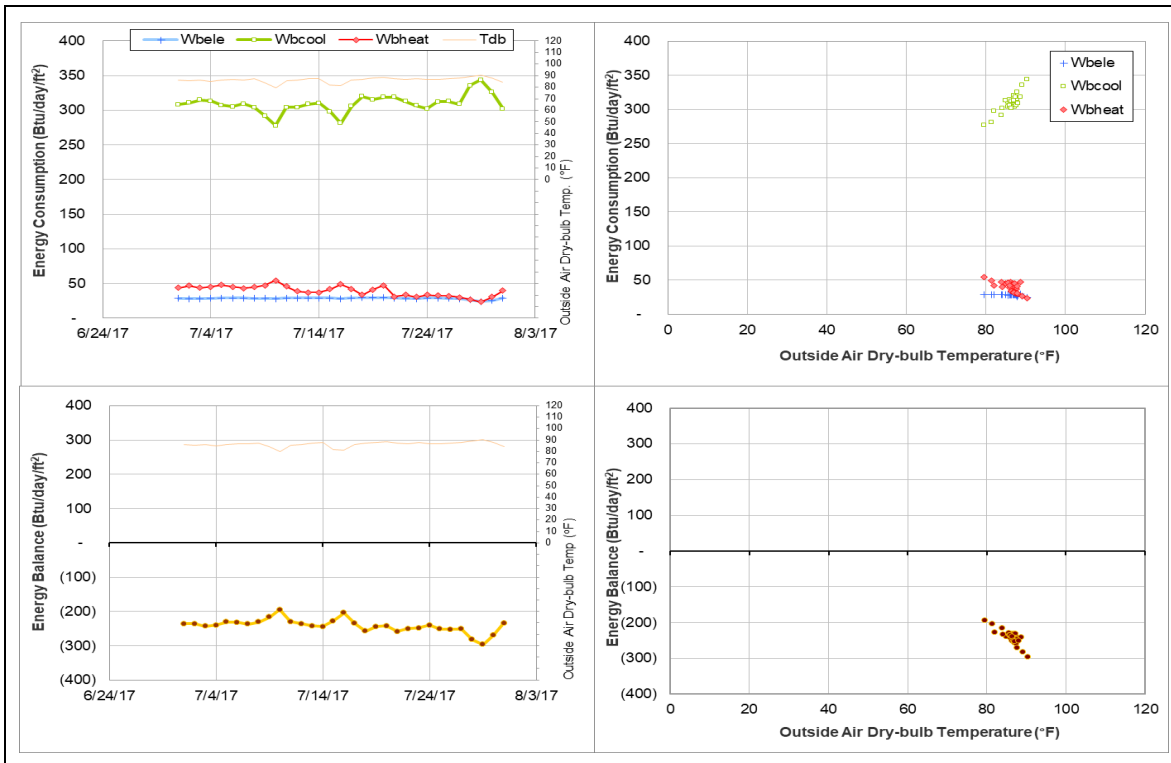
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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.



Dunn Residence Hall (TAMU Bldg #442)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002519	4	7/8/2017 – 7/10/2017, 7/15/2017	Model
HHW	002515	2	7/13/2017 – 7/14/2017	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.	7/8/2017 – 7/10/2017, 7/15/2017
HHW	The consumption dropped for a short period.	7/13/2017 – 7/14/2017

Changes in sensor readings related to the detected issues

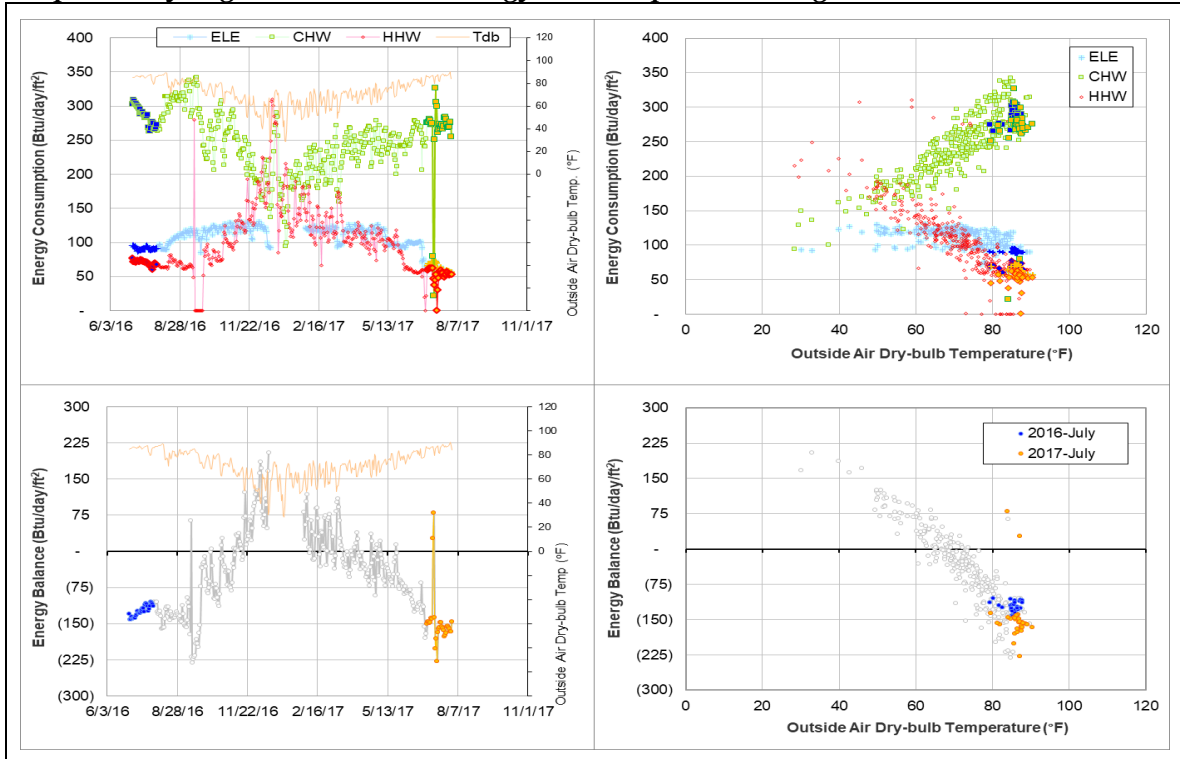
Energy Type	Meter ID	Period	Type	Description
CHW	002519	7/8/2017 – 7/10/2017, 7/15/2017	Flow rate	Decreased to near zero
HHW	002515	7/13/2017 – 7/14/2017	Delta-T	Negative

Quantitative descriptions and comments

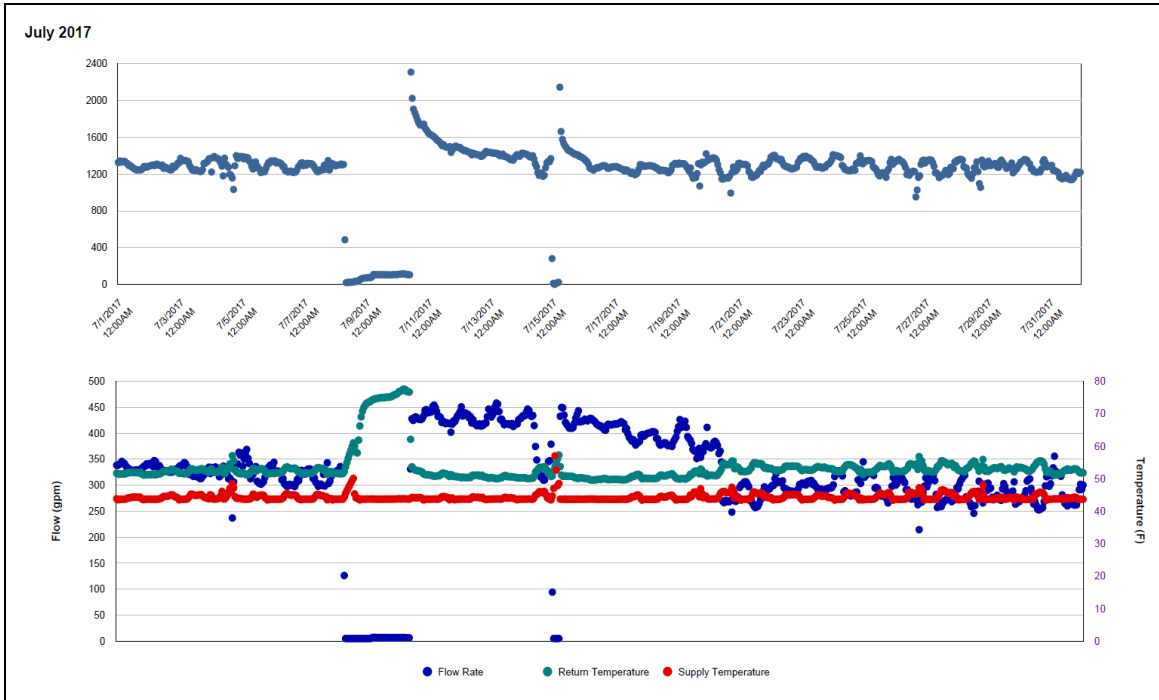
The CHW flow rate decreased to near zero value from 7/8/2017 – 7/10/2017 and 7/15/2017. The CHW consumption was estimated by model for these days.

The HHW supply temperature decreased below the return temperature resulting in a negative Delta-T during 7/13/2017 – 7/14/2017. The HHW consumption was estimated by model for these days.

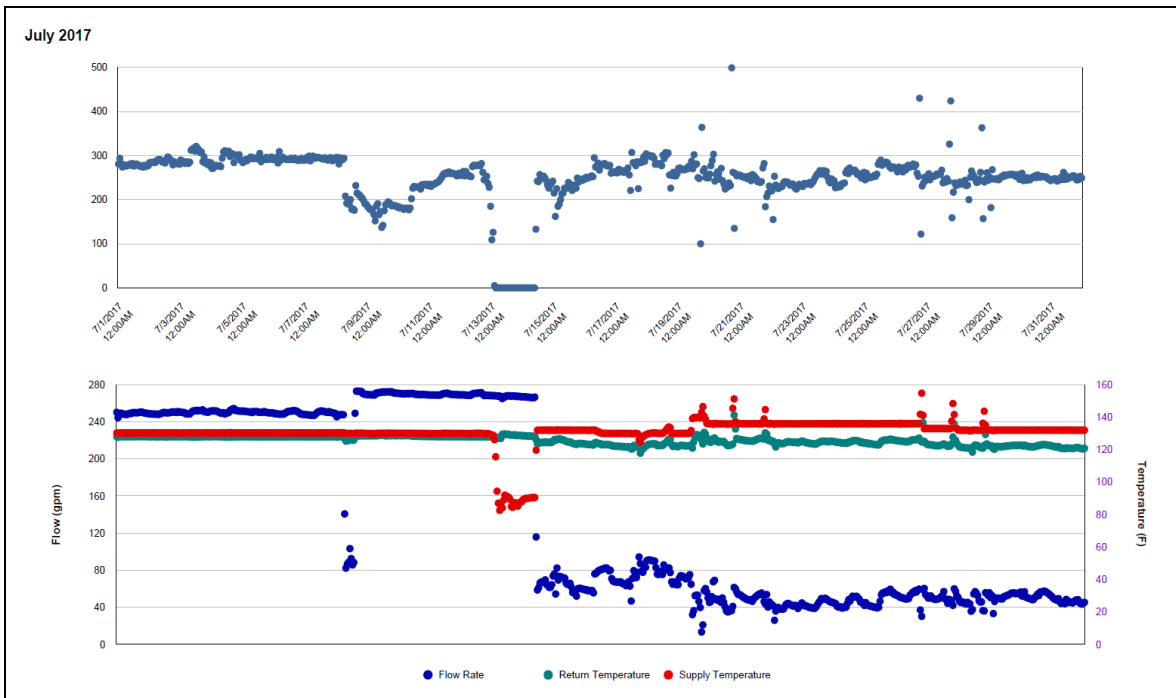
Explanatory Figure: 13 months energy balance plot with original data



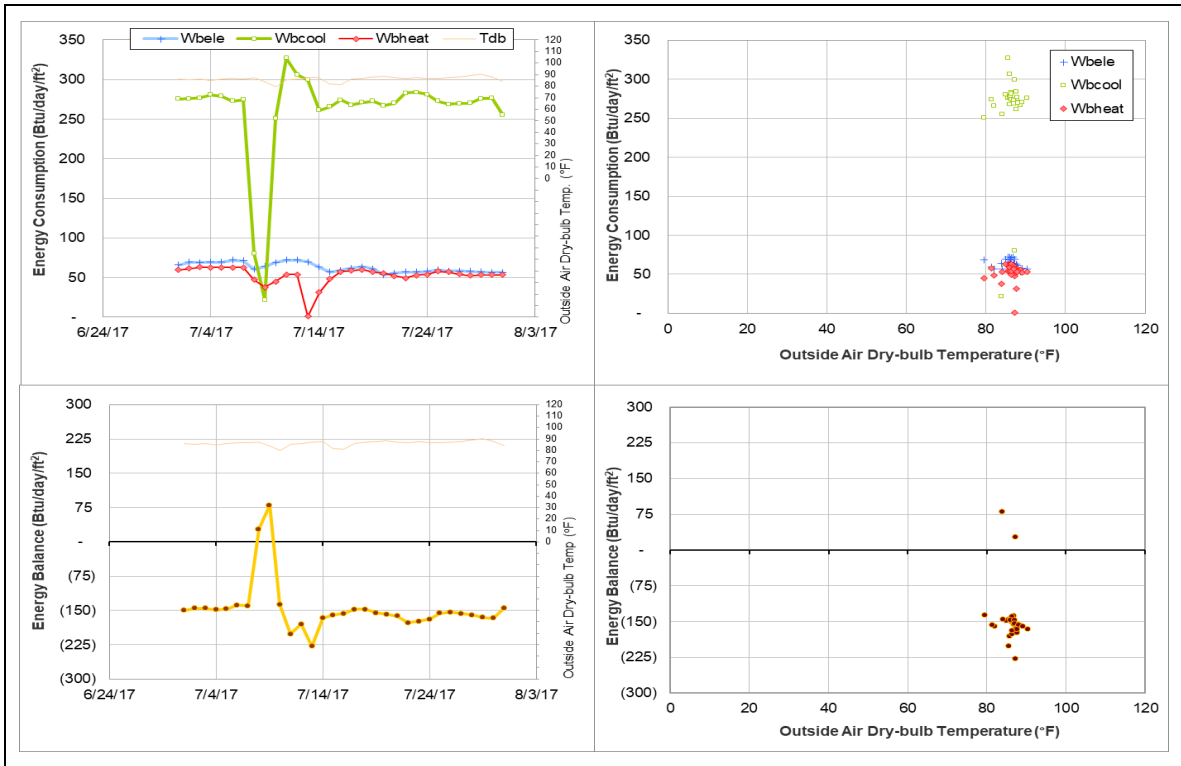
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW meter during July 2017)



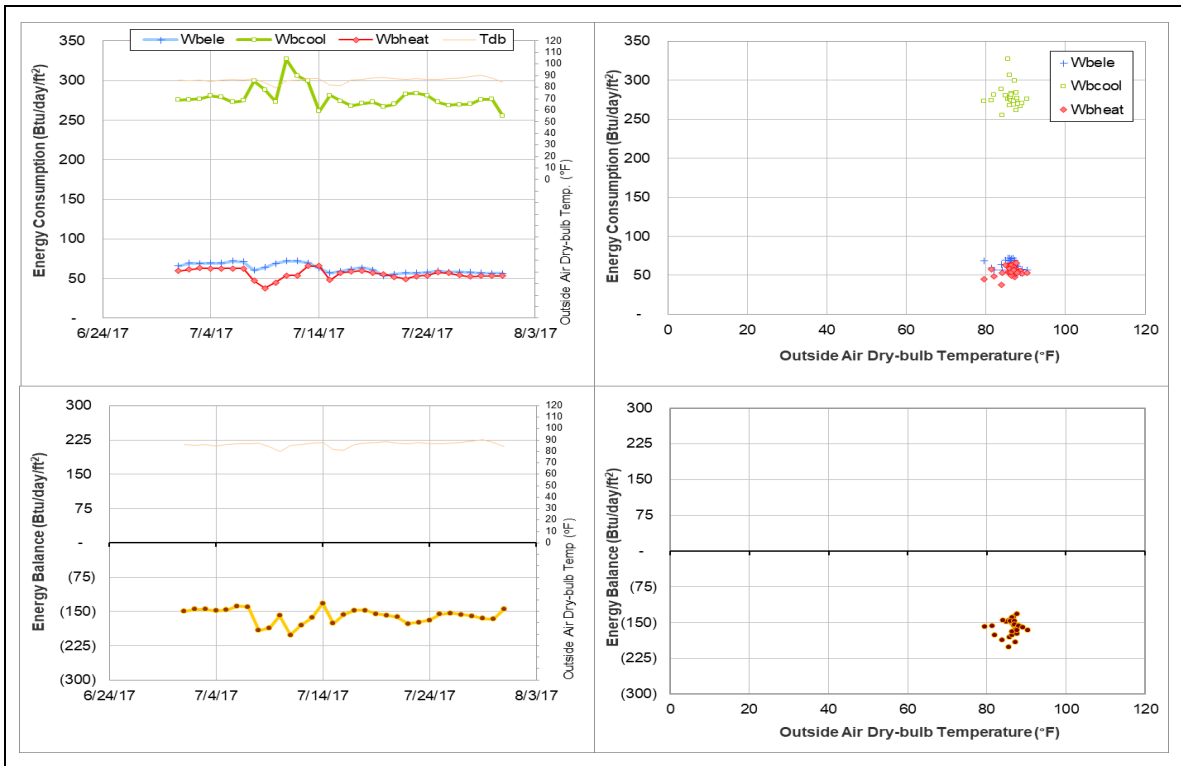
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HW meter during July 2017)



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



Oceanography & Meteorology Building (TAMU Bldg #443)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	006388	27	7/1/2017 – 7/27/2017	Model

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

Data Type	Description of data behaviors	Period
CHW	The consumption level is higher than the level during the past year.	6/12/2017 – 7/27/2017

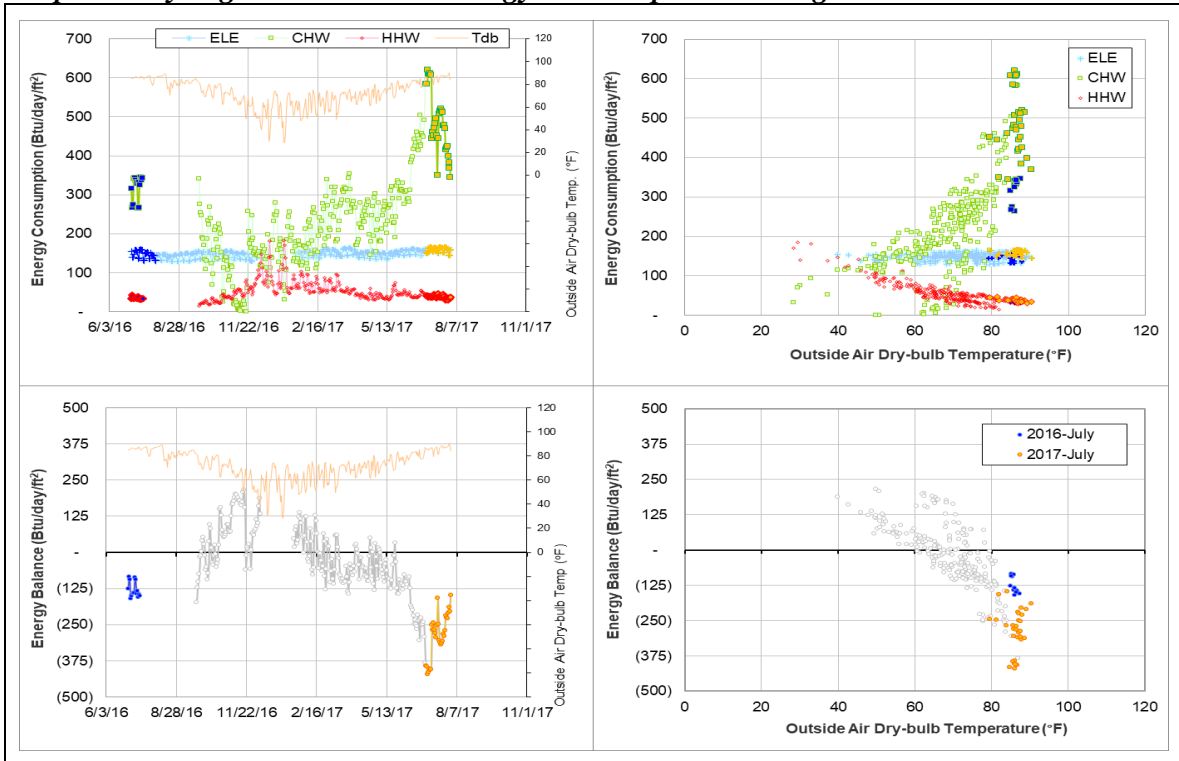
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	006388	6/12/2017 – 7/27/2017	Flow rate	Increased

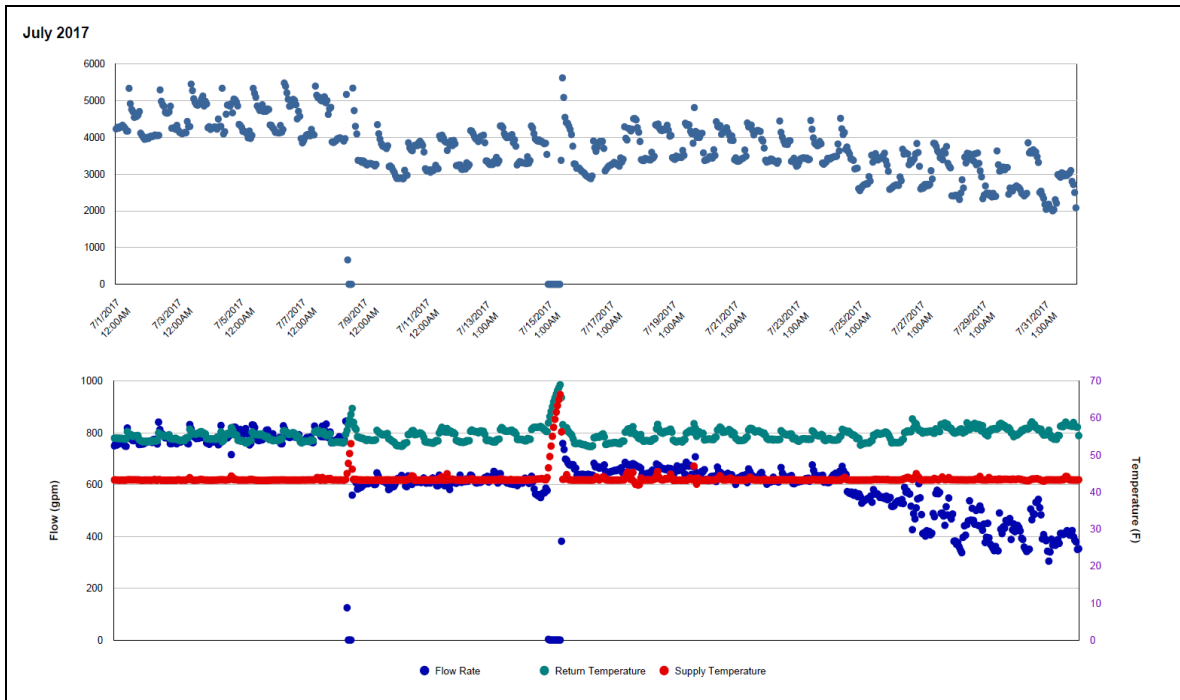
Quantitative descriptions and comments

Starting 6/12/2017, the CHW consumption pattern increased around 100 Btu/day/ft². The flow rate appears to have gradually increased during June from around 350 gpm to 650 gpm. In July, the flow rate began to decrease and the CHW consumption pattern returned to the previous pattern level on 7/28/2017. The CHW consumption was estimated by model for this period.

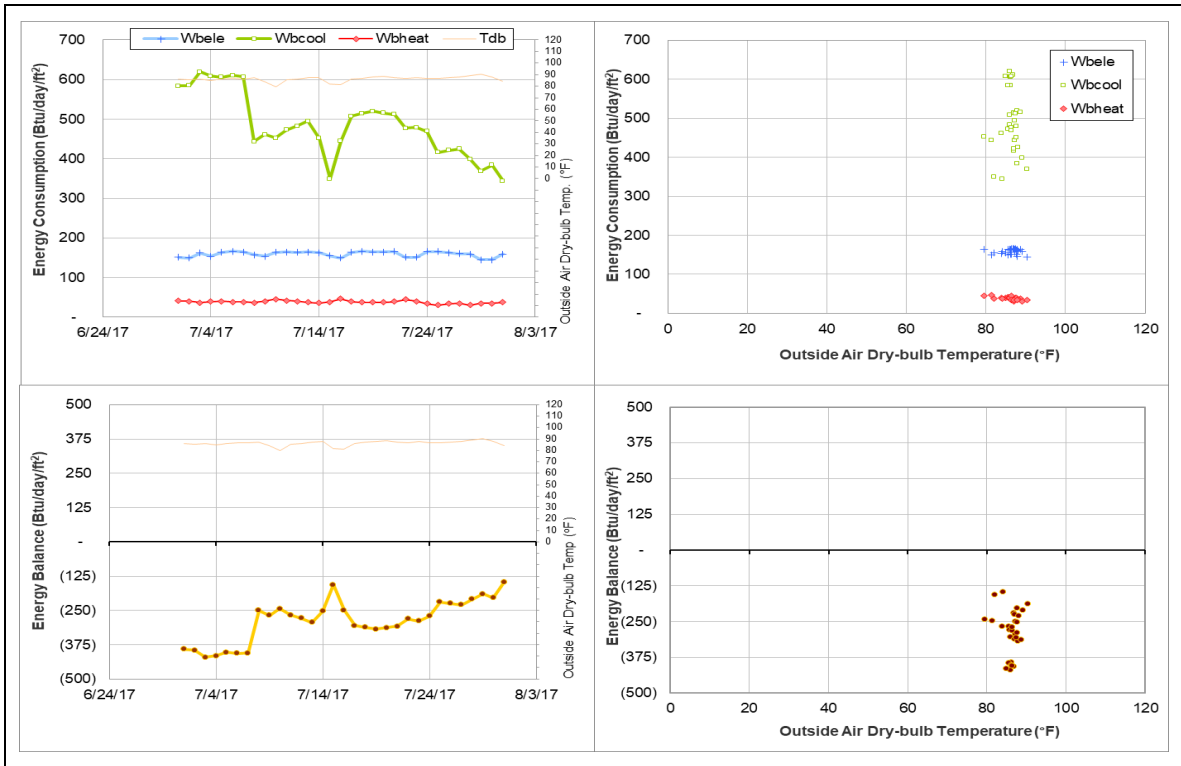
Explanatory Figure: 13 months energy balance plot with original data



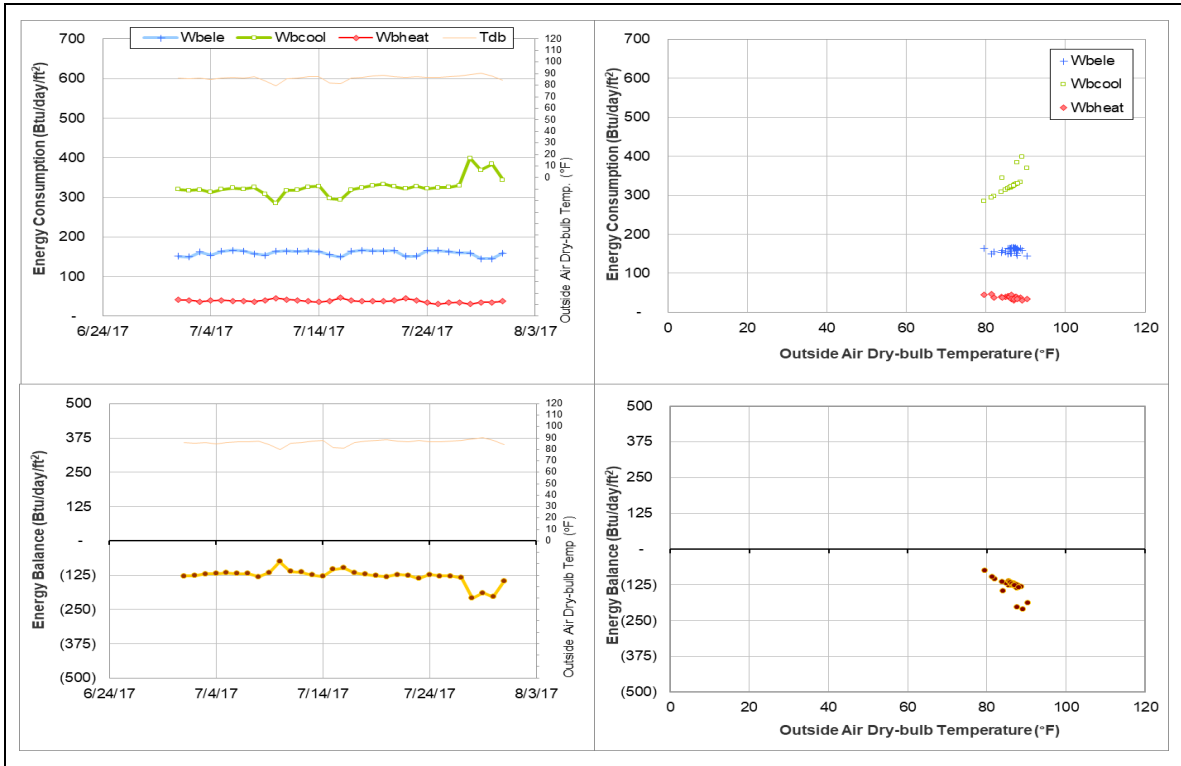
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW meter during July 2017)



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	31	7/1/2017 – 7/31/2017	Model
ELE	002980	31	7/1/2017 – 7/31/2017	Model
CHW	004297	31	7/1/2017 – 7/31/2017	Model
HHW	004309	31	7/1/2017 – 7/31/2017	Model

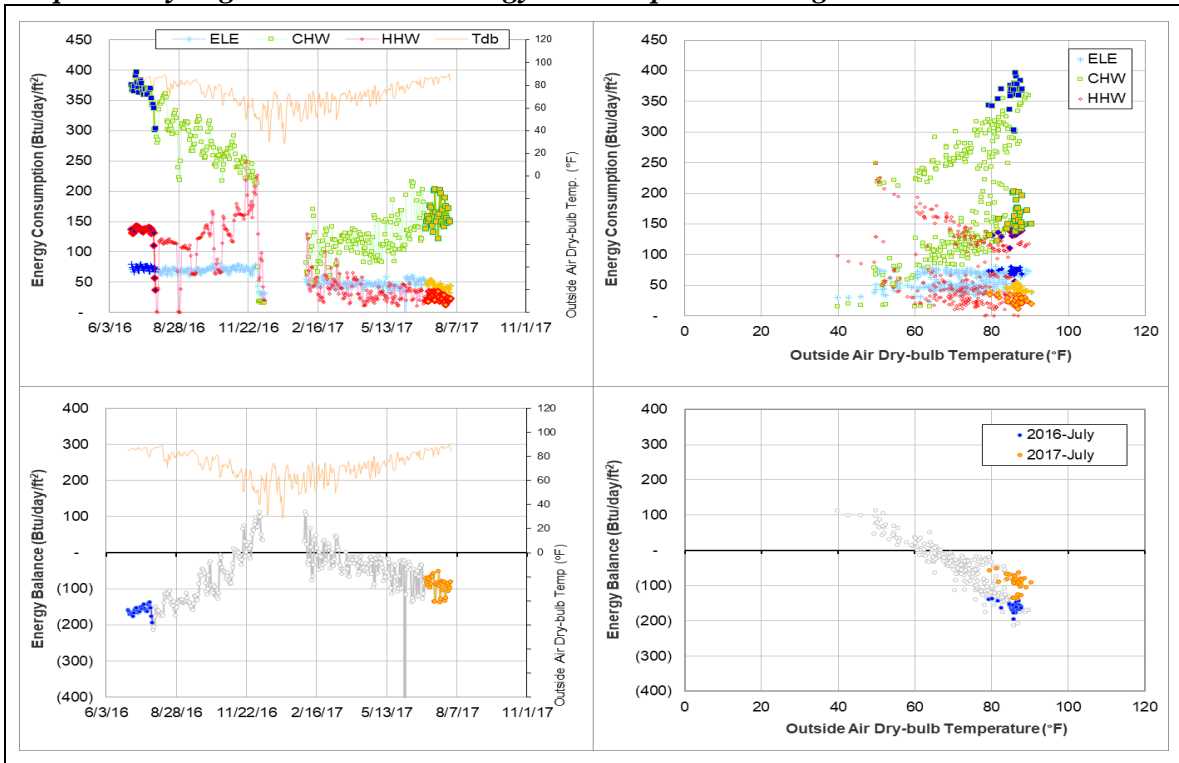
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level has decreased suddenly.	2/1/2017 – Ongoing
ELE	The consumption level has decreased suddenly.	2/1/2017 – Ongoing
CHW	The consumption level has decreased suddenly.	2/1/2017 – Ongoing
HHW	The consumption level has decreased suddenly.	2/1/2017 – Ongoing

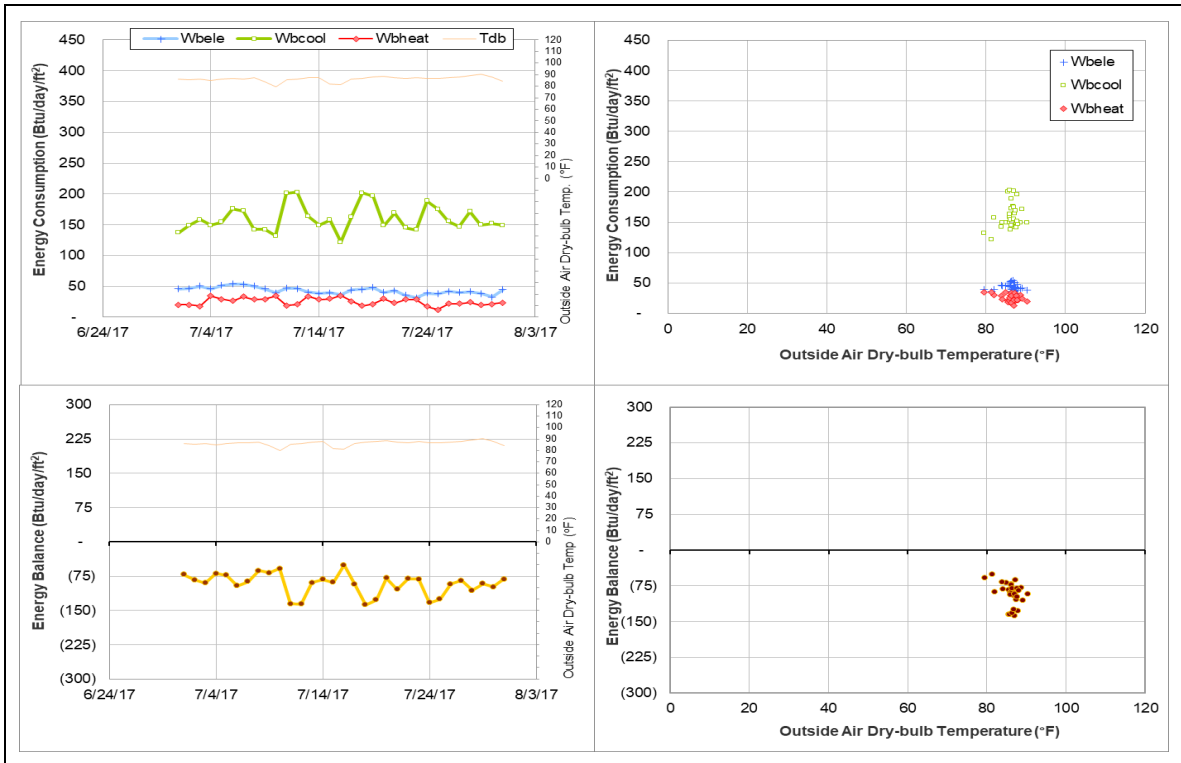
Quantitative descriptions and comments

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.

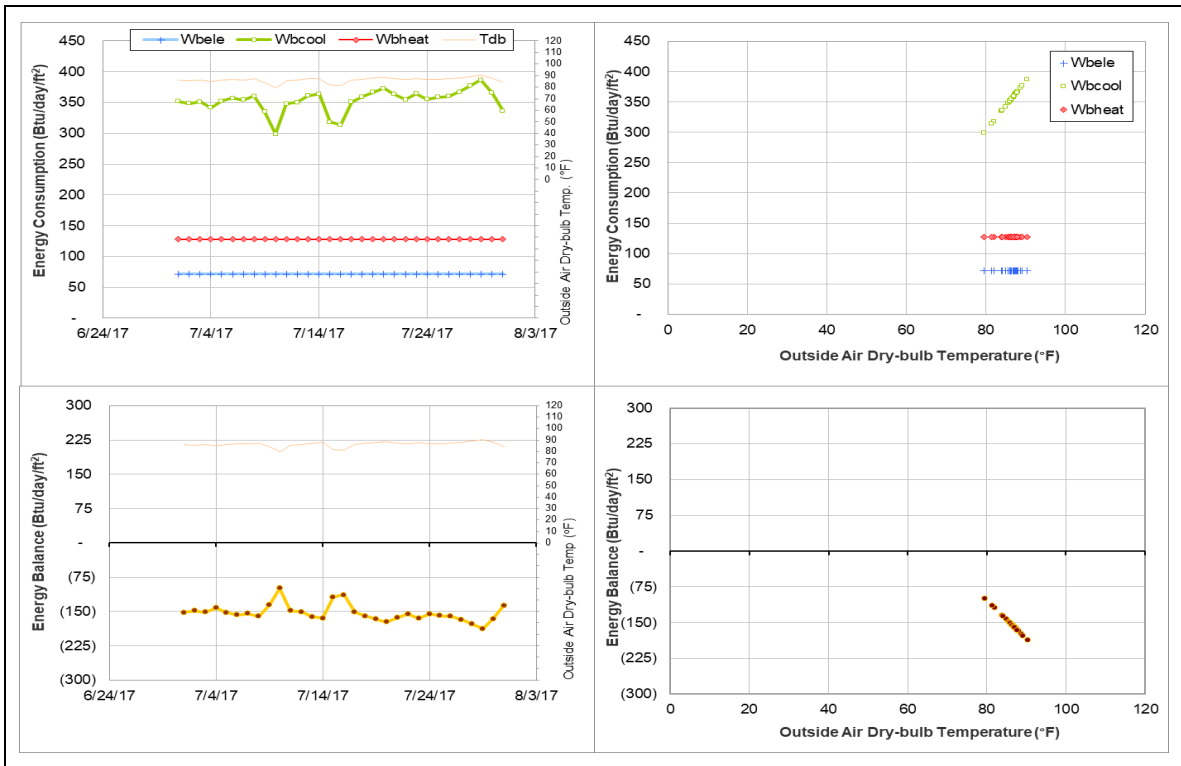
Explanatory Figure: 13 months energy balance plot with original data



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
CHW	002474	31	7/1/2017 – 7/31/2017	Model
HHW	002470	7	7/8/2017 – 7/14/2017	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.	6/25/2017 – Ongoing
HHW	The consumption level has increased suddenly.	7/8/2017 – 7/14/2017

Changes in sensor readings related to the detected issues

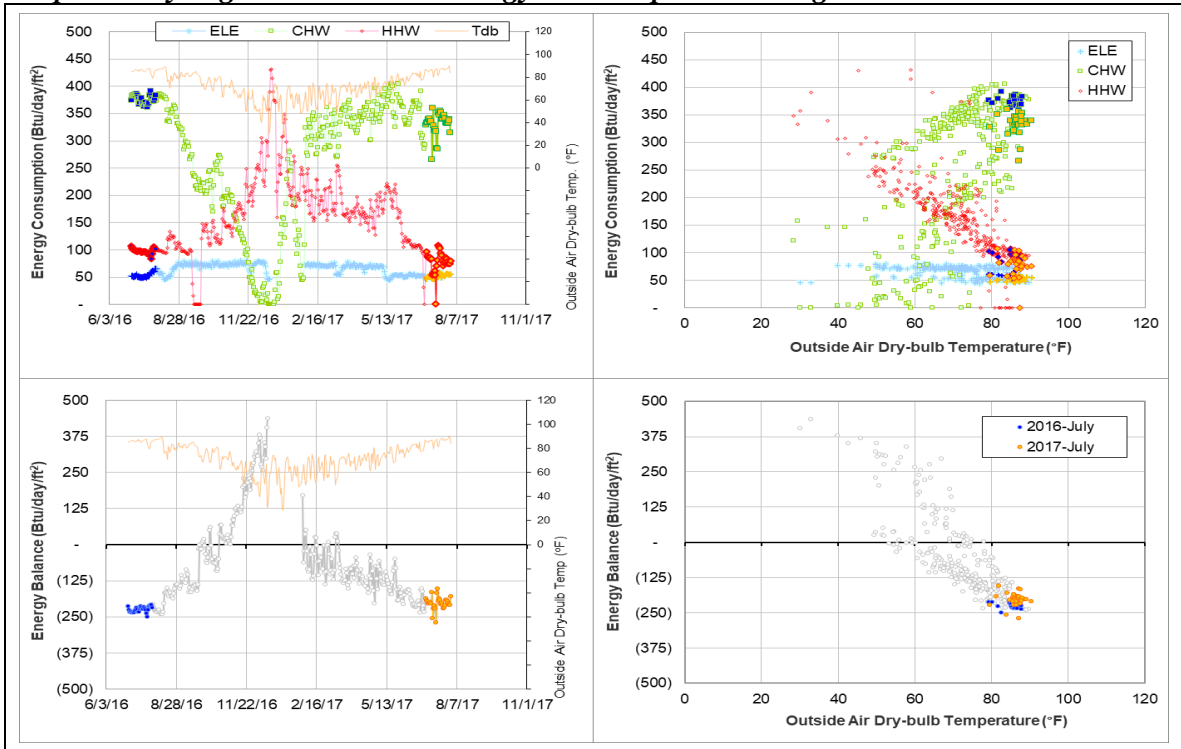
Energy Type	Meter ID	Period	Type	Description
CHW	002474	6/25/2017 – Ongoing	Flow rate	Decreased
			Delta-T	Increased
HHW	002470	7/8/2017 – 7/14/2017	Flow rate	Decreased
		7/13/2017 – 7/14/2017	Delta-T	Negative

Quantitative descriptions and comments

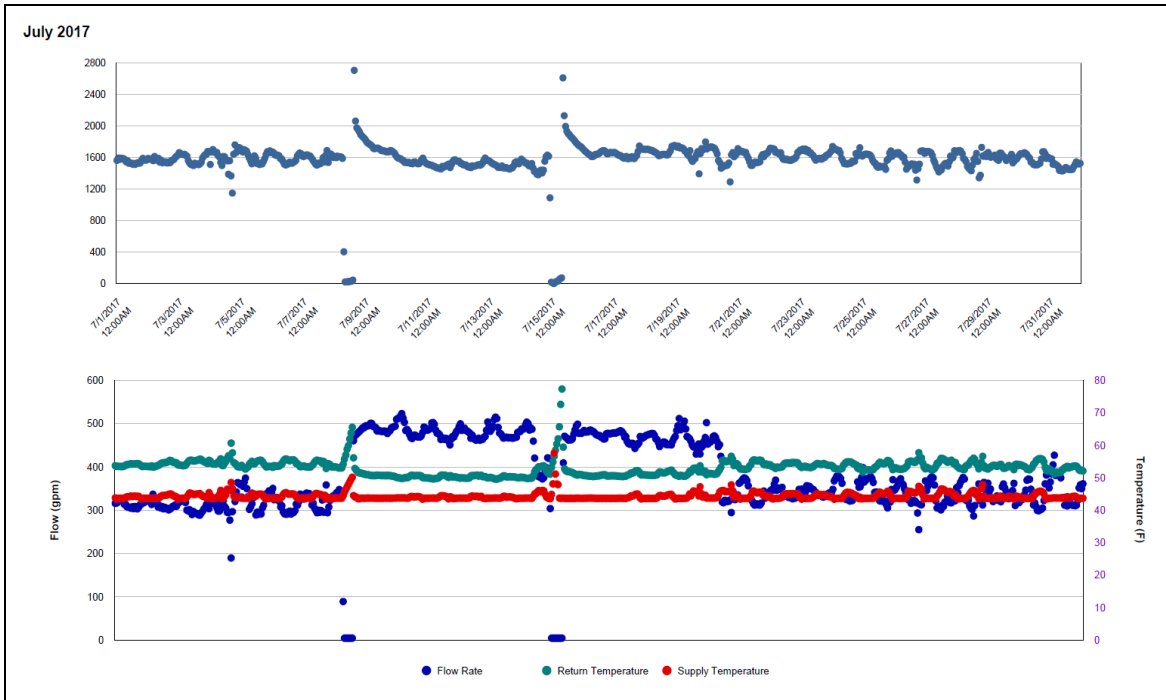
The CHW flow rate decreased by 50% starting on 6/25/2017. Although the Delta-T increased by almost 10°F, these changes resulted in an overall decrease in energy consumption. The CHW consumption for this period was estimated by model.

The HHW flow rate decreased from ~270 gpm to 40 gpm and below for 7/8/2017 – 7/14/2017. The supply temperature also drops below the return temperature resulting in a negative Delta-T for 7/13/2017 – 7/14/2017. The HHW consumption was estimated by model for these days.

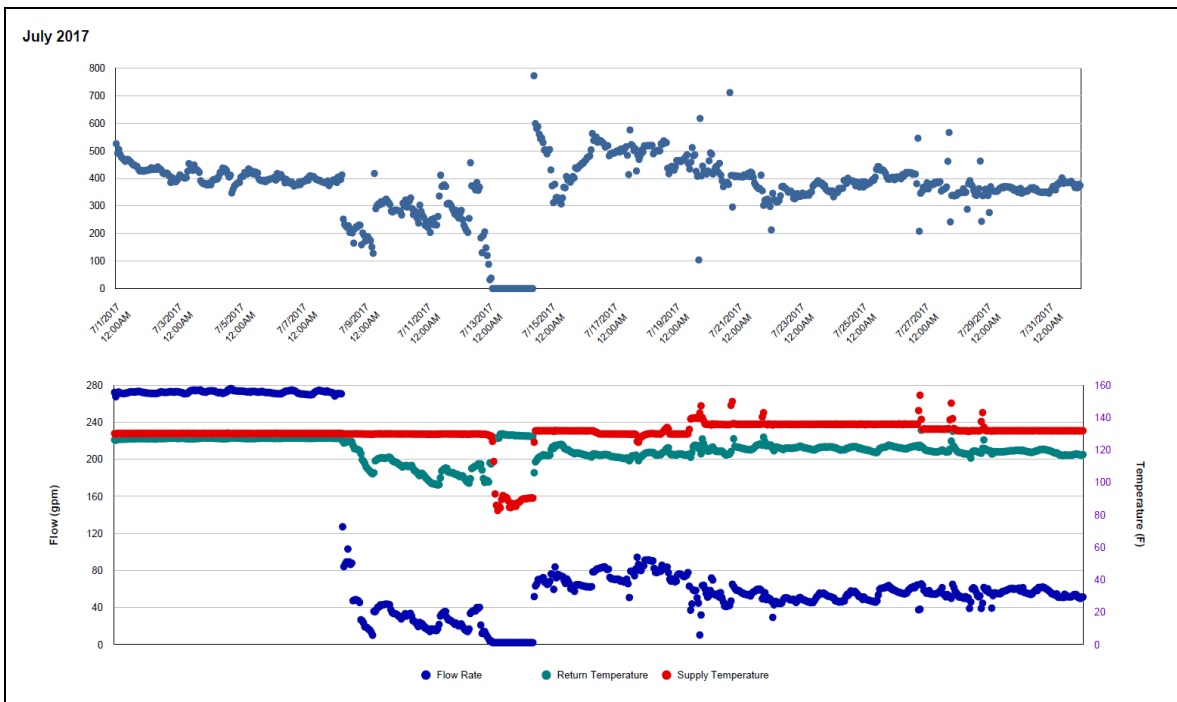
Explanatory Figure: 13 months energy balance plot with original data



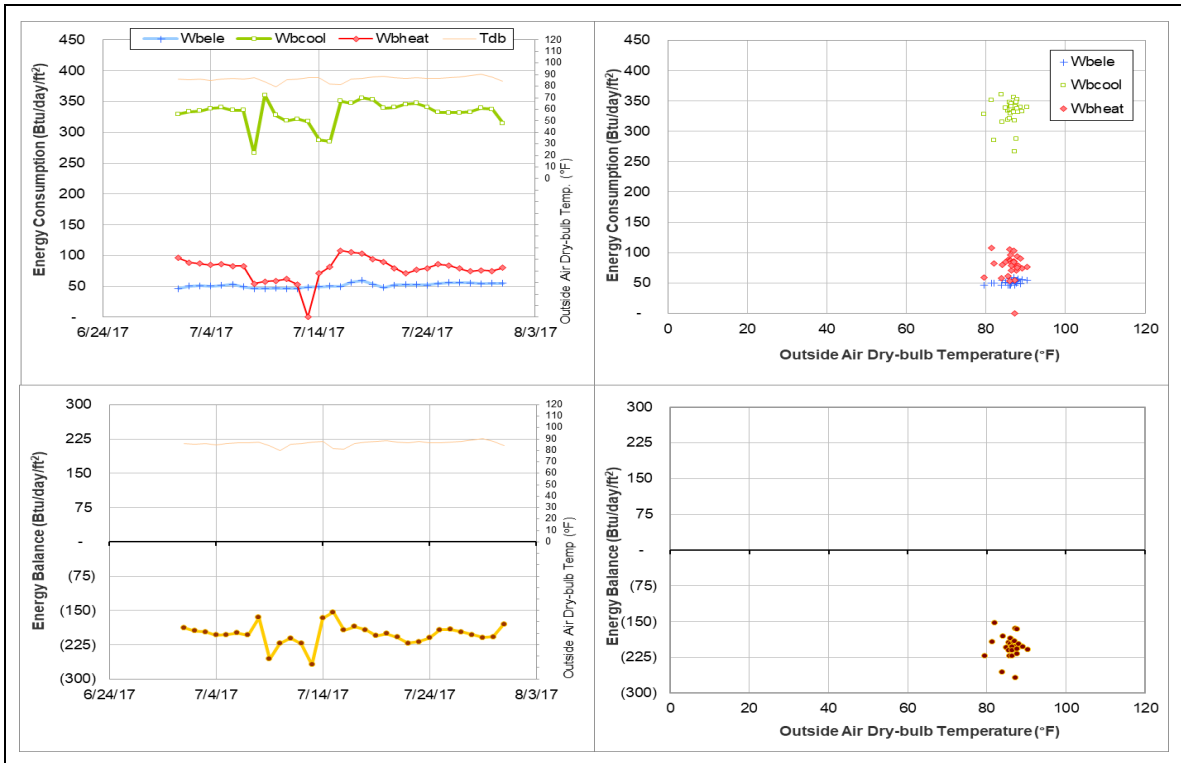
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW meter during July 2017)



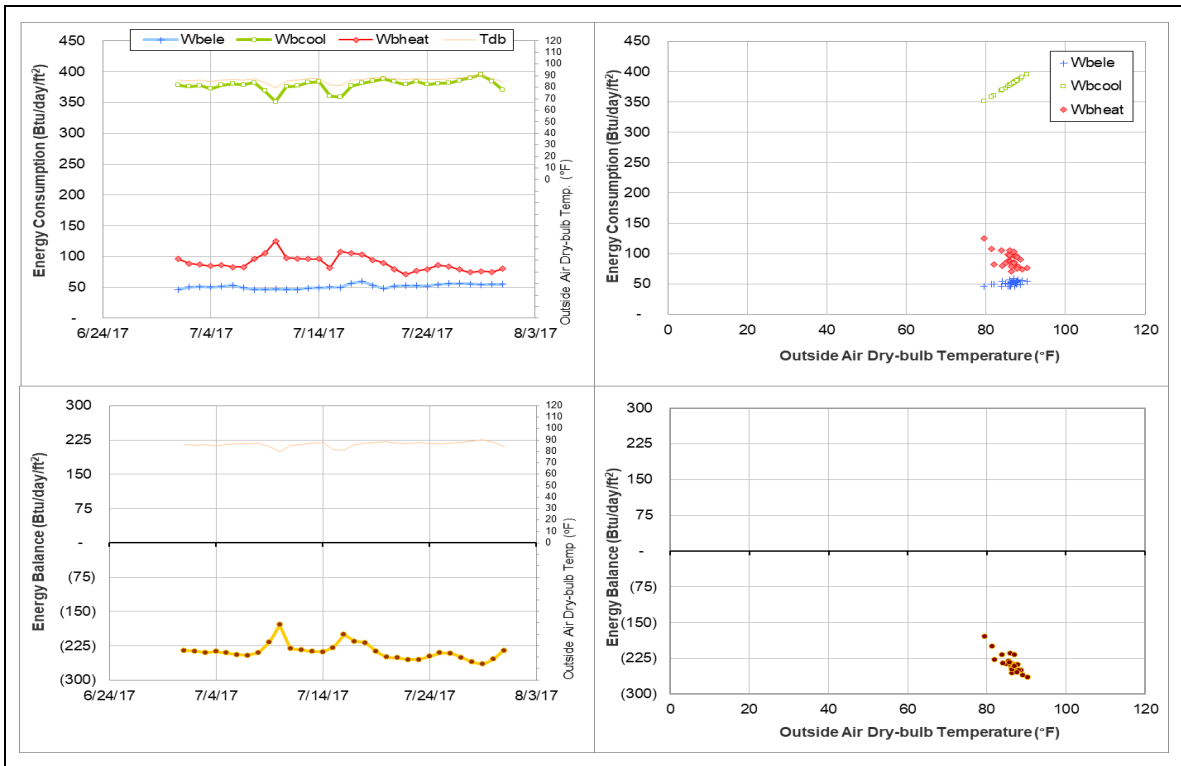
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during July 2017)



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



Adams Band Hall (TAMU Bldg #448)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002555	9	7/1/2017, 7/24/2017 – 7/31/2017	Model
HHW	002566	8	7/24/2017 – 7/31/2017	Model

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

Data Type	Description of data behaviors	Period
CHW	The consumption level is higher than the level during the past year.	6/1/2017 – 7/24/2017
	The consumption level is lower than the level during the past year.	7/24/2017 – 7/31/2017
HHW	The consumption level has decreased suddenly.	7/24/2017 – 7/31/2017

Changes in sensor readings related to the detected issues

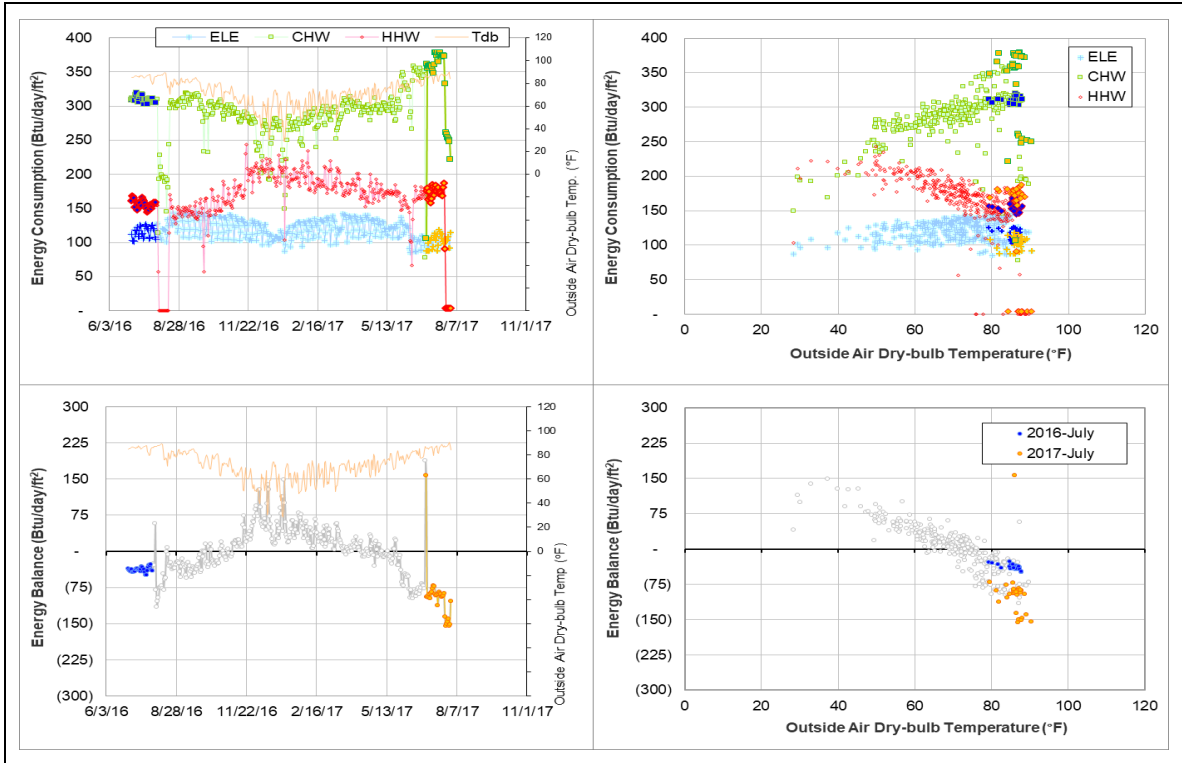
Energy Type	Meter ID	Period	Type	Description
CHW	002555	6/30/2017 – 7/1/2017	Flow rate	Decreased to zero
		7/1/2017 – 7/24/2017	Flow rate	Decreased
		7/24/2017 – 7/31/2017	Delta-T	Decreased
HHW	002566	7/24/2017 – 7/31/2017	Flow rate	Decreased to zero

Quantitative descriptions and comments

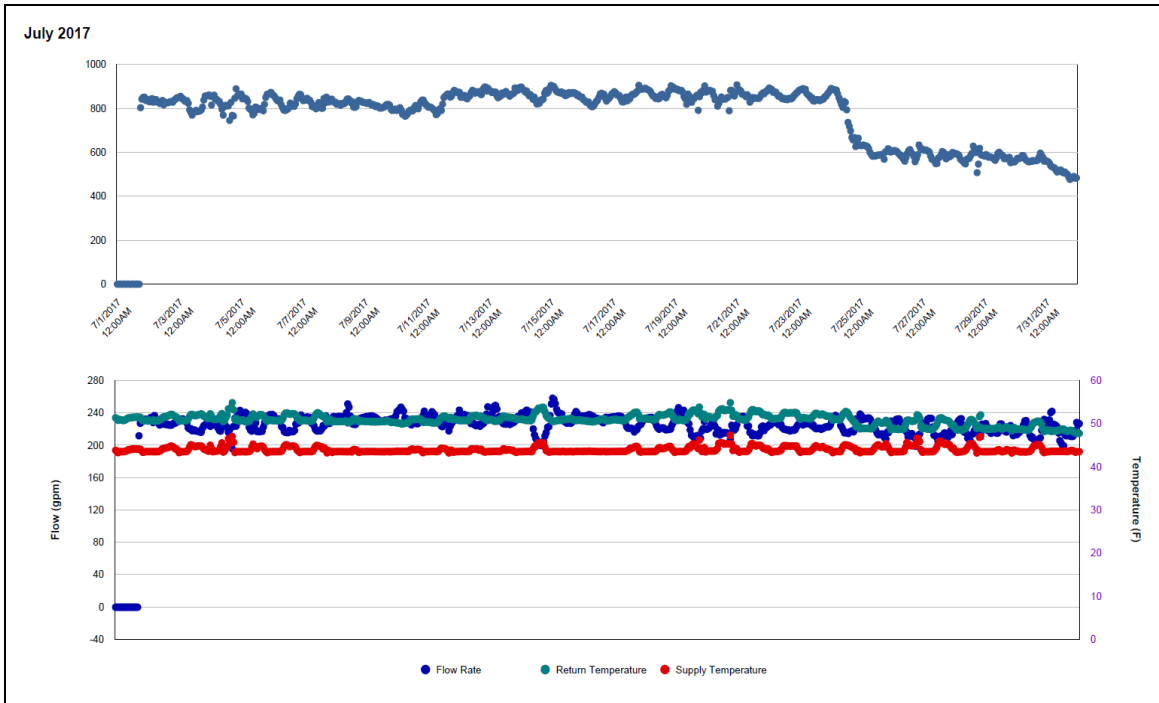
The CHW consumption pattern for June 2017 is 50 Btu/day/ft² higher than June 2016. The CHW flow rate appears to be at a consistent level in June 2017 where in the previous year, the flow rate varied throughout the day. For a short period during 6/30/2017-7/1/2017, the flow rate decreased to near zero value. Starting on 7/24/2017, the return temperature decreased resulting in a consumption level 60 Btu/day/ft² lower than July 2016. The CHW consumption was estimated by model.

The HHW consumption decreased during 7/24/2017 – 7/31/2017. During this period the HHW flow rate appears to decrease to zero or near zero values. The HHW consumption was estimated by model for this period.

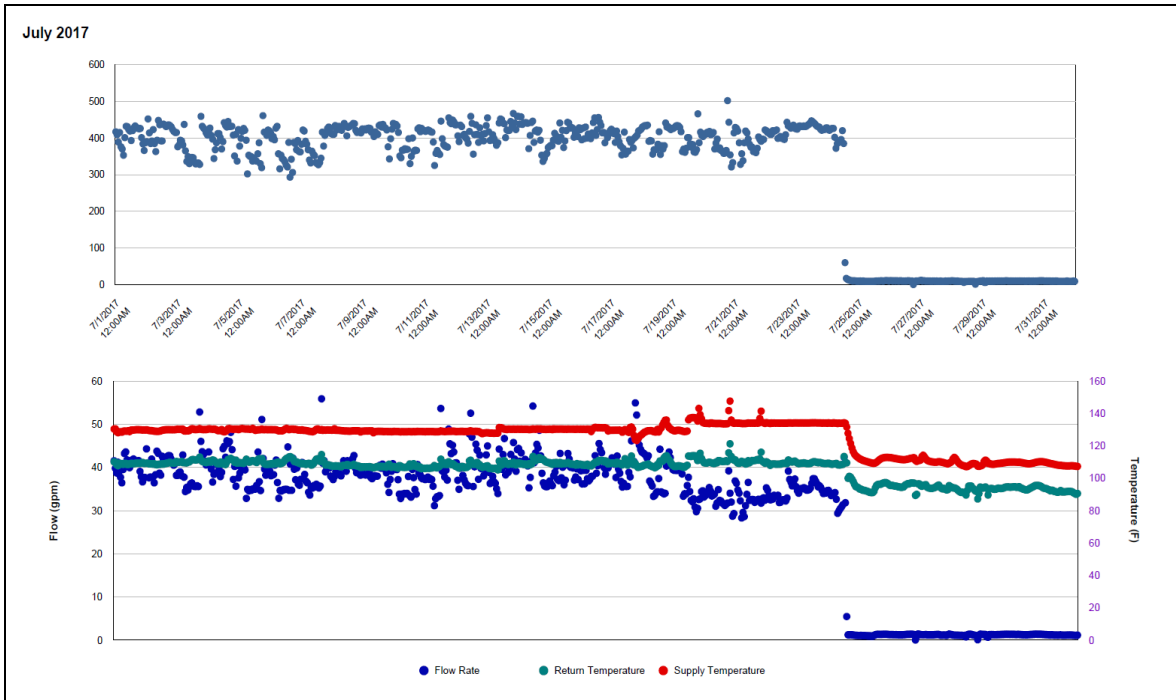
Explanatory Figure: 13 months energy balance plot with original data



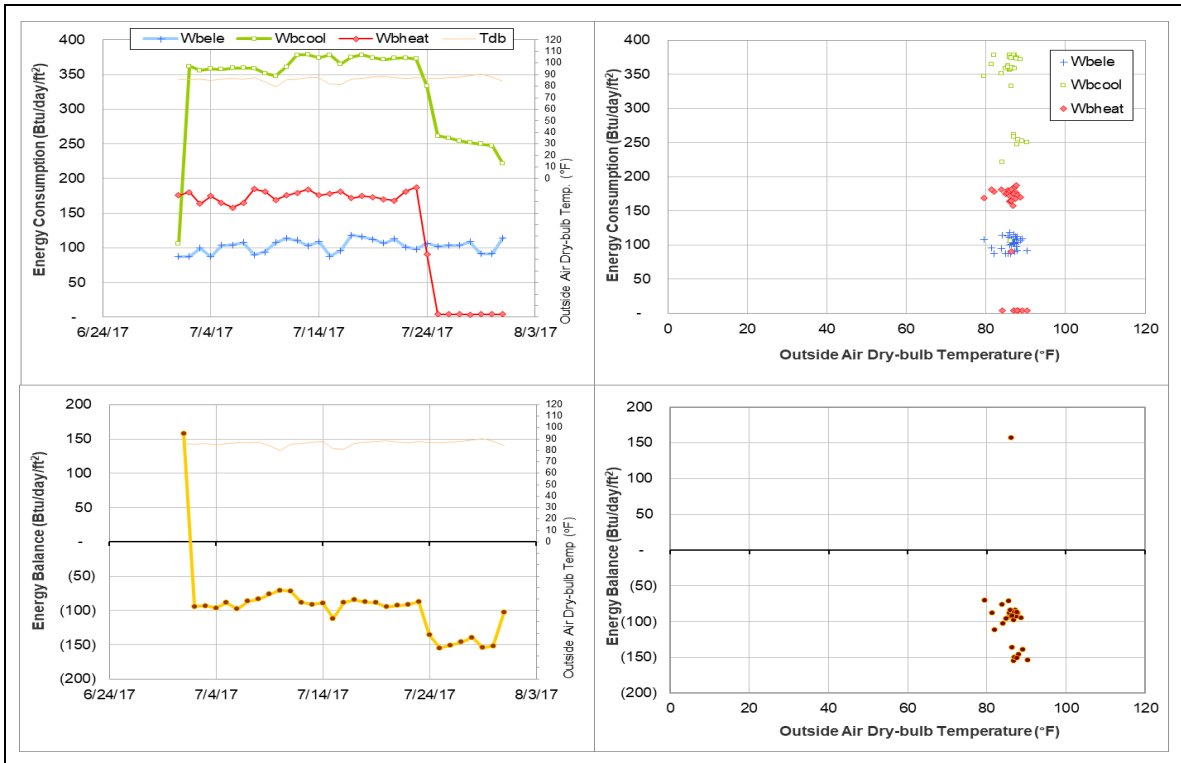
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW meter during July 2017)



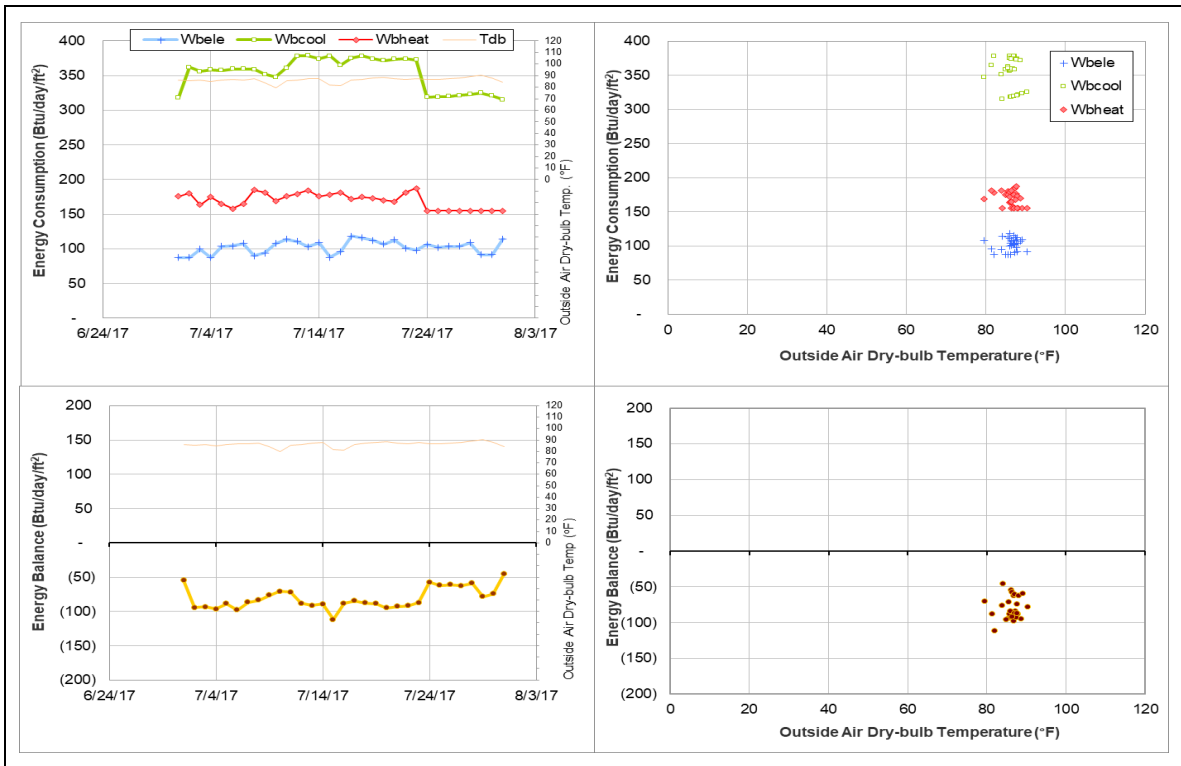
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during July 2017)



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



TAES Annex Building (TAMU Bldg #457)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005913	4	7/14/2017 – 7/17/2017	Model
HHW	005917	4	7/14/2017 – 7/17/2017	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.	7/14/2017 – 7/17/2017
HHW	The consumption dropped for a short period.	7/14/2017 – 7/17/2017

Changes in sensor readings related to the detected issues

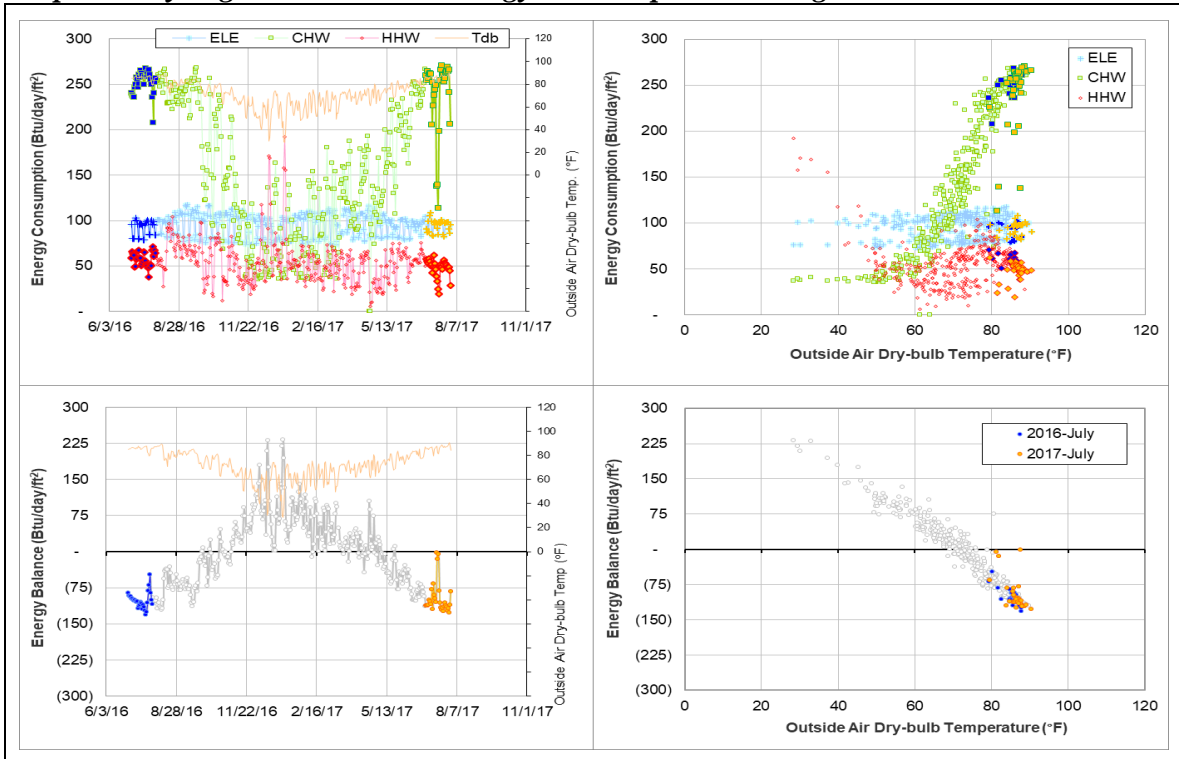
Energy Type	Meter ID	Period	Type	Description
CHW	005913	7/14/2017 – 7/17/2017	Flow rate	Decreased
			Delta-T	Decreased
HHW	005917	7/14/2017 – 7/17/2017	Flow rate	Decreased
			Delta-T	Decreased

Quantitative descriptions and comments

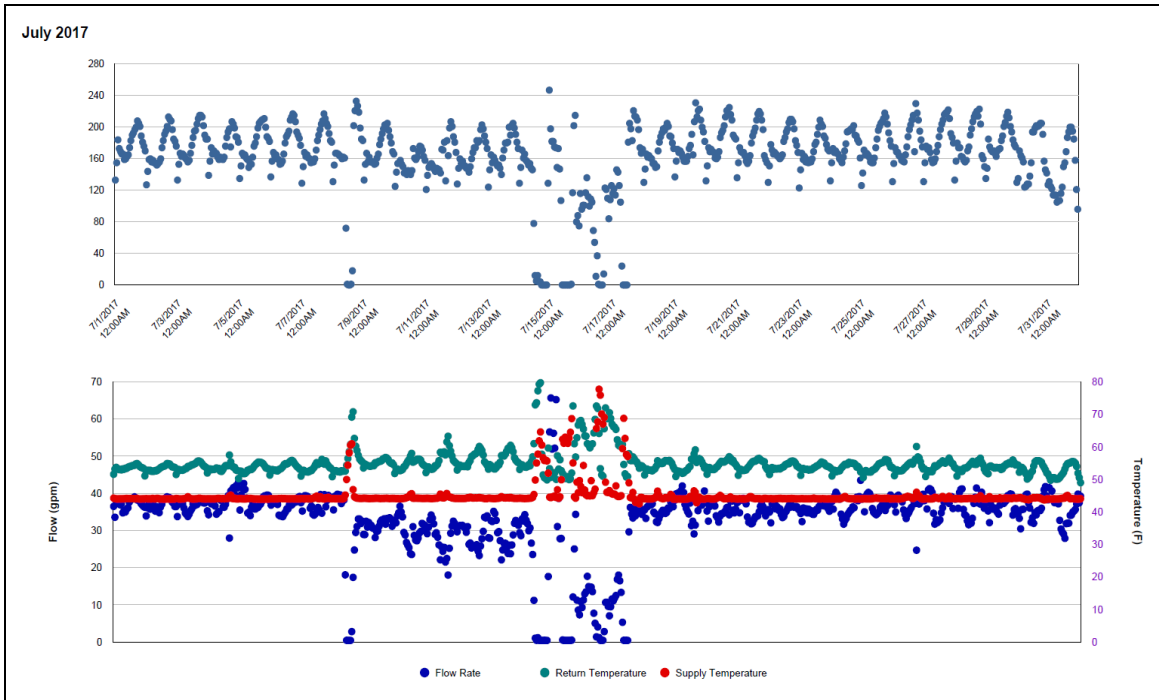
The CHW consumption dropped during 7/14/2017 – 7/17/2017. The flow rate and Delta-T both decreased. The CHW consumption was estimated by model for this period.

Also, the HHW consumption dropped during the same period, 7/14/2017 – 7/17/2017. Both the flow rate and Delta-T decreased. The HHW consumption was estimated by model for this period.

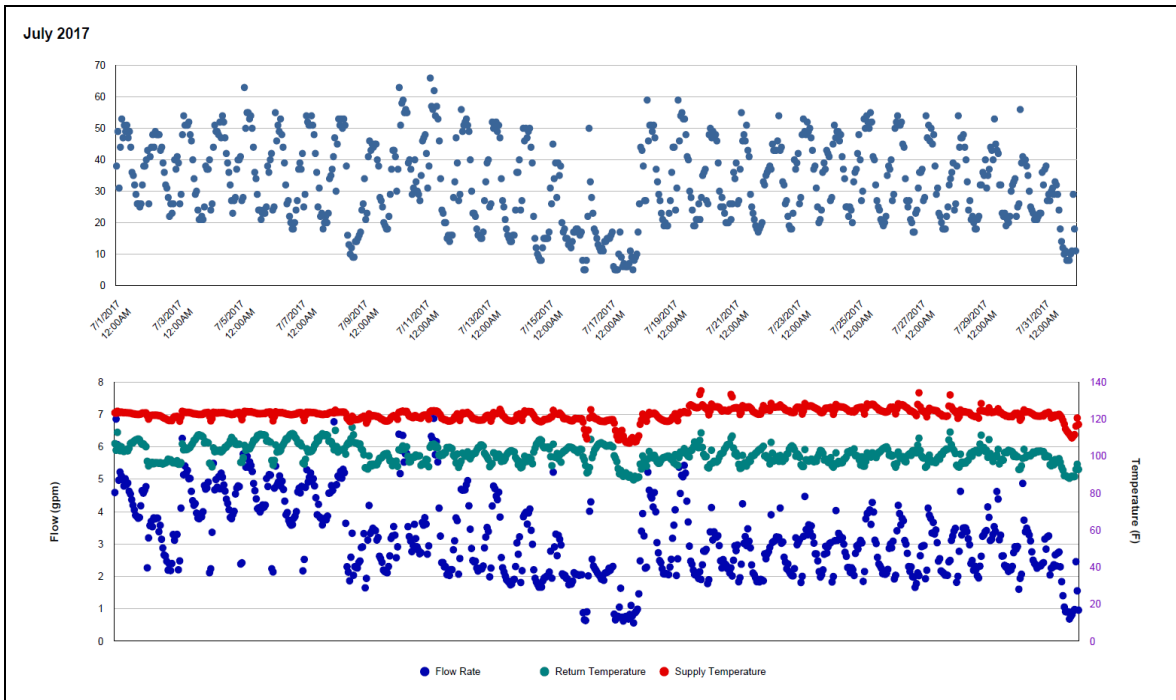
Explanatory Figure: 13 months energy balance plot with original data



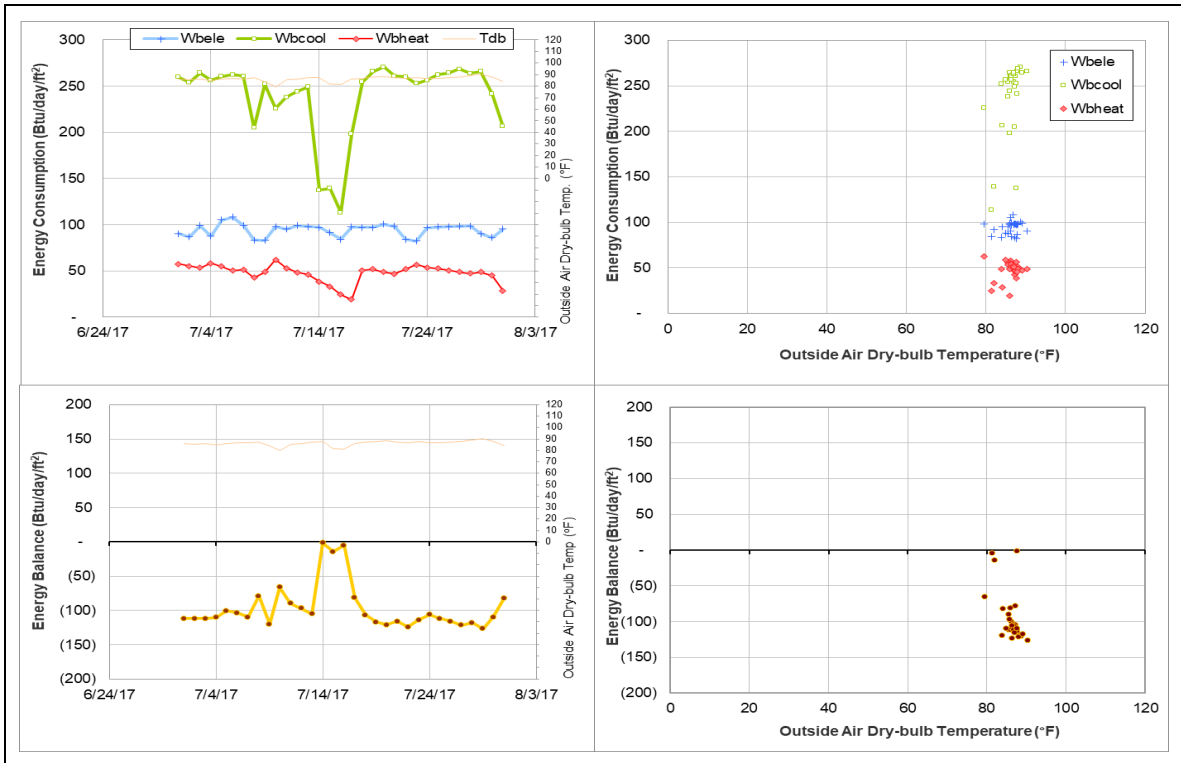
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW meter during July 2017)



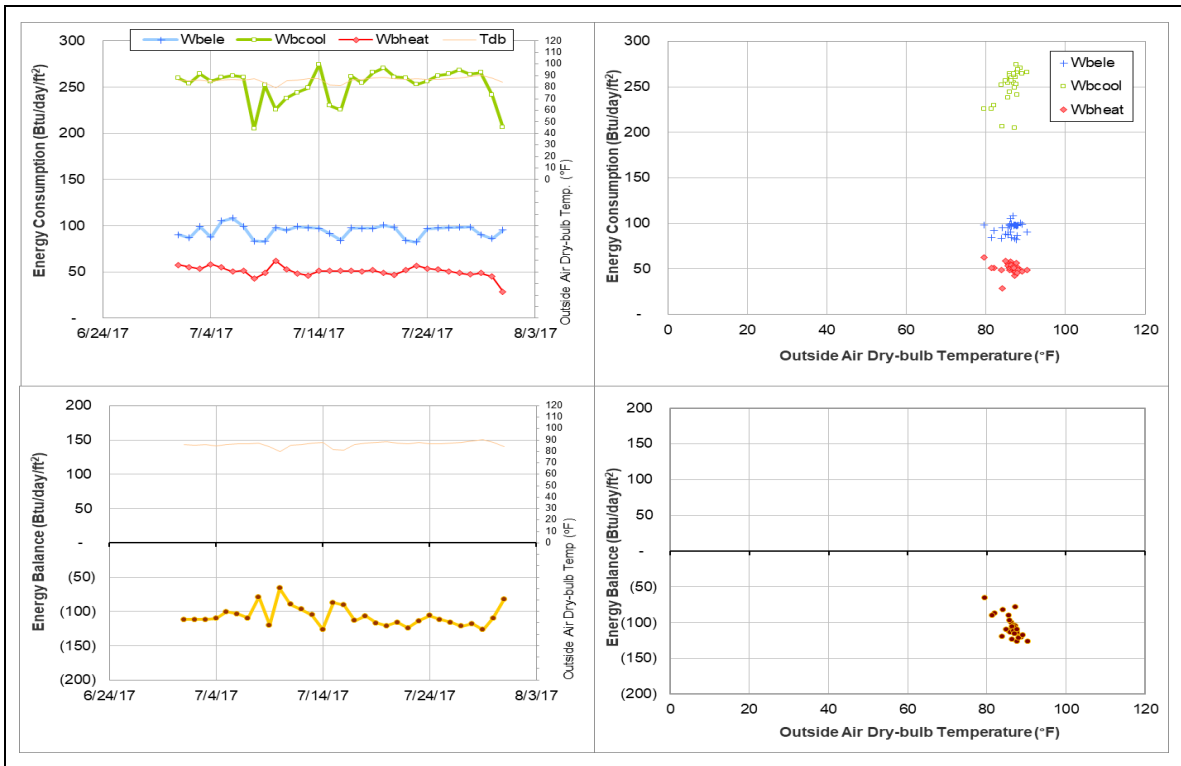
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during July 2017)



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



YMCA Building (TAMU Bldg #474)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	007525	2	7/25/2017 – 7/26/2017	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.	7/25/2017 – 7/26/2017

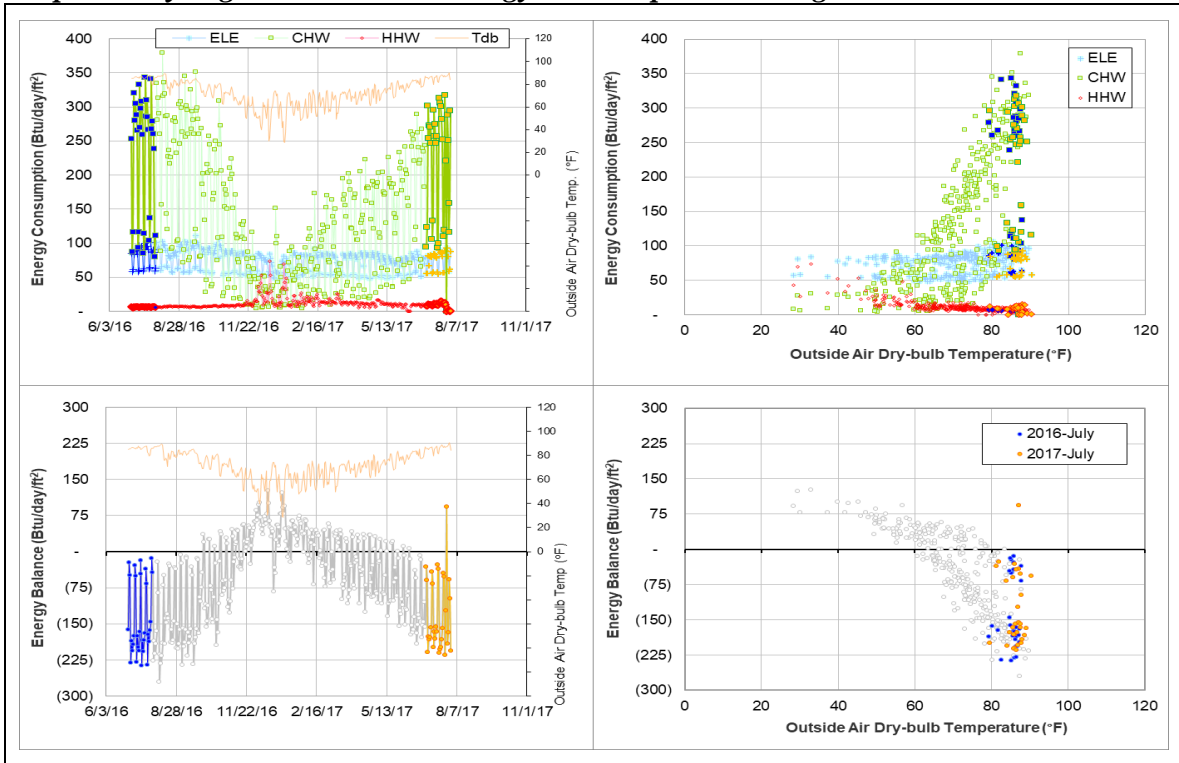
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	007525	7/25/2017 – 7/26/2017	Flow rate	Decreased to Zero
			Delta-T	Decreased to zero

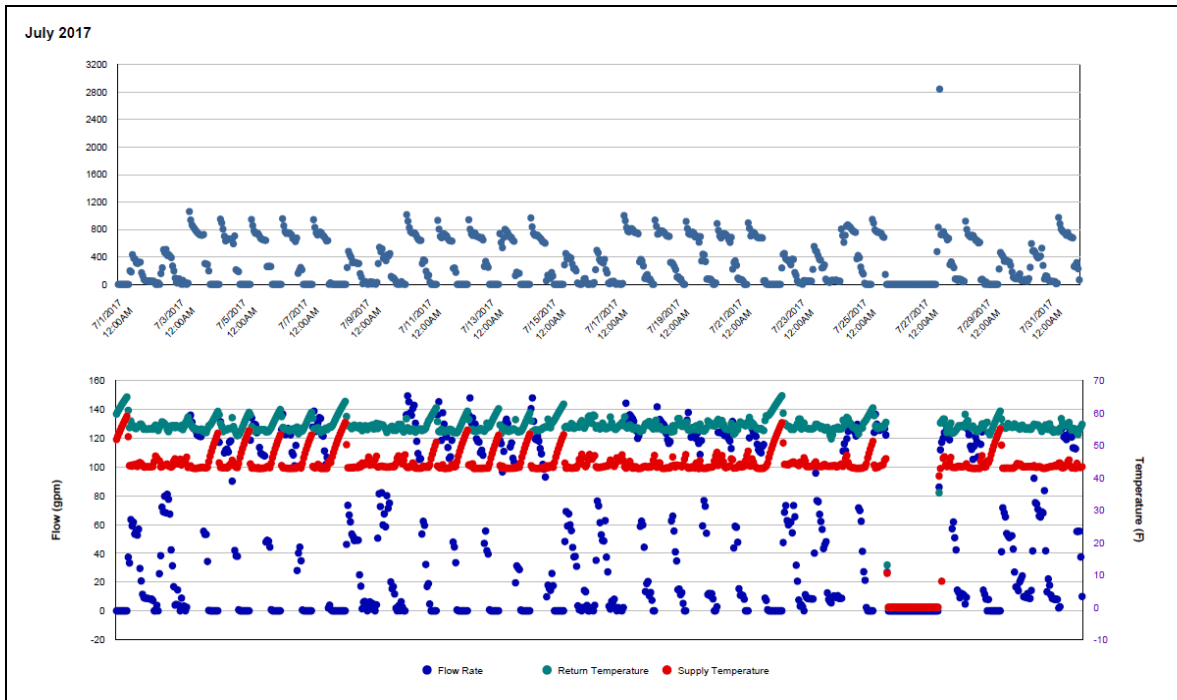
Quantitative descriptions and comments

The CHW consumption dropped to zero for 7/25/2017 – 7/26/2017. Both flow rate and Delta-T decreased to zero. The CHW consumption was estimated by model for this period.

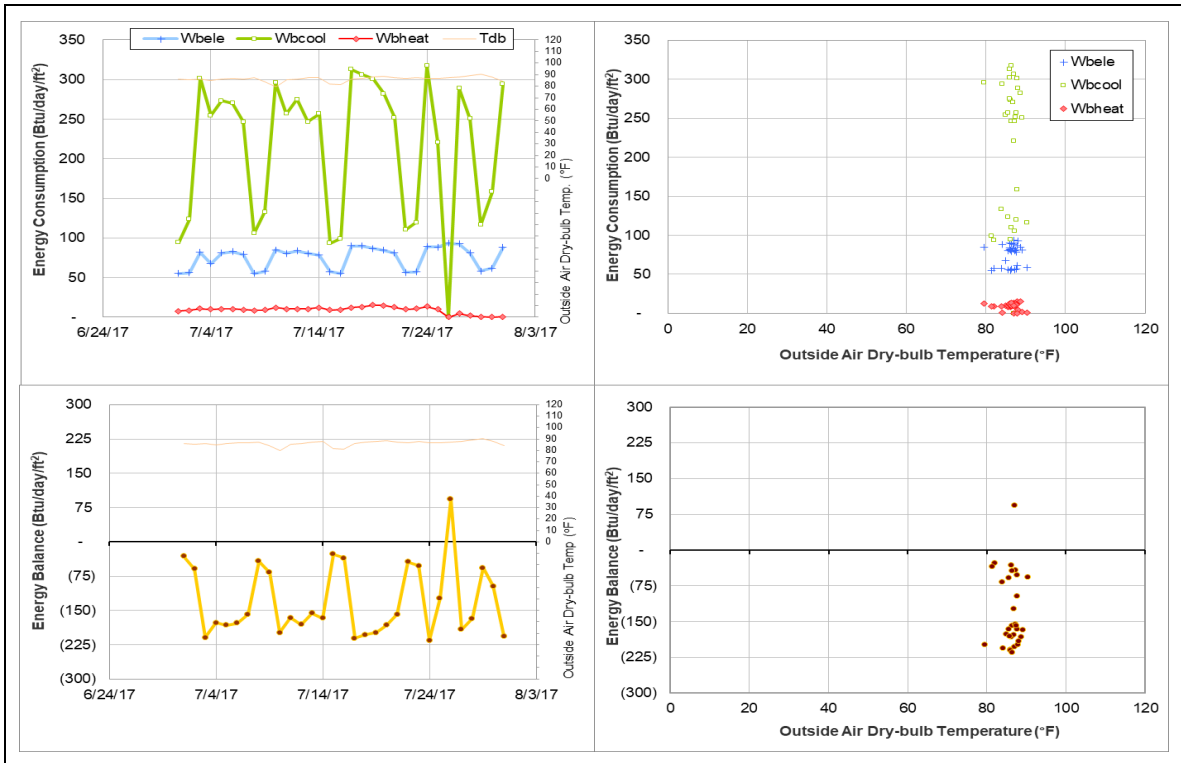
Explanatory Figure: 13 months energy balance plot with original data



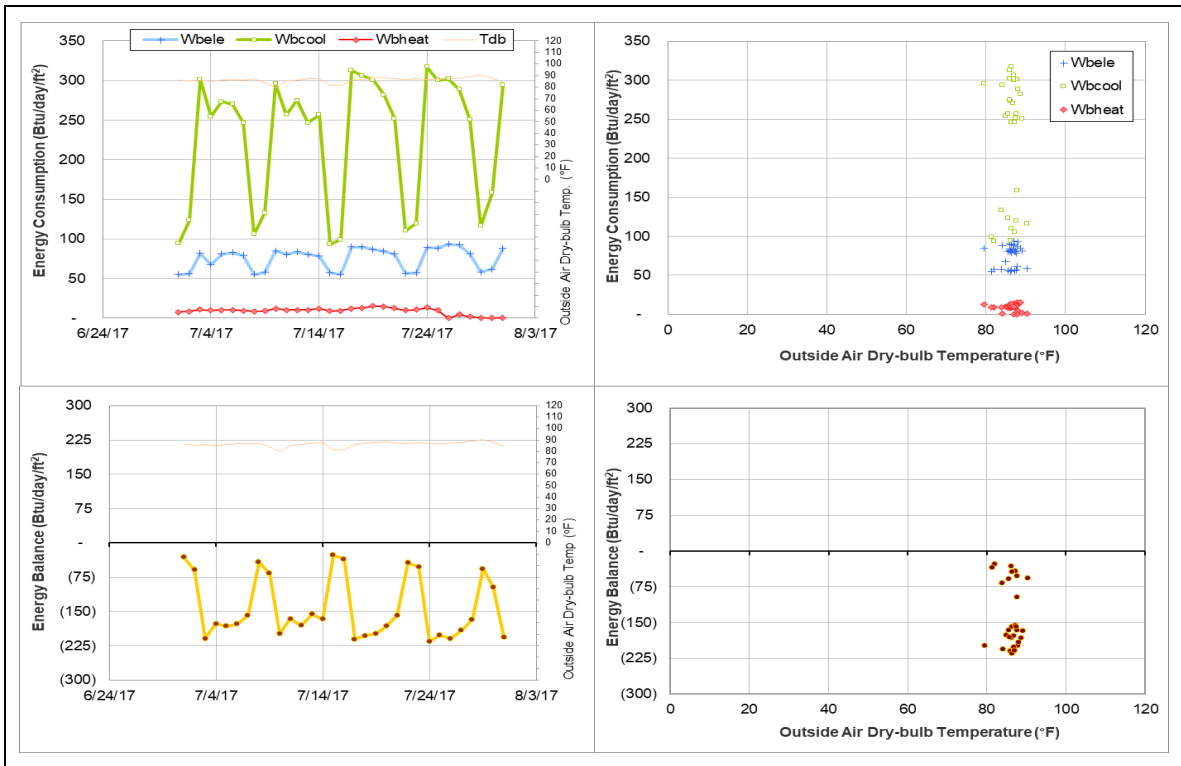
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW meter during July 2017)



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



Bolton Hall (TAMU Bldg #480)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007016	31	7/1/2017 – 7/31/2017	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.	6/1/2017 – Ongoing

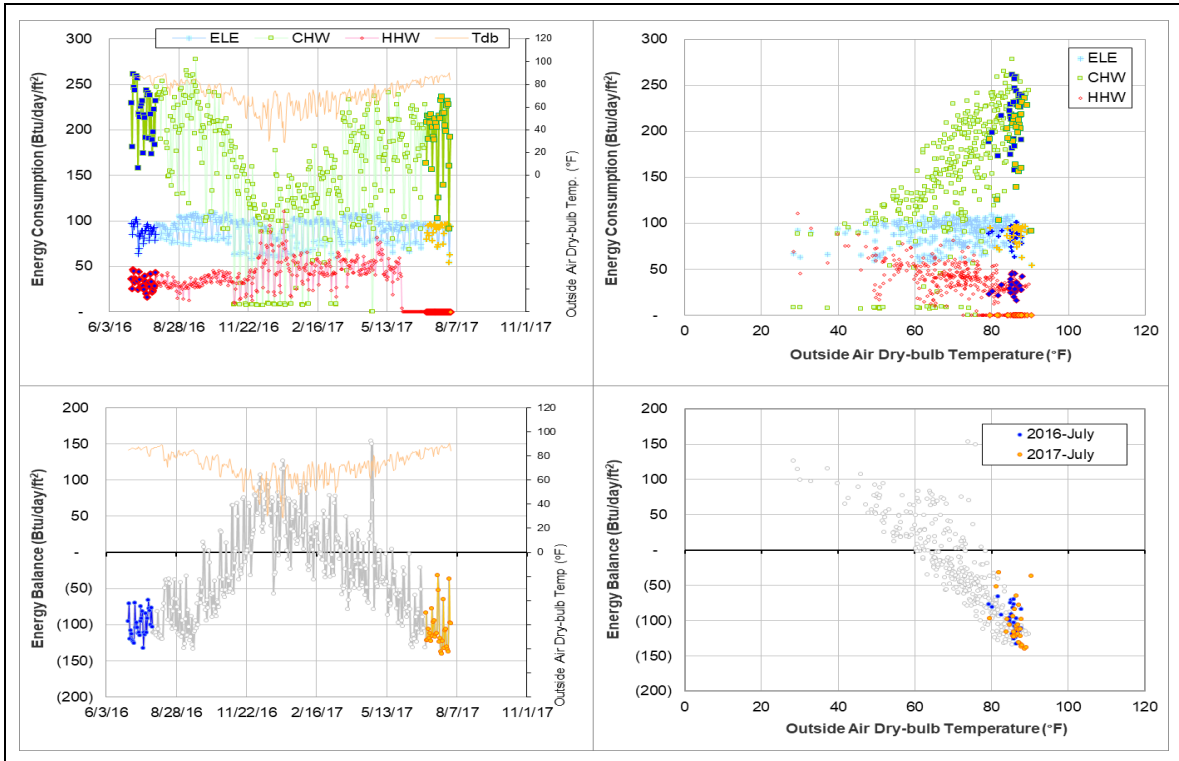
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	007016	6/1/2017 – Ongoing	Flow rate	Decreased to near zero

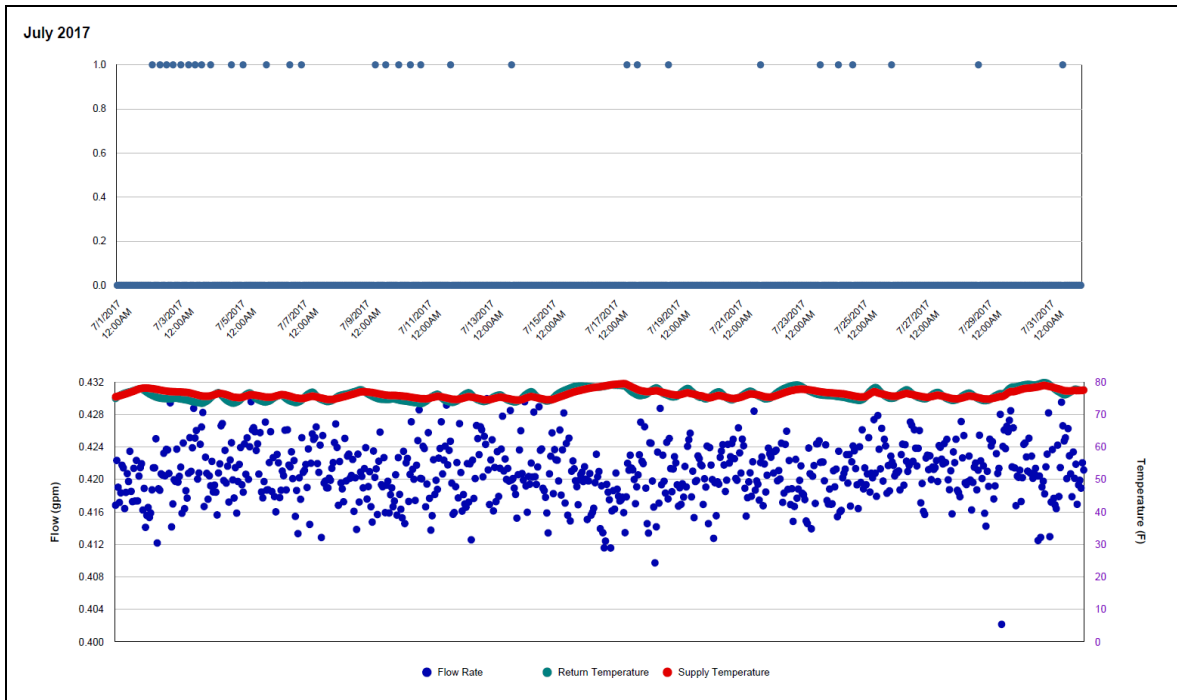
Quantitative descriptions and comments

On 6/1/2017, the HHW flow rate and Delta-T decreased to near zero value and continues to remain there. The HHW consumption was estimated by model for the month.

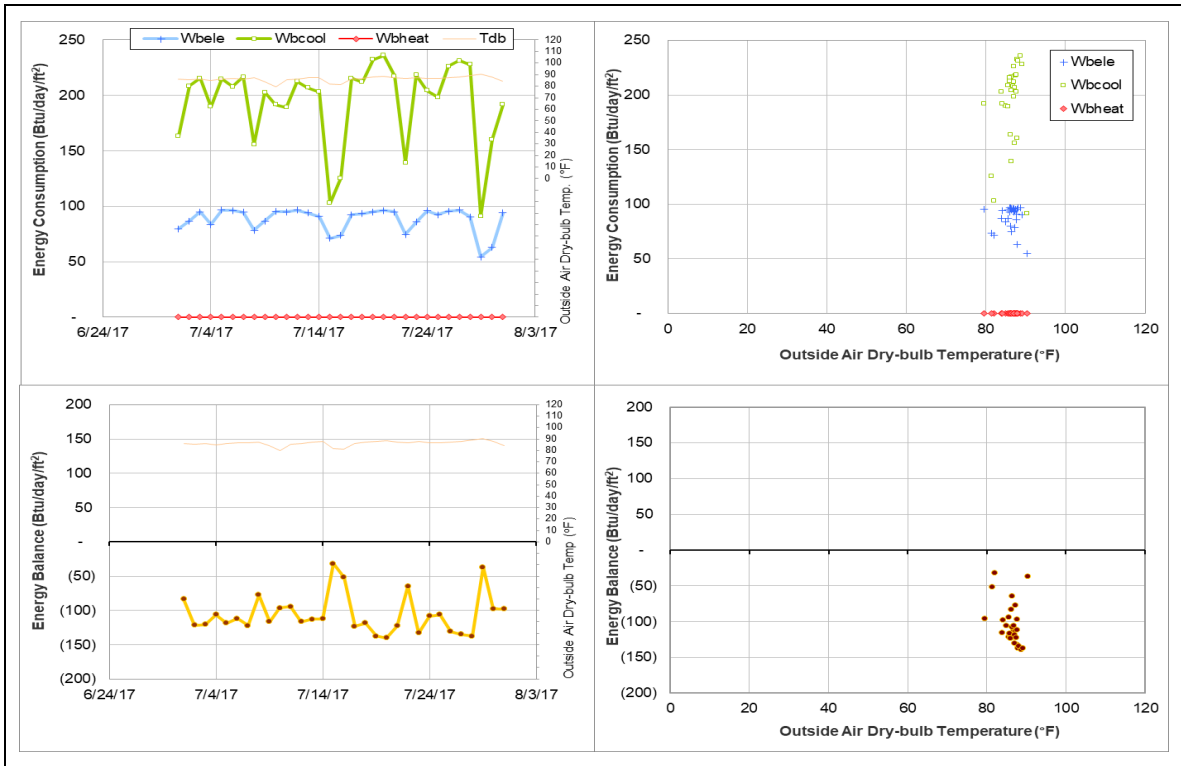
Explanatory Figure: 13 months energy balance plot with original data



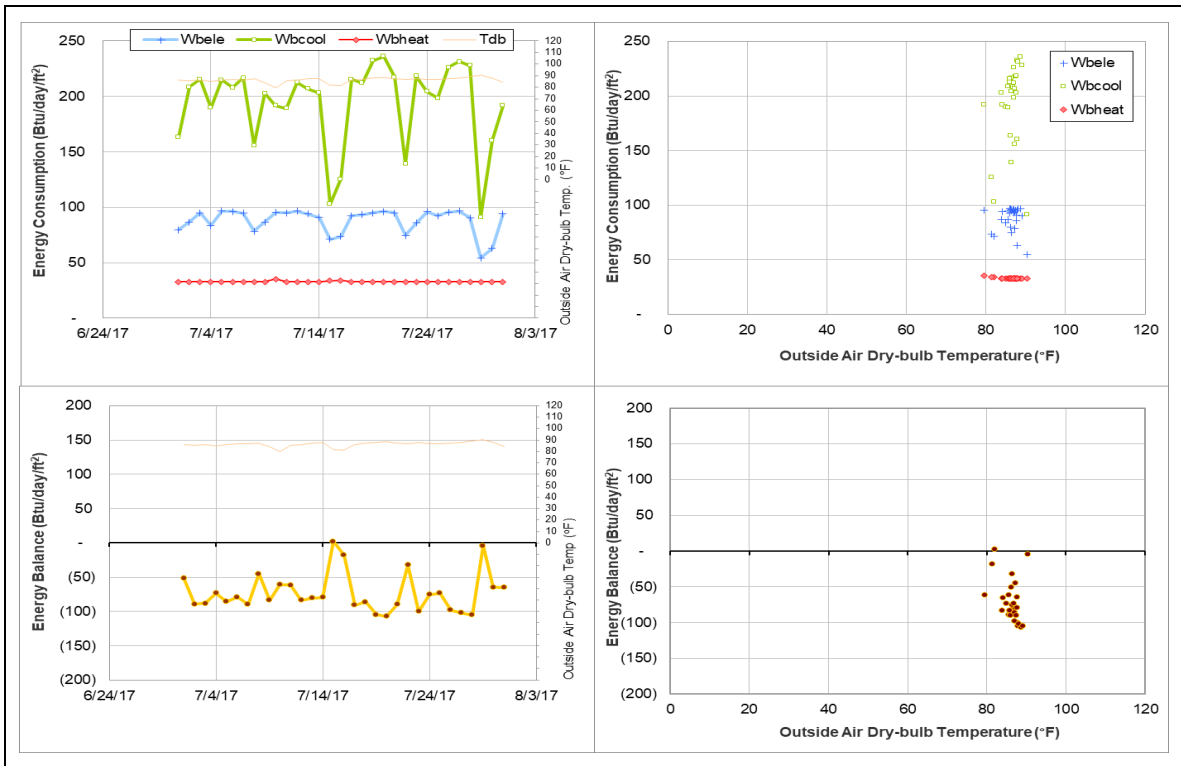
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during June 2017)



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



Thompson Hall (TAMU Bldg #483)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	003891	3	7/27/2017 – 7/29/2017	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.	7/27/2017 – 7/29/2017

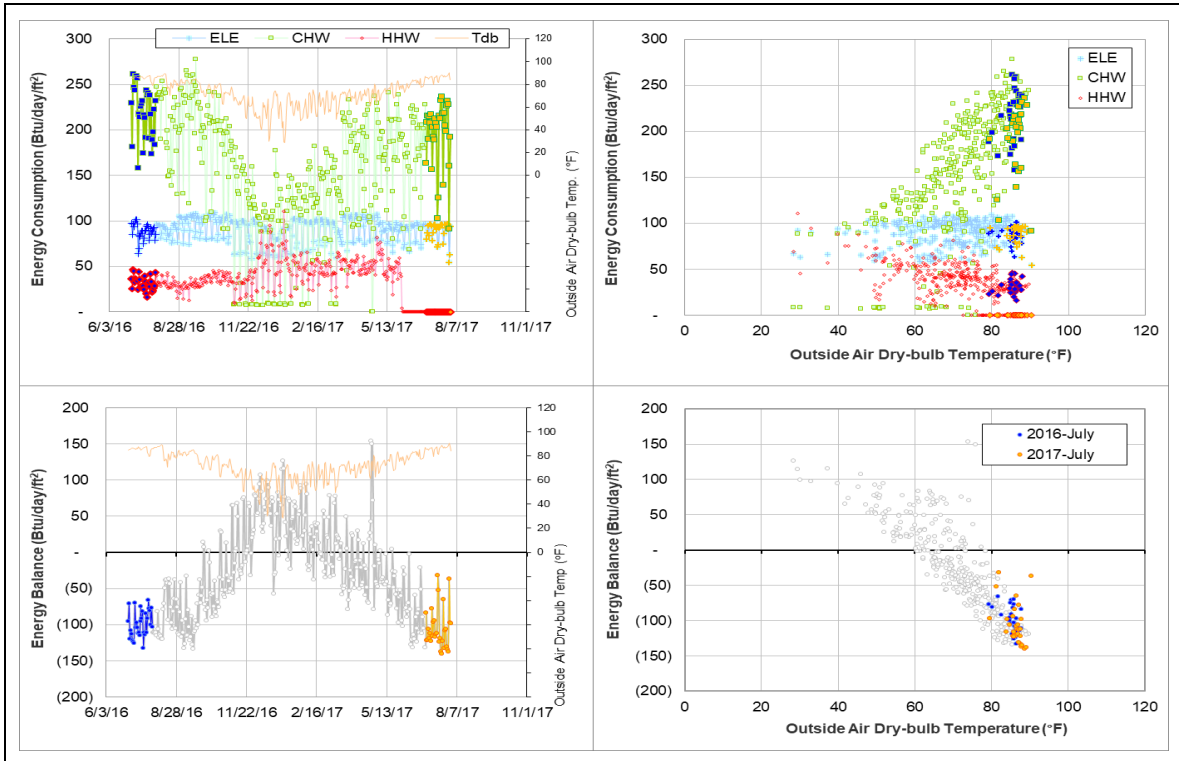
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	003891	7/27/2017 – 7/29/2017	Flow rate	Increased

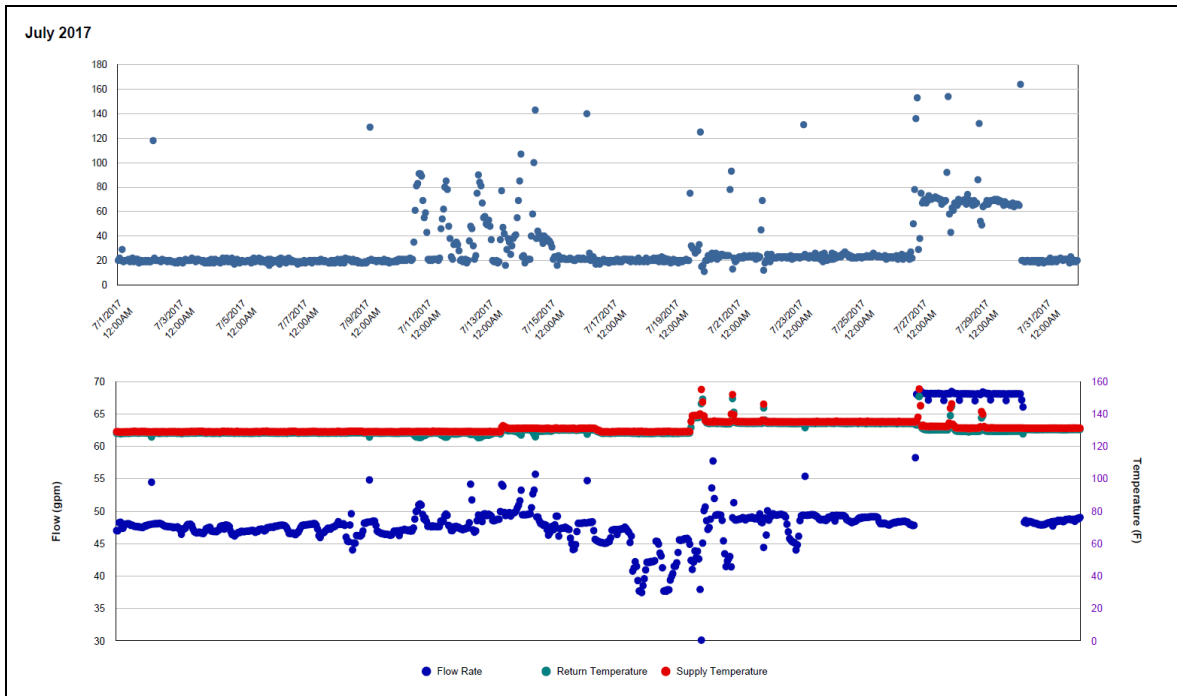
Quantitative descriptions and comments

From 7/27/2017 – 7/29/2017, the HHW flow rate increased from a 45 - 50 gpm range to a 65 - 70 gpm range. The HHW consumption was estimated by model for this period.

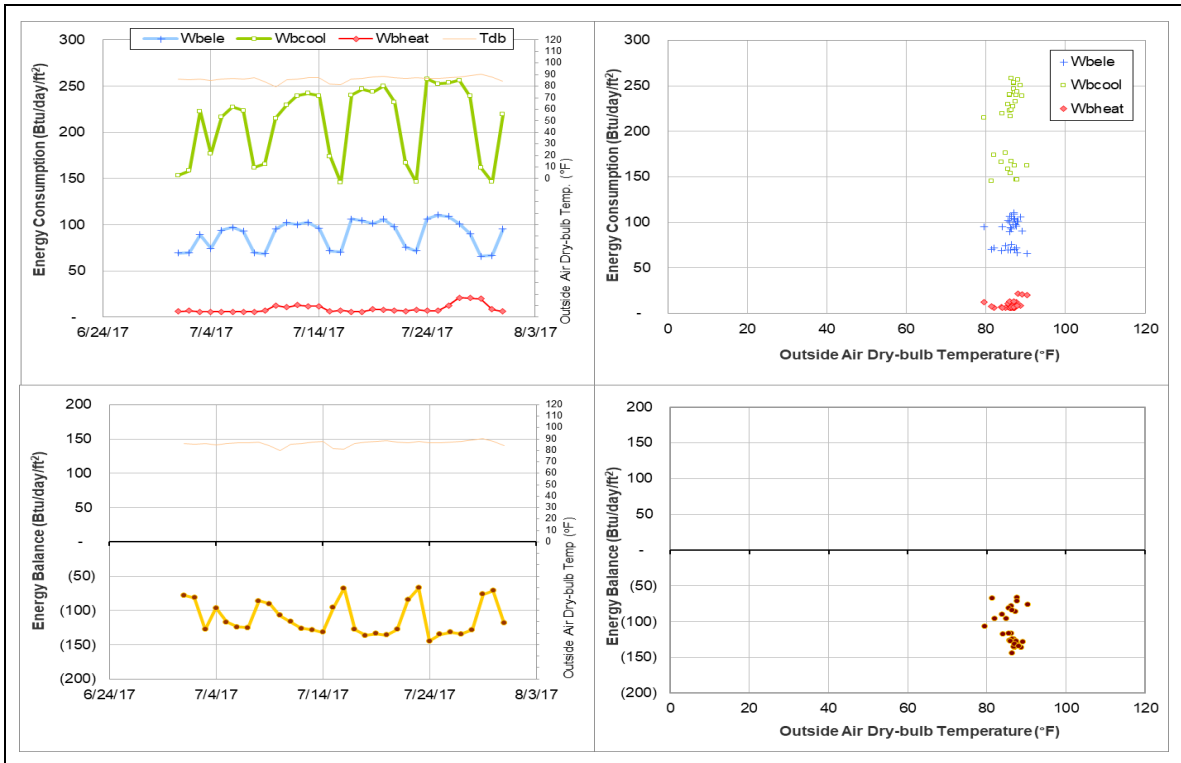
Explanatory Figure: 13 months energy balance plot with original data



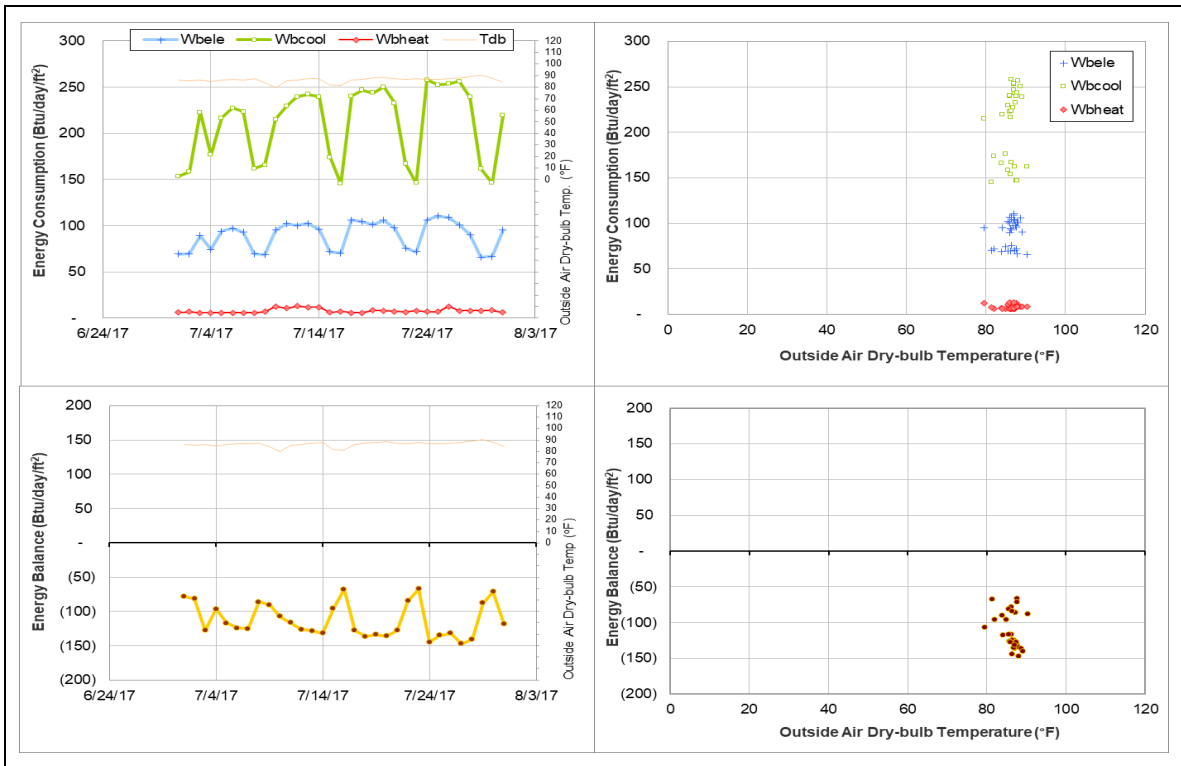
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter during June 2017)



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
ELE	007152	31	7/1/2017 – 7/31/2017	Model

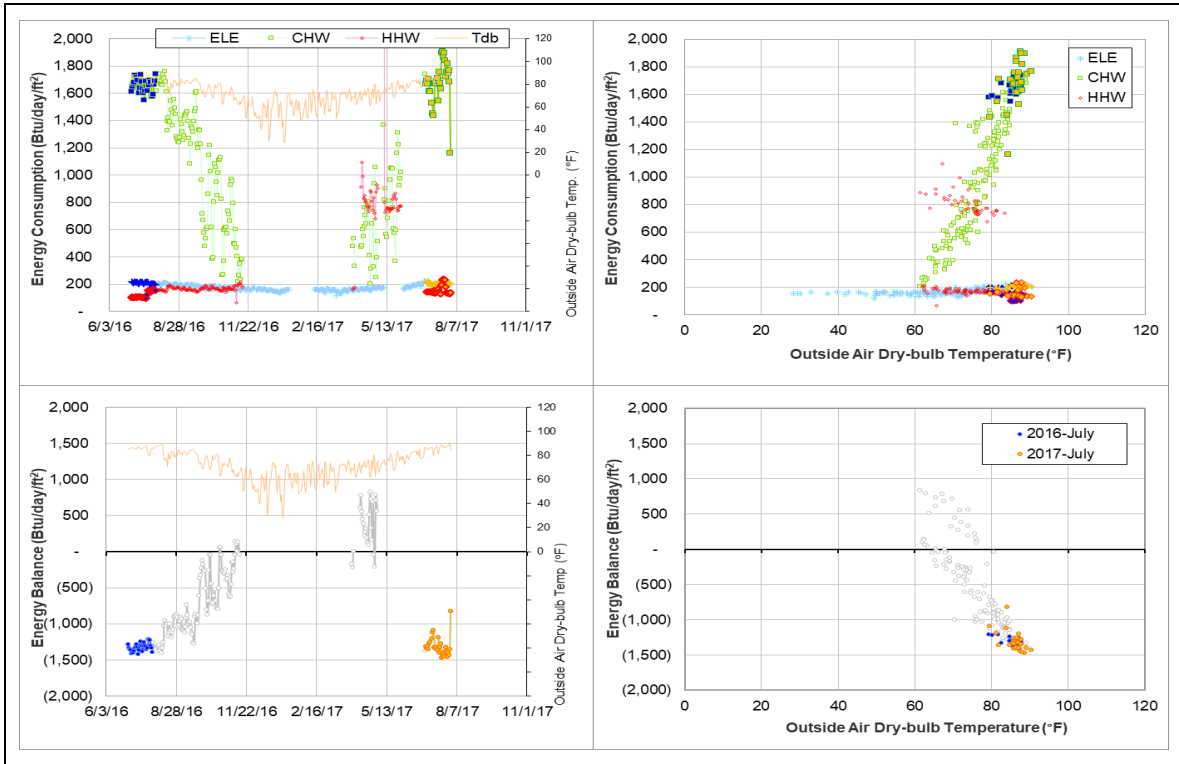
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level is increasing gradually.	6/3/2017 – Ongoing

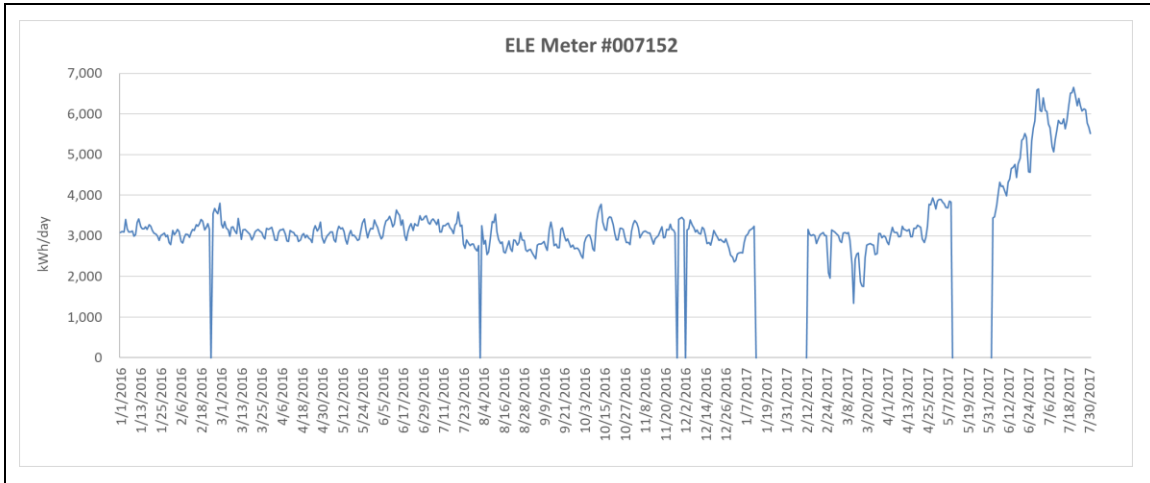
Quantitative descriptions and comments

This building has four electric meters. Data for ELE meter #007152 was missing for 6/1/2017-6/2/2017. When the data return on 6/3/2017, the electric consumption experienced a continual increase to well above its normal pattern. An explanatory figure is provided below. The electric consumption for this meter was estimated by model.

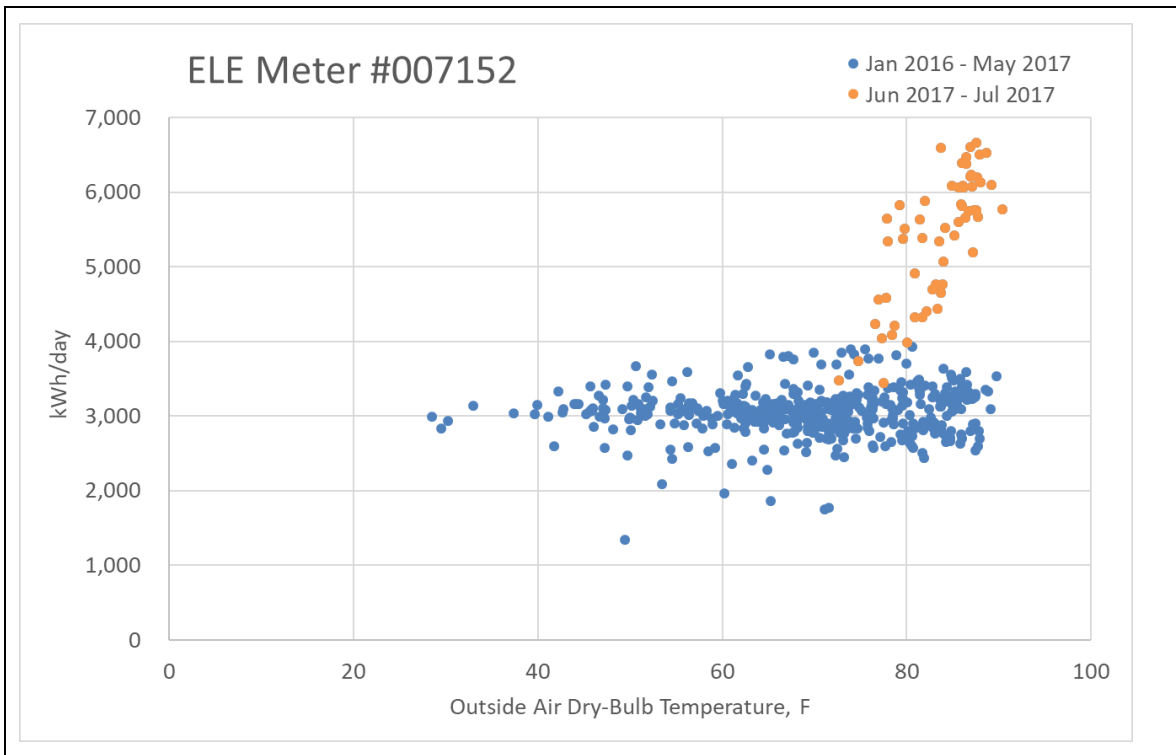
Explanatory Figure: 13 months energy balance plot with original data



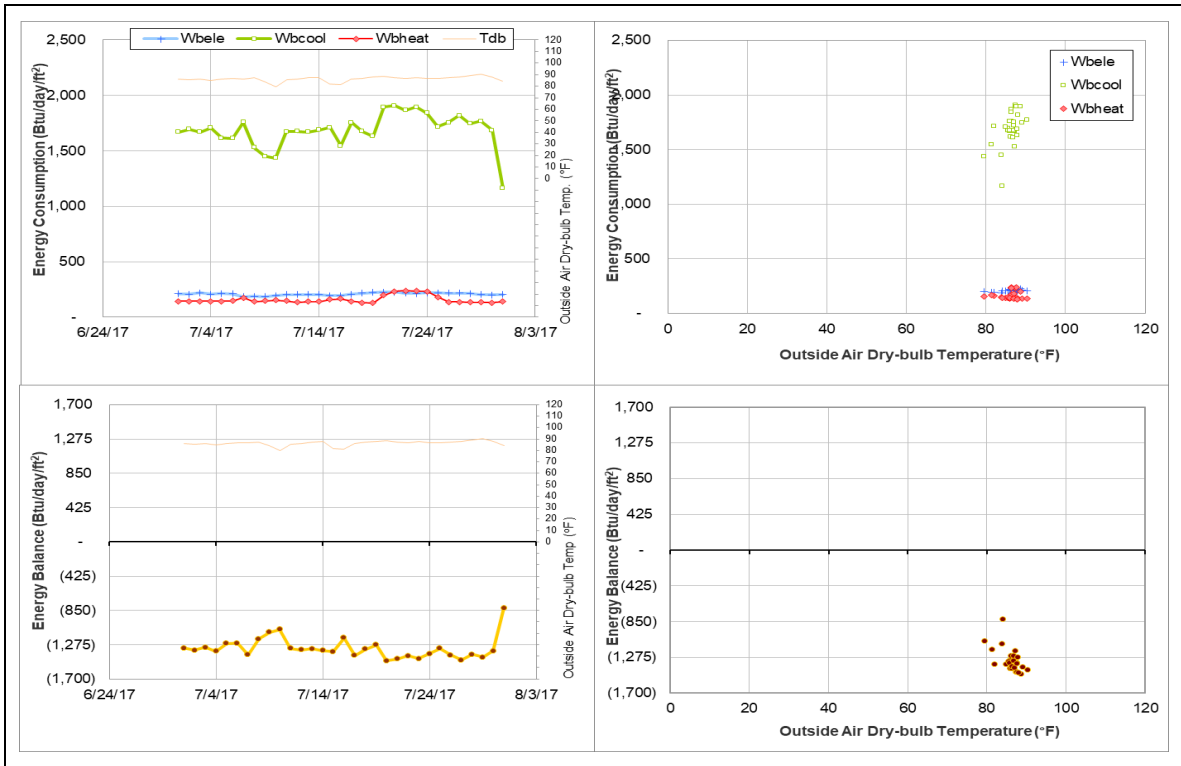
Explanatory Figure: Time series plot of electric meter #007152 from 1/1/2016 – 7/31/2017.



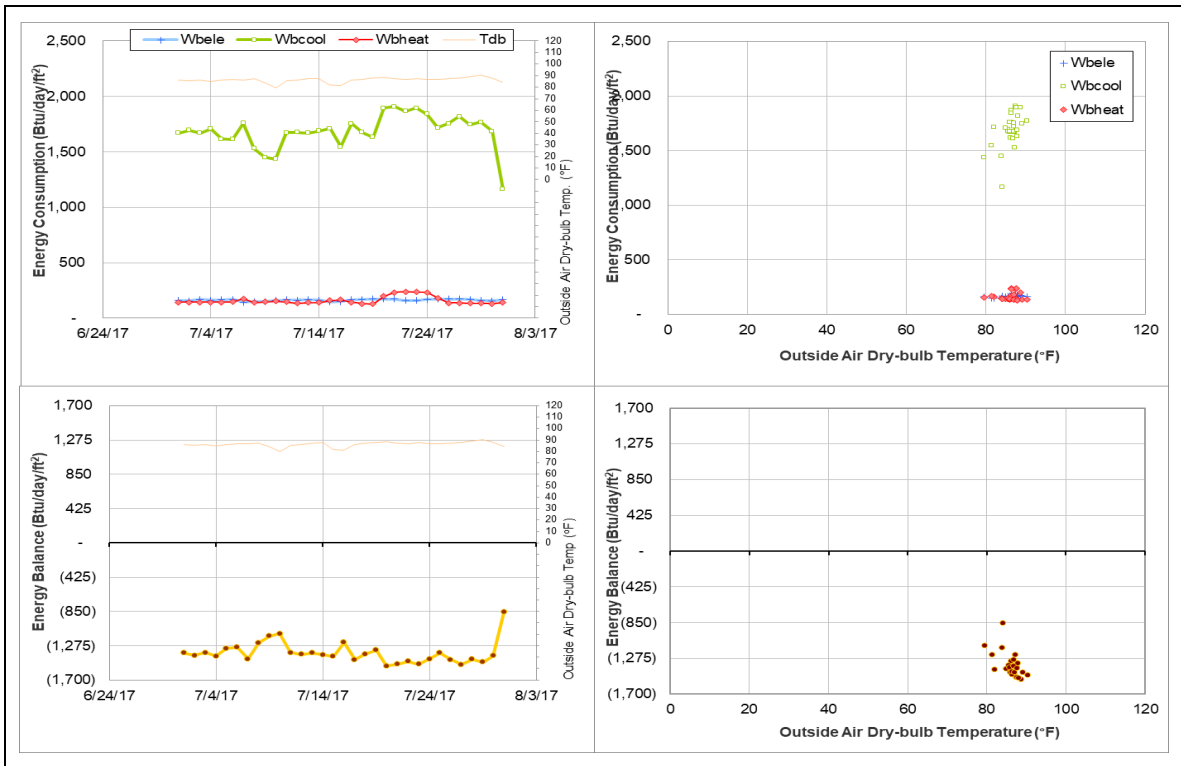
Explanatory Figure: Scatter plot of kWh/day versus outside air temperature for electric meter #007152 from 1/1/2016 – 7/31/2017.



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



Halbouty Geosciences Building (TAMU Bldg #490)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	006896	18	7/14/2017 – 7/31/2017	Model
HHW	006900	18	7/1/2017 – 7/18/2017	Model
HHW	006917	31	7/1/2017 – 7/31/2017	Model

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

Data Type	Description of data behaviors	Period
CHW	The consumption level has increased suddenly.	7/14/2017 - Ongoing
HHW	The consumption level has decreased suddenly.(#006900)	5/19/2017 – 7/18/2017
HHW	The consumption level has decreased suddenly.(#006917)	5/27/2017 – Ongoing

Changes in sensor readings related to the detected issues

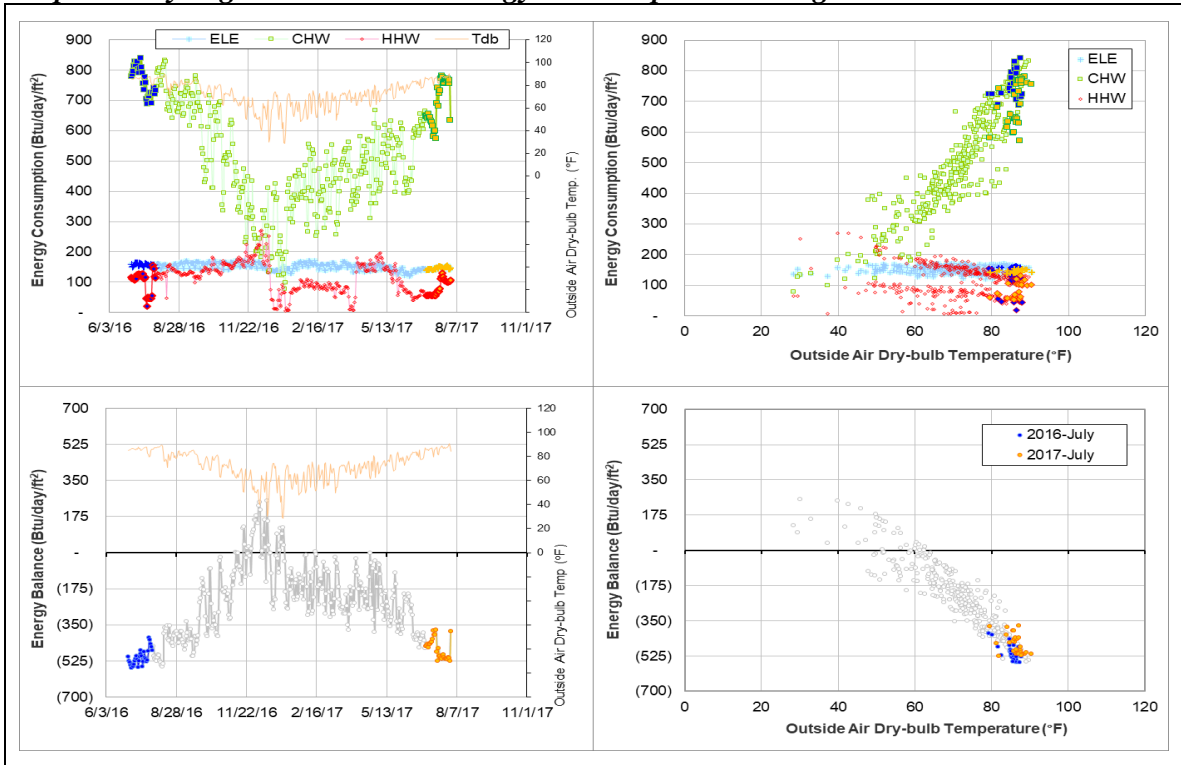
Energy Type	Meter ID	Period	Type	Description
CHW	006896	7/14/2017 – Ongoing	Flow rate	Increased
HHW	006900	5/19/2017 – 7/18/2017	Flow rate	Decreased
HHW	006917	5/30/2017 – 6/15/2017	Delta-T	Decreased to zero
		6/15/2017 – Ongoing	Flow rate	Decreased to zero

Quantitative descriptions and comments

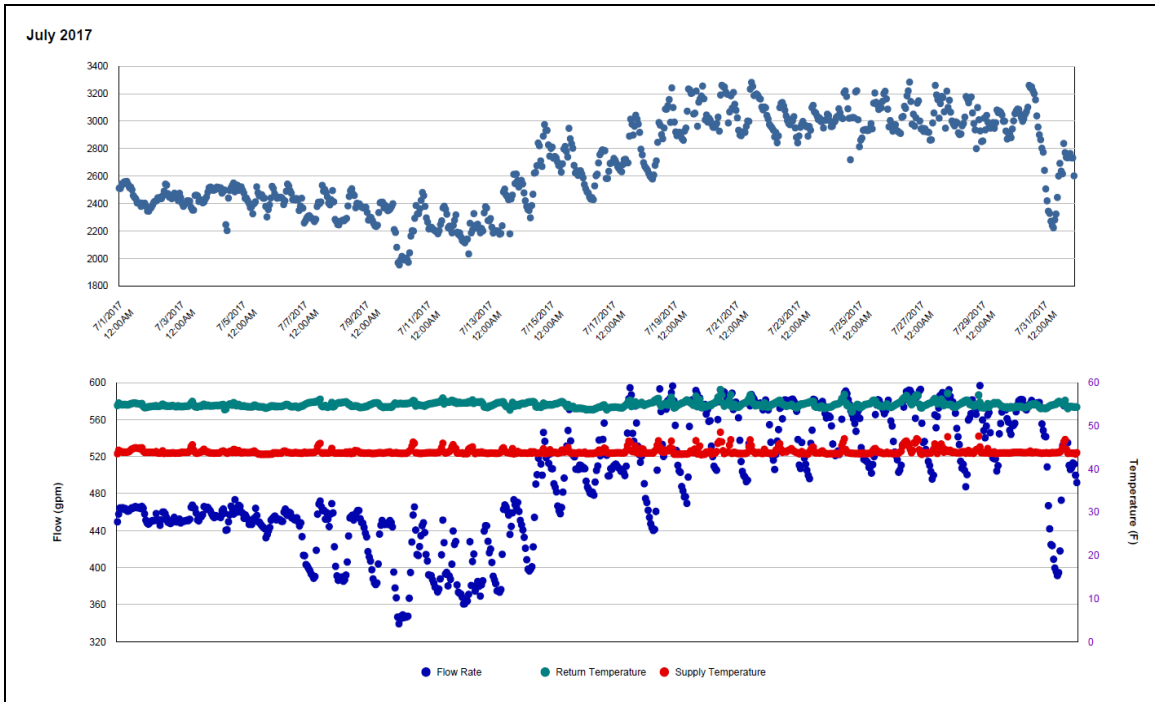
The CHW consumption pattern increased by 100 Btu/day/ft² starting 7/14/2017. The flow rate increased from 400 - 480 gpm to 500 - 600 gpm around this time as well. The CHW consumption was estimated by model for this period.

There are two HHW meters for this building. Meter #006900 experienced a decrease in flow rate by up to half starting 5/19/2017 until 7/18/2017. HHW meter #006917 experienced a decrease to near zero Delta-T for the period 5/30/2017 – 6/15/2017 and then a decrease in flow rate to zero or near zero for the period 6/15/2017 – 7/31/2017. The HHW consumption was estimated for both meters by model.

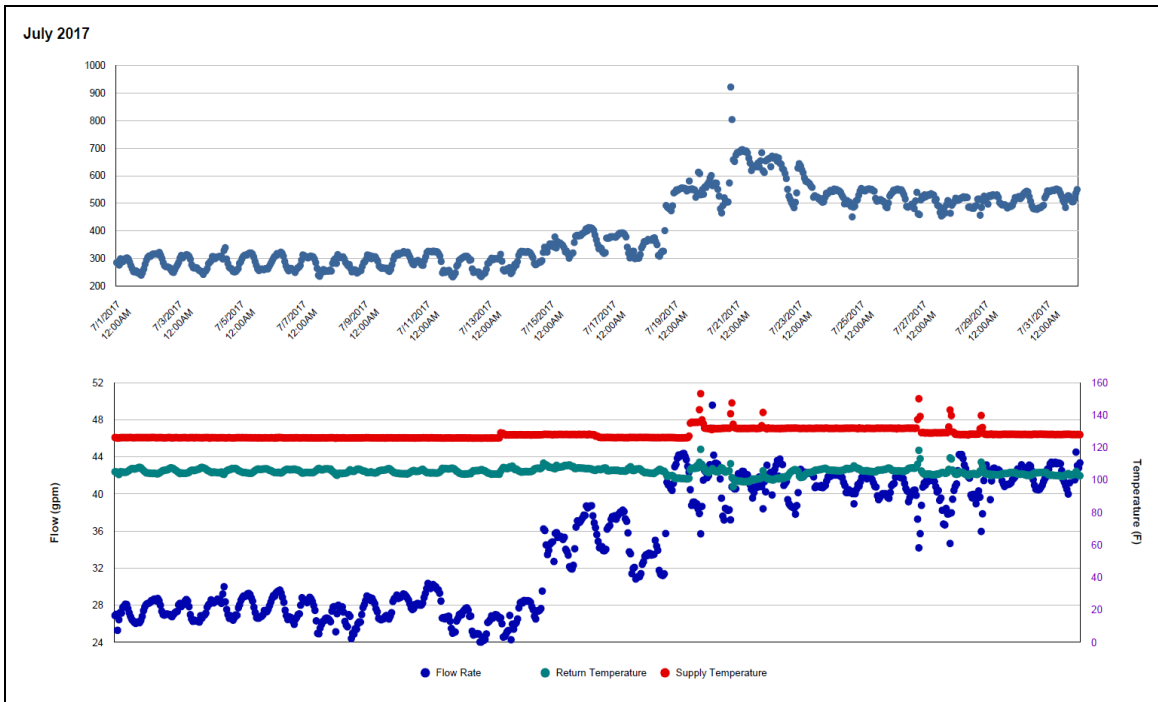
Explanatory Figure: 13 months energy balance plot with original data



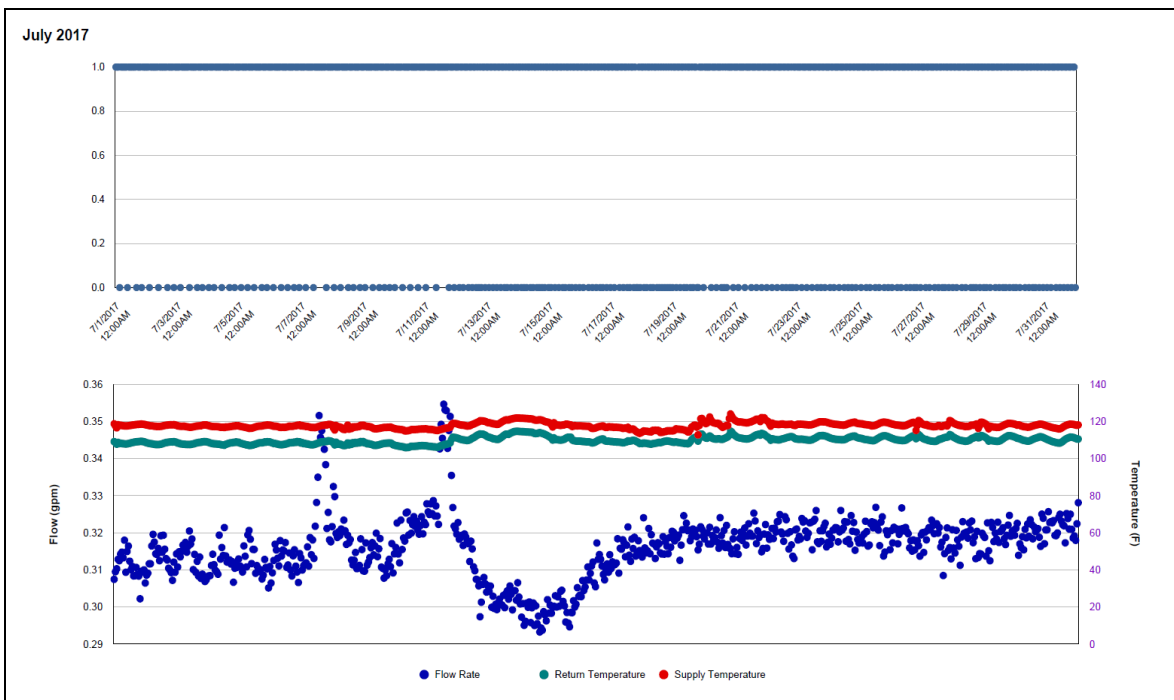
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW meter #006896 during July 2017)



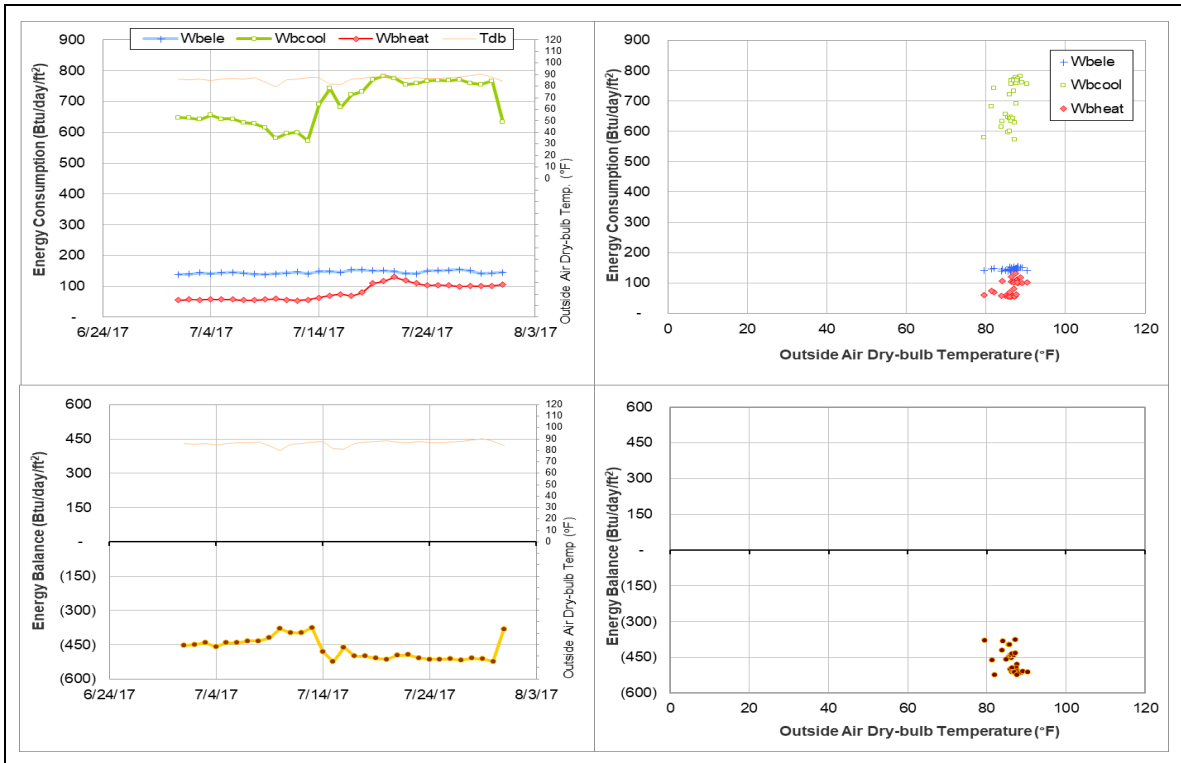
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter #006900 during July 2017)



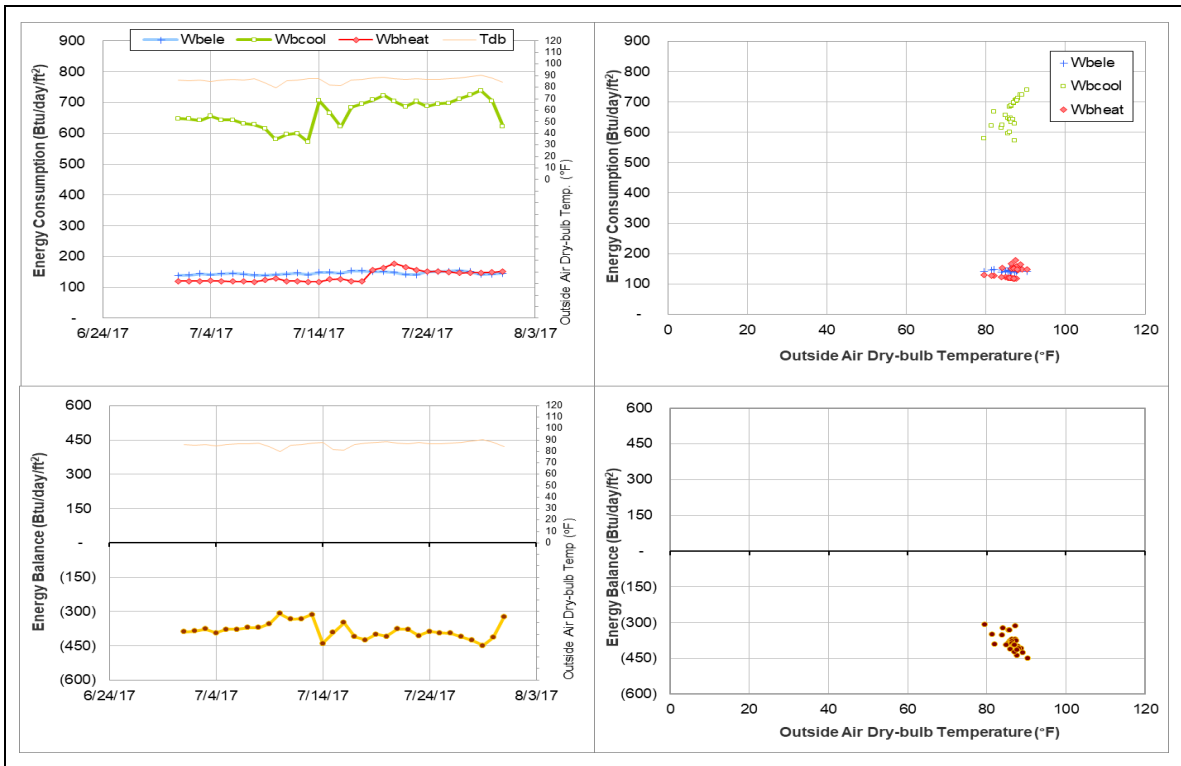
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (HHW meter #006917 during July 2017)



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



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

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	006933	3	7/25/2017 – 7/27/2017	Average

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.	7/25/2017 – 7/27/2017

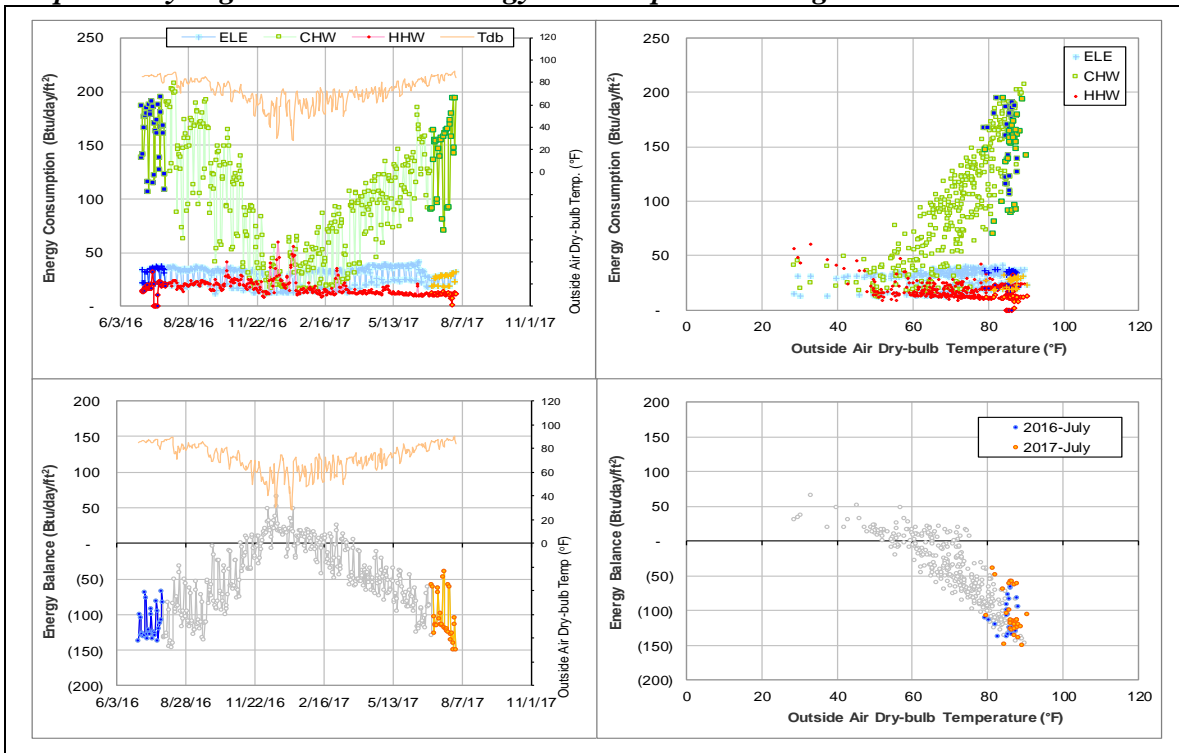
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	006933	7/25/2017 – 7/27/2017	Delta-T	Zero

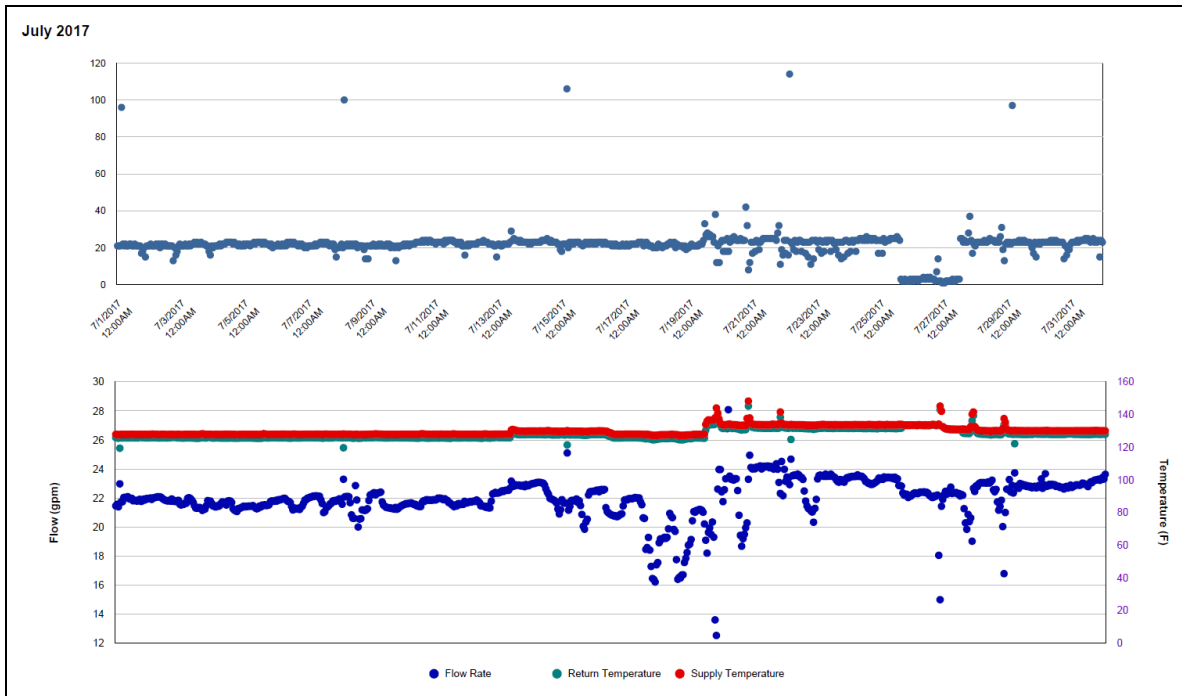
Quantitative descriptions and comments

HHW Delta-T became zero or near zero during 7/25/2017 – 7/27/2017, resulting in a sudden drop of HHW consumption. These days are estimated by taking average of the current month. See also Section II-3.

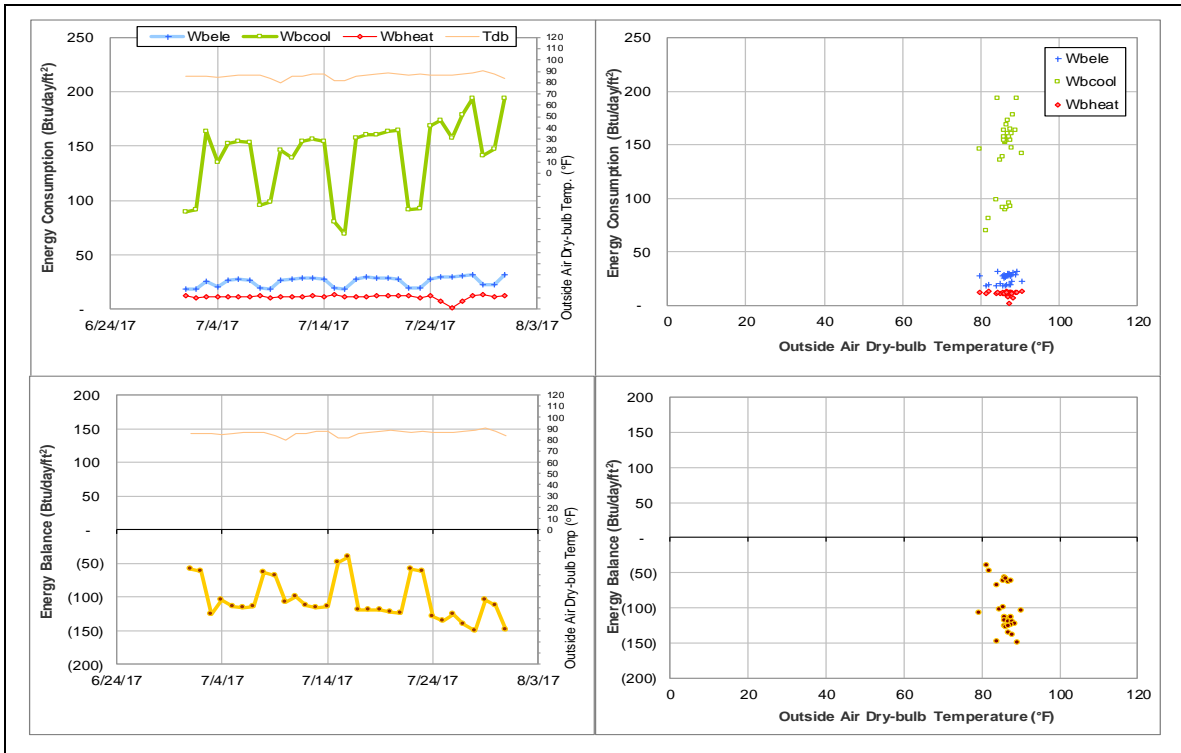
Explanatory Figure: 13 months energy balance plot with original data.



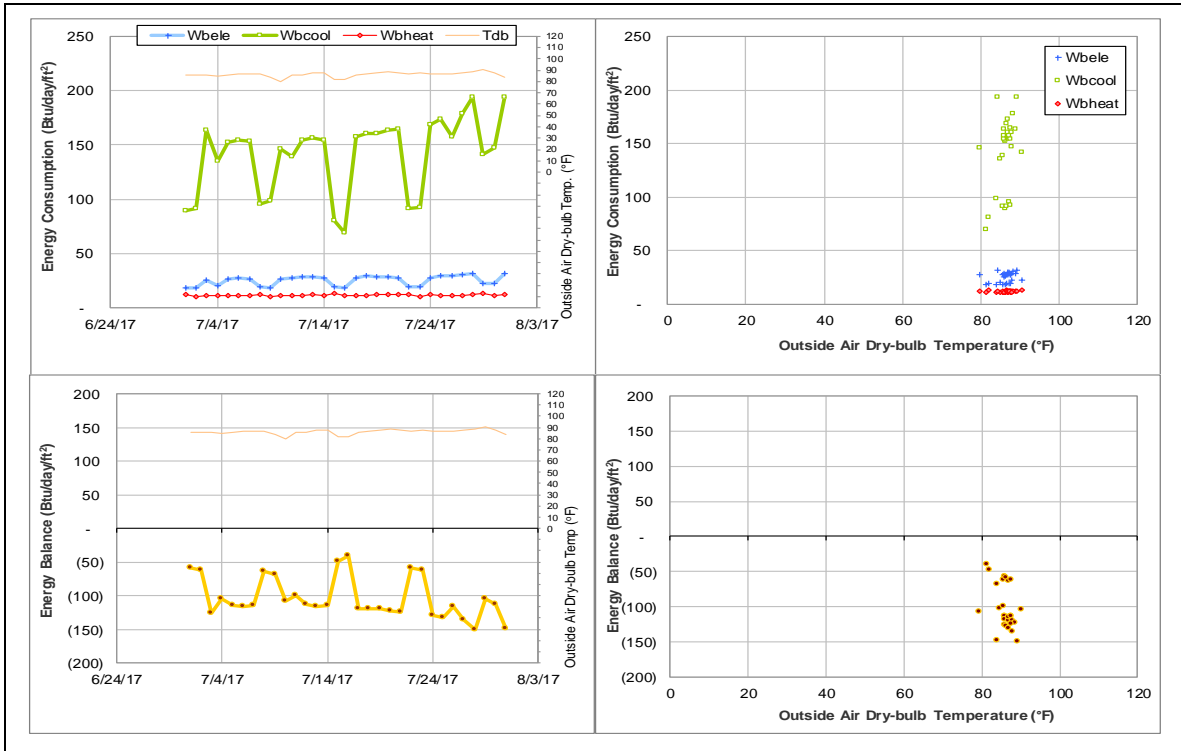
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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	7/1/2017 – 7/31/2017	Model
HHW	005825	31	7/1/2017 – 7/31/2017	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

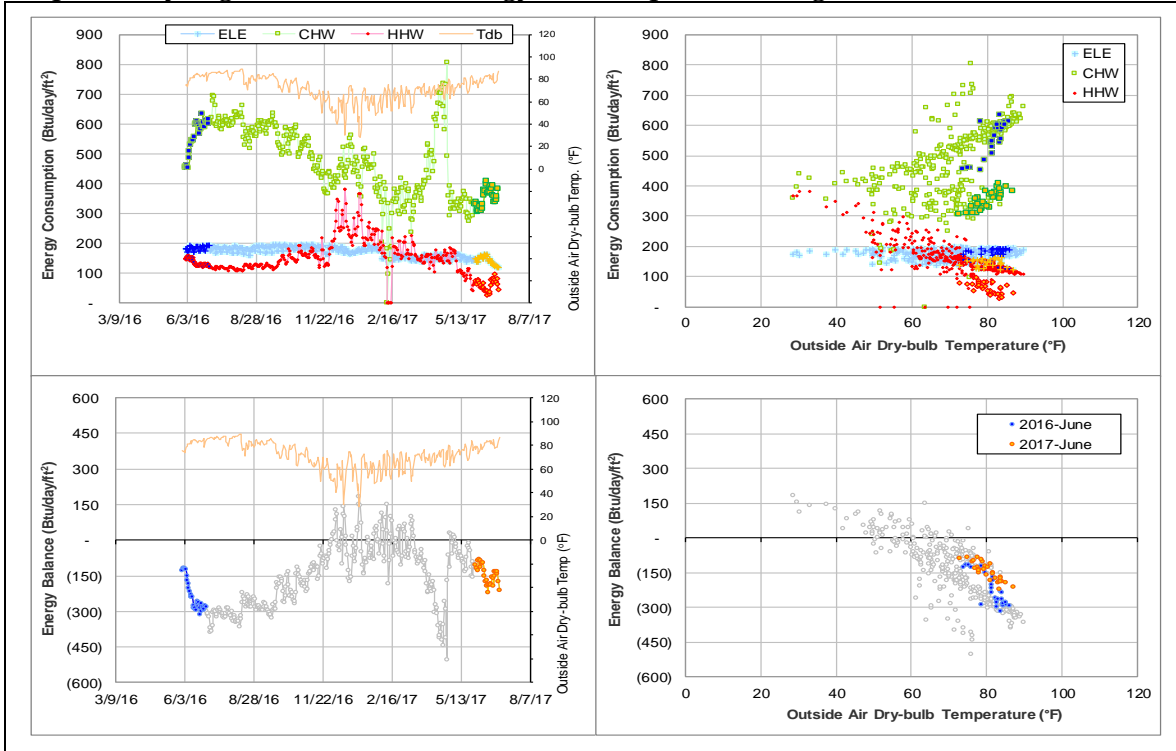
Energy Type	Meter ID	Period	Type	Description
CHW	005821	4/1/2017 – Ongoing	Supply Temp	Faulty – drifted
HHW	005825	5/8/2017 – 7/9/2017	Flow rate	Low
		7/10/2017 – Ongoing	Flow rate	Fluctuates
			Return temp	High
		7/19/2017 – Ongoing	Supply temp	High

Quantitative descriptions and comments

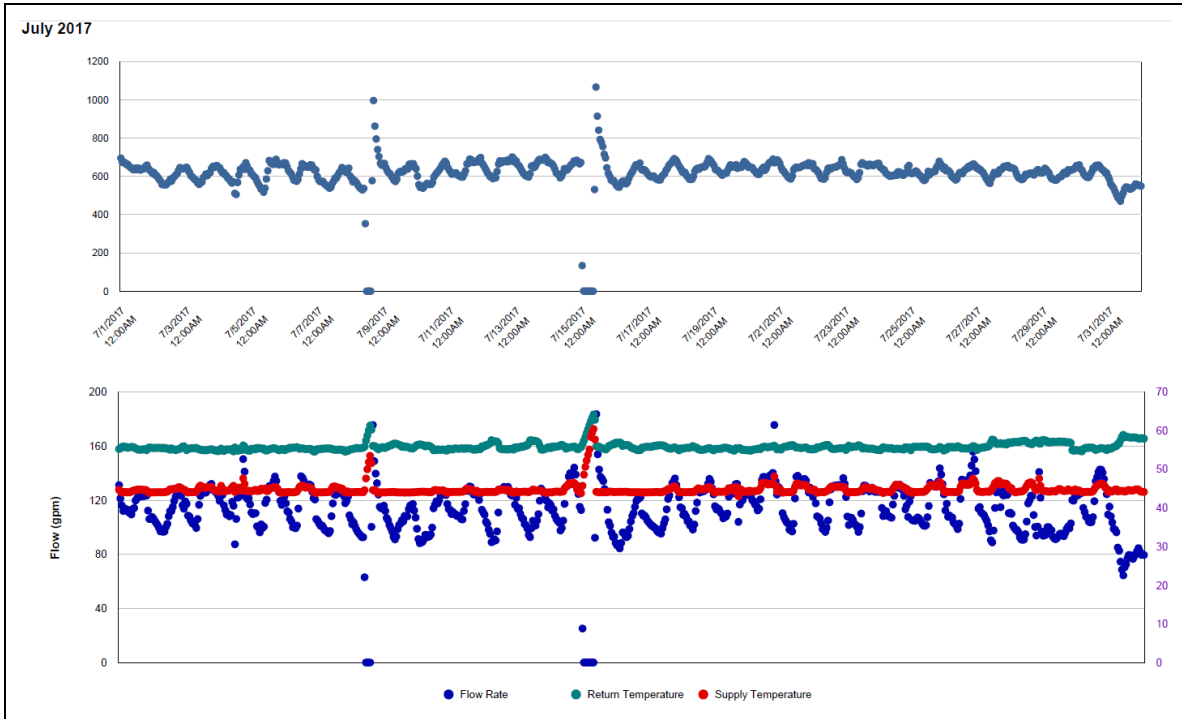
The CHW supply temp sensor appears to be faulty. The supply temp readings started to drift in the end of March 2017 and decreased to 35°F during April 2017. On 4/27/2017, the supply temp value jumped to 44°F. By comparing this value with the two hydrologically closest buildings #0471 Pavilion and #0444 Peterson, it is suspected that this meter 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. This decrease did not occur in the previous year but is suspected to be the plant setback. The meter readings started to fluctuate since 7/10/2017. The flow reading had a sudden increase and Delta-T decreased as the return temp became higher. The combined effect is a slight increase in consumption, but the level is still lower than the level before 5/8/2017. There is also an increase in supply temp which is suspected to be due to the plant operation. The HHW of this month is estimated by model.

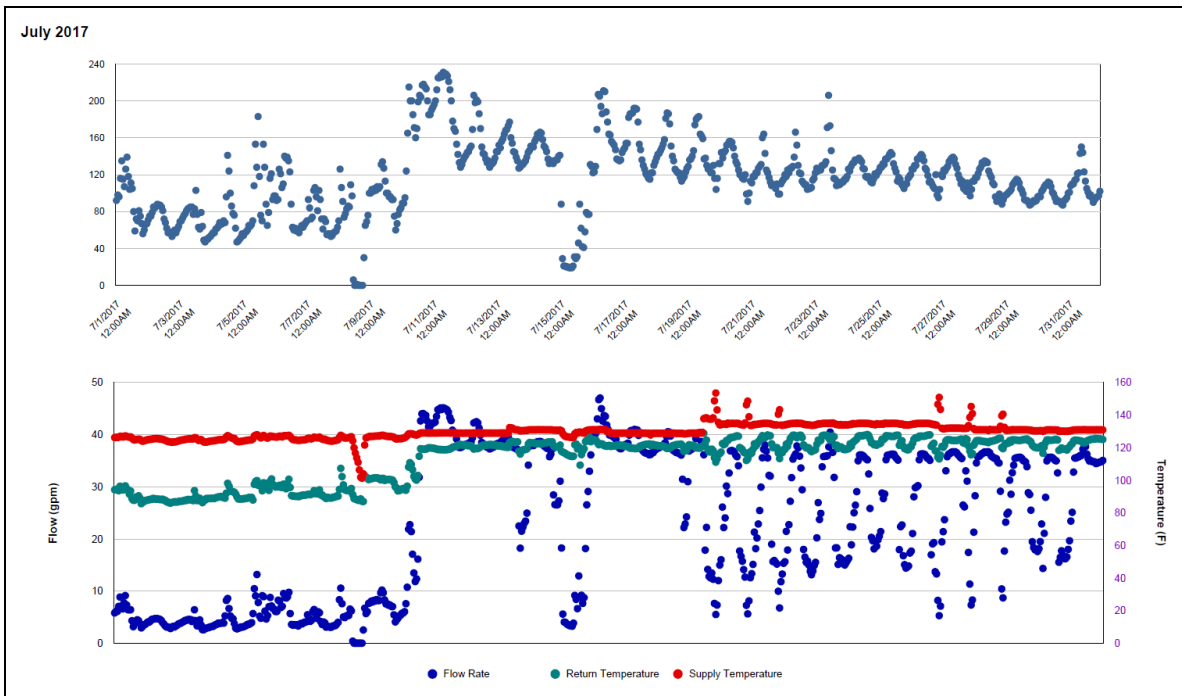
Explanatory Figure: 13 months energy balance plot with original data.



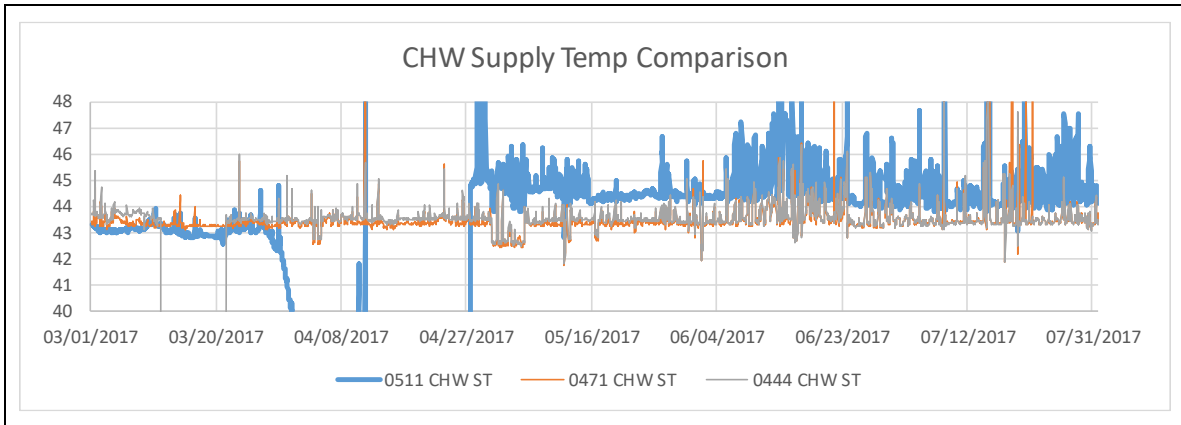
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



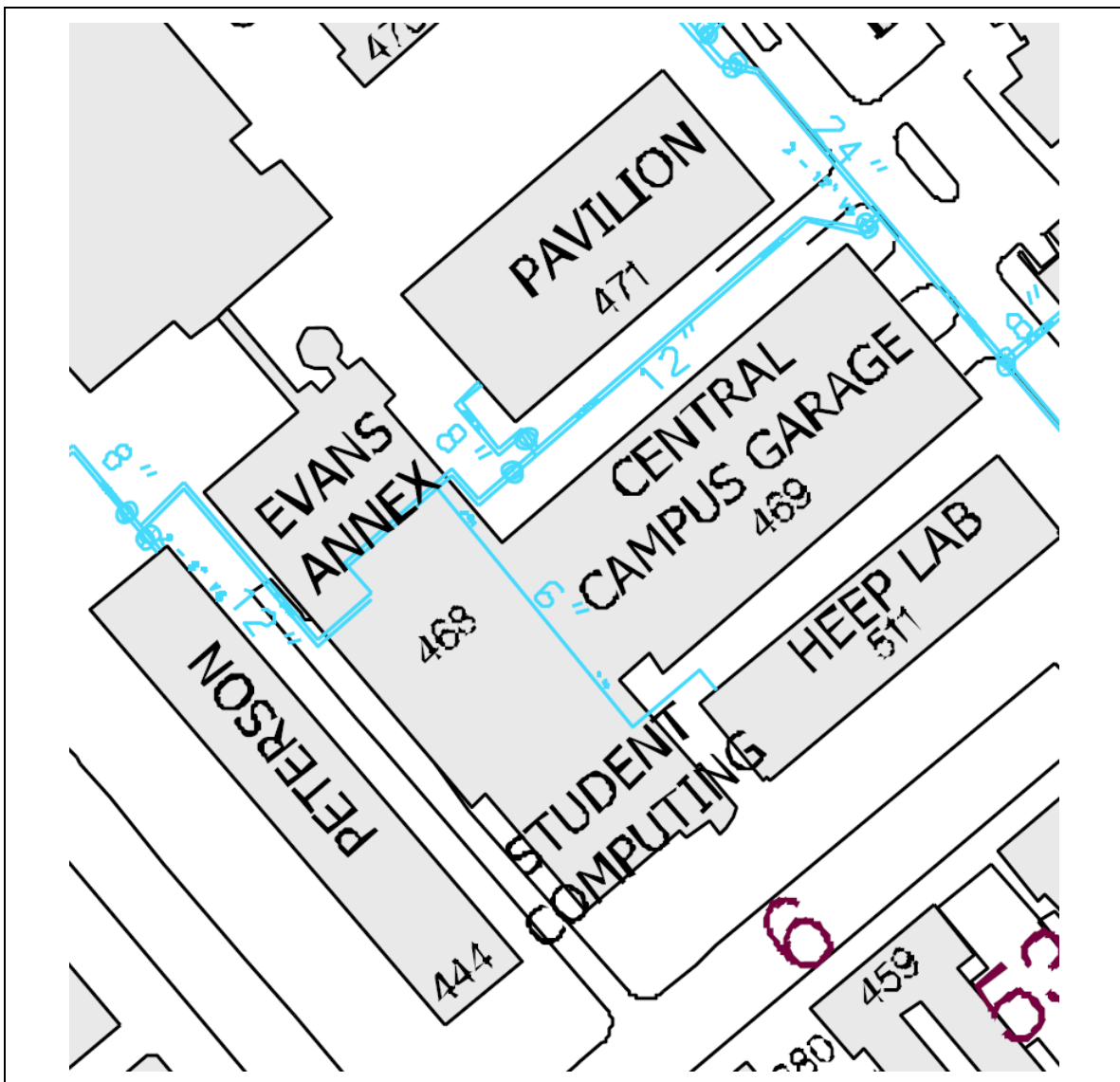
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



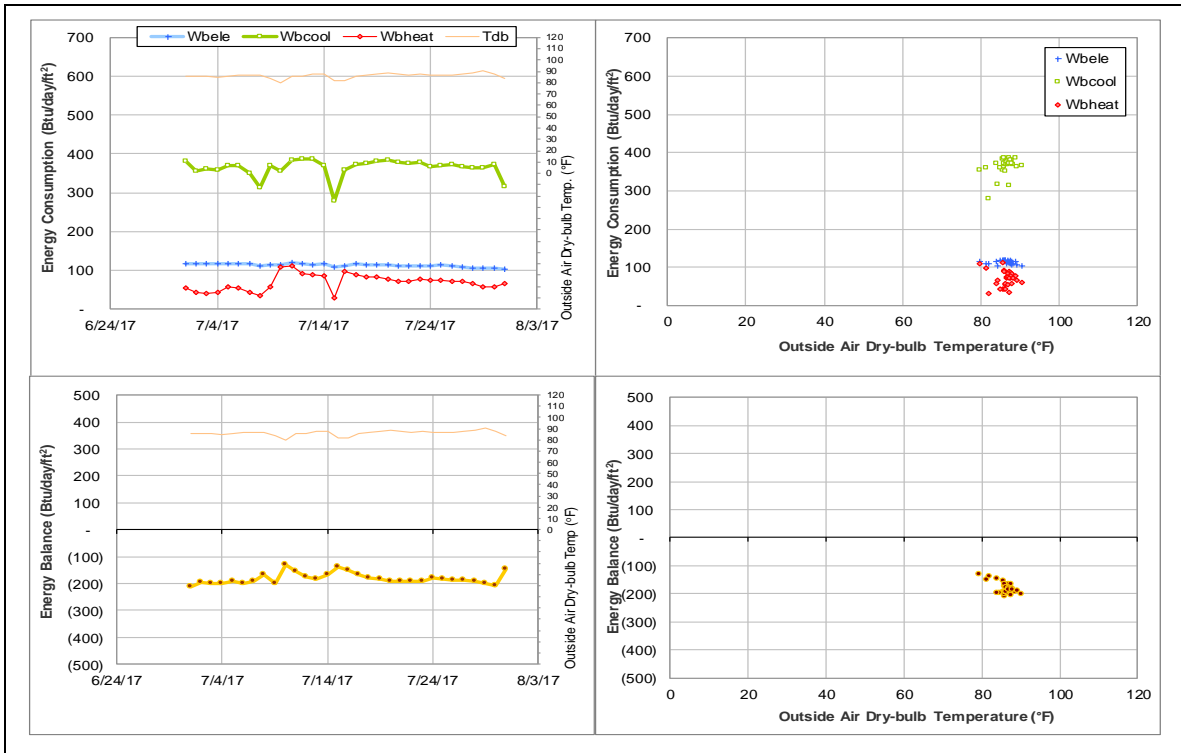
Explanatory Figure: CHW supply temp comparison of hydrologically closest buildings.



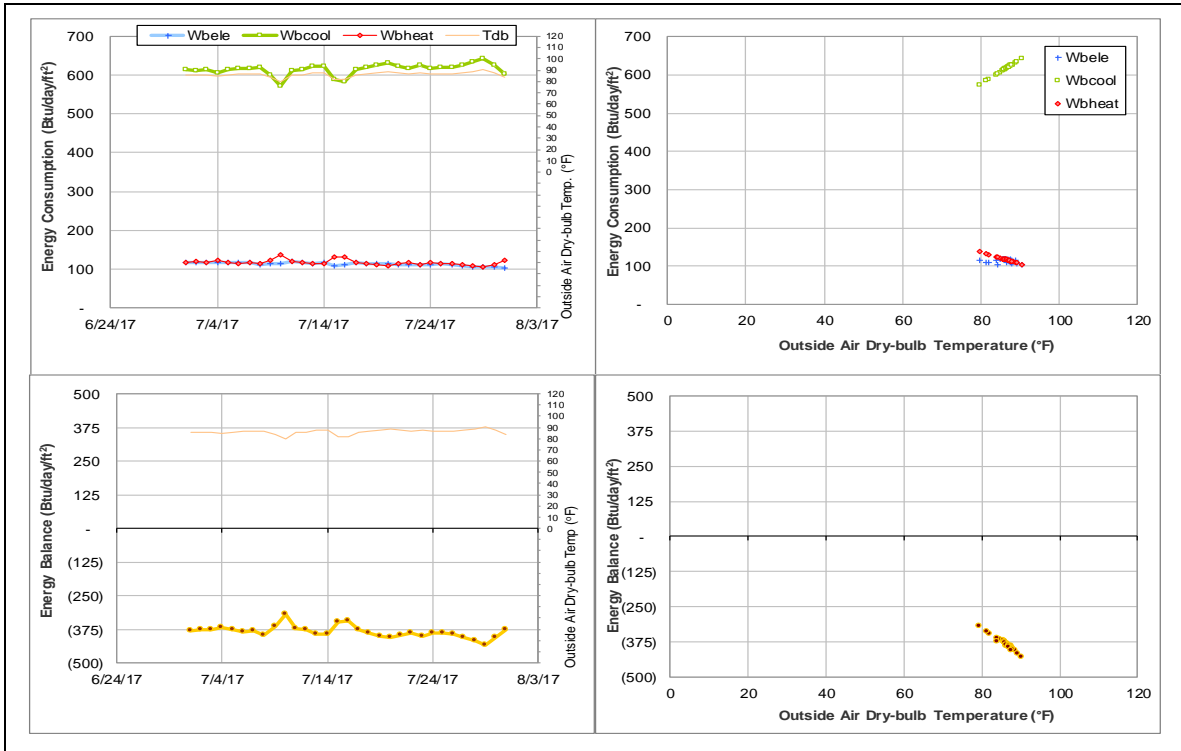
Explanatory Figure: CHW pipeline map near #0511.



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
CHW	004288	12	7/20/2017 – 7/31/2017	Model
HHW	004293	31	7/1/2017 – 7/31/2017	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.	7/20/2017 – Ongoing
HHW	The consumption level has decreased suddenly.	4/26/2017 – Ongoing
	Scattering data are observed.	6/1/2017 – Ongoing

Changes in sensor readings related to the detected issues

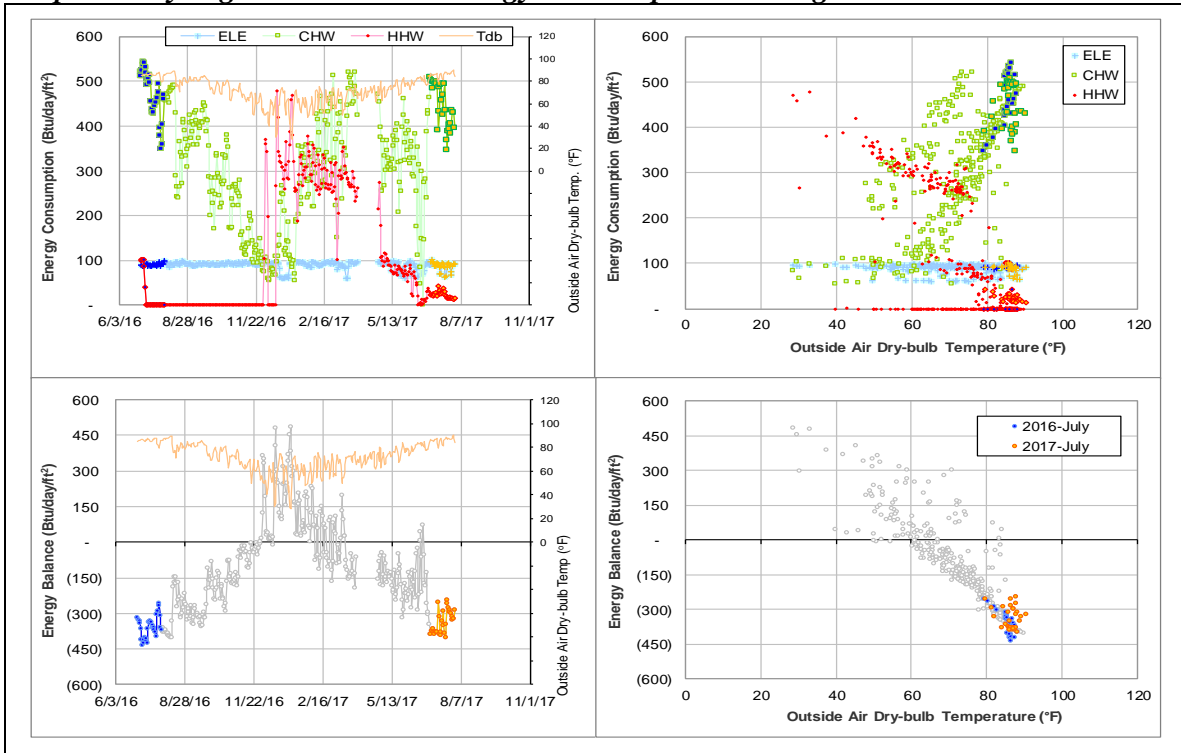
Energy Type	Meter ID	Period	Type	Description
CHW	004288	7/20/2017 – Ongoing	Return temp, flow rate	Low
HHW	004293	6/16/2017 – Ongoing	Delta-T	Zero or near zero

Quantitative descriptions and comments

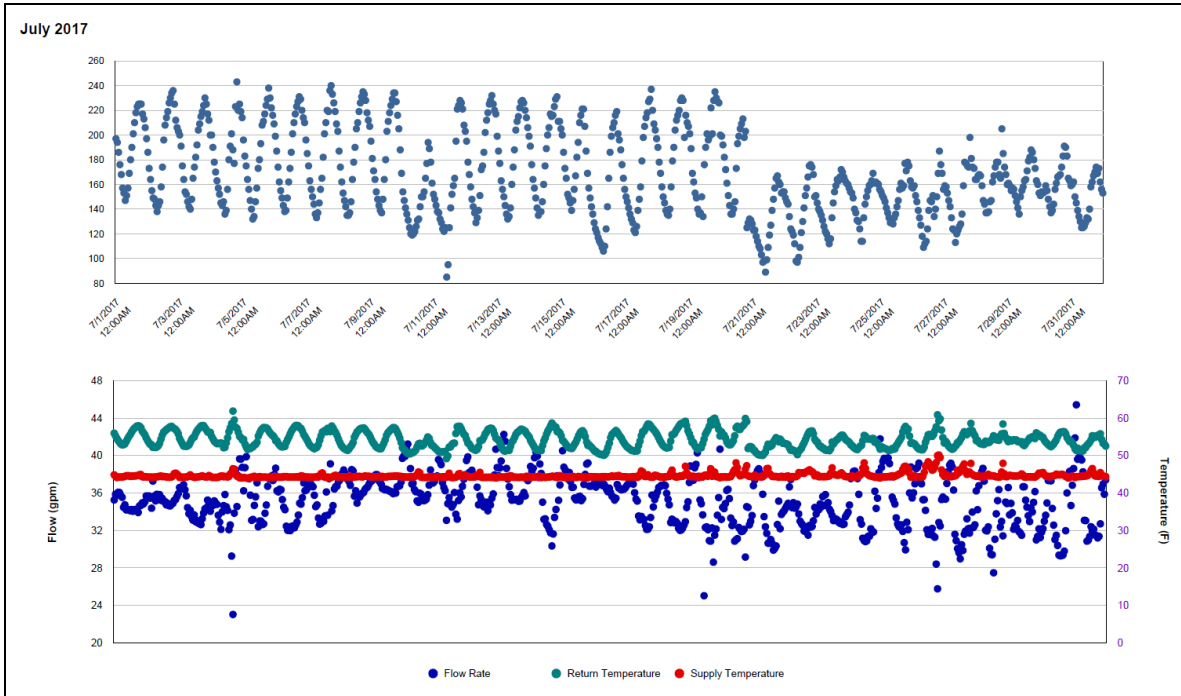
CHW return temperature decreased on 7/20/2017 resulting in a lower delta-T. The flow rate also dropped slightly as its lower bound became slightly lower. This period is estimated by model.

HHW flow rate and both temperatures had been very unstable and have had multiple periods of anomaly during June 2017. The Delta-T became very small since 6/16/2017. The HHW of the whole month is estimated by model.

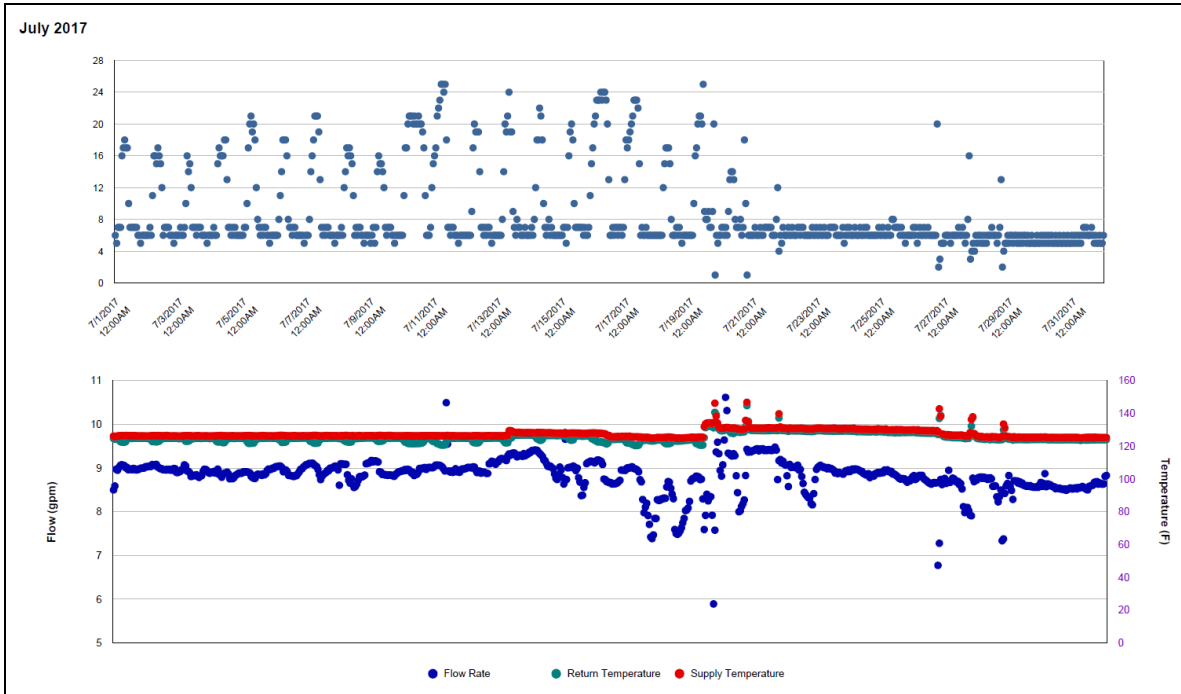
Explanatory Figure: 13 months energy balance plot with original data.



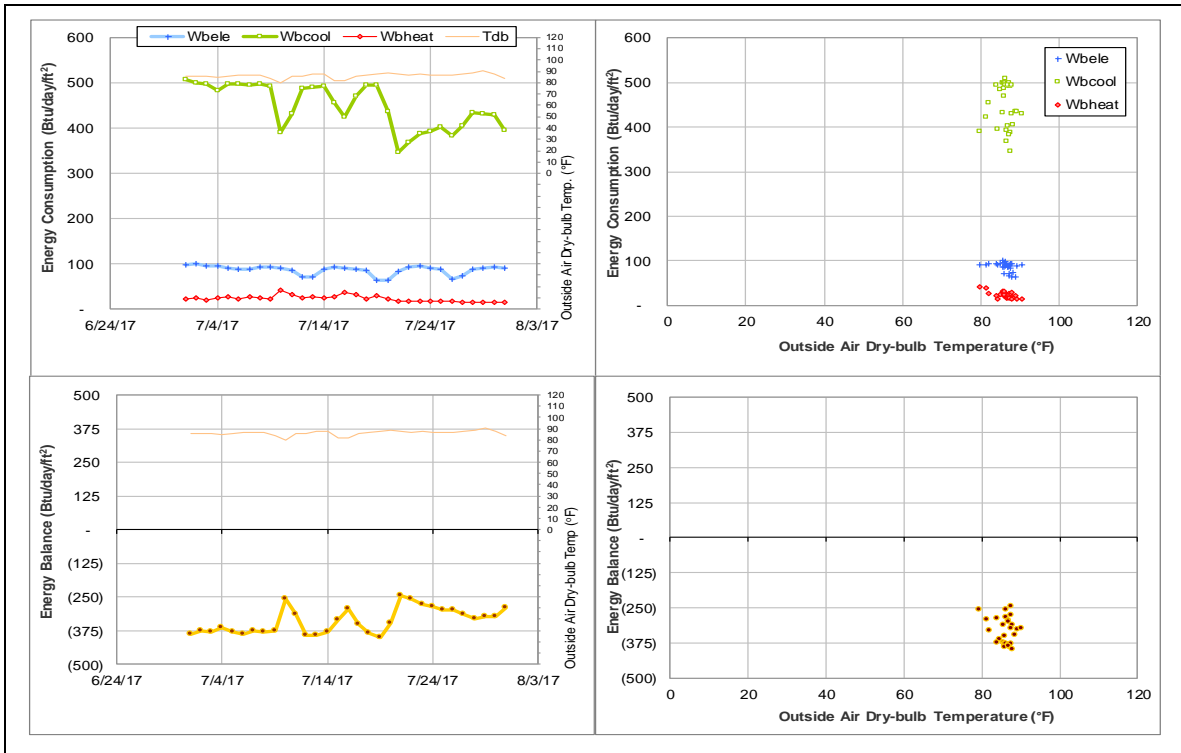
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



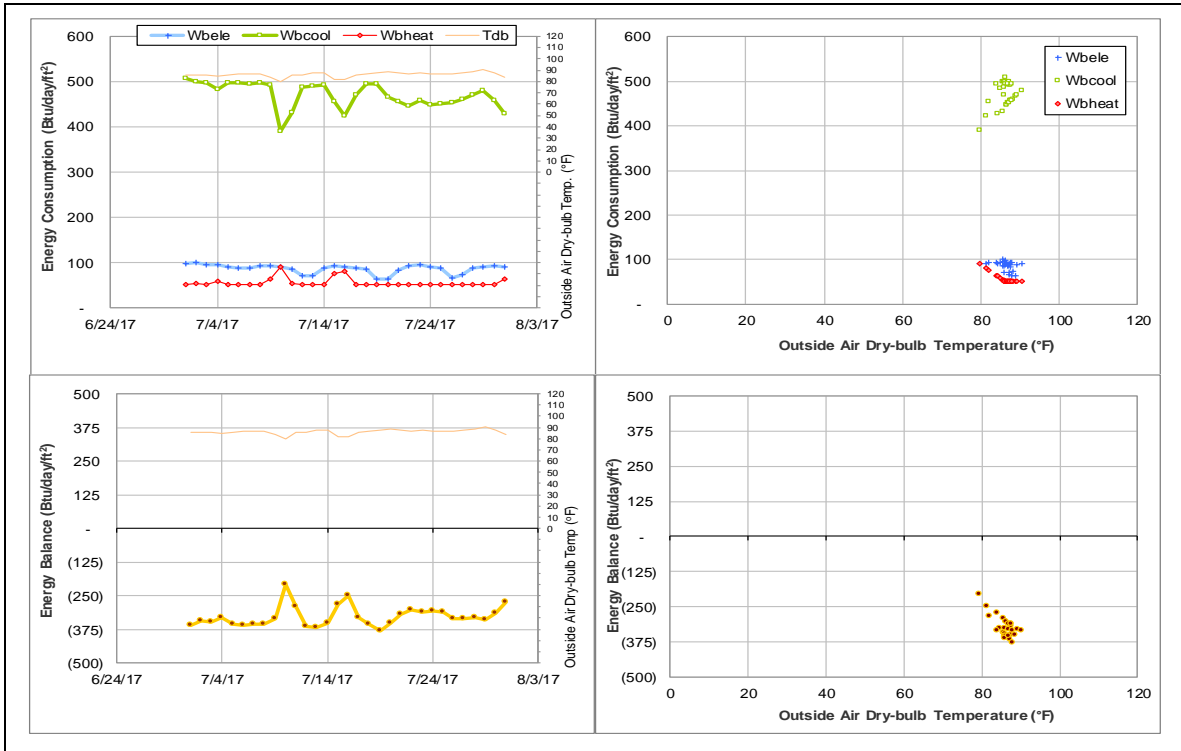
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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



Doherty Building (TAMU Bldg #513)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002898	31	7/1/2017 – 7/31/2017	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.	7/1/2017 – Ongoing

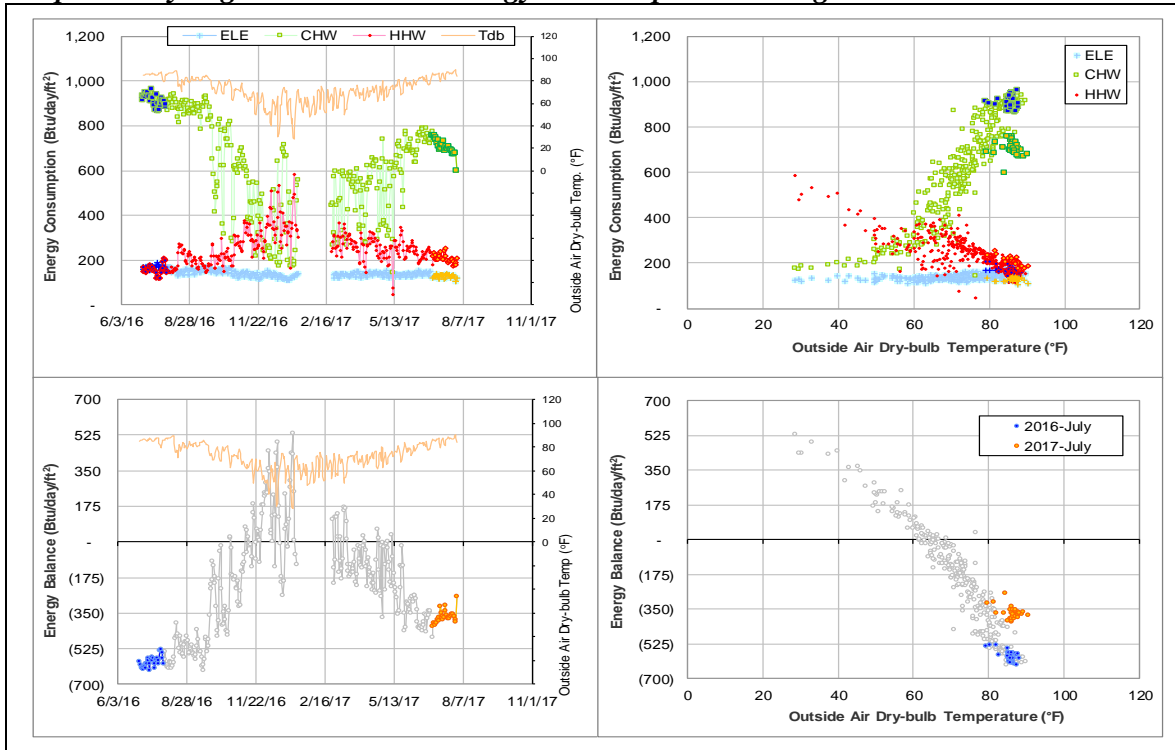
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002898	7/1/2017 – 7/31/2017	Flow rate	Decrease gradually

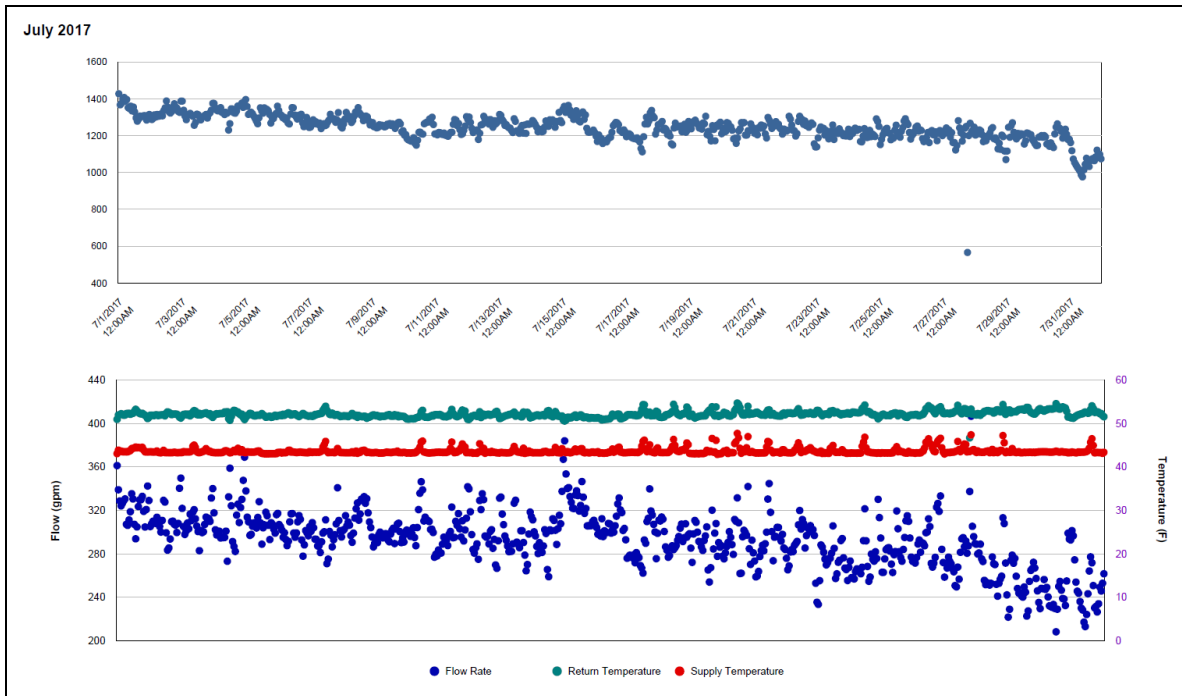
Quantitative descriptions and comments

CHW flow rate started to slide down slowly since 7/1/2017 from 300 – 340 gpm at the beginning of the month to 210 – 280 gpm at the end. The consumption level is seen about 200 Btu/day-ft² lower than the last year. The whole month is estimated by a model.

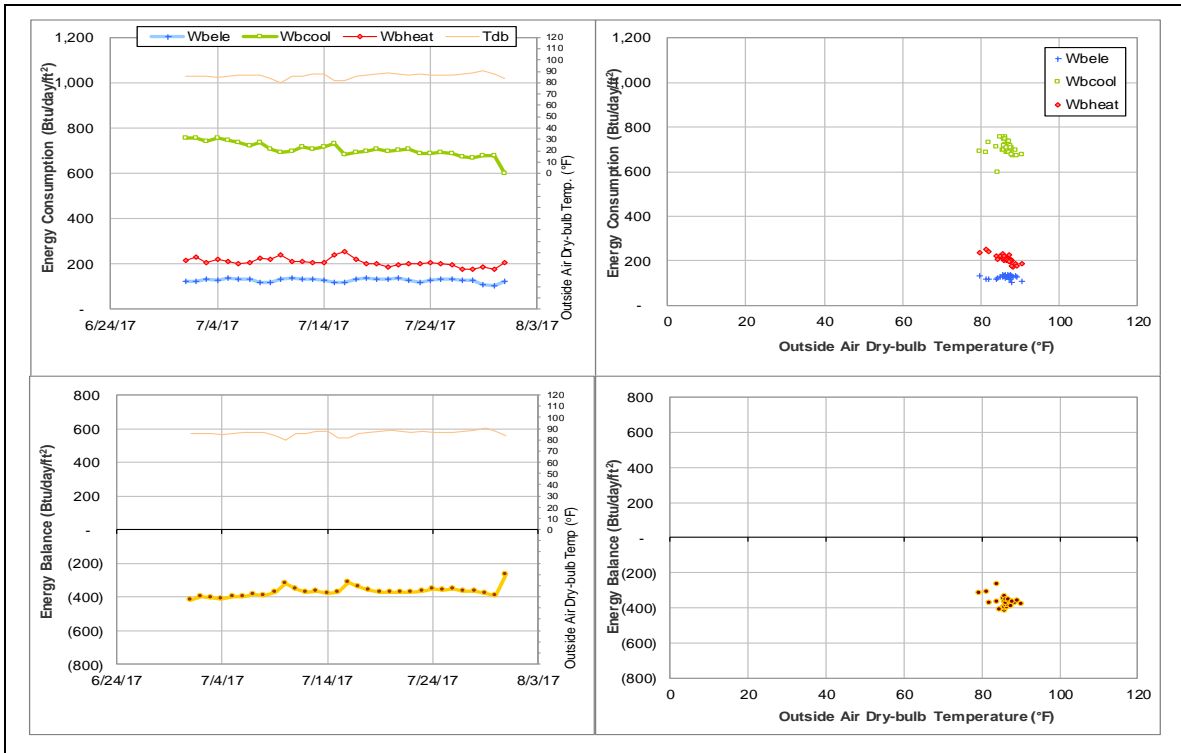
Explanatory Figure: 13 months energy balance plot with original data.



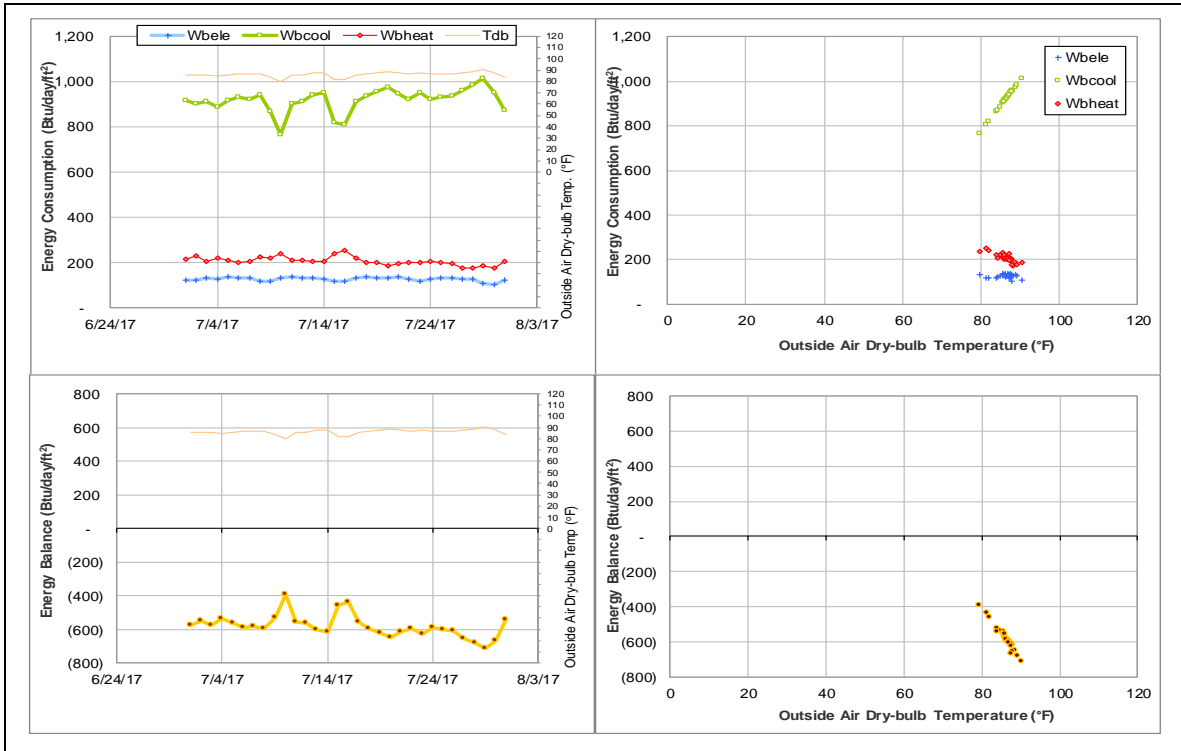
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



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



Computing Services Center (TAMU Bldg #516)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003959	31	7/1/2017 – 7/31/2017	Average

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

Data Type	Description of data behaviors	Period
CHW	The consumption level has increased suddenly.	6/19/2017 – Ongoing

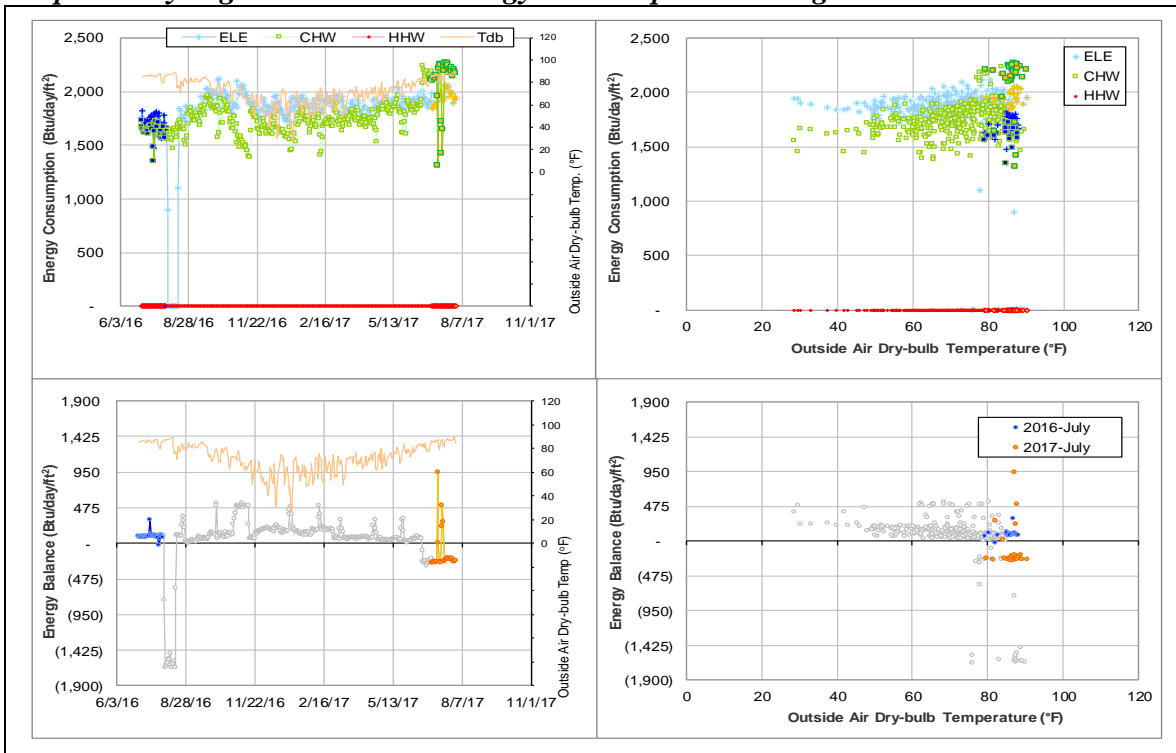
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	003959	6/19/2017 – Ongoing	Flow rate	High

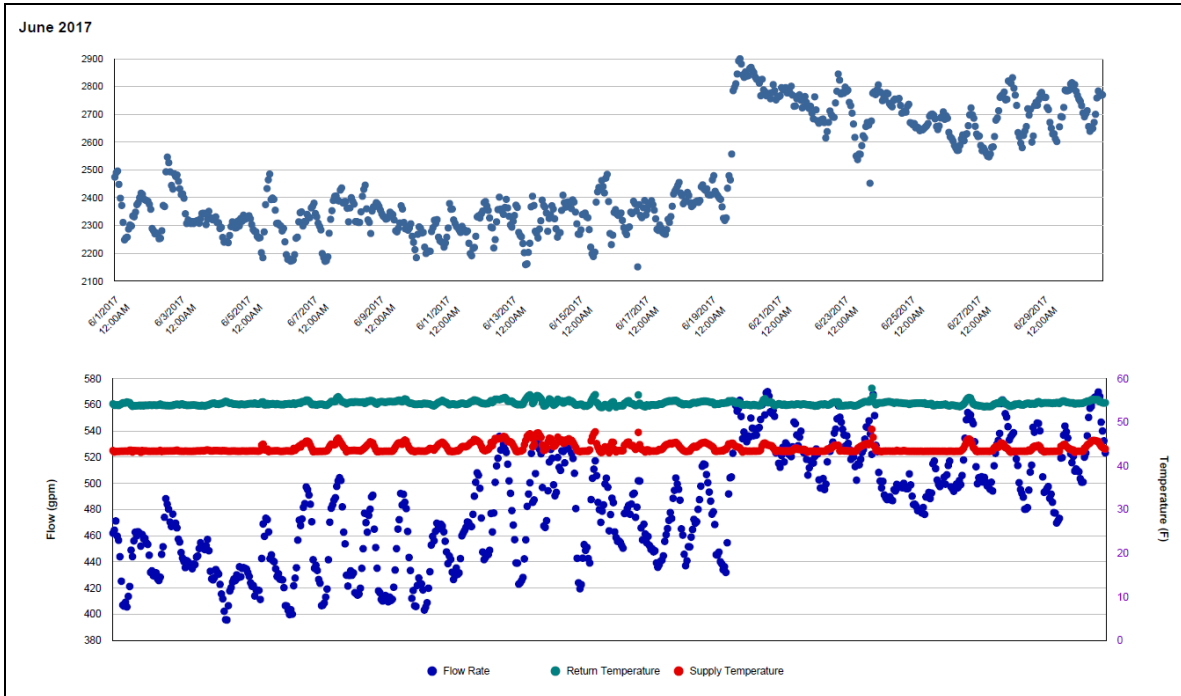
Quantitative descriptions and comments

CHW flow rate increased from the range of 400 – 520 gpm to 480 – 560 gpm since 6/19/2017 resulting in a significant increase in CHW consumption. The consumption is estimated by taking average over the other days of this month.

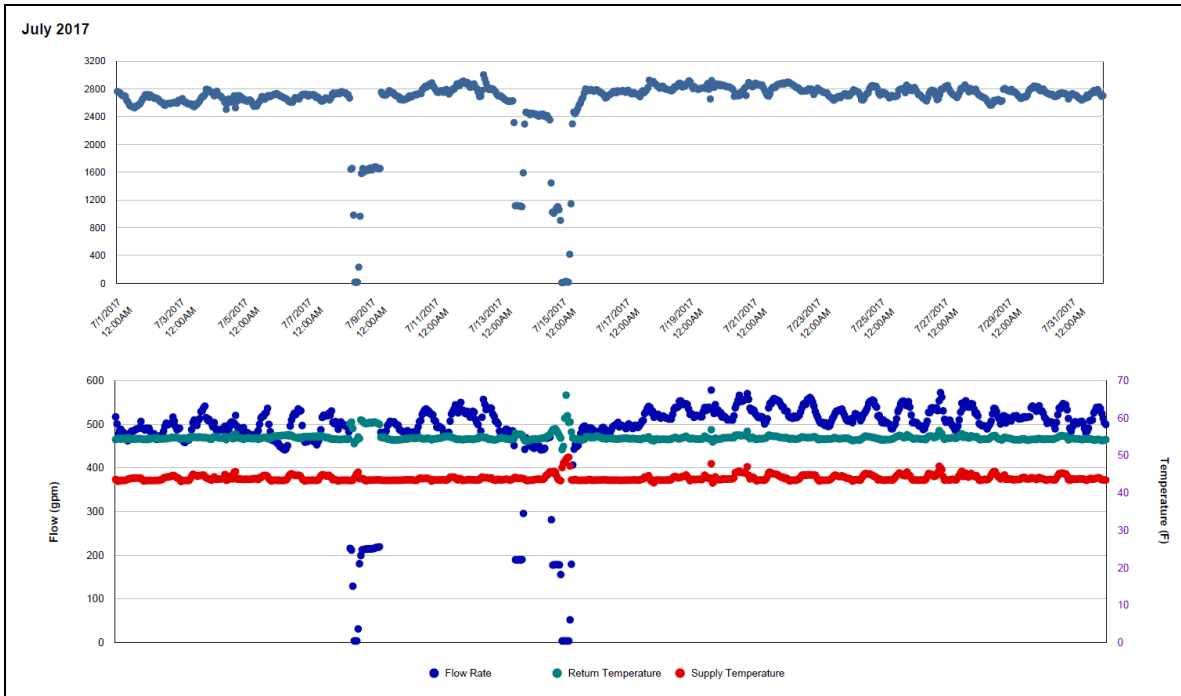
Explanatory Figure: 13 months energy balance plot with original data.



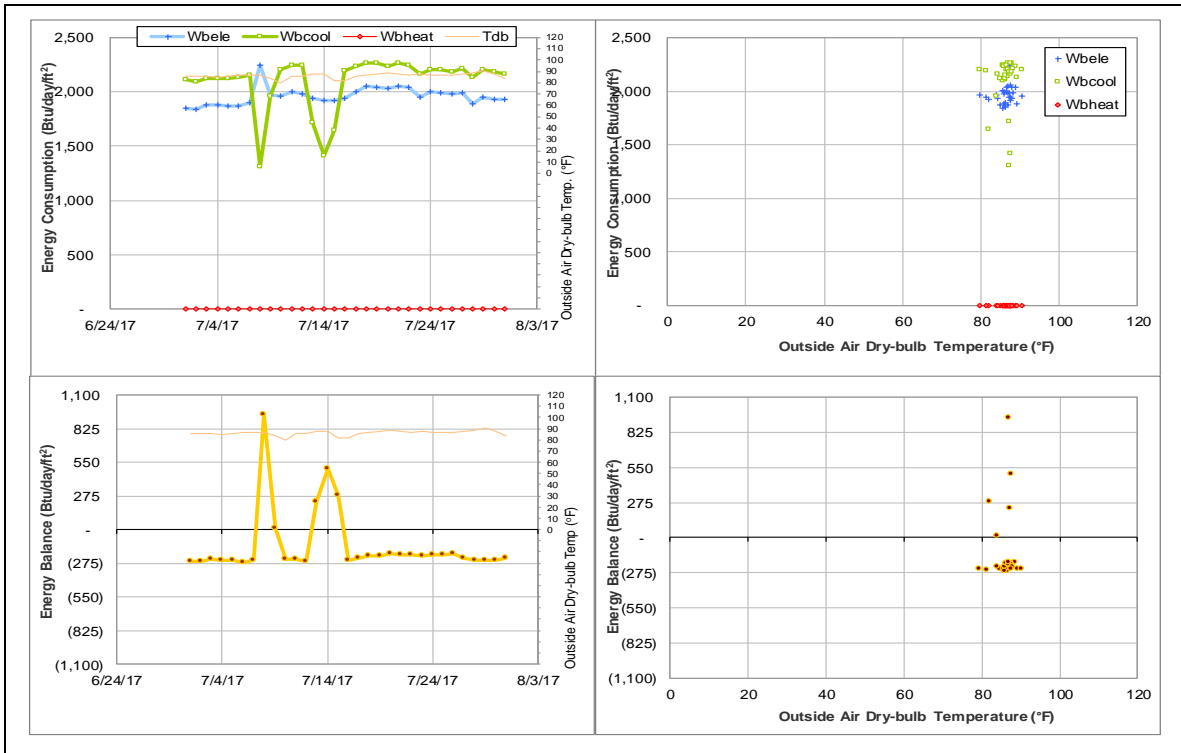
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during June 2017)



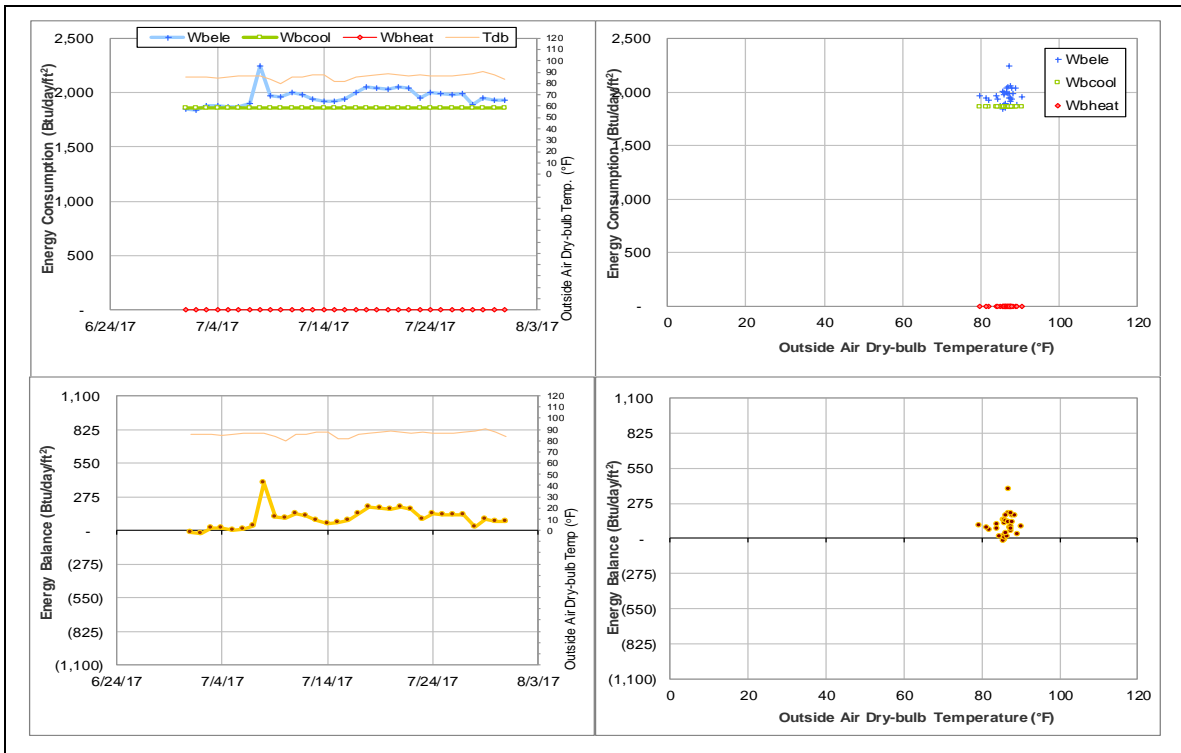
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



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



Beutel Health Center (TAMU Bldg #520)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003933	31	7/1/2017 – 7/31/2017	Model

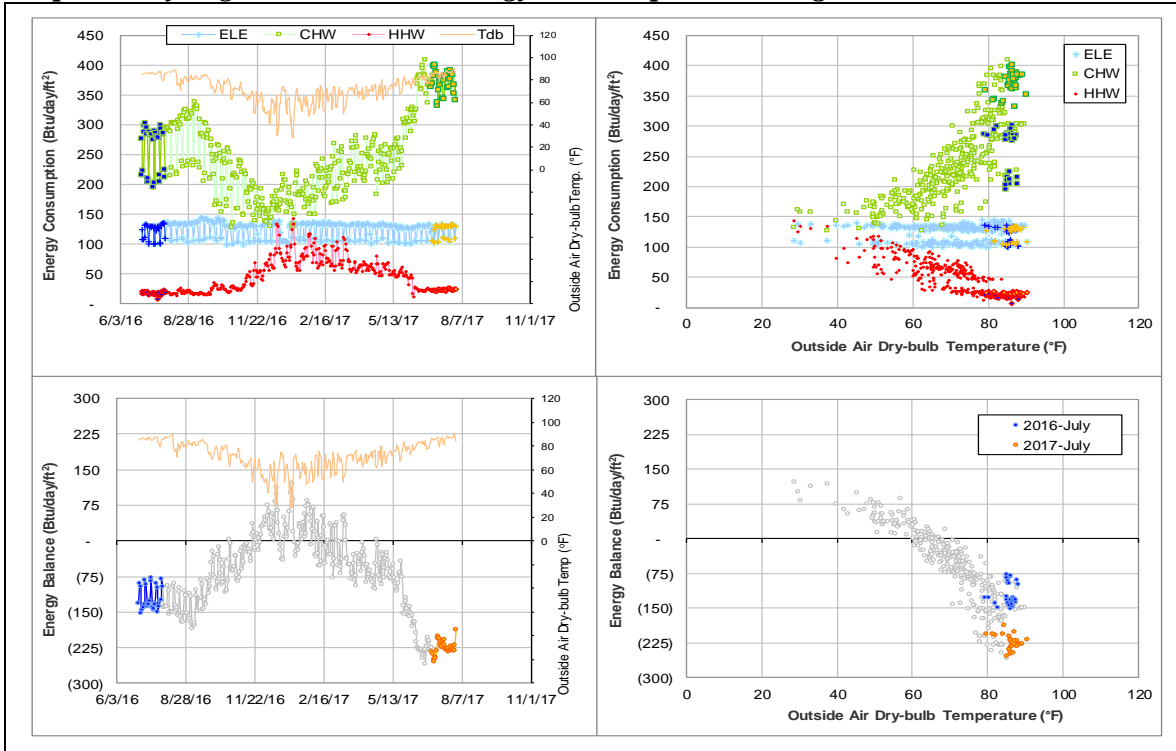
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is higher than the level during the past year.	6/1/2017 – Ongoing

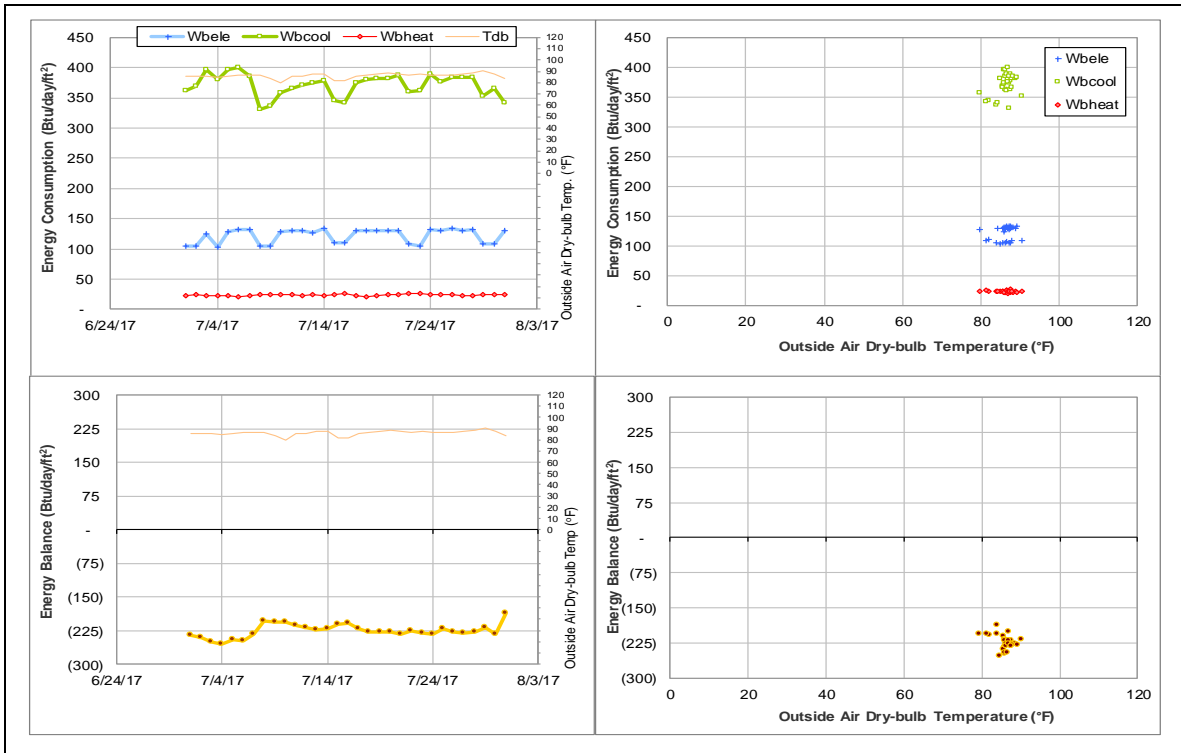
Quantitative descriptions and comments

CHW consumption of June this year is 50 – 100 Btu/day-ft² higher than the previous year. There is no obvious meter reading anomaly observed. The consumption of this month is estimated by model.

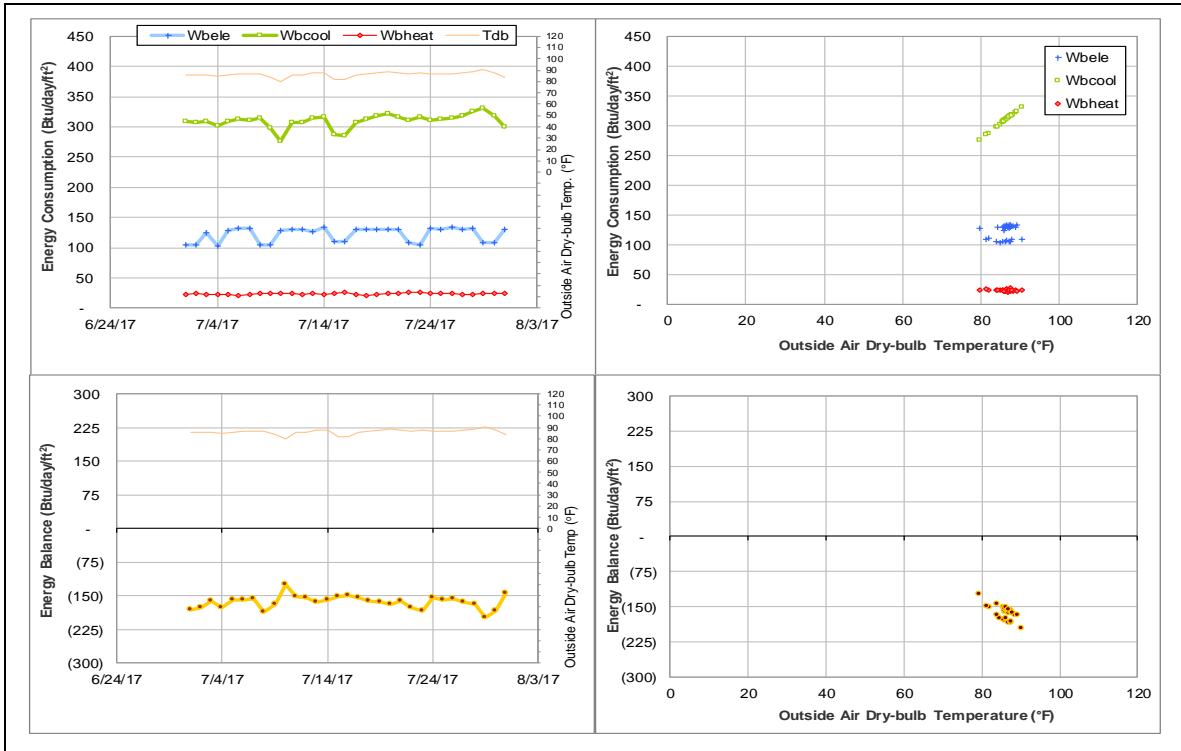
Explanatory Figure: 13 months energy balance plot with original data.



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



Clements Residence Hall (TAMU Bldg #548)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002740	2	7/20/2017 – 7/21/2017	Average

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.	7/20/2017 – 7/21/2017

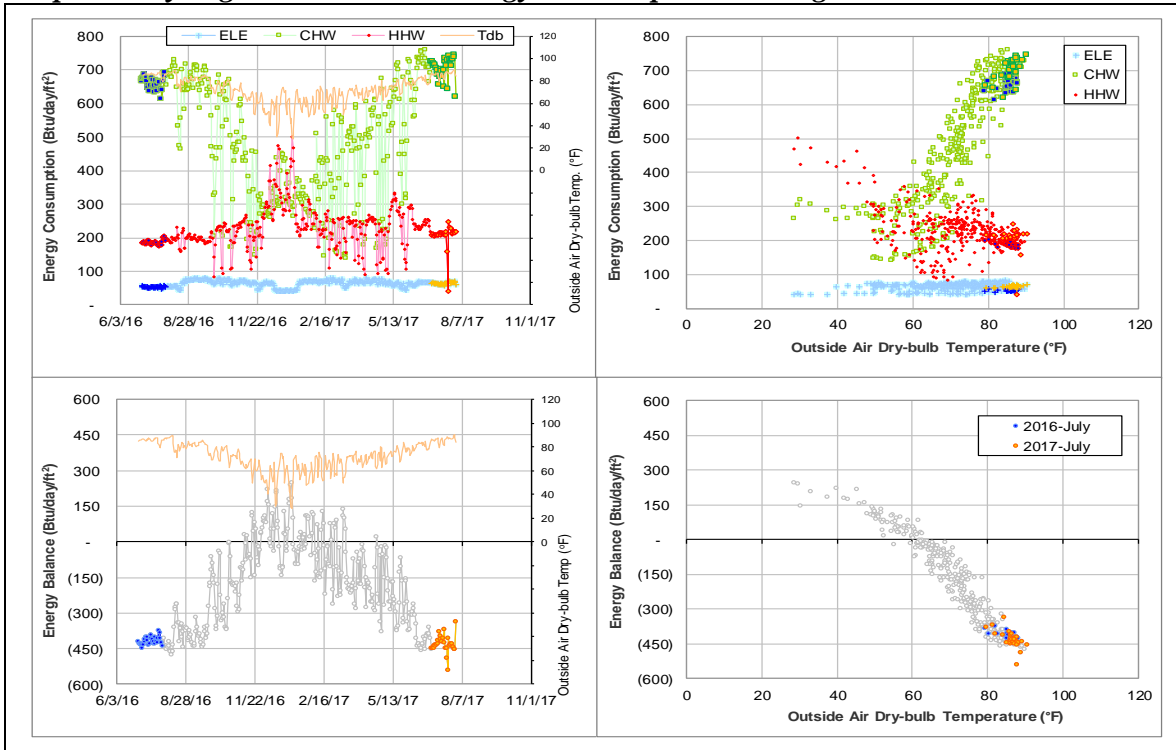
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002740	7/20/2017 – 7/21/2017	Flow rate	Zero

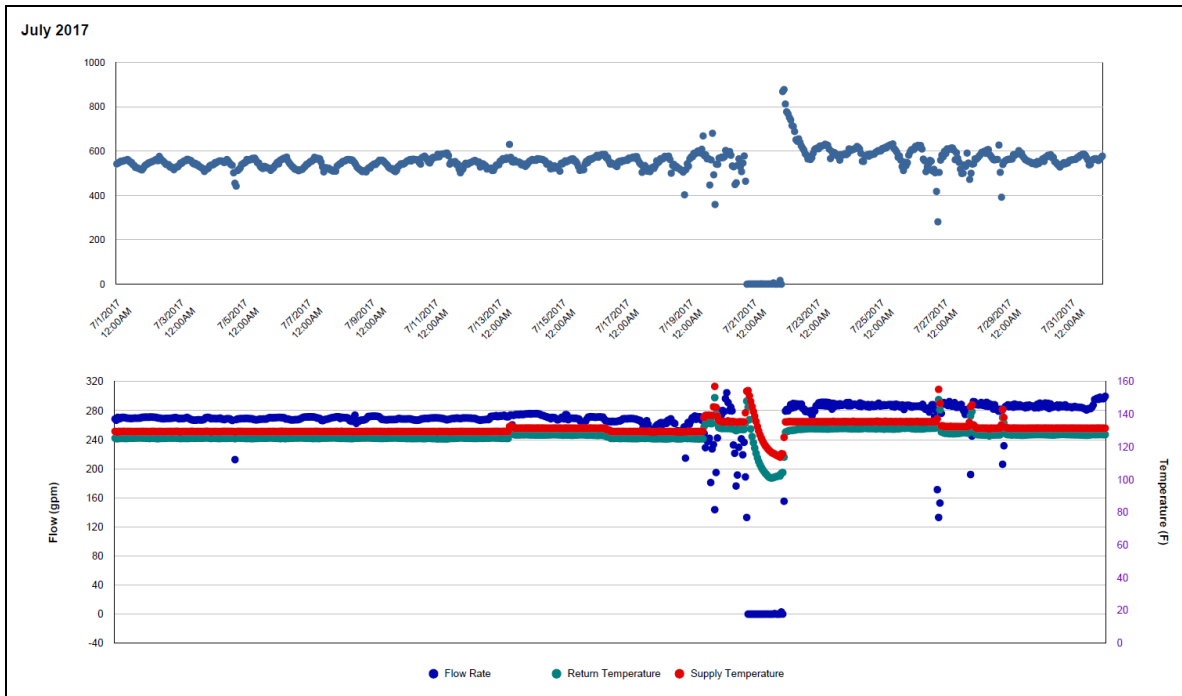
Quantitative descriptions and comments

HHW flow rate dropped to zero during 7/20/2017 – 7/21/2017, resulting in a sudden drop of HHW consumption. These days are estimated by taking average of the current month.

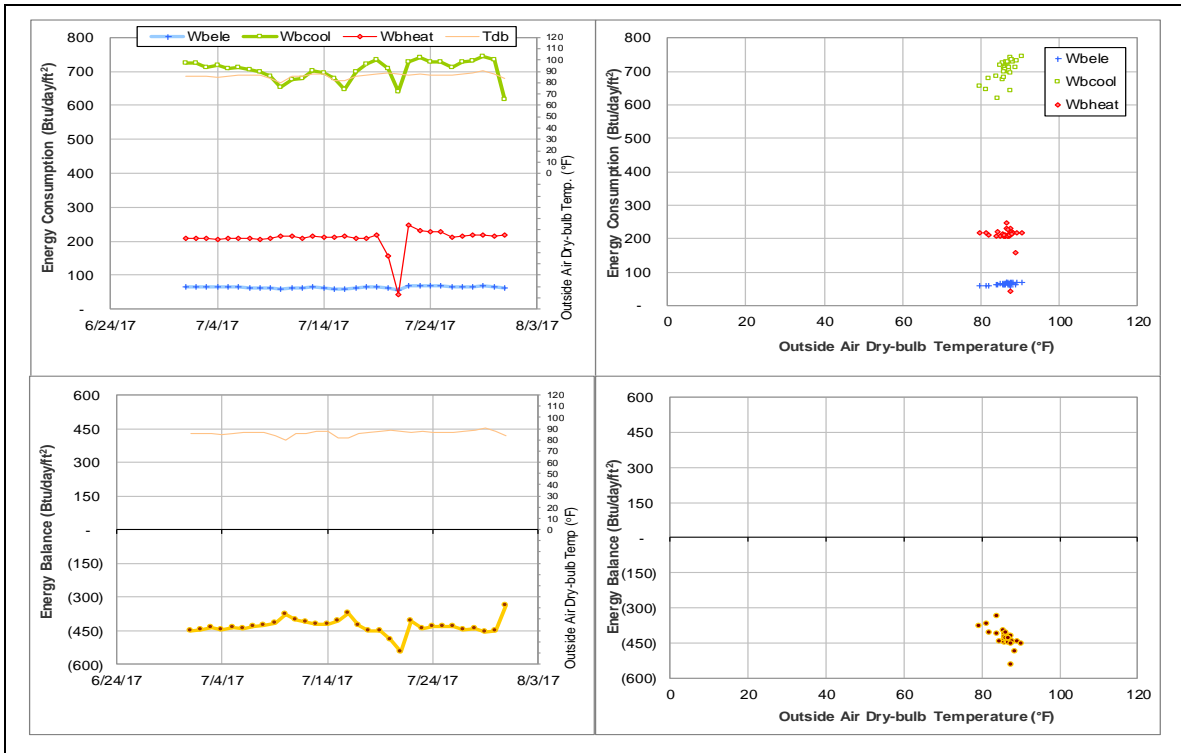
Explanatory Figure: 13 months energy balance plot with original data.



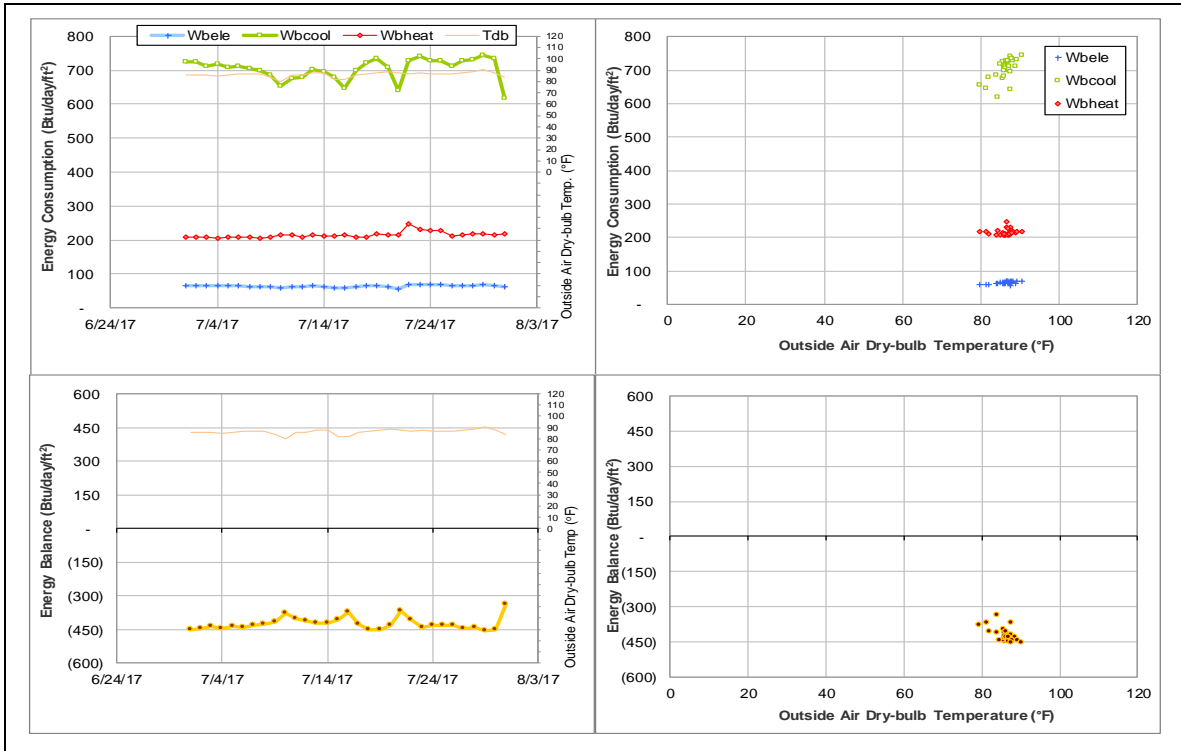
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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



McFadden Residence Hall (TAMU Bldg #550)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002188	6	7/22/2017 – 7/27/2017	Model
HHW	002192	10	7/22/2017 – 7/31/2017	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.	7/22/2017 – 7/27/2017
HHW	The metered values appear to be faulty.	7/22/2017 – 7/27/2017
	The consumption increased for a short period.	7/28/2017 – 7/30/2017
	The consumption level has decreased suddenly.	7/31/2017 – Ongoing

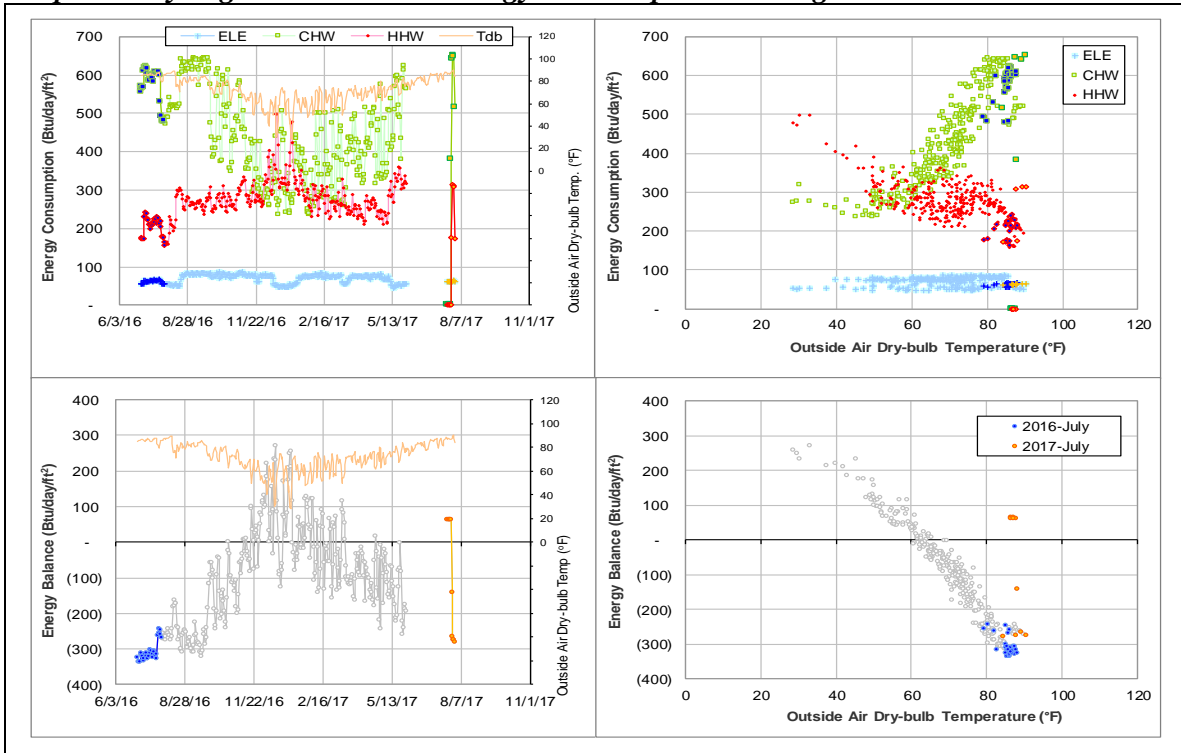
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002188	7/22/2017 – 7/27/2017	Flow rate, supply temp, return temp	Faulty – constant
HHW	002192	7/22/2017 – 7/27/2017	Flow rate, supply temp, return temp	Faulty – constant
		7/28/2017 – 7/30/2017	Flow rate	High
		7/31/2017 – Ongoing	Flow rate	Zero

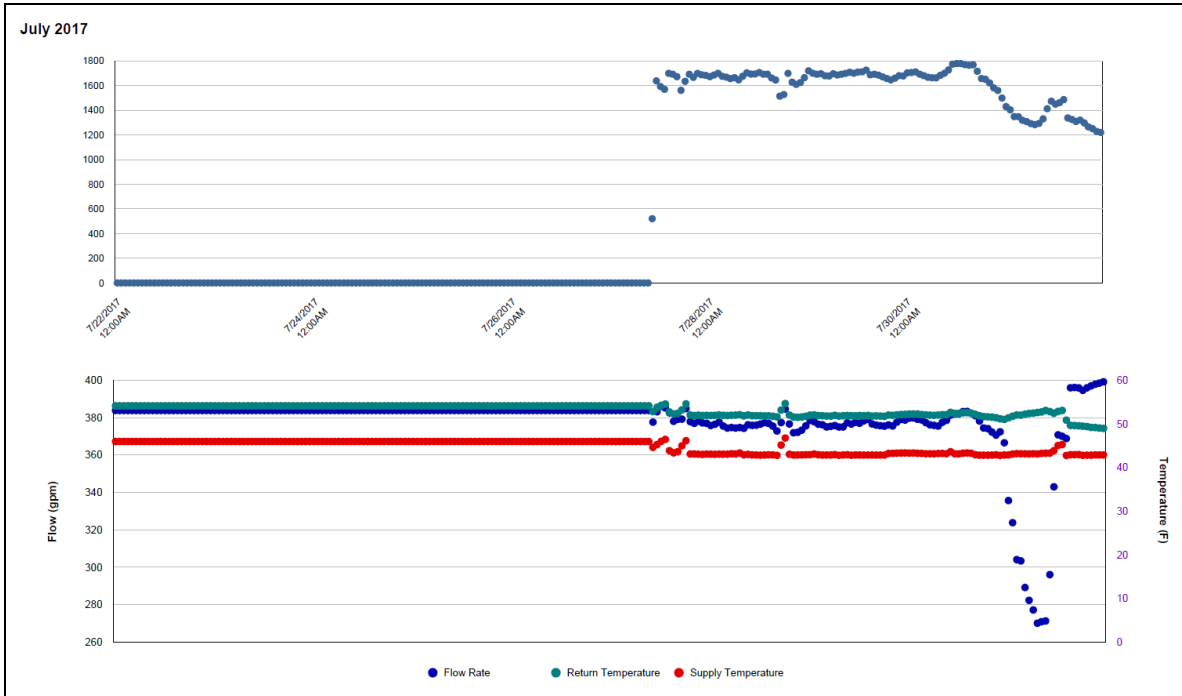
Quantitative descriptions and comments

Both CHW and HHW consumption was missing during 6/1/2017 – 7/21/2017. After the missing, all meter readings remained constant during 7/22/2017 – 7/27/2017. CHW readings appear normal since 7/28/2017. HHW readings, however, showed higher flow rate (180 gpm) on 7/28/2017 – 7/30/2017 compared to last year (160 gpm). Its flow rate dropped to zero on 7/31/2017.

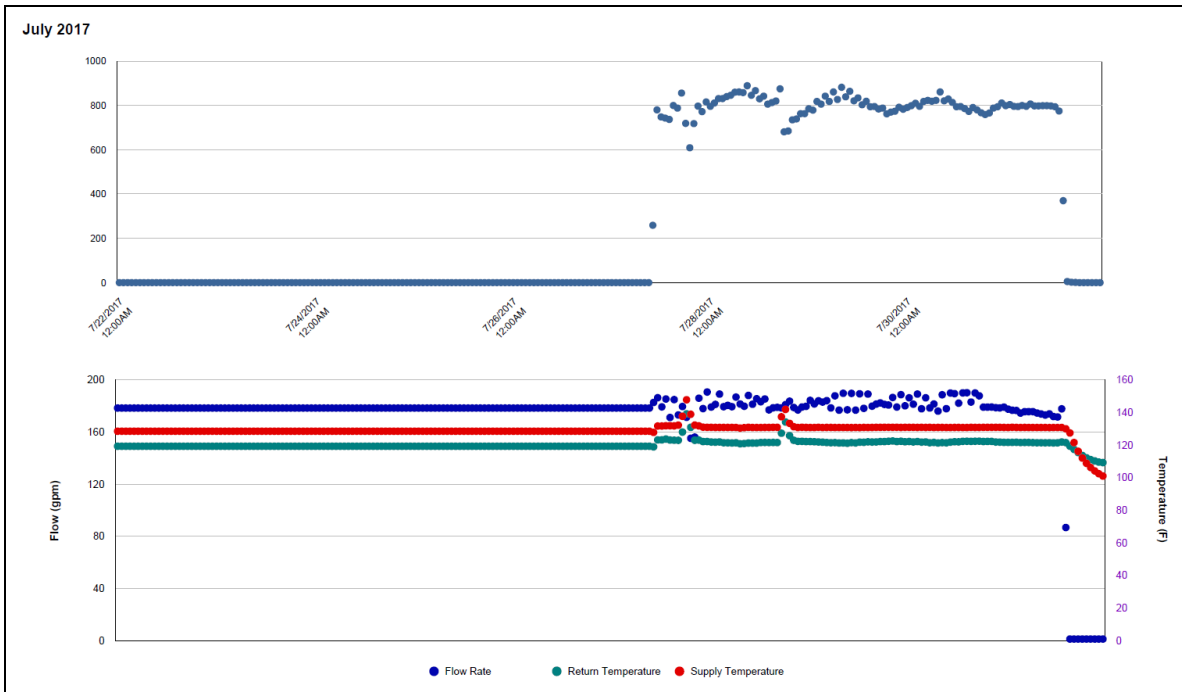
Explanatory Figure: 13 months energy balance plot with original data.



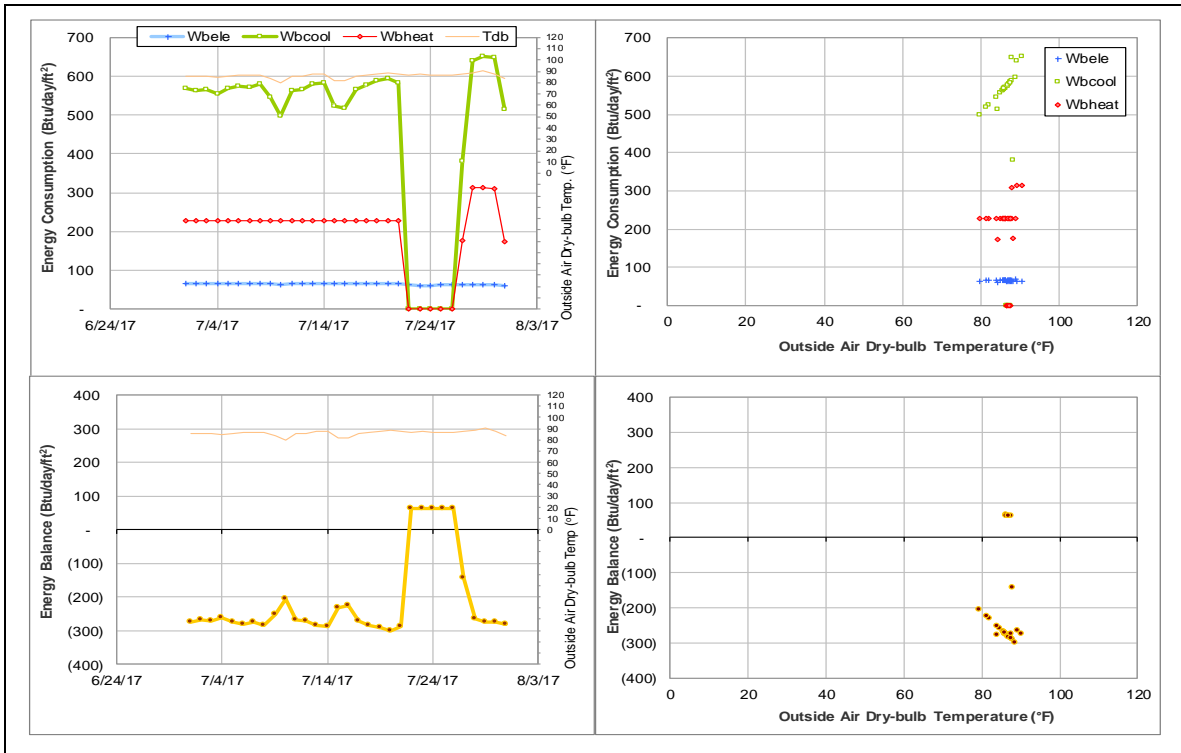
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



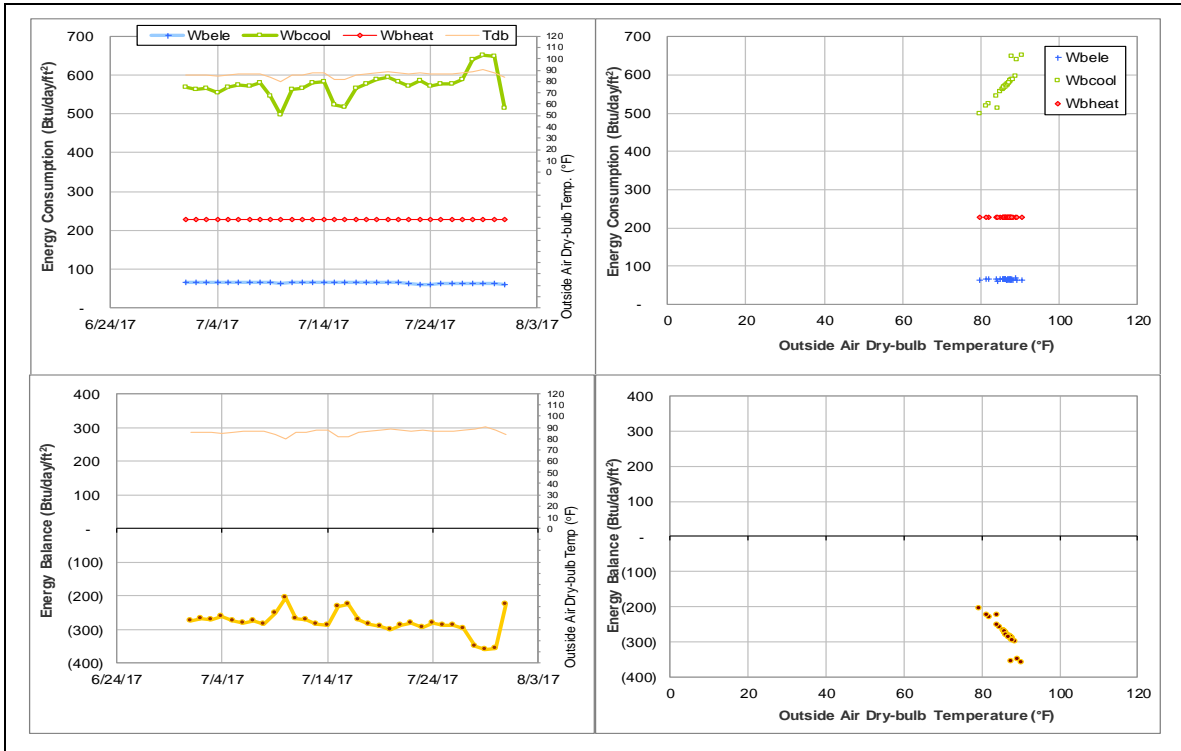
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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	16	7/15/2017 – 7/27/2017 7/29/2017 – 7/31/2017	Model
HHW	002151	16	7/15/2017 – 7/27/2017 7/29/2017 – 7/31/2017	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.	7/15/2017 – 7/27/2017 7/29/2017 – Ongoing
HHW	The consumption dropped for a short period.	7/15/2017 – 7/27/2017 7/29/2017 – Ongoing

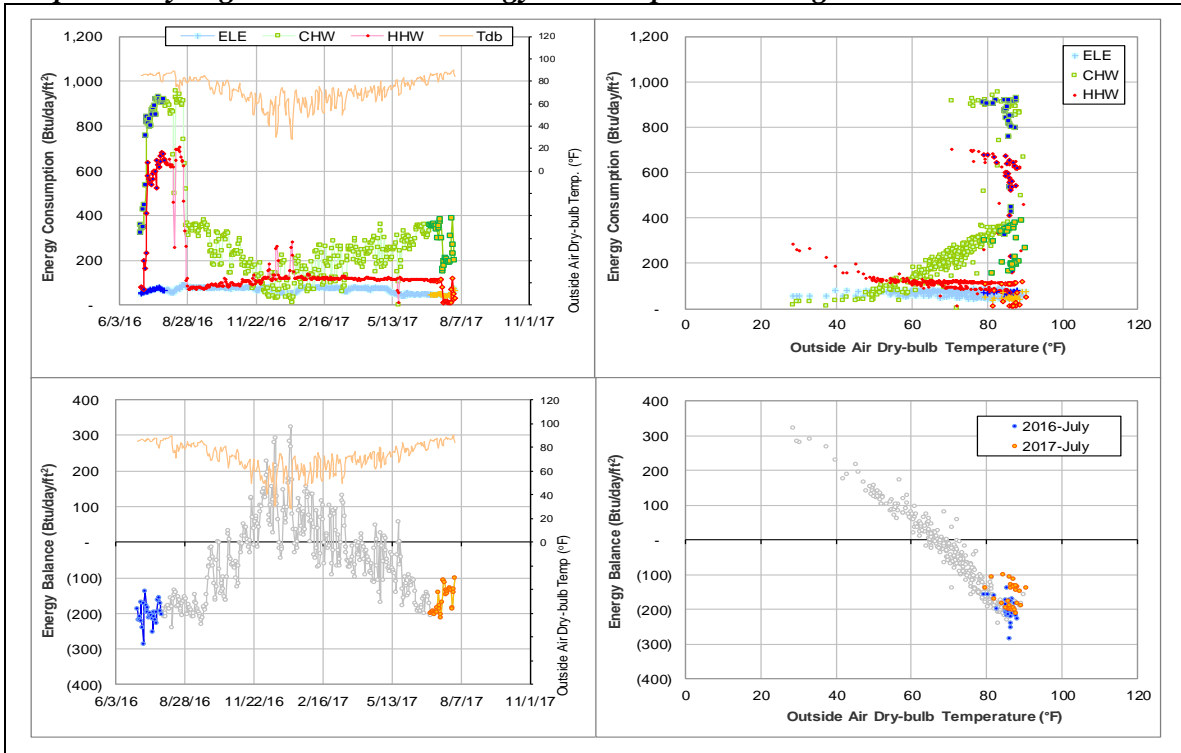
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002147	7/15/2017 – 7/27/2017 7/29/2017 – Ongoing	Flow rate	Low
HHW	002151	7/15/2017 – 7/27/2017 7/29/2017 – Ongoing	Flow rate	Low

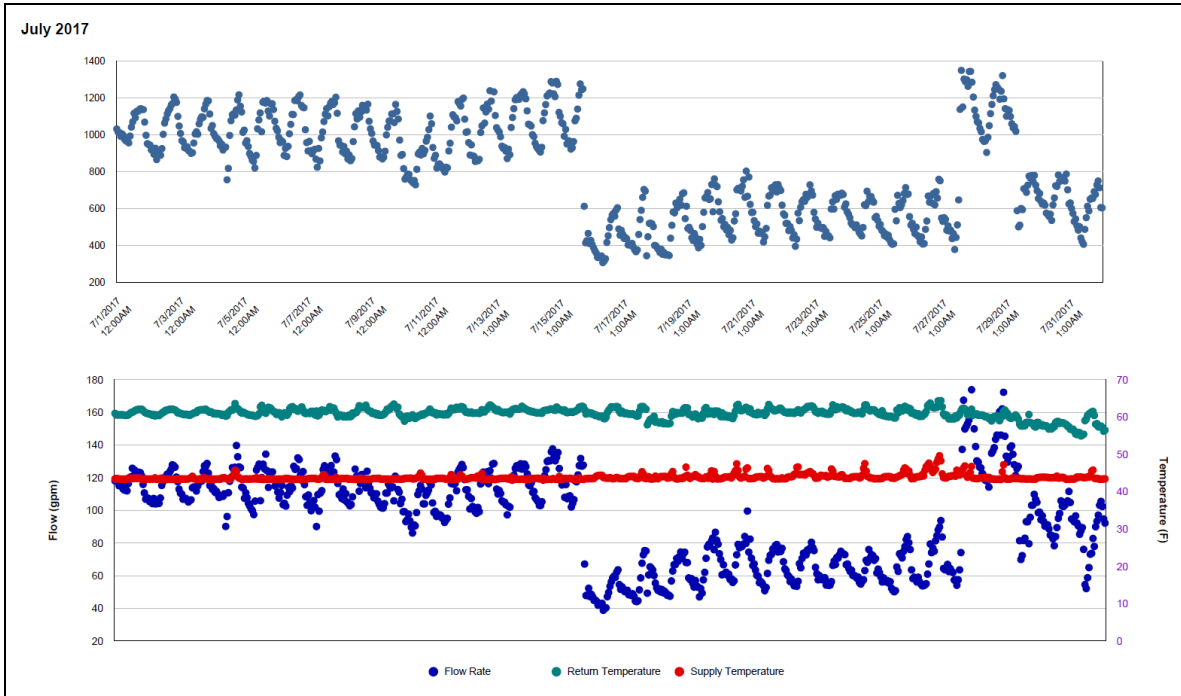
Quantitative descriptions and comments

Flow rates of both CHW and HHW dropped during 7/15/2017 – 7/27/2017 and since 7/29/2017. CHW flow rate dropped from its normal rate of 100 – 130 gpm to 50 – 80 gpm. HHW flow rate dropped from its normal rate of 22 – 27 gpm to 2 – 8 gpm. These days are estimated by model.

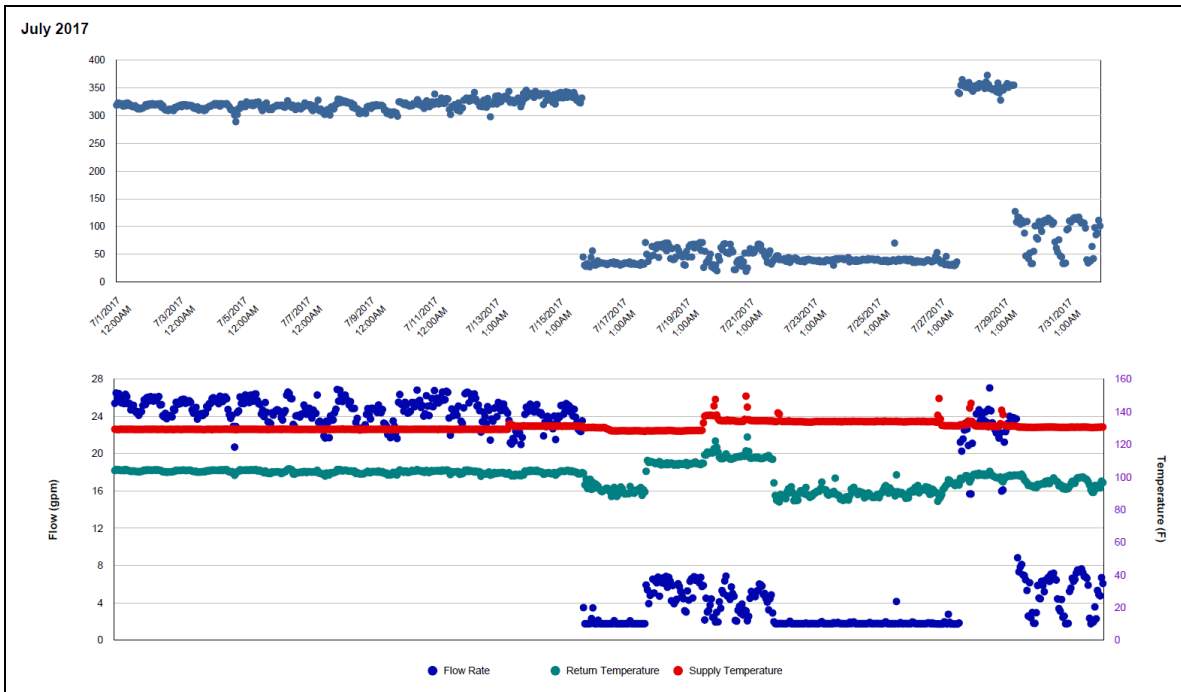
Explanatory Figure: 13 months energy balance plot with original data.



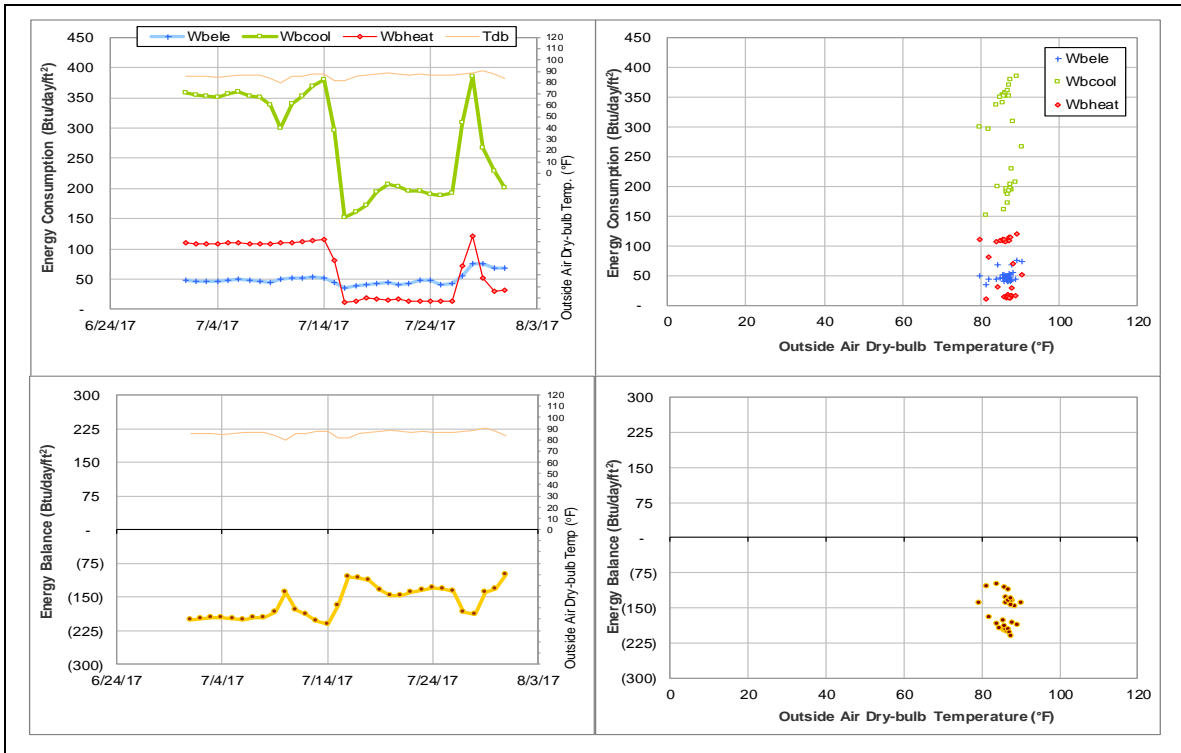
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



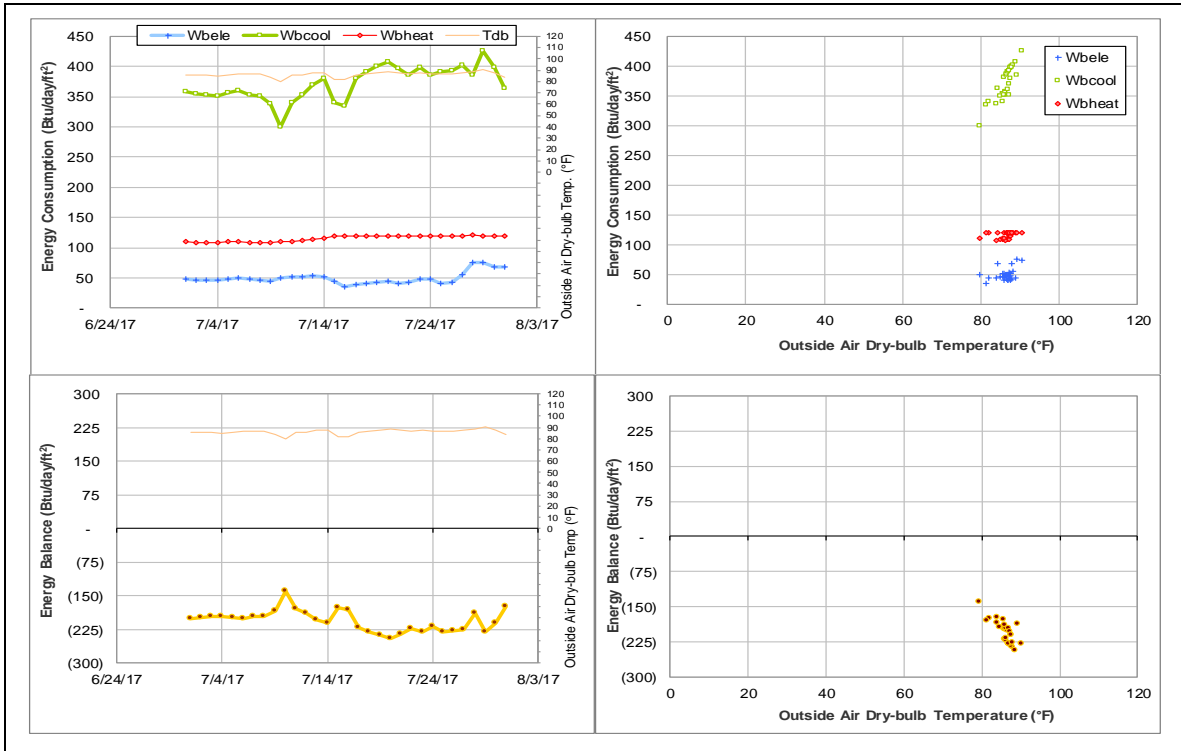
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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



Veterinary Medicine Administration (TAMU Bldg #1026)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	006049	1	7/31/2017	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.	7/31/2017 – Ongoing

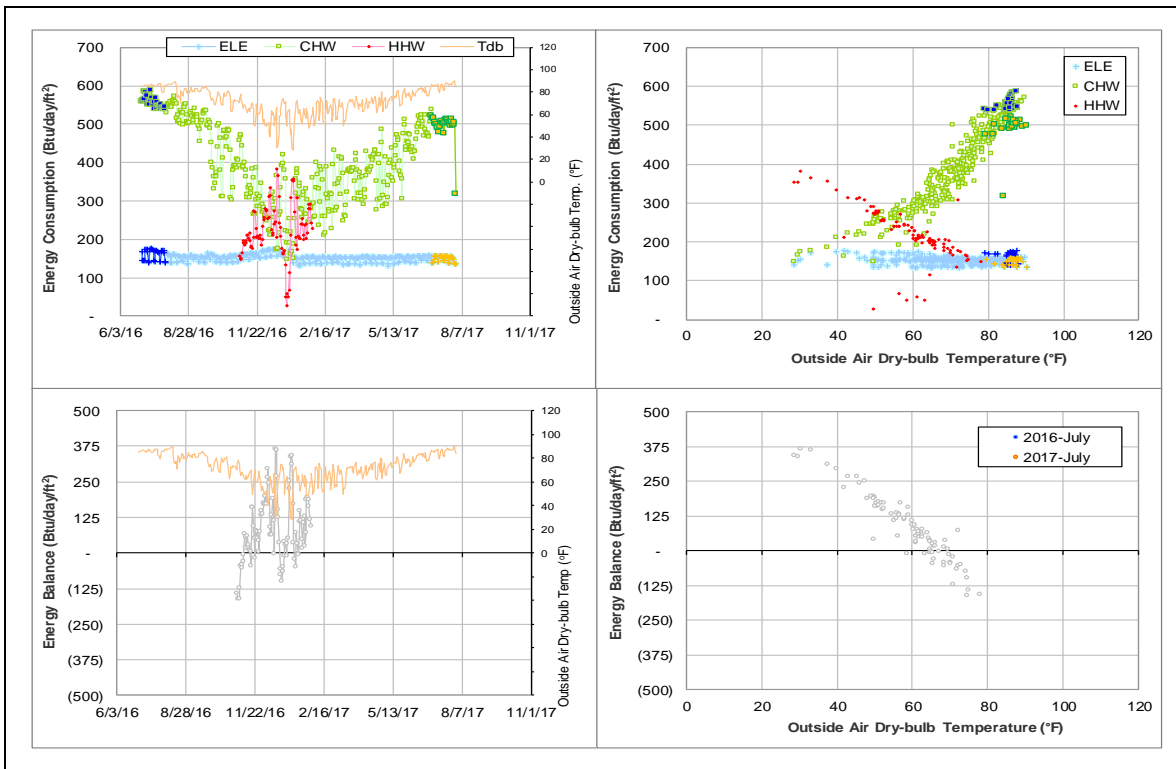
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	006049	7/31/2017 – Ongoing	Flow rate	High
			Delta-T	Low

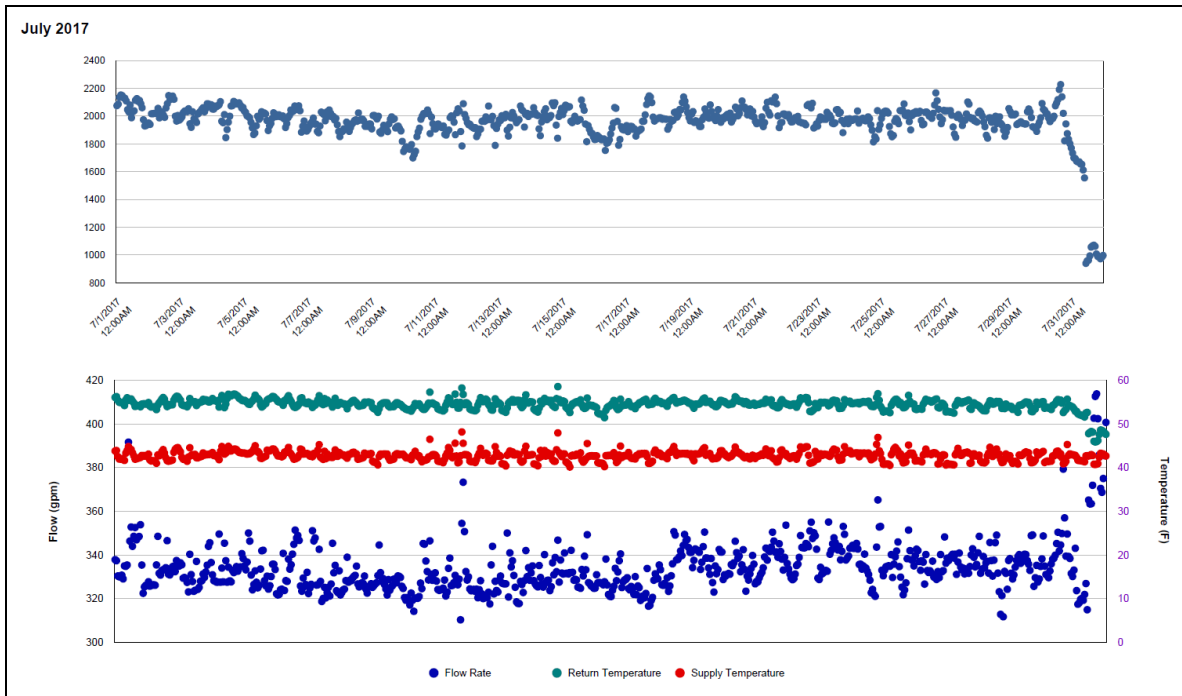
Quantitative descriptions and comments

CHW flow rate suddenly increased and return temperature dropped. This combined effect is a sharp drop of CHW consumption. This day is estimated by model.

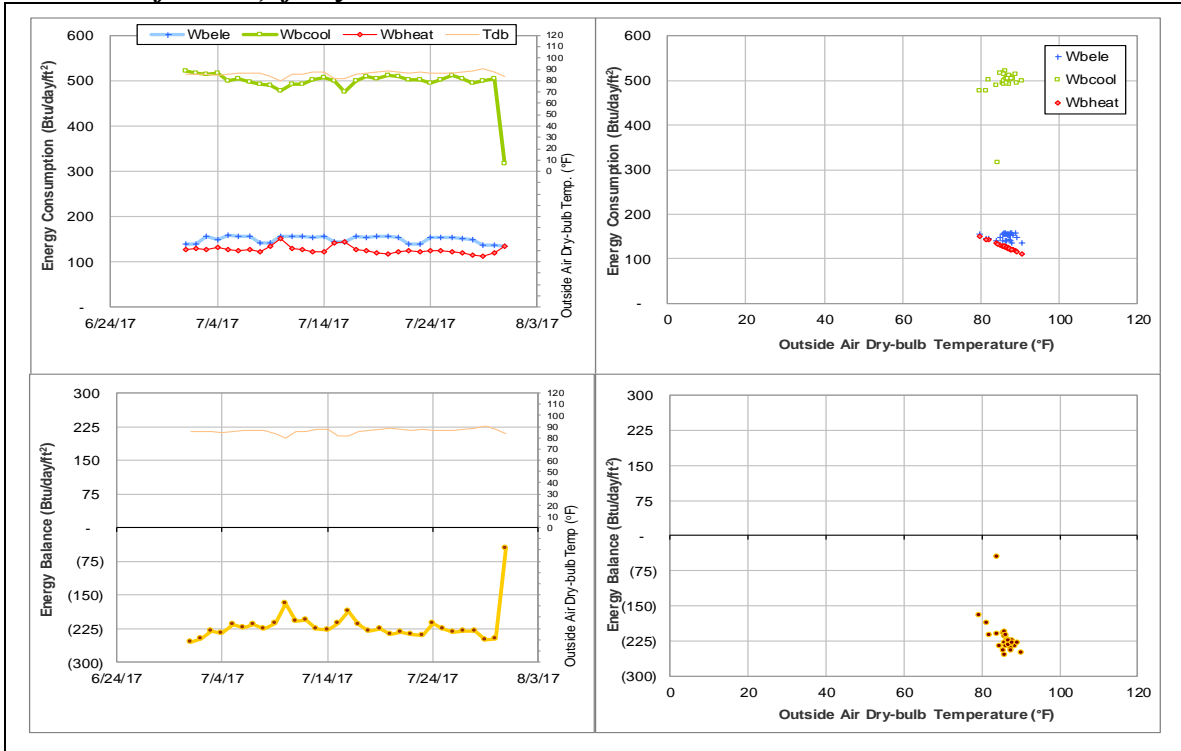
Explanatory Figure: 13 months energy balance plot with original data



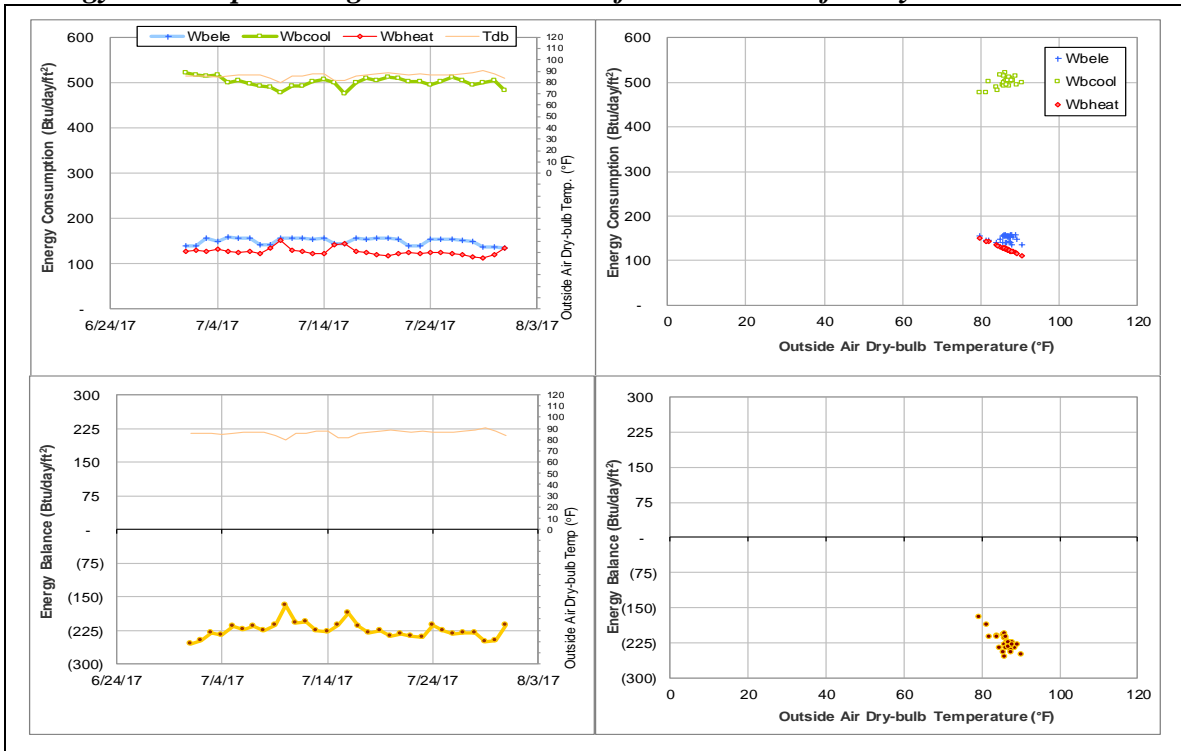
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



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



Physical Plant Administration & Shops (TAMU Bldg #1156)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007683	7	7/23/2017 – 7/27/2017 7/30/2017 – 7/31/2017	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.	7/23/2017 – 7/27/2017 7/30/2017 – Ongoing

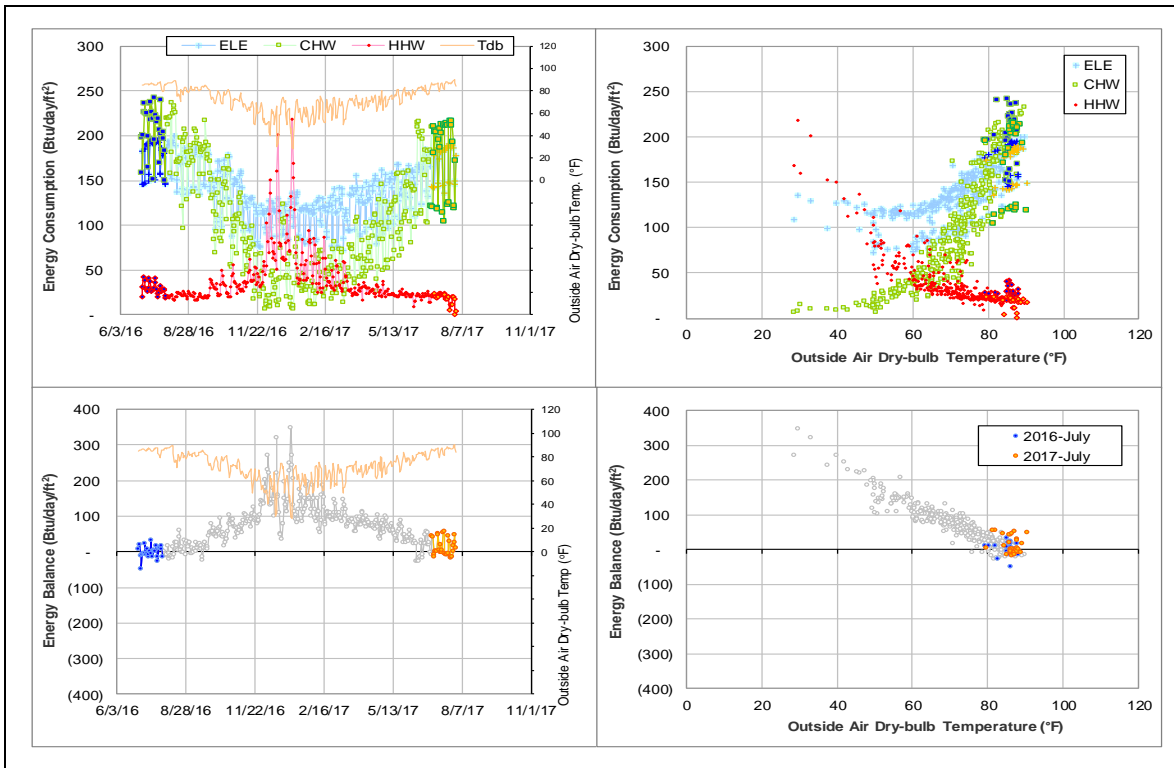
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	007683	7/23/2017 – 7/27/2017 7/30/2017 – Ongoing	Flow rate	Low

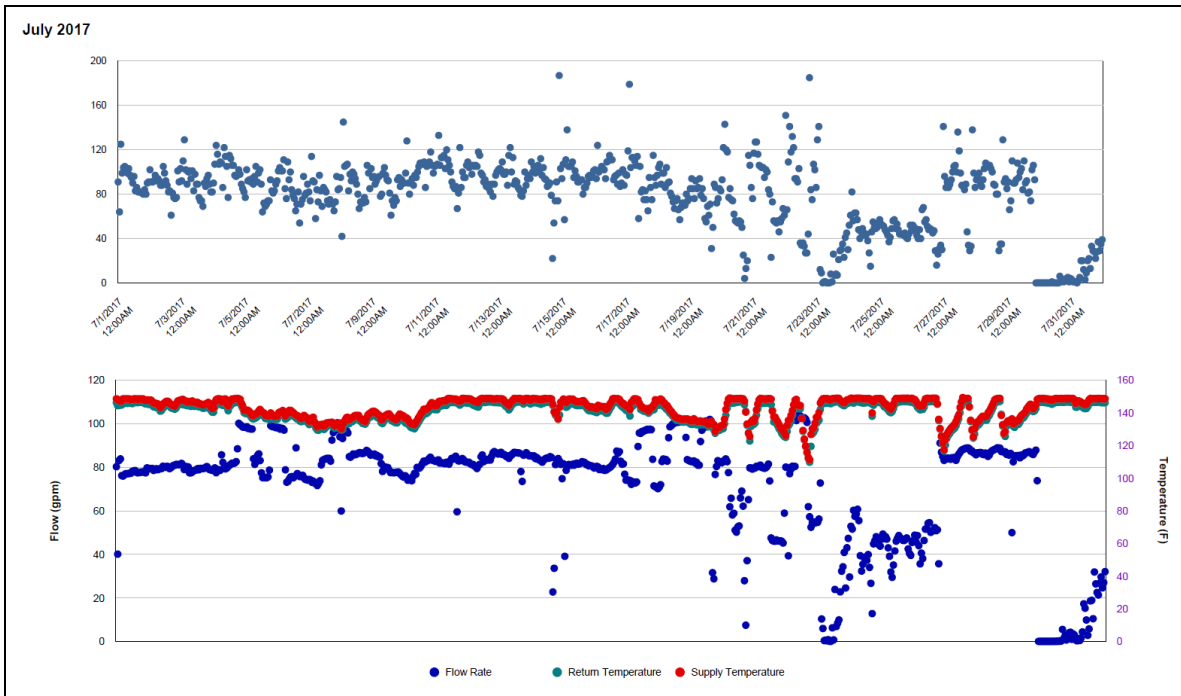
Quantitative descriptions and comments

HHW flow rate decreased suddenly to near zero during 7/23/2017 – 7/27/2017 and since 7/31/2017. This period is estimated by model.

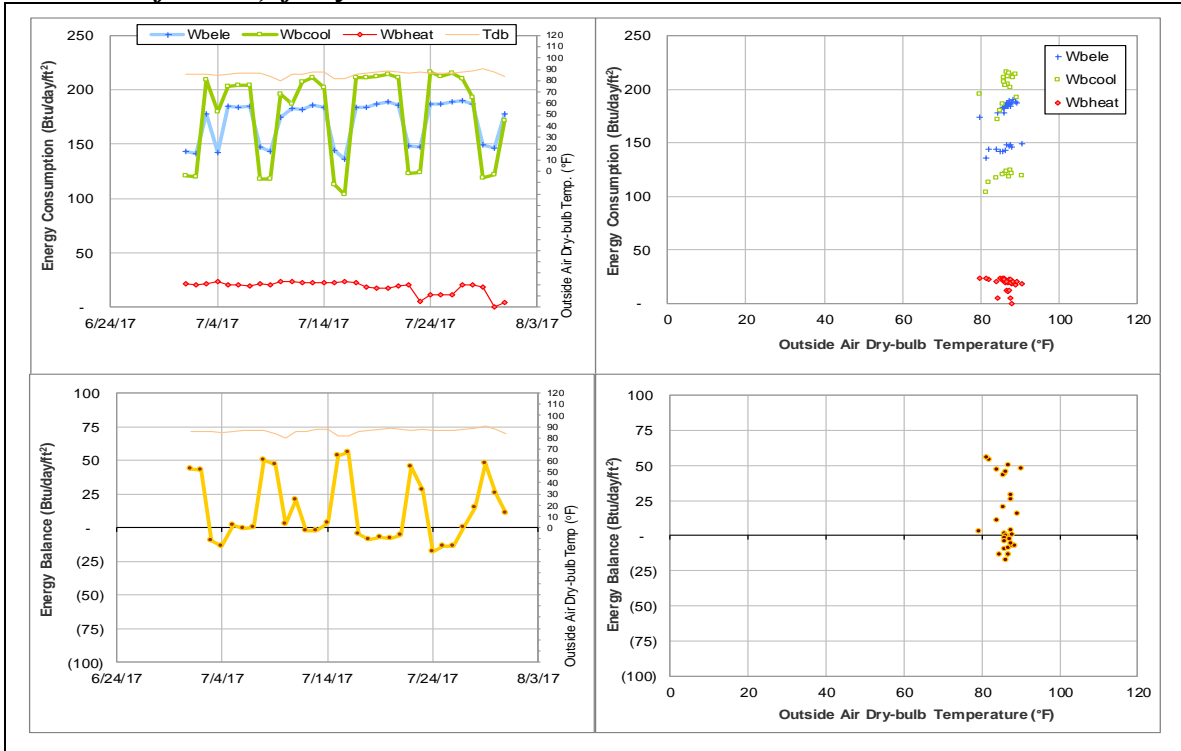
Explanatory Figure: 13 months energy balance plot with original data



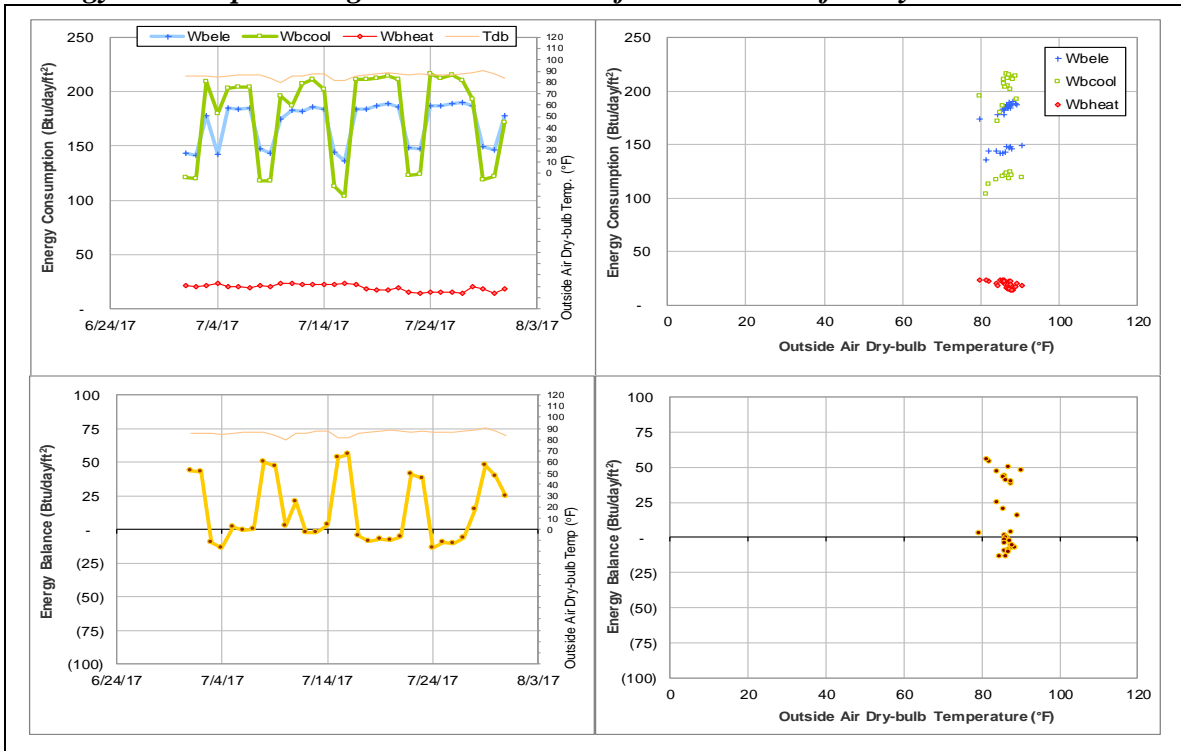
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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



Kleberg Center (TAMU Bldg #1501)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002628	20	7/12/2017 – 7/31/2017	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.	7/23/2017 – 7/27/2017 7/30/2017 – Ongoing

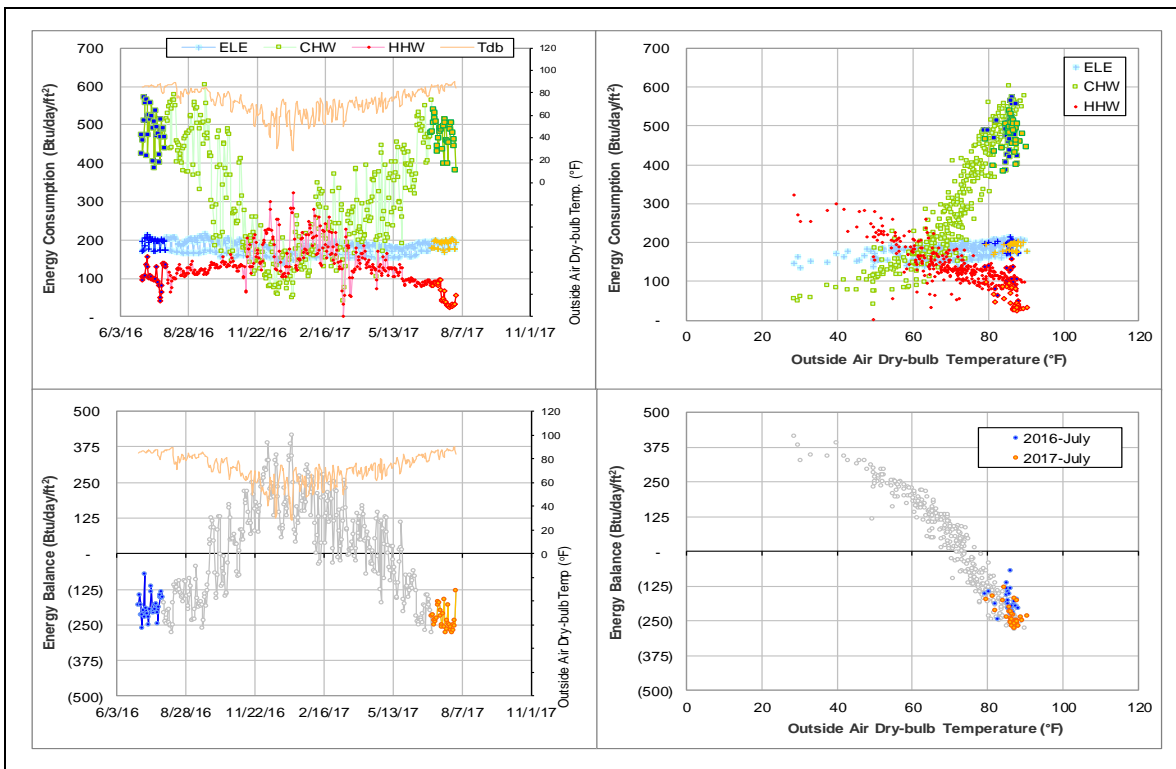
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002628	7/12/2017 – Ongoing	Flow rate	Low

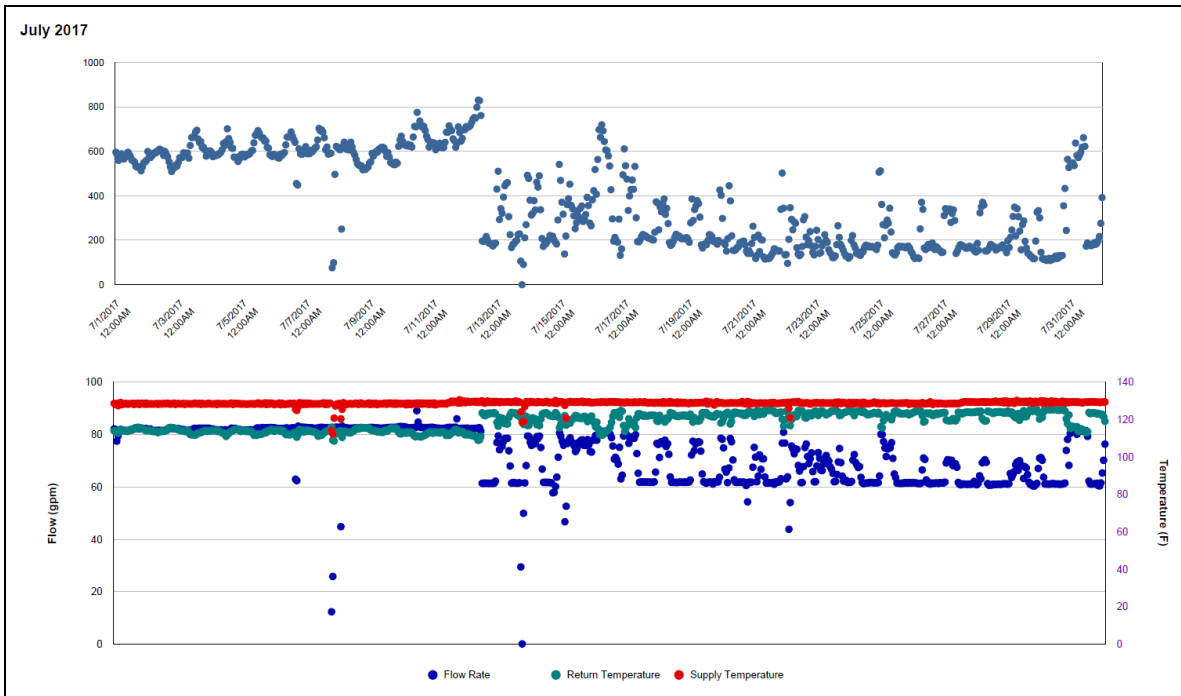
Quantitative descriptions and comments

HHW flow rate decreased from about 80 gpm to 60 – 80 gpm since 7/12/2017. This period is estimated by model.

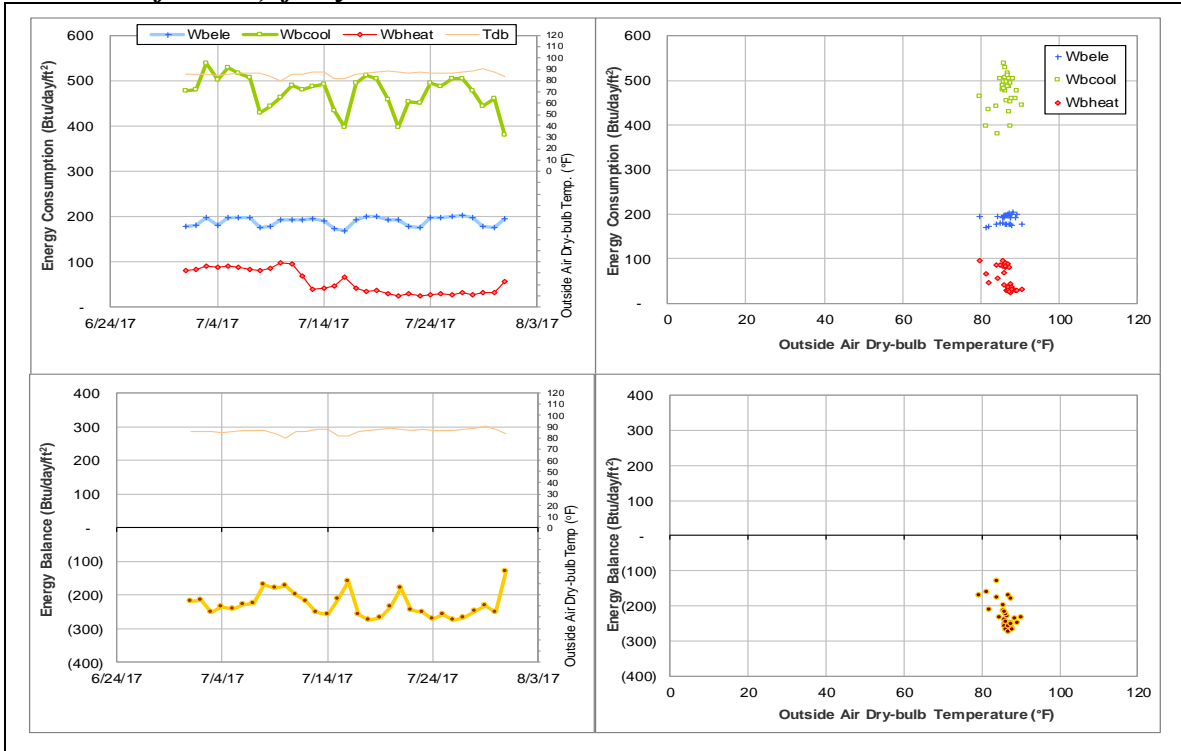
Explanatory Figure: 13 months energy balance plot with original data



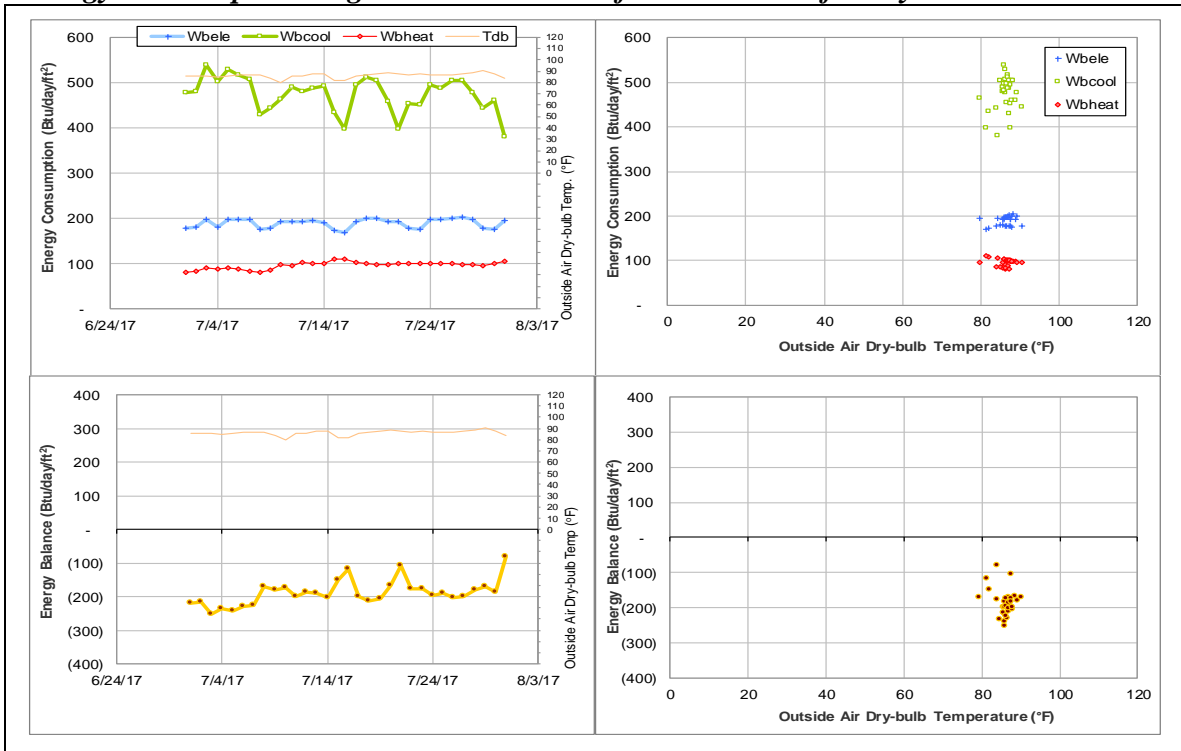
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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	7/1/2017 – 7/31/2017	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

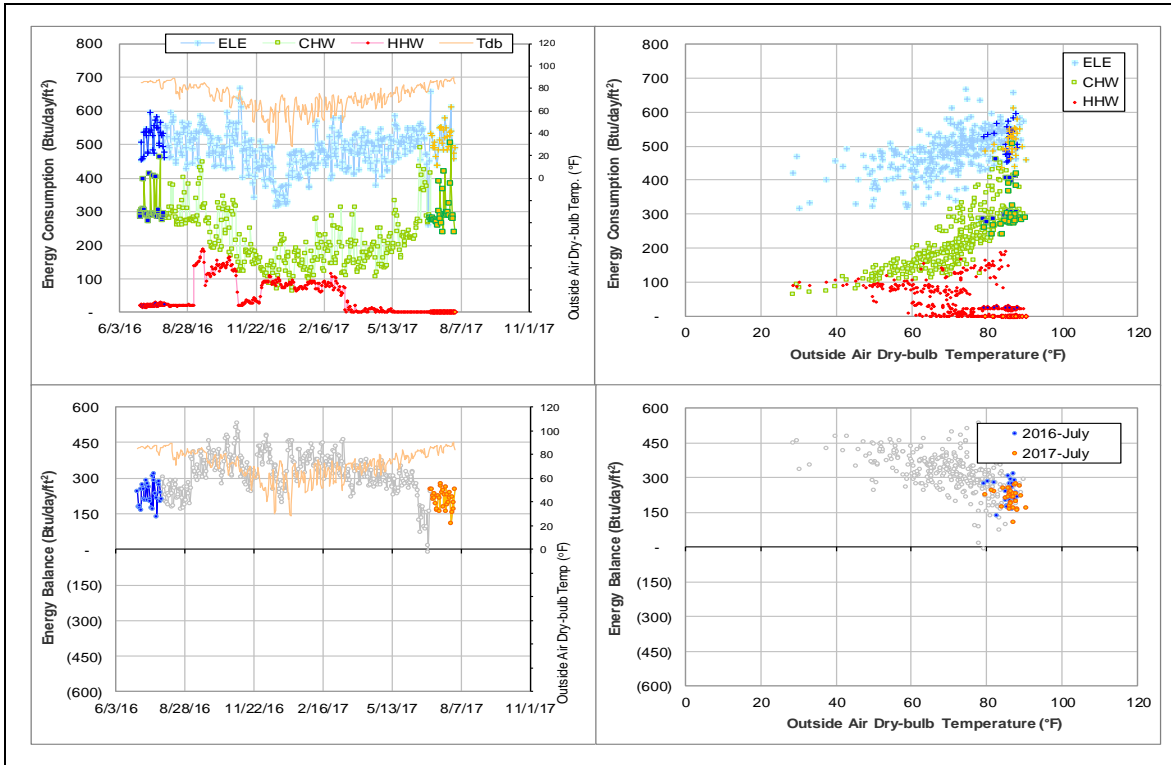
Changes in sensor readings related to the detected issues

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

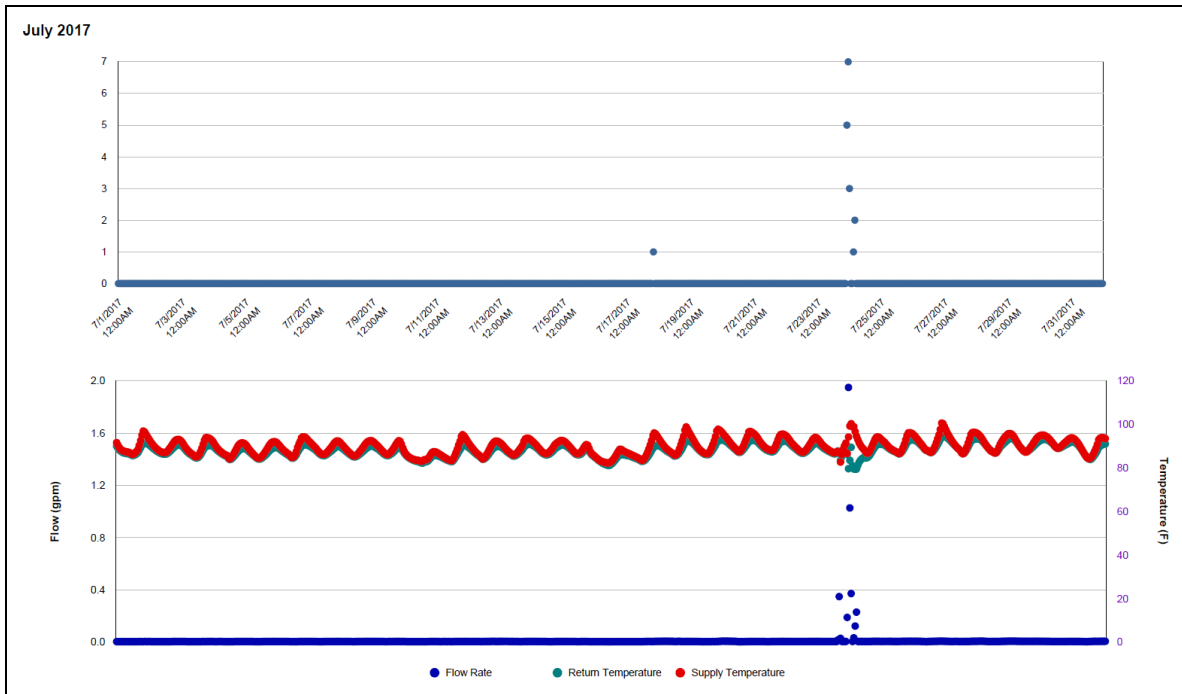
Quantitative descriptions and comments

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 is estimated using a model.

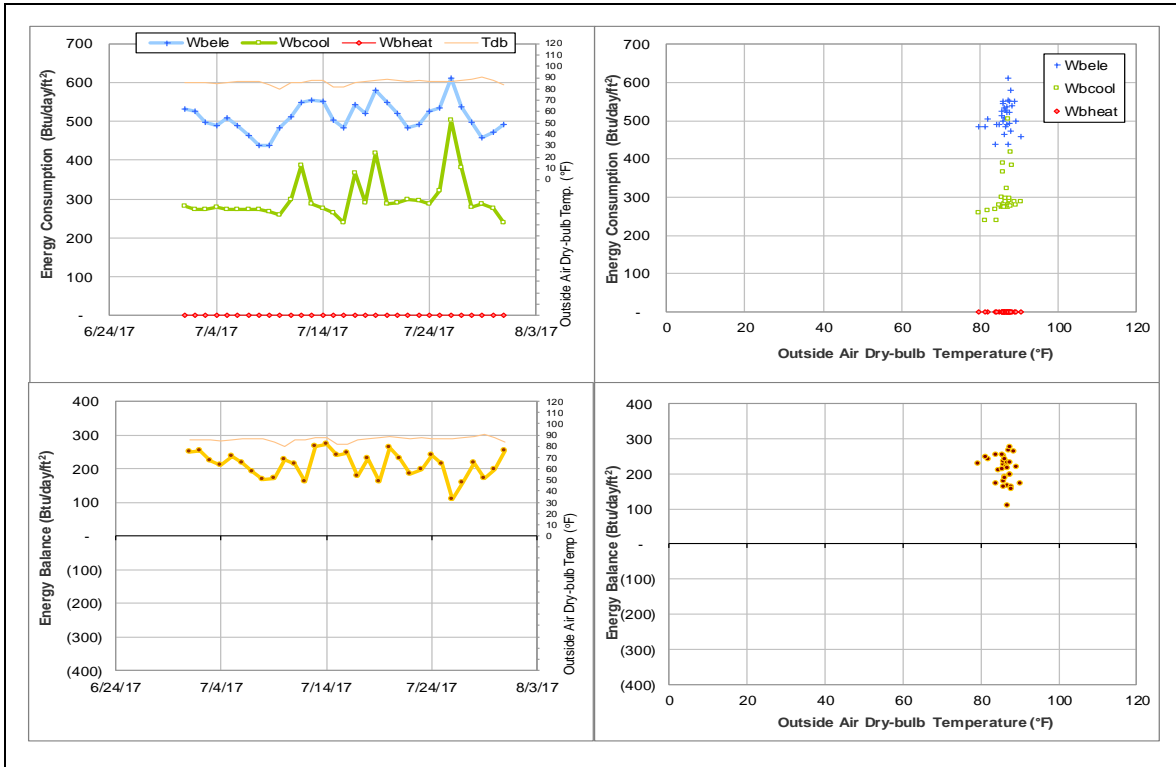
Explanatory Figure: 13 months energy balance plot with original data.



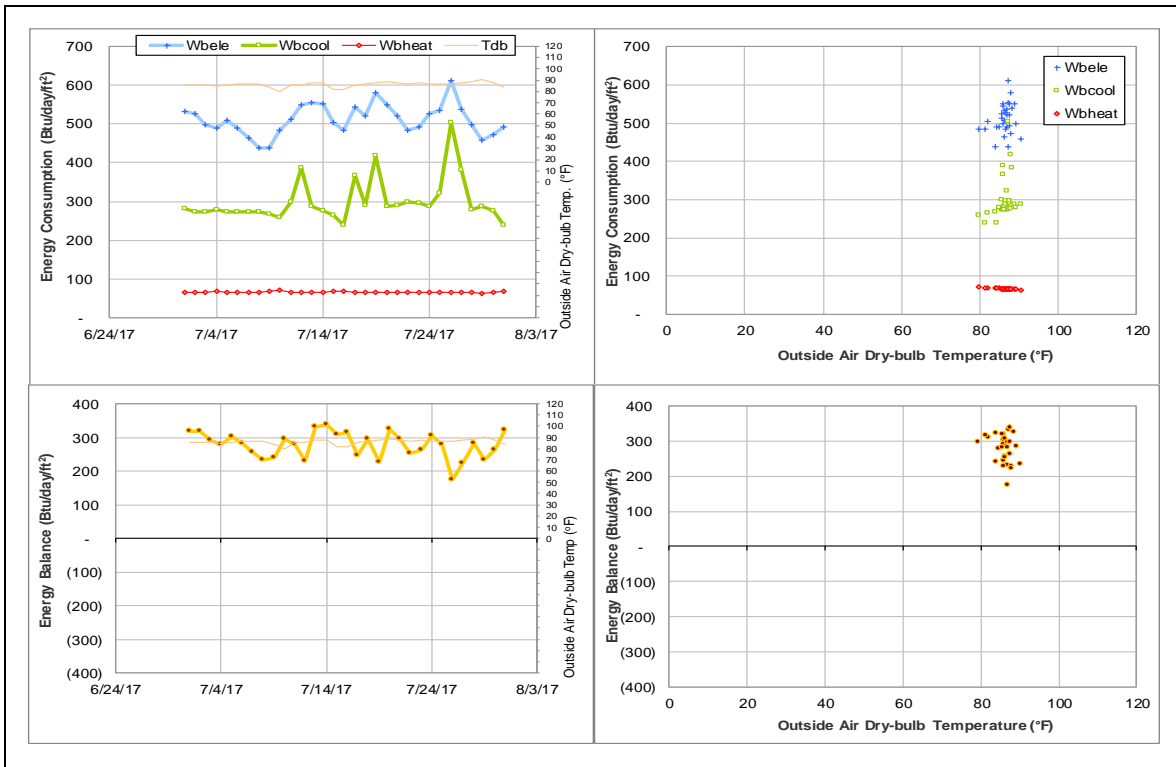
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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.



Horticulture-Forest Science Building (TAMU Bldg #1506)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003967	20	7/12/2017 – 7/31/2017	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.	7/12/2017 – Ongoing

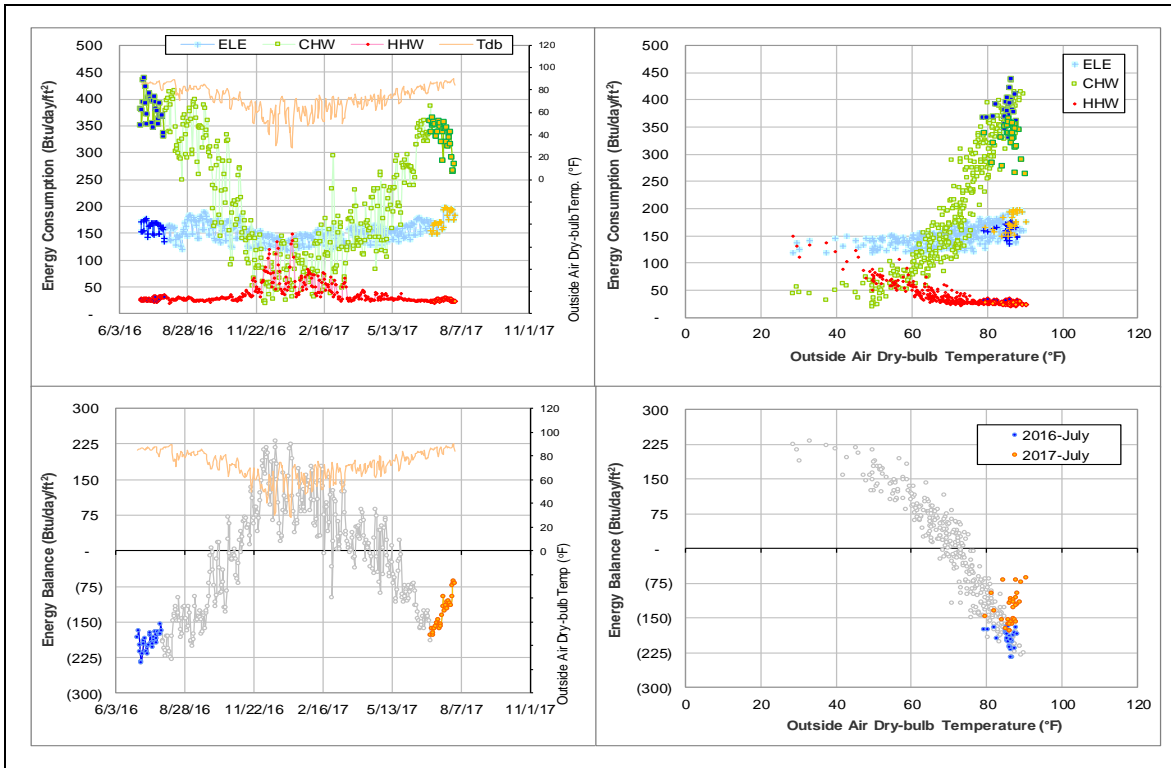
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	003967	7/12/2017 – Ongoing	Flow rate	Low

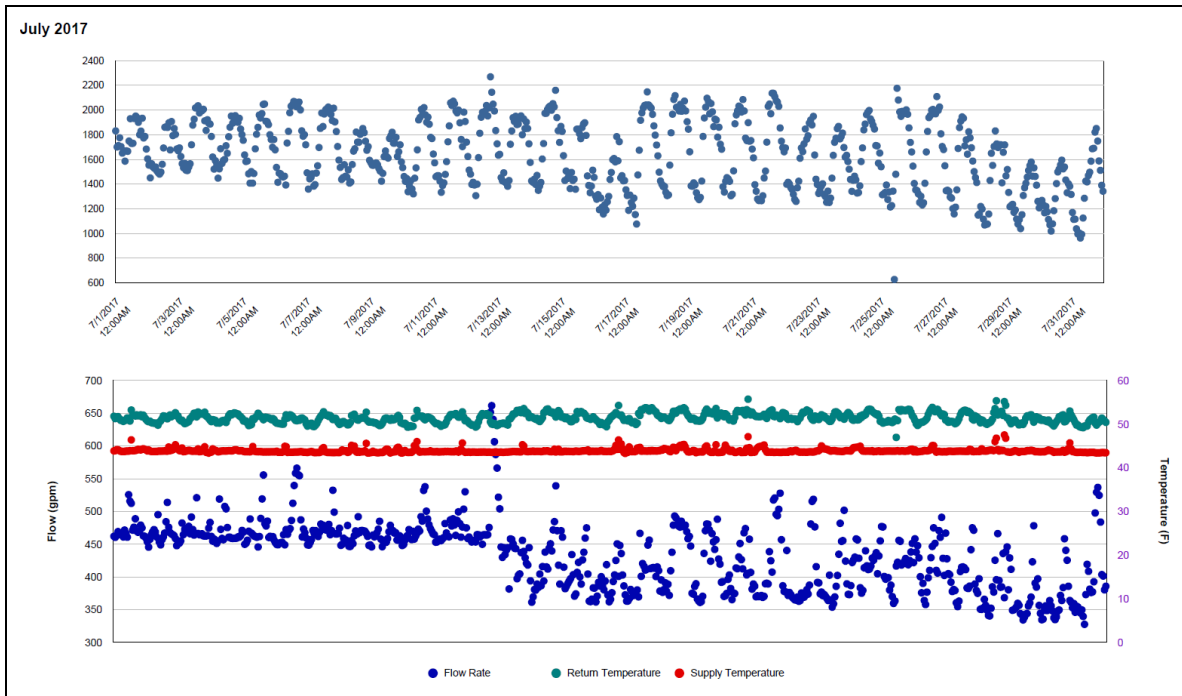
Quantitative descriptions and comments

CHW flow rate dropped from 450 – 500 gpm to 350 – 450 gpm since 7/12/2017, resulting in the consumption falling out of the main pattern. This period is estimated by model.

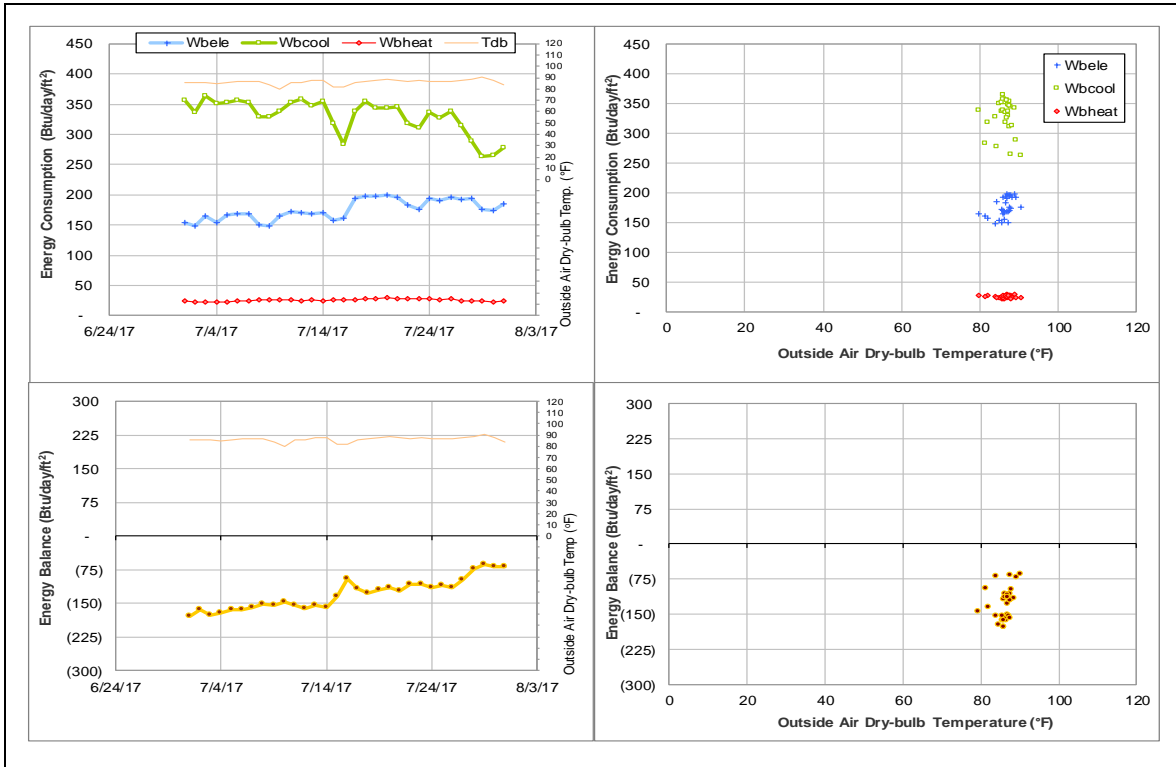
Explanatory Figure: 13 months energy balance plot with original data.



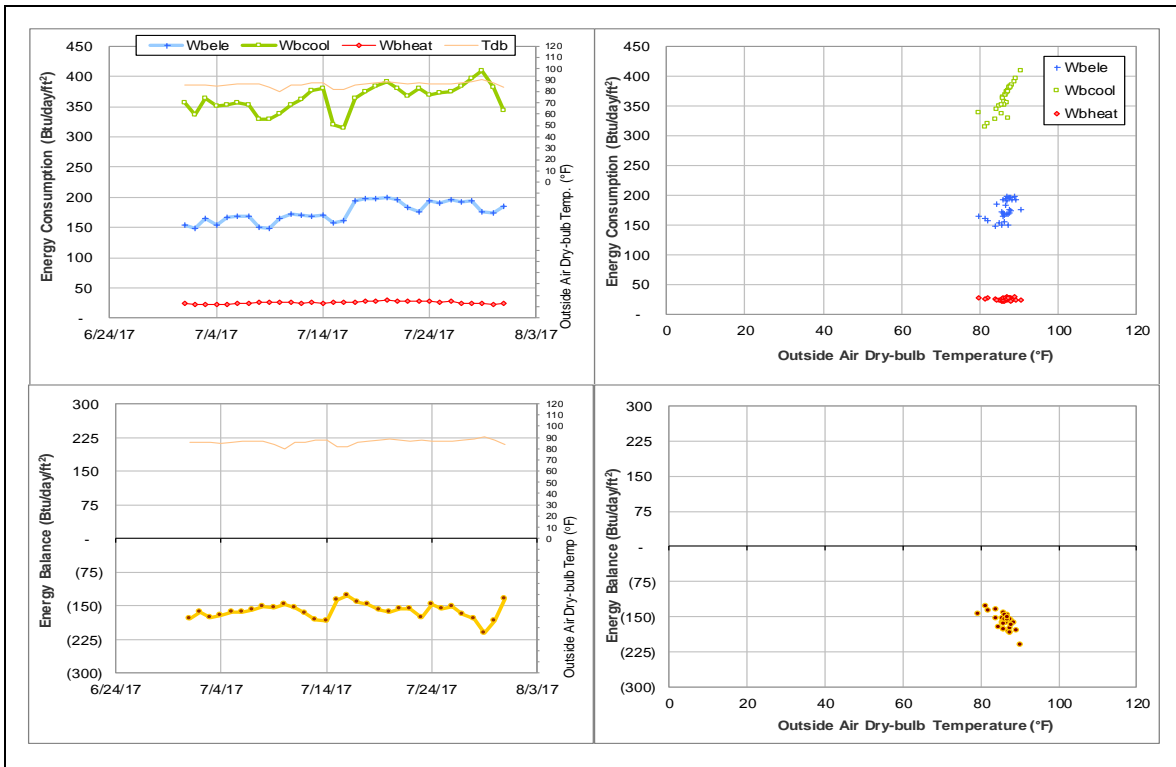
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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.



Price Hobgood Ag. Engineering Research Lab (TAMU Bldg #1508)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	006005	3	7/24/2017 – 7/26/2017	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.	7/24/2017 – 7/26/2017

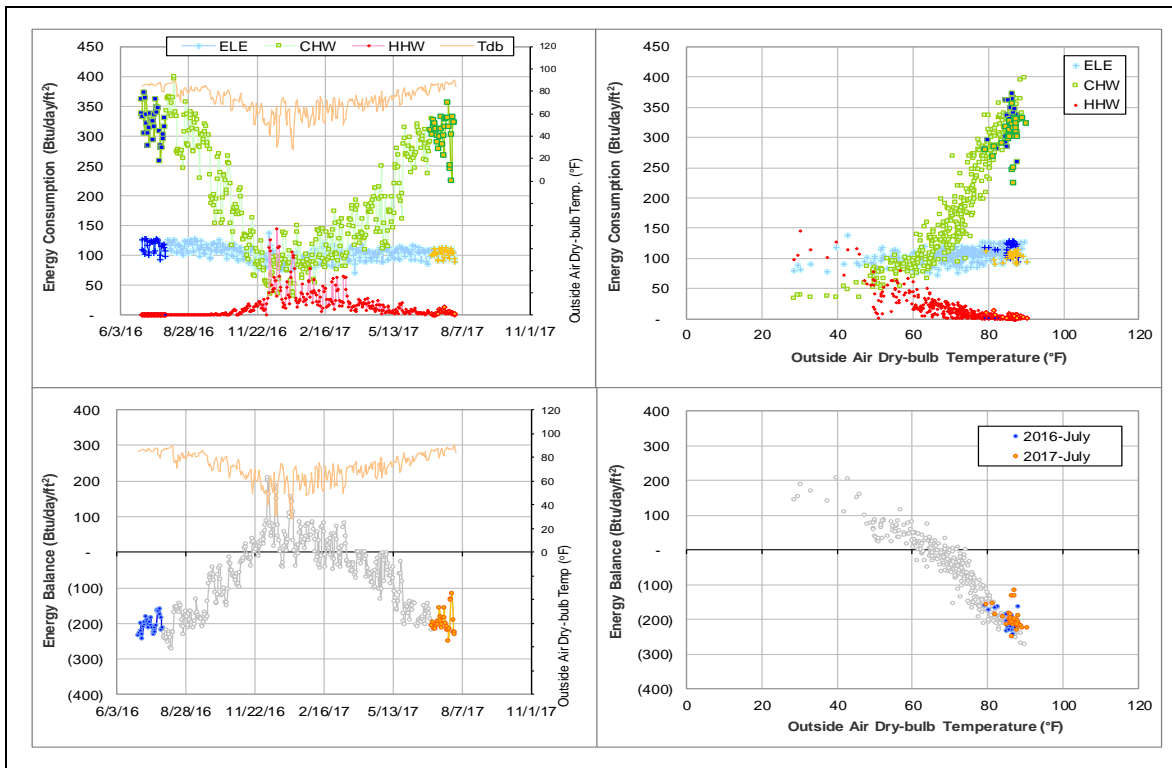
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	006005	7/24/2017 – 7/26/2017	Flow rate	Low
			Return temp	High

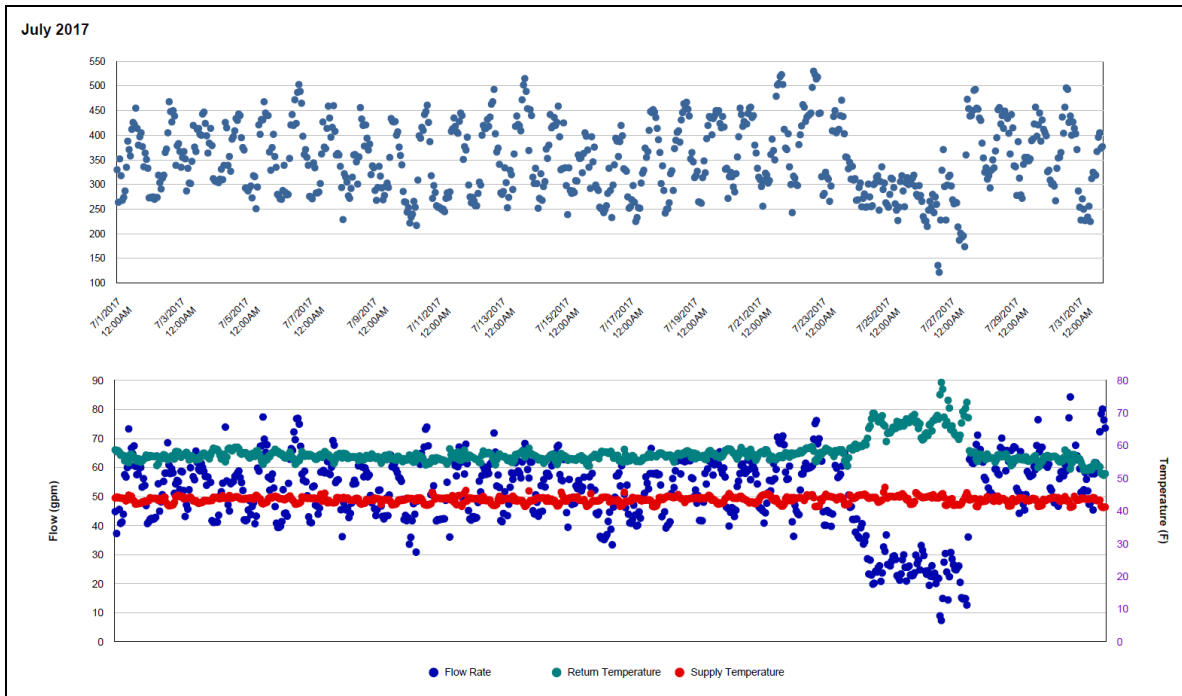
Quantitative descriptions and comments

CHW flow rate dropped from 40 – 70 gpm to 20 – 30 gpm during 7/24/2017 – 7/26/2017 and return temperature increased. The combined effect is a decrease of CHW consumption. This period is estimated by model.

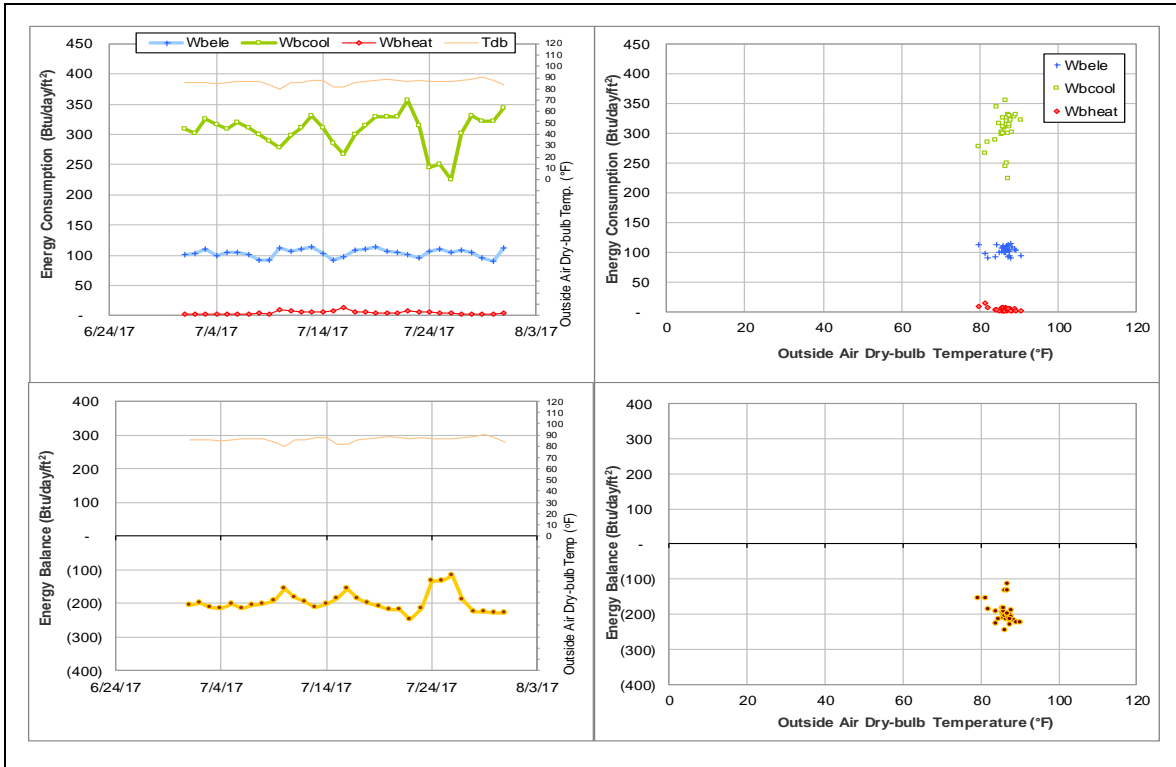
Explanatory Figure: 13 months energy balance plot with original data.



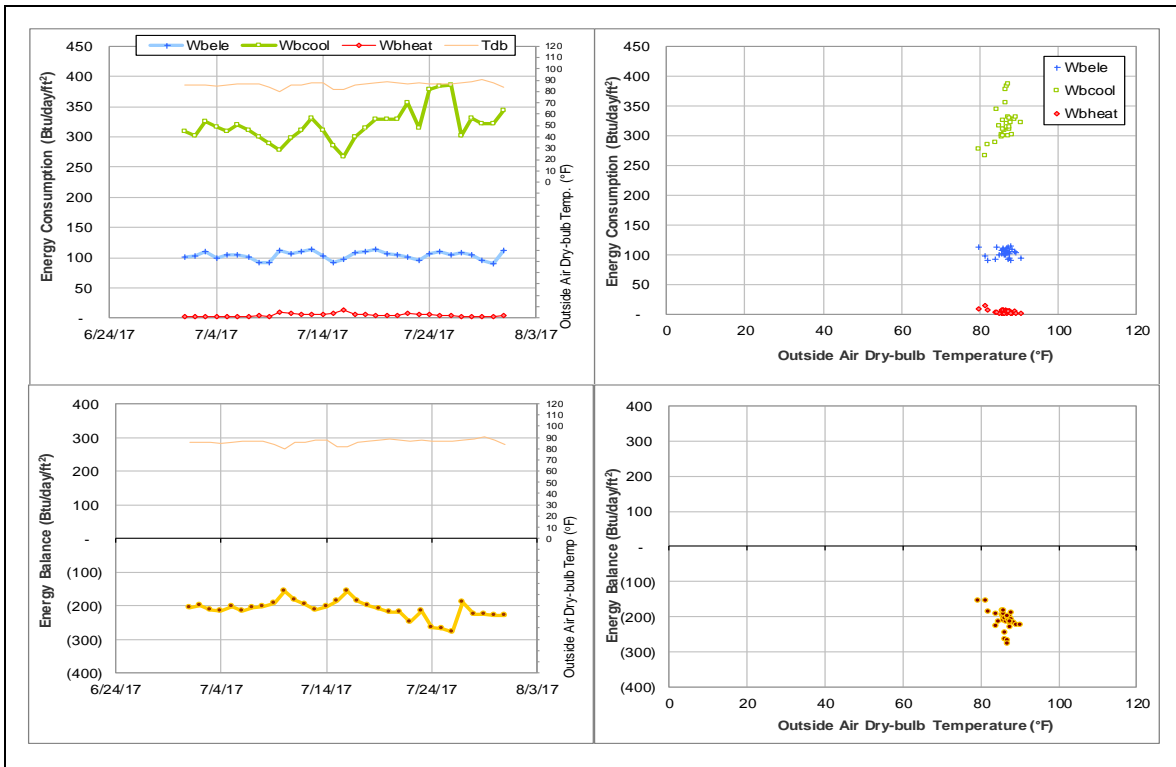
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



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	7/1/2017 – 7/31/2017	Model

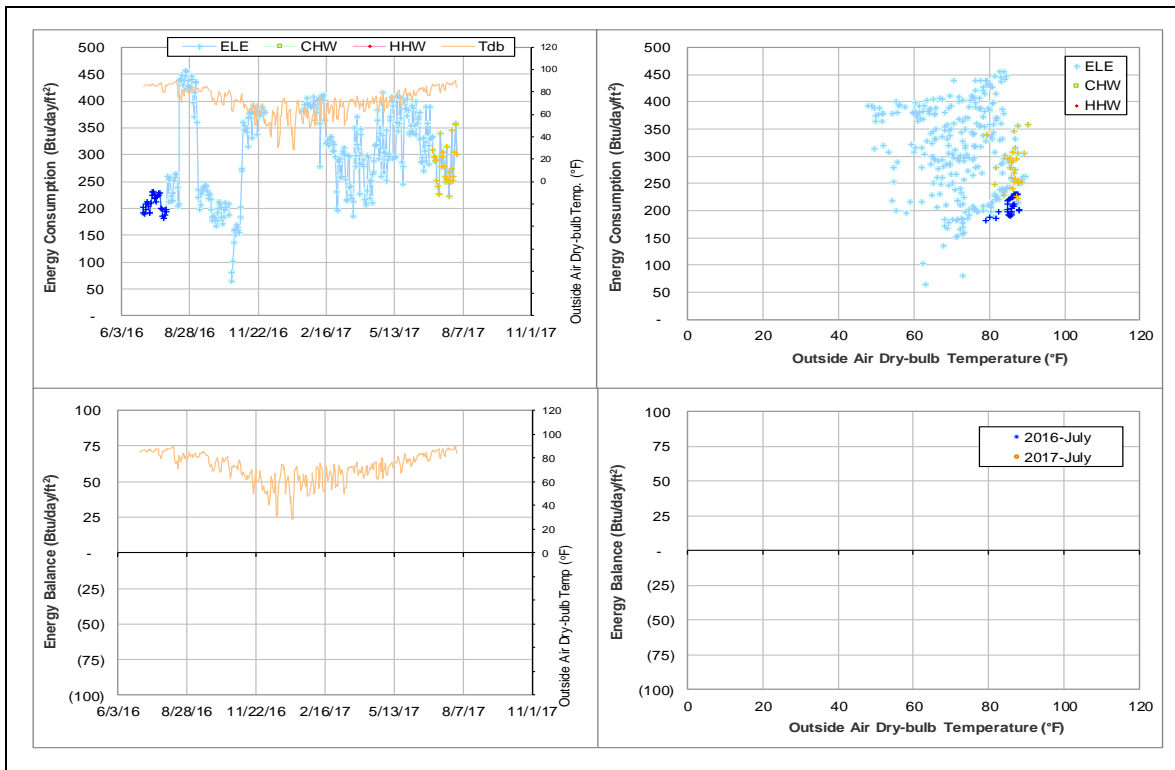
Detected issues in the energy balance and/or the consumption data

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

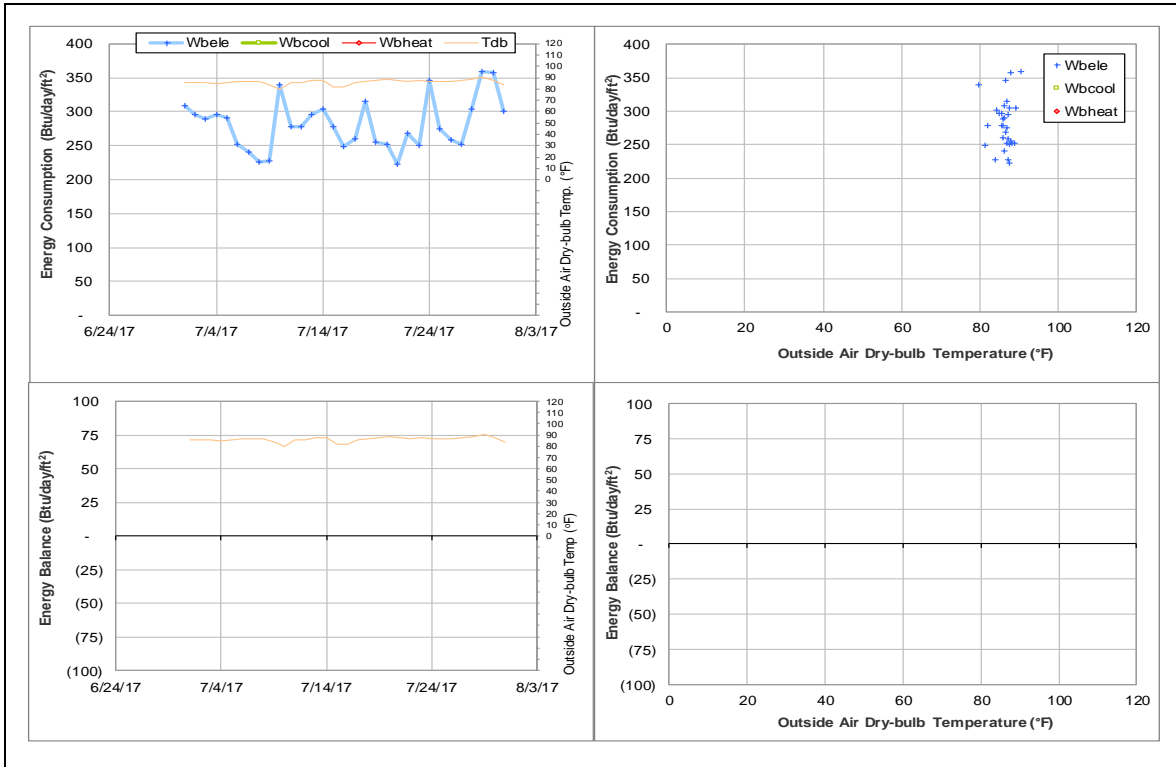
Quantitative descriptions and comments

The ELE consumption level has changed frequently since July 2015 as shown in the time series. 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.

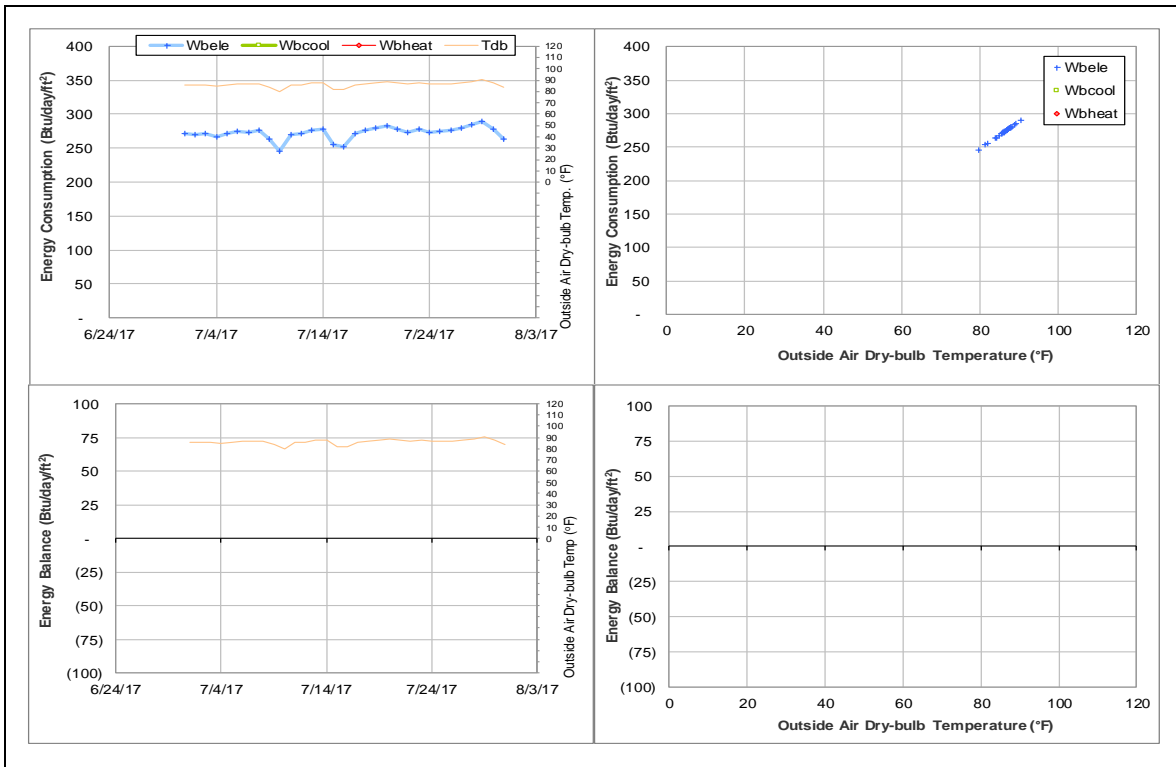
Explanatory Figure: 13 months energy balance plot with original data



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	30	7/1/2017 – 7/31/2017	Switch with 005275
ELE	005275	30	7/1/2017 – 7/31/2017	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	Time	Cumulative reading	Hourly Consumption	MeterID
08/13/2015 12:00:00 PM	2930984.013	84.262	005274	08/13/2015 12:00:00 PM	4741958.002	170.658	005275
08/13/2015 01:00:00 PM	2930968.589	84.576	005274	08/13/2015 01:00:00 PM	4742132.336	174.334	005275
08/13/2015 02:00:00 PM	2931051.959	83.37	005274	08/13/2015 02:00:00 PM	4742303.554	171.218	005275
08/13/2015 03:00:00 PM	2931146.799	94.84	005274	08/13/2015 03:00:00 PM	4742483.983	180.129	005275
08/13/2015 04:00:00 PM	2931240.505	93.706	005274	08/13/2015 04:00:00 PM	4742662.753	179.07	005275
08/13/2015 05:00:00 PM	2931324.169	83.664	005274	08/13/2015 05:00:00 PM	4742832.009	169.256	005275
08/13/2015 06:00:00 PM	2931399.91	75.741	005274	08/13/2015 06:00:00 PM	4742993.53	161.521	005275
08/13/2015 07:00:00 PM	2931472.181	72.271	005274	08/13/2015 07:00:00 PM	4743149.675	156.145	005275
08/13/2015 08:00:00 PM	2931543.838	71.657	005274	08/13/2015 08:00:00 PM	4743305.9	156.225	005275
08/13/2015 09:00:00 PM	2931613.306	69.468	005274	08/13/2015 09:00:00 PM	4743462.097	156.197	005275
08/13/2015 10:00:00 PM	2931672.706	59.4	005274	08/13/2015 10:00:00 PM	4743610.221	148.124	005275
08/13/2015 11:00:00 PM	2931733.072	60.366	005274	08/13/2015 11:00:00 PM	4743745.645	135.424	005275
08/14/2015 12:00:00 AM	4743876.03	130.385	005274	08/14/2015 12:00:00 AM	2931791.19	58.118	005275
08/14/2015 01:00:00 AM	4744008.406	132.376	005274	08/14/2015 01:00:00 AM	2931849.35	58.16	005275
08/14/2015 02:00:00 AM	4744141.74	133.334	005274	08/14/2015 02:00:00 AM	2931908.534	59.184	005275
08/14/2015 03:00:00 AM	4744272.553	130.813	005274	08/14/2015 03:00:00 AM	2931966.686	58.152	005275
08/14/2015 04:00:00 AM	4744404.045	131.492	005274	08/14/2015 04:00:00 AM	2932023.869	56.803	005275
08/14/2015 05:00:00 AM	4744534.38	130.335	005274	08/14/2015 05:00:00 AM	2932080.05	56.461	005275
08/14/2015 06:00:00 AM	4744667.111	132.731	005274	08/14/2015 06:00:00 AM	2932137.05	57	005275
08/14/2015 07:00:00 AM	4744820.038	152.927	005274	08/14/2015 07:00:00 AM	2932232.983	95.933	005275
08/14/2015 08:00:00 AM	4744972.221	152.183	005274	08/14/2015 08:00:00 AM	2932319.162	86.179	005275
08/14/2015 09:00:00 AM	4745134.467	162.246	005274	08/14/2015 09:00:00 AM	2932404.691	85.529	005275
08/14/2015 10:00:00 AM	4745308.905	174.438	005274	08/14/2015 10:00:00 AM	2932489.976	85.285	005275
08/14/2015 11:00:00 AM	4745476.832	167.927	005274	08/14/2015 11:00:00 AM	2932564.419	74.443	005275
08/14/2015 12:00:00 PM	4745634.44	157.608	005274	08/14/2015 12:00:00 PM	2932634.064	69.645	005275
08/14/2015 01:00:00 PM	4745793.945	154.505	005274	08/14/2015 01:00:00 PM	2932704.723	70.659	005275
08/14/2015 02:00:00 PM	4745949.369	160.024	005274	08/14/2015 02:00:00 PM	2932777.373	72.65	005275
08/14/2015 03:00:00 PM	4746110.346	160.977	005274	08/14/2015 03:00:00 PM	2932845.908	68.535	005275
08/14/2015 04:00:00 PM	4746270.303	160.957	005274	08/14/2015 04:00:00 PM	2932920.525	74.617	005275
08/14/2015 05:00:00 PM	4746431.347	160.044	005274	08/14/2015 05:00:00 PM	2932996.635	76.31	005275
08/14/2015 06:00:00 PM	4746586.415	155.068	005274	08/14/2015 06:00:00 PM	2933065.518	68.683	005275
08/14/2015 07:00:00 PM	4746727.476	141.061	005274	08/14/2015 07:00:00 PM	2933127.559	62.041	005275
08/14/2015 08:00:00 PM	4746864.372	136.896	005274	08/14/2015 08:00:00 PM	2933195.384	67.825	005275
08/14/2015 09:00:00 PM	4747004.372	140	005274	08/14/2015 09:00:00 PM	2933263.632	68.248	005275
08/14/2015 10:00:00 PM	4747137.886	133.514	005274	08/14/2015 10:00:00 PM	2933323.26	59.628	005275
08/14/2015 11:00:00 PM	4747269.569	131.683	005274	08/14/2015 11:00:00 PM	2933382.3	59.04	005275

Interdisciplinary Life Sciences Building (TAMU Bldg #1530)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	006290	7	7/1/2017 – 7/7/2017	Model
HHW	006294	7	7/1/2017 – 7/7/2017	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.	6/29/2017 – 7/7/2017
HHW	The consumption increased for a short period.	6/29/2017 – 7/7/2017

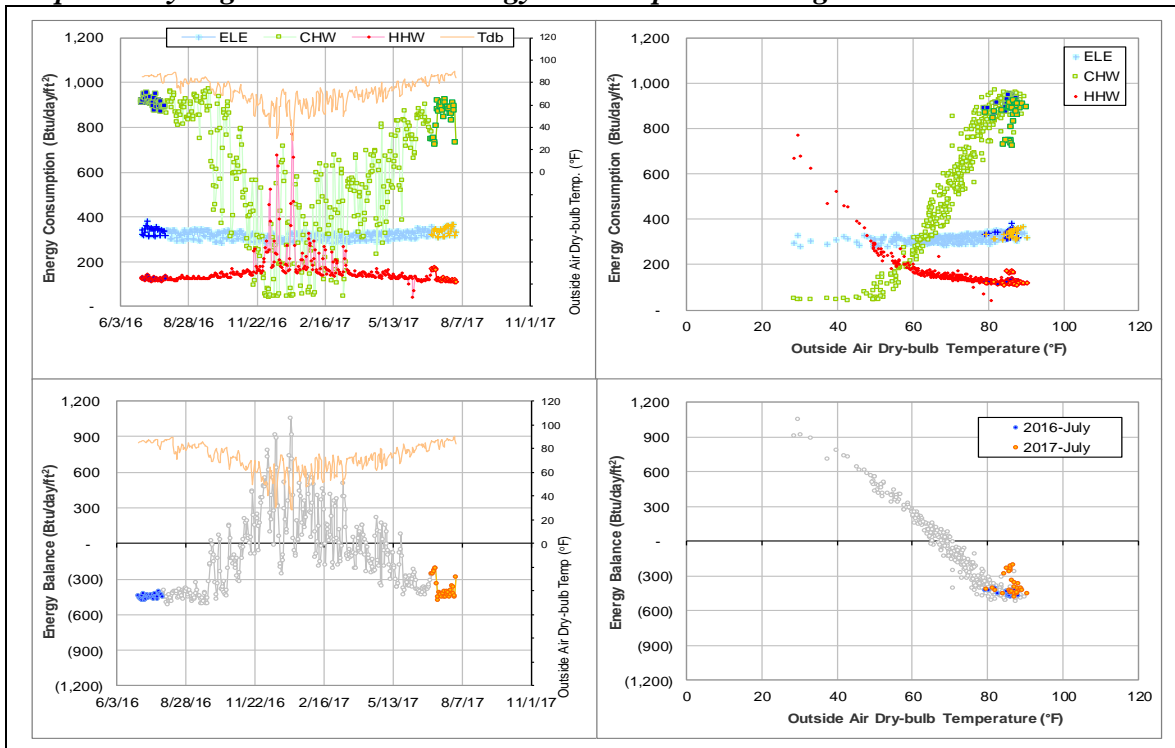
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	006290	6/29/2017 – 7/7/2017	Flow rate	High
			Return temp	Low
HHW	006294	6/29/2017 – 7/7/2017	Flow rate	High

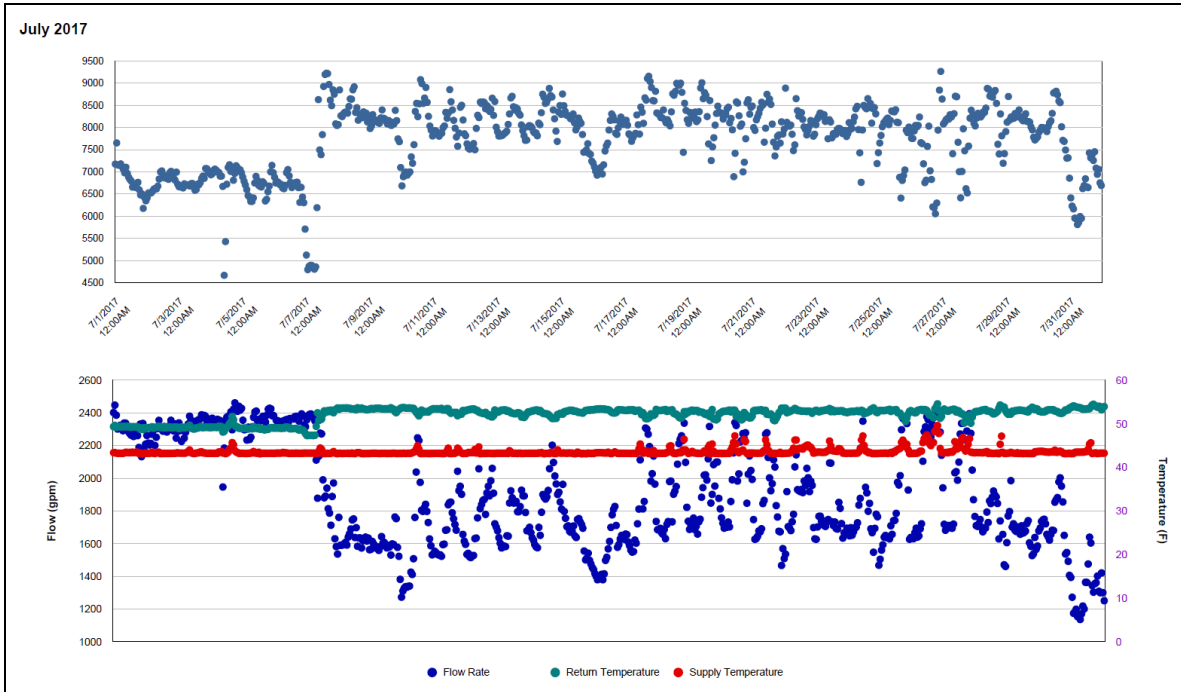
Quantitative descriptions and comments

CHW flow rate increased from its normal 1400 – 2000 gpm level to 2200 – 2400 gpm during 6/29/2017 – 7/7/2017, and the return temperature decreased during the period. The combined effect is a decrease in CHW consumption. HHW flow rate had a slight increase from 90 – 100 gpm to 100 – 140 gpm during the same period. These days are estimated by model.

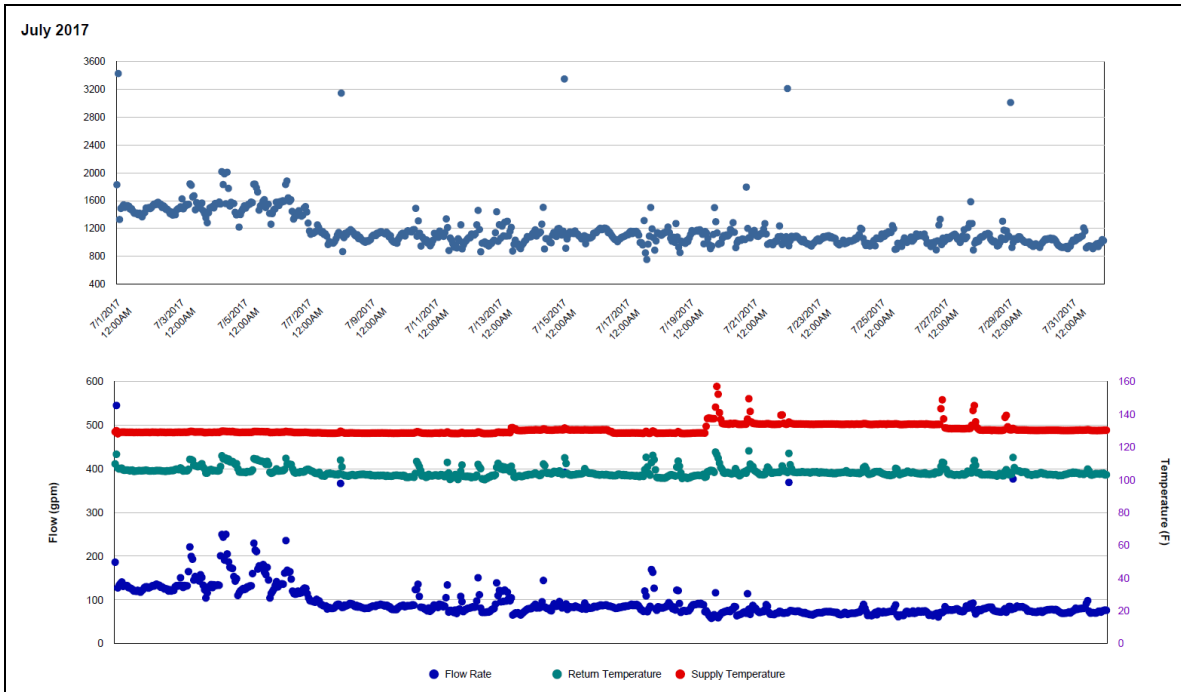
Explanatory Figure: 13 months energy balance plot with original data.



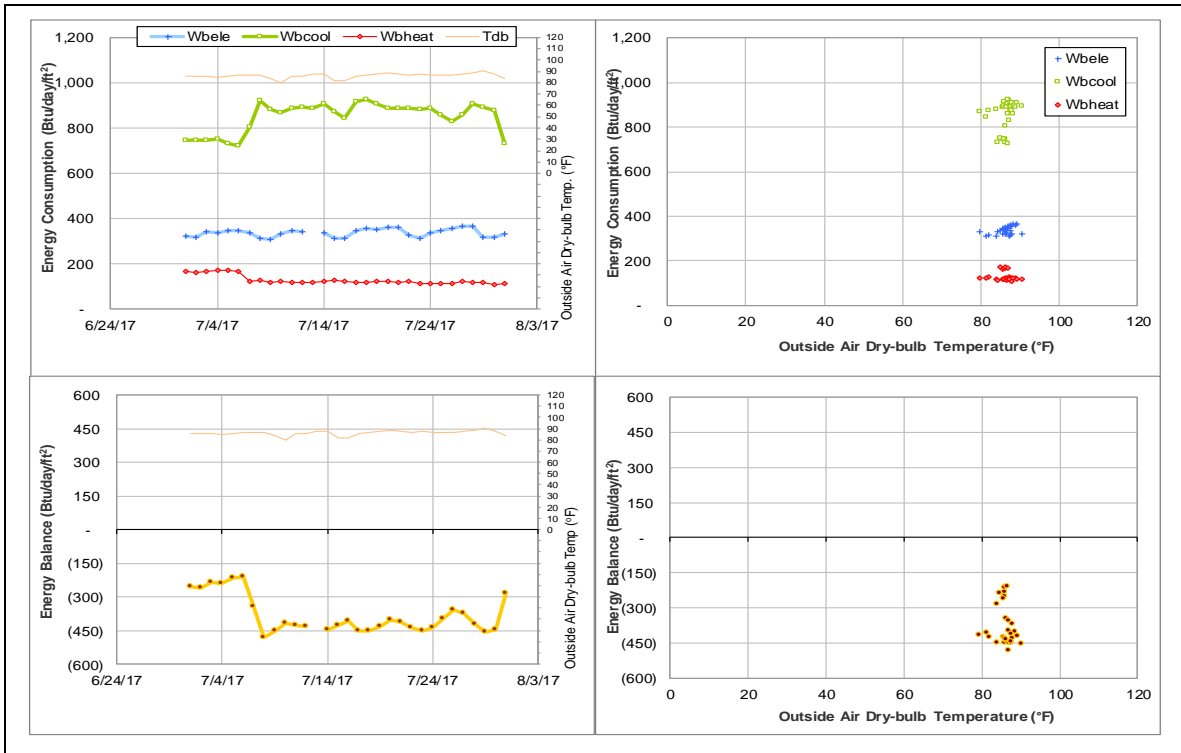
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2017)



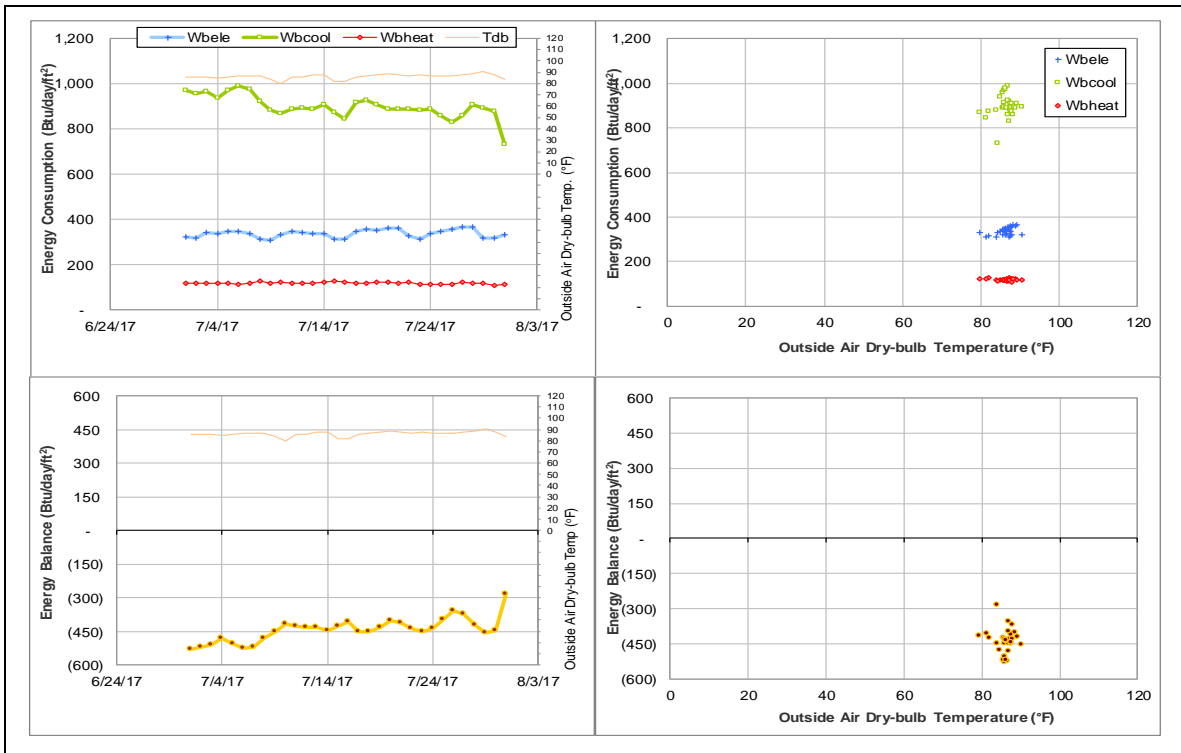
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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



AgriLife Services Building (TAMU Bldg #1536)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007573	15	7/17/2017 – 7/31/2017	Model

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

Data Type	Description of data behaviors	Period
HHW	The consumption level has increased suddenly.	7/17/2017 – Ongoing

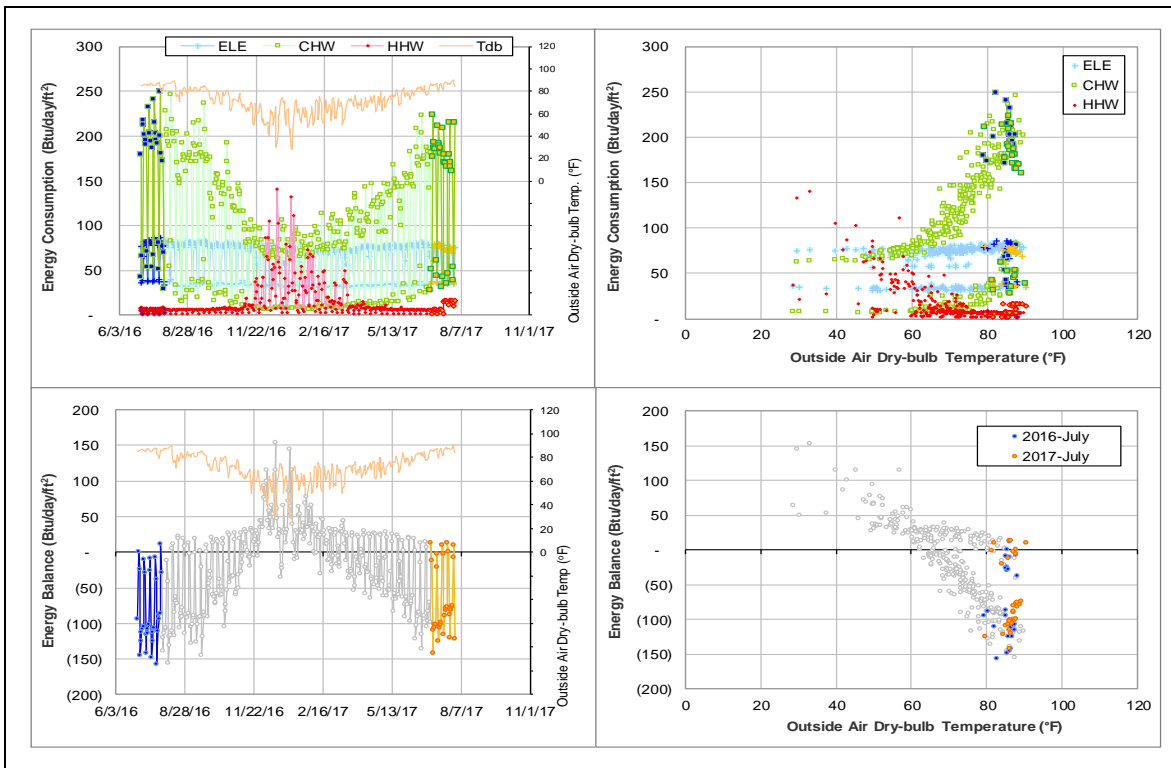
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	007573	7/17/2017 – Ongoing	Flow rate	Increase
			Delta-T	Decrease

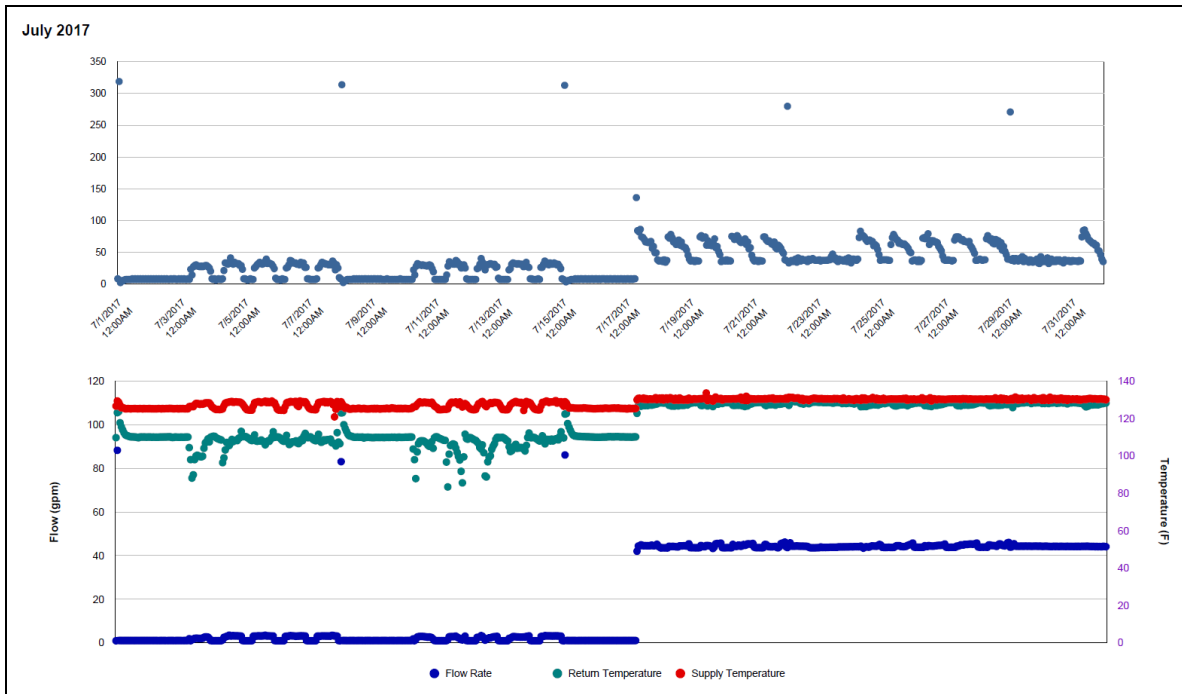
Quantitative descriptions and comments

The flow of HHW suddenly increased from a near zero level to slightly higher than 40 gpm. Delta-T significantly decreased at the same time. The combined effect is a sudden increase of HHW consumption. These days are estimated by model.

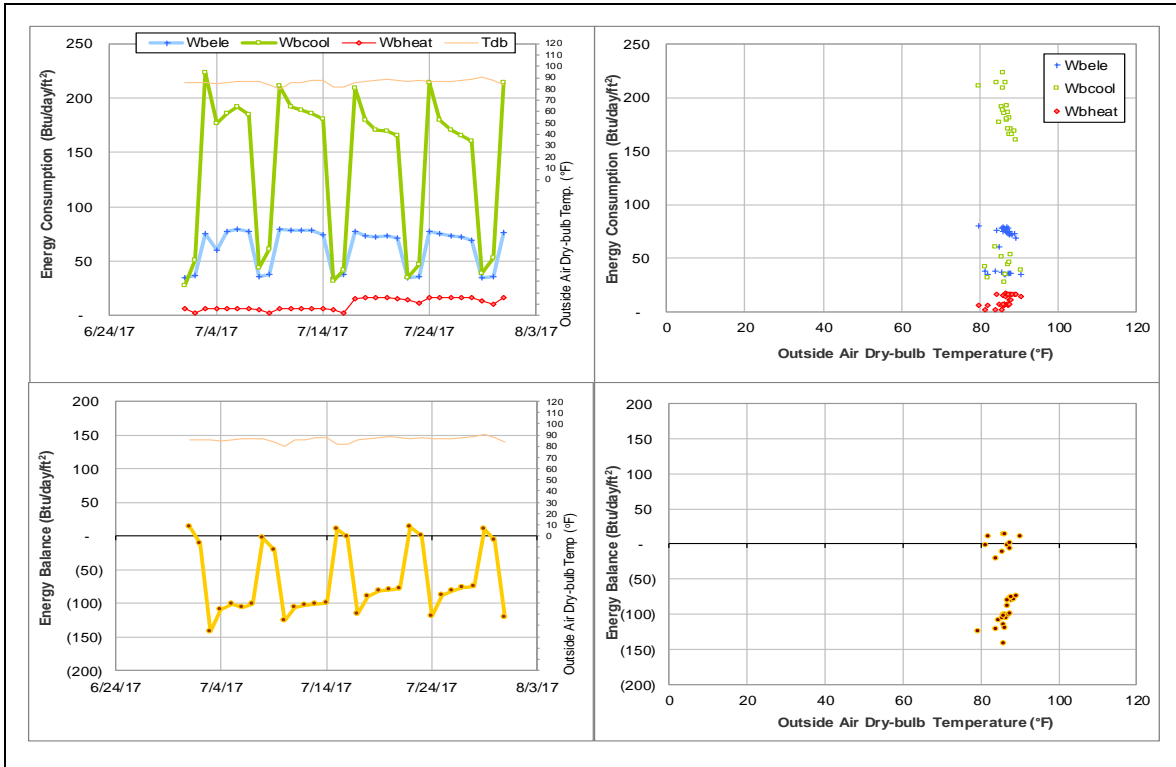
Explanatory Figure: 13 months energy balance plot with original data.



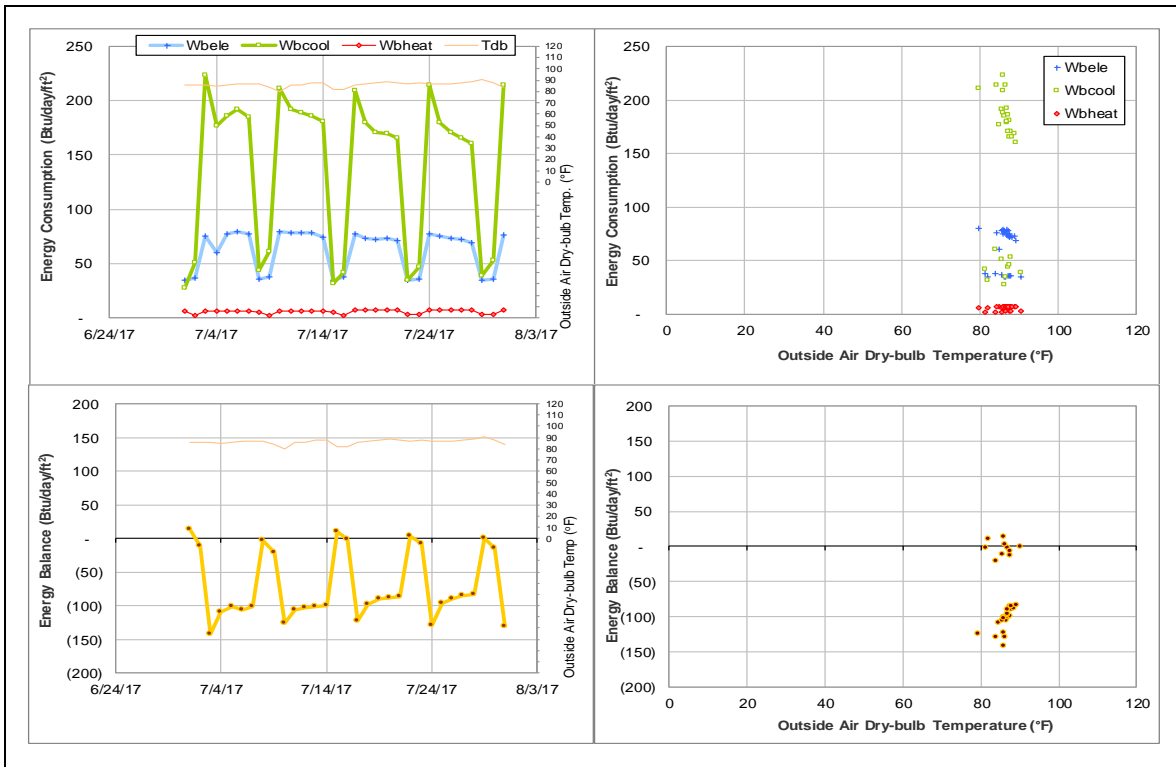
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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.



West Campus Parking Garage (TAMU Bldg #1559)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	004322	31	7/1/2017 – 7/31/2017	Model
HHW	004327	31	7/1/2017 – 7/31/2017	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
HHW	The consumption level is increasing gradually.	6/30/2017 – Ongoing

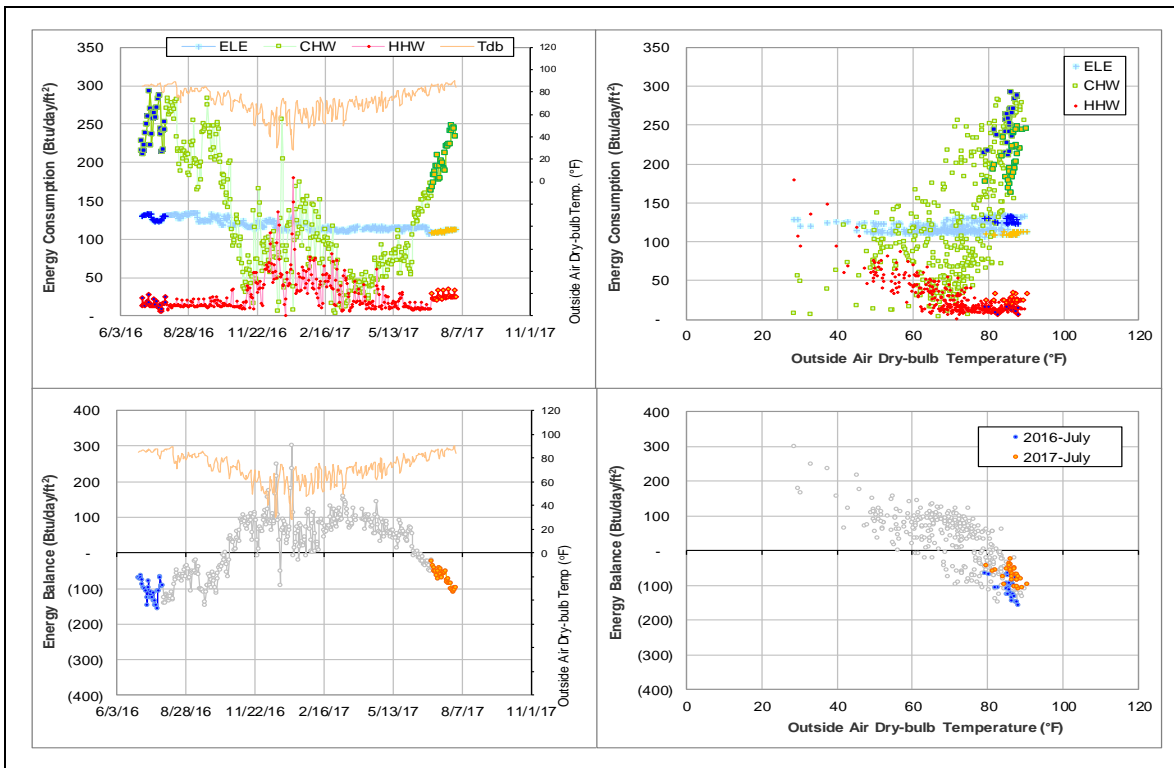
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	004322	3/10/2017 – Ongoing	Flow rate	Low
HHW	004327	6/30/2017 – Ongoing	Flow rate	high

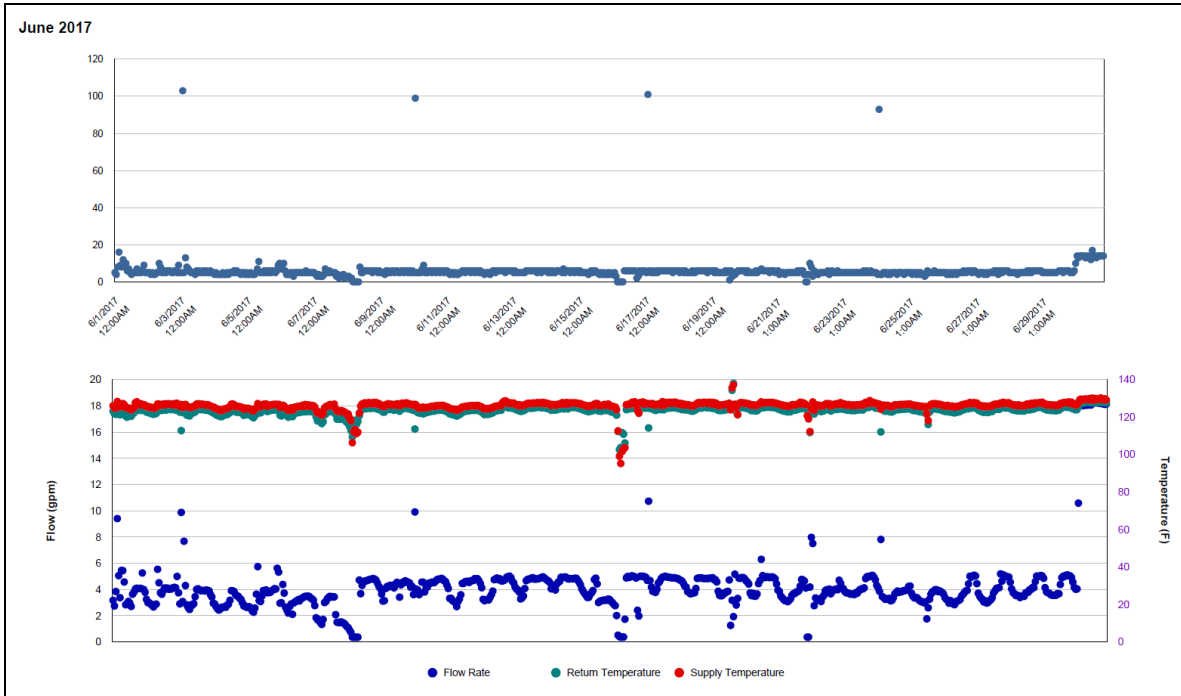
Quantitative descriptions and comments

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. HHW flow rate significantly increased from 2 – 6 gpm to about 18 gpm since 6/30/2017. The consumption of this month is estimated using a model based on the data of 6/1/2015 – 5/31/2016.

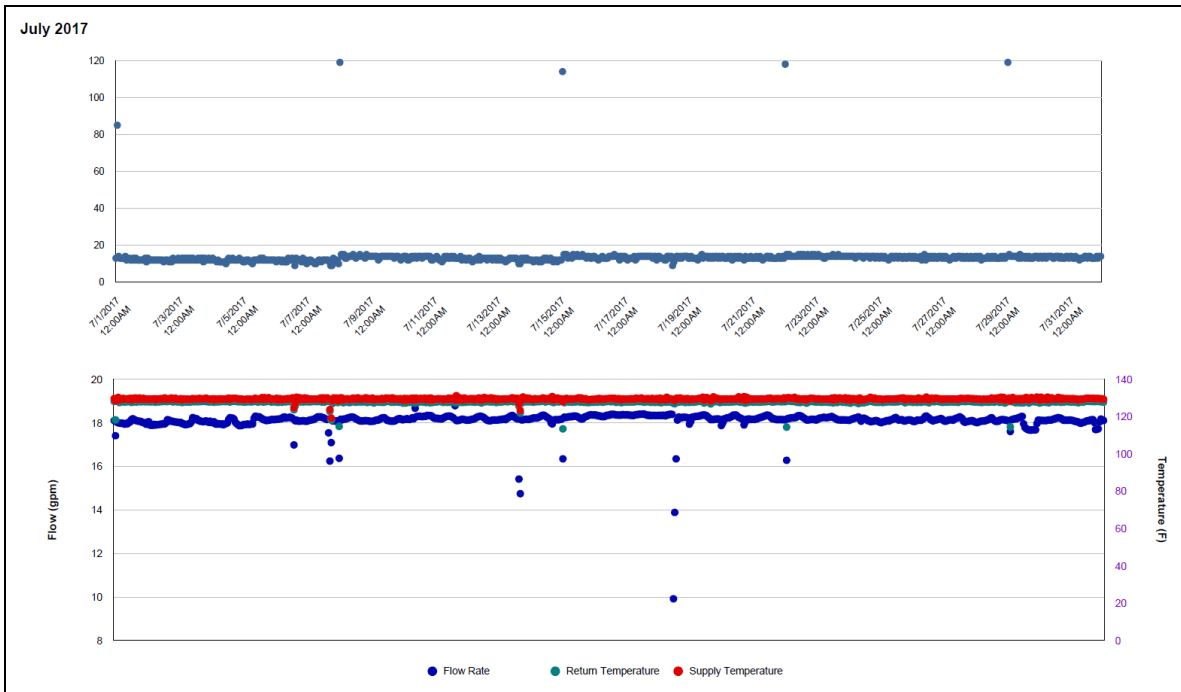
Explanatory Figure: 13 months energy balance plot with original data



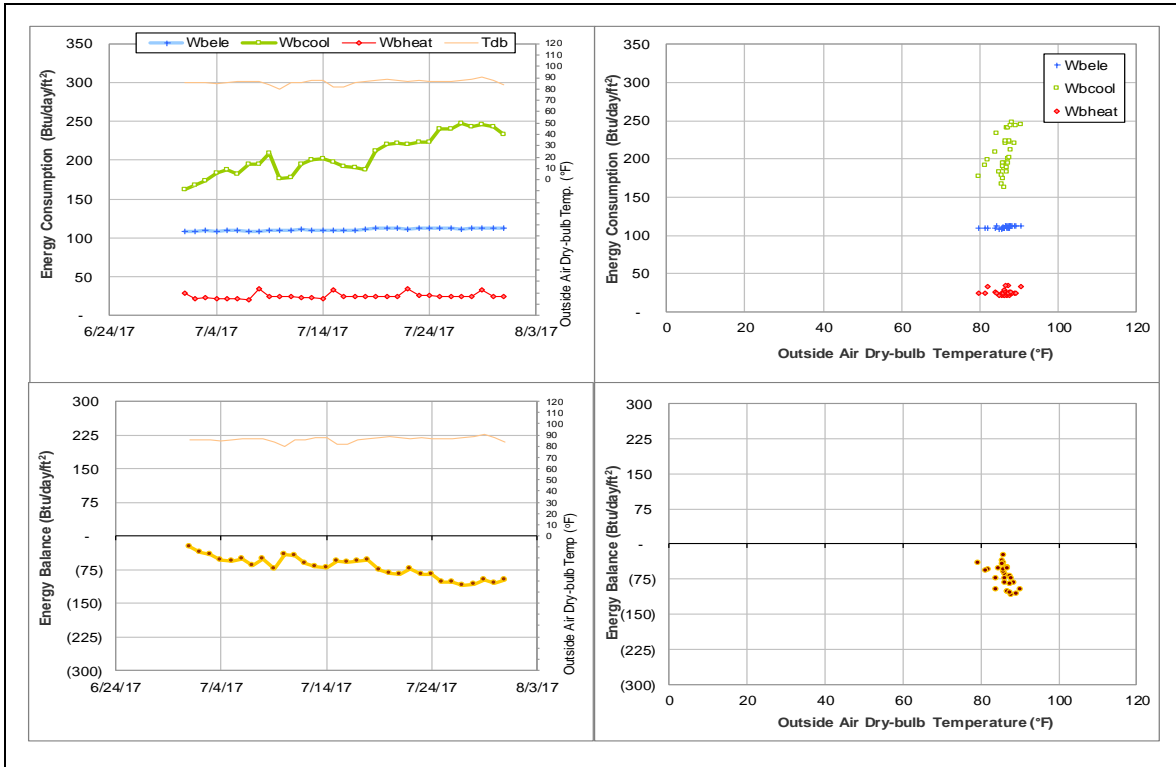
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during June 2017)



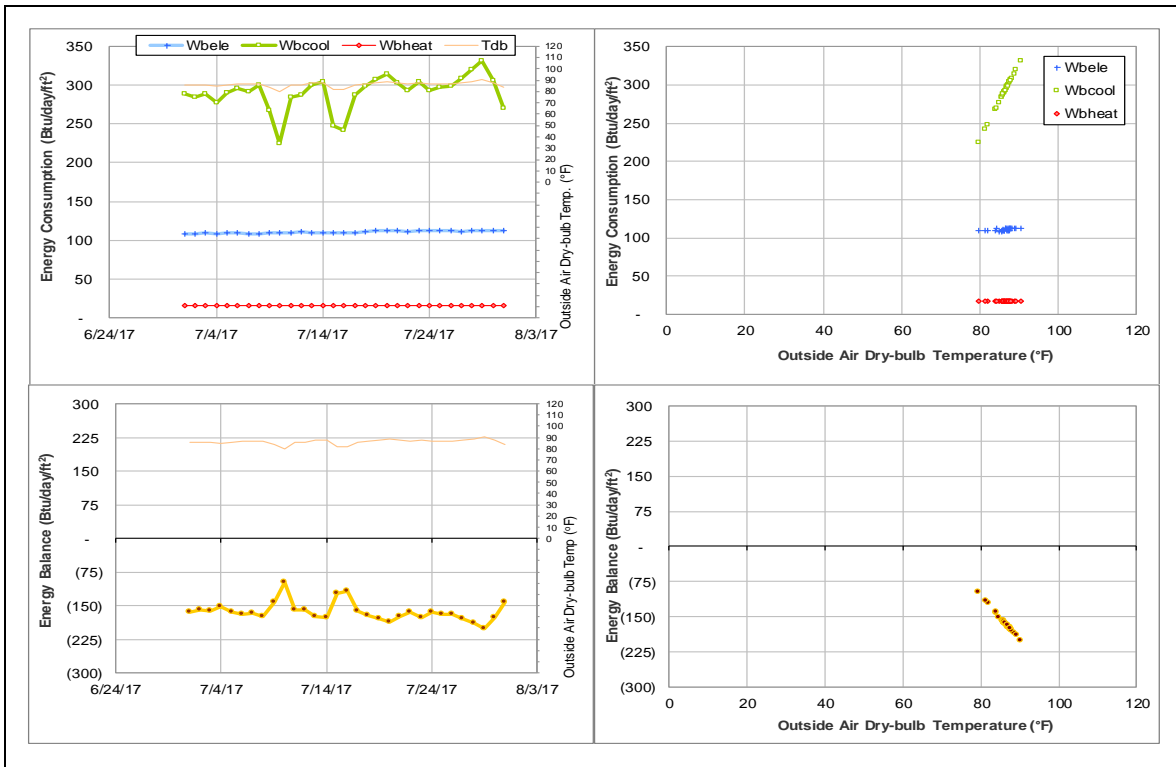
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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.



George Bush Presidential Library & Museum (TAMU Bldg #1606)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002812	31	7/1/2017 – 7/31/2017	Model

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

Data Type	Description of data behaviors	Period
HHW	The consumption level has increased suddenly.	6/8/2017 – Ongoing

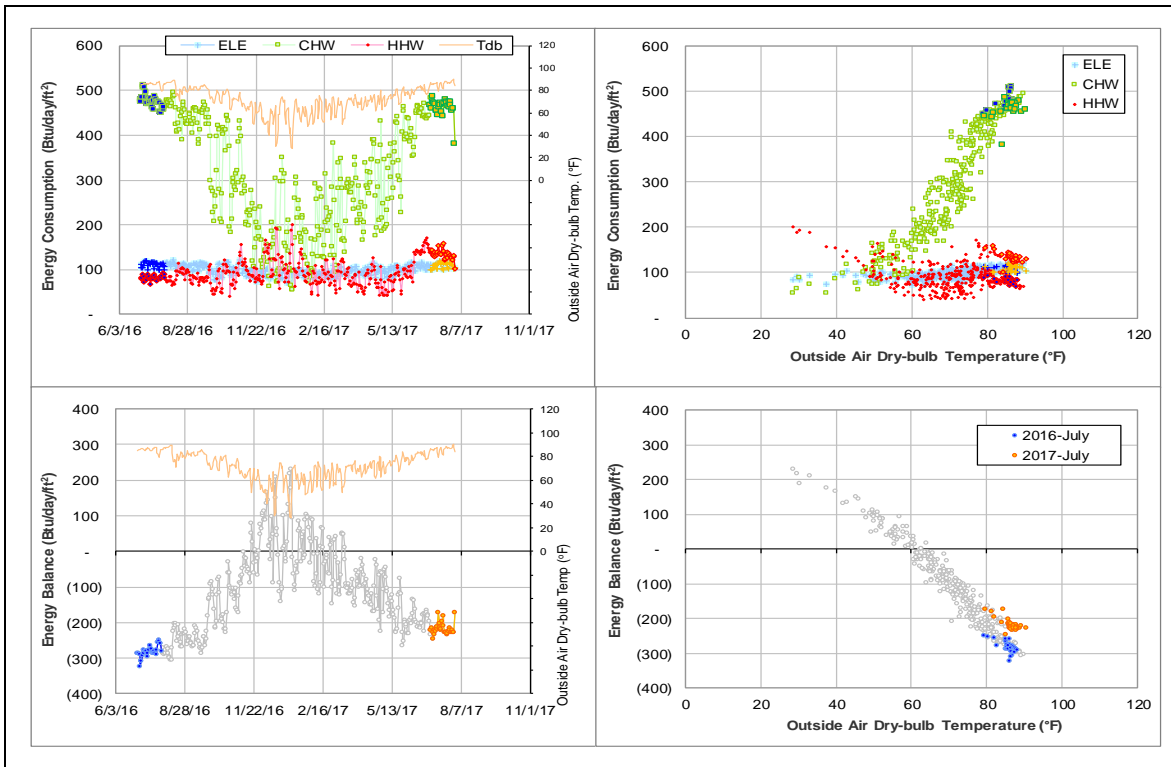
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002812	6/8/2017 – Ongoing	Return temp	Low

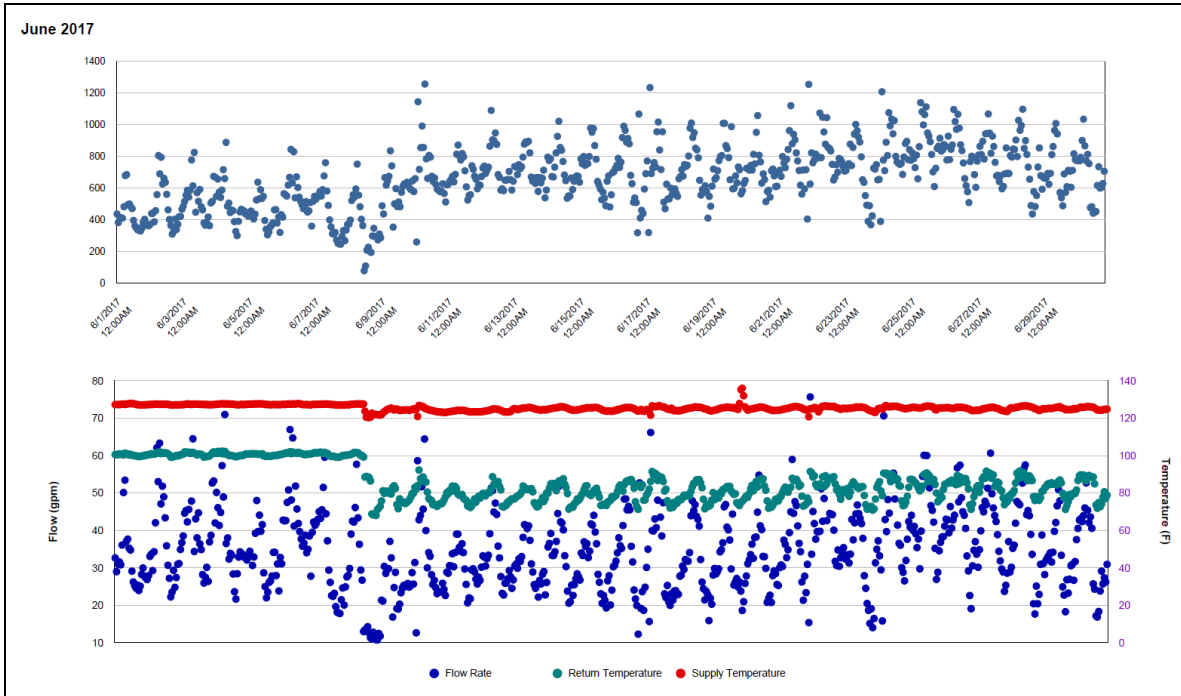
Quantitative descriptions and comments

Return temperature of HHW dropped on 6/8/2017. Delta-T thus increased from about 30°F to 40 – 50°F. As there is no significant change in flow rate, HHW consumption increased significantly. The whole month is estimated by model.

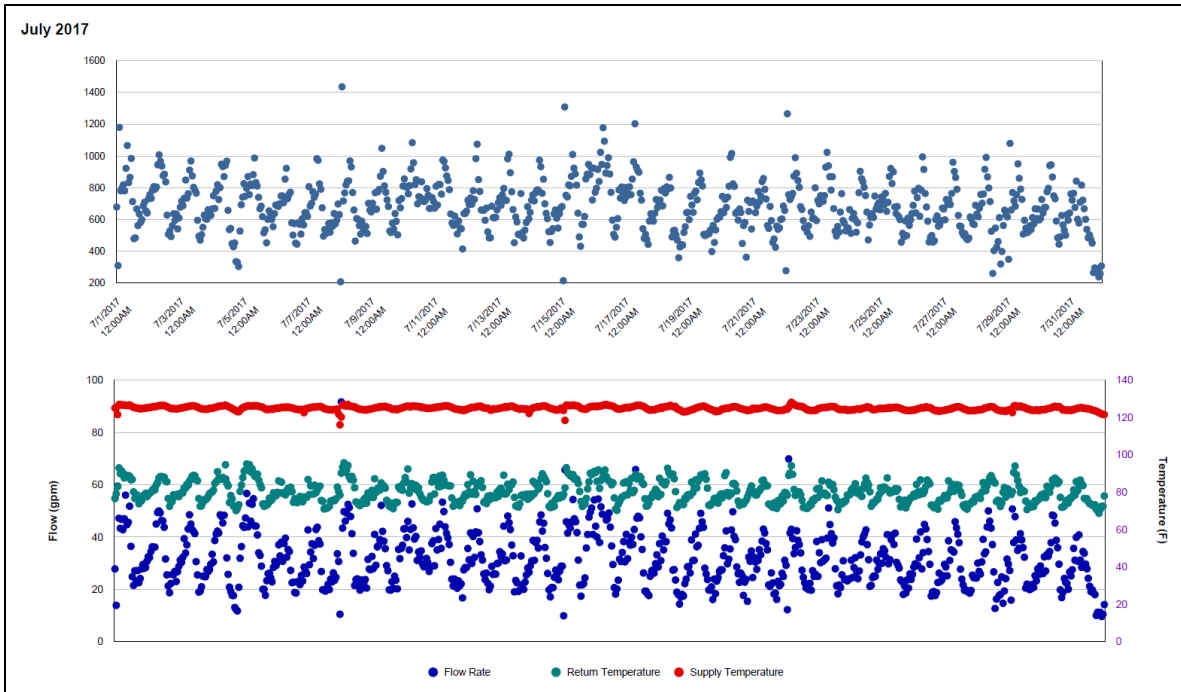
Explanatory Figure: 13 months energy balance plot with original data.



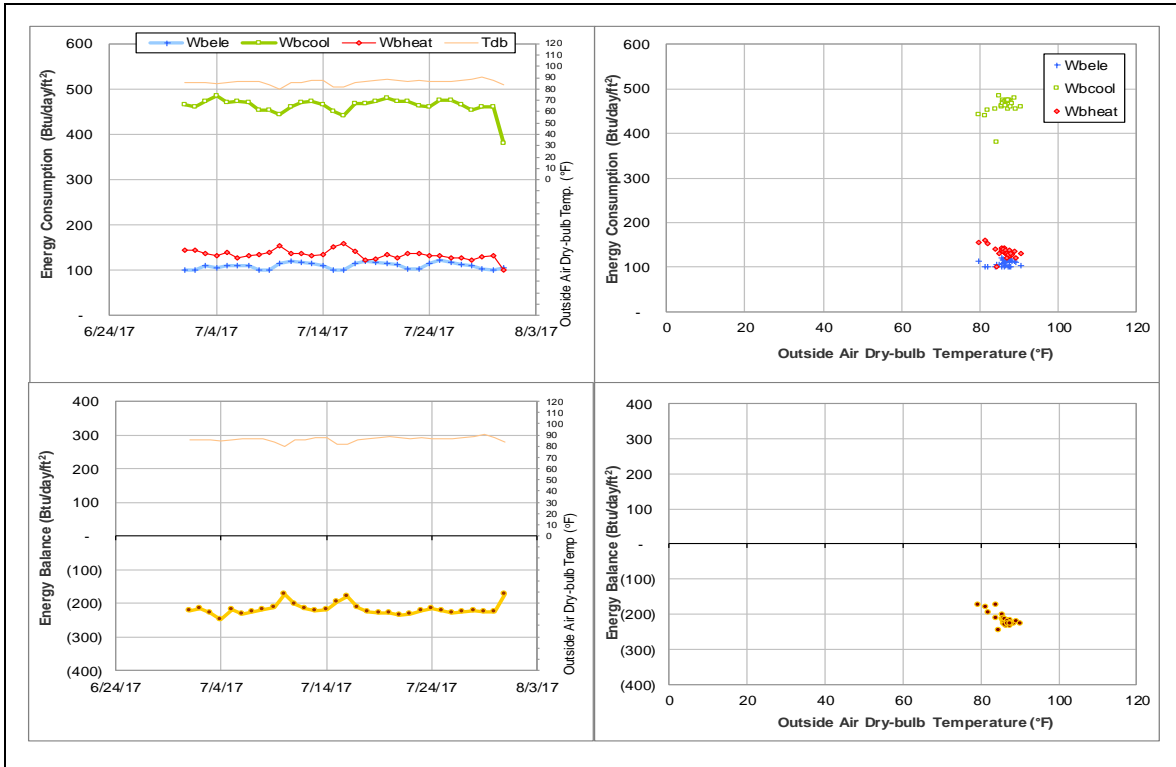
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during June 2017)



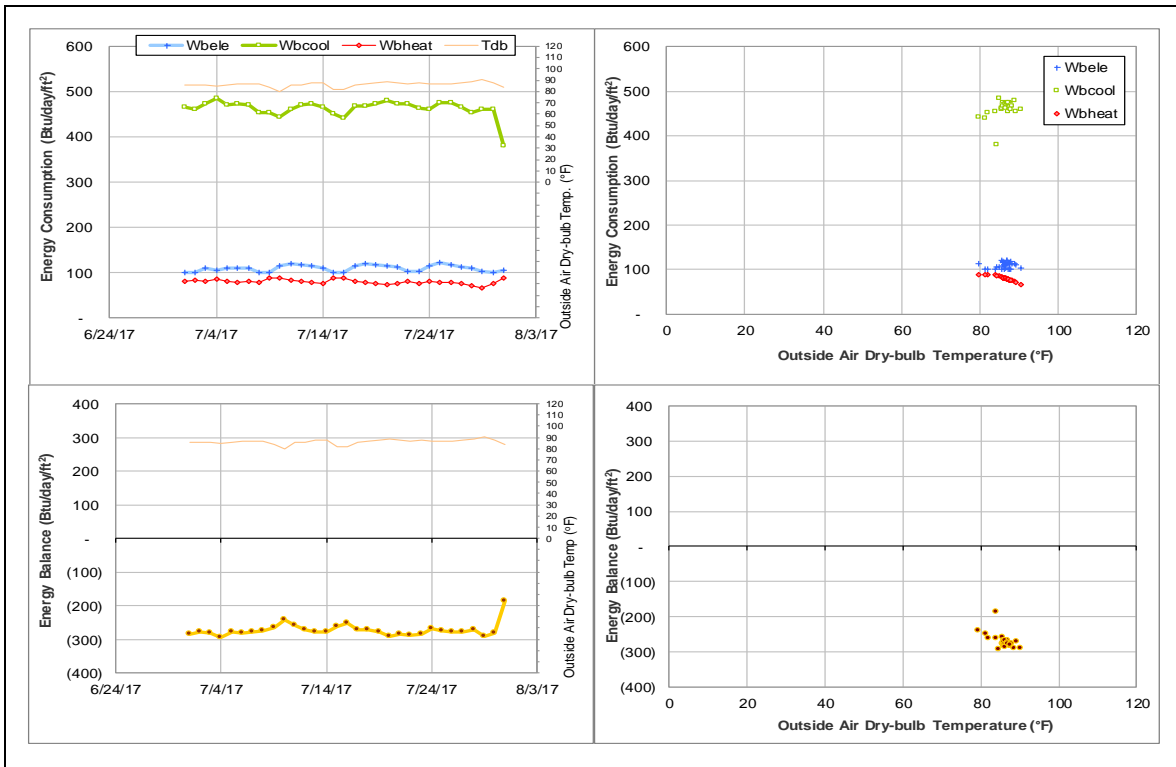
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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.



Multi-Species Research Building (TAMU Bldg #1911)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	009133	19	7/13/2017 – 7/31/2017	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.	7/13/2017 – Ongoing

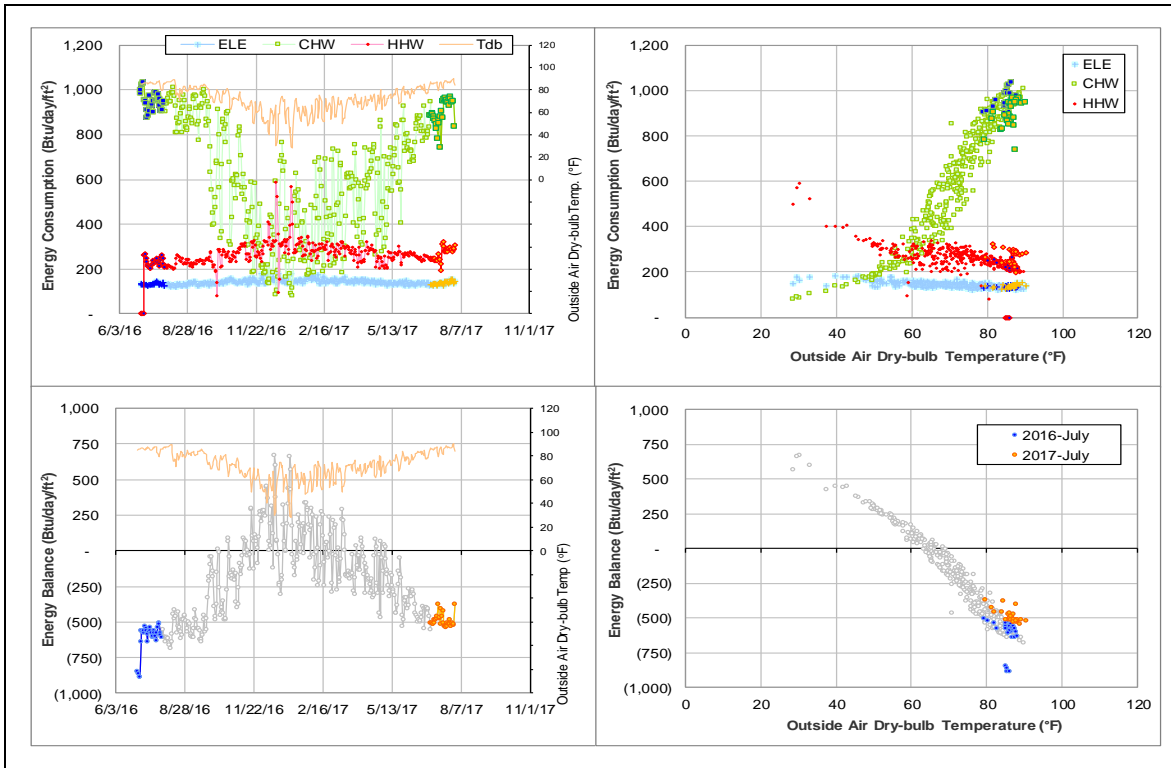
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	009133	7/13/2017 – Ongoing	Return temp	Low

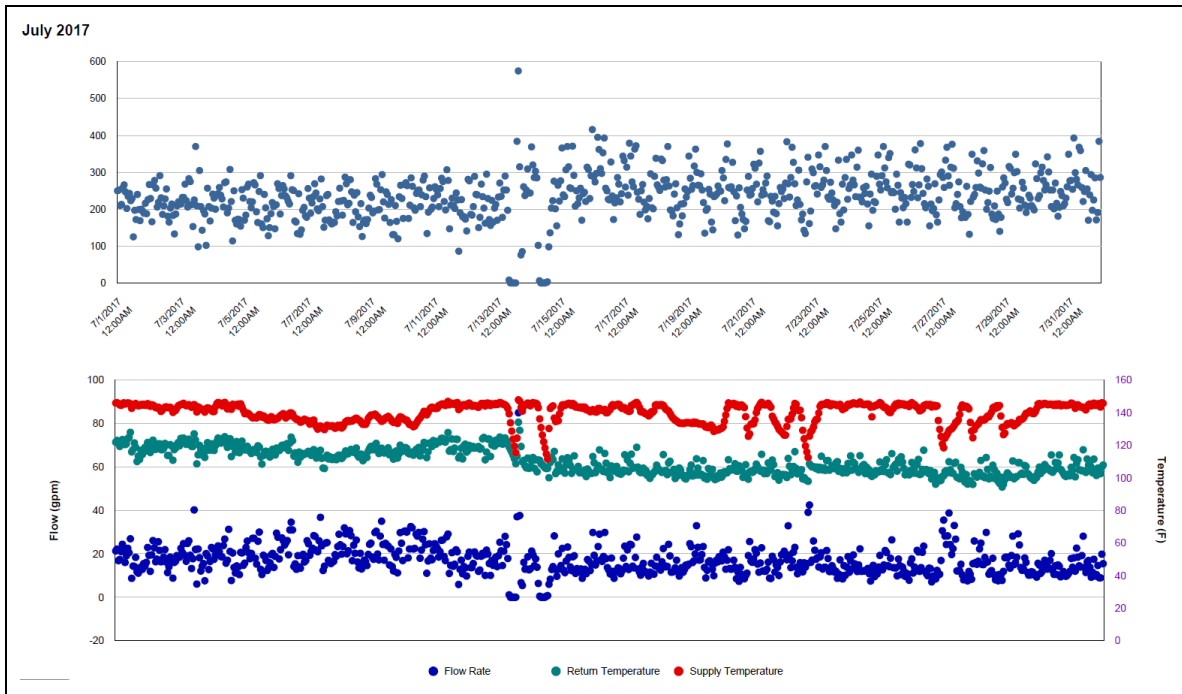
Quantitative descriptions and comments

Return temperature of HHW decreased on 7/13/2017, resulting in a larger Delta-T and hence higher HHW consumption. This period is estimated by model.

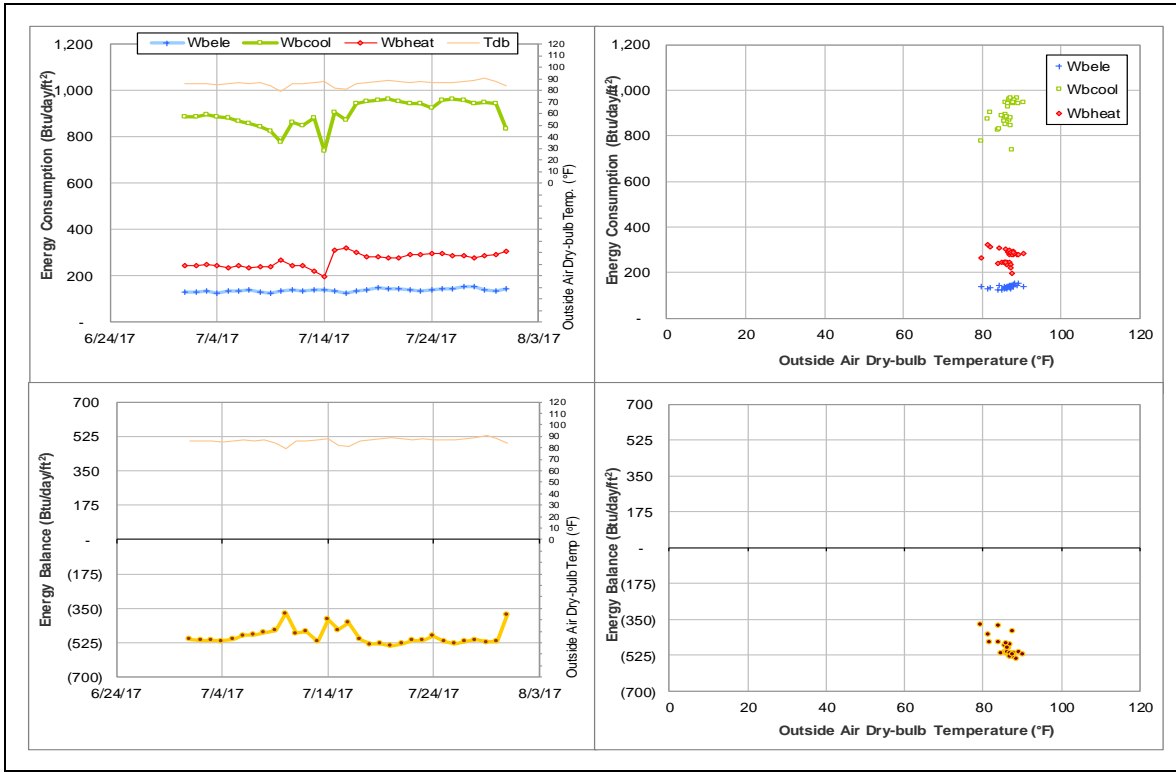
Explanatory Figure: 13 months energy balance plot with original data.



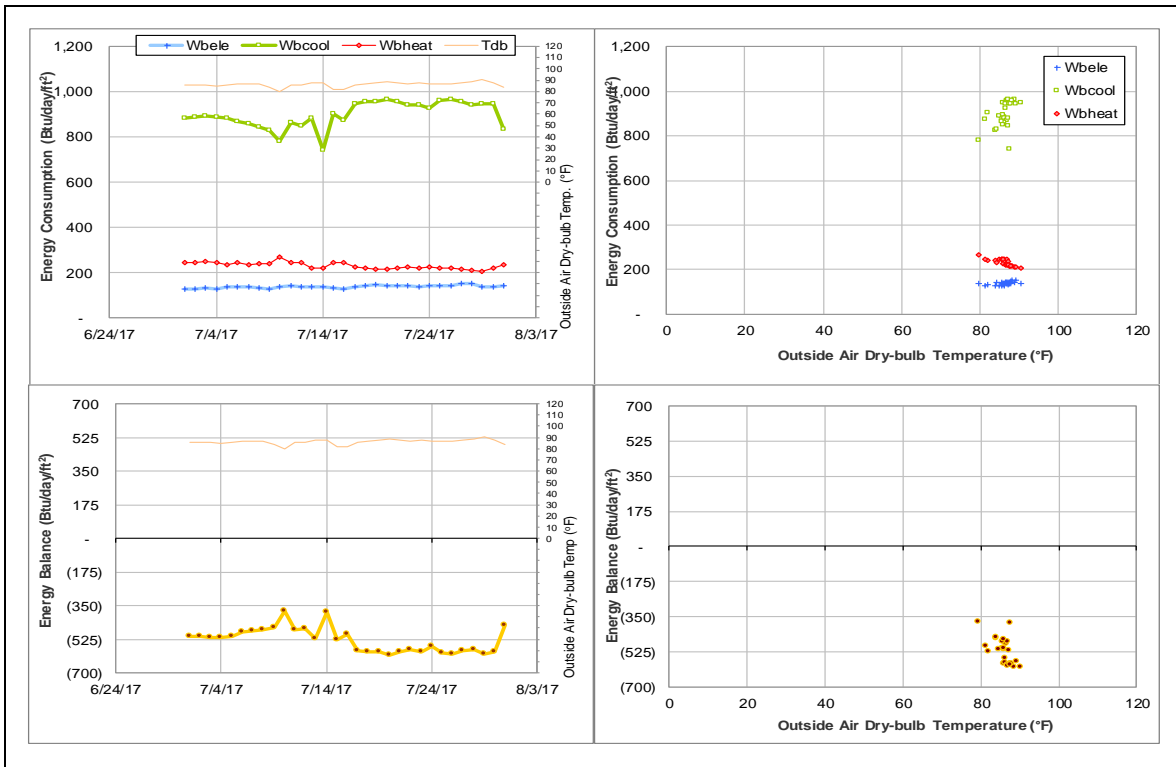
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during July 2017)



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.



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 July 2017

Building No.	Building Name	MeterID	Type	Building No.	Building Name	MeterID	Type
0290	Wells Residence Hall	001984	CHW	471	Pavilion	002769	CHW
		001988	HHW				
0292	Eppright Residence Hall	002262	CHW	472	Animal Industries	009109	CHW
		002266	HHW	0478	Scoates Hall	007968	CHW
0293	Appelt Residence Hall	002062	CHW	007969	HHW	0482	Fermier Hall
		002066	HHW	005878	CHW	005881	HHW
0294	Lechner Residence Hall	002285	HHW	0484	Chemistry Building	007557	ELE
0353	Bright Aerospace Building	002746	CHW	0492	Civil Engineering Building	005950	CHW
0361	Bright Football Complex	002547	CHW	005954	HHW	0496	Utilities & Energy Services Central Office
0394	Underwood Residence Hall	002117	CHW	007706	ELE	006929	CHW
		002121	HHW	006933	HHW	0499	Engineering Innovation Center
0398	Langford Architecture Center Building A	003951	CHW	002672	CHW	0506	Nagle Hall
		003955	HHW	001484	ELE	511	Heep Laboratory Building
1405	Ash II LLC	009387	CHW	005821	CHW	0524	Blocker building
		009391	HHW	002914	CHW		
0408	Whitely Hall - Dorm 9	002079	CHW	002918	HHW	0740	McNew Laboratory
		002083	HHW	005874	ELE		
0409	White Hall - Dorm 10	002094	CHW	005974	CHW	0880	TVMC-Small Animal Building
		002098	HHW	005968	HHW		
0410	Harrington Hall - Dorm 11	002349	CHW	005962	HHW	1041	Texas Vet Med Diagnostic Lab
		002353	HHW	001466	ELE		
0411	Utay Hall - Dorm 12	002102	CHW	001539	ELE	1089	Utilities Energy Office Annex
		002106	HHW	003817	CHW		
0412	Moses Residence Hall	002395	HHW	004137	CHW	1156	TVMC-Small Animal Building
0415	Davis-Gary Residence Hall	002543	HHW	003821	HHW		
0419	Leggett Residence Hall	000031	ELE	004130	HHW	1497	Utilities & Energy Services Business Office
			002218	CHW	006341		
			002222	HHW	1509	Medical Sciences Library	003777
0422	Walton Residence Hall	002519	CHW	1537	Agriculture Public Building	009982	ELE
		002364	HHW	009983	ELE	009984	HHW
0433	Mosher Residence Hall	009083	ELE	1558	Cox-McFerrin Center for Aggie Basketball	007577	HHW
		002485	CHW	1601	International Ocean Discovery Building	006351	ELE
		002489	HHW			006382	CHW
0443	Oceanography & Meteorology Building	006388	CHW	008144	CHW	1604	Offshore Technology Research Center
		006392	HHW	008145	HHW		
0517	DPC Annex	006567	HHW	009829	HHW	006660	ELE
0463	Psychology Building	001575	ELE				
		002941	CHW				
		002945	HHW				
0464	State Chemist Building	005837	ELE				
0467	Biological Sciences Building - East	003851	CHW				
0468	Evans Library	003701	CHW				
		003903	CHW				
		003911	CHW				

Wells Residence Hall (TAMU Bldg #290)

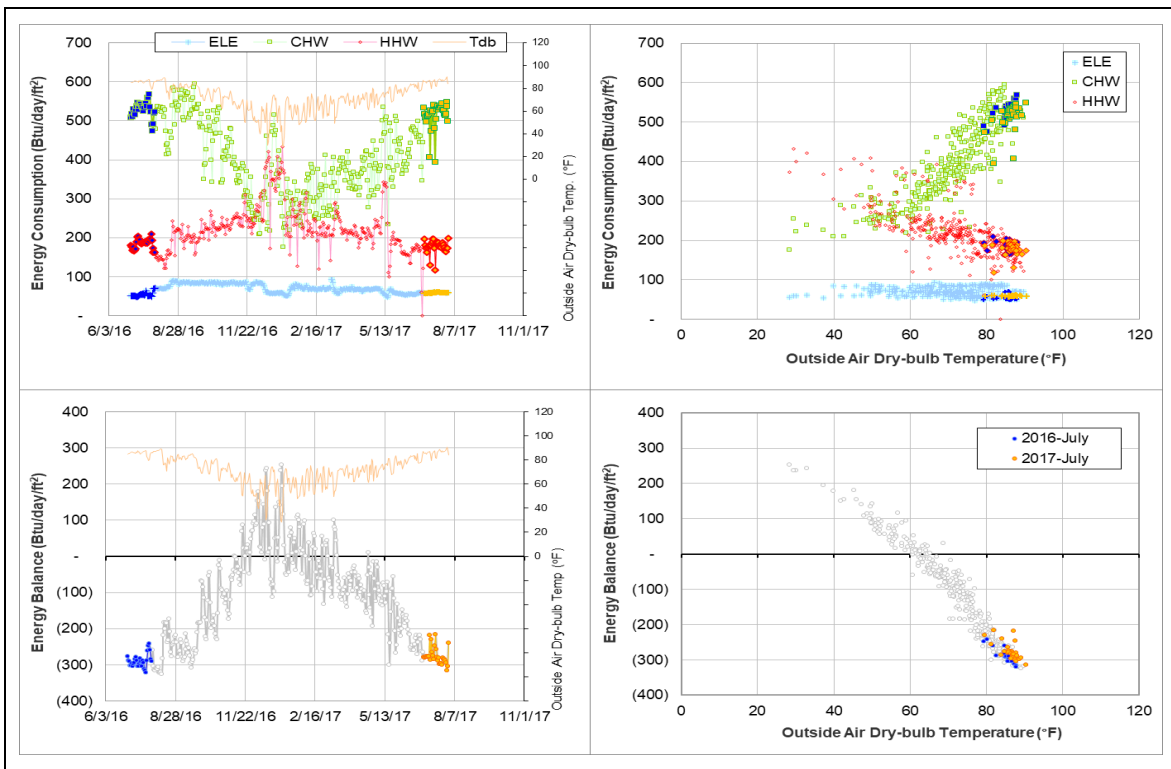
Detected issues in the energy balance and/or the consumption data

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



Appelt Residence Hall (TAMU Bldg #293)

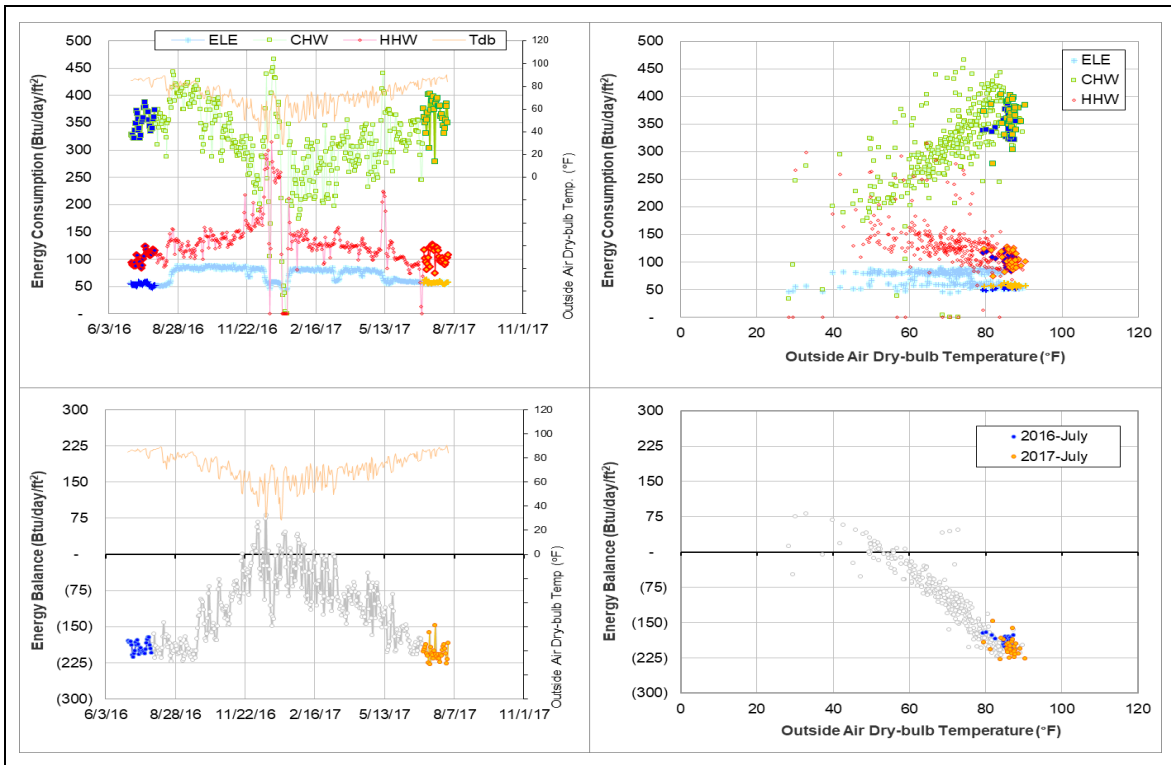
Detected issues in the energy balance and/or the consumption data

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)

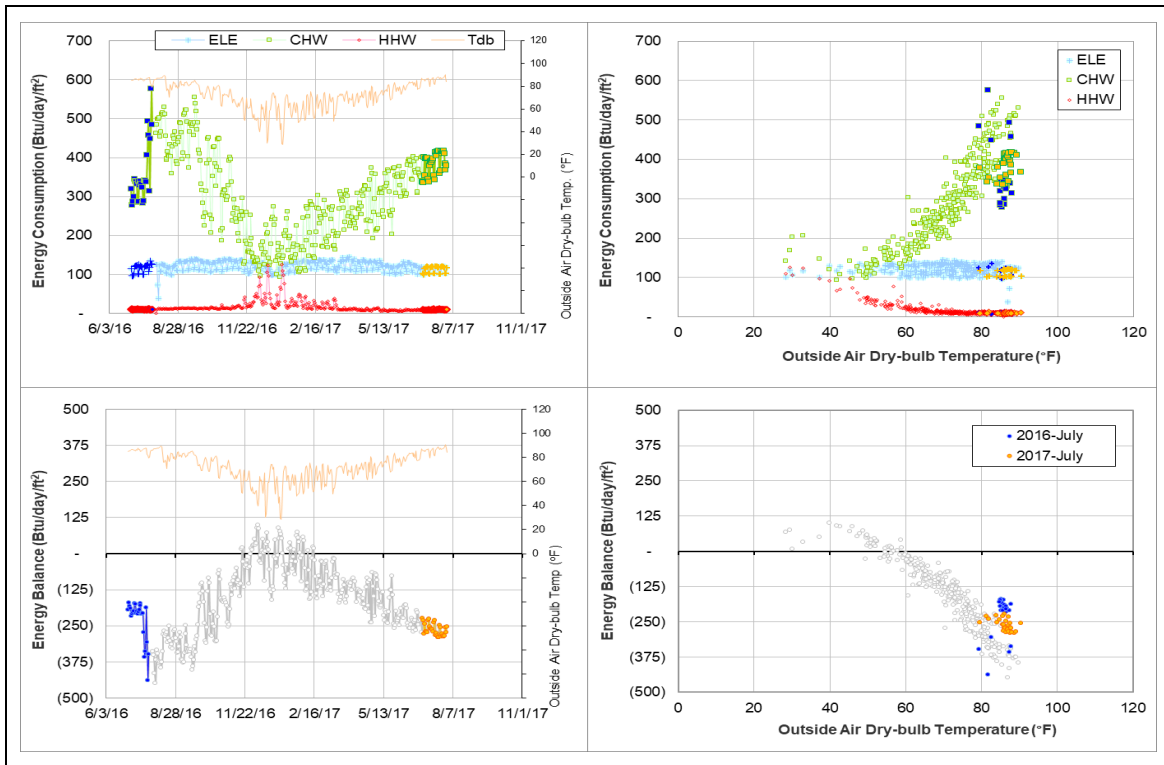
Detected issues in the energy balance and/or the consumption data

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



Bright Football Complex (TAMU Bldg #361)

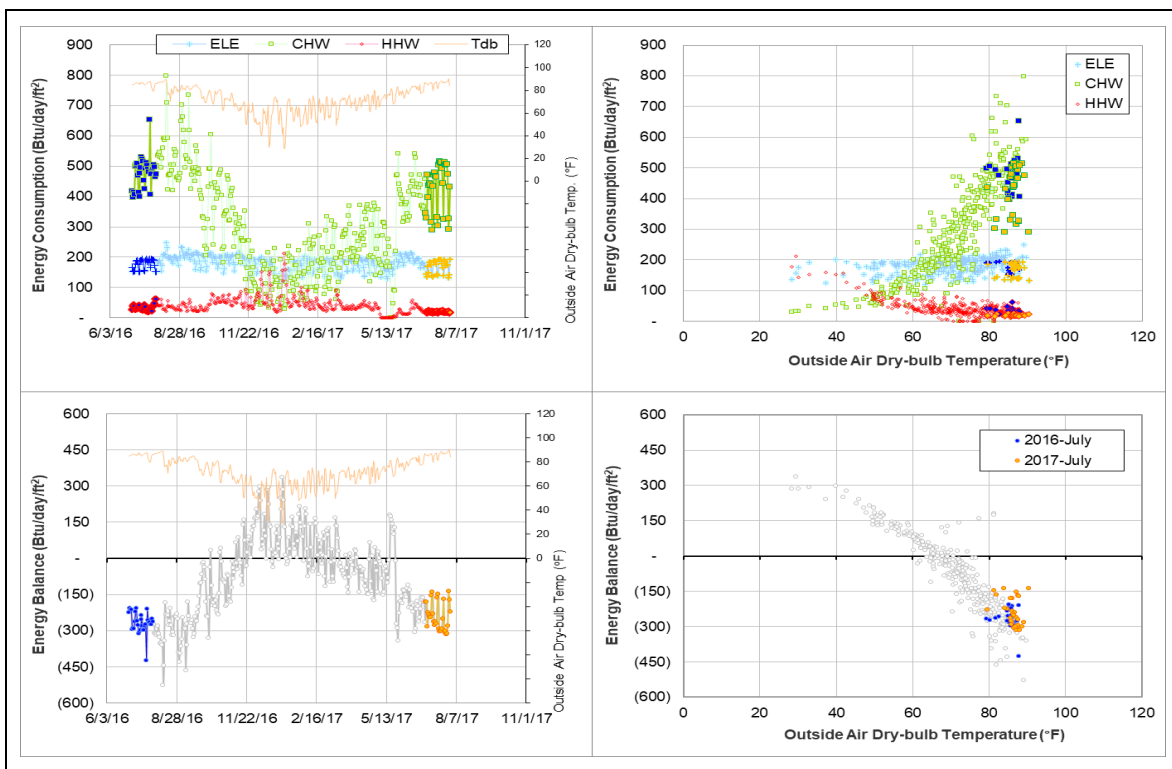
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Weekend consumption level decreased	July 2017

Comments

The CHW consumption has a weekday/weekend pattern during July 2017 however the weekend consumption is around 75 – 100 Btu/day/ft² lower than the previous year. Also, there is not a weekday/weekend pattern during the previous months. No obvious sensor reading behavior anomaly is observed.

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



Underwood Residence Hall (TAMU Bldg #394)

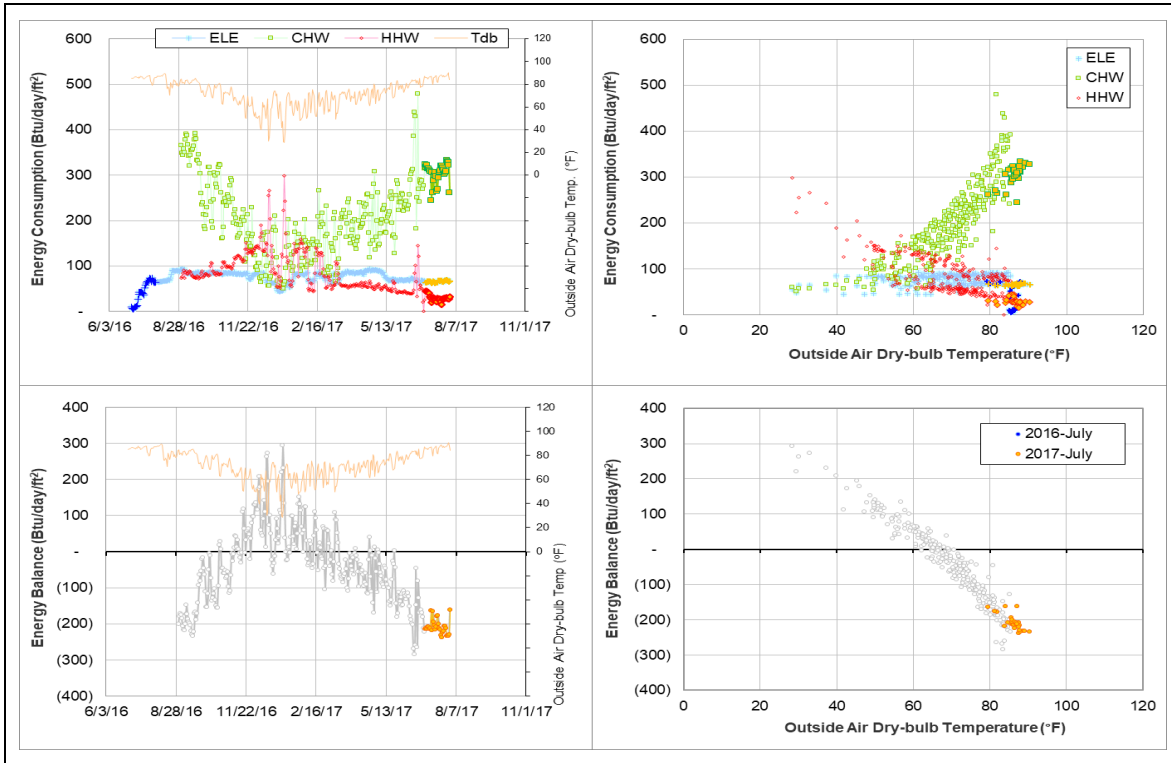
Detected issues in the energy balance and/or the consumption data

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)

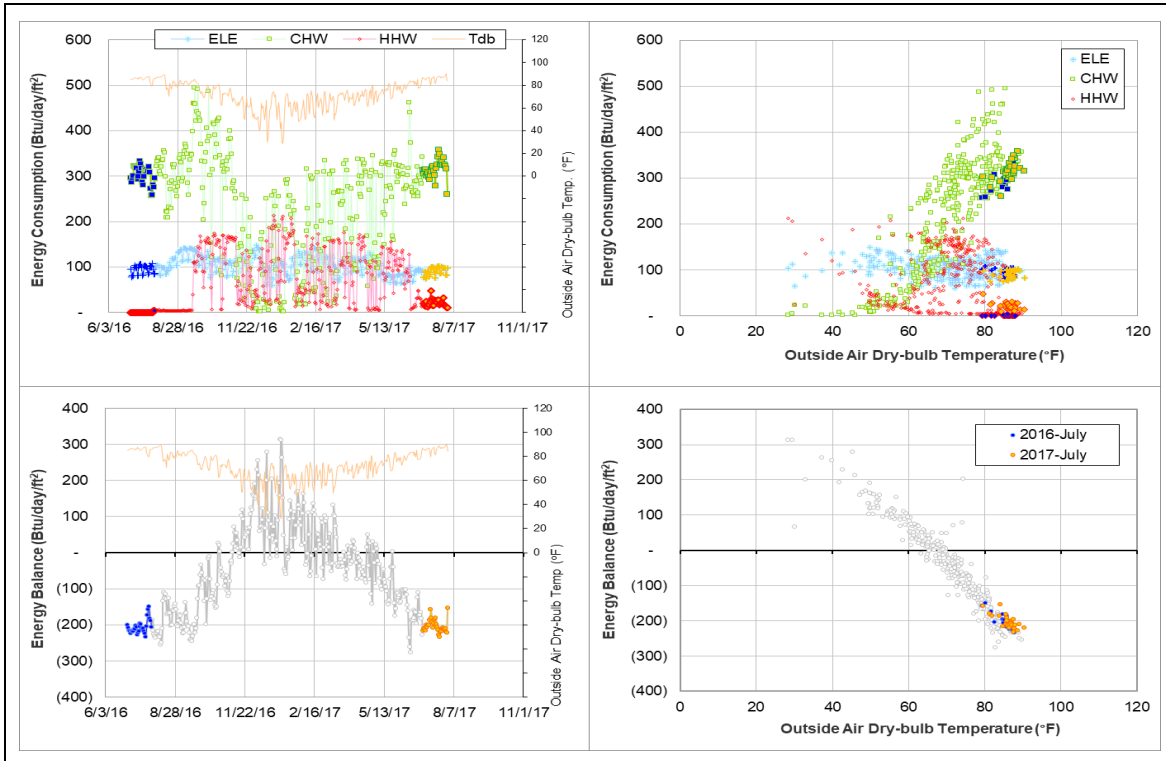
Detected issues in the energy balance and/or the consumption data

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 – ongoing

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 was not enough information available to estimate the data with models therefore averages were used to estimate all missing consumption for the month of May. The ELE patterns were stable starting in June 2017 and not estimated. The CHW consumption was estimated by models starting in June 2017 but the HHW consumption was still estimated by averages for any missing or problematic data.

Legett Residence Hall (TAMU BLDG #419)

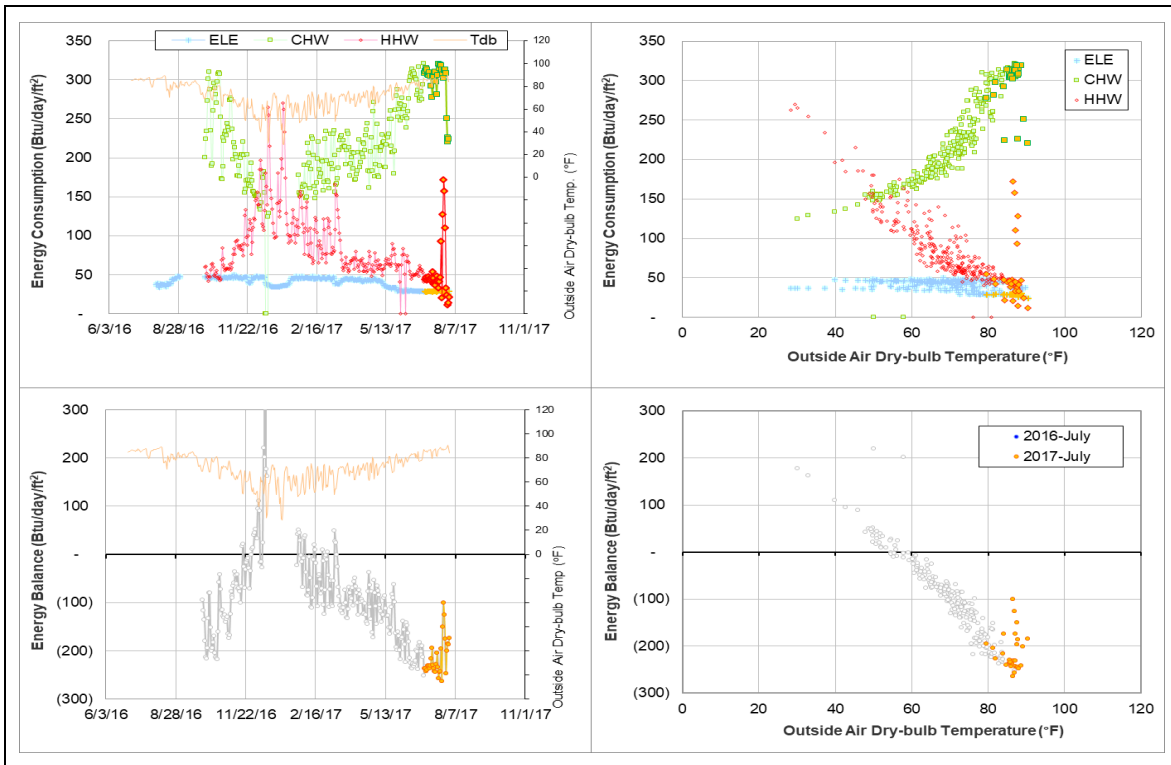
Detected issues in the energy balance and/or the consumption data

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)

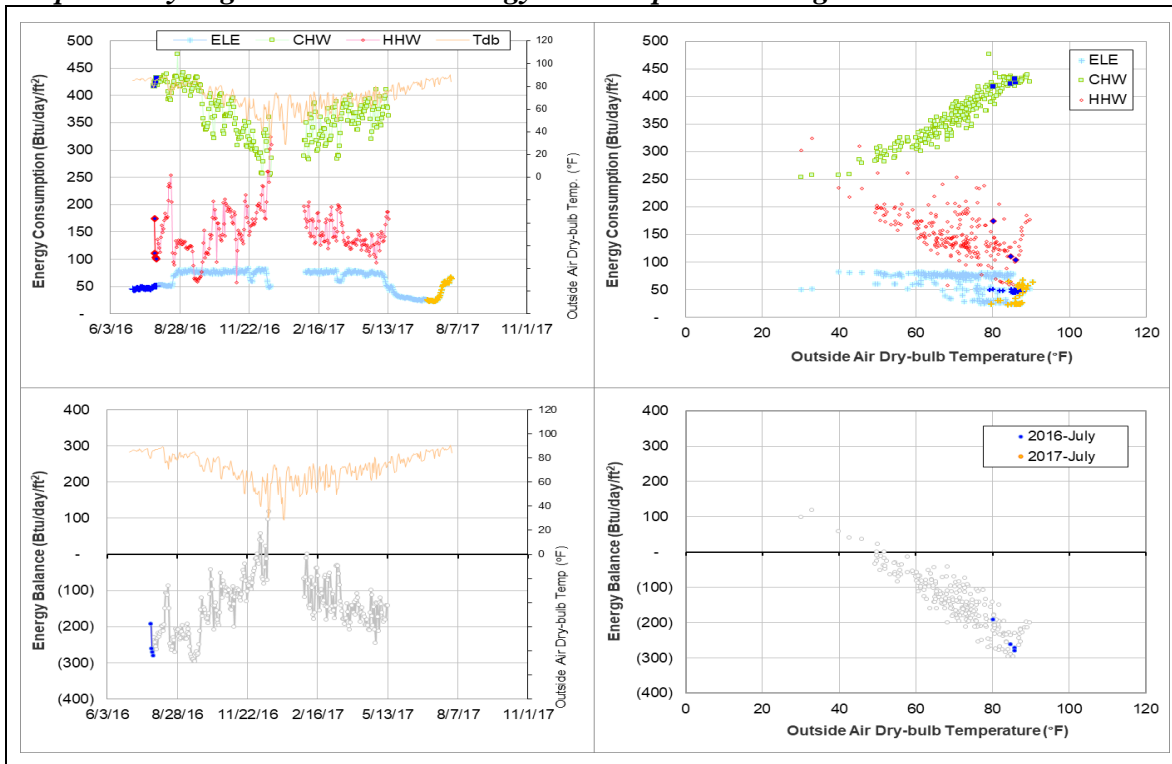
Detected issues in the energy balance and/or the consumption data

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/ft² to 80 Btu/day/ft² (approximately 25%). At near 40°F compared to 11/2014, CHW increased slightly by about 25 Btu/day/ft² and HHW decreased slightly by about 25 Btu/day/ft². 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. Starting 5/15/2017, the CHW and HHW meter data has not been available. This recent change in data is believed to be due to building renovation.

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



Oceanography & Meteorology Building (TAMU Bldg #443)

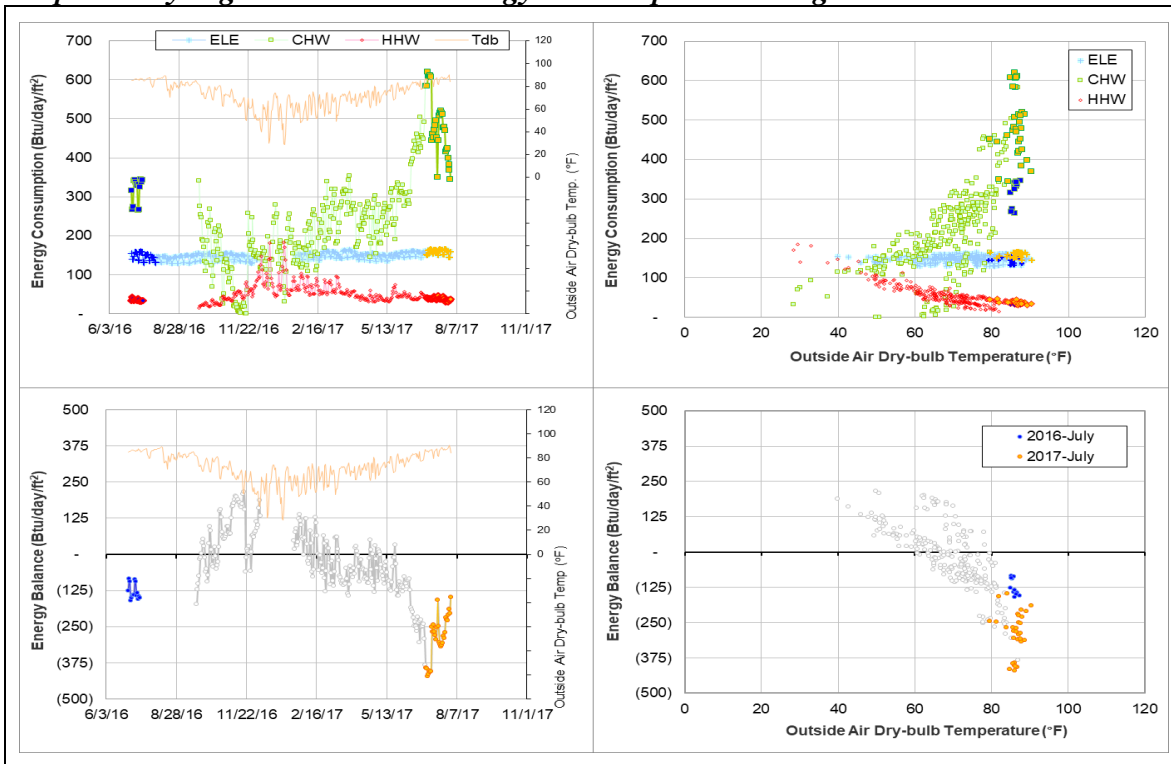
Detected issues in the energy balance and/or the consumption data

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)

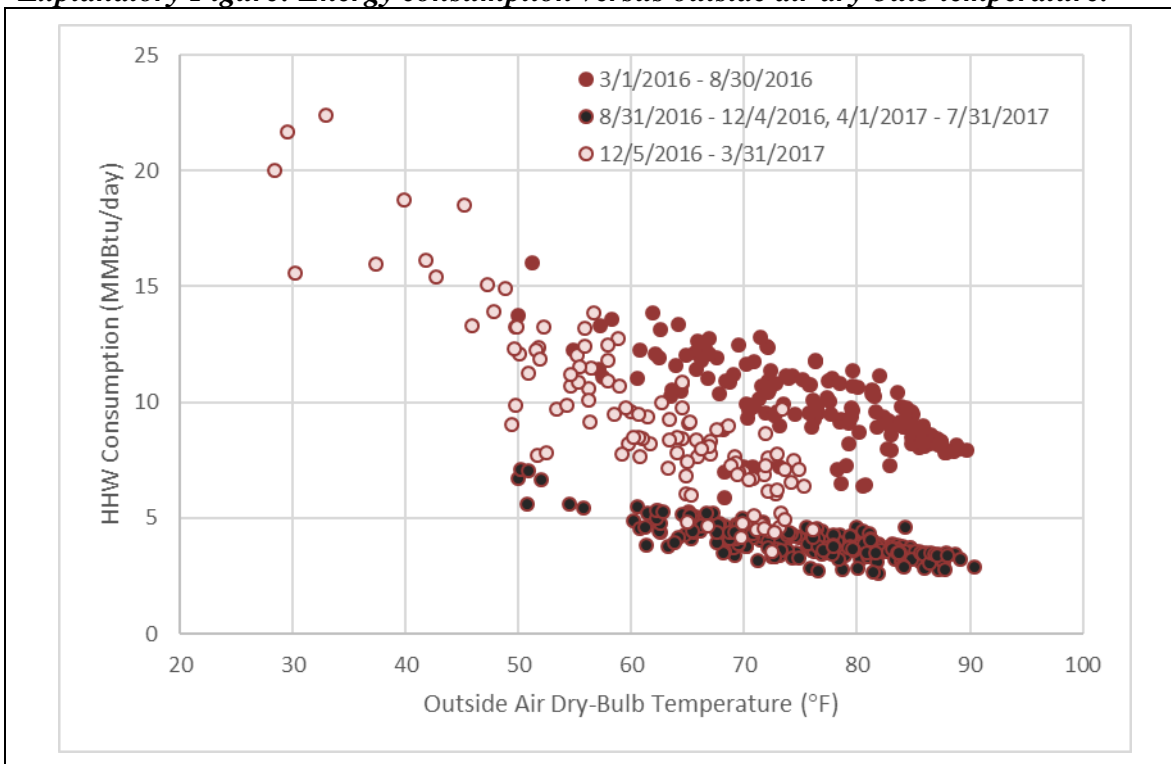
Detected issues in the energy balance and/or the consumption data

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, starting April 2017 the data 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)

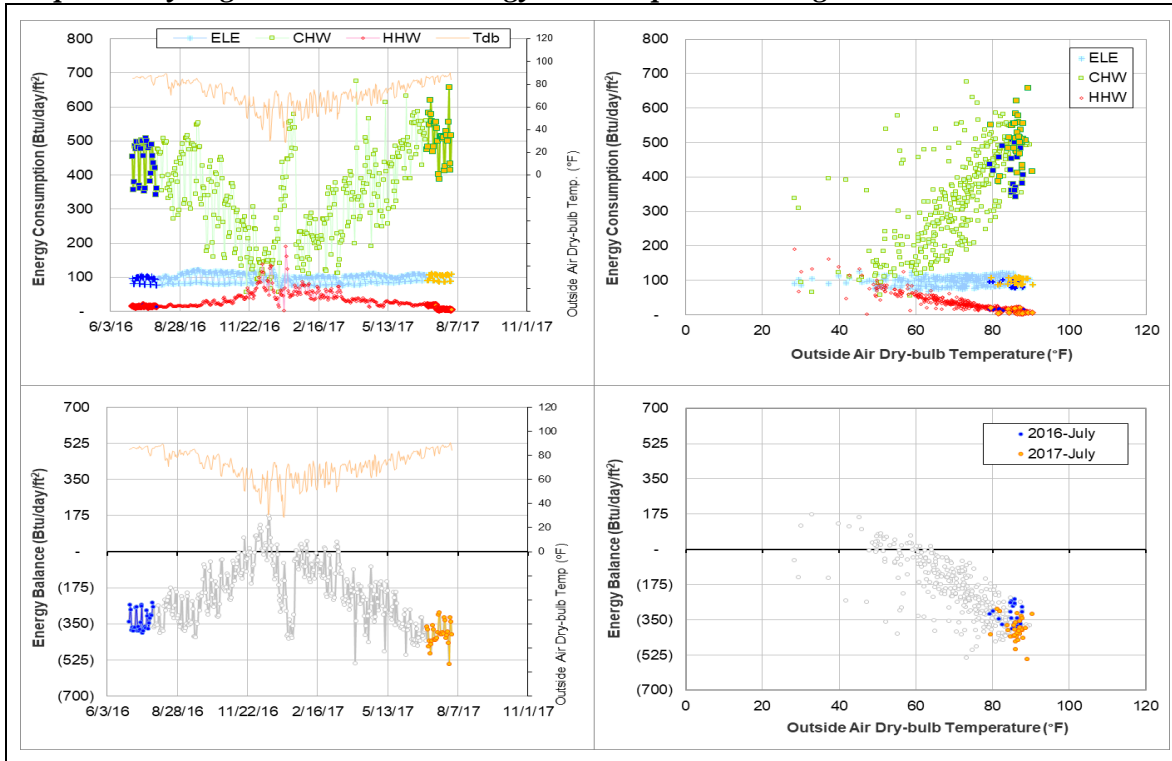
Detected issues in the energy balance and/or the consumption data

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.



State Chemist Building (TAMU Bldg #464)

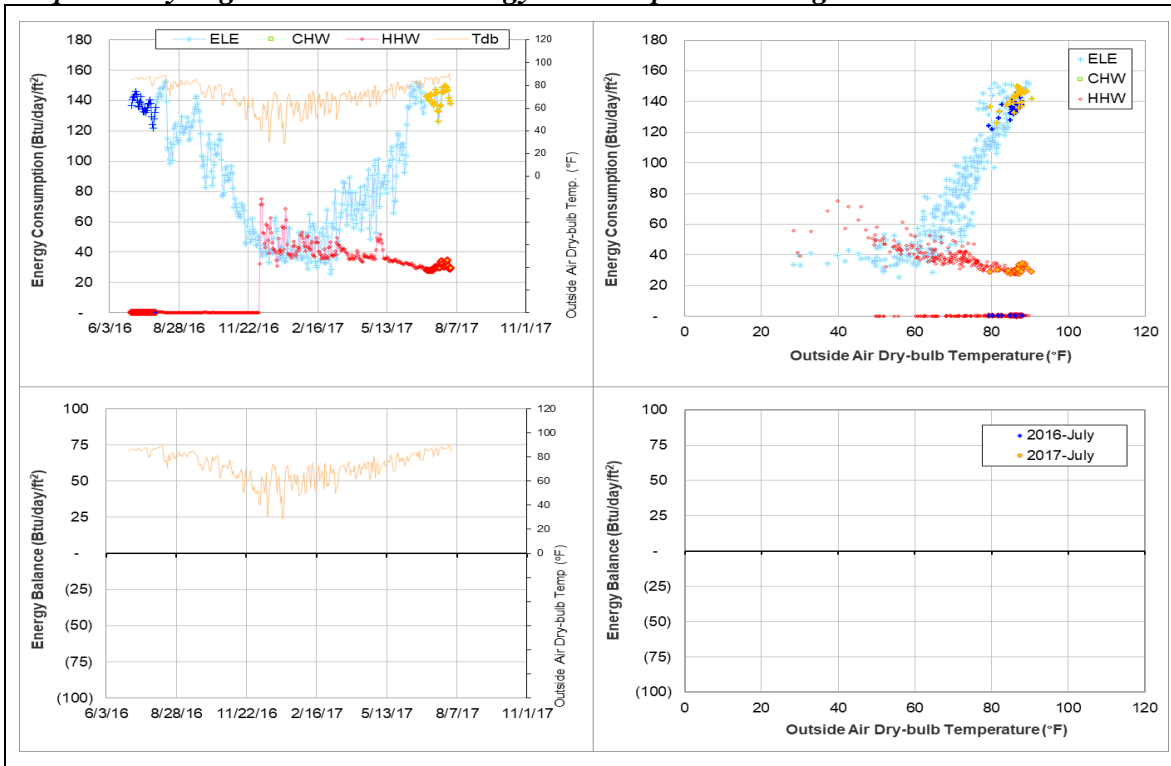
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level is lower than the level during the past year.	11/20/2016 – 6/7/2017
	The consumption level is higher than the level during the past year.	6/7/2017 – Ongoing

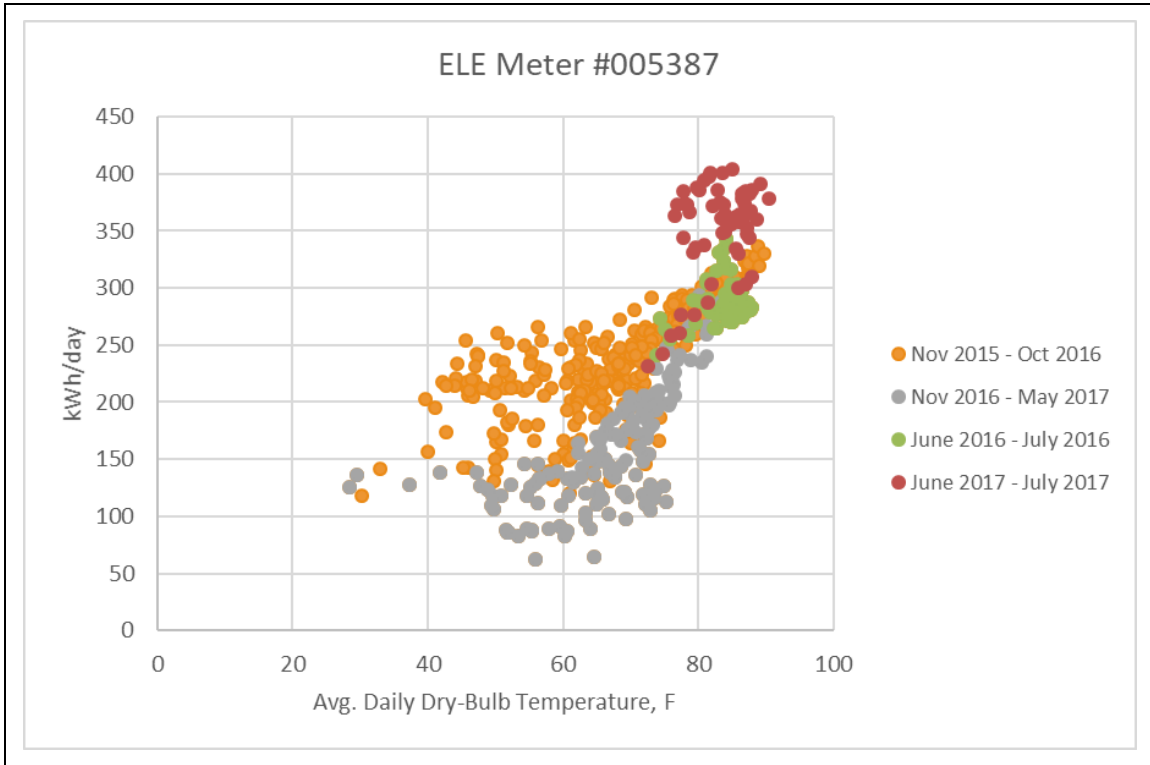
Comments

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. Recently, starting 6/7/2017, the average daily kWh increased by ~100 kWh compared to the consumption pattern before November 2016. Explanatory figures showing the change before and after November 2016 are provided below. Since the combined electric consumption is within the 13-month pattern this month, no estimation was made.

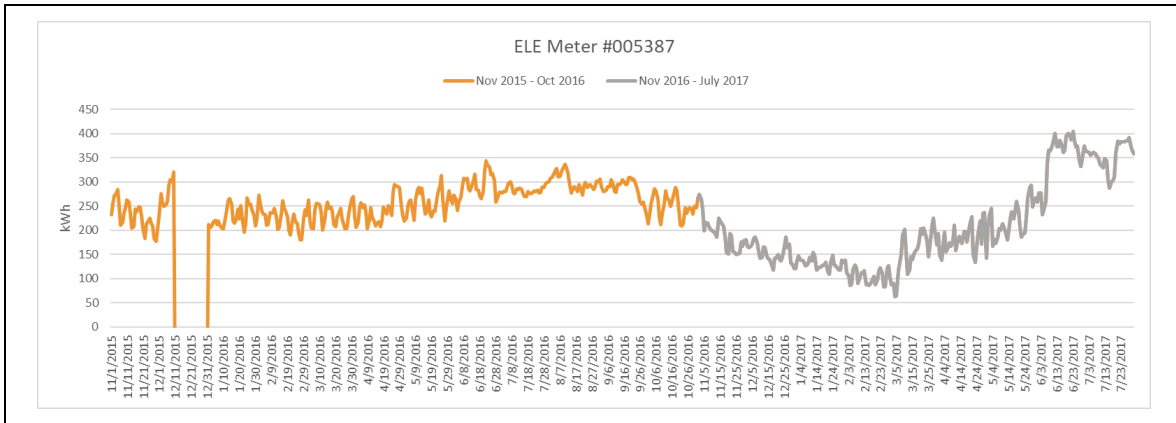
Explanatory Figure: 13 months energy balance plot with original data.



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 July 2017.



Biological Sciences Building - East (TAMU Bldg #467)

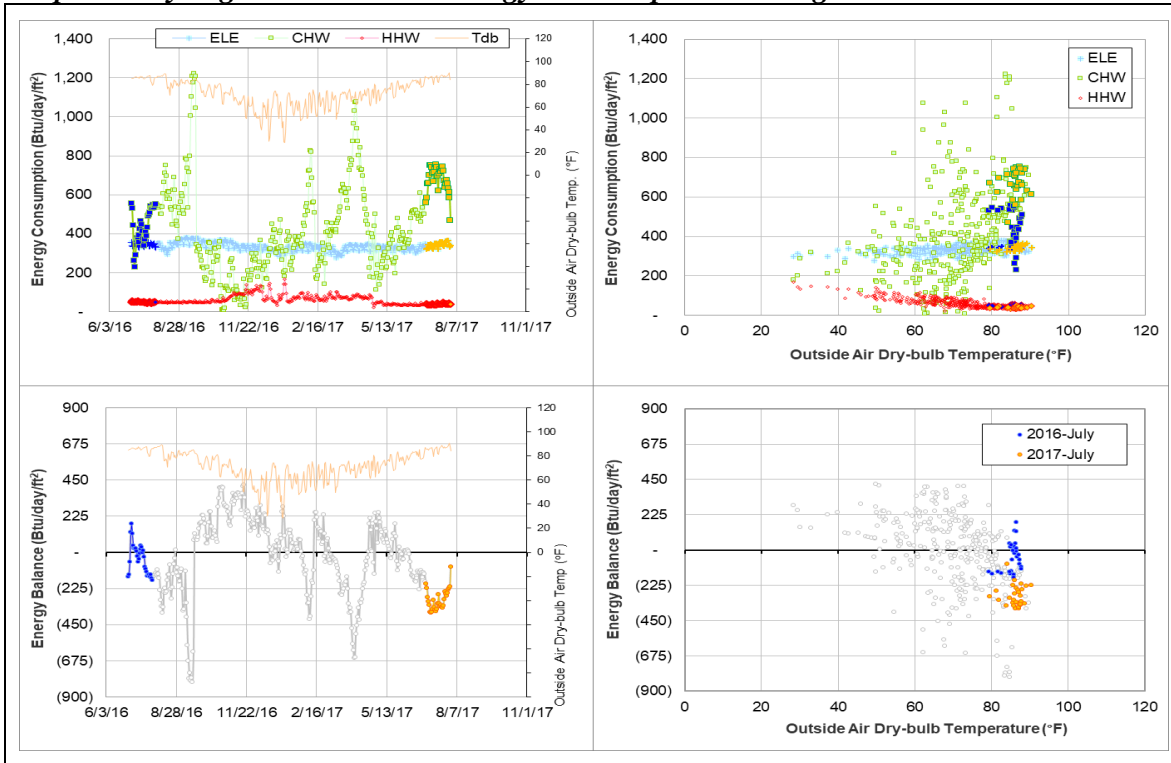
Detected issues in the energy balance and/or the consumption data

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

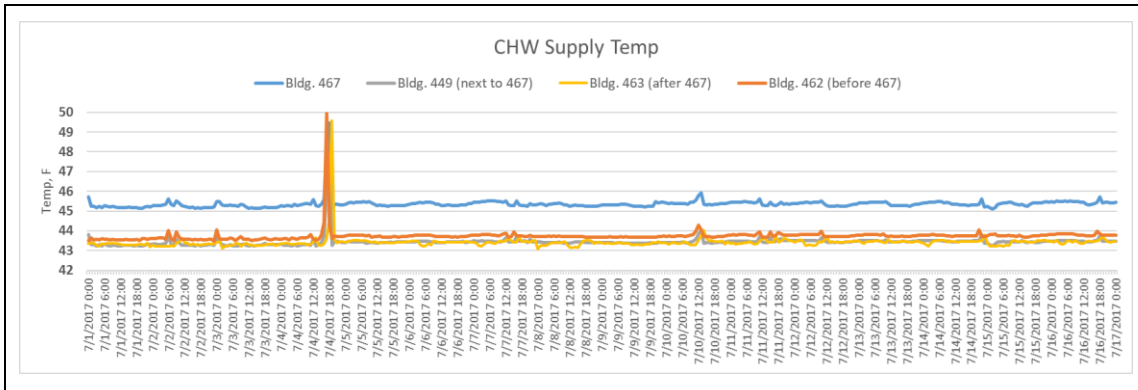
Comments

The CHW supply temperature readings for this building started to decrease on 8/6/2016 while all adjacent buildings have stable supply temperatures at around 42°F. The supply temperature had a period of obviously erroneous values of 20°F during 9/10/2016 – 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. Since the CHW consumption is within the 13-month pattern this month, no estimation was made.

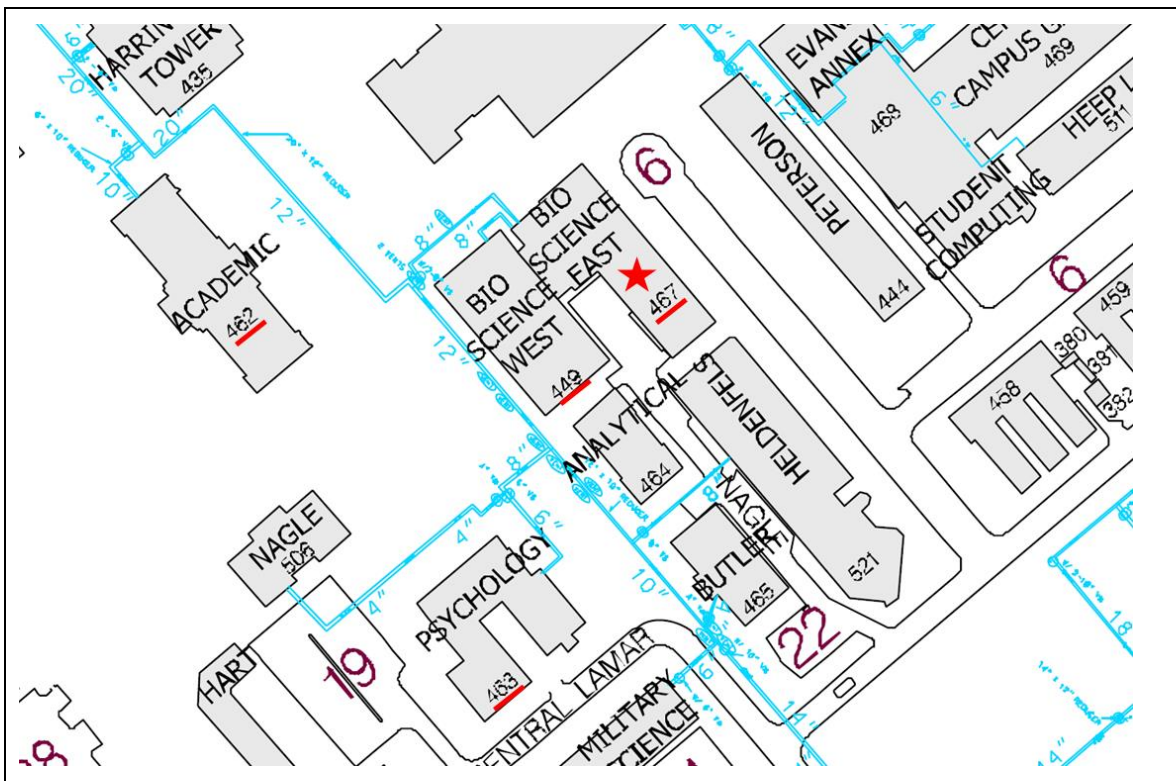
Explanatory Figure: 13 months energy balance plot with original data.



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. (July 2017)



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



Scoates Hall (TAMU Bldg #478)

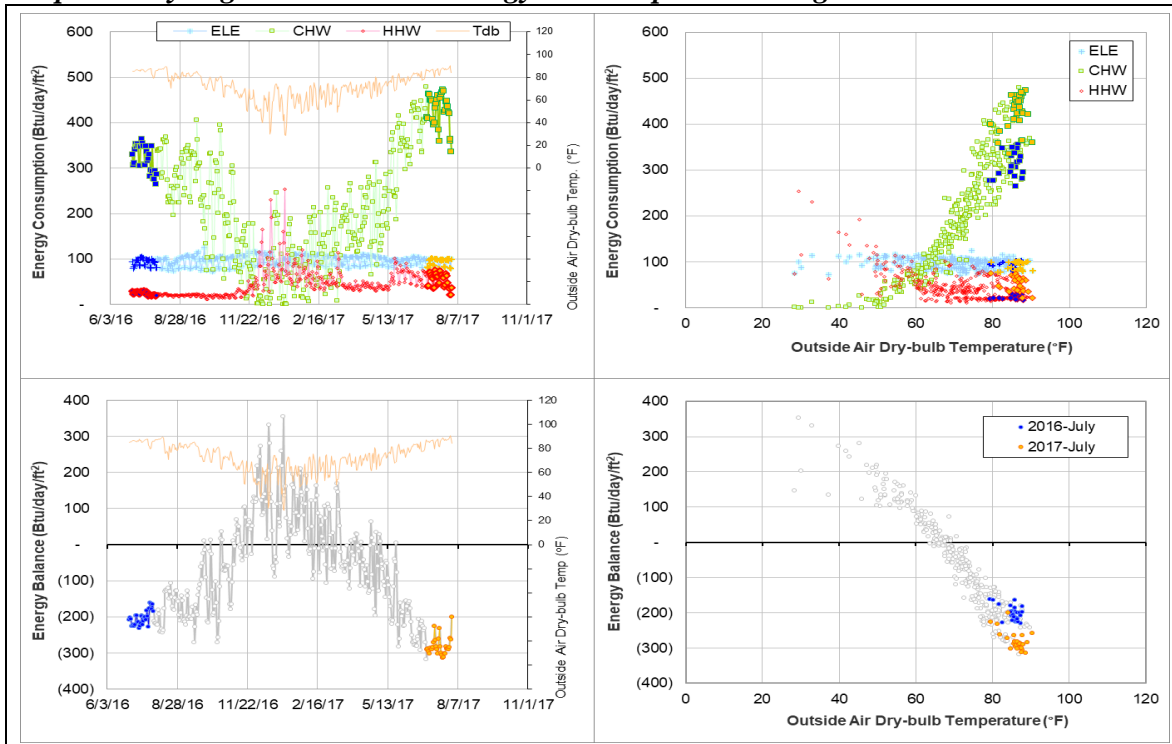
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is higher than the level during the past year.	5/1/2017 – Ongoing
HHW	The consumption level is higher than the level during the past year.	5/1/2017 – Ongoing

Comments

Starting in May 2017, the CHW and HHW consumption pattern has started to increase in higher outside temperatures. A more distinct HHW weekday/weekend setback has also appeared. The energy balance has also decreased by about 100 Btu/day/ft².

Explanatory Figure: 13 months energy balance plot with original data



Fermier Hall (TAMU Bldg #482)

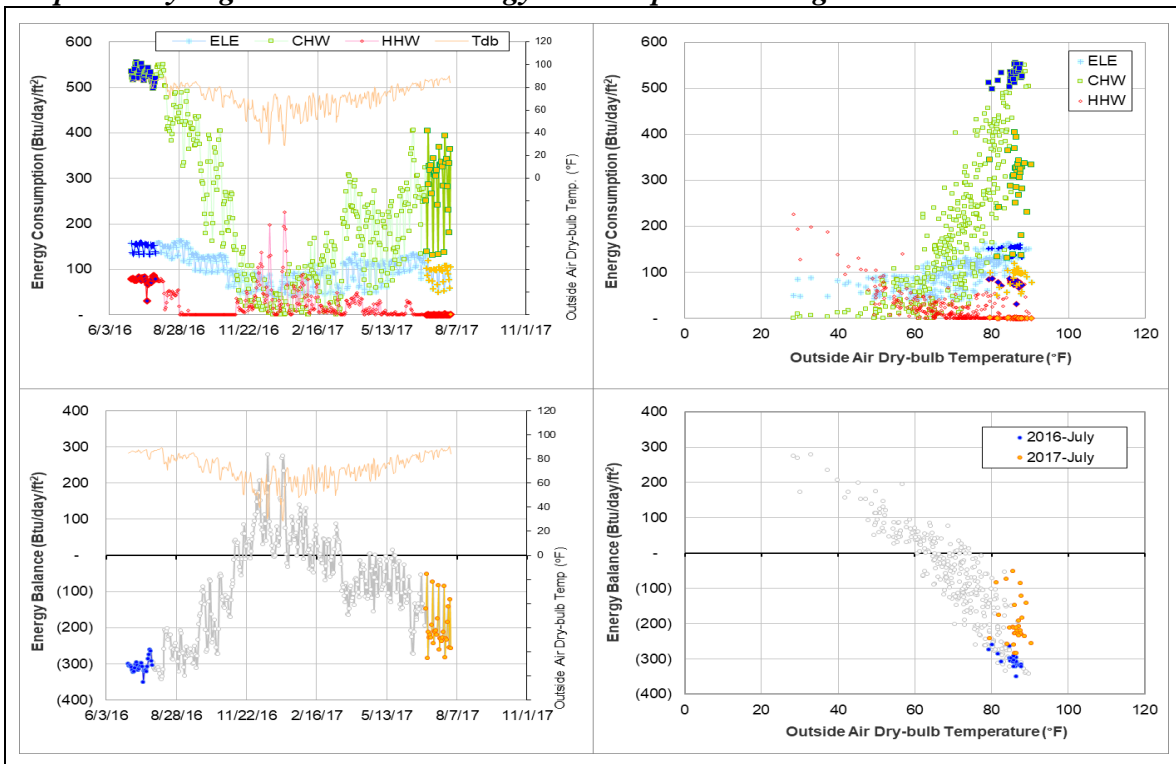
Detected issues in the energy balance and/or the consumption data

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)

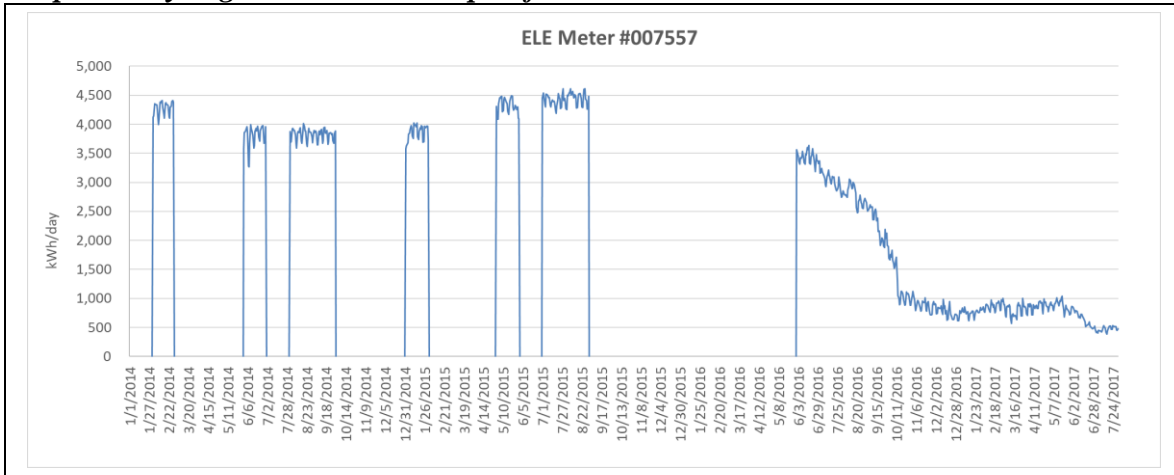
Detected issues in the energy balance and/or the consumption data

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

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.

Explanatory Figure: Times series plot for meter #007557



Civil Engineering Building (TAMU Bldg #492)

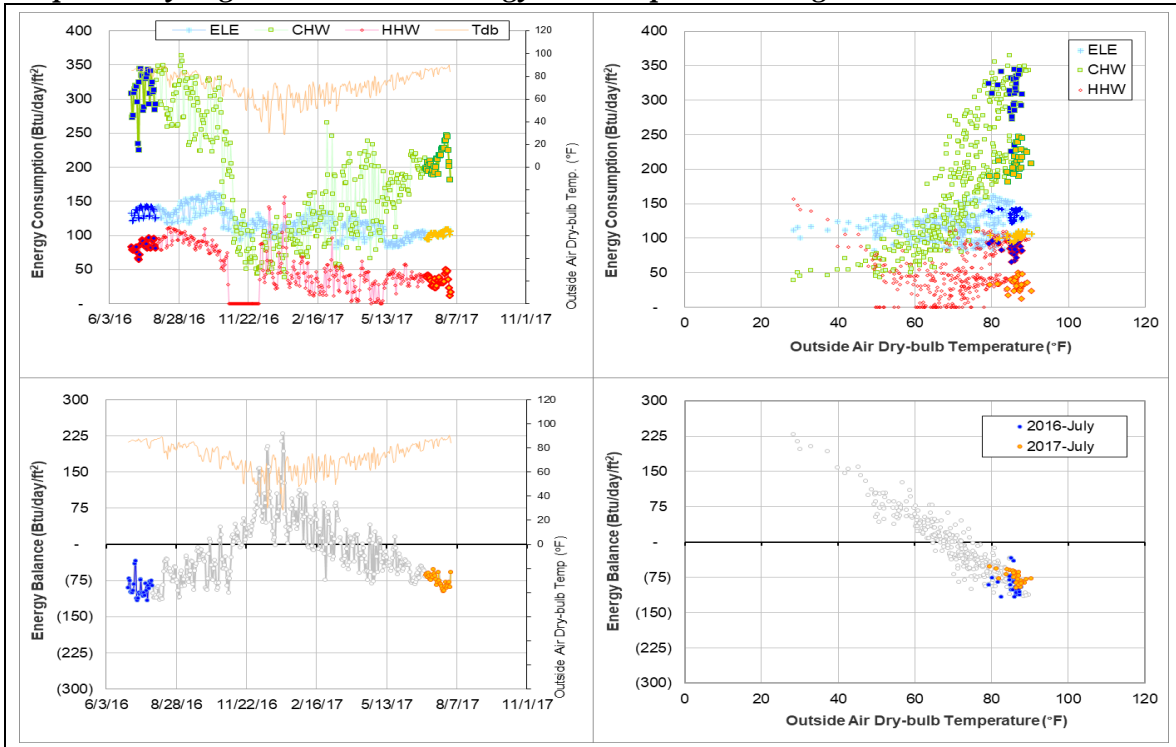
Detected issues in the energy balance and/or the consumption data

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

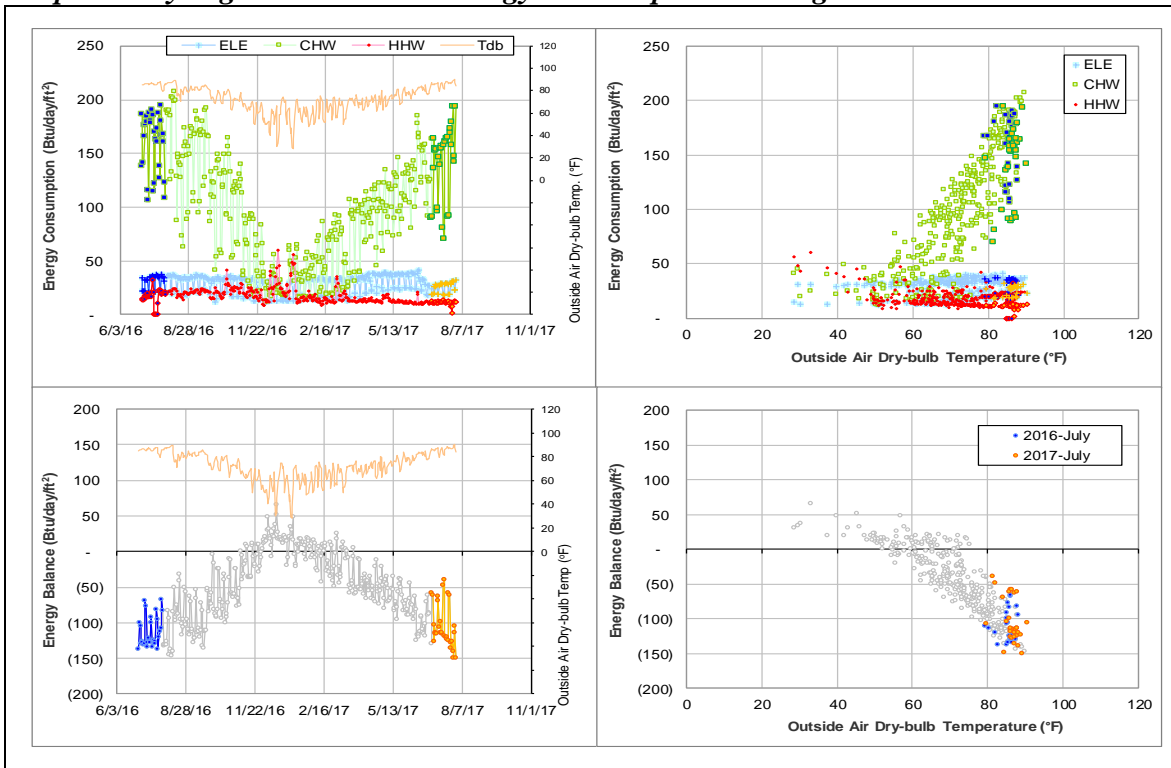
Data Type	Description of data behaviors	Period
ELE, CHW, and HHW	The energy use per unit floor area is low compared to other buildings.	Since the data became available on 7/1/2012

Comments

The peak electric use intensity is around 0.65 W/ft², 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 ft²) includes substantial unoccupied or unconditioned 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. See also Section II-2.

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



Engineering Innovation Center (TAMU Bldg #499)

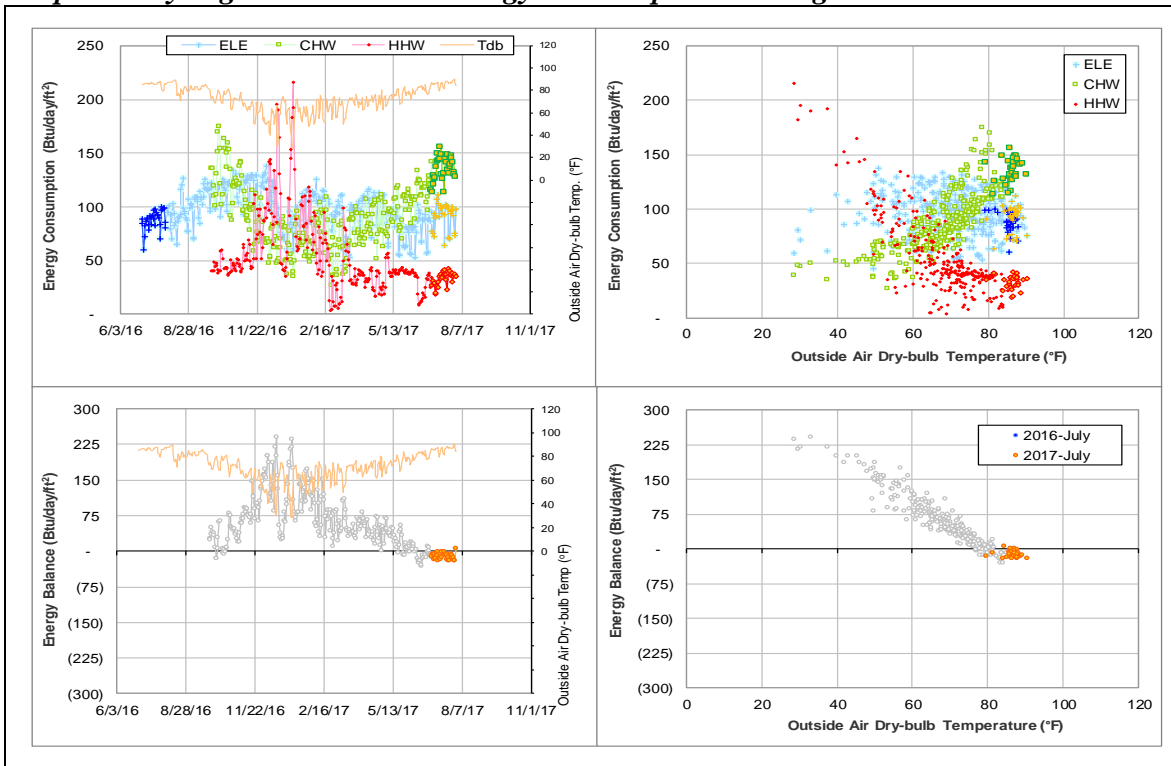
Detected issues in the energy balance and/or the consumption data

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. See also Section II-2.

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



Nagle Hall (TAMU Bldg #506)

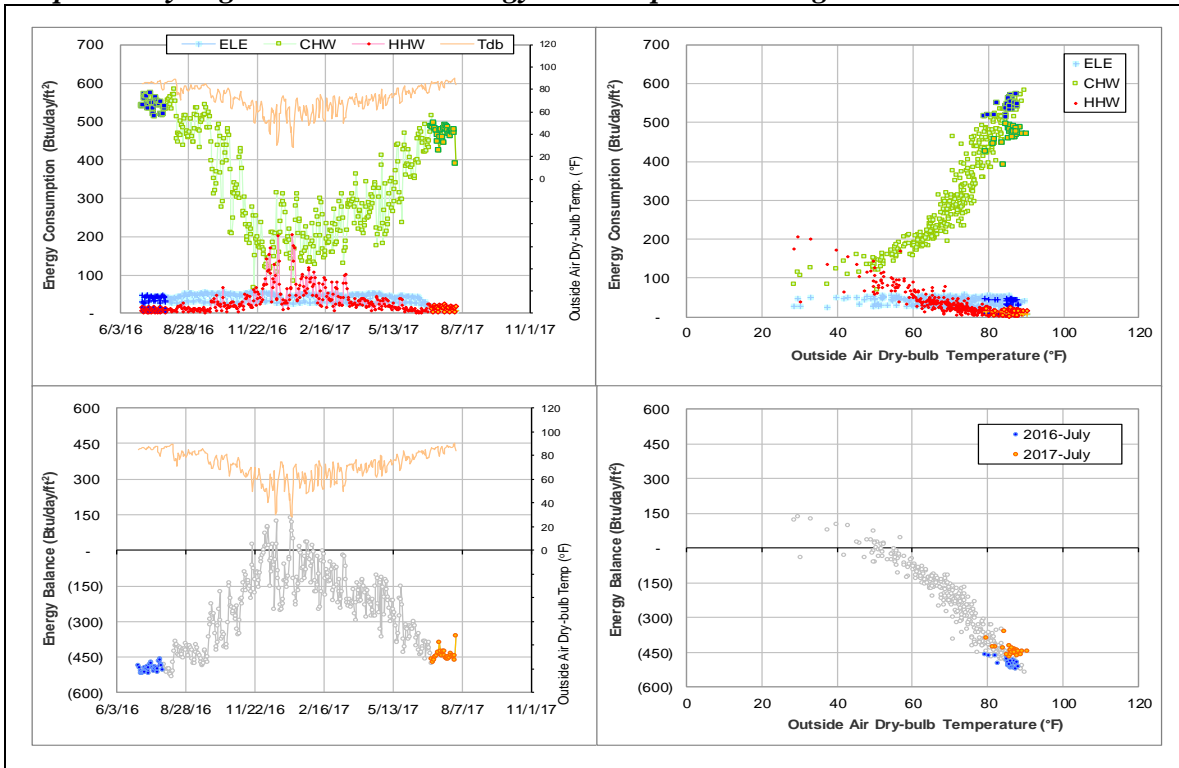
Detected issues in the energy balance and/or the consumption data

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/ft², lower than the typical level of 100 Btu/day/ft² 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

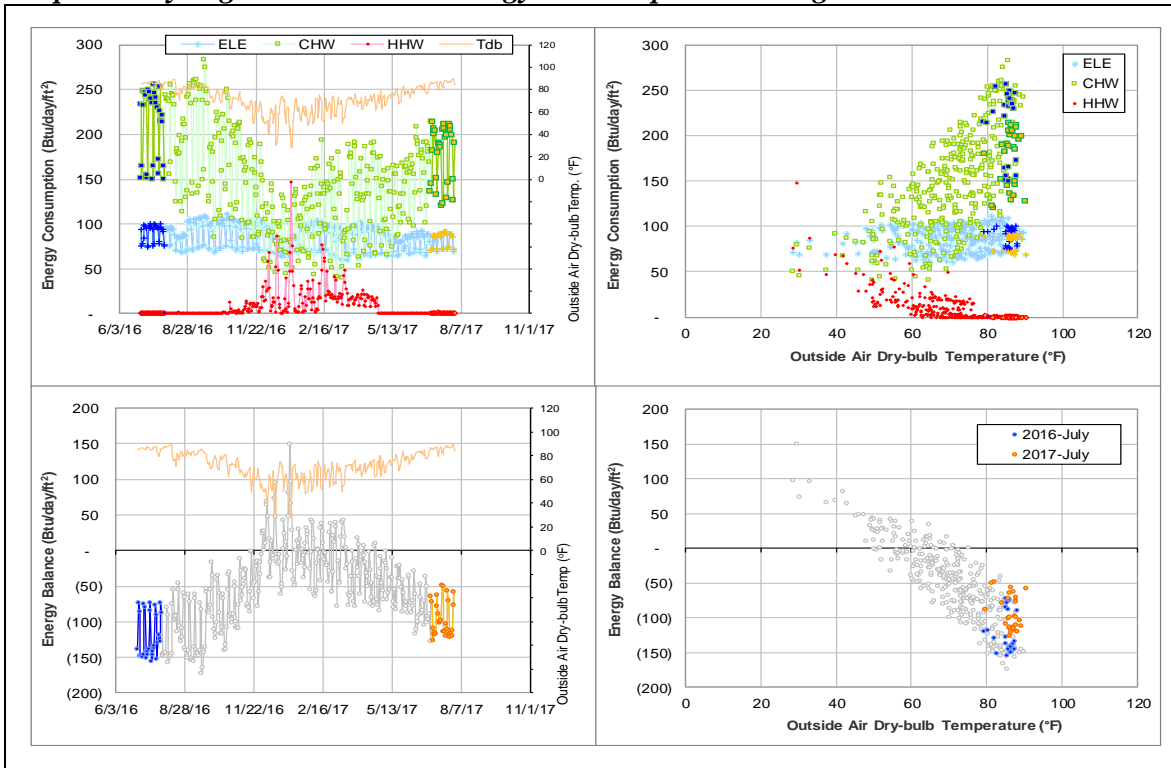
Data Type	Description of data behaviors	Period
CHW	The consumption decreased and is about 50 Btu/day-ft ² (25%) lower than the level of the past year.	Since May 2017
HHW	The consumption level is low.	Past several years

Comments

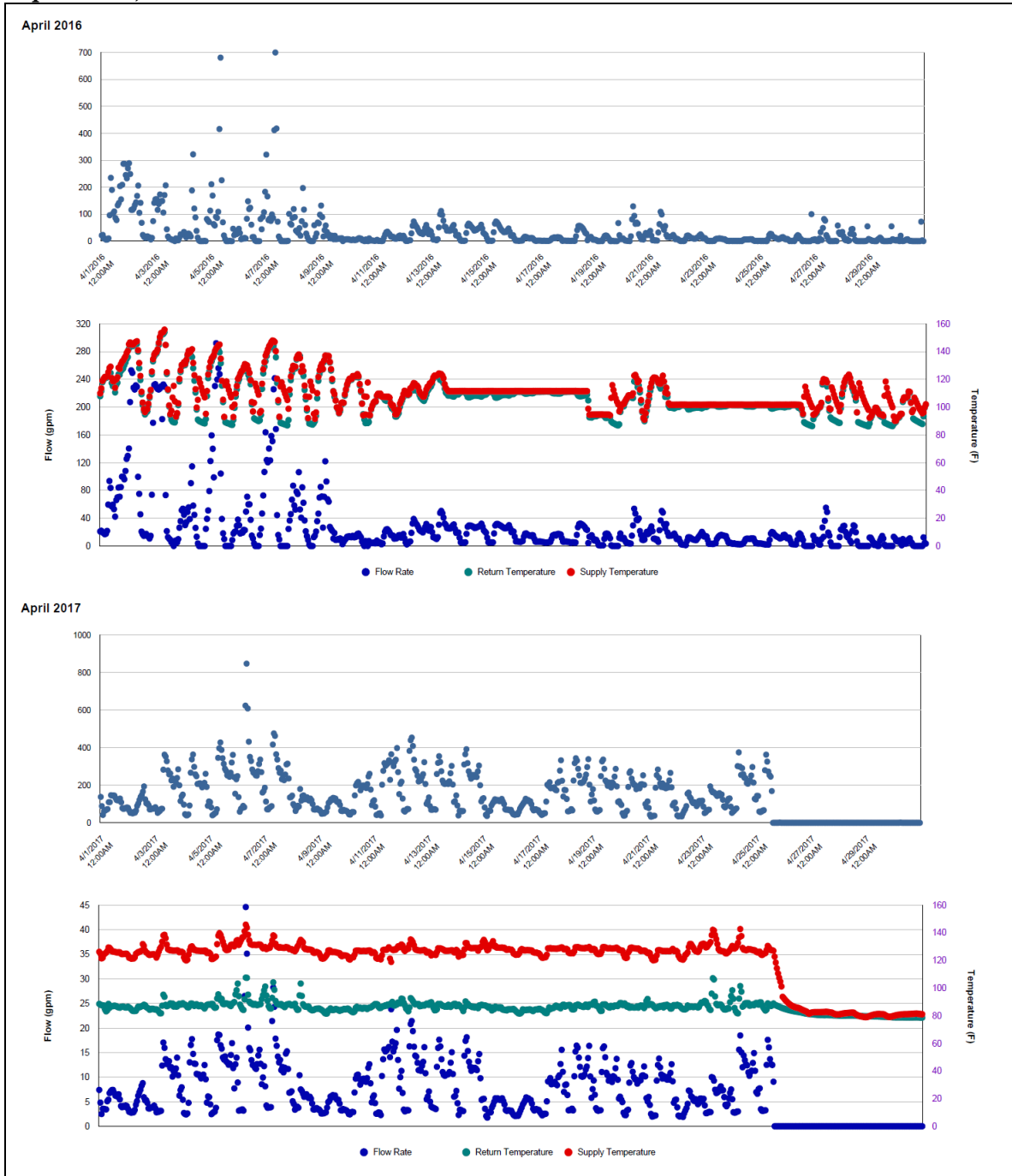
The cross-point of temperature of energy balance had been lower than 60°F for years. But the recent decrease of CHW pulled energy balance up and now it crosses between 60 and 70°F.

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. HHW seemed closed off since the end of April. This increase also contributed to the higher and more reasonable cross-point of energy balance. It continues to seem closed off during 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)



McNew Laboratory (TAMU Bldg #740)

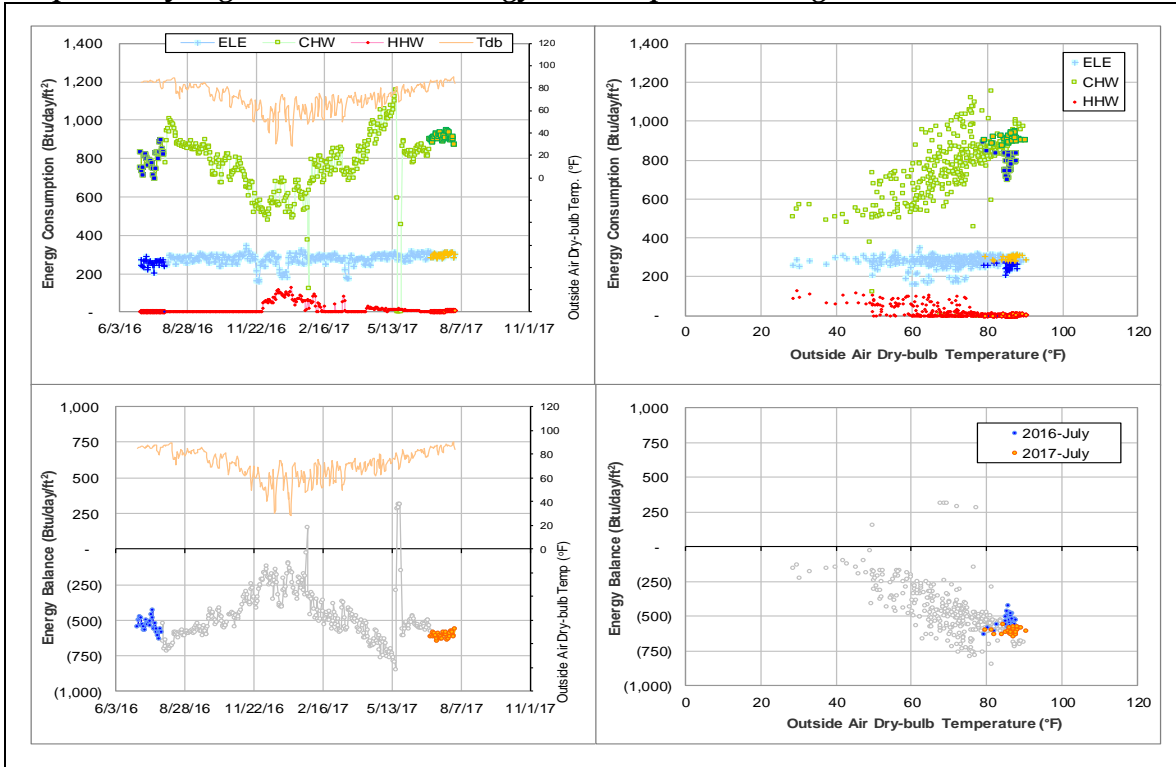
Detected issues in the energy balance and/or the consumption data

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

Explanatory Figure: 13 months energy balance plot with original data



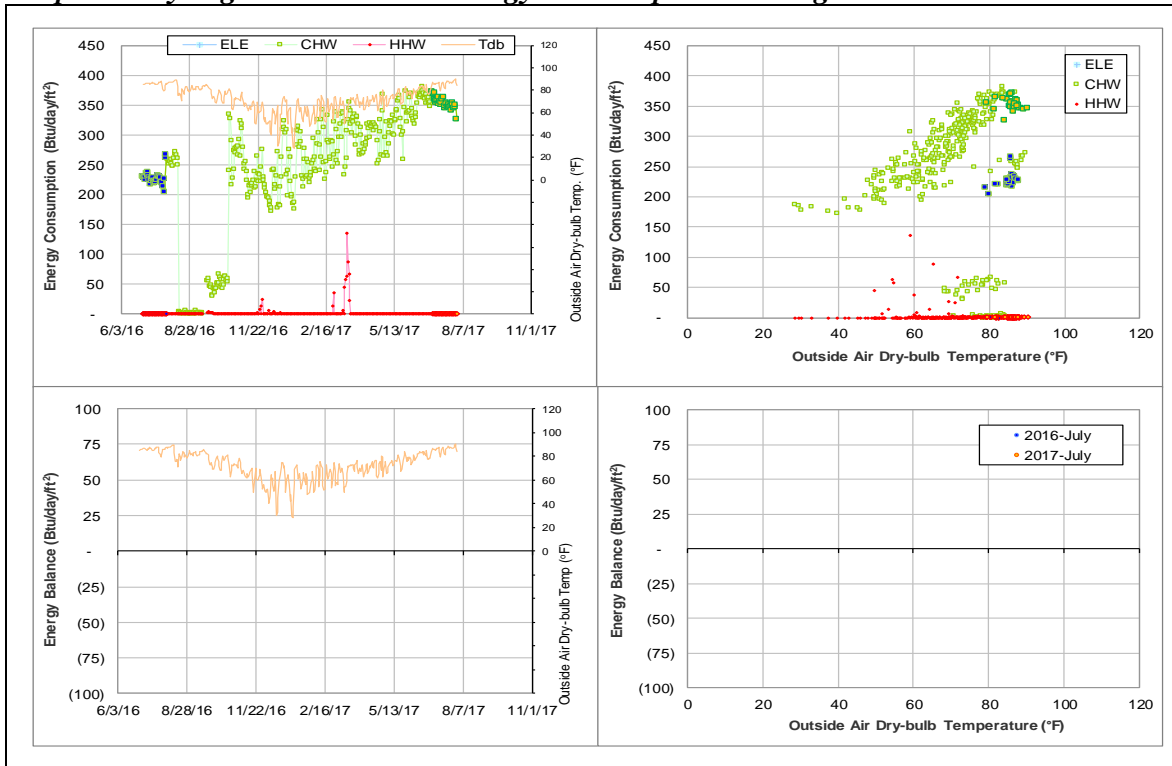
TVMC-Small Animal Building (TAMU Bldg #880)

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	Since May 2017
CHW HHW	Still missing as ELE data recovered	Since July 2016

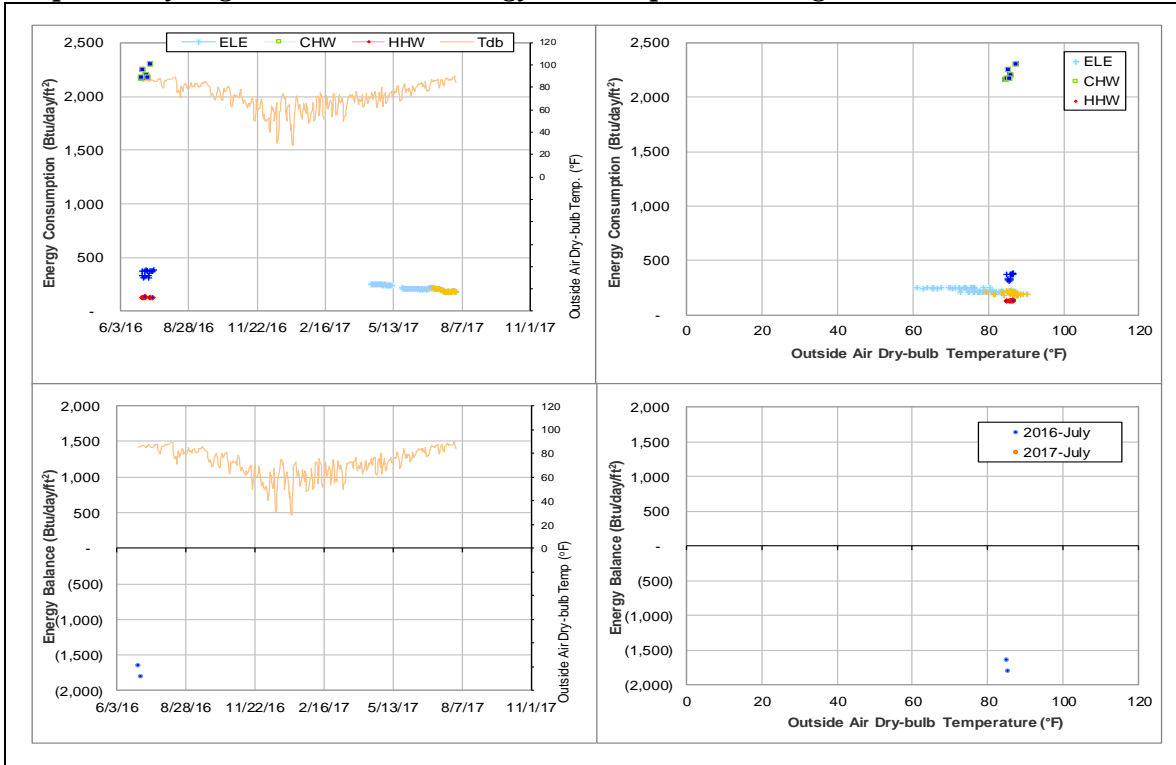
Comments

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.

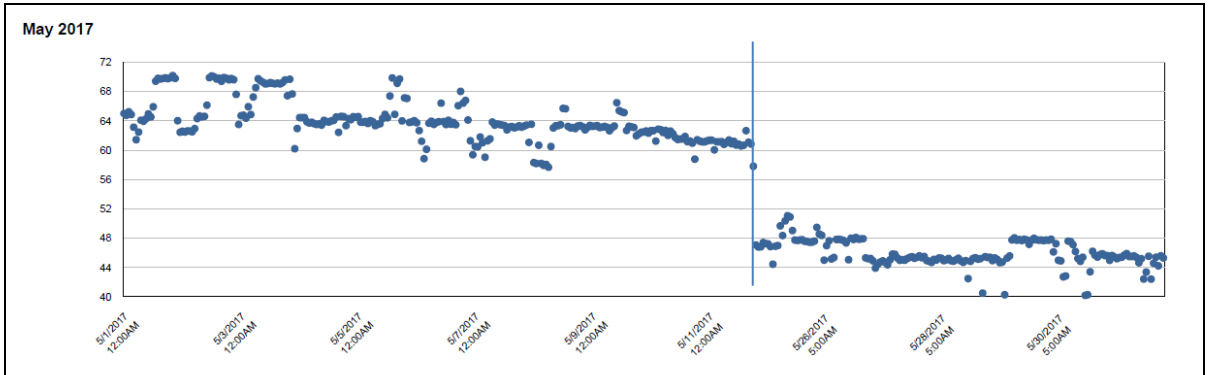
ELE MID 001466 decreased from a level ranging from 110 to 180 kWh/h to a stable 100 kWh/h level. ELE MID 001539 decreased from a level ranging from 100 to 130 kWh/h to 64 – 72 kWh/h level, and decreased further after a short missing period of 5/12/2017 – 5/24/2017 to 45 kWh/h. This building's total ELE consumption decreased by 33% in daily average value.

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)



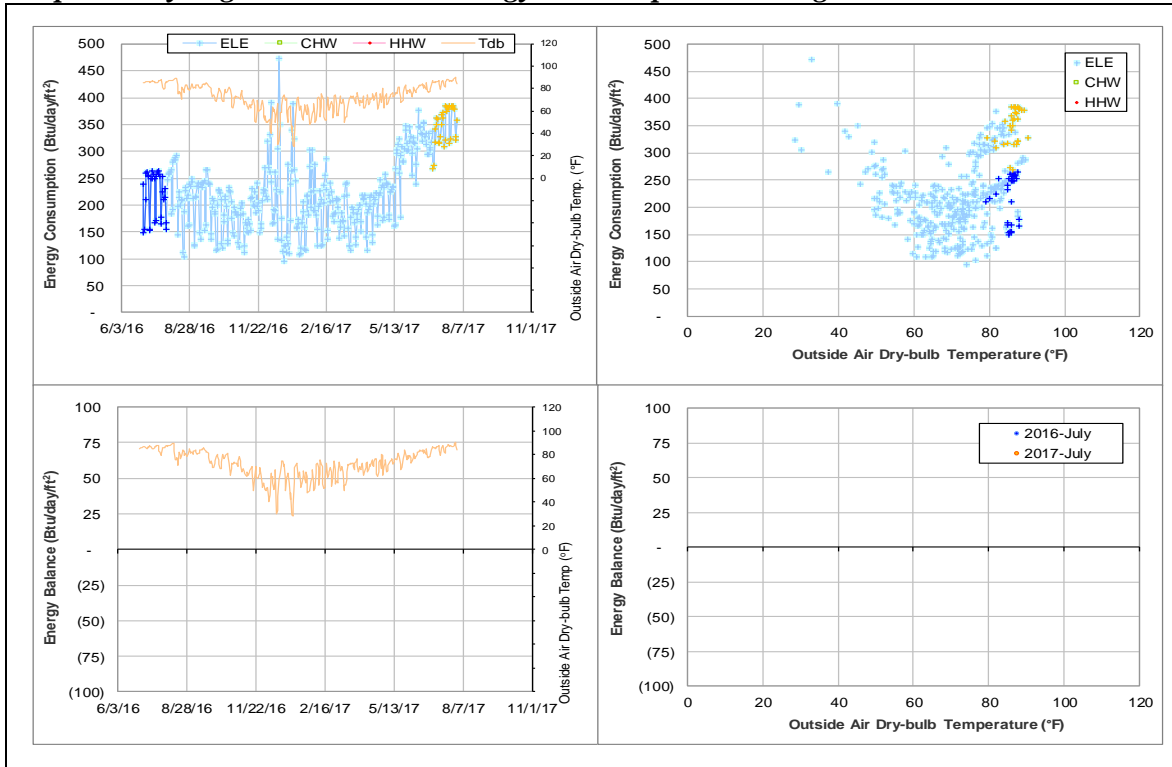
Utilities Energy Office Annex (TAMU Bldg #1089)

Data Type	Description of data behaviors	Period
ELE	The consumption increased significantly.	Since 5/15/2017

Comments

The daily ELE consumption significantly increased since 5/15/2017 by more than 100 Btu/day-ft². There is no obvious faulty meter readings.

Explanatory Figure: 13 months energy balance plot with original data



Physical Plant Administration & Shops (TAMU Bldg #1156)

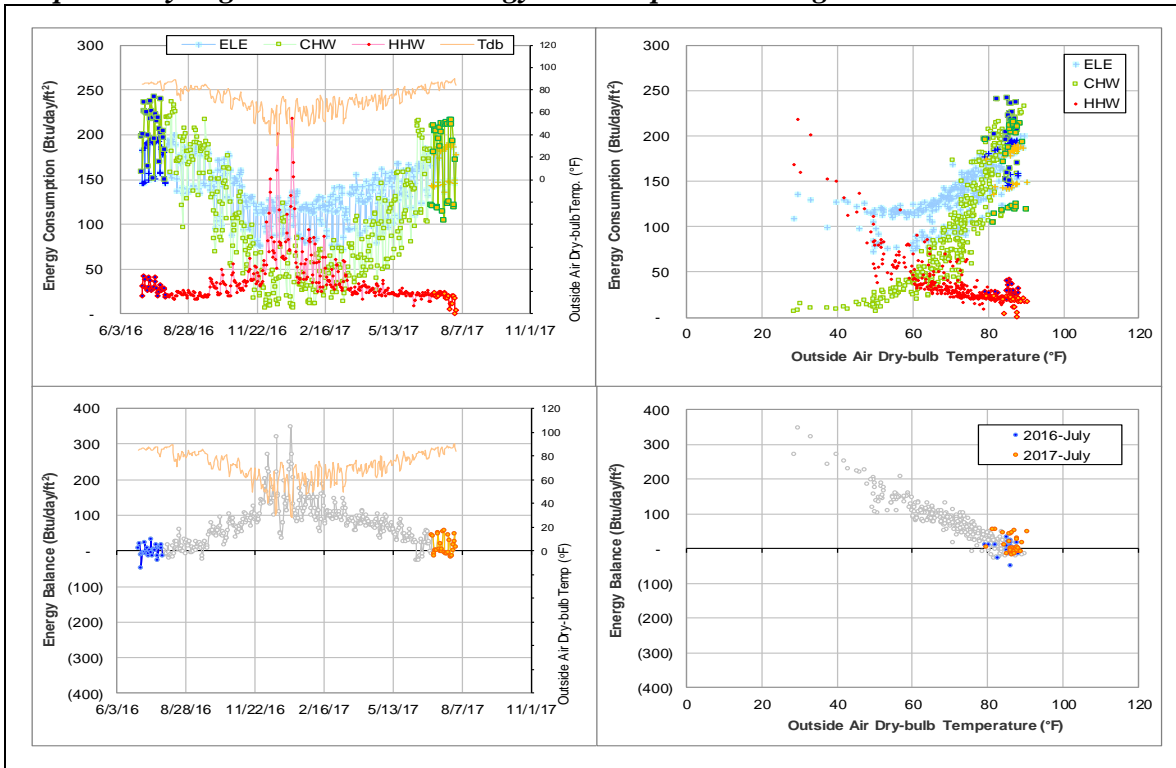
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is as high as 85°F.	Since 7/1/2014 when ELE became available
CHW	The consumption level seems low compared to the ELE and HHW use level.	Since the data became available on 7/1/2012.
	The weekend level decreased to farther from weekday level.	Since 2017.

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 ft²) includes substantial unoccupied or unconditioned areas. Since 2017, the weekday and weekend separation of CHW consumption patterns have a larger split.

Explanatory Figure: 13 months energy balance plot with original data



Utilities & Energy Services Business Office (TAMU Bldg #1497)

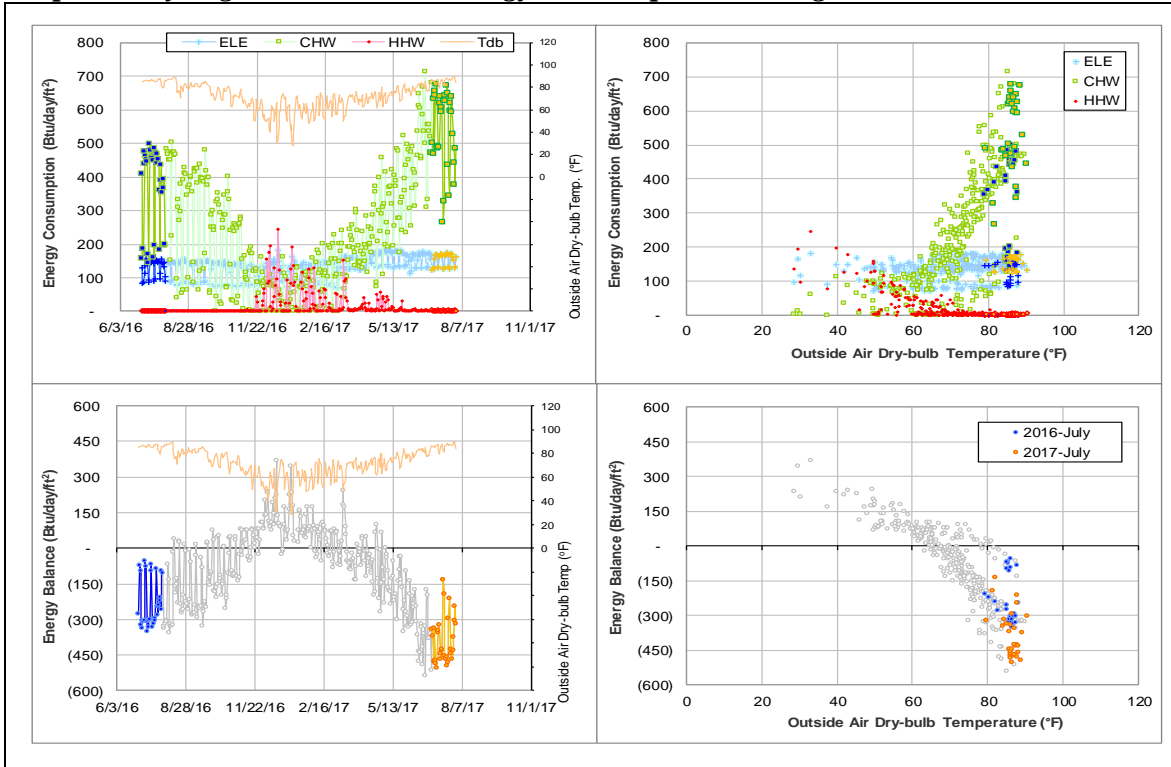
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Weekend consumption level decreased	Since July 2017.

Comments

The weekend CHW consumption level decreased. The CHW weekday/weekend pattern has been changing occasionally since 2015. There is no obvious faulty meter observed.

Explanatory Figure: 13 months energy balance plot with original data



Medical Sciences Library (TAMU Bldg #1509)

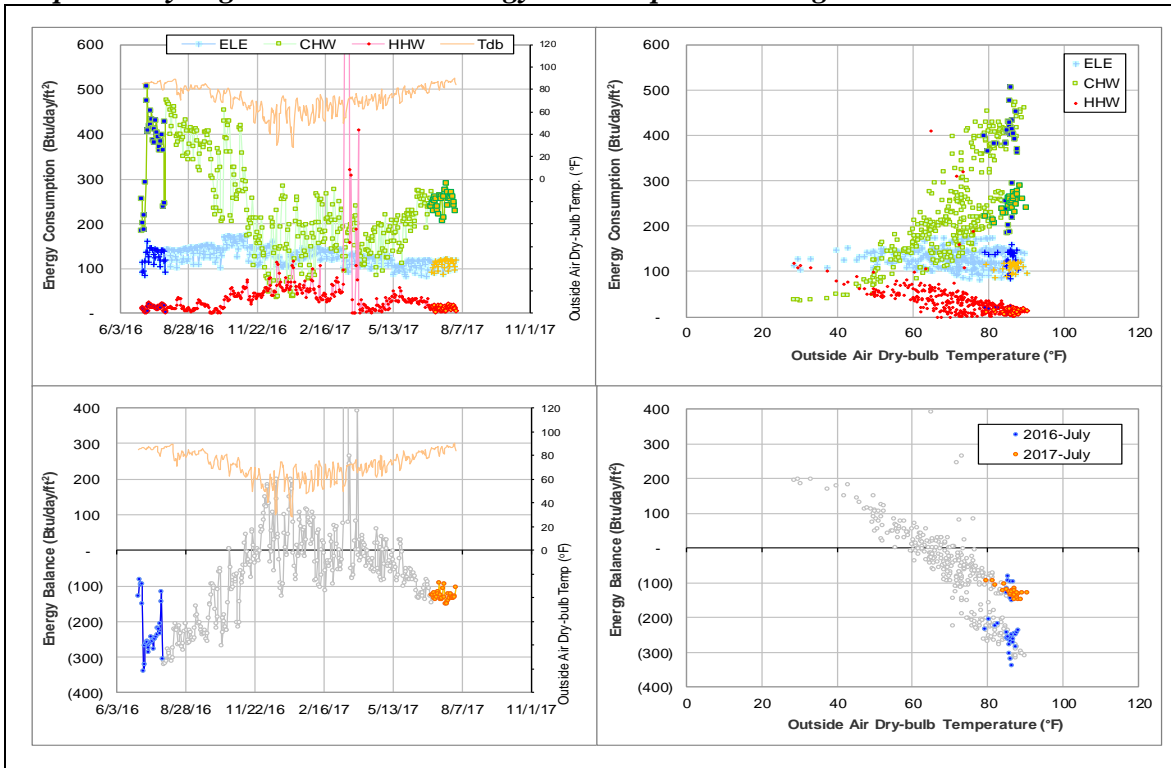
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Decreased and a new pattern is suspected	Since 3/24/2017.

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. This building is on the ESCO list, which is a probable cause of the change. More data are needed to verify new pattern.

Explanatory Figure: 13 months energy balance plot with original data



Agriculture Public Building (TAMU Bldg #1537)

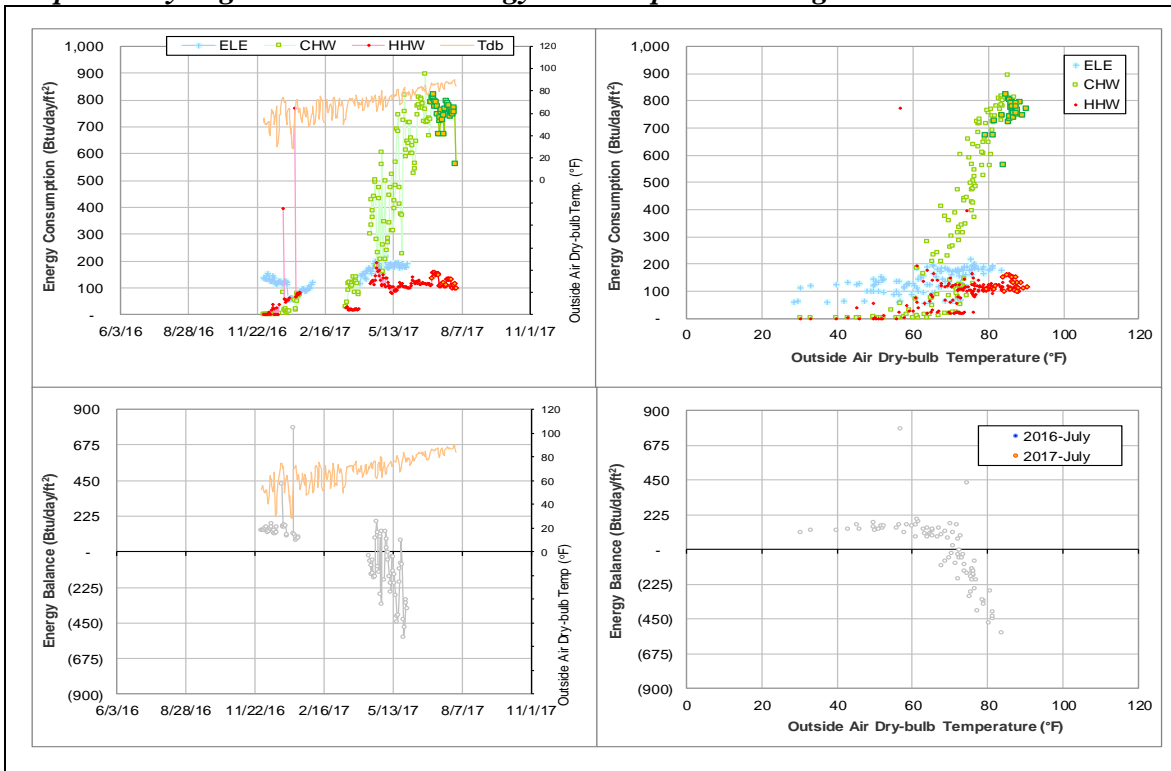
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE, CHW, HHW	MID changed.	Since July 2017.

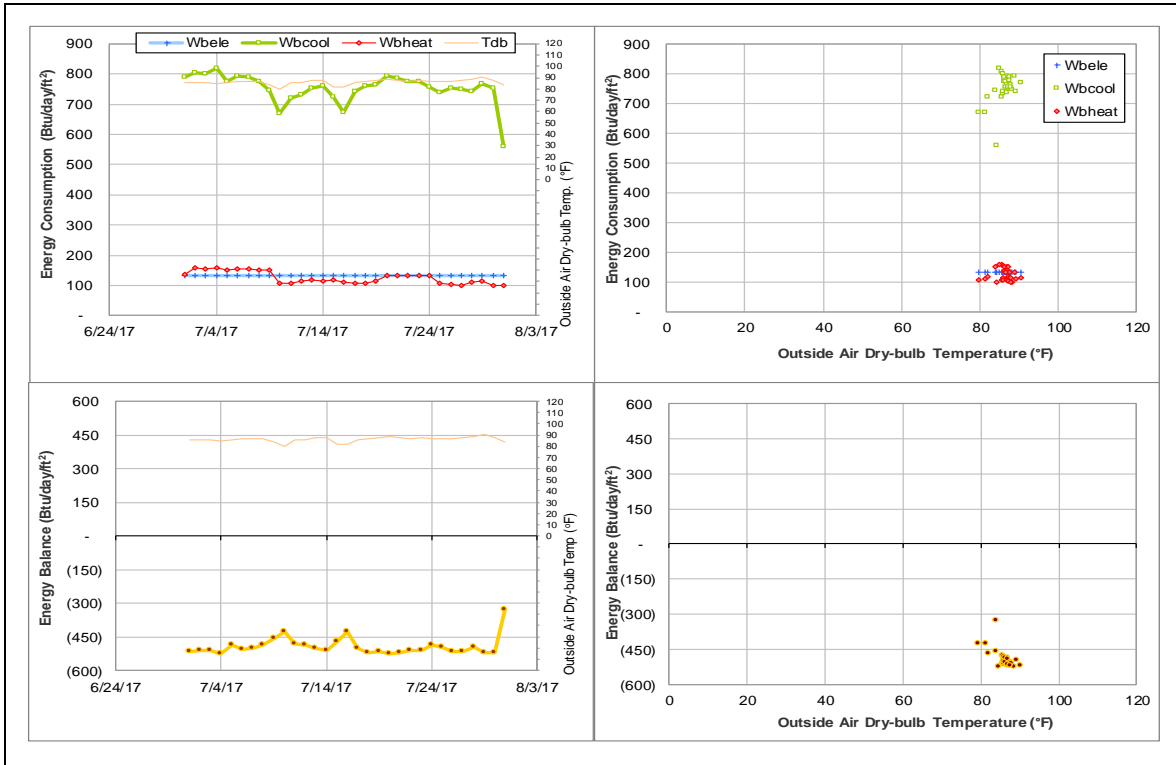
Comments

The MID's of this building changed from ELE 009620 & 009621, CHW 009622, and HHW 009623 to ELE 009982, CHW 009983, and HHW 009984. The ELE consumption of this whole month is missing. The consumption is estimated using combined consumption of the models of the previous two MID's.

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.



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

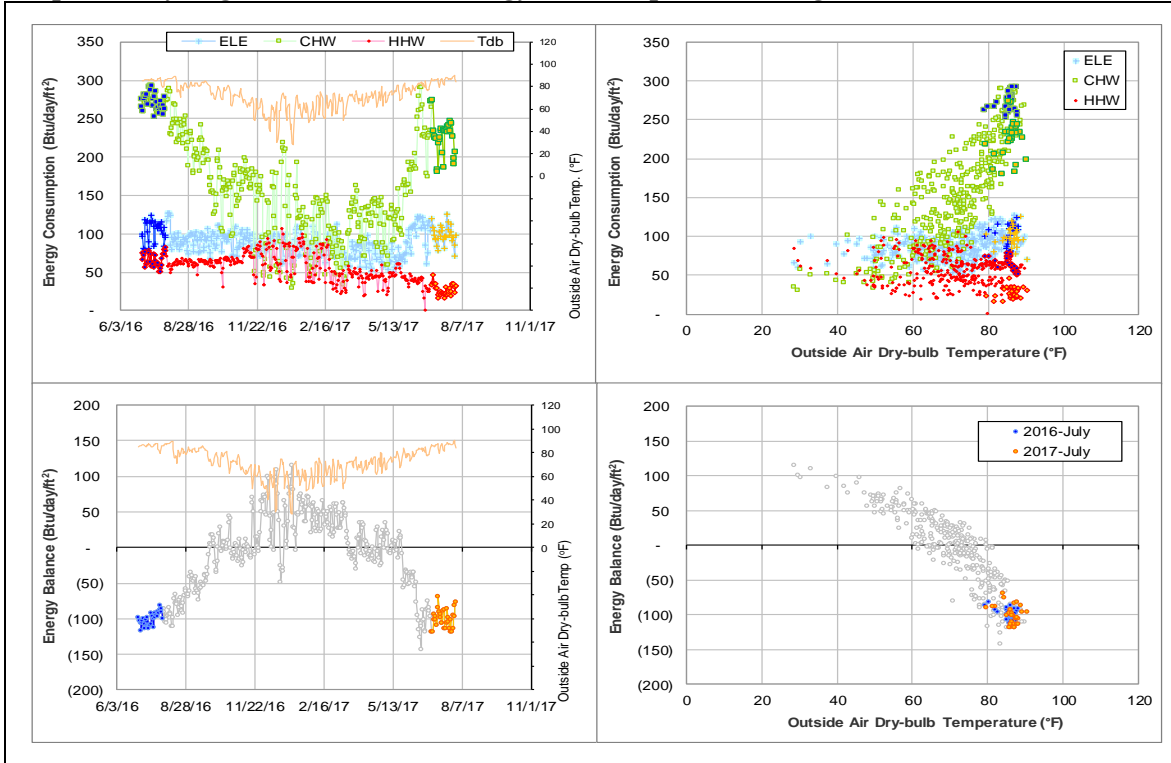
Detected issues in the energy balance and/or the consumption data

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)

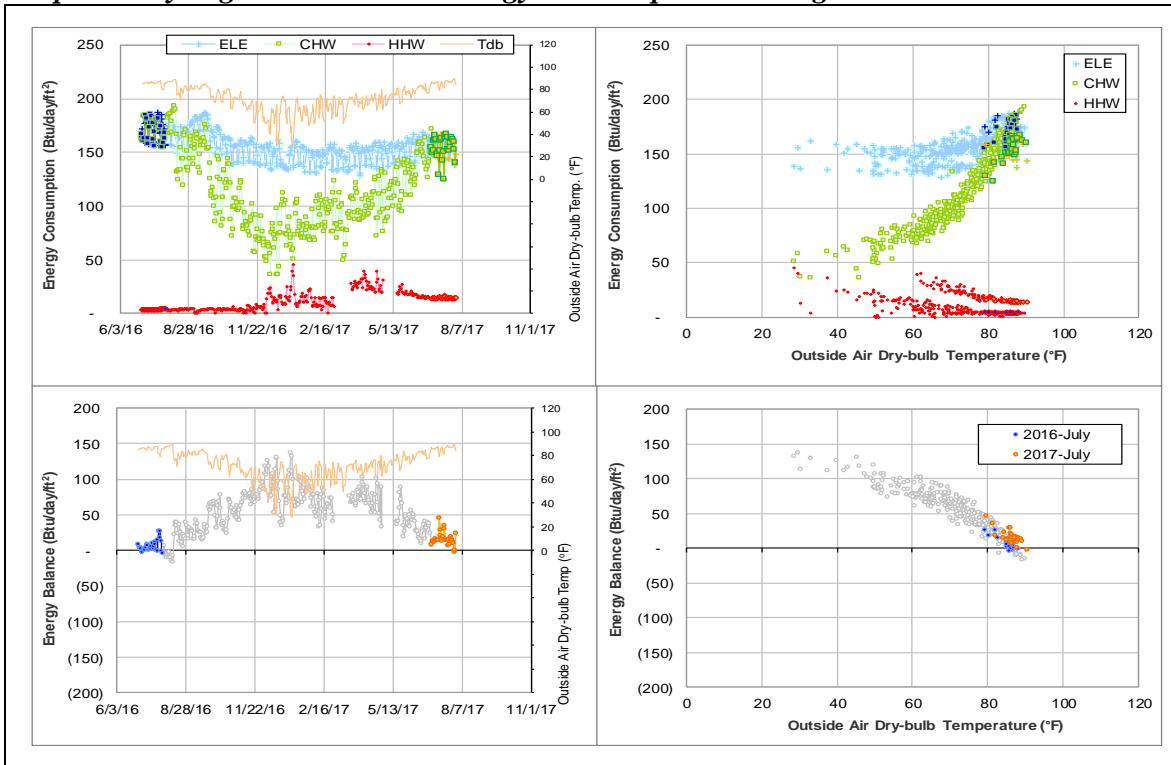
Detected issues in the energy balance and/or the consumption data

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/ft². The CHW consumption level is low compared to ELE and HHW levels. This building might have its own chillers. A new HHW MID 009829 is discovered and has two or three times the consumption of the older HHW MID 008145, resulting a considerable increase in measured HHW consumption.

Explanatory Figure: 13 months energy balance plot with original data



Offshore Technology Research Center (TAMU Bldg #1604)

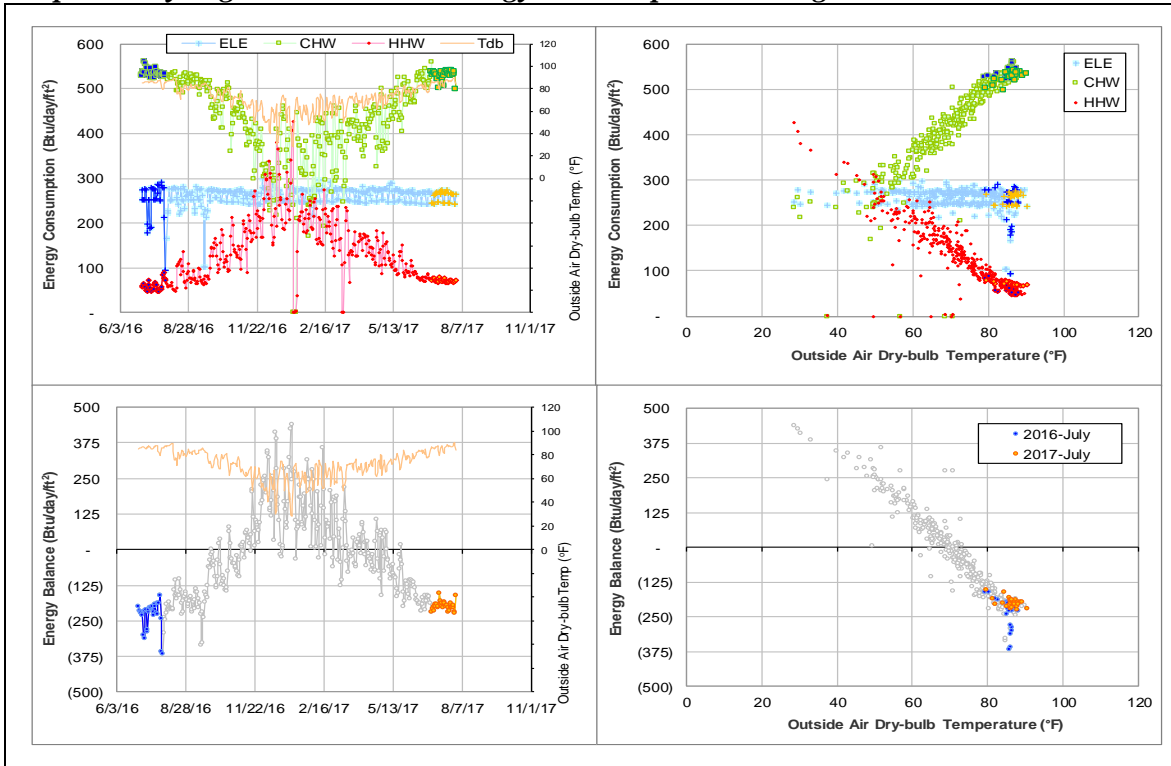
Detected issues in the energy balance and/or the consumption data

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

Comments

The electric consumption for MID 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



Observation of Several Residence Halls (HHW)

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	7/21/2017 – 7/22/2017

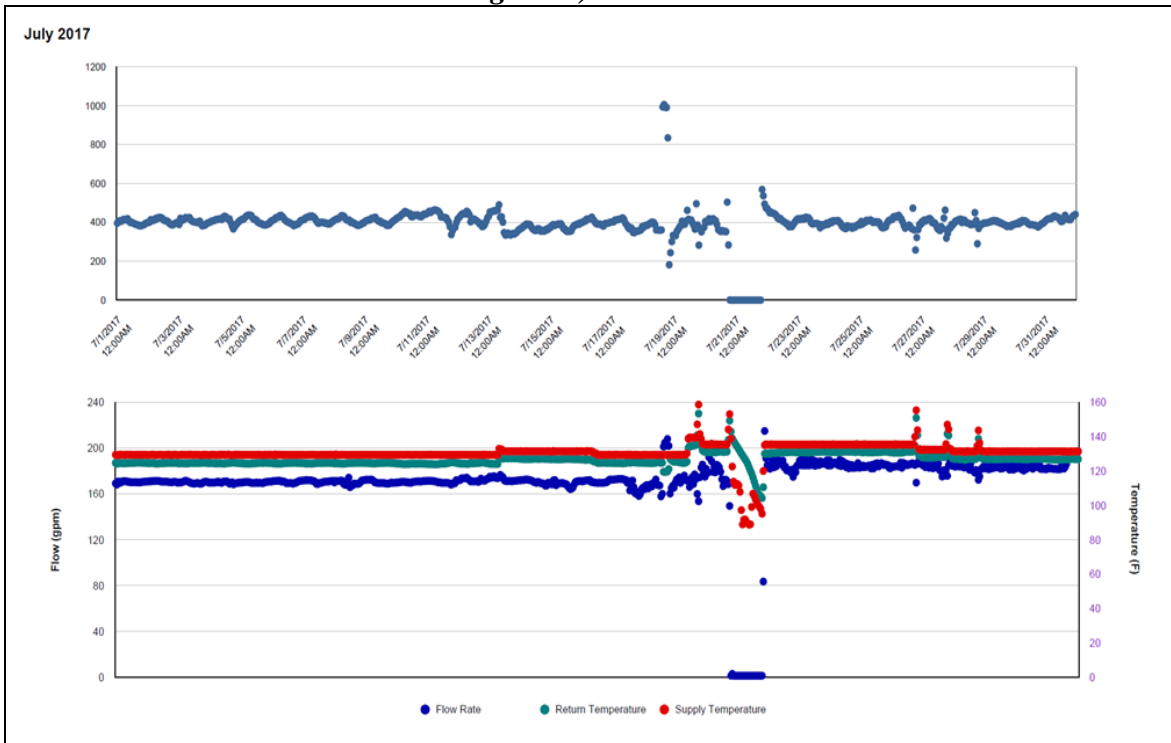
Comments

For several residence halls in the area near the University Drive & Wellborn Rd intersection, the HHW consumption dropped to zero due to a zero flow rate on the evening of 7/20/2017 until the evening of 7/21/2017, as shown for Lechner Residence Hall TAMU Bldg #294 below as an example.

Building List:

Lechner Residence Hall TAMU Bldg #294
 Moses Residence Hall TAMU Bldg #412
 Davis-Gary Residence Hall TAMU Bldg #415
 Walton Residence Hall TAMU Bldg #422
 Clements Residence Hall TAMU Bldg #548

Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW consumption for Lechner Residence Hall TAMU Bldg #294)



Observation of Several Main Campus Buildings (CHW)

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

Data Type	Description of data behaviors	Period
CHW	The consumption level decreased for a short period.	7/8/2017, 7/15/2017

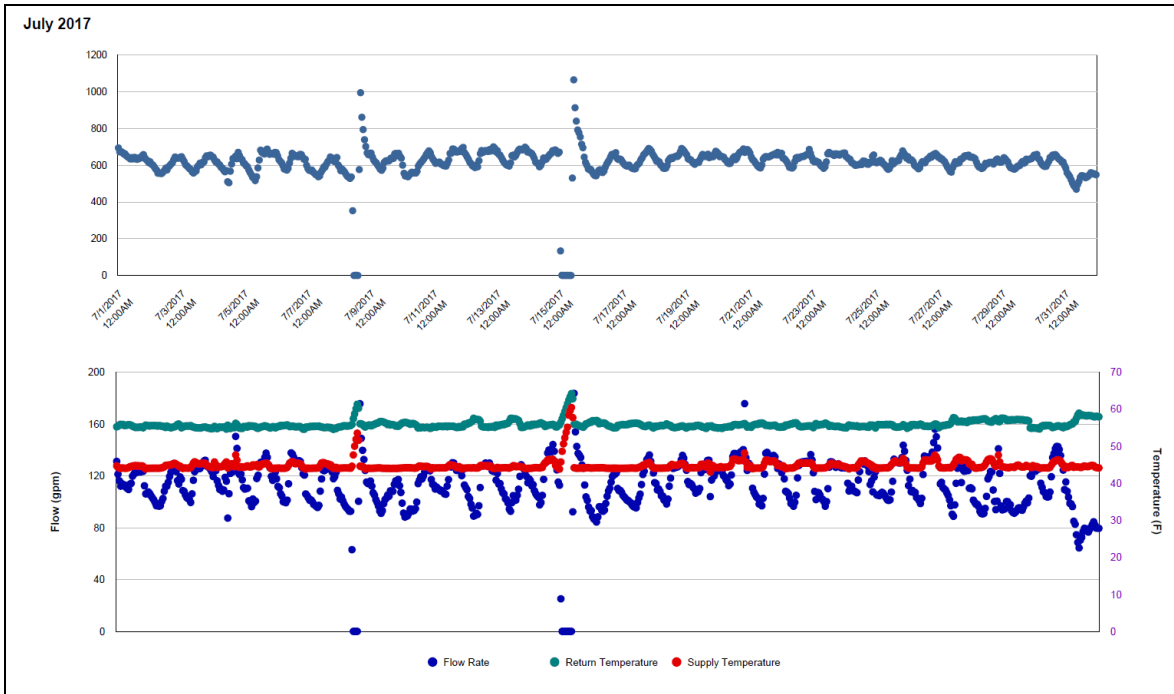
Comments

Several buildings on the east-southeast of main campus experienced a drop in CHW consumption for a few hours on 7/8/2017 and 7/15/2017. Some of the buildings included in this group are listed below. The flow rate appears to decrease to zero and the supply and return temperatures drift to warmer values (see explanatory figure below). The meter does not appear to be faulty and since these two periods are of short duration, any estimations would not have a significant impact on the overall consumption.

Building List:

Wells Residence Hall TAMU Bldg #290
 Eppright Residence Hall TAMU Bldg #292
 Applet Residence Hall TAMU Bldg #293
 Underwood Residence Hall TAMU Bldg #394
 Dunn Residence Hall TAMU Bldg #442
 Evans Library TAMU Bldg #468
 Pavilion Building TAMU Bldg #471
 Animal Industries Building TAMU Bldg #472
 Heep Laboratory Building TAMU Bldg #511
 Ash II LLC Building TAMU Bldg #1405

Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. CHW consumption for Bldg #511 Heep Laboratory.



III. Time Series Plots for July 2017 Consumption

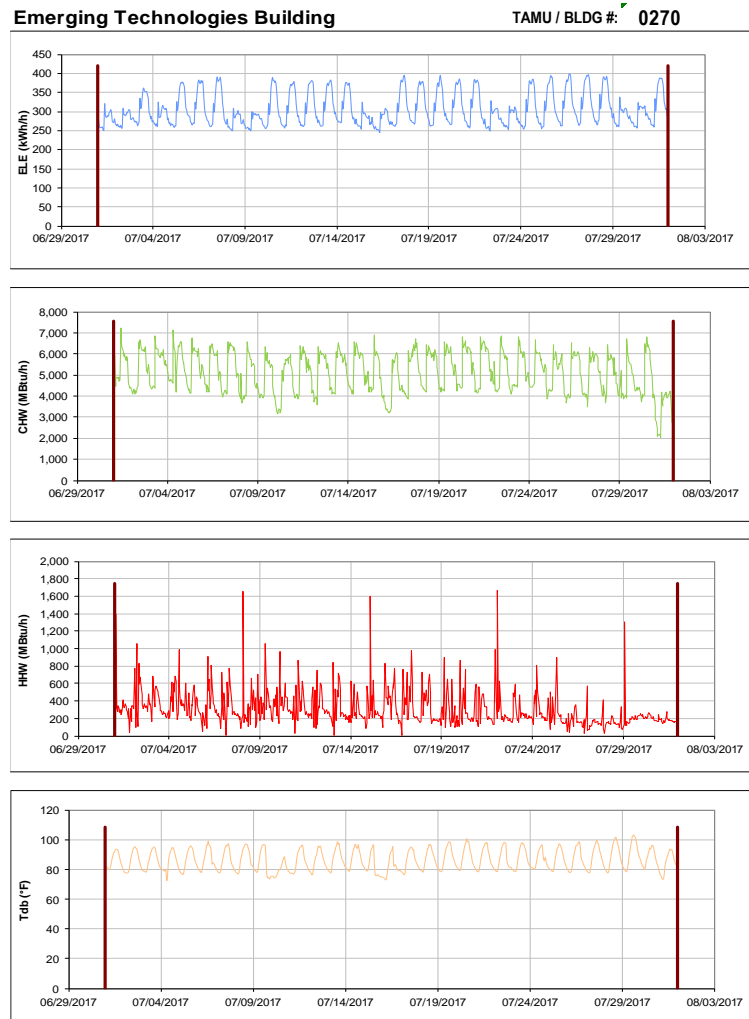


Figure III-1 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Emerging Technologies Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



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

Wells Residence Hall

TAMU / BLDG #: 0290

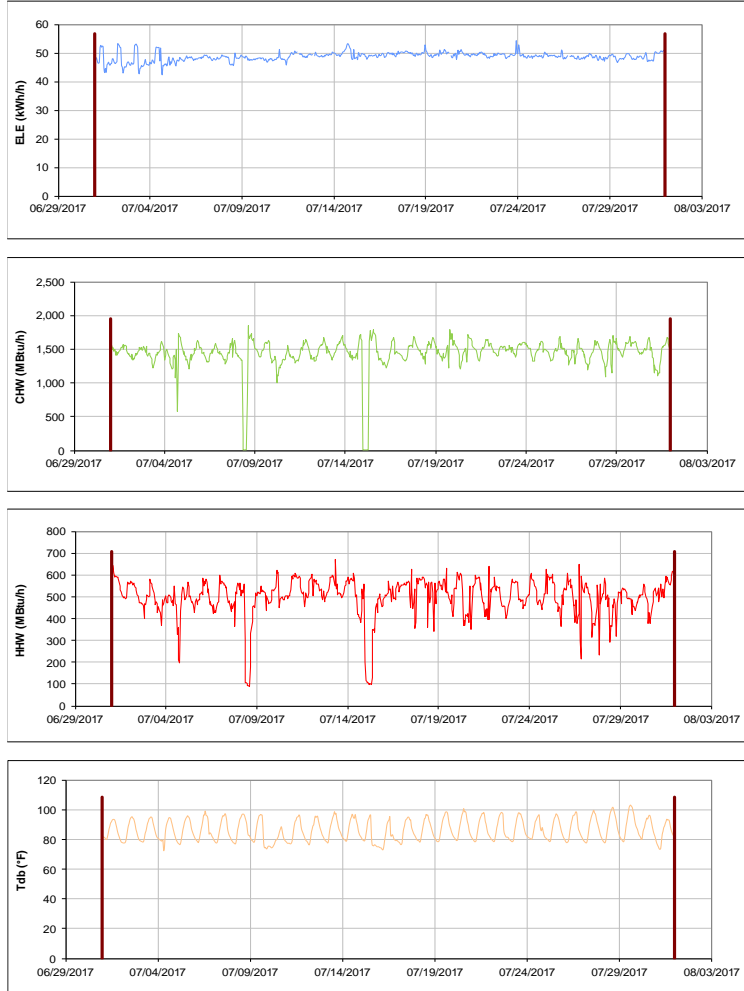


Figure III-3 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wells Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Rudder Residence Hall

TAMU / BLDG #: 0291

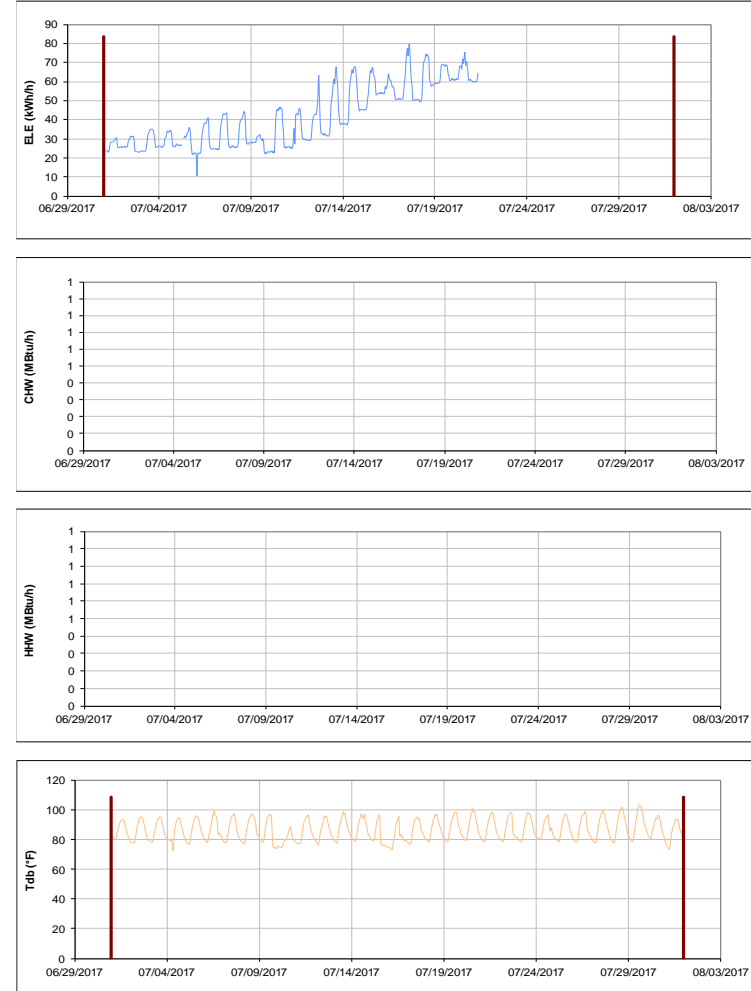


Figure III-4 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

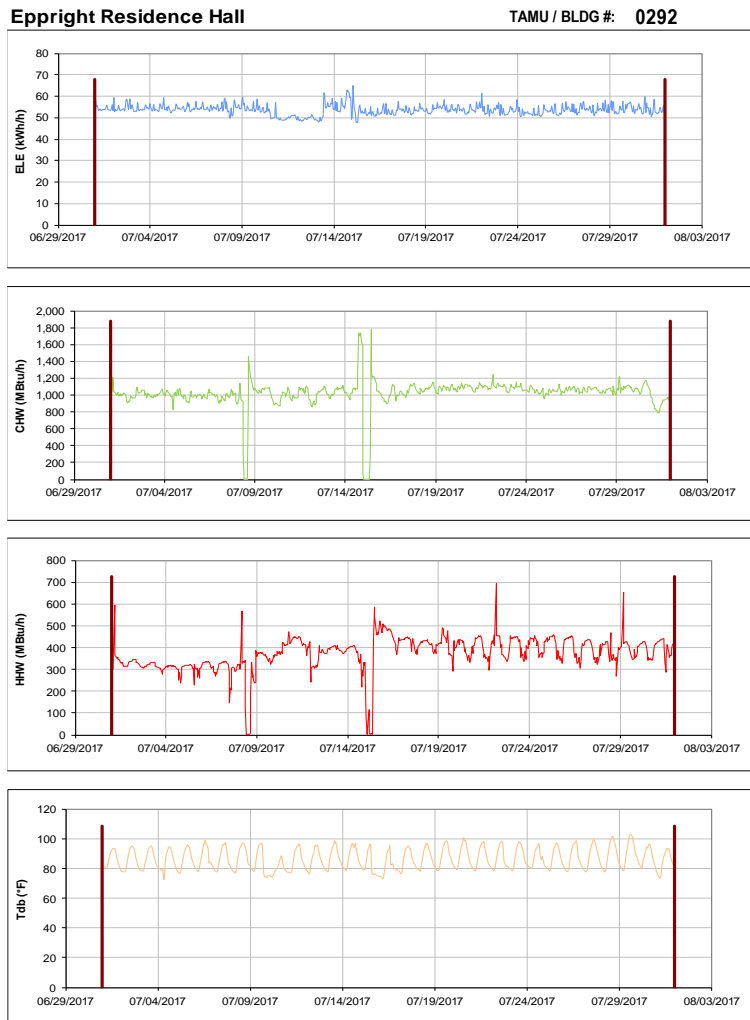


Figure III-5 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Eppright Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

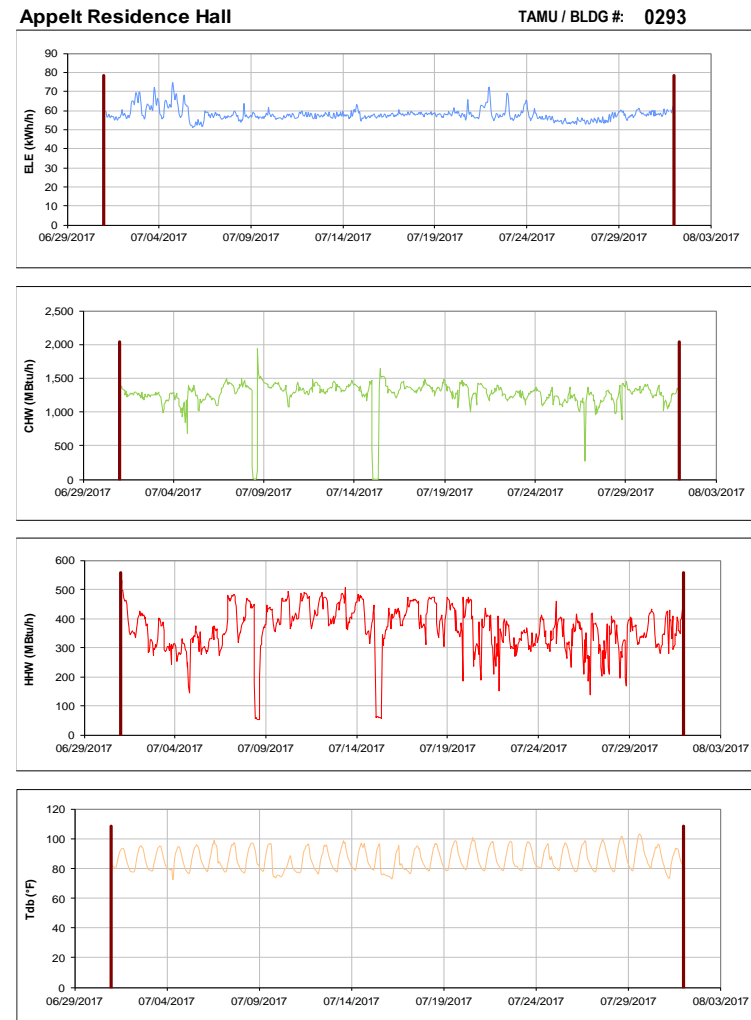


Figure III-6 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Appelt Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

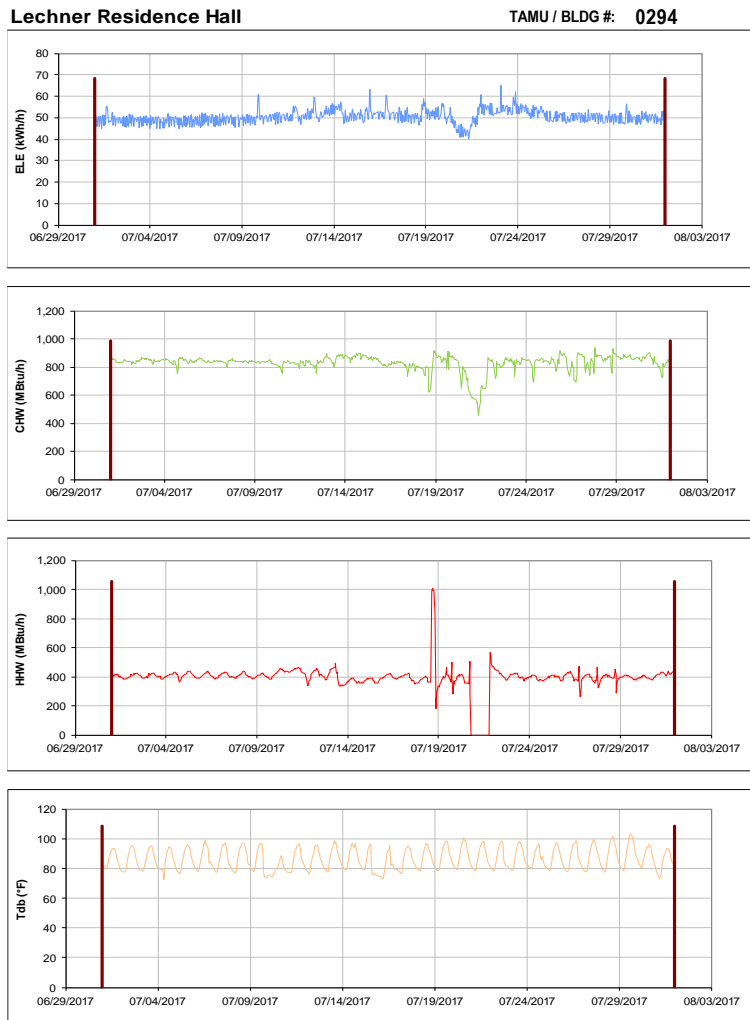


Figure III-7 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lechner Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

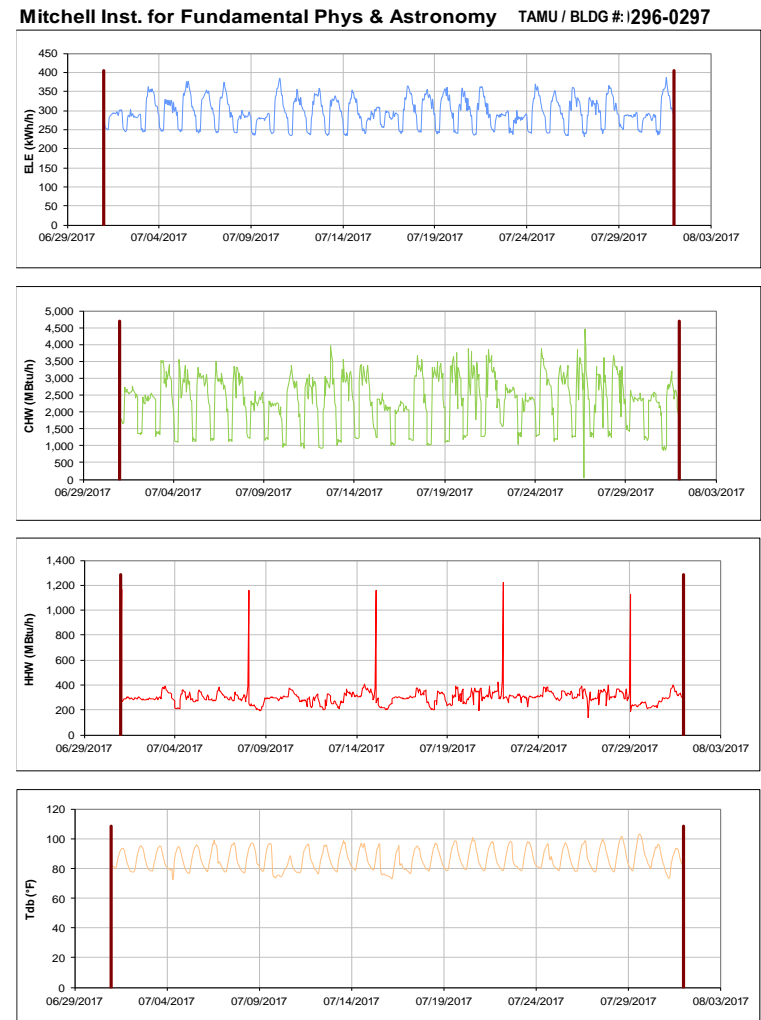


Figure III-8 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mitchell Inst. for Fundamental Phys & Astronomy during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



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

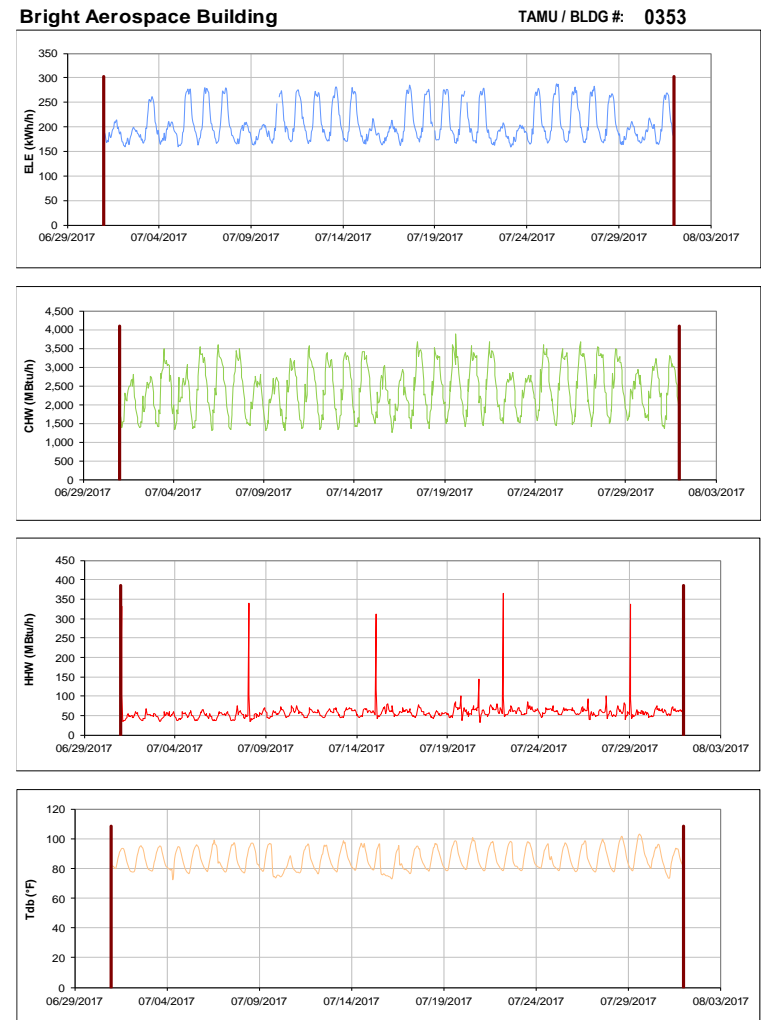


Figure III-10 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Aerospace Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

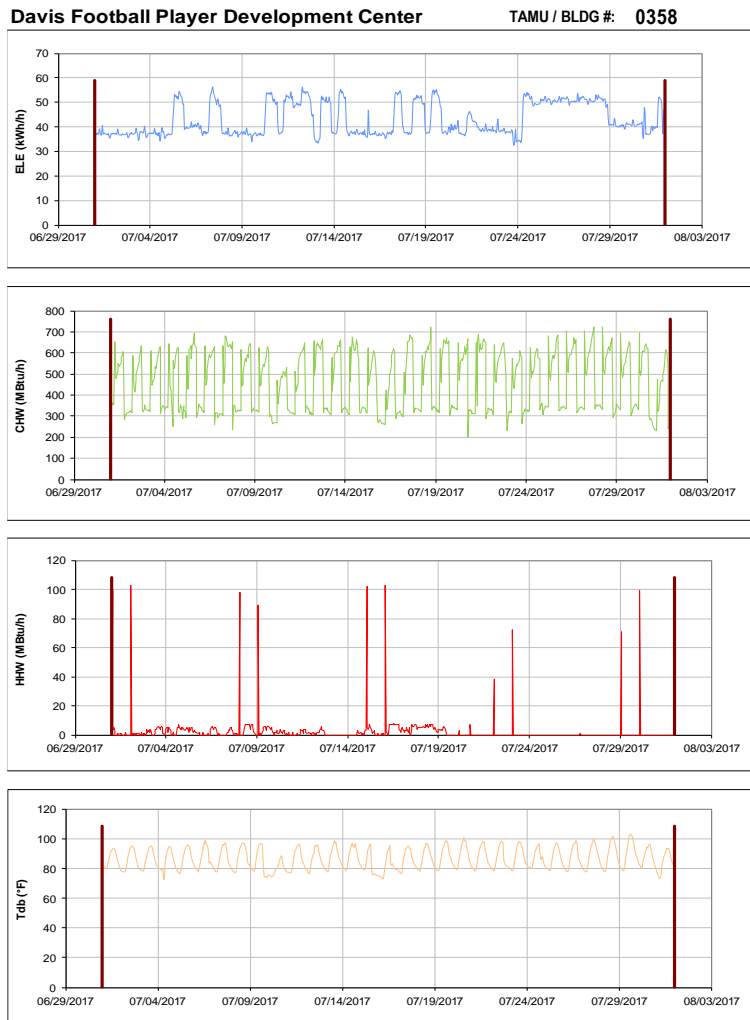


Figure III-11 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis Football Player Development Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

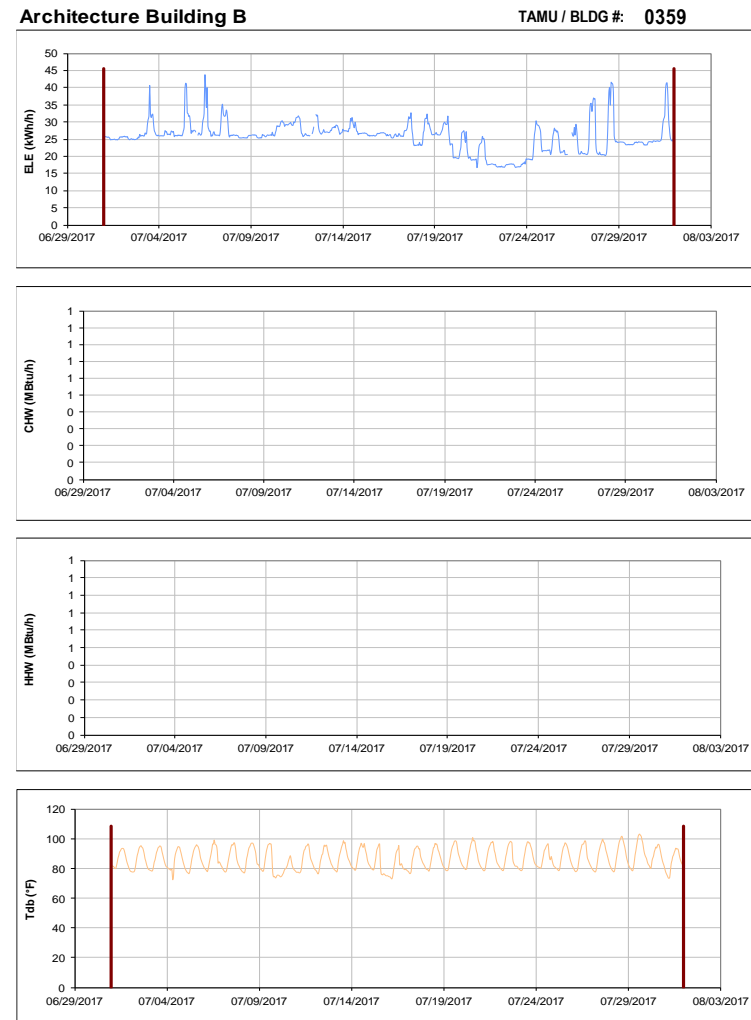


Figure III-12 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

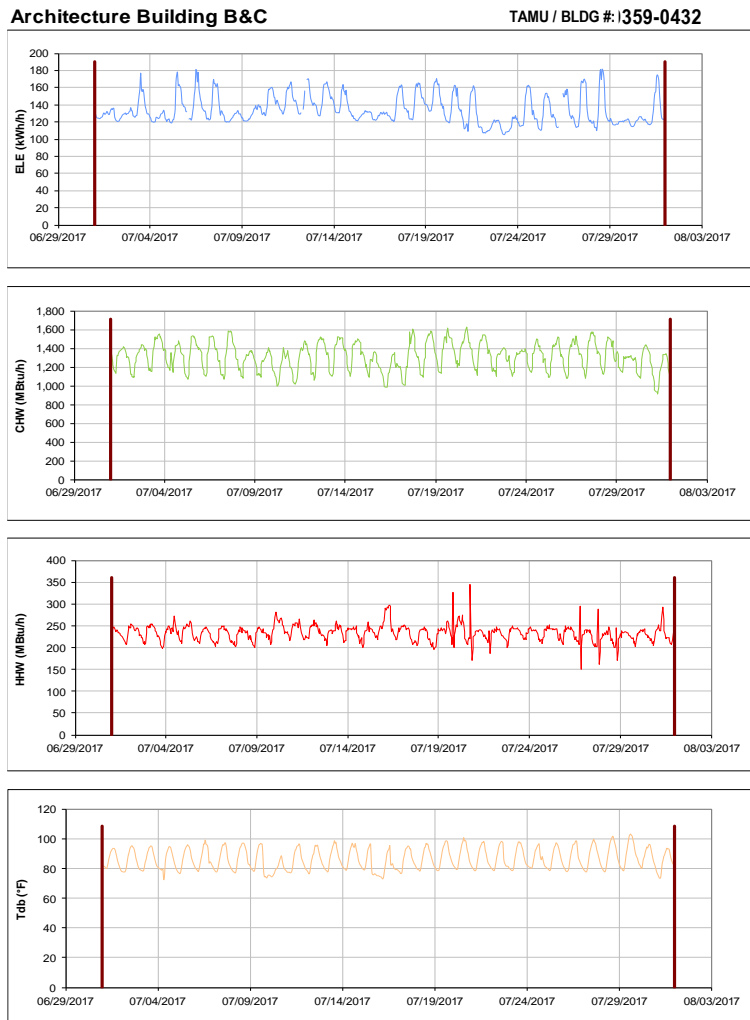


Figure III-13 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B&C during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



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

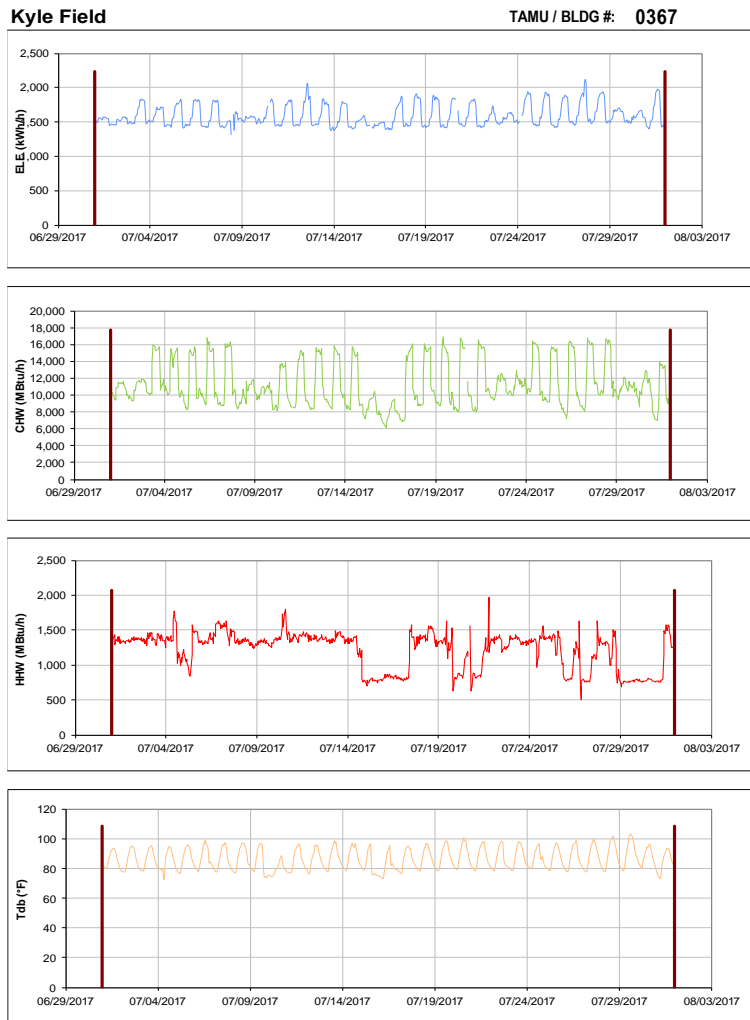


Figure III-15 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kyle Field during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

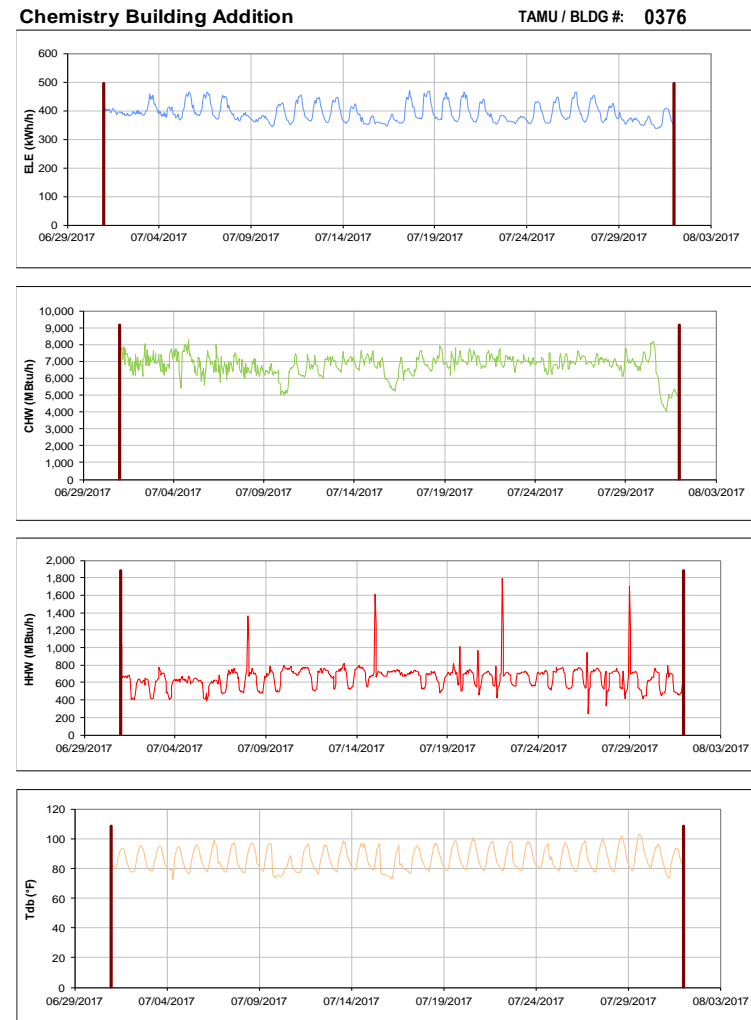


Figure III-16 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building Addition during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

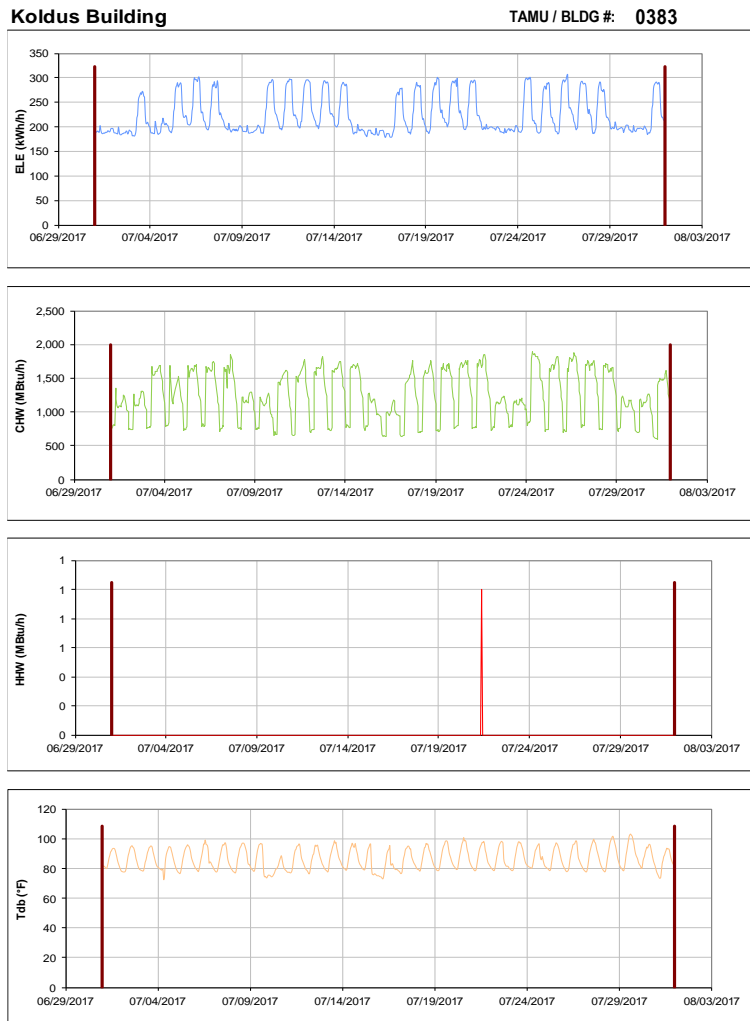


Figure III-17 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Koldus Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

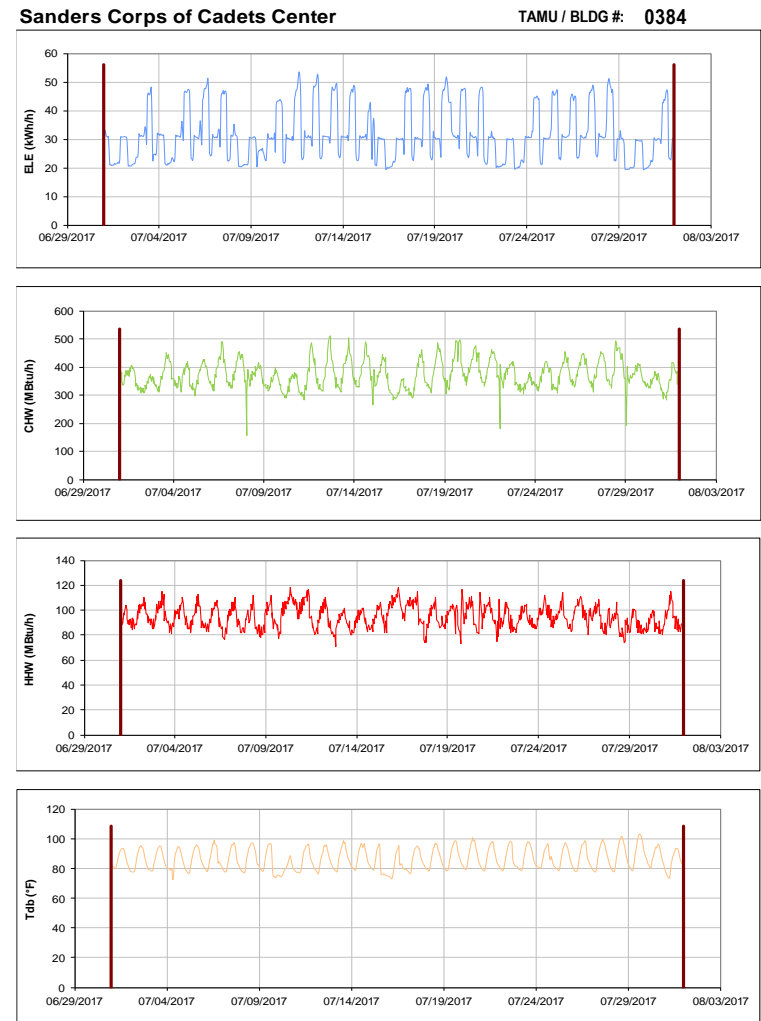


Figure III-18 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sanders Corps of Cadets Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Jack E. Brown Chemical Engineering Building TAMU / BLDG #: 0386

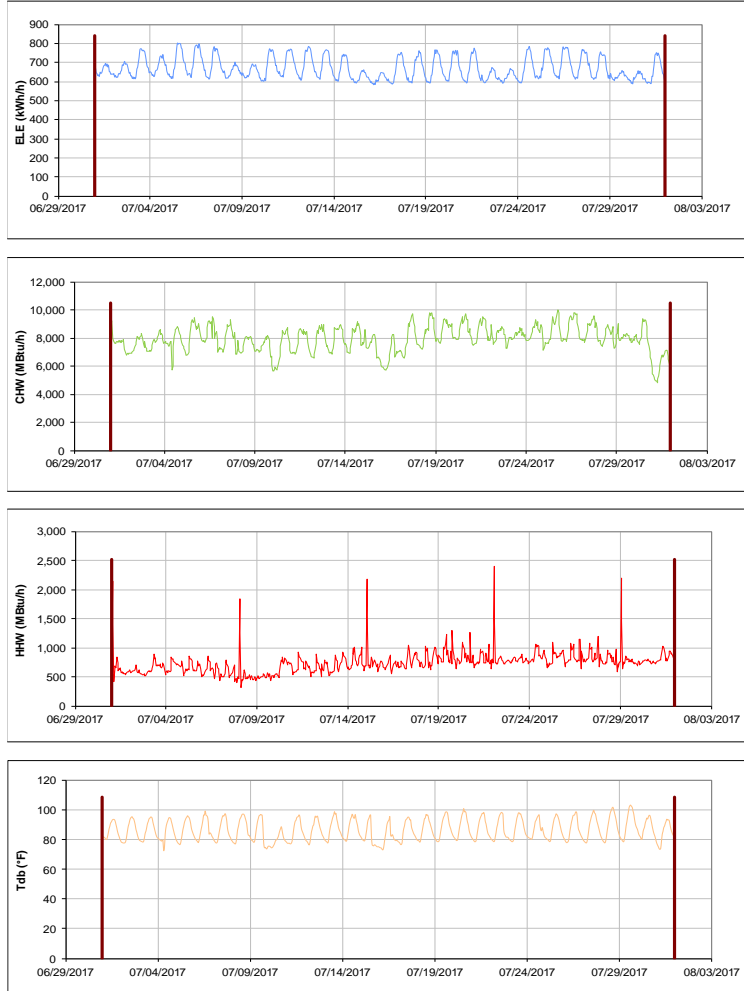


Figure III-19 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Jack E. Brown Chemical Engineering Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Richardson Petroleum Engineering Building TAMU / BLDG #: 0387

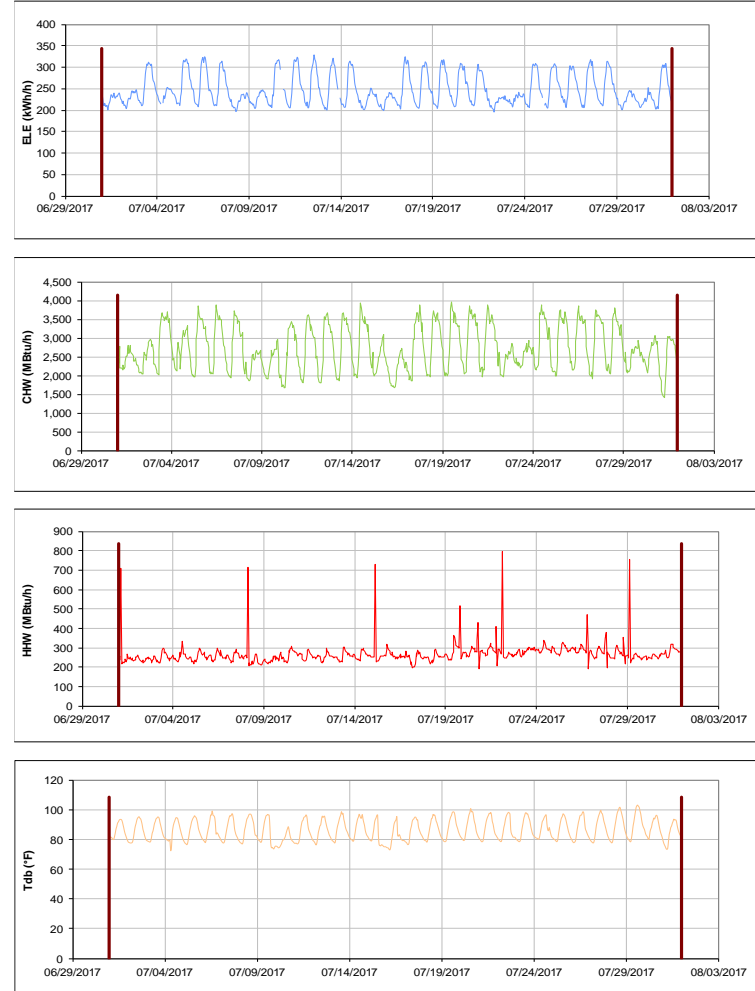


Figure III-20 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Richardson Petroleum Engineering Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

James J. Cain'51 and Mechanical Engineering Office BLDG # 391-0392

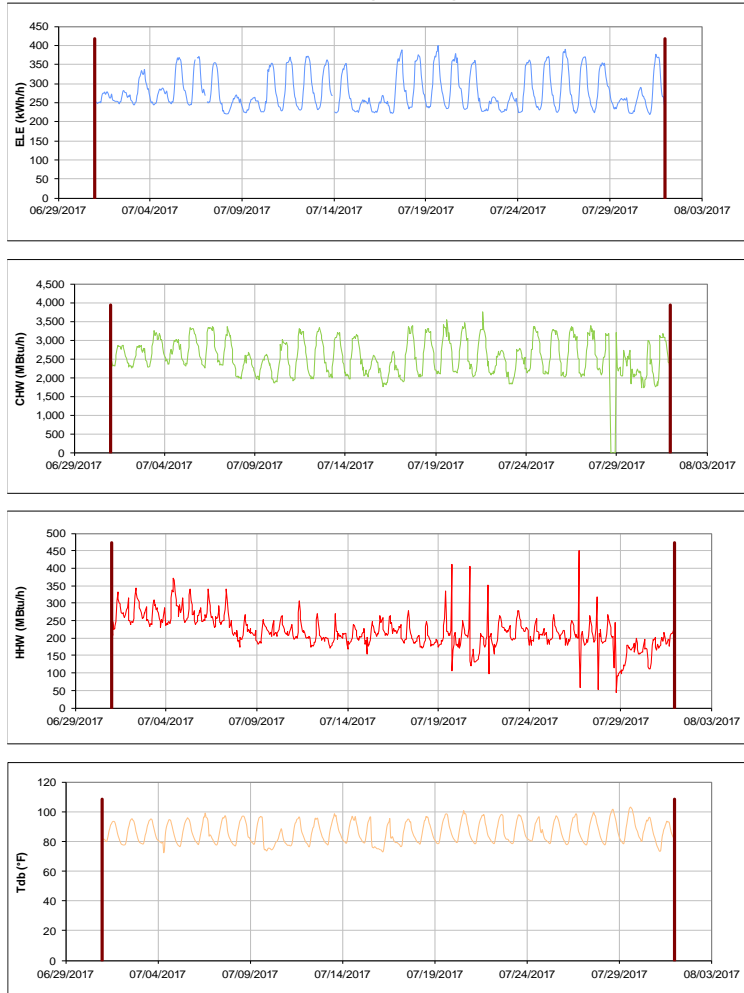


Figure III-21 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for James J. Cain'51 and Mechanical Engineering Office Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Underwood Residence Hall TAMU / BLDG #: 0394

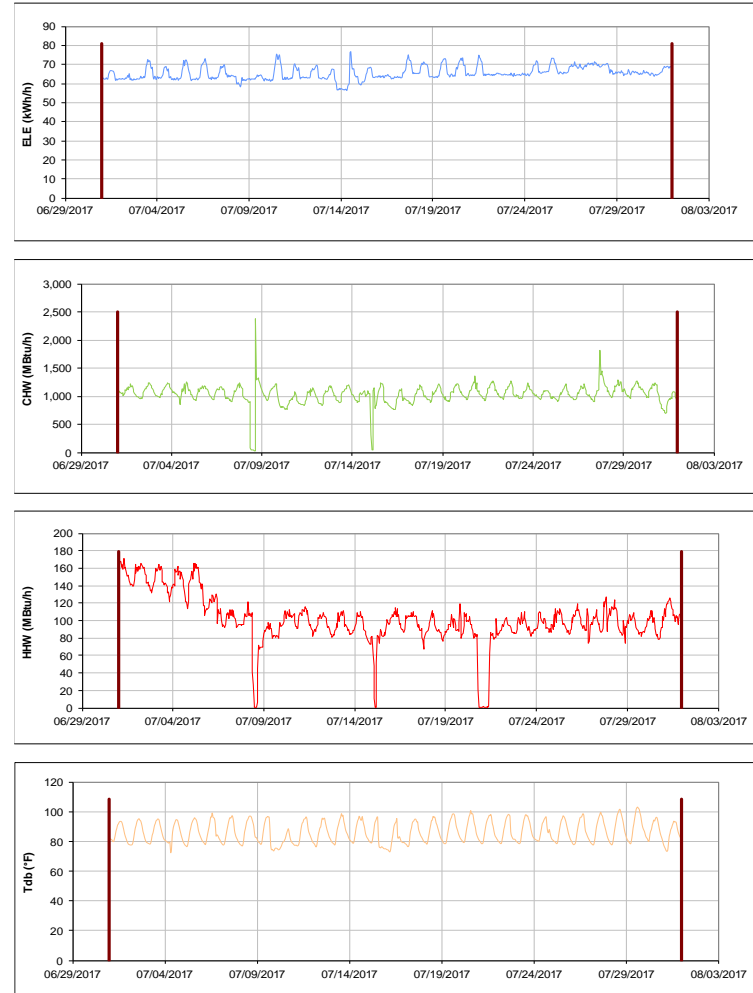


Figure III-22 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Underwood Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

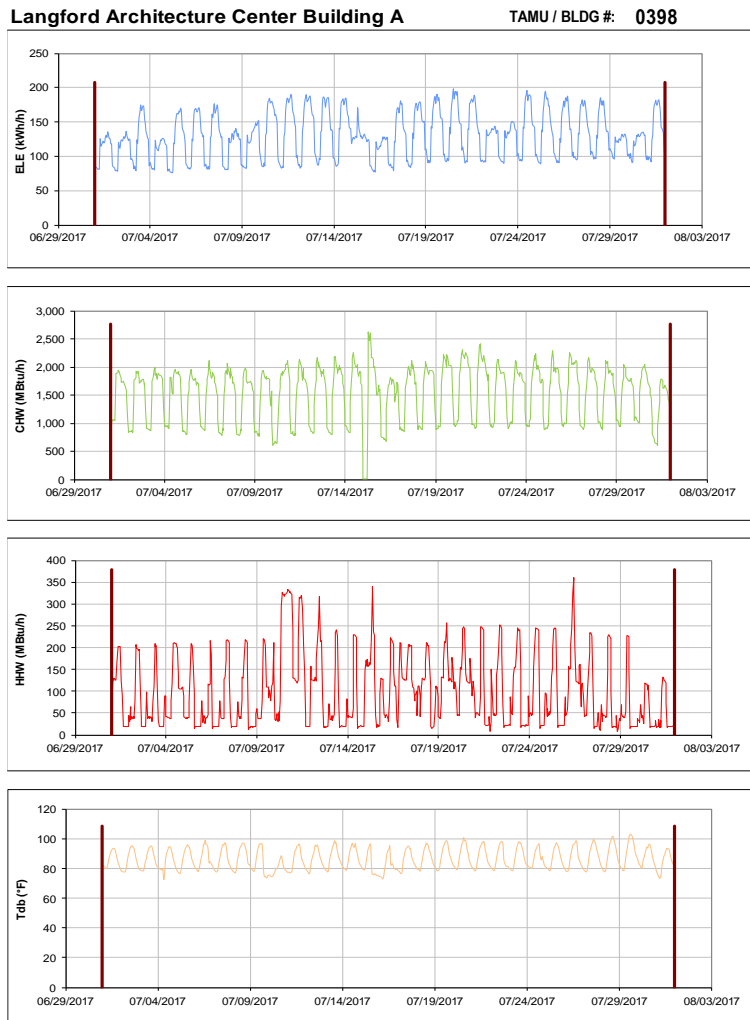


Figure III-23 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Langford Architecture Center Building A during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

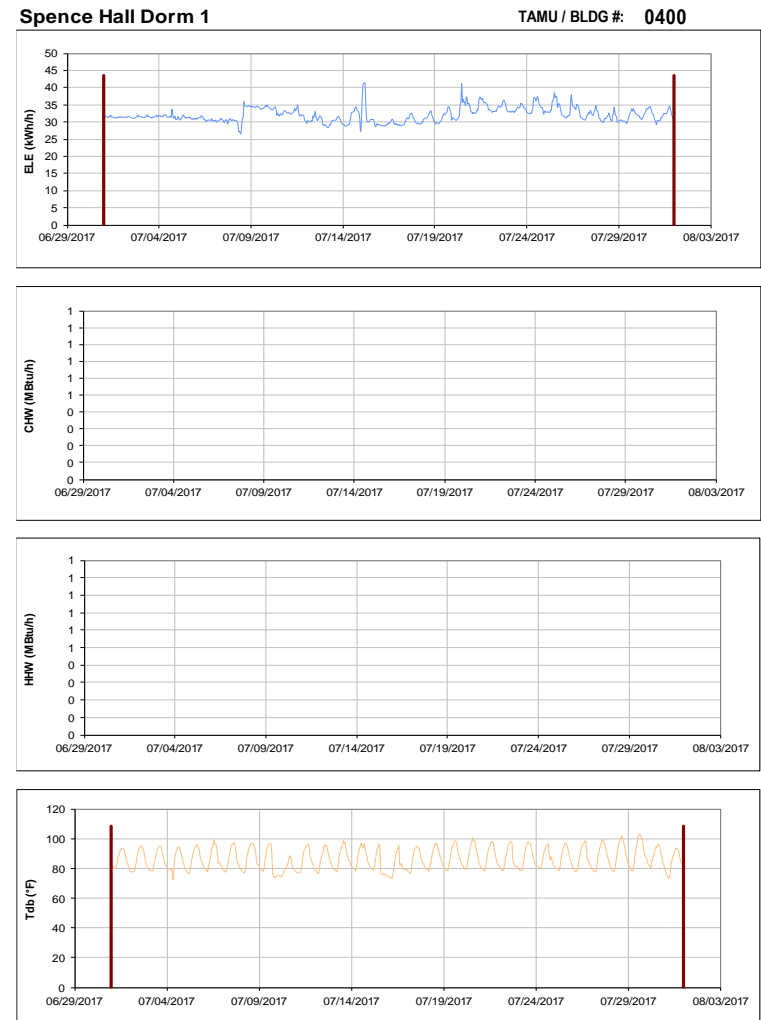


Figure III-24 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall Dorm 1 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Spence Hall, Briggs Hall, and Ash II LLC TAMU / BLDG #: 0-0402-1405

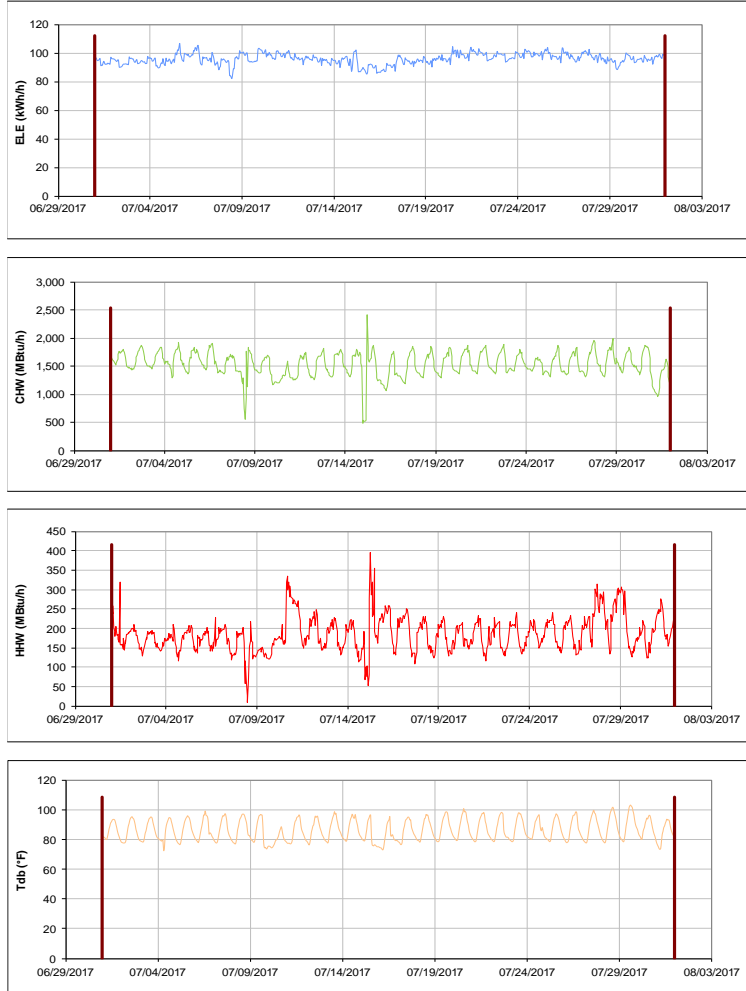


Figure III-25 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall, Briggs Hall, and Ash II LLC during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Kiest Hall Dorm 2 TAMU / BLDG #: 0401

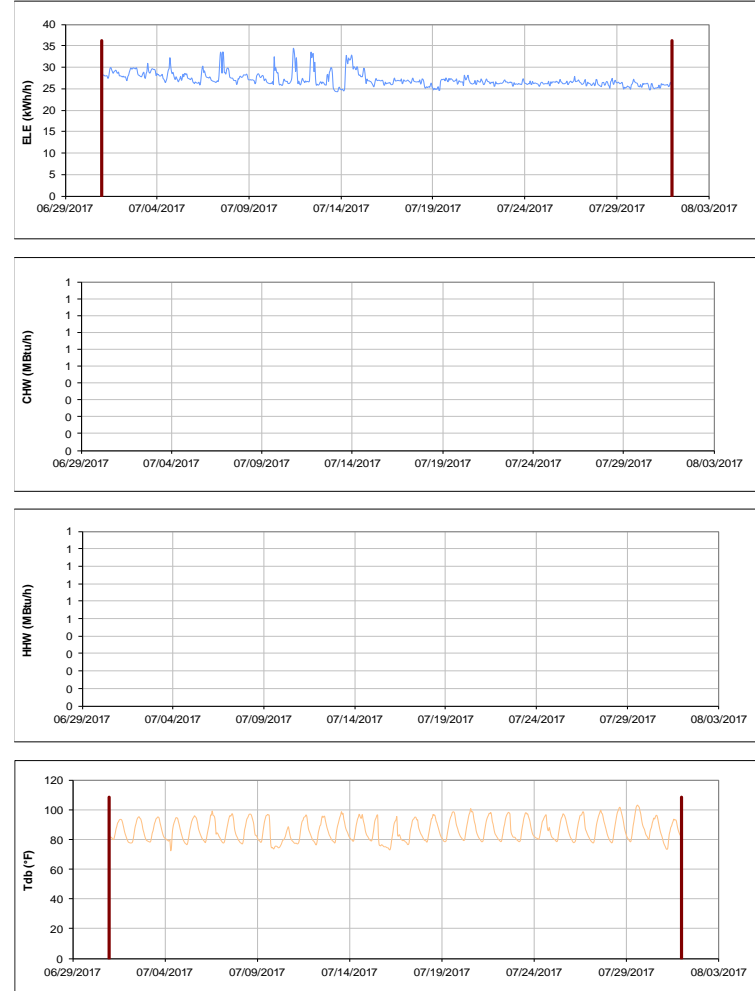


Figure III-26 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall Dorm 2 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Kiest Hall, Fountain Hall, and Plank LLC TAMU / BLDG #: 1-0403-1404

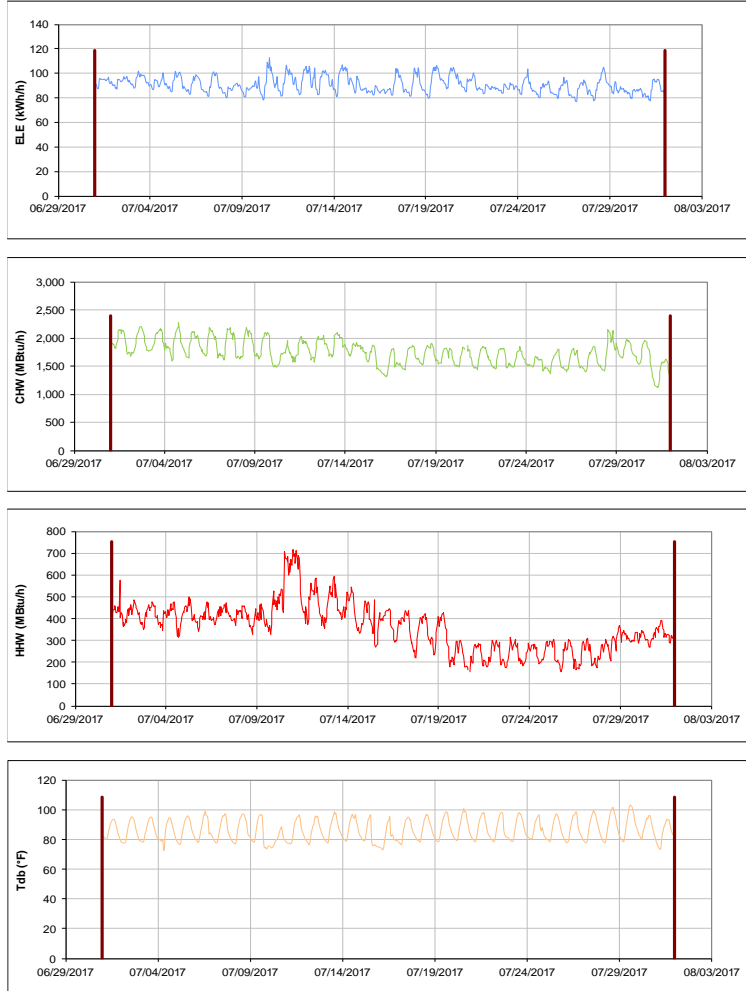


Figure III-27 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall, Fountain Hall, and Plank LLC during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Briggs Hall Dorm 3 TAMU / BLDG #: 0402

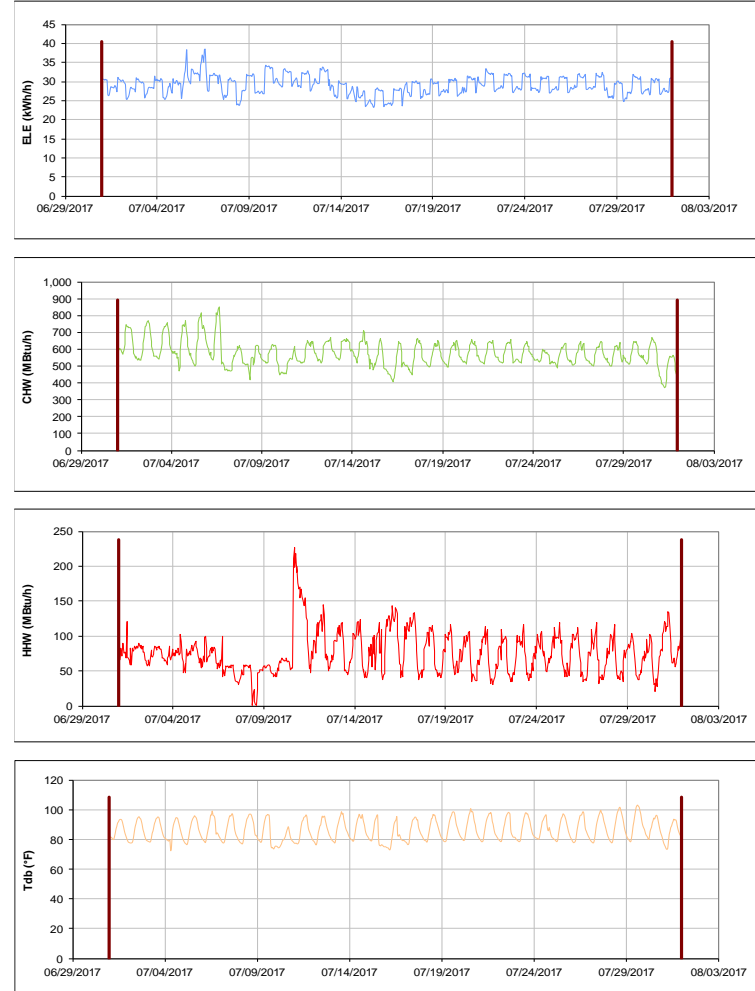


Figure III-28 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Briggs Hall Dorm 3 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Fountain Hall Dorm 4

TAMU / BLDG #: 0403

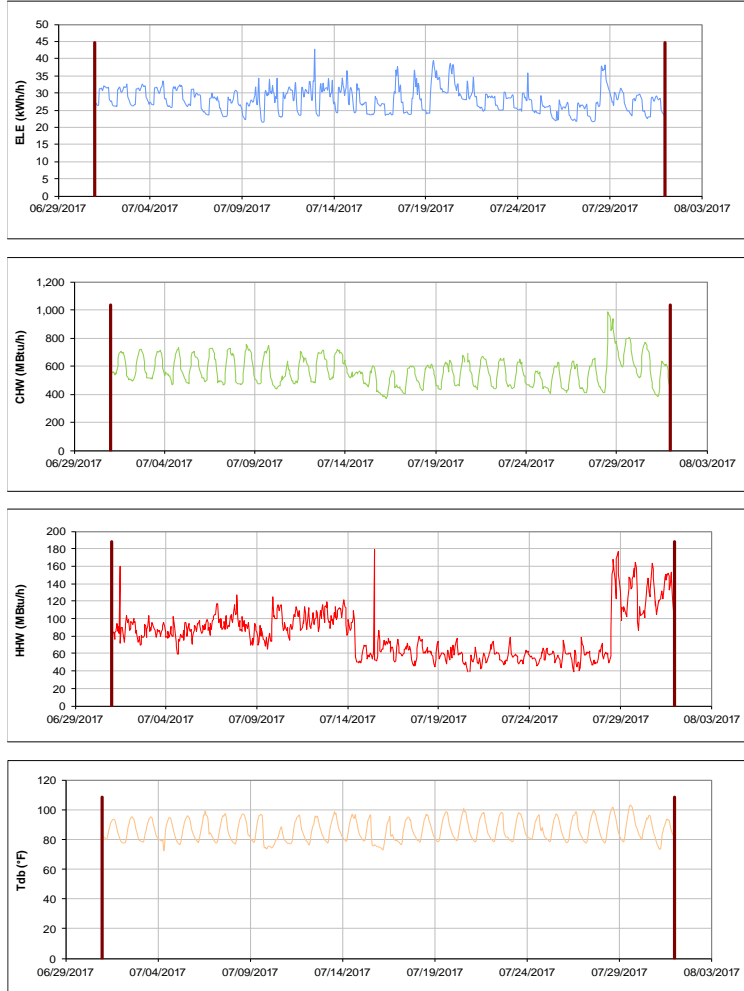


Figure III-29 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fountain Hall Dorm 4 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Gainer Hall Dorm 5

TAMU / BLDG #: 0404

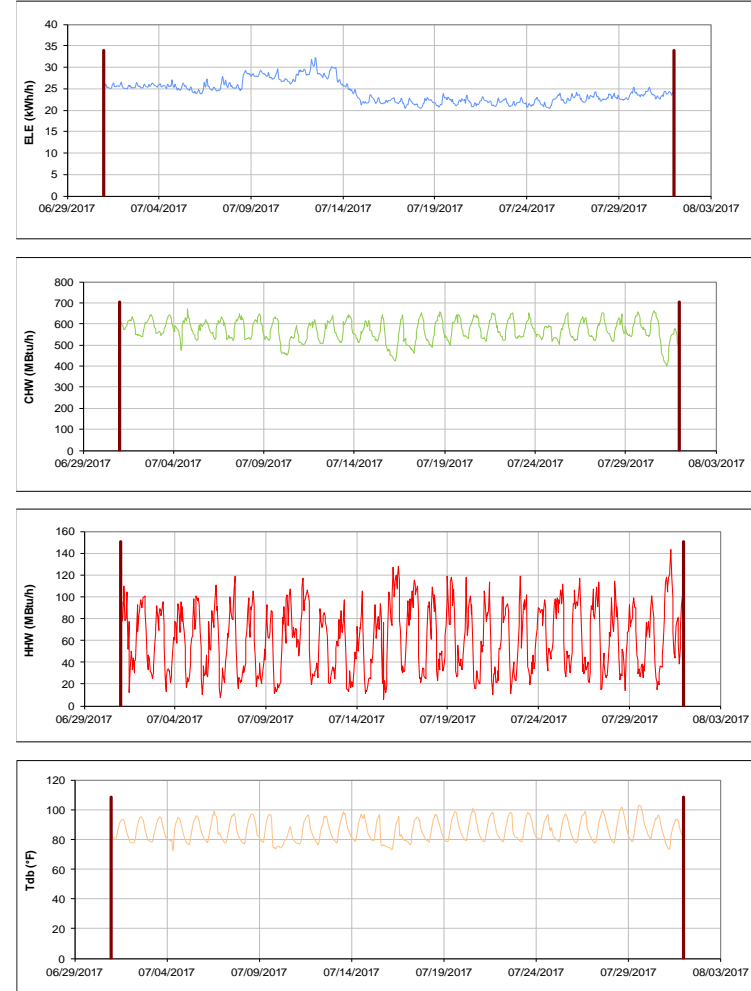


Figure III-30 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall Dorm 5 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Gainer Hall, Leonard Hall and Ash LLC TAMU / BLDG #: 4-0406-1403

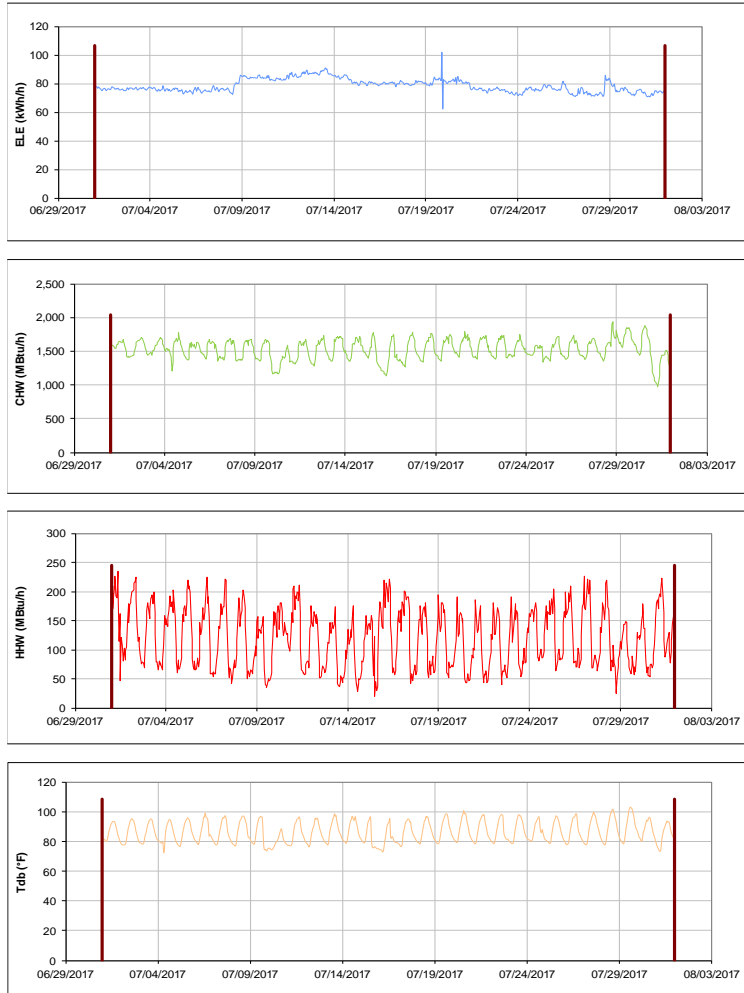


Figure III-31 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall, Leonard Hall and Ash LLC during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Lacy Hall - Dorm 6 TAMU / BLDG #: 0405



Figure III-32 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center / BLDG #: 5-0407-1402

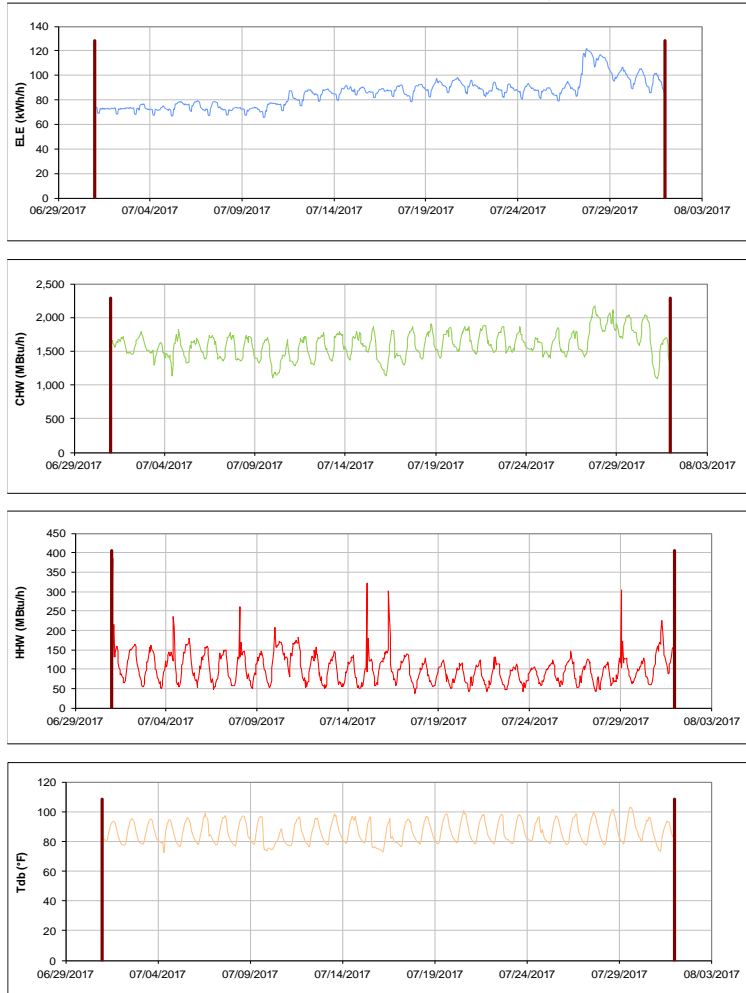


Figure III-33 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Leonard Hall - Dorm 7 TAMU / BLDG #: 0406

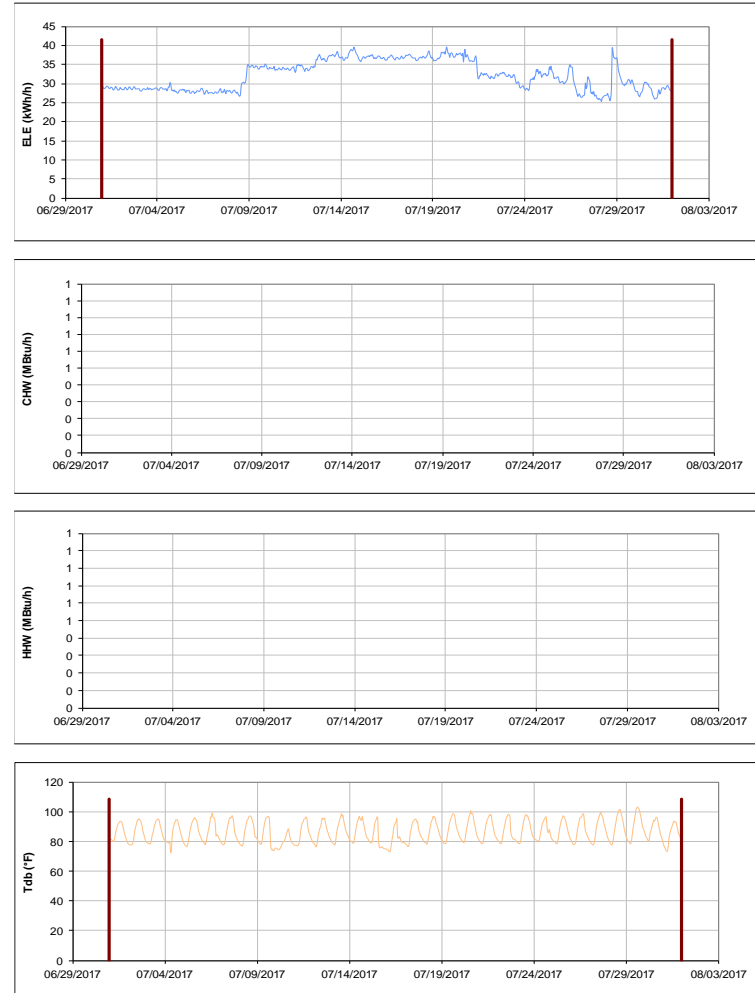


Figure III-34 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Leonard Hall - Dorm 7 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Harrell Hall - Dorm 8

TAMU / BLDG #: 0407

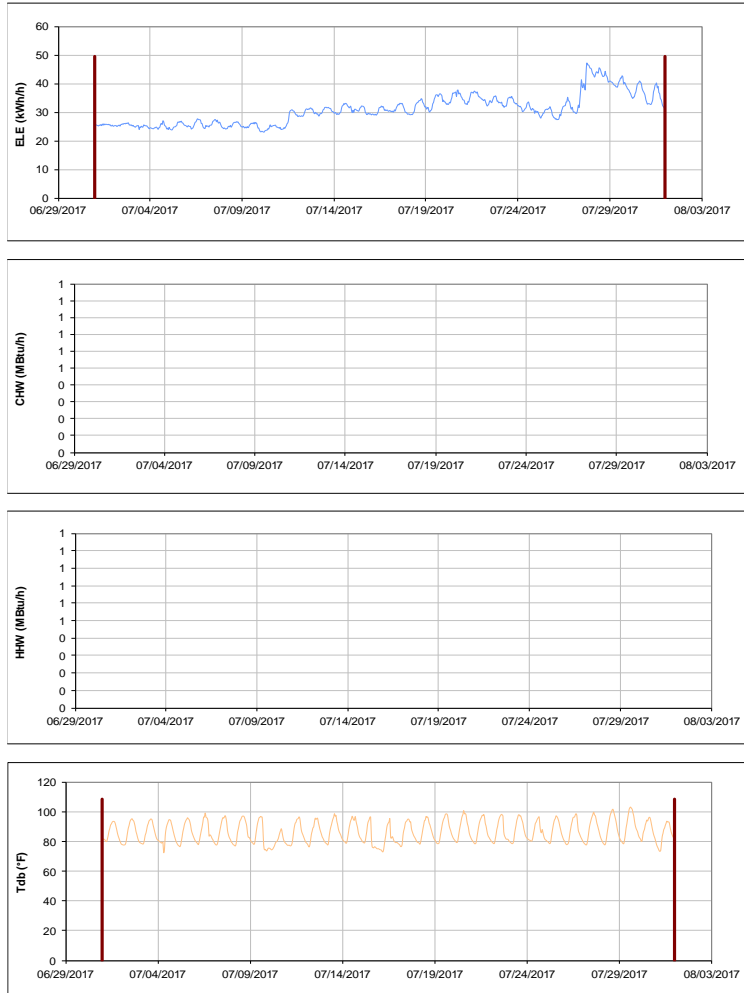


Figure III-35 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrell Hall - Dorm 8 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Whitely Hall - Dorm 9

TAMU / BLDG #: 0408

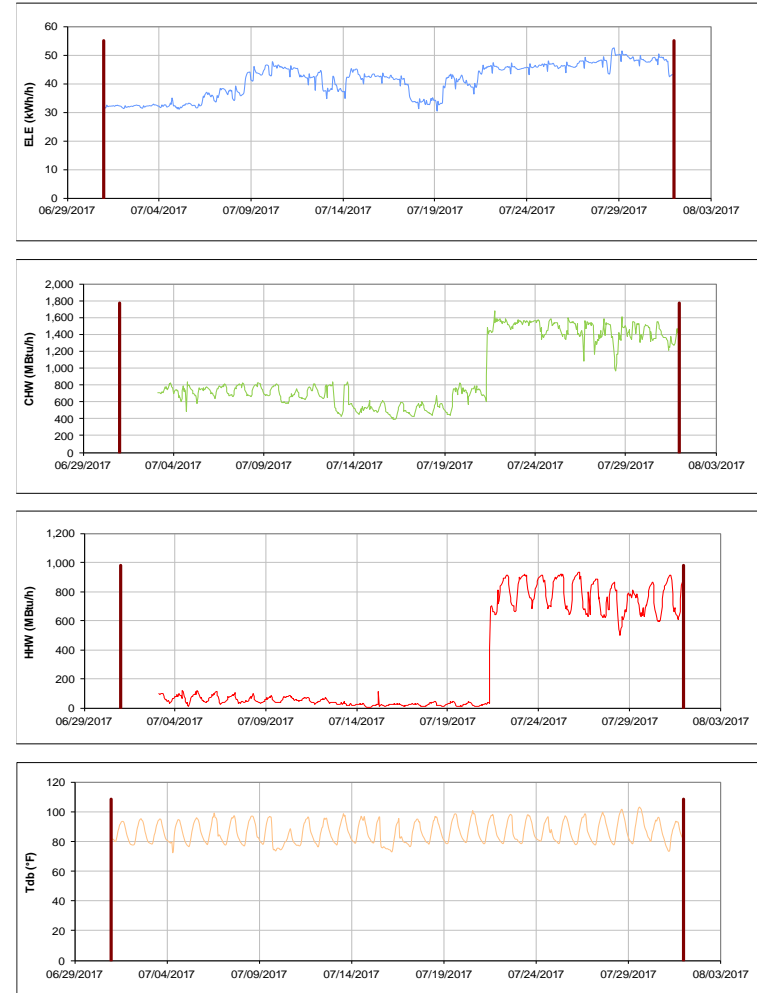


Figure III-36 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Whitely Hall - Dorm 9 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

White Hall - Dorm 10

TAMU / BLDG #: 0409

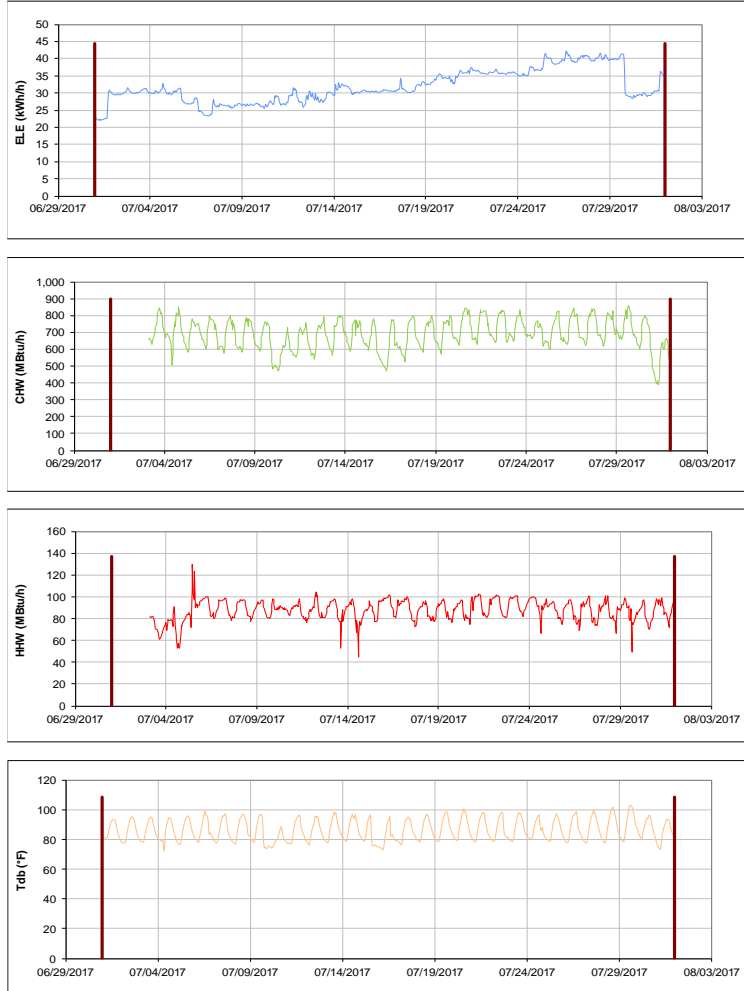


Figure III-37 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Hall - Dorm 10 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Harrington Hall - Dorm 11

TAMU / BLDG #: 0410

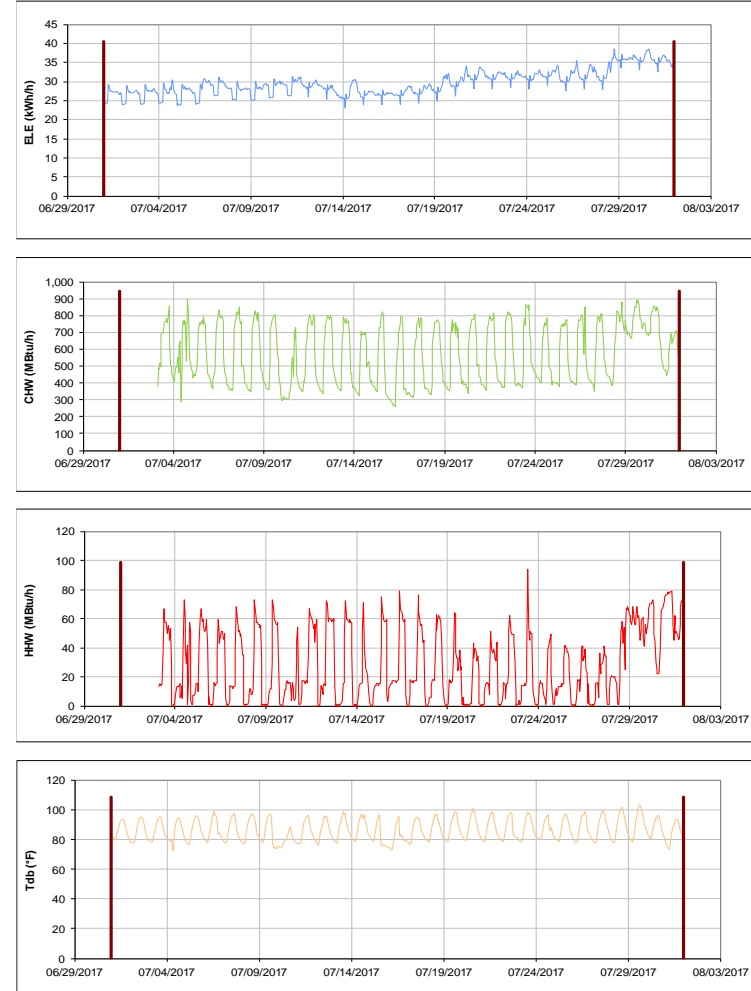


Figure III-38 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Hall - Dorm 11 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Utay Hall - Dorm 12

TAMU / BLDG #: 0411



Figure III-39 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utay Hall - Dorm 12 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Moses Residence Hall

TAMU / BLDG #: 0412

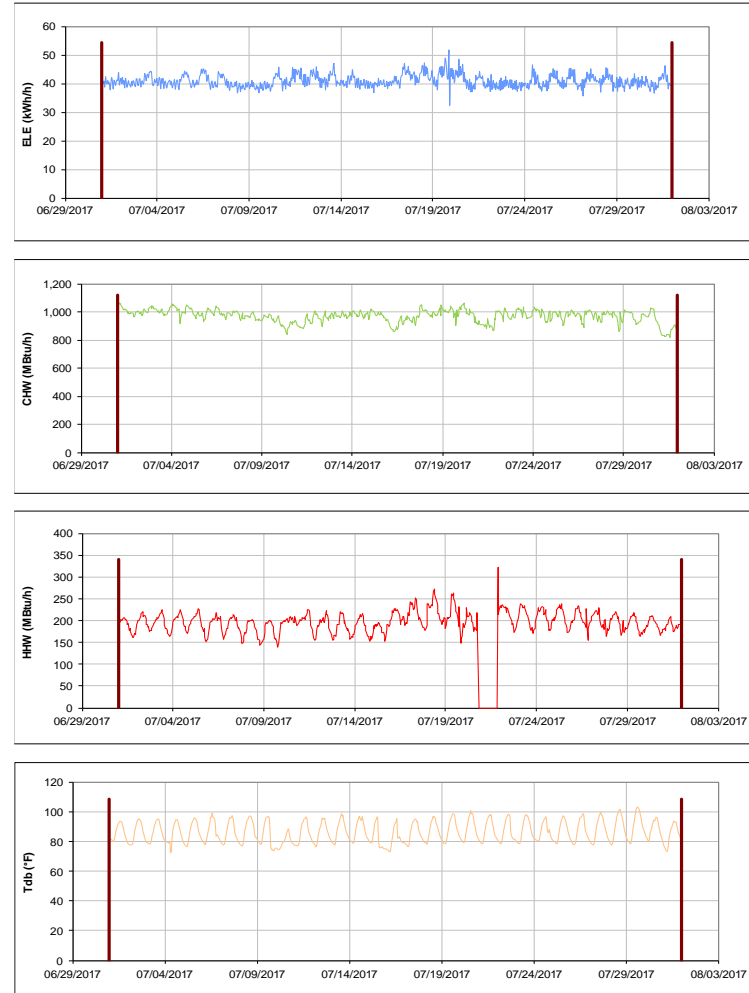


Figure III-40 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Moses Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Davis-Gary Residence Hall

TAMU / BLDG #: 0415

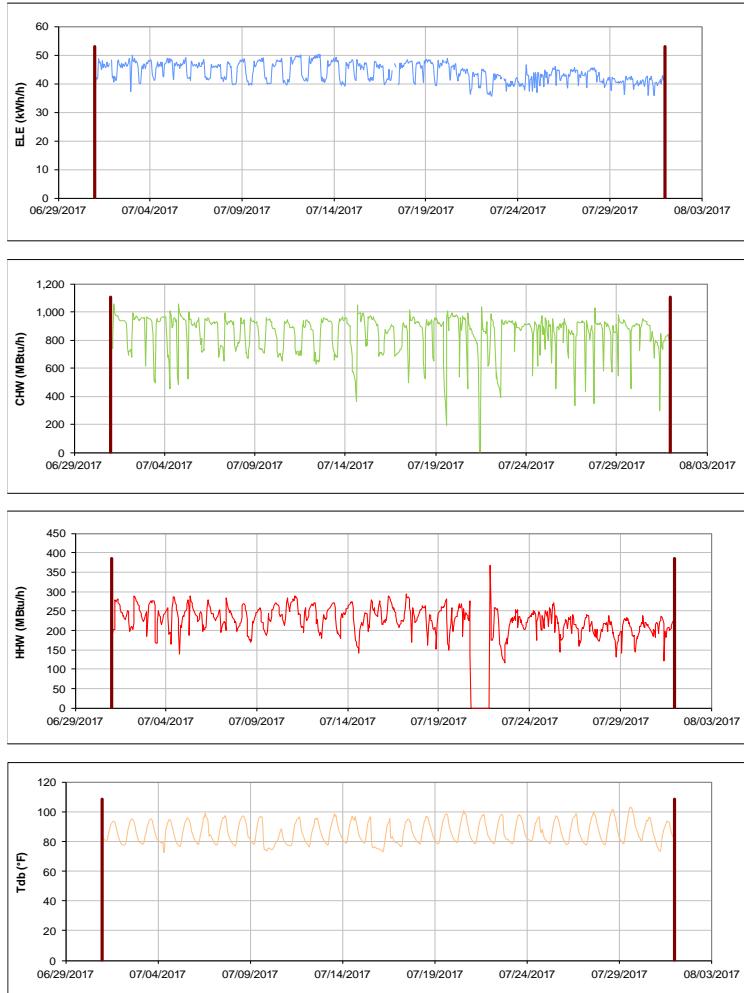


Figure III-41 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis-Gary Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Legett Residence Hall

TAMU / BLDG #: 0419

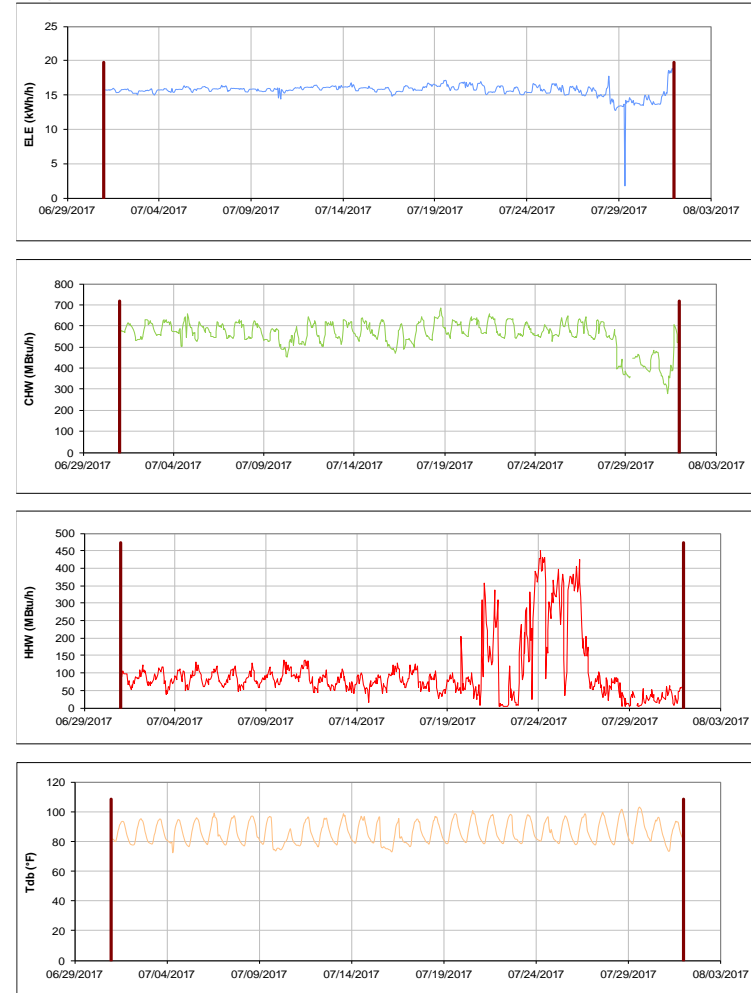


Figure III-42 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Legett Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

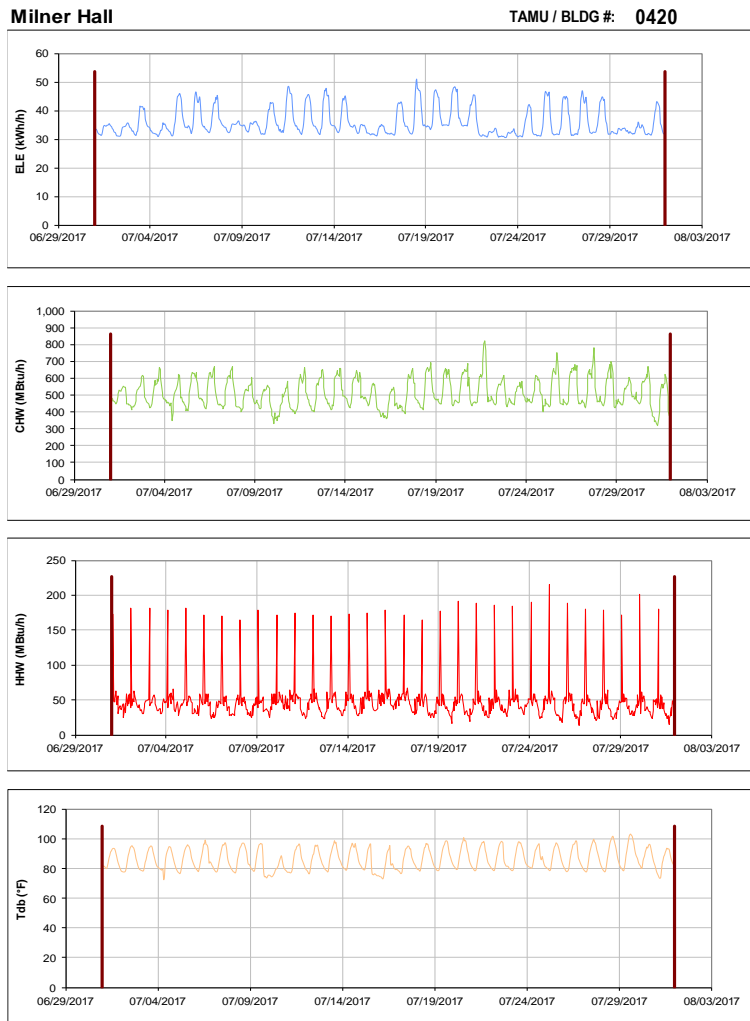


Figure III-43 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Milner Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

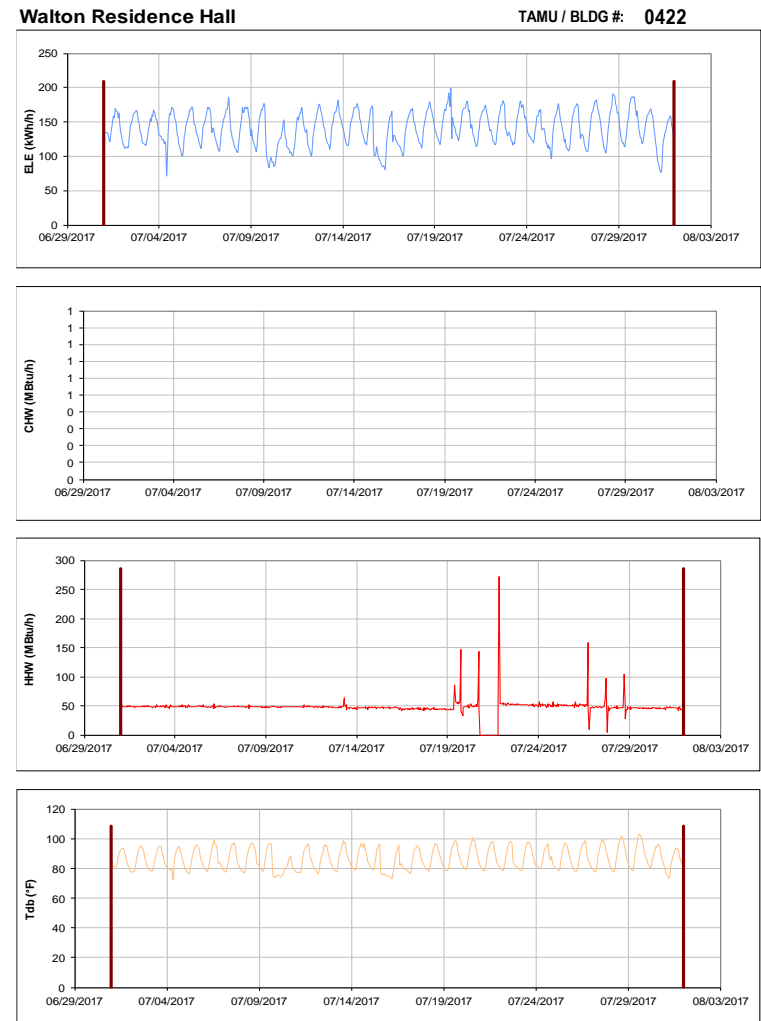


Figure III-44 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Walton Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Hotard Hall

TAMU / BLDG #: 0424

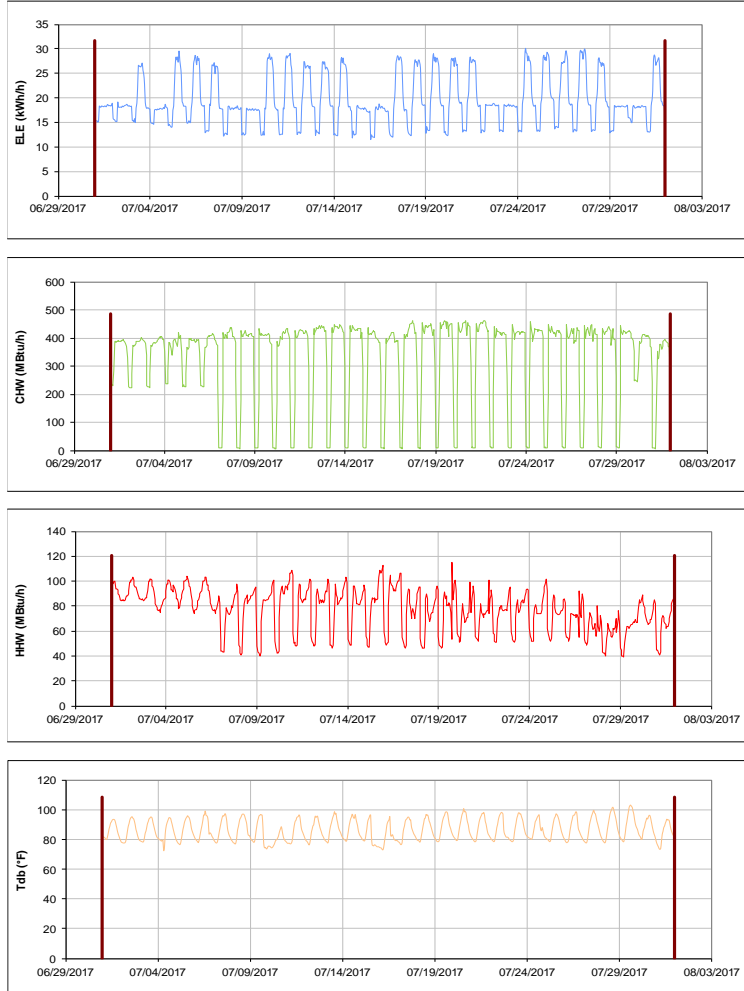


Figure III-45 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hotard Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Henderson Hall

TAMU / BLDG #: 0425

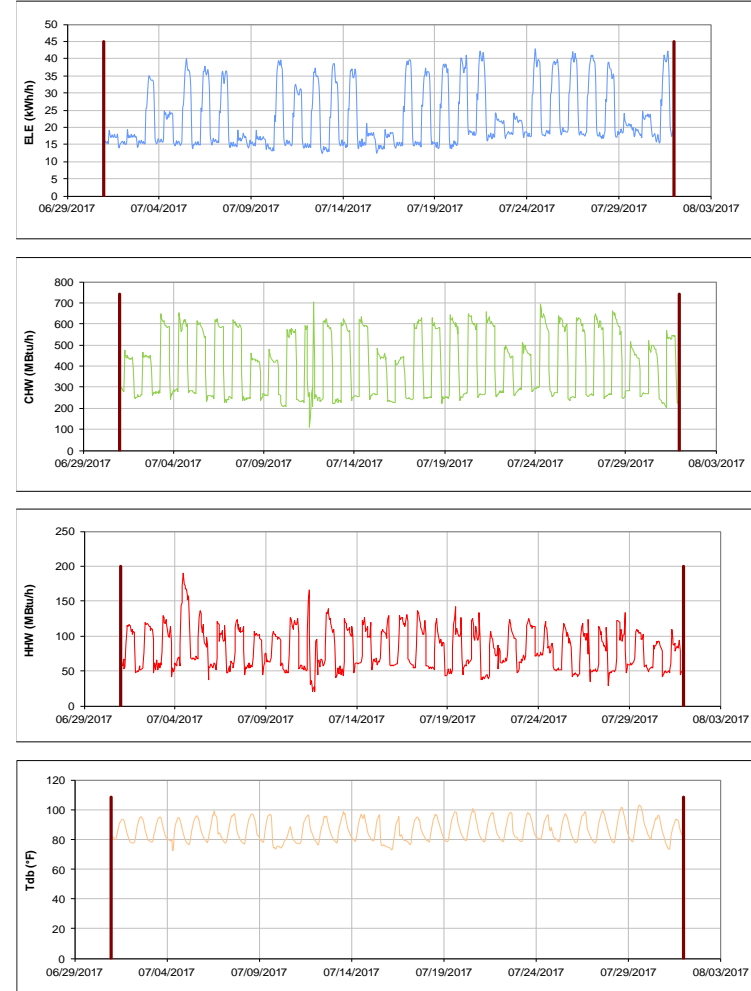


Figure III-46 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Henderson Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

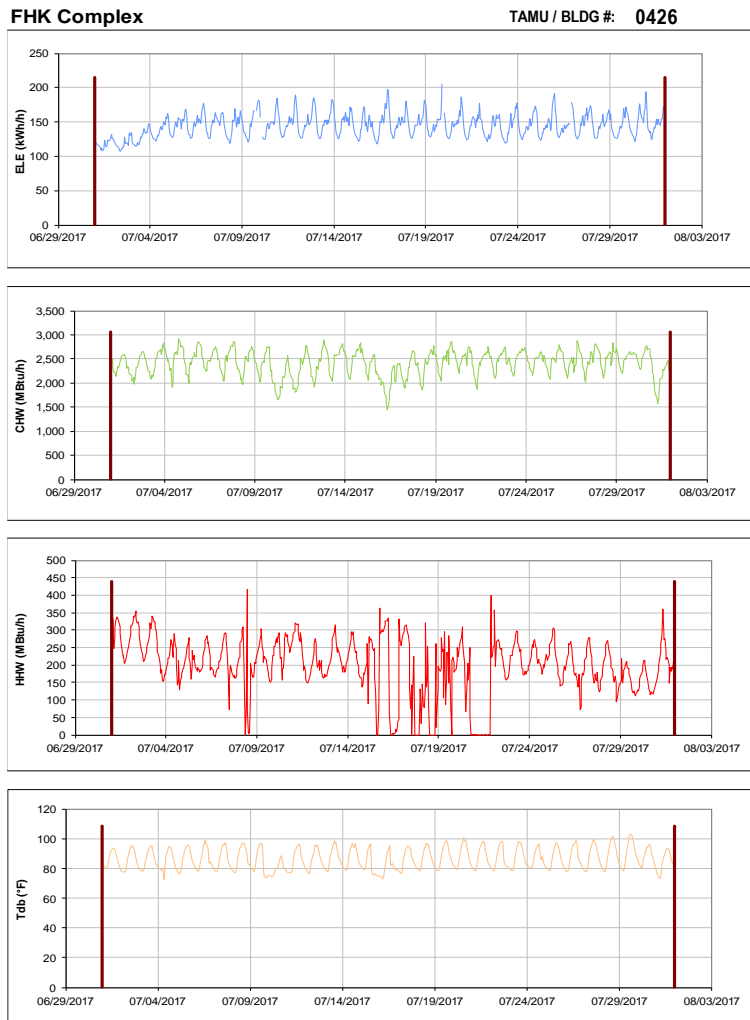


Figure III-47 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for FKH Complex during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

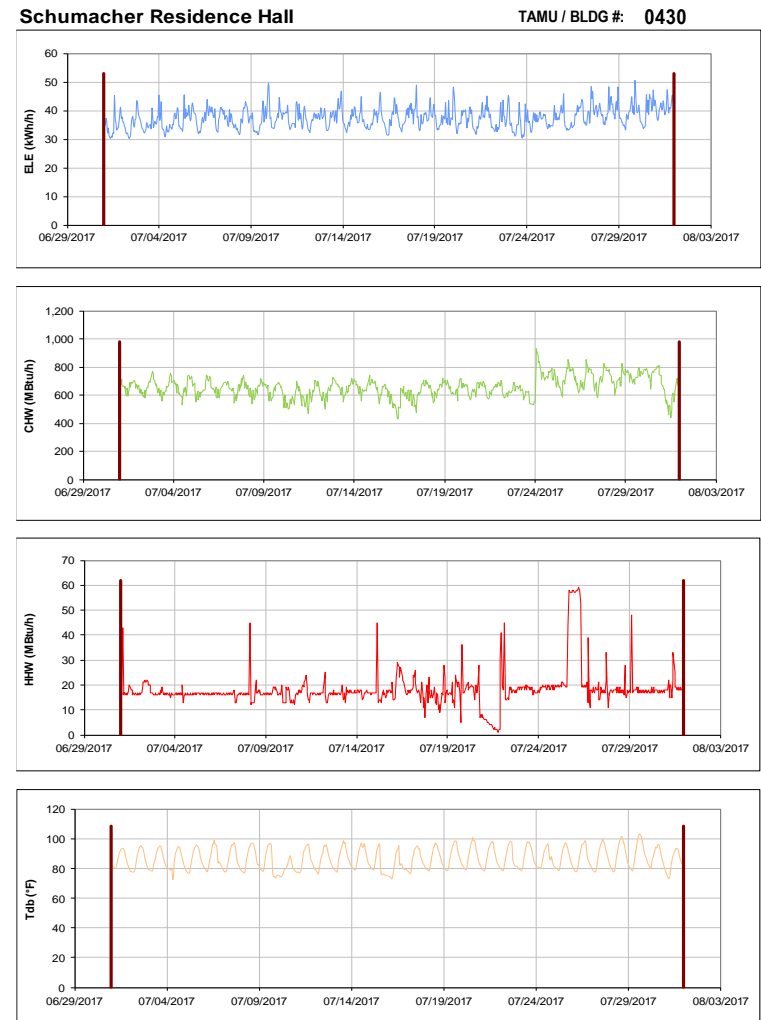


Figure III-48 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Schumacher Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Architecture Building C

TAMU / BLDG #: 0432

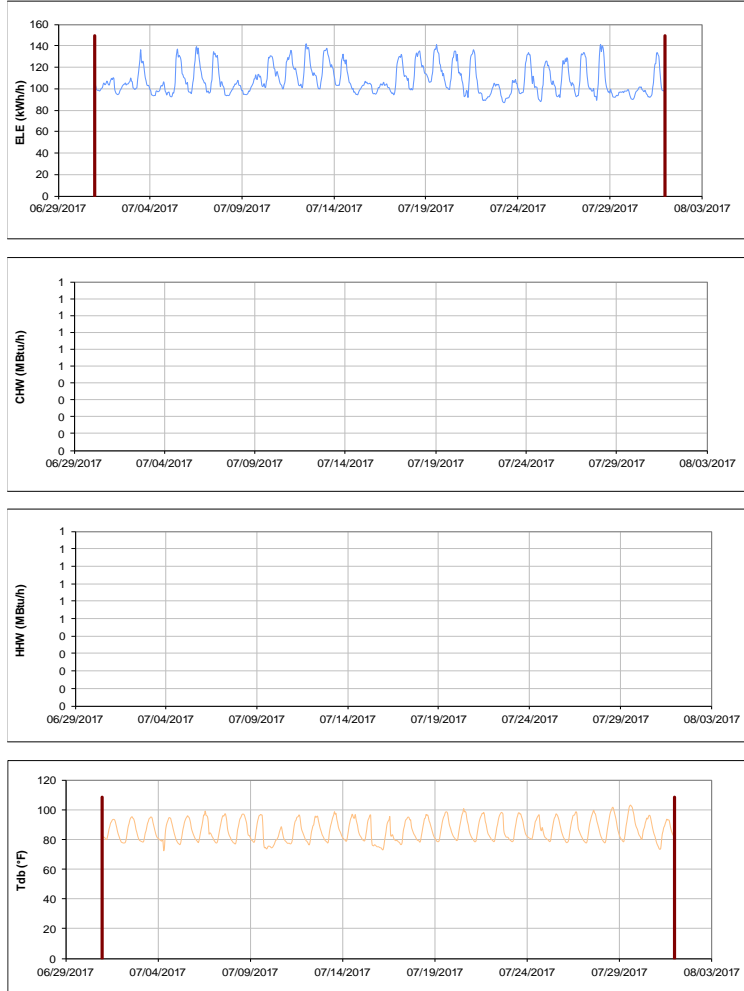


Figure III-49 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building C during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Mosher Residence Hall

TAMU / BLDG #: 0433

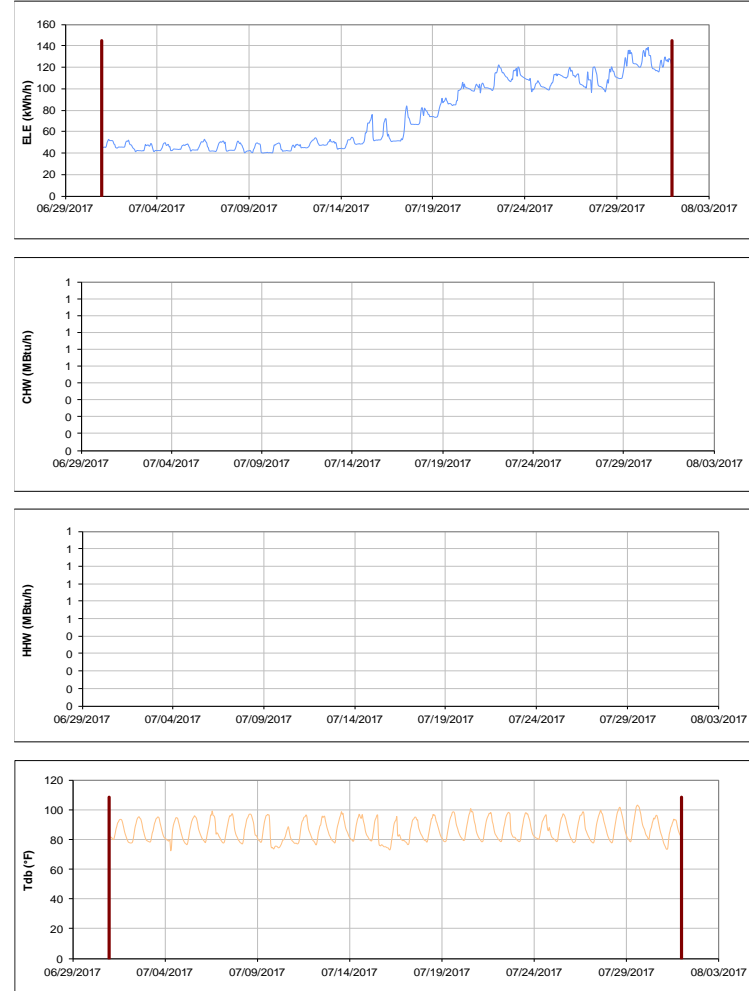


Figure III-50 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Mosher Commons Krueger Dunn Aston TAMU / BLDG #: 0-0441-0442-0447

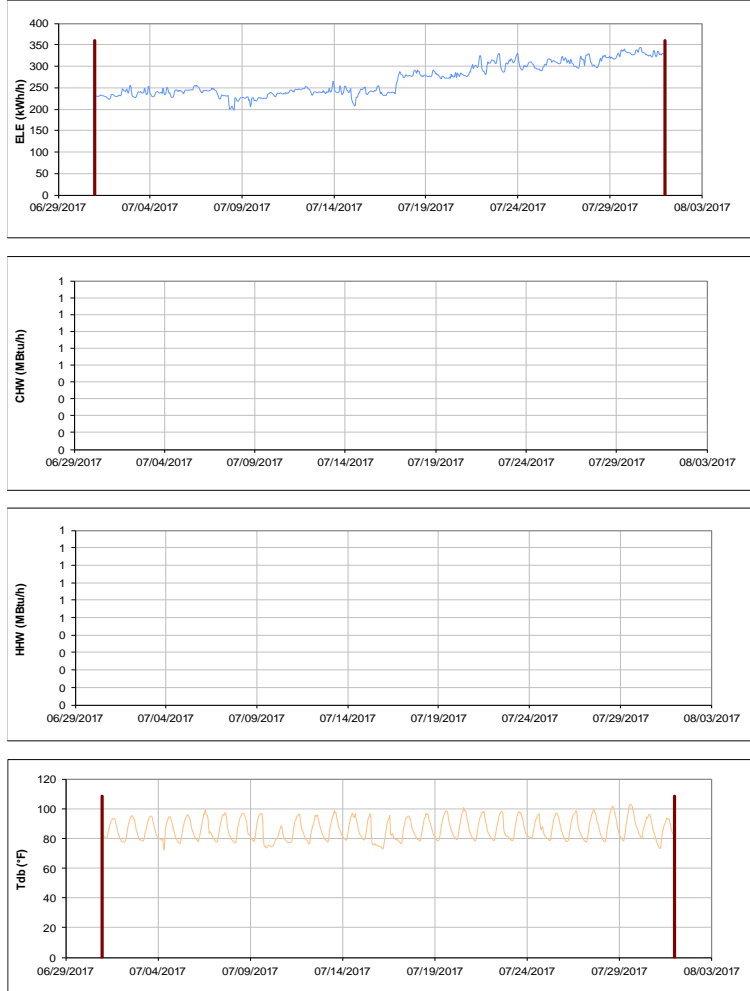


Figure III-51 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Commons Krueger Dunn Aston during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Luedecke Building (Cyclotron) TAMU / BLDG #: 0434

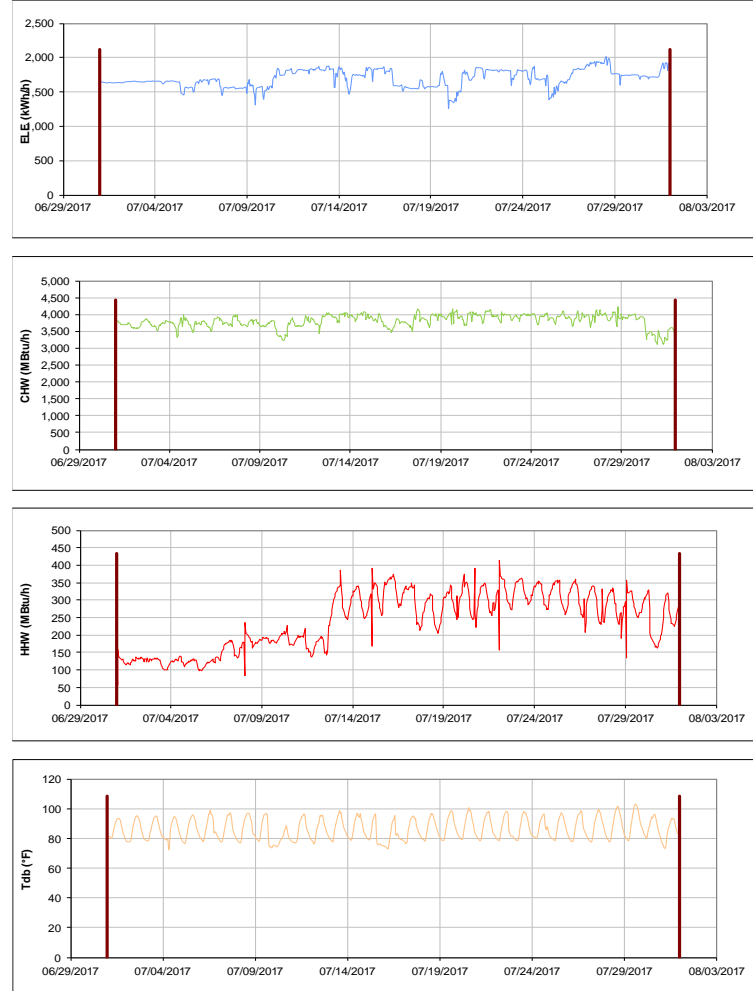


Figure III-52 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Luedecke Building (Cyclotron) during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

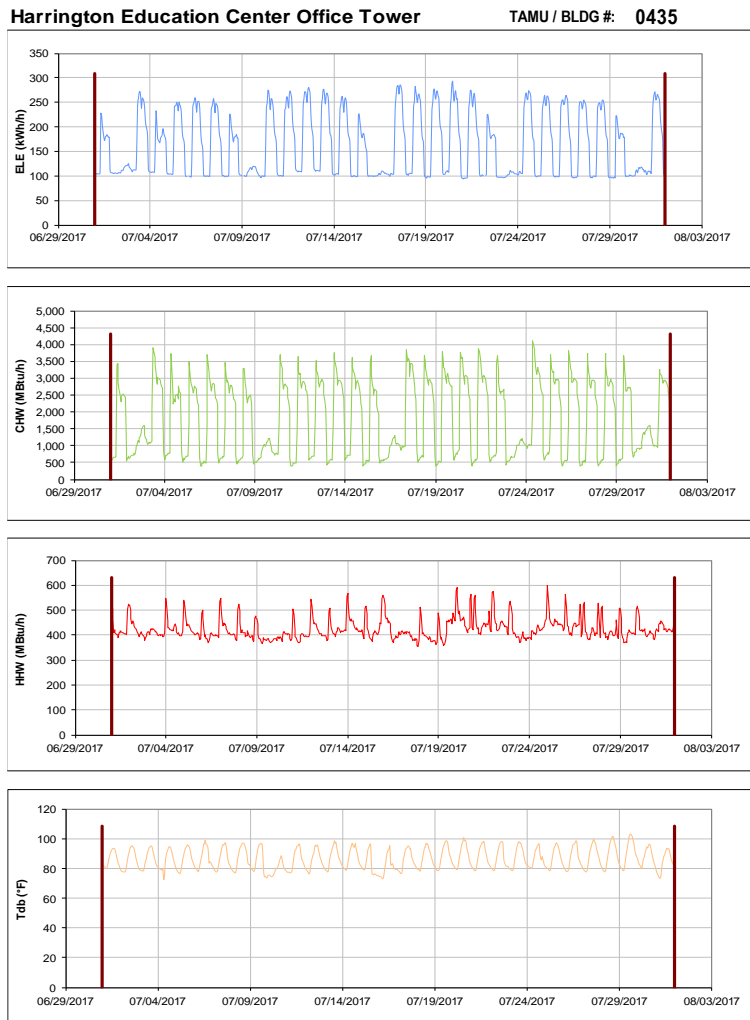


Figure III-53 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Office Tower during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

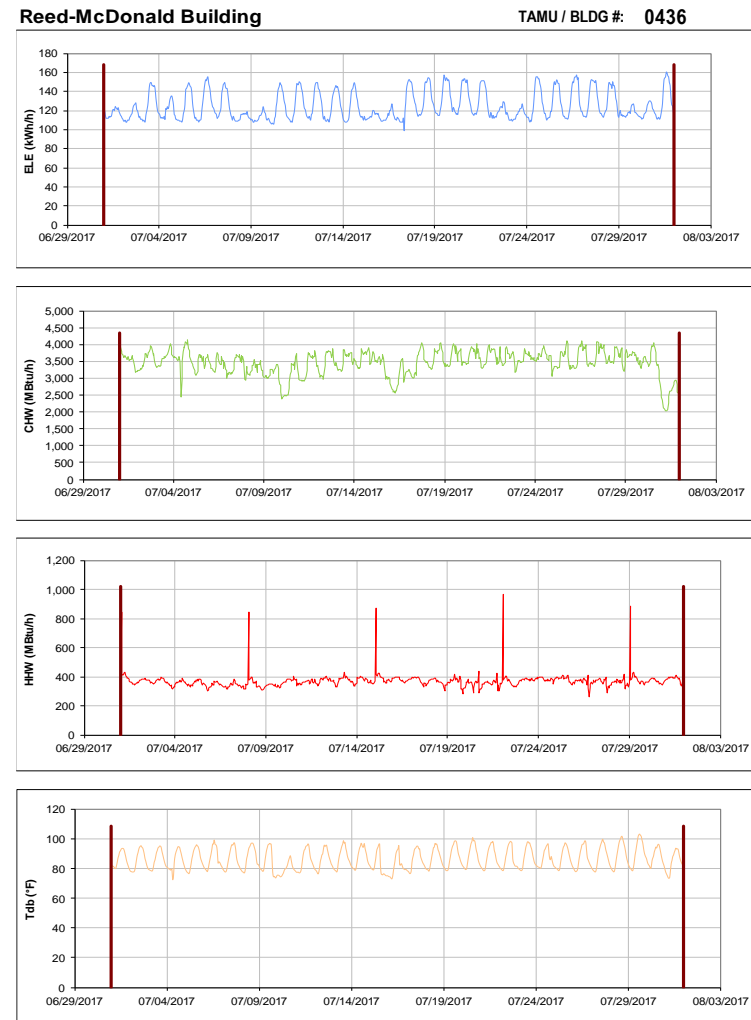


Figure III-54 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Reed-McDonald and Engineering Innovation Center TAMU / BLDG #: 436-0499

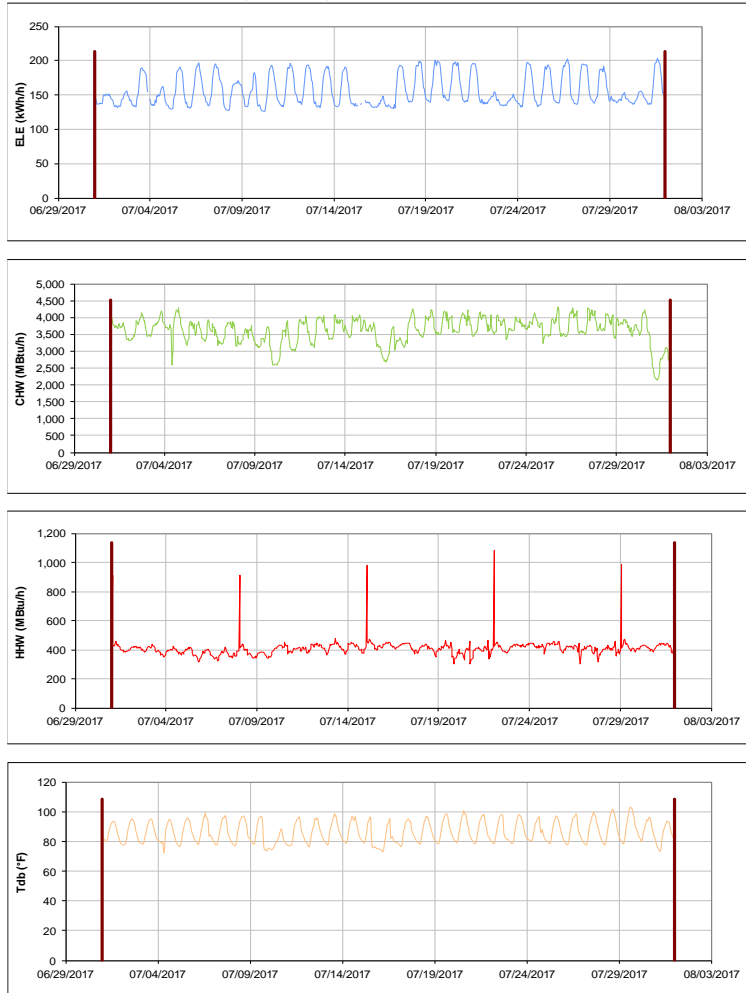


Figure III-55 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald and Engineering Innovation Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Harrington Education Center Classroom Building TAMU / BLDG #: 0438

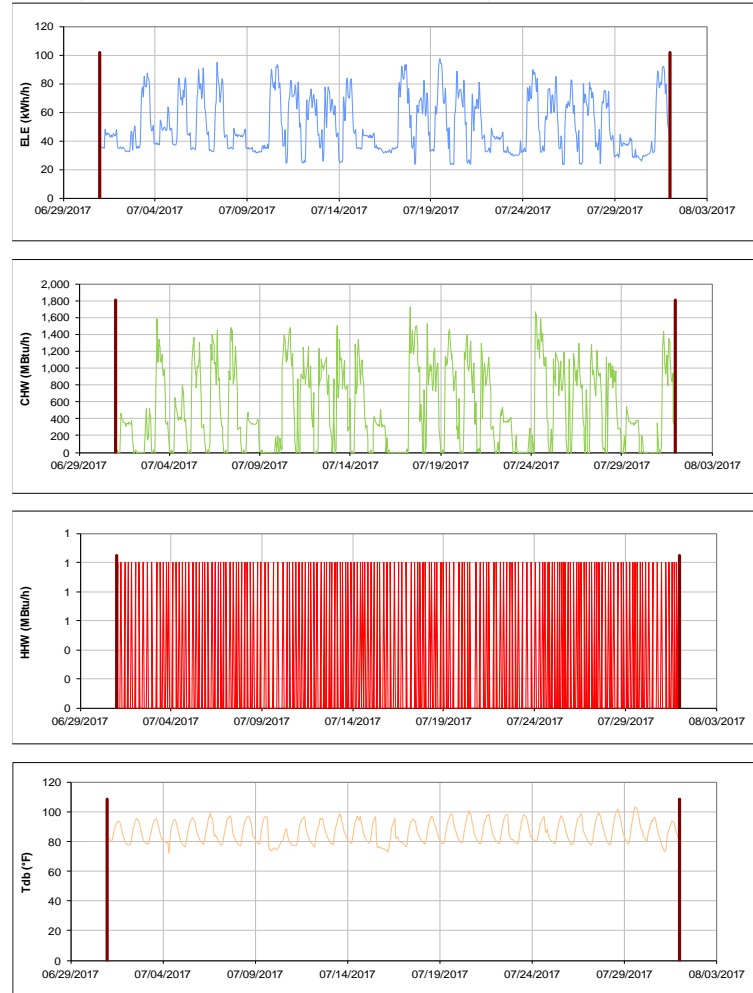


Figure III-56 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Classroom Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Commons Hall

TAMU / BLDG #: 0440

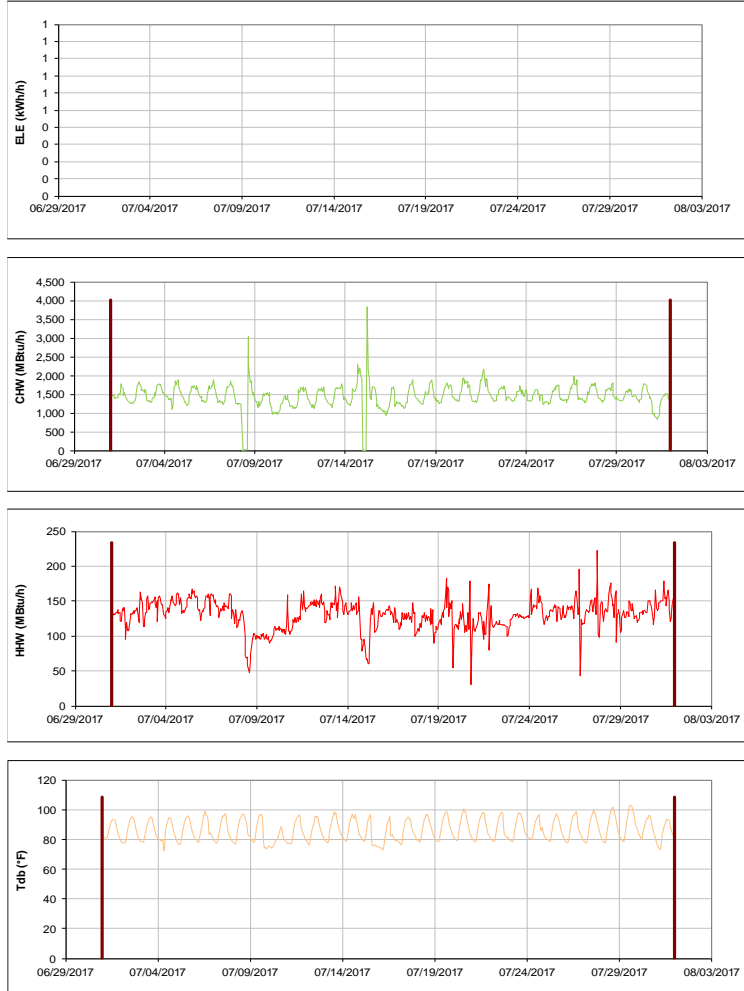


Figure III-57 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Commons Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Commons Krueger

TAMU / BLDG #: 1440-0441

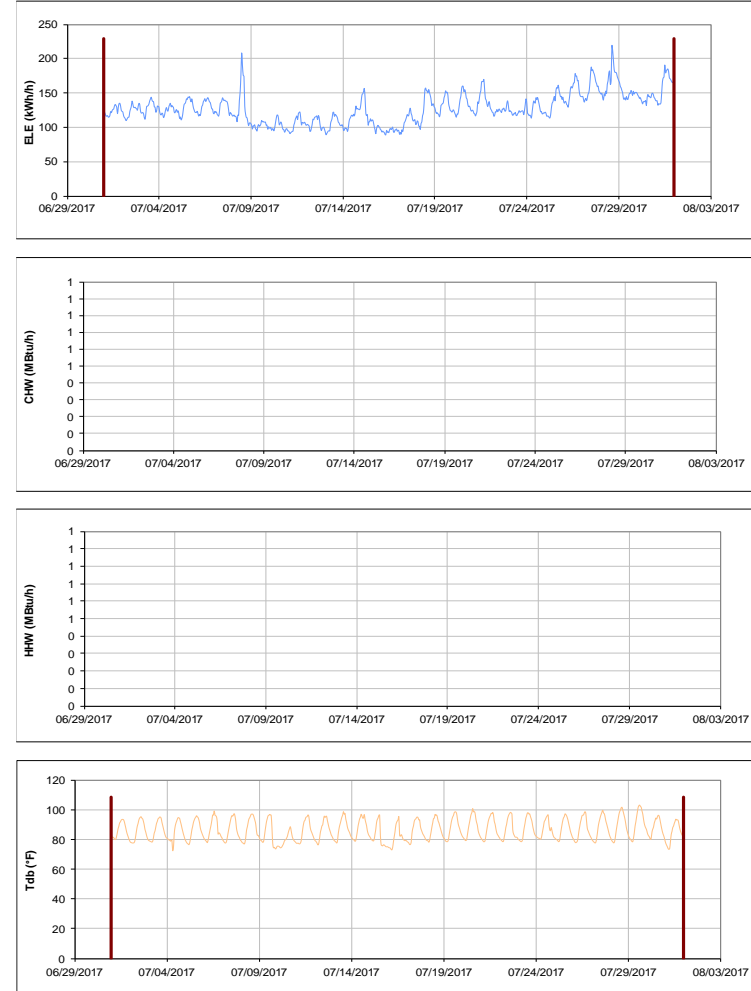


Figure III-58 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Commons Krueger during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Krueger Residence Hall

TAMU / BLDG #: 0441

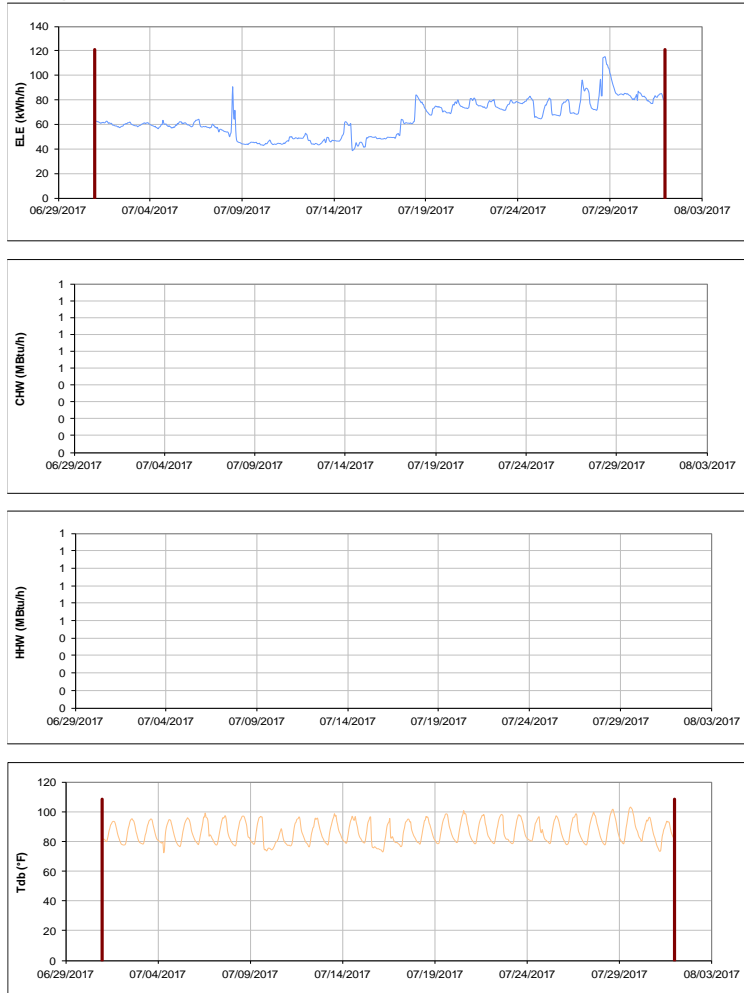


Figure III-59 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Krueger Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Dunn Residence Hall

TAMU / BLDG #: 0442

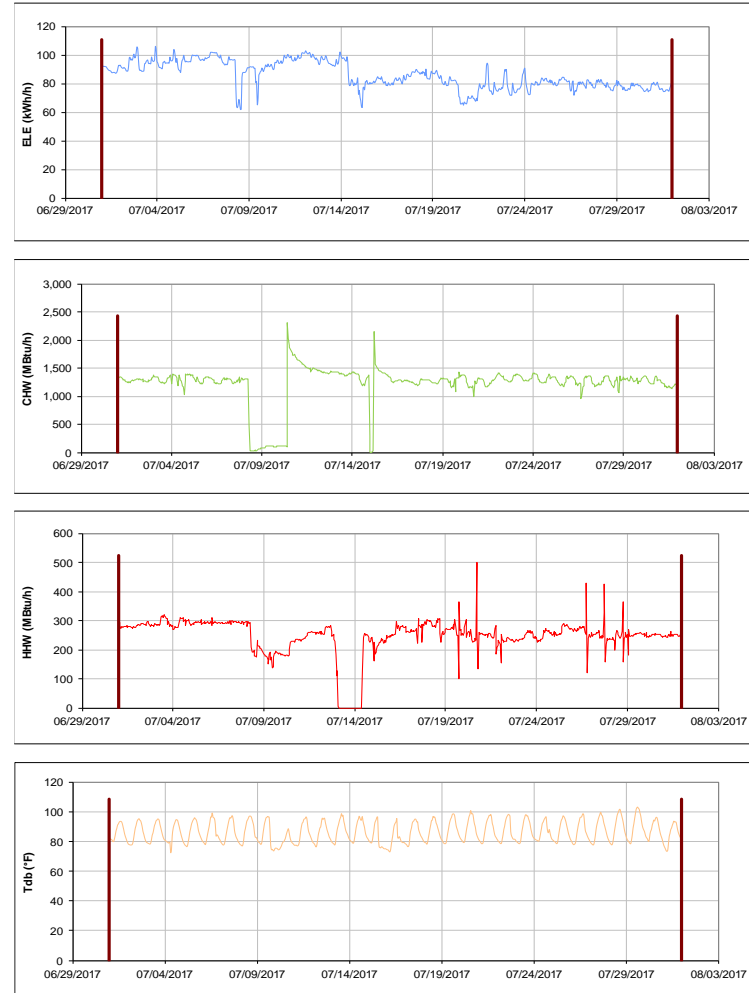


Figure III-60 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Dunn Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

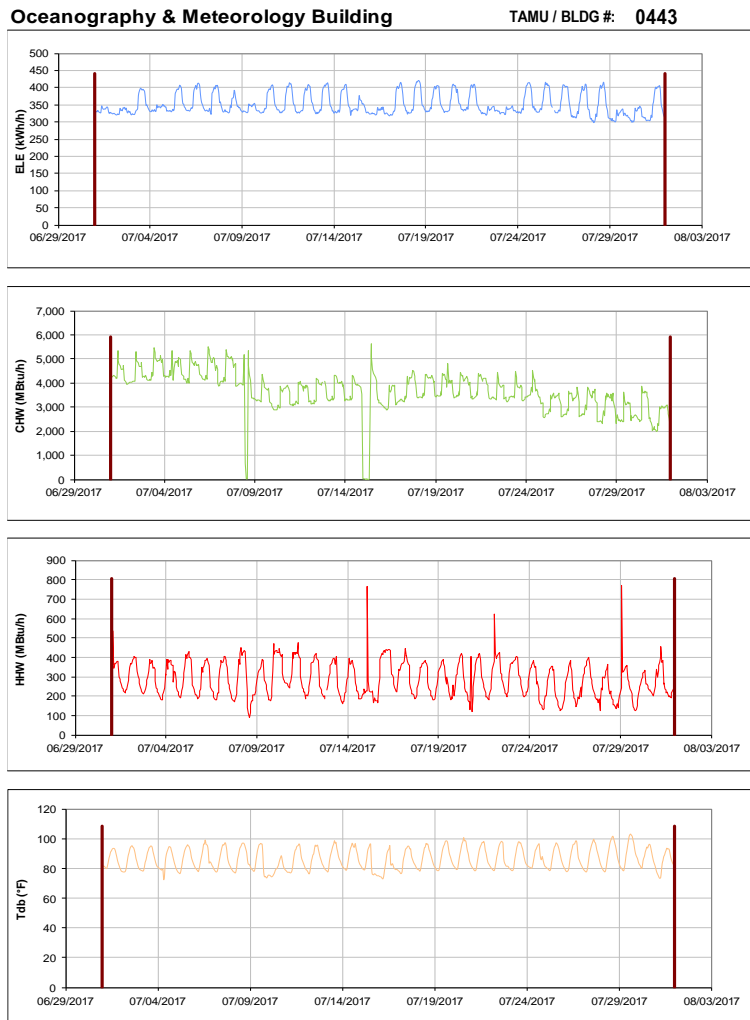


Figure III-61 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Oceanography & Meteorology Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

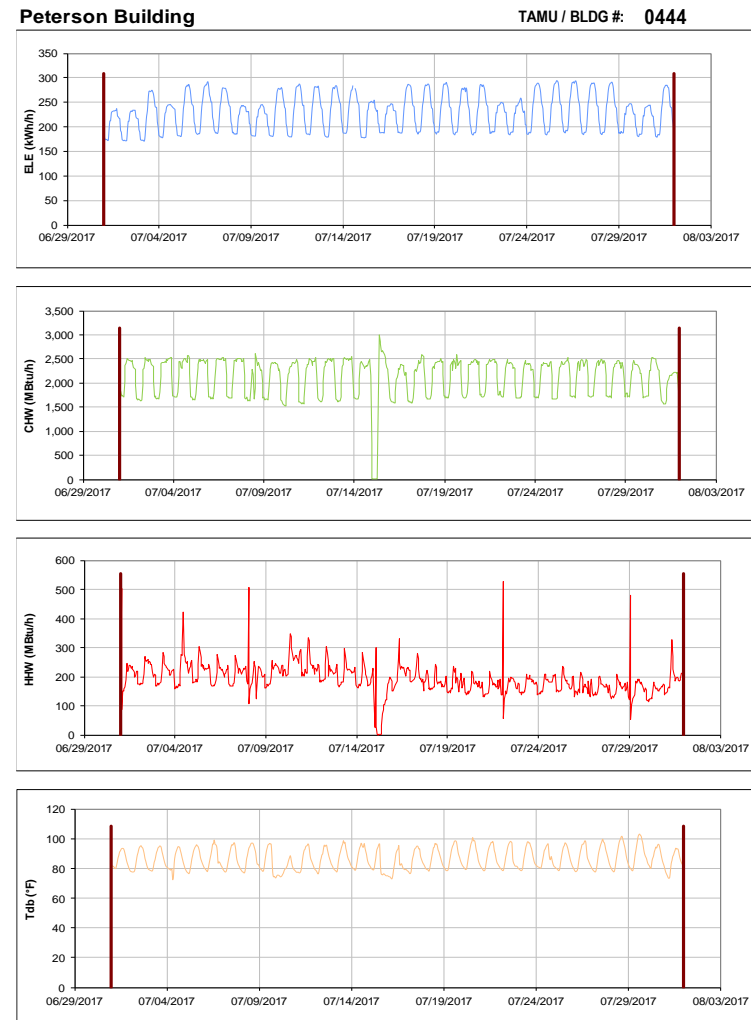


Figure III-62 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Peterson Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Teague Research Center

TAMU / BLDG #: 0445

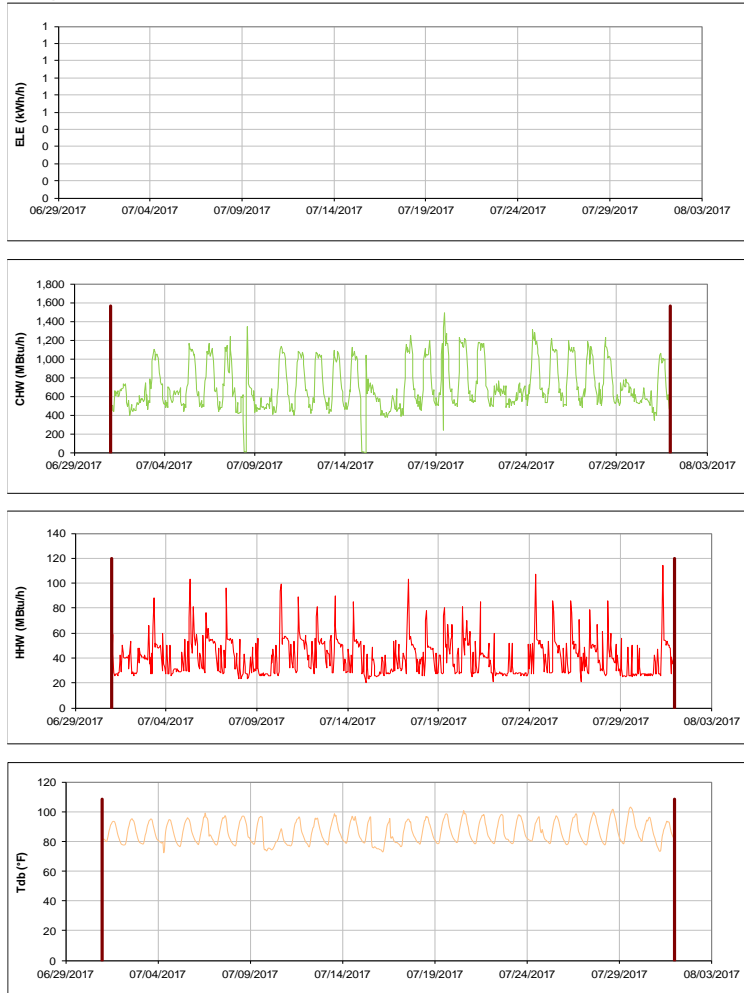


Figure III-63 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Teague Research Center and DPC Annex

TAMU / BLDG #: 1445-0517

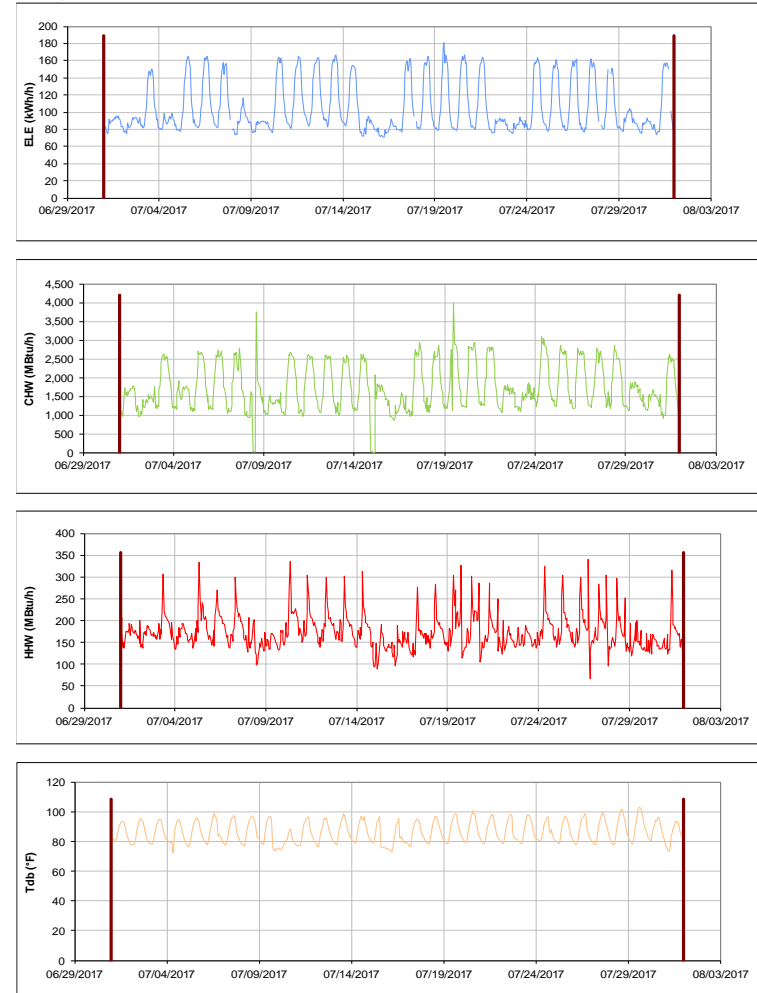


Figure III-64 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center and DPC Annex during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

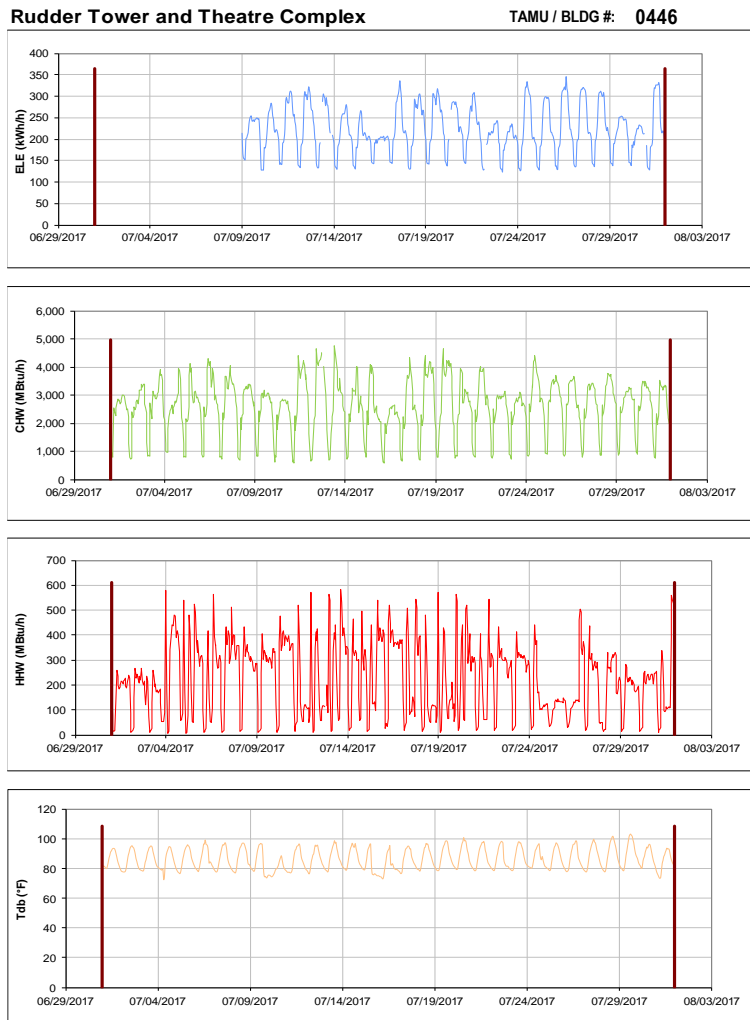


Figure III-65 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower and Theatre Complex during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

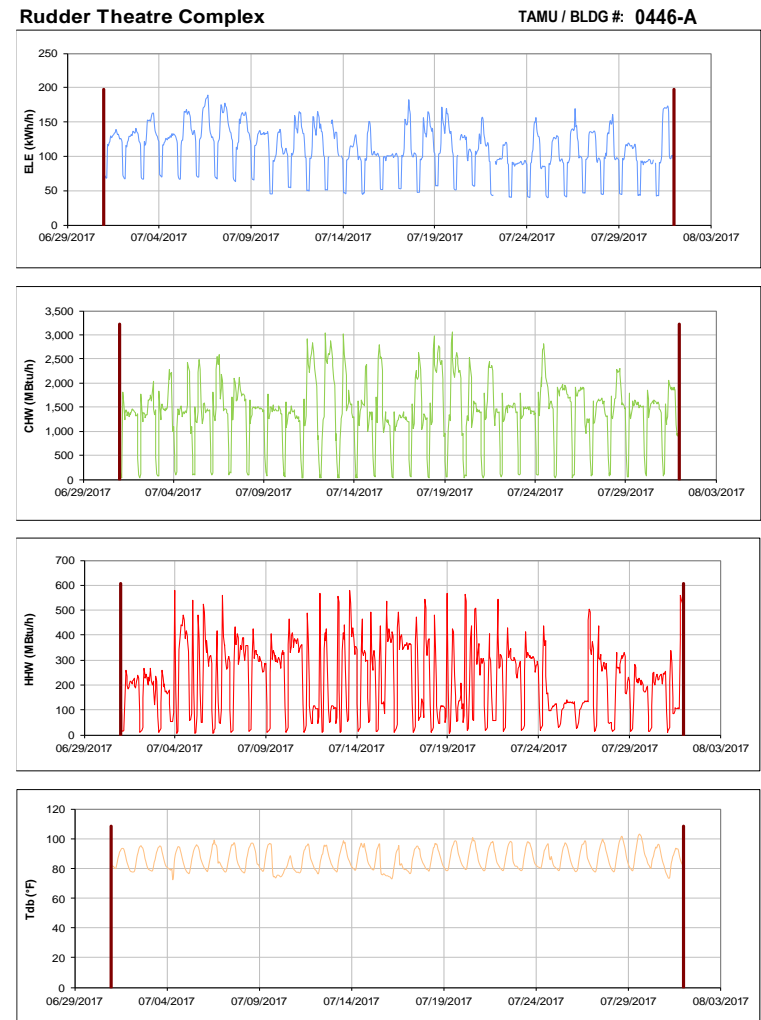


Figure III-66 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Theatre Complex during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



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

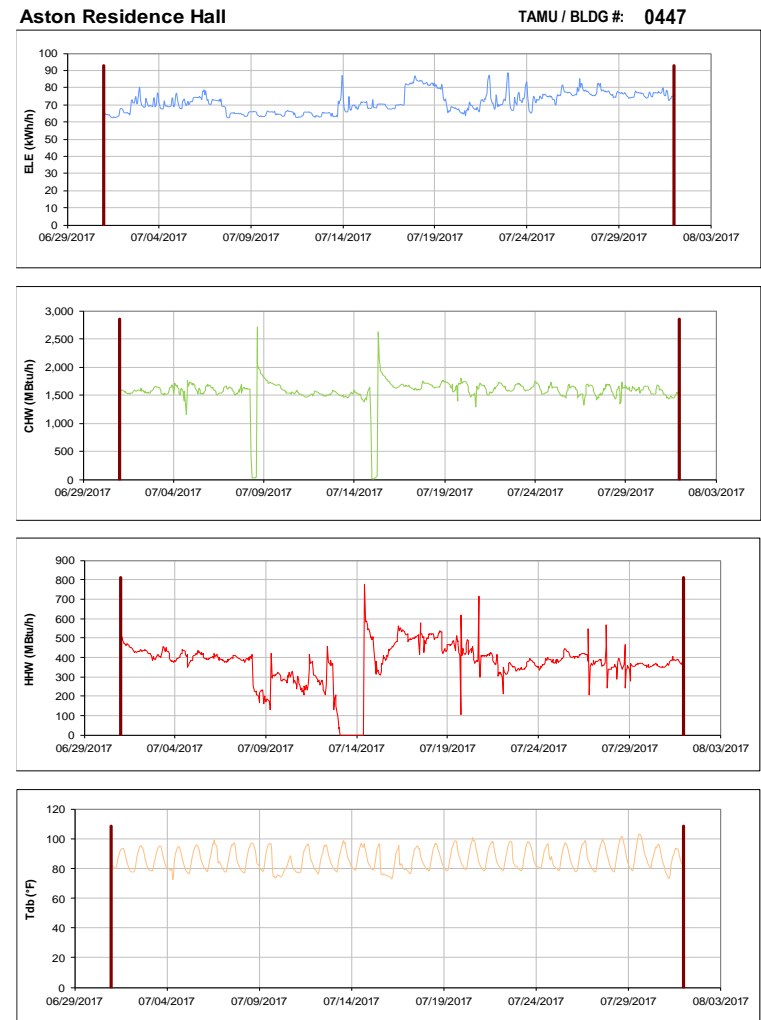


Figure III-68 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Aston Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Adams Band Hall

TAMU / BLDG #: 0448

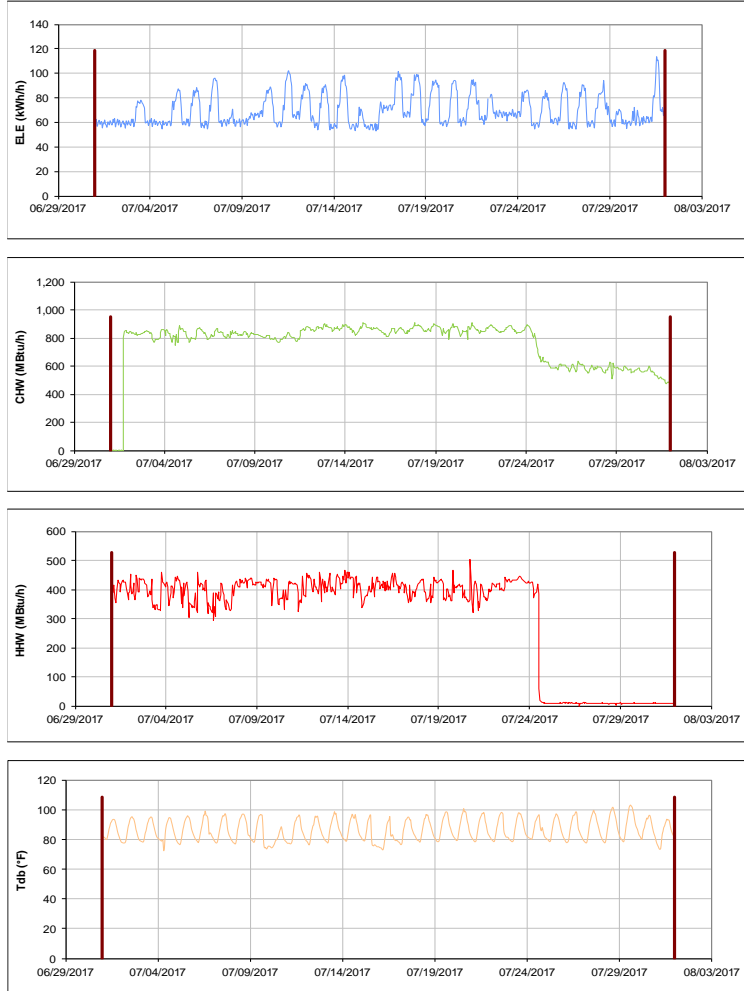


Figure III-69 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Adams Band Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Biological Sciences Building - West

TAMU / BLDG #: 0449

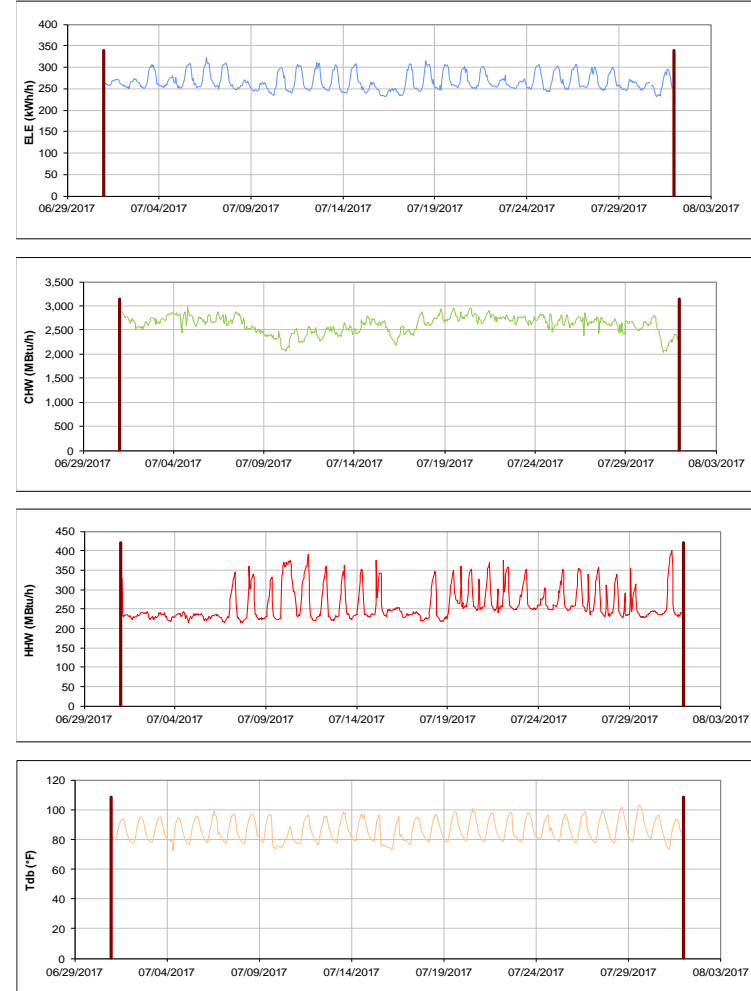


Figure III-70 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - West during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

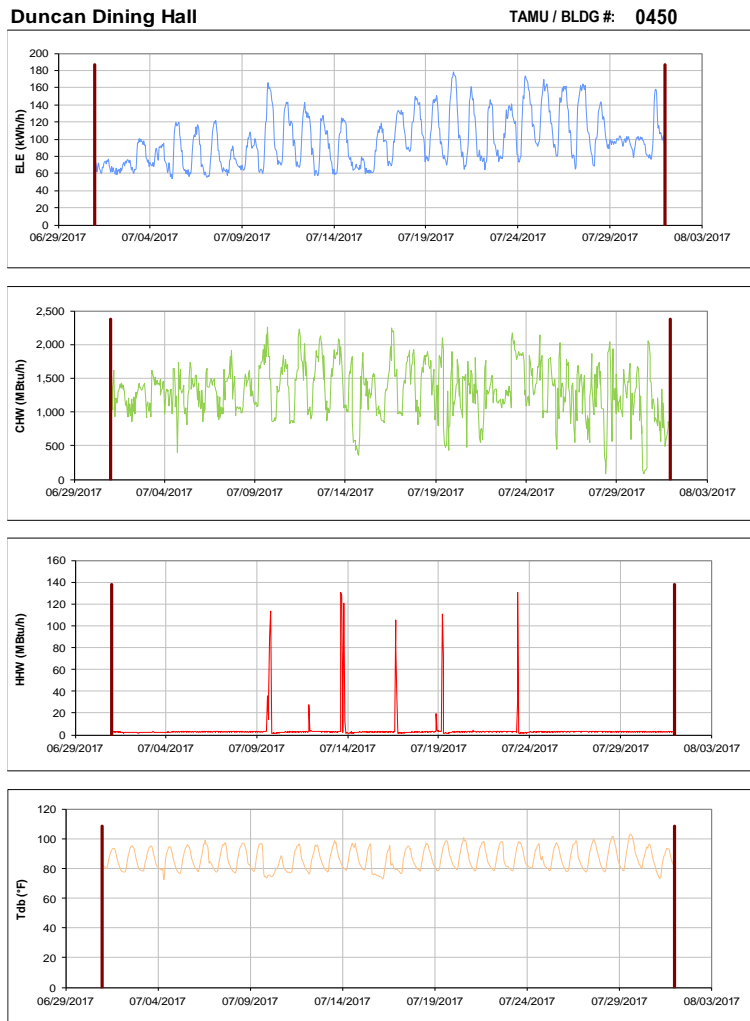


Figure III-71 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Duncan Dining Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

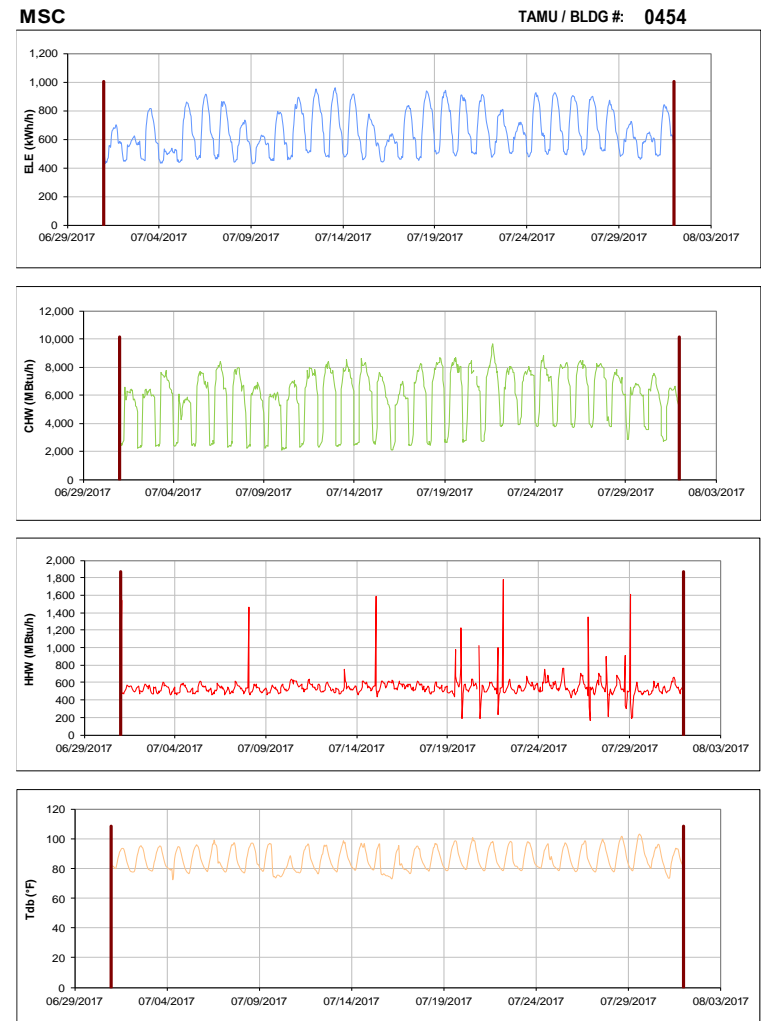


Figure III-72 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for MSC during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Military Sciences Building

TAMU / BLDG #: 0456

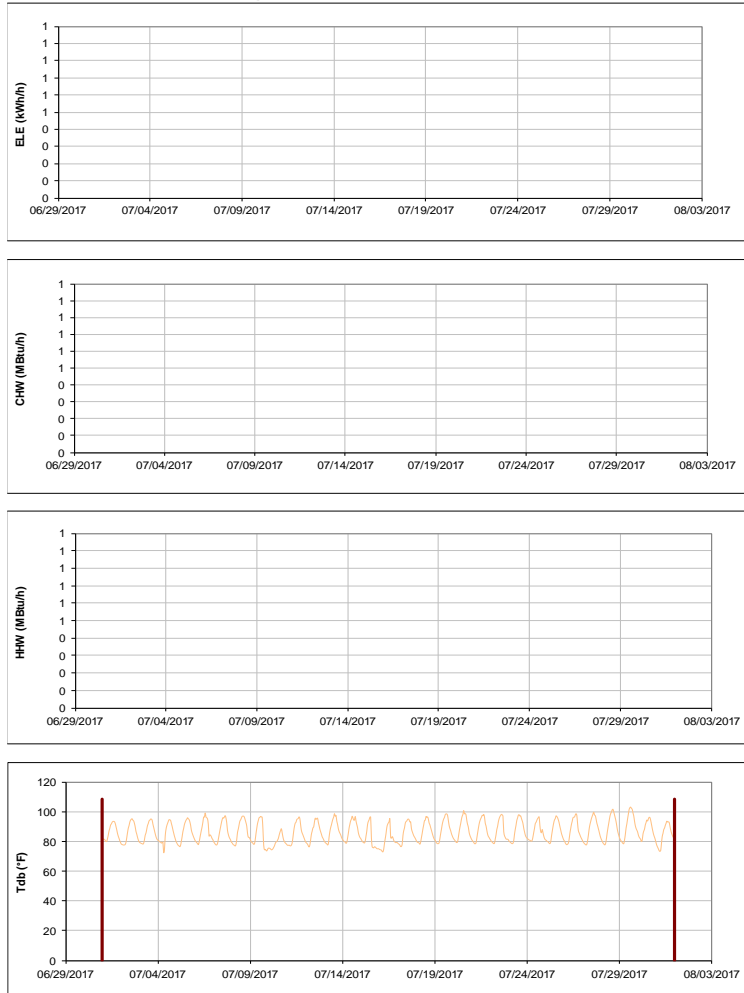


Figure III-73 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Military Sciences Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

TAES Annex Building

TAMU / BLDG #: 0457

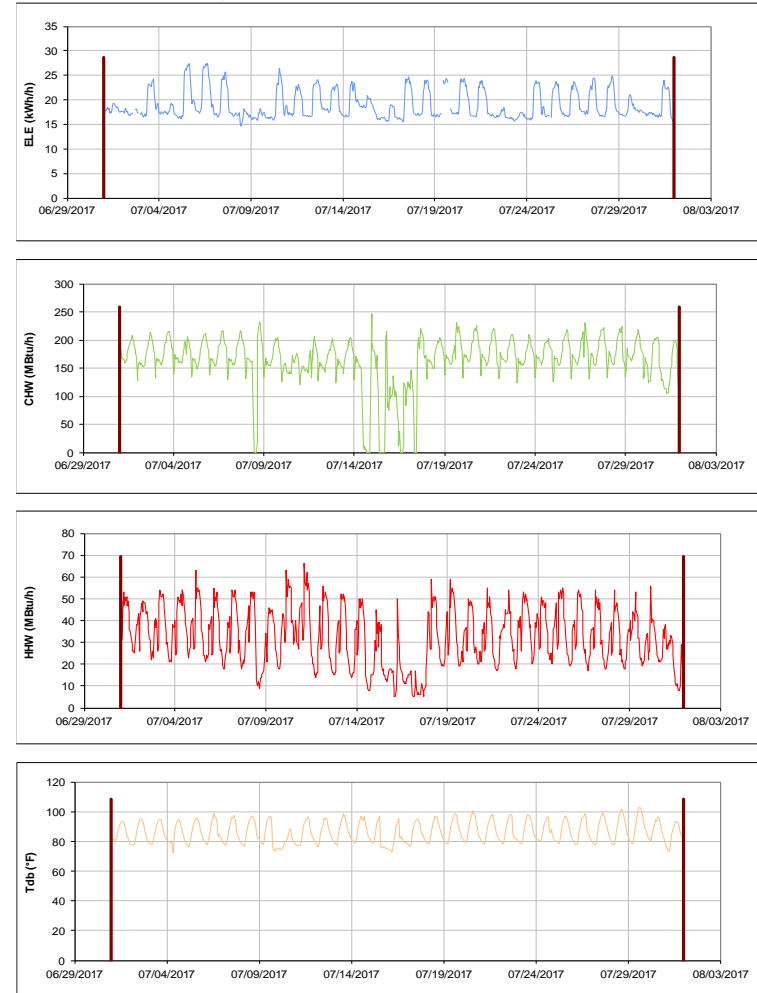


Figure III-74 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TAES Annex Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

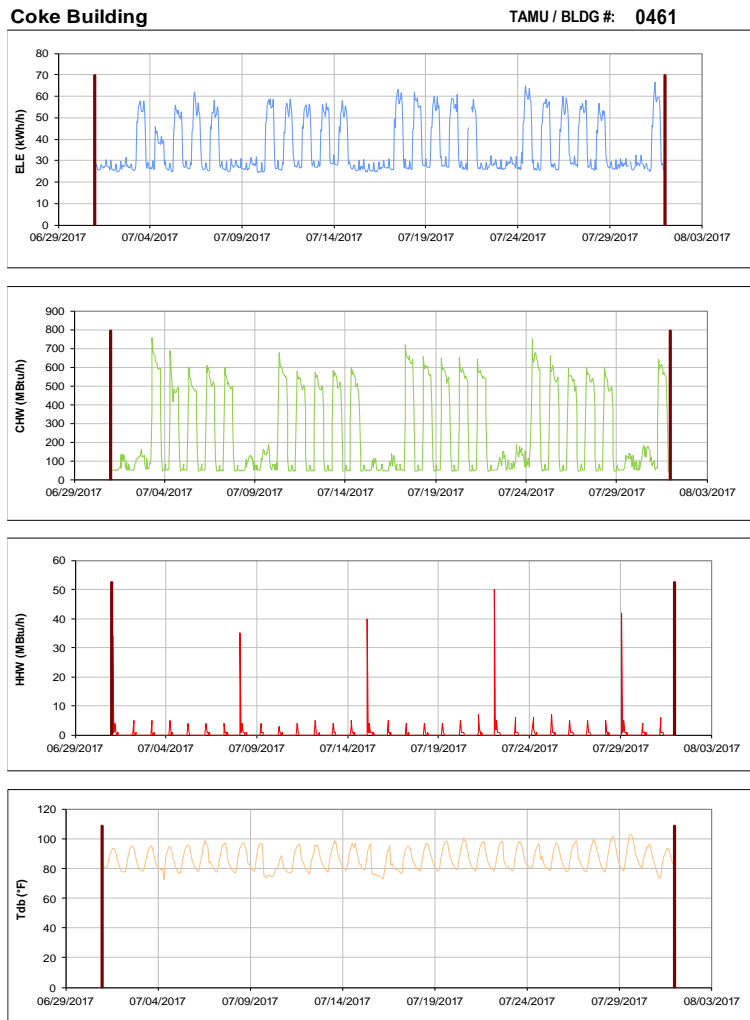


Figure III-75 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Coke Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

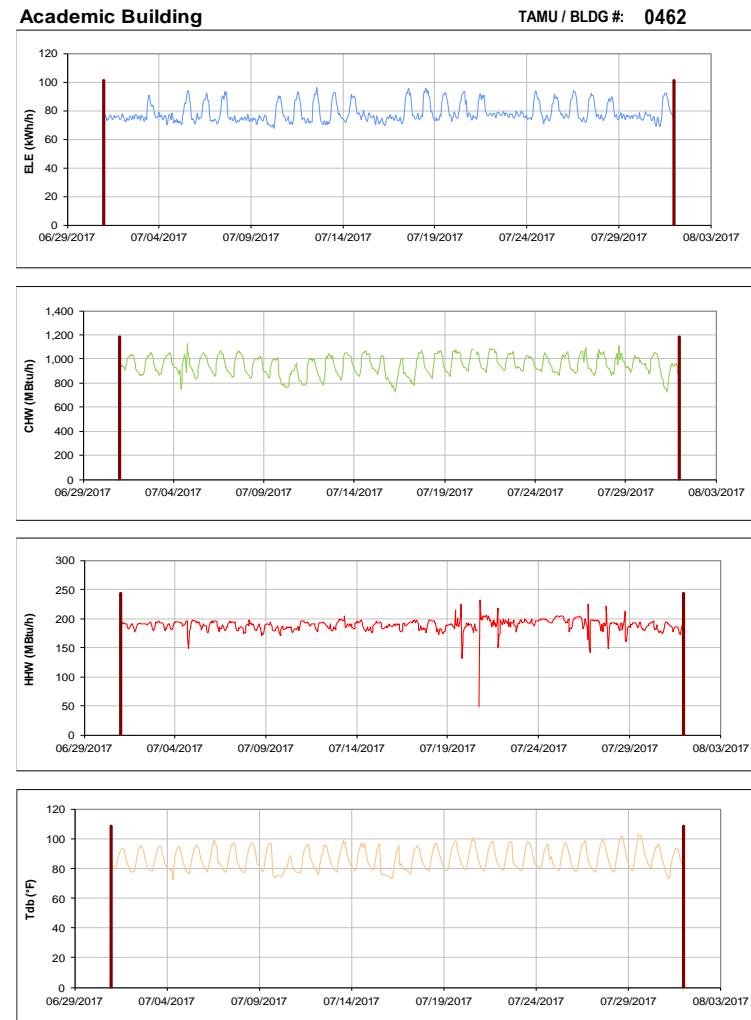


Figure III-76 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Academic Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Psychology Building

TAMU / BLDG #: 0463



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

State Chemist Building

TAMU / BLDG #: 0464

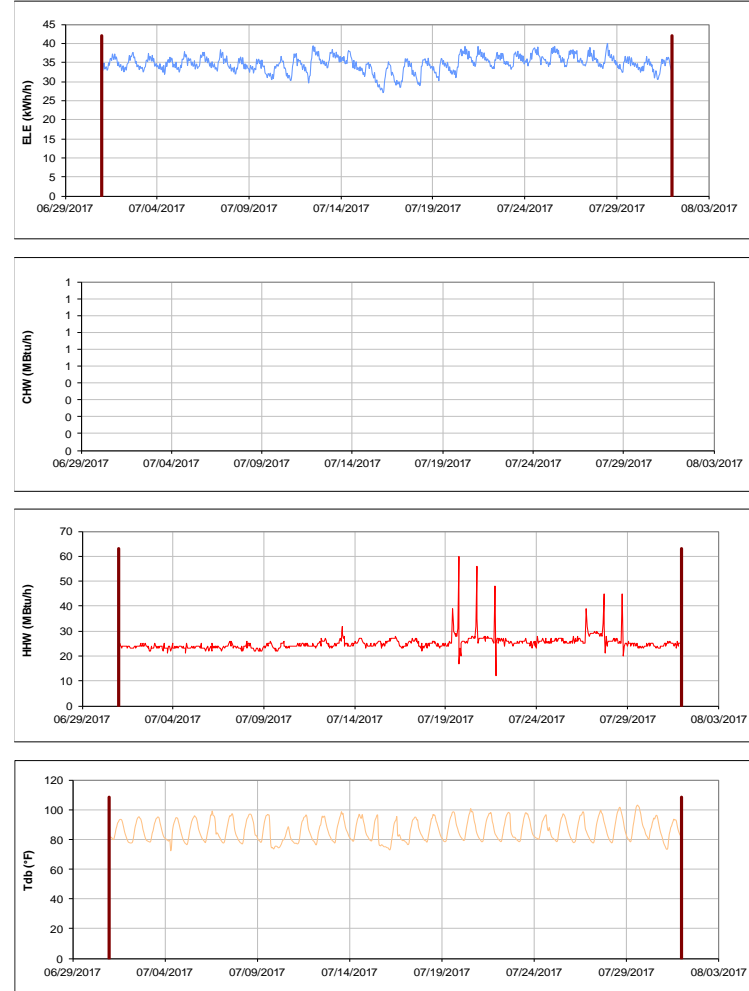


Figure III-78 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for State Chemist Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

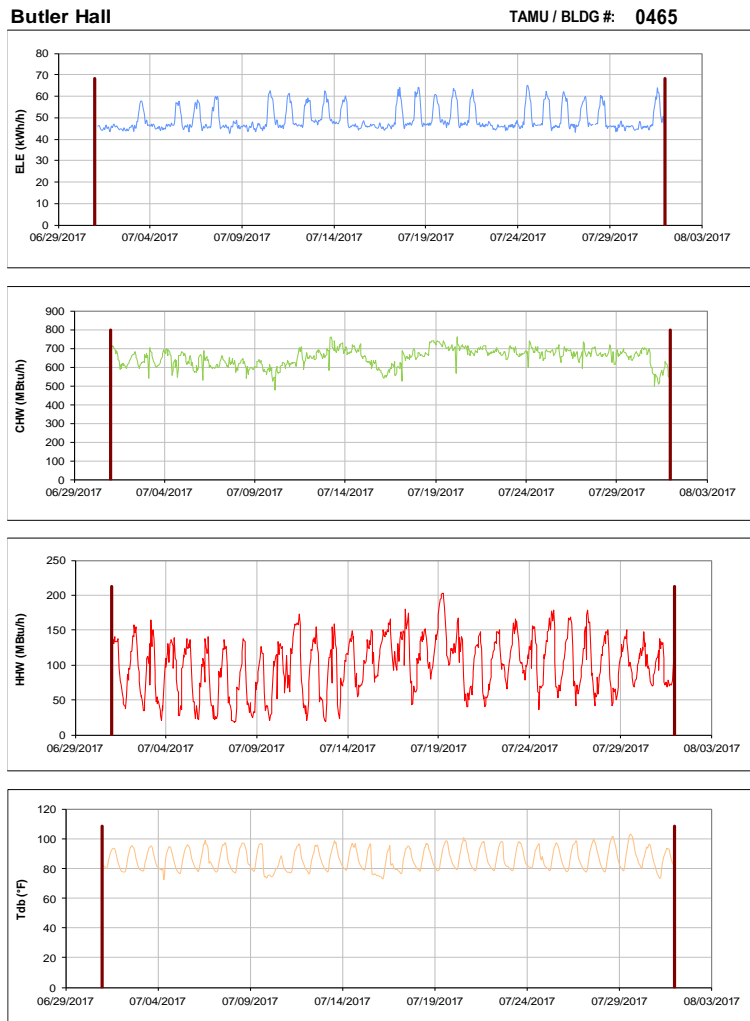


Figure III-79 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Butler Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

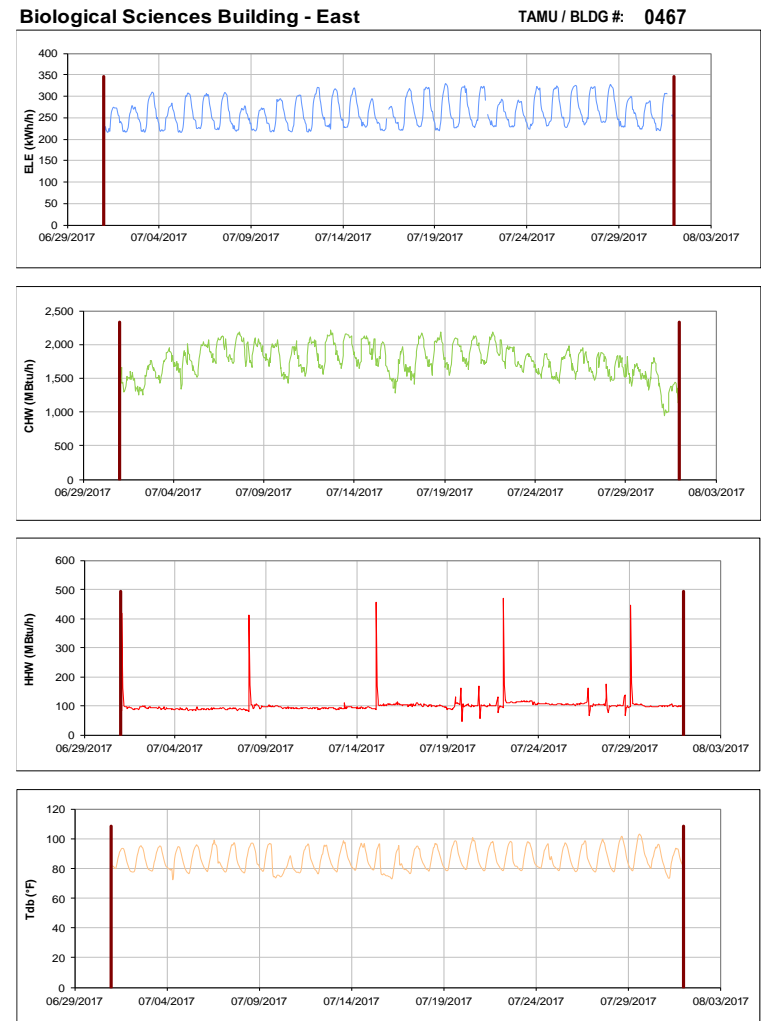


Figure III-80 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - East during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

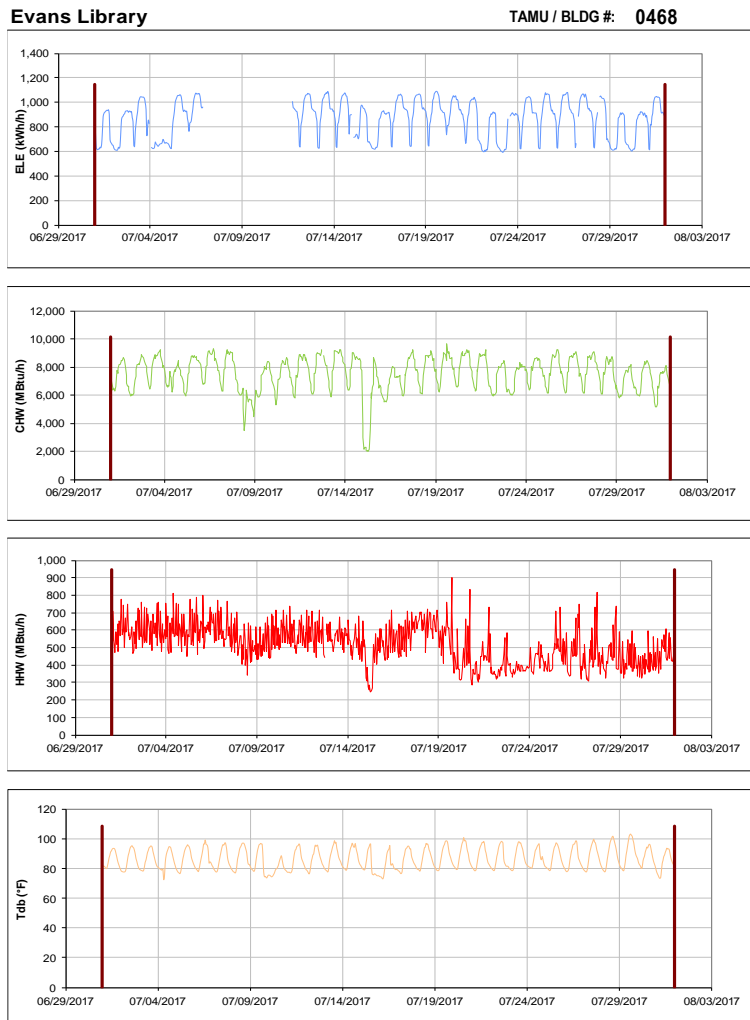


Figure III-81 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Evans Library during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

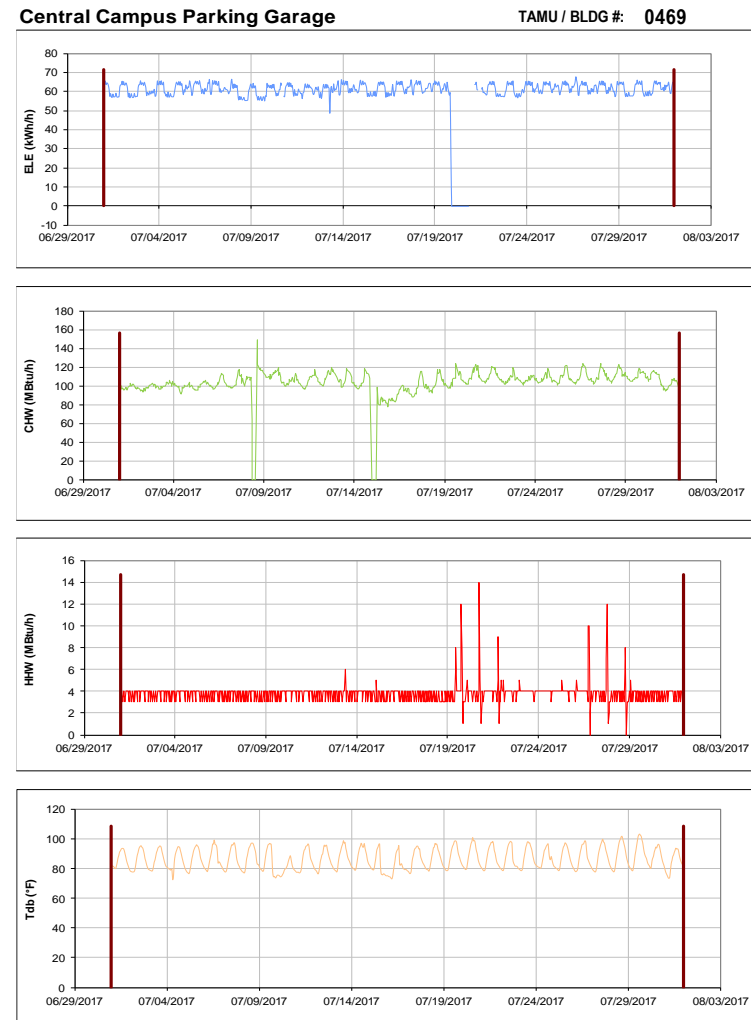


Figure III-82 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Central Campus Parking Garage during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



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

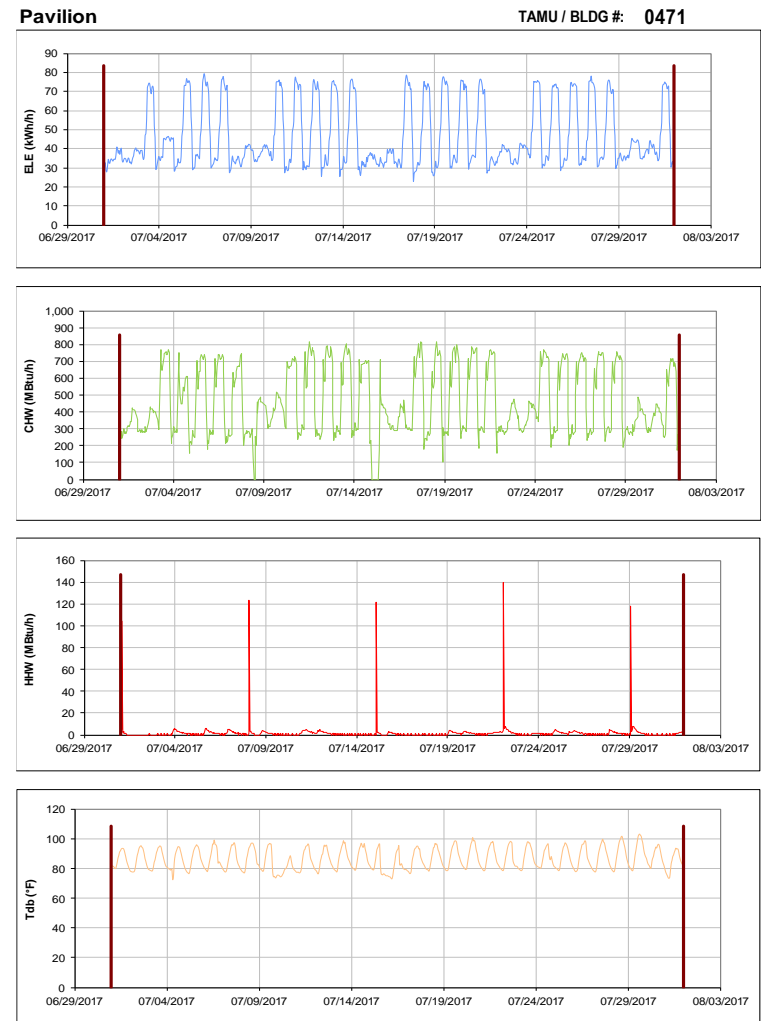


Figure III-84 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Pavilion during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Animal Industries

TAMU / BLDG #: 0472

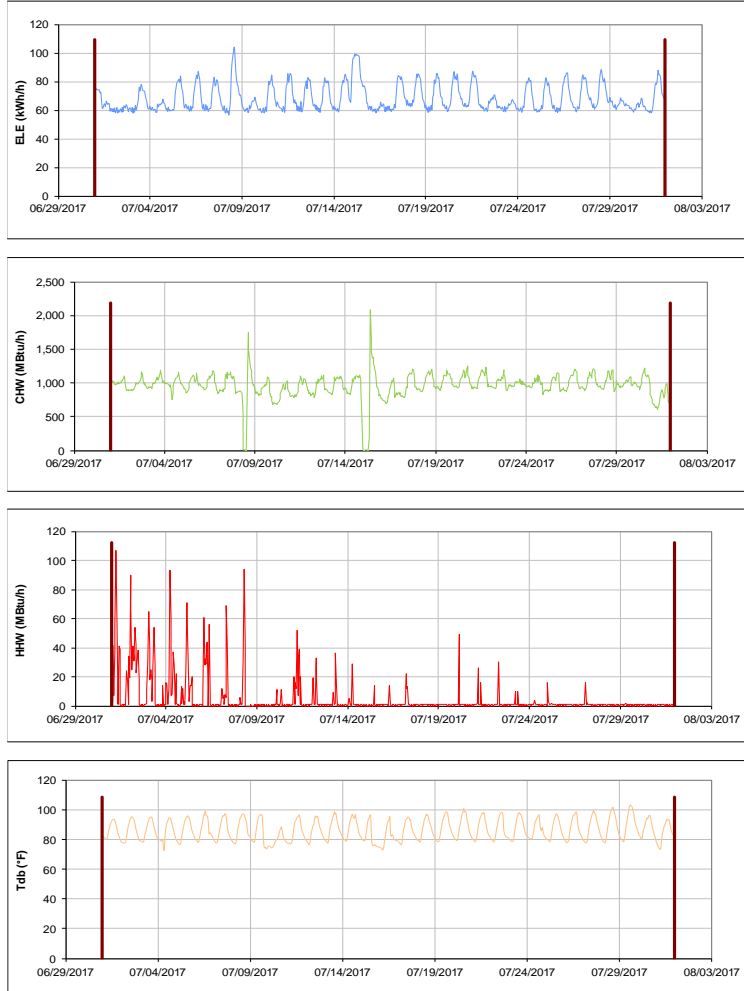


Figure III-85 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Animal Industries during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Williams Administration Building

TAMU / BLDG #: 0473

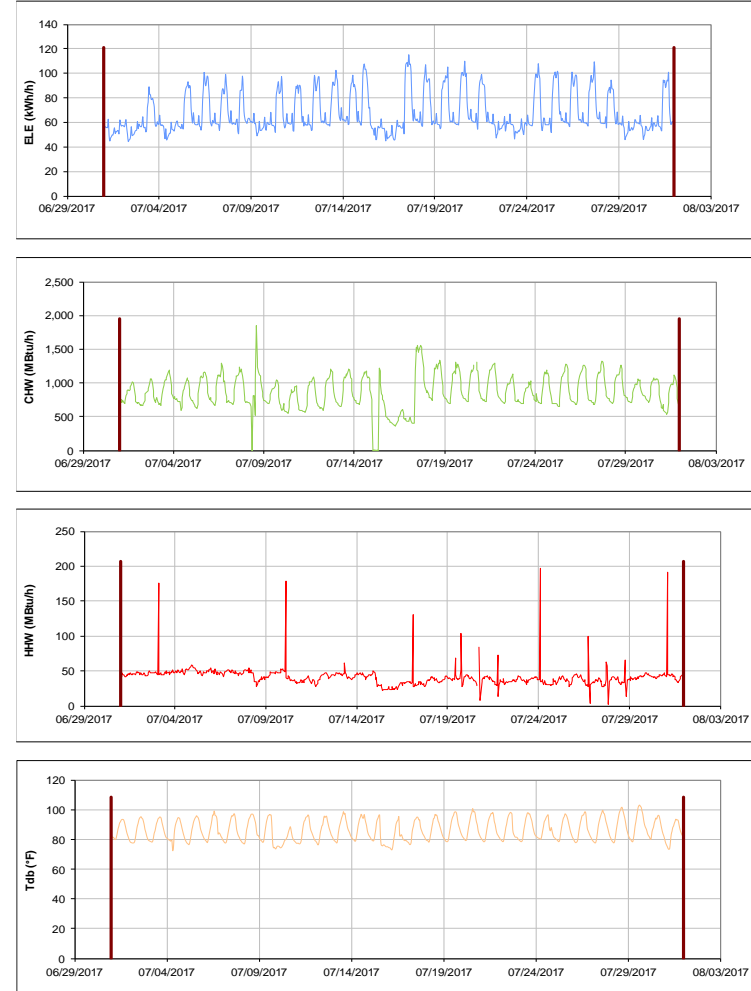


Figure III-86 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Williams Administration Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

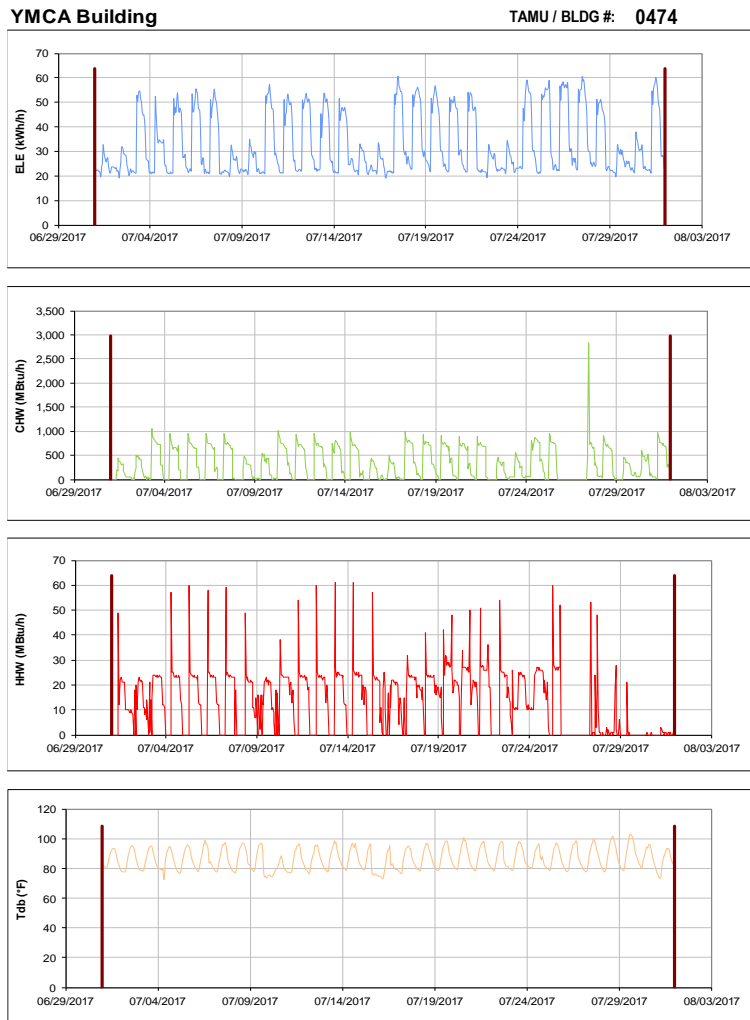


Figure III-87 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for YMCA Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

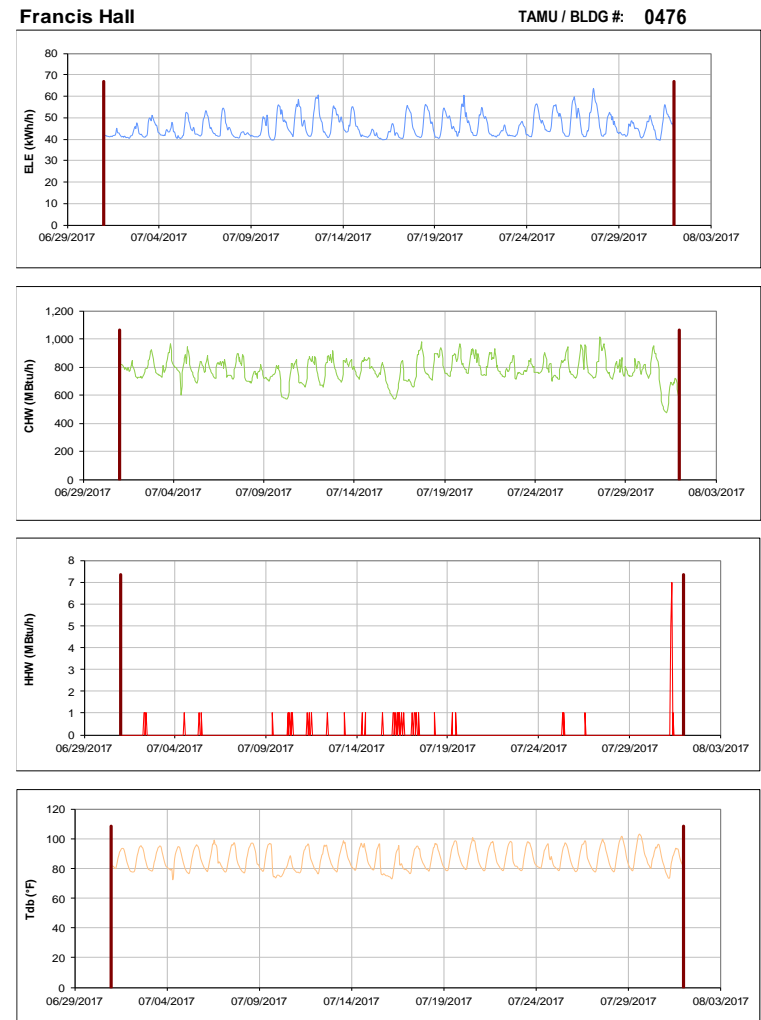


Figure III-88 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Francis Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Anthropology Building

TAMU / BLDG #: 0477

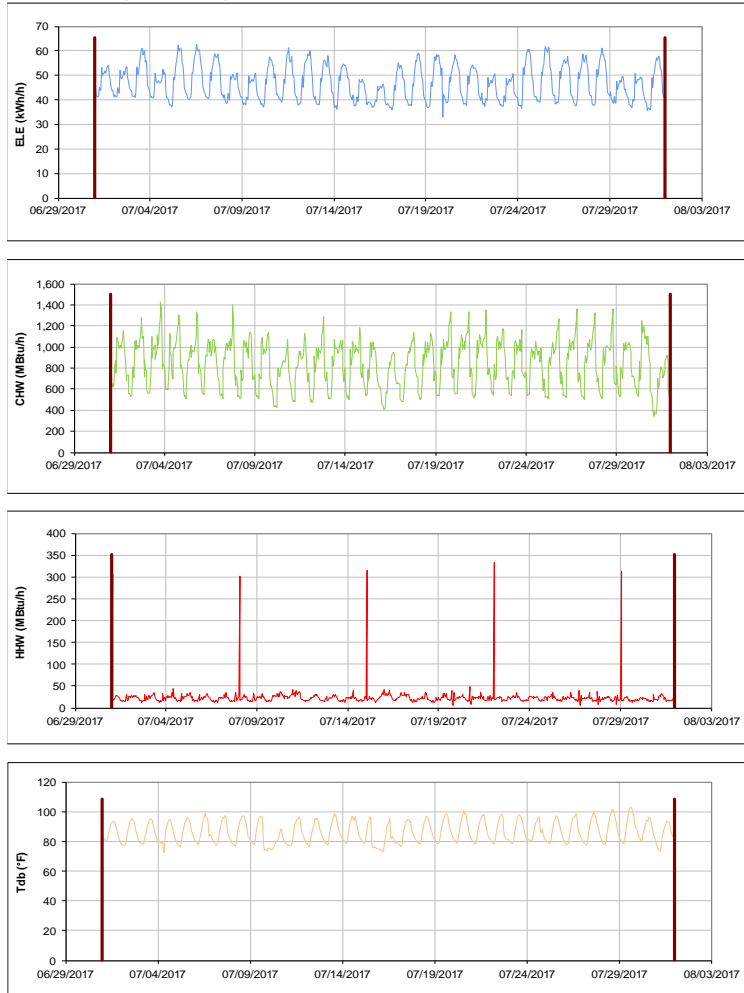


Figure III-89 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Anthropology Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Scoates Hall

TAMU / BLDG #: 0478

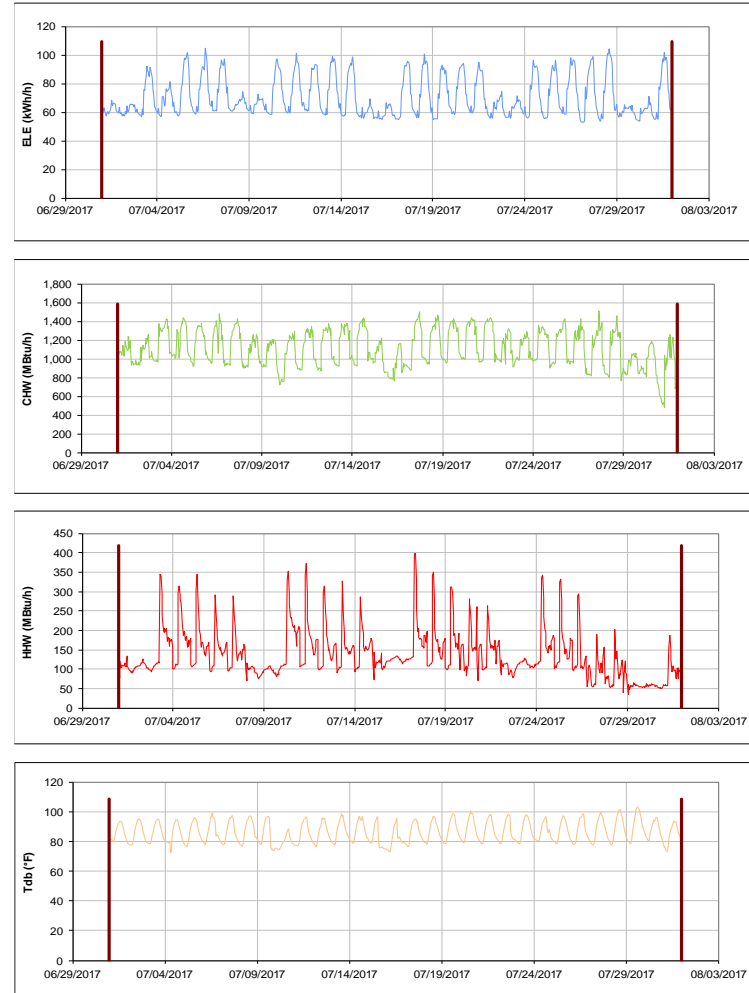


Figure III-90 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Scoates Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

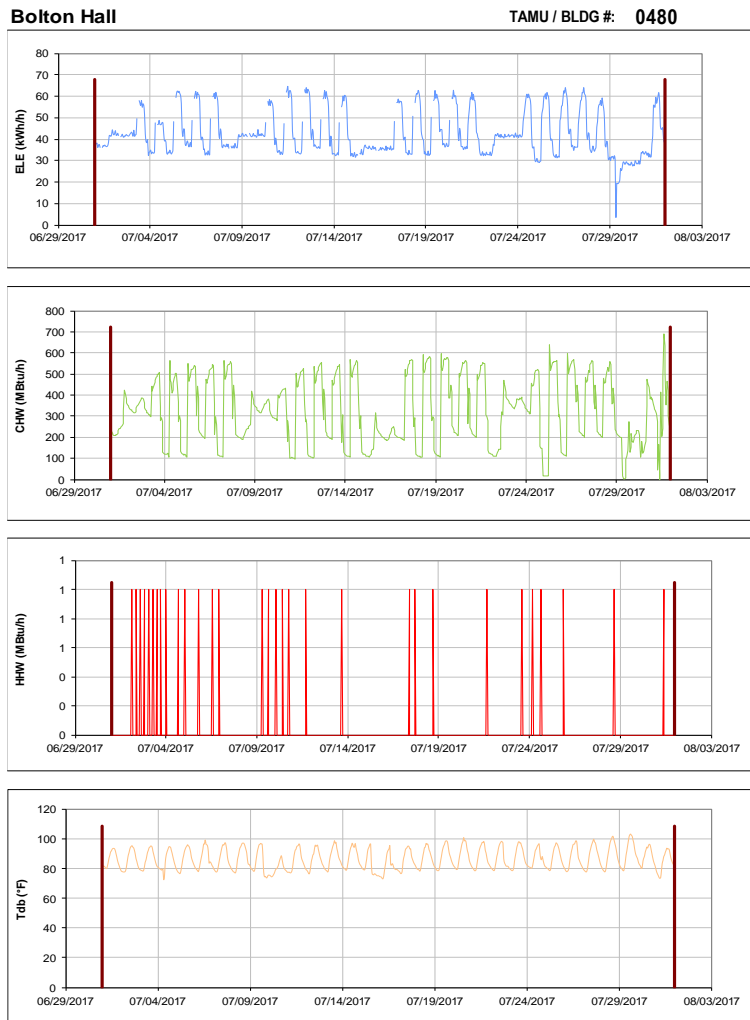


Figure III-91 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bolton Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

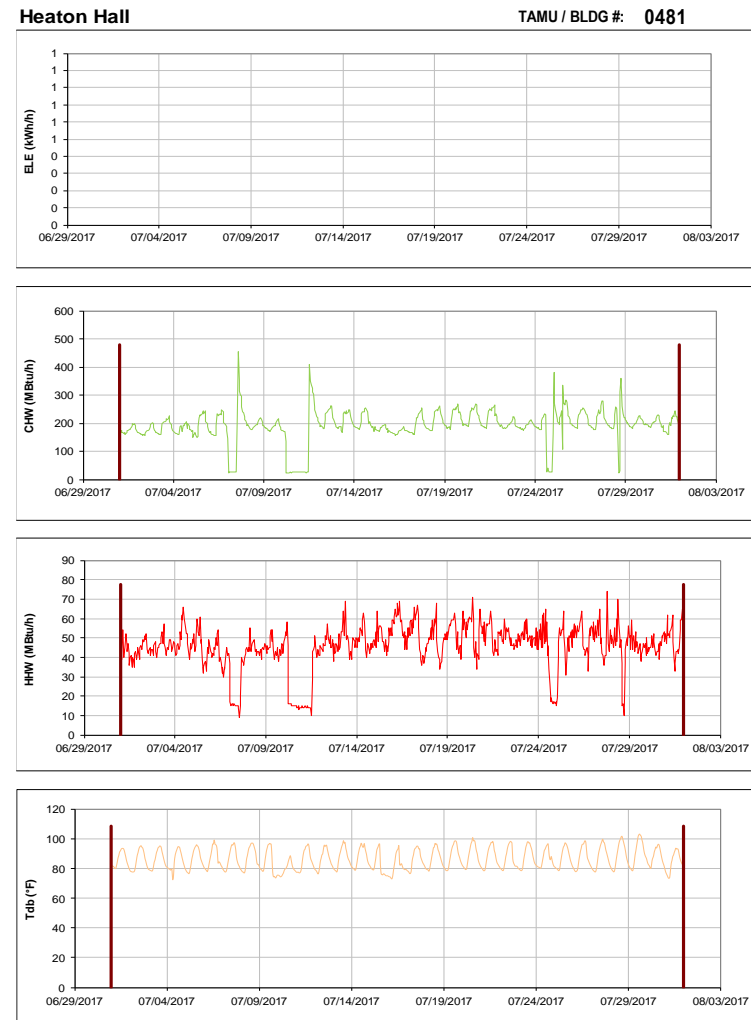


Figure III-92 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heaton Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Fermier Hall

TAMU / BLDG #: 0482

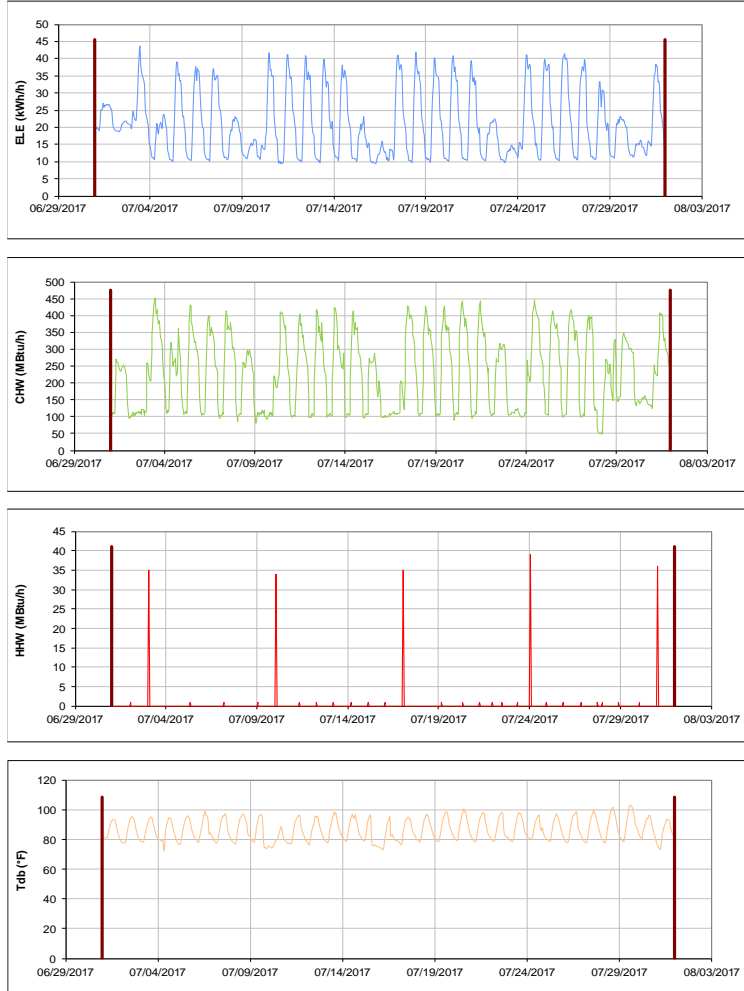


Figure III-93 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fermier Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Thompson Hall

TAMU / BLDG #: 0483

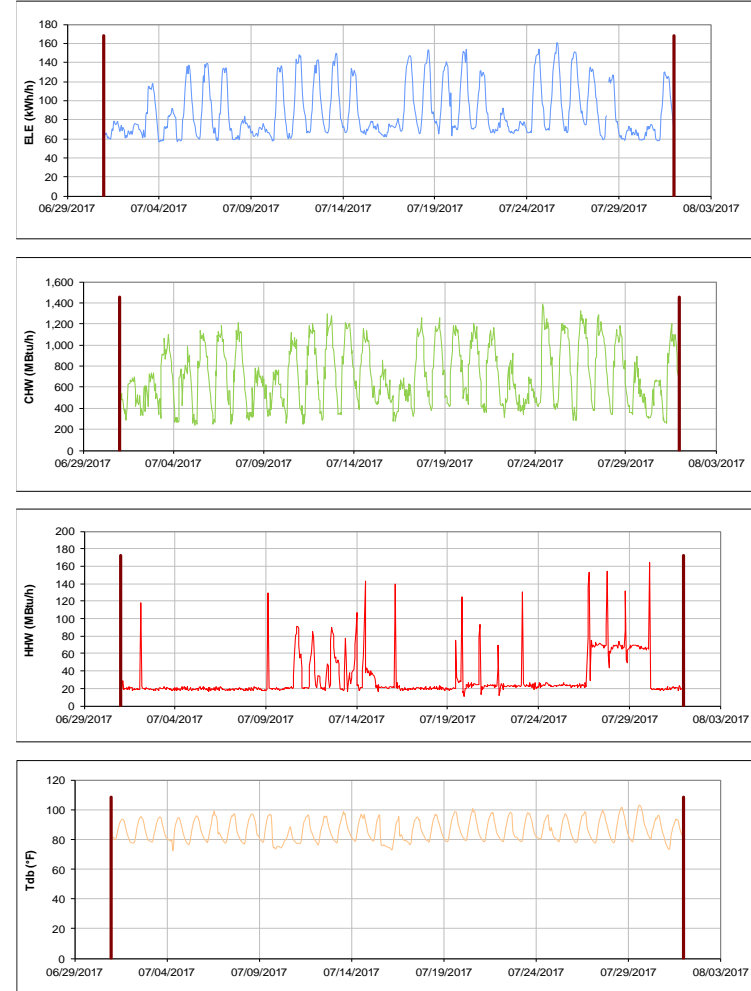


Figure III-94 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Thompson Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Chemistry Building

TAMU / BLDG #: 0484

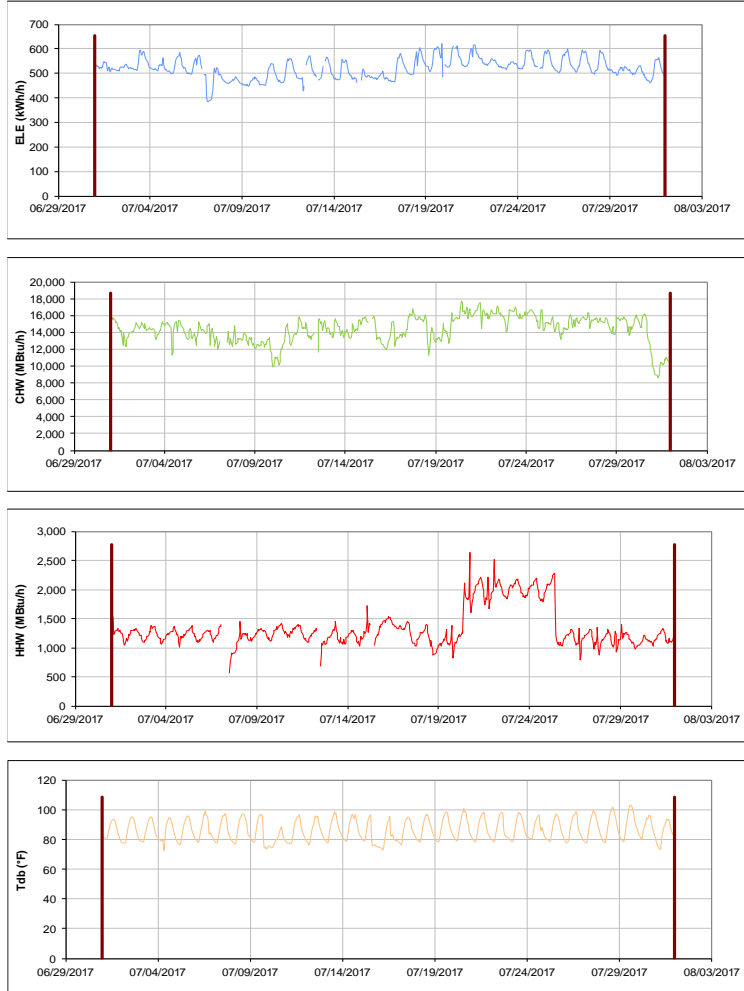


Figure III-95 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Halbuty Geosciences Building

TAMU / BLDG #: 0490

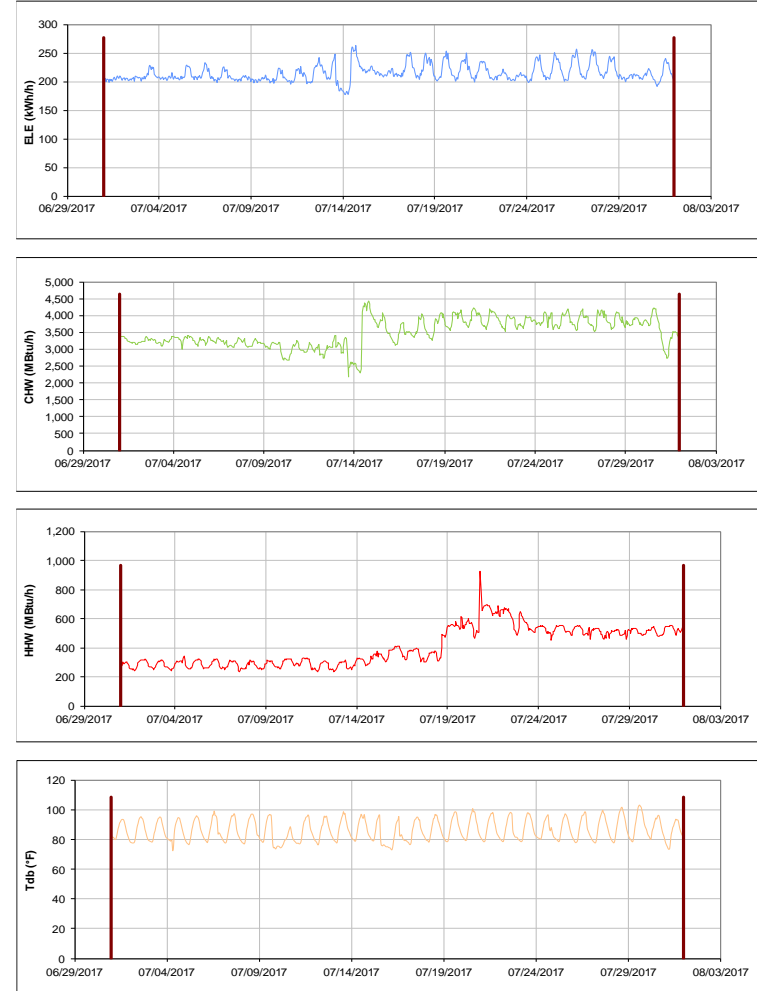


Figure III-96 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Halbuty Geosciences Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Civil Engineering Building

TAMU / BLDG #: 0492

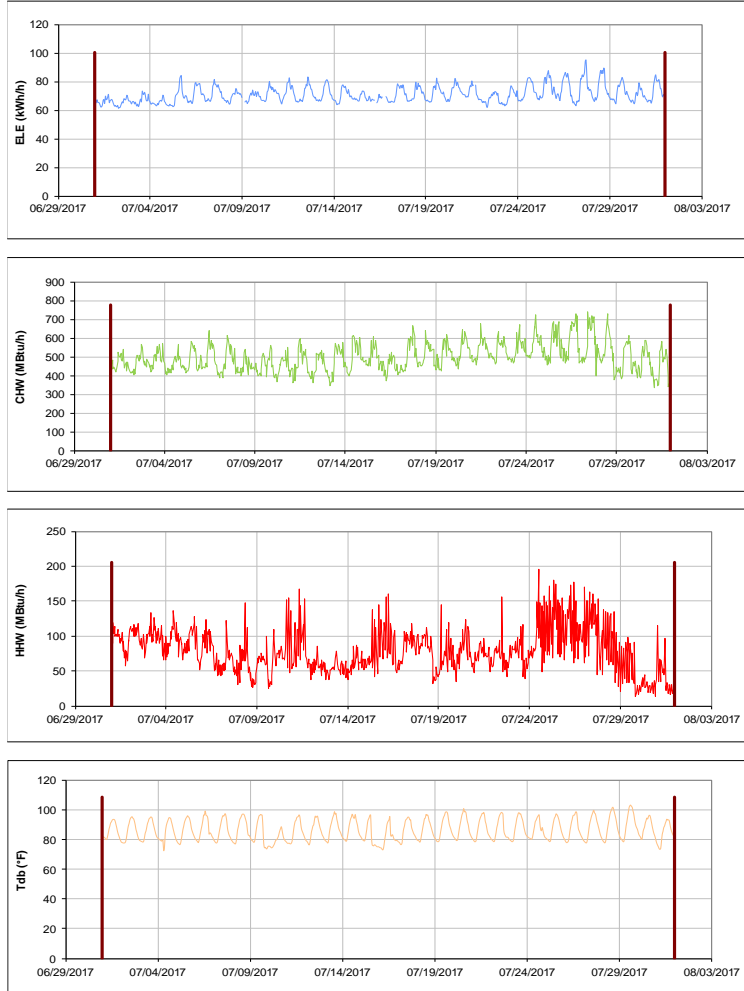


Figure III-97 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Civil Engineering Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Sbisa Dining Hall

TAMU / BLDG #: 0495

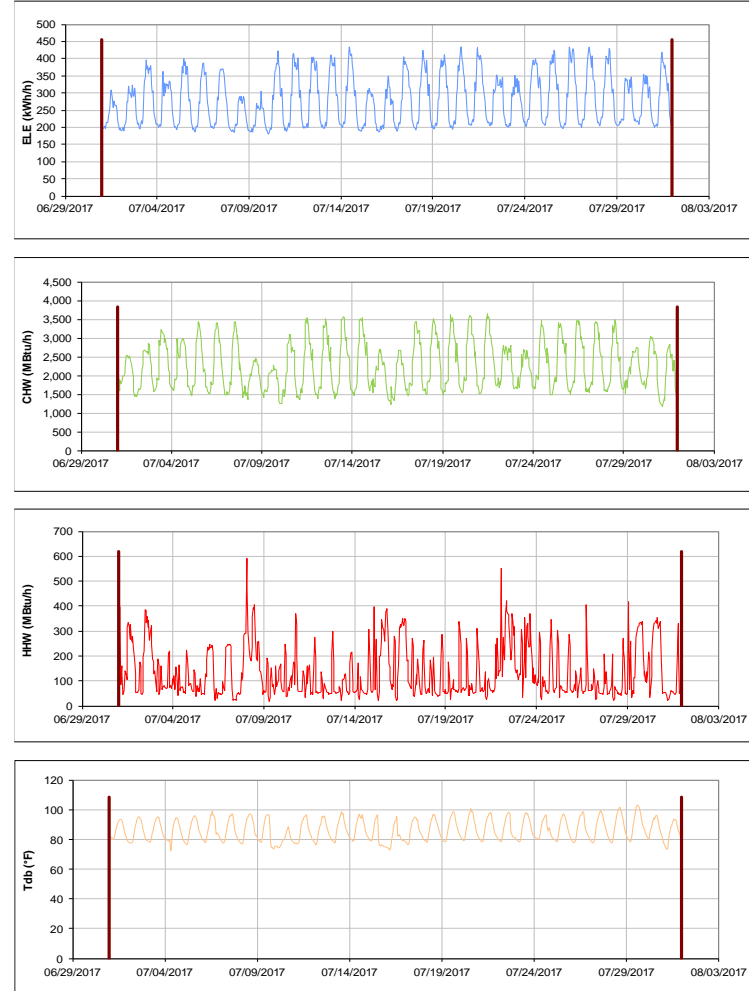


Figure III-98 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sbisa Dining Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Utilities & Energy Services Central Office TAMU / BLDG #: 0496

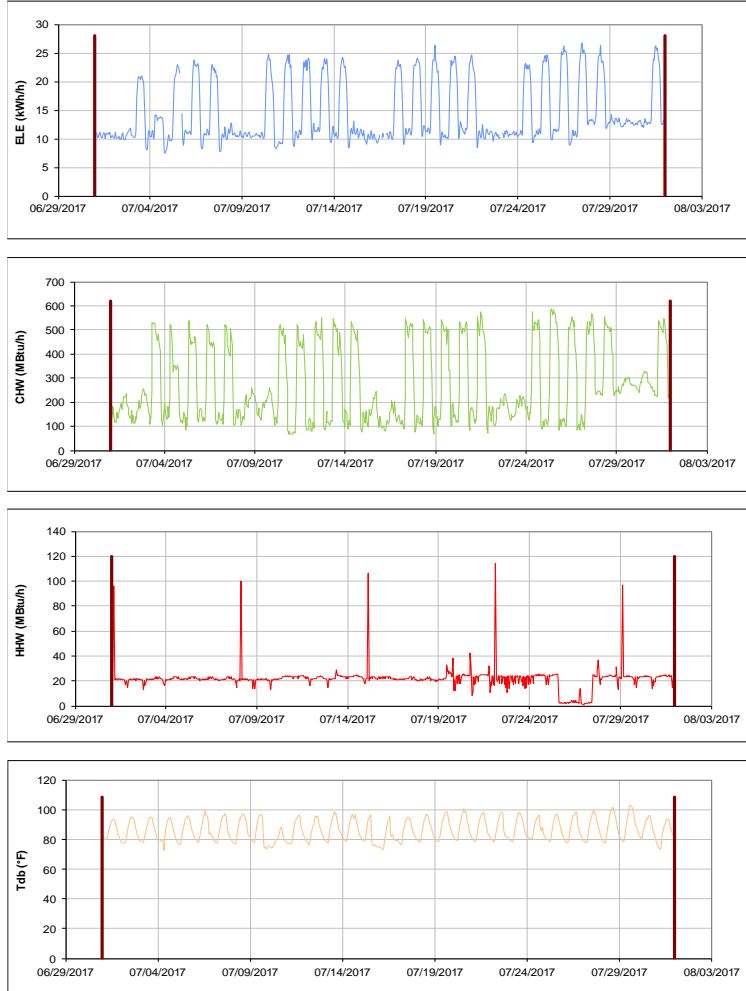


Figure III-99 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Central Office during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Engineering Innovation Center TAMU / BLDG #: 0499

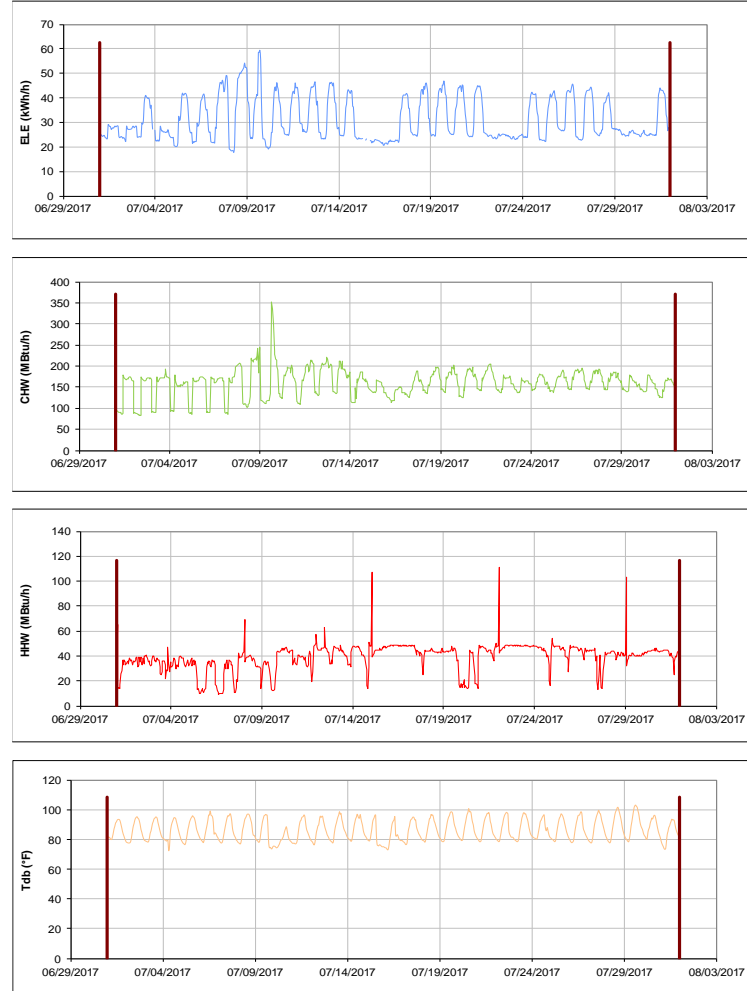


Figure III-100 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Innovation Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

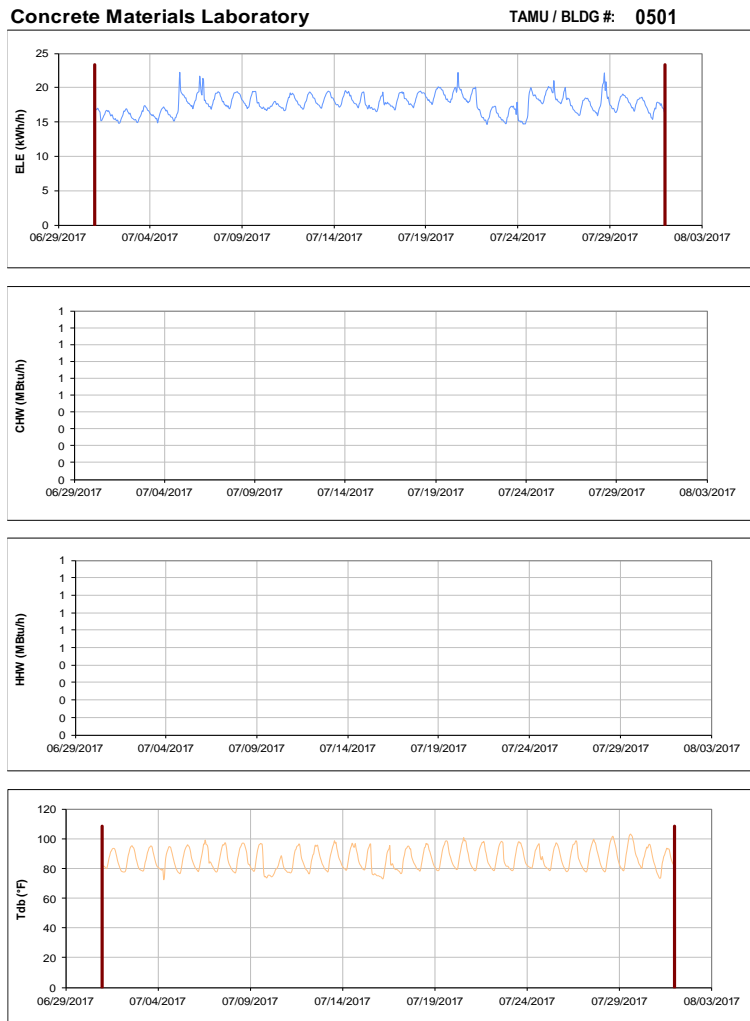


Figure III-101 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Concrete Materials Laboratory during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

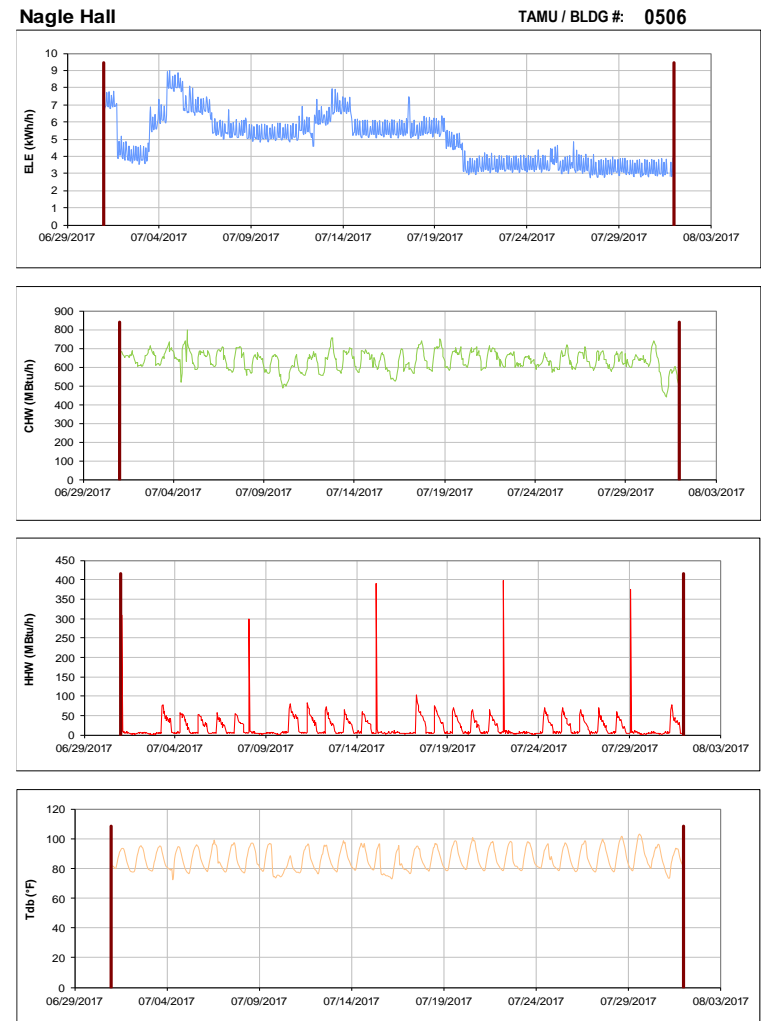


Figure III-102 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nagle Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Veterinary Medical Science Building

TAMU / BLDG #: 0507

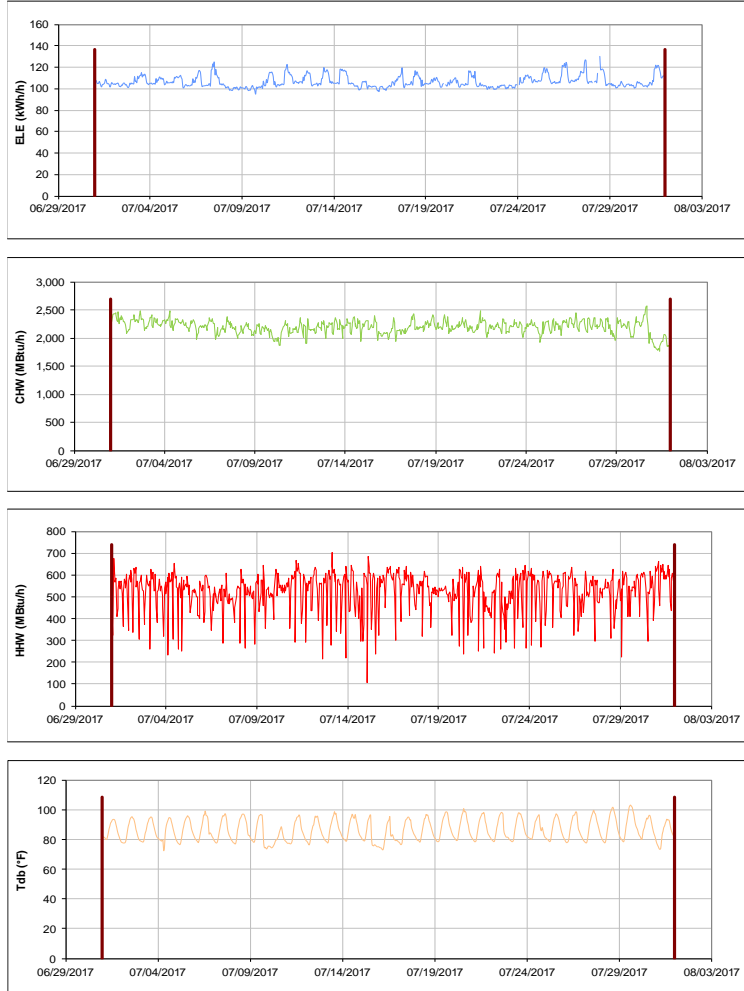


Figure III-103 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medical Science Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Veterinary Teaching Hospital

TAMU / BLDG #: 0508

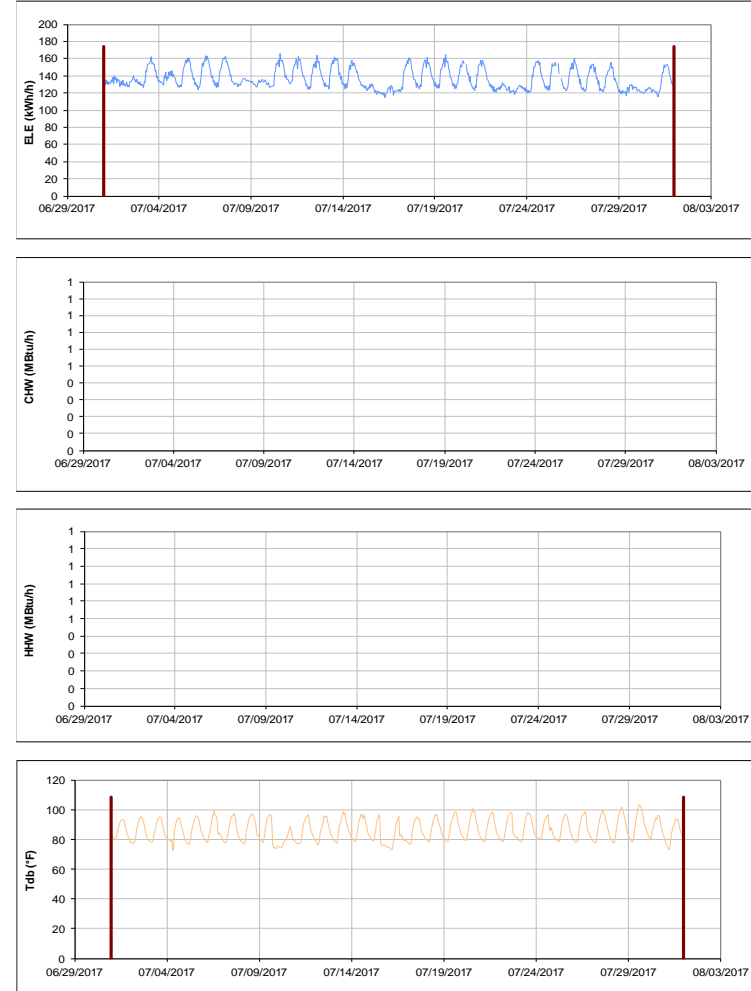


Figure III-104 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Teaching Hospital during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Veterinary Teaching Hospital and Med Adm TAMU / BLDG #: 508-1026

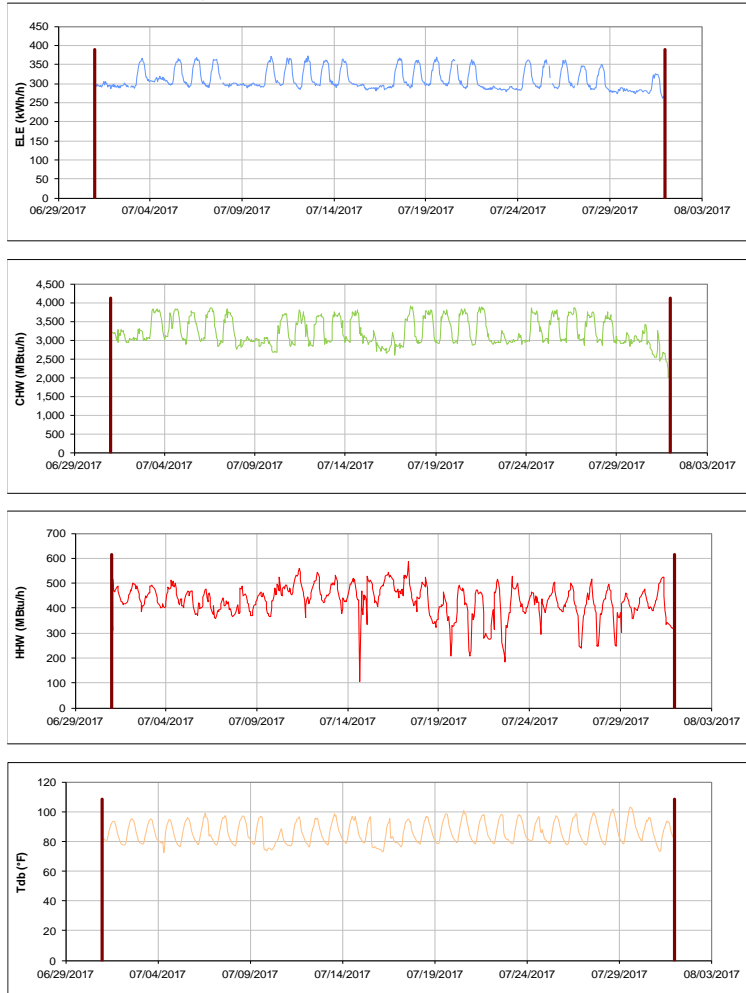


Figure III-105 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Teaching Hospital and Med Adm during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Heep Laboratory Building TAMU / BLDG #: 0511

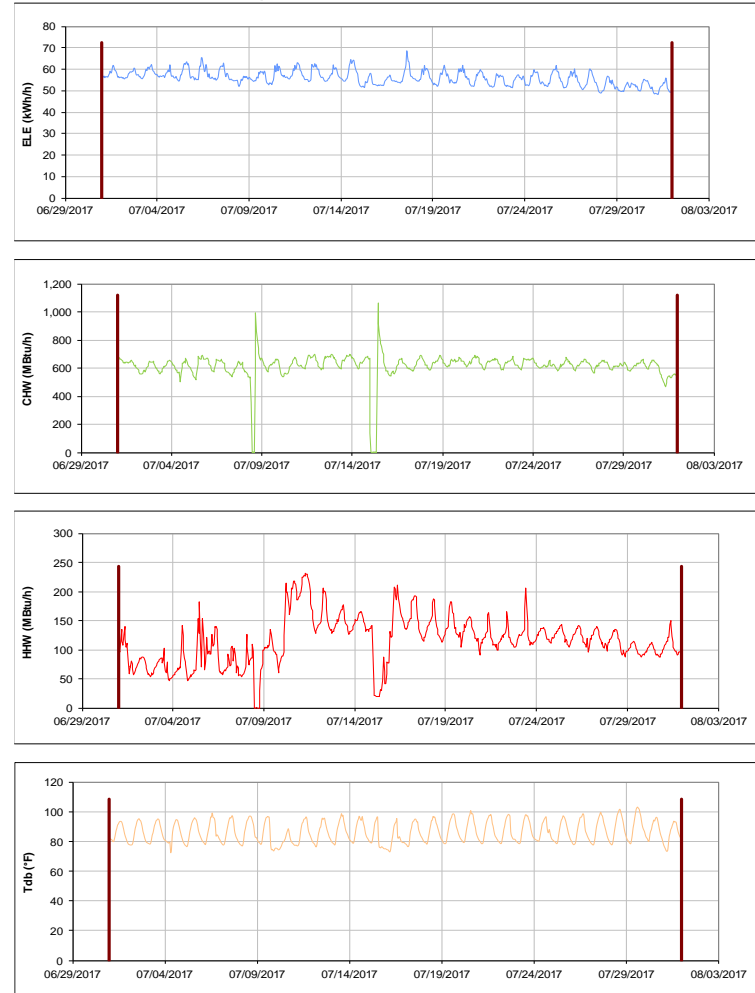


Figure III-106 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Laboratory Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

All Faiths Chapel

TAMU / BLDG #: 0512

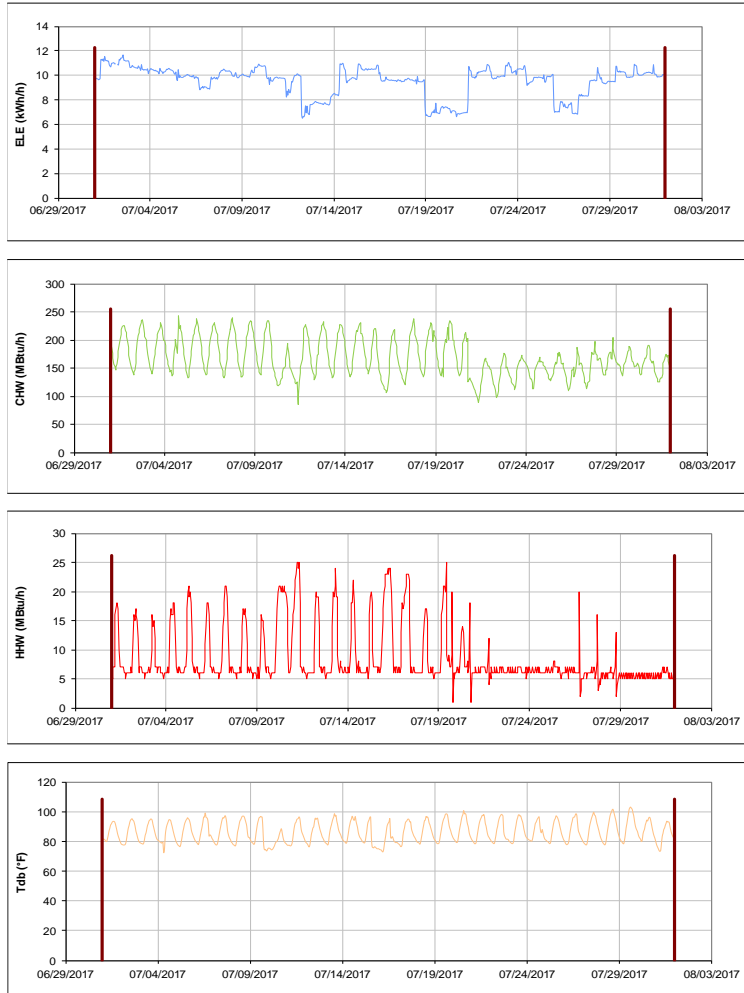


Figure III-107 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for All Faiths Chapel during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Doherty Building

TAMU / BLDG #: 0513

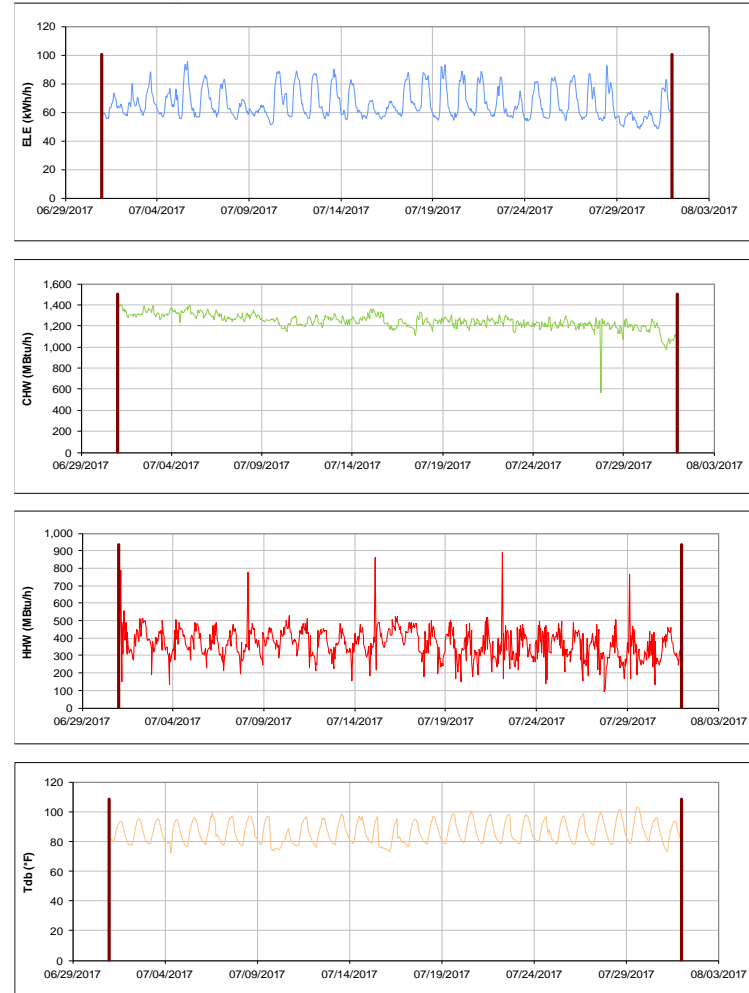


Figure III-108 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Doherty Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Munnerlyn Astronomy & Space Sciences Engineering TAMU / BLDG #: 0514

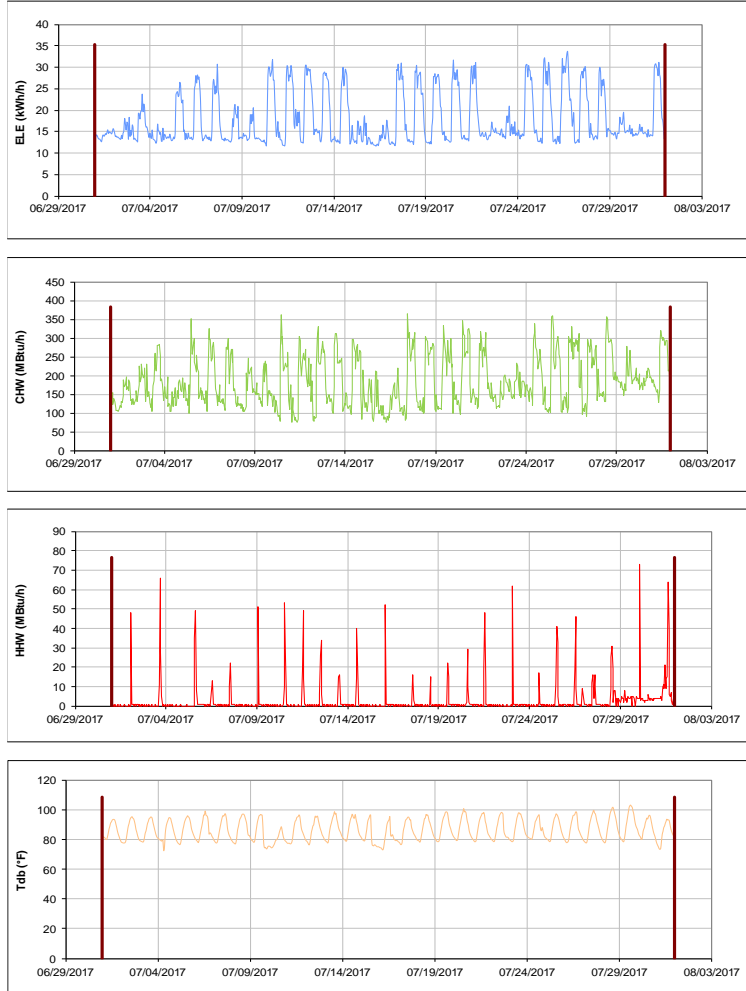


Figure III-109 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Munnerlyn Astronomy & Space Sciences Engineering during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Computing Services Center TAMU / BLDG #: 0516

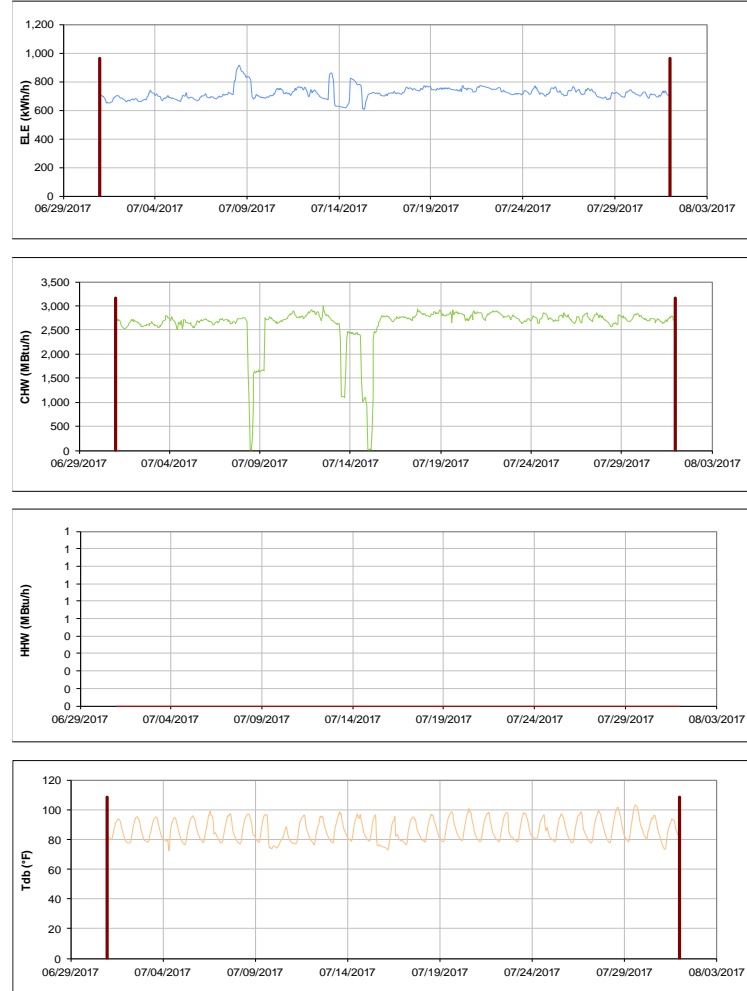


Figure III-110 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Computing Services Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

DPC Annex

TAMU / BLDG #: 0517

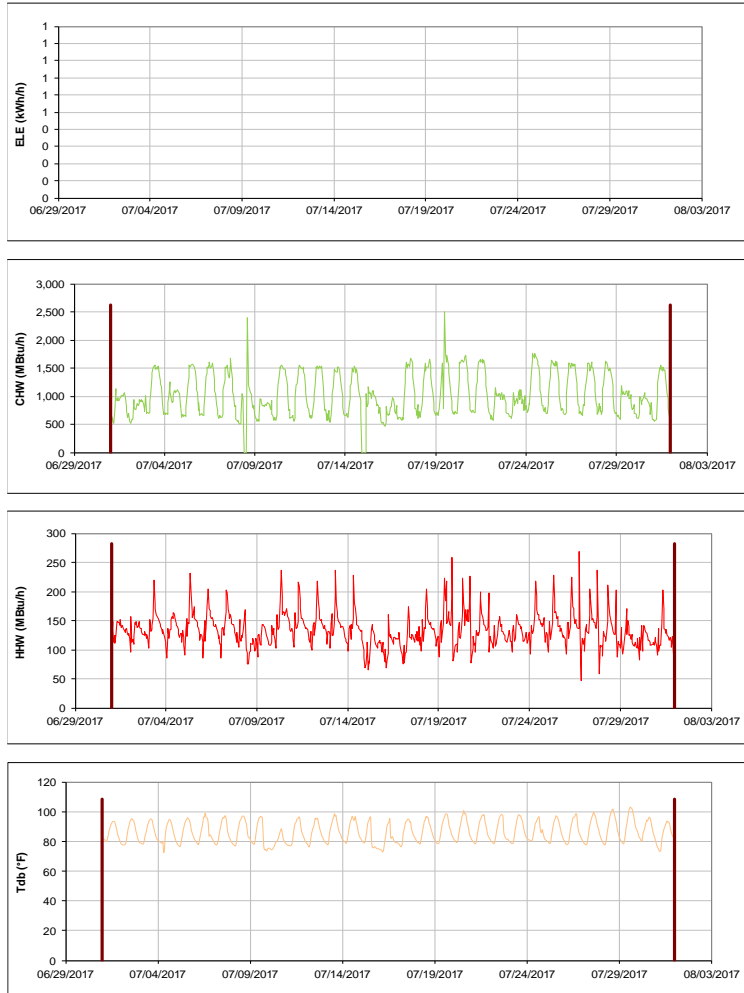


Figure III-111 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for DPC Annex during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Beutel Health Center

TAMU / BLDG #: 0520

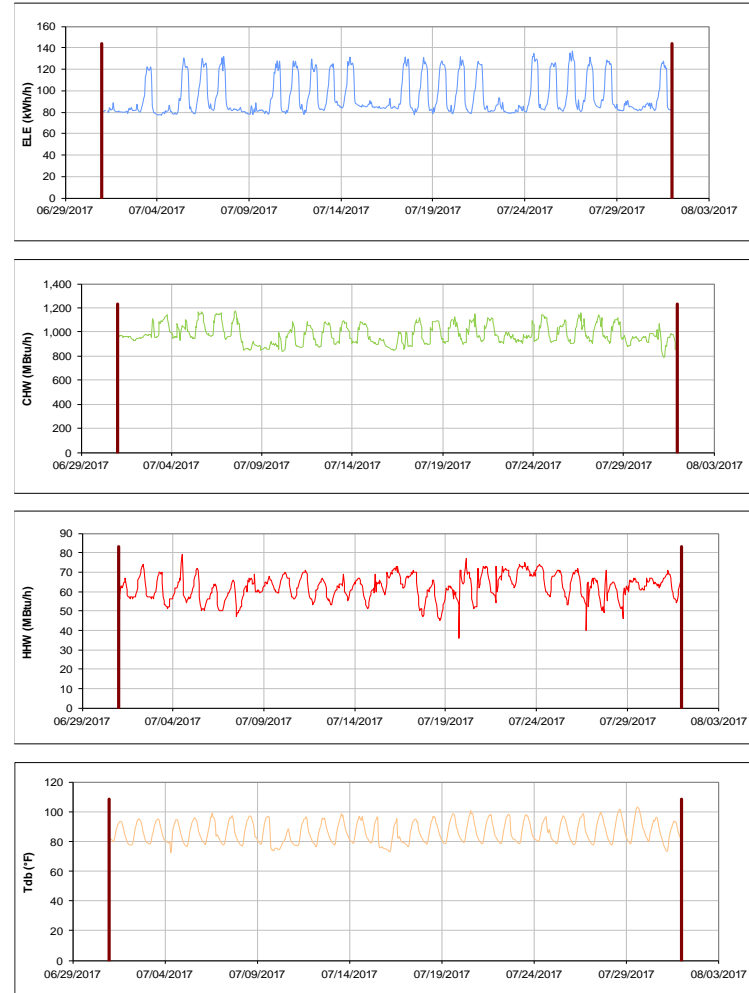


Figure III-112 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Beutel Health Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

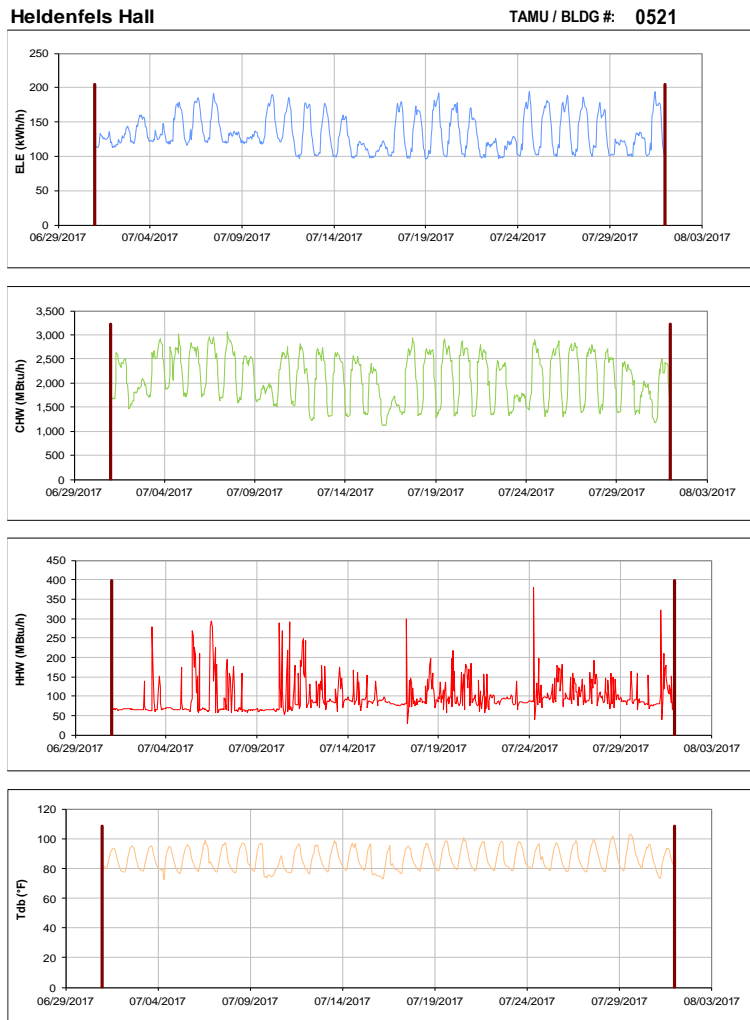


Figure III-113 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heldenfels Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

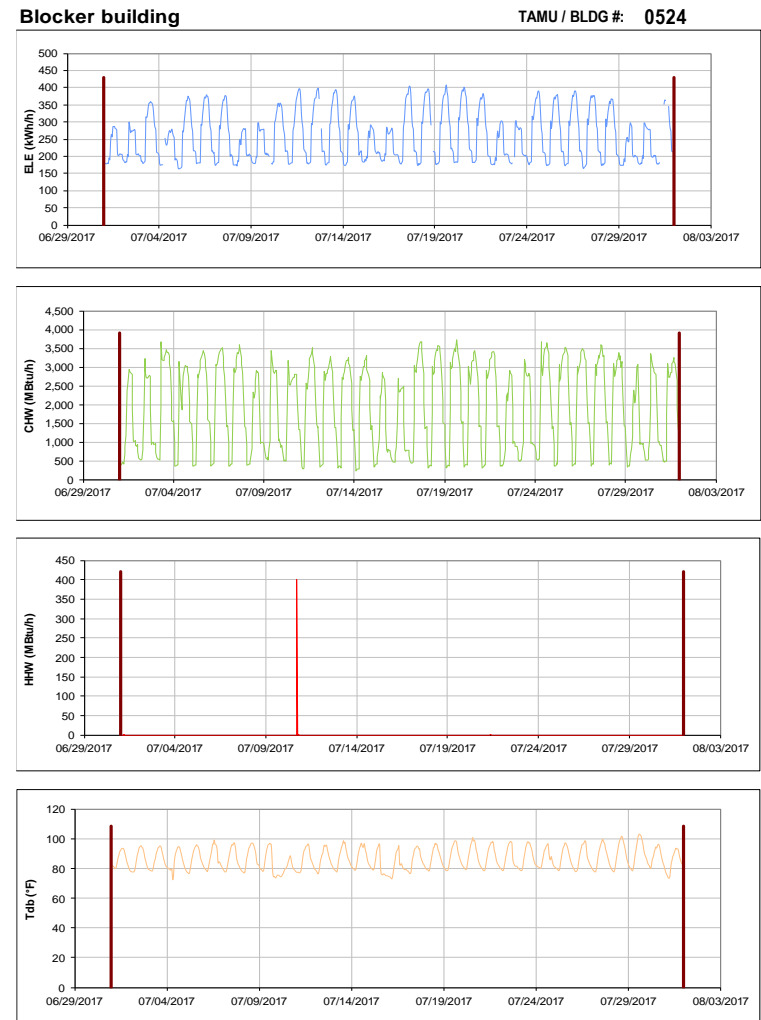


Figure III-114 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Blocker building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

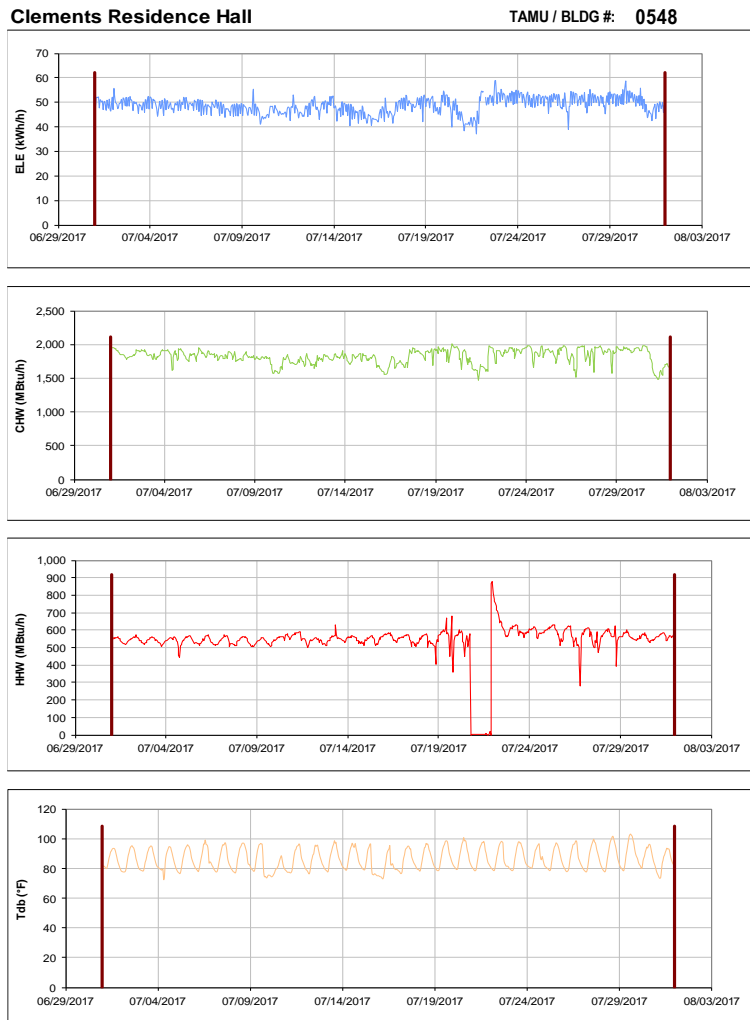


Figure III-115 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Clements Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

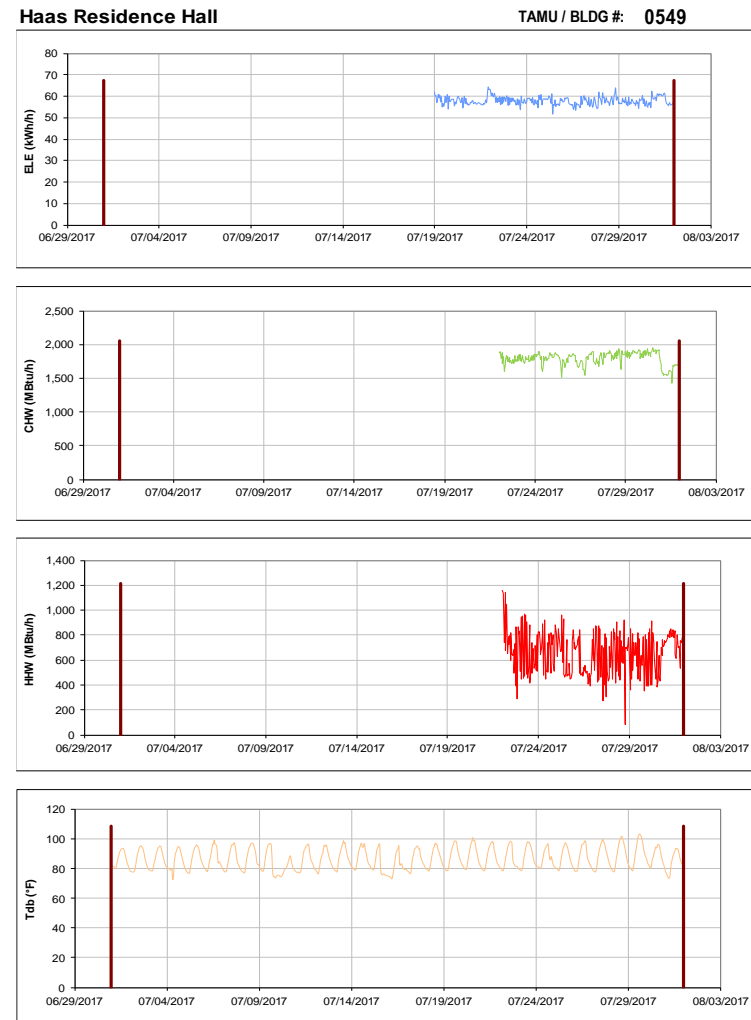


Figure III-116 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Haas Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

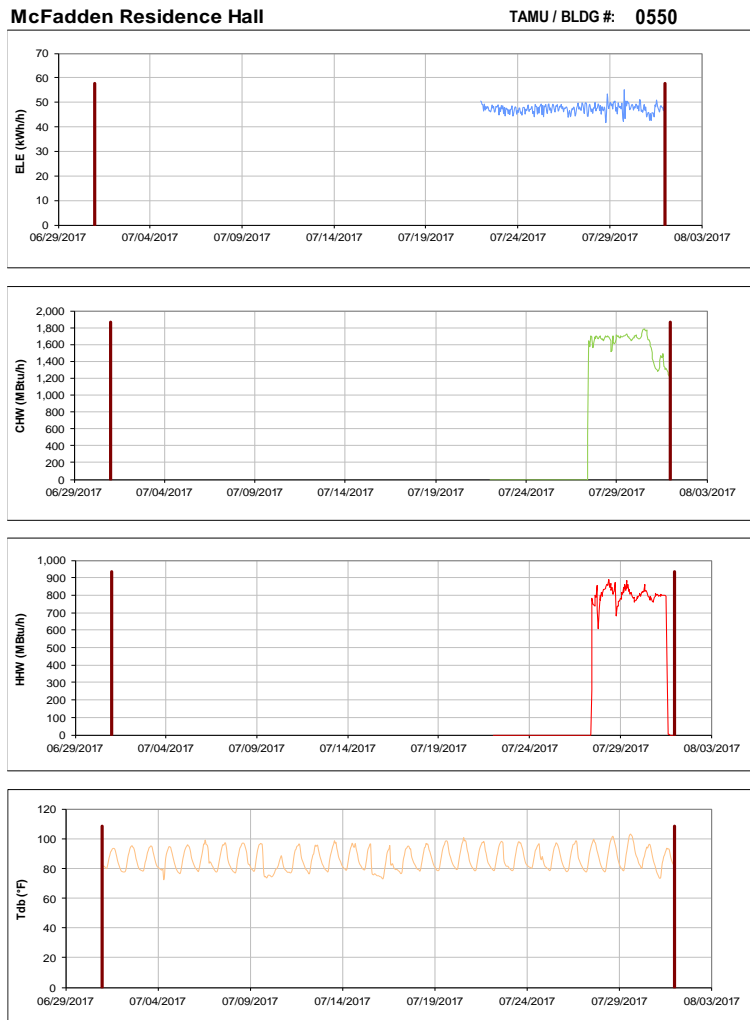


Figure III-117 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McFadden Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



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

Hobby Residence Hall

TAMU / BLDG #: 0653

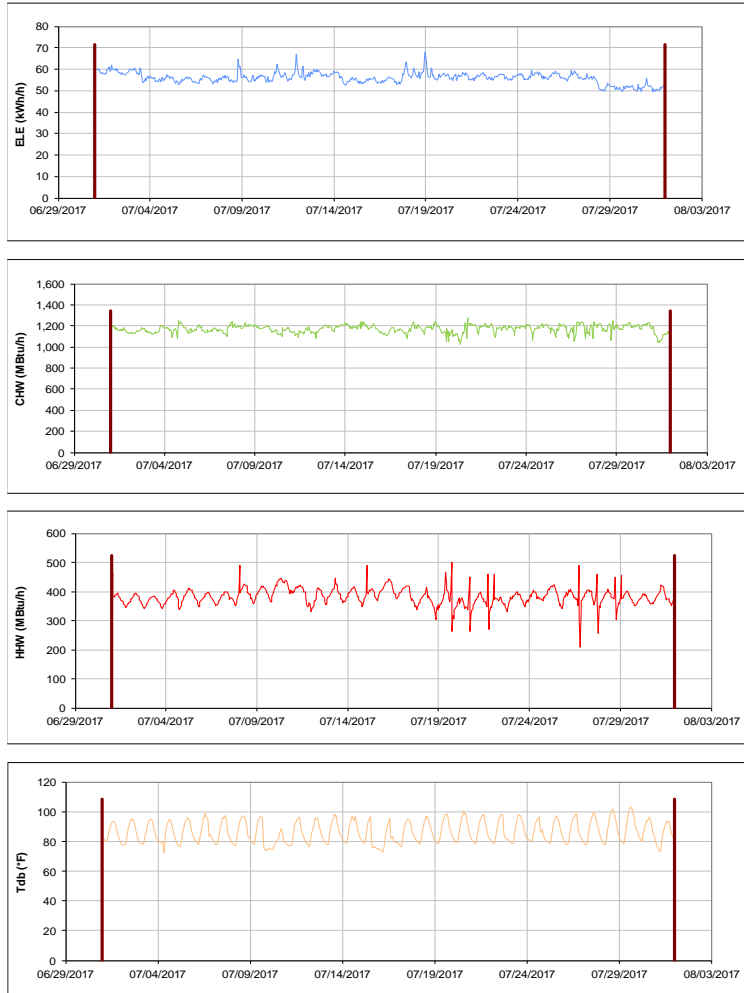


Figure III-119 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hobby Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Wisnaker Engineering Research Center

TAMU / BLDG #: 0682

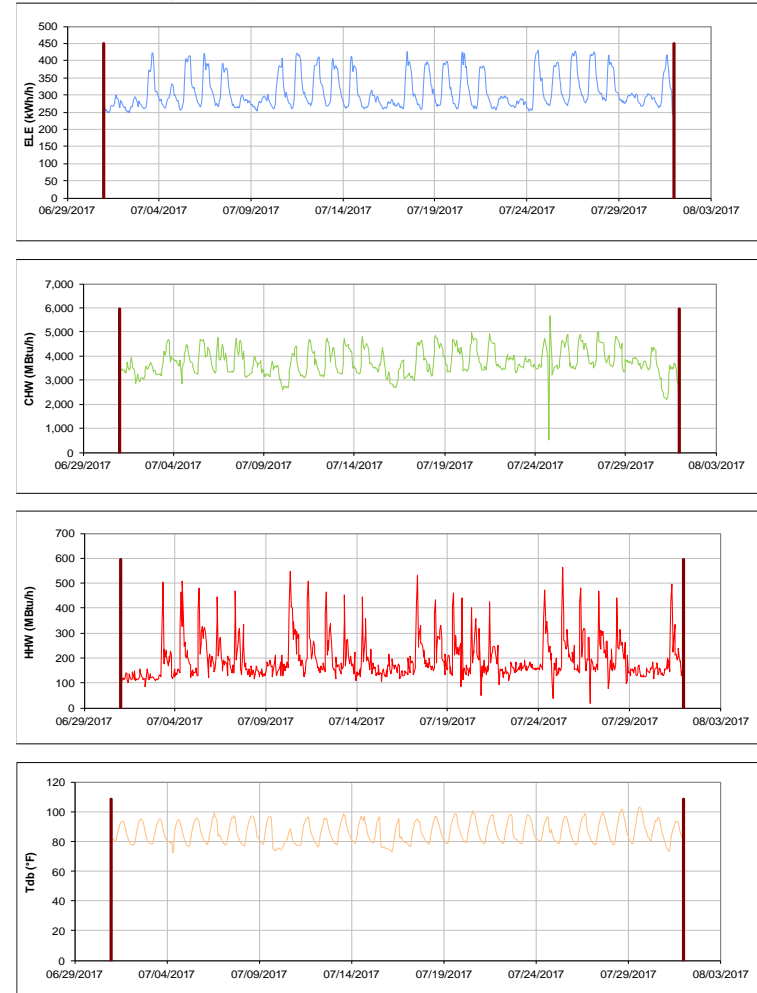


Figure III-120 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wisnaker Engineering Research Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

McNew Laboratory

TAMU / BLDG #: 0740

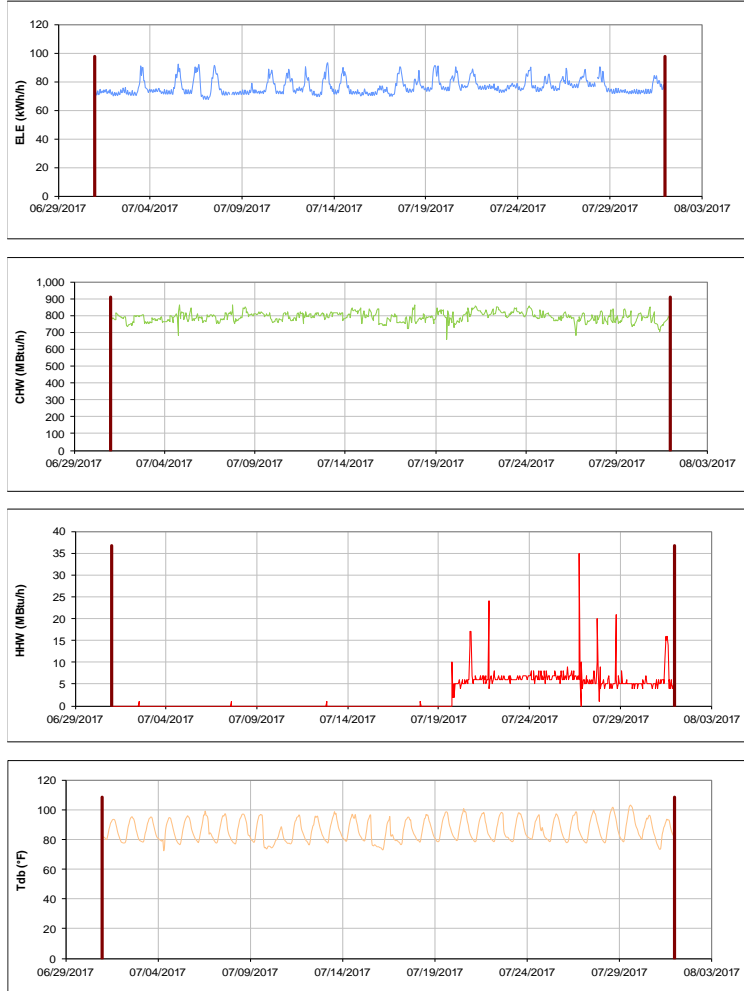


Figure III-121 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McNew Laboratory during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Soil Testing Labs

TAMU / BLDG #: 0806

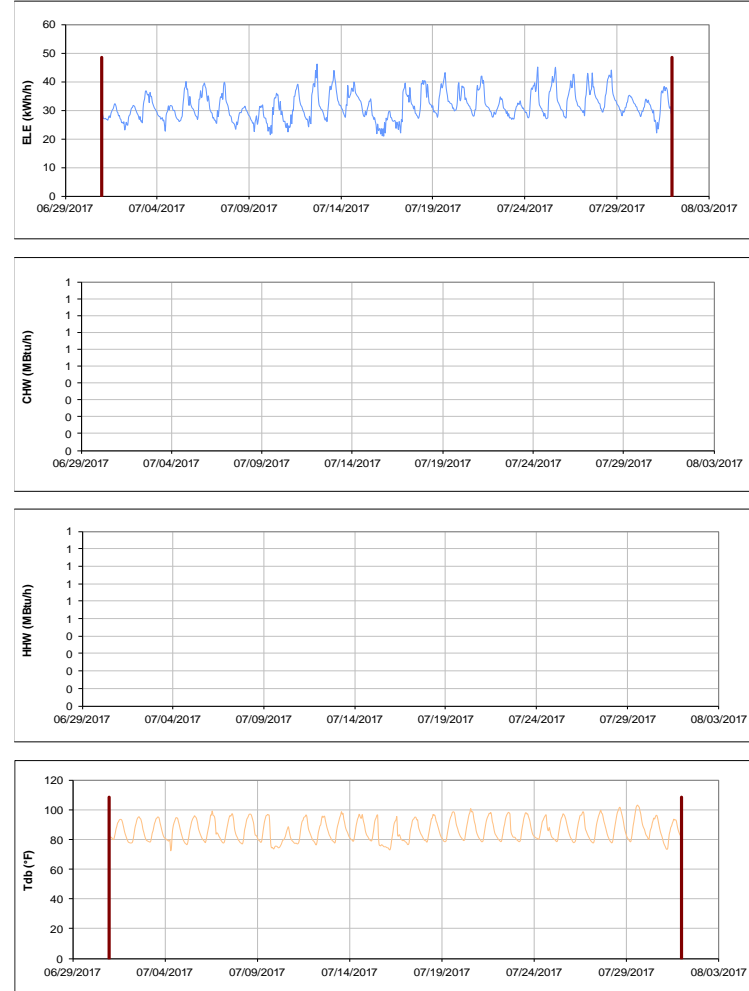


Figure III-122 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Soil Testing Labs during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

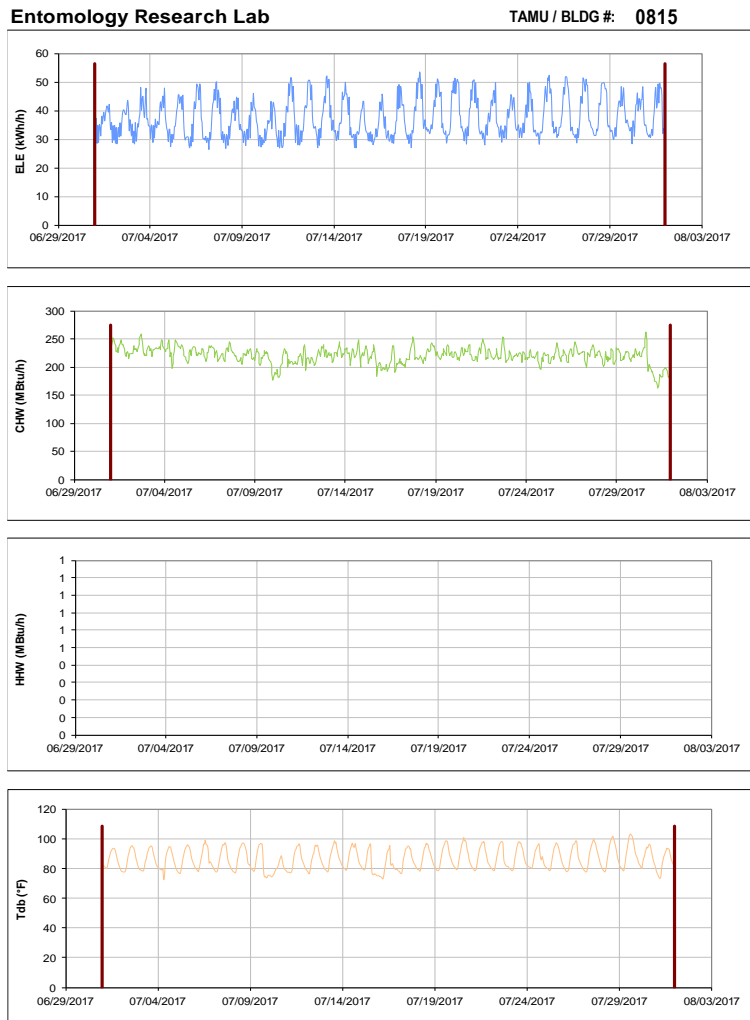


Figure III-123 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Entomology Research Lab during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



Figure III-124 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TVMC-Small Animal Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

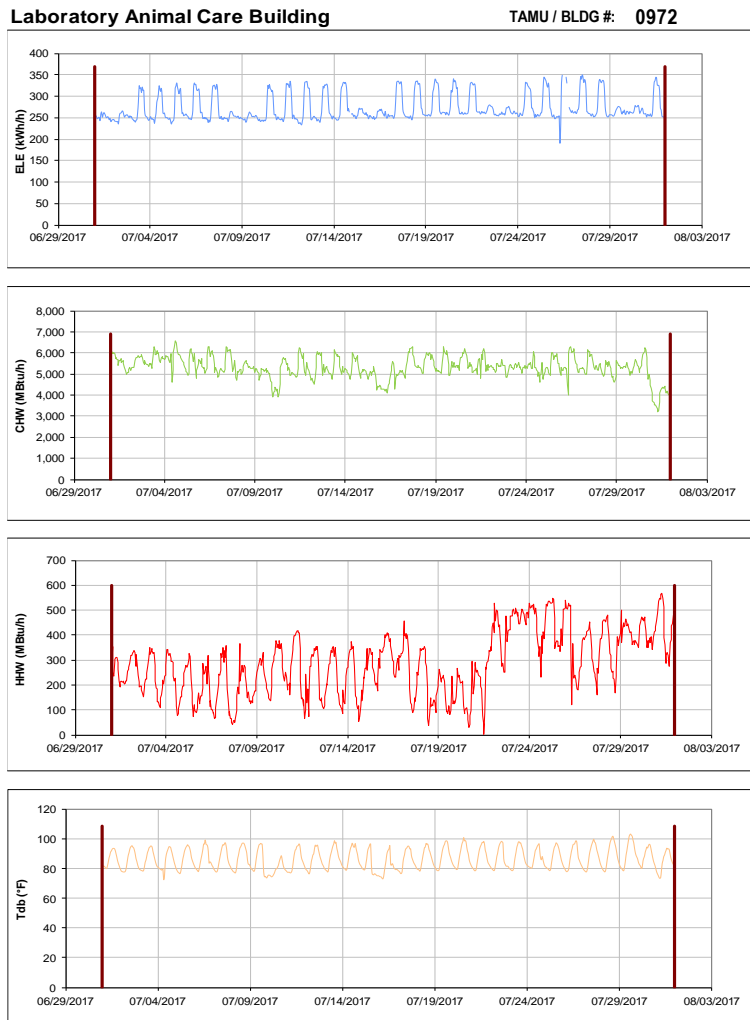


Figure III-125 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Laboratory Animal Care Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

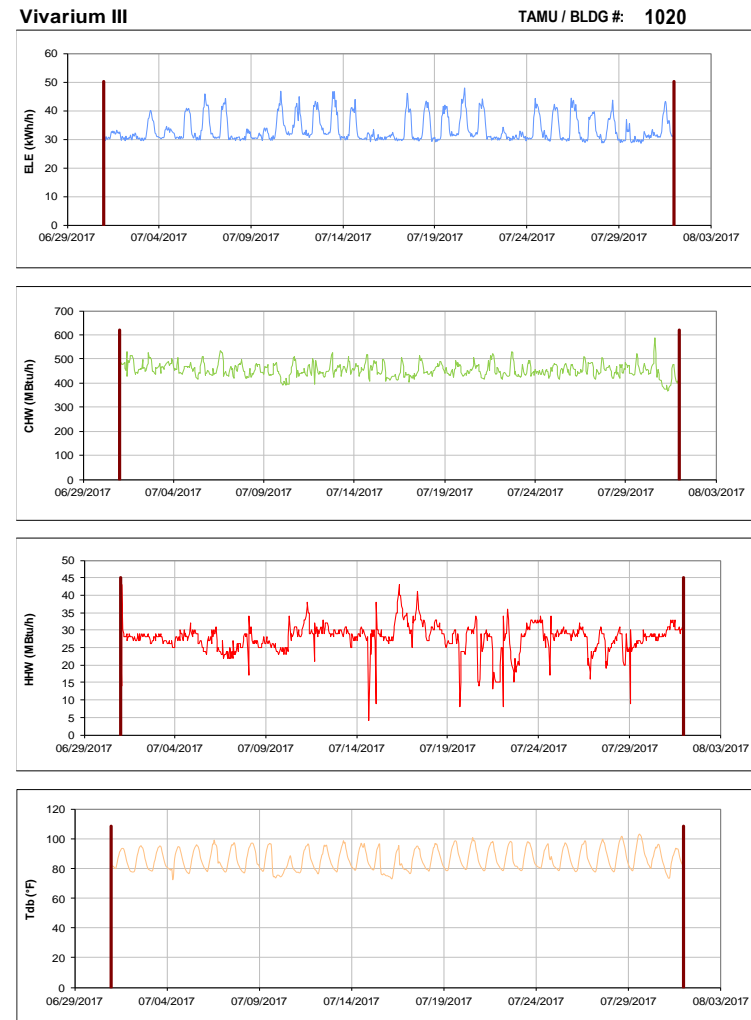


Figure III-126 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vivarium III during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

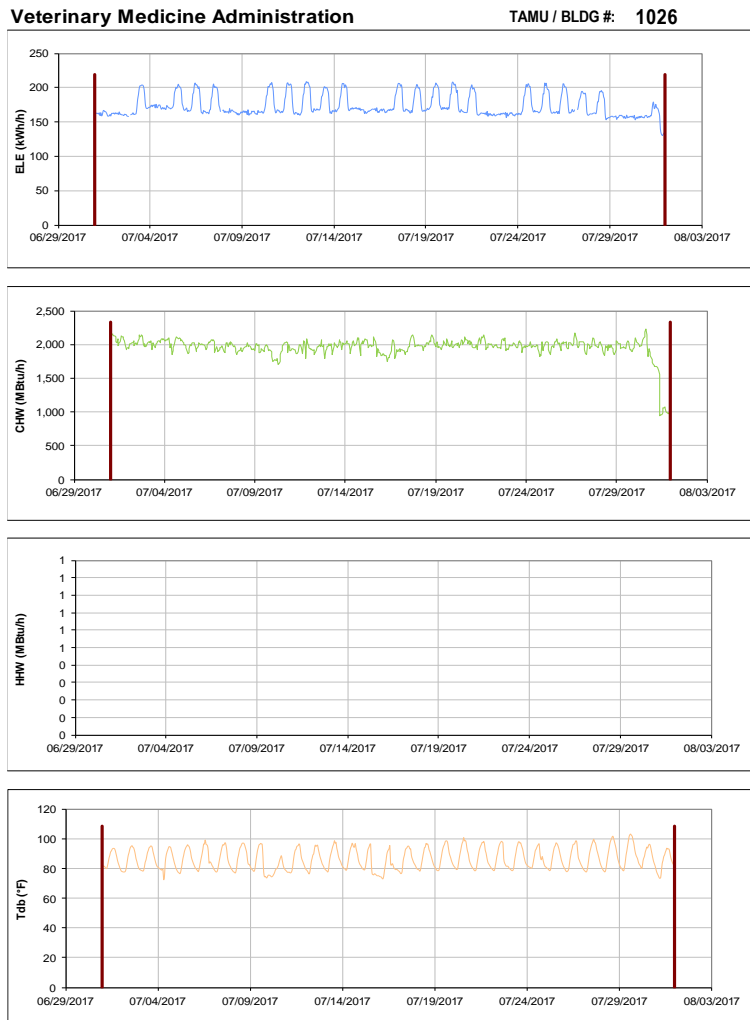


Figure III-127 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Administration during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

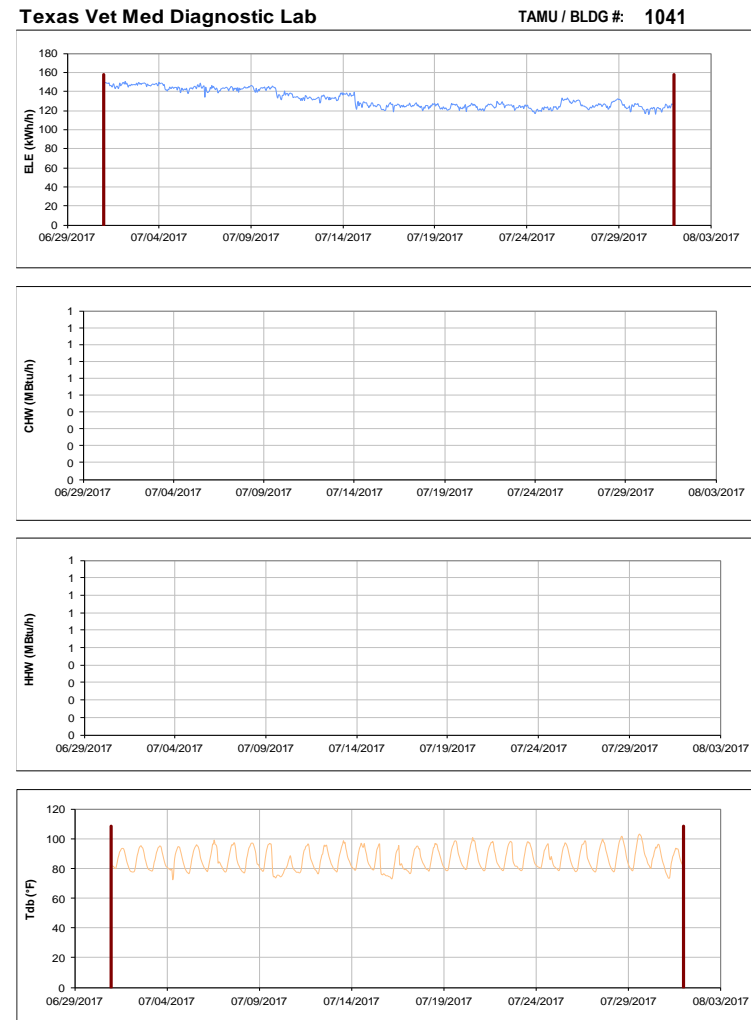


Figure III-128 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Vet Med Diagnostic Lab during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

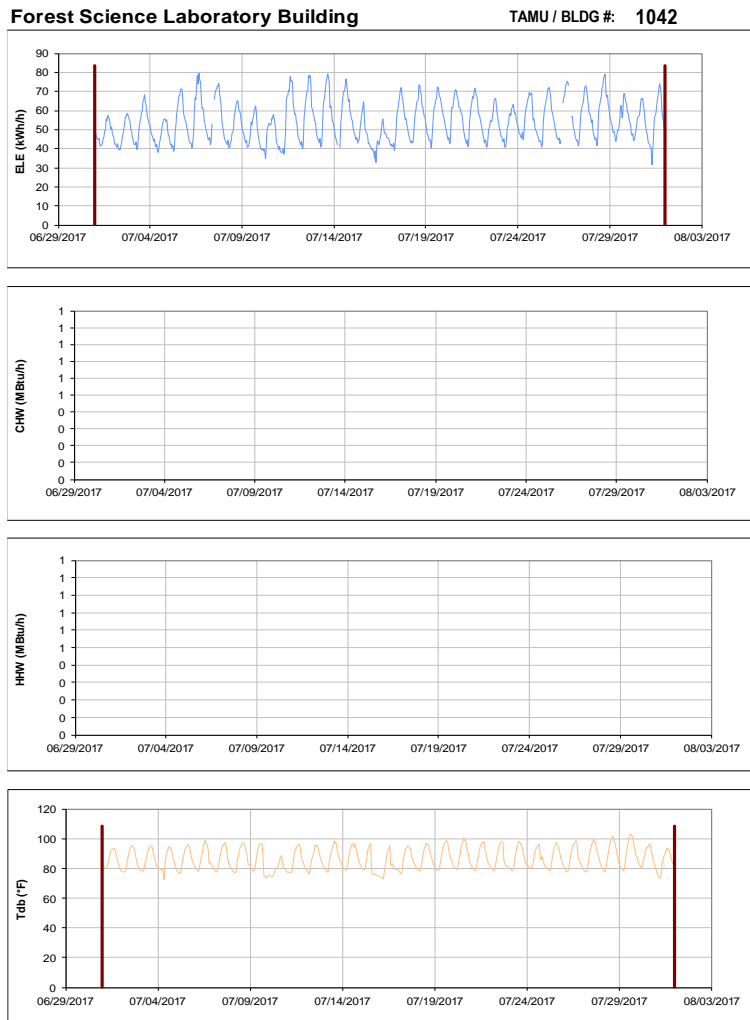


Figure III-129 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Forest Science Laboratory Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

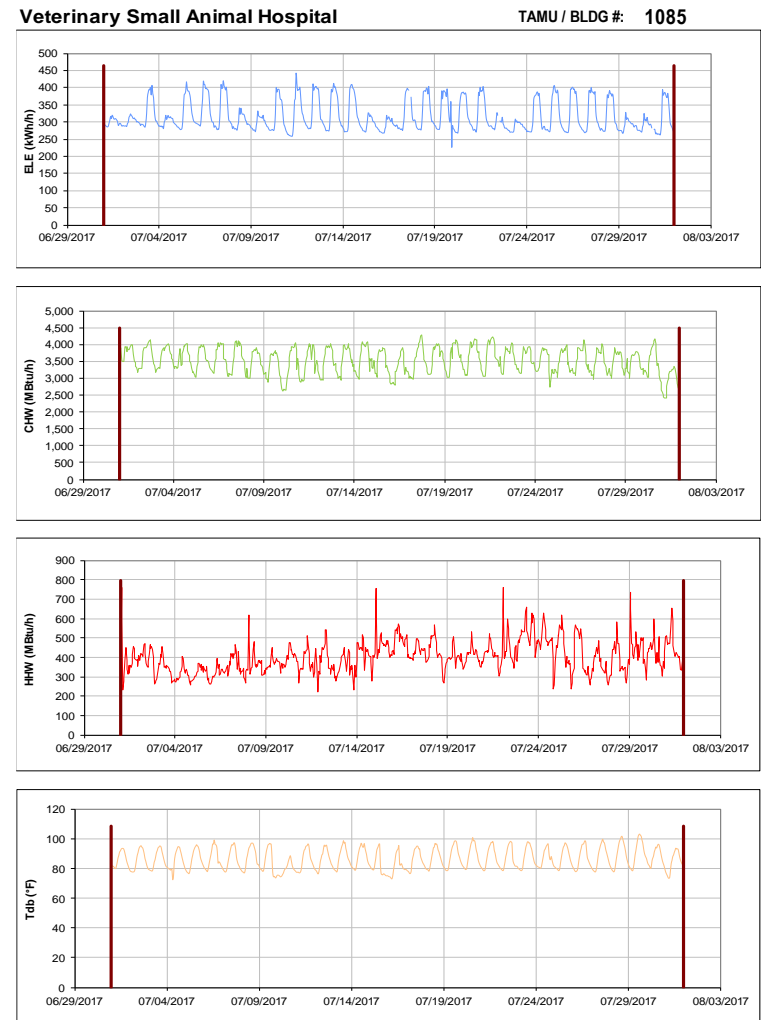


Figure III-130 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Small Animal Hospital during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Utilities Energy Office Annex

TAMU / BLDG #: 1089

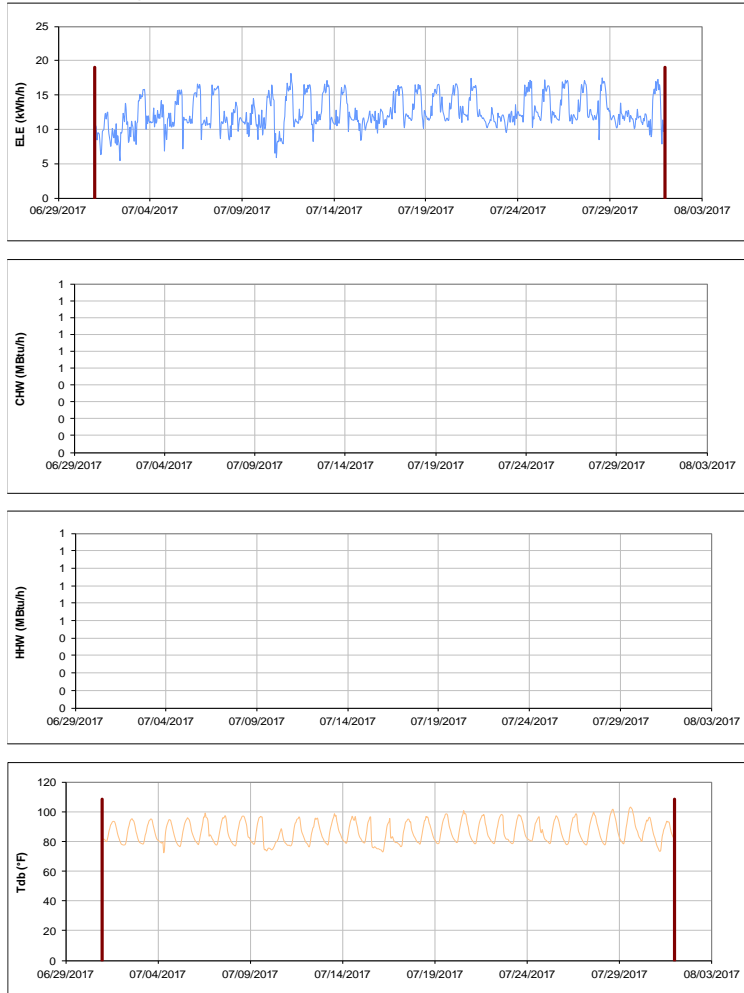


Figure III-131 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities Energy Office Annex during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Biological Control Facility

TAMU / BLDG #: 1146

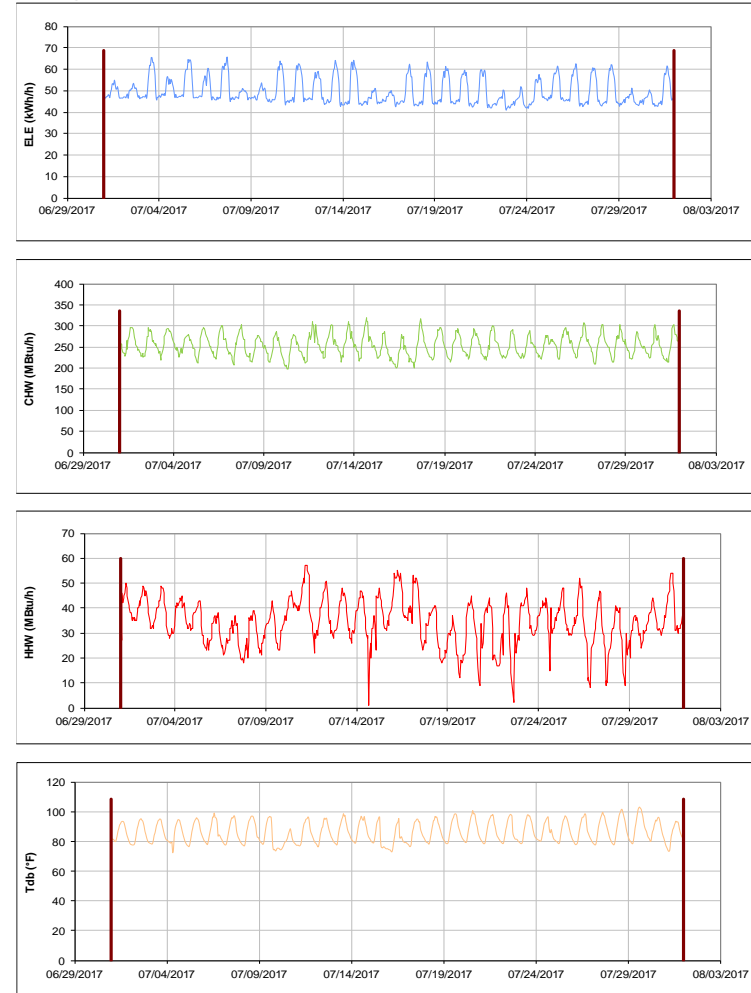


Figure III-132 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Control Facility during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Physical Plant Administration & Shops

TAMU / BLDG #: 1156

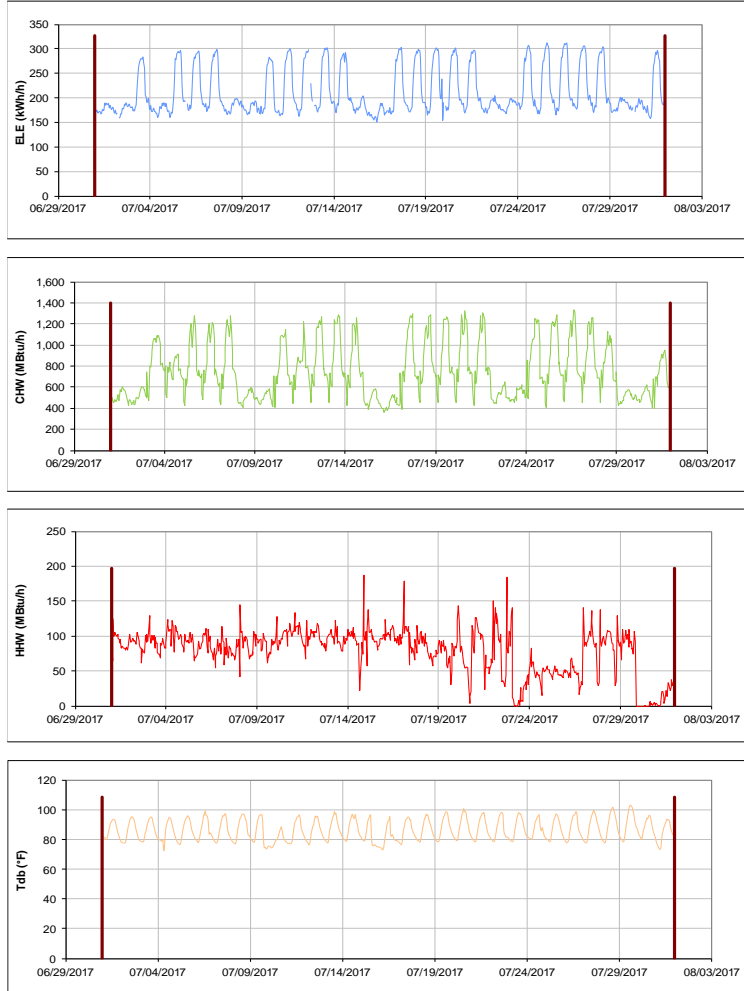


Figure III-133 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Plant Administration & Shops during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Veterinary Anatomic Pathology

TAMU / BLDG #: 1184

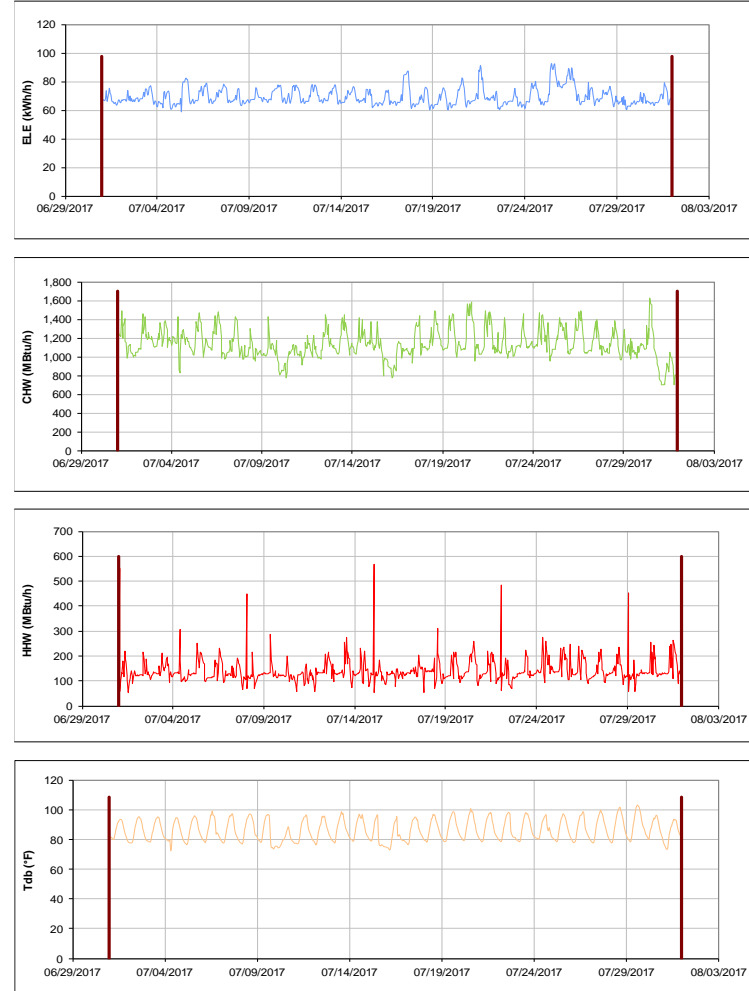


Figure III-134 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Anatomic Pathology during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

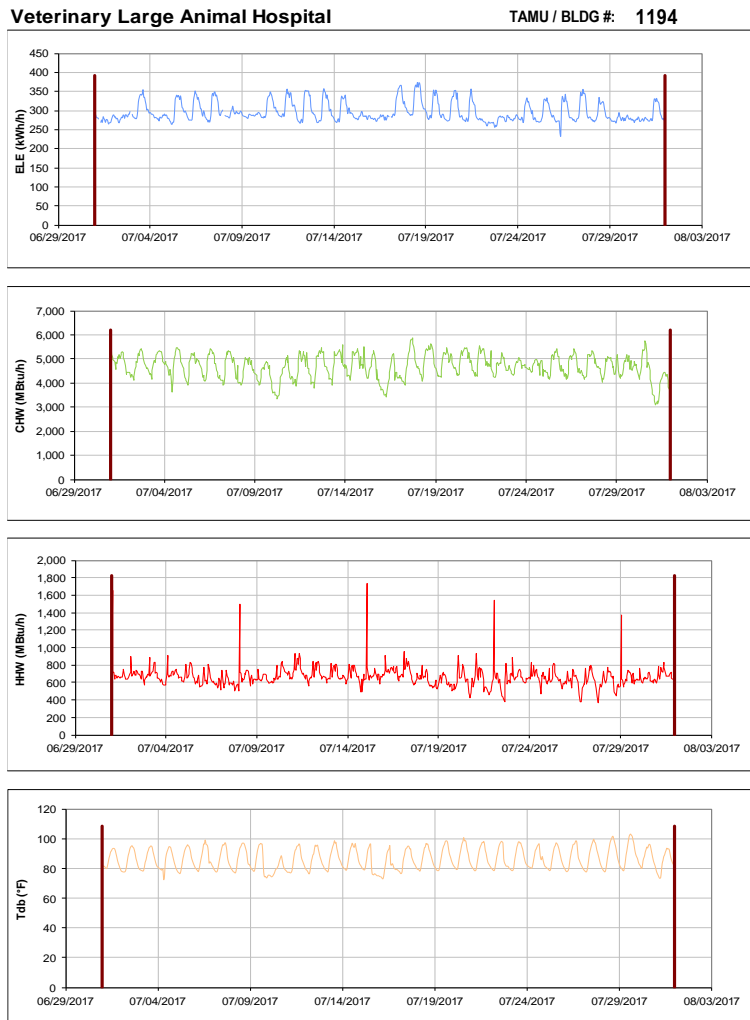


Figure III-135 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Large Animal Hospital during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

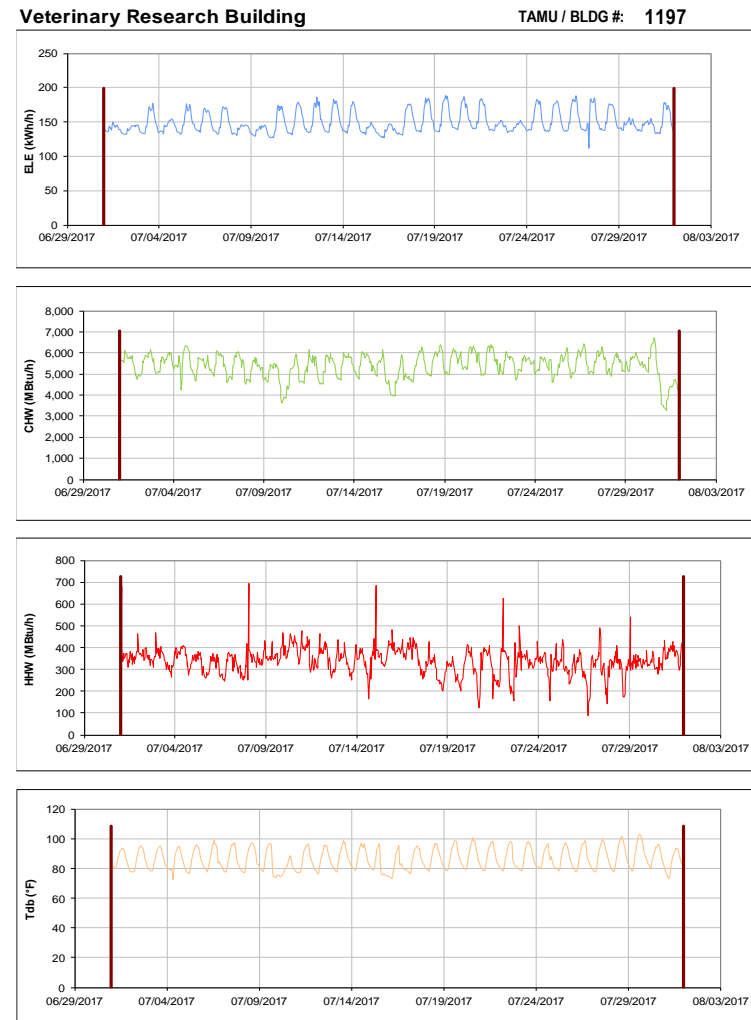


Figure III-136 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Research Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Buzbee Leadership Learning Center

TAMU / BLDG #: 1402

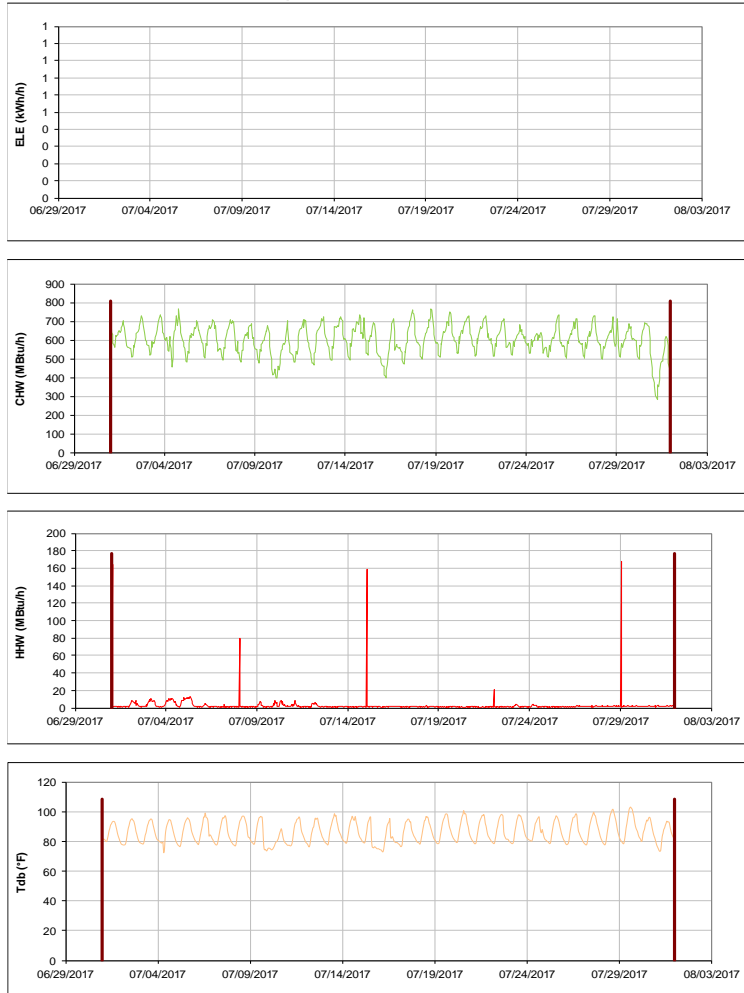


Figure III-137 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Buzbee Leadership Learning Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

H. Grady Ash, Jr. '58 Leadership Learning Center TAMU / BLDG #: 1403

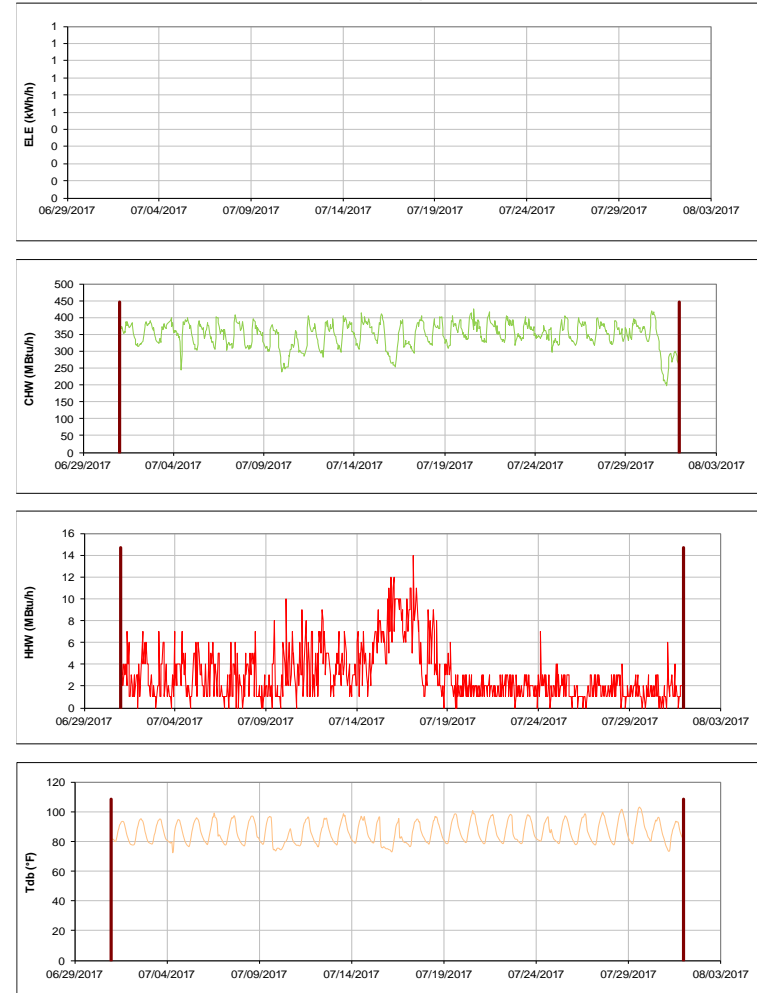


Figure III-138 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for H. Grady Ash, Jr. '58 Leadership Learning Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Plank LLC

TAMU / BLDG #: 1404

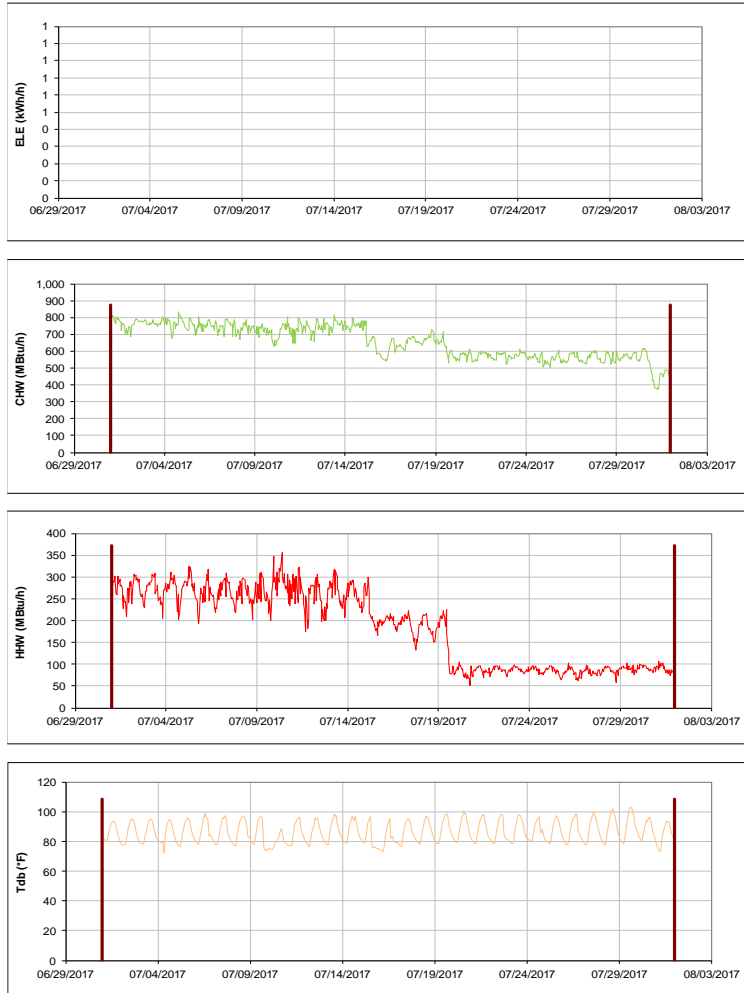


Figure III-139 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Plank LLC during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Ash II LLC

TAMU / BLDG #: 1405

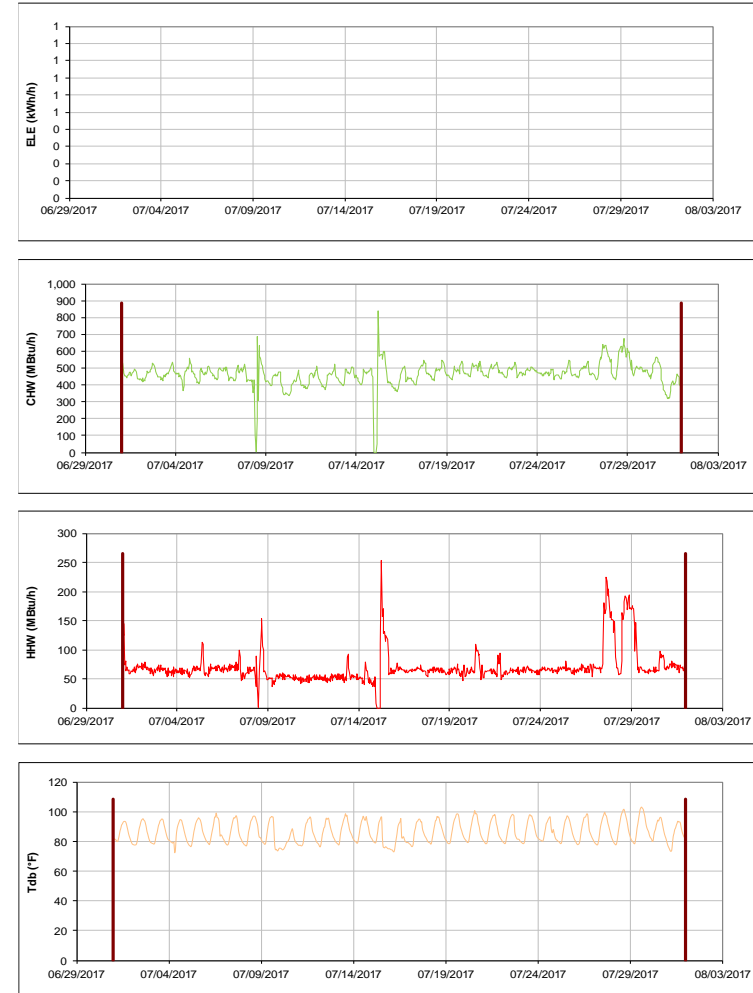


Figure III-140 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Ash II LLC during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Hullabaloo Residence Hall

TAMU / BLDG #: 1416

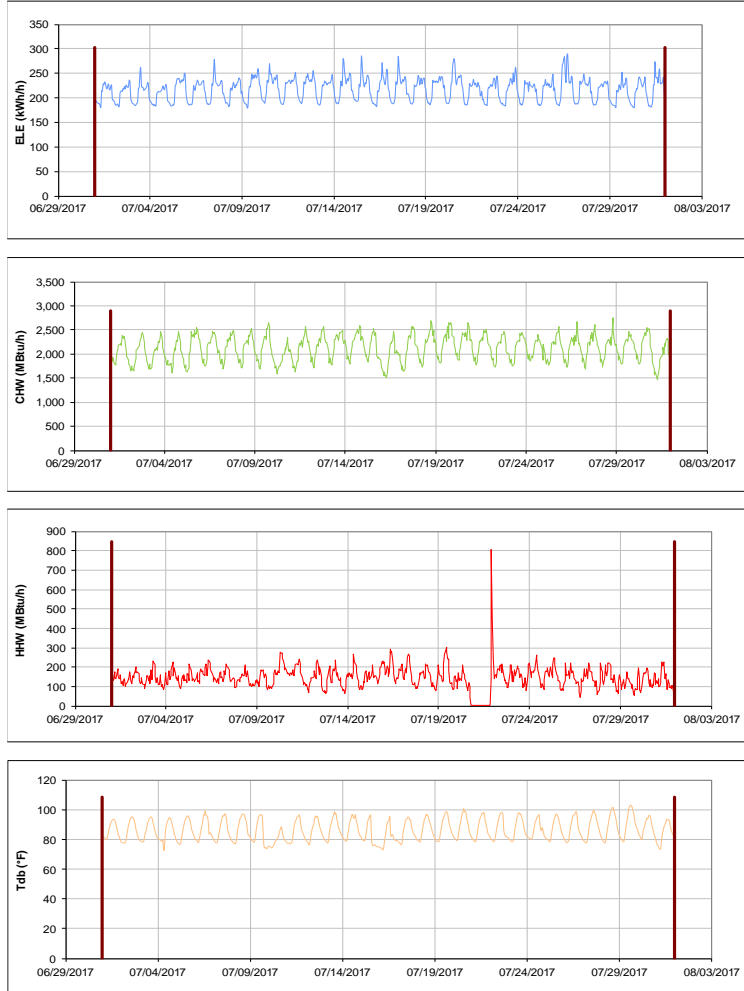


Figure III-141 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hullabaloo Residence Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

University Apartments - Laundry at the Gardens TAMU / BLDG #: 1450

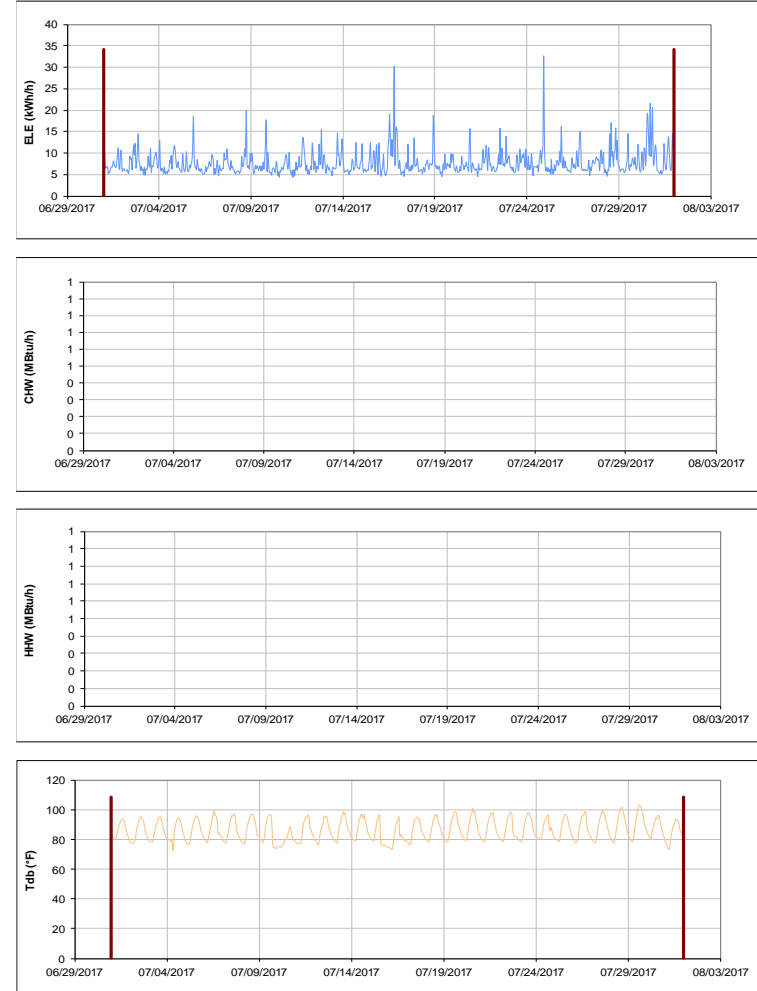


Figure III-142 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - Laundry at the Gardens during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

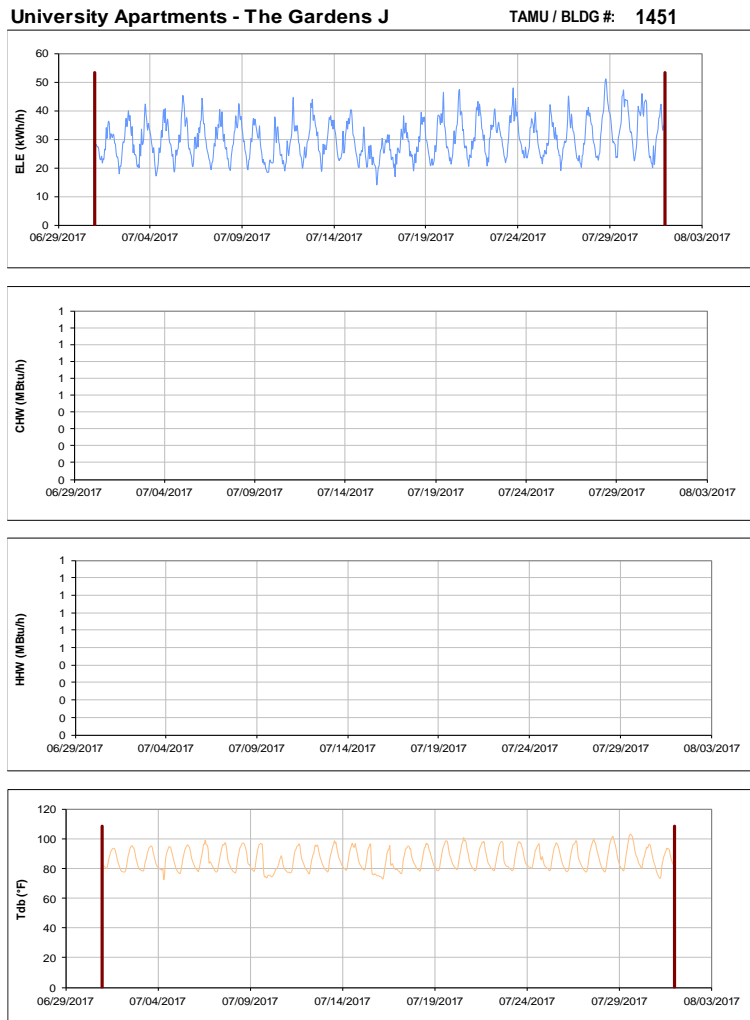


Figure III-143 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens J during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

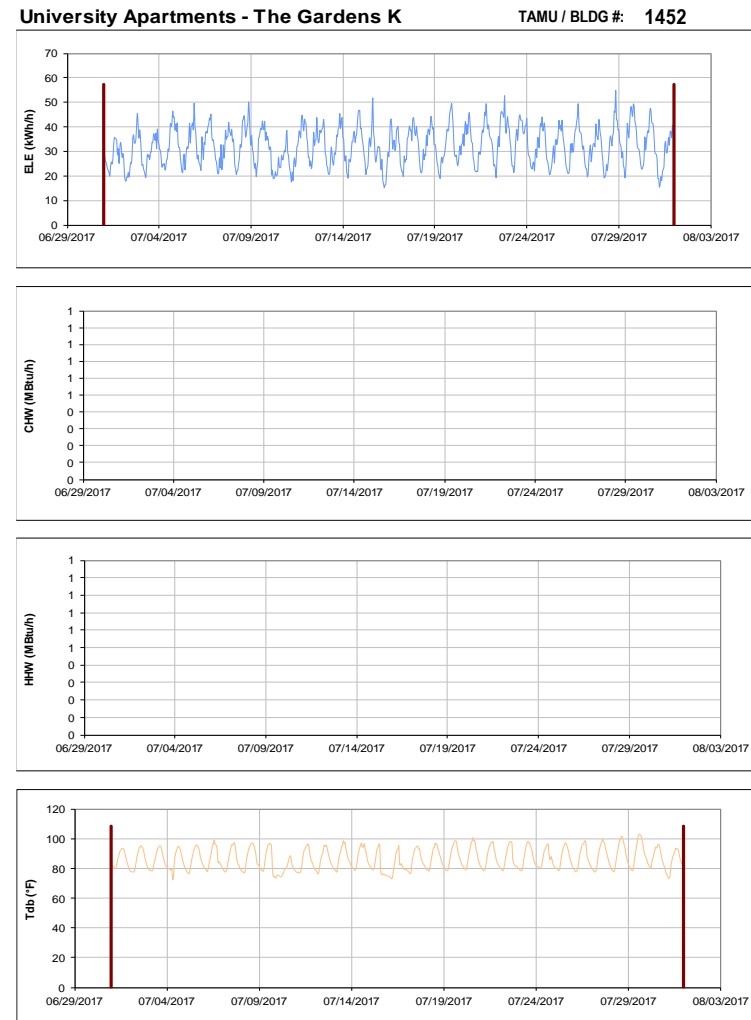


Figure III-144 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens K during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

University Apartments - The Gardens L

TAMU / BLDG #: 1453

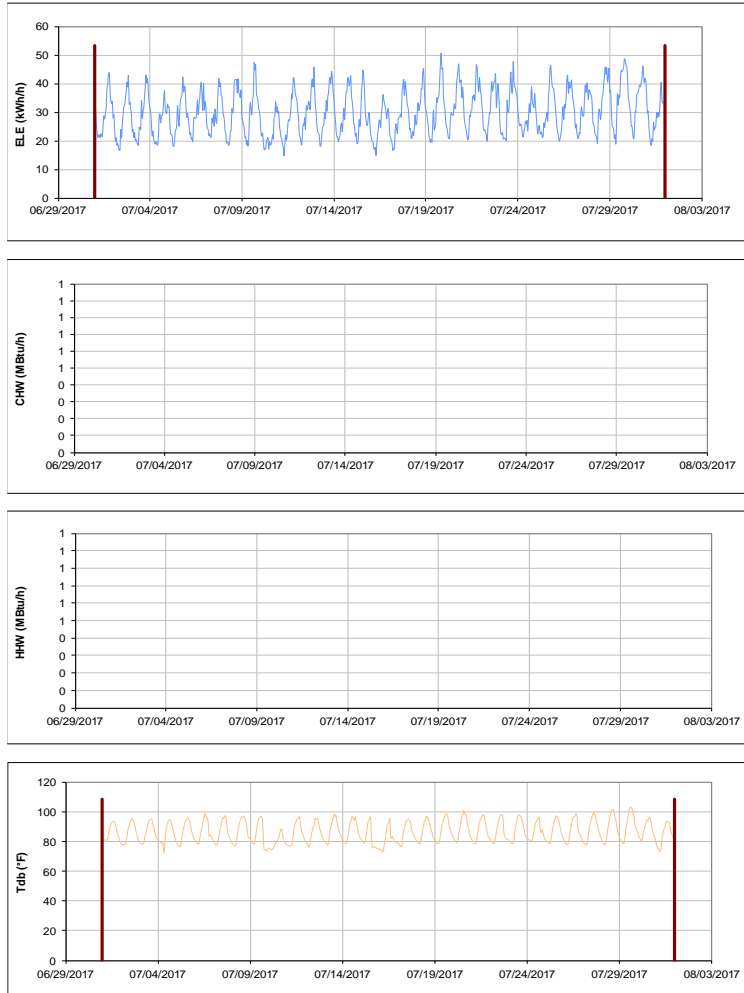


Figure III-145 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens L during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

University Apartments - The Gardens F

TAMU / BLDG #: 1454

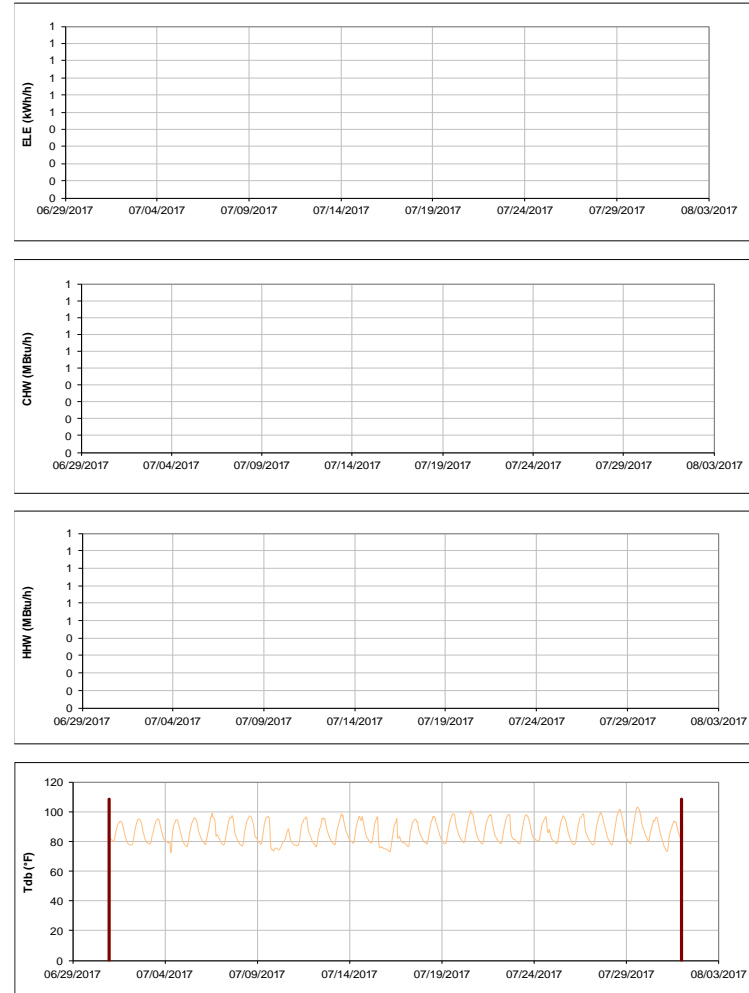


Figure III-146 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens F during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

University Apartments - The Gardens G

TAMU / BLDG #: 1455

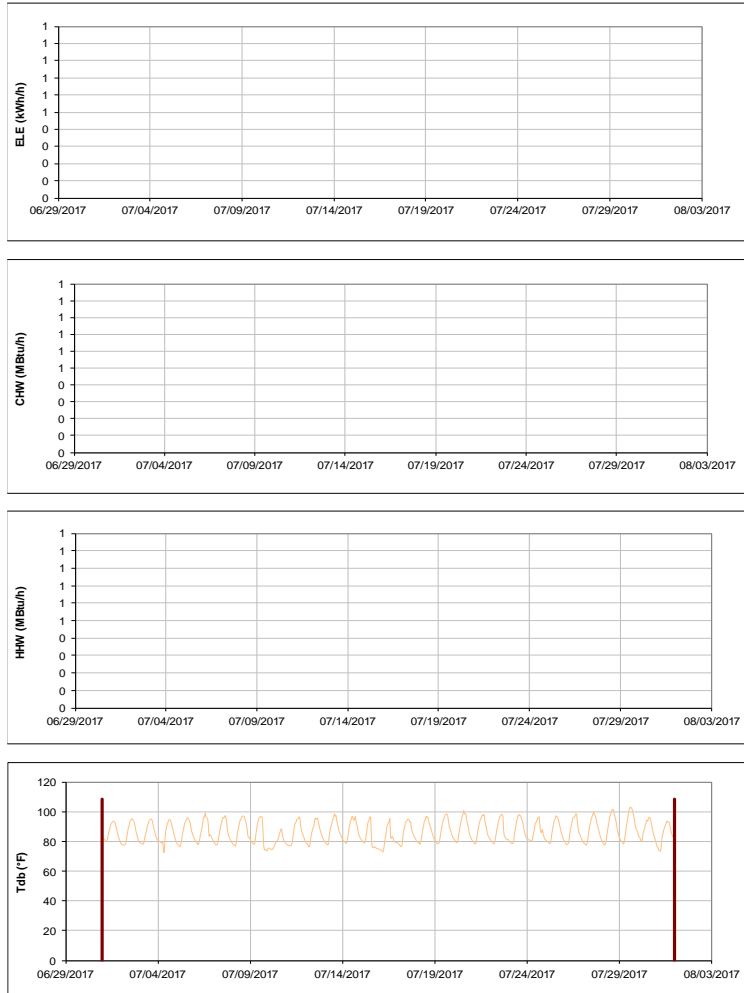


Figure III-147 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens G during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

University Apartments - The Gardens H

TAMU / BLDG #: 1456

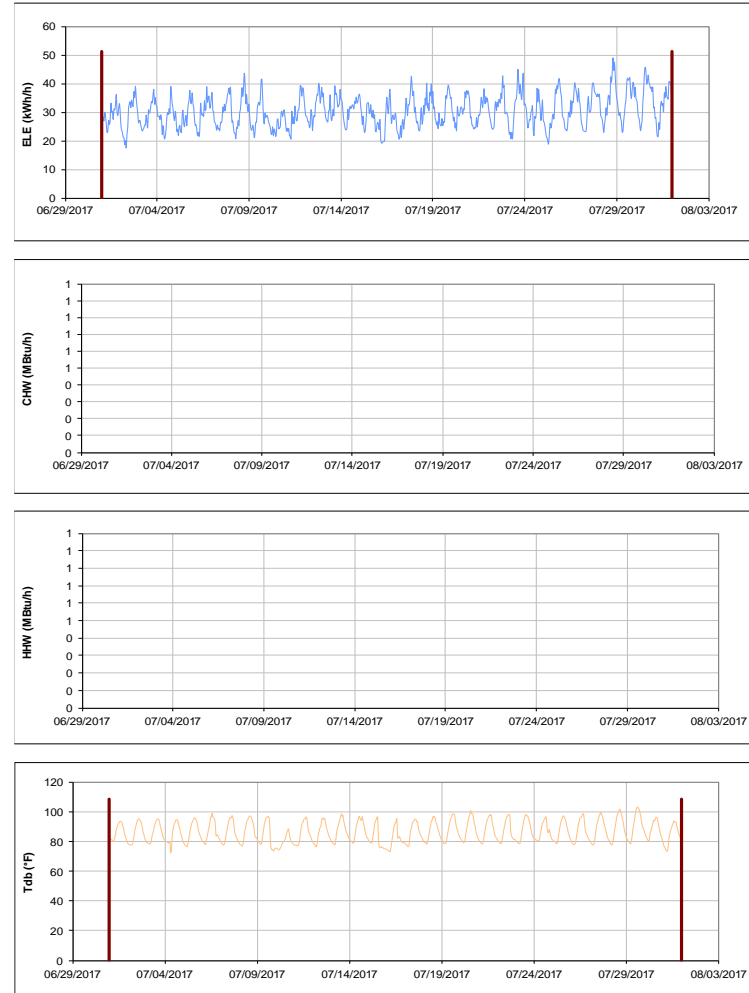


Figure III-148 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens H during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

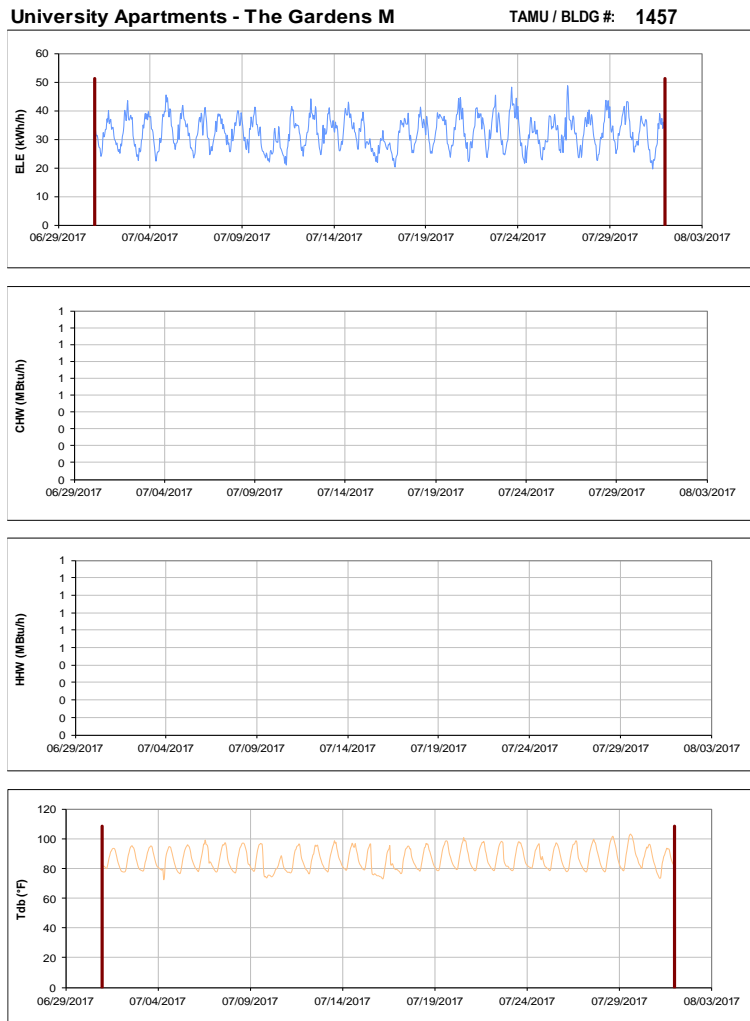


Figure III-149 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens M during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

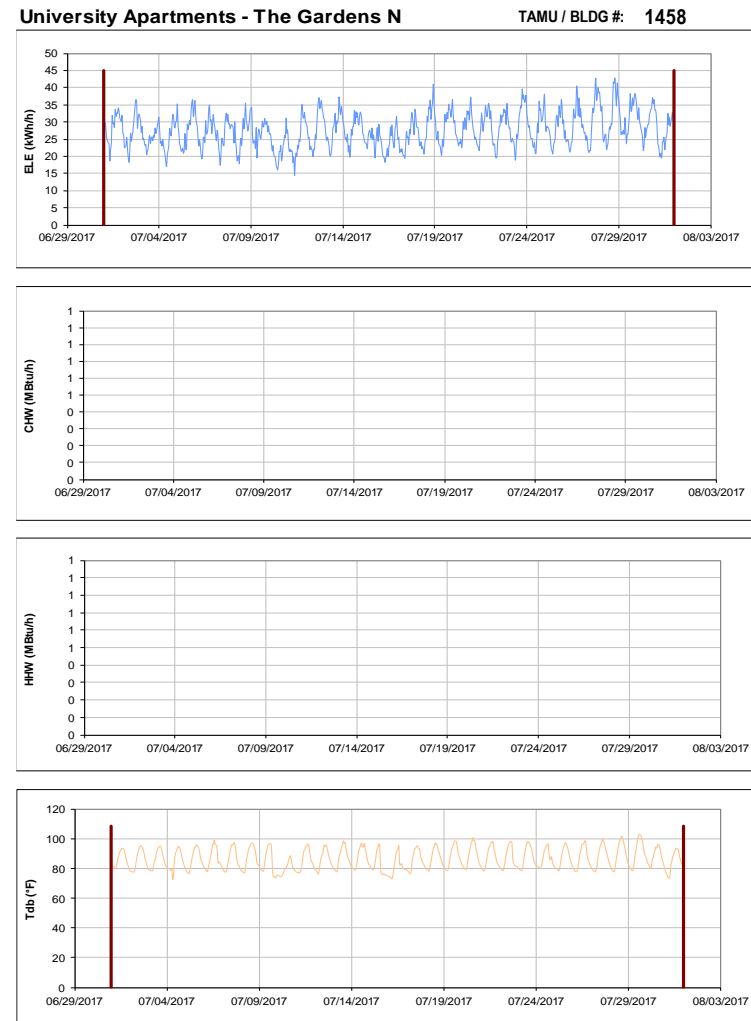


Figure III-150 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens N during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

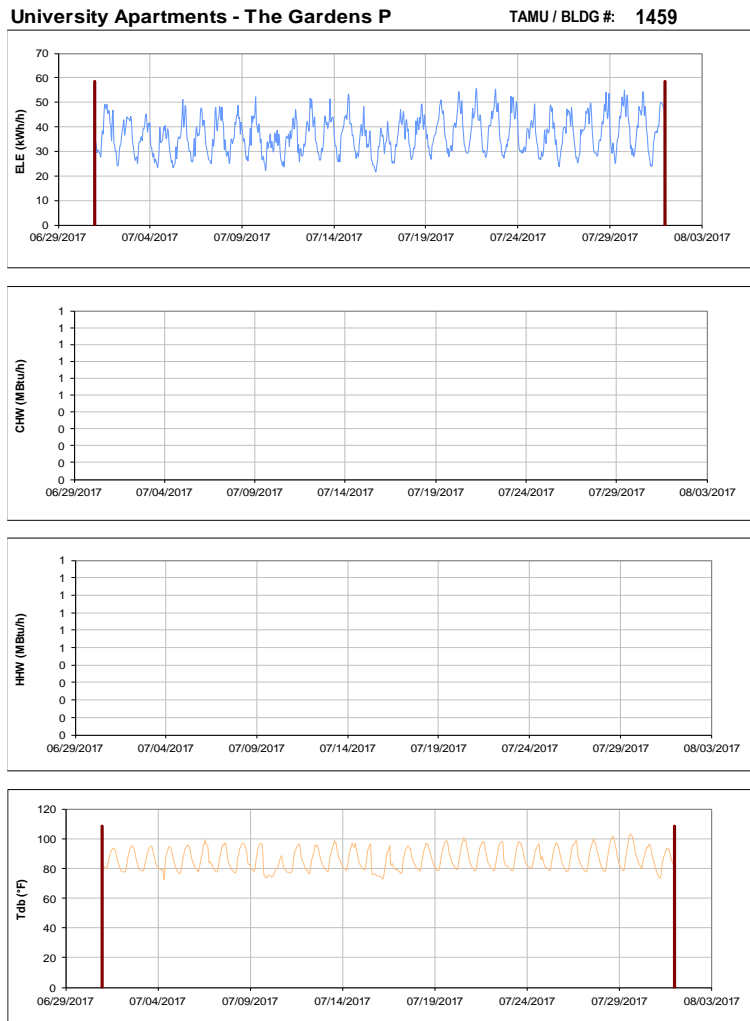


Figure III-151 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens P during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

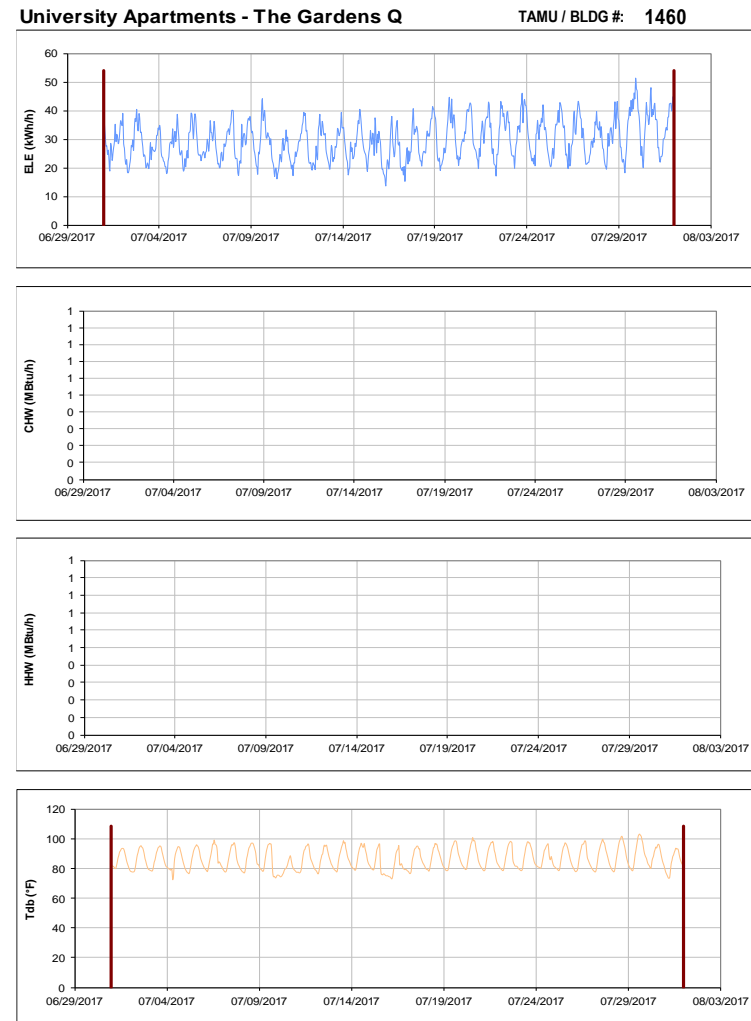


Figure III-152 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens Q during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Utilities & Energy Services Business Office TAMU / BLDG #: 1497

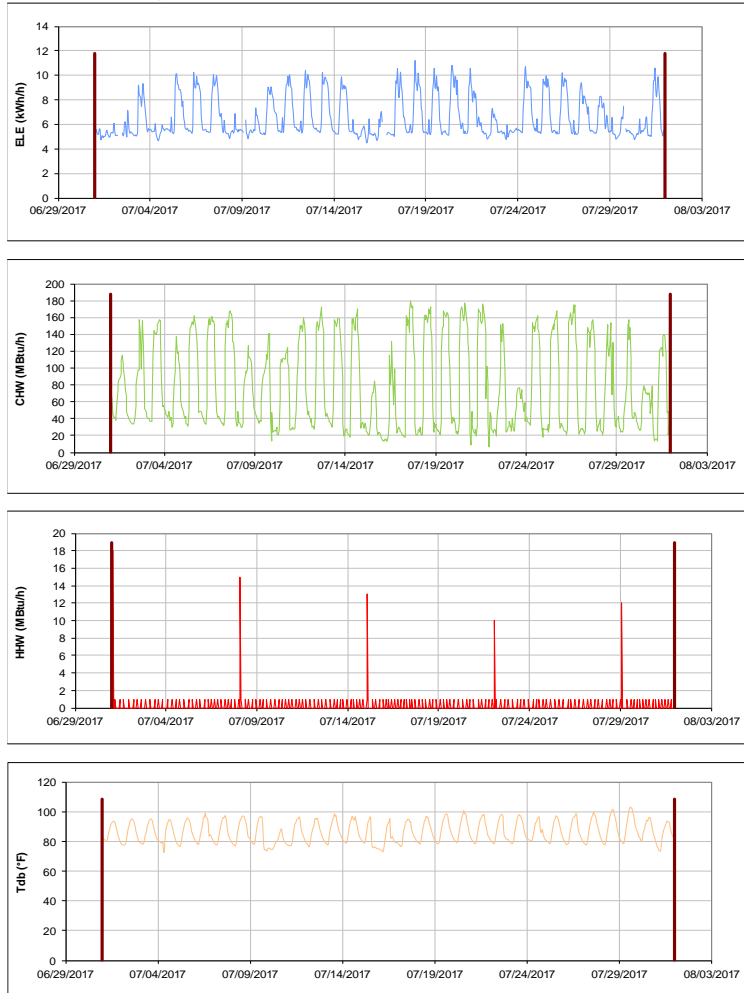


Figure III-153 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Business Office during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Kleberg Center TAMU / BLDG #: 1501



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

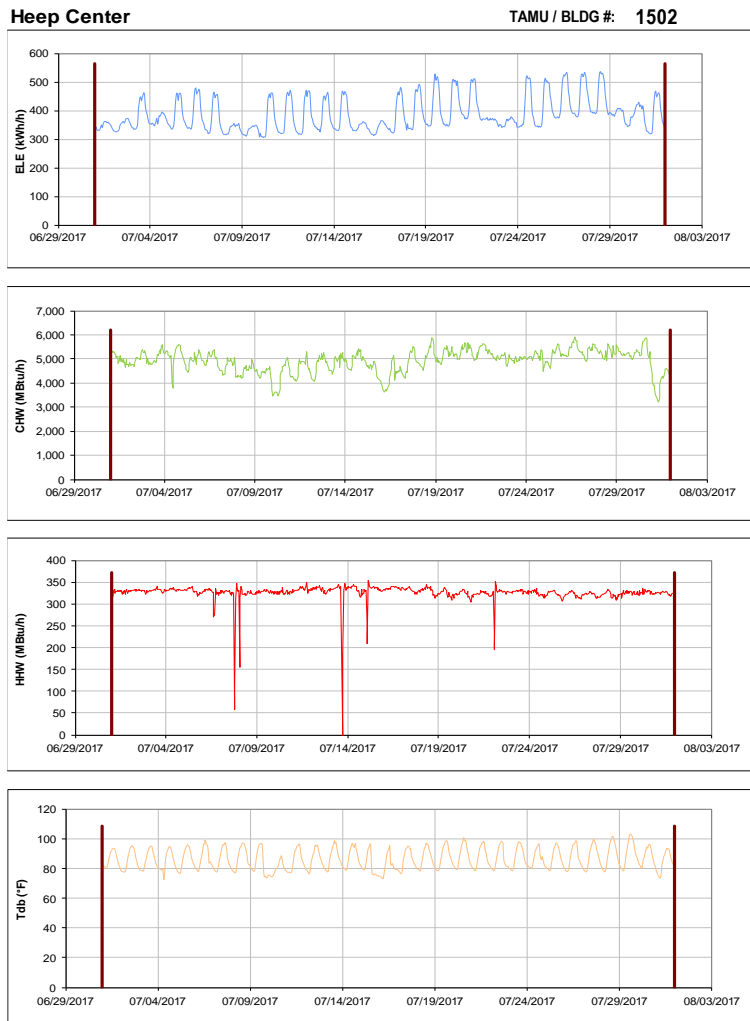


Figure III-155 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

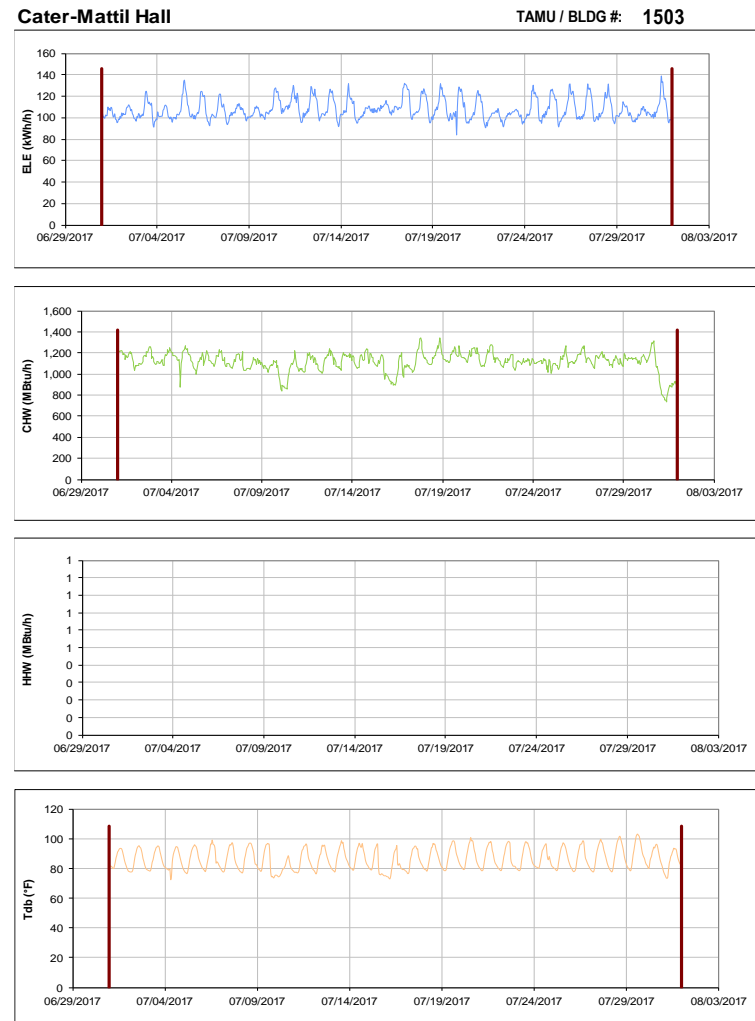


Figure III-156 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cater-Mattil Hall during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

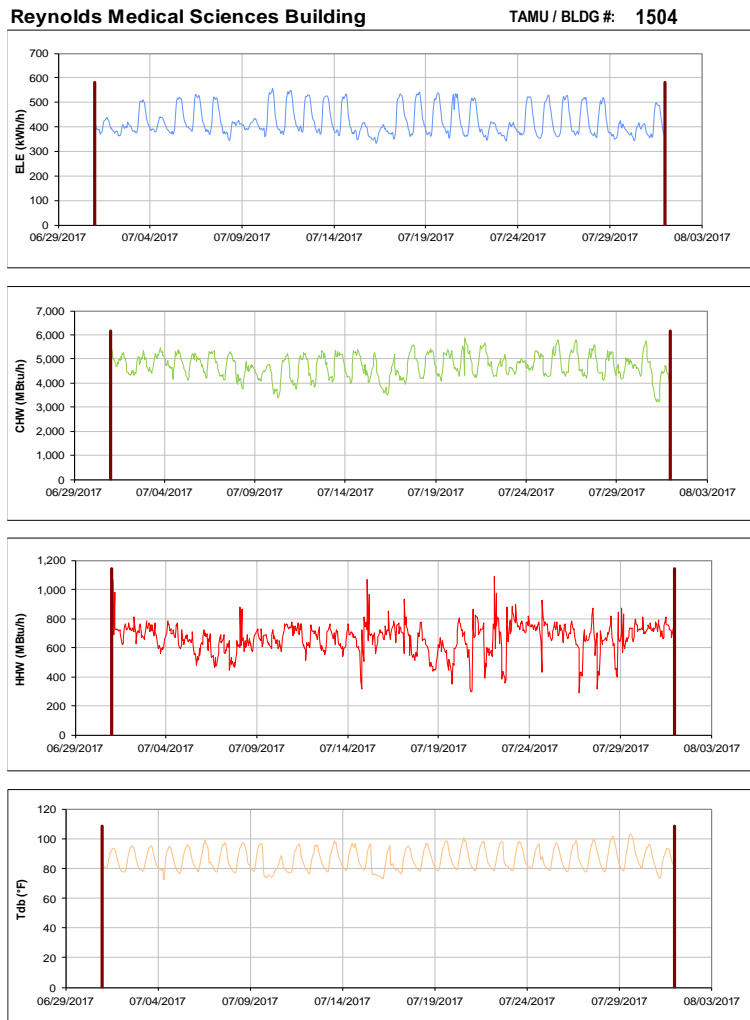


Figure III-157 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reynolds Medical Sciences Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

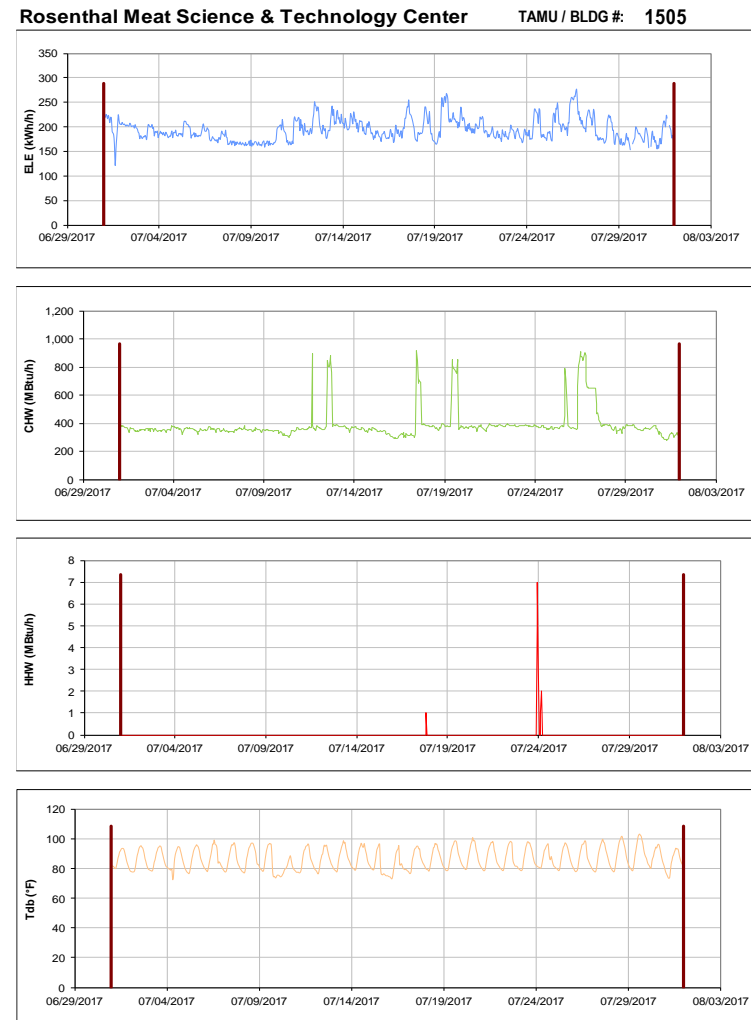


Figure III-158 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rosenthal Meat Science & Technology Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

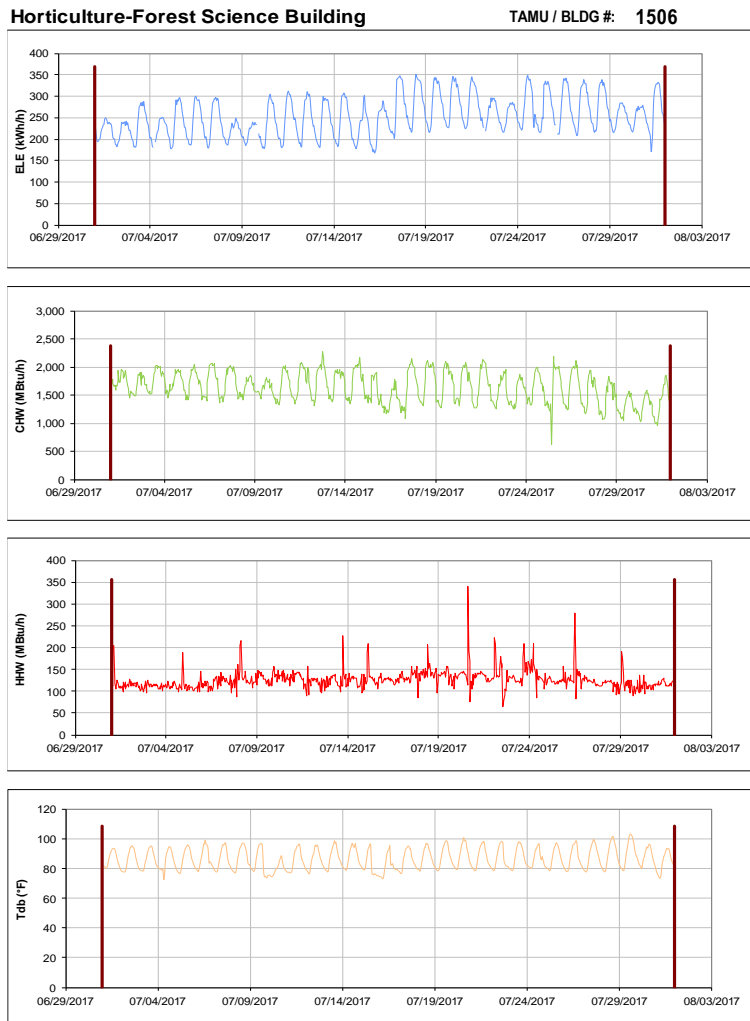


Figure III-159 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Horticulture-Forest Science Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

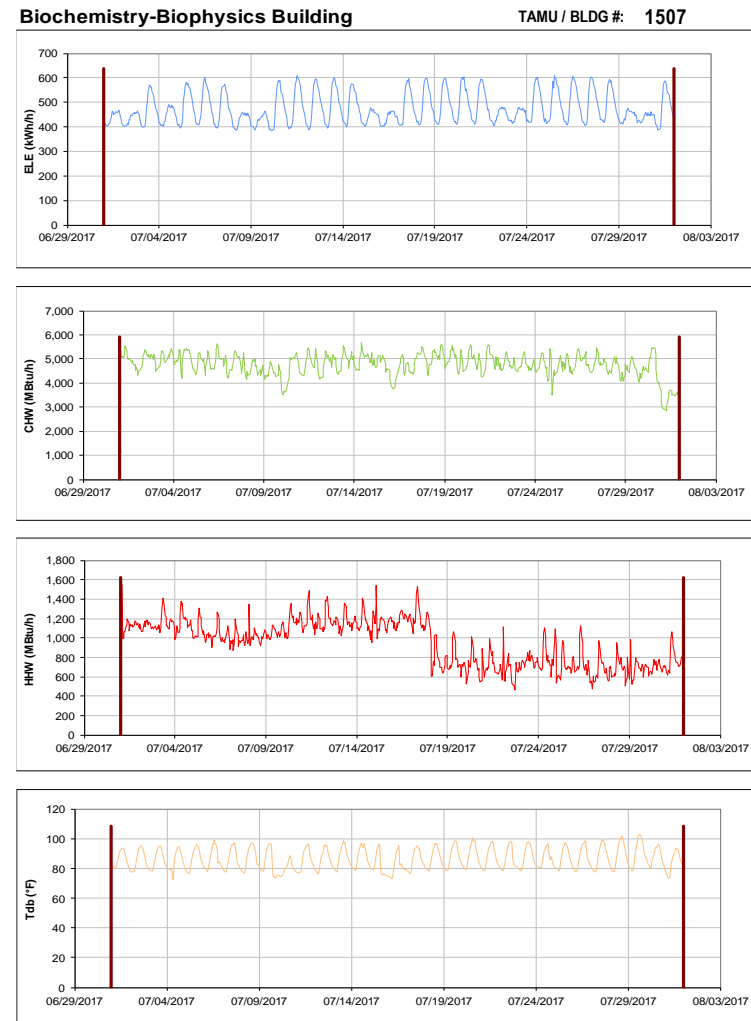


Figure III-160 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biochemistry-Biophysics Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Price Hobgood Ag. Engineering Research Lab TAMU / BLDG #: 1508

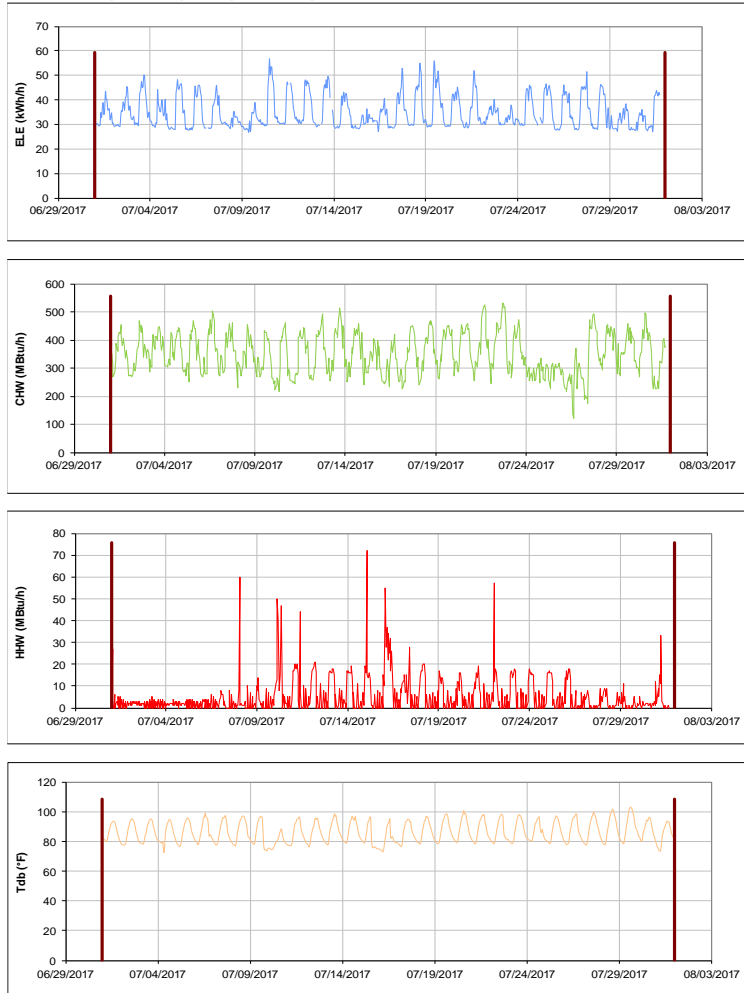


Figure III-161 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Price Hobgood Ag. Engineering Research Lab during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Medical Sciences Library TAMU / BLDG #: 1509



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

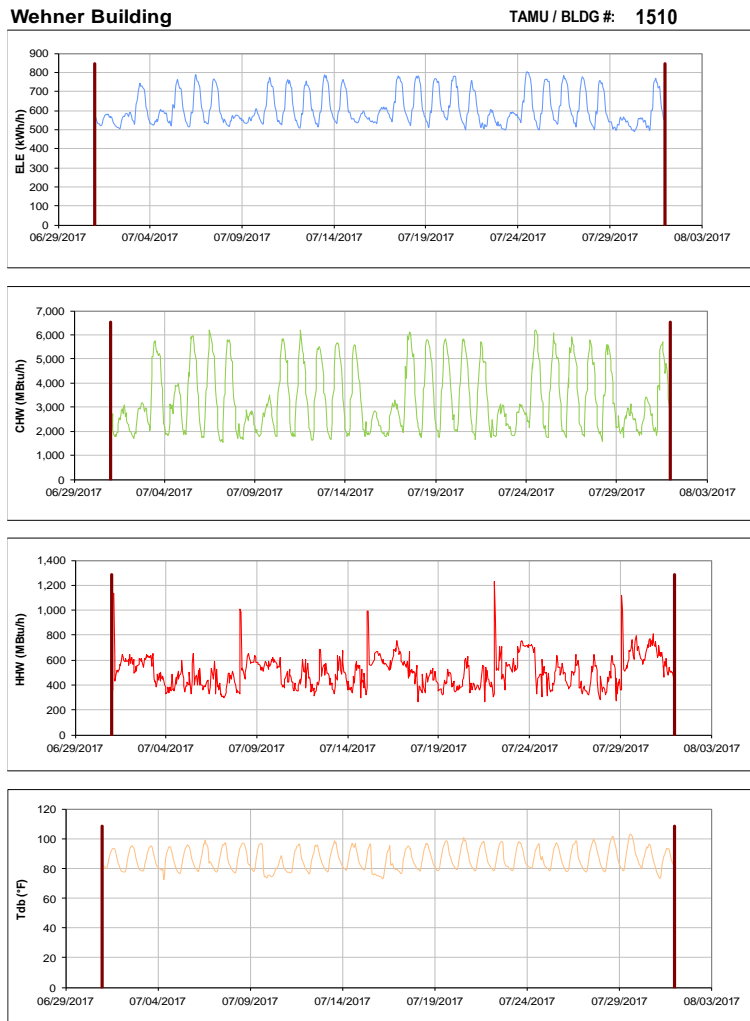


Figure III-163 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wehner Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

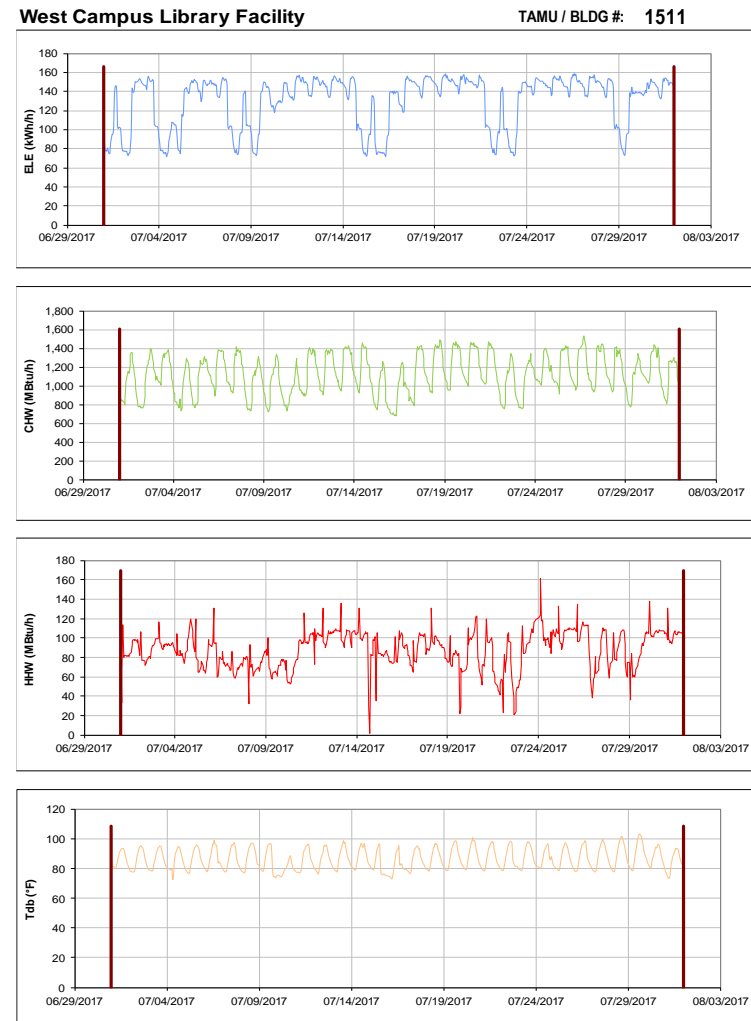


Figure III-164 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Library Facility during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Southern Crop Improvement Greenhouse TAMU / BLDG #: 1512

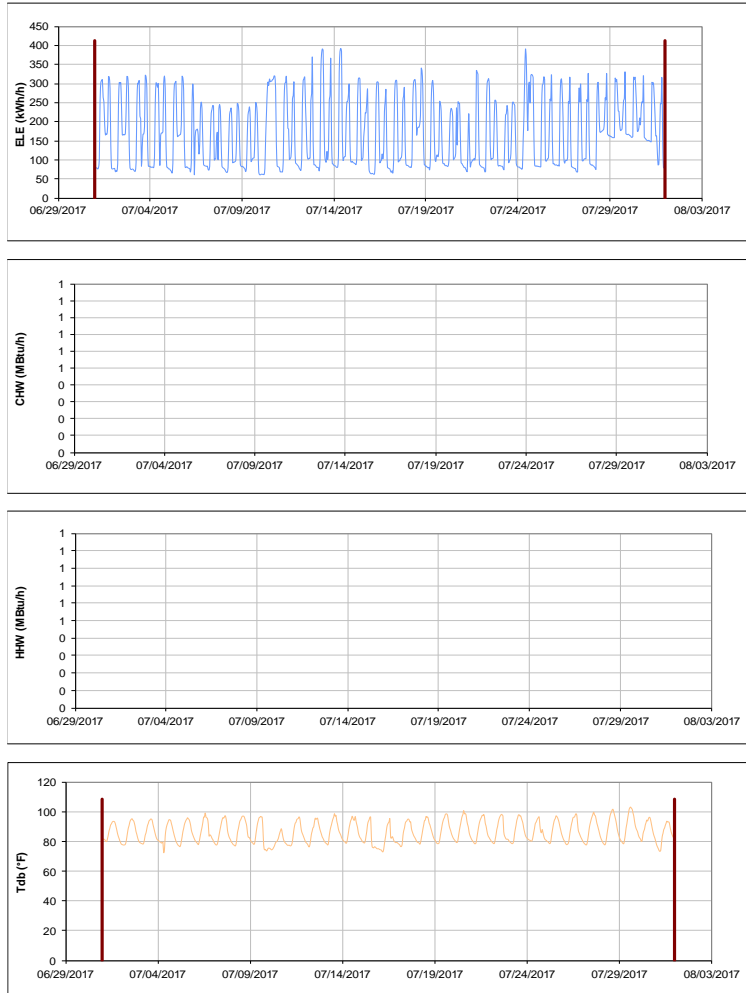


Figure III-165 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Southern Crop Improvement Greenhouse during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Borlaug Center for Southern Crop Improvement TAMU / BLDG #: 1513

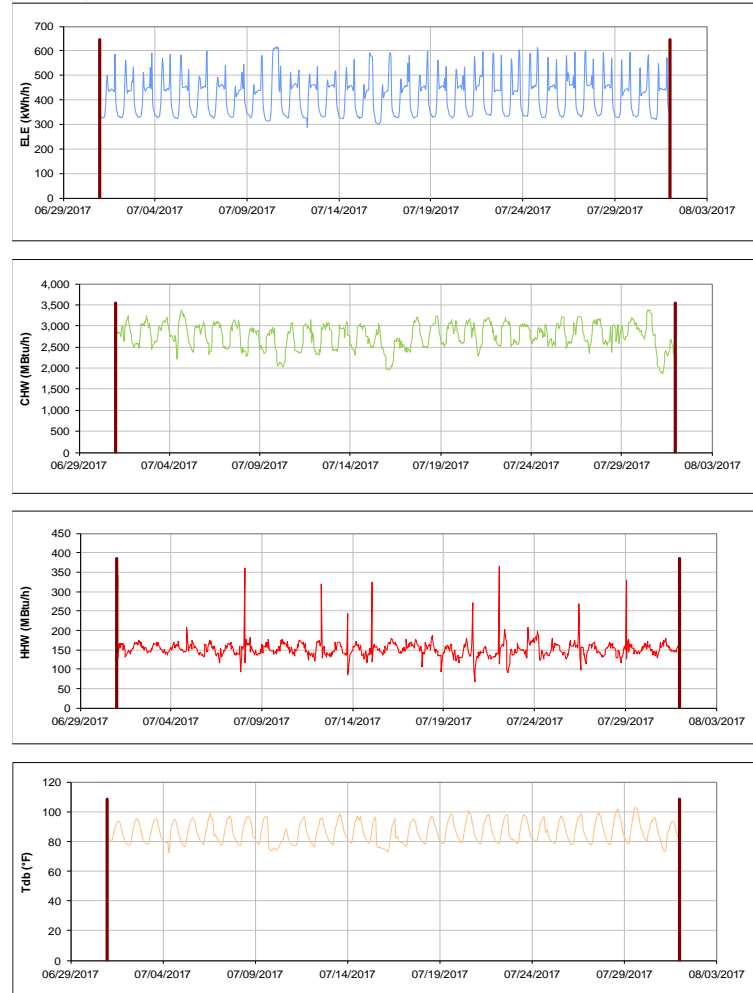


Figure III-166 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Borlaug Center for Southern Crop Improvement during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

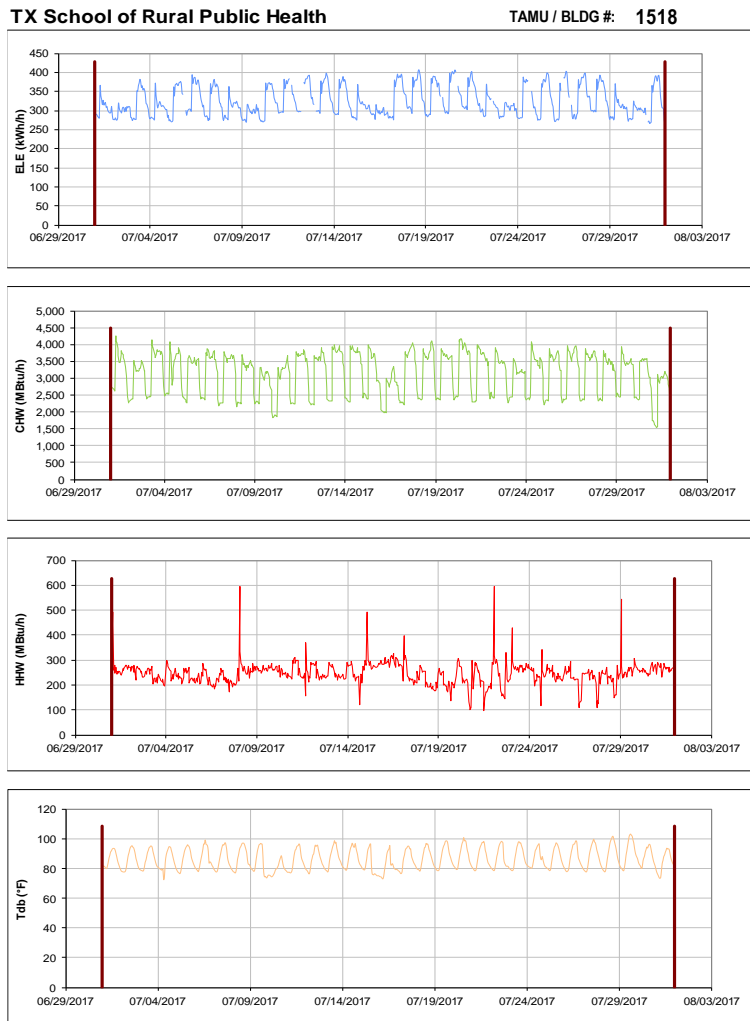


Figure III-167 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TX School of Rural Public Health during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

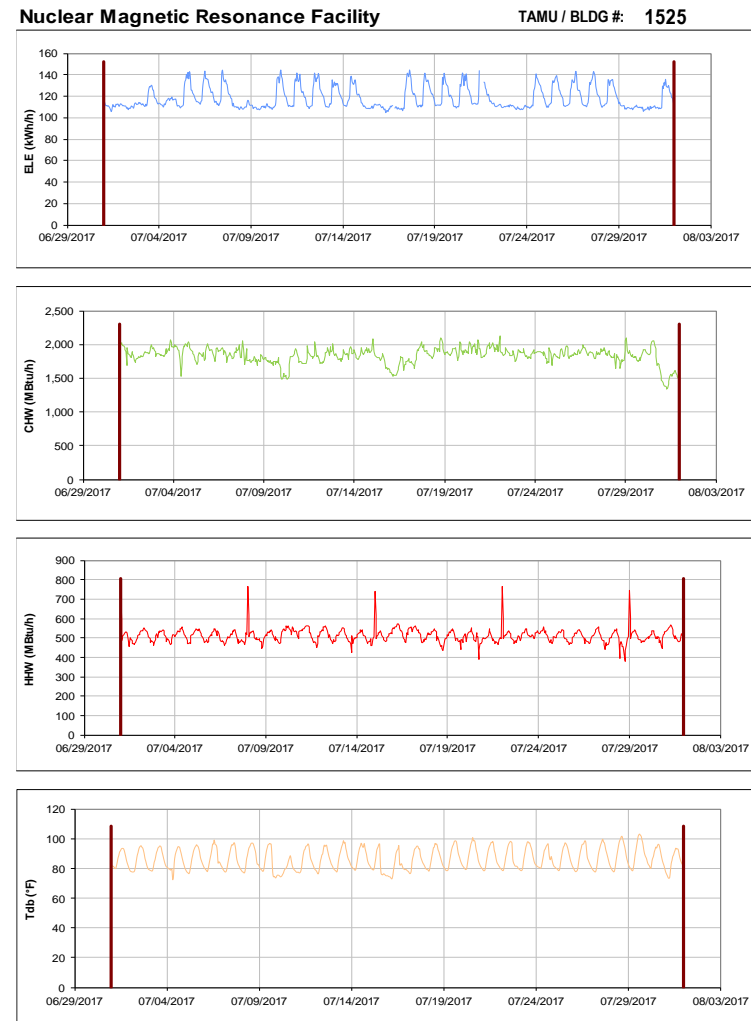


Figure III-168 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nuclear Magnetic Resonance Facility during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



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

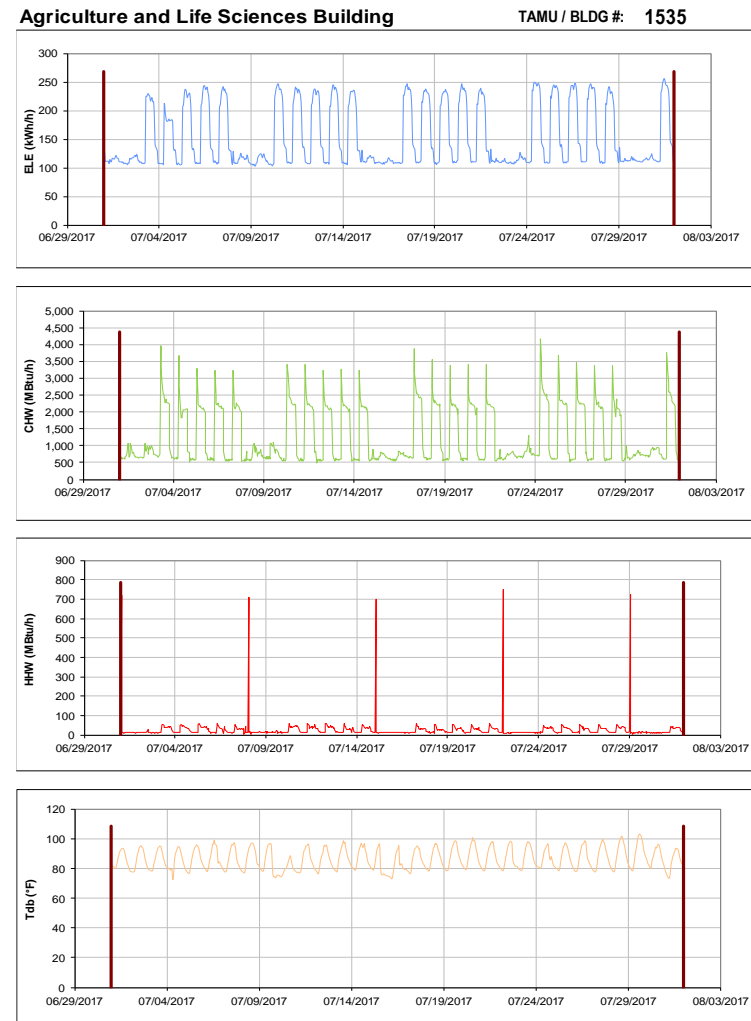


Figure III-170 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture and Life Sciences Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

AgriLife Services Building

TAMU / BLDG #: 1536

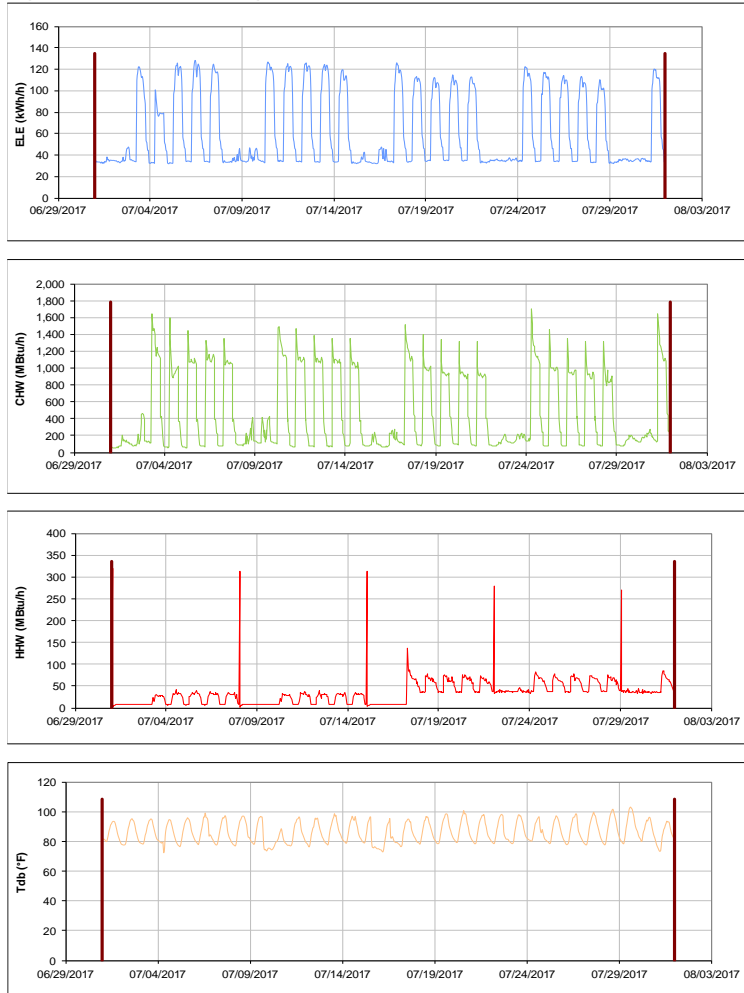


Figure III-171 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for AgriLife Services Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Agriculture Public Building

TAMU / BLDG #: 1537

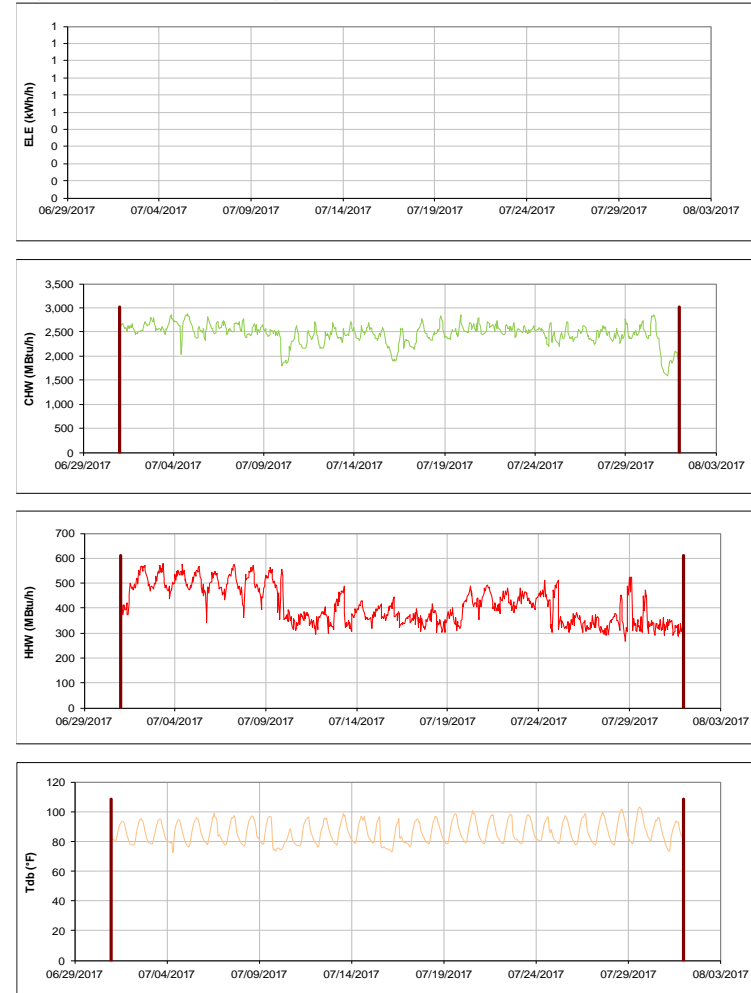


Figure III-172 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture Public Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX



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

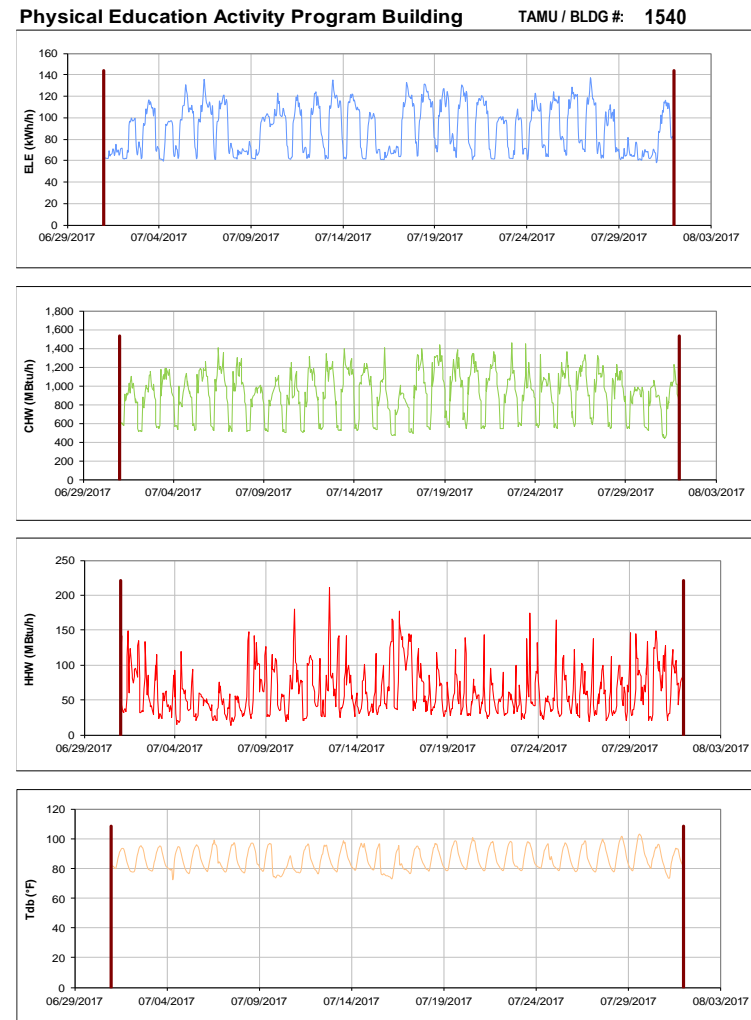


Figure III-174 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Education Activity Program Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

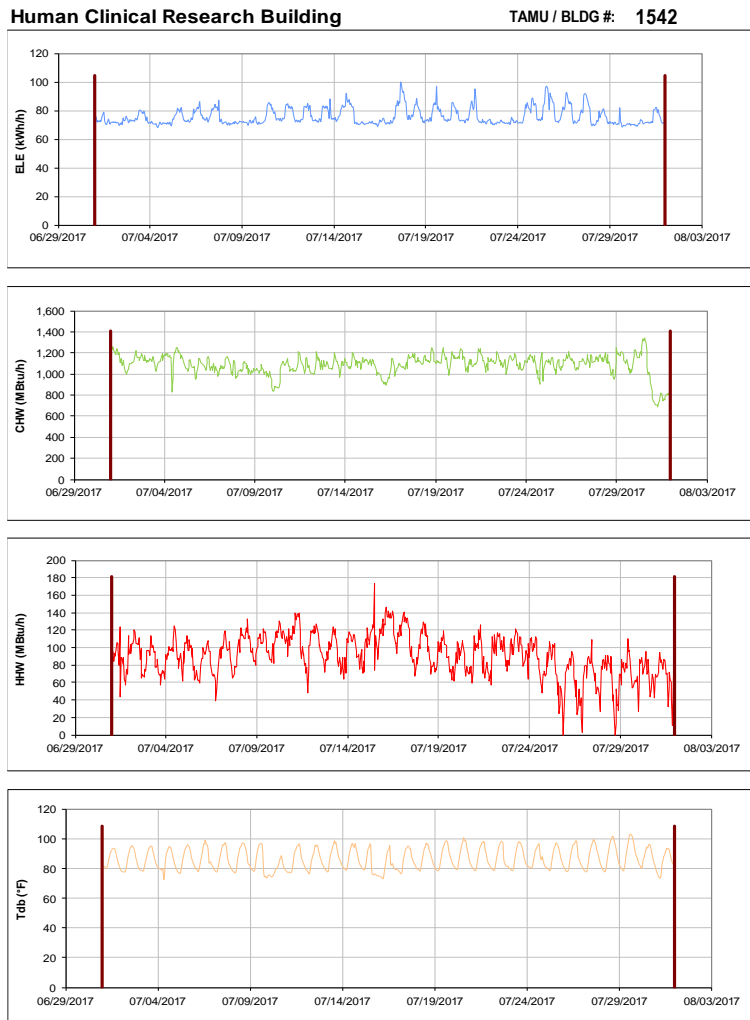


Figure III-175 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Human Clinical Research Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

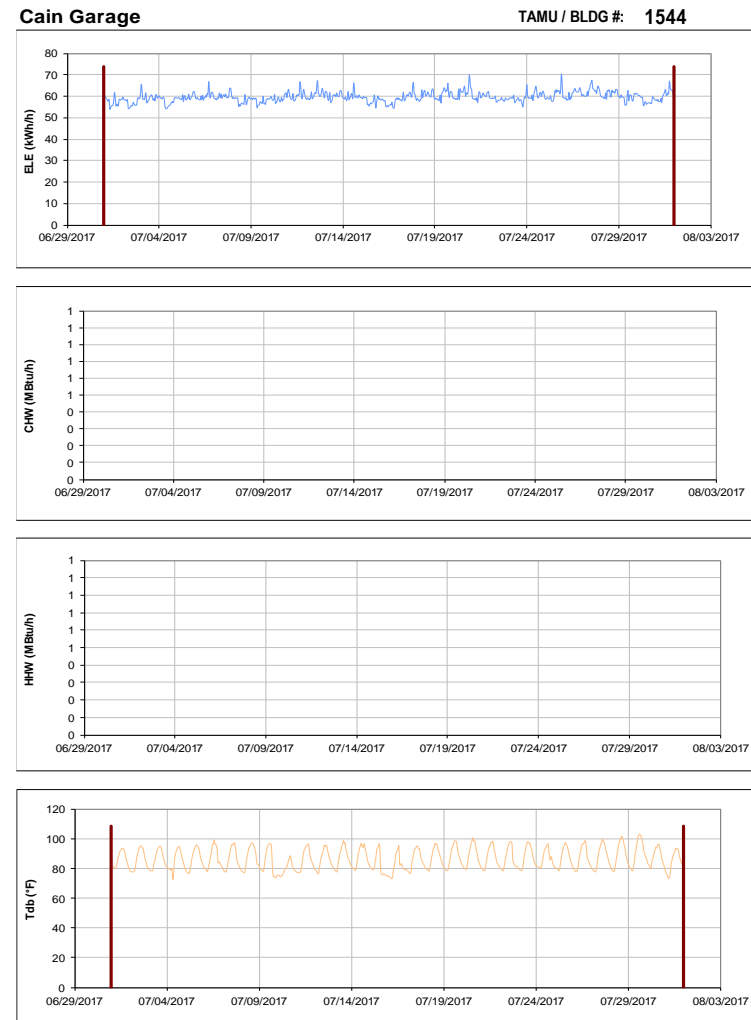


Figure III-176 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cain Garage during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Olsen Field at Bluebell Park

TAMU / BLDG #: 1550

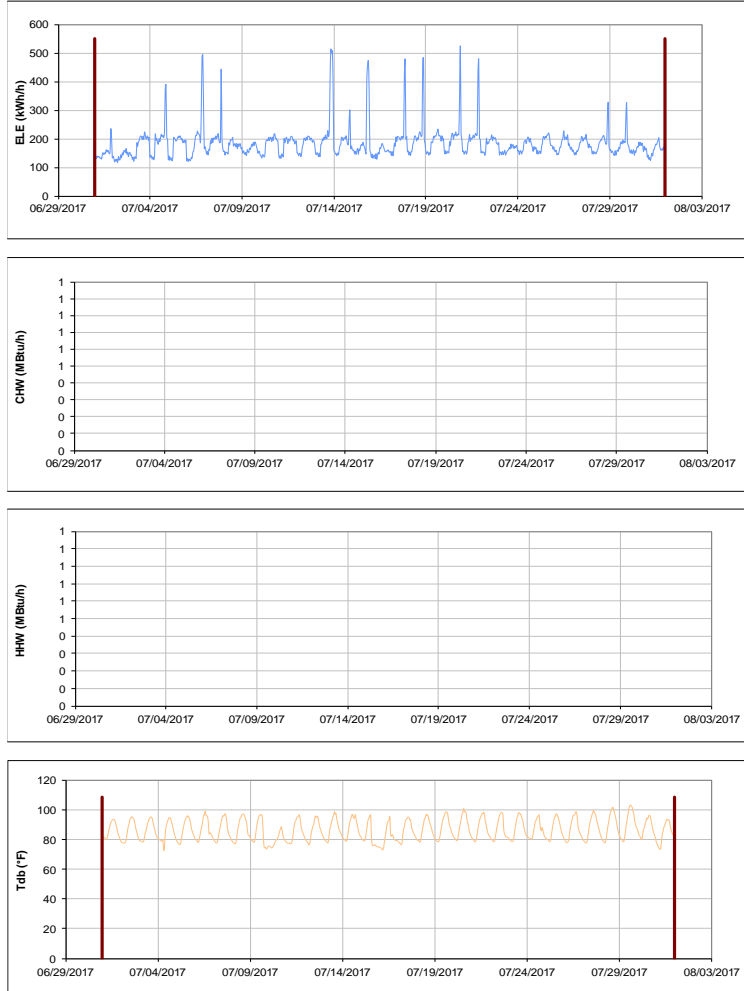


Figure III-177 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Olsen Field at Bluebell Park during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Reed Arena and Cox-McFerrin Center

TAMU / BLDG #: 554-1558



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

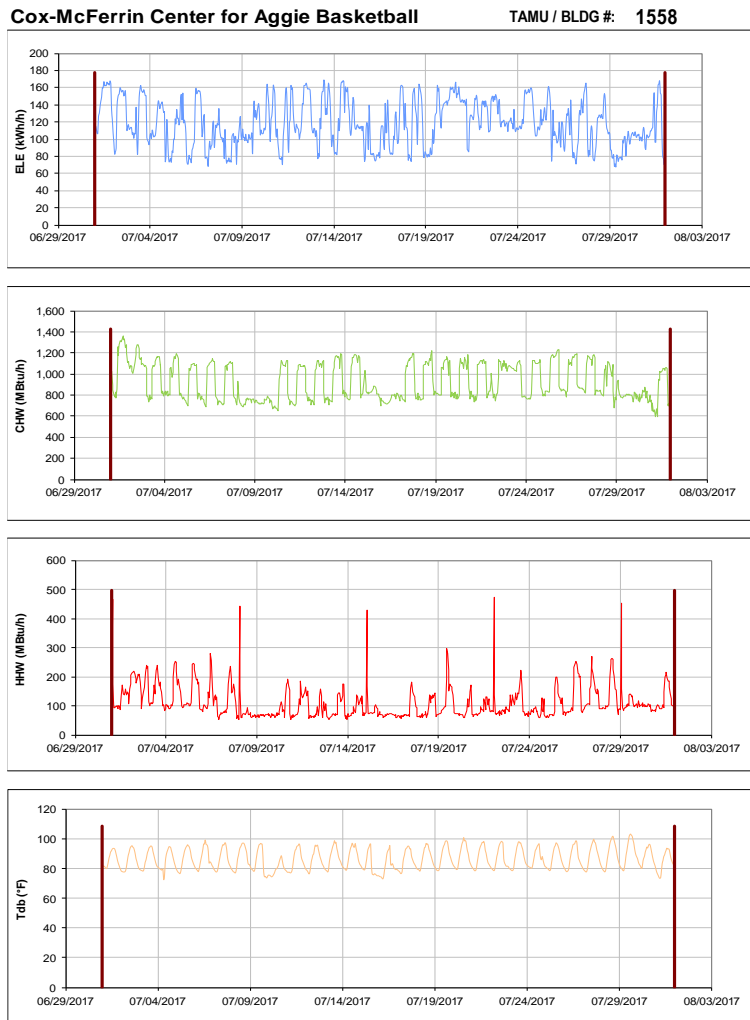


Figure III-179 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cox-McFerrin Center for Aggie Basketball during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

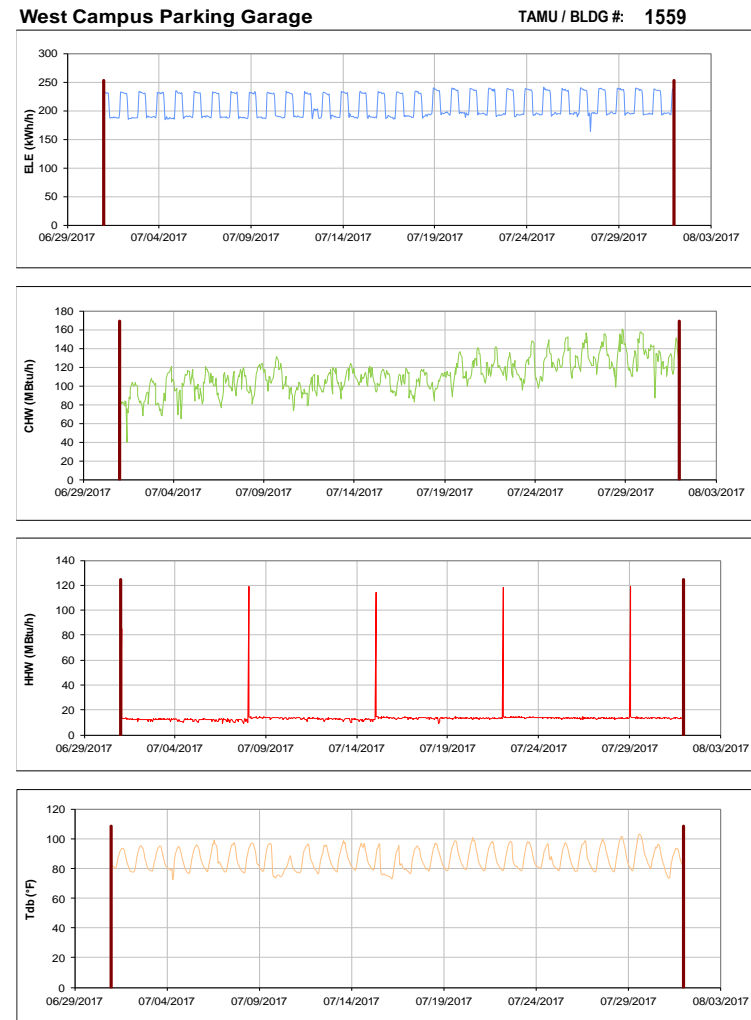


Figure III-180 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Parking Garage during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

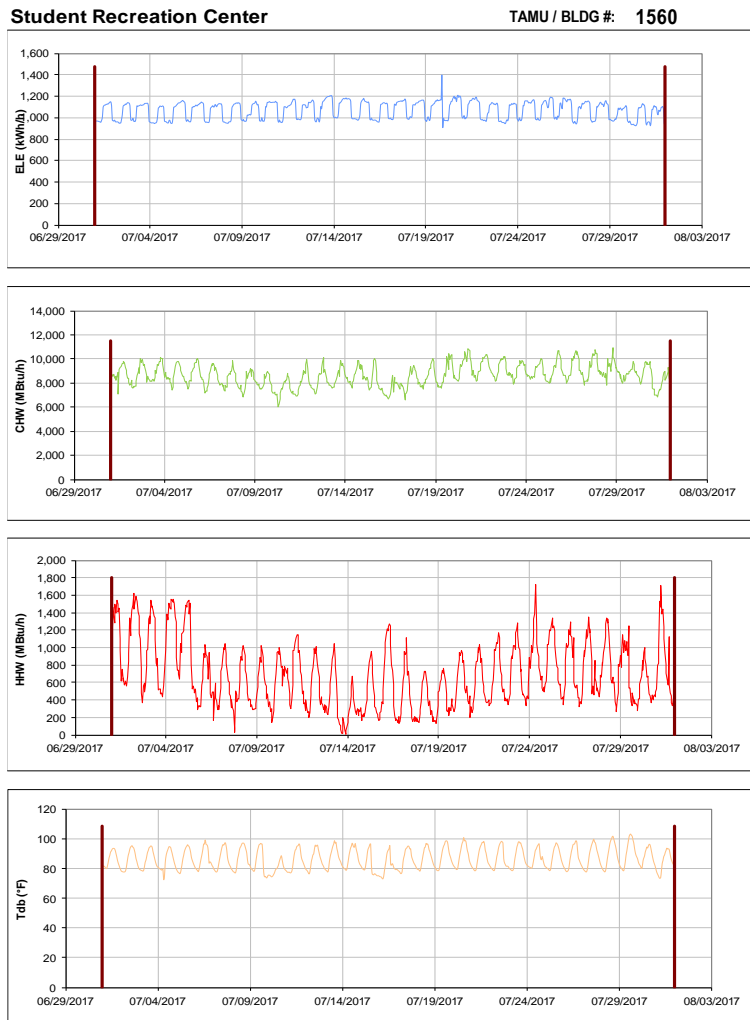


Figure III-181 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Student Recreation Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

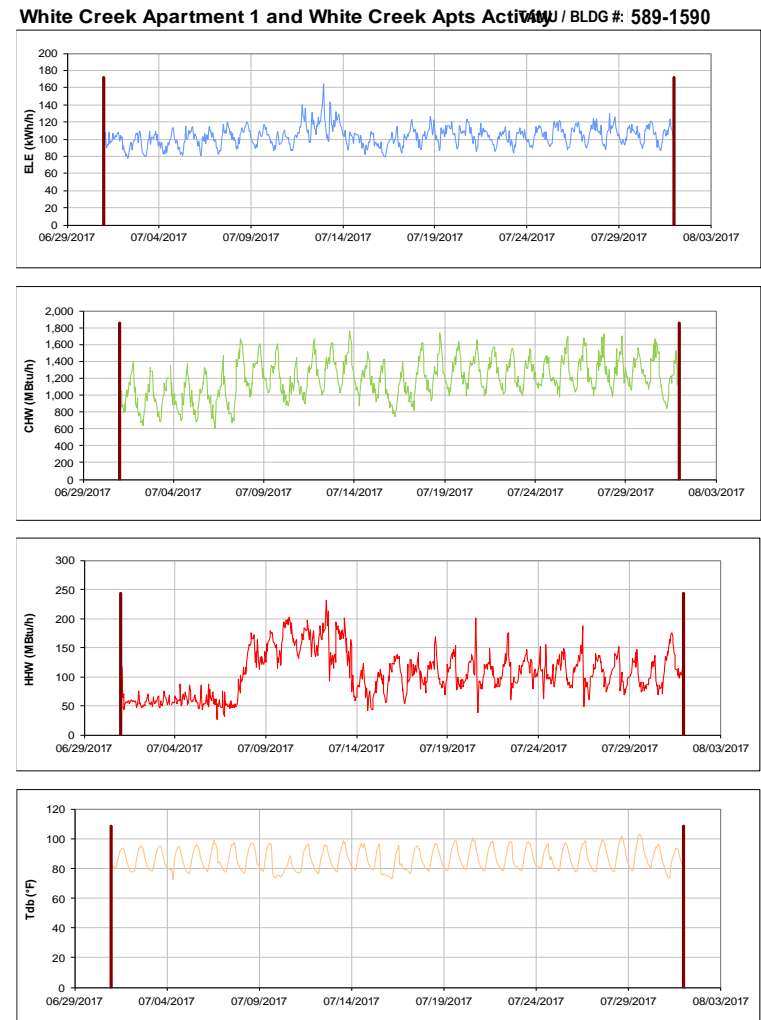


Figure III-182 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 1 and White Creek Apts Activity Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

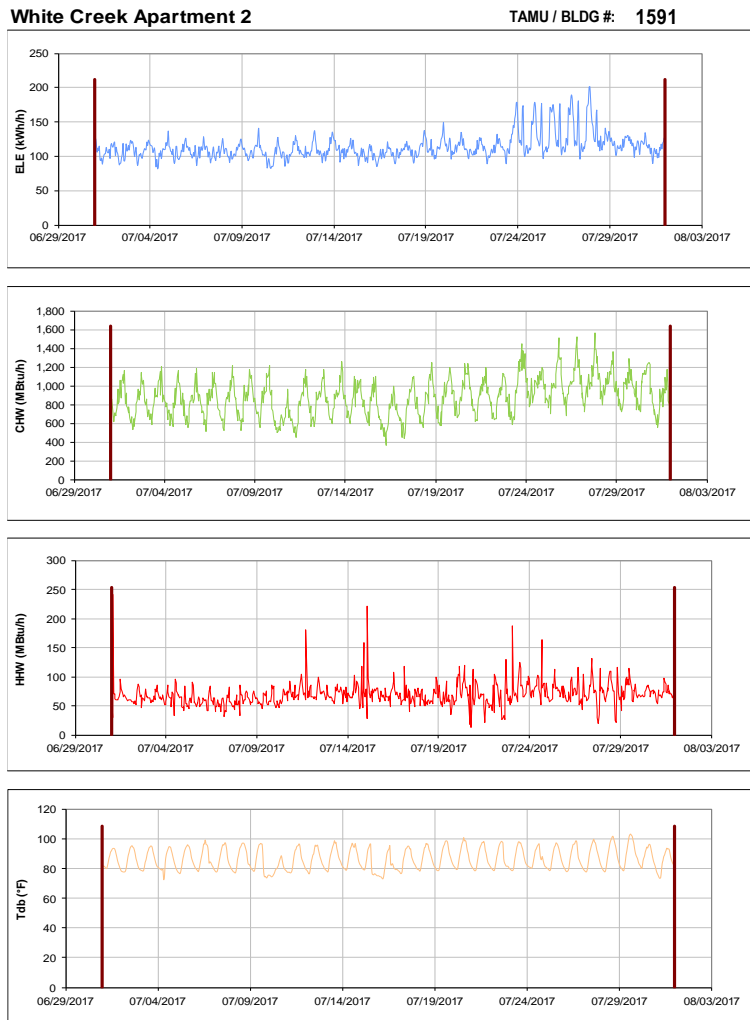


Figure III-183 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 2 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

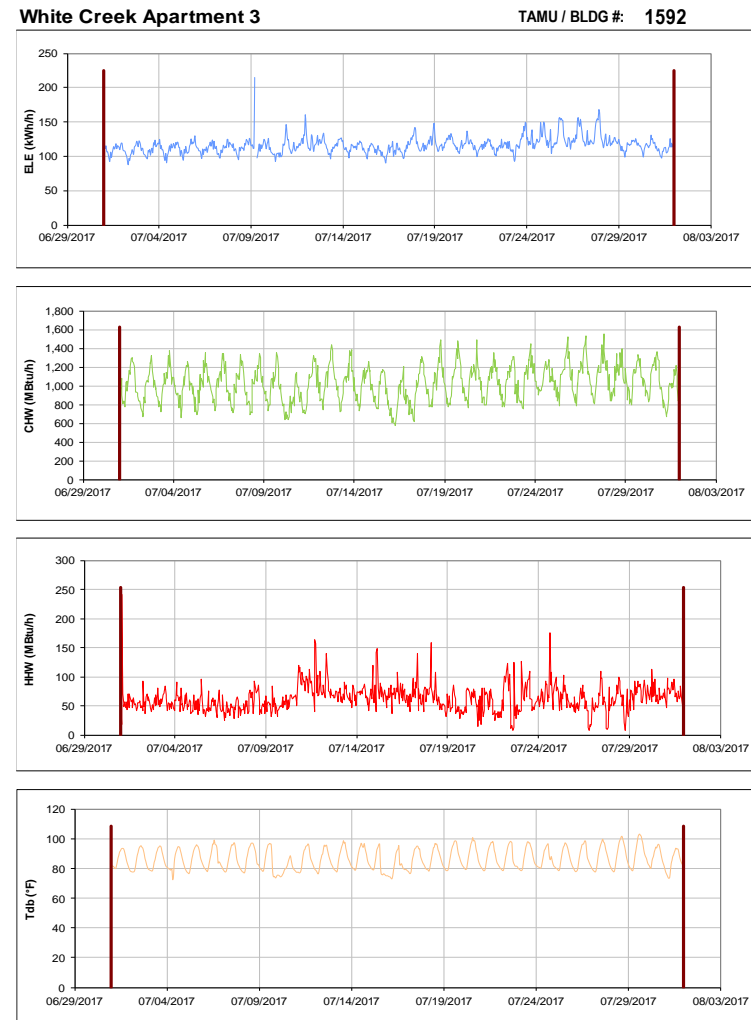


Figure III-184 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 3 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

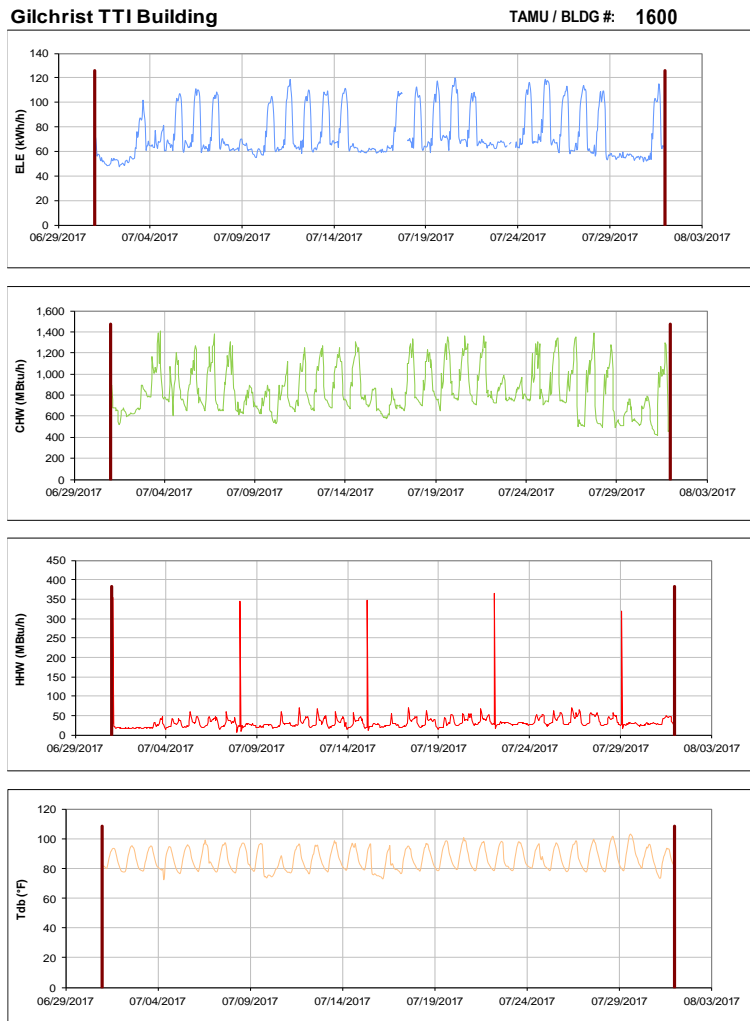


Figure III-185 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gilchrist TTI Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

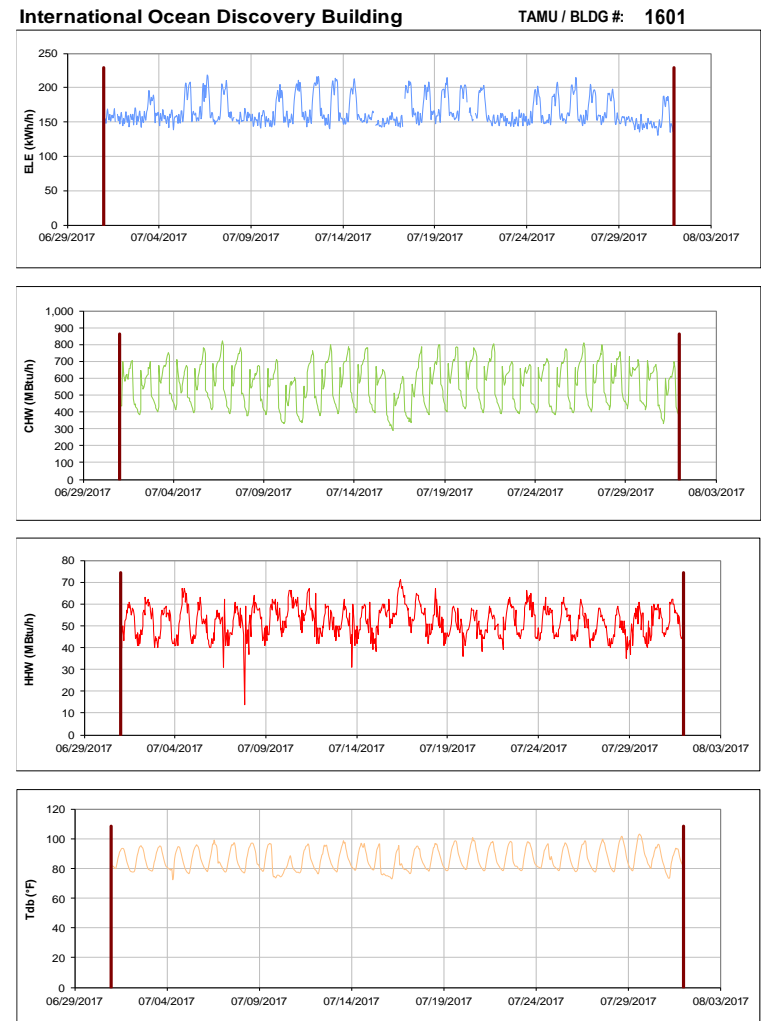


Figure III-186 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for International Ocean Discovery Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

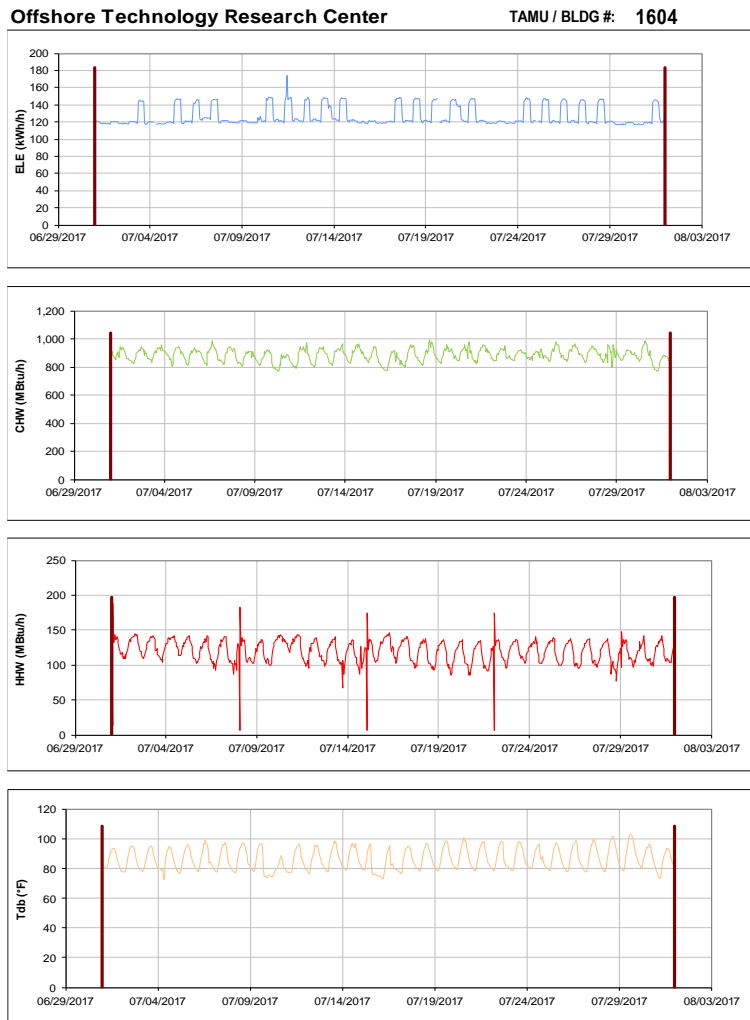


Figure III-187 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Offshore Technology Research Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

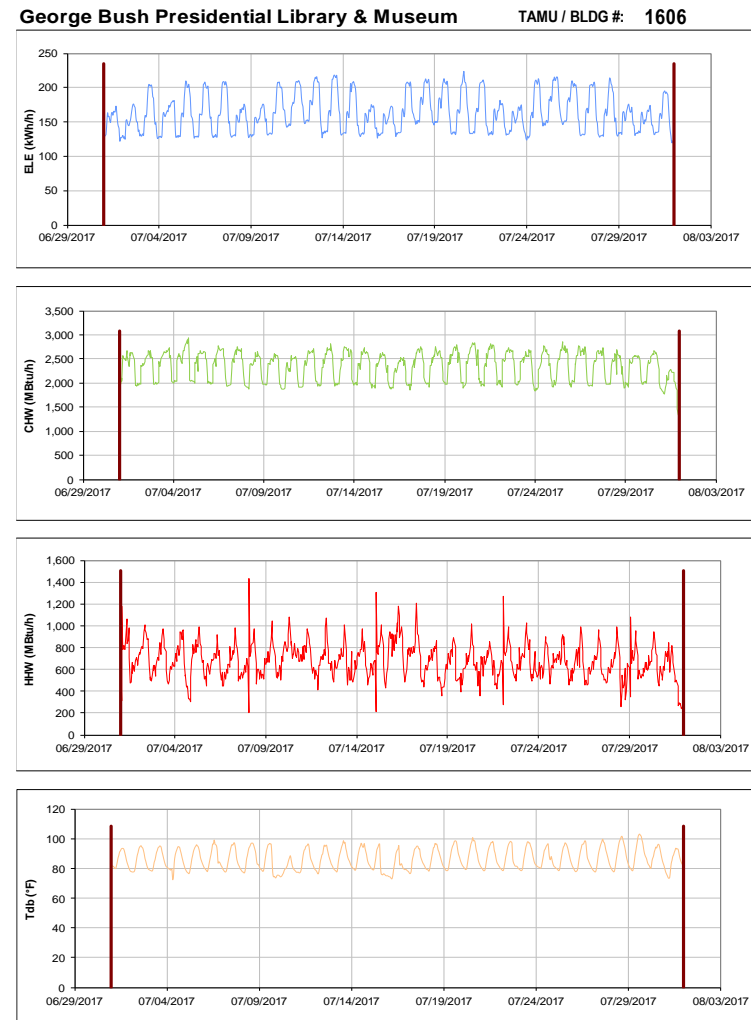


Figure III-188 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for George Bush Presidential Library & Museum during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

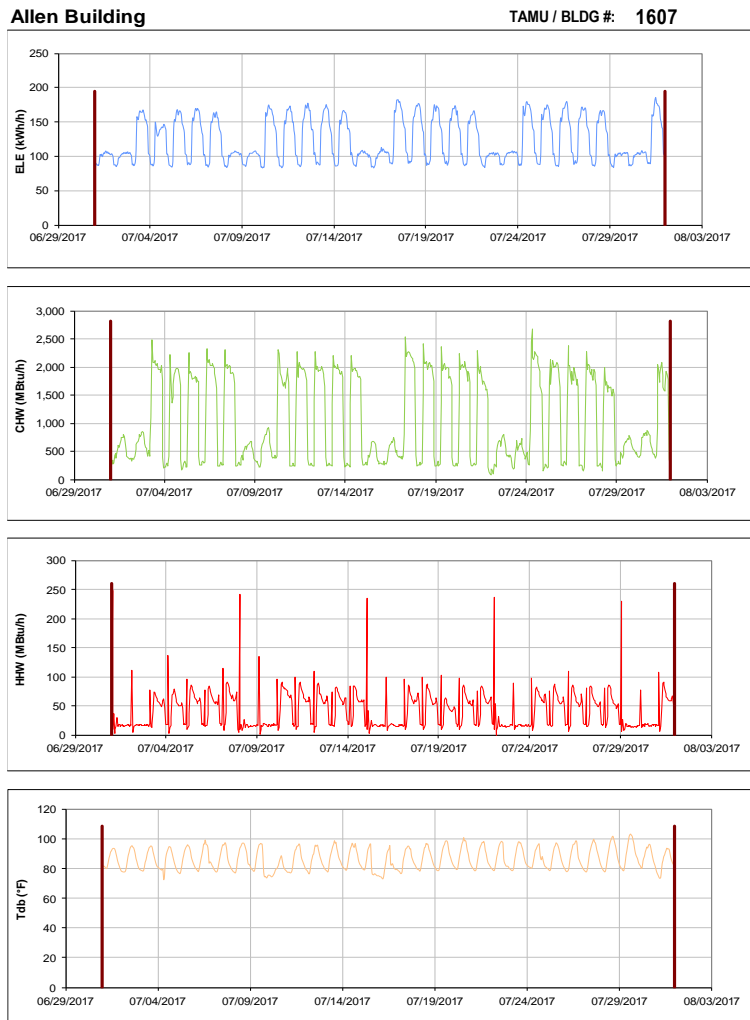


Figure III-189 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Allen Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

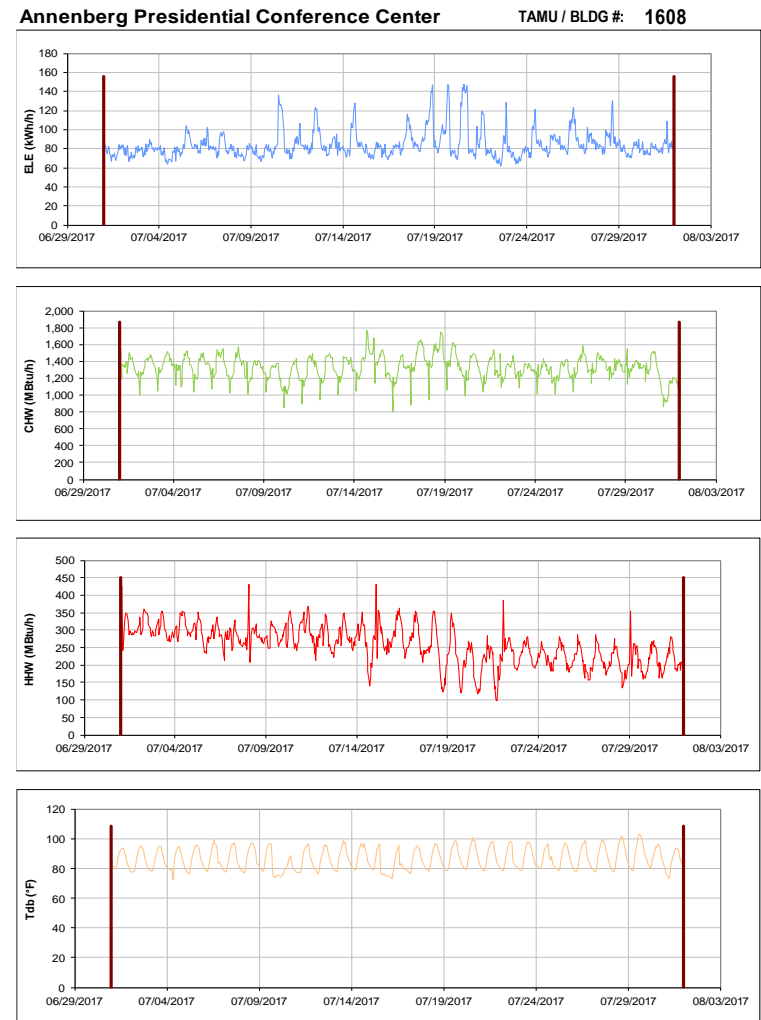


Figure III-190 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Annenberg Presidential Conference Center during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

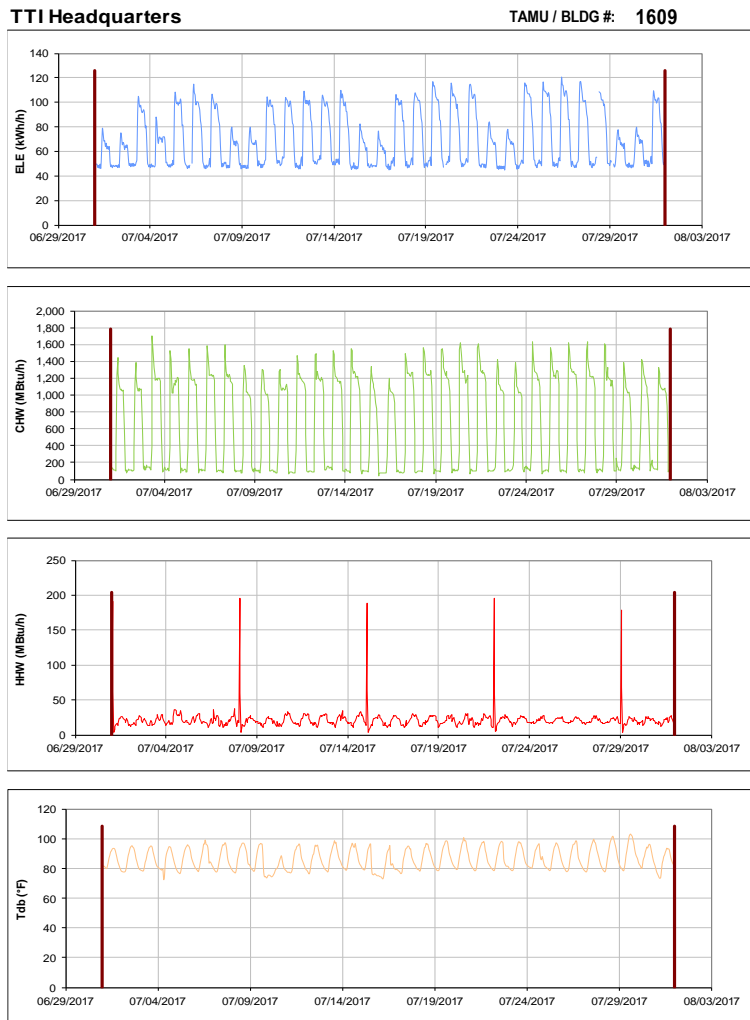


Figure III-191 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TTI Headquarters during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

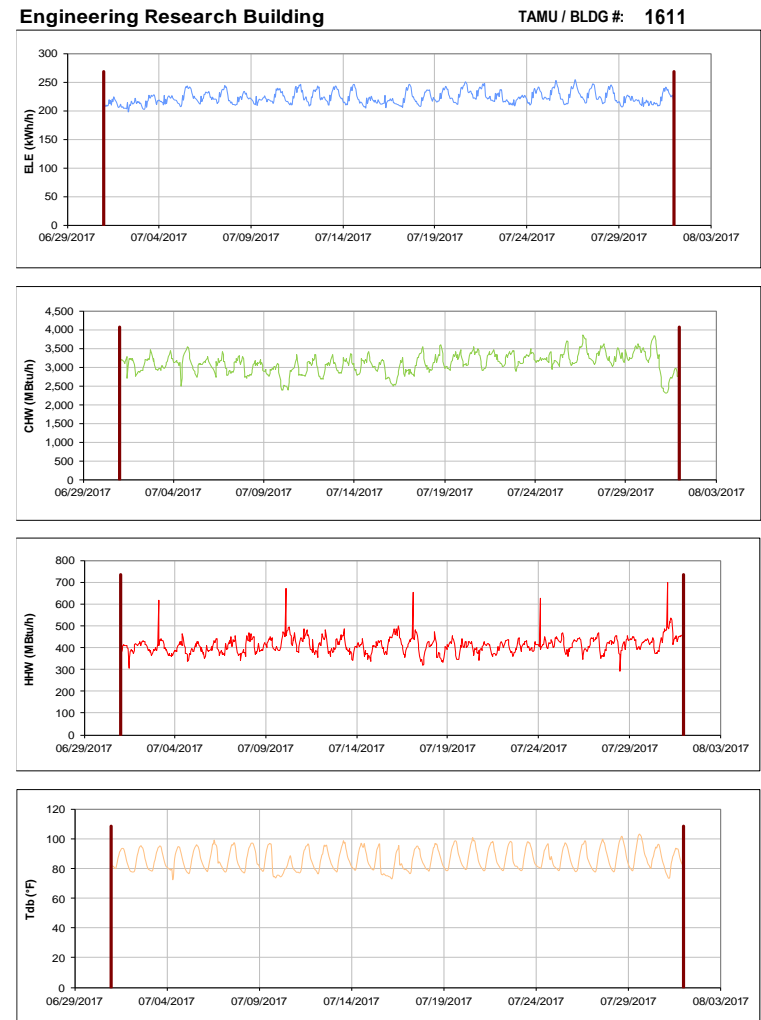


Figure III-192 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Research Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

General Services Complex

TAMU / BLDG #: 1800

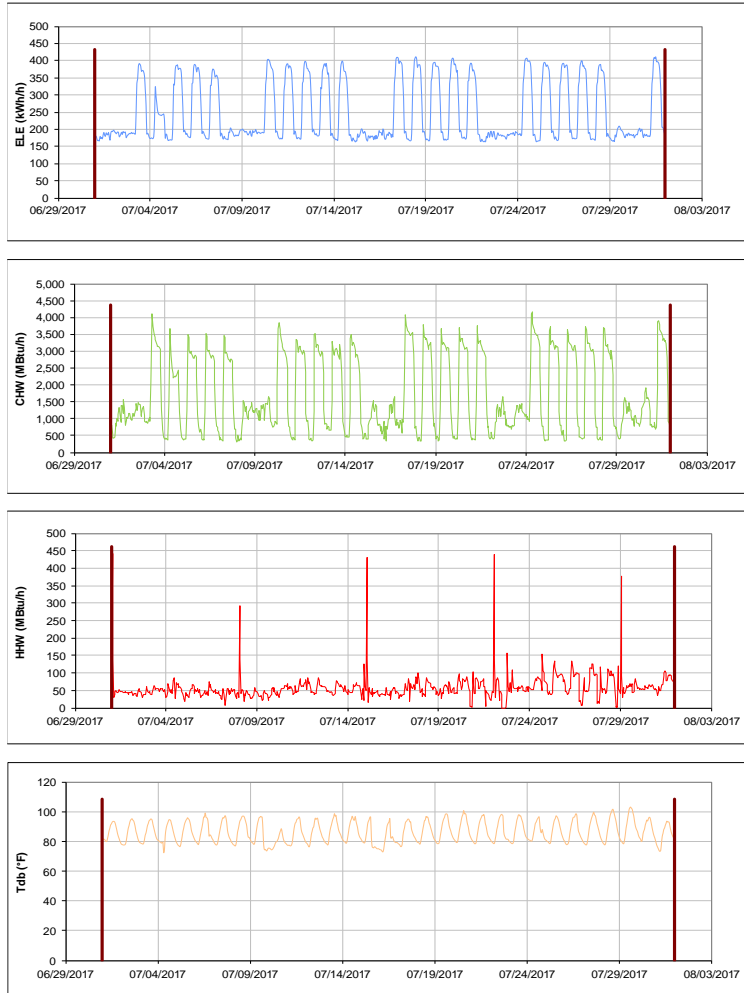


Figure III-193 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for General Services Complex during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

New TVMDL

TAMU / BLDG #: 1809

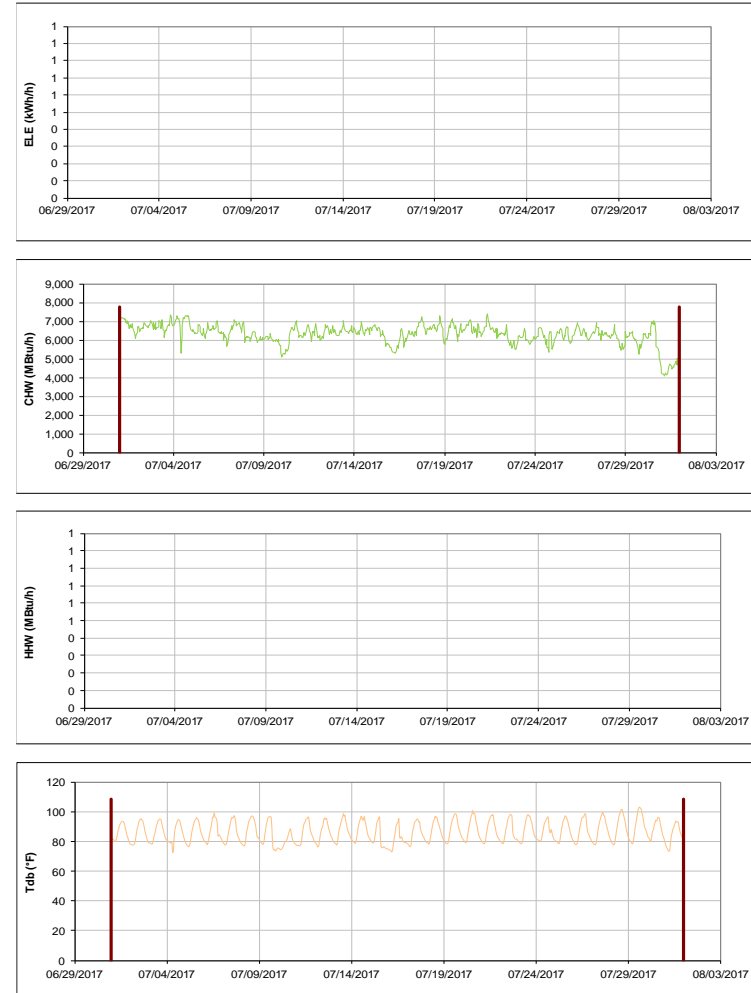


Figure III-194 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for New TVMDL during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

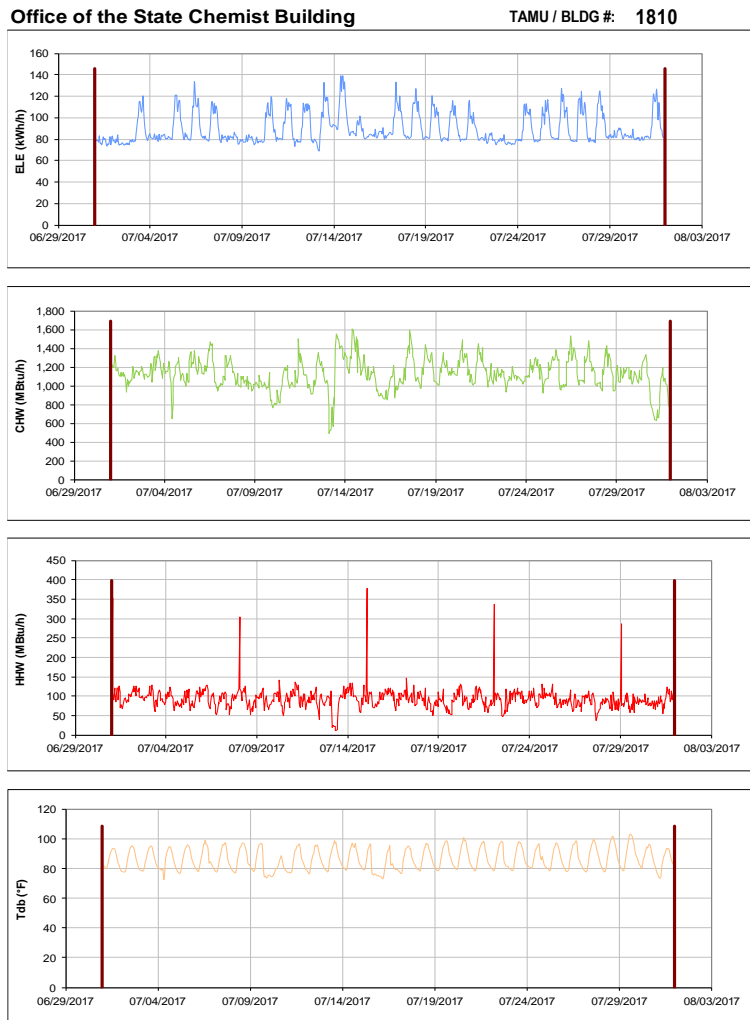


Figure III-195 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Office of the State Chemist Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

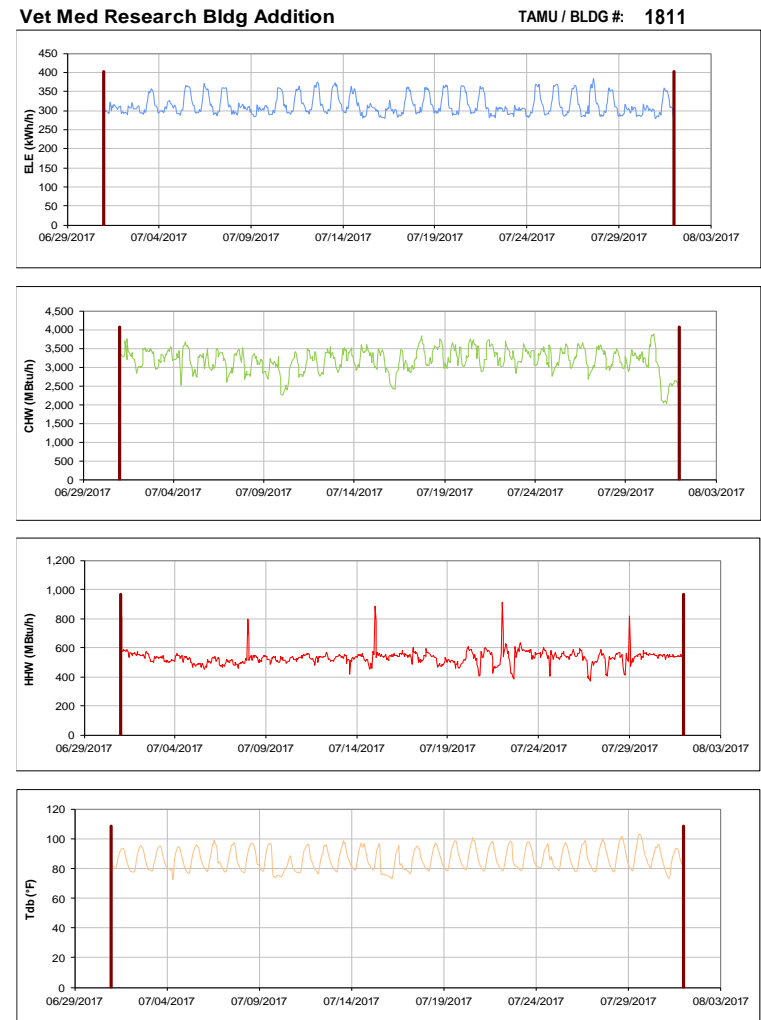


Figure III-196 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vet Med Research Bldg Addition during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Veterinary Medicine Building 1, 2, and 3 TAMU / BLDG #: 2-1813-1814

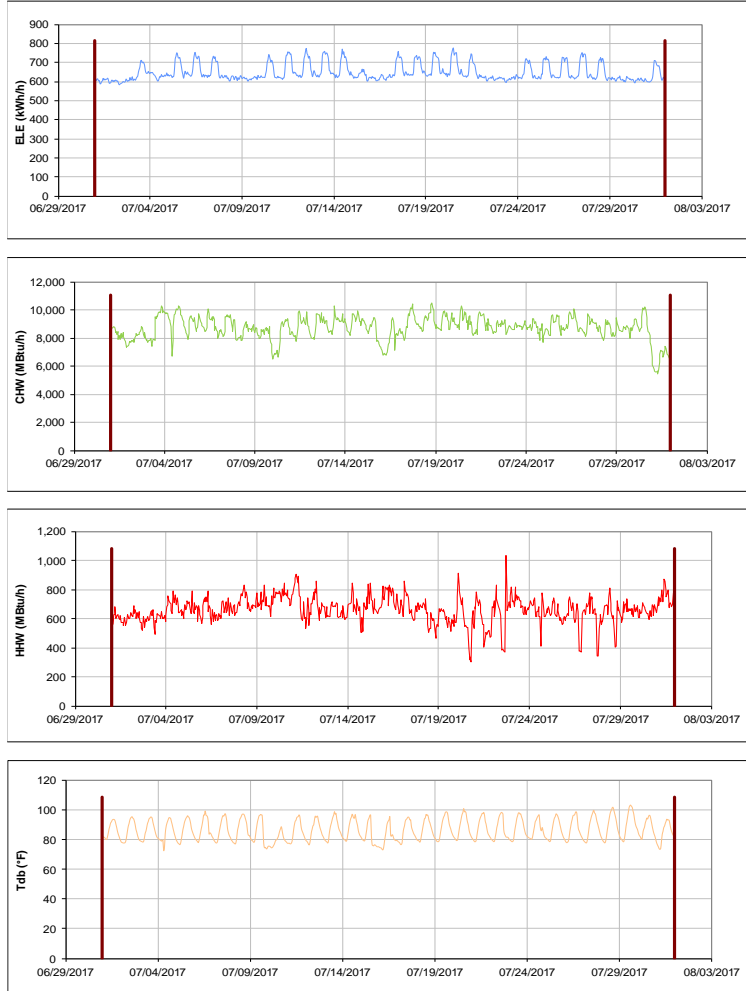


Figure III-197 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Building 1, 2, and 3 during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Texas Institute for Genomic Medicine TAMU / BLDG #: 1900

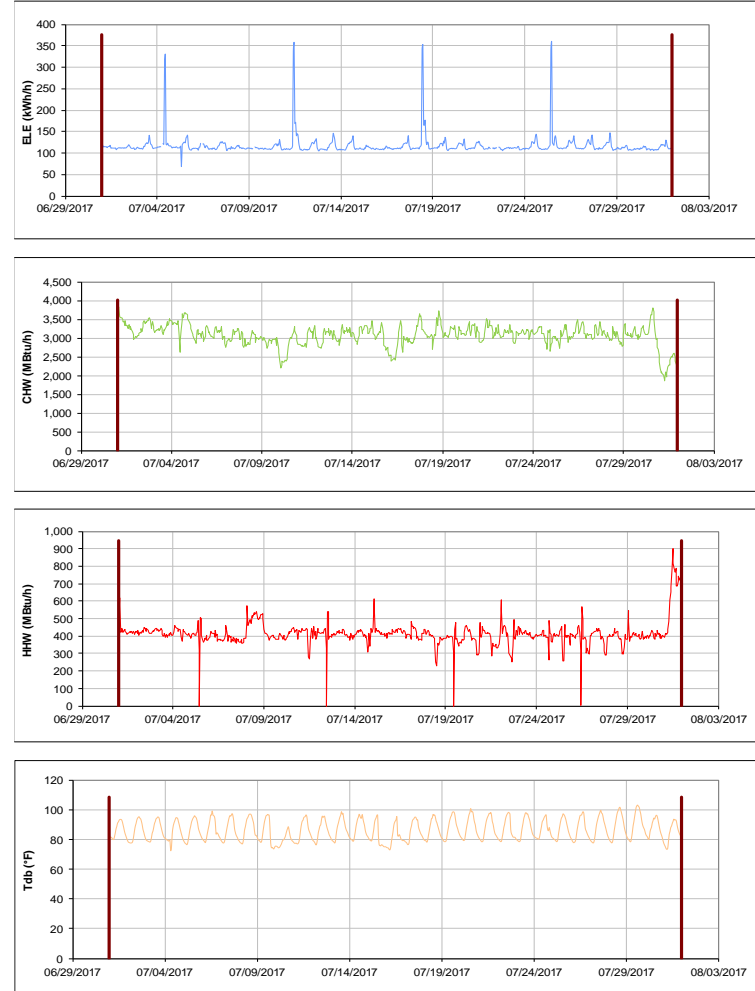


Figure III-198 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Institute for Genomic Medicine during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Texas A&M Institute for Preclinical Studies A TAMU / BLDG #: 1904

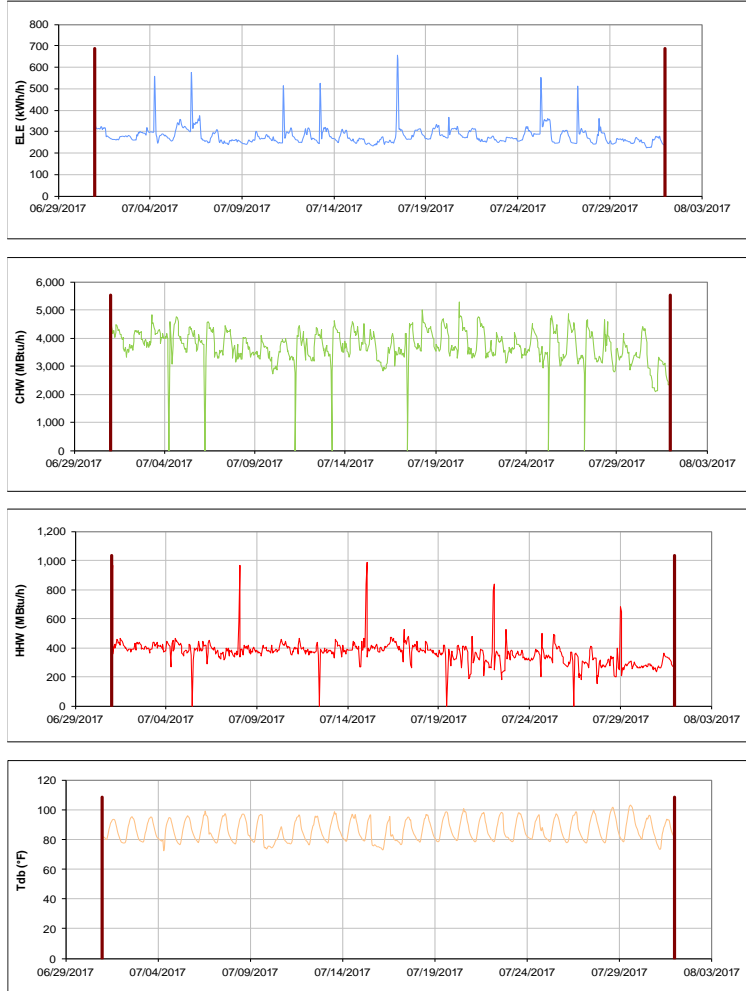


Figure III-199 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas A&M Institute for Preclinical Studies A during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

National Center for Therapeutics Manufacturing TAMU / BLDG #: 1910

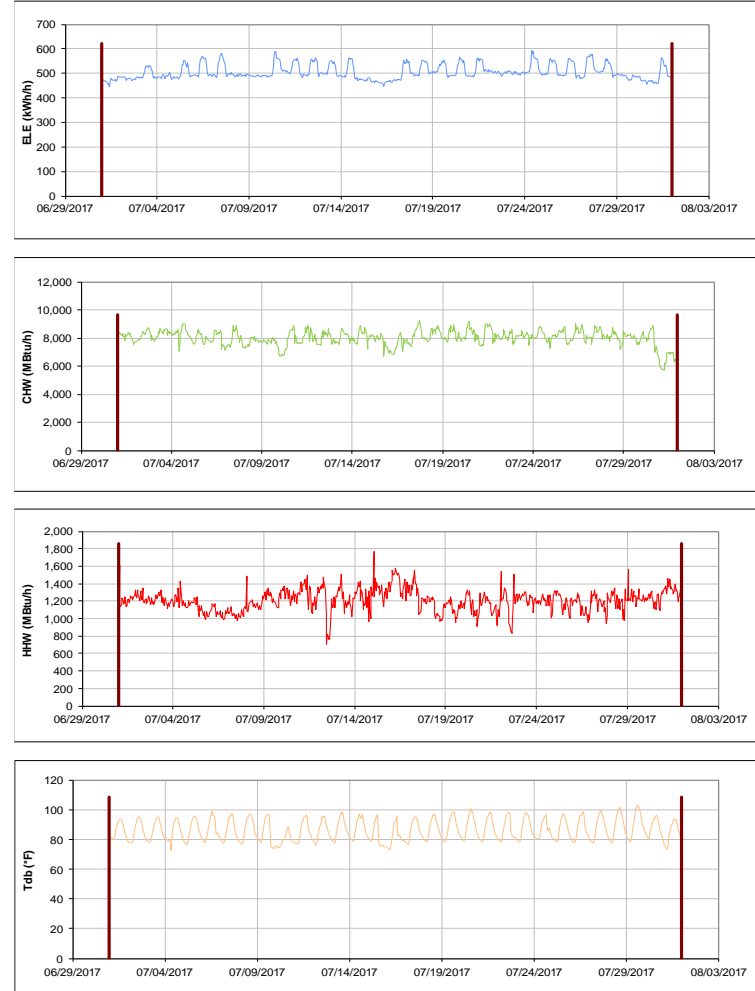


Figure III-200 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for National Center for Therapeutics Manufacturing during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Multi-Species Research Building

TAMU / BLDG #: 1911

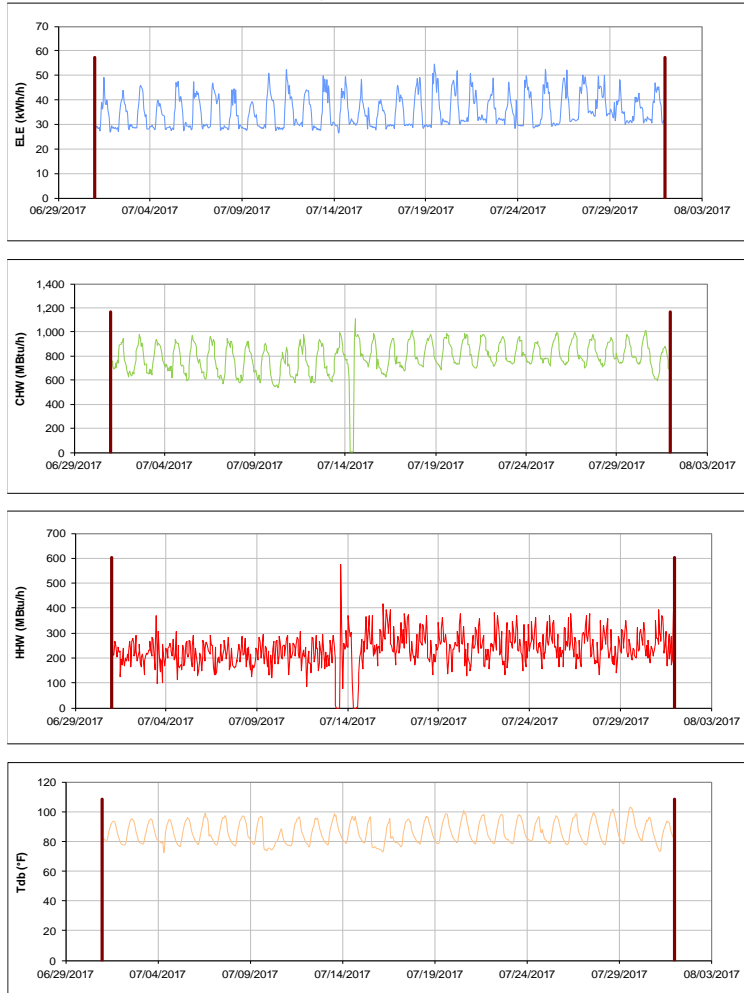


Figure III-201 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Multi-Species Research Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

NCTM Manufacturing Building

TAMU / BLDG #: 10226

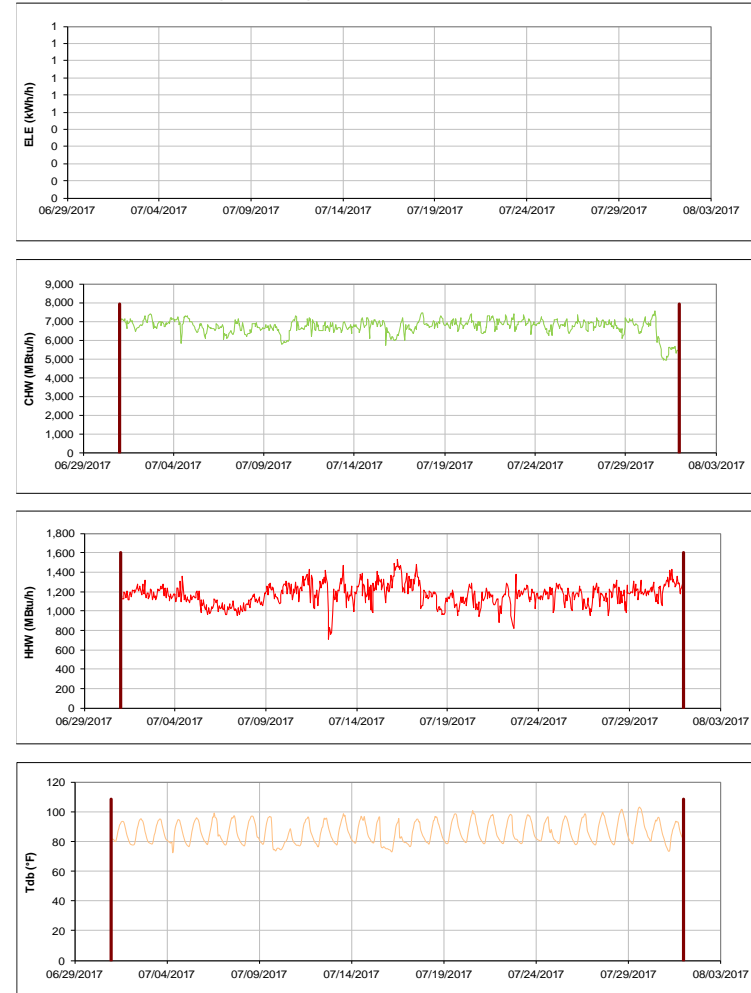


Figure III-202 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for NCTM Manufacturing Building during the Month of July 2017 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

IV. Energy Balance Plots for July 2017 Consumption

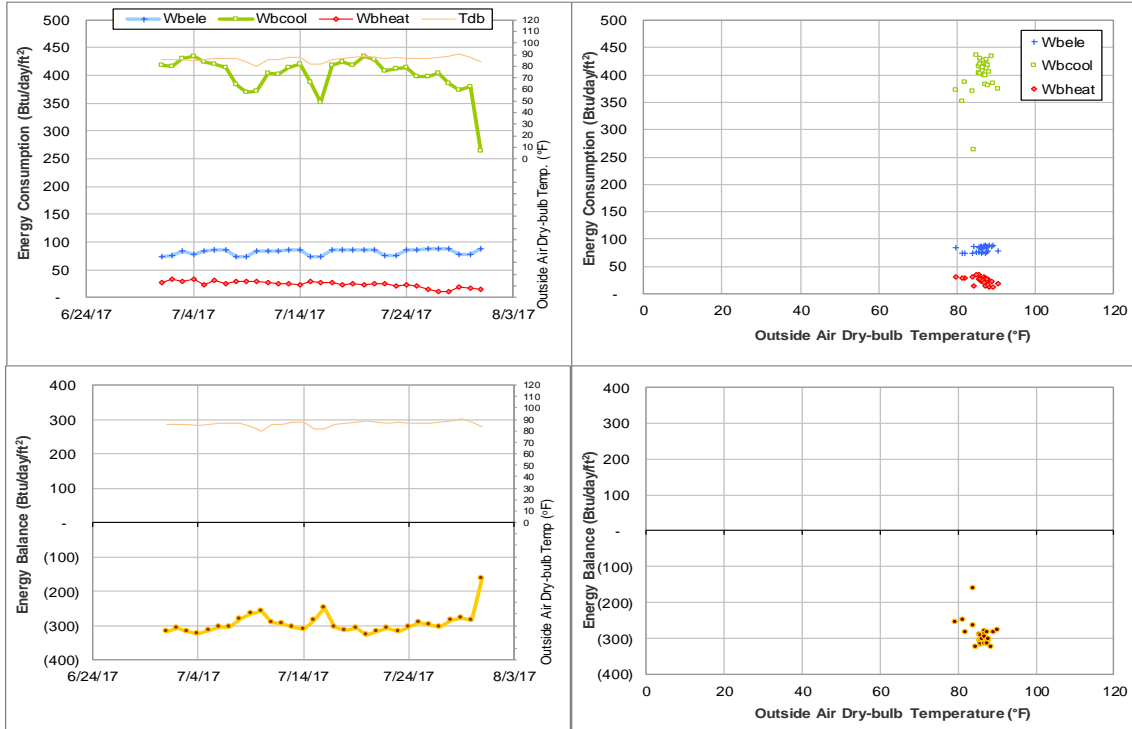


Figure IV-1 Emerging Technologies Building TAMU BLDG # 270 Energy Balance Plot during July 2017

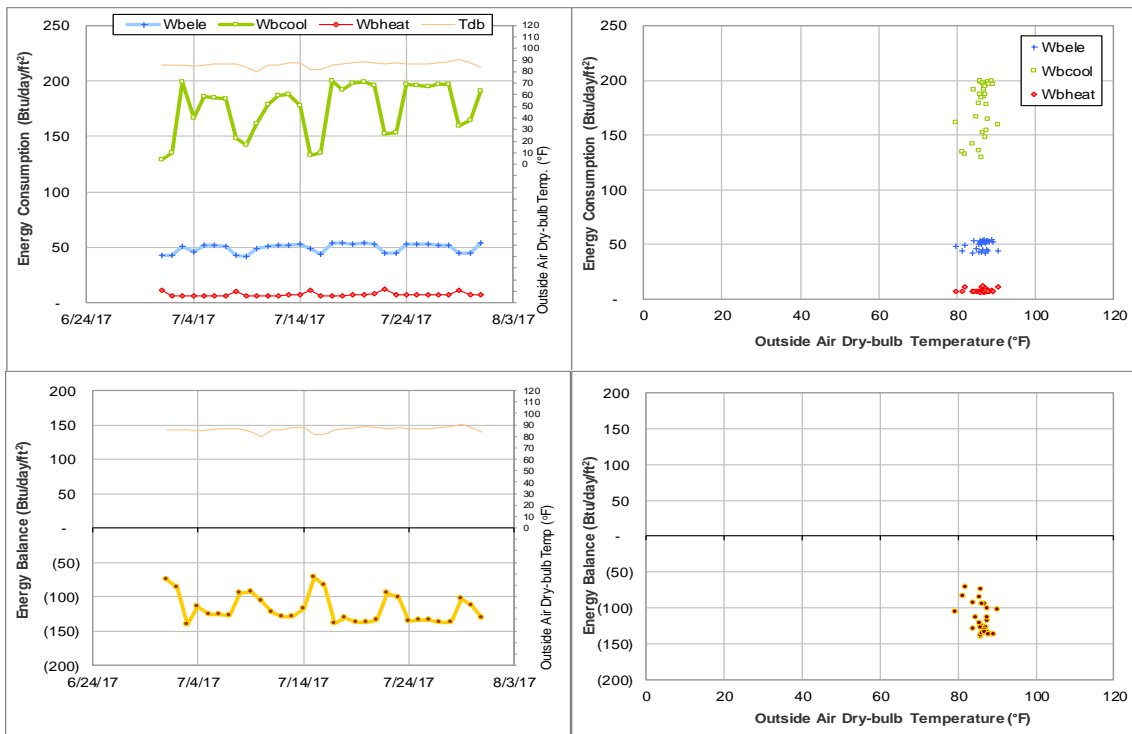


Figure IV-2 Liberal Arts and Arts & Humanities Building TAMU BLDG # 275 Energy Balance Plot during July 2017

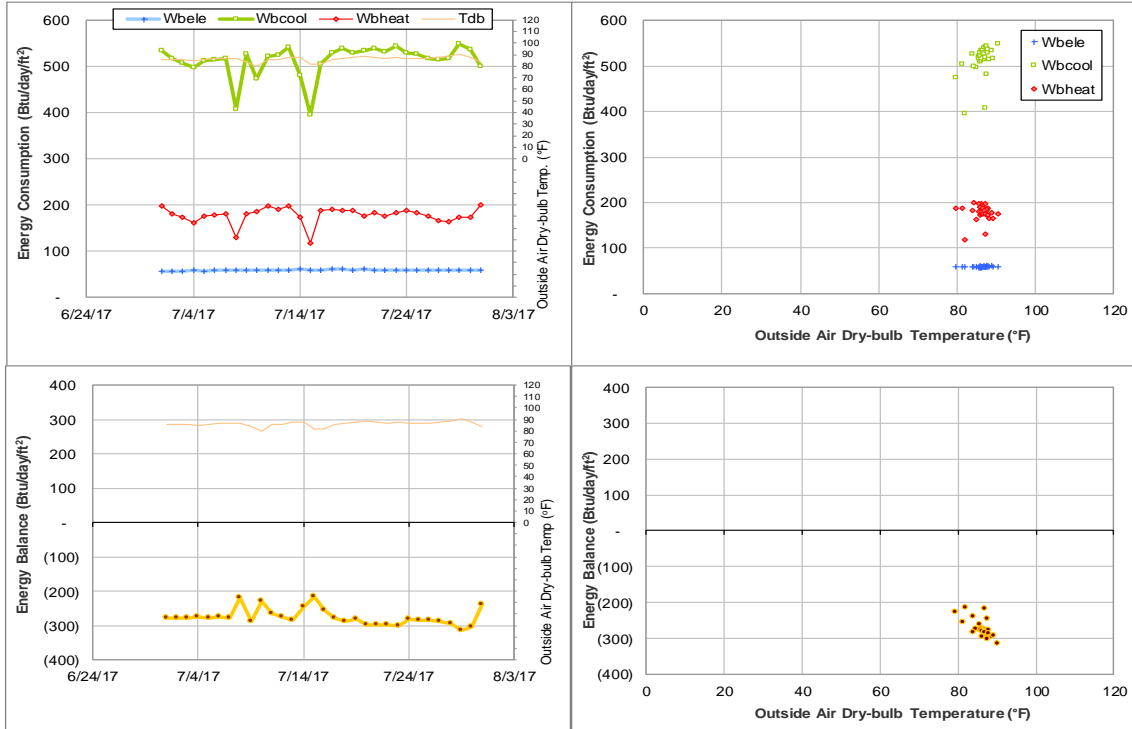


Figure IV-3 Wells Residence Hall TAMU BLDG # 290 Energy Balance Plot during July 2017

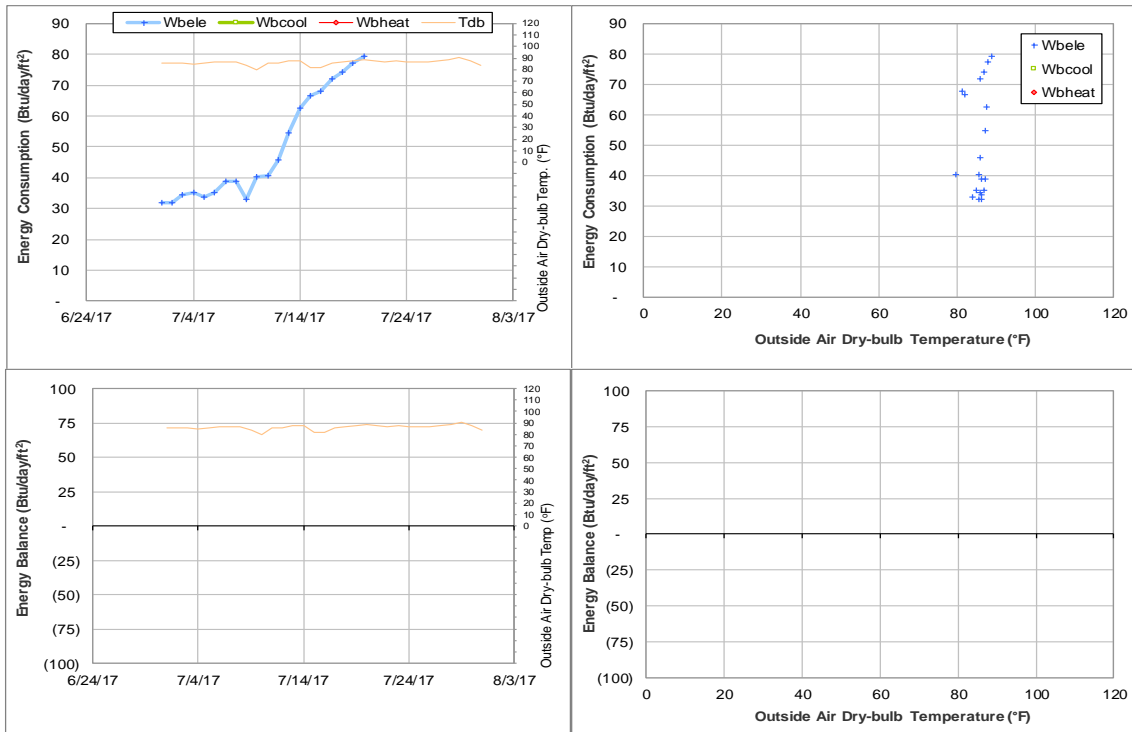


Figure IV-4 Rudder Residence Hall TAMU BLDG # 291 Energy Balance Plot during July 2017

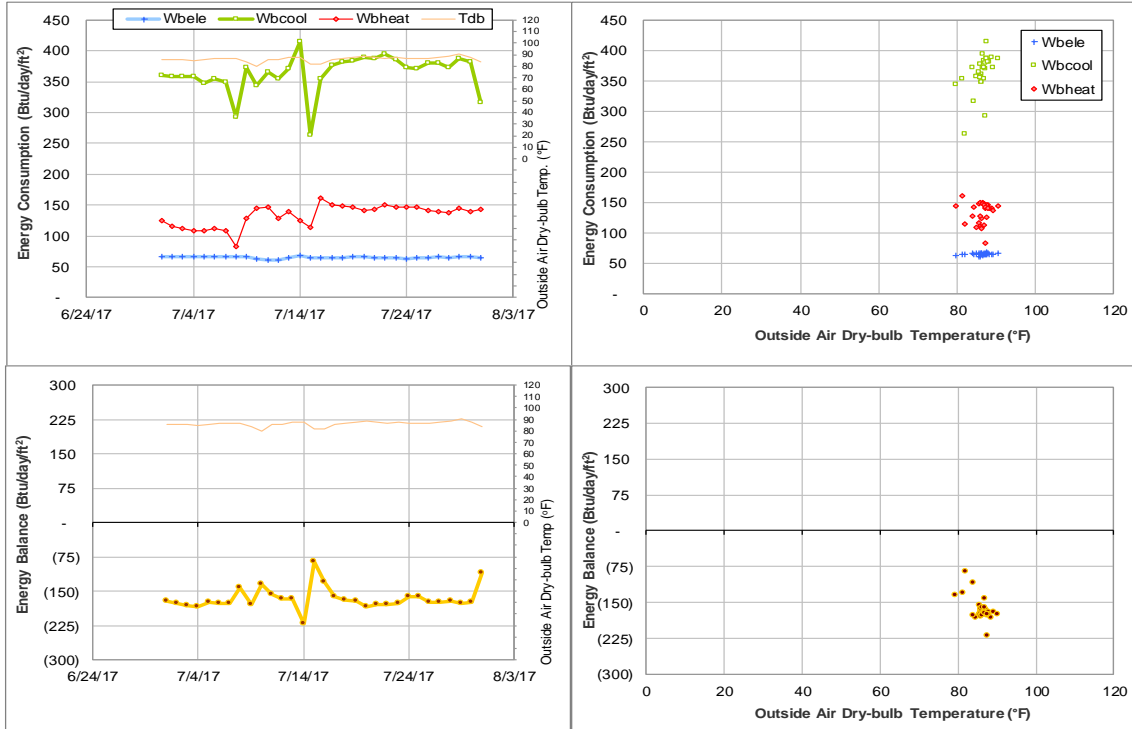


Figure IV-5 Eppright Residence Hall TAMU BLDG # 292 Energy Balance Plot during July 2017

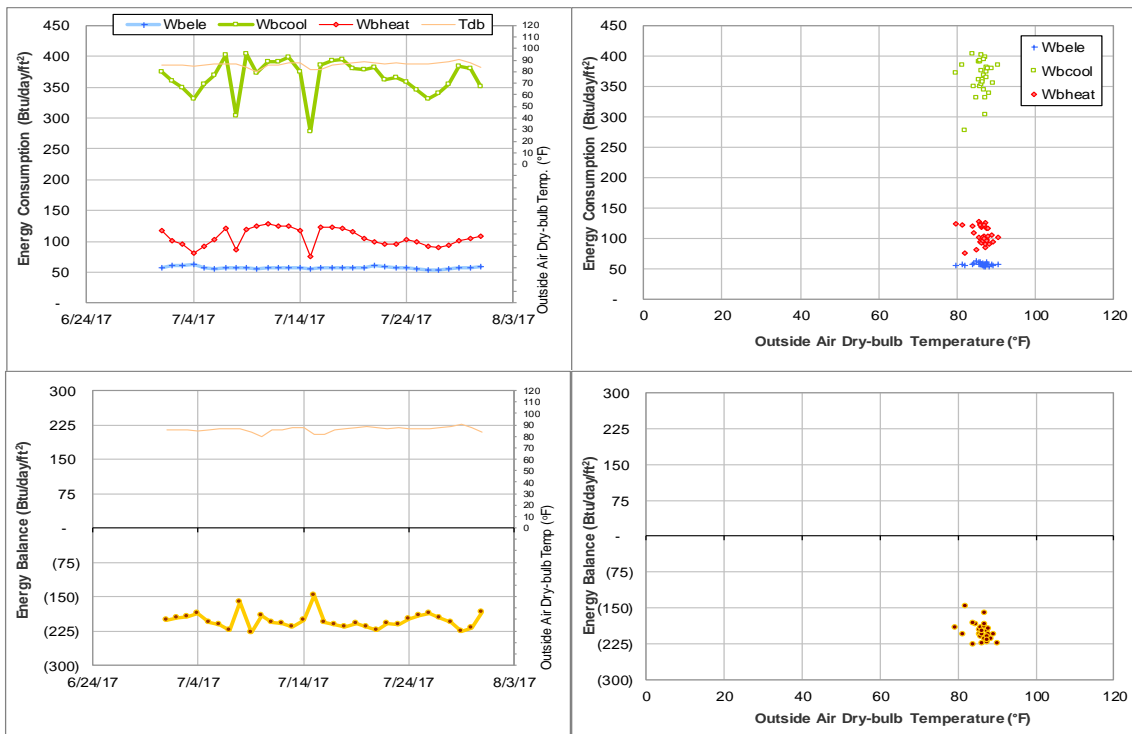


Figure IV-6 Appelt Residence Hall TAMU BLDG # 293 Energy Balance Plot during July 2017

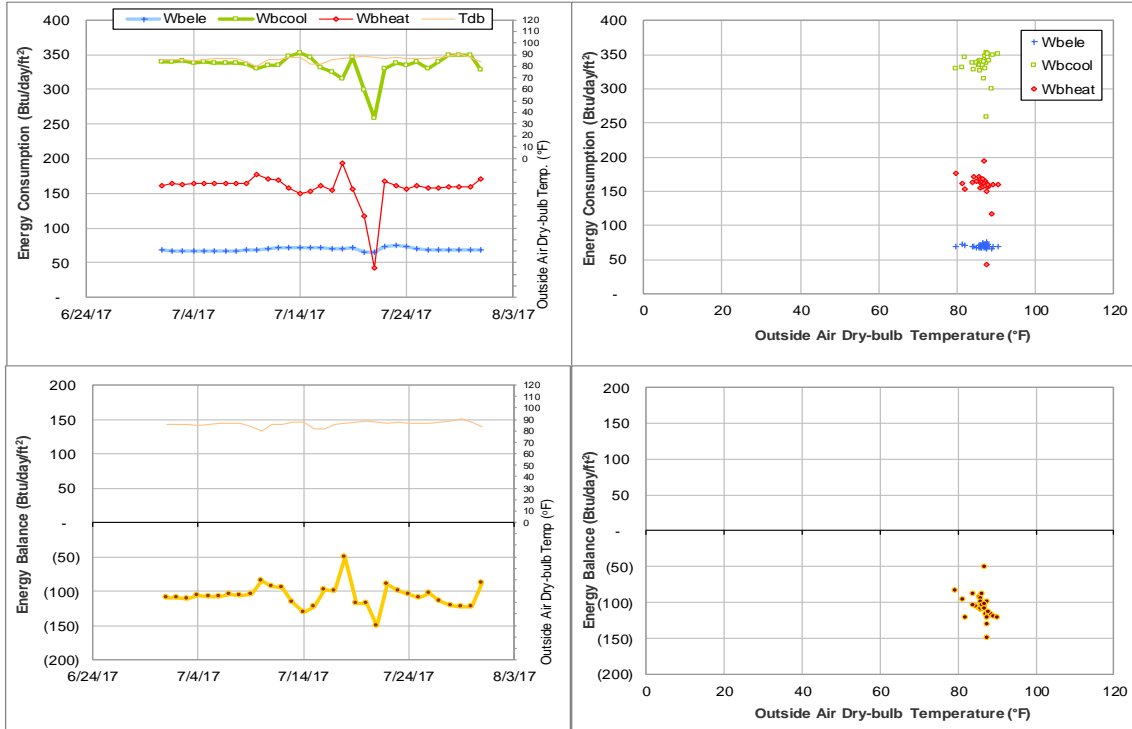


Figure IV-7 Lechner Residence Hall TAMU BLDG # 294 Energy Balance Plot during July 2017

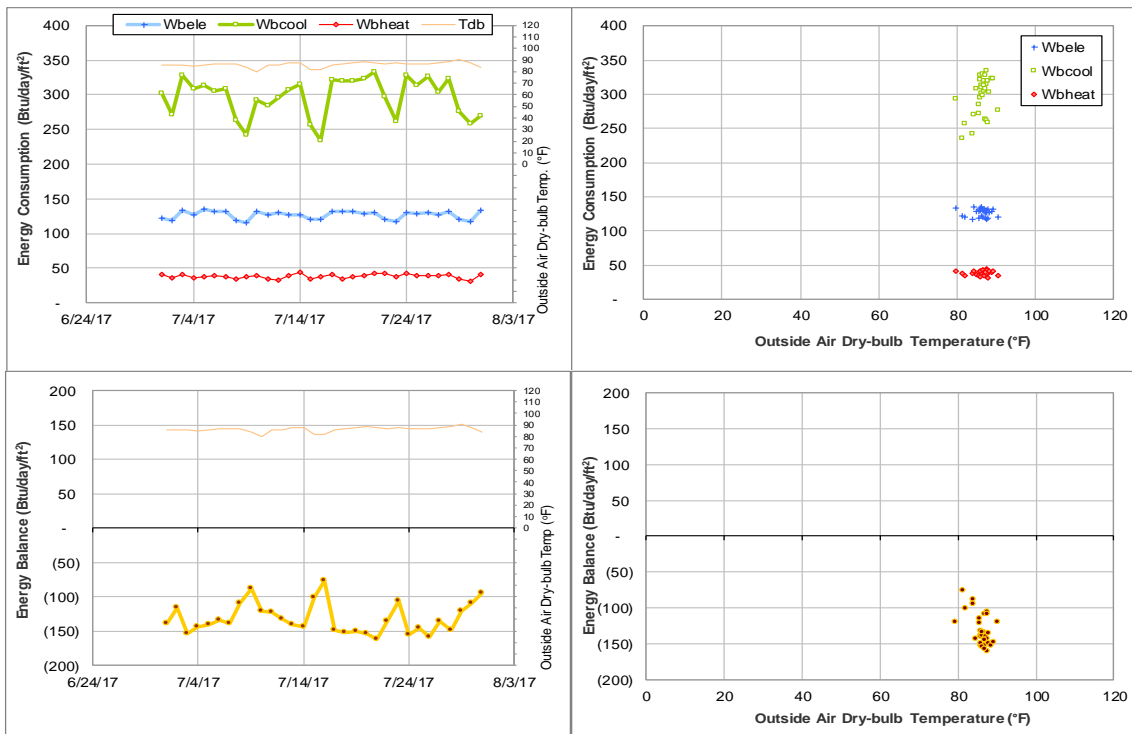


Figure IV-8 Mitchell Inst. for Fundamental Phys & Astronomy TAMU BLDG # 296 Energy Balance Plot during July 2017

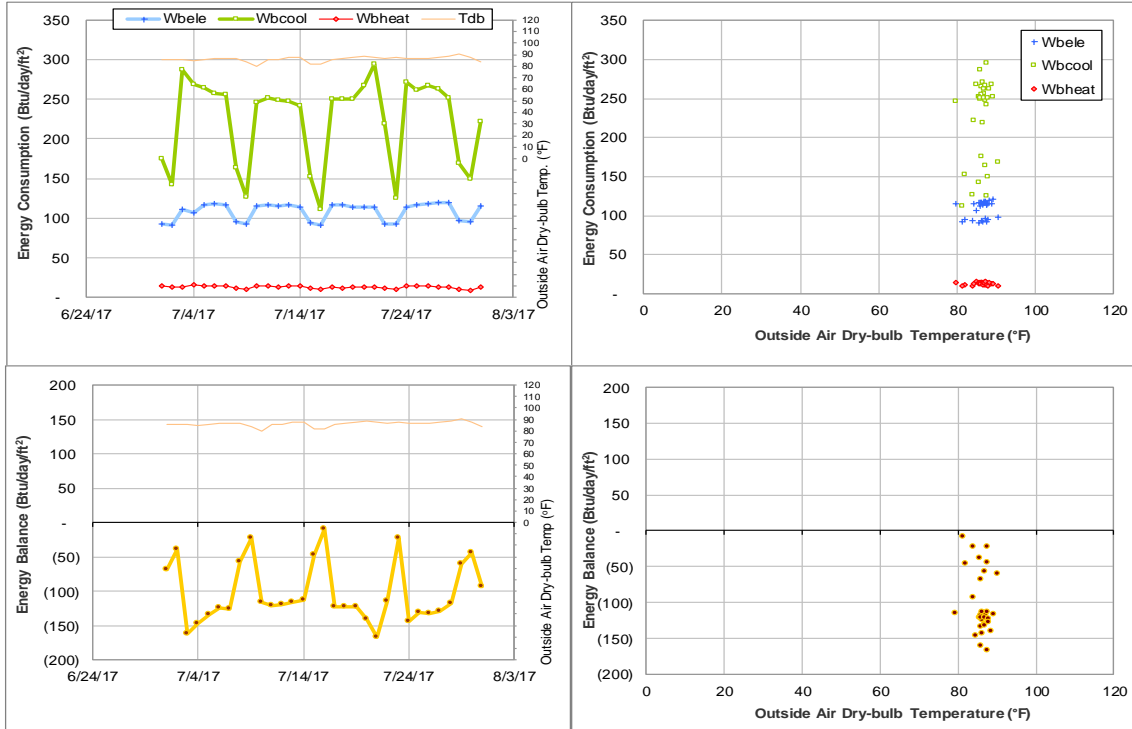


Figure IV-9 CE TTI Office & Lab Building TAMU BLDG # 325 Energy Balance Plot during July 2017

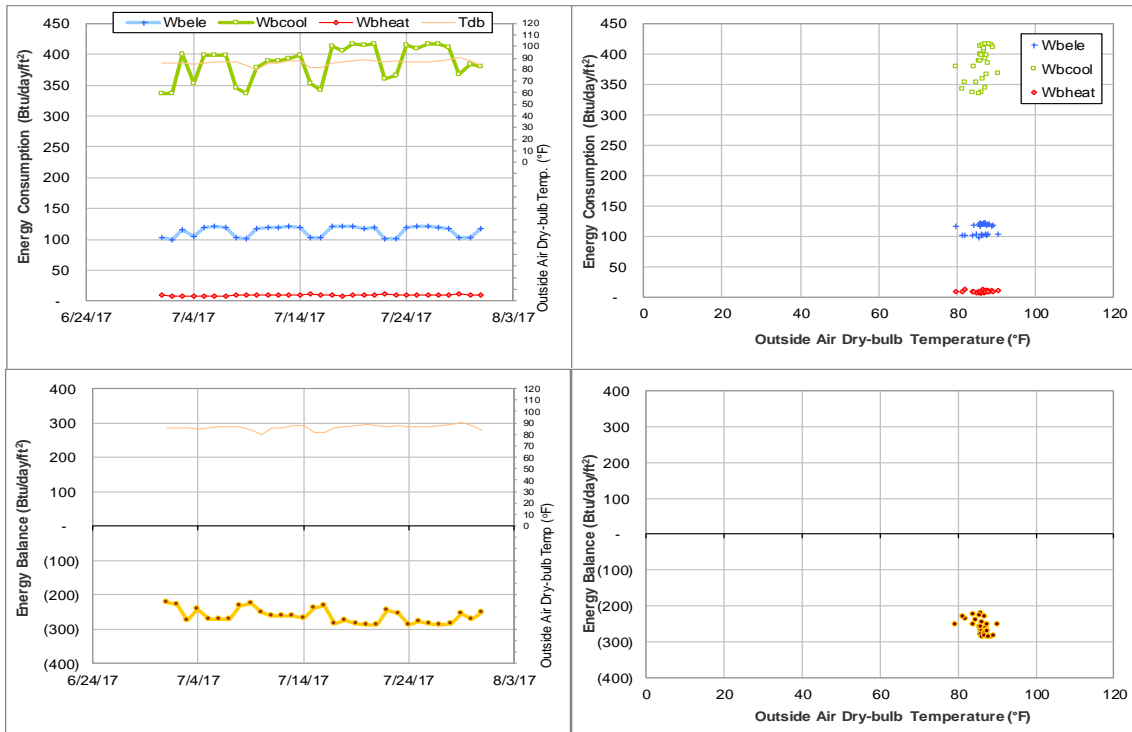


Figure IV-10 Bright Aerospace Building TAMU BLDG # 353 Energy Balance Plot during July 2017

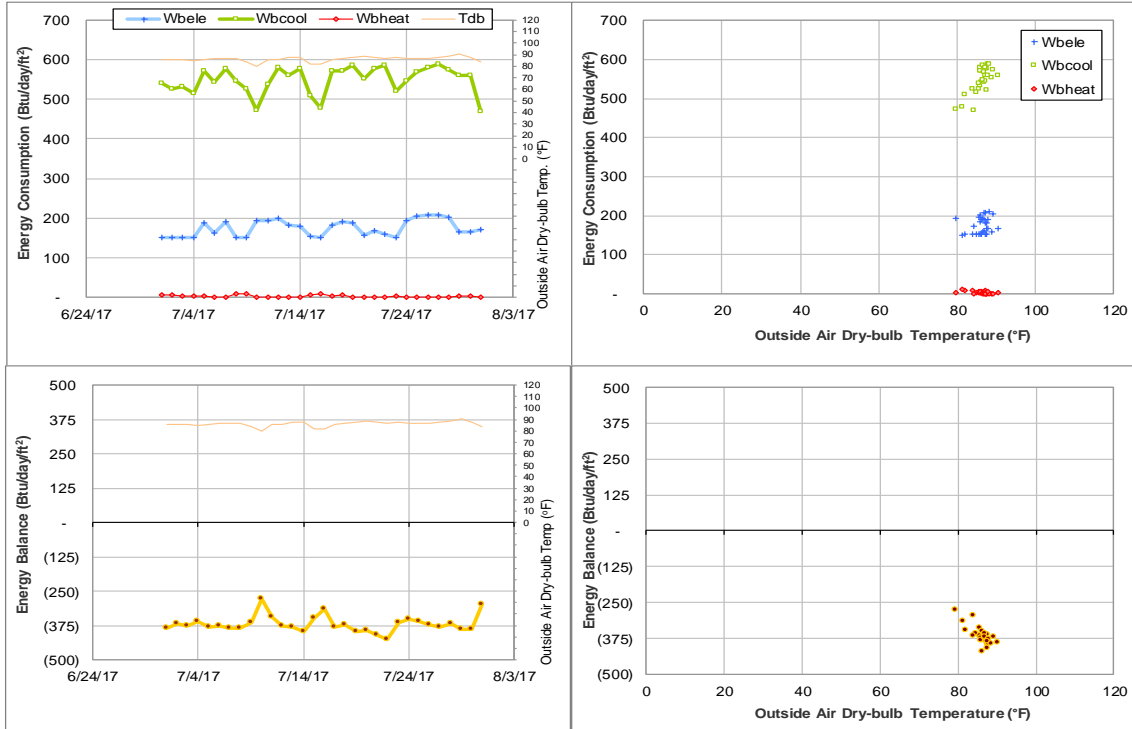


Figure IV-11 Davis Football Player Development Center TAMU BLDG # 358 Energy Balance Plot during July 2017

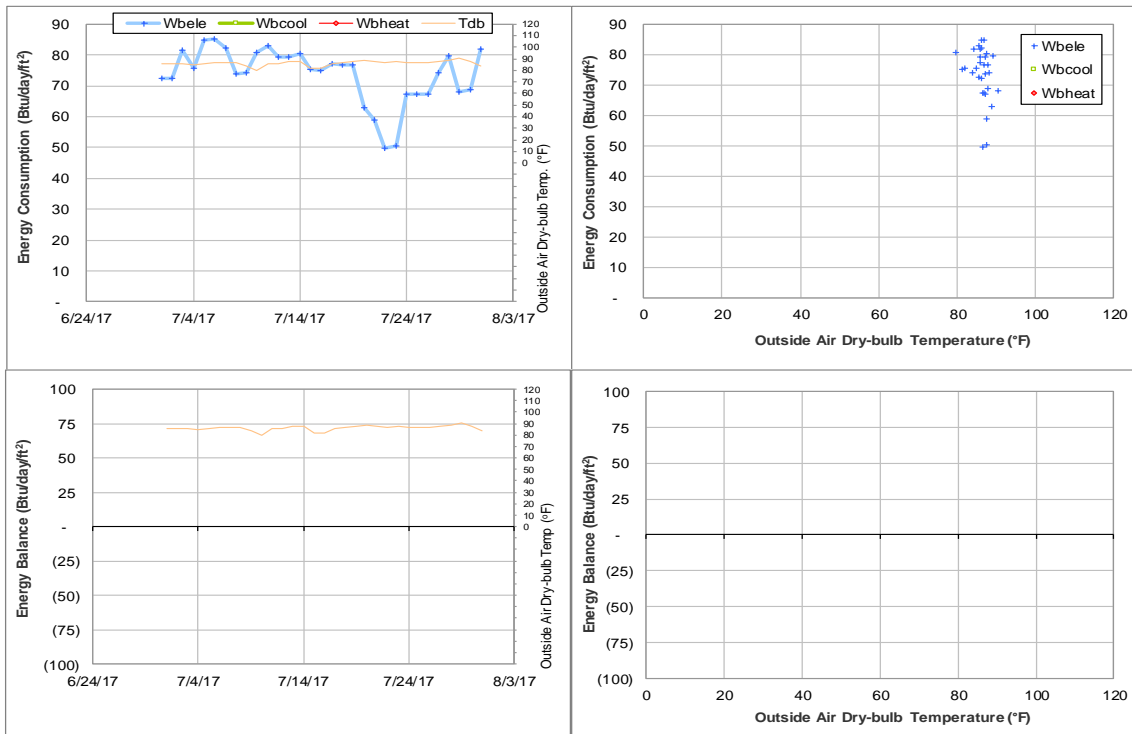


Figure IV-12 Architecture Building B TAMU BLDG # 359 Energy Balance Plot during July 2017

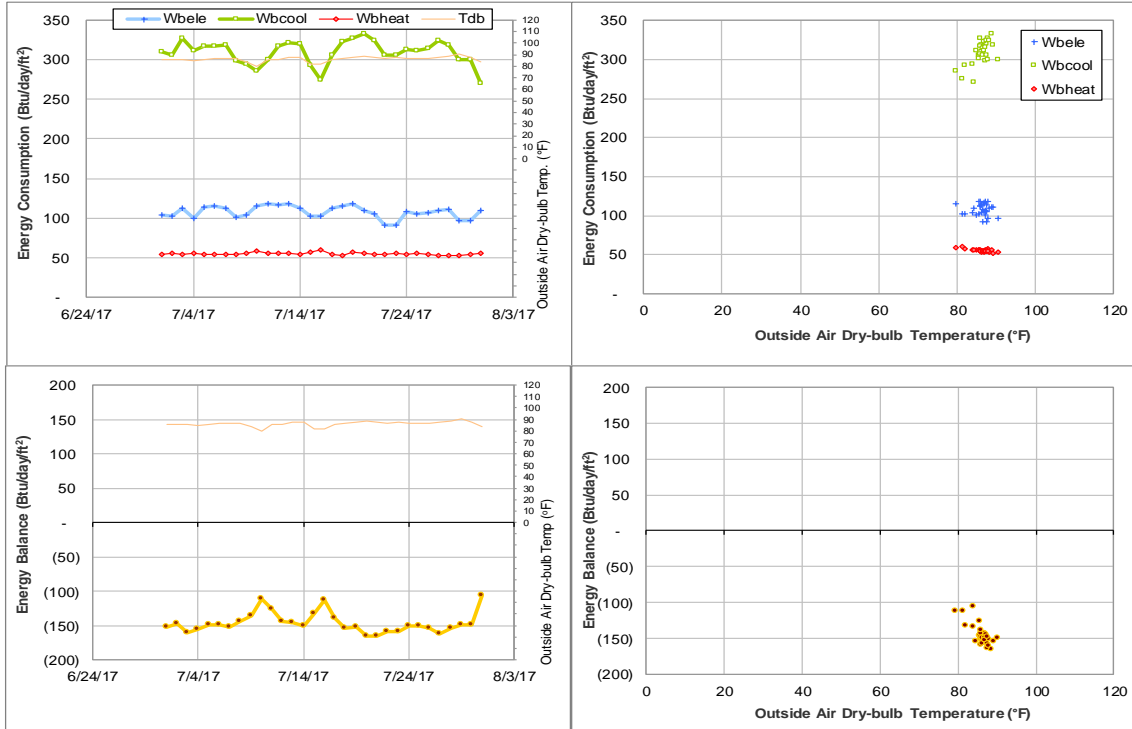


Figure IV-13 Architecture Building B&C TAMU BLDG # 359 Energy Balance Plot during July 2017

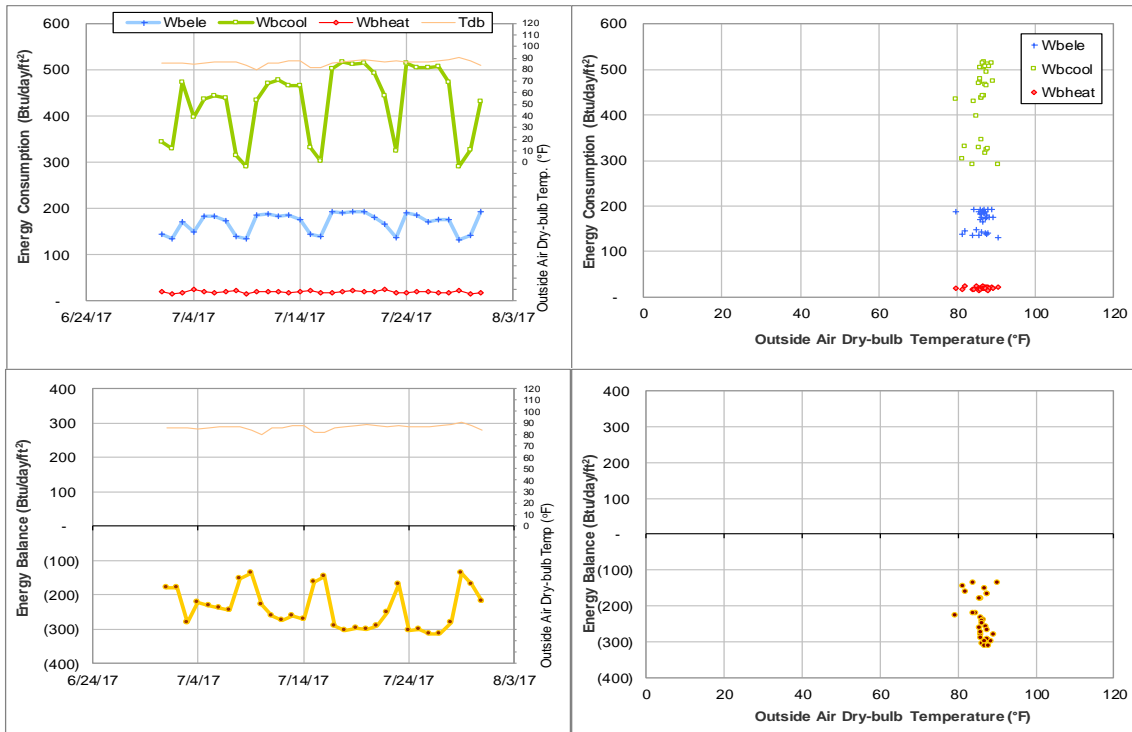


Figure IV-14 Bright Football Complex TAMU BLDG # 361 Energy Balance Plot during July 2017

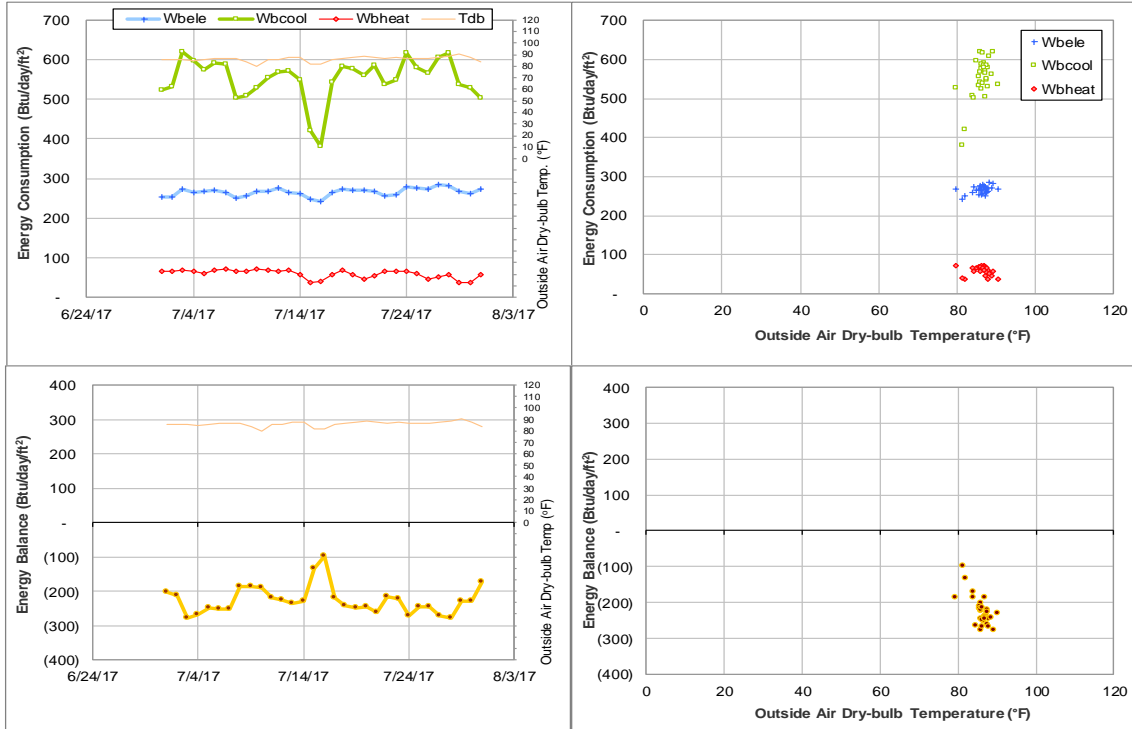


Figure IV-15 Kyle Field TAMU BLDG # 367 Energy Balance Plot during July 2017

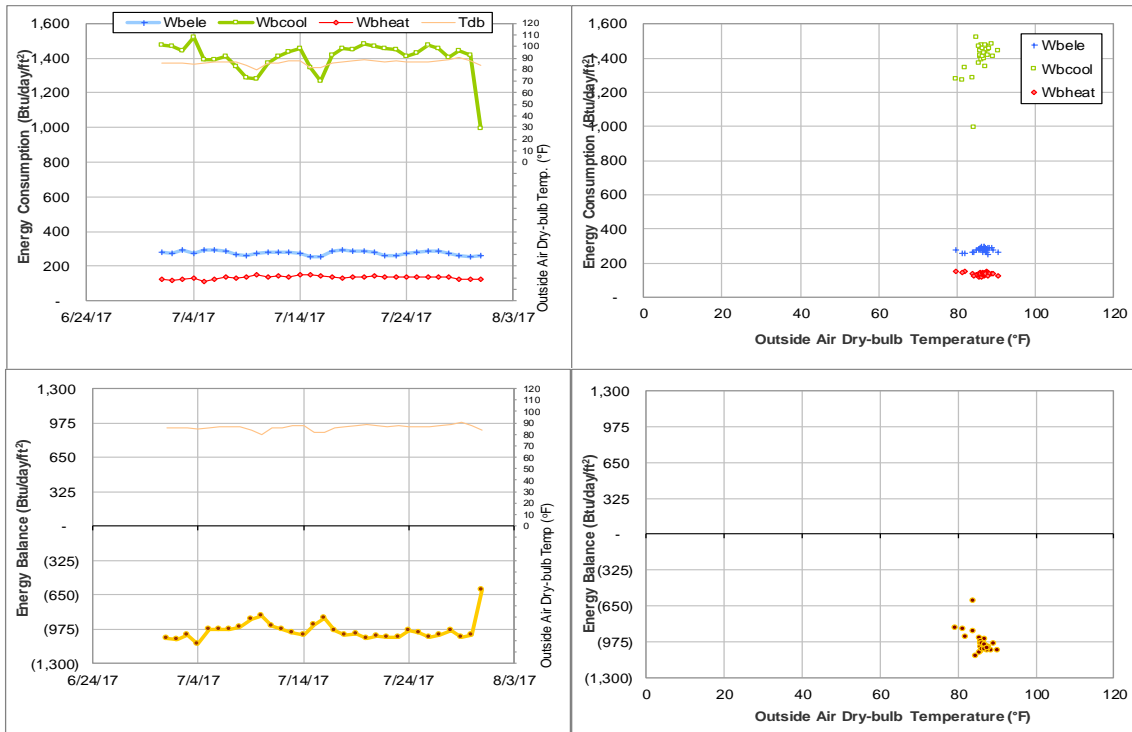


Figure IV-16 Chemistry Building Addition TAMU BLDG # 376 Energy Balance Plot during July 2017

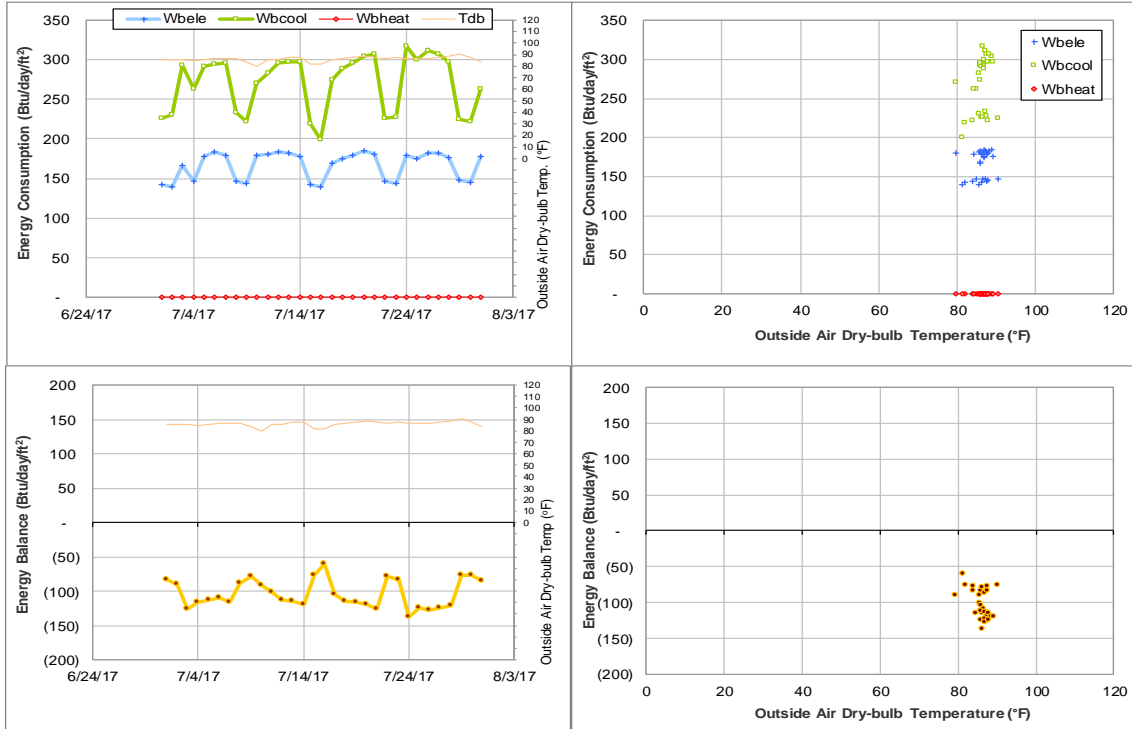


Figure IV-17 Koldus Building TAMU BLDG # 383 Energy Balance Plot during July 2017

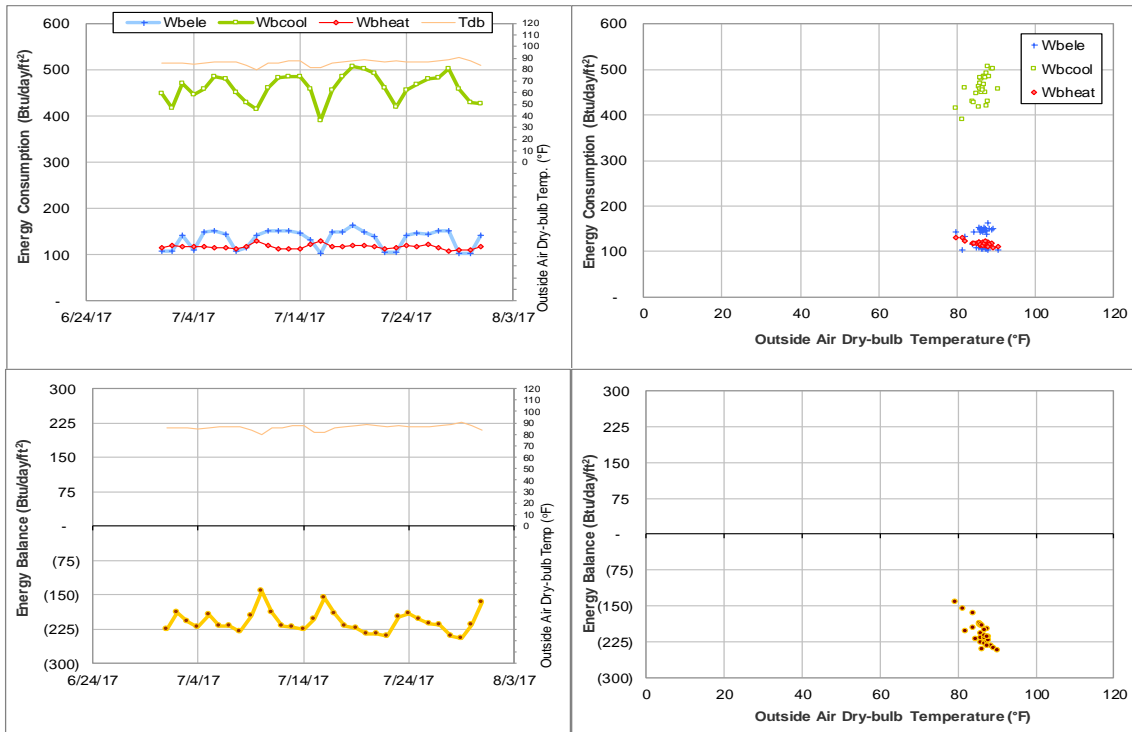


Figure IV-18 Sanders Corps of Cadets Center TAMU BLDG # 384 Energy Balance Plot during July 2017

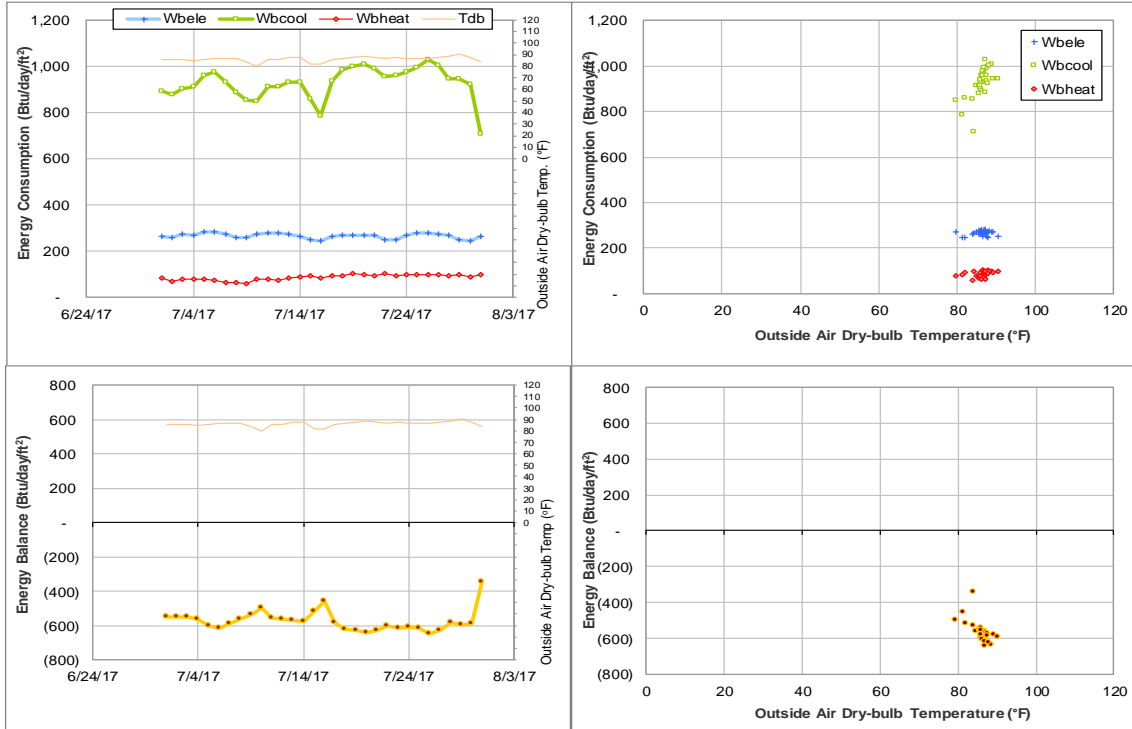


Figure IV-19 Jack E. Brown Chemical Engineering Building TAMU BLDG # 386 Energy Balance Plot during July 2017

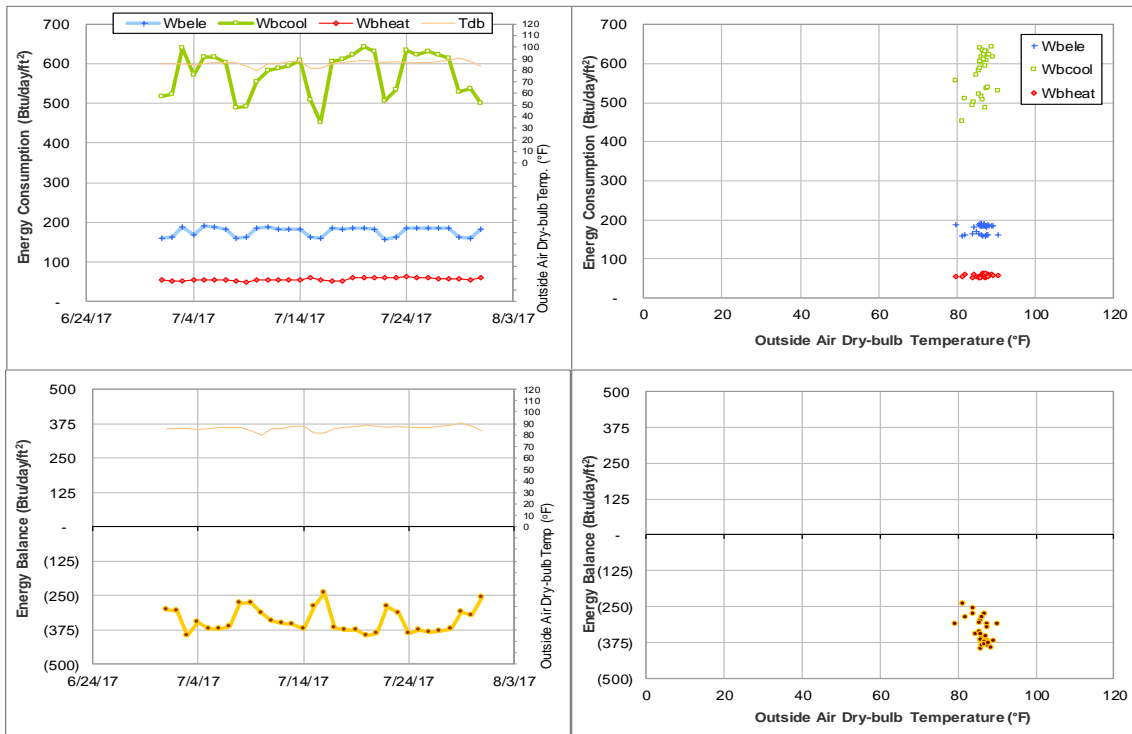


Figure IV-20 Richardson Petroleum Engineering Building TAMU BLDG # 387 Energy Balance Plot during July 2017

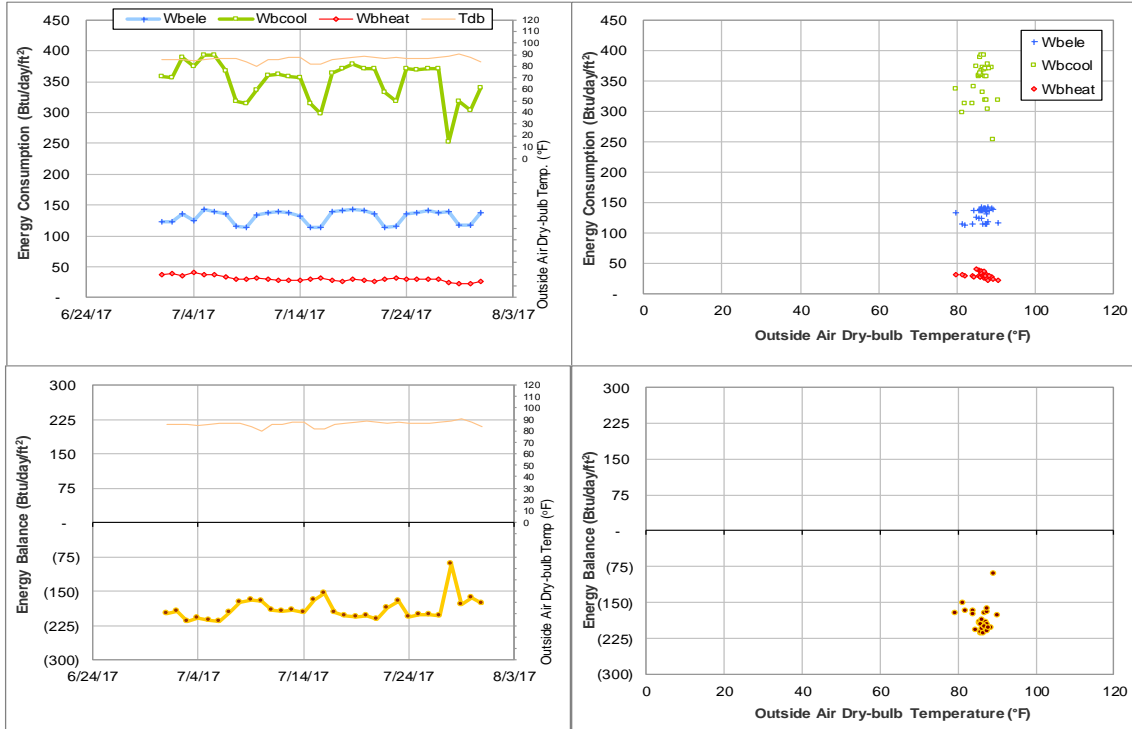


Figure IV-21 James J. Cain's 51 and Mechanical Engineering Office Building TAMU BLDG # 391 Energy Balance Plot during July 2017

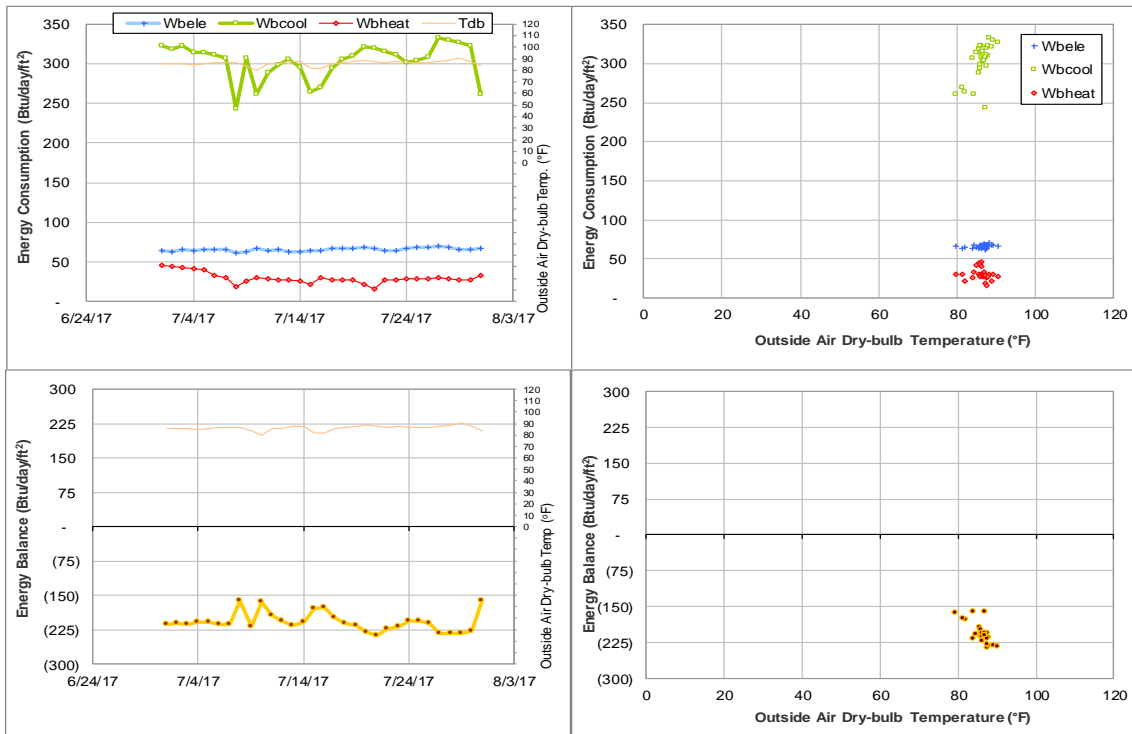


Figure IV-22 Underwood Residence Hall TAMU BLDG # 394 Energy Balance Plot during July 2017

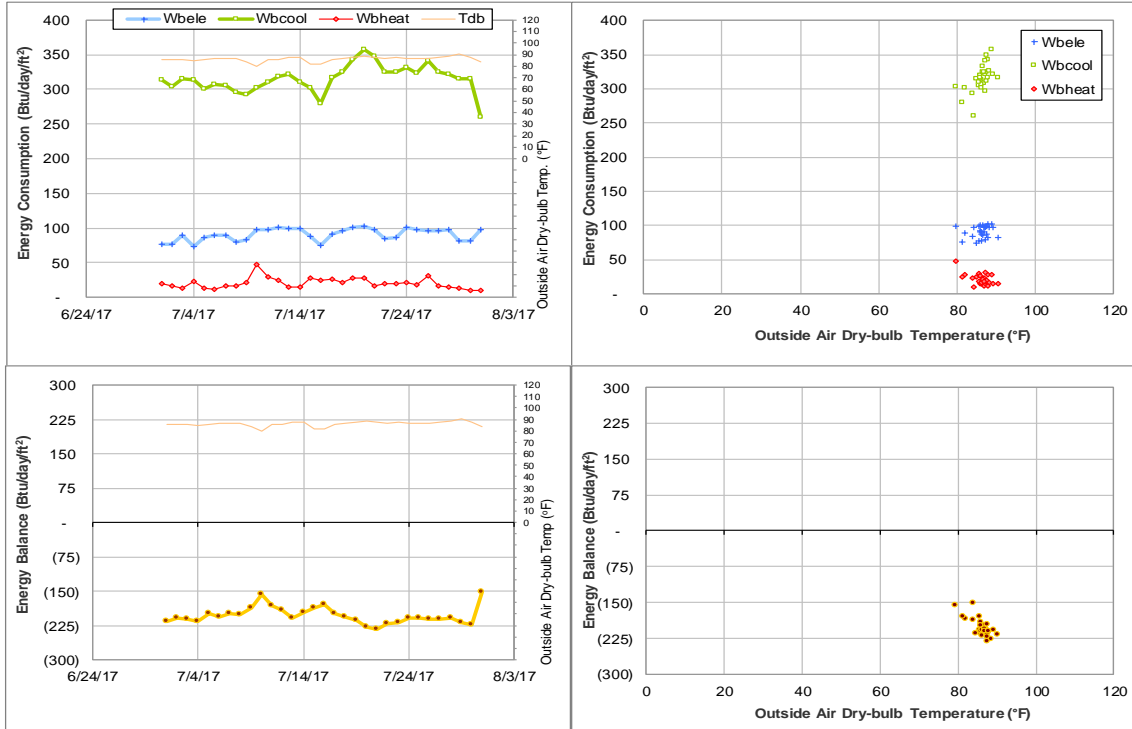


Figure IV-23 Langford Architecture Center Building A TAMU BLDG # 398 Energy Balance Plot during July 2017

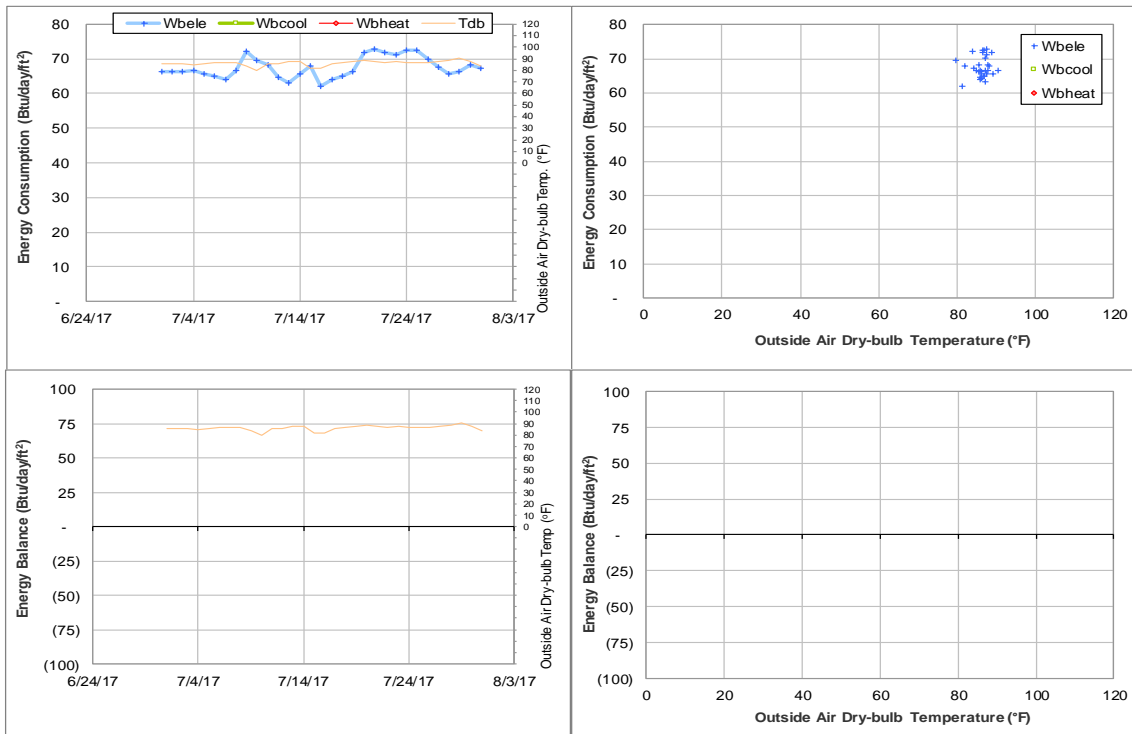


Figure IV-24 Spence Hall Dorm 1 TAMU BLDG # 400 Energy Balance Plot during July 2017

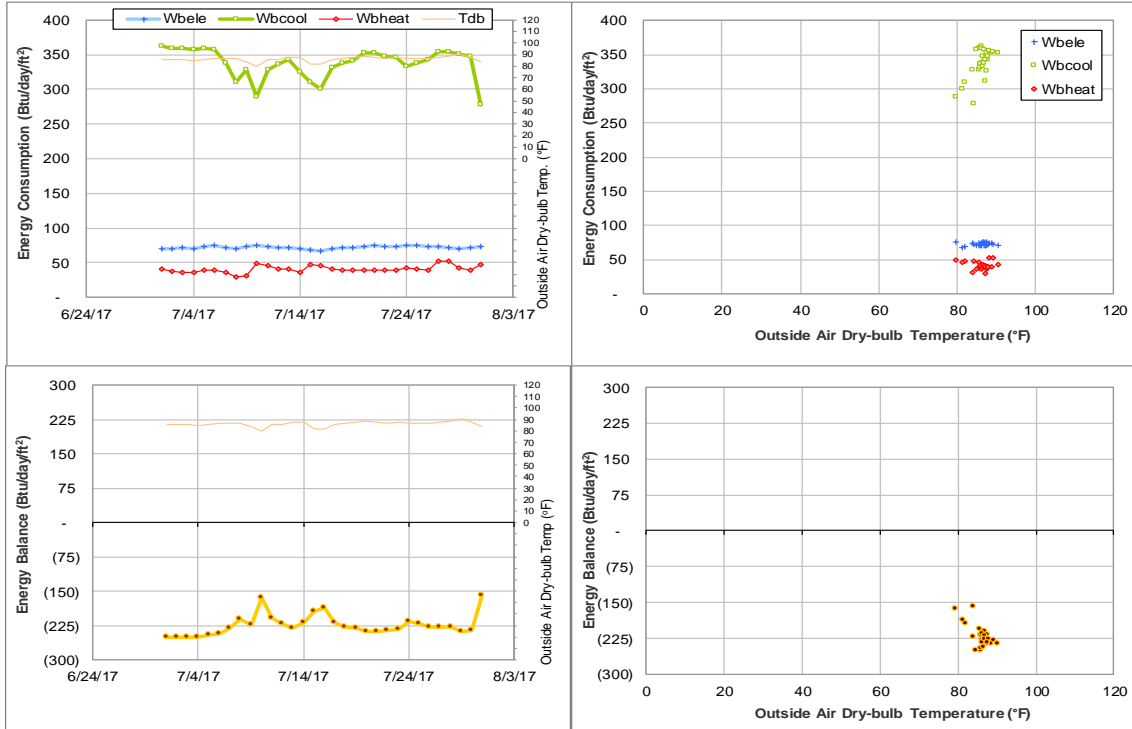


Figure IV-25 Spence Hall, Briggs Hall, and Ash II LLC TAMU BLDG # 400 Energy Balance Plot during July 2017

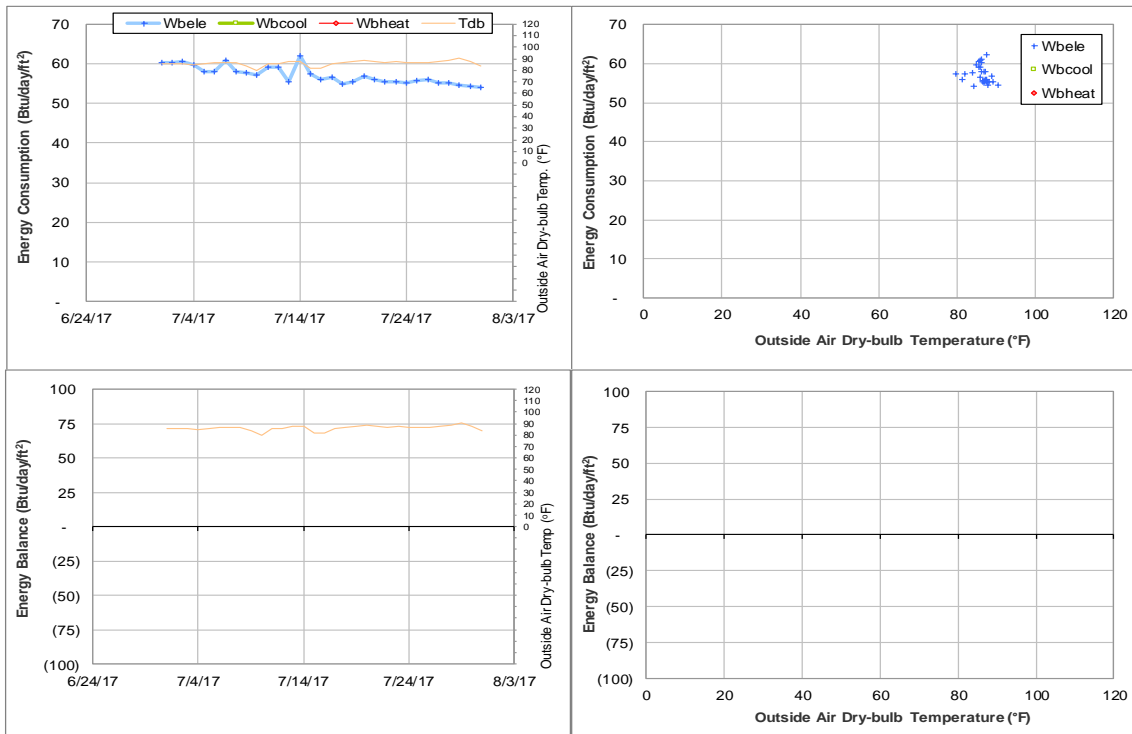


Figure IV-26 Kiest Hall Dorm 2 TAMU BLDG # 401 Energy Balance Plot during July 2017

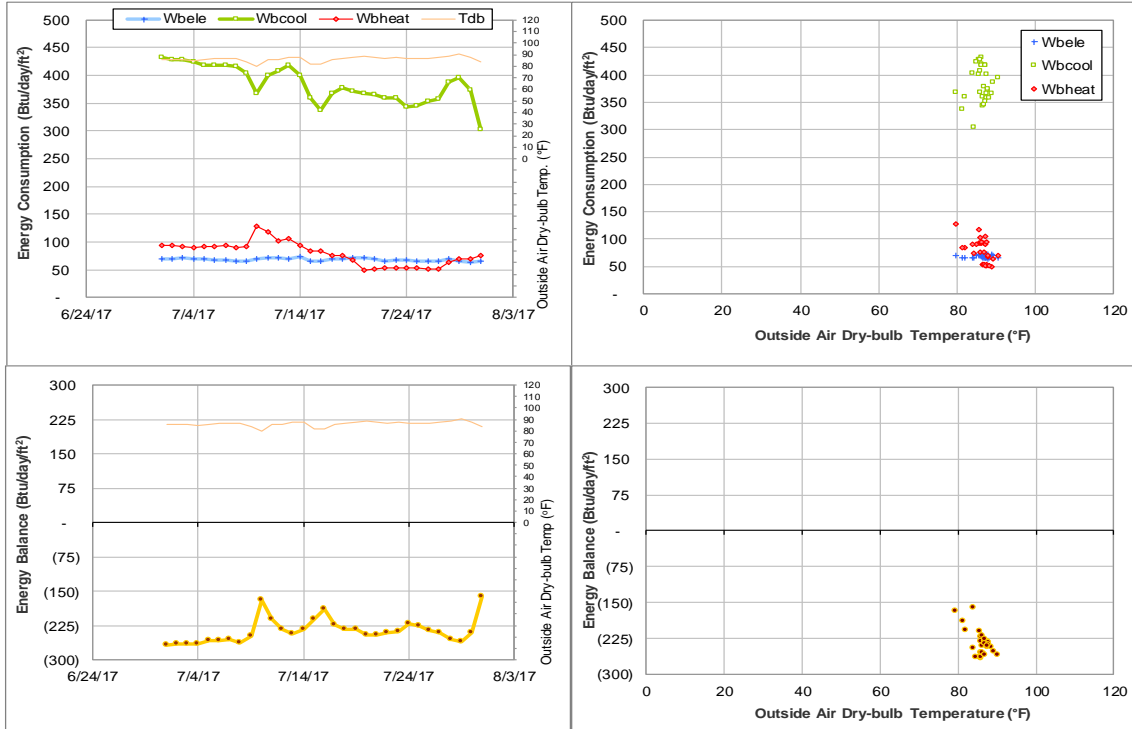


Figure IV-27 Kiest Hall, Fountain Hall, and Plank LLC TAMU BLDG # 401 Energy Balance Plot during July 2017

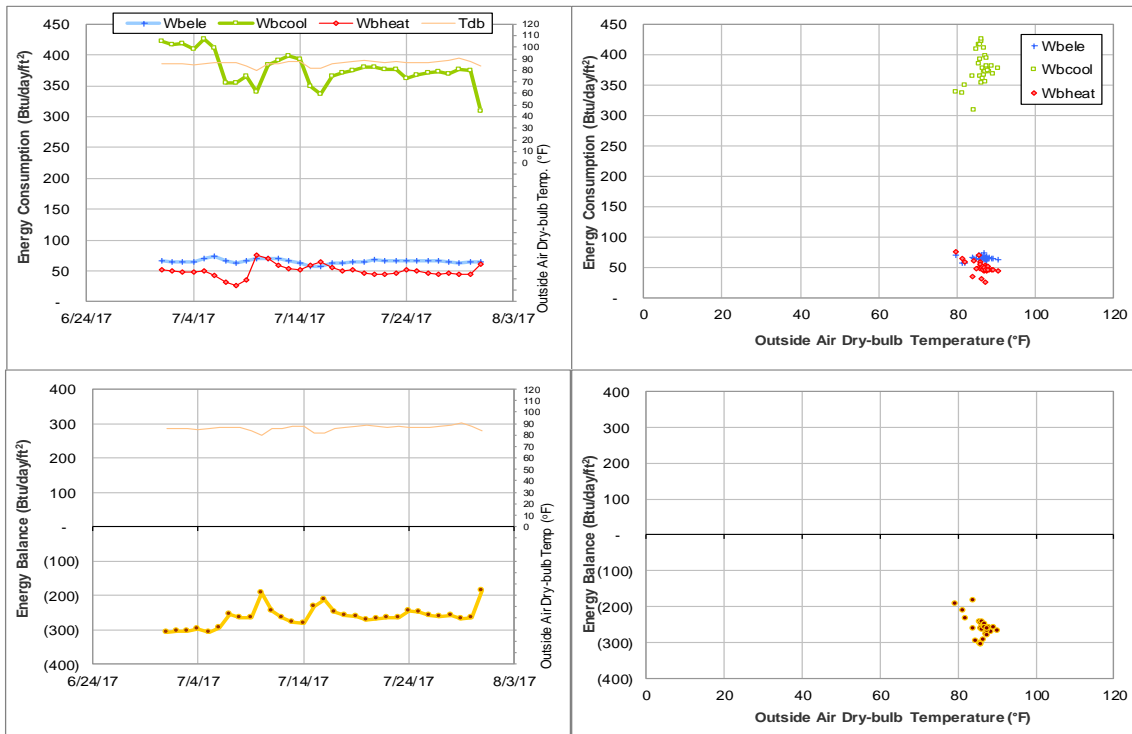


Figure IV-28 Briggs Hall Dorm 3 TAMU BLDG # 402 Energy Balance Plot during July 2017

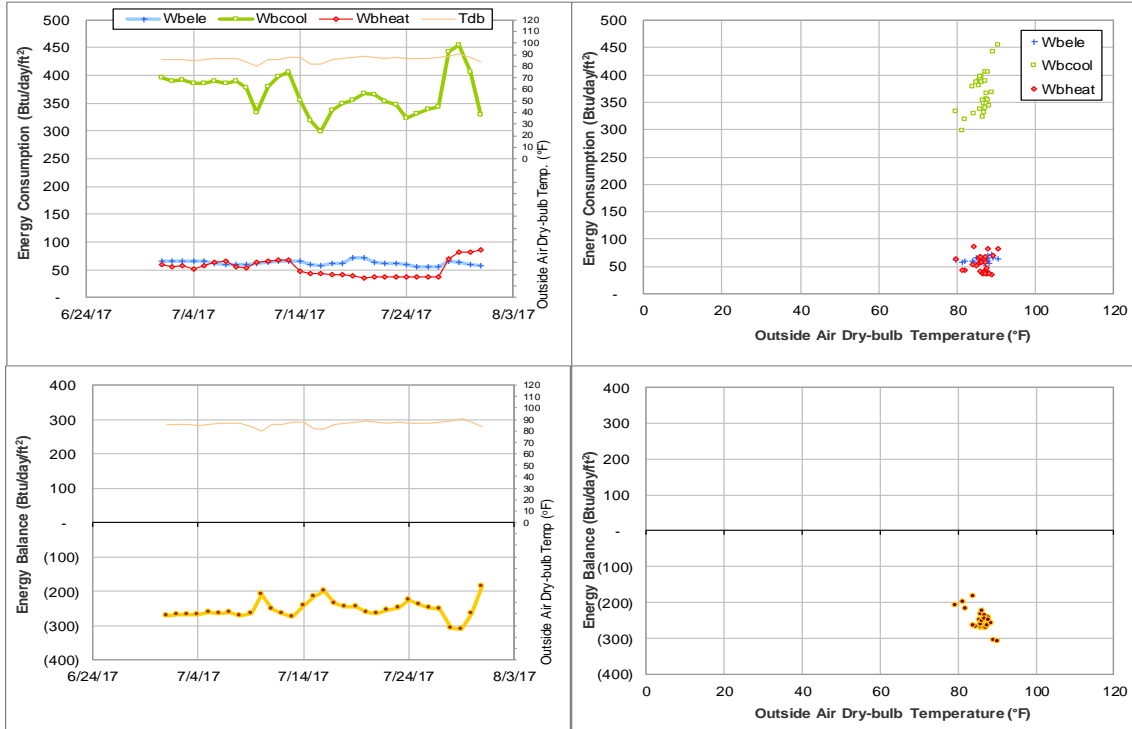


Figure IV-29 Fountain Hall Dorm 4 TAMU BLDG # 403 Energy Balance Plot during July 2017

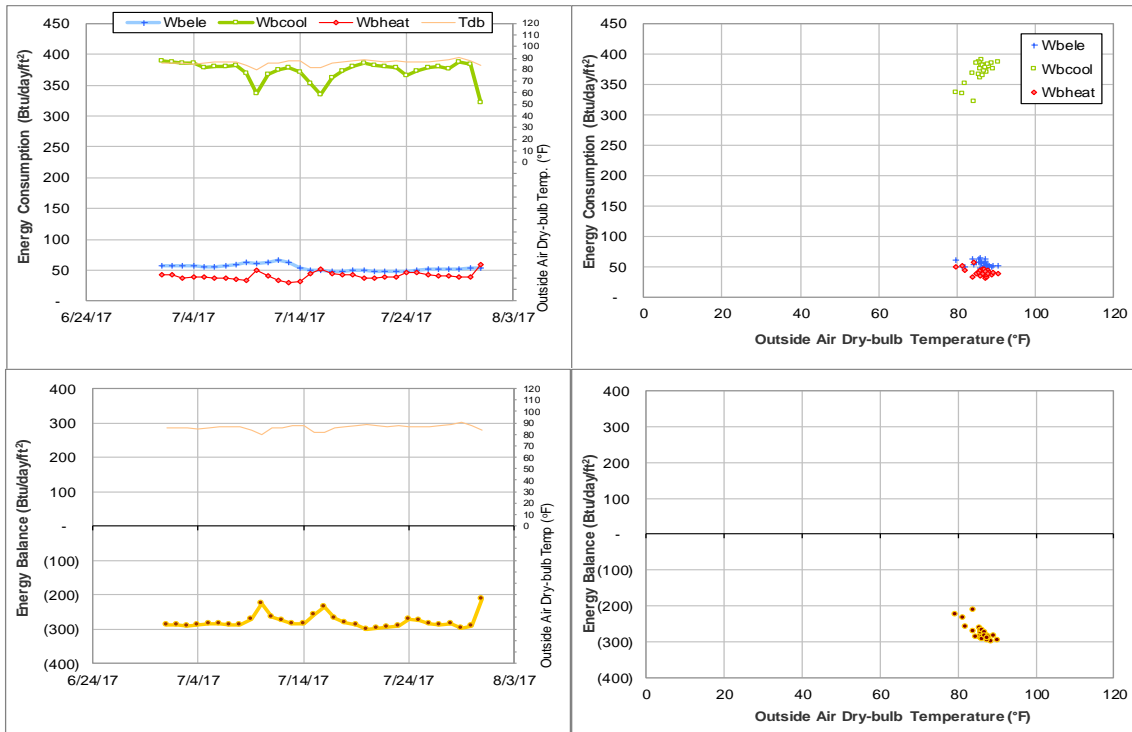


Figure IV-30 Gainer Hall Dorm 5 TAMU BLDG # 404 Energy Balance Plot during July 2017

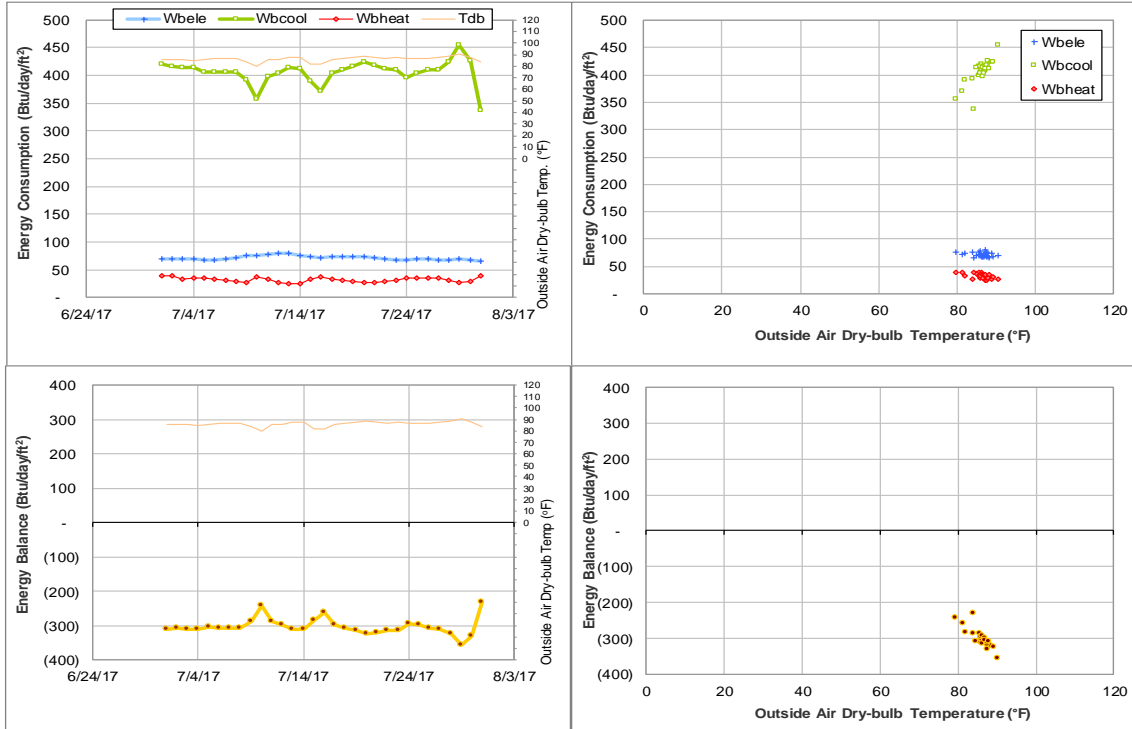


Figure IV-31 Gainer Hall, Leonard Hall and Ash LLC TAMU BLDG # 404 Energy Balance Plot during July 2017

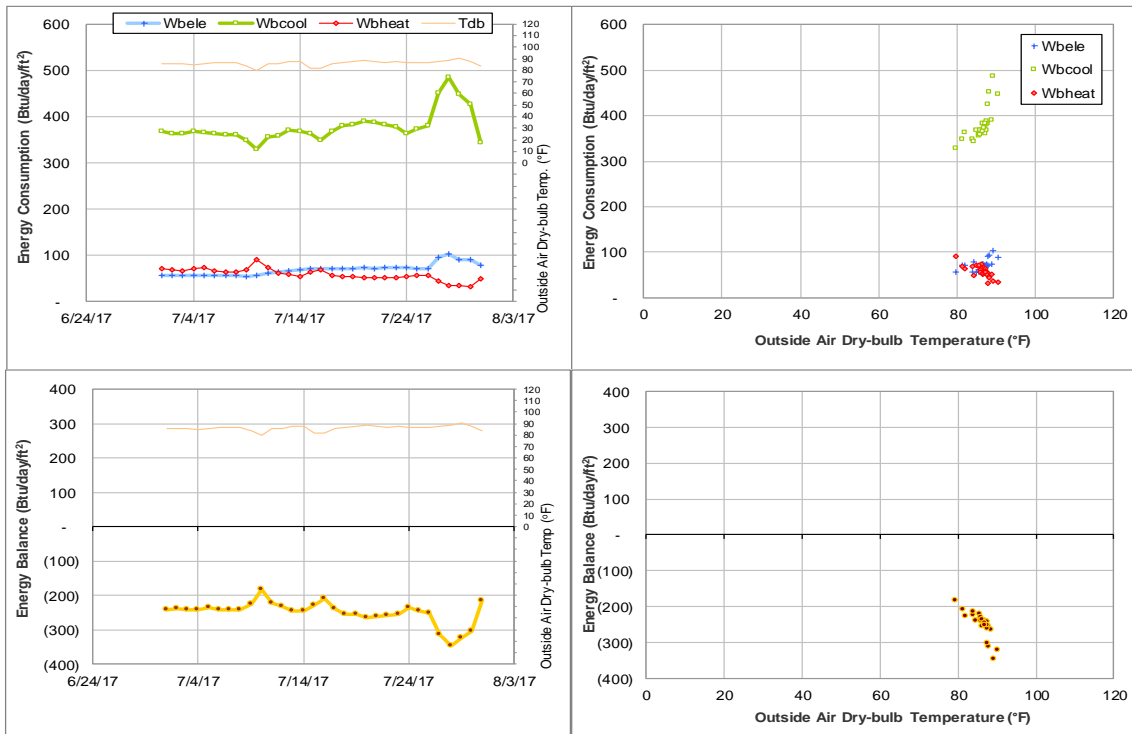


Figure IV-32 Lacy Hall - Dorm 6 TAMU BLDG # 405 Energy Balance Plot during July 2017

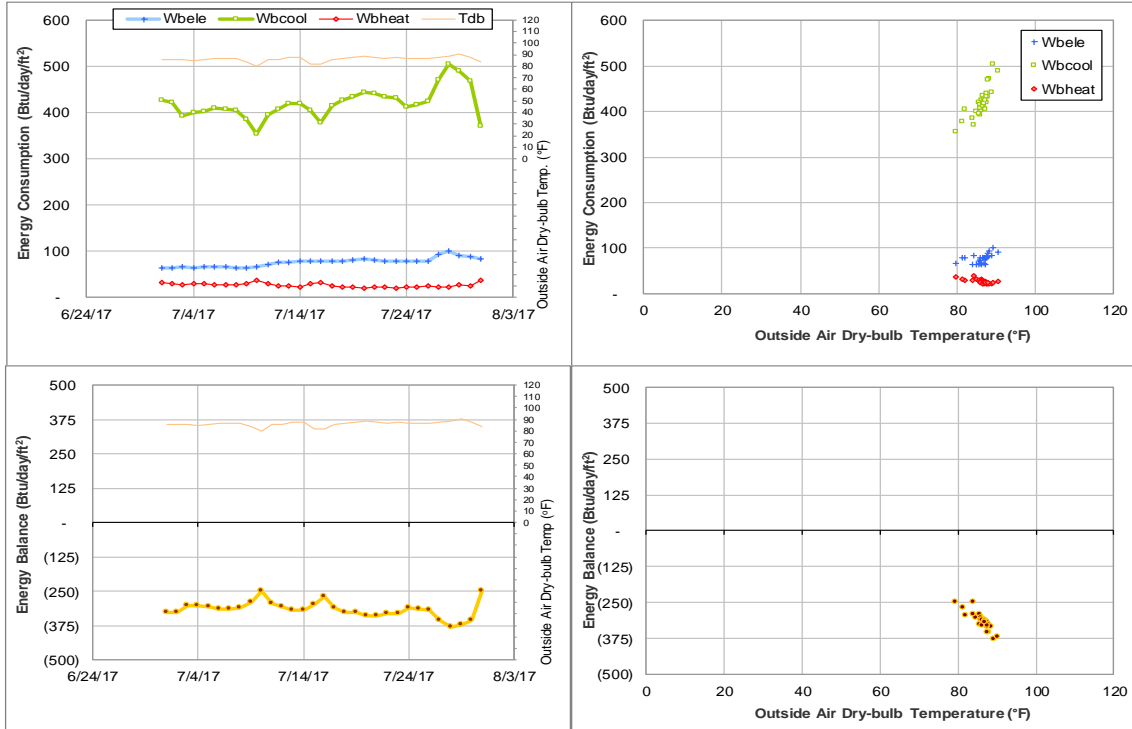


Figure IV-33 Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center TAMU BLDG # 405 Energy Balance Plot during July 2017

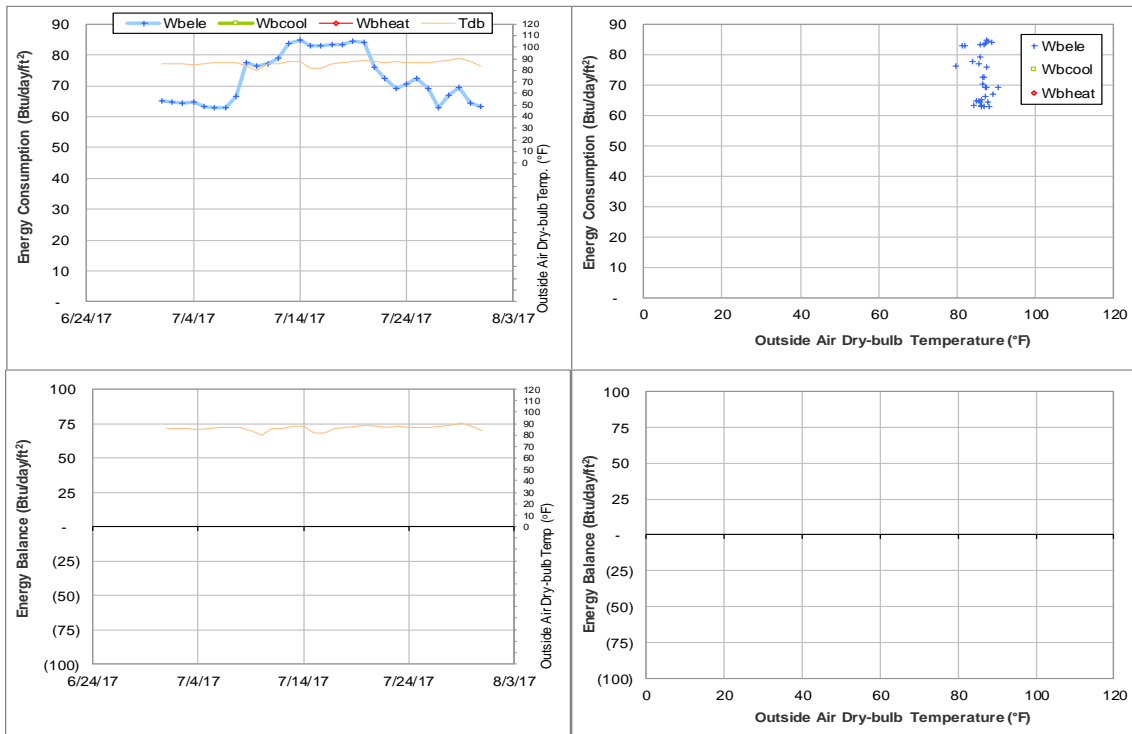


Figure IV-34 Leonard Hall - Dorm 7 TAMU BLDG # 406 Energy Balance Plot during July 2017

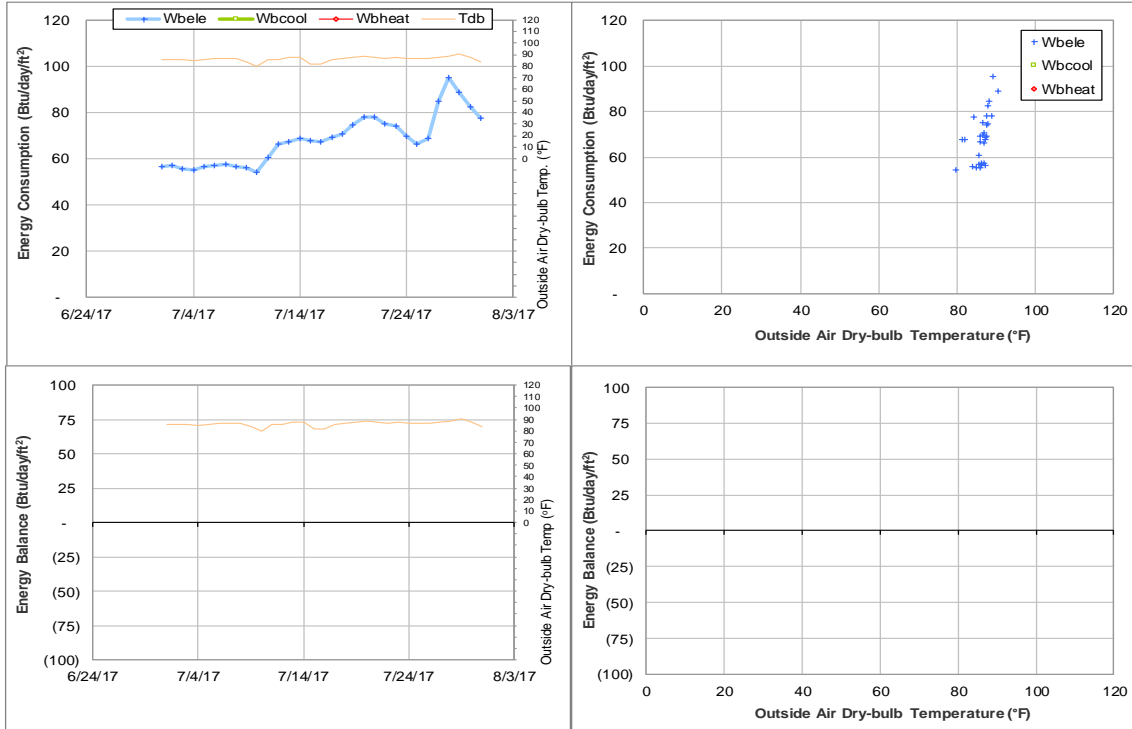


Figure IV-35 Harrell Hall - Dorm 8 TAMU BLDG # 407 Energy Balance Plot during July 2017

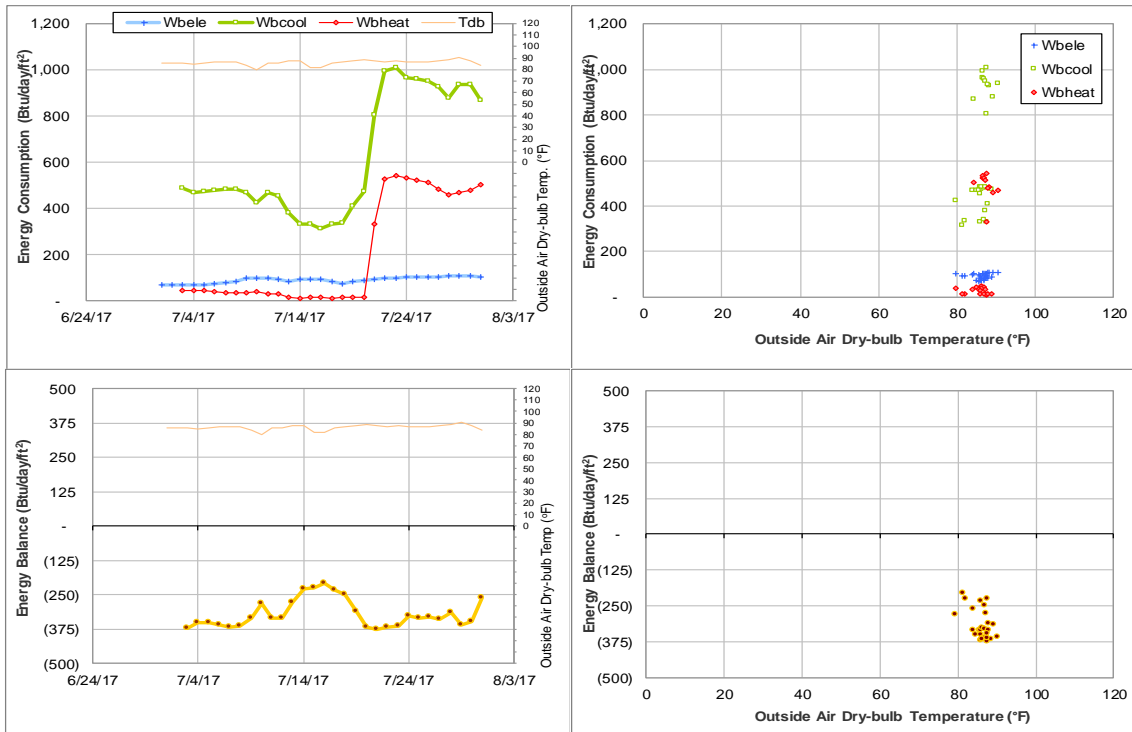


Figure IV-36 Whitely Hall - Dorm 9 TAMU BLDG # 408 Energy Balance Plot during July 2017

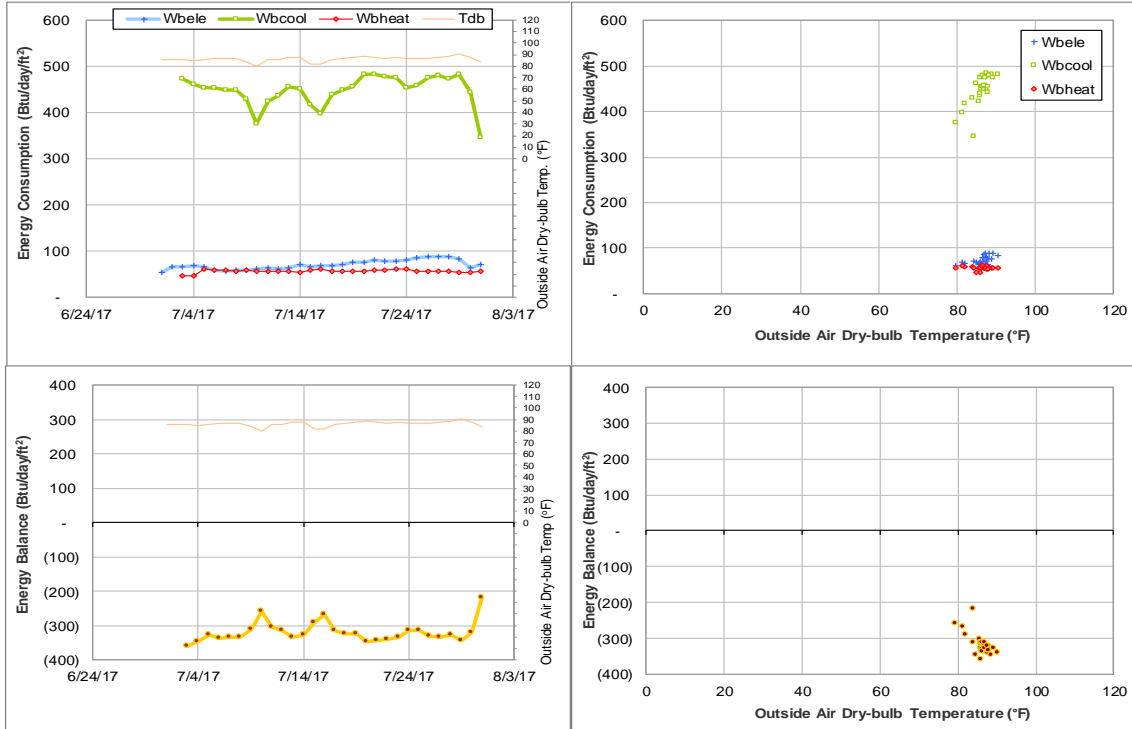


Figure IV-37 White Hall - Dorm 10 TAMU BLDG # 409 Energy Balance Plot during July 2017

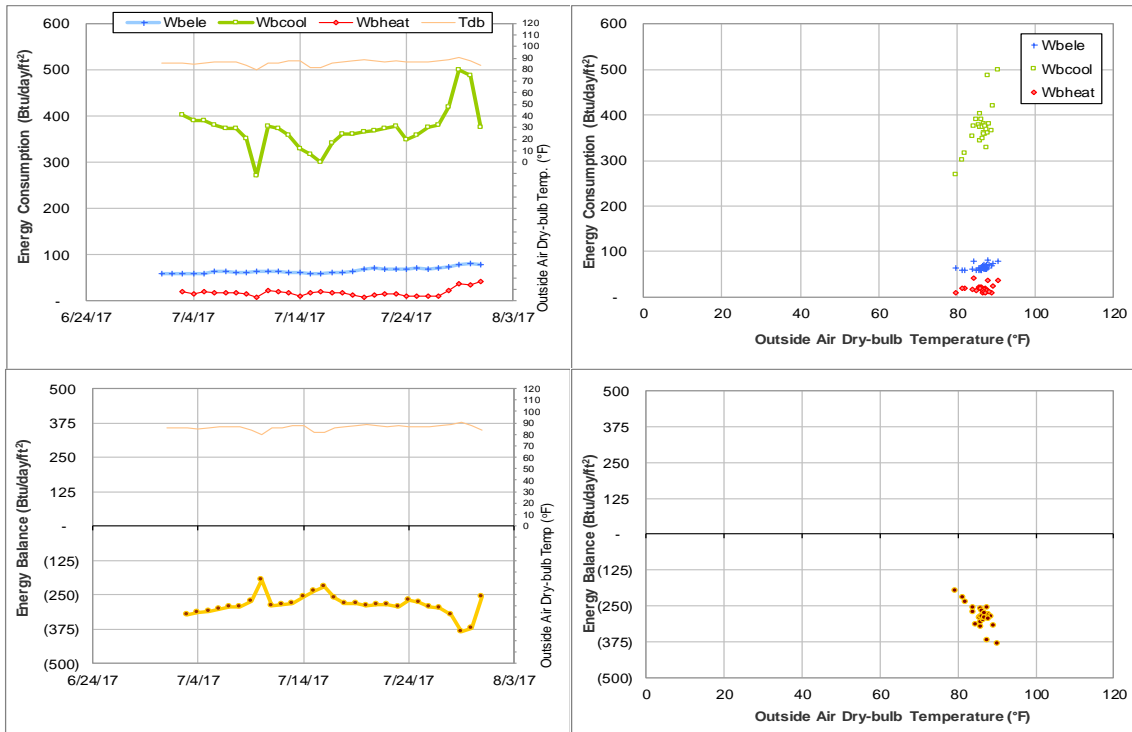


Figure IV-38 Harrington Hall - Dorm 11 TAMU BLDG # 410 Energy Balance Plot during July 2017

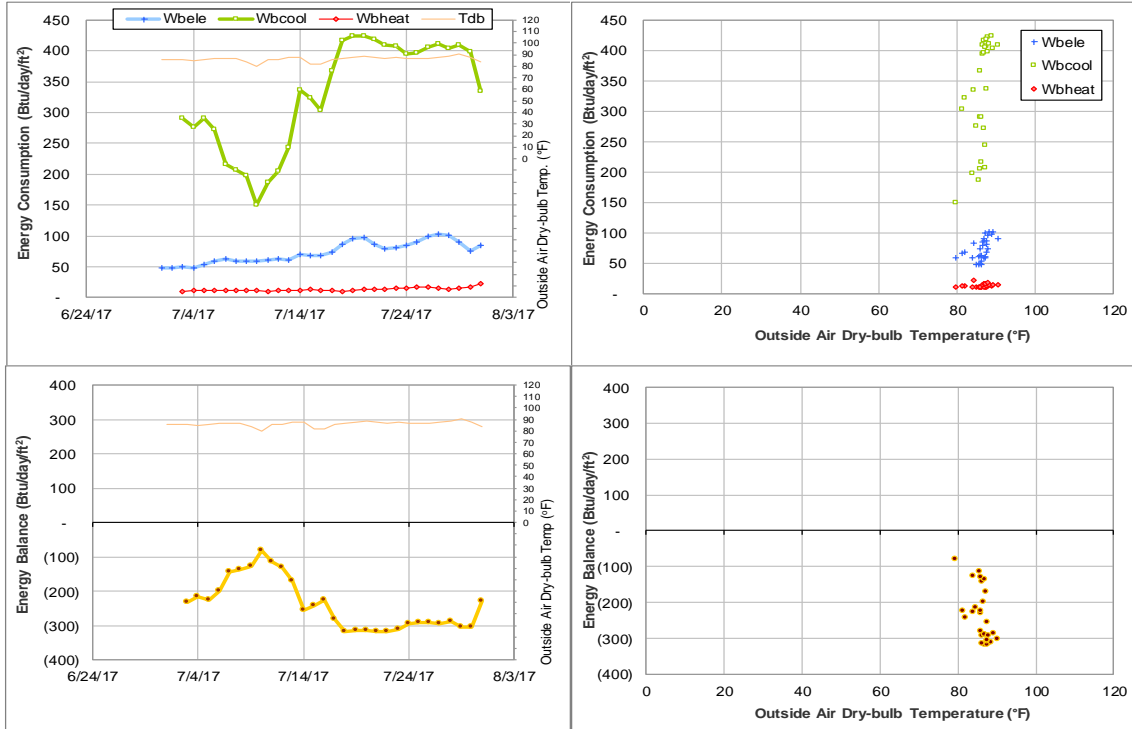


Figure IV-39 Utay Hall - Dorm 12 TAMU BLDG # 411 Energy Balance Plot during July 2017

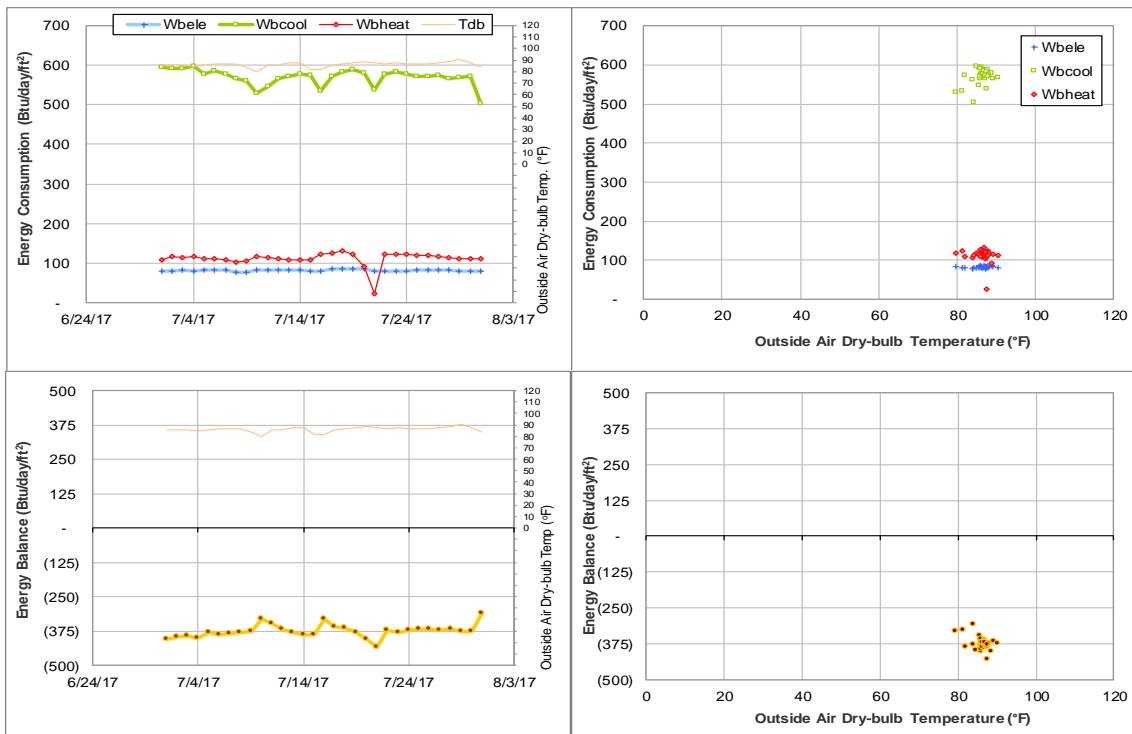


Figure IV-40 Moses Residence Hall TAMU BLDG # 412 Energy Balance Plot during July 2017

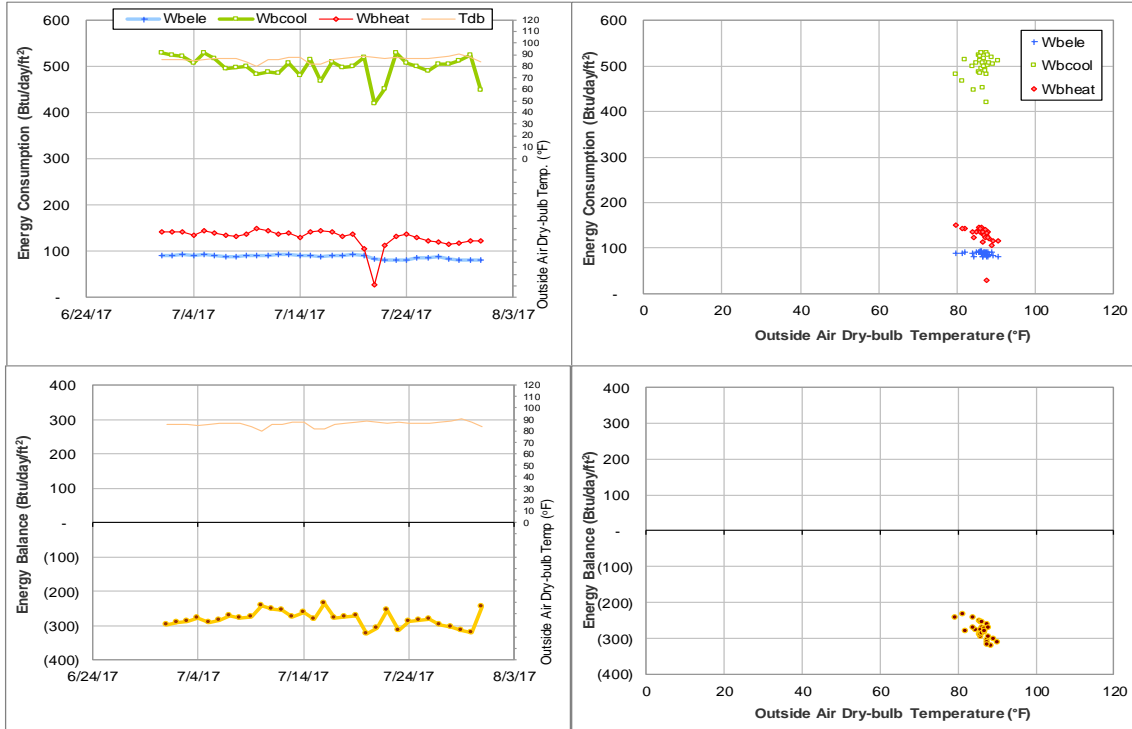


Figure IV-41 Davis-Gary Residence Hall TAMU BLDG # 415 Energy Balance Plot during July 2017

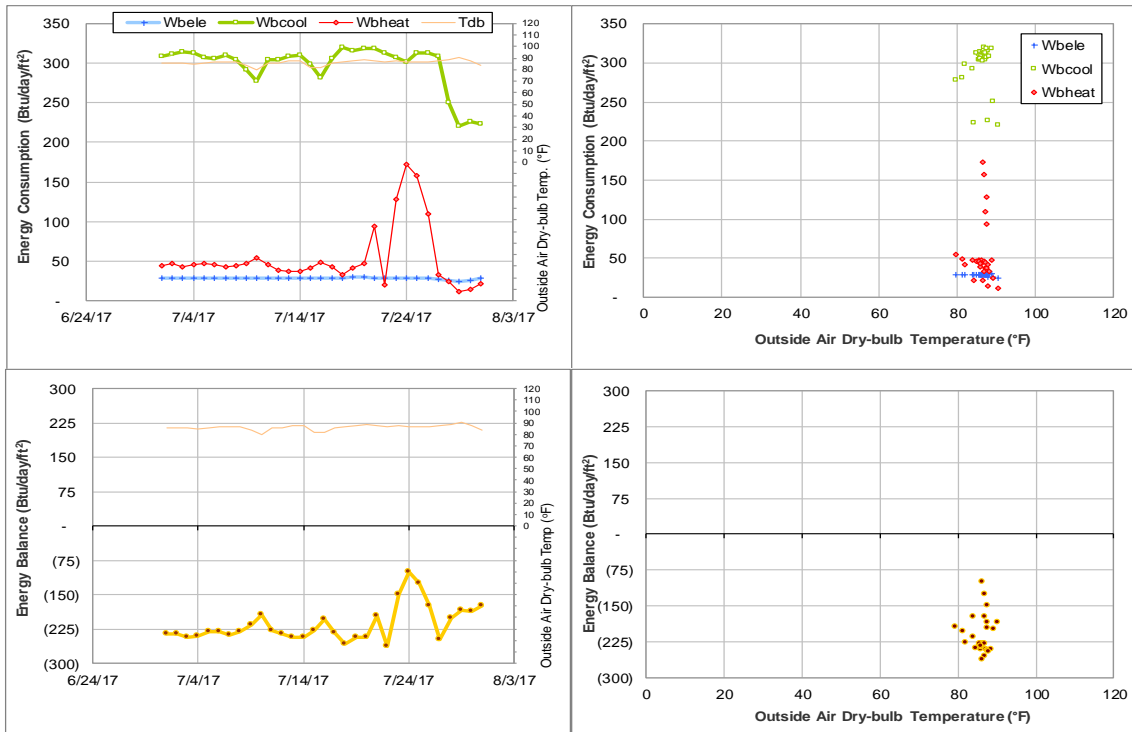


Figure IV-42 Legett Residence Hall TAMU BLDG # 419 Energy Balance Plot during July 2017

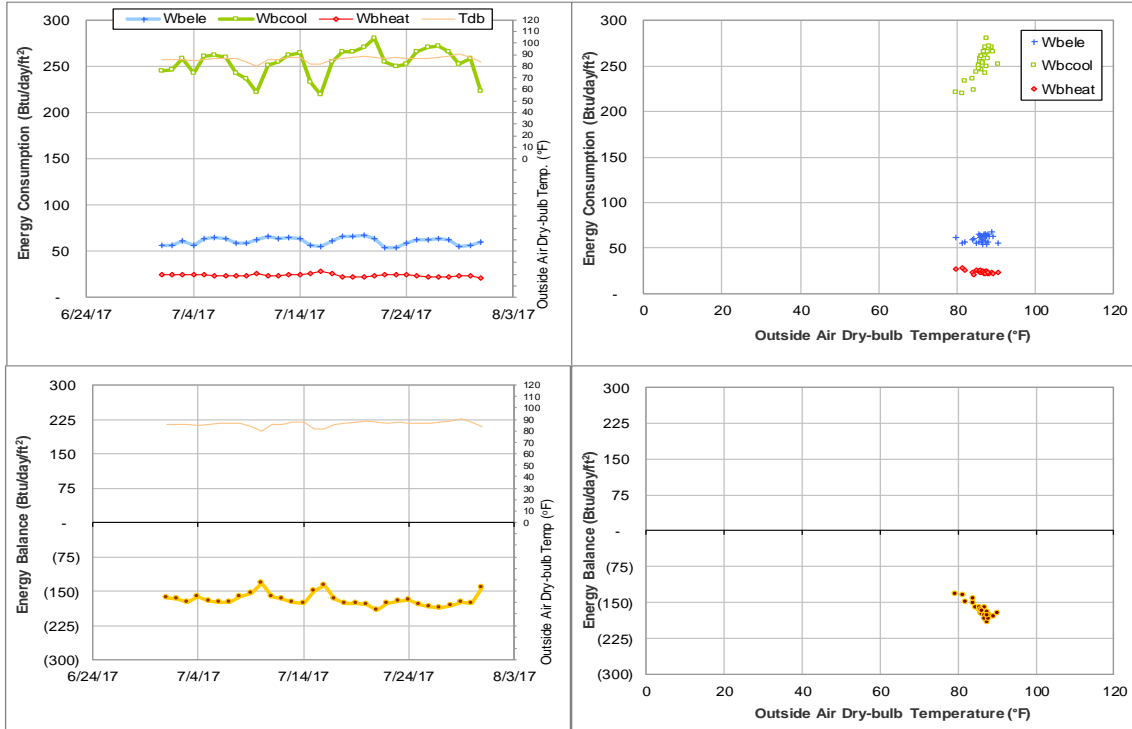


Figure IV-43 Milner Hall TAMU BLDG # 420 Energy Balance Plot during July 2017

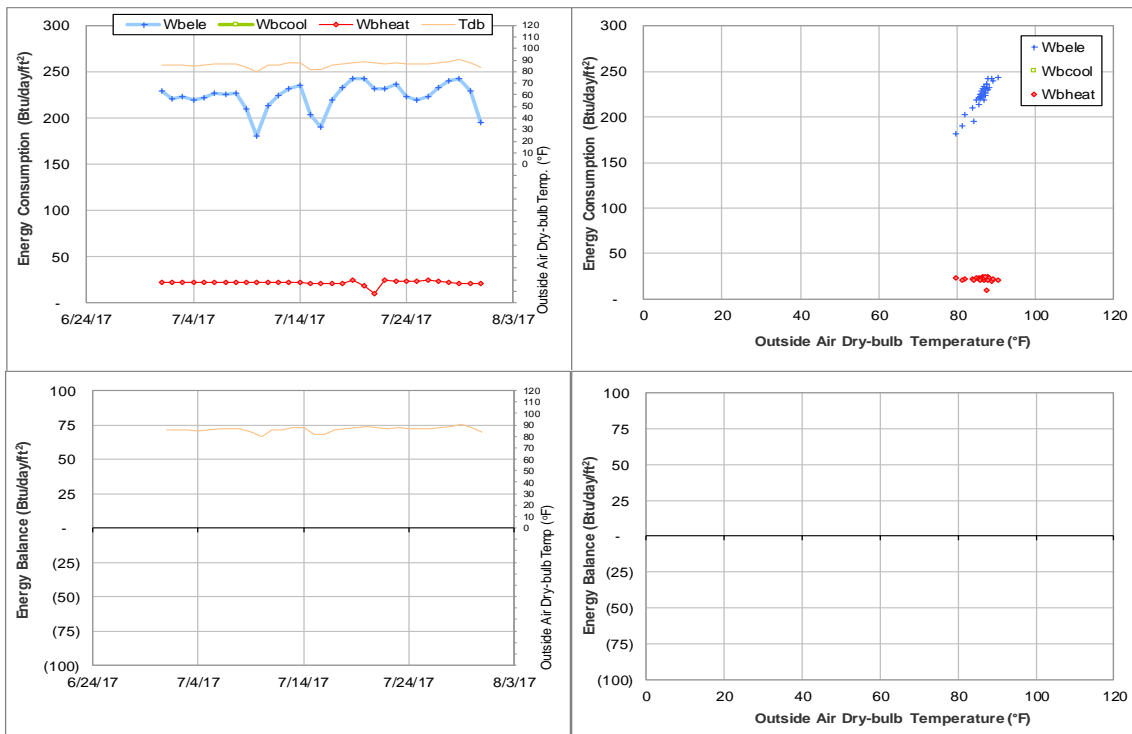


Figure IV-44 Walton Residence Hall TAMU BLDG # 422 Energy Balance Plot during July 2017

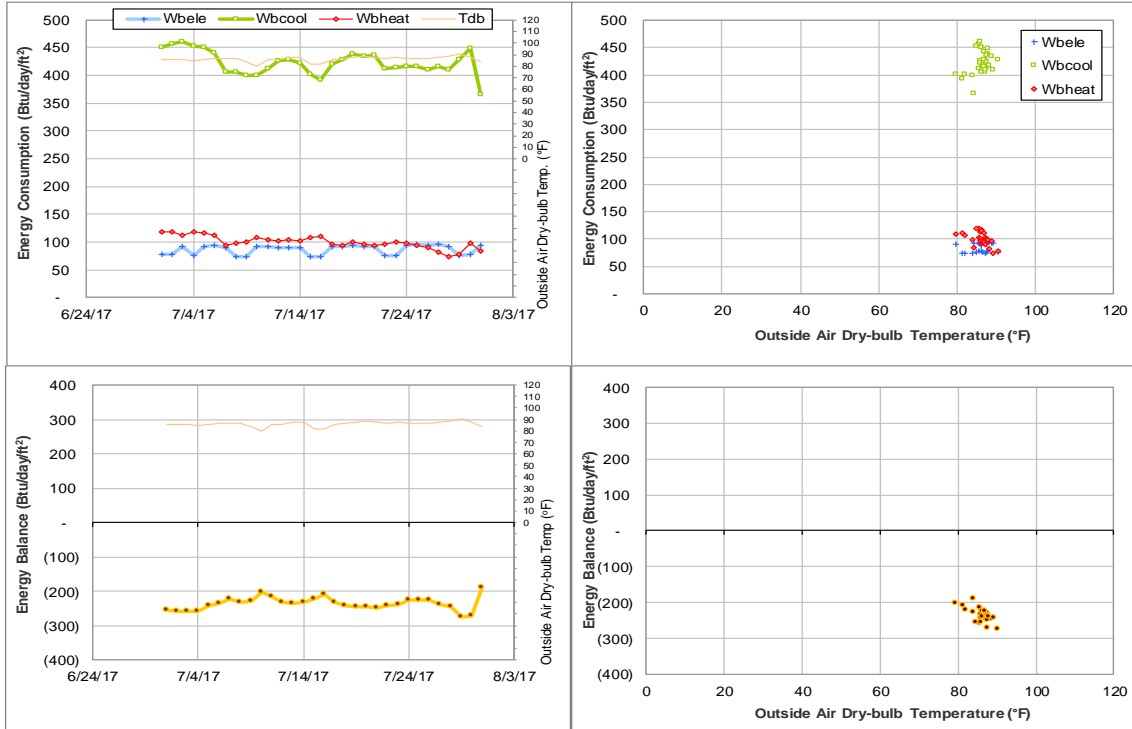


Figure IV-45 Hotard Hall TAMU BLDG # 424 Energy Balance Plot during July 2017

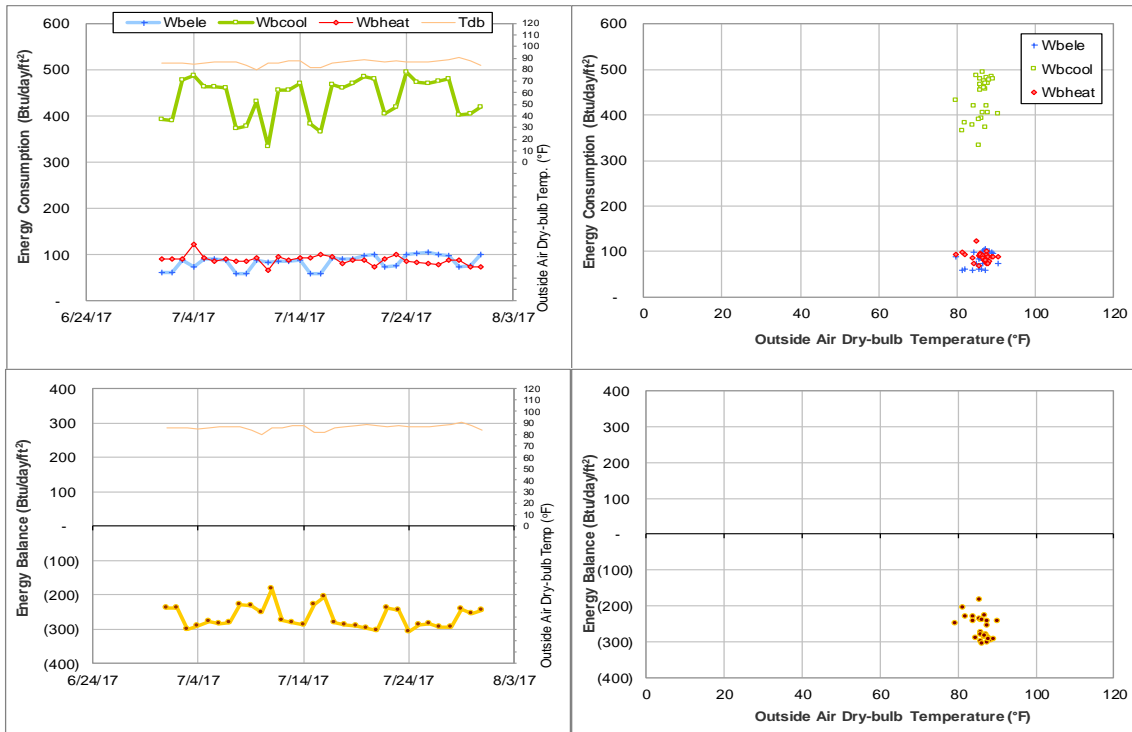


Figure IV-46 Henderson Hall TAMU BLDG # 425 Energy Balance Plot during July 2017

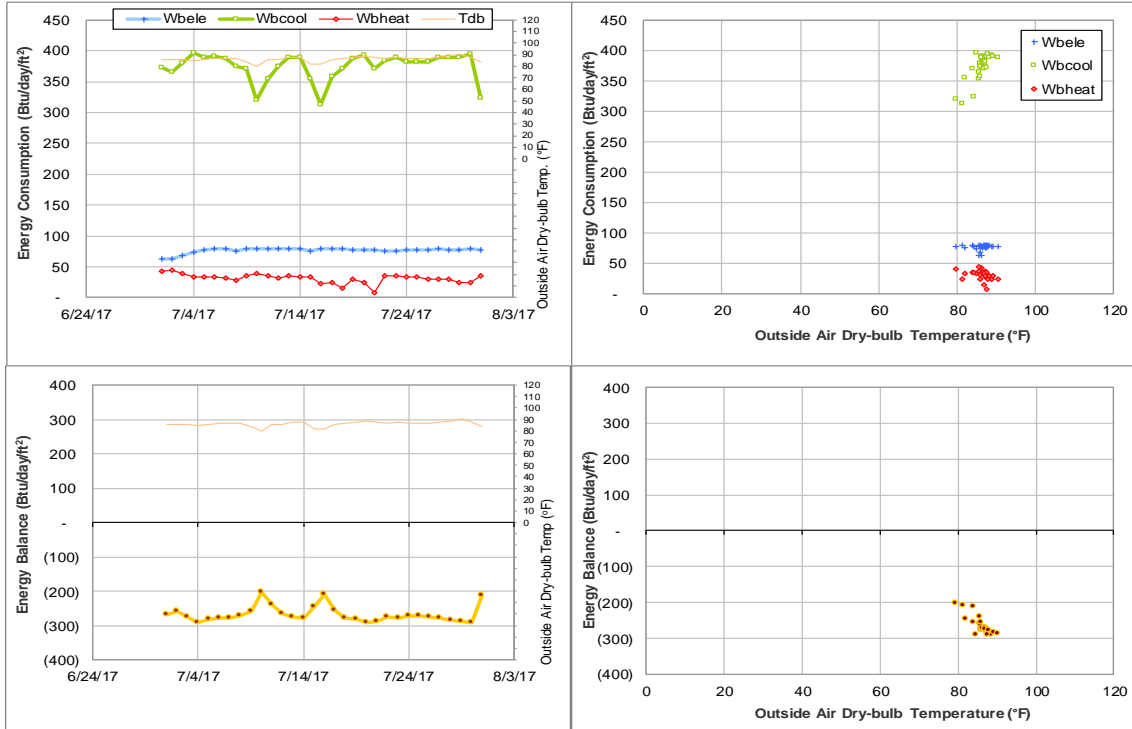


Figure IV-47 FHK Complex TAMU BLDG # 426 Energy Balance Plot during July 2017

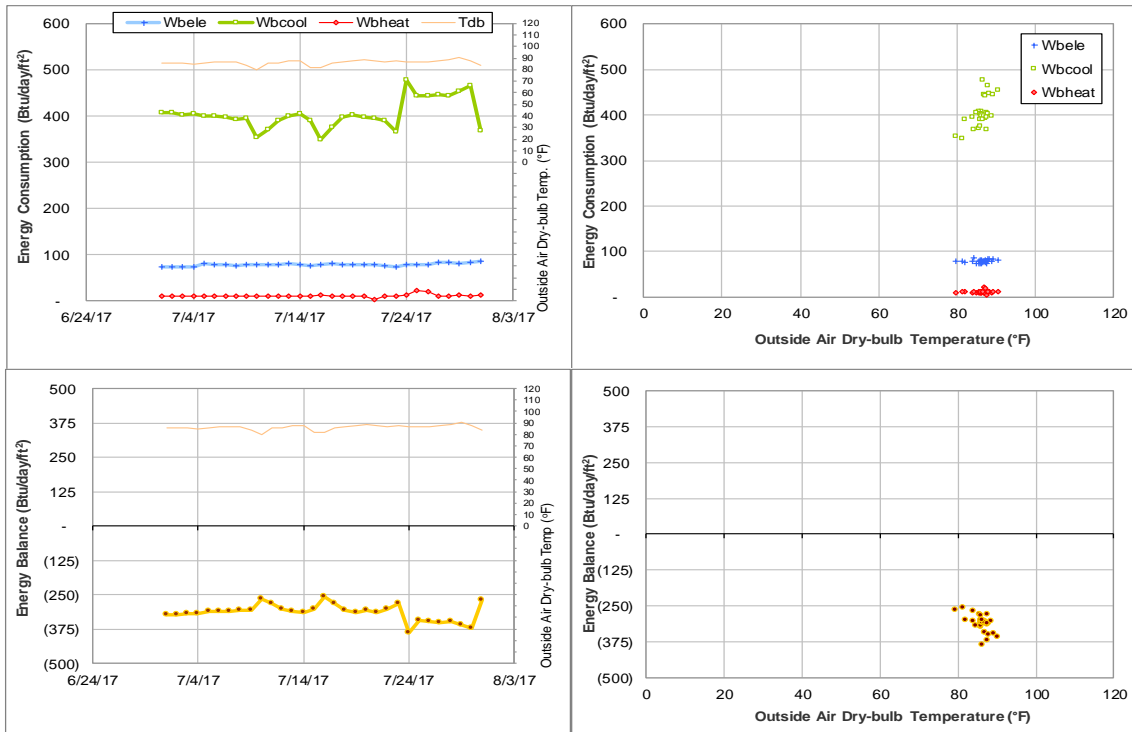


Figure IV-48 Schumacher Residence Hall TAMU BLDG # 430 Energy Balance Plot during July 2017

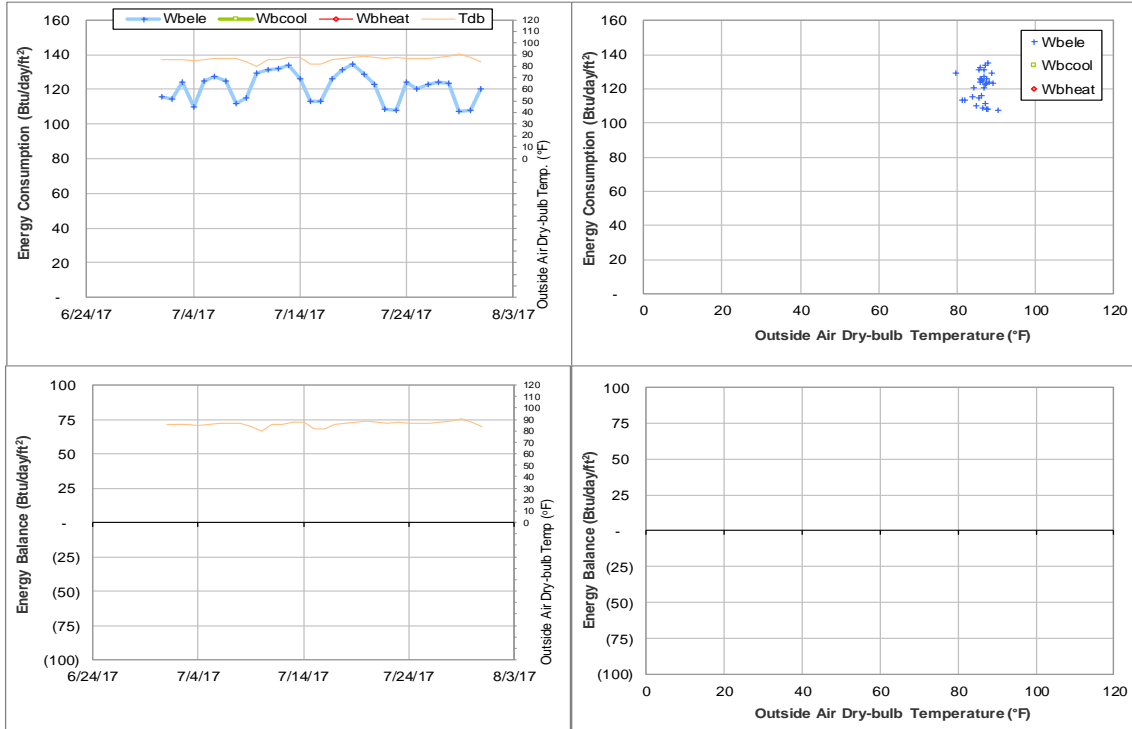


Figure IV-49 Architecture Building C TAMU BLDG # 432 Energy Balance Plot during July 2017

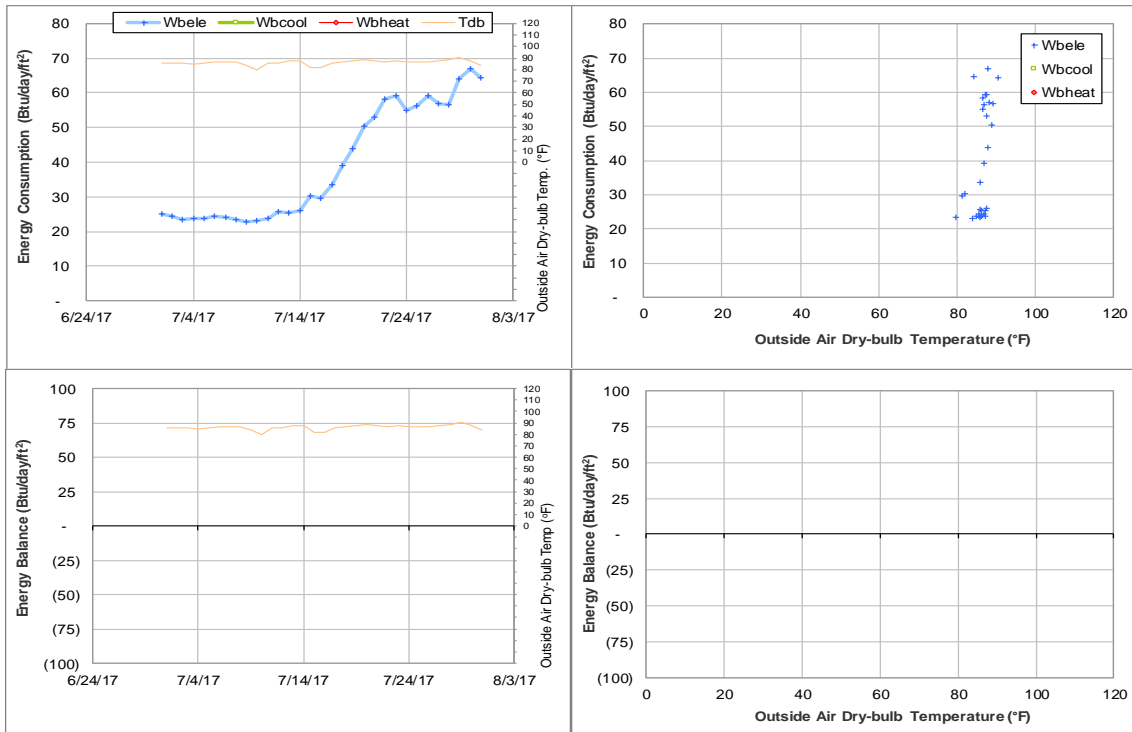


Figure IV-50 Mosher Residence Hall TAMU BLDG # 433 Energy Balance Plot during July 2017

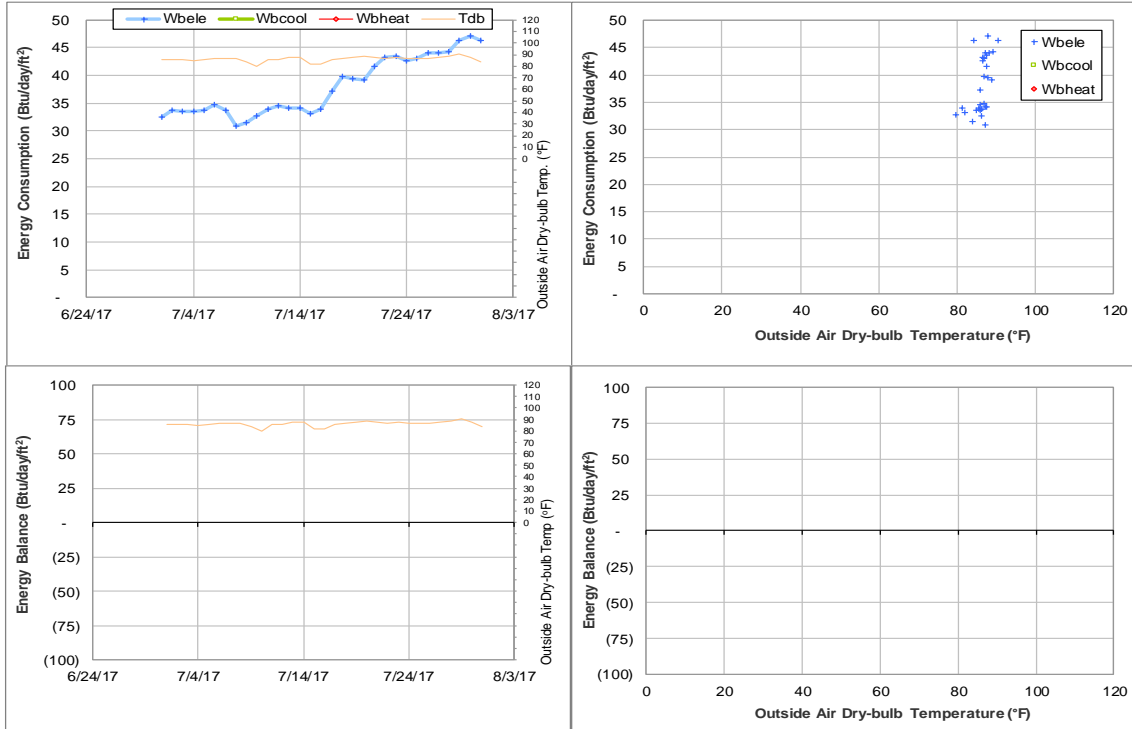


Figure IV-51 Mosher Commons Krueger Dunn Aston TAMU BLDG # 433 Energy Balance Plot during July 2017

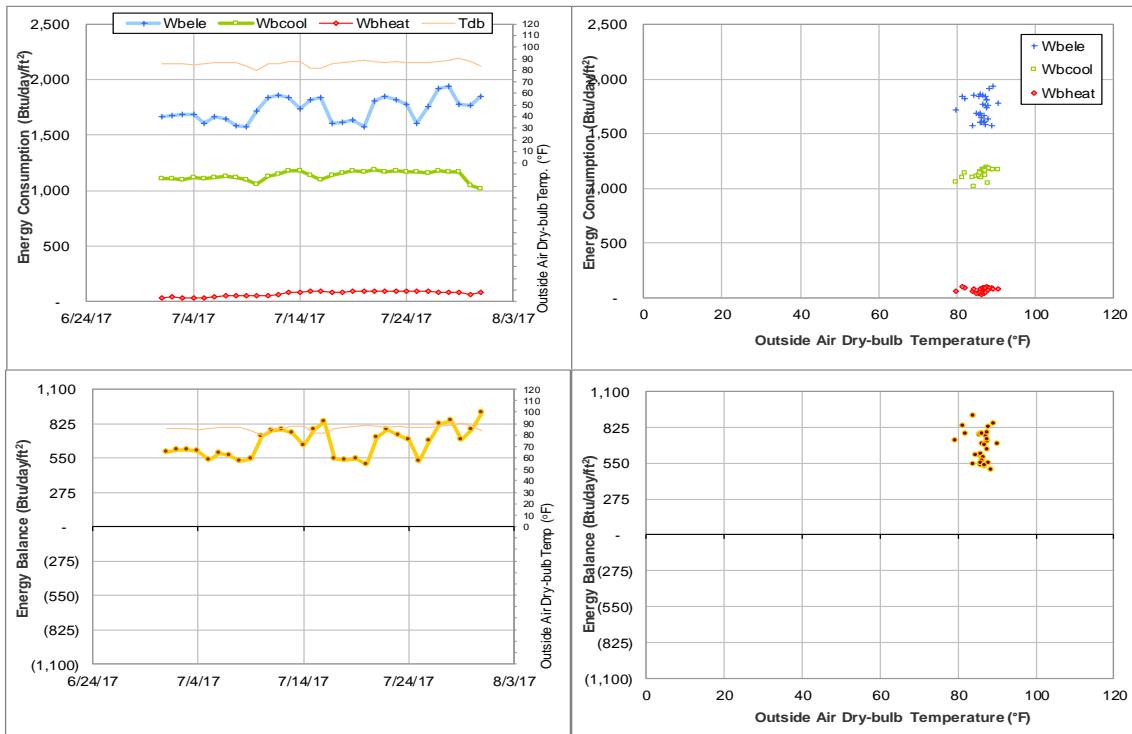


Figure IV-52 Luedcke Building (Cyclotron) TAMU BLDG # 434 Energy Balance Plot during July 2017

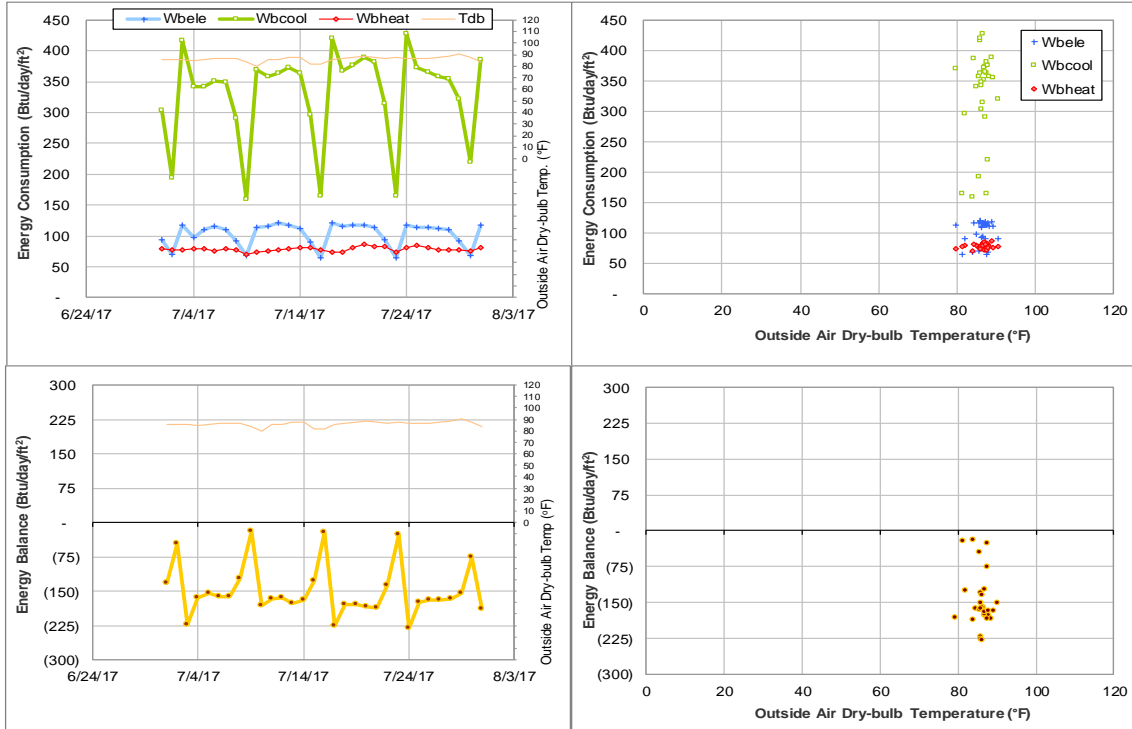


Figure IV-53 Harrington Education Center Office Tower TAMU BLDG # 435 Energy Balance Plot during July 2017

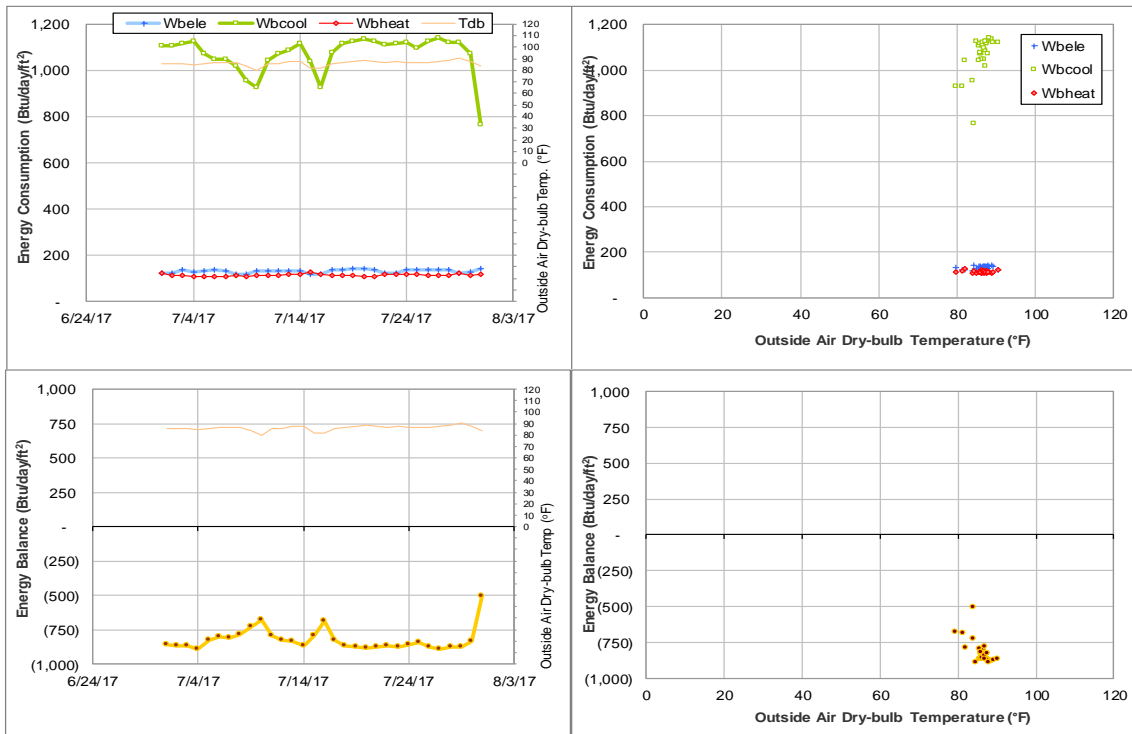


Figure IV-54 Reed-McDonald Building TAMU BLDG # 436 Energy Balance Plot during July 2017

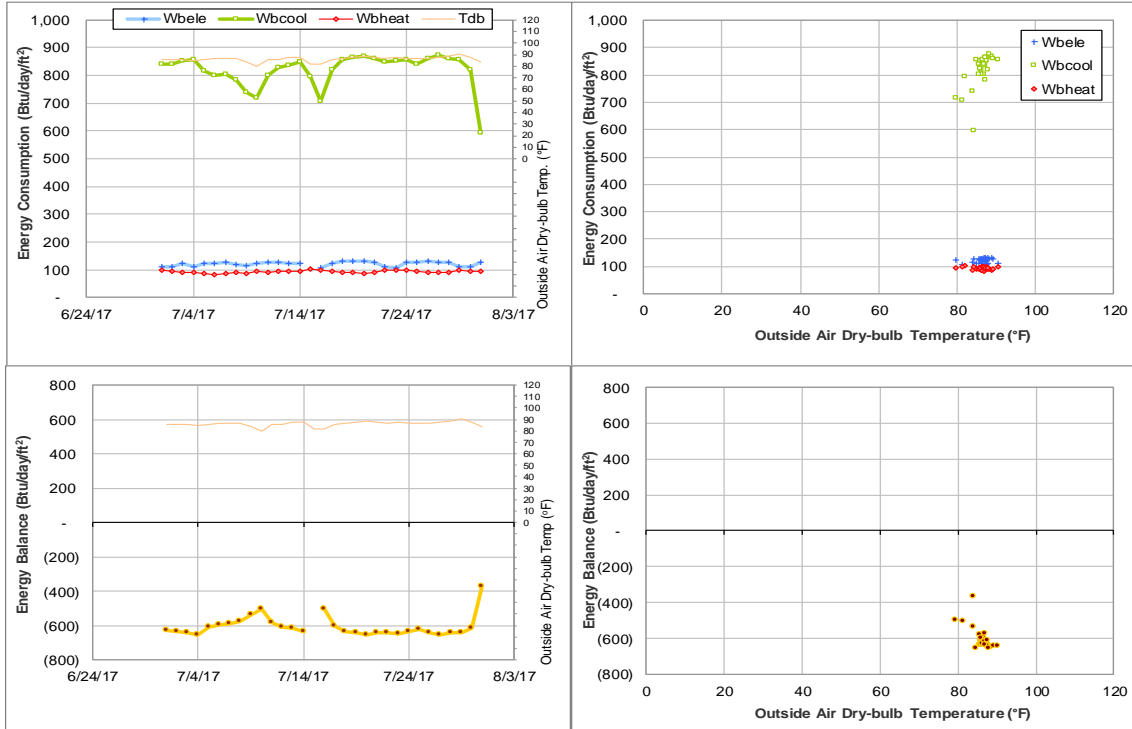


Figure IV-55 Reed-McDonald and Engineering Innovation Center TAMU BLDG # 436 Energy Balance Plot during July 2017

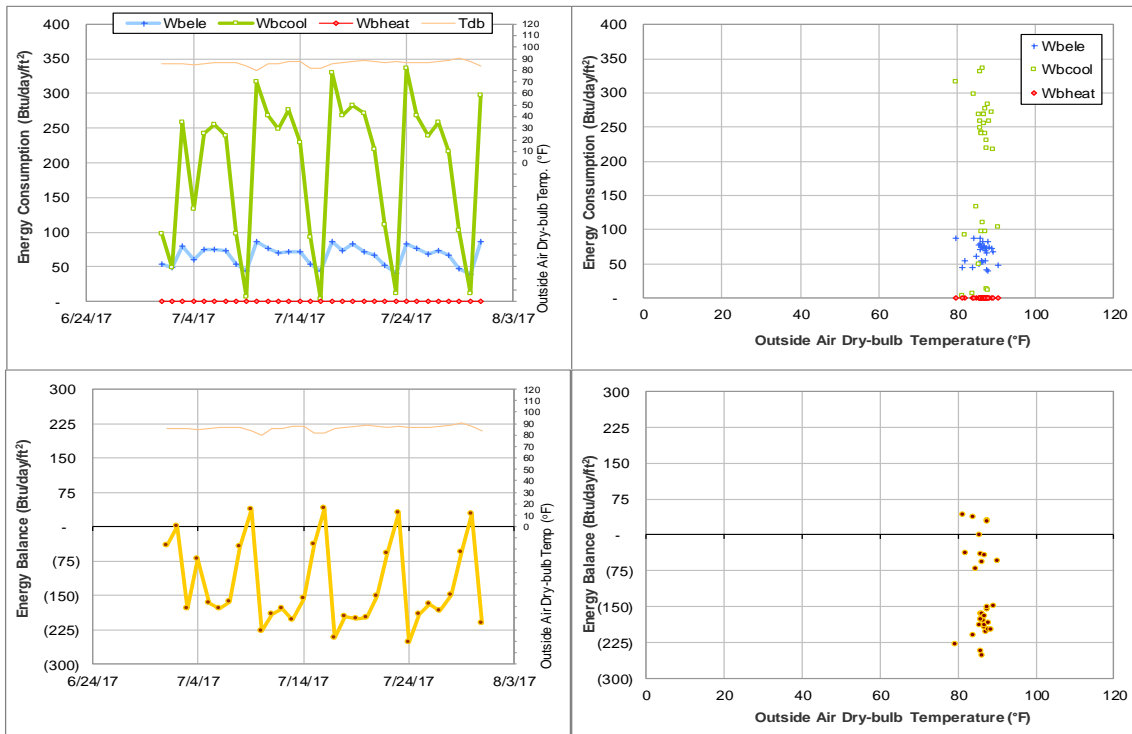


Figure IV-56 Harrington Education Center Classroom Building TAMU BLDG # 438 Energy Balance Plot during July 2017

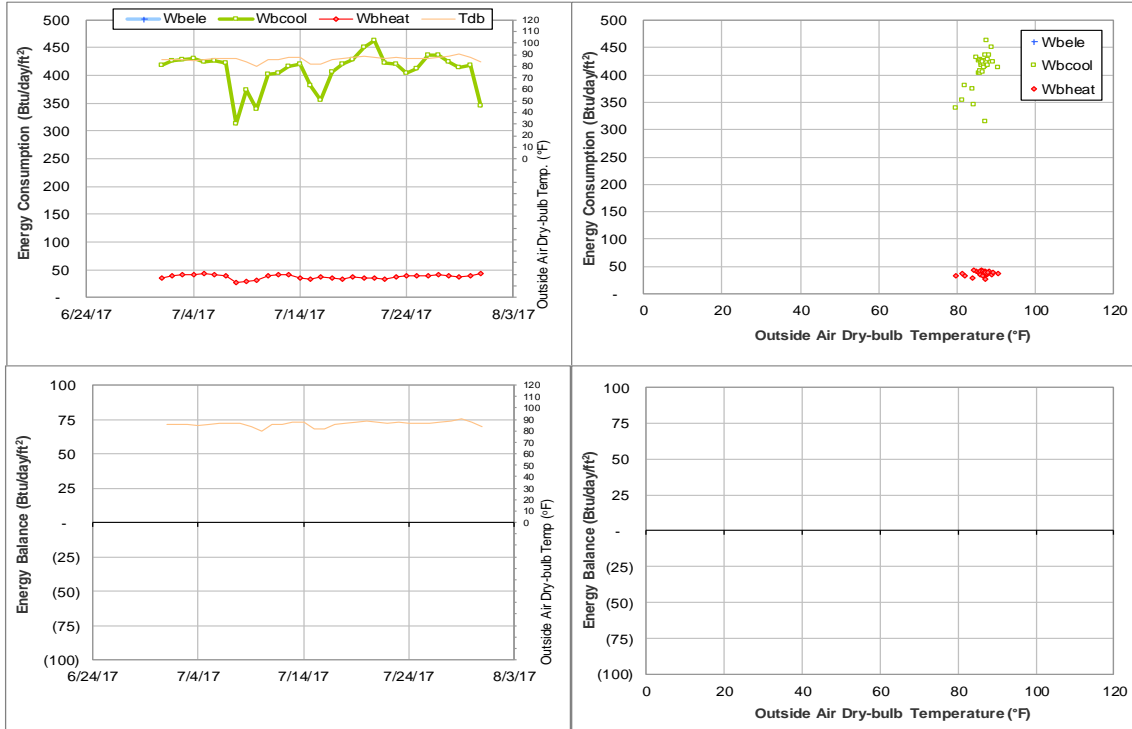


Figure IV-57 Commons Hall TAMU BLDG # 440 Energy Balance Plot during July 2017

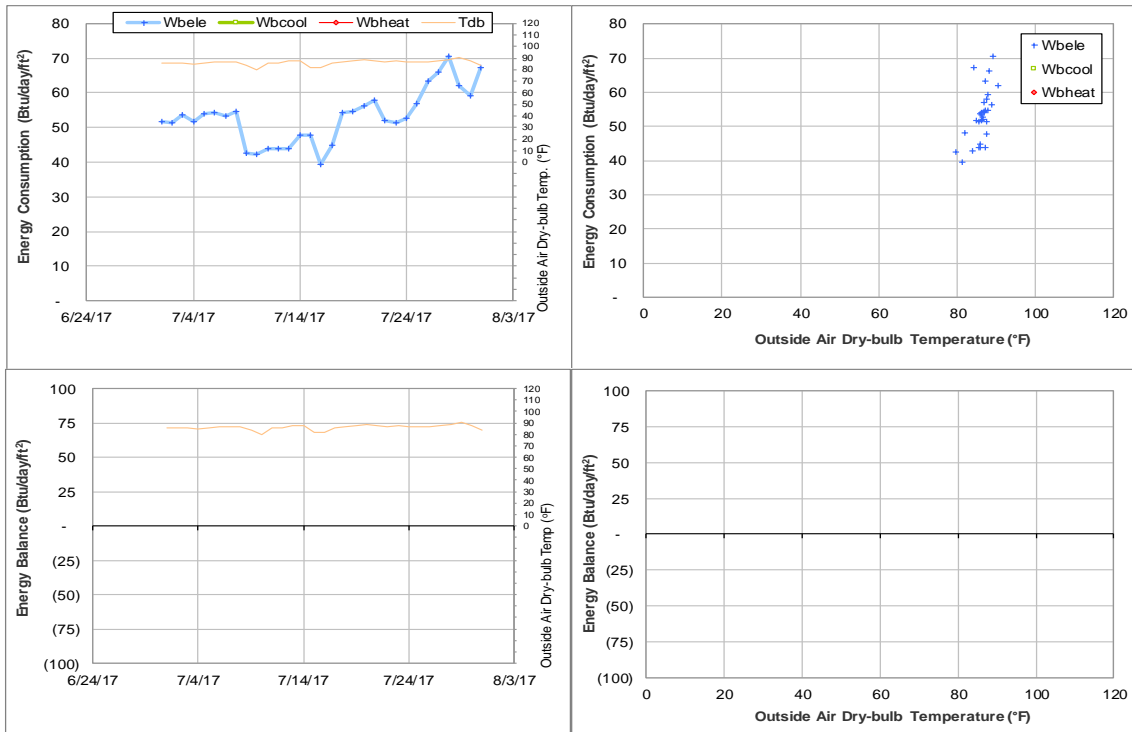


Figure IV-58 Commons Krueger TAMU BLDG # 440 Energy Balance Plot during July 2017

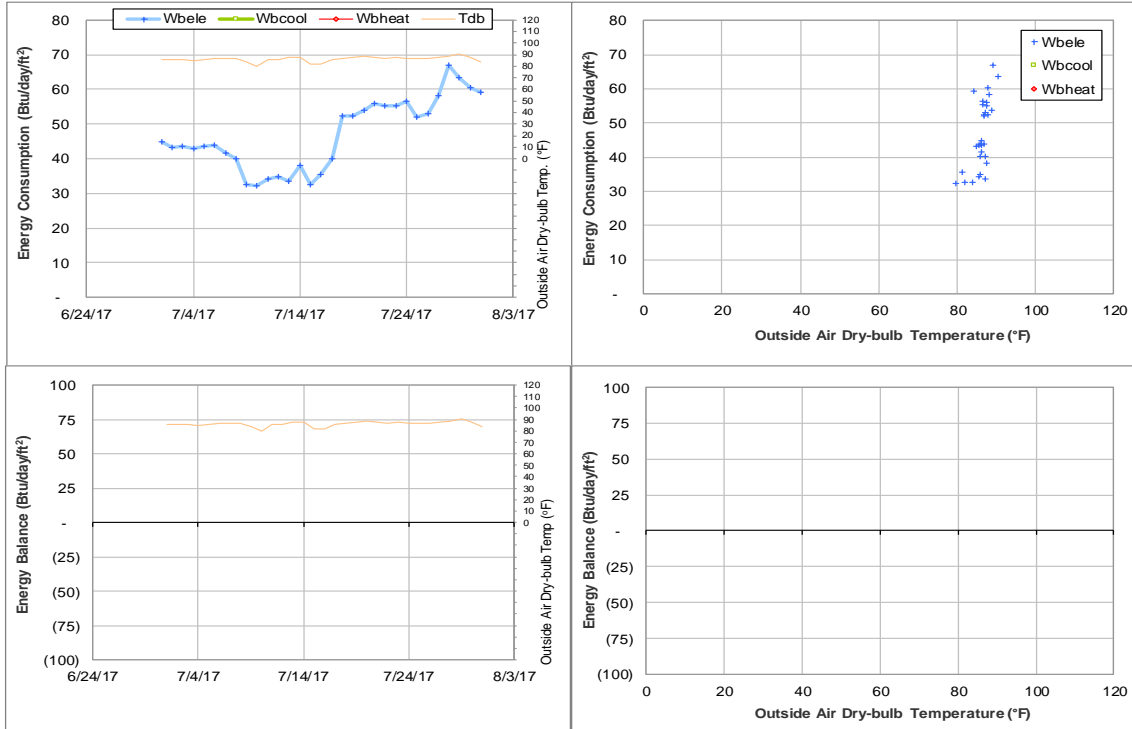


Figure IV-59 Krueger Residence Hall TAMU BLDG # 441 Energy Balance Plot during July 2017

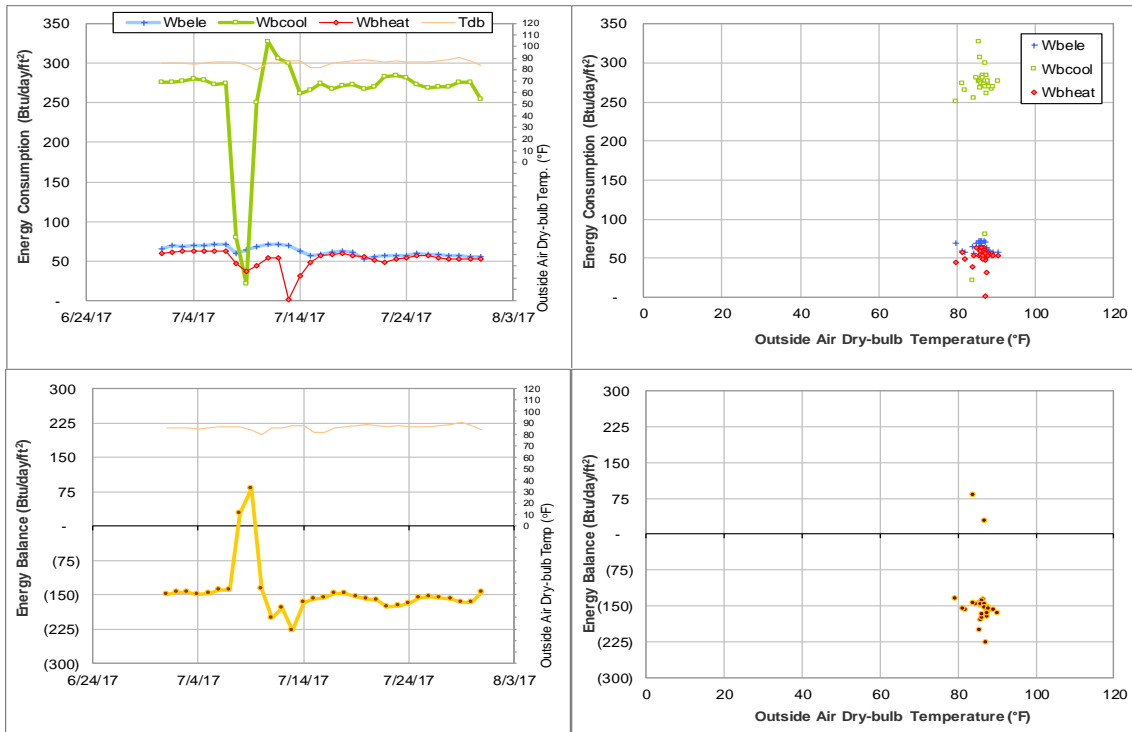


Figure IV-60 Dunn Residence Hall TAMU BLDG # 442 Energy Balance Plot during July 2017

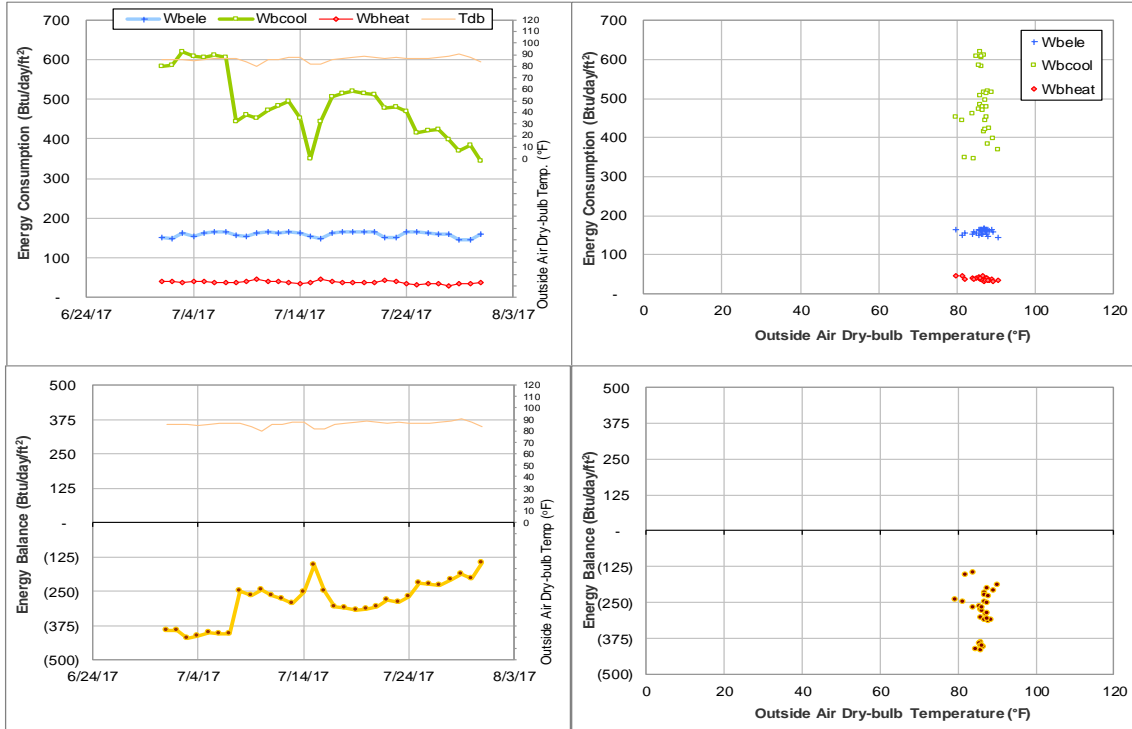


Figure IV-61 Oceanography & Meteorology Building TAMU BLDG # 443 Energy Balance Plot during July 2017

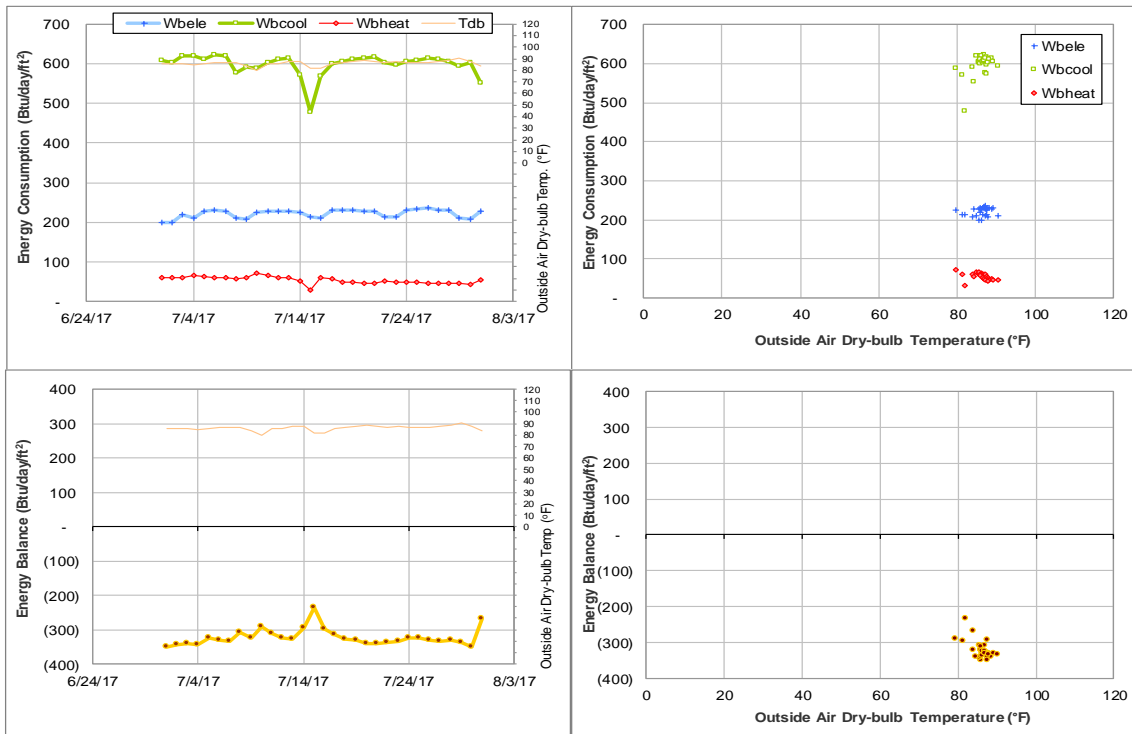


Figure IV-62 Peterson Building TAMU BLDG # 444 Energy Balance Plot during July 2017

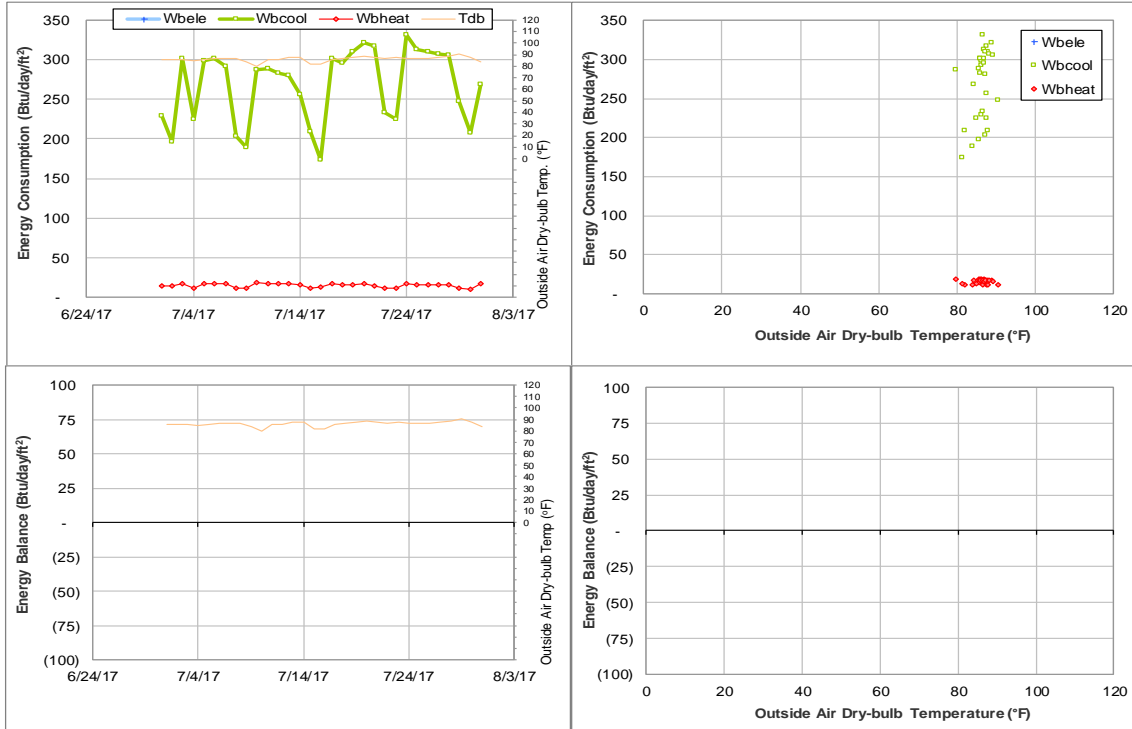


Figure IV-63 Teague Research Center TAMU BLDG # 445 Energy Balance Plot during July 2017

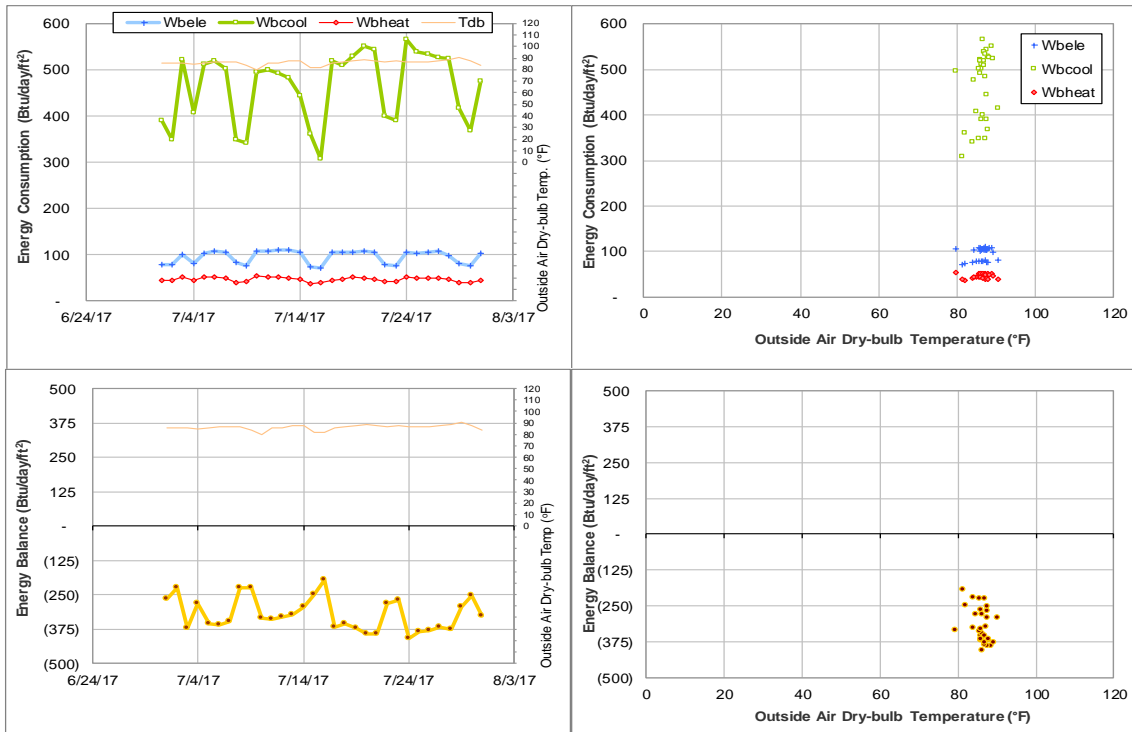


Figure IV-64 Teague Research Center and DPC Annex TAMU BLDG # 445 Energy Balance Plot during July 2017

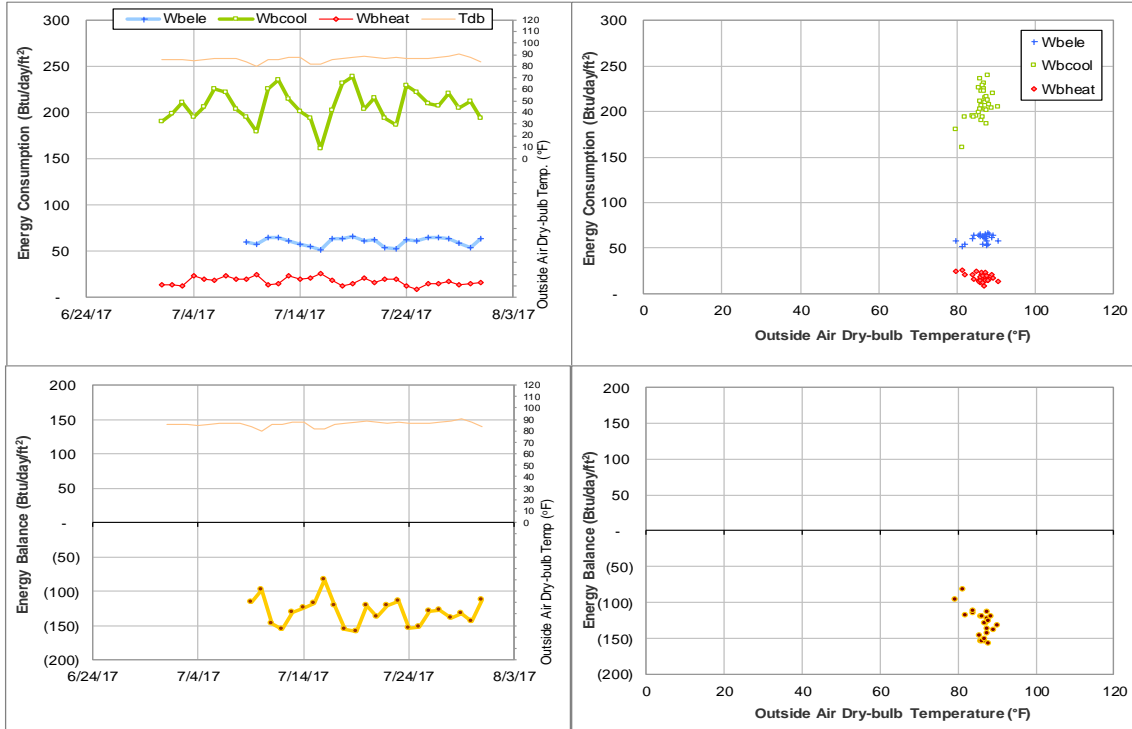


Figure IV-65 Rudder Tower and Theatre Complex TAMU BLDG # 446 Energy Balance Plot during July 2017

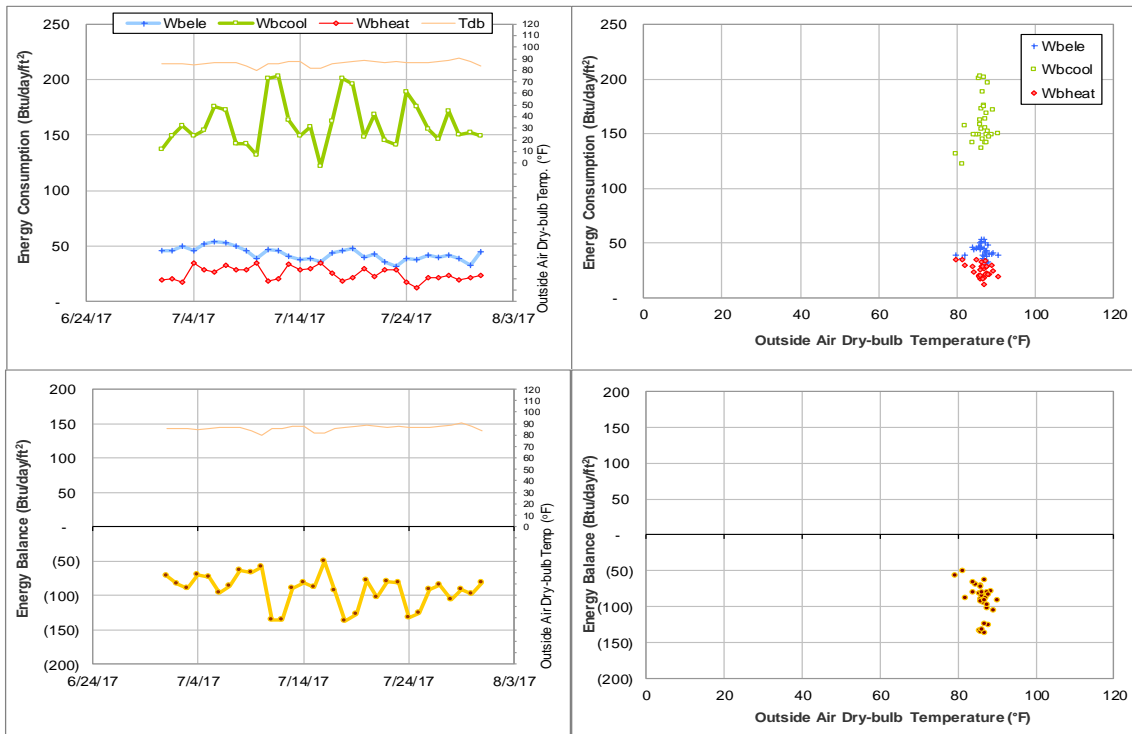


Figure IV-66 Rudder Theatre Complex TAMU BLDG # 446 Energy Balance Plot during July 2017

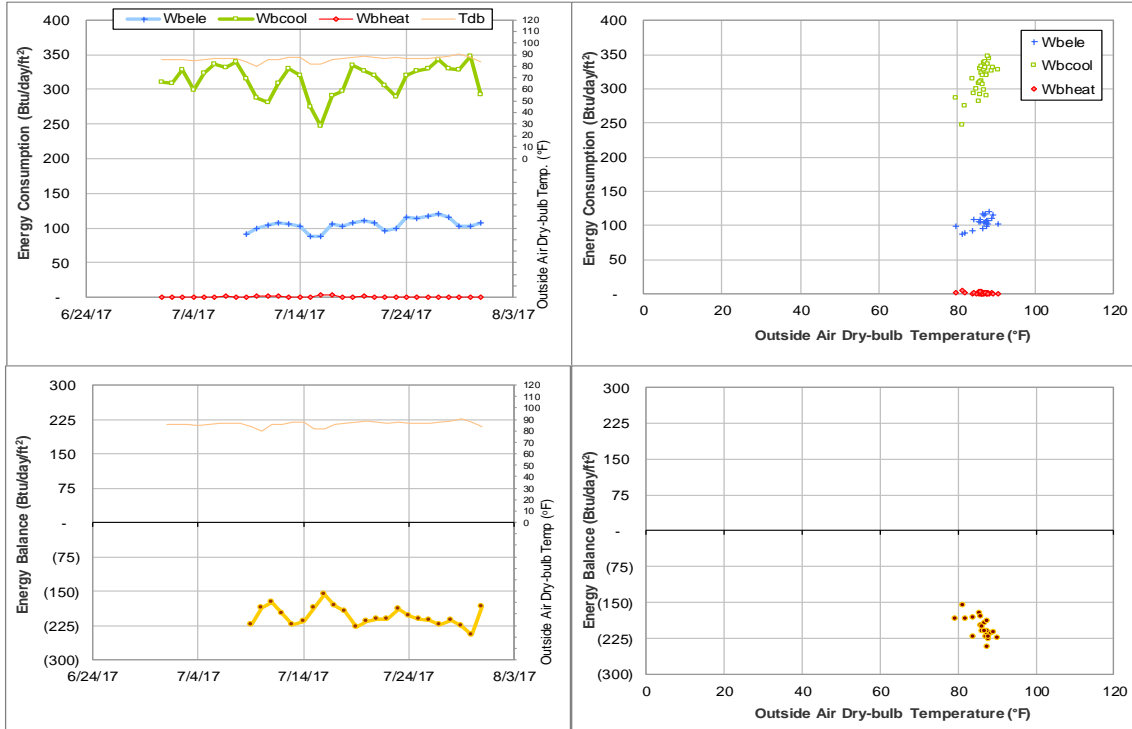


Figure IV-67 Rudder Tower TAMU BLDG # 446 Energy Balance Plot during July 2017

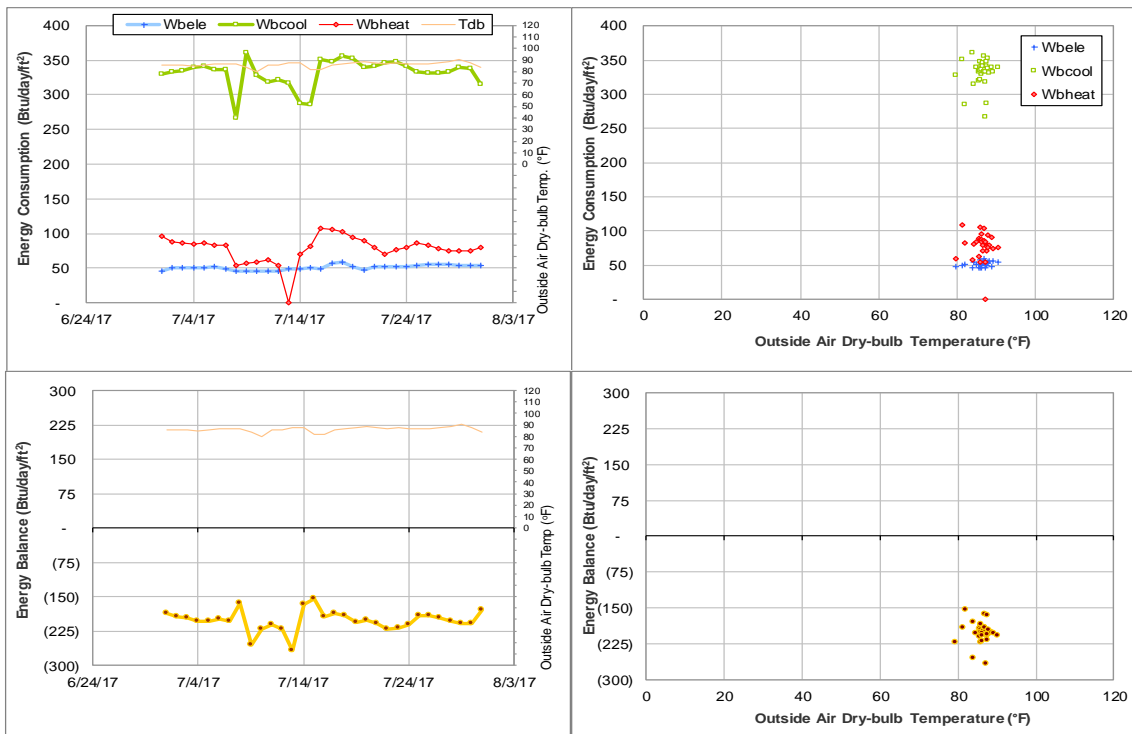


Figure IV-68 Aston Residence Hall TAMU BLDG # 447 Energy Balance Plot during July 2017

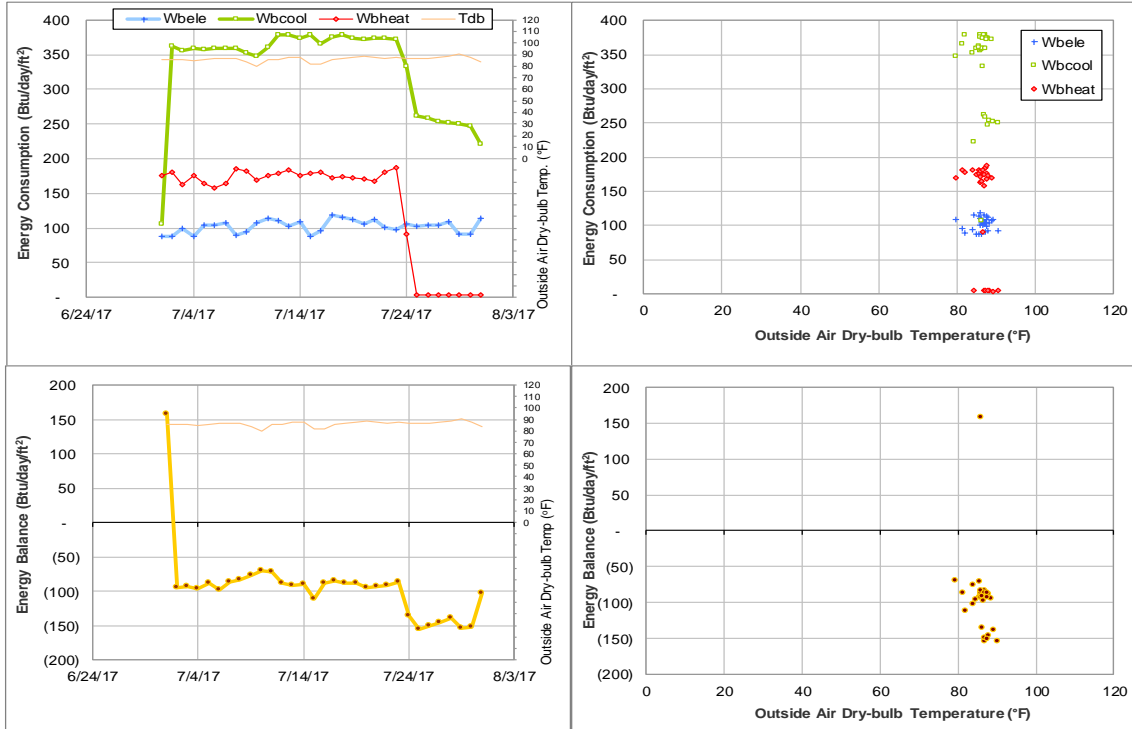


Figure IV-69 Adams Band Hall TAMU BLDG # 448 Energy Balance Plot during July 2017

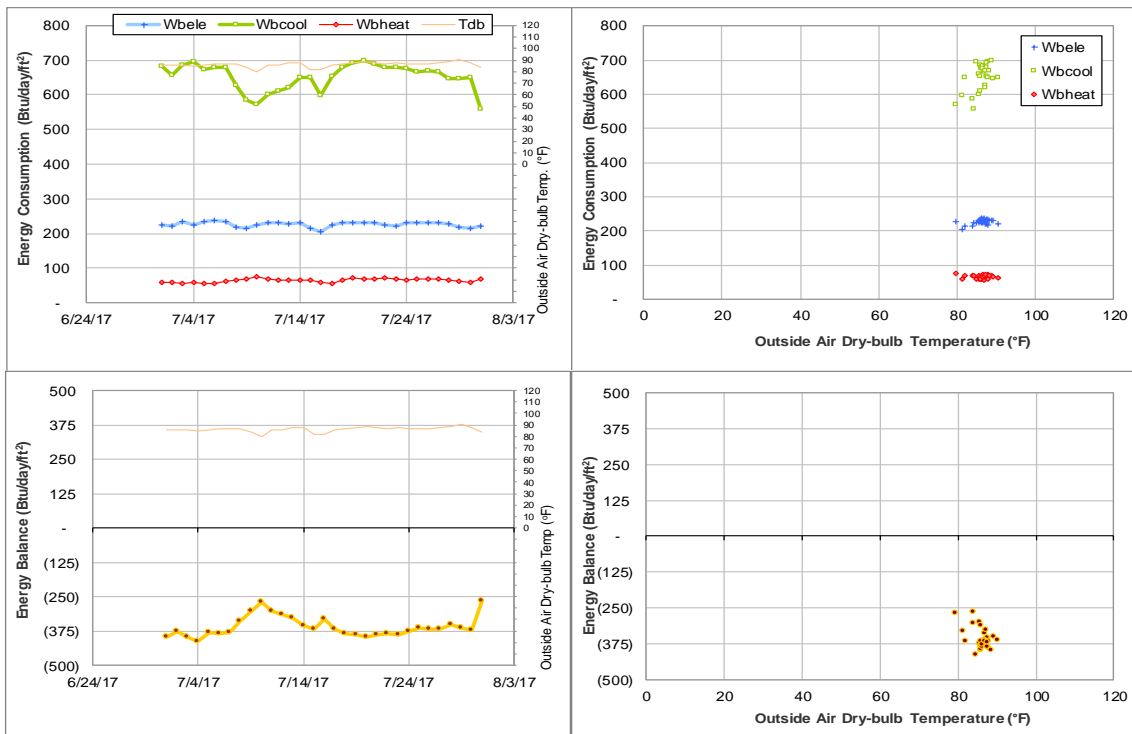


Figure IV-70 Biological Sciences Building - West TAMU BLDG # 449 Energy Balance Plot during July 2017

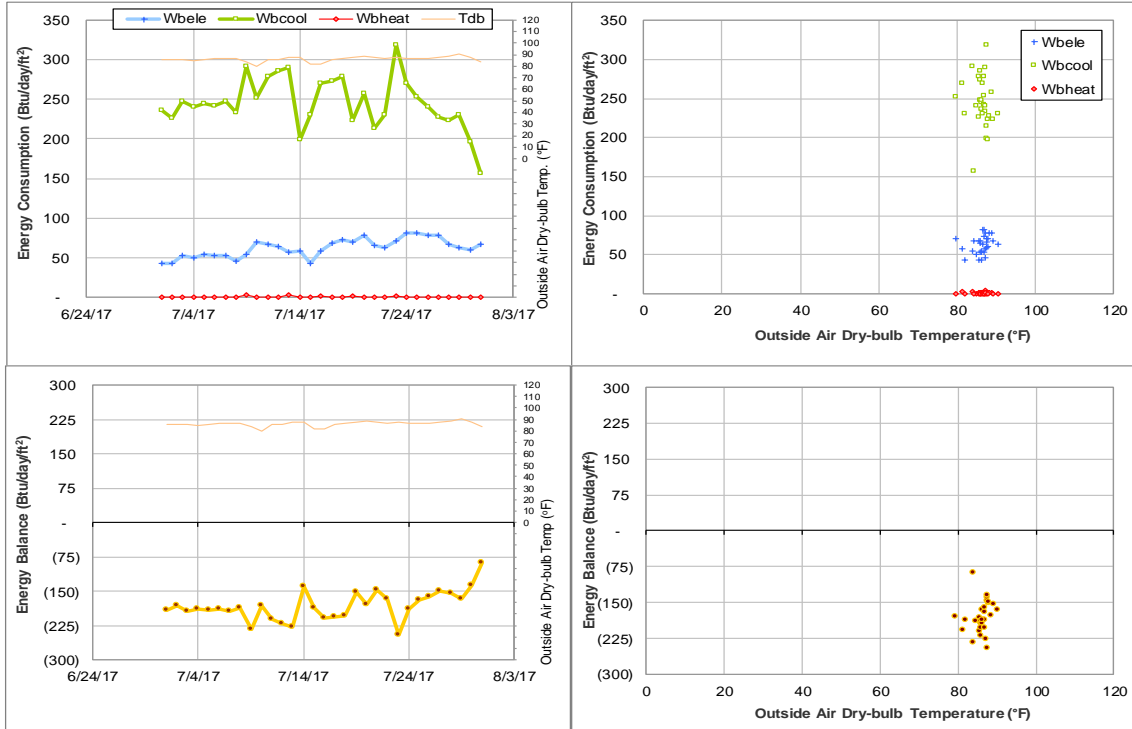


Figure IV-71 Duncan Dining Hall TAMU BLDG # 450 Energy Balance Plot during July 2017

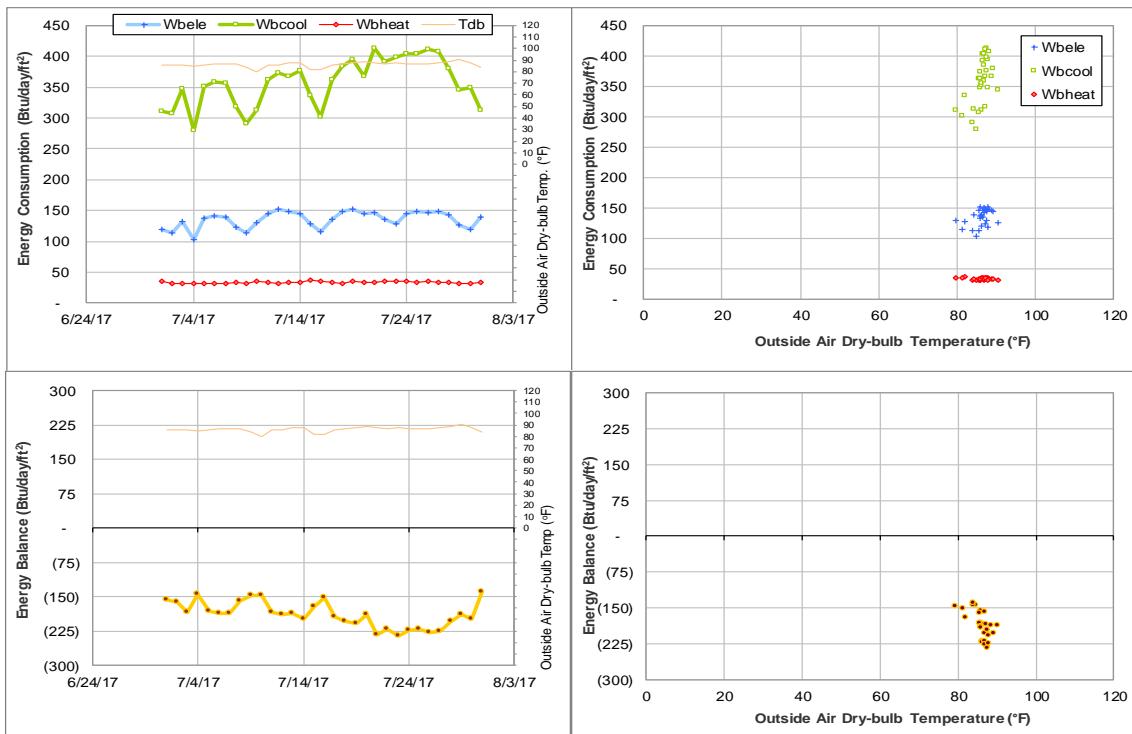


Figure IV-72 MSC TAMU BLDG # 454 Energy Balance Plot during July 2017

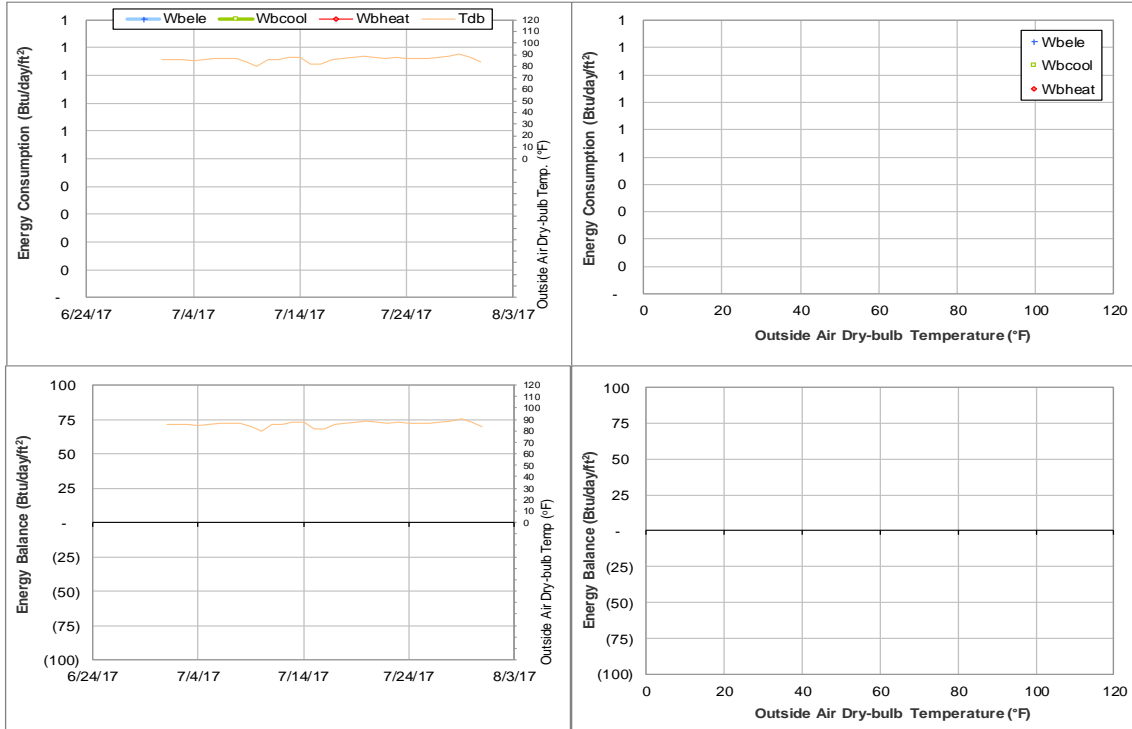


Figure IV-73 Military Sciences Building TAMU BLDG # 456 Energy Balance Plot during July 2017

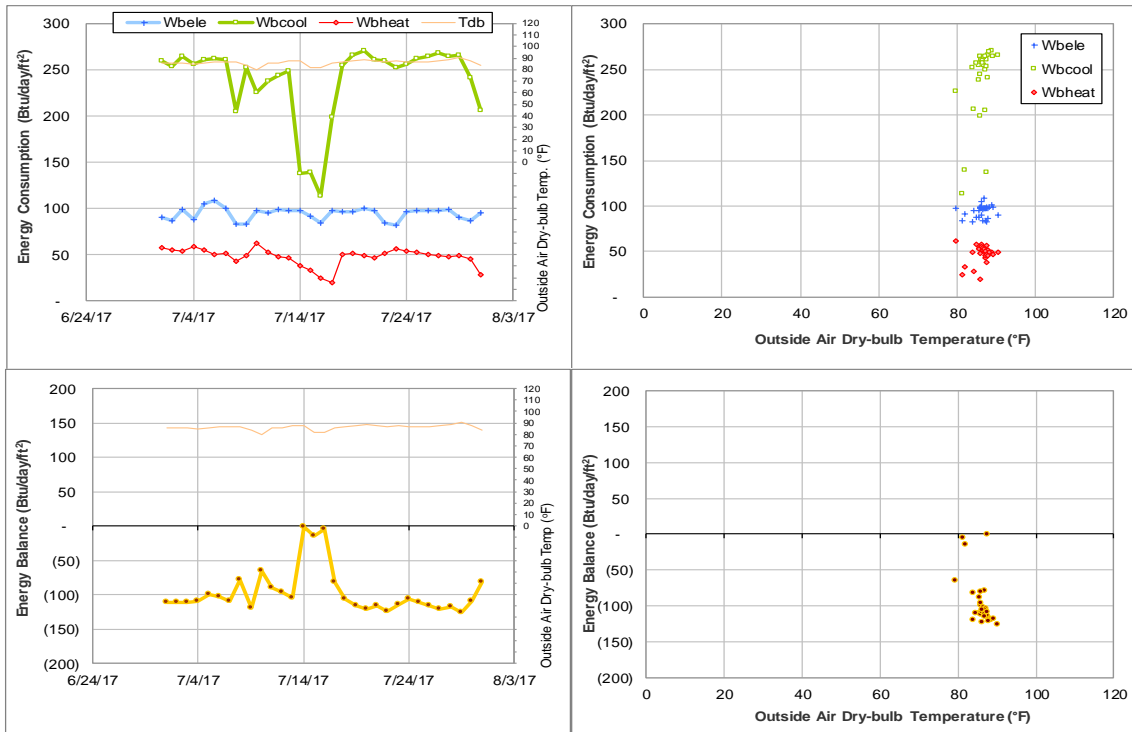


Figure IV-74 TAES Annex Building TAMU BLDG # 457 Energy Balance Plot during July 2017

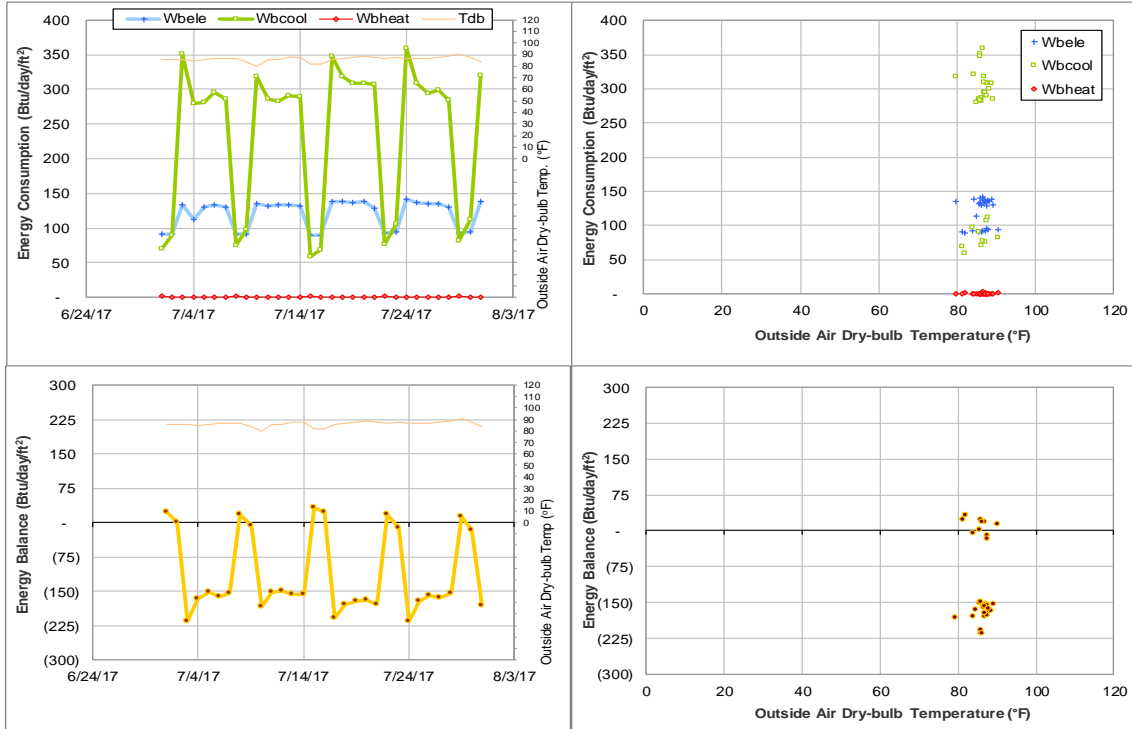


Figure IV-75 Coke Building TAMU BLDG # 461 Energy Balance Plot during July 2017

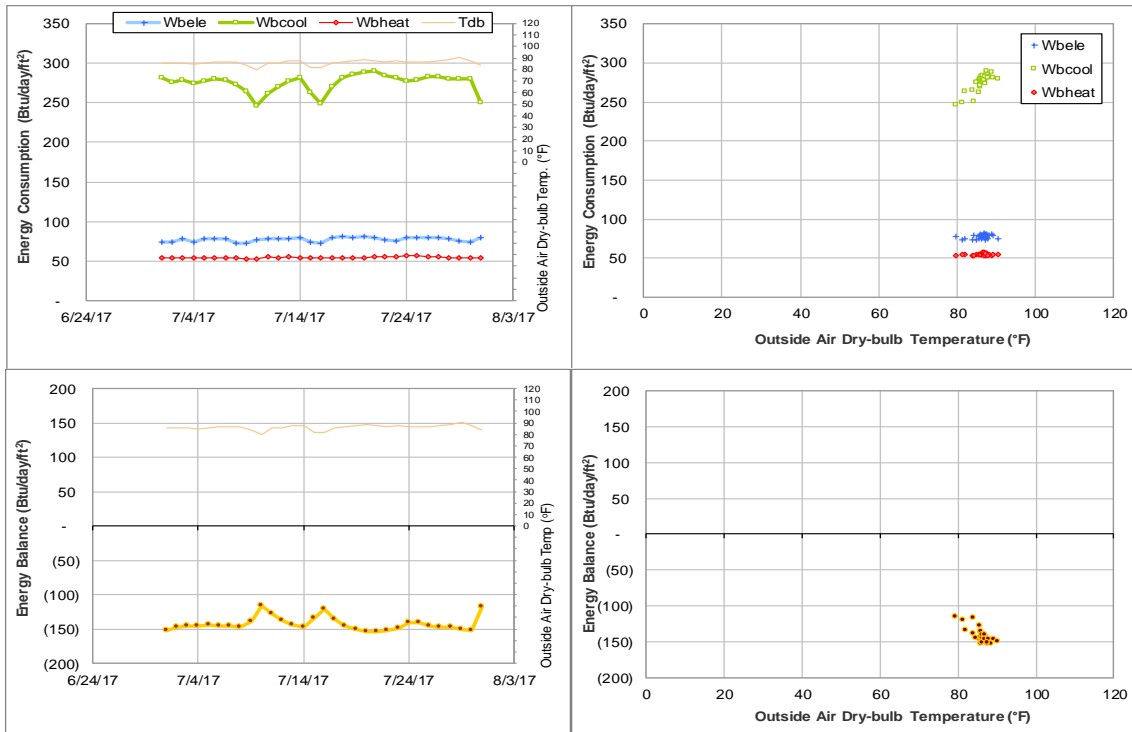


Figure IV-76 Academic Building TAMU BLDG # 462 Energy Balance Plot during July 2017

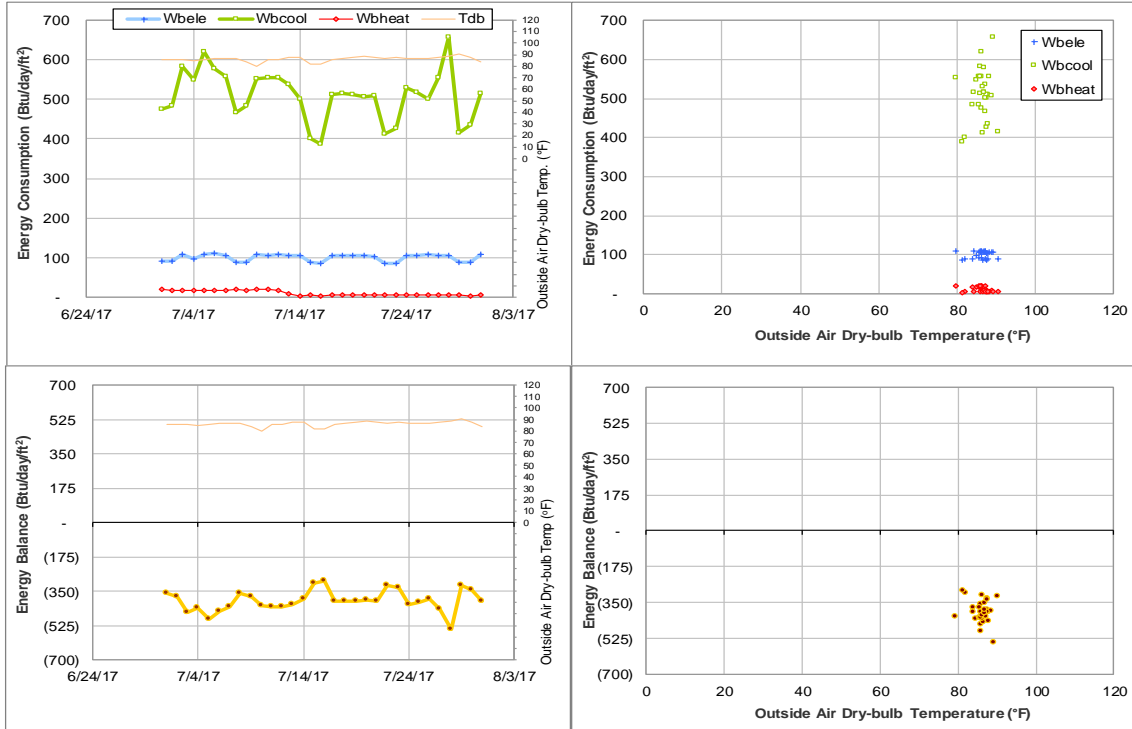


Figure IV-77 Psychology Building TAMU BLDG # 463 Energy Balance Plot during July 2017

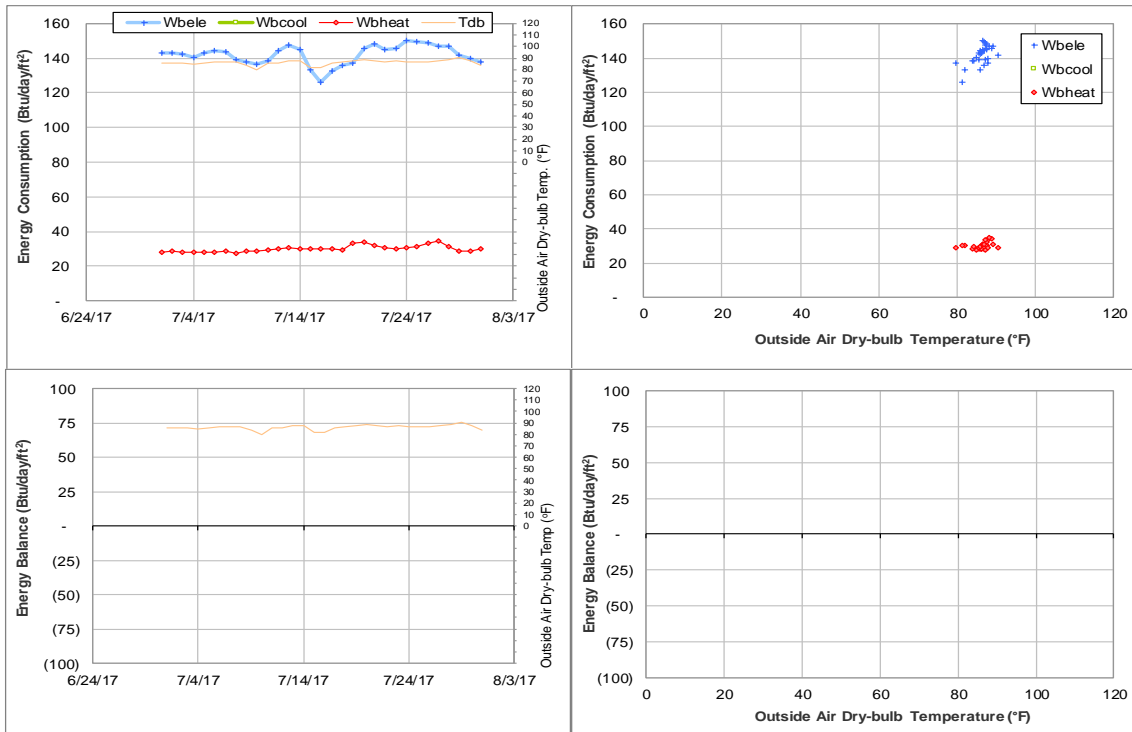


Figure IV-78 State Chemist Building TAMU BLDG # 464 Energy Balance Plot during July 2017

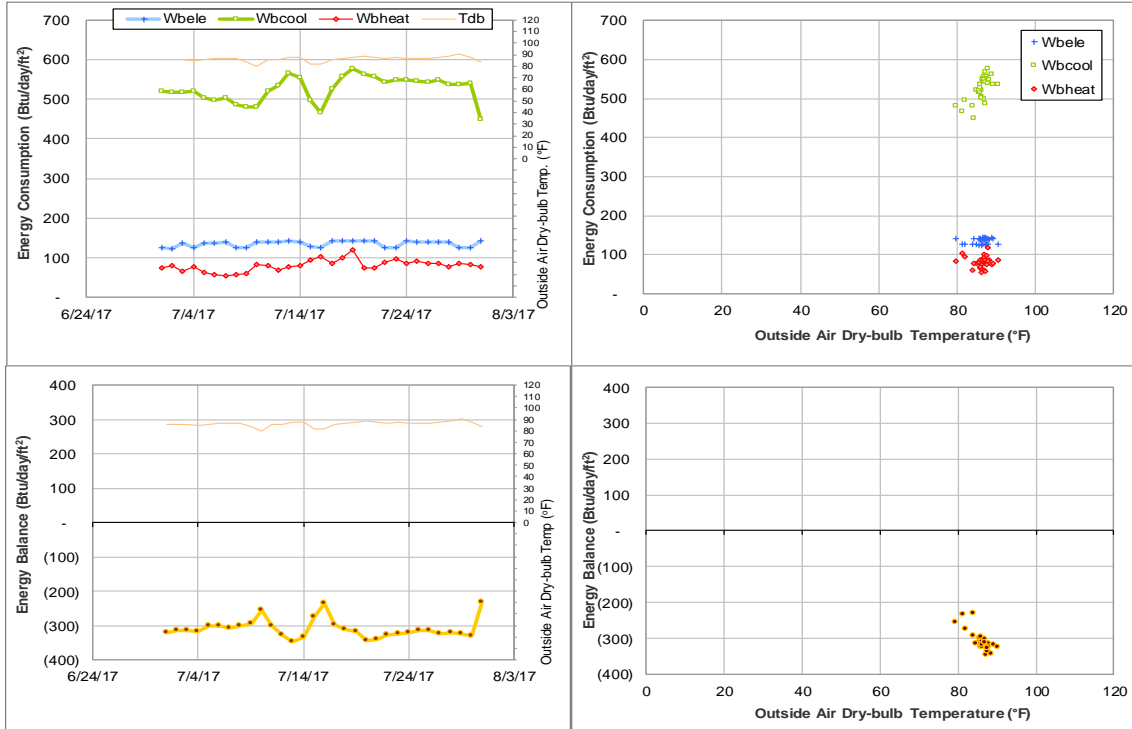


Figure IV-79 Butler Hall TAMU BLDG # 465 Energy Balance Plot during July 2017

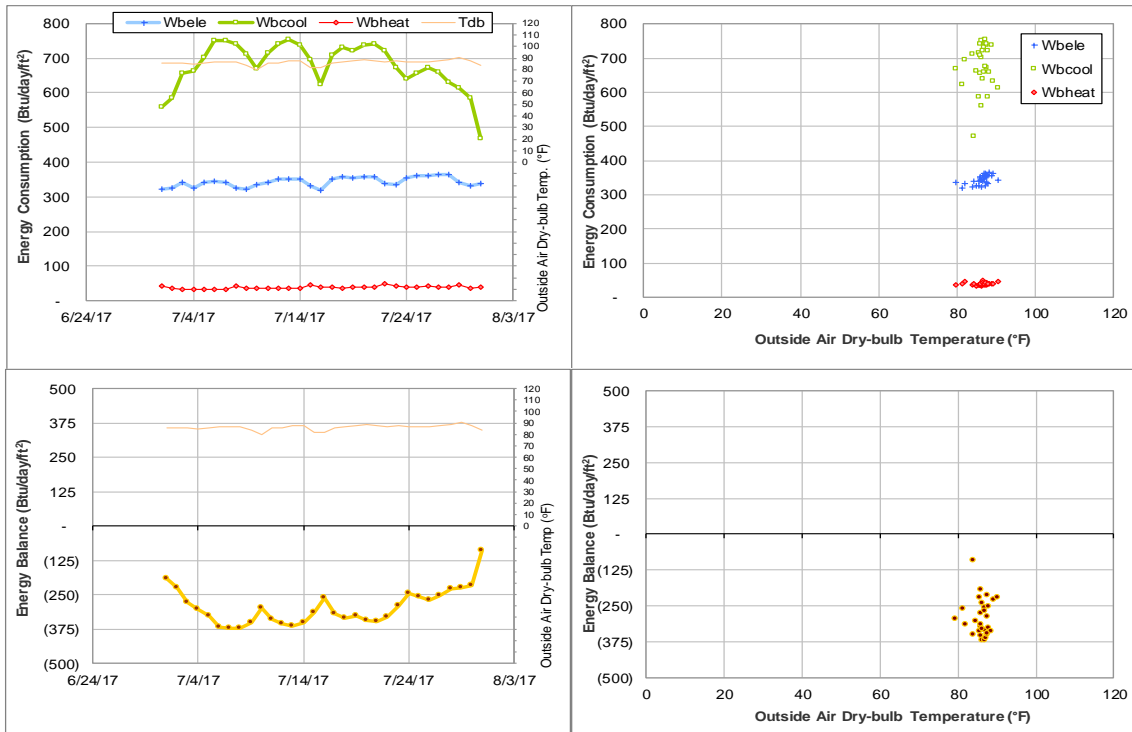


Figure IV-80 Biological Sciences Building - East TAMU BLDG # 467 Energy Balance Plot during July 2017

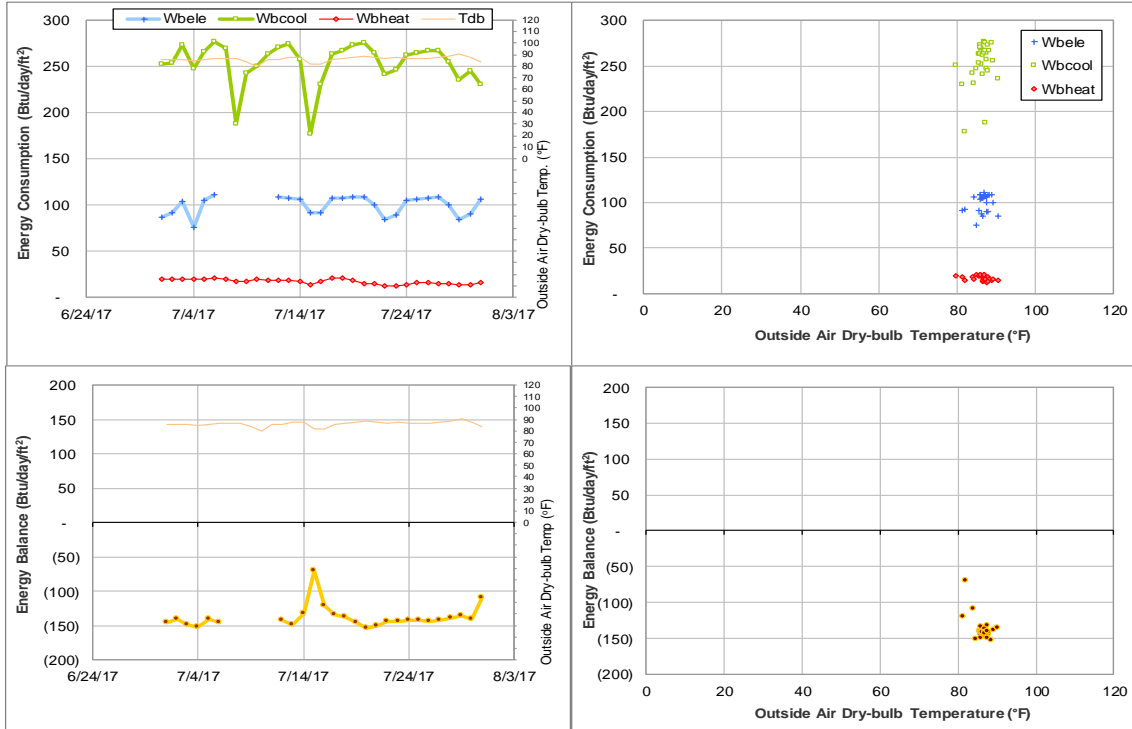


Figure IV-81 Evans Library TAMU BLDG # 468 Energy Balance Plot during July 2017

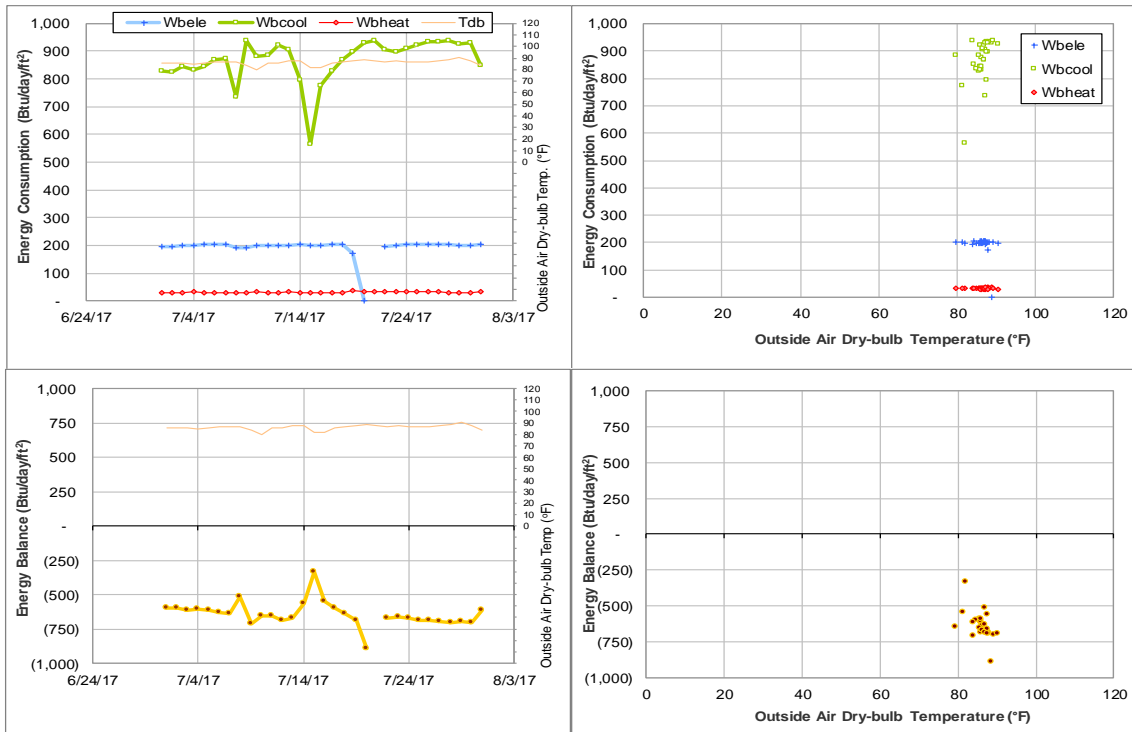


Figure IV-82 Central Campus Parking Garage TAMU BLDG # 469 Energy Balance Plot during July 2017

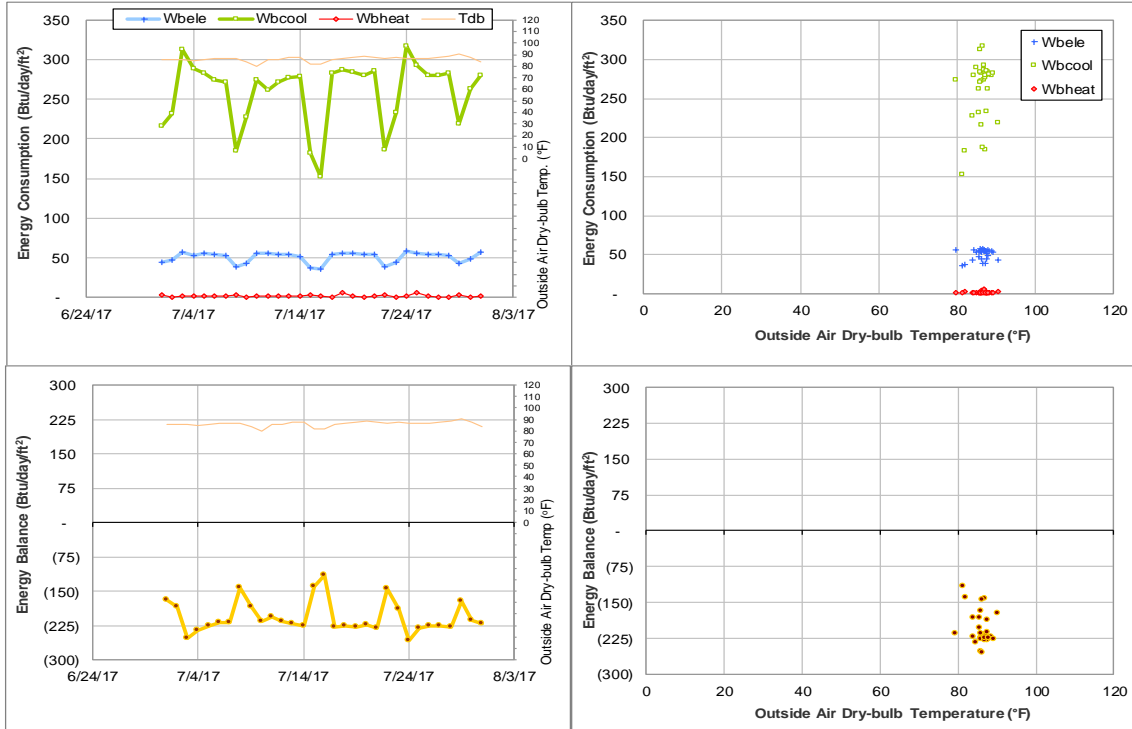


Figure IV-83 Glasscock History Bldg TAMU BLDG # 470 Energy Balance Plot during July 2017

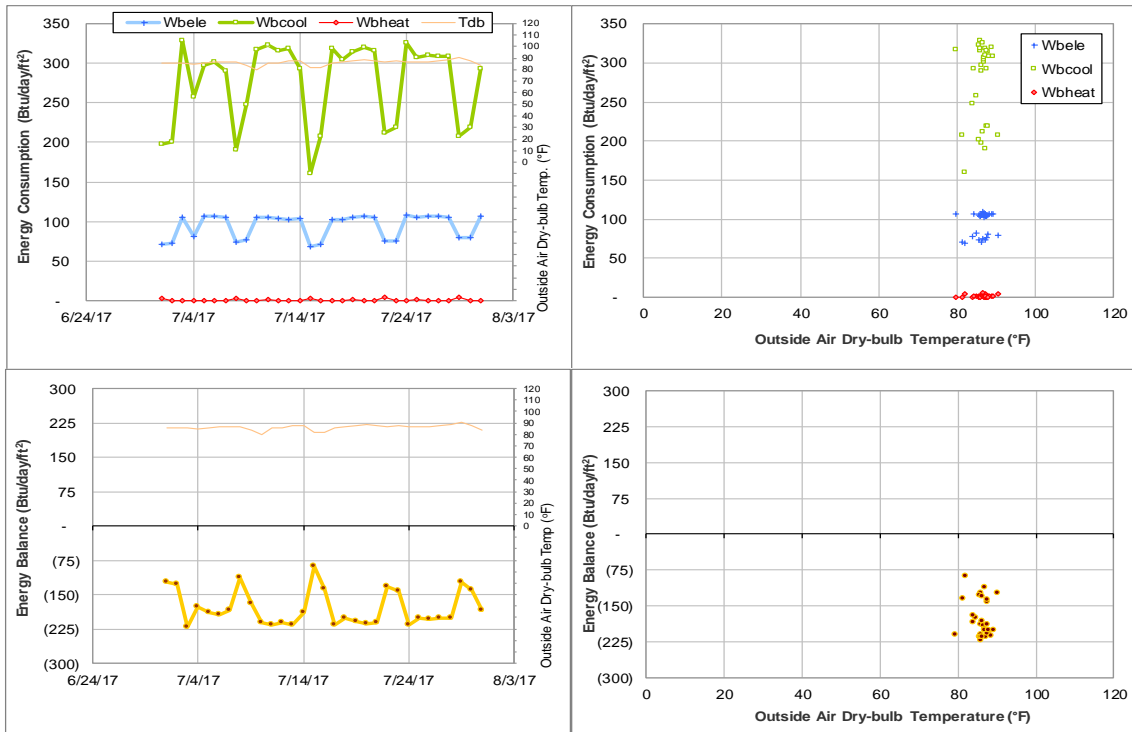


Figure IV-84 Pavilion TAMU BLDG # 471 Energy Balance Plot during July 2017

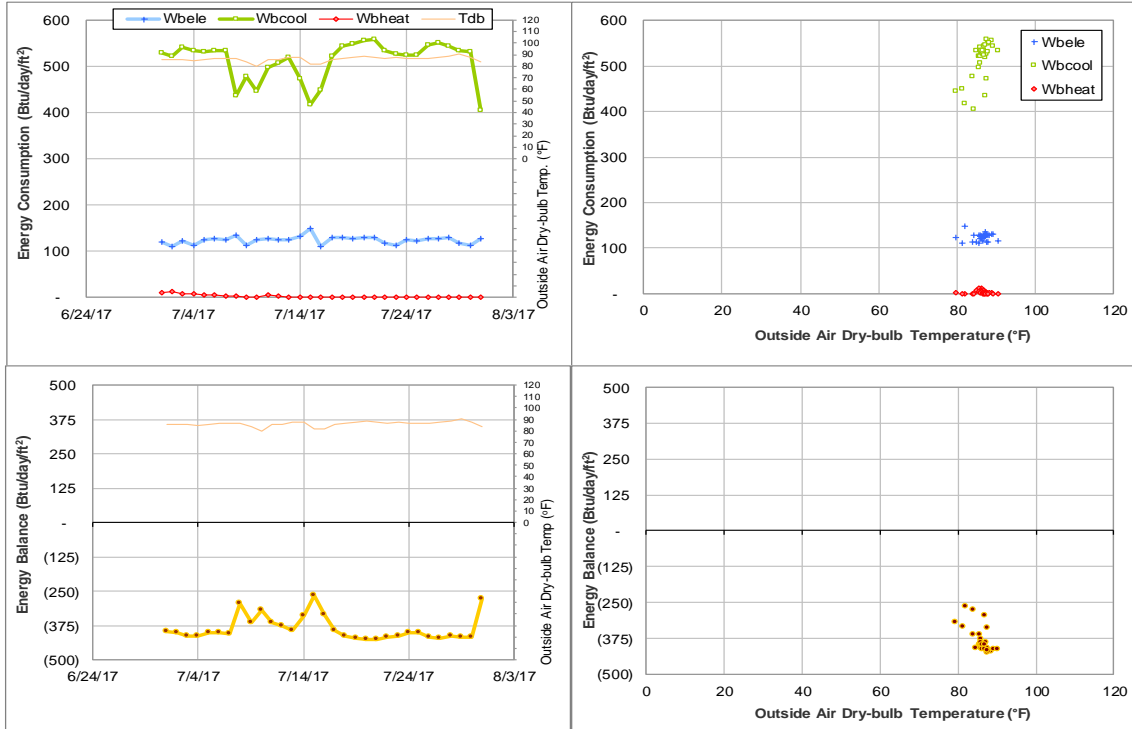


Figure IV-85 Animal Industries TAMU BLDG # 472 Energy Balance Plot during July 2017

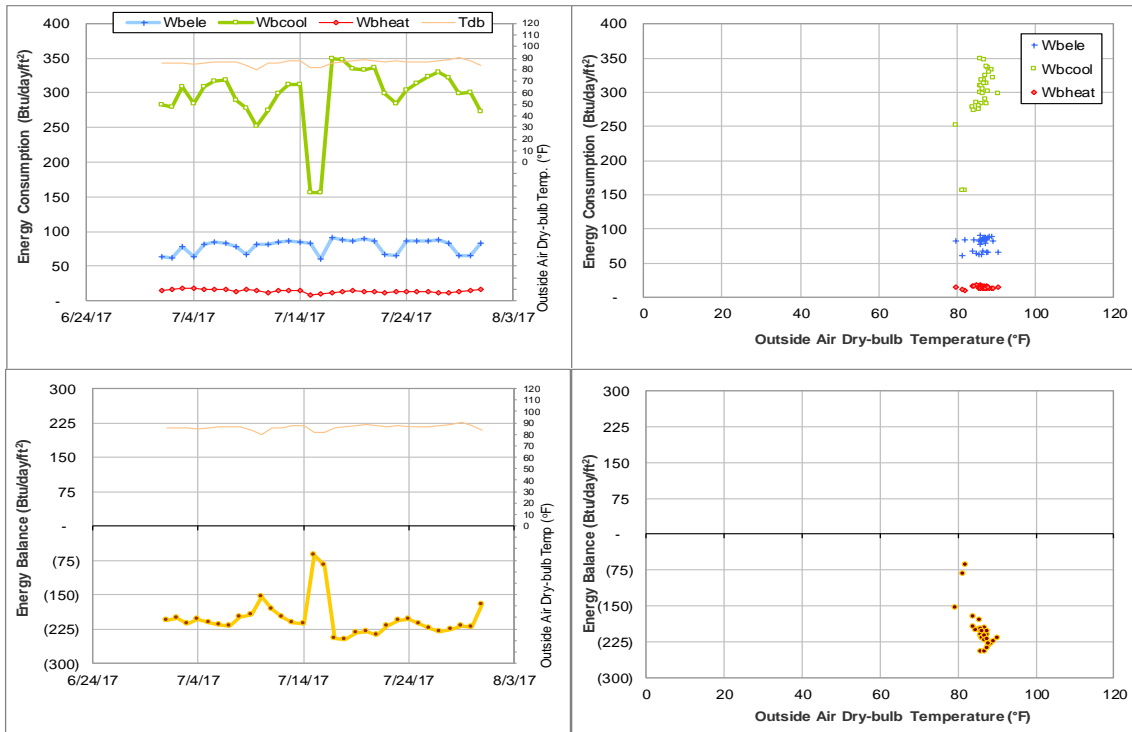


Figure IV-86 Williams Administration Building TAMU BLDG # 473 Energy Balance Plot during July 2017

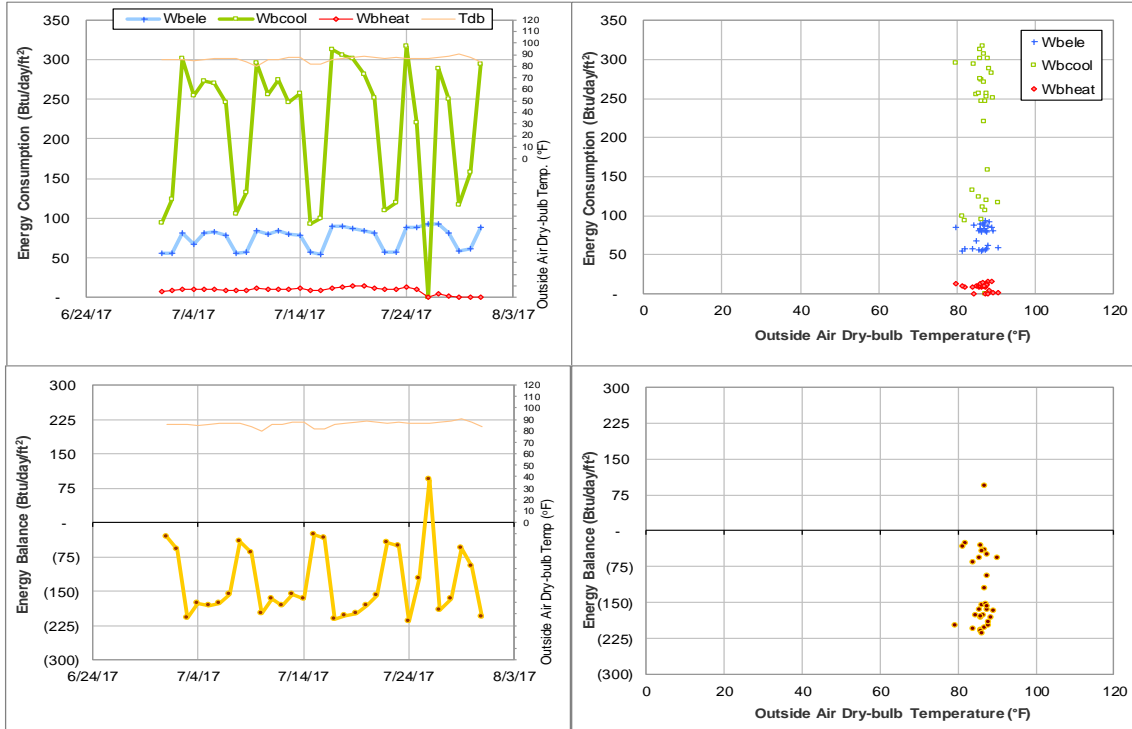


Figure IV-87 YMCA Building TAMU BLDG # 474 Energy Balance Plot during July 2017

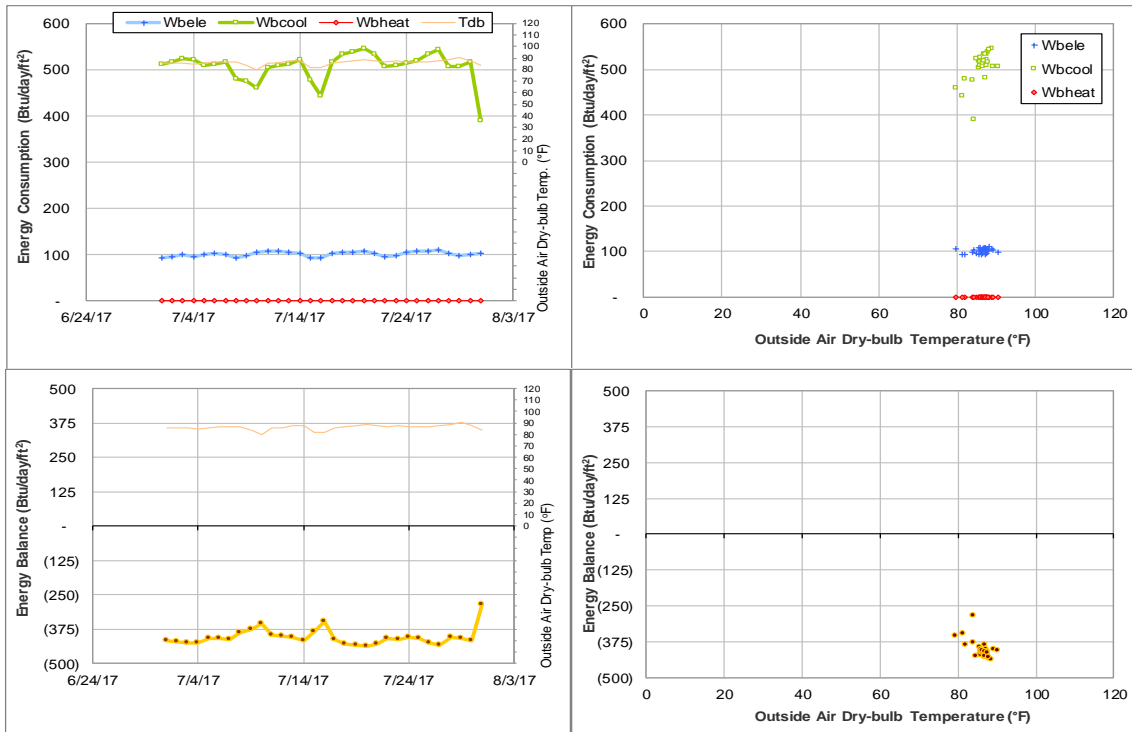


Figure IV-88 Francis Hall TAMU BLDG # 476 Energy Balance Plot during July 2017

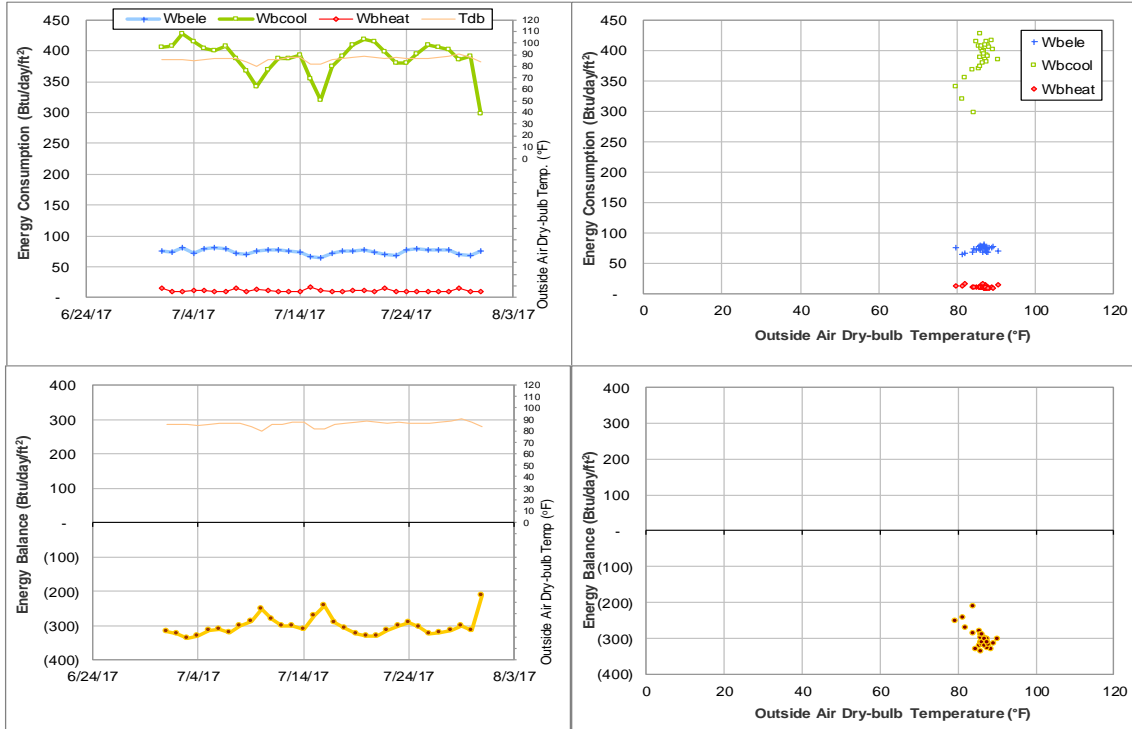


Figure IV-89 Anthropology Building TAMU BLDG # 477 Energy Balance Plot during July 2017

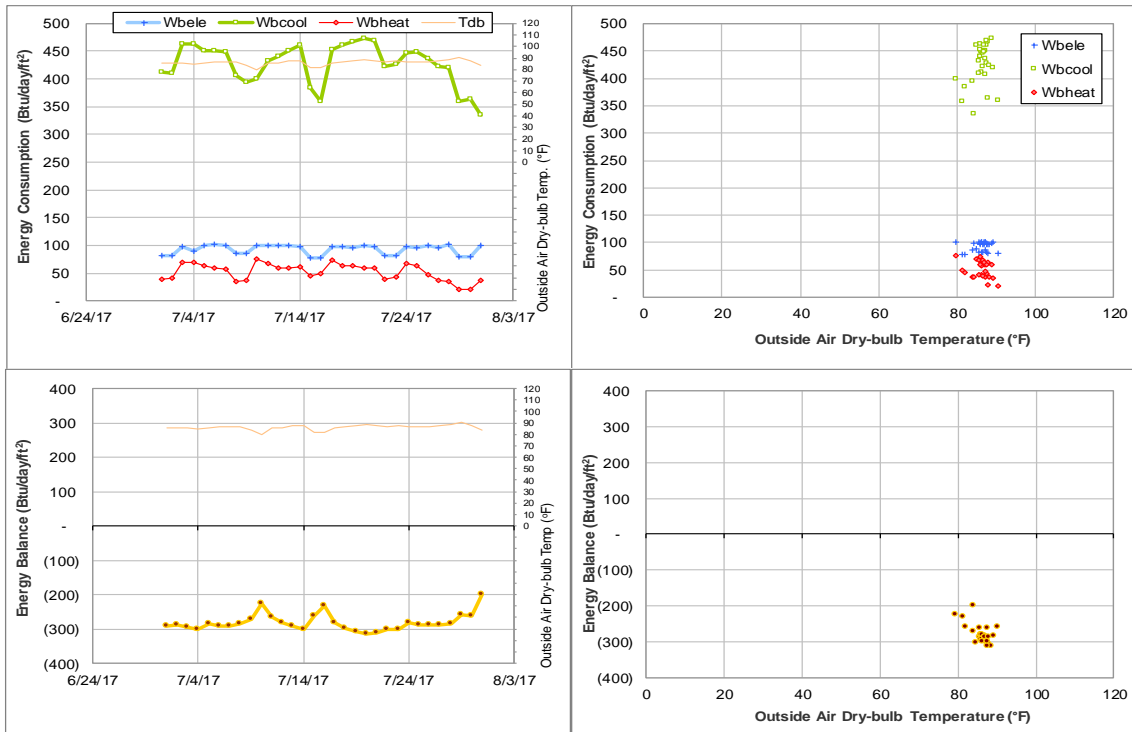


Figure IV-90 Scoates Hall TAMU BLDG # 478 Energy Balance Plot during July 2017

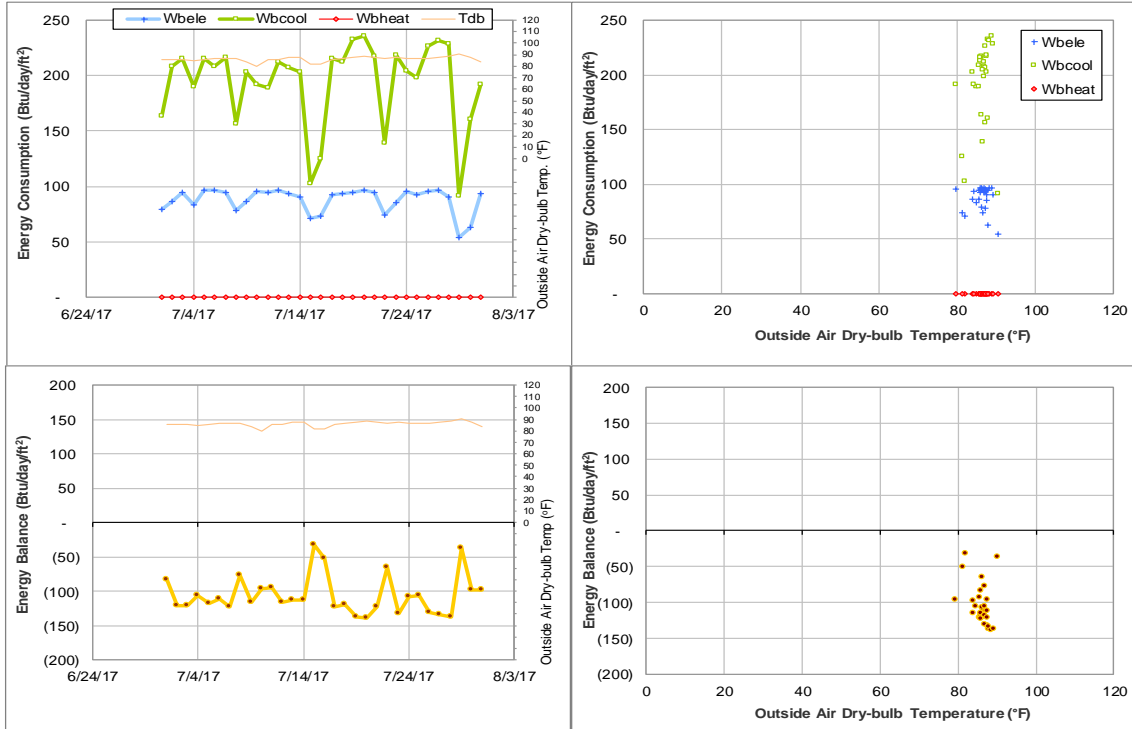


Figure IV-91 Bolton Hall TAMU BLDG # 480 Energy Balance Plot during July 2017

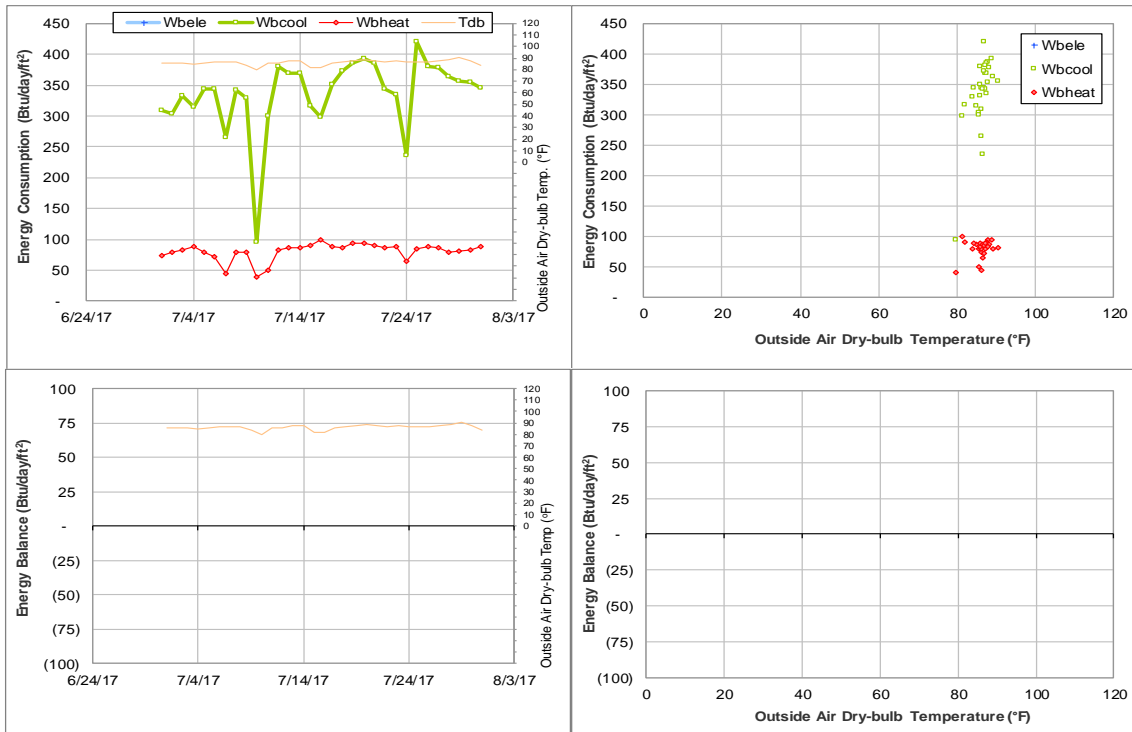


Figure IV-92 Heaton Hall TAMU BLDG # 481 Energy Balance Plot during July 2017

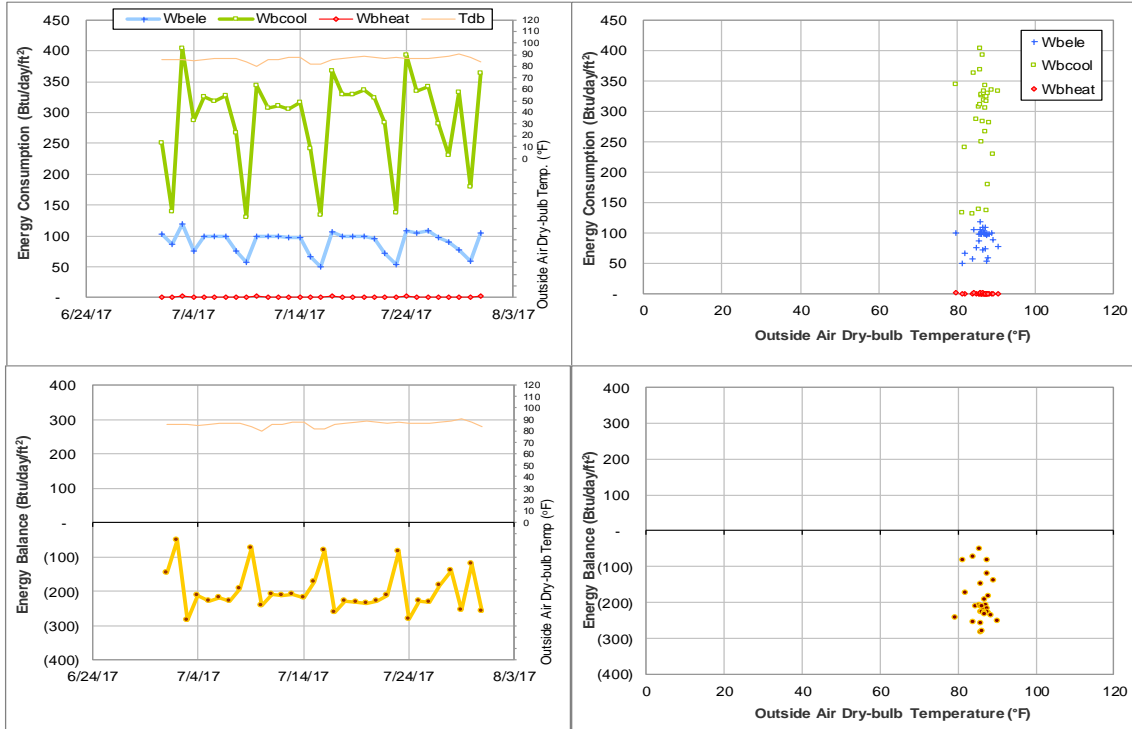


Figure IV-93 Fermier Hall TAMU BLDG # 482 Energy Balance Plot during July 2017

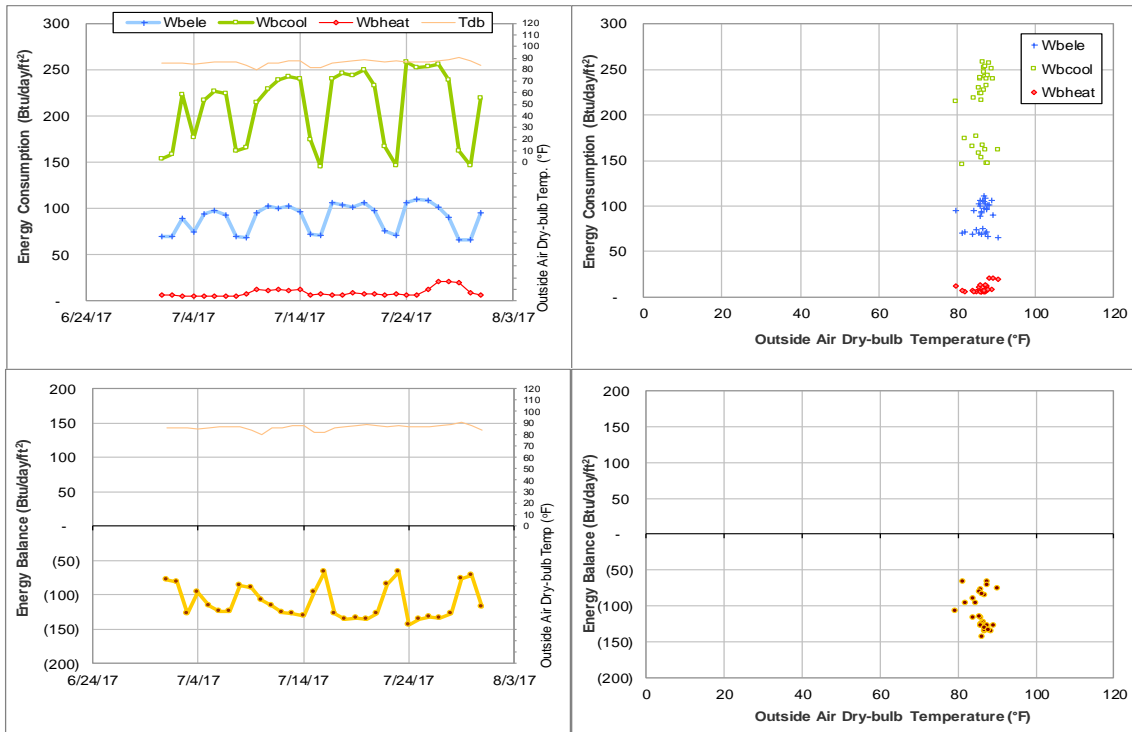


Figure IV-94 Thompson Hall TAMU BLDG # 483 Energy Balance Plot during July 2017

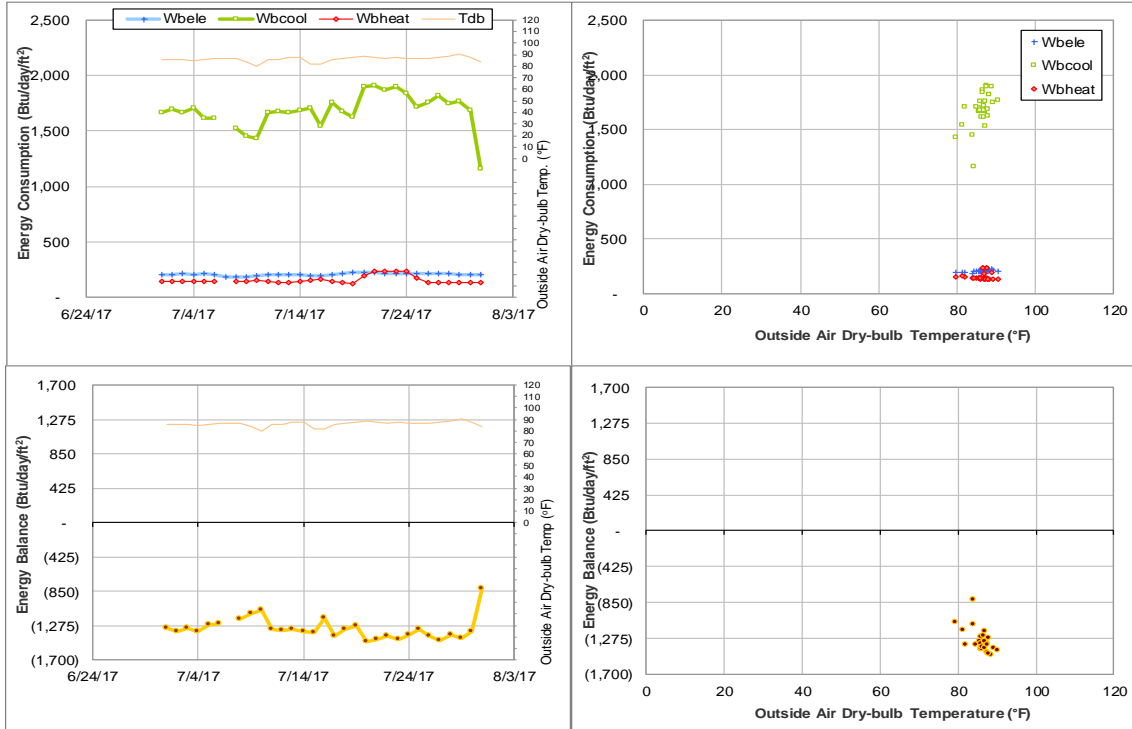


Figure IV-95 Chemistry Building TAMU BLDG # 484 Energy Balance Plot during July 2017

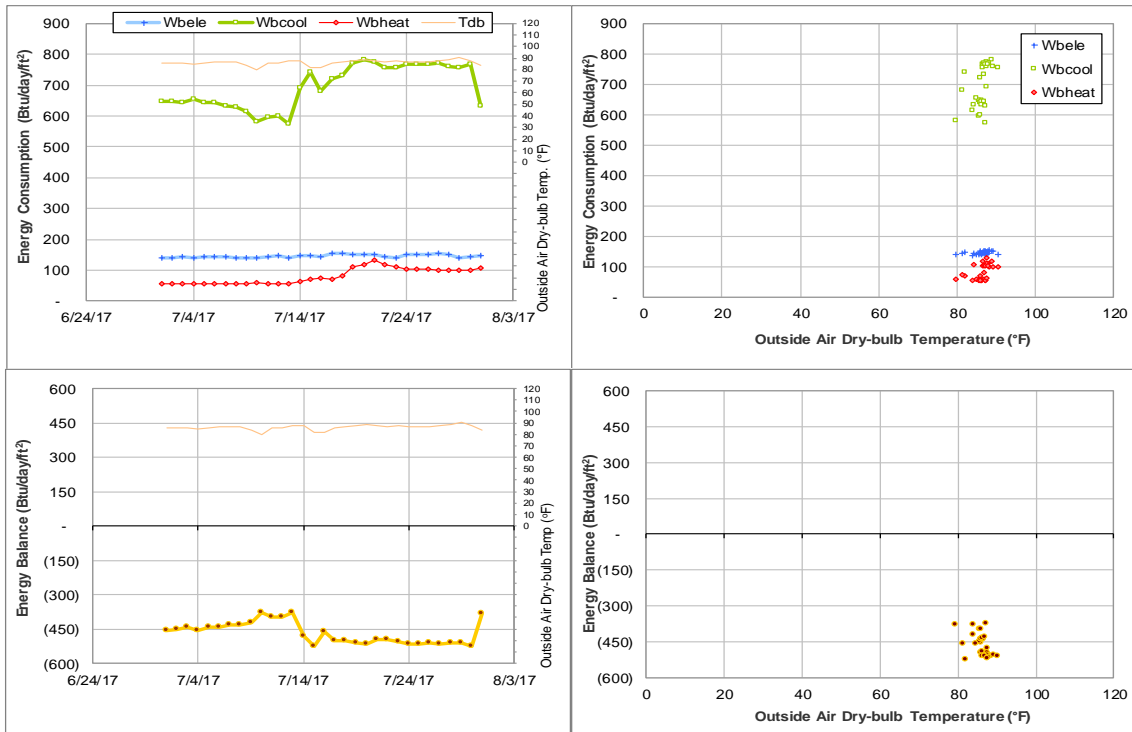


Figure IV-96 Halbouty Geosciences Building TAMU BLDG # 490 Energy Balance Plot during July 2017

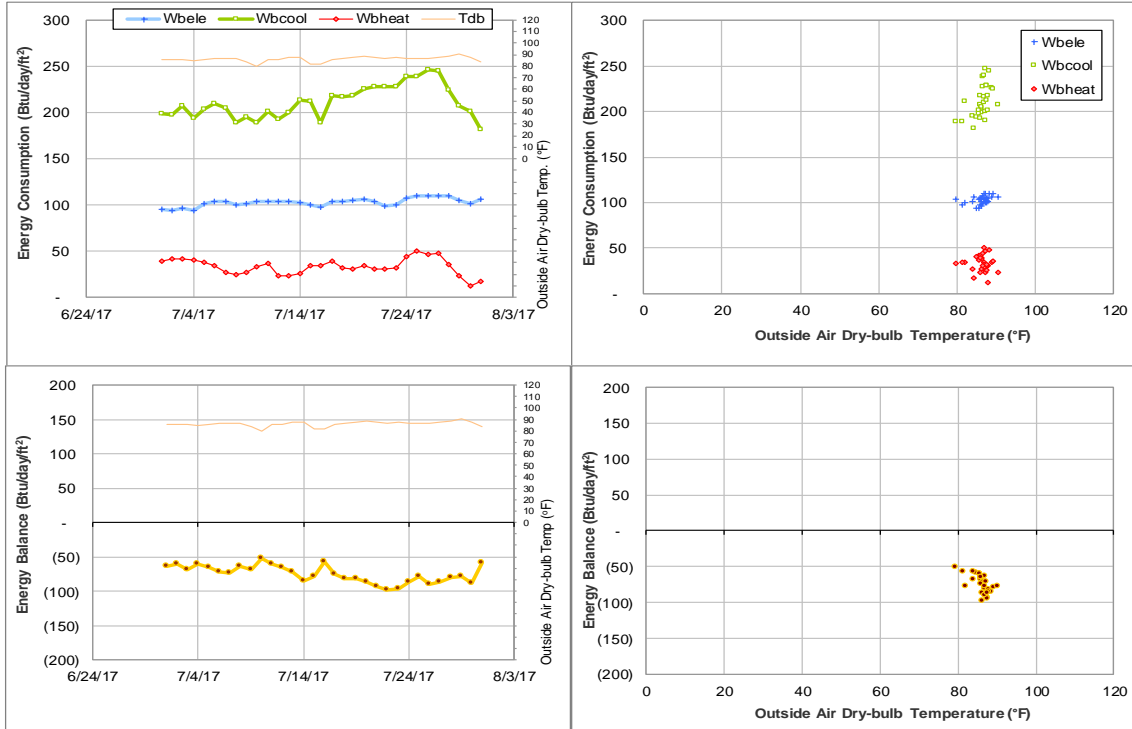


Figure IV-97 Civil Engineering Building TAMU BLDG # 492 Energy Balance Plot during July 2017

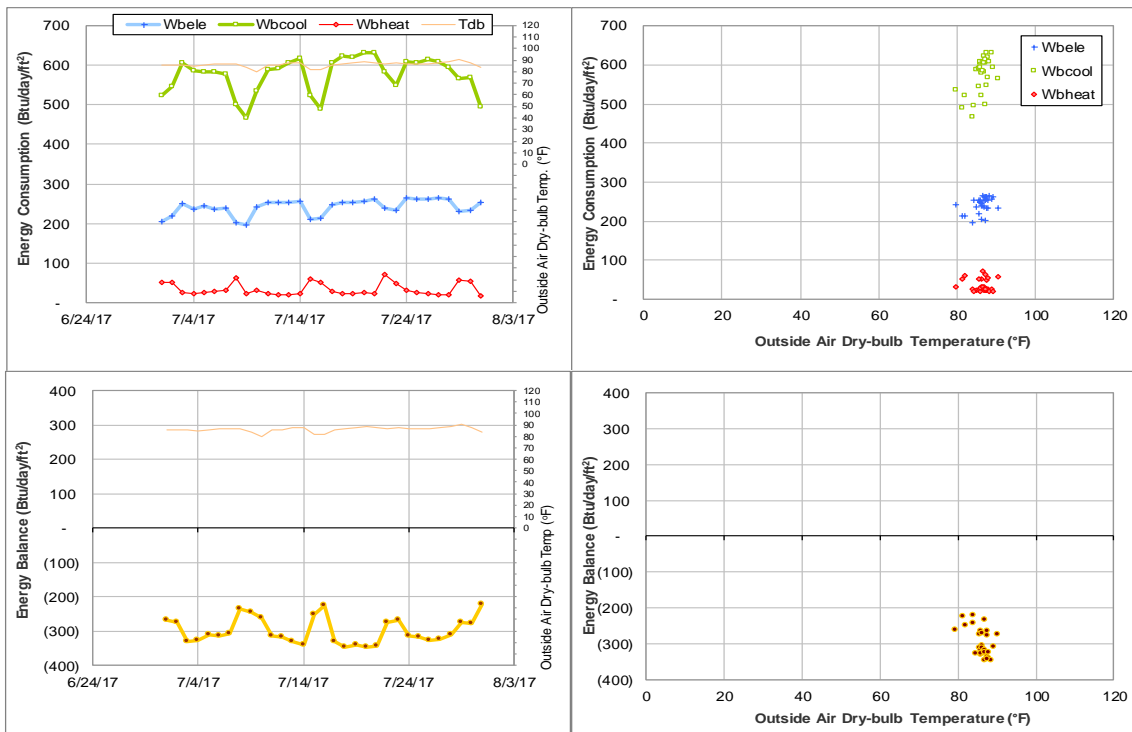


Figure IV-98 Sbisa Dining Hall TAMU BLDG # 495 Energy Balance Plot during July 2017

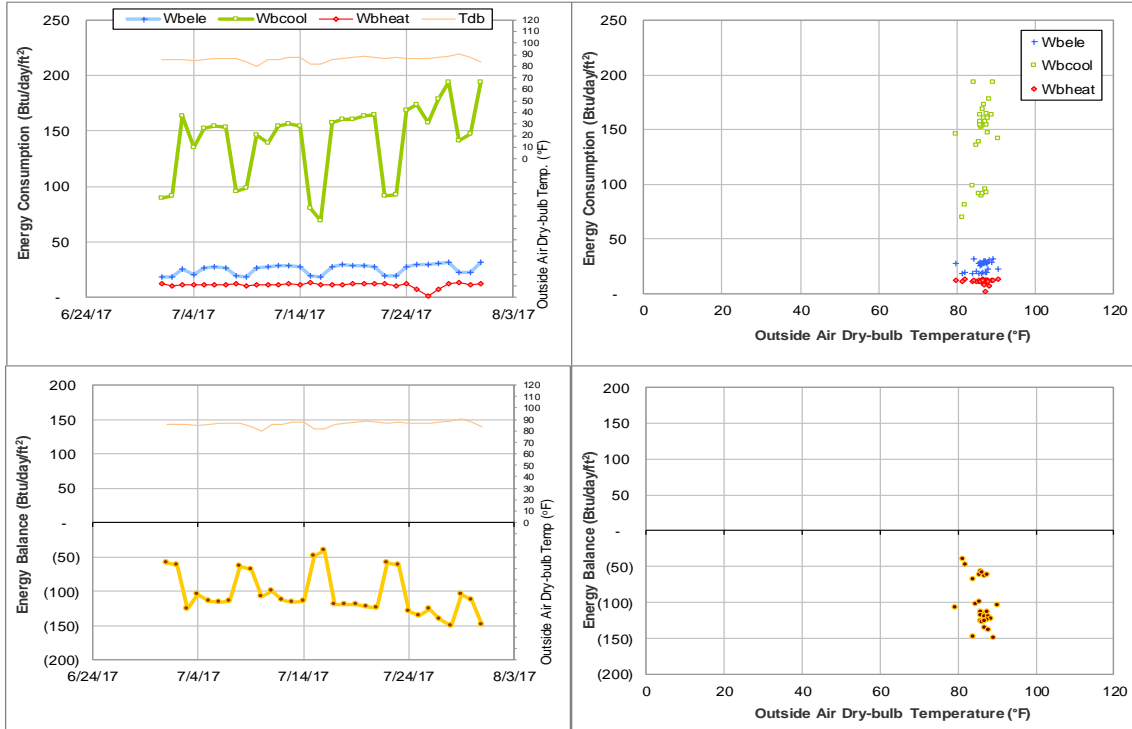


Figure IV-99 Utilities & Energy Services Central Office TAMU BLDG # 496 Energy Balance Plot during July 2017

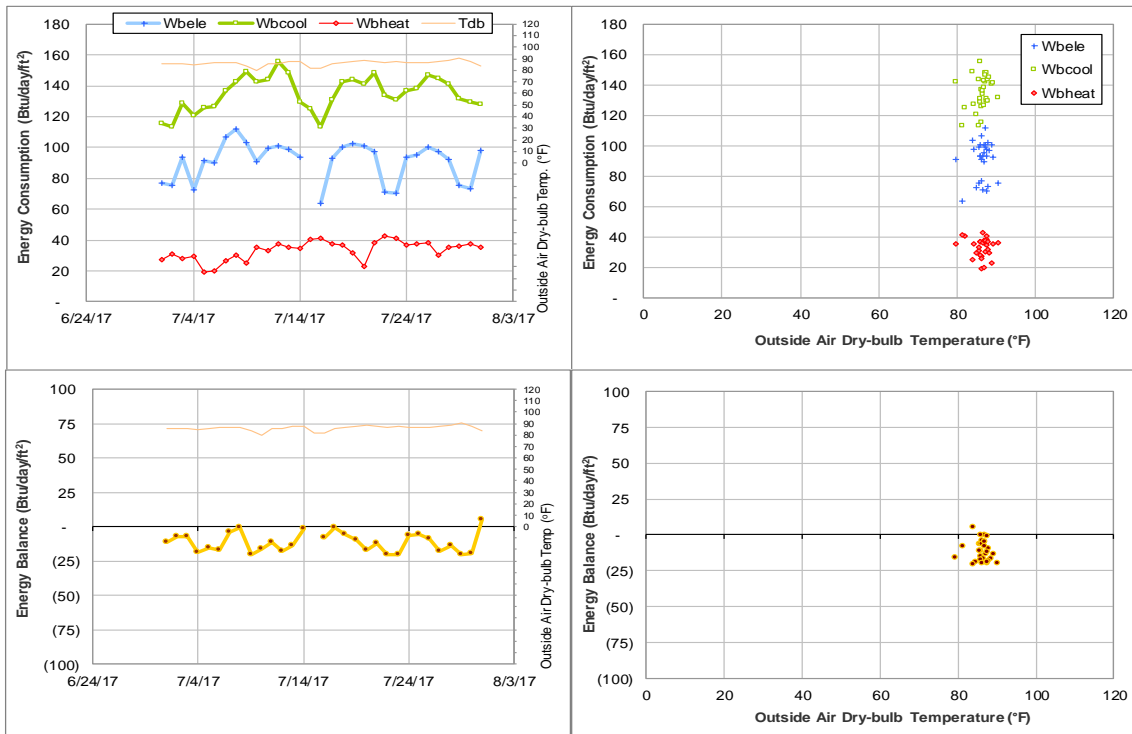


Figure IV-100 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during July 2017

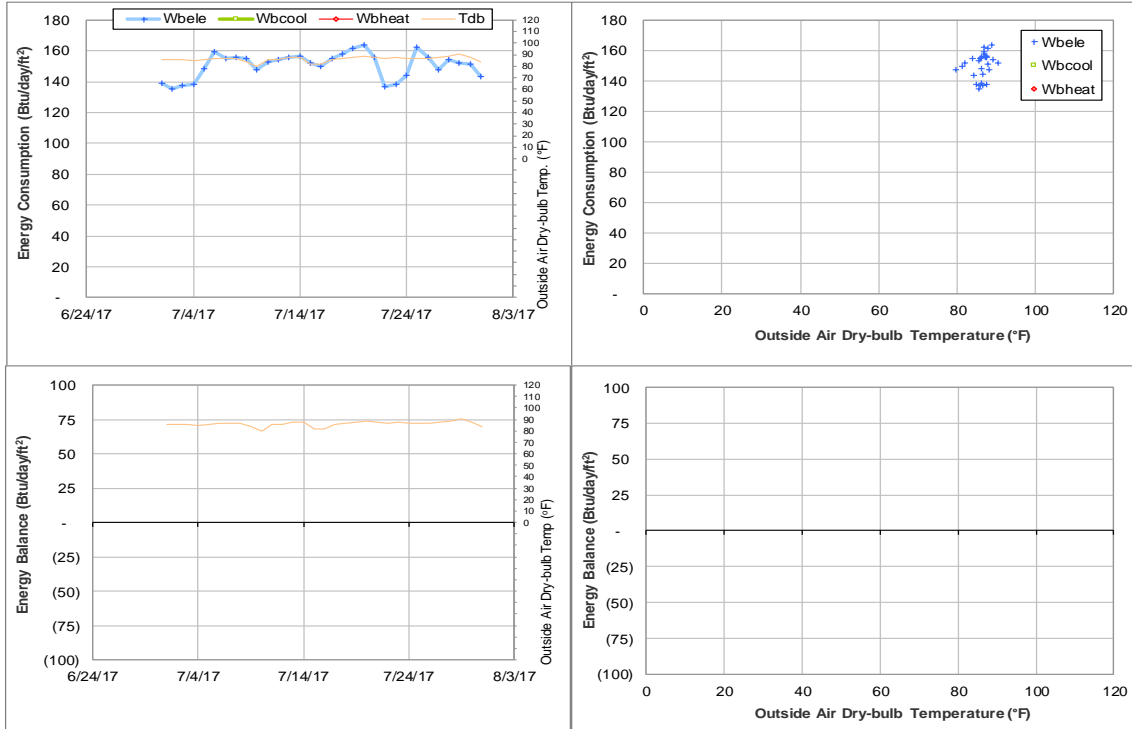


Figure IV-101 Concrete Materials Laboratory TAMU BLDG # 501 Energy Balance Plot during July 2017

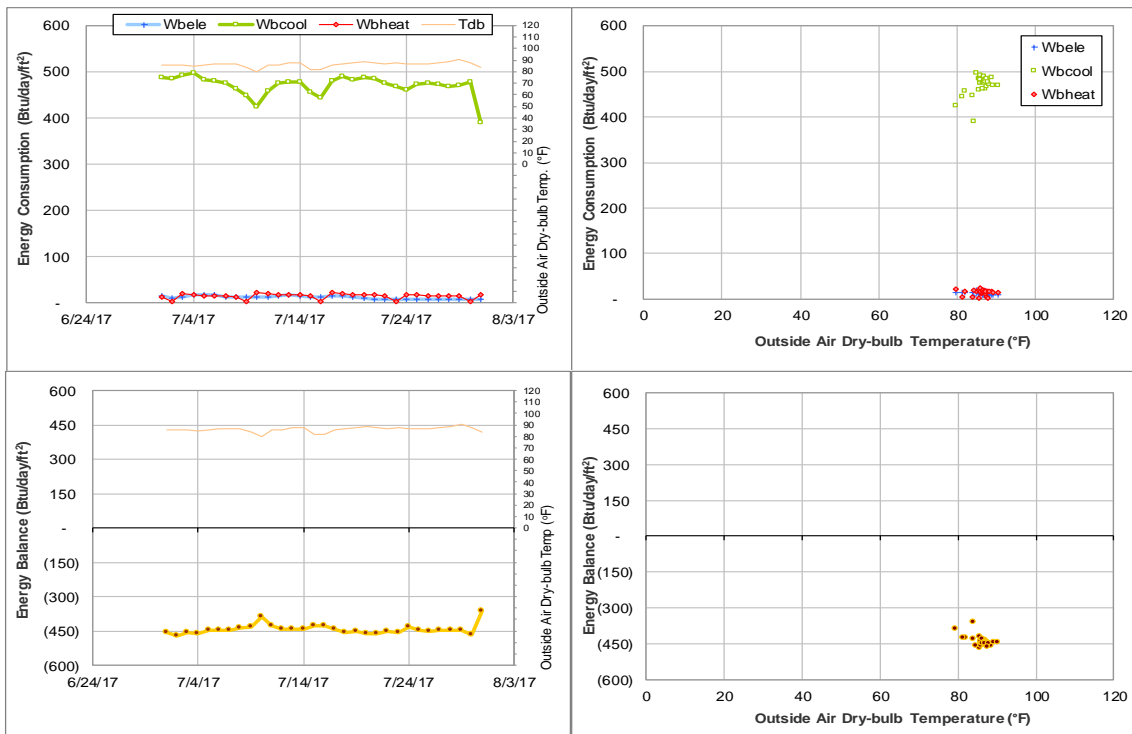


Figure IV-102 Nagle Hall TAMU BLDG # 506 Energy Balance Plot during July 2017

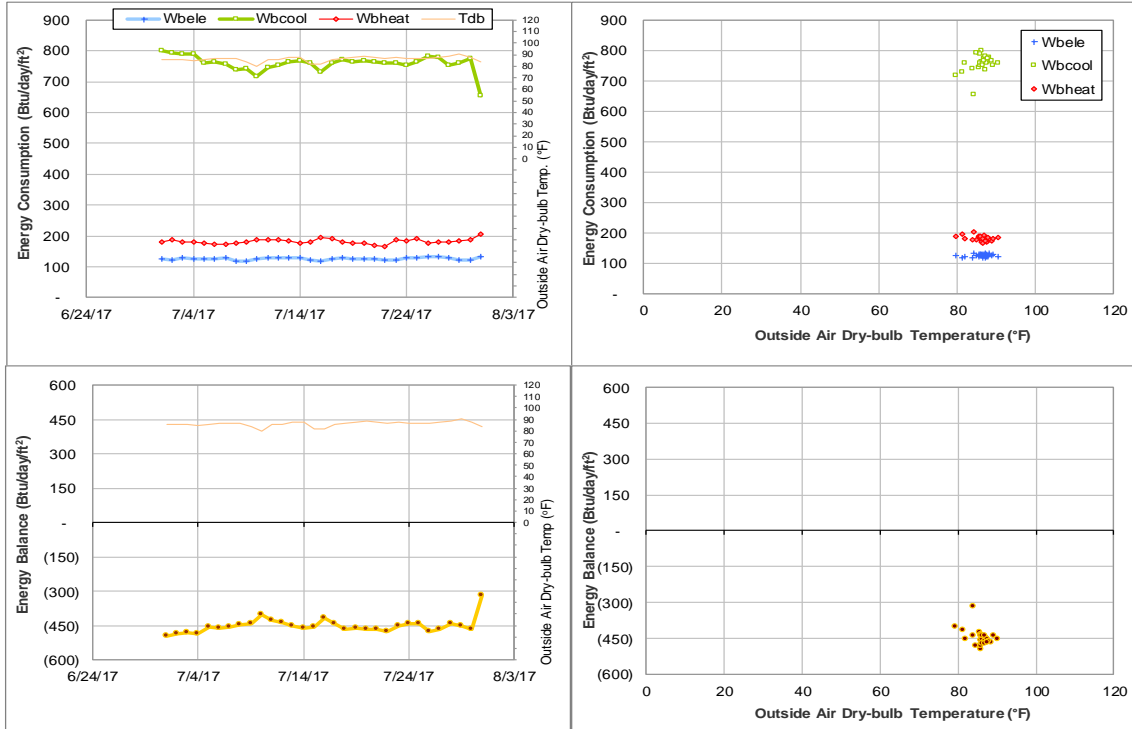


Figure IV-103 Veterinary Medical Science Building TAMU BLDG # 507 Energy Balance Plot during July 2017

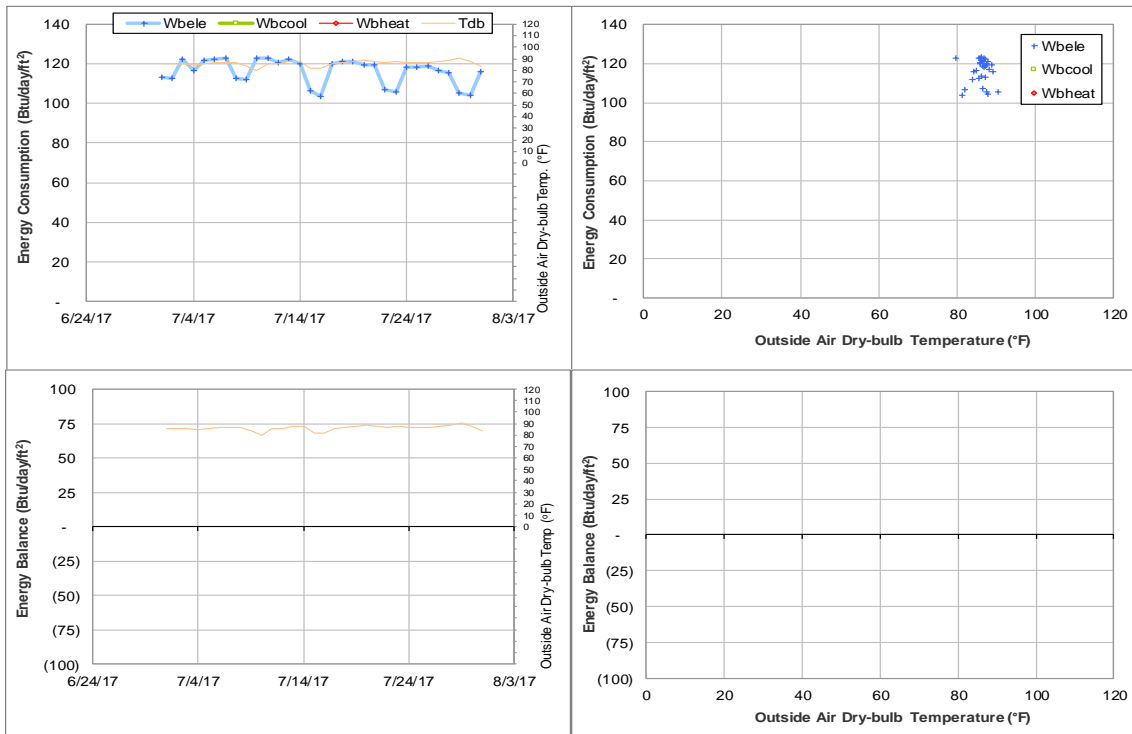


Figure IV-104 Veterinary Teaching Hospital TAMU BLDG # 508 Energy Balance Plot during July 2017

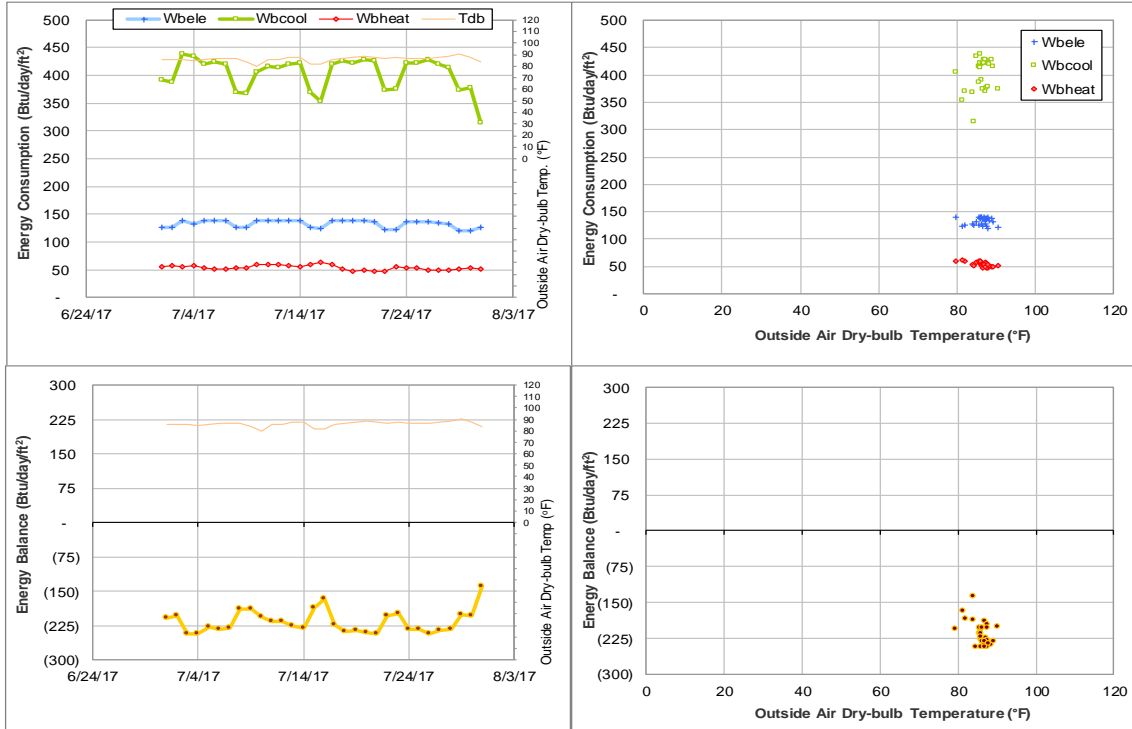


Figure IV-105 Veterinary Teaching Hospital and Med Adm TAMU BLDG # 508 Energy Balance Plot during July 2017

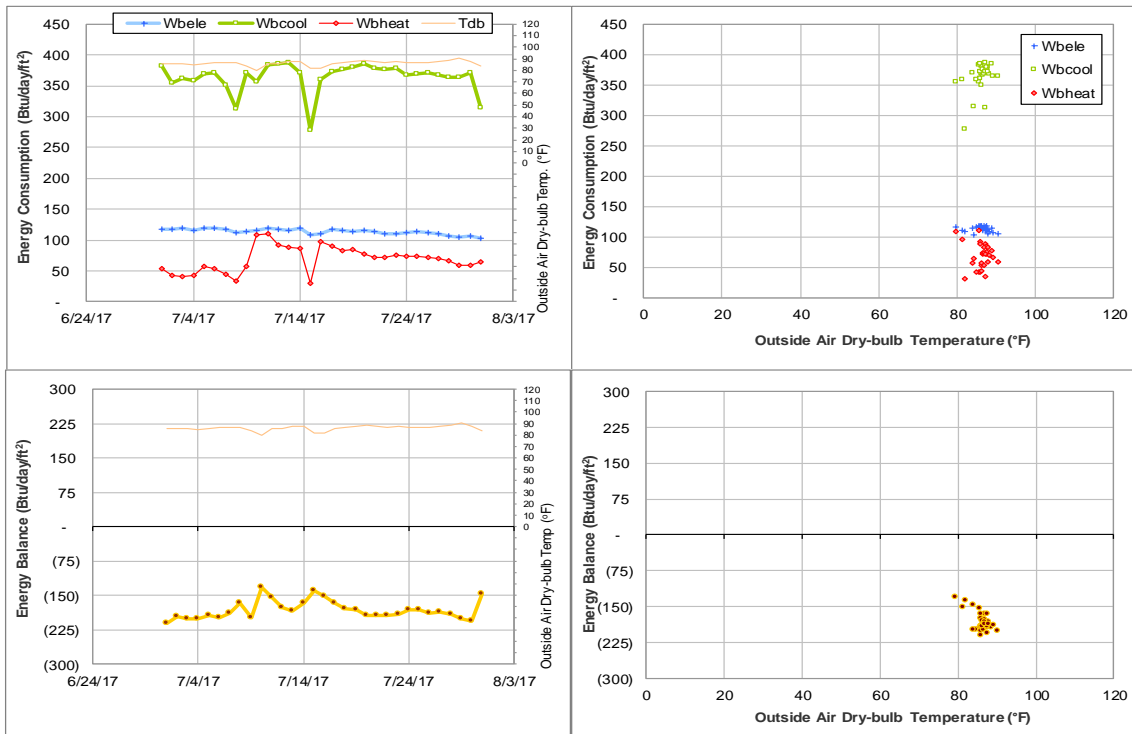


Figure IV-106 Heep Laboratory Building TAMU BLDG # 511 Energy Balance Plot during July 2017

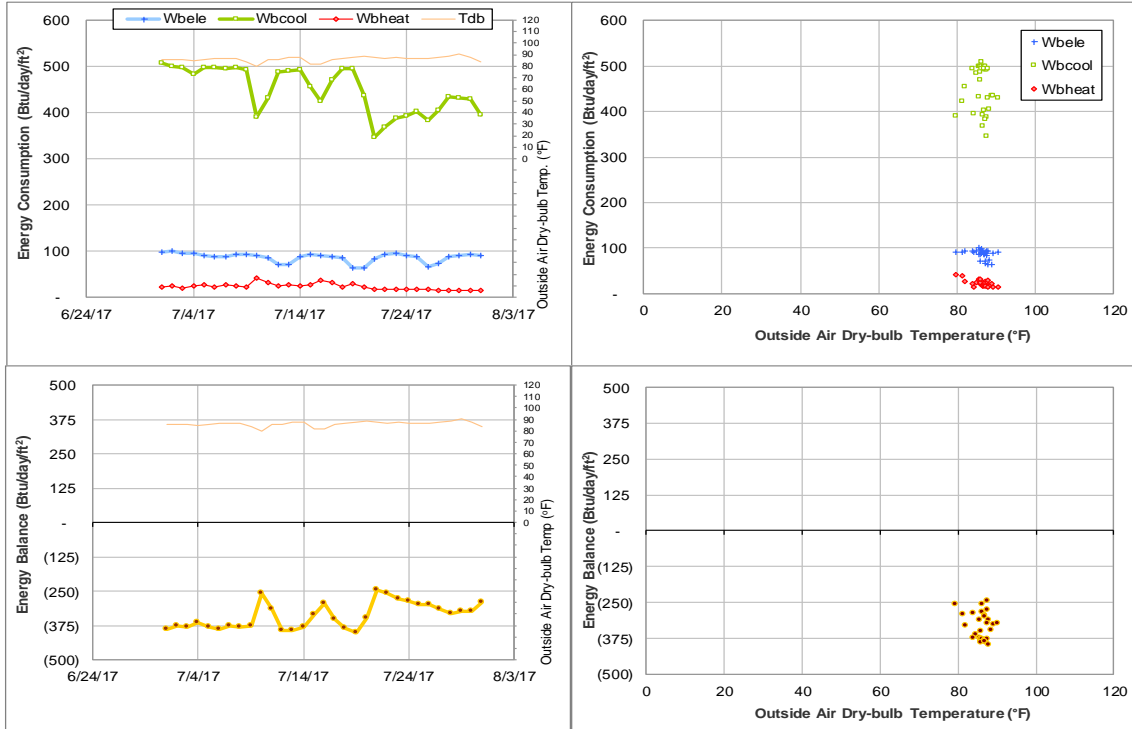


Figure IV-107 All Faiths Chapel TAMU BLDG # 512 Energy Balance Plot during July 2017

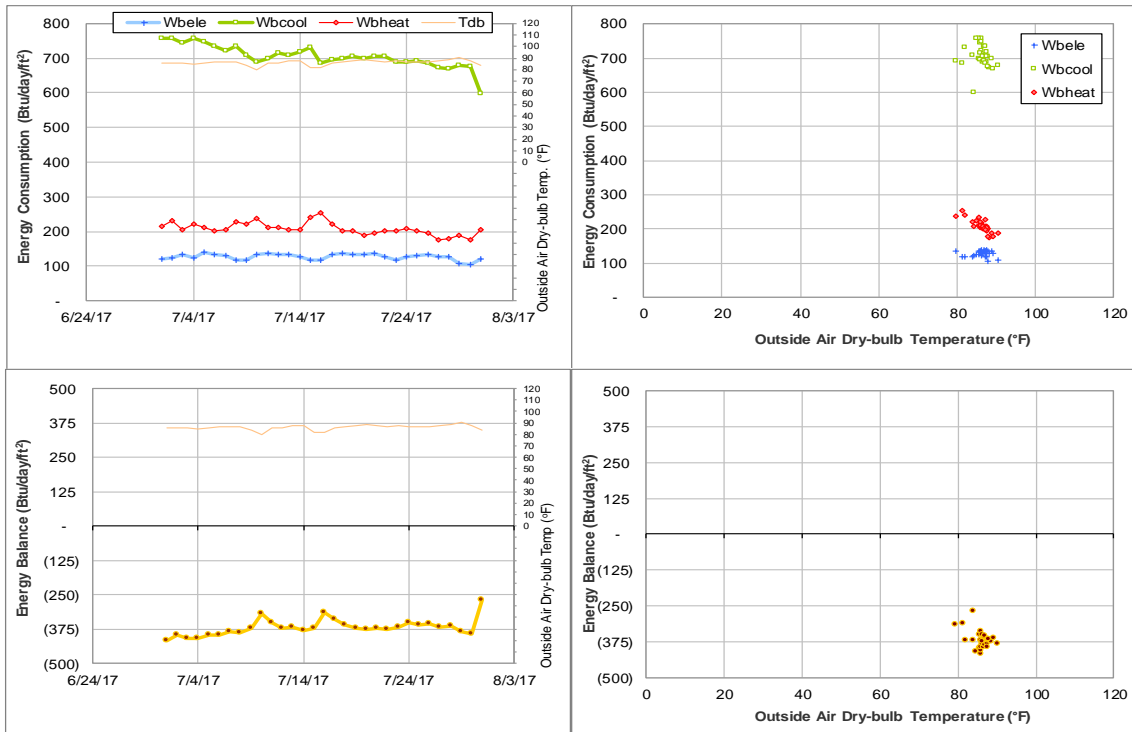


Figure IV-108 Doherty Building TAMU BLDG # 513 Energy Balance Plot during July 2017

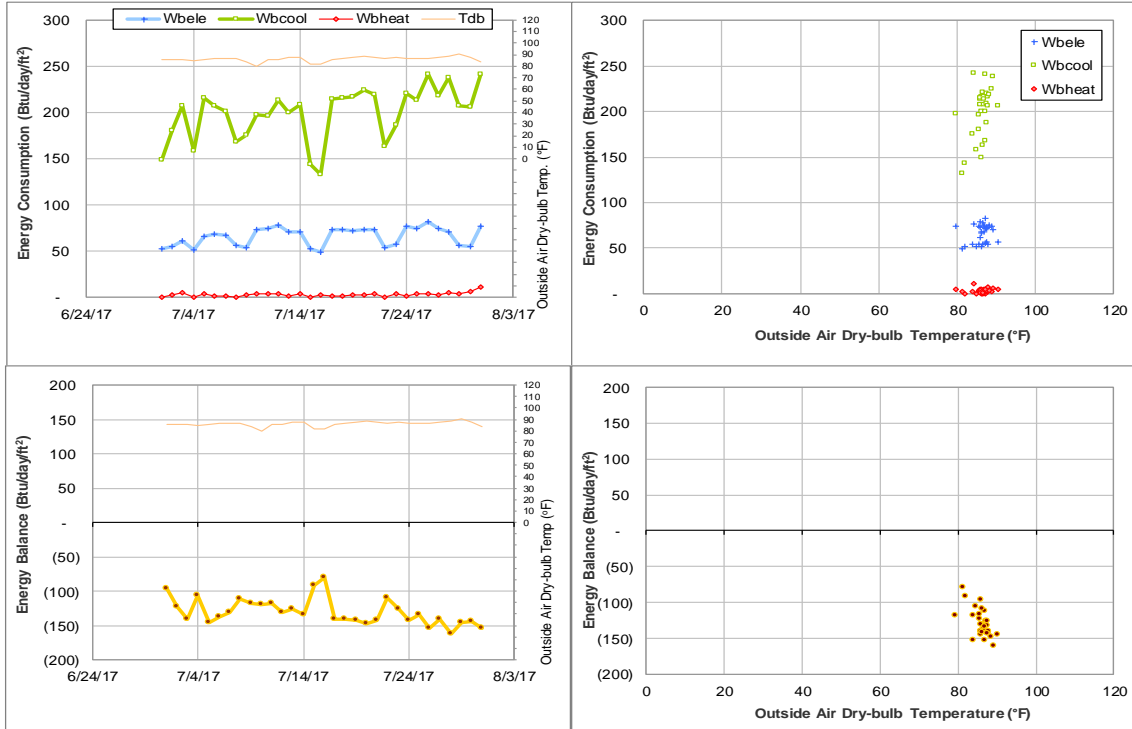


Figure IV-109 Munneryn Astronomy & Space Sciences Engineering TAMU BLDG # 514 Energy Balance Plot during July 2017

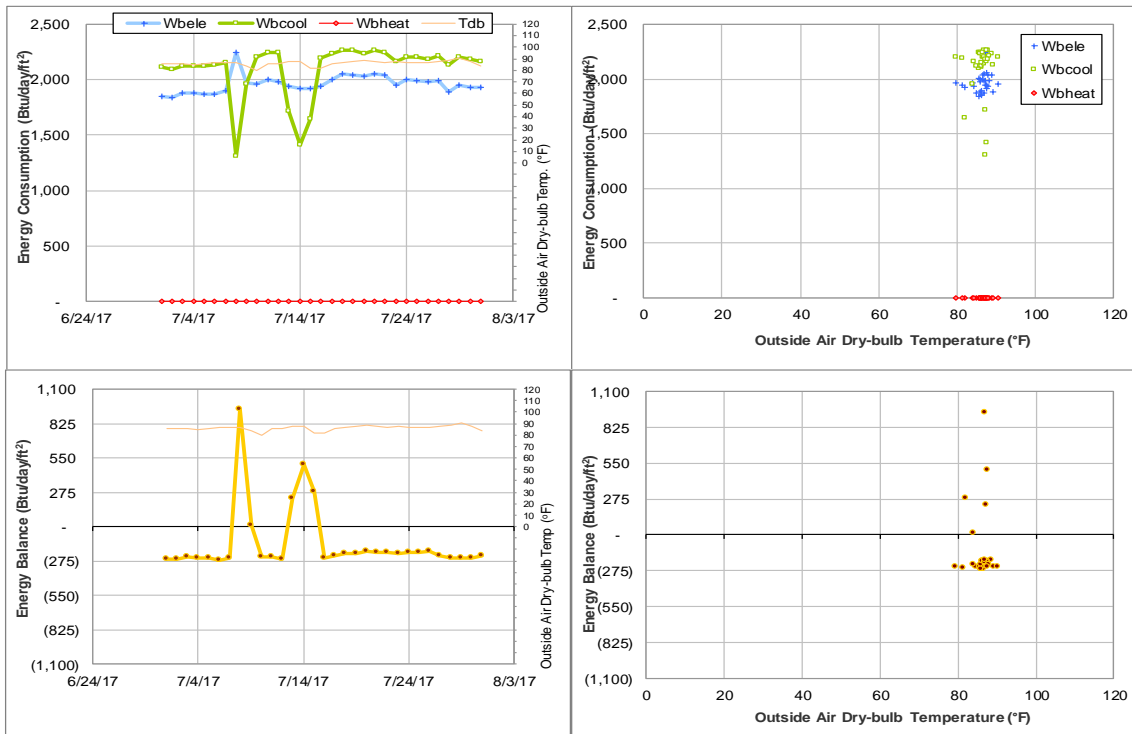


Figure IV-110 Computing Services Center TAMU BLDG # 516 Energy Balance Plot during July 2017

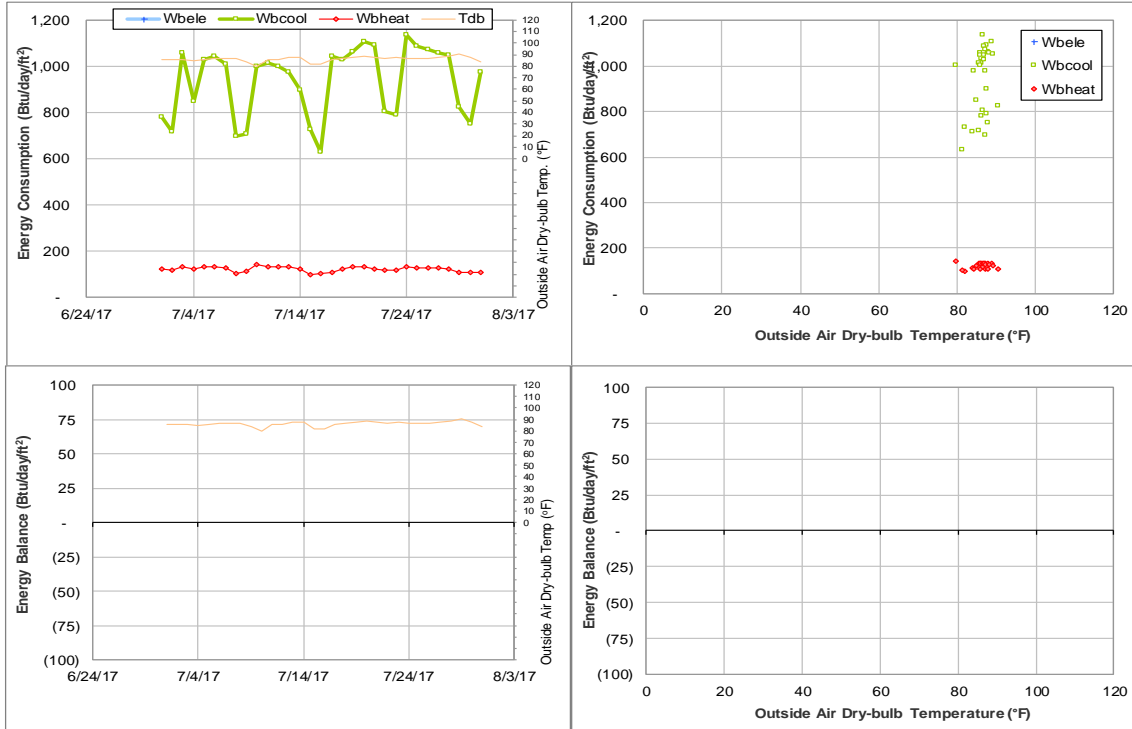


Figure IV-111 DPC Annex TAMU BLDG # 517 Energy Balance Plot during July 2017

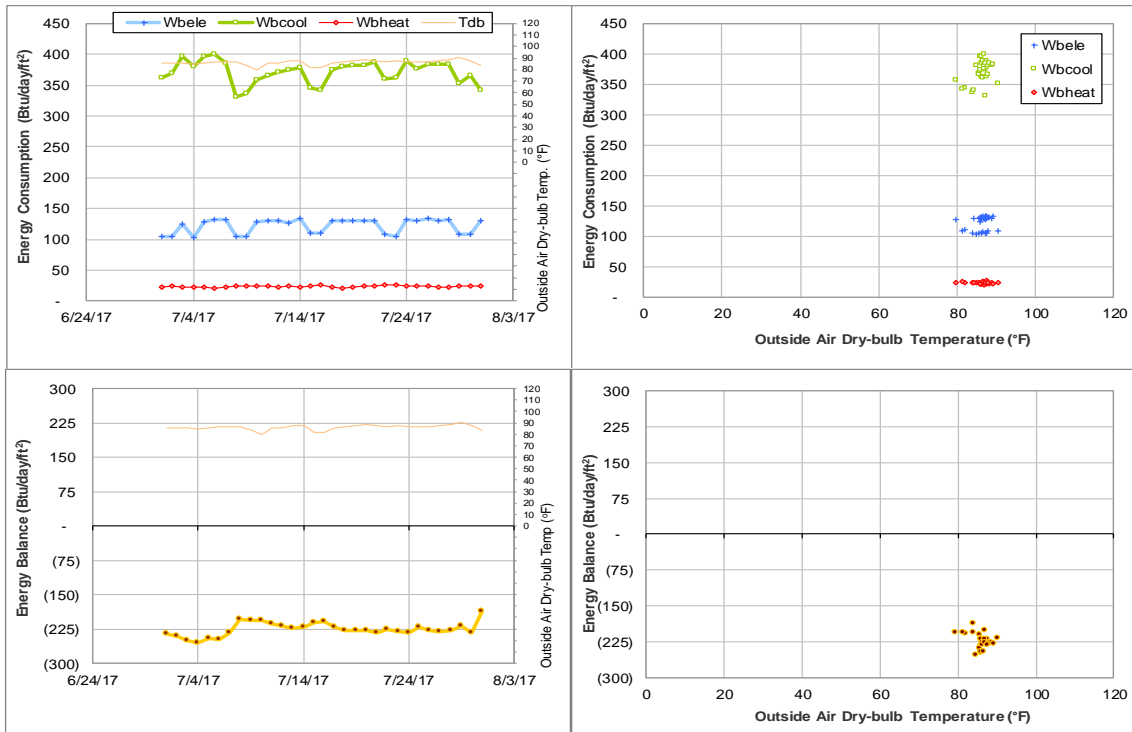


Figure IV-112 Beutel Health Center TAMU BLDG # 520 Energy Balance Plot during July 2017

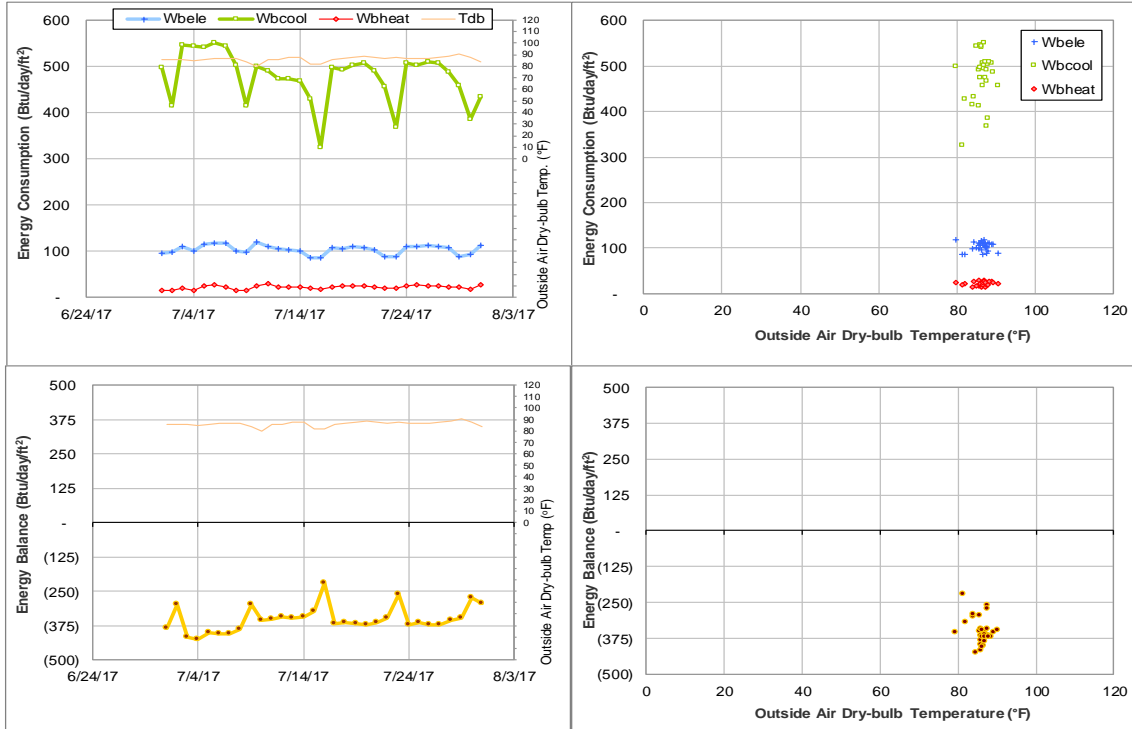


Figure IV-113 Heldenfels Hall TAMU BLDG # 521 Energy Balance Plot during July 2017

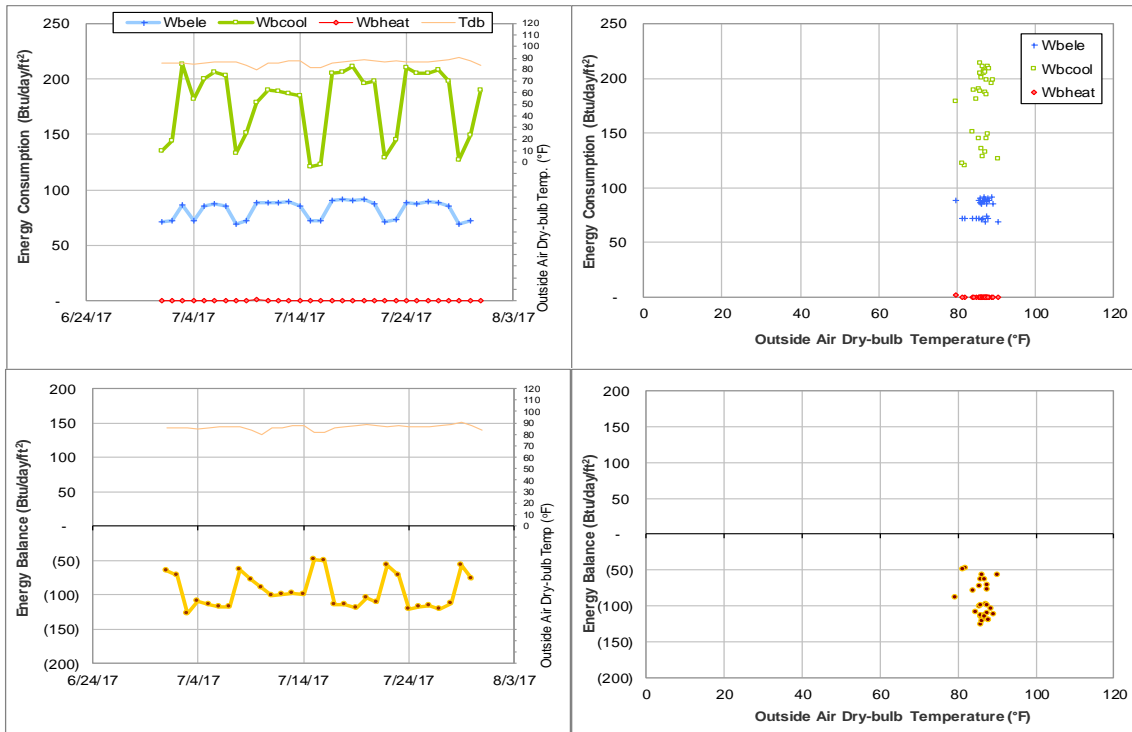


Figure IV-114 Blocker building TAMU BLDG # 524 Energy Balance Plot during July 2017

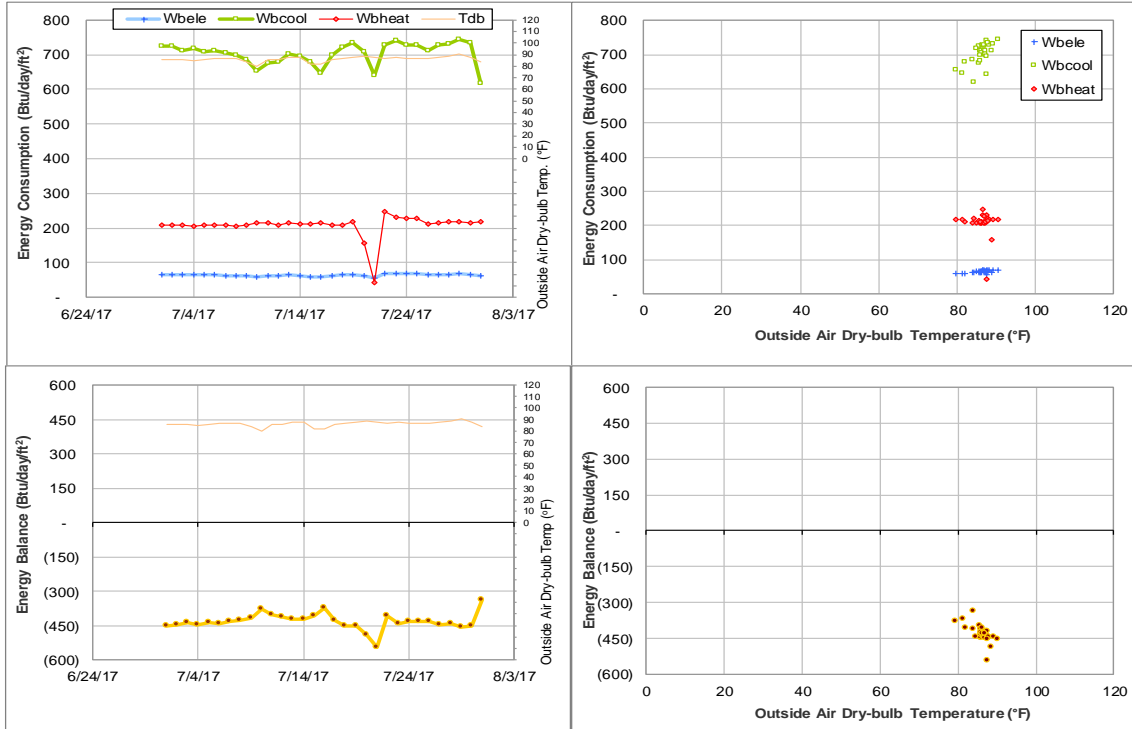


Figure IV-115 Clements Residence Hall TAMU BLDG # 548 Energy Balance Plot during July 2017

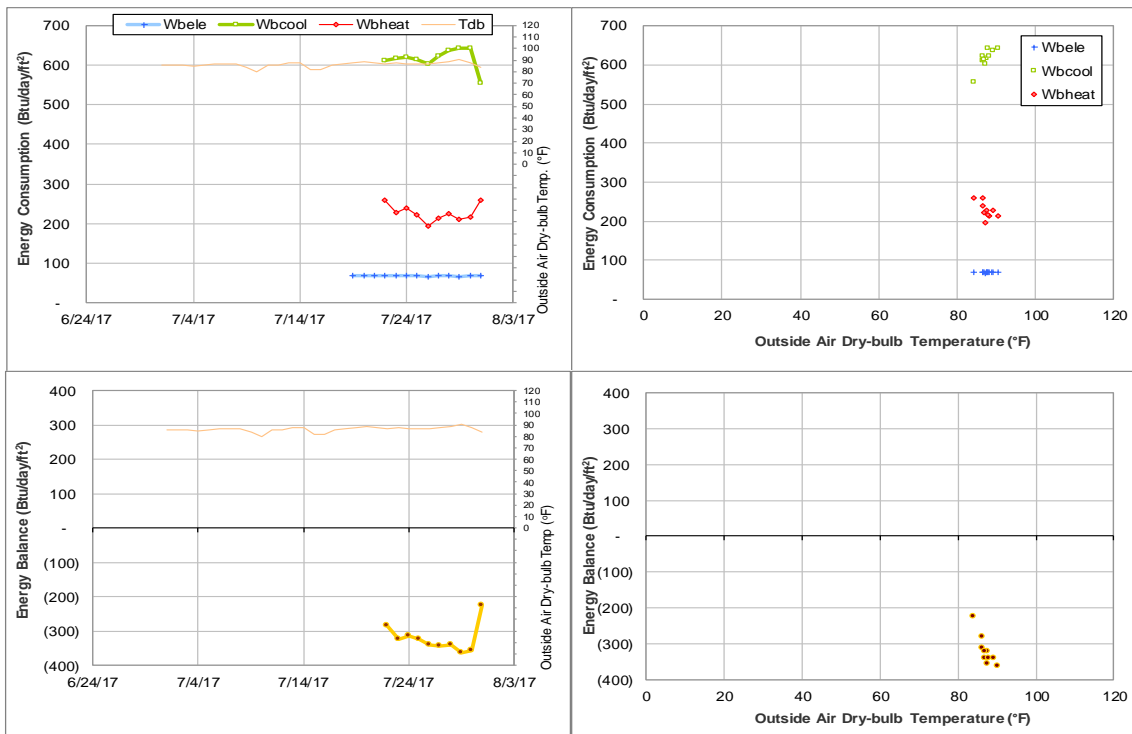


Figure IV-116 Haas Residence Hall TAMU BLDG # 549 Energy Balance Plot during July 2017

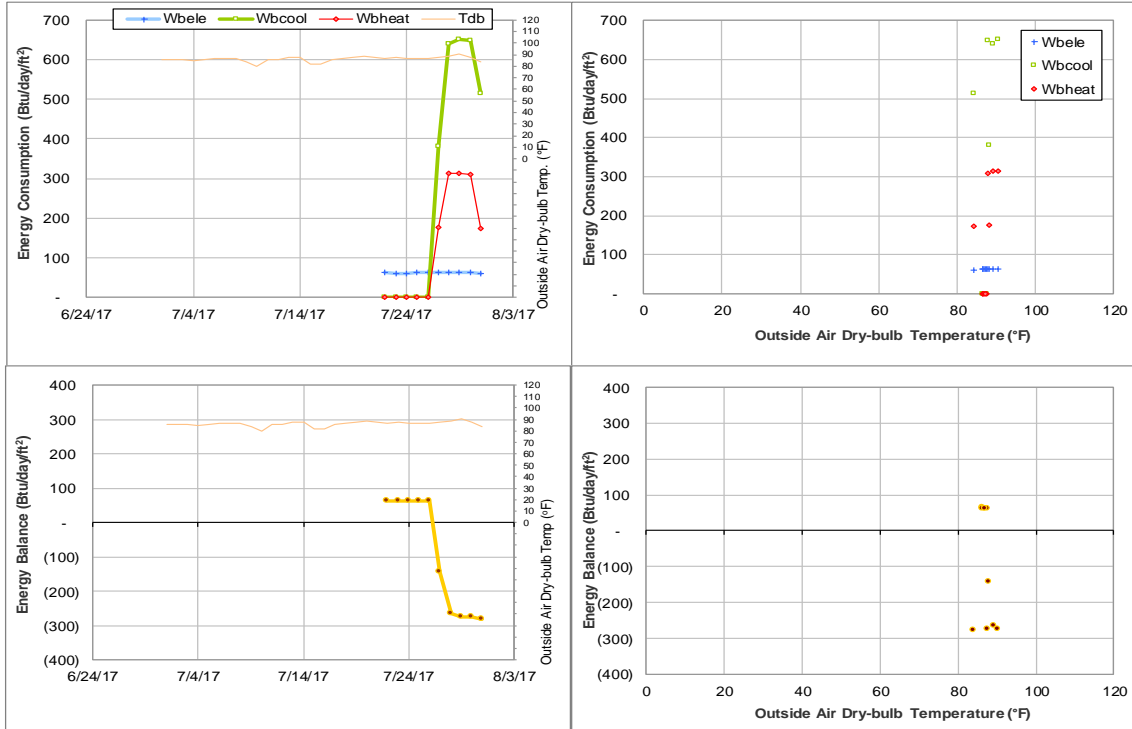


Figure IV-117 McFadden Residence Hall TAMU BLDG # 550 Energy Balance Plot during July 2017

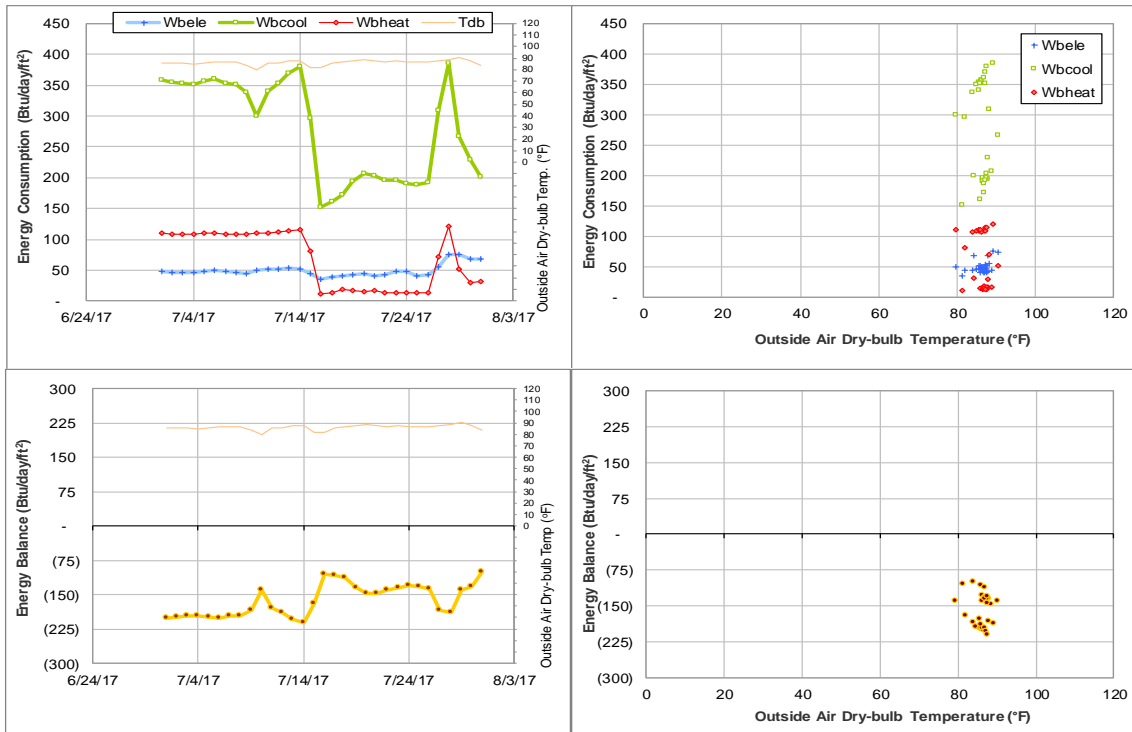


Figure IV-118 Neeley Residence Hall TAMU BLDG # 652 Energy Balance Plot during July 2017

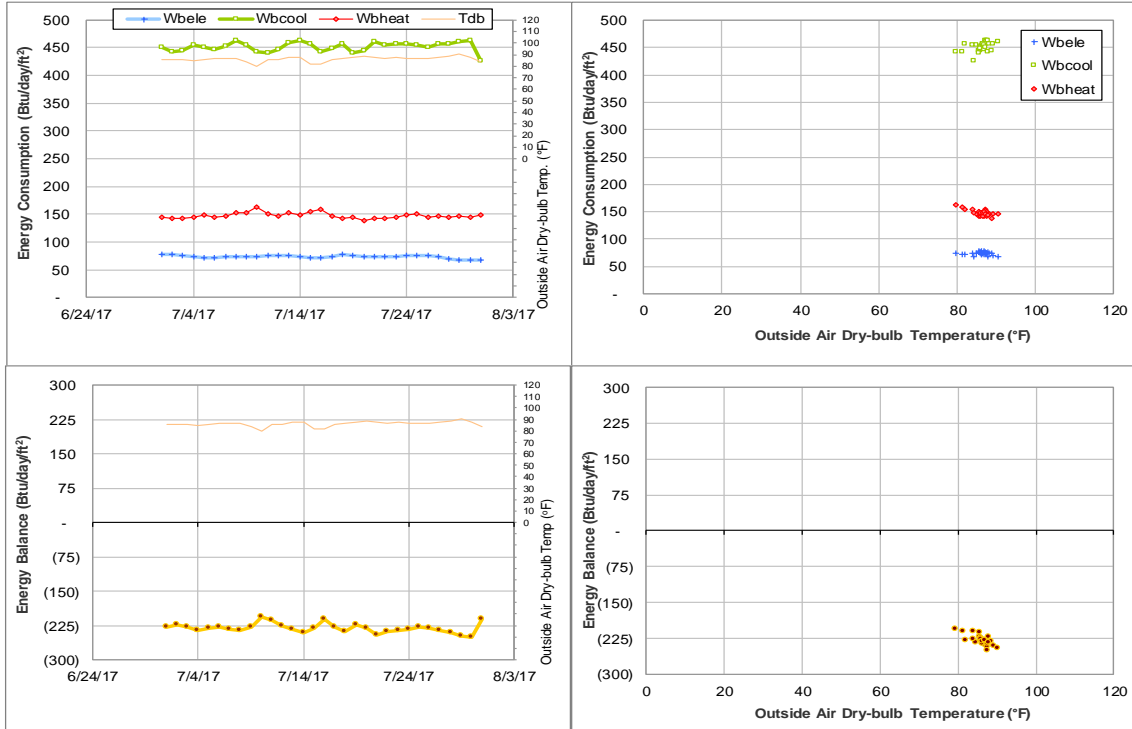


Figure IV-119 Hobby Residence Hall TAMU BLDG # 653 Energy Balance Plot during July 2017

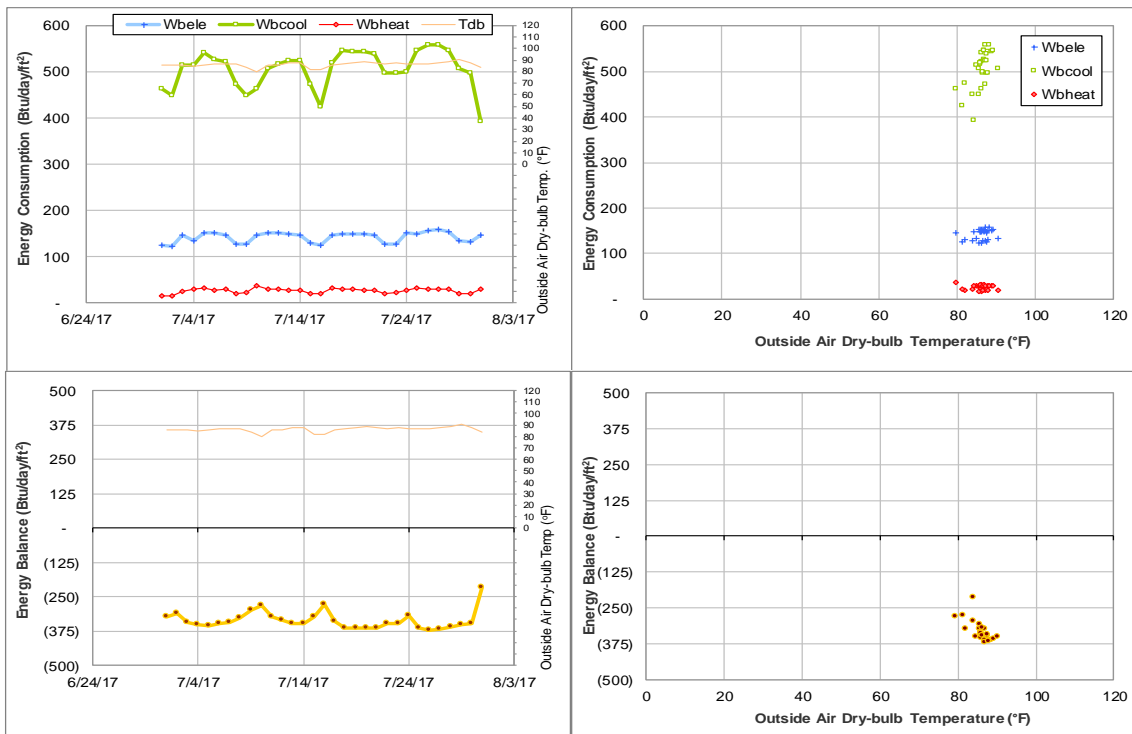


Figure IV-120 Wisenbaker Engineering Research Center TAMU BLDG # 682 Energy Balance Plot during July 2017

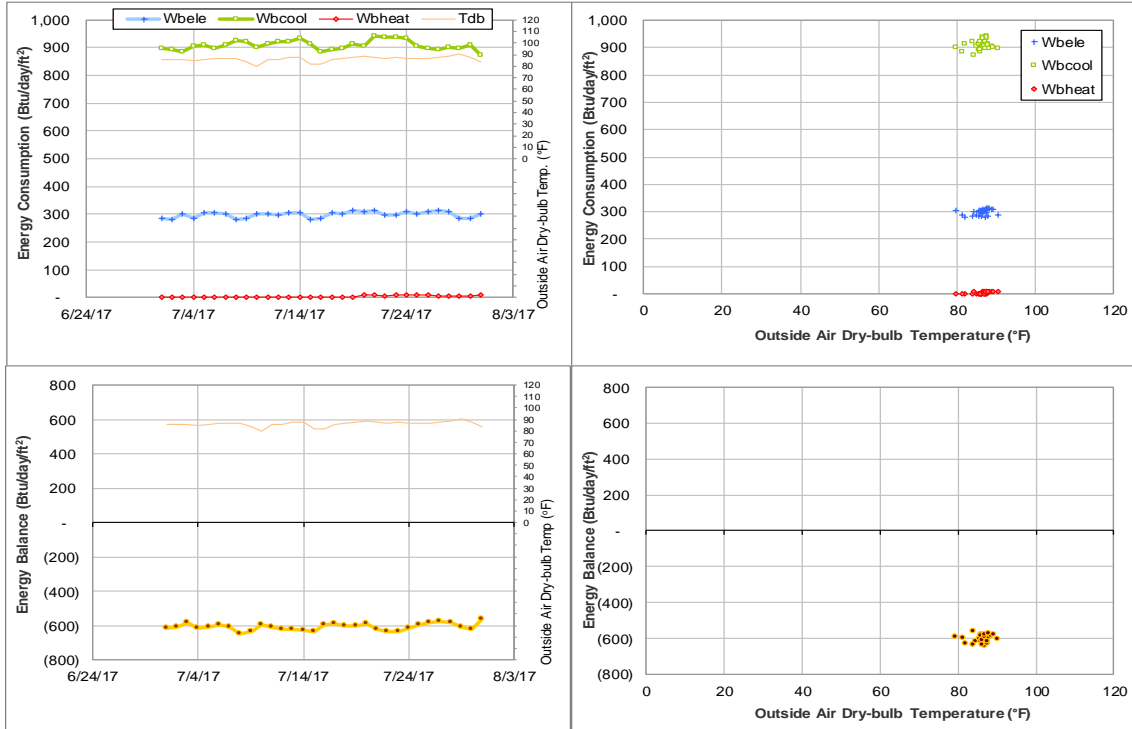


Figure IV-121 McNew Laboratory TAMU BLDG # 740 Energy Balance Plot during July 2017

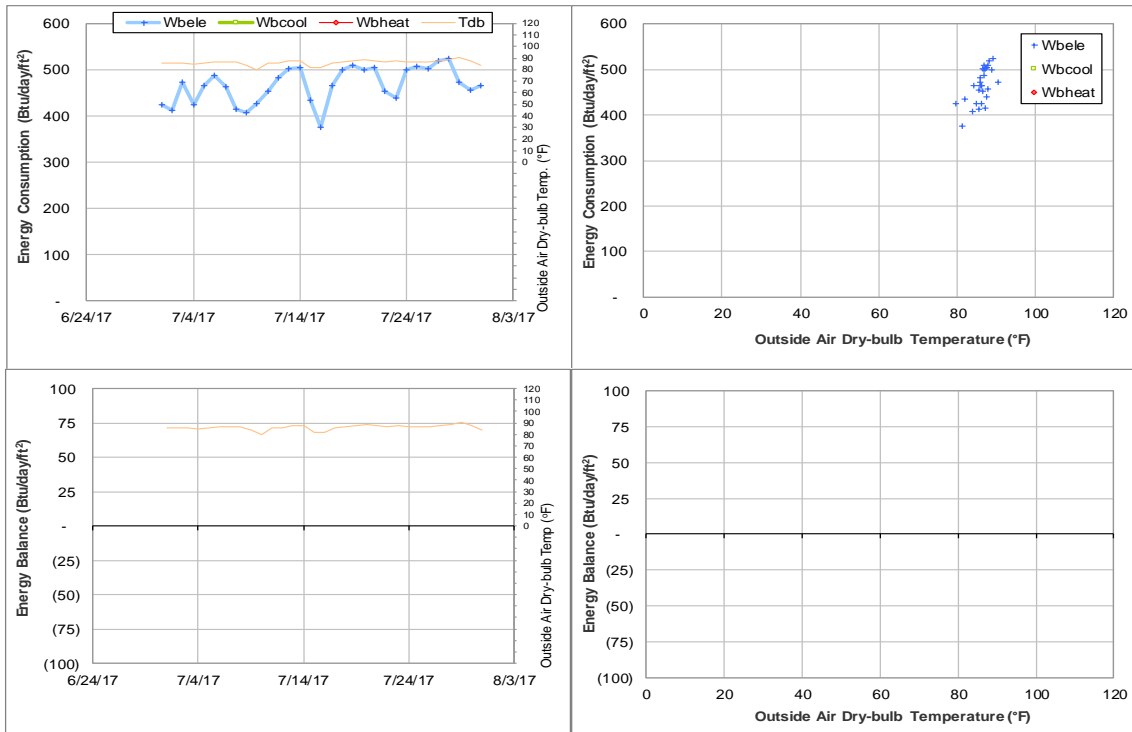


Figure IV-122 Soil Testing Labs TAMU BLDG # 806 Energy Balance Plot during July 2017

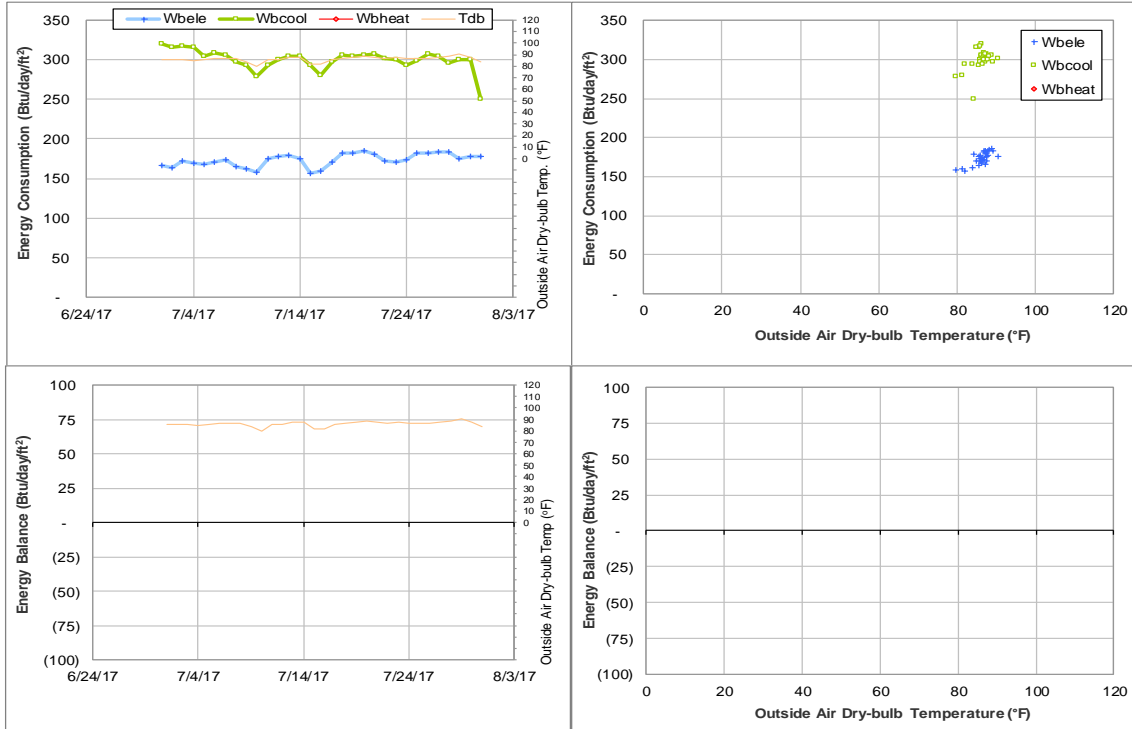


Figure IV-123 Entomology Research Lab TAMU BLDG # 815 Energy Balance Plot during July 2017

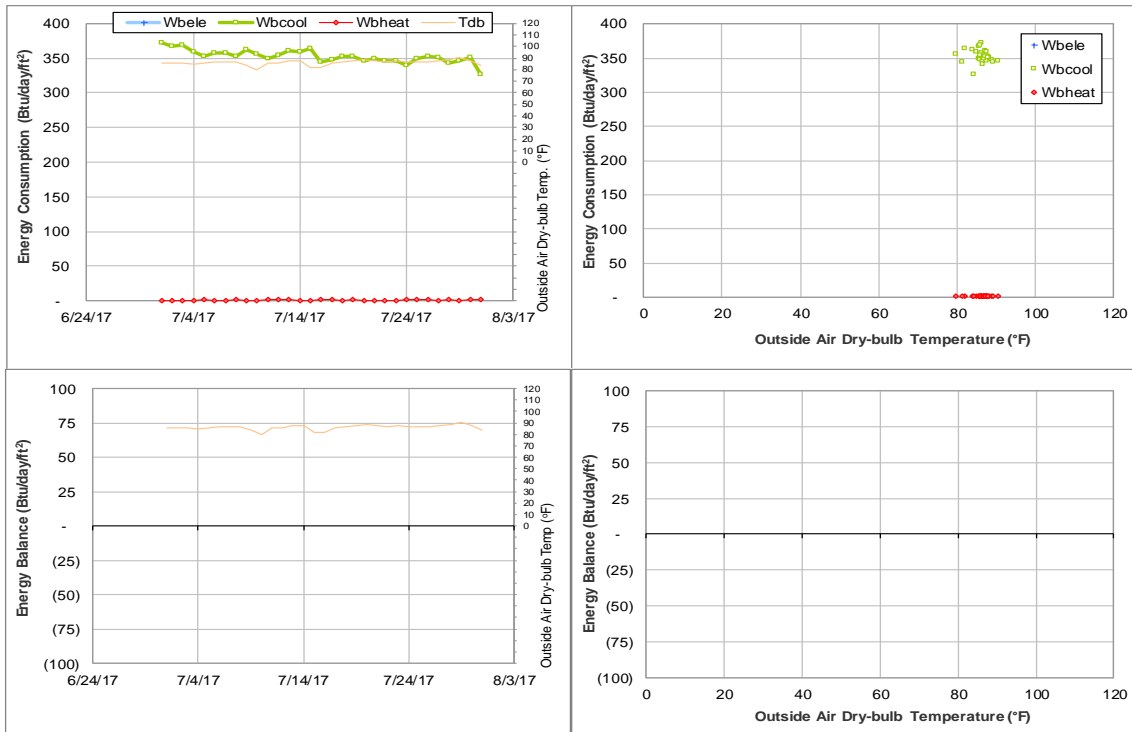


Figure IV-124 TVMC-Small Animal Building TAMU BLDG # 880 Energy Balance Plot during July 2017

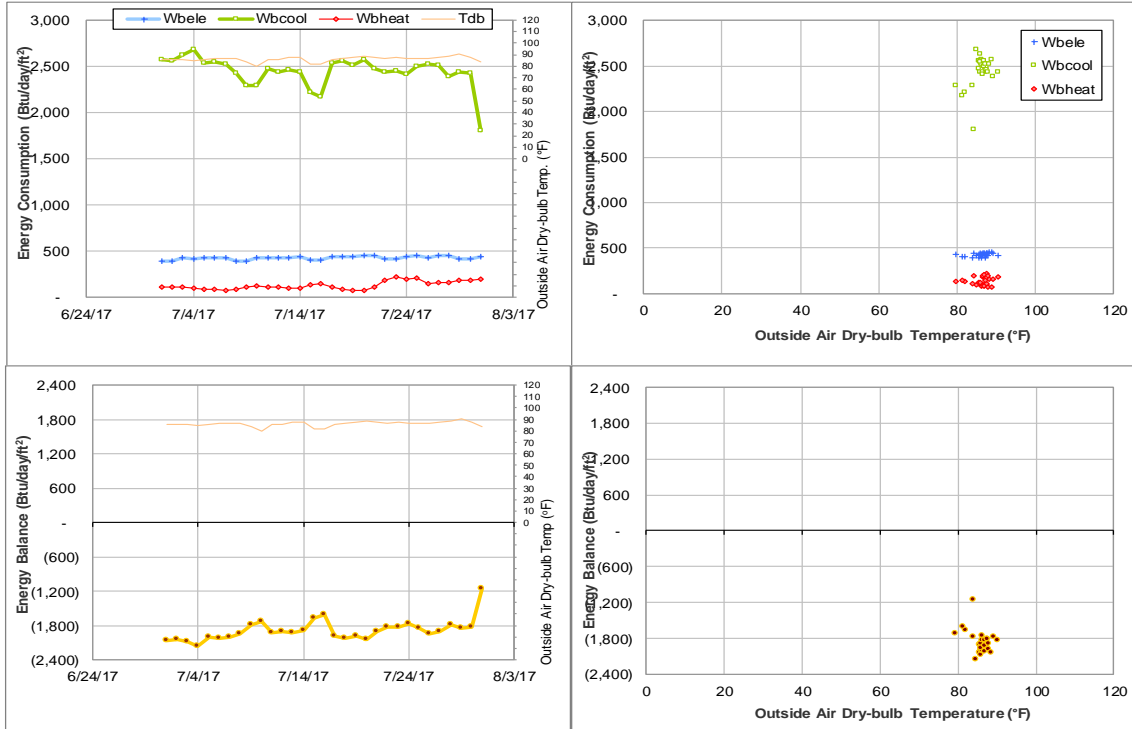


Figure IV-125 Laboratory Animal Care Building TAMU BLDG # 972 Energy Balance Plot during July 2017

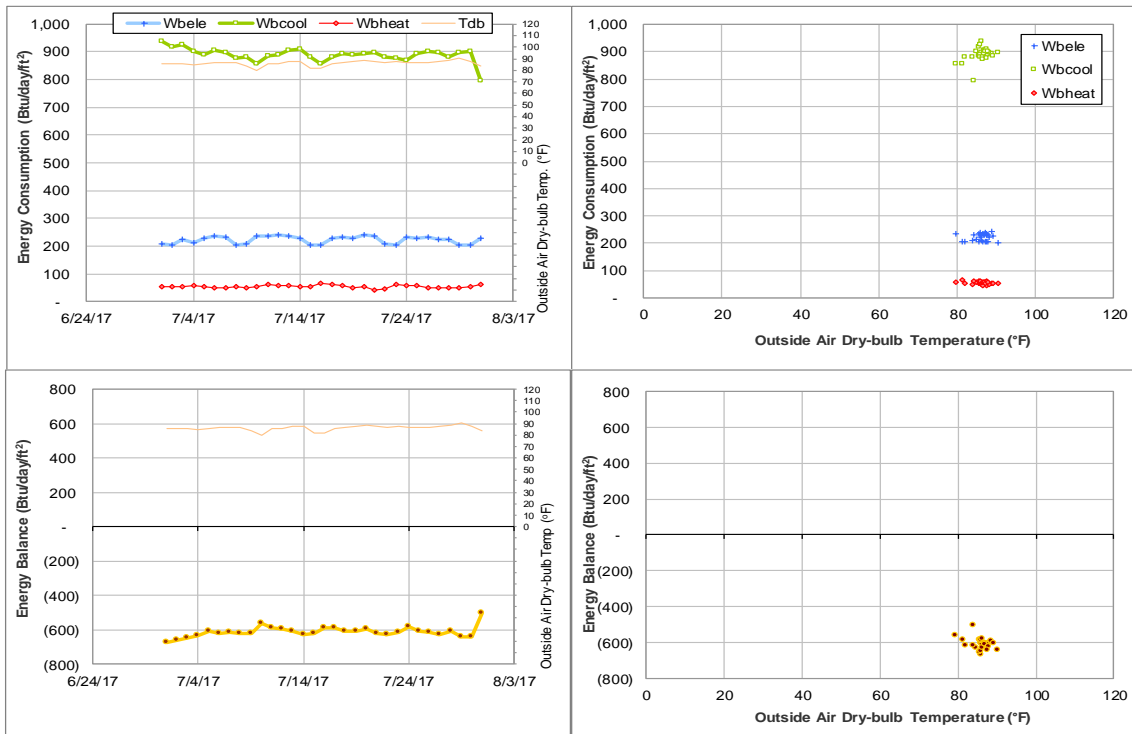


Figure IV-126 Vivarium III TAMU BLDG # 1020 Energy Balance Plot during July 2017

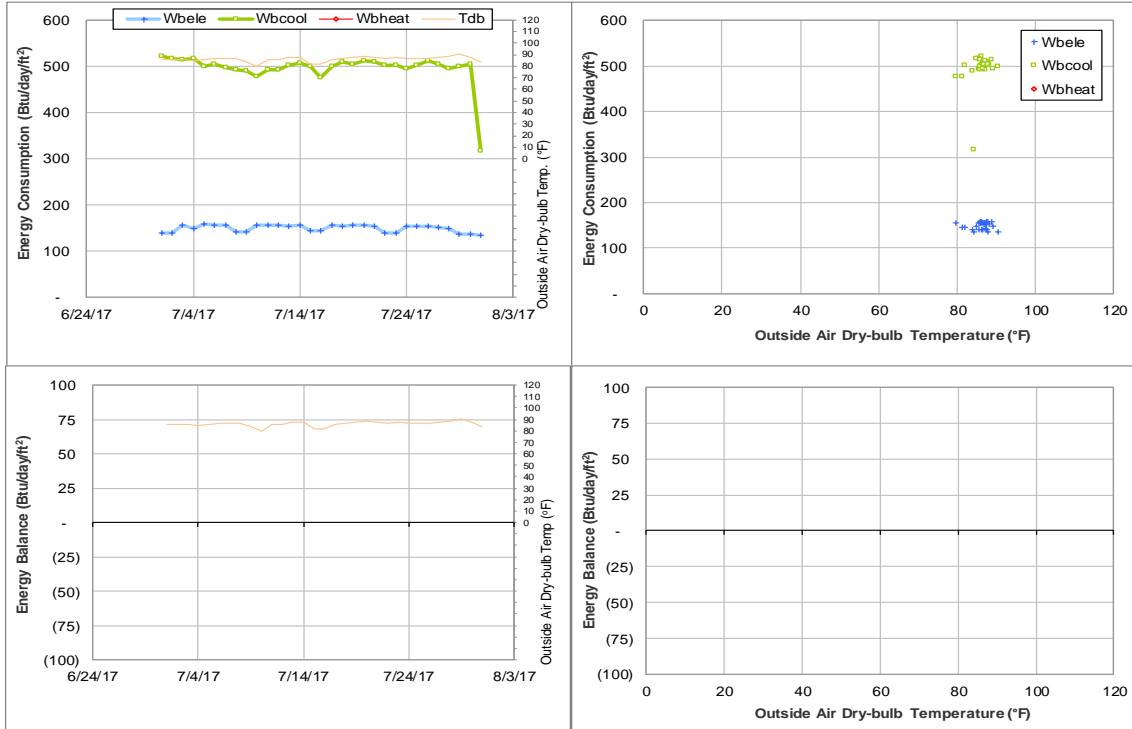


Figure IV-127 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during July 2017

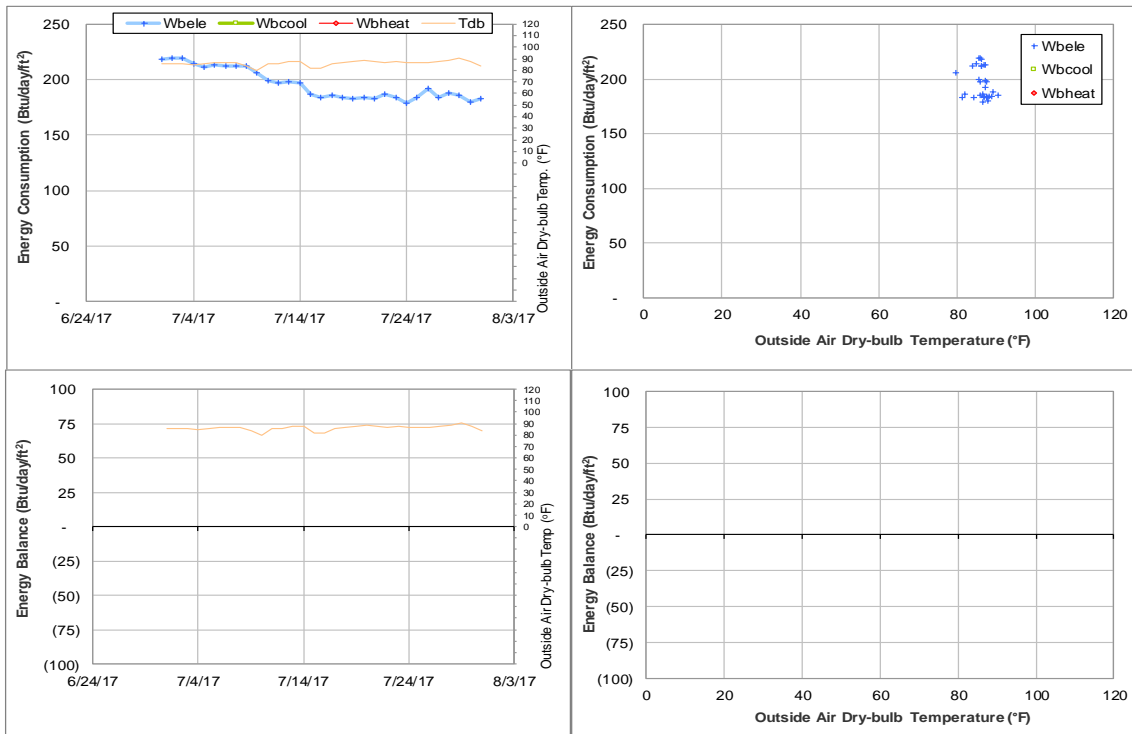


Figure IV-128 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during July 2017

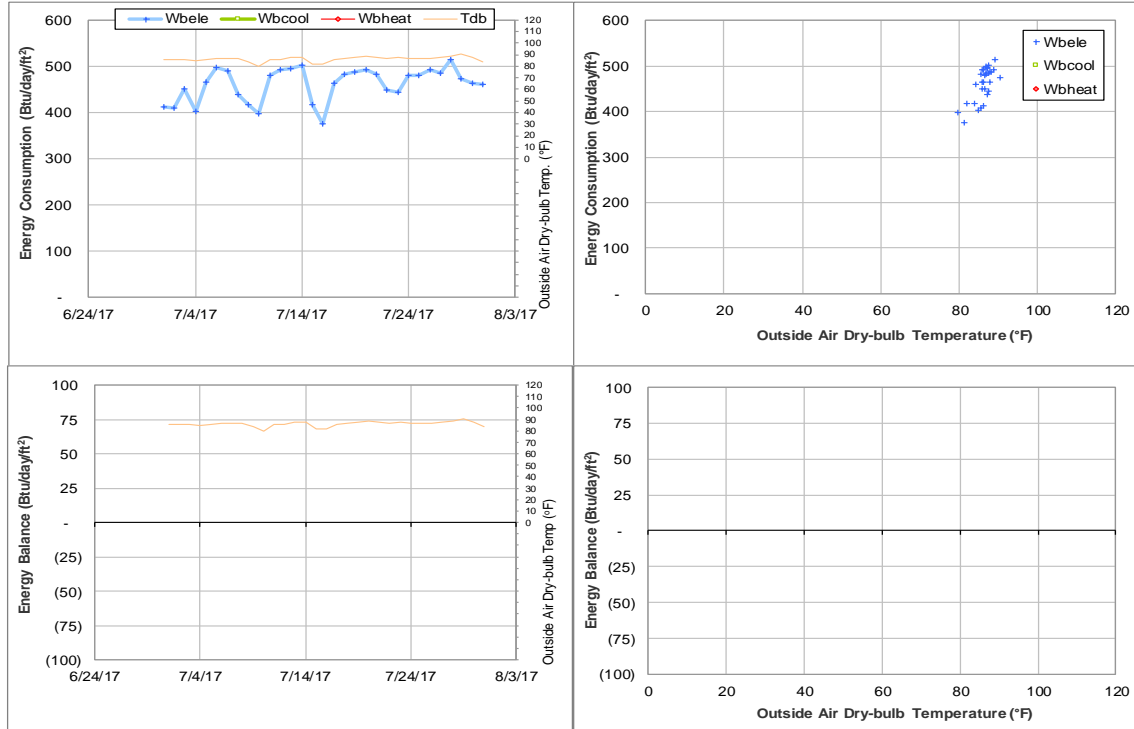


Figure IV-129 Forest Science Laboratory Building TAMU BLDG # 1042 Energy Balance Plot during July 2017

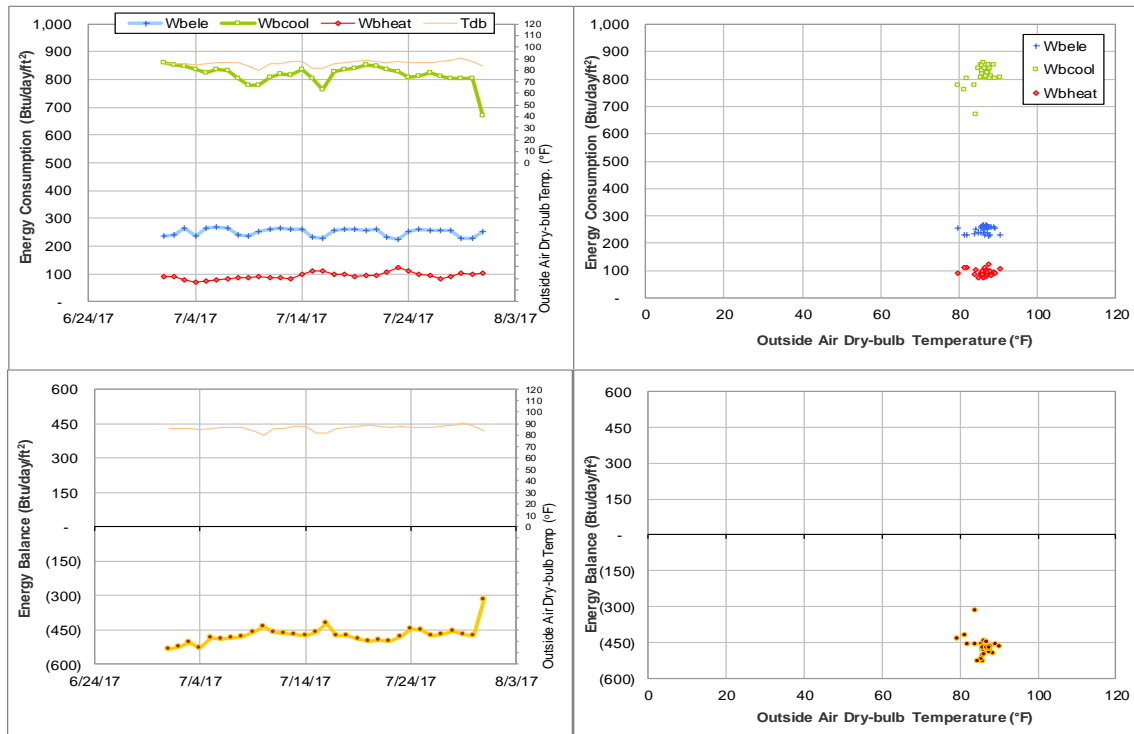


Figure IV-130 Veterinary Small Animal Hospital TAMU BLDG # 1085 Energy Balance Plot during July 2017

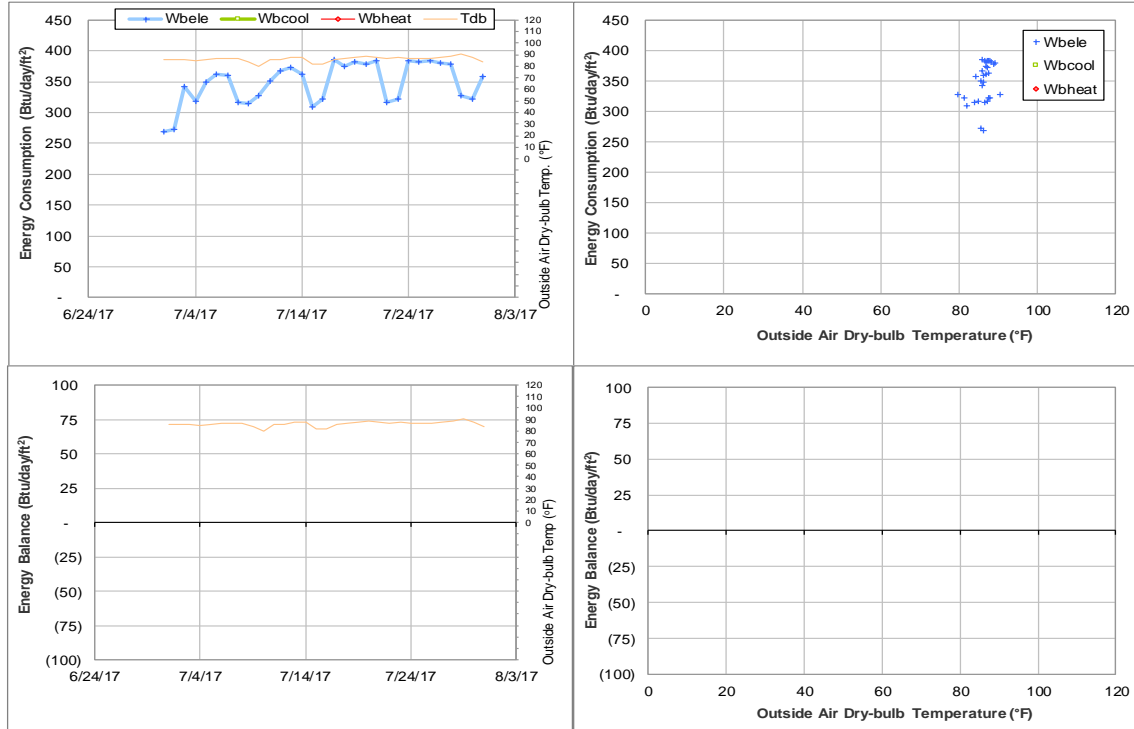


Figure IV-131 Utilities Energy Office Annex TAMU BLDG # 1089 Energy Balance Plot during July 2017

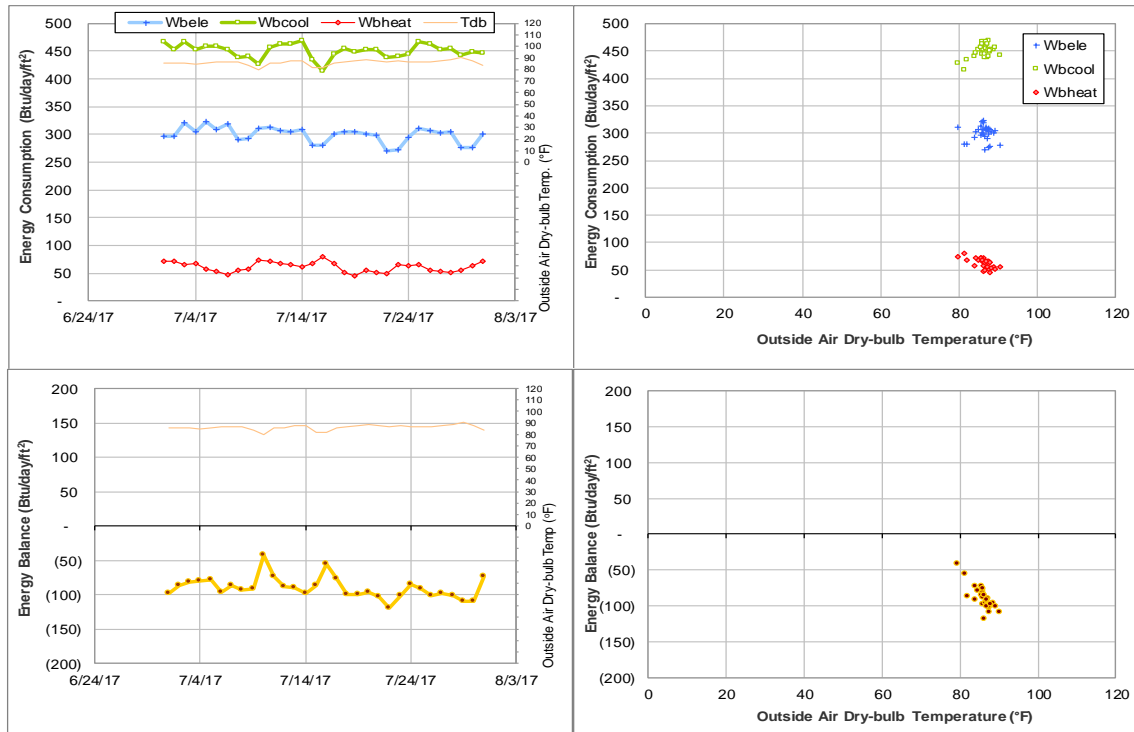


Figure IV-132 Biological Control Facility TAMU BLDG # 1146 Energy Balance Plot during July 2017

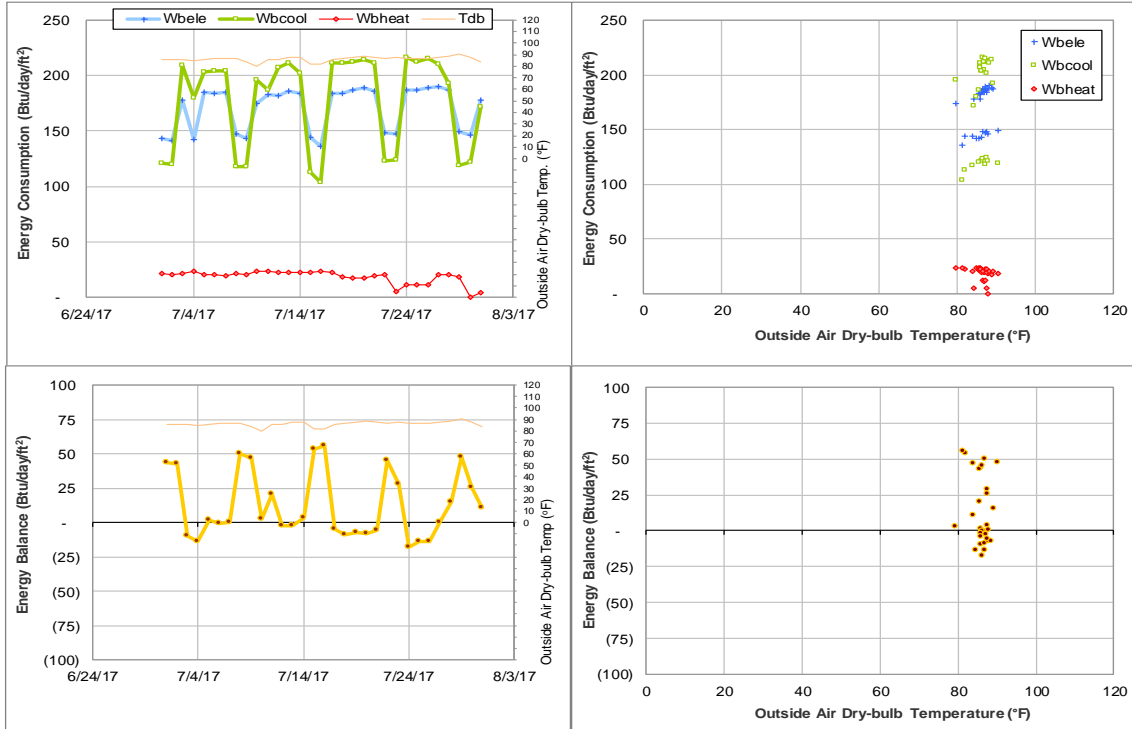


Figure IV-133 Physical Plant Administration & Shops TAMU BLDG # 1156 Energy Balance Plot during July 2017

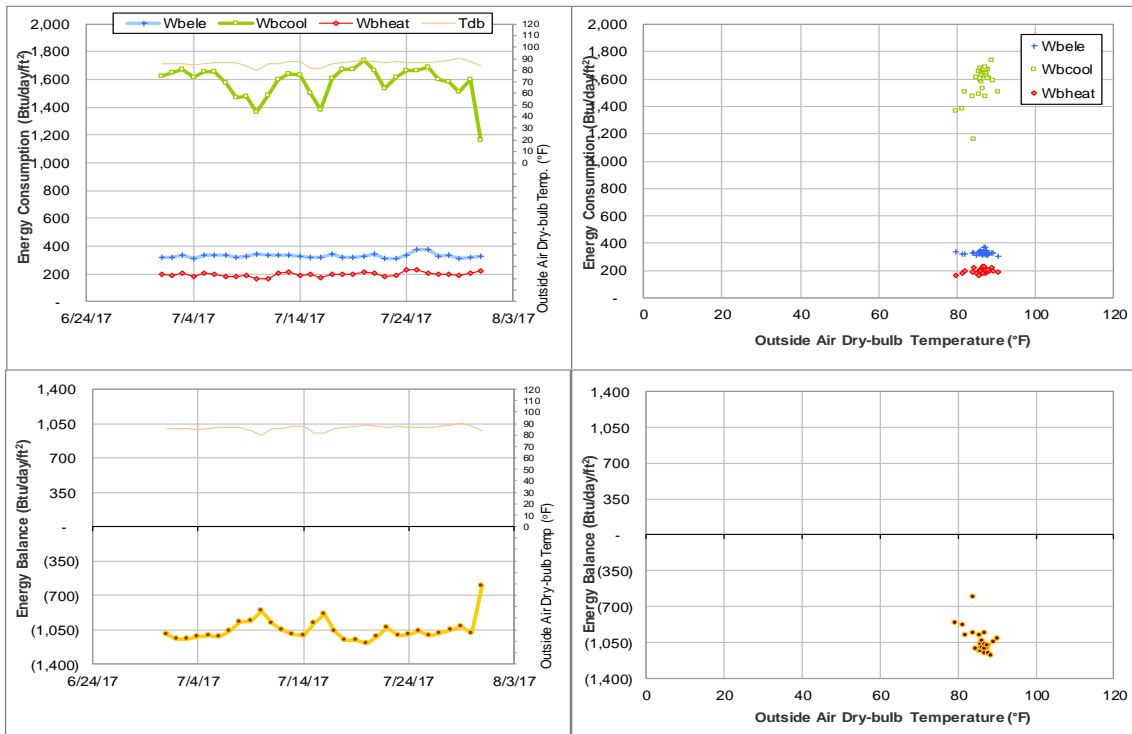


Figure IV-134 Veterinary Anatomic Pathology TAMU BLDG # 1184 Energy Balance Plot during July 2017

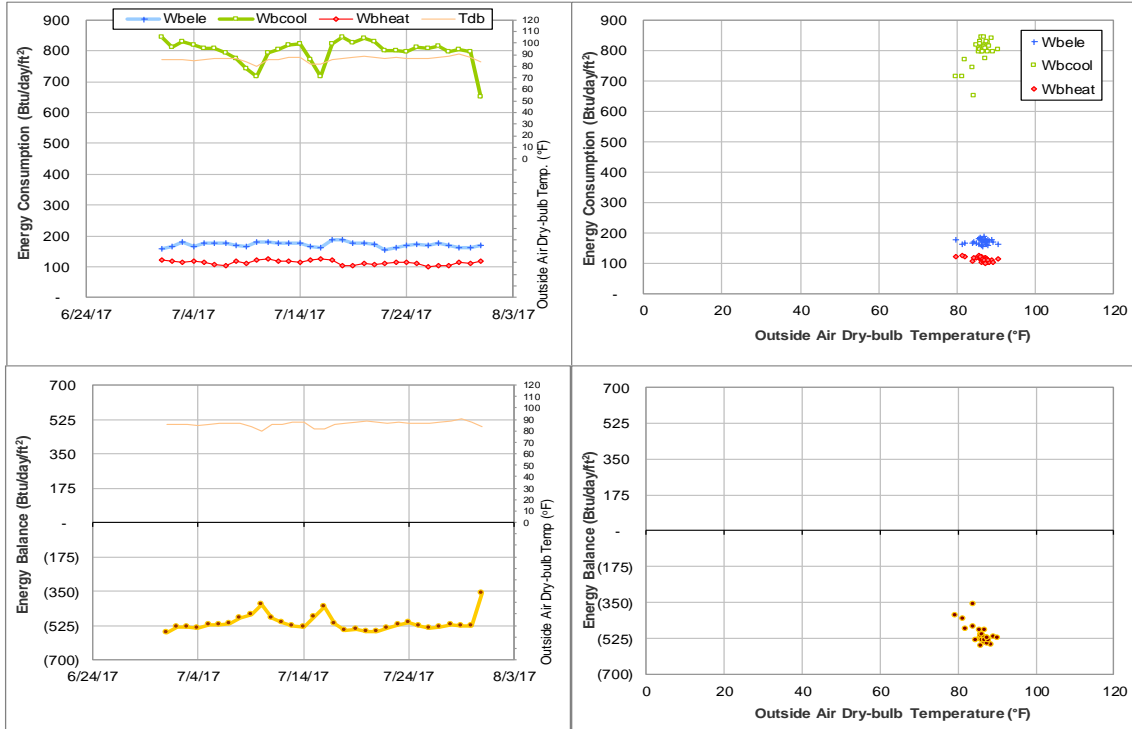


Figure IV-135 Veterinary Large Animal Hospital TAMU BLDG # 1194 Energy Balance Plot during July 2017

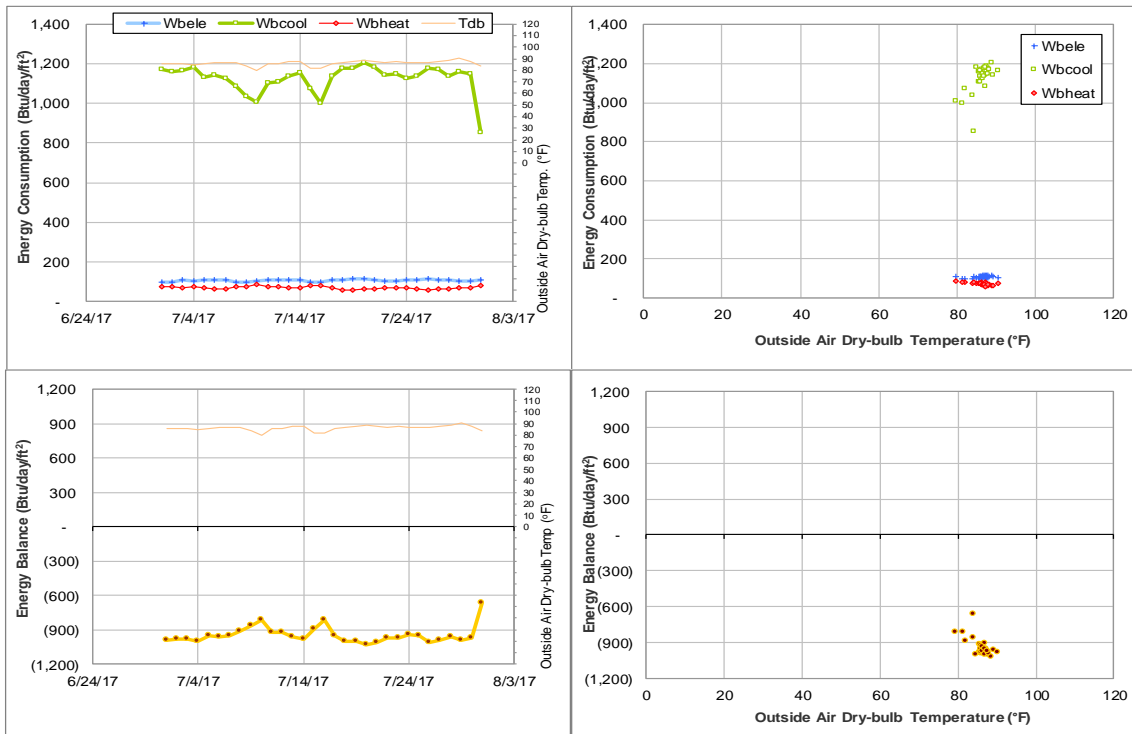


Figure IV-136 Veterinary Research Building TAMU BLDG # 1197 Energy Balance Plot during July 2017

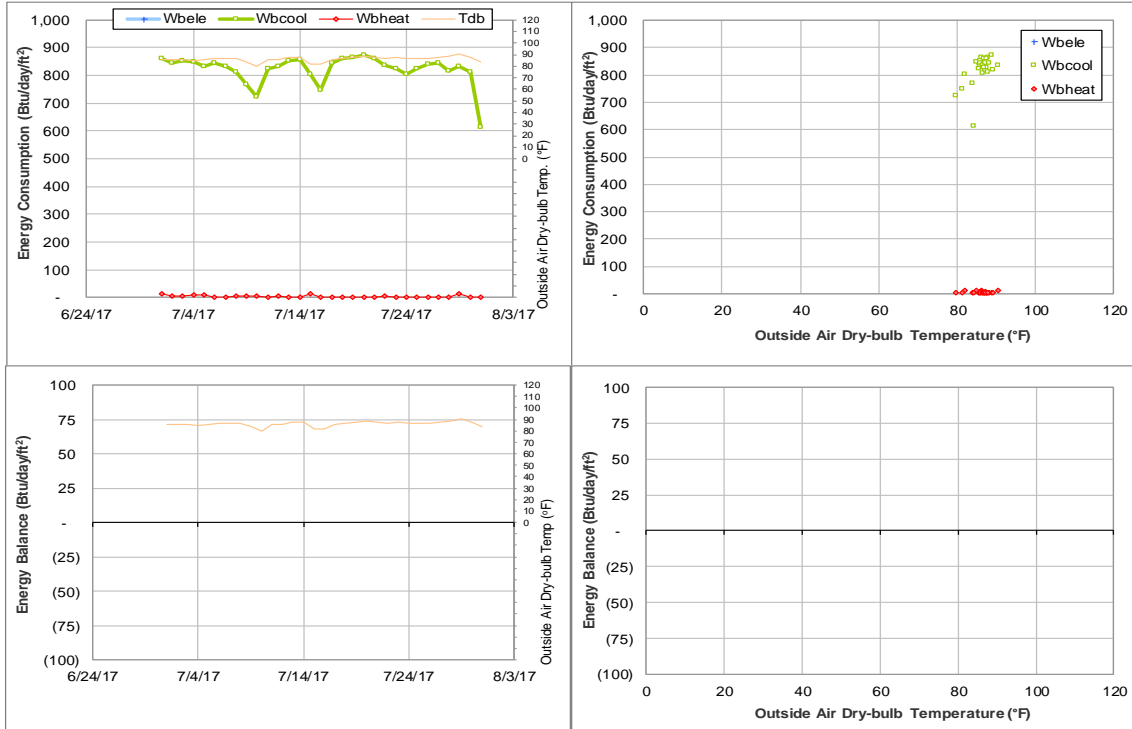


Figure IV-137 Buzbee Leadership Learning Center TAMU BLDG # 1402 Energy Balance Plot during July 2017

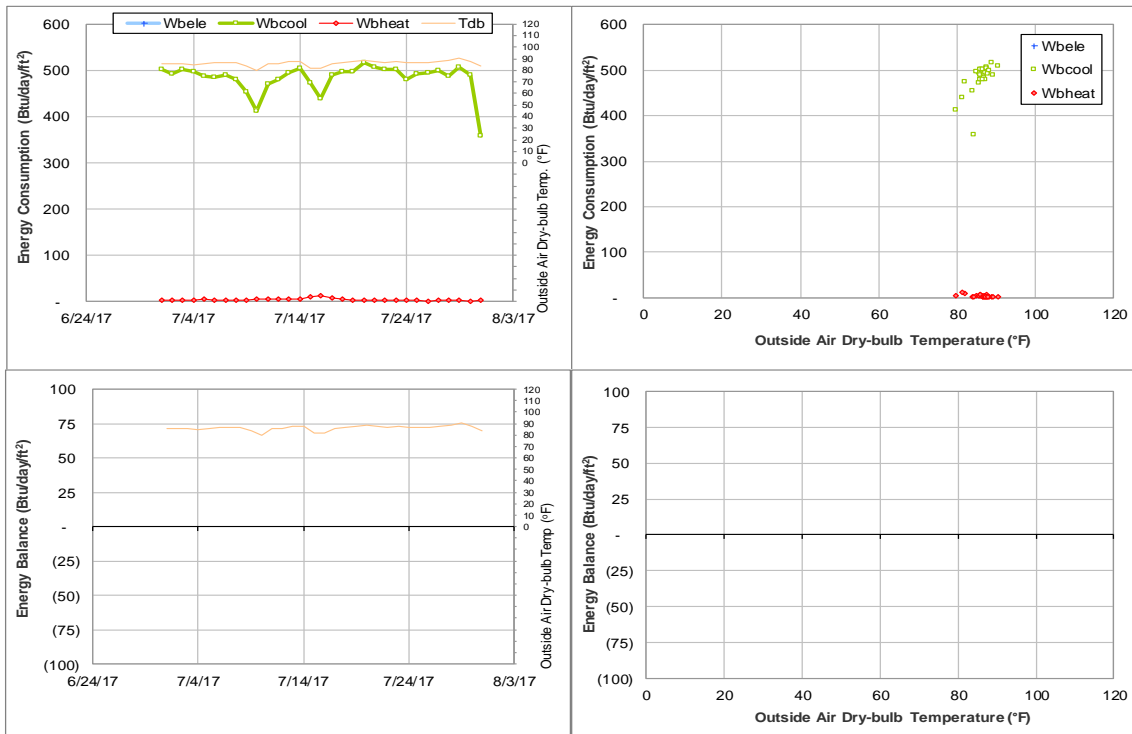


Figure IV-138 H. Grady Ash, Jr. '58 Leadership Learning Center TAMU BLDG # 1403 Energy Balance Plot during July 2017

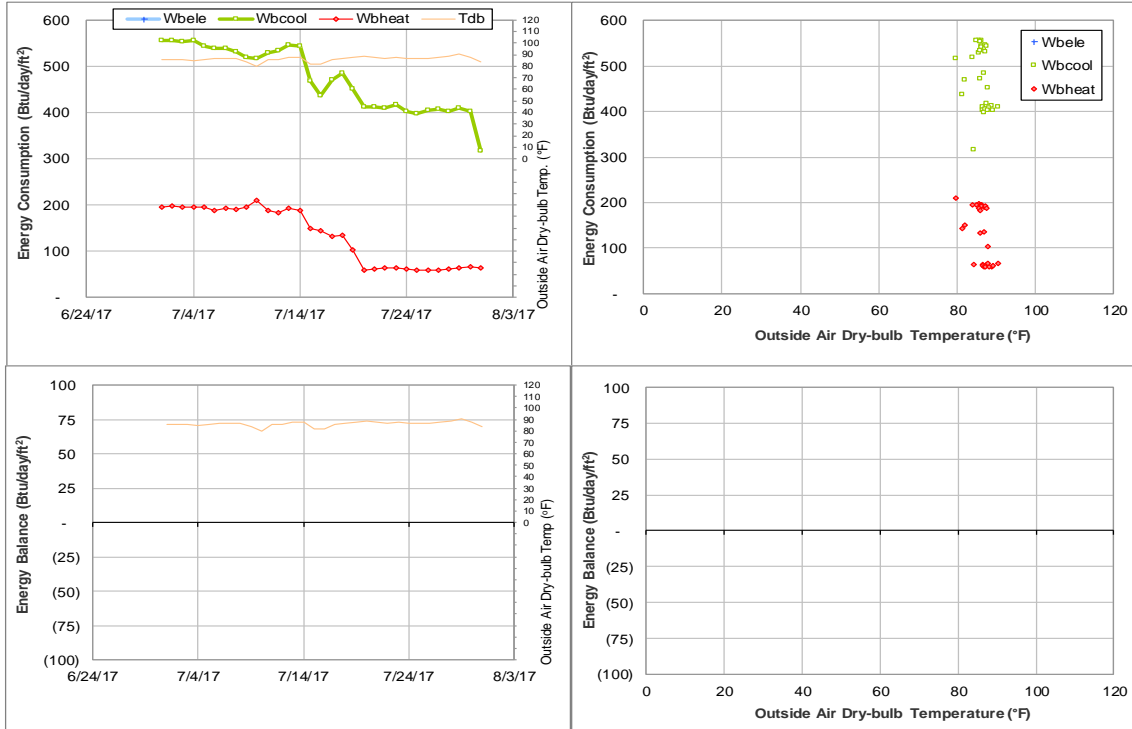


Figure IV-139 Plank LLC TAMU BLDG # 1404 Energy Balance Plot during July 2017

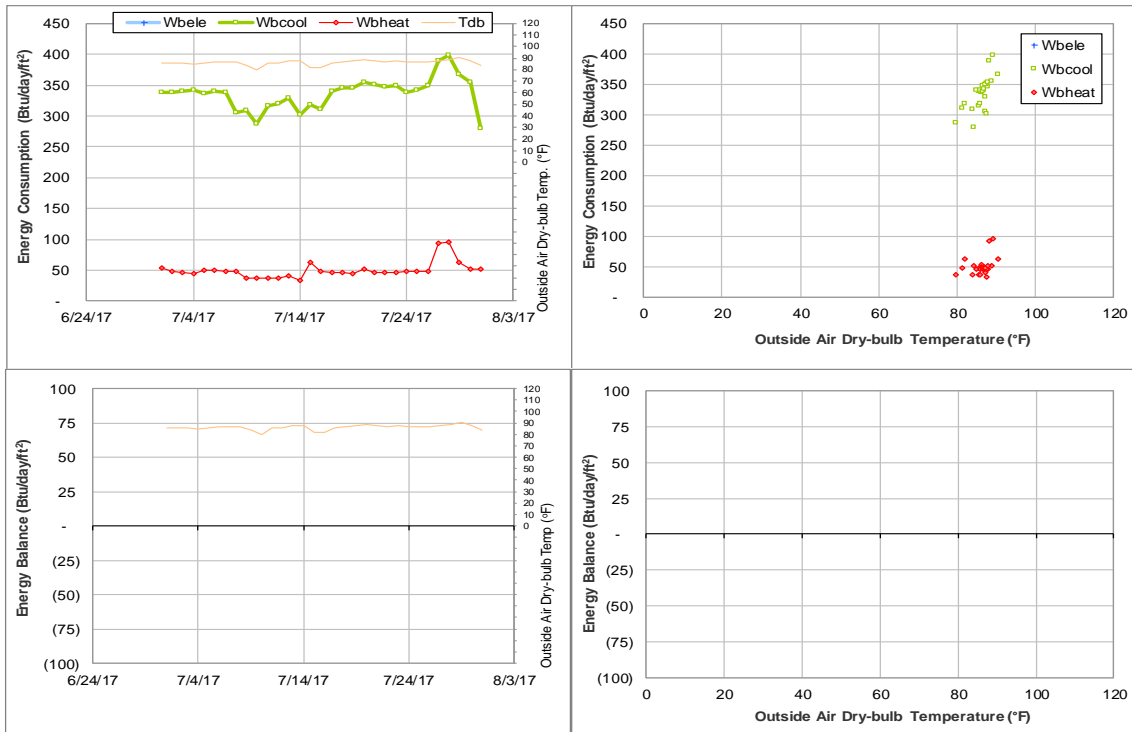


Figure IV-140 Ash II LLC TAMU BLDG # 1405 Energy Balance Plot during July 2017

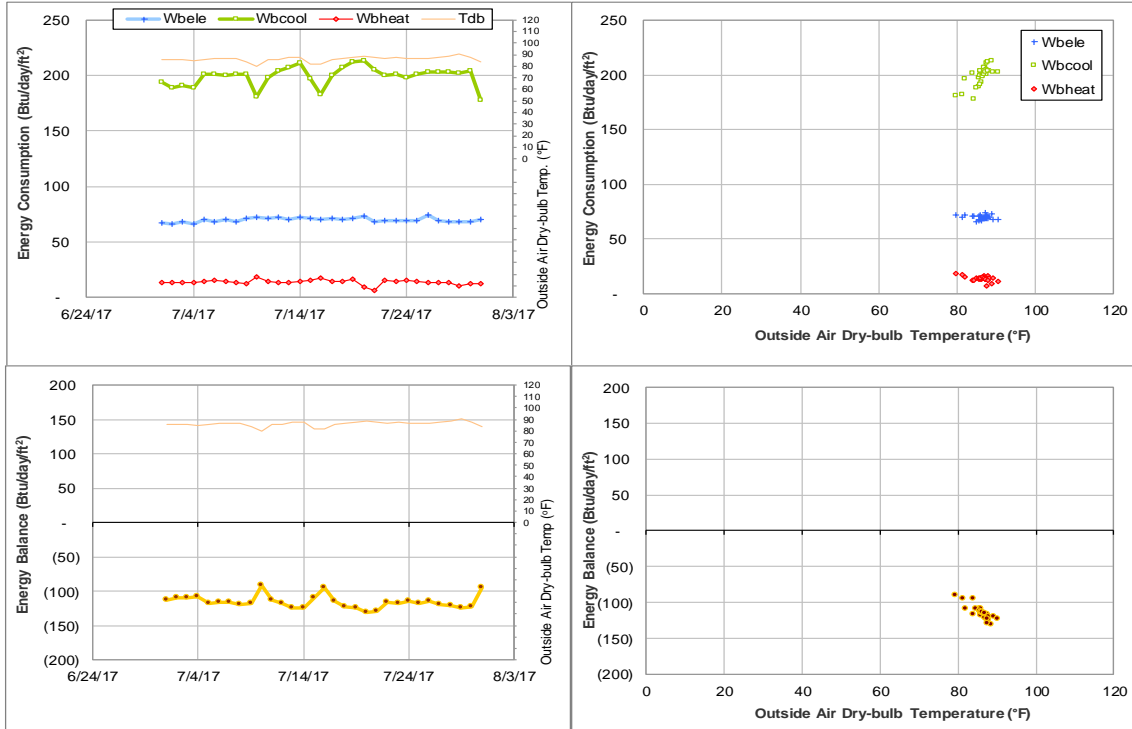


Figure IV-141 Hullabaloo Residence Hall TAMU BLDG # 1416 Energy Balance Plot during July 2017

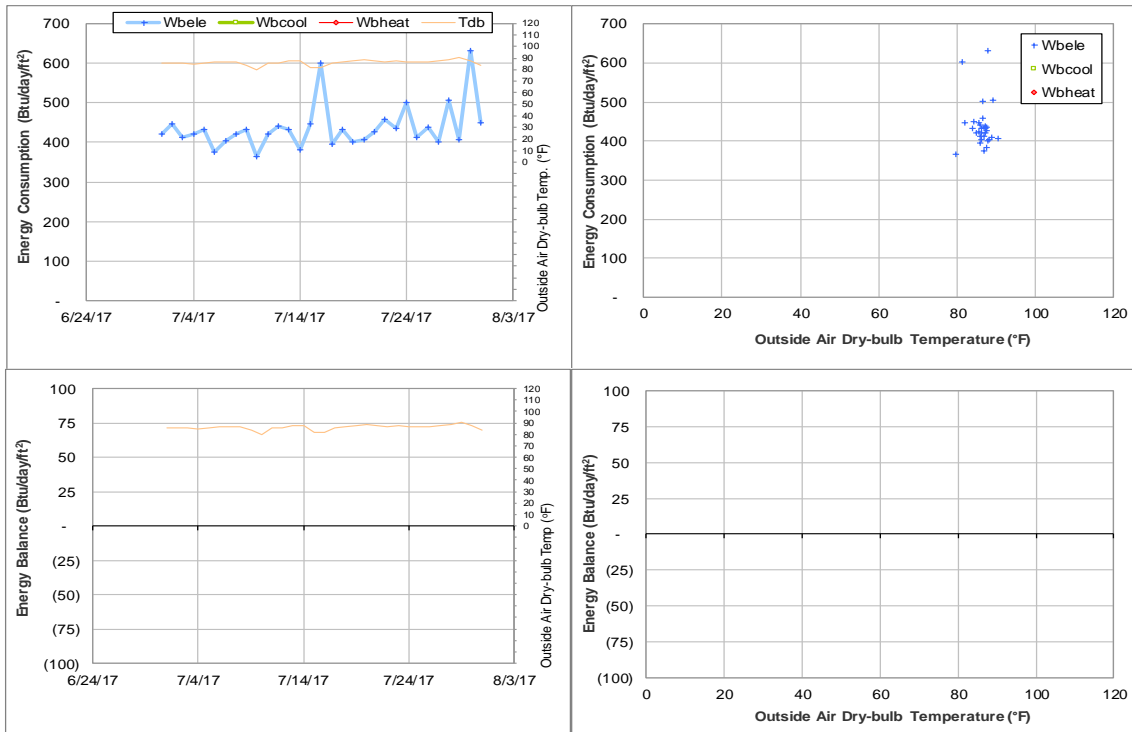


Figure IV-142 University Apartments - Laundry at the Gardens TAMU BLDG # 1450 Energy Balance Plot during July 2017

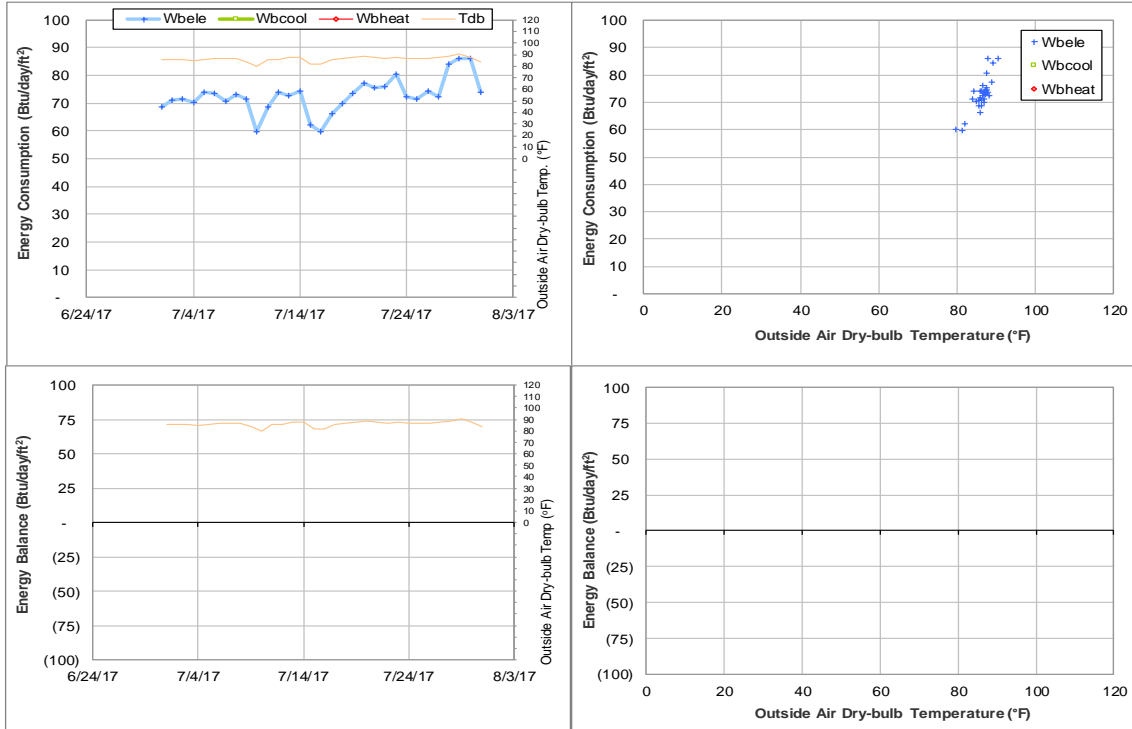


Figure IV-143 University Apartments - The Gardens J TAMU BLDG # 1451 Energy Balance Plot during July 2017

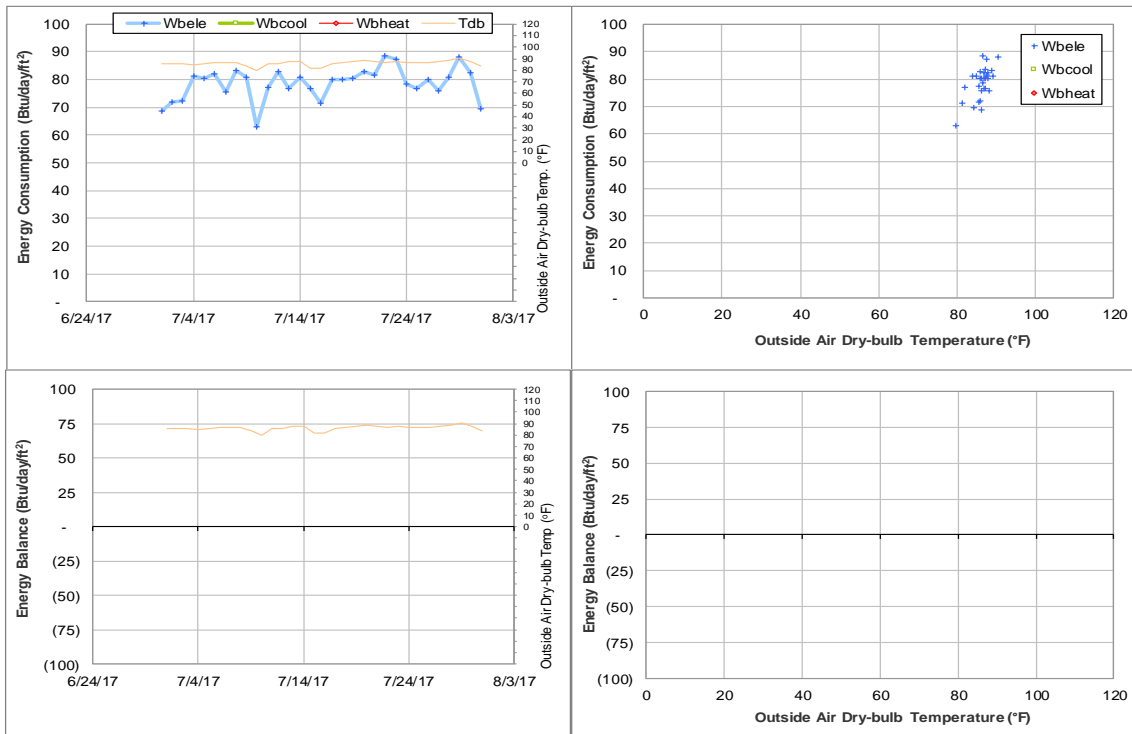


Figure IV-144 University Apartments - The Gardens K TAMU BLDG # 1452 Energy Balance Plot during July 2017

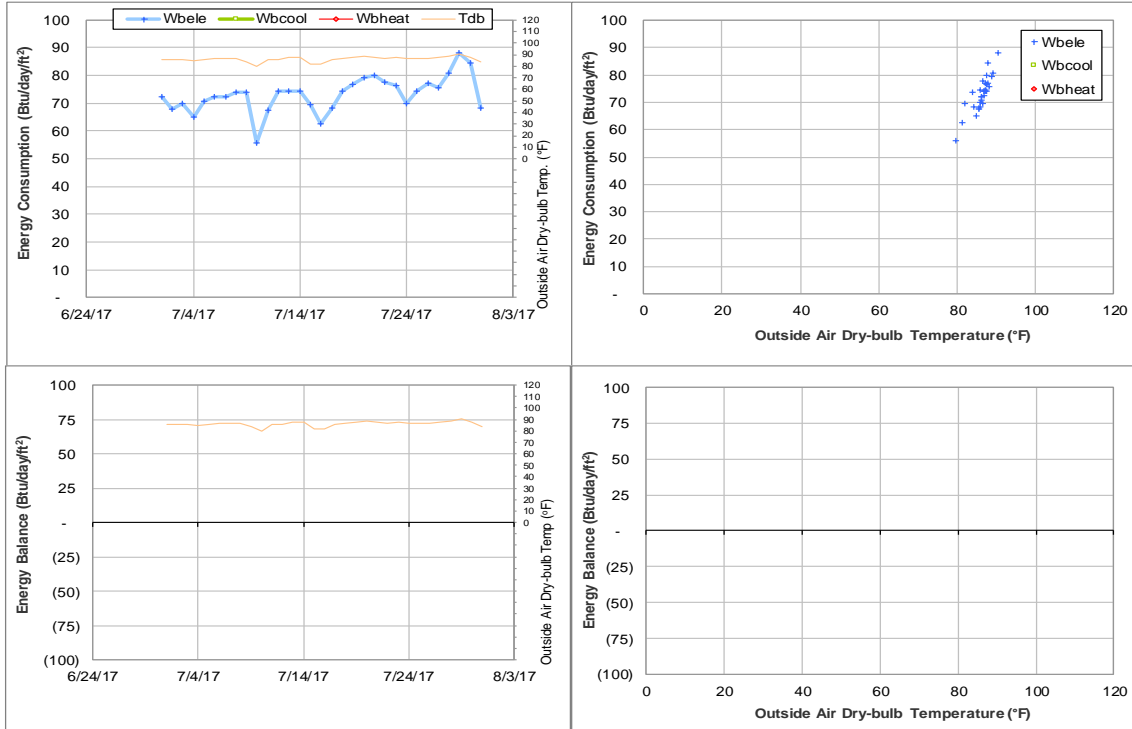


Figure IV-145 University Apartments - The Gardens L TAMU BLDG # 1453 Energy Balance Plot during July 2017

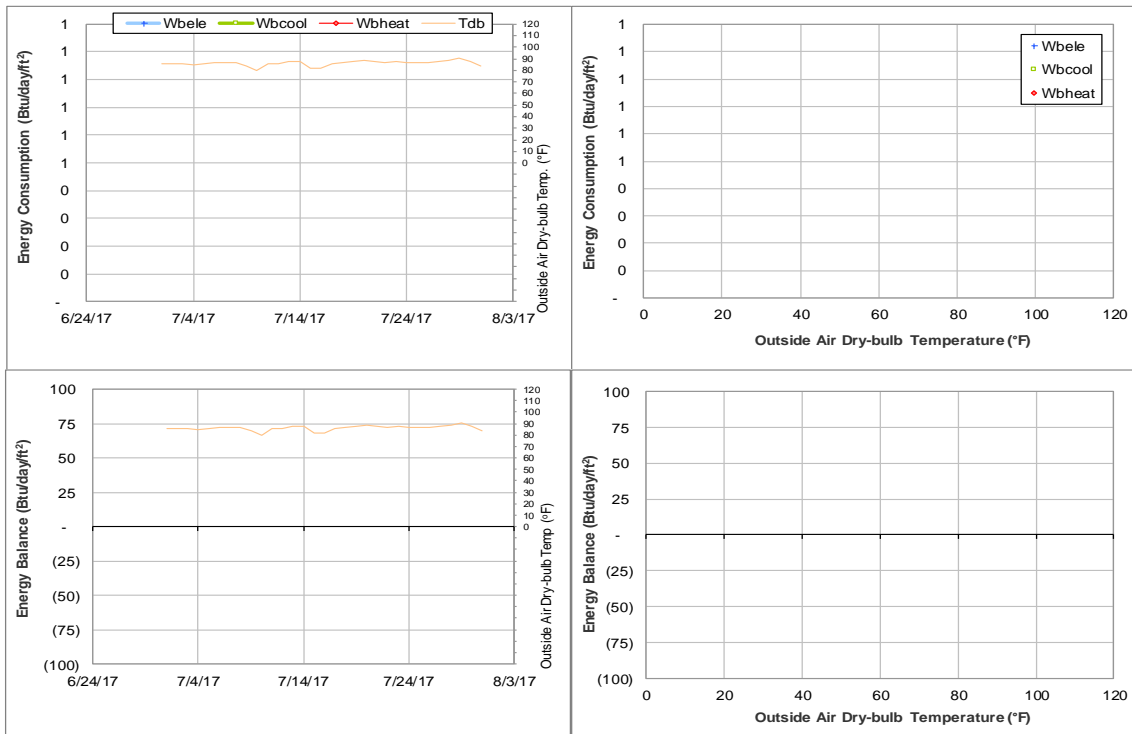


Figure IV-146 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during July 2017

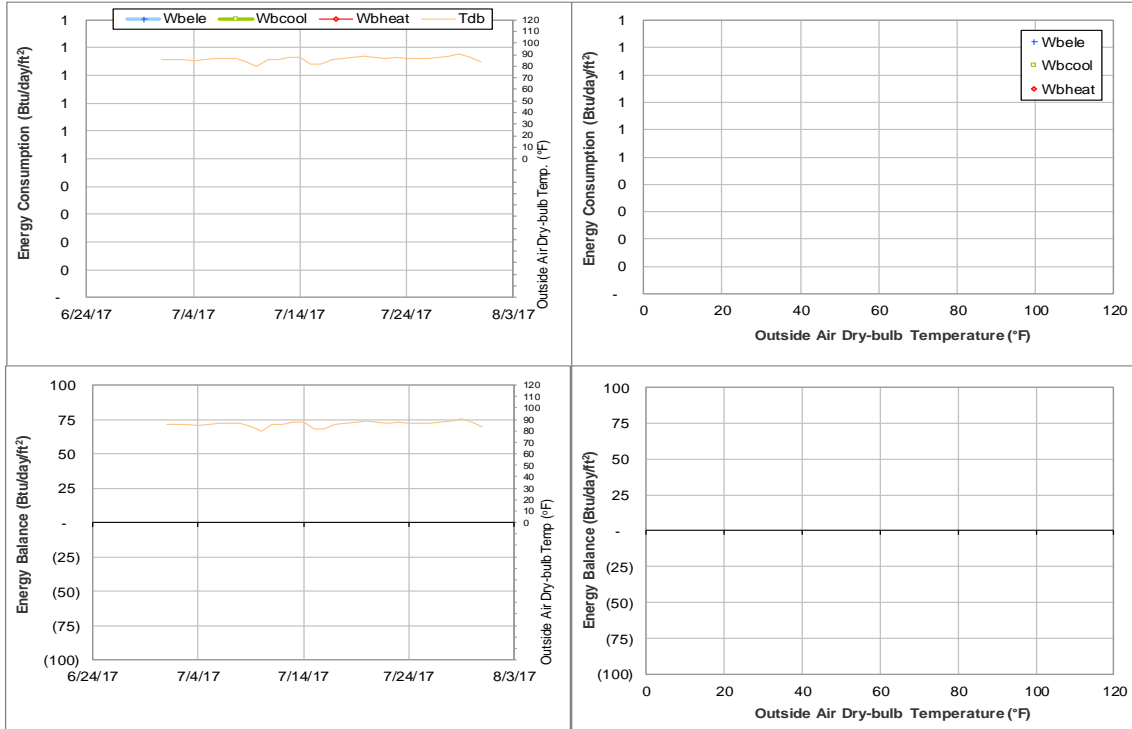


Figure IV-147 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during July 2017

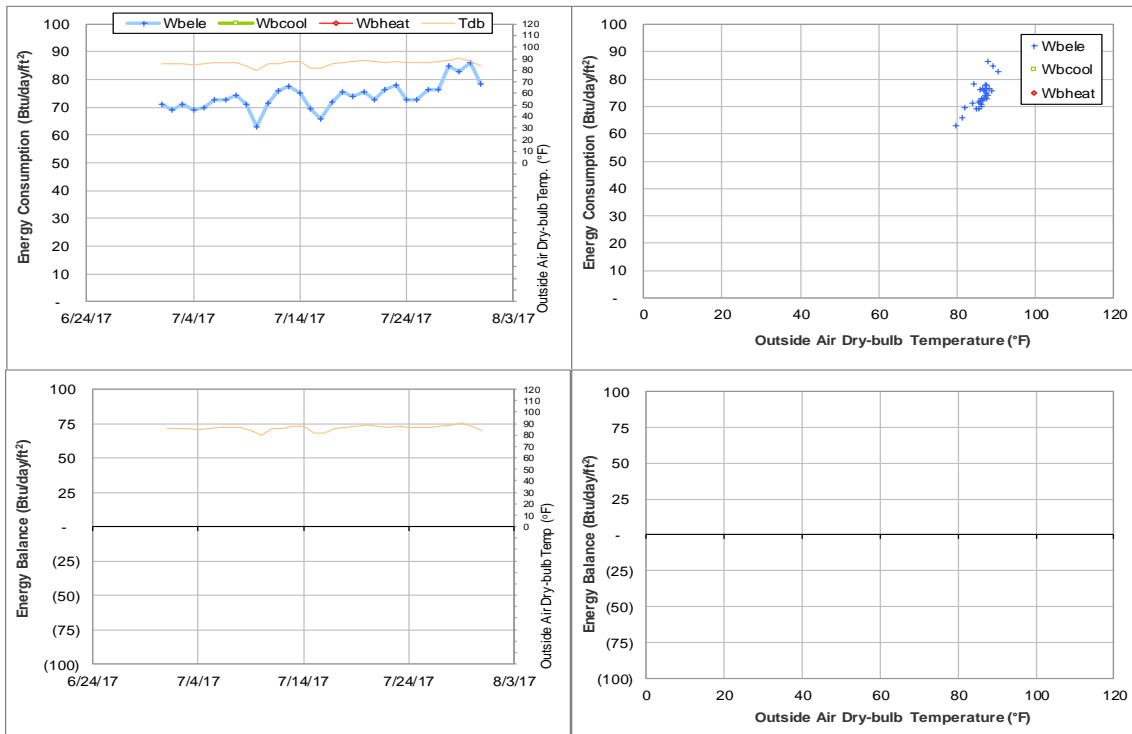


Figure IV-148 University Apartments - The Gardens H TAMU BLDG # 1456 Energy Balance Plot during July 2017

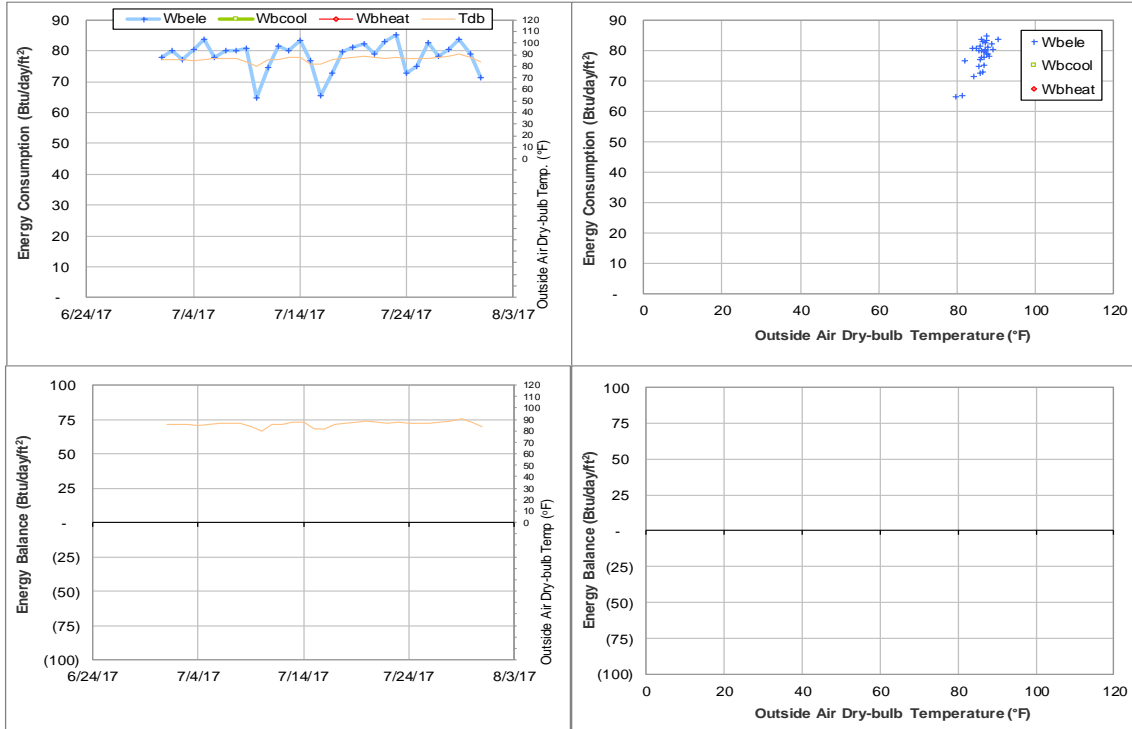


Figure IV-149 University Apartments - The Gardens M TAMU BLDG # 1457 Energy Balance Plot during July 2017

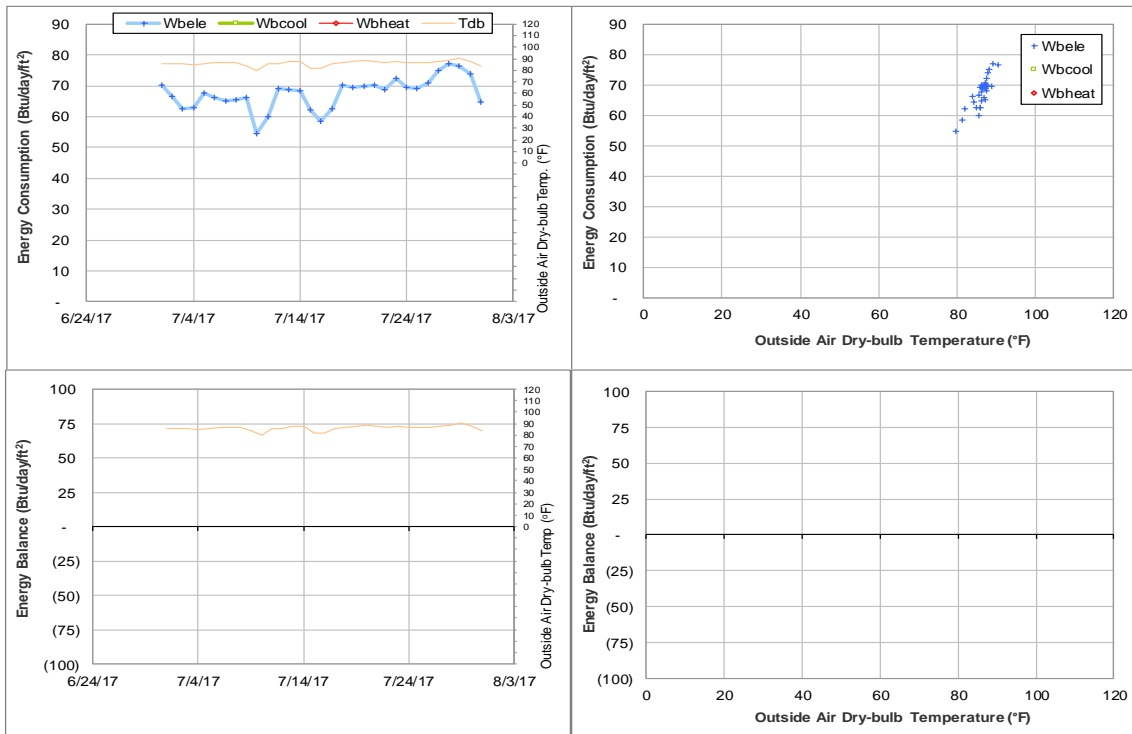


Figure IV-150 University Apartments - The Gardens N TAMU BLDG # 1458 Energy Balance Plot during July 2017

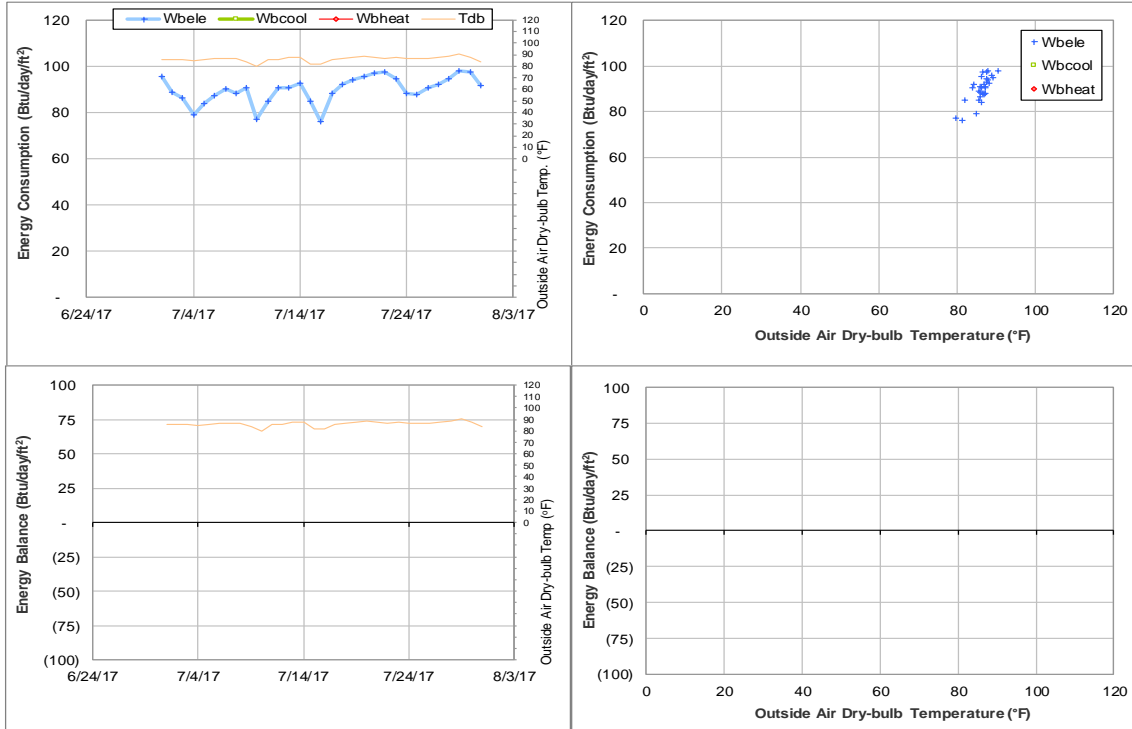


Figure IV-151 University Apartments - The Gardens P TAMU BLDG # 1459 Energy Balance Plot during July 2017

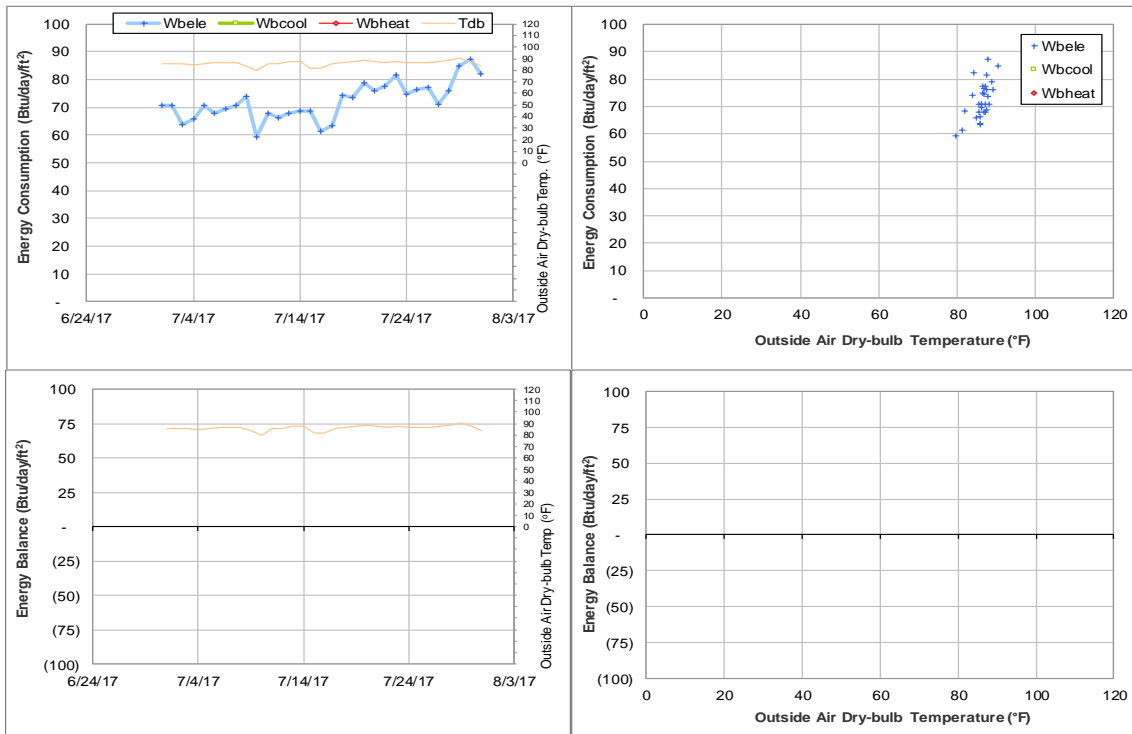


Figure IV-152 University Apartments - The Gardens Q TAMU BLDG # 1460 Energy Balance Plot during July 2017

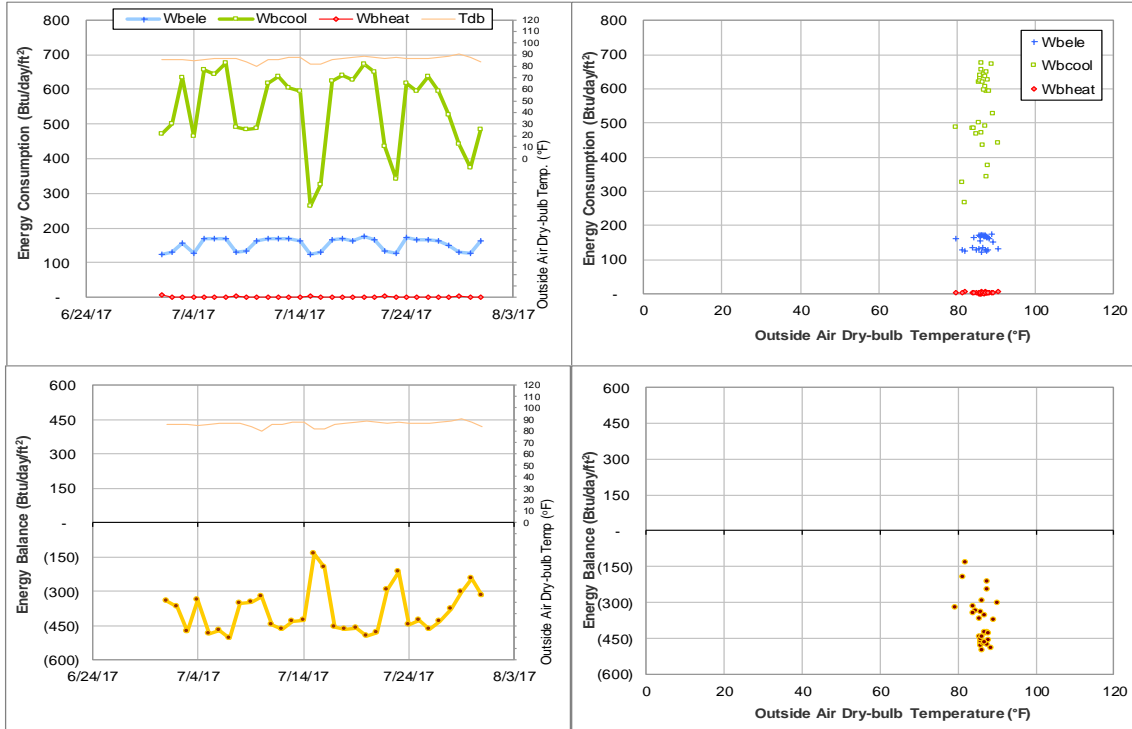


Figure IV-153 Utilities & Energy Services Business Office TAMU BLDG # 1497 Energy Balance Plot during July 2017

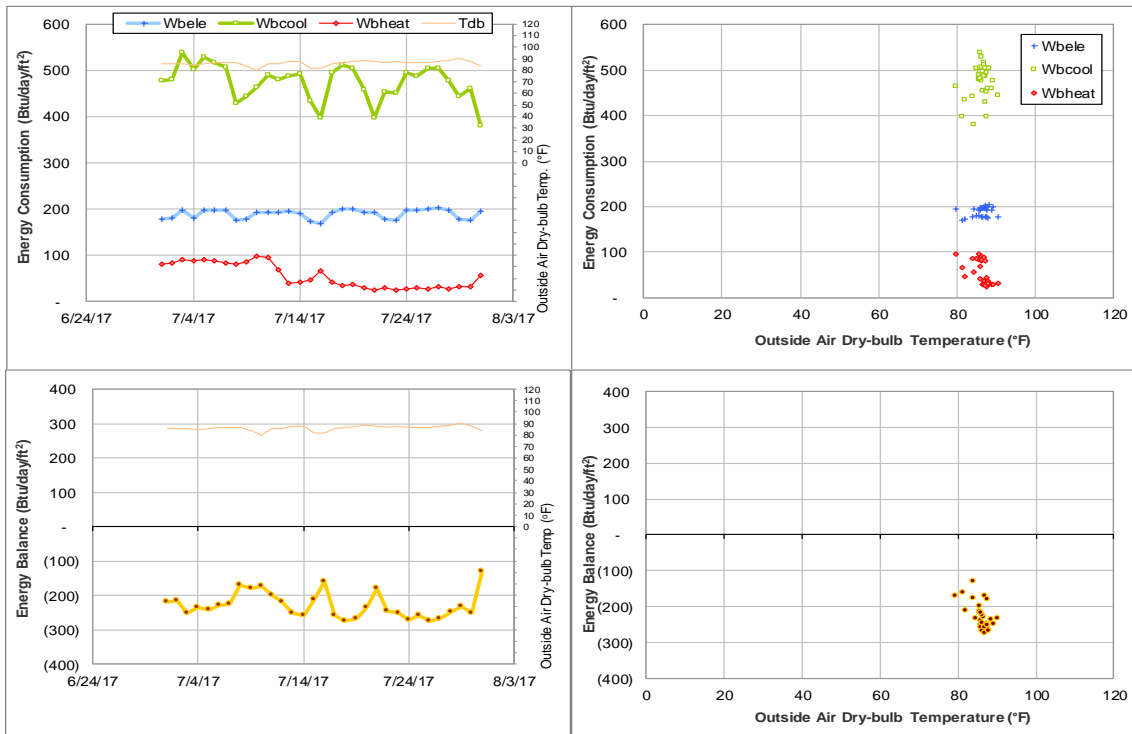


Figure IV-154 Kleberg Center TAMU BLDG # 1501 Energy Balance Plot during July 2017

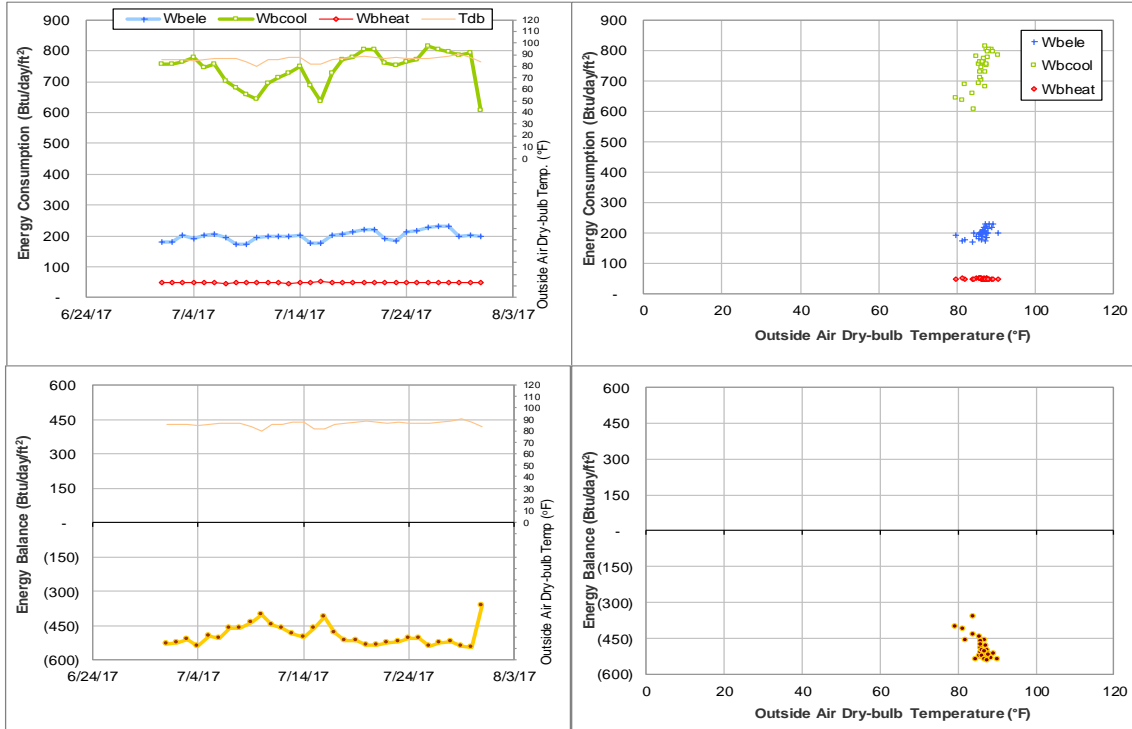


Figure IV-155 Heep Center TAMU BLDG # 1502 Energy Balance Plot during July 2017

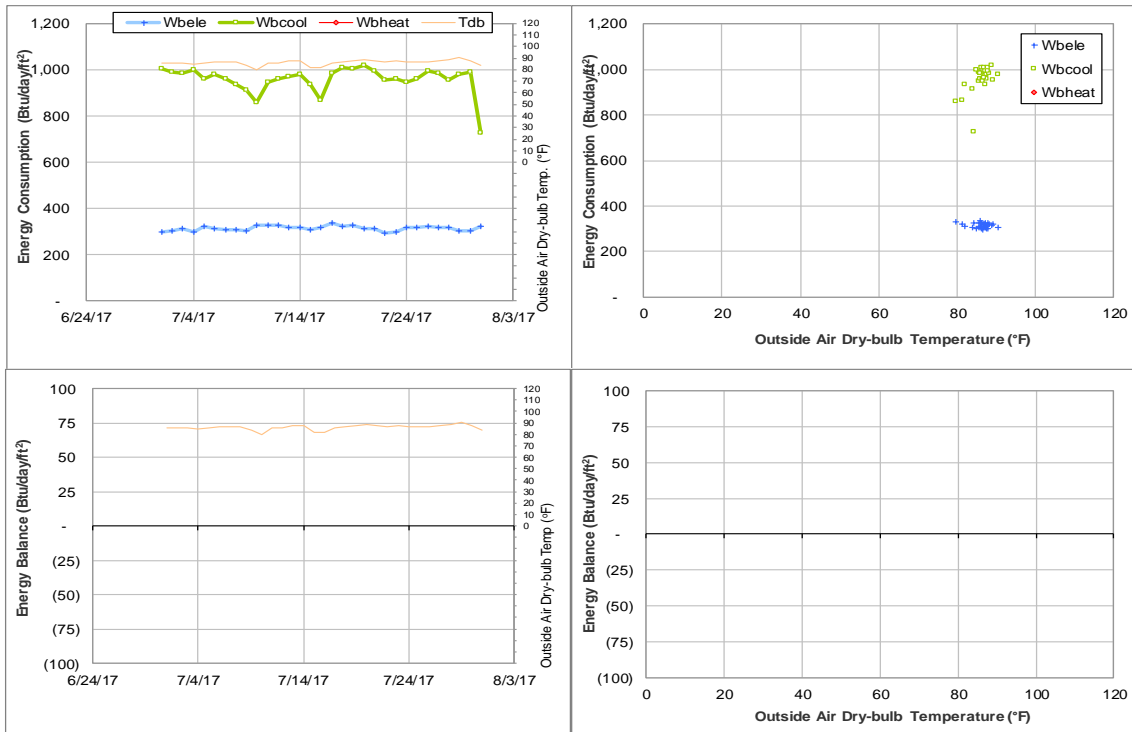


Figure IV-156 Cater-Mattil Hall TAMU BLDG # 1503 Energy Balance Plot during July 2017

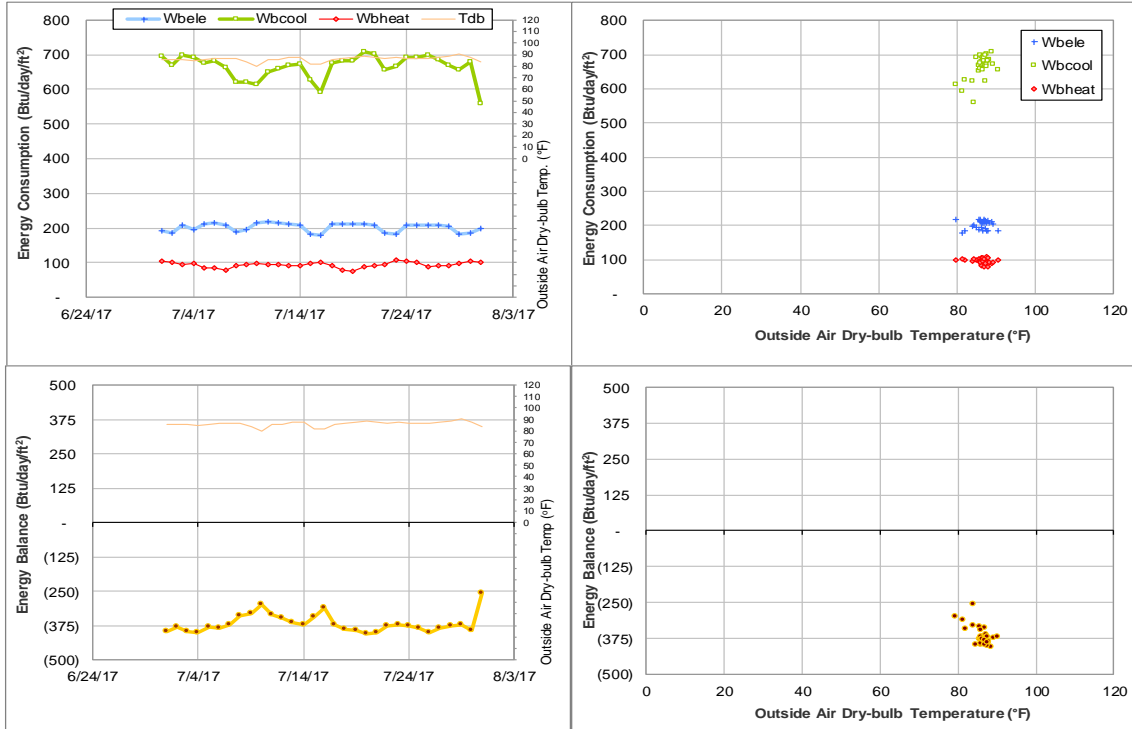


Figure IV-157 Reynolds Medical Sciences Building TAMU BLDG # 1504 Energy Balance Plot during July 2017

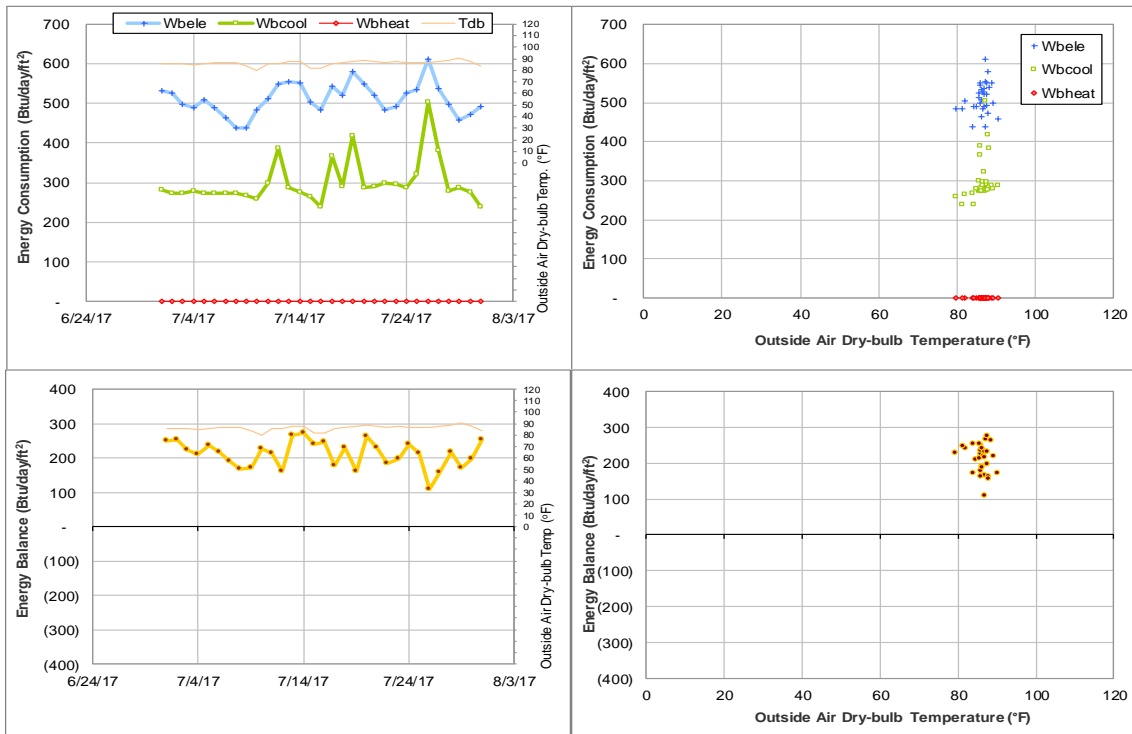


Figure IV-158 Rosenthal Meat Science & Technology Center TAMU BLDG # 1505 Energy Balance Plot during July 2017

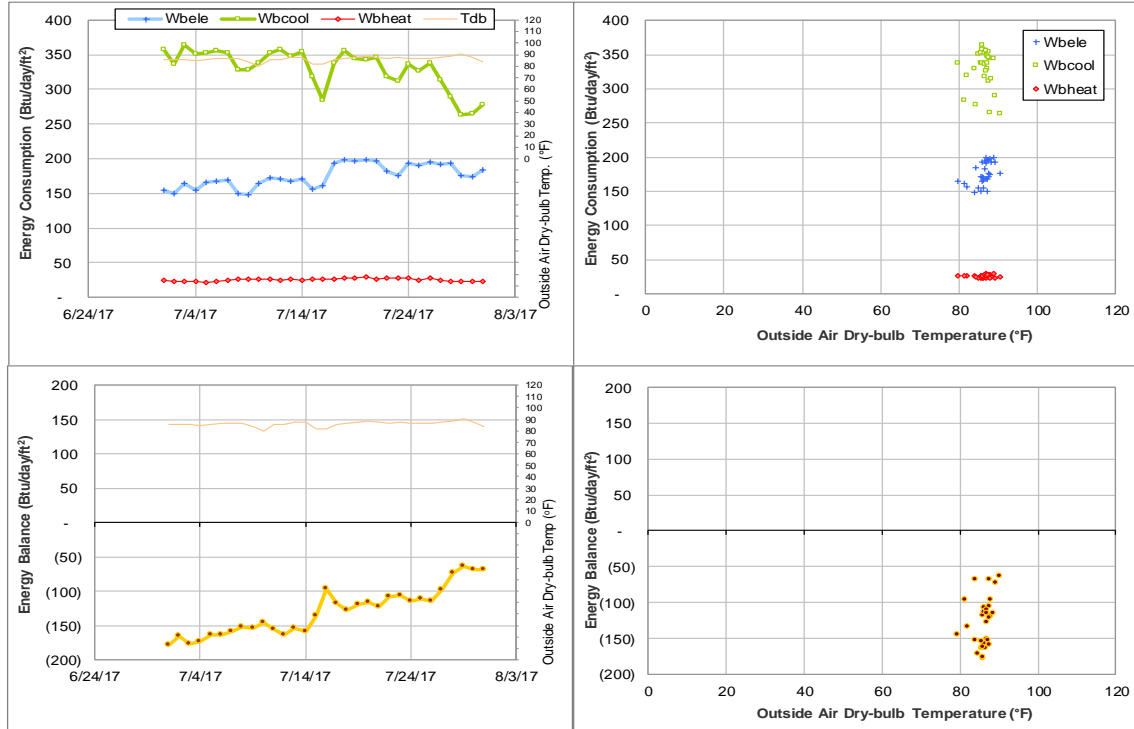


Figure IV-159 Horticulture-Forest Science Building TAMU BLDG # 1506 Energy Balance Plot during July 2017

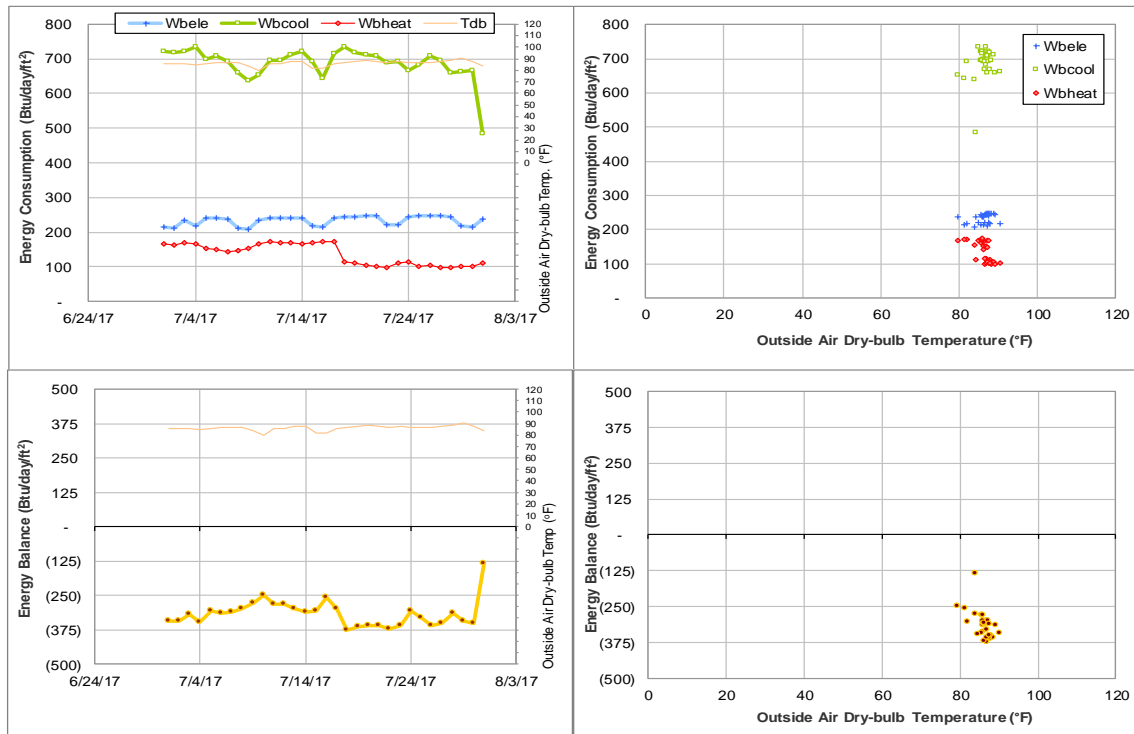


Figure IV-160 Biochemistry-Biophysics Building TAMU BLDG # 1507 Energy Balance Plot during July 2017

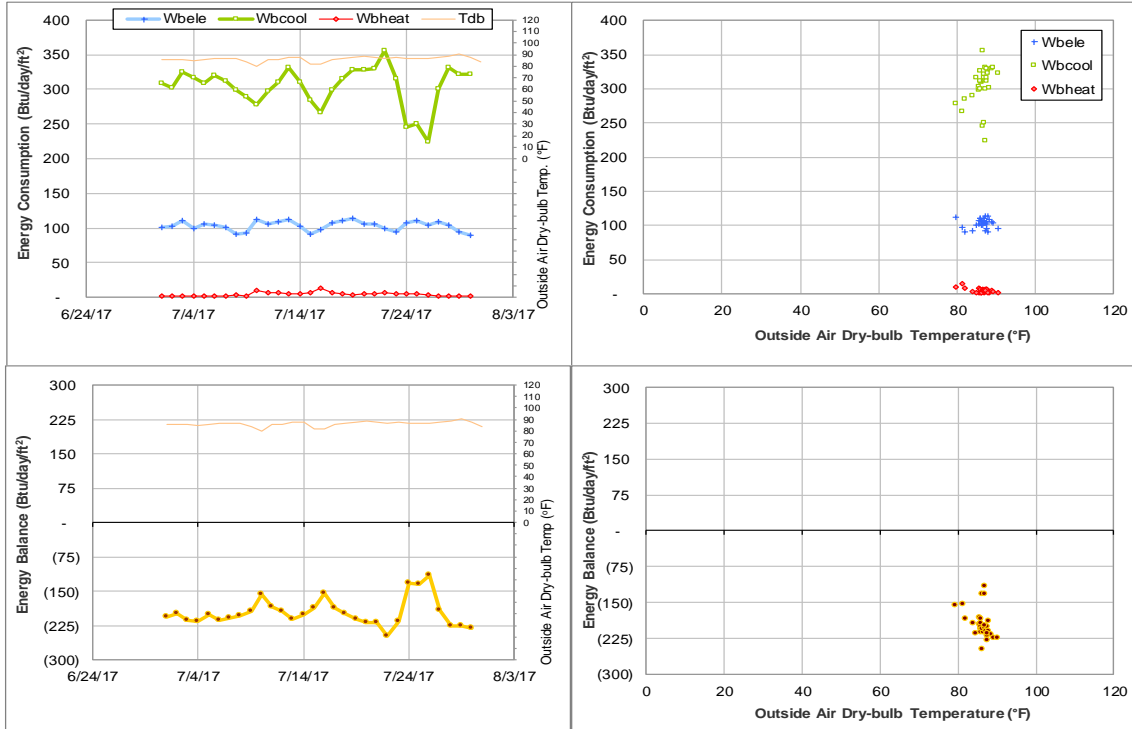


Figure IV-161 Price Hobgood Ag. Engineering Research Lab TAMU BLDG # 1508 Energy Balance Plot during July 2017

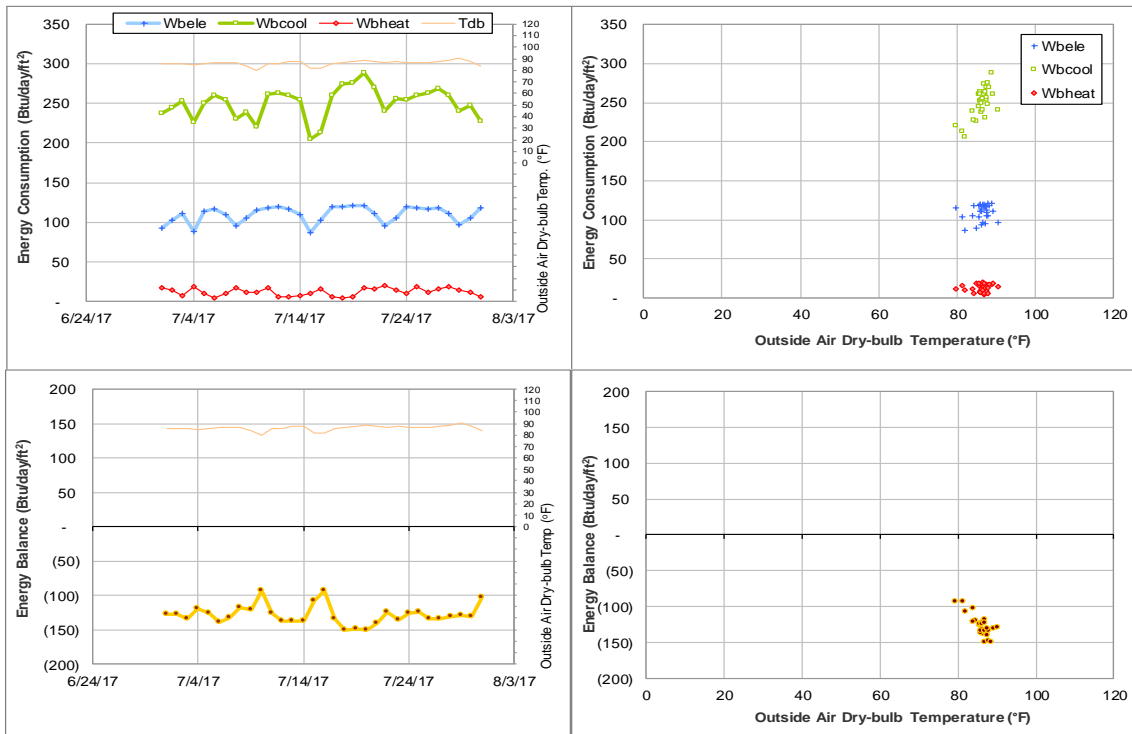


Figure IV-162 Medical Sciences Library TAMU BLDG # 1509 Energy Balance Plot during July 2017

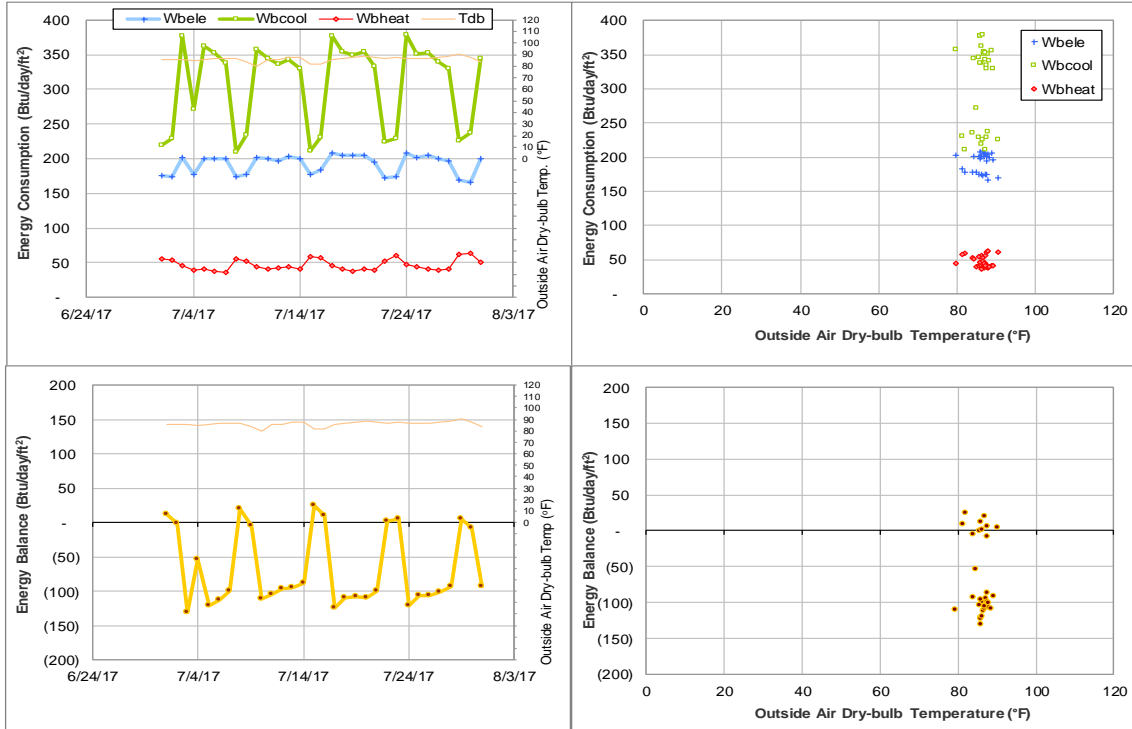


Figure IV-163 Wehner Building TAMU BLDG # 1510 Energy Balance Plot during July 2017

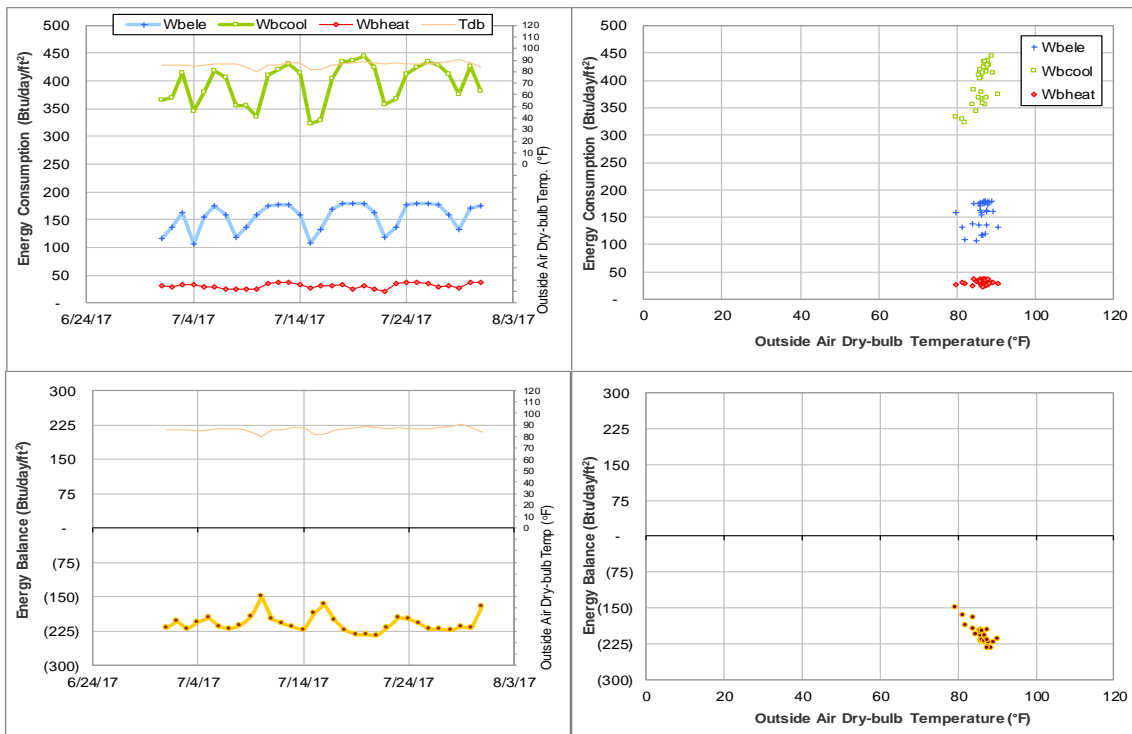


Figure IV-164 West Campus Library Facility TAMU BLDG # 1511 Energy Balance Plot during July 2017

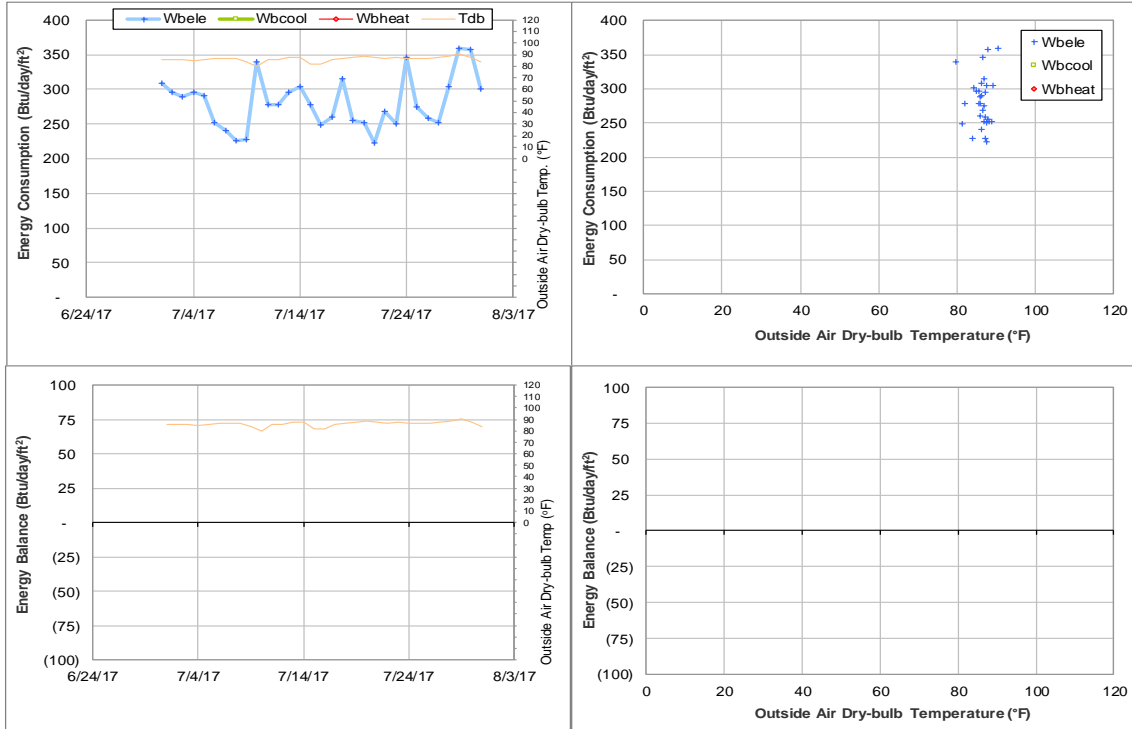


Figure IV-165 Southern Crop Improvement Greenhouse TAMU BLDG # 1512 Energy Balance Plot during July 2017

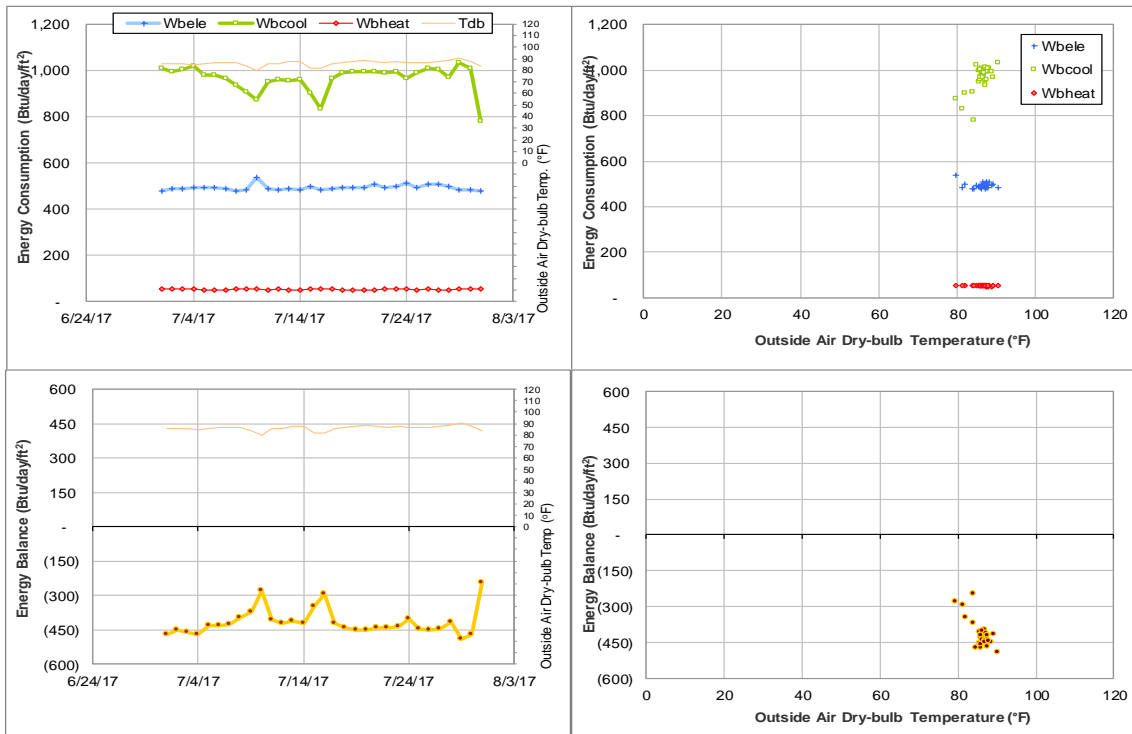


Figure IV-166 Borlaug Center for Southern Crop Improvement TAMU BLDG # 1513 Energy Balance Plot during July 2017

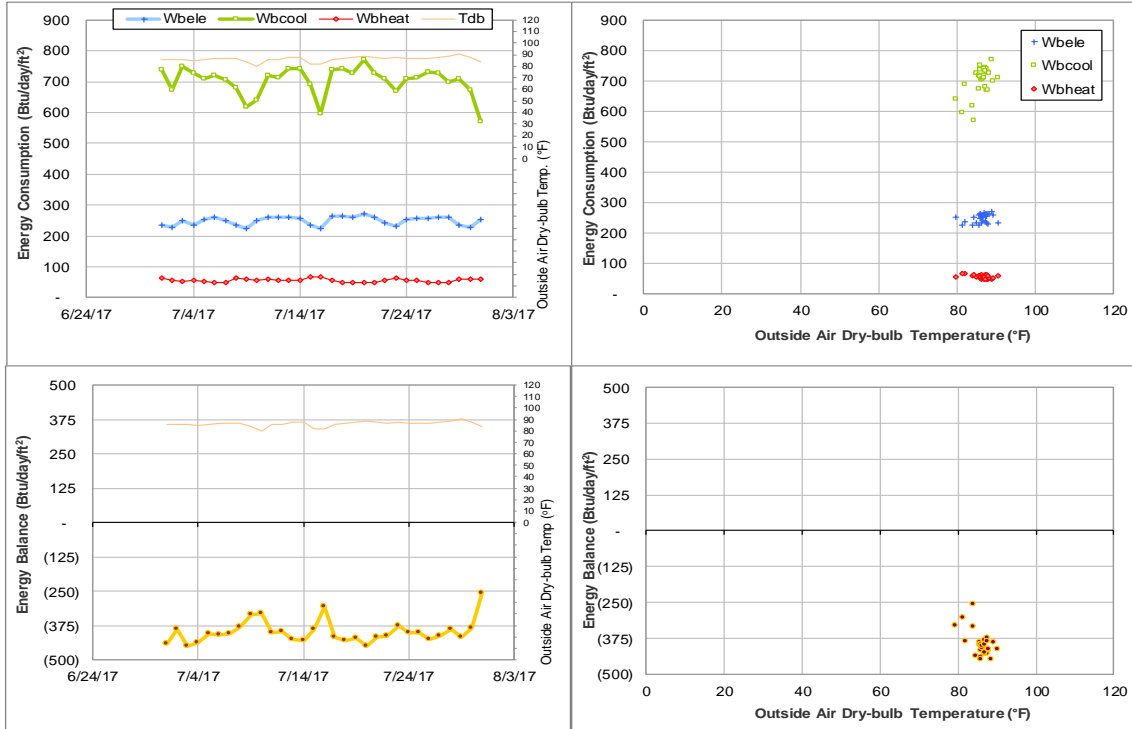


Figure IV-167 TX School of Rural Public Health TAMU BLDG # 1518 Energy Balance Plot during July 2017

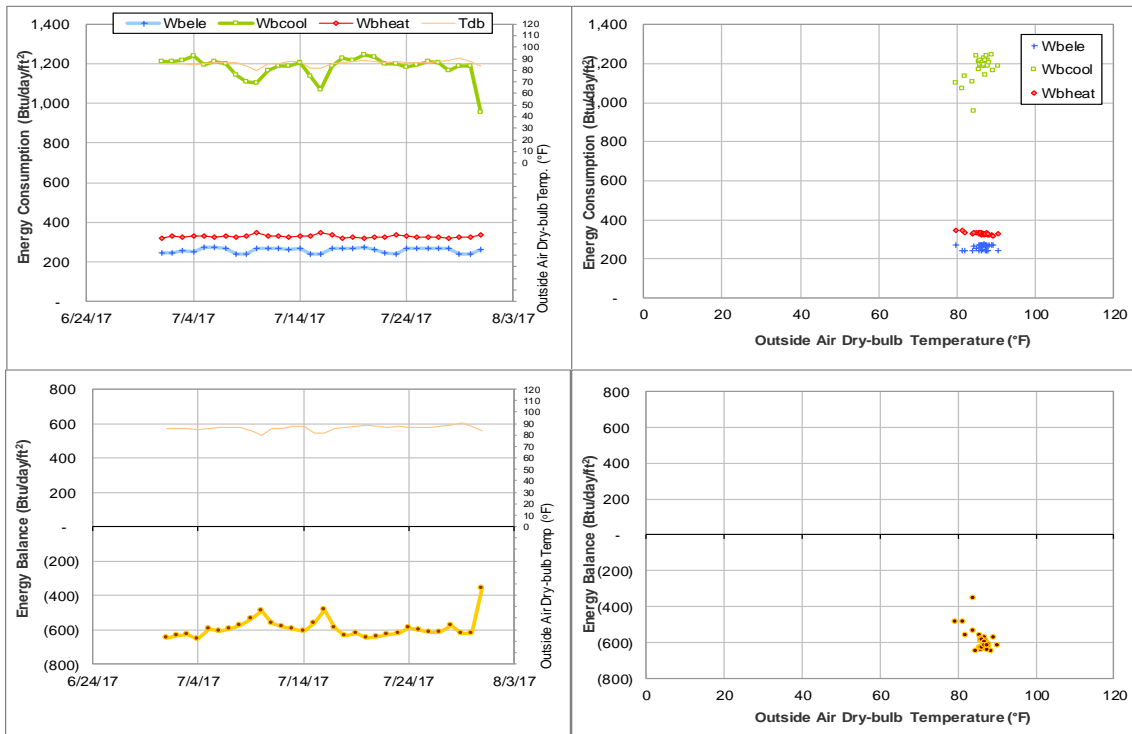


Figure IV-168 Nuclear Magnetic Resonance Facility TAMU BLDG # 1525 Energy Balance Plot during July 2017

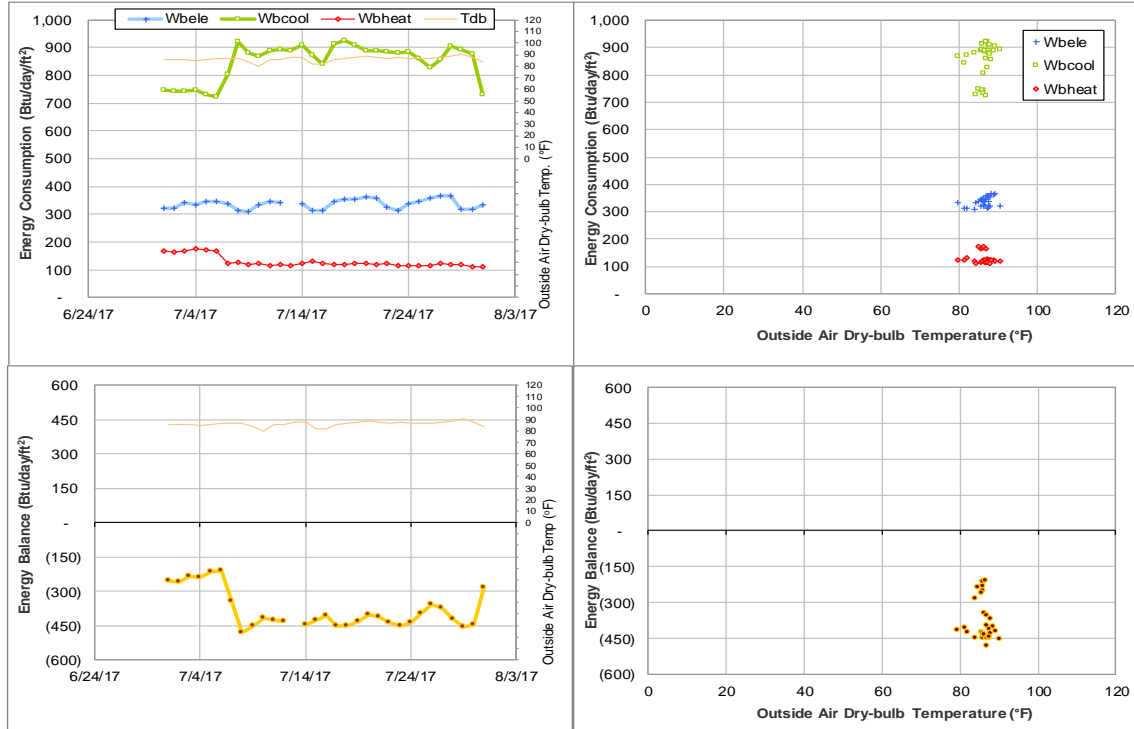


Figure IV-169 Interdisciplinary Life Sciences Building TAMU BLDG # 1530 Energy Balance Plot during July 2017

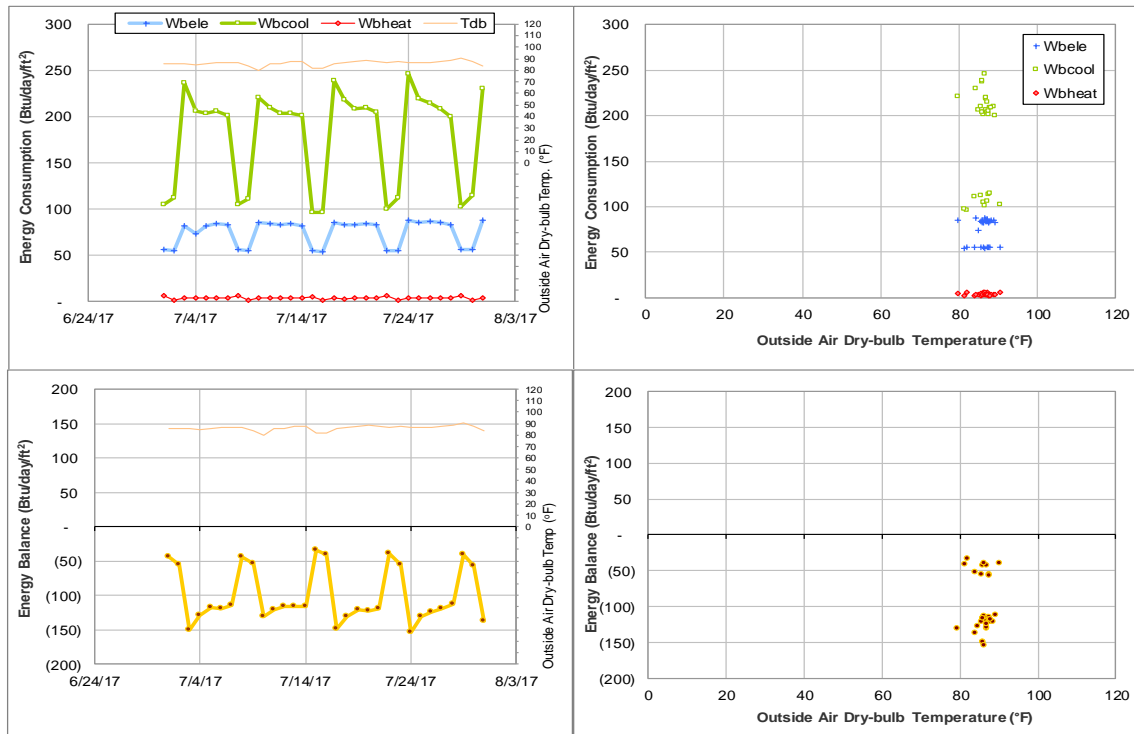


Figure IV-170 Agriculture and Life Sciences Building TAMU BLDG # 1535 Energy Balance Plot during July 2017

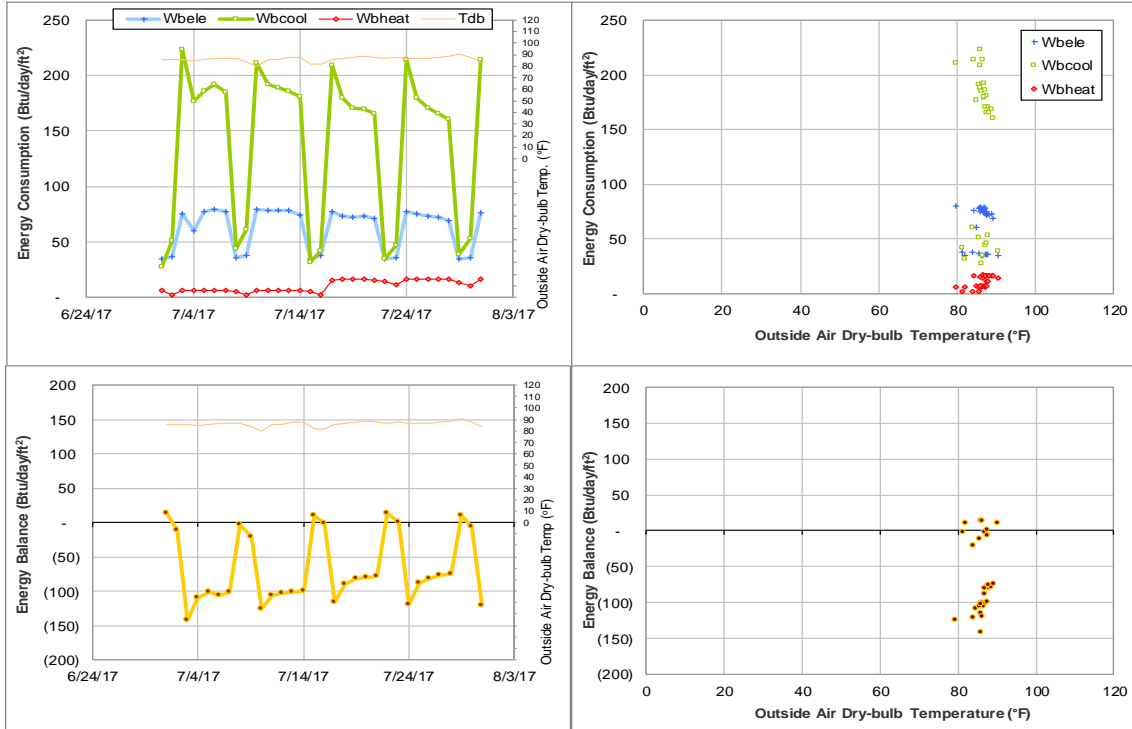


Figure IV-171 AgriLife Services Building TAMU BLDG # 1536 Energy Balance Plot during July 2017

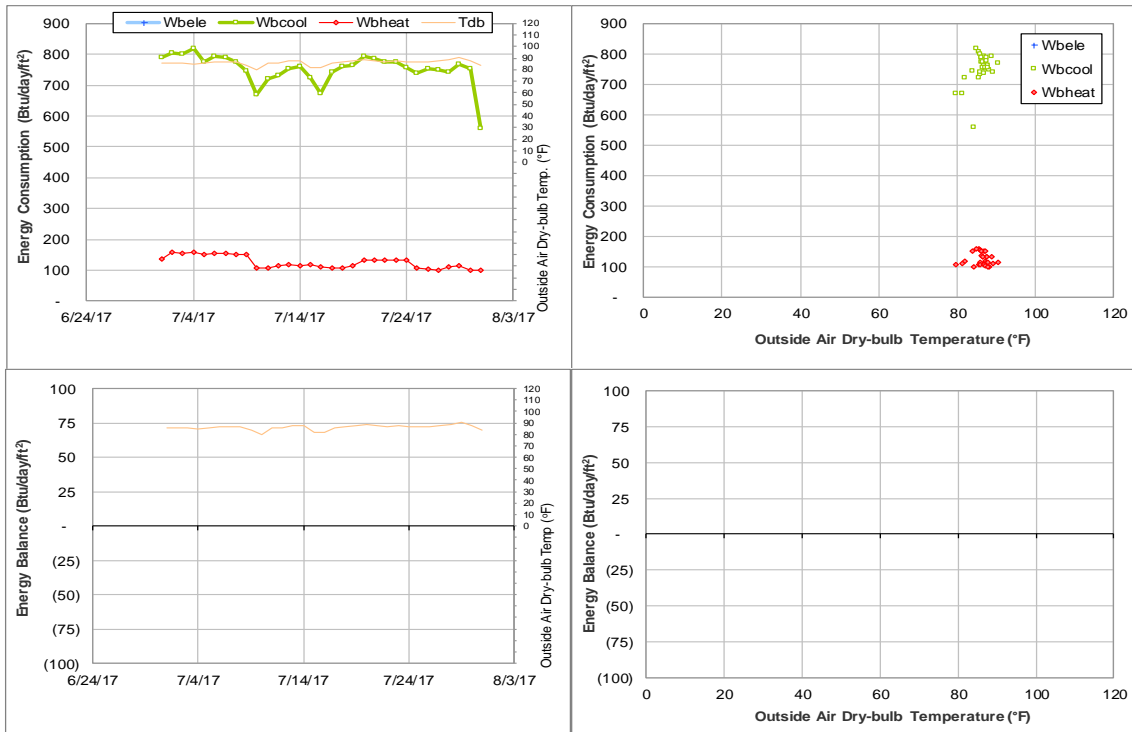


Figure IV-172 Agriculture Public Building TAMU BLDG # 1537 Energy Balance Plot during July 2017

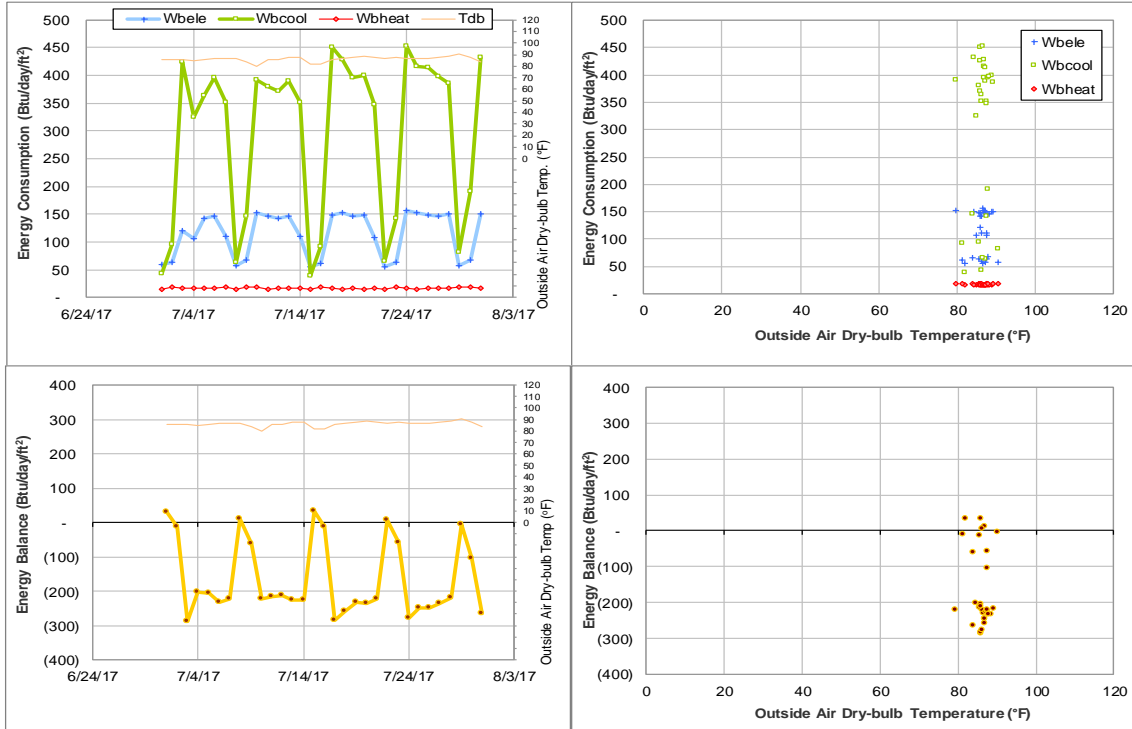


Figure IV-173 Agriculture Program Visitors Center TAMU BLDG # 1538 Energy Balance Plot during July 2017

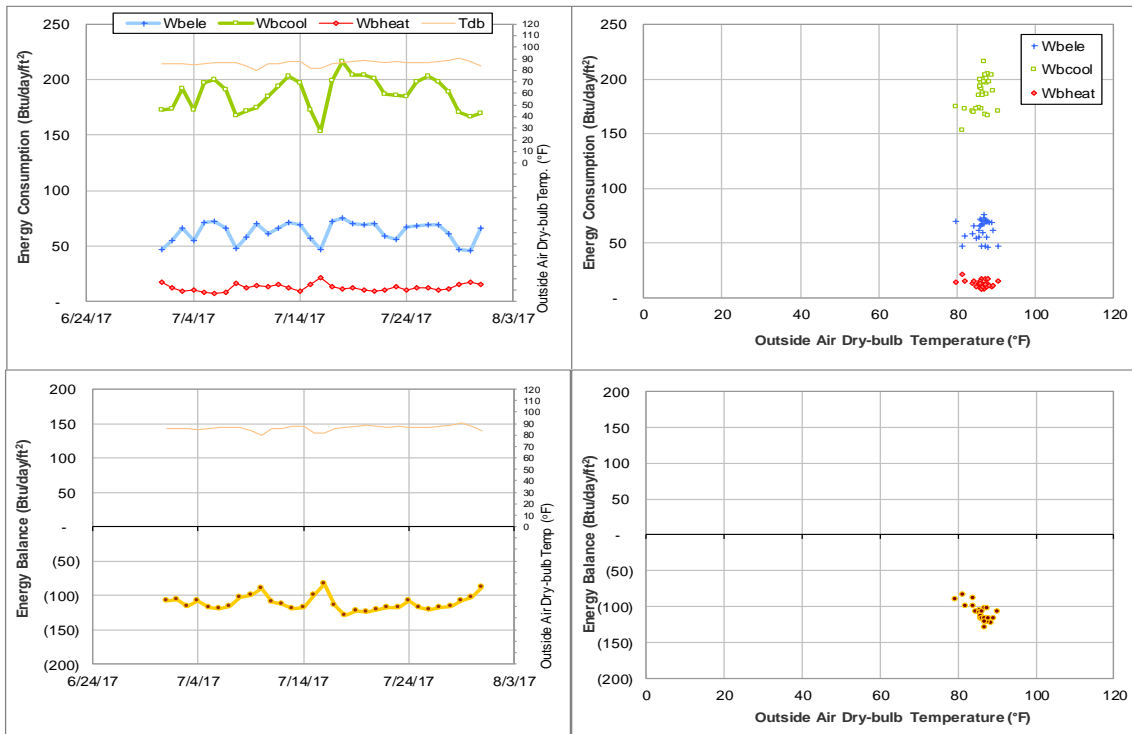


Figure IV-174 Physical Education Activity Program Building TAMU BLDG # 1540 Energy Balance Plot during July 2017

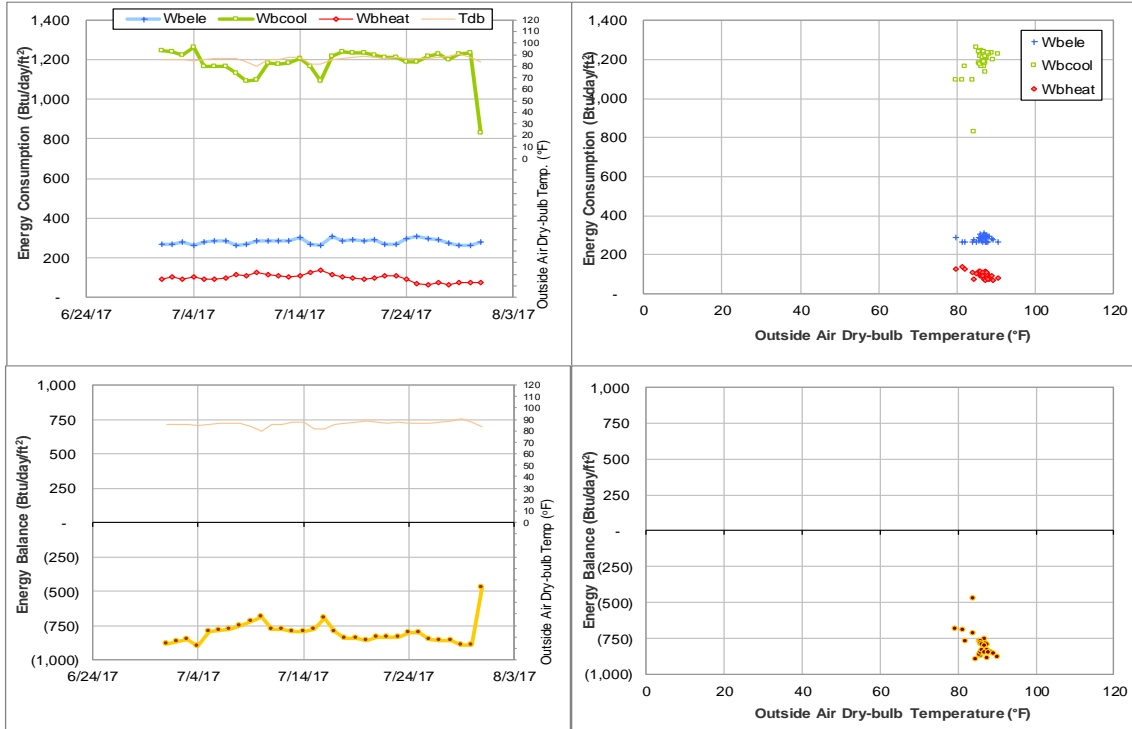


Figure IV-175 Human Clinical Research Building TAMU BLDG # 1542 Energy Balance Plot during July 2017

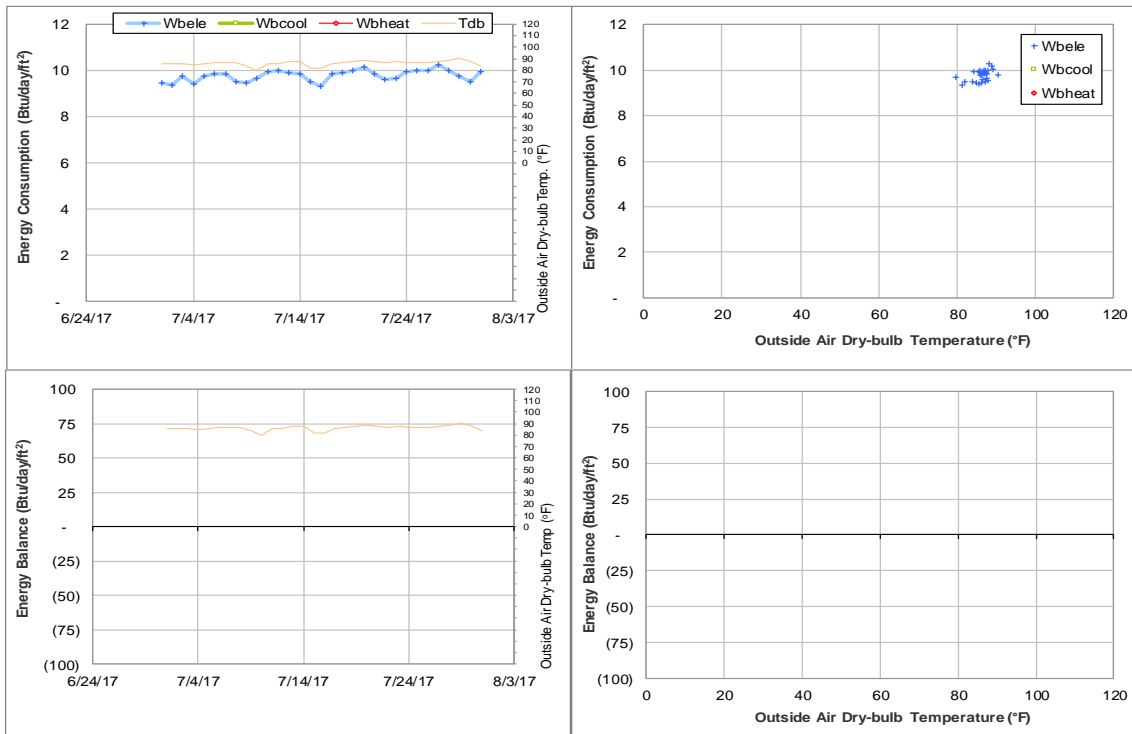


Figure IV-176 Cain Garage TAMU BLDG # 1544 Energy Balance Plot during July 2017

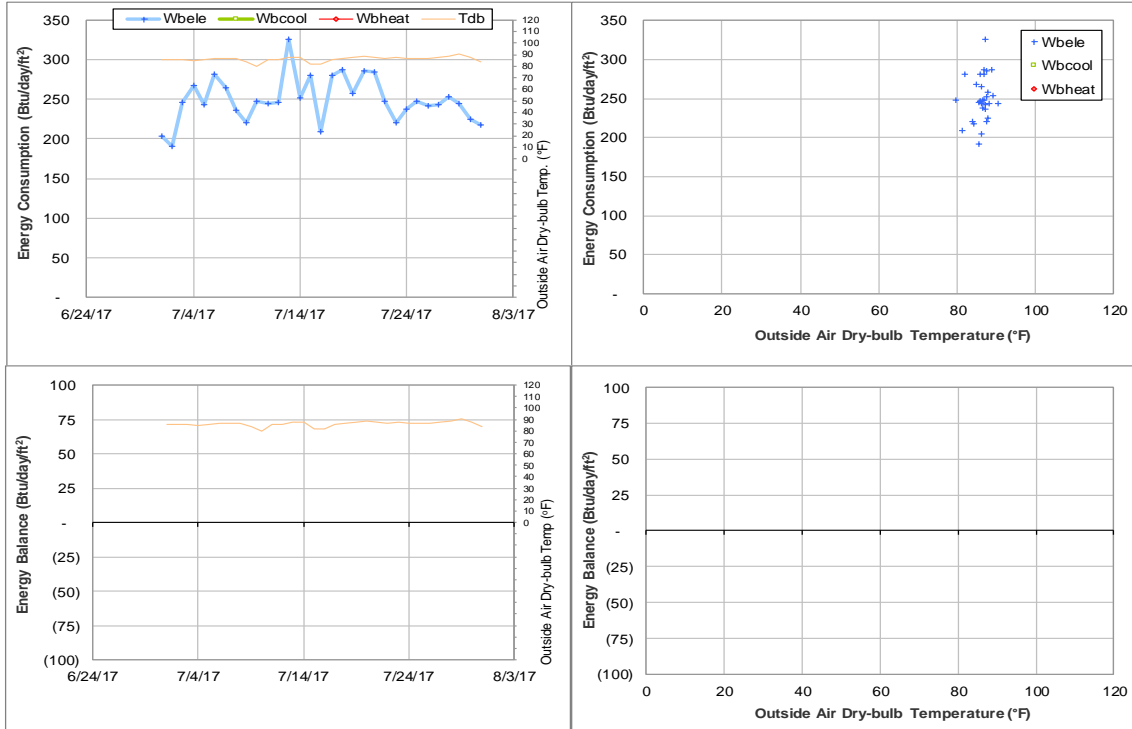


Figure IV-177 Olsen Field at Bluebell Park TAMU BLDG # 1550 Energy Balance Plot during July 2017

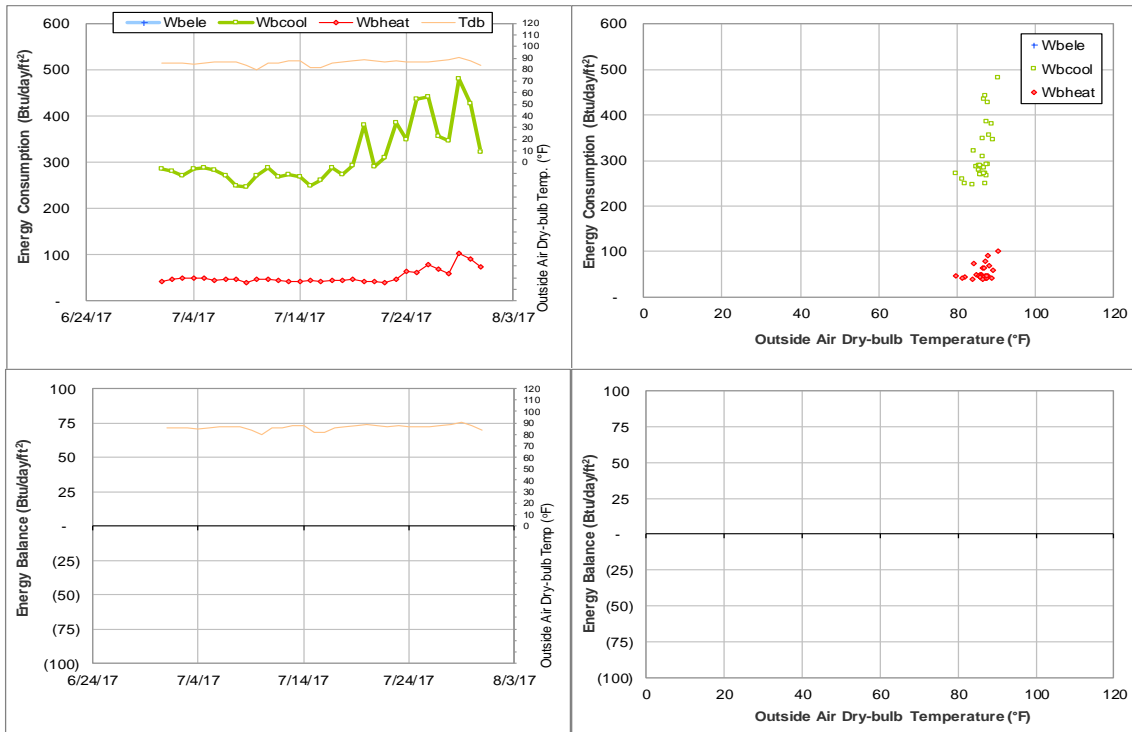


Figure IV-178 Reed Arena and Cox-McFerrin Center TAMU BLDG # 1554 Energy Balance Plot during July 2017

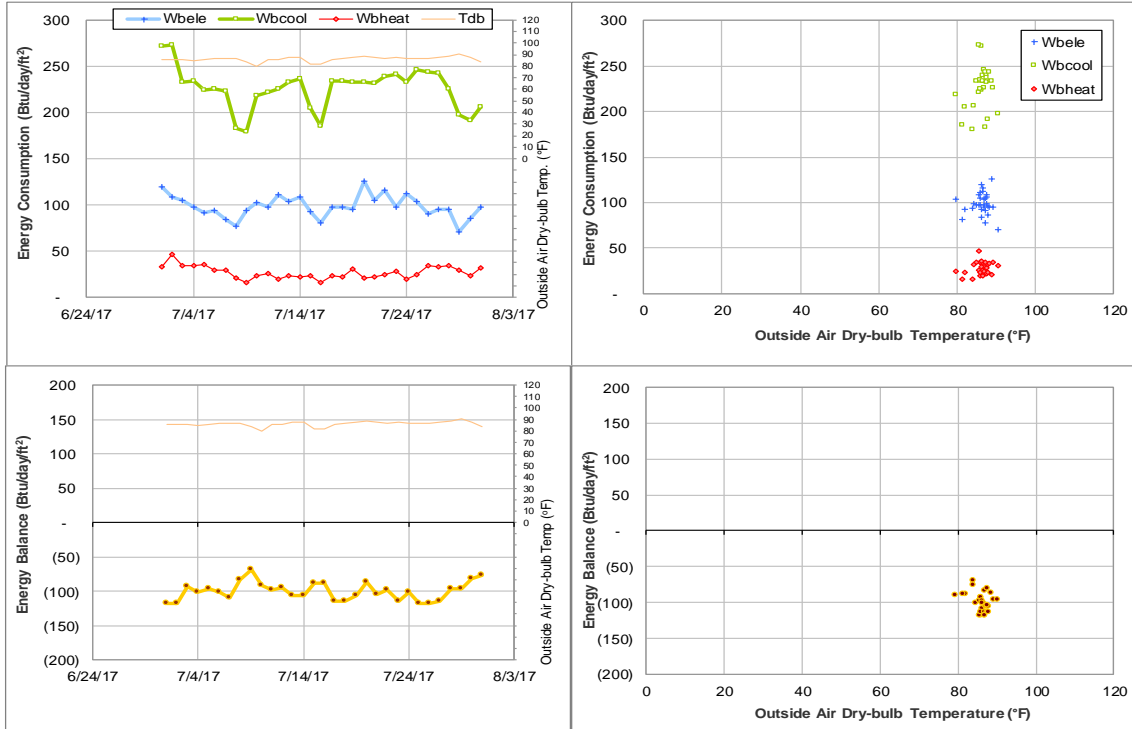


Figure IV-179 Cox-McFerrin Center for Aggie Basketball TAMU BLDG # 1558 Energy Balance Plot during July 2017

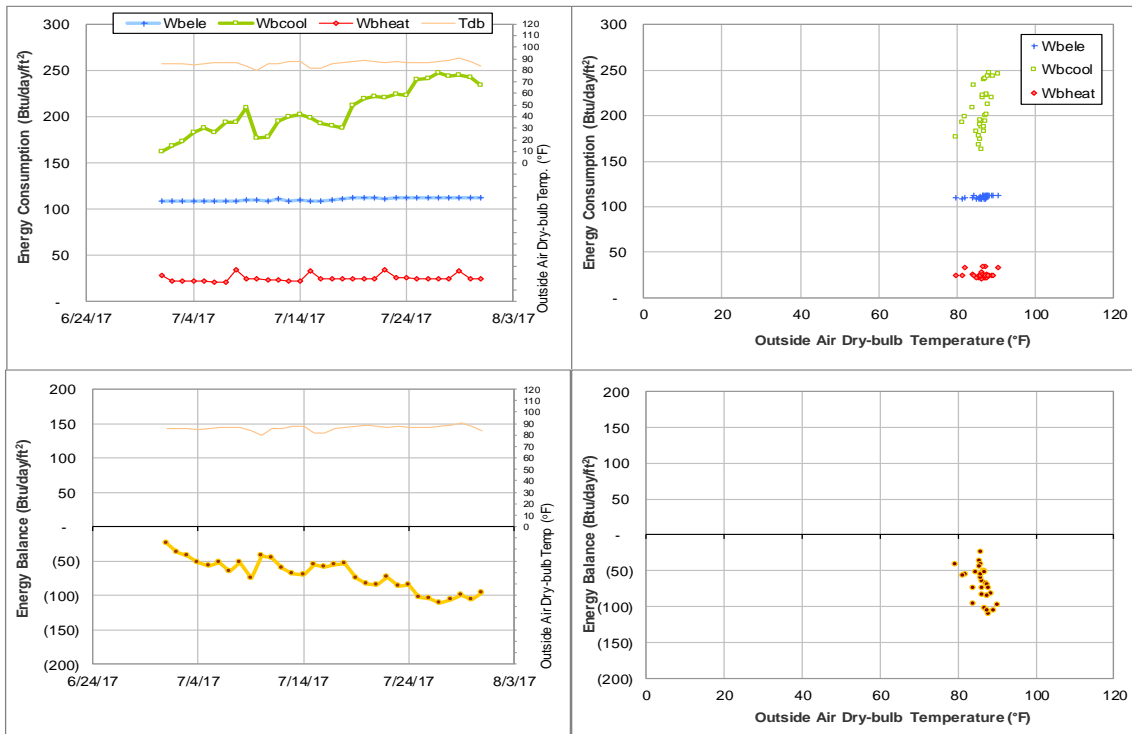


Figure IV-180 West Campus Parking Garage TAMU BLDG # 1559 Energy Balance Plot during July 2017

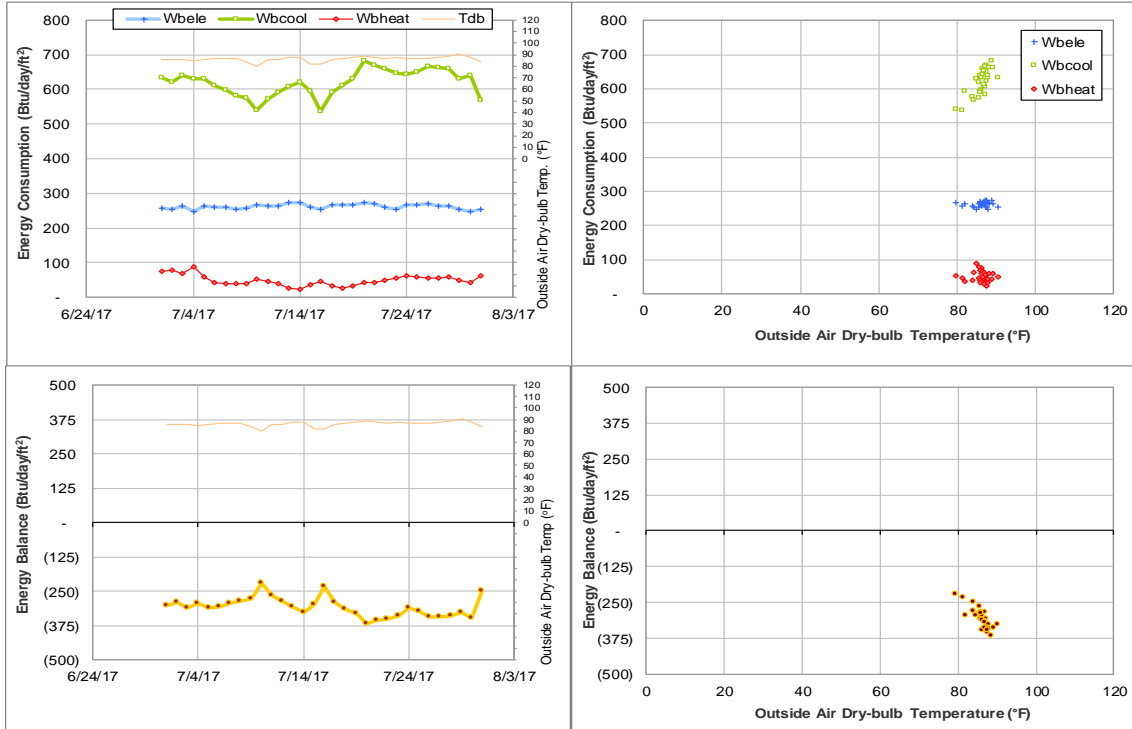


Figure IV-181 Student Recreation Center TAMU BLDG # 1560 Energy Balance Plot during July 2017

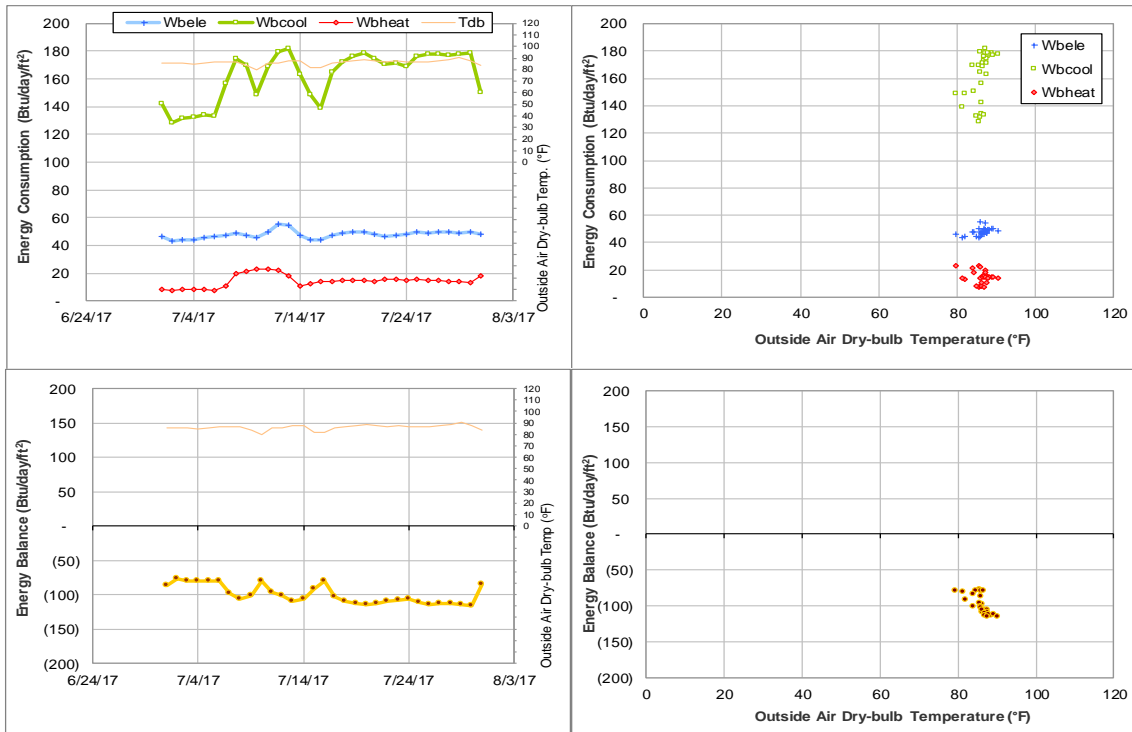


Figure IV-182 White Creek Apartment 1 and White Creek Apts Activity Center TAMU BLDG # 1589 Energy Balance Plot during July 2017

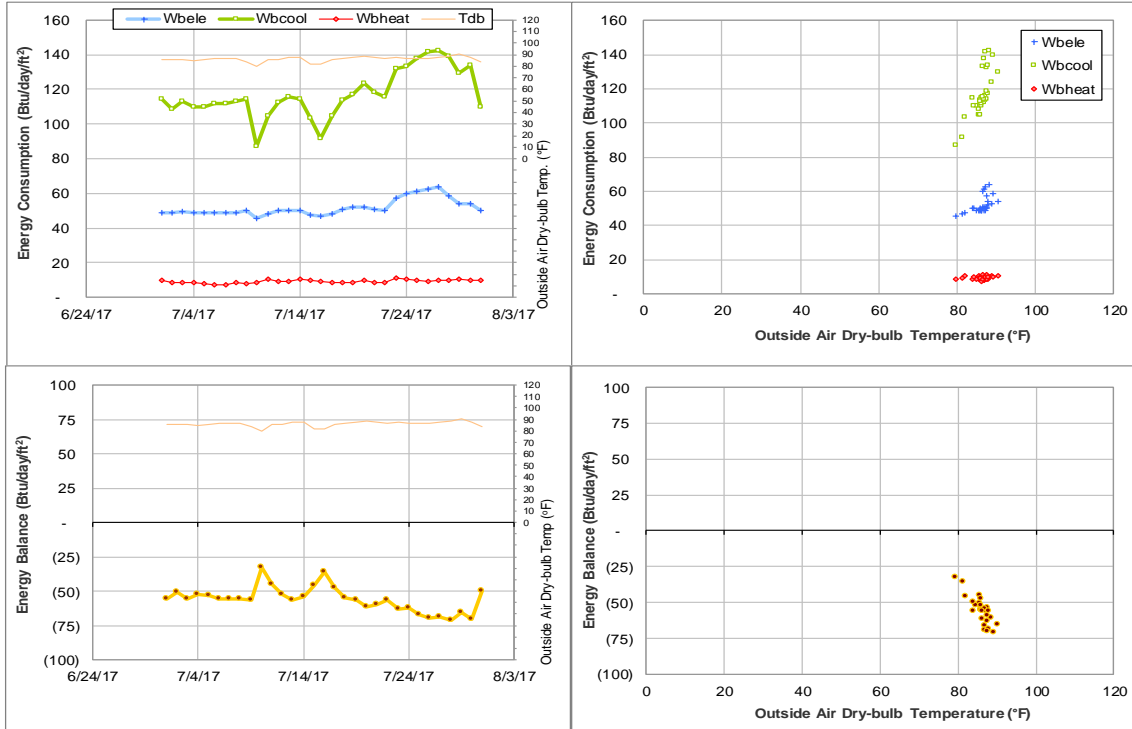


Figure IV-183 White Creek Apartment 2 TAMU BLDG # 1591 Energy Balance Plot during July 2017

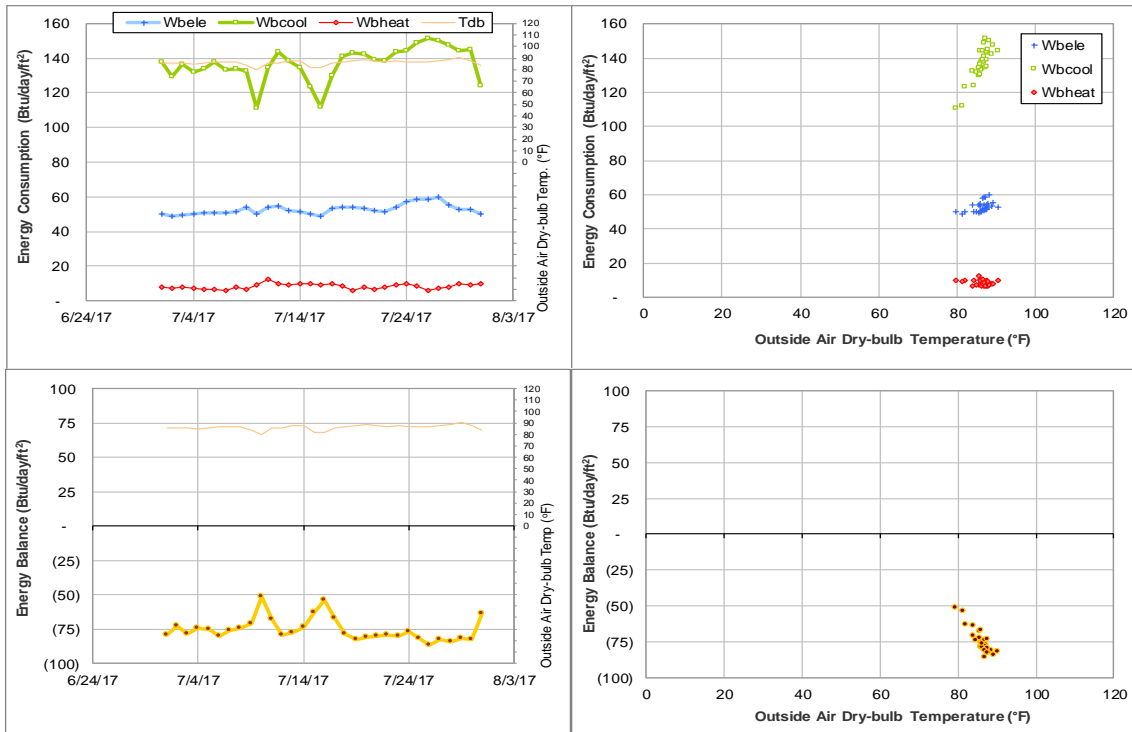


Figure IV-184 White Creek Apartment 3 TAMU BLDG # 1592 Energy Balance Plot during July 2017

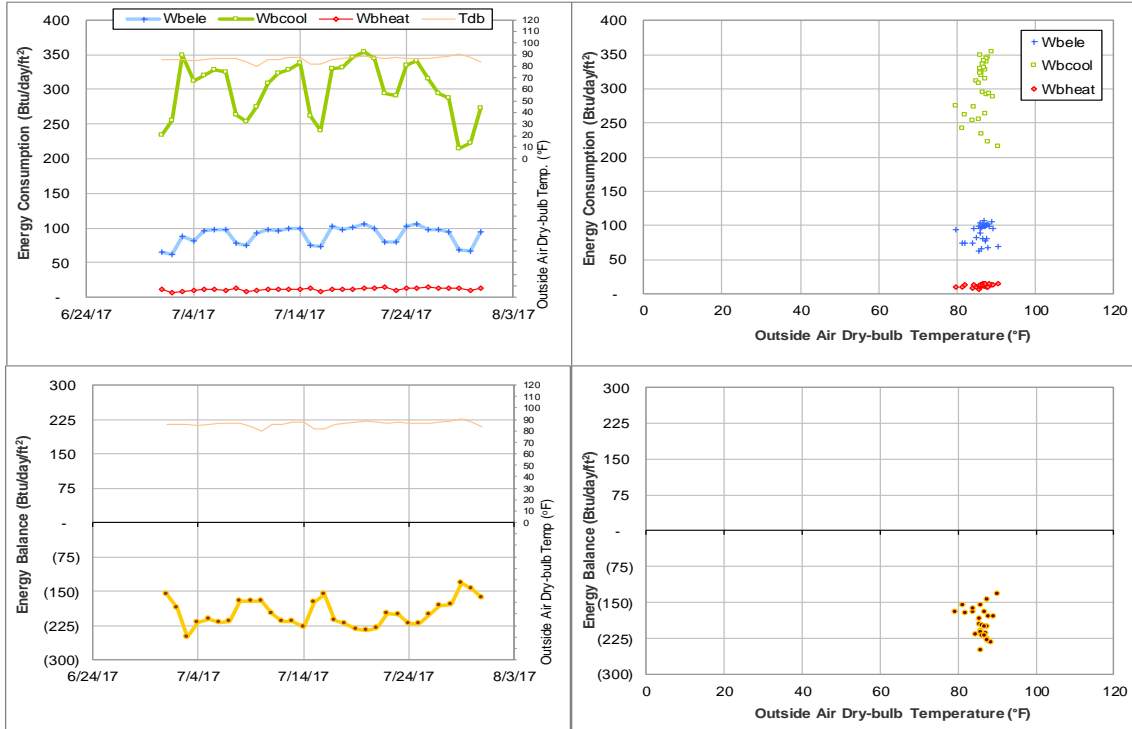


Figure IV-185 Gilchrist TTI Building TAMU BLDG # 1600 Energy Balance Plot during July 2017

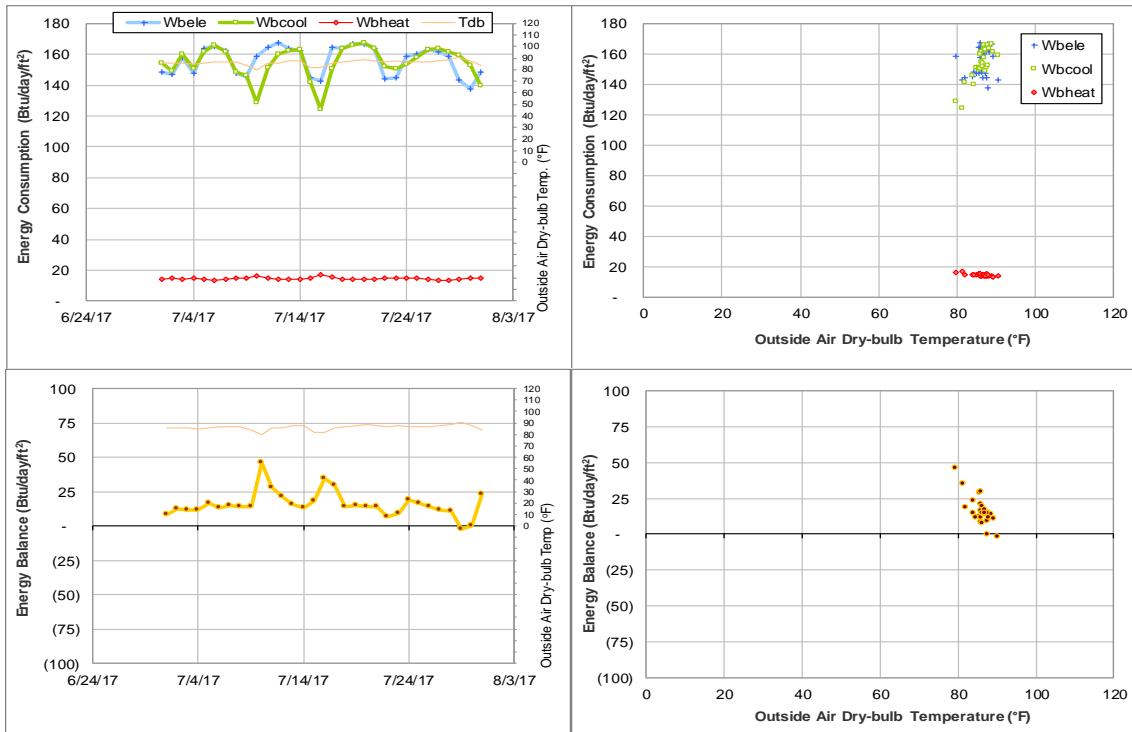


Figure IV-186 International Ocean Discovery Building TAMU BLDG # 1601 Energy Balance Plot during July 2017

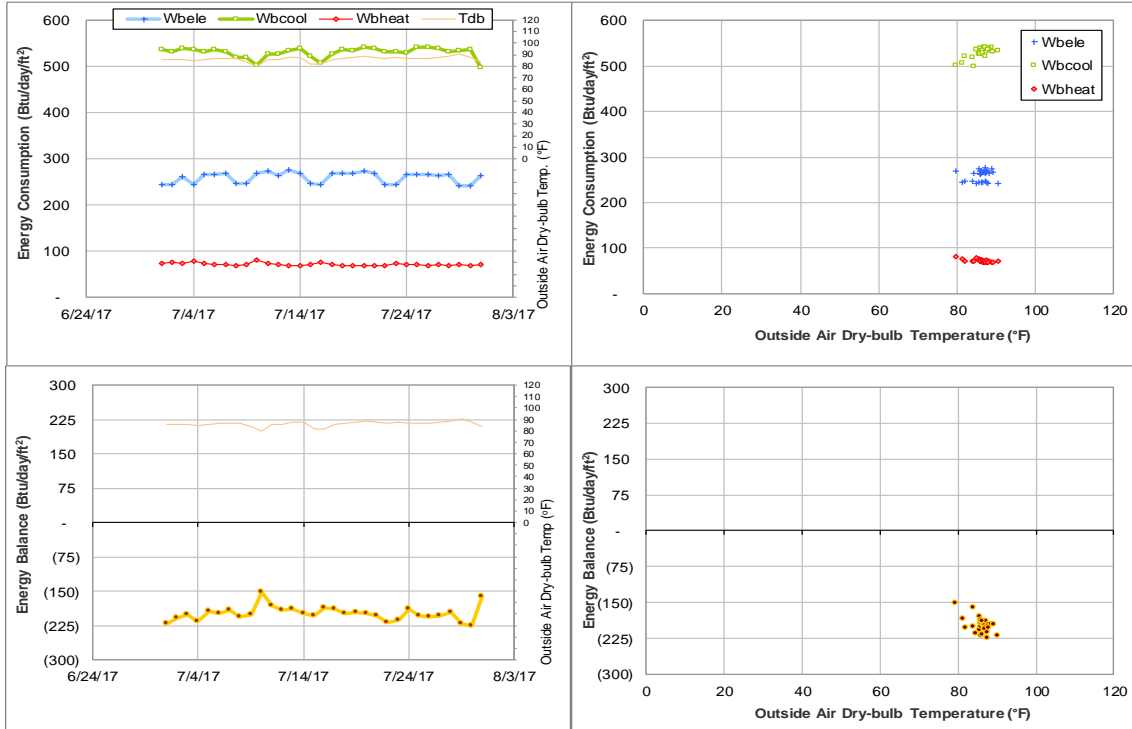


Figure IV-187 Offshore Technology Research Center TAMU BLDG # 1604 Energy Balance Plot during July 2017

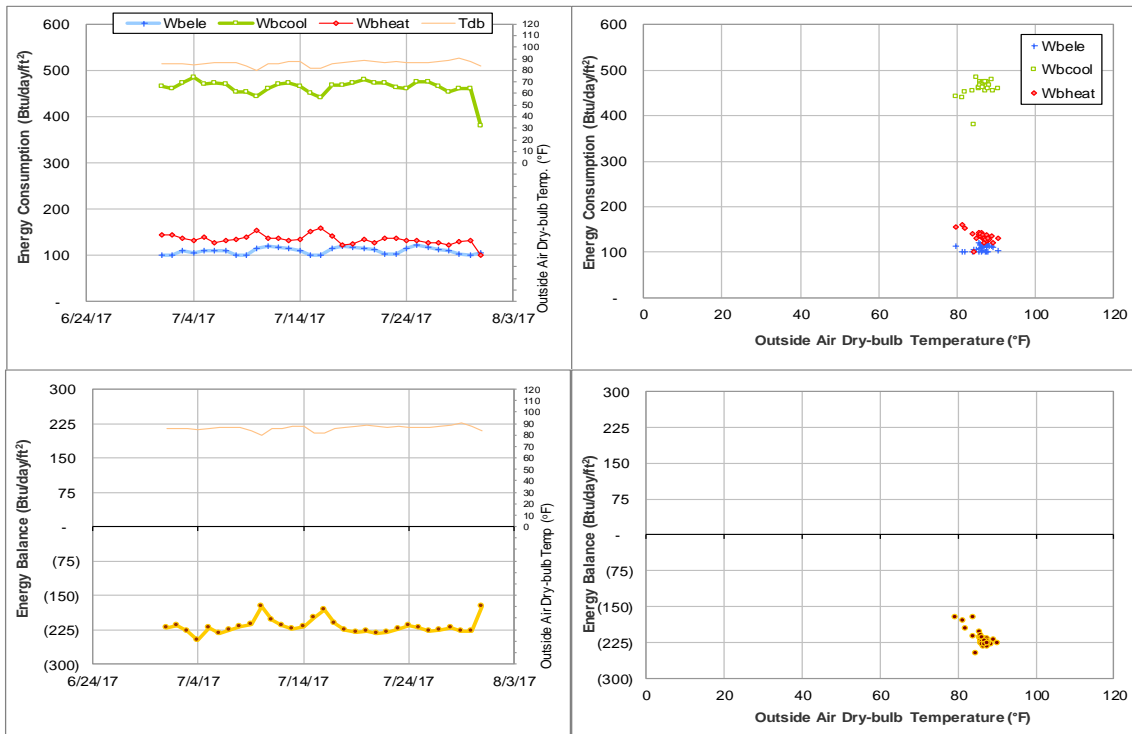


Figure IV-188 George Bush Presidential Library & Museum TAMU BLDG # 1606 Energy Balance Plot during July 2017

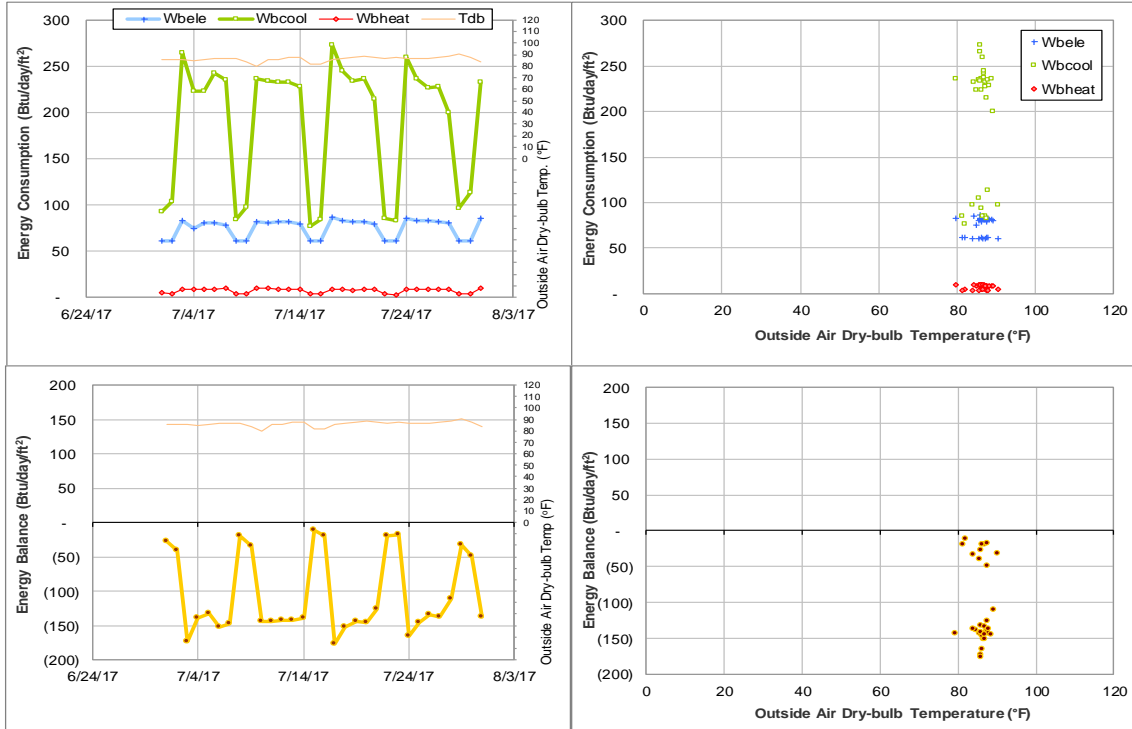


Figure IV-189 Allen Building TAMU BLDG # 1607 Energy Balance Plot during July 2017

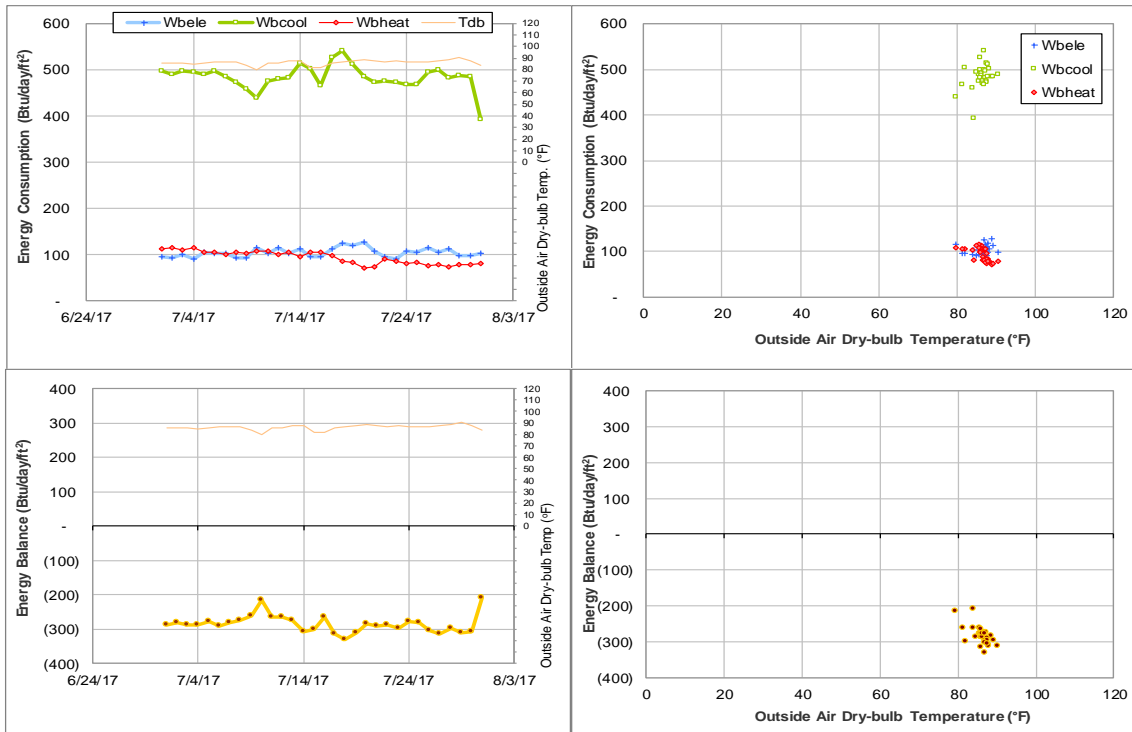


Figure IV-190 Annenberg Presidential Conference Center TAMU BLDG # 1608 Energy Balance Plot during July 2017

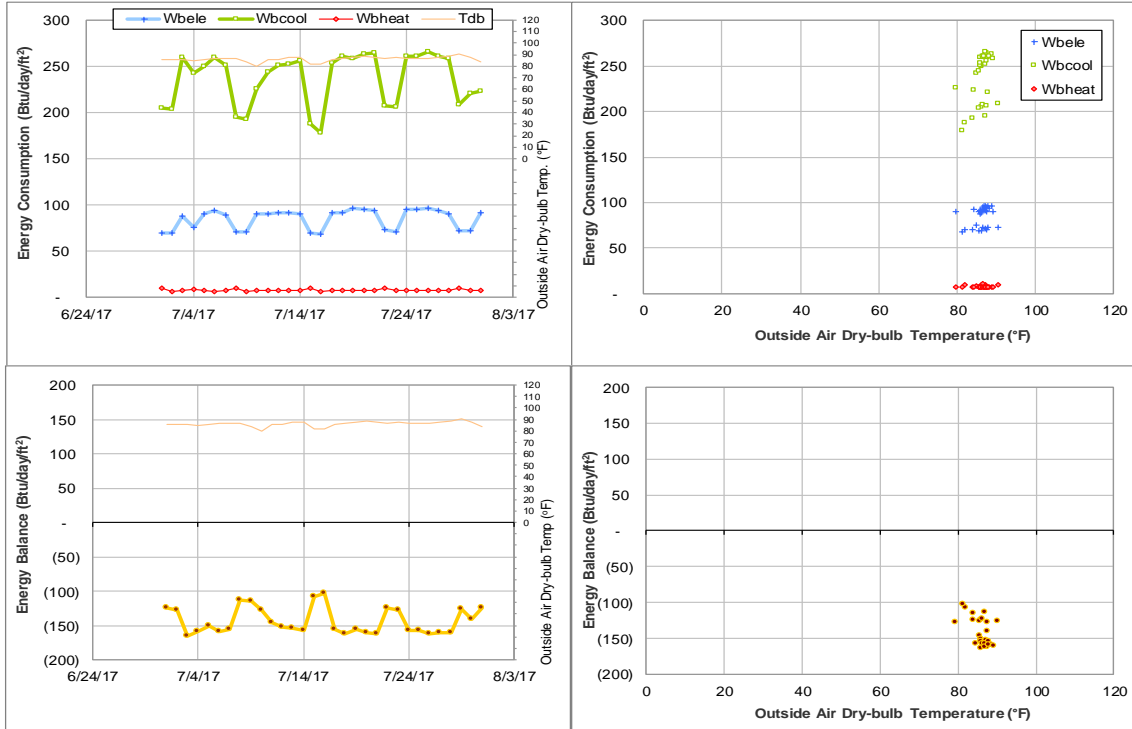


Figure IV-191 TTI Headquarters TAMU BLDG # 1609 Energy Balance Plot during July 2017

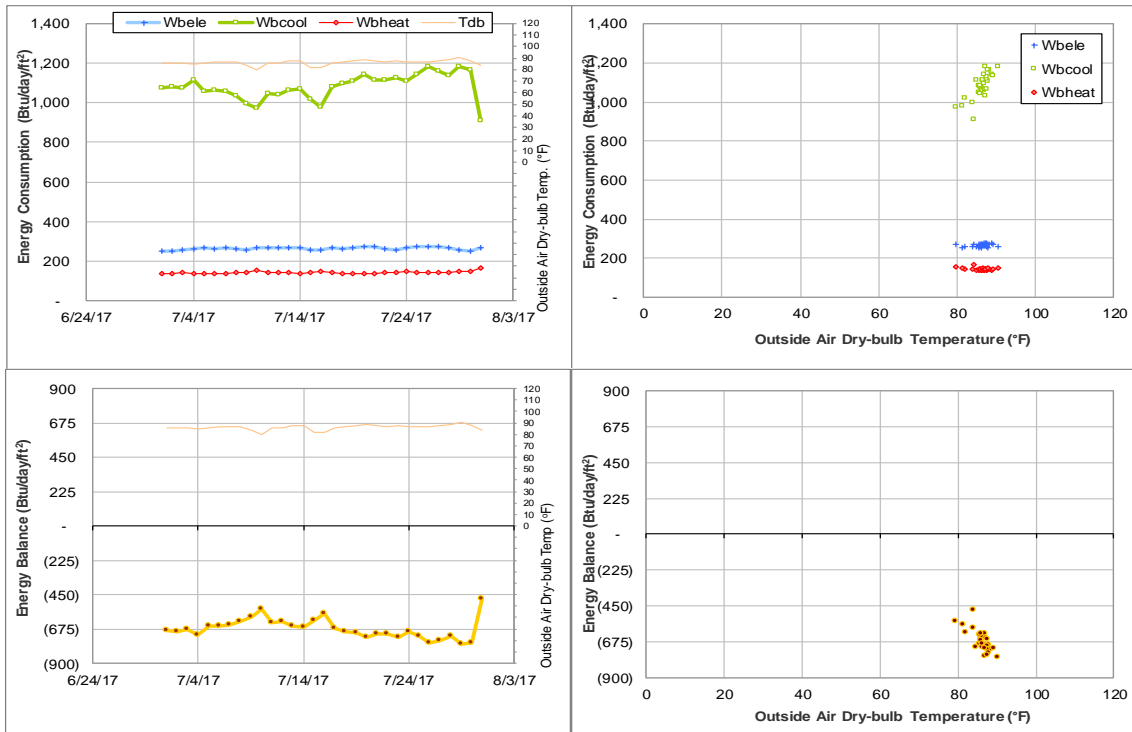


Figure IV-192 Engineering Research Building TAMU BLDG # 1611 Energy Balance Plot during July 2017

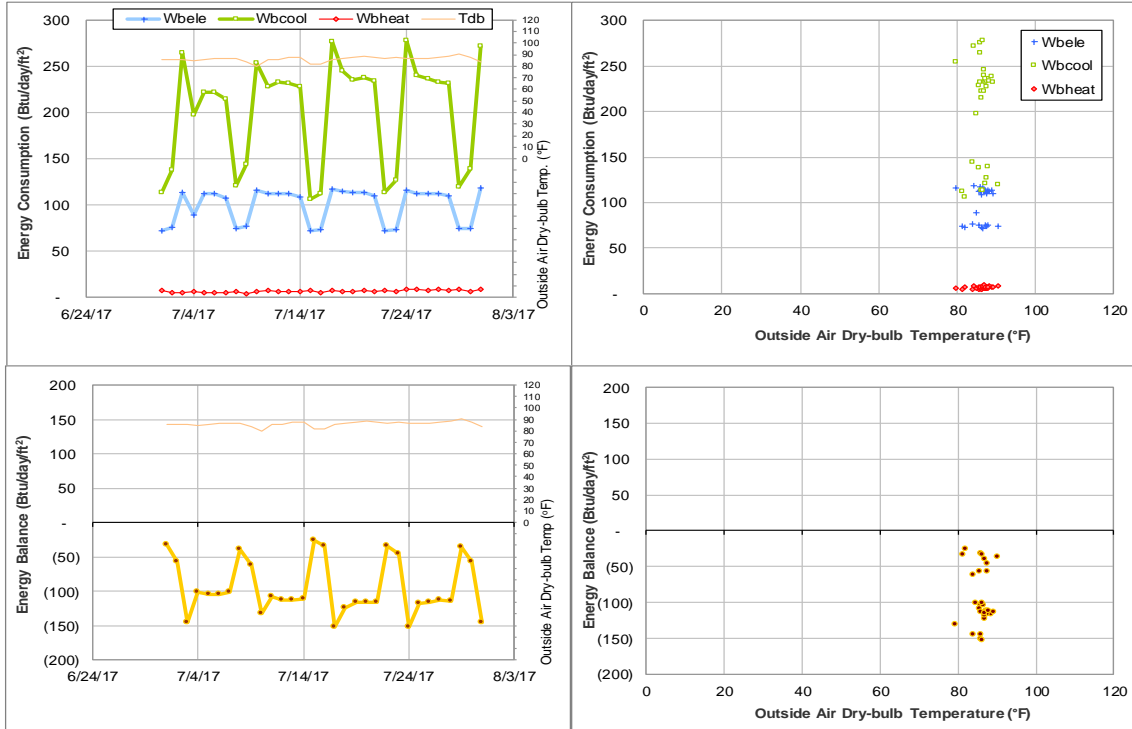


Figure IV-193 General Services Complex TAMU BLDG # 1800 Energy Balance Plot during July 2017

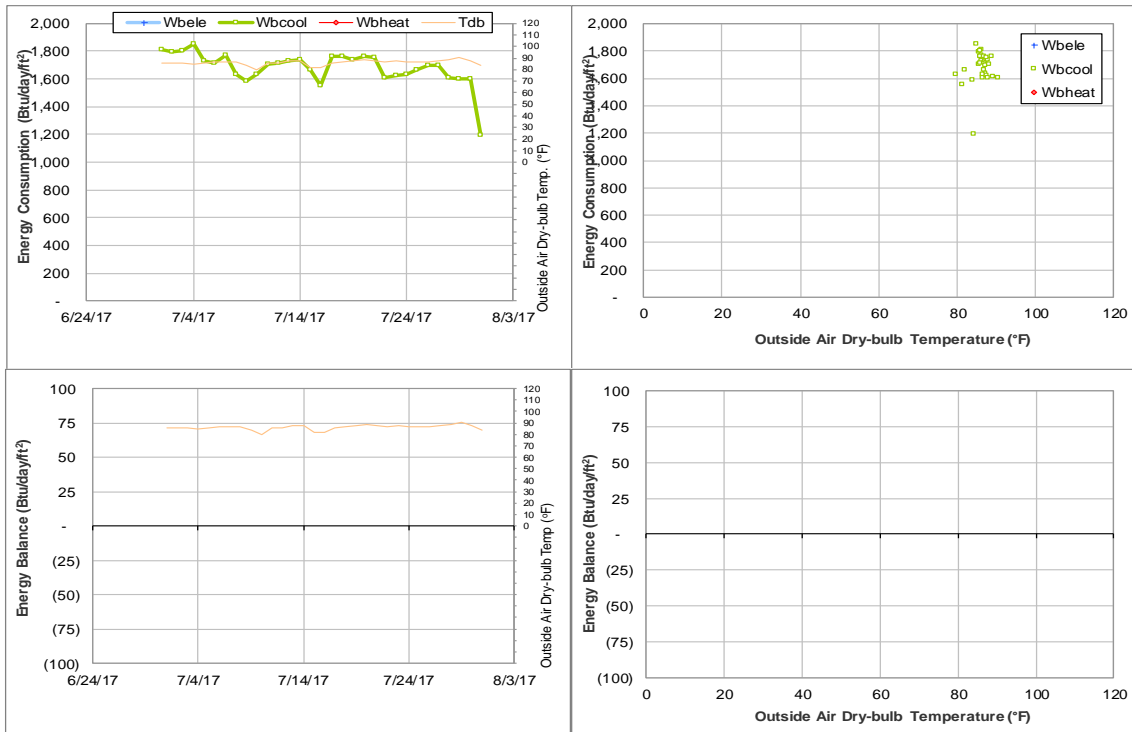


Figure IV-194 New TVMDL TAMU BLDG # 1809 Energy Balance Plot during July 2017

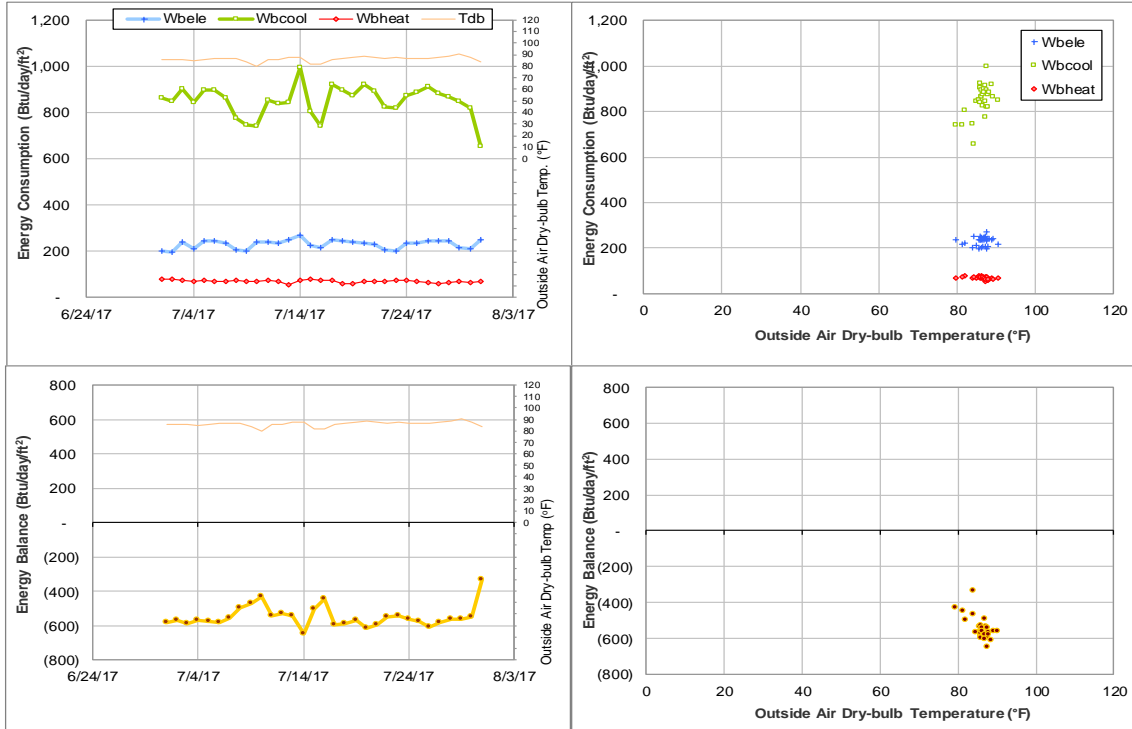


Figure IV-195 Office of the State Chemist Building TAMU BLDG # 1810 Energy Balance Plot during July 2017

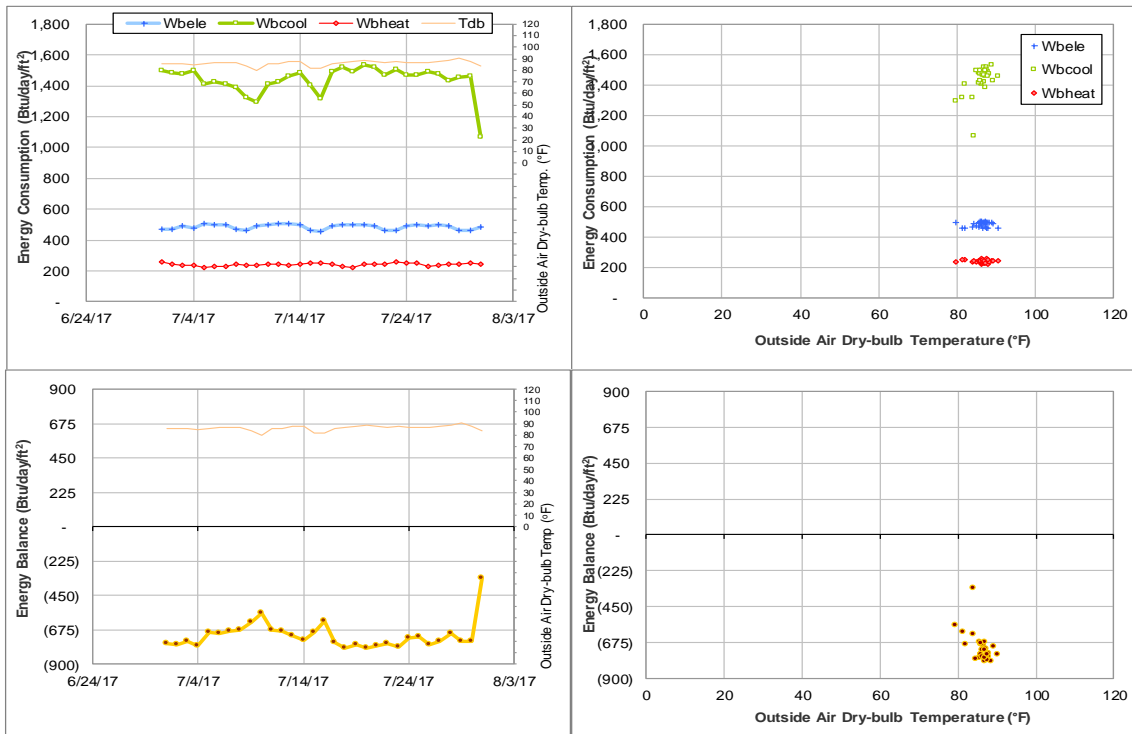


Figure IV-196 Vet Med Research Bldg Addition TAMU BLDG # 1811 Energy Balance Plot during July 2017

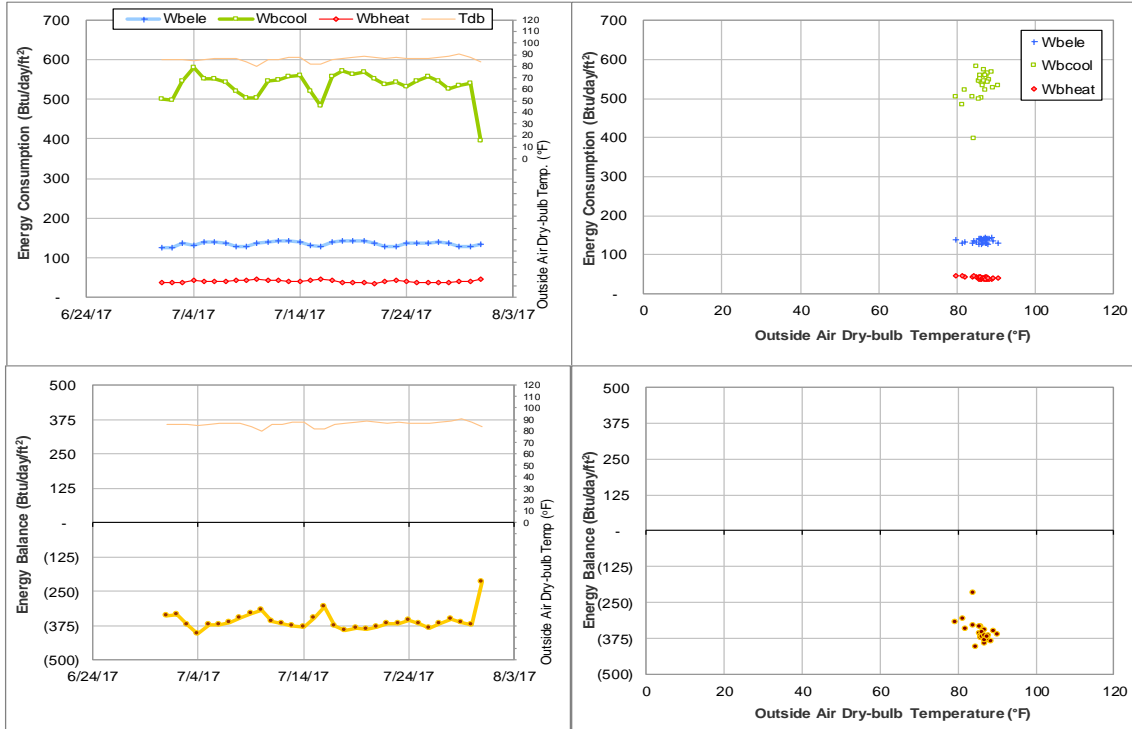


Figure IV-197 Veterinary Medicine Building 1, 2, and 3 TAMU BLDG # 1812 Energy Balance Plot during July 2017

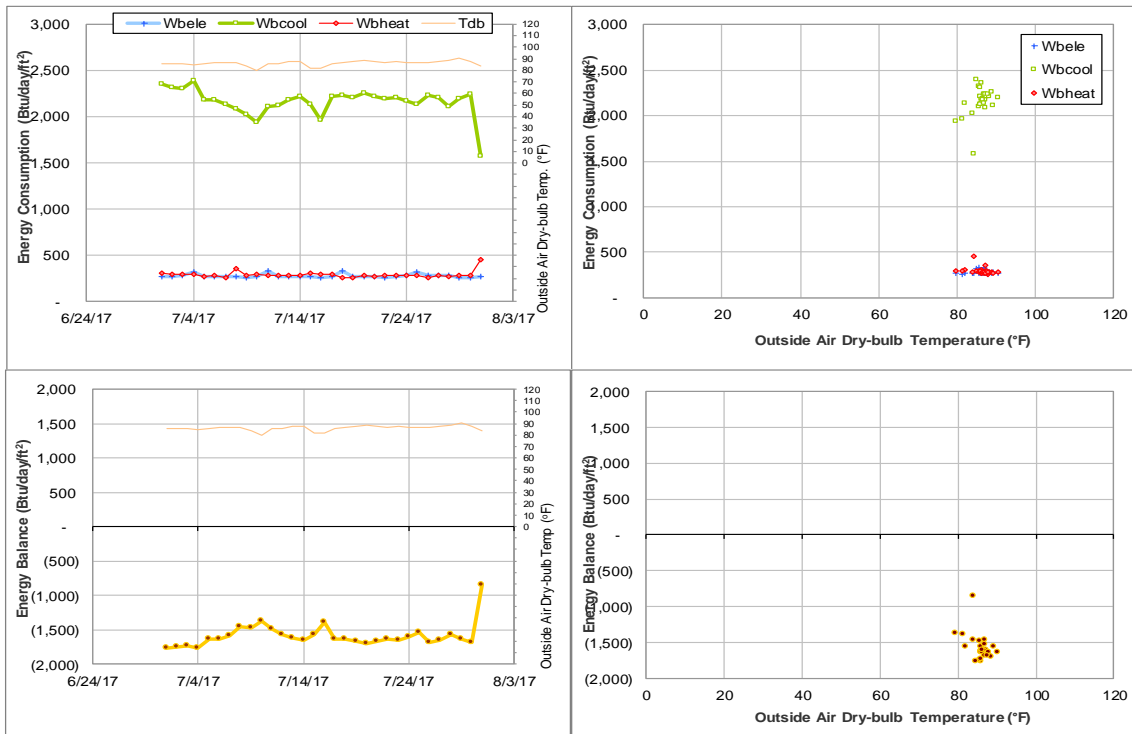


Figure IV-198 Texas Institute for Genomic Medicine TAMU BLDG # 1900 Energy Balance Plot during July 2017

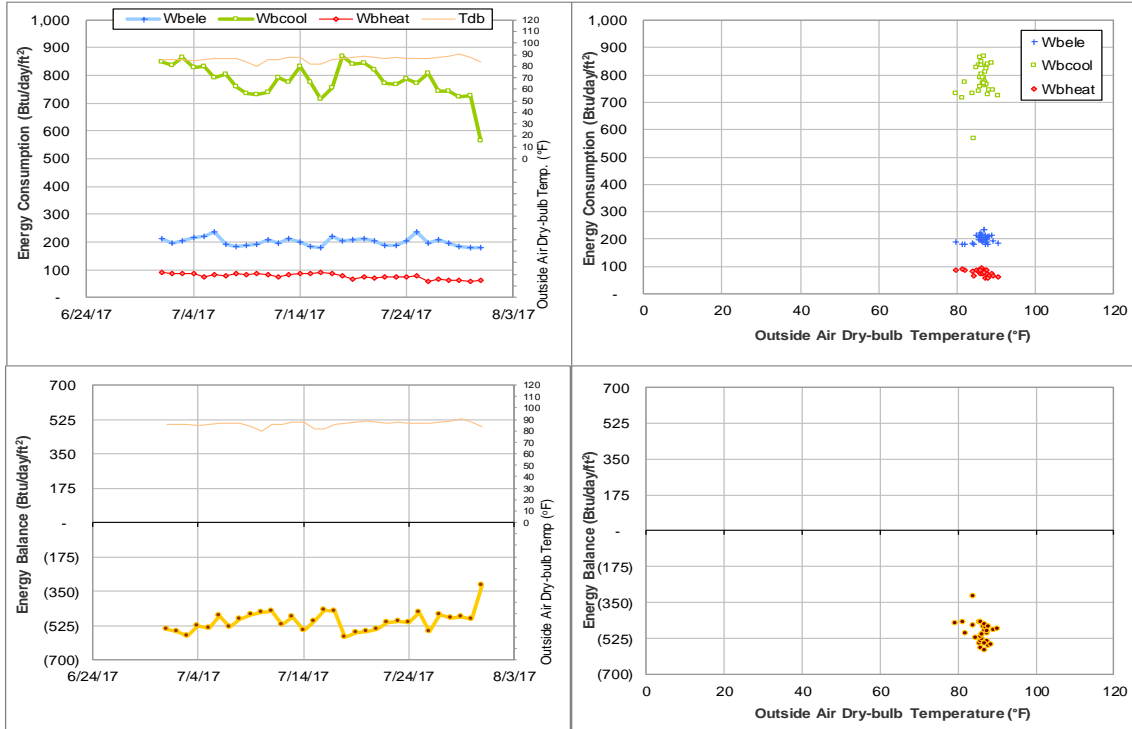


Figure IV-199 Texas A&M Institute for Preclinical Studies A TAMU BLDG # 1904 Energy Balance Plot during July 2017

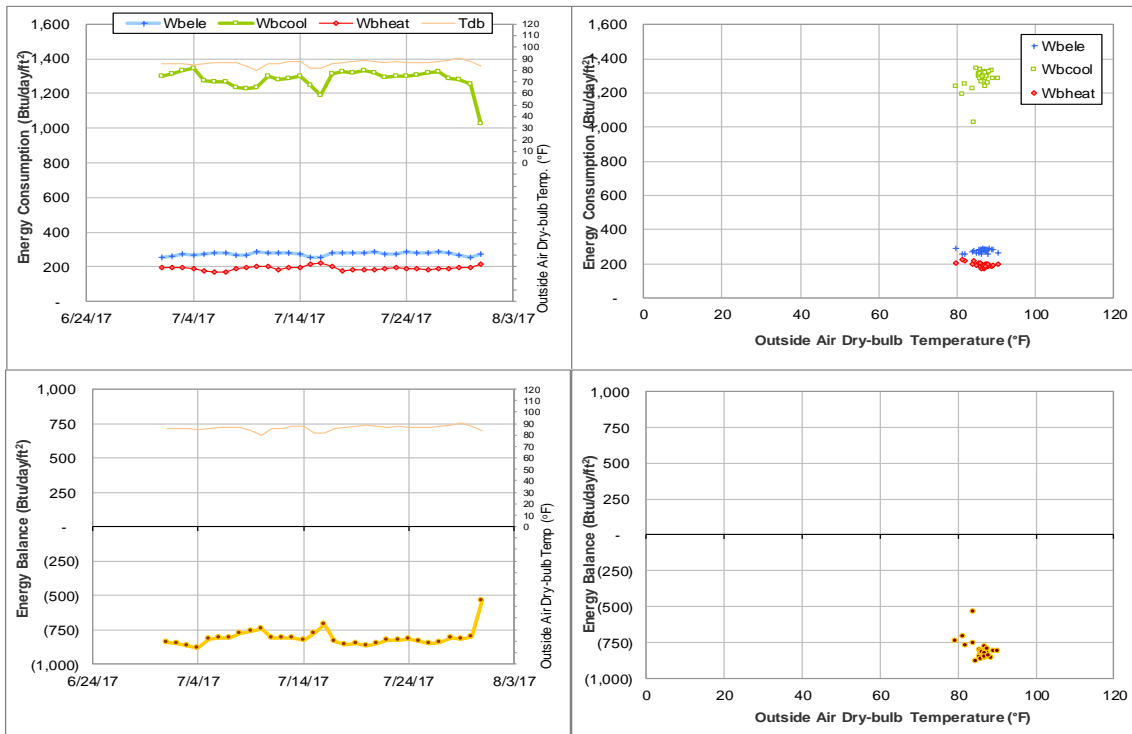


Figure IV-200 National Center for Therapeutics Manufacturing TAMU BLDG # 1910 Energy Balance Plot during July 2017

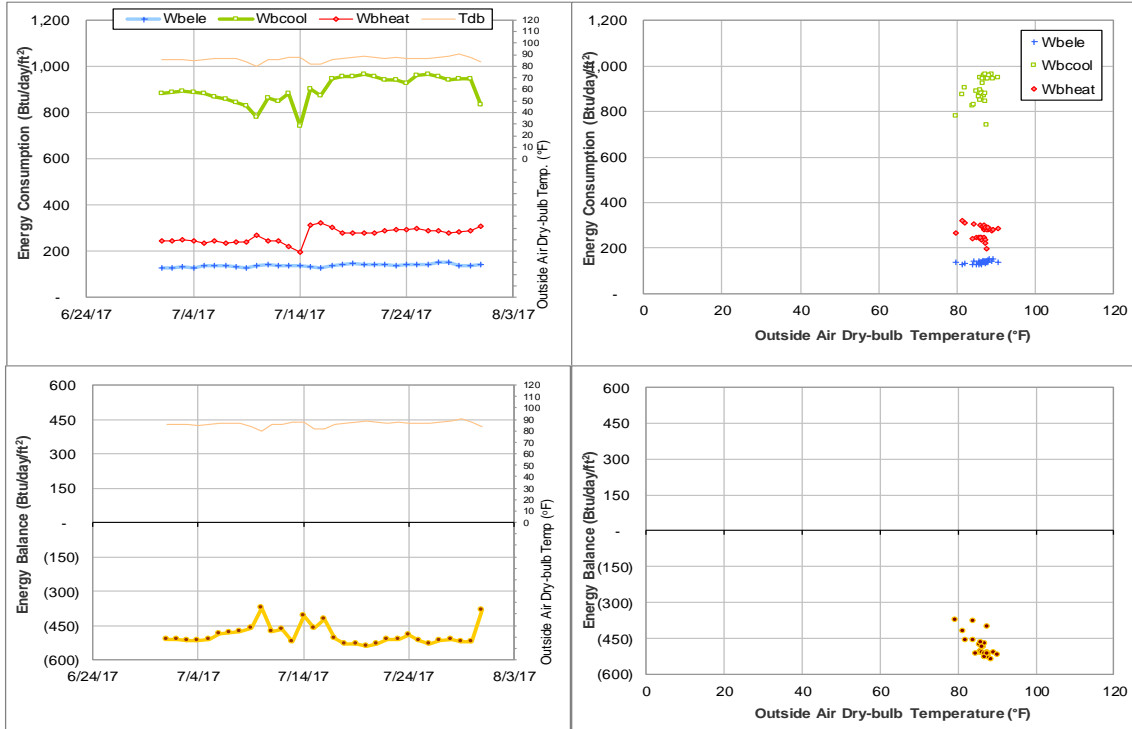


Figure IV-201 Multi-Species Research Building TAMU BLDG # 1911 Energy Balance Plot during July 2017

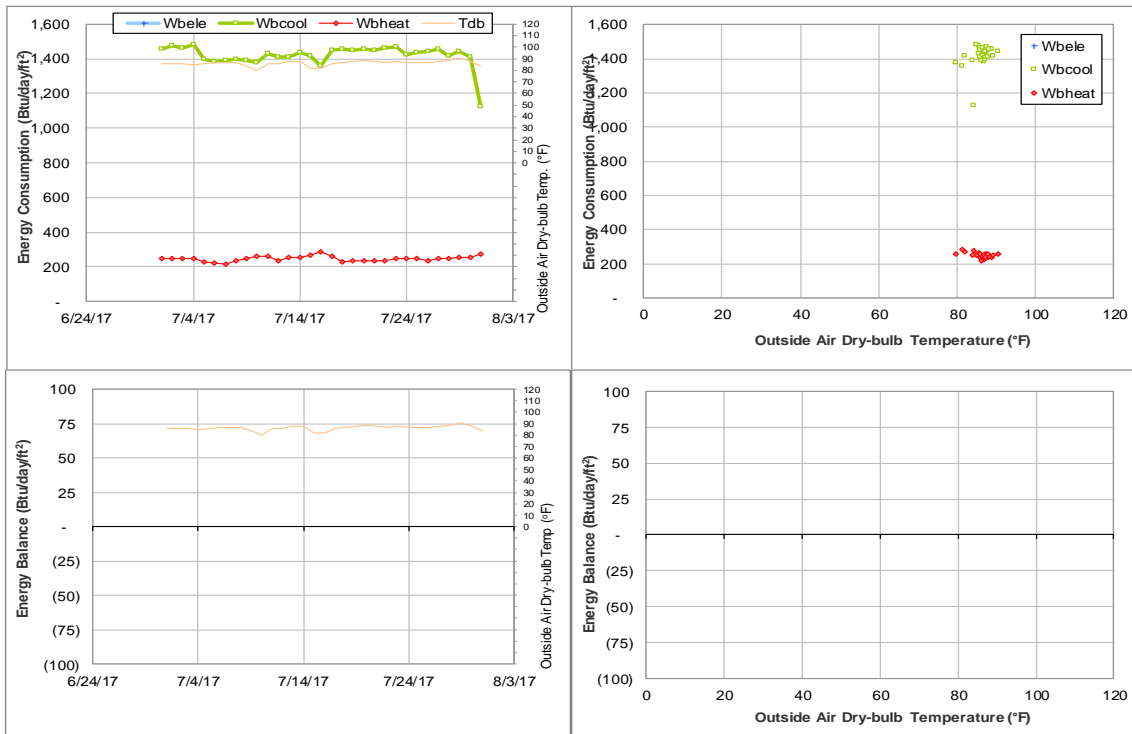


Figure IV-202 NCTM Manufacturing Building TAMU BLDG # 1022 Energy Balance Plot during July 2017

**V. Energy Balance Plots with Filled-in data for July
2017 Consumption**

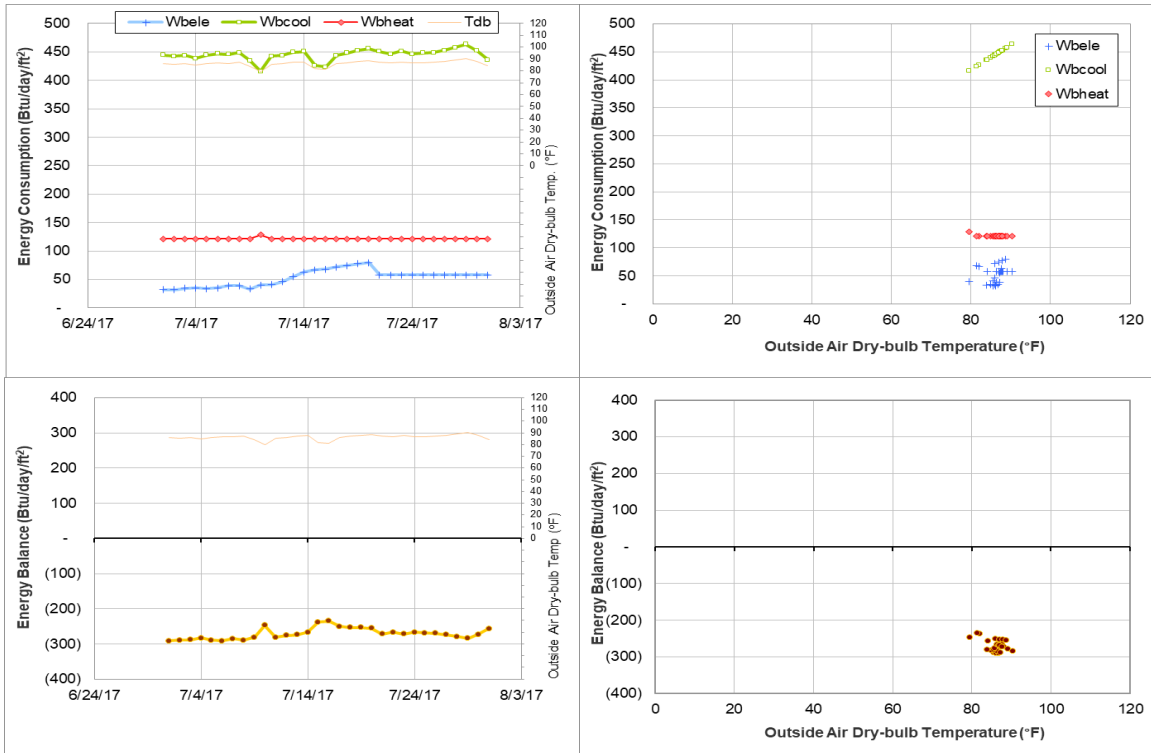


Figure V-1 Rudder Residence Hall TAMU BLDG # 291 Energy Balance Plot during July 2017

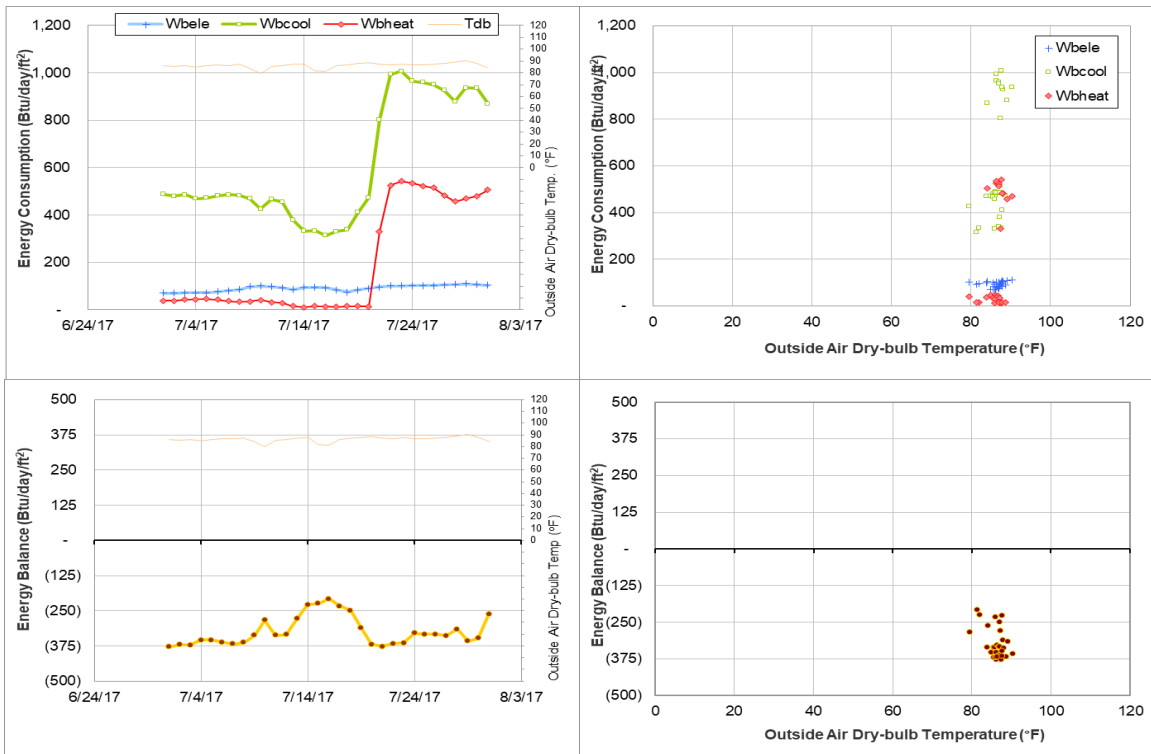


Figure V-2 Whitely Hall – Dorm 9 TAMU BLDG # 408 Energy Balance Plot during July 2017

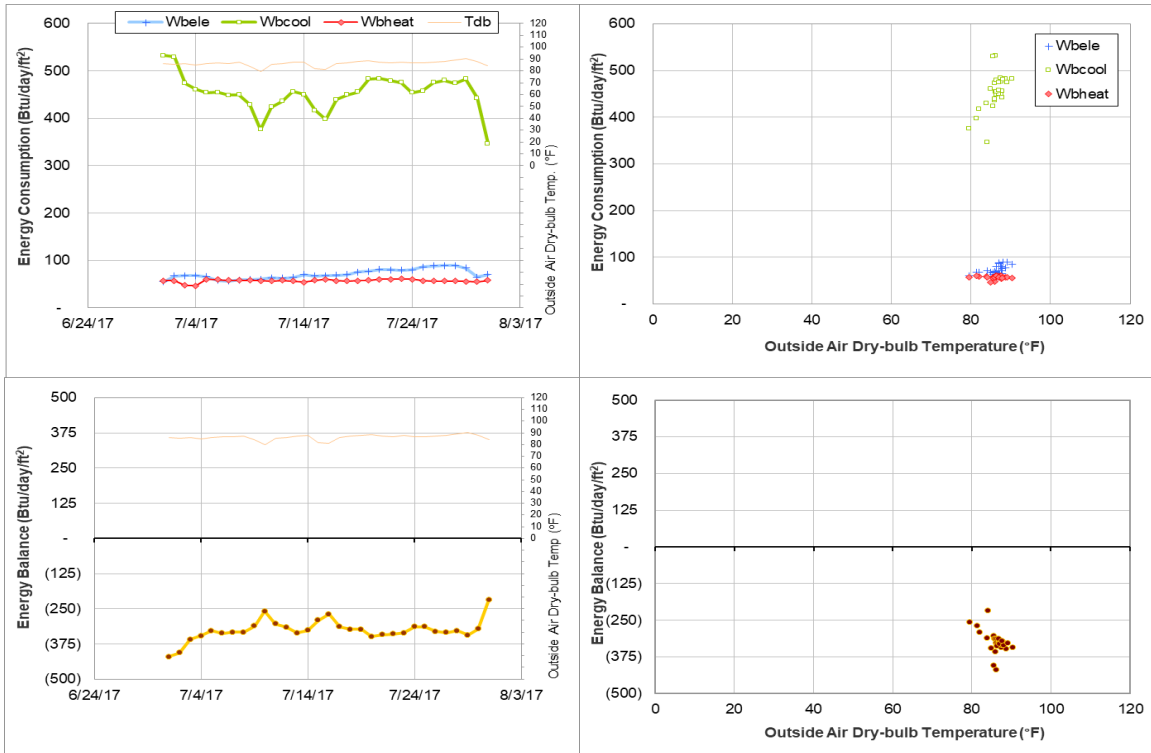


Figure V-3 White Hall – Dorm 10 TAMU BLDG # 409 Energy Balance Plot during July 2017

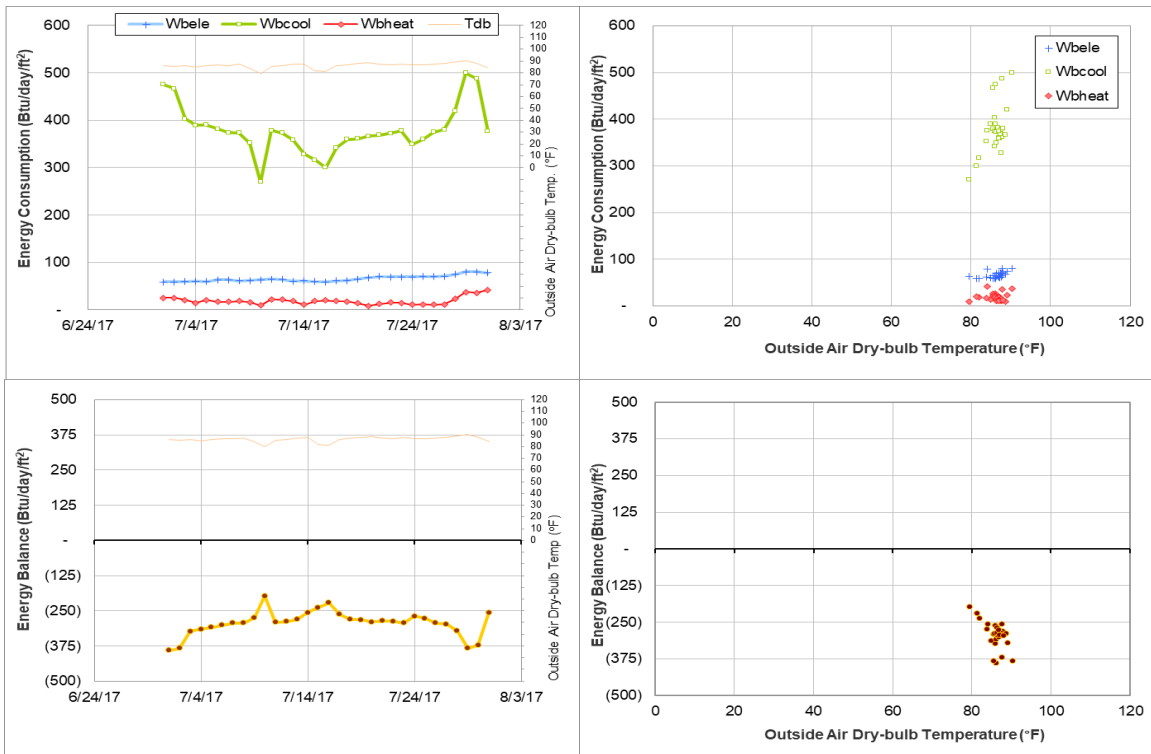


Figure V-4 Harrington Hall – Dorm 11 TAMU BLDG # 410 Energy Balance Plot during July 2017

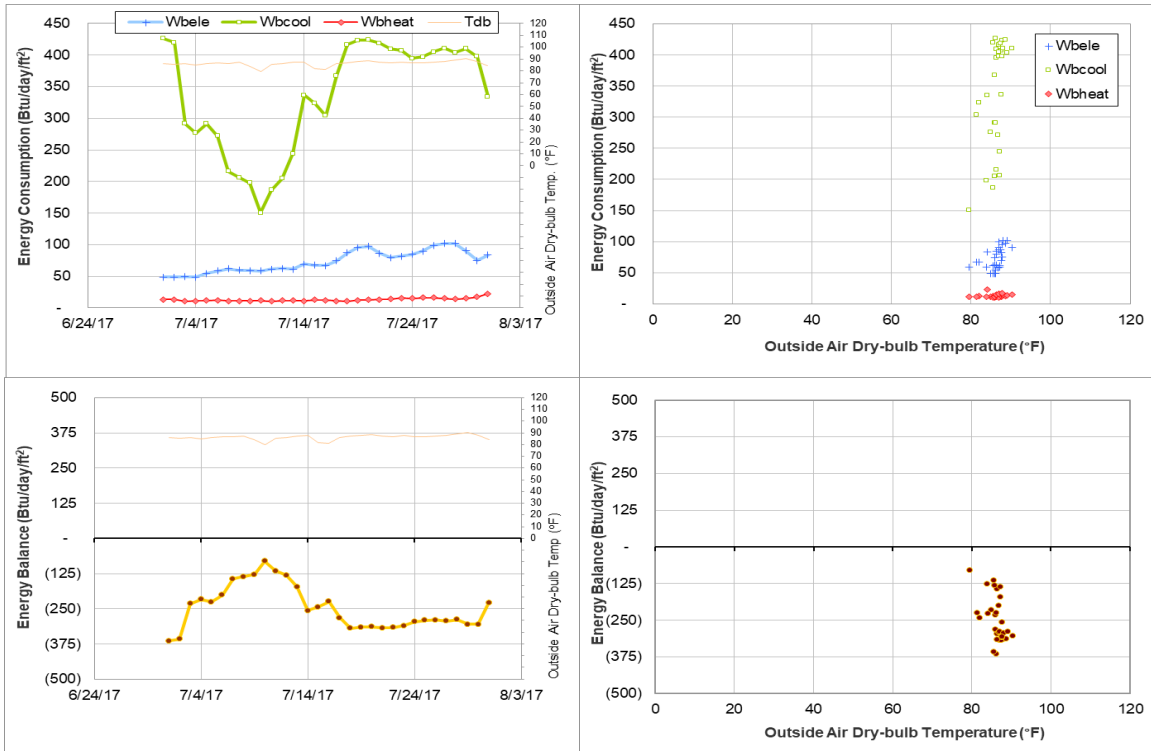


Figure V-5 Utay Hall – Dorm 12 TAMU BLDG # 411 Energy Balance Plot during July 2017

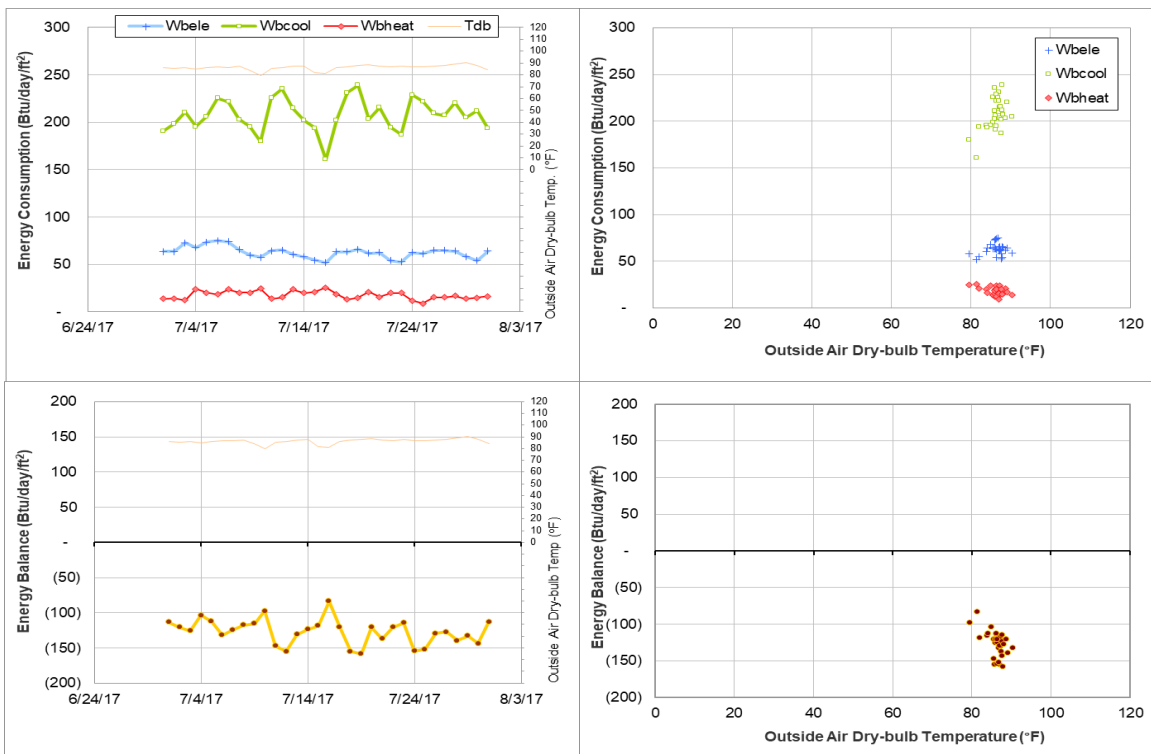


Figure V-6 Rudder Tower and Theatre Complex TAMU BLDG # 446 Energy Balance Plot during July 2017

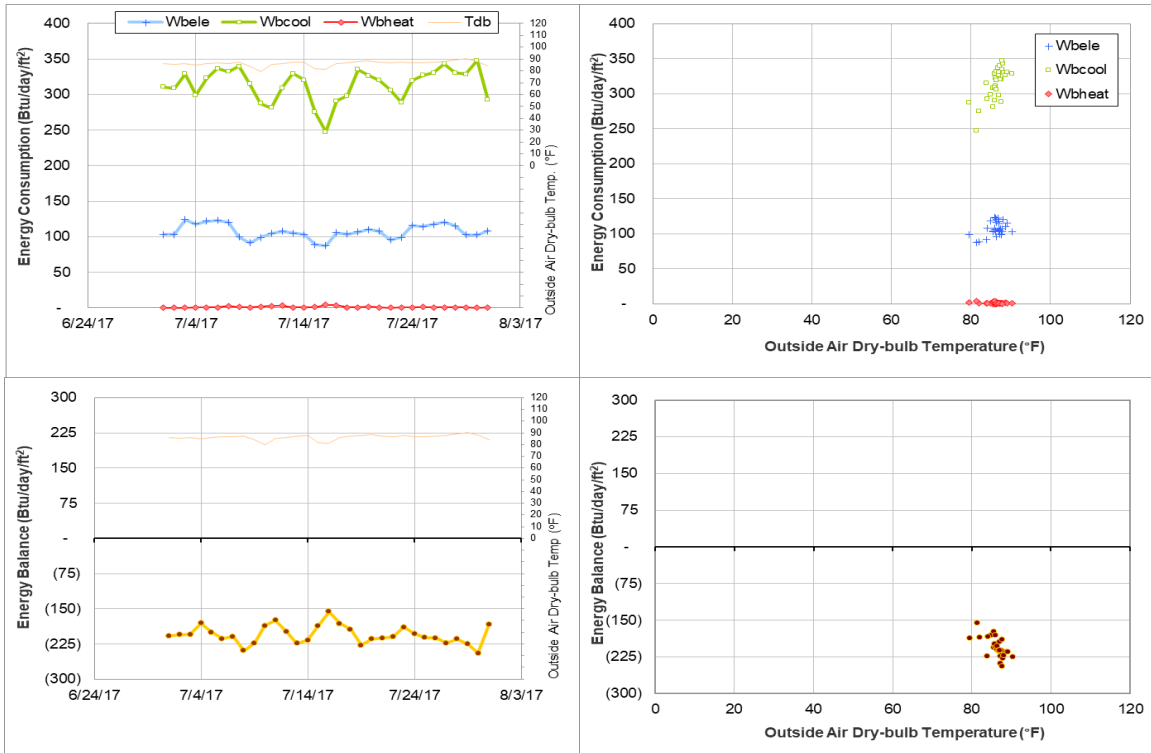


Figure V-7 Rudder Tower TAMU BLDG # 446-B Energy Balance Plot during July 2017

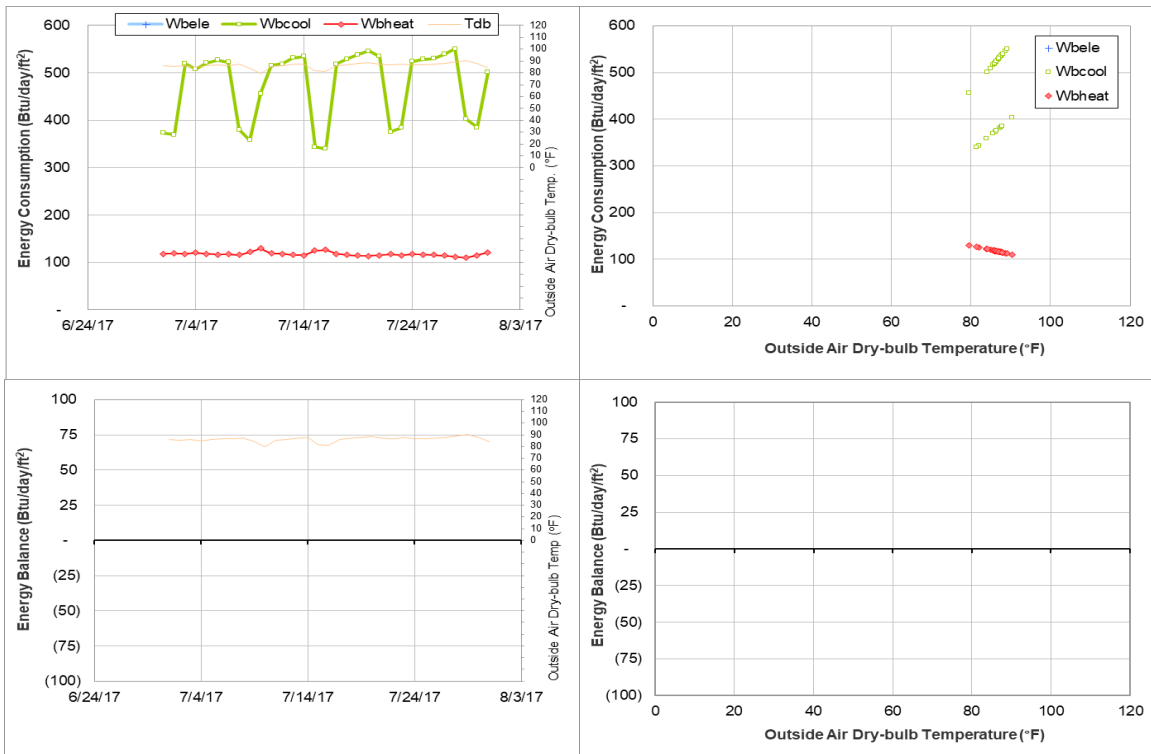


Figure V-8 Military Sciences Building TAMU BLDG # 456 Energy Balance Plot during July 2017

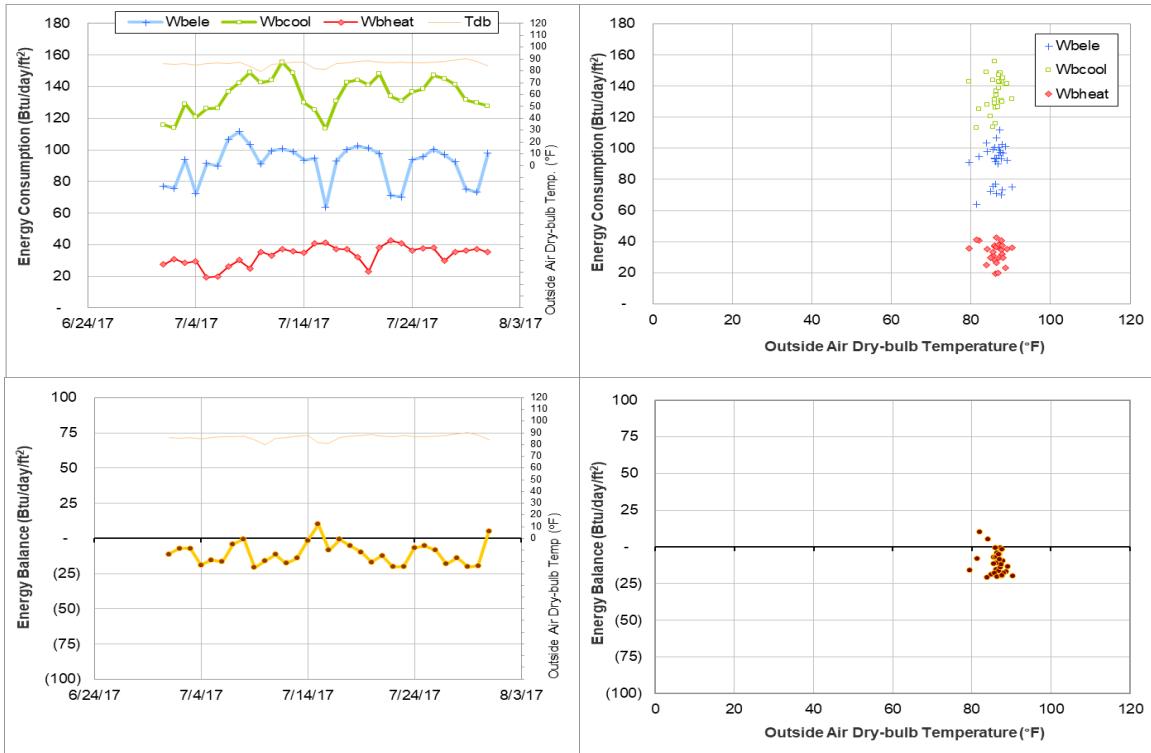


Figure V-9 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during July 2017

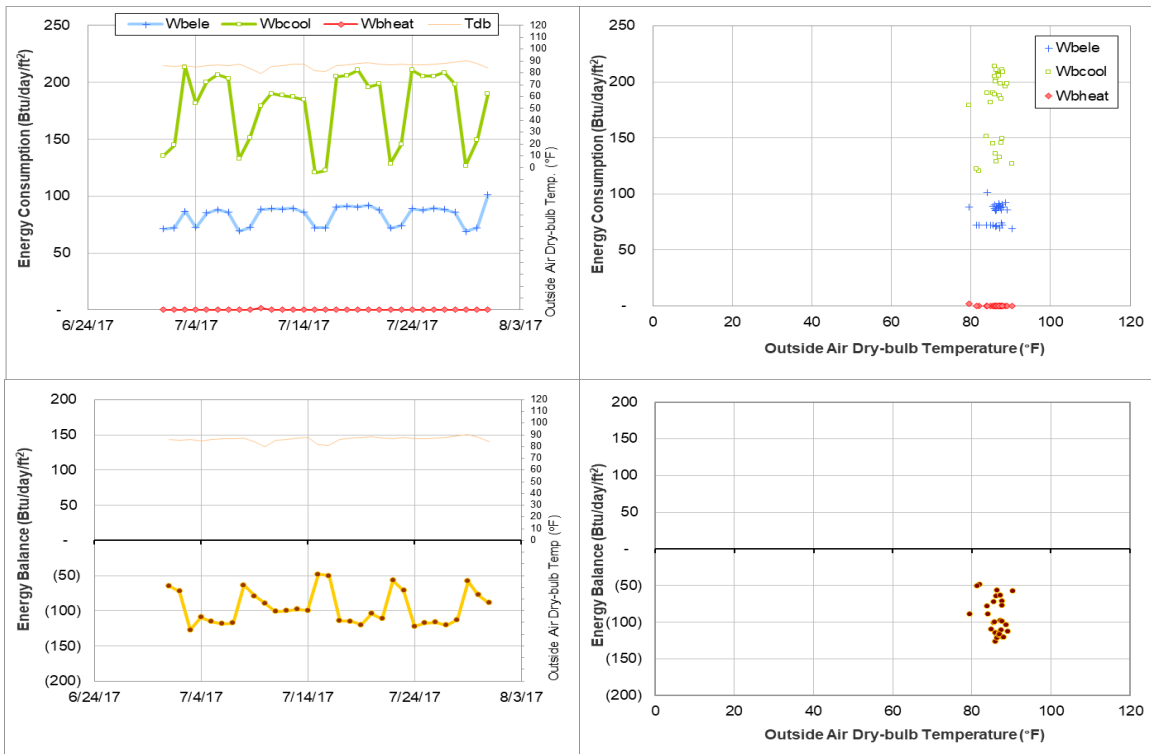


Figure V-10 Blocker Building TAMU BLDG # 524 Energy Balance Plot during July 2017

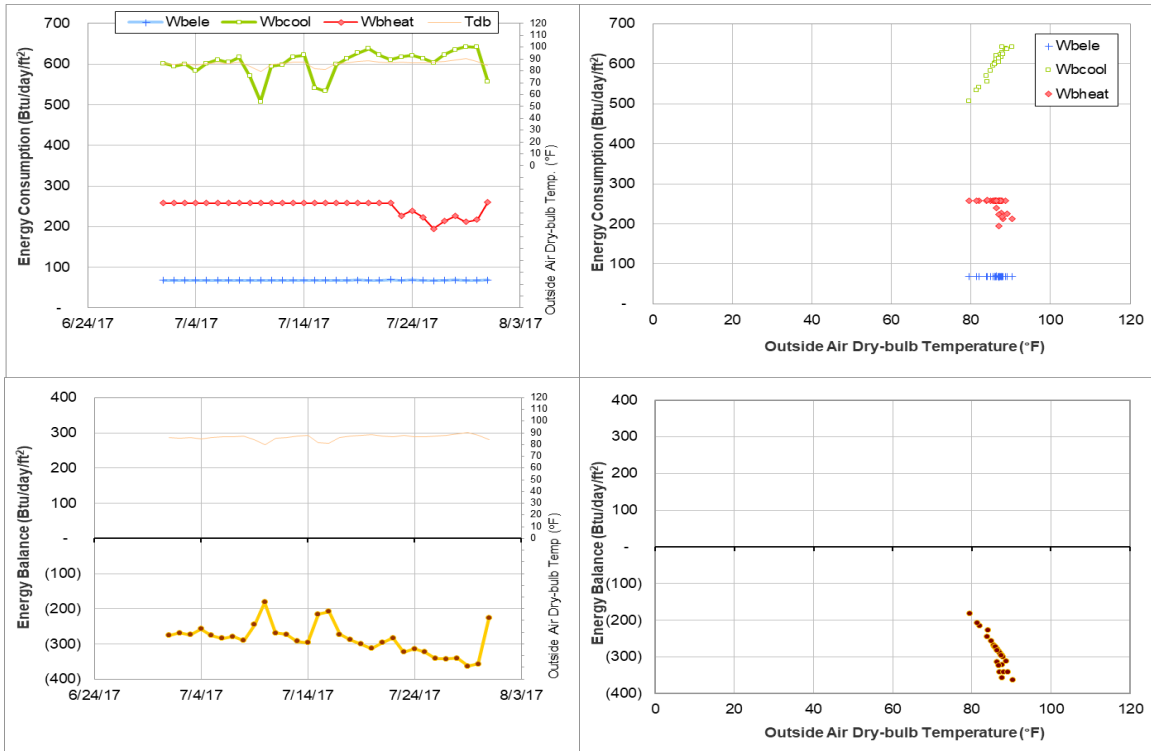


Figure V-11 Haas Residence Hall TAMU BLDG # 549 Energy Balance Plot during July 2017

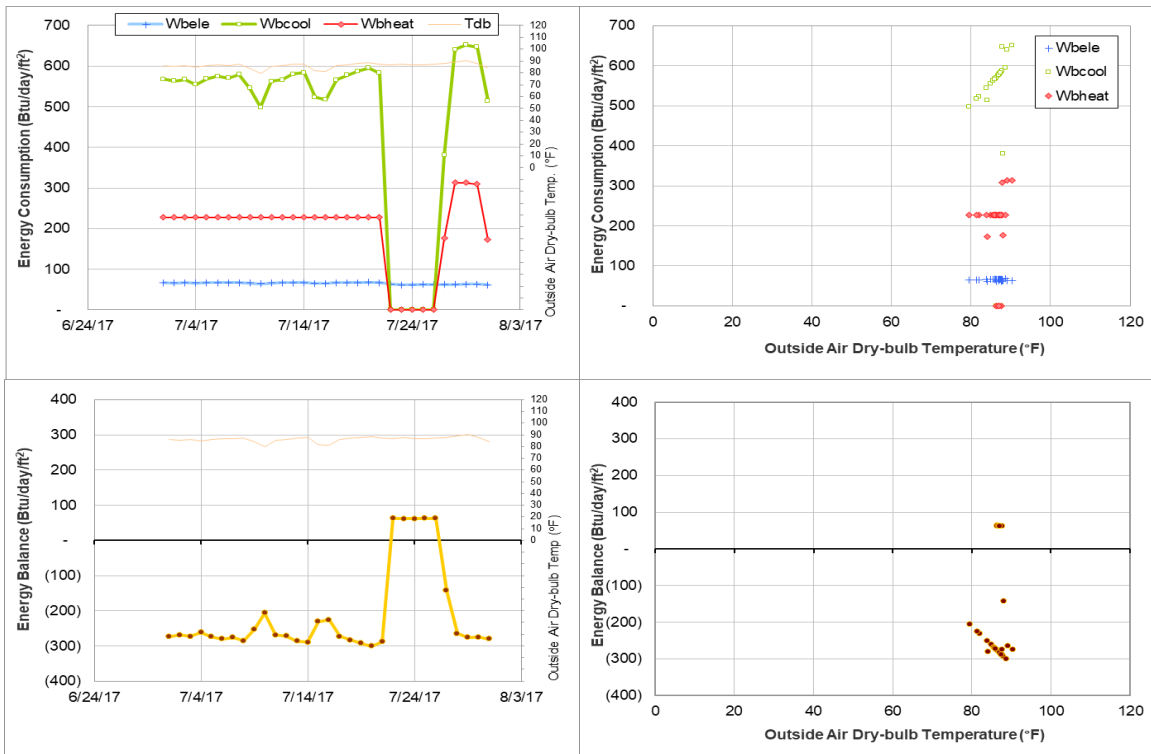


Figure V-12 McFadden Residence Hall TAMU BLDG # 550 Energy Balance Plot during July 2017

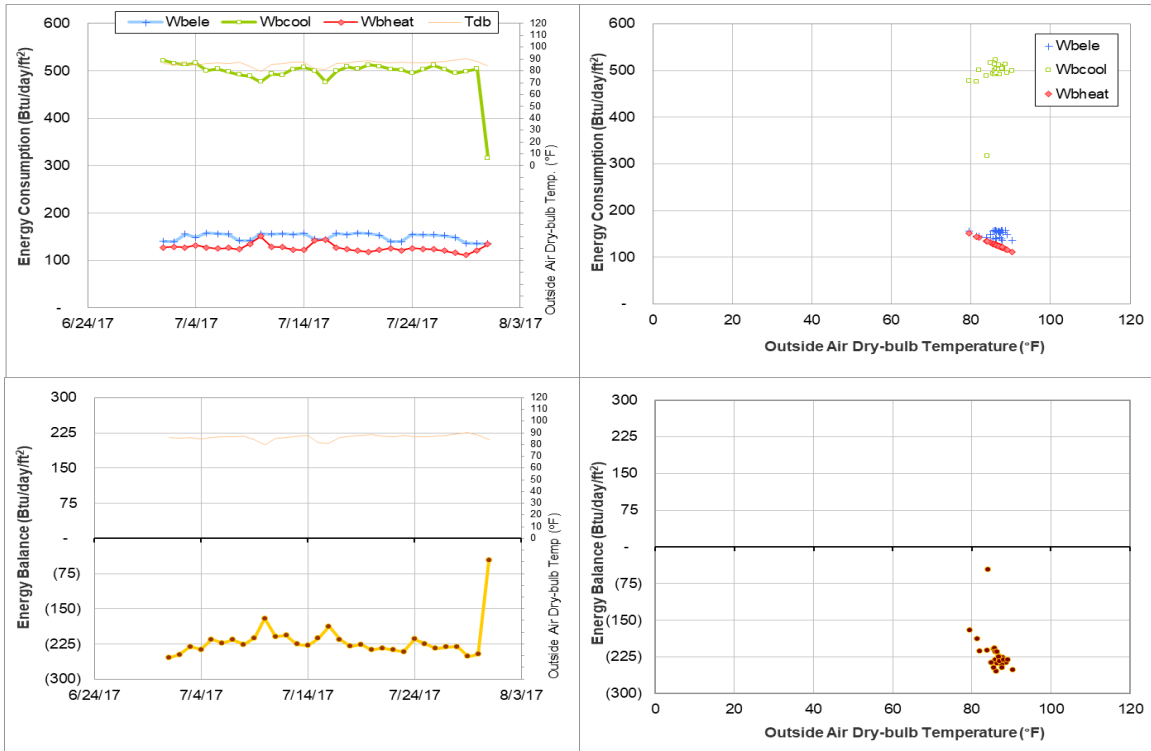


Figure V-13 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during July 2017

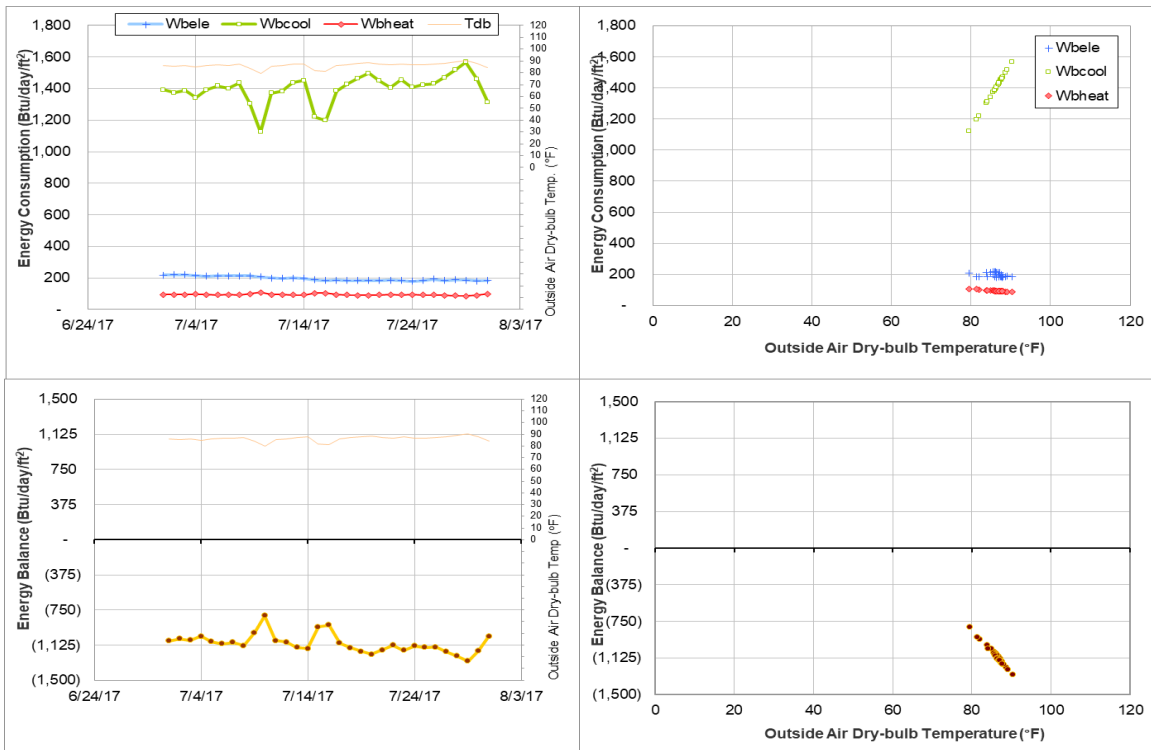


Figure V-14 Texas Veterinary Medical Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during July 2017

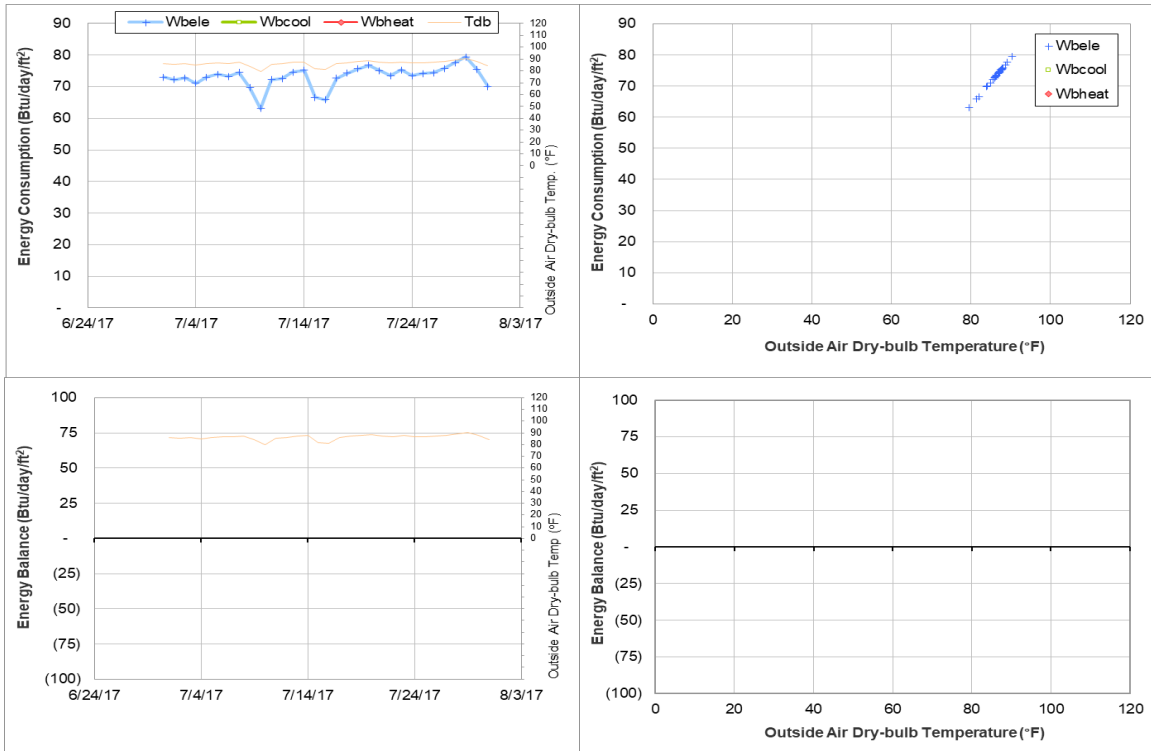


Figure V-15 University Apartments – The Garden F TAMU BLDG # 1454 Energy Balance Plot during July 2017

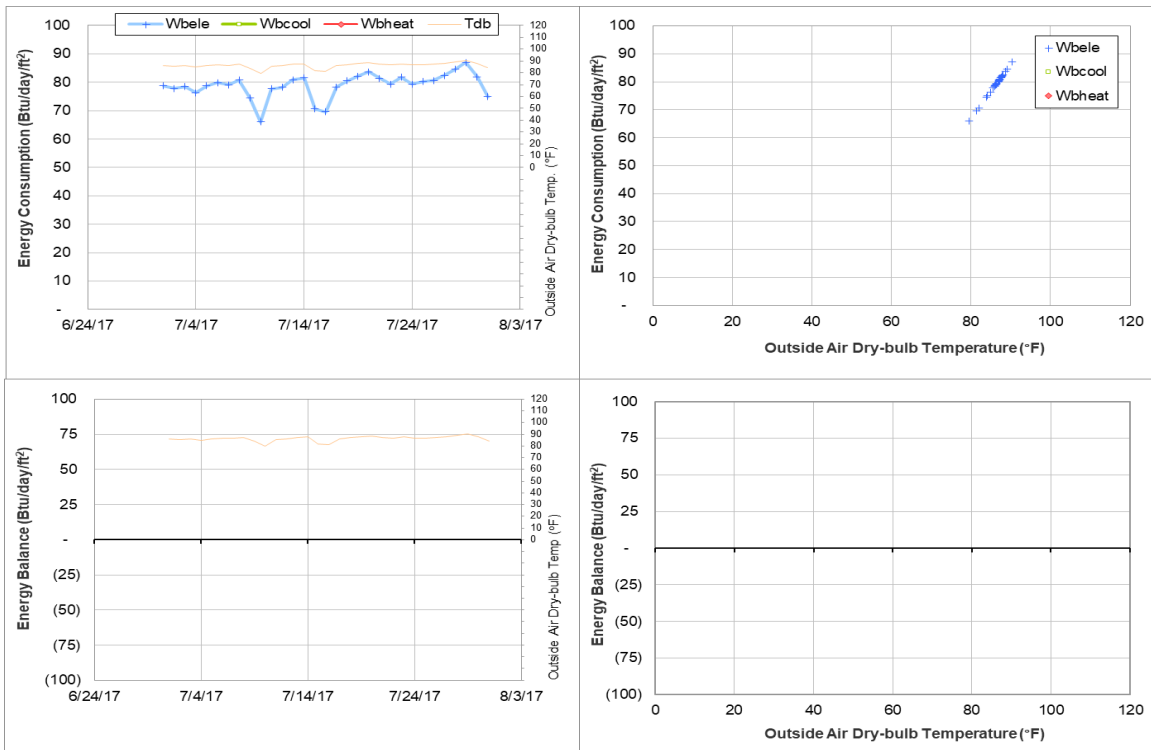


Figure V-16 University Apartments – The Garden G TAMU BLDG # 1455 Energy Balance Plot during July 2017

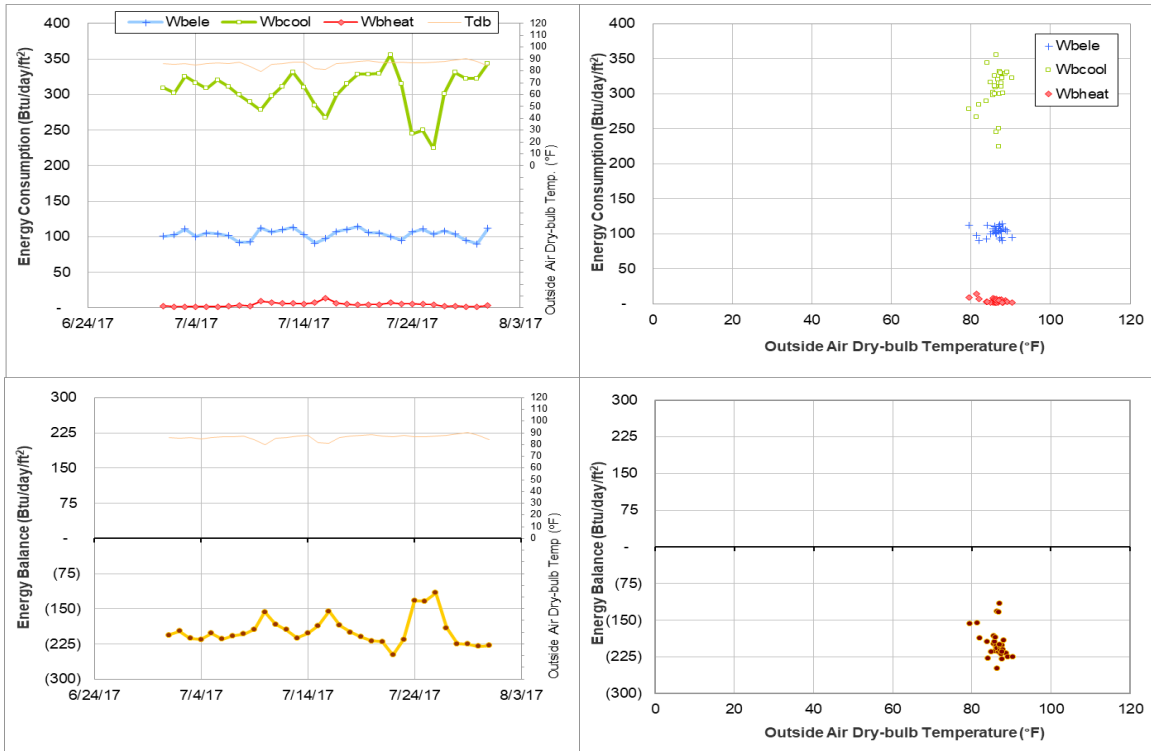


Figure V-17 Price Hobgood Ag. Engineering Research Lab TAMU BLDG # 1508 Energy Balance Plot during July 2017

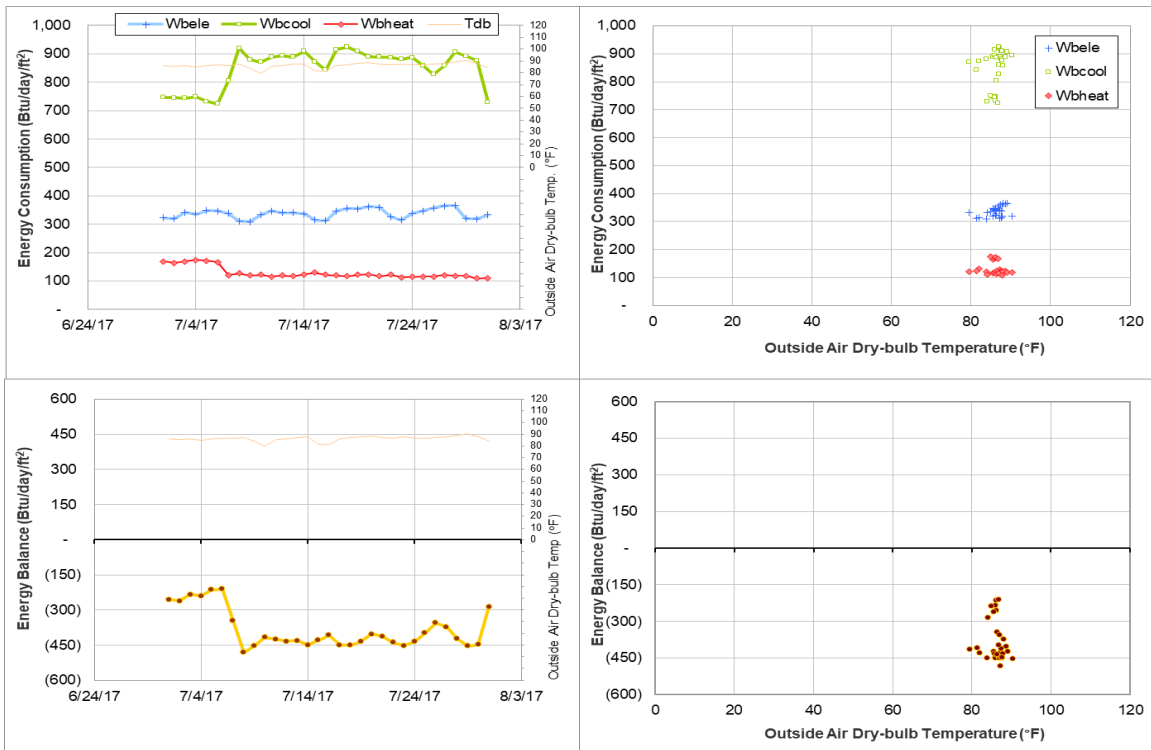


Figure V-18 Interdisciplinary Life Sciences Building TAMU BLDG # 1530 Energy Balance Plot during July 2017

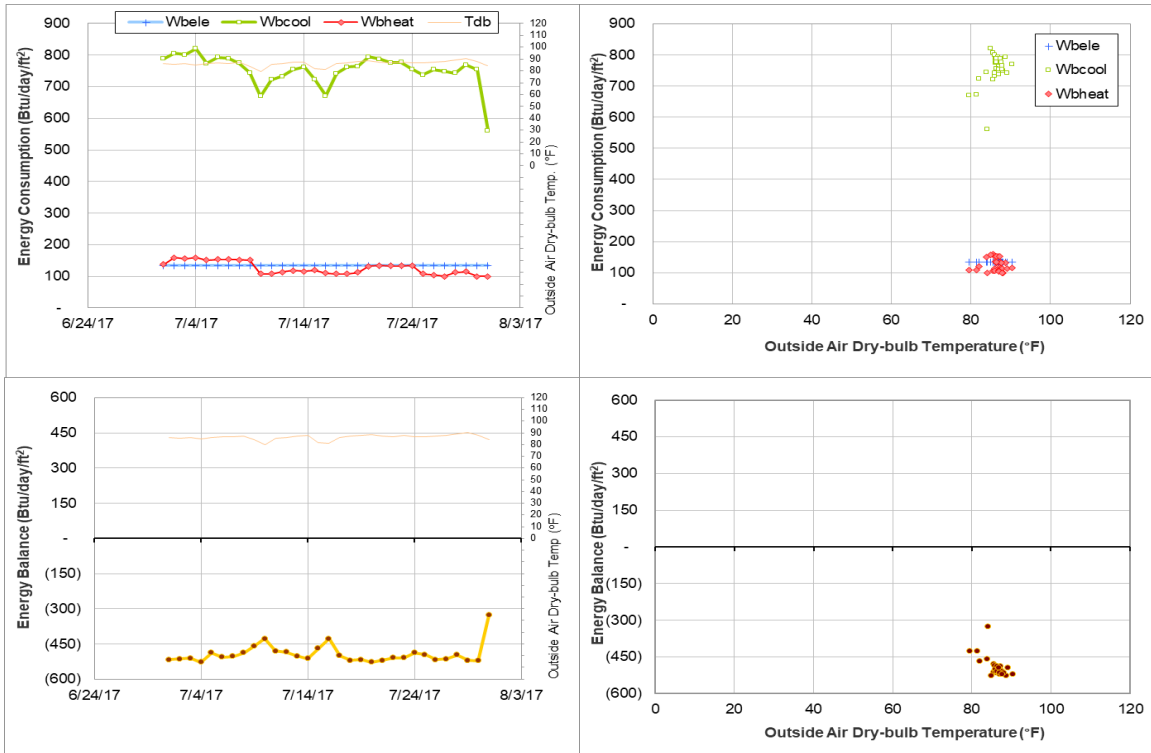


Figure V-19 Agriculture Public Building TAMU BLDG # 1537 Energy Balance Plot during July 2017

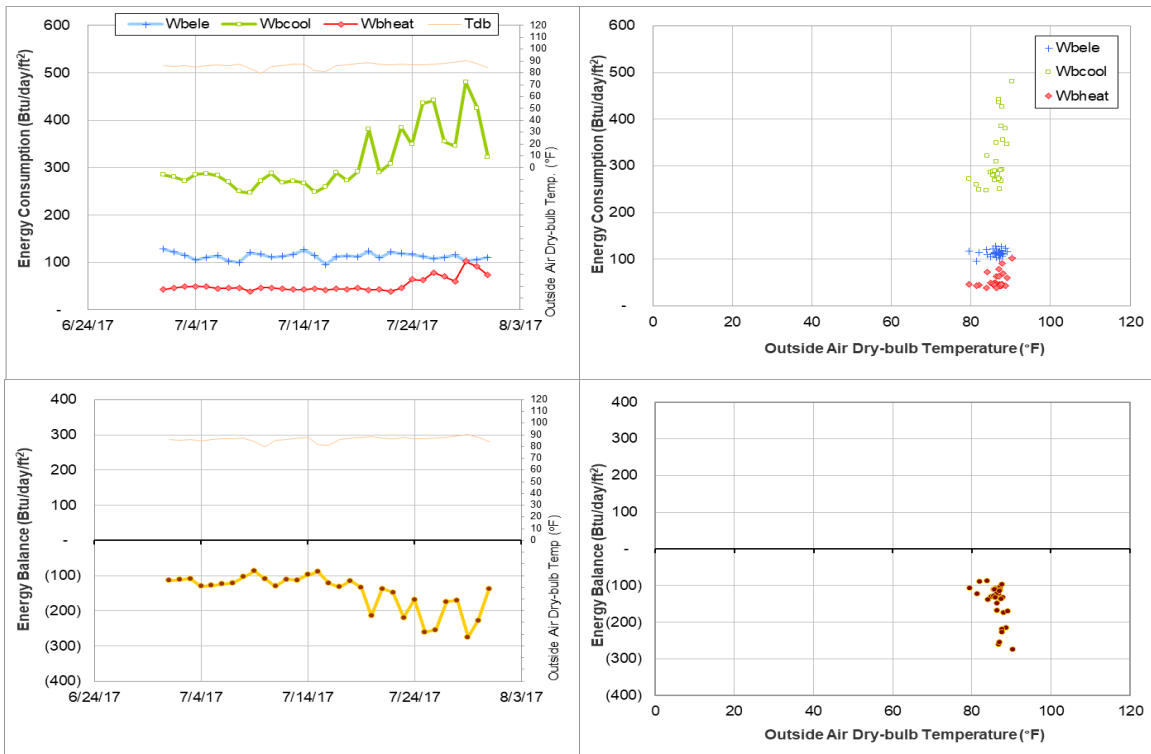


Figure V-20 Reed Arena and Cox-McFerrin Center TAMU BLDG # 1554 – 1558 Energy Balance Plot during July 2017

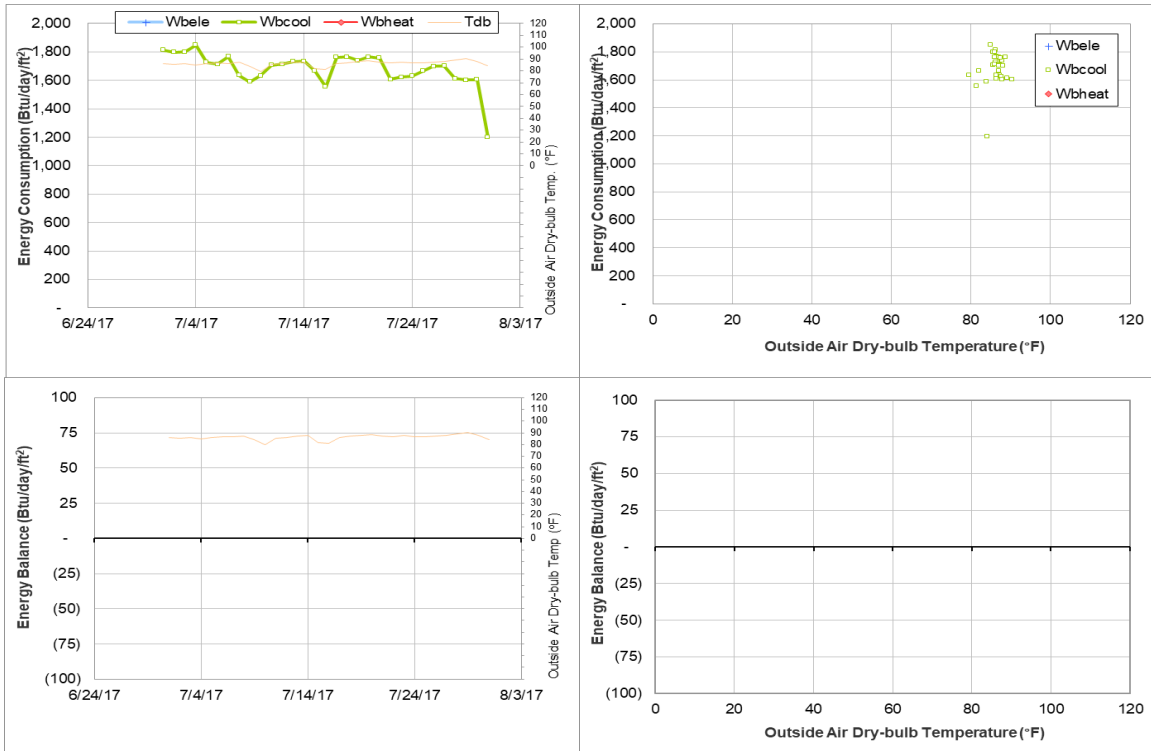


Figure V-21 New Texas Veterinary Medical Diagnostic Lab TAMU BLDG # 1809 Energy Balance Plot during July 2017

VI. Appendix

ENERGY ANALYSIS GROUP



ENERGY SYSTEMS LABORATORY
TEXAS A&M ENGINEERING EXPERIMENT STATION

Project: TAMU Energy Consumption QC/QA Analysis*
**Report: Energy Consumption Data Quality Assurance/Quality Control
Assessment Report for the Month of July 2017**

Prepared for:

Utility & Energy Services
Division of Administration
Texas A&M University

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Date: August 2017

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